

LEGEND

	SOIL SAMPLE LOCATION	10/15/19	DATE SAMPLED
	ABOVE GROUND STORAGE TANK	Floor@5'	LOCATION and DEPTH (ft)
	FORMER FACILITY	B	BENZENE (mg/kg)
	FENCE LINE	T	TOLUENE (mg/kg)
	CONTAINMENT BERM	E	ETHYLBENZENE (mg/kg)
	CONTAINMENT WALL	X	TOTAL XYLENES (mg/kg)
		N	NAPHTHALENE (mg/kg)
		G	TPH-GRO (mg/kg)
		D	TPH-DRO (mg/kg)
		EC	EC mmhos/cm
		pH	pH Units
		SAR	SAR Units
		NA	NOT ANALYZED

Figure 1
SITE PLAN

NOBLE ENERGY, INC. ~ HOSHICO 3-33
Facility ID ~ 323568
SENW Sec 33, T6N, R65W ~ 40.44667° -104.66854°
Weld County, Colorado

API No. 05-123-13208	Prepared by PH	Drawn by TDA	
Date 3/28/19	Reviewed by PH	Filename V427A	

Summit Scientific

4653 Table Mountain Drive, Golden, Colorado 80403

303.277.9310

October 21, 2019

Paul Henehan

Fremont Environmental

PO Box 1289

Wellington, CO 80549

RE: Noble - Hoshiko 3-33

Enclosed are the results of analyses for samples received by Summit Scientific on 10/16/19 17:20. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

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

Paul Shrewsbury For Ben Shrewsbury

Laboratory Manager



Fremont Environmental
PO Box 1289
Wellington CO, 80549

Project: Noble - Hoshiko 3-33

Project Number: [none]
Project Manager: Paul Henehan

Reported:
10/21/19 12:49

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
E Wall 3 Ft	1910194-01	Soil	10/15/19 00:00	10/16/19 17:20
Floor 5 Ft	1910194-02	Soil	10/15/19 00:00	10/16/19 17:20

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.

Summit Scientific

S₂

1910194

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: HOWARD

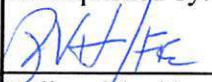

Phone: 303-956-8714

Project Name: NOBLE - HOSHIKO 3-33

Sampler Name: HENEHAN

Project Number:

ID	Sample Description	Date Sampled	Time Sampled	# of containers	Preservative				Matrix				Analysis Requested								Special Instructions
					HCl	HNO ₃	None	Other	Water	Soil	Air-Canister #	Other	BTEX	Naphthalene	GRO	DRO	SAR	EC	pH		
1	E WALL 3 FT	10/15/19		1			✓			✓				✓	✓	✓	✓	✓	✓		
2	FLOOR 5 FT	"		1			✓			✓				✓	✓	✓	✓				
3																					
4																					
5																					
6																					
7																					
8																					
9																					
10																					

Relinquished by: 	Date/Time: 10/16/19 17:20	Received by: 	Date/Time: 10/16/19 1720	Turn Around Time (Check) Same Day _____ 72 hours _____ 24 hours _____ Standard <input checked="" type="checkbox"/> 48 hours _____ Sample Integrity: Temperature Upon Receipt: 4.6 Samples Intact: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Notes:
Relinquished by:	Date/Time:	Received by:	Date/Time:		
Relinquished by:	Date/Time:	Received by:	Date/Time:		

Sample Receipt Checklist

1910194

S2 Work Order _____

Client: Fragmont Environmental Client Project ID: Noble - H85416 3-33Shipped Via: H.D./P.U. /FedEx/UPS/USPS/Other _____ Airbill #: _____Matrix (check all that apply): _____ Air ☒ Soil/Solid _____ Water _____ Other: _____
(Describe)

Temp (°C)	4.6
-----------	-----

Thermometer ID: 61857155-K

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

Additional Comments (if any):

⁽¹⁾ If NO, then contact the client before proceeding with analysis and note in case narrative.Custodian Printed Name or Initials JSSignature of Custodian [Signature]Date/Time 10/16/19 1200



Fremont Environmental
PO Box 1289
Wellington CO, 80549

Project: Noble - Hoshiko 3-33

Project Number: [none]
Project Manager: Paul Henehan

Reported:
10/21/19 12:49

E Wall 3 Ft
1910194-01 (Soil)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **10/15/19 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	0.0020	mg/kg	1	1910239	10/17/19	10/18/19	EPA 8260B	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
Xylenes (total)	ND	0.010	"	"	"	"	"	"	
Naphthalene	ND	0.010	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	ND	50	"	"	"	"	"	"	

Date Sampled: **10/15/19 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		111 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		103 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		107 %	21-167		"	"	"	"	

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **10/15/19 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	1910240	"	10/18/19	EPA 8015M	

Date Sampled: **10/15/19 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: o-Terphenyl		124 %	30-150		"	"	"	"	

Soluble Nutrients by EPA 6020/USDA60 6(2, 3A) - Dry Weight Basis

Date Sampled: **10/15/19 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Calcium	4910	11.7	mg/kg dry	1	1910252	10/17/19	10/17/19	EPA 6020B	

Summit Scientific

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Fremont Environmental
PO Box 1289
Wellington CO, 80549

Project: Noble - Hoshiko 3-33

Project Number: [none]
Project Manager: Paul Henehan

Reported:
10/21/19 12:49

E Wall 3 Ft
1910194-01 (Soil)

Summit Scientific

Soluble Nutrients by EPA 6020/USDA60 6(2, 3A) - Dry Weight Basis

Magnesium	740	5.83	mg/kg dry	1	1910252	10/17/19	10/17/19	EPA 6020B
Sodium	44.4	5.83	"	"	"	"	"	"

Calculated Analysis

Date Sampled: **10/15/19 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Sodium Adsorption Ratio	0.156	0.100	units	1	1910276	10/18/19	10/18/19	Calculation	

Physical Parameters by APHA/ASTM/EPA Methods

Date Sampled: **10/15/19 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
% Solids	85.8		%	1	1910235	10/17/19	10/17/19	Calculation	
pH	7.97		pH Units	"	1910236	10/17/19	10/17/19	EPA 9045D	

Specific Conductance by EPA Method 120.1

Date Sampled: **10/15/19 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Specific Conductance (EC)	0.654	0.0100	mmhos/cm	1	1910237	10/17/19	10/17/19	EPA 120.1	

Summit Scientific

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Fremont Environmental
PO Box 1289
Wellington CO, 80549

Project: Noble - Hoshiko 3-33

Project Number: [none]
Project Manager: Paul Henehan

Reported:
10/21/19 12:49

Floor 5 Ft
1910194-02 (Soil)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **10/15/19 00:00**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Benzene	ND	0.0020	mg/kg	1	1910239	10/17/19	10/18/19	EPA 8260B	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
Xylenes (total)	ND	0.010	"	"	"	"	"	"	
Naphthalene	ND	0.010	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	ND	50	"	"	"	"	"	"	

Date Sampled: **10/15/19 00:00**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: 1,2-Dichloroethane-d4		111 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		106 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		101 %	21-167		"	"	"	"	

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **10/15/19 00:00**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
C10-C28 (DRO)	ND	50	mg/kg	1	1910240	"	10/18/19	EPA 8015M	

Date Sampled: **10/15/19 00:00**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: o-Terphenyl		127 %	30-150		"	"	"	"	

Summit Scientific

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Fremont Environmental
PO Box 1289
Wellington CO, 80549

Project: Noble - Hoshiko 3-33

Project Number: [none]
Project Manager: Paul Henehan

Reported:
10/21/19 12:49

Volatile Organic Compounds by EPA Method 8260B - Quality Control

Summit Scientific

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

Batch 1910239 - EPA 5030 Soil MS

Blank (1910239-BLK1)

Prepared: 10/17/19 Analyzed: 10/18/19

Benzene	ND	0.0020	mg/kg							
Toluene	ND	0.0050	"							
Ethylbenzene	ND	0.0050	"							
Xylenes (total)	ND	0.010	"							
Naphthalene	ND	0.010	"							
Gasoline Range Hydrocarbons	ND	50	"							
Surrogate: 1,2-Dichloroethane-d4	0.0396		"	0.0400		99.0	23-173			
Surrogate: Toluene-d8	0.0384		"	0.0400		96.0	20-170			
Surrogate: 4-Bromofluorobenzene	0.0412		"	0.0400		103	21-167			

LCS (1910239-BS1)

Prepared: 10/17/19 Analyzed: 10/18/19

Benzene	0.0757	0.0020	mg/kg	0.100		75.7	70-130			
Toluene	0.0776	0.0050	"	0.100		77.6	70-130			
Ethylbenzene	0.0834	0.0050	"	0.100		83.4	70-130			
m,p-Xylene	0.162	0.010	"	0.200		81.1	70-130			
o-Xylene	0.0813	0.0050	"	0.100		81.3	70-130			
Surrogate: 1,2-Dichloroethane-d4	0.0403		"	0.0400		101	23-173			
Surrogate: Toluene-d8	0.0397		"	0.0400		99.2	20-170			
Surrogate: 4-Bromofluorobenzene	0.0408		"	0.0400		102	21-167			

Matrix Spike (1910239-MS1)

Source: 1910207-01

Prepared: 10/17/19 Analyzed: 10/18/19

Benzene	0.0759	0.0020	mg/kg	0.100	ND	75.9	70-130			
Toluene	0.0780	0.0050	"	0.100	ND	78.0	70-130			
Ethylbenzene	0.0841	0.0050	"	0.100	ND	84.1	70-130			
m,p-Xylene	0.164	0.010	"	0.200	ND	81.9	70-130			
o-Xylene	0.0837	0.0050	"	0.100	ND	83.7	70-130			
Surrogate: 1,2-Dichloroethane-d4	0.0416		"	0.0400		104	23-173			
Surrogate: Toluene-d8	0.0391		"	0.0400		97.7	20-170			
Surrogate: 4-Bromofluorobenzene	0.0406		"	0.0400		102	21-167			

Summit Scientific

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Fremont Environmental
PO Box 1289
Wellington CO, 80549

Project: Noble - Hoshiko 3-33

Project Number: [none]
Project Manager: Paul Henehan

Reported:
10/21/19 12:49

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 1910239 - EPA 5030 Soil MS

Matrix Spike Dup (1910239-MSD1)

Source: 1910207-01

Prepared: 10/17/19 Analyzed: 10/18/19

Benzene	0.0775	0.0020	mg/kg	0.100	ND	77.5	70-130	2.11	30	
Toluene	0.0795	0.0050	"	0.100	ND	79.5	70-130	1.90	30	
Ethylbenzene	0.0854	0.0050	"	0.100	ND	85.4	70-130	1.56	30	
m,p-Xylene	0.165	0.010	"	0.200	ND	82.4	70-130	0.639	30	
o-Xylene	0.0838	0.0050	"	0.100	ND	83.8	70-130	0.0358	30	
Surrogate: 1,2-Dichloroethane-d4	0.0407		"	0.0400		102	23-173			
Surrogate: Toluene-d8	0.0396		"	0.0400		99.1	20-170			
Surrogate: 4-Bromofluorobenzene	0.0402		"	0.0400		100	21-167			

Summit Scientific

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Fremont Environmental
PO Box 1289
Wellington CO, 80549

Project: Noble - Hoshiko 3-33

Project Number: [none]
Project Manager: Paul Henehan

Reported:
10/21/19 12:49

Extractable Petroleum Hydrocarbons by 8015 - Quality Control
Summit Scientific

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

Batch 1910240 - EPA 3550A

Blank (1910240-BLK1)

Prepared & Analyzed: 10/17/19

C10-C28 (DRO) ND 50 mg/kg

LCS (1910240-BS1)

Prepared & Analyzed: 10/17/19

C10-C28 (DRO) 448 50 mg/kg 500 89.5 70-130

Matrix Spike (1910240-MS1)

Source: 1910141-03

Prepared & Analyzed: 10/17/19

C10-C28 (DRO) 458 50 mg/kg 500 15.1 88.6 70-130

Matrix Spike Dup (1910240-MSD1)

Source: 1910141-03

Prepared & Analyzed: 10/17/19

C10-C28 (DRO) 444 50 mg/kg 500 15.1 85.8 70-130 3.06 20

Summit Scientific

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Fremont Environmental
PO Box 1289
Wellington CO, 80549

Project: Noble - Hoshiko 3-33

Project Number: [none]
Project Manager: Paul Henehan

Reported:
10/21/19 12:49

Soluble Nutrients by EPA 6020/USDA60 6(2, 3A) - Dry Weight Basis - Quality Control

Summit Scientific

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

Batch 1910252 - General Preparation

Blank (1910252-BLK1)

Prepared & Analyzed: 10/17/19

Calcium	ND	10.0	mg/kg wet
Magnesium	ND	5.00	"
Sodium	ND	5.00	"

LCS (1910252-BS1)

Prepared & Analyzed: 10/17/19

Calcium	519	10.0	mg/kg wet	500	104	70-130
Magnesium	553	5.00	"	500	111	70-130
Sodium	523	5.00	"	500	105	70-130

Duplicate (1910252-DUP1)

Source: 1910191-01

Prepared & Analyzed: 10/17/19

Calcium	2090	11.0	mg/kg dry	1990	4.87	20
Magnesium	524	5.48	"	528	0.836	20
Sodium	59.5	5.48	"	61.6	3.56	20

Matrix Spike (1910252-MS1)

Source: 1910191-01

Prepared & Analyzed: 10/17/19

Calcium	2560	11.0	mg/kg dry	548	1990	105	70-130
Magnesium	1020	5.48	"	548	528	89.3	70-130
Sodium	567	5.48	"	548	61.6	92.1	70-130

Matrix Spike Dup (1910252-MSD1)

Source: 1910191-01

Prepared & Analyzed: 10/17/19

Calcium	2640	11.0	mg/kg dry	548	1990	120	70-130	3.18	25
Magnesium	1020	5.48	"	548	528	90.3	70-130	0.534	25
Sodium	608	5.48	"	548	61.6	99.6	70-130	6.97	25

Summit Scientific

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Fremont Environmental
PO Box 1289
Wellington CO, 80549

Project: Noble - Hoshiko 3-33

Project Number: [none]
Project Manager: Paul Henehan

Reported:
10/21/19 12:49

Physical Parameters by APHA/ASTM/EPA Methods - Quality Control
Summit Scientific

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

Batch 1910235 - General Preparation

Duplicate (1910235-DUP1)

Source: 1910169-01

Prepared & Analyzed: 10/17/19

% Solids	66.1	%		65.6		0.743	20
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Batch 1910236 - General Preparation

LCS (1910236-BS1)

Prepared & Analyzed: 10/17/19

pH	9.21	pH Units	9.18	100	95-105
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Duplicate (1910236-DUP1)

Source: 1910169-01

Prepared & Analyzed: 10/17/19

pH	7.59	pH Units	7.55	0.528	20
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Summit Scientific

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Fremont Environmental
PO Box 1289
Wellington CO, 80549

Project: Noble - Hoshiko 3-33

Project Number: [none]
Project Manager: Paul Henehan

Reported:
10/21/19 12:49

Specific Conductance by EPA Method 120.1 - Quality Control
Summit Scientific

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

Batch 1910237 - General Preparation

Blank (1910237-BLK1)

Prepared & Analyzed: 10/17/19

Specific Conductance (EC) ND 0.0100 mmhos/cm

LCS (1910237-BS1)

Prepared & Analyzed: 10/17/19

Specific Conductance (EC) 0.781 0.0100 mmhos/cm 0.750 104 90-110

Duplicate (1910237-DUP1)

Source: 1910169-01

Prepared & Analyzed: 10/17/19

Specific Conductance (EC) 1.17 0.0100 mmhos/cm 1.24 5.86 20

Summit Scientific

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Fremont Environmental
PO Box 1289
Wellington CO, 80549

Project: Noble - Hoshiko 3-33

Project Number: [none]
Project Manager: Paul Henehan

Reported:
10/21/19 12:49

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