WM-60

Department of Energy
Office of Legacy Management

NOV 1 7 2005

Mr. Don Aragon, Director
Wind River Environmental Quality Commission
Shoshone-Arapaho Tribes
P.O. Box 217
Ft. Washakie, WY 82514

Subject: Data Validation Package for Riverton, Wyoming, Processing Site

Dear Mr. Aragon:

Enclosed is a copy of the Data Validation Package (DVP) for the Riverton, Wyoming, processing site. This DVP represents analyses of ground water and surface water samples that were collected in June 2005.

This event involved sampling 17 monitor wells, 9 surface water locations, and 9 domestic wells at the Riverton, Wyoming, Processing site. Sampling and analysis was conducted as specified in the *Ground Water and Surface Water Sampling and Analysis Plan for the U. S. Department of Energy Office of Legacy Management Sites* (April 2005)

Results from this sampling event do not indicate any unexpected movement of contaminated ground water. Concentrations of molybdenum and uranium in samples collected from semi-confined aquifer monitor wells and confined aquifer domestic wells were below their respective Uranium Mill Tailings Remedial Action (UMTRA) ground water standard. Although concentrations of molybdenum and uranium in the surficial aquifer currently exceed their respective UMTRA ground water standard, concentrations continue to trend downward as shown in the time versus concentration graphs, which are included in the Data Presentation section. Ground water modeling predicts that natural flushing of the surficial aquifer will reduce concentrations below standards within 100 years. The Environmental Protection Agency ground water standards for molybdenum and uranium were exceeded in samples collected from surficial aquifer monitor wells listed in Table 1.

Surface water results were compared to benchmark values for molybdenum (0.01 milligrams per liter [mg/L]) and uranium (0.012 mg/L) derived from historical data at surface water location 0794, which is on the Little Wind River upstream of the site and represents background conditions (see sample location map). Molybdenum and uranium concentrations from Little Wind River locations 0796, 0811, and 0812 were below their respective benchmark value, which indicates minimal site-related impact on the water quality of the Little Wind River. In addition, molybdenum and uranium concentrations from surface water locations 0810 (constructed wetlands), 0822 (west side irrigation ditch), and 0823 (gravel pit pond) were below their respective benchmark values, which indicate minimal site-related impact to these surface water features.

NOV 1 7 2005

The benchmark value for uranium was exceeded in the samples collected from the Oxbow Lake (location 0747). Although the Oxbow Lake receives discharge of contaminated ground water and elevated concentrations are expected, analyte concentrations in the sample collected from the Oxbow Lake were considerably lower than historical results. Lower concentrations in the Oxbow Lake are attributed to dilution caused by flow of the Little Wind River into the Oxbow Lake during high river stage at the time of sampling. The sample collected at the ditch that discharges from the Peak Sulfur plant (0749) had elevated concentrations of sulfate (2,400 mg/L). The elevated sulfate concentration from the Peak Sulfur ditch has affected the sulfate concentration downstream in the west side irrigation ditch (1,100 mg/L at location 0822).

Water level data collected from this event show that the ground water in the surficial aquifer at the Riverton site continues to flow to the southeast.

Should you have any questions, please contact me at (970) 248-6197.

Sincerely,

Tracy B. Plessinger
Site Manager

Enclosure

cc w/enclosure:
J. Arum, Ziontz, Chestnut, Varnell, Berley, and Slonim
B. Crocker, Baldwin and Crocker
J. Erickson, Department of Environmental Quality/Wyoming
J. Redman, Northern Arapaho Utility Organization
W. Von Till, Nuclear Regulatory Commission
Riverton Branch Library

cc w/o enclosure:
S. Campbell, Stoller
Project File RVT 410.02 (D. Roberts)

tbp/riverton/rivdvp.doc

DOE-LM/GJ961-2005

Data Validation Package

June 2005 Surface Water and Ground Water Sampling at the Riverton, Wyoming, Processing Site

September 2005

U.S. Department of Energy
Office of Legacy Management

Work Performed by the S.M. Stoller Corporation under DOE Contract No. DE–AC01–02GJ79491 for the U.S. Department of Energy Office of Legacy Management.

Contents

Sampling Event Summary

Site: Riverton, Wyoming, Processing Site

Sampling Period: June 13-17, 2005

The *Long-Term Management Plan* (LTMP) *for the Riverton, Wyoming, Processing Site* (in progress) requires semiannual monitoring to evaluate contaminant plume movement and assess the progress of the natural flushing compliance strategy. This event involved sampling 17 monitor wells, 9 surface water locations, and 9 domestic wells at the Riverton, Wyoming, Processing Site. Water levels were measured at all sampled monitor wells and 20 additional monitor wells that were not sampled; water level data also was downloaded from data loggers at four monitor wells. Sampling and analysis was conducted as specified in LTMP and the *Ground Water and Surface Water Sampling and Analysis Plan for the U. S. Department of Energy Office of Legacy Management Sites* (April 2005)

Results from this sampling event do not indicate any unexpected movement of contaminated ground water. Concentrations of molybdenum and uranium in samples collected from semi-confined aquifer monitor wells and confined aquifer domestic wells were below their respective Uranium Mill Tailings Remedial Action (UMTRA) ground water standard. Although concentrations of molybdenum and uranium in the surficial aquifer currently exceed their respective UMTRA ground water standard, concentrations continue to trend downward as shown in the time versus concentration graphs, which are included in the Data Presentation section. Ground water modeling predicts that natural flushing of the surficial aquifer will reduce concentrations below standards within 100 years. EPA ground water standards for molybdenum and uranium were exceeded in samples collected from surficial aquifer monitor wells listed in Table 1.

Surface water results were compared to benchmark values for molybdenum (0.01 milligrams per liter [mg/L]) and uranium (0.012 mg/L) derived from historical data at surface water location 0794, which is on the Little Wind River upstream of the site and represents background conditions (see sample location map). Molybdenum and uranium concentrations from Little Wind River locations 0796, 0811, and 0812 were below their respective benchmark value, which indicates minimal site-related impact on the water quality of the Little Wind River. In addition, molybdenum and uranium concentrations from surface water locations 0810 (constructed wetlands), 0822 (west side irrigation ditch), and 0823 (gravel pit pond) were below their respective benchmark values, which indicate minimal site-related impact to these surface water features.

The benchmark value for uranium was exceeded in the samples collected from the oxbow lake (location 0747). Although the oxbow lake receives discharge of contaminated ground water and elevated concentrations are expected, analyte concentrations in the sample collected from the oxbow lake were considerably lower than historical results. Lower concentrations in the oxbow lake are attributed to dilution caused by flow of the Little Wind River into the oxbow lake during high river stage at the time of sampling. The sample collected at the ditch that discharges from

the Peak Sulfur plant (0749) had elevated concentrations of sulfate (2,400 mg/L). The elevated sulfate concentration from the Peak Sulfur ditch has affected the sulfate concentration downstream in the west side irrigation ditch (1,100 mg/L at location 0822).

Water level data collected from this event show that the ground water in the surficial aquifer at the Riverton site continues to flow to the southeast.

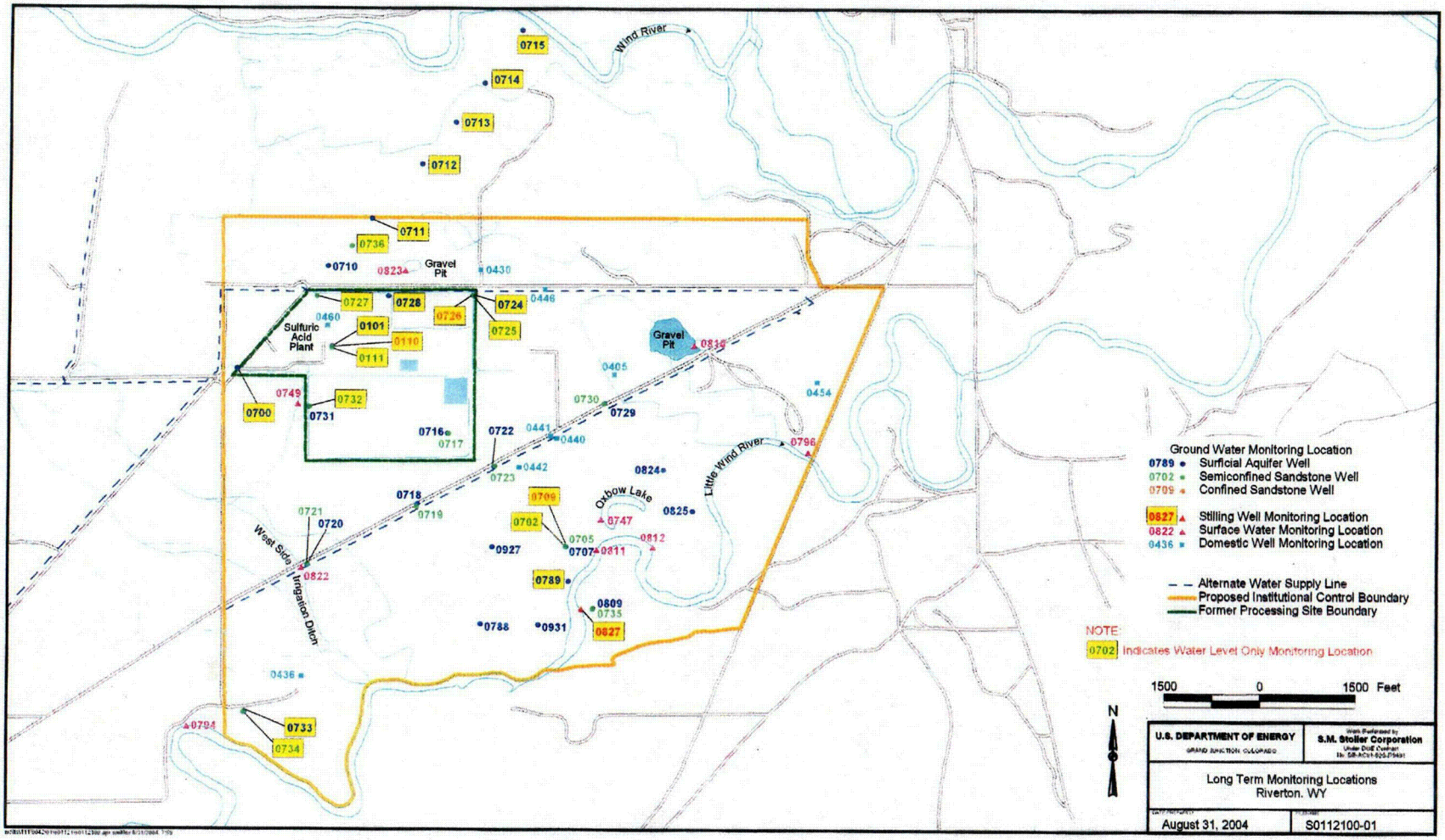
Table 1. Riverton Wells with Samples that Exceeded UMTRA Groundwater Standards in June 2005

Analyte	Standard[a]	Location	Concentration
Molybdenum	0.1	0707	0.72
		0716	0.19
Uranium	0.044	0707	0.88
		0716	0.24
		0718	0.22
		0722	0.77

[a]Standards are listed in 40 CFR 192.02 Table 1 to Subpart A; concentrations are in mg/L.

Sam Campbell
Site Lead, S.M. Stoller

9-20-05
Date



Sample Locations, Riverton, Wyoming, Site

C-01

Data Assessment Summary

Water Sampling Field Activities Verification Checklist

Project	Riverton, Wyoming	**Date(s) of Water Sampling**	June 13-17, 2005
Date(s) of Verification	September 2, 2005	**Name of Verifier**	Steve Donivan

	Response (Yes, No, NA)	Comments
1. Is the SAP the primary document directing field procedures?	Yes	
List other documents, SOP's, instructions.		Work Order Letter dated May 11, 2005
2. Were the sampling locations specified in the planning documents sampled?	Yes	Except monitor wells 0824 and 0825 have not yet been installed. Monitor wells 0927 and 0931 no longer exist. Domestic wells 0440 and 0441 were not sampled because owner permission was not obtained. Domestic well 0442 was not sampled because the residence is connected to the alternate water supply system.
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 twice daily?	Yes	The conductivity probe failed the operational check on the morning June 15, 2005. The probe was not recalibrated as required by procedure because there was no fresh calibration solution available. The probe met the operational check in the afternoon and for the rest of the event; therefore, the operational check failure is attributed to a compromised calibration solution and the specific conductance data is considered acceptable.
Did the operational checks meet criteria?	Yes	
5. Were the number and types (alkalinity, temperature, Ec, 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?	Yes	
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:		
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	
10. Were equipment blanks taken at a frequency of one per 20 samples that were collected with nondedicated equipment?	Yes	
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?	Yes	
13. Were samples collected in the containers specified?	Yes	
14. Were samples filtered and preserved as specified?	Yes	Samples with turbidity <10 NTU were not filtered
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?	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):	05050195
Sample Event:	June 14-17, 2005
Site(s):	Riverton, Wyoming
Laboratory:	Paragon Analytics
Work Order No.:	0506175
Analysis:	Metals and Radiochemistry
Validator:	Steve Donivan
Review Date:	August 22, 2005

This validation was performed according to the *Environmental Procedures Catalog* (STO 6), "Standard Practice for Validation of Laboratory Data," GT-9(P) (2004). 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 2.

Table 2. Analytes and Methods

Analyte	Line Item Code	Prep Method	Analytical Method
Manganese, Mn	GJO-17	SW-846 3005A	SW-846 6010B
Molybdenum, Mo	GJO-15	SW-846 3005A	SW-846 6020A
Radium-226	ASP-A-016	EPA 903.1(m)	EPA 903.1(m)
Radium-228	GPC-A-020	SW-846 9320	SW-846 9320
Sulfate, SO4	MIS-A-044	SW-846 9056	SW-846 9056
Uranium, U	GJO-01	SW-846 3005A	SW-846 6020A

Data Qualifier Summary

Analytical results were qualified as listed in Table 3. Refer to the sections below for an explanation of the data qualifiers applied.

Table 3. Data Qualifier Summary

Sample Number	Location	Analyte(s)	Flag	Reason
0506175-1	0454	Mo	J	CRI failure
0506175-1	0454	U	U	Less than 5 times the cal. blank
0506175-2	0796	Mo	J	CRI failure
0506175-3	0735	Mo	J	CRI failure
0506175-3	0735	U	U	Less than 5 times the cal. blank
0506175-4	0809	Mo	J	CRI failure
0506175-5	0951	Mn	U	Less than 5 times the cal. blank
0506175-5	0951	Mo	J	CRI failure

Table 3 (continued). Data Qualifier Summary

Sample Number	Location	Analyte(s)	Flag	Reason
0506175-5	0951	U	U	Less than 5 times the cal. blank
0506175-6	0720	Mo	J	CRI failure
0506175-7	0721	Mn	U	Less than 5 times the cal. blank
0506175-7	0721	Mo	J	CRI failure
0506175-7	0721	U	U	Less than 5 times the cal. blank
0506175-8	0822	Mo	J	CRI failure
0506175-9	0794	Mo	U	Less than 5 times the cal. blank
0506175-10	0436	Mo	J	CRI failure
0506175-10	0436	U	U	Less than 5 times the cal. blank
0506175-11	0828	Mo	J	CRI failure
0506175-11	0828	U	U	Less than 5 times the cal. blank
0506175-12	2569 (0828 Dup)	Mo	J	CRI failure
0506175-12	2569 (0828 Dup)	U	U	Less than 5 times the cal. blank
0506175-13	0710	Mo	J	CRI failure
0506175-14	0810	Mo	U	Less than 5 times the cal. blank
0506175-15	0812	Mo	U	Less than 5 times the cal. blank
0506175-16	0422	Mn	U	Less than 5 times the cal. blank
0506175-16	0422	Mo	U	Less than 5 times the cal. blank
0506175-18	0460	Mn	U	Less than 5 times the cal. blank
0506175-18	0460	Mo	J	CRI failure
0506175-18	0460	U	U	Less than 5 times the cal. blank
0506175-19	0405	Mn	U	Less than 5 times the cal. blank
0506175-19	0405	Mo	J	CRI failure
0506175-19	0405	U	U	Less than 5 times the cal. blank
0506175-20	0729	Mn	U	Less than 5 times the cal. blank
0506175-20	0729	Mo	J	CRI failure
0506175-21	0730	Mo	U	Less than 5 times the cal. blank
0506175-24	0430	Mn	U	Less than 5 times the cal. blank
0506175-24	0430	Mo	J	CRI failure
0506175-24	0430	U	U	Less than 5 times the cal. blank
0506175-25	0811	Mo	U	Less than 5 times the cal. blank
0506175-26	0705	Mn	U	Less than 5 times the cal. blank
0506175-26	0705	Mo	J	CRI failure
0506175-26	0705	U	U	Less than 5 times the cal. blank
0506175-29	2571 (Equip Blank)	Mn	U	Less than 5 times the cal. blank
0506175-29	2571 (Equip Blank)	Mo	U	Less than 5 times the cal. blank
0506175-29	2571 (Equip Blank)	U	U	Less than 5 times the cal. blank
0506175-33	0723	Mo	U	Less than 5 times the cal. blank
0506175-33	0723	U	U	Less than 5 times the cal. blank
0506175-34	0749	U	U	Less than 5 times the cal. blank
0506175-35	0446	Mn	U	Less than 5 times the cal. blank
0506175-35	0446	Mo	J	CRI failure
0506175-35	0446	U	U	Less than 5 times the cal. blank
0506175-37	0717	U	U	Less than 5 times the cal. blank
0506175-39	2572 (Equip Blank)	Mo	U	Less than 5 times the cal. blank
0506175-39	2572 (Equip Blank)	U	U	Less than 5 times the cal. blank

Sample Shipping/Receiving

Paragon Analytics in Fort Collins, Colorado, received 39 water samples on June 21, 2005, accompanied by a Chain of Custody (COC) form. The COC form was checked to confirm that all of the samples were listed on the form with sample collection dates and times, and that signatures and dates were present indicating sample relinquishment and receipt.

The relinquishment date on the COC form was entered as June 20, 2004 rather than June 20, 2005. The sample submittal documents including the COC form, the Sample Submittal form, and the sample tickets had no other errors or omissions.

Preservation and Holding Times

The sample shipment was received cool and intact with the temperature within the iced cooler of 2.4 °C, which complies with requirements. Samples from locations 0747, 0794, 0796, 0811, 0812, and 0823 were filtered after collection. All other samples were submitted unfiltered. 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.

Laboratory Instrument Calibration

All laboratory instrument calibrations were performed correctly in accordance with the cited methods.

Method SW-846 6020A

Calibrations for molybdenum and uranium were performed on July 13, 2005. The initial calibrations were performed using six calibration standards resulting in calibration curves with correlation coefficient (r^2) values greater than 0.995. The absolute values of the intercept of the calibration curves were less than 3 times the method detection limit (MDL). Calibration and laboratory spike standards were prepared from independent sources. Initial and continuing calibration verification (CCV) checks were made at the required frequency resulting in nine CCVs. All calibration checks met the acceptance criteria with the exception of molybdenum CCV1. There were no sample results associated with this CCV. A reporting limit verification check (CRI) was made at the required frequency to verify the linearity of the calibration curve near the practical quantitation limit. The CRI results met the acceptance criteria with the exception of molybdenum. Results for molybdenum that are less than 5 times the reporting limit are qualified with a "J" flag (estimated). 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 SW-846 9056

Initial calibrations were performed for sulfate using five calibration standards on June 6, 2005. The calibration curve r^2 values were greater than 0.995 and intercepts less than 3 times the MDL.

Initial calibration and calibration check standards were prepared from independent sources. Initial and continuing calibration verification checks were made at the required frequency resulting in six CCVs. All calibration checks met the acceptance criteria.

Method SW-846 6010B

Calibration for manganese was performed on June 30, 2005, using three calibration standards resulting in calibration curve correlation coefficient (r^2) values greater than 0.995. The absolute values of the calibration curve intercepts were less than 3 times the MDL. Calibration and laboratory spike standards were prepared from independent sources. Initial and CCV checks were made at the required frequency resulting in nine CCVs. All calibration checks met the acceptance criteria. Reporting limit verification checks were made at the beginning and end of the analytical sequence to verify the linearity of the calibration curve near the practical quantitation limit and all results were within the acceptance range.

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 3 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 two sigma total propagated uncertainty (TPU).

Radium-226

Emanation cell plateau voltage determinations were performed on May 31, 2005, and cell efficiency calibrations were performed on May 26, 2005. Daily efficiency calibration and background checks were performed on July 8, 2005. All calibration data met the acceptance criteria. All chemical tracer recoveries were within the acceptance criteria.

Radium-228

Plateau voltage determinations were performed on February 2, 2005, and detector efficiency calibrations were performed on February 10, 2005. Daily efficiency calibration and background checks were performed on July 5, 2005. All calibration data met the acceptance criteria. All chemical tracer recoveries were within the acceptance criteria.

Method and Calibration Blanks

All method blanks, initial, and continuing calibration blank results were below the practical quantitation limits for manganese, molybdenum, sulfate, and uranium with the exception of CCB1 for molybdenum. There were no sample results associated with this CCB. In cases where blank concentration exceeded 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.

The radium-226 and radium-228 method blank results were below the minimum detectable 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 samples (MS/MSD) were analyzed for manganese, molybdenum, sulfate, and uranium as a measure of method performance in the sample matrix. The MS/MSD analyses resulted in acceptable recovery and precision for all analytes.

Laboratory Replicate Analysis

The laboratory replicate sample results demonstrate acceptable laboratory precision. The relative percent difference (RPD) values for the laboratory replicate samples and matrix spike duplicate sample results for non-radiochemical analytes were less than 20 percent. The radiochemical relative error ratio for all laboratory replicate samples was less than three.

Laboratory Control Sample

Laboratory control samples (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 categories.

Metals Serial Dilution

Serial dilutions were prepared and analyzed for manganese, molybdenum, and uranium to monitor chemical or physical interferences in the sample matrix. All of the serial dilution results met the acceptance criteria.

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 limits were met for all analytes.

Completeness

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

Chromatography Peak Integration

The integration of analyte peaks was reviewed for all ion chromatography data. There were no manual integrations performed and all peak integrations were satisfactory.

Electronic Data Deliverable (EDD) File

The revised EDD file arrived on July 21, 2005, and the data loaded into SEEPro on August 31, 2005. 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.

General Data Validation Worksheet

RIN: 05050195 Lab Code: PAR Validator: Steve Donivan Validation Date: 8/22/2005

Site: RIVERTON Analysis Type: ☑ Metals ☐ General Chem ☑ Rad ☐ Oraganics

# of Samples: 39 Matrix: WATER Requested Analysis Completed: Yes

Chain of Custody
Present: OK Signed: OK Dated: OK

Sample
Integrity: OK Preservation: OK Temperature: OK

Exceptions

Method	Analyte	Location	Ticket	Collection Date	Preparation Date	Analysis Date	Dilution Factor	Holding Time Met	Detection Limit Met
SOP724R8	Ra-228	0822	NDX 839	06/14/2005	06/27/2005	07/05/2005	1	Yes	No

Comments:

All samples were analyzed within the applicable holding times.

GRAND JUNCTION SITE

Metals Data Validation Worksheet

RIN: 05050195 Lab Code: PAR Date Due: 7/19/2005

Matrix: Water Site Code: RVT Date Completed: 7/22/2005

Analyte	Date Analyzed	CALIBRATION						Method Blank	LCS %R	MS %R	MSD %R	MS/MSD RPD	ICSAB %R	Serial Dil. %R	CRI %R
		Int.	R^2	ICV	CCV	ICB	CCB								
Manganese	06/30/2005	0 0000	1 0000	OK	OK	OK	OK	OK	100 0	104.0	105.0	1.0	91 0	2.0	100 0
Manganese	06/30/2005							OK	102.0	75.0	100.0	7.0	92 0		103.0
Manganese	06/30/2005												91.0		103.0
Molybdenum	07/13/2005	0.0000	1.0000	OK	OK	OK	OK	OK	98.0	102.0	102.0	1 0	119.0		103.0
Molybdenum	07/13/2005							OK	97.0	87.0	85 0	1 0			
Uranium	07/13/2005	0 0010	0 9999	OK	OK	OK	OK	OK	102 0	110.0	108.0	2.0	108.0		94.7
Uranium	07/13/2005							OK	103.0	104.0	98 0	2.0			

Comments: _____

GRAND JUNCTION SITE

Inorganics Data Validation Worksheet

RIN: 05050195 **Lab Code:** PAR **Date Due:** 7/19/2005

Matrix: Water **Site Code:** RVT **Date Completed:** 7/22/2005

Analyte	Date Analyzed	CALIBRATION						Method Blank	LCS %R	MS %R	MSD %R	DUP RPD	Serial Dil. %R
		Int.	R^2	ICV	CCV	ICB	CCB						
Sulfate	06/24/2005	0.196	0.9999	OK	OK	OK	OK	OK	101.0	99.0	100.0	1.00	
Sulfate	06/24/2005							OK	96.0	101.0	99.0	1.00	

Comments: _____

GRAND JUNCTION SITE
Radiochemistry Data Validation Worksheet

RIN: 05050195 **Lab Code:** PAR **Date Due:** 7/19/2005

Matrix: Water **Site Code:** RVT **Date Completed:** 7/22/2005

Sample	Analyte	Date Analyzed	Result	Flag	Tracer %R	LCS %R	MS %R	Duplicate
0822	Radium-228	07/05/2005			66.1			
0822	Radium-226	07/08/2005			70.9			
LCS	Radium-228	07/05/2005			78.4	78.8		
LCS	Radium-226	07/08/2005			95.0	98.6		
LCSD	Radium-228	07/05/2005			69.8	80.9		0.12
LCSD	Radium-226	07/08/2005			97.9	103.0		0.23
Method Blank	Radium-228	07/05/2005	0.6660	U	67.4			
Method Blank	Radium-226	07/08/2005	-0.0935	U	93.9			

Comments: _____

GRAND JUNCTION SITE
Radiochemistry Data Validation Worksheet

RIN: 05050195 **Lab Code:** PAR **Date Due:** 7/19/2005

Matrix: Water **Site Code:** RVT **Date Completed:** 7/22/2005

Sample	Analyte	Date Analyzed	Result	Flag	Tracer %R	LCS %R	MS %R	Duplicate
0822	Radium-228	07/05/2005			66.1			
0822	Radium-226	07/08/2005			70.9			
LCS	Radium-228	07/05/2005			78.4	78.8		
LCS	Radium-226	07/08/2005			95.0	98.6		
LCSD	Radium-228	07/05/2005			69.8	80.9		0.12
LCSD	Radium-226	07/08/2005			97.9	103.0		0.23
Method Blank	Radium-228	07/05/2005	0.6660	U	67.4			
Method Blank	Radium-226	07/08/2005	-0.0935	U	93.9			

Comments: _____

Sampling Quality Control Assessment

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

Sampling Protocol

Results from all monitor wells were qualified with an "F" flag in the database indicating that the wells were purged and sampled using the low-flow method.

The drawdown specification in the low-flow procedure was not obtained at wells 0705, 0719, 0730, and 0731 because of the low yield of these wells. Therefore, results from these wells were qualified with a "Q" flag in the database indicating that the data is qualitative because of the sampling technique.

Equipment Blank Assessment

Two equipment blanks were collected for the locations sampled using non-dedicated equipment. The equipment blanks were analyzed for the same constituents as the Riverton environmental samples. Analyte concentrations in the equipment blanks were below their respective detection limit and are acceptable.

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. Duplicate samples were collected from wells 0707 and 0828. The duplicate results met the EPA recommended laboratory duplicate criteria of having an RPD of less than 20 percent for results that are greater than 5 times the practical quantitation limit and are acceptable.

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: 9-2-05

Data Validation Lead: Steve Donivan — Date: 9-2-05

Attachment 1
Assessment of Anomalous Data

Minimums and Maximums Report

Minimums and Maximums Report

The Minimums and Maximums Report is generated by a data validation application (DataVal) used to query the SEEPro database. DataVal compares the new data set with historical data and lists all new data that fall outside the historical data range. Values listed in the report are further screened using the following criteria. Results are considered valid if (1) identified low concentrations are the result of low detection limits; (2) the concentration detected is within 50 percent of historical minimum or maximum values; (3) there were fewer than 5 historical samples for comparison.

Several results listed on the Minimums and Maximums Report did not meet these criteria and are listed on the Anomalous Data Review Checksheet. All other results met the criteria and no additional action is required. Two of the results listed on the checksheet will be compared to the results from the next sampling event to make a final determination of validity. The anomalously low sulfate result from location 0747 is attributed to dilution caused by the Little Wind River flowing into the Oxbow Lake; therefore, this result is considered to be acceptable with no follow-up action required.

The manganese concentration at locations 0720 and 0722; sulfate concentration at location 0720; and uranium concentrations at locations 0722 and 0729 that had been previously noted as anomalously low returned to values between the historical low and high values.

Anomalous Data Review Checksheet

Anomalous Data Review Checksheet

Site: Riverton, Wyoming, Processing Site **Sampling Data:** Ground water/Surface Water

Reviewer:	Steve Donivan	Steve Donivan	9-2-05
	Name (print)	Signature	Date
Site Hydrologist:	Sam Campbell	Sam Campbell	9-2-05
	Name (print)	Signature	Date

Date of Review: September 2, 2005

Loc. No.	Analyte	Type of Anomaly	Disposition
0747	Sulfate	Low	Acceptable. No follow-up required.
0788	Manganese	High	Compare to results from the next sampling event

Data Validation Minimums and Maximums Report - No Field Parameters
Laboratory: PARAGON (Fort Collins, CO)
RIN: 05050195
Comparison: All Historical Data
Report Date: 9/2/2005

				Current			Historical Maximum			Historical Minimum			Count	
					Qualifiers			Qualifiers			Qualifiers			
Site Code	Location Code	Sample Date	Analyte	Result	Lab	Data	Result	Lab	Data	Result	Lab	Data	N	N Below Detect
RVT01	0430	6/15/2005	Sulfate	180			212			185			11	0
RVT01	0436	6/14/2005	Manganese	0.012			0.01	U		0.002	B		6	5
RVT01	0705	6/16/2005	Manganese	0.00063	B	UFQ	0.02		GF	0.00066	B	QF	26	14
RVT01	0710	6/14/2005	Manganese	0.3		F	0.2			0.00023	B	UF	19	13
RVT01	0716	6/17/2005	Sulfate	420		F	850			423	N	J	13	0
RVT01	0716	6/17/2005	Uranium	0.24		F	0.718			0.31		F	14	0
RVT01	0717	6/17/2005	Manganese	0.089		F	0.24		F	0.16		F	13	0
RVT01	0717	6/17/2005	Molybdenum	0.0068		F	0.0106	N	J	0.0078		F	13	4
RVT01	0719	6/15/2005	Molybdenum	0.013		FQ	0.04		F	0.014		QF	13	0
RVT01	0730	6/15/2005	Manganese	0.12		FQ	0.11			0.04			6	0
RVT01	0730	6/15/2005	Sulfate	170		FQ	400			190		F	5	0
RVT01	0747	6/16/2005	Sulfate	230			2600			510			14	0
RVT01	0747	6/16/2005	Uranium	0.1			0.662			0.151			16	0
RVT01	0788	6/16/2005	Manganese	1.3	N	F	0.37			0.047		F	5	0
RVT01	0796	6/14/2005	Sulfate	80			438			83			20	0
RVT01	0796	6/14/2005	Uranium	0.0015			0.0148			0.0017			22	1

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

Attachment 2
Data Presentation

Ground Water Quality Data

Ground Water Quality Data by Location (USEE100) FOR SITE RVT01, Riverton Processing Site
REPORT DATE: 9/2/2005
Location: 0405 (DOMESTIC WELL)

Parameter	Units	Sample Date	Sample ID	Depth Range (Ft BLS)	Result	Qualifiers Lab	Qualifiers Data	Qualifiers QA	Detection Limit	Uncertainty
Alkalinity, Total (As CaCO3)	mg/L	6/15/2005	0001	-	111			#		
Manganese	mg/L	6/15/2005	N001	-	0.0033	B	U	#	0.00052	
Molybdenum	mg/L	6/15/2005	N001	-	0.0034		J	#	0.00021	
Oxidation Reduction Potential	mV	6/15/2005	N001	-	112			#		
pH	s.u.	6/15/2005	N001	-	7.9			#		
Specific Conductance	umhos /cm	6/15/2005	N001	-	792			#		
Sulfate	mg/L	6/15/2005	N001	-	280			#	5	
Temperature	C	6/15/2005	N001	-	11.93			#		
Turbidity	NTU	6/15/2005	N001	-	3.12			#		
Uranium	mg/L	6/15/2005	N001	-	0.000075	B	U	#	0.0000022	

Ground Water Quality Data by Location (USEE100) FOR SITE RVT01, Riverton Processing Site
REPORT DATE: 9/2/2005
Location: 0422 (DOMESTIC WELL)

Parameter	Units	Sample Date	Sample ID	Depth Range (Ft BLS)	Result	Qualifiers Lab	Qualifiers Data	Qualifiers QA	Detection Limit	Uncertainty
Alkalinity, Total (As CaCO3)	mg/L	6/15/2005	0001	-	191			#		
Manganese	mg/L	6/15/2005	N001	-	0.00057	B	U	#	0.00052	
Molybdenum	mg/L	6/15/2005	N001	-	0.0012		U	#	0.00021	
Oxidation Reduction Potential	mV	6/15/2005	N001	-	74			#		
PH	s.u.	6/15/2005	N001	-	7.66			#		
Specific Conductance	umhos /cm	6/15/2005	N001	-	579			#		
Sulfate	mg/L	6/15/2005	N001	-	120			#	2.5	
Temperature	C	6/15/2005	N001	-	12.16			#		
Turbidity	NTU	6/15/2005	N001	-	0.59			#		
Uranium	mg/L	6/15/2005	N001	-	0.0038			#	0.0000022	

Ground Water Quality Data by Location (USEE100) FOR SITE RVT01, Riverton Processing Site
REPORT DATE: 9/2/2005

Location: 0430 (DOMESTIC WELL)

Parameter	Units	Sample Date	Sample ID	Depth Range (Ft BLS)	Result	Qualifiers Lab	Qualifiers Data	Qualifiers QA	Detection Limit	Uncertainty
Alkalinity, Total (As CaCO3)	mg/L	6/15/2005	N001	-	157			#		
Manganese	mg/L	6/15/2005	N001	-	0.0032	B	U	#	0.00052	
Molybdenum	mg/L	6/15/2005	N001	-	0.0025		J	#	0.00021	
Oxidation Reduction Potential	mV	6/15/2005	N001	-	90			#		
PH	s.u.	6/15/2005	N001	-	8.54			#		
Specific Conductance	umhos /cm	6/15/2005	N001	-	689			#		
Sulfate	mg/L	6/15/2005	N001	-	180			#	2.5	
Temperature	C	6/15/2005	N001	-	22.2			#		
Turbidity	NTU	6/15/2005	N001	-	1.69			#		
Uranium	mg/L	6/15/2005	N001	-	0.000072	B	U	#	0.0000022	

Ground Water Quality Data by Location (USEE100) FOR SITE RVT01, Riverton Processing Site
REPORT DATE: 9/2/2005
Location: 0436 (DOMESTIC WELL)

Parameter	Units	Sample Date	Sample ID	Depth Range (Ft BLS)	Result	Qualifiers Lab	Qualifiers Data	Qualifiers QA	Detection Limit	Uncertainty
Alkalinity, Total (As CaCO3)	mg/L	6/14/2005	0001	-	158			#		
Manganese	mg/L	6/14/2005	N001	-	0.012			#	0.00052	
Molybdenum	mg/L	6/14/2005	N001	-	0.004		J	#	0.00021	
Oxidation Reduction Potential	mV	6/14/2005	N001	-	119			#		
pH	s.u.	6/14/2005	N001	-	8.45			#		
Specific Conductance	umhos /cm	6/14/2005	N001	-	787			#		
Sulfate	mg/L	6/14/2005	N001	-	220			#	5	
Temperature	C	6/14/2005	N001	-	17.45			#		
Uranium	mg/L	6/14/2005	N001	-	0.000094	B	U	#	0.0000022	

Ground Water Quality Data by Location (USEE100) FOR SITE RVT01, Riverton Processing Site
REPORT DATE: 9/2/2005
Location: 0446 (DOMESTIC WELL)

Parameter	Units	Sample Date	Sample ID	Depth Range (Ft BLS)			Result	Qualifiers Lab	Qualifiers Data	Qualifiers QA	Detection Limit	Uncertainty
Alkalinity, Total (As CaCO3)	mg/L	6/16/2005	N001	370	-	410	158			#		
Manganese	mg/L	6/16/2005	N001	370	-	410	0.0026	B	U	#	0.00052	
Molybdenum	mg/L	6/16/2005	N001	370	-	410	0.0028		J	#	0.00021	
Oxidation Reduction Potential	mV	6/16/2005	N001	370	-	410	138			#		
pH	s.u.	6/16/2005	N001	370	-	410	8.34			#		
Specific Conductance	umhos /cm	6/16/2005	N001	370	-	410	630			#		
Sulfate	mg/L	6/16/2005	N001	370	-	410	140			#	2.5	
Temperature	C	6/16/2005	N001	370	-	410	11.86			#		
Turbidity	NTU	6/16/2005	N001	370	-	410	1.51			#		
Uranium	mg/L	6/16/2005	N001	370	-	410	0.000085	B	U	#	0.0000022	

Ground Water Quality Data by Location (USEE100) FOR SITE RVT01, Riverton Processing Site
REPORT DATE: 9/2/2005

Location: 0454 (DOMESTIC WELL)

Parameter	Units	Sample Date	Sample ID	Depth Range (Ft BLS)	Result	Qualifiers Lab	Qualifiers Data	Qualifiers QA	Detection Limit	Uncertainty
Alkalinity, Total (As CaCO3)	mg/L	6/14/2005	N001	-	172			#		
Manganese	mg/L	6/14/2005	N001	-	0.0074			#	0.00052	
Molybdenum	mg/L	6/14/2005	N001	-	0.0025		J	#	0.00021	
Oxidation Reduction Potential	mV	6/14/2005	N001	-	81.6			#		
pH	s.u.	6/14/2005	N001	-	6.98			#		
Specific Conductance	umhos /cm	6/14/2005	N001	-	1374			#		
Sulfate	mg/L	6/14/2005	N001	-	460			#	10	
Temperature	C	6/14/2005	N001	-	15.21			#		
Turbidity	NTU	6/14/2005	N001	-	0.44			#		
Uranium	mg/L	6/14/2005	N001	-	0.000079	B	U	#	0.0000022	

Ground Water Quality Data by Location (USEE100) FOR SITE RVT01, Riverton Processing Site
REPORT DATE: 9/2/2005
Location: 0460 (DOMESTIC WELL)

Parameter	Units	Sample Date	Sample ID	Depth Range (Ft BLS)	Result	Qualifiers Lab	Qualifiers Data	Qualifiers QA	Detection Limit	Uncertainty
Alkalinity, Total (As CaCO3)	mg/L	6/15/2005	0001	-	158			#		
Manganese	mg/L	6/15/2005	N001	-	0.00067	B	U	#	0.00052	
Molybdenum	mg/L	6/15/2005	N001	-	0.0034		J	#	0.00021	
Oxidation Reduction Potential	mV	6/15/2005	N001	-	87			#		
pH	s.u.	6/15/2005	N001	-	8.76			#		
Specific Conductance	umhos /cm	6/15/2005	N001	-	612			#		
Sulfate	mg/L	6/15/2005	N001	-	160			#	2.5	
Temperature	C	6/15/2005	N001	-	20.06			#		
Turbidity	NTU	6/15/2005	N001	-	8.42			#		
Uranium	mg/L	6/15/2005	N001	-	0.000081	B	U	#	0.0000022	

Ground Water Quality Data by Location (USEE100) FOR SITE RVT01, Riverton Processing Site
REPORT DATE: 9/2/2005
Location: 0705 (MONITOR WELL)

Parameter	Units	Sample Date	Sample ID	Depth Range (Ft BLS)			Result	Qualifiers Lab	Qualifiers Data	Qualifiers QA	Detection Limit	Uncertainty
Alkalinity, Total (As CaCO3)	mg/L	6/16/2005	N001	37.3	-	61.8	53		FQ	#		
Manganese	mg/L	6/16/2005	N001	37.3	-	61.8	0.00063	B	UFQ	#	0.00052	
Molybdenum	mg/L	6/16/2005	N001	37.3	-	61.8	0.0029		FQJ	#	0.00021	
Oxidation Reduction Potential	mV	6/16/2005	N001	37.3	-	61.8	106		FQ	#		
pH	s.u.	6/16/2005	N001	37.3	-	61.8	7.9		FQ	#		
Specific Conductance	umhos /cm	6/16/2005	N001	37.3	-	61.8	1042		FQ	#		
Sulfate	mg/L	6/16/2005	N001	37.3	-	61.8	420		FQ	#	5	
Temperature	C	6/16/2005	N001	37.3	-	61.8	11.26		FQ	#		
Turbidity	NTU	6/16/2005	N001	37.3	-	61.8	5.74		FQ	#		
Uranium	mg/L	6/16/2005	N001	37.3	-	61.8	0.00012		UFQ	#	0.0000022	

Ground Water Quality Data by Location (USEE100) FOR SITE RVT01, Riverton Processing Site
REPORT DATE: 9/2/2005
Location: 0707 (MONITOR WELL)

Parameter	Units	Sample Date	Sample ID	Depth Range (Ft BLS)			Result	Qualifiers Lab	Qualifiers Data	Qualifiers QA	Detection Limit	Uncertainty
Alkalinity, Total (As CaCO3)	mg/L	6/16/2005	N001	9.1	-	23.3	319		F	#		
Manganese	mg/L	6/16/2005	N001	9.1	-	23.3	1.6		F	#	0.00052	
Manganese	mg/L	6/16/2005	N002	9.1	-	23.3	1.5		F	#	0.00052	
Molybdenum	mg/L	6/16/2005	N001	9.1	-	23.3	0.72		F	#	0.0042	
Molybdenum	mg/L	6/16/2005	N002	9.1	-	23.3	0.72		F	#	0.0042	
Oxidation Reduction Potential	mV	6/16/2005	N001	9.1	-	23.3	65		F	#		
pH	s.u.	6/16/2005	N001	9.1	-	23.3	6.9		F	#		
Specific Conductance	umhos /cm	6/16/2005	N001	9.1	-	23.3	3510		F	#		
Sulfate	mg/L	6/16/2005	N001	9.1	-	23.3	2300		F	#	25	
Sulfate	mg/L	6/16/2005	N002	9.1	-	23.3	2400		F	#	25	
Temperature	C	6/16/2005	N001	9.1	-	23.3	11.04		F	#		
Turbidity	NTU	6/16/2005	N001	9.1	-	23.3	1.96		F	#		
Uranium	mg/L	6/16/2005	N001	9.1	-	23.3	0.88		F	#	0.000045	
Uranium	mg/L	6/16/2005	N002	9.1	-	23.3	0.88		F	#	0.000045	

Ground Water Quality Data by Location (USEE100) FOR SITE RVT01, Riverton Processing Site
REPORT DATE: 9/2/2005
Location: 0710 (MONITOR WELL)

Parameter	Units	Sample Date	Sample ID	Depth Range (Ft BLS)			Result	Qualifiers Lab	Qualifiers Data	Qualifiers QA	Detection Limit	Uncertainty
Alkalinity, Total (As CaCO3)	mg/L	6/14/2005	N001	9.8	-	26.8	205		F	#		
Manganese	mg/L	6/14/2005	N001	9.8	-	26.8	0.3		F	#	0.00052	
Molybdenum	mg/L	6/14/2005	N001	9.8	-	26.8	0.0019		FJ	#	0.00021	
Oxidation Reduction Potential	mV	6/14/2005	N001	9.8	-	26.8	102		F	#		
pH	s.u.	6/14/2005	N001	9.8	-	26.8	6.97		F	#		
Specific Conductance	umhos /cm	6/14/2005	N001	9.8	-	26.8	627		F	#		
Sulfate	mg/L	6/14/2005	N001	9.8	-	26.8	120		F	#	2.5	
Temperature	C	6/14/2005	N001	9.8	-	26.8	9.14		F	#		
Turbidity	NTU	6/14/2005	N001	9.8	-	26.8	4.1		F	#		
Uranium	mg/L	6/14/2005	N001	9.8	-	26.8	0.0041		F	#	0.0000022	

Ground Water Quality Data by Location (USEE100) FOR SITE RVT01, Riverton Processing Site
REPORT DATE: 9/2/2005
Location: 0716 (MONITOR WELL)

Parameter	Units	Sample Date	Sample ID	Depth Range (Ft BLS)	Result	Qualifiers Lab	Qualifiers Data	Qualifiers QA	Detection Limit	Uncertainty
Alkalinity, Total (As CaCO3)	mg/L	6/17/2005	0001	9.78 - 14.78	304		F	#		
Manganese	mg/L	6/17/2005	N001	9.78 - 14.78	0.64		F	#	0.00052	
Molybdenum	mg/L	6/17/2005	N001	9.78 - 14.78	0.19		F	#	0.001	
Oxidation Reduction Potential	mV	6/17/2005	N001	9.78 - 14.78	72.8		F	#		
pH	s.u.	6/17/2005	N001	9.78 - 14.78	7.04		F	#		
Specific Conductance	umhos /cm	6/17/2005	N001	9.78 - 14.78	1185		F	#		
Sulfate	mg/L	6/17/2005	N001	9.78 - 14.78	420		F	#	10	
Temperature	C	6/17/2005	N001	9.78 - 14.78	11.74		F	#		
Turbidity	NTU	6/17/2005	N001	9.78 - 14.78	7.74		F	#		
Uranium	mg/L	6/17/2005	N001	9.78 - 14.78	0.24		F	#	0.000011	

Ground Water Quality Data by Location (USEE100) FOR SITE RVT01, Riverton Processing Site
REPORT DATE: 9/2/2005
Location: 0717 (MONITOR WELL)

Parameter	Units	Sample Date	Sample ID	Depth Range (Ft BLS)			Result	Qualifiers Lab	Qualifiers Data	Qualifiers QA	Detection Limit	Uncertainty
Alkalinity, Total (As CaCO3)	mg/L	6/17/2005	0001	45.1	-	55.1	204		F	#		
Manganese	mg/L	6/17/2005	N001	45.1	-	55.1	0.089		F	#	0.00052	
Molybdenum	mg/L	6/17/2005	N001	45.1	-	55.1	0.0068		F	#	0.00021	
Oxidation Reduction Potential	mV	6/17/2005	N001	45.1	-	55.1	62.6		F	#		
pH	s.u.	6/17/2005	N001	45.1	-	55.1	7.55		F	#		
Specific Conductance	umhos /cm	6/17/2005	N001	45.1	-	55.1	1560		F	#		
Sulfate	mg/L	6/17/2005	N001	45.1	-	55.1	700		F	#	10	
Temperature	C	6/17/2005	N001	45.1	-	55.1	11.69		F	#		
Turbidity	NTU	6/17/2005	N001	45.1	-	55.1	1.6		F	#		
Uranium	mg/L	6/17/2005	N001	45.1	-	55.1	0.000078	B	UF	#	0.0000022	

Ground Water Quality Data by Location (USEE100) FOR SITE RVT01, Riverton Processing Site
REPORT DATE: 9/2/2005
Location: 0718 (MONITOR WELL)

Parameter	Units	Sample Date	Sample ID	Depth Range (Ft BLS)			Result	Qualifiers Lab	Qualifiers Data	Qualifiers QA	Detection Limit	Uncertainty
Alkalinity, Total (As CaCO3)	mg/L	6/15/2005	N001	18.24	-	23.24	369		F	#		
Manganese	mg/L	6/15/2005	N001	18.24	-	23.24	2.3		F	#	0.00052	
Molybdenum	mg/L	6/15/2005	N001	18.24	-	23.24	0.096		F	#	0.0042	
Oxidation Reduction Potential	mV	6/15/2005	N001	18.24	-	23.24	66		F	#		
pH	s.u.	6/15/2005	N001	18.24	-	23.24	7.04		F	#		
Specific Conductance	umhos /cm	6/15/2005	N001	18.24	-	23.24	3318		F	#		
Sulfate	mg/L	6/15/2005	N001	18.24	-	23.24	1800		F	#	25	
Temperature	C	6/15/2005	N001	18.24	-	23.24	12.87		F	#		
Turbidity	NTU	6/15/2005	N001	18.24	-	23.24	5		F	#		
Uranium	mg/L	6/15/2005	N001	18.24	-	23.24	0.22		F	#	0.000045	

Ground Water Quality Data by Location (USEE100) FOR SITE RVT01, Riverton Processing Site
REPORT DATE: 9/2/2005
Location: 0719 (MONITOR WELL)

Parameter	Units	Sample Date	Sample ID	Depth Range (Ft BLS)	Result	Qualifiers Lab	Qualifiers Data	Qualifiers QA	Detection Limit	Uncertainty
Alkalinity, Total (As CaCO3)	mg/L	6/15/2005	N001	38.47 - 48.47	104		FQ	#		
Manganese	mg/L	6/15/2005	N001	38.47 - 48.47	0.19		FQ	#	0.00052	
Molybdenum	mg/L	6/15/2005	N001	38.47 - 48.47	0.013		FQ	#	0.00021	
Oxidation Reduction Potential	mV	6/15/2005	N001	38.47 - 48.47	90.6		FQ	#		
pH	s.u.	6/15/2005	N001	38.47 - 48.47	7.42		FQ	#		
Specific Conductance	umhos /cm	6/15/2005	N001	38.47 - 48.47	974		FQ	#		
Sulfate	mg/L	6/15/2005	N001	38.47 - 48.47	380		FQ	#	5	
Temperature	C	6/15/2005	N001	38.47 - 48.47	14.47		FQ	#		
Turbidity	NTU	6/15/2005	N001	38.47 - 48.47	1.2		FQ	#		
Uranium	mg/L	6/15/2005	N001	38.47 - 48.47	0.0011		FQ	#	0.0000022	

Ground Water Quality Data by Location (USEE100) FOR SITE RVT01, Riverton Processing Site
REPORT DATE: 9/2/2005
Location: 0720 (MONITOR WELL)

Parameter	Units	Sample Date	Sample ID	Depth Range (Ft BLS)	Result	Qualifiers Lab	Qualifiers Data	Qualifiers QA	Detection Limit	Uncertainty
Alkalinity, Total (As CaCO3)	mg/L	6/14/2005	N001	7.94 - 12.94	234		F	#		
Manganese	mg/L	6/14/2005	N001	7.94 - 12.94	0.12		F	#	0.00052	
Molybdenum	mg/L	6/14/2005	N001	7.94 - 12.94	0.0024		FJ	#	0.00021	
Oxidation Reduction Potential	mV	6/14/2005	N001	7.94 - 12.94	91		F	#		
pH	s.u.	6/14/2005	N001	7.94 - 12.94	7.01		F	#		
Specific Conductance	umhos /cm	6/14/2005	N001	7.94 - 12.94	856		F	#		
Sulfate	mg/L	6/14/2005	N001	7.94 - 12.94	250		F	#	5	
Temperature	C	6/14/2005	N001	7.94 - 12.94	11.41		F	#		
Turbidity	NTU	6/14/2005	N001	7.94 - 12.94	0.84		F	#		
Uranium	mg/L	6/14/2005	N001	7.94 - 12.94	0.0062		F	#	0.0000022	

Ground Water Quality Data by Location (USEE100) FOR SITE RVT01, Riverton Processing Site
REPORT DATE: 9/2/2005
Location: 0721 (MONITOR WELL)

Parameter	Units	Sample Date	Sample ID	Depth Range (Ft BLS)	Result	Qualifiers Lab	Qualifiers Data	Qualifiers QA	Detection Limit	Uncertainty
Alkalinity, Total (As CaCO3)	mg/L	6/14/2005	0001	44.43 - 54.43	88		F	#		
Manganese	mg/L	6/14/2005	N001	44.43 - 54.43	0.0037	B	UF	#	0.00052	
Molybdenum	mg/L	6/14/2005	N001	44.43 - 54.43	0.0032		FJ	#	0.00021	
Oxidation Reduction Potential	mV	6/14/2005	N001	44.43 - 54.43	79		F	#		
pH	s.u.	6/14/2005	N001	44.43 - 54.43	8.47		F	#		
Specific Conductance	umhos /cm	6/14/2005	N001	44.43 - 54.43	779		F	#		
Sulfate	mg/L	6/14/2005	N001	44.43 - 54.43	270		F	#	5	
Temperature	C	6/14/2005	N001	44.43 - 54.43	12.22		F	#		
Turbidity	NTU	6/14/2005	N001	44.43 - 54.43	1.08		F	#		
Uranium	mg/L	6/14/2005	N001	44.43 - 54.43	0.000086	B	UF	#	0.0000022	

Ground Water Quality Data by Location (USEE100) FOR SITE RVT01, Riverton Processing Site
REPORT DATE: 9/2/2005
Location: 0722 (MONITOR WELL)

Parameter	Units	Sample Date	Sample ID	Depth Range (Ft BLS)			Result	Qualifiers Lab	Qualifiers Data	Qualifiers QA	Detection Limit	Uncertainty
Alkalinity, Total (As CaCO3)	mg/L	6/16/2005	0001	16.72	-	26.72	262		F	#		
Manganese	mg/L	6/16/2005	N001	16.72	-	26.72	2.2		F	#	0.00052	
Molybdenum	mg/L	6/16/2005	N001	16.72	-	26.72	0.1		F	#	0.0042	
Oxidation Reduction Potential	mV	6/16/2005	N001	16.72	-	26.72	76		F	#		
pH	s.u.	6/16/2005	N001	16.72	-	26.72	6.81		F	#		
Specific Conductance	umhos /cm	6/16/2005	N001	16.72	-	26.72	1758		F	#		
Sulfate	mg/L	6/16/2005	N001	16.72	-	26.72	1000		F	#	10	
Temperature	C	6/16/2005	N001	16.72	-	26.72	12.22		F	#		
Turbidity	NTU	6/16/2005	N001	16.72	-	26.72	7.38		F	#		
Uranium	mg/L	6/16/2005	N001	16.72	-	26.72	0.77		F	#	0.000045	

Ground Water Quality Data by Location (USEE100) FOR SITE RVT01, Riverton Processing Site
REPORT DATE: 9/2/2005
Location: 0723 (MONITOR WELL)

Parameter	Units	Sample Date	Sample ID	Depth Range (Ft BLS)			Result	Qualifiers Lab	Qualifiers Data	Qualifiers QA	Detection Limit	Uncertainty
Alkalinity, Total (As CaCO3)	mg/L	6/16/2005	N001	45.99	-	55.99	403		F	#		
Manganese	mg/L	6/16/2005	N001	45.99	-	55.99	0.71		F	#	0.00052	
Molybdenum	mg/L	6/16/2005	N001	45.99	-	55.99	0.00034	B	UF	#	0.00021	
Oxidation Reduction Potential	mV	6/16/2005	N001	45.99	-	55.99	79		F	#		
pH	s.u.	6/16/2005	N001	45.99	-	55.99	6.97		F	#		
Specific Conductance	umhos /cm	6/16/2005	N001	45.99	-	55.99	3275		F	#		
Sulfate	mg/L	6/16/2005	N001	45.99	-	55.99	1900		F	#	25	
Temperature	C	6/16/2005	N001	45.99	-	55.99	14.84		F	#		
Turbidity	NTU	6/16/2005	N001	45.99	-	55.99	2.4		F	#		
Uranium	mg/L	6/16/2005	N001	45.99	-	55.99	0.000077	B	UF	#	0.0000022	

Ground Water Quality Data by Location (USEE100) FOR SITE RVT01, Riverton Processing Site
REPORT DATE: 9/2/2005
Location: 0729 (MONITOR WELL)

Parameter	Units	Sample Date	Sample ID	Depth Range (Ft BLS)	Result	Qualifiers Lab	Qualifiers Data	Qualifiers QA	Detection Limit	Uncertainty
Alkalinity, Total (As CaCO3)	mg/L	6/15/2005	N001	14.71 - 19.71	324		F	#		
Manganese	mg/L	6/15/2005	N001	14.71 - 19.71	0.0026	B	UF	#	0.00052	
Molybdenum	mg/L	6/15/2005	N001	14.71 - 19.71	0.0037		FJ	#	0.00021	
Oxidation Reduction Potential	mV	6/15/2005	N001	14.71 - 19.71	89		F	#		
pH	s.u.	6/15/2005	N001	14.71 - 19.71	6.89		F	#		
Specific Conductance	umhos /cm	6/15/2005	N001	14.71 - 19.71	765		F	#		
Sulfate	mg/L	6/15/2005	N001	14.71 - 19.71	120		F	#	2.5	
Temperature	C	6/15/2005	N001	14.71 - 19.71	13.02		F	#		
Turbidity	NTU	6/15/2005	N001	14.71 - 19.71	0.89		F	#		
Uranium	mg/L	6/15/2005	N001	14.71 - 19.71	0.017		F	#	0.0000022	

Ground Water Quality Data by Location (USEE100) FOR SITE RVT01, Riverton Processing Site
REPORT DATE: 9/2/2005
Location: 0730 (MONITOR WELL)

Parameter	Units	Sample Date	Sample ID	Depth Range (Ft BLS)	Result	Qualifiers Lab	Qualifiers Data	Qualifiers QA	Detection Limit	Uncertainty
Alkalinity, Total (As CaCO3)	mg/L	6/15/2005	N001	38.62 - 48.62	317		FQ	#		
Manganese	mg/L	6/15/2005	N001	38.62 - 48.62	0.12		FQ	#	0.00052	
Molybdenum	mg/L	6/15/2005	N001	38.62 - 48.62	0.0011		UFQ	#	0.00021	
Oxidation Reduction Potential	mV	6/15/2005	N001	38.62 - 48.62	74		FQ	#		
pH	s.u.	6/15/2005	N001	38.62 - 48.62	7.15		FQ	#		
Specific Conductance	umhos /cm	6/15/2005	N001	38.62 - 48.62	797		FQ	#		
Sulfate	mg/L	6/15/2005	N001	38.62 - 48.62	170		FQ	#	5	
Temperature	C	6/15/2005	N001	38.62 - 48.62	14.65		FQ	#		
Turbidity	NTU	6/15/2005	N001	38.62 - 48.62	6.17		FQ	#		
Uranium	mg/L	6/15/2005	N001	38.62 - 48.62	0.0033		FQ	#	0.0000022	

Ground Water Quality Data by Location (USEE100) FOR SITE RVT01, Riverton Processing Site
REPORT DATE: 9/2/2005
Location: 0731 (MONITOR WELL)

Parameter	Units	Sample Date	Sample ID	Depth Range (Ft BLS)			Result	Qualifiers Lab	Qualifiers Data	Qualifiers QA	Detection Limit	Uncertainty
Alkalinity, Total (As CaCO3)	mg/L	6/17/2005	0001	2	-	11.4	762		FQ	#		
Manganese	mg/L	6/17/2005	N001	2	-	11.4	0.069		FQ	#	0.00052	
Molybdenum	mg/L	6/17/2005	N001	2	-	11.4	0.07		FQ	#	0.00021	
Oxidation Reduction Potential	mV	6/17/2005	N001	2	-	11.4	83.7		FQ	#		
pH	s.u.	6/17/2005	N001	2	-	11.4	8.07		FQ	#		
Specific Conductance	umhos /cm	6/17/2005	N001	2	-	11.4	3936		FQ	#		
Sulfate	mg/L	6/17/2005	N001	2	-	11.4	1900		FQ	#	25	
Temperature	C	6/17/2005	N001	2	-	11.4	16.61		FQ	#		
Turbidity	NTU	6/17/2005	N001	2	-	11.4	1.16		FQ	#		
Uranium	mg/L	6/17/2005	N001	2	-	11.4	0.013		FQ	#	0.0000022	

Ground Water Quality Data by Location (USEE100) FOR SITE RVT01, Riverton Processing Site
REPORT DATE: 9/2/2005
Location: 0735 (MONITOR WELL)

Parameter	Units	Sample Date	Sample ID	Depth Range (Ft BLS)	Result	Qualifiers Lab	Qualifiers Data	Qualifiers QA	Detection Limit	Uncertainty
Alkalinity, Total (As CaCO3)	mg/L	6/14/2005	N001	-4906.66 - -4891.66	141		F	#		
Manganese	mg/L	6/14/2005	N001	-4906.66 - -4891.66	0.019		F	#	0.00052	
Molybdenum	mg/L	6/14/2005	N001	-4906.66 - -4891.66	0.0031		FJ	#	0.00021	
Oxidation Reduction Potential	mV	6/14/2005	N001	-4906.66 - -4891.66	76.2		F	#		
pH	s.u.	6/14/2005	N001	-4906.66 - -4891.66	7.52		F	#		
Specific Conductance	umhos /cm	6/14/2005	N001	-4906.66 - -4891.66	1402		F	#		
Sulfate	mg/L	6/14/2005	N001	-4906.66 - -4891.66	630		F	#	10	
Temperature	C	6/14/2005	N001	-4906.66 - -4891.66	11.5		F	#		
Turbidity	NTU	6/14/2005	N001	-4906.66 - -4891.66	0.39		F	#		
Uranium	mg/L	6/14/2005	N001	-4906.66 - -4891.66	0.00025		UF	#	0.0000022	

Ground Water Quality Data by Location (USEE100) FOR SITE RVT01, Riverton Processing Site
REPORT DATE: 9/2/2005
Location: 0788 (MONITOR WELL)

Parameter	Units	Sample Date	Sample ID	Depth Range (Ft BLS)	Result	Qualifiers Lab	Qualifiers Data	Qualifiers QA	Detection Limit	Uncertainty
Alkalinity, Total (As CaCO3)	mg/L	6/16/2005	N001	1.41 - 13.41	372		F	#		
Manganese	mg/L	6/16/2005	N001	1.41 - 13.41	1.3	N	F	#	0.00052	
Molybdenum	mg/L	6/16/2005	N001	1.41 - 13.41	0.035		F	#	0.00021	
Oxidation Reduction Potential	mV	6/16/2005	N001	1.41 - 13.41	81		F	#		
pH	s.u.	6/16/2005	N001	1.41 - 13.41	7.07		F	#		
Specific Conductance	umhos /cm	6/16/2005	N001	1.41 - 13.41	1907		F	#		
Sulfate	mg/L	6/16/2005	N001	1.41 - 13.41	850		F	#	10	
Temperature	C	6/16/2005	N001	1.41 - 13.41	11.58		F	#		
Turbidity	NTU	6/16/2005	N001	1.41 - 13.41	9.96		F	#		
Uranium	mg/L	6/16/2005	N001	1.41 - 13.41	0.042		F	#	0.0000022	

Ground Water Quality Data by Location (USEE100) FOR SITE RVT01, Riverton Processing Site
REPORT DATE: 9/2/2005
Location: 0809 (MONITOR WELL)

Parameter	Units	Sample Date	Sample ID	Depth Range (Ft BLS)			Result	Qualifiers Lab	Qualifiers Data	Qualifiers QA	Detection Limit	Uncertainty
Alkalinity, Total (As CaCO3)	mg/L	6/14/2005	0001	10.5	-	19.4	107		F	#		
Manganese	mg/L	6/14/2005	N001	10.5	-	19.4	1.6		F	#	0.00052	
Molybdenum	mg/L	6/14/2005	N001	10.5	-	19.4	0.002		FJ	#	0.00021	
Oxidation Reduction Potential	mV	6/14/2005	N001	10.5	-	19.4	79		F	#		
pH	s.u.	6/14/2005	N001	10.5	-	19.4	7.29		F	#		
Specific Conductance	umhos /cm	6/14/2005	N001	10.5	-	19.4	1018		F	#		
Sulfate	mg/L	6/14/2005	N001	10.5	-	19.4	430		F	#	5	
Temperature	C	6/14/2005	N001	10.5	-	19.4	11.64		F	#		
Turbidity	NTU	6/14/2005	N001	10.5	-	19.4	0.57		F	#		
Uranium	mg/L	6/14/2005	N001	10.5	-	19.4	0.0033		F	#	0.0000022	

Ground Water Quality Data by Location (USEE100) FOR SITE RVT01, Riverton Processing Site
REPORT DATE: 9/2/2005
Location: 0828 (DOMESTIC WELL)

Parameter	Units	Sample Date	Sample ID	Depth Range (Ft BLS)	Result	Qualifiers Lab	Qualifiers Data	Qualifiers QA	Detection Limit	Uncertainty
Alkalinity, Total (As CaCO3)	mg/L	6/14/2005	0001	-	148			#		
Manganese	mg/L	6/14/2005	N001	-	0.0065			#	0.00052	
Manganese	mg/L	6/14/2005	N002	-	0.0059			#	0.00052	
Molybdenum	mg/L	6/14/2005	N001	-	0.0039		J	#	0.00021	
Molybdenum	mg/L	6/14/2005	N002	-	0.0039		J	#	0.00021	
Oxidation Reduction Potential	mV	6/14/2005	N001	-	139			#		
pH	s.u.	6/14/2005	N001	-	8.44			#		
Specific Conductance	umhos /cm	6/14/2005	N001	-	790			#		
Sulfate	mg/L	6/14/2005	N001	-	230			#	5	
Sulfate	mg/L	6/14/2005	N002	-	230			#	5	
Temperature	C	6/14/2005	N001	-	14.04			#		
Turbidity	NTU	6/14/2005	N001	-	0.75			#		
Uranium	mg/L	6/14/2005	N001	-	0.000097	B	U	#	0.0000022	
Uranium	mg/L	6/14/2005	N002	-	0.000099	B	U	#	0.0000022	

Ground Water Quality Data by Location (USEE100) FOR SITE RVT01, Riverton Processing Site
REPORT DATE: 9/2/2005
Location: 0951 (DOMESTIC WELL)

Parameter	Units	Sample Date	Sample ID	Depth Range (Ft BLS)	Result	Qualifiers Lab	Qualifiers Data	Qualifiers QA	Detection Limit	Uncertainty
Alkalinity, Total (As CaCO3)	mg/L	6/14/2005	0001	-	123			#		
Manganese	mg/L	6/14/2005	N001	-	0.0035	B	U	#	0.00052	
Molybdenum	mg/L	6/14/2005	N001	-	0.0026		J	#	0.00021	
Oxidation Reduction Potential	mV	6/14/2005	N001	-	107.9			#		
pH	s.u.	6/14/2005	N001	-	8.05			#		
Specific Conductance	umhos /cm	6/14/2005	N001	-	777			#		
Sulfate	mg/L	6/14/2005	N001	-	260			#	5	
Temperature	C	6/14/2005	N001	-	15.39			#		
Turbidity	NTU	6/14/2005	N001	-	2.05			#		
Uranium	mg/L	6/14/2005	N001	-	0.000075	B	U	#	0.0000022	

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

QA QUALIFIER:

#	Validated according to quality assurance guidelines.

Surface Water Quality Data

Surface Water Quality Data by Location (USEE102) FOR SITE RVT01, Riverton Processing Site
REPORT DATE: 9/2/2005
Location: 0747 (surface location)

Parameter	Units	Sample Date	Sample ID	Result	Qualifiers Lab	Qualifiers Data	Qualifiers QA	Detection Limit	Uncertainty
Alkalinity, Total (As CaCO3)	mg/L	6/16/2005	0001	231			#		
Manganese	mg/L	6/16/2005	0001	0.49			#	0.00052	
Molybdenum	mg/L	6/16/2005	0001	0.0083			#	0.00021	
Oxidation Reduction Potential	mV	6/16/2005	N001	110			#		
pH	s.u.	6/16/2005	N001	7.7			#		
Specific Conductance	umhos /cm	6/16/2005	N001	827			#		
Sulfate	mg/L	6/16/2005	0001	230			#	5	
Temperature	C	6/16/2005	N001	21.45			#		
Turbidity	NTU	6/16/2005	N001	64.9			#		
Uranium	mg/L	6/16/2005	0001	0.1			#	0.0000022	

Surface Water Quality Data by Location (USEE102) FOR SITE RVT01, Riverton Processing Site
REPORT DATE: 9/2/2005
Location: 0749 (surface location)

Parameter	Units	Sample Date	Sample ID	Result	Qualifiers Lab	Qualifiers Data	Qualifiers QA	Detection Limit	Uncertainty
Alkalinity, Total (As CaCO3)	mg/L	6/16/2005	N001	191			#		
Manganese	mg/L	6/16/2005	N001	0.01			#	0.00052	
Molybdenum	mg/L	6/16/2005	N001	0.0084			#	0.00021	
Oxidation Reduction Potential	mV	6/16/2005	N001	155			#		
pH	s.u.	6/16/2005	N001	7.72			#		
Specific Conductance	umhos /cm	6/16/2005	N001	4193			#		
Sulfate	mg/L	6/16/2005	N001	2400			#	25	
Temperature	C	6/16/2005	N001	26.73			#		
Turbidity	NTU	6/16/2005	N001	5.09			#		
Uranium	mg/L	6/16/2005	N001	0.00013		U	#	0.0000022	

Surface Water Quality Data by Location (USEE102) FOR SITE RVT01, Riverton Processing Site
REPORT DATE: 9/2/2005
Location: 0794 (surface location)

Parameter	Units	Sample Date	Sample ID	Result	Qualifiers Lab	Qualifiers Data	Qualifiers QA	Detection Limit	Uncertainty
Alkalinity, Total (As CaCO3)	mg/L	6/14/2005	0001	87			#		
Manganese	mg/L	6/14/2005	0001	0.0066			#	0.00052	
Molybdenum	mg/L	6/14/2005	0001	0.00072	B	U	#	0.00021	
Oxidation Reduction Potential	mV	6/14/2005	N001	168			#		
pH	s.u.	6/14/2005	N001	7.8			#		
Specific Conductance	umhos /cm	6/14/2005	N001	410			#		
Sulfate	mg/L	6/14/2005	0001	86			#	1	
Temperature	C	6/14/2005	N001	20.72			#		
Turbidity	NTU	6/14/2005	N001	18			#		
Uranium	mg/L	6/14/2005	0001	0.0019			#	0.0000022	

Surface Water Quality Data by Location (USEE102) FOR SITE RVT01, Riverton Processing Site
REPORT DATE: 9/2/2005
Location: 0796 (surface location)

Parameter	Units	Sample Date	Sample ID	Result	Qualifiers Lab	Qualifiers Data	Qualifiers QA	Detection Limit	Uncertainty
Alkalinity, Total (As CaCO3)	mg/L	6/14/2005	0001	73			#		
Manganese	mg/L	6/14/2005	0001	0.0073			#	0.00052	
Molybdenum	mg/L	6/14/2005	0001	0.0021		J	#	0.00021	
Oxidation Reduction Potential	mV	6/14/2005	N001	88			#		
pH	s.u.	6/14/2005	N001	7.31			#		
Specific Conductance	umhos /cm	6/14/2005	N001	441			#		
Sulfate	mg/L	6/14/2005	0001	80			#	1	
Temperature	C	6/14/2005	N001	13.26			#		
Turbidity	NTU	6/14/2005	N001	24.3			#		
Uranium	mg/L	6/14/2005	0001	0.0015			#	0.0000022	

Surface Water Quality Data by Location (USEE102) FOR SITE RVT01, Riverton Processing Site
REPORT DATE: 9/2/2005
Location: 0810 (surface location)

Parameter	Units	Sample Date	Sample ID	Result	Qualifiers Lab	Qualifiers Data	Qualifiers QA	Detection Limit	Uncertainty
Alkalinity, Total (As CaCO3)	mg/L	6/15/2005	N001	294			#		
Manganese	mg/L	6/15/2005	N001	0.03			#	0.00052	
Molybdenum	mg/L	6/15/2005	N001	0.0014		U	#	0.00021	
Oxidation Reduction Potential	mV	6/15/2005	N001	79			#		
pH	s.u.	6/15/2005	N001	9.08			#		
Specific Conductance	umhos /cm	6/15/2005	N001	1005			#		
Sulfate	mg/L	6/15/2005	N001	330			#	5	
Temperature	C	6/15/2005	N001	18.36			#		
Turbidity	NTU	6/15/2005	N001	3.67			#		
Uranium	mg/L	6/15/2005	N001	0.0063			#	0.0000022	

Surface Water Quality Data by Location (USEE102) FOR SITE RVT01, Riverton Processing Site
REPORT DATE: 9/2/2005
Location: 0811 (surface location)

Parameter	Units	Sample Date	Sample ID	Result	Qualifiers Lab	Qualifiers Data	Qualifiers QA	Detection Limit	Uncertainty
Alkalinity, Total (As CaCO3)	mg/L	6/16/2005	0001	83			#		
Manganese	mg/L	6/16/2005	0001	0.0043	B		#	0.00052	
Molybdenum	mg/L	6/16/2005	0001	0.0007	B	U	#	0.00021	
Oxidation Reduction Potential	mV	6/16/2005	N001	92			#		
pH	s.u.	6/16/2005	N001	7.25			#		
Specific Conductance	umhos /cm	6/16/2005	N001	433			#		
Sulfate	mg/L	6/16/2005	0001	72			#	1	
Temperature	C	6/16/2005	N001	15.1			#		
Turbidity	NTU	6/16/2005	N001	33.8			#		
Uranium	mg/L	6/16/2005	0001	0.0011			#	0.0000022	

Surface Water Quality Data by Location (USEE102) FOR SITE RVT01, Riverton Processing Site
REPORT DATE: 9/2/2005
Location: 0812 (surface location)

Parameter	Units	Sample Date	Sample ID	Result	Qualifiers Lab	Qualifiers Data	Qualifiers QA	Detection Limit	Uncertainty
Alkalinity, Total (As CaCO3)	mg/L	6/15/2005	0001	79			#		
Manganese	mg/L	6/15/2005	0001	0.012			#	0.00052	
Molybdenum	mg/L	6/15/2005	0001	0.001	B	U	#	0.00021	
Oxidation Reduction Potential	mV	6/15/2005	N001	77			#		
pH	s.u.	6/15/2005	N001	8.12			#		
Specific Conductance	umhos /cm	6/15/2005	N001	331			#		
Sulfate	mg/L	6/15/2005	0001	87			#	1	
Temperature	C	6/15/2005	N001	15.03			#		
Turbidity	NTU	6/15/2005	N001	23.1			#		
Uranium	mg/L	6/15/2005	0001	0.0017			#	0.0000022	

Surface Water Quality Data by Location (USEE102) FOR SITE RVT01, Riverton Processing Site
REPORT DATE: 9/2/2005
Location: 0822 (surface location)

Parameter	Units	Sample Date	Sample ID	Result	Qualifiers Lab	Qualifiers Data	Qualifiers QA	Detection Limit	Uncertainty
Alkalinity, Total (As CaCO3)	mg/L	6/14/2005	0001	220			#		
Manganese	mg/L	6/14/2005	N001	0.0071			#	0.00052	
Molybdenum	mg/L	6/14/2005	N001	0.0048		J	#	0.00021	
Oxidation Reduction Potential	mV	6/14/2005	N001	120			#		
pH	s.u.	6/14/2005	N001	8.9			#		
Radium-226	pCi/L	6/14/2005	N001	0.208	U		#	0.413	0.26
Radium-228	pCi/L	6/14/2005	N001	0.31	U		#	1.12	0.546
Specific Conductance	umhos /cm	6/14/2005	N001	2326			#		
Sulfate	mg/L	6/14/2005	N001	1100			#	25	
Temperature	C	6/14/2005	N001	24			#		
Turbidity	NTU	6/14/2005	N001	4.01			#		
Uranium	mg/L	6/14/2005	N001	0.0031			#	0.0000022	

Surface Water Quality Data by Location (USEE102) FOR SITE RVT01, Riverton Processing Site
REPORT DATE: 9/2/2005
Location: 0823 (surface location)

Parameter	Units	Sample Date	Sample ID	Result	Qualifiers Lab	Qualifiers Data	Qualifiers QA	Detection Limit	Uncertainty
Alkalinity, Total (As CaCO3)	mg/L	6/15/2005	0001	97			#		
Manganese	mg/L	6/15/2005	0001	0.0097			#	0.00052	
Molybdenum	mg/L	6/15/2005	0001	0.0049			#	0.00021	
Oxidation Reduction Potential	mV	6/15/2005	N001	87			#		
pH	s.u.	6/15/2005	N001	8.19			#		
Specific Conductance	umhos /cm	6/15/2005	N001	1094			#		
Sulfate	mg/L	6/15/2005	0001	470			#	5	
Temperature	C	6/15/2005	N001	19.44			#		
Turbidity	NTU	6/15/2005	N001	32.7			#		
Uranium	mg/L	6/15/2005	0001	0.0096			#	0.0000022	

QA QUALIFIER:
Validated according to quality assurance guidelines.

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

Equipment Blank Data

BLANKS REPORT
LAB CODE: PAR, PARAGON (Fort Collins, CO)
RIN: 05050195
Report Date: 9/2/2005

Parameter	Site Code	Location ID	Sample Date	ID	Units	Result	Qualifiers Lab	Qualifiers Data	Detection Limit	Uncertainty	Sample Type
Manganese	RVT01	0999	6/16/2005	N001	mg/L	0.0014	B	U	0.00052		E
Manganese	RVT01	0999	6/17/2005	0001	mg/L	0.00052	U		0.00052		E
Molybdenum	RVT01	0999	6/16/2005	N001	mg/L	0.00085	B	U	0.00021		E
Molybdenum	RVT01	0999	6/17/2005	0001	mg/L	0.00031	B	U	0.00021		E
Sulfate	RVT01	0999	6/16/2005	N001	mg/L	0.5	U		0.5		E
Sulfate	RVT01	0999	6/17/2005	0001	mg/L	0.5	U		0.5		E
Uranium	RVT01	0999	6/16/2005	N001	mg/L	0.00015		U	0.0000022		E
Uranium	RVT01	0999	6/17/2005	0001	mg/L	0.00011		U	0.0000022		E

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

SAMPLE TYPES:

E Equipment Blank.

Static Water Level Data

STATIC WATER LEVELS (USEE700) FOR SITE RVT01, Riverton Processing Site
REPORT DATE: 9/2/2005

Location Code	Flow Code	Top of Casing Elevation (Ft)	Measurement Date	Time	Depth From Top of Casing (Ft)	Water Elevation (Ft)	Water Level Flag
0101	O	4946.58	6/16/2005	17:19:00	10.95	4935.63	
0110	O	4946.44	6/16/2005	17:23:00	11.73	4934.71	
0111	O	4946.87	6/16/2005	17:20:00	9.73	4937.14	
0700	U	4951.38	6/16/2005	17:36:00	6.9	4944.48	
0705	D	4930.8	6/16/2005	09:08:00	5.74	4925.06	
0707	D	4931	6/16/2005	09:41:00	5	4926	
0709	D	4930.7	6/16/2005	08:58:00	2.92	4927.78	
0710	U	4947.9	6/14/2005	16:51:00	6.13	4941.77	
0711	U	4944.5	6/14/2005	17:17:00	5.28	4939.22	
0713	U	4942.7	6/14/2005	17:34:00	6.46	4936.24	
0714	U	4942.1	6/14/2005	18:08:00	5.53	4936.57	
0715	U	4939.4	6/14/2005	18:02:00	4.8	4934.6	
0716	O	4939.12	6/17/2005	08:40:00	8.17	4930.95	
0717	O	4938.8	6/17/2005	09:10:00	7.96	4930.84	
0718	D	4937.6	6/15/2005	17:21:00	7.75	4929.85	
0719	D	4937.55	6/15/2005	16:50:00	6.82	4930.73	
0720	C	4940.46	6/14/2005	14:03:00	5.23	4935.23	
0721	C	4940.47	6/14/2005	14:28:00	7.6	4932.87	
0722	D	4936.22	6/16/2005	14:42:00	6.67	4929.55	
0723	D	4936.01	6/16/2005	15:20:00	6.75	4929.26	
0724	U	4941.36	6/16/2005	18:06:00	7.25	4934.11	
0725	U	4941.66	6/16/2005	18:08:00	7.41	4934.25	
0726	U	4942	6/16/2005	18:10:00	6.09	4935.91	
0727	U	4951.69	6/16/2005	17:28:00	8.76	4942.93	
0728	U	4946.01	6/16/2005	16:25:00	7.29	4938.72	
0729	D	4932.75	6/15/2005	14:07:00	7.1	4925.65	
0730	D	4933.08	6/15/2005	14:26:00	7.67	4925.41	
0731	U	4945.48	6/16/2005	16:49:00	7.66	4937.82	
0731	U	4945.48	6/17/2005	10:10:00	7.65	4937.83	
0732	U	4945.07	6/16/2005	16:47:00	8.59	4936.48	

STATIC WATER LEVELS (USEE700) FOR SITE RVT01, Riverton Processing Site
REPORT DATE: 9/2/2005

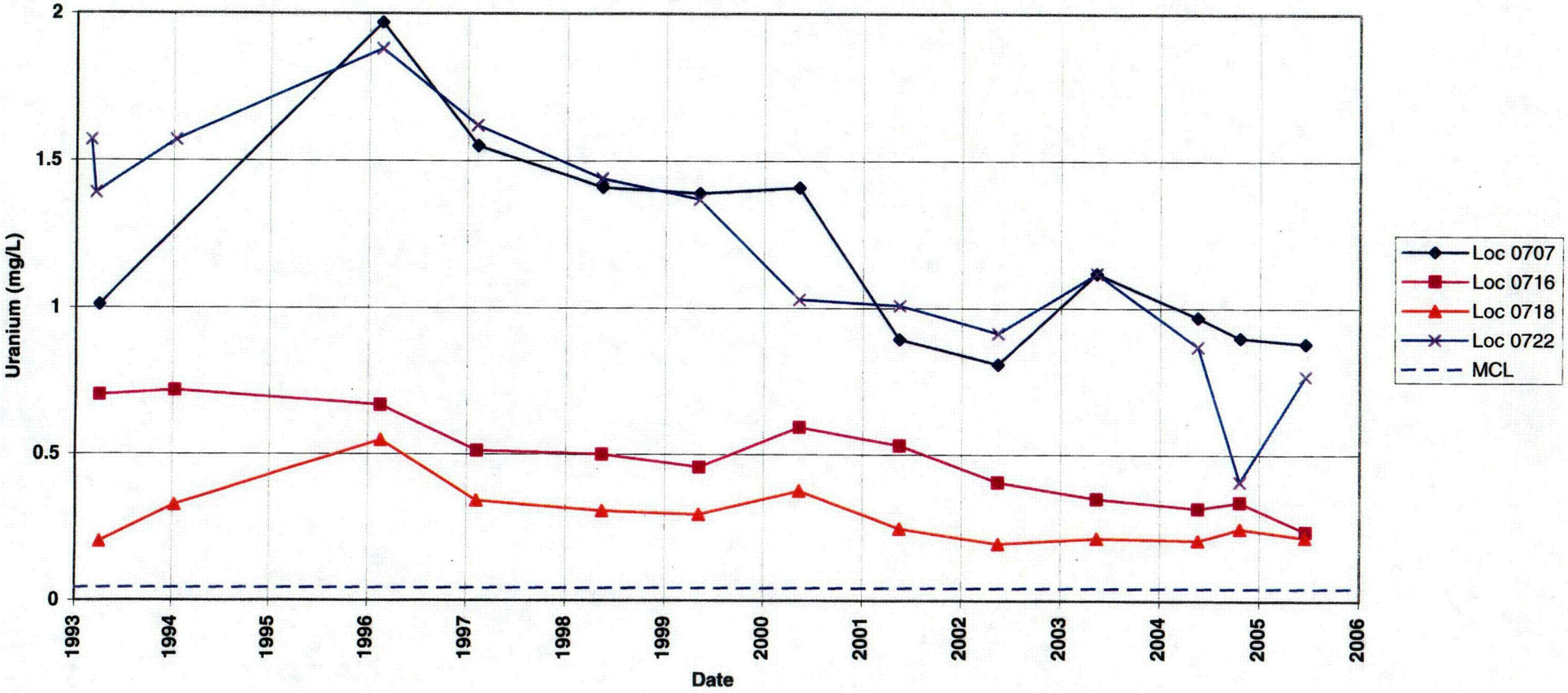
Location Code	Flow Code	Top of Casing Elevation (Ft)	Measurement Date	Time	Depth From Top of Casing (Ft)	Water Elevation (Ft)	Water Level Flag
0733	U	4946.76	6/16/2005	16:12:00	3.63	4943.13	
0734	U	4946.08	6/16/2005	16:14:00	6.11	4939.97	
0735	D	4934.16	6/14/2005	09:20:00	8.95	4925.21	
0736	U	4946	6/16/2005	18:20:00	7.51	4938.49	
0788	C	4935.09	6/16/2005	13:58:00	7.97	4927.12	
0789	D	4933.66	6/16/2005	08:39:00	7.98	4925.68	
0809		4932.09	6/14/2005	10:02:00	6.67	4925.42	

FLOW CODES: B BACKGROUND C CROSS GRADIENT D DOWN GRADIENT O ON SITE
U UPGRADIENT

WATER LEVEL FLAGS: D Dry

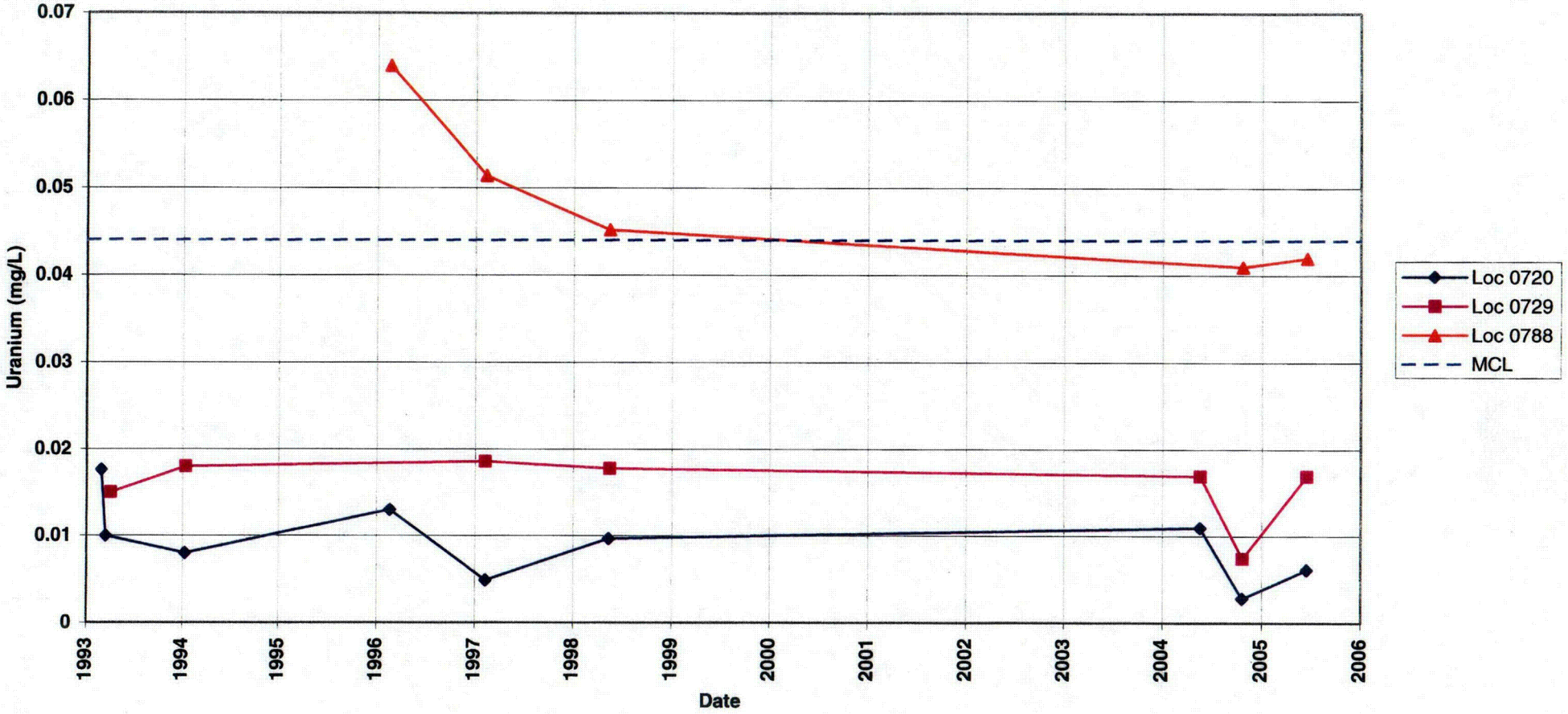
Time Versus Concentration Graphs

Riverton Processing Site
Plume Wells
Uranium Concentration



EG-0

Riverton Processing Site
Edge of Plume Wells
Uranium Concentration



C-63

Riverton Processing Site
Plume Wells
Molybdenum Concentration

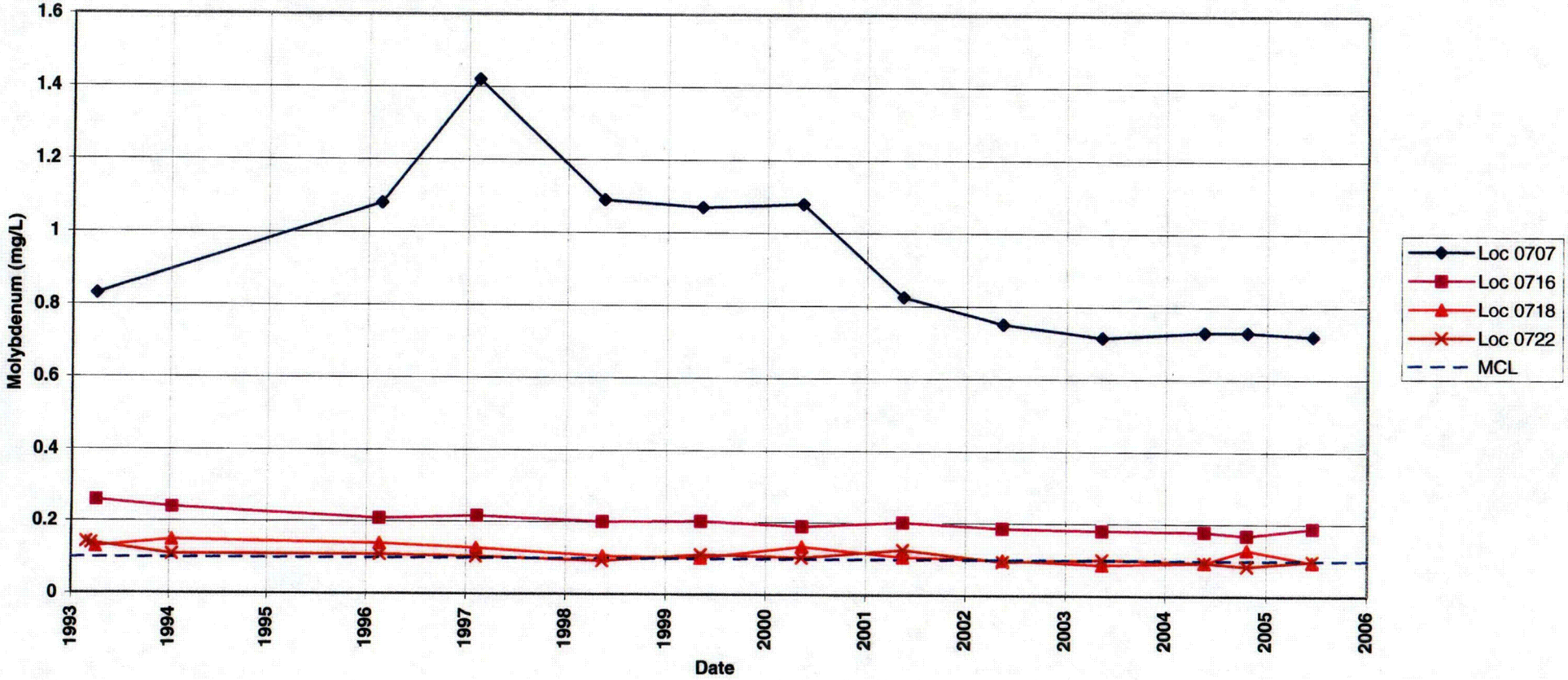
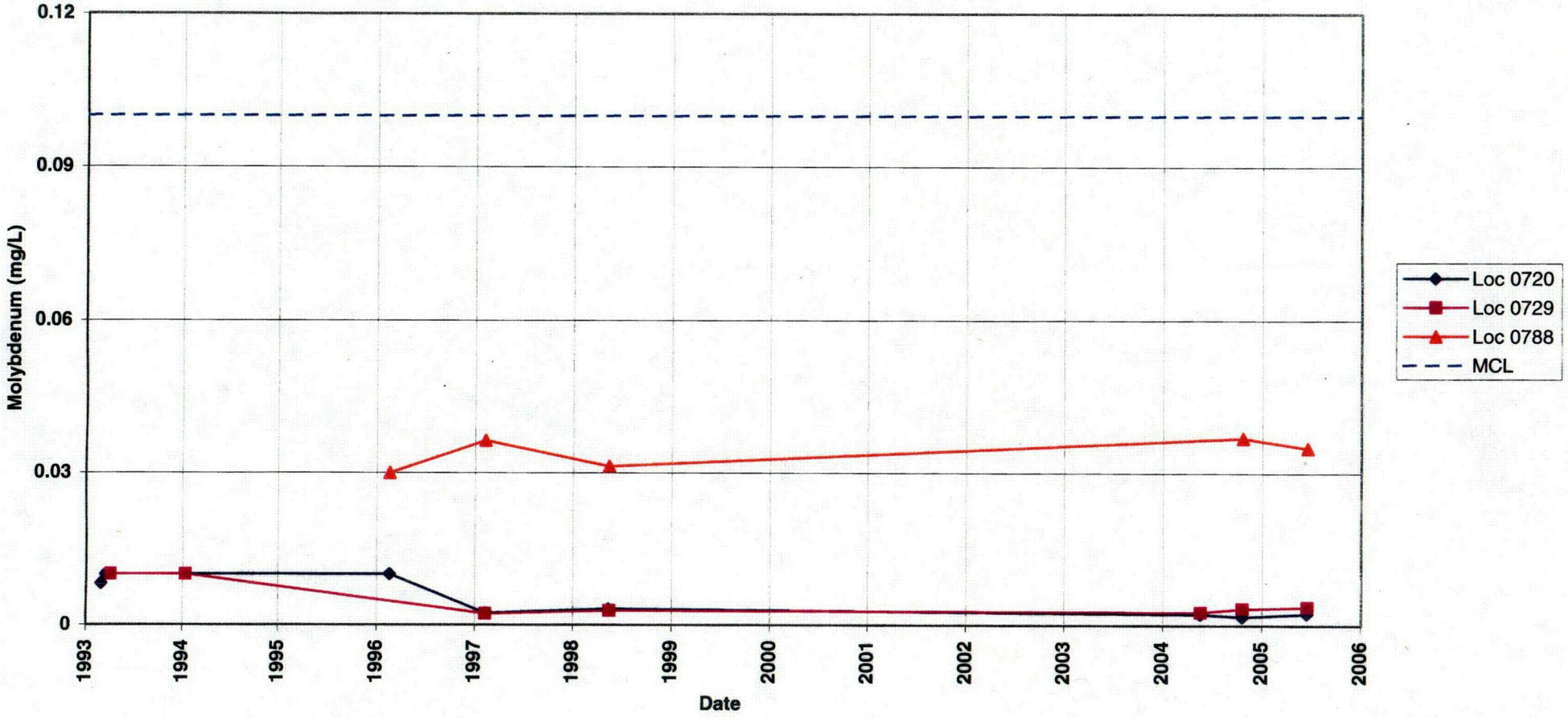


fig-2

Riverton Processing Site
Edge of Plume Wells
Molybdenum Concentration



C-61

Attachment 3
Sampling and Analysis Work Order

Stoller

established 1959

Task Order ST05-102
Control Number 1000-T05-1387

May 11, 2005

Ms. Tracy Plessinger
Site Manager, LM-50
U.S. Department of Energy
Office of Legacy Management
2597 B ¾ Road
Grand Junction, CO 81503

SUBJECT: Contract No. DE-AC01-02GJ79491, Stoller
June 2005 Environmental Sampling at Riverton, Wyoming

Reference: FY 2005 LM Task Order No. ST05-102-20-103

Dear Ms. Plessinger:

The purpose of this letter is to inform you of the upcoming sampling event at Riverton, Wyoming. Enclosed are the map and tables specifying sample locations and analytes for ground water and surface water monitoring. Water quality data will be collected from monitor wells, domestic wells, and surface locations at this site as part of the routine environmental sampling currently scheduled to begin the week of June 13, 2005.

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

Monitor Wells (filtered)*

705 Se	716 Sf	719 Se	722 Sf	730 Se	788 Sf	825
707 Sf	717 Se	720 Sf	723 Se	731 Sf	809 Sf	927 Sf
710 Sf	718 Sf	721 Se	729 Sf	735 Se	824	931 Sf

*NOTE: Se = Semi-confined sandstone; Sf = surficial

Surface Locations (filtered)

747	794	810	811	812	822	823
749	796					

Domestic Wells

405	436	441	442	446	454	460
430	440					

QA/QC samples will be collected as directed in the *Sampling and Analysis Plan for GJO Projects*. Access agreements are being reviewed and are expected to be complete by the beginning of fieldwork.

If you have any questions, please call me at extension 6588 or Sam Campbell at extension 6654.

Sincerely,

Signature on Original

Clay Carpenter
Project Manager

CC/lcg/lac
Enclosures (3)

cc: C. I. Bahrke, Stoller
S. E. Campbell, Stoller (e)
S. E. Donivan, Stoller (e)
L. C. Goodknight, Stoller (e)
K. E. Miller, Stoller
D. G. Traub, Stoller (e)

cc w/o enclosures:
Correspondence Control File (Thru V. Creagar)

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Constituent Sampling Breakdown For Individual Sites

Site	Riverton	
Analyte	Ground Water	Surface Water
Approx. No. Samples/yr	60	18
Field Measurements		
Alkalinity	X	X
Dissolved Oxygen		
Redox Potential	X	X
pH	X	X
Specific Conductance	X	X
Turbidity	X	X
Temperature	X	X
Laboratory Measurements		
Aluminum		
Ammonia as N (NH3-N)		
Antimony		
Arsenic		
Barium		
Bromide		
Cadmium		
Calcium		
Chloride		
Chromium		
Cobalt		
Copper		
Fluoride		
Gamma Spec		
Gross Alpha		
Gross Beta		
Iron		
Lead		
Lead-210		
Magnesium		
Manganese	X	X
Molybdenum	X	X
Nickel		
Nickel-63		
Nitrate + Nitrite as N (NO3+NO2)-N		
Nitrite		
PCBs		
Phosphate		
Polonium-210		
Potassium		
Radium-226		0822 only
Radium-228		0822 only
Selenium		

Analyte	Ground Water	Surface Water
Silica		
Sodium		
Strontium		
Sulfate	X	X
Sulfide		
Thallium		
Thorium-230		
Tin		
Total Dissolved Solids		
Total Organic Carbon		
Total Suspended Solids		
Uranium	X	X
Uranium-234, -238		
Vanadium		
Zinc		
Total Analytes	4	6

Attachment 4
Trip Report

Stoller

established 1959

Grand Junction Office

Memorandum

Control Number N/A

DATE: July 5, 2005

TO: Sam E. Campbell

FROM: Sam E. Campbell

SUBJECT: Trip Report

Site: Riverton, Wyoming, Processing Site.

Dates of Sampling Event: June 13 to June 17, 2005.

Team Members: Sam Campbell and Dan Sellers.

Number of Locations Sampled: 17 monitor wells, 9 surface water locations, and 9 domestic wells.

Locations Not Sampled/Reason: Several locations listed on the sampling and analysis work order were not sampled for the following reasons. Monitor wells 0824 and 0825 are proposed locations that have not been installed yet. Monitor wells 0927 and 0931 no longer exist. Domestic wells 0440 and 0441 were not sampled because owner permission was not obtained. Domestic well 0442 was not sampled because the residence is connected to the alternate water supply system.

Location Specific Information: An attempt was made to locate monitor wells 0927 and 0931 with a GPS unit. The wells were not located and are assumed to no longer exist.

Domestic well locations 0422, 0828, and 0951 were sampled even though they were not on the sampling and analysis work order. These wells are currently being used as a potable water source and are within the institutional control boundary; therefore, they should be added to the long-term sampling network.

The report for domestic well 0951 should be sent to David Lonebear Sr., P. O. Box 130, Riverton, Wyoming, 82501, (307) 856-3586. The report for domestic well 0422 should be sent to Johnnie Roylance, 10 Whitetail Drive, Riverton, Wyoming, 82501, (307) 857-6654. The report for domestic well 0460 should be sent to Chris Pogson at Peak Sulfur's Riverton address – 140 Goes in Lodge Road, Riverton, Wyoming, 82501.

Monitor wells 0705, 0719, 0730, and 0731 were purged and sampled using Category II criteria; all other monitor wells were purged and sampled using Category I criteria.

Dedicated tubing was installed in monitor wells 0718, 0719, 0722, 0729, and 0730.

Field Variance: The conductivity probe failed the operational check on the morning June 15, 2005. The probe was not recalibrated as required by procedure because there was no fresh calibration solution available. The probe met the operational check in the afternoon and for the rest of the event; therefore, the operational check failure is attributed to diluted calibration solution and the specific conductance data is considered acceptable.

Quality Control Sample Cross Reference: Following are the false identifications assigned to the quality control samples:

False ID	True ID	Sample Type	Ticket Number
2569	0828	Duplicate	NDX-843
2570	0707	Duplicate	NDX-484
2571	NA	Equipment Blank	NDY-485
2572	NA	Equipment Blank	NDY-495

Requisition Numbers Assigned: All samples were assigned to report identification number (RIN) 05050195.

Water Level Measurements: Water levels were measured at all sampled monitor wells and 20 additional monitor wells. Data loggers were downloaded from four locations, and a data logger was installed in monitor well 0809. The data logger in well 0702 malfunctioned so data was not downloaded.

Well Inspection Summary: Locks on monitor wells 0713, 0714, and 0715 were not functioning and were replaced. The surface grout/concrete pads on these wells were broken. The lock on monitor well 0736 also was replaced. Well 0712 was not found. All other wells were in good condition.

Equipment: All equipment functioned properly.

Regulatory: A meeting in Fort Washakie was held on June 17, 2005, to discuss comments on the independent review of the alternate water supply system.

Site Issues: Water was flowing into the oxbow lake from the Little Wind River during this sampling event.

Warning signs were installed around the oxbow lake with the assistance of WREQC personnel.

The location of proposed monitor wells 0824 and 0825 was determined in the field with the assistance of WREQC personnel.

Access Issues: Access to Tribal lands was obtained from Richard Ortiz with the Office of Special Trust, and Harold Smith (acting superintendent) with the BIA.

The landowner where monitor wells 0710 and 0711 are located is Steve Hampton. His address and phone number are P. O. Box 746, Riverton, Wyoming, 82501, (307) 857-1991.

Corrective Action Required/Taken: The sampling and analysis work order needs to be amended by adding locations 0422, 0828, and 0951, and deleting locations 0442, 0927, and 0931.

Monitor well 0712 needs to be located with a GPS unit. A data logger needs to be reinstalled in monitor 0702. New concrete is needed around monitor wells 0713, 0714, and 0715.

(SEC/lcg)

cc: T. B. Plessinger, DOE (e)
C. I. Bahrke, Stoller (e)
S. E. Donivan, Stoller (e)
K. E. Miller, Stoller

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