

SECOND QUARTER 2019 SITE MONITORING DATA

FRANK 2, 5, 6 CC7-19, 29

COGCC SPILL TRACKING # 447515
COGCC REMEDIATION # 10113

Prepared for:



2115 117th Avenue
Greeley, CO 80631

Prepared by:



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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
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
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
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	02/07/18	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

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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	02/06/19	4615.77	19.10	14.96	ND	ND	4600.81
BH04R	05/13/19	4615.77	19.52	14.45	ND	ND	4601.32
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
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
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
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

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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)
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
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
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
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
BH12R	05/13/19	4614.19	18.76	12.85	ND	ND	4601.34
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

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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)
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
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
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

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)
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
BH01R	02/06/19	<1.0	<1.0	<1.0	<2.0
BH01R	05/13/19	<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
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
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

TABLE 2
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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
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
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
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
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

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)
COGCC Standard		5	560	700	1,400
BH07R	05/13/19	<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
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
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
BH11R	02/06/19	<1.0	<1.0	<1.0	<2.0
BH11R	05/13/19	3.6	<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

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)
COGCC Standard		5	560	700	1,400
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
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
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
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
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
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

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)
COGCC Standard		5	560	700	1,400
BH16	02/06/19	<1.0	<1.0	<1.0	<2.0
BH16	05/13/19	<1.0	<1.0	<1.0	<2.0

Notes:

COGCC = Colorado Oil and Gas Conservation Commission

µg/L = Micrograms per liter

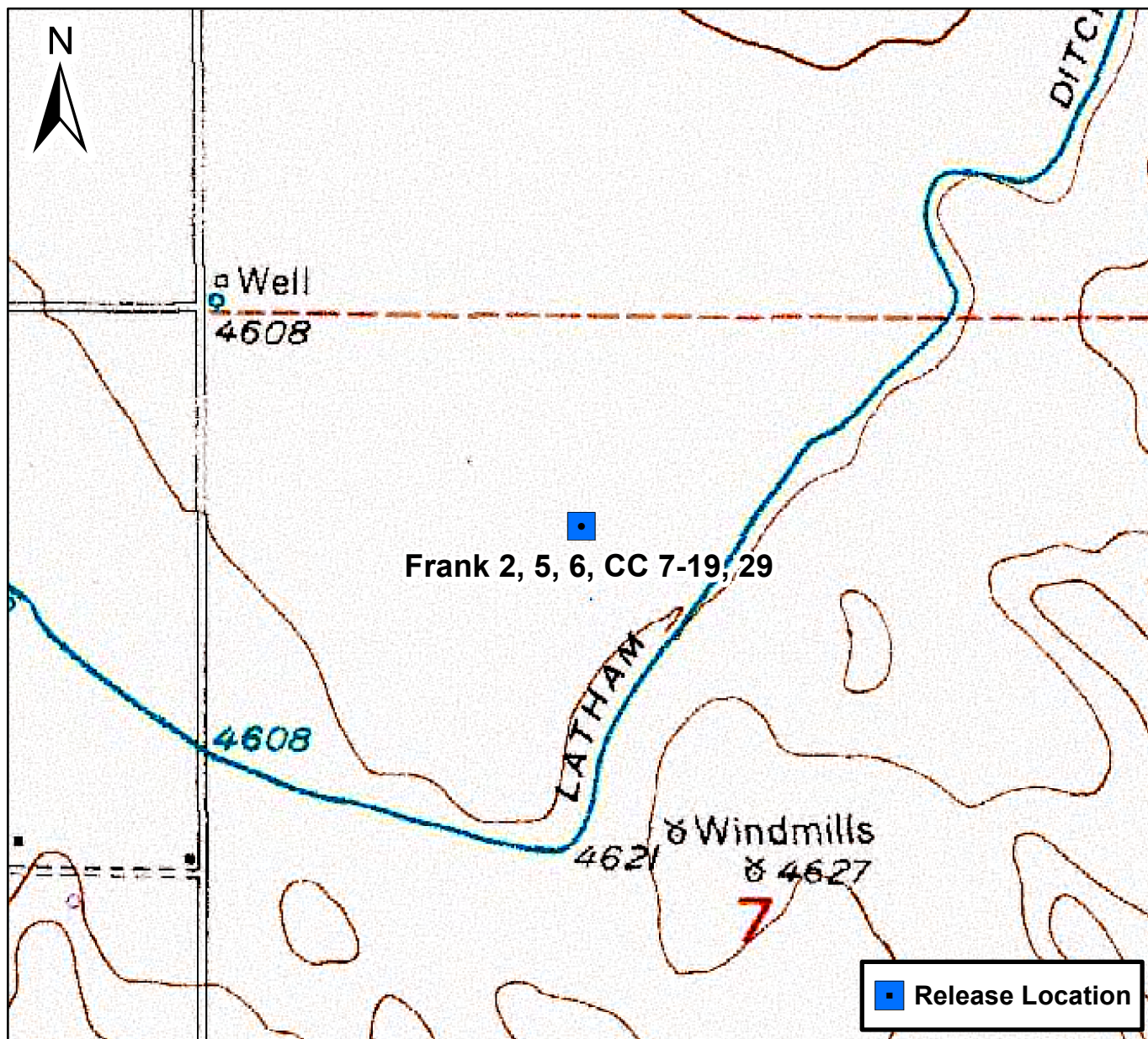
< = Analytical result is less than the indicated laboratory reporting limit

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



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
DESIGNED BY:	JW
DRAWN BY:	JW



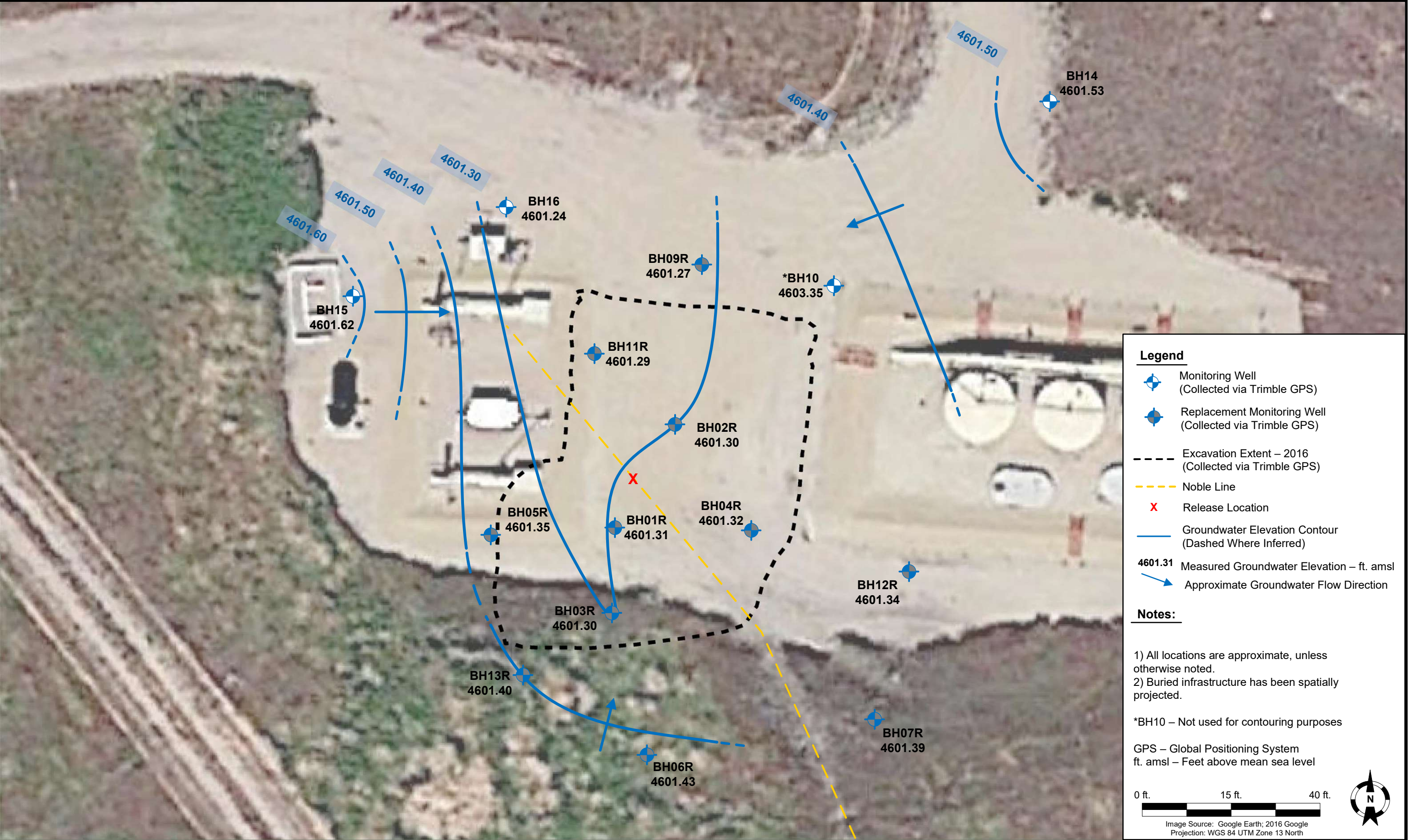
TASMAN
GEOSCIENCES

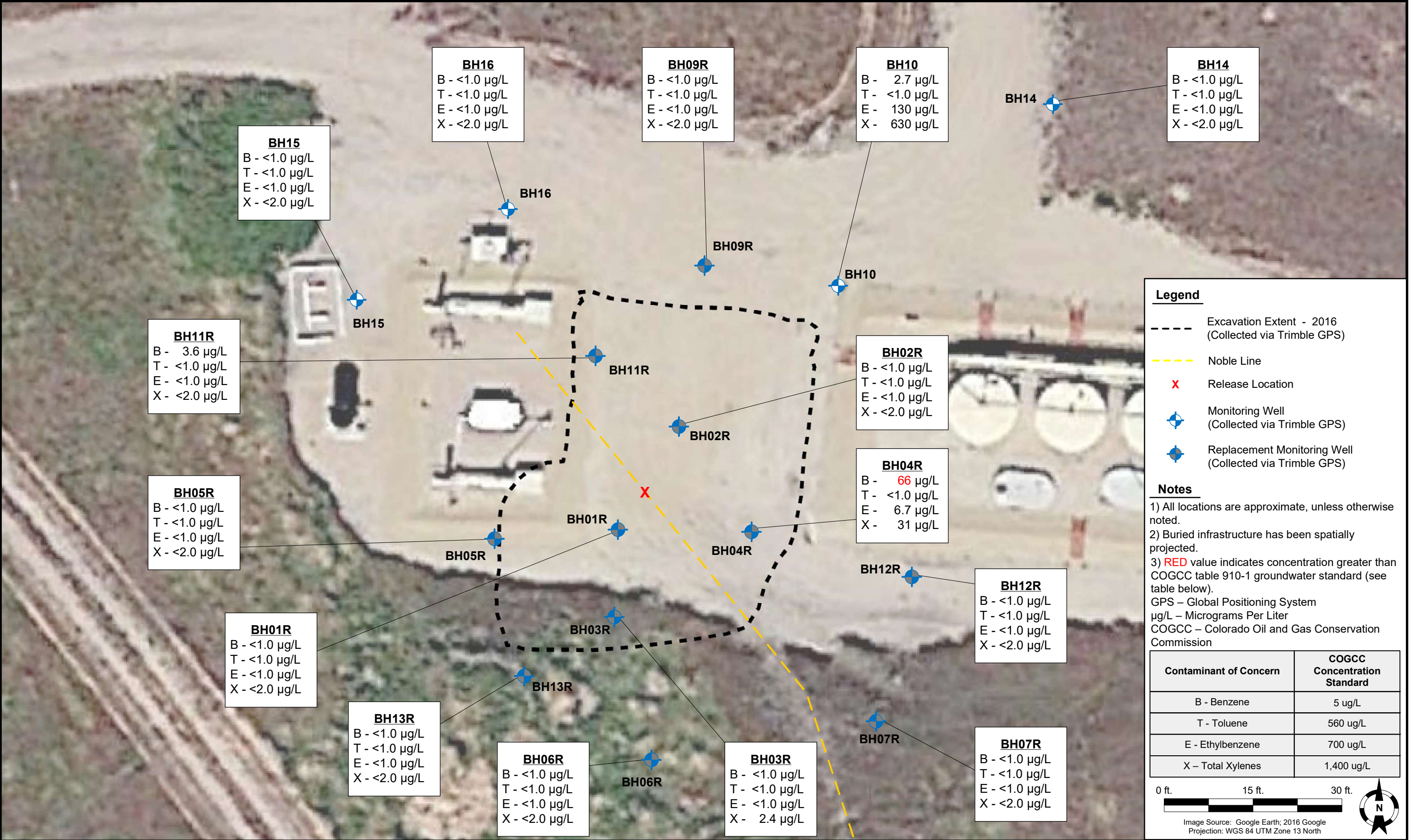
Tasman Geosciences, Inc.
6899 Pecos Street – Unit C
Denver, CO 80221

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





Summit Scientific

4653 Table Mountain Drive, Golden, Colorado 80403

303.277.9310

May 20, 2019

Brandon Bruns

Tasman Geosciences

6899 Pecos St, Unit C

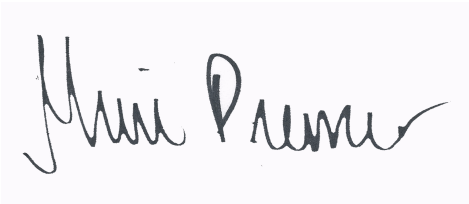
Denver, CO 80221

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

Work Order # 1905141

Enclosed are the results of analyses for samples received by Summit Scientific on 05/13/19 17:00. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

A handwritten signature in black ink, reading "Muri Premier", on a light blue background.

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:
05/20/19 10:05

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
BH01R	1905141-01	Water	05/13/19 12:45	05/13/19 17:00
BH02R	1905141-02	Water	05/13/19 12:55	05/13/19 17:00
BH03R	1905141-03	Water	05/13/19 12:43	05/13/19 17:00
BH04R	1905141-04	Water	05/13/19 13:04	05/13/19 17:00
BH05R	1905141-05	Water	05/13/19 12:40	05/13/19 17:00
BH06R	1905141-06	Water	05/13/19 12:20	05/13/19 17:00
BH07R	1905141-07	Water	05/13/19 12:00	05/13/19 17:00
BH09R	1905141-08	Water	05/13/19 13:09	05/13/19 17:00
BH10	1905141-09	Water	05/13/19 12:10	05/13/19 17:00
BH11R	1905141-10	Water	05/13/19 12:30	05/13/19 17:00
BH12R	1905141-11	Water	05/13/19 12:12	05/13/19 17:00
BH13R	1905141-12	Water	05/13/19 12:35	05/13/19 17:00
BH14	1905141-13	Water	05/13/19 12:15	05/13/19 17:00
BH15	1905141-14	Water	05/13/19 12:15	05/13/19 17:00
BH16	1905141-15	Water	05/13/19 12:25	05/13/19 17:00

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

S₂

4653 Table Mountain Drive ♦ Golden, Colorado 80403

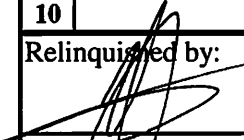
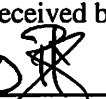
303-277-9310

190514.2

Page 2 of 2

Client:	Noble / Tasman	Project Manager:	Brandon Bruns,
Address:	6899 Pecos Street	E-Mail:	Bbruns@tasman-geo.com
City/State/Zip:	Denver / CO/ 80221		
Phone:	970.210.6571	Project Name:	FRANK 2,5,6-CC7-19,29
Sampler Name:	T. Lichtenberg	Project Number:	

ID	Sample Description	Date Sampled	Time Sampled	# of containers	Preservative				Matrix				Analysis Requested						Special Instructions
					HCl	HNO ₃	None	Other	Water	Soil	Air-Canister #	Other	8260 BTEX	8260B GBTEXN	8015 DRO	pH, EC, SAR			
1	BH12R	5/13/19	1212	3	X				X					X					
2	BH13R	1	1235	1	1				1					1					
3	BH14	1	1215	1	1				1					1					
4	BH15	1	1215	1	1				1					1					
5	BH16	1	1225	1	1				1					1					
6																			
7																			
8																			
9																			
10																			

Relinquished by:	Date/Time:	Received by:	Date/Time:	Turn Around Time	(Check)	Notes:
	5/13/19 @ 1000	Tasman's Lock Box	5/13/19 @ 1000	Same Day	72 hours	
Relinquished by:	Date/Time:	Received by:	Date/Time:	24 hours	Standard	
Tasman's Lock Box	5/13/19 18:00		05/13/19 18:00	48 hours		
Relinquished by:	Date/Time:	Received by:	Date/Time:	Sample Integrity:		
				Temperature Upon Receipt:	3.1	
				Samples Intact:	Yes	No

Summit Scientific

S₂


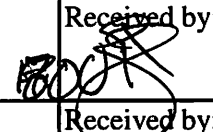
190514/1

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:	6899 Pecos Street	E-Mail:	Bbruns@tasman-geo.com
City/State/Zip:	Denver / CO/ 80221		
Phone:	970.210.6571	Project Name:	FRANK 2,5,6-CC7-19, 29
Sampler Name:	T. Lichtenberg	Project Number:	

ID	Sample Description	Date Sampled	Time Sampled	# of containers	Preservative				Matrix				Analysis Requested						Special Instructions	
					HCl	HNO3	None	Other	Water	Soil	Air-Canister #	Other	8260 BTEX	8260B GBTEXN	8015 DRO	pH, EC, SAR				
1	BH01R	5/13/19	1245	3	X				X					X						
2	BH02R		1255																	
3	BH03R		1243																	
4	BH04R		1304																	
5	BH05R		1240																	
6	BH06R		1220																	
7	BH07R		1200																	
8	BH09R		1309																	
9	BH10		1210																	
10	BH11R		1230																	

Relinquished by:	Date/Time:	Received by:	Date/Time:	Turn Around Time	(Check)	Notes:
	5/13/19 01:00	Tasman's Lock Box	5/13/19 06:00	Same Day	72 hours	
Relinquished by:	Date/Time:	Received by:	Date/Time:	24 hours	Standard	
Tasman's Lock Box	5/13/19 18:00		5/13/19 18:00	48 hours		
Relinquished by:	Date/Time:	Received by:	Date/Time:	Sample Integrity:	Temperature Upon Receipt:	
					3.1	
				Samples Intact:	Yes No	

Sample Receipt Checklist

S2 Work Order 1905141

Client: TASMAN/NOBLE

Client Project ID: FRANK 25,6-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)	<u>3.1</u>
-----------	------------

Thermometer ID: 61857155-K

	Yes	No	N/A	Comments (if any)
If samples require cooling, was the temperature at 4°C +/- 2°C ⁽¹⁾ ?	<input checked="" type="checkbox"/>			
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⁾ ?	<input checked="" type="checkbox"/>			
Was adequate sample volume provided ⁽¹⁾ ?	<input checked="" type="checkbox"/>			
If custody seals are present, are they intact ⁽¹⁾ ?			<input checked="" type="checkbox"/>	
Are samples with holding times due within 48 hours sample due within 48 hours present?		<input checked="" type="checkbox"/>		
Is a chain-of-custody (COC) form present and filled out completely ⁽¹⁾ ?	<input checked="" type="checkbox"/>			
Does the COC agree with the number and type of sample bottles received ⁽¹⁾ ?	<input checked="" type="checkbox"/>			
Do the sample IDs on the bottle labels match the COC ⁽¹⁾ ?	<input checked="" type="checkbox"/>			
Is the COC properly relinquished by the client w/ date and time recorded ⁽¹⁾ ?	<input checked="" type="checkbox"/>			
For volatiles in water – is there headspace present? If yes, contact client and note in narrative.		<input checked="" type="checkbox"/>		
Are samples preserved that require preservation (excluding cooling) ⁽¹⁾ ?	<input checked="" type="checkbox"/>			<u>HCl</u>
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⁾ ?	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>	
Record the pH in Comments.				
If dissolved metals are requested, were samples field filtered?		<input checked="" type="checkbox"/>		
Additional Comments (if any):				

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

EE
Custodian Printed Name or Initials

[Signature]
Signature of Custodian

5/13/19 18:00
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:
05/20/19 10:05

BH01R
1905141-01 (Water)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **05/13/19 12:45**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Benzene	ND	1.0	ug/l	1	1905185	05/14/19	05/15/19	EPA 8260B	
Toluene	ND	1.0	"	"	"	"	"	"	
Ethylbenzene	ND	1.0	"	"	"	"	"	"	
Xylenes (total)	ND	2.0	"	"	"	"	"	"	

Date Sampled: **05/13/19 12:45**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Surrogate: 1,2-Dichloroethane-d4		107 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		97.8 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		94.4 %	21-167		"	"	"	"	

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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:
05/20/19 10:05

BH02R
1905141-02 (Water)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **05/13/19 12:55**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Benzene	ND	1.0	ug/l	1	1905185	05/14/19	05/15/19	EPA 8260B	
Toluene	ND	1.0	"	"	"	"	"	"	
Ethylbenzene	ND	1.0	"	"	"	"	"	"	
Xylenes (total)	ND	2.0	"	"	"	"	"	"	

Date Sampled: **05/13/19 12:55**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: 1,2-Dichloroethane-d4		109 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		99.2 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		95.1 %	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:
05/20/19 10:05

BH03R
1905141-03 (Water)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **05/13/19 12:43**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Benzene	ND	1.0	ug/l	1	1905185	05/14/19	05/15/19	EPA 8260B	
Toluene	ND	1.0	"	"	"	"	"	"	
Ethylbenzene	ND	1.0	"	"	"	"	"	"	
Xylenes (total)	2.4	2.0	"	"	"	"	"	"	

Date Sampled: **05/13/19 12:43**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: 1,2-Dichloroethane-d4		110 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		100 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		96.6 %	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:
05/20/19 10:05

BH04R
1905141-04 (Water)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **05/13/19 13:04**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Benzene	66	1.0	ug/l	1	1905185	05/14/19	05/15/19	EPA 8260B	
Toluene	ND	1.0	"	"	"	"	"	"	
Ethylbenzene	6.7	1.0	"	"	"	"	"	"	
Xylenes (total)	31	2.0	"	"	"	"	"	"	

Date Sampled: **05/13/19 13:04**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: 1,2-Dichloroethane-d4		110 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		97.5 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		98.4 %	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:
05/20/19 10:05

BH05R
1905141-05 (Water)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **05/13/19 12:40**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Benzene	ND	1.0	ug/l	1	1905185	05/14/19	05/15/19	EPA 8260B	
Toluene	ND	1.0	"	"	"	"	"	"	
Ethylbenzene	ND	1.0	"	"	"	"	"	"	
Xylenes (total)	ND	2.0	"	"	"	"	"	"	

Date Sampled: **05/13/19 12:40**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: 1,2-Dichloroethane-d4		106 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		98.2 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		96.5 %	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:
05/20/19 10:05

BH06R
1905141-06 (Water)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **05/13/19 12:20**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Benzene	ND	1.0	ug/l	1	1905185	05/14/19	05/15/19	EPA 8260B	
Toluene	ND	1.0	"	"	"	"	"	"	
Ethylbenzene	ND	1.0	"	"	"	"	"	"	
Xylenes (total)	ND	2.0	"	"	"	"	"	"	

Date Sampled: **05/13/19 12:20**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: 1,2-Dichloroethane-d4		104 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		99.0 %	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:
05/20/19 10:05

BH07R
1905141-07 (Water)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **05/13/19 12:00**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Benzene	ND	1.0	ug/l	1	1905185	05/14/19	05/15/19	EPA 8260B	
Toluene	ND	1.0	"	"	"	"	"	"	
Ethylbenzene	ND	1.0	"	"	"	"	"	"	
Xylenes (total)	ND	2.0	"	"	"	"	"	"	

Date Sampled: **05/13/19 12:00**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: 1,2-Dichloroethane-d4		108 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		99.8 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		95.5 %	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:
05/20/19 10:05

BH09R
1905141-08 (Water)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **05/13/19 13:09**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Benzene	ND	1.0	ug/l	1	1905185	05/14/19	05/15/19	EPA 8260B	
Toluene	ND	1.0	"	"	"	"	"	"	
Ethylbenzene	ND	1.0	"	"	"	"	"	"	
Xylenes (total)	ND	2.0	"	"	"	"	"	"	

Date Sampled: **05/13/19 13:09**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: 1,2-Dichloroethane-d4		108 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		99.2 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		95.5 %	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:
05/20/19 10:05

BH10
1905141-09 (Water)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **05/13/19 12:10**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Benzene	2.7	1.0		ug/l	1	1905185	05/14/19	05/15/19	EPA 8260B	
Toluene	ND	1.0		"	"	"	"	"	"	
Ethylbenzene	130	1.0		"	"	"	"	"	"	
Xylenes (total)	630	200		"	100	"	"	05/15/19	"	

Date Sampled: **05/13/19 12:10**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Surrogate: 1,2-Dichloroethane-d4		111 %		23-173		"	"	05/15/19	"	
Surrogate: Toluene-d8		98.0 %		20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		103 %		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:
05/20/19 10:05

BH11R
1905141-10 (Water)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **05/13/19 12:30**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Benzene	3.6	1.0		ug/l	1	1905185	05/14/19	05/15/19	EPA 8260B	
Toluene	ND	1.0		"	"	"	"	"	"	
Ethylbenzene	ND	1.0		"	"	"	"	"	"	
Xylenes (total)	ND	2.0		"	"	"	"	"	"	

Date Sampled: **05/13/19 12:30**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Surrogate: 1,2-Dichloroethane-d4		95.5 %		23-173		"	"	"	"	
Surrogate: Toluene-d8		102 %		20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		89.7 %		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:
05/20/19 10:05

BH12R
1905141-11 (Water)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **05/13/19 12:12**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Benzene	ND	1.0	ug/l	1	1905185	05/14/19	05/16/19	EPA 8260B	
Toluene	ND	1.0	"	"	"	"	"	"	
Ethylbenzene	ND	1.0	"	"	"	"	"	"	
Xylenes (total)	ND	2.0	"	"	"	"	"	"	

Date Sampled: **05/13/19 12:12**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: 1,2-Dichloroethane-d4		93.8 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		103 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		90.6 %	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:
05/20/19 10:05

BH13R
1905141-12 (Water)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **05/13/19 12:35**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Benzene	ND	1.0	ug/l	1	1905185	05/14/19	05/16/19	EPA 8260B	
Toluene	ND	1.0	"	"	"	"	"	"	
Ethylbenzene	ND	1.0	"	"	"	"	"	"	
Xylenes (total)	ND	2.0	"	"	"	"	"	"	

Date Sampled: **05/13/19 12:35**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: 1,2-Dichloroethane-d4		92.3 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		102 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		90.8 %	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:
05/20/19 10:05

BH14
1905141-13 (Water)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **05/13/19 12:15**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Benzene	ND	1.0	ug/l	1	1905185	05/14/19	05/16/19	EPA 8260B	
Toluene	ND	1.0	"	"	"	"	"	"	
Ethylbenzene	ND	1.0	"	"	"	"	"	"	
Xylenes (total)	ND	2.0	"	"	"	"	"	"	

Date Sampled: **05/13/19 12:15**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: 1,2-Dichloroethane-d4		96.8 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		102 %	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:
05/20/19 10:05

BH15
1905141-14 (Water)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **05/13/19 12:15**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Benzene	ND	1.0	ug/l	1	1905185	05/14/19	05/16/19	EPA 8260B	
Toluene	ND	1.0	"	"	"	"	"	"	
Ethylbenzene	ND	1.0	"	"	"	"	"	"	
Xylenes (total)	ND	2.0	"	"	"	"	"	"	

Date Sampled: **05/13/19 12:15**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: 1,2-Dichloroethane-d4		95.4 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		102 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		90.6 %	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:
05/20/19 10:05

BH16
1905141-15 (Water)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **05/13/19 12:25**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Benzene	ND	1.0	ug/l	1	1905185	05/14/19	05/16/19	EPA 8260B	
Toluene	ND	1.0	"	"	"	"	"	"	
Ethylbenzene	ND	1.0	"	"	"	"	"	"	
Xylenes (total)	ND	2.0	"	"	"	"	"	"	

Date Sampled: **05/13/19 12:25**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: 1,2-Dichloroethane-d4		91.7 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		102 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		90.9 %	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 Brunns

Reported:
05/20/19 10:05

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 1905185 - EPA 5030 Water MS

Blank (1905185-BLK1)

Prepared: 05/14/19 Analyzed: 05/15/19

Benzene	ND	1.0	ug/l							
Toluene	ND	1.0	"							
Ethylbenzene	ND	1.0	"							
Xylenes (total)	ND	2.0	"							
Surrogate: 1,2-Dichloroethane-d4	13.2		"	13.3		99.1	23-173			
Surrogate: Toluene-d8	13.2		"	13.3		99.0	20-170			
Surrogate: 4-Bromofluorobenzene	12.7		"	13.3		95.2	21-167			

LCS (1905185-BS1)

Prepared: 05/14/19 Analyzed: 05/15/19

Benzene	40.5	1.0	ug/l	41.7		97.2	70-130			
Toluene	42.0	1.0	"	41.7		101	70-130			
Ethylbenzene	41.9	1.0	"	41.7		101	70-130			
m,p-Xylene	82.2	2.0	"	83.3		98.6	70-130			
o-Xylene	40.5	1.0	"	41.7		97.3	70-130			
Surrogate: 1,2-Dichloroethane-d4	13.8		"	13.3		104	23-173			
Surrogate: Toluene-d8	13.3		"	13.3		99.6	20-170			
Surrogate: 4-Bromofluorobenzene	13.0		"	13.3		97.9	21-167			

Matrix Spike (1905185-MS1)

Source: 1905141-01

Prepared: 05/14/19 Analyzed: 05/15/19

Benzene	44.0	1.0	ug/l	41.7	ND	106	70-130			
Toluene	45.0	1.0	"	41.7	ND	108	70-130			
Ethylbenzene	45.3	1.0	"	41.7	ND	109	70-130			
m,p-Xylene	89.4	2.0	"	83.3	ND	107	70-130			
o-Xylene	44.0	1.0	"	41.7	ND	106	70-130			
Surrogate: 1,2-Dichloroethane-d4	14.1		"	13.3		106	23-173			
Surrogate: Toluene-d8	13.2		"	13.3		99.2	20-170			
Surrogate: 4-Bromofluorobenzene	12.8		"	13.3		95.8	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:
05/20/19 10:05

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 1905185 - EPA 5030 Water MS

Matrix Spike Dup (1905185-MSD1)	Source: 1905141-01			Prepared: 05/14/19 Analyzed: 05/15/19						
Benzene	43.8	1.0	ug/l	41.7	ND	105	70-130	0.319	30	
Toluene	44.6	1.0	"	41.7	ND	107	70-130	0.827	30	
Ethylbenzene	44.6	1.0	"	41.7	ND	107	70-130	1.62	30	
m,p-Xylene	87.7	2.0	"	83.3	ND	105	70-130	1.89	30	
o-Xylene	43.3	1.0	"	41.7	ND	104	70-130	1.56	30	
Surrogate: 1,2-Dichloroethane-d4	14.5		"	13.3		108	23-173			
Surrogate: Toluene-d8	13.1		"	13.3		98.5	20-170			
Surrogate: 4-Bromofluorobenzene	12.7		"	13.3		95.4	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:
05/20/19 10:05

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