



## U.S. Department of Energy

Grand Junction Office  
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NOV - 1 2001

Mr. Melvyn Leach, Chief  
U.S. Nuclear Regulatory Commission  
Fuel Cycle Licensing Branch  
Division of Fuel Cycle Safety & Safeguards  
Mail Stop T8A33  
Washington, D.C. 20555-0001

Subject: Transmittal of *Verification Monitoring Report, Riverton, Wyoming, UMTRA Project Site.*

Dear Mr. Leach:

Enclosed is a copy of the *Verification Monitoring Report, Riverton, Wyoming, UMTRA Project Site*. The purpose of this report is to provide an interim evaluation of ground water and surface water monitoring data during the 5-year verification-monitoring period. Verification monitoring is part of the process for sites with a passive compliance strategy (natural flushing), as shown in Figure 3-1 of the *UMTRA Ground Water Project Management Action Process (MAP)* Document (September 2001). The report provides a summary of site conditions, monitoring network and results to date, status of site compliance, and recommendations.

The monitoring period for the Riverton site is from May 1999 through May 2004. Results of the monitoring program show that concentrations of uranium and molybdenum (indicator constituents for compliance monitoring) in ground water in the shallow unconfined aquifer are still above their respective standards, but levels are generally decreasing, as predicted by ground water flow and transport modeling, indicating that natural flushing is occurring in the aquifer. Concentrations of both uranium and molybdenum in the underlying semiconfined aquifer are significantly below the standards, indicating no site-related contamination of ground water in this aquifer. Surface water in the Little Wind River and the Koch Ditch have not been impacted by the site. Surface water in the oxbow lake has been impacted by the site as it is recharged by shallow ground water. Although no significant decrease has been measured to date, concentrations of uranium in surface water in the oxbow lake should decrease as levels in ground water decrease.

Verification monitoring of ground water from designated monitor wells and surface water locations will continue on an annual basis for another 3 years (through May 2004) as specified in the Final Ground Water Compliance Action Plan (September 1998). At the end of this period a

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Mr. Leach

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Confirmation Report (see Figure 3-1 in the MAP, September 2001) will be compiled and the site will be transferred to the Long-Term Surveillance and Maintenance group for long-term management.

If you have any questions, please call me at 970/248-7612.

Sincerely,

A handwritten signature in black ink, appearing to read "Donald R. Metzler", with a stylized flourish at the end.

Donald R. Metzler  
Technical/Project Manager

Enclosure.

cc w/enclosure:  
R. W. Von Till, NRC  
M. Layton, NRC

cc w/o enclosure:  
Project File GWRIV 2.0 (P. Taylor)

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# **Verification Monitoring Report Riverton, Wyoming, UMTRA Project Site**

September 2001

Prepared by the  
U.S. Department of Energy  
Grand Junction Office



**UMTRA Ground Water Project**

**Verification Monitoring Report  
Riverton, Wyoming,  
UMTRA Project Site**

September 2001

Prepared by  
U.S. Department of Energy  
Grand Junction Office  
Grand Junction, Colorado

Project Number UGW-511-0018-08-000  
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Appendix B—	Surface Water Quality Data by Parameter

## **1.0 Introduction**

### **1.1 Purpose of Report**

The purpose of this Verification Monitoring Report is to evaluate ground water and surface water monitoring data collected at the Riverton, Wyoming, UMTRA Project processing site since 1996 and assess the status of the compliance strategy for ground water cleanup.

### **1.2 Compliance Strategy**

The proposed compliance strategy for the Riverton site is natural flushing in conjunction with institutional controls and compliance monitoring (DOE 1998d). Public health will be protected during the natural flushing process through a moratorium on future well drilling in the affected area. This institutional control is stated in the Memorandum of Agreement (DOE 1997). Also, DOE funded an alternate drinking water supply system in 1998 to service all water users in the area.

## **2.0 Site Conditions**

### **2.1 Hydrogeology**

The Riverton uranium processing site is located on an alluvial terrace between the Wind River and the Little Wind River approximately 2.3 miles southwest of the town of Riverton, Wyoming. The former processing site and monitoring network are shown on Figure 1. Ground water occurs in three aquifers beneath the site: (1) surficial unconfined aquifer, (2) middle semiconfined aquifer, and 3) deeper confined aquifer. The uppermost aquifer consists of the surficial unconfined alluvial aquifer and the semiconfined sandstones of the upper units of the Eocene Wind River Formation. A deeper confined sandstone aquifer underlies a shale aquitard. Ground water in the uppermost aquifer flows to the southeast and discharges to the Little Wind River. Depth to ground in the uppermost aquifer is generally less than 10 feet (ft) below land surface. The water level fluctuates on an annual basis relative to recharge and discharge from the adjacent streams (Figure 2).

### **2.2 Water Quality**

Ground water beneath and downgradient from the site was contaminated as a result of uranium processing activities from 1958 through 1963 (DOE 1998a). Constituents of potential concern (COPC) in the uppermost aquifer are arsenic, manganese, molybdenum, nickel, sulfate, uranium, vanadium, lead-210, polonium-210, and thorium-230 (DOE 1998a). Uranium and molybdenum were selected as indicator constituents for compliance monitoring in the uppermost aquifer in the vicinity of the site (DOE 1998d). The respective maximum concentration limits (MCL) for uranium and molybdenum are 0.044 milligrams per liter (mg/L) and 0.10 mg/L, respectively. The distribution of uranium in ground water is shown in Figure 1. The distribution of molybdenum in ground water is similar to that of uranium. Concentrations of other COPCs were generally low and do not appear to present a problem in ground water at the site. Ground water

and surface water quality data by parameter since 1996 for all COPCs are provided in Appendices A and B.

## **2.3 Remediation Activities**

Uranium mill tailings and other contaminated materials were removed from the Riverton processing site during 1988-1989 and encapsulated at the Umetco Gas Hills Title II disposal site.

## **2.4 Land and Water Use**

Land in the vicinity of the site is used primarily as pasture for livestock. Some nearby residents have vegetable gardens. There are no known plans for large-scale residential, commercial, industrial, or recreational projects near the contaminant plume during the proposed natural flushing period (DOE 1998b).

Ground water beneath and down gradient from the Riverton site is not currently being used as a drinking water source. To eliminate the potential pathway from site-related contaminated ground water to human receptors, DOE funded an alternate drinking water supply system in 1998 to service all water users in the area.

# **3.0 Monitoring Program**

## **3.1 Monitoring Network**

Verification monitoring is to be performed annually for the first 5 years after NRC concurrence with the GCAP (through May 2004) to ascertain that natural flushing is progressing as predicted by ground water flow and transport modeling (DOE 1998a, 1998d, and NRC 1999). The monitoring network consists of eleven monitor wells and four surface water locations (Figure 1 and Table 1). Two other monitor wells identified as part of the monitoring network in the Site Observational Work Plan (DOE 1998a) are no longer sampled. RVT-706 (unconfined aquifer) was recently abandoned because of encroachment of the Little Wind River and RVT-732 (semiconfined aquifer) is not sampled because of grout contamination.

Upon completion of the initial 5 year verification monitoring period, a Confirmation Report will be prepared, and the site will be transferred to the Long-Term Surveillance and Maintenance (LTSM) Group for long-term management. Monitoring is to be conducted annually for the first 5 years (verification monitoring) and once every 5 years thereafter until analytical data demonstrate that ground water in the uppermost aquifer has cleaned up. Uranium and molybdenum were selected as indicator constituents for compliance monitoring (DOE 1998d).



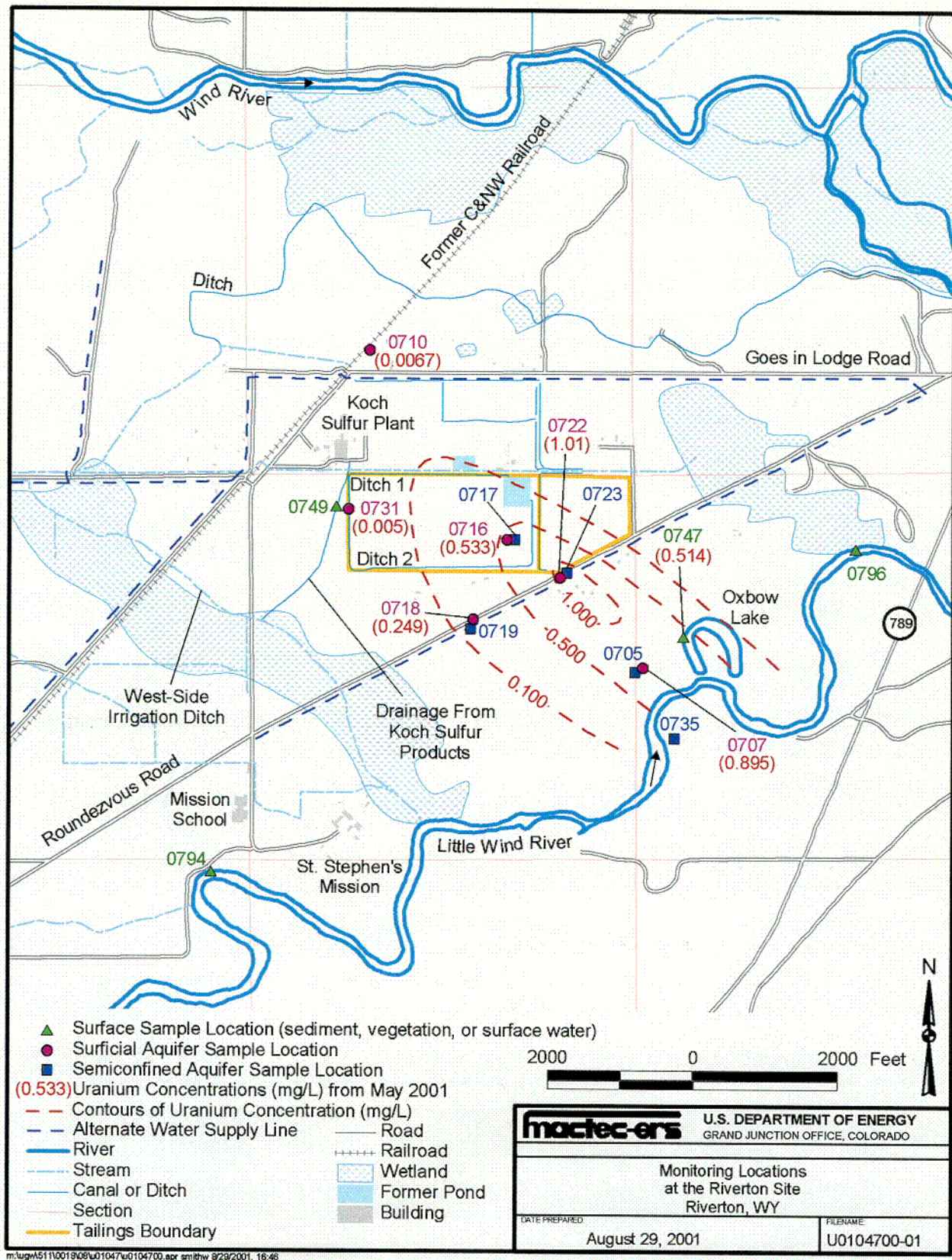


Figure 1. Monitoring Locations at the Riverton Site

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# Ground Water Elevations and Streamflow at the Riverton Site

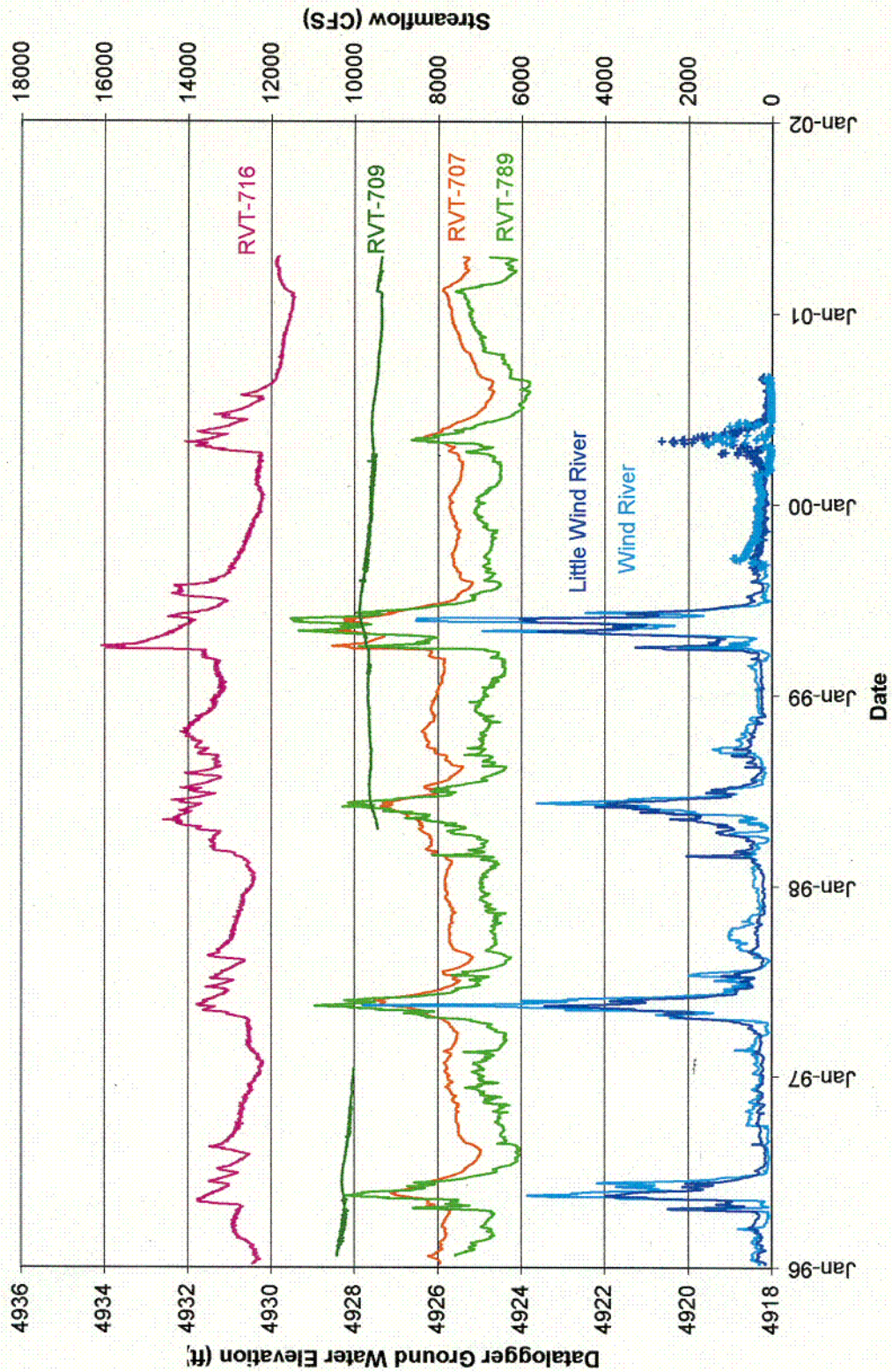


Figure 2. Ground Water Elevations and Streamflow at the Riverton Site

Table 1. Monitor Wells and Surface Water Sampling Locations at the Riverton Site

Location ID	Aquifer Zone	Total Depth	Location	Rationale
<b>Ground Water</b>				
RVT-705	Semiconfined	50	Offsite	Track plume centroid migration
RVT-707	Unconfined	17	Offsite	" "
RVT-710	Unconfined	20	Upgradient	Background
RVT-716	Unconfined	13	Onsite	Track upper plume
RVT-717	Semiconfined	50	Onsite	" "
RVT-718	Unconfined	18	Offsite	Track cross gradient plume
RVT-719	Semiconfined	40	Offsite	" "
RVT-722	Unconfined	18	Offsite	Track mid plume area
RVT-723	Semiconfined	49	Offsite	" "
RVT-731	Unconfined	12	Onsite	Upper cross gradient
RVT-735	Semiconfined	44	Across River	
<b>Surface Water</b>				
RVT-747			Oxbow Lake	Surface water recharged by plume
RVT-749			Koch Ditch	Near existing sulfur plant
RVT-794			Little Wind River	Upstream
RVT-796			Little Wind River	Downstream

### 3.2 Results of Monitoring Program

Results of the monitoring program to date show that concentrations of uranium and molybdenum in ground water in the surficial unconfined aquifer are above the respective MCLs in the contaminant plume which is migrating southeastward from the processing site toward the Little Wind River (Figures 3 and 4). However, concentrations are decreasing as predicted, indicating that natural flushing is occurring in the surficial aquifer. Concentrations of uranium and molybdenum in ground water in the semiconfined aquifer are significantly below the respective MCLs indicating no impact of site-related contamination to this unit (Figures 3 and 4).

Contaminated ground water discharges to the Little Wind River, but there has never been any evidence of impact to surface water quality in the river (Figures 5 and 6). Concentrations of uranium are elevated in surface water in the oxbow lake which was formed by a shift in the river path in 1994 (Figures 5 and 6). Data indicate that the oxbow lake is being recharged by contaminated ground water. Concentrations of molybdenum are elevated in surface water in the Koch Ditch, but these do not appear to be site-related.

## 4.0 Conclusions

### 4.1 Status of Site Compliance

Uranium and molybdenum were selected as indicator constituents for compliance monitoring (DOE 1998d). While concentrations of both uranium and molybdenum in the shallow unconfined aquifer are still above their respective MCLs, levels are generally decreasing, indicating that natural flushing is occurring in the aquifer. Concentrations of both uranium and molybdenum in the underlying semiconfined aquifer are significantly below the MCLs indicating no site-related contamination of ground water in the semiconfined aquifer.

Surface water in the Little Wind River and the Koch Ditch have not been impacted by the site. Surface water in the oxbow lake has been impacted by the site as it is recharged by shallow ground water from the contaminant plume. Although no significant decrease has been measured to date, concentrations of uranium in surface water in the oxbow lake should decrease as levels in ground water decrease.

A probabilistic hydrogeologic model was developed in 1997 to simulate the ground water flow regime at the site and to predict the transport of contaminants from the site (DOE 1998a). The model predicted that concentrations of uranium and molybdenum in ground water in the shallow unconfined aquifer will be reduced to levels below the MCLs within approximately 100 years from 1997. Based on comparison of 5 years of monitoring data with concentrations predicted by the modeling, it appears that natural flushing is occurring in the uppermost aquifer beneath and downgradient from the site as concentrations of uranium and molybdenum are beginning to decrease (Figures 7 and 8).

## 4.2 Recommendations

Verification monitoring of ground water from designated monitor wells and surface water locations will continue on an annual basis for another 3 years (through May 2004) as specified in the Ground Water Compliance Action Plan (GCAP) (DOE 1998d). At the end of this period a Confirmation Report will be compiled and the site will be transferred to the LTSM Group for long-term management.

## 5.0 References

U.S. Department of Energy (DOE), 1995. *Baseline Risk Assessment of Ground Water Contamination at the Uranium Mill Tailings Site Near Riverton, Wyoming*, DOE/AL/62350-65, Rev. 1, September.

\_\_\_\_\_, 1997. *DOE Interagency Agreement with Indian Health & Human Services*: DE-A113-97GJ77618, 03 June 1997.

\_\_\_\_\_, 1998a. *Final Site Observational Work Plan for the UMTRA Project Site at Riverton, Wyoming*, Document No. U0013801, February.

\_\_\_\_\_, 1998b. *Environmental Assessment of Ground Water Compliance at the Riverton, Wyoming, Uranium Mill Tailings Site*, DOE/EA-1261, Rev. 0, Final, September.

\_\_\_\_\_, 1998c. *Finding of No Significant Impact -- Ground Water Compliance at the Riverton, Wyoming, Uranium Mill Tailings Site*, September.

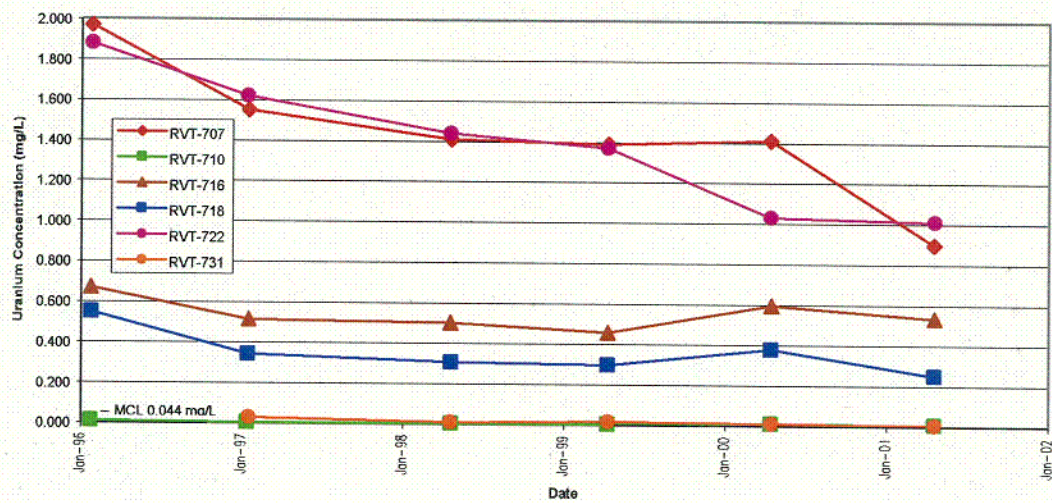
\_\_\_\_\_, 1998d. *Final Ground Water Compliance Action Plan for the Riverton, Wyoming, Title I UMTRA Site*, attached to letter from DOE to NRC of 22 September 1998.

\_\_\_\_\_, 2001. *Data Validation for the Riverton, Wyoming UMTRA Site*, May.

U.S. Nuclear Regulatory Commission (NRC), 1999. *Acceptance of the Final Groundwater Compliance Action Plan for the Riverton, Wyoming Title I UMTRA Site*, letter with attached Technical Evaluation Report from NRC to DOE, 03 May 1999.



**Uranium Concentrations in Ground Water  
in the Unconfined Aquifer at the Riverton Site**



**Uranium Concentrations in Ground Water  
in the Semiconfined Aquifer at the Riverton Site**

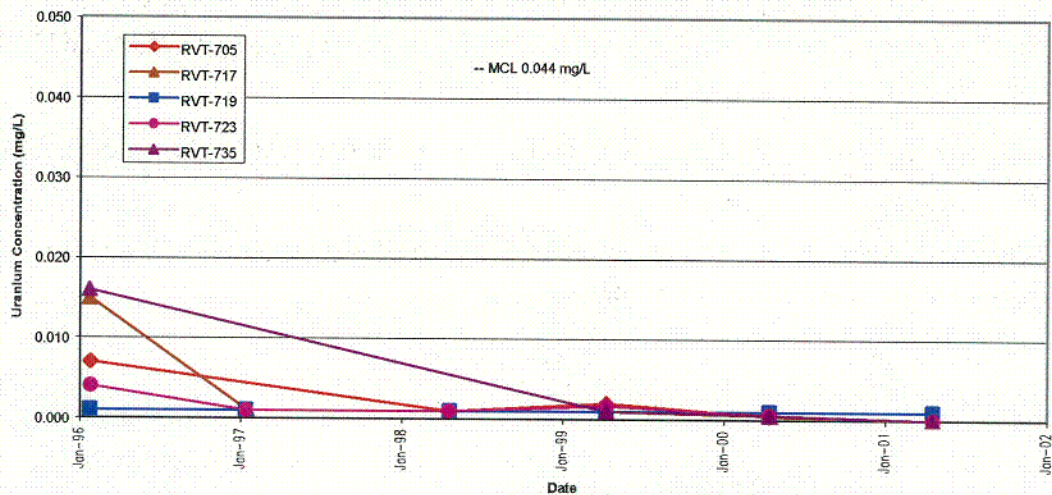
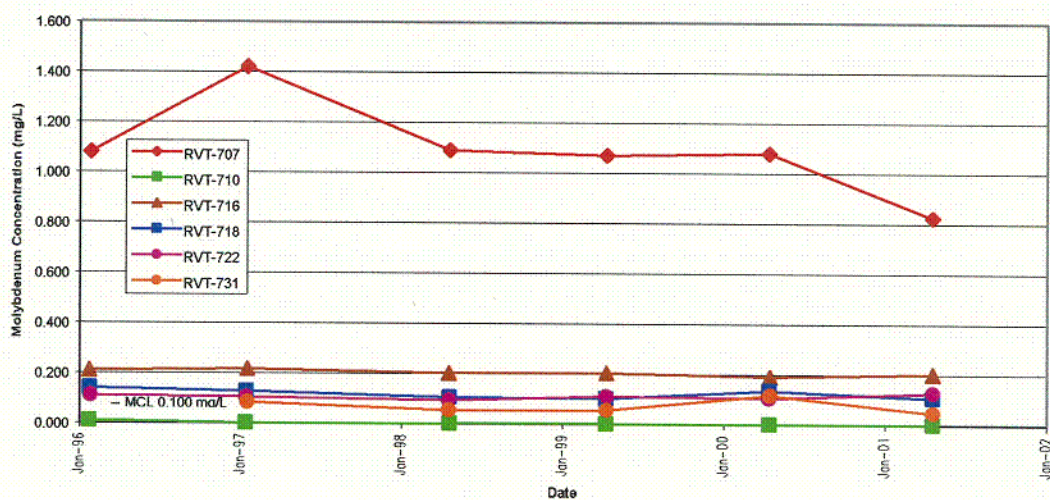
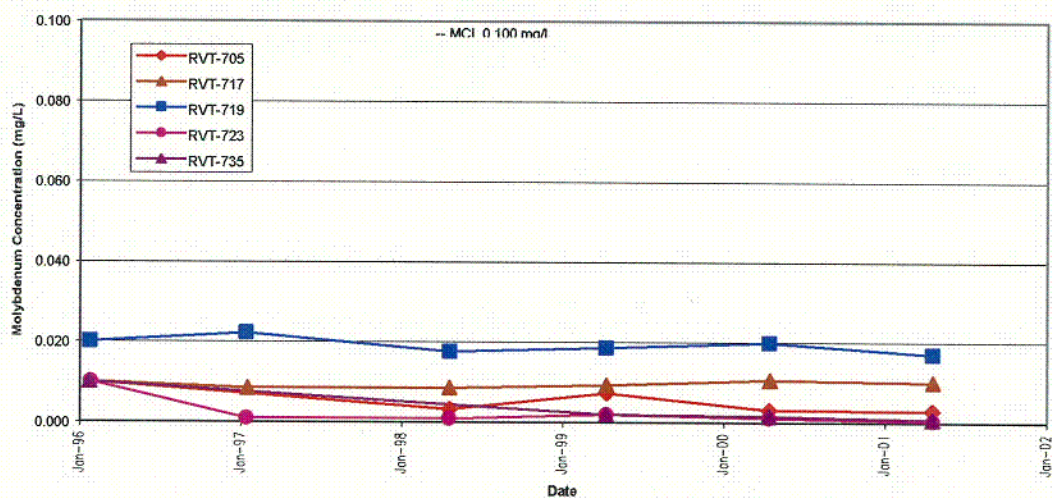


Figure 3. Uranium Concentrations in Ground Water at the Riverton Site

**Molybdenum Concentrations in Ground Water  
in the Unconfined Aquifer at the Riverton Site**



**Molybdenum Concentrations in Ground Water  
in the Semiconfined Aquifer at the Riverton Site**



**Figure 4. Molybdenum Concentrations in Ground Water at the Riverton Site**



### Uranium Concentrations in Surface Water near the Riverton Site

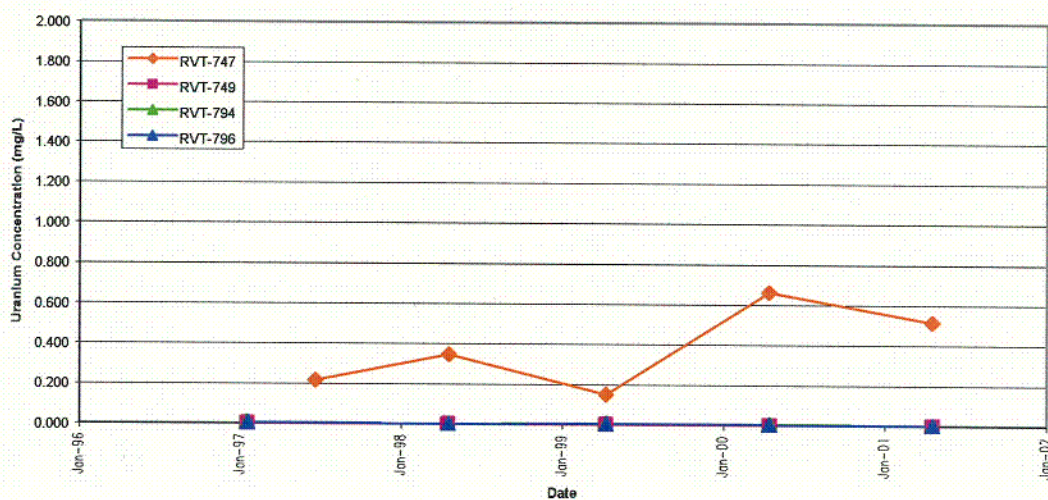


Figure 5. Uranium Concentrations in Surface Water near the Riverton Site

### Molybdenum Concentrations in Surface Water near the Riverton Site

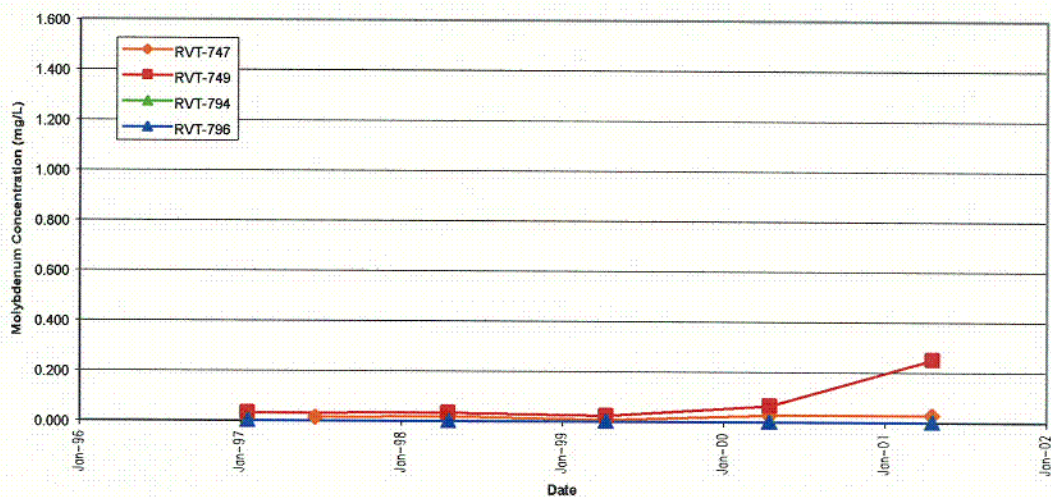


Figure 6. Molybdenum Concentrations in Surface Water near the Riverton Site



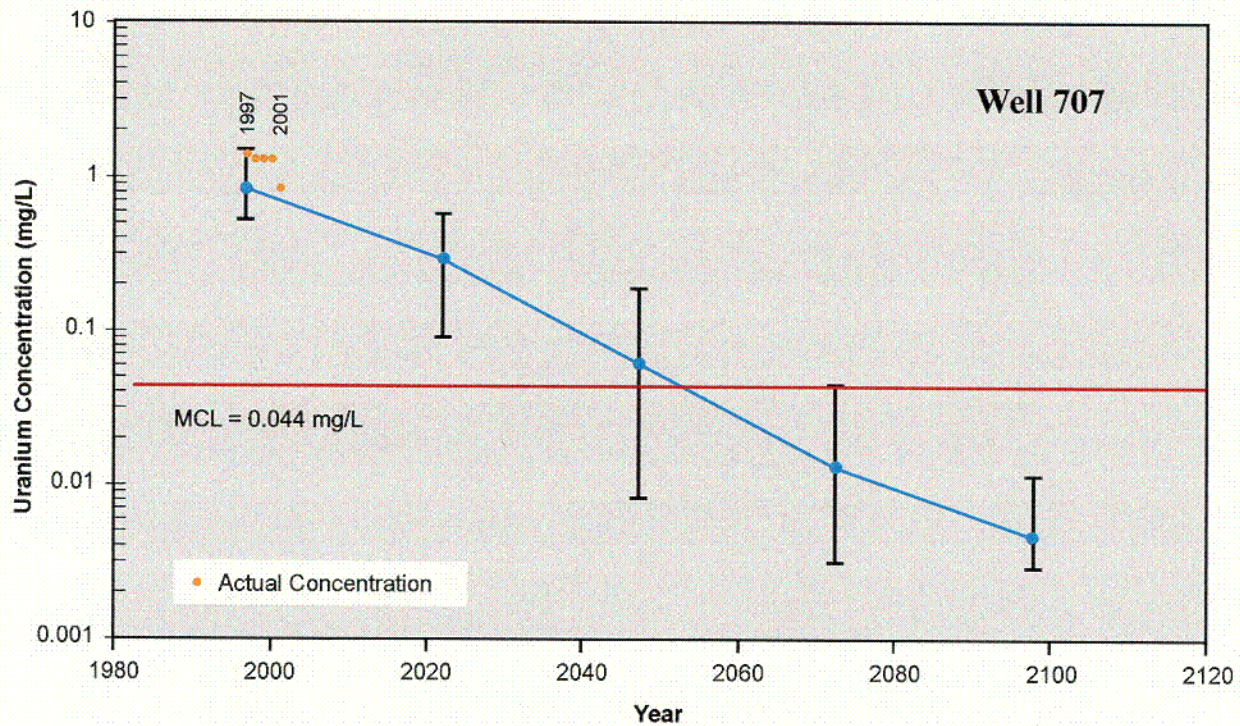


Figure 7. Predicted versus Actual Uranium Concentrations in Ground Water at the Riverton Site

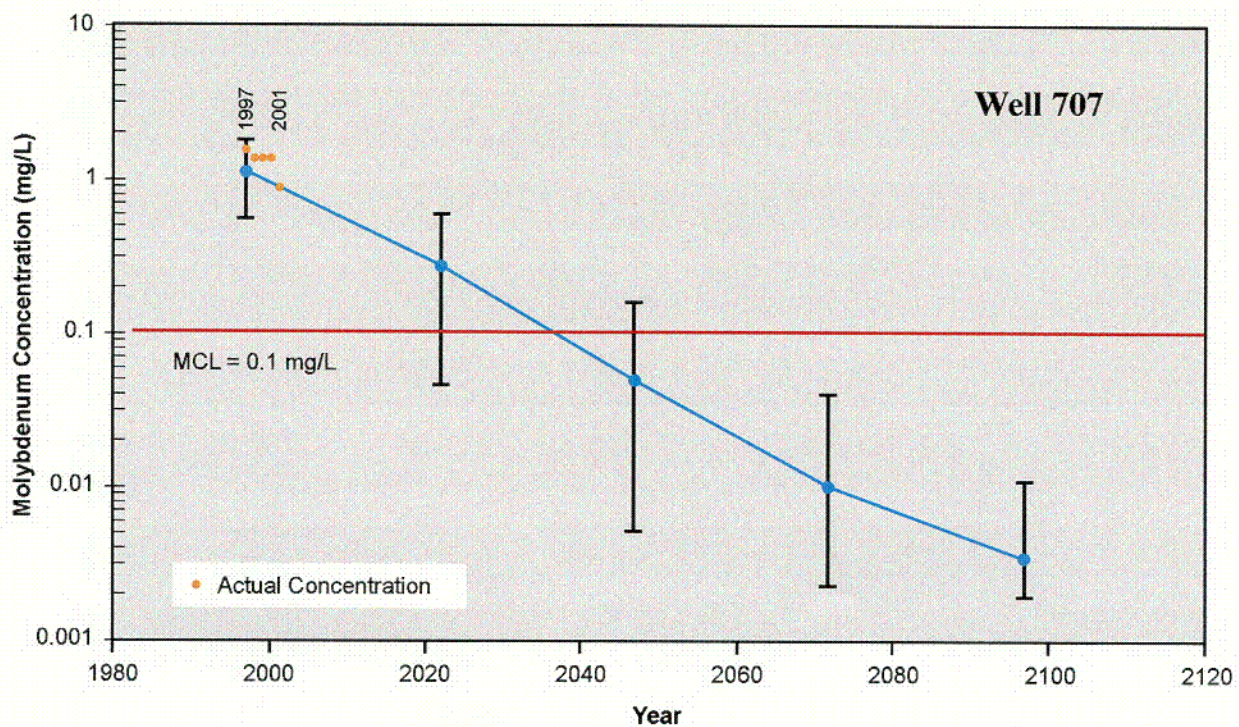


Figure 8. Predicted versus Actual Molybdenum Concentrations in Ground Water at the Riverton Site



## **Appendix A**

### **Ground Water Quality Data by Parameter**

GROUND WATER QUALITY DATA BY PARAMETER (USEE200) FOR SITE RVT01, RIVERTON  
REPORT DATE: 8/21/2001 2:07 p

PARAMETER	UNITS	LOCATION ID	SAMPLE: DATE	ID	ZONE COMPL	FLOW REL.	RESULT	QUALIFIERS: LAB DATA QA			DETECTION LIMIT	UN- CERTAINTY
Arsenic	mg/L	0705	02/18/1996	0001	SE	D	0.005	U	F	#	0.005	-
	mg/L	0705	05/14/1998	0001	SE	D	0.0010	U	GL	#	0.001	-
	mg/L	0705	05/06/1999	0001	SE	D	0.0010	U	L	#	0.001	-
	mg/L	0705	05/09/2000	0001	SE	D	0.00023	B	L	#	-	-
	mg/L	0705	05/15/2001	0001	SE	D	0.0005	U	L	#	0.0005	-
	mg/L	0705	05/15/2001	0002	SE	D	0.0005	U	L	#	0.0005	-
	mg/L	0707	02/18/1996	0001	SF	D	0.005	U		#	0.005	-
	mg/L	0707	02/09/1997	0001	SF	D	0.0010	B	J	#	-	-
	mg/L	0707	05/15/1998	0001	SF	D	0.0013	B		#	-	-
	mg/L	0707	05/06/1999	0001	SF	D	0.0013	B		#	-	-
	mg/L	0707	05/09/2000	0001	SF	D	0.0015	B		#	-	-
	mg/L	0707	05/15/2001	0001	SF	D	0.001	B		#	0.0005	-
	mg/L	0710	02/16/1996	0001	SF	U	0.005	U		#	0.005	-
	mg/L	0710	02/05/1997	0001	SF	U	0.0016	B	J	#	-	-
	mg/L	0710	05/15/1998	0001	SF	U	0.0022	B		#	-	-
	mg/L	0710	05/05/1999	0001	SF	U	0.0018	B		#	-	-
	mg/L	0710	05/10/2000	0001	SF	U	0.0015	B		#	-	-
	mg/L	0710	05/16/2001	0001	SF	U	0.002	B		#	0.0005	-
	mg/L	0716	02/16/1996	0001	SF	O	0.005	U		#	0.005	-
	mg/L	0716	02/09/1997	0001	SF	O	0.00040	BN	J	#	-	-
	mg/L	0716	05/14/1998	0001	SF	O	0.0010	U		#	0.001	-
	mg/L	0716	05/06/1999	0001	SF	O	0.0010	U		#	0.001	-
	mg/L	0716	05/11/2000	0001	SF	O	0.0012	B		#	-	-
	mg/L	0716	05/16/2001	0001	SF	O	0.0005	U		#	0.0005	-
	mg/L	0717	02/16/1996	0001	SE	O	0.005	U		#	0.005	-
	mg/L	0717	02/09/1997	0001	SE	O	0.00020	U		#	0.0002	-
	mg/L	0717	05/14/1998	0001	SE	O	0.0010	U		#	0.001	-

GROUND WATER QUALITY DATA BY PARAMETER (USEE200) FOR SITE RVT01, RIVERTON  
REPORT DATE: 8/21/2001 2:07 p

PARAMETER	UNITS	LOCATION ID	SAMPLE: DATE	ID	ZONE COMPL	FLOW REL.	RESULT	QUALIFIERS: LAB DATA QA	DETECTION LIMIT	UN- CERTAINTY
Arsenic	mg/L	0717	05/06/1999	0001	SE	O	0.0010	U #	0.001	-
	mg/L	0717	05/11/2000	0001	SE	O	0.00039	B #	-	-
	mg/L	0717	05/16/2001	0001	SE	O	0.0005	U #	0.0005	-
	mg/L	0718	02/17/1996	0001	SF	D	0.005	U #	0.005	-
	mg/L	0718	02/07/1997	0001	SF	D	0.00071	B J #	-	-
	mg/L	0718	05/15/1998	0001	SF	D	0.0010	U #	0.001	-
	mg/L	0718	05/05/1999	0001	SF	D	0.0010	U #	0.001	-
	mg/L	0718	05/10/2000	0001	SF	D	0.00045	B U #	-	-
	mg/L	0718	05/16/2001	0001	SF	D	0.0005	U #	0.0005	-
	mg/L	0719	02/17/1996	0001	SE	D	0.005	U F #	0.005	-
	mg/L	0719	02/06/1997	0001	SE	D	0.0013	B J #	-	-
	mg/L	0719	05/15/1998	0001	SE	D	0.0012	B L #	-	-
	mg/L	0719	05/05/1999	0001	SE	D	0.0010	U L #	0.001	-
	mg/L	0719	05/10/2000	0001	SE	D	0.0018	B L #	-	-
	mg/L	0719	05/16/2001	0001	SE	D	0.0012	B L #	0.0005	-
	mg/L	0722	02/18/1996	0001	SF	D	0.005	U #	0.005	-
	mg/L	0722	02/06/1997	0001	SF	D	0.00020	UN J #	0.0002	-
	mg/L	0722	05/13/1998	0001	SF	D	0.0010	U #	0.001	-
	mg/L	0722	05/05/1999	0001	SF	D	0.0010	U #	0.001	-
	mg/L	0722	05/09/2000	0001	SF	D	0.0002	U #	0.0002	-
	mg/L	0722	05/16/2001	0001	SF	D	0.0005	U #	0.0005	-
	mg/L	0723	02/18/1996	0001	SE	D	0.005	U #	0.005	-
	mg/L	0723	02/06/1997	0001	SE	D	0.00042	BN J #	-	-
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	mg/L	0723	05/05/1999	0001	SE	D	0.0010	U #	0.001	-
	mg/L	0723	05/06/1999	0002	SE	D	0.0010	U #	0.001	-
	mg/L	0723	05/09/2000	0001	SE	D	0.00097	B #	-	-

GROUND WATER QUALITY DATA BY PARAMETER (USEE200) FOR SITE RVT01, RIVERTON  
REPORT DATE: 8/21/2001 2:07 p

PARAMETER	UNITS	LOCATION ID	SAMPLE: DATE	ID	ZONE COMPL	FLOW REL.	RESULT	QUALIFIERS: LAB DATA QA			DETECTION LIMIT	UN-CERTAINTY
Arsenic	mg/L	0723	05/16/2001	0001	SE	D	0.0005	U		#	0.0005	-
	mg/L	0731	02/09/1997	0001	SF	U	0.0456		J	#	-	-
	mg/L	0731	05/13/1998	0001	SF	U	0.0235		L	#	-	-
	mg/L	0731	05/06/1999	0001	SF	U	0.0366		L	#	-	-
	mg/L	0731	05/11/2000	0001	SF	U	0.0174		L	#	-	-
	mg/L	0731	05/16/2001	0001	SF	U	0.0192			#	0.0005	-
	mg/L	0735	02/15/1996	0001	SE	D	0.005	U		#	0.005	-
	mg/L	0735	05/05/1999	0001	SE	D	0.0016	B		#	-	-
	mg/L	0735	05/10/2000	0001	SE	D	0.0014	B		#	-	-
	mg/L	0735	05/10/2000	0002	SE	D	0.0015	B		#	-	-
	mg/L	0735	05/15/2001	0001	SE	D	0.0011	B		#	0.0005	-
Lead-210	pCi/L	0705	05/14/1998	0001	SE	D	0.98	U	GL	#	0.98	± 0.57
	pCi/L	0707	02/09/1997	0001	SF	D	1.17	U		#	1.17	± 0.69
	pCi/L	0707	05/15/1998	0001	SF	D	1.44	U		#	1.44	± 0.87
	pCi/L	0710	02/05/1997	0001	SF	U	0.98	U		#	0.98	± 0.59
	pCi/L	0710	05/15/1998	0001	SF	U	0.95	U		#	0.95	± 0.56
	pCi/L	0716	02/09/1997	0001	SF	O	1.29	U		#	1.29	± 0.76
	pCi/L	0716	05/14/1998	0001	SF	O	1.06	U		#	1.06	± 0.63
	pCi/L	0717	02/09/1997	0001	SE	O	1.18	U		#	1.18	± 0.70
	pCi/L	0717	05/14/1998	0001	SE	O	0.95	U		#	0.95	± 0.56
	pCi/L	0718	02/07/1997	0001	SF	D	1.24	U		#	1.24	± 0.73
	pCi/L	0718	05/15/1998	0001	SF	D	1.20	U		#	1.2	± 0.72
	pCi/L	0719	02/06/1997	0001	SE	D	1.10	U		#	1.1	± 0.65
	pCi/L	0719	05/15/1998	0001	SE	D	1.08	U	L	#	1.08	± 0.64
	pCi/L	0722	02/06/1997	0001	SF	D	2.21			#	1.24	± 0.76
	pCi/L	0722	05/13/1998	0001	SF	D	1.03	U		#	1.03	± 0.60
	pCi/L	0723	02/06/1997	0001	SE	D	1.19	U		#	1.19	± 0.71

GROUND WATER QUALITY DATA BY PARAMETER (USEE200) FOR SITE RVT01, RIVERTON  
REPORT DATE: 8/21/2001 2:07 p

PARAMETER	UNITS	LOCATION ID	SAMPLE: DATE	ID	ZONE COMPL	FLOW REL.	RESULT	QUALIFIERS: LAB DATA QA			DETECTION LIMIT	UN-CERTAINTY
Lead-210	pCi/L	0723	05/13/1998	0001	SE	D	1.10	U		#	1.1	± 0.63
	pCi/L	0731	02/09/1997	0001	SF	U	1.45		U	#	1.26	± 0.77
	pCi/L	0731	05/13/1998	0001	SF	U	1.05	U	L	#	1.05	± 0.62
Manganese	mg/L	0705	02/18/1996	0001	SE	D	0.01		F	#	0.01	-
	mg/L	0705	05/14/1998	0001	SE	D	0.0014	B	GL	#	-	-
	mg/L	0705	05/06/1999	0001	SE	D	0.0028	B	L	#	-	-
	mg/L	0705	05/09/2000	0001	SE	D	0.0019	B	UL	#	-	-
	mg/L	0705	05/15/2001	0001	SE	D	0.0061	B	L	#	0.0001	-
	mg/L	0705	05/15/2001	0002	SE	D	0.0037	B	L	#	0.0001	-
	mg/L	0707	02/18/1996	0001	SF	D	4.05			#	0.01	-
	mg/L	0707	02/09/1997	0001	SF	D	3.540			#	-	-
	mg/L	0707	05/15/1998	0001	SF	D	3.190			#	-	-
	mg/L	0707	05/06/1999	0001	SF	D	3.310			#	-	-
	mg/L	0707	05/09/2000	0001	SF	D	3.000			#	-	-
	mg/L	0707	05/15/2001	0001	SF	D	2.400			#	0.0001	-
	mg/L	0710	02/16/1996	0001	SF	U	0.01	U		#	0.01	-
	mg/L	0710	02/05/1997	0001	SF	U	0.0022	B		#	-	-
	mg/L	0710	05/15/1998	0001	SF	U	0.0075	B		#	-	-
	mg/L	0710	05/05/1999	0001	SF	U	0.0010	U		#	0.001	-
	mg/L	0710	05/10/2000	0001	SF	U	0.0013	U		#	0.0013	-
	mg/L	0710	05/16/2001	0001	SF	U	0.001	B		#	0.0001	-
	mg/L	0716	02/16/1996	0001	SF	O	0.75			#	0.01	-
	mg/L	0716	02/09/1997	0001	SF	O	0.681			#	-	-
	mg/L	0716	05/14/1998	0001	SF	O	0.634			#	-	-
	mg/L	0716	05/06/1999	0001	SF	O	0.485			#	-	-
	mg/L	0716	05/11/2000	0001	SF	O	0.773			#	-	-
	mg/L	0716	05/16/2001	0001	SF	O	0.699			#	0.0001	-



GROUND WATER QUALITY DATA BY PARAMETER (USEE200) FOR SITE RVT01, RIVERTON  
REPORT DATE: 8/21/2001 2:07 p

PARAMETER	UNITS	LOCATION ID	SAMPLE: DATE	ID	ZONE COMPL	FLOW REL.	RESULT	QUALIFIERS: LAB DATA QA	DETECTION LIMIT	UN- CERTAINTY
Manganese	mg/L	0717	02/16/1996	0001	SE	O	0.23	#	0.01	-
	mg/L	0717	02/09/1997	0001	SE	O	0.216	#	-	-
	mg/L	0717	05/14/1998	0001	SE	O	0.203	#	-	-
	mg/L	0717	05/06/1999	0001	SE	O	0.206	#	-	-
	mg/L	0717	05/11/2000	0001	SE	O	0.210	#	-	-
	mg/L	0717	05/16/2001	0001	SE	O	0.205	#	0.0001	-
	mg/L	0718	02/17/1996	0001	SF	D	3.18	#	0.01	-
	mg/L	0718	02/07/1997	0001	SF	D	2.580	#	-	-
	mg/L	0718	05/15/1998	0001	SF	D	2.310	#	-	-
	mg/L	0718	05/05/1999	0001	SF	D	2.440	#	-	-
	mg/L	0718	05/10/2000	0001	SF	D	2.380	#	-	-
	mg/L	0718	05/16/2001	0001	SF	D	2.130	#	0.0001	-
	mg/L	0719	02/17/1996	0001	SE	D	0.05	F #	0.01	-
	mg/L	0719	02/06/1997	0001	SE	D	0.123	#	-	-
	mg/L	0719	05/15/1998	0001	SE	D	0.0115	L #	-	-
	mg/L	0719	05/05/1999	0001	SE	D	0.0310	L #	-	-
	mg/L	0719	05/10/2000	0001	SE	D	0.134	L #	-	-
	mg/L	0719	05/16/2001	0001	SE	D	0.137	L #	0.0001	-
	mg/L	0722	02/18/1996	0001	SF	D	1.97	#	0.01	-
	mg/L	0722	02/06/1997	0001	SF	D	1.840	#	-	-
	mg/L	0722	05/13/1998	0001	SF	D	1.530	#	-	-
	mg/L	0722	05/05/1999	0001	SF	D	1.130	#	-	-
	mg/L	0722	05/09/2000	0001	SF	D	1.220	#	-	-
	mg/L	0722	05/16/2001	0001	SF	D	1.060	#	0.0001	-
	mg/L	0723	02/18/1996	0001	SE	D	0.66	#	0.01	-
	mg/L	0723	02/06/1997	0001	SE	D	0.789	#	-	-
	mg/L	0723	05/13/1998	0001	SE	D	0.744	#	-	-

GROUND WATER QUALITY DATA BY PARAMETER (USEE200) FOR SITE RVT01, RIVERTON  
REPORT DATE: 8/21/2001 2:07 p

PARAMETER	UNITS	LOCATION ID	SAMPLE: DATE	ID	ZONE COMPL	FLOW REL.	RESULT	QUALIFIERS: LAB DATA QA			DETECTION LIMIT	UN- CERTAINTY
Manganese	mg/L	0723	05/05/1999	0001	SE	D	0.761			#	-	
	mg/L	0723	05/06/1999	0002	SE	D	0.767			#	-	-
	mg/L	0723	05/09/2000	0001	SE	D	1.010			#	-	-
	mg/L	0723	05/16/2001	0001	SE	D	0.766			#	0.0001	-
	mg/L	0731	02/09/1997	0001	SF	U	0.411			#	-	-
	mg/L	0731	05/13/1998	0001	SF	U	0.0316	L		#	-	-
	mg/L	0731	05/06/1999	0001	SF	U	0.0812	L		#	-	-
	mg/L	0731	05/11/2000	0001	SF	U	0.0435	L		#	-	-
	mg/L	0731	05/16/2001	0001	SF	U	0.0729			#	0.0001	-
	mg/L	0735	02/15/1996	0001	SE	D	0.12			#	0.01	-
	mg/L	0735	05/05/1999	0001	SE	D	0.133			#	-	-
	mg/L	0735	05/10/2000	0001	SE	D	0.120			#	-	-
	mg/L	0735	05/10/2000	0002	SE	D	0.120			#	-	-
	mg/L	0735	05/15/2001	0001	SE	D	0.122			#	0.0001	-
Molybdenum	mg/L	0705	02/18/1996	0001	SE	D	0.01	U	F	#	0.01	-
	mg/L	0705	05/14/1998	0001	SE	D	0.0033	B	GL	#	-	-
	mg/L	0705	05/06/1999	0001	SE	D	0.0073	B	L	#	-	-
	mg/L	0705	05/09/2000	0001	SE	D	0.0031	BN	JL	#	-	-
	mg/L	0705	05/15/2001	0001	SE	D	0.0027	B	L	#	0.0004	-
	mg/L	0705	05/15/2001	0002	SE	D	0.0024	B	L	#	0.0004	-
	mg/L	0707	02/18/1996	0001	SF	D	1.08			#	0.01	-
	mg/L	0707	02/09/1997	0001	SF	D	1.420			#	-	-
	mg/L	0707	05/15/1998	0001	SF	D	1.090			#	-	-
	mg/L	0707	05/06/1999	0001	SF	D	1.070			#	-	-
	mg/L	0707	05/09/2000	0001	SF	D	1.080	N	J	#	-	-
	mg/L	0707	05/15/2001	0001	SF	D	0.825			#	0.002	-
	mg/L	0710	02/16/1996	0001	SF	U	0.01	U		#	0.01	-

GROUND WATER QUALITY DATA BY PARAMETER (USEE200) FOR SITE RVT01, RIVERTON  
 REPORT DATE: 8/21/2001 2:07 p

PARAMETER	UNITS	LOCATION ID	SAMPLE: DATE	ID	ZONE COMPL	FLOW REL.	RESULT	QUALIFIERS: LAB DATA QA			DETECTION LIMIT	UN- CERTAINTY
Molybdenum	mg/L	0710	02/05/1997	0001	SF	U	0.0019	B		#	-	-
	mg/L	0710	05/15/1998	0001	SF	U	0.0026	B		#	-	-
	mg/L	0710	05/05/1999	0001	SF	U	0.0020	U		#	0.002	-
	mg/L	0710	05/10/2000	0001	SF	U	0.0017	BN	UJ	#	-	-
	mg/L	0710	05/16/2001	0001	SF	U	0.0014	B		#	0.0004	-
	mg/L	0716	02/16/1996	0001	SF	O	0.21			#	0.01	-
	mg/L	0716	02/09/1997	0001	SF	O	0.217			#	-	-
	mg/L	0716	05/14/1998	0001	SF	O	0.202			#	-	-
	mg/L	0716	05/06/1999	0001	SF	O	0.204			#	-	-
	mg/L	0716	05/11/2000	0001	SF	O	0.191	N	J	#	-	-
	mg/L	0716	05/16/2001	0001	SF	O	0.203			#	0.0004	-
	mg/L	0717	02/16/1996	0001	SE	O	0.01	U		#	0.01	-
	mg/L	0717	02/09/1997	0001	SE	O	0.0085	B		#	-	-
	mg/L	0717	05/14/1998	0001	SE	O	0.0086	B		#	-	-
	mg/L	0717	05/06/1999	0001	SE	O	0.0093	B		#	-	-
	mg/L	0717	05/11/2000	0001	SE	O	0.0106	N	J	#	-	-
	mg/L	0717	05/16/2001	0001	SE	O	0.010			#	0.0004	-
	mg/L	0718	02/17/1996	0001	SF	D	0.14			#	0.01	-
	mg/L	0718	02/07/1997	0001	SF	D	0.128			#	-	-
	mg/L	0718	05/15/1998	0001	SF	D	0.107			#	-	-
	mg/L	0718	05/05/1999	0001	SF	D	0.103			#	-	-
	mg/L	0718	05/10/2000	0001	SF	D	0.135	N	J	#	-	-
	mg/L	0718	05/16/2001	0001	SF	D	0.107			#	0.0004	-
	mg/L	0719	02/17/1996	0001	SE	D	0.02		F	#	0.01	-
	mg/L	0719	02/06/1997	0001	SE	D	0.0222			#	-	-
	mg/L	0719	05/15/1998	0001	SE	D	0.0176		L	#	-	-
	mg/L	0719	05/05/1999	0001	SE	D	0.0186		L	#	-	-

GROUND WATER QUALITY DATA BY PARAMETER (USEE200) FOR SITE RVT01, RIVERTON  
REPORT DATE: 8/21/2001 2:07 p

PARAMETER	UNITS	LOCATION ID	SAMPLE: DATE	ID	ZONE COMPL	FLOW REL.	RESULT	QUALIFIERS: LAB DATA QA			DETECTION LIMIT	UN-CERTAINTY
Molybdenum	mg/L	0719	05/10/2000	0001	SE	D	0.0199	N	JL	#	-	-
	mg/L	0719	05/16/2001	0001	SE	D	0.0174		L	#	0.0004	-
	mg/L	0722	02/18/1996	0001	SF	D	0.11			#	0.01	-
	mg/L	0722	02/06/1997	0001	SF	D	0.105			#	-	-
	mg/L	0722	05/13/1998	0001	SF	D	0.0943			#	-	-
	mg/L	0722	05/05/1999	0001	SF	D	0.112			#	-	-
	mg/L	0722	05/09/2000	0001	SF	D	0.105	N	J	#	-	-
	mg/L	0722	05/16/2001	0001	SF	D	0.127			#	0.0004	-
	mg/L	0723	02/18/1996	0001	SE	D	0.01	U		#	0.01	-
	mg/L	0723	02/06/1997	0001	SE	D	0.0010	U		#	0.001	-
	mg/L	0723	05/13/1998	0001	SE	D	0.0010	U		#	0.001	-
	mg/L	0723	05/05/1999	0001	SE	D	0.0020	U		#	0.002	-
	mg/L	0723	05/06/1999	0002	SE	D	0.0020	U		#	0.002	-
	mg/L	0723	05/09/2000	0001	SE	D	0.0011	BN	J	#	-	-
	mg/L	0723	05/16/2001	0001	SE	D	0.0004	U		#	0.0004	-
	mg/L	0731	02/09/1997	0001	SF	U	0.0846			#	-	-
	mg/L	0731	05/13/1998	0001	SF	U	0.0557		L	#	-	-
	mg/L	0731	05/06/1999	0001	SF	U	0.0567		L	#	-	-
	mg/L	0731	05/11/2000	0001	SF	U	0.117	N	JL	#	-	-
	mg/L	0731	05/16/2001	0001	SF	U	0.0477			#	0.0004	-
	mg/L	0735	02/15/1996	0001	SE	D	0.01	U		#	0.01	-
	mg/L	0735	05/05/1999	0001	SE	D	0.0020	U		#	0.002	-
	mg/L	0735	05/10/2000	0001	SE	D	0.0016	BN	UJ	#	-	-
	mg/L	0735	05/10/2000	0002	SE	D	0.0019	BN	UJ	#	-	-
	mg/L	0735	05/15/2001	0001	SE	D	0.00079	B		#	0.0004	-
Nickel	mg/L	0705	02/18/1996	0001	SE	D	0.04	U	F	#	0.04	-
	mg/L	0705	05/14/1998	0001	SE	D	0.0050	U	GL	#	0.005	-

GROUND WATER QUALITY DATA BY PARAMETER (USEE200) FOR SITE RVT01, RIVERTON  
REPORT DATE: 8/21/2001 2:08 p

PARAMETER	UNITS	LOCATION ID	SAMPLE: DATE	ID	ZONE COMPL	FLOW REL.	RESULT	QUALIFIERS: LAB DATA QA			DETECTION LIMIT	UN-CERTAINTY
Nickel	mg/L	0705	05/06/1999	0001	SE	D	0.0141	B	L	#	-	-
	mg/L	0705	05/09/2000	0001	SE	D	0.0107	U	L	#	0.0107	-
	mg/L	0705	05/15/2001	0001	SE	D	0.001	U	L	#	0.001	-
	mg/L	0705	05/15/2001	0002	SE	D	0.0018	B	L	#	0.001	-
	mg/L	0707	02/18/1996	0001	SF	D	0.18			#	0.04	-
	mg/L	0707	02/09/1997	0001	SF	D	0.120			#	-	-
	mg/L	0707	05/15/1998	0001	SF	D	0.0904			#	-	-
	mg/L	0707	05/06/1999	0001	SF	D	0.0890			#	-	-
	mg/L	0707	05/09/2000	0001	SF	D	0.0874			#	-	-
	mg/L	0707	05/15/2001	0001	SF	D	0.0632			#	0.001	-
	mg/L	0710	02/16/1996	0001	SF	U	0.04	U		#	0.04	-
	mg/L	0710	02/05/1997	0001	SF	U	0.0070	U		#	0.007	-
	mg/L	0710	05/15/1998	0001	SF	U	0.0050	U		#	0.005	-
	mg/L	0710	05/05/1999	0001	SF	U	0.0090	U		#	0.009	-
	mg/L	0710	05/10/2000	0001	SF	U	0.0107	U		#	0.0107	-
	mg/L	0710	05/16/2001	0001	SF	U	0.001	U		#	0.001	-
	mg/L	0716	02/16/1996	0001	SF	O	0.04	U		#	0.04	-
	mg/L	0716	02/09/1997	0001	SF	O	0.0081	B		#	-	-
	mg/L	0716	05/14/1998	0001	SF	O	0.0113	B		#	-	-
	mg/L	0716	05/06/1999	0001	SF	O	0.0118	B		#	-	-
	mg/L	0716	05/11/2000	0001	SF	O	0.0107	U		#	0.0107	-
	mg/L	0716	05/16/2001	0001	SF	O	0.008	B		#	0.001	-
	mg/L	0717	02/16/1996	0001	SE	O	0.04	U		#	0.04	-
	mg/L	0717	02/09/1997	0001	SE	O	0.0070	U		#	0.007	-
	mg/L	0717	05/14/1998	0001	SE	O	0.0050	U		#	0.005	-
	mg/L	0717	05/06/1999	0001	SE	O	0.0124	B		#	-	-
	mg/L	0717	05/11/2000	0001	SE	O	0.0107	U		#	0.0107	-

GROUND WATER QUALITY DATA BY PARAMETER (USEE200) FOR SITE RVT01, RIVERTON  
REPORT DATE: 8/21/2001 2:08 p

PARAMETER	UNITS	LOCATION ID	SAMPLE: DATE	ID	ZONE COMPL	FLOW REL.	RESULT	QUALIFIERS: LAB DATA QA			DETECTION LIMIT	UN-CERTAINTY
Nickel	mg/L	0717	05/16/2001	0001	SE	O	0.001	U		#	0.001	-
	mg/L	0718	02/17/1996	0001	SF	D	0.04	U		#	0.04	-
	mg/L	0718	02/07/1997	0001	SF	D	0.0298	B		#	-	-
	mg/L	0718	05/15/1998	0001	SF	D	0.0379	B		#	-	-
	mg/L	0718	05/05/1999	0001	SF	D	0.0197	B		#	-	-
	mg/L	0718	05/10/2000	0001	SF	D	0.0316	B		#	-	-
	mg/L	0718	05/16/2001	0001	SF	D	0.0295	B		#	0.001	-
	mg/L	0719	02/17/1996	0001	SE	D	0.04	U	F	#	0.04	-
	mg/L	0719	02/06/1997	0001	SE	D	0.0070	U		#	0.007	-
	mg/L	0719	05/15/1998	0001	SE	D	0.0050	U	L	#	0.005	-
	mg/L	0719	05/05/1999	0001	SE	D	0.0090	U	L	#	0.009	-
	mg/L	0719	05/10/2000	0001	SE	D	0.0107	U	L	#	0.0107	-
	mg/L	0719	05/16/2001	0001	SE	D	0.001	U	L	#	0.001	-
	mg/L	0722	02/18/1996	0001	SF	D	0.04	U		#	0.04	-
	mg/L	0722	02/06/1997	0001	SF	D	0.0128	B		#	-	-
	mg/L	0722	05/13/1998	0001	SF	D	0.0155	B		#	-	-
	mg/L	0722	05/05/1999	0001	SF	D	0.0254	B		#	-	-
	mg/L	0722	05/09/2000	0001	SF	D	0.0107	U		#	0.0107	-
	mg/L	0722	05/16/2001	0001	SF	D	0.0096	B		#	0.001	-
	mg/L	0723	02/18/1996	0001	SE	D	0.04	U		#	0.04	-
	mg/L	0723	02/06/1997	0001	SE	D	0.0070	U		#	0.007	-
	mg/L	0723	05/13/1998	0001	SE	D	0.0050	U		#	0.005	-
	mg/L	0723	05/05/1999	0001	SE	D	0.0090	U		#	0.009	-
	mg/L	0723	05/06/1999	0002	SE	D	0.0090	U		#	0.009	-
	mg/L	0723	05/09/2000	0001	SE	D	0.0107	U		#	0.0107	-
	mg/L	0723	05/16/2001	0001	SE	D	0.001	U		#	0.001	-
	mg/L	0731	02/09/1997	0001	SF	U	0.0304	B		#	-	-



GROUND WATER QUALITY DATA BY PARAMETER (USEE200) FOR SITE RVT01, RIVERTON  
REPORT DATE: 8/21/2001 2:08 p

PARAMETER	UNITS	LOCATION ID	SAMPLE: DATE	ID	ZONE COMPL	FLOW REL.	RESULT	QUALIFIERS: LAB DATA QA			DETECTION LIMIT	UN- CERTAINTY
Nickel	mg/L	0731	05/13/1998	0001	SF	U	0.0081	B	L	#	-	-
	mg/L	0731	05/06/1999	0001	SF	U	0.0275	B	L	#	-	-
	mg/L	0731	05/11/2000	0001	SF	U	0.014	B	L	#	-	-
	mg/L	0731	05/16/2001	0001	SF	U	0.0143	B		#	0.001	-
	mg/L	0735	02/15/1996	0001	SE	D	0.04	U		#	0.04	-
	mg/L	0735	05/05/1999	0001	SE	D	0.0095	B	U	#	-	-
	mg/L	0735	05/10/2000	0001	SE	D	0.0107	U		#	0.0107	-
	mg/L	0735	05/10/2000	0002	SE	D	0.0107	U		#	0.0107	-
	mg/L	0735	05/15/2001	0001	SE	D	0.001	U		#	0.001	-
Polonium-210	pCi/L	0705	05/14/1998	0001	SE	D	0.11	U	GL	#	0.11	± 0.10
	pCi/L	0707	02/09/1997	0001	SF	D	0.36			#	0.08	± 0.19
	pCi/L	0707	05/15/1998	0001	SF	D	0.13		U	#	0.06	± 0.13
	pCi/L	0710	02/05/1997	0001	SF	U	0.15		U	#	0.11	± 0.15
	pCi/L	0710	05/15/1998	0001	SF	U	0.09	U		#	0.09	± -0.06
	pCi/L	0716	02/09/1997	0001	SF	O	0.15		U	#	0.11	± 0.15
	pCi/L	0716	05/14/1998	0001	SF	O	0.07	U		#	0.07	± 0.09
	pCi/L	0717	02/09/1997	0001	SE	O	0.15	U		#	0.15	± 0.19
	pCi/L	0717	05/14/1998	0001	SE	O	0.07	U		#	0.07	± 0.09
	pCi/L	0718	02/07/1997	0001	SF	D	0.21		U	#	0.11	± 0.16
	pCi/L	0718	05/15/1998	0001	SF	D	0.17	U		#	0.17	± 0.17
	pCi/L	0719	02/06/1997	0001	SE	D	0.15			#	0.06	± 0.10
	pCi/L	0719	05/15/1998	0001	SE	D	0.10	U	L	#	0.1	± -0.07
	pCi/L	0722	02/06/1997	0001	SF	D	0.12	U		#	0.12	± 0.12
	pCi/L	0722	05/13/1998	0001	SF	D	0.08	U		#	0.08	± 0.10
	pCi/L	0723	02/06/1997	0001	SE	D	0.12	U		#	0.12	± -0.11
	pCi/L	0723	05/13/1998	0001	SE	D	0.07	U		#	0.07	± 0.09
	pCi/L	0731	02/09/1997	0001	SF	U	0.72			#	0.09	± 0.27

GROUND WATER QUALITY DATA BY PARAMETER (USEE200) FOR SITE RVT01, RIVERTON  
REPORT DATE: 8/21/2001 2:08 p

PARAMETER	UNITS	LOCATION ID	SAMPLE: DATE	ID	ZONE COMPL	FLOW REL.	RESULT	QUALIFIERS: LAB DATA QA			DETECTION LIMIT	UN- CERTAINTY
Polonium-210	pCi/L	0731	05/13/1998	0001	SF	U	0.25	L	#		0.05	± 0.14
Sulfate	mg/L	0705	02/18/1996	0001	SE	D	442	I	F	#	2	-
	mg/L	0705	05/14/1998	0001	SE	D	388.000		GL	#	-	-
	mg/L	0705	05/06/1999	0001	SE	D	369.000		L	#	-	-
	mg/L	0705	05/09/2000	0001	SE	D	432.000		L	#	-	-
	mg/L	0705	05/15/2001	0001	SE	D	345.000	N	JL	#	0.0504	-
	mg/L	0705	05/15/2001	0002	SE	D	345.000	N	JL	#	0.0504	-
	mg/L	0707	02/18/1996	0001	SF	D	4410	I		#	10	-
	mg/L	0707	02/09/1997	0001	SF	D	3640.000			#	-	-
	mg/L	0707	05/15/1998	0001	SF	D	3090.000			#	-	-
	mg/L	0707	05/06/1999	0001	SF	D	3550.000			#	-	-
	mg/L	0707	05/09/2000	0001	SF	D	3790.000			#	-	-
	mg/L	0707	05/15/2001	0001	SF	D	1970.000	N	J	#	0.252	-
	mg/L	0710	02/16/1996	0001	SF	U	173	I		#	1	-
	mg/L	0710	02/05/1997	0001	SF	U	111.000			#	-	-
	mg/L	0710	05/15/1998	0001	SF	U	115.000			#	-	-
	mg/L	0710	05/05/1999	0001	SF	U	161.000			#	-	-
	mg/L	0710	05/10/2000	0001	SF	U	373.000			#	-	-
	mg/L	0710	05/16/2001	0001	SF	U	177.000	N	J	#	0.0252	-
	mg/L	0716	02/16/1996	0001	SF	O	845	I		#	4	-
	mg/L	0716	02/09/1997	0001	SF	O	662.000			#	-	-
	mg/L	0716	05/14/1998	0001	SF	O	667.000			#	-	-
	mg/L	0716	05/06/1999	0001	SF	O	849.000			#	-	-
	mg/L	0716	05/11/2000	0001	SF	O	850.000			#	-	-
	mg/L	0716	05/16/2001	0001	SF	O	423.000	N	J	#	0.0504	-
	mg/L	0717	02/16/1996	0001	SE	O	745	I		#	4	-
	mg/L	0717	02/09/1997	0001	SE	O	728.000			#	-	-

GROUND WATER QUALITY DATA BY PARAMETER (USEE200) FOR SITE RVT01, RIVERTON  
 REPORT DATE: 8/21/2001 2:08 p

PARAMETER	UNITS	LOCATION ID	SAMPLE: DATE	ID	ZONE COMPL	FLOW REL.	RESULT	QUALIFIERS: LAB DATA QA			DETECTION LIMIT	UN- CERTAINTY
Sulfate	mg/L	0717	05/14/1998	0001	SE	O	692.000			#	-	-
	mg/L	0717	05/06/1999	0001	SE	O	740.000			#	-	-
	mg/L	0717	05/11/2000	0001	SE	O	772.000			#	-	-
	mg/L	0717	05/16/2001	0001	SE	O	705.000	N	J	#	0.126	-
	mg/L	0718	02/17/1996	0001	SF	D	2960	I		#	8	-
	mg/L	0718	02/07/1997	0001	SF	D	2400.000			#	-	-
	mg/L	0718	05/15/1998	0001	SF	D	1980.000			#	-	-
	mg/L	0718	05/05/1999	0001	SF	D	2380.000			#	-	-
	mg/L	0718	05/10/2000	0001	SF	D	2730.000			#	-	-
	mg/L	0718	05/16/2001	0001	SF	D	1130.000	N	J	#	0.126	-
	mg/L	0719	02/17/1996	0001	SE	D	485	I	F	#	1	-
	mg/L	0719	02/06/1997	0001	SE	D	426.000			#	-	-
	mg/L	0719	05/15/1998	0001	SE	D	391.000		L	#	-	-
	mg/L	0719	05/05/1999	0001	SE	D	393.000		L	#	-	-
	mg/L	0719	05/10/2000	0001	SE	D	429.000		L	#	-	-
	mg/L	0719	05/16/2001	0001	SE	D	343.000	N	JL	#	0.0504	-
	mg/L	0722	02/18/1996	0001	SF	D	1880	I		#	4	-
	mg/L	0722	02/06/1997	0001	SF	D	1540.000			#	-	-
	mg/L	0722	05/13/1998	0001	SF	D	677.000			#	-	-
	mg/L	0722	05/05/1999	0001	SF	D	1650.000			#	-	-
	mg/L	0722	05/09/2000	0001	SF	D	1330.000			#	-	-
	mg/L	0722	05/16/2001	0001	SF	D	890.000	N	J	#	0.126	-
	mg/L	0723	02/18/1996	0001	SE	D	1900	I		#	8	-
	mg/L	0723	02/06/1997	0001	SE	D	1910.000			#	-	-
	mg/L	0723	05/13/1998	0001	SE	D	877.000			#	-	-
	mg/L	0723	05/05/1999	0001	SE	D	1940.000			#	-	-
	mg/L	0723	05/06/1999	0002	SE	D	1920.000			#	-	-

GROUND WATER QUALITY DATA BY PARAMETER (USEE200) FOR SITE RVT01, RIVERTON  
REPORT DATE: 8/21/2001 2:08 p

PARAMETER	UNITS	LOCATION ID	SAMPLE: DATE	ID	ZONE COMPL	FLOW REL.	RESULT	QUALIFIERS: LAB DATA QA			DETECTION LIMIT	UN- CERTAINTY
Sulfate	mg/L	0723	05/09/2000	0001	SE	D	2010.000			#	-	-
	mg/L	0723	05/16/2001	0001	SE	D	1060.000	N	J	#	0.126	-
	mg/L	0731	02/09/1997	0001	SF	U	2650.000			#	-	-
	mg/L	0731	05/13/1998	0001	SF	U	1880.000		L	#	-	-
	mg/L	0731	05/06/1999	0001	SF	U	2060.000		L	#	-	-
	mg/L	0731	05/11/2000	0001	SF	U	1820.000		L	#	-	-
	mg/L	0731	05/16/2001	0001	SF	U	972.000	N	J	#	0.126	-
	mg/L	0735	02/15/1996	0001	SE	D	572	I		#	3	-
	mg/L	0735	05/05/1999	0001	SE	D	647.000			#	-	-
	mg/L	0735	05/10/2000	0001	SE	D	603.000			#	-	-
	mg/L	0735	05/10/2000	0002	SE	D	595.000			#	-	-
	mg/L	0735	05/15/2001	0001	SE	D	390.000	N	J	#	0.0504	-
Thorium-230	pCi/L	0705	05/14/1998	0001	SE	D	0.80	U	GL	#	0.8	-
	pCi/L	0707	02/09/1997	0001	SF	D	0.64	U		#	0.64	-
	pCi/L	0707	05/15/1998	0001	SF	D	0.80	U		#	0.8	-
	pCi/L	0710	05/15/1998	0001	SF	U	0.80	U		#	0.8	-
	pCi/L	0716	02/09/1997	0001	SF	O	0.64	UN	J	#	0.64	-
	pCi/L	0716	05/14/1998	0001	SF	O	0.80	U		#	0.8	-
	pCi/L	0717	02/09/1997	0001	SE	O	0.64	U		#	0.64	-
	pCi/L	0717	05/14/1998	0001	SE	O	0.80	U		#	0.8	-
	pCi/L	0718	02/07/1997	0001	SF	D	0.64	U		#	0.64	-
	pCi/L	0718	05/15/1998	0001	SF	D	0.80	U		#	0.8	-
	pCi/L	0719	02/06/1997	0001	SE	D	0.64	U		#	0.64	-
	pCi/L	0719	05/15/1998	0001	SE	D	0.80	U	L	#	0.8	-
	pCi/L	0722	02/06/1997	0001	SF	D	0.64	UN	J	#	0.64	-
	pCi/L	0722	05/13/1998	0001	SF	D	4.5		U	#	-	-
	pCi/L	0723	02/06/1997	0001	SE	D	0.64	UN	J	#	0.64	-

GROUND WATER QUALITY DATA BY PARAMETER (USEE200) FOR SITE RVT01, RIVERTON  
REPORT DATE: 8/21/2001 2:08 p

PARAMETER	UNITS	LOCATION ID	SAMPLE: DATE	ID	ZONE COMPL	FLOW REL.	RESULT	QUALIFIERS: LAB DATA QA			DETECTION LIMIT	UN-CERTAINTY
Thorium-230	pCi/L	0723	05/13/1998	0001	SE	D	2.9		U	#	-	-
	pCi/L	0731	02/09/1997	0001	SF	U	0.64	U		#	0.64	-
	pCi/L	0731	05/13/1998	0001	SF	U	1.6	B	L	#	-	-
Uranium	mg/L	0705	02/18/1996	0001	SE	D	0.007		FJ	#	0.001	-
	mg/L	0705	05/14/1998	0001	SE	D	0.0010	U	GL	#	0.001	-
	mg/L	0705	05/06/1999	0001	SE	D	0.0020		L	#	-	-
	mg/L	0705	05/09/2000	0001	SE	D	0.00046	B	L	#	-	-
	mg/L	0705	05/15/2001	0001	SE	D	0.00019	B	L	#	0.0001	-
	mg/L	0705	05/15/2001	0002	SE	D	0.00032	B	L	#	0.0001	-
	mg/L	0707	02/18/1996	0001	SF	D	1.97			#	0.001	-
	mg/L	0707	02/09/1997	0001	SF	D	1.550			#	-	-
	mg/L	0707	05/15/1998	0001	SF	D	1.410			#	-	-
	mg/L	0707	05/06/1999	0001	SF	D	1.390			#	-	-
	mg/L	0707	05/09/2000	0001	SF	D	1.410			#	-	-
	mg/L	0707	05/15/2001	0001	SF	D	0.895			#	0.0005	-
	mg/L	0710	02/16/1996	0001	SF	U	0.010		J	#	0.001	-
	mg/L	0710	02/05/1997	0001	SF	U	0.0034			#	-	-
	mg/L	0710	05/15/1998	0001	SF	U	0.0038			#	-	-
	mg/L	0710	05/05/1999	0001	SF	U	0.0055			#	-	-
	mg/L	0710	05/10/2000	0001	SF	U	0.0093	B		#	-	-
	mg/L	0710	05/16/2001	0001	SF	U	0.0067	B		#	0.0001	-
	mg/L	0716	02/16/1996	0001	SF	O	0.669			#	0.001	-
	mg/L	0716	02/09/1997	0001	SF	O	0.513			#	-	-
	mg/L	0716	05/14/1998	0001	SF	O	0.502			#	-	-
	mg/L	0716	05/06/1999	0001	SF	O	0.458			#	-	-
	mg/L	0716	05/11/2000	0001	SF	O	0.595			#	-	-
	mg/L	0716	05/16/2001	0001	SF	O	0.533			#	0.0001	-

GROUND WATER QUALITY DATA BY PARAMETER (USEE200) FOR SITE RVT01, RIVERTON  
REPORT DATE: 8/21/2001 2:08 p

PARAMETER	UNITS	LOCATION ID	SAMPLE: DATE	ID	ZONE COMPL	FLOW REL.	RESULT	QUALIFIERS:			DETECTION LIMIT	UN- CERTAINTY
								LAB	DATA	QA		
Uranium	mg/L	0717	02/16/1996	0001	SE	O	0.015		J	#	0.001	-
	mg/L	0717	02/09/1997	0001	SE	O	0.0010	U		#	0.001	-
	mg/L	0717	05/14/1998	0001	SE	O	0.0010	U		#	0.001	-
	mg/L	0717	05/06/1999	0001	SE	O	0.0010	U		#	0.001	-
	mg/L	0717	05/11/2000	0001	SE	O	0.00054	B	U	#	-	-
	mg/L	0717	05/16/2001	0001	SE	O	0.0001	U		#	0.0001	-
	mg/L	0718	02/17/1996	0001	SF	D	0.549			#	0.001	-
	mg/L	0718	02/07/1997	0001	SF	D	0.343			#	-	-
	mg/L	0718	05/15/1998	0001	SF	D	0.308			#	-	-
	mg/L	0718	05/05/1999	0001	SF	D	0.296			#	-	-
	mg/L	0718	05/10/2000	0001	SF	D	0.378			#	-	-
	mg/L	0718	05/16/2001	0001	SF	D	0.249			#	0.0001	-
	mg/L	0719	02/17/1996	0001	SE	D	0.001	U	F	#	0.001	-
	mg/L	0719	02/06/1997	0001	SE	D	0.0010	U		#	0.001	-
	mg/L	0719	05/15/1998	0001	SE	D	0.0010	U	L	#	0.001	-
	mg/L	0719	05/05/1999	0001	SE	D	0.0010	U	L	#	0.001	-
	mg/L	0719	05/10/2000	0001	SE	D	0.001	B	UL	#	-	-
	mg/L	0719	05/16/2001	0001	SE	D	0.0012	B	L	#	0.0001	-
	mg/L	0722	02/18/1996	0001	SF	D	1.88			#	0.001	-
	mg/L	0722	02/06/1997	0001	SF	D	1.620			#	-	-
	mg/L	0722	05/13/1998	0001	SF	D	1.440			#	-	-
	mg/L	0722	05/05/1999	0001	SF	D	1.370			#	-	-
	mg/L	0722	05/09/2000	0001	SF	D	1.030			#	-	-
	mg/L	0722	05/16/2001	0001	SF	D	1.010			#	0.0005	-
	mg/L	0723	02/18/1996	0001	SE	D	0.004		J	#	0.001	-
	mg/L	0723	02/06/1997	0001	SE	D	0.0010	U		#	0.001	-
	mg/L	0723	05/13/1998	0001	SE	D	0.0010	U		#	0.001	-



GROUND WATER QUALITY DATA BY PARAMETER (USEE200) FOR SITE RVT01, RIVERTON  
REPORT DATE: 8/21/2001 2:08 p

PARAMETER	UNITS	LOCATION ID	SAMPLE: DATE	ID	ZONE COMPL	FLOW REL.	RESULT	QUALIFIERS: LAB DATA QA			DETECTION LIMIT	UN- CERTAINTY
Uranium	mg/L	0723	05/05/1999	0001	SE	D	0.0017			#	-	-
	mg/L	0723	05/06/1999	0002	SE	D	0.0010	U		#	0.001	-
	mg/L	0723	05/09/2000	0001	SE	D	0.00059	B		#	-	-
	mg/L	0723	05/16/2001	0001	SE	D	0.0001	U		#	0.0001	-
	mg/L	0731	02/09/1997	0001	SF	U	0.0280			#	-	-
	mg/L	0731	05/13/1998	0001	SF	U	0.0098		L	#	-	-
	mg/L	0731	05/06/1999	0001	SF	U	0.0160		L	#	-	-
	mg/L	0731	05/11/2000	0001	SF	U	0.0098	B	L	#	-	-
	mg/L	0731	05/16/2001	0001	SF	U	0.005	B		#	0.0001	-
	mg/L	0735	02/15/1996	0001	SE	D	0.016			#	0.001	-
	mg/L	0735	05/05/1999	0001	SE	D	0.0010	U		#	0.001	-
	mg/L	0735	05/10/2000	0001	SE	D	0.00056	B		#	-	-
	mg/L	0735	05/10/2000	0002	SE	D	0.00056	B	U	#	-	-
	mg/L	0735	05/15/2001	0001	SE	D	0.00019	B		#	0.0001	-
Vanadium	mg/L	0705	02/18/1996	0001	SE	D	0.01	U	F	#	0.01	-
	mg/L	0705	05/14/1998	0001	SE	D	0.0010	U	GL	#	0.001	-
	mg/L	0707	02/18/1996	0001	SF	D	0.01	U		#	0.01	-
	mg/L	0707	02/09/1997	0001	SF	D	0.0040	U		#	0.004	-
	mg/L	0707	05/15/1998	0001	SF	D	0.0010	U		#	0.001	-
	mg/L	0710	02/16/1996	0001	SF	U	0.01	U		#	0.01	-
	mg/L	0710	02/05/1997	0001	SF	U	0.0045	B		#	-	-
	mg/L	0710	05/15/1998	0001	SF	U	0.0057	B		#	-	-
	mg/L	0716	02/16/1996	0001	SF	O	0.01	U		#	0.01	-
	mg/L	0716	02/09/1997	0001	SF	O	0.0040	U		#	0.004	-
	mg/L	0716	05/14/1998	0001	SF	O	0.0010	U		#	0.001	-
	mg/L	0717	02/16/1996	0001	SE	O	0.01	U		#	0.01	-
	mg/L	0717	02/09/1997	0001	SE	O	0.0040	U		#	0.004	-

GROUND WATER QUALITY DATA BY PARAMETER (USEE200) FOR SITE RVT01, RIVERTON  
 REPORT DATE: 8/21/2001 2:08 p

PARAMETER	UNITS	LOCATION ID	SAMPLE: DATE	ID	ZONE COMPL	FLOW REL.	RESULT	QUALIFIERS: LAB DATA QA			DETECTION LIMIT	UN- CERTAINTY
Vanadium	mg/L	0717	05/14/1998	0001	SE	O	0.0010	U		#	0.001	-
	mg/L	0718	02/17/1996	0001	SF	D	0.01	U		#	0.01	-
	mg/L	0718	02/07/1997	0001	SF	D	0.0040	U		#	0.004	-
	mg/L	0718	05/15/1998	0001	SF	D	0.0010	U		#	0.001	-
	mg/L	0719	02/17/1996	0001	SE	D	0.01	U	F	#	0.01	-
	mg/L	0719	02/06/1997	0001	SE	D	0.0040	U		#	0.004	-
	mg/L	0719	05/15/1998	0001	SE	D	0.0010	U	L	#	0.001	-
	mg/L	0722	02/18/1996	0001	SF	D	0.01	U		#	0.01	-
	mg/L	0722	02/06/1997	0001	SF	D	0.0040	U		#	0.004	-
	mg/L	0722	05/13/1998	0001	SF	D	0.0010	U		#	0.001	-
	mg/L	0723	02/18/1996	0001	SE	D	0.01	U		#	0.01	-
	mg/L	0723	02/06/1997	0001	SE	D	0.0040	U		#	0.004	-
	mg/L	0723	05/13/1998	0001	SE	D	0.0012	B		#	-	-
	mg/L	0731	02/09/1997	0001	SF	U	0.0191			#	-	-
	mg/L	0731	05/13/1998	0001	SF	U	0.0078	B	L	#	-	-
	mg/L	0735	02/15/1996	0001	SE	D	0.01	U		#	0.01	-

GROUND WATER QUALITY DATA BY PARAMETER (USEE200) FOR SITE RVT01, RIVERTON  
REPORT DATE: 8/21/2001 2:08 p

PARAMETER	UNITS	LOCATION ID	SAMPLE: DATE ID	ZONE COMPL	FLOW REL.	RESULT	QUALIFIERS: LAB DATA QA	DETECTION LIMIT	UN- CERTAINTY
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RECORDS: SELECTED FROM USEE200 WHERE site\_code='RVT01' AND location\_code in('0705','0707','0710','0716','0717','0718','0719','0722','0723','0731','0735') AND quality\_assurance = TRUE AND (NOT (data\_validation\_qualifiers LIKE "R" OR data\_validation\_qualifiers LIKE "X") OR IsNull(data\_validation\_qualifiers)) AND cas in('07440-38-2','PB-210','07439-96-5','07439-98-7','07440-02-0','PO-210','SULFATE','TH-230','07440-61-1','07440-62-2') AND DATE\_SAMPLED between #1/1/1996# and #12/31/2001#

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

LAB QUALIFIERS:

- \* Replicate analysis not within control limits.
- + Correlation coefficient for MSA < 0.995.
- A TIC is a suspected aldol-condensation product.
- B Inorganic: Result is between the IDL and CRDL. Organic: Analyte also found in method blank.
- E Inorganic: Estimate value because of interference, see case narrative. Organic: Analyte exceeded calibration range of the GC-MS.
- Z Laboratory defined (USEPA CLP organic) qualifier, see case narrative.
- H Holding time expired, value suspect.
- I Increased detection limit due to required dilution.
- C Pesticide result confirmed by GC-MS.
- M GFAA duplicate injection precision not met.
- N Inorganic or radiochemical: Spike sample recovery not within control limits. Organic: Tentatively identified compound (TIC).
- S Result determined by method of standard addition (MSA).
- U Analytical result below detection limit.
- W Post-digestion spike outside control limits while sample absorbance < 50% of analytical spike absorbance.
- D Analyte determined in diluted sample.
- P > 25% difference in detected pesticide or Arochlor concentrations between 2 columns.
- X Laboratory defined (USEPA CLP organic) qualifier, see case narrative.
- Y Laboratory defined (USEPA CLP organic) qualifier, see case narrative.
- > Result above upper detection limit.
- J Estimated

DATA QUALIFIERS:

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

QA QUALIFIER: # = validated according to Quality Assurance guidelines.

## **Appendix B**

### **Surface Water Quality Data by Parameter**

SURFACE WATER QUALITY DATA BY PARAMETER (USEE800) FOR SITE RVT01, RIVERTON  
 REPORT DATE: 8/21/2001 2:09 pm

PARAMETER	UNITS	LOCATION ID	SAMPLE: DATE	ID	RESULT	QUALIFIERS: LAB DATA QA	DETECTION LIMIT	UN- CERTAINTY
Arsenic	mg/L	0747	07/14/1997	0001	0.0012 B		#	-
	mg/L	0747	05/14/1998	0001	0.0012 B		#	-
	mg/L	0747	05/14/1998	0002	0.0014 B		#	-
	mg/L	0747	05/06/1999	0001	0.0011 B		#	-
	mg/L	0747	05/10/2000	0001	0.0012 B		#	-
	mg/L	0747	05/15/2001	0001	0.0009 B		#	0.0005
	mg/L	0749	02/10/1997	0001	0.0025 BN	J	#	-
	mg/L	0749	05/12/1998	0001	0.0041 B		#	-
	mg/L	0749	05/06/1999	0001	0.0048 B		#	-
	mg/L	0749	05/06/1999	0002	0.0047 B		#	-
	mg/L	0749	05/11/2000	0001	0.0013 B		#	-
	mg/L	0749	05/11/2000	0002	0.0012 B		#	-
	mg/L	0749	05/16/2001	0001	0.0011 B		#	0.0005
	mg/L	0794	02/09/1997	0001	0.0005 B	J	#	-
	mg/L	0794	05/12/1998	0001	0.0010 U		#	0.001
	mg/L	0794	05/05/1999	0001	0.0010 U		#	0.001
	mg/L	0794	05/11/2000	0001	0.0007 B	U	#	-
	mg/L	0794	05/15/2001	0001	0.0005 U		#	0.0005
	mg/L	0794	05/16/2001	0002	0.0005 U		#	0.0005
	mg/L	0796	02/10/1997	0001	0.0003 B	J	#	-
	mg/L	0796	05/12/1998	0001	0.0010 U		#	0.001
	mg/L	0796	05/05/1999	0001	0.0010 U		#	0.001
	mg/L	0796	05/10/2000	0001	0.0005 B	U	#	-
	mg/L	0796	05/15/2001	0001	0.0006 B		#	0.0005
Lead-210	pCi/L	0747	07/14/1997	0001	1.62		#	1.03 ± 0.63
	pCi/L	0747	05/14/1998	0001	1.07 U		#	1.07 ± 0.65
	pCi/L	0747	05/14/1998	0002	1.01 U		#	1.01 ± 0.60
	pCi/L	0749	02/10/1997	0001	0.94 U		#	0.94 ± 0.55
	pCi/L	0749	05/12/1998	0001	1.00 U		#	1 ± 0.58
	pCi/L	0794	02/09/1997	0001	1.17 U		#	1.17 ± 0.69
	pCi/L	0794	05/12/1998	0001	1.04 U		#	1.04 ± 0.61
	pCi/L	0796	02/10/1997	0001	1.26 U		#	1.26 ± 0.74
	pCi/L	0796	05/12/1998	0001	1.05 U		#	1.05 ± 0.60
Manganese	mg/L	0747	07/14/1997	0001	0.880		#	-
	mg/L	0747	05/14/1998	0001	0.855		#	-
	mg/L	0747	05/14/1998	0002	1.020		#	-
	mg/L	0747	05/06/1999	0001	1.130		#	-

SURFACE WATER QUALITY DATA BY PARAMETER (USEE800) FOR SITE RVT01, RIVERTON  
 REPORT DATE: 8/21/2001 2:09 pm

PARAMETER	UNITS	LOCATION		SAMPLE:		RESULT	QUALIFIERS:			DETECTION LIMIT	UN- CERTAINTY
		ID	DATE	ID			LAB	DATA	QA		
Manganese	mg/L	0747	05/10/2000	0001		1.780			#	-	-
	mg/L	0747	05/15/2001	0001		1.070			#	0.0001	-
	mg/L	0749	02/10/1997	0001		0.0307			#	-	-
	mg/L	0749	05/12/1998	0001		0.0516			#	-	-
	mg/L	0749	05/06/1999	0001		0.0083 B			#	-	-
	mg/L	0749	05/06/1999	0002		0.0082 B			#	-	-
	mg/L	0749	05/11/2000	0001		0.060			#	-	-
	mg/L	0749	05/11/2000	0002		0.058			#	-	-
	mg/L	0749	05/16/2001	0001		0.0077 B			#	0.0001	-
	mg/L	0794	02/09/1997	0001		0.0228			#	-	-
	mg/L	0794	05/12/1998	0001		0.0051 B			#	-	-
	mg/L	0794	05/05/1999	0001		0.0139			#	-	-
	mg/L	0794	05/11/2000	0001		0.0125 B			#	-	-
	mg/L	0794	05/15/2001	0001		0.0371			#	0.0001	-
	mg/L	0794	05/16/2001	0002		0.0357			#	0.0001	-
	mg/L	0796	02/10/1997	0001		0.0179			#	-	-
	mg/L	0796	05/12/1998	0001		0.0052 B			#	-	-
	mg/L	0796	05/05/1999	0001		0.0105			#	-	-
	mg/L	0796	05/10/2000	0001		0.0139 B			#	-	-
	mg/L	0796	05/15/2001	0001		0.0206			#	0.0001	-
Molybdenum	mg/L	0747	07/14/1997	0001		0.0155			#	-	-
	mg/L	0747	05/14/1998	0001		0.0197			#	-	-
	mg/L	0747	05/14/1998	0002		0.0228			#	-	-
	mg/L	0747	05/06/1999	0001		0.0080 B			#	-	-
	mg/L	0747	05/10/2000	0001		0.0277 N	J		#	-	-
	mg/L	0747	05/15/2001	0001		0.0293			#	0.0004	-
	mg/L	0749	02/10/1997	0001		0.0320			#	-	-
	mg/L	0749	05/12/1998	0001		0.0337			#	-	-
	mg/L	0749	05/06/1999	0001		0.0250			#	-	-
	mg/L	0749	05/06/1999	0002		0.0255			#	-	-
	mg/L	0749	05/11/2000	0001		0.065 N	J		#	-	-
	mg/L	0749	05/11/2000	0002		0.0656 N	J		#	-	-
	mg/L	0749	05/16/2001	0001		0.250			#	0.0004	-
	mg/L	0794	02/09/1997	0001		0.0014 B			#	-	-
	mg/L	0794	05/12/1998	0001		0.0010 U			#	0.001	-
	mg/L	0794	05/05/1999	0001		0.0020 U			#	0.002	-
	mg/L	0794	05/11/2000	0001		0.0011 BN	UJ		#	-	-



SURFACE WATER QUALITY DATA BY PARAMETER (USEE800) FOR SITE RVT01, RIVERTON  
REPORT DATE: 8/21/2001 2:09 pm

PARAMETER	UNITS	LOCATION ID	SAMPLE: DATE	ID	RESULT	QUALIFIERS: LAB DATA QA	DETECTION LIMIT	UN- CERTAINTY
Molybdenum	mg/L	0794	05/15/2001	0001	0.0018 B		# 0.0004	-
	mg/L	0794	05/16/2001	0002	0.0006 B		# 0.0004	-
	mg/L	0796	02/10/1997	0001	0.0014 B		# -	-
	mg/L	0796	05/12/1998	0001	0.0010 U		# 0.001	-
	mg/L	0796	05/05/1999	0001	0.0020 U		# 0.002	-
	mg/L	0796	05/10/2000	0001	0.0012 BN	UJ	# -	-
	mg/L	0796	05/15/2001	0001	0.001 B		# 0.0004	-
Nickel	mg/L	0747	07/14/1997	0001	0.0067 B		# -	-
	mg/L	0747	05/14/1998	0001	0.0077 B		# -	-
	mg/L	0747	05/14/1998	0002	0.0066 B		# -	-
	mg/L	0747	05/06/1999	0001	0.0090 U		# 0.009	-
	mg/L	0747	05/10/2000	0001	0.0107 U		# 0.0107	-
	mg/L	0747	05/15/2001	0001	0.0024 B		# 0.001	-
	mg/L	0749	02/10/1997	0001	0.0148 B		# -	-
	mg/L	0749	05/12/1998	0001	0.0645		# -	-
	mg/L	0749	05/06/1999	0001	0.0093 B		# -	-
	mg/L	0749	05/06/1999	0002	0.0090 U		# 0.009	-
	mg/L	0749	05/11/2000	0001	0.0107 U		# 0.0107	-
	mg/L	0749	05/11/2000	0002	0.0136 B		# -	-
	mg/L	0749	05/16/2001	0001	0.0086 B		# 0.001	-
	mg/L	0794	02/09/1997	0001	0.0070 U		# 0.007	-
	mg/L	0794	05/12/1998	0001	0.0050 U		# 0.005	-
	mg/L	0794	05/05/1999	0001	0.0140 B		# -	-
	mg/L	0794	05/11/2000	0001	0.0107 U		# 0.0107	-
	mg/L	0794	05/15/2001	0001	0.001 U		# 0.001	-
	mg/L	0794	05/16/2001	0002	0.001 U		# 0.001	-
	mg/L	0796	02/10/1997	0001	0.0070 U		# 0.007	-
	mg/L	0796	05/12/1998	0001	0.0050 U		# 0.005	-
	mg/L	0796	05/05/1999	0001	0.0131 B		# -	-
	mg/L	0796	05/10/2000	0001	0.0107 U		# 0.0107	-
	mg/L	0796	05/15/2001	0001	0.001 U		# 0.001	-
Polonium-210	pCi/L	0747	07/14/1997	0001	0.19	U	# 0.11	± 0.17
	pCi/L	0747	05/14/1998	0001	0.22	U	# 0.22	± 0.21
	pCi/L	0747	05/14/1998	0002	0.10	U	# 0.1	± 0.13
	pCi/L	0749	02/10/1997	0001	0.13	U	# 0.13	± 0.16
	pCi/L	0749	05/12/1998	0001	0.08	U	# 0.08	± 0.08
	pCi/L	0794	02/09/1997	0001	0.20		# 0.05	± 0.12

SURFACE WATER QUALITY DATA BY PARAMETER (USEE800) FOR SITE RVT01, RIVERTON  
REPORT DATE: 8/21/2001 2:09 pm

PARAMETER	UNITS	LOCATION		SAMPLE:		RESULT	QUALIFIERS:			DETECTION LIMIT	UN- CERTAINTY
		ID	DATE	ID			LAB	DATA	QA		
Polonium-210	pCi/L	0794	05/12/1998	0001		0.09	U		#	0.09	± 0.11
	pCi/L	0796	02/10/1997	0001		0.17		U	#	0.05	± 0.12
	pCi/L	0796	05/12/1998	0001		0.11	U		#	0.11	± 0.10
Sulfate	mg/L	0747	07/14/1997	0001		656.000			#	-	-
	mg/L	0747	05/14/1998	0001		830.000			#	-	-
	mg/L	0747	05/14/1998	0002		824.000			#	-	-
	mg/L	0747	05/06/1999	0001		591.000			#	-	-
	mg/L	0747	05/10/2000	0001		1920.000			#	-	-
	mg/L	0747	05/15/2001	0001		899.000	N	J	#	0.126	-
	mg/L	0749	02/10/1997	0001		1960.000			#	-	-
	mg/L	0749	05/12/1998	0001		1270.000			#	-	-
	mg/L	0749	05/06/1999	0001		249.000			#	-	-
	mg/L	0749	05/06/1999	0002		249.000			#	-	-
	mg/L	0749	05/11/2000	0001		662.000			#	-	-
	mg/L	0749	05/11/2000	0002		663.000			#	-	-
	mg/L	0749	05/16/2001	0001		221.000	N	J	#	0.0504	-
	mg/L	0794	02/09/1997	0001		185.000			#	-	-
	mg/L	0794	05/12/1998	0001		109.000			#	-	-
	mg/L	0794	05/05/1999	0001		232.000			#	-	-
	mg/L	0794	05/11/2000	0001		135.000			#	-	-
	mg/L	0794	05/15/2001	0001		78.100	N	J	#	0.0252	-
	mg/L	0794	05/16/2001	0002		78.800	N	J	#	0.0252	-
	mg/L	0796	02/10/1997	0001		230.000			#	-	-
	mg/L	0796	05/12/1998	0001		109.000			#	-	-
	mg/L	0796	05/05/1999	0001		227.000			#	-	-
	mg/L	0796	05/10/2000	0001		111.000			#	-	-
	mg/L	0796	05/15/2001	0001		89.500	N	J	#	0.0252	-
Thorium-230	pCi/L	0747	07/14/1997	0001		0.60	U		#	0.6	-
	pCi/L	0747	05/14/1998	0001		0.80	U		#	0.8	-
	pCi/L	0747	05/14/1998	0002		3.6		U	#	-	-
	pCi/L	0749	02/10/1997	0001		0.64	UN	J	#	0.64	-
	pCi/L	0749	05/12/1998	0001		0.80	U		#	0.8	-
	pCi/L	0794	02/09/1997	0001		0.64	U		#	0.64	-
	pCi/L	0794	05/12/1998	0001		0.80	U		#	0.8	-
	pCi/L	0796	02/10/1997	0001		0.64	U		#	0.64	-
	pCi/L	0796	05/12/1998	0001		0.80	U		#	0.8	-

SURFACE WATER QUALITY DATA BY PARAMETER (USEE800) FOR SITE RVT01, RIVERTON  
REPORT DATE: 8/21/2001 2:09 pm

PARAMETER	UNITS	LOCATION ID	SAMPLE: DATE	ID	RESULT	QUALIFIERS: LAB DATA QA	DETECTION LIMIT	UN- CERTAINTY
Uranium	mg/L	0747	07/14/1997	0001	0.217	#	-	-
	mg/L	0747	05/14/1998	0001	0.347	#	-	-
	mg/L	0747	05/14/1998	0002	0.408	#	-	-
	mg/L	0747	05/06/1999	0001	0.151	#	-	-
	mg/L	0747	05/10/2000	0001	0.662	#	-	-
	mg/L	0747	05/15/2001	0001	0.514	#	0.0001	-
	mg/L	0749	02/10/1997	0001	0.0010 U	#	0.001	-
	mg/L	0749	05/12/1998	0001	0.0010 U	#	0.001	-
	mg/L	0749	05/06/1999	0001	0.0010 U	#	0.001	-
	mg/L	0749	05/06/1999	0002	0.0010 U	#	0.001	-
	mg/L	0749	05/11/2000	0001	0.0005 B	U #	-	-
	mg/L	0749	05/11/2000	0002	0.0004 B	#	-	-
	mg/L	0749	05/16/2001	0001	0.0001 U	#	0.0001	-
	mg/L	0794	02/09/1997	0001	0.0059	#	-	-
	mg/L	0794	05/12/1998	0001	0.0017	#	-	-
	mg/L	0794	05/05/1999	0001	0.0058	#	-	-
	mg/L	0794	05/11/2000	0001	0.0043 B	#	-	-
	mg/L	0794	05/15/2001	0001	0.002 B	#	0.0001	-
	mg/L	0794	05/16/2001	0002	0.0019 B	#	0.0001	-
	mg/L	0796	02/10/1997	0001	0.0060	#	-	-
	mg/L	0796	05/12/1998	0001	0.0017	#	-	-
	mg/L	0796	05/05/1999	0001	0.0054	#	-	-
	mg/L	0796	05/10/2000	0001	0.0029 B	#	-	-
	mg/L	0796	05/15/2001	0001	0.0018 B	#	0.0001	-
Vanadium	mg/L	0747	07/14/1997	0001	0.0024 B	#	-	-
	mg/L	0747	05/14/1998	0001	0.0014 B	#	-	-
	mg/L	0747	05/14/1998	0002	0.0010 U	#	0.001	-
	mg/L	0749	02/10/1997	0001	0.0040 U	#	0.004	-
	mg/L	0749	05/12/1998	0001	0.0010 U	#	0.001	-
	mg/L	0794	02/09/1997	0001	0.0040 U	#	0.004	-
	mg/L	0794	05/12/1998	0001	0.0013 B	#	-	-
	mg/L	0796	02/10/1997	0001	0.0040 U	#	0.004	-
	mg/L	0796	05/12/1998	0001	0.0010 U	#	0.001	-

SURFACE WATER QUALITY DATA BY PARAMETER (USEE800) FOR SITE RVT01, RIVERTON  
 REPORT DATE: 8/21/2001 2:09 pm

PARAMETER	UNITS	LOCATION ID	SAMPLE: DATE	ID	RESULT	QUALIFIERS: LAB DATA QA	DETECTION LIMIT	UN- CERTAINTY
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RECORDS: SELECTED FROM USEE800 WHERE site\_code='RVT01' AND location\_code in('0747','0749','0794','0796') AND quality\_assurance = TRUE AND (NOT (data\_validation\_qualifiers LIKE "R" OR data\_validation\_qualifiers LIKE "X" ) OR IsNull(data\_validation\_qualifiers)) AND cas in('07440-38-2','PB-210','07439-96-5','07439-98-7','07440-02-0','PO-210','SULFATE','TH-230','07440-61-1','07440-62-2') AND DATE\_SAMPLED between #1/1/1996# and #12/31/2001#

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

LAB QUALIFIERS:

- \* Replicate analysis not within control limits.
- + Correlation coefficient for MSA < 0.995.
- A TIC is a suspected aldol-condensation product.
- B Inorganic: Result is between the IDL and CRDL. Organic: Analyte also found in method blank.
- E Inorganic: Estimate value because of interference, see case narrative. Organic: Analyte exceeded calibration range of the GC-MS.
- Z Laboratory defined (USEPA CLP organic) qualifier, see case narrative.
- H Holding time expired, value suspect.
- I Increased detection limit due to required dilution.
- C Pesticide result confirmed by GC-MS.
- M GFAA duplicate injection precision not met.
- N Inorganic or radiochemical: Spike sample recovery not within control limits. Organic: Tentatively identified compound (TIC).
- S Result determined by method of standard addition (MSA).
- U Analytical result below detection limit.
- W Post-digestion spike outside control limits while sample absorbance < 50% of analytical spike absorbance.
- D Analyte determined in diluted sample.
- P > 25% difference in detected pesticide or Arochlor concentrations between 2 columns.
- X Laboratory defined (USEPA CLP organic) qualifier, see case narrative.
- Y Laboratory defined (USEPA CLP organic) qualifier, see case narrative.
- > Result above upper detection limit.
- J Estimated

DATA QUALIFIERS:

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

QA QUALIFIER: # = validated according to Quality Assurance guidelines.

**United States Department of Energy**  
Grand Junction Office  
2597 B $\frac{1}{4}$  Road  
Grand Junction, CO 81503

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