



EAGLE
ENVIRONMENTAL
CONSULTING, INC.

4101 Inca Street, Denver, CO 80211 • Phone: 303-433-0479 • Fax: 303-325-5449 • www.eagle-enviro.com

November 7 2017

Mr. Jacob Evans
Noble Energy, Inc.
2115 117th Avenue
Greeley, Colorado 80631

**Lone Pine #LB19-78HN
Water Vault Removal
40.739880 / -104.145204
NW¼ NW¼ SEC.19 T9N R60W 6PM
Weld County, Colorado
Location ID 431669**

Dear Mr. Evans,

Eagle Environmental Consulting, Inc. (EAGLE) is pleased to present the results from the water vault removal at the Lone Pine #LB19-78HN site (site).

On October 12, 2017, EAGLE collected soil samples following the removal of the water vault at the site. Per Noble Standard Operation Procedures, a soil sample was collected from each sidewall and the floor for field screening. The sidewall soil sample with the highest photoionization detector (PID) reading (SS-01@2.5') and the floor soil sample (SS-05@7') were submitted for laboratory analysis.

Based on laboratory analytical results, the soil samples did not contain concentrations of benzene, toluene, ethylbenzene, total xylenes (BTEX), naphthalene, or total petroleum hydrocarbons (TPH) exceeding Colorado Oil and Gas Conservation Commission (COGCC) Table 910-1 regulatory limits. Additionally, the sidewall soil sample's (SS-01@2.5') specific conductance, pH, and sodium adsorption ratio (SAR) values were within COGCC Table 910-1 regulatory limits.

EAGLE sincerely appreciates the opportunity to provide our services. If you have any questions or require further information, please contact us at (303) 433-0479.

Sincerely,

EAGLE ENVIRONMENTAL CONSULTING, INC.

Andrew Newberry
Project Geologist

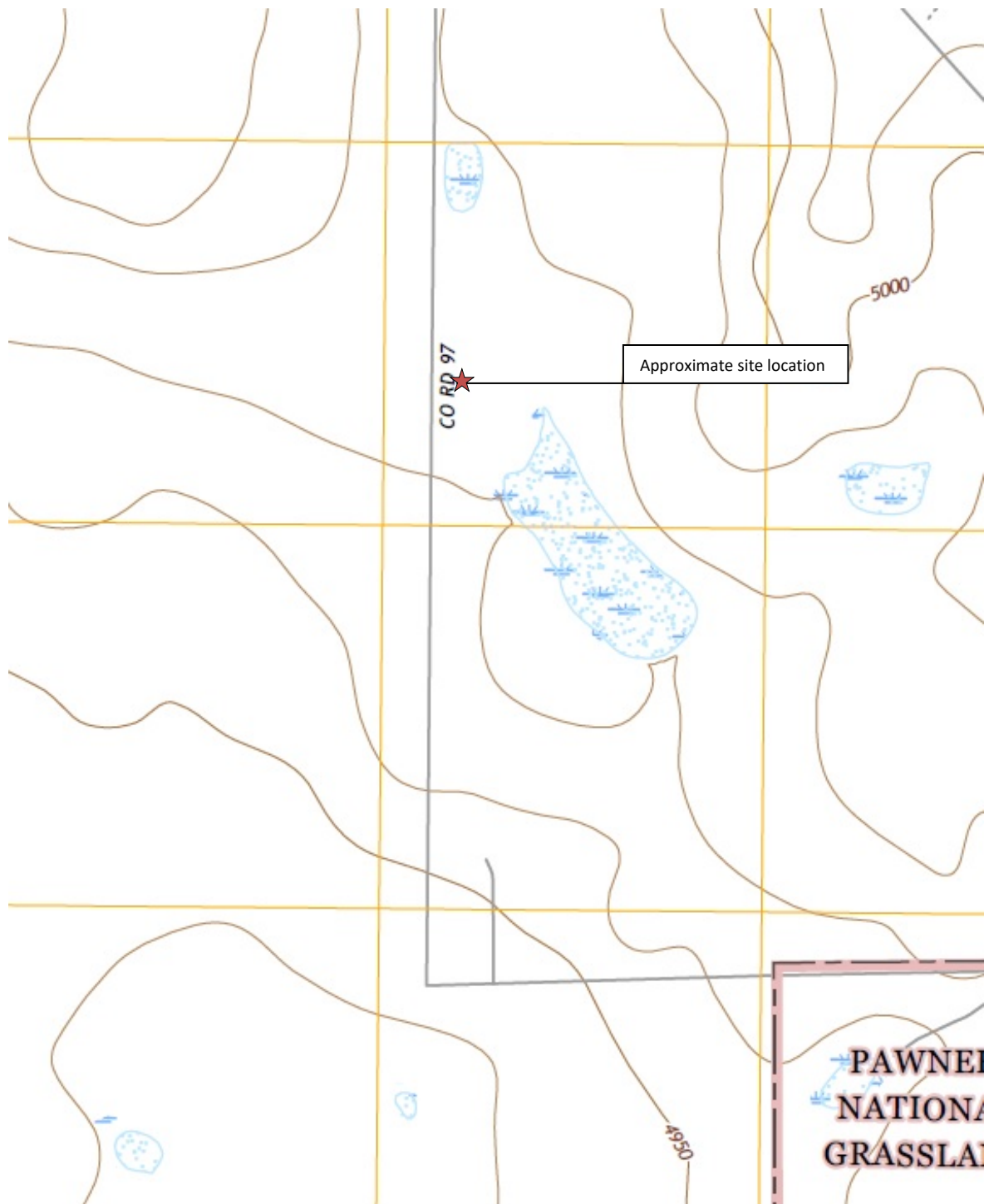


FIGURES

Figure 1: Topographic Site Location Map

Figure 2: Aerial Site Location Map

Figure 3: Soil Analytical Map



Topographic Site Location Map
 Lone Pine #LB19-78HN
 Water Vault Removal
 40.739880 / -104.145204
 NW¼ NW¼ SEC.19 T9N R60W 6PM
 Weld County, Colorado
 Location ID 431669

Source: USGS 7.5 Minute Topographic
 Map, Keota NW, CO Quadrangle 2013

Figure 1

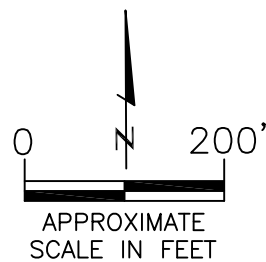


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LEGEND

- LONE PINE #LB19-78HN TANK BATTERY
- LONE PINE #LB19-78HN WELL HEAD
- APPROXIMATE LOCATION OF WATER VAULT REMOVAL



AERIAL SITE LOCATION MAP
 LONE PINE #LB19-78HN
 WATER VAULT REMOVAL
 40.739880 / -104.145204
 NW1/4 NW1/4 SEC.19 T9N R60W 6PM
 WELD COUNTY, COLORADO
 LOCATION ID 431669

DATE:
11/02/17

FIG. NO.
2

DRAWN BY:
AMN



EAGLE
 ENVIRONMENTAL
 CONSULTING, INC.
 4101 INCA STREET, DENVER, CO 80211
 Ph: 303-433-0479 • F: 303-325-5449



SS-05@7'
10/12/17
7'
B = <0.050
T = <0.050
E = <0.050
X = <0.050
N = <0.175
G = 9.59
D = <50.0
EC = NA
SAR = NA
pH = NA

SS-01@2.5'
10/12/17
2.5'
B = <0.050
T = <0.050
E = <0.050
X = <0.050
N = <0.175
G = 10.9
D = <50.0
EC = 0.402
SAR = 6.70
pH = 8.19

LEGEND

- APPROXIMATE EXCAVATION BOUNDARIES
- SS-01 APPROXIMATE LOCATION OF SOIL SAMPLES
FIELD ANALYZED WITH PHOTOIONIZATION
DETECTOR (PID)
- SS-02 APPROXIMATE LOCATION OF SOIL SAMPLES
SUBMITTED FOR LABORATORY ANALYSIS

PARAMETERS

SOIL SAMPLE LOCATION
DATE
DEPTH (FEET)
B = BENZENE (mg/kg)
T = TOLUENE (mg/kg)
E = ETHYLBENZENE (mg/kg)
X = TOTAL XYLENES (mg/kg)
N = NAPHTHALENE (mg/kg)
G = TPH-GRO (mg/kg)
D = TPH-DRO (mg/kg)
EC = SPECIFIC CONDUCTANCE (mmhos/cm)
SAR= SODIUM ADSORPTION RATIO
pH = pH (pH UNITS)

mg/kg = MILLIGRAMS PER KILOGRAM

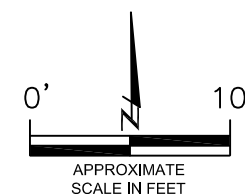
mmhos/cm = MILLIMHOS PER CENTIMETER

TPH-GRO = TOTAL PETROLEUM HYDROCARBONS - GASOLINE
RANGE ORGANICS

TPH-DRO = TOTAL PETROLEUM HYDROCARBONS - DIESEL
RANGE ORGANICS

NA = NOT ANALYZED

NOTE: VALUES PRESENTED WITH A LESS THAN SYMBOL (<)
DID NOT CONTAIN CONCENTRATIONS AT OR ABOVE
LABORATORY DETECTION LIMITS

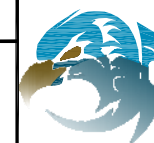


SOIL ANALYTICAL MAP
LONE PINE #LB19-78HN
WATER VAULT REMOVAL
40.739880 / -104.145204
NW1/4 NW1/4 SEC.19 T9N R60W 6PM
WELD COUNTY, COLORADO
LOCATION ID 431669

DATE: 11/02/17

FIG.
NO.
3

DRAWN BY:
amn



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CONSULTING, INC.
4101 INCA STREET, DENVER, CO 80211
Ph: 303-433-0479 • F: 303-325-5449



ATTACHMENT A

Laboratory Analytical Report



October 25, 2017

Eagle Environmental Consulting, Inc.

Martin C Eckert III

4101 Inca Street

Denver

CO 80211

Project Name - Noble - Lone Pine LB19-78HN

Project Number - [none]

Attached are your analytical results for Noble - Lone Pine LB19-78HN received by Origins Laboratory, Inc. October 12, 2017. This project is associated with Origins project number Y710176-01.

The analytical results in the following report were analyzed under the guidelines of EPA Methods. These methods are identified as follows; "SW" are defined in SW-846, "EPA" are defined in 40CFR part 136 and "SM" are defined in the most current revision of Standard Methods For the Examination of Water and Wastewater.

The analytical results apply specifically to the samples and analyses specified per the attached Chain of Custody. As such, this report shall not be reproduced except in full, without the written approval of Origin's laboratory.

Unless otherwise noted, the analytical results for all soil samples are reported on a wet weight basis. All analytical analyses were performed under NELAP guidelines unless noted by a data qualifier.

Any holding time exceedances, deviations from the method specifications or deviations from Origins Laboratory's Standard Operating Procedures are outlined in the case narrative.

Thank you for selecting Origins for your analytical needs. Please contact us with any questions concerning this report, or if we can help with anything at all.

Origins Laboratory, Inc.
303.433.1322
o-squad@oelabinc.com



1725 Elk Place, Denver, CO 80211 | Phone: 303.433.1322 | Fax: 303.265.9645

Eagle Environmental Consulting, Inc.

4101 Inca Street

Denver CO 80211

Martin C Eckert III

Project Number: [none]

Project: Noble - Lone Pine LB19-78HN

CROSS REFERENCE REPORT

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
SS-01@2.5'	Y710176-01	Soil	October 12, 2017 14:06	10/12/2017 16:34
SS-05@7'	Y710176-02	Soil	October 12, 2017 14:14	10/12/2017 16:34

Per the phone call from Sam on 10/20/2017, pH, EC, and SAR were not needed on SS-05@7' and will be run on SS-01@2.5' instead.

Origins Laboratory, Inc.



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.

Eagle Environmental Consulting, Inc.
4101 Inca Street
Denver CO 80211

Martin C Eckert III
Project Number: [none]
Project: Noble - Lone Pine LB19-78HN

www.originslaboratory.com

page 1 of 1

710176

Client: EAGLE

Address: 4101 INCA ST
DENVER, CO 80211

Telephone Number: 303-433-0479

Email Address: MCE@EAGLE-ENVRO.COM

Project Manager: MARTIN ECKERT III

Project Name: LONE PINE LB19-78HN

Project Number: -

Samples Collected By: SV

Sample ID Description	Date Sampled	Time Sampled	# of Containers	Preservative				Matrix			Analysis				Sample Instructions
				Unpreserved	HCl	HNO ₃	Other	Groundwater	Soil	As Surrogate	Other	Other	Other	Other	
SS-01 @ 2.5'	10/12/17	1406	2												
SS-05 @ 7'	1	1414	1												

Relinquished By: [Signature] Date: 10/12/17 Time: 1634

Relinquished By: [Signature] Date: 10/12/17 Time: 1634

Turnaround Time: Same Day ☐ 24 Hr ☐ 48 Hr ☐ 72 Hr ☐ Standard ☒

Temp Received: 4.7 Date Results Needed: NOBLE

RC# 425832192

1725 Elk Place | Denver, CO 80211 | Phone: 303.433.1322 | Fax: 303.265.9645

Origins Laboratory, Inc.

Jefe Pellegrini

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Eagle Environmental Consulting, Inc.
4101 Inca Street
Denver CO 80211

Martin C Eckert III
Project Number: [none]
Project: Noble - Lone Pine LB19-78HN

Origins Laboratory

F-012207-01-R1
Effective Date: 01/09/12

Sample Receipt Checklist

Origins Work Order: 47101676

Client: Eagle Env.

Client Project ID: Noble - Lone Pine LB19-78HN

Checklist Completed by: DL

Shipped Via: HD

(UPS, FedEx, Hand Delivered, Pick-up, etc.)

Date/time completed: 10-12-12 1647

Airbill #: NR

Matrix(s) Received: (Check all that apply): ☒ Soil/Solid ☐ Water ☐ Other: (Describe)

Cooler Number/Temperature: ☒ 4.7 °C ☐ °C ☐ °C ☐ °C

Thermometer ID: 7005

Requirement Description	Yes	No	N/A	Comments (if any)
If samples require cooling, was the temperature between 0°C to ≤ 6°C ⁽¹⁾ ?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Is there ice present (document if blue ice is used)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Are custody seals present on cooler? (if so, document in comments if they are signed and dated, broken or intact)	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Are custody seals present on each sample container? (if so, document in comments if they are signed and dated, broken or intact)	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Were all samples received intact ⁽¹⁾ ?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Was adequate sample volume provided ⁽¹⁾ ?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Are short holding time analytes or samples with HTs due within 48 hours present ⁽¹⁾ ?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<u>3/11</u>
Is a chain-of-custody (COC) present and filled out completely ⁽¹⁾ ?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Does the COC agree with the number and type of sample bottles received ⁽¹⁾ ?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Do the sample IDs on the bottle labels match the COC ⁽¹⁾ ?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Is the COC properly relinquished by the client with date and time recorded ⁽¹⁾ ?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
For volatiles in water – is there headspace (> ¼ inch bubble) present? If yes, contact client and note in narrative.	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Are samples preserved that require preservation and was it checked ⁽¹⁾ ? (note ID of confirmation instrument used in comments) / (preservation is not confirmed for subcontracted analyses in order to insure sample integrity)/(pH <2 for samples preserved with HNO ₃ , HCL, H ₂ SO ₄) / (pH >10 for samples preserved with NaAsO ₂ +NaOH, ZnAc+NaOH)	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Additional Comments (if any):				

⁽¹⁾ If NO, then contact the client before proceeding with analysis and note date/time and person contacted as well as the corrective action to in the additional comments (above) and the case narrative.

Reviewed by (Project Manager) [Signature]

Date/Time Reviewed 10/13/12

Origins Laboratory, Inc.

Jefe Pellegrini

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Eagle Environmental Consulting, Inc.
4101 Inca Street
Denver CO 80211

Martin C Eckert III
Project Number: [none]
Project: Noble - Lone Pine LB19-78HN

SS-01@2.5'

10/12/2017 2:06:00PM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
---------	--------	-----------------	-------	----------	-------	----------	----------	-------

Origins Laboratory, Inc.
Y710176-01 (Soil)

Diesel Range Organics (DRO/TEPH) by EPA 8015C

Diesel (C10-C28)	ND	50.0	mg/kg	1	B7J1806	10/18/2017	10/19/2017	U
Surrogate: o-Terphenyl	78.1 %	59-131			"	"	"	

GBTEX + Napthalene by 8260C

Gasoline Range Hydrocarbons	10.9	5.00	mg/kg	25	B7J1901	10/18/2017	10/19/2017	
Benzene	ND	0.050	"	"	"	"	"	U
Toluene	ND	0.050	"	"	"	"	"	U
Ethylbenzene	ND	0.050	"	"	"	"	"	U
Xylenes, total	ND	0.050	"	"	"	"	"	U
Naphthalene	ND	0.175	"	"	"	"	"	U
Surrogate: 1,2-Dichloroethane-d4	94.9 %	70-130			"	"	"	
Surrogate: Toluene-d8	101 %	70-130			"	"	"	
Surrogate: 4-Bromofluorobenzene	97.5 %	70-130			"	"	"	

Metals (Saturated Paste Prep)

Calcium	7.41		me/L	1	'[none]'	10/23/2017	10/24/2017	
Magnesium	1.45		"	"	"	"	"	
Sodium	14.11		"	"	"	"	"	

pH in Soil by EPA 9045D

Origins Laboratory, Inc.



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Eagle Environmental Consulting, Inc.
4101 Inca Street
Denver CO 80211

Martin C Eckert III
Project Number: [none]
Project: Noble - Lone Pine LB19-78HN

SS-01@2.5'

10/12/2017 2:06:00PM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
---------	--------	--------------------	-------	----------	-------	----------	----------	-------

Origins Laboratory, Inc.
Y710176-01 (Soil)

pH in Soil by EPA 9045D

pH	8.19	pH Units	1	B7J2403	10/24/2017	10/24/2017
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SAR by 20B Saturated Paste

SAR	6.70		1	'[none]'	10/23/2017	10/24/2017
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Specific Conductance by Modified 9050A

Specific Conductance (EC)	0.402	mmhos/cm	1	B7J2404	10/24/2017	10/24/2017
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Origins Laboratory, Inc.



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Eagle Environmental Consulting, Inc.
4101 Inca Street
Denver CO 80211

Martin C Eckert III
Project Number: [none]
Project: Noble - Lone Pine LB19-78HN

SS-05@7'

10/12/2017 2:14:00PM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
---------	--------	-----------------	-------	----------	-------	----------	----------	-------

Origins Laboratory, Inc.
Y710176-02 (Soil)

Diesel Range Organics (DRO/TEPH) by EPA 8015C

Diesel (C10-C28)	ND	50.0	mg/kg	1	B7J1806	10/18/2017	10/19/2017	U
Surrogate: o-Terphenyl	75.9 %	59-131			"	"	"	

GBTEX + Napthalene by 8260C

Gasoline Range Hydrocarbons	9.59	5.00	mg/kg	25	B7J1901	10/18/2017	10/19/2017	
Benzene	ND	0.050	"	"	"	"	"	U
Toluene	ND	0.050	"	"	"	"	"	U
Ethylbenzene	ND	0.050	"	"	"	"	"	U
Xylenes, total	ND	0.050	"	"	"	"	"	U
Napthalene	ND	0.175	"	"	"	"	"	U
Surrogate: 1,2-Dichloroethane-d4	93.7 %	70-130			"	"	"	
Surrogate: Toluene-d8	101 %	70-130			"	"	"	
Surrogate: 4-Bromofluorobenzene	96.2 %	70-130			"	"	"	

Origins Laboratory, Inc.



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Eagle Environmental Consulting, Inc.
4101 Inca Street
Denver CO 80211

Martin C Eckert III
Project Number: [none]
Project: Noble - Lone Pine LB19-78HN

Volatile Organic Compounds by GC/MS SW846 8260C - Quality Control
Origins Laboratory, Inc.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B7J1901 - EPA 5030 (soil)										
Blank (B7J1901-BLK1)					Prepared: 10/19/2017 Analyzed: 10/19/2017					
Gasoline Range Hydrocarbons	ND	0.200	mg/kg							U
Benzene	ND	0.002	"							U
Toluene	ND	0.002	"							U
Ethylbenzene	ND	0.002	"							U
Xylenes, total	ND	0.002	"							U
Naphthalene	ND	0.007	"							U
Surrogate: 1,2-Dichloroethane-d4	71		ug/kg	62.5		113	70-130			
Surrogate: Toluene-d8	65		"	62.5		104	70-130			
Surrogate: 4-Bromofluorobenzene	66		"	62.5		106	70-130			

Origins Laboratory, Inc.



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Eagle Environmental Consulting, Inc.
4101 Inca Street
Denver CO 80211

Martin C Eckert III
Project Number: [none]
Project: Noble - Lone Pine LB19-78HN

Volatile Organic Compounds by GC/MS SW846 8260C - Quality Control
Origins Laboratory, Inc.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B7J1901 - EPA 5030 (soil)										
Blank (B7J1901-BLK2)					Prepared: 10/19/2017 Analyzed: 10/19/2017					
Gasoline Range Hydrocarbons	ND	0.200	mg/kg							U
Benzene	ND	0.002	"							U
Toluene	ND	0.002	"							U
Ethylbenzene	ND	0.002	"							U
Xylenes, total	ND	0.002	"							U
Naphthalene	ND	0.007	"							U
Surrogate: 1,2-Dichloroethane-d4	69		ug/kg	62.5		111	70-130			
Surrogate: Toluene-d8	63		"	62.5		101	70-130			
Surrogate: 4-Bromofluorobenzene	68		"	62.5		109	70-130			

Origins Laboratory, Inc.



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Eagle Environmental Consulting, Inc.
4101 Inca Street
Denver CO 80211

Martin C Eckert III
Project Number: [none]
Project: Noble - Lone Pine LB19-78HN

Volatile Organic Compounds by GC/MS SW846 8260C - Quality Control
Origins Laboratory, Inc.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B7J1901 - EPA 5030 (soil)										
Blank (B7J1901-BLK3)					Prepared: 10/19/2017 Analyzed: 10/20/2017					
Gasoline Range Hydrocarbons	ND	0.200	mg/kg							U
Benzene	ND	0.002	"							U
Toluene	ND	0.002	"							U
Ethylbenzene	ND	0.002	"							U
Xylenes, total	ND	0.002	"							U
Naphthalene	ND	0.007	"							U
Surrogate: 1,2-Dichloroethane-d4	66		ug/kg	62.5		106	70-130			
Surrogate: Toluene-d8	59		"	62.5		94.6	70-130			
Surrogate: 4-Bromofluorobenzene	66		"	62.5		105	70-130			

Origins Laboratory, Inc.



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Eagle Environmental Consulting, Inc.

4101 Inca Street

Denver CO 80211

Martin C Eckert III

Project Number: [none]

Project: Noble - Lone Pine LB19-78HN

Volatile Organic Compounds by GC/MS SW846 8260C - Quality Control

Origins Laboratory, Inc.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch B7J1901 - EPA 5030 (soil)

LCS (B7J1901-BS1)

Prepared: 10/19/2017 Analyzed: 10/19/2017

Benzene	0.112	0.002	mg/kg	0.100		112	70-130			
Toluene	0.098	0.002	"	0.100		98.2	70-130			
Ethylbenzene	0.111	0.002	"	0.100		111	70-130			
m,p-Xylene	0.216	0.004	"	0.200		108	70-130			
o-Xylene	0.109	0.002	"	0.100		109	70-130			
Naphthalene	0.090	0.007	"	0.100		89.9	70-130			
Surrogate: 1,2-Dichloroethane-d4	59		ug/kg	62.5		94.2	70-130			
Surrogate: Toluene-d8	55		"	62.5		87.7	70-130			
Surrogate: 4-Bromofluorobenzene	63		"	62.5		101	70-130			

Origins Laboratory, Inc.



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Jen Pellegrini For Noelle Doyle Mathis, President

Eagle Environmental Consulting, Inc.
4101 Inca Street
Denver CO 80211

Martin C Eckert III
Project Number: [none]
Project: Noble - Lone Pine LB19-78HN

Volatile Organic Compounds by GC/MS SW846 8260C - Quality Control
Origins Laboratory, Inc.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B7J1901 - EPA 5030 (soil)										
LCS (B7J1901-BS2)					Prepared: 10/19/2017 Analyzed: 10/19/2017					
Benzene	0.111	0.002	mg/kg	0.100		111	70-130			
Toluene	0.107	0.002	"	0.100		107	70-130			
Ethylbenzene	0.087	0.002	"	0.100		87.4	70-130			
m,p-Xylene	0.176	0.004	"	0.200		88.1	70-130			
o-Xylene	0.102	0.002	"	0.100		102	70-130			
Naphthalene	0.101	0.007	"	0.100		101	70-130			
Surrogate: 1,2-Dichloroethane-d4	65		ug/kg	62.5		104	70-130			
Surrogate: Toluene-d8	63		"	62.5		100	70-130			
Surrogate: 4-Bromofluorobenzene	62		"	62.5		98.5	70-130			

Origins Laboratory, Inc.



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Eagle Environmental Consulting, Inc.
4101 Inca Street
Denver CO 80211

Martin C Eckert III
Project Number: [none]
Project: Noble - Lone Pine LB19-78HN

Volatile Organic Compounds by GC/MS SW846 8260C - Quality Control
Origins Laboratory, Inc.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B7J1901 - EPA 5030 (soil)										
LCS (B7J1901-BS3)					Prepared: 10/19/2017 Analyzed: 10/19/2017					
Benzene	0.118	0.002	mg/kg	0.100		118	70-130			
Toluene	0.108	0.002	"	0.100		108	70-130			
Ethylbenzene	0.100	0.002	"	0.100		100	70-130			
m,p-Xylene	0.195	0.004	"	0.200		97.3	70-130			
o-Xylene	0.098	0.002	"	0.100		97.9	70-130			
Naphthalene	0.104	0.007	"	0.100		104	70-130			
Surrogate: 1,2-Dichloroethane-d4	70		ug/kg	62.5		112	70-130			
Surrogate: Toluene-d8	65		"	62.5		104	70-130			
Surrogate: 4-Bromofluorobenzene	63		"	62.5		100	70-130			

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Eagle Environmental Consulting, Inc.
4101 Inca Street
Denver CO 80211

Martin C Eckert III
Project Number: [none]
Project: Noble - Lone Pine LB19-78HN

Volatile Organic Compounds by GC/MS SW846 8260C - Quality Control
Origins Laboratory, Inc.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B7J1901 - EPA 5030 (soil)										
Matrix Spike (B7J1901-MS1)		Source: Y710246-01			Prepared: 10/19/2017 Analyzed: 10/19/2017					
Benzene	0.111	0.002	mg/kg	0.100	ND	111	70-130			
Toluene	0.120	0.002	"	0.100	0.001	119	70-130			
Ethylbenzene	0.110	0.002	"	0.100	ND	110	70-130			
m,p-Xylene	0.213	0.004	"	0.200	ND	106	70-130			
o-Xylene	0.108	0.002	"	0.100	ND	108	70-130			
Naphthalene	0.085	0.007	"	0.100	ND	84.8	70-130			
Surrogate: 1,2-Dichloroethane-d4	61		ug/kg	62.5		97.6	70-130			
Surrogate: Toluene-d8	65		"	62.5		104	70-130			
Surrogate: 4-Bromofluorobenzene	65		"	62.5		103	70-130			

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Martin C Eckert III
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Project: Noble - Lone Pine LB19-78HN

Volatile Organic Compounds by GC/MS SW846 8260C - Quality Control
Origins Laboratory, Inc.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B7J1901 - EPA 5030 (soil)										
Matrix Spike (B7J1901-MS2)		Source: Y710282-05			Prepared: 10/19/2017 Analyzed: 10/20/2017					
Benzene	0.106	0.002	mg/kg	0.100	ND	106	70-130			
Toluene	0.095	0.002	"	0.100	ND	95.3	70-130			
Ethylbenzene	0.111	0.002	"	0.100	ND	111	70-130			
m,p-Xylene	0.214	0.004	"	0.200	ND	107	70-130			
o-Xylene	0.107	0.002	"	0.100	ND	107	70-130			
Naphthalene	0.065	0.007	"	0.100	ND	65.3	70-130			QM-07
Surrogate: 1,2-Dichloroethane-d4	66		ug/kg	62.5		105	70-130			
Surrogate: Toluene-d8	61		"	62.5		96.8	70-130			
Surrogate: 4-Bromofluorobenzene	71		"	62.5		114	70-130			

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Denver CO 80211

Martin C Eckert III
Project Number: [none]
Project: Noble - Lone Pine LB19-78HN

Volatile Organic Compounds by GC/MS SW846 8260C - Quality Control
Origins Laboratory, Inc.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B7J1901 - EPA 5030 (soil)										
Matrix Spike (B7J1901-MS3)		Source: Y710290-01			Prepared: 10/19/2017 Analyzed: 10/19/2017					
Benzene	0.096	0.002	mg/kg	0.100	ND	95.6	70-130			
Toluene	0.077	0.002	"	0.100	ND	77.1	70-130			
Ethylbenzene	0.088	0.002	"	0.100	ND	87.6	70-130			
m,p-Xylene	0.173	0.004	"	0.200	ND	86.6	70-130			
o-Xylene	0.090	0.002	"	0.100	ND	89.8	70-130			
Naphthalene	0.109	0.007	"	0.100	ND	109	70-130			
Surrogate: 1,2-Dichloroethane-d4	66		ug/kg	62.5		106	70-130			
Surrogate: Toluene-d8	56		"	62.5		90.3	70-130			
Surrogate: 4-Bromofluorobenzene	63		"	62.5		101	70-130			

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Denver CO 80211

Martin C Eckert III
Project Number: [none]
Project: Noble - Lone Pine LB19-78HN

Volatile Organic Compounds by GC/MS SW846 8260C - Quality Control
Origins Laboratory, Inc.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B7J1901 - EPA 5030 (soil)										
Matrix Spike Dup (B7J1901-MSD1)	Source: Y710246-01				Prepared: 10/19/2017 Analyzed: 10/19/2017					
Benzene	0.122	0.002	mg/kg	0.100	ND	122	70-130	9.81	20	
Toluene	0.118	0.002	"	0.100	0.001	117	70-130	1.83	20	
Ethylbenzene	0.107	0.002	"	0.100	ND	107	70-130	2.55	20	
m,p-Xylene	0.209	0.004	"	0.200	ND	104	70-130	1.91	20	
o-Xylene	0.105	0.002	"	0.100	ND	105	70-130	2.14	20	
Naphthalene	0.102	0.007	"	0.100	ND	102	70-130	18.2	20	
Surrogate: 1,2-Dichloroethane-d4	68		ug/kg	62.5		109	70-130			
Surrogate: Toluene-d8	64		"	62.5		102	70-130			
Surrogate: 4-Bromofluorobenzene	53		"	62.5		84.7	70-130			

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Denver CO 80211

Martin C Eckert III
Project Number: [none]
Project: Noble - Lone Pine LB19-78HN

Volatile Organic Compounds by GC/MS SW846 8260C - Quality Control
Origins Laboratory, Inc.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B7J1901 - EPA 5030 (soil)										
Matrix Spike Dup (B7J1901-MSD2)	Source: Y710282-05				Prepared: 10/19/2017 Analyzed: 10/19/2017					
Benzene	0.098	0.002	mg/kg	0.100	ND	98.0	70-130	7.65	20	
Toluene	0.101	0.002	"	0.100	ND	101	70-130	6.30	20	
Ethylbenzene	0.095	0.002	"	0.100	ND	94.8	70-130	15.9	20	
m,p-Xylene	0.185	0.004	"	0.200	ND	92.3	70-130	14.9	20	
o-Xylene	0.094	0.002	"	0.100	ND	94.4	70-130	12.8	20	
Naphthalene	0.080	0.007	"	0.100	ND	80.5	70-130	20.8	20	QM-07
Surrogate: 1,2-Dichloroethane-d4	66		ug/kg	62.5		106	70-130			
Surrogate: Toluene-d8	66		"	62.5		106	70-130			
Surrogate: 4-Bromofluorobenzene	68		"	62.5		109	70-130			

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Martin C Eckert III
Project Number: [none]
Project: Noble - Lone Pine LB19-78HN

Volatile Organic Compounds by GC/MS SW846 8260C - Quality Control
Origins Laboratory, Inc.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B7J1901 - EPA 5030 (soil)										
Matrix Spike Dup (B7J1901-MSD3)					Source: Y710290-01					
										Prepared: 10/19/2017 Analyzed: 10/19/2017
Benzene	0.101	0.002	mg/kg	0.100	ND	101	70-130	5.67	20	
Toluene	0.106	0.002	"	0.100	ND	106	70-130	31.8	20	QR-02
Ethylbenzene	0.095	0.002	"	0.100	ND	95.3	70-130	8.44	20	
m,p-Xylene	0.187	0.004	"	0.200	ND	93.5	70-130	7.65	20	
o-Xylene	0.096	0.002	"	0.100	ND	95.6	70-130	6.28	20	
Naphthalene	0.106	0.007	"	0.100	ND	106	70-130	2.93	20	
Surrogate: 1,2-Dichloroethane-d4	62		ug/kg	62.5		98.6	70-130			
Surrogate: Toluene-d8	63		"	62.5		101	70-130			
Surrogate: 4-Bromofluorobenzene	63		"	62.5		101	70-130			

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Martin C Eckert III
Project Number: [none]
Project: Noble - Lone Pine LB19-78HN

Volatile Organic Compounds by GC/MS SW846 8260C - Quality Control

Origins Laboratory, Inc.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Extractable Petroleum Hydrocarbons by 8015C - Quality Control

Origins Laboratory, Inc.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch B7J1806 - EPA 3550B

Blank (B7J1806-BLK1)

Prepared: 10/18/2017 Analyzed: 10/19/2017

Diesel (C10-C28)	ND	50.0	mg/kg							U
Surrogate: o-Terphenyl	33		"	50.0		66.3	59-131			

LCS (B7J1806-BS1)

Prepared: 10/18/2017 Analyzed: 10/18/2017

Diesel (C10-C28)	1130	50.0	mg/kg	1000		113	64-121			
Surrogate: o-Terphenyl	52		"	50.0		104	59-131			

Matrix Spike (B7J1806-MS1)

Source: Y710268-01

Prepared: 10/18/2017 Analyzed: 10/18/2017

Diesel (C10-C28)	1030	50.0	mg/kg	1000	ND	103	53-125			
Surrogate: o-Terphenyl	47		"	50.0		93.5	59-131			

Matrix Spike Dup (B7J1806-MSD1)

Source: Y710268-01

Prepared: 10/18/2017 Analyzed: 10/18/2017

Diesel (C10-C28)	1140	50.0	mg/kg	1000	ND	114	53-125	9.77	20	
Surrogate: o-Terphenyl	54		"	50.0		108	59-131			

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Martin C Eckert III
Project Number: [none]
Project: Noble - Lone Pine LB19-78HN

Classical Chemistry Parameters - Quality Control Origins Laboratory, Inc.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B7J2403 - NO PREP										
Duplicate (B7J2403-DUP1)		Source: Y710176-01			Prepared: 10/24/2017 Analyzed: 10/24/2017					
pH	8.09		pH Units		8.19			1.23	25	
Batch B7J2404 - NO PREP										
Blank (B7J2404-BLK1)		Prepared: 10/24/2017 Analyzed: 10/24/2017								
Specific Conductance (EC)	0.00500		mmhos/cm							
Duplicate (B7J2404-DUP1)		Source: Y710176-01			Prepared: 10/24/2017 Analyzed: 10/24/2017					
Specific Conductance (EC)	0.389		mmhos/cm		0.402			3.08	25	

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Eagle Environmental Consulting, Inc.

4101 Inca Street

Denver CO 80211

Martin C Eckert III

Project Number: [none]

Project: Noble - Lone Pine LB19-78HN

Notes and Definitions

U Sample is Non-Detect.

QR-02 The RPD result exceeded the QC control limits; however, both percent recoveries were acceptable. Sample results for the QC batch were accepted based on percent recoveries and completeness of QC data.

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

ND Analyte NOT DETECTED at or above the reporting limit

RPD Relative Percent Difference

All soil results are reported at a wet weight basis.

Origins Laboratory, Inc.



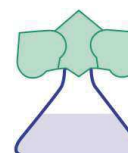
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American Agricultural Laboratory, Inc.

700 West D Street / PO Box 370 / McCook, Nebraska 69001

Office: 308-345-3670 / FAX: 308-345-7880

www.AmAgLab.com



95029

ORIGINS LABORATORY INC

1725 ELK PLACE

DENVER CO 80211

NAME : ORIGINS

DATE RECEIVED: 10/23/2017

DATE REPORTED: 10/25/2017

SOIL TEST RESULTS

LAB NUMBER	FIELD IDENTIFICATION	SAMPLE IDENTIFICATION	Depth Inches	pH		EL	SOLUBLE SALTS mod. SP mmhos/cm	OM LOI %	NITRATE-N (FIA)		PHOSPHORUS				
				1 : 1 Soil	Buffer Woodruff				ppm	lbs/A	P1 ppm	Bicarb ppm	P2 ppm	M2 ppm	M3 ppm
2495272	Y710176	01	0-8												

LAB NUMBER	SULFATE-S Ca-P ppm	NH4OAc (Exchangeable)				DTPA				BORON Sorbitol ppm	EST. CATION EXCHANGE CAPACITY (CEC) me/100g	% SATURATION					
		K ppm	Ca ppm	Mg ppm	Na ppm	Zn ppm	Fe ppm	Mn ppm	Cu ppm			BASE	H	Ca	Mg	K	Na
2495272																	

LAB NUMBER	SOLUBLE (SAT. EXT.)			SODIUM ADSORPTION RATIO (SAR)	EXCH. SODIUM PERCENT (ESP)	GYPSUM REQ T/A	PARTICLE SIZE ANALYSIS				CHLORIDE		EXCH. NH4-N		ALUMINUM ppm	TOTAL N %
	Ca me/L	Mg me/L	Na me/L				SAND %	SILT %	CLAY %	SOIL TEXTURE	ppm	lbs/A	ppm	lbs/A		
2495272	7.41	1.45	14.11	6.70	9											

SUGGESTED FERTILIZER RECOMMENDATIONS

LAB NUMBER	FIELD IDENTIFICATION	SAMPLE IDENTIFICATION	CROP TO BE GROWN	YIELD GOAL	N	P2O5	K2O	S	Zn	MgO	Fe	Mn	Cu	B	Cl	LIME REC 60% ECCE T/A
2495272	Y710176	01														

Analysis By: American Agricultural Lab

Recommendations By: American Agricultural Lab



Your Lab's letterhead here...

Address

City, St. Zip

Phone/Fax

SUBCONTRACT ORDER

Sending Laboratory:

Origins Laboratory, Inc.
1725 West Elk Place
Denver, CO 80211
Phone: 303.433.1322
Fax: 303.265.9645

Project Manager: Noelle Doyle Mathis

Subcontracted Laboratory:

American Agricultural Laboratory, Inc
210 East 1st Street
McCook, NE 69001
Phone: (308) 345-3670
Fax: (308) 345-7880

Work Order: Y710176

Analysis	Due	Expires	Comments
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Sample ID: Y710176-01 *Soil* **Sampled: 10/12/2017 14:06**

SAR (Saturated Paste Prep) ~~10/19/2017~~ 10/13/2017 14:06

Containers Supplied:

Please report by 10/24/2017.



Released By

Date

Received By

Date