



11/08/11

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Technical Report for

Olsson Associates

National Fuel Federal 2-10-84 Pit Closure

011-2426

Accutest Job Number: D29082

Sampling Date: 11/01/11

Report to:

**Olsson Associates
826 21 1/2 Road
Grand Junction, CO 81505
dplsek@oaconsulting.com**

ATTN: Dion Plsek

Total number of pages in report: 44



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: 303-425-6021

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

This report shall not be reproduced, except in its entirety, without the written approval of Accutest Laboratories.

Test results relate only to samples analyzed.

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Sample Summary

Olsson Associates

Job No: D29082

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
D29082-1	11/01/11	11:00 JS	11/02/11	AQ Water	NFC FED 2-10-84
D29082-1F	11/01/11	11:00 JS	11/02/11	AQ Water Filtered	NFC FED 2-10-84



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CASE NARRATIVE / CONFORMANCE SUMMARY

Client: Olsson Associates

Job No D29082

Site: National Fuel Federal 2-10-84 Pit Closure

Report Dat 11/8/2011 4:36:25 PM

On 11/02/2011, 1 sample(s), 0 Trip Blank(s), and 0 Field Blank(s) were received at Accutest Mountain States (AMS) at a temperature of 0.2 °C. The samples were intact and properly preserved, unless noted below. An AMS Job Number of D29082 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 AQ	Batch ID: V6V479
-----------	------------------

- * All samples were analyzed within the recommended method holding time.
- * All method blanks for this batch meet method specific criteria.
- * Sample(s) D29071-2MS, D29071-2MSD were used as the QC samples indicated.

Volatiles by GC By Method SW846 8015B

Matrix AQ	Batch ID: GGA792
-----------	------------------

- * All samples were analyzed within the recommended method holding time.
- * Sample(s) D28963-1MS, D28963-1MSD 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 AQ	Batch ID: OP4772
-----------	------------------

- * All samples were extracted and analyzed within the recommended method holding time.
- * All method blanks for this batch meet method specific criteria.
- * Sample(s) D25264-8MS, D25264-8MSD were used as the QC samples indicated.

Metals By Method SW846 6010B

Matrix AQ	Batch ID: MP6167
-----------	------------------

- * All samples were digested and analyzed within the recommended method holding time.
- * All method blanks for this batch meet method specific criteria.
- * Sample(s) D29028-1MS, D29028-1MSD were used as the QC samples for the metals analysis.
- * D29082-1F for multiple analytes: Elevated detection limit due to dilution required for possible matrix interference.

Wet Chemistry By Method EPA 300/SW846 9056

Matrix AQ

Batch ID: GP5843

- ☒ All samples were prepared and analyzed within the recommended method holding time.
- ☒ All method blanks for this batch meet method specific criteria.
- ☒ Sample(s) D29090-3MS, D29090-3MSD were used as the QC samples for the Chloride, Nitrogen, Nitrate, Nitrogen, Nitrite, Sulfate analysis.
- ☒ D29082-1 for Nitrogen, Nitrate: Elevated detection limit due to matrix interference.
- ☒ D29082-1 for Nitrogen, Nitrite: Elevated detection limit due to matrix interference.

Matrix AQ

Batch ID: GP5852

- ☒ All samples were prepared and analyzed within the recommended method holding time.
- ☒ All method blanks for this batch meet method specific criteria.
- ☒ Sample(s) D29072-1MS, D29072-1MSD were used as the QC samples for the Fluoride analysis.
- ☒ D29082-1 for Fluoride: Elevated detection limit/MDL due to matrix interference.

Wet Chemistry By Method SM20 2320B

Matrix AQ

Batch ID: GN12386

- ☒ All samples were analyzed within the recommended method holding time.
- ☒ All method blanks for this batch meet method specific criteria.
- ☒ Sample(s) D29021-3DUP, D29021-3MS, D29021-3MSD were used as the QC samples for the Alkalinity, Total as CaCO₃ analysis.

Matrix AQ

Batch ID: GN12389

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

Matrix AQ

Batch ID: GN12390

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

Wet Chemistry By Method SM20 2510B

Matrix AQ

Batch ID: GP5848

- ☒ All samples were prepared and analyzed within the recommended method holding time.
- ☒ All method blanks for this batch meet method specific criteria.
- ☒ Sample(s) D29072-1DUP were used as the QC samples for the Specific Conductivity analysis.

Wet Chemistry By Method SM20 2540C

Matrix AQ

Batch ID: GN12320

- ☒ All samples were analyzed within the recommended method holding time.
- ☒ All method blanks for this batch meet method specific criteria.
- ☒ Sample(s) D29021-1DUP were used as the QC samples for the Solids, Total Dissolved analysis.

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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.



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Sample Results

Report of Analysis

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Report of Analysis

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Client Sample ID:	NFC FED 2-10-84	Date Sampled:	11/01/11
Lab Sample ID:	D29082-1	Date Received:	11/02/11
Matrix:	AQ - Water	Percent Solids:	n/a
Method:	SW846 8260B		
Project:	National Fuel Federal 2-10-84 Pit Closure		

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	6V09244.D	20	11/03/11	BR	n/a	n/a	V6V479
Run #2							

Run #	Purge Volume
Run #1	5.0 ml
Run #2	

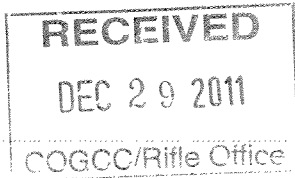
Purgeable Aromatics

CAS No.	Compound	Result	RL	MDL	Units	Q
71-43-2	Benzene	0.0087	0.020	0.0050	mg/l	J
108-88-3	Toluene	0.0739	0.040	0.020	mg/l	
100-41-4	Ethylbenzene	0.0144	0.040	0.010	mg/l	J
1330-20-7	Xylene (total)	0.912	0.080	0.040	mg/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
17060-07-0	1,2-Dichloroethane-D4	87%		67-131%
2037-26-5	Toluene-D8	121%		65-130%
460-00-4	4-Bromofluorobenzene	126%		65-130%

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 FED 2-10-84	Date Sampled: 11/01/11
Lab Sample ID: D29082-1	Date Received: 11/02/11
Matrix: AQ - Water	Percent Solids: n/a
Method: SW846 8015B	
Project: National Fuel Federal 2-10-84 Pit Closure	

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	GA14292.D	20	11/03/11	SK	n/a	n/a	GGA792
Run #2							

	Purge Volume
Run #1	5.0 ml
Run #2	

CAS No.	Compound	Result	RL	MDL	Units	Q
	TPH-GRO (C6-C10)	170	4.0	2.0	mg/l	
CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits		
120-82-1	1,2,4-Trichlorobenzene	93%		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

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Report of Analysis

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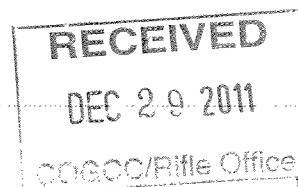
Client Sample ID: NFC FED 2-10-84	Date Sampled: 11/01/11
Lab Sample ID: D29082-1	Date Received: 11/02/11
Matrix: AQ - Water	Percent Solids: n/a
Method: SW846-8015B SW846 3510C	
Project: National Fuel Federal 2-10-84 Pit Closure	

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	FD11287.D	2	11/04/11	TR	11/02/11	OP4772	GFD565
Run #2							

Run #	Initial Volume	Final Volume
Run #1	1000 ml	5.0 ml
Run #2		

CAS No.	Compound	Result	RL	MDL	Units	Q
	TPH-DRO (C10-C28)	243	2.0	1.6	mg/l	
CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits		
84-15-1	o-Terphenyl	81%		28-150%		

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



Report of Analysis

Client Sample ID: NFC FED 2-10-84

Lab Sample ID: D29082-1

Matrix: AQ - Water

Date Sampled: 11/01/11

Date Received: 11/02/11

Percent Solids: n/a

Project: National Fuel Federal 2-10-84 Pit Closure

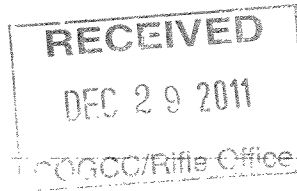
General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Alkalinity, Bicarbonate as CaC	288	5.0	mg/l	1	11/08/11	JD	SM20 2320B
Alkalinity, Carbonate	< 5.0	5.0	mg/l	1	11/08/11	JD	SM20 2320B
Alkalinity, Total as CaCO ₃	288	5.0	mg/l	1	11/08/11	JD	SM20 2320B
Bromide	339	40	mg/l	200	11/02/11 11:35	JML	EPA 300/SW846 9056
Chloride	115000	2500	mg/l	5000	11/02/11 16:55	JML	EPA 300/SW846 9056
Fluoride ^a	< 40	40	mg/l	200	11/03/11 15:14	NS	EPA 300/SW846 9056
Nitrogen, Nitrate ^b	< 9.0	9.0	mg/l	200	11/02/11 11:35	JML	EPA 300/SW846 9056
Nitrogen, Nitrite ^b	< 310	310	mg/l	5000	11/02/11 16:55	JML	EPA 300/SW846 9056
Solids, Total Dissolved	194000	10	mg/l	1	11/03/11	CJ	SM20 2540C
Specific Conductivity	185000	1.0	umhos/cm	1	11/03/11	JK	SM20 2510B
Sulfate	3070	100	mg/l	200	11/02/11 11:35	JML	EPA 300/SW846 9056
pH	7.30		su	1	11/02/11 11:45	JD	SM20 4500H

(a) Elevated detection limit/MDL due to matrix interference.

(b) Elevated detection limit due to matrix interference.

RL = Reporting Limit



Report of Analysis

Client Sample ID: NFC FED 2-10-84	Date Sampled: 11/01/11
Lab Sample ID: D29082-1F	Date Received: 11/02/11
Matrix: AQ - Water Filtered	Percent Solids: n/a
Project: National Fuel Federal 2-10-84 Pit Closure	

Dissolved Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Arsenic ^a	< 2500	2500	ug/l	100	11/02/11	11/08/11 JB	SW846 6010B ¹	SW846 3010A ²
Barium	1630	1000	ug/l	100	11/02/11	11/08/11 JB	SW846 6010B ¹	SW846 3010A ²
Cadmium ^a	< 1000	1000	ug/l	100	11/02/11	11/08/11 JB	SW846 6010B ¹	SW846 3010A ²
Chromium ^a	< 1000	1000	ug/l	100	11/02/11	11/08/11 JB	SW846 6010B ¹	SW846 3010A ²
Copper ^a	< 1000	1000	ug/l	100	11/02/11	11/08/11 JB	SW846 6010B ¹	SW846 3010A ²
Iron ^a	< 7000	7000	ug/l	100	11/02/11	11/08/11 JB	SW846 6010B ¹	SW846 3010A ²
Lead ^a	< 5000	5000	ug/l	100	11/02/11	11/08/11 JB	SW846 6010B ¹	SW846 3010A ²
Magnesium	1660000	20000	ug/l	100	11/02/11	11/08/11 JB	SW846 6010B ¹	SW846 3010A ²
Manganese	6890	500	ug/l	100	11/02/11	11/08/11 JB	SW846 6010B ¹	SW846 3010A ²
Potassium	607000	100000	ug/l	100	11/02/11	11/08/11 JB	SW846 6010B ¹	SW846 3010A ²
Selenium ^a	< 5000	5000	ug/l	100	11/02/11	11/08/11 JB	SW846 6010B ¹	SW846 3010A ²
Silver ^a	< 3000	3000	ug/l	100	11/02/11	11/08/11 JB	SW846 6010B ¹	SW846 3010A ²
Sodium	56500000	40000	ug/l	100	11/02/11	11/08/11 JB	SW846 6010B ¹	SW846 3010A ²

(1) Instrument QC Batch: MA1954

(2) Prep QC Batch: MP6167

(a) Elevated detection limit due to dilution required for possible matrix interference.

RL = Reporting Limit

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Misc. Forms

Custody Documents and Other Forms

Includes the following where applicable:

- Chain of Custody

Accutest Laboratories Mountain States
4036 Youngblood Street, Wheat Ridge, Co 80033
TEL: 303-425-6021 877-737-4521
FAX: 303-425-6021

FED-EX Tracking #
Accutest Quote #
Bottle Order Control #
Accutest Job # **D29082**

Client / Reporting Information		Project Information				Requested Analysis (see TEST CODE sheet)												Matrix Codes
Company Name Ocean Associates		Project Name National Fuel Federal 2-10-84 Pit Closure				<p>Requested Analysis:</p> <p>BTEX X TPH GRO/DRO X ANIONS FIBR, CI, NOB, NI3, SO4 X DISSOLVED METALS X pH, TDS, SPC X ALKALINITY Carbonate/Bicarbonate</p>												<p>Matrix Codes:</p> <p>DW - Drinking Water GW - Ground Water WW - Water SW - Surface Water SO - Soil SL - Sludge SED - Sediment OI - Oil LLO - Other Liquid AIR - Air SOL - Other Solid WP - Wipe FB - Field Blank EB - Equipment Blank RB - Rinse Blank TB - Trip Blank</p>
Street Address 826 21 1/2 Rd.		Street																
City, State, Zip Grand Jct. CO 81505		City, Company Name																
Project Contact Don Pisek (E-mail: dpisek@oceanassoc.com) Phone # 970.263.7800 / 970.263.7456		Project, Client PO#, Street Address, City, State, Zip, Alternate, PO#																
Sample(s) Name(s) J. Sulfina Same		Project Manager Don Pisek				<p>LAB USE ONLY</p> <p>Field ID / Point of Collection: NFC Fed 2-10-84</p> <p>MEQ/DI Vol #: _____ Date: 11/11 Time: 1100 Sampled by: JS Matrix: W # of bottles: 12</p>												

Turnaround Time (Business days)		Approved By (Accutest PM) / Date:		Data Deliverable Information				Comments / Special Instructions
<input checked="" type="checkbox"/> Std. 10 Business Days <input type="checkbox"/> Std. 5 Business Days (By Contract only) <input type="checkbox"/> 5 Day /R/ SH <input type="checkbox"/> 3 Day EMERGENCY <input type="checkbox"/> 2 Day EMERGENCY <input type="checkbox"/> 1 Day EMERGENCY		_____ _____		<input type="checkbox"/> Commercial "A" (Level 1) <input type="checkbox"/> State Forms <input type="checkbox"/> Commercial "B" (Level 2) <input type="checkbox"/> EDD Format <input type="checkbox"/> Commercial "B" + Narrative <input type="checkbox"/> PDF <input type="checkbox"/> FULLT1 (Level 3+4)				<p>* Dissolved Metals - As, Ba, Cd, Cr, Cu, Pb, Fe, Mg, Mn, K, Se, Ag, Ni</p> <p>* Please Lab Filter and preserve Dissolved Metals Sample</p> <p>VOAs are not presented.</p>
Emergency & Rush TJA data available VIA Lablink		Commercial "A" = Results Only		Commercial "B" = Results + QC Summary				

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

Relinquished by: Don Pisek	Date/Time: 11/11 1500	Received By: _____	Received Date/Time: _____
Relinquished by: _____	Date/Time: _____	Received By: _____	Received Date/Time: _____
Relinquished by: _____	Date/Time: _____	Received By: _____	Received Date/Time: _____
Relinquished by: F	Date/Time: _____	Received By: _____	Received Date/Time: _____

Custody Seal: Intact Not Intact Preserved where applicable: On Ice: Cooler Temp.: **0.2**

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D29082: Chain of Custody
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Accutest Laboratories Sample Receipt Summary

Accutest Job Number: D29082 Client: OLSSON ASS. Immediate Client Services Action Required: No

Date / Time Received: 11/2/2011 9:00:00 AM No. Coolers: 1 Client Service Action Required at Login: No

Project: NATIONAL FUEL FEDERAL 2-10-84 PIT CLO Airbill #'s: Fedex

Cooler Security

	<u>Y</u>	<u>or</u>	<u>N</u>		<u>Y</u>	<u>or</u>	<u>N</u>
1. Custody Seals Present:	<input checked="" type="checkbox"/>		<input type="checkbox"/>	3. COC Present:	<input checked="" type="checkbox"/>		<input type="checkbox"/>
2. Custody Seals Intact:	<input checked="" type="checkbox"/>		<input type="checkbox"/>	4. SmpI Dates/Time OK	<input checked="" type="checkbox"/>		<input type="checkbox"/>

Cooler Temperature

	<u>Y</u>	<u>or</u>	<u>N</u>
1. Temp criteria achieved:	<input checked="" type="checkbox"/>		<input type="checkbox"/>
2. Cooler temp verification:	<u>Infrared gun</u>		
3. Cooler media:	<u>Ice (bag)</u>		

Quality Control Preservation

	<u>Y</u>	<u>or</u>	<u>N</u>	<u>N/A</u>
1. Trip Blank present / cooler:	<input type="checkbox"/>		<input type="checkbox"/>	
2. Trip Blank listed on COC:	<input type="checkbox"/>		<input type="checkbox"/>	
3. Samples preserved properly:	<input checked="" type="checkbox"/>		<input type="checkbox"/>	
4. VOCs headspace free:	<input checked="" type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>

Sample Integrity - Documentation

	<u>Y</u>	<u>or</u>	<u>N</u>
1. Sample labels present on bottles:	<input checked="" type="checkbox"/>		<input type="checkbox"/>
2. Container labeling complete:	<input checked="" type="checkbox"/>		<input type="checkbox"/>
3. Sample container label / COC agree:	<input checked="" type="checkbox"/>		<input type="checkbox"/>

Sample Integrity - Condition

	<u>Y</u>	<u>or</u>	<u>N</u>
1. Sample recvd within HT:	<input checked="" type="checkbox"/>		<input type="checkbox"/>
2. All containers accounted for:	<input checked="" type="checkbox"/>		<input type="checkbox"/>
3. Condition of sample:	<u>Intact</u>		

Sample Integrity - Instructions

	<u>Y</u>	<u>or</u>	<u>N</u>	<u>N/A</u>
1. Analysis requested is clear:	<input checked="" type="checkbox"/>		<input type="checkbox"/>	
2. Bottles received for unspecified tests	<input type="checkbox"/>		<input checked="" type="checkbox"/>	
3. Sufficient volume rec'd for analysis:	<input checked="" type="checkbox"/>		<input type="checkbox"/>	
4. Compositing instructions clear:	<input type="checkbox"/>		<input type="checkbox"/>	<input checked="" type="checkbox"/>
5. Filtering instructions clear:	<input type="checkbox"/>		<input type="checkbox"/>	<input checked="" type="checkbox"/>

Comments

Accutest Laboratories
V:(303) 425-6021

4036 Youngfield Street
F: (303) 425-6854

Wheat Ridge, CO
www/accutest.com

D29082: Chain of Custody

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4.1
4

Job Change Order: D29082_11/2/2011

Requested 11/2/2011 **Received Date:** 11/2/2011
Account Name: Olsson Associates **Due Date:** 11/16/2011
Project National Fuel Federal 2-10-84 Pit Closure **Deliverable:** COMMBN
CSR: RR **TAT (Days):** 5

Sample #: D29082-1, 1F
Change: The client requested a standard TAT on the COC, but emailed to advise that she actually needs the data rushed. Please adjust the TA to 5 days due 11/8. Thank you.

D29082: Chain of Custody
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Above Changes Per: Jessica Sutrina - Client **Date:** 11/2/2011

To Client: This Change Order is confirmation of the revisions, previously discussed with the Accutest Client Service Representative.
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GC/MS Volatiles

5

QC Data Summaries

Includes the following where applicable:

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

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Method Blank Summary

Job Number: D29082
Account: CORCCOJ Olsson Associates
Project: National Fuel Federal 2-10-84 Pit Closure

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
V6V479-MB	6V09234.D	1	11/03/11	BR	n/a	n/a	V6V479

The QC reported here applies to the following samples:

Method: SW846 8260B

D29082-1

CAS No.	Compound	Result	RL	MDL	Units	Q
71-43-2	Benzene	ND	1.0	0.25	ug/l	
100-41-4	Ethylbenzene	ND	2.0	0.50	ug/l	
108-88-3	Toluene	ND	2.0	1.0	ug/l	
1330-20-7	Xylene (total)	ND	4.0	2.0	ug/l	

CAS No.	Surrogate Recoveries	Result	Limits
17060-07-0	1,2-Dichloroethane-D4	93%	67-131%
2037-26-5	Toluene-D8	111%	65-130%
460-00-4	4-Bromofluorobenzene	118%	65-130%

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Blank Spike Summary

Job Number: D29082
 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
V6V479-BS	6V09236.D	1	11/03/11	BR	n/a	n/a	V6V479

The QC reported here applies to the following samples:

Method: SW846 8260B

D29082-1

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	Limits
---------	----------	---------------	-------------	----------	--------

CAS No.	Surrogate Recoveries	BSP	Limits
17060-07-0	1,2-Dichloroethane-D4	93%	67-131%
2037-26-5	Toluene-D8	115%	65-130%
460-00-4	4-Bromofluorobenzene	116%	65-130%



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Blank Spike Summary

Job Number: D29082
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
V6V479-BS	6V09237.D	1	11/03/11	BR	n/a	n/a	V6V479

The QC reported here applies to the following samples:

Method: SW846 8260B

D29082-1

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	Limits
71-43-2	Benzene	50	44.9	90	70-130
100-41-4	Ethylbenzene	50	49.2	98	70-130
108-88-3	Toluene	50	44.9	90	70-130
1330-20-7	Xylene (total)	150	152	101	56-138

CAS No.	Surrogate Recoveries	BSP	Limits
17060-07-0	1,2-Dichloroethane-D4	92%	67-131%
2037-26-5	Toluene-D8	105%	65-130%
460-00-4	4-Bromofluorobenzene	116%	65-130%

5.2.2



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Matrix Spike/Matrix Spike Duplicate Summary

Job Number: D29082
 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
D29071-2MS	6V09246.D	10	11/03/11	BR	n/a	n/a	V6V479
D29071-2MSD	6V09247.D	10	11/03/11	BR	n/a	n/a	V6V479
D29071-2	6V09243.D	1	11/03/11	BR	n/a	n/a	V6V479

The QC reported here applies to the following samples:

Method: SW846 8260B

D29082-1

CAS No.	Compound	D29071-2 ug/l	Spike Q	MS ug/l	MS %	MSD ug/l	MSD %	RPD	Limits Rec/RPD	
71-43-2	Benzene	ND		500	434	87	439	88	1	61-133/30
100-41-4	Ethylbenzene	ND		500	481	96	472	94	2	70-130/30
108-88-3	Toluene	ND		500	474	95	480	96	1	70-130/30
1330-20-7	Xylene (total)	ND		1500	1490	99	1460	97	2	56-138/30

CAS No.	Surrogate Recoveries	MS	MSD	D29071-2	Limits
17060-07-0	1,2-Dichloroethane-D4	92%	92%	97%	67-131%
2037-26-5	Toluene-D8	110%	112%	111%	65-130%
460-00-4	4-Bromofluorobenzene	116%	114%	114%	65-130%

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Matrix Spike/Matrix Spike Duplicate Summary

Job Number: D29082
 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
D29071-2MS	6V09248.D	10	11/03/11	BR	n/a	n/a	V6V479
D29071-2MSD	6V09249.D	10	11/03/11	BR	n/a	n/a	V6V479
D29071-2	6V09243.D	1	11/03/11	BR	n/a	n/a	V6V479

The QC reported here applies to the following samples:

Method: SW846 8260B

D29082-1

CAS No.	Compound	D29071-2 ug/l	Spike Q	MS ug/l	MS %	MSD ug/l	MSD %	RPD	Limits Rec/RPD
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CAS No.	Surrogate Recoveries	MS	MSD	D29071-2	Limits
17060-07-0	1,2-Dichloroethane-D4	89%	92%	97%	67-131%
2037-26-5	Toluene-D8	116%	109%	111%	65-130%
460-00-4	4-Bromofluorobenzene	114%	114%	114%	65-130%

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GC Volatiles

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QC Data Summaries

Includes the following where applicable:

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

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Method Blank Summary

Job Number: D29082
Account: CORCCOJ Olsson Associates
Project: National Fuel Federal 2-10-84 Pit Closure

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
GGA792-MB	GA14280.D	1	11/03/11	SK	n/a	n/a	GGA792

The QC reported here applies to the following samples:

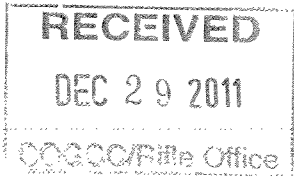
Method: SW846 8015B

D29082-1

CAS No.	Compound	Result	RL	MDL	Units	Q
	TPH-GRO (C6-C10)	ND	0.20	0.10	mg/l	

CAS No.	Surrogate Recoveries		Limits
120-82-1	1,2,4-Trichlorobenzene	87%	60-140%

011
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Blank Spike Summary

Job Number: D29082
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
GGA792-BS	GA14281.D	1	11/03/11	SK	n/a	n/a	GGA792

The QC reported here applies to the following samples:

Method: SW846 8015B

D29082-1

CAS No.	Compound	Spike mg/l	BSP mg/l	BSP %	Limits
	TPH-GRO (C6-C10)	2.2	2.00	91	70-130

CAS No.	Surrogate Recoveries	BSP	Limits
120-82-1	1,2,4-Trichlorobenzene	95%	60-140%

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Matrix Spike/Matrix Spike Duplicate Summary

Job Number: D29082
 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
D28963-1MS	GA14283.D	5	11/03/11	SK	n/a	n/a	GGA792
D28963-1MSD	GA14284.D	5	11/03/11	SK	n/a	n/a	GGA792
D28963-1	GA14282.D	1	11/03/11	SK	n/a	n/a	GGA792

The QC reported here applies to the following samples:

Method: SW846 8015B

D29082-1

CAS No.	Compound	D28963-1 mg/l	Spike Q mg/l	MS mg/l	MS %	MSD mg/l	MSD %	RPD	Limits Rec/RPD
	TPH-GRO (C6-C10)	ND	11	11.5	105	11.4	104	1	61-130/30

CAS No.	Surrogate Recoveries	MS	MSD	D28963-1	Limits
120-82-1	1,2,4-Trichlorobenzene	93%	93%	88%	60-140%

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GC Semi-volatiles

QC Data Summaries

Includes the following where applicable:

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

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Method Blank Summary

Job Number: D29082
 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
OP4772-MB	FD11267.D	1	11/03/11	TR	11/02/11	OP4772	GFD563

The QC reported here applies to the following samples:

Method: SW846-8015B

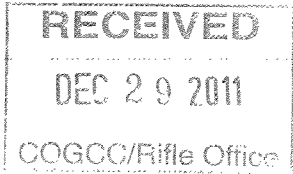
D29082-1

CAS No.	Compound	Result	RL	MDL	Units	Q
	TPH-DRO (C10-C28)	ND	0.40	0.32	mg/l	

CAS No.	Surrogate Recoveries	Results	Limits
84-15-1	o-Terphenyl	124%	28-150%

7.1.1





Blank Spike Summary

Job Number: D29082
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
OP4772-BS	FD11268.D	1	11/03/11	TR	11/02/11	OP4772	GFD563

The QC reported here applies to the following samples:

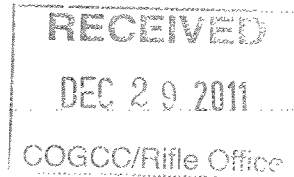
Method: SW846-8015B

D29082-1

CAS No.	Compound	Spike mg/l	BSP mg/l	BSP %	Limits
	TPH-DRO (C10-C28)	20	25.5	128	59-130

CAS No.	Surrogate Recoveries	BSP	Limits
84-15-1	o-Terphenyl	138%	28-150%

7.21
7



Matrix Spike/Matrix Spike Duplicate Summary

Job Number: D29082
 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
OP4772-MS	FD11269.D	1	11/03/11	TR	11/02/11	OP4772	GFD563
OP4772-MSD	FD11270.D	1	11/03/11	TR	11/02/11	OP4772	GFD563
D25264-8	FD11271.D	1	11/03/11	TR	11/02/11	OP4772	GFD563

The QC reported here applies to the following samples:

Method: SW846-8015B

D29082-1

CAS No.	Compound	D25264-8 mg/l	Spike Q mg/l	MS mg/l	MS %	MSD mg/l	MSD %	RPD	Limits Rec/RPD
	TPH-DRO (C10-C28)	ND	20	23.3	117	25.6	128	9	53-130/30

CAS No.	Surrogate Recoveries	MS	MSD	D25264-8	Limits
84-15-1	o-Terphenyl	116%	123%	129%	28-150%

7.3.1



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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



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BLANK RESULTS SUMMARY
Part 2 - Method Blanks

Login Number: D29082
Account: CORCCOGJ - Olsson Associates
Project: National Fuel Federal 2-10-84 Pit Closure

QC Batch ID: MP6167
Matrix Type: AQUEOUS

Methods: SW846 6010B
Units: ug/l

Prep Date: 11/02/11

Metal	RL	IDL	MDL	MB raw	final
Aluminum	100	5.9	5.9		
Antimony	30	3.1	3.1		
Arsenic	25	5.9	5.9	-4.4	<25
Barium	10	1.1	1.1	0.30	<10
Beryllium	10	.44	.5		
Boron	50	4.8	4.8		
Cadmium	10	.27	.27	0.0	<10
Calcium	400	9.6	15		
Chromium	10	.18	.79	-0.10	<10
Cobalt	5.0	.35	.35		
Copper	10	.85	2.8	-1.0	<10
Iron	70	3.4	13	21.9	<70
Lead	50	1.6	2.1	-1.2	<50
Lithium	2.0	.28	1.2		
Magnesium	200	5.8	10	2.1	<200
Manganese	5.0	.053	.31	-0.10	<5.0
Molybdenum	10	.45	.87		
Nickel	30	.43	1		
Phosphorus	100	11	20		
Potassium	1000	55	55	38.1	<1000
Selenium	50	3.8	3.8	-1.6	<50
Silicon	50	3.8	3.8		
Silver	30	.18	.31	0.20	<30
Sodium	400	110	110	20.4	<400
Strontium	5.0		.25		
Thallium	10	2.9	2.9		
Tin	50	5.5	9.9		
Titanium	10	.11	.31		
Uranium	50	1.5	3.5		
Vanadium	10	.16	.22		
Zinc	30	.28	1.8		

Associated samples MP6167: D29082-1F

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

BLANK RESULTS SUMMARY
Part 2 - Method Blanks

Login Number: D29082
Account: CORCCOGJ - Olsson Associates
Project: National Fuel Federal 2-10-84 Pit Closure

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QC Batch ID: MP6167
Matrix Type: AQUEOUS

Methods: SW846 6010B
Units: ug/l

Prep Date:

Metal

(anr) Analyte not requested

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MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

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Login Number: D29082
 Account: CORCCOGJ - Olsson Associates
 Project: National Fuel Federal 2-10-84 Pit Closure

QC Batch ID: MP6167
 Matrix Type: AQUEOUS

Methods: SW846 6010B
 Units: ug/l

Prep Date: 11/02/11

Metal	D29028-1 Original MS	Spikelot MPICPALL % Rec	QC Limits
Aluminum			
Antimony			
Arsenic	0.0 1100	1000	110.0 75-125
Barium	12.8 2040	2000	101.6 75-125
Beryllium			
Boron			
Cadmium	0.30 520	500	103.9 75-125
Calcium	anr		
Chromium	0.0 520	500	104.0 75-125
Cobalt			
Copper	0.0 513	500	102.6 75-125
Iron	113 5320	5000	104.1 75-125
Lead	0.0 1070	1000	107.0 75-125
Lithium			
Magnesium	1090 27400	25000	105.2 75-125
Manganese	5.4 517	500	102.3 75-125
Molybdenum			
Nickel			
Phosphorus			
Potassium	799 27600	25000	107.2 75-125
Selenium	0.0 1070	1000	107.0 75-125
Silicon			
Silver	0.30 218	200	108.9 75-125
Sodium	2190 28400	25000	104.8 75-125
Strontium			
Thallium			
Tin			
Titanium			
Uranium			
Vanadium			
Zinc	anr		

Associated samples MP6167: D29082-1F

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

8.12



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MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: D29082
Account: CORCCOGJ - Olsson Associates
Project: National Fuel Federal 2-10-84 Pit Closure

QC Batch ID: MP6167
Matrix Type: AQUEOUS

Methods: SW846 6010B
Units: ug/l

Prep Date:

Metal

(N) Matrix Spike Rec. outside of QC limits
(anr) Analyte not requested

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MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: D29082
 Account: CORCCOGJ - Olsson Associates
 Project: National Fuel Federal 2-10-84 Pit Closure

QC Batch ID: MP6167
 Matrix Type: AQUEOUS

Methods: SW846 6010B
 Units: ug/l

Prep Date: 11/02/11

Metal	D29028-1 Original MSD	Spikelet MPICPALL % Rec	MSD RPD	QC Limit		
Aluminum						
Antimony						
Arsenic	0.0	1100	1000	110.0	0.0	20
Barium	12.8	2030	2000	101.1	0.5	20
Beryllium						
Boron						
Cadmium	0.30	519	500	103.7	0.2	20
Calcium	anr					
Chromium	0.0	520	500	104.0	0.0	20
Cobalt						
Copper	0.0	512	500	102.4	0.2	20
Iron	113	5300	5000	103.7	0.4	20
Lead	0.0	1070	1000	107.0	0.0	20
Lithium						
Magnesium	1090	27400	25000	105.2	0.0	20
Manganese	5.4	515	500	101.9	0.4	20
Molybdenum						
Nickel						
Phosphorus						
Potassium	799	27600	25000	107.2	0.0	20
Selenium	0.0	1060	1000	106.0	0.9	20
Silicon						
Silver	0.30	220	200	109.9	0.9	20
Sodium	2190	28300	25000	104.4	0.4	20
Strontium						
Thallium						
Tin						
Titanium						
Uranium						
Vanadium						
Zinc	anr					

Associated samples MP6167: D29082-1F

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

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MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: D29082
Account: CORCCOGJ - Olsson Associates
Project: National Fuel Federal 2-10-84 Pit Closure

QC Batch ID: MP6167
Matrix Type: AQUEOUS

Methods: SW846 6010B
Units: ug/l

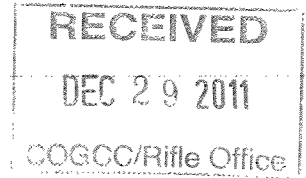
Prep Date:

Metal

(N) Matrix Spike Rec. outside of QC limits
(anr) Analyte not requested

8.1.2
8

SPIKE, BLANK AND LAB CONTROL SAMPLE SUMMARY



Login Number: D29082
 Account: CORCCOGJ - Olsson Associates
 Project: National Fuel Federal 2-10-84 Pit Closure

QC Batch ID: MP6167
 Matrix Type: AQUEOUS

Methods: SW846 6010B
 Units: ug/l

Prep Date: 11/02/11

Metal	BSP Result	Spikelet MPICPALL % Rec	QC Limits
-------	------------	-------------------------	-----------

Aluminum				
Antimony				
Arsenic	1090	1000	109.0	80-120
Barium	1990	2000	99.5	80-120
Beryllium				
Boron				
Cadmium	519	500	103.8	80-120
Calcium	anr			
Chromium	519	500	103.8	80-120
Cobalt				
Copper	507	500	101.4	80-120
Iron	5170	5000	103.4	80-120
Lead	1070	1000	107.0	80-120
Lithium				
Magnesium	26200	25000	104.8	80-120
Manganese	508	500	101.6	80-120
Molybdenum				
Nickel				
Phosphorus				
Potassium	26500	25000	106.0	80-120
Selenium	1070	1000	107.0	80-120
Silicon				
Silver	218	200	109.0	80-120
Sodium	26100	25000	104.4	80-120
Strontium				
Thallium				
Tin				
Titanium				
Uranium				
Vanadium				
Zinc	anr			

Associated samples MP6167: D29082-1F

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

SPIKE BLANK AND LAB CONTROL SAMPLE SUMMARY

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Login Number: D29082
Account: CORCCOGJ - Olsson Associates
Project: National Fuel Federal 2-10-84 Pit Closure

QC Batch ID: MP6167
Matrix Type: AQUEOUS

Methods: SW846 6010B
Units: ug/l

Prep Date:

Metal

(anr) Analyte not requested

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General Chemistry

QC Data Summaries

Includes the following where applicable:

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

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METHOD BLANK AND SPIKE RESULTS SUMMARY
GENERAL CHEMISTRY

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Login Number: D29082
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
Alkalinity, Bicarbonate as CaC	GN12389	5.0	0.0	mg/l	100	94.4	94.4	90-110%
Alkalinity, Carbonate	GN12390	5.0	0.0	mg/l	100	94.4	94.4	80-120%
Alkalinity, Total as CaCO3	GN12386	5.0	0.0	mg/l	100	94.4	94.4	90-110%
Bromide	GP5852/GN12331	0.20	0.0	mg/l	20	21.3	106.5	90-110%
Chloride	GP5843/GN12319	0.50	0.0	mg/l	20	19.9	99.5	90-110%
Chloride	GP5852/GN12331	0.50	0.0	mg/l	20	20.4	102.0	90-110%
Fluoride	GP5852/GN12331	0.20	0.0	mg/l	10	10.3	103.0	90-110%
Nitrogen, Nitrate	GP5843/GN12319	0.045	0.0	mg/l	4.52	4.39	97.2	90-110%
Nitrogen, Nitrite	GP5843/GN12319	0.061	0.0	mg/l	6.09	6.31	103.6	90-110%
Solids, Total Dissolved	GN12320	10	6.0	mg/l	400	403	100.8	90-110%
Specific Conductivity	GP5848/GN12326	1.0	<1.0	umhos/cm	99.3	98.8	99.3	90-110%
Sulfate	GP5843/GN12319	0.50	0.0	mg/l	30	29.3	97.7	90-110%
Sulfate	GP5852/GN12331	0.50	0.0	mg/l	30	30.5	101.7	90-110%
pH	GN12303			su	8.00	7.97	99.6	99.3-100.7%

Associated Samples:

- Batch GN12303: D29082-1
- Batch GN12320: D29082-1
- Batch GN12386: D29082-1
- Batch GN12389: D29082-1
- Batch GN12390: D29082-1
- Batch GP5843: D29082-1
- Batch GP5848: D29082-1
- Batch GP5852: D29082-1
- (*) Outside of QC limits

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DUPLICATE RESULTS SUMMARY
 GENERAL CHEMISTRY

Login Number: D29082
 Account: CORCCOGJ - Olsson Associates
 Project: National Fuel Federal 2-10-84 Pit Closure

Analyte	Batch ID	QC Sample	Units	Original Result	DUP Result	RPD	QC Limits
Alkalinity, Total as CaCO3	GN12386	D29021-3	mg/l	210	206	1.8	0-20%
Solids, Total Dissolved	GN12320	D29021-1	mg/l	188	194	3.1	0-25%
Specific Conductivity	GP5848/GN12326	D29072-1	umhos/cm	292	299	2.4	0-20%

Associated Samples:
 Batch GN12320: D29082-1
 Batch GN12386: D29082-1
 Batch GP5848: D29082-1
 (*) Outside of QC limits

9.2
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MATRIX SPIKE RESULTS SUMMARY
 GENERAL CHEMISTRY

Login Number: D29082
 Account: CORCCOGJ - Olsson Associates
 Project: National Fuel Federal 2-10-84 Pit Closure

Analyte	Batch ID	QC Sample	Units	Original Result	Spike Amount	MS Result	%Rec	QC Limits
Alkalinity, Total as CaCO3	GN12386	D29021-3	mg/l	210	100	303	93.6	80-120%
Bromide	GP5852/GN12331	D29072-1	mg/l	0.10	2.5	2.5	96.0	80-120%
Chloride	GP5843/GN12319	D29090-3	mg/l	2.1	10	11.7	96.0	80-120%
Chloride	GP5852/GN12331	D29072-1	mg/l	3.5	10	12.7	92.0	80-120%
Fluoride	GP5852/GN12331	D29072-1	mg/l	1.5	2.5	3.9	96.0	80-120%
Nitrogen, Nitrate	GP5843/GN12319	D29090-3	mg/l	0.025	0.565	0.57	96.5	80-120%
Nitrogen, Nitrite	GP5843/GN12319	D29090-3	mg/l	0.0	0.305	0.31	101.8	80-120%
Sulfate	GP5843/GN12319	D29090-3	mg/l	4.7	10	14.5	98.0	80-120%
Sulfate	GP5852/GN12331	D29072-1	mg/l	5.7	10	15.3	96.0	80-120%

Associated Samples:

Batch GN12386: D29082-1

Batch GP5843: D29082-1

Batch GP5852: D29082-1

(*) Outside of QC limits

(N) Matrix Spike Rec. outside of QC limits



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MATRIX SPIKE DUPLICATE RESULTS SUMMARY
 GENERAL CHEMISTRY

Login Number: D29082
 Account: CORCCOGJ - Olsson Associates
 Project: National Fuel Federal 2-10-84 Pit Closure

Analyte	Batch ID	QC Sample	Units	Original Result	Spike Amount	MSD Result	RPD	QC Limit
Alkalinity, Total as CaCO3	GN12386	D29021-3	mg/l	210	100	300	1.1	20%
Bromide	GP5852/GN12331	D29072-1	mg/l	0.10	2.5	2.5	0.0	20%
Chloride	GP5843/GN12319	D29090-3	mg/l	2.1	10	11.8	0.9	20%
Chloride	GP5852/GN12331	D29072-1	mg/l	3.5	10	12.7	0.0	20%
Fluoride	GP5852/GN12331	D29072-1	mg/l	1.5	2.5	3.8	2.6	20%
Nitrogen, Nitrate	GP5843/GN12319	D29090-3	mg/l	0.025	0.565	0.57	0.0	20%
Nitrogen, Nitrite	GP5843/GN12319	D29090-3	mg/l	0.0	0.305	0.31	0.0	20%
Sulfate	GP5843/GN12319	D29090-3	mg/l	4.7	10	14.6	0.7	20%
Sulfate	GP5852/GN12331	D29072-1	mg/l	5.7	10	15.3	0.0	20%

Associated Samples:
 Batch GN12386: D29082-1
 Batch GP5843: D29082-1
 Batch GP5852: D29082-1
 (*) Outside of QC limits
 (N) Matrix Spike Rec. outside of QC limits

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