

Data Validation Package

May 2011
Groundwater Sampling at the
Central Nevada Test Area

November 2011



U.S. DEPARTMENT OF
ENERGY

Legacy
Management

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Sampling Event Summary

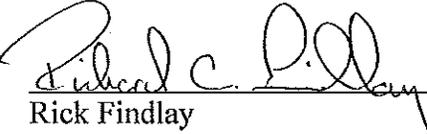
Site: Central Nevada Test Area

Sampling Period: May 10–11, 2011

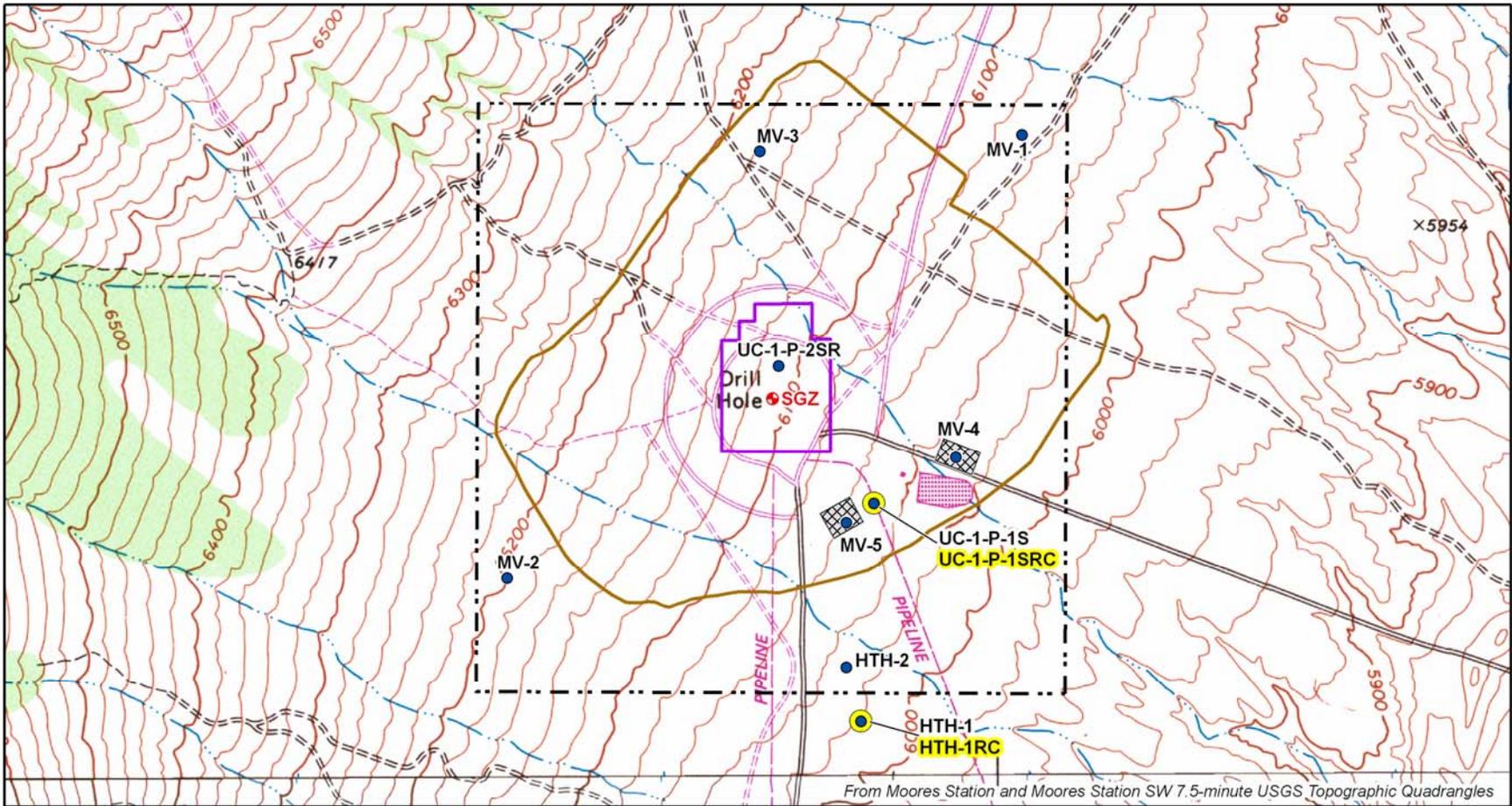
The U.S. Department of Energy Office of Legacy Management conducted annual sampling at the Central Nevada Test Area on May 10–11, 2011, in accordance with the 2004 *Corrective Action Decision Document/Corrective Action Plan for Corrective Action Unit 443: Central Nevada Test Area (CNTA)—Subsurface* and the addendum to the “Corrective Action Decision Document/Corrective Action Plan” completed in 2008. 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). Samples were submitted for analysis as follows:

- Requisition 10053073 was submitted to ALS Laboratory Group in Fort Collins, Colorado, for the determination of tritium. A duplicate sample from location MV–4 was included with this submittal.

There were no radionuclides detected above the decision level concentration in any of the wells. The results demonstrate that none of the sampling locations have been impacted by detonation-related contaminants.


Rick Findlay
Site Lead, S.M. Stoller Corporation

2-3-2012
Date



From Moores Station and Moores Station SW 7.5-minute USGS Topographic Quadrangles

Model Predicted Contaminant Boundary	Surface Ground Zero (UC-1 Emplacement Borehole)
Fault Block Boundary / Compliance Boundary	Existing Well
Well Pad	Existing Well (Recompleted June 2009)
Contour Interval 20 ft	
Withdrawal Boundary	

SCALE IN FEET

1,500 750 0 1,500

U.S. DEPARTMENT OF ENERGY GRAND JUNCTION, COLORADO		<small>Work Performed by</small> S.M. Stoller Corporation <small>Under DOE Contract No. DE-AC01-07LM00060</small>	
Well Location Map Central Nevada Test Area - UC-1			
DATE PREPARED:		FILENAME:	
May 11, 2010		S0593400	

M:\LTS\111\0083\05\002\S05934\S0593400.mxd smithw 5/11/2010 8:19:56 AM

CNTA Sample Location Map

Data Assessment Summary

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Water Sampling Field Activities Verification Checklist

Project	<u>Central Nevada Test Area</u>	Date(s) of Water Sampling	<u>May 10-11, 2011</u>
Date(s) of Verification	<u>July 21, 2011</u>	Name of Verifier	<u>Steve Donovan</u>

	Response (Yes, No, NA)	Comments
1. Is the SAP the primary document directing field procedures? List other documents, SOPs, instructions.	<u>Yes</u>	<u>Work Order letter dated April 25, 2011.</u>
2. Were the sampling locations specified in the planning documents sampled?	<u>No</u>	<u>HTH-2 was not sampled because the pump motor is not functional.</u>
3. Was a pre-trip calibration conducted as specified in the above-named documents?	<u>Yes</u>	<u>Pre-trip calibration was performed on May 9, 2011.</u>
4. Was an operational check of the field equipment conducted daily? Did the operational checks meet criteria?	<u>Yes</u> <u>Yes</u>	
5. Were the number and types (alkalinity, temperature, specific conductance, pH, turbidity, DO, ORP) of field measurements taken as specified?	<u>Yes</u>	
6. Was the category of the well documented?	<u>Yes</u>	
7. Were the following conditions met when purging a Category I well: Was one pump/tubing volume purged prior to sampling?	<u>NA</u>	<u>All wells were Category II.</u>
Did the water level stabilize prior to sampling?	<u>NA</u>	
Did pH, specific conductance, and turbidity measurements stabilize prior to sampling?	<u>NA</u>	
Was the flow rate less than 500 mL/min?	<u>NA</u>	
If a portable pump was used, was there a 4-hour delay between pump installation and sampling?	<u>NA</u>	

Water Sampling Field Activities Verification Checklist (continued)

	Response (Yes, No, NA)	Comments
8. Were the following conditions met when purging a Category II well:		
Was the flow rate less than 500 mL/min?	No	Monitoring wells MV-4, MV-5, and UC-1-P-1SRC have dedicated electric submersible pumps and one casing volume was purged at high flow rate prior to sample collection.
Was one pump/tubing volume removed prior to sampling?	Yes	
9. Were duplicates taken at a frequency of one per 20 samples?	Yes	A duplicate sample was collected at location MV-4.
10. Were equipment blanks taken at a frequency of one per 20 samples that were collected with nondedicated equipment?	NA	Dedicated equipment was used for all sampling.
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	
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 cooling 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): 11053763
Sample Event: May 10, 2011
Site(s): Central Nevada Test Area
Laboratory: ALS Laboratory Group, Fort Collins, Colorado
Work Order No.: 1105240
Analysis: Radiochemistry
Validator: Steve Donivan
Review Date: July 21, 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 3, Data Validation. See attached Data Validation Worksheets for supporting documentation on the data review and validation. All analyses were successfully completed. 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
Tritium	LCS-A-001	EPA 906.0	EPA 906.0

Data Qualifier Summary

None of the analytical results required qualification.

Sample Shipping/Receiving

ALS Laboratory Group in Fort Collins, Colorado, received eight water samples on May 17, 2011, accompanied by a Chain of Custody (COC) form. The COC form was checked to confirm that the samples were listed with sample collection dates and times, and that signatures and dates were present indicating sample relinquishment and receipt. The sample date and time was not listed on the COC form but was available from the sample label for login. The air waybill number was listed on the Sample Receipt and Review Form.

Preservation and Holding Times

The sample shipment was received intact at ambient temperature which complies with requirements. The sample was shipped unpreserved and was preserved by the laboratory upon receipt. Sample analysis was completed within the applicable holding times.

Laboratory Instrument Calibration

Compliance requirements for satisfactory instrument calibration are established to ensure that the instrument is capable of producing acceptable qualitative and quantitative data for all analytes. Initial calibration demonstrates that the instrument is capable of acceptable performance in the beginning of the analytical run and of producing a linear curve. Compliance requirements for continuing calibration checks are established to ensure that the instrument continues to be capable of producing acceptable qualitative and quantitative data. All laboratory instrument calibrations were performed correctly in accordance with the cited methods.

Tritium

The tritium calibration was performed on June 17, 2010, using a constant quench approach. Samples with a quench factor outside the calibration range are spiked with nitromethane to adjust the quench factor prior to counting. A high-energy window (Window 2) was established to monitor for any potential interferences that might be present due to higher energy beta emitters that would bias the results high. All samples had Window 2 count rates that were within the control limits.

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 the Determination Limit (3 times the MDC).

Method Blank

Method blanks are analyzed to assess any contamination that may have occurred during sample preparation. The method blank result was below the decision level concentration.

Laboratory Control Sample

Laboratory control samples were analyzed at the correct frequency to provide information on the accuracy of the analytical method and the overall laboratory performance, including sample preparation. All control sample results were acceptable.

Laboratory Replicate Analysis

The radiochemical relative error ratio (calculated using the one-sigma total propagated uncertainty) for the sample replicate was less than three, indicating acceptable precision.

Matrix Spike Analysis

Matrix spike samples are used to measure method performance in the sample matrix. The matrix spike data are not evaluated when the concentration of the unspiked sample is greater than 4 times the spike concentration. The spike recovery met the recovery criteria demonstrating acceptable method performance.

Detection Limits/Dilutions

Sample dilutions were not required. The required detection limits were met for all samples.

Completeness

Results were reported in the correct units for all analytes requested using contract-required laboratory qualifiers.

Electronic Data Deliverable (EDD) File

An EDD file arrived on June 15, 2011. The Sample Management System EDD validation module was used to verify that the EDD files were 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. The contents of the EDD were manually examined to verify that the sample results accurately reflect the data contained in the sample data package.

SAMPLE MANAGEMENT SYSTEM

General Data Validation Report

RIN: 11053763 Lab Code: PAR Validator: Steve Donovan Validation Date: 7/21/2011
Project: Central Nevada Test Area Analysis Type: Metals General Chem Rad Organics
of Samples: 8 Matrix: WATER Requested Analysis Completed: Yes

Chain of Custody

Present: OK Signed: OK Dated: OK

Sample

Integrity: OK Preservation: OK Temperature: OK

Select Quality Parameters

- Holding Times
- Detection Limits
- Field/Trip Blanks
- Field Duplicates

All analyses were completed within the applicable holding times.

The reported detection limits are equal to or below contract requirements.

There was 1 duplicate evaluated.

SAMPLE MANAGEMENT SYSTEM
Radiochemistry Data Validation Worksheet

RIN: 11053763 **Lab Code:** PAR **Date Due:** 6/14/2011
Matrix: Water **Site Code:** CNT01 **Date Completed:** 6/14/2011

Sample	Analyte	Date Analyzed	Result	Flag	Tracer %R	LCS %R	MS %R	Duplicate
MV-1	H-3	06/09/2011						0.20
MV-1	H-3	06/09/2011					101.0	
Blank_Spike	H-3	06/10/2011				98.00		
Blank	H-3	06/10/2011	-6.0000	U				

Sampling Quality Control Assessment

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

Sampling Protocol

Monitoring wells MV-1, MV-2, MV-3, and HTH-1RC met the Category II criteria, purged and sampled using the low-flow sampling method. Sample results from these wells were qualified with an “F” flag in the database, indicating the wells were purged and sampled using the low-flow sampling method. Additionally, the results were qualified with a “Q” flag in the database indicating the data are considered qualitative because the wells were classified as Category II wells.

Monitoring wells MV-4, MV-5, and UC-1-P-1SRC have dedicated electric submersible pumps and were sampled by purging one casing volume prior to sample collection.

Equipment Blank Assessment

An equipment blank was not required for this sampling event.

Field Duplicate Assessment

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 MV-4. The relative error ratio calculated using the 1-sigma errors was less than 3 demonstrating acceptable overall precision.

SAMPLE MANAGEMENT SYSTEM
Validation Report: Field Duplicates

Page 1 of 1

RIN: 11053763 Lab Code: PAR Project: Central Nevada Test Area Validation Date: 7/21/2011

Duplicate: 2937

Sample: MV-4

Analyte	Sample				Duplicate				RPD	RER	Units
	Result	Flag	Error	Dilution	Result	Flag	Error	Dilution			
H-3	1.19	U	199	1	-3.07	U	205	1		0	pCi/L

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
Steve Donivan

11-30-2011
Date

Data Validation Lead:

Steve Donivan
Steve Donivan

11-30-2011
Date

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 CNT01, Central Nevada Test Area Site

REPORT DATE: 11/8/2011

Location: HTH-1RC WELL Previously in database as HTH-1, until reconditioned on 5/6/2009

Parameter	Units	Sample Date	Sample ID	Depth Range (Ft BLS)		Result	Lab	Qualifiers Data	QA	Detection Limit	Uncertainty
Dissolved Oxygen	mg/L	05/11/2011	N001	2357.75	- 2658.05	1.08		FQ	#		
Oxidation Reduction Potential	mV	05/11/2011	N001	2357.75	- 2658.05	-80		FQ	#		
pH	s.u.	05/11/2011	N001	2357.75	- 2658.05	8.3		FQ	#		
Specific Conductance	umhos/cm	05/11/2011	N001	2357.75	- 2658.05	630		FQ	#		
Temperature	C	05/11/2011	N001	2357.75	- 2658.05	17.1		FQ	#		
Tritium	pCi/L	05/11/2011	N001	2357.75	- 2658.05	-58	U	FQ	#	340	198
Turbidity	NTU	05/11/2011	N001	2357.75	- 2658.05	9.01		FQ	#		

Groundwater Quality Data by Location (USEE100) FOR SITE CNT01, Central Nevada Test Area Site

REPORT DATE: 11/8/2011

Location: MV-1 WELL

Parameter	Units	Sample Date	Sample ID	Depth Range (Ft BLS)	Result	Lab	Qualifiers Data	QA	Detection Limit	Uncertainty
Dissolved Oxygen	mg/L	05/10/2011	N001	3750 - 3909.56	0.53		FQ	#		
Oxidation Reduction Potential	mV	05/10/2011	N001	3750 - 3909.56	-110		FQ	#		
pH	s.u.	05/10/2011	N001	3750 - 3909.56	9.54		FQ	#		
Specific Conductance	umhos/cm	05/10/2011	N001	3750 - 3909.56	705		FQ	#		
Temperature	C	05/10/2011	N001	3750 - 3909.56	14.3		FQ	#		
Tritium	pCi/L	05/10/2011	N001	3750 - 3909.56	69.2	U	FQ	#	340	205
Turbidity	NTU	05/10/2011	N001	3750 - 3909.56	7.75		FQ	#		

Groundwater Quality Data by Location (USEE100) FOR SITE CNT01, Central Nevada Test Area Site

REPORT DATE: 11/8/2011

Location: MV-2 WELL

Parameter	Units	Sample Date	ID	Depth Range (Ft BLS)		Result	Lab	Qualifiers Data	QA	Detection Limit	Uncertainty
Dissolved Oxygen	mg/L	05/11/2011	N001	3039.49	- 3202.24	0.28		FQ	#		
Oxidation Reduction Potential	mV	05/11/2011	N001	3039.49	- 3202.24	-115		FQ	#		
pH	s.u.	05/11/2011	N001	3039.49	- 3202.24	10.3		FQ	#		
Specific Conductance	umhos /cm	05/11/2011	N001	3039.49	- 3202.24	1035		FQ	#		
Temperature	C	05/11/2011	N001	3039.49	- 3202.24	15.3		FQ	#		
Tritium	pCi/L	05/11/2011	N001	3039.49	- 3202.24	-.306	U	FQ	#	340	205
Turbidity	NTU	05/11/2011	N001	3039.49	- 3202.24	3.48		FQ	#		

Groundwater Quality Data by Location (USEE100) FOR SITE CNT01, Central Nevada Test Area Site

REPORT DATE: 11/8/2011

Location: MV-3 WELL

Parameter	Units	Sample Date	Sample ID	Depth Range (Ft BLS)	Result	Lab	Qualifiers Data	QA	Detection Limit	Uncertainty
Dissolved Oxygen	mg/L	05/10/2011	N001	4046 - 4207.75	0.47		FQ	#		
Oxidation Reduction Potential	mV	05/10/2011	N001	4046 - 4207.75	-60		FQ	#		
pH	s.u.	05/10/2011	N001	4046 - 4207.75	7.3		FQ	#		
Specific Conductance	umhos /cm	05/10/2011	N001	4046 - 4207.75	950		FQ	#		
Temperature	C	05/10/2011	N001	4046 - 4207.75	14.2		FQ	#		
Tritium	pCi/L	05/10/2011	N001	4046 - 4207.75	-58.4	U	FQ	#	340	201
Turbidity	NTU	05/10/2011	N001	4046 - 4207.75	17		FQ	#		

Groundwater Quality Data by Location (USEE100) FOR SITE CNT01, Central Nevada Test Area Site

REPORT DATE: 11/8/2011

Location: MV-4 WELL

Parameter	Units	Sample Date	Sample ID	Depth Range (Ft BLS)		Result	Lab	Qualifiers Data	QA	Detection Limit	Uncertainty
Dissolved Oxygen	mg/L	05/10/2011	N001	1719.33	- 2023.43	0.12			#		
Oxidation Reduction Potential	mV	05/10/2011	N001	1719.33	- 2023.43	-115			#		
pH	s.u.	05/10/2011	N001	1719.33	- 2023.43	9.73			#		
Specific Conductance	umhos /cm	05/10/2011	N001	1719.33	- 2023.43	380			#		
Temperature	C	05/10/2011	N001	1719.33	- 2023.43	27.2			#		
Tritium	pCi/L	05/10/2011	N001	1719.33	- 2023.43	1.19	U		#	330	199
Tritium	pCi/L	05/10/2011	N002	1719.33	- 2023.43	-3.07	U		#	340	205
Turbidity	NTU	05/10/2011	N001	1719.33	- 2023.43	7.46			#		

Groundwater Quality Data by Location (USEE100) FOR SITE CNT01, Central Nevada Test Area Site

REPORT DATE: 11/8/2011

Location: MV-5 WELL

Parameter	Units	Sample		Depth Range			Result	Qualifiers			Detection Limit	Uncertainty
		Date	ID	(Ft BLS)				Lab	Data	QA		
Dissolved Oxygen	mg/L	05/11/2011	N001	1838.57	-	2163	0.12			#		
Oxidation Reduction Potential	mV	05/11/2011	N001	1838.57	-	2163	-75			#		
pH	s.u.	05/11/2011	N001	1838.57	-	2163	10.15			#		
Specific Conductance	umhos/cm	05/11/2011	N001	1838.57	-	2163	665			#		
Temperature	C	05/11/2011	N001	1838.57	-	2163	26.9			#		
Tritium	pCi/L	05/11/2011	N001	1838.57	-	2163	15.6	U		#	330	197
Turbidity	NTU	05/11/2011	N001	1838.57	-	2163	2.11			#		

Groundwater Quality Data by Location (USEE100) FOR SITE CNT01, Central Nevada Test Area Site

REPORT DATE: 11/8/2011

Location: UC-1-P-1SRC WELL Previously in database as UC-1-P-1S, until reconditioned on 6/2/2009

Parameter	Units	Sample Date	Sample ID	Depth Range (Ft BLS)	Result	Qualifiers		Detection Limit	Uncertainty
						Lab	Data QA		
Dissolved Oxygen	mg/L	05/10/2011	N001	512.04 - 573.02	5.95		#		
Oxidation Reduction Potential	mV	05/10/2011	N001	512.04 - 573.02	-14		#		
pH	s.u.	05/10/2011	N001	512.04 - 573.02	7.5		#		
Specific Conductance	umhos /cm	05/10/2011	N001	512.04 - 573.02	365		#		
Temperature	C	05/10/2011	N001	512.04 - 573.02	18.1		#		
Tritium	pCi/L	05/10/2011	N001	512.04 - 573.02	38.7	U	#	330	197
Turbidity	NTU	05/10/2011	N001	512.04 - 573.02	11.3		#		

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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Static Water Level Data

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**STATIC WATER LEVELS (USEE700) FOR SITE CNT01, Central Nevada Test
Area Site
REPORT DATE: 11/8/2011**

Location Code	Top of Casing Elevation (Ft)	Measurement Date	Measurement Time	Depth From Top of Casing (Ft)	Water Elevation (Ft)
HTH-1RC	6011.65	05/11/2011	13:05:46	493.62	5518.03
MV-1	6070.54	05/10/2011	11:15:46	505.8	5564.74
MV-2	6190.61	05/11/2011	10:50:27	352.56	5838.05
MV-3	6168.28	05/10/2011	14:50:47	599.9	5568.38
MV-4	6019.65	05/10/2011	15:20:39	504.5	5515.15
MV-5	6041.69	05/11/2011	14:35:44	559.94	5481.75
UC-1-P-1SRC	6031.59	05/10/2011	16:10:29	281.32	5750.27

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Attachment 3
Sampling and Analysis Work Order

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established 1959

Task Order LM00-502
Control Number 11-0593

April 25, 2011

U.S. Department of Energy
Office of Legacy Management
ATTN: Mark Kautsky
Site Manager
2597 Legacy Way
Grand Junction, CO 81503

SUBJECT: Contract No. DE-AM01-07LM00060, S.M. Stoller Corporation (Stoller)
May 2011 Environmental Sampling at Central Nevada Test Area, Nevada

REFERENCE: Task Order LM00-502-07-613, Central Nevada Test Area, NV

Dear Mr. Kautsky:

The purpose of this letter is to inform you of the upcoming sampling event at the Central Nevada Test Area. Enclosed are the map and tables specifying sample locations and analytes for routine monitoring at the site. Water quality data will be collected from monitoring wells at the site during the routine environmental sampling currently scheduled to begin the week of May 9, 2011.

The following list shows the locations scheduled to be sampled during this event.

Monitoring Wells

MV-1 MV-2 MV-3 MV-4 MV-5 HTH-1RC HTH-2
UC-1-P-1SRC

All samples will be collected as directed in the *Sampling and Analysis Plan for U.S. Department of Energy Office of Legacy Management Sites* and will meet the requirements of the *Addendum to the Corrective Action Decision Document/Corrective Action Plan (CADD/CAP) for Corrective Action Unit (CAU) 443: Central Nevada Test Area (CNTA) - Subsurface*.

Please contact me at (970) 248-6419 if you have any questions or concerns.

Sincerely,

Rick Findlay
Site Lead

RF/lcg/dc

Mark Kautsky
Control Number 11-0593
Page 2

Enclosures (3)

cc: (electronic)
Steve Donovan, Stoller
Rick Findlay, Stoller
Bev Gallagher, Stoller
Lauren Goodknight, Stoller
EDD Delivery
rc-grand.junction
File: CNT 410.02(A)

Sampling Frequencies for Locations at Central Nevada Test Area, Nevada

Location ID	Quarterly	Semiannually	Annually	Biennially	Not Sampled	Notes
Monitoring Wells						
MV-1			X			
MV-2			X			
MV-3			X			
HTH-1RC			X			
HTH-2			X			
UC-1-P-1SRC			X			
MV-4			X			
MV-5			X			

Sampling conducted in May.

Constituent Sampling Breakdown

Site	Central Nevada Test Area					Laboratory		
	Analyte	Groundwater	Surface Water	Required Detection Limit (mg/L)	Analytical Method	Line Item Code	ALS	University of Arizona
Approx. No. Samples/yr	8	0						
Field Measurements								
Alkalinity								
Dissolved Oxygen	X							
Redox Potential	X							
pH	X							
Specific Conductance	X							
Turbidity	X							
Temperature	X							
Laboratory Measurements								
Aluminum								
Ammonia as N (NH ₃ -N)								
Calcium								
Chloride								
Gross Alpha								
Gross Beta								
Iron								
Lead								
Magnesium								
Manganese								
Molybdenum								
Nickel								
Nitrate + Nitrite as N (NO ₃ +NO ₂)-N								
Sulfate								
Sulfide								
Tritium	X		400 pCi/L	Liquid Scintillation	LSC-A-001	X		
Uranium								
Vanadium								
Zinc								
Total No. of Analytes	1	0						

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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Memorandum

Control Number N/A

DATE: May 26, 2011
TO: Rick Findlay
FROM: Jeff Price
SUBJECT: Trip Report (LTHMP Sampling)

Site: Central Nevada Test Area (CNTA)

Dates of Sampling Event: May 9-12, 2011

Team Members: Kent Moe and Jeff Price

Number of Locations Sampled: Seven on-site monitoring wells.

Locations Not Sampled/Reason: HTH-2. It was deduced during last years sampling event that the pump motor is probably bad.

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
2937	MV-4	Duplicate	Groundwater	JGZ 227

RIN Number Assigned: Samples were assigned to RIN 11053763.

Sample Shipment: Samples were shipped on May 16 to ALS Laboratory Group in Ft. Collins, Colorado.

Water Level Measurements: Water levels for sampled wells (including HTH-2) are presented in the following table.

Well ID	Date	DTW (ft)	Comments
MV-1	5/10/11	505.80	Water access tube; purge vol = 9.2 gal
MV-1-UPZ	5/10/11	317.42	Piezometer tube
MV-1-LPZ	5/10/11	37.51	Piezometer tube
MV-2	5/10/11	352.56	Water access tube; purge vol = 7.6 gal
MV-2-UPZ	5/10/11	405.62	Piezometer tube
MV-2-LPZ	5/10/11	392.50	Piezometer tube
MV-3	5/10/11	599.90	Water access tube; purge vol = 10 gal
MV-3-UPZ	5/10/11	372.58	Piezometer tube
MV-3-LPZ	5/10/11	189.89	Piezometer tube
MV-4	5/10/11	504.50	Water access tube; purge vol = 1,900 gal
MV-4-PZ	5/10/11	275.03	Piezometer tube
MV-5	5/10/11	559.94	Water access tube; purge vol = 2,030 gal
HTH-1RC	5/11/11	493.62	Water access tube; purge vol = 6.2 gal
HTH-1RC-UPZ	5/11/11	542.59	Piezometer tube
HTH-1RC-LPZ	5/11/11	540.92	Piezometer tube
HTH-2	5/11/11	556.06	Water access tube; no purge; pump not working
UC-1-P-1SRC	5/10/11	281.32	Water access tube; purge vol = 370 gal

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

Trip Summary:

The 2011 LTHMP sampling was conducted from May 9-12 by Kent Moe and Jeff Price. Samples were collected for tritium analysis. The following table lists the bladder pump specifics. Monitoring wells MV-4, MV-5, and UC-1-P-1SRC have dedicated electric submersible pumps, in which one casing volume is purged prior to sample collection.

Well ID	Date Installed	Pump Depth (ft)	DTW (ft)	Drop Tube Length (ft)	Sample Intake Depth (ft)	Tubing Purge Volume Prior to Sampling (Gal)
MV-1	5/30/09	700	510	3100	3800	9.0
MV-2	6/26/09	500	340	2600	3100	7.5
MV-3	6/25/09	800	600	3300	4100	9.6
HTH-1	6/24/09	700	540	1900	2600	5.9

The DO probe needed a new membrane installed on May 10; the probe calibrated and checked out okay.

(JP/lcg)

cc: (electronic)
 Mark Kautsky, DOE
 Paul Darr, Stoller
 Steve Donivan, Stoller
 Jack Duray, Stoller

Bev Gallagher, Stoller
 Rex Hodges, Stoller
 EDD Delivery