

FOURTH QUARTER 2018 SITE MONITORING REPORT

FRANK 2, 5, 6 CC7-19, 29
API #: 05-123-29603

COGCC SPILL TRACKING # 447515
COGCC REMEDIATION # 10113

Prepared for:



2115 117th Avenue
Greeley, CO 80631

Prepared by:



6899 North Pecos Street, Unit C
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TABLE 1
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)
COGCC Standard		5	560	700	1,400
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
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
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
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
BH05	09/01/16	19	29	2.2	20

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Monitoring Well ID	Date	Benzene (µg/L)	Toluene (µg/L)	Ethylbenzene (µg/L)	Total Xylenes (µg/L)
COGCC Standard		5	560	700	1,400
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
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
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
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
BH10	09/09/16	<1.0	<1.0	8.4	39
BH10	02/08/17	<1.0	<1.0	18	150

TABLE 1
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Monitoring Well ID	Date	Benzene (µg/L)	Toluene (µg/L)	Ethylbenzene (µg/L)	Total Xylenes (µg/L)
COGCC Standard		5	560	700	1,400
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
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
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
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
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
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
BH14	02/07/18	<1.0	<1.0	<1.0	<2.0
BH14	05/10/18	<1.0	<1.0	<1.0	<2.0

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COGCC Standard		5	560	700	1,400
BH14	08/06/18	<1.0	<1.0	<1.0	<2.0
BH14	11/13/18	<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
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

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 2
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	02/07/17	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
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	02/07/17	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
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	02/07/17	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
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
BH04R	02/07/17	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
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					

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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)
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	02/07/17	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
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	02/07/17	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
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	02/07/17	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
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	02/07/17	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
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	02/07/17	4615.46	17.17	14.38	ND	ND	4601.08

TABLE 2
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)
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
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	02/07/17	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
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	02/07/17	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
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	02/07/17	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
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	02/07/17	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
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

TABLE 2
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)
BH15	11/09/17	4614.94	17.58	12.17	ND	ND	4602.77
BH15	02/07/17	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
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	02/07/17	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

Notes:

ft. = Feet

AMSL = Above mean sea level

BTOC = Below top of casing

LNAPL = Light non-aqueous phase liquid

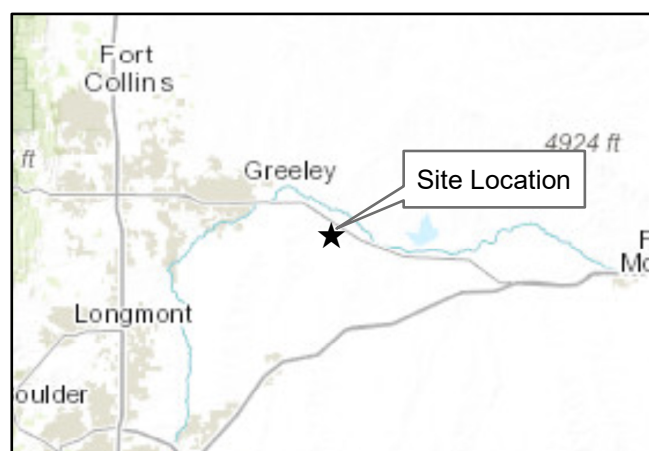
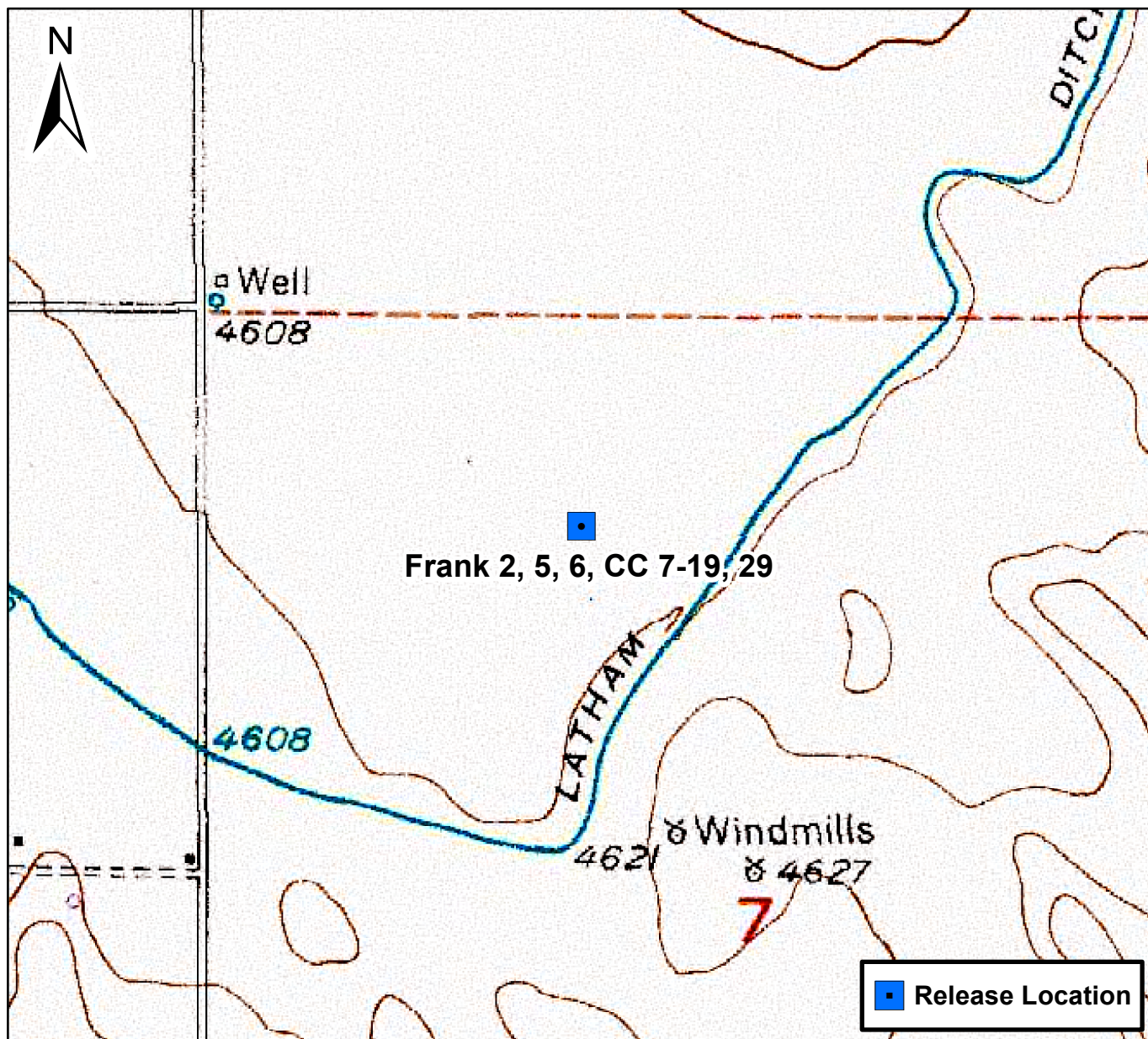
NM = Not measured

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




0 750 1,500 Feet

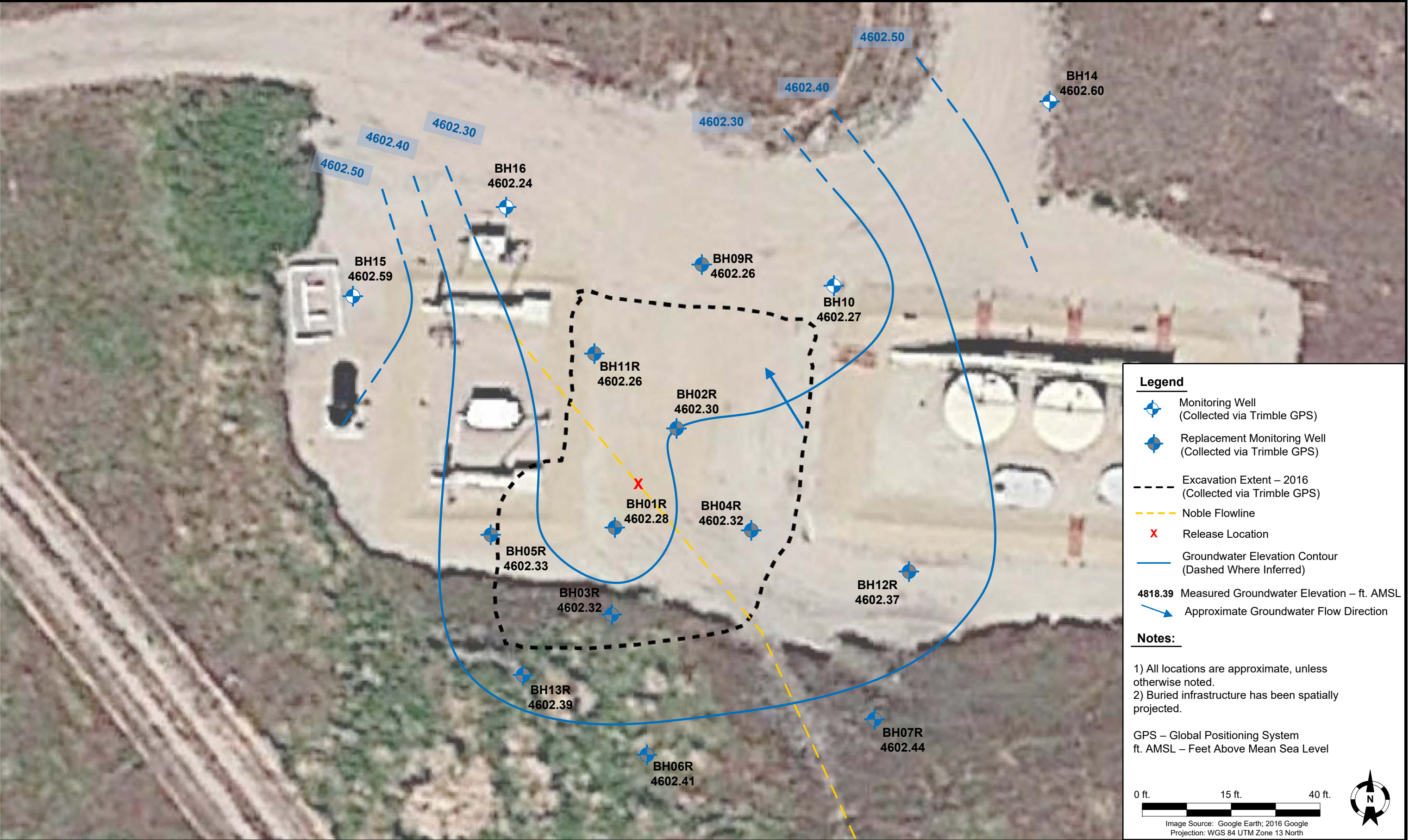
Figure 1

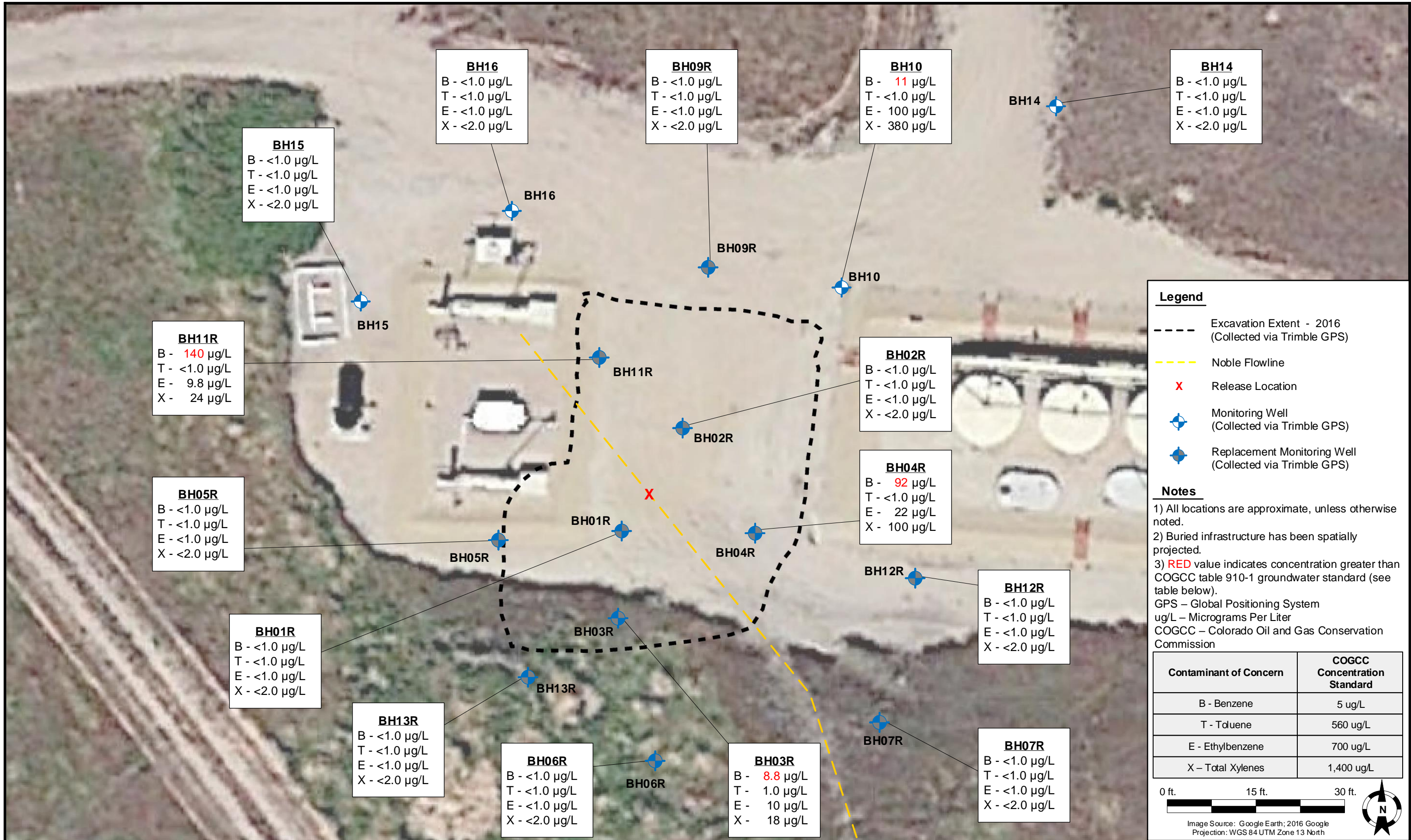
Site Location Map
Frank 2, 5, 6, CC 7-19, 29
NENW S7 T4N R63W
Weld County, Colorado





DATE: 09/13/2017	 <div>Tasman Geosciences, Inc. 6899 Pecos Street – Unit C Denver, CO 80221</div>	Noble Energy, Inc. – DJ Basin Frank 2, 5, 6, CC7-19, 29 NENW, Section 7, Township 4 North, Range 63 West Weld County, Colorado	Site Overview Map	FIGURE 2
DESIGNED BY: JW				
DRAWN BY: JW				





Summit Scientific

4653 Table Mountain Drive, Golden, Colorado 80403

303.277.9310

November 19, 2018

Brandon Bruns

Tasman Geosciences

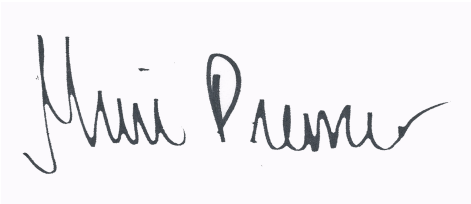
6899 Pecos St, Unit C

Denver, CO 80221

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

Enclosed are the results of analyses for samples received by Summit Scientific on 11/13/18 18:30. 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
6899 Pecos St, Unit C
Denver CO, 80221

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

Project Number: [none]
Project Manager: Brandon Bruns

Reported:
11/19/18 10:26

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
BH01R	1811154-01	Water	11/13/18 12:05	11/13/18 18:30
BH02R	1811154-02	Water	11/13/18 12:17	11/13/18 18:30
BH03R	1811154-03	Water	11/13/18 12:45	11/13/18 18:30
BH04R	1811154-04	Water	11/13/18 12:55	11/13/18 18:30
BH05R	1811154-05	Water	11/13/18 12:28	11/13/18 18:30
BH06R	1811154-06	Water	11/13/18 11:50	11/13/18 18:30
BH07R	1811154-07	Water	11/13/18 11:40	11/13/18 18:30
BH09R	1811154-08	Water	11/13/18 11:25	11/13/18 18:30
BH10	1811154-09	Water	11/13/18 11:42	11/13/18 18:30
BH11R	1811154-10	Water	11/13/18 12:40	11/13/18 18:30
BH12R	1811154-11	Water	11/13/18 11:30	11/13/18 18:30
BH13R	1811154-12	Water	11/13/18 12:15	11/13/18 18:30
BH14	1811154-13	Water	11/13/18 11:58	11/13/18 18:30
BH15	1811154-14	Water	11/13/18 11:10	11/13/18 18:30
BH16	1811154-15	Water	11/13/18 11:08	11/13/18 18:30

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

1811154.1

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

Page 1 of 2

Client: Noble/Tasman
Address: 6899 Pecos St
City/State/Zip: Denver / CO / 80221
Phone: 303-487-1228 Fax: -
Sampler Name: Alison Dahl / Brian Gabel

Project Manager: Brandon Bruns, Invoice: Jacob Evans
E-Mail: Bbruns@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 ₃	None	Other (Specify)	Groundwater	Soil	Air - Canister Serial #	Other (Specify)	8260 BTEX	8260B GBTEXN	8015 DRO	pH, EC, SAR							
BH01R	11-13-18	1205	3	X				X					X									
BH02R		1217	2																			
BH03R		1245	3																			
BH04R		1255	2																			
BH05R		1258	3																			
BH06R		1150	3																			
BH07R		1140	3																			
BH08R		1125	3																			
BH10		1142	2																			
BH11R	✓	1240	3	✓				✓					✓									

Relinquished by: <u>Alison Dahl</u>	Date/Time: <u>11/13/2018 1830</u>	Received by: <u>[Signature]</u>	Date/Time: <u>11-13-18 1830</u>	Turn Around Time (Check) Same Day <input type="checkbox"/> 72 Hours <input type="checkbox"/> 24 Hours <input type="checkbox"/> Standard <input checked="" type="checkbox"/> 48 Hours <input type="checkbox"/>	Notes:
Relinquished by:	Date/Time:	Received by:	Date/Time:	Sample Integrity: Temperature Upon Receipt: <u>10.7</u> Intact: Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	
Relinquished by:	Date/Time:	Received in Lab by:	Date/Time:		

Summit Scientific

1811154.2

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

Page 2 of 2

Client: Noble/Tasman
Address: 6899 Pecos St
City/State/Zip: Denver / CO / 80221
Phone: 303-487-1228 Fax: -
Sampler Name: Alison Dahl / Brian Gabel

Project Manager: Brandon Bruns, Invoice: Jacob Evans
E-Mail: Bbruns@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 ₃	None	Other (Specify)	Groundwater	Soil	Air - Canister Serial #	Other (Specify)	8260 BTEX	8260B GBTEXN	8015 DRO	PH, EC, SAR					
BH12R	11/13/2018	1130	3	X				X				X								
BH13R	I	1215	3	I				I				I								
BH14		1158	2																	
BH15		1110	3																	
BH16	I	1108	3	I				I				I								
Relinquished by: <u>Alison Dahl</u>				Date/Time: <u>11/13/2018 1850</u>				Received by: <u>[Signature]</u>				Date/Time: <u>11.13.18 1850</u>				Turn Around Time (Check)				Notes:
Relinquished by:				Date/Time:				Received by:				Date/Time:				Same Day <input type="checkbox"/> 72 Hours <input type="checkbox"/> 24 Hours <input type="checkbox"/> Standard <input checked="" type="checkbox"/> 48 Hours <input type="checkbox"/>				
Relinquished by:				Date/Time:				Received in Lab by:				Date/Time:				Sample Integrity: Temperature Upon Receipt: <u>10.7</u> Intact: Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>				

1811154

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

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

Temp (°C)	10.7
-----------	------

	Yes	No	N/A	Comments (if any)
If samples require cooling, was the temperature at 4°C +/- 2°C ⁽¹⁾ ?				
NOTE: If samples are delivered the same day of sampling, this requirement is met provided that there is evidence that cooling has begun.	/			
Were all samples received intact ⁽¹⁾ ?	/			
Was adequate sample volume provided ⁽¹⁾ ?	/			
If custody seals are present, are they intact ⁽¹⁾ ?			/	
Are samples with holding times due within 48 hours sample due within 48 hours present?			/	
Is a chain-of-custody (COC) form present and filled out completely ⁽¹⁾ ?	/			
Does the COC agree with the number and type of sample bottles received ⁽¹⁾ ?	/			
Do the sample IDs on the bottle labels match the COC ⁽¹⁾ ?	/			
Is the COC properly relinquished by the client w/ date and time recorded ⁽¹⁾ ?	/			
For volatiles in water – is there headspace present? If yes, contact client and note in narrative.		/		
Are samples preserved that require preservation (excluding cooling) ⁽¹⁾ ?				
Note the type of preservative in the Comments column – HCl, H2SO4, NaOH, HNO3, ect	/			HCl
If samples are acid preserved for metals, is the pH ≤ 2 ⁽¹⁾ ?			/	
Record the pH in Comments.			/	
If dissolved metals are requested, were samples field filtered?			/	
Additional Comments (if any):				

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

Signature of Custodian

11.13.18 1830
Date/Time



Tasman Geosciences
6899 Pecos St, Unit C
Denver CO, 80221

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

Project Number: [none]
Project Manager: Brandon Bruns

Reported:
11/19/18 10:26

BH01R
1811154-01 (Water)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **11/13/18 12:05**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Benzene	ND	1.0	ug/l	1	1811184	11/14/18	11/15/18	EPA 8260B	
Toluene	ND	1.0	"	"	"	"	"	"	
Ethylbenzene	ND	1.0	"	"	"	"	"	"	
Xylenes (total)	ND	2.0	"	"	"	"	"	"	

Date Sampled: **11/13/18 12:05**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Surrogate: 1,2-Dichloroethane-d4		100 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		94.7 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		89.0 %	21-167		"	"	"	"	

Summit Scientific

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



Tasman Geosciences
6899 Pecos St, Unit C
Denver CO, 80221

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

Project Number: [none]
Project Manager: Brandon Brun

Reported:
11/19/18 10:26

BH02R
1811154-02 (Water)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **11/13/18 12:17**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Benzene	ND	1.0	ug/l	1	1811184	11/14/18	11/15/18	EPA 8260B	
Toluene	ND	1.0	"	"	"	"	"	"	
Ethylbenzene	ND	1.0	"	"	"	"	"	"	
Xylenes (total)	ND	2.0	"	"	"	"	"	"	

Date Sampled: **11/13/18 12:17**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: 1,2-Dichloroethane-d4		102 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		97.0 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		87.6 %	21-167		"	"	"	"	

Summit Scientific

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Tasman Geosciences
6899 Pecos St, Unit C
Denver CO, 80221

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

Project Number: [none]
Project Manager: Brandon Bruns

Reported:
11/19/18 10:26

BH03R
1811154-03 (Water)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **11/13/18 12:45**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Benzene	8.8	1.0		ug/l	1	1811184	11/14/18	11/15/18	EPA 8260B	
Toluene	1.0	1.0		"	"	"	"	"	"	
Ethylbenzene	10	1.0		"	"	"	"	"	"	
Xylenes (total)	18	2.0		"	"	"	"	"	"	

Date Sampled: **11/13/18 12:45**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Surrogate: 1,2-Dichloroethane-d4		101 %		23-173		"	"	"	"	
Surrogate: Toluene-d8		97.4 %		20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		93.5 %		21-167		"	"	"	"	

Summit Scientific

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Tasman Geosciences
6899 Pecos St, Unit C
Denver CO, 80221

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

Project Number: [none]
Project Manager: Brandon Bruns

Reported:
11/19/18 10:26

BH04R
1811154-04 (Water)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **11/13/18 12:55**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Benzene	92	1.0		ug/l	1	1811184	11/14/18	11/15/18	EPA 8260B	
Toluene	ND	1.0		"	"	"	"	"	"	
Ethylbenzene	22	1.0		"	"	"	"	"	"	
Xylenes (total)	100	2.0		"	"	"	"	"	"	

Date Sampled: **11/13/18 12:55**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Surrogate: 1,2-Dichloroethane-d4		110 %		23-173		"	"	"	"	
Surrogate: Toluene-d8		98.2 %		20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		92.7 %		21-167		"	"	"	"	

Summit Scientific

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Tasman Geosciences
6899 Pecos St, Unit C
Denver CO, 80221

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

Project Number: [none]
Project Manager: Brandon Bruns

Reported:
11/19/18 10:26

BH05R
1811154-05 (Water)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **11/13/18 12:28**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Benzene	ND	1.0	ug/l	1	1811184	11/14/18	11/15/18	EPA 8260B	
Toluene	ND	1.0	"	"	"	"	"	"	
Ethylbenzene	ND	1.0	"	"	"	"	"	"	
Xylenes (total)	ND	2.0	"	"	"	"	"	"	

Date Sampled: **11/13/18 12:28**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: 1,2-Dichloroethane-d4		105 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		95.3 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		87.7 %	21-167		"	"	"	"	

Summit Scientific

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



Tasman Geosciences
6899 Pecos St, Unit C
Denver CO, 80221

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

Project Number: [none]
Project Manager: Brandon Bruns

Reported:
11/19/18 10:26

BH06R
1811154-06 (Water)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **11/13/18 11:50**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Benzene	ND	1.0	ug/l	1	1811184	11/14/18	11/15/18	EPA 8260B	
Toluene	ND	1.0	"	"	"	"	"	"	
Ethylbenzene	ND	1.0	"	"	"	"	"	"	
Xylenes (total)	ND	2.0	"	"	"	"	"	"	

Date Sampled: **11/13/18 11:50**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: 1,2-Dichloroethane-d4		103 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		96.8 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		87.0 %	21-167		"	"	"	"	

Summit Scientific

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Tasman Geosciences
6899 Pecos St, Unit C
Denver CO, 80221

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

Project Number: [none]
Project Manager: Brandon Bruns

Reported:
11/19/18 10:26

BH07R
1811154-07 (Water)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **11/13/18 11:40**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Benzene	ND	1.0	ug/l	1	1811184	11/14/18	11/15/18	EPA 8260B	
Toluene	ND	1.0	"	"	"	"	"	"	
Ethylbenzene	ND	1.0	"	"	"	"	"	"	
Xylenes (total)	ND	2.0	"	"	"	"	"	"	

Date Sampled: **11/13/18 11:40**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: 1,2-Dichloroethane-d4		98.6 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		95.0 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		86.7 %	21-167		"	"	"	"	

Summit Scientific

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Tasman Geosciences
6899 Pecos St, Unit C
Denver CO, 80221

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

Project Number: [none]
Project Manager: Brandon Bruns

Reported:
11/19/18 10:26

BH09R
1811154-08 (Water)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **11/13/18 11:25**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Benzene	ND	1.0	ug/l	1	1811184	11/14/18	11/15/18	EPA 8260B	
Toluene	ND	1.0	"	"	"	"	"	"	
Ethylbenzene	ND	1.0	"	"	"	"	"	"	
Xylenes (total)	ND	2.0	"	"	"	"	"	"	

Date Sampled: **11/13/18 11:25**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: 1,2-Dichloroethane-d4		100 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		97.2 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		86.0 %	21-167		"	"	"	"	

Summit Scientific

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Tasman Geosciences
6899 Pecos St, Unit C
Denver CO, 80221

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

Project Number: [none]
Project Manager: Brandon Bruns

Reported:
11/19/18 10:26

BH10
1811154-09 (Water)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **11/13/18 11:42**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Benzene	11	1.0		ug/l	1	1811184	11/14/18	11/15/18	EPA 8260B	
Toluene	ND	1.0		"	"	"	"	"	"	
Ethylbenzene	100	1.0		"	"	"	"	"	"	
Xylenes (total)	380	50		"	25	"	"	"	"	

Date Sampled: **11/13/18 11:42**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Surrogate: 1,2-Dichloroethane-d4		102 %		23-173		"	"	"	"	
Surrogate: Toluene-d8		99.1 %		20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		101 %		21-167		"	"	"	"	

Summit Scientific

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Tasman Geosciences
6899 Pecos St, Unit C
Denver CO, 80221

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

Project Number: [none]
Project Manager: Brandon Bruns

Reported:
11/19/18 10:26

BH11R
1811154-10 (Water)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **11/13/18 12:40**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Benzene	140	1.0	ug/l	1	1811184	11/14/18	11/15/18	EPA 8260B	
Toluene	ND	1.0	"	"	"	"	"	"	
Ethylbenzene	9.8	1.0	"	"	"	"	"	"	
Xylenes (total)	24	2.0	"	"	"	"	"	"	

Date Sampled: **11/13/18 12:40**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: 1,2-Dichloroethane-d4		106 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		96.6 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		92.8 %	21-167		"	"	"	"	

Summit Scientific

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Tasman Geosciences
6899 Pecos St, Unit C
Denver CO, 80221

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

Project Number: [none]
Project Manager: Brandon Bruns

Reported:
11/19/18 10:26

BH12R
1811154-11 (Water)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **11/13/18 11:30**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Benzene	ND	1.0	ug/l	1	1811184	11/14/18	11/15/18	EPA 8260B	
Toluene	ND	1.0	"	"	"	"	"	"	
Ethylbenzene	ND	1.0	"	"	"	"	"	"	
Xylenes (total)	ND	2.0	"	"	"	"	"	"	

Date Sampled: **11/13/18 11:30**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: 1,2-Dichloroethane-d4		99.8 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		97.4 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		88.7 %	21-167		"	"	"	"	

Summit Scientific

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Tasman Geosciences
6899 Pecos St, Unit C
Denver CO, 80221

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

Project Number: [none]
Project Manager: Brandon Bruns

Reported:
11/19/18 10:26

BH13R
1811154-12 (Water)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **11/13/18 12:15**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Benzene	ND	1.0	ug/l	1	1811184	11/14/18	11/15/18	EPA 8260B	
Toluene	ND	1.0	"	"	"	"	"	"	
Ethylbenzene	ND	1.0	"	"	"	"	"	"	
Xylenes (total)	ND	2.0	"	"	"	"	"	"	

Date Sampled: **11/13/18 12:15**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: 1,2-Dichloroethane-d4		97.9 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		94.1 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		91.8 %	21-167		"	"	"	"	

Summit Scientific

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Tasman Geosciences
6899 Pecos St, Unit C
Denver CO, 80221

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

Project Number: [none]
Project Manager: Brandon Bruns

Reported:
11/19/18 10:26

BH14
1811154-13 (Water)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **11/13/18 11:58**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Benzene	ND	1.0	ug/l	1	1811184	11/14/18	11/15/18	EPA 8260B	
Toluene	ND	1.0	"	"	"	"	"	"	
Ethylbenzene	ND	1.0	"	"	"	"	"	"	
Xylenes (total)	ND	2.0	"	"	"	"	"	"	

Date Sampled: **11/13/18 11:58**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: 1,2-Dichloroethane-d4		96.3 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		95.4 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		86.3 %	21-167		"	"	"	"	

Summit Scientific

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Tasman Geosciences
6899 Pecos St, Unit C
Denver CO, 80221

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

Project Number: [none]
Project Manager: Brandon Bruns

Reported:
11/19/18 10:26

BH15
1811154-14 (Water)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **11/13/18 11:10**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Benzene	ND	1.0	ug/l	1	1811184	11/14/18	11/15/18	EPA 8260B	
Toluene	ND	1.0	"	"	"	"	"	"	
Ethylbenzene	ND	1.0	"	"	"	"	"	"	
Xylenes (total)	ND	2.0	"	"	"	"	"	"	

Date Sampled: **11/13/18 11:10**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: 1,2-Dichloroethane-d4		103 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		100 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		91.2 %	21-167		"	"	"	"	

Summit Scientific

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Tasman Geosciences
6899 Pecos St, Unit C
Denver CO, 80221

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

Project Number: [none]
Project Manager: Brandon Brun

Reported:
11/19/18 10:26

BH16
1811154-15 (Water)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **11/13/18 11:08**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Benzene	ND	1.0	ug/l	1	1811184	11/14/18	11/15/18	EPA 8260B	
Toluene	ND	1.0	"	"	"	"	"	"	
Ethylbenzene	ND	1.0	"	"	"	"	"	"	
Xylenes (total)	ND	2.0	"	"	"	"	"	"	

Date Sampled: **11/13/18 11:08**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: 1,2-Dichloroethane-d4		98.3 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		95.3 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		88.9 %	21-167		"	"	"	"	

Summit Scientific

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Tasman Geosciences
6899 Pecos St, Unit C
Denver CO, 80221

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

Project Number: [none]
Project Manager: Brandon Brunns

Reported:
11/19/18 10:26

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 1811184 - EPA 5030 Water MS

Blank (1811184-BLK1)

Prepared & Analyzed: 11/14/18

Benzene	ND	1.0	ug/l							
Toluene	ND	1.0	"							
Ethylbenzene	ND	1.0	"							
Xylenes (total)	ND	2.0	"							
Surrogate: 1,2-Dichloroethane-d4	13.0		"	13.2		98.2	23-173			
Surrogate: Toluene-d8	13.2		"	13.3		98.8	20-170			
Surrogate: 4-Bromofluorobenzene	11.6		"	13.3		86.7	21-167			

LCS (1811184-BS1)

Prepared & Analyzed: 11/14/18

Benzene	32.0	1.0	ug/l	33.3		96.1	70-130			
Toluene	36.4	1.0	"	33.3		109	70-130			
Ethylbenzene	42.1	1.0	"	33.3		126	70-130			
m,p-Xylene	82.6	2.0	"	66.7		124	70-130			
o-Xylene	37.8	1.0	"	33.3		113	70-130			
Surrogate: 1,2-Dichloroethane-d4	13.0		"	13.2		98.9	23-173			
Surrogate: Toluene-d8	13.3		"	13.3		99.6	20-170			
Surrogate: 4-Bromofluorobenzene	12.4		"	13.3		93.3	21-167			

Matrix Spike (1811184-MS1)

Source: 1811113-21

Prepared & Analyzed: 11/14/18

Benzene	34.0	1.0	ug/l	33.3	ND	102	70-130			
Toluene	35.6	1.0	"	33.3	ND	107	70-130			
Ethylbenzene	43.3	1.0	"	33.3	ND	130	70-130			
m,p-Xylene	83.0	2.0	"	66.7	ND	125	70-130			
o-Xylene	40.6	1.0	"	33.3	ND	122	70-130			
Surrogate: 1,2-Dichloroethane-d4	13.8		"	13.2		105	23-173			
Surrogate: Toluene-d8	12.8		"	13.3		96.2	20-170			
Surrogate: 4-Bromofluorobenzene	12.3		"	13.3		92.3	21-167			

Summit Scientific

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Tasman Geosciences
6899 Pecos St, Unit C
Denver CO, 80221

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

Project Number: [none]
Project Manager: Brandon Bruns

Reported:
11/19/18 10:26

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 1811184 - EPA 5030 Water MS

Matrix Spike Dup (1811184-MSD1)		Source: 1811113-21			Prepared & Analyzed: 11/14/18					
Benzene	33.1	1.0	ug/l	33.3	ND	99.3	70-130	2.74	30	QM-07
Toluene	36.8	1.0	"	33.3	ND	110	70-130	3.15	30	
Ethylbenzene	44.5	1.0	"	33.3	ND	134	70-130	2.69	30	
m,p-Xylene	86.1	2.0	"	66.7	ND	129	70-130	3.57	30	
o-Xylene	39.5	1.0	"	33.3	ND	119	70-130	2.67	30	
Surrogate: 1,2-Dichloroethane-d4	13.3		"	13.2		101	23-173			
Surrogate: Toluene-d8	12.7		"	13.3		95.6	20-170			
Surrogate: 4-Bromofluorobenzene	12.6		"	13.3		94.3	21-167			

Summit Scientific

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Tasman Geosciences
6899 Pecos St, Unit C
Denver CO, 80221

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

Project Number: [none]
Project Manager: Brandon Bruns

Reported:
11/19/18 10:26

Notes and Definitions

QM-07	The spike recovery was outside acceptance limits for the MS and/or MSD. The batch was accepted based on acceptable LCS/LCSD recovery.
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