

# **FREMONT ENVIRONMENTAL INC.**

June 21, 2022

Mr. Daniel Peterson  
Noble Energy Inc.  
2115 117<sup>th</sup> Avenue  
Greeley, CO 80634

Subject:       **Groundwater Data Submittal**  
Harper Kona Pipeline  
NESW Sec 21, T6N, R64W  
Weld County, Colorado  
Fremont Project No. C021-074  
Spill #480529, Remediation #20790

Dear Mr. Peterson:

Enclosed please find a copy of the above referenced Groundwater Data Submittal for the Harper Kona Pipeline site in Weld County, Colorado. The enclosed data describes the groundwater quality at the site during the recent quarterly sampling and monitoring event.

Three soil borings were advanced and completed as two-inch monitoring wells on April 19, 2022 to further define the magnitude and extent of groundwater impacts at the Harper Kona Pipeline location. The boring logs and associated soil chemistry data are included in the attached enclosure.

Please contact me at (303) 956-8714 if you require any additional information.

Fremont appreciates the opportunity to provide this service.

Sincerely,  
**FREMONT ENVIRONMENTAL INC.**



Paul V. Henehan, P.E.  
Senior Consultant

Enclosure

**1759 REDWING LANE, BROOMFIELD, CO 80020**  
**(303) 956-8714 (DIRECT)**

**TABLE 1**  
**SUMMARY OF VOLATILE ORGANICS AND METALS SOIL CHEMISTRY DATA**  
**NOBLE ENERGY INC.**  
**HARPER KONA PIPELINE, WELD COUNTY, COLORADO**  
**FREMONT PROJECT NO. C021-074**

Sample	Depth (ft)	Date Sampled	Benzene (mg/kg)	Toluene (mg/kg)	Ethyl-Benzene (mg/kg)	Xylenes (mg/kg)	1,2,4-Trimethyl-Benzene (mg/kg)	1,3,5-Trimethyl-Benzene (mg/kg)	Naphthalene (mg/kg)	TPH GRO (mg/kg)	TPH DRO (mg/kg)	TPH ORO (mg/kg)	Barium (mg/kg)
MW-1 8 Ft	8	10/29/2021	<0.002	<0.005	<0.005	<0.010	<0.005	<0.005	<0.0038	<0.50	<50	<50	NA
MW-2 8 Ft	8	10/29/2021	<0.002	<0.005	<0.005	<0.010	<0.005	<0.005	<0.0038	<0.50	<50	<50	NA
MW-3 8 Ft	8	10/29/2021	<0.002	<0.005	<0.005	<0.010	<0.005	<0.005	<0.0038	<0.50	<50	<50	NA
MW-4 8 Ft	8	10/29/2021	<0.002	<0.005	<0.005	<0.010	<0.005	<0.005	<0.0038	<0.50	<50	<50	NA
MW-5 8 Ft	8	10/29/2021	<0.002	<0.005	<0.005	<0.010	<0.005	<0.005	<0.0038	<0.50	<50	<50	NA
MW-6 8 Ft	8	10/29/2021	<0.002	<0.005	<0.005	<0.010	<0.005	<0.005	<0.0038	<0.50	<50	<50	NA
MW-7 8 Ft	8	10/29/2021	<0.002	<0.005	<0.005	<0.010	<0.005	<0.005	<0.0038	<0.50	<50	<50	NA
MW-8 8 Ft	8	10/29/2021	<0.002	<0.005	<0.005	<0.010	<0.005	<0.005	<0.0038	<0.50	<50	<50	NA
MW-9 8 Ft	8	10/29/2021	<0.002	<0.005	<0.005	<0.010	<0.005	<0.005	<0.0038	<0.50	<50	<50	NA
MW-10 8 Ft	8	10/29/2021	<0.002	<0.005	<0.005	<0.010	<0.005	<0.005	<0.0038	<0.50	<50	<50	NA
MW-3R 15 Ft	15	4/19/2022	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	27.0
MW-6R 15 Ft	15	4/19/2022	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	9.73
MW-11 15 Ft	15	4/19/2022	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	19.8
COGCC Table 915-1 Limits (Residential SSL)			1.2	490	5.8	58	30	27	2	500	500	500	15000
COGCC Table 915-1 Limits (Protection of Groundwater SSL)			0.0026	0.69	0.78	9.9	0.0081	0.0087	0.0038	500*	500*	500*	82

Bold faced values exceed the COGCC Table 915-1 concentrations

Blue highlighted 915-1 Limits indicate the referenced soil screening level (SSL)

\* Summation of GRO+DRO+ORO must be less than 500 mg/kg

NA - Not analyzed

**TABLE 2**  
**SUMMARY OF ORGANIC GROUNDWATER CHEMISTRY DATA**  
**NOBLE ENERGY INC.**  
**HARPER KONA PIPELINE, WELD COUNTY, COLORADO**  
**FREMONT PROJECT NO. C021-074**

SAMPLE LOCATION	DATE	BENZENE (µg/L)	TOLUENE (µg/L)	ETHYL BENZENE (µg/L)	TOTAL XYLENES (µg/L)	NAPH-THALENE (µg/L)	1,2,4 TMB (µg/L)	1,3,5 TMB (µg/L)	TOC ELEV (FT)	DTW (FT)	GW ELEV (FT)	LNAPL (FT)
MW-1	11/04/21	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	92.97	9.43	83.54	NP
	01/20/22	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0		11.66	81.31	NP
	04/29/22	<1.0	<1.0	<1.0	3.9	<1.0	4.2	3.3		11.85	81.12	NP
MW-2	11/04/21	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	94.83	10.85	83.98	NP
	01/20/22	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0		12.54	82.29	NP
	04/29/22	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0		13.24	81.59	NP
MW-3 MW-3R	11/04/21	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	94.90	11.09	83.81	NP
	01/20/22	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0		12.87	82.03	NP
	04/29/22	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0		94.70	13.39	81.31
MW-4	11/04/21	Dry	Dry	Dry	Dry	Dry	Dry	Dry	98.26	Dry	Dry	Dry
	01/20/22	Dry	Dry	Dry	Dry	Dry	Dry	Dry		Dry	Dry	Dry
	04/29/22	Dry	Dry	Dry	Dry	Dry	Dry	Dry		Dry	Dry	Dry
MW-5	11/04/21	Dry	Dry	Dry	Dry	Dry	Dry	Dry	98.39	Dry	Dry	Dry
	01/20/22	Dry	Dry	Dry	Dry	Dry	Dry	Dry		Dry	Dry	Dry
	04/29/22	Dry	Dry	Dry	Dry	Dry	Dry	Dry		Dry	Dry	Dry
MW-6 MW-6R	11/04/21	Dry	Dry	Dry	Dry	Dry	Dry	Dry	98.38	13.78	84.60	NP
	01/20/22	Dry	Dry	Dry	Dry	Dry	Dry	Dry		Dry	Dry	Dry
	04/29/22	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0		98.51	15.94	82.57
MW-7	11/04/21	Dry	Dry	Dry	Dry	Dry	Dry	Dry	100.00	Dry	Dry	Dry
	01/20/22	Dry	Dry	Dry	Dry	Dry	Dry	Dry		Dry	Dry	Dry
	04/29/22	Dry	Dry	Dry	Dry	Dry	Dry	Dry		Dry	Dry	Dry
MW-8	11/04/21	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	95.00	11.04	83.96	NP
	01/20/22	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0		12.42	82.58	NP
	04/29/22	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0		13.24	81.76	NP
MW-9	11/04/21	Dry	Dry	Dry	Dry	Dry	Dry	Dry	97.91	Dry	Dry	Dry
	01/20/22	Dry	Dry	Dry	Dry	Dry	Dry	Dry		Dry	Dry	Dry
	04/29/22	Dry	Dry	Dry	Dry	Dry	Dry	Dry		Dry	Dry	Dry
MW-10	11/04/21	Dry	Dry	Dry	Dry	Dry	Dry	Dry	98.66	Dry	Dry	Dry

SAMPLE LOCATION	DATE	BENZENE (µg/L)	TOLUENE (µg/L)	ETHYL BENZENE (µg/L)	TOTAL XYLENES (µg/L)	NAPH-THALENE (µg/L)	1,2,4 TMB (µg/L)	1,3,5 TMB (µg/L)	TOC ELEV (FT)	DTW (FT)	GW ELEV (FT)	LNAPL (FT)
MW-10	01/20/22	Dry	Dry	Dry	Dry	Dry	Dry	Dry	98.66	Dry	Dry	Dry
	04/29/22	Dry	Dry	Dry	Dry	Dry	Dry	Dry		Dry	Dry	Dry
MW-11	04/29/22	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	97.48	15.31	82.17	NP
Table 915-1 Limits		5	560	700	1,400	140	67	67				

Bold face values exceed the COGCC limits

NP - No Free Product

**TABLE 3**  
**SUMMARY OF INORGANIC GROUNDWATER CHEMISTRY DATA**  
**NOBLE ENERGY INC.**  
**HARPER KONA PIPELINE, WELD COUNTY, COLORADO**  
**FREMONT PROJECT NO. C021-074**

<b>SAMPLE LOCATION</b>	<b>DATE</b>	<b>TDS (mg/L)</b>	<b>CHLORIDE ION (mg/L)</b>	<b>SULFATE ION (mg/L)</b>	<b>BARIUM (mg/L)</b>
MW-1	11/04/21	1080	55.2	899	NA
	01/20/22	1360	35.4	499	0.0774
	04/29/22	1510	7.76	997	0.0453
MW-2	11/04/21	2550	187	2360	NA
	01/20/22	3670	392	1360	0.116
	04/29/22	3160	314	2000	0.0609
MW-3 MW-3R	11/04/21	2420	46.6	2360	NA
	01/20/22	IW	IW	IW	IW
	04/29/22	2240	42.4	1980	0.0305
MW-4	11/04/21	Dry	Dry	Dry	Dry
	01/20/22	Dry	Dry	Dry	Dry
	04/29/22	Dry	Dry	Dry	Dry
MW-5	11/04/21	Dry	Dry	Dry	Dry
	01/20/22	Dry	Dry	Dry	Dry
	04/29/22	Dry	Dry	Dry	Dry
MW-6 MW-6R	11/04/21	Dry	Dry	Dry	Dry
	01/20/22	Dry	Dry	Dry	Dry
	04/29/22	2760	123	2550	0.0311
MW-7	11/04/21	Dry	Dry	Dry	Dry
	01/20/22	Dry	Dry	Dry	Dry
	04/29/22	Dry	Dry	Dry	Dry
MW-8	11/04/21	2820	106	2620	NA
	01/20/22	2720	63.6	1580	0.0819
	04/29/22	IW	IW	IW	IW

SAMPLE LOCATION	DATE	TDS (mg/L)	CHLORIDE ION (mg/L)	SULFATE ION (mg/L)	BARIUM (mg/L)
MW-9	11/04/21	Dry	Dry	Dry	Dry
	01/20/22	Dry	Dry	Dry	Dry
MW-10	11/04/21	Dry	Dry	Dry	Dry
	01/20/22	Dry	Dry	Dry	Dry
MW-11	04/29/22	2540	80.0	2360	0.0367
Table 915-1 Standards		<1.25 x local background	250 or 1.25x background	250 or 1.25x background	None
Reg. 41 Drinking Water Standard					2.0

Bold face values exceed the COGCC limits

NA - Not Analyzed

NAP - Not Applicable

IW - Insufficient Water

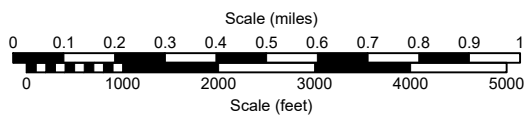
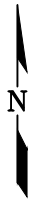
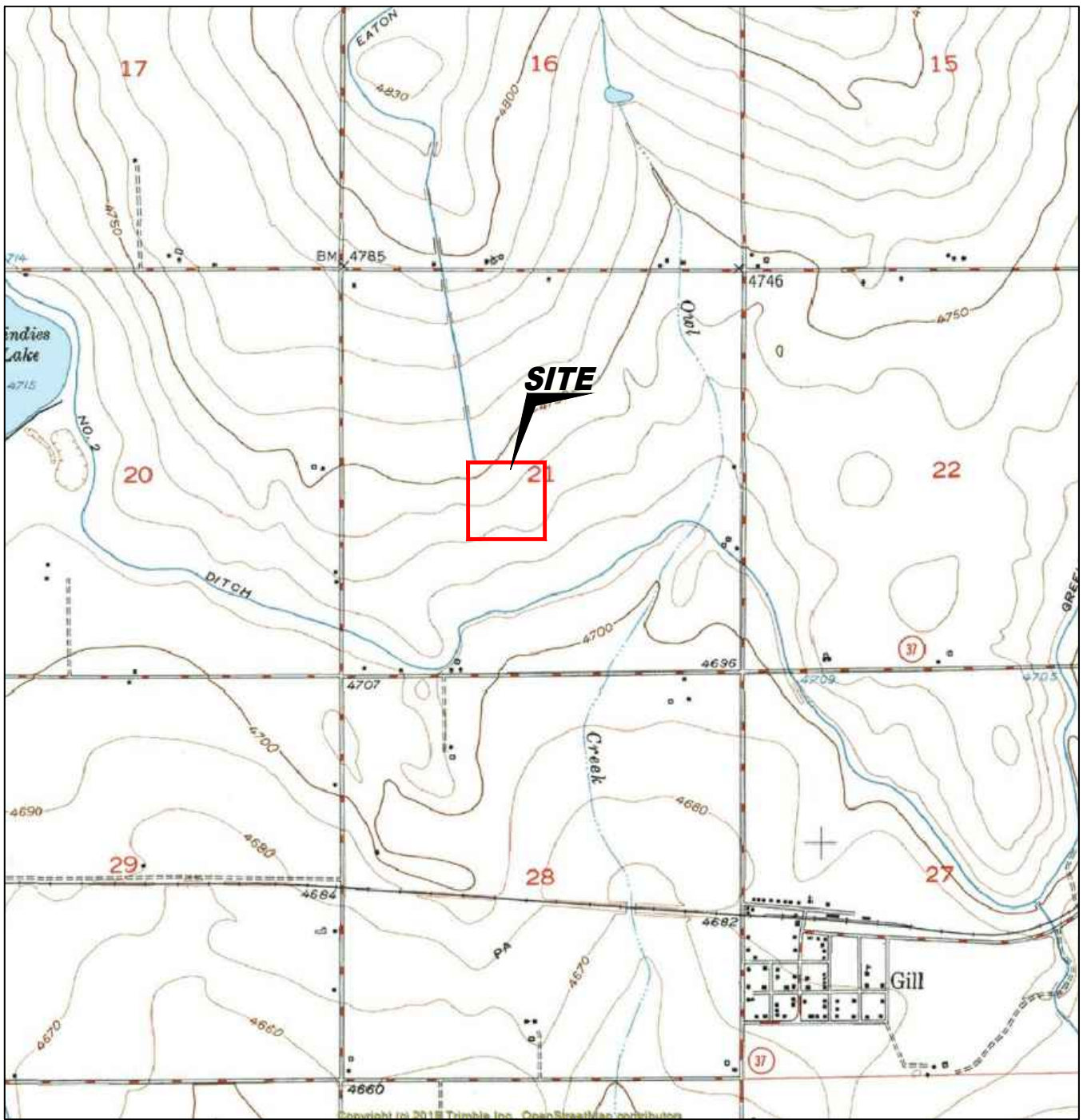
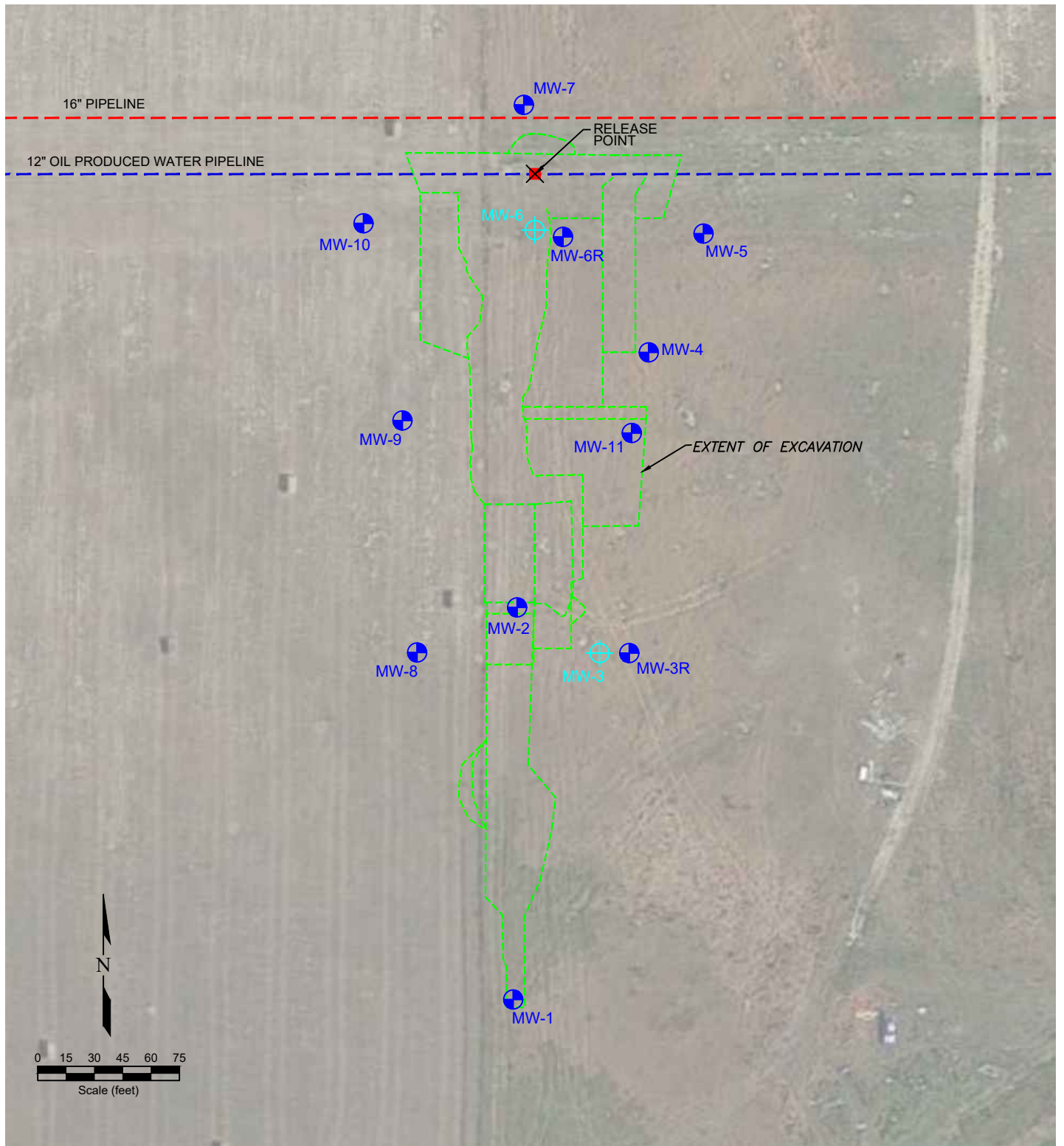


Figure 1  
**SITE LOCATION MAP**








**Noble Midstream, Inc.**  
**Harper Pipeline Release**  
 NESW Sec. 21, T6N, R64W, 6th PM  
 Weld County, Colorado

Project # <b>C021-074</b>	Prepared By	Drawn By <b>TA</b>
Date <b>6/6/22</b>	Reviewed By <b>EB</b>	Filename 21074T





**LEGEND**

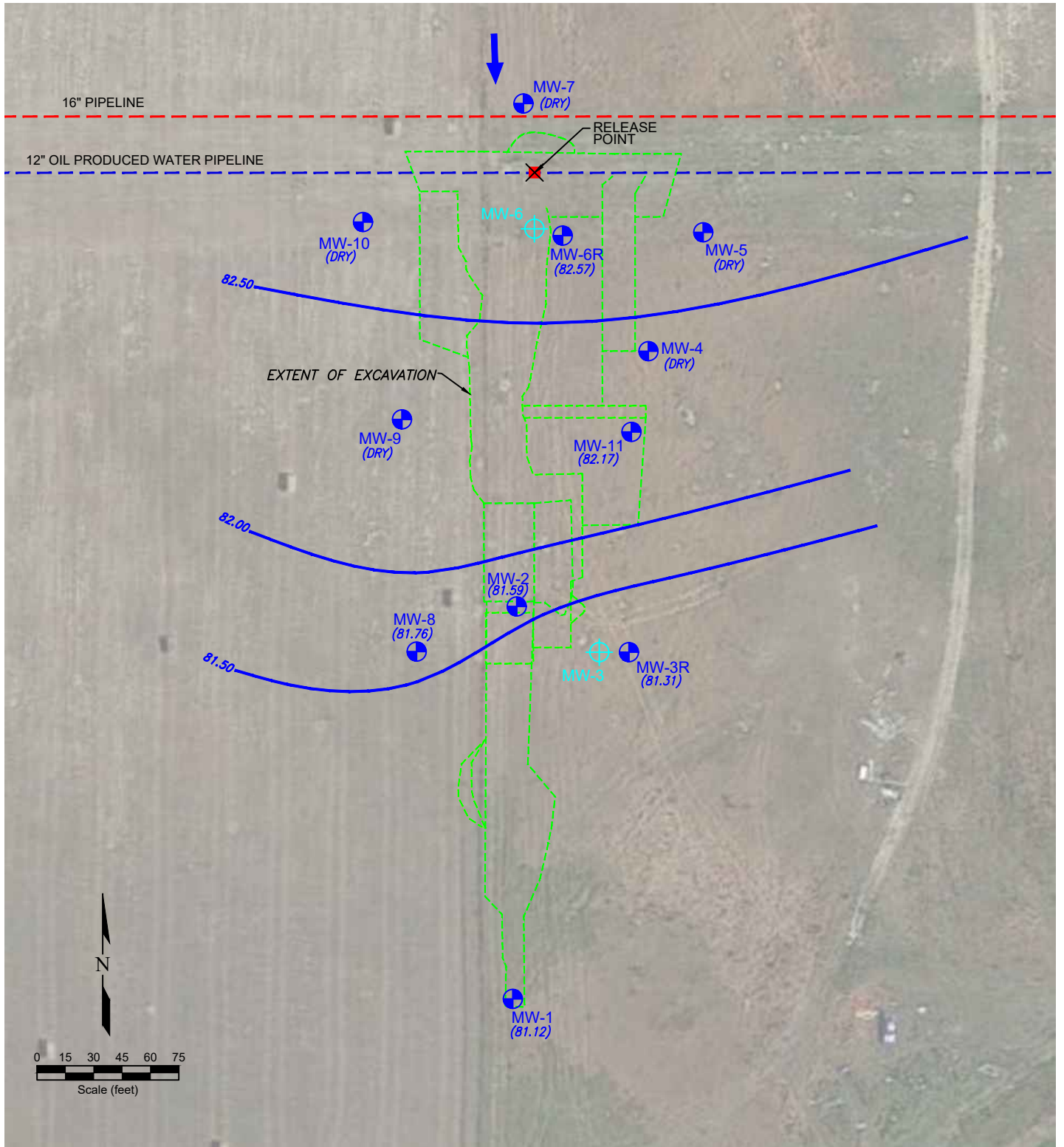
-  RELEASE POINT
-  MONITORING WELL LOCATION
-  DESTROYED MONITORING WELL LOCATION
-  EXTENT OF EXCAVATION
-  12" OIL PRODUCED WATER PIPELINE
-  16" PIPELINE
-  FENCE LINE

**Figure 2  
SITE MAP**

**Noble Midstream, Inc.**  
 Harper Pipeline Release  
 NESW Sec. 21, T6N, R64W, 6th PM  
 Weld County, Colorado

Project No. <b>CO21-074</b>	Prepared by	Drawn by <b>TA</b>
Date <b>6/6/22</b>	Reviewed by <b>EB</b>	Filename <b>21074QL</b>





**LEGEND**












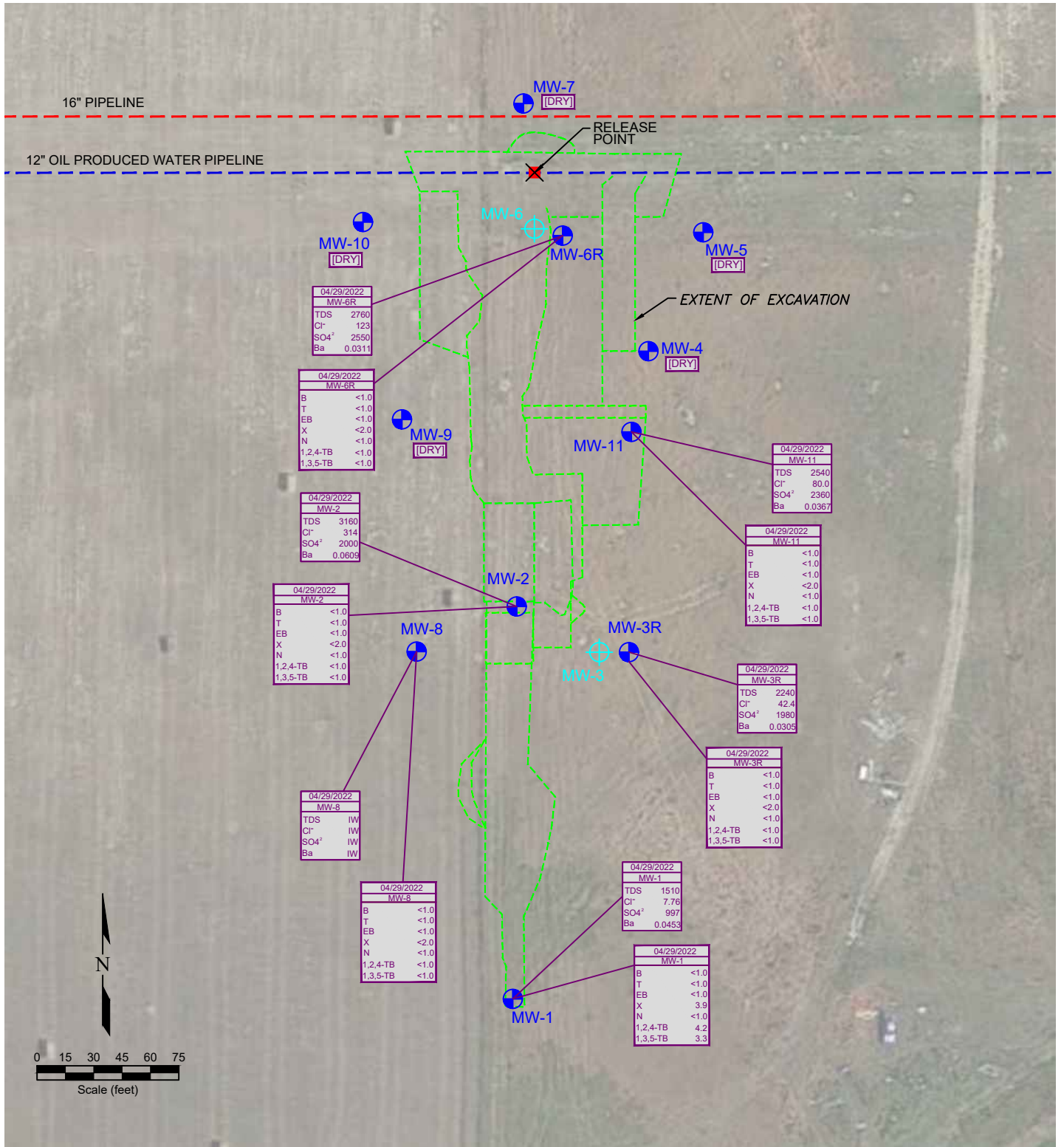
-  RELEASE POINT
-  MONITORING WELL LOCATION
-  DESTROYED MONITORING WELL LOCATION
-  EXTENT OF EXCAVATION
-  12" OIL PRODUCED WATER PIPELINE
-  16" PIPELINE
-  FENCE LINE
-  GROUND WATER ELEVATION (ft above arbitrary datum)
-  WATER TABLE CONTOUR
-  GROUND WATER FLOW DIRECTION
-  WATER SUPPLY NOT PRESENT

Figure 3  
**INFERRED GROUNDWATER CONTOUR MAP**  
 April 29, 2022

**Noble Midstream, Inc.**  
 Harper Pipeline Release  
 NESW Sec. 21, T6N, R64W, 6th PM  
 Weld County, Colorado

Project No. <b>CO21-074</b>	Prepared by	Drawn by <b>TA</b>
Date <b>6/6/22</b>	Reviewed by <b>EB</b>	Filename <b>21074QL</b>





**LEGEND**

- RELEASE POINT
- MONITORING WELL LOCATION
- DESTROYED MONITORING WELL LOCATION
- EXTENT OF EXCAVATION
- 12" OIL PRODUCED WATER PIPELINE
- 16" PIPELINE
- FENCE LINE
- INSUFFICIENT WATER SUPPLY
- WATER NOT PRESENT

04/29/2022	MW-1
TDS	1510
Cl <sup>-</sup>	7.76
SO <sub>4</sub> <sup>2-</sup>	997
Ba	0.0453

DATE SAMPLED	SAMPLE ID	DATE SAMPLED	SAMPLE ID
04/29/2022	MW-1	04/29/2022	MW-1
B	<1.0	BENZENE (ug/L)	
T	<1.0	TOLUENE (ug/L)	
EB	<1.0	ETHYLBENZENE (ug/L)	
X	3.9	TOTAL XYLENES (ug/L)	
N	<1.0	NAPHTHALENE (ug/L)	
1,2,4-TB	4.2	1,2,4-TRIMETHYLBENZENE (ug/L)	
1,3,5-TB	3.3	1,3,5-TRIMETHYLBENZENE (ug/L)	

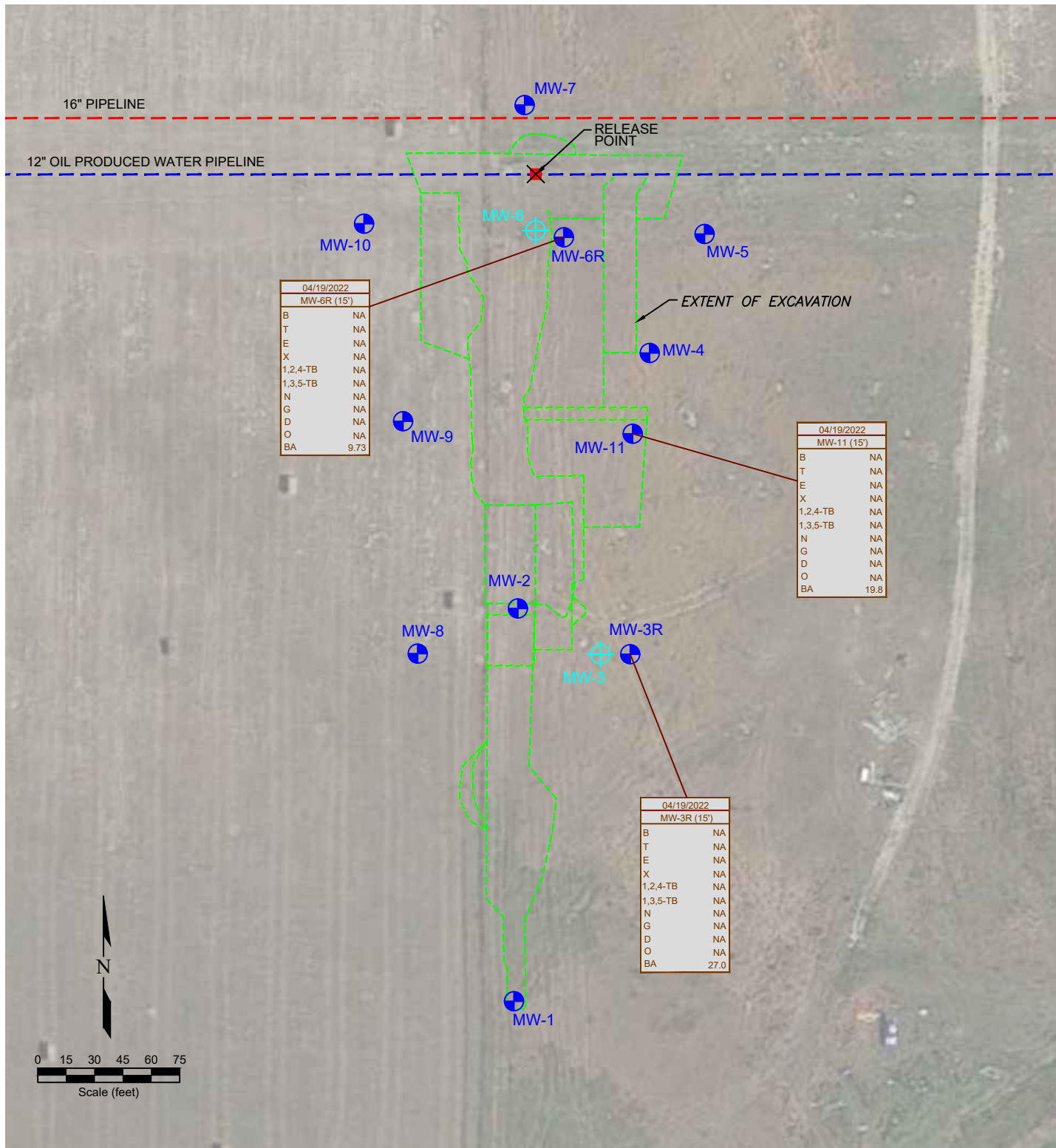
04/29/2022	MW-1
TDS	1510
Cl <sup>-</sup>	7.76
SO <sub>4</sub> <sup>2-</sup>	997
Ba	0.0453

**Figure 4**  
**GROUNDWATER CHEMISTRY MAP**  
**April 29, 2022**

**Noble Midstream, Inc.**  
**Harper Pipeline Release**  
**NESW Sec. 21, T6N, R64W, 6th PM**  
**Weld County, Colorado**

Project No. <b>CO21-074</b>	Prepared by <b>TA</b>	Drawn by <b>TA</b>
Date <b>6/6/22</b>	Reviewed by <b>EB</b>	Filename <b>21074QL</b>





**LEGEND**

	RELEASE POINT	<table border="1"> <thead> <tr> <th colspan="2">04/19/2022 MW-3R (15')</th> </tr> </thead> <tbody> <tr><td>B</td><td>NA</td></tr> <tr><td>T</td><td>NA</td></tr> <tr><td>E</td><td>NA</td></tr> <tr><td>X</td><td>NA</td></tr> <tr><td>1,2,4-TB</td><td>NA</td></tr> <tr><td>1,3,5-TB</td><td>NA</td></tr> <tr><td>N</td><td>NA</td></tr> <tr><td>G</td><td>NA</td></tr> <tr><td>D</td><td>NA</td></tr> <tr><td>O</td><td>NA</td></tr> <tr><td>BA</td><td>27.0</td></tr> </tbody> </table>	04/19/2022 MW-3R (15')		B	NA	T	NA	E	NA	X	NA	1,2,4-TB	NA	1,3,5-TB	NA	N	NA	G	NA	D	NA	O	NA	BA	27.0	DATE SAMPLED
04/19/2022 MW-3R (15')																											
B	NA																										
T	NA																										
E	NA																										
X	NA																										
1,2,4-TB	NA																										
1,3,5-TB	NA																										
N	NA																										
G	NA																										
D	NA																										
O	NA																										
BA	27.0																										
	MONITORING WELL	SAMPLE ID and DEPTH (ft)																									
	DESTROYED MONITORING WELL	BENZENE (mg/kg)																									
	EXTENT OF EXCAVATION	TOLUENE (mg/kg)																									
	12" OIL PRODUCED WATER PIPELINE	ETHYLBENZENE (mg/kg)																									
	16" PIPELINE	TOTAL XYLENES (mg/kg)																									
	FENCE LINE	1,2,4-TRIMETHYLBENZENE (mg/kg)																									
		1,3,5-TRIMETHYLBENZENE (mg/kg)																									
		NAPHTHALENE (mg/kg)																									
		TPH-GRO (mg/kg)																									
		TPH-DRO (mg/kg)																									
		TPH-ORO (mg/kg)																									
		BARIIUM (mg/kg)																									
	NOT ANALYZED																										

Figure 5  
**SOIL CHEMISTRY MAP**  
April 19, 2022

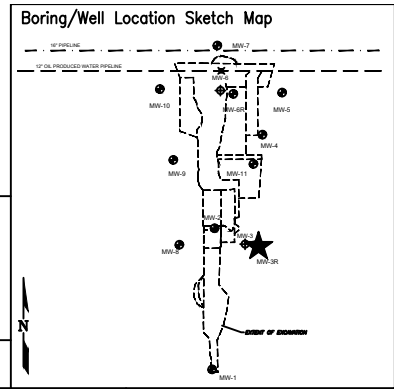
**Noble Midstream, Inc.**  
Harper Pipeline Release  
NESW Sec. 21, T6N, R64W, 6th PM  
Weld County, Colorado

Project No. <b>CO21-074</b>	Prepared by <b>TA</b>	Drawn by <b>TA</b>
Date <b>6/21/22</b>	Reviewed by <b>EB</b>	Filename <b>21074QL</b>





# BORING/WELL CONSTRUCTION LOG



Page 1 of 2

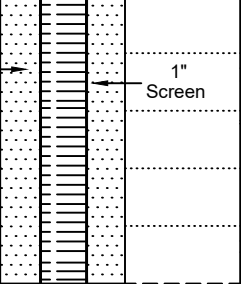

Boring/Well No. <b>MW-3R</b>		Total Depth <b>25'</b>	Location <b>Noble Midstream, Inc. Harper Pipeline Release NESW Sec 21, T6N, R64W, 6th PM Weld County, Colorado</b>			
Project No./Name <b>C021-074 / Noble ~ Harper Pipeline Release</b>		Drilling Contractor/Driller <b>Drill Pro / Eric, Glenn, Joe</b>				
Geologist/Office <b>Ethan Black / Fremont Environmental, Inc.</b>		Approved By				
Drilling Equipment/Method <b>Geoprobe / Direct Push</b>		Size/Type of Bit <b>2.5" direct push</b>	Sampling Method <b>Split Spoon</b>	Start/Finish Date <b>04/19/2022</b>		
Well Installed? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Casing Mtrl./Dia. <b>1" PVC</b>	Screen: Type <b>SCH40</b>   Mtrl. <b>PVC</b>   Length <b>10'</b>   Dia. <b>1"</b>   Slot Size <b>0.010"</b>				
Elevation of: (ft. above datum)	Ground Surface <b>3.22</b>	Top of Well Casing <b>98.39</b>	Top of Screen <b>.</b>	Bottom of Screen <b>.</b>	Ground Water Surface/Date Measured <b>13.25 04/19/2022</b>	

DEPTH (feet)	WELL CONSTRUCTION		LITHOLOGY		Penetration Rate (blows/6")	Recovery (%)	Sample Interval (feet)	PID Values (ppm)
			GRAPHIC LOG	VISUAL DESCRIPTION				
5	Bentonite	1" Blank	SM	Sandy Silt: light brown, fine sand, dry			0.0	
10	#10-20 Silica Sand	1" Screen	CL	Clay: brown, gray, orange, stiff, slightly moist, oxidized	4 7 13 21		0.0	
15			SM	Silty Sand: brown, fine sand, water in @ 17'	201 50 Grab		0.0	
20					Grab		0.1	

# BORING/WELL CONSTRUCTION LOG

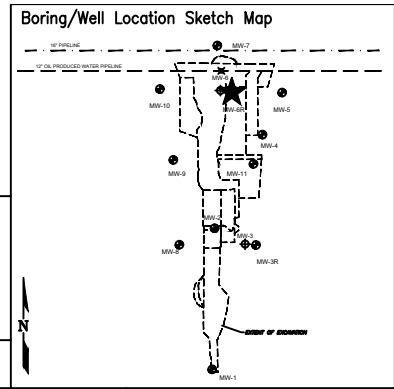
Page 2 of 2

Boring/Well No. <b>MW-3R</b>	Location <b>Noble Midstream          Harper Pipeline Release          SE NW Sec 21, T6N, R64W, 6th PM          Weld County, Colorado</b>
Project No./Name <b>C021-074 / Noble ~ Harper Pipeline Release</b>	

DEPTH (feet)	WELL CONSTRUCTION		LITHOLOGY		Penetration Rate (blows/6")	Recovery (%)	Sample Interval (feet)	PID Values (ppm)
			GRAPHIC LOG	VISUAL DESCRIPTION				
25			Silty Sand: brown, fine sand, continued  TD 25'	Grab			0.0	
30								
35								
40								
45								



# BORING/WELL CONSTRUCTION LOG



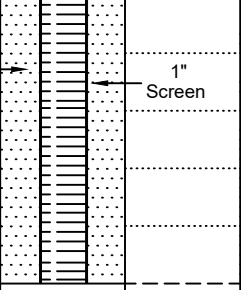

Page 1 of 2

Boring/Well No. <b>MW-6R</b>		Total Depth <b>25'</b>	Location <b>Noble Midstream, Inc. Harper Pipeline Release NESW Sec 21, T6N, R64W, 6th PM Weld County, Colorado</b>			
Project No./Name <b>C021-074 / Noble ~ Harper Pipeline Release</b>		Drilling Contractor/Driller <b>Drill Pro / Eric, Glenn, Joe</b>				
Geologist/Office <b>Ethan Black / Fremont Environmental, Inc.</b>		Approved By				
Drilling Equipment/Method <b>Geoprobe / Direct Push</b>		Size/Type of Bit <b>2.5" direct push</b>	Sampling Method <b>Split Spoon</b>	Start/Finish Date <b>04/19/2022</b>		
Well Installed? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Casing Mtrl./Dia. <b>1" PVC</b>	Screen: Type <b>SCH40</b>   Mtrl. <b>PVC</b>   Length <b>10'</b>   Dia. <b>1"</b>   Slot Size <b>0.010"</b>				
Elevation of: (ft. above datum)	Ground Surface <b>3.10</b>	Top of Well Casing <b>98.51</b>	Top of Screen <b>.</b>	Bottom of Screen <b>.</b>	Ground Water Surface/Date Measured <b>15.68 04/19/2022</b>	

DEPTH (feet)	WELL CONSTRUCTION		LITHOLOGY		Penetration Rate (blows/6")	Recovery (%)	Sample Interval (feet)	PID Values (ppm)
			GRAPHIC LOG	VISUAL DESCRIPTION				
5	Bentonite	1" Blank	SM	Sandy Silt: dark brown, fine sand, moist				0.0
10	#10-20 Silica Sand	1" Screen	CL	Clay: dark brown, non-plastic, slightly moist	4 6 10 12			0.0
15			SP	Sand: brown, fine, very dense, moist, oxidized	6 34 30			0.0
20					7 41 50			0.0

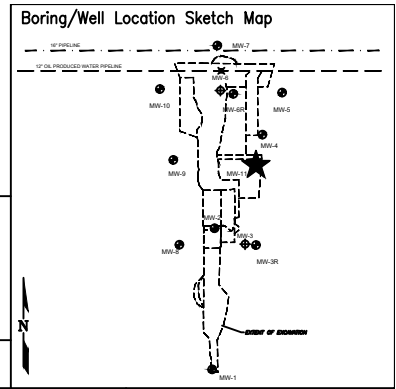
# BORING/WELL CONSTRUCTION LOG

Boring/Well No. <b>MW-6R</b>	Location <b>Noble Midstream          Harper Pipeline Release          SE NW Sec 21, T6N, R64W, 6th PM          Weld County, Colorado</b>
Project No./Name <b>C021-074 / Noble ~ Harper Pipeline Release</b>	

DEPTH (feet)	WELL CONSTRUCTION		LITHOLOGY		Penetration Rate (blows/6")	Recovery (%)	Sample Interval (feet)	PID Values (ppm)
			GRAPHIC LOG	VISUAL DESCRIPTION				
25			Sand: brown, fine, very dense, moist, oxidized, continued  - saturated				0.0  0.0  0.0	
30				TD 25'				
35								
40								
45								



# BORING/WELL CONSTRUCTION LOG



Page 1 of 2

Boring/Well No. <b>MW-11</b>		Total Depth <b>25'</b>	Location <b>Noble Midstream, Inc. Harper Pipeline Release NESW Sec 21, T6N, R64W, 6th PM Weld County, Colorado</b>			
Project No./Name <b>C021-074 / Noble ~ Harper Pipeline Release</b>		Drilling Contractor/Driller <b>Drill Pro / Eric, Glenn, Joe</b>				
Geologist/Office <b>Ethan Black / Fremont Environmental, Inc.</b>		Approved By				
Drilling Equipment/Method <b>Geoprobe / Direct Push</b>		Size/Type of Bit <b>2.5" direct push</b>	Sampling Method <b>Split Spoon</b>	Start/Finish Date <b>04/19/2022</b>		
Well Installed? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Casing Mtrl./Dia. <b>1" PVC</b>	Screen: Type <b>SCH40</b>   Mtrl. <b>PVC</b>   Length <b>10'</b>   Dia. <b>1"</b>   Slot Size <b>0.010"</b>				
Elevation of: (ft. above datum)	Ground Surface <b>4.13</b>	Top of Well Casing <b>97.48</b>	Top of Screen <b>.</b>	Bottom of Screen <b>.</b>	Ground Water Surface/Date Measured <b>15.10 04/19/2022</b>	

DEPTH (feet)	WELL CONSTRUCTION		LITHOLOGY		Penetration Rate (blows/6")	Recovery (%)	Sample Interval (feet)	PID Values (ppm)
			GRAPHIC LOG	VISUAL DESCRIPTION				
5	Bentonite	1" Blank	SM	Sandy Silt: dark brown, fine sand, moist	Grab			0.0
10			CL	Clay: brown, mottled, stiff, moist, some sand, very fine, oxidation and mineralization	7 6 9 13 18			0.0
15			SP	Sand: grayish-tan, dense, fine, moist, oxidized	7 20 30			0.0
20					Grab			0.5



# Summit Scientific

---

4653 Table Mountain Drive, Golden, Colorado 80403

303.277.9310

May 02, 2022

Paul Henchan  
Fremont Environmental  
PO Box 1289  
Wellington, CO 80549  
RE: Noble - Harper Kona  
Work Order #2204309

Enclosed are the results of analyses for samples received by Summit Scientific on 04/20/22 15:00. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

A handwritten signature in black ink, appearing to read 'P. Shrewsbury', written in a cursive style.

Paul Shrewsbury  
President



Fremont Environmental  
PO Box 1289  
Wellington CO, 80549

Project: Noble - Harper Kona

Project Number: [none]  
Project Manager: Paul Henchan

**Reported:**  
05/02/22 13:07

**ANALYTICAL REPORT FOR SAMPLES**

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
MW-3R 15ft	2204309-01	Soil	04/19/22 00:00	04/20/22 15:00
MW-6R 15ft	2204309-02	Soil	04/19/22 00:00	04/20/22 15:00
MW-11 15ft	2204309-03	Soil	04/19/22 00:00	04/20/22 15:00

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

S<sub>2</sub>

2204309

4653 Table Mountain Drive ♦ Golden, Colorado 80403  
303-277-9310

Page 1 of 1

Client: Fremont Env. Project Manager: Herehan  
 Address: \_\_\_\_\_ E-Mail: Ethan, Paul, Jacob (on file)  
 City/State/Zip: \_\_\_\_\_ Bill To: Jacob  
 Phone: \_\_\_\_\_ Project Name: Noble - Harper Kona  
 Sampler Name: ES 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							
1	MW-3R 15FT	4/19/22		2			X			X									
2	MW-6R 15FT	L		1															
3	MW-11 15FT	L		1															
4																			
5																			
6																			
7																			
8																			
9																			
10																			

Relinquished by: <u>Ethan Blod</u>	Date/Time: <u>4/20/22</u>	Received by: <u>[Signature]</u>	Date/Time: <u>4/20/22 1500</u>	Turn Around Time (Check) Same Day _____ 72 hours _____ 24 hours _____ Standard <u>X</u> 48 hours _____	Notes:
Relinquished by:	Date/Time:	Received by:	Date/Time:		
Temperature Upon Receipt: <u>3.0</u>	Corrected Temperature <u>3.0</u>	HNO3 lot # _____		Sample Integrity:	
IR gun correction: <u>0</u>	IR gun #: <u>1</u>			Samples Intact: <u>Yes</u> No	

S<sub>2</sub>

S2 Work Order# 2204309

Sample Receipt Checklist

Client: Fremant Client Project ID: Noble-Harper Kona

Shipped Via: H.D./P.U./FedEx/UPS/USPS/Other \_\_\_\_\_ Airbill #: \_\_\_\_\_

	-			
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Matrix (Check all that apply) Air  Soil/Solid  Water  Other

Temp (°C)  Thermometer #

	Yes	No	N/A	Comments (if any)
If samples require cooling, is the temperature < 6 °C <sup>(1)</sup> ? <b>NOTE:</b> If samples are delivered the same day of sampling, this requirement is met if there is evidence that cooling has begun.	-			
Were all samples received intact <sup>(1)</sup> ?	-			
Was adequate sample volume provided <sup>(1)</sup> ?	-			
If custody seals are present, are they intact <sup>(1)</sup> ?	-			
Are samples due within 48 hours present?		-		
Are water samples with short hold times present? Note the short hold analysis in the comments column - pH, Nitrate/Nitrite, Ferrous Iron (Fe <sup>2+</sup> ), Hexavalent Chromium (Cr <sup>6+</sup> , Cr VI), COD/BOD, Total Coliform, E. Coli, Total Residual Chlorine (TRC), Dissolved Oxygen			-	
Is a chain-of-custody (COC) form present and filled out completely <sup>(1)</sup> ?	-			
Does the COC agree with the number and type of sample bottles received <sup>(1)</sup> ?	-			
Do the sample IDs on the bottle labels match the COC <sup>(1)</sup> ?	-			
Is the COC properly relinquished by the client w/ date and time recorded <sup>(1)</sup> ?	-			
For volatiles in water – is there headspace present? <b>If yes, contact client and note in narrative.</b>			-	
Are samples preserved that require preservation <b>(excluding cooling)</b> <sup>(1)</sup> ? Note the type of preservative in the comments column – HCl, H <sub>2</sub> SO <sub>4</sub> , NaOH, HNO <sub>3</sub> , etc.			-	
If samples are acid preserved for metals, is the pH ≤ 2 <sup>(1)</sup> ? Record the pH in Comments.			-	
If dissolved metals are requested, were samples field filtered?			-	
<u>Additional Comments (if any):</u>				
<b><sup>(1)</sup> If NO, then contact the client before proceeding with analysis and note in case narrative.</b>				

  
Custodian Printed Name

4.20.22  
Date/Time



Fremont Environmental  
 PO Box 1289  
 Wellington CO, 80549

Project: Noble - Harper Kona

Project Number: [none]  
 Project Manager: Paul Henchan

**Reported:**  
 05/02/22 13:07

**MW-3R 15ft**  
**2204309-01 (Soil)**

**Summit Scientific**

**Total Metals by EPA 6020B**

Date Sampled: **04/19/22 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Barium	27.0	0.400	mg/kg dry	1	BFD0565	04/26/22	05/01/22	EPA 6020B	

**Physical Parameters by APHA/ASTM/EPA Methods**

Date Sampled: **04/19/22 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
% Solids	79.6		%	1	BFD0567	04/26/22	04/27/22	Calculation	

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.*



Fremont Environmental  
 PO Box 1289  
 Wellington CO, 80549

Project: Noble - Harper Kona

Project Number: [none]  
 Project Manager: Paul Henchan

**Reported:**  
 05/02/22 13:07

**MW-6R 15ft**  
**2204309-02 (Soil)**

**Summit Scientific**

**Total Metals by EPA 6020B**

Date Sampled: **04/19/22 00:00**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
<b>Barium</b>	<b>9.73</b>	0.400	mg/kg dry	1	BFD0565	04/26/22	05/01/22	EPA 6020B	

**Physical Parameters by APHA/ASTM/EPA Methods**

Date Sampled: **04/19/22 00:00**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
<b>% Solids</b>	<b>86.7</b>		%	1	BFD0567	04/26/22	04/27/22	Calculation	

Summit Scientific

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Fremont Environmental  
 PO Box 1289  
 Wellington CO, 80549

Project: Noble - Harper Kona

Project Number: [none]  
 Project Manager: Paul Henchan

**Reported:**  
 05/02/22 13:07

**MW-11 15ft**  
**2204309-03 (Soil)**

**Summit Scientific**

**Total Metals by EPA 6020B**

Date Sampled: **04/19/22 00:00**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
<b>Barium</b>	<b>19.8</b>	0.400	mg/kg dry	1	BFD0565	04/26/22	05/01/22	EPA 6020B	

**Physical Parameters by APHA/ASTM/EPA Methods**

Date Sampled: **04/19/22 00:00**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
<b>% Solids</b>	<b>83.3</b>		%	1	BFD0567	04/26/22	04/27/22	Calculation	

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.*



Fremont Environmental  
 PO Box 1289  
 Wellington CO, 80549

Project: Noble - Harper Kona

Project Number: [none]  
 Project Manager: Paul Henchan

**Reported:**  
 05/02/22 13:07

**Total Metals by EPA 6020B - Quality Control**

**Summit Scientific**

Analyte	Result	Reporting		Spike Level	Source		%REC		RPD		Notes
		Limit	Units		Result	%REC	Limits	RPD	Limit		

**Batch BFD0565 - EPA 3050B**

**Blank (BFD0565-BLK1)**

Prepared: 04/26/22 Analyzed: 05/01/22

Barium ND 0.400 mg/kg wet

**LCS (BFD0565-BS1)**

Prepared: 04/26/22 Analyzed: 05/01/22

Barium 30.7 0.400 mg/kg wet 80-120

**Duplicate (BFD0565-DUP1)**

**Source: 2204305-01**

Prepared: 04/26/22 Analyzed: 05/01/22

Barium 74.7 0.400 mg/kg dry 83.1 10.5 20

**Matrix Spike (BFD0565-MS1)**

**Source: 2204305-01**

Prepared: 04/26/22 Analyzed: 05/01/22

Barium 110 0.400 mg/kg dry 83.1 75-125

**Matrix Spike Dup (BFD0565-MSD1)**

**Source: 2204305-01**

Prepared: 04/26/22 Analyzed: 05/01/22

Barium 117 0.400 mg/kg dry 83.1 75-125 6.49 25

Summit Scientific

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Fremont Environmental  
 PO Box 1289  
 Wellington CO, 80549

Project: Noble - Harper Kona

Project Number: [none]  
 Project Manager: Paul Henchan

**Reported:**  
 05/02/22 13:07

**Physical Parameters by APHA/ASTM/EPA Methods - Quality Control**

**Summit Scientific**

Analyte	Result	Reporting		Spike	Source	%REC		RPD		Notes
		Limit	Units	Level	Result	%REC	Limits	RPD	Limit	

**Batch BFD0567 - General Preparation**

Duplicate (BFD0567-DUP1)	Source: 2204309-01		Prepared: 04/26/22 Analyzed: 04/27/22	
% Solids	80.7	%	79.6	1.39 20

Summit Scientific

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Fremont Environmental  
PO Box 1289  
Wellington CO, 80549

Project: Noble - Harper Kona

Project Number: [none]  
Project Manager: Paul Henchan

**Reported:**  
05/02/22 13:07

### 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

# Summit Scientific

---

4653 Table Mountain Drive, Golden, Colorado 80403

303.277.9310

May 17, 2022

Paul Henchan  
Fremont Environmental  
PO Box 1289  
Wellington, CO 80549  
RE: Noble - Harper Kona  
Work Order #2205091

Enclosed are the results of analyses for samples received by Summit Scientific on 05/06/22 16:45. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

A handwritten signature in black ink, appearing to read 'P. Shrewsbury', written in a cursive style.

Paul Shrewsbury  
President



Fremont Environmental  
PO Box 1289  
Wellington CO, 80549

Project: Noble - Harper Kona

Project Number: [none]  
Project Manager: Paul Henchan

**Reported:**  
05/17/22 15:28

**ANALYTICAL REPORT FOR SAMPLES**

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
MW-1	2205091-01	Water	04/29/22 00:00	05/06/22 16:45
MW-2	2205091-02	Water	04/29/22 00:00	05/06/22 16:45
MW-3R	2205091-03	Water	04/29/22 00:00	05/06/22 16:45
MW-6R	2205091-04	Water	04/29/22 00:00	05/06/22 16:45
MW-8	2205091-05	Water	04/29/22 00:00	05/06/22 16:45
MW-11	2205091-06	Water	04/29/22 00:00	05/06/22 16:45

Summit Scientific

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

# Summit Scientific

S<sub>2</sub>

2205091

4653 Table Mountain Drive ♦ Golden, Colorado 80403  
303-277-9310 ♦ 303-374-5933 (f)

Page 1 of 1

Client: Fremont Environmental

Project Manager: Paul Henehan

Address: P.O Box 1289

E-Mail: paulh@fremontenv.com, ethanb@fremontenv.com

City/State/Zip: Wellington, CO 80549

Bill to: Jacob

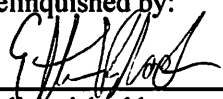
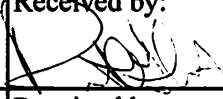
Phone: 303-956-8714

Project Name: Noble - Harper Kong

Sampler Name: Black

Project Number:

ID	Sample Description	Date Sampled	Time Sampled	# of containers	Preservative				Matrix				Analysis Requested							Notes:		
					HCl	HNO3	None	Other	Water	Soil	Air-Canister #	Other	GBTEXN-915	BTEX <sup>TMBs</sup> / <del>PAHs</del> / N	GRO	DRO/ORO	SAR	TDS, Cl <sup>-</sup> , SO <sub>4</sub> <sup>2-</sup>	Ba		Boron	PAH-915
1	MW-1	4/29/22		4	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>					<input checked="" type="checkbox"/>				<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>			
2	MW-2			1																		
3	MW-3R			1																		
4	MW-6R			1																		
5	MW-8			2																		Run what you can
6	MW-11			4																		
7																						
8																						
9																						
10																						

Relinquished by: 	Date/Time: 5/6/22 1645	Received by: 	Date/Time: 5/6/22 1045	<b>Turn Around Time (Check)</b> Same Day _____ 72 hours _____ 24 hours _____ <input checked="" type="radio"/> Standard _____ 48 hours _____ <b>Sample Integrity:</b> Temperature Upon Receipt: 10.3 Samples Intact: <input checked="" type="radio"/> Yes No
Relinquished by:	Date/Time:	Received by:	Date/Time:	
Relinquished by:	Date/Time:	Received by:	Date/Time:	

# S<sub>2</sub>

## Sample Receipt Checklist

S2 Work Order# 2205091Client: Fremont Client Project ID: Noble-Harper Kong

Shipped Via: H.D./P.U./FedEx/UPS/USPS/Other \_\_\_\_\_ Airbill #: \_\_\_\_\_

	-			
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Matrix (Check all that apply) Air  Soil/Solid  Water  Other Temp (°C)  Thermometer # 

	Yes	No	N/A	Comments (if any)
If samples require cooling, is the temperature < 6 °C <sup>(1)</sup> ? <b>NOTE:</b> If samples are delivered the same day of sampling, this requirement is met if there is evidence that cooling has begun.	-			ON ICE
Were all samples received intact <sup>(1)</sup> ?	✓			
Was adequate sample volume provided <sup>(1)</sup> ?	✓			
If custody seals are present, are they intact <sup>(1)</sup> ?	-			
Are samples due within 48 hours present?		-		
Are water samples with short hold times present? Note the short hold analysis in the comments column - pH, Nitrate/Nitrite, Ferrous Iron (Fe <sup>2+</sup> ), Hexavalent Chromium (Cr <sup>6+</sup> , Cr VI), COD/BOD, Total Coliform, E. Coli, Total Residual Chlorine (TRC), Dissolved Oxygen			-	
Is a chain-of-custody (COC) form present and filled out completely <sup>(1)</sup> ?	-			
Does the COC agree with the number and type of sample bottles received <sup>(1)</sup> ?	-			
Do the sample IDs on the bottle labels match the COC <sup>(1)</sup> ?	-			
Is the COC properly relinquished by the client w/ date and time recorded <sup>(1)</sup> ?	-			
For volatiles in water – is there headspace present? <b>If yes, contact client and note in narrative.</b>		-		
Are samples preserved that require preservation (excluding cooling) <sup>(1)</sup> ? Note the type of preservative in the comments column – HCl, H <sub>2</sub> SO <sub>4</sub> , NaOH, HNO <sub>3</sub> , etc.	-			HCl
If samples are acid preserved for metals, is the pH ≤ 2 <sup>(1)</sup> ? Record the pH in Comments.			-	
If dissolved metals are requested, were samples field filtered?			-	

Additional Comments (if any):

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

  
\_\_\_\_\_  
Custodian Printed Name

\_\_\_\_\_  
Date/Time



Fremont Environmental  
PO Box 1289  
Wellington CO, 80549

Project: Noble - Harper Kona

Project Number: [none]  
Project Manager: Paul Henchan

**Reported:**  
05/17/22 15:28

**MW-1**  
**2205091-01 (Water)**

**Summit Scientific**

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

Date Sampled: **04/29/22 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	1.0	ug/l	1	BFE0168	05/09/22	05/11/22	EPA 8260B	
Toluene	ND	1.0	"	"	"	"	"	"	
Ethylbenzene	ND	1.0	"	"	"	"	"	"	
<b>Xylenes (total)</b>	<b>3.9</b>	<b>2.0</b>	"	"	"	"	"	"	
Naphthalene	ND	1.0	"	"	"	"	"	"	
<b>1,2,4-Trimethylbenzene</b>	<b>4.2</b>	<b>1.0</b>	"	"	"	"	"	"	
<b>1,3,5-Trimethylbenzene</b>	<b>3.3</b>	<b>1.0</b>	"	"	"	"	"	"	

Date Sampled: **04/29/22 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4	8.11	60.8 %	23-173		"	"	"	"	
Surrogate: Toluene-d8	12.2	91.7 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene	14.9	112 %	21-167		"	"	"	"	

**Dissolved Metals by EPA Method 200.8**

Date Sampled: **04/29/22 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<b>Barium</b>	<b>45.3</b>	<b>1.00</b>	<b>ug/l</b>	<b>1</b>	<b>BFE0324</b>	<b>05/16/22</b>	<b>05/16/22</b>	<b>EPA 200.8</b>	

**Anions by EPA Method 300.0**

Date Sampled: **04/29/22 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<b>Chloride</b>	<b>7.76</b>	<b>0.0600</b>	<b>mg/L</b>	<b>1</b>	<b>BFE0229</b>	<b>05/11/22</b>	<b>05/11/22</b>	<b>EPA 300.0</b>	
<b>Sulfate</b>	<b>997</b>	<b>60.0</b>	<b>"</b>	<b>200</b>	<b>"</b>	<b>"</b>	<b>"</b>	<b>"</b>	

**Total Dissolved Solids by SM2540C**

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.*



Fremont Environmental  
 PO Box 1289  
 Wellington CO, 80549

Project: Noble - Harper Kona

Project Number: [none]  
 Project Manager: Paul Henchan

**Reported:**  
 05/17/22 15:28

**MW-1**  
**2205091-01 (Water)**

**Summit Scientific**

**Total Dissolved Solids by SM2540C**

Date Sampled: **04/29/22 00:00**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
<b>Total Dissolved Solids</b>	<b>1510</b>	10.0		mg/L	1	BFE0179	05/09/22	05/11/22	SM2540C	I-03

Summit Scientific

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Fremont Environmental  
PO Box 1289  
Wellington CO, 80549

Project: Noble - Harper Kona

Project Number: [none]  
Project Manager: Paul Henchan

**Reported:**  
05/17/22 15:28

**MW-2**  
**2205091-02 (Water)**

**Summit Scientific**

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

Date Sampled: **04/29/22 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	1.0	ug/l	1	BFE0168	05/09/22	05/11/22	EPA 8260B	
Toluene	ND	1.0	"	"	"	"	"	"	
Ethylbenzene	ND	1.0	"	"	"	"	"	"	
Xylenes (total)	ND	2.0	"	"	"	"	"	"	
Naphthalene	ND	1.0	"	"	"	"	"	"	
1,2,4-Trimethylbenzene	ND	1.0	"	"	"	"	"	"	
1,3,5-Trimethylbenzene	ND	1.0	"	"	"	"	"	"	

Date Sampled: **04/29/22 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4	8.16	61.2 %	23-173		"	"	"	"	
Surrogate: Toluene-d8	12.3	92.5 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene	12.3	92.4 %	21-167		"	"	"	"	

**Dissolved Metals by EPA Method 200.8**

Date Sampled: **04/29/22 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<b>Barium</b>	<b>60.9</b>	1.00	ug/l	1	BFE0324	05/16/22	05/16/22	EPA 200.8	

**Anions by EPA Method 300.0**

Date Sampled: **04/29/22 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<b>Chloride</b>	<b>314</b>	12.0	mg/L	200	BFE0229	05/11/22	05/11/22	EPA 300.0	
<b>Sulfate</b>	<b>2000</b>	60.0	"	"	"	"	"	"	

**Total Dissolved Solids by SM2540C**

Summit Scientific

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Fremont Environmental  
 PO Box 1289  
 Wellington CO, 80549

Project: Noble - Harper Kona

Project Number: [none]  
 Project Manager: Paul Henchan

**Reported:**  
 05/17/22 15:28

**MW-2**  
**2205091-02 (Water)**

**Summit Scientific**

**Total Dissolved Solids by SM2540C**

Date Sampled: **04/29/22 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<b>Total Dissolved Solids</b>	<b>3160</b>	10.0	mg/L	1	BFE0179	05/09/22	05/11/22	SM2540C	I-03

Summit Scientific

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Fremont Environmental  
PO Box 1289  
Wellington CO, 80549

Project: Noble - Harper Kona

Project Number: [none]  
Project Manager: Paul Henchan

**Reported:**  
05/17/22 15:28

**MW-3R**  
**2205091-03 (Water)**

**Summit Scientific**

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

Date Sampled: **04/29/22 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	1.0	ug/l	1	BFE0168	05/09/22	05/11/22	EPA 8260B	
Toluene	ND	1.0	"	"	"	"	"	"	
Ethylbenzene	ND	1.0	"	"	"	"	"	"	
Xylenes (total)	ND	2.0	"	"	"	"	"	"	
Naphthalene	ND	1.0	"	"	"	"	"	"	
1,2,4-Trimethylbenzene	ND	1.0	"	"	"	"	"	"	
1,3,5-Trimethylbenzene	ND	1.0	"	"	"	"	"	"	

Date Sampled: **04/29/22 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4	8.02	60.2 %	23-173		"	"	"	"	
Surrogate: Toluene-d8	12.2	91.8 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene	12.2	91.4 %	21-167		"	"	"	"	

**Dissolved Metals by EPA Method 200.8**

Date Sampled: **04/29/22 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<b>Barium</b>	<b>30.5</b>	1.00	ug/l	1	BFE0324	05/16/22	05/16/22	EPA 200.8	

**Anions by EPA Method 300.0**

Date Sampled: **04/29/22 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<b>Chloride</b>	<b>42.4</b>	12.0	mg/L	200	BFE0229	05/11/22	05/11/22	EPA 300.0	
<b>Sulfate</b>	<b>1980</b>	60.0	"	"	"	"	"	"	

**Total Dissolved Solids by SM2540C**

Summit Scientific

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Fremont Environmental  
 PO Box 1289  
 Wellington CO, 80549

Project: Noble - Harper Kona

Project Number: [none]  
 Project Manager: Paul Henchan

**Reported:**  
 05/17/22 15:28

**MW-3R**  
**2205091-03 (Water)**

**Summit Scientific**

**Total Dissolved Solids by SM2540C**

Date Sampled: **04/29/22 00:00**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
<b>Total Dissolved Solids</b>	<b>2240</b>	10.0		mg/L	1	BFE0179	05/09/22	05/11/22	SM2540C	I-03

Summit Scientific

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Fremont Environmental  
PO Box 1289  
Wellington CO, 80549

Project: Noble - Harper Kona

Project Number: [none]  
Project Manager: Paul Henchan

**Reported:**  
05/17/22 15:28

**MW-6R**  
**2205091-04 (Water)**

**Summit Scientific**

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

Date Sampled: **04/29/22 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	1.0	ug/l	1	BFE0168	05/09/22	05/11/22	EPA 8260B	
Toluene	ND	1.0	"	"	"	"	"	"	
Ethylbenzene	ND	1.0	"	"	"	"	"	"	
Xylenes (total)	ND	2.0	"	"	"	"	"	"	
Naphthalene	ND	1.0	"	"	"	"	"	"	
1,2,4-Trimethylbenzene	ND	1.0	"	"	"	"	"	"	
1,3,5-Trimethylbenzene	ND	1.0	"	"	"	"	"	"	

Date Sampled: **04/29/22 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4	7.91	59.3 %	23-173		"	"	"	"	
Surrogate: Toluene-d8	12.2	91.5 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene	12.0	89.7 %	21-167		"	"	"	"	

**Dissolved Metals by EPA Method 200.8**

Date Sampled: **04/29/22 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<b>Barium</b>	<b>31.1</b>	1.00	ug/l	1	BFE0324	05/16/22	05/16/22	EPA 200.8	

**Anions by EPA Method 300.0**

Date Sampled: **04/29/22 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<b>Chloride</b>	<b>123</b>	12.0	mg/L	200	BFE0229	05/11/22	05/11/22	EPA 300.0	
<b>Sulfate</b>	<b>2550</b>	60.0	"	"	"	"	"	"	

**Total Dissolved Solids by SM2540C**

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Fremont Environmental  
 PO Box 1289  
 Wellington CO, 80549

Project: Noble - Harper Kona

Project Number: [none]  
 Project Manager: Paul Henchan

**Reported:**  
 05/17/22 15:28

**MW-6R**  
**2205091-04 (Water)**

**Summit Scientific**

**Total Dissolved Solids by SM2540C**

Date Sampled: **04/29/22 00:00**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
<b>Total Dissolved Solids</b>	<b>2760</b>	10.0		mg/L	1	BFE0179	05/09/22	05/11/22	SM2540C	I-03

Summit Scientific

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 PO Box 1289  
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Project: Noble - Harper Kona

Project Number: [none]  
 Project Manager: Paul Henchan

**Reported:**  
 05/17/22 15:28

**MW-8**  
**2205091-05 (Water)**

**Summit Scientific**

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

Date Sampled: **04/29/22 00:00**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Benzene	ND	1.0		ug/l	1	BFE0168	05/09/22	05/11/22	EPA 8260B	
Toluene	ND	1.0		"	"	"	"	"	"	
Ethylbenzene	ND	1.0		"	"	"	"	"	"	
Xylenes (total)	ND	2.0		"	"	"	"	"	"	
Naphthalene	ND	1.0		"	"	"	"	"	"	
1,2,4-Trimethylbenzene	ND	1.0		"	"	"	"	"	"	
1,3,5-Trimethylbenzene	ND	1.0		"	"	"	"	"	"	

Date Sampled: **04/29/22 00:00**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Surrogate: 1,2-Dichloroethane-d4	8.27	62.0 %		23-173		"	"	"	"	
Surrogate: Toluene-d8	12.3	92.4 %		20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene	11.9	89.1 %		21-167		"	"	"	"	

Summit Scientific

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Fremont Environmental  
PO Box 1289  
Wellington CO, 80549

Project: Noble - Harper Kona

Project Number: [none]  
Project Manager: Paul Henchan

**Reported:**  
05/17/22 15:28

**MW-11**  
**2205091-06 (Water)**

**Summit Scientific**

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

Date Sampled: **04/29/22 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	1.0	ug/l	1	BFE0168	05/09/22	05/11/22	EPA 8260B	
Toluene	ND	1.0	"	"	"	"	"	"	
Ethylbenzene	ND	1.0	"	"	"	"	"	"	
Xylenes (total)	ND	2.0	"	"	"	"	"	"	
Naphthalene	ND	1.0	"	"	"	"	"	"	
1,2,4-Trimethylbenzene	ND	1.0	"	"	"	"	"	"	
1,3,5-Trimethylbenzene	ND	1.0	"	"	"	"	"	"	

Date Sampled: **04/29/22 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4	8.10	60.8 %	23-173		"	"	"	"	
Surrogate: Toluene-d8	12.2	91.7 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene	12.1	90.6 %	21-167		"	"	"	"	

**Dissolved Metals by EPA Method 200.8**

Date Sampled: **04/29/22 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<b>Barium</b>	<b>36.7</b>	1.00	ug/l	1	BFE0324	05/16/22	05/17/22	EPA 200.8	

**Anions by EPA Method 300.0**

Date Sampled: **04/29/22 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<b>Chloride</b>	<b>80.0</b>	12.0	mg/L	200	BFE0229	05/11/22	05/11/22	EPA 300.0	
<b>Sulfate</b>	<b>2360</b>	60.0	"	"	"	"	"	"	

**Total Dissolved Solids by SM2540C**

Summit Scientific

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Fremont Environmental  
 PO Box 1289  
 Wellington CO, 80549

Project: Noble - Harper Kona

Project Number: [none]  
 Project Manager: Paul Henchan

**Reported:**  
 05/17/22 15:28

**MW-11**  
**2205091-06 (Water)**

**Summit Scientific**

**Total Dissolved Solids by SM2540C**

Date Sampled: **04/29/22 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<b>Total Dissolved Solids</b>	<b>2540</b>	10.0	mg/L	1	BFE0179	05/09/22	05/11/22	SM2540C	I-03

Summit Scientific

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Fremont Environmental  
PO Box 1289  
Wellington CO, 80549

Project: Noble - Harper Kona

Project Number: [none]  
Project Manager: Paul Henchan

**Reported:**  
05/17/22 15:28

### Volatile Organic Compounds by EPA Method 8260B - Quality Control

#### Summit Scientific

Analyte	Result	Reporting		Spike Level	Source		%REC		RPD		Notes
		Limit	Units		Result	%REC	Limits	RPD	Limit		

#### Batch BFE0168 - EPA 5030 Water MS

##### Blank (BFE0168-BLK1)

Prepared: 05/09/22 Analyzed: 05/10/22

Benzene	ND	1.0	ug/l								
Toluene	ND	1.0	"								
Ethylbenzene	ND	1.0	"								
Xylenes (total)	ND	2.0	"								
Naphthalene	ND	1.0	"								
1,2,4-Trimethylbenzene	ND	1.0	"								
1,3,5-Trimethylbenzene	ND	1.0	"								
Surrogate: 1,2-Dichloroethane-d4	10.0		"	13.3		75.2		23-173			
Surrogate: Toluene-d8	12.3		"	13.3		92.1		20-170			
Surrogate: 4-Bromofluorobenzene	12.4		"	13.3		93.1		21-167			

##### LCS (BFE0168-BS1)

Prepared: 05/09/22 Analyzed: 05/10/22

Benzene	20.6	1.0	ug/l	25.0		82.2		51-132			
Toluene	21.0	1.0	"	25.0		84.1		51-138			
Ethylbenzene	24.0	1.0	"	25.0		95.8		58-146			
m,p-Xylene	54.8	2.0	"	50.0		110		57-144			
o-Xylene	25.0	1.0	"	25.0		100		53-146			
Naphthalene	28.8	1.0	"	25.0		115		70-130			
1,2,4-Trimethylbenzene	22.7	1.0	"	25.0		90.8		70-130			
1,3,5-Trimethylbenzene	23.4	1.0	"	25.0		93.8		70-130			
Surrogate: 1,2-Dichloroethane-d4	10.5		"	13.3		78.9		23-173			
Surrogate: Toluene-d8	12.3		"	13.3		92.0		20-170			
Surrogate: 4-Bromofluorobenzene	12.7		"	13.3		95.0		21-167			

##### Matrix Spike (BFE0168-MS1)

Source: 2205095-02

Prepared: 05/09/22 Analyzed: 05/10/22

Benzene	19.9	1.0	ug/l	25.0	ND	79.6		34-141			
Toluene	20.9	1.0	"	25.0	ND	83.5		27-151			
Ethylbenzene	23.7	1.0	"	25.0	ND	94.9		29-160			
m,p-Xylene	55.2	2.0	"	50.0	ND	110		20-166			
o-Xylene	24.7	1.0	"	25.0	ND	98.8		33-159			
Naphthalene	26.2	1.0	"	25.0	ND	105		70-130			
1,2,4-Trimethylbenzene	23.5	1.0	"	25.0	ND	94.0		70-130			
1,3,5-Trimethylbenzene	24.0	1.0	"	25.0	ND	96.1		70-130			
Surrogate: 1,2-Dichloroethane-d4	8.32		"	13.3		62.4		23-173			
Surrogate: Toluene-d8	12.4		"	13.3		93.2		20-170			
Surrogate: 4-Bromofluorobenzene	12.2		"	13.3		91.2		21-167			

Summit Scientific

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Fremont Environmental  
 PO Box 1289  
 Wellington CO, 80549

Project: Noble - Harper Kona

Project Number: [none]  
 Project Manager: Paul Henchan

**Reported:**  
 05/17/22 15:28

**Volatile Organic Compounds by EPA Method 8260B - Quality Control**

**Summit Scientific**

Analyte	Reporting			Spike	Source	%REC			RPD	Notes
	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	

**Batch BFE0168 - EPA 5030 Water MS**

<b>Matrix Spike Dup (BFE0168-MSD1)</b>	<b>Source: 2205095-02</b>			<b>Prepared: 05/09/22 Analyzed: 05/10/22</b>						
Benzene	20.9	1.0	ug/l	25.0	ND	83.4	34-141	4.76	30	
Toluene	22.2	1.0	"	25.0	ND	88.7	27-151	6.09	30	
Ethylbenzene	24.5	1.0	"	25.0	ND	98.2	29-160	3.36	30	
m,p-Xylene	56.9	2.0	"	50.0	ND	114	20-166	3.00	30	
o-Xylene	25.5	1.0	"	25.0	ND	102	33-159	3.30	30	
Naphthalene	28.7	1.0	"	25.0	ND	115	70-130	8.81	30	
1,2,4-Trimethylbenzene	24.0	1.0	"	25.0	ND	96.1	70-130	2.19	30	
1,3,5-Trimethylbenzene	24.3	1.0	"	25.0	ND	97.2	70-130	1.12	30	
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>10.2</i>		<i>"</i>	<i>13.3</i>		<i>76.7</i>	<i>23-173</i>			
<i>Surrogate: Toluene-d8</i>	<i>12.5</i>		<i>"</i>	<i>13.3</i>		<i>93.8</i>	<i>20-170</i>			
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>12.8</i>		<i>"</i>	<i>13.3</i>		<i>95.7</i>	<i>21-167</i>			

Summit Scientific

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Fremont Environmental  
 PO Box 1289  
 Wellington CO, 80549

Project: Noble - Harper Kona

Project Number: [none]  
 Project Manager: Paul Henchan

**Reported:**  
 05/17/22 15:28

**Dissolved Metals by EPA Method 200.8 - Quality Control**  
**Summit Scientific**

Analyte	Result	Reporting		Spike Level	Source		%REC		RPD		Notes
		Limit	Units		Result	%REC	Limits	RPD	Limit		

**Batch BFE0324 - EPA 200.8**

**Blank (BFE0324-BLK1)**

Prepared & Analyzed: 05/16/22

Barium ND 1.00 ug/l

**LCS (BFE0324-BS1)**

Prepared & Analyzed: 05/16/22

Barium 448 1.00 ug/l 500 89.6 85-115

**Duplicate (BFE0324-DUP1)**

**Source: 2205121-01**

Prepared & Analyzed: 05/16/22

Barium 50.7 1.00 ug/l 59.2 15.5 20

**Matrix Spike (BFE0324-MS1)**

**Source: 2205121-01**

Prepared & Analyzed: 05/16/22

Barium 524 1.00 ug/l 500 59.2 93.1 70-130

**Matrix Spike Dup (BFE0324-MSD1)**

**Source: 2205121-01**

Prepared & Analyzed: 05/16/22

Barium 534 1.00 ug/l 500 59.2 95.0 70-130 1.89 25

Summit Scientific

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Fremont Environmental  
 PO Box 1289  
 Wellington CO, 80549

Project: Noble - Harper Kona

Project Number: [none]  
 Project Manager: Paul Henchan

**Reported:**  
 05/17/22 15:28

**Anions by EPA Method 300.0 - Quality Control**  
**Summit Scientific**

Analyte	Result	Reporting		Spike Level	Source		%REC		RPD		Notes
		Limit	Units		Result	%REC	Limits	RPD	Limit		

**Batch BFE0229 - General Preparation**

**LCS (BFE0229-BS1)**

Prepared & Analyzed: 05/11/22

Chloride	3.06	0.0600	mg/L	3.00	102	90-110
Sulfate	14.8	0.300	"	15.0	98.8	90-110

**Duplicate (BFE0229-DUP1)**

Source: 2205091-01

Prepared & Analyzed: 05/11/22

Chloride	7.92	0.0600	mg/L	7.76	2.10	20
Sulfate	945	60.0	"	997	5.38	20

**Matrix Spike (BFE0229-MS1)**

Source: 2205091-01

Prepared & Analyzed: 05/11/22

Chloride	698	12.0	mg/L	600	7.76	115	80-120
Sulfate	4270	60.0	"	3000	997	109	80-120

Summit Scientific

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Fremont Environmental  
 PO Box 1289  
 Wellington CO, 80549

Project: Noble - Harper Kona

Project Number: [none]  
 Project Manager: Paul Henchan

**Reported:**  
 05/17/22 15:28

**Total Dissolved Solids by SM2540C - Quality Control**

**Summit Scientific**

Analyte	Result	Reporting		Spike Level	Source		%REC		RPD		Notes
		Limit	Units		Result	%REC	Limits	RPD	Limit		

**Batch BFE0179 - General Preparation**

**Blank (BFE0179-BLK1)**

Prepared: 05/09/22 Analyzed: 05/11/22

Total Dissolved Solids ND 10.0 mg/L

**Duplicate (BFE0179-DUP1)**

Source: 2205074-01

Prepared: 05/09/22 Analyzed: 05/11/22

Total Dissolved Solids 858 10.0 mg/L 829 3.50 20

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.*



Fremont Environmental  
PO Box 1289  
Wellington CO, 80549

Project: Noble - Harper Kona

Project Number: [none]  
Project Manager: Paul Henchan

**Reported:**  
05/17/22 15:28

### Notes and Definitions

I-03 This sample was recieved and analyzed outside of the recommended holding time.

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