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## **Groundwater Monitoring Report - Second Quarter 2017 Nelson C-1**

July 14, 2017

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### **Prepared For:**

Whiting Petroleum Corporation

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## 1 Introduction

Talon/LPE (Talon) was contracted by Whiting Petroleum Corporation (Whiting) to conduct groundwater monitoring activities at the Nelson C1 site (Site) in Weld County, Colorado. The site is located at the northwest quarter of the southeast quarter of Section 18, Township 10 North, Range 58 West, 6th Principal Meridian at 40°50'10.72"N and 103°54'17.73"W (Attachment 1). The site is identified by the State of Colorado Oil and Gas Conservation Commission (COGCC) as Spill/Release Point Facility ID 441208. The Site Plan is shown on Figure 1, and the general site location is shown on Figure 6.

## 2 Objective

The primary objective of this document is to report on Site activities completed during Second Quarter 2017 which included groundwater monitoring and product removal.

## 3 Regulatory Framework

The COGCC has regulatory jurisdiction over oil and natural gas industry operations in the State of Colorado. Section 900 of the COGCC Rules is for Exploration and Production Waste Management. More specifically, Section 910 details the Concentrations and Sampling for Soil and Groundwater rules. The regulatory limits for specific analytes in groundwater are detailed in Table 910-1 and are summarized below.

Compound	COGCC Table 910-1 Groundwater Concentrations
Benzene	0.005 mg/L
Toluene	1.0 mg/L
Ethylbenzene	0.7 mg/L
Xylenes (total)	10 mg/L

## 4 Site Characteristics

### 4.1 Geography

The site is located in the Pawnee Grasslands in Weld County, which is the northeastern part of Colorado. The Grasslands are part of the Colorado Eastern Plains and are relatively flat with the exception of the Pawnee Creek which drains into the South Platte River.

### 4.2 Geologic Summary

Surficial geology surrounding the area consists of Tertiary age fluvial deposits of the lower Ogallala Formation. More specifically, these deposits are Miocene in age and are composed of gray to brown and semi-consolidated, ashy sands and silt beds with volcanic ash beds. Deposited material hardened into sandstone and siltstone which are grouped into three formations: White River, Arikaree, and Ogallala.

### 4.3 Groundwater

According to the Colorado Division of Water Resources Website, there are no water wells within 1,000-foot radius of the Site.

Depth to groundwater levels, as measured on June 15, 2017, in the 20 groundwater monitoring wells range from 27.15 to 40.17 feet below top of casing (Table 4), which are above-ground by approximately three (3) feet (ft). Several wells had measurable amounts of phase-separated hydrocarbons (PSH) during this monitoring event.

## 5 Groundwater Monitoring

### 5.1 Groundwater Sampling

The 20 monitoring wells were gauged for depth to water and depth to PSH on June 15, 2017 (Table 4). Wells with less than 0.1 inches of PSH were purged until the wells became dry. On June 16, 2017, Talon personnel collected groundwater samples from these wells. Monitoring wells MW3, MW-5, MW-6, MW-7, MW-17, and MW-20 were not sampled due to the presence of PSH. Figure 5 shows groundwater elevation contours and the hydraulic gradient based on wells with no measurable PSH. Monitoring well MW-8 is the highest groundwater elevation for the site, and the hydraulic gradient flows radially outward from that well. The gradient has been calculated to be approximately 0.016 ft/foot to the northeast between monitoring wells MW-8 and MW-11 and approximately 0.018 ft/foot to the north between monitoring wells MW-8 and MW-10.

The collected groundwater samples were submitted to Summit Scientific in Golden, Colorado (Summit) for analysis of benzene, toluene, ethylbenzene, and total xylenes (BTEX) via method SW8260. Purge water generated during development and sampling was placed in poly containers within secondary containment pending off-site disposal.

Table 1 in Attachment 2 summarizes the well completion and survey information. Groundwater analytical results are summarized in Table 2 and shown on Figure 2.

Groundwater laboratory analytical results for benzene ranged from below laboratory detection limits to 13 mg/L (MW-2). Benzene concentrations increased from First Quarter 2017 to Second Quarter 2017 in monitoring wells MW-4 and MW-15. Benzene concentrations decreased in monitoring wells MW-1, MW-8, MW-11, MW-14, MW-16, MW-18, and MW-19. Benzene concentrations remained unchanged in monitoring wells MW-9, MW-10, MW-12, and MW-13.

Analytical results for toluene ranged from below laboratory detection limits to 15 mg/L (MW-2). Toluene concentrations increased from First Quarter 2017 to Second Quarter 2017 in monitoring wells MW-1, MW-4, MW-15, and MW-19. Toluene concentrations decreased in monitoring wells MW-11 and MW-14, and MW-18. Toluene concentrations remained unchanged in monitoring wells MW-8, MW-9, MW-10, MW-12, MW-13, and MW-16.

Analytical results for ethylbenzene ranged from below laboratory detection limits to 1.5 mg/L (MW-16). Ethylbenzene concentrations increased from First Quarter 2017 to Second Quarter 2017 in monitoring wells MW-1, MW-4, MW-15, and MW-16. Ethylbenzene concentrations decreased in monitoring wells MW-14 and MW-18 and remained unchanged in monitoring wells MW-8, MW-9, MW-10, MW-11, MW-12, MW-13 and MW-19.

Analytical results for total xylenes ranged from below laboratory detection limits to 8.4 mg/L

(MW-16); all total xylenes analytical results were below COGCC Table 910-1 concentration levels during this monitoring event. Total xylenes concentrations increased in monitoring wells MW-1, MW-4, MW-15, and MW-16. Total xylenes concentrations decreased in monitoring wells MW-8, MW-11, MW-14, and MW-18, and remained unchanged in MW-9, MW-10, MW-12, MW-13, and MW-19.

A copy of the laboratory reports and chain of custody documentation is included in Attachment 3. Figure 3 shows the isoconcentration contours of dissolved-phase benzene analytical results.

## **6 Product Removal and Gauging**

Talon gauging data from June 15, 2017, reveals the presence PSH in monitoring wells MW-1, MW-2, MW3, MW-5, MW-6, MW-7, MW-17, and MW-20 ranging from 0.04 ft to 1.74 ft (Table 3). Figure 4 shows contours of PSH thickness.

Product recovery is performed twice per week via hand-bailing on monitoring wells containing measurable levels of free product. All waste produced by hand-bailing is stored on site in poly containers within secondary containment pending offsite disposal. Table 4 summarizes PSH removal and recovery on a monthly basis. To date, over 372 gallons of free product have been recovered from the site.

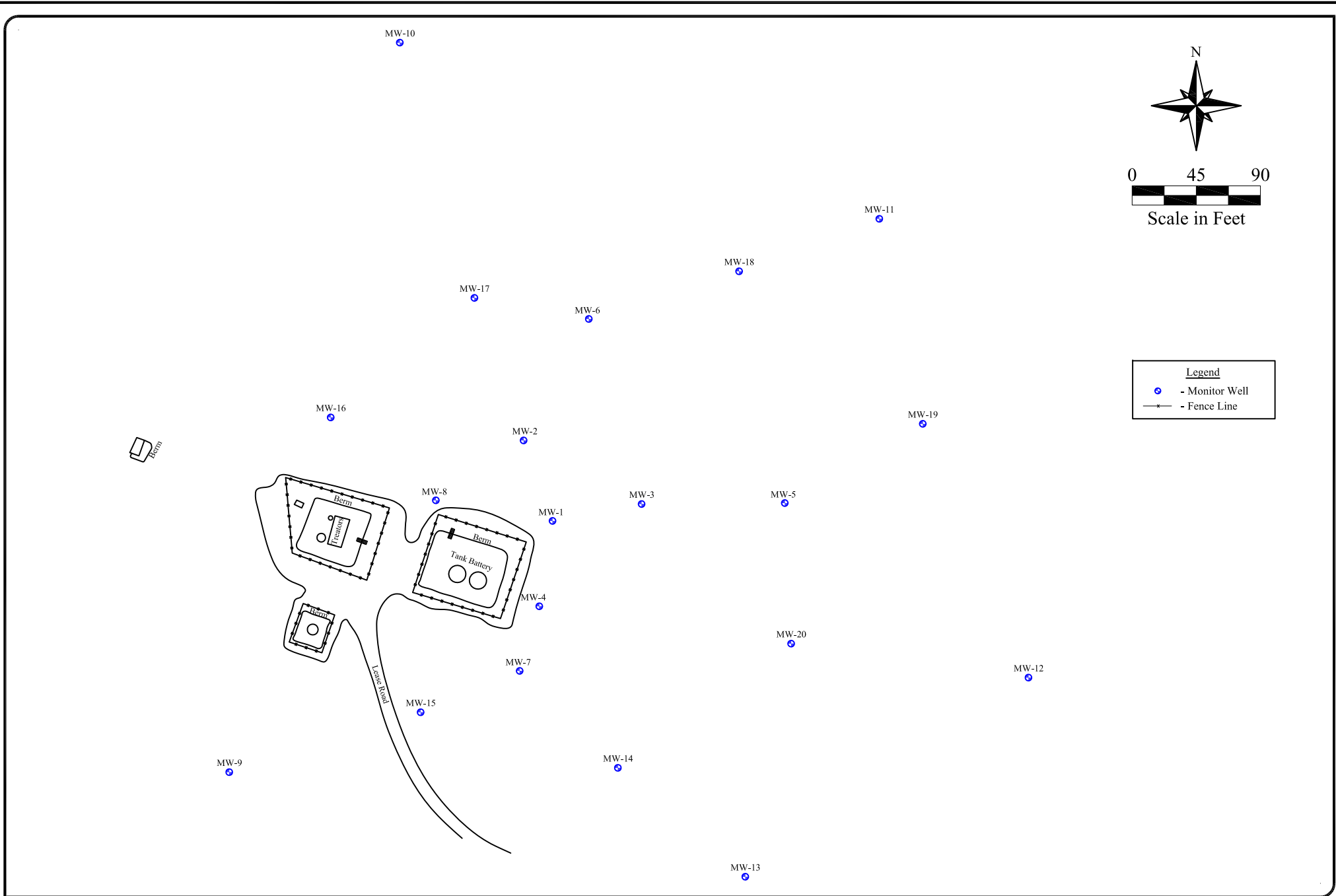
Product recovery efforts were suspended for two weeks prior to groundwater sampling activities to allow the fluid levels in each well to reach static equilibrium. Following the groundwater sampling event, product recovery efforts resumed.

## **7 Conclusions & Recommendations**

During the Second Quarter 2017, Talon collected groundwater samples from 14 of the 20 monitoring wells at the Site. Additionally, Talon collected a duplicate sample from MW-1 and sent it to the laboratory without a well identification number. Groundwater laboratory analytical results for benzene ranged from below laboratory detection limits to 13 mg/L (MW-2). Analytical results for toluene ranged from below laboratory detection limits to 15 mg/L (MW-2). Analytical results for ethylbenzene ranged from below laboratory detection limits to 1.5 mg/L (MW-16). Analytical results for total xylenes ranged from below laboratory detection limits to 8.4 mg/L (MW-16); all total xylenes analytical results were below COGCC Table 910-1 concentration levels during this monitoring event.

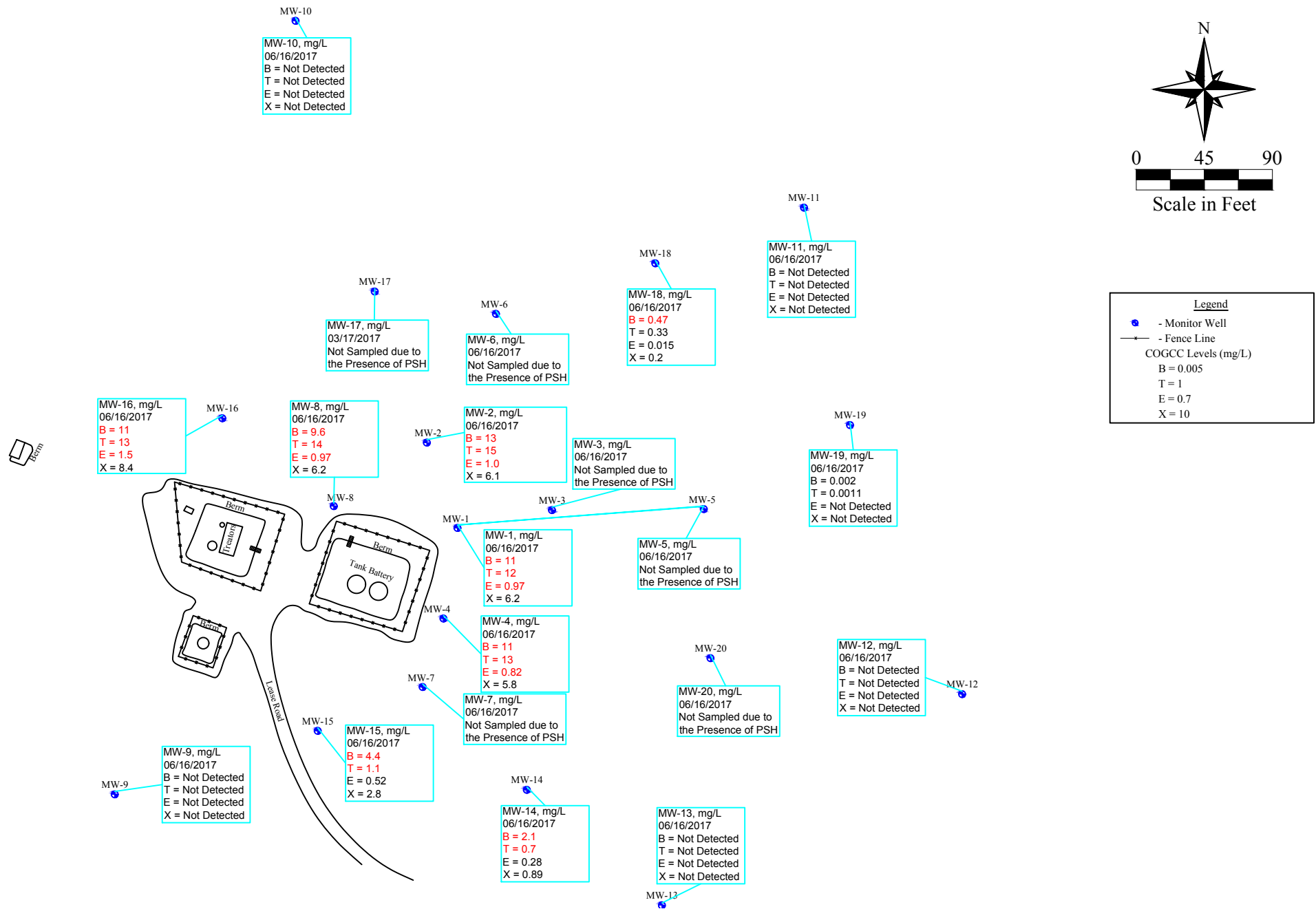
Talon recommends continuing product removal from all wells exhibiting PSH. Talon will continue quarterly monitoring and product recovery at the Site. The next groundwater sampling event is anticipated to occur in September 2017.

**Attachment 1**  
**Figures**



Date: 01/10/2017  
 Scale: 1" = 90'  
 Drawn By: TJS

Nelson C-1  
 Whiting Oil & Gas  
 Weld County, Colorado  
 Figure 1 - Site Plan



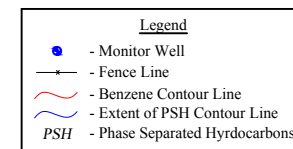
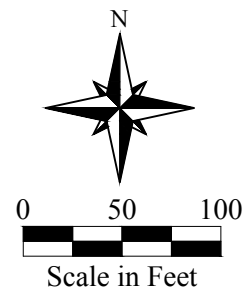
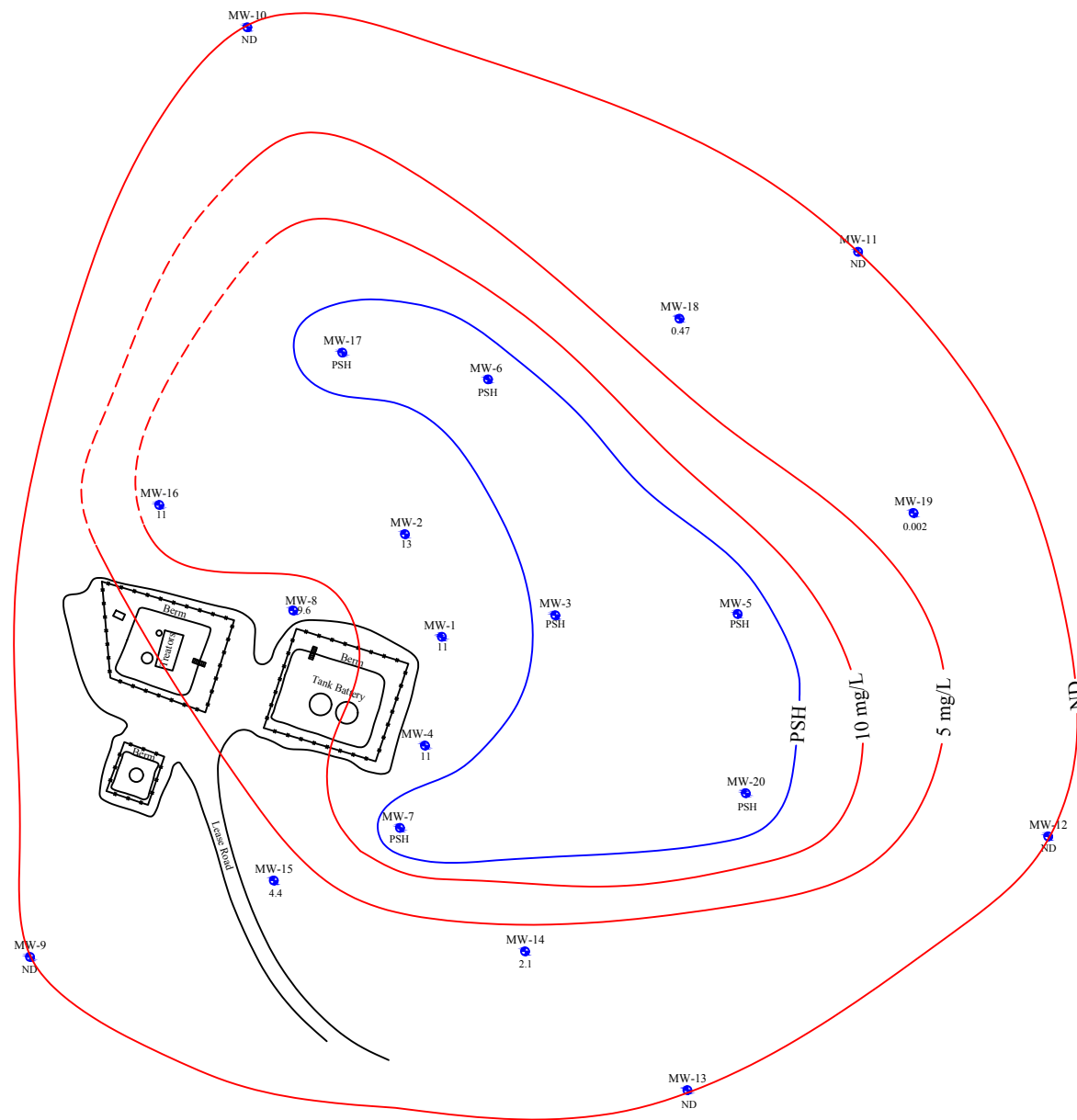
Drafted: 07/03/2017

Scale: 1" = 90'

Drated By: IJM

Nelson C-1  
Whiting Oil & Gas  
Weld County, Colorado

Figure 2 - Groundwater Concentration Map (06/16/2017)



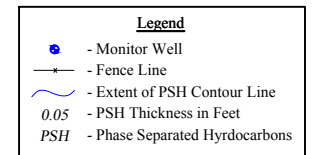
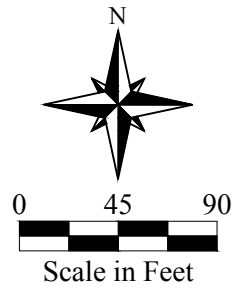
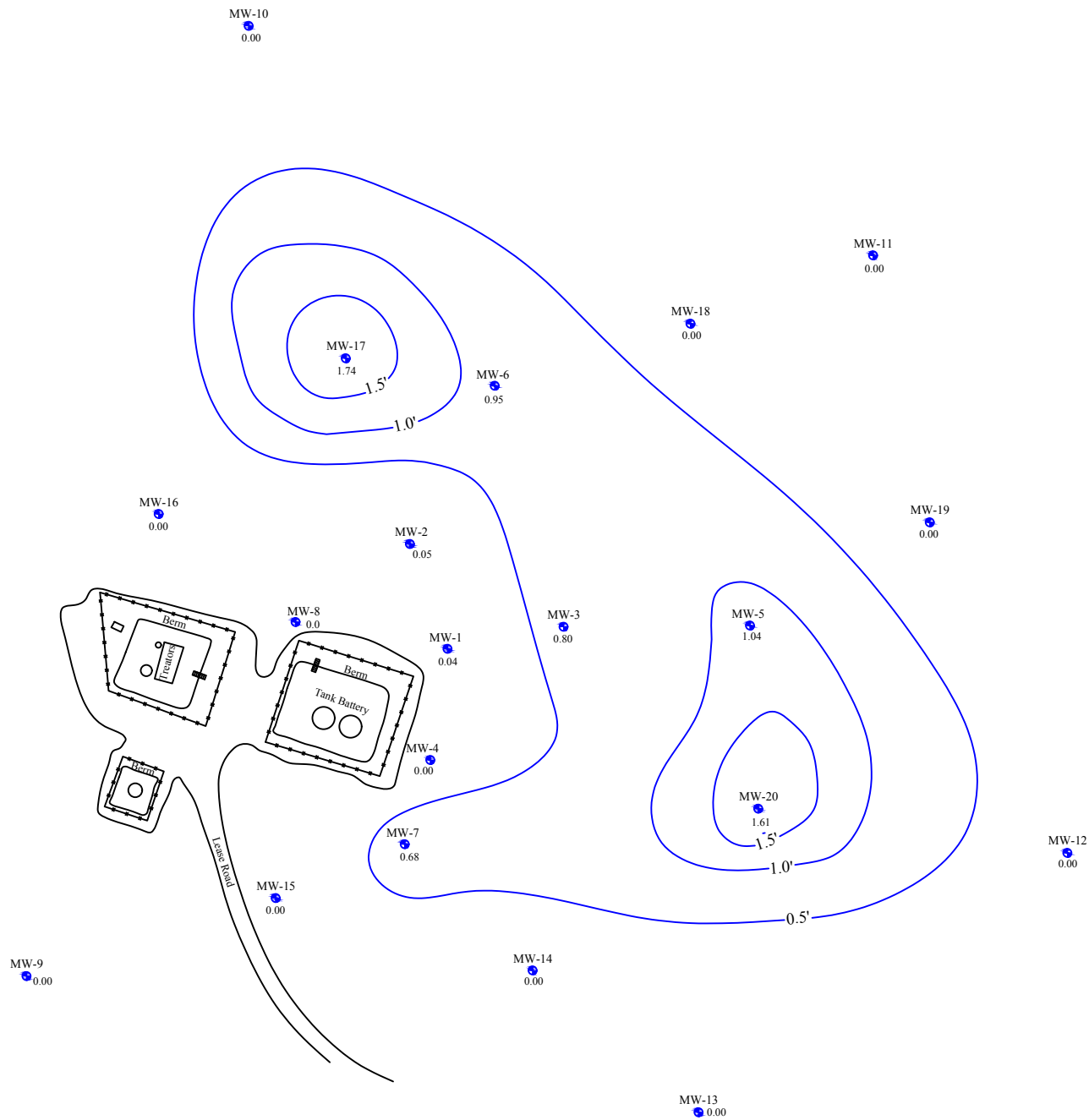
Drafted: 06/30/2017

Scale: 1" = 100'

Drafted By: IJM

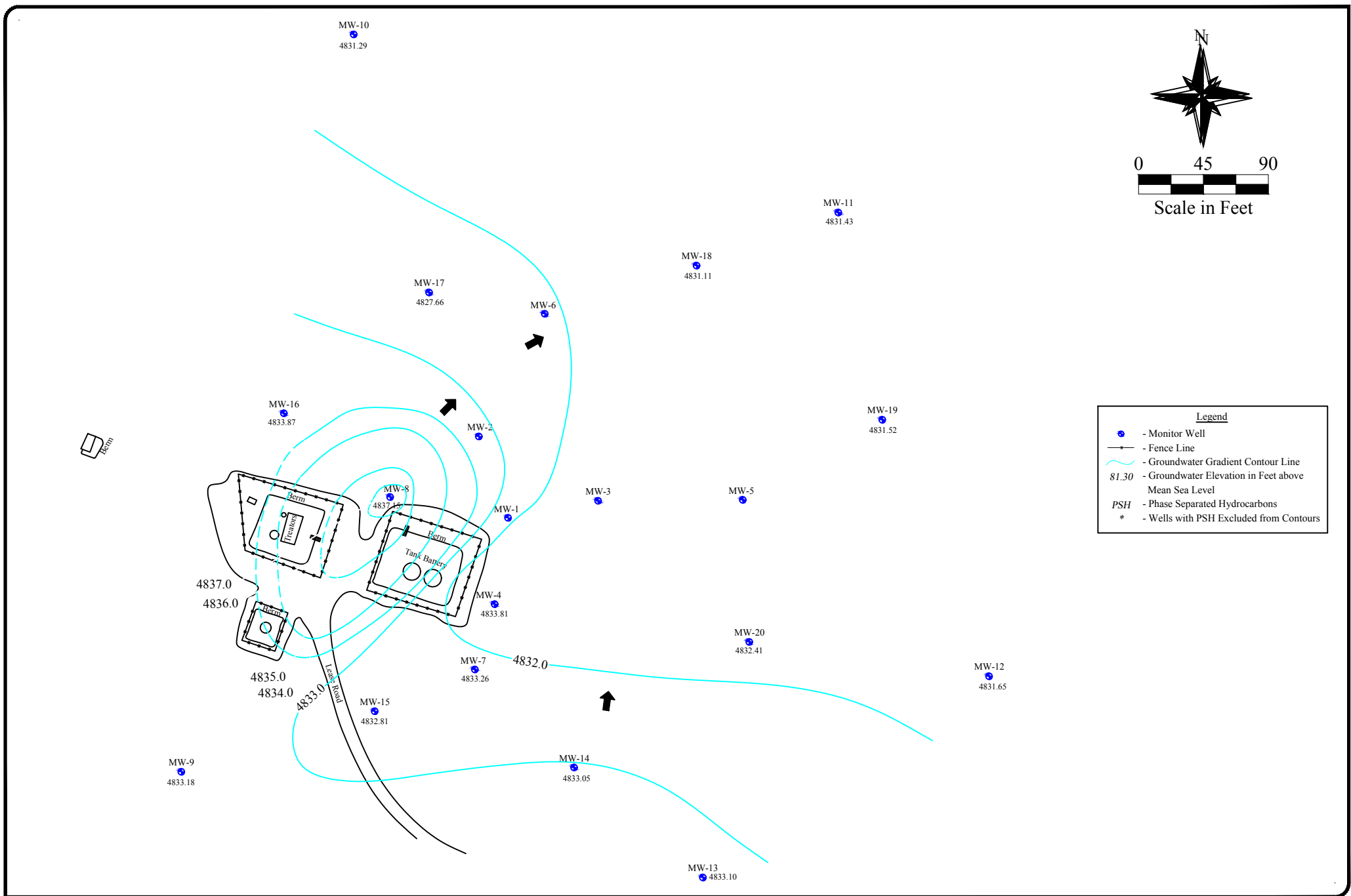
Nelson C-1  
Whiting Oil & Gas  
Weld County, Colorado

Figure 3 - Benzene Isoconcentration Map (06/16/2017)



Drafted: 06/30/2017  
Scale: 1" = 90'  
Drafted By: IJM

Nelson C-1  
Whiting Oil & Gas  
Weld County, Colorado  
Figure 4 - PSH Isoconcentration Map (06/15/2017)



Drafted: 6/30/2017

Scale: 1" = 90'

Drafted By: IJM

Nelson C-1  
Whiting Oil & Gas  
Weld County, Colorado

Figure 5 - Groundwater Gradient Map (06/15/2017)



## **Attachment 2 Tables**



**Table 1 - Well Information**

**Whiting Oil and Gas Corporation  
Nelson C-1  
Weld County, Colorado**

Well ID	Latitude	Longitude	Ground Surface Elevation (ft amsl)	TOC Elevation (ft amsl)	Screen Interval (ft bgs)	Total Depth (ft)
MW-1	40.836400	-103.904672	4861.9	4865.0	19.8-39.8	40.38
MW-2	40.836550	-103.904761	4862.2	4865.6	19-39	39.50
MW-3	40.836453	-103.904461	4863.2	4866.6	19.5-39.5	40.00
MW-4	40.836239	-103.904742	4860.6	4863.7	19.5-39.5	40.00
MW-5	40.836419	-103.904069	4865.0	4868.0	20-40	40.00
MW-6	40.836722	-103.904467	4863.8	4867.1	20-45	45.00
MW-7	40.836089	-103.904822	4859.3	4862.6	20-40	40.00
MW-8	40.836469	-103.904956	4860.9	4864.3	20-40	40.00
MW-9	40.835925	-103.905525	4857.9	4860.9	17-32	35.00
MW-10	40.837317	-103.905089	4864.5	4867.7	19-39	39.00
MW-11	40.836978	-103.903889	4868.6	4871.6	19-44	44.00
MW-12	40.836108	-103.903511	4867.0	4870.1	18-38	38.00
MW-13	40.835728	-103.904222	4861.5	4864.4	20-40	40.00
MW-14	40.835936	-103.904542	4860.4	4863.7	20-40	40.00
MW-15	40.836042	-103.905064	4858.6	4861.4	19-34	34.00
MW-16	40.836608	-103.905264	4860.1	4863.4	19-39	39.00
MW-17	40.836836	-103.904900	4862.8	4866.0	19-44	44.00
MW-18	40.836881	-103.904236	4865.8	4868.6	19-44	44.00
MW-19	40.836589	-103.903778	4867.3	4870.2	19-39	39.00
MW-20	40.836172	-103.904103	4864.1	4867.0	19-39	39.00

TOC - Top of Casing  
ft bgs - Feet Below Ground Surface  
ft amsl - Feet Above Mean Sea Level



Table 2 - Groundwater Analytical Data

Whiting Oil and Gas Corporation  
Nelson C-1  
Weld County, Colorado

Sample ID	Lab ID	Date	Concentration (mg/L)			
			Benzene	Toluene	Ethyl-Benzene	Xylenes
COGCC Table 910-1 Concentration Levels			0.005	1	0.7	10
MW-1	1511065-2	11/04/15	17	18	1	5.4
	1602138-01	02/17/16	15	13	0.99	5.5
	1606205-01	06/21/16	17	16	1.1	6.4
	1609096-01	09/16/16	19	16	1.1	6.5
	1612127-01	12/16/16	28	38	2.5	12
	1703157-01	03/17/17	12	10	0.95	5.9
	1706184-01	06/16/17	11	12	0.97	6.2
MW-1 (Duplicate)	1706184-15	06/16/17	11	11	0.93	5.7
MW-2	1511065-3	11/04/15	18	20	0.96	5
	1602138-02	02/17/16	16	14	1.4	8.2
	1606205-02	06/21/16	18	16	1	6.1
	1609096-02	09/16/16	26	25	1.2	7.1
	1612127-02	12/16/16	16	16	1.1	6.8
	NS	03/17/17	Not Sampled Due to Presence of PSH			
	1706184-02	06/16/17	13	15	1	6.1
MW-3	NS	11/04/15	Not Sampled Due to Presence of PSH			
	NS	02/17/16	Not Sampled Due to Presence of PSH			
	NS	06/21/16	Not Sampled Due to Presence of PSH			
	NS	09/16/16	Not Sampled Due to Presence of PSH			
	NS	12/16/16	Not Sampled Due to Presence of PSH			
	NS	03/17/17	Not Sampled Due to Presence of PSH			
	NS	06/16/17	Not Sampled Due to Presence of PSH			
MW-4	1511065-1	11/04/15	16	20	0.94	4.8
	1602138-03	02/17/16	13	15	0.91	5.5
	1606205-03	06/21/16	12	16	0.99	6
	1609096-03	09/16/16	12	18	0.99	6.7
	1612127-03	12/16/16	14	19	1.1	7.2
	1703157-02	03/17/17	9.5	9.5	0.73	4.5
	1706184-03	06/16/17	11	13	0.82	5.8
MW-5	NS	02/17/16	Not Sampled Due to Presence of PSH			
	NS	06/21/16	Not Sampled Due to Presence of PSH			
	NS	09/16/16	Not Sampled Due to Presence of PSH			
	NS	12/16/16	Not Sampled Due to Presence of PSH			
	NS	03/17/17	Not Sampled Due to Presence of PSH			
	NS	06/16/17	Not Sampled Due to Presence of PSH			
MW-6	NS	02/17/16	Not Sampled Due to Presence of PSH			
	NS	06/21/16	Not Sampled Due to Presence of PSH			
	NS	09/16/16	Not Sampled Due to Presence of PSH			
	NS	12/16/16	Not Sampled Due to Presence of PSH			
	NS	03/17/17	Not Sampled Due to Presence of PSH			
	NS	06/16/17	Not Sampled Due to Presence of PSH			
MW-7	NS	02/17/16	Not Sampled Due to Presence of PSH			
	NS	06/21/16	Not Sampled Due to Presence of PSH			
	NS	09/16/16	Not Sampled Due to Presence of PSH			
	NS	12/16/16	Not Sampled Due to Presence of PSH			
	NS	03/17/17	Not Sampled Due to Presence of PSH			
	NS	06/16/17	Not Sampled Due to Presence of PSH			



Table 2 - Groundwater Analytical Data

Whiting Oil and Gas Corporation  
Nelson C-1  
Weld County, Colorado

Sample ID	Lab ID	Date	Concentration (mg/L)			
			Benzene	Toluene	Ethyl-Benzene	Xylenes
COGCC Table 910-1 Concentration Levels			0.005	1	0.7	10
MW-8	1602138-04	02/17/16	12	13	1	5.3
	1606205-04	06/21/16	17	17	1.1	6.4
	1609096-04	09/16/16	20	20	0.85	7.1
	1612127-04	12/16/16	17	17	0.82	6.1
	1703157-03	03/17/17	13	14	0.89	6.6
	1706184-04	06/16/17	9.6	14	0.97	6.2
MW-9	1603161-01	03/22/16	<0.001	0.0016	<0.001	0.0039
	1606205-05	06/21/16	<0.001	<0.001	<0.001	<0.001
	1609096-05	09/16/16	<0.001	<0.001	<0.001	<0.001
	1612127-05	12/16/16	<0.001	<0.001	<0.001	<0.001
	1703157-04	03/17/17	<0.001	<0.001	<0.001	<0.001
	1706184-05	06/16/17	<0.001	<0.001	<0.001	<0.001
MW-10	NS	03/22/16	Dry - No Sample Collected			
	1606205-06	06/21/16	<0.001	<0.001	<0.001	<0.001
	1609096-06	09/16/16	<0.001	<0.001	<0.001	<0.001
	1612127-06	12/16/16	<0.001	<0.001	<0.001	<0.001
	1703157-05	03/17/17	<0.001	<0.001	<0.001	<0.001
	1706184-06	06/16/17	<0.001	<0.001	<0.001	<0.001
MW-11	1603161-02	03/22/16	0.0016	0.0011	<0.001	<0.001
	1606205-07	06/21/16	<0.001	<0.001	<0.001	<0.001
	1609096-07	09/16/16	0.0078	0.0049	<0.001	<0.001
	1612127-07	12/16/16	0.0023	0.002	<0.001	<0.001
	1703157-06	03/17/17	0.0027	0.0037	<0.001	0.005
	1706184-07	06/16/17	<0.001	<0.001	<0.001	<0.001
MW-12	NS	03/22/16	Dry - No Sample Collected			
	1606205-08	06/21/16	<0.001	<0.001	<0.001	<0.001
	1609096-08	09/16/16	<0.001	<0.001	<0.001	<0.001
	1612127-08	12/16/16	<0.001	<0.001	<0.001	<0.001
	1703157-07	03/17/17	<0.001	<0.001	<0.001	<0.001
	1706184-08	06/16/17	<0.001	<0.001	<0.001	<0.001
MW-13	1603161-03	03/22/16	<0.001	0.0013	<0.001	<0.001
	1606205-09	06/21/16	<0.001	<0.001	<0.001	<0.001
	1609096-09	09/16/16	<0.001	<0.001	<0.001	<0.001
	1612127-09	12/16/16	<0.001	<0.001	<0.001	<0.001
	1703157-08	03/17/17	<0.001	<0.001	<0.001	<0.001
	1706184-09	06/16/17	<0.001	<0.001	<0.001	<0.001
MW-14	1603161-04	03/22/16	2.5	2.3	0.48	1.3
	1606205-10	06/21/16	2.4	2.2	0.39	1.3
	1609096-10	09/16/16	3.4	2.2	0.44	1.5
	1612127-10	12/16/16	12	5.4	0.64	4
	1703157-09	03/17/17	2.5	1.1	0.44	1.4
	1706184-10	06/16/17	2.1	0.7	0.28	0.89



Table 2 - Groundwater Analytical Data

Whiting Oil and Gas Corporation  
Nelson C-1  
Weld County, Colorado

Sample ID	Lab ID	Date	Concentration (mg/L)			
			Benzene	Toluene	Ethyl-Benzene	Xylenes
COGCC Table 910-1 Concentration Levels			0.005	1	0.7	10
MW-15	1603161-05	03/22/16	4.3	6.4	0.42	3.5
	1606205-11	06/21/16	6.5	5.2	0.59	3.6
	1609096-11	09/16/16	6	3.2	0.63	3.6
	1612127-11	12/16/16	17	18	1.1	6.4
	1703157-10	03/17/17	3.8	1	0.35	1.8
	1706184-11	06/16/17	4.4	1.1	0.52	2.8
MW-16	1603161-06	03/22/16	14	16	0.68	6.1
	1606205-12	06/21/16	16	16	1.1	6.7
	1609096-12	09/16/16	18	18	1.3	7.3
	1612127-12	12/16/16	18	20	1.2	7.2
	1703157-11	03/17/17	12	13	1.1	6.4
	1706184-12	06/16/17	11	13	1.5	8.4
MW-16 (Duplicate)	1703157-14	03/17/17	12	13	1.1	6.2
MW-17	NS	03/22/16	Not Sampled Due to Presence of PSH			
	NS	06/21/16	Not Sampled Due to Presence of PSH			
	NS	09/16/16	Not Sampled Due to Presence of PSH			
	NS	12/16/16	Not Sampled Due to Presence of PSH			
	NS	03/17/17	Not Sampled Due to Presence of PSH			
	NS	06/16/17	Not Sampled Due to Presence of PSH			
MW-18	1603161-07	03/22/16	0.084	0.047	0.0026	0.0074
	1606205-13	06/21/16	0.23	0.14	0.0039	0.04
	1609096-13	09/16/16	0.34	0.097	0.0034	0.04
	1612127-13	12/16/16	0.45	0.11	0.0089	0.047
	1703157-12	03/17/17	1.2	0.98	0.034	0.32
	1706184-13	06/16/17	0.47	0.33	0.015	0.2
MW-19	NS	03/22/16	Dry - No Sample Collected			
	1606205-14	06/21/16	0.0011	<0.001	<0.001	<0.001
	1609096-14	09/16/16	0.0051	0.0011	<0.001	<0.001
	1612127-14	12/16/16	<0.001	<0.001	<0.001	<0.001
	1703157-13	03/17/17	0.0021	<0.001	<0.001	<0.001
	1706184-14	06/16/17	0.002	0.0011	<0.001	<0.001
MW-20	NS	03/22/16	Not Sampled Due to Presence of PSH			
	NS	06/21/16	Not Sampled Due to Presence of PSH			
	NS	09/16/16	Not Sampled Due to Presence of PSH			
	NS	12/16/16	Not Sampled Due to Presence of PSH			
	NS	03/17/17	Not Sampled Due to Presence of PSH			
	NS	06/16/17	Not Sampled Due to Presence of PSH			

mg/L -milligrams per liter

< - Analytical result is less than the reporting limit

COGCC - Colorado Oil and Gas Conservation Commission

NS - Not Sampled

PSH - Phase-Separated Hydrocarbons



Table 3 - Gauging Data

Whiting Oil and Gas Corporation  
Nelson C-1  
Weld County, Colorado

Well ID	Top of Casing Elevation (ft amsl)	Total Depth of Well (ft)	Date Gauged	Depth to Product (ft btoc)	DTW (ft btoc)	Product Thickness (ft)	Potentiometric Surface Elevation (ft)
MW-1	4865.00	40.38	11/4/2015	NA	36.49	0.00	4828.51
			12/3/2015	NA	30.88	0.00	4834.12
			12/8/2015	30.62	30.63	0.01	4834.38
			12/22/2015	NA	31.46	0.00	4833.54
			12/30/2015	NA	32.03	0.00	4832.97
			1/13/2016	NA	38.05	0.00	4826.95
			1/21/2016	NA	31.08	0.00	4833.92
			1/27/2016	31.10	31.13	0.03	4833.89
			2/8/2016	31.24	31.29	0.05	4833.75
			2/15/2016	30.90	30.92	0.02	4834.10
			2/16/2016	30.96	30.99	0.03	4834.03
			2/17/2016	NA	32.27	0.00	4832.73
			2/19/2016	NA	31.04	0.00	4833.96
			2/24/2016	NA	31.19	0.00	4833.81
			2/29/2016	NA	30.95	0.00	4834.05
			3/8/2016	NA	32.67	0.00	4832.33
			3/15/2016	NA	32.95	0.00	4832.05
			3/22/2016	NA	33.02	0.00	4831.98
			3/29/2016	NA	33.04	0.00	4831.96
			4/5/2016	NA	33.22	0.00	4831.78
			4/19/2016	NA	31.70	0.00	4833.30
			4/26/2016	NA	32.78	0.00	4832.22
			5/5/2016	NA	31.41	0.00	4833.59
			6/6/2016	31.35	31.36	0.01	4833.65
			6/20/2016	31.38	31.42	0.04	4833.61
			8/11/2016	NA	30.88	0.00	4834.12
			9/15/2016	NA	30.82	0.00	4834.18
			12/15/2016	30.98	30.99	0.01	4834.02
			3/16/2017	31.45	31.49	0.04	4833.54
			6/15/2017	31.91	31.95	0.04	4833.08
MW-2	4865.6	39.50	11/4/2015	31.15	31.20	0.05	4834.44
			12/3/2015	31.60	31.62	0.02	4834.00
			12/8/2015	31.50	31.52	0.02	4834.10
			12/22/2015	NA	31.29	0.00	4834.31
			12/30/2015	31.93	31.94	0.01	4833.67
			1/13/2016	NA	31.55	0.00	4834.05
			1/21/2016	NA	31.71	0.00	4833.89
			1/27/2016	NA	31.72	0.00	4833.88
			2/8/2016	31.90	31.92	0.02	4833.70
			2/15/2016	31.53	31.58	0.05	4834.06
			2/16/2016	31.63	31.66	0.03	4833.96
			2/17/2016	32.31	32.35	0.04	4833.28
			2/19/2016	31.68	31.73	0.05	4833.91
			2/24/2016	NA	31.80	0.00	4833.80
			2/29/2016	31.56	31.63	0.07	4834.03
			3/8/2016	NA	32.25	0.00	4833.35
			3/15/2016	NA	32.37	0.00	4833.23
			3/22/2016	NA	32.21	0.00	4833.39
			3/29/2016	NA	32.21	0.00	4833.39
			4/5/2016	NA	32.42	0.00	4833.18
			4/19/2016	32.25	32.27	0.02	4833.35
			4/26/2016	NA	32.36	0.00	4833.24
			5/5/2016	NA	32.12	0.00	4833.48
			6/6/2016	32.10	32.14	0.04	4833.49
			6/20/2016	32.15	32.17	0.02	4833.45
			8/11/2016	NA	31.43	0.00	4834.17
			9/15/2016	31.20	31.27	0.07	4834.39
			12/15/2016	38.31	38.50	0.49	4827.49
			3/16/2017	31.45	31.49	0.04	4834.14
			6/15/2017	32.15	32.20	0.05	4833.44



Table 3 - Gauging Data

Whiting Oil and Gas Corporation  
Nelson C-1  
Weld County, Colorado

Well ID	Top of Casing Elevation (ft amsl)	Total Depth of Well (ft)	Date Gauged	Depth to Product (ft btoc)	DTW (ft btoc)	Product Thickness (ft)	Potentiometric Surface Elevation (ft)
MW-3	4866.6	40.00	11/4/2015	35.61	36.52	0.91	4830.81
			12/3/2015	34.74	35.89	1.15	4831.63
			12/8/2015	34.77	35.62	0.85	4831.66
			12/22/2015	34.44	35.36	0.92	4831.98
			12/30/2015	35.07	35.93	0.86	4831.36
			1/13/2016	37.32	37.82	0.50	4829.18
			1/21/2016	33.70	34.78	1.08	4832.69
			1/27/2016	33.62	35.13	1.51	4832.68
			2/8/2016	33.47	35.88	2.41	4832.66
			2/15/2016	32.95	36.07	3.12	4833.04
			2/16/2016	32.98	36.16	3.18	4833.00
			2/17/2016	35.38	36.50	1.12	4831.00
			2/19/2016	33.80	35.09	1.29	4832.55
			2/24/2016	33.58	35.29	1.71	4832.68
			2/29/2016	33.46	35.37	1.91	4832.77
			3/8/2016	33.68	34.69	1.01	4832.72
			3/15/2016	33.65	33.70	0.05	4832.94
			3/22/2016	34.55	35.55	1.00	4831.85
			3/29/2016	34.48	35.38	0.90	4831.94
			4/5/2016	34.95	35.05	0.10	4831.63
			4/19/2016	34.01	34.71	0.70	4832.45
			4/26/2016	34.45	35.04	0.59	4832.03
			5/5/2016	35.37	36.11	0.74	4831.08
			6/6/2016	33.91	34.82	0.91	4832.51
			6/20/2016	33.75	35.32	1.57	4832.54
			8/11/2016	33.90	34.60	0.70	4832.56
			9/15/2016	33.71	34.41	0.70	4832.75
			12/15/2016	33.79	34.30	0.51	4832.71
			3/16/2017	34.87	35.72	0.85	4831.56
			6/16/2017	33.90	34.70	0.80	4832.54
MW-4	4863.7	40.00	11/4/2015	NA	35.69	0.00	4828.01
			12/3/2015	NA	37.50	0.00	4826.20
			12/8/2015	NA	35.78	0.00	4827.92
			12/22/2015	NA	34.55	0.00	4829.15
			12/30/2015	NA	35.60	0.00	4828.10
			1/13/2016	NA	38.05	0.00	4825.65
			1/21/2016	NA	34.28	0.00	4829.42
			1/27/2016	NA	30.36	0.00	4833.34
			2/8/2016	NA	29.24	0.00	4834.46
			2/15/2016	NA	29.03	0.00	4834.67
			2/16/2016	NA	29.02	0.00	4834.68
			2/17/2016	NA	36.60	0.00	4827.10
			2/19/2016	NA	33.94	0.00	4829.76
			2/24/2016	NA	29.81	0.00	4833.89
			2/29/2016	NA	29.51	0.00	4834.19
			3/8/2016	NA	33.15	0.00	4830.55
			3/15/2016	NA	35.27	0.00	4828.43
			3/22/2016	NA	35.13	0.00	4828.57
			3/29/2016	NA	35.02	0.00	4828.68
			4/5/2016	NA	35.94	0.00	4827.76
			4/19/2016	NA	33.14	0.00	4830.56
			4/26/2016	NA	29.88	0.00	4833.82
			5/5/2016	NA	29.36	0.00	4834.34
			6/6/2016	NA	29.35	0.00	4834.35
			6/20/2016	NA	29.31	0.00	4834.39
			8/11/2016	NA	29.00	0.00	4834.70
			9/15/2016	NA	29.03	0.00	4834.67
			12/15/2016	NA	29.48	0.00	4834.22
			3/16/2017	NA	29.89	0.00	4833.81
			6/15/2017	NA	31.90	0.00	4831.80



Table 3 - Gauging Data

Whiting Oil and Gas Corporation  
Nelson C-1  
Weld County, Colorado

Well ID	Top of Casing Elevation (ft amsl)	Total Depth of Well (ft)	Date Gauged	Depth to Product (ft btoc)	DTW (ft btoc)	Product Thickness (ft)	Potentiometric Surface Elevation (ft)
MW-5	4868.0	40.00	2/15/2016	40.31	40.41	0.10	4827.67
			2/16/2016	39.95	40.09	0.14	4828.02
			2/17/2016	Dry	Dry	0.00	
			2/19/2016	39.78	40.07	0.29	4828.16
			2/24/2016	38.60	39.19	0.59	4829.28
			2/29/2016	37.66	38.56	0.90	4830.16
			3/8/2016	36.66	37.95	1.29	4831.09
			3/15/2016	36.20	36.35	0.15	4831.77
			3/22/2016	35.95	37.80	1.85	4831.69
			3/29/2016	35.78	36.51	0.73	4832.08
			4/5/2016	NA	35.74	0.00	4832.26
			4/19/2016	35.65	38.30	2.65	4831.83
			4/26/2016	35.48	38.30	2.82	4831.97
			5/5/2016	35.52	35.53	0.01	4832.48
			6/6/2016	39.08	39.85	0.77	4828.77
			6/20/2016	37.22	38.46	1.24	4830.54
			8/11/2016	39.08	39.65	0.57	4828.81
			9/15/2016	37.18	38.37	1.19	4830.59
			12/15/2016	37.05	38.22	1.17	4830.72
			3/16/2017	37.10	38.22	1.12	4830.68
			6/15/2017	36.86	37.90	1.04	4830.94
MW-6	4867.1	45.00	2/15/2016	35.32	36.60	1.28	4831.53
			2/16/2016	35.33	36.91	1.58	4831.46
			2/17/2016	35.95	36.14	0.19	4831.11
			2/19/2016	35.55	36.50	0.95	4831.36
			2/24/2016	35.30	37.55	2.25	4831.36
			2/29/2016	34.76	38.19	3.43	4831.67
			3/8/2016	34.44	39.14	4.70	4831.74
			3/15/2016	34.28	38.44	4.16	4832.00
			3/22/2016	33.92	39.90	5.98	4832.01
			3/29/2016	33.88	40.03	6.15	4832.01
			4/5/2016	34.02	39.58	5.56	4831.99
			4/19/2016	34.11	40.91	6.80	4831.66
			4/26/2016	33.80	38.87	5.07	4832.31
			5/5/2016	34.01	40.78	6.77	4831.76
			6/6/2016	33.94	40.80	6.86	4831.82
			6/20/2016	34.72	39.50	4.78	4831.44
			8/11/2016	35.53	36.32	0.79	4831.42
			9/15/2016	35.17	36.99	1.82	4831.57
			12/15/2016	35.11	36.27	1.16	4831.76
			3/16/2017	35.19	36.20	1.01	4831.71
			6/15/2017	35.25	36.20	0.95	4831.66
MW-7	4862.6	40.00	2/15/2016	31.86	34.29	2.43	4830.26
			2/16/2016	30.00	33.03	3.03	4832.01
			2/17/2016	35.38	36.50	1.12	4827.00
			2/19/2016	30.26	32.22	1.96	4831.96
			2/24/2016	28.01	30.35	2.34	4834.13
			2/29/2016	27.75	29.91	2.16	4834.43
			3/8/2016	27.55	29.73	2.18	4834.62
			3/15/2016	27.61	29.90	2.29	4834.54
			3/22/2016	27.58	29.93	2.35	4834.56
			3/29/2016	27.55	29.95	2.40	4834.58
			4/5/2016	27.75	30.28	2.53	4834.35
			4/19/2016	27.89	27.91	0.02	4834.71
			4/26/2016	27.44	30.06	2.62	4834.65
			5/5/2016	27.81	29.09	1.28	4834.54
			6/6/2016	28.62	30.50	1.88	4833.61
			6/20/2016	28.10	29.61	1.51	4834.20
			8/11/2016	28.68	29.30	0.62	4833.80
			9/15/2016	28.38	29.27	0.89	4834.05
			12/15/2016	28.67	29.32	0.65	4833.80
			3/16/2017	28.96	29.66	0.70	4833.50
			6/15/2017	29.21	29.89	0.68	4833.26



Table 3 - Gauging Data

Whiting Oil and Gas Corporation  
Nelson C-1  
Weld County, Colorado

Well ID	Top of Casing Elevation (ft amsl)	Total Depth of Well (ft)	Date Gauged	Depth to Product (ft btoc)	DTW (ft btoc)	Product Thickness (ft)	Potentiometric Surface Elevation (ft)
MW-8	4864.3	40.00	2/15/2016	NA	35.85	0.00	4828.45
			2/16/2016	NA	34.10	0.00	4830.20
			2/17/2016	NA	35.09	0.00	4829.21
			2/19/2016	NA	32.57	0.00	4831.73
			2/24/2016	NA	28.81	0.00	4835.49
			2/29/2016	NA	27.45	0.00	4836.85
			3/8/2016	NA	27.14	0.00	4837.16
			3/15/2016	NA	27.25	0.00	4837.05
			3/22/2016	NA	33.80	0.00	4830.50
			3/29/2016	NA	27.38	0.00	4836.92
			4/5/2016	27.70	27.73	0.03	4836.59
			4/19/2016	28.04	28.06	0.02	4836.26
			4/26/2016	27.72	27.75	0.03	4836.57
			5/5/2016	28.28	28.30	0.02	4836.02
			6/6/2016	28.46	28.52	0.06	4835.83
			6/20/2016	NA	27.83	0.00	4836.47
			8/11/2016	NA	26.28	0.00	4838.02
			9/15/2016	26.35	26.36	0.01	4837.95
			12/15/2016	NA	27.45	0.00	4836.85
			3/16/2017	28.06	28.07	0.01	4836.24
			6/15/2017	NA	27.15	0.00	4837.15
MW-9	4860.9	35.00	3/15/2016	NA	33.45	0.00	4827.45
			3/21/2016	NA	31.84	0.00	4829.06
			3/22/2016	NA	33.80	0.00	4827.10
			3/29/2016	NA	31.85	0.00	4829.05
			4/5/2016	NA	29.98	0.00	4830.92
			4/19/2016	NA	27.48	0.00	4833.42
			4/26/2016	NA	26.80	0.00	4834.10
			5/5/2016	NA	26.61	0.00	4834.29
			6/6/2016	NA	26.50	0.00	4834.40
			6/20/2016	NA	26.40	0.00	4834.50
			8/11/2016	NA	26.52	0.00	4834.38
			9/15/2016	NA	26.75	0.00	4834.15
			12/15/2016	NA	27.09	0.00	4833.81
			3/16/2017	NA	27.44	0.00	4833.46
			6/15/2017	NA	27.72	0.00	4833.18
MW-10	4867.7	39	3/15/2016	NA	Dry	0.00	
			3/21/2016	NA	Dry	0.00	
			3/22/2016	NA	Dry	0.00	
			3/29/2016	NA	Dry	0.00	
			4/5/2016	NA	39.12	0.00	4828.58
			4/19/2016	NA	38.19	0.00	4829.51
			4/26/2016	NA	37.78	0.00	4829.92
			5/5/2016	NA	37.58	0.00	4830.12
			6/6/2016	NA	37.35	0.00	4830.35
			6/20/2016	NA	37.32	0.00	4830.38
			8/11/2016	NA	37.20	0.00	4830.50
			9/15/2016	NA	37.13	0.00	4830.57
			12/15/2016	NA	36.89	0.00	4830.81
			3/16/2017	NA	36.75	0.00	4830.95
			6/15/2017	NA	36.41	0.00	4831.29
MW-11	4871.6	44.00	3/15/2016	NA	41.07	0.00	4830.53
			3/21/2016	NA	41.10	0.00	4830.50
			3/22/2016	NA	42.22	0.00	4829.38
			3/29/2016	NA	40.98	0.00	4830.62
			4/5/2016	NA	41.06	0.00	4830.54
			4/19/2016	NA	47.15	0.00	4824.45
			4/26/2016	NA	40.83	0.00	4830.77
			5/5/2016	NA	41.06	0.00	4830.54
			6/6/2016	NA	41.00	0.00	4830.60
			6/20/2016	NA	41.08	0.00	4830.52
			8/11/2016	NA	41.83	0.00	4829.77
			9/15/2016	NA	40.81	0.00	4830.79
			12/15/2016	NA	40.59	0.00	4831.01
			3/16/2017	NA	40.39	0.00	4831.21
			6/15/2017	NA	40.17	0.00	4831.43



Table 3 - Gauging Data

Whiting Oil and Gas Corporation  
Nelson C-1  
Weld County, Colorado

Well ID	Top of Casing Elevation (ft amsl)	Total Depth of Well (ft)	Date Gauged	Depth to Product (ft btoc)	DTW (ft btoc)	Product Thickness (ft)	Potentiometric Surface Elevation (ft)
MW-12	4870.1	38.00	3/15/2016	NA	Dry	0.00	
			3/21/2016	NA	Dry	0.00	
			3/22/2016	NA	Dry	0.00	
			3/29/2016	NA	Dry	0.00	
			4/5/2016	NA	40.09	0.00	4830.01
			4/19/2016	NA	39.46	0.00	4830.64
			4/26/2016	NA	39.28	0.00	4830.82
			5/5/2016	NA	39.16	0.00	4830.94
			6/6/2016	NA	38.94	0.00	4831.16
			6/20/2016	NA	38.91	0.00	4831.19
			8/11/2016	NA	38.83	0.00	4831.27
			9/15/2016	NA	38.78	0.00	4831.32
			12/15/2016	NA	38.67	0.00	4831.43
			3/16/2017	NA	38.61	0.00	4831.49
			6/15/2017	NA	38.45	0.00	4831.65
MW-13	4864.4	40.00	3/15/2016	NA	Dry	0.00	
			3/21/2016	NA	38.86	0.00	4825.54
			3/22/2016	NA	39.35	0.00	4825.05
			3/29/2016	NA	37.37	0.00	4827.03
			4/5/2016	NA	35.84	0.00	4828.56
			4/19/2016	NA	33.26	0.00	4831.14
			4/26/2016	NA	32.39	0.00	4832.01
			5/5/2016	NA	31.71	0.00	4832.69
			6/6/2016	NA	30.83	0.00	4833.57
			6/20/2016	NA	30.76	0.00	4833.64
			8/11/2016	NA	31.00	0.00	4833.40
			9/15/2016	NA	30.77	0.00	4833.63
			12/15/2016	NA	31.06	0.00	4833.34
			3/16/2017	NA	31.15	0.00	4833.25
			6/15/2017	NA	31.30	0.00	4833.10
MW-14	4863.7	40.00	3/15/2016	NA	29.62	0.00	4834.08
			3/21/2016	NA	29.55	0.00	4834.15
			3/22/2016	NA	29.35	0.00	4834.35
			3/29/2016	NA	29.37	0.00	4834.33
			4/5/2016	NA	29.64	0.00	4834.06
			4/19/2016	NA	29.85	0.00	4833.85
			4/26/2016	NA	29.51	0.00	4834.19
			5/5/2016	NA	29.79	0.00	4833.91
			6/6/2016	NA	29.73	0.00	4833.97
			6/20/2016	NA	29.94	0.00	4833.76
			8/11/2016	NA	29.71	0.00	4833.99
			9/15/2016	NA	29.80	0.00	4833.90
			12/15/2016	NA	29.87	0.00	4833.83
			3/16/2017	NA	30.29	0.00	4833.41
			6/15/2017	NA	30.65	0.00	4833.05
MW-15	4861.4	34.00	3/15/2016	NA	35.15	0.00	4826.25
			3/21/2016	NA	33.75	0.00	4827.65
			3/22/2016	NA	34.15	0.00	4827.25
			3/29/2016	NA	31.69	0.00	4829.71
			4/5/2016	NA	30.14	0.00	4831.26
			4/19/2016	NA	28.50	0.00	4832.90
			4/26/2016	NA	27.96	0.00	4833.44
			5/5/2016	NA	27.64	0.00	4833.76
			6/6/2016	NA	27.12	0.00	4834.28
			6/20/2016	NA	27.00	0.00	4834.40
			8/11/2016	NA	27.47	0.00	4833.93
			9/15/2016	NA	27.19	0.00	4834.21
			12/15/2016	NA	27.60	0.00	4833.80
			3/16/2017	NA	28.11	0.00	4833.29
			6/15/2017	NA	28.59	0.00	4832.81



Table 3 - Gauging Data

Whiting Oil and Gas Corporation  
Nelson C-1  
Weld County, Colorado

Well ID	Top of Casing Elevation (ft amsl)	Total Depth of Well (ft)	Date Gauged	Depth to Product (ft btoc)	DTW (ft btoc)	Product Thickness (ft)	Potentiometric Surface Elevation (ft)
MW-16	4863.4	39.00	3/15/2016	NA	35.52	0.00	4827.88
			3/21/2016	NA	32.67	0.00	4830.73
			3/22/2016	36.31	36.34	0.03	4827.08
			3/29/2016	NA	30.70	0.00	4832.70
			4/5/2016	NA	29.65	0.00	4833.75
			4/19/2016	NA	29.19	0.00	4834.21
			4/26/2016	NA	28.98	0.00	4834.42
			5/5/2016	NA	29.18	0.00	4834.22
			6/6/2016	NA	29.27	0.00	4834.13
			6/20/2016	NA	29.30	0.00	4834.10
			8/11/2016	NA	29.30	0.00	4834.10
			9/15/2016	NA	29.20	0.00	4834.20
			12/15/2016	NA	29.15	0.00	4834.25
			3/16/2017	NA	29.13	0.00	4834.27
			6/15/2017	NA	29.53	0.00	4833.87
MW-17	4866.0	44.00	3/16/2016	NA	Dry	0.00	
			3/21/2016	43.16	NA	0.84	
			3/22/2016	44.45	45.53	1.08	4821.34
			3/29/2016	39.16	43.55	4.39	4825.98
			4/5/2016	36.62	42.32	5.70	4828.26
			4/19/2016	34.22	42.25	8.03	4830.21
			4/26/2016	33.39	42.16	8.77	4830.89
			5/5/2016	33.04	42.05	9.01	4831.19
			6/6/2016	32.71	41.94	9.23	4831.48
			6/20/2016	36.13	43.14	7.01	4828.50
			8/11/2016	44.20	45.25	1.05	4821.59
			9/15/2016	40.19	43.34	3.15	4825.19
			12/15/2016	40.75	43.09	2.34	4824.79
			3/16/2017	38.92	41.12	2.20	4826.65
			6/15/2017	38.00	39.74	1.74	4827.66
MW-18	4868.6	44.00	3/16/2016	NA	38.87	0.00	4829.73
			3/21/2016	NA	37.72	0.00	4830.88
			3/22/2016	NA	38.10	0.00	4830.50
			3/29/2016	NA	37.55	0.00	4831.05
			4/5/2016	NA	37.74	0.00	4830.86
			4/19/2016	NA	37.87	0.00	4830.73
			4/26/2016	NA	37.55	0.00	4831.05
			5/5/2016	NA	37.79	0.00	4830.81
			6/6/2016	NA	37.75	0.00	4830.85
			6/20/2016	NA	37.90	0.00	4830.70
			8/11/2016	NA	37.63	0.00	4830.97
			9/15/2016	NA	37.56	0.00	4831.04
			12/15/2016	NA	37.33	0.00	4831.27
			3/16/2017	NA	37.29	0.00	4831.31
			6/15/2017	NA	37.49	0.00	4831.11
MW-19	4870.2	39.00	3/21/2016	NA	Dry	0.00	
			3/22/2016	NA	Dry	0.00	
			3/29/2016	NA	Dry	0.00	
			4/5/2016	NA	Dry	0.00	
			4/19/2016	NA	39.87	0.00	4830.33
			4/26/2016	NA	39.56	0.00	4830.64
			5/5/2016	NA	39.44	0.00	4830.76
			6/6/2016	NA	39.20	0.00	4831.00
			6/20/2016	NA	39.18	0.00	4831.02
			8/11/2016	NA	39.10	0.00	4831.10
			9/15/2016	NA	39.05	0.00	4831.15
			12/15/2016	NA	38.92	0.00	4831.28
			3/16/2017	NA	38.81	0.00	4831.39
			6/15/2017	NA	38.68	0.00	4831.52



**Table 3 - Gauging Data**

**Whiting Oil and Gas Corporation  
Nelson C-1  
Weld County, Colorado**

Well ID	Top of Casing Elevation (ft amsl)	Total Depth of Well (ft)	Date Gauged	Depth to Product (ft btoc)	DTW (ft btoc)	Product Thickness (ft)	Potentiometric Surface Elevation (ft)
MW-20	4867.0	39.00	3/21/2016	33.95	38.85	4.90	4832.09
			3/22/2016	38.35	40.21	1.86	4828.29
			3/29/2016	38.34	39.15	0.81	4828.50
			4/5/2016	33.52	38.88	5.36	4832.43
			4/19/2016	33.67	38.29	4.62	4832.42
			4/26/2016	33.26	38.05	4.79	4832.80
			5/5/2016	33.60	36.30	2.70	4832.87
			6/6/2016	33.85	38.85	5.00	4832.17
			6/20/2016	33.80	38.30	4.50	4832.32
			8/11/2016	35.02	38.32	3.30	4831.33
			9/15/2016	33.89	37.57	3.68	4832.39
			12/15/2016	34.10	35.90	1.80	4832.55
			3/16/2017	34.27	35.91	1.64	4832.41
			6/15/2017	34.27	35.88	1.61	4832.41

NA - Not Applicable

DTW - Depth to Water

ft btoc - Feet Below Top of Casing

ft amsl - Feet Above Mean Sea Level



**Table 4 - PSH Removal**

**Whiting Oil and Gas Corporation  
Nelson C-1  
Weld County, Colorado**

<b>Well ID</b>	<b>Date Gauged</b>	<b>Estimated PSH Recovered (gallons)</b>	<b>Cumulative PSH Recovered (gallons)</b>
MW-1	Nov-15	0.00	0.00
	Dec-15	0.03	0.03
	Jan-16	0.00	0.03
	Feb-16	0.03	0.06
	Mar-16	0.00	0.06
	Apr-16	0.00	0.06
	May-16	0.00	0.06
	Jun-16	0.04	0.10
MW-2	Dec-15	0.03	0.03
	Jan-16	0.00	0.03
	Feb-16	0.17	0.20
	Mar-16	0.00	0.20
	Apr-16	0.01	0.21
	May-16	0.00	0.21
	Jun-16	0.04	0.25
	Mar-17	0.03	0.28
	May-17	0.08	0.36
	Jun-17	0.01	0.38



**Table 4 - PSH Removal**

**Whiting Oil and Gas Corporation  
Nelson C-1  
Weld County, Colorado**

<b>Well ID</b>	<b>Date Gauged</b>	<b>Estimated PSH Recovered (gallons)</b>	<b>Cumulative PSH Recovered (gallons)</b>
MW-3	Dec-15	2.47	2.47
	Jan-16	2.02	4.49
	Feb-16	9.63	14.12
	Mar-16	1.93	16.05
	Apr-16	0.91	16.96
	May-16	0.48	17.44
	Jun-16	2.12	19.56
	Jul-16	4.50	24.06
	Aug-16	2.75	26.81
	Sep-16	2.47	29.29
	Oct-16	3.14	32.43
	Nov-16	2.08	34.51
	Dec-16	2.17	36.67
	Jan-17	1.98	38.65
	Feb-17	1.72	40.37
	Mar-17	1.47	41.84
	Apr-17	1.83	43.67
	May-17	1.49	45.16
	Jun-17	1.36	46.52
MW-4	Dec-15	0.00	0.00
	Jan-16	0.00	0.00
	Feb-16	0.00	0.00
	Mar-16	0.00	0.00
	Apr-16	0.00	0.00
	May-16	0.00	0.00
	Jun-16	0.00	0.00
	Jul-16	0.00	0.00



**Table 4 - PSH Removal**

**Whiting Oil and Gas Corporation  
Nelson C-1  
Weld County, Colorado**

<b>Well ID</b>	<b>Date Gauged</b>	<b>Estimated PSH Recovered (gallons)</b>	<b>Cumulative PSH Recovered (gallons)</b>
MW-5	Jun-16	1.50	1.50
	Jul-16	7.00	8.50
	Aug-16	2.41	10.91
	Sep-16	1.55	12.46
	Oct-16	2.49	14.95
	Nov-16	2.42	17.37
	Dec-16	2.67	20.04
	Jan-17	1.86	21.90
	Feb-17	2.20	24.10
	Mar-17	1.08	25.18
	Apr-17	1.96	27.14
	May-17	1.97	29.11
	Jun-17	1.56	30.67
MW-6	Jun-16	6.98	6.98
	Jul-16	10.50	17.48
	Aug-16	4.10	21.58
	Sep-16	2.56	24.14
	Oct-16	4.05	28.19
	Nov-16	3.05	31.24
	Dec-16	2.51	33.75
	Jan-17	1.60	35.36
	Feb-17	2.56	37.91
	Mar-17	1.06	38.97
	Apr-17	1.35	40.32
	May-17	1.08	41.40
	Jun-17	1.22	42.62



**Table 4 - PSH Removal**

**Whiting Oil and Gas Corporation  
Nelson C-1  
Weld County, Colorado**

<b>Well ID</b>	<b>Date Gauged</b>	<b>Estimated PSH Recovered (gallons)</b>	<b>Cumulative PSH Recovered (gallons)</b>
MW-7	Jun-16	3.73	3.73
	Jul-16	10.50	14.23
	Aug-16	3.06	17.29
	Sep-16	2.75	20.04
	Oct-16	2.70	22.74
	Nov-16	2.14	24.88
	Dec-16	1.78	26.66
	Jan-17	1.77	28.43
	Feb-17	2.23	30.66
	Mar-17	1.11	31.77
	Apr-17	1.71	33.48
	May-17	1.36	34.84
	Jun-17	0.86	35.70
MW-17	Jun-16	9.03	9.03
	Jul-16	22.00	31.03
	Aug-16	7.68	38.71
	Sep-16	3.86	42.57
	Oct-16	6.60	49.17
	Nov-16	5.13	54.30
	Dec-16	5.03	59.32
	Jan-17	2.91	62.23
	Feb-17	2.84	65.07
	Mar-17	3.06	68.13
	Apr-17	4.11	72.24
	May-17	3.96	76.20
	Jun-17	2.25	78.45



**Table 4 - PSH Removal**

**Whiting Oil and Gas Corporation  
Nelson C-1  
Weld County, Colorado**

<b>Well ID</b>	<b>Date Gauged</b>	<b>Estimated PSH Recovered (gallons)</b>	<b>Cumulative PSH Recovered (gallons)</b>
MW-20	Jun-16	7.27	7.27
	Jul-16	36.00	43.27
	Aug-16	27.11	70.38
	Sep-16	12.30	82.68
	Oct-16	13.42	96.10
	Nov-16	8.59	104.69
	Dec-16	6.27	110.97
	Jan-17	5.01	115.97
	Feb-17	3.75	119.72
	Mar-17	2.67	122.39
	Apr-17	5.86	128.25
	May-17	5.89	134.14
	Jun-17	3.89	138.03
<b>Site Total</b>			<b>372.47</b>

PSH - Phase Separated Hydrocarbons

**Attachment 3**  
**Analytical Report**

# Summit Scientific

---

741 Corporate Circle – Suite I ♦ Golden, Colorado 80401

303.277.9310 - laboratory ♦ 303.277.9531 - fax

June 27, 2017

Jennifer Galles  
Talon/LPE  
1811 E Mulberry  
Ft Collins, CO 80524  
RE: Nelson C1

Enclosed are the results of analyses for samples received by Summit Scientific on 06/16/17 16:10. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

A handwritten signature in black ink, appearing to read 'Ben Shrewsbury', with a long, sweeping horizontal stroke extending to the right.

Ben Shrewsbury  
Laboratory Manager



Talon/LPE  
1811 E Mulberry  
Ft Collins CO, 80524

Project: Nelson C1  
Project Number: 701530.020.07  
Project Manager: Jennifer Galles

**Reported:**  
06/27/17 14:06

### ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
MW-1	1706184-01	Water	06/16/17 12:30	06/16/17 16:10
MW-2	1706184-02	Water	06/16/17 12:15	06/16/17 16:10
MW-4	1706184-03	Water	06/16/17 12:35	06/16/17 16:10
MW-8	1706184-04	Water	06/16/17 12:05	06/16/17 16:10
MW-9	1706184-05	Water	06/16/17 12:30	06/16/17 16:10
MW-10	1706184-06	Water	06/16/17 11:45	06/16/17 16:10
MW-11	1706184-07	Water	06/16/17 11:20	06/16/17 16:10
MW-12	1706184-08	Water	06/16/17 11:25	06/16/17 16:10
MW-13	1706184-09	Water	06/16/17 11:00	06/16/17 16:10
MW-14	1706184-10	Water	06/16/17 11:15	06/16/17 16:10
MW-15	1706184-11	Water	06/16/17 11:05	06/16/17 16:10
MW-16	1706184-12	Water	06/16/17 11:55	06/16/17 16:10
MW-18	1706184-13	Water	06/16/17 11:30	06/16/17 16:10
MW-19	1706184-14	Water	06/16/17 11:35	06/16/17 16:10
DUP-A	1706184-15	Water	06/16/17 11:35	06/16/17 16:10

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.*

Talon/LPE  
1811 E Mulberry  
Ft Collins CO, 80524

Project: Nelson C1

Project Number: 701530.020.07  
Project Manager: Jennifer Galles

**Reported:**  
06/27/17 14:06

## Summit Scientific

1706184.1


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

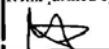
Page 1 of 2

Client:	Talon/LPE - Bill Whiting Petroleum
Address:	1811 East Mulberry
City/State/Zip:	Fort Collins, CO 80525
Phone:	970-818-5330
Fax:	
Sampler Name:	Colby Sterling / Ken Rogowski

Project Manager:	Jennifer Galles
E-Mail:	csterling@talonipe.com and jgalles@talonipe.com
Project Name:	Nelson C1
Project Number:	701530.020.07


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)	BTEX				
MW-1	6/16/2017	1230	3	x				x				x				
MW-2	6/16/2017	1215	3	x				x				x				
MW-4	6/16/2017	1235	3	x								x				
MW-8	6/16/2017	1205	3	x				x				x				
MW-9	6/16/2017	1230	3	x				x				x				
MW-10	6/16/2017	1145	3	x				x				x				
MW-11	6/16/2017	1120	3	x				x				x				
MW-12	6/16/2017	1125	3	x				x				x				
MW-15	6/16/2017	1100	3	x				x				x				
MW-14	6/16/2017	1115	3	x				x				x				


Relinquished by: 

Relinquished by: 

Date/Time: 6-16-17 16:10

Date/Time: 6-16-17 18:20

Received by: 

Received by: 

Date/Time: 6-16-17 16:10

Date/Time: 6-16-17 18:20

Turn Around Time (Check)

Same Day ☐

72 Hours ☐

24 Hours ☐

Standard ☒

48 Hours ☐

Notes:

ON 14

Relinquished by:

Date/Time:

Received in Lab by:

Date/Time:

Sample Integrity:

Temperature Upon Receipt: 4.3

Intact: Yes ☒ No ☐

Notes:

[www.s2scientific.com](http://www.s2scientific.com)

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.*





Talon/LPE  
1811 E Mulberry  
Ft Collins CO, 80524

Project: Nelson C1  
Project Number: 701530.020.07  
Project Manager: Jennifer Galles

Reported:  
06/27/17 14:06

#### Sample Receipt Checklist

S2 Work Order: 1706189

Client: TALON Client Project ID: NELSON C1

Shipped Via: P.U. Airbill #: \_\_\_\_\_  
(UPS, FedEx, Hand Delivered, Pick-up, etc.)

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

Cooler ID					
Temp (°C)					

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.	X			once
Were all samples received intact <sup>(1)</sup> ?	X			
Was adequate sample volume provided <sup>(1)</sup> ?	X			
If custody seals are present, are they intact <sup>(1)</sup> ?			X	
Are short holding time analytes or samples with HTs due within 48 hours present?			X	
Is a chain-of-custody (COC) form present and filled out completely <sup>(1)</sup> ?	X			
Does the COC agree with the number and type of sample bottles received <sup>(1)</sup> ?	X			
Do the sample IDs on the bottle labels match the COC <sup>(1)</sup> ?	X			
Is the COC properly relinquished by the client w/ date and time recorded <sup>(1)</sup> ?	X			
For volatiles in water – is there headspace present? If yes, contact client and note in narrative.		X		
Are samples preserved that require preservation (excluding cooling) <sup>(1)</sup> ?	X			HCL
Note the type of preservative in the Comments column – HCl, H2SO4, NaOH, HNO3, ect				
If samples are acid preserved for metals, is the pH ≤ 2 <sup>(1)</sup> ?			X	
Record the pH in Comments.				
If dissolved metals are requested, were samples field filtered?			X	
Additional Comments (if any):				

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

Murp.  
Custodian Printed Name

LA 6-16-17  
Signature or Initials of Custodian

18:30  
Date/Time



Talon/LPE  
1811 E Mulberry  
Ft Collins CO, 80524

Project: Nelson C1  
Project Number: 701530.020.07  
Project Manager: Jennifer Galles

Reported:  
06/27/17 14:06

**MW-1**  
**1706184-01 (Water)**

**Summit Scientific**

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

Date Sampled: **06/16/17 12:30**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<b>Benzene</b>	<b>11000</b>	100	ug/l	100	1706196	06/20/17	06/20/17	EPA 8260B	
<b>Toluene</b>	<b>12000</b>	100	"	"	"	"	"	"	
<b>Ethylbenzene</b>	<b>970</b>	100	"	"	"	"	"	"	
<b>Xylenes (total)</b>	<b>6200</b>	200	"	"	"	"	"	"	

Date Sampled: **06/16/17 12:30**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<i>Surrogate: 1,2-Dichloroethane-d4</i>		92.3 %	37-154		"	"	"	"	
<i>Surrogate: Toluene-d8</i>		101 %	45-149		"	"	"	"	
<i>Surrogate: 4-Bromofluorobenzene</i>		94.7 %	45-146		"	"	"	"	

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.*



Talon/LPE  
1811 E Mulberry  
Ft Collins CO, 80524

Project: Nelson C1  
Project Number: 701530.020.07  
Project Manager: Jennifer Galles

**Reported:**  
06/27/17 14:06

**MW-2**  
**1706184-02 (Water)**

**Summit Scientific**

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

Date Sampled: **06/16/17 12:15**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<b>Benzene</b>	<b>13000</b>	100	ug/l	100	1706196	06/20/17	06/20/17	EPA 8260B	
<b>Toluene</b>	<b>15000</b>	100	"	"	"	"	"	"	
<b>Ethylbenzene</b>	<b>1000</b>	100	"	"	"	"	"	"	
<b>Xylenes (total)</b>	<b>6100</b>	200	"	"	"	"	"	"	

Date Sampled: **06/16/17 12:15**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<i>Surrogate: 1,2-Dichloroethane-d4</i>		86.8 %	37-154		"	"	"	"	
<i>Surrogate: Toluene-d8</i>		94.1 %	45-149		"	"	"	"	
<i>Surrogate: 4-Bromofluorobenzene</i>		92.0 %	45-146		"	"	"	"	

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.*



Talon/LPE  
1811 E Mulberry  
Ft Collins CO, 80524

Project: Nelson C1  
Project Number: 701530.020.07  
Project Manager: Jennifer Galles

**Reported:**  
06/27/17 14:06

**MW-4**  
**1706184-03 (Water)**

**Summit Scientific**

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

Date Sampled: **06/16/17 12:35**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<b>Benzene</b>	<b>11000</b>	100	ug/l	100	1706196	06/20/17	06/20/17	EPA 8260B	
<b>Toluene</b>	<b>13000</b>	100	"	"	"	"	"	"	
<b>Ethylbenzene</b>	<b>820</b>	100	"	"	"	"	"	"	
<b>Xylenes (total)</b>	<b>5800</b>	200	"	"	"	"	"	"	

Date Sampled: **06/16/17 12:35**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<i>Surrogate: 1,2-Dichloroethane-d4</i>		87.6 %	37-154		"	"	"	"	
<i>Surrogate: Toluene-d8</i>		95.0 %	45-149		"	"	"	"	
<i>Surrogate: 4-Bromofluorobenzene</i>		92.3 %	45-146		"	"	"	"	

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.*



Talon/LPE  
1811 E Mulberry  
Ft Collins CO, 80524

Project: Nelson C1  
Project Number: 701530.020.07  
Project Manager: Jennifer Galles

**Reported:**  
06/27/17 14:06

**MW-8**  
**1706184-04 (Water)**

**Summit Scientific**

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

Date Sampled: **06/16/17 12:05**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<b>Benzene</b>	<b>9600</b>	100	ug/l	100	1706196	06/20/17	06/20/17	EPA 8260B	
<b>Toluene</b>	<b>14000</b>	100	"	"	"	"	"	"	
<b>Ethylbenzene</b>	<b>970</b>	100	"	"	"	"	"	"	
<b>Xylenes (total)</b>	<b>6200</b>	200	"	"	"	"	"	"	

Date Sampled: **06/16/17 12:05**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<i>Surrogate: 1,2-Dichloroethane-d4</i>		92.9 %	37-154		"	"	"	"	
<i>Surrogate: Toluene-d8</i>		104 %	45-149		"	"	"	"	
<i>Surrogate: 4-Bromofluorobenzene</i>		92.9 %	45-146		"	"	"	"	

Summit Scientific

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Talon/LPE  
1811 E Mulberry  
Ft Collins CO, 80524

Project: Nelson C1  
Project Number: 701530.020.07  
Project Manager: Jennifer Galles

**Reported:**  
06/27/17 14:06

**MW-9**  
**1706184-05 (Water)**

**Summit Scientific**

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

Date Sampled: **06/16/17 12:30**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	1.0	ug/l	1	1706196	06/20/17	06/20/17	EPA 8260B	
Toluene	ND	1.0	"	"	"	"	"	"	
Ethylbenzene	ND	1.0	"	"	"	"	"	"	
Xylenes (total)	ND	2.0	"	"	"	"	"	"	

Date Sampled: **06/16/17 12:30**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		92.0 %	37-154		"	"	"	"	
Surrogate: Toluene-d8		91.4 %	45-149		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		93.9 %	45-146		"	"	"	"	

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Talon/LPE  
1811 E Mulberry  
Ft Collins CO, 80524

Project: Nelson C1  
Project Number: 701530.020.07  
Project Manager: Jennifer Galles

**Reported:**  
06/27/17 14:06

**MW-10**  
**1706184-06 (Water)**

**Summit Scientific**

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

Date Sampled: **06/16/17 11:45**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	1.0	ug/l	1	1706196	06/26/17	06/26/17	EPA 8260B	
Toluene	ND	1.0	"	"	"	"	"	"	
Ethylbenzene	ND	1.0	"	"	"	"	"	"	
Xylenes (total)	ND	2.0	"	"	"	"	"	"	

Date Sampled: **06/16/17 11:45**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		101 %	37-154		"	"	"	"	
Surrogate: Toluene-d8		98.6 %	45-149		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		100 %	45-146		"	"	"	"	

Summit Scientific

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Talon/LPE  
1811 E Mulberry  
Ft Collins CO, 80524

Project: Nelson C1  
Project Number: 701530.020.07  
Project Manager: Jennifer Galles

**Reported:**  
06/27/17 14:06

**MW-11**  
**1706184-07 (Water)**

**Summit Scientific**

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

Date Sampled: **06/16/17 11:20**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	1.0	ug/l	1	1706196	06/20/17	06/20/17	EPA 8260B	
Toluene	ND	1.0	"	"	"	"	"	"	
Ethylbenzene	ND	1.0	"	"	"	"	"	"	
Xylenes (total)	ND	2.0	"	"	"	"	"	"	

Date Sampled: **06/16/17 11:20**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		87.3 %	37-154		"	"	"	"	
Surrogate: Toluene-d8		90.1 %	45-149		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		95.0 %	45-146		"	"	"	"	

Summit Scientific

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Talon/LPE  
1811 E Mulberry  
Ft Collins CO, 80524

Project: Nelson C1  
Project Number: 701530.020.07  
Project Manager: Jennifer Galles

Reported:  
06/27/17 14:06

**MW-12**  
**1706184-08 (Water)**

**Summit Scientific**

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

Date Sampled: **06/16/17 11:25**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	1.0	ug/l	1	1706196	06/26/17	06/26/17	EPA 8260B	
Toluene	ND	1.0	"	"	"	"	"	"	
Ethylbenzene	ND	1.0	"	"	"	"	"	"	
Xylenes (total)	ND	2.0	"	"	"	"	"	"	

Date Sampled: **06/16/17 11:25**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		104 %	37-154		"	"	"	"	
Surrogate: Toluene-d8		99.7 %	45-149		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		101 %	45-146		"	"	"	"	

Summit Scientific

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Talon/LPE  
1811 E Mulberry  
Ft Collins CO, 80524

Project: Nelson C1  
Project Number: 701530.020.07  
Project Manager: Jennifer Galles

**Reported:**  
06/27/17 14:06

**MW-13**  
**1706184-09 (Water)**

**Summit Scientific**

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

Date Sampled: **06/16/17 11:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	1.0	ug/l	1	1706196	06/20/17	06/20/17	EPA 8260B	
Toluene	ND	1.0	"	"	"	"	"	"	
Ethylbenzene	ND	1.0	"	"	"	"	"	"	
Xylenes (total)	ND	2.0	"	"	"	"	"	"	

Date Sampled: **06/16/17 11:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		92.5 %	37-154		"	"	"	"	
Surrogate: Toluene-d8		89.9 %	45-149		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		94.1 %	45-146		"	"	"	"	

Summit Scientific

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Talon/LPE  
1811 E Mulberry  
Ft Collins CO, 80524

Project: Nelson C1  
Project Number: 701530.020.07  
Project Manager: Jennifer Galles

**Reported:**  
06/27/17 14:06

**MW-14**  
**1706184-10 (Water)**

**Summit Scientific**

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

Date Sampled: **06/16/17 11:15**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<b>Benzene</b>	<b>2100</b>	100	ug/l	100	1706196	06/20/17	06/20/17	EPA 8260B	
<b>Toluene</b>	<b>700</b>	100	"	"	"	"	"	"	
<b>Ethylbenzene</b>	<b>280</b>	100	"	"	"	"	"	"	
<b>Xylenes (total)</b>	<b>890</b>	200	"	"	"	"	"	"	

Date Sampled: **06/16/17 11:15**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<i>Surrogate: 1,2-Dichloroethane-d4</i>		88.7 %	37-154		"	"	"	"	
<i>Surrogate: Toluene-d8</i>		92.5 %	45-149		"	"	"	"	
<i>Surrogate: 4-Bromofluorobenzene</i>		93.3 %	45-146		"	"	"	"	

Summit Scientific

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Talon/LPE  
1811 E Mulberry  
Ft Collins CO, 80524

Project: Nelson C1  
Project Number: 701530.020.07  
Project Manager: Jennifer Galles

**Reported:**  
06/27/17 14:06

**MW-15**  
**1706184-11 (Water)**

**Summit Scientific**

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

Date Sampled: **06/16/17 11:05**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<b>Benzene</b>	<b>4400</b>	100	ug/l	100	1706196	06/20/17	06/20/17	EPA 8260B	
<b>Toluene</b>	<b>1100</b>	100	"	"	"	"	"	"	
<b>Ethylbenzene</b>	<b>520</b>	100	"	"	"	"	"	"	
<b>Xylenes (total)</b>	<b>2800</b>	200	"	"	"	"	"	"	

Date Sampled: **06/16/17 11:05**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<i>Surrogate: 1,2-Dichloroethane-d4</i>		87.8 %	37-154		"	"	"	"	
<i>Surrogate: Toluene-d8</i>		92.6 %	45-149		"	"	"	"	
<i>Surrogate: 4-Bromofluorobenzene</i>		93.0 %	45-146		"	"	"	"	

Summit Scientific

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Talon/LPE  
1811 E Mulberry  
Ft Collins CO, 80524

Project: Nelson C1  
Project Number: 701530.020.07  
Project Manager: Jennifer Galles

**Reported:**  
06/27/17 14:06

**MW-16**  
**1706184-12 (Water)**

**Summit Scientific**

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

Date Sampled: **06/16/17 11:55**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<b>Benzene</b>	<b>11000</b>	100	ug/l	100	1706196	06/20/17	06/20/17	EPA 8260B	
<b>Toluene</b>	<b>13000</b>	100	"	"	"	"	"	"	
<b>Ethylbenzene</b>	<b>1500</b>	100	"	"	"	"	"	"	
<b>Xylenes (total)</b>	<b>8400</b>	200	"	"	"	"	"	"	

Date Sampled: **06/16/17 11:55**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<i>Surrogate: 1,2-Dichloroethane-d4</i>		91.7 %	37-154		"	"	"	"	
<i>Surrogate: Toluene-d8</i>		97.2 %	45-149		"	"	"	"	
<i>Surrogate: 4-Bromofluorobenzene</i>		90.8 %	45-146		"	"	"	"	

Summit Scientific

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Talon/LPE  
1811 E Mulberry  
Ft Collins CO, 80524

Project: Nelson C1  
Project Number: 701530.020.07  
Project Manager: Jennifer Galles

**Reported:**  
06/27/17 14:06

**MW-18**  
**1706184-13 (Water)**

**Summit Scientific**

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

Date Sampled: **06/16/17 11:30**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<b>Benzene</b>	<b>470</b>	10	ug/l	10	1706196	06/20/17	06/20/17	EPA 8260B	
<b>Toluene</b>	<b>330</b>	10	"	"	"	"	"	"	
<b>Ethylbenzene</b>	<b>15</b>	10	"	"	"	"	"	"	
<b>Xylenes (total)</b>	<b>200</b>	20	"	"	"	"	"	"	

Date Sampled: **06/16/17 11:30**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<i>Surrogate: 1,2-Dichloroethane-d4</i>		87.7 %	37-154		"	"	"	"	
<i>Surrogate: Toluene-d8</i>		92.3 %	45-149		"	"	"	"	
<i>Surrogate: 4-Bromofluorobenzene</i>		92.8 %	45-146		"	"	"	"	

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Talon/LPE  
1811 E Mulberry  
Ft Collins CO, 80524

Project: Nelson C1  
Project Number: 701530.020.07  
Project Manager: Jennifer Galles

**Reported:**  
06/27/17 14:06

**MW-19**  
**1706184-14 (Water)**

**Summit Scientific**

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

Date Sampled: **06/16/17 11:35**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<b>Benzene</b>	<b>2.0</b>	1.0	ug/l	1	1706196	06/20/17	06/20/17	EPA 8260B	
<b>Toluene</b>	<b>1.1</b>	1.0	"	"	"	"	"	"	
Ethylbenzene	ND	1.0	"	"	"	"	"	"	
Xylenes (total)	ND	2.0	"	"	"	"	"	"	

Date Sampled: **06/16/17 11:35**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		96.2 %	37-154		"	"	"	"	
Surrogate: Toluene-d8		101 %	45-149		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		95.8 %	45-146		"	"	"	"	

Summit Scientific

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Talon/LPE  
1811 E Mulberry  
Ft Collins CO, 80524

Project: Nelson C1  
Project Number: 701530.020.07  
Project Manager: Jennifer Galles

**Reported:**  
06/27/17 14:06

**DUP-A**  
**1706184-15 (Water)**

**Summit Scientific**

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

Date Sampled: **06/16/17 11:35**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<b>Benzene</b>	<b>11000</b>	100	ug/l	100	1706196	06/20/17	06/20/17	EPA 8260B	
<b>Toluene</b>	<b>11000</b>	100	"	"	"	"	"	"	
<b>Ethylbenzene</b>	<b>930</b>	100	"	"	"	"	"	"	
<b>Xylenes (total)</b>	<b>5700</b>	200	"	"	"	"	"	"	

Date Sampled: **06/16/17 11:35**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<i>Surrogate: 1,2-Dichloroethane-d4</i>		91.0 %	37-154		"	"	"	"	
<i>Surrogate: Toluene-d8</i>		93.8 %	45-149		"	"	"	"	
<i>Surrogate: 4-Bromofluorobenzene</i>		91.4 %	45-146		"	"	"	"	

Summit Scientific

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Talon/LPE  
1811 E Mulberry  
Ft Collins CO, 80524

Project: Nelson C1  
Project Number: 701530.020.07  
Project Manager: Jennifer Galles

Reported:  
06/27/17 14:06

## 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 1706196 - EPA 5030 Water MS

##### Blank (1706196-BLK1)

Prepared & Analyzed: 06/20/17

Benzene	ND	1.0	ug/l							
Toluene	ND	1.0	"							
Ethylbenzene	ND	1.0	"							
Xylenes (total)	ND	2.0	"							
Surrogate: 1,2-Dichloroethane-d4	11.9		"	13.3		89.3	37-154			
Surrogate: Toluene-d8	12.1		"	13.3		90.5	45-149			
Surrogate: 4-Bromofluorobenzene	12.7		"	13.3		95.0	45-146			

##### LCS (1706196-BS1)

Prepared & Analyzed: 06/20/17

Benzene	35.3	1.0	ug/l	33.3		106	51-132			
Toluene	38.2	1.0	"	33.3		115	51-138			
Ethylbenzene	38.0	1.0	"	33.1		115	58-146			
m,p-Xylene	72.6	2.0	"	66.5		109	57-144			
o-Xylene	37.3	1.0	"	32.7		114	53-146			
Surrogate: 1,2-Dichloroethane-d4	13.5		"	13.3		101	37-154			
Surrogate: Toluene-d8	13.2		"	13.3		99.0	45-149			
Surrogate: 4-Bromofluorobenzene	12.5		"	13.3		93.7	45-146			

##### Matrix Spike (1706196-MS1)

Source: 1706157-05

Prepared & Analyzed: 06/20/17

Benzene	34.6	1.0	ug/l	33.3	ND	104	34-141			
Toluene	38.5	1.0	"	33.3	ND	116	27-151			
Ethylbenzene	41.8	1.0	"	33.1	ND	126	29-160			
m,p-Xylene	75.7	2.0	"	66.5	ND	114	20-166			
o-Xylene	38.6	1.0	"	32.7	ND	118	33-159			
Surrogate: 1,2-Dichloroethane-d4	12.9		"	13.3		96.8	37-154			
Surrogate: Toluene-d8	12.5		"	13.3		93.9	45-149			
Surrogate: 4-Bromofluorobenzene	12.3		"	13.3		92.1	45-146			

Summit Scientific

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Talon/LPE  
1811 E Mulberry  
Ft Collins CO, 80524

Project: Nelson C1  
Project Number: 701530.020.07  
Project Manager: Jennifer Galles

Reported:  
06/27/17 14:06

**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 1706196 - EPA 5030 Water MS**

Matrix Spike Dup (1706196-MSD1)	Source: 1706157-05			Prepared & Analyzed: 06/20/17						
Benzene	35.4	1.0	ug/l	33.3	ND	106	34-141	2.31	32	
Toluene	40.8	1.0	"	33.3	ND	122	27-151	5.65	25	
Ethylbenzene	41.1	1.0	"	33.1	ND	124	29-160	1.74	50	
m,p-Xylene	73.8	2.0	"	66.5	ND	111	20-166	2.53	36	
o-Xylene	38.3	1.0	"	32.7	ND	117	33-159	0.806	26	
Surrogate: 1,2-Dichloroethane-d4	13.3		"	13.3		99.5	37-154			
Surrogate: Toluene-d8	13.4		"	13.3		101	45-149			
Surrogate: 4-Bromofluorobenzene	12.2		"	13.3		91.7	45-146			

Summit Scientific

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Talon/LPE  
1811 E Mulberry  
Ft Collins CO, 80524

Project: Nelson C1  
Project Number: 701530.020.07  
Project Manager: Jennifer Galles

**Reported:**  
06/27/17 14:06

### 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