

# Data Validation Package

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July 2009

Groundwater Sampling at the  
Lakeview, Oregon, Processing Site

November 2009



U.S. DEPARTMENT OF  
**ENERGY**

Legacy  
Management

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# Sampling Event Summary

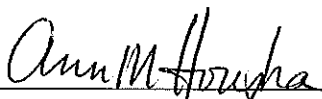
**Site:** Lakeview, Oregon, Processing Site

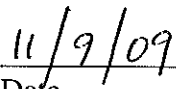
**Sampling Period:** July 11, 2009

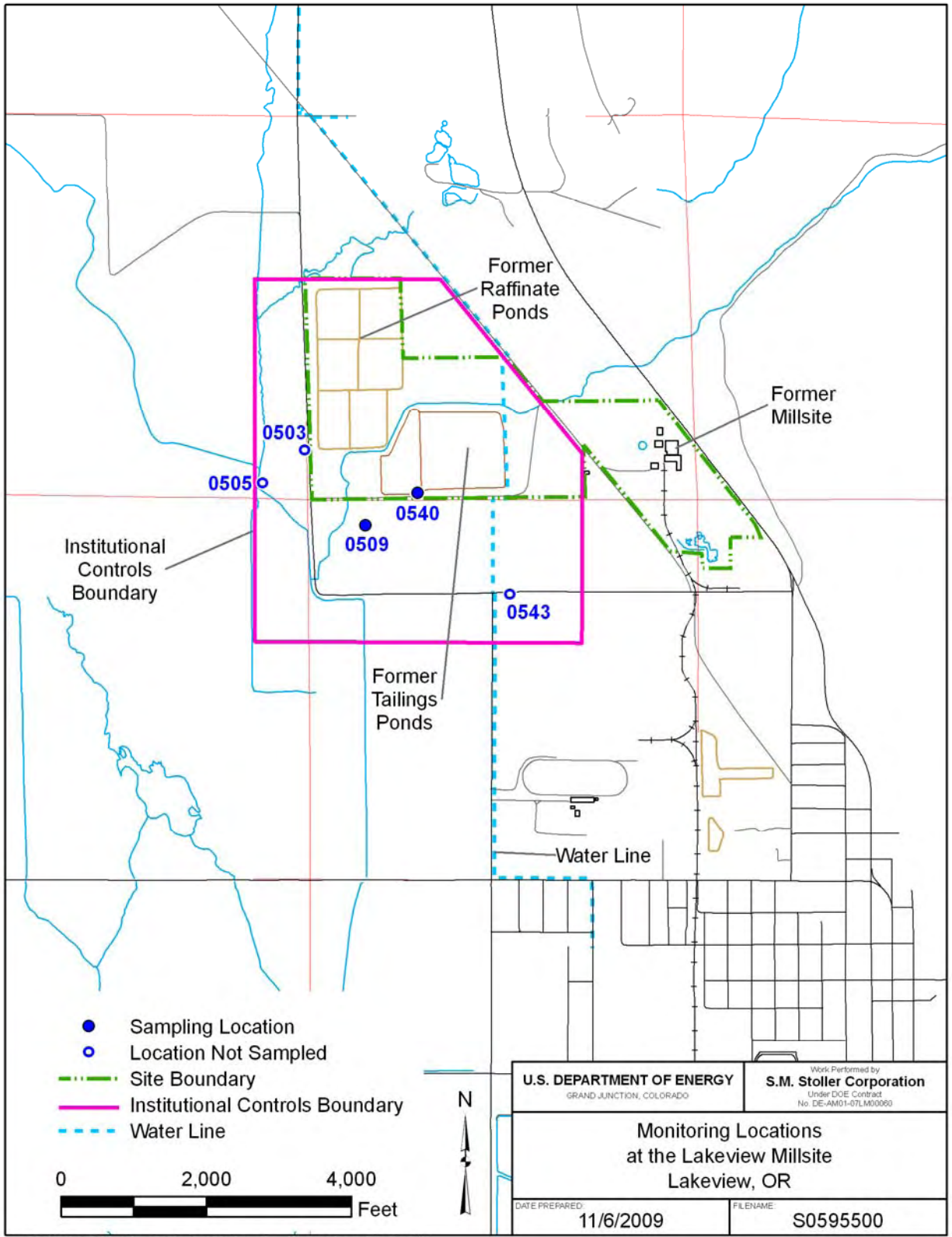
This event includes sampling groundwater locations 0509 and 0540 at the Lakeview, Oregon, Processing Site. Sampling and analysis for uranium was inadvertently omitted at these locations during the 2008 sampling event. Sampling is conducted every other year to monitor groundwater quality as a best management practice, as specified in the draft 2006 *Ground Water Compliance Action Plan for the Lakeview, Oregon, Processing Site*.

Sampling and analysis were conducted in accordance with the *Sampling and Analysis Plan for U.S. Department of Energy Office of Legacy Management Sites* (LMS/PLN/S04351, continually updated). One duplicate sample was collected from location 0509. Water levels were measured at each sampled well.

Uranium increased in well 0540 to slightly above the Uranium Mill Tailings Remedial Action standard in 2002. Concentrations of uranium in this well dropped to previous levels during the 2004 and 2006 sampling events and continue to decrease.

  
\_\_\_\_\_  
Ann Houska  
Site Lead, S.M. Stoller

  
\_\_\_\_\_  
Date



M:\LTS\11110067\01000\S05955\S0595500.mxd smitwh 11/6/2009 8:33:00 AM

*Lakeview, Oregon, Processing Site Sample Location Map*

# **Data Assessment Summary**

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### Water Sampling Field Activities Verification Checklist

<b>Project</b>	<u>Lakeview, Oregon, Processing Site</u>	<b>Date(s) of Water Sampling</b>	<u>July 11, 2009</u>
<b>Date(s) of Verification</b>	<u>October 20, 2009</u>	<b>Name of Verifier</b>	<u>Steve Donovan</u>

	<b>Response (Yes, No, NA)</b>	<b>Comments</b>
1. Is the SAP the primary document directing field procedures? List other documents, SOPs, instructions.	<u>Yes</u>	<u>Work Order Letter dated June 4, 2009.</u>
2. Were the sampling locations specified in the planning documents sampled?	<u>Yes</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 July 6, 2009.</u>
4. Was an operational check of the field equipment conducted daily? Did the operational checks meet criteria?	<u>Yes</u>	<u>An operational check was performed on July 11, 2009.</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>	<u>Both sampled wells were Category I.</u>
7. Were the following conditions met when purging a Category I well: Was one pump/tubing volume purged prior to sampling?	<u>Yes</u>	
Did the water level stabilize prior to sampling?	<u>Yes</u>	
Did pH, specific conductance, and turbidity measurements stabilize prior to sampling?	<u>Yes</u>	
Was the flow rate less than 500 mL/min?	<u>Yes</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?	NA	
Was one pump/tubing volume removed prior to sampling?	NA	
9. Were duplicates taken at a frequency of one per 20 samples?	Yes	A duplicate sample was collected at location 0509.
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 2613 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?	Yes	
20. Were water levels measured at the locations specified in the planning documents?	Yes	

## Laboratory Performance Assessment

### General Information

Report Number (RIN): 09062426  
Sample Event: July 11, 2009  
Site(s): Lakeview, Oregon, Processing Site  
Laboratory: ALS Laboratory Group, Fort Collins, Colorado  
Work Order No.: 0907126  
Analysis: Uranium  
Validator: Steve Donovan  
Review Date: September 9, 2009

This validation was performed according to the *Environmental Procedures Catalog* (LMS/PRO/S04325, continually updated), "Standard Practice for Validation of Laboratory Data," GT-9(P). 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
Uranium	LMM-02	SW-846 3005A	SW-846 6020A

### Sample Shipping/Receiving

ALS Laboratory Group in Fort Collins, Colorado, received three water samples on July 14, 2009, accompanied by a Chain of Custody (COC) form. The COC form was checked to confirm that all of the samples were listed on the forms and that signatures and dates were present indicating sample relinquishment and receipt. The sample submittal documents including the COC form, and the sample tickets had no errors or omissions. A copy of the air waybill label was included with the receiving documentation.

### Preservation and Holding Times

The sample shipment was received intact with the temperature inside the iced cooler at 1.2 °C, which complies with requirements. All samples were received in the correct container types and had been preserved correctly for the requested analyses and all samples were analyzed within the applicable holding times.

### Data Qualifier Summary

None of the analytical results required qualification.

## 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.

### *Method SW-846 6020A, Uranium*

Calibration was performed for uranium on July 20, 2009. The initial calibration was performed using seven calibration standards resulting in a calibration curve with a correlation coefficient value greater than 0.995. The absolute value of the curve intercept was less than 3 times the method detection limit (MDL). Calibration and laboratory spike standards were prepared from independent sources. Initial and continuing calibration verification checks were made at the required frequency resulting in 13 verification checks. All initial and continuing calibration verification results were within the acceptance range. Reporting limit verification checks were made at the required frequency to verify the linearity of the calibration curves near the practical quantitation limit. All check results were within the acceptance range. The mass calibration and resolution was checked at the beginning of each analytical run in accordance with the procedure. Internal standard recoveries were stable and within acceptance ranges.

## Method and Calibration Blanks

Method blanks are analyzed to assess any contamination that may have occurred during sample preparation. Calibration blanks are analyzed to assess instrument contamination prior to and during sample analysis. All method blank and initial and continuing calibration blank results were below the practical quantitation limits for all analytes. In cases where blank concentration exceeds the instrument detection limit, the associated sample results are qualified with a “U” flag (not detected) when the sample result is greater than the MDL but less than 5 times the blank concentration.

## Inductively Coupled Plasma (ICP) Interference Check Sample (ICS) Analysis

ICP interference check samples ICSA and ICSAB were analyzed at the required frequency to verify the instrumental interelement and background correction factors. All check sample results met the acceptance criteria.

## Matrix Spike Analysis

Matrix spike and matrix spike duplicate (MS/MSD) samples are used to measure method performance in the sample matrix. The MS/MSD data are not evaluated when the concentration of the unspiked sample is greater than 4 times the spike concentration. The spike recoveries met the recovery and precision criteria for all analytes evaluated.

### Laboratory Replicate Analysis

The relative percent difference values for the laboratory replicate sample results for all analytes were less than twenty percent, indicating acceptable laboratory precision.

### Laboratory Control Samples (LCS)

LCS were analyzed at the correct frequency to provide information on the accuracy of the analytical method and the overall laboratory performance, including sample preparation. The LCS results were acceptable for all analysis.

### Metals Serial Dilution

Serial dilutions were performed during the metals analysis to monitor physical or chemical interferences that may exist in the sample matrix. Serial dilutions were prepared and analyzed for uranium. The acceptance criteria was met.

### Detection Limits/Dilutions

Samples were diluted in a consistent and acceptable manner when required. The samples were diluted prior to analysis of uranium to reduce interferences. The required detection limit was achieved.

### Completeness

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

### Electronic Data Deliverable (EDD) File

The EDD file arrived on July 23, 2009. 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. 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: 09062426 Lab Code: PAR Validator: Steve Donovan Validation Date: 9/9/2009

Project: Lakeview Processing Site Analysis Type:  Metals  General Chem  Rad  Organics

# of Samples: 3 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**

**Metals Data Validation Worksheet**

RIN: 09062426

Lab Code: PAR

Date Due: 8/11/2009

Matrix: Water

Site Code: LKV01

Date Completed: 7/27/2009

Analyte	Date Analyzed	CALIBRATION						Method	LCS %R	MS %R	MSD %R	Dup. RPD	ICSAB %R	Serial Dil. %R	CRI %R
		Int.	R^2	ICV	CCV	ICB	CCB								
URANIUM	07/20/2009	0.0000	1.0000	OK	OK	OK	OK	OK	102.0	103.0	104.0	1.0	104.0		104.0

## **Sampling Quality Control Assessment**

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

### Sampling Protocol

Both monitor wells were purged and sampled using Category I criteria. Sample results were qualified with an “F” flag in the database indicating the wells were purged and sampled using the low-flow sampling method.

### Equipment Blank Assessment

An equipment blank was not required because both wells were sampled using the low-flow procedure with a peristaltic pump and dedicated tubing.

### 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 0509. The duplicate results met the U.S. Environmental Protection Agency recommended laboratory duplicate criteria of less than 20 percent relative difference for results that are greater than 5 times the practical quantitation limit demonstrating acceptable precision.



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

RIN: 09062426    Lab Code: PAR    Project: Lakeview Processing Site    Validation Date: 9/9/2009

Duplicate: 2613

Sample: 0509

Analyte	Sample			Duplicate			RPD	RER	Units
	Result	Flag	Error	Result	Flag	Error			
URANIUM	0.074	B		0.059	B		22.56		UG/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 11-4-2009  
Steve Donivan Date

Data Validation Lead: Steve Donivan 11-4-2009  
Steve Donivan 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 LKV01, Lakeview Processing Site**

REPORT DATE: 10/20/2009

Location: 0509 WELL

Parameter	Units	Sample Date	Sample ID	Depth Range (Ft BLS)		Result	Lab	Qualifiers Data	QA	Detection Limit	Uncertainty
Alkalinity, Total (As CaCO3)	mg/L	07/11/2009	N001	26.92	- 31.92	184		F	#		
Oxidation Reduction Potential	mV	07/11/2009	N001	26.92	- 31.92	137.5		F	#		
pH	s.u.	07/11/2009	N001	26.92	- 31.92	8.06		F	#		
Specific Conductance	umhos /cm	07/11/2009	N001	26.92	- 31.92	470		F	#		
Temperature	C	07/11/2009	N001	26.92	- 31.92	11.36		F	#		
Turbidity	NTU	07/11/2009	N001	26.92	- 31.92	3.48		F	#		
Uranium	mg/L	07/11/2009	N001	26.92	- 31.92	0.000074	B	F	#	0.0000045	
Uranium	mg/L	07/11/2009	N002	26.92	- 31.92	0.000059	B	F	#	0.0000045	

**Groundwater Quality Data by Location (USEE100) FOR SITE LKV01, Lakeview Processing Site**

REPORT DATE: 10/20/2009

Location: 0540 WELL

Parameter	Units	Sample Date	Sample ID	Depth Range (Ft BLS)			Result	Qualifiers		Detection Limit	Uncertainty
								Lab	Data QA		
Alkalinity, Total (As CaCO3)	mg/L	07/11/2009	0001	25.04	-	30.04	38	F	#		
Oxidation Reduction Potential	mV	07/11/2009	N001	25.04	-	30.04	104.8	F	#		
pH	s.u.	07/11/2009	N001	25.04	-	30.04	6.14	F	#		
Specific Conductance	umhos /cm	07/11/2009	N001	25.04	-	30.04	1256	F	#		
Temperature	C	07/11/2009	N001	25.04	-	30.04	13.98	F	#		
Turbidity	NTU	07/11/2009	N001	25.04	-	30.04	23.6	F	#		
Uranium	mg/L	07/11/2009	0001	25.04	-	30.04	0.0029	F	#	0.0000045	

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.
- 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.
- 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.

## **Static Water Level Data**

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**STATIC WATER LEVELS (USEE700) FOR SITE LKV01, Lakeview Processing Site**  
**REPORT DATE: 10/20/2009**

Location Code	Flow Code	Top of Casing Elevation (Ft)	Measurement Date	Measurement Time	Depth From Top of Casing (Ft)	Water Elevation (Ft)	Water Level Flag
0509	D	4742.14	07/11/2009	11:15:38	6.38	4735.76	
0540	D	4747.89	07/11/2009	12:05:52	8.52	4739.37	

FLOW CODES: B BACKGROUND      C CROSS GRADIENT      D DOWN GRADIENT      F OFF SITE  
                   N UNKNOWN            O ON SITE            U UPGRADIENT

WATER LEVEL FLAGS: D Dry      F FLOWING

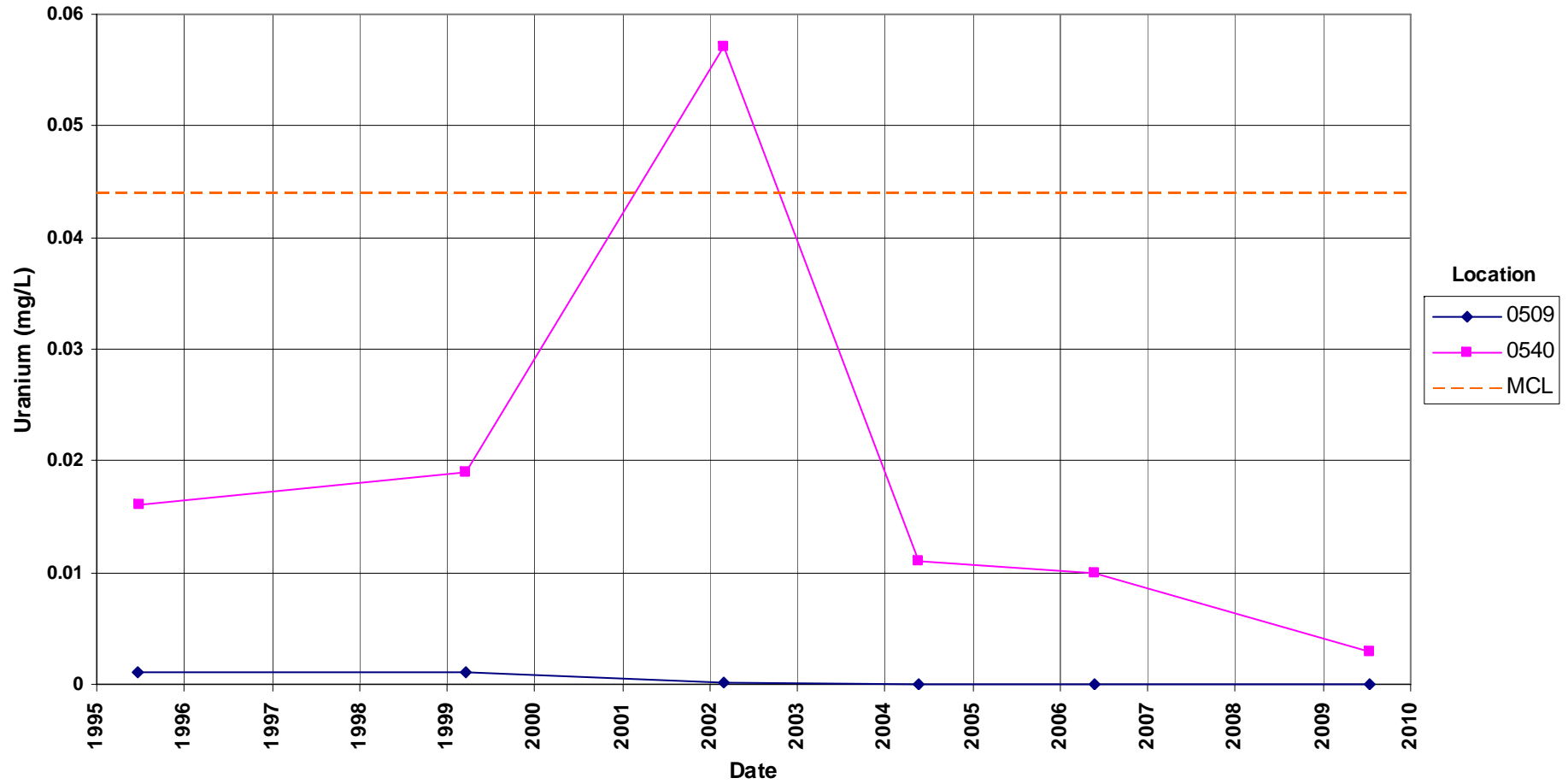
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## **Time-Concentration Graph**

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# Lakeview Processing Site Uranium Concentration

Maximum Concentration Limit (MCL) = 0.044 mg/L



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**Attachment 3**  
**Sampling and Analysis Work Order**

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established 1959

Task Order LM00-501  
Control Number 09-0656

June 4, 2009

U.S. Department of Energy  
Office of Legacy Management  
ATTN: Jalena Dayvault  
Site Manager  
2597 B ¾ Road  
Grand Junction, CO 81503

SUBJECT: Contract No. DE-AM01-07LM00060, Stoller  
July 2009 Environmental Sampling at Lakeview, Oregon

REFERENCE: Task Order LM-501-02-109-402, Lakeview, OR, Disposal Site

Dear Ms. Dayvault:

The purpose of this letter is to inform you of the upcoming sampling event at Lakeview, OR. Enclosed are the maps and tables specifying sample locations and analytes for groundwater monitoring at the Lakeview Disposal and Processing Sites. Water quality data will be collected at the Disposal Site as part of the routine environmental sampling currently scheduled to begin the week of July 6, 2009. Water quality data also will be collected for uranium analysis at the two well locations that were inadvertently missed during the May 2008 Processing Site groundwater monitoring event.

The following lists show the monitor wells (with zone of completion) scheduled to be sampled during this event.

**Monitor Wells\***

LKV01 Processing Site

509 Sp            540 Al

LKV02 Disposal Site

515 Sp            603 Al            605 Al            606 Cl            607 Al            608 Al            609 Cl  
602 Al            604 Al

\*NOTE: Al = alluvium; Cl = Lean Clays, Sandy Clays, or Gravelly Clays; Sp = Sand or Gravelly Sand, Poorly Graded

All samples will be collected as directed in the *Sampling and Analysis Plan for U.S. Department of Energy Office of Legacy Management Sites*. Additionally, although not typically done, water-level measurements will be collected at seven wells associated with the Disposal Site to obtain hydrogeological information. These wells include: 513, 514, 516, 520, 521, 522, and 523. No water quality samples will be collected from these wells.

Access agreements are being reviewed and are expected to be complete by the beginning of fieldwork.

Please call me at (970) 248-6579 if you have any questions.

Sincerely,

Ann Houska  
Site Lead

AH/lcg/lb

Enclosures (4)

cc: (electronic)

Cheri Bahrke, Stoller  
Steve Donovan, Stoller  
Bev Gallagher, Stoller  
Lauren Goodknight, Stoller  
Ann Houska, Stoller  
EDD Delivery

rc-grand.junction

### Constituent Sampling Breakdown

Site	Lakeview		Required Detection Limit (mg/L)	Analytical Method	Line Item Code
Analyte	Groundwater				
<b>Approx. No. Samples/yr</b>	5				
<i>Field Measurements</i>					
Alkalinity	X				
Dissolved Oxygen					
Redox Potential	X				
pH	X				
Specific Conductance	X				
Turbidity	X				
Temperature	X				
<i>Laboratory Measurements</i>		<i>Disposal Site</i>	<i>Processing Site</i>		
Aluminum					
Ammonia as N (NH3-N)					
Arsenic	X		0.0001	SW-846 6020	LMM-02
Cadmium	X		0.001	SW-846 6020	LMM-02
Calcium	X		5	SW-846 6010	LMM-01
Chloride	X		0.5	SW-846 9056	WCH-A-039
Gross Alpha					
Gross Beta					
Iron	X		0.05	SW-846 6020	LMM-02
Lead					
Magnesium	X		5	SW-846 6010	LMM-01
Manganese	X		0.005	SW-846 6010	LMM-01
Molybdenum					
Nickel					
Nickel-63					
Nitrate + Nitrite as N (NO3+NO2)-N					
Potassium	X		1	SW-846 6010	LMM-01
Radium-226					
Radium-228					
Selenium					
Silica	X		0.1	SW-846 6010	LMM-01
Sodium	X		1	SW-846 6010	LMM-01
Strontium					
Sulfate	X		0.5	SW-846 9056	MIS-A-044
Sulfide					
Total Dissolved Solids	X		10	SM2540 C	WCH-A-033
Total Organic Carbon					
Uranium	X	X	0.0001	SW-846 6020	LMM-02
Vanadium					
Zinc					
<b>Total No. of Analytes</b>	13	1			

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.

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# **Attachment 4 Trip Report**

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*Memorandum*

DATE: July 21, 2009  
 TO: Ann Houska  
 FROM: Gretchen Baer  
 SUBJECT: Trip Report

**Site:** Lakeview, Oregon, Disposal and Processing Sites

**Dates of Sampling Event:** July 10-11, 2009

**Team Members:** Gretchen Baer and David Atkinson

**Number of Locations Sampled:** At the Disposal Site (LKV02), five monitor wells were sampled for total dissolved solids, chloride, sulfate, arsenic, cadmium, calcium, iron, magnesium, manganese, potassium, silica, sodium, and uranium. Water levels at seven wells were also measured. At the Processing Site (LKV01), two monitor wells were sampled for uranium.

**Locations Not Sampled/Reason:** Wells 0602, 0603, 0604, and 0605 were not sampled because they were dry.

**Location Specific Information:**

Location IDs	Site	Comments
0509	LKV01	Well pad is undermined by several inches and the casing is loose. This does not yet appear to negatively affect the water or the ability to sample. This condition was also observed at the nearby well <b>0510</b> , which was not scheduled for sampling.
0540	LKV01	Turbidity criteria were not met in this Cat I well. Sample was filtered.
0602, 0603, 0604, 0605	LKV02	Dry at 110 ft, 112 ft, 102 ft, and 102 ft, respectively.
0606	LKV02	Installed a dedicated 2-ft PVC pump on 7/10/09. Intake = 143 ft. Returned ~4 hours later to sample.
0609	LKV02	A small brass fitting was inadvertently dropped into the well during sampling.

**Quality Control Sample Cross Reference:** The following are the false identifications assigned to the quality control samples.

False ID	Ticket Number	True ID	Sample Type	Associated Matrix
2793	HHU 960	0608	Disposal Site Duplicate	Groundwater
2613	HHU 970	0509	Processing Site Duplicate	Groundwater

**Report Identification Number (RIN) Assigned:** Disposal Site samples were assigned to RIN 09062422 and Processing Site samples were assigned to RIN 09062426.

**Sample Shipment:** Samples were shipped overnight by FedEx to ALS Laboratory Group, Fort Collins, Colorado, from Grand Junction on July 13, 2009.

**Water Level Measurements:** Water levels were collected in all sampled wells and in seven additional wells at the Disposal Site (0513, 0514, 0516, 0520, 0521, 0522, and 0523).

**Well Inspection Summary:** Inspections were conducted at all sampled wells. All wells were in good condition, with the exception that wells 0509 and 0510 have well pads that are undermined, as noted above in Location Specific Information.

**Field Variance:** All times recorded during this event, including those for all water levels, are MDT.

**Equipment:** All wells were sampled using the low-flow procedure with either a peristaltic pump and dedicated tubing or a dedicated bladder pump. Water level measurements were recorded on the hand-held PDA at the seven water-level-only locations.

### **Institutional Controls**

**Fences, Gates, Locks:** The gates used to access the disposal cell were kept closed and locked during and after sampling. At the landowner's gate, the 3359 key worked on a lock; the combination 3-2-5-9 also opened another of the locks.

**Signs:** OK

**Trespassing/Site Disturbances:** None observed.

**Site Issues:** Cell phone service (Verizon) was available at the site.

**Disposal Cell/Drainage Structure Integrity:** No issues observed.

**Vegetation/Noxious Weed Concerns:** None observed.

**Maintenance Requirements:** None observed.

**Safety Issues:** None.

**Access Issues:** In previous sampling events, access to the two Processing Site wells was impeded by water in the ditches; all ditches were dry for this event. Samplers contacted the landowner at the Disposal Site (Mr. Byers, 541-260-0458) to let him know when sampling would be concluded.

**Corrective Action Required/Taken:** None.

### **Notes for Future Sampling Events:**

- Small-diameter tubing (used to push out stagnant water above ground level) should be left at the Disposal Site bladder pump wells.
- A bailer should be available in case wells 0602, 0603, 0604, or 0605 have water.



(GRB/lcg)

cc: (electronic)  
Jalena Dayvault, DOE  
Cheri Bahrke, Stoller  
Steve Donovan, Stoller  
EDD Delivery

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