Mountain States ACCUTEST LABORATORIES

04/18/12

Technical Report for

Olsson Associates

National Fuel Federal 2-10-84 Pit Closure

011-2426

Accutest Job Number: D33466

Sampling Date: 04/05/12

Report to:

Olsson Associates

jsutrina@oaconsulting.com

ATTN: Jessica Sutrina

Total number of pages in report: **44**

ACCREDITED IN ACCORDANCE WITH nelac

Test results contained within this data package meet the requirements of the National Environmental Laboratory Accreditation Conference and/or state specific certification programs as applicable.

Brad Madadian
Laboratory Director

Client Service contact: Renea Jackson 303-425-6021

Certifications: CO, ID, NE, NM, ND (R-027) (PW), UT (NELAP CO00049), TX (T104704511-12-1)

Test results relate only to samples analyzed.

Sections: 1 2 3 4 5 6 7 8 9

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Sample Summary

Olsson Associates

Job No: D33466

National Fuel Federal 2-10-84 Pit Closure
Project No: 011-2426

Sample Number	Collected Date	Time	By	Received	Matrix Code	Type	Client Sample ID
D33466-1	04/05/12	13:30	JS	04/06/12	SO	Soil	NFC SS-COMP1

Soil samples reported on a dry weight basis unless otherwise indicated on result page.

CASE NARRATIVE / CONFORMANCE SUMMARY

Client:	Olsson Associates	**Job No**	D33466
Site:	National Fuel Federal 2-10-84 Pit Closure	**Report Date**	4/17/2012 3:52:33 PM

On 04/06/2012, 1 sample(s), 0 Trip Blank(s), and 0 Field Blank(s) were received at Accutest Mountain States (AMS) at a temperature of 2.2 °C. The samples were intact and properly preserved, unless noted below. An AMS Job Number of D33466 was assigned to the project. The lab sample ID, client sample ID, and date of sample collection are detailed in the report's Results Summary.

Specified quality control criteria were achieved for this job except as noted below. For more information, please refer to the analytical results and QC summary pages.

Volatiles by GCMS By Method SW846 8260B

Matrix SO **Batch ID:** V5V1256

- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) D33529-1MS, D33529-1MSD were used as the QC samples indicated.
- Sample(s) D33466-1 have surrogates outside control limits. Outside control limits due to matrix interference. Confirmed by reanalysis.
- D33466-1: Confirmation run.

Volatiles by GC By Method SW846 8015B

Matrix SO **Batch ID:** GGB874

- All samples were analyzed within the recommended method holding time.
- Sample(s) D33477-1MS, D33477-1MSD were used as the QC samples indicated.
- All method blanks for this batch meet method specific criteria.

Extractables by GC By Method SW846-8015B

Matrix SO **Batch ID:** OP5697

- All samples were extracted within the recommended method holding time.
- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) D33447-1MS, D33447-1MSD were used as the QC samples indicated.

Metals By Method SW846 6010C

Matrix	SO	Batch ID:	MP7262

- All samples were digested within the recommended method holding time.
- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) D33516-1MSD, D33516-1MS, D33516-1MSD, D33516-1SDL were used as the QC samples for the metals analysis.
- The matrix spike (MS) recovery(s) of Lead are outside control limits. Spike recovery indicates possible matrix interference and/or sample nonhomogeneity.
- The matrix spike (MS) recovery(s) of Barium are outside control limits. Spike amount low relative to the sample amount. Refer to lab control or spike blank for recovery information.
- The serial dilution RPD(s) for Arsenic, Cadmium, Selenium, Barium, Chromium, Lead are outside control limits for sample MP7262-SD1. Percent difference acceptable due to low initial sample concentration (< 50 times IDL).
- MP7262-SD1 for Chromium, Lead, and Barium: Serial dilution indicates possible matrix interference.

Metals By Method SW846 7471B

Matrix	SO	Batch ID:	MP7255

- All samples were digested within the recommended method holding time.
- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) D33387-2MS, D33387-2MSD were used as the QC samples for the metals analysis.

Wet Chemistry By Method SM19 2540B M

Matrix	SO	Batch ID:	GN14453

- The data for SM19 2540B M meets quality control requirements.

Wet Chemistry By Method SW846 1010, PM CC

Matrix	ALL	Batch ID:	GN14551

- The data for SW846 1010, PM CC meets quality control requirements.
- D33466-1 for Flashpoint At 620 mm Hg: Not Ignitable

Wet Chemistry By Method SW846 7.2

Matrix	SO	Batch ID:	GN14438

- D33466-1 for Corrosivity as pH: Non Corrosive

Wet Chemistry By Method SW846 9095

Matrix	SO	Batch ID:	GN14568

- The data for SW846 9095 meets quality control requirements.
- D33466-1 for Paint Filter Test: No free liquids.

Wet Chemistry By Method SW846 CHAP 7.3

Matrix	SO	Batch ID:	GP6942

- All samples were prepared within the recommended method holding time.
- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.

Wet Chemistry By Method SW846 CHAP7

Matrix	SO	Batch ID:	GP6944

- All samples were prepared within the recommended method holding time.
- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.

AMS certifies that data reported for samples received, listed on the associated custody chain or analytical task order, were produced to specifications meeting AMS's Quality System precision, accuracy and completeness objectives except as noted.

Estimated non-standard method measurement uncertainty data is available on request, based on quality control bias and implicit for standard methods. Acceptable uncertainty requires tested parameter quality control data to meet method criteria.

AMS is not responsible for data quality assumptions if partial reports are used and recommends that this report be used in its entirety. This report is authorized by AMS indicated via signature on the report cover.

Mountain States ACCUTEST LABORATORIES

Sample Results

Report of Analysis

Report of Analysis

Client Sample ID:	NFC SS-COMP1		
Lab Sample ID:	D33466-1	**Date Sampled:**	04/05/12
Matrix:	SO - Soil	**Date Received:**	04/06/12
Method:	SW846 8260B	**Percent Solids:**	87.2
Project:	National Fuel Federal 2-10-84 Pit Closure		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	5V20768.D	1	04/11/12	BD	n/a	n/a	V5V1256
Run #2 [a]	5V20767.D	1	04/11/12	BD	n/a	n/a	V5V1256

	Initial Weight	Final Volume	Methanol Aliquot
Run #1	5.09 g	5.0 ml	100 ul
Run #2	5.09 g	5.0 ml	50.0 ul

Purgeable Aromatics

CAS No.	Compound	Result	RL	MDL	Units	Q
71-43-2	Benzene	0.450	0.064	0.028	mg/kg	
108-88-3	Toluene	4.66	0.13	0.064	mg/kg	
100-41-4	Ethylbenzene	2.03	0.13	0.032	mg/kg	
1330-20-7	Xylene (total)	29.8	0.25	0.13	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
2037-26-5	Toluene-D8	107%	107%	61-130%
460-00-4	4-Bromofluorobenzene	180% [b]	148%	53-131%
17060-07-0	1,2-Dichloroethane-D4	89%	123%	62-130%

(a) Confirmation run.
(b) Outside control limits due to matrix interference. Confirmed by reanalysis.

ND = Not detected MDL - Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	NFC SS-COMP1		
Lab Sample ID:	D33466-1	**Date Sampled:**	04/05/12
Matrix:	SO - Soil	**Date Received:**	04/06/12
Method:	SW846 8015B	**Percent Solids:**	87.2
Project:	National Fuel Federal 2-10-84 Pit Closure		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	GB15661.D	1	04/10/12	SK	n/a	n/a	GGB874
Run #2							

	Initial Weight	Final Volume	Methanol Aliquot
Run #1	5.1 g	5.0 ml	10.0 ul
Run #2			

CAS No.	Compound	Result	RL	MDL	Units	Q
	TPH-GRO (C6-C10)	1820	130	64	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
120-82-1	1,2,4-Trichlorobenzene	114%		60-140%

ND = Not detected MDL - Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: NFC SS-COMP1
Lab Sample ID: D33466-1
Matrix: SO - Soil
Method: SW846-8015B SW846 3546
Project: National Fuel Federal 2-10-84 Pit Closure

Date Sampled: 04/05/12
Date Received: 04/06/12
Percent Solids: 87.2

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	FH003094.D	1	04/09/12	TR	04/09/12	OP5697	GFH165
Run #2							

	Initial Weight	Final Volume
Run #1	30.0 g	2.0 ml
Run #2		

CAS No.	Compound	Result	RL	MDL	Units	Q
	TPH-DRO (C10-C28)	2490	15	9.9	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
84-15-1	o-Terphenyl	76%		43-136%

ND = Not detected MDL - Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	NFC SS-COMP1		
Lab Sample ID:	D33466-1	**Date Sampled:**	04/05/12
Matrix:	SO - Soil	**Date Received:**	04/06/12
		Percent Solids:	87.2
Project:	National Fuel Federal 2-10-84 Pit Closure		

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Arsenic	6.9	2.9	mg/kg	1	04/11/12	04/11/12	JB	SW846 6010C [2]	SW846 3050B [4]
Barium	77.3	1.1	mg/kg	1	04/11/12	04/11/12	JB	SW846 6010C [2]	SW846 3050B [4]
Cadmium	< 1.1	1.1	mg/kg	1	04/11/12	04/11/12	JB	SW846 6010C [2]	SW846 3050B [4]
Chromium	7.9	1.1	mg/kg	1	04/11/12	04/11/12	JB	SW846 6010C [2]	SW846 3050B [4]
Lead	12.6	5.7	mg/kg	1	04/11/12	04/11/12	JB	SW846 6010C [2]	SW846 3050B [4]
Mercury	< 0.11	0.11	mg/kg	1	04/10/12	04/10/12	JB	SW846 7471B [1]	SW846 7471B [3]
Selenium	< 5.7	5.7	mg/kg	1	04/11/12	04/11/12	JB	SW846 6010C [2]	SW846 3050B [4]
Silver	< 3.4	3.4	mg/kg	1	04/11/12	04/11/12	JB	SW846 6010C [2]	SW846 3050B [4]

(1) Instrument QC Batch: MA2324
(2) Instrument QC Batch: MA2329
(3) Prep QC Batch: MP7255
(4) Prep QC Batch: MP7262

RL = Reporting Limit

Report of Analysis

Client Sample ID:	NFC SS-COMP1		
Lab Sample ID:	D33466-1	**Date Sampled:**	04/05/12
Matrix:	SO - Soil	**Date Received:**	04/06/12
		Percent Solids:	87.2
Project:	National Fuel Federal 2-10-84 Pit Closure		

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Corrosivity as pH [a]	8.22		su	1	04/06/12 15:45	CT	SW846 7.2
Cyanide Reactivity	< 1.5	1.5	mg/kg	1	04/10/12	JD	SW846 CHAP7
Flashpoint At 620 mm Hg [b]	> 140		Deg. F	1	04/16/12	RF	SW846 1010, PM CC
Paint Filter Test [c]	< 1.0	1.0	ml/100g	1	04/17/12	CJ	SW846 9095
Solids, Percent	87.2		%	1	04/09/12	SWT	SM19 2540B M
Sulfide Reactivity	10.0	10	mg/kg	1	04/10/12	JD	SW846 CHAP 7.3

(a) Non Corrosive
(b) Not Ignitable
(c) No free liquids.

RL = Reporting Limit

Mountain States ACCUTEST LABORATORIES

Misc. Forms

Custody Documents and Other Forms

Includes the following where applicable:

- Chain of Custody

CHAIN OF CUSTODY

ACCUTEST LABORATORIES
Accutest Laboratories Mountain States
4036 Youngfield Street Wheat Ridge, Co 80033
TEL. 303-425-6021 877-737-4521
FAX 303-425-6021

FED-EX Tracking #:
Bottle Order Control #:
Accutest Quote #:
Accutest Job #: D33466

Client / Reporting Information

Company Name: Olsson Associates
Street Address: 826 21 1/2 Rd.
City: Grand Jct. State: CO Zip: 81505
Project Contact: D. Plisek E-mail: dplisek@olssonconsulting.com
Phone #: 970.263.7800 Fax #: 970.263.7456
Sampler(s) Name(s): J. Sarna Phone #:

Project Information

Project Name: National Fuel Federal 2-10-84 Pit Closure
Street:
City:
Project#: 011-24026
Client PO#:
Project Manager: D. Plisek

Billing Information (If different from Report to)

Company Name:
Street Address:
City: State: Zip:
Attention: PO#:

Requested Analysis (see TEST CODE sheet)

TPH GRO/DRO
BTEX
RCRA 8 Metals
RCI
Paint Filter

Matrix Codes

DW - Drinking Water
GW - Ground Water
WW - Water
SW - Surface Water
SO - Soil
SL- Sludge
SED-Sediment
OI - Oil
LIQ - Other Liquid
AIR - Air
SOL - Other Solid
WP - Wipe
FB-Field Blank
EB- Equipment Blank
RB- Rinse Blank
TB-Trip Blank

Accutest Sample #	Field ID / Point of Collection	MEOH/DI Vial #	Collection Date	Time	Sampled by	Matrix	# of bottles	Number of preserved Bottles: HCl	NaOH	HNO3	H2SO4	NONE	DI Water	MEOH	ENCORE	Bisulfate	TPH GRO/DRO	BTEX	RCRA 8 Metals	RCI	Paint Filter	LAB USE ONLY
	NFC SS-Comp1		4/5/12	1330	JS	SO	5										X	X	X	X	X	01

4/6/12

Turnaround Time (Business days)

Approved By (Accutest PM): / Date:

- [x] Std. 10 Business Days
- [ ] Std. 5 Business Days (By Contract only)
- [ ] 5 Day RUSH
- [ ] 3 Day EMERGENCY
- [ ] 2 Day EMERGENCY
- [ ] 1 Day EMERGENCY

Emergency & Rush T/A data available VIA Lablink

Data Deliverable Information

- [ ] Commercial "A" (Level 1)
- [ ] Commercial "B" (Level 2)
- [ ] Commercial "B" +Narrative
- [ ] FULLT1 (Level 3+4)
- [ ] State Forms
- [ ] EDD Format
- [ ] PDF

Commercial "A" = Results Only
Commercial "B" = Results + QC Summary

Comments / Special Instructions

Sample Custody must be documented below each time samples change possession, including courier delivery.

Relinquished by Sampler:	Date Time:	Received By:	Relinquished By:	Date Time:	Received By:
1	4/6/12 1630	4/6/12 1000	2		2
Relinquished by Sampler:	Date Time:	Received By:	Relinquished By:	Date Time:	Received By:
3		3	4		4
Relinquished by:	Date Time:	Received By:	Custody Seal # FX	Intact / Not Intact	Preserved where applicable	On Ice	Cooler Temp.
5		5					2.2

D33466: Chain of Custody
Page 1 of 2

Accutest Laboratories Sample Receipt Summary

Accutest Job Number: D33466 **Client:** OLSSON ASS. **Immediate Client Services Action Required:** No

Date / Time Received: 4/6/2012 10:20:00 AM **No. Coolers:** 1 **Client Service Action Required at Login:** No

Project: NATIONAL FUEL FEDERAL PIT CLOSURE **Airbill #'s:** Fedex

Cooler Security	Y	or	N		Y	or	N
1. Custody Seals Present:	☑		☐	3. COC Present:	☑		☐
2. Custody Seals Intact:	☑		☐	4. Smpl Dates/Time OK	☑		☐

Cooler Temperature	Y	or	N
1. Temp criteria achieved:	☑		☐
2. Cooler temp verification:	Infared gun		
3. Cooler media:	Ice (bag)		

Quality Control Preservation	Y	or	N	N/A
1. Trip Blank present / cooler:	☐		☐	
2. Trip Blank listed on COC:	☐		☐	
3. Samples preserved properly:	☑		☐	
4. VOCs headspace free:	☐		☐	☑

Sample Integrity - Documentation	Y	or	N
1. Sample labels present on bottles:	☑		☐
2. Container labeling complete:	☑		☐
3. Sample container label / COC agree:	☑		☐

Sample Integrity - Condition	Y	or	N
1. Sample recvd within HT:	☑		☐
2. All containers accounted for:	☑		☐
3. Condition of sample:	Intact		

Sample Integrity - Instructions	Y	or	N	N/A
1. Analysis requested is clear:	☑		☐	
2. Bottles received for unspecified tests	☐		☑	
3. Sufficient volume rec'd for analysis:	☑		☐	
4. Compositing instructions clear:	☐		☐	☑
5. Filtering instructions clear:	☐		☐	☑

Comments

Accutest Laboratories
V:(303) 425-6021

4036 Youngfield Street
F: (303) 425-6854

Wheat Ridge, CO
www/accutest.com

D33466: Chain of Custody
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Mountain States ACCUTEST LABORATORIES

GC/MS Volatiles

QC Data Summaries

Includes the following where applicable:

- Method Blank Summaries
- Blank Spike Summaries
- Matrix Spike and Duplicate Summaries

Method Blank Summary

Job Number: D33466
Account: CORCCOGJ Olsson Associates
Project: National Fuel Federal 2-10-84 Pit Closure

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
V5V1256-MB	5V20752A.D	1	04/11/12	BD	n/a	n/a	V5V1256

The QC reported here applies to the following samples: **Method:** SW846 8260B

D33466-1

CAS No.	Compound	Result	RL	MDL	Units	Q
71-43-2	Benzene	ND	50	22	ug/kg	
100-41-4	Ethylbenzene	ND	100	25	ug/kg	
108-88-3	Toluene	ND	100	50	ug/kg	
1330-20-7	Xylene (total)	ND	200	100	ug/kg	

CAS No.	Surrogate Recoveries		Limits
2037-26-5	Toluene-D8	91%	61-130%
460-00-4	4-Bromofluorobenzene	75%	53-131%
17060-07-0	1,2-Dichloroethane-D4	112%	62-130%

Blank Spike Summary

Job Number: D33466
Account: CORCCOGJ Olsson Associates
Project: National Fuel Federal 2-10-84 Pit Closure

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
V5V1256-BS	5V20760.D	1	04/11/12	BD	n/a	n/a	V5V1256

The QC reported here applies to the following samples: **Method:** SW846 8260B

D33466-1

CAS No.	Compound	Spike ug/kg	BSP ug/kg	BSP %	Limits
71-43-2	Benzene	50	53.0	106	70-130
100-41-4	Ethylbenzene	50	52.9	106	70-130
108-88-3	Toluene	50	49.7	99	70-130
1330-20-7	Xylene (total)	150	164	109	70-130

CAS No.	Surrogate Recoveries	BSP	Limits
2037-26-5	Toluene-D8	97%	61-130%
460-00-4	4-Bromofluorobenzene	101%	53-131%
17060-07-0	1,2-Dichloroethane-D4	107%	62-130%

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: D33466
Account: CORCCOGJ Olsson Associates
Project: National Fuel Federal 2-10-84 Pit Closure

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
D33529-1MS	5V20762.D	1	04/11/12	BD	n/a	n/a	V5V1256
D33529-1MSD	5V20763.D	1	04/11/12	BD	n/a	n/a	V5V1256
D33529-1	5V20761.D	1	04/11/12	BD	n/a	n/a	V5V1256

The QC reported here applies to the following samples: **Method:** SW846 8260B

D33466-1

CAS No.	Compound	D33529-1 ug/kg	Q	Spike ug/kg	MS ug/kg	MS %	MSD ug/kg	MSD %	RPD	Limits Rec/RPD
71-43-2	Benzene	ND		4140	3970	96	4660	112	16	70-134/30
100-41-4	Ethylbenzene	ND		4140	3960	96	4610	111	15	70-137/30
108-88-3	Toluene	ND		4140	3580	86	4230	102	17	70-130/30
1330-20-7	Xylene (total)	ND		12400	12700	102	14700	118	15	61-131/30

CAS No.	Surrogate Recoveries	MS	MSD	D33529-1	Limits
2037-26-5	Toluene-D8	84%	101%	96%	61-130%
460-00-4	4-Bromofluorobenzene	98%	113%	85%	53-131%
17060-07-0	1,2-Dichloroethane-D4	94%	109%	125%	62-130%

Mountain States ACCUTEST LABORATORIES

GC Volatiles

QC Data Summaries

Includes the following where applicable:

- Method Blank Summaries
- Blank Spike Summaries
- Matrix Spike and Duplicate Summaries

Method Blank Summary

Job Number: D33466
Account: CORCCOGJ Olsson Associates
Project: National Fuel Federal 2-10-84 Pit Closure

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
GGB874-MB	GB15643.D	1	04/09/12	SK	n/a	n/a	GGB874

The QC reported here applies to the following samples: **Method:** SW846 8015B

D33466-1

CAS No.	Compound	Result	RL	MDL	Units	Q
	TPH-GRO (C6-C10)	ND	10	5.0	mg/kg	

CAS No.	Surrogate Recoveries		Limits
120-82-1	1,2,4-Trichlorobenzene	102%	60-140%

Blank Spike Summary

Job Number: D33466
Account: CORCCOGJ Olsson Associates
Project: National Fuel Federal 2-10-84 Pit Closure

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
GGB874-BS	GB15644.D	1	04/09/12	SK	n/a	n/a	GGB874

The QC reported here applies to the following samples: **Method:** SW846 8015B

D33466-1

CAS No.	Compound	Spike mg/kg	BSP mg/kg	BSP %	Limits
	TPH-GRO (C6-C10)	110	125	114	70-130

CAS No.	Surrogate Recoveries	BSP	Limits
120-82-1	1,2,4-Trichlorobenzene	117%	60-140%

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: D33466
Account: CORCCOGJ Olsson Associates
Project: National Fuel Federal 2-10-84 Pit Closure

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
D33477-1MS	GB15646.D	1	04/09/12	SK	n/a	n/a	GGB874
D33477-1MSD	GB15647.D	1	04/09/12	SK	n/a	n/a	GGB874
D33477-1	GB15645.D	1	04/09/12	SK	n/a	n/a	GGB874

The QC reported here applies to the following samples: **Method:** SW846 8015B

D33466-1

CAS No.	Compound	D33477-1 mg/kg	Q	Spike mg/kg	MS mg/kg	MS %	MSD mg/kg	MSD %	RPD	Limits Rec/RPD
	TPH-GRO (C6-C10)	27.4		152	194	109	194	109	0	70-130/30

CAS No.	Surrogate Recoveries	MS	MSD	D33477-1	Limits
120-82-1	1,2,4-Trichlorobenzene	105%	101%	97%	60-140%

Mountain States ACCUTEST LABORATORIES

GC Semi-volatiles

QC Data Summaries

Includes the following where applicable:

- Method Blank Summaries
- Blank Spike Summaries
- Matrix Spike and Duplicate Summaries

Method Blank Summary

Job Number: D33466
Account: CORCCOGJ Olsson Associates
Project: National Fuel Federal 2-10-84 Pit Closure

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP5697-MB	FH003076.D	1	04/09/12	TR	04/09/12	OP5697	GFH165

The QC reported here applies to the following samples: **Method:** SW846-8015B

D33466-1

CAS No.	Compound	Result	RL	MDL	Units	Q
	TPH-DRO (C10-C28)	ND	13	8.7	mg/kg	

CAS No.	Surrogate Recoveries		Limits
84-15-1	o-Terphenyl	109%	43-136%

Blank Spike Summary

Job Number: D33466
Account: CORCCOGJ Olsson Associates
Project: National Fuel Federal 2-10-84 Pit Closure

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP5697-BS	FH003078.D	1	04/09/12	TR	04/09/12	OP5697	GFH165

The QC reported here applies to the following samples: **Method:** SW846-8015B

D33466-1

CAS No.	Compound	Spike mg/kg	BSP mg/kg	BSP %	Limits
	TPH-DRO (C10-C28)	667	564	85	58-130

CAS No.	Surrogate Recoveries	BSP	Limits
84-15-1	o-Terphenyl	105%	43-136%

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: D33466
Account: CORCCOGJ Olsson Associates
Project: National Fuel Federal 2-10-84 Pit Closure

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP5697-MS	FH003080.D	1	04/09/12	TR	04/09/12	OP5697	GFH165
OP5697-MSD	FH003082.D	1	04/09/12	TR	04/09/12	OP5697	GFH165
D33447-1	FH003084.D	1	04/09/12	TR	04/09/12	OP5697	GFH165

The QC reported here applies to the following samples: **Method:** SW846-8015B

D33466-1

CAS No.	Compound	D33447-1 mg/kg	Q	Spike mg/kg	MS mg/kg	MS %	MSD mg/kg	MSD %	RPD	Limits Rec/RPD
	TPH-DRO (C10-C28)	ND		714	467	65	573	80	20	20-183/43

CAS No.	Surrogate Recoveries	MS	MSD	D33447-1	Limits
84-15-1	o-Terphenyl	85%	91%	93%	43-136%

Mountain States ACCUTEST LABORATORIES

Metals Analysis

QC Data Summaries

Includes the following where applicable:

- Method Blank Summaries
- Matrix Spike and Duplicate Summaries
- Blank Spike and Lab Control Sample Summaries
- Serial Dilution Summaries

BLANK RESULTS SUMMARY
Part 2 - Method Blanks

Login Number: D33466
Account: CORCCOGJ - Olsson Associates
Project: National Fuel Federal 2-10-84 Pit Closure

QC Batch ID: MP7255 Methods: SW846 7471B
Matrix Type: SOLID Units: mg/kg

Prep Date: 04/10/12

Metal	RL	IDL	MDL	MB raw	final
Mercury	0.10	.0011	.0009	-0.0013	<0.10

Associated samples MP7255: D33466-1

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits
(anr) Analyte not requested

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: D33466
Account: CORCCOGJ - Olsson Associates
Project: National Fuel Federal 2-10-84 Pit Closure

QC Batch ID: MP7255 Methods: SW846 7471B
Matrix Type: SOLID Units: mg/kg

Prep Date: 04/10/12

Metal	D33387-2 Original	MS	Spikelot HGWSR1	% Rec	QC Limits
Mercury	0.0	0.43	0.439	98.0	75-125

Associated samples MP7255: D33466-1

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits
(N) Matrix Spike Rec. outside of QC limits
(anr) Analyte not requested

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: D33466
Account: CORCCOGJ - Olsson Associates
Project: National Fuel Federal 2-10-84 Pit Closure

QC Batch ID: MP7255 Methods: SW846 7471B
Matrix Type: SOLID Units: mg/kg

Prep Date: 04/10/12

Metal	D33387-2 Original	MSD	Spikelot HGWSR1	% Rec	MSD RPD	QC Limit
Mercury	0.0	0.44	0.457	96.3	2.3	

Associated samples MP7255: D33466-1

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits
(N) Matrix Spike Rec. outside of QC limits
(anr) Analyte not requested

SPIKE BLANK AND LAB CONTROL SAMPLE SUMMARY

Login Number: D33466
Account: CORCCOGJ - Olsson Associates
Project: National Fuel Federal 2-10-84 Pit Closure

QC Batch ID: MP7255
Matrix Type: SOLID

Methods: SW846 7471B
Units: mg/kg

Prep Date: 04/10/12

Metal	BSP Result	Spikelot HGWSR1	% Rec	QC Limits
Mercury	0.38	0.4	95.0	80-120

Associated samples MP7255: D33466-1

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits
(anr) Analyte not requested

BLANK RESULTS SUMMARY
Part 2 - Method Blanks

Login Number: D33466
Account: CORCCOGJ - Olsson Associates
Project: National Fuel Federal 2-10-84 Pit Closure

QC Batch ID: MP7262
Matrix Type: SOLID

Methods: SW846 6010C
Units: mg/kg

Prep Date: 04/11/12

Metal	RL	IDL	MDL	MB raw	final
Aluminum	10	.59	.57		
Antimony	3.0	.31	.12		
Arsenic	2.5	.59	.56	-0.20	<2.5
Barium	1.0	.11	.11	0.080	<1.0
Beryllium	1.0	.044	.15		
Boron	5.0	.48	.06		
Cadmium	1.0	.027	.036	0.020	<1.0
Calcium	40	.96	9		
Chromium	1.0	.018	.03	0.080	<1.0
Cobalt	0.50	.035	.07		
Copper	1.0	.085	.15		
Iron	7.0	.34	.87		
Lead	5.0	.16	.24	0.30	<5.0
Lithium	0.20	.028	.054		
Magnesium	20	.58	.98		
Manganese	0.50	.0053	.022		
Molybdenum	1.0	.045	.08		
Nickel	3.0	.043	.026		
Phosphorus	10	1.1	1.9		
Potassium	200	5.5	7		
Selenium	5.0	.38	.36	-0.070	<5.0
Silicon	5.0	.38	.37		
Silver	3.0	.018	.06	-0.11	<3.0
Sodium	40	11	1.9		
Strontium	5.0		.017		
Thallium	1.0	.29	.53		
Tin	5.0	.55	2		
Titanium	1.0	.011	.038		
Uranium	5.0	.15	.26		
Vanadium	1.0	.016	.036		
Zinc	3.0	.028	.37		

Associated samples MP7262: D33466-1

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits

BLANK RESULTS SUMMARY
Part 2 - Method Blanks

Login Number: D33466
Account: CORCCOGJ - Olsson Associates
Project: National Fuel Federal 2-10-84 Pit Closure

QC Batch ID: MP7262
Matrix Type: SOLID

Methods: SW846 6010C
Units: mg/kg

Prep Date:

Metal

(anr) Analyte not requested

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: D33466
Account: CORCCOGJ - Olsson Associates
Project: National Fuel Federal 2-10-84 Pit Closure

QC Batch ID: MP7262
Matrix Type: SOLID

Methods: SW846 6010C
Units: mg/kg

Prep Date: 04/11/12

Metal	D33516-1 Original	MS	Spikelot MPICPALL	% Rec	QC Limits
Aluminum					
Antimony					
Arsenic	11.1	116	112	93.7	75-125
Barium	4870	7520	224	1183.9(a	75-125
Beryllium					
Boron					
Cadmium	1.0	53.5	56	93.8	75-125
Calcium					
Chromium	21.1	72.9	56	92.6	75-125
Cobalt					
Copper	anr				
Iron					
Lead	47.4	130	112	73.8N(b)	75-125
Lithium					
Magnesium					
Manganese					
Molybdenum					
Nickel	anr				
Phosphorus					
Potassium					
Selenium	2.5	103	112	89.8	75-125
Silicon					
Silver	0.0	23.3	22.4	104.1	75-125
Sodium					
Strontium					
Thallium					
Tin					
Titanium					
Uranium					
Vanadium					
Zinc	anr				

Associated samples MP7262: D33466-1

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: D33466
Account: CORCCOGJ - Olsson Associates
Project: National Fuel Federal 2-10-84 Pit Closure

QC Batch ID: MP7262 Methods: SW846 6010C
Matrix Type: SOLID Units: mg/kg

Prep Date:

Metal

(N) Matrix Spike Rec. outside of QC limits
(anr) Analyte not requested
(a) Spike amount low relative to the sample amount. Refer to lab control or spike blank for recovery information.
(b) Spike recovery indicates possible matrix interference and/or sample nonhomogeneity.

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: D33466
Account: CORCCOGJ - Olsson Associates
Project: National Fuel Federal 2-10-84 Pit Closure

QC Batch ID: MP7262 Methods: SW846 6010C
Matrix Type: SOLID Units: mg/kg

Prep Date: 04/11/12

Metal	D33516-1 Original	MSD	Spikelot MPICPALL	% Rec	MSD RPD	QC Limit
Aluminum						
Antimony						
Arsenic	11.1	117	111	95.6	0.9	20
Barium	4870	7210	222	1055.7(a	4.2	20
Beryllium						
Boron						
Cadmium	1.0	53.2	55.4	94.2	0.6	20
Calcium						
Chromium	21.1	73.8	55.4	95.1	1.2	20
Cobalt						
Copper	anr					
Iron						
Lead	47.4	132	111	76.3	1.5	20
Lithium						
Magnesium						
Manganese						
Molybdenum						
Nickel	anr					
Phosphorus						
Potassium						
Selenium	2.5	103	111	90.7	0.0	20
Silicon						
Silver	0.0	23.1	22.2	104.2	0.9	20
Sodium						
Strontium						
Thallium						
Tin						
Titanium						
Uranium						
Vanadium						
Zinc	anr					

Associated samples MP7262: D33466-1

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: D33466
Account: CORCCOGJ - Olsson Associates
Project: National Fuel Federal 2-10-84 Pit Closure

QC Batch ID: MP7262 Methods: SW846 6010C
Matrix Type: SOLID Units: mg/kg

Prep Date:

Metal

(N) Matrix Spike Rec. outside of QC limits
(anr) Analyte not requested
(a) Spike amount low relative to the sample amount. Refer to lab control or spike blank for recovery information.

SPIKE BLANK AND LAB CONTROL SAMPLE SUMMARY

Login Number: D33466
Account: CORCCOGJ - Olsson Associates
Project: National Fuel Federal 2-10-84 Pit Closure

QC Batch ID: MP7262
Matrix Type: SOLID

Methods: SW846 6010C
Units: mg/kg

Prep Date: 04/11/12

Metal	BSP Result	Spikelot MPICPALL	% Rec	QC Limits
Aluminum				
Antimony				
Arsenic	101	100	101.0	80-120
Barium	204	200	102.0	80-120
Beryllium				
Boron				
Cadmium	49.6	50	99.2	80-120
Calcium				
Chromium	52.1	50	104.2	80-120
Cobalt				
Copper	anr			
Iron				
Lead	98.1	100	98.1	80-120
Lithium				
Magnesium				
Manganese				
Molybdenum				
Nickel	anr			
Phosphorus				
Potassium				
Selenium	93.9	100	93.9	80-120
Silicon				
Silver	21.6	20	108.0	80-120
Sodium				
Strontium				
Thallium				
Tin				
Titanium				
Uranium				
Vanadium				
Zinc	anr			

Associated samples MP7262: D33466-1

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits

SPIKE BLANK AND LAB CONTROL SAMPLE SUMMARY

Login Number: D33466
Account: CORCCOGJ - Olsson Associates
Project: National Fuel Federal 2-10-84 Pit Closure

QC Batch ID: MP7262
Matrix Type: SOLID

Methods: SW846 6010C
Units: mg/kg

Prep Date:

Metal

(anr) Analyte not requested

SERIAL DILUTION RESULTS SUMMARY

Login Number: D33466
Account: CORCCOGJ - Olsson Associates
Project: National Fuel Federal 2-10-84 Pit Closure

QC Batch ID: MP7262
Matrix Type: SOLID

Methods: SW846 6010C
Units: ug/l

Prep Date: 04/11/12

Metal	D33516-1 Original	SDL 1:5	%DIF	QC Limits
Aluminum				
Antimony				
Arsenic	100	195	93.7 (a)	0-10
Barium	44300	49800	13.2*(b)	0-10
Beryllium				
Boron				
Cadmium	9.00	5.00	44.4 (a)	0-10
Calcium				
Chromium	191	217	13.5*(b)	0-10
Cobalt				
Copper	anr			
Iron				
Lead	427	491	14.8*(b)	0-10
Lithium				
Magnesium				
Manganese				
Molybdenum				
Nickel	anr			
Phosphorus				
Potassium				
Selenium	22.2	46.5	109.5(a)	0-10
Silicon				
Silver	0.00	0.00	NC	0-10
Sodium				
Strontium				
Thallium				
Tin				
Titanium				
Uranium				
Vanadium				
Zinc	anr			

Associated samples MP7262: D33466-1

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits

SERIAL DILUTION RESULTS SUMMARY

Login Number: D33466
Account: CORCCOGJ - Olsson Associates
Project: National Fuel Federal 2-10-84 Pit Closure

QC Batch ID: MP7262
Matrix Type: SOLID

Methods: SW846 6010C
Units: ug/l

Prep Date:

Metal

(anr) Analyte not requested
(a) Percent difference acceptable due to low initial sample concentration (< 50 times IDL).
(b) Serial dilution indicates possible matrix interference.

Mountain States ACCUTEST LABORATORIES

General Chemistry

QC Data Summaries

Includes the following where applicable:

- Method Blank and Blank Spike Summaries
- Duplicate Summaries
- Matrix Spike Summaries

METHOD BLANK AND SPIKE RESULTS SUMMARY
GENERAL CHEMISTRY

Login Number: D33466
Account: CORCCOGJ - Olsson Associates
Project: National Fuel Federal 2-10-84 Pit Closure

Analyte	Batch ID	RL	MB Result	Units	Spike Amount	BSP Result	BSP %Recov	QC Limits
Corrosivity as pH	GN14438			su	8.00su	7.95	99.4	99.3-100.7%
Cyanide Reactivity	GP6944/GN14482	1.5	0.0	mg/kg	14.76	0.0	0.1	0-100%
Sulfide Reactivity	GP6942/GN14480	10	0.0	mg/kg	75	50.0	66.7	50-150%

Associated Samples:
Batch GN14438: D33466-1
Batch GP6942: D33466-1
Batch GP6944: D33466-1
(*) Outside of QC limits