



August 3, 2015

Mr. Derek Johnson  
Linn Energy, LLC  
235 Callahan Avenue  
Parachute, Colorado 81635

**Subject: OM B-10 Final Landfarm Sampling Results**

Dear Derek:

Nicholson GeoSolutions LLC was retained by Linn Energy, LLC (Linn) to conduct soil sampling of the landfarm on the OM B-10 well pad in the Old Mountain area, Garfield County, Colorado. GPS mapping showed that the landfarm covers about 2.16 acres and contains an estimated 10,500 yards of material.

Sampling was conducted on June 23<sup>rd</sup>, 2015. A total of 16 discrete soil samples were collected. Samples were collected at depths of 3 feet (the approximate mid-depth of the landfarm) and 5.5 feet (about one-half foot from the base of the landfarm) in each of eight backhoe trenches excavated into the landfarm. The trenches were located to cover the entire length of the landfarm, as shown on Figure 1.

All samples were analyzed for Total Volatile Petroleum Hydrocarbons (TVPH – gasoline range), Total Extractable Petroleum Hydrocarbons (TEPH – diesel and motor oil range), and PAHs to evaluate compliance with the COGCC Table 910-1 standards and whether additional treatment is necessary. Previous composite sampling demonstrated that the materials pass the COGCC standards for BTEX, SAR, pH, conductivity, and metals; therefore, these parameters were not analyzed.

Figure 1 provides a summary of the analytical results and the laboratory report is contained in Appendix A. All TVPH and TEPH results were reported as not detected or were below the COGCC standards. The combined TPH results (the total of gasoline range, diesel range, and motor oil range analyses) ranged from 26 mg/kg to 233 mg/kg (COGCC standard = 500 mg/kg).

Benzo(a)pyrene ranged from <0.006 mg/kg to 0.028 mg/kg for the 16 samples (standard = 0.022 mg/kg), and exceeded the standard for two of the 16 samples. Samples that exceed the standard for benzo(a)pyrene are located in the northern portion of the west lobe of the landfarm.

Further treatment of the portion of the landfarm shown as the cross-hatched area on Figure 1 should be conducted.

Nicholson GeoSolutions LLC

A handwritten signature in blue ink, reading "DK Nicholson". The signature is fluid and cursive, with the initials "DK" being prominent.

David K. Nicholson, P.G.  
Principal Geologist

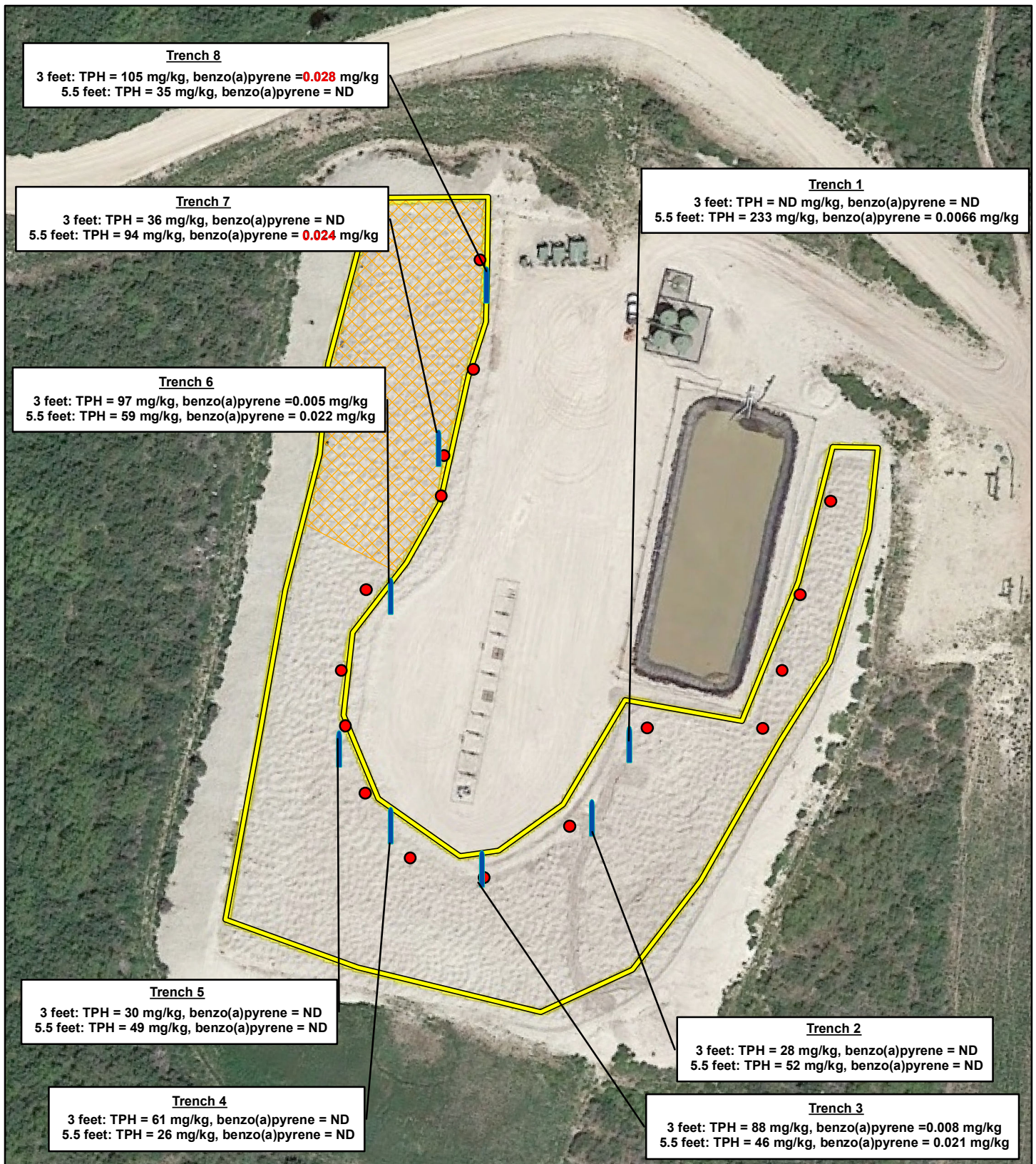


Figure 1

August  
2015

GeoSolutions  
NICHOLSON

### Legend

- Backhoe Trench
- Composite Soil Sample Subsample Location
- Land Farm Perimeter
- Area Needing Further Treatment
- ND** Not Detected
- Values in red exceed COGCC standards

0 50 100 200 Feet 1" = 100'

**Linn Energy, LLC**

Discrete Soil Samples  
 OM B-10 Landfarm  
 2.16 Acres

**APPENDIX A**  
**Laboratory Report**



12065 Lebanon Rd.  
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Dave Nicholson  
Linn Energy - Denver, CO  
1999 Broadway, Suite 3700  
Denver, CO 80202

## Report Summary

Thursday July 09, 2015

Report Number: L773895

Samples Received: 06/27/15

Client Project:

Description: Pit and Landfarm Soil Sampling

The analytical results in this report are based upon information supplied by you, the client, and are for your exclusive use. If you have any questions regarding this data package, please do not hesitate to call.

Entire Report Reviewed By:

Mark W. Beasley , ESC Representative

### Laboratory Certification Numbers

A2LA - 1461-01, AIHA - 100789, AL - 40660, CA - 01157CA, CT - PH-0197,  
FL - E87487, GA - 923, IN - C-TN-01, KY - 90010, KYUST - 0016,  
NC - ENV375/DW21704/BIO041, ND - R-140, NJ - TN002, NJ NELAP - TN002,  
SC - 84004, TN - 2006, VA - 460132, WV - 233, AZ - 0612,  
MN - 047-999-395, NY - 11742, WI - 998093910, NV - TN000032011-1,  
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# REPORT OF ANALYSIS

July 09, 2015

Dave Nicholson  
Linn Energy - Denver, CO  
1999 Broadway, Suite 3700  
Denver, CO 80202

Date Received : June 27, 2015  
Description : Pit and Landfarm Soil Sampling  
Sample ID : OM B-10 LF-1 3 FT  
Collected By : DK Nicholson  
Collection Date : 06/24/15 09:30

ESC Sample # : L773895-01

Site ID :

Project # :

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
TPH (GC/FID) Low Fraction	BDL	0.50	mg/kg	8015D/GRO	07/08/15	5
Surrogate Recovery (70-130)						
a,a,a-Trifluorotoluene(FID)	84.7		% Rec.	8015D/GRO	07/08/15	1
Diesel and Oil Ranges						
C10-C28 Diesel Range	BDL	40.	mg/kg	8015	07/02/15	10
C28-C40 Oil Range	BDL	40.	mg/kg	8015	07/02/15	10
Surrogate Recovery						
o-Terphenyl	45.1		% Rec.	8015	07/02/15	10
Polynuclear Aromatic Hydrocarbons						
Anthracene	BDL	0.012	mg/kg	8270C-SIM	07/06/15	2
Acenaphthene	BDL	0.012	mg/kg	8270C-SIM	07/06/15	2
Acenaphthylene	BDL	0.012	mg/kg	8270C-SIM	07/06/15	2
Benzo(a)anthracene	BDL	0.012	mg/kg	8270C-SIM	07/06/15	2
Benzo(a)pyrene	BDL	0.012	mg/kg	8270C-SIM	07/06/15	2
Benzo(b)fluoranthene	0.017	0.012	mg/kg	8270C-SIM	07/06/15	2
Benzo(g,h,i)perylene	BDL	0.012	mg/kg	8270C-SIM	07/06/15	2
Benzo(k)fluoranthene	BDL	0.012	mg/kg	8270C-SIM	07/06/15	2
Chrysene	0.012	0.012	mg/kg	8270C-SIM	07/06/15	2
Dibenz(a,h)anthracene	BDL	0.012	mg/kg	8270C-SIM	07/06/15	2
Fluoranthene	BDL	0.012	mg/kg	8270C-SIM	07/06/15	2
Fluorene	BDL	0.012	mg/kg	8270C-SIM	07/06/15	2
Indeno(1,2,3-cd)pyrene	BDL	0.012	mg/kg	8270C-SIM	07/06/15	2
Naphthalene	BDL	0.040	mg/kg	8270C-SIM	07/06/15	2
Phenanthrene	BDL	0.012	mg/kg	8270C-SIM	07/06/15	2
Pyrene	BDL	0.012	mg/kg	8270C-SIM	07/06/15	2
1-Methylnaphthalene	BDL	0.040	mg/kg	8270C-SIM	07/06/15	2
2-Methylnaphthalene	BDL	0.040	mg/kg	8270C-SIM	07/06/15	2
2-Chloronaphthalene	BDL	0.040	mg/kg	8270C-SIM	07/06/15	2
Surrogate Recovery						
p-Terphenyl-d14	65.4		% Rec.	8270C-SIM	07/06/15	2
Nitrobenzene-d5	81.8		% Rec.	8270C-SIM	07/06/15	2
2-Fluorobiphenyl	59.4		% Rec.	8270C-SIM	07/06/15	2

BDL - Below Detection Limit

Det. Limit - Practical Quantitation Limit(PQL)

Note:

The reported analytical results relate only to the sample submitted.

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Reported: 07/09/15 11:02 Printed: 07/09/15 13:48

L773895-01 (DRORLA) - Cannot run at lower dilution due to viscosity of extract

L773895-01 (SV8270PAHSIM) - Dilution due to matrix



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# REPORT OF ANALYSIS

Dave Nicholson  
Linn Energy - Denver, CO  
1999 Broadway, Suite 3700  
Denver, CO 80202

July 09, 2015

Date Received : June 27, 2015  
Description : Pit and Landfarm Soil Sampling  
Sample ID : OM B-10 LF-2 0.5 FT  
Collected By : DK Nicholson  
Collection Date : 06/24/15 09:35

ESC Sample # : L773895-02

Site ID :

Project # :

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
TPH (GC/FID) Low Fraction	BDL	0.50	mg/kg	8015D/GRO	07/08/15	5
Surrogate Recovery (70-130)						
a,a,a-Trifluorotoluene(FID)	86.3		% Rec.	8015D/GRO	07/08/15	1
Diesel and Oil Ranges						
C10-C28 Diesel Range	210	20.	mg/kg	8015	07/03/15	5
C28-C40 Oil Range	23.	20.	mg/kg	8015	07/03/15	5
Surrogate Recovery						
o-Terphenyl	134.		% Rec.	8015	07/03/15	5
Polynuclear Aromatic Hydrocarbons						
Anthracene	BDL	0.0060	mg/kg	8270C-SIM	07/03/15	1
Acenaphthene	BDL	0.0060	mg/kg	8270C-SIM	07/03/15	1
Acenaphthylene	BDL	0.0060	mg/kg	8270C-SIM	07/03/15	1
Benzo(a)anthracene	0.0062	0.0060	mg/kg	8270C-SIM	07/03/15	1
Benzo(a)pyrene	0.0066	0.0060	mg/kg	8270C-SIM	07/03/15	1
Benzo(b)fluoranthene	0.011	0.0060	mg/kg	8270C-SIM	07/03/15	1
Benzo(g,h,i)perylene	0.0097	0.0060	mg/kg	8270C-SIM	07/03/15	1
Benzo(k)fluoranthene	BDL	0.0060	mg/kg	8270C-SIM	07/03/15	1
Chrysene	0.010	0.0060	mg/kg	8270C-SIM	07/03/15	1
Dibenz(a,h)anthracene	BDL	0.0060	mg/kg	8270C-SIM	07/03/15	1
Fluoranthene	0.010	0.0060	mg/kg	8270C-SIM	07/03/15	1
Fluorene	BDL	0.0060	mg/kg	8270C-SIM	07/03/15	1
Indeno(1,2,3-cd)pyrene	0.0062	0.0060	mg/kg	8270C-SIM	07/03/15	1
Naphthalene	BDL	0.020	mg/kg	8270C-SIM	07/03/15	1
Phenanthrene	0.0062	0.0060	mg/kg	8270C-SIM	07/03/15	1
Pyrene	0.010	0.0060	mg/kg	8270C-SIM	07/03/15	1
1-Methylnaphthalene	BDL	0.020	mg/kg	8270C-SIM	07/03/15	1
2-Methylnaphthalene	BDL	0.020	mg/kg	8270C-SIM	07/03/15	1
2-Chloronaphthalene	BDL	0.020	mg/kg	8270C-SIM	07/03/15	1
Surrogate Recovery						
p-Terphenyl-d14	62.5		% Rec.	8270C-SIM	07/03/15	1
Nitrobenzene-d5	91.3		% Rec.	8270C-SIM	07/03/15	1
2-Fluorobiphenyl	62.1		% Rec.	8270C-SIM	07/03/15	1

BDL - Below Detection Limit

Det. Limit - Practical Quantitation Limit(PQL)

Note:

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# REPORT OF ANALYSIS

Dave Nicholson  
Linn Energy - Denver, CO  
1999 Broadway, Suite 3700  
Denver, CO 80202

July 09, 2015

Date Received : June 27, 2015  
Description : Pit and Landfarm Soil Sampling  
Sample ID : OM B-10 LF-3 3 FT  
Collected By : DK Nicholson  
Collection Date : 06/24/15 09:40

ESC Sample # : L773895-03

Site ID :

Project # :

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
TPH (GC/FID) Low Fraction	BDL	0.50	mg/kg	8015D/GRO	07/08/15	5
Surrogate Recovery (70-130)						
a,a,a-Trifluorotoluene(FID)	83.5		% Rec.	8015D/GRO	07/08/15	1
Diesel and Oil Ranges						
C10-C28 Diesel Range	18.	8.0	mg/kg	8015	07/03/15	2
C28-C40 Oil Range	10.	8.0	mg/kg	8015	07/03/15	2
Surrogate Recovery						
o-Terphenyl	83.1		% Rec.	8015	07/03/15	2
Polynuclear Aromatic Hydrocarbons						
Anthracene	BDL	0.012	mg/kg	8270C-SIM	07/06/15	2
Acenaphthene	BDL	0.012	mg/kg	8270C-SIM	07/06/15	2
Acenaphthylene	BDL	0.012	mg/kg	8270C-SIM	07/06/15	2
Benzo(a)anthracene	BDL	0.012	mg/kg	8270C-SIM	07/06/15	2
Benzo(a)pyrene	BDL	0.012	mg/kg	8270C-SIM	07/06/15	2
Benzo(b)fluoranthene	BDL	0.012	mg/kg	8270C-SIM	07/06/15	2
Benzo(g,h,i)perylene	BDL	0.012	mg/kg	8270C-SIM	07/06/15	2
Benzo(k)fluoranthene	BDL	0.012	mg/kg	8270C-SIM	07/06/15	2
Chrysene	BDL	0.012	mg/kg	8270C-SIM	07/06/15	2
Dibenz(a,h)anthracene	BDL	0.012	mg/kg	8270C-SIM	07/06/15	2
Fluoranthene	BDL	0.012	mg/kg	8270C-SIM	07/06/15	2
Fluorene	BDL	0.012	mg/kg	8270C-SIM	07/06/15	2
Indeno(1,2,3-cd)pyrene	BDL	0.012	mg/kg	8270C-SIM	07/06/15	2
Naphthalene	BDL	0.040	mg/kg	8270C-SIM	07/06/15	2
Phenanthrene	BDL	0.012	mg/kg	8270C-SIM	07/06/15	2
Pyrene	BDL	0.012	mg/kg	8270C-SIM	07/06/15	2
1-Methylnaphthalene	BDL	0.040	mg/kg	8270C-SIM	07/06/15	2
2-Methylnaphthalene	BDL	0.040	mg/kg	8270C-SIM	07/06/15	2
2-Chloronaphthalene	BDL	0.040	mg/kg	8270C-SIM	07/06/15	2
Surrogate Recovery						
p-Terphenyl-d14	64.5		% Rec.	8270C-SIM	07/06/15	2
Nitrobenzene-d5	83.6		% Rec.	8270C-SIM	07/06/15	2
2-Fluorobiphenyl	60.4		% Rec.	8270C-SIM	07/06/15	2

BDL - Below Detection Limit

Det. Limit - Practical Quantitation Limit(PQL)

Note:

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L773895-03 (SV8270PAHSIM) - Dilution due to matrix





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# REPORT OF ANALYSIS

Dave Nicholson  
Linn Energy - Denver, CO  
1999 Broadway, Suite 3700  
Denver, CO 80202

July 09, 2015

Date Received : June 27, 2015  
Description : Pit and Landfarm Soil Sampling  
Sample ID : OM B-10 LF-4 0.5 FT  
Collected By : DK Nicholson  
Collection Date : 06/24/15 09:45

ESC Sample # : L773895-04

Site ID :

Project # :

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
TPH (GC/FID) Low Fraction	BDL	0.50	mg/kg	8015D/GRO	07/08/15	5
Surrogate Recovery (70-130)						
a,a,a-Trifluorotoluene(FID)	84.7		% Rec.	8015D/GRO	07/08/15	1
Diesel and Oil Ranges						
C10-C28 Diesel Range	30.	20.	mg/kg	8015	07/03/15	5
C28-C40 Oil Range	22.	20.	mg/kg	8015	07/03/15	5
Surrogate Recovery						
o-Terphenyl	88.2		% Rec.	8015	07/03/15	5
Polynuclear Aromatic Hydrocarbons						
Anthracene	BDL	0.012	mg/kg	8270C-SIM	07/06/15	2
Acenaphthene	BDL	0.012	mg/kg	8270C-SIM	07/06/15	2
Acenaphthylene	BDL	0.012	mg/kg	8270C-SIM	07/06/15	2
Benzo(a)anthracene	BDL	0.012	mg/kg	8270C-SIM	07/06/15	2
Benzo(a)pyrene	BDL	0.012	mg/kg	8270C-SIM	07/06/15	2
Benzo(b)fluoranthene	BDL	0.012	mg/kg	8270C-SIM	07/06/15	2
Benzo(g,h,i)perylene	BDL	0.012	mg/kg	8270C-SIM	07/06/15	2
Benzo(k)fluoranthene	BDL	0.012	mg/kg	8270C-SIM	07/06/15	2
Chrysene	BDL	0.012	mg/kg	8270C-SIM	07/06/15	2
Dibenz(a,h)anthracene	BDL	0.012	mg/kg	8270C-SIM	07/06/15	2
Fluoranthene	BDL	0.012	mg/kg	8270C-SIM	07/06/15	2
Fluorene	BDL	0.012	mg/kg	8270C-SIM	07/06/15	2
Indeno(1,2,3-cd)pyrene	BDL	0.012	mg/kg	8270C-SIM	07/06/15	2
Naphthalene	BDL	0.040	mg/kg	8270C-SIM	07/06/15	2
Phenanthrene	BDL	0.012	mg/kg	8270C-SIM	07/06/15	2
Pyrene	BDL	0.012	mg/kg	8270C-SIM	07/06/15	2
1-Methylnaphthalene	BDL	0.040	mg/kg	8270C-SIM	07/06/15	2
2-Methylnaphthalene	BDL	0.040	mg/kg	8270C-SIM	07/06/15	2
2-Chloronaphthalene	BDL	0.040	mg/kg	8270C-SIM	07/06/15	2
Surrogate Recovery						
p-Terphenyl-d14	60.3		% Rec.	8270C-SIM	07/06/15	2
Nitrobenzene-d5	88.6		% Rec.	8270C-SIM	07/06/15	2
2-Fluorobiphenyl	56.1		% Rec.	8270C-SIM	07/06/15	2

BDL - Below Detection Limit

Det. Limit - Practical Quantitation Limit(PQL)

Note:

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L773895-04 (SV8270PAHSIM) - Dilution due to matrix



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# REPORT OF ANALYSIS

July 09, 2015

Dave Nicholson  
Linn Energy - Denver, CO  
1999 Broadway, Suite 3700  
Denver, CO 80202

Date Received : June 27, 2015  
Description : Pit and Landfarm Soil Sampling  
Sample ID : OM B-10 LF-5 3 FT  
Collected By : DK Nicholson  
Collection Date : 06/24/15 09:50

ESC Sample # : L773895-05

Site ID :

Project # :

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
TPH (GC/FID) Low Fraction	BDL	0.50	mg/kg	8015D/GRO	07/08/15	5
Surrogate Recovery (70-130)						
a,a,a-Trifluorotoluene(FID)	83.7		% Rec.	8015D/GRO	07/08/15	1
Diesel and Oil Ranges						
C10-C28 Diesel Range	53.	20.	mg/kg	8015	07/03/15	5
C28-C40 Oil Range	35.	20.	mg/kg	8015	07/03/15	5
Surrogate Recovery						
o-Terphenyl	80.5		% Rec.	8015	07/03/15	5
Polynuclear Aromatic Hydrocarbons						
Anthracene	BDL	0.030	mg/kg	8270C-SIM	07/06/15	5
Acenaphthene	BDL	0.030	mg/kg	8270C-SIM	07/06/15	5
Acenaphthylene	BDL	0.030	mg/kg	8270C-SIM	07/06/15	5
Benzo(a)anthracene	BDL	0.030	mg/kg	8270C-SIM	07/06/15	5
Benzo(a)pyrene	0.0080	0.0030	mg/kg	8270C-SIM	07/06/15	5
Benzo(b)fluoranthene	0.031	0.030	mg/kg	8270C-SIM	07/06/15	5
Benzo(g,h,i)perylene	BDL	0.030	mg/kg	8270C-SIM	07/06/15	5
Benzo(k)fluoranthene	BDL	0.030	mg/kg	8270C-SIM	07/06/15	5
Chrysene	BDL	0.030	mg/kg	8270C-SIM	07/06/15	5
Dibenz(a,h)anthracene	BDL	0.0030	mg/kg	8270C-SIM	07/06/15	5
Fluoranthene	BDL	0.030	mg/kg	8270C-SIM	07/06/15	5
Fluorene	BDL	0.030	mg/kg	8270C-SIM	07/06/15	5
Indeno(1,2,3-cd)pyrene	BDL	0.030	mg/kg	8270C-SIM	07/06/15	5
Naphthalene	BDL	0.10	mg/kg	8270C-SIM	07/06/15	5
Phenanthrene	BDL	0.030	mg/kg	8270C-SIM	07/06/15	5
Pyrene	BDL	0.030	mg/kg	8270C-SIM	07/06/15	5
1-Methylnaphthalene	BDL	0.10	mg/kg	8270C-SIM	07/06/15	5
2-Methylnaphthalene	BDL	0.10	mg/kg	8270C-SIM	07/06/15	5
2-Chloronaphthalene	BDL	0.10	mg/kg	8270C-SIM	07/06/15	5
Surrogate Recovery						
p-Terphenyl-d14	70.9		% Rec.	8270C-SIM	07/06/15	5
Nitrobenzene-d5	99.7		% Rec.	8270C-SIM	07/06/15	5
2-Fluorobiphenyl	68.7		% Rec.	8270C-SIM	07/06/15	5

BDL - Below Detection Limit

Det. Limit - Practical Quantitation Limit(PQL)

Note:

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L773895-05 (SV8270PAHSIM) - Dilution due to matrix



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# REPORT OF ANALYSIS

Dave Nicholson  
Linn Energy - Denver, CO  
1999 Broadway, Suite 3700  
Denver, CO 80202

July 09, 2015

Date Received : June 27, 2015  
Description : Pit and Landfarm Soil Sampling  
Sample ID : OM B-10 LF-6 0.5 FT  
Collected By : DK Nicholson  
Collection Date : 06/24/15 09:55

ESC Sample # : L773895-06

Site ID :

Project # :

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
TPH (GC/FID) Low Fraction	BDL	0.50	mg/kg	8015D/GRO	07/08/15	5
Surrogate Recovery (70-130)						
a,a,a-Trifluorotoluene(FID)	83.6		% Rec.	8015D/GRO	07/08/15	1
Diesel and Oil Ranges						
C10-C28 Diesel Range	46.	20.	mg/kg	8015	07/03/15	5
C28-C40 Oil Range	BDL	20.	mg/kg	8015	07/03/15	5
Surrogate Recovery						
o-Terphenyl	81.2		% Rec.	8015	07/03/15	5
Polynuclear Aromatic Hydrocarbons						
Anthracene	BDL	0.030	mg/kg	8270C-SIM	07/06/15	5
Acenaphthene	BDL	0.030	mg/kg	8270C-SIM	07/06/15	5
Acenaphthylene	BDL	0.030	mg/kg	8270C-SIM	07/06/15	5
Benzo(a)anthracene	BDL	0.030	mg/kg	8270C-SIM	07/06/15	5
Benzo(a)pyrene	0.021	0.0030	mg/kg	8270C-SIM	07/06/15	5
Benzo(b)fluoranthene	0.035	0.030	mg/kg	8270C-SIM	07/06/15	5
Benzo(g,h,i)perylene	BDL	0.030	mg/kg	8270C-SIM	07/06/15	5
Benzo(k)fluoranthene	BDL	0.030	mg/kg	8270C-SIM	07/06/15	5
Chrysene	BDL	0.030	mg/kg	8270C-SIM	07/06/15	5
Dibenz(a,h)anthracene	0.025	0.0030	mg/kg	8270C-SIM	07/06/15	5
Fluoranthene	BDL	0.030	mg/kg	8270C-SIM	07/06/15	5
Fluorene	BDL	0.030	mg/kg	8270C-SIM	07/06/15	5
Indeno(1,2,3-cd)pyrene	BDL	0.030	mg/kg	8270C-SIM	07/06/15	5
Naphthalene	BDL	0.10	mg/kg	8270C-SIM	07/06/15	5
Phenanthrene	BDL	0.030	mg/kg	8270C-SIM	07/06/15	5
Pyrene	BDL	0.030	mg/kg	8270C-SIM	07/06/15	5
1-Methylnaphthalene	BDL	0.10	mg/kg	8270C-SIM	07/06/15	5
2-Methylnaphthalene	BDL	0.10	mg/kg	8270C-SIM	07/06/15	5
2-Chloronaphthalene	BDL	0.10	mg/kg	8270C-SIM	07/06/15	5
Surrogate Recovery						
p-Terphenyl-d14	66.9		% Rec.	8270C-SIM	07/06/15	5
Nitrobenzene-d5	112.		% Rec.	8270C-SIM	07/06/15	5
2-Fluorobiphenyl	72.0		% Rec.	8270C-SIM	07/06/15	5

BDL - Below Detection Limit

Det. Limit - Practical Quantitation Limit(PQL)

Note:

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Reported: 07/09/15 11:02 Printed: 07/09/15 13:48  
L773895-06 (SV8270PAHSIM) - Dilution due to matrix



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Tax I.D. 62-0814289

Est. 1970

# REPORT OF ANALYSIS

Dave Nicholson  
Linn Energy - Denver, CO  
1999 Broadway, Suite 3700  
Denver, CO 80202

July 09, 2015

Date Received : June 27, 2015  
Description : Pit and Landfarm Soil Sampling  
Sample ID : OM B-10 LF-7 3 FT  
Collected By : DK Nicholson  
Collection Date : 06/24/15 10:00

ESC Sample # : L773895-07

Site ID :

Project # :

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
TPH (GC/FID) Low Fraction	BDL	0.50	mg/kg	8015D/GRO	07/08/15	5
Surrogate Recovery (70-130)						
a,a,a-Trifluorotoluene(FID)	98.2		% Rec.	8015D/GRO	07/08/15	1
Diesel and Oil Ranges						
C10-C28 Diesel Range	41.	20.	mg/kg	8015	07/03/15	5
C28-C40 Oil Range	20.	20.	mg/kg	8015	07/03/15	5
Surrogate Recovery						
o-Terphenyl	80.8		% Rec.	8015	07/03/15	5
Polynuclear Aromatic Hydrocarbons						
Anthracene	BDL	0.012	mg/kg	8270C-SIM	07/06/15	2
Acenaphthene	BDL	0.012	mg/kg	8270C-SIM	07/06/15	2
Acenaphthylene	BDL	0.012	mg/kg	8270C-SIM	07/06/15	2
Benzo(a)anthracene	BDL	0.012	mg/kg	8270C-SIM	07/06/15	2
Benzo(a)pyrene	BDL	0.012	mg/kg	8270C-SIM	07/06/15	2
Benzo(b)fluoranthene	BDL	0.012	mg/kg	8270C-SIM	07/06/15	2
Benzo(g,h,i)perylene	BDL	0.012	mg/kg	8270C-SIM	07/06/15	2
Benzo(k)fluoranthene	BDL	0.012	mg/kg	8270C-SIM	07/06/15	2
Chrysene	BDL	0.012	mg/kg	8270C-SIM	07/06/15	2
Dibenz(a,h)anthracene	BDL	0.012	mg/kg	8270C-SIM	07/06/15	2
Fluoranthene	BDL	0.012	mg/kg	8270C-SIM	07/06/15	2
Fluorene	BDL	0.012	mg/kg	8270C-SIM	07/06/15	2
Indeno(1,2,3-cd)pyrene	BDL	0.012	mg/kg	8270C-SIM	07/06/15	2
Naphthalene	BDL	0.040	mg/kg	8270C-SIM	07/06/15	2
Phenanthrene	BDL	0.012	mg/kg	8270C-SIM	07/06/15	2
Pyrene	BDL	0.012	mg/kg	8270C-SIM	07/06/15	2
1-Methylnaphthalene	BDL	0.040	mg/kg	8270C-SIM	07/06/15	2
2-Methylnaphthalene	BDL	0.040	mg/kg	8270C-SIM	07/06/15	2
2-Chloronaphthalene	BDL	0.040	mg/kg	8270C-SIM	07/06/15	2
Surrogate Recovery						
p-Terphenyl-d14	52.5		% Rec.	8270C-SIM	07/06/15	2
Nitrobenzene-d5	78.3		% Rec.	8270C-SIM	07/06/15	2
2-Fluorobiphenyl	49.8		% Rec.	8270C-SIM	07/06/15	2

BDL - Below Detection Limit

Det. Limit - Practical Quantitation Limit(PQL)

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L773895-07 (SV8270PAHSIM) - Dilution due to matrix



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Est. 1970

# REPORT OF ANALYSIS

Dave Nicholson  
Linn Energy - Denver, CO  
1999 Broadway, Suite 3700  
Denver, CO 80202

July 09, 2015

Date Received : June 27, 2015  
Description : Pit and Landfarm Soil Sampling  
Sample ID : OM B-10 LF-8 0.5 FT  
Collected By : DK Nicholson  
Collection Date : 06/24/15 10:05

ESC Sample # : L773895-08

Site ID :

Project # :

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
TPH (GC/FID) Low Fraction	BDL	0.50	mg/kg	8015D/GRO	07/08/15	5
Surrogate Recovery (70-130)						
a,a,a-Trifluorotoluene(FID)	84.6		% Rec.	8015D/GRO	07/08/15	1
Diesel and Oil Ranges						
C10-C28 Diesel Range	26.	20.	mg/kg	8015	07/03/15	5
C28-C40 Oil Range	BDL	20.	mg/kg	8015	07/03/15	5
Surrogate Recovery						
o-Terphenyl	125.		% Rec.	8015	07/03/15	5
Polynuclear Aromatic Hydrocarbons						
Anthracene	BDL	0.012	mg/kg	8270C-SIM	07/06/15	2
Acenaphthene	BDL	0.012	mg/kg	8270C-SIM	07/06/15	2
Acenaphthylene	BDL	0.012	mg/kg	8270C-SIM	07/06/15	2
Benzo(a)anthracene	BDL	0.012	mg/kg	8270C-SIM	07/06/15	2
Benzo(a)pyrene	BDL	0.012	mg/kg	8270C-SIM	07/06/15	2
Benzo(b)fluoranthene	0.014	0.012	mg/kg	8270C-SIM	07/06/15	2
Benzo(g,h,i)perylene	BDL	0.012	mg/kg	8270C-SIM	07/06/15	2
Benzo(k)fluoranthene	BDL	0.012	mg/kg	8270C-SIM	07/06/15	2
Chrysene	BDL	0.012	mg/kg	8270C-SIM	07/06/15	2
Dibenz(a,h)anthracene	BDL	0.012	mg/kg	8270C-SIM	07/06/15	2
Fluoranthene	BDL	0.012	mg/kg	8270C-SIM	07/06/15	2
Fluorene	BDL	0.012	mg/kg	8270C-SIM	07/06/15	2
Indeno(1,2,3-cd)pyrene	BDL	0.012	mg/kg	8270C-SIM	07/06/15	2
Naphthalene	BDL	0.040	mg/kg	8270C-SIM	07/06/15	2
Phenanthrene	BDL	0.012	mg/kg	8270C-SIM	07/06/15	2
Pyrene	BDL	0.012	mg/kg	8270C-SIM	07/06/15	2
1-Methylnaphthalene	BDL	0.040	mg/kg	8270C-SIM	07/06/15	2
2-Methylnaphthalene	BDL	0.040	mg/kg	8270C-SIM	07/06/15	2
2-Chloronaphthalene	BDL	0.040	mg/kg	8270C-SIM	07/06/15	2
Surrogate Recovery						
p-Terphenyl-d14	52.2		% Rec.	8270C-SIM	07/06/15	2
Nitrobenzene-d5	84.7		% Rec.	8270C-SIM	07/06/15	2
2-Fluorobiphenyl	54.1		% Rec.	8270C-SIM	07/06/15	2

BDL - Below Detection Limit

Det. Limit - Practical Quantitation Limit(PQL)

Note:

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L773895-08 (SV8270PAHSIM) - Dilution due to matrix



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# REPORT OF ANALYSIS

Dave Nicholson  
Linn Energy - Denver, CO  
1999 Broadway, Suite 3700  
Denver, CO 80202

July 09, 2015

Date Received : June 27, 2015  
Description : Pit and Landfarm Soil Sampling  
Sample ID : OM B-10 LF-9 3 FT  
Collected By : DK Nicholson  
Collection Date : 06/24/15 10:10

ESC Sample # : L773895-09

Site ID :

Project # :

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
TPH (GC/FID) Low Fraction	BDL	0.50	mg/kg	8015D/GRO	07/08/15	5
Surrogate Recovery (70-130)						
a,a,a-Trifluorotoluene(FID)	84.4		% Rec.	8015D/GRO	07/08/15	1
Diesel and Oil Ranges						
C10-C28 Diesel Range	30.	20.	mg/kg	8015	07/03/15	5
C28-C40 Oil Range	BDL	20.	mg/kg	8015	07/03/15	5
Surrogate Recovery						
o-Terphenyl	85.6		% Rec.	8015	07/03/15	5
Polynuclear Aromatic Hydrocarbons						
Anthracene	BDL	0.0060	mg/kg	8270C-SIM	07/03/15	1
Acenaphthene	BDL	0.0060	mg/kg	8270C-SIM	07/03/15	1
Acenaphthylene	BDL	0.0060	mg/kg	8270C-SIM	07/03/15	1
Benzo(a)anthracene	BDL	0.0060	mg/kg	8270C-SIM	07/03/15	1
Benzo(a)pyrene	BDL	0.0060	mg/kg	8270C-SIM	07/03/15	1
Benzo(b)fluoranthene	0.0089	0.0060	mg/kg	8270C-SIM	07/03/15	1
Benzo(g,h,i)perylene	0.0086	0.0060	mg/kg	8270C-SIM	07/03/15	1
Benzo(k)fluoranthene	BDL	0.0060	mg/kg	8270C-SIM	07/03/15	1
Chrysene	0.0085	0.0060	mg/kg	8270C-SIM	07/03/15	1
Dibenz(a,h)anthracene	BDL	0.0060	mg/kg	8270C-SIM	07/03/15	1
Fluoranthene	0.0069	0.0060	mg/kg	8270C-SIM	07/03/15	1
Fluorene	BDL	0.0060	mg/kg	8270C-SIM	07/03/15	1
Indeno(1,2,3-cd)pyrene	BDL	0.0060	mg/kg	8270C-SIM	07/03/15	1
Naphthalene	BDL	0.020	mg/kg	8270C-SIM	07/03/15	1
Phenanthrene	BDL	0.0060	mg/kg	8270C-SIM	07/03/15	1
Pyrene	0.0073	0.0060	mg/kg	8270C-SIM	07/03/15	1
1-Methylnaphthalene	BDL	0.020	mg/kg	8270C-SIM	07/03/15	1
2-Methylnaphthalene	BDL	0.020	mg/kg	8270C-SIM	07/03/15	1
2-Chloronaphthalene	BDL	0.020	mg/kg	8270C-SIM	07/03/15	1
Surrogate Recovery						
p-Terphenyl-d14	58.8		% Rec.	8270C-SIM	07/03/15	1
Nitrobenzene-d5	95.2		% Rec.	8270C-SIM	07/03/15	1
2-Fluorobiphenyl	63.0		% Rec.	8270C-SIM	07/03/15	1

BDL - Below Detection Limit

Det. Limit - Practical Quantitation Limit(PQL)

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Est. 1970

# REPORT OF ANALYSIS

Dave Nicholson  
Linn Energy - Denver, CO  
1999 Broadway, Suite 3700  
Denver, CO 80202

July 09, 2015

Date Received : June 27, 2015  
Description : Pit and Landfarm Soil Sampling  
Sample ID : OM B-10 LF-10 0.5 FT  
Collected By : DK Nicholson  
Collection Date : 06/24/15 10:15

ESC Sample # : L773895-10

Site ID :

Project # :

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
TPH (GC/FID) Low Fraction	BDL	0.50	mg/kg	8015D/GRO	07/08/15	5
Surrogate Recovery (70-130)						
a,a,a-Trifluorotoluene(FID)	84.4		% Rec.	8015D/GRO	07/08/15	1
Diesel and Oil Ranges						
C10-C28 Diesel Range	27.	4.0	mg/kg	8015	07/03/15	1
C28-C40 Oil Range	22.	4.0	mg/kg	8015	07/03/15	1
Surrogate Recovery						
o-Terphenyl	62.5		% Rec.	8015	07/03/15	1
Polynuclear Aromatic Hydrocarbons						
Anthracene	BDL	0.012	mg/kg	8270C-SIM	07/06/15	2
Acenaphthene	BDL	0.012	mg/kg	8270C-SIM	07/06/15	2
Acenaphthylene	BDL	0.012	mg/kg	8270C-SIM	07/06/15	2
Benzo(a)anthracene	BDL	0.012	mg/kg	8270C-SIM	07/06/15	2
Benzo(a)pyrene	BDL	0.012	mg/kg	8270C-SIM	07/06/15	2
Benzo(b)fluoranthene	BDL	0.012	mg/kg	8270C-SIM	07/06/15	2
Benzo(g,h,i)perylene	BDL	0.012	mg/kg	8270C-SIM	07/06/15	2
Benzo(k)fluoranthene	BDL	0.012	mg/kg	8270C-SIM	07/06/15	2
Chrysene	BDL	0.012	mg/kg	8270C-SIM	07/06/15	2
Dibenz(a,h)anthracene	BDL	0.012	mg/kg	8270C-SIM	07/06/15	2
Fluoranthene	BDL	0.012	mg/kg	8270C-SIM	07/06/15	2
Fluorene	BDL	0.012	mg/kg	8270C-SIM	07/06/15	2
Indeno(1,2,3-cd)pyrene	BDL	0.012	mg/kg	8270C-SIM	07/06/15	2
Naphthalene	BDL	0.040	mg/kg	8270C-SIM	07/06/15	2
Phenanthrene	BDL	0.012	mg/kg	8270C-SIM	07/06/15	2
Pyrene	BDL	0.012	mg/kg	8270C-SIM	07/06/15	2
1-Methylnaphthalene	BDL	0.040	mg/kg	8270C-SIM	07/06/15	2
2-Methylnaphthalene	BDL	0.040	mg/kg	8270C-SIM	07/06/15	2
2-Chloronaphthalene	BDL	0.040	mg/kg	8270C-SIM	07/06/15	2
Surrogate Recovery						
p-Terphenyl-d14	64.1		% Rec.	8270C-SIM	07/06/15	2
Nitrobenzene-d5	82.2		% Rec.	8270C-SIM	07/06/15	2
2-Fluorobiphenyl	61.3		% Rec.	8270C-SIM	07/06/15	2

BDL - Below Detection Limit

Det. Limit - Practical Quantitation Limit(PQL)

Note:

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L773895-10 (SV8270PAHSIM) - Dilution due to matrix





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# REPORT OF ANALYSIS

Dave Nicholson  
Linn Energy - Denver, CO  
1999 Broadway, Suite 3700  
Denver, CO 80202

July 09, 2015

Date Received : June 27, 2015  
Description : Pit and Landfarm Soil Sampling  
Sample ID : OM B-10 LF-11 3 FT  
Collected By : DK Nicholson  
Collection Date : 06/24/15 10:20

ESC Sample # : L773895-11

Site ID :

Project # :

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
TPH (GC/FID) Low Fraction	BDL	0.50	mg/kg	8015D/GRO	07/08/15	5
Surrogate Recovery (70-130)						
a,a,a-Trifluorotoluene(FID)	83.8		% Rec.	8015D/GRO	07/08/15	1
Diesel and Oil Ranges						
C10-C28 Diesel Range	59.	20.	mg/kg	8015	07/03/15	5
C28-C40 Oil Range	38.	20.	mg/kg	8015	07/03/15	5
Surrogate Recovery						
o-Terphenyl	81.4		% Rec.	8015	07/03/15	5
Polynuclear Aromatic Hydrocarbons						
Anthracene	BDL	0.030	mg/kg	8270C-SIM	07/06/15	5
Acenaphthene	BDL	0.030	mg/kg	8270C-SIM	07/06/15	5
Acenaphthylene	BDL	0.030	mg/kg	8270C-SIM	07/06/15	5
Benzo(a)anthracene	BDL	0.030	mg/kg	8270C-SIM	07/06/15	5
Benzo(a)pyrene	0.0050	0.0030	mg/kg	8270C-SIM	07/06/15	5
Benzo(b)fluoranthene	BDL	0.030	mg/kg	8270C-SIM	07/06/15	5
Benzo(g,h,i)perylene	BDL	0.030	mg/kg	8270C-SIM	07/06/15	5
Benzo(k)fluoranthene	BDL	0.030	mg/kg	8270C-SIM	07/06/15	5
Chrysene	BDL	0.030	mg/kg	8270C-SIM	07/06/15	5
Dibenz(a,h)anthracene	BDL	0.0030	mg/kg	8270C-SIM	07/06/15	5
Fluoranthene	BDL	0.030	mg/kg	8270C-SIM	07/06/15	5
Fluorene	BDL	0.030	mg/kg	8270C-SIM	07/06/15	5
Indeno(1,2,3-cd)pyrene	BDL	0.030	mg/kg	8270C-SIM	07/06/15	5
Naphthalene	BDL	0.10	mg/kg	8270C-SIM	07/06/15	5
Phenanthrene	BDL	0.030	mg/kg	8270C-SIM	07/06/15	5
Pyrene	BDL	0.030	mg/kg	8270C-SIM	07/06/15	5
1-Methylnaphthalene	BDL	0.10	mg/kg	8270C-SIM	07/06/15	5
2-Methylnaphthalene	BDL	0.10	mg/kg	8270C-SIM	07/06/15	5
2-Chloronaphthalene	BDL	0.10	mg/kg	8270C-SIM	07/06/15	5
Surrogate Recovery						
p-Terphenyl-d14	66.8		% Rec.	8270C-SIM	07/06/15	5
Nitrobenzene-d5	77.2		% Rec.	8270C-SIM	07/06/15	5
2-Fluorobiphenyl	60.3		% Rec.	8270C-SIM	07/06/15	5

BDL - Below Detection Limit

Det. Limit - Practical Quantitation Limit(PQL)

Note:

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L773895-11 (SV8270PAHSIM) - Dilution due to matrix



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Est. 1970

# REPORT OF ANALYSIS

Dave Nicholson  
Linn Energy - Denver, CO  
1999 Broadway, Suite 3700  
Denver, CO 80202

July 09, 2015

Date Received : June 27, 2015  
Description : Pit and Landfarm Soil Sampling  
Sample ID : OM B-10 LF-12 0.5 FT  
Collected By : DK Nicholson  
Collection Date : 06/24/15 10:25

ESC Sample # : L773895-12

Site ID :

Project # :

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
TPH (GC/FID) Low Fraction	BDL	0.50	mg/kg	8015D/GRO	07/08/15	5
Surrogate Recovery (70-130)						
a,a,a-Trifluorotoluene(FID)	84.4		% Rec.	8015D/GRO	07/08/15	1
Diesel and Oil Ranges						
C10-C28 Diesel Range	35.	20.	mg/kg	8015	07/03/15	5
C28-C40 Oil Range	24.	20.	mg/kg	8015	07/03/15	5
Surrogate Recovery						
o-Terphenyl	94.4		% Rec.	8015	07/03/15	5
Polynuclear Aromatic Hydrocarbons						
Anthracene	BDL	0.030	mg/kg	8270C-SIM	07/06/15	5
Acenaphthene	BDL	0.030	mg/kg	8270C-SIM	07/06/15	5
Acenaphthylene	BDL	0.030	mg/kg	8270C-SIM	07/06/15	5
Benzo(a)anthracene	BDL	0.030	mg/kg	8270C-SIM	07/06/15	5
Benzo(a)pyrene	0.022	0.0030	mg/kg	8270C-SIM	07/06/15	5
Benzo(b)fluoranthene	0.035	0.030	mg/kg	8270C-SIM	07/06/15	5
Benzo(g,h,i)perylene	BDL	0.030	mg/kg	8270C-SIM	07/06/15	5
Benzo(k)fluoranthene	BDL	0.030	mg/kg	8270C-SIM	07/06/15	5
Chrysene	0.030	0.030	mg/kg	8270C-SIM	07/06/15	5
Dibenz(a,h)anthracene	0.0060	0.0030	mg/kg	8270C-SIM	07/06/15	5
Fluoranthene	BDL	0.030	mg/kg	8270C-SIM	07/06/15	5
Fluorene	BDL	0.030	mg/kg	8270C-SIM	07/06/15	5
Indeno(1,2,3-cd)pyrene	BDL	0.030	mg/kg	8270C-SIM	07/06/15	5
Naphthalene	BDL	0.10	mg/kg	8270C-SIM	07/06/15	5
Phenanthrene	BDL	0.030	mg/kg	8270C-SIM	07/06/15	5
Pyrene	BDL	0.030	mg/kg	8270C-SIM	07/06/15	5
1-Methylnaphthalene	BDL	0.10	mg/kg	8270C-SIM	07/06/15	5
2-Methylnaphthalene	BDL	0.10	mg/kg	8270C-SIM	07/06/15	5
2-Chloronaphthalene	BDL	0.10	mg/kg	8270C-SIM	07/06/15	5
Surrogate Recovery						
p-Terphenyl-d14	63.1		% Rec.	8270C-SIM	07/06/15	5
Nitrobenzene-d5	94.8		% Rec.	8270C-SIM	07/06/15	5
2-Fluorobiphenyl	67.0		% Rec.	8270C-SIM	07/06/15	5

BDL - Below Detection Limit

Det. Limit - Practical Quantitation Limit(PQL)

Note:

The reported analytical results relate only to the sample submitted.

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Reported: 07/09/15 11:02 Printed: 07/09/15 13:48  
L773895-12 (SV8270PAHSIM) - Dilution due to matrix



12065 Lebanon Rd.  
Mt. Juliet, TN 37122  
(615) 758-5858  
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Fax (615) 758-5859

Tax I.D. 62-0814289

Est. 1970

# REPORT OF ANALYSIS

Dave Nicholson  
Linn Energy - Denver, CO  
1999 Broadway, Suite 3700  
Denver, CO 80202

July 09, 2015

Date Received : June 27, 2015  
Description : Pit and Landfarm Soil Sampling  
Sample ID : OM B-10 LF-13 3 FT  
Collected By : DK Nicholson  
Collection Date : 06/24/15 10:30

ESC Sample # : L773895-13

Site ID :

Project # :

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
TPH (GC/FID) Low Fraction	BDL	0.50	mg/kg	8015D/GRO	07/08/15	5
Surrogate Recovery (70-130)						
a,a,a-Trifluorotoluene(FID)	84.6		% Rec.	8015D/GRO	07/08/15	1
Diesel and Oil Ranges						
C10-C28 Diesel Range	36.	20.	mg/kg	8015	07/03/15	5
C28-C40 Oil Range	BDL	20.	mg/kg	8015	07/03/15	5
Surrogate Recovery						
o-Terphenyl	84.7		% Rec.	8015	07/03/15	5
Polynuclear Aromatic Hydrocarbons						
Anthracene	BDL	0.012	mg/kg	8270C-SIM	07/06/15	2
Acenaphthene	BDL	0.012	mg/kg	8270C-SIM	07/06/15	2
Acenaphthylene	BDL	0.012	mg/kg	8270C-SIM	07/06/15	2
Benzo(a)anthracene	BDL	0.012	mg/kg	8270C-SIM	07/06/15	2
Benzo(a)pyrene	BDL	0.012	mg/kg	8270C-SIM	07/06/15	2
Benzo(b)fluoranthene	0.014	0.012	mg/kg	8270C-SIM	07/06/15	2
Benzo(g,h,i)perylene	BDL	0.012	mg/kg	8270C-SIM	07/06/15	2
Benzo(k)fluoranthene	BDL	0.012	mg/kg	8270C-SIM	07/06/15	2
Chrysene	0.012	0.012	mg/kg	8270C-SIM	07/06/15	2
Dibenz(a,h)anthracene	BDL	0.012	mg/kg	8270C-SIM	07/06/15	2
Fluoranthene	BDL	0.012	mg/kg	8270C-SIM	07/06/15	2
Fluorene	BDL	0.012	mg/kg	8270C-SIM	07/06/15	2
Indeno(1,2,3-cd)pyrene	BDL	0.012	mg/kg	8270C-SIM	07/06/15	2
Naphthalene	BDL	0.040	mg/kg	8270C-SIM	07/06/15	2
Phenanthrene	BDL	0.012	mg/kg	8270C-SIM	07/06/15	2
Pyrene	0.012	0.012	mg/kg	8270C-SIM	07/06/15	2
1-Methylnaphthalene	BDL	0.040	mg/kg	8270C-SIM	07/06/15	2
2-Methylnaphthalene	BDL	0.040	mg/kg	8270C-SIM	07/06/15	2
2-Chloronaphthalene	BDL	0.040	mg/kg	8270C-SIM	07/06/15	2
Surrogate Recovery						
p-Terphenyl-d14	69.1		% Rec.	8270C-SIM	07/06/15	2
Nitrobenzene-d5	79.7		% Rec.	8270C-SIM	07/06/15	2
2-Fluorobiphenyl	61.7		% Rec.	8270C-SIM	07/06/15	2

BDL - Below Detection Limit

Det. Limit - Practical Quantitation Limit(PQL)

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Reported: 07/09/15 11:02 Printed: 07/09/15 13:48  
L773895-13 (SV8270PAHSIM) - Dilution due to matrix



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Tax I.D. 62-0814289

Est. 1970

# REPORT OF ANALYSIS

Dave Nicholson  
Linn Energy - Denver, CO  
1999 Broadway, Suite 3700  
Denver, CO 80202

July 09, 2015

Date Received : June 27, 2015  
Description : Pit and Landfarm Soil Sampling  
Sample ID : OM B-10 LF-14 0.5 FT  
Collected By : DK Nicholson  
Collection Date : 06/24/15 10:35

ESC Sample # : L773895-14

Site ID :

Project # :

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
TPH (GC/FID) Low Fraction	BDL	0.50	mg/kg	8015D/GRO	07/08/15	5
Surrogate Recovery (70-130)						
a,a,a-Trifluorotoluene(FID)	84.0		% Rec.	8015D/GRO	07/08/15	1
Diesel and Oil Ranges						
C10-C28 Diesel Range	62.	4.0	mg/kg	8015	07/03/15	1
C28-C40 Oil Range	32.	4.0	mg/kg	8015	07/03/15	1
Surrogate Recovery						
o-Terphenyl	66.8		% Rec.	8015	07/03/15	1
Polynuclear Aromatic Hydrocarbons						
Anthracene	BDL	0.030	mg/kg	8270C-SIM	07/06/15	5
Acenaphthene	BDL	0.030	mg/kg	8270C-SIM	07/06/15	5
Acenaphthylene	BDL	0.030	mg/kg	8270C-SIM	07/06/15	5
Benzo(a)anthracene	BDL	0.030	mg/kg	8270C-SIM	07/06/15	5
Benzo(a)pyrene	0.024	0.0030	mg/kg	8270C-SIM	07/06/15	5
Benzo(b)fluoranthene	0.039	0.030	mg/kg	8270C-SIM	07/06/15	5
Benzo(g,h,i)perylene	0.032	0.030	mg/kg	8270C-SIM	07/06/15	5
Benzo(k)fluoranthene	BDL	0.030	mg/kg	8270C-SIM	07/06/15	5
Chrysene	0.032	0.030	mg/kg	8270C-SIM	07/06/15	5
Dibenz(a,h)anthracene	0.0070	0.0030	mg/kg	8270C-SIM	07/06/15	5
Fluoranthene	BDL	0.030	mg/kg	8270C-SIM	07/06/15	5
Fluorene	BDL	0.030	mg/kg	8270C-SIM	07/06/15	5
Indeno(1,2,3-cd)pyrene	BDL	0.030	mg/kg	8270C-SIM	07/06/15	5
Naphthalene	BDL	0.10	mg/kg	8270C-SIM	07/06/15	5
Phenanthrene	BDL	0.030	mg/kg	8270C-SIM	07/06/15	5
Pyrene	BDL	0.030	mg/kg	8270C-SIM	07/06/15	5
1-Methylnaphthalene	BDL	0.10	mg/kg	8270C-SIM	07/06/15	5
2-Methylnaphthalene	BDL	0.10	mg/kg	8270C-SIM	07/06/15	5
2-Chloronaphthalene	BDL	0.10	mg/kg	8270C-SIM	07/06/15	5
Surrogate Recovery						
p-Terphenyl-d14	63.2		% Rec.	8270C-SIM	07/06/15	5
Nitrobenzene-d5	81.3		% Rec.	8270C-SIM	07/06/15	5
2-Fluorobiphenyl	67.1		% Rec.	8270C-SIM	07/06/15	5

BDL - Below Detection Limit

Det. Limit - Practical Quantitation Limit(PQL)

Note:

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L773895-14 (SV8270PAHSIM) - Dilution due to matrix



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Tax I.D. 62-0814289

Est. 1970

# REPORT OF ANALYSIS

Dave Nicholson  
Linn Energy - Denver, CO  
1999 Broadway, Suite 3700  
Denver, CO 80202

July 09, 2015

Date Received : June 27, 2015  
Description : Pit and Landfarm Soil Sampling  
Sample ID : OM B-10 LF-15 3 FT  
Collected By : DK Nicholson  
Collection Date : 06/24/15 10:40

ESC Sample # : L773895-15

Site ID :

Project # :

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
TPH (GC/FID) Low Fraction	BDL	0.50	mg/kg	8015D/GRO	07/08/15	5
Surrogate Recovery (70-130)						
a,a,a-Trifluorotoluene(FID)	98.5		% Rec.	8015D/GRO	07/08/15	1
Diesel and Oil Ranges						
C10-C28 Diesel Range	68.	20.	mg/kg	8015	07/03/15	5
C28-C40 Oil Range	37.	20.	mg/kg	8015	07/03/15	5
Surrogate Recovery						
o-Terphenyl	77.8		% Rec.	8015	07/03/15	5
Polynuclear Aromatic Hydrocarbons						
Anthracene	BDL	0.030	mg/kg	8270C-SIM	07/06/15	5
Acenaphthene	BDL	0.030	mg/kg	8270C-SIM	07/06/15	5
Acenaphthylene	BDL	0.030	mg/kg	8270C-SIM	07/06/15	5
Benzo(a)anthracene	BDL	0.030	mg/kg	8270C-SIM	07/06/15	5
Benzo(a)pyrene	0.028	0.0030	mg/kg	8270C-SIM	07/06/15	5
Benzo(b)fluoranthene	0.045	0.030	mg/kg	8270C-SIM	07/06/15	5
Benzo(g,h,i)perylene	0.036	0.030	mg/kg	8270C-SIM	07/06/15	5
Benzo(k)fluoranthene	BDL	0.030	mg/kg	8270C-SIM	07/06/15	5
Chrysene	0.034	0.030	mg/kg	8270C-SIM	07/06/15	5
Dibenz(a,h)anthracene	0.0080	0.0030	mg/kg	8270C-SIM	07/06/15	5
Fluoranthene	BDL	0.030	mg/kg	8270C-SIM	07/06/15	5
Fluorene	BDL	0.030	mg/kg	8270C-SIM	07/06/15	5
Indeno(1,2,3-cd)pyrene	BDL	0.030	mg/kg	8270C-SIM	07/06/15	5
Naphthalene	BDL	0.10	mg/kg	8270C-SIM	07/06/15	5
Phenanthrene	BDL	0.030	mg/kg	8270C-SIM	07/06/15	5
Pyrene	BDL	0.030	mg/kg	8270C-SIM	07/06/15	5
1-Methylnaphthalene	BDL	0.10	mg/kg	8270C-SIM	07/06/15	5
2-Methylnaphthalene	BDL	0.10	mg/kg	8270C-SIM	07/06/15	5
2-Chloronaphthalene	BDL	0.10	mg/kg	8270C-SIM	07/06/15	5
Surrogate Recovery						
p-Terphenyl-d14	62.5		% Rec.	8270C-SIM	07/06/15	5
Nitrobenzene-d5	82.3		% Rec.	8270C-SIM	07/06/15	5
2-Fluorobiphenyl	66.1		% Rec.	8270C-SIM	07/06/15	5

BDL - Below Detection Limit

Det. Limit - Practical Quantitation Limit(PQL)

Note:

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Reported: 07/09/15 11:02 Printed: 07/09/15 13:48  
L773895-15 (SV8270PAHSIM) - Dilution due to matrix



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Tax I.D. 62-0814289

Est. 1970

# REPORT OF ANALYSIS

Dave Nicholson  
Linn Energy - Denver, CO  
1999 Broadway, Suite 3700  
Denver, CO 80202

July 09, 2015

Date Received : June 27, 2015  
Description : Pit and Landfarm Soil Sampling  
Sample ID : OM B-10 LF-16 0.5 FT  
Collected By : DK Nicholson  
Collection Date : 06/24/15 10:45

ESC Sample # : L773895-16

Site ID :

Project # :

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
TPH (GC/FID) Low Fraction	BDL	0.50	mg/kg	8015D/GRO	07/09/15	5
Surrogate Recovery (70-130)						
a,a,a-Trifluorotoluene(FID)	97.9		% Rec.	8015D/GRO	07/09/15	1
Diesel and Oil Ranges						
C10-C28 Diesel Range	22.	4.0	mg/kg	8015	07/03/15	1
C28-C40 Oil Range	13.	4.0	mg/kg	8015	07/03/15	1
Surrogate Recovery						
o-Terphenyl	60.2		% Rec.	8015	07/03/15	1
Polynuclear Aromatic Hydrocarbons						
Anthracene	BDL	0.0060	mg/kg	8270C-SIM	07/03/15	1
Acenaphthene	BDL	0.0060	mg/kg	8270C-SIM	07/03/15	1
Acenaphthylene	BDL	0.0060	mg/kg	8270C-SIM	07/03/15	1
Benzo(a)anthracene	BDL	0.0060	mg/kg	8270C-SIM	07/03/15	1
Benzo(a)pyrene	BDL	0.0060	mg/kg	8270C-SIM	07/03/15	1
Benzo(b)fluoranthene	0.0089	0.0060	mg/kg	8270C-SIM	07/03/15	1
Benzo(g,h,i)perylene	0.0090	0.0060	mg/kg	8270C-SIM	07/03/15	1
Benzo(k)fluoranthene	BDL	0.0060	mg/kg	8270C-SIM	07/03/15	1
Chrysene	0.0082	0.0060	mg/kg	8270C-SIM	07/03/15	1
Dibenz(a,h)anthracene	BDL	0.0060	mg/kg	8270C-SIM	07/03/15	1
Fluoranthene	0.0069	0.0060	mg/kg	8270C-SIM	07/03/15	1
Fluorene	BDL	0.0060	mg/kg	8270C-SIM	07/03/15	1
Indeno(1,2,3-cd)pyrene	BDL	0.0060	mg/kg	8270C-SIM	07/03/15	1
Naphthalene	BDL	0.020	mg/kg	8270C-SIM	07/03/15	1
Phenanthrene	BDL	0.0060	mg/kg	8270C-SIM	07/03/15	1
Pyrene	0.0068	0.0060	mg/kg	8270C-SIM	07/03/15	1
1-Methylnaphthalene	BDL	0.020	mg/kg	8270C-SIM	07/03/15	1
2-Methylnaphthalene	BDL	0.020	mg/kg	8270C-SIM	07/03/15	1
2-Chloronaphthalene	BDL	0.020	mg/kg	8270C-SIM	07/03/15	1
Surrogate Recovery						
p-Terphenyl-d14	52.4		% Rec.	8270C-SIM	07/03/15	1
Nitrobenzene-d5	87.2		% Rec.	8270C-SIM	07/03/15	1
2-Fluorobiphenyl	56.8		% Rec.	8270C-SIM	07/03/15	1

BDL - Below Detection Limit

Det. Limit - Practical Quantitation Limit(PQL)

Note:

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Attachment A  
List of Analytes with QC Qualifiers

Sample Number	Work Group	Sample Type	Analyte	Run ID	Qualifier
L773895-01	WG799201	SAMP	o-Terphenyl	R3047273	J2
L773895-05	WG799523	SAMP	Benzo(a)pyrene	R3047972	J
	WG799523	SAMP	Dibenz(a,h)anthracene	R3047972	U
L773895-06	WG799523	SAMP	Benzo(a)pyrene	R3047972	J
	WG799523	SAMP	Dibenz(a,h)anthracene	R3047972	J
L773895-11	WG799523	SAMP	Benzo(a)pyrene	R3047972	J
	WG799523	SAMP	Dibenz(a,h)anthracene	R3047972	U
L773895-12	WG799523	SAMP	Benzo(a)pyrene	R3047972	J
	WG799523	SAMP	Dibenz(a,h)anthracene	R3047972	J
L773895-14	WG799523	SAMP	Benzo(a)pyrene	R3047972	J
	WG799523	SAMP	Dibenz(a,h)anthracene	R3047972	J
L773895-15	WG799523	SAMP	Benzo(a)pyrene	R3047972	J
	WG799523	SAMP	Dibenz(a,h)anthracene	R3047972	J
L773895-16	WG799519	SAMP	C10-C28 Diesel Range	R3047448	J3



Attachment B  
Explanation of QC Qualifier Codes

Qualifier	Meaning
J	(EPA) - Estimated value below the lowest calibration point. Confidence correlates with concentration.
J2	Surrogate recovery limits have been exceeded; values are outside lower control limits
J3	The associated batch QC was outside the established quality control range for precision.
U	BDL (EPA) - Below Detectable Limits: Indicates that the compound was analyzed but not detected.

Qualifier Report Information

ESC utilizes sample and result qualifiers as set forth by the EPA Contract Laboratory Program and as required by most certifying bodies including NELAC. In addition to the EPA qualifiers adopted by ESC, we have implemented ESC qualifiers to provide more information pertaining to our analytical results. Each qualifier is designated in the qualifier explanation as either EPA or ESC. Data qualifiers are intended to provide the ESC client with more detailed information concerning the potential bias of reported data. Because of the wide range of constituents and variety of matrices incorporated by most EPA methods, it is common for some compounds to fall outside of established ranges. These exceptions are evaluated and all reported data is valid and useable "unless qualified as 'R' (Rejected)."

Definitions

- Accuracy - The relationship of the observed value of a known sample to the true value of a known sample. Represented by percent recovery and relevant to samples such as: control samples, matrix spike recoveries, surrogate recoveries, etc.
- Precision - The agreement between a set of samples or between duplicate samples. Relates to how close together the results are and is represented by Relative Percent Difference.
- Surrogate - Organic compounds that are similar in chemical composition, extraction, and chromatography to analytes of interest. The surrogates are used to determine the probable response of the group of analytes that are chemically related to the surrogate compound. Surrogates are added to the sample and carried through all stages of preparation and analyses.
- TIC - Tentatively Identified Compound: Compounds detected in samples that are not target compounds, internal standards, system monitoring compounds, or surrogates.



YOUR LAB OF CHOICE

Linn Energy - Denver, CO  
Dave Nicholson  
1999 Broadway, Suite 3700

Denver, CO 80202

Quality Assurance Report  
Level II

L773895

12065 Lebanon Rd.  
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Tax I.D. 62-0814289

Est. 1970

July 09, 2015

Analyte	Result	Laboratory Blank		Limit	Batch	Date Analyzed
		Units	% Rec			
C10-C28 Diesel Range	< 4	mg/kg			WG799201	07/01/15 15:52
C28-C40 Oil Range	< 4	mg/kg			WG799201	07/01/15 15:52
o-Terphenyl		% Rec.	104.0	50-150	WG799201	07/01/15 15:52
C10-C28 Diesel Range	< 4	mg/kg			WG799519	07/03/15 01:29
C28-C40 Oil Range	< 4	mg/kg			WG799519	07/03/15 01:29
o-Terphenyl		% Rec.	84.50	50-150	WG799519	07/03/15 01:29
1-Methylnaphthalene	< .02	mg/kg			WG799523	07/03/15 01:31
2-Chloronaphthalene	< .02	mg/kg			WG799523	07/03/15 01:31
2-Methylnaphthalene	< .02	mg/kg			WG799523	07/03/15 01:31
Acenaphthene	< .006	mg/kg			WG799523	07/03/15 01:31
Acenaphthylene	< .006	mg/kg			WG799523	07/03/15 01:31
Anthracene	< .006	mg/kg			WG799523	07/03/15 01:31
Benzo(a)anthracene	< .006	mg/kg			WG799523	07/03/15 01:31
Benzo(a)pyrene	< .006	mg/kg			WG799523	07/03/15 01:31
Benzo(b)fluoranthene	< .006	mg/kg			WG799523	07/03/15 01:31
Benzo(g,h,i)perylene	< .006	mg/kg			WG799523	07/03/15 01:31
Benzo(k)fluoranthene	< .006	mg/kg			WG799523	07/03/15 01:31
Chrysene	< .006	mg/kg			WG799523	07/03/15 01:31
Dibenz(a,h)anthracene	< .006	mg/kg			WG799523	07/03/15 01:31
Fluoranthene	< .006	mg/kg			WG799523	07/03/15 01:31
Fluorene	< .006	mg/kg			WG799523	07/03/15 01:31
Indeno(1,2,3-cd)pyrene	< .006	mg/kg			WG799523	07/03/15 01:31
Naphthalene	< .02	mg/kg			WG799523	07/03/15 01:31
Phenanthrene	< .006	mg/kg			WG799523	07/03/15 01:31
Pyrene	< .006	mg/kg			WG799523	07/03/15 01:31
2-Fluorobiphenyl		% Rec.	81.30	40.6-122	WG799523	07/03/15 01:31
Nitrobenzene-d5		% Rec.	100.0	22.1-146	WG799523	07/03/15 01:31
p-Terphenyl-d14		% Rec.	74.40	32.2-131	WG799523	07/03/15 01:31
TPH (GC/FID) Low Fraction	< .1	mg/kg			WG800780	07/08/15 03:20
a,a,a-Trifluorotoluene(FID)		% Rec.	99.90	59-128	WG800780	07/08/15 03:20
TPH (GC/FID) Low Fraction	< .1	mg/kg			WG801067	07/08/15 11:41
a,a,a-Trifluorotoluene(FID)		% Rec.	85.00	59-128	WG801067	07/08/15 11:41
TPH (GC/FID) Low Fraction	< .1	mg/kg			WG800966	07/08/15 17:39
a,a,a-Trifluorotoluene(FID)		% Rec.	99.70	59-128	WG800966	07/08/15 17:39

Analyte	Units	Laboratory Control Sample		% Rec	Limit	Batch
		Known Val	Result			
C10-C28 Diesel Range	mg/kg	60	45.3	75.5	50-100	WG799201
o-Terphenyl				97.60	50-150	WG799201
C10-C28 Diesel Range	mg/kg	60	38.9	64.8	50-100	WG799519
o-Terphenyl				84.30	50-150	WG799519
1-Methylnaphthalene	mg/kg	.08	0.0768	96.0	50.6-122	WG799523
2-Chloronaphthalene	mg/kg	.08	0.0745	93.1	53.9-121	WG799523
2-Methylnaphthalene	mg/kg	.08	0.0732	91.4	50.4-120	WG799523

\* Performance of this Analyte is outside of established criteria.

For additional information, please see Attachment A 'List of Analytes with QC Qualifiers.'



**YOUR LAB OF CHOICE**

Linn Energy - Denver, CO  
Dave Nicholson  
1999 Broadway, Suite 3700

Denver, CO 80202

Quality Assurance Report  
Level II

L773895

12065 Lebanon Rd.  
Mt. Juliet, TN 37122  
(615) 758-5858  
1-800-767-5859  
Fax (615) 758-5859

Tax I.D. 62-0814289

Est. 1970

July 09, 2015

Analyte	Units	Laboratory Control Sample		% Rec	Limit	Batch
		Known Val	Result			
Acenaphthene	mg/kg	.08	0.0718	89.8	52.4-120	WG799523
Acenaphthylene	mg/kg	.08	0.0763	95.3	49.6-120	WG799523
Anthracene	mg/kg	.08	0.0791	98.8	50.3-130	WG799523
Benzo(a)anthracene	mg/kg	.08	0.0654	81.8	46.7-125	WG799523
Benzo(a)pyrene	mg/kg	.08	0.0694	86.8	42.3-119	WG799523
Benzo(b)fluoranthene	mg/kg	.08	0.0631	78.9	43.6-124	WG799523
Benzo(g,h,i)perylene	mg/kg	.08	0.0756	94.6	45.1-132	WG799523
Benzo(k)fluoranthene	mg/kg	.08	0.0761	95.1	46.1-131	WG799523
Chrysene	mg/kg	.08	0.0733	91.6	49.5-131	WG799523
Dibenz(a,h)anthracene	mg/kg	.08	0.0814	102.	44.8-133	WG799523
Fluoranthene	mg/kg	.08	0.0751	93.9	49.3-128	WG799523
Fluorene	mg/kg	.08	0.0703	87.9	50.6-121	WG799523
Indeno(1,2,3-cd)pyrene	mg/kg	.08	0.0768	95.9	46.1-135	WG799523
Naphthalene	mg/kg	.08	0.0709	88.6	49.6-115	WG799523
Phenanthrene	mg/kg	.08	0.0669	83.6	48.8-121	WG799523
Pyrene	mg/kg	.08	0.0733	91.6	44.7-130	WG799523
2-Fluorobiphenyl				71.70	40.6-122	WG799523
Nitrobenzene-d5				87.70	22.1-146	WG799523
p-Terphenyl-d14				75.40	32.2-131	WG799523
TPH (GC/FID) Low Fraction	mg/kg	5.5	4.85	88.3	63.5-137	WG800780
a,a,a-Trifluorotoluene(FID)				96.00	59-128	WG800780
TPH (GC/FID) Low Fraction	mg/kg	5.5	4.47	81.3	63.5-137	WG801067
a,a,a-Trifluorotoluene(FID)				104.0	59-128	WG801067
TPH (GC/FID) Low Fraction	mg/kg	5.5	6.03	110.	63.5-137	WG800966
a,a,a-Trifluorotoluene(FID)				97.50	59-128	WG800966

Analyte	Units	Laboratory Control Sample Duplicate			Limit	RPD	Limit	Batch
		Result	Ref	%Rec				
C10-C28 Diesel Range	mg/kg	45.7	45.3	76.0	50-100	0.960	20	WG799201
o-Terphenyl				97.30	50-150			WG799201
C10-C28 Diesel Range	mg/kg	44.5	38.9	74.0	50-100	13.5	20	WG799519
o-Terphenyl				97.00	50-150			WG799519
1-Methylnaphthalene	mg/kg	0.0763	0.0768	95.0	50.6-122	0.730	20	WG799523
2-Chloronaphthalene	mg/kg	0.0735	0.0745	92.0	53.9-121	1.30	20	WG799523
2-Methylnaphthalene	mg/kg	0.0729	0.0732	91.0	50.4-120	0.380	20	WG799523
Acenaphthene	mg/kg	0.0710	0.0718	89.0	52.4-120	1.18	20	WG799523
Acenaphthylene	mg/kg	0.0751	0.0763	94.0	49.6-120	1.49	20	WG799523
Anthracene	mg/kg	0.0799	0.0791	100.	50.3-130	1.00	20	WG799523
Benzo(a)anthracene	mg/kg	0.0659	0.0654	82.0	46.7-125	0.710	20	WG799523
Benzo(a)pyrene	mg/kg	0.0692	0.0694	86.0	42.3-119	0.300	20	WG799523
Benzo(b)fluoranthene	mg/kg	0.0613	0.0631	76.0	43.6-124	3.03	20	WG799523
Benzo(g,h,i)perylene	mg/kg	0.0760	0.0756	95.0	45.1-132	0.480	20	WG799523
Benzo(k)fluoranthene	mg/kg	0.0775	0.0761	97.0	46.1-131	1.90	20	WG799523
Chrysene	mg/kg	0.0723	0.0733	90.0	49.5-131	1.37	20	WG799523
Dibenz(a,h)anthracene	mg/kg	0.0815	0.0814	102.	44.8-133	0.210	20	WG799523
Fluoranthene	mg/kg	0.0745	0.0751	93.0	49.3-128	0.840	20	WG799523
Fluorene	mg/kg	0.0694	0.0703	87.0	50.6-121	1.36	20	WG799523
Indeno(1,2,3-cd)pyrene	mg/kg	0.0771	0.0768	96.0	46.1-135	0.500	20	WG799523

\* Performance of this Analyte is outside of established criteria.

For additional information, please see Attachment A 'List of Analytes with QC Qualifiers.'



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Analyte	Units	Laboratory Control Sample Duplicate			Limit	RPD	Limit	Batch
		Result	Ref	%Rec				
Naphthalene	mg/kg	0.0704	0.0709	88.0	49.6-115	0.710	20	WG799523
Phenanthrene	mg/kg	0.0644	0.0669	80.0	48.8-121	3.74	20	WG799523
Pyrene	mg/kg	0.0734	0.0733	92.0	44.7-130	0.0900	20	WG799523
2-Fluorobiphenyl				72.20	40.6-122			WG799523
Nitrobenzene-d5				88.30	22.1-146			WG799523
p-Terphenyl-d14				74.90	32.2-131			WG799523
TPH (GC/FID) Low Fraction	mg/kg	4.72	4.85	86.0	63.5-137	2.71	20	WG800780
a,a,a-Trifluorotoluene(FID)				96.70	59-128			WG800780
TPH (GC/FID) Low Fraction	mg/kg	5.40	4.47	98.0	63.5-137	18.9	20	WG801067
a,a,a-Trifluorotoluene(FID)				105.0	59-128			WG801067
TPH (GC/FID) Low Fraction	mg/kg	6.03	6.03	110.	63.5-137	0.0200	20	WG800966
a,a,a-Trifluorotoluene(FID)				97.10	59-128			WG800966

Analyte	Units	MS Res	Matrix Spike		% Rec	Limit	Ref Samp	Batch
			Ref Res	TV				
C10-C28 Diesel Range	mg/kg	134.	98.5	60	59.0	50-100	L773570-01	WG799201
o-Terphenyl					68.20	50-150		WG799201
C10-C28 Diesel Range	mg/kg	61.2	21.6	60	66.0	50-100	L773895-16	WG799519
o-Terphenyl					77.80	50-150		WG799519
TPH (GC/FID) Low Fraction	mg/kg	22.9	0.0	5.5	83.0	28.5-138	L773854-17	WG800780
a,a,a-Trifluorotoluene(FID)					94.90	59-128		WG800780
TPH (GC/FID) Low Fraction	mg/kg	21.1	0.0	5.5	77.0	28.5-138	L773727-06	WG800966
a,a,a-Trifluorotoluene(FID)					95.10	59-128		WG800966

Analyte	Units	MSD	Matrix Spike Duplicate		Limit	RPD	Limit	Ref Samp	Batch
			Ref	%Rec					
C10-C28 Diesel Range	mg/kg	144.	134.	76.6	50-100	7.37	20	L773570-01	WG799201
o-Terphenyl				77.50	50-150				WG799201
C10-C28 Diesel Range	mg/kg	77.4	61.2	92.9	50-100	23.4*	20	L773895-16	WG799519
o-Terphenyl				68.40	50-150				WG799519
TPH (GC/FID) Low Fraction	mg/kg	19.8	22.9	72.1	28.5-138	14.3	23.6	L773854-17	WG800780
a,a,a-Trifluorotoluene(FID)				95.10	59-128				WG800780
TPH (GC/FID) Low Fraction	mg/kg	17.8	21.1	64.8	28.5-138	16.6	23.6	L773727-06	WG800966
a,a,a-Trifluorotoluene(FID)				95.30	59-128				WG800966

Batch number /Run number / Sample number cross reference

WG799201: R3047162 R3047273: L773895-01

\* Performance of this Analyte is outside of established criteria.

For additional information, please see Attachment A 'List of Analytes with QC Qualifiers.'



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WG799519: R3047448: L773895-02 03 04 05 06 07 08 09 10 11 12 13 14 15 16  
WG799523: R3047501 R3047972: L773895-01 02 03 04 05 06 07 08 09 10 11 12 13 14 15 16  
WG800780: R3048346: L773895-07  
WG801067: R3048495: L773895-01 02 03 04 05 06 08 09 10 11 12 13 14  
WG800966: R3048529: L773895-15 16

\* \* Calculations are performed prior to rounding of reported values.  
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The data package includes a summary of the analytic results of the quality control samples required by the SW-846 or CWA methods. The quality control samples include a method blank, a laboratory control sample, and the matrix spike/matrix spike duplicate analysis. If a target parameter is outside the method limits, every sample that is effected is flagged with the appropriate qualifier in Appendix B of the analytic report.

Method Blank - an aliquot of reagent water carried through the entire analytic process. The method blank results indicate if any possible contamination exposure during the sample handling, digestion or extraction process, and analysis. Concentrations of target analytes above the reporting limit in the method blank are qualified with the "B" qualifier.

Laboratory Control Sample - is a sample of known concentration that is carried through the digestion/extraction and analysis process. The percent recovery, expressed as a percentage of the theoretical concentration, has statistical control limits indicating that the analytic process is "in control". If a target analyte is outside the control limits for the laboratory control sample or any other control sample, the parameter is flagged with a "J4" qualifier for all effected samples.

Matrix Spike and Matrix Spike Duplicate - is two aliquots of an environmental sample that is spiked with known concentrations of target analytes. The percent recovery of the target analytes also has statistical control limits. If any recoveries that are outside the method control limits, the sample that was selected for matrix spike/matrix spike duplicate analysis is flagged with either a "J5" or a "J6". The relative percent difference (%RPD) between the matrix spike and the matrix spike duplicate recoveries is all calculated. If the RPD is above the method limit, the effected samples are flagged with a "J3" qualifier.