



November 9, 2016

Mr. Robert Chesson  
Environmental Protection Specialist  
Colorado Oil and Gas Conservation Commission  
1120 Lincoln Street, Suite 801  
Denver, Colorado 80203

**RE: Operator No. 10170; Spill ID 159846  
Closure Request - Historic Release at the Nordman Trust 33-20 (05-039-06524)  
SWNE Section 20 T6S R64W, Elbert County, Colorado**

Mr. Chesson:

Lesair Environmental (Lesair), on behalf of our client Crimson Exploration Operating Inc. (Crimson), is submitting a closure request for the historical release (spill ID 159846) reported on January 22, 2015.

Analytical results (attached) of a composite sample taken from the historical release area of the Nordman Trust 33-20 indicates the soil should be considered clean. The analytical results have been compared to Colorado Oil and Gas Conservation Commission Table 910 thresholds, shown in Table A (below).

Analyte	Nordman	Table 910	Units
Total Petroleum Hydrocarbon (TPH) <sup>2</sup>	59	500	mg/k
Benzene	ND <sup>1</sup>	0.17	mg/k
Toluene	ND <sup>1</sup>	85	mg/k
Ethylbenzene	ND <sup>1</sup>	100	mg/k
Xylenes	ND <sup>1</sup>	175	mg/k
Sodium Absorption Ratio (SAR)	0.833	<12	---
Specific Conductivity (SC)	1.07	<4	Mmhos/cm
Ph	8.37	6-9	pH

1 - Non-detectible concentration

2 - TPH was determined by combine the analysis results of DRO (diesel range organics) of 59 and GRO (gasoline range organics) of ND.

Crimson remediated this historical release by treating the release area with a bioremediation soil amendment and allowing the amendment to enhance the soil remediation. A composite soil sample was taken on September 13, 2016 and the analytical results indicated the remediation was successful.

As per a telephone conversation between yours self and Ty Smith, the above analytical results should be sufficient to obtain closure for this historical release. If you have any further questions please contact either Chet Stuart at CStuart@Contango.com or Ty Smith at TySmith@Lesair.com.

Sincerely,

Ty J. Smith  
Sr. Project Engineer

Enclosure



Lesair Environmental  
11786 Shaffer Place Ste 210  
Littleton CO, 80127

Project: Crimson Remediation

Project Number: 96-0816-001  
Project Manager: Ty Smith

Reported:  
09/22/16 09:21

**96-0816-001**  
**1609104-01 (Soil)**

**Summit Scientific**

**Extractable Petroleum Hydrocarbons by 8015**

Date Sampled: **09/13/16 09:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	59	50	mg/kg	1	1609140	09/20/16	09/20/16	8015M	
C28-C36 (ORO)	ND	50	"	"	"	"	"	"	

Date Sampled: **09/13/16 09:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: <i>o</i> -Terphenyl		93.1 %	70-130		"	"	"	"	

**Volatile Organic Compounds by EPA Method 8260B**

Date Sampled: **09/13/16 09:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	0.0020	mg/kg	1	1609139	09/20/16	09/21/16	EPA 8260B	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
Xylenes (total)	ND	0.0050	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	ND	0.50	"	"	"	"	"	"	

Date Sampled: **09/13/16 09:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		108 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		97.8 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		101 %	21-167		"	"	"	"	

**Soluble Nutrients by EPA 6020/Mod. USDA60 6(2, 3A) - Dry Weight Basis**

Date Sampled: **09/13/16 09:00**

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

Summit Scientific

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.



Lesair Environmental  
11786 Shaffer Place Ste 210  
Littleton CO, 80127

Project: Crimson Remediation

Project Number: 96-0816-001  
Project Manager: Ty Smith

Reported:  
09/22/16 09:21

**96-0816-001**  
**1609104-01 (Soil)**

**Summit Scientific**

**Soluble Nutrients by EPA 6020/Mod. USDA60 6(2, 3A) - Dry Weight Basis**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Calcium	4230	12.3	mg/kg dry	1	1609138	09/19/16	09/20/16	EPA 6020/Mod. USDA60 6(2, 3A)	
Magnesium	441	6.13	"	"	"	"	"	"	
Sodium	213	6.13	"	"	"	"	"	"	

Date Sampled: 09/13/16 09:00

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Sodium Adsorption Ratio	0.833		units	"	1609143	09/20/16	09/20/16	"	

**Physical Parameters by APHA/ASTM/EPA Methods**

Date Sampled: 09/13/16 09:00

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Specific Conductance (EC)	1.07	0.0100	mmhos/cm	1	1609132	09/19/16	09/19/16	SM 2510B	

Date Sampled: 09/13/16 09:00

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
pH	8.37	0.100	pH Units	"	1609127	09/19/16	09/19/16	EPA 9045	

Date Sampled: 09/13/16 09:00

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
% Solids	81.6		%	"	1609135	09/19/16	09/20/16	% calculation	

Summit Scientific

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.



Lesair Environmental  
11786 Shaffer Place Ste 210  
Littleton CO, 80127

Project: Crimson Remediation  
Project Number: 96-0816-001  
Project Manager: Ty Smith

Reported:  
09/22/16 09:21

**Extractable Petroleum Hydrocarbons by 8015 - Quality Control**  
**Summit Scientific**

Analyte	Reporting			Spike	Source	%REC		RPD		Notes
	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	

**Batch 1609140 - EPA 3550A**

**Blank (1609140-BLK1)**

Prepared & Analyzed: 09/20/16

C10-C28 (DRO)	ND	50	mg/kg							
C28-C36 (ORO)	ND	50	"							
<i>Surrogate: o-Terphenyl</i>	12.0		"	12.5		95.9	70-130			

**LCS (1609140-BS1)**

Prepared & Analyzed: 09/20/16

C10-C28 (DRO)	468	50	mg/kg	499		93.8	50-150			
C28-C36 (ORO)	ND	50	"				50-150			
<i>Surrogate: o-Terphenyl</i>	12.3		"	12.5		98.4	70-130			

**Matrix Spike (1609140-MS1)**

Source: 1609104-01

Prepared & Analyzed: 09/20/16

C10-C28 (DRO)	489	50	mg/kg	499	59.4	86.1	50-150			
C28-C36 (ORO)	43.0	50	"		22.7		50-150			
<i>Surrogate: o-Terphenyl</i>	12.1		"	12.5		97.1	70-130			

**Matrix Spike Dup (1609140-MSD1)**

Source: 1609104-01

Prepared & Analyzed: 09/20/16

C10-C28 (DRO)	472	50	mg/kg	499	59.4	82.6	50-150	3.66	20	
C28-C36 (ORO)	40.5	50	"		22.7		50-150	5.97	20	
<i>Surrogate: o-Terphenyl</i>	12.1		"	12.5		97.1	70-130			

Summit Scientific

*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.*



Lesair Environmental  
11786 Shaffer Place Ste 210  
Littleton CO, 80127

Project: Crimson Remediation  
Project Number: 96-0816-001  
Project Manager: Ty Smith

Reported:  
09/22/16 09:21

**Volatile Organic Compounds by EPA Method 8260B - Quality Control**  
**Summit Scientific**

Analyte	Reporting			Spike	Source	%REC		RPD		Notes
	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	

**Batch 1609139 - EPA 5030 Soil MS**

**Blank (1609139-BLK1)**

Prepared & Analyzed: 09/20/16

Benzene	ND	0.0020	mg/kg							
Toluene	ND	0.0050	"							
Ethylbenzene	ND	0.0050	"							
Xylenes (total)	ND	0.0050	"							
Gasoline Range Hydrocarbons	ND	0.50	"							
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>0.0408</i>		<i>"</i>	<i>0.0400</i>		<i>102</i>	<i>23-173</i>			
<i>Surrogate: Toluene-d8</i>	<i>0.0390</i>		<i>"</i>	<i>0.0400</i>		<i>97.4</i>	<i>20-170</i>			
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>0.0421</i>		<i>"</i>	<i>0.0400</i>		<i>105</i>	<i>21-167</i>			

**LCS (1609139-BS1)**

Prepared & Analyzed: 09/20/16

Benzene	0.148	0.0020	mg/kg	0.150		98.6	58-130			
Toluene	0.146	0.0050	"	0.150		97.0	61-134			
Ethylbenzene	0.141	0.0050	"	0.150		94.0	74-139			
m,p-Xylene	0.284	0.010	"	0.300		94.5	73-137			
o-Xylene	0.152	0.0050	"	0.150		101	73-141			
Xylenes (total)	0.436	0.0050	"				30-150			
Gasoline Range Hydrocarbons	0.204	0.50	"				30-150			
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>0.0412</i>		<i>"</i>	<i>0.0400</i>		<i>103</i>	<i>23-173</i>			
<i>Surrogate: Toluene-d8</i>	<i>0.0404</i>		<i>"</i>	<i>0.0400</i>		<i>101</i>	<i>20-170</i>			
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>0.0394</i>		<i>"</i>	<i>0.0400</i>		<i>98.4</i>	<i>21-167</i>			

**Matrix Spike (1609139-MS1)**

Source: 1609113-01

Prepared & Analyzed: 09/20/16

Benzene	0.161	0.0020	mg/kg	0.150	ND	107	30-131			
Toluene	0.159	0.0050	"	0.150	ND	106	30-134			
Ethylbenzene	0.151	0.0050	"	0.150	ND	101	22-153			
m,p-Xylene	0.306	0.010	"	0.300	ND	102	10-159			
o-Xylene	0.161	0.0050	"	0.150	ND	107	31-151			
Xylenes (total)	0.468	0.0050	"		ND		30-150			
Gasoline Range Hydrocarbons	0.220	0.50	"		ND		30-150			
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>0.0423</i>		<i>"</i>	<i>0.0400</i>		<i>106</i>	<i>23-173</i>			
<i>Surrogate: Toluene-d8</i>	<i>0.0408</i>		<i>"</i>	<i>0.0400</i>		<i>102</i>	<i>20-170</i>			
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>0.0404</i>		<i>"</i>	<i>0.0400</i>		<i>101</i>	<i>21-167</i>			

Summit Scientific

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.



Lesair Environmental  
 11786 Shaffer Place Ste 210  
 Littleton CO, 80127

Project: Crimson Remediation

Project Number: 96-0816-001  
 Project Manager: Ty Smith

Reported:  
 09/22/16 09:21

**Volatile Organic Compounds by EPA Method 8260B - Quality Control**  
**Summit Scientific**

Analyte	Reporting			Spike	Source	%REC			RPD	Notes
	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	

**Batch 1609139 - EPA 5030 Soil MS**

<b>Matrix Spike Dup (1609139-MSD1)</b>	<b>Source: 1609113-01</b>			Prepared: 09/20/16	Analyzed: 09/21/16					
Benzene	0.141	0.0020	mg/kg	0.150	ND	93.7	30-131	13.4	34	
Toluene	0.139	0.0050	"	0.150	ND	92.4	30-134	13.9	30	
Ethylbenzene	0.133	0.0050	"	0.150	ND	88.8	22-153	12.6	24	
m,p-Xylene	0.268	0.010	"	0.300	ND	89.5	10-159	13.2	68	
o-Xylene	0.143	0.0050	"	0.150	ND	95.3	31-151	11.9	38	
Xylenes (total)	0.411	0.0050	"		ND		30-150	12.8	20	
Gasoline Range Hydrocarbons	0.191	0.50	"		ND		30-150	14.0	20	
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>0.0426</i>		<i>"</i>	<i>0.0400</i>		<i>106</i>	<i>23-173</i>			
<i>Surrogate: Toluene-d8</i>	<i>0.0406</i>		<i>"</i>	<i>0.0400</i>		<i>102</i>	<i>20-170</i>			
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>0.0396</i>		<i>"</i>	<i>0.0400</i>		<i>99.1</i>	<i>21-167</i>			

Summit Scientific

*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.*



Lesair Environmental  
11786 Shaffer Place Ste 210  
Littleton CO, 80127

Project: Crimson Remediation  
Project Number: 96-0816-001  
Project Manager: Ty Smith

Reported:  
09/22/16 09:21

**Soluble Nutrients by EPA 6020/Mod. USDA60 6(2, 3A) - Dry Weight Basis - Quality Control**  
**Summit Scientific**

Analyte	Reporting			Spike	Source		%REC		RPD		Notes
	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit		

**Batch 1609138 - General Preparation**

**Blank (1609138-BLK1)**

Prepared & Analyzed: 09/19/16

Calcium	ND	10.0	mg/kg wet							
Magnesium	ND	5.00	"							
Sodium	ND	5.00	"							

**LCS (1609138-BS1)**

Prepared & Analyzed: 09/19/16

Calcium	541	10.0	mg/kg wet	500	108	82.9-118				
Magnesium	532	5.00	"	500	106	77.1-123				
Sodium	525	5.00	"	500	105	71-129				

**Duplicate (1609138-DUP1)**

Source: 1609098-01

Prepared & Analyzed: 09/19/16

Calcium	121	8.54	mg/kg dry	141			15.2	200		
Magnesium	72.5	4.27	"	80.2			10.1	200		
Sodium	104	4.27	"	121			15.0	200		

**Matrix Spike (1609138-MS1)**

Source: 1609098-01

Prepared & Analyzed: 09/19/16

Calcium	555	8.54	mg/kg dry	427	141	96.9	75-125			
Magnesium	531	4.27	"	427	80.2	106	75-125			
Sodium	556	4.27	"	427	121	102	75-125			

**Matrix Spike Dup (1609138-MSD1)**

Source: 1609098-01

Prepared & Analyzed: 09/19/16

Calcium	600	8.54	mg/kg dry	427	141	107	75-125	7.76	25	
Magnesium	560	4.27	"	427	80.2	112	75-125	5.25	25	
Sodium	570	4.27	"	427	121	105	75-125	2.62	25	

Summit Scientific

*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.*



Lesair Environmental  
 11786 Shaffer Place Ste 210  
 Littleton CO, 80127

Project: Crimson Remediation

Project Number: 96-0816-001  
 Project Manager: Ty Smith

**Reported:**  
 09/22/16 09:21

**Physical Parameters by APHA/ASTM/EPA Methods - Quality Control**  
**Summit Scientific**

Analyte	Reporting			Spike	Source	%REC		RPD		Notes
	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	

**Batch 1609127 - General Preparation**

<b>LCS (1609127-BS1)</b>					Prepared & Analyzed: 09/19/16						
pH	6.02	0.100	pH Units	6.00	100	95-105					
<b>Duplicate (1609127-DUP1)</b>					<b>Source: 1609098-01</b>		Prepared & Analyzed: 09/19/16				
pH	7.50	0.100	pH Units	7.53	0.399	20					

**Batch 1609132 - General Preparation**

<b>Blank (1609132-BLK1)</b>					Prepared & Analyzed: 09/19/16						
Specific Conductance (EC)	ND	0.0100	mmhos/cm								
<b>LCS (1609132-BS1)</b>					Prepared & Analyzed: 09/19/16						
Specific Conductance (EC)	0.502	0.0100	mmhos/cm	0.500	100	90-110					
<b>Duplicate (1609132-DUP1)</b>					<b>Source: 1609098-01</b>		Prepared & Analyzed: 09/19/16				
Specific Conductance (EC)	0.330	0.0100	mmhos/cm	0.374	12.7	20					

**Batch 1609135 - General Preparation**

<b>Duplicate (1609135-DUP1)</b>					<b>Source: 1609098-01</b>		Prepared: 09/19/16 Analyzed: 09/20/16				
% Solids	94.4		%	94.4	0.0273	20					

Summit Scientific

*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.*



Lesair Environmental  
11786 Shaffer Place Ste 210  
Littleton CO, 80127

Project: Crimson Remediation

Project Number: 96-0816-001  
Project Manager: Ty Smith

**Reported:**  
09/22/16 09:21

### Notes and Definitions

DET Analyte DETECTED  
ND Analyte NOT DETECTED at or above the reporting limit  
NR Not Reported  
dry Sample results reported on a dry weight basis  
RPD Relative Percent Difference

---

Summit Scientific

*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.*



Lesair Environmental  
 11786 Shaffer Place Ste 210  
 Littleton CO, 80127

Project: Crimson Remediation

Project Number: 96-0816-001  
 Project Manager: Ty Smith

Reported:  
 09/22/16 09:21

# Summit Scientific 1609104

741 Corporate Circle Suite 1 • Golden, Colorado 80401  
 303-277-9310 • 303-374-5933 Fax

Page 1 of 1

Client: Lesair Environmental  
 Address: 11786 SHAFER PLACE, SUITE 210  
 City/State/Zip: LITTLETON, CO 80127  
 Phone: 303-404-2525 Fax:  
 Sampler Name: Chet Stewart

Project Manager: Ty Smith  
 E-Mail: amyv@lesair.com  
 Project Name: CRIMSON REMEDIATION  
 Project Number: 96-0816-001

Sample Description	Date Sampled	Time Sampled	Number of Containers	Preservative				Matrix			Analyze For:					Special Instructions	
				HCl	HNO <sub>3</sub>	None	Other (Specify)	Groundwater	Soil	Air - Container Serial #	Other (Specify)	TPH	BTEX	pH	Conductivity		SAR
46-0816-001	9-13-16	9:00AM	1						X			X	X	X	X		
Relinquished by: <u>CS</u>	Date/Time: <u>9-16-16 16:35</u>	Received by: <u>[Signature]</u>	Date/Time: <u>9/16/16 16:35</u>	Turn Around Time (Check)				Notes:									
Relinquished by:	Date/Time:	Received by:	Date/Time:	Same Day	24 Hours	48 Hours	72 Hours	Standard									
Relinquished by:	Date/Time:	Received in Lab by:	Date/Time:	Sample Integrity:													
				Temperature Upon Receipt: <u>16.50</u>													
				Intact: Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>													

www.s2scientific.com



Lesair Environmental  
 11786 Shaffer Place Ste 210  
 Littleton CO, 80127

Project: Crimson Remediation

Project Number: 96-0816-001  
 Project Manager: Ty Smith

Reported:  
 09/22/16 09:21

**Sample Receipt Checklist**

S2 Work Order: 1609104

Client: Lesair Environmental Client Project ID: Crimson Remediation

Shipped Via: HD Airbill #: \_\_\_\_\_  
(UPS, FedEx, Hand Delivered, Pick-up, etc.)

Matrix (check all that apply):  Air  Soil/Solid  Water  Other: \_\_\_\_\_  
(Describe)

Cooler ID					
Temp (°C)	<u>16.5°C</u>				

Thermometer ID: 61857155-K

	Yes	No	N/A	Comments (if any)
If samples require cooling, was the temperature just above 0°C to ≤ 6°C <sup>(1)</sup> ?	<input checked="" type="checkbox"/>			
NOTE: If samples are delivered the same day of sampling, this requirement is waived provided that there is evidence that cooling has begun.				
Were all samples received intact <sup>(1)</sup> ?	<input checked="" type="checkbox"/>			
Was adequate sample volume provided <sup>(1)</sup> ?	<input checked="" type="checkbox"/>			
If custody seals are present, are they intact <sup>(1)</sup> ?			<input checked="" type="checkbox"/>	
Are short holding time analytes or samples with HTs due within 48 hours present?		<input checked="" type="checkbox"/>		
Is a chain-of-custody (COC) form present and filled out completely <sup>(1)</sup> ?	<input checked="" type="checkbox"/>			
Does the COC agree with the number and type of sample bottles received <sup>(1)</sup> ?	<input checked="" type="checkbox"/>			
Do the sample IDs on the bottle labels match the COC <sup>(1)</sup> ?	<input checked="" type="checkbox"/>			
Is the COC properly relinquished by the client w/ date and time recorded <sup>(1)</sup> ?	<input checked="" type="checkbox"/>			
For volatiles in water – is there headspace present? <b>If yes, contact client and note in narrative.</b>			<input checked="" type="checkbox"/>	
Are samples preserved that require preservation (excluding cooling) <sup>(1)</sup> ?			<input checked="" type="checkbox"/>	
Note the type of preservative in the Comments column – HCl, H2SO4, NaOH, HNO3, ect				
If samples are acid preserved for metals, is the pH ≤ 2 <sup>(1)</sup> ?			<input checked="" type="checkbox"/>	
Record the pH in Comments.				
If dissolved metals are requested, were samples field filtered?			<input checked="" type="checkbox"/>	
Additional Comments (if any):				

<sup>(1)</sup> If NO, then contact the client before proceeding with analysis and note in case narrative.

Nindy Mah  
 Custodian Printed Name

[Signature]  
 Signature or Initials of Custodian

9/19/16 14:12  
 Date/Time





Lesair Environmental  
11786 Shaffer Place Ste 210  
Littleton CO, 80127

Project: Crimson Remediation

Project Number: 96-0816-001  
Project Manager: Ty Smith

**Reported:**  
09/22/16 09:21

### ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
96-0816-001	1609104-01	Soil	09/13/16 09:00	09/16/16 16:35

---

Summit Scientific

*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.*