

# Data Validation Package

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May 2010  
Groundwater Sampling at the  
Central Nevada Test Area

February 2011



U.S. DEPARTMENT OF  
**ENERGY**

Legacy  
Management

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# Sampling Event Summary

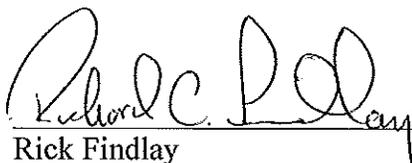
**Site:** Central Nevada Test Area

**Sampling Period:** May 22, 2010 – June 9, 2010

The U.S. Department of Energy Office of Legacy Management conducted annual sampling at the Central Nevada Test Area on June 7–9, 2010, in accordance with the 2004 *Corrective Action Decision Document/Corrective Action Plan for Corrective Action Unit 443: Central Nevada Test Area (CNTA)—Subsurface*. 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:

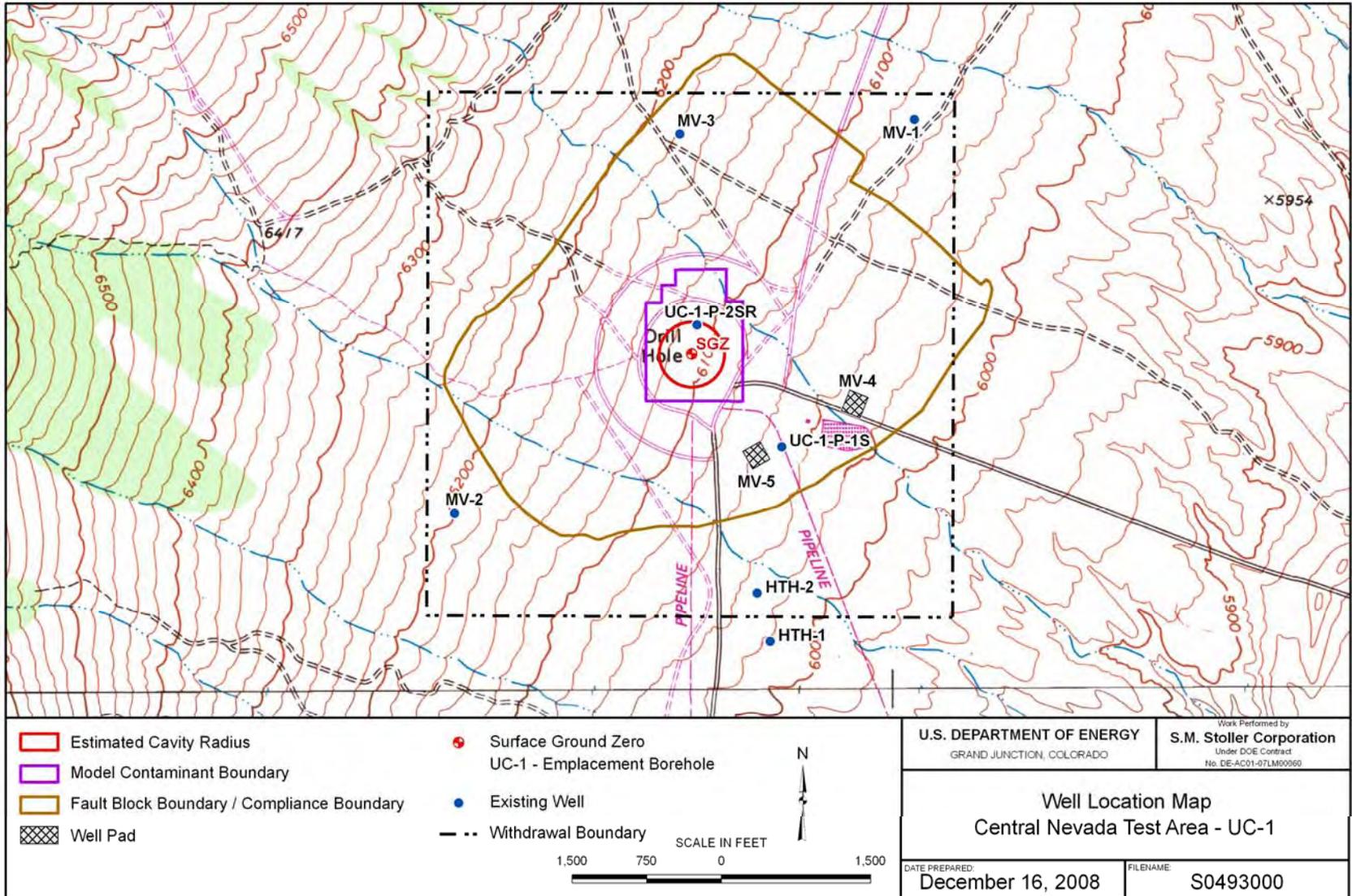
- Requisition 10053073 was submitted to ALS Laboratory Group in Fort Collins, Colorado, for the determination of tritium. A duplicate sample from location MV-1 was included with this submittal.
- Requisition 10053074 was submitted to the University of Arizona for the determination of iodine-129. A duplicate sample from location MV-1 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

March 31, 2011  
Date



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CNTA Sample Location Map

# **Data Assessment Summary**

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### Water Sampling Field Activities Verification Checklist

<b>Project</b>	CNTA	<b>Date(s) of Water Sampling</b>	May 22, 2010 – June 9, 2010
<b>Date(s) of Verification</b>	August 16, 2010	<b>Name of Verifier</b>	Steve Donovan

	<b>Response (Yes, No, NA)</b>	<b>Comments</b>
1. Is the SAP the primary document directing field procedures? List other documents, SOPs, instructions.	Yes	Work Order Letter dated May 12, 2010.
2. Were the sampling locations specified in the planning documents sampled?	No	HTH-2 was not sampled because the pump in this well was nonfunctional.
3. Was a pre-trip calibration conducted as specified in the above-named documents?	Yes	
4. Was an operational check of the field equipment conducted daily? Did the operational checks meet criteria?	Yes 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? Did the water level stabilize prior to sampling? Did pH, specific conductance, and turbidity measurements stabilize prior to sampling? Was the flow rate less than 500 mL/min? If a portable pump was used, was there a 4-hour delay between pump installation and sampling?	NA     NA	All wells were Category II wells.     

## 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?	Yes	
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 from location MV-1.
10. Were equipment blanks taken at a frequency of one per 20 samples that were collected with nondedicated equipment?	NA	Dedicated equipment was used to sample all wells.
11. Were trip blanks prepared and included with each shipment of VOC samples?	NA	
12. Were QC samples assigned a fictitious site identification number? Was the true identity of the samples recorded on the Quality Assurance Sample Log or in the Field Data Collection System (FDCS) report?	Yes	Location ID 2937 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 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): 10053073  
Sample Event: May 22, 2010 – June 9, 2010  
Site(s): Central Nevada Test Area  
Laboratory: ALS Laboratory Group, Fort Collins, Colorado  
Work Order No.: 1006216  
Analysis: Radiochemistry  
Validator: Steve Donivan  
Review Date: August 16, 2010

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 7 water samples on June 21, 2010, 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 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 January 4, 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 of that were within the control limits.

### Radiochemical Analysis

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

### Method Blank

Method blanks are analyzed to assess any contamination that may have occurred during sample preparation. The method blank result was below the minimum detectable 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 four 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 July 19, 2010. 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: 10053073 Lab Code: PAR Validator: Steve Donovan Validation Date: 8/16/2010

Project: Central Nevada Test Area Analysis Type:  Metals  General Chem  Rad  Organics

# of Samples: 7 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:** 10053073                      **Lab Code:** PAR                      **Date Due:** 7/19/2010  
**Matrix:** Water                      **Site Code:** CNT01                      **Date Completed:** 7/20/2010

Sample	Analyte	Date Analyzed	Result	Flag	Tracer %R	LCS %R	MS %R	Duplicate
UC-1-P-1SRC	H-3	07/10/2010						0.85
Blank_Spike	H-3	07/10/2010				95.4		
UC-1-P-1SRC	H-3	07/10/2010					97.8	
Blank	H-3	07/10/2010	-46.1	U				

## General Information

Requisition No. (RIN): 10053074  
Sample Event: May 22, 2010 – June 9, 2010  
Site(s): Central Nevada Test Area  
Laboratory: NSF-Arizona AMS Facility, Tucson, AZ  
Analysis: Iodine-129  
Validator: Steve Donovan  
Review Date: October 14, 2010

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. The samples were prepared and analyzed using accepted procedures based on methods specified by line item code, which are listed in Table 1.

Table 2. Analytes and Methods

Analyte	Line Item Code	Prep Method	Analytical Method
Iodine-129	LMR-19	AMS Facility SOP	Accelerator Mass Spectrometry

### Data Qualifier Summary

None of the analytical results required qualification.

### Sample Shipping/Receiving

The NSF-Arizona AMS Facility in Tucson, Arizona, received 7 water samples on June 22, 2010, under RIN 10053074 submitted for the determination of iodine-129. 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 report at Analysis Service Level B (results only) and do not include calibration data.

### Sample Analysis Description

The samples were prepared for the determination of iodine-129 by acidification with phosphoric acid followed with an oxidation of iodide to iodine. The iodine was absorbed in 125-mesh silver

powder. This powder was then packed into a sample holder and loaded into the accelerator for isotopic analysis. The isotope ratio for each sample was calculated by using the weighted average of six independent measurements. Total iodine measurements were made with an Orion iodide specific electrode and bench-top meter. The total iodine values for each sample were calculated by using a weighted average of five independent measurements. The total iodine concentration and isotopic ratio for each sample were used to obtain the sample activity in picocuries per liter (pCi/L).

### Completeness

Iodine-129 results were reported as requested for all samples submitted.

## **Sampling Quality Control Assessment**

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

Sample results for all monitoring wells met the Category II low-flow sampling criteria and 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.

### Equipment Blank Assessment

An equipment blank was not collected during 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-1. The duplicate results are acceptable, with a radiochemical relative error ratio less than three.

**SAMPLE MANAGEMENT SYSTEM**  
**Validation Report: Field Duplicates**

RIN: 10053073    Lab Code: PAR    Project: Central Nevada Test Area    Validation Date: 8/16/2010

Duplicate: 2937

Sample: MV-1

Analyte	Sample				Duplicate				RPD	RER	Units
	Result	Flag	Error	Dilution	Result	Flag	Error	Dilution			
H-3	-138	U	212	1	-30.5	U	216	1		0.7	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 Donovan 2-15-2011  
Steve Donovan Date

Data Validation Lead: Steve Donovan 2-15-2011  
Steve Donovan 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: 1/13/2011

Location: HTH-1 WELL

Parameter	Units	Sample Date	Sample ID	Depth Range (Ft BLS)			Result	Lab	Qualifiers Data	QA	Detection Limit	Uncertainty
Iodine-129	pCi/L	06/08/2010	N002	0	-	3695	0.00000000011			#		0.00000000002

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

REPORT DATE: 1/13/2011

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
Tritium	pCi/L	06/09/2010	N001	2357.75 - 2658.05	-335	U	FQ	#	360	212

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

REPORT DATE: 1/13/2011

Location: MV-1 WELL

Parameter	Units	Sample Date	Sample ID	Depth Range	(Ft BLS)	Result	Lab	Qualifiers Data	QA	Detection Limit	Uncertainty
Iodine-129	pCi/L	06/08/2010	N002	3750	- 3909.56	0.00000000104		FQ	#		0.00000000016
Iodine-129	pCi/L	06/09/2010	N003	3750	- 3909.56	0.00000000108		FQ	#		0.00000000024
Tritium	pCi/L	06/09/2010	N001	3750	- 3909.56	-138	U	FQ	#	360	212
Tritium	pCi/L	06/09/2010	N002	3750	- 3909.56	-30.5	U	FQ	#	360	216

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

REPORT DATE: 1/13/2011

Location: MV-2 WELL

Parameter	Units	Sample Date	Sample ID	Depth Range (Ft BLS)		Result	Lab	Qualifiers Data	QA	Detection Limit	Uncertainty
Iodine-129	pCi/L	06/08/2010	N002	3039.49	- 3202.24	0.00000000109		FQ	#		0.0000000021
Tritium	pCi/L	06/08/2010	N001	3039.49	- 3202.24	-236	U	FQ	#	360	213

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

REPORT DATE: 1/13/2011

Location: MV-3 WELL

Parameter	Units	Sample Date	ID	Depth Range (Ft BLS)	Result	Lab	Qualifiers Data	QA	Detection Limit	Uncertainty
Iodine-129	pCi/L	06/08/2010	N002	4046 - 4207.75	0.0000000142		FQ	#		0.0000000054
Tritium	pCi/L	06/08/2010	N001	4046 - 4207.75	6.28	U	FQ	#	370	217

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

REPORT DATE: 1/13/2011

Location: MV-5 WELL

Parameter	Units	Sample Date	Sample ID	Depth Range (Ft BLS)	Result	Lab	Qualifiers Data	QA	Detection Limit	Uncertainty
Iodine-129	pCi/L	05/26/2010	N002	1838.57 - 2163	0.000000000057		FQ	#		0.000000000041
Tritium	pCi/L	05/26/2010	N001	1838.57 - 2163	-108	U	FQ	#	360	214

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

REPORT DATE: 1/13/2011

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

Parameter	Units	Sample		Depth Range		Result	Qualifiers			Detection Limit	Uncertainty
		Date	ID	(Ft BLS)	Lab		Data	QA			
Iodine-129	pCi/L	05/22/2010	N002	512.04	- 573.02	0.000000000052		FQ	#		0.000000000015
Tritium	pCi/L	05/22/2010	N001	512.04	- 573.02	-80.2	U	FQ	#	370	216

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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established 1959

Task Order LM00-502  
Control Number 10-0606

May 12, 2010

U.S. Department of Energy  
Office of Legacy Management  
ATTN: Mark Kautsky  
Site Manager  
2597 B ¼ Road  
Grand Junction, CO 81503

SUBJECT: Contract No. DE-AM01-07LM00060, Stoller  
June 2010 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 monitoring at the site. Water quality data will be collected from wells MV-5 and UC-1-P-1SRC at this site as part of an aquifer test that is scheduled to begin on May 18, 2010. Water quality data will be collected from the remaining wells at the site during the routine environmental sampling currently scheduled to begin the week of June 7, 2010.

The sample locations and laboratory analytical methods have been approved by the Nevada Division of Environmental Protection (NDEP). It is required by the NDEP, that iodine-129 and tritium (using the conventional laboratory analytical method) be analyzed as part of this year's annual monitoring.

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

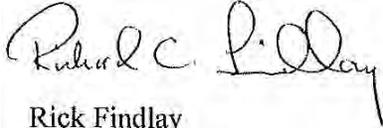
**Monitoring Wells**

MV-1    MV-2    MV-3    MV-5    HTH-1    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,

A handwritten signature in black ink that reads "Rick Findlay". The signature is written in a cursive style with a large initial "R" and "F".

Rick Findlay  
Site Lead

RF/lcg/dc

Enclosures (3)

cc: rc-grand.junction

cc: (electronic)

Cheri Bahrke, Stoller  
Steve Donovan, Stoller  
Bev Gallagher, Stoller  
Lauren Goodknight, Stoller  
Rick Hutton, Stoller  
EDD Delivery

### Constituent Sampling Breakdown

Site	Central Nevada Test Area		Required Detection Limit (mg/L)	Analytical Method	Line Item Code	Laboratory	
	Groundwater	Surface Water				ALS	University of Arizona
<b>Analyte</b>							
<b>Approx. No. Samples/yr</b>	8	0					
<b>Field Measurements</b>							
Alkalinity							
Dissolved Oxygen	X						
Redox Potential	X						
pH	X						
Specific Conductance	X						
Turbidity	X						
Temperature	X						
<b>Laboratory Measurements</b>							
Aluminum							
Ammonia as N (NH3-N)							
Bromide							
Calcium							
Iron							
Iodine-129	X		NA	Spectrometry	LMR-17		X
Lead							
Magnesium							
Manganese							
Molybdenum							
Nitrate + Nitrite as N (NO3+NO2)-N							
Potassium							
Selenium							
Sodium							
Tritium	X		400 pCi/L	Liquid Scintillation	LSC-A-001		X
Tritium, enriched							
Uranium							
Vanadium							
Zinc							
<b>Total No. of Analytes</b>	2	0					

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

**Sampling Frequencies for Locations at  
Central Nevada Test Area, Nevada**

Location ID	Quarterly	Semiannually	Annually	Biennially	Not Sampled	Notes
<b>Monitor Wells</b>						
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			
Six Mile Well					X	
Twin Springs Ranch					X	
Tybo Well					X	
Hot Creek Ranch					X	
<b>Domestic Wells</b>						
Blue Jay Maint Statn					X	
Site C - Base Camp					X	
<b>Piezometers</b>						
MV-1LPZ					X	
MV-1UPZ					X	
MV-2LPZ					X	
MV-2UPZ					X	
MV-3LPZ					X	
MV-3UPZ					X	
MV-4PZ					X	
MV-5PZ					X	
HTH-1 UPZ					X	
HTH-1 LPZ					X	
<b>Surface Locations</b>						
Blue Jay Springs					X	

Sampling conducted in June

# **Attachment 4**

## **Trip Report**

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*Memorandum*

Control Number N/A

DATE: June 22, 2010  
 TO: Rick Findlay  
 FROM: Jeff Price  
 SUBJECT: Trip Report (LTHMP Sampling)

**Site:** Central Nevada Test Area (CNTA)

**Dates of Sampling Event:** June 7-10, 2010

**Team Members:** Kent Moe and Jeff Price (June); Rick Findlay and Rex Hodges (May)

**Number of Locations Sampled:** Six on-site monitoring wells.

**Locations Not Sampled/Reason:** HTH-2. The pump in this well would not run; after some discussion with a pump repair technician, it was deduced 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-1(ALS Lab)	Duplicate	Groundwater	IGU 232
2937	MV-1(UofA Lab)	Duplicate	Groundwater	IGU 240

**RIN Number Assigned:** Samples were assigned to RIN 10053073 (ALS); RIN 10053074 (UofA).

**Sample Shipment:** Samples were shipped on June 18, 2010.

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

Well ID	Date	Time	DTW (ft)	Comments
MV-1	6/8/10	11:30	506.43	Water access tube.
MV-1-UPZ	6/8/10	11:30	317.46	Piezometer tube
MV-1-LPZ	6/8/10	11:30	38.51	Piezometer tube
MV-2	6/8/10	10:40	348.42	Water access tube
MV-2-UPZ	6/8/10	10:40	405.95	Piezometer tube
MV-2-LPZ	6/8/10	10:40	375.65	Piezometer tube
MV-3	6/8/10	09:30	599.92	Water access tube

Well ID	Date	Time	DTW (ft)	Comments
MV-3-UPZ	6/8/10	09:30	372.51	Piezometer tube
MV-3-LPZ	6/8/10	09:30	187.58	Piezometer tube
HTH-1RC	6/8/10	12:00	501.90	Water access tube
HTH-1RC-UPZ	6/8/10	12:00	542.65	Piezometer tube
HTH-1RC-LPZ	6/8/10	12:00	540.91	Piezometer tube
HTH-2	6/8/10	12:30	556.18	Water access tube

DTW = Depth to Water (all measurements obtained from north top of casing)

Ft = Feet

ID = Identification

## Introduction

The 2010 LTHMP was conducted from May 22-26 by Rex Hodges and Rick Findlay, and June 7-10, 2010, by Kent Moe and Jeff Price. Samples were collected from MV-5 and UC-1-P-1SRC by Rex and Rick; MV-1, MV-2, MV-3, and HTH-1RC were collected by Kent and Jeff. All wells were sampled for tritium and iodine-129. The following table lists the bladder pump specifics.

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

(JP/lcg)

cc: (electronic)  
 Mark Kautsky, DOE  
 Cheri Bahrke, Stoller  
 Paul Darr, Stoller  
 Steve Donovan, Stoller  
 Jack Duray, Stoller  
 Rex Hodges, Stoller  
 EDD Delivery