

# **THIRD QUARTER 2019 SITE MONITORING DATA**

## **FRANK 2, 5, 6 CC7-19, 29**

COGCC SPILL TRACKING # 447515  
COGCC REMEDIATION # 10113

Prepared for:



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**TABLE 1**  
**GROUNDWATER ELEVATION DATA**  
**NOBLE ENERGY, INC. - FRANK 2, 5, 6, CC 7-19, 29**



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	09/01/16	4614.95	NM	13.23	11.04	2.19	4603.36
BH01	09/09/16	4614.95	NM	13.73	11.23	2.50	4603.10
BH01	10/28/16	Well Destroyed During Excavation					
BH01R	02/08/17	4615.93	19.80	14.61	ND	ND	4601.32
BH01R	05/17/17	4616.31	19.73	13.91	ND	ND	4602.40
BH01R	08/30/17	4616.31	19.63	12.37	ND	ND	4603.94
BH01R	11/09/17	4616.31	19.44	13.43	ND	ND	4602.88
BH01R	02/07/18	4616.31	19.64	14.81	ND	ND	4601.50
BH01R	05/10/18	4616.31	19.61	14.00	ND	ND	4602.31
BH01R	08/06/18	4615.93	19.55	13.02	ND	ND	4602.91
BH01R	11/13/18	4615.93	19.52	13.65	ND	ND	4602.28
BH01R	02/06/19	4615.93	19.47	15.10	ND	ND	4600.83
BH01R	05/13/19	4615.93	19.50	14.62	ND	ND	4601.31
BH01R	08/09/19	4615.93	19.48	12.78	ND	ND	4603.15
BH02	09/01/16	4616.68	NM	15.07	12.80	2.27	4603.31
BH02	09/09/16	4616.68	NM	15.54	12.96	2.58	4603.08
BH02	10/28/16	Well Destroyed During Excavation					
BH02R	02/08/17	4615.85	19.83	14.52	ND	ND	4601.33
BH02R	05/17/17	4616.23	19.75	13.85	ND	ND	4602.38
BH02R	08/30/17	4616.23	19.77	12.30	ND	ND	4603.93
BH02R	11/09/17	4616.23	19.51	13.36	ND	ND	4602.87
BH02R	02/07/18	4616.23	19.80	14.72	ND	ND	4601.51
BH02R	05/10/18	4616.23	19.58	13.95	ND	ND	4602.28
BH02R	08/06/18	4615.85	19.58	12.93	ND	ND	4602.92
BH02R	11/13/18	4615.85	19.46	13.55	ND	ND	4602.30
BH02R	02/06/19	4615.85	19.44	15.02	ND	ND	4600.83
BH02R	05/13/19	4615.85	19.49	14.55	ND	ND	4601.30
BH02R	08/09/19	4615.84	19.44	12.70	ND	ND	4603.14
BH03	09/01/16	4615.20	22.36	11.79	ND	ND	4603.41
BH03	09/09/16	4615.20	NM	12.08	12.01	0.07	4603.17
BH03	10/28/16	Well Destroyed During Excavation					
BH03R	02/08/17	4614.89	19.42	13.55	ND	ND	4601.34
BH03R	05/17/17	4615.27	19.38	12.98	ND	ND	4602.29
BH03R	08/30/17	4615.27	19.28	11.29	ND	ND	4603.98
BH03R	11/09/17	4615.27	19.25	12.39	ND	ND	4602.88
BH03R	02/07/18	4615.27	19.26	13.76	ND	ND	4601.51
BH03R	05/10/18	4615.27	19.22	12.93	ND	ND	4602.34
BH03R	08/06/18	4614.89	19.27	12.00	ND	ND	4602.89
BH03R	11/13/18	4614.89	19.29	12.57	ND	ND	4602.32
BH03R	02/06/19	4614.89	19.27	14.06	ND	ND	4600.83
BH03R	05/13/19	4614.89	19.30	13.59	ND	ND	4601.30
BH03R	08/09/19	4614.97	19.35	11.80	ND	ND	4603.17
BH04	09/01/16	4615.54	NM	13.49	11.74	1.75	4603.36
BH04	09/09/16	4615.54	NM	14.04	11.89	2.15	4603.11
BH04	10/28/16	Well Destroyed During Excavation					
BH04R	02/08/17	4615.77	19.76	14.43	ND	ND	4601.34
BH04R	05/17/17	4616.15	19.69	13.72	ND	ND	4602.43
BH04R	08/30/17	4616.15	19.73	12.20	ND	ND	4603.95
BH04R	11/09/17	4616.15	19.65	13.25	ND	ND	4602.90

**TABLE 1**  
**GROUNDWATER ELEVATION DATA**  
**NOBLE ENERGY, INC. - FRANK 2, 5, 6, CC 7-19, 29**



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)
BH04R	02/07/18	4616.15	19.72	14.63	ND	ND	4601.52
BH04R	05/10/18	4616.15	19.65	13.84	ND	ND	4602.31
BH04R	08/06/18	4615.77	19.65	12.84	ND	ND	4602.93
BH04R	11/13/18	4615.77	19.40	13.45	ND	ND	4602.32
BH04R	02/06/19	4615.77	19.10	14.96	ND	ND	4600.81
BH04R	05/13/19	4615.77	19.52	14.45	ND	ND	4601.32
BH04R	08/09/19	4615.84	19.33	12.67	ND	ND	4603.17
BH05	09/01/16	4616.26	21.19	12.86	ND	ND	4603.40
BH05	09/09/16	4616.26	21.05	13.10	ND	ND	4603.16
BH05	10/28/16	Well Destroyed During Excavation					
BH05R	02/08/17	4615.77	19.63	14.42	ND	ND	4601.35
BH05R	05/17/17	4616.15	19.60	13.71	ND	ND	4602.44
BH05R	08/30/17	4616.15	19.47	12.17	ND	ND	4603.98
BH05R	11/09/17	4616.15	19.43	13.25	ND	ND	4602.90
BH05R	02/07/18	4616.15	19.48	14.62	ND	ND	4601.53
BH05R	05/10/18	4616.15	19.40	13.79	ND	ND	4602.36
BH05R	08/06/18	4615.77	19.40	12.82	ND	ND	4602.95
BH05R	11/13/18	4615.77	19.33	13.44	ND	ND	4602.33
BH05R	02/06/19	4615.77	19.34	14.89	ND	ND	4600.88
BH05R	05/13/19	4615.77	19.30	14.42	ND	ND	4601.35
BH05R	08/09/19	4615.77	19.26	12.58	ND	ND	4603.19
BH06	09/01/16	4614.99	21.45	11.58	ND	ND	4603.41
BH06	09/09/16	4614.99	21.00	11.80	ND	ND	4603.19
BH06	10/28/16	Well Destroyed During Excavation					
BH06R	02/08/17	4614.28	19.52	12.82	ND	ND	4601.46
BH06R	05/17/17	4614.66	19.48	12.15	ND	ND	4602.51
BH06R	08/30/17	4614.66	19.39	10.60	ND	ND	4604.06
BH06R	11/09/17	4614.66	19.27	11.68	ND	ND	4602.98
BH06R	02/07/18	4614.66	19.35	13.07	ND	ND	4601.59
BH06R	05/10/18	4614.66	19.41	12.23	ND	ND	4602.43
BH06R	08/06/18	4614.28	19.35	11.33	ND	ND	4602.95
BH06R	11/13/18	4614.28	19.27	11.87	ND	ND	4602.41
BH06R	02/06/19	4614.28	19.28	13.36	ND	ND	4600.92
BH06R	05/13/19	4614.28	19.32	12.85	ND	ND	4601.43
BH06R	08/09/19	4614.29	19.26	10.99	ND	ND	4603.30
BH07	09/01/16	4615.03	22.51	11.56	ND	ND	4603.47
BH07	09/09/16	4615.03	22.43	11.81	ND	ND	4603.22
BH07	10/28/16	Well Destroyed During Excavation					
BH07R	02/08/17	4614.10	19.50	12.66	ND	ND	4601.44
BH07R	05/17/17	4614.48	19.31	12.01	ND	ND	4602.47
BH07R	08/30/17	4614.48	19.23	10.42	ND	ND	4604.06
BH07R	11/09/17	4614.48	19.08	11.48	ND	ND	4603.00
BH07R	02/07/18	4614.48	19.16	12.88	ND	ND	4601.60
BH07R	05/10/18	4614.48	19.18	12.05	ND	ND	4602.43
BH07R	08/06/18	4614.10	19.10	11.12	ND	ND	4602.98
BH07R	11/13/18	4614.10	19.05	11.66	ND	ND	4602.44
BH07R	02/06/19	4614.10	18.99	13.16	ND	ND	4600.94
BH07R	05/13/19	4614.10	19.00	12.71	ND	ND	4601.39
BH07R	08/09/19	4614.10	18.92	10.80	ND	ND	4603.30

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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)
BH09	09/09/16	4615.12	17.20	12.03	ND	ND	4603.09
BH09	10/28/16	Well Destroyed During Excavation					
BH09R	02/08/17	4613.46	17.60	12.20	ND	ND	4601.26
BH09R	05/17/17	4613.84	17.49	11.50	ND	ND	4602.34
BH09R	08/30/17	4613.84	17.51	9.94	ND	ND	4603.90
BH09R	11/09/17	4613.84	17.48	11.01	ND	ND	4602.83
BH09R	02/07/18	4613.84	17.50	12.41	ND	ND	4601.43
BH09R	05/10/18	4613.84	17.50	11.59	ND	ND	4602.25
BH09R	08/06/18	4613.46	17.33	10.52	ND	ND	4602.94
BH09R	11/13/18	4613.46	17.28	11.20	ND	ND	4602.26
BH09R	02/06/19	4613.46	17.29	12.67	ND	ND	4600.79
BH09R	05/13/19	4613.46	17.32	12.19	ND	ND	4601.27
BH09R	08/09/19	4613.45	17.29	10.36	ND	ND	4603.09
BH10	09/09/16	4615.46	17.26	12.35	ND	ND	4603.11
BH10	02/08/17	4615.46	17.20	14.19	ND	ND	4601.27
BH10	05/17/17	4615.46	16.25	13.51	ND	ND	4601.95
BH10	08/30/17	4615.46	17.12	11.93	ND	ND	4603.53
BH10	11/09/17	4615.46	17.05	12.99	ND	ND	4602.47
BH10	02/07/18	4615.46	17.17	14.38	ND	ND	4601.08
BH10	05/10/18	4615.46	17.30	13.59	ND	ND	4601.87
BH10	08/06/18	4615.46	17.29	12.52	ND	ND	4602.94
BH10	11/13/18	4615.46	17.27	13.19	ND	ND	4602.27
BH10	02/06/19	4615.46	17.30	14.67	ND	ND	4600.79
BH10	05/13/19	4615.46	14.68	12.11	ND	ND	4603.35
BH10	08/09/19	4613.48	15.24	10.37	ND	ND	4603.11
BH11	09/09/16	4615.54	16.92	12.47	ND	ND	4603.07
BH11	10/28/16	Well Destroyed During Excavation					
BH11R	02/08/17	4615.63	19.79	14.36	ND	ND	4601.27
BH11R	05/17/17	4616.01	19.71	13.63	ND	ND	4602.38
BH11R	08/30/17	4616.01	19.54	12.10	ND	ND	4603.91
BH11R	11/09/17	4616.01	19.41	13.18	ND	ND	4602.83
BH11R	02/07/18	4616.01	19.47	14.55	ND	ND	4601.46
BH11R	05/10/18	4616.01	19.40	13.74	ND	ND	4602.27
BH11R	08/06/18	4615.63	16.37	12.72	ND	ND	4602.91
BH11R	11/13/18	4615.63	19.34	13.37	ND	ND	4602.26
BH11R	02/06/19	4615.63	19.30	14.85	ND	ND	4600.78
BH11R	05/13/19	4615.63	19.32	14.34	ND	ND	4601.29
BH11R	08/09/19	4615.71	19.37	12.60	ND	ND	4603.11
BH12	09/09/16	4615.25	17.24	12.09	ND	ND	4603.16
BH12	10/28/16	Well Destroyed During Excavation					
BH12R	02/08/17	4614.19	19.33	12.83	ND	ND	4601.36
BH12R	05/17/17	4614.57	19.21	12.15	ND	ND	4602.42
BH12R	08/30/17	4614.57	19.20	10.57	ND	ND	4604.00
BH12R	11/09/17	4614.57	19.13	11.63	ND	ND	4602.94
BH12R	02/07/18	4614.57	19.20	13.04	ND	ND	4601.53
BH12R	05/10/18	4614.57	18.93	12.23	ND	ND	4602.34
BH12R	08/06/18	4614.19	18.92	11.24	ND	ND	4602.95
BH12R	11/13/18	4614.19	18.86	11.82	ND	ND	4602.37
BH12R	02/06/19	4614.19	18.78	13.33	ND	ND	4600.86

**TABLE 1**  
**GROUNDWATER ELEVATION DATA**  
**NOBLE ENERGY, INC. - FRANK 2, 5, 6, CC 7-19, 29**



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)
BH12R	05/13/19	4614.19	18.76	12.85	ND	ND	4601.34
BH12R	08/09/19	4614.19	18.70	10.97	ND	ND	4603.22
BH13	09/09/16	4614.12	16.47	10.96	ND	ND	4603.16
BH13	10/28/16	Well Destroyed During Excavation					
BH13R	02/08/17	4614.65	19.63	13.21	ND	ND	4601.44
BH13R	05/17/17	4615.03	19.52	12.53	ND	ND	4602.50
BH13R	08/30/17	4615.03	19.47	11.00	ND	ND	4604.03
BH13R	11/09/17	4615.03	19.43	12.08	ND	ND	4602.95
BH13R	02/07/18	4615.03	19.52	13.45	ND	ND	4601.58
BH13R	05/10/18	4615.03	19.30	12.61	ND	ND	4602.42
BH13R	08/06/18	4614.65	19.26	11.69	ND	ND	4602.96
BH13R	11/13/18	4614.65	19.20	12.26	ND	ND	4602.39
BH13R	02/06/19	4614.65	19.22	13.76	ND	ND	4600.89
BH13R	05/13/19	4614.65	19.24	13.25	ND	ND	4601.40
BH13R	08/09/19	4614.65	19.21	11.39	ND	ND	4603.26
BH14	09/09/16	4615.12	16.69	12.05	ND	ND	4603.07
BH14	02/08/17	4615.12	16.42	13.56	ND	ND	4601.56
BH14	05/17/17	4615.12	16.41	12.88	ND	ND	4602.24
BH14	08/30/17	4615.12	16.34	11.30	ND	ND	4603.82
BH14	11/09/17	4615.12	16.21	12.35	ND	ND	4602.77
BH14	02/07/18	4615.12	16.42	13.77	ND	ND	4601.35
BH14	05/10/18	4615.12	16.35	12.98	ND	ND	4602.14
BH14	08/06/18	4615.12	16.33	11.83	ND	ND	4603.29
BH14	11/13/18	4615.12	16.29	12.52	ND	ND	4602.60
BH14	02/06/19	4615.12	16.28	14.04	ND	ND	4601.08
BH14	05/13/19	4615.12	16.32	13.59	ND	ND	4601.53
BH14	08/09/19	4614.78	16.29	11.73	ND	ND	4603.05
BH15	09/09/16	4614.94	18.15	11.89	ND	ND	4603.05
BH15	02/08/17	4614.94	17.67	13.30	ND	ND	4601.64
BH15	05/17/17	4614.94	17.62	12.61	ND	ND	4602.33
BH15	08/30/17	4614.94	17.64	11.07	ND	ND	4603.87
BH15	11/09/17	4614.94	17.58	12.17	ND	ND	4602.77
BH15	02/07/18	4614.94	17.83	13.51	ND	ND	4601.43
BH15	05/10/18	4614.94	17.59	12.71	ND	ND	4602.23
BH15	08/06/18	4614.94	17.53	11.68	ND	ND	4603.26
BH15	11/13/18	4614.94	14.44	12.35	ND	ND	4602.59
BH15	02/06/19	4614.94	14.48	13.80	ND	ND	4601.14
BH15	05/13/19	4614.94	14.51	13.32	ND	ND	4601.62
BH15	08/09/19	4614.60	14.50	11.51	ND	ND	4603.09
BH16	02/08/17	4615.45	19.77	14.18	ND	ND	4601.27
BH16	05/17/17	4615.83	19.70	13.49	ND	ND	4602.34
BH16	08/30/17	4615.83	19.72	11.95	ND	ND	4603.88
BH16	11/09/17	4615.83	19.65	13.04	ND	ND	4602.79
BH16	02/07/18	4615.83	19.73	14.38	ND	ND	4601.45
BH16	05/10/18	4615.83	19.70	13.59	ND	ND	4602.24
BH16	08/06/18	4615.45	19.68	12.53	ND	ND	4602.92
BH16	11/13/18	4615.45	19.71	13.21	ND	ND	4602.24
BH16	02/06/19	4615.45	19.77	14.67	ND	ND	4600.78
BH16	05/13/19	4615.45	19.70	14.21	ND	ND	4601.24

**TABLE 1**  
**GROUNDWATER ELEVATION DATA**  
**NOBLE ENERGY, INC. - FRANK 2, 5, 6, CC 7-19, 29**



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)
BH16	08/09/19	4615.45	19.55	12.40	ND	ND	4603.05

Notes:

ft. = Feet

AMSL = Above mean sea level

BTOC = Below top of casing

LNAPL = Light non-aqueous phase liquid

NM = Not measured

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

**TABLE 2**  
**GROUNDWATER ANALYTICAL DATA**  
**NOBLE ENERGY, INC. - FRANK 2, 5, 6, CC 7-19, 29**



Monitoring Well ID	Date	Benzene (µg/L)	Toluene (µg/L)	Ethylbenzene (µg/L)	Total Xylenes (µg/L)
<b>COGCC Standard</b>		<b>5</b>	<b>560</b>	<b>700</b>	<b>1,400</b>
BH01	09/01/16	Sample Not Collected - 2.19 ft. LNAPL			
BH01	09/09/16	Sample Not Collected - 2.50 ft. LNAPL			
BH01	10/28/16	Well Destroyed During Excavation			
BH01R	02/08/17	<1.0	<1.0	<1.0	3.8
BH01R	05/17/17	<1.0	<1.0	<1.0	<2.0
BH01R	08/30/17	<1.0	<1.0	<1.0	<2.0
BH01R	11/09/17	32	<1.0	<1.0	<2.0
BH01R	02/07/18	1.2	<1.0	<1.0	<2.0
BH01R	05/10/18	<1.0	<1.0	<1.0	<2.0
BH01R	08/06/18	<1.0	<1.0	<1.0	<2.0
BH01R	11/13/18	<1.0	<1.0	<1.0	<2.0
BH01R	02/06/19	<1.0	<1.0	<1.0	<2.0
BH01R	05/13/19	<1.0	<1.0	<1.0	<2.0
BH01R	08/09/19	<1.0	<1.0	<1.0	<2.0
BH02	09/01/16	Sample Not Collected - 2.27 ft. LNAPL			
BH02	09/09/16	Sample Not Collected - 2.58 ft. LNAPL			
BH02	10/28/16	Well Destroyed During Excavation			
BH02R	02/08/17	<1.0	<1.0	<1.0	<1.0
BH02R	05/17/17	<1.0	<1.0	<1.0	<2.0
BH02R	08/30/17	<1.0	<1.0	<1.0	<2.0
BH02R	11/09/17	<1.0	<1.0	<1.0	<2.0
BH02R	02/07/18	<1.0	<1.0	<1.0	<2.0
BH02R	05/10/18	<1.0	<1.0	<1.0	<2.0
BH02R	08/06/18	<1.0	<1.0	<1.0	<2.0
BH02R	11/13/18	<1.0	<1.0	<1.0	<2.0
BH02R	02/06/19	<1.0	<1.0	<1.0	<2.0
BH02R	05/13/19	<1.0	<1.0	<1.0	<2.0
BH02R	08/09/19	<1.0	<1.0	<1.0	<2.0
BH03	09/01/16	260	720	65	640
BH03	09/09/16	Sample Not Collected - 0.07 ft. LNAPL			
BH03	10/28/16	Well Destroyed During Excavation			
BH03R	02/08/17	<1.0	<1.0	<1.0	31
BH03R	05/17/17	<1.0	<1.0	<1.0	<2.0
BH03R	08/30/17	<1.0	<1.0	<1.0	3.1
BH03R	11/09/17	180	13	51	82
BH03R	02/07/18	10	<1.0	1.1	<2.0
BH03R	05/10/18	6.7	<1.0	<1.0	<2.0
BH03R	08/06/18	21	<1.0	8.1	6.4
BH03R	11/13/18	8.8	1.0	10	18
BH03R	02/06/19	<1.0	<1.0	<1.0	<2.0
BH03R	05/13/19	<1.0	<1.0	<1.0	2.4
BH03R	08/09/19	<1.0	<1.0	<1.0	<2.0

**TABLE 2**  
**GROUNDWATER ANALYTICAL DATA**  
**NOBLE ENERGY, INC. - FRANK 2, 5, 6, CC 7-19, 29**



Monitoring Well ID	Date	Benzene (µg/L)	Toluene (µg/L)	Ethylbenzene (µg/L)	Total Xylenes (µg/L)
<b>COGCC Standard</b>		<b>5</b>	<b>560</b>	<b>700</b>	<b>1,400</b>
BH04	09/01/16	Sample Not Collected - 1.75 ft. LNAPL			
BH04	09/09/16	Sample Not Collected - 2.15 ft. LNAPL			
BH04	10/28/16	Well Destroyed During Excavation			
BH04R	02/08/17	<1.0	<1.0	<1.0	1.6
BH04R	05/17/17	<1.0	<1.0	<1.0	<2.0
BH04R	08/30/17	2.4	<1.0	<1.0	<2.0
BH04R	11/09/17	62	36	18	75
BH04R	02/07/18	45	65	16	92
BH04R	05/10/18	13	7.6	5.2	33
BH04R	08/06/18	17	2.9	5.7	27
BH04R	11/13/18	92	<1.0	22	100
BH04R	02/06/19	<1.0	<1.0	<1.0	<2.0
BH04R	05/13/19	66	<1.0	6.7	31
BH04R	08/09/19	<1.0	<1.0	<1.0	<2.0
BH05	09/01/16	19	29	2.2	20
BH05	09/09/16	6.3	12	1.3	14
BH05	10/28/16	Well Destroyed During Excavation			
BH05R	02/08/17	<1.0	1.8	<1.0	1.7
BH05R	05/17/17	<1.0	<1.0	<1.0	<2.0
BH05R	08/30/17	1.2	<1.0	<1.0	<2.0
BH05R	11/09/17	<1.0	<1.0	<1.0	<2.0
BH05R	02/07/18	<1.0	<1.0	<1.0	<2.0
BH05R	05/10/18	<1.0	<1.0	<1.0	<2.0
BH05R	08/06/18	<1.0	<1.0	<1.0	<2.0
BH05R	11/13/18	<1.0	<1.0	<1.0	<2.0
BH05R	02/06/19	<1.0	<1.0	<1.0	<2.0
BH05R	05/13/19	<1.0	<1.0	<1.0	<2.0
BH05R	08/09/19	<1.0	<1.0	<1.0	<2.0
BH06	09/01/16	<1.0	<1.0	<1.0	<1.0
BH06	09/09/16	<1.0	<1.0	<1.0	<1.0
BH06	10/28/16	Well Destroyed During Excavation			
BH06R	02/08/17	<1.0	<1.0	<1.0	<1.0
BH06R	05/17/17	<1.0	<1.0	<1.0	<2.0
BH06R	08/30/17	<1.0	<1.0	<1.0	<2.0
BH06R	11/09/17	<1.0	<1.0	<1.0	<2.0
BH06R	02/07/18	<1.0	<1.0	<1.0	<2.0
BH06R	05/10/18	<1.0	<1.0	<1.0	<2.0
BH06R	08/06/18	<1.0	<1.0	<1.0	<2.0
BH06R	11/13/18	<1.0	<1.0	<1.0	<2.0
BH06R	02/06/19	<1.0	<1.0	<1.0	<2.0
BH06R	05/13/19	<1.0	<1.0	<1.0	<2.0
BH06R	08/09/19	<1.0	<1.0	<1.0	<2.0



**TABLE 2**  
**GROUNDWATER ANALYTICAL DATA**  
**NOBLE ENERGY, INC. - FRANK 2, 5, 6, CC 7-19, 29**



Monitoring Well ID	Date	Benzene (µg/L)	Toluene (µg/L)	Ethylbenzene (µg/L)	Total Xylenes (µg/L)
<b>COGCC Standard</b>		<b>5</b>	<b>560</b>	<b>700</b>	<b>1,400</b>
BH07	09/01/16	<1.0	1.3	<1.0	3.4
BH07	09/09/16	<1.0	<1.0	<1.0	<1.0
BH07	10/28/16	Well Destroyed During Excavation			
BH07R	02/08/17	<1.0	<1.0	<1.0	<1.0
BH07R	05/17/17	<1.0	<1.0	<1.0	<2.0
BH07R	08/30/17	<1.0	<1.0	<1.0	<2.0
BH07R	11/09/17	<1.0	<1.0	<1.0	<2.0
BH07R	02/07/18	<1.0	<1.0	<1.0	<2.0
BH07R	05/10/18	<1.0	<1.0	<1.0	<2.0
BH07R	08/06/18	<1.0	<1.0	<1.0	<2.0
BH07R	11/13/18	<1.0	<1.0	<1.0	<2.0
BH07R	02/06/19	<1.0	<1.0	<1.0	<2.0
BH07R	05/13/19	<1.0	<1.0	<1.0	<2.0
BH07R	08/09/19	<1.0	<1.0	<1.0	<2.0
BH09	09/09/16	<1.0	1.0	<1.0	<1.0
BH09	10/28/16	Well Destroyed During Excavation			
BH09R	02/08/17	<1.0	<1.0	<1.0	<1.0
BH09R	05/17/17	<1.0	<1.0	<1.0	<2.0
BH09R	08/30/17	<1.0	<1.0	<1.0	<2.0
BH09R	11/09/17	<1.0	<1.0	<1.0	<2.0
BH09R	02/07/18	<1.0	<1.0	<1.0	<2.0
BH09R	05/10/18	<1.0	<1.0	<1.0	<2.0
BH09R	08/06/18	<1.0	<1.0	<1.0	<2.0
BH09R	11/13/18	<1.0	<1.0	<1.0	<2.0
BH09R	02/06/19	<1.0	<1.0	<1.0	<2.0
BH09R	05/13/19	<1.0	<1.0	<1.0	<2.0
BH09R	08/09/19	<1.0	<1.0	<1.0	<2.0
BH10	09/09/16	<1.0	<1.0	8.4	39
BH10	02/08/17	<1.0	<1.0	18	150
BH10	05/17/17	<1.0	<1.0	<1.0	150
BH10	08/30/17	<1.0	<1.0	2.9	33
BH10	11/09/17	2.6	<1.0	66	260
BH10	02/07/18	<1.0	<1.0	62	260
BH10	05/10/18	<1.0	<1.0	94	470
BH10	08/06/18	1.1	<1.0	32	150
BH10	11/13/18	11	<1.0	100	380
BH10	02/06/19	2.7	<1.0	52	240
BH10	05/13/19	2.7	<1.0	130	630
BH10	08/09/19	<1.0	<1.0	<1.0	<2.0
BH11	09/09/16	130	20	4.6	27
BH11	10/28/16	Well Destroyed During Excavation			
BH11R	02/08/17	<1.0	<1.0	<1.0	6.6

**TABLE 2**  
**GROUNDWATER ANALYTICAL DATA**  
**NOBLE ENERGY, INC. - FRANK 2, 5, 6, CC 7-19, 29**



Monitoring Well ID	Date	Benzene (µg/L)	Toluene (µg/L)	Ethylbenzene (µg/L)	Total Xylenes (µg/L)
<b>COGCC Standard</b>		<b>5</b>	<b>560</b>	<b>700</b>	<b>1,400</b>
BH11R	05/17/17	<1.0	<1.0	<1.0	<2.0
BH11R	08/30/17	<1.0	<1.0	<1.0	<2.0
BH11R	11/09/17	230	<1.0	4.3	45
BH11R	02/07/18	12	<1.0	<1.0	<2.0
BH11R	05/10/18	210	72	8.2	79
BH11R	08/06/18	37	<1.0	<1.0	<2.0
BH11R	11/13/18	140	<1.0	9.8	24
BH11R	02/06/19	<1.0	<1.0	<1.0	<2.0
BH11R	05/13/19	3.6	<1.0	<1.0	<2.0
BH11R	08/09/19	<1.0	<1.0	<1.0	<2.0
BH12	09/09/16	<1.0	<1.0	<1.0	<1.0
BH12	10/28/16	Well Destroyed During Excavation			
BH12R	02/08/17	<1.0	<1.0	<1.0	<1.0
BH12R	05/17/17	<1.0	<1.0	<1.0	<2.0
BH12R	08/30/17	<1.0	<1.0	<1.0	<2.0
BH12R	11/09/17	<1.0	<1.0	<1.0	<2.0
BH12R	02/07/18	<1.0	<1.0	<1.0	<2.0
BH12R	05/10/18	<1.0	<1.0	<1.0	<2.0
BH12R	08/06/18	<1.0	<1.0	<1.0	<2.0
BH12R	11/13/18	<1.0	<1.0	<1.0	<2.0
BH12R	02/06/19	<1.0	<1.0	<1.0	<2.0
BH12R	05/13/19	<1.0	<1.0	<1.0	<2.0
BH12R	08/09/19	<1.0	<1.0	<1.0	<2.0
BH13	09/09/16	<1.0	<1.0	<1.0	<1.0
BH13	10/28/16	Well Destroyed During Excavation			
BH13R	02/08/17	<1.0	<1.0	<1.0	<1.0
BH13R	05/17/17	<1.0	<1.0	<1.0	<2.0
BH13R	08/30/17	<1.0	<1.0	<1.0	<2.0
BH13R	11/09/17	<1.0	<1.0	<1.0	<2.0
BH13R	02/07/18	<1.0	<1.0	<1.0	<2.0
BH13R	05/10/18	<1.0	<1.0	<1.0	<2.0
BH13R	08/06/18	<1.0	<1.0	<1.0	<2.0
BH13R	11/13/18	<1.0	<1.0	<1.0	<2.0
BH13R	02/06/19	<1.0	<1.0	<1.0	<2.0
BH13R	05/13/19	<1.0	<1.0	<1.0	<2.0
BH13R	08/09/19	<1.0	<1.0	<1.0	<2.0
BH14	09/09/16	<1.0	<1.0	<1.0	<1.0
BH14	02/08/17	<1.0	<1.0	<1.0	<1.0
BH14	05/17/17	<1.0	<1.0	<1.0	<2.0
BH14	08/30/17	<1.0	<1.0	<1.0	<2.0
BH14	11/09/17	<1.0	<1.0	<1.0	<2.0

**TABLE 2**  
**GROUNDWATER ANALYTICAL DATA**  
**NOBLE ENERGY, INC. - FRANK 2, 5, 6, CC 7-19, 29**



Monitoring Well ID	Date	Benzene (µg/L)	Toluene (µg/L)	Ethylbenzene (µg/L)	Total Xylenes (µg/L)
<b>COGCC Standard</b>		<b>5</b>	<b>560</b>	<b>700</b>	<b>1,400</b>
BH14	02/07/18	<1.0	<1.0	<1.0	<2.0
BH14	05/10/18	<1.0	<1.0	<1.0	<2.0
BH14	08/06/18	<1.0	<1.0	<1.0	<2.0
BH14	11/13/18	<1.0	<1.0	<1.0	<2.0
BH14	02/06/19	<1.0	<1.0	<1.0	<2.0
BH14	05/13/19	<1.0	<1.0	<1.0	<2.0
BH14	08/09/19	<1.0	<1.0	<1.0	<2.0
BH15	09/09/16	<1.0	<1.0	<1.0	<1.0
BH15	02/08/17	<1.0	<1.0	<1.0	<1.0
BH15	05/17/17	<1.0	<1.0	<1.0	<2.0
BH15	08/30/17	<1.0	<1.0	<1.0	<2.0
BH15	11/09/17	<1.0	<1.0	<1.0	<2.0
BH15	02/07/18	<1.0	<1.0	<1.0	<2.0
BH15	05/10/18	<1.0	<1.0	<1.0	<2.0
BH15	08/06/18	<1.0	<1.0	<1.0	<2.0
BH15	11/13/18	<1.0	<1.0	<1.0	<2.0
BH15	02/06/19	<1.0	<1.0	<1.0	<2.0
BH15	05/13/19	<1.0	<1.0	<1.0	<2.0
BH15	08/09/19	<1.0	<1.0	<1.0	<2.0
BH16	02/08/17	<1.0	<1.0	<1.0	<1.0
BH16	05/17/17	<1.0	<1.0	<1.0	<2.0
BH16	08/30/17	<1.0	<1.0	<1.0	<2.0
BH16	11/09/17	<1.0	<1.0	<1.0	<2.0
BH16	02/07/18	<1.0	<1.0	<1.0	<2.0
BH16	05/10/18	<1.0	<1.0	<1.0	<2.0
BH16	08/06/18	<1.0	<1.0	<1.0	<2.0
BH16	11/13/18	<1.0	<1.0	<1.0	<2.0
BH16	02/06/19	<1.0	<1.0	<1.0	<2.0
BH16	05/13/19	<1.0	<1.0	<1.0	<2.0
BH16	08/09/19	<1.0	<1.0	<1.0	<2.0

Notes:

COGCC = Colorado Oil and Gas Conservation Commission

µg/L = Micrograms per liter

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

LNAPL = Light non-aqueous phase liquid

1 = The lab assigned flag QM-07 to the MS/MSD associated with the 11/13/2018 samples. The MS/MSD sample was batch QC, not sourced in project samples. The spike recovery was outside acceptance limits for the MS and/or MSD. The batch was accepted based on acceptable LCS/LCSD recovery.

Groundwater standards referenced from COGCC Table 910-1

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

**TABLE 3**  
**FRANK 2, 5, 6, CC7-19, 29**  
**AIR SPARGE / EFR OPERATIONAL SUMMARY TABLE**

Date	EFR Wells	Total EFR/AS Duration (hours)	Approximate Gallons Extracted	AS Wells	Air Injection Pressure (psi)	Average Air Flow Rate (cfm)
Second Quarter 2019						
6/17/2019	BH03R, BH04R, BH10, BH11R	6	0	AS01, AS02, AS03	10	15
6/24/2019		6	0	AS01, AS02, AS03, AS04	10	10
Quarterly Totals		12	0			
Third Quarter 2019						
7/1/2019	BH03R, BH04R, BH10, BH11R	6	0	AS01, AS02, AS03, AS04	10	11
7/15/2019		5.5	0		10	10
8/1/2019		6	0		5	5
8/14/2019		6	0		10	8
8/26/2019		6	0		10	12
9/9/2019		6	0		10	10
9/23/2019		6	0		10	10
Quarterly Totals		41.5	0			

**Notes:**

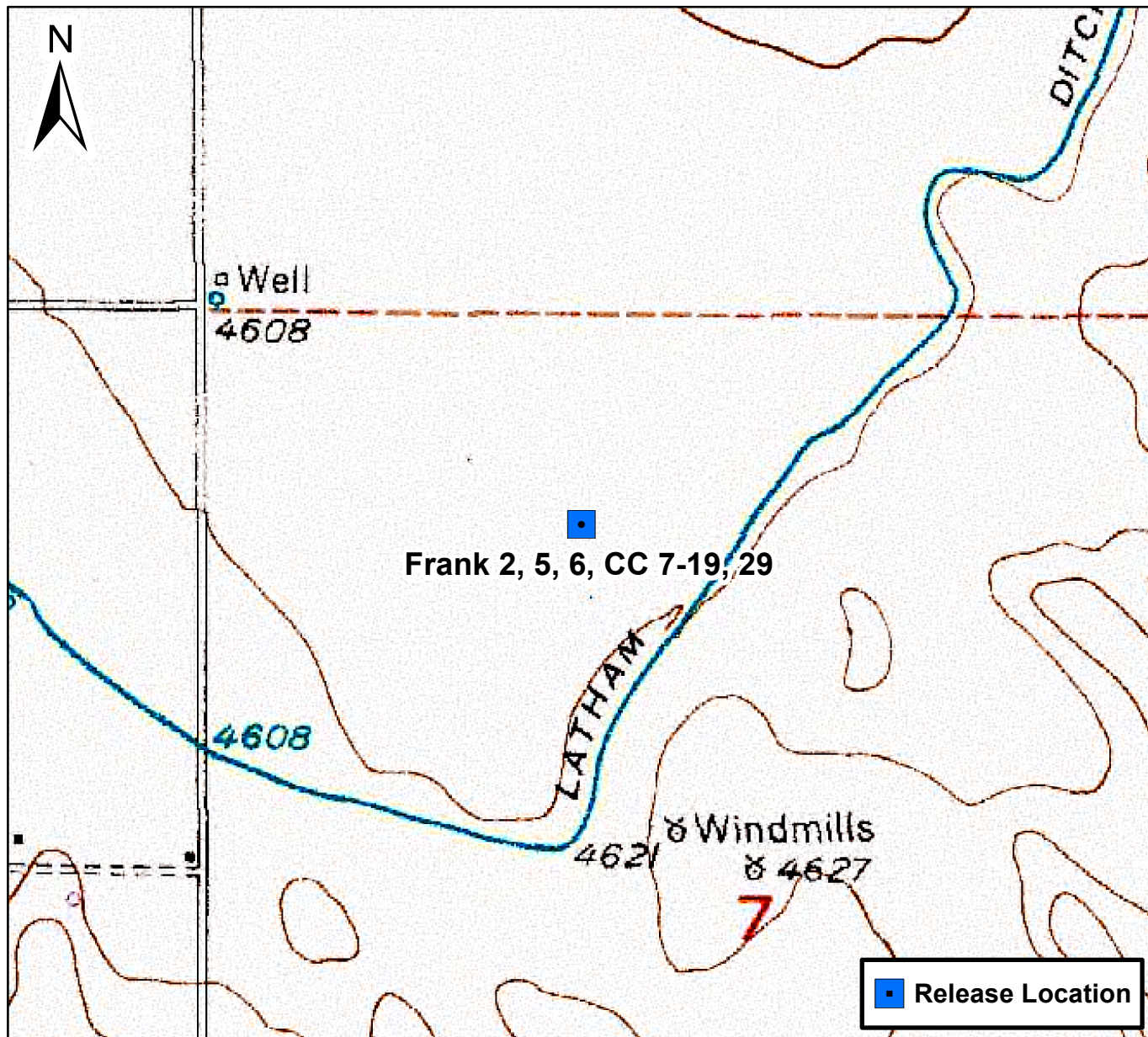
EFR = Enhanced fluid recovery

AS = Air sparge

psi = Pounds per square inch

cfm = cubic feet per minute

NR = Not recorded



0 750 1,500 Feet


## Figure 1

Site Location Map  
Frank 2, 5, 6, CC 7-19, 29  
NENW S7 T4N R63W  
Weld County, Colorado

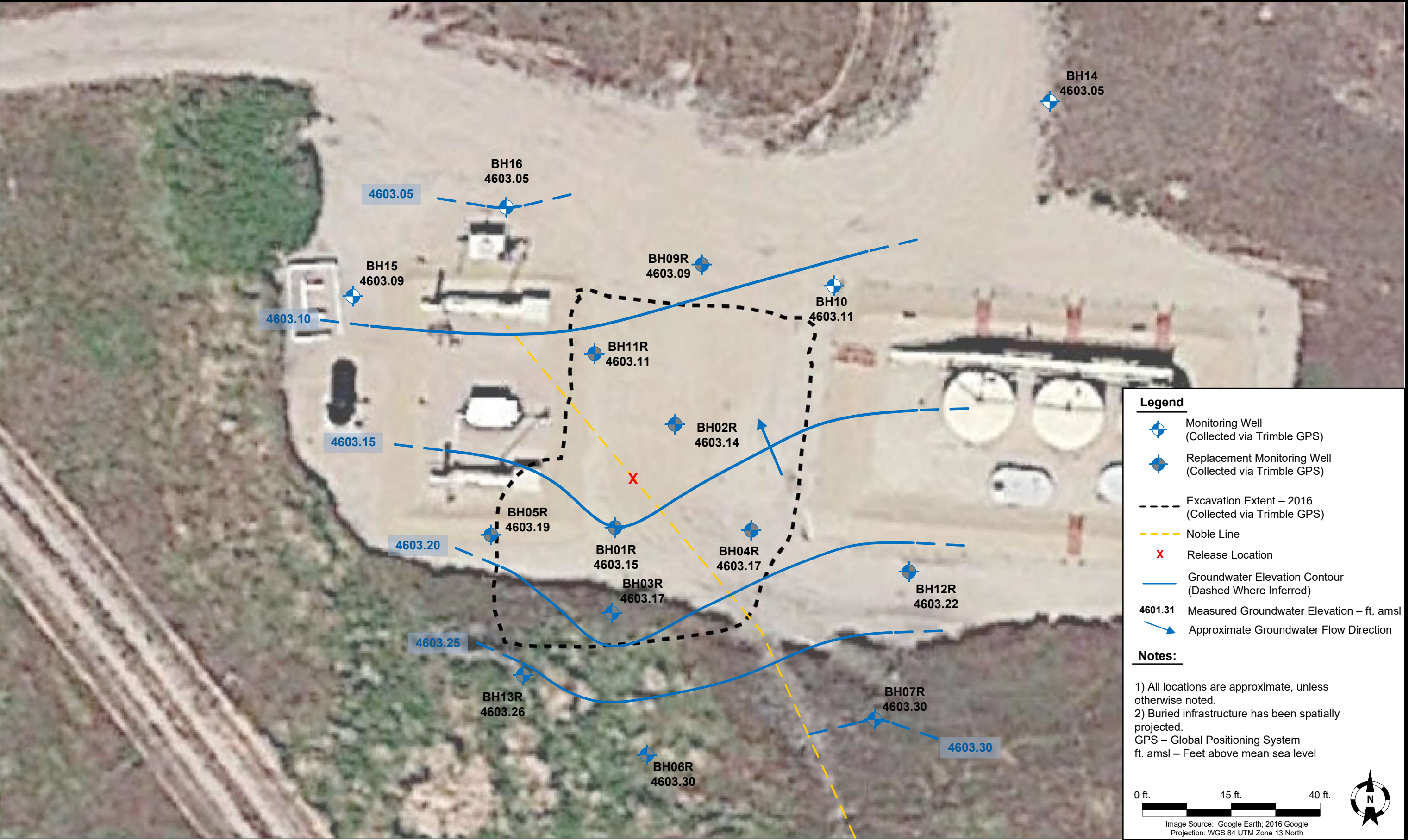






DATE:	09/13/2017	 <div>Tasman Geosciences, Inc. 6855 W 119<sup>th</sup> Avenue Broomfield, CO, 80020</div>	<b>Noble Energy, Inc. – DJ Basin</b> <b>Frank 2, 5, 6, CC7-19, 29</b> NENW, Section 7, Township 4 North, Range 63 West Weld County, Colorado	Site Overview Map	FIGURE 2
DESIGNED BY:	JW				
DRAWN BY:	JW				







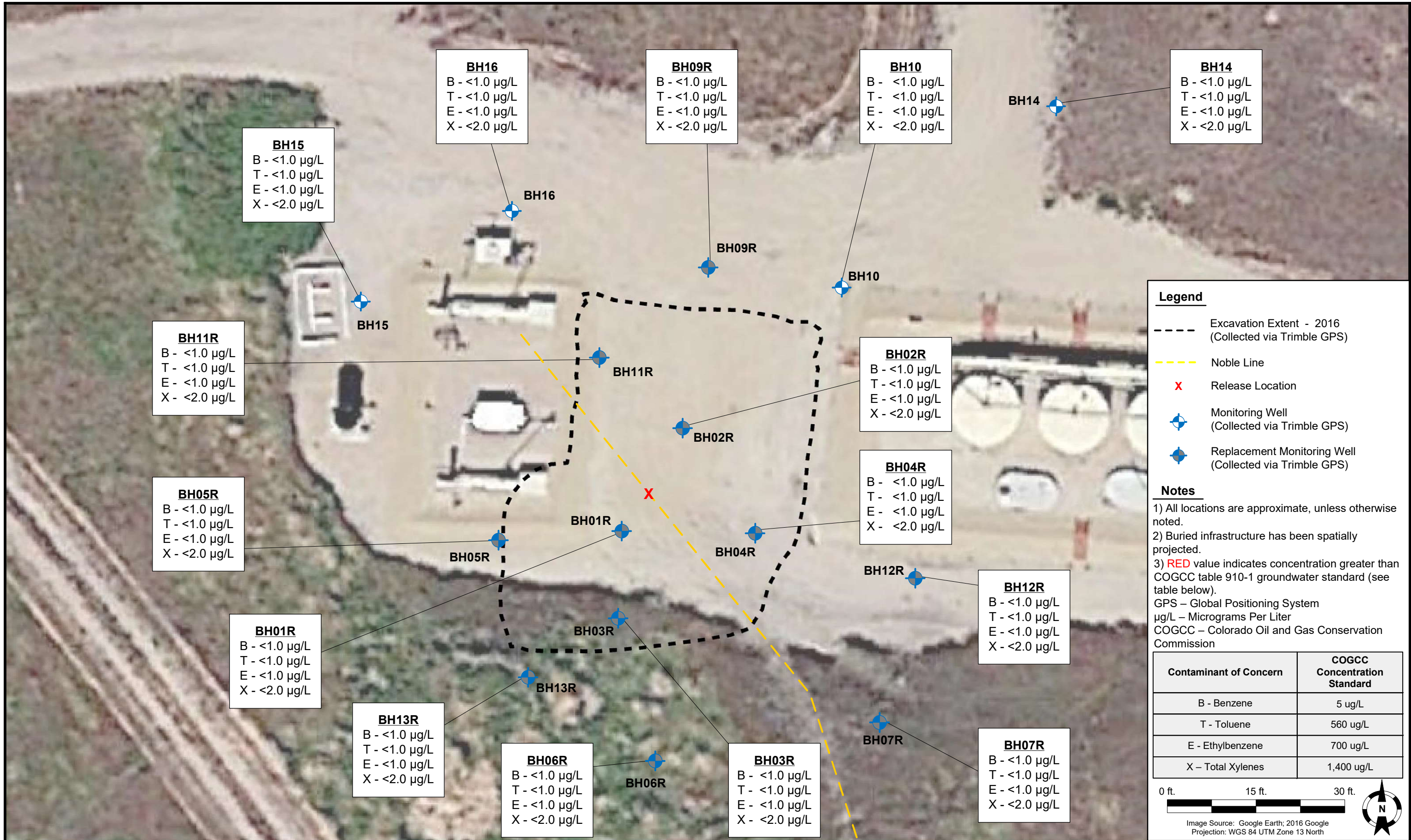
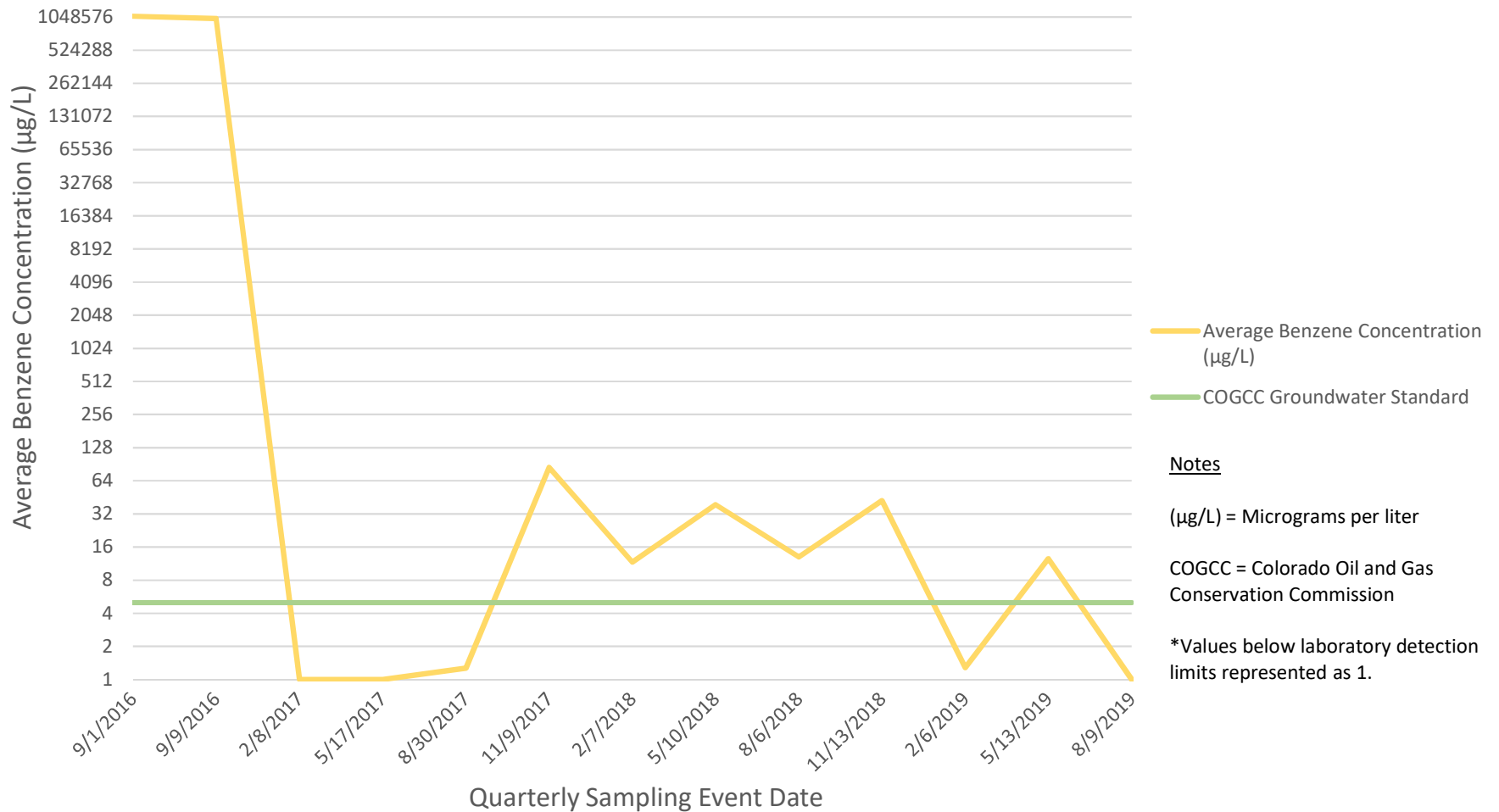




Figure 5  
Frank 2, 5, 6, CC7-19, 29  
Average Benzene Concentration VS Quarterly Sampling Event Date



# Summit Scientific

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4653 Table Mountain Drive, Golden, Colorado 80403

303.277.9310

August 15, 2019

Brandon Bruns

Tasman Geosciences

6855 W. 119th Ave.

Broomfield, CO 80020

RE: Noble - Frank 2,5,6 - CC7-19,29

Work Order # 1908114

Enclosed are the results of analyses for samples received by Summit Scientific on 08/09/19 17:30. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

A handwritten signature in black ink on a light blue background. The signature is written in a cursive style and reads "Muri Premier".

Muri Premier For Ben Shrewsbury

Laboratory Manager



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

Project: Noble - Frank 2,5,6 - CC7-19,29

Project Number: [none]  
Project Manager: Brandon Bruns

**Reported:**  
08/15/19 11:56

### ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
BH01R	1908114-01	Water	08/09/19 10:55	08/09/19 17:30
BH02R	1908114-02	Water	08/09/19 11:08	08/09/19 17:30
BH03R	1908114-03	Water	08/09/19 11:18	08/09/19 17:30
BH04R	1908114-04	Water	08/09/19 11:30	08/09/19 17:30
BH05R	1908114-05	Water	08/09/19 11:42	08/09/19 17:30
BH06R	1908114-06	Water	08/09/19 11:52	08/09/19 17:30
BH07R	1908114-07	Water	08/09/19 12:02	08/09/19 17:30
BH09R	1908114-08	Water	08/09/19 12:10	08/09/19 17:30
BH10	1908114-09	Water	08/09/19 11:58	08/09/19 17:30
BH11R	1908114-10	Water	08/09/19 11:47	08/09/19 17:30
BH12R	1908114-11	Water	08/09/19 11:35	08/09/19 17:30
BH13R	1908114-12	Water	08/09/19 11:26	08/09/19 17:30
BH14	1908114-13	Water	08/09/19 11:16	08/09/19 17:30
BH15	1908114-14	Water	08/09/19 11:08	08/09/19 17:30
BH16	1908114-15	Water	08/09/19 10:55	08/09/19 17:30

Summit Scientific

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

# Summit Scientific

S<sub>2</sub>

1908114.1

4653 Table Mountain Drive ♦ Golden, Colorado 80403

303-277-9310

Page 1 of 2

Client:	Noble / Tasman	Project Manager:	Brandon Bruns, Invoice: Jacob Evans
Address:	6855 W. 119th Ave	E-Mail:	Bbruns@tasman-geo.com
City/State/Zip:	Broomfield/ CO/ 80020		
Phone:	303-487-1228	Project Name:	Frank 2, 5, 6-CC7-19.29
Sampler Name:	Alison D. Brandon V	Project Number:	

ID	Sample Description	Date Sampled	Time Sampled	# of containers	Preservative				Matrix				Analysis Requested						Special Instructions
					HCl	HNO <sub>3</sub>	None	Other	Water	Soil	Air-Canister #	Other	8260 BTEX	8260B GBTEXN	8015 DRO	pH, EC, SAR			
1	BH01R	8/9/19	1055	3			X		X					X					
2	BH02R		1108																
3	BH03R		1118																
4	BH04R		1130																
5	BH05R		1142																
6	BH06R		1152																
7	BH07R		1202																
8	BH09R		1210																
9	BH10		1158																
10	BH11R		1147																

Relinquished by:	Date/Time:	Received by:	Date/Time:	Turn Around Time	(Check)	Notes:
Ali D. Dahl	8/9/2019 1400	Tasman's Lock Box	8/9/2019 1400	Same Day	72 hours	
Relinquished by:	Date/Time:	Received by:	Date/Time:	24 hours	Standard	
Tasman's Lock Box	8-9-19 17:30	[Signature]	8-9-19 17:30	48 hours		
Relinquished by:	Date/Time:	Received by:	Date/Time:	Sample Integrity:		
				Temperature Upon Receipt: .1		
				Samples Intact: Yes No		

1908118.2

# Summit Scientific

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

Page 2 of 2

Client: Noble / Tasman  
Address: 6855 W 119th Ave  
City/State/Zip: Broomfield / CO / 80020  
Phone: \_\_\_\_\_ Fax: \_\_\_\_\_  
Sampler Name: Alison D, Brandon V

Project Manager: Brandon Bruns Invoice: Tasman Evans  
E-Mail: Bbrunsc@tasman-geo.com  
Project Name: Frank 2, 5, 6-CC7-19, 29  
Project Number: \_\_\_\_\_

Sample Description	Date Sampled	Time Sampled	Number of Containers	Preservative				Matrix			Analyze For:							Special Instructions			
				HCl	HNO <sub>3</sub>	None	Other (Specify)	Groundwater	Soil	Air - Canister Serial #	Other (Specify)	8260 BTEX	8260B GBTEXN	8015 DRO	pH, EC, SAR						
BH12R	8/9/19	1135	3			X		X				X									
BH13R	I	1126	I			I		I				I									
BH14	I	1116	I			I		I				I									
BH15	I	1108	I			I		I				I									
BH16	I	1055	I			I		I				I									
Relinquished by: <u>Alison Dahl</u> Date/Time: <u>8/9/2019 1400</u>				Received by: <u>Tasman Lock Box</u> Date/Time: <u>8/9/2019 1400</u>				Turn Around Time (Check) Same Day <input type="checkbox"/> 72 Hours <input checked="" type="checkbox"/> 24 Hours <input type="checkbox"/> Standard <input type="checkbox"/> 48 Hours <input type="checkbox"/>											Notes:		
Relinquished by: <u>Tasman Lock Box</u> Date/Time: <u>8-9-19 17:36</u>				Received by: <u>[Signature]</u> Date/Time: <u>8-9-19 17:36</u>				Sample Integrity: Temperature Upon Receipt: <u>21</u> Intact: Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>													
Relinquished by: _____ Date/Time: _____				Received in Lab by: _____ Date/Time: _____																	

# Sample Receipt Checklist

S2 Work Order

190814

Client: Noble/Tasman

Client Project ID: Frank 2,5,6-CC7-19,29

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

Airbill #:

☐ ☒ ☐ ☐ ☐

Matrix (check all that apply):

☐ Air

☐ Soil/Solid

☒ Water

☐ Other:

(Describe)

Temp (°C)

.1

Thermometer ID: 61857155-K

	Yes	No	N/A	Comments (if any)
If samples require cooling, was the temperature at 4°C +/- 2°C <sup>(1)</sup> ? NOTE: If samples are delivered the same day of sampling, this requirement is met provided that there is evidence that cooling has begun.	<input checked="" type="checkbox"/>	<input 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"/>	
If custody seals are present, are they intact <sup>(1)</sup> ?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Are samples with holding times due within 48 hours sample due within 48 hours present?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Is a chain-of-custody (COC) form present and filled out completely <sup>(1)</sup> ?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
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 w/ date and time recorded <sup>(1)</sup> ?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
For volatiles in water – is there headspace present? If yes, contact client and note in narrative.	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Are samples preserved that require preservation (excluding cooling) <sup>(1)</sup> ? Note the type of preservative in the Comments column – HCl, H2SO4, NaOH, HNO3, ect	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
If samples are acid preserved for metals, is the pH ≤ 2 <sup>(1)</sup> ? Record the pH in Comments.	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
If dissolved metals are requested, were samples field filtered?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Additional Comments (if any):  All samples on hold				
<sup>(1)</sup> If NO, then contact the client before proceeding with analysis and note in case narrative.				

MP

Custodian Printed Name or Initials

Muri Premer

Signature of Custodian

8/9/19

Date/Time



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

Project: Noble - Frank 2,5,6 - CC7-19,29

Project Number: [none]  
Project Manager: Brandon Bruns

**Reported:**  
08/15/19 11:56

**BH01R**  
**1908114-01 (Water)**

**Summit Scientific**

**Volatile Organic Compounds by EPA Method 8260B**

Date Sampled: **08/09/19 10:55**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Benzene	ND	1.0		ug/l	1	1908131	08/12/19	08/13/19	EPA 8260B	
Toluene	ND	1.0		"	"	"	"	"	"	
Ethylbenzene	ND	1.0		"	"	"	"	"	"	
Xylenes (total)	ND	2.0		"	"	"	"	"	"	

Date Sampled: **08/09/19 10:55**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Surrogate: 1,2-Dichloroethane-d4		103 %		23-173		"	"	"	"	
Surrogate: Toluene-d8		91.1 %		20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		95.4 %		21-167		"	"	"	"	

Summit Scientific

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

Project: Noble - Frank 2,5,6 - CC7-19,29

Project Number: [none]  
Project Manager: Brandon Bruns

**Reported:**  
08/15/19 11:56

**BH02R**  
**1908114-02 (Water)**

**Summit Scientific**

**Volatile Organic Compounds by EPA Method 8260B**

Date Sampled: **08/09/19 11:08**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Benzene	ND	1.0	ug/l	1	1908131	08/12/19	08/13/19	EPA 8260B	
Toluene	ND	1.0	"	"	"	"	"	"	
Ethylbenzene	ND	1.0	"	"	"	"	"	"	
Xylenes (total)	ND	2.0	"	"	"	"	"	"	

Date Sampled: **08/09/19 11:08**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: 1,2-Dichloroethane-d4		109 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		95.8 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		92.5 %	21-167		"	"	"	"	

Summit Scientific

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

Project: Noble - Frank 2,5,6 - CC7-19,29

Project Number: [none]  
Project Manager: Brandon Bruns

**Reported:**  
08/15/19 11:56

**BH03R**  
**1908114-03 (Water)**

**Summit Scientific**

**Volatile Organic Compounds by EPA Method 8260B**

Date Sampled: **08/09/19 11:18**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Benzene	ND	1.0	ug/l	1	1908131	08/12/19	08/13/19	EPA 8260B	
Toluene	ND	1.0	"	"	"	"	"	"	
Ethylbenzene	ND	1.0	"	"	"	"	"	"	
Xylenes (total)	ND	2.0	"	"	"	"	"	"	

Date Sampled: **08/09/19 11:18**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: 1,2-Dichloroethane-d4		105 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		94.8 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		95.9 %	21-167		"	"	"	"	

Summit Scientific

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

Project: Noble - Frank 2,5,6 - CC7-19,29

Project Number: [none]  
Project Manager: Brandon Bruns

**Reported:**  
08/15/19 11:56

**BH04R**  
**1908114-04 (Water)**

**Summit Scientific**

**Volatile Organic Compounds by EPA Method 8260B**

Date Sampled: **08/09/19 11:30**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Benzene	ND	1.0	ug/l	1	1908131	08/12/19	08/13/19	EPA 8260B	
Toluene	ND	1.0	"	"	"	"	"	"	
Ethylbenzene	ND	1.0	"	"	"	"	"	"	
Xylenes (total)	ND	2.0	"	"	"	"	"	"	

Date Sampled: **08/09/19 11:30**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: 1,2-Dichloroethane-d4		106 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		96.8 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		93.7 %	21-167		"	"	"	"	

Summit Scientific

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

Project: Noble - Frank 2,5,6 - CC7-19,29

Project Number: [none]  
Project Manager: Brandon Bruns

**Reported:**  
08/15/19 11:56

**BH05R**  
**1908114-05 (Water)**

**Summit Scientific**

**Volatile Organic Compounds by EPA Method 8260B**

Date Sampled: **08/09/19 11:42**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Benzene	ND	1.0	ug/l	1	1908131	08/12/19	08/14/19	EPA 8260B	
Toluene	ND	1.0	"	"	"	"	"	"	
Ethylbenzene	ND	1.0	"	"	"	"	"	"	
Xylenes (total)	ND	2.0	"	"	"	"	"	"	

Date Sampled: **08/09/19 11:42**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: 1,2-Dichloroethane-d4		107 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		101 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		95.9 %	21-167		"	"	"	"	

Summit Scientific

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

Project: Noble - Frank 2,5,6 - CC7-19,29

Project Number: [none]  
Project Manager: Brandon Bruns

**Reported:**  
08/15/19 11:56

**BH06R**  
**1908114-06 (Water)**

**Summit Scientific**

**Volatile Organic Compounds by EPA Method 8260B**

Date Sampled: **08/09/19 11:52**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Benzene	ND	1.0	ug/l	1	1908131	08/12/19	08/14/19	EPA 8260B	
Toluene	ND	1.0	"	"	"	"	"	"	
Ethylbenzene	ND	1.0	"	"	"	"	"	"	
Xylenes (total)	ND	2.0	"	"	"	"	"	"	

Date Sampled: **08/09/19 11:52**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: 1,2-Dichloroethane-d4		106 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		107 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		97.4 %	21-167		"	"	"	"	

Summit Scientific

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

Project: Noble - Frank 2,5,6 - CC7-19,29

Project Number: [none]  
Project Manager: Brandon Bruns

**Reported:**  
08/15/19 11:56

**BH07R**  
**1908114-07 (Water)**

**Summit Scientific**

**Volatile Organic Compounds by EPA Method 8260B**

Date Sampled: **08/09/19 12:02**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Benzene	ND	1.0	ug/l	1	1908131	08/12/19	08/14/19	EPA 8260B	
Toluene	ND	1.0	"	"	"	"	"	"	
Ethylbenzene	ND	1.0	"	"	"	"	"	"	
Xylenes (total)	ND	2.0	"	"	"	"	"	"	

Date Sampled: **08/09/19 12:02**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: 1,2-Dichloroethane-d4		111 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		106 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		94.3 %	21-167		"	"	"	"	

Summit Scientific

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

Project: Noble - Frank 2,5,6 - CC7-19,29

Project Number: [none]  
Project Manager: Brandon Bruns

**Reported:**  
08/15/19 11:56

**BH09R**  
**1908114-08 (Water)**

**Summit Scientific**

**Volatile Organic Compounds by EPA Method 8260B**

Date Sampled: **08/09/19 12:10**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Benzene	ND	1.0	ug/l	1	1908131	08/12/19	08/14/19	EPA 8260B	
Toluene	ND	1.0	"	"	"	"	"	"	
Ethylbenzene	ND	1.0	"	"	"	"	"	"	
Xylenes (total)	ND	2.0	"	"	"	"	"	"	

Date Sampled: **08/09/19 12:10**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: 1,2-Dichloroethane-d4		107 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		107 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		98.3 %	21-167		"	"	"	"	

Summit Scientific

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

Project: Noble - Frank 2,5,6 - CC7-19,29

Project Number: [none]  
Project Manager: Brandon Bruns

**Reported:**  
08/15/19 11:56

**BH10**  
**1908114-09 (Water)**

**Summit Scientific**

**Volatile Organic Compounds by EPA Method 8260B**

Date Sampled: **08/09/19 11:58**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Benzene	ND	1.0	ug/l	1	1908131	08/12/19	08/14/19	EPA 8260B	
Toluene	ND	1.0	"	"	"	"	"	"	
Ethylbenzene	ND	1.0	"	"	"	"	"	"	
Xylenes (total)	ND	2.0	"	"	"	"	"	"	

Date Sampled: **08/09/19 11:58**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: 1,2-Dichloroethane-d4		109 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		104 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		95.0 %	21-167		"	"	"	"	

Summit Scientific

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

Project: Noble - Frank 2,5,6 - CC7-19,29

Project Number: [none]  
Project Manager: Brandon Bruns

**Reported:**  
08/15/19 11:56

**BH11R**  
**1908114-10 (Water)**

**Summit Scientific**

**Volatile Organic Compounds by EPA Method 8260B**

Date Sampled: **08/09/19 11:47**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Benzene	ND	1.0	ug/l	1	1908131	08/12/19	08/14/19	EPA 8260B	
Toluene	ND	1.0	"	"	"	"	"	"	
Ethylbenzene	ND	1.0	"	"	"	"	"	"	
Xylenes (total)	ND	2.0	"	"	"	"	"	"	

Date Sampled: **08/09/19 11:47**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: 1,2-Dichloroethane-d4		106 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		105 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		95.0 %	21-167		"	"	"	"	

Summit Scientific

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

Project: Noble - Frank 2,5,6 - CC7-19,29

Project Number: [none]  
Project Manager: Brandon Bruns

**Reported:**  
08/15/19 11:56

**BH12R**  
**1908114-11 (Water)**

**Summit Scientific**

**Volatile Organic Compounds by EPA Method 8260B**

Date Sampled: **08/09/19 11:35**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Benzene	ND	1.0	ug/l	1	1908131	08/12/19	08/14/19	EPA 8260B	
Toluene	ND	1.0	"	"	"	"	"	"	
Ethylbenzene	ND	1.0	"	"	"	"	"	"	
Xylenes (total)	ND	2.0	"	"	"	"	"	"	

Date Sampled: **08/09/19 11:35**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: 1,2-Dichloroethane-d4		107 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		105 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		95.8 %	21-167		"	"	"	"	

Summit Scientific

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

Project: Noble - Frank 2,5,6 - CC7-19,29

Project Number: [none]  
Project Manager: Brandon Bruns

**Reported:**  
08/15/19 11:56

**BH13R**  
**1908114-12 (Water)**

**Summit Scientific**

**Volatile Organic Compounds by EPA Method 8260B**

Date Sampled: **08/09/19 11:26**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Benzene	ND	1.0	ug/l	1	1908131	08/12/19	08/14/19	EPA 8260B	
Toluene	ND	1.0	"	"	"	"	"	"	
Ethylbenzene	ND	1.0	"	"	"	"	"	"	
Xylenes (total)	ND	2.0	"	"	"	"	"	"	

Date Sampled: **08/09/19 11:26**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: 1,2-Dichloroethane-d4		111 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		105 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		97.8 %	21-167		"	"	"	"	

Summit Scientific

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

Project: Noble - Frank 2,5,6 - CC7-19,29

Project Number: [none]  
Project Manager: Brandon Bruns

**Reported:**  
08/15/19 11:56

**BH14**  
**1908114-13 (Water)**

**Summit Scientific**

**Volatile Organic Compounds by EPA Method 8260B**

Date Sampled: **08/09/19 11:16**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Benzene	ND	1.0	ug/l	1	1908131	08/12/19	08/14/19	EPA 8260B	
Toluene	ND	1.0	"	"	"	"	"	"	
Ethylbenzene	ND	1.0	"	"	"	"	"	"	
Xylenes (total)	ND	2.0	"	"	"	"	"	"	

Date Sampled: **08/09/19 11:16**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: 1,2-Dichloroethane-d4		104 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		103 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		95.3 %	21-167		"	"	"	"	

Summit Scientific

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

Project: Noble - Frank 2,5,6 - CC7-19,29

Project Number: [none]  
Project Manager: Brandon Bruns

**Reported:**  
08/15/19 11:56

**BH15**  
**1908114-14 (Water)**

**Summit Scientific**

**Volatile Organic Compounds by EPA Method 8260B**

Date Sampled: **08/09/19 11:08**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Benzene	ND	1.0	ug/l	1	1908131	08/12/19	08/14/19	EPA 8260B	
Toluene	ND	1.0	"	"	"	"	"	"	
Ethylbenzene	ND	1.0	"	"	"	"	"	"	
Xylenes (total)	ND	2.0	"	"	"	"	"	"	

Date Sampled: **08/09/19 11:08**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: 1,2-Dichloroethane-d4		106 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		101 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		96.1 %	21-167		"	"	"	"	

Summit Scientific

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

Project: Noble - Frank 2,5,6 - CC7-19,29

Project Number: [none]  
Project Manager: Brandon Bruns

**Reported:**  
08/15/19 11:56

**BH16**  
**1908114-15 (Water)**

**Summit Scientific**

**Volatile Organic Compounds by EPA Method 8260B**

Date Sampled: **08/09/19 10:55**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Benzene	ND	1.0	ug/l	1	1908131	08/12/19	08/14/19	EPA 8260B	
Toluene	ND	1.0	"	"	"	"	"	"	
Ethylbenzene	ND	1.0	"	"	"	"	"	"	
Xylenes (total)	ND	2.0	"	"	"	"	"	"	

Date Sampled: **08/09/19 10:55**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: 1,2-Dichloroethane-d4		113 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		106 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		96.4 %	21-167		"	"	"	"	

Summit Scientific

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

Project: Noble - Frank 2,5,6 - CC7-19,29

Project Number: [none]  
Project Manager: Brandon Brun

**Reported:**  
08/15/19 11:56

## 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 1908131 - EPA 5030 Water MS

##### Blank (1908131-BLK1)

Prepared: 08/12/19 Analyzed: 08/13/19

Benzene	ND	1.0	ug/l							
Toluene	ND	1.0	"							
Ethylbenzene	ND	1.0	"							
Xylenes (total)	ND	2.0	"							
Surrogate: 1,2-Dichloroethane-d4	13.3		"	13.3		99.9	23-173			
Surrogate: Toluene-d8	12.7		"	13.3		95.5	20-170			
Surrogate: 4-Bromofluorobenzene	13.2		"	13.3		98.9	21-167			

##### LCS (1908131-BS1)

Prepared: 08/12/19 Analyzed: 08/13/19

Benzene	53.0	1.0	ug/l	50.0		106	51-132			
Toluene	53.7	1.0	"	50.0		107	51-138			
Ethylbenzene	52.6	1.0	"	50.0		105	58-146			
m,p-Xylene	104	2.0	"	100		104	57-144			
o-Xylene	52.2	1.0	"	50.0		104	53-146			
Surrogate: 1,2-Dichloroethane-d4	13.6		"	13.3		102	23-173			
Surrogate: Toluene-d8	13.3		"	13.3		99.7	20-170			
Surrogate: 4-Bromofluorobenzene	12.6		"	13.3		94.3	21-167			

##### Matrix Spike (1908131-MS1)

Source: 1908114-01

Prepared: 08/12/19 Analyzed: 08/13/19

Benzene	54.4	1.0	ug/l	50.0	ND	109	34-141			
Toluene	58.3	1.0	"	50.0	ND	117	27-151			
Ethylbenzene	57.0	1.0	"	50.0	ND	114	29-160			
m,p-Xylene	112	2.0	"	100	ND	112	20-166			
o-Xylene	55.5	1.0	"	50.0	ND	111	33-159			
Surrogate: 1,2-Dichloroethane-d4	12.8		"	13.3		96.2	23-173			
Surrogate: Toluene-d8	13.6		"	13.3		102	20-170			
Surrogate: 4-Bromofluorobenzene	12.7		"	13.3		95.5	21-167			

Summit Scientific

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6855 W. 119th Ave.  
Broomfield CO, 80020

Project: Noble - Frank 2,5,6 - CC7-19,29

Project Number: [none]  
Project Manager: Brandon Bruns

**Reported:**  
08/15/19 11:56

**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 1908131 - EPA 5030 Water MS**

Matrix Spike Dup (1908131-MSD1)	Source: 1908114-01			Prepared: 08/12/19 Analyzed: 08/13/19						
Benzene	55.4	1.0	ug/l	50.0	ND	111	34-141	1.87	30	
Toluene	56.7	1.0	"	50.0	ND	113	27-151	2.80	30	
Ethylbenzene	56.1	1.0	"	50.0	ND	112	29-160	1.56	30	
m,p-Xylene	111	2.0	"	100	ND	111	20-166	0.538	30	
o-Xylene	55.4	1.0	"	50.0	ND	111	33-159	0.108	30	
Surrogate: 1,2-Dichloroethane-d4	12.7		"	13.3		95.3	23-173			
Surrogate: Toluene-d8	13.0		"	13.3		97.6	20-170			
Surrogate: 4-Bromofluorobenzene	12.6		"	13.3		94.7	21-167			

Summit Scientific

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Broomfield CO, 80020

Project: Noble - Frank 2,5,6 - CC7-19,29

Project Number: [none]  
Project Manager: Brandon Bruns

**Reported:**  
08/15/19 11:56

### 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