Data Validation Package

May 2011
Groundwater and Surface Water Sampling at the Rulison, Colorado Site

December 2011

U.S. DEPARTMENT OF ENERGY | Legacy Management

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Contents

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Sampling Event Summary

Site: Rulison, Colorado, Site

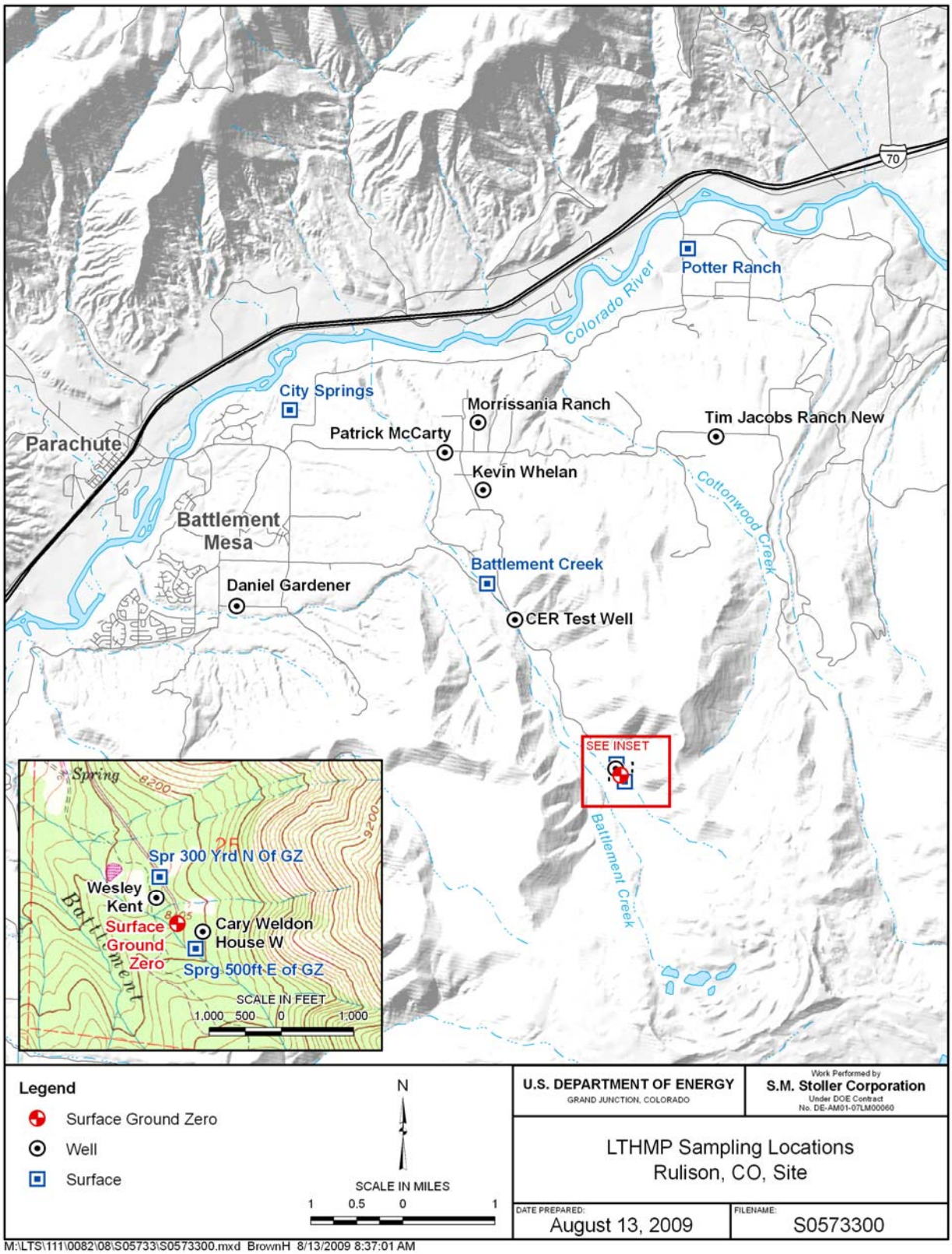
Sampling Period: May 18, 2011

Annual sampling was conducted at the Rulison, Colorado, site for the Long-Term Hydrologic Monitoring Program on May 18, 2011, to monitor groundwater and surface water for potential radionuclide contamination. Sampling and analysis were conducted as specified in the *Sampling and Analysis Plan for U.S. Department of Energy Office of Legacy Management Sites*. (LMS/PLN/S04351, continually updated). A duplicate sample was collected from location Daniel Gardener. Samples were analyzed by the U.S. Environmental Protection Agency (EPA) Radiation & Indoor Environments National Laboratory in Las Vegas, Nevada. Samples were analyzed for gamma-emitting radionuclides by high-resolution gamma spectrometry and for tritium using the conventional method. Tritium was not measured using the enrichment method because the EPA laboratory no longer offers that service.

All tritium and all high-resolution gamma spectrometry results for cesium-137 were below detectable concentrations. The results from this sampling event indicate that groundwater and surface water supplies in the area have not been impacted by detonation-related contaminants.

Rick Hutton
Site Lead, S.M. Stoller Corporation

3-26-12
Date



Water Sampling Locations at the Rulison, Colorado, Site

Data Assessment Summary

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Water Sampling Field Activities Verification Checklist

Project	Rulison, Colorado, Site	**Date(s) of Water Sampling**	May 18, 2011
Date(s) of Verification	November 9, 2011	**Name of Verifier**	Steve Donivan

	Response (Yes, No, NA)	Comments
1. Is the SAP the primary document directing field procedures?	Yes	
List other documents, SOPs, instructions.		Work Order letter dated April 26, 2011.
2. Were the sampling locations specified in the planning documents sampled?	No	The locations Spr 300 Yrd N of GZ and Sprg 500ft E of GZ were not sampled because of access denial by the land owner.
3. Was a pre-trip calibration conducted as specified in the above-named documents?	Yes	Pre-trip calibration was performed on May 16, 2011.
4. Was an operational check of the field equipment conducted daily?	Yes	
Did the operational checks meet criteria?	Yes	
5. Were the number and types (alkalinity, temperature, specific conductance, pH, turbidity, DO, ORP) of field measurements taken as specified?	Yes	
6. Was the category of the well documented?	Yes	
7. Were the following conditions met when purging a Category I well:		
Was one pump/tubing volume purged prior to sampling?	Yes	
Did the water level stabilize prior to sampling?	Yes	
Did pH, specific conductance, and turbidity measurements stabilize prior to sampling?	No	Turbidity criteria was not achieved at well CER Test Well, the sample was filtered.
Was the flow rate less than 500 mL/min?	Yes	
If a portable pump was used, was there a 4-hour delay between pump installation and sampling?	NA	

Water Sampling Field Activities Verification Checklist (continued)

	Response (Yes, No, NA)	Comments
8. Were the following conditions met when purging a Category II well:	NA	There were no Category II wells.
Was the flow rate less than 500 mL/min?		
Was one pump/tubing volume removed prior to sampling?		
9. Were duplicates taken at a frequency of one per 20 samples?	Yes	A duplicate sample was collected at location Daniel Gardener.
10. Were equipment blanks taken at a frequency of one per 20 samples that were collected with nondedicated equipment?	NA	An equipment blank was not required.
11. Were trip blanks prepared and included with each shipment of VOC samples?	NA	
12. Were QC samples assigned a fictitious site identification number?	Yes	Location ID 2611 was used for the duplicate sample.
Was the true identity of the samples recorded on the Quality Assurance Sample Log or in the Field Data Collection System (FDCS) report?	Yes	
13. Were samples collected in the containers specified?	Yes	
14. Were samples filtered and preserved as specified?	Yes	
15. Were the number and types of samples collected as specified?	Yes	
16. Were chain of custody records completed and was sample custody maintained?	Yes	
17. Are field data sheets signed and dated by both team members (hardcopies) or are dates present for the “Date Signed” fields (FDCS)?	Yes	
18. Was all other pertinent information documented on the field data sheets?	Yes	
19. Was the presence or absence of ice in the cooler documented at every sample location?	NA	Sample chilling was not required.
20. Were water levels measured at the locations specified in the planning documents?	Yes	

Laboratory Performance Assessment

General Information

Requisition No. (RIN): 11053765
Sample Event: May 18, 2011
Site(s): Rulison, Colorado, Site
Laboratory: Radiation and Indoor Environments National Laboratory
Las Vegas, NV
Analysis: Radiochemistry
Validator: Steve Donivan
Review Date: November 9, 2011

This validation was performed according to the *Environmental Procedures Catalog* (LMS/PRO/S04325, continually updated), "Standard Practice for Validation of Laboratory Data." The procedure was applied at Level 1, Data Deliverables Examination. All analyses were successfully completed with the following exception. The determination of tritium using the enrichment method was not performed as the Radiation and Indoor Environments National Laboratory no longer provides that service. The samples were prepared and analyzed using accepted procedures based on methods specified by line item code, which are listed in Table 1.

Table 1. Analytes and Methods

Analyte	Line Item Code	Prep Method	Analytical Method
Gamma Spectrometry	GAM-A-001	RQA-302	RQA-302
Tritium	LSC-A-001	RQA-604	RQA-604
Tritium, enrichment method (requested, not performed)	LMR-15	RQA-602	RQA-602

Data Qualifier Summary

Analytical results were qualified as listed in Table 2. Refer to the sections below for an explanation of the data qualifiers applied.

Table 2. Data Qualifier Summary

Sample	Location	Analyte	Flag	Reason
735656	Patrick McCarty	Cesium-137	U	Less than the Decision Level Concentration
735656	Patrick McCarty	Tritium	U	Less than the Decision Level Concentration
735658	Morrissania Ranch	Cesium-137	U	Less than the Decision Level Concentration
735658	Morrissania Ranch	Tritium	U	Less than the Decision Level Concentration
735659	Daniel Gardener	Cesium-137	U	Less than the Decision Level Concentration
735659	Daniel Gardener	Tritium	U	Less than the Decision Level Concentration
735661	City Springs	Cesium-137	U	Less than the Decision Level Concentration
735661	City Springs	Lead-212	U	Less than the Decision Level Concentration
735661	City Springs	Tritium	U	Less than the Decision Level Concentration
735663	Tim Jacobs Ranch New	Cesium-137	U	Less than the Decision Level Concentration

Table 2 (continued). Data Qualifier Summary

Sample	Location	Analyte	Flag	Reason
735663	Tim Jacobs Ranch New	Tritium	U	Less than the Decision Level Concentration
735664	Battlement Creek	Cesium-137	U	Less than the Decision Level Concentration
735664	Battlement Creek	Tritium	U	Less than the Decision Level Concentration
735665	CER Test Well	Cesium-137	U	Less than the Decision Level Concentration
735665	CER Test Well	Tritium	U	Less than the Decision Level Concentration
735666	Daniel Gardener duplicate	Cesium-137	U	Less than the Decision Level Concentration
735666	Daniel Gardener duplicate	Tritium	U	Less than the Decision Level Concentration
735667	Potter Ranch	Cesium-137	U	Less than the Decision Level Concentration
735667	Potter Ranch	Tritium	U	Less than the Decision Level Concentration
735668	Kevin Whelan	Cesium-137	U	Less than the Decision Level Concentration
735668	Kevin Whelan	Lead-214	U	Less than the Decision Level Concentration
735668	Kevin Whelan	Tritium	U	Less than the Decision Level Concentration

Sample Shipping/Receiving

The Radiation and Indoor Environments National Laboratory in Las Vegas, Nevada received 10 water samples on May 23, 2011 submitted for the determination of gamma emitting nuclides, tritium, and tritium (enrichment method). The enriched tritium method was not performed as stated above. The analytical report was checked to confirm that all of the samples scheduled were received and analyzed.

Preservation and Holding Times

The sample shipment was received intact with all samples in the correct container types preserved correctly for the requested analyses. All samples were analyzed within the applicable holding times.

Laboratory Instrument Calibration

Data for this RIN were reported at Analysis Service Level B (results only) and do not include calibration data.

Radiochemical Analysis

Radiochemical results are qualified with a “U” flag (not detected) when the result is greater than the minimum detectable concentration (MDC) but less than the Decision Level Concentration, estimated as 3 times the one-sigma total propagated uncertainty. Results above the Decision Level Concentration and the MDC are qualified with a “J” flag (estimated) when the result is less than Determination Limit (3 times the MDC).

Completeness

The electronic data deliverable was the only deliverable received for this RIN.

Electronic Data Deliverable (EDD) File

The EDD file arrived on October 27, 2011. The Sample Management System EDD validation module was used to verify that the EDD file was complete and in compliance with requirements. The module compares the contents of the file to the requested analyses to ensure all and only the requested data are delivered.

Sampling Quality Control Assessment

The following information summarizes and assesses quality control for this sampling event.

Sampling Protocol

Location CER Test Well was sampled using a dedicated bladder pump. Data from this Category I well are qualified with an "F" flag in the database indicating the well was purged and sampled using the low-flow sampling method. All other sample locations were domestic wells or surface water locations.

Equipment Blank Assessment

Equipment blanks are prepared and analyzed to document contamination attributable to the sample collection process. An equipment blank was not required for this sampling event.

Field Duplicate Analysis

Field duplicate samples are collected and analyzed as an indication of overall precision of the measurement process. The precision observed includes both field and laboratory precision and has more variability than laboratory duplicates, which measure only laboratory performance. A duplicate sample was collected from location Daniel Gardener. The radiochemical relative error ratio (calculated using the one-sigma total propagated uncertainty) was less than three for all duplicates, indicating acceptable precision.

Certification

All laboratory analytical quality control criteria were met except as qualified in this report. The data qualifiers listed on the SEEPro database reports are defined on the last page of each report. All data in this package are considered validated and available for use.

Laboratory Coordinator: Steve Donivan — Date: 1-5-2012

Data Validation Lead: Steve Donivan — Date: 1-5-2012

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Attachment 1
Assessment of Anomalous Data

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Potential Outliers Report

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Potential Outliers Report

Potential outliers are measurements that are extremely large or small relative to the rest of the data and, therefore, are suspected of misrepresenting the population from which they were collected. Potential outliers may result from transcription errors, data-coding errors, or measurement system problems. However, outliers may also represent true extreme values of a distribution and indicate more variability in the population than was expected.

Statistical outlier tests give probabilistic evidence that an extreme value does not "fit" with the distribution of the remainder of the data and is therefore a statistical outlier. These tests should only be used to identify data points that require further investigation. The tests alone cannot determine whether a statistical outlier should be discarded or corrected within a data set.

There are three steps involved in identifying extreme values or outliers:

1. Identify extreme values that may be potential outliers by generating the Outliers Report using the Sample Management System from data in the SEEPro database. The application compares the new data set with historical data and lists the new data that fall outside the historical data range. A determination is also made if the data are normally distributed using the Shapiro-Wilk Test.
2. Apply the appropriate statistical test. Dixon's Extreme Value test is used to test for statistical outliers when the sample size is less than or equal to 25. This test considers both extreme values that are much smaller than the rest of the data (case 1) and extreme values that are much larger than the rest of the data (case 2). This test is valid only if the data without the suspected outlier are normally distributed. Rosner's Test is a parametric test that is used to detect outliers for sample sizes of 25 or more. This test also assumes that the data without the suspected outliers are normally distributed.
3. Scientifically review statistical outliers and decide on their disposition.

There were no potential outliers identified, and the data for this event are acceptable as qualified.

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Attachment 2
Data Presentation

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Groundwater Quality Data

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Groundwater Quality Data by Location (USEE100) FOR SITE RUL01, Rulison Site
REPORT DATE: 12/12/2011
Location: CER Test Well WELL CER Test Well

Parameter	Units	Sample Date	Sample ID	Depth Range (Ft BLS)			Result	Qualifiers Lab	Qualifiers Data	Qualifiers QA	Detection Limit	Uncertainty
Cesium-137	pCi/L	05/18/2011	0001	0	-	0	0		UF	#	1.6	0
Oxidation Reduction Potential	mV	05/18/2011	N001	0	-	0	-169.3		F	#		
pH	s.u.	05/18/2011	N001	0	-	0	8.09		F	#		
Specific Conductance	umhos /cm	05/18/2011	N001	0	-	0	366		F	#		
Temperature	C	05/18/2011	N001	0	-	0	7.94		F	#		
Tritium	pCi/L	05/18/2011	0001	0	-	0	58		UF	#	146	87.8
Turbidity	NTU	05/18/2011	N001	0	-	0	33.1		F	#		

Groundwater Quality Data by Location (USEE100) FOR SITE RUL01, Rulison Site
REPORT DATE: 12/12/2011
Location: Daniel Gardener WELL A Gardner Ranch loc 40 ft to Sou

Parameter	Units	Sample Date	Sample ID	Depth Range (Ft BLS)			Result	Qualifiers Lab	Qualifiers Data	Qualifiers QA	Detection Limit	Uncertainty
Cesium-137	pCi/L	05/18/2011	N001	0	-	0	0		U	#	1.99	0
Cesium-137	pCi/L	05/18/2011	N002	0	-	0	0		U	#	2.34	0
Oxidation Reduction Potential	mV	05/18/2011	N001	0	-	0	88.2			#		
pH	s.u.	05/18/2011	N001	0	-	0	7.54			#		
Specific Conductance	umhos /cm	05/18/2011	N001	0	-	0	837			#		
Temperature	C	05/18/2011	N001	0	-	0	10.89			#		
Tritium	pCi/L	05/18/2011	N001	0	-	0	-2		U	#	146	84.8
Tritium	pCi/L	05/18/2011	N002	0	-	0	10.8		U	#	129	75.9
Turbidity	NTU	05/18/2011	N001	0	-	0	4.08			#		

Groundwater Quality Data by Location (USEE100) FOR SITE RUL01, Rulison Site
REPORT DATE: 12/12/2011
Location: Kevin Whelan WELL Whelan Ranch Loc

Parameter	Units	Sample Date	Sample ID	Depth Range (Ft BLS)			Result	Qualifiers Lab	Qualifiers Data	Qualifiers QA	Detection Limit	Uncertainty
Cesium-137	pCi/L	05/18/2011	N001	0	-	0	0		U	#	2.43	0
Lead-214	pCi/L	05/18/2011	N001	0	-	0	2.99	J	U	#		2.94
Oxidation Reduction Potential	mV	05/18/2011	N001	0	-	0	80.8			#		
pH	s.u.	05/18/2011	N001	0	-	0	7.82			#		
Specific Conductance	umhos /cm	05/18/2011	N001	0	-	0	790			#		
Temperature	C	05/18/2011	N001	0	-	0	9.97			#		
Tritium	pCi/L	05/18/2011	N001	0	-	0	32.5		U	#	130	77.2
Turbidity	NTU	05/18/2011	N001	0	-	0	2.34			#		

Groundwater Quality Data by Location (USEE100) FOR SITE RUL01, Rulison Site
REPORT DATE: 12/12/2011
Location: Morrissania Ranch WELL Formerly Glen Schwab Ranch/Robert Searcy Ranch; Sauter Douglas; Rothgery, Wayne an Debra; Douglas K. Sauter AP

Parameter	Units	Sample Date	Sample ID	Depth Range (Ft BLS)			Result	Qualifiers Lab	Qualifiers Data	Qualifiers QA	Detection Limit	Uncertainty
Bismuth-214	pCi/L	05/18/2011	N001	16512	-	16512	4.17	J		#		2.51
Cesium-137	pCi/L	05/18/2011	N001	16512	-	16512	0		U	#	2.28	0
Oxidation Reduction Potential	mV	05/18/2011	N001	16512	-	16512	90.6			#		
pH	s.u.	05/18/2011	N001	16512	-	16512	8.06			#		
Specific Conductance	umhos /cm	05/18/2011	N001	16512	-	16512	502			#		
Temperature	C	05/18/2011	N001	16512	-	16512	9.5			#		
Tritium	pCi/L	05/18/2011	N001	16512	-	16512	9.17		U	#	132	77.2
Turbidity	NTU	05/18/2011	N001	16512	-	16512	2.89			#		

Groundwater Quality Data by Location (USEE100) FOR SITE RUL01, Rulison Site
REPORT DATE: 12/12/2011
Location: Patrick McCarty WELL McCartey Genetics 100 ft South (

Parameter	Units	Sample Date	Sample ID	Depth Range (Ft BLS)			Result	Qualifiers Lab	Qualifiers Data	Qualifiers QA	Detection Limit	Uncertainty
Cesium-137	pCi/L	05/18/2011	N001	0	-	0	0		U	#	2.25	0
Oxidation Reduction Potential	mV	05/18/2011	N001	0	-	0	76.8			#		
pH	s.u.	05/18/2011	N001	0	-	0	7.79			#		
Specific Conductance	umhos /cm	05/18/2011	N001	0	-	0	645			#		
Temperature	C	05/18/2011	N001	0	-	0	10.76			#		
Tritium	pCi/L	05/18/2011	N001	0	-	0	95.6		U	#	145	89.1
Turbidity	NTU	05/18/2011	N001	0	-	0	5.97			#		

Groundwater Quality Data by Location (USEE100) FOR SITE RUL01, Rulison Site
REPORT DATE: 12/12/2011
Location: Tim Jacobs Ranch New WELL Jacobs Residence loc is 100 ft S

Parameter	Units	Sample Date	Sample ID	Depth Range (Ft BLS)			Result	Qualifiers Lab	Qualifiers Data	Qualifiers QA	Detection Limit	Uncertainty
Cesium-137	pCi/L	05/18/2011	N001	0	-	0	0		U	#	2.26	0
Oxidation Reduction Potential	mV	05/18/2011	N001	0	-	0	81.4			#		
pH	s.u.	05/18/2011	N001	0	-	0	7.96			#		
Specific Conductance	umhos /cm	05/18/2011	N001	0	-	0	361			#		
Temperature	C	05/18/2011	N001	0	-	0	10.01			#		
Tritium	pCi/L	05/18/2011	N001	0	-	0	88.6		U	#	147	89.8
Turbidity	NTU	05/18/2011	N001	0	-	0	3.11			#		

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

LAB QUALIFIERS:
- * Replicate analysis not within control limits.
- > Result above upper detection limit.
- A TIC is a suspected aldol-condensation product.
- B Inorganic: Result is between the IDL and CRDL. Organic: Analyte also found in method blank.
- C Pesticide result confirmed by GC-MS.
- D Analyte determined in diluted sample.
- E Inorganic: Estimate value because of interference, see case narrative. Organic: Analyte exceeded calibration range of the GC-MS.
- H Holding time expired, value suspect.
- I Increased detection limit due to required dilution.
- J Estimated
- N Inorganic or radiochemical: Spike sample recovery not within control limits. Organic: Tentatively identified compound (TIC).
- P > 25% difference in detected pesticide or Aroclor concentrations between 2 columns.
- U Analytical result below detection limit.
- W Post-digestion spike outside control limits while sample absorbance < 50% of analytical spike absorbance.
- X,Y,Z Laboratory defined qualifier, see case narrative.

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

QA QUALIFIER:
- # Validated according to quality assurance guidelines.

Surface Water Quality Data

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Surface Water Quality Data by Location (USEE102) FOR SITE RUL01, Rulison Site
REPORT DATE: 12/12/2011
Location: Battlement Creek SURFACE LOCATION Battlement Creek Loc.

Parameter	Units	Sample Date	Sample ID	Result	Qualifiers Lab	Qualifiers Data	Qualifiers QA	Detection Limit	Uncertainty
Cesium-137	pCi/L	05/18/2011	0001	0		U	#	2.45	0
Oxidation Reduction Potential	mV	05/18/2011	N001	35.1			#		
pH	s.u.	05/18/2011	N001	8.38			#		
Specific Conductance	umhos/cm	05/18/2011	N001	279			#		
Temperature	C	05/18/2011	N001	5.68			#		
Tritium	pCi/L	05/18/2011	0001	12.6		U	#	130	76.2
Turbidity	NTU	05/18/2011	N001	25.5			#		

Surface Water Quality Data by Location (USEE102) FOR SITE RUL01, Rulison Site
REPORT DATE: 12/12/2011
Location: City Springs SURFACE LOCATION Parachute Springs Loc in Bldg

Parameter	Units	Sample Date	Sample ID	Result	Qualifiers Lab	Qualifiers Data	Qualifiers QA	Detection Limit	Uncertainty
Cesium-137	pCi/L	05/18/2011	N001	0		U	#	2.22	0
Lead-212	pCi/L	05/18/2011	N001	2.27		U	#		2.63
Oxidation Reduction Potential	mV	05/18/2011	N001	261.7			#		
pH	s.u.	05/18/2011	N001	7.04			#		
Specific Conductance	umhos/cm	05/18/2011	N001	556			#		
Temperature	C	05/18/2011	N001	13.47			#		
Tritium	pCi/L	05/18/2011	N001	27.1		U	#	130	76.8
Turbidity	NTU	05/18/2011	N001	6.22			#		

Surface Water Quality Data by Location (USEE102) FOR SITE RUL01, Rulison Site
REPORT DATE: 12/12/2011
Location: Potter Ranch SURFACE LOCATION Potter Ranch loc is 100 ft E

Parameter	Units	Sample Date	Sample ID	Result	Qualifiers Lab	Qualifiers Data	Qualifiers QA	Detection Limit	Uncertainty
Bismuth-214	pCi/L	05/18/2011	N001	5.18	J		#		2.53
Cesium-137	pCi/L	05/18/2011	N001	0		U	#	2.37	0
Oxidation Reduction Potential	mV	05/18/2011	N001	127.8			#		
pH	s.u.	05/18/2011	N001	7.83			#		
Specific Conductance	umhos/cm	05/18/2011	N001	513			#		
Temperature	C	05/18/2011	N001	12.26			#		
Tritium	pCi/L	05/18/2011	N001	80.8		U	#	129	79
Turbidity	NTU	05/18/2011	N001	2.41			#		

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

LAB QUALIFIERS:
- * Replicate analysis not within control limits.
- > Result above upper detection limit.
- A TIC is a suspected aldol-condensation product.
- B Inorganic: Result is between the IDL and CRDL. Organic: Analyte also found in method blank.
- C Pesticide result confirmed by GC-MS.
- D Analyte determined in diluted sample.
- E Inorganic: Estimate value because of interference, see case narrative. Organic: Analyte exceeded calibration range of the GC-MS.
- H Holding time expired, value suspect.
- I Increased detection limit due to required dilution.
- J Estimated
- N Inorganic or radiochemical: Spike sample recovery not within control limits. Organic: Tentatively identified compound (TIC).
- P > 25% difference in detected pesticide or Aroclor concentrations between 2 columns.
- U Analytical result below detection limit.
- W Post-digestion spike outside control limits while sample absorbance < 50% of analytical spike absorbance.
- X,Y,Z Laboratory defined qualifier, see case narrative.

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

QA QUALIFIER:
- # Validated according to quality assurance guidelines.

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Attachment 3
Sampling and Analysis Work Order

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Stoller

established 1959

Task Order LM00-502
Control Number 11-0594

April 26, 2011

U.S. Department of Energy
Office of Legacy Management
ATTN: Art Kleinrath
Site Manager
955 Mound Road
Miamisburg, OH 45342

SUBJECT: Contract No. DE-AM01-07LM00060, S.M. Stoller Corporation (Stoller)
May 2011 Environmental Sampling at Rulison, Colorado

REFERENCE: Task Order LM00-502-07-619, Rulison, CO Site

Dear Mr. Kleinrath:

The purpose of this letter is to inform you of the upcoming sampling event at Rulison, Colorado. Enclosed are the map and tables specifying sample locations and analytes for monitoring at the Rulison site. Water quality data will be collected from monitoring wells, a municipal water supply well, and surface locations at this site as part of the routine environmental sampling scheduled to begin the week of May 9, 2011.

The following lists show the locations scheduled for sampling during this event.

Monitor Wells

Off-Site

CER Test Well	Daniel Gardener	Kevin Whelan	Morrissania Ranch
Patrick McCarty	Tim Jacobs Ranch New		

Municipal Water Supply

City Springs

Surface Water

On-Site

Spr 300 Yrd N of GZ	Sprg 500ft E of GZ

Off-Site

Battlement Creek	Potter Ranch

All samples will be collected as directed in the *Sampling and Analysis Plan for U.S. Department of Energy Office of Legacy Management Sites*. Notification for access to locations on private property will be conducted prior to the beginning of fieldwork.

The S.M. Stoller Corporation 2597 Legacy Way Grand Junction, CO 81503 (970) 248-6000 Fax (970) 248-6040

Please call me at (970) 248-6477 if there are any questions.

Sincerely,

Rick Hutton
Site Manager

RH/lcg/dc

Enclosures (3)

cc: (electronic)
Steve Donivan, Stoller
Bev Gallagher, Stoller
Lauren Goodknight, Stoller
Rick Hutton, Stoller
EDD Delivery
rc-grand.junction
File: RUL 410.02(A)

Sampling Frequencies for Locations at Rulison, Colorado

Location ID	Quarterly	Semiannually	Annually	Biennially	Not Sampled	Notes
Monitoring Wells						
Off-Site						
CER Test Well			X			
Daniel Gardener			X			
Kevin Whelan			X			
Morrissania Ranch			X			
Patrick McCarty			X			
Tim Jacobs Ranch New			X			
On-Site						
Cary Weldon House W					X	
Wesley Kent House W					X	
Municipal Water Supply						
City Springs			X			
Surface Locations						
On-Site						
Spr 300 Yrd N Of GZ			X			
Sprg 500ft E of GZ			X			
Off-Site						
Battlement Creek			X			
Potter Ranch			X			

Sampling conducted in May

Constituent Sampling Breakdown

Site	Rulison				
Analyte	**Groundwater**	**Surface Water**	**Required Detection Limit (mg/L)**	**Analytical Method**	**Line Item Code**
Approx. No. Samples/yr	9	4			
Field Measurements					
Alkalinity					
Dissolved Oxygen					
Redox Potential					
pH	X	X			
Specific Conductance	X	X			
Turbidity					
Temperature	X	X			
Laboratory Measurements					
Aluminum					
Ammonia as N (NH3-N)					
Calcium					
Chloride					
Chromium					
Gamma Spec	X	X	10 pCi/L	Gamma Spectrometry	GAM-A-001
Gross Alpha					
Gross Beta					
Iron					
Lead					
Magnesium					
Manganese					
Molybdenum					
Nickel					
Nickel-63					
Nitrate + Nitrite as N (NO_3+NO_2)-N					
Potassium					
Selenium					
Silica					
Sodium					
Strontium					
Sulfate					
Sulfide					
Total Dissolved Solids					
Total Organic Carbon					
Tritium	X	X	400 pCi/L	Liquid Scintillation	LSC-A-001
Tritium, enriched	25% of the samples	25% of the samples	10 pCi/L	Liquid Scintillation	LMR-15
Uranium					
Vanadium					
Zinc					
Total No. of Analytes	3	3			

Note: All private well samples are to be unfiltered. The total number of analytes does not include field parameters.

Attachment 4
Trip Report

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Stoller
Grand Junction Office
established 1959

Memorandum

Control Number N/A

DATE: May 26, 2011

TO: Rick Hutton

FROM: Jeff Price

SUBJECT: Trip Report (Long-Term Hydrologic Monitoring Program Sampling)

Site: Rulison, CO

Dates of Sampling Event: May 18, 2011

Team Members: Dan Sellers and Jeff Price.

Number of Locations Sampled: 6 wells and 3 surface water locations.

Locations Not Sampled/Reason: Springs 300 yards north of ground zero and 500 feet east of ground zero were not sampled because of access denial by the land owner.

Quality Control Sample Cross Reference: The following is the false identification assigned to the quality control sample:

False Id	True Id	Sample Type	Associated Matrix	Ticket Number
2611	Daniel Gardener	Duplicate	Groundwater	JGZ 253

RIN Number Assigned: Samples were assigned to RIN 11053765.

Sample Shipment: Samples were shipped on May 19, 2011.

Water Level Measurements: Water levels for sampled wells are presented in the following table.

Site Code	Well ID	Date	Time	DTW (ft)	Comments
RUL01	CER Test Well	5/18/2011	10:05	31.80	

DTW = Depth to Water (all measurements obtained from north top of casing)
Ft = Feet
ID = Identification

Trip Summary

Dan Sellers and Jeff Price drove from the Grand Junction office and sampled the Rulison site on Wednesday, May 18. All samples will be analyzed by the EPA lab in Las Vegas for tritium and gamma spec; a select set of sample locations will also be analyzed for enriched tritium. Copies of the sample collection logs and chain of custody documentation are maintained at the Grand Junction office. In general, the sampling trip went well, the weather was fair with some rain, and all samples were collected in accordance with the LM sampling and analysis plan.

Sample Locations

CER Test (private well)
Daniel Gardener (private well)
Kevin Whelan (private well)
Morrissania Ranch (private well)
Patrick McCarty (private well)
Tim Jacobs Ranch New (private well)
City Springs (spring)
Battlement Creek (creek)
Potter Ranch (spring)
(JP/lcg)

cc: (electronic)
Art Kleinrath, DOE
Steve Donivan, Stoller
Jack Duray, Stoller
Rick Findlay, Stoller
Bev Gallagher, Stoller
Rex Hodges, Stoller
EDD Delivery