



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

Billy #22-45
Water Vault Removal
40.382769 / -104.645676
NW¼ SE¼ SEC.22 T5N R65W 6PM
Weld County, Colorado
Location ID 306168

Dear Mr. Evans,

Eagle Environmental Consulting, Inc. (EAGLE) is pleased to present the results from the water vault removal at the Billy #22-45 site (site).

On October 24, 2017, EAGLE collected soil samples and a grab groundwater sample following the removal of the water vault at the site. Per Noble Standard Operation Procedures, a soil sample was collected from each sidewall for field screening. Groundwater was observed at a depth of approximately 5 feet below ground surface (bgs), and therefore a floor soil sample was not collected. The sidewall soil sample with the highest photoionization detector (PID) reading (SS-03@2.5') and the grab groundwater sample (GW-01) were submitted for laboratory analysis.

Based on laboratory analytical results, soil sample SS-03@2.5' 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. Grab groundwater sample, GW-01, did not contain concentrations of BTEX exceeding applicable COGCC Table 910-1 regulatory limits. Additionally, the sidewall soil sample's (SS-03@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: Sample Analytical Map



Topographic Site Location Map

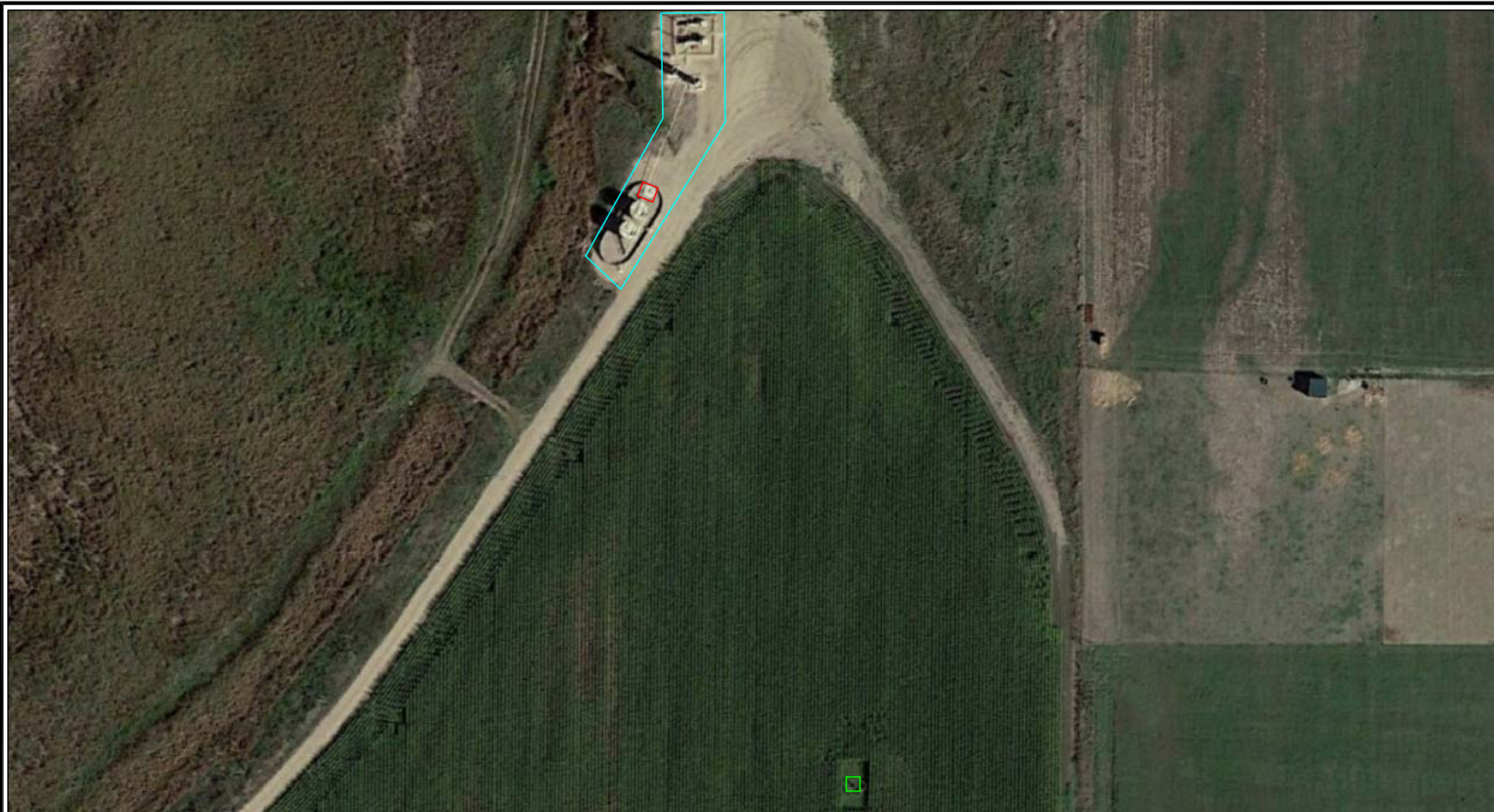
Billy #22-45
 Water Vault Removal
 40.382769 / -104.645676
 NW ¼ SE ¼ SEC.22 T5N R65W 6PM
 Weld County, Colorado
 Location ID 306168

Source: USGS 7.5 Minute Topographic
 Map, Greeley, CO Quadrangle 2013

Figure 1

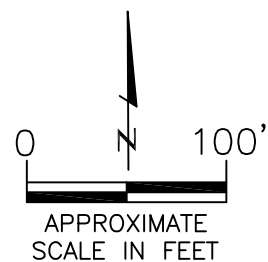


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LEGEND

- BILLY #22-45 TANK BATTERY
- BILLY #22-45 WELL HEAD
- APPROXIMATE LOCATION OF WATER VAULT REMOVAL



AERIAL SITE LOCATION MAP

BILLY #22-45
 WATER VAULT REMOVAL
 40.382769 / -104.645676
 NW1/4 SE1/4 SEC.22 T5N R65W 6PM
 WELD COUNTY, COLORADO
 LOCATION ID 306168

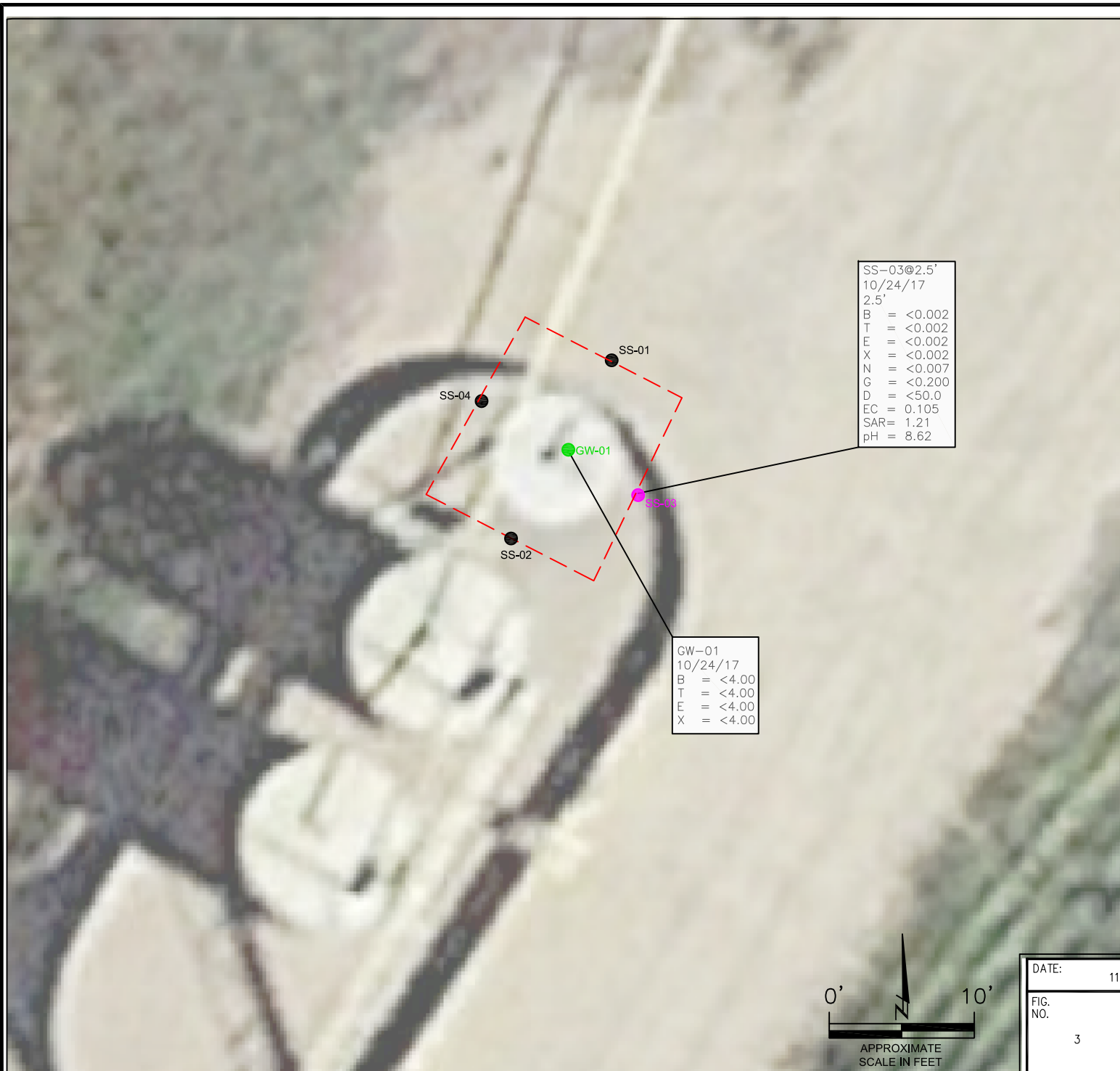
DATE: 11/01/17

FIG. NO.
2

DRAWN BY:
AMN



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



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

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

- GW-01 APPROXIMATE LOCATION OF GROUNDWATER SAMPLE SUBMITTED FOR LABORATORY ANALYSIS

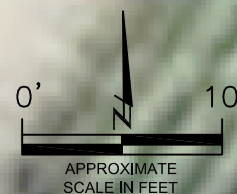
PARAMETERS

GROUNDWATER SAMPLE LOCATION
DATE
B = BENZENE (µg/L)
T = TOLUENE (µg/L)
E = ETHYLBENZENE (µg/L)
X = TOTAL XYLENES (µg/L)

µg/L = MICROGRAMS PER LITER

SAMPLE ANALYTICAL MAP

BILLY #22-45
WATER VAULT REMOVAL
40.382769 / -104.645676
NW1/4 SE1/4 SEC.22 T5N R65W 6PM
WELD COUNTY, COLORADO
LOCATION ID 306168



DATE: 11/01/17

FIG. NO. 3

DRAWN BY: amn



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



ATTACHMENT A

Laboratory Analytical Report



October 31, 2017

Eagle Environmental Consulting, Inc.

Martin C Eckert III

4101 Inca Street

Denver

CO 80211

Project Name - Noble - Billy #22-45

Project Number - [none]

Attached are your analytical results for Noble - Billy #22-45 received by Origins Laboratory, Inc. October 24, 2017. This project is associated with Origins project number Y710352-01.

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 - Billy #22-45

CROSS REFERENCE REPORT

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
SS-03 @ 2.5'	Y710352-01	Soil	October 24, 2017 15:20	10/24/2017 18:11
GW-01	Y710352-02	Water	October 24, 2017 15:15	10/24/2017 18:11

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.

Jen Pellegrini For Noelle Doyle Mathis, President

Martin C Eckert III
Project Number: [none]
Project: Noble - Billy #22-45

www.originslaboratory.com

page / of /

ORIGINS LABORATORY, INC.

Client: Eagle Env. Consulting, Inc.
Address: 4101 Ave Street
Denver, CO, 80211

Telephone Number: 303-433-0477
Email Address: MCE@eagle-enviro.com

Project Manager: Martin Eckert III
Project Name: Billy #22-45
Project Number: -
Samples Collected By: A Newberry

Sample ID Description	Date Sampled	Time Sampled	# of Containers	Preservative				Matrix			Analysis				Sample Instructions
				Unpreserved	HCl	HNO ₃	Other	Groundwater	Soil	Air Summary Container #	Other	GEO	BTEX	DRO	
SF-03 @ L.S'	10/24/17	1520	2	X					X			X	X	+ X	1
GLW-CI	10/24/17	1515	3	X				X				X			2
															3
															4
															5
															6
															7
															8
															9
															10 AM
Relinquished By:	Date: 10/24/17	Time: 1811		Received By:	Date: 10/24/17	Time: 1811		Turnaround Time: Same Day <input type="checkbox"/> 24 Hr <input type="checkbox"/> 48 Hr <input type="checkbox"/> 72 Hr <input type="checkbox"/>							
Relinquished By:	Date:	Time:		Received By:	Date: 10/24/17	Time: 1811		Standard <input checked="" type="checkbox"/>							

P.C.# 4125777929
Code 247038

Temp Received: 5.9

Date Results Needed

(A) Note

Fax: 303.265.9645

Phone: 303.433.1322

Denver, CO 80211

1725 Elk Place

Origins Laboratory, Inc.

Jose Pellegrini

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 - Billy #22-45

Origins Laboratory

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

Sample Receipt Checklist

Origins Work Order: Y710352

Client: Eagle Environmental

Client Project ID: Billy #22-45

Checklist Completed by: Joe Henderson

Shipped Via: HB

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

Date/time completed: 10/24/17 1735

Airbill #:

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

Cooler Number/Temperature: 1 / 1 °C 1 / 1 °C 1 / 1 °C (Describe) °C

Thermometer ID: T003

Requirement Description	Yes	No	N/A	Comments (if any)
If samples require cooling, was the temperature between 0°C to ≤ 6°C ⁽¹⁾ ?				
Is there ice present (document if blue ice is used)	<input checked="" type="checkbox"/>			
Are custody seals present on cooler? (if so, document in comments if they are signed and dated, broken or intact)		<input checked="" 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 checked="" type="checkbox"/>		
Were all samples received intact ⁽¹⁾ ?	<input checked="" type="checkbox"/>			
Was adequate sample volume provided ⁽¹⁾ ?	<input checked="" type="checkbox"/>			
Are short holding time analytes or samples with HTs due within 48 hours present ⁽¹⁾ ?	<input checked="" type="checkbox"/>			P#
Is a chain-of-custody (COC) 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 with date and time recorded ⁽¹⁾ ?	<input checked="" type="checkbox"/>			
For volatiles in water — is there headspace (> ¼ inch bubble) present? If yes, contact client and note in narrative.		<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 checked="" type="checkbox"/>			HCL
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)

10/24/17
Date/Time Reviewed

Origins Laboratory, Inc.

Joe Pellegrini

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 - Billy #22-45

SS-03 @ 2.5'

10/24/2017 3:20:00PM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc. Y710352-01 (Soil)

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

Diesel (C10-C28)	ND	50.0	mg/kg	1	B7J2409	10/24/2017	10/24/2017	U
Surrogate: o-Terphenyl	77.5 %	59-131			"	"	"	

GBTEX + Napthalene by 8260C

Gasoline Range Hydrocarbons	ND	0.200	mg/kg	1	B7J2408	10/24/2017	10/24/2017	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	106 %	70-130			"	"	"	
Surrogate: Toluene-d8	99.6 %	70-130			"	"	"	
Surrogate: 4-Bromofluorobenzene	97.9 %	70-130			"	"	"	

Metals (Saturated Paste Prep)

Calcium	2.76		me/L	1	'[none]'	10/26/2017	10/30/2017	
Magnesium	1.38		"	"	"	"	"	
Sodium	1.74		"	"	"	"	"	

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 - Billy #22-45

SS-03 @ 2.5'

10/24/2017 3:20:00PM

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

Origins Laboratory, Inc.
Y710352-01 (Soil)

pH in Soil by EPA 9045D

pH	8.62	pH Units	1	B7J2403	10/24/2017	10/24/2017
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SAR by 20B Saturated Paste

SAR	1.21		1	'[none]'	10/26/2017	10/30/2017
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Specific Conductance by Modified 9050A

Specific Conductance (EC)	0.105	mmhos/cm	1	B7J2404	10/24/2017	10/24/2017
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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 - Billy #22-45

GW-01

10/24/2017 3:15:00PM

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Notes
		Limit							

Origins Laboratory, Inc.

Y710352-02 (Water)

BTEX by EPA 8260C

Benzene	ND	4.00	ug/L	4	B7J2401	10/24/2017	10/24/2017	U
Toluene	ND	4.00	"	"	"	"	"	U
Ethylbenzene	ND	4.00	"	"	"	"	"	U
Xylenes, total	ND	4.00	"	"	"	"	"	U

Surrogate: 1,2-Dichloroethane-d4	106 %	84-121	"	"	"
Surrogate: Toluene-d8	99.4 %	85-115	"	"	"
Surrogate: 4-Bromofluorobenzene	99.1 %	84-114	"	"	"

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 - Billy #22-45

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 B7J2401 - EPA 5030B (Water)

Blank (B7J2401-BLK1)

Prepared: 10/24/2017 Analyzed: 10/24/2017

Benzene	ND	1.00	ug/L							U
Toluene	ND	1.00	"							U
Ethylbenzene	ND	1.00	"							U
Xylenes, total	ND	1.00	"							U
Surrogate: 1,2-Dichloroethane-d4	64		"	62.5	103		84-121			
Surrogate: Toluene-d8	63		"	62.5	101		85-115			
Surrogate: 4-Bromofluorobenzene	62		"	62.5	98.8		84-114			

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 - Billy #22-45

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 B7J2401 - EPA 5030B (Water)

LCS (B7J2401-BS1)

Prepared: 10/24/2017 Analyzed: 10/24/2017

Benzene	48.3	1.00	ug/L	50.0		96.6	73.3-129
Toluene	52.1	1.00	"	50.0		104	76.2-123
Ethylbenzene	55.5	1.00	"	50.0		111	73.6-130
m,p-Xylene	97.7	2.00	"	100		97.7	76.1-126
o-Xylene	50.5	1.00	"	50.0		101	76.6-124
Surrogate: 1,2-Dichloroethane-d4	67		"	62.5		108	84-121
Surrogate: Toluene-d8	62		"	62.5		99.5	85-115
Surrogate: 4-Bromofluorobenzene	63		"	62.5		101	84-114

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 - Billy #22-45

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 B7J2401 - EPA 5030B (Water)

Matrix Spike (B7J2401-MS1)		Source: Y710247-01			Prepared: 10/24/2017 Analyzed: 10/24/2017					
Benzene	53.5	1.00	ug/L	50.0	0.150	107	74-130			
Toluene	57.4	1.00	"	50.0	ND	115	73-131			
Ethylbenzene	62.9	1.00	"	50.0	ND	126	76-132			
m,p-Xylene	105	2.00	"	100	ND	105	69-139			
o-Xylene	53.8	1.00	"	50.0	ND	108	74-131			
Surrogate: 1,2-Dichloroethane-d4	65		"	62.5		104	84-121			
Surrogate: Toluene-d8	62		"	62.5		98.7	85-115			
Surrogate: 4-Bromofluorobenzene	62		"	62.5		99.0	84-114			

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 - Billy #22-45

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 B7J2401 - EPA 5030B (Water)

Matrix Spike Dup (B7J2401-MSD1)		Source: Y710247-01			Prepared: 10/24/2017 Analyzed: 10/24/2017					
Benzene	53.6	1.00	ug/L	50.0	0.150	107	74-130	0.299	20	
Toluene	58.8	1.00	"	50.0	ND	118	73-131	2.43	20	
Ethylbenzene	61.9	1.00	"	50.0	ND	124	76-132	1.57	20	
m,p-Xylene	101	2.00	"	100	ND	101	69-139	3.26	20	
o-Xylene	52.6	1.00	"	50.0	ND	105	74-131	2.16	20	
Surrogate: 1,2-Dichloroethane-d4	59		"	62.5		95.1	84-121			
Surrogate: Toluene-d8	63		"	62.5		100	85-115			
Surrogate: 4-Bromofluorobenzene	62		"	62.5		98.4	84-114			

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4101 Inca Street
Denver CO 80211

Martin C Eckert III
Project Number: [none]
Project: Noble - Billy #22-45

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 B7J2408 - EPA 5030 (soil)										
Blank (B7J2408-BLK1)					Prepared: 10/24/2017 Analyzed: 10/24/2017					
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	64		ug/kg	62.5		103	70-130			
Surrogate: Toluene-d8	50		"	62.5		80.2	70-130			
Surrogate: 4-Bromofluorobenzene	64		"	62.5		103	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 - Billy #22-45

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 B7J2408 - EPA 5030 (soil)										
LCS (B7J2408-BS1)					Prepared: 10/24/2017 Analyzed: 10/24/2017					
Benzene	0.097	0.002	mg/kg	0.100		96.6	70-130			
Toluene	0.104	0.002	"	0.100		104	70-130			
Ethylbenzene	0.106	0.002	"	0.100		106	70-130			
m,p-Xylene	0.194	0.004	"	0.200		96.8	70-130			
o-Xylene	0.100	0.002	"	0.100		100	70-130			
Naphthalene	0.086	0.007	"	0.100		85.6	70-130			
Surrogate: 1,2-Dichloroethane-d4	64		ug/kg	62.5		102	70-130			
Surrogate: Toluene-d8	62		"	62.5		99.8	70-130			
Surrogate: 4-Bromofluorobenzene	60		"	62.5		96.6	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 - Billy #22-45

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 B7J2408 - EPA 5030 (soil)										
Matrix Spike (B7J2408-MS1)		Source: Y710345-01			Prepared: 10/24/2017 Analyzed: 10/24/2017					
Benzene	2.79	0.050	mg/kg	2.50	ND	112	70-130			
Toluene	3.05	0.050	"	2.50	ND	122	70-130			
Ethylbenzene	2.96	0.050	"	2.50	ND	119	70-130			
m,p-Xylene	5.46	0.100	"	5.00	ND	109	70-130			
o-Xylene	2.80	0.050	"	2.50	ND	112	70-130			
Naphthalene	2.45	0.175	"	2.50	ND	97.9	70-130			
Surrogate: 1,2-Dichloroethane-d4	58		ug/kg	62.5		92.6	70-130			
Surrogate: Toluene-d8	61		"	62.5		98.2	70-130			
Surrogate: 4-Bromofluorobenzene	61		"	62.5		97.0	70-130			

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 - Billy #22-45

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 B7J2408 - EPA 5030 (soil)										
Matrix Spike Dup (B7J2408-MSD1)		Source: Y710345-01			Prepared: 10/24/2017 Analyzed: 10/24/2017					
Benzene	2.80	0.050	mg/kg	2.50	ND	112	70-130	0.161	20	
Toluene	3.05	0.050	"	2.50	ND	122	70-130	0.0984	20	
Ethylbenzene	2.96	0.050	"	2.50	ND	119	70-130	0.00	20	
m,p-Xylene	5.44	0.100	"	5.00	ND	109	70-130	0.257	20	
o-Xylene	2.81	0.050	"	2.50	ND	113	70-130	0.552	20	
Naphthalene	2.54	0.175	"	2.50	ND	102	70-130	3.83	20	
Surrogate: 1,2-Dichloroethane-d4	59		ug/kg	62.5		93.9	70-130			
Surrogate: Toluene-d8	60		"	62.5		96.3	70-130			
Surrogate: 4-Bromofluorobenzene	61		"	62.5		97.2	70-130			

Origins Laboratory, Inc.



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4101 Inca Street
Denver CO 80211

Martin C Eckert III
Project Number: [none]
Project: Noble - Billy #22-45

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 B7J2409 - EPA 3580

Blank (B7J2409-BLK1)

Prepared: 10/24/2017 Analyzed: 10/24/2017

Diesel (C10-C28)	ND	50.0	mg/kg							U
Surrogate: o-Terphenyl	40		"	50.0		80.2	59-131			

LCS (B7J2409-BS1)

Prepared: 10/24/2017 Analyzed: 10/24/2017

Diesel (C10-C28)	1080	50.0	mg/kg	1000		108	64-121			
Surrogate: o-Terphenyl	51		"	50.0		101	59-131			

Matrix Spike (B7J2409-MS1)

Source: Y710345-01

Prepared: 10/24/2017 Analyzed: 10/24/2017

Diesel (C10-C28)	1000	50.0	mg/kg	1000	ND	100	53-125			
Surrogate: o-Terphenyl	46		"	50.0		91.3	59-131			

Matrix Spike Dup (B7J2409-MSD1)

Source: Y710345-01

Prepared: 10/24/2017 Analyzed: 10/24/2017

Diesel (C10-C28)	895	50.0	mg/kg	1000	ND	89.5	53-125	11.4	20	
Surrogate: o-Terphenyl	39		"	50.0		78.6	59-131			

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Denver CO 80211

Martin C Eckert III
Project Number: [none]
Project: Noble - Billy #22-45

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	

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 - Billy #22-45

Notes and Definitions

U Sample is Non-Detect.

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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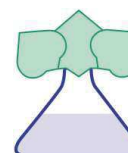
Jen Pellegrini For Noelle Doyle Mathis, President

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: 10/26/2017

DATE REPORTED: 10/30/2017

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
2496721	Y710352	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
2496721																	

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		
2496721	2.76	1.38	1.74	1.21	1	0										

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
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2496721	Y710352	01														
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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: Y710352

Analysis	Due	Expires	Comments
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Sample ID: Y710352-01 *Soil* **Sampled: 10/24/2017 15:20**

SAR (Saturated Paste Prep) 11/01/2017 10/25/2017 15:20

Containers Supplied:



Released By

Date

Received By

Date