

IMAGE COURTESY OF ESRI/USGS

LEGEND

 SITE LOCATION

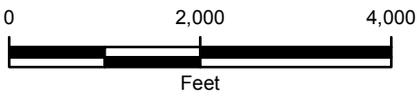


FIGURE 1
SITE LOCATION MAP
VICTOR C 19-11
WELD COUNTY, COLORADO

NOBLE ENERGY, INC.



October 28, 2014

LT Environmental, Inc.

Jeremy Wilson

4600 West 60th Avenue

Arvada CO 80003

Project Name - Noble - Victor C 19-11

Project Number - N/A

Attached are your analytical results for Noble - Victor C 19-11 received by Origins Laboratory, Inc. October 24, 2014. This project is associated with Origins project number X410284-01.

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



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

Jeremy Wilson
Project Number: N/A
Project: Noble - Victor C 19-11

CROSS REFERENCE REPORT

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
SS04 @ 3'	X410284-01	Soil	October 24, 2014 13:35	10/24/2014 16:11
SS05 @ 8'	X410284-02	Soil	October 24, 2014 13:40	10/24/2014 16:11

Origins Laboratory, Inc.



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Jen Pellegrini For Noelle Doyle Mathis, President

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

Jeremy Wilson
 Project Number: N/A
 Project: Noble - Victor C 19-11

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page 1 of 7



XA10284

Client: LTE Project Manager/Send Report To: JWilson@Hennigan.com
 Address: _____ Email Address: Wilson
 Telephone Number: _____ Project Name/Number: Victor C 19-11
 Samples Collected By: Wilson

1725 Elk Place | Denver, CO 80211 | 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 #		
550403'	10/24/14	13:55	2	X				X			BTEX Geo Geo OC SAR PH Nephth	1
550506'	10/24/14	13:40	1	X				X			XXX XXX	2
												3
												4
												5
												6
												7
												8
												9
												10

Relinquished By: Wilson Date: 10/24/14 Time: 1611
 Relinquished By: _____ Date: _____ Time: _____
 Turnaround Time: Same Day 24 Hr
 48 Hr 72 Hr
 Standard Monday

Comments: _____
 Data Pacific Number: _____

Origins Laboratory, Inc.

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

Jeremy Wilson
 Project Number: N/A
 Project: Noble - Victor C 19-11

Origins Laboratory

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

Sample Receipt Checklist

Origins Work Order: X410284 Client: AT
 Checklist Completed by: [Signature] Client Project ID: VICTOR @ 19-11
 Date/time completed: 10/24/14 16:22 Shipped Via: H/D
 (UPS, FedEx, Hand Delivered, Pick-up, etc.)
 Airbill #: N/A
 Matrix(s) Received: (Check all that apply): Soil/Solid Water Other: _____
 Cooler Number/Temperature: 123 °C / °C / °C (Describe) _____
 Thermometer ID: 1002

Requirement Description	Yes	No	N/A	Comments (if any)
If samples require cooling, was the temperature between 0°C to ≤ 6°C ⁽¹⁾ ?	X			
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)		X		
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 ⁽¹⁾ ?	X			
Are short holding time analytes or samples with HTs due within 48 hours present ⁽¹⁾ ?		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 HNO3, HCL, H2SO4) / (pH > 10 for samples preserved with NaAsO2+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 in the additional comments (above) and the case narrative.

[Signature] Reviewed by (Project Manager) 10-24-14 Date/Time Reviewed

Origins Laboratory, Inc.

[Signature]

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

Jeremy Wilson
 Project Number: N/A
 Project: Noble - Victor C 19-11

SS04 @ 3'
10/24/2014 1:35:00PM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.
X410284-01 (Soil)

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

Diesel (C10-C28)	ND	50.0	mg/kg	1	4J24013	10/24/2014	10/27/2014	
Surrogate: <i>o</i> -Terphenyl	91.9 %	59-131			"	"	"	

GBTEX + Napthalene by 8260C

Gasoline Range Hydrocarbons	ND	0.20	mg/kg	1	4J24014	10/24/2014	10/25/2014	
Benzene	ND	0.002	"	"	"	"	"	
Toluene	ND	0.002	"	"	"	"	"	
Ethylbenzene	ND	0.002	"	"	"	"	"	
Xylenes, total	0.003	0.002	"	"	"	"	"	
Napthalene	ND	0.008	"	"	"	"	"	

Surrogate: 1,2-Dichloroethane-d4	461 %	70-130			"	"	"	
Surrogate: Toluene-d8	510 %	70-130			"	"	"	
Surrogate: 4-Bromofluorobenzene	497 %	70-130			"	"	"	

pH in Soil by EPA 9045D

pH	7.42		pH Units	1	4J24017	10/24/2014	10/24/2014	
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SAR Metals by SW846 3050B/6010C

Calcium	1630	27.8	mg/kg dry	1	1430793	10/27/2014	10/27/2014	
Magnesium	1160	33.4	"	"	"	"	"	

Origins Laboratory, Inc.



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

Jeremy Wilson
Project Number: N/A
Project: Noble - Victor C 19-11

SS04 @ 3'

10/24/2014 1:35:00PM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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GEL Laboratories, LLC
X410284-01 (Soil)

SAR Metals by SW846 3050B/6010C

Sodium	36.6	27.8	mg/kg dry	1	1430793	10/27/2014	10/27/2014
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Sodium Adsorption Ratio

Sodium Adsorption Ratio	0.169		none	1	1431195		10/28/2014
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Specific Conductance by Modified 9050A

Specific Conductance (EC)	0.0410		mmhos/cm	1	4J24018	10/24/2014	10/26/2014
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Origins Laboratory, Inc.



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

Jeremy Wilson
 Project Number: N/A
 Project: Noble - Victor C 19-11

SS05 @ 8'

10/24/2014 1:40:00PM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.
X410284-02 (Soil)

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

Diesel (C10-C28)	130	50.0	mg/kg	1	4J24013	10/24/2014	10/27/2014	
Surrogate: <i>o</i> -Terphenyl	101 %	59-131			"	"	"	

GBTEX + Napthalene by 8260C

Gasoline Range Hydrocarbons	17.7	0.20	mg/kg	1	4J24014	10/24/2014	10/25/2014	
Benzene	0.04	0.002	"	"	"	"	"	
Toluene	0.11	0.002	"	"	"	"	"	
Ethylbenzene	0.04	0.002	"	"	"	"	"	
Xylenes, total	0.63	0.002	"	"	"	"	"	
Naphthalene	0.02	0.008	"	"	"	"	"	

Surrogate: 1,2-Dichloroethane-d4	415 %	70-130			"	"	"	
Surrogate: Toluene-d8	532 %	70-130			"	"	"	
Surrogate: 4-Bromofluorobenzene	527 %	70-130			"	"	"	

Origins Laboratory, Inc.



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

Jeremy Wilson
 Project Number: N/A
 Project: Noble - Victor C 19-11

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 4J24014 - EPA 5030 (soil)

Blank (4J24014-BLK1)

Prepared: 10/24/2014 Analyzed: 10/24/2014

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	56		ug/kg	62.5		90.1	70-130			
Surrogate: Toluene-d8	61		"	62.5		97.9	70-130			
Surrogate: 4-Bromofluorobenzene	61		"	62.5		97.4	70-130			

Origins Laboratory, Inc.



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LT Environmental, Inc.
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 Arvada CO 80003

Jeremy Wilson
 Project Number: N/A
 Project: Noble - Victor C 19-11

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 4J24014 - EPA 5030 (soil)

LCS (4J24014-BS1)

Prepared: 10/24/2014 Analyzed: 10/24/2014

Benzene	0.10	0.002	mg/kg	0.100		103	70-130			
Toluene	0.10	0.002	"	0.100		99.7	70-130			
Ethylbenzene	0.11	0.002	"	0.100		105	70-130			
m,p-Xylene	0.21	0.004	"	0.200		105	70-130			
o-Xylene	0.10	0.002	"	0.100		105	70-130			
Naphthalene	0.10	0.008	"	0.100		104	70-130			
Surrogate: 1,2-Dichloroethane-d4	57		ug/kg	62.5		90.7	70-130			
Surrogate: Toluene-d8	62		"	62.5		99.9	70-130			
Surrogate: 4-Bromofluorobenzene	63		"	62.5		101	70-130			

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 Arvada CO 80003

Jeremy Wilson
 Project Number: N/A
 Project: Noble - Victor C 19-11

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 4J24014 - EPA 5030 (soil)

Matrix Spike (4J24014-MS1)	Source: X410270-01			Prepared: 10/24/2014 Analyzed: 10/24/2014						
Benzene	0.10	0.002	mg/kg	0.100	ND	105	70-130			
Toluene	0.10	0.002	"	0.100	ND	101	70-130			
Ethylbenzene	0.11	0.002	"	0.100	ND	105	70-130			
m,p-Xylene	0.21	0.004	"	0.200	ND	104	70-130			
o-Xylene	0.10	0.002	"	0.100	ND	102	70-130			
Naphthalene	0.10	0.008	"	0.100	0.01	85.9	70-130			
Surrogate: 1,2-Dichloroethane-d4	54		ug/kg	62.5		86.7	70-130			
Surrogate: Toluene-d8	61		"	62.5		98.0	70-130			
Surrogate: 4-Bromofluorobenzene	61		"	62.5		98.3	70-130			

Origins Laboratory, Inc.



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

Jeremy Wilson
 Project Number: N/A
 Project: Noble - Victor C 19-11

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 4J24014 - EPA 5030 (soil)

Matrix Spike Dup (4J24014-MSD1)	Source: X410270-01			Prepared: 10/24/2014 Analyzed: 10/24/2014						
Benzene	0.11	0.002	mg/kg	0.100	ND	105	70-130	0.590	20	
Toluene	0.10	0.002	"	0.100	ND	100	70-130	0.458	20	
Ethylbenzene	0.11	0.002	"	0.100	ND	110	70-130	4.20	20	
m,p-Xylene	0.22	0.004	"	0.200	ND	108	70-130	4.23	20	
o-Xylene	0.11	0.002	"	0.100	ND	106	70-130	3.88	20	
Naphthalene	0.09	0.008	"	0.100	0.01	83.7	70-130	2.29	20	
Surrogate: 1,2-Dichloroethane-d4	53		ug/kg	62.5		85.5	70-130			
Surrogate: Toluene-d8	60		"	62.5		96.7	70-130			
Surrogate: 4-Bromofluorobenzene	65		"	62.5		104	70-130			

Origins Laboratory, Inc.



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

Jeremy Wilson
 Project Number: N/A
 Project: Noble - Victor C 19-11

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 4J24013 - EPA 3580

Blank (4J24013-BLK1)

Prepared: 10/24/2014 Analyzed: 10/26/2014

Diesel (C10-C28)	ND	50.0	mg/kg							
Surrogate: o-Terphenyl	46		g	50.0		92.3	59-131			

LCS (4J24013-BS1)

Prepared: 10/24/2014 Analyzed: 10/27/2014

Diesel (C10-C28)	856	50.0	mg/kg	1000		85.6	64-121			
Surrogate: o-Terphenyl	47		g	50.0		94.5	59-131			

Matrix Spike (4J24013-MS1)

Source: X410270-01

Prepared: 10/24/2014 Analyzed: 10/26/2014

QM-07

Diesel (C10-C28)	177	50.0	mg/kg	1000	13.9	16.3	53-125			
Surrogate: o-Terphenyl	49		g	50.0		97.5	59-131			

Matrix Spike Dup (4J24013-MSD1)

Source: X410270-01

Prepared: 10/24/2014 Analyzed: 10/26/2014

QM-07

Diesel (C10-C28)	175	50.0	mg/kg	1000	13.9	16.1	53-125	1.50	20	
Surrogate: o-Terphenyl	47		g	50.0		94.2	59-131			

Origins Laboratory, Inc.



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

Jeremy Wilson
 Project Number: N/A
 Project: Noble - Victor C 19-11

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 4J24017 - NO PREP										
Duplicate (4J24017-DUP1)		Source: X410284-01			Prepared: 10/24/2014 Analyzed: 10/24/2014					
pH	7.30		pH Units		7.42			1.60	25	
Batch 4J24018 - NO PREP										
Blank (4J24018-BLK1)		Prepared: 10/24/2014 Analyzed: 10/26/2014								
Specific Conductance (EC)	0.00210		mmhos/cm							
Duplicate (4J24018-DUP1)		Source: X410284-01			Prepared: 10/24/2014 Analyzed: 10/26/2014					
Specific Conductance (EC)	0.0380		mmhos/cm		0.0410			7.59	25	

Origins Laboratory, Inc.



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 4600 West 60th Avenue
 Arvada CO 80003

Jeremy Wilson
 Project Number: N/A
 Project: Noble - Victor C 19-11

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 1430793 - SW846 3050B										
BLANK (1203196119-BLK)					Prepared: 10/27/2014 Analyzed: 10/27/2014					
Magnesium	ND	29.2	mg/kg				-			U
Sodium	ND	24.3	"				-			U
Calcium	ND	24.3	"				-			U
LCS (1203196120-BKS)					Prepared: 10/27/2014 Analyzed: 10/27/2014					
Sodium	467	23.9	mg/kg	478		97.7	80-120			
Calcium	485	23.9	"	478		101	80-120			
Magnesium	465	28.7	"	478		97.3	80-120			
DUP (1203196121 D)		Source: 359875001			Prepared: 10/27/2014 Analyzed: 10/27/2014					
Sodium	2040	33.0	mg/kg dry		2180		0-20	6.35	20	
Magnesium	7360	39.6	"		7940		0-20	7.49	20	
Calcium	13700	33.0	"		14900		0-20	7.71	20	
MS (1203196122 S)		Source: 359875001			Prepared: 10/27/2014 Analyzed: 10/27/2014					
Magnesium	10000	39.8	mg/kg dry	664	7940	317	75-125			
Calcium	17600	33.2	"	664	14900	407	75-125			
Sodium	2900	33.2	"	664	2180	108	75-125			

Origins Laboratory, Inc.



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

Jeremy Wilson
Project Number: N/A
Project: Noble - Victor C 19-11

Notes and Definitions

U Result not detected above the detection limit

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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Jen Pellegrini For Noelle Doyle Mathis, President