

LEGEND

IMAGE COURTESY OF ESRI/USGS

○ SITE LOCATION

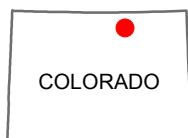
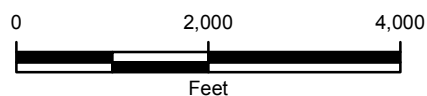


FIGURE 1
SITE LOCATION MAP
CECIL USX A01-13, 14
WELD COUNTY, COLORADO

NOBLE ENERGY, INC.





October 28, 2014

LT Environmental, Inc.

Chris Roy

4600 West 60th Avenue

Arvada

CO 80003

Project Name - Noble - Cecil USX A01-13-14

Project Number - 008314072

Attached are your analytical results for Noble - Cecil USX A01-13-14 received by Origins Laboratory, Inc. October 21, 2014. This project is associated with Origins project number X410227-01.

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

LT Environmental, Inc.
4600 West 60th Avenue
Arvada CO 80003

Chris Roy
Project Number: 008314072
Project: Noble - Cecil USX A01-13-14

CROSS REFERENCE REPORT

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
SS01 @ 6'	X410227-01	Soil	October 21, 2014 14:55	10/21/2014 17:00
SS04 @ 2'	X410227-02	Soil	October 21, 2014 15:02	10/21/2014 17:00

Origins Laboratory, Inc.



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LT Environmental, Inc.
4600 West 60th Avenue
Arvada CO 80003

Chris Roy
Project Number: 008314072
Project: Noble - Cecil USX A01-13-14

www.originslaboratory.com

X410277

ORIGINS
LABORATORY, INC

LTE

Client: Noble/008314072
Project Manager/Send Report To: Chris Roy
Address: 4600 West 60th Avenue
Email Address: CRoy@Ltenv.com
Project Name/Number: 008314072 Cecil USX A01-13-14
Telephone Number:
Samples Collected By: Jayson E. Gange, L.S.T.

1725 Elk Place | Phone: 303.433.1322 | Fax: 303.265.9645

Sample ID Description	Date Sampled	Time Sampled	# of Containers	Preservative				Matrix			Analysis/Method	Sample Instructions
				Unpreserved	HCl	HNO ₃	Other	Groundwater	Soil	Air Summa Canister #		
55006	10/21/14	14:55	1	X							X	1
55007	10/21/14	15:02	2								X	2
											X	3
											X	4
											X	5
											X	6
											X	7
											X	8
											X	9
											X	10

Relinquished By:	Date:	Time:	Received By:	Date:	Time:	Turnaround Time:
<u>[Signature]</u>	<u>10/21/14</u>	<u>1700</u>	<u>[Signature]</u>	<u>10/21/14</u>	<u>1700</u>	Same Day <input checked="" type="checkbox"/> 24 Hr <input type="checkbox"/> 48 Hr <input type="checkbox"/> 72 Hr <input type="checkbox"/> Standard <input type="checkbox"/>

Date Results Needed:

Comments:

Origins Laboratory, Inc.

Jefe Pellegrini

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LT Environmental, Inc.
4600 West 60th Avenue
Arvada CO 80003

Chris Roy
Project Number: 008314072
Project: Noble - Cecil USX A01-13-14

Origins Laboratory

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

Sample Receipt Checklist

Origins Work Order: X410227

Client: LTE
Client Project ID: CEG1 USX A01-13, 14

Checklist Completed by: Jeff Smith
Date/time completed: 10/21/14

Shipped Via: Pick Up
(UPS, FedEx, Hand Delivered, Pick-up, etc.)
Airbill #: NA

Matrix(s) Received: (Check all that apply): ☒ Soil/Solid ☐ Water ☐ Other: _____
(Describe)
Cooler Number/Temperature: _____ / 4.1 °C _____ / _____ °C _____ / _____ °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⁾ ?	<input checked="" type="checkbox"/>			
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"/>			PH
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"/>		COC- 5502 @ 2' Sample Containers 5504 @ 2'
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"/>	
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.

JP
Reviewed by (Project Manager)

10-21-14
Date/Time Reviewed

Origins Laboratory, Inc.

Jeff Pellegrini

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LT Environmental, Inc.
4600 West 60th Avenue
Arvada CO 80003

Chris Roy
Project Number: 008314072
Project: Noble - Cecil USX A01-13-14

SS01 @ 6'

10/21/2014 2:55:00PM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.
X410227-01 (Soil)

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

Diesel (C10-C28)	ND	50.0	mg/kg	1	4J21012	10/21/2014	10/21/2014
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Surrogate: o-Terphenyl	90.3 %	59-131			"	"	"
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GBTEX + Napthalene by 8260C

Gasoline Range Hydrocarbons	ND	5.00	mg/kg	25	4J21009	10/21/2014	10/21/2014
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Benzene	ND	0.05	"	"	"	"	10/21/2014
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Toluene	ND	0.05	"	"	"	"	"
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Ethylbenzene	ND	0.05	"	"	"	"	"
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Xylenes, total	ND	0.05	"	"	"	"	"
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Naphthalene	ND	0.20	"	"	"	"	"
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Surrogate: 1,2-Dichloroethane-d4	81.1 %	70-130			"	"	"
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Surrogate: Toluene-d8	98.4 %	70-130			"	"	"
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Surrogate: 4-Bromofluorobenzene	98.7 %	70-130			"	"	"
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Origins Laboratory, Inc.



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LT Environmental, Inc.
4600 West 60th Avenue
Arvada CO 80003

Chris Roy
Project Number: 008314072
Project: Noble - Cecil USX A01-13-14

SS04 @ 2'

10/21/2014 3:02:00PM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc. X410227-02 (Soil)

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

Diesel (C10-C28)	ND	50.0	mg/kg	1	4J21012	10/21/2014	10/21/2014
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Surrogate: o-Terphenyl	90.2 %	59-131			"	"	"
------------------------	--------	--------	--	--	---	---	---

GBTEX + Napthalene by 8260C

Gasoline Range Hydrocarbons	ND	5.00	mg/kg	25	4J21009	10/21/2014	10/21/2014
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Benzene	ND	0.05	"	"	"	"	10/21/2014
---------	----	------	---	---	---	---	------------

Toluene	ND	0.05	"	"	"	"	"
---------	----	------	---	---	---	---	---

Ethylbenzene	ND	0.05	"	"	"	"	"
--------------	----	------	---	---	---	---	---

Xylenes, total	ND	0.05	"	"	"	"	"
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Naphthalene	ND	0.20	"	"	"	"	"
-------------	----	------	---	---	---	---	---

Surrogate: 1,2-Dichloroethane-d4	80.0 %	70-130			"	"	"
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Surrogate: Toluene-d8	99.7 %	70-130			"	"	"
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Surrogate: 4-Bromofluorobenzene	99.1 %	70-130			"	"	"
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pH in Soil by EPA 9045D

pH	8.51		pH Units	1	4J22014	10/22/2014	10/22/2014
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SAR Metals by SW846 3050B/6010C

Calcium	10100	26.0	mg/kg dry	1	1429725	10/23/2014	10/24/2014
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Magnesium	2420	31.2	"	"	"	"	"
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Origins Laboratory, Inc.



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LT Environmental, Inc.
4600 West 60th Avenue
Arvada CO 80003

Chris Roy
Project Number: 008314072
Project: Noble - Cecil USX A01-13-14

SS04 @ 2'

10/21/2014 3:02:00PM

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Notes
		Limit							

GEL Laboratories, LLC
X410227-02 (Soil)

SAR Metals by SW846 3050B/6010C

Sodium	332	26.0	mg/kg dry	1	1429725	10/23/2014	10/24/2014
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Sodium Adsorption Ratio

Sodium Adsorption Ratio	0.769		none	1	1431195		10/28/2014
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Specific Conductance by Modified 9050A

Specific Conductance (EC)	0.115		mmhos/cm	1	4J22015	10/22/2014	10/22/2014
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Origins Laboratory, Inc.



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LT Environmental, Inc.
4600 West 60th Avenue
Arvada CO 80003

Chris Roy
Project Number: 008314072
Project: Noble - Cecil USX A01-13-14

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 4J21009 - EPA 5030 (soil)										
Blank (4J21009-BLK1)					Prepared: 10/21/2014 Analyzed: 10/21/2014					
Gasoline Range Hydrocarbons	ND	0.20	mg/kg							
Benzene	ND	0.002	"							
Toluene	ND	0.002	"							
Ethylbenzene	ND	0.002	"							
Xylenes, total	ND	0.002	"							
Naphthalene	ND	0.008	"							
Surrogate: 1,2-Dichloroethane-d4	52		ug/kg	62.5		83.1	70-130			
Surrogate: Toluene-d8	62		"	62.5		98.6	70-130			
Surrogate: 4-Bromofluorobenzene	62		"	62.5		98.6	70-130			

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Arvada CO 80003

Chris Roy
Project Number: 008314072
Project: Noble - Cecil USX A01-13-14

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 4J21009 - EPA 5030 (soil)										
LCS (4J21009-BS1)					Prepared: 10/21/2014 Analyzed: 10/21/2014					
Benzene	0.11	0.002	mg/kg	0.100		107	70-130			
Toluene	0.10	0.002	"	0.100		101	70-130			
Ethylbenzene	0.11	0.002	"	0.100		108	70-130			
m,p-Xylene	0.21	0.004	"	0.200		104	70-130			
o-Xylene	0.10	0.002	"	0.100		103	70-130			
Naphthalene	0.08	0.008	"	0.100		82.6	70-130			
Surrogate: 1,2-Dichloroethane-d4	51		ug/kg	62.5		82.1	70-130			
Surrogate: Toluene-d8	63		"	62.5		101	70-130			
Surrogate: 4-Bromofluorobenzene	64		"	62.5		103	70-130			

Origins Laboratory, Inc.



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LT Environmental, Inc.
4600 West 60th Avenue
Arvada CO 80003

Chris Roy
Project Number: 008314072
Project: Noble - Cecil USX A01-13-14

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 4J21009 - EPA 5030 (soil)

Matrix Spike (4J21009-MS1)		Source: X410169-01			Prepared: 10/21/2014 Analyzed: 10/21/2014					
Benzene	0.10	0.002	mg/kg	0.100	ND	102	70-130			
Toluene	0.10	0.002	"	0.100	ND	99.7	70-130			
Ethylbenzene	0.11	0.002	"	0.100	ND	110	70-130			
m,p-Xylene	0.21	0.004	"	0.200	ND	105	70-130			
o-Xylene	0.10	0.002	"	0.100	ND	104	70-130			
Naphthalene	0.08	0.008	"	0.100	0.002	81.8	70-130			
Surrogate: 1,2-Dichloroethane-d4	52		ug/kg	62.5		83.6	70-130			
Surrogate: Toluene-d8	64		"	62.5		103	70-130			
Surrogate: 4-Bromofluorobenzene	63		"	62.5		101	70-130			

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Chris Roy
Project Number: 008314072
Project: Noble - Cecil USX A01-13-14

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 4J21009 - EPA 5030 (soil)										
Matrix Spike Dup (4J21009-MSD1)					Source: X410169-01					Prepared: 10/21/2014 Analyzed: 10/21/2014
Benzene	0.11	0.002	mg/kg	0.100	ND	110	70-130	8.32	20	
Toluene	0.10	0.002	"	0.100	ND	103	70-130	3.35	20	
Ethylbenzene	0.11	0.002	"	0.100	ND	112	70-130	2.12	20	
m,p-Xylene	0.22	0.004	"	0.200	ND	109	70-130	4.42	20	
o-Xylene	0.11	0.002	"	0.100	ND	110	70-130	5.87	20	
Naphthalene	0.09	0.008	"	0.100	0.002	91.9	70-130	11.3	20	
Surrogate: 1,2-Dichloroethane-d4	49		ug/kg	62.5		79.0	70-130			
Surrogate: Toluene-d8	63		"	62.5		101	70-130			
Surrogate: 4-Bromofluorobenzene	64		"	62.5		102	70-130			

Origins Laboratory, Inc.



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4600 West 60th Avenue
Arvada CO 80003

Chris Roy
Project Number: 008314072
Project: Noble - Cecil USX A01-13-14

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 8015M - 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 4J21012 - EPA 3580

Blank (4J21012-BLK1)

Prepared: 10/21/2014 Analyzed: 10/21/2014

Diesel (C10-C28) ND 50.0 mg/kg

Surrogate: o-Terphenyl 48 g 50.0 95.8 59-131

LCS (4J21012-BS1)

Prepared: 10/21/2014 Analyzed: 10/21/2014

Diesel (C10-C28) 904 50.0 mg/kg 1000 90.4 64-121

Surrogate: o-Terphenyl 48 g 50.0 96.3 59-131

Matrix Spike (4J21012-MS1)

Source: X410222-01

Prepared: 10/21/2014 Analyzed: 10/21/2014

Diesel (C10-C28) 869 50.0 mg/kg 1000 15.6 85.4 53-125

Surrogate: o-Terphenyl 43 g 50.0 85.2 59-131

Matrix Spike Dup (4J21012-MSD1)

Source: X410222-01

Prepared: 10/21/2014 Analyzed: 10/21/2014

Diesel (C10-C28) 889 50.0 mg/kg 1000 15.6 87.4 53-125 2.27 20

Surrogate: o-Terphenyl 44 g 50.0 87.3 59-131

Origins Laboratory, Inc.



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LT Environmental, Inc.
4600 West 60th Avenue
Arvada CO 80003

Chris Roy
Project Number: 008314072
Project: Noble - Cecil USX A01-13-14

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 4J22014 - NO PREP										
Duplicate (4J22014-DUP1)	Source: X410227-02				Prepared: 10/22/2014 Analyzed: 10/22/2014					
pH	8.44		pH Units		8.51			0.803	25	
Batch 4J22015 - NO PREP										
Blank (4J22015-BLK1)					Prepared: 10/22/2014 Analyzed: 10/22/2014					
Specific Conductance (EC)	0.00210		mmhos/cm							
Duplicate (4J22015-DUP1)	Source: X410227-02				Prepared: 10/22/2014 Analyzed: 10/22/2014					
Specific Conductance (EC)	0.113		mmhos/cm		0.115			1.58	25	

Origins Laboratory, Inc.



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4600 West 60th Avenue
Arvada CO 80003

Chris Roy
Project Number: 008314072
Project: Noble - Cecil USX A01-13-14

SAR Metals by SW846 3050B/6010C - Quality Control
GEL Laboratories, LLC

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 1429725 - SW846 3050B										
BLANK (1203193371-BLK)					Prepared: 10/23/2014 Analyzed: 10/24/2014					
Calcium	ND	24.8	mg/kg				-			U
Magnesium	ND	29.7	"				-			U
Sodium	ND	24.8	"				-			U
LCS (1203193372-BKS)					Prepared: 10/23/2014 Analyzed: 10/24/2014					
Calcium	486	24.1	mg/kg	483		101	80-120			
Magnesium	496	29.0	"	483		103	80-120			
Sodium	494	24.1	"	483		102	80-120			
DUP (1203193373 D)					Source: 359554001		Prepared: 10/23/2014 Analyzed: 10/24/2014			
Calcium	2490	24.8	mg/kg dry		2710		0-20	8.30	20	
Magnesium	2450	29.8	"		2600		0-20	5.88	20	
Sodium	229	24.8	"		234		0-20	2.01	20	
MS (1203193374 S)					Source: 359554001		Prepared: 10/23/2014 Analyzed: 10/24/2014			
Sodium	746	25.3	mg/kg dry	506	234	101	75-125			
Calcium	3230	25.3	"	506	2710	103	75-125			
Magnesium	3280	30.4	"	506	2600	134	75-125			

Origins Laboratory, Inc.



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LT Environmental, Inc.
4600 West 60th Avenue
Arvada CO 80003

Chris Roy
Project Number: 008314072
Project: Noble - Cecil USX A01-13-14

Notes and Definitions

U Result not detected above the detection limit

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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