

Oster 20-19

Water Vault Removal Sampling

SS01@6'

Former water vault outline

SS02@3'





October 02, 2014

LT Environmental, Inc.

Chris Roy

4600 West 60th Avenue

Arvada CO 80003

Project Name - Noble - Oster 20-19

Project Number - [none]

Attached are your analytical results for Noble - Oster 20-19 received by Origins Laboratory, Inc. September 29, 2014. This project is associated with Origins project number X409311-01.

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: [none]
Project: Noble - Oster 20-19

CROSS REFERENCE REPORT

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
SS01 @ 6'	X409311-01	Soil	September 29, 2014 12:15	09/29/2014 14:50
SS02 @ 3'	X409311-02	Soil	September 29, 2014 12:20	09/29/2014 14:50

Origins Laboratory, Inc.



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Noelle Doyle Mathis, President

LT Environmental, Inc.

4600 West 60th Avenue

Arvada CO 80003

Chris Roy

Project Number: [none]

Project: Noble - Oster 20-19

www.originslaboratory.com

X409311

ORIGINS
LABORATORY, INC

page ___ of ___

Client: LTE

Project Manager/Send Report To: Chris Roy

Email Address: CRoy@Ltenv.com

Project Name/Number: Oster 20-19

Samples Collected By: _____

Fax: 303.765.7645 Phone: 303.433.1322

Sample ID Description	Date Sampled	Time Sampled	# of Containers	Preservative				Matrix			Analysis/Method		Sample Instructions	
				Unpreserved	HCl	HNO ₃	Other	Groundwater	Soil	As Summed	Other	Depth		Other
550106	9/24/14	1215	1	X					X			X	SPR	1
550203	9/24/14	1220	1	X					X			X	SPR	2
														3
														4
														5
														6
														7
														8
														9
														10
Relinquished By: <u>[Signature]</u>	Date: <u>9/29/14</u>	Time: <u>1615</u>		Received By: <u>[Signature]</u>				Date: <u>9-29-14</u>		Time: <u>1450</u>		Turnaround Time: <input checked="" type="checkbox"/> Same Day <input type="checkbox"/> 24 Hr <input type="checkbox"/> 48 Hr <input type="checkbox"/> 72 Hr <input type="checkbox"/> Standard <input type="checkbox"/> 11.3		
Relinquished By: <u>[Signature]</u>	Date: _____	Time: _____		Received By: <u>[Signature]</u>				Date: <u>9-29-14</u>		Time: <u>1450</u>		Turnaround Time: <input type="checkbox"/> Same Day <input type="checkbox"/> 24 Hr <input type="checkbox"/> 48 Hr <input type="checkbox"/> 72 Hr <input type="checkbox"/> Standard <input type="checkbox"/> 11.3		

Comments:

Date results needed:

Origins Laboratory, Inc.

[Signature]

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Noelle Doyle Mathis, President

LT Environmental, Inc.

4600 West 60th Avenue

Arvada CO 80003

Chris Roy

Project Number: [none]

Project: Noble - Oster 20-19

Origins Laboratory

F-012207-01-R1

Effective Date: 01/09/12

Sample Receipt Checklist

Origins Work Order: x409311

Client: H&E

Client Project ID: oster 20-19

Checklist Completed by: ndm

Shipped Via: HD

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

Date/time completed: 9-29-14

Airbill #: N/A

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

Cooler Number/Temperature: 1 11.3 °C 1 °C 1 °C (Describe) °C

Thermometer ID: T002

Requirement Description	Yes	No	N/A	Comments (if any)
If samples require cooling, was the temperature between 0°C to ≤ 6°C ⁽¹⁾ ?		X		Sampled same day.
Is there ice present (document if blue ice is used)	X			
Are custody seals present on cooler? (if so, document in comments if they are signed and dated, broken or intact)		V		
Are custody seals present on each sample container? (if so, document in comments if they are signed and dated, broken or intact)		X		
Were all samples received intact ⁽¹⁾ ?	X			
Was adequate sample volume provided ⁽²⁾ ?	X			
Are short holding time analytes or samples with HTs due within 48 hours present ⁽³⁾ ?	X			
Is a chain-of-custody (COC) present and filled out completely ⁽¹⁾ ?	X			
Does the COC agree with the number and type of sample bottles received ⁽¹⁾ ?	X			
Do the sample IDs on the bottle labels match the COC ⁽¹⁾ ?	X			
Is the COC properly relinquished by the client with date and time recorded ⁽¹⁾ ?	X			
For volatiles in water — is there headspace (> ¼ inch bubble) present? If yes, contact client and note in narrative.			X	
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 > 12 for samples preserved with NaAsO ₂ -NaOH, ZnAc+NaOH).			X	
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 be taken in the additional comments (above) and the case narrative.

Reviewed by (Project Manager): [Signature]

Date/Time Reviewed: 9/29/14

Origins Laboratory, Inc.

[Signature]

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

Chris Roy
Project Number: [none]
Project: Noble - Oster 20-19

SS01 @ 6'

9/29/2014 12:15:00PM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.
X409311-01 (Soil)

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

Diesel (C10-C28)	ND	50.0	mg/kg	1	4129005	09/29/2014	09/29/2014
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Surrogate: o-Terphenyl	81.8 %	59-131			"	"	"
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GBTEX + Napthalene by 8260C

Gasoline Range Hydrocarbons	ND	0.20	mg/kg	1	4129015	09/29/2014	09/29/2014
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Benzene	ND	0.002	"	"	"	"	"
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Toluene	ND	0.002	"	"	"	"	"
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Ethylbenzene	ND	0.002	"	"	"	"	"
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Xylenes, total	ND	0.002	"	"	"	"	"
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Naphthalene	ND	0.008	"	"	"	"	"
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Surrogate: 1,2-Dichloroethane-d4	107 %	70-130			"	"	"
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Surrogate: Toluene-d8	99.6 %	70-130			"	"	"
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Surrogate: 4-Bromofluorobenzene	104 %	70-130			"	"	"
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Origins Laboratory, Inc.



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Noelle Doyle Mathis, President

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

Chris Roy
Project Number: [none]
Project: Noble - Oster 20-19

SS02 @ 3'

9/29/2014 12:20:00PM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.
X409311-02 (Soil)

Conductance/Specific Conductance by EPA 120.1

Specific Conductance (EC)	0.405	mmhos/cm	1	4129014	09/29/2014	09/30/2014
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Diesel Range Organics (DRO/TEPH) by EPA 8015C

Diesel (C10-C28)	ND	50.0	mg/kg	1	4129005	09/29/2014	09/29/2014
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Surrogate: o-Terphenyl	103 %	59-131			"	"	"
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GBTEX + Napthalene by 8260C

Gasoline Range Hydrocarbons	ND	0.20	mg/kg	1	4129015	09/29/2014	09/29/2014
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	104 %	70-130			"	"	"
Surrogate: Toluene-d8	100 %	70-130			"	"	"
Surrogate: 4-Bromofluorobenzene	105 %	70-130			"	"	"

Percent Moisture by SM2540G

Percent Moisture	16.1	0.1	%	1	951810	09/30/2014	09/30/2014
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LT Environmental, Inc.
4600 West 60th Avenue
Arvada CO 80003

Chris Roy
Project Number: [none]
Project: Noble - Oster 20-19

SS02 @ 3'

9/29/2014 12:20:00PM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.
X409311-02 (Soil)

pH in Soil by EPA 9045D

pH	7.97		pH Units	1	4129013	09/29/2014	09/30/2014	
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SAR Metals by SW-846 6010C

Calcium	8030	92.6	mg/kg	1	951837	09/30/2014	10/01/2014	X, F
Magnesium	2230	92.6	"	"	"	"	"	X
Sodium	228	92.6	"	"	"	"	"	

Sodium Absorption Ratio

Sodium Absorption Ratio	0.58			1	951845	10/01/2014	10/01/2014	
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Arvada CO 80003

Chris Roy
Project Number: [none]
Project: Noble - Oster 20-19

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 4129015 - EPA 5030 (soil)

Blank (4129015-BLK1)

Prepared: 09/29/2014 Analyzed: 09/29/2014

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	80		ug/kg	62.5		128	70-130			
Surrogate: Toluene-d8	61		"	62.5		97.1	70-130			
Surrogate: 4-Bromofluorobenzene	61		"	62.5		98.0	70-130			

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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 4129015 - EPA 5030 (soil)										
LCS (4129015-BS1)					Prepared: 09/29/2014 Analyzed: 09/29/2014					
Benzene	0.10	0.002	mg/kg	0.100		97.1	70-130			
Toluene	0.10	0.002	"	0.100		102	70-130			
Ethylbenzene	0.10	0.002	"	0.100		102	70-130			
m,p-Xylene	0.21	0.004	"	0.200		104	70-130			
o-Xylene	0.11	0.002	"	0.100		110	70-130			
Naphthalene	0.09	0.008	"	0.100		85.1	70-130			
Surrogate: 1,2-Dichloroethane-d4	63		ug/kg	62.5		101	70-130			
Surrogate: Toluene-d8	62		"	62.5		99.8	70-130			
Surrogate: 4-Bromofluorobenzene	62		"	62.5		98.4	70-130			

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Chris Roy
Project Number: [none]
Project: Noble - Oster 20-19

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 4129015 - EPA 5030 (soil)										
Matrix Spike (4129015-MS1)		Source: X409311-02			Prepared: 09/29/2014 Analyzed: 09/29/2014					
Benzene	0.09	0.002	mg/kg	0.100	ND	90.2	70-130			
Toluene	0.09	0.002	"	0.100	ND	88.1	70-130			
Ethylbenzene	0.09	0.002	"	0.100	ND	88.1	70-130			
m,p-Xylene	0.17	0.004	"	0.200	ND	87.5	70-130			
o-Xylene	0.09	0.002	"	0.100	ND	93.4	70-130			
Naphthalene	0.06	0.008	"	0.100	0.001	61.1	70-130			QM-07
Surrogate: 1,2-Dichloroethane-d4	66		ug/kg	62.5		105	70-130			
Surrogate: Toluene-d8	61		"	62.5		97.2	70-130			
Surrogate: 4-Bromofluorobenzene	63		"	62.5		100	70-130			

Origins Laboratory, Inc.



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Project Number: [none]
Project: Noble - Oster 20-19

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 4129015 - EPA 5030 (soil)										
Matrix Spike Dup (4129015-MSD1)		Source: X409311-02			Prepared: 09/29/2014 Analyzed: 09/29/2014					
Benzene	0.09	0.002	mg/kg	0.100	ND	89.0	70-130	1.36	20	
Toluene	0.09	0.002	"	0.100	ND	88.4	70-130	0.340	20	
Ethylbenzene	0.08	0.002	"	0.100	ND	83.2	70-130	5.67	20	
m,p-Xylene	0.17	0.004	"	0.200	ND	82.6	70-130	5.80	20	
o-Xylene	0.09	0.002	"	0.100	ND	87.2	70-130	6.84	20	
Naphthalene	0.06	0.008	"	0.100	0.001	58.4	70-130	4.46	20	QM-07
Surrogate: 1,2-Dichloroethane-d4	65		ug/kg	62.5		104	70-130			
Surrogate: Toluene-d8	61		"	62.5		97.6	70-130			
Surrogate: 4-Bromofluorobenzene	63		"	62.5		101	70-130			

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Arvada CO 80003

Chris Roy
Project Number: [none]
Project: Noble - Oster 20-19

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 4129005 - EPA 3580

Blank (4129005-BLK1)

Prepared: 09/29/2014 Analyzed: 09/29/2014

Diesel (C10-C28) ND 50.0 mg/kg

Surrogate: o-Terphenyl 55 g 50.0 110 59-131

LCS (4129005-BS1)

Prepared: 09/29/2014 Analyzed: 09/29/2014

Diesel (C10-C28) 1050 50.0 mg/kg 1000 105 64-121

Surrogate: o-Terphenyl 53 g 50.0 106 59-131

Matrix Spike (4129005-MS1)

Source: X409285-01

Prepared: 09/29/2014 Analyzed: 09/29/2014

Diesel (C10-C28) 1040 50.0 mg/kg 1000 ND 104 53-125

Surrogate: o-Terphenyl 52 g 50.0 104 59-131

Matrix Spike Dup (4129005-MSD1)

Source: X409285-01

Prepared: 09/29/2014 Analyzed: 09/29/2014

Diesel (C10-C28) 1120 50.0 mg/kg 1000 ND 112 53-125 6.82 20

Surrogate: o-Terphenyl 52 g 50.0 103 59-131

Origins Laboratory, Inc.



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Chris Roy
Project Number: [none]
Project: Noble - Oster 20-19

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 4129013 - NO PREP										
Duplicate (4129013-DUP1)		Source: X409311-02			Prepared: 09/29/2014 Analyzed: 09/30/2014					
pH	8.05		pH Units		7.97			1.02	25	
Batch 4129014 - NO PREP										
Blank (4129014-BLK1)		Prepared: 09/29/2014 Analyzed: 09/30/2014								
Specific Conductance (EC)	0.00180		mmhos/cm							
Duplicate (4129014-DUP1)		Source: X409311-02			Prepared: 09/29/2014 Analyzed: 09/30/2014					
Specific Conductance (EC)	0.388		mmhos/cm		0.405			4.29	25	

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4600 West 60th Avenue
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Chris Roy
Project Number: [none]
Project: Noble - Oster 20-19

SAR Metals by SW-846 6010C - Quality Control XENCO

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 951837 - SW3050B										
MS (494232-001 S)		Source: 494232-001 S			Prepared: 09/30/2014 Analyzed: 10/01/2014					
Magnesium	3620	91.7	mg/kg	826	2230	168	75-125		20	
Calcium	10300	91.7	"	826	8030	275	75-125		20	
Sodium	1210	91.7	"	826	228	119	75-125		20	
MSD (494232-001 SD)		Source: 494232-001 SD			Prepared: 09/30/2014 Analyzed: 10/01/2014					
Magnesium	3660	96.2	mg/kg	865	2230	165	75-125	1	20	
Sodium	1200	96.2	"	865	228	112	75-125	1	20	
Calcium	12800	96.2	"	865	8030	551	75-125	22	20	
LCS (662228-1-BKS)		Source: 662228-1-BKS			Prepared: 09/30/2014 Analyzed: 10/01/2014					
Sodium	942	100	mg/kg	900	<0.260	105	75-125		20	
Magnesium	934	100	"	900	2.2	104	75-125		20	
Calcium	913	100	"	900	0.76	101	75-125		20	
BLANK (662228-1-BLK)		Source: 662228-1-BLK			Prepared: 09/30/2014 Analyzed: 10/01/2014					
Sodium	ND	100	mg/kg	900			-		20	
Magnesium	2.2	100	"	900			-		20	J
Calcium	0.76	100	"	900			-		20	J
LCSD (662228-1-BSD)		Source: 662228-1-BSD			Prepared: 09/30/2014 Analyzed: 10/01/2014					
Magnesium	938	100	mg/kg	900	2.2	104	75-125	0	20	
Calcium	920	100	"	900	0.76	102	75-125	1	20	
Sodium	947	100	"	900	<0.260	105	75-125	1	20	

Origins Laboratory, Inc.



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4600 West 60th Avenue
Arvada CO 80003

Chris Roy
Project Number: [none]
Project: Noble - Oster 20-19

Notes and Definitions

- X Spike recovery in the MS and/or MSD was outside method control limits due to high concentrations of target analytes present in the sample. Spike recovery in the LCS and LCSD was within method control limits.
- QM-07 The spike recovery was outside acceptance limits for the MS and/or MSD. The batch was accepted based on acceptable LCS recovery.
- J Sample result was detected between the MDL and PQL, result is considered estimated.
- F % RPD between the spike recovery in the MS and MSD is outside method control limits.
- 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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Noelle Doyle Mathis, President