Monitoring Results
Natural Gas Wells
near the Project Rulison Horizon

U.S. Department of Energy Office of Legacy Management
Grand Junction, Colorado

Date Sampled: 13 July 2010

Purpose:
The purpose of this sample collection is to monitor for radionuclides from Project Rulison. The bottom hole locations (BHLs) of the 18 gas wells sampled are within 1.1 miles of the Project Rulison detonation horizon. All wells sampled have produced or are producing gas from the Williams Fork Formation.

Background:
Project Rulison is the Plowshare Program code name for the detonation of a 40-kiloton-yield nuclear device on 10 September 1969. The detonation point was 8,426 feet (about 1.6 miles) below ground surface in the Williams Fork Formation. The purpose of the test was to stimulate recovery of natural gas in tight sands.

Samples Collected:

- 18 gas samples from 18 wells
- 18 produced water samples from 18 wells
- 1 water sample from 1 frac tank

Findings:

- No analytical result exceeded its respective screening level.

Table 1. Sample Collection Locations

Pad	Collection Point	Common name
26N	12 wells	BM 26-23D,-24B,-24C,-24D,-33B,-33C,-33D,-34A,-34B,-34C,-34D,-42
26K	5 wells	BM 26-23A,-23B,-23C,-22C,-22D
36B	1 well	BM 36-13
26K	1 Frac tank	–

Each natural gas sample was collected after the mechanical separator in an evacuated 18-liter Propane tank. The sample-tank pressure was typically 20 pounds per square inch. The natural gas sample from well Battlement Mesa (BM) 36-13 was collected before the separator.

Produced water samples were collected from a tap on a common line connecting two gas-liquid separators and the accumulator tank. The produced water collected from one separator (well) was isolated from the other separator (well) by valves. Lines from each of the two separators were purged of produced water and condensate before sample collection began.

The produced water sample volume collected from well BM 26-23C was small and only adequate for tritium analysis.

The produced water from well BM 36-16 was collected from the accumulator tank using a drop tube and a peristaltic pump. No other well had stored liquids in the accumulator tank sampled. The water sample from the frac tank was also collected using a drop tube and peristaltic pump.

The laboratory did not analyze the water sample from BM 36-13 because the aliquots received were determined to be organic phase liquid.

Table 2. Sample Collection Information

Seq.	Name	API # 05-045-	Location subtype	Sample Phase		BHL Data		Comments
				Gas	Liquid	T(ºF)	P(psi)	
1	BM 26-23D	15740	NG-Angl	X	X	60.3	294.6	
2	BM 26-24B	15747	NG-Angl	X	X	59.4	294.8	
3	BM 26-24C	15749	NG-Angl	X	X	62.5	293.6	
4	BM 26-24D	15746	NG-Angl	X	X	61.4	293.2	
5	BM 26-34D	15748	NG-Angl	X	X	62.4	293.0	
6	BM 26-34C	15741	NG-Angl	X	X	53.7	302.5	
7	BM 26-34B	15745	NG-Angl	X	X	59.4	304.1	
8	BM 26-34A	15744	NG-Angl	X	X	59.4	302.9	
9	BM 26-33D	15739	NG-Angl	X	X	50.8	305.9	
10	BM 26-33C	15742	NG-Angl	X	X	60.8	307.2	
11	BM 26-33B	15743	NG-Angl	X	X	53.8	306.9	
12	BM 26-42	10666	NG-Vert	X	X	63.8	293.6	
13	BM 26-23C	16085	NG-Angl	X	X	64.8	306.3	Small sample volume (~0.4L)
14	BM 26-23B	16084	NG-Angl	X	X	64.8	304.8	
15	BM 26-23A	16083	NG-Angl	X	X	69.8	303.7	
16	BM 26-22D	16074	NG-Angl	X	X	67.5	306.0	
17	BM 26-22C	16087	NG-Angl	X	X	65.9	305.7	
18	Duplicate	16087	NG-Angl	X	X	65.9	305.7	
19	BM 36-13	10840	NG-Vert	X	See page 2	NA	NA	Shut in during sample collection
20	Frac Tank	NA	NA	NA	X	NA	NA	

T: Temperature P: Pressure BM: Battlement Mesa NG-Angl: Angled well
L: liter NG-Vert: Vertical well NA: Missing or not applicable

Monitoring Protocol:
Rulison Monitoring Plan (July 2010, LMS/RUL/S06178)
A copy is available at http://www.lm.doe.gov/Rulison/Documents.aspx

Table 3a. Gas-Phase Screening and Action Concentrations for Tritium Sample Results

Analyte	Reporting Units	Screening conc.	Action Conc.	Comment
Tritium	TU	19,293	TBD	5.183×10^{-6} pCi/cc/TU

The derived air effluent concentration for 50 mrem-per-year dose from tritium exposure is 0.10 pCi (tritium) / (cc of methane).

Table 3b. Liquid-Phase Screening and Action Concentrations for Tritium and Various Analytical Method Results

Analyte	Reporting Units	Screening conc.	Action Conc.	Comment
Tritium	pCi/L	800	TBD	20,000 pCi/L = EPA drinking water standard
Lab Method				
Gross alpha	pCi/L	3x background	TBD	
Gross beta	pCi/L	3x background	TBD	
High-resolution gamma spectroscopy	pCi/L	20	TBD	Based on cesium-137

Table 3 Notes: See the Rulison Monitoring Plan, Table 2, for response scenarios when the screening and/or action concentrations are exceeded.
TU: tritium unit
pCi/cc/TU: picocurie per cubic centimeter per tritium unit
pCi/L: picocuries per liter
TBD: to be determined

Results Summary:

- 19 unique liquid samples were collected from 18 producing gas wells and one frac tank.
- 18 unique gas samples were collected from 18 gas wells.

A “nondetect” means that the result is less than the laboratory’s MDC for that sample result. The laboratory qualifies “nondetects” with a “U.”

A “detect” means that the sample result is greater than the laboratory’s reporting threshold or minimum detectable concentration (MDC).

A “detect” that is less than 3 times the MDC for a sample is assigned the data qualifier, “J,” during data validation.

“NA” denotes missing results.

Table 4a. Summary of Tritium Results for Gas- and Liquid-Phase Samples

Collection Point	Total Sampled	Tritium (gas phase)			Tritium (liquid phase)		
		Detect	Nondetect	NA	Detect	Nondetect	NA
Natural gas wells	18	1	17	–	–	17	1
Frac tanks	1	–	–	–	–	1	–

The single detect concentration (from BM 26-33C) is less than the gas-phase screening concentration.

Table 4b. Summary of Gross Count Results for Liquid Phase-Samples

Collection Point	Total Sampled	Gross Alpha Counting			Gross Beta Counting		
		Detect	Nondetect	NA	Detect	Nondetect	NA
Natural gas wells	18	2	14	2	16	0	2
Frac tanks	1	–	1	–	1	–	–

The gross alpha “detects” are qualified as “J.” Nine (9) of the 16 gross beta “detects” are qualified as “J”; the other “detects” are not qualified. Wells BM 26-23C and BM 36-13 are missing data (NA). Backgrounds for gross alpha and gross beta counting results have not been established. See Table 5 for a summary of these results.

Table 4c. Summary of Potassium-40 Results for Liquid-Phase Samples

Collection Point	Total Sampled	Potassium-40		
		Detect	Nondetect	NA
Natural gas wells	18	5	11	2
Frac tanks	1	–	1	–

The potassium-40 “detects” are qualified as “J.”

Table 5. Gross Alpha and Gross Beta Background Statistics for Gas Wells

Statistic	Gross Alpha Counting		Gross Beta Counting	
	Value	Units	Value	Units
No. of non-zero values	2	–	16	–
Maximum	55.7	pCi/L	289.0	pCi/L
Third quartile	48.2	pCi/L	222.2	pCi/L
Mean	40.7	pCi/L	168.3	pCi/L
Median	40.7	pCi/L	146.5	pCi/L
First quartile	33.2	pCi/L	115.2	pCi/L
Minimum	25.7	pCi/L	85.3	pCi/L

Table 6. Bottom Hole Locations (BHLs) of Wells Sampled and Ground Zero

Pad	Well Name	Total Depth (ft)	Location				Rulison GZ to BHL		Comment
			Q-Q	S	Lat (NAD 83)	Long (NAD 83)	Distance (miles)	Heading (degrees)	
	25-95 (R-E)	8,701	NENW	25	39.405361	–107.948444	0		Ground zero, vertical well
26N	BM 26-23D	10,681	NESW	26	39.405384	–107.967240	1.01	W1.6ºN	
26N	BM 26-24B	10,095	SESW	26	39.403236	–107.967240	1.02	S83.3ºW	
26N	BM 26-24C	9,969	SESW	26	39.402285	–107.967220	1.03	S79.6W	
26N	BM 26-24D	9,989	SESW	26	39.401455	–107.967231	1.04	S76.5ºW	
26N	BM 26-34D	9,986	SWSE	26	39.401665	–107.964508	0.90	S75.0ºW	
26N	BM 26-34C	9,986	SWSE	26	39.402515	–107.962576	0.78	S77.0ºW	
26N	BM 26-34B	10,046	SWSE	26	39.403498	–107.962561	0.77	S81.9ºW	
26N	BM 26-34A	10,087	SWSE	26	39.404311	–107.962565	0.76	S86.1ºW	
26N	BM 26-33D	10,068	NWSE	26	39.405124	–107.962544	0.75	W0.3ºN	
26N	BM 26-33C	10,072	NWSE	26	39.406006	–107.962544	0.76	W4.9ºN	
26N	BM 26-33B	9,966	NWSE	26	39.406892	–107.962558	0.76	W9.5ºN	
26N	BM 26-42	9,423	SESW	26	39.404446	–107.967221	1.01	S88.0ºW	Vertical well
26K	BM 26-23C	10,062	NESW	26	39.406197	–107.967236	1.01	W4.8ºN	
26K	BM 26-23B	10,036	NESW	26	39.407086	–107.967218	1.01	W8.3ºN	
26K	BM 26-23A	10,066	NESW	26	39.407899	–107.967173	1.02	W11.5ºN	
26K	BM 26-22D	10,057	SENW	26	39.408687	–107.967163	1.03	W14.6ºN	
26K	BM 26-22C	10,047	SENW	26	39.409618	–107.967223	1.05	W17.8ºN	
36B	BM 36-13	8,903	NWNE	26	39.398165	–107.943943	0.55	E65.7ºS	Vertical well

Q-Q: quarter-quarter section S: Section Lat: latitude Long: longitude
NAD 83: North American Datum of 1983

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Gas Phase Sample Results

RESULTS REPORT
RIN: 10073209
Site: Rulison Site
Location: BM 26-22C
Ticket Number: IIY 564
Report Date: 9/14/2010

Parameter	Units	Sample Date	Sample ID	Result	Qualifiers Lab	Qualifiers Data	Qualifiers QA	Standard[2]
Carbon Monoxide	percent	07/13/2010	N001	nd[1]	U		#	
Hydrogen Sulfide	percent	07/13/2010	N001	nd	U		#	
Helium	percent	07/13/2010	N001	0.0024			#	
Hydrogen	percent	07/13/2010	N001	0.0085			#	
Argon	percent	07/13/2010	N001	nd	U		#	
Oxygen	percent	07/13/2010	N001	0.0025			#	
Nitrogen	percent	07/13/2010	N001	0.19			#	
Carbon Dioxide	percent	07/13/2010	N001	3.29			#	
Methane	percent	07/13/2010	N001	90.23			#	
Ethane	percent	07/13/2010	N001	4.30			#	
Ethylene	percent	07/13/2010	N001	nd	U		#	
Propane	percent	07/13/2010	N001	1.14			#	
Isobutane	percent	07/13/2010	N001	0.245			#	
Butane	percent	07/13/2010	N001	0.234			#	
Isopentane	percent	07/13/2010	N001	0.0973			#	
Pentane	percent	07/13/2010	N001	0.0681			#	
Hexanes	percent	07/13/2010	N001	0.167			#	
Carbon-14	Percent modern carbon	07/13/2010	N001	0.2	U		#	
Tritium	pCi/L methane	07/13/2010	N001	0.051	U		#	

[1] Not detected.
[2] There are no applicable standards for natural gas.

SAMPLE ID CODES: 000X = Filtered sample (0.45 µm). N00X = Unfiltered sample. X = replicate number.

LAB QUALIFIERS:
U Analytical result below detection limit.

QA QUALIFIER:
Validated at Level 1 according to quality assurance guidelines.

RESULTS REPORT
RIN: 10073209
Site: Rulison Site
Location: BM 26-22D
Ticket Number: IIY 565
Report Date: 9/14/2010

Parameter	Units	Sample Date	Sample ID	Result	Qualifiers Lab	Qualifiers Data	Qualifiers QA	Standard[2]
Carbon Monoxide	percent	07/13/2010	N001	nd[1]	U		#	
Hydrogen Sulfide	percent	07/13/2010	N001	nd	U		#	
Helium	percent	07/13/2010	N001	0.0025			#	
Hydrogen	percent	07/13/2010	N001	0.0027			#	
Argon	percent	07/13/2010	N001	nd	U		#	
Oxygen	percent	07/13/2010	N001	0.0027			#	
Nitrogen	percent	07/13/2010	N001	0.18			#	
Carbon Dioxide	percent	07/13/2010	N001	4.03			#	
Methane	percent	07/13/2010	N001	90.12			#	
Ethane	percent	07/13/2010	N001	3.87			#	
Ethylene	percent	07/13/2010	N001	nd	U		#	
Propane	percent	07/13/2010	N001	0.993			#	
Isobutane	percent	07/13/2010	N001	0.215			#	
Butane	percent	07/13/2010	N001	0.198			#	
Isopentane	percent	07/13/2010	N001	0.0961			#	
Pentane	percent	07/13/2010	N001	0.0751			#	
Hexanes	percent	07/13/2010	N001	0.192			#	
Carbon-14	Percent modern carbon	07/13/2010	N001	0.6	U		#	
Tritium	pCi/L methane	07/13/2010	N001	0.051	U		#	

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Validated at Level 1 according to quality assurance guidelines.

RESULTS REPORT
RIN: 10073209
Site: Rulison Site
Location: BM 26-23A
Ticket Number: IIY 566
Report Date: 9/14/2010

Parameter	Units	Sample Date	Sample ID	Result	Qualifiers Lab	Qualifiers Data	Qualifiers QA	Standard[2]
Carbon Monoxide	percent	07/13/2010	N001	nd[1]	U		#	
Hydrogen Sulfide	percent	07/13/2010	N001	nd	U		#	
Helium	percent	07/13/2010	N001	0.0023			#	
Hydrogen	percent	07/13/2010	N001	0.0033			#	
Argon	percent	07/13/2010	N001	nd	U		#	
Oxygen	percent	07/13/2010	N001	0.0035			#	
Nitrogen	percent	07/13/2010	N001	0.20			#	
Carbon Dioxide	percent	07/13/2010	N001	4.39			#	
Methane	percent	07/13/2010	N001	89.43			#	
Ethane	percent	07/13/2010	N001	4.20			#	
Ethylene	percent	07/13/2010	N001	nd	U		#	
Propane	percent	07/13/2010	N001	1.03			#	
Isobutane	percent	07/13/2010	N001	0.230			#	
Butane	percent	07/13/2010	N001	0.191			#	
Isopentane	percent	07/13/2010	N001	0.0793			#	
Pentane	percent	07/13/2010	N001	0.0541			#	
Hexanes	percent	07/13/2010	N001	0.154			#	
Carbon-14	Percent modern carbon	07/13/2010	N001	0.6	U		#	
Tritium	pCi/L methane	07/13/2010	N001	0.051	U		#	

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LAB QUALIFIERS:
U Analytical result below detection limit.

QA QUALIFIER:
Validated at Level 1 according to quality assurance guidelines.

RESULTS REPORT
RIN: 10073209
Site: Rulison Site
Location: BM 26-23B
Ticket Number: IIY 567
Report Date: 9/14/2010

Parameter	Units	Sample Date	Sample ID	Result	Qualifiers Lab	Qualifiers Data	Qualifiers QA	Standard[2]
Carbon Monoxide	percent	07/13/2010	N001	nd[1]	U		#	
Hydrogen Sulfide	percent	07/13/2010	N001	nd	U		#	
Helium	percent	07/13/2010	N001	0.0025			#	
Hydrogen	percent	07/13/2010	N001	0.0045			#	
Argon	percent	07/13/2010	N001	nd	U		#	
Oxygen	percent	07/13/2010	N001	0.0031			#	
Nitrogen	percent	07/13/2010	N001	0.20			#	
Carbon Dioxide	percent	07/13/2010	N001	3.57			#	
Methane	percent	07/13/2010	N001	89.75			#	
Ethane	percent	07/13/2010	N001	4.42			#	
Ethylene	percent	07/13/2010	N001	nd	U		#	
Propane	percent	07/13/2010	N001	1.21			#	
Isobutane	percent	07/13/2010	N001	0.250			#	
Butane	percent	07/13/2010	N001	0.242			#	
Isopentane	percent	07/13/2010	N001	0.0937			#	
Pentane	percent	07/13/2010	N001	0.0666			#	
Hexanes	percent	07/13/2010	N001	0.163			#	
Carbon-14	Percent modern carbon	07/13/2010	N001	0.5	U		#	
Tritium	pCi/L methane	07/13/2010	N001	0.051	U		#	

[1] Not detected.
[2] There are no applicable standards for natural gas.

SAMPLE ID CODES: 000X = Filtered sample (0.45 µm). N00X = Unfiltered sample. X = replicate number.

LAB QUALIFIERS:
U Analytical result below detection limit.

QA QUALIFIER:
Validated at Level 1 according to quality assurance guidelines.

RESULTS REPORT
RIN: 10073209
Site: Rulison Site
Location: BM 26-23C
Ticket Number: IIY 568
Report Date: 9/14/2010

Parameter	Units	Sample Date	Sample ID	Result	Qualifiers Lab	Qualifiers Data	Qualifiers QA	Standard[2]
Carbon Monoxide	percent	07/13/2010	N001	nd[1]	U		#	
Hydrogen Sulfide	percent	07/13/2010	N001	nd	U		#	
Helium	percent	07/13/2010	N001	0.0025			#	
Hydrogen	percent	07/13/2010	N001	0.0055			#	
Argon	percent	07/13/2010	N001	nd	U		#	
Oxygen	percent	07/13/2010	N001	0.0036			#	
Nitrogen	percent	07/13/2010	N001	0.19			#	
Carbon Dioxide	percent	07/13/2010	N001	3.18			#	
Methane	percent	07/13/2010	N001	89.74			#	
Ethane	percent	07/13/2010	N001	4.59			#	
Ethylene	percent	07/13/2010	N001	nd	U		#	
Propane	percent	07/13/2010	N001	1.34			#	
Isobutane	percent	07/13/2010	N001	0.289			#	
Butane	percent	07/13/2010	N001	0.282			#	
Isopentane	percent	07/13/2010	N001	0.109			#	
Pentane	percent	07/13/2010	N001	0.0760			#	
Hexanes	percent	07/13/2010	N001	0.158			#	
Carbon-14	Percent modern carbon	07/13/2010	N001	0.6	U		#	
Tritium	pCi/L methane	07/13/2010	N001	0.051	U		#	

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[2] There are no applicable standards for natural gas.

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U Analytical result below detection limit.

QA QUALIFIER:
Validated at Level 1 according to quality assurance guidelines.

RESULTS REPORT
RIN: 10073209
Site: Rulison Site
Location: BM 26-23D
Ticket Number: IIY 569
Report Date: 9/14/2010

Parameter	Units	Sample Date	Sample ID	Result	Qualifiers Lab	Qualifiers Data	Qualifiers QA	Standard[2]
Carbon Monoxide	percent	07/13/2010	N001	nd[1]	U		#	
Hydrogen Sulfide	percent	07/13/2010	N001	nd	U		#	
Helium	percent	07/13/2010	N001	0.0024			#	
Hydrogen	percent	07/13/2010	N001	0.0041			#	
Argon	percent	07/13/2010	N001	nd	U		#	
Oxygen	percent	07/13/2010	N001	0.0022			#	
Nitrogen	percent	07/13/2010	N001	0.17			#	
Carbon Dioxide	percent	07/13/2010	N001	3.87			#	
Methane	percent	07/13/2010	N001	89.44			#	
Ethane	percent	07/13/2010	N001	4.44			#	
Ethylene	percent	07/13/2010	N001	nd	U		#	
Propane	percent	07/13/2010	N001	1.20			#	
Isobutane	percent	07/13/2010	N001	0.252			#	
Butane	percent	07/13/2010	N001	0.245			#	
Isopentane	percent	07/13/2010	N001	0.0987			#	
Pentane	percent	07/13/2010	N001	0.0719			#	
Hexanes	percent	07/13/2010	N001	0.182			#	
Carbon-14	Percent modern carbon	07/13/2010	N001	0.6	U		#	
Tritium	pCi/L methane	07/13/2010	N001	0.051	U		#	

[1] Not detected.
[2] There are no applicable standards for natural gas.

SAMPLE ID CODES: 000X = Filtered sample (0.45 µm). N00X = Unfiltered sample. X = replicate number.

LAB QUALIFIERS:
U Analytical result below detection limit.

QA QUALIFIER:
Validated at Level 1 according to quality assurance guidelines.

RESULTS REPORT
RIN: 10073209
Site: Rulison Site
Location: BM 26-24B
Ticket Number: IIY 570
Report Date: 9/14/2010

Parameter	Units	Sample Date	Sample ID	Result	Qualifiers Lab	Qualifiers Data	Qualifiers QA	Standard[2]
Carbon Monoxide	percent	07/13/2010	N001	nd[1]	U		#	
Hydrogen Sulfide	percent	07/13/2010	N001	nd	U		#	
Helium	percent	07/13/2010	N001	0.0023			#	
Hydrogen	percent	07/13/2010	N001	0.0039			#	
Argon	percent	07/13/2010	N001	nd	U		#	
Oxygen	percent	07/13/2010	N001	nd	U		#	
Nitrogen	percent	07/13/2010	N001	0.13			#	
Carbon Dioxide	percent	07/13/2010	N001	5.36			#	
Methane	percent	07/13/2010	N001	88.22			#	
Ethane	percent	07/13/2010	N001	4.39			#	
Ethylene	percent	07/13/2010	N001	nd	U		#	
Propane	percent	07/13/2010	N001	1.11			#	
Isobutane	percent	07/13/2010	N001	0.225			#	
Butane	percent	07/13/2010	N001	0.215			#	
Isopentane	percent	07/13/2010	N001	0.0857			#	
Pentane	percent	07/13/2010	N001	0.0620			#	
Hexanes	percent	07/13/2010	N001	0.196			#	
Carbon-14	Percent modern carbon	07/13/2010	N001	0.5	U		#	
Tritium	pCi/L methane	07/13/2010	N001	0.051	U		#	

[1] Not detected.
[2] There are no applicable standards for natural gas.

SAMPLE ID CODES: 000X = Filtered sample (0.45 µm). N00X = Unfiltered sample. X = replicate number.

LAB QUALIFIERS:
U Analytical result below detection limit.

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Validated at Level 1 according to quality assurance guidelines.

RESULTS REPORT
RIN: 10073209
Site: Rulison Site
Location: BM 26-24C
Ticket Number: IIY 571
Report Date: 9/14/2010

Parameter	Units	Sample Date	Sample ID	Result	Qualifiers Lab	Qualifiers Data	Qualifiers QA	Standard[2]
Carbon Monoxide	percent	07/13/2010	N001	nd[1]	U		#	
Hydrogen Sulfide	percent	07/13/2010	N001	nd	U		#	
Helium	percent	07/13/2010	N001	0.0022			#	
Hydrogen	percent	07/13/2010	N001	0.0032			#	
Argon	percent	07/13/2010	N001	nd	U		#	
Oxygen	percent	07/13/2010	N001	nd	U		#	
Nitrogen	percent	07/13/2010	N001	0.094			#	
Carbon Dioxide	percent	07/13/2010	N001	3.55			#	
Methane	percent	07/13/2010	N001	89.22			#	
Ethane	percent	07/13/2010	N001	4.71			#	
Ethylene	percent	07/13/2010	N001	nd	U		#	
Propane	percent	07/13/2010	N001	1.35			#	
Isobutane	percent	07/13/2010	N001	0.273			#	
Butane	percent	07/13/2010	N001	0.286			#	
Isopentane	percent	07/13/2010	N001	0.120			#	
Pentane	percent	07/13/2010	N001	0.0918			#	
Hexanes	percent	07/13/2010	N001	0.304			#	
Carbon-14	Percent modern carbon	07/13/2010	N001	0.5	U		#	
Tritium	pCi/L methane	07/13/2010	N001	0.051	U		#	

[1] Not detected.
[2] There are no applicable standards for natural gas.

SAMPLE ID CODES: 000X = Filtered sample (0.45 µm). N00X = Unfiltered sample. X = replicate number.

LAB QUALIFIERS:
U Analytical result below detection limit.

QA QUALIFIER:
Validated at Level 1 according to quality assurance guidelines.

RESULTS REPORT
RIN: 10073209
Site: Rulison Site
Location: BM 26-24D
Ticket Number: IIY 572
Report Date: 9/14/2010

Parameter	Units	Sample Date	Sample ID	Result	Qualifiers Lab	Qualifiers Data	Qualifiers QA	Standard[2]
Carbon Monoxide	percent	07/13/2010	N001	nd[1]	U		#	
Hydrogen Sulfide	percent	07/13/2010	N001	nd	U		#	
Helium	percent	07/13/2010	N001	0.0024			#	
Hydrogen	percent	07/13/2010	N001	0.0036			#	
Argon	percent	07/13/2010	N001	nd	U		#	
Oxygen	percent	07/13/2010	N001	0.035			#	
Nitrogen	percent	07/13/2010	N001	0.19			#	
Carbon Dioxide	percent	07/13/2010	N001	3.80			#	
Methane	percent	07/13/2010	N001	89.71			#	
Ethane	percent	07/13/2010	N001	4.37			#	
Ethylene	percent	07/13/2010	N001	nd	U		#	
Propane	percent	07/13/2010	N001	1.16			#	
Isobutane	percent	07/13/2010	N001	0.230			#	
Butane	percent	07/13/2010	N001	0.227			#	
Isopentane	percent	07/13/2010	N001	0.0857			#	
Pentane	percent	07/13/2010	N001	0.0615			#	
Hexanes	percent	07/13/2010	N001	0.124			#	
Carbon-14	Percent modern carbon	07/13/2010	N001	0.5	U		#	
Tritium	pCi/L methane	07/13/2010	N001	0.051	U		#	

[1] Not detected.
[2] There are no applicable standards for natural gas.

SAMPLE ID CODES: 000X = Filtered sample (0.45 µm). N00X = Unfiltered sample. X = replicate number.

LAB QUALIFIERS:
U Analytical result below detection limit.

QA QUALIFIER:
Validated at Level 1 according to quality assurance guidelines.

RESULTS REPORT
RIN: 10073209
Site: Rulison Site
Location: BM 26-33B
Ticket Number: IIY 573
Report Date: 9/14/2010

Parameter	Units	Sample Date	Sample ID	Result	Qualifiers Lab	Qualifiers Data	Qualifiers QA	Standard[2]
Carbon Monoxide	percent	07/13/2010	N001	nd[1]	U		#	
Hydrogen Sulfide	percent	07/13/2010	N001	nd	U		#	
Helium	percent	07/13/2010	N001	0.0027			#	
Hydrogen	percent	07/13/2010	N001	0.0060			#	
Argon	percent	07/13/2010	N001	nd	U		#	
Oxygen	percent	07/13/2010	N001	nd	U		#	
Nitrogen	percent	07/13/2010	N001	0.11			#	
Carbon Dioxide	percent	07/13/2010	N001	5.24			#	
Methane	percent	07/13/2010	N001	88.20			#	
Ethane	percent	07/13/2010	N001	4.42			#	
Ethylene	percent	07/13/2010	N001	nd	U		#	
Propane	percent	07/13/2010	N001	1.19			#	
Isobutane	percent	07/13/2010	N001	0.261			#	
Butane	percent	07/13/2010	N001	0.243			#	
Isopentane	percent	07/13/2010	N001	0.100			#	
Pentane	percent	07/13/2010	N001	0.0711			#	
Hexanes	percent	07/13/2010	N001	0.155			#	
Carbon-14	Percent modern carbon	07/13/2010	N001	0.5	U		#	
Tritium	pCi/L methane	07/13/2010	N001	0.051	U		#	

[1] Not detected.
[2] There are no applicable standards for natural gas.

SAMPLE ID CODES: 000X = Filtered sample (0.45 µm). N00X = Unfiltered sample. X = replicate number.

LAB QUALIFIERS:
U Analytical result below detection limit.

QA QUALIFIER:
Validated at Level 1 according to quality assurance guidelines.

RESULTS REPORT
RIN: 10073209
Site: Rulison Site
Location: BM 26-33C
Ticket Number: IIY 574
Report Date: 9/14/2010

Parameter	Units	Sample Date	Sample ID	Result	Qualifiers Lab	Qualifiers Data	Qualifiers QA	Standard[2]
Carbon Monoxide	percent	07/13/2010	N001	nd[1]	U		#	
Hydrogen Sulfide	percent	07/13/2010	N001	nd	U		#	
Helium	percent	07/13/2010	N001	0.0025			#	
Hydrogen	percent	07/13/2010	N001	0.0049			#	
Argon	percent	07/13/2010	N001	nd	U		#	
Oxygen	percent	07/13/2010	N001	nd	U		#	
Nitrogen	percent	07/13/2010	N001	0.095			#	
Carbon Dioxide	percent	07/13/2010	N001	2.88			#	
Methane	percent	07/13/2010	N001	90.32			#	
Ethane	percent	07/13/2010	N001	4.51			#	
Ethylene	percent	07/13/2010	N001	nd	U		#	
Propane	percent	07/13/2010	N001	1.22			#	
Isobutane	percent	07/13/2010	N001	0.267			#	
Butane	percent	07/13/2010	N001	0.260			#	
Isopentane	percent	07/13/2010	N001	0.111			#	
Pentane	percent	07/13/2010	N001	0.0833			#	
Hexanes	percent	07/13/2010	N001	0.245			#	
Carbon-14	Percent modern carbon	07/13/2010	N001	0.6	U		#	
Tritium	pCi/L methane	07/13/2010	N001	0.056			#	

[1] Not detected.
[2] There are no applicable standards for natural gas.

SAMPLE ID CODES: 000X = Filtered sample (0.45 µm). N00X = Unfiltered sample. X = replicate number.

LAB QUALIFIERS:
U Analytical result below detection limit.

QA QUALIFIER:
Validated at Level 1 according to quality assurance guidelines.

RESULTS REPORT
RIN: 10073209
Site: Rulison Site
Location: BM 26-33D
Ticket Number: IIY 575
Report Date: 9/14/2010

Parameter	Units	Sample Date	Sample ID	Result	Qualifiers Lab	Qualifiers Data	Qualifiers QA	Standard[2]
Carbon Monoxide	percent	07/13/2010	N001	nd[1]	U		#	
Hydrogen Sulfide	percent	07/13/2010	N001	nd	U		#	
Helium	percent	07/13/2010	N001	0.0024			#	
Hydrogen	percent	07/13/2010	N001	0.0066			#	
Argon	percent	07/13/2010	N001	0.0122			#	
Oxygen	percent	07/13/2010	N001	0.23			#	
Nitrogen	percent	07/13/2010	N001	0.93			#	
Carbon Dioxide	percent	07/13/2010	N001	5.35			#	
Methane	percent	07/13/2010	N001	87.07			#	
Ethane	percent	07/13/2010	N001	4.46			#	
Ethylene	percent	07/13/2010	N001	nd	U		#	
Propane	percent	07/13/2010	N001	1.17			#	
Isobutane	percent	07/13/2010	N001	0.251			#	
Butane	percent	07/13/2010	N001	0.234			#	
Isopentane	percent	07/13/2010	N001	0.0932			#	
Pentane	percent	07/13/2010	N001	0.0660			#	
Hexanes	percent	07/13/2010	N001	0.126			#	
Carbon-14	Percent modern carbon	07/13/2010	N001	0.9	U		#	
Tritium	pCi/L methane	07/13/2010	N001	0.051	U		#	

[1] Not detected.
[2] There are no applicable standards for natural gas.

SAMPLE ID CODES: 000X = Filtered sample (0.45 µm). N00X = Unfiltered sample. X = replicate number.

LAB QUALIFIERS:
U Analytical result below detection limit.

QA QUALIFIER:
Validated at Level 1 according to quality assurance guidelines.

RESULTS REPORT
RIN: 10073209
Site: Rulison Site
Location: BM 26-34A
Ticket Number: IIY 576
Report Date: 9/14/2010

Parameter	Units	Sample Date	Sample ID	Result	Qualifiers Lab	Qualifiers Data	Qualifiers QA	Standard[2]
Carbon Monoxide	percent	07/13/2010	N001	nd[1]	U		#	
Hydrogen Sulfide	percent	07/13/2010	N001	nd	U		#	
Helium	percent	07/13/2010	N001	0.0022			#	
Hydrogen	percent	07/13/2010	N001	0.0036			#	
Argon	percent	07/13/2010	N001	nd	U		#	
Oxygen	percent	07/13/2010	N001	nd	U		#	
Nitrogen	percent	07/13/2010	N001	0.083			#	
Carbon Dioxide	percent	07/13/2010	N001	2.66			#	
Methane	percent	07/13/2010	N001	90.33			#	
Ethane	percent	07/13/2010	N001	4.64			#	
Ethylene	percent	07/13/2010	N001	nd	U		#	
Propane	percent	07/13/2010	N001	1.38			#	
Isobutane	percent	07/13/2010	N001	0.283			#	
Butane	percent	07/13/2010	N001	0.288			#	
Isopentane	percent	07/13/2010	N001	0.110			#	
Pentane	percent	07/13/2010	N001	0.0789			#	
Hexanes	percent	07/13/2010	N001	0.139			#	
Carbon-14	Percent modern carbon	07/13/2010	N001	0.8	U		#	
Tritium	pCi/L methane	07/13/2010	N001	0.051	U		#	

[1] Not detected.
[2] There are no applicable standards for natural gas.

SAMPLE ID CODES: 000X = Filtered sample (0.45 µm). N00X = Unfiltered sample. X = replicate number.

LAB QUALIFIERS:
U Analytical result below detection limit.

QA QUALIFIER:
Validated at Level 1 according to quality assurance guidelines.

RESULTS REPORT
RIN: 10073209
Site: Rulison Site
Location: BM 26-34B
Ticket Number: IIY 577
Report Date: 9/14/2010

Parameter	Units	Sample Date	Sample ID	Result	Qualifiers Lab	Qualifiers Data	Qualifiers QA	Standard[2]
Carbon Monoxide	percent	07/13/2010	N001	nd[1]	U		#	
Hydrogen Sulfide	percent	07/13/2010	N001	nd	U		#	
Helium	percent	07/13/2010	N001	0.0024			#	
Hydrogen	percent	07/13/2010	N001	0.0076			#	
Argon	percent	07/13/2010	N001	nd	U		#	
Oxygen	percent	07/13/2010	N001	0.0076			#	
Nitrogen	percent	07/13/2010	N001	0.15			#	
Carbon Dioxide	percent	07/13/2010	N001	12.29			#	
Methane	percent	07/13/2010	N001	81.30			#	
Ethane	percent	07/13/2010	N001	4.27			#	
Ethylene	percent	07/13/2010	N001	nd	U		#	
Propane	percent	07/13/2010	N001	1.14			#	
Isobutane	percent	07/13/2010	N001	0.267			#	
Butane	percent	07/13/2010	N001	0.239			#	
Isopentane	percent	07/13/2010	N001	0.102			#	
Pentane	percent	07/13/2010	N001	0.0719			#	
Hexanes	percent	07/13/2010	N001	0.154			#	
Carbon-14	Percent modern carbon	07/13/2010	N001	0.9	U		#	
Tritium	pCi/L methane	07/13/2010	N001	0.051	U		#	

[1] Not detected.
[2] There are no applicable standards for natural gas.

SAMPLE ID CODES: 000X = Filtered sample (0.45 µm). N00X = Unfiltered sample. X = replicate number.

LAB QUALIFIERS:
U Analytical result below detection limit.

QA QUALIFIER:
Validated at Level 1 according to quality assurance guidelines.

RESULTS REPORT
RIN: 10073209
Site: Rulison Site
Location: BM 26-34C
Ticket Number: IIY 578
Report Date: 9/14/2010

Parameter	Units	Sample Date	Sample ID	Result	Qualifiers Lab	Qualifiers Data	Qualifiers QA	Standard[2]
Carbon Monoxide	percent	07/13/2010	N001	nd[1]	U		#	
Hydrogen Sulfide	percent	07/13/2010	N001	nd	U		#	
Helium	percent	07/13/2010	N001	0.0023			#	
Hydrogen	percent	07/13/2010	N001	0.0062			#	
Argon	percent	07/13/2010	N001	nd	U		#	
Oxygen	percent	07/13/2010	N001	0.041			#	
Nitrogen	percent	07/13/2010	N001	0.24			#	
Carbon Dioxide	percent	07/13/2010	N001	10.81			#	
Methane	percent	07/13/2010	N001	83.07			#	
Ethane	percent	07/13/2010	N001	4.08			#	
Ethylene	percent	07/13/2010	N001	nd	U		#	
Propane	percent	07/13/2010	N001	1.05			#	
Isobutane	percent	07/13/2010	N001	0.223			#	
Butane	percent	07/13/2010	N001	0.204			#	
Isopentane	percent	07/13/2010	N001	0.0838			#	
Pentane	percent	07/13/2010	N001	0.0585			#	
Hexanes	percent	07/13/2010	N001	0.130			#	
Carbon-14	Percent modern carbon	07/13/2010	N001	0.8	U		#	
Tritium	pCi/L methane	07/13/2010	N001	0.051	U		#	

[1] Not detected.
[2] There are no applicable standards for natural gas.

SAMPLE ID CODES: 000X = Filtered sample (0.45 µm). N00X = Unfiltered sample. X = replicate number.

LAB QUALIFIERS:
U Analytical result below detection limit.

QA QUALIFIER:
Validated at Level 1 according to quality assurance guidelines.

RESULTS REPORT
RIN: 10073209
Site: Rulison Site
Location: BM 26-34D
Ticket Number: IIY 579
Report Date: 9/14/2010

Parameter	Units	Sample Date	Sample ID	Result	Qualifiers Lab	Qualifiers Data	Qualifiers QA	Standard[2]
Carbon Monoxide	percent	07/13/2010	N001	nd[1]	U		#	
Hydrogen Sulfide	percent	07/13/2010	N001	nd	U		#	
Helium	percent	07/13/2010	N001	0.0028			#	
Hydrogen	percent	07/13/2010	N001	0.0034			#	
Argon	percent	07/13/2010	N001	nd	U		#	
Oxygen	percent	07/13/2010	N001	nd	U		#	
Nitrogen	percent	07/13/2010	N001	0.085			#	
Carbon Dioxide	percent	07/13/2010	N001	3.58			#	
Methane	percent	07/13/2010	N001	89.94			#	
Ethane	percent	07/13/2010	N001	4.44			#	
Ethylene	percent	07/13/2010	N001	nd	U		#	
Propane	percent	07/13/2010	N001	1.16			#	
Isobutane	percent	07/13/2010	N001	0.240			#	
Butane	percent	07/13/2010	N001	0.229			#	
Isopentane	percent	07/13/2010	N001	0.0920			#	
Pentane	percent	07/13/2010	N001	0.0662			#	
Hexanes	percent	07/13/2010	N001	0.162			#	
Carbon-14	Percent modern carbon	07/13/2010	N001	0.7	U		#	
Tritium	pCi/L methane	07/13/2010	N001	0.051	U		#	

[1] Not detected.
[2] There are no applicable standards for natural gas.

SAMPLE ID CODES: 000X = Filtered sample (0.45 µm). N00X = Unfiltered sample. X = replicate number.

LAB QUALIFIERS:
U Analytical result below detection limit.

QA QUALIFIER:
Validated at Level 1 according to quality assurance guidelines.

RESULTS REPORT
RIN: 10073209
Site: Rulison Site
Location: BM 26-42
Ticket Number: IIY 580
Report Date: 9/14/2010

Parameter	Units	Sample Date	Sample ID	Result	Qualifiers Lab	Qualifiers Data	Qualifiers QA	Standard[2]
Carbon Monoxide	percent	07/13/2010	N001	nd[1]	U		#	
Hydrogen Sulfide	percent	07/13/2010	N001	nd	U		#	
Helium	percent	07/13/2010	N001	0.0025			#	
Hydrogen	percent	07/13/2010	N001	0.0028			#	
Argon	percent	07/13/2010	N001	nd	U		#	
Oxygen	percent	07/13/2010	N001	nd	U		#	
Nitrogen	percent	07/13/2010	N001	0.094			#	
Carbon Dioxide	percent	07/13/2010	N001	3.36			#	
Methane	percent	07/13/2010	N001	89.69			#	
Ethane	percent	07/13/2010	N001	4.52			#	
Ethylene	percent	07/13/2010	N001	nd	U		#	
Propane	percent	07/13/2010	N001	1.30			#	
Isobutane	percent	07/13/2010	N001	0.273			#	
Butane	percent	07/13/2010	N001	0.296			#	
Isopentane	percent	07/13/2010	N001	0.126			#	
Pentane	percent	07/13/2010	N001	0.0922			#	
Hexanes	percent	07/13/2010	N001	0.247			#	
Carbon-14	Percent modern carbon	07/13/2010	N001	0.8	U		#	
Tritium	pCi/L methane	07/13/2010	N001	0.051	U		#	

[1] Not detected.
[2] There are no applicable standards for natural gas.

SAMPLE ID CODES: 000X = Filtered sample (0.45 µm). N00X = Unfiltered sample. X = replicate number.

LAB QUALIFIERS:
U Analytical result below detection limit.

QA QUALIFIER:
Validated at Level 1 according to quality assurance guidelines.

RESULTS REPORT
RIN: 10073209
Site: Rulison Site
Location: BM 36-13
Ticket Number: IIY 581
Report Date: 9/14/2010

Parameter	Units	Sample Date	Sample ID	Result	Qualifiers Lab	Qualifiers Data	Qualifiers QA	Standard[2]
Carbon Monoxide	percent	07/13/2010	N001	nd[1]	U		#	
Hydrogen Sulfide	percent	07/13/2010	N001	nd	U		#	
Helium	percent	07/13/2010	N001	0.0022			#	
Hydrogen	percent	07/13/2010	N001	0.0186			#	
Argon	percent	07/13/2010	N001	nd	U		#	
Oxygen	percent	07/13/2010	N001	0.007			#	
Nitrogen	percent	07/13/2010	N001	0.10			#	
Carbon Dioxide	percent	07/13/2010	N001	1.81			#	
Methane	percent	07/13/2010	N001	90.87			#	
Ethane	percent	07/13/2010	N001	5.05			#	
Ethylene	percent	07/13/2010	N001	nd	U		#	
Propane	percent	07/13/2010	N001	1.33			#	
Isobutane	percent	07/13/2010	N001	0.260			#	
Butane	percent	07/13/2010	N001	0.255			#	
Isopentane	percent	07/13/2010	N001	0.0968			#	
Pentane	percent	07/13/2010	N001	0.0671			#	
Hexanes	percent	07/13/2010	N001	0.134			#	
Carbon-14	Percent modern carbon	07/13/2010	N001	1.0			#	
Tritium	pCi/L methane	07/13/2010	N001	0.051	U		#	

[1] Not detected.
[2] There are no applicable standards for natural gas.

SAMPLE ID CODES: 000X = Filtered sample (0.45 µm). N00X = Unfiltered sample. X = replicate number.

LAB QUALIFIERS:
U Analytical result below detection limit.

QA QUALIFIER:
Validated at Level 1 according to quality assurance guidelines.

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Liquid Phase Sample Results

RESULTS REPORT
RIN: 10073210
Site: Rulison Site
Location: BM 26-22C
Ticket Number: IIY 582
Report Date: 9/14/2010

Parameter	Units	Sample Date	Sample ID	Result	Qualifiers Lab	Qualifiers Data	Qualifiers QA	Standard[1]
Actinium-228	pCi/L	07/13/2010	N001	26.1	U		#	
Americium-241	pCi/L	07/13/2010	N001	10.2	U		#	
Antimony-125	pCi/L	07/13/2010	N001	0.447	U		#	
Cerium-144	pCi/L	07/13/2010	N001	-9.18	U		#	
Cesium-134	pCi/L	07/13/2010	N001	-2.14	U		#	
Cesium-137	pCi/L	07/13/2010	N001	-1.4	U		#	
Cobalt-60	pCi/L	07/13/2010	N001	-4.36	U		#	
Europium-152	pCi/L	07/13/2010	N001	-7.09	U		#	
Europium-154	pCi/L	07/13/2010	N001	0.775	U		#	
Europium-155	pCi/L	07/13/2010	N001	1.55	U		#	
Lead-212	pCi/L	07/13/2010	N001	-1	U		#	
Potassium-40	pCi/L	07/13/2010	N001	229		J	#	
Promethium-144	pCi/L	07/13/2010	N001	1.98	U		#	
Promethium-146	pCi/L	07/13/2010	N001	-5.12	U		#	
Ruthenium-106	pCi/L	07/13/2010	N001	20.3	U		#	
Thorium-234	pCi/L	07/13/2010	N001	0.0208	U		#	
Uranium-235	pCi/L	07/13/2010	N001	5.48	U		#	
Yttrium-88	pCi/L	07/13/2010	N001	0.535	U		#	
GROSS ALPHA	pCi/L	07/13/2010	N001	22.7	U		#	
GROSS BETA	pCi/L	07/13/2010	N001	215			#	
H-3	pCi/L	07/13/2010	N001	-197	U		#	20,000
CHLORIDE	MG/L	07/13/2010	N001	12000			#	

RESULTS REPORT
RIN: 10073210
Site: Rulison Site
Location: BM 26-22D
Ticket Number: IIY 583
Report Date: 9/14/2010

Parameter	Units	Sample Date	Sample ID	Result	Qualifiers Lab	Qualifiers Data	Qualifiers QA	Standard[1]
Actinium-228	pCi/L	07/13/2010	N001	19.7	U		#	
Americium-241	pCi/L	07/13/2010	N001	-7.51	U		#	
Antimony-125	pCi/L	07/13/2010	N001	11.3	U		#	
Cerium-144	pCi/L	07/13/2010	N001	3.13	U		#	
Cesium-134	pCi/L	07/13/2010	N001	0.34	U		#	
Cesium-137	pCi/L	07/13/2010	N001	-4.19	U		#	
Cobalt-60	pCi/L	07/13/2010	N001	2.31	U		#	
Europium-152	pCi/L	07/13/2010	N001	5.45	U		#	
Europium-154	pCi/L	07/13/2010	N001	-12.2	U		#	
Europium-155	pCi/L	07/13/2010	N001	0.388	U		#	
Lead-212	pCi/L	07/13/2010	N001	-1.44	U		#	
Potassium-40	pCi/L	07/13/2010	N001	154	U		#	
Promethium-144	pCi/L	07/13/2010	N001	5.13	U		#	
Promethium-146	pCi/L	07/13/2010	N001	0.175	U		#	
Ruthenium-106	pCi/L	07/13/2010	N001	-8.02	U		#	
Thorium-234	pCi/L	07/13/2010	N001	-20.7	U		#	
Uranium-235	pCi/L	07/13/2010	N001	8.02	U		#	
Yttrium-88	pCi/L	07/13/2010	N001	0.604	U		#	
GROSS ALPHA	pCi/L	07/13/2010	N001	25.2	U		#	
GROSS BETA	pCi/L	07/13/2010	N001	167			#	
H-3	pCi/L	07/13/2010	N001	-145	U		#	20,000
CHLORIDE	MG/L	07/13/2010	N001	9800			#	

RESULTS REPORT
RIN: 10073210
Site: Rulison Site
Location: BM 26-23A
Ticket Number: IIY 586
Report Date: 9/14/2010

Parameter	Units	Sample Date	Sample ID	Result	Qualifiers Lab	Qualifiers Data	Qualifiers QA	Standard[1]
Actinium-228	pCi/L	07/13/2010	N001	28.6	U		#	
Americium-241	pCi/L	07/13/2010	N001	-8.58	U		#	
Antimony-125	pCi/L	07/13/2010	N001	0.552	U		#	
Cerium-144	pCi/L	07/13/2010	N001	-3.23	U		#	
Cesium-134	pCi/L	07/13/2010	N001	-3.5	U		#	
Cesium-137	pCi/L	07/13/2010	N001	-2.1	U		#	
Cobalt-60	pCi/L	07/13/2010	N001	0.234	U		#	
Europium-152	pCi/L	07/13/2010	N001	-23.4	U		#	
Europium-154	pCi/L	07/13/2010	N001	2.32	U		#	
Europium-155	pCi/L	07/13/2010	N001	0.158	U		#	
Lead-212	pCi/L	07/13/2010	N001	-0.945	U		#	
Potassium-40	pCi/L	07/13/2010	N001	205		J	#	
Promethium-144	pCi/L	07/13/2010	N001	0.441	U		#	
Promethium-146	pCi/L	07/13/2010	N001	3.48	U		#	
Ruthenium-106	pCi/L	07/13/2010	N001	-14.2	U		#	
Thorium-234	pCi/L	07/13/2010	N001	150	TI	U	#	
Uranium-235	pCi/L	07/13/2010	N001	3.31	U		#	
Yttrium-88	pCi/L	07/13/2010	N001	0.654	U		#	
GROSS ALPHA	pCi/L	07/13/2010	N001	46.3	U		#	
GROSS BETA	pCi/L	07/13/2010	N001	289			#	
H-3	pCi/L	07/13/2010	N001	-309	U		#	20,000
CHLORIDE	MG/L	07/13/2010	N001	12000			#	

RESULTS REPORT
RIN: 10073210
Site: Rulison Site
Location: BM 26-23B
Ticket Number: IIY 587
Report Date: 9/14/2010

Parameter	Units	Sample Date	Sample ID	Result	Qualifiers Lab	Qualifiers Data	Qualifiers QA	Standard[1]
Actinium-228	pCi/L	07/13/2010	N001	23.8	U		#	
Americium-241	pCi/L	07/13/2010	N001	2.47	U		#	
Antimony-125	pCi/L	07/13/2010	N001	0.232	U		#	
Cerium-144	pCi/L	07/13/2010	N001	-6.37	U		#	
Cesium-134	pCi/L	07/13/2010	N001	0.24	U		#	
Cesium-137	pCi/L	07/13/2010	N001	0.768	U		#	
Cobalt-60	pCi/L	07/13/2010	N001	-1.37	U		#	
Europium-152	pCi/L	07/13/2010	N001	-9.38	U		#	
Europium-154	pCi/L	07/13/2010	N001	-2.72	U		#	
Europium-155	pCi/L	07/13/2010	N001	-1.05	U		#	
Lead-212	pCi/L	07/13/2010	N001	0.598	U		#	
Potassium-40	pCi/L	07/13/2010	N001	287		J	#	
Promethium-144	pCi/L	07/13/2010	N001	-3.3	U		#	
Promethium-146	pCi/L	07/13/2010	N001	1.74	U		#	
Ruthenium-106	pCi/L	07/13/2010	N001	-2.22	U		#	
Thorium-234	pCi/L	07/13/2010	N001	-13.7	U		#	
Uranium-235	pCi/L	07/13/2010	N001	7.9	U		#	
Yttrium-88	pCi/L	07/13/2010	N001	3.06	U		#	
GROSS ALPHA	pCi/L	07/13/2010	N001	11	U		#	
GROSS BETA	pCi/L	07/13/2010	N001	244			#	
H-3	pCi/L	07/13/2010	N001	-90	U		#	20,000
CHLORIDE	MG/L	07/13/2010	N001	12000			#	

RESULTS REPORT
RIN: 10073210
Site: Rulison Site
Location: BM 26-23C
Ticket Number: IIY 588
Report Date: 9/14/2010

Parameter	Units	Sample Date	Sample ID	Result	Qualifiers Lab	Qualifiers Data	Qualifiers QA	Standard[1]
H-3	pCi/L	07/13/2010	N001	-115	U		#	20,000
CHLORIDE	MG/L	07/13/2010	N001	13000			#	

RESULTS REPORT
RIN: 10073210
Site: Rulison Site
Location: BM 26-23D
Ticket Number: IIY 589
Report Date: 9/14/2010

Parameter	Units	Sample Date	Sample ID	Result	Qualifiers Lab	Qualifiers Data	Qualifiers QA	Standard[1]
Actinium-228	pCi/L	07/13/2010	N001	18.9	U		#	
Americium-241	pCi/L	07/13/2010	N001	0.233	U		#	
Antimony-125	pCi/L	07/13/2010	N001	4.12	U		#	
Cerium-144	pCi/L	07/13/2010	N001	-7.1	U		#	
Cesium-134	pCi/L	07/13/2010	N001	-1.45	U		#	
Cesium-137	pCi/L	07/13/2010	N001	-1.44	U		#	
Cobalt-60	pCi/L	07/13/2010	N001	-1.84	U		#	
Europium-152	pCi/L	07/13/2010	N001	8.24	U		#	
Europium-154	pCi/L	07/13/2010	N001	-16.3	U		#	
Europium-155	pCi/L	07/13/2010	N001	1.37	U		#	
Lead-212	pCi/L	07/13/2010	N001	2.72	U		#	
Potassium-40	pCi/L	07/13/2010	N001	194		J	#	
Promethium-144	pCi/L	07/13/2010	N001	-2.53	U		#	
Promethium-146	pCi/L	07/13/2010	N001	-2.84	U		#	
Ruthenium-106	pCi/L	07/13/2010	N001	-37.2	U		#	
Thorium-234	pCi/L	07/13/2010	N001	-5.54	U		#	
Uranium-235	pCi/L	07/13/2010	N001	15	U		#	
Yttrium-88	pCi/L	07/13/2010	N001	2.84	U		#	
GROSS ALPHA	pCi/L	07/13/2010	N001	31.3	U		#	
GROSS BETA	pCi/L	07/13/2010	N001	254			#	
H-3	pCi/L	07/13/2010	N001	-153	U		#	20,000
CHLORIDE	MG/L	07/13/2010	N001	12000			#	

RESULTS REPORT
RIN: 10073210
Site: Rulison Site
Location: BM 26-24B
Ticket Number: IIY 590
Report Date: 9/14/2010

Parameter	Units	Sample Date	Sample ID	Result	Qualifiers Lab	Qualifiers Data	Qualifiers QA	Standard[1]
Actinium-228	pCi/L	07/13/2010	N001	11.2	U		#	
Americium-241	pCi/L	07/13/2010	N001	-10.1	U		#	
Antimony-125	pCi/L	07/13/2010	N001	0.66	U		#	
Cerium-144	pCi/L	07/13/2010	N001	-2.57	U		#	
Cesium-134	pCi/L	07/13/2010	N001	-8.4	U		#	
Cesium-137	pCi/L	07/13/2010	N001	-0.87	U		#	
Cobalt-60	pCi/L	07/13/2010	N001	1.35	U		#	
Europium-152	pCi/L	07/13/2010	N001	-19.5	U		#	
Europium-154	pCi/L	07/13/2010	N001	-11.6	U		#	
Europium-155	pCi/L	07/13/2010	N001	-0.87	U		#	
Lead-212	pCi/L	07/13/2010	N001	-0.282	U		#	
Potassium-40	pCi/L	07/13/2010	N001	30.4	U		#	
Promethium-144	pCi/L	07/13/2010	N001	-8.93	U		#	
Promethium-146	pCi/L	07/13/2010	N001	-0.603	U		#	
Ruthenium-106	pCi/L	07/13/2010	N001	8.04	U		#	
Thorium-234	pCi/L	07/13/2010	N001	-36.8	U		#	
Uranium-235	pCi/L	07/13/2010	N001	17.5	U		#	
Yttrium-88	pCi/L	07/13/2010	N001	0.802	U		#	
GROSS ALPHA	pCi/L	07/13/2010	N001	-11.5	U		#	
GROSS BETA	pCi/L	07/13/2010	N001	131		J	#	
H-3	pCi/L	07/13/2010	N001	-115	U		#	20,000
CHLORIDE	MG/L	07/13/2010	N001	4.3			#	

RESULTS REPORT
RIN: 10073210
Site: Rulison Site
Location: BM 26-24C
Ticket Number: IIY 591
Report Date: 9/14/2010

Parameter	Units	Sample Date	Sample ID	Result	Qualifiers Lab	Qualifiers Data	Qualifiers QA	Standard[1]
Actinium-228	pCi/L	07/13/2010	N001	12.6	U		#	
Americium-241	pCi/L	07/13/2010	N001	-28.8	U		#	
Antimony-125	pCi/L	07/13/2010	N001	9.05	U		#	
Cerium-144	pCi/L	07/13/2010	N001	0.318	U		#	
Cesium-134	pCi/L	07/13/2010	N001	0.654	U		#	
Cesium-137	pCi/L	07/13/2010	N001	-5.94	U		#	
Cobalt-60	pCi/L	07/13/2010	N001	-2.92	U		#	
Europium-152	pCi/L	07/13/2010	N001	11.7	U		#	
Europium-154	pCi/L	07/13/2010	N001	1.49	U		#	
Europium-155	pCi/L	07/13/2010	N001	2.61	U		#	
Lead-212	pCi/L	07/13/2010	N001	0.696	U		#	
Potassium-40	pCi/L	07/13/2010	N001	37.3	U		#	
Promethium-144	pCi/L	07/13/2010	N001	4.36	U		#	
Promethium-146	pCi/L	07/13/2010	N001	0.657	U		#	
Ruthenium-106	pCi/L	07/13/2010	N001	-30.4	U		#	
Thorium-234	pCi/L	07/13/2010	N001	-26.6	U		#	
Uranium-235	pCi/L	07/13/2010	N001	-0.102	U		#	
Yttrium-88	pCi/L	07/13/2010	N001	-3.72	U		#	
GROSS ALPHA	pCi/L	07/13/2010	N001	11.6	U		#	
GROSS BETA	pCi/L	07/13/2010	N001	102		J	#	
H-3	pCi/L	07/13/2010	N001	-208	U		#	20,000
CHLORIDE	MG/L	07/13/2010	N001	10000			#	

RESULTS REPORT
RIN: 10073210
Site: Rulison Site
Location: BM 26-24D
Ticket Number: IIY 592
Report Date: 9/14/2010

Parameter	Units	Sample Date	Sample ID	Result	Qualifiers Lab	Qualifiers Data	Qualifiers QA	Standard[1]
Actinium-228	pCi/L	07/13/2010	N001	30.5		U	#	
Americium-241	pCi/L	07/13/2010	N001	15.4	U		#	
Antimony-125	pCi/L	07/13/2010	N001	6.86	U		#	
Cerium-144	pCi/L	07/13/2010	N001	-13.2	U		#	
Cesium-134	pCi/L	07/13/2010	N001	-2.51	U		#	
Cesium-137	pCi/L	07/13/2010	N001	-6.26	U		#	
Cobalt-60	pCi/L	07/13/2010	N001	-0.5	U		#	
Europium-152	pCi/L	07/13/2010	N001	1.13	U		#	
Europium-154	pCi/L	07/13/2010	N001	5.29	U		#	
Europium-155	pCi/L	07/13/2010	N001	9.85	U		#	
Lead-212	pCi/L	07/13/2010	N001	-1.02	U		#	
Potassium-40	pCi/L	07/13/2010	N001	26.1	U		#	
Promethium-144	pCi/L	07/13/2010	N001	-18.5	U		#	
Promethium-146	pCi/L	07/13/2010	N001	1.13	U		#	
Ruthenium-106	pCi/L	07/13/2010	N001	-13.9	U		#	
Thorium-234	pCi/L	07/13/2010	N001	37.9	U		#	
Uranium-235	pCi/L	07/13/2010	N001	4.37	U		#	
Yttrium-88	pCi/L	07/13/2010	N001	4.22	U		#	
GROSS ALPHA	pCi/L	07/13/2010	N001	14.1	U		#	
GROSS BETA	pCi/L	07/13/2010	N001	117		J	#	
H-3	pCi/L	07/13/2010	N001	-216	U		#	20,000
CHLORIDE	MG/L	07/13/2010	N001	11000			#	

RESULTS REPORT
RIN: 10073210
Site: Rulison Site
Location: BM 26-33B
Ticket Number: IIY 593
Report Date: 9/14/2010

Parameter	Units	Sample Date	Sample ID	Result	Qualifiers Lab	Qualifiers Data	Qualifiers QA	Standard[1]
Actinium-228	pCi/L	07/13/2010	N001	27.4	U		#	
Americium-241	pCi/L	07/13/2010	N001	-0.784	U		#	
Antimony-125	pCi/L	07/13/2010	N001	3.95	U		#	
Cerium-144	pCi/L	07/13/2010	N001	-14	U		#	
Cesium-134	pCi/L	07/13/2010	N001	0.236	U		#	
Cesium-137	pCi/L	07/13/2010	N001	-0.0956	U		#	
Cobalt-60	pCi/L	07/13/2010	N001	0.318	U		#	
Europium-152	pCi/L	07/13/2010	N001	24.5	U		#	
Europium-154	pCi/L	07/13/2010	N001	-16.1	U		#	
Europium-155	pCi/L	07/13/2010	N001	3.8	U		#	
Lead-212	pCi/L	07/13/2010	N001	-0.481	U		#	
Potassium-40	pCi/L	07/13/2010	N001	38.7	U		#	
Promethium-144	pCi/L	07/13/2010	N001	2.01	U		#	
Promethium-146	pCi/L	07/13/2010	N001	1.56	U		#	
Ruthenium-106	pCi/L	07/13/2010	N001	-12.4	U		#	
Thorium-234	pCi/L	07/13/2010	N001	12.6	U		#	
Uranium-235	pCi/L	07/13/2010	N001	15.9	U		#	
Yttrium-88	pCi/L	07/13/2010	N001	3.16	U		#	
GROSS ALPHA	pCi/L	07/13/2010	N001	-2.64	U		#	
GROSS BETA	pCi/L	07/13/2010	N001	110		J	#	
H-3	pCi/L	07/13/2010	N001	-37.8	U		#	20,000
CHLORIDE	MG/L	07/13/2010	N001	14000			#	

RESULTS REPORT
RIN: 10073210
Site: Rulison Site
Location: BM 26-33C
Ticket Number: IIY 594
Report Date: 9/14/2010

Parameter	Units	Sample Date	Sample ID	Result	Qualifiers Lab	Qualifiers Data	Qualifiers QA	Standard[1]
Actinium-228	pCi/L	07/13/2010	N001	28.9	U		#	
Americium-241	pCi/L	07/13/2010	N001	17.7	U		#	
Antimony-125	pCi/L	07/13/2010	N001	2.98	U		#	
Cerium-144	pCi/L	07/13/2010	N001	-3.84	U		#	
Cesium-134	pCi/L	07/13/2010	N001	-2.2	U		#	
Cesium-137	pCi/L	07/13/2010	N001	-0.532	U		#	
Cobalt-60	pCi/L	07/13/2010	N001	2.35	U		#	
Europium-152	pCi/L	07/13/2010	N001	-0.998	U		#	
Europium-154	pCi/L	07/13/2010	N001	-2.05	U		#	
Europium-155	pCi/L	07/13/2010	N001	-1.49	U		#	
Lead-212	pCi/L	07/13/2010	N001	1.74	U		#	
Potassium-40	pCi/L	07/13/2010	N001	145		J	#	
Promethium-144	pCi/L	07/13/2010	N001	1.07	U		#	
Promethium-146	pCi/L	07/13/2010	N001	3.13	U		#	
Ruthenium-106	pCi/L	07/13/2010	N001	-17.1	U		#	
Thorium-234	pCi/L	07/13/2010	N001	44.7	U		#	
Uranium-235	pCi/L	07/13/2010	N001	7.78	U		#	
Yttrium-88	pCi/L	07/13/2010	N001	-3.57	U		#	
GROSS ALPHA	pCi/L	07/13/2010	N001	55.7		J	#	
GROSS BETA	pCi/L	07/13/2010	N001	271			#	
H-3	pCi/L	07/13/2010	N001	-176	U		#	20,000
CHLORIDE	MG/L	07/13/2010	N001	12000			#	

RESULTS REPORT
RIN: 10073210
Site: Rulison Site
Location: BM 26-33D
Ticket Number: IIY 595
Report Date: 9/14/2010

Parameter	Units	Sample Date	Sample ID	Result	Qualifiers Lab	Qualifiers Data	Qualifiers QA	Standard[1]
Actinium-228	pCi/L	07/13/2010	N001	26.2	U		#	
Americium-241	pCi/L	07/13/2010	N001	-28.6	U		#	
Antimony-125	pCi/L	07/13/2010	N001	-1.86	U		#	
Cerium-144	pCi/L	07/13/2010	N001	-10.2	U		#	
Cesium-134	pCi/L	07/13/2010	N001	0.933	U		#	
Cesium-137	pCi/L	07/13/2010	N001	1.68	U		#	
Cobalt-60	pCi/L	07/13/2010	N001	-0.16	U		#	
Europium-152	pCi/L	07/13/2010	N001	2.3	U		#	
Europium-154	pCi/L	07/13/2010	N001	-3.96	U		#	
Europium-155	pCi/L	07/13/2010	N001	-4.98	U		#	
Lead-212	pCi/L	07/13/2010	N001	6.39	U		#	
Potassium-40	pCi/L	07/13/2010	N001	7.34	U		#	
Promethium-144	pCi/L	07/13/2010	N001	-0.0247	U		#	
Promethium-146	pCi/L	07/13/2010	N001	-2.25	U		#	
Ruthenium-106	pCi/L	07/13/2010	N001	-20.1	U		#	
Thorium-234	pCi/L	07/13/2010	N001	35.3	U		#	
Uranium-235	pCi/L	07/13/2010	N001	-4.39	U		#	
Yttrium-88	pCi/L	07/13/2010	N001	-1.84	U		#	
GROSS ALPHA	pCi/L	07/13/2010	N001	30.8	U		#	
GROSS BETA	pCi/L	07/13/2010	N001	162		J	#	
H-3	pCi/L	07/13/2010	N001	-106	U		#	20,000
CHLORIDE	MG/L	07/13/2010	N001	15000			#	

RESULTS REPORT
RIN: 10073210
Site: Rulison Site
Location: BM 26-34A
Ticket Number: IIY 596
Report Date: 9/14/2010

Parameter	Units	Sample Date	Sample ID	Result	Qualifiers Lab	Qualifiers Data	Qualifiers QA	Standard[1]
Actinium-228	pCi/L	07/13/2010	N001	31.2	TI	U	#	
Americium-241	pCi/L	07/13/2010	N001	-19	U		#	
Antimony-125	pCi/L	07/13/2010	N001	-5.66	U		#	
Cerium-144	pCi/L	07/13/2010	N001	-2.47	U		#	
Cesium-134	pCi/L	07/13/2010	N001	-3.33	U		#	
Cesium-137	pCi/L	07/13/2010	N001	-1.69	U		#	
Cobalt-60	pCi/L	07/13/2010	N001	4.2	U		#	
Europium-152	pCi/L	07/13/2010	N001	21.7	U		#	
Europium-154	pCi/L	07/13/2010	N001	-15.3	U		#	
Europium-155	pCi/L	07/13/2010	N001	-8.63	U		#	
Lead-212	pCi/L	07/13/2010	N001	3.87	U		#	
Potassium-40	pCi/L	07/13/2010	N001	76.3	U		#	
Promethium-144	pCi/L	07/13/2010	N001	2.48	U		#	
Promethium-146	pCi/L	07/13/2010	N001	-1.2	U		#	
Ruthenium-106	pCi/L	07/13/2010	N001	-41.7	U		#	
Thorium-234	pCi/L	07/13/2010	N001	-41	U		#	
Uranium-235	pCi/L	07/13/2010	N001	-10.9	U		#	
Yttrium-88	pCi/L	07/13/2010	N001	-0.659	U		#	
GROSS ALPHA	pCi/L	07/13/2010	N001	12.6	U		#	
GROSS BETA	pCi/L	07/13/2010	N001	191			#	
H-3	pCi/L	07/13/2010	N001	-109	U		#	20,000
CHLORIDE	MG/L	07/13/2010	N001	8300			#	

RESULTS REPORT
RIN: 10073210
Site: Rulison Site
Location: BM 26-34B
Ticket Number: IIY 597
Report Date: 9/14/2010

Parameter	Units	Sample Date	Sample ID	Result	Qualifiers Lab	Qualifiers Data	Qualifiers QA	Standard[1]
Actinium-228	pCi/L	07/13/2010	N001	32.5	U		#	
Americium-241	pCi/L	07/13/2010	N001	-9.06	U		#	
Antimony-125	pCi/L	07/13/2010	N001	-8.44	U		#	
Cerium-144	pCi/L	07/13/2010	N001	7.99	U		#	
Cesium-134	pCi/L	07/13/2010	N001	-3.32	U		#	
Cesium-137	pCi/L	07/13/2010	N001	1.33	U		#	
Cobalt-60	pCi/L	07/13/2010	N001	-4.85	U		#	
Europium-152	pCi/L	07/13/2010	N001	15.6	U		#	
Europium-154	pCi/L	07/13/2010	N001	-20.1	U		#	
Europium-155	pCi/L	07/13/2010	N001	2.31	U		#	
Lead-212	pCi/L	07/13/2010	N001	-6.04	U		#	
Potassium-40	pCi/L	07/13/2010	N001	64.3	U		#	
Promethium-144	pCi/L	07/13/2010	N001	-19.7	U		#	
Promethium-146	pCi/L	07/13/2010	N001	-1.34	U		#	
Ruthenium-106	pCi/L	07/13/2010	N001	-21.8	U		#	
Thorium-234	pCi/L	07/13/2010	N001	2.09	U		#	
Uranium-235	pCi/L	07/13/2010	N001	-21.6	U		#	
Yttrium-88	pCi/L	07/13/2010	N001	5.25	U		#	
GROSS ALPHA	pCi/L	07/13/2010	N001	21.1	U		#	
GROSS BETA	pCi/L	07/13/2010	N001	127		J	#	
H-3	pCi/L	07/13/2010	N001	-223	U		#	20,000
CHLORIDE	MG/L	07/13/2010	N001	15000			#	

RESULTS REPORT
RIN: 10073210
Site: Rulison Site
Location: BM 26-34C
Ticket Number: IIY 598
Report Date: 9/14/2010

Parameter	Units	Sample Date	Sample ID	Result	Qualifiers Lab	Qualifiers Data	Qualifiers QA	Standard[1]
Actinium-228	pCi/L	07/13/2010	N001	32.8	U		#	
Americium-241	pCi/L	07/13/2010	N001	-5.16	U		#	
Antimony-125	pCi/L	07/13/2010	N001	7.09	U		#	
Cerium-144	pCi/L	07/13/2010	N001	-0.786	U		#	
Cesium-134	pCi/L	07/13/2010	N001	-3.92	U		#	
Cesium-137	pCi/L	07/13/2010	N001	-2.79	U		#	
Cobalt-60	pCi/L	07/13/2010	N001	0.234	U		#	
Europium-152	pCi/L	07/13/2010	N001	4.35	U		#	
Europium-154	pCi/L	07/13/2010	N001	-21.1	U		#	
Europium-155	pCi/L	07/13/2010	N001	4.92	U		#	
Lead-212	pCi/L	07/13/2010	N001	3.92	U		#	
Potassium-40	pCi/L	07/13/2010	N001	32.1	U		#	
Promethium-144	pCi/L	07/13/2010	N001	-2.66	U		#	
Promethium-146	pCi/L	07/13/2010	N001	-2.18	U		#	
Ruthenium-106	pCi/L	07/13/2010	N001	-25.6	U		#	
Thorium-234	pCi/L	07/13/2010	N001	64.9	U		#	
Uranium-235	pCi/L	07/13/2010	N001	19.7	U		#	
Yttrium-88	pCi/L	07/13/2010	N001	5.94	U		#	
GROSS ALPHA	pCi/L	07/13/2010	N001	26.5	U		#	
GROSS BETA	pCi/L	07/13/2010	N001	103		J	#	
H-3	pCi/L	07/13/2010	N001	16.2	U		#	20,000
CHLORIDE	MG/L	07/13/2010	N001	15000			#	

RESULTS REPORT
RIN: 10073210
Site: Rulison Site
Location: BM 26-34D
Ticket Number: IIY 599
Report Date: 9/14/2010

Parameter	Units	Sample Date	Sample ID	Result	Qualifiers Lab	Qualifiers Data	Qualifiers QA	Standard[1]
Actinium-228	pCi/L	07/13/2010	N001	14.4	U		#	
Americium-241	pCi/L	07/13/2010	N001	-1.27	U		#	
Antimony-125	pCi/L	07/13/2010	N001	-1.09	U		#	
Cerium-144	pCi/L	07/13/2010	N001	5.48	U		#	
Cesium-134	pCi/L	07/13/2010	N001	-3.95	U		#	
Cesium-137	pCi/L	07/13/2010	N001	0.417	U		#	
Cobalt-60	pCi/L	07/13/2010	N001	-2.43	U		#	
Europium-152	pCi/L	07/13/2010	N001	15.5	U		#	
Europium-154	pCi/L	07/13/2010	N001	-4.4	U		#	
Europium-155	pCi/L	07/13/2010	N001	6.04	U		#	
Lead-212	pCi/L	07/13/2010	N001	0.895	U		#	
Potassium-40	pCi/L	07/13/2010	N001	109	U		#	
Promethium-144	pCi/L	07/13/2010	N001	2.99	U		#	
Promethium-146	pCi/L	07/13/2010	N001	-3.14	U		#	
Ruthenium-106	pCi/L	07/13/2010	N001	30.8	U		#	
Thorium-234	pCi/L	07/13/2010	N001	14.7	U		#	
Uranium-235	pCi/L	07/13/2010	N001	11.3	U		#	
Yttrium-88	pCi/L	07/13/2010	N001	-4.05	U		#	
GROSS ALPHA	pCi/L	07/13/2010	N001	-3.79	U		#	
GROSS BETA	pCi/L	07/13/2010	N001	124		J	#	
H-3	pCi/L	07/13/2010	N001	-144	U		#	20,000
CHLORIDE	MG/L	07/13/2010	N001	11000			#	

RESULTS REPORT
RIN: 10073210
Site: Rulison Site
Location: BM 26-42
Ticket Number: IIY 600
Report Date: 9/14/2010

Parameter	Units	Sample Date	Sample ID	Result	Qualifiers Lab	Qualifiers Data	Qualifiers QA	Standard[1]
Actinium-228	pCi/L	07/13/2010	N001	13.6	U		#	
Americium-241	pCi/L	07/13/2010	N001	17	U		#	
Antimony-125	pCi/L	07/13/2010	N001	7.76	U		#	
Cerium-144	pCi/L	07/13/2010	N001	0.171	U		#	
Cesium-134	pCi/L	07/13/2010	N001	-1.13	U		#	
Cesium-137	pCi/L	07/13/2010	N001	-1.18	U		#	
Cobalt-60	pCi/L	07/13/2010	N001	-3	U		#	
Europium-152	pCi/L	07/13/2010	N001	3	U		#	
Europium-154	pCi/L	07/13/2010	N001	-10.7	U		#	
Europium-155	pCi/L	07/13/2010	N001	-4.23	U		#	
Lead-212	pCi/L	07/13/2010	N001	-0.281	U		#	
Potassium-40	pCi/L	07/13/2010	N001	24.2	U		#	
Promethium-144	pCi/L	07/13/2010	N001	-1.28	U		#	
Promethium-146	pCi/L	07/13/2010	N001	0.799	U		#	
Ruthenium-106	pCi/L	07/13/2010	N001	-7.19	U		#	
Thorium-234	pCi/L	07/13/2010	N001	21	U		#	
Uranium-235	pCi/L	07/13/2010	N001	13.6	U		#	
Yttrium-88	pCi/L	07/13/2010	N001	5.23	U		#	
GROSS ALPHA	pCi/L	07/13/2010	N001	25.7		J	#	
GROSS BETA	pCi/L	07/13/2010	N001	85.3		J	#	
H-3	pCi/L	07/13/2010	N001	-36.5	U		#	20,000
CHLORIDE	MG/L	07/13/2010	N001	6100			#	

RESULTS REPORT
RIN: 10073210
Site: Rulison Site
Location: FRC_RULpad26K-071310
Ticket Number: IIZ 422
Report Date: 9/14/2010

Parameter	Units	Sample Date	Sample ID	Result	Qualifiers Lab	Qualifiers Data	Qualifiers QA	Standard[1]
Actinium-228	pCi/L	07/13/2010	N001	23.3	U		#	
Americium-241	pCi/L	07/13/2010	N001	16.8	U		#	
Antimony-125	pCi/L	07/13/2010	N001	-2.5	U		#	
Cerium-144	pCi/L	07/13/2010	N001	10.3	U		#	
Cesium-134	pCi/L	07/13/2010	N001	-4.33	U		#	
Cesium-137	pCi/L	07/13/2010	N001	-2.31	U		#	
Cobalt-60	pCi/L	07/13/2010	N001	-3.3	U		#	
Europium-152	pCi/L	07/13/2010	N001	7.02	U		#	
Europium-154	pCi/L	07/13/2010	N001	-14.2	U		#	
Europium-155	pCi/L	07/13/2010	N001	0.261	U		#	
Lead-212	pCi/L	07/13/2010	N001	0.351	U		#	
Potassium-40	pCi/L	07/13/2010	N001	120	U		#	
Promethium-144	pCi/L	07/13/2010	N001	-15.4	U		#	
Promethium-146	pCi/L	07/13/2010	N001	-1.22	U		#	
Ruthenium-106	pCi/L	07/13/2010	N001	-20.9	U		#	
Thorium-234	pCi/L	07/13/2010	N001	2.37	U		#	
Uranium-235	pCi/L	07/13/2010	N001	16.4	U		#	
Yttrium-88	pCi/L	07/13/2010	N001	0.952	U		#	
GROSS ALPHA	pCi/L	07/13/2010	N001	23.1	U		#	
GROSS BETA	pCi/L	07/13/2010	N001	133		J	#	
H-3	pCi/L	07/13/2010	N001	-284	U		#	20,000
CHLORIDE	MG/L	07/13/2010	N001	16000			#	

[1] USEPA Primary Radionuclide Drinking Water Standard.

SAMPLE ID CODES: 000X = Filtered sample (0.45 µm). N00X = Unfiltered sample. X = replicate number.

LAB QUALIFIERS:
U Analytical result below detection limit.

DATA QUALIFIERS:
F Low flow sampling method used. G Possible grout contamination, pH > 9. J Estimated value.
L Less than 3 bore volumes purged prior to sampling. Q Qualitative result due to sampling technique.
R Unusable result. U Parameter analyzed for but was not detected. X Location is undefined.

QA QUALIFIER:
Validated at Level 1 according to quality assurance guidelines.