UMTRA GROUND WATER PROJECT

Final Site Observational Work Plan for the UMTRA Project Site at Riverton, Wyoming

February 1998

Prepared by the

U.S. Department of Energy

Grand Junction Projects Office

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February 1998

Prepared for
U.S. Department of Energy
Albuquerque Operations Office
Grand Junction Office

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Acronyms and Abbreviations

ac	acre
ACL	alternate concentration limit
ASER	annual site environmental report
BLRA	baseline risk assessment
C&NW	Chicago and Northwestern
cm	centimeter(s)
COPCs	contaminants of potential concern
DOE	U.S. Department of Energy
EA	environmental assessment
EPA	U.S. Environmental Protection Agency
ft	foot (feet)
ft/day	foot per day
ft^3/s	cubic feet per second
gal	gallons
gal/min	gallons per minute
GWPP	Ground Water Project Plan
ha	hectare
km	kilometer
km^2	square kilometer
L	liter
L/min	liters per minute
m	meter
m/day	meters per day
m^3	cubic meters
m^3/s	cubic meters per second
MCL	maximum concentration limit
mg/kg	milligrams per kilogram
mg/L	milligrams per liter
mi	mile
mi^2	square mile
MSL	mean sea level
NEPA	National Environmental Policy Act
NRC	U.S. Nuclear Regulatory Commission
pCi/g	picocuries per gram
pCi/L	picocuries per liter
PEIS	Programmatic Environmental Impact Statement
RAP	remedial action plan
RRM	residual radioactive material
SOWP	site observational work plan
TAC	Technical Assistance Contractor
TAGR	Technical Approach to Ground Water Restoration
TDS	total dissolved solids
UMTRA	Uranium Mill Tailings Remedial Action (Project)

Acronyms and Abbreviations (continued)

UMTRCA	Uranium Mill Tailings Radiation Control Act
WSAP	water sampling and analysis plan
WDEQ	Wyoming Department of Environmental Quality
yd^3	cubic yards

Executive Summary

The requirements for ground water compliance for Uranium Mill Tailing Remedial Action (UMTRA) Project sites, including the Riverton site, are stated in the Uranium Mill Tailings Radiation Control Act (42 USC 7901 *et seq.*) and in the U.S. Environmental Protection Agency's "Health and Environmental Protection Standards for Uranium and Thorium Mill Tailings" (40 CFR Part 192).

The compliance strategy proposed for the Riverton site is natural flushing in conjunction with institutional controls and verification monitoring. The essential premise of natural flushing is that ground water movement and natural attenuation processes will reduce contaminant concentrations to background levels, maximum concentration limits, or alternate concentration limits that will not pose a risk to human health or the environment within 100 years. This proposed compliance strategy was evaluated by applying Riverton site-specific data to the compliance framework developed in the UMTRA ground water programmatic environmental impact statement (DOE 1996a).

There are three aquifers beneath the site: a surficial unconfined aquifer, a middle semiconfined aquifer, and a deeper confined aquifer. For regulatory purposes, the surficial unconfined and the semiconfined aquifers are defined as the uppermost aquifer capable of yielding a continuing source of water. The milling-related contamination at the site has affected both the surficial and semiconfined aquifers, although the leaky shale aquitard separating these units limits the downward migration of contamination into the semiconfined aquifer. The semiconfined aquifer is separated from the underlying confined aquifer by a shale aquitard. The confined aquifer has not been contaminated by milling-related constituents. Contaminant distribution is controlled largely by ground water movement, which is generally to the southeast towards the Little Wind River. Ground water from the surficial and semiconfined aquifers ultimately discharges into the Little Wind River.

The baseline risk assessment for the Riverton site (DOE 1995) identified 10 potential contaminants of concern: arsenic, lead-210, manganese, molybdenum, nickel, polonium-210, sulfate, thorium-230, uranium, and vanadium. The baseline risk assessment determined that risks to human health can be mitigated by applying institutional controls to restrict access to contaminated ground water in the vicinity of the site. An alternate water supply is currently being constructed in the vicinity of the old Susquehanna-Western Mill that will provide domestic water to the residents. The flow in the Little Wind River is sufficient to dissipate the impacts of discharging ground water.

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1.0 Introduction

The purpose of the Riverton, Wyoming, Uranium Mill Tailings Remedial Action (UMTRA) Project Site Observational Work Plan (SOWP) is to 1) provide a summary of all existing characterization data and 2) propose a site-specific ground water compliance strategy that meets the U.S. Environmental Protection Agency (EPA) ground water standards (40 CFR Part 192) at this UMTRA Project site.

The compliance strategy is supported through a comprehensive summary of all existing data in the form of the site conceptual model. The site conceptual model describes the sources of the existing ground water contamination and defines the current site conditions and the potential environmental and health risks associated with the contaminated ground water.

The final SOWP summarizes the results from a probabilistic ground water flow and transport model that is used to reduce the uncertainties associated with the proposed ground water compliance strategy. The model results show that the uncertainty associated with the proposed ground water compliance strategy is at an acceptable level so that the next step in the UMTRA process, the preparation of a site-specific ground water National Environmental Policy Act (NEPA) document can begin.

Section 2.0 of this final SOWP describes the requirements for meeting standards at UMTRA Project sites. Section 3.0 describes the results from the additional data collection activities that were recommended in the SOWP, Rev. 0 (DOE 1995b). Section 4.0 summarizes site-specific data and provides the site conceptual model. Section 5.0 provides justification for the recommended ground water compliance strategy for the Riverton site. Section 6.0 provides a list of the references cited. The appendices include data on monitor well construction and aquifer lithology; ground water, surface water, and sediment quality data; and the results from the GANDT model used to evaluate the effectiveness of natural attenuation at the site.

1.1 Ground Water Compliance Strategy

The ground water compliance strategy recommended for the Riverton site is natural attenuation with institutional controls to limit exposure to the contaminated ground water with verification monitoring to ensure the forecasts are accurate. Hydrogeologic and geochemical data collected from the Riverton site and the results of the ground water modeling indicate that natural ground water movement and geochemical processes will decrease contaminant concentrations to background levels, maximum concentration limits (MCLs), or alternate concentration limits (ACLs) within 100 years. During that period of time, effective monitoring, institutional controls, and an alternative water supply will be maintained to prevent the use of ground water in the affected aquifer for domestic consumption, stock watering, or crop irrigation.

1.2 Programmatic Ground Water Documents

Programmatic documents that provide guidance for this SOWP include the U.S. Department of Energy (DOE) *UMTRA Ground Water Project Management Action Process* (MAP) Document (DOE 1996b), *Final Programmatic Environmental Impact Statement for the Uranium Mill*

Tailings Remedial Action Ground Water Project (PEIS) (DOE 1996a), and the *Technical Approach to Ground Water Restoration* (TAGR) (DOE 1993a). The MAP states the mission needs and objectives for the UMTRA Ground Water Compliance Program and provides an overall technical and managerial approach for conducting the program. The PEIS provides an objective programmatic decision-making framework for conducting the UMTRA Ground Water Project, assesses the potential programmatic impacts of conducting the project, provides a method for determining the site-specific ground-water compliance strategies, and provides data and information that can be used to prepare site-specific NEPA documents (42 USC 4321 *et seq.*). The TAGR provides technical guidance for conducting the ground water program.

1.3 Relationship to Site-Specific Documents

The surface remedial action plan (RAP) and SOWP, Rev. 0, provide site characterization information (DOE 1987b and DOE 1995b). This information is updated for the final SOWP to formulate the site conceptual model. If a ground water compliance strategy requiring remedial action is selected for this site, a ground water RAP or surface RAP modification would be prepared.

In 1995, a baseline risk assessment (BLRA) identified the potential public health and environmental risks at the site (DOE 1995a). Those risks are considered in this final SOWP to ensure that the proposed compliance strategy is protective of human health and the environment.

A site-specific NEPA document (e.g., environmental assessment [EA]) will be prepared to determine the potential impacts, if any, of implementing the proposed compliance strategy and will include public involvement.

1.4 Content of SOWP Revisions

This final SOWP presents a summary of existing data, describes the conceptual model, and proposes a compliance strategy based on this information. A program will be devised to evaluate and calibrate the rate of natural attenuation and assess the effectiveness of institutional controls. This will be managed by the DOE Long-Term Surveillance and Maintenance Program.

The results of this monitoring program will be discussed in the annual water sampling and analysis plans (WSAP), and shared with the State, Tribe, and NRC after each sampling event.

It is the intent of DOE to provide copies of the final SOWP to the U.S. Nuclear Regulatory Commission (NRC) and to the potentially affected public, State of Wyoming, and the Arapaho and Shoshone tribes for comment. Public meetings were conducted during the SOWP Rev. 0 process to ensure close coordination and consultation with the potentially affected stakeholders. These interactions resulted in an expedited and more informative decision-making process for the Riverton site.

2.0 Regulatory Framework

This final SOWP proposes a ground water compliance strategy for the Riverton site that will achieve compliance with the EPA ground water standards applicable to UMTRA Project sites. This section identifies the relationship of the Uranium Mill Tailings Radiation Control Act (UMTRCA) (42 USC 7901 *et seq.*), EPA ground water protection standards, the cooperative agreements, and NEPA to the UMTRA Ground Water Project.

2.1 Uranium Mill Tailings Radiation Control Act

The U.S. Congress passed UMTRCA in 1978 in response to public concerns about the potential health hazards from exposure to uranium mill tailings over long periods of time. UMTRCA authorized DOE to stabilize, dispose of, and control uranium mill tailings and other contaminated materials at uranium mill processing sites.

UMTRCA has three titles that apply to uranium processing sites. Title I designates 24 inactive processing sites that will undergo remediation, directs the EPA to promulgate standards, mandates remedial action in accordance with standards prescribed by the EPA, directs the NRC to license the disposal sites for long-term care, and directs DOE to enter into cooperative agreements with the affected states and Indian tribes. Title II applies to active uranium mills, and Title III applies to certain uranium mills in New Mexico. The UMTRA Project has responsibility for administering only Title I sites.

In 1988, Congress passed the Uranium Mill Tailings Remedial Action Amendments Act (Amendments Act; 42 USC 7922 *et seq.*), authorizing DOE to extend without limitation the time needed to complete ground water remediation activities at the processing sites.

2.1.1 EPA Ground Water Protection Standards

UMTRCA requires that EPA promulgate standards for protecting human health and the environment from hazardous constituents associated with the processing of uranium and the resulting residual radioactive material (RRM).

On January 5, 1983, EPA published standards (40 CFR Part 192) for the disposal and cleanup of RRM. On September 3, 1985, the Tenth Circuit Court of Appeals set aside the ground water provisions of 40 CFR 192.20(a)(2)(3) and remanded them to the EPA. The standards were revised and a final rule was published on January 11, 1995 (60 FR 2854).

The standards address two ground water contamination scenarios. The first scenario applies to future ground water contamination that may occur from tailings piles after disposal, and the second scenario applies to the cleanup of residual contamination that occurred at the processing sites before disposal of the tailings piles (60 FR 2854). Protection of ground water from the tailings piles at the disposal sites is addressed under the UMTRA Surface Project. The UMTRA Ground Water Project addresses the residual contamination that occurred at the processing sites and is regulated by Subparts B and C of the standards.

Subpart B, "Standards for Cleanup of Land and Buildings Contaminated with Residual Radioactive Materials from Inactive Uranium Processing Sites" (40 CFR 192), requires that remedial action at processing sites be conducted to ensure that concentrations of RRM in ground water meet any of three criteria:

- Background level—concentrations of constituents in the uppermost aquifer that were not affected by processing activities.

- Maximum concentration limits—the EPA's maximum limits for concentrations of certain hazardous constituents in ground water, as proposed for the UMTRA Project. The MCLs for inorganic constituents that apply to the UMTRA Project sites are given in Table 2–1. Other constituents may not have established MCLs, but may still be contaminants of concern.

- Alternate concentration limit—an alternate concentration limit for a hazardous constituent that does not pose a substantial present or potential hazard to human health or the environment, as long as the limit is not exceeded. An ACL may be applied after considering options to achieve background levels or MCLs (for constituents with MCLs).

Under certain specific conditions, DOE may apply supplemental standards in lieu of background levels, MCLs, or ACLs (40 CFR 192.22). Subpart B of the standards defines "limited-use" ground water as ground water that is not a current or potential source of drinking water because the concentration of total dissolved solids (TDS) is in excess of 10,000 milligrams per liter (mg/L); or because widespread, ambient contamination not due to activities involving RRM from a designated processing site exists that cannot be cleaned up using treatment methods reasonably employed in public water supply systems; or because the quantity of water available is less than 150 gallons (gal) (570 liters [L]) per day (40 CFR 192.11(e)).

When supplemental standards apply, implementing agencies shall apply any remedial actions for the restoration of ground water contaminated by RRM that is required to ensure, at a minimum, protection of human health and the environment. In addition, when ground water is designated limited use, supplemental standards shall ensure that current and reasonably projected uses of the affected ground water are preserved (60 FR 2854).

Subpart B also provides for selecting natural attenuation (flushing) as a means to meet the standards. Natural attenuation means that natural ground water processes reduce the contamination in ground water to levels that meet the standards (background levels, MCLs, or ACLs). Natural attenuation must allow standards to be met within 100 years. In addition, ground water must not be currently, or projected to become, a source of drinking water during the period of natural attenuation (40 CFR Part 192.12(c)(2)(I)). Institutional controls (measures that restrict access to contamination, protect human health, and satisfy beneficial uses of ground water) must be established and maintained during the period of natural attenuation.

Table 2–1. Maximum Concentration Limits of Inorganic Constituents for Ground Water Protection at UMTRA Project Sites

Constituent	Maximum concentration limit[a,b]
Arsenic	0.05
Barium	1.0
Cadmium	0.01
Chromium	0.05
Lead	0.05
Mercury	0.002
Molybdenum	0.1
Nitrate (as N)	10.0[c]
Selenium	0.01
Silver	0.05
Combined radium-226 and radium-228	5 pCi/L
Combined uranium-234 and uranium-238	30 pCi/L[d]
Gross alpha activity (excluding radon and uranium)	15 pCi/L

[a]40 CFR 192.
[b]Milligrams per liter (mg/L) unless otherwise noted.
[c]Equivalent to 44 mg/L nitrate as nitrate (NO_3^-).
[d]Equivalent to 0.044 mg/L.

pCi/L - picocuries per liter.

Subpart C, "Implementation," provides guidance for implementing methods and procedures to provide reasonable assurance that the provisions of Subpart B are satisfied. Subpart C requires that the conditions of Subpart B should be met on a site-specific basis using information gathered from site characterization and monitoring. Subpart C also requires the plan to meet the conditions of Subpart B, which should be stated in the compliance strategy plan or RAP that contains the proposed compliance strategy, a demonstration of effectiveness, and a monitoring program, if required.

2.1.2 Cooperative Agreements

UMTRCA requires that remedial action be accomplished with the full participation of the affected states (Section 103, "State Cooperative Agreements") and Indian tribes (Section 105, "Indian Tribe Cooperative Agreements") on whose lands the uranium mill tailings are, or were, located. UMTRCA also directed DOE to enter into cooperative agreements with the states and Indian tribes. A cooperative agreement for the Surface Project with the State of Wyoming was executed 23 December 1983 (Cooperative Agreement DE–FC04–83AL19454, as amended) (DOE 1983). Indian tribal land was not involved in the UMTRA Surface Project. DOE has a Memorandum of Understanding with the tribes and is currently negotiating a cooperative agreement.

2.2 National Environmental Policy Act

Implementation of UMTRCA represents a major Federal action subject to the requirements of NEPA of 1969 (42 USC 4321 *et seq.*). The Council on Environmental Quality's regulations that implement NEPA are codified in 40 CFR 1500–1508. The regulations require that each Federal agency develop its own implementing procedures (40 CFR 1507.3). DOE NEPA regulations are contained in "National Environmental Policy Act Implementing Procedures" (10 CFR Part 1021). DOE guidance is provided in *Recommendations for the Preparation of Environmental Assessments and Environmental Impact Statements* (DOE 1993b).

Pursuant to NEPA, DOE finalized the *Final Programmatic Environmental Impact Statement for the Uranium Mill Tailings Remedial Action Groundwater Project* for the UMTRA Ground Water Project (DOE 1996a). A Record of Decision was issued in April 1997 in which DOE selected the Proposed Action alternative for conducting the UMTRA Ground Water Project.

The environmental impacts from implementing the proposed compliance strategy presented in the final Riverton SOWP will be addressed in a document such as an EA that will meet the requirements of NEPA, and will tier to the PEIS.

3.0 Summary of Additional Data Collected

3.1 Summary of Data Collected

In the SOWP Rev. 0, DOE evaluated existing site information and identified data gaps (uncertainties) that had to be reduced before the appropriateness of the proposed ground water compliance strategy and the feasibility of alternate strategies, if required, could be evaluated. The data collection activities performed at the direction of the SOWP Rev. 0 to fill the data gaps are described in this Final SOWP.

The additional characterization data to reduce system uncertainties were collected in 1995, 1996, and 1997. These data enhance the understanding of site conditions and ensure that the appropriate ground water compliance strategy is implemented. The data collection activities proposed in the SOWP Rev. 0 included:

- installation of additional monitor wells.
- topographic survey across the Little Wind River.
- aquifer tests.
- ground water, surface water, vegetation, and sediment sampling.
- toxicological literature review.
- ground-water level monitoring.
- computer modeling of ground water flow and transport.

3.1.1 Monitor Well Installation

DOE installed twenty additional ground water monitor wells (Plate 1) at the Riverton site (Figure 3-1) to further define the extent and magnitude of contamination in the surficial and semiconfined aquifers. The wells were needed to evaluate whether discharge from the Koch Sulfur Products Co. plant has affected the quality of ground water along the western boundary of the site, to obtain background water quality data from the surficial and semiconfined aquifers upgradient of the site and on the south side of the Little Wind River, to refine the understanding of ground water flow directions, to refine the definition of aquifer parameters, and to confirm that the Little Wind River is a hydraulic barrier that prevents contaminants from migrating south of the river. The wells were installed for three purposes: general monitoring of water quality and water levels, for tracer tests designed to measure aquifer porosity and Darcian velocity (17 wells), and as pumping wells for aquifer tests (3 wells). Monitor well construction details and lithologic information (where available) are provided in Appendix A. The location of each new monitor well is shown in Plate 1.

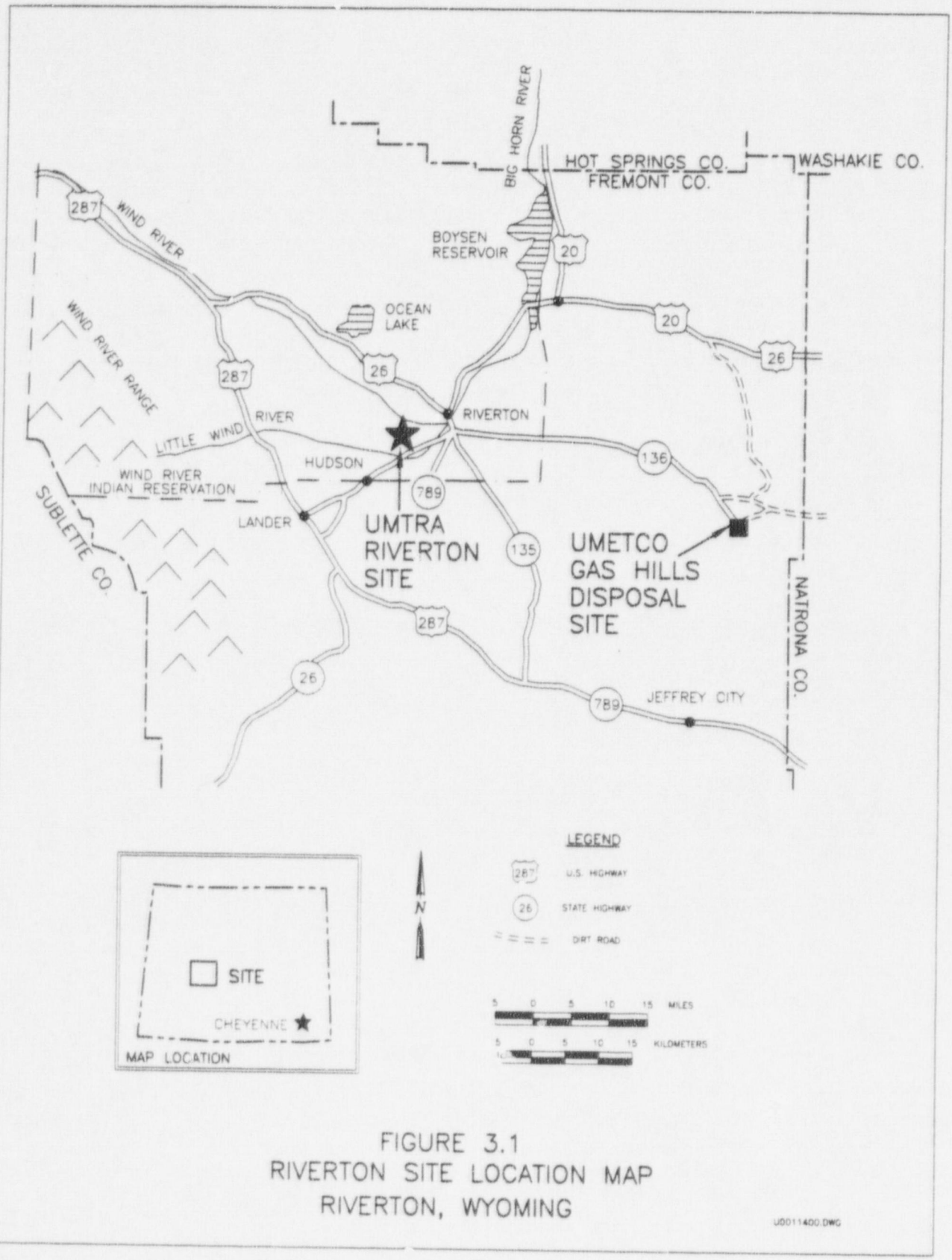


FIGURE 3.1
RIVERTON SITE LOCATION MAP
RIVERTON, WYOMING

Figure 3–1. Site Location Map

The general monitoring and tracer test wells are described as follows:

- Monitor well 700 is located west of the site along the former Chicago and Northwestern (C&NW) Railroad. It was completed in the surficial aquifer and was installed as an upgradient well.

- Monitor well 731 was completed in the surficial aquifer near the southwest side of the site and downgradient from the ditch leading from Koch Sulfur Products. It is part of a new cluster (cluster 4, Plate 1) of wells that was installed in 1995. The cluster also includes wells 732 (semiconfined), 783 (surficial), and 784 (surficial).

- Monitor wells 733 (surficial) and 734 (semiconfined) were installed adjacent to the Little Wind River. These wells are located southwest of the contaminant plume.

- Monitor well 735 (semiconfined) was installed adjacent to monitor well 706 (surficial aquifer) on the south side of the Little Wind River. It was installed to evaluate whether contamination from the site has moved beneath the Little Wind River.

- Monitor well 736 was installed in the semiconfined aquifer upgradient from the site along the former C&NW Railroad. It is adjacent to monitor well 711, which is completed in the surficial aquifer.

- Monitor wells 780 (surficial), 781 (surficial), and 782 (surficial) were installed as part of a well cluster (cluster 3, Plate 1) adjacent to wells 716 and 717 along the southeastern edge of the site. These wells were installed as observation wells for the aquifer test in that location.

- Monitor wells 785 (surficial), 786 (surficial), and 787 (surficial) were installed as part of a well cluster (cluster 2, Plate 1) near wells 701 through 705 and 707 through 709. The cluster was drilled as observation wells for the aquifer test in that location and for use in the tracer tests.

- Monitor well 788 (surficial) is located at the presumed southwestern extent of the contaminant plume in a pasture north of the Little Wind River.

- Monitor well 789 (surficial) is located adjacent to the Little Wind River downgradient from the 707 well cluster, which in 1995 showed the highest concentrations of contaminants of potential concern (COPCs).

DOE also installed three additional wells to collect information on the aquifer parameters through aquifer pumping tests. The three wells installed for the aquifer testing were larger diameter than the monitoring wells (6 inches compared to 2 and 4 inches) to accommodate the pumping required to develop a drawdown curve in each well that could be used to evaluate aquifer parameters. The aquifer test wells included:

- Monitor well 737 in the surficial aquifer. This well is downgradient from the site and near cluster 1 (Plate 1), which consists of monitor wells 701, 705, 707, and 709.

- Monitor well 738 in the surficial aquifer. Well 738 is adjacent to well cluster 3, which contains wells 716, 717, 739, 780, 781, and 782.

- Monitor well 739, which was completed in the semiconfined aquifer. Well 739 is in the same well cluster (cluster 3, Plate 1) as 738.

3.1.2 Topographic Surveying

A topographic profile was established across the Little Wind River from monitor well 737 on the north side of the river to monitor wells 706 and 735 on the south side of the river. The survey was conducted to establish a topographic reference for land surface elevations, river stage, and ground water elevations to evaluate whether the Little Wind River acts as a discharge point for the surficial and semiconfined aquifers.

3.1.3 Aquifer Testing

Additional data were collected to better define the aquifer characteristics at the Riverton site. These tests included step-drawdown tests and preliminary aquifer pumping tests in surficial aquifer wells 737, 738 and 100, and semiconfined aquifer well 739. These tests were performed to ensure complete well development and to evaluate aquifer yields in order to select appropriate pumping rates for the longer term pumping tests.

A 24-hour aquifer pumping test was conducted in well 739 and long-term (3 to 5 days) pumping tests were performed in wells 737, 738, and 100. Slug tests were conducted in surficial wells 718, 722, 724, 728, 729, 781, 783, 784, 785, 786, 787, 788, and 789 and in semiconfined wells 702, 705 719, 723, 725, 727, and 730. The slug and aquifer tests were performed to assess the areal distribution and variability of hydraulic conductivity across the site. Slug tests were performed in the same wells used as observation wells during the aquifer pumping tests to correlate the slug test hydraulic conductivities with the more reliable hydraulic conductivities calculated from the long-term aquifer tests.

Convergent-flow tracer tests were conducted in three clusters around pumping wells 737, 738, and 100. These tests were conducted to provide estimates of effective porosity and dispersivity.

Borehole dilution tests under natural gradients were conducted in wells 104, 716, 722, 783, 785, and 787. The borehole dilution tests provided direct measurements of the Darcian ground water velocity.

3.1.4 Ground Water, Surface Water, Vegetation, and Sediment Sampling

Ground water, surface water, vegetation, and sediment sampling were performed to determine the impact from ground water migration into the Little Wind River, the oxbow lake, and nearby wetlands areas. Samples were collected at the following locations shown on Plate 1:

- Sample location 741 is along the West Side Irrigation Ditch southwest of the site, upgradient from the point where the Koch Sulfur Products drainage ditch enters the West Side Irrigation Ditch.

- Sample location 742 is along the Little Wind River in the area where the site contaminant plume is expected to enter the river.

- Sample location 743 is near the wetlands between the West Side Irrigation Ditch and the southwesternmost extent of the contaminant plume.

- Sample location 744 is along the eastern side of the site.

- Sample location 745 is along the West Side Irrigation Ditch but downgradient from where the Koch Sulfur Products drainage ditch enters the West Side Irrigation Ditch.

- Sample location 746 is in the wetlands area east of monitor wells 729 and 730.

- Sample location 747 is adjacent to the oxbow lake, northeast from well cluster 707.

- Sample location 748 is in the northwest corner of the site.

- Sample location 749 is directly downstream of the Koch Sulfur Products, on the Koch drainage ditch.

- Sample location 850 is along the former C&NW Railroad.

- Sample location 851 is in the wetlands area south of State Highway 137.

- Sample location 794 is cross gradient from the site and west of St. Stephen's Mission along the Little Wind River. This location is considered a background surface-water location.

- Sample location 795 is just below the confluence of the Koch Sulfur Products drainage ditch and the West Side Irrigation Ditch.

- Sample location 796 is along the Little Wind River to the east of the oxbow lake. It is beyond the effect of the site contaminant plume.

3.1.5 Toxicological Literature Review

Several contaminants of potential ecological concern identified in the BLRA did not have tribal, State, or Federal water-quality or sediment-quality guidelines. An in-depth literature review was conducted to obtain ecotoxicological data and information specific to these contaminants and to the organisms that are likely to be exposed to them. Results of this review are discussed in the BLRA (DOE 1995a).

3.1.6 Ground-Water-Level Elevation Monitoring

Continued ground water level monitoring was necessary to determine the presence or absence of vertical gradients between the three aquifers. In addition, monitoring of the water level changes with response to infiltration from irrigation canals and other surface water features was needed to develop an accurate hydrologic model of the site.

3.1.7 Computer Modeling

The goal of the computer modeling phase was to develop a probabilistic hydrologic model to simulate the ground water flow regime at the site and to predict the transport of contaminants from the site. The model integrated the hydrologic information associated with the site and allowed quantitative evaluation of the feasibility of achieving a natural-flushing ground-water compliance strategy within a 100-year time frame.

4.0 Site Conditions

4.1 Site History

The Riverton site, including the former mill site and tailings pile area, is approximately 2.3 miles (mi) (3.7 kilometers [km]) southwest of the town of Riverton on the north side of Highway 137 (Rendezvous Road) in Fremont County, Wyoming (Plate 1). The site is on State land within the boundaries of the Wind River Indian Reservation (Northern Arapaho and Shoshone tribes) and is located in Township 1 South, Range 4 East, Sections 4 and 9 (Plate 1).

The former Riverton uranium processing site encompasses approximately 190 acres (ac) (76.9 hectares [ha]) on a level, alluvial terrace between the Wind River and the Little Wind River, approximately 2.3 mi (3.7 km) southwest of Riverton, Wyoming (Figure 3–1 and Plate 1). The uranium mill at the Riverton site operated from 1958 until mid 1963. Storage of uranium ore and seepage from the tailings pile following the sulfuric acid and alkaline leaching processes resulted in varying degrees of contamination of the ground water with arsenic, lead-210, manganese, molybdenum, nickel, polonium-210, sulfate, thorium-230, uranium, and vanadium. The tailings pile and associated contaminated soils were removed in 1988 and 1989.

4.1.1 Physiographic Setting

The former Riverton uranium mill tailings site is located on a nearly level alluvial terrace between the Wind River (approximately 4,000 feet [ft] (1,000 meters [m]) to the north) and the Little Wind River (approximately 3,000 ft [900 m] to the southeast) (Plate 1). These two rivers join approximately 2.5 mi (4.0 km) east of the site. The land surface elevation at the site averages approximately 4,950 ft (1,510 m) above mean sea level (MSL) and slopes at less than 0.5 percent to the southeast. The Wind River drainage area upstream of Riverton encompasses 2,270 mi^2 (5,880 km^2). The Little Wind River has a 1,900-mi^2 (4,930-km^2) drainage basin (USGS 1993).

The climate in the Riverton area is semiarid to arid (DOE 1987a) and is influenced both by cold air masses from Canada and by the prevailing warm westerly winds. The highest and lowest temperatures recorded in Riverton from 1951 to 1980 were 104 °F (40 °C) and –46 °F (–43 °C). An average of 207 days per year have minimum temperatures less than or equal to 32 °F (0 °C), and an average of 37 days per year have maximum temperatures of 90 °F (32 °C) or greater. The average annual precipitation during the 30-year period from 1951 to 1980 was 8 inches (20 centimeters [cm]). The greatest amount of precipitation and ground-water infiltration occurs in April, May, and June in the form of late spring snows, snow melt, and showers.

A system of irrigation canals is located along the northern and eastern sides of the property. These canals carry water from the Wind River to the northwest and discharge into the wetlands area east of the site. The irrigation system operates from June to October. Flow in the canal where it enters the site and where it exits the site was approximately 1 cubic foot per second (ft^3/s) (0.028 m^3/s) in June 1994.

A man-made, unlined drainage channel carries discharge water from the sulfur processing plant on the western side of the site. This channel joins the regional irrigation canal system and natural wetlands areas before passing under Highway 137, where it joins the Little Wind River approximately 3,500 ft (1,100 m) due south of the property. Another wetland area is located to the east of the site. Drainage from this wetland passes under Highway 137 approximately 2,500 ft (760 m) east of the southeast corner of the property. A former meander in the Little Wind River has been cut off, leaving an oxbow lake southeast of the site.

4.1.2 Surrounding Land and Water Uses

Land Uses

The predominant land use in the vicinity of the site is agricultural. Much of the area is used as pasture for cattle and horses. Hay is the primary crop in the area. Some of the residences have vegetable gardens.

Water Uses

The City of Riverton is located approximately 2 mi (3 km) northeast of the former milling site. The City withdraws water from one of the irrigation canals fed by the Wind River during the summer growing season (May through September) and pumps water from wells during the rest of the year. A total of 12 active city wells are located between 1.5 and 9 mi (2 and 15 km) from the site, but only two of these are within 2 mi (3.2 km) of the site (Plate 1). All the Riverton municipal wells are completed in the confined aquifer of the Wind River Formation and are 400 to 900 ft (120 to 270 m) deep (Anderson and Kelly 1976). Ground-water quality data demonstrate that this aquifer has not been contaminated by the former uranium-processing activities. Water elevations in the monitor wells screened in the confined aquifer show that the gradient beneath the contaminant plume is to the south-southeast, not toward the Riverton well field. Contaminated ground water in the shallower aquifers does not represent a threat to the municipal water supply.

The City has total water rights from the wells of 4.5 million gal/day (17 million L/day). In 1993, the City pumped approximately 3.3 million gal/day (12.5 million L/day) from the municipal well field from January to April and from November to December (Saban 1994).

Water used for livestock and domestic purposes in the vicinity of the site is withdrawn from drilled wells. The locations of known residential wells are shown on Plate 1. Information on the wells, including total depths, casing depths, supply aquifers, and the uses of the water, is presented in Table 4–1. All wells used for potable water are at least 100 ft (30 m) deep and are completed in the confined sandstone aquifer; therefore, they are not being affected by the contaminant plume.

St. Stephen's Mission is located south of Highway 137, approximately 3,200 ft (975 m) southeast of the site (Plate 1). St. Stephen's has a well (436) that is completed in the confined sandstone aquifer and is used for potable and domestic water. A shallow alluvial well that refills with water

Table 4–1. Private Wells, Details, and Sampling Dates, Riverton Site

Domestic wells[a] TAC ID No.	Year(s) sampled	Total/casing depth (ft)	Aquifer	Water use[c]
401[b]	1985	NA/NA	NA	NA
402[b]	1985	NA/NA	NA	NA
403[b]	1985	NA/NA	NA	NA
404[b]	1985	NA/NA	NA	NA
405	1981, 1983, 1984(2X), 1985, 1990, 1991(3X), 1992(2X), 1993, 1995, 1997	274/NA	Confined sandstone	Potable
406	1981, 1990, 1991(3X), 1992(2X), 1993, 1995, 1997	350/NA	Confined sandstone	Potable
407[b]	1982	NA/NA	NA	NA
409[b]	1985	NA/NA	NA	NA
410	1982, 1983, 1984(3X), 1990(2X), 1992(2X), 1993, 1995, 1997	100/NA	Confined sandstone	Domestic
411	1985, 1988, 1990, 1991(3X), 1992(2X), 1993, 1997	270/261	Confined sandstone	Domestic
412[b]	1985	NA/NA	NA	NA
413[b]	1985	NA/NA	NA	NA
415[b]	1981, 1983, 1984	NA/NA	NA	NA
417	1981, 1990, 1991, 1992, 1993, 1995, 1997	400/350	Confined sandstone	Potable*
420	1981, 1983, 1984(3X), 1985, 1990(2X), 1991(3X), 1992(2X), 1993, 1995, 1997	273/228	Confined sandstone	Potable
421	1981, 1985, 1995	200/NA	Confined sandstone	Potable
422[b]	1984, 1985	NA/NA	NA	NA
423	1984, 1985, 1988, 1990, 1991(3X), 1992(2X), 1993, 1995	290/NA	Confined sandstone	Potable
424[b]	1984	NA/NA	NA	NA
425[b]	1984, 1985	NA/NA	NA	NA
430	1981, 1983, 1984(2X), 1985, 1990, 1991(2X), 1992(2X), 1993, 1995, 1997	320/284	Confined sandstone	Potable
431	1984, 1985, 1992, 1993, 1995, 1996, 1997	Approximately 15 (installed with backhoe)	Surficial	Stock
435[b]	1983, 1984(2X)	NA/NA	NA	NA
436	1982, 1991(3X), 1992(2X), 1993, 1995	525/NA	Confined sandstone	Potable

Table 4–1 (continued). Private Wells, Details, and Sampling Date, Riverton Site

Domestic wells[a] TAC ID No.	Year(s) sampled	Total/casing depth (ft)	Aquifer	Water use[c]
437[b]	1985	NA/NA	NA	NA
440	1984, 1985(2X), 1988, 1990(2X), 1995, 1997	267/NA	Confined sandstone	Potable*
441	1985, 1995	100/NA	Confined sandstone	Potable*
442	1994, 1995, 1997	405/NA	Confined sandstone	Domestic
443	1994	397/356.5	Confined sandstone	Potable
444	1994, 1995, 1997	375/365	Confined sandstone	Domestic
445	1994, 1997	35/NA	Surficial	Stock
446	1994, 1995, 1997	410/370	Confined sandstone	Potable
448	1994, 1995, 1997	405/NA	Confined sandstone	Potable
451	1994, 1995, 1997	360/338	Confined sandstone	Potable
452	1994, 1995, 1997	NA/NA	NA	Potable
453	1994, 1995, 1997	NA/NA	NA	Potable
460	1984, 1993, 1995	450/NA	Confined sandstone	Process
461	1996	NA/NA	NA	NA
951	1988, 1992(2X)	273/246	NA	Potable*

[a]See Plate 1 for well locations.

[b]These wells were sampled in 1981, 1983, 1984 and/or 1985 only. They are located outside the maximum probable extent of contamination and were not sampled again. Construction details and water uses are not available. They are not located on Plate 1, but analytical data is included in Appendix B.1 for completeness.

[c]Water uses:

Potable	=	Drinking and other uses.
Domestic	=	Bathing, washing dishes and other uses, but not drinking.
Stock	=	Watering livestock, irrigation, but not drinking or domestic.
NA	=	Information not available.
*	=	Where water use is not certain, suggest potable to be conservative.
Process	=	Industrial use.

Water use from interviews with resident or inferred from well characteristics.

from an irrigation canal is used for watering the recreational fields but is not used for domestic consumption (Brown 1994).

The Koch Sulfur Products Company plant is located near the northwest corner of the Riverton site. This facility made acid for the uranium process mill and is still in production. The facility uses the same water supply well that supplied the former uranium mill. This well is reportedly 345 ft (105 m) deep and produces an average of 110 gallons per minute (gal/min) (416 liter per minute [L/min]) (Slack 1994). Approximately 70 gal/min (265 L/min) of used process water from this facility flows into a retention pond south of the plant and then into an unlined drainage ditch that runs south under Highway 137 and into the Little Wind River (Plate 1). The remainder of the process water is recycled.

Uranium mill-related contaminants remain in the groundwater in the surficial and semiconfined aquifer in the vicinity and downgradient of the site. To remove the threat of human use of the

water in the surficial and semiconfined aquifer, and to relieve public fear of the contamination, DOE has agreed to fund a water distribution infrastructure project (i.e., alternative water supply) to deliver safe and useable domestic water to the residents in and around the project site. The alternate water supply project is part of a larger project that is being designed and constructed by the Indian Health Services. Design of the water line was completed in the summer of 1997, and construction of some phases began in the fall of 1997. Construction of all phases of the larger project (i.e., the water line in the area of contamination and a connecting water line in other areas) is scheduled to be complete by the summer of 1998.

4.1.3 History of Operations

The surficial and semiconfined ground water aquifers (uppermost aquifer) underlying the Riverton site became contaminated as a result of the former uranium milling processes and disposal practices. The *Baseline Risk Assessment of Ground water Contamination of the Uranium Mill Tailing Site Near Riverton, Wyoming* (DOE 1995a) identified the following contaminants of concern: arsenic, lead-210, manganese, molybdenum, nickel, polonium-210, sulfate, thorium-230, uranium, and vanadium. This section discusses past activities at the site that resulted in the ground water degradation and also discusses the steps taken to remove the surface source of contamination. It also describes the activities in the vicinity of the site and uses of the ground water.

The mill at the Riverton site was constructed in 1958 and was operated initially by Fremont Minerals, Inc., which changed to Susquehanna-Western, Inc., to process a variety of uranium ores mined from the surrounding area. In 1960, the mill's capacity was 450 to 500 tons (400 to 445 tonnes) per day in the acid circuit and 250 to 300 tons (220 to 270 tonnes) per day in the carbonate leach circuit (Merritt 1971). A sulfuric acid plant was also part of the mill facilities. It was rated at about 100 tons (90 tonnes) per day in 1960 and used sulfur collected from sour gas. The uranium mill was closed in mid 1963. The sulfuric acid plant is still being operated by Koch Sulfur Products Co.

The mill operations included both sulfuric acid and alkaline leach circuits to provide flexibility for the many types of uranium ore received. Clarified solutions from the acid-leaching process were fed to a solvent-extraction circuit using an amine-decanol-kerosene extractant. The extractant was subsequently stripped with caustic soda to precipitate the uranium (Merritt 1971). During its 5 years of operation, approximately 900,000 tons (800,000 tonnes) of ore were processed at the mill. The waste solids from the milling of the uranium ores were transferred to a tailings pile located adjacent to and southeast of the mill (Figure 4–1).

The rectangular tailings pile covered about 70 ac (30 ha) and contained approximately 1 million cubic yards (yd^3) (800,000 cubic meters [m^3]) of tailings. An additional 70 ac (30 ha) of the land surface to the north of the tailings pile were also contaminated from ore storage and other processing site activities. Dispersion of the tailings by wind resulted in soil contamination on about 50 additional ac (20 ha) outside the site boundaries, especially to the southeast (Figure 4–1).

4.2 Sources of Existing Data

Ground-water quality sampling has been performed at the Riverton site since the mid 1970s (FBDU 1983; FBDU 1981; GECR 1983; LBL 1984; DOE 1987a). The WSAP (DOE 1994b) summarizes much of the data. During 1993 and 1994, DOE conducted a BLRA to evaluate the potential impacts to human health and the environment (DOE 1995a).

Most monitor wells installed during the pre-1990 investigations were decommissioned during the surface remedial actions at the site. The 62 monitor wells presently available for sampling are identified on Plate 1 as monitor wells 100 through 113 near the former mill site; monitor wells 701 through 703, 705, and 707 through 709 near the Little Wind River; monitor well 706 on the south side of the river; monitor wells 710 through 715 along the former C&NW Railroad right-of-way northwest of the site; and monitor wells 716 through 730 within and downgradient of the site. Monitor well 704, south of Highway 137, is not currently available for sampling because of a dispute with the landowner.

Selected monitor wells from each of these groups have been sampled during the last several years and will continue to be sampled in the future to monitor changes in ground-water quality and water levels. Construction details for these wells are presented on Table 4–2. Data on the decommissioned wells are given in the Surface Remedial Action Plan (DOE 1987b).

Between 1988 and 1990, the uranium mill was demolished and the tailings pile and contaminated soils were removed from the site and surrounding area. The soils were excavated until the radium concentrations were less than 5.0 picocuries per gram (pCi/g) in the first 6 inches (15 cm) in accordance with UMTRA guidelines (40 CFR 192.12) (Figure 4–1). Approximately 1.8 million yd^3 (1.4 million m^3) of contaminated material was removed from the site and disposed of at Umetco's Gas Hills Disposal Site (Figure 3–1). The excavation was backfilled with clean fill. The finished land surface was graded to form a crown and planted with rye grass. Surface remediation was completed in November 1989.

4.3 Conceptual Site Model

This section presents the conceptual site model and describes the hydrogeologic settings, the ground water quality, the geochemical properties of the aquifer that control the fate and transport of contaminants, and the risks associated with the contaminants. A summary of the site conceptual model is presented below; details are presented in subsequent subsections. Plate 1 shows the locations of all the ground water monitoring wells, domestic wells, and surface water sampling locations used to develop the model.

Ground water occurs in an unconfined surficial aquifer, an underlying semiconfined sandstone aquifer, and a deeper confined sandstone aquifer. The surficial and semiconfined aquifers are, for regulatory purposes, designated as the uppermost aquifer. These aquifers are recharged primarily by inflow from the Wind River to the northwest and from excess irrigation water. Ground water in the surficial aquifer is the more contaminated, and some contamination exists in the semiconfined aquifer. No contamination has been detected in the deep confined aquifer. Potable

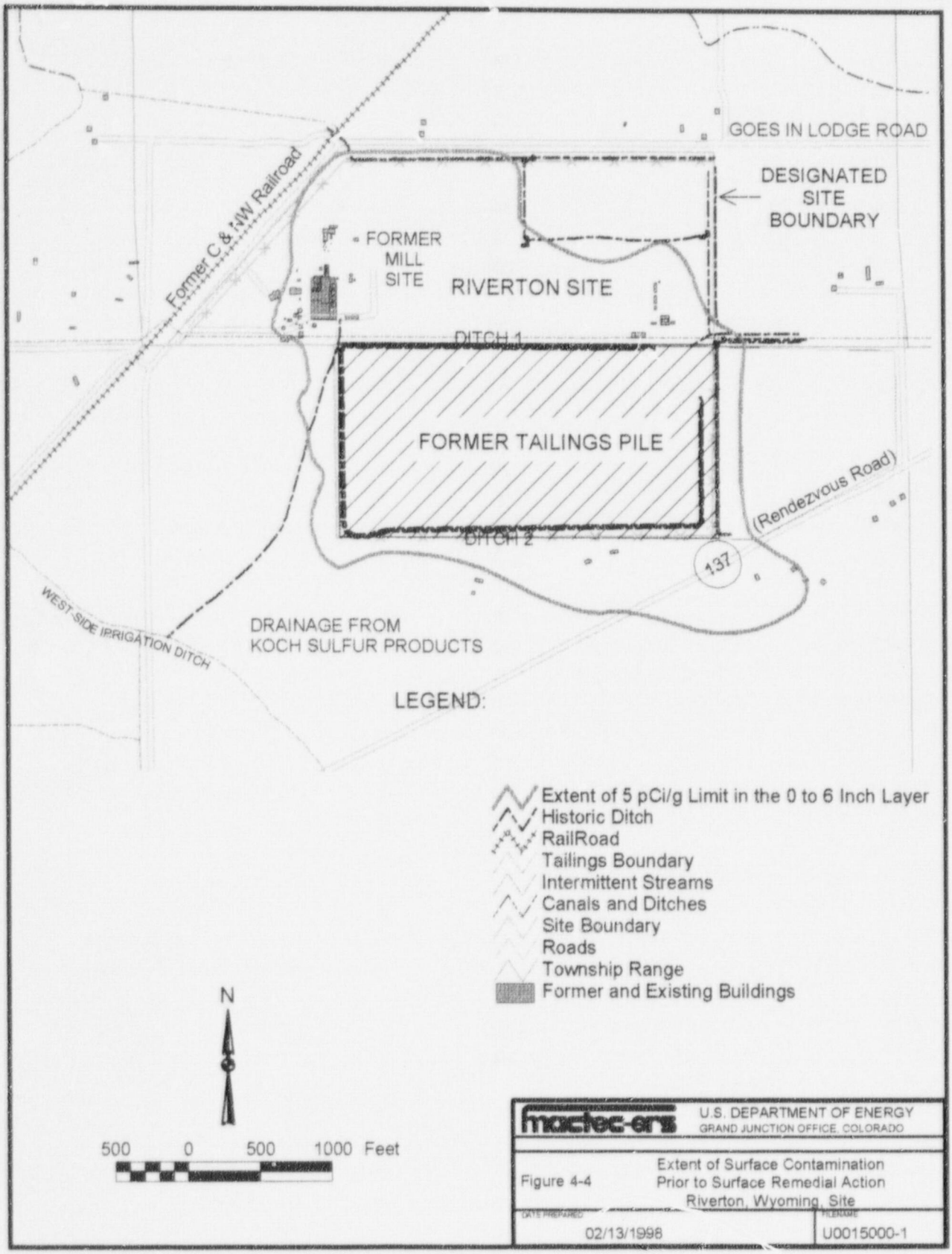


Figure 4–1. Extent of Surface Contamination Prior to Surface Remedial Action at the Riverton Site

Table 4–2. Monitor Well Information, Riverton Site

ID No.	Ground Elev. (ft)	Bore Depth (ft)	Bore Dia. (inches)	Top of Casing Elev. (ft)	Casing Dia. (inches)	Screened Interval (ft below ground surface)	Filter Pack Interval (ft below ground surface)	Zone of Completion
100	4946.1	17.0	11.0	4646.73	6.0	6.0 –14.0	4.0 – 17.0	Surficial
101	4946.2	17.5	6.0	4949.29	2.0	10.5 – 15.5	5.5 – 17.5	Surficial
102	4946.3	17.5	6.3	4949.38	2.0	10.0 – 15.0	6.5 – 17.0	Surficial
103	4946.0	17.0	6.3	4949.00	2.0	10.0 – 15.0	6.5 – 17.0	Surficial
104	4945.3	15.5	6.3	4945.90	2.0	8.5 – 13.5	6.5 – 15.5	Surficial
105	4946.3	17.5	6.3	4949.58	2.0	10.5 – 15.5	6.0 – 17.5	Surficial
106	4946.2	100.0	6.0	4949.25	2.0	49.5 – 54.5	35.0 – 56.5	Semiconfined
107	4946.0	67.0	6.0	4948.81	2.0	49.5 – 54.5	36.5 – 56.5	Semiconfined
108	4946.2	56.0	6.0	4949.68	2.0	48.5 – 53.5	35.5 – 56.5	Semiconfined
109	4945.8	58.0	6.0	4949.31	2.0	49.0 – 54.0	40.0 – 56.0	Semiconfined
110	4946.2	72.0	6.0	4949.48	2.0	61.3 – 66.5	59.0 – 72.0	Confined
111	4946.1	56.0	9.8	4947.39	6.0	39.0 – 54.0	36.0 – 56.0	Semiconfined
112	4946.2	32.0	10.0	4947.79	6.0	8.5 – 28.5	5.0 – 32.0	Surficial
113	4946.2	34.0	6.0	4949.40	2.0	21.0 – 26.0	5.0 – 34.0	Surficial
701	4930.2	128.0	6.0	4931.27	2.0	25.4 – 30.4	23.0 – 31.0	Aquitard
702	4930.2	215.0	6.0	4931.70	2.0	39.2 – 44.2	35.5 – 45.5	Semiconfined
703	4930.2	214.0	6.0	4931.53	2.0	93.0 – 98.0	87.0 – 98.0	Confined
704	4935.1	211.0	6.0	4936.30	2.0	31.2 - 36.2	30.5 – 39.0	Semiconfined
705	4930.1	50.0	10.0	4931.59	6.0	38.0 – 48.0	35.5 – 50.0	Semiconfined
706	4931.1	21.5	6.0	4932.00	2.0	14.5 – 19.5	12.8 – 21.5	Surficial
707	4930.4	18.0	6.0	4931.00	2.0	9.8 – 14.8	7.5 – 16.8	Surficial
708	4930.3	28.0	6.0	4931.59	2.0	25.5 – 26.5	25.5 – 28.0	Aquitard
709	4930.2	111.0	10.0	4931.43	6.0	85.0 – 105.0	84.0 – 111.0	Confined
710	4947.2	20.0	6.0	4947.90	2.0	11.2 - 16.2	8.0 – 20.0	Surficial
711	4943.5	21.5	6.0	4944.50	2.0	10.8 – 15.8	8.0 – 21.5	Surficial
712	4943.5	19.5	6.0	4944.50	2.0	10.6 – 15.6	10.0 – 19.5	Surficial
713	4941.6	16.5	6.0	4942.70	2.0	9.5 – 14.5	4.5 – 16.5	Surficial
714	4941.2	18.0	6.0	4942.10	2.0	11.0 – 16.0	10.0 – 18.0	Surficial
715	4938.5	18.5	6.0	4939.40	2.0	11.5 – 16.5	6.8 – 18.5	Surficial
716	4936.4	12.5	6.0	4939.12	2.0	7.5 – 12.5	5.5 – 12.5	Surficial
717	4936.4	50.0	6.0	4938.80	2.0	37.5 – 47.5	29.0 – 49.5	Semiconfined
718	4937.0	18.0	6.0	4937.18	2.0	13.0 – 18.0	10.0 – 18.0	Surficial

Table 4–2 (continued). Monitor Well Information, Riverton Site

ID No.	Ground Elev. (ft)	Bore Depth (ft)	Bore Dia. (inches)	Top of Casing Elev. (ft)	Casing Dia. (inches)	Screened Interval (ft below ground surface)	Filter Pack Interval (ft below ground surface)	Zone of Completion
719	4936.8	40.0	6.0	4936.94	2.0	28.0 – 38.0	23.0 – 40.0	Semiconfined
720	4937.9	10.5	6.0	4940.46	2.0	5.5 – 10.5	3.5 – 10.5	Surficial
721	4937.9	49.0	6.0	4940.47	2.0	37.0 – 47.0	27.0 – 49.0	Semiconfined
722	4935.2	18.0	6.0	4935.35	2.0	6.0 – 16.0	4.0 – 18.0	Surficial
723	4935.0	49.0	6.0	4935.26	2.0	35.5 – 45.5	31.0 – 47.5	Semiconfined
724	4939.4	16.0	6.0	4941.36	2.0	11.0 – 16.0	6.0 – 16.0	Surficial
725	4939.4	38.0	6.0	4941.36	2.0	24.5 – 34.5	19.5 – 36.5	Semiconfined
726	4939.5	133.0	6.0	4942.00	2.0	121.0 – 131	80.0 – 133.0	Confined
727	4949.5	40.0	6.0	4951.69	2.0	27.0 – 37.0	21.5 – 39.0	Semiconfined
728	4943.9	24.0	6.0	4946.01	2.0	12.0 – 22.0	9.0 – 24.0	Surficial
729	4932.1	17.0	6.0	4932.07	2.0	9.0 – 14.0	8.0 – 14.0	Surficial
730	4932.5	40.0	6.0	4932.48	2.0	28.0 - 38.0	21.0 – 40.0	Semiconfined
731*	4945.5	18.0	12.0	4945.5	4.0	2.0 – 11.4	NA	Surficial
732*	4945.1	40.0	8.0	4945.1	4.0	2.5 – 4.0	NA	Semiconfined
733*	4944.3	NA	12.0	4946.8	4.0	7.5 – 12.5	NA	Surficial
734*	NA	41.0	8.0	4946.1	4.0	25.1 – 40.1	NA	Semiconfined
735*	NA	44.0	8.0	4934.2	4.0	27.5 – 42.5	NA	Semiconfined
736*	NA	38.0	8.0	4946.0	4.0	18.6 – 33.6	NA	Semiconfined
737	4930.8	19.0	10.0	4933.6	6.0	6.6 – 18.6	4.5 – 19	Surficial
738	4935.6	12.5	12.0	4937.6	6.0	5.0 – 12.5	3.5 – 12.5	Surficial
739*	4936.3	48.0	10.0	4937.8	6.0	21.2 – 46.2	NA	Semiconfined
780	4936.5	12.5	6.6	4938.5	2.0	5.5 – 12.5	3.5 – 12.5	Surficial
781	4936.1	12.5	6.6	4938.1	2.0	5.5 – 12.5	3.5 – 12.5	Surficial
782	4936.3	12.5	6.6	4938.3	2.0	5.5 – 12.5	3.5 – 12.5	Surficial
783*	4943.2	8.4	8.0	4945.4	2.0	3.4 – 8.4	NA	Surficial
784*	4943.1	9.4	8.0	4945.5	2.0	4.4 – 9.4	NA	Surficial
785	4930.8	16.0	8.0	4932.8	2.0	3.6 – 15.6	1.5 – 16.0	Surficial
786	4930.9	16.0	8.0	4932.6	2.0	4.1 – 15.6	1.5 – 16.0	Surficial
787	4930.7	16.0	8.0	4932.4	2.0	3.6 – 15.6	1.5 – 16.0	Surficial
788*	4932.4	16.5	8.0	4935.1	2.0	4.1 – 16.1	NA	Surficial
789*	4935.5	16.8	8.0	4933.7	2.0	4.4 – 16.4	NA	Surficial

*Logs not available, information taken from SEE IJMTRA database.

water in the Riverton area is withdrawn from the Wind River and from the confined sandstone aquifer. Ground water from the surficial and semiconfined aquifers is presumed to discharge into the Little Wind River, including the newly formed oxbow lake. Some ground water may also discharge to the wetlands southeast of the site. Figure 4–2 is a representation of the site conceptual model.

Ground water analyses indicate that the contaminated ground water extends from the former tailings pile area to the Little Wind River, approximately 4,000 ft (1,200 m) southeast of the former tailings pile. Data on water quality and flow in the Little Wind River demonstrate that the river dilutes the discharging ground water to below concentrations that present risks to human health, wildlife, or the environment. The surface of the river is topographically lower compared to the ground water elevations on either side of the river. As a result, it is unlikely that the contaminated ground water plume extends beneath the river.

Data collected between 1983 and 1997 suggest that the natural ground water flow, probably enhanced by infiltration from irrigation canals along the upgradient side of the former mill site, is flushing contaminants out of the uppermost aquifer into the Little Wind River. Ground water modeling indicates that the mass of contaminated ground water should flush to the river within 100 years. It is anticipated that geochemical reactions as well as dilution and dispersion are also effective in reducing the concentrations beneath and downgradient of the site. Institutional controls implemented to prevent use of the contaminated ground water during the remediation period and the installation of the alternative water supply will avoid risks to human health.

4.3.1 Hydrogeologic Setting

The five hydrogeologic units of interest underlying the Riverton site (in descending order) are (1) a surficial aquifer, unconfined alluvial and sandstone aquifer, (2) a leaky shale aquitard, (3) a semiconfined sandstone aquifer, (4) a second, more impermeable shale aquiclude, and (5) a confined sandstone aquifer (Figure 4–3, Geologic Cross Section). The rock units compose the upper units of the Eocene-age Wind River Formation.

Water level data collected from 1984 through 1997 indicate a hydrogeologic connection between the surficial aquifer and the underlying semiconfined aquifer. Analytical data also suggest a connection between the two zones. Figure 4–4 shows hydrographs for monitor wells completed in the surficial, semiconfined, and confined aquifers. The 1991 water level decrease associated with well 709 (completed in the confined aquifer) may be in response to pumping from a private well in that vicinity.

Data logger readings indicate that the ground water levels beneath the site fluctuate seasonally. Flooding on the Wind River and Little Wind River during the spring of 1995 resulted in an increase in the ground water level by as much as 4 ft. Hydrographs showing the water levels measured in nested wells in the surficial and semiconfined aquifers indicate that water levels are nearly identical (Figure 4–4), while the water levels in the confined aquifer are generally higher than water levels in either of the two overlying aquifers. The surficial and semiconfined aquifers show similar water level responses with time. The one exception is the confined aquifer water level near the Koch Sulfur Products Plant, which may be influenced by the deep pumping well supplying the plant.

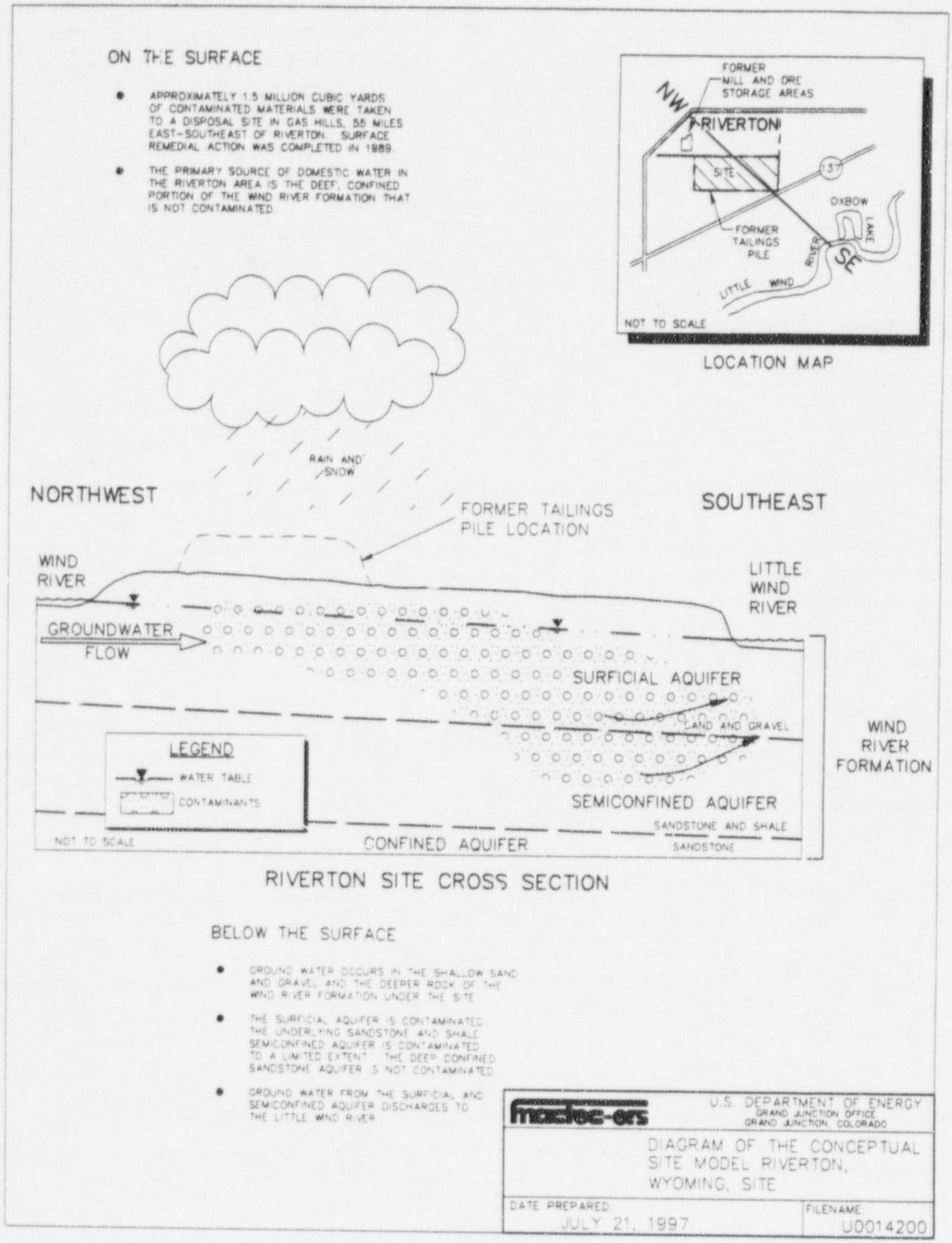


Figure 4–2. Diagram of the Conceptual Site Model, Riverton Site

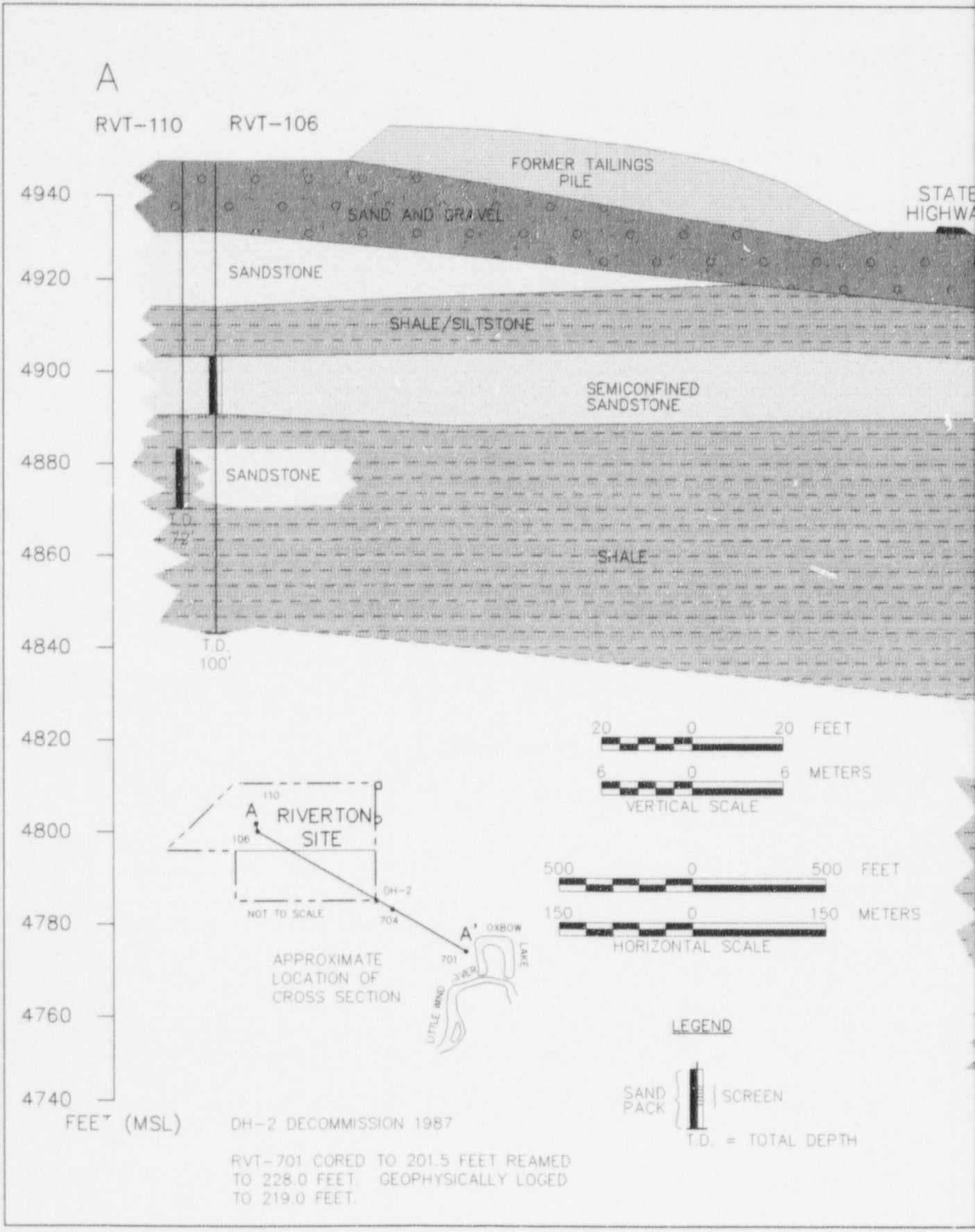
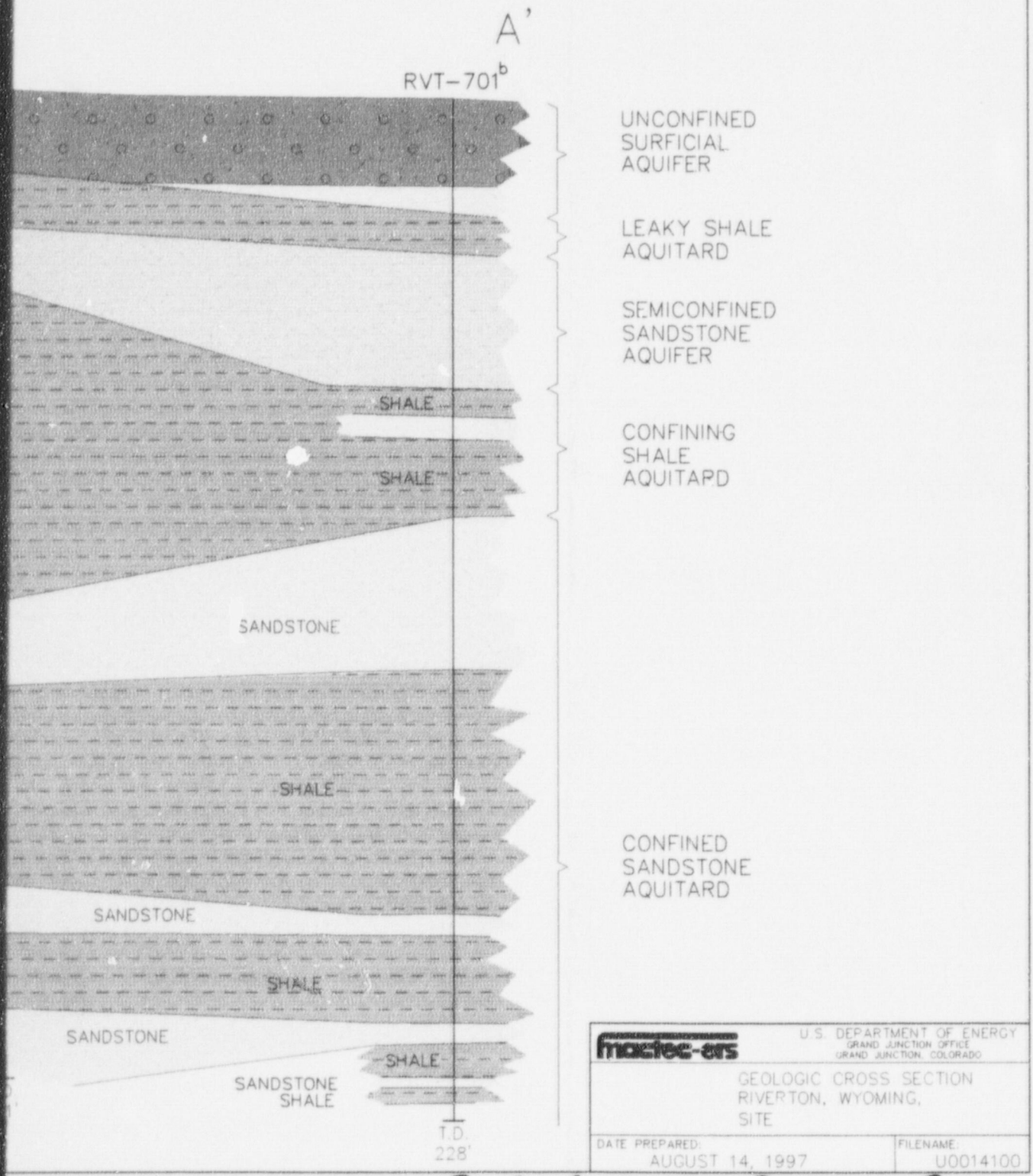


Figure 4-3. Geologic



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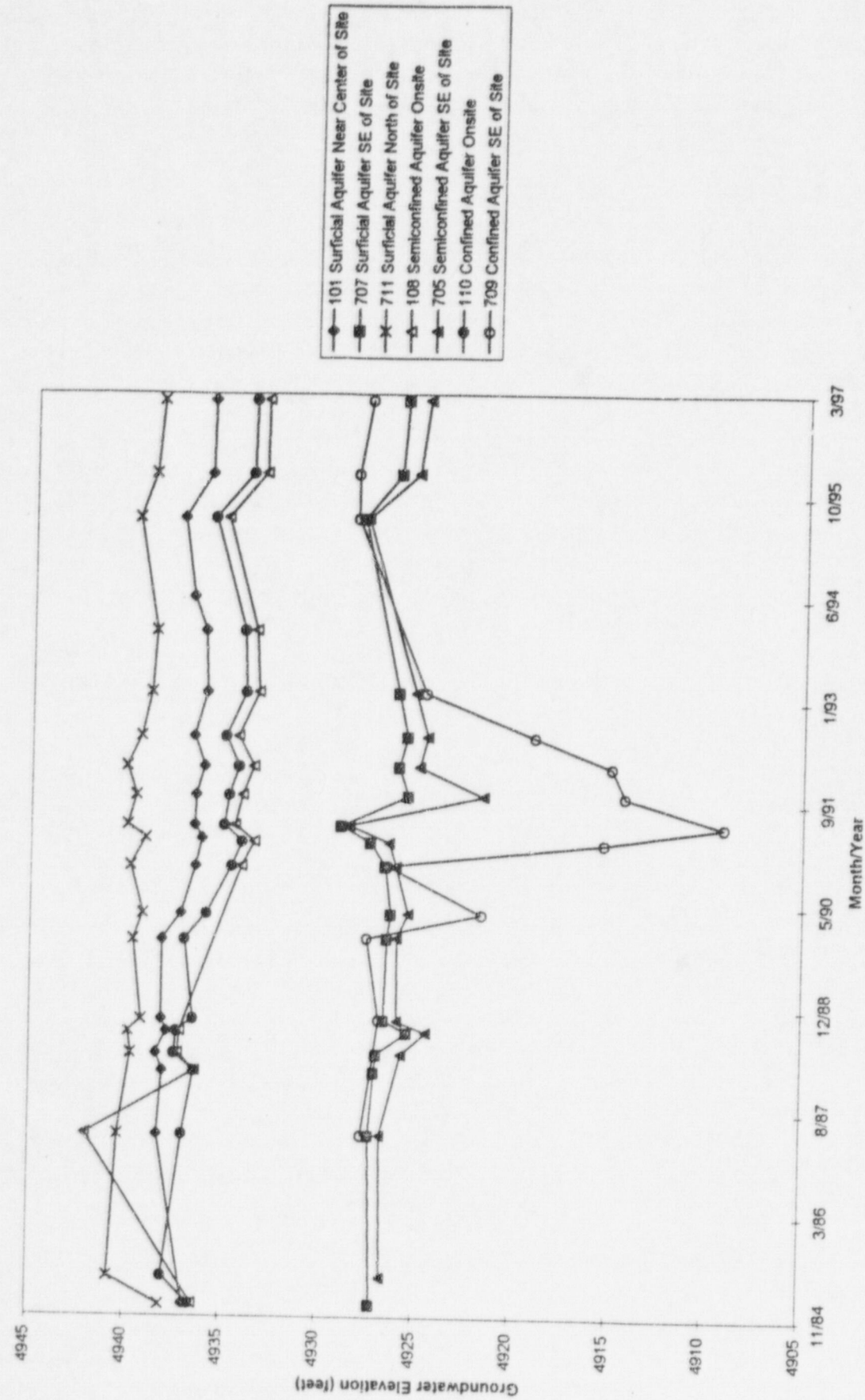

Figure 4–4. Hydrographs of On-Site Wells, Riverton Site

Analyses for deuterium and oxygen-18 isotopes indicate that ground water in all three aquifers in the vicinity of the site is isotopically similar (White et al. 1984). White postulates that from the slightly depleted ratios of deuterium and oxygen-18, the source of ground water for all three aquifers is the Wind River Mountains to the west. This suggests that there is a common source of recharge.

Surficial Aquifer

The surficial unconfined aquifer consists of 15 to 20 ft (5 to 6 m) of alluvial sand and gravel underlain by a discontinuous layer of sandstone. The sandstone layer exists both north and south of the former tailings pile, but pinches out and is absent for approximately 1,500 ft (500 m) south of the southern edge of the pile. There is no aquitard between the alluvial sediments and this sandstone layer.

Water levels collected from data loggers indicate that the ground water levels beneath the site fluctuate seasonally. The ground water surface in the surficial aquifer based on the February 1997 data ranged in elevation from 4,924.8 ft (1,501.1 m) above MSL to 4,944.6 ft (1,507.1 m) above MSL (wells 789 and 700, respectively). The ground water flow direction in the site area is east-southeast with a horizontal gradient of 0.0032, as shown in Figure 4–5. Depth to surficial ground water ranged from approximately 3 to 10 ft below ground surface during the February 1997 data collection time period.

Previous data indicate a seasonal change of ground water flow direction. In March 1993, ground water flowed east-southeast with a horizontal gradient of 0.0024. Subsequent data collected in June 1994 indicated a ground water flow toward the south with a horizontal gradient beneath the site of 0.0034. July 1995 data show a ground water flow direction to the south-southeast, but with a shallower horizontal gradient of 0.0026. Infiltration from nearby canals may form hydraulic boundaries that limit the movement of ground water to the east during the irrigation season.

Responses to surface water fluctuations (the result of flooding or irrigation) have been detected in both the surficial and semiconfined aquifers. In June 1994, the ground water level in these two aquifers at the northern edge of the site had risen 2 ft (0.6 m) above the March 1993 level in response to infiltration from the nearby irrigation canal (Figure 4–4). Water levels in both aquifers near the middle and at the southeastern corner were about the same as in March 1993, indicating hydraulic connection between the surficial and semiconfined aquifers in this area. During 1995, the ground water levels increased by as much as 4 ft (1.2 m) in response to flooding of the Wind River and Little Wind River. The water levels measured in nested wells in the surficial and semiconfined aquifers were nearly identical, providing further evidence of the hydraulic connection between the surficial and semiconfined aquifers.

Ground water in the surficial aquifer discharges predominantly to the Little Wind River along approximately one mile of its course, including into the oxbow lake formed in 1994. When the irrigation canals are not in use, some of the ground water in the surficial aquifer may also discharge into the wetlands to the east. When the irrigation canals are in use, the water level in the wetlands may be high enough to reverse the flow direction and recharge the surficial aquifer.

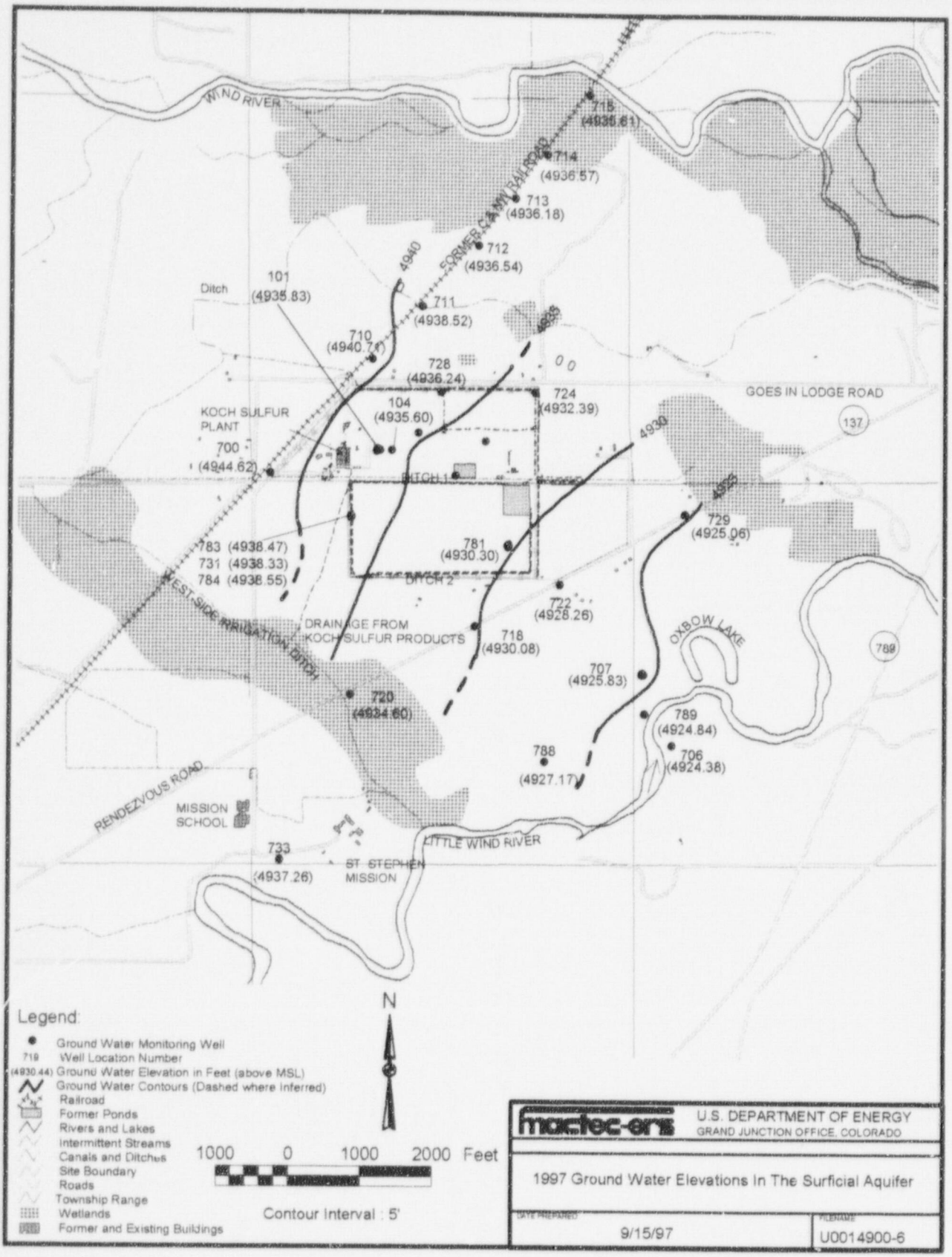

Figure 4–5. 1997 Ground Water Elevations in the Surficial Aquifer

As part of the initial site characterization conducted before 1995, two aquifer tests were completed; one test was conducted in the surficial aquifer and the second was conducted in the semiconfined aquifer. Analysis of the data indicated a hydraulic conductivity of approximately 56 feet per day (ft/day) and 30 ft/day for the surficial and semiconfined aquifer locations, respectively (Table 4–4).

The results of tracer tests, aquifer pumping tests, and slug tests are summarized in Tables 4–3, 4–4, and 4–5 (locations provided in Plate 1). These results indicate that the surficial aquifer underlying the former location of the tailings piles and the area downgradient towards the Little Wind River has a hydraulic conductivity ranging from 100 to 189 ft/day (30.5 to 58 m/day), with a geometric mean of 125 ft/day (38 m/day).

Table 4–3. Tracer Test Results

Associated Pumping Well ID	Convergent Tracer Injection Well ID	Effective Porosity n	Dilution Tracer Injection Well ID	Darcian Velocity (ft/day)	Effective Velocity (ft/day)
100	102	0.38	104	0.38	1.00
100	102	0.38[a]	783	0.16	0.42[a]
738	780/782	0.22	716	0.12	0.55
737	785/707	0.32[b]	722	1.13	3.53[b]
737	785/707	0.32	785/787	0.91	2.84
Arithmetic Average		**0.3**		**0.5**	**1.7**
Geometric Mean		**0.3**		**0.4**	**1.2**

[a]Since a convergent tracer test was not run at well 783, the effective porosity for the 100 well cluster was used with the Darcian velocity from well 738 to calculate the effective velocity at well 783.
[b]Since a convergent tracer test was not run at well 722, the effective porosity for the 737 well cluster was used with the Darcian velocity from well 722 to calculate the effective velocity at well 722.

Notes:
$K = (V)(n)/i = (1.2)(.3)/0.003^1 = 120$ ft/day
[1]Gradient from 1997 ground water contour map

Tracer tests were conducted to collect data to evaluate the feasibility of natural flushing in the surficial aquifer. These ground water tracer tests allowed direct measurement of aquifer porosity and Darcian ground water velocity. The hydraulic conductivity can also be calculated using these parameters. Based on the geometric mean of the effective velocity generated from the results of the tracer tests (1.2 ft/day), the hydraulic conductivity is 120 ft/day. This hydraulic conductivity is similar to the geometric mean of the hydraulic conductivity calculated from the aquifer tests (125 ft/day).

Tracer test results indicated an effective porosity for the aquifer ranging from 0.22 to 0.38; the resulting geometric mean was 0.3. Using an average gradient of 0.003, the calculated ground water flow velocity is approximately 455 ft/yr (140 m/yr). At these rates, it can be estimated that one pore volume of water will move from beneath the upgradient edge of the former tailings pile

Table 4–4. Aquifer Pumping Test Results, Riverton Site

Pumping Well (well no.)	Aquifer Thickness (ft)	Pumping Rate (galions per minute)	OBS Well (well no.)	Distance r (ft)	T (ft^2/day)	S (no units)	S_y (no units)	K (ft^3/day)	K (Geom. Mean) (ft/day)
Surficial Aquifer									
112	20	5.0 (0-1–4 min)	NA	NA	NA	NA	NA	56	NA
737	11	13.0 (0–9 min)	785	10.6	1,767	0.003	0.035	161	
		10.7 (9–4,000min)	786	4.7	1,434	0.008	0.17	130	158
			787	24.4	2,081	0.003	0.035	189	
738	8.2	3.6 (0–1,433 min)	780	10	924	0.008	0.31	113	
		2.9 (1,433–4,600 min)	781	25	1,043	0.003	0.1	127	119
			782	5	962	0.013	0.35	117	
100	8	4.0 (0–5,458 min)	102	15.6	805	0.06	0.27	101	
		4.6 (5,458–6,466 min)	103	42.2	108	0.025	0.25	108	104
			105	18.4	821	0.06	0.32	103	
Geometric mean of hydraulic conductivity = 125 ft/day **Arithmetic mean of hydraulic conductivity = 128 ft/day** **Average linear ground water velocity (V = Ki/n) = 1.2 ft/day = 438 ft/yr**									
Semiconfined Aquifer									
111	15	18 (0–1,440 min)	NA	NA	NA	NA	NA	30	NA
739	20	4.0 (0–1,031 min)	717	20.5	35	0.0007		1.7	

T	Transmissivity	V	Average linear ground water velocity (V = Ki/n)
S	Storativity	i	Gradient (0.003 = February 1997 ground water contour map)
S_y	Specific yield	n	Porosity (0.3 - from tracer tests)
K	Hydraulic conductivity	r	distance (ft) between the observation well and pumping well

Table 4–5. Slug Test Results, Riverton Site

Well No.	Total Depth (ft)	Borehole Radius (ft)	Casing Radius (ft)	Screen Length (ft)	Sand Pack (ft)	Saturated Thickness (ft) (b = H)	Start WL (ft) (fm TOC)	Date	K (ft/day) Geo. Mean	Location
Surficial Aquifer										
718	18	0.25	0.08	5	8	~12.3	~5.73	19 Sept 95	***0.6***	S of site
722	18	0.25	0.08	10	14	~12	6.08	19 Sept 95	***2.3***	SE of site
724	16	0.25	0.08	5	10	~10.4	~5.6	20 Sept 95	***5.9***	NE
728	24	0.25	0.08	10	15	~16	~6.1	20 Sept 95	***16.9***	N
729	17	0.25	0.08	5	6	~10.4	~6.6	19 Sept 95	***5.4***	E of site
780	12.5	0.33	0.08	7	9	8.2	7.2	18 Sept 95	***14.6***	SE - Vicinity 738
781	12.5	0.33	0.08	7	9	8.2	6.73	18 Sept 95	***112.5***	SE - Vicinity 738
782	12.5	0.33	0.08	7	9	8.2	7.05	18 Sept 95	***30.3***	SE - Vicinity 738
783	8.4	0.33	0.08	5	6.9	~3.1	7.53	18 Sept 95	***128.1***	SW - Vicinity 731/732
784	9.4	0.33	0.08	5	7.6	~4.2	7.64	18 Sept 95	***135.5***	SW - Vicinity 731/732
785	16	0.33	0.08	12	14.5	11	7.36	19 Sept 95	***15.1***	SE of site - Vicinity 737
786	16	0.33	0.08	11.5	14.5	11	8.05	19 Sept 95	***293.8***	SE of site - Vicinity 737
787	16	0.33	0.08	12	14.5	11	6.92	19 Sept 95	***180.1***	SE of site - Vicinity 737
788	16.5	0.33	0.08	12	15	~10.3	8.93	19 Sept 95	***13.4***	S of site
789	16.8	0.33	0.08	12	15.3			19 Sept 95	***NA***	SE of site
Semiconfined Aquifer										
717	50	0.25	0.08	10	20.5	28	7.36	18 Sept 95	***1.0***	SE - Vicinity 738
719	40	0.25	0.08	10	17	18	5.26	19 Sept 95	***0.03***	S of site
723	49	0.25	0.08	10	16.5	27	5.82	19 Sept 95	***NA***	SE of site
725	38	0.25	0.08	10	17	19	7.48	20 Sept 95	***5.9***	NE
727	40	0.25	0.08	10	17.5	18	8.96	18 Sept 95	***1.0***	NW
730	40	0.25	0.08	10	19	17	3.03	19 Sept 95	***0.2***	E of site

NA = Not available.

to the Little Wind River in 10 to 15 years. Approximately eight pore volumes will flush beneath the site within 100 years.

The calculated rate of ground water flow predicts that approximately 23,800 ft^3 (675 m^3) of ground water will enter the river each day along a mile section of the Little Wind River's course. This volume equals approximately 0.28 ft^3/s (7.8×10^{-3} m^3/s). For comparison, the average annual flow in the river has been 579 ft^3/s (16.4 m^3/s) with a historic minimum flow (since 1995) of 41 ft^3/s (1.16 m^3/s) on August 7, 1960 (USGS 1993). As a result, ground water contribution is a minimal part of the total flow in the Little Wind River.

Semiconfined Aquifer

A semiconfining shale unit underlies the surficial aquifer. This leaky aquitard ranges in thickness from 5 to 10 ft (2 to 3 m). A semiconfined sandstone unit underlies this shale layer. The sandstone unit ranges in thickness from 15 to 30 ft (5 to 9 m) and is continuous throughout the Riverton site.

The shale aquitard does not appear to completely separate the two units. The piezometric heads in the surficial and semiconfined aquifers are nearly identical in most areas, as shown in Figure 4–6. In addition, the hydrographs (Figure 4–4) suggest a hydraulic connection, although no significant water level changes were noted in monitor wells in the surficial aquifer during the semiconfined aquifer test. The evidence of contamination by site-related constituents also indicates a connection between the two.

Data from aquifer pumping tests and slug tests (Tables 4–4 and 4–5) conducted in the semiconfined aquifer indicate that the hydraulic conductivity ranges from 0.03 to 30 ft/day (0.009 to 9 m/day). If porosity is about 15 percent, which is typical of sandstones (Freeze and Cherry 1987), and the gradient is 0.0024, it is projected that the ground water will move with a velocity that ranges from 0.175 to 175 ft/yr (0.06 to 60 m/yr). At the highest calculated rate (175 ft/yr), approximately one pore volume of ground water will flush through the semiconfined aquifer beneath the site every 25 years. Ground water in the semiconfined sandstone also appears to discharge into the Little Wind River. The maximum rate of discharge from the semiconfined area is approximately 0.1 ft^3/s (3×10^{-3} m^3/s).

Confined Aquifer

Approximately 10 to 25 ft (3 to 8 m) of shale aquitard with discontinuous sandstone lenses underlies the semiconfined sandstone. The confined sandstone aquifer underlies the shale aquitard. The sandstone is at least 50 ft (15 m) thick. Water level data from monitor wells completed in the confined sandstone aquifer indicate that ground water flow in this unit is to the south-southeast with a gradient of approximately 0.002 (Figure 4–7). No aquifer tests have been performed in the confined aquifer.

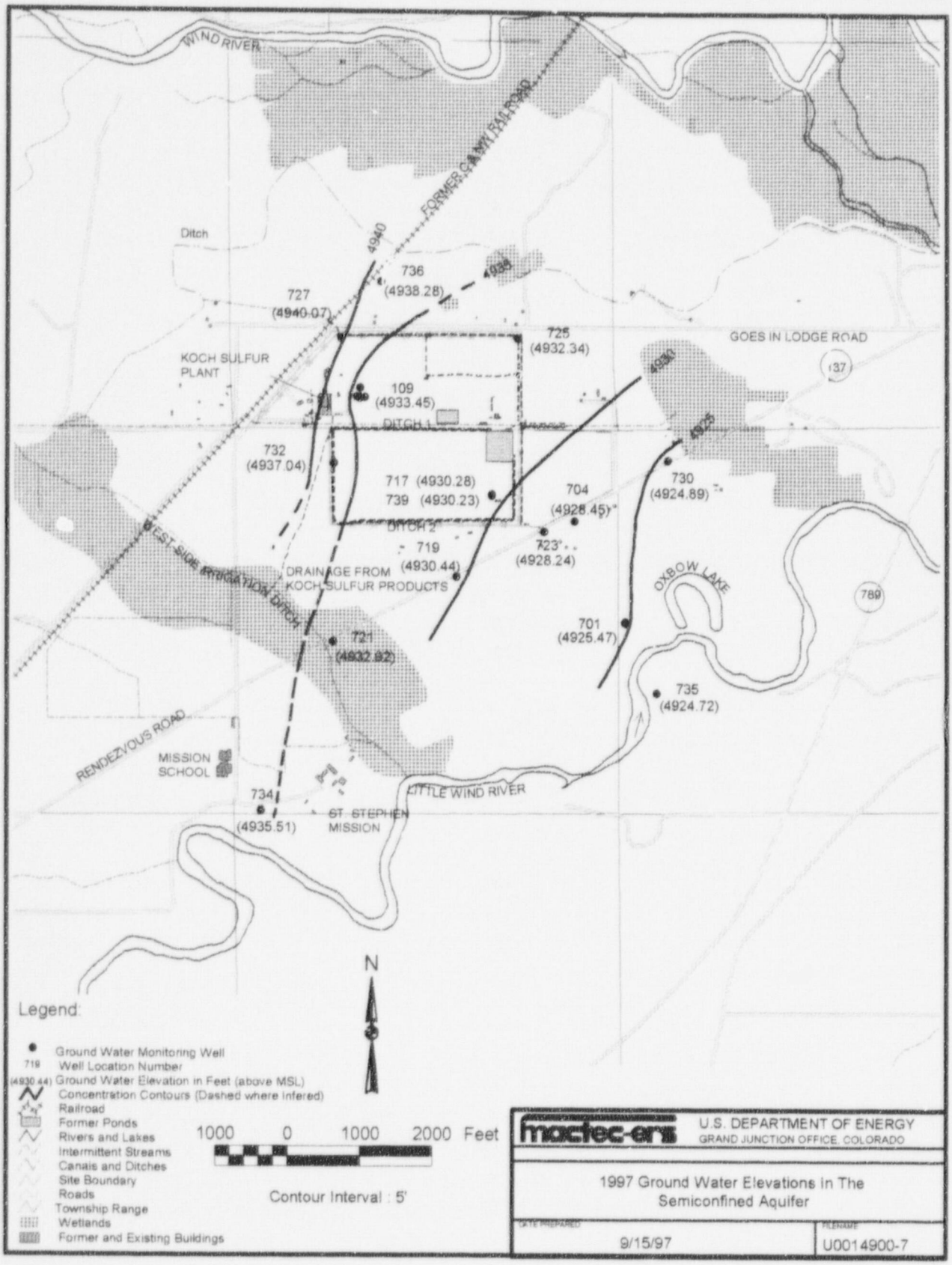

Figure 4–6. 1997 Ground Water Elevations in the Semiconfined Aquifer

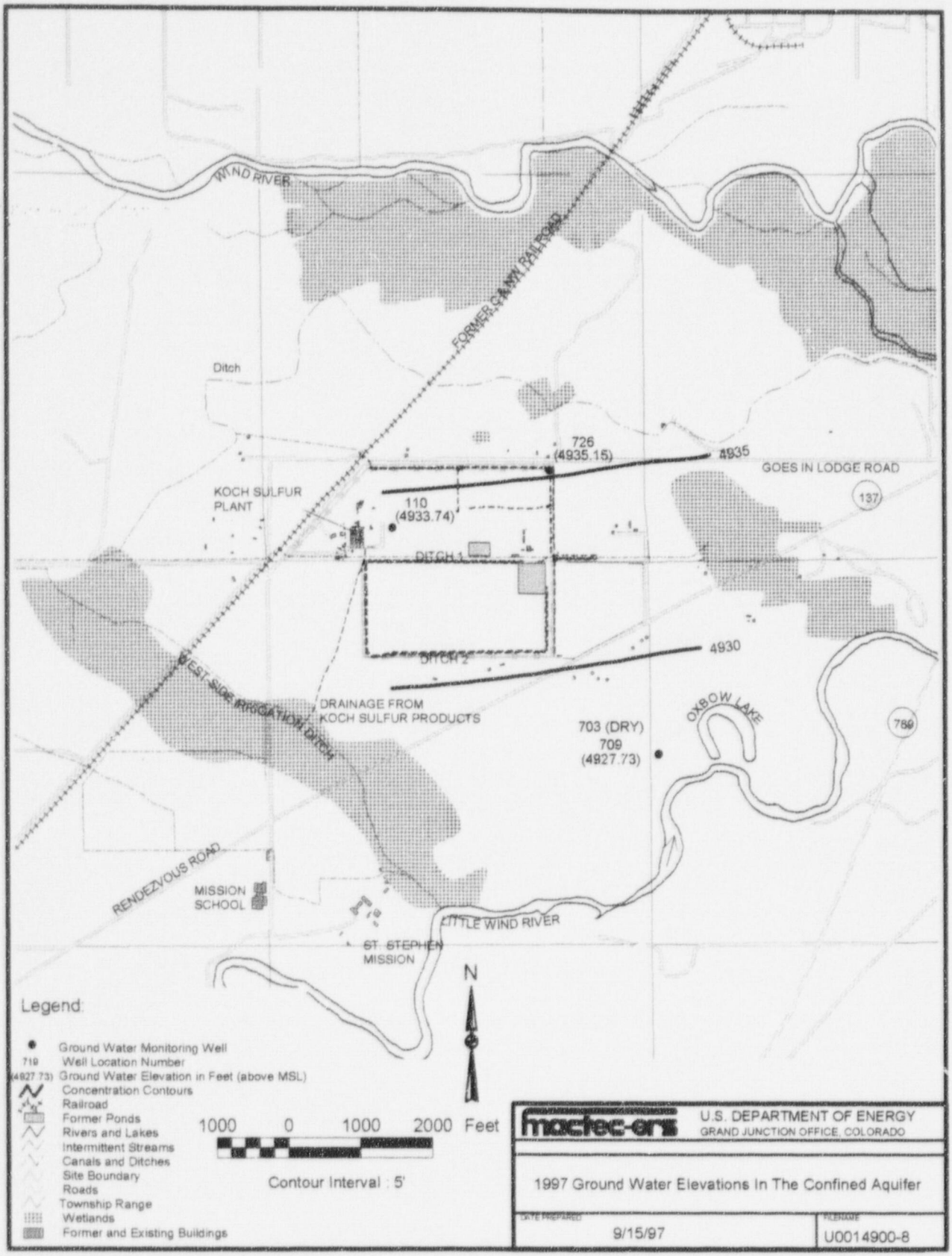

Figure 4–7. 1997 Ground Water Elevations in the Confined Aquifer

Vertical Gradients

Water levels observed in the monitor wells do not conclusively define the vertical ground water gradient between the aquifers. For example, in the well cluster south of the site near the Little Wind River, the piezometric head in deep monitor well 703 (4,928.31 ft [1,503.14 m] above MSL) exhibits an upward flow from the lower confined sandstone aquifer to the shallower aquifers (4,926.05 ft [1,501.46 m] above MSL) in monitor well 707. In contrast, the piezometric head in the nearby deep monitor well 709 (4,924.65 ft [1,501.03 m] above MSL) exhibits a downward flow even though it is screened at approximately the same depth. While vertical gradients between the surficial and semiconfined aquifers and the confined sandstone aquifer have not been conclusively defined, none of the samples from the deep monitor wells have shown any degradation in water quality that could be associated with the former milling operations. Furthermore, observation wells screened in the confined aquifer did not fluctuate during the aquifer test in the overlying semiconfined aquifer.

The 1995 topographical survey shows that ground water levels in surficial aquifer wells located on both sides of the Little Wind River are higher than the water level in the river. As a result, it is unlikely that the contaminant plume is migrating beneath the Little Wind River to affect the water quality on the south side of the river.

Figure 4–8 is a trilinear diagram created using ground water and surface water analytical data. Wells 707, 718, 722, and 781 are located north of the Little Wind River, inside the surficial aquifer ground water plume area. Well 706 is located just south of the Little Wind River, and sampling locations 794 and 796 are located along the river upgradient and downgradient (respectively) of where the surficial aquifer ground water plume is in contact with the river. Sampling location 747 is associated with the oxbow lake formed in 1994 as a result of a shift in the course the river. As the trilinear diagram shows, the chemistry of water from well 706 is more similar to that in surface water than to the chemistry of ground water migrating off the site. This is especially evident in a comparison of TDS concentrations of ground water and surface water samples, which provides further evidence that ground water migration beneath the Little Wind River is unlikely.

Figure 4–8 also shows that surface water in the oxbow lake (sampling location 747) is influenced by discharge from the surficial aquifer. Water from surface water location 747 plots in the same area as the water from wells completed within the contaminant plume in the surficial aquifer.

4.3.2 Background Water Quality

Background ground water quality is the quality of ground water that would be present if uranium milling activities had not taken place. Table 4–6 lists the ranges and median background concentrations of the milling-related constituents measured in the surficial, semiconfined, and confined aquifers.

Surficial Aquifer

Water from wells 710, 711, 712, 713, 714, 715, 724, and 728 (Plate 1) represent background ground water quality because of their position upgradient from the former processing site and the

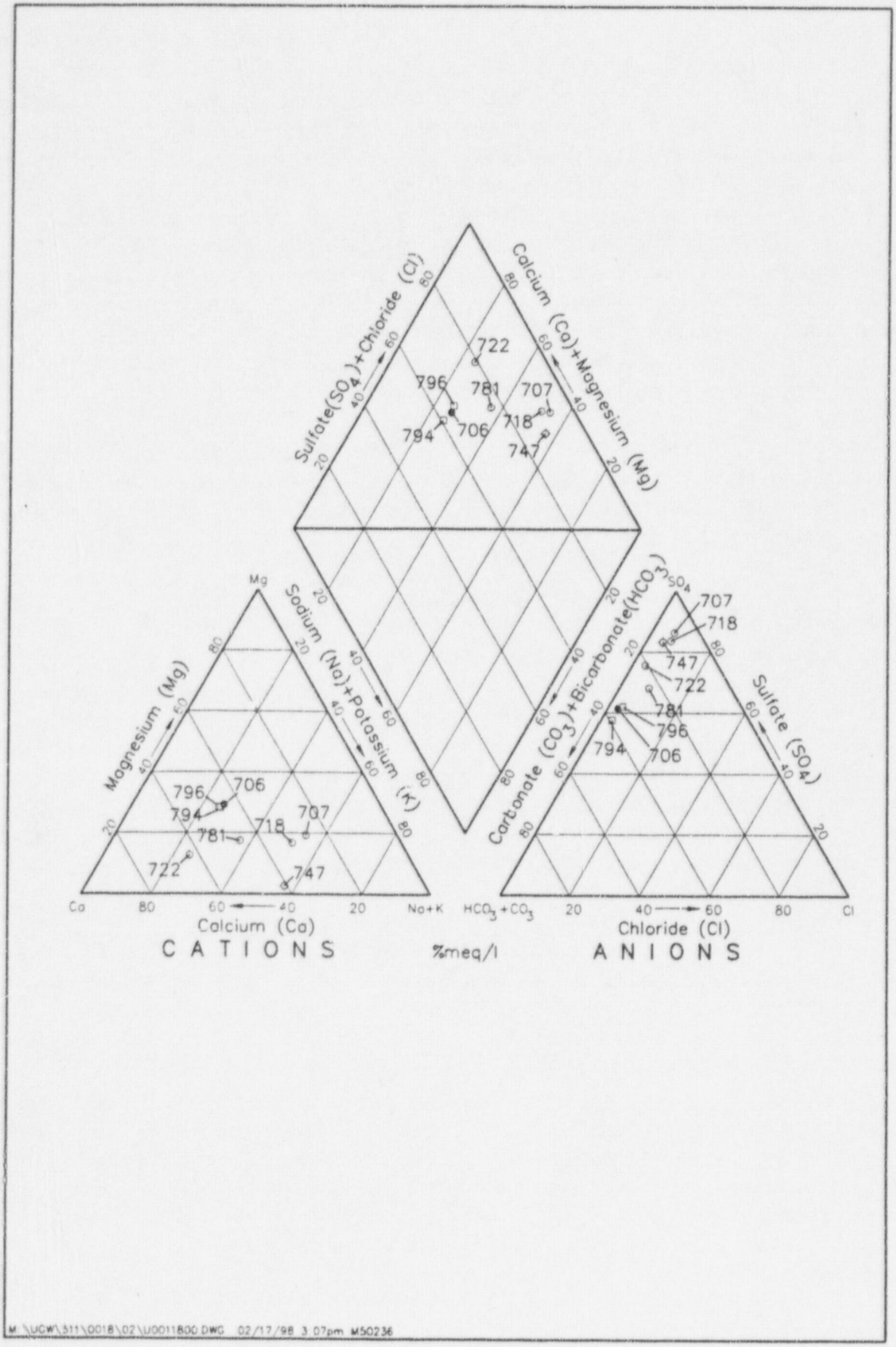

Figure 4–8. Trilinear Diagram

Table 4–6. Concentrations of Milling-Related Constituents

Constituent[a]	Surficial Aquifer			Semiconfined Aquifer			Confined Aquifer		
	FOD[b]	Range	Median	FOD[b]	Range	Median	FOD[b]	Range	Median
Aluminum									
Background	4/27	<0.05 – 0.2		0/2	<0.05 – <0.05		0/1	<0.05 – <0.05	
Plume/Downgradient	17/75	<0.003 – 0.41		12/55	0.005 – 0.27		13/32	<0.003 – 0.46	
Arsenic									
Background	10/35	0.0011 – 0.007		2/7	0.0012 – 0.0014		0/4	<0.0002 – <0.005	
Plume/Downgradient	34/92	<0.0002 – 0.05		14/66	<0.0002 – 0.01		3/30	<0.0002 – 0.002	
Boron									
Background	0/7	<0.1 – <0.1							
Plume/Downgradient	5/7	<0.1 – 0.2	0.1	1/11	<0.1 – 0.1		1/5	<0.1 – 0.1	
Bromide									
Background	0/6	<0.1 – <0.1		0/1	<0.1 – <0.1		1/1	0.1 – 0.1	0.1
Plume/Downgradient	6/14	<0.1 – 0.3		8/11	<0.1 – 0.2	0.2	1/4	<0.1 – 0.1	
Calcium									
Background	34/34	45.4 – 271	75.4	5/5	29.6 – 98.1	93.4	3/3	2.85 – 13.1	3.5
Plume/Downgradient	94/94	32 – 627	148	67/67	13.1 – 540	92.3	36/36	13.5 – 649	39.6
Chloride									
Background	34/34	3.2 – 125	12.3	4/4	15.8 – 22	17.2	3/3	15.2 – 17.6	17
Plume/Downgradient	90/90	3 – 286	52.7	64/64	7.28 – 240	55	34/34	0.8 – 68	26
Fluoride									
Background	22/24	<0.1 – 0.4	0.2	2/2	0.2 – 0.2	0.2	1/1	0.7 – 0.7	0.7
Plume/Downgradient	42/52	<0.1 – 1.3	0.4	26/35	<0.1 – 0.3	0.1	21/24	<0.1 – 1.7	0.25
Iron									
Background	19/30	<0.03 – 1.56	0.07	2/3	<0.03 – 0.07	0.04	0/2	<0.03 – <0.03	
Plume/Downgradient	39/81	<0.01 – 3.07		31/61	<0.01 – 1.1	0.03	12/34	<0.01 – 0.58	
Magnesium									
Background	34/34	13 – 68	17.9	5/5	2.8 – 17.1	16.5	3/3	0.129 – 2	0.33
Plume/Downgradient	94/94	12 – 291	41.6	67/67	0.01 – 38	6.19	28/36	0.01 – 7.98	0.505

Table 4–6 (continued). Concentrations of Milling-Related Constituents

Constituent[a]	Surficial Aquifer			Semiconfined Aquifer			Confined Aquifer		
	FOD[b]	Range	Median	FOD[b]	Range	Median	FOD[b]	Range	Median
Manganese									
Background	27/36	0.0019 – 3.56	0.565	7/7	0.02 – 0.07	0.0598	2/4	0.0093 – 0.01	
Plume/Downgradient	92/99	0.0013 – 6.4	0.48	46/71	0.0063 – 0.91	0.11	21/36	<0.001 – 0.64	0.06
Molybdenum									
Background	9/36	0.0018 – 0.02		2/7	0.0035 – 0.0036		1/4	0.0027 – 0.0027	
Plume/Downgradient	77/100	<0.001 – 1.42	0.0554	41/74	<0.001 – 1.69	0.01	23/36	0.002 – 0.072	0.01
Nickel									
Background	2/36	<0.007 – 0.02		0/7	<0.007 – <0.04		0/4	<0.007 – <0.04	
Plume/Downgradient	34/99	<0.007 – 0.28		6/72	<0.007 – 0.13		5/36	<0.007 – 0.057	
Potassium									
Background	34/34	1.71 – 6.4	2.52	5/5	0.984 – 1.3	1.1	3/3	0.39 – 0.9	0.48
Plume/Downgradient	94/94	1.7 – 18	4.66	67/67	0.358 – 25.1	1.4	35/36	0.3 – 49.9	1.85
Selenium									
Background	1/26	<0.001 – 0.005		0/2	<0.005 – <0.005		0/1	<0.005 – <0.005	
Plume/Downgradient	24/76	<0.001 – 0.079		8/57	<0.001 – 0.015		4/30	<0.001 – 0.024	
Silica									
Background	12/12	15 – 52	22.6	2/2	12.7 – 15.2	14	1/1	12.8 – 12.8	12.8
Plume/Downgradient	24/24	9.3 – 33.6	18.6	20/20	3 – 54	13.6	7/9	0.6 – 21.4	6.2
Sodium									
Background	34/34	25.5 – 167	51	5/5	75.6 – 118	85	3/3	116 – 130	119
Plume/Downgradient	94/94	41 – 2500	140	67/67	78.3 – 676	181	36/36	110 – 356	150
Strontium									
Background	22/27	<0.1 – 1.51	0.36	2/2	0.19 – 0.5	0.345	1/1	0.08 – 0.08	0.08
Plume/Downgradient	55/56	<0.1 – 13	0.905	39/45	<0.1 – 2.74	0.31	26/29	0.08 – 14.3	0.11
Sulfate									
Background	36/36	42.8 – 854	156	5/5	141 – 220	170	4/4	159 – 170	164
Plume/Downgradient	97/97	88 – 4430	520	71/71	225 – 3000	429	34/34	8 – 277	166
Uranium									
Background	31/36	<0.0003 – 0.031	0.0033	6/7	<0.001 – 0.009	0.006	1/4	<0.001 – 0.001	
Plume/Downgradient	98/99	0.002 – 1.97	0.132	48/74	<0.0003 – 0.031	0.0023	8/36	<0.0003 – 0.006	

Table 4–6 (continued). Concentrations of Milling-Related Constituents

Constituent[a]	Surficial Aquifer			Semiconfined Aquifer			Confined Aquifer		
	FOD[b]	Range	Median	FOD[b]	Range	Median	FOD[b]	Range	Median
Vanadium									
Background	9/32	<0.004 – 0.04		0/7	<0.004 – <0.01		0/4	<0.004 – <0.01	
Plume/Downgradient	31/98	<0.004 – 0.14		13/66	<0.004 – 0.04		10/34	<0.004 – 0.06	
Lead – 210 (pCi/L)									
Background	13/15	0 – 1.3	0.7	3/4	0.3 – 1.5	1.17	1/2	1 – 1	
Plume/Downgradient	26/40	0 – 4.1	1.14	19/26	0 – 1.5	0.75	10/12	0 – 1.47	0.9
Polonium – 210 (pCi/L)									
Background	11/15	0 – 0.3	0.1	3/4	0 – 0.3	0.08	1/2	<0.2 – 1.1	
Plume/Downgradient	20/29	0 – 2.4	0.19	18/23	0 – 0.8	0.12	8/9	0 – 1.1	0.19
Thorium – 230 (pCi/L)									
Background	15/18	0 – 3.8	0.3	2/4	0.1 – 1.6		1/2	0.4 – 0.4	
Plume/Downgradient	32/48	0 – 6.82	0.6	24/31	0 – 6.7	0.2	12/15	0 – 3.13	0.2

[a]Concentrations are mg/L unless noted.
[b]FOD—frequency of detection, e.g., aluminum was detected in 4 of 27 background samples.

low concentrations or absence of milling-related constituents in ground water samples. Background ground water in the surficial aquifer is a moderately oxidizing, calcium-sulfate-bicarbonate water characterized by near-neutral pH, ranging from 7.1 to 7.6, and low TDS.

Semiconfined Aquifer

The background wells in the semiconfined aquifer are 725 and 727. Water from these wells does not show evidence of effects from the site, and the wells are located upgradient from the former tailings pile. However, they are within the designated site boundary along the northern perimeter (Plate 1) in an area that may have been affected by processing site activities.

Background ground water of the semiconfined aquifer can be described as a moderately oxidizing, sulfate-bicarbonate-calcium-sodium type with a slightly basic pH.

Confined Aquifer

Background ground water quality of the confined aquifer was determined from monitor well 726 located northwest and upgradient of the remediated tailings pile. Ground water in the confined aquifer is a moderately oxidizing sodium-sulfate water characterized by low TDS and high pH (9.3 to 9.9).

4.3.3 Extent of Contamination

The extent and distribution of milling-related contamination in the surficial, semiconfined, and confined aquifers and the surface water and sediments is presented in the following sections.

The centroid of the contaminant plumes in the surficial and semiconfined aquifers is currently located between the site and the Little Wind River, suggesting that the original pulse of contamination is moving with the ground water flow. This evidence provides a partial basis for the selection of natural flushing as the proposed ground water compliance strategy.

Surficial Aquifer

Fifteen surficial aquifer monitor wells were sampled in 1997 and analyzed for the COPCs identified in Table 4–7. Of the COPCs listed in Table 2–1, only two (molybdenum and uranium) had concentrations that exceeded the MCLs. Molybdenum exceeded the MCL at five locations; uranium exceeded the MCL at seven locations. Those COPCs without MCLs, but with secondary standards, that exceeded their respective background values, as observed in upgradient background monitor well locations, were lead-210 (three locations), nickel (three locations), sulfates (four locations), and polonium-210 (two locations).

Ground water contamination in the surficial aquifer downgradient from the former processing site (monitor wells 722 and 707) is characterized by elevated concentrations of several COPCs. Figures 4–9, 4–10, and 4–11 show the concentrations of molybdenum, sulfate, and uranium, respectively, in surficial ground water for samples collected in 1997. The other contaminants are not present in sufficient, widespread concentrations to be depicted; however, these are discussed

Table 4–7. Contaminants of Potential Concern in Surficial Ground Water, Riverton Site

Contaminants that Exceed Background	Contaminants in Nutritional Range	Contaminants of Low Toxicity and/or High Dietary Range	Contaminants of Potential Concern
Aluminum	Calcium	Aluminum	Arsenic
Arsenic	Chloride	Boron	Lead-210
Boron	Fluoride	Bromide	Manganese
Bromide	Iron	Magnesium	Molybdenum
Calcium	Potassium	Selenium	Nickel
Chloride	Zinc	Silica	Polonium-210
Fluoride		Sodium	Sulfate
Iron		Strontium	Thorium-230
Lead-210			Uranium
Magnesium			Vanadium
Manganese			
Molybdenum			
Nickel			
Polonium-210			
Potassium			
Selenium			
Silica			
Sodium			
Strontium			
Sulfate			
Thorium-230			
Uranium			
Vanadium			
Zinc			

[a]Contaminants of potential concern are determined by eliminating the contaminants listed in columns 2 and 3 from the list in column 1.

below. The figures indicate contaminant migration southeast from the site, toward the Little Wind River.

Contaminant movement through the surficial aquifer was evaluated by observing molybdenum, sulfate, and uranium concentrations throughout the site and southeast to the Little Wind River. Figures 4–12, 4–13, and 4–14 show the concentrations of molybdenum, sulfate, and uranium, respectively, in the surficial aquifer with respect to time. The analytical data are presented in Appendix B–2. Monitor wells 101, 722, and 707 were chosen for the evaluation because they approximately parallel the flow direction from the site to the Little Wind River. Slightly elevated contaminant concentrations were detected in samples from monitor well 101, which is located upgradient of the former tailings pile, but downgradient of the former ore storage area. Analytical data for ground water collected from 1983 to 1997 from well 101 were compared over time and indicate that there is no significant change in contaminant concentrations. This indicates that the primary source of the surficial aquifer contaminants is most likely the former tailings pile, which was downgradient of monitor well 101. Based on 1997 analytical data, only uranium exceeds the MCL in monitor well 101.

Contaminant concentrations in ground water from monitoring well 722, located directly downgradient of the site, are higher than those of monitor well 101. The data indicate that molybdenum and uranium exceed their respective MCLs , and remain at approximately the same concentrations as when sampling began in 1993 (Figure 4–12). Sulfate and lead-210 both exceed their respective maximum background concentrations (shown in Table 4–6) in monitor well 722. Sulfate also remains at approximately the same concentration as when sampling began in the well, but remains at a relatively higher concentration when compared to concentrations in monitor well 101 (Figures 4–13 and 4–14). The elevated concentrations of sulfate and uranium in the monitor well indicate that the sulfate and uranium plumes appear to be moving at a slower rate than the molybdenum plume. Because of the lack of high molybdenum concentrations in the well, it appears that the centroid of the molybdenum contaminant plume migrated downgradient toward the Little Wind River prior to the well installation.

An evaluation of contaminant concentrations in ground water from monitoring well 707 over time (Figure 4–12) indicates increasing concentrations of molybdenum. Sulfate and uranium concentrations have increased since sampling was initiated in 1987 in the well, but have since decreased to approximately those concentrations observed in 1987. Molybdenum and uranium exceed their respective MCLs; nickel, polonium-210, and sulfate exceed their respective maximum background values in the monitor well. Water from this well generally exhibits the highest contaminant concentrations associated with the surficial ground water in the site area. These concentrations indicate that the centroid of the contaminant plume is most likely near the well and migrating toward the Little Wind River.

Semiconfined Aquifer

Ground water in the semiconfined aquifer is also contaminated directly beneath and downgradient from the processing site. The potentiometric surface of the semiconfined aquifer is presently about the same as that of the surficial aquifer in the vicinity of the abandoned mill site. When the mill was in operation, however, drainage from the tailings pile would have mounded the ground water in the surficial aquifer, resulting in a downward vertical gradient. This vertical

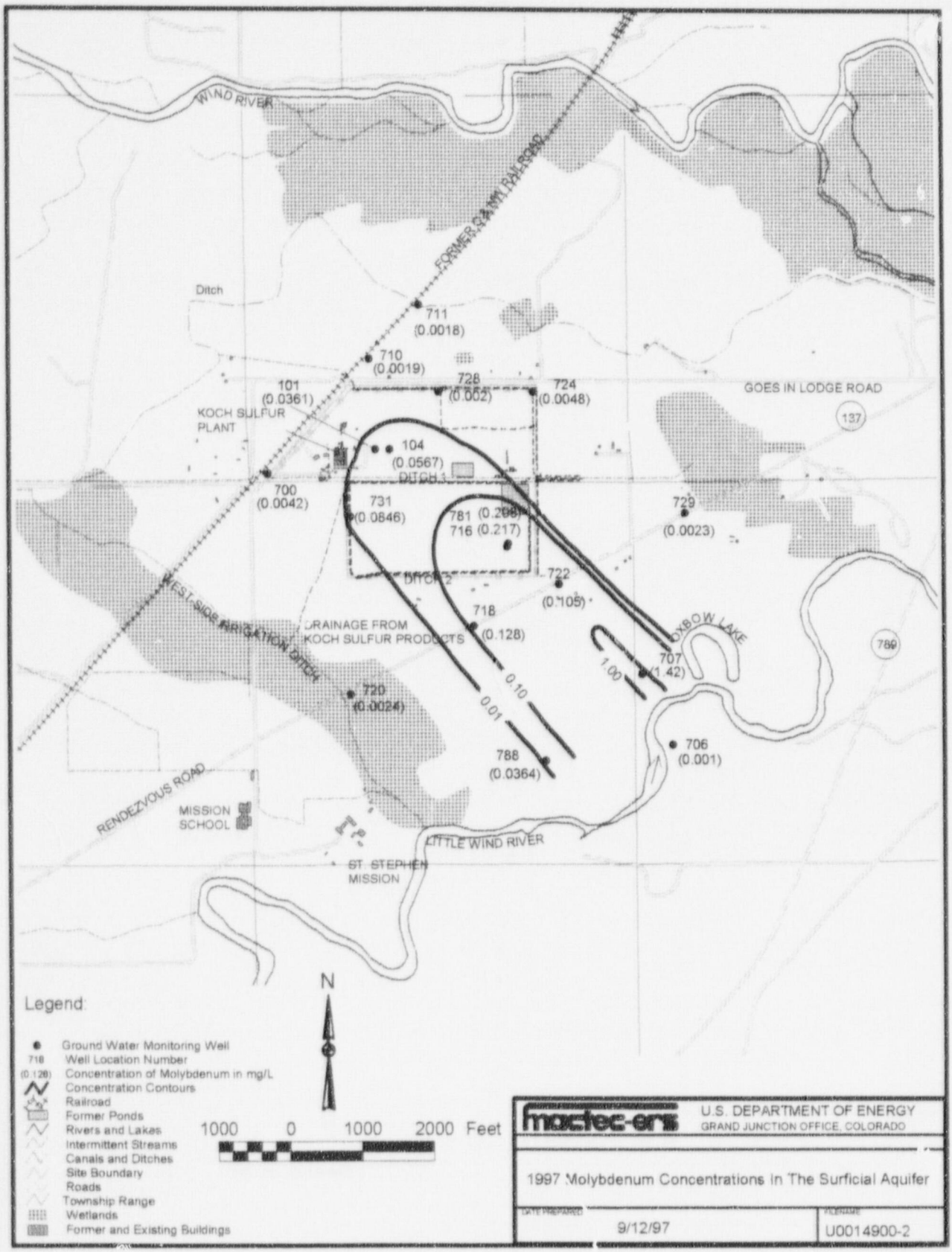

Figure 4–9. 1997 Molybdenum Concentrations in the Surficial Aquifer

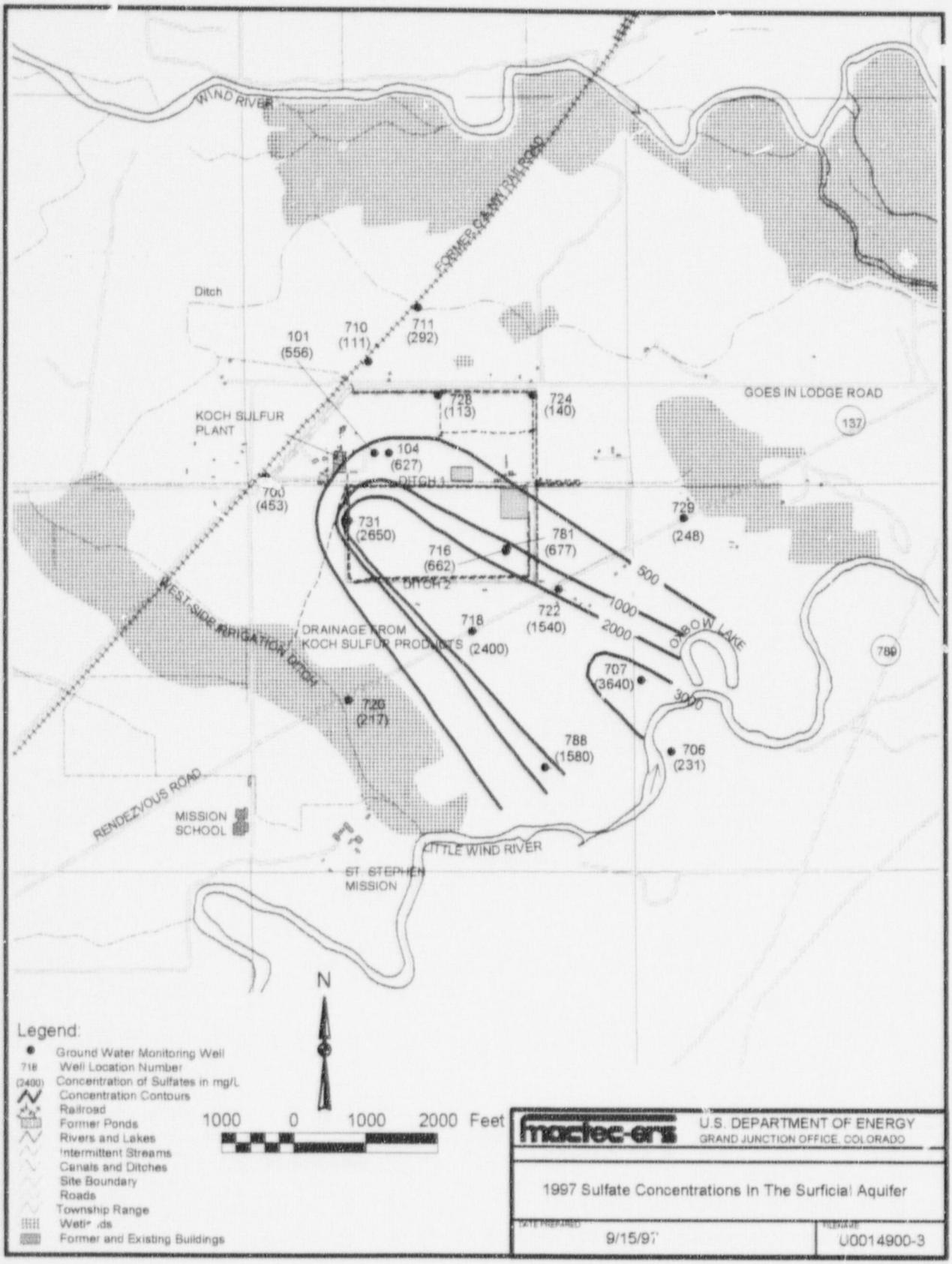

Figure 4–10. 1997 Sulfate Concentrations in the Surficial Aquifer

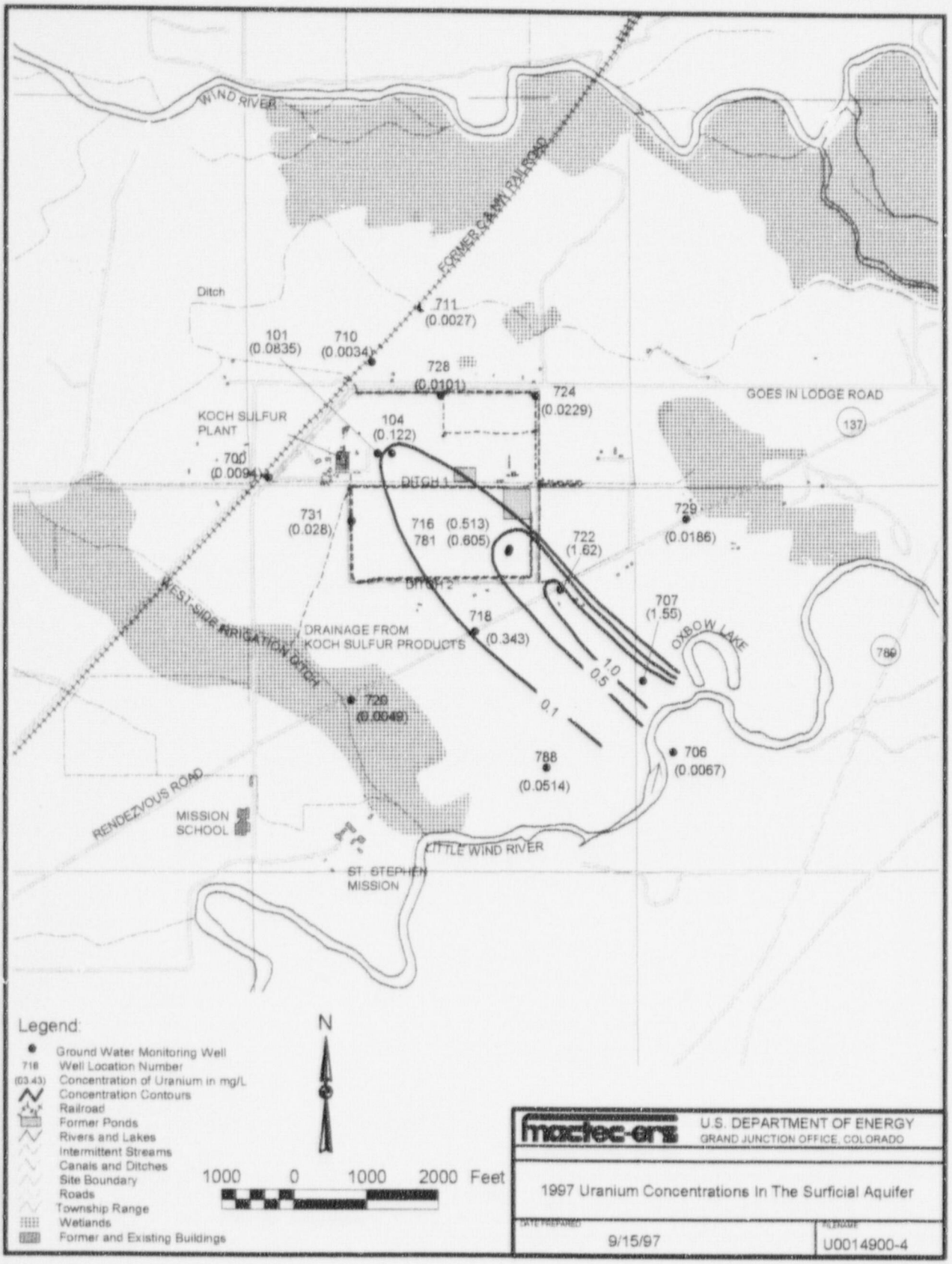

Figure 4–11. 1997 Uranium Concentrations in the Surficial Aquifer

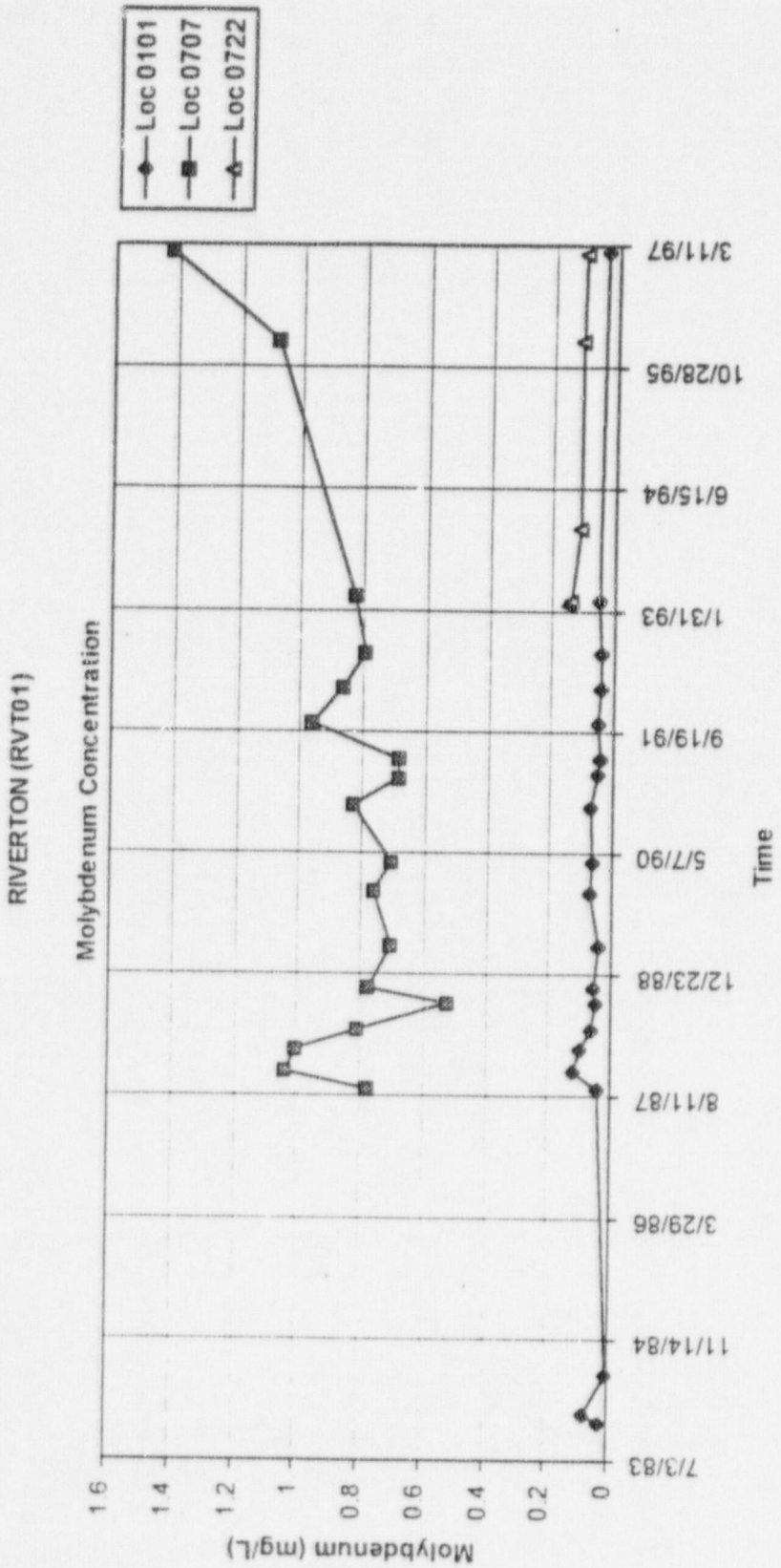

Figure 4–12. Graph of Molybdenum Concentration with Time

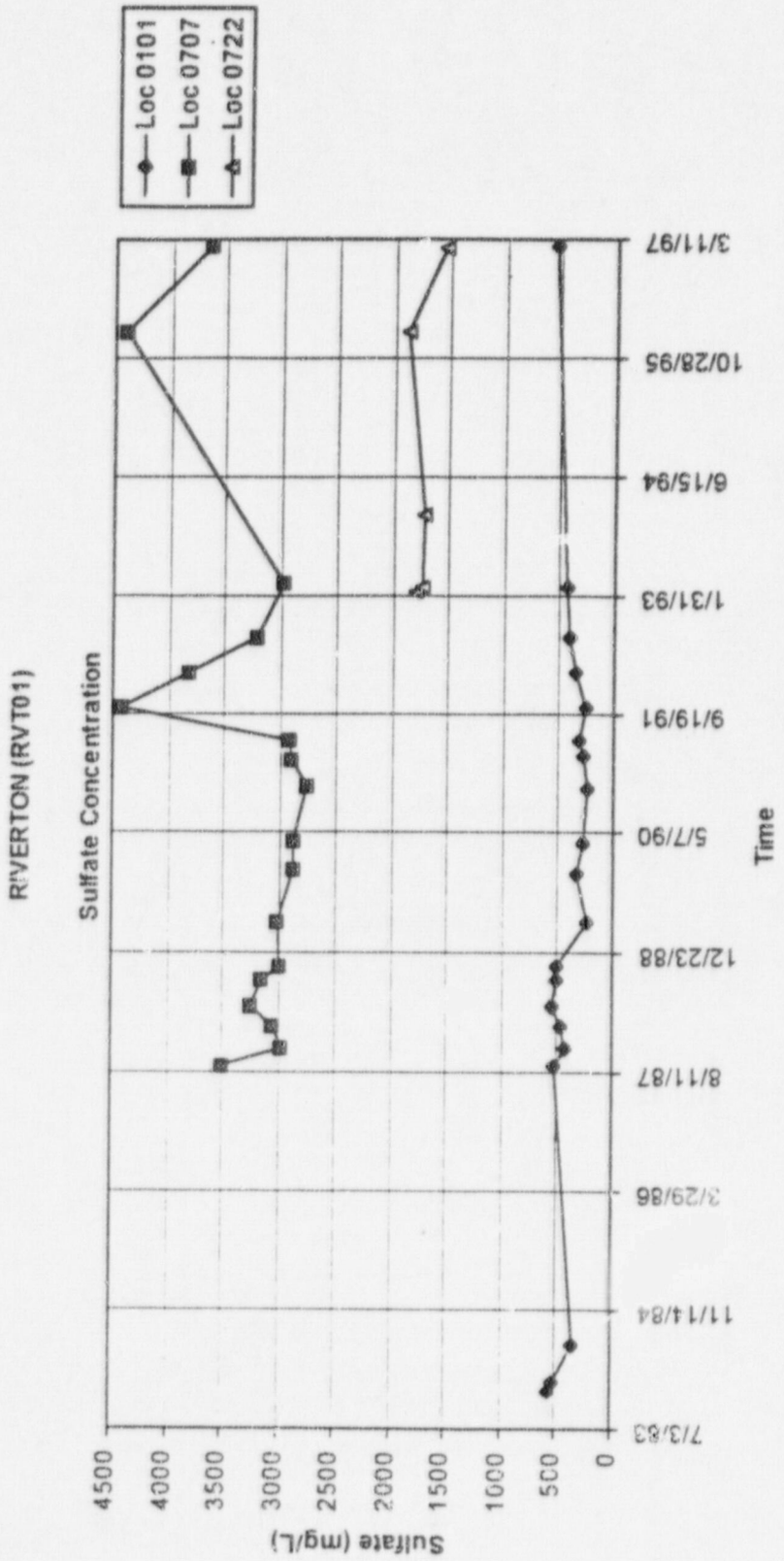

Figure 4–13. Graph of Sulfate Concentration with Time

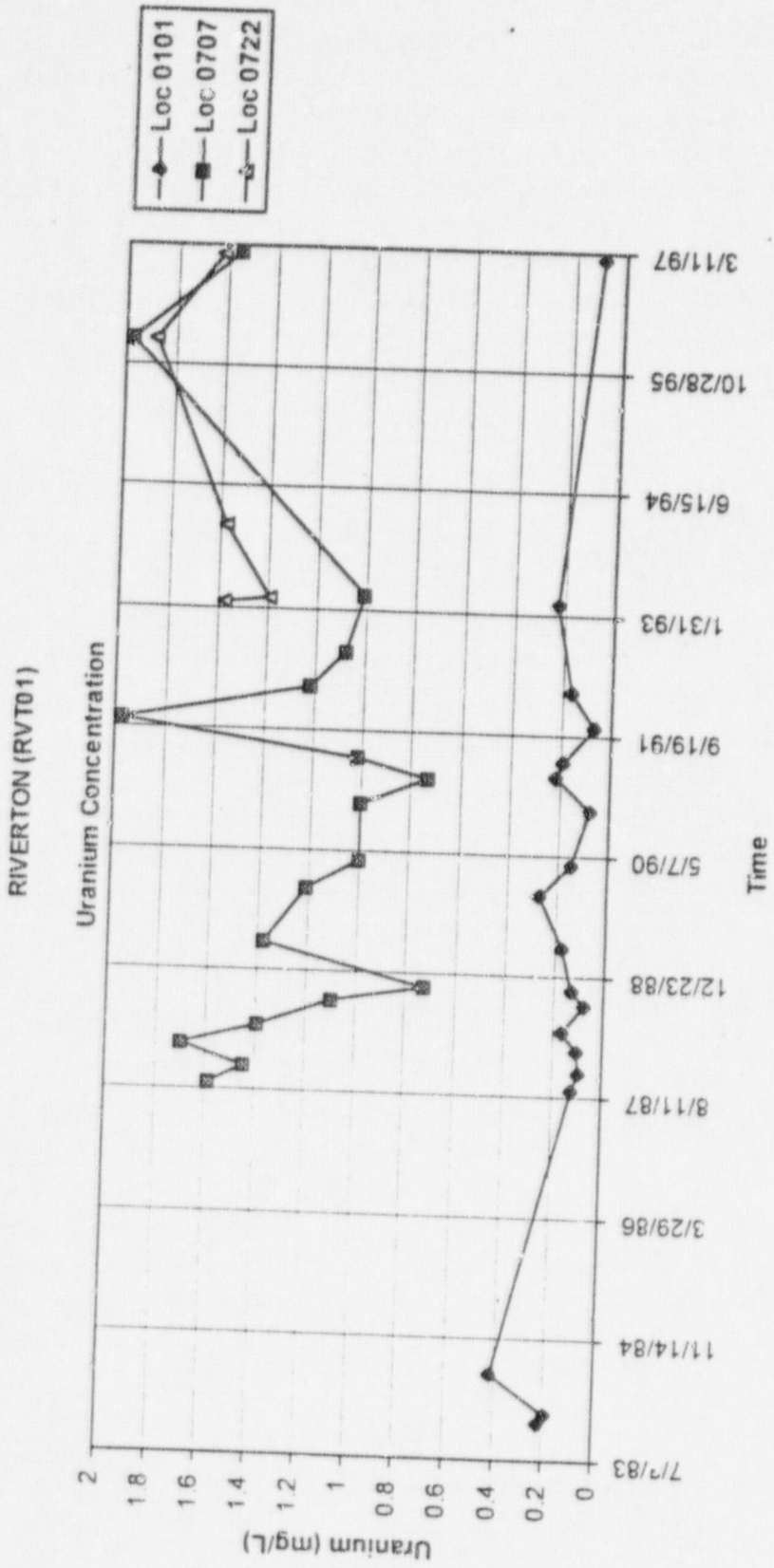

Figure 4–14. Graph of Uranium Concentration with Time

hydraulic gradient has resulted in the contamination of the semiconfined aquifer. Milling-related contamination in the semiconfined aquifer is represented by water quality data from monitor wells 717 and 723 (Appendix B–2). The most recent sampling in February 1997 showed that sulfate and manganese exceed their respective maximum background concentrations in both monitor wells. Uranium and molybdenum are less than their respective MCLs in both monitor wells. Concentrations for all constituents are generally lower than those detected in the surficial aquifer (Table 4–6). Sulfate concentrations in the semiconfined aquifer from samples collected in 1993 and 1997 are shown in Figure 4–15. These contours indicate that contamination in the semiconfined aquifer is also moving off site southeast toward the Little Wind River. Concentrations of the other constituents were not sufficiently well distributed to create similar figures.

Confined Aquifer

Ground water quality data from upgradient, on site, and downgradient monitor wells (monitor wells 726, 110, and 709, respectively) indicate that this aquifer has not been affected by milling activities. The water quality in the confined aquifer is similar to background water quality.

Surface Water

Surface-water sampling has been conducted regularly throughout the site to determine the effect of ground water migration into the Little Wind River, nearby wetlands areas, and the oxbow lake, which was formed in 1994. Sampling was conducted in 1995 as an extension of the screening level sampling that took place in 1993, that was reported in the BLRA (DOE 1995a). Surface water quality data from samples collected throughout the site indicate that the surface water bodies have been impacted by the site contaminants. However, data collected in 1997 indicates that the concentrations of contaminants in surface water are generally decreasing at most sample locations.

Little Wind River

Data collected from location 742 (Plate 1) in 1993 indicated uranium concentrations in the surface water in the Little Wind River were 0.025 mg/L, which was approximately one order of magnitude higher than concentrations at the upstream background location 794 (0.002 mg/L). Approximately 4,500 ft (1,372 m) downstream (location 796), uranium concentrations in surface water decreased to background levels. On the basis of this distribution of contaminant concentrations, the 1993 data indicated that the Little Wind River was diluting discharging contaminated ground water to background concentrations downgradient of the site. However, no site related contaminants were detected in the river water in 1995 and 1997. Location 747, which was along the river in 1993, is currently in the Oxbow Lake, which was formed by a shift in the river path in 1994. In 1995, water samples were collected from this oxbow lake at location 747. These are discussed below. Data collected from location 742 in 1993, 1995, and 1997 indicate that uranium concentrations have decreased over time.

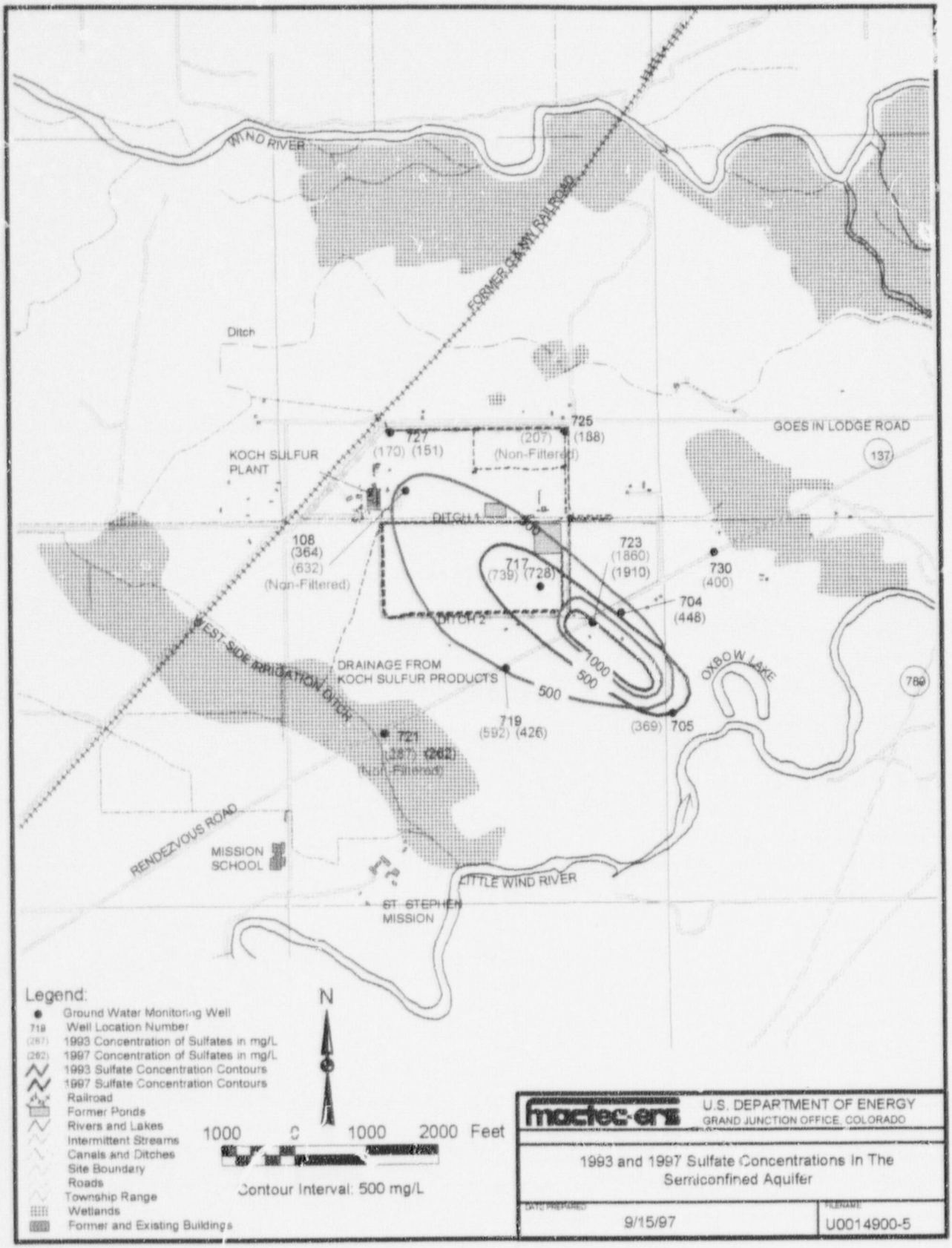

Figure 4–15. 1993 and 1997 Sulfate Concentrations in the Semiconfined Aquifer

Oxbow Lake

Data from 1995 indicate that concentrations of iron (1.1 mg/L), manganese (2.5 mg/L), and uranium (0.639 mg/L) in surface water from the Oxbow Lake were one to two orders of magnitude higher than concentrations in the river. Data from 1997 indicate that concentrations of manganese (0.880 mg/L), sulfate (656 mg/L), uranium (0.217 mg/L), and TDS (530 mg/L) have decreased in the oxbow lake since 1995 (Table 4–8 and Appendix C). In 1995, the concentration of sulfates in the oxbow lake was 2,500 mg/L; however, the 1997 data indicated sulfate concentrations have decreased to 656 mg/L. Data collected during 1995 for TDS (3,900 mg/L) was nearly six times the concentration in the oxbow than in the river, but these concentrations decreased to 1,200 mg/L in 1997. The data indicate that the surficial aquifer is discharging contaminated ground water into the oxbow lake, and that concentrations of the COPCs are decreasing over time in the oxbow lake. This may indicate that the original pulse of site-related contaminants has already been discharged to the oxbow lake and the Little Wind River.

Concentrations of COPCs at location 747 are lower than concentrations in surficial aquifer monitor well 707. Additional monitoring of the oxbow lake is necessary to determine if the decreasing contaminant concentrations are due to the natural flushing process or if seasonal variations in ground water and surface flow influence the contaminant concentrations in the surface water. Future surface water monitoring is discussed in Section 5.3.

West Side Irrigation Ditch

Samples of surface water were collected in 1995 and 1997 from the Koch Ditch (location 749), downstream from where the Koch Ditch discharges to the West Side Irrigation Ditch (location 795), and an upstream background location (location 741). The 1997 data indicate that concentrations of iron, manganese, sulfate, and TDS exceed the concentrations in the background location, and are generally lower in concentration compared to the 1995 data. However, the elevated concentrations of COPCs are not due to site related contaminants, and originate from a source other than the former mill tailings site. This is based on the fact that the plume flow direction is to the southeast, away from the West Side Irrigation Ditch.

Until approximately 1990, the effluent from the Koch Ditch followed a stream that led directly into the Little Wind River; sample location 743 is adjacent to this drainage. There was no surface water present at this sample location in 1995 and 1997, and the only surface water data available for this sample location is from 1993.

East Irrigation Ditch

The East Irrigation Ditch traverses the north end of the site and then moves southeast across the site. Sample location 748 is located in the ditch along the northern boundary of the site, location 744 is located in a side channel on the site, and location 746 is located in a wetlands southeast of the site. Surface water sampled in 1997 at locations 744 (on site) and 746 (downgradient wetland area) indicate that concentrations of manganese and uranium exceeded the background concentrations at location 748.

Table 4–8. Constituents Detected in Surface Water Bodies Sampled in September 1995 and 1997 at the Riverton Site

Constituents (mg/L)						
River	**Iron**	**Manganese**	**Strontium**	**Sulfate**	**Uranium**	**Total dissolved solids**
Location						
794 (upriver)	0.16	0.0228[a]	1.0	185[a]	0.0059[a]	513[a]
742 (crossgradient)	0.38	0.0047[b]	1.1	99.0[b]	0.0023[b]	258[b]
796 (downriver)	0.17	0.0179[a]	1.0	230[a]	0.0060[a]	530[a]
Oxbow lake						
747	1.1	0.880[b]	2.7	656[b]	0.217[b]	1,240[b]
West irrigation ditch						
741 (upstream)	0.04	0.0195[b]	0.89	99[b]	0.0025[b]	330[b]
795 (downstream)	0.19	0.0368[a]	0.76	1,690[a]	0.0038[a]	3,540[a]
749 (Koch ditch)	4.5	0.0307[a]	0.07	1,960[a]	0.0010[a] (ND)	4,080[a]
East irrigation ditch						
748 (upstream)	0.54	0.02	0.65	140	0.004	310
744 (on-site)	0.18	0.104[b]	0.43	37.3[b]	0.0042[b]	270[b]
746 (wetland downgradient)	ND	0.0127[b]	0.54	33.10[b]	0.0013[b]	210[b]
Aquatic criteria[c]						
Chronic	1.0	NA	NA	NA	NA	NA
Acute	NA	NA	NA	NA	NA	NA
GW	0.5	1.0	NA	NA	0.03–1.4	500–2,000
Irrigation water guideline[d]	5.0	0.2	NA	200	5.0	2,000
Livestock watering guideline[d]	NA	NA	NA	3,000	5.0	5,000
Terrestrial plants benchmark[e]	10	4	NA	NA	40	NA
Wildlife benchmark[f]	NA	448	750	NA	3.8	NA

[a] Data from samples collected in February 1997.
[b] Data from samples collected in July 1997.
[c] WDEQ 1990.
[d] WDEQ 1993.
[e] Will and Suter 1994.
[f] Opresko et al. 1994.

NA = not available.
ND= not detected.

Sediments and Vegetation

Sediment and vegetation sampling was conducted throughout the site in 1995 as an extension of the screening level sampling that took place in 1993 and was reported in the BLRA (DOE 1995a). Pro ided below is a discussion of the results of the sediment and vegetation sampling that took place in 1995 (Tables 4–9 and 4–10, respectively).

Little Wind River

Sediment sampling data (Table 4–9) collected from the Little Wind River in 1995 at location 742 (crossgradient location) indicate that concentrations of manganese [220 milligrams per kilograms (mg/kg)] and uranium (1.7 mg/kg) exceeded the background (location 794) concentrations for these constituents. Data from the downgradient sampling location (location 796) indicate that concentrations of lead (6.7 mg/kg), manganese (250 mg/kg), vanadium (21 mg/kg), ar[illegible]ium (1.2 mg/kg) exceed the background concentrations at location 794.

Vegetation samples collected from locations 742 (crossgradient) and 796 (downgradient) indicated that manganese was elevated with respect to the upgradient location (location 794).

Oxbow Lake

Data from sediment samples collected from the Oxbow Lake in 1995 indicate that contaminant concentrations were very close to or slightly elevated when compared to background sediment sampling locations near the site (locations 750 and 748 [Table 4–9]). Vegetation samples collected in 1995 at the Oxbow Lake indicated that concentrations of uranium were the highest observed in the study area.

East Irrigation Ditch

The concentrations of contaminants in sediments sampled at location 744 in 1995 indicated that arsenic (5.9 mg/kg), molybdenum (11 mg/kg), vanadium (35 mg/kg), and uranium (28.0 mg/kg) exceeded the concentrations for these constituents at the background location (location 748). The sediments sampled at location 746 exceed the background location concentrations in lead (25 mg/kg), manganese (890 mg/kg), vanadium (43 mg/kg), and uranium (3.6 mg/kg). Data from vegetation collected at location 744 indicated the only arsenic (12.4 mg/kg) detected in vegetation in the study area.

A low-lying swale downgradient from the site was sampled in 1995 to determine if site-related contaminants were in the soil or vegetation (location 751). A background swale was also sampled (location 750). Additionally, upland sites were sampled in close proximity to both of these locations (locations 850 and 851). Uranium concentrations in the vegetation at both location 751 (5.2 mg/kg) and 851 (6.4 mg/kg) were higher than in the background locations (2.9 mg/kg at location 750 and 2.4 mg/kg at location 850).

Table 4–9. Constituents Detected in Soil and Sediment Samples Taken in September 1995 at the Riverton Site

	Constituents (mg/kg)						
Location	**Arsenic**	**Lead**	**Manganese**	**Molybdenum**	**Nickel**	**Vanadium**	**Uranium**
River							
794 (upriver)	2.5	5.8	130	ND	11	16	0.83
742 (crossgradient)	2.2	5.5	220	ND	ND	12	1.7
796 (downriver)	2.0	6.7	250	ND	ND	21	1.2
Oxbow lake							
747	4.1	12	370	ND	19	26	5.2
West irrigation ditch							
741 (upstream of Koch)	6.3	12	180	ND	ND	75	14
795 (downstream of Koch)	8.2	43	320	ND	ND	17	6.7
749 (Koch ditch)	19	54	80	5.1	45	19	0.74
745 (wetland)	3.2	14	250	ND	17	23	13
East irrigation ditch							
748 (upstream)	ND	7.3	270	ND	25	31	1.1
744 (on-site)	5.9	6.2	120	11	22	35	28.0
746 (downgradient)	ND	25	890	ND	ND	43	3.6
Dry streambed							
743 (downgradient)	3.8	21	320	ND	32	36	3.2
Upland/swale							
851 (upland)	ND	8.5	320	ND	ND	8.0	0.96
751 (swale)	1.8	12	380	ND	16	19	3.8
750 (swale)	2.2	8.5	260	ND	20	33	1.6
850 (upland)	1.7	6.0	210	ND	11	12	0.94
Benchmarks							
Effects Range Low	8.2[a]	46.7[a]	460[a]	NA	21[a]	NA	NA
Effects Range med to high	70[a]	218[a]	1110[a]	NA	51.6[a]	NA	NA

[a] Hull and Suter 1994

NA = Not available.
ND = Not detected.

Table 4–10. Constituents Detected in Vegetation Sampled in September 1995 at the Riverton Site

Constituents (mg/kg)					
Location	**Arsenic**	**Lead**	**Manganese**	**Vanadium**	**Uranium**
River					
794 (upriver)	ND	ND	42	ND	2.0
742 (crossgradient)	ND	ND	92	ND	3.7
796 (downriver)	ND	ND	110	ND	1.8
Oxbow lake					
747	ND	ND	180	ND	87.7
West irrigation ditch					
741 (upstream of Koch)	ND	ND	92	ND	10.1
795 (downstream of Koch)	ND	ND	44	ND	0.38
749 (Koch ditch)	ND	2.3	90	ND	0.20
745 (wetland)	ND	2.5	120	4.0	12.0
East irrigation ditch					
748 (upstream)	ND	ND	49	ND	1.1
744 (on-site)	12.4	0.67	150	ND	1.3
746 (downgradient)	ND	ND	190	ND	4.3
Dry streambed					
743 (downgradient)	ND	0.92	310	ND	1.4
Upland/swale					
851 (upland)	ND	0.64	72	ND	6.4
751 (swale)	ND	0.98	84	ND	5.2
750 (swale)	ND	ND	8.4	ND	2.9
850 (upland)	ND	2.6	82	5.2	2.4

ND = Not detected.

Koch Ditch

Data from sediment samples collected in 1995 from the Koch Ditch (location 749) and the West Side Irrigation Ditch (locations 795, 745, and 741, respectively) indicated elevated concentrations of arsenic, lead, and nickel. Locations 795 and 745 exhibit some of the highest concentrations of these constituents in the study area. Additionally, location 743 was sampled in 1995. Lead was also detected in vegetation (2.3 mg/kg) growing in the Koch Ditch. However, the concentrations of these constituents are probably not due to site related contaminants, and originate from a source other than the former mill tailings site.

4.3.4 Evaluation of Alternate Water Supply Needs

No current dangers to human health or the environment have been identified. However, because future wells could be installed in the contaminated ground water, the installation of an alternate supply of domestic water for surrounding homes is in progress. DOE has entered into an agreement with the Northern Arapahoes of the Wind River Indian Reservation and the Billings Area Indian Health Service's Office of Environmental Health and Engineering to supply water and transmission lines from the Arapaho Utility System to a number of homes surrounding the old mill site. The proposed route for this delivery system is shown in Figure 4–16. Additional funding for this project is supplied by the Department of Housing and Urban Development. Construction began in the fall of 1997.

A tribal ordinance will be implemented that reads: The installation of new private wells in the vicinity of the former uranium mill tailings processing site near Riverton will be restricted according to the following criteria: 1) the restricted area includes allotted and fee lands north of the Little Wind River in sections 9 and 10 of T2N R4E and 2) the ordinance will apply only to those lands which the current or future land owners choose to connect to the DOE funded waterline.

A compliance action agreement will be sought between DOE and all land owners in the area of concern. Should a land owner, within the area of concern, choose not to connect to the DOE funded waterline, a compliance action agreement noting exclusion will still be pursued.

4.3.5 Contaminants of Potential Concern

The BLRA was used to compile a list of COPCs to assess human health and environmental risks at the site. Because contamination levels are higher in the surficial aquifer, it was evaluated quantitatively. The less-contaminated and less-characterized semiconfined aquifer was evaluated qualitatively.

In general, constituents were listed as COPCs when the site was considered a likely source of the contamination and when the average constituent concentrations (measured in plume wells) exceeded average background levels at the 0.05 level of significance (DOE 1995a). Column 1 of Table 4–7 shows which constituents exceed surficial ground water background levels.

Several of the chemical species detected above background levels are essential nutrients and were not evaluated further because they were measured within nutritional ranges (column 2) (DOE 1995a). These constituents include calcium, chloride, fluoride, iron, potassium, and zinc.

Several other contaminants in the surficial aquifer were screened for their low toxicity and/or low concentrations compared to dietary intakes (column 3) (DOE 1995a).

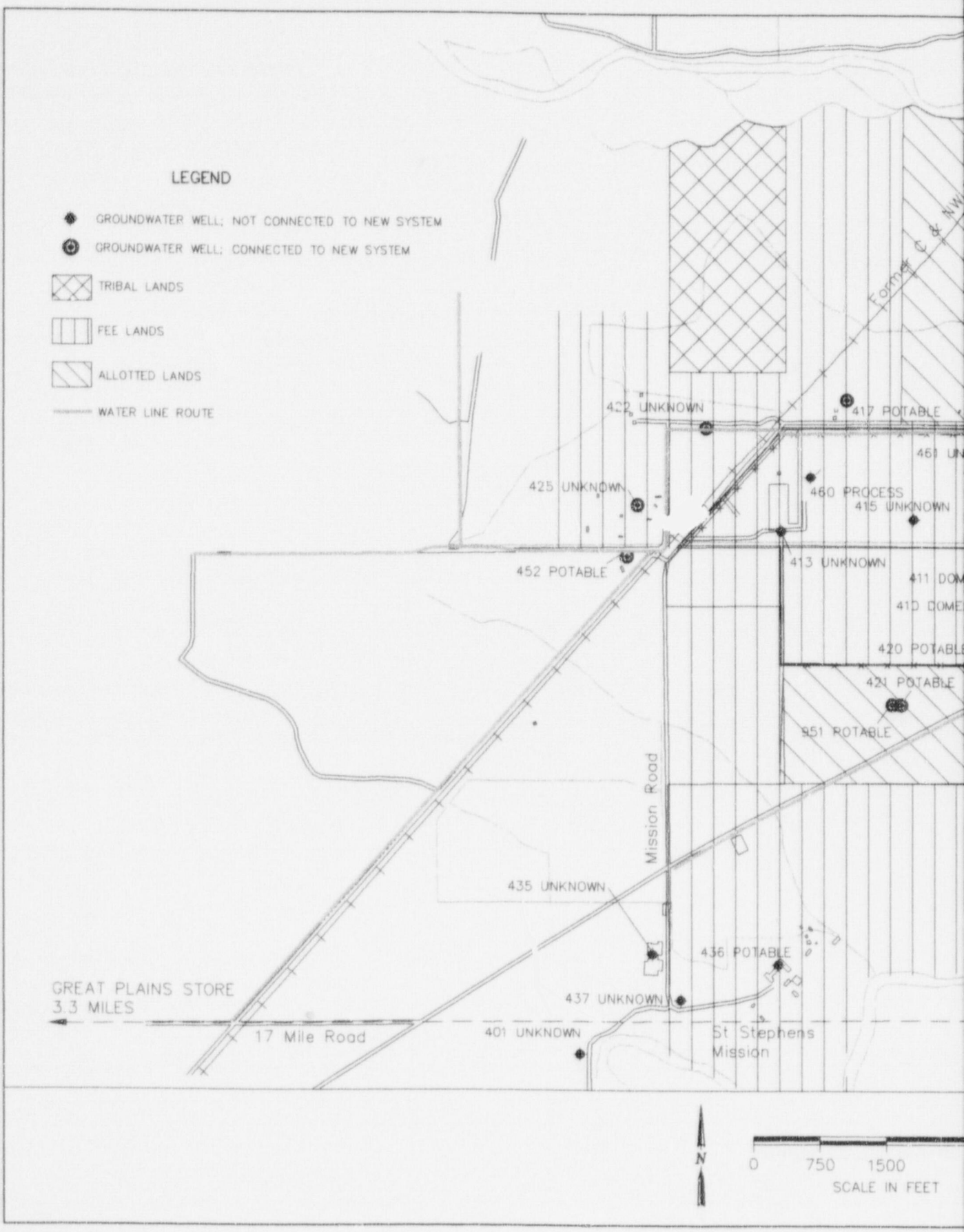

Figure 4–16. Alternate



macTec-ers	U.S. DEPARTMENT OF ENERGY GRAND JUNCTION OFFICE GRAND JUNCTION, COLORADO
ALTERNATE WATER SUPPLY	
DATE PREPARED: SEPTEMBER 24, 1997	FILENAME: U0014300

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For the surficial aquifer, these screening criteria eliminated all contaminants but arsenic, manganese, molybdenum, nickel, sulfate, uranium, vanadium, and several radionuclides in the uranium decay series, including lead-210, polonium-210, and thorium-230. Column 4 of Table 4–7 lists the final COPCs identified by the BLRA.

For the semiconfined aquifer, the COPCs are manganese, molybdenum, sulfate, and uranium.

4.3.6 Contaminant Fate and Transport

Milling activities have influenced the surficial aquifer downgradient from the processing site. Since 1963, when uranium ore processing ceased, natural flushing has moved the plume centroid southeast toward the Little Wind River; the most contaminated well, monitor well 707, is approximately 250 ft (80 m) from the Little Wind River. Contaminant levels in ground water collected from monitor well 707 are elevated in comparison to background levels of molybdenum, nickel, sulfate, and uranium.

The chemical species of an element is determined by examining aspects of the chemical composition of the ground water, including pH, redox potential (Eh), temperature, availability of ions and complexes, and concentration of the element. The mobility of a constituent depends upon its species. Toxicokinetics (contaminant absorption, distribution, metabolism, and excretion) and toxicity also depend on the concentration and type of species present in ground water.

The geochemical modeling software MINTEQA2 (Allison et al. 1991) and PHREEQE (Parkhurst et al. 1980), were used to calculate saturated mineral phases and species in ground water. Water quality data exhibiting the highest constituent concentration (monitor well 707) were used as input for the model. The modeling calculations show that ground water accessed by monitor well 707 is slightly oversaturated with barite and gypsum and moderately oversaturated with the uranium-phase schoepite, hydroxides, and oxyhydroxides of iron and manganese, jarosite (iron sulfate), nickel hydroxide, barium arsenate, and calcium- and magnesium-vanadate phases. Kinetically favorable uranium, vanadium, nickel, arsenic, manganese, and sulfate phases will precipitate onto the aquifer matrix, thus removing some of these constituents from ground water and reducing their concentrations. This information was used to evaluate the fate and behavior of individual contaminants of concern in the surficial and semiconfined aquifers. Radionuclides are not addressed because of their limited mobility and low concentrations (slightly above detection limits) in the downgradient wells.

Contaminant concentrations in the plume are influenced by the dispersive effects of dilution and by chemical reactions such as oxidation/reduction, sorption onto the aquifer matrix, coprecipitation with other mineral phases, microbial reactions, and advective transport of ground water. With distance from the source, dispersive effects will decrease the concentration of all contaminants in the plume. The following reactions can be expected for individual contaminants:

Arsenic

Arsenic is associated with sulfide minerals common to uranium ore and is liberated during the leaching process. Low concentrations of arsenic are present in ground water downgradient from

the site as an arsenate oxyanion. Arsenic is moderately mobile in an oxidizing aqueous environment as an arsenate species. Generally, the mobility increases as the oxidation state of arsenic decreases; As(III) species generally sorb onto the aquifer matrix less readily than As(V) species (Rai and Zachara 1984). Based on the concentrations in ground water beneath the Riverton site (maximum of 0.032 mg/L), the main attenuation mechanism for arsenic removal is probably adsorption onto aquifer materials, particularly ferric oxyhydroxides and organic matter (Rai and Zachara 1984, Leckie et al. 1980).

Manganese

Manganese is found in sulfide and oxide minerals in the uranium ore and gangue material and is mobilized during the leaching process. The mobility of manganese is primarily controlled by the redox state of the aquifer. Manganese, present in surficial ground water in the Mn(II) valence state, is predominantly Mn^{2+} complexed with sulfate and carbonate species in the aquifer. Oxide and hydroxide manganese mineral phases are saturated in the most contaminated areas. Precipitation of these phases will remove manganese from ground water. Additional removal of manganese through sorption and coprecipitation with iron phases may also be occurring in the area of contamination.

Molybdenum

Molybdenum is found in certain sulfide minerals associated with uranium ore and is mobilized during the leaching process. Alkaline conditions that favor the mobility of molybdenum as the oxyanion MoO_4^{2-} (Rai and Zachara 1984) were reported by Peterson (1985) to be present in the bottom of the tailings pile. Recent sampling shows that the highest concentrations of molybdenum in the surficial aquifer are in the monitor wells near the Little Wind River. This location of the centroid of the plume indicates that the molybdenum is fairly mobile in the moderately alkaline conditions and that it moves with the ground water. A consistently high concentration of molybdenum in one of the wells in the semiconfined aquifer near the northwest corner of the former tailings pile is not consistent with other samples from that aquifer or with the expected distribution of the contaminant plume.

Nickel

Nickel is found in discrete nickel sulfides and as a trace constituent in many sulfide minerals and is mobilized during the leaching process. Nickel is present in ground water predominantly as a nickel cation or complexed with carbonate and sulfate. Nickel hydroxide is oversaturated with respect to ground water and, if reaction kinetics are favorable, will precipitate. Nickel also coprecipitates and sorbs onto ferric oxyhydroxide phases (Rai and Zachara 1984). Precipitation and sorption onto the aquifer matrix will probably remove some nickel from ground water.

Sulfate

Sulfate is derived from the sulfuric acid leaching process and from the dissolution and oxidation of sulfide minerals during the leaching process. Sulfate is present in ground water predominantly as an SO_4^{2-} ion or is complexed with calcium, magnesium, or sodium. Barite and gypsum mineral phases are oversaturated in the ground water and precipitation of sulfate minerals

partially controls sulfate concentrations in ground water. Sorption onto aquifer materials may also remove some sulfate from ground water.

Uranium

Uranium minerals are dissolved and oxidized during the leaching process. Residual uranium is present in the ground water because of incomplete recovery of uranium in the solvent extraction circuit. Under moderately oxidizing conditions, uranium exists as uranyl carbonate complexes. Schoepite is the only probable uranium mineral phase that is thermodynamically saturated in the ground water in the contaminated region of the aquifer. Therefore, partial removal of uranium from precipitation reactions can be expected. In addition, sorption of uranium onto the aquifer matrix should occur, especially onto iron oxyhydroxides (Kent et al. 1988, Hsi and Langmuir 1985) and humic material (Nakashima 1992, Mohan et al. 1991).

Vanadium

Vanadium is associated with uranium minerals and clays in the uranium mineralized zone. It is mobilized along with a host of trace elements during the leaching phase of the operation. Field redox and pH data suggest that vanadium is present as V(V) oxyanion complexes in ground water beneath the site. Vanadium mineral phases are oversaturated in contaminated ground water with respect to calcium and magnesium vanadate minerals. Sorption onto aquifer materials may also control the concentration of vanadium in ground water.

4.3.7 Contaminant Flushing

Contaminants present in the surficial aquifer are moving with the ground water downgradient from the processing site to the Little Wind River. Since uranium ore processing was begun in 1958, ground water movement has transported the centroid of ground water contamination southeast to the vicinity of monitor well 707, located approximately 3,000 ft (900 m) from the tailings pile area.

Contaminant movement with time in the surficial aquifer was simulated by Sandia National Laboratories using the computer code GANDT (Knowlton 1997). The GANDT code explicitly accounts for the uncertainty in ground water flow and transport through the use of Monte Carlo simulation techniques. GANDT honors the concentration data as well as allowing for spatial variability using geostatistical methods. The GANDT model simulated the movement of uranium and molybdenum using data listed in Table 4–11.

Table 4–11. Data Used in GANDT Simulation

Source Term Parameters			
Type of Parameter	**Name of Parameter (units)**	**Value or Distribution**	**Justification for Data**
Geometry	Center of mass, X coord. (ft)	Uniform, min = 7,440 max = 7,570	Based on measurements at site, DOE (1985a).
	Center of mass, Y coord. (ft)	Uniform, min = 10,100 max = 10,200	Based on measurements at site, DOE (1985a).
	Length (ft)	Uniform, min = 1,540 max = 1,670	Based on measurements at site, DOE (1985a).
	Width (ft)	Uniform, min = 1,180 max = 1,310	Based on measurements at site, DOE (1985a).
	Thickness (ft)	Uniform, min = 1.6 max = 4.9	Based on information in DOE, (1985a).
Flow	Infiltration Rate (ft/year)	Uniform, min = 0.26 max = 0.36	Expert judgment; model trials.
	Saturated hydraulic conductivity (ft/day)	Lognormal, min = 3.5 max = 18.0	Based on information in DOE (1985a) and SNL (1996).
	Porosity	Normal, $\mu = 0.3$, $\sigma = 0.02$	Based on information in DOE (1985a) and general literature.
	Residual water content	Normal, $\mu = 0.05$, $\sigma = 0.002$	General literature.
	van Genuchten n factor	Normal, $\mu = 3.9$, $\sigma = 0.5$	General literature.
Fate and Transport	Initial Soil Concentration (ppm)	Uranium: Normal, min = 0.5 max = 4 Molybdenum: Normal, min = 2 max = 8	Expert judgment; model trials.
	Solubility of contaminant (ppm)	Uranium: 100 Molybdenum: 100	General literature.
	Distribution coefficient (cm/g)[a]	Uranium: Uniform, min = 0.05 max = 0.1 Molybdenum: Uniform, min = 0.05 rnax = 0.1	DOE (1983) and general literature.
	Dry bulk density (g/cc)[a]	1.7	General literature.
	Time since waste release (y)	39	DOE (1985a).
	Pulse duration (y)	Uniform, min = 10 max = 15	Expert judgment; model trials.
Unsaturated Zone Parameters			
Geometry	Thickness (ft)	Uniform, min = 5.2 max = 8.2	DOE (1985a).
Flow	Saturated Hydraulic conductivity (ft/day)	Lognormal, min = 3.5 max = 18.0	DOE (1985a) and SNL (1996).

Table 4–11 (continued). Data Used in GANDT Simulation

Type of Parameter	Name of Parameter (units)	Value or Distribution	Justification for Data
	Porosity	Normal, μ = 0.3, σ = 0.02	Based on information in DOE (1985a) and general literature.
	Residual water content	Normal, μ = 0.05, σ = 0.002	General literature.
	van Genuchten α coefficient (1/ft)	Normal, μ = 0.1, σ = 0.015	General literature.
	van Genuchten n factor	Normal, μ = 3.9, σ = 0.5	General literature.
Fate and Transport	Longitudinal dispersity (ft)	Uniform: min = 1.6 max = 3.3	Expert judgment and general literature.
	Distribution coefficient (cc/g)[a]	Uranium: Uniform, min = 0.05 max = 0.1 Molybdenum: Uniform, min = 0.05 max = 0.1	DOE (1983) and general literature.
	Dry bulk density (g/cc)[a]	1.8	General literature.
Saturated Zone Parameters			
Geometry	Thickness (ft)	Uniform, min = 5 max = 6	DOE (1985a).
Flow	Downgradient flow direction (counterclockwise from due east) (degrees)	Uniform, min = 310 max = 315	DOE (1985a) and expert judgment.
	Hydraulic gradient (horizontal)	Normal, μ = 0.0028, σ = 0.0003	DOE (1985a) and expert judgment.
	Recharge rate (ft/year)	Normal, μ = 0.07, σ = 0.01	Expert judgment and general literature.
	Mean saturated hydraulic conductivity (ft/day)	57	DOE (1985a), SNL (1996), and model trials.
	Hydraulic conductivity anisotropy (H/V)	100	Expert judgment and general literature.
	Porosity	Normal, μ = 0.3, σ = 0.02	DOE (1985a) and general literature.
Fate and Transport	Longitudinal dispersity (ft)	Uniform: min = 160 max = 230	Expert judgment and general literature.
	Dispersion anisotropy (long./trans)	Uniform: min = 10 max = 20	Expert judgment and general literature.
	Distribution coefficient (cc/g)[a]	Uranium: Uniform, min = 0.1 max = 0.2 Molybdenum: Uniform, min = 0.1 max = 0.3	DOE (1983) and general literature.
	Dry bulk density (g/cc)[a]	1.8	General literature.
	Tortuosity	0.39	General literature.

[a]Common unit of expression.

As shown in Figures 4–17, 4–18, 4–19, 4–20, the GANDT model predicted that concentrations of uranium and molybdenum in the surficial aquifer are reduced to concentrations below MCLs within approximately 100 years from 1997. The probability that the concentrations are less than the MCLs (75 years after conditioning time) for each of the contaminants is shown in Figures 4–19 and 4–20. By 100 years, all simulations showed uranium and molybdenum concentrations at background levels. Therefore, the probability distributions for 100 years are not included. Details of the GANDT model are contained in Appendix D.

Key verification monitoring wells located within the area of the contaminant plume includes well 707. Figure 4–21 and 4–22 show the predicted uranium and molybdenum concentrations versus time. The data points represent average concentrations predicted by the simulations, and the error bars delineate the minimum and maximum predicted concentrations. The min-max bounds in each plot provide an estimate of the acceptable range of verification monitoring results that would suggest natural attenuation will lead to site cleanup within 100 years. Also included in these plots is a horizontal line showing the MCL for uranium and molybdenum.

4.4 Risk Evaluation

The BLRA of ground water contamination at Riverton (DOE 1995a) followed the methodology outlined in the *Human Health Risk Assessment Methodology for the UMTRA Ground Water Project* (DOE 1994a), which provided the general approach used to develop all baseline risk assessments for the UMTRA Ground Water Project. Additional investigations were conducted in the summer and fall of 1995 to address data gaps identified in the SOWP Rev. 0. The *Hydrogeologic and Geochemical Data Calculation and Analysis Notebook, Riverton, Wyoming, Volume II* (DOE 1996c [Data Calculation Notebook]) contains the results of the surface water, sediment, and biota sampling that was conducted in 1995. This section summarizes the results of the Riverton BLRA and the Data Calculation Notebook.

4.4.1 Extent of Contamination

The first step in the BLRA was to evaluate ground water data collected at the site over the last 5 years. The surficial aquifer was evaluated quantitatively because of the higher contamination levels. The less contaminated semiconfined aquifer was evaluated qualitatively. A summary of the data for Riverton is presented in Section 4.3 of this SOWP.

4.4.2 Potentially Exposed Population

Numerous wells within a 2-mi (3-km) radius of the site are used as a source of residential drinking water. However, all but two of these wells pump water from the deeper confined sandstone aquifer, which is not affected by site-related contamination. The two shallow wells are sometimes used for livestock watering and irrigation. One of these wells showed signs of low level contamination prior to 1994. Although ground water contaminated by site-related activities is currently not used as a source of drinking water, the BLRA evaluates shallow ground water as a potential future source of drinking water for residents near the Riverton site. Contaminant concentrations in monitor well 707 (see Plate 1, Cluster 1) are specifically

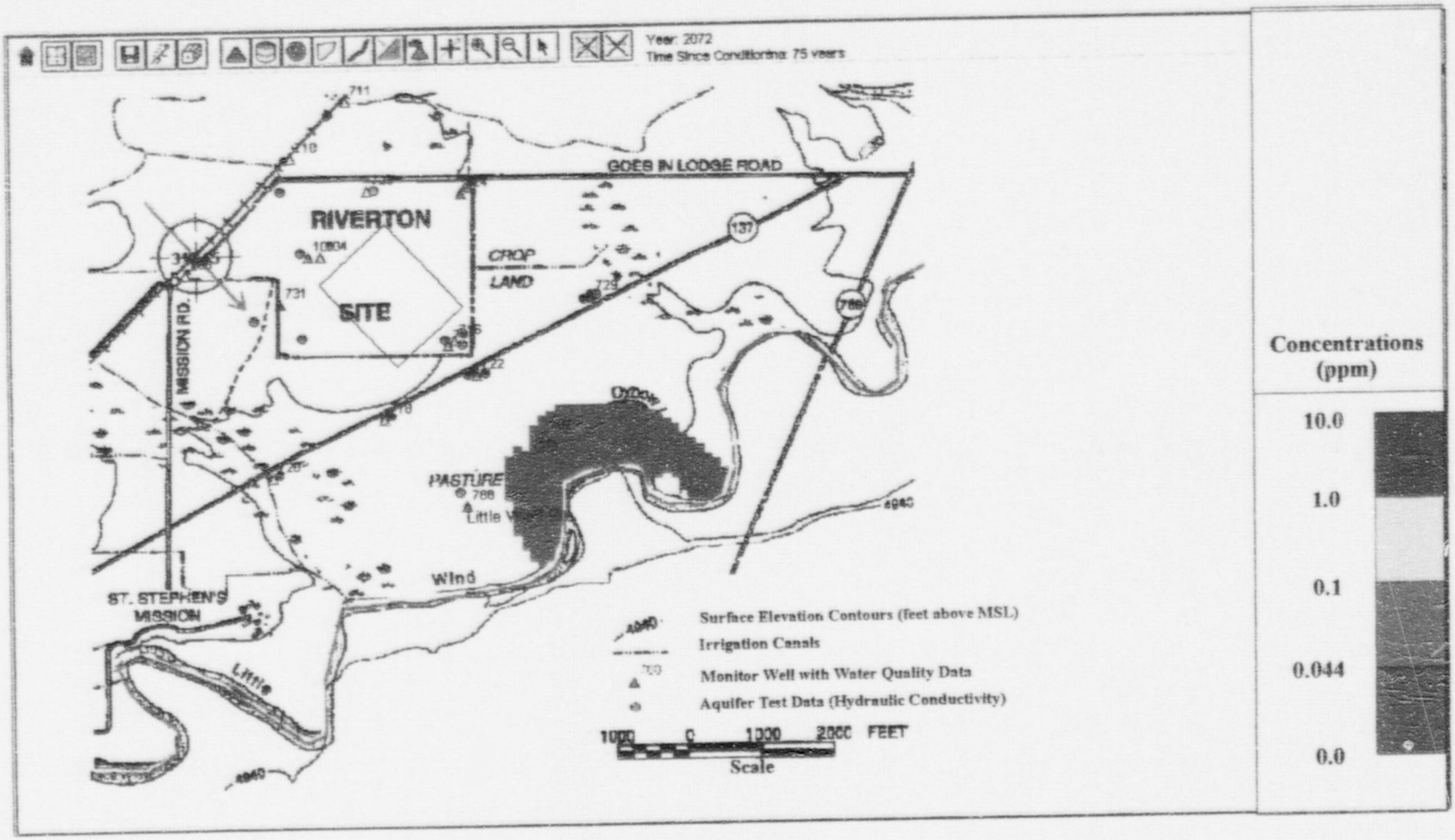

Figure 4–17. Mean Concentration Distribution of Uranium From Uncertainty Analysis, 75 Years after Conditioning Time—2072

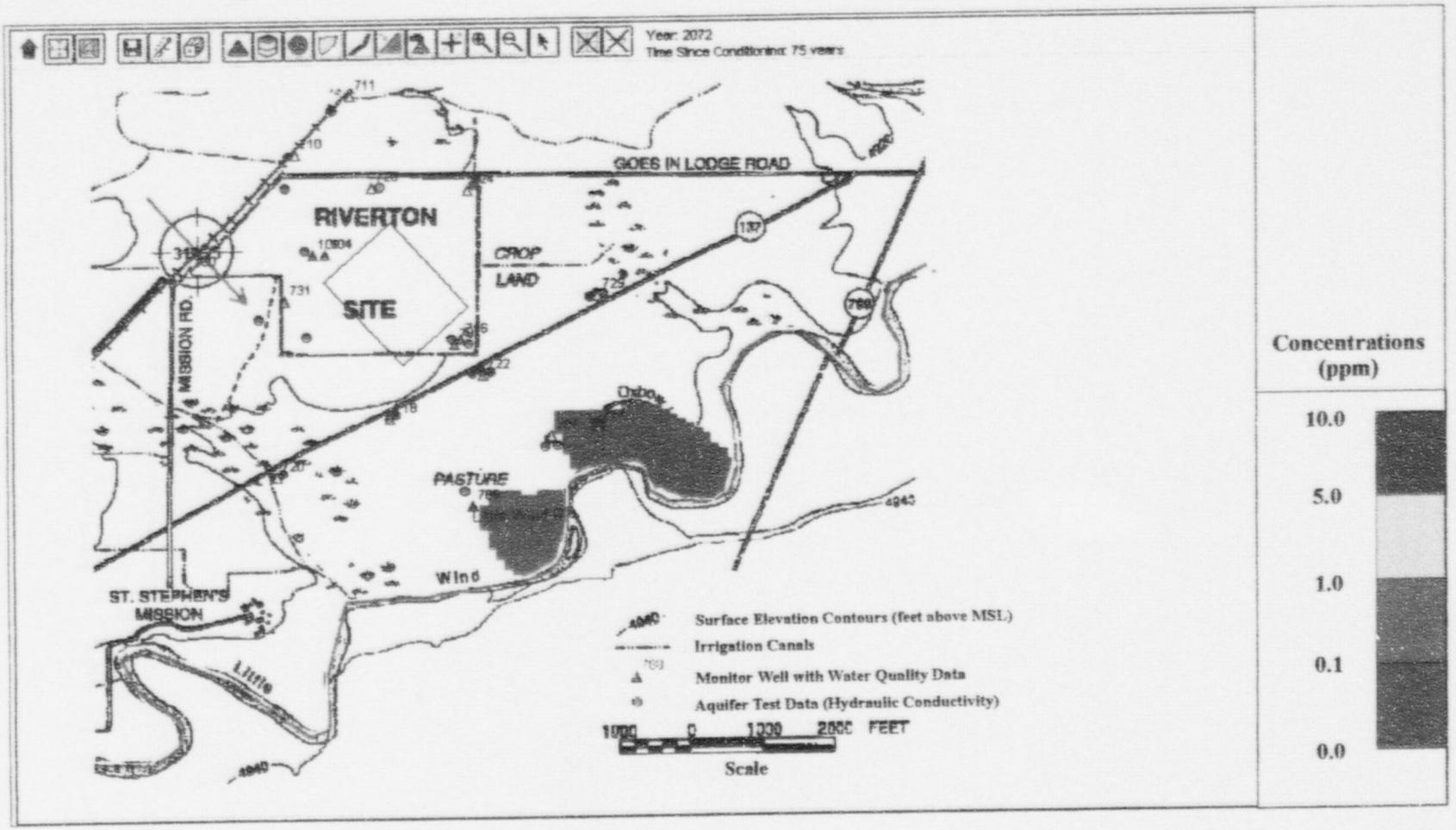

Figure 4–18. Mean Concentration Distribution of Molybdenum from Uncertainty Analysis, 75 Years after Conditioning Time—2072

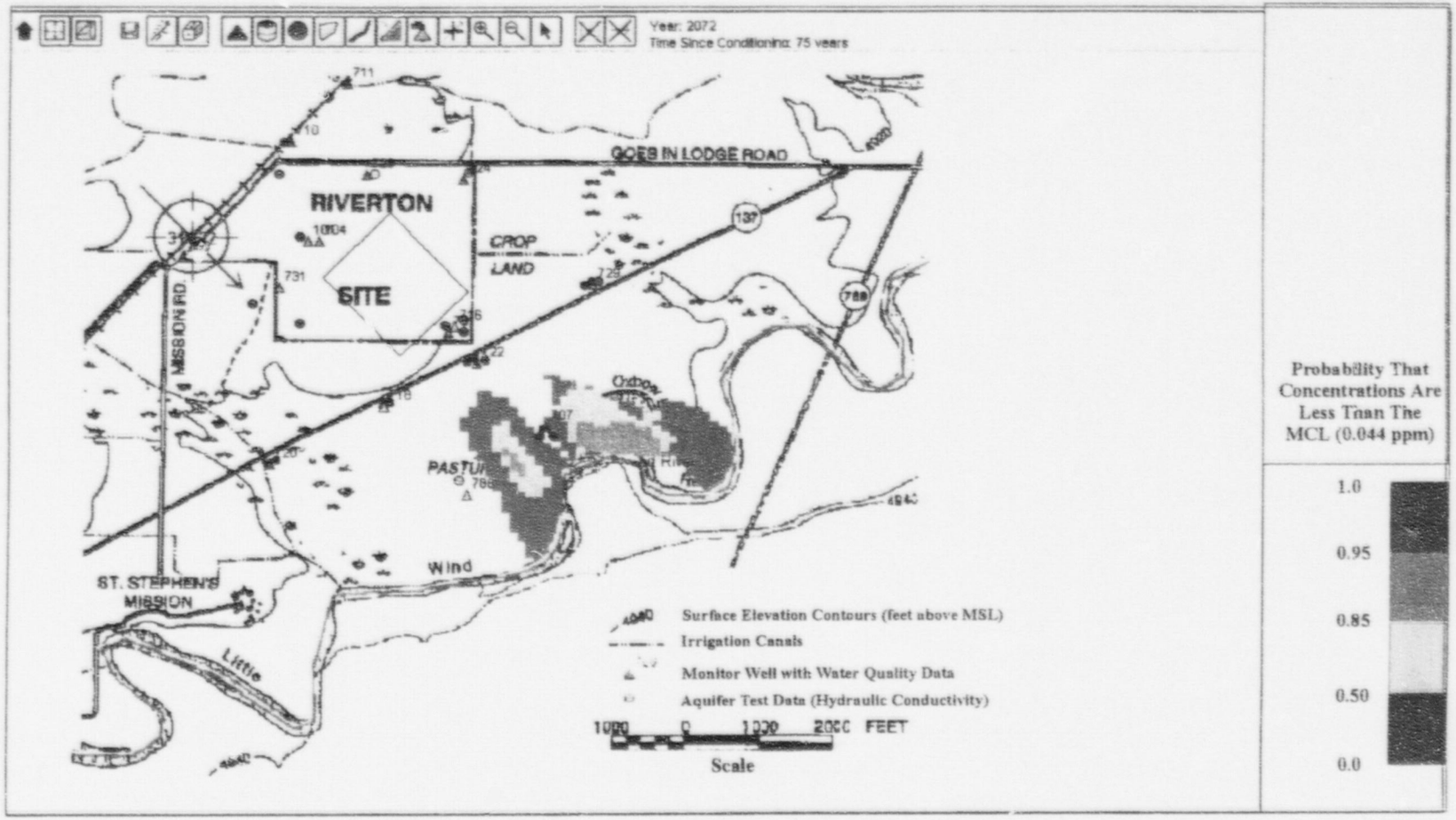

Figure 4–19. Probability that Concentrations are Less than the Uranium MCL from Uncertainty Analysis, 75 Years after Conditioning Time—2072

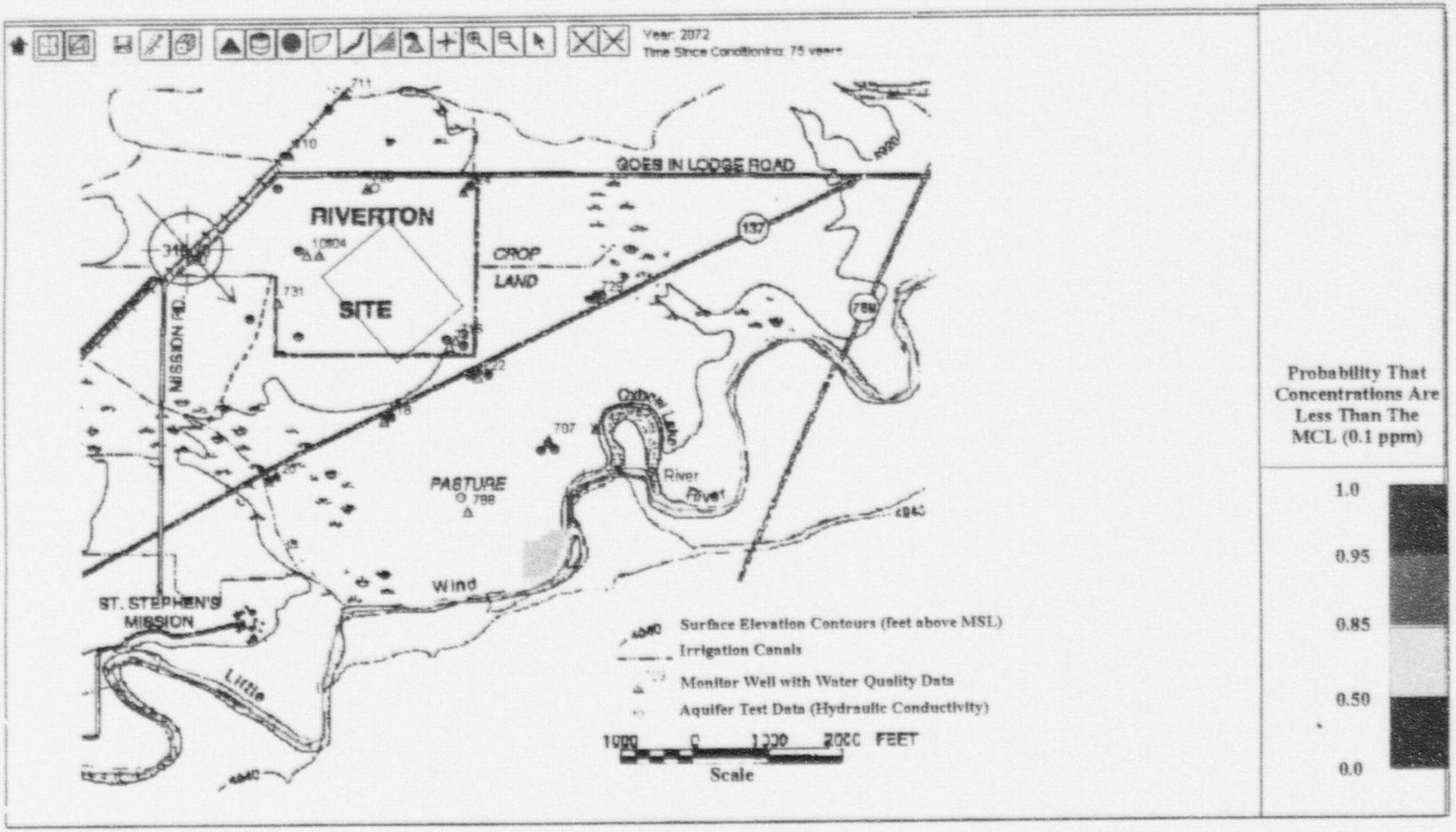

Figure 4–20. Probability that Concentrations are Less than the Molybdenum MCL from Uncertainty Analysis, 75 Years after Conditioning Time—2072

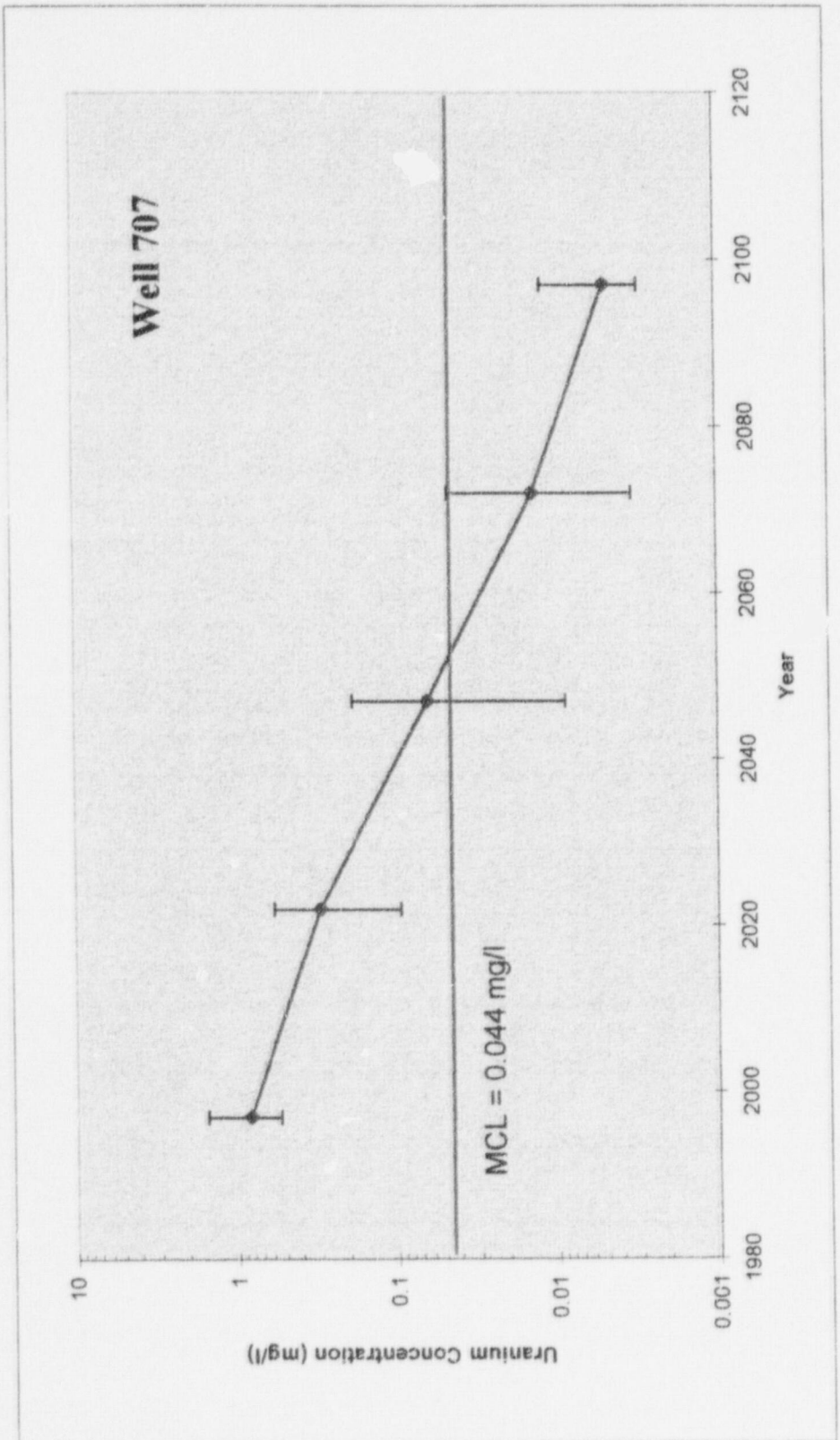

Figure 4–21. Uranium Concentration Versus Time for Verification Monitoring in Well 707

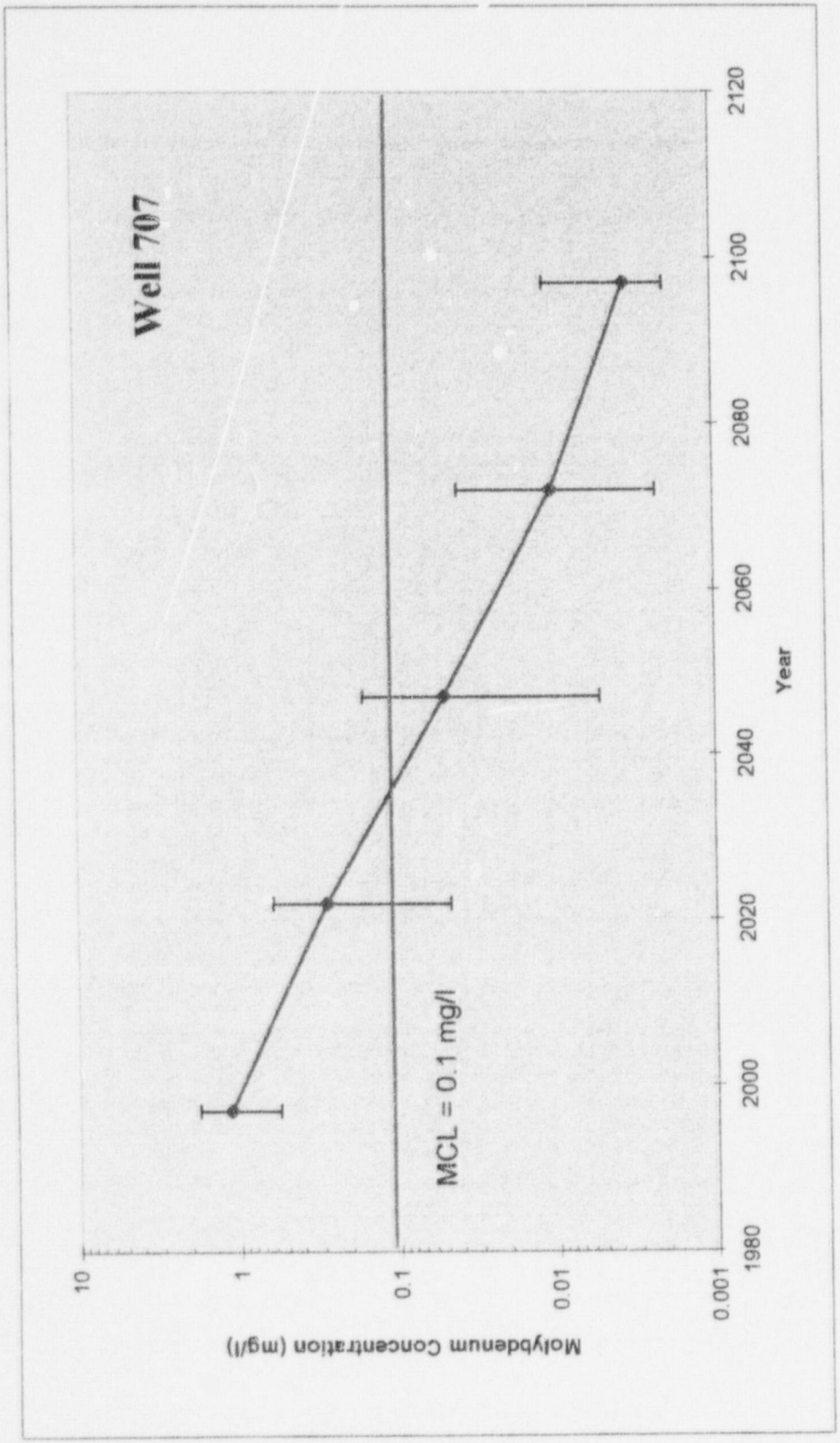

Figure 4–22. Molybdenum Concentration Versus Time for Verification Monitoring in Well 707

considered because the contaminant levels were generally higher than in other wells completed in the surficial aquifer.

In addition to future populations potentially exposed to ground water, the risks to current and future populations from using potentially contaminated surface water and sediment were also evaluated. Maximum detected concentrations in surface water and sediment from the Little Wind River are evaluated for current and future residents.

The BLRA divided the potentially exposed population into the following age groups: infants (birth to 1 year), children (1 to 10 years), and adults (11 to 65 years). This grouping was done to more accurately reflect the effects of the contamination on the sensitive subpopulations of infants and children.

Other potential subpopulations include the elderly and people with a preexisting illness such as diabetes or kidney insufficiency with the absence of diabetes.

4.4.3 Exposure Pathways

An exposure pathway describes the course a contaminant takes from the source to the exposed individual or population. Therefore, an exposure pathway can be completed only if there is a source of contamination, a point of contact with a population or individual, and a route of exposure (e.g., water ingestion). Because the tailings piles and soils contaminated from uranium milling operations at the site were removed and relocated to a disposal cell, soil or air exposure pathways (such as accidental soil ingestion, dermal contact with soil, or inhalation of particulates) were not considered.

The potentially complete pathways are drinking water ingestion, dermal absorption of contaminated ground water, ingestion of ground-water-irrigated produce, ingestion of meat and milk from livestock exposed to ground water, incidental ingestion of surface water while swimming, ingestion of fish from the Little Wind River, and incidental ingestion of sediment during recreational activities. The BLRA for the Riverton site concluded that the potential future use of contaminated ground water is the most significant pathway, accounting for over 95 percent of total risks. The definition of drinking water includes water used for drinking and food preparation (e.g., reconstituted juices, soups, rice, beans). The next most significant pathway is the ingestion of ground-water-irrigated produce, which accounts for less than 3 percent of the levels associated with drinking contaminated water.

4.4.4 Potential Public Health Impacts

The risk assessment estimated how much of the contaminants of concern people would be exposed to if a drinking-water well were installed in the contaminated ground water. Because contaminant concentrations vary each time a well is sampled and because people vary in weight and amount of water consumed, the risk assessment used probability distributions to determine the amounts of contaminants that probably would be ingested from a hypothetical well at the site. The probability distributions describe how likely it is for a particular event to happen. For example, on the basis of population surveys, probability distributions can describe what

percentage of people drink a half gallon of water each day and what percentage drink only one cup of water each day.

The estimated amounts of contaminants that could be ingested by consuming tap water were then compared to the toxic effects those contaminant levels could cause. Sulfate is the most significant health hazard in the ground water at the Riverton site. Sulfate is of special concern for infants, because at the levels found at the site, sulfate-induced severe diarrhea could lead to dehydration in infants more quickly than it would in children or adults. Although no one currently drinks the contaminated ground water, sulfate levels in the ground water exceed levels that have been reported elsewhere to cause severe dehydration when ingested by infants.

Using the uppermost aquifer as a source of drinking water would cause unacceptable risks of $3 \times 1^{-}$ r uranium and 4×10^{-4} for arsenic. Potential noncarcinogenic health effects from exposure to uranium would also be of concern, as would exposure to molybdenum and manganese. Although these exposures are not in the range that cause lethal effects, exposures probably would result in adverse health effects such as neurologic changes (manganese) and biochemical imbalances (molybdenum and manganese).

Based on this analysis, the use of contaminated ground water for nondrinking water purposes (e.g., watering livestock, irrigating crops, or bathing) would not result in adverse health effects to humans.

Because the levels of arsenic, manganese, molybdenum, sulfate, and uranium in the surficial aquifer between the former processing site and the Little Wind River could cause adverse health effects if the ground water is used for drinking, access to contaminated ground water must be controlled. Institutional controls prohibiting the use of the ground water from the surficial and semiconfined aquifer are being implemented in the vicinity of the Riverton site.

4.4.5 Potential Environmental Impacts

An analysis of the effects contaminated ground water may have on plants was performed using published soil-to-water partition coefficients and soil-to-plant uptake factors (Baes et al. 1984). Comparing the values derived from this analysis to concentrations that may be toxic to some plants (Kabata-Pendias and Pendias 1992) indicates that concentrations of contaminants of concern in the shallow alluvial ground water would not result in phytotoxicity. In addition, the mean concentrations of COPCs were compared to publi ed concentrations that may be toxic to crops. It has been shown that a few tenths of a milligr to a few milligrams per liter of manganese can be toxic to a number of crops and tha level of toxicity is affected by soil pH; the recommended maximum concentration of mangan in irrigation water to be applied to soils with neutral or alkaline pH is 10 mg/L (EPA 1973). Soils at the Riverton site (Apron and Bigwin Series) are moderately alkaline throughout (SCS 1974), which indicates that the concentration of manganese in the alluvial aquifer (3.54 mg/L in well 707) would not be detrimental to plant growth. The concentration of molybdenum in the contaminated alluvial aquifer (1.42 mg/L) exceeds the recommended level for use in irrigation water (0.01 mg/L) (EPA 1973). The molybdenum concentration in the alluvial ground water would not be detrimental to plants. However, studies have shown that livestock have contracted molybdenosis after feeding on forage that was irrigated with water containing as little as 0.01 mg/L molybdenum (EPA 1973).

Therefore, use of the contaminated alluvial aquifer for irrigation could be detrimental to livestock. The molybdenum concentration in the contaminated aquifer would not be toxic if it was used only to water livestock because it is well below 10 mg/L, which is the maximum concentration recommended for livestock watering (Eisler 1989).

A comparison of mean ground-water concentrations with water concentrations protective of plants indicates that molybdenum, and sulfate are present at concentrations that could adversely affect irrigated plants.

The surface water concentrations of iron detected in the Little Wind River in 1993 exceeded the State of Wyoming Water Quality Criteria for the protection of aquatic life of 1.0 mg/L. In 1995 and 1997, iron concentrations decreased to well below the criteria for the State of Wyoming of 1.0 mg/L. However, for all constituents analyzed in surface water in the Little Wind River, concentrations at the downstream location differed little from concentrations at the background location. The 1993 data indicated that the uranium concentration measured at sampling location 742 was approximately one order of magnitude higher than the background concentration and could represent an ecological concern. However, data collected at this location in 1995 and 1997 indicate that uranium is at the background concentration and does not currently represent an ecological concern.

In other water bodies near the site, surface water concentrations did not exceed State of Wyoming Water Quality Criteria for the protection of aquatic life. Because Federal water quality criteria are not established for several constituents, however, it is not certain whether any of these concentrations threaten aquatic organisms. At most, the concentrations exceeded maximum background concentrations by a factor of 2 to 2.5. No clear trend is associated with surface water concentrations in these areas. The locations of highest values varied for the different constituents.

Based on the 1997 data collected in the oxbow lake, only iron and uranium exceed the State of Wyoming aquatic life criteria (Table 4–8). In 1995, the concentration of sulfates in the oxbow lake were 2,500 mg/L, and exceeded the State of Wyoming benchmark for irrigation water by 12.5 times. Data collected in 1997 indicated sulfate concentrations were 656 mg/L, which exceeds the benchmark by slightly over three times. Data collected during 1995 for TDS (3,900 mg/L) was nearly six times the concentration in the oxbow than in the river, and exceeded the benchmark for irrigation water. Data from 1997 indicates that TDS had decreased to 1,240 mg/L, which is below the State of Wyoming benchmark for irrigation water.

Surface water sampled in 1997 at Locations 744, 746, and 748 in the East Irrigation Ditch indicate that no State of Wyoming aquatic life standards, or agricultural and ecological benchmarks were exceeded.

Sediments and Vegetation

Data (Table 4–9) from the 1995 sediment sampling in the Little Wind River at location 742 (crossgradient location) indicate that concentrations of manganese [220 milligrams per kilograms (mg/kg)] and uranium (1.7 mg/kg) exceeded the background (location 794) concentrations for these constituents. Sediment data collected in 1995 from the downgradient sampling location (location 796) indicate that concentrations of lead (6.7 mg/kg), manganese (250 mg/kg),

vanadium (21 mg/kg), and uranium (1.2 mg/kg) exceed the background concentrations at location 794. Concentrations of manganese at the crossgradient sample location and lead and manganese at the downgradient location did not exceed the screening benchmarks. Screening benchmarks are not available for vanadium and uranium. The levels of manganese in the vegetation in the Little Wind River are well below the screening benchmarks established for dietary source for many species of wildlife (Opresko et al.1996). Data from sediment samples collected from the oxbow lake in 1995 indicate that no screening benchmarks were exceeded (Table 4–9). Data from vegetation samples collected at the Oxbow Lake indicated that concentrations of uranium exceed the screening benchmark established for dietary source for many species of wildlife (Opresko et al.1996).

Data from sediment samples collected in 1995 from the Koch Ditch (location 749) and the West Side Irrigation Ditch (locations 795, 745, and 741) indicated concentrations of arsenic, lead, and nickel that exceeded their respective benchmarks for sediment (Hull and Suter 1994). Location 743 was sampled in 1995. The data from location 743 indicate that concentrations of nickel exceed the sediment benchmark. However, the concentrations of these constituents are probably not due to site related contaminants, and originate from a source other than the former mill tailings site. Lead was detected in vegetation (2.3 mg/kg) growing in the Koch Ditch, but does not exceed the screening benchmark for dietary consumption for wildlife.

The sediments sampled at location 746 (890 mg/kg) in 1995 indicated that concentrations of manganese exceeded the low effects benchmark (460 mg/kg) for sediment. Samples collected at locations 744 (22 mg/kg) and 748 (25 mg/kg) showed concentrations of nickel that slightly exceeded the low effects benchmark for nickel (21 mg/kg), but may be in the range for background for the site. In 1993, the concentration of lead (68 mg/kg) at location 746 exceeded the National Oceanic and Atmospheric Administration Effects Range-Low (NOAA 1990), and was attributed to automobile exhaust fumes. Data collected in 1995 from the same location indicate that the concentration of lead had decreased to 25 mg/kg.

No clear trend is associated with sediment concentrations in these water bodies. The locations of highest values varied for the different constituents. Data from vegetation sampled at location 744 indicated concentrations of arsenic (12.4 mg/kg) exceeded the wildlife screening benchmarks for dietary intake.

The sediment samples at locations 750, 751, 850, and 851 did not exceed the screening level sediment benchmarks. Uranium concentrations in the vegetation at both location 751 (5.2 mg/kg) and 851 (6.4 mg/kg) were higher than in the background locations (2.9 mg/kg at location 750 and 2.4 mg/kg at location 850). These concentrations exceed some of the wildlife screening benchmarks for dietary intake.

Potential exposure to livestock that ingest ground water was evaluated by comparing mean ground water concentrations to water concentrations determined to be protective of livestock. Based on the sulfate concentrations in ground water, the results showed that adverse effects could occur because the mean sulfate ground water concentration was 3 times greater than the guidance value.

Water and sediment quality criteria and/or guideline values were insufficient to comprehensively evaluate the effect of ground water, surface water, and sediments on ecological receptors. Therefore, this assessment of ecological risk could evaluate only some of the constituents detected at the site. This screening level is sufficient for this project.

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5.0 Ground Water Compliance Strategy Selection

This section identifies the proposed ground water compliance strategies for the Riverton site; explains the application of site-specific data to the ground water compliance selection framework; and analyzes possible deviations from the conceptual model, contingencies (selection of different compliance strategies), and decision rules (criteria) for application of contingencies.

5.1 Ground Water Compliance Strategy Selection Process

Proposed ground water compliance decisions at the Riverton site were made by using the compliance selection framework shown in Figure 5–1. This compliance selection framework was developed in the PEIS (DOE 1996a). The proposed ground water compliance strategy for the Riverton site was selected by applying site-specific data to this compliance selection framework.

Using site-specific data, the compliance selection framework provided for the selection of the natural flushing compliance strategy.

Natural flushing allows the natural ground water movement and geochemical processes to decrease contaminant concentrations to levels within regulatory limits within a given time period. This strategy is applied at sites where ground water compliance is achieved with the application of natural flushing within 100 years, where effective monitoring and institutional controls can be maintained, and the ground water is not currently and is not projected to be a drinking water source.

This SOWP proposes the determination that EPA standards will be met by applying the natural flushing compliance strategy in conjunction with the institutional controls. The following section describes the decision-making process for compliance at the Riverton site.

5.2 Site-Specific Ground Water Compliance Strategy

This section describes how the PEIS decision-making framework was used to evaluate and propose compliance strategies for ground water remediation at the Riverton site. The steps involved in applying the constituents to the compliance selection framework are as follows:

1 and 2. The first two steps (boxes 1 and 2 in Figure 5–1) confirm that the ground water quality data show that the milling activities have resulted in ground water contamination that exceeds background levels or MCLs.

3. The third step (box 4 in Figure 5–1) determines whether compliance with the ground water protection standards can be achieved by applying supplemental standards based on the designation of limited-use ground water. The quality and quantity of the natural ground water at the Riverton site, as evidenced by the background ground water quality data and the results of the aquifer tests, do not meet the requirements for a limited-use aquifer. Therefore, supplemental standards do not protect human health and the environment.

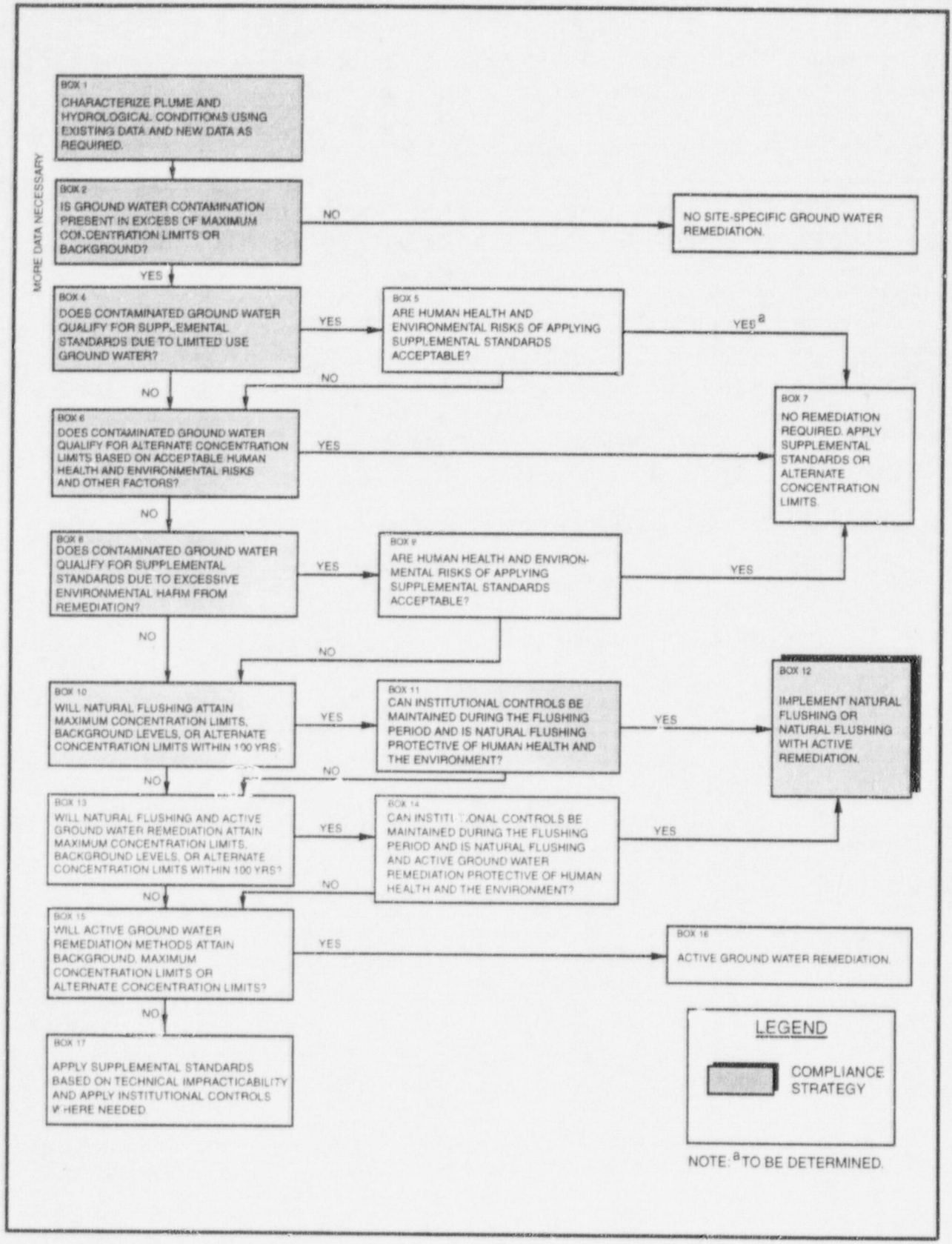

Figure 5–1. Compliance Selection Framework, Riverton Site

4. The fourth step (box 6 in Figure 5–1) determines whether ACLs apply. This is not an applicable compliance strategy for the Riverton site because 10 of the 24 contaminants at the site do not qualify at the present concentrations.

5. The fifth step (box 8 in Figure 5–1) determines if contaminated ground water qualifies for supplemental standards because of excessive environmental harm. There are no reasons why remediation of the ground water would cause more environmental harm than benefit. Therefore, the contaminated ground water does not qualify for supplemental standards.

6. The sixth step (box 10 of Figure 5–1) evaluates whether natural flushing will bring the contaminants of concern within MCLs, background levels, or ACLs within 100 years. The hydrogeologic and geochemical data collected from the Riverton site and contaminant transport and ground water flow modeling indicate that natural ground water flushing does apply. That is, natural ground water movement and geochemical processes will decrease contaminant concentrations to background levels within 100 years. During that period of time, effective monitoring and institutional controls will need to be maintained to ensure that ground water in the affected aquifer is not used as a source of domestic water (box 11 in Figure 5–1).

7. The last step is the implementation of natural flushing (box 12 in Figure 5–1).

5.3 Identification of Deviations, Contingencies, and Decision Rules

The natural flushing ground water compliance strategy proposed for the Riverton site is based on the evaluation of the existing conceptual model and on the results from the GANDT simulation of ground water flow and contaminant transport. Once the compliance strategy is implemented, continued data collection is necessary to confirm that natural flushing is occurring as predicted by the model.

Deviations from the existing site model may be identified during monitoring. Guidelines for evaluating the significance of these deviations will be developed. These guidelines will establish ranges to confirm that the system is performing as predicted by the computer model. The ranges will allow for random variations in water quality. Concentration excursions will be evaluated and the cause and effects determined. Probabilistic methods will be used to establish the ranges and to identify significant variations that will require reassessment of the model.

The compliance strategy presented in this final SOWP includes the implementation of institutional controls on ground water use near the Riverton site. Because implementing this strategy addresses the reduction of contaminant concentrations through time, controlling ground water use will mitigate the immediate and long-term risks to both public health and the environment.

Implementing the compliance strategy of natural flushing will be accomplished by sampling select background surface and ground water locations, and contaminated surface and ground water locations to monitor contaminant movement throughout the study area. The surface water sample locations identified for future sampling are 747, 749, 794, and 796. The surficial ground

water aquifer monitor well locations identified for future sampling are 706, 707, 710, 716, 718, 722, and 731. The semiconfined ground water monitor well locations identified for future sampling are 705, 717, 719, 723, 732, and 735. The locations identified for future sampling and the rational for the selection are summarized in Table 5–1.

Monitoring of all of the ground water and surface water locations identified for future monitoring will be conducted yearly for the first 5 years. After 5 years, all ground water and surface water locations will be monitored once every 5 years. Monitoring will continue on 5-year intervals thereafter until analytical data from three successive sampling events demonstrate that the ground or surface water from a particular location has cleaned up, at which time monitoring will be discontinued for that location. Additional vegetation and sediment sampling is also recommended to continue to monitor potential ecological risks. The sampling schedule is once a year for 5 years. Background locations will be sampled during each sampling event to provide evaluators with baseline data.

Table 5–1. Select Sa·'ple Locations for Future Sampling.

Future Sample Location		Rationale
Sediment Sampling Locations	747 (Oxbow Lake)	No benchmarks exceeded. Monitor concentrations of contaminants in Oxbow Lake for increasing concentrations of site-related contaminants.
	746 (Wetland east of site)	Manganese exceeded low effects benchmark. Monitor concentrations of site-related contaminants in sediments.
	744 (On site)	Nickel exceeded benchmark. Monitor for site-related contaminants.
Vegetation Sampling Locations	747 (Oxbow Lake)	Uranium exceeded benchmark for dietary source for wildlife. Monitor for contaminant concentrations in vegetation that exceed screening benchmarks for dietary source for wildlife.
	744 (On site)	Arsenic exceeded many wildlife screening benchmarks. Monitor for concentrations of site-related contaminants.
Surface Water Sampling Locations	747 (Oxbow Lake)	Iron and uranium exceeded the Wyoming aquatic life criteria. Monitor concentrations of site-related contaminants.
	749 (Koch Ditch)	Monitor effluent from Koch Sulfur Products for potential influence on site-related ground water contaminants.
	794 (Background location, upgradient on the Little Wind River)	Baseline data to support determination of contaminants in Little Wind River.
	796 (Downgradient on the Little Wind River)	Monitor for site related constituents downgradient in Little Wind River.
Surficial Aquifer Sampling Locations	706 (South of Little Wind River)	Ensure site related contaminants do not cross Little Wind River to the south. Monitor for site-related constituents.
	707 (North of Little Wind River, centroid of plume)	Monitor concentrations of site related contaminants in centroid of plume.
	710 (Background)	Baseline data to support contaminant concentrations in su·ficial aquifer.
	716 (Cluster 3, northeast edge of plume)	Monitor contaminant concentrations on the northeast edge of plume.
	718 (West edge of plume)	Monitor contaminant concentrations on the west edge of plume.
	722 (North edge of plume)	Monitor contaminant concentrations on the north edge of plume.
	731 (South of Koch Sulfur Products, west edge of plume)	Monitor west edge of plume and potential influence of Koch Sulfur Products.

Future Sample Location		Rationale
Semiconfined Aquifer Sampling Locations	705 (North of Little Wind River, centroid of plume)	Monitor centroid of plume in the semiconfined aquifer.
	717 (Cluster 3, northeast edge of plume)	Monitor contaminant concentrations on the northeast edge of plume.
	719 (West edge of plume)	Monitor contaminant concentrations on the west edge of plume.
	723 (North edge of plume)	Monitor contaminant concentrations on the north edge of plume.
	732 (South of Koch Sulfur Products, west edge of plume)	Monitor west edge of plume and potential influence of Koch Sulfur Products.
	735 (South of Little Wind River)	Monitor for site-related contaminants south of Little Wind River.

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Appendix A

Monitor Well Lithologic and Construction Logs

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PROJECT RIVERTON SITE, WYO.: UMTRA

LOG OF WELL BORING NO. 100

JOB NO. RVT01 DATE 10/04/83

SURFACE ELEVATION 4946.10

DEPTH OF SEAL 4.00

WELL CASING TYPE 6-IN.SCHED. 40 PVC

COMPLETION ALLUVIUM (PUMP TEST)

TOTAL DEPTH 17.0 feet

WELL OWNER P. DARR

BORING TYPE ROTARY W/ REVERT

LOCATION N 24100.70 E 24050.70

DATUM MSL, GROUND SURFACE

Depth	Well Con.	Remarks	Lithology	USCS	Visual Classification
0		Installed 6-in PVC cased well for pumping test.		ML	ALLUVIUM: SANDY SILT, nonplastic, brown.
5		Placed cement w/ bentonite grout to 1.5 feet. Placed bentonite pellet seal from 1.5 to 4 feet. Placed filter pack of concrete sand from 4 to 17 ft. Placed well screen, 015" slot, from 6 to 14 feet.		SM	SILTY SAND, fine, occasional thin seams of sandy silt, nonplastic, brown.
10				GP	SANDY GRAVEL, fine to coarse, brown.
15				SM	WIND RIVER FM.: SANDSTONE, weakly cemented, grey.
		Placed blank sump from 14 to 16 ft.			TD AT 17 FEET.
20					
25					
30					
35					
40					
45					
50					

GROUNDWATER

DEPTH	HOUR	DATE
8.3		1-16-85
8.0		4-16-87

JEG TAC TEAM

PROJECT RIVERTON SITE, WYO.: UMTRA

LOG OF WELL BORING NO.

JOB NO. RVT01 DATE 09/28/83

SURFACE ELEVATION 4946.20

TOP OF FILTER PACK 6.00

WELL CASING TYPE 2-IN.SCHED.40 PVC

COMPLETION ALLUVIUM

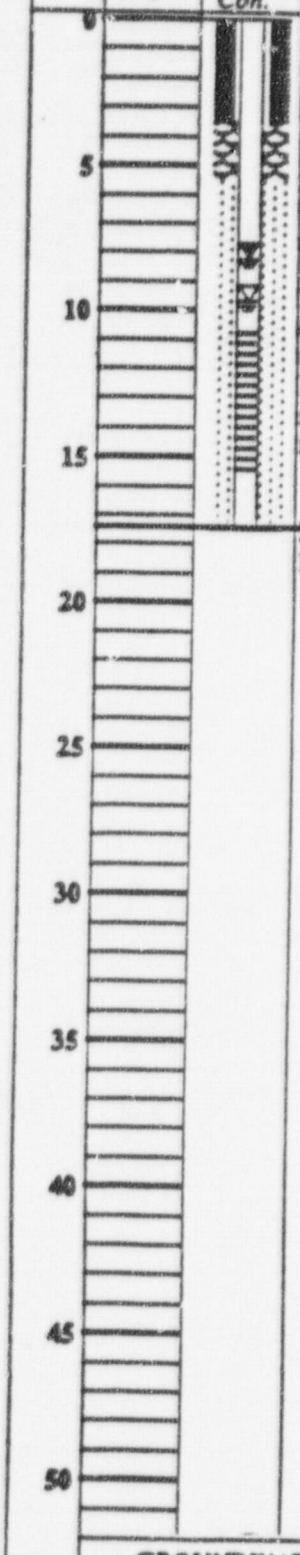
TOTAL DEPTH 17.5 feet

RIG TYPE CME-55

BORING TYPE HSA

LOCATION N 24105.40 E 24056.00

DATUM MSL, GROUND SURFACE



Depth	Well Con.	Remarks	Lithology	USCS	Visual Classification
0		Installed 2-in PVC cased well.		SM	ALLUVIUM: SILTY SAND, fine grained, nonplastic, dry, lt. brown to lt. grey.
5		Placed cement w/ bentonite grout to 3.5 feet. Placed bentonite pellet seal from 3.5 to 5.5 feet.		GW	SAND AND GRAVEL, with sand interbeds, fine to med. sand, fine to coarse gravel, occasional cobbles, rounded, nonplastic, brown.
10		Placed filter pack of concrete sand from 5.5 to 17.5 ft. Placed well screen, 010" slot, from 10.5 to 15.5 feet.			
15				SP	WIND RIVER FM.: SANDSTONE, fine, grey.
		Placed blank sump from 15.5 to 17.5 ft.			TD AT 17.5

GROUNDWATER

DEPTH	HOUR	DATE
9.7		1-16-85
8.3		4-16-87

JEG TAC TEAM

PROJECT RIVERTON SITE, WYO.: UMTRA

LOG OF WELL BORING NO. 102

JOB NO. RVT01 DATE 09/29/83

SURFACE ELEVATION 4946.30

TOP OF FILTER PACK 6.50

WELL CASING TYPE 2-IN.SCHED 40 PVC

COMPLETION ALLUVIUM

TOTAL DEPTH 17.5 feet

RIG TYPE CME-55

BORING TYPE HSA

LOCATION N 24101.60 E 24066.20

DATUM MSL, GROUND SURFACE

Depth	Well Con.	Remarks	Lithology	USCS	Visual Classification
0		Installed 2-in PVC cased well.		SM	ALLUVIUM: SILTY SAND, fine, nonplastic, slightly moist, (possible fill) lt. tan to brown.
5		Placed cement w/ bentonite grout to 4.5 feet. Placed bentonite pellet seal from 4.5 to 6.5 feet.		SP	GRAVELLY SAND, medium grained sand with coarse gravel, occasional small cobble, lt. brown.
10		Placed filter pack of natural sand from 6.5 to 17.0 ft. Placed well screen, 010" slot, from 10.0 to 15.0 feet.			
15				SP	WIND RIVER FM.: SANDSTONE, fine to med. v. weakly cemented, grey.
		Placed blank stump from 15.0 to 17.0 ft.			TD AT 17.5 FEET.
20					
25					
30					
35					
40					
45					
50					

GROUNDWATER

DEPTH	HOUR	DATE
9.9		1-16-85
8.4		4-16-87

JEG TAC TEAM

PROJECT RIVERTON SITE, WYO.: UMTRA

LOG OF WELL BORING NO. 10

JOB NO. RVT01 DATE 09/29/83

SURFACE ELEVATION 4946.00

TOP OF FILTER PACK 6.50

WELL CASING TYPE 2-IN. SCHED. 40 PVC

COMPLETION ALLUVIUM

TOTAL DEPTH 17.5 feet

RIG TYPE CME-55

BORING TYPE HSA

LOCATION N 24102.30 E 24092.90

DATUM MSL, GROUND SURFACE

Depth	Well Con.	Remarks	Lithology	USCS	Visual Classification
0		Installed 2-in PVC cased well. Placed steel protective casing to 3 ft.		SM	ALLUVIUM: SILTY SAND, fine, nonplastic, slightly moist, (possible fill) lt. tan to brown.
5		Placed cement w/ bentonite grout to 4.5 feet		SP	GRAVELLY SAND, medium grain sand with coarse gravel, occasional small cobble, lt. brown.
10		Placed bentonite pellet seal from 4.5 to 6.5 feet. Placed filter pack of natural sand from 6.5 to 17.0 ft.			
15		Placed well screen, 010" slot, from 10.0 to 15.0 feet.		SP	WIND RIVER FM.: SANDSTONE, fine to med. v. weakly cemented, grey.
20		Placed blank sump from 15.0 to 17.0 ft.			TD AT 17.5 FEET.
25					
30					
35					
40					
45					
50					

GROUNDWATER

DEPTH	HOUR	DATE
8.7		1-16-85
8.3		4-16-87

JEG TAC TEAM

PROJECT RIVERTON SITE, WYO.: UMTRA

LOG OF WELL BORING NO. 104

JOB NO. RVT01 DATE 09/29/83

SURFACE ELEVATION 4945.30

TOP OF FILTER PACK 6.5

WELL CASING TYPE 2-IN. SCHED. 40 PVC

COMPLETION ALLUVIUM

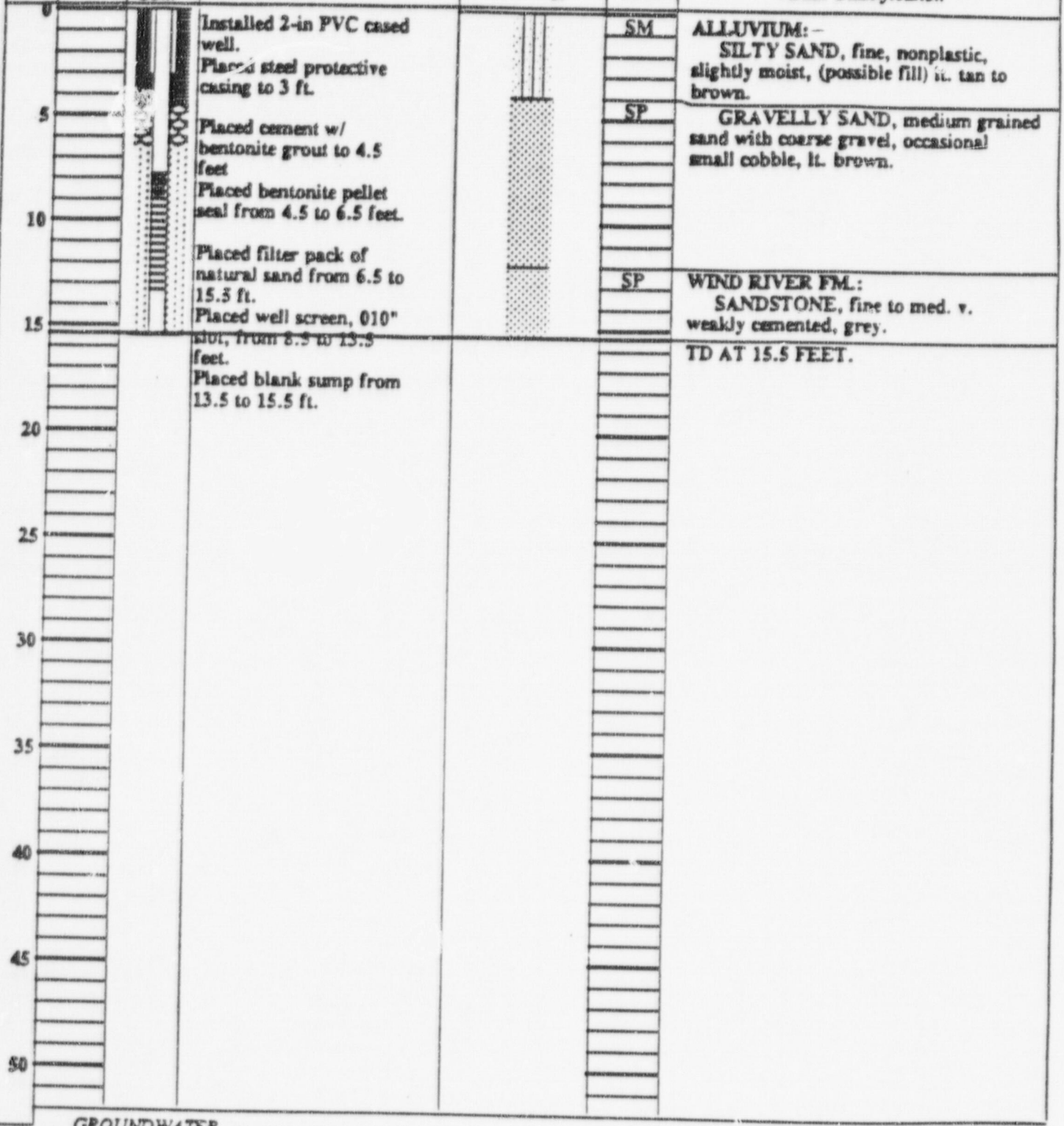
TOTAL DEPTH 15.5 feet

RIG TYPE CME-55

BORING TYPE HSA

LOCATION N 24101.70 E 24251.20

DATUM MSL, GROUND SURFACE



GROUNDWATER

	DEPTH	HOUR	DATE
▽	8.6		1-16-85
▽	8.3		4-16-87

JEG TAC TEAM

PROJECT RIVERSIDE, WYOMING

LOG OF WELL BORING NO. 105

JOB NO. RVT01 DATE 09/29/83

SURFACE ELEVATION 4946.30

TOP OF FILTER PACK 6.00

WELL CASING TYPE 2-IN. SCHED. 40 PVC

COMPLETION ALLUVIUM

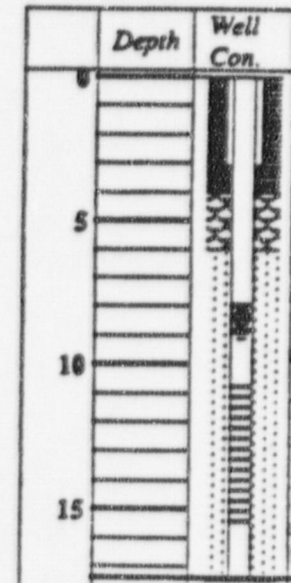
TOTAL DEPTH 17.5 feet

RIG TYPE CME-55

BORING TYPE HSA

LOCATION N 24118.90 E 24050.60

DATUM MSL, GROUND SURFACE



Depth	Remarks	Lithology	USCS	Visual Classification
0	Installed 2-in PVC cased well. Placed steel protective casing to 3 ft.		SM	ALLUVIUM: SILTY SAND, fine, nonplastic, slightly moist, (possible fill) lt. tan to brown.
5	Placed cement w/ bentonite grout to 4.0 feet. Placed bentonite pellet seal from 4.0 to 6.0 feet. Placed filter pack of natural sand from 6.0 to 17.5 ft.		SP	GRAVELLY SAND, medium grained sand, med. to coarse gravel, occasional small cobble, lt. brown.
10				
15	Placed well screen, 010" slot, from 10.5 to 15.5 feet.		SP	WIND RIVER FM.: SANDSTONE, fine to med. v. weakly cemented, grey.
20	Placed blank sump from 15.5 to 17.5 ft.			TD AT 17.5 FEET.
25				
30				
35				
40				
45				
50				

GROUNDWATER

DEPTH	HOUR	DATE
8.8		1-16-85
8.5		4-16-87

JEG TAC TEAM

PROJECT RIVERTON SITE, WYO.: UMTRA

LOG OF WELL BORING NO. 106

JOB NO. RVT01 DATE 10/10/83

SURFACE ELEVATION 4946.20

TOP OF FILTER PACK 35.00

WELL CASING TYPE 2-IN.SCHED.40 PVC

COMPLETION WIND RIVER FM.(UPR CONFINED)

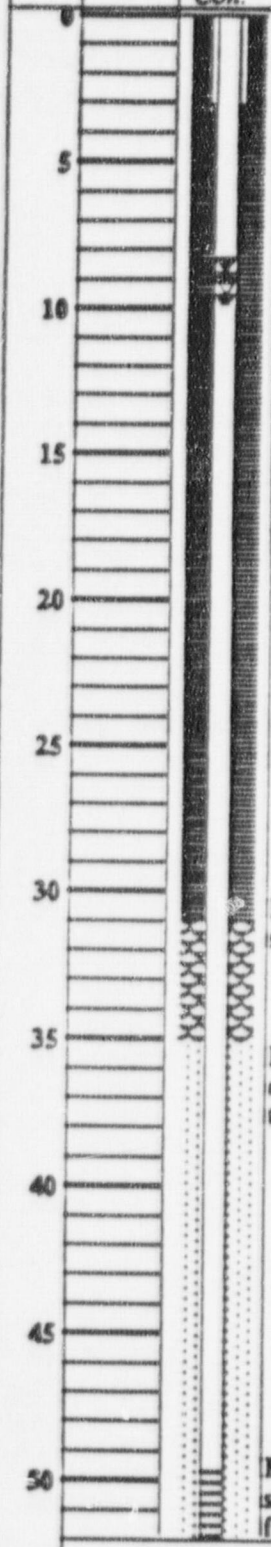
TOTAL DEPTH 100.0 feet

RIG TYPE MIDWAY 1500

BORING TYPE ROTARY W/ REVERT

LOCATION N 24079.70 E 24056.90

DATUM MSL, GROUND SURFACE



Depth	Well Con.	Remarks	Lithology	USCS	Visual Classification
0		Installed 2-in PVC cased well. Placed steel protective casing to 3 ft.		ML	ALLUVIUM:– SANDY SILT, nonplastic, lt. brown.
				SM	SILTY SAND, occasional thin seams of sandy silt, fine grained. occ. fine gravel, lt. brown.
5		Placed cement w/ bentonite grout to 31 feet		GW	SANDY GRAVEL, fine to coarse grained, greyish brown.
10					
15				SM	WIND RIVER FM.: SANDSTONE, silty, weakly cemented, grey.
20					Note: Becoming thickly bedded, soft to mod. hard, with greyish green laminations, from 20 ft.
25					
30		Placed bentonite pellet seal from 31 to 35 feet.		ML	SILTSTONE, sandy, thick bedded, very hard, grey.
				CL	SHALE, moderately hard, grey.
35		Placed filter pack of concrete sand from 35 to 56.5 ft.		ML	SILTSTONE, sandy, variablie thin to thick bedded, mod. hard, grey.
				CL	SHALE, mod. hard, grey.
				ML	SILTSTONE, sandy, some clay, thick bedded, mod. hard, grey.
40				SP	SANDSTONE, very fine grained, thick bedded, mod. hard, grey with occ. brown staining.
45					Note: Change to fine grain size from 45 ft..
50		Placed well screen, 010" slot, from 49.5 to 54.5 feet.			

GROUNDWATER

DEPTH	HOUR	DATE
9.6		1-16-85
8.8		4-16-87

JEG TAC TEAM

PROJECT RIVERTON SITE, WYO.: UMTRA

LOG OF WELL BORING NO. 10

JOB NO. RVT01 DATE 10/10/83

SURFACE ELEVATION 4946.20

TOP OF FILTER PACK 35.00

WELL CASING TYPE 2-IN. SCHED. 40 PVC

COMPLETION WIND RIVER FM. (UPR CONFINED)

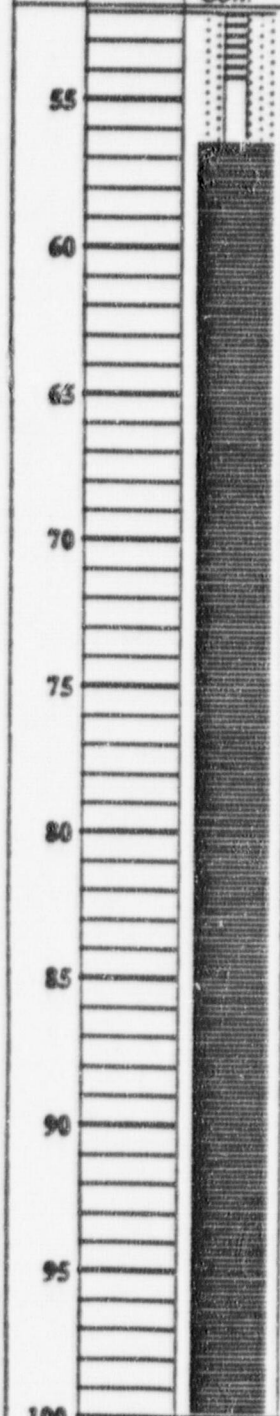
TOTAL DEPTH 100.0 feet

RIG TYPE MIDWAY 1500

BORING TYPE ROTARY W/ REVERT

LOCATION N 24079.70 E 24056.90

DATUM MSL, GROUND SURFACE



Depth	Well Con.	Remarks	Lithology	USCS	Visual Classification
					WIND RIVER FM., Continued.
55		Placed blank sump from 54.5 to 56.5 ft.		ML	SILTSTONE, with fine sand, thick bedded, hard, grey.
60		Installed grout fill from 56.5 to 100 ft.			
				SP	SANDSTONE, very fine grained, thick bedded, mod. hard, grey.
65				CL	SHALE, mod. hard, grey.
				SP	SANDSTONE, very fine grained,
				ML	thin bedded, grey.
70					SILTSTONE, thick bedded, hard, grey.
75				CL	CLAYSTONE, thick bedded, soft t mod. hard, grey.
80				ML	SILTSSTONE, thick bedded, hard, grey.
85					
90					
95					
100					TD AT 100 FEET.

GROUNDWATER

DEPTH	HOUR	DATE
9.6		1-16-85
8.8		4-16-87

JEG TAC TEAM

LOG OF WELL BORING NO. 107

JOB NO. RVT01 DATE 10/12/83
SURFACE ELEVATION 4946.00
TOP OF FILTER PACK 36.50
WELL CASING TYPE 2-IN.SCHED.40 PVC
COMPLETION WIND RIVER FM.(UPR.CONFINED)

TOTAL DEPTH 67.0 feet
RIG TYPE MIDWAY 1500
BORING TYPE ROTARY W/ REVERT
LOCATION N 24092.40 E 24131.40
DATUM MSL, GROUND SURFACE

Depth	Well Con.	Remarks	Lithology	USCS	Visual Classification
0		Installed 2-in PVC cased well. Placed steel protective casing to 3 ft.		SM	ALLUVIUM: SILTY SAND, fine, occasional gravel, greyish brown.
5		Placed cement w/ bentonite grout to 33.5 feet		GW	SANDY GRAVEL, fine to coarse, greyish brown.
10					
15				SM	WIND RIVER FM.: SANDSTONE, silty, weakly cemented, grey.
				SP	SANDSTONE, very fine, thickly bedded, mod. hard, grey. Note: Becoming hard to very hard at 19.5 ft. Note: Occasional soft zone interbedded in hard strata.
20					
25				ML	SILTSTONE, sandy, thickly bedded, very hard, grey.
30		Placed bentonite pellet seal from 33.5 to 36.5 feet.			
				CL	SHALE, mod. hard, grey.
35		Placed filter pack of concrete sand from 36.5 to 56.5 ft.		ML	SILTSTONE, sandy, thin bedded, hard, grey.
				CL	SHALE, mod. hard, grey.
				ML	SILTSTONE, sandy, thin bedded, hard, grey.
40				SP	SANDSTONE, very fine, thck bedded, mod. hard, grey.
45					
50		Placed well screen, 010" slot, from 49.5 to 54.5 feet.			

GROUNDWATER

DEPTH	HOUR	DATE
9.5		1-16-85
9.0		4-16-87

JEG TAC TEAM

PROJECT RIVERTON SITE, WYO.: UMTRA

LOG OF WELL BORING NO. 107

JOB NO. RVT01 DATE 10/12/83

SURFACE ELEVATION 4946.00

TOP OF FILTER PACK 36.50

WELL CASING TYPE 2-IN.SCHED.40 PVC

COMPLETION WIND RIVER FM.(UPR.CONFINED)

TOTAL DEPTH 67.0 feet

RIG TYPE MIDWAY 1500

BORING TYPE ROTARY W/ REVERT

LOCATION N 24092.40 E 24131.40

DATUM MSL, GROUND SURFACE

Depth	Well Con.	Remarks	Lithology	USCS	Visual Classification
					WIND RIVER FM., Continued.
55		Placed blank sump from 54.5 to 56.5 ft.		ML	SILTSTONE, very fine grained, mod. hard, grey.
60		Installed grout fill from 56.5 to 67 ft.		SP	SANDSTONE, very fine, thck bedded, mod. hard, grey.
65		Cored to 67 feet, backfill grout installed then reamed with 6-in. rotary/Revert to 56.5 ft.		CL	CLAYSTONE, mod. hard, grey.
					TD AT 67 FEET.
70					
75					
80					
85					
90					
95					
100					

GROUNDWATER

DEPTH	HOUR	DATE
9.5		1-16-85
9.0		4-16-87

JEG TAC TEAM

PROJECT RIVERTON SITE, WYO., CMTRA

LOG OF WELL BORING NO. 108

JOB NO. RVT01 DATE 10/12/83

SURFACE ELEVATION 4946.20

TOP OF FILTER PACK 35.60

WELL CASING TYPE 2-IN. SCHED. 40 PVC

COMPLETION WIND RIVER FM. (UPR. CONFINED)

TOTAL DEPTH 56.0 feet

RIG TYPE MIDWAY 1500C

BORING TYPE ROTARY W/ REVERT

LOCATION N 24095.40 E 24018.40

DATUM MSL, GROUND SURFACE

Depth	Well Con.	Remarks	Lithology	USCS	Visual Classification
0		Installed 2-in PVC cased well. Placed steel protective casing to 3 ft.		ML	ALLUVIUM: SANDY SILT, nonplastic, lt. brown.
5		Placed cement w/ bentonite grout to 33.5 feet		GW	SANDY GRAVEL, fine to coarse, nonplastic, lt. brown.
10		Last 20 ft. section of 1-in. steel pipe in grouted zone.			
15				ML	WIND RIVER FM.: (SANDSTONE, SILTSTONE & SHALE); UNDIFFERENTIATED.
20					
25					
30		Placed bentonite pellet seal from 33.5 to 35.5 feet.			
35		Placed filter pack of concrete sand from 35.5 to 56.5 ft.			
40					
45					
50		Placed well screen, 010" slot, from 48.5 to 53.5 feet.			

GROUNDWATER

DEPTH	HOUR	DATE
9.6		1-16-85
4.0		4-16-87

JEG TAC TEAM

PROJECT RIVERTON SITE, WYO.: UMTRA

LOG OF WELL BORING NO. 108

JOB NO. RVT01 DATE 10/12/83

SURFACE ELEVATION 4946.20

TOP OF FILTER PACK 35.60

WELL CASING TYPE 2-IN. SCHED 40 PVC

COMPLETION WIND RIVER FM. (UPR CONFINED)

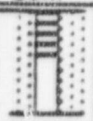
TOTAL DEPTH 56.0 feet

RIG TYPE MIDWAY 1500C

BORING TYPE ROTARY W/ REVERT

LOCATION N 24095.40 E 24018.40

DATUM MSL, GROUND SURFACE

Depth	Well Con.	Remarks	Lithology	USCS	Visual Classification
55		Placed blank sump from 53.5 to 55.5 ft.			
					TD AT 56 FEET.
60					
65					
70					
75					
80					
85					
90					
95					
100					

GROUNDWATER

DEPTH	HOUR	DATE
9.6		1-16-85
4.0		4-16-87

JEG TAC TEAM

PROJECT RIVERTON SITE, WYO.: UMTRA

LOG OF WELL BORING NO. 109

JOB NO. RVT01 DATE 10/13/83

SURFACE ELEVATION 4945.80

TOP OF FILTER PACK 40.00

WELL CASING TYPE 2-IN.SCHED.40 PVC

COMPLETION WIND RIVER FM.(UPR.CONFINED)

TOTAL DEPTH 58.0 feet

RIG TYPE MIDWAY 1500

BORING TYPE ROTARY W/ REVERT

LOCATION N 24219.10 E 24068.20

DATUM MSL, GROUND SURFACE

Depth	Well Con.	Remarks	Lithology	USCS	Visual Classification
0		Installed 2-in PVC cased well. Placed steel protective casing to 3 ft.		ML	ALLUVIUM: SANDY SILT, nonplastic, lt. brown.
5		Placed cement w/ bentonite grout to 37.5 feet		GW	SANDY GRAVEL, fine to coarse, nonplastic, brown.
10					
15					
20				ML	WIND RIVER FM.: UNDIFFERENTIATED, SANDSTONE, SILTSTONE, SHALE.
25					
30		Placed bentonite pellet seal from 37.5 to 40.0 feet.			
35		Placed filter pack of concrete sand from 40.0 to 56.0 ft.			
40					
45					
50		Placed well screen, 010" slot, from 49.0 to 54.0 feet.			

GROUNDWATER

DEPTH	HOUR	DATE
9.7		1-16-85
9.3		4-16-87

JEG TAC TEAM

PROJECT [illegible]

LOG OF WELL BORING NO. 109

JOB NO. RVT01 DATE 10/13/83

SURFACE ELEVATION 4945.80

TOP OF FILTER PACK 40.00

WELL CASING TYPE 2-IN. SCHED. 40 PVC

COMPLETION WIND RIVER FM. (UPR. CONFINED)

TOTAL DEPTH 58.0 feet

RIG TYPE MIDWAY 1500

BORING TYPE ROTARY W/ REVERT

LOCATION N 24219.10 E 24068.20

DATUM MSL, GROUND SURFACE

Depth	Well Con.	Remarks	Lithology	USCS	Visual Classification
55		Placed blank sump from 54.0 to 56.0 ft.			
60		Cave-in fill from 56 to 58 ft.			TD AT 58 FEET.
65					
70					
75					
80					
85					
90					
95					
100					

GROUNDWATER

DEPTH	HOUR	DATE
9.7		1-16-85
9.3		4-16-87

JEG TAC TEAM

PROJECT RIVERTON SITE, WYO.: UMTRA

LOG OF WELL BORING NO. 110

JOB NO. RVT01 DATE 10/17/83

SURFACE ELEVATION 4946.20

TOP OF FILTER PACK 59.00

WELL CASING TYPE 2-IN. SCHED. 40 PVC

COMPLETION WIND RIVER FM. (LWR. CONFINED)

TOTAL DEPTH 72.0 feet

RIG TYPE MIDWAY 1500

BORING TYPE ROTARY W/ REVERT

LOCATION N 24119.50 E 24060.80

DATUM MSL, GROUND SURFACE

Depth	Well Con.	Remarks	Lithology	USCS	Visual Classification
0		Installed 2-in PVC cased well. Placed steel protective casing to 3 ft.		ML	ALLUVIUM: SANDY SILT, nonplastic, lt. brown.
5		Placed cement w/ bentonite grout to 57 feet		GW	SANDY GRAVEL, fine to coarse, nonplastic, brown.
10					
15				SM	WIND RIVER FM.: SANDSTONE, silty, weakly cemented, grey. thick bedded, soft to mod. hard, grey with occ. brown staining.
20					
25					
				ML	SILTSTONE, sandy, thick bedded, hard, grey.
30				CL	SHALE, mod. hard, grey.
				ML	SILTSTONE, sandy, variable bedding thickness, mod. hard, grey.
35					
40				SM	SANDSTONE, silty, very fine, thick bedded, soft to mod. hard, grey.
45				SP	SANDSTONE, fine grained, thick bedded, mod. hard, grey.
50					

GROUNDWATER

DEPTH	HOUR	DATE
9.9		1-16-85
9.4		4-16-87

JEG TAC TEAM

PROJECT RIVERTON SITE, WYO.: UMTRA

LOG OF WELL BORING NO. 1

JOB NO. RVT01 DATE 10/17/83

SURFACE ELEVATION 4946.20

TOP OF FILTER PACK 59.00

WELL CASING TYPE 2-IN. SCHED. 40 PVC

COMPLETION WIND RIVER FM. (LWR. CONFINED)

TOTAL DEPTH 72.0 feet

RIG TYPE MIDWAY 1500

BORING TYPE ROTARY W/ REVERT

LOCATION N 24119.50 E 24060.80

DATUM MSL, GROUND SURFACE

Depth	Well Con.	Remarks	Lithology	USCS	Visual Classification
55				ML	SLTSTONE, sandy, thick bedded, hard, grey.
		Placed bentonite pellet seal from 57 to 59 feet.			
60		Placed filter pack of concrete sand from 59 to 72 ft.		SM	SILTY SANDSTONE, very fine grained, thickly bedded, mod. soft, grey.
65		Placed well screen, 010" slot, from 61.3 to 66.3 feet.			
				CL	SHALE, mod. hard, grey.
70		Placed blank sump from 66.3 to 68.3 ft.		ML	SILTSTONE, sandy, mod. hard, grey.
75					TD AT 72 FEET. CORED TO 72 FEET THEN REAME WITH 6-IN FOR INSTALLATION O WELL.
80					
85					
90					
95					
100					

GROUNDWATER

DEPTH	HOUR	DATE
9.9		1-16-85
9.4		4-16-87

JEG TAC TEAM

PROJECT RIVERTON SITE, WYO.: UMTRA

LOG OF WELL BORING NO. 111

JOB NO. RVT01 DATE 10/19/83

SURFACE ELEVATION 4946.10

TOP OF FILTER PACK 5.00

WELL CASING TYPE 6-IN. SCHED. 40 PVC

COMPLETION WIND RIVER FM. (UPR. CONFINED)

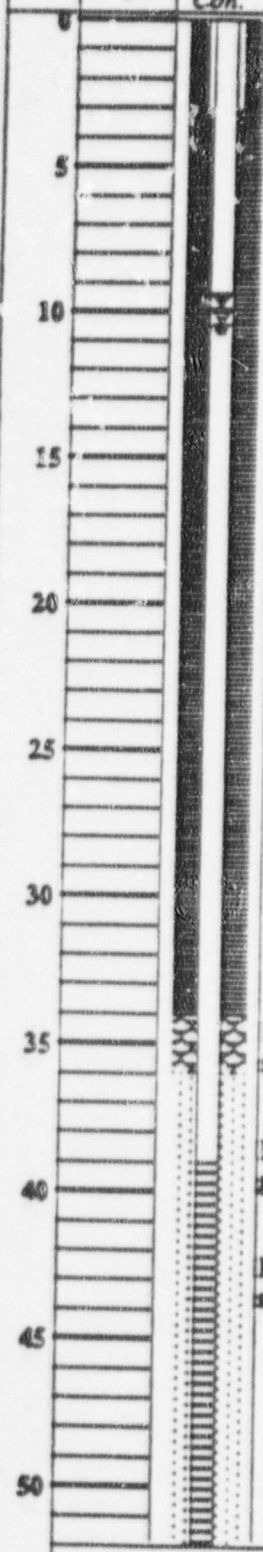
TOTAL DEPTH 56.0 feet

RIG TYPE MIDWAY 1500

BORING TYPE ROTARY W/ REVERT

LOCATION N 24095.90 E 24056.90

DATUM MSL, GROUND SURFACE



Depth	Well Con.	Remarks	Lithology	USCS	Visual Classification
0		Installed 6-in PVC cased well. Placed steel protective casing to 3 ft.		ML	ALLUVIUM: SANDY SILT, nonplastic, lt. brown.
5		Placed cement w/ bentonite grout to 34 feet		SM	SILTY SAND, fine grained. lt. brown.
10				GW	SANDY GRAVEL, fine to coarse grained, greyish brown.
15				SM	WIND RIVER FM.: SANDSTONE, silty, weakly cemented, grey.
20					Note: Becoming thickly bedded, soft to mod. hard, with greyish green laminations, from 20 ft.
25					
30				ML	SILTSTONE, sandy, thick bedded, very hard, grey.
				CL	SHALE, moderately hard, grey.
35		Placed bentonite pellet seal from 34 to 36 feet.		ML	SILTSTONE, sandy, variablie thin to thick bedded, mod. hard, grey.
				CL	SHALE, mod. hard, grey.
40		Placed filter pack of fine gravel from 36 to 56 ft.		ML	SILTSTONE, sandy, some clay, thick bedded, mod. hard, grey.
		Placed well screen, 015" slot, from 39 to 54 feet.		SP	SANDSTONE, very fine grained, thick bedded, mod. hard, grey with occ. brown staining.
45					Note: Change to fine grain size from 45 ft..
50					

GROUNDWATER

DEPTH	HOUR	DATE
10.4		1-16-85
9.9		4-16-87

JEG TAC TEAM

PROJECT RIVERTON SITE, WYO : UMTRA

LOG OF WELL BORING NO. 11

JOB NO. RV101 DATE 10/19/83

SURFACE ELEVATION 4946.10

TOP OF FILTER PACK 5.00

WELL CASING TYPE 6-IN. SCHED. 40 PVC

COMPLETION WIND RIVER FM. (UPR. CONFINED)

TOTAL DEPTH 56.0 feet

RIG TYPE MIDWAY 1500

BORING TYPE ROTARY W/ REVERT

LOCATION N 24095.90 E 24056.90

DATUM MSL, GROUND SURFACE

Depth	Well Con.	Remarks	Lithology	USCS	Visual Classification
55		Placed blank sump from 54 to 56 ft.			WIND RIVER FM., Continued.
				ML	SILTSTONE, with fine sand, thick bedded, hard, grey.
					TD AT 56 FEET.
60					
65					
70					
75					
80					
85					
90					
95					
100					

GROUNDWATER

DEPTH	HOUR	DATE
10.4		1-16-85
9.9		4-16-87

JEG TAC TEAM

PROJECT RIVERTON SITE, WYO.: UMTRA

LOG OF WELL BORING NO. 112

JOB NO. RVT01 DATE 10/12/83

SURFACE ELEVATION 4946.20

DEPTH OF SEAL 5.00

WELL CASING TYPE 6-IN. SCHED.40 PVC

COMPLETION ALLUVIUM/ WIND RIVER FM.

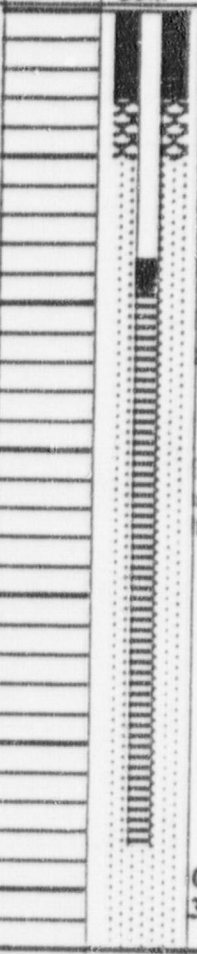
TOTAL DEPTH 32.0 feet

WELL OWNER P. DARR

BORING TYPE ROTARY W/ REVERT

LOCATION N 24092.20 E 24050.80

DATUM MSL, GROUND SURFACE



Depth	Well Con.	Remarks	Lithology	USCS	Visual Classification
0		Installed 6-in PVC cased well. Placed grouted steel protective casing to 3 ft.		ML	ALLUVIUM: SANDY SILT, nonplastic, lt. brown.
5		Placed bentonite pellet seal from 3 to 5 feet.		SM	SILTY SAND, fine, nonplastic, lt. brown.
10		Placed filter pack of fine gravel from 5 to 32 ft.		GW	SANDY GRAVEL, fine to coarse, brown.
15		Placed well screen, 015" slot, from 8.5 to 28.5 feet.		SM	WIND RIVER FM.: SILTY SANDSTONE, very fine, weakly cemented, thick bedded, hard, grey.
20					
25					
30		Gravel fill from 28.5 to 32 ft.		ML	SILTSTONE, sandy hard. NOTE; Log of bedrock taken from nearby hole #106
					TD AT 32 FEET.
35					
40					
45					
50					

GROUNDWATER

DEPTH	HOUR	DATE
9.4		1-16-85
9.1		4-16-87

JEG TAC TEAM

PROJECT RIVERTON SITE, WYO.: UMTRA

LOG OF WELL BORING NO. 11

JOB NO. RVT01 DATE 10/20/83

SURFACE ELEVATION 4946.20

DEPTH OF SEAL 5.00

WELL CASING TYPE 2-IN. SCHED. 40 PVC

COMPLETION WIND RIVER FM. (UPR. CONFINED)

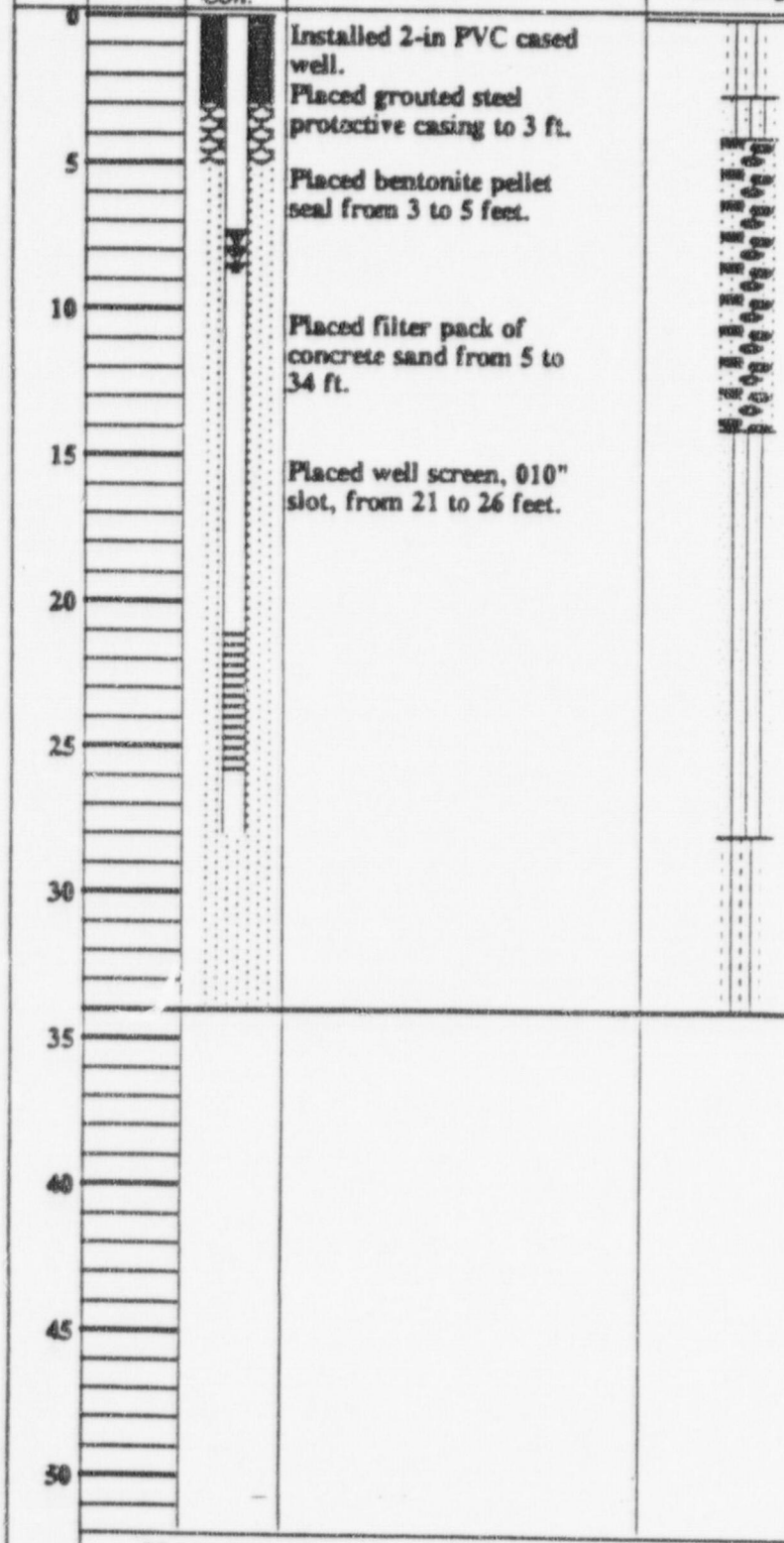
TOTAL DEPTH 34.0 feet

WELL OWNER P. DARR

BORING TYPE ROTARY W/ REVERT

LOCATION N 24089.40 E 24040.30

DATUM MSL, GROUND SURFACE



Depth	Well Con.	Remarks	Lithology	USCS	Visual Classification
0		Installed 2-in PVC cased well. Placed grouted steel protective casing to 3 ft.		ML	ALLUVIUM: SANDY SILT, nonplastic, lt. brown
				SM	SILTY SAND, fine, nonplastic, lt. brown.
5		Placed bentonite pellet seal from 3 to 5 feet.		GW	SANDY GRAVEL, fine to coarse, brown.
10		Placed filter pack of concrete sand from 5 to 34 ft.			
15		Placed well screen, 010" slot, from 21 to 26 feet.		SM	WIND RIVER FM.: SILTY SANDSTONE, very fine, weakly cemented, thick bedded, mod. hard, grey.
20					
25					
30				ML	SILTSTONE, sandy hard. NOTE: Log of bedrock taken from nearby hole #106
35					TD AT 34 FEET.
40					
45					
50					

GROUNDWATER

DEPTH	HOUR	DATE
8.5		1-16-85
7.9		4-16-87

JEG TAC TEAM

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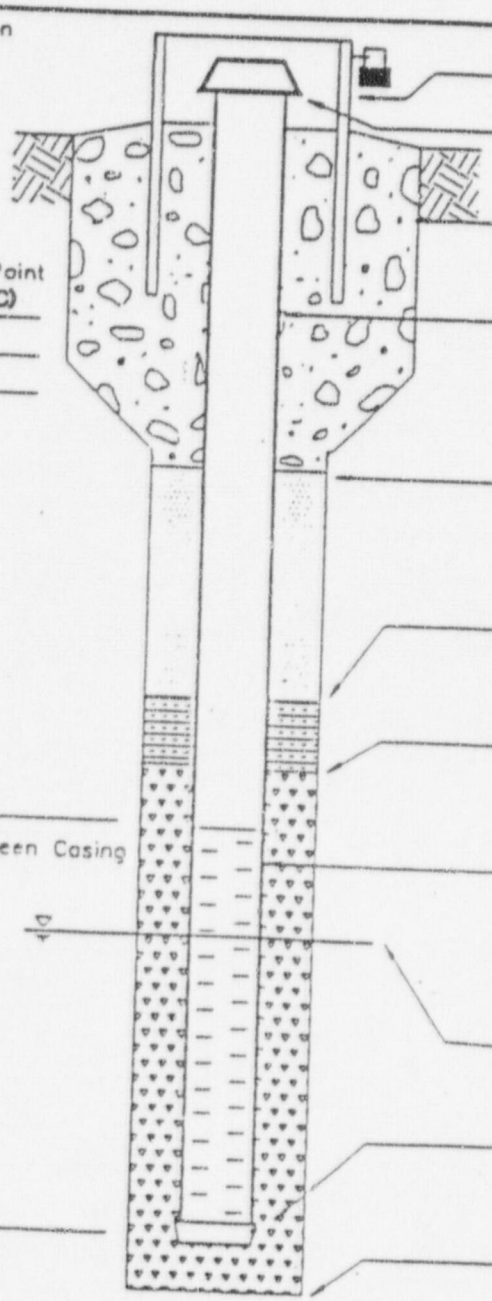
MONITOR WELL INSTALLATION DIAGRAM

Project 138(3)
Location Koch Pit
Contractor
Driller WYDOT
Method Hollow Stem Auger

Monitor Well No. 210
Borehole No. 1
Date 04/25/95
Observed by JMD
Checked by
Sheet 1 of 3



Adjusted Elevation 4940.71
Top of Casing 4940.10
Ground Surface

Note Measuring Point
Top of Casing (PVC)

4930.71
Top of Slotted Screen Casing

4920.71
Bottom of Casing

Locking Steel Protective Housing (Waterproof)
PVC Cap
Concrete Surface Seal
Casing Size . . . . . 2"
Casing Type PVC
Annular Space Seal Type Topsoil
Depth to Annular Space Seal . . . 2'
Bentonite Seal Type Chips
Depth to Bentonite Seal . . . . . 4'
Filter Pack Type Existing Soils
Depth to Filter Pack . . . . . .
Screen Type Factory Perforations
Slot Size . . . . . .
Depth to Top of Screen 4930.71
Depth to Initial Static Water Level 4937.51
Bottom Cap
Depth to Bottom Cap 4920.71
Borehole Diameter . . . . . 6 5/8"
Depth to Bottom of Borehole . . . 4920.10

Surveyed by WYDOT Lander Office Date 6-20-95
Remarks

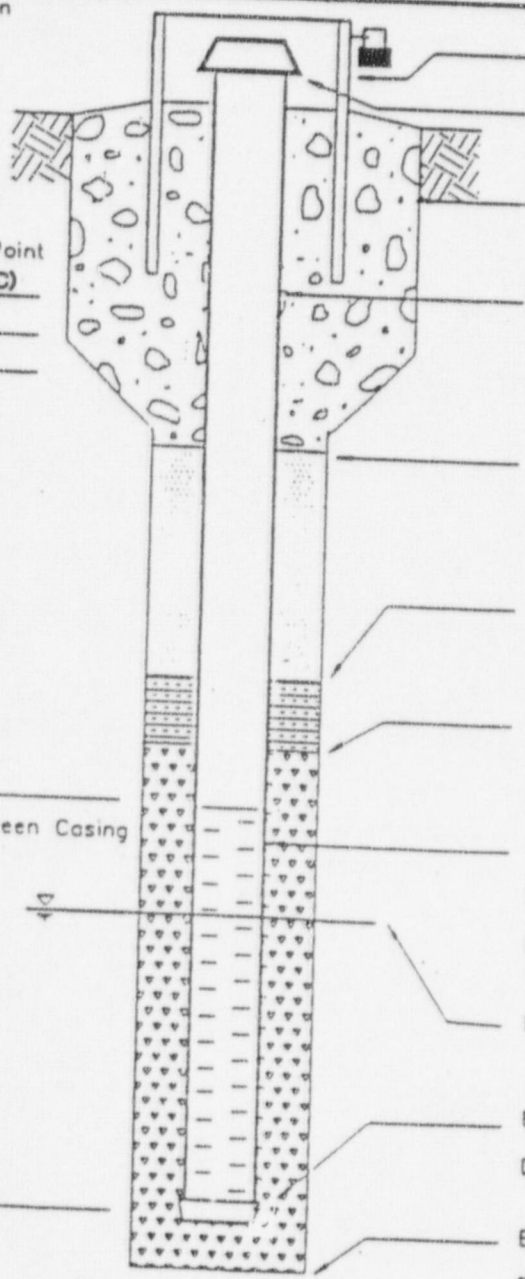
MONITOR WELL INSTALLATION DIAGRAM

Project 138(3)
Location Koch Pit
Contractor
Driller WYDOT
Method Hollow Stem Auger

Monitor Well No. 211
Borehole No. 2
Date 04/25/95
Observed by JMD
Checked by
Sheet 2 of 3

Adjusted Elevation
4941.44
Top of Casing
4940.14
Ground Surface

Note Measuring Point
Top of Casing (PVC)



4931.44
Top of Slotted Screen Casing

4921.44
Bottom of Casing

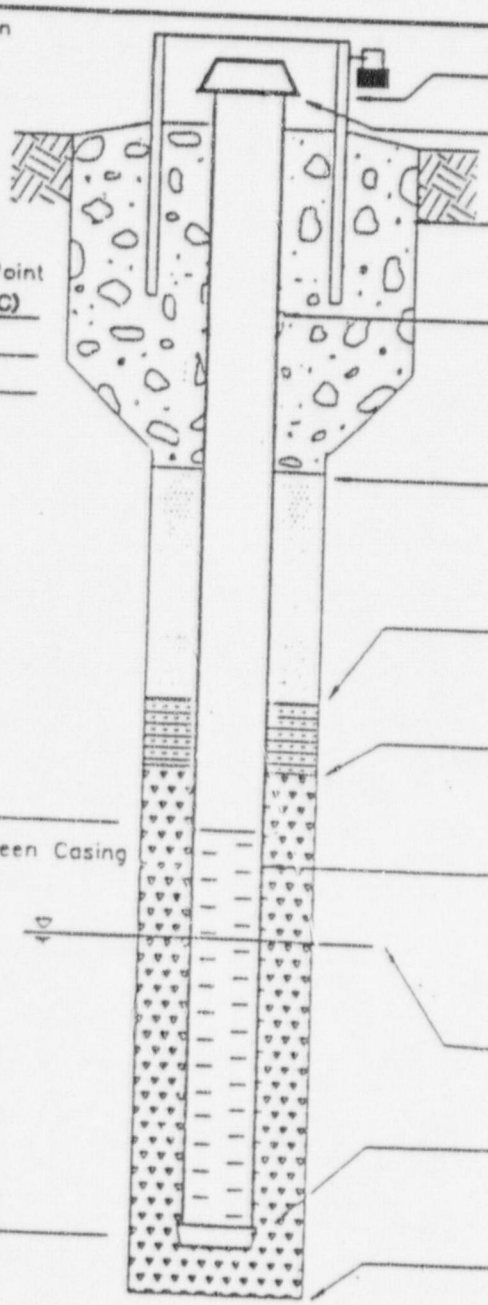
Locking Steel Protective Housing (Waterproof)
PVC Cap
Concrete Surface Seal
Casing Size 2"
Casing Type PVC
Annular Space Seal Type Topsoil
Depth to Annular Space Seal 2'
Bentonite Seal Type Chips
Depth to Bentonite Seal 4.5'
Filter Pack Type Existing Soils
Depth to Filter Pack
Screen Type Factory Perforations
Slot Size
Depth to Top of Screen 4931.44
Depth to Initial Static Water Level 4936.94
Bottom Cap
Depth to Bottom Cap 4921.44
Borehole Diameter 6 5/8"
Depth to Bottom of Borehole 4920.14

Surveyed by WYDOT Lander Office
Remarks
Date 6-20-95

MONITOR WELL INSTALLATION DIAGRAM

Project 138(3)
Location Koch Pit
Contractor
Driller WYDOT
Method Hollow Stem Auger

Monitor Well No. 212
Borehole No. 3
Date 04/25/95
Observed by JMD
Checked by
Sheet 3 of 3



Adjusted Elevation 4944.69
Top of Casing 4943.59
Ground Surface

Note Measuring Point
Top of Casing (PVC)

4934.59
Top of Slotted Screen Casing

4924.59
Bottom of Casing

Locking Steel Protective Housing (Waterproof)
PVC Cap
Concrete Surface Seal
Casing Size . . . . . 2"
Casing Type PVC
Annular Space Seal Type Topsoil
Depth to Annular Space Seal . . . 2'
Bentonite Seal Type Chips
Depth to Bentonite Seal . . . . . 4.5'
Filter Pack Type Existing Soils
Depth to Filter Pack . . . . . .
Screen Type Factory Perforations
Slot Size . . . . . .
Depth to Top of Screen 4934.59
Depth to Initial Static Water Level 4935.69
Bottom Cap
Depth to Bottom Cap 4924.59
Borehole Diameter . . . . . 6"
Depth to Bottom of Borehole . . . 4923.59

DEPARTMENT OF ENVIRONMENTAL QUALITY
WYOMING

Surveyed by WYDOT Lander Office Date 6-20-95
Remarks

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PROJECT RIVERTON SITE, WYO.: UMTRA

LOG OF WELL BORING NO. 701

JOB NO. RVT01 DATE 11/21/84

SURFACE ELEVATION 4930.20

TOP OF FILTER PACK 23.00

WELL CASING TYPE 2.0-I.SCHED.40 PVC

COMPLETION WIND RIVER FM.(LWR AQUITARD)

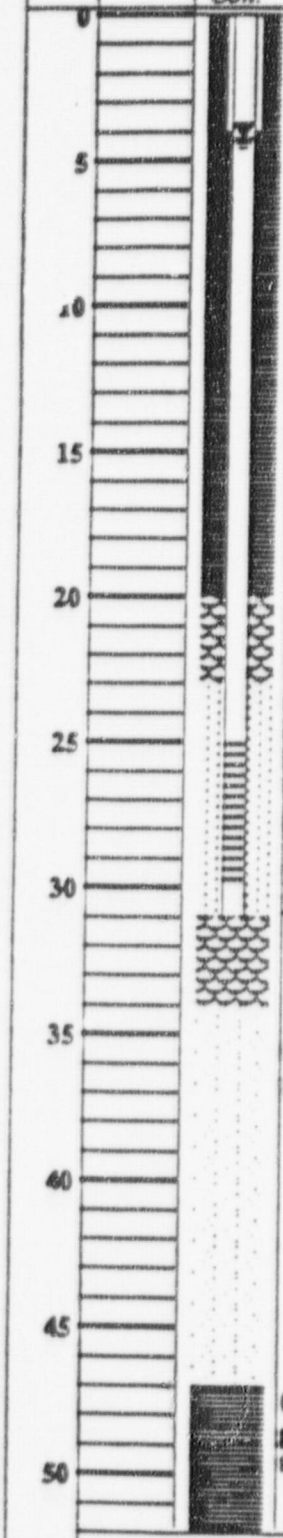
TOTAL DEPTH 228.0 feet

RIG TYPE FAILING CF 1500

BORING TYPE NX CORE, ROTARY REAM

LOCATION N 21007.20 E 27725.90

DATUM MSL, GROUND SURFACE



Depth	Well Con.	Remarks	Lithology	USCS	Visual Classification
0		Hole cored to 201 ft.; reamed to 228 ft.; PVC well installed to 32 feet. Surface casing grouted in place to 20 ft.		CH	ALLUVIUM: SILTY CLAY, some fine to med. sand, med. to high plasticity, dark yellowish brown.
				GP	GRAVELLY COBBLES, var. color.
10		Protective steel casing placed to 4 feet.			
15		Cement grout w/ bentonite placed to 20 feet.			
				SP	WIND RIVER FM.: SANDSTONE, med. to fine, tr. silt, mod. hard, moist, dk. grey.
20		Bentonite pellet seal installed at 20 to 23 feet.		SM	SILTY SANDSTONE, med., hard, grey.
		Filter pack of 20-40 sand installed from 23 to 31 feet. Well screen .010 slot, placed at 25.4 to 30.4 ft.		ML CL	SILTSTONE, thinly bedded, mod. soft, moist, dark grey.
25				ML	SHALE, very thinly bedded, mod. soft, moist, dk. grey.
					SILTSTONE, thinly bedded, mod. soft, grey.
30		Blank sump placed at 30.4 to 32.4 ft.		SM	SANDSTONE, silty, fine to med. mod. hard, grey.
35		Concrete sand fill placed from 31 to 47 ft.			
40					
45					
		Cement/ bentonite grout fill placed from 47 to 228 ft.			
50				CL	SHALE, highly to mod. weathered, dark. grey.

GROUNDWATER

DEPTH	HOUR	DATE
4.3	12:00	11-15-84
4.3	15:00	11-20-84

JEG TAC TEAM

PROJECT RIVERTON SITE, WYO. UMTRA

LOG OF WELL BORING NO. 701

JOB NO. RVT01 DATE 11/21/84

SURFACE ELEVATION 4930.20

TOP OF FILTER PACK 23.00

WELL CASING TYPE 2.0-I.SCHED 40 PVC

COMPLETION WIND RIVER FM. (LWR AQUITARD)

TOTAL DEPTH 228.0 feet

RIG TYPE FAILING CF 1500

BORING TYPE NX CORE, ROTARY REAM

LOCATION N 21007.20 E 27725.90

DATUM MSL, GROUND SURFACE

Depth	Well Con.	Remarks	Lithology	USCS	Visual Classification
55					**WIND RIVER FM.**, Continued. Note: Becoming sandy with color change to lt. grey.
60					
65				SM	SANDSTONE, silty, fine, grey.
70				CL	SHALE, mod. hard, grey
75					
80					
85				SM	SANDSTONE, fine, weakly cemented, soft to mod. soft, dark grey
90					
95					Note: Color change from dk. grey to black.
100					

GROUNDWATER

DEPTH	HOUR	DATE
4.3	12:00	11-15-84
4.3	15:00	11-20-84

JEG TAC TEAM

PROJECT RIVERTON SITE, WYO.: UMTRA

LOG OF WELL BORING NO. 701

JOB NO. RVT01 DATE 11/21/84

SURFACE ELEVATION 4930.20

TOP OF FILTER PACK 23.00

WELL CASING TYPE 2.0-I.SCHED.40 PVC

COMPLETION WIND RIVER FM. (LWR AQUITARD)

TOTAL DEPTH 228.0 feet

RIG TYPE FALLING CF 1500

BORING TYPE NX CORE, ROTARY REAM

LOCATION N 21007.20 E 27725.90

DATUM MSL, GROUND SURFACE

Depth	Well Con.	Remarks	Lithology	USCS	Visual Classification
105					**WIND RIVER FM.**, Continued. Note: Grain size changing from fine to medium to coarse, weakly cemented, soft, dk. grey.
110					
				CH	SHALE, mod. hard, very dark grey.
115					
120					Note: Thin layer of green shale (bentonitic layer ?).
125					
130					
135					Note: Bentonite in shale at 134 ft.
140					
145					
150					Note: Color change to lt. grey.
155					

GROUNDWATER

DEPTH	HOUR	DATE
4.3	12:00	11-15-84
4.3	15:00	11-20-84

JEG TAC TEAM

PROJECT RIVERTON SITE, WYO.: UMTRA

LOG OF WELL BORING NO. 701

JOB NO. RVT01 DATE 11/21/84

SURFACE ELEVATION 4930.20

TOP OF FILTER PACK 23.00

WELL CASING TYPE 2.0-I.SCHED.40 PVC

COMPLETION WIND RIVER FM.(LWR AQUITARD)

TOTAL DEPTH 228.0 feet

RIG TYPE FAILING CF 1500

BORING TYPE NX CORE, ROTARY REAM

LOCATION N 21007.20 E 27725.90

DATUM MSL, GROUND SURFACE

Depth	Well Con.	Remarks	Lithology	USCS	Visual Classification
					WIND RIVER FM., Continued.
160				SP	SANDSTONE, fine to med., moderately soft, lt. grey.
165				CH	SHALE, high plasticity, lt. grey.
170					
175					
180					
185				SM	SANDSTONE, silty, fine, mod. soft, lt. grey.
				CH	SHALE, mod. soft, grey.
190					
195				SM	SANDSTONE, silty, very fine, banded and varved, lt. grey.
				CH	SHALE, with thin sandstone lenses of sandstone, lt. grey.
200				SM	SANDSTONE, med. to fine, silty, dark grey.
				SP	Note: After coring to 201 ft. hole reamed to 228 ft. with out logging beyond core depth.
205					

GROUNDWATER

DEPTH	HOUR	DATE
4.3	12:00	11-15-84
4.3	15:00	11-20-84

JEG TAC TEAM

PROJECT RIVERTON SITE, WYO.: UMTRA

LOG OF WELL BORING NO. 701

JOB NO. RVT01 DATE 11/21/84

SURFACE ELEVATION 4930.20

TOP OF FILTER PACK 23.00

WELL CASING TYPE 2.0-I. SCHED 40 PVC

COMPLETION WIND RIVER FM. (LWR AQUITARD)

TOTAL DEPTH 228.0 feet

RIG TYPE FAILING CF 1500

BORING TYPE NX CORE, ROTARY REAM

LOCATION N 21007.20 E 27725.90

DATUM MSL, GROUND SURFACE

Depth	Well Con.	Remarks	Lithology	USCS	Visual Classification
210					
215					
220					
225					
230					LOG FROM 201 TO 228 NOT CONFIRMED. TD AT 228 FT. HOLE BACKFILLED TO SET WELL AT 32 FEET.
235					
240					
245					
250					
255					
260					

GROUNDWATER

DEPTH	HOUR	DATE
4.3	12:00	11-15-84
4.3	15:00	11-20-84

JEG TAC TEAM

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PROJECT RIVERTON SITE, WYO.: UMTRA

LOG OF WELL BORING NO. 702

JOB NO. RVT01 DATE 12/04/84

SURFACE ELEVATION 4930.20

DEPTH OF SEAL 35.50

WELL CASING TYPE 2.0-IN.SCHED.40 PVC

COMPLETION WIND RIVER FM.(CONFINED)

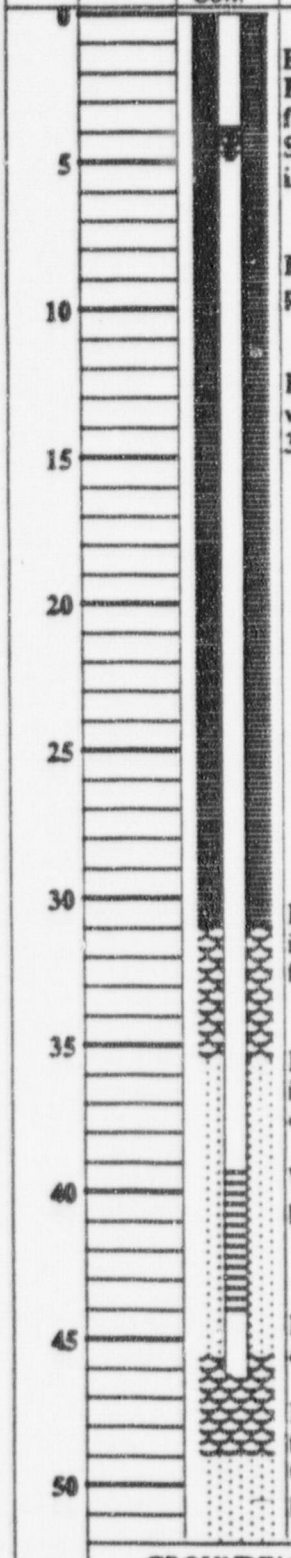
TOTAL DEPTH 215.0 feet

WELL OWNER G.SMITH

BORING TYPE ROTARY MUD

LOCATION N 21012.90 E 27736.90

DATUM MSL, GROUND SURFACE



Depth	Well Con.	Remarks	Lithology	USCS	Visual Classification
0		Hole drilled to 215 ft.; PVC well installed to 46 feet. Surface casing grouted in-place to 20 ft. Protective steel casing placed to 4 feet. Backfill of cement grout w/ bentonite placed to 31.5 feet.		CH	ALLUVIUM: SILTY CLAY, trace fine to med. sand, med. to high plasticity, brown.
				GW	SANDY COBBLES, with fine to coarse gravel.
				CL	WIND RIVER FM.: CLAYSTONE, some medium to fin sand, med. hard, dark grey.
30		Bentonite pellet seal installed at 31.5 to 35.5 feet.		SP	SANDSTONE, fine, mod. hard, grey.
35		Filter pack of 20-40 sand installed from 35.5 to 45.5 feet. Well screen, .010 slot, placed at 39.2 to 44.2 ft.			
45		Blank sump placed at 44.2 to 46.2 ft. Bentonite pellets placed from 45.5 to 49 ft. Concrete sand fill placed from 49 to 53 ft.		SM	SILTY SANDSTONE, fine, mod. hard. grey.
50				CL	SHALE, with interbedded claystone and siltstone, mod. hard, dk. grey.

GROUNDWATER

DEPTH	HOUR	DATE
4.7		1-14-85
4.4		4-17-87

JEG TAC TEAM

PROJECT RIVERTON SITE, WYO.: UMTRA

LOG OF WELL BORING NO. 702

JOB NO. RVT01 DATE 12/04/84

SURFACE ELEVATION 4930.20

TOP OF FILTER PACK 35.50

WELL CASING TYPE 2.0-IN.SCHED.40 PVC

COMPLETION WIND RIVER FM.(CONFINED)

TOTAL DEPTH 215.0 feet

RIG TYPE FALLING CF 1500

BORING TYPE ROTARY MUD

LOCATION N 21012.90 E 27736.90

DATUM MSL, GROUND SURFACE

Depth	Well Con.	Remarks	Lithology	USCS	Visual Classification
55		Cement/ bentonite grout fill placed from 53 to 215 ft.			WIND RIVER FM., Continued.
60					Note: Predominately shale.
65					
70					
75					Note: Occasional thin fine sandstone layer.
80					
85				SP	SANDSTONE, fine to med., weakly cemented, grey to white.
90					
95					
100					

GROUNDWATER

DEPTH	HOUR	DATE

JEG TAC TEAM

PROJECT [illegible]

LOG OF WELL BORING NO. 70

JOB NO. RVT01 DATE 12/04/84

SURFACE ELEVATION 4930.20

TOP OF FILTER PACK 35.50

WELL CASING TYPE 2.0-IN.SCHED.40 PVC

COMPLETION WIND RIVER FM.(CONFINED)

TOTAL DEPTH 215.0 feet

RIG TYPE FAILING CF 1500

BORING TYPE ROTARY MUD

LOCATION N 21012.90 E 27736.90

DATUM MSL, GROUND SURFACE

Depth	Well Con.	Remarks	Lithology	USCS	Visual Classification
105					**WIND RIVER FM.**, Continued.
110					
115				CL	SHALE to claystone, grey to dk. grey.
120					
125					
130					
135					
140					
145					
150					
155					

GROUNDWATER

DEPTH	HOUR	DATE

JEG TAC TEAM

PROJECT RIVERTON SITE, WYO.: UMTRA

LOG OF WELL BORING NO. 702

JOB NO. RV701 DATE 12/04/84

SURFACE ELEVATION 4930.20

TOP OF FILTER PACK 35.50

WELL CASING TYPE 2.0-IN.SCHED.40 PVC

COMPLETION WIND RIVER FM.(CONFINED)

TOTAL DEPTH 215.0 fem

RIG TYPE FAILING CF 1500

BORING TYPE ROTARY MUD

LOCATION N 21012.90 E 27736.90

DATUM MSL, GROUND SURFACE

Depth	Well Con.	Remarks	Lithology	USCS	Visual Classification
					WIND RIVER FM., Continued.
160				SM	SILTY SANDSTONE, medium grained, grey.
165				CH	SHALE, mod. weathered, little to some fine sand, grey to dk. grey.
170					
175					
180					Note: some zones with high plasticity.
185					
190					
195					
				SM	SILTY SANDSTONE, fine, grey to lt. grey.
200				SP	SANDSTONE, medium to coarse grained, lt. grey.
205					

GROUNDWATER

DEPTH	HOUR	DATE

JEG TAC TEAM

PROJECT [illegible]

LOG OF WELL BORING NO. 70

JOB NO. RVT01 DATE 12/04/84

SURFACE ELEVATION 4930.20

TOP OF FILTER PACK 35.50

WELL CASING TYPE 2.0-IN. SCHED. 40 PVC

COMPLETION WIND RIVER FM. (CONFINED)

TOTAL DEPTH 215.0 feet

RIG TYPE FAILING CF 1500

BORING TYPE ROTARY MUD

LOCATION N 21012.90 E 27736.90

DATUM MSL, GROUND SURFACE

	Depth	Well Con.	Remarks	Lithology	USCS	Visual Classification
210						
215						TD AT 213 FEET.
220						
225						
230						
235						
240						
245						
250						
255						
260						

GROUNDWATER

DEPTH	HOUR	DATE

JEG TAC TEAM

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PROJECT RIVERTON SITE, WYO.: UMTRA

LOG OF WELL BORING NO. 703

JOB NO. RVT01 DATE 12/04/83

SURFACE ELEVATION 4930.20

TOP OF FILTER PACK 87.00

WELL CASING TYPE 2.0-IN. SCHED. 40 PVC

COMPLETION WIND RIVER FM. (LWR CONFINED)

TOTAL DEPTH 214.0 feet

RIG TYPE FALLING CF 1500

BORING TYPE ROTARY MUD

LOCATION N 21000.80 E 27748.60

DATUM MSL, GROUND SURFACE

Depth	Well Con.	Remarks	Lithology	USCS	Visual Classification
0		Hole drilled to 210 ft.; PVC well installed to 100 feet. Surface casing grouted in-place to 19 ft. Protective steel casing placed to 4 feet. Backfill of cement grout w/ bentonite placed to 84 feet.		CH	ALLUVIUM: SILTY CLAY, with fine sand, dark yellowish brown.
				GW	SANDY COBBLES, with f-c gravel
				CL	WIND RIVER FM., Continued. CLAYSTONE, trace med. sand, grey.
				CL	SHALE, mod. hard, grey.

GROUNDWATER

DEPTH	HOUR	DATE
1.4		1-14-85
3.9		4-17-87

JEG TAC TEAM

PROJECT RIVERTON SITE, WYO.: UMTRA

LOG OF WELL BORING NO. 703

JOB NO. RVT01 DATE 12/04/83

SURFACE ELEVATION 4930.20

TOP OF FILTER PACK 87.00

WELL CASING TYPE 2.0-IN.SCHED.40 PVC

COMPLETION WIND RIVER FM.(LWR CONFINED)

TOTAL DEPTH 214.0 feet

RIG TYPE FAILING CF 1500

BORING TYPE ROTARY MUD

LOCATION N 21000.80 E 27748.60

DATUM MSL, GROUND SURFACE

Depth	Well Con.	Remarks	Lithology	USCS	Visual Classification
55					**WIND RIVER FM.**, Continued.
60					
65					
70					
75					Note: Shale is interbedded with thin claystone and siltstone layers from 75 feet.
80					
85		Bentonite pellet seal installed at 84 to 87 feet.		SP	SANDSTONE, mod. soft, grey.
90		Filter pack of 20-40 sand installed from 87 to 98 feet.			
95		Well screen, .010 slot, placed at 93 to 98 ft.			
100		Blank sump placed at 98 to 100 ft.			

GROUNDWATER

DEPTH	HOUR	DATE
1.4		1-14-85
3.9		4-17-87

JEG TAC TEAM

PROJECT RIVERTON SITE, WYO.: UMTRA

LOG OF WELL BORING NO. 703

JOB NO. RVT01 DATE 12/04/83

SURFACE ELEVATION 4930.20

TOP OF FILTER PACK 87.00

WELL CASING TYPE 2.0-IN.SCHED.40 PVC

COMPLETION WIND RIVER FM.(LWR CONFINED)

TOTAL DEPTH 214.0 feet

RIG TYPE FAILING CF 1500

BORING TYPE ROTARY MUD

LOCATION N 21000.80 E 27748.60

DATUM MSL, GROUND SURFACE

Depth	Well Con.	Remarks	Lithology	USCS	Visual Classification
105		Cement/ bentonite grout fill placed from 98 to 210 ft.			WIND RIVER FM., Continued.
110					
115				CL	SHALE, with interbedded claystone and siltsone seams, trace sand, grey.
120					
125					
130					
135					
140					
145					
150					
155					

GROUNDWATER

DEPTH	HOUR	DATE
1.4		1-14-85
3.9		4-17-87

JEG TAC TEAM

PROJECT RIVERTON SITE, WYO.: UMTRA

LOG OF WELL BORING NO. 703

JOB NO. RVT01 DATE 12/04/83

SURFACE ELEVATION 4930.20

TOP OF FILTER PACK 87.00

WELL CASING TYPE 2.0-IN. SCHED. 40 PVC

COMPLETION WIND RIVER FM. (LWR CONFINED)

TOTAL DEPTH 214.0 feet

RIG TYPE FALLING CF 1500

BORING TYPE ROTARY MUD

LOCATION N 21000.80 E 27748.60

DATUM MSL, GROUND SURFACE

Depth	Well Con.	Remarks	Lithology	USCS	Visual Classification
160					**WIND RIVER FM.**, Continued.
				SM	SILTY SANDSTONE, fine, mod. hard, grey to black.
165				CL	SHALE, with interbedded claystone and siltstone, grey.
170					
175					
180					
185					
190					
195					
				SP	SANDSTONE, fine to coarse, mod. hard, grey.
200					
205					

GROUNDWATER

DEPTH	HOUR	DATE
1.4		1-14-85
3.9		4-17-87

JEG TAC TEAM

PROJECT _____

LOG OF WELL BORING NO. 703

JOB NO. RVT01 DATE 12/04/83

SURFACE ELEVATION 4930.20

TOP OF FILTER PACK 87.00

WELL CASING TYPE 2.0-IN. SCHED. 40 PVC

COMPLETION WIND RIVER FM. (LWR CONFINED)

TOTAL DEPTH 214.0 feet

RIG TYPE FAILING CF 1500

BORING TYPE ROTARY MUD

LOCATION N 21000.80 E 27748.60

DATUM MSL, GROUND SURFACE

Depth	Well Con.	Remarks	Lithology	USCS	Visual Classification
210					TD AT 210 FEET.
215					
220					
225					
230					
235					
240					
245					
250					
255					
260					

GROUNDWATER

DEPTH	HOUR	DATE
1.4		1-14-85
3.9		4-17-87

JEG TAC TEAM

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LOG OF WELL BORING NO. 7

JOB NO. RVT01 DATE 12/07/84

SURFACE ELEVATION 4935.10

TOP OF FILTER PACK 30.50

WELL CASING TYPE 2.0-IN.SCHED.40 PVC

COMPLETION WIND RIVER FM.(CONFINED)

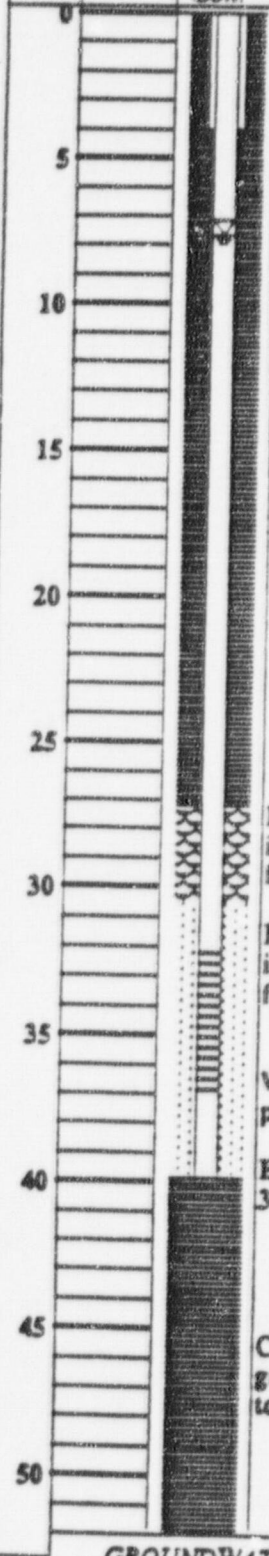
TOTAL DEPTH 215.0 feet

RIG TYPE FAILING CF 1500

BORING TYPE ROTARY MUD

LOCATION N 22396.60 E 27033.80

DATUM MSL, GROUND SURFACE



Depth	Well Con.	Remarks	Lithology	USCS	Visual Classification
0		Hole drilled to 210 ft.; PVC well installed to 39 feet. Surface casing grouted in-place to 20.5 ft.		SM GP	ALLUVIUM: SILTY SAND, fine, nonplastic, lt brown. GRAVELLY COBBLES.
15		Backfill of cement grout w/ bentonite placed to 27.2 feet.		ML	WIND RIVER FM.: SILTSTONE, trace fine sand, lt. grey.
30		Bentonite pellet seal installed at 27.2 to 30.5 feet. Filter pack of 20-40 sand installed from 30.5 to 39 feet.		SM	SILTY SANDSTONE, fine to med. mod. cemented, grey.
40		Well screen, .010 slot, placed at 31.2 to 36.2 ft. Blank sump placed at 36.2 to 39 ft.		CL	SHALE, with interbedded siltstone and claystone seams, grey to dk. grey.
50		Cement/ bentonite grout fill placed from 39 to 210 ft.			

GROUNDWATER

DEPTH	HOUR	DATE
7.7		1-16-85

JEG TAC TEAM

PROJECT RIVERTON SITE, WYO.: UMTRA

LOG OF WELL BORING NO. 704

JOB NO. RVT01 DATE 12/07/84

SURFACE ELEVATION 4935.10

TOP OF FILTER PACK 30.50

WELL CASING TYPE 2.0-IN. SCHED. 40 PVC

COMPLETION WIND RIVER FM. (CONFINED)

TOTAL DEPTH 215.0 feet

RIG TYPE FAILING CF 1500

BORING TYPE ROTARY MUD

LOCATION N 22396.60 E 27033.80

DATUM MSL, GROUND SURFACE

Depth	Well Con.	Remarks	Lithology	USCS	Visual Classification
55					WIND RIVER FM., Continued.
60					
65					
70					
75					
80					
85					
90					
95					
100				SM	SILTY SANDSTONE, very fine, mod. cemented, grey.

GROUNDWATER

DEPTH	HOUR	DATE
7.7		1-16-85

JEG TAC TEAM

LOG OF WELL BORING NO. 70

JOB NO. RVT01 DATE 12/07/84
SURFACE ELEVATION 4935.10
TOP OF FILTER PACK 30.50
WELL CASING TYPE 2.0-IN. SCHED. 40 PVC
COMPLETION WIND RIVER FM. (CONFINED)

TOTAL DEPTH 215.0 feet
RIG TYPE FAILING CF 1500
BORING TYPE ROTARY MUD
LOCATION N 22396.60 E 27033.80
DATUM MSL, GROUND SURFACE

Depth	Well Con.	Remarks	Lithology	USCS	Visual Classification
105				SP	SANDSTONE, fine to med. grained weakly cemented, friable, grey.
					WIND RIVER FM., Continued.
110					
115					
				CL	SHALE, with interbedded claystone and siltstone, mod. hard, grey.
120				CH	SHALE, with zones of high plasticity.
125					
130					
135					
140					
145					
150					
155					

GROUNDWATER

DEPTH	HOUR	DATE
7.7		1-16-85

JEG TAC TEAM

PROJECT RIVERTON SITE, WYO.: UMTRA

LOG OF WELL BORING NO. 704

JOB NO. RVT01 DATE 12/07/84

SURFACE ELEVATION 4935.10

TOP OF FILTER PACK 30.50

WELL CASING TYPE 2.0-IN.SCHED.40 PVC

COMPLETION WIND RIVER FM.(CONFINED)

TOTAL DEPTH 215.0 feet

RIG TYPE FAILING CF 1500

BORING TYPE ROTARY MUD

LOCATION N 22396.60 E 27033.80

DATUM MSL, GROUND SURFACE

Depth	Well Con.	Remarks	Lithology	USCS	Visual Classification
160					WIND RIVER FM., Continued.
165				SP	SANDSTONE, fine to medium grained, weakly cemented, mod. soft, grey. Note: increasing silt content from 167 ft.
170					
175					
180				CL	SHALE, with interbedded claystone and siltstone seams, grey.
185					
190					
195					
200				SP	SANDSTONE, medium grained, white to grey.
205					

GROUNDWATER

DEPTH	HOUR	DATE
7.7		1-16-85

JEG TAC TEAM

PROJECT [illegible]

LOG OF WELL BORING NO. 70

JOB NO. RVT01 DATE 12/07/84

SURFACE ELEVATION 4935.10

TOP OF FILTER PACK 30.50

WELL CASING TYPE 2.0-IN. SCHED. 40 PVC

COMPLETION WIND RIVER FM. (CONFINED)

TOTAL DEPTH 215.0 feet

RIG TYPE FAILING CF 1500

BORING TYPE ROTARY MUD

LOCATION N 22396.60 E 27033.80

DATUM MSL, GROUND SURFACE

	Depth	Well Con.	Remarks	Lithology	USCS	Visual Classification
210						WIND RIVER FM., Continued.
						TD AT 211 FEET.
215						
220						
225						
230						
235						
240						
245						
250						
255						
260						

GROUNDWATER

DEPTH	HOUR	DATE
7.7		1-16-85

JEG TAC TEAM

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PROJECT RIVERTON SITE, WYO.: UMTRA

LOG OF WELL BORING NO. 705

JOB NO. RV101 DATE 12/03/84

SURFACE ELEVATION 4930.10

TOP OF FILTER PACK 35.50

WELL CASING TYPE 6.0-IN.SCHED.40 PVC

COMPLETION WIND RIVER FM.(CONFINED)

TOTAL DEPTH 50.0 feet

RIG TYPE FALING CF 1500

BORING TYPE ROTARY MUD/PUMP TEST

LOCATION N 21000.80 E 27735.80

DATUM MSL, GROUND SURFACE

Depth	Well Con.	Remarks	Lithology	USCS	Visual Classification
0		Hole drilled to 50 ft.; PVC well installed to 50 feet. Surface casing grouted in-place to 19.9 ft.		CH	ALLUVIUM: CLAY, little fine sand, dark yellowish brown.
5				GW	SANDY COBBLES.
10		Protective steel casing placed to 4 feet.			
15		Backfill of cement grout w/ bentonite placed to 33.5 feet.			
20				CH SP	WIND RIVER FM.: CLAYSTONE, trace med. to fine sand, medium to high plasticity, mod. weathered, moist, dk grey.
25				ML	SANDSTONE, medium to fine, trace silt, hard, dk. grey. SILTSTONE, thinly bedded, mod. soft, dk. grey.
30					
35		Bentonite pellet seal installed at 33.5 to 35.5 feet. Filter pack of 20-40 sand installed from 35.5 to 50 feet.		SM	SILTY SANDSTONE, fine to med., mod. soft, some color banding, grey.
40		Well screen, .010 slot, placed at 38 to 48 ft.			
45					
50		Blank sump placed at 48 to 50 ft.			TD AT 50 FEET.

GROUNDWATER

DEPTH	HOUR	DATE
4.1		5-28-85
4.0		4-17-87

JEG TAC TEAM

PROJECT RIVERTON SITE, WYO.: UMTRA

LOG OF WELL BORING NO. 706

JOB NO. RVT01 DATE 11/29/84

SURFACE ELEVATION 4931.10

DEPTH OF SEAL 12.80

WELL CASING TYPE 2.0-IN.SCHED.40 PVC

COMPLETION ALLUVIUM

TOTAL DEPTH 21.5 feet

WELL OWNER G. SMITH

BORING TYPE ROTARY MUD

LOCATION N 20033.90 E 28160.60

DATUM MSL, GROUND SURFACE



Depth	Remarks	Lithology	USCS	Visual Classification
0	PVC well installed to 20.0 feet.		CL	ALLUVIUM: SILTY CLAY, trace fine sand, medium plasticity, brown.
5	Protective steel casing placed to 3 feet.		SC	CLAYEY SAND, med. plasticity, brown.
10	Backfill of cement grout w/ bentonite placed to 8.2 feet.		GP	GRAVELLY COBBLES, brown to white.
15	Bentonite pellet seal installed at 8.2 to 12.8 feet.			
	Filter pack of concrete sand installed from 12.8 to 21.5 feet.		SM	WIND RIVER FM.: SILTY SANDSTONE, medium, grey.
20	Well screen, .010 slot, placed at 13.0 to 18.0 ft.			TD AT 20 FEET.
	Blank sump placed at 18.0 to 20.0 ft.			
25				
30				
35				
40				
45				
50				

GROUNDWATER

DEPTH	HOUR	DATE
6.7		1-13-85

JEG TAC TEAM

PROJECT RIVERTON SITE, WYO.: UMTRA

LOG OF WELL BORING NO. 707

JOB NO. RVT01 DATE 12/04/84

SURFACE ELEVATION 4930.40

TOP OF FILTER PACK 7.50

WELL CASING TYPE 2.0-IN.SCHED.40 PVC

COMPLETION ALLUVIUM

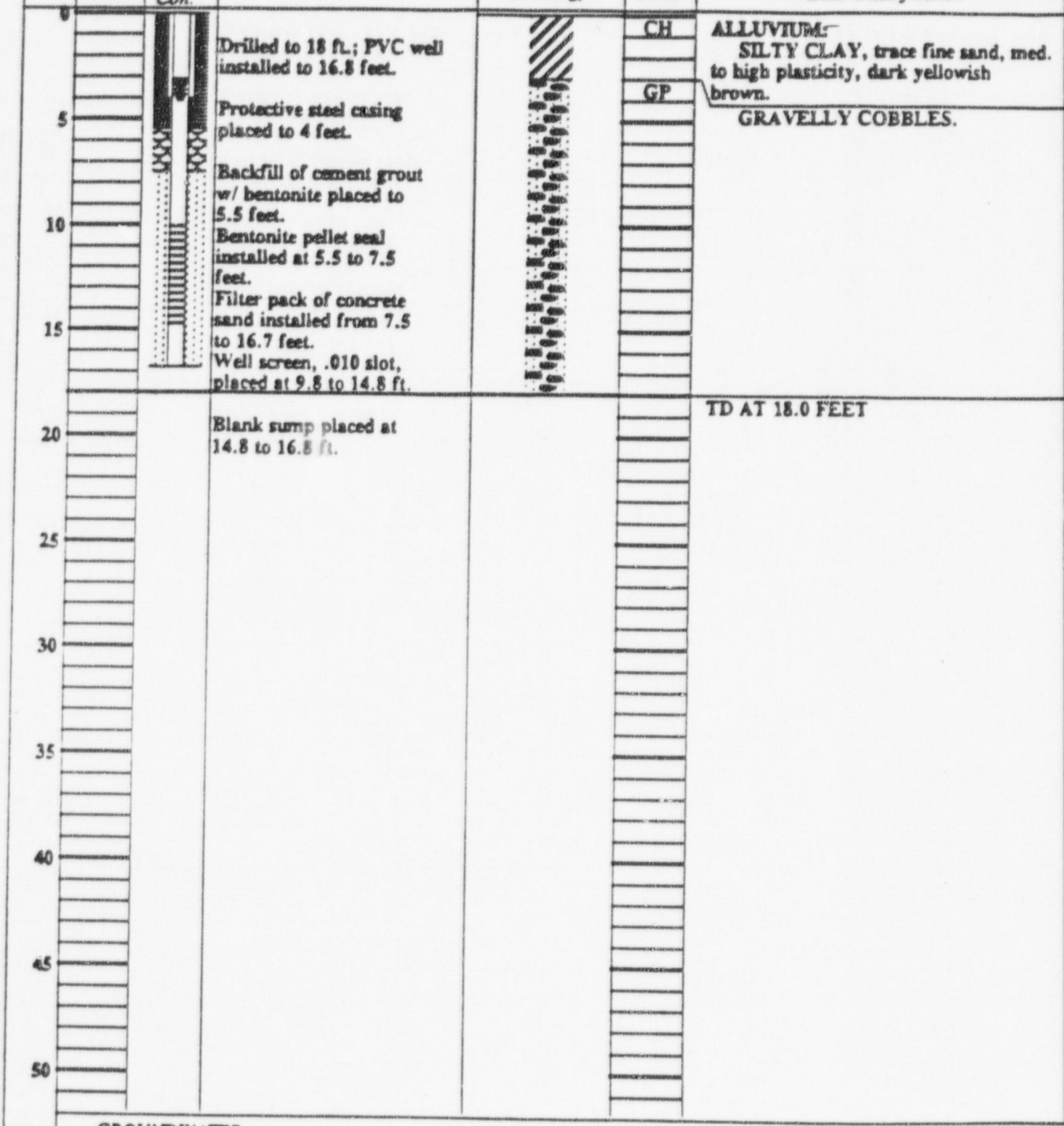
TOTAL DEPTH 18.0 feet

RIG TYPE FAILING CF 1500

BORING TYPE ROTARY, REVERT MUD

LOCATION N 21008.40 E 27745.20

DATUM MSL, GROUND SURFACE



GROUNDWATER

DEPTH	HOUR	DATE
3.8		1-14-85
3.6		4-17-87

JEG TAC TEAM

PROJECT RIVERTON SITE, WYO.: UMTRA

LOG OF WELL BORING NO. 708

JOB NO. RVT01 DATE 12/27/84

SURFACE ELEVATION 4930.30

DEPTH OF SEAL 25.50

WELL CASING TYPE 2.0-IN.SCHED.40 PVC

COMPLETION WIND RIVER FM.(AQUITARD)

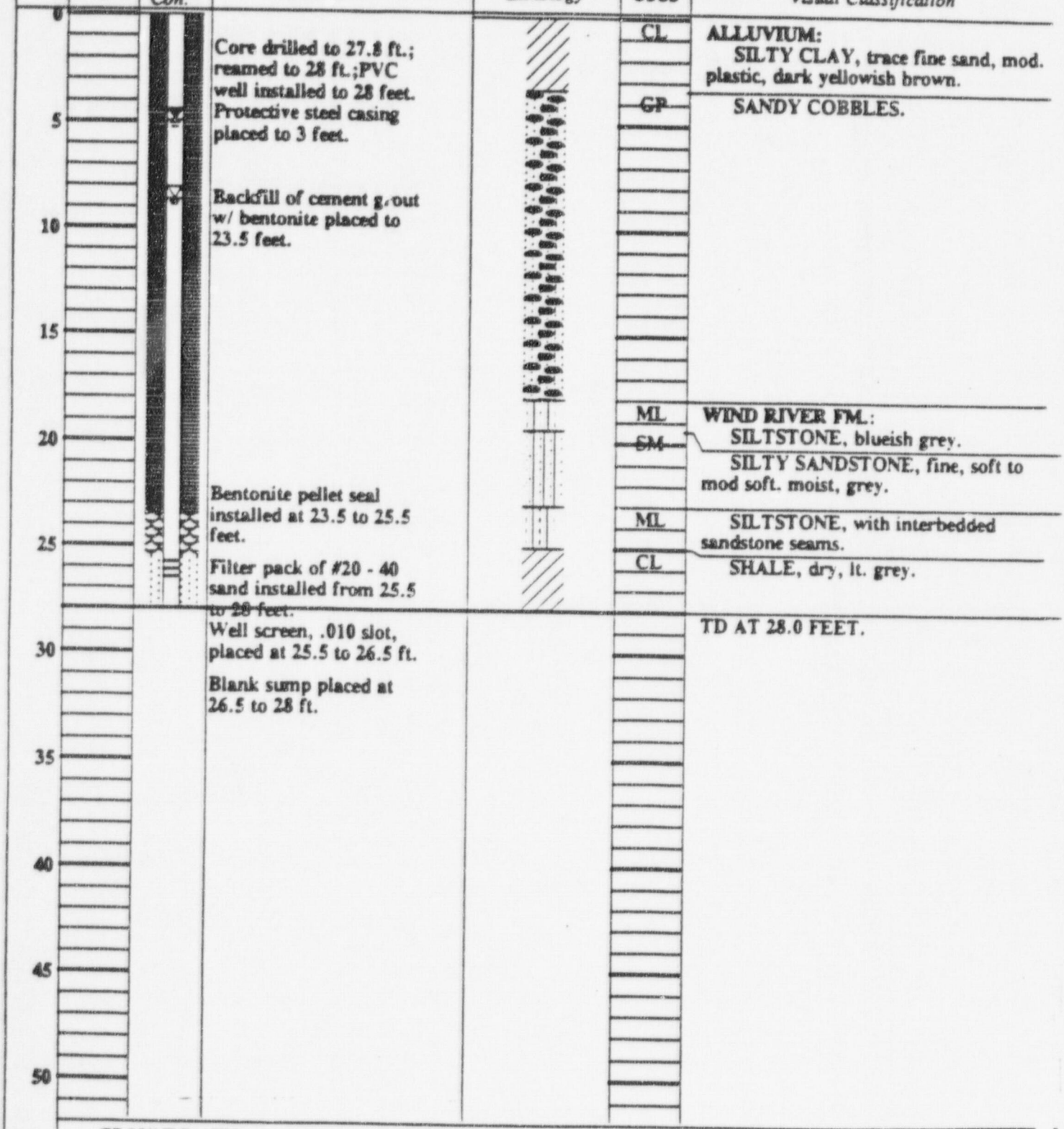
TOTAL DEPTH 28.8 feet

WELL OWNER G. SMITH

BORING TYPE ROTARY MUD

LOCATION N 20994.10 E 27746.00

DATUM MSL, GROUND SURFACE



GROUNDWATER

DEPTH	HOUR	DATE
8.7		1-09-85
5.0		4-17-87

JEG TAC TEAM

PROJECT RIVERTON SITE, WYO.: UMTRA

LOG OF WELL BORING NO. 709

JOB NO. RVT01 DATE 12/27/84

SURFACE ELEVATION 4930.20

TOP OF FILTER PACK 84.00

WELL CASING TYPE 6.0-IN.SCHED.40 PVC

COMPLETION WIND RIVER FM.(CONFINED)

TOTAL DEPTH 114.0 feet

RIG TYPE FAILING CF 1500

BORING TYPE ROTARY-AIR & FOAM

LOCATION N 21005.60 E 27748.90

DATUM MSL, GROUND SURFACE

Depth	Well Con.	Remarks	Lithology	USCS	Visual Classification
0		Drilled to 111 ft.; PVC well installed to 107 feet.		CL	ALLUVIUM: SILTY CLAY, some fine sand, med. to high plasticity, dk. yellowish brn.
5		Protective steel casing placed to 3 feet.		GP	SANDY COBBLES.
10		Backfill of cement grout w/ bentonite placed to 80 feet.			
15					
20				ML	WIND RIVER FM.: SILTSTONE, trace clay, medium plasticity, brown.
25					
30				SM	SILTY SANDSTONE, lt. grey.
35				CL	SHALE, with interbedded claystone and siltstone, lt. grey.
				SM	SILTY SANDSTONE, fine, lt. grey. Note: Occasional thin sandstone seam.
40					
45					
50				SP	SANDSTONE, fine, grey to salt and pepper.

GROUNDWATER

DEPTH	HOUR	DATE
2.9		4-17-87

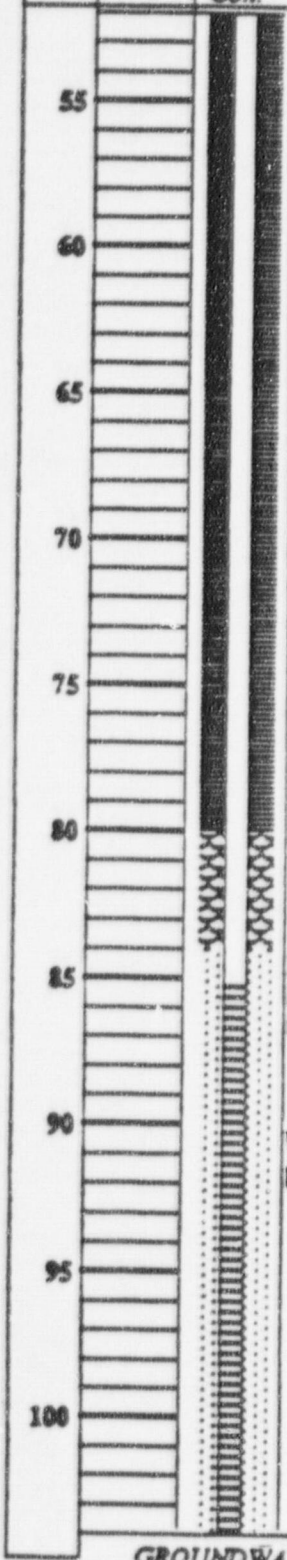
JEG TAC TEAM

PROJECT

LOG OF WELL BORING NO. 709

JOB NO. RVT01 DATE 12/27/84
SURFACE ELEVATION 4930.20
TOP OF FILTER PACK 84.00
WELL CASING TYPE 6.0-IN.SCHED.40 PVC
COMPLETION WIND RIVER FM.(CONFINED)

TOTAL DEPTH 114.0 feet
RIG TYPE FAILING CF 1500
BORING TYPE ROTARY-AIR & FOAM
LOCATION N 21005.60 E 27748.90
DATUM MSL, GROUND SURFACE





USCS	Visual Classification
	Note: Substantial shale interbeds.
CL	SHALE, occasional thin sandstone seam, lt. grey. WIND RIVER FM., Continued.
SP	SANDSTONE, fine, grey
CL	SHALE, with interbedded fine sandstone.
SM	SILTY SANDSTONE, very fine grained, salt and pepper grey.
SP	SANDSTONE, fine, grey

GROUNDWATER

DEPTH	HOUR	DATE
2.9		4-17-87

JEG TAC TEAM

PROJECT RIVERTON SITE, WYO.; UMTRA

LOG OF WELL BORING NO. 709

JOB NO. RVT01 DATE 12/27/84

SURFACE ELEVATION 4930.20

TOP OF FILTER PACK 84.00

WELL CASING TYPE 6.0-IN. SCHED. 40 PVC

COMPLETION WIND RIVER FM. (CONFINED)

TOTAL DEPTH 114.0 feet

RIG TYPE FALLING CF 1500

BORING TYPE ROTARY-AIR & FOAM

LOCATION N 21005.60 E 27748.90

DATUM MSL, GROUND SURFACE

Depth	Well Con.	Remarks	Lithology	USCS	Visual Classification
105		Blank sump placed at 105 to 107 ft.			Note: Grain size medium to coarse from 104 ft. WIND RIVER FM., Continued.
110					TD AT 111 FEET.
115					
120					
125					
130					
135					
140					
145					
150					
155					

GROUNDWATER

DEPTH	HOUR	DATE
2.9		4-17-87

JEG TAC TEAM

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PROJECT RIVERTON SITE, WYO.: UMTRA

LOG OF WELL BORING NO. 7

JOB NO. RVT01 DATE 11/29/84

SURFACE ELEVATION 4947.20

TOP OF FILTER PACK 8.50

WELL CASING TYPE 2.0-IN. SCHED. 40 PVC

COMPLETION ALLUVIUM

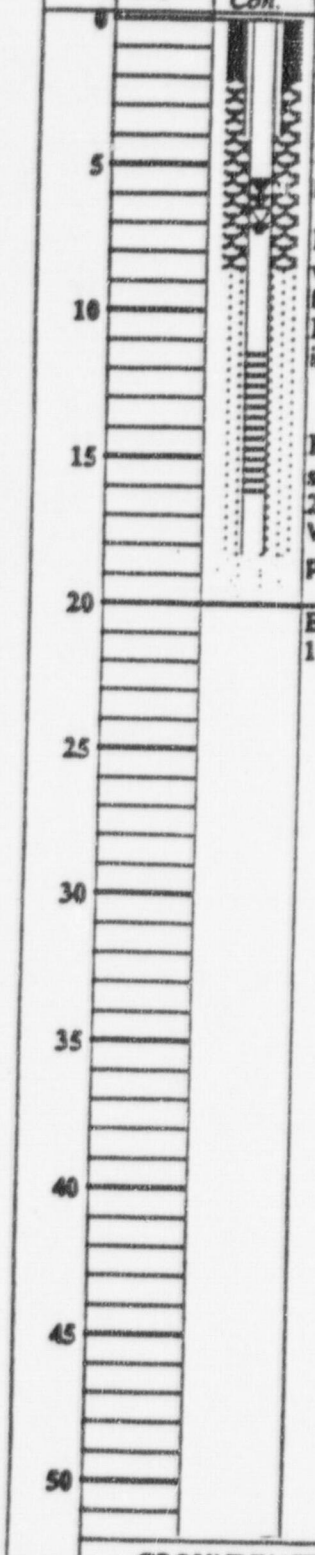
TOTAL DEPTH 20.0 feet

RIG TYPE MIDWAY 15 M

BORING TYPE ROTARY W/ REVERT

LOCATION N 25355.60 E 23982.60

DATUM MSL, GROUND SURFACE



Depth	Well Con.	Remarks	Lithology	USCS	Visual Classification
0		Drilled to 20 ft.; PVC well installed to 18.2 feet.		CL	ALLUVIUM: SILTY CLAY, medium plasticity.
5		Protective steel casing placed to 4 feet.		GP	SANDY COBBLES.
10		Backfill of cement grout w/ bentonite placed to 2 feet. Bentonite pellet seal installed at 2 to 8 feet.		SM	SILTY SAND, greyish brown.
15		Filter pack of concrete sand installed from 8 to 20 feet. Well screen, .010 slot, placed at 11.2 to 16.2 ft.		GP	SANDY COBBLES.
				SM	WIND RIVER FM.: SILTY SANDSTONE, soft, weathered, grey.
20		Blank sump placed at 16.2 to 18.2 ft.			TD AT 20 FEET.
25					
30					
35					
40					
45					
50					

GROUNDWATER

DEPTH	HOUR	DATE
7.0		1-19-85
6.1		4-17-87

JEG TAC TEAM

PROJECT RIVERTON SITE, WYO.: UMTRA

LOG OF WELL BORING NO. 711

JOB NO. RVT01 DATE 11/30/84

SURFACE ELEVATION 4943.50

DEPTH OF SEAL 6.00

WELL CASING TYPE 2.0-INSCHED 40 PVC

COMPLETION ALLUVIUM

TOTAL DEPTH 21.5 feet

WELL OWNER G. SMITH

BORING TYPE ROTARY W/ REVERT

LOCATION N 26088.00 E 24670.90

DATUM MSL, GROUND SURFACE

Depth	Well Con.	Remarks	Lithology	USCS	Visual Classification
0		Drilled to 21.2 ft.; PVC well installed to 17.8 feet. Protective steel casing placed to 4 feet. Backfill of cement grout w/ bentonite placed to 4 feet. Bentonite pellet seal installed at 4 to 6 feet. Filter pack of concrete sand installed from 6 to 21.2 feet. Well screen, .010 slot, placed at 10.8 to 15.8 ft. Blank sump placed at 15.8 to 17.8 ft.		SM	ALLUVIUM: SILTY SAND, trace clay, fine grained, brown.
				GW	GRAVELLY COBBLES, with sand.
15				ML	WIND RIVER FM.: SILTSTONE, sandy, occ. gravel, grey.
20					
					TD AT 21.2 FEET
25					
30					
35					
40					
45					
50					

GROUNDWATER

DEPTH	HOUR	DATE
6.4		1-10-85
4.1		4-17-87

JEG TAC TEAM

PROJECT [illegible]

LOG OF WELL BORING NO.

JOB NO. RVT01 DATE 11/30/84

SURFACE ELEVATION 4943.50

TOP OF FILTER PACK 10.00

WELL CASING TYPE 2.0-IN.SCHED.40 PVC

COMPLETION ALLU M.

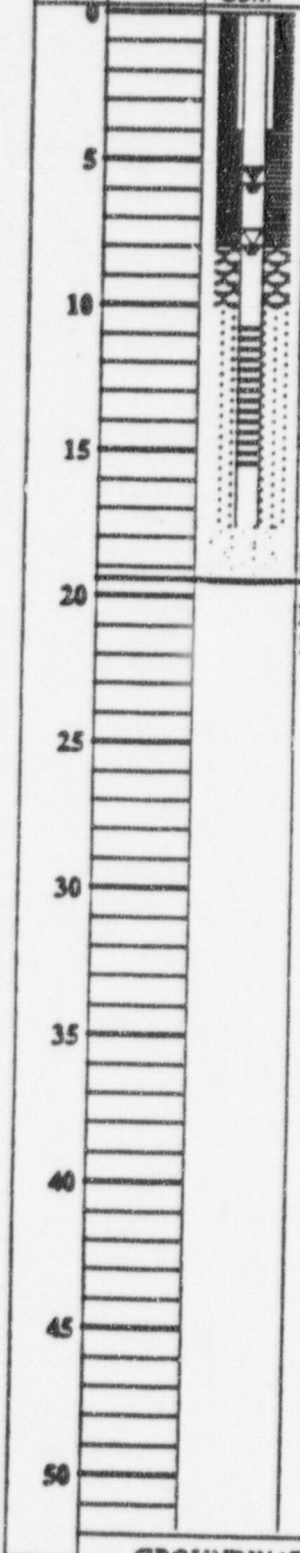
TOTAL DEPTH 19.5 feet

RIG TYPE MIDWAY 15 M

BORING TYPE ROTARY W/ REVERT

LOCATION N 26931.40 E 25462.50

DATUM MSL, GROUND SURFACE



Depth	Well Con.	Remarks	Lithology	USCS	Visual Classification
0		Drilled to 19.5 ft.; PVC well installed to 17.6 feet. Protective steel casing placed to 4 feet. Backfill of cement grout w/ bentonite placed to 8 feet. Bentonite pellet seal installed at 8 to 10 feet. Filter pack of concrete sand installed from 10 to 19.5 feet. Well screen, .010 slot, placed at 10.6 to 15.6 ft. Blank sump placed at 15.6 to 17.6 ft.		SM	ALLUVIUM: SILTY SAND, fine, tr. clay, dar brown.
5				GW	GRAVELLY COBBLES, with f- sand, brown.
10					
15				SM	WIND RIVER FM.: SILTY SANDSTONE, fine, grey.
20					TD AT 19.5 FEET.
25					
30					
35					
40					
45					
50					

GROUNDWATER

DEPTH	HOUR	DATE
7.9		5-25-85
5.8		4-17-87

JEG TAC TEAM

PROJECT RIVERTON SITE, WYO.: UMTRA

LOG OF WELL BORING NO. 713

JOB NO. RVT01 DATE 11/30/84

SURFACE ELEVATION 4941.60

TOP OF FILTER PACK 4.50

WELL CASING TYPE 2.0-IN.SCHED 40 PVC

COMPLETION ALLUVIUM

TOTAL DEPTH 16.5 feet

RIG TYPE MIDWAY 15 M

BORING TYPE ROTARY W/ REVERT

LOCATION N 27577.40 E 25984.30

DATUM MSL, GROUND SURFACE

Depth	Well Con.	Remarks	Lithology	USCS	Visual Classification
0		Drilled to 16.5 ft.; PVC well installed to 16.5 feet. Protective steel casing placed to 4 feet. Backfill of cement grout w/ bentonite placed to 2.5 feet. Bentonite pellet seal installed at 2.5 to 4.5 feet. Filter pack of concrete sand installed from 4.5 to 16.5 feet. Well screen, .010 slot, placed at 9.5 to 14.5 ft. Blank sump placed at 14.5 to 16.5 ft.		ML	ALLUVIUM: SANDY SILT, fine grained, low plasticity, dark brown.
5				GP	GRAVELLY COBBLES.
10					
15				SM	WIND RIVER FM.: SILTY SANDSTONE, fine, slightly plastic, grey.
					TD AT 16.5 FEET.
20					
25					
30					
35					
40					
45					
50					

GROUNDWATER

DEPTH	HOUR	DATE
4.1		5-25-85
6.7		4-17-87

JEG TAC TEAM

PROJECT RIVERTON SITE, WYO.: UMTRA

LOG OF WELL BORING NO. 7

JOB NO. RYT01 DATE 12/10/84

SURFACE ELEVATION 4941.20

TOP OF FILTER PACK 10.00

WELL CASING TYPE 2.-IN.SCHED.40 PVC

COMPLETION ALLUVIUMM

TOTAL DEPTH 18.0 feet

RIG TYPE FAILING CF 1500

BORING TYPE ROTARY W/ REVERT

LOCATION N 28193.90 E 26433.90

DATUM MSL, GROUND SURFACE

Depth	Well Con.	Remarks	Lithology	USCS	Visual Classification
0				ML	ALLUVIUM: CLAYEY SILT, some fine grained sand, med. plasticity, Lt. brown.
5		Drilled to 18 ft.; PVC well installed to 18 feet. Protective steel casing placed to 4 feet.		GW	GRAVELLY COBBLES, with f. sand.
10		Backfill of cement grout w/ bentonite placed to 8.5 feet. Bentonite pellets installed at 8.5 to 10 feet. Filter pack of concrete sand installed from 10 to 18 feet. Well screen, .010 slot, placed at 11 to 16 ft.			Note: Cobbles content decreasing with depth.
15					
20		Blank sump placed at 16 to 18 ft.			TD AT 18 FEET.
25					
30					
35					
40					
45					
50					

GROUNDWATER

DEPTH	HOUR	DATE
6.8		1-10-85
4.5		4-17-87

JEG TAC TEAM

PROJECT RIVERTON SITE, WYO.: UMTRA

LOG OF WELL BORING NO. 715

JOB NO. RVT01 DATE 11/29/84

SURFACE ELEVATION 4938.50

TOP OF FILTER PACK 6.80

WELL CASING TYPE 2.0-IN. SCHED. 40 PVC

COMPLETION ALLUVIUM

TOTAL DEPTH 18.5 feet

RIG TYPE FAILING CF 1500

BORING TYPE ROTARY W/ REVERT

LOCATION N 29017.20 E 27023.60

DATUM MSL, GROUND SURFACE

Depth	Well Con.	Remarks	Lithology	USCS	Visual Classification
0		Drilled to 18.5 ft.; PVC well installed to 18.5 feet. Protective steel casing placed to 4 feet. Backfill of cement grout w/ bentonite placed to 4 feet. Bentonite pellet seal installed at 4 to 6.8 feet. Filter pack of concrete sand installed from 6.8 to 18.5 feet. Well screen, .010 slot, placed at 11.5 to 16.5 ft. Blank sump placed at 16.5 to 18.5 ft.		SC	ALLUVIUM: CLAYEY SAND, fine, low plasticity, greyish brown.
				GW	SANDY GRAVEL, with cobbles. Decreasing cobbles and gravels with depth.
20				SM	WIND RIVER FM.: SILTY SANDSTONE, fine, grey.
					TD AT 18.5 FEET.
25					
30					
35					
40					
45					
50					

GROUNDWATER

DEPTH	HOUR	DATE
		1-10-85
		4-17-87

JEG TAC TEAM

PROJECT RIVERTON SITE, WYO.: UMTRA

LOG OF WELL BORING NO. 716

JOB NO. RVT01 DATE 03/06/93

SURFACE ELEVATION 4936.40

TOP OF FILTER PACK 5.50

WELL CASING TYPE 2.0-IN.SCHED.40 PVC

COMPLETION ALLUVIUM

TOTAL DEPTH 12.5 feet

RIG TYPE MAYHEW 1500

BORING TYPE ROTARY MUD

LOCATION N 22764.49 E 25873.34

DATUM MSL, GROUND SURFACE

Depth	Well Con.	Remarks	Lithology	USCS	Visual Classification
0		Installed 2.0-in. PVC well to 12.5 feet.		SC	ALLUVIUM: SAND, clayey, fine, medium plasticity, brown.
		Placed steel protective casing to 2 feet		GW	SAND, GRAVEL AND COBBLES, with boulders to 12-in. estimated, grey.
5		Placed bentonite chip seal from surface to 5.5 feet.			
		Installed #8-12 size filter pack from 5.5 to 12.5 ft.			
10				CH	WIND RIVER FM.: CLAY/SHALE, high plasticity, highly weathered, greyish brown.
		Placed .050-in. slot /W #8-12 filter prepacked screen from 7.5 to 12.5 feet.			TD AT 12.5 FEET.
15		Well located near middle of former pile area.			
20					
25					
30					
35					
40					
45					
50					

GROUNDWATER

DEPTH	HOUR	DATE
4.9		
4.8		4/19/93

JEG TAC TEAM

PROJECT RIVERTON SITE, WYO.: UMTRA

LOG OF WELL BORING NO. 717

JOB NO. RVT01 DATE 03/06/93

SURFACE ELEVATION 4936.40

TOP OF FILTER PACK 29.00

WELL CASING TYPE 2.0-IN.SCHED 40 PVC

COMPLETION WIND RIVER FM.(UPR.CONFINED)

TOTAL DEPTH 50.0 feet

RIG TYPE MAYHEW 1500

BORING TYPE ROTARY MUD

LOCATION N 22762.23 E 25889.34

DATUM MSL, GROUND SURFACE

Depth	Well Con.	Remarks	Lithology	USCS	Visual Classification
0		Installed 2.0-in. PVC well to 49.5 feet. Installed grout seal to 6.0 ft. Placed steel protective casing to 13 feet. Placed bentonite chip seal from 6.0 to 29.0 feet. Well located near middle of former pile area.		SC	ALLUVIUM: CLAYEY SAND, medium plasticity, brown.
5				GW	SAND, GRAVEL AND COBBLES, with boulders to 12-inches, grey.
10				CL	WIND RIVER FM.: CLAY/SHALE, some sand, highly weathered, low plasticity, greyish brown.
15				CL	SHALE, mod. hard, dark grey.
20				SW	SANDSTONE, conglomeritic, poorly consolidated, grey.
25					
30					
35		Installed #8-12 size filter pack from 29.0 to 49.5 ft.			
40		Placed .050-in. slot /W #8-12 filter prepacked screen from 37.5 to 47.5 feet.		SP	SANDSTONE, medium to fine, moderately cemented, grey.
45		Placed blank sump from 47.5 to 49.5 ft.			
50		Cave-in fill from 49.5 to 50.0 ft.		CL	SHALE, moderately hard, dark grey. TD AT 50.0 FEET.

GROUNDWATER

	DEPTH	HOUR	DATE
▽	5.0		
▼	4.9		4/19/93

JEG TAC TEAM

PROJECT RIVERTON SITE, WYO.: UMTRA

LOG OF WELL BORING NO. 7

JOB NO. RVT01 DATE 03/02/93

SURFACE ELEVATION 4937.00

TOP OF FILTER PACK 10.00

WELL CASING TYPE 2.0-IN.SCHED.40 PVC

COMPLETION ALLUVIUM.

TOTAL DEPTH 18.0 feet

RIG TYPE MAYHEW 1500

BORING TYPE ROTARY MUD

LOCATION N 21673.56 E 25406.28

DATUM MSL, GROUND SURFACE

Depth	Well Con.	Remarks	Lithology	USCS	Visual Classification
0		Installed 2.0-in. PVC well to 18.0 feet. Installed grout seal to 3.0 ft. Placed steel protective casing to 2 feet. Placed bentonite chip seal from 3.0 to 10.0 feet. Well located on h'way R/W south of pile. Installed #8-12 size filter pack from 10.0 to 18.0 ft. Placed .050-in. slot /W #8-12 filter prepacked screen from 13.0 to 18.0 feet. No sump installed.		GM	FILL: SILTY SAND, GRAVEL AND COBBLES.
				GW	ALLUVIUM: SAND, GRAVEL, AND COBBLE with bouldsers to 12 inches dia., well rounded, brown.
5					
10					
15					
				CL	WIND RIVER FM.: SILTY CLAY/SHALE, highly weathered, little fine sand, medium plasticity, grey.
20					TD AT 18 FEET.
25					
30					
35					
40					
45					
50					

GROUNDWATER

DEPTH	HOUR	DATE
5.8		
5.5		4/19/93

JEG TAC TEAM

PROJECT RIVERTON SITE, WYO.: UMTRA

LOG OF WELL BORING NO. 719

JOB NO. RVT01 DATE 03/02/93
SURFACE ELEVATION 4936.80
TOP OF FILTER PACK 23.00
WELL CASING TYPE 2.0-IN.SCHED.40 PVC
COMPLETION WIND RIVER FM.(UPR.CONFINED)

TOTAL DEPTH 40.0 feet
RIG TYPE MAYHEW 1500
BORING TYPE ROTARY MUD TO AIR
LOCATION N 21629.47 E 25392.14
DATUM MSL, GROUND SURFACE

Depth	Well Con.	Remarks	Lithology	USCS	Visual Classification
0		Installed 2.0-in. PVC well to 40.0 feet. Installed grout seal to 3.0 ft. Placed steel protective casing to 18 feet. Placed bentonite chip seal from 3.0 to 23.0 feet. Well located on H'way R/W south of pile area.		GM	FILL: SILTY SAND, GRAVEL AND
				GW	COBBLES.
					ALLUVIUM: SAND, GRAVEL, AND COBBLES, with boulders to 12 inches dia., well rounded, greyish brown.
5					
10					
15					
				CL	WIND RIVER FM.: SILTY CLAY/SHALE, highly weathered, little fine sand, medium
20				SP	plasticity, grey. SANDSTONE, fine, poorly cemented, grey.
		Installed #8-12 size filter pack from 23.0 to 40.0 ft.			
25					
		Placed .050-in. slot /W #8-12 filter prepacked screen from 28.0 to 38.0 feet.			
30					
35					
		Placed blank sump from 38.0 to 40.0 ft.		CL	SHALE, soft, grey.
40					TD AT 40 FEET.
45					
50					

GROUNDWATER

DEPTH	HOUR	DATE
5.4		
5.0		4/19/93

JEG TAC TEAM

PROJECT RIVERTON SITE, WYO.: UMTRA

LOG OF WELL BORING NO. 72

JOB NO. RVT01 DATE 02/22/93

SURFACE ELEVATION 4937.90

TOP OF FILTER PACK 3.50

WELL CASING TYPE 2.0-IN.SCHED.40 PVC

COMPLETION ALLUVIUM

TOTAL DEPTH 10.5 feet

RIG TYPE MAYHEW 1500

BORING TYPE ROTARY MUD

LOCATION N 20729.00 E 23677.37

DATUM MSL, GROUND SURFACE

Depth	Well Con.	Remarks	Lithology	USCS	Visual Classification
0		Installed 2.0-in. PVC well to 10.5 feet. Installed grout seal to 1.0 ft. Placed steel protective casing to 2 feet in 8 5/8-in. hole. Placed bentonite chip seal from 1.0 to 3.5 feet. Installed #8-12 size filter pack from 3.5 to 10.5 ft. Placed .050-in. slot /W #8-12 filter prepacked screen from 5.5 to 10.5 feet. No sump installed because of aquifer thickness. THE WELL IS LOCATED OFF H'WAY R/W ON ST. STEPHENS PROPERTY.		CL	ALLUVIUM: SANDY CLAY, medium plasticity, dark brown.
				GW	SAND, GRAVEL AND COBBLES well graded, with boulders to 12-in.
10				CL	WIND RIVER FM.: SANDY CLAY/SHALE, medium t high plasticity, yellowish-brown.
					TD AT 10.5 FEET.
15					
20					
25					
30					
35					
40					
45					
50					

GROUNDWATER

DEPTH	HOUR	DATE
1.7		

JEG TAC TEAM

PROJECT RIVERTON SITE, WYO.: UMTRA

LOG OF WELL BORING NO. 721

JOB NO. RVT01 DATE 02/21/93

SURFACE ELEVATION 4937.90

TOP OF FILTER PACK 27.00

WELL CASING TYPE 2.0-IN.SCHED.40 PVC

COMPLETION WIND RIVER FM.(UPR.CONFINED)

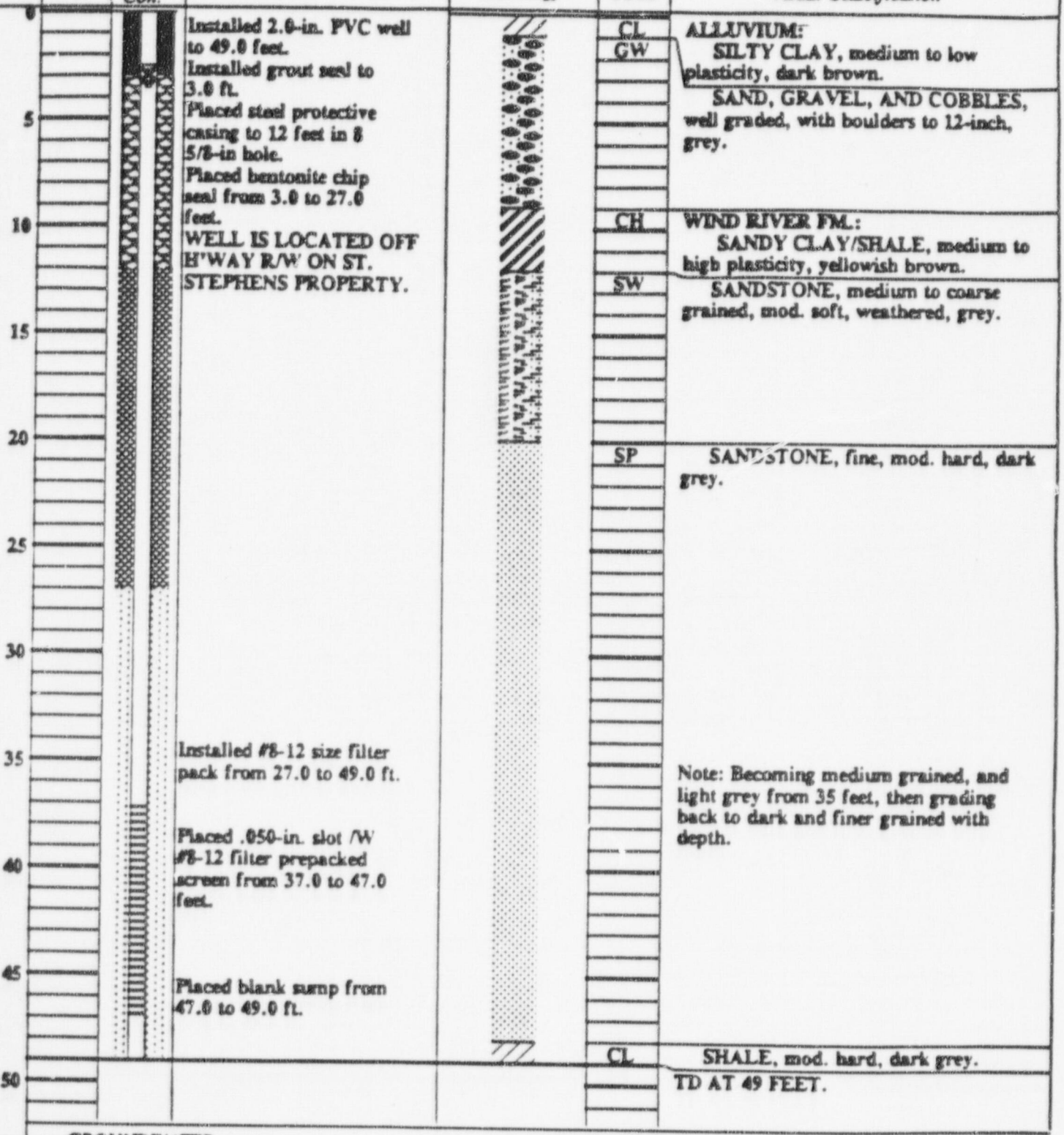
TOTAL DEPTH 49.0 feet

RIG TYPE MAYHEW 1500

BORING TYPE ROTARY MUD / AIR

LOCATION N 20739.68 E 23682.91

DATUM MSL, GROUND SURFACE



GROUNDWATER

	DEPTH	HOUR	DATE
▽	3.1		
▼	3.5		4/19/93

JEG TAC TEAM

PROJECT RIVERTON SITE, WYO.: UMTRA

LOG OF WELL BORING NO. 72

JOB NO. RV101 DATE 02/24/93

SURFACE ELEVATION 4935.20

TOP OF FILTER PACK 4.00

WELL CASING TYPE 2.0-IN.SCHED.40 PVC

COMPLETION ALLUVIUM

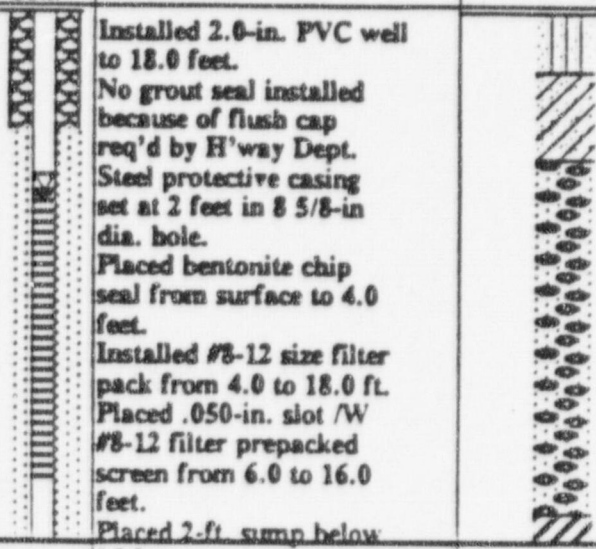
TOTAL DEPTH 18.0 feet

RIG TYPE MAYHEW 1500

BORING TYPE ROTARY MUD

LOCATION N 22246.56 E 26603.32

DATUM MSL, GROUND SURFACE



Depth	Well Con.	Remarks	Lithology	USCS	Visual Classification
0		Installed 2.0-in. PVC well to 18.0 feet. No grout seal installed because of flush cap req'd by H'way Dept. Steel protective casing set at 2 feet in 8 5/8-in dia. hole. Placed bentonite chip seal from surface to 4.0 feet. Installed #8-12 size filter pack from 4.0 to 18.0 ft. Placed .050-in. slot /W #8-12 filter prepacked screen from 6.0 to 16.0 feet. Placed 2-ft. sump below 16 feet.		SM	FILL: SILTY SAND, some fine gravel, nonplastic, brown.
				SC	ALLUVIUM: CLAYEY SAND, little fine gravel, low to nonplastic, brown.
5				GW	SAND, GRAVEL AND COBBLES boulders to 18-inch, nonplastic, grey.
10					
15					
				CH	WIND RIVER FM.: CLAY/SHALE, high plasticity, highly weathered, greyish brown.
20					TD AT 18 FEET.
25					
30		Well located in Highway R/W and requires flush mounted surface casing and cap. Special rubber seal installed in well top. A non-standard locking cap was used for flush mounting.			
35					
40					
45					
50					

GROUNDWATER

DEPTH	HOUR	DATE
6.1		

JEG TAC TEAM

PROJECT RIVERTON SITE, WYO.: UMTRA

LOG OF WELL BORING NO. 723

JOB NO. RVT01 DATE 02/23/93

SURFACE ELEVATION 4935.00

TOP OF FILTER PACK 31.00

WELL CASING TYPE 2.0-IN.SCHED.40 PVC

COMPLETION WIND RIVER FM.(UPR.CONFINED)

TOTAL DEPTH 49.0 feet

RIG TYPE MAYHEW 1500

BORING TYPE ROTARY MUD / AIR

LOCATION N 22254.32 E 26616.55

DATUM MSL, GROUND SURFACE

Depth	Well Con.	Remarks	Lithology	USCS	Visual Classification
0		Installed 2.0-in. PVC well to 47.5 feet. Installed grout seal to 5.0 ft. Placed steel protective casing to 16.5 feet. Placed bentonite chip seal from 5.0 to 31.0 feet.		SM	FILL: SILTY SAND.
				CL	ALLUVIUM: SANDY CLAY, med. to low plasticity, brown.
5				GW	SAND, GRAVEL AND COBBLES, boulder size to 12 inches, grey.
10					
15		Well located in H'way R/W, and requires casing to be flush with surface. A special rubber casing seal and locking cap were used.		CH	WIND RIVER FM.: CLAY/SHALE, weathered, with some sand, med. to high plasticity, greyish brown.
20				SP	SANDSTONE, med. to fine grained, grey.
25					
30					
35		Installed #8-12 size filter pack from 31.0 to 47.5 ft.			
40		Placed .050-in. slot /W #8-12 filter prepacked screen from 35.5 to 45.5 feet.			
45		Placed blank sump from 45.5 to 47.5 ft.		CL	SILTY SHALE, mod. hard, blueish grey.
50		Cave-in fill from 47.5 to 49.0 ft.			TD AT 49 FEET.

GROUNDWATER

DEPTH	HOUR	DATE
6.0		
5.8		4/19/93

JEG TAC TEAM

PROJECT RIVERTON SITE, WYO.: UMTRA

LOG OF WELL BORING NO. 1

JOB NO. RVT01 DATE 03/04/93

SURFACE ELEVATION 4939.40

TOP OF FILTER PACK 6.00

WELL CASING TYPE 2.0-IN.SCHED.40 PVC

COMPLETION ALLUVIUM

TOTAL DEPTH 16.0 feet

RIG TYPE MAYHEW 1500

BORING TYPE ROTARY MUD

LOCATION N 24896.73 E 26260.41

DATUM MSL, GROUND SURFACE

Depth	Well Con.	Remarks	Lithology	USCS	Visual Classification
0		Installed 2.0-in. PVC well to 16.0 feet. Installed grout seal to 1.0 ft. Placed steel protective casing to 2 feet in 8 5/8-in. dia. hole. Placed bentonite chip seal from 1.0 to 6.0 feet. Installed #8-12 size filter pack from 6.0 to 16.0 ft. Placed .050-in. slot /W #8-12 filter prepacked screen from 11.0 to 16 feet.		SC	ALLUVIUM: CLAYEY SAND, medium plastic brown.
5				GW	SAND, GRAVEL AND COBBLE with boulders to 18 inches dia., well graded, grey.
10					
15				CL	WIND RIVER FM.: SHALE/CLAY, highly weathered, soft, grey.
20		Well located in north west corner of mill site area.			TD AT 16 FEET.
25					
30					
35					
40					
45					
50					

GROUNDWATER

DEPTH	HOUR	DATE
5.6		

JEG TAC TEAM

LOG OF WELL BORING NO. T25

JOB NO. RVT01 DATE 03/04/93
SURFACE ELEVATION 4939.40
TOP OF FILTER PACK 19.50
WELL CASING TYPE 2.0-IN.SCHED.40 PVC
COMPLETION WIND RIVER FM.(UPR.CONFINED)

TOTAL DEPTH 38.0 feet
RIG TYPE MAYHEW 1500
BORING TYPE ROTARY MUD
LOCATION N 24896.73 E 26260.41
DATUM MSL, GROUND SURFACE

Depth	Well Con.	Remarks	Lithology	USCS	Visual Classification
0		Installed 2.0-in. PVC well to 36.5 feet. Installed grout seal to 5.0 ft. Placed steel protective casing to 17 feet. Placed bentonite chip seal from 5.0 to 19.5 feet. Well located in northeast corner of mill area.		SC	ALLUVIUM: CLAYEY SAND, medium to low plasticity, brown.
5				GW	SANDY GRAVEL AND COBBLES, with boulders to 18 inches, well graded, grey.
10					
15				CH	WIND RIVER FM.: SHALE/CLAY, highly weathered, med. to high plasticity, soft, grey.
20		Installed #8-12 size filter pack from 19.5 to 36.5 ft.		SP	SANDSTONE, med. to fine grained, poorly indurated, grey.
25		Placed .050-in. slot /W #8-12 filter prepacked screen from 24.5 to 34.5 feet.			
30					
35		Placed blank sump from 34.5 to 36.5 ft. Cave-in fill from 36.5 to 38.0 ft.		ML	SILTSTONE, very fine grained, mod. hard, dark grey.
40					TD AT 38 FEET.
45					
50					

GROUNDWATER

DEPTH	HOUR	DATE
6.3		
		4/19/93

JEG TAC TEAM

PROJECT RIVERTON SITE, WYO.: UMTRA

LOG OF WELL BORING NO. 72

JOB NO. RVT01 DATE 04/17/93

SURFACE ELEVATION 4939.50

TOP OF FILTER PACK 80.00

WELL CASING TYPE 2.0-IN.SCHED.40 PVC

COMPLETION WIND RIVER FM.(LWR.CONFINED)

TOTAL DEPTH 133.0 feet

RIG TYPE MAYHEW 1500

BORING TYPE ROTARY MUD TO AIR

LOCATION N 24904.00 E 26251.00

DATUM M.S.L. GROUND SURFACE

Depth	Well Con.	Remarks	Lithology	USCS	Visual Classification
0		Installed 2.0-in. PVC well to 133.0 feet. Installed grout seal to 4.0 ft. Placed steel protective casing to 17 feet. Placed bentonite chip seal from 2.0 to 80.0 feet. Well located in northeast corner of process site.		SC	ALLUVIUM: CLAYEY SAND, medium to low plasticity, coarse to med. sand, brown.
5				GW	SANDY GRAVEL AND COBBLE with boulders to 18 inch dia., rounded, greyish brown.
10					
15				CH	WIND RIVER FM.: SILTY CLAY/SHALE, highly weathered, little fine sand, highly plasticity, greyish brown. Note; Becomes very stiff to mod. hard tannish grey shale at 17 feet.
20					
25				SP	SANDSTONE, fine to med. fissle, poorly cemented, soft, grey.
30					
35					
40					
45				CL	SHALE, little to some fine sand, soft, grey to dark grey.
50				CL	SHALE, hard, dk. grey.

GROUNDWATER

DEPTH	HOUR	DATE
4.7		
5.2	4/19/93	

JEG TAC TEAM

PROJECT RIVERTON SITE, WYO.: UMTRA

LOG OF WELL BORING NO. 726

JOB NO. RVTD1 DATE 04/17/93

SURFACE ELEVATION 4939.50

TOP OF FILTER PACK 80.00

WELL CASING TYPE 2.0-IN. SCHED. 40 PVC

COMPLETION WIND RIVER FM. (LWR. CONFINED)

TOTAL DEPTH 133.0 feet

RIG TYPE MAYHEW 1500

BORING TYPE ROTARY MUD TO AIR

LOCATION N 24904.00 E 26251.00

DATUM MSL, GROUND SURFACE

Depth	Well Con.	Remarks	Lithology	USCS	Visual Classification
55					
60					Note: With sandy lenses, changing to light grey color from 60 to 64 ft..
65					
70					
75					Note: sandy lenses from 74 to 80 feet.
80		Installed #8-12 size filter pack from 80.0 to 133.0 ft.		SM	SANDSTONE, medium to fine, moderately hard, grey. Note: Occ. clayey lenses.
85					Note: Becoming moderately soft from 85 feet.
90				SC	CLAYEY SANDSTONE, medium, soft, grey.
95					
100					

GROUNDWATER

DEPTH	HOUR	DATE
4.7		
5.2		4/19/93

JEG TAC TEAM

PROJECT RIVERTON SITE, WYO.: UMTRA

LOG OF WELL BORING NO. 72

JOB NO. RVT01 DATE 04/17/93

SURFACE ELEVATION 4939.50

TOP OF FILTER PACK 80.00

WELL CASING TYPE 2.0-IN.SCHED.40 PVC

COMPLETION WIND RIVER FM.(LWR.CONFINED)

TOTAL DEPTH 133.0 feet

RIG TYPE MAYHEW 1500

BORING TYPE ROTARY MUD TO AIR

LOCATION N 24904.00 E 26251.00

DATUM MSL, GROUND SURFACE

Depth	Well Con.	Remarks	Lithology	USCS	Visual Classification
105					
110					
115					
120		Placed .050-in. slot /W #8-12 filter prepacked screen from 121.0 to 131.0 feet.			
125					Note: Becoming harder from 125 ft. fine to med. grained, grey.
130		Placed blank sump from 131.0 to 133.0 ft.		CL	SHALE, hard, dark grey.
					TD AT 133 FEET.
135					
140					
145					
150					
155					

GROUNDWATER

DEPTH	HOUR	DATE
4.7		
5.2		4/19/93

JEG TAC TEAM

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PROJECT RIVERTON SITE, WYO.: UMTRA

LOG OF WELL BORING NO. 727

JOB NO. RVT01 DATE 03/05/93

SURFACE ELEVATION 4949.50

TOP OF FILTER PACK 21.50

WELL CASING TYPE 2.0-IN. SCHED. 40 PVC

COMPLETION WIND RIVER FM. (UPR. CONFINED)

TOTAL DEPTH 40.0 feet

RIG TYPE MAYHEW 1500

BORING TYPE ROTARY MUD / AIR

LOCATION N 24893.70 E 23811.24

DATUM MSL, GROUND SURFACE

Depth	Well Con.	Remarks	Lithology	USCS	Visual Classification
0		Installed 2.0-in. PVC well to 39.0 feet. Installed grout seal to 5.0 ft. Placed steel protective casing to 18 feet in 8 5/8-in. dia. hole in bentonite seal. Placed bentonite chip seal from 5.0 to 21.5 feet. Well located in northwest corner of mill area.		GW	ALLUVIUM: SAND, GRAVEL AND COBBLES, with boulders to 18 inches, grey
15				CH	WIND RIVER FM.: CLAY/SHALE, with fine sand, highly weathered, light grey.
20				SP	SANDSTONE, med. to fine grained, mod. well cemented, light grey.
25		Installed #8-12 size filter pack from 21.5 to 39.0 ft.			
30		Placed .050-in. slot /W #8-12 filter prepacked screen from 27.0 to 37.0 feet.			Note: Grain size changing to fine, mod. hard, and dark grey.
35					
40		Placed blank sump from 37.0 to 39.0 ft.		CL	SHALE, silty, soft, dark grey.
		Cave-in fill from 39.0 to 40.0 ft.			TD AT 40 FEET.
45					
50					

GROUNDWATER

DEPTH	HOUR	DATE
9.0		3-5-93
8.9		4/19/93

JEG TAC TEAM

PROJECT RIVERTON SITE, WYO.: UMTRA

LOG OF WELL BORING NO. 728

JOB NO. RVT01 DATE 03/05/93

SURFACE ELEVATION 4943.90

TOP OF FILTER PACK 9.00

WELL CASING TYPE 2.0-IN.SCHED.40 PVC

COMPLETION ALLUVIUM

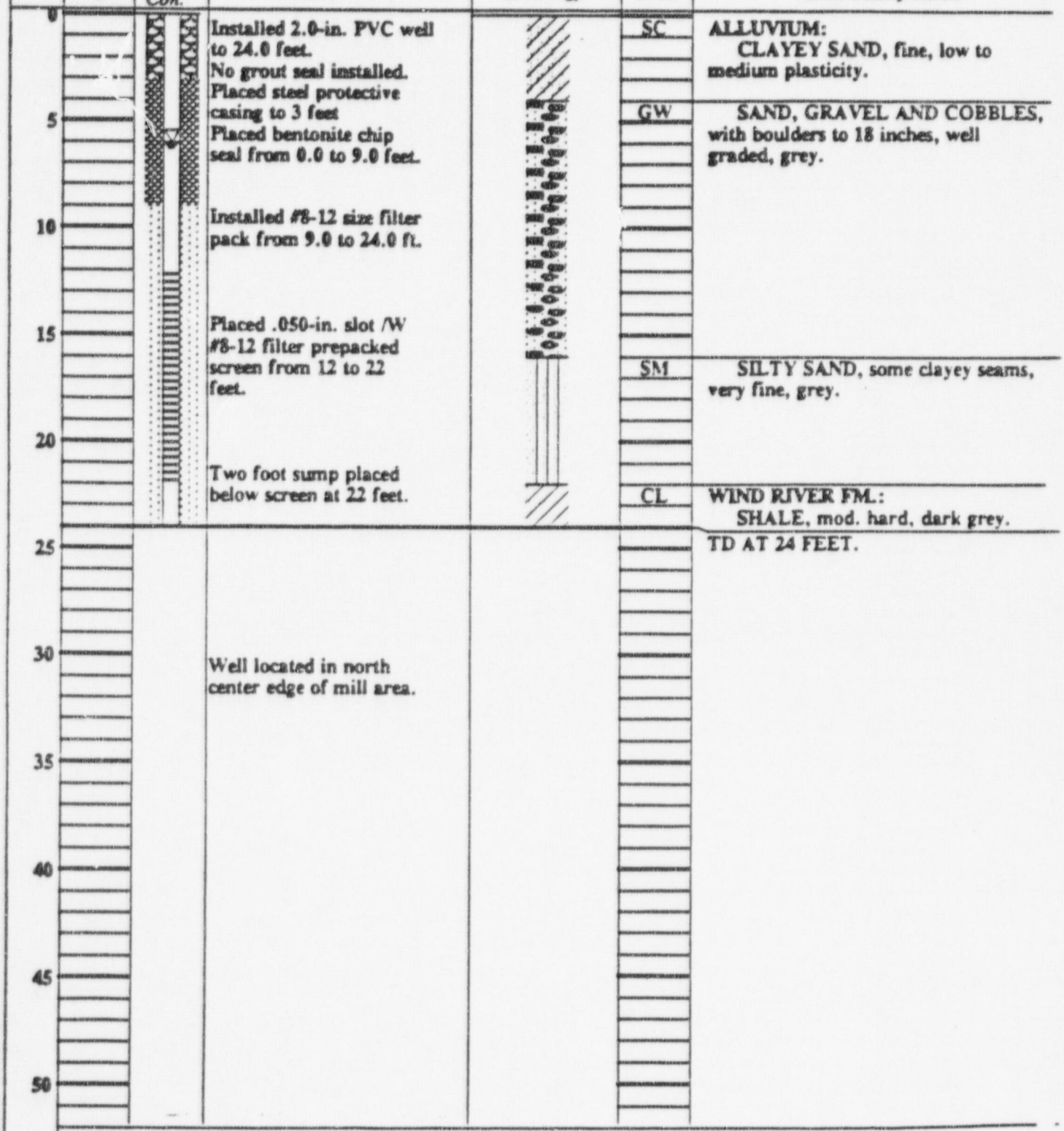
TOTAL DEPTH 24.0 feet

RIG TYPE MAYHEW 1500

BORING TYPE ROTARY MUD

LOCATION N 24893.74 E 24934.93

DATUM MSL, GROUND SURFACE



GROUNDWATER

DEPTH	HOUR	DATE
6.1		

JEG TAC TEAM

PROJECT RIVERTON SITE, WYO.: UMTRA

LOG OF WELL BORING NO. 729

JOB NO. RVT01 DATE 03/17/93

SURFACE ELEVATION 4932.10

TOP OF FILTER PACK 8.00

WELL CASING TYPE 2.0-IN.SCHED.40 PVC

COMPLETION ALLUVIUM

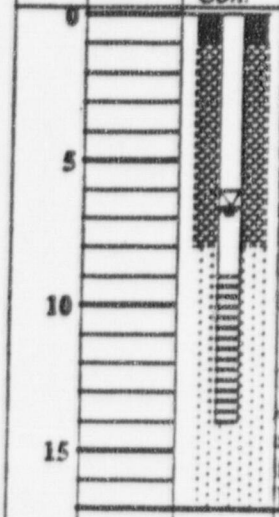
TOTAL DEPTH 17.0 feet

RIG TYPE MAYHEW 1500

BORING TYPE ROTARY MUD

LOCATION N 23228.03 E 28349.91

DATUM MSL, GROUND SURFACE



Depth	Well Con.	Remarks	Lithology	USCS	Visual Classification
0		Installed 2.0-in. PVC well to 14.0 feet. No grout seal installed because of flush cap req'd by H'way Dept. Placed bentonite chip seal from surface to 8.0 feet. Installed #8-12 size filter pack from 8.0 to 14.0 ft. Placed .050-in. slot /W #8-12 filter prepacked screen from 9.0 to 14.0 feet. No sump installed.		SC	ALLUVIUM: CLAYEY SAND, with occasional fine gravel, medium to low plasticity, brown.
5				GW	SAND, GRAVEL AND COBBLES, with boulders to 12 inch dia., grey.
10					
15				CL	WIND RIVER FM.: CLAY/SHALE, with sand, highly weathered, medium to low plasticity, greyish brown.
20					TD AT 17 FEET.
25		Well located in Highway R/W and requires flush mounted surface casing and cap. Special rubber seal intalled in well top and non-standard locking cap.			
30					
35					
40					
45					
50					

GROUNDWATER

DEPTH	HOUR	DATE
6.6		

JEG TAC TEAM

PROJECT RIVERTON SITE, WYO.: UMTRA

LOG OF WELL BORING NO. 730

JOB NO. RVT01 DATE 03/17/93

SURFACE ELEVATION 4932.50

TOP OF FILTER PACK

WELL CASING TYPE 2.0-IN SCHED 40 PVC

COMPLETION WIND RIVER FM. (UPR CONFINED)

TOTAL DEPTH 40.0 feet

RIG TYPE MAYHEW 1500

BORING TYPE ROTARY MUD TO AIR

LOCATION N 23222.16 E 28339.43

DATUM MSL, GROUND SURFACE

Depth	Well Con.	Remarks	Lithology	USCS	Visual Classification
0		Installed 2.0-in. PVC well to 40.0 feet. Installed grout seal to 5.0 ft. Placed steel protective casing to 13.0 feet. Placed bentonite chip seal from 5.0 to 21.0 feet.		SC	ALLUVIUM: CLAYEY SAND, with fine gravel, low plasticity, brown.
5				GW	SANDY GRAVEL AND COBBLES, with boulders to 18 inches dia., grey.
10					
15		Well located in H'way R/W, and requires casing to be flush with surface. A special rubber casing seal and locking cap were used. Installed #8-12 size filter pack from 21.0 to 40.0 ft.		CL	WIND RIVER FM.: CLAY/SHALE, with sand, medium to low plasticity, greyish brown.
20				SP	SANDSTONE, medium to very fine, mod. soft, grey.
25					
30		Placed .050-in. slot /W #8-12 filter prepacked screen from 28.0 to 38.0 feet.			
35				CL	SHALE, mod. soft, dark grey.
40		Placed blank sump from 38.0 to 40.0 ft.			TD AT 40 FEET.
45					
50					

GROUNDWATER

DEPTH	HOUR	DATE
6.8		4/19/93

JEG TAC TEAM

JACOBS ENGINEERING GROUP INC.
ADVANCED SYSTEMS DIVISION, ALBUQUERQUE OPERATIONS

WELL COMPLETION RECORD

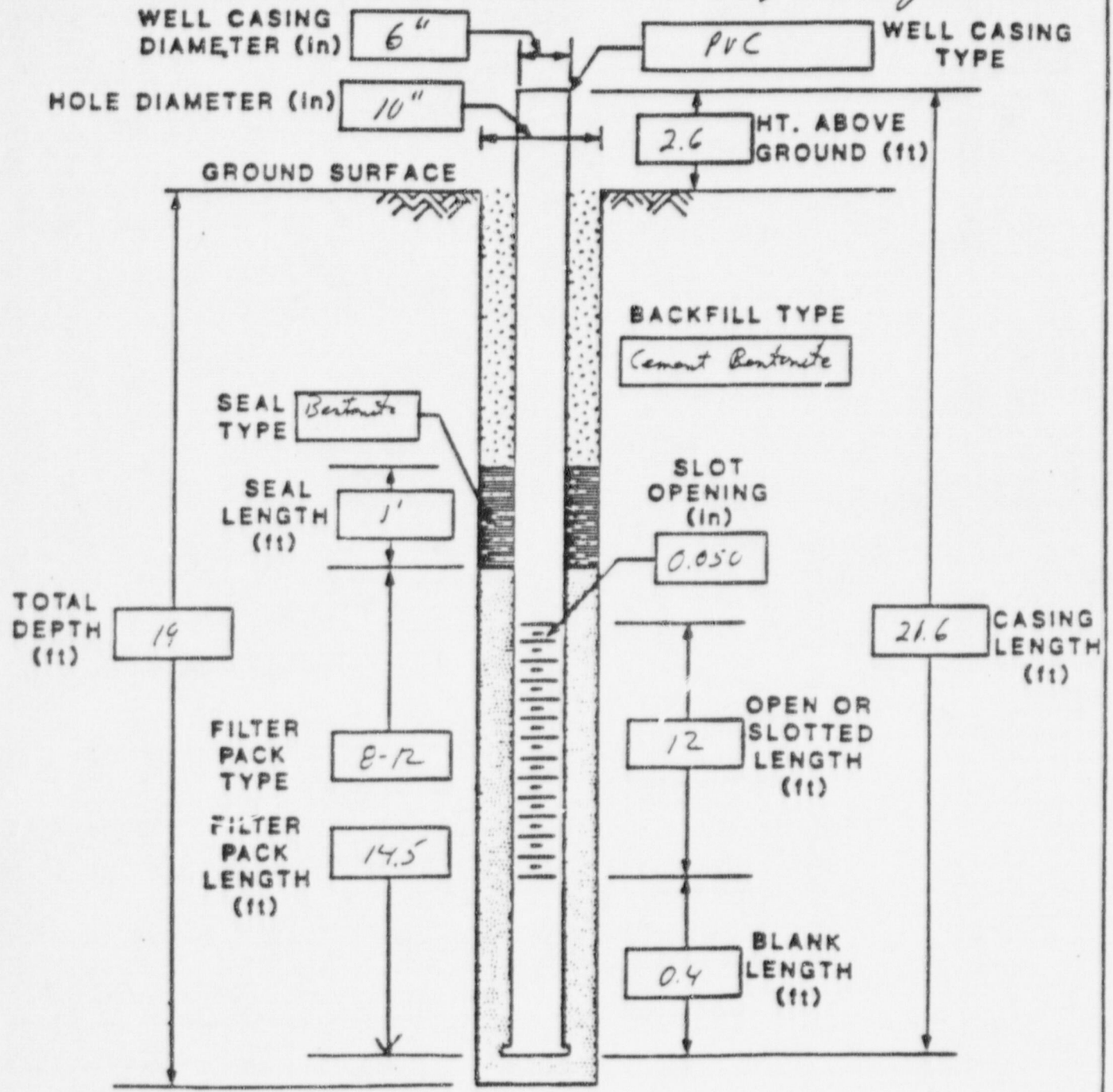
SITE ID: RVT 01 LOCATION ID: 0737 DATE INSTALLED: 7-21-95

APPROX. SITE COORDINATES: (FT.) N _____ E _____

OPEN AREA PER LINEAL FT. ($IN^2/FT.$) _____

FORMATION OF COMPLETION: Surficial Aquifer

FIELD REP.: D Tarbox DRILLER: Inberg Miller Engineers



COMMENTS: _____

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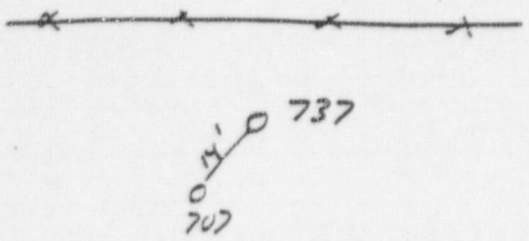
BOREHOLE LOG (SOIL)

LOCATION MAP:



SITE ID: RVT 01 LOCATION ID: 0737
SITE COORDINATES (ft.):
N _____ E _____
GROUND ELEVATION (ft. MSL): _____
DRILLING METHOD: Hollow Stem Auger
DRILLING CONTR.: Lukens Miller Engineers
DATE STARTED: 2-21-95
DATE COMPLETED: 2-21-95
FIELD REP.: D Tabor

GROUNDWATER LEVELS		
DATE	TIME	DEPTH (ft.)
2-21-95	0900	3.5

LOCATION DESCRIPTION _____
SITE CONDITION _____

DEPTH	SAMPLE INTERVAL	SAMPLE RECOVERED	SAMPLE RETAINED	TYPE	ID	BLOWS PER 6 in.	N VALUE	unified USCS	VISUAL CLASSIFICATION
								ML/SC	Clay SILT and fine Sand Dark yellowish brown (10 YR 4/2)
3.5									
								SW/GW	Coarse to fine Sand, and coarse to fine Gravel Frequent Cobbles
								SP	Coarse to fine Sand, little fine Gravel Pale brown (5 YR 5/2)
16									
								SW/GW	Coarse to fine Gravel and coarse to fine Sand Frequent Cobbles Pale brown (5 YR 5/2)
16 14.3									Hard silt stone. Light olive gray (5 Y 5/2)
									End of hole at 19.3

COMMENTS: _____

SAMPLE TYPE
A - Auger cuttings
B - 3" OD 1.38" ID drive sample
U - 3" OD 2.42" ID tube sample
T - 3" OD thin-walled Shelby tube

EQ-AL-ENG-28 (4/85)

JACOBS ENGINEERING GROUP INC.
ALBUQUERQUE OPERATIONS

WELL COMPLETION RECORD

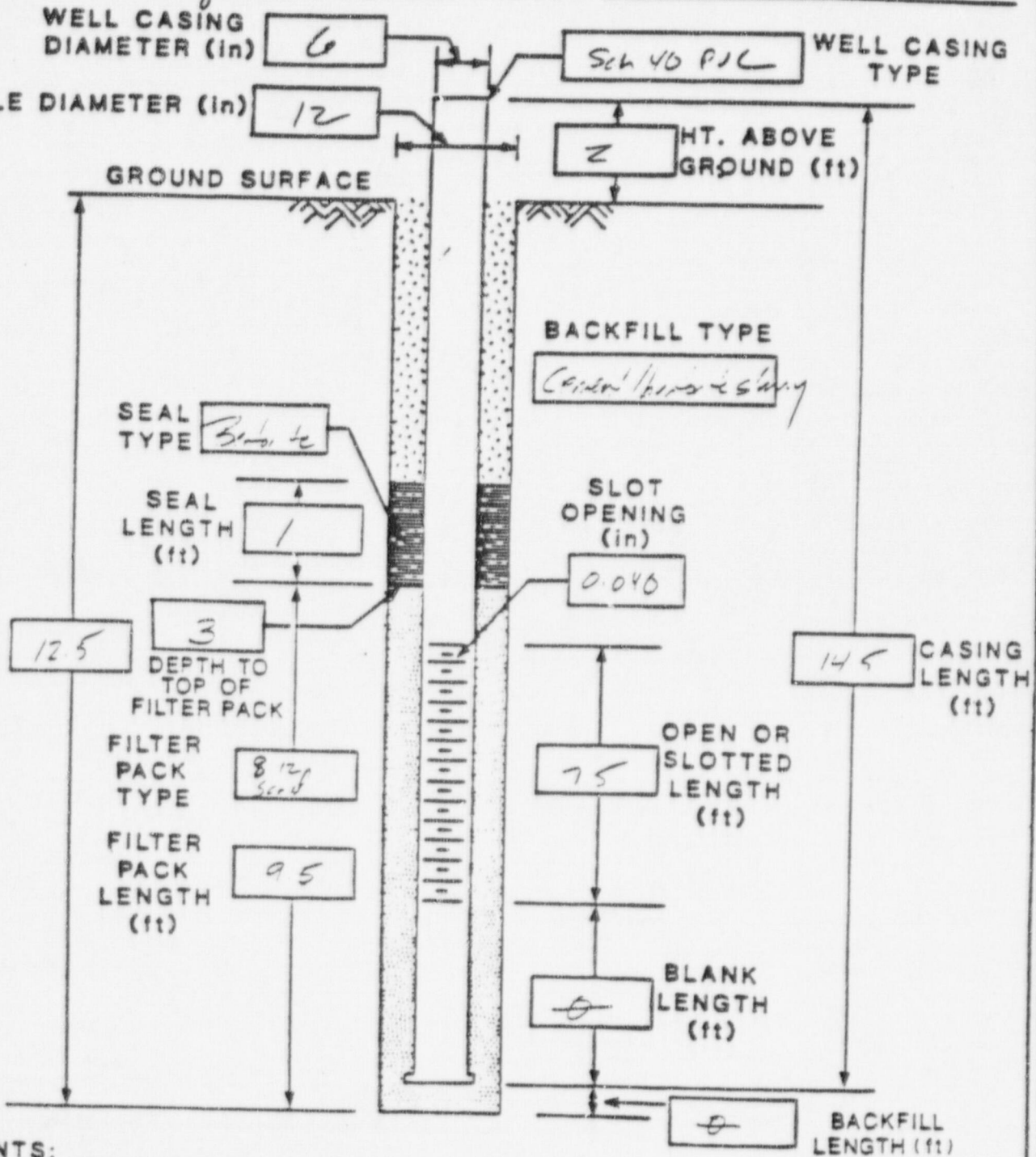
SITE ID: RVT 01 LOCATION ID: 738 DATE INSTALLED: 7-19-95

APPROX. SITE COORDINATES: (FT.) N _____ E _____

OPEN AREA PER LINEAL FT. ($IN^2/FT.$) 0.040 slot 1/4" spacing, 6" screen (Sch 40)

FORMATION OF COMPLETION: Alluvium

FIELD REP.: D. Holmquist DRILLER: INBERG-MILLER



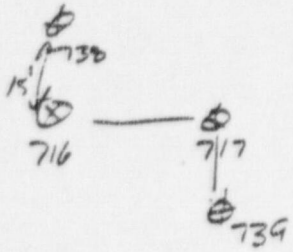
COMMENTS: _____

JEG-AL-ENG-3 (6/87)

JE, ADVANCED SYSTEMS DIVISION, ALBUQUERQUE OPERATIONS

BOREHOLE LOG (SOIL)

LOCATION MAP:



SITE ID: EVD-01 LOCATION ID: 738
SITE COORDINATES (ft.):
N _____ E _____
GROUND ELEVATION (ft. MSL): _____
DRILLING METHOD: 8" 12" HSA
DRILLING CONTR.: IME
DATE STARTED: 7/15/95
DATE COMPLETED: _____
FIELD REP.: D. Holmquist

GROUNDWATER LEVELS		
DATE	TIME	DEPTH (ft.)

LOCATION DESCRIPTION _____
SITE CONDITION _____

DEPTH	SAMPLE INTERVAL	SAMPLE RECOVERED	SAMPLE RETAINED	TYPE	ID	BLOWS PER 6 in.	N VALUE	USCS	VISUAL CLASSIFICATION
					S1				silty sand, light brownish gray 10YR 6/2
					S2				silty sand, gravel and cobbles (to 1"), light brownish gray, 10YR 6/2
									TD - 12'

COMMENTS: _____

SAMPLE TYPE
A - Auger cuttings
S - 3" OD 1.38" ID drive sample
U - 3" OD 2.42" ID tube sample
T - 3" OD thin-walled Shelby tube

EG-AL-ENG-25 (4/85)

JACOBS ENGINEERING GROUP INC.
ALBUQUERQUE OPERATIONS

WELL COMPLETION RECORD

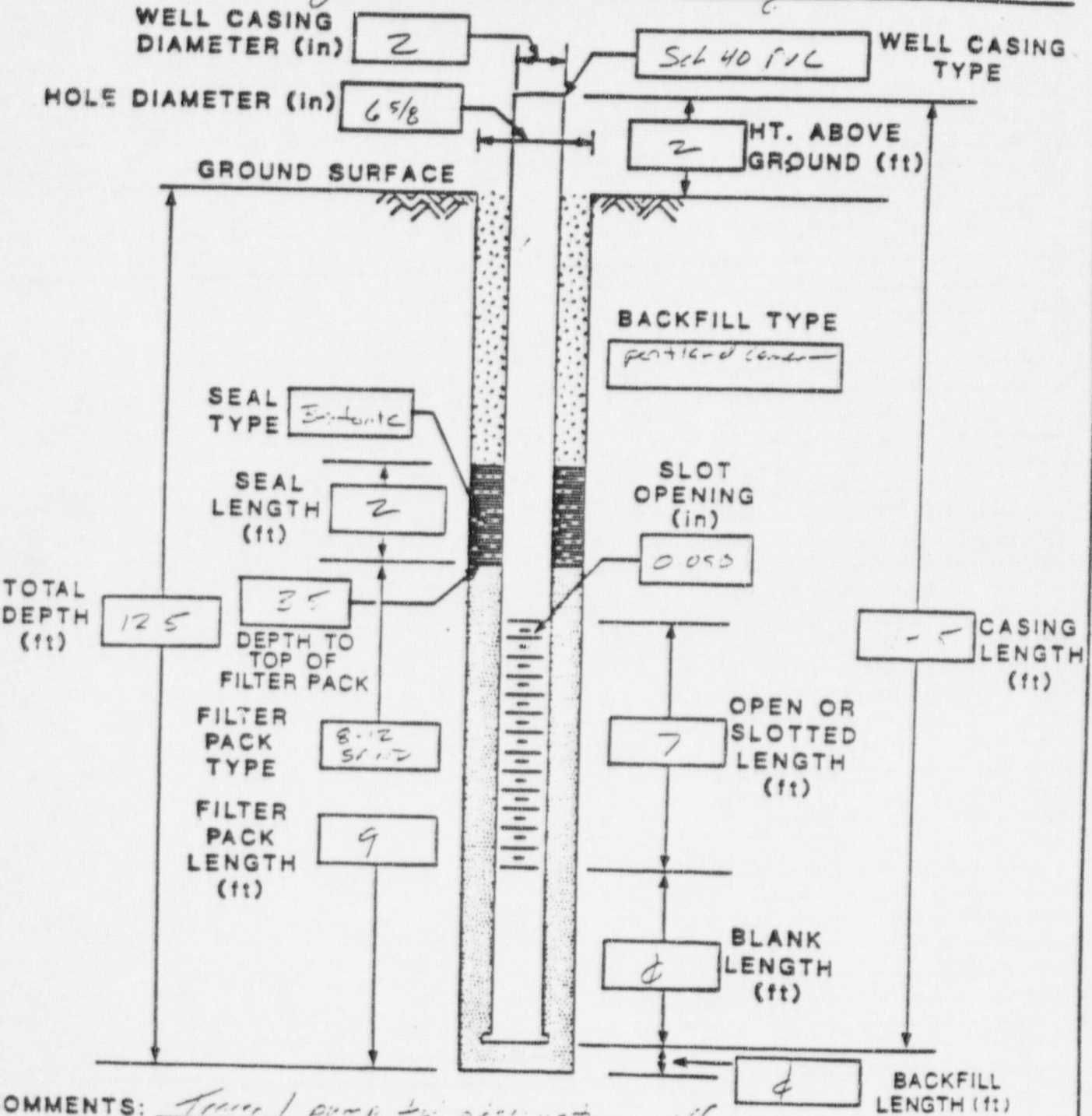
SITE ID: RVT-01 LOCATION ID: 780 DATE INSTALLED: 7-25-95

APPROX. SITE COORDINATES: (FT.) N _____ E _____

OPEN AREA PER LINEAL FT. ($IN^2/FT.$) 0.053 slot [illegible]

FORMATION OF COMPLETION: Alluvium

FIELD REP.: O. Helmquist DRILLER: Interq. [illegible]



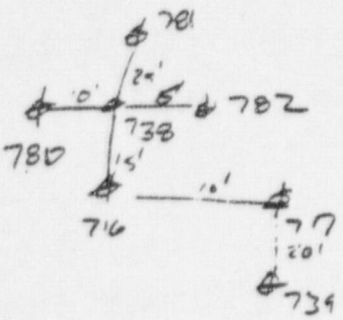
COMMENTS: Tremie pump to [illegible]

JEG-AL-ENG-3 (6/87)

JE ADVANCED SYSTEMS DIVISION, ALBUQUERQUE OPERATIONS

BOREHOLE LOG (SOIL)

LOCATION MAP:



SITE ID: RVT 01 LOCATION ID: 780
SITE COORDINATES (ft.):
N _____ E _____
GROUND ELEVATION (ft. MSL): _____
DRILLING METHOD: 6 5/8 OD HSA
DRILLING CONTR.: INBERG MILLER
DATE STARTED: 7-23-94
DATE COMPLETED: 7-23-94
FIELD REP.: O Holmquist

GROUNDWATER LEVELS		
DATE	TIME	DEPTH (ft.)

LOCATION DESCRIPTION Center of South half of [illegible]
SITE CONDITION [illegible] grassy

DEPTH	SAMPLE INTERVAL	SAMPLE RECOVERY	SAMPLE RETAINED	TYPE	ID	BLOWS PER 6 in.	N VALUE	USCS	VISUAL CLASSIFICATION
					SM				Silty sand [illegible] gray [illegible]
					GM				Silty sand [illegible] (4 1'), [illegible]
									TD 12.5' [illegible]

COMMENTS: _____

SAMPLE TYPE
A - Auger cuttings
S - 2" O.D 1.38" I.D drive sample
U - 3" O.D 2.47" I.D tube sample
T - 3" O.D thin-walled Shelby tube

JEG-AL-ENG-2S (4/85)

JACOBS ENGINEERING GROUP INC.
ALBUQUERQUE OPERATIONS

WELL COMPLETION RECORD

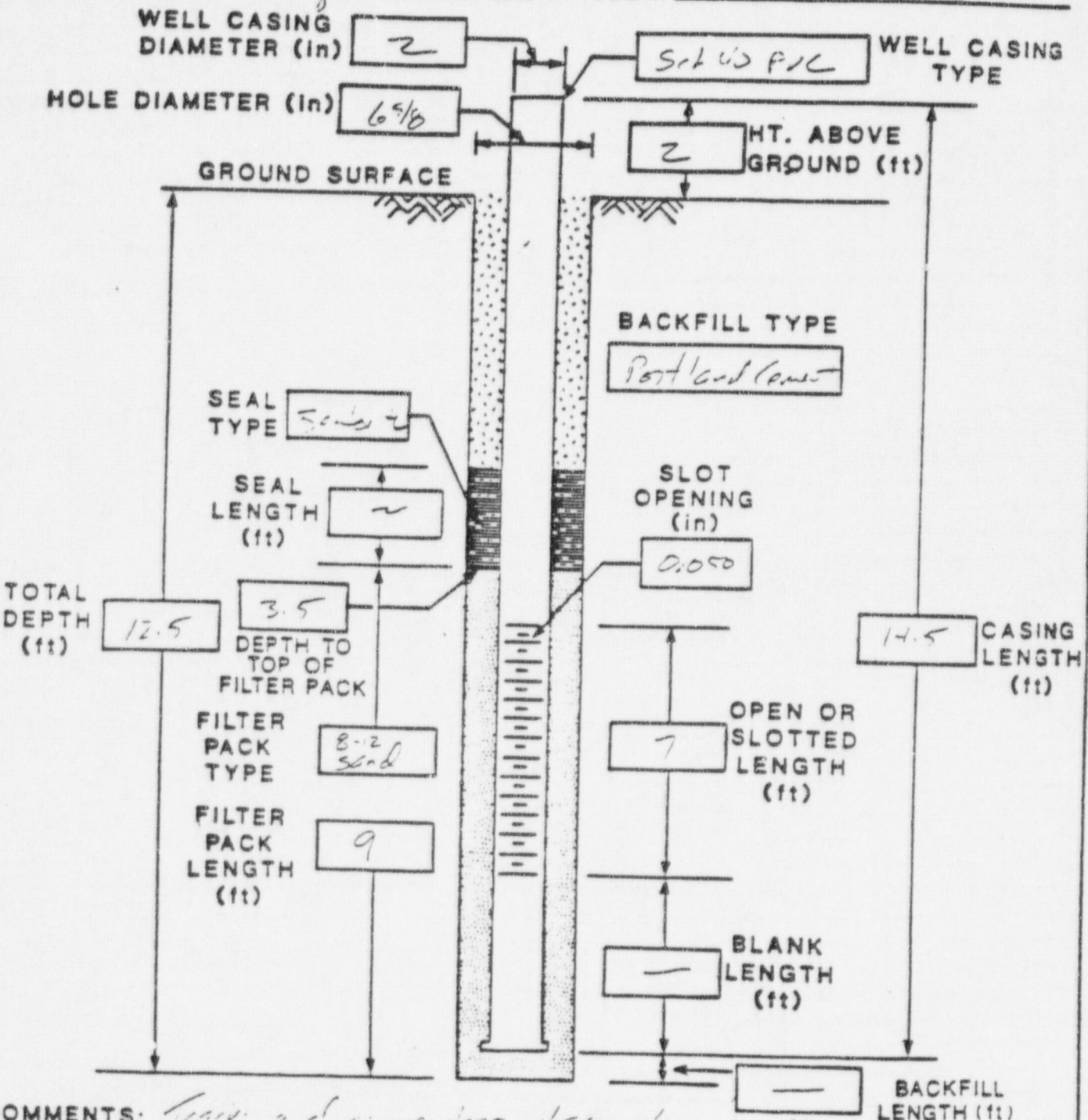
SITE ID: RVT-01 LOCATION ID: 7B1 DATE INSTALLED: 7-22-95

APPROX. SITE COORDINATES: (FT.) N _____ E _____

OPEN AREA PER LINEAL FT. (IN^2/FT.) 0.050 slot [illegible]

FORMATION OF COMPLETION: Alluvium

FIELD REP.: O. Holmquist DRILLER: [illegible]



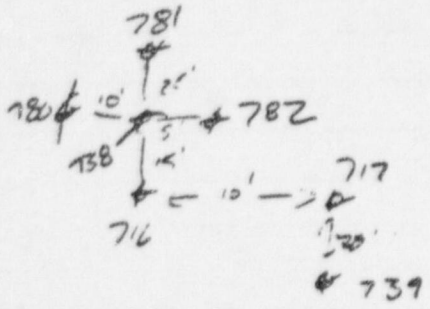
COMMENTS: [illegible]

JEG-AL-ENG-3 (6/87)

JE JACOBS ENGINEERING GROUP INC.
ADVANCED SYSTEMS DIVISION, ALBUQUERQUE OPERATIONS

BOREHOLE LOG (SOIL)

LOCATION MAP:



SITE ID: RVT 01 LOCATION ID: 781
SITE COORDINATES (ft.):
N _____ E _____
GROUND ELEVATION (ft. MSL): _____
DRILLING METHOD: [illegible] 6.5/0, HSA
DRILLING CONTR.: INBERG MILLER
DATE STARTED: 7-23-95
DATE COMPLETED: 7-23-95
FIELD REP.: [illegible]

GROUNDWATER LEVELS		
DATE	TIME	DEPTH (ft.)

LOCATION DESCRIPTION [illegible]
SITE CONDITION Field [illegible]

DEPTH	SAMPLE INTERVAL	SAMPLE RECOVERY	SAMPLE RETAINED	TYPE	ID	BLOWS PER 6 in.	N VALUE	USCS	VISUAL CLASSIFICATION
0					SM				Silty sand LP, [illegible] (10YR 6/2)
					SM				Silty sand, [illegible] (10YR 6/2)
10									[illegible]

COMMENTS: _____

SAMPLE TYPE
A - Auger cuttings
S - 2" O.D. 1.38" I.D. drive sample
U - 3" O.D. 2.47" I.D. tube sample
T - 3" O.D. thin-walled Shelby tube

JEG-AL-ENG-23 (4/85)

JACOBS ENGINEERING GROUP INC.
ALBUQUERQUE OPERATIONS

WELL COMPLETION RECORD

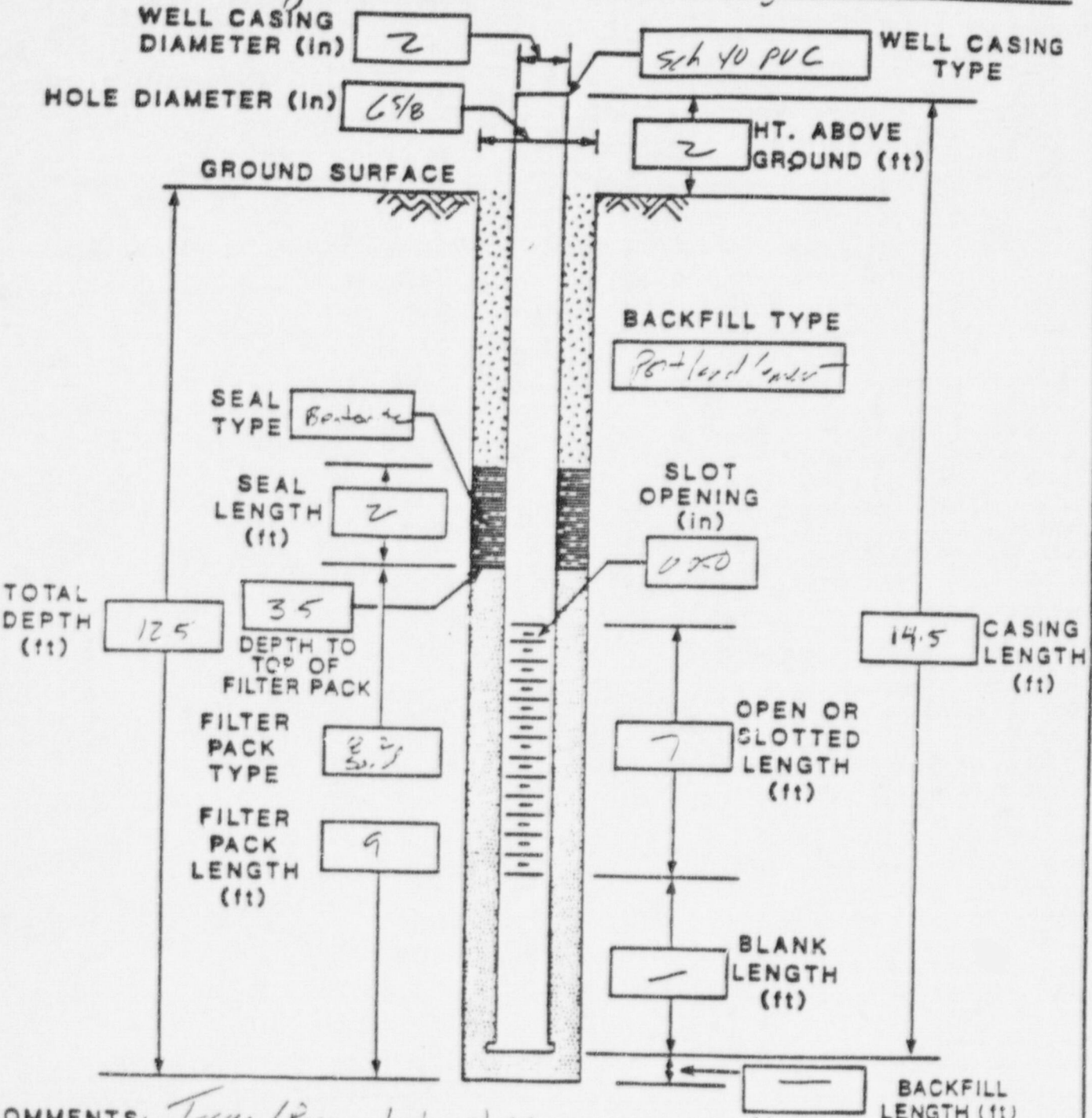
SITE ID: RVT-01 LOCATION ID: 782 DATE INSTALLED: 7-24-95

APPROX. SITE COORDINATES: (FT.) N _____ E _____

OPEN AREA PER LINEAL FT. (IN^2/FT.) 0.050 slot, 1/4" spacing

FORMATION OF COMPLETION: Alluvium

FIELD REP.: Ontologist DRILLER: Inberg-Miller



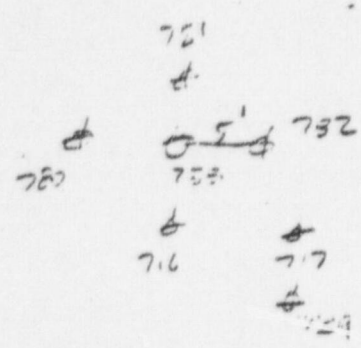
COMMENTS: Trace/Pump test [illegible]

JEG-AL-ENG-3 (6/87)

JACOBS ENGINEERING GROUP INC.
ADVANCED SYSTEMS DIVISION, ALBUQUERQUE OPERATIONS

BOREHOLE LOG (SOIL)

LOCATION MAP:



SITE ID: RVT-01 LOCATION ID: 782
SITE COORDINATES (ft.):
N _____ E _____
GROUND ELEVATION (ft. MSL): _____
DRILLING METHOD: 6 5/8 OD HSA
DRILLING CONTR.: INBERG MILLER
DATE STARTED: 7-23-95
DATE COMPLETED: 7-24-95
FIELD REP.: O. Hainquist

GROUNDWATER LEVELS		
DATE	TIME	DEPTH (ft.)

LOCATION DESCRIPTION South center of [illegible]
SITE CONDITION Flat grassy

DEPTH	SAMPLE INTERVAL	SAMPLE RECOVERY	SAMPLE RETAINED	TYPE	ID	BLOWS PER 6 in.	N VALUE	USCS	VISUAL CLASSIFICATION
					SM				silty sand [illegible] light [illegible] gray (10YR 6/2)
					SM				silty sand gravel and cobbles (to 1') [illegible] gray (10YR 6/2)
									[illegible]

COMMENTS: [illegible]

SAMPLE TYPE
A - Auger cuttings
S - 3" O.D. 1.38" I.D. drive sample
U - 3" O.D. 2.42" I.D. tube sample
T - 3" O.D. thin-walled Shelby tube

EG-AL-ENG-25 (4/85)

JACOBS ENGINEERING GROUP INC.
ADVANCED SYSTEMS DIVISION, ALBUQUERQUE OPERATIONS

WELL COMPLETION RECORD

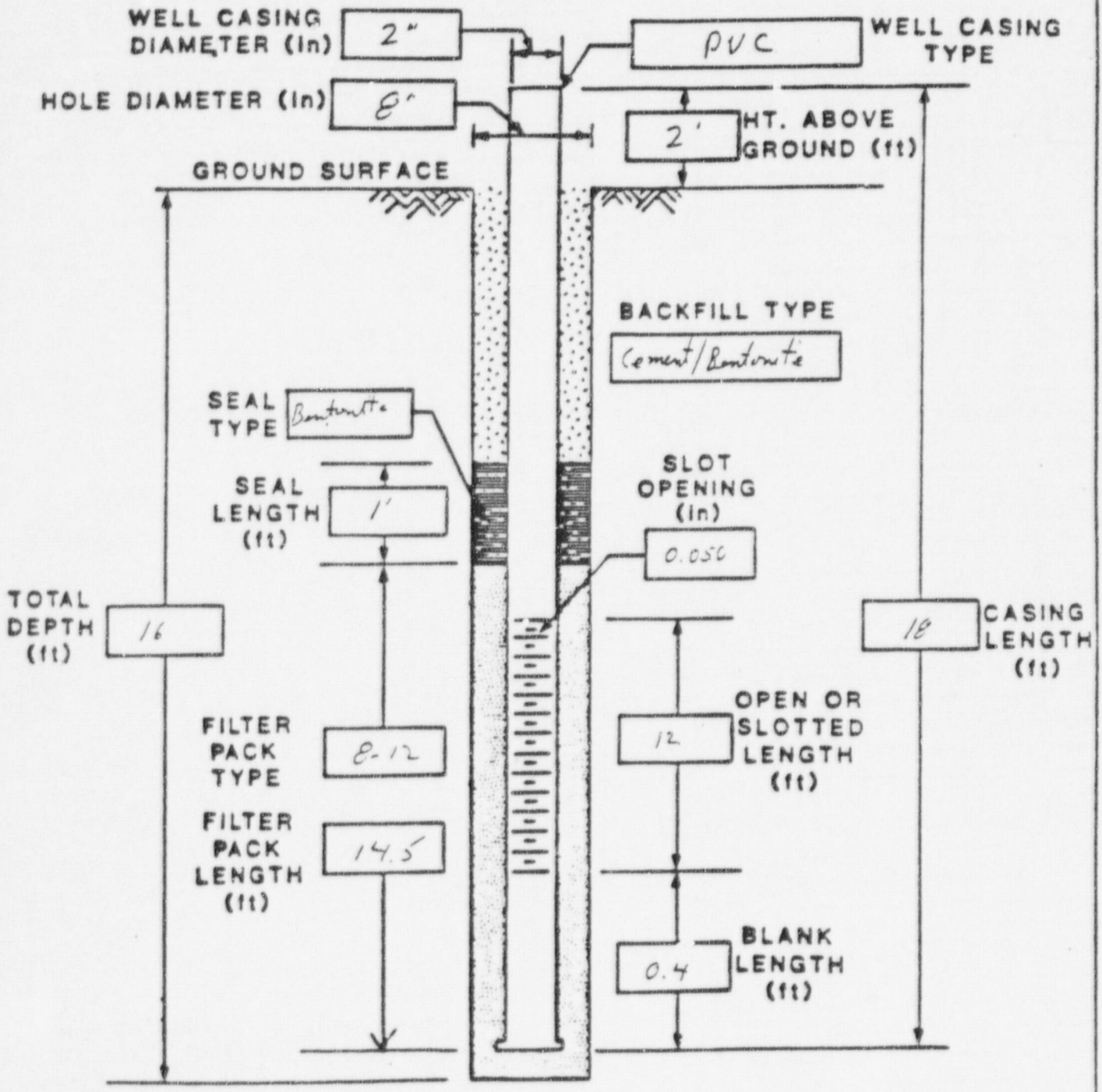
SITE ID: RVT01 LOCATION ID: 0705 DATE INSTALLED: 7-25-95

APPROX. SITE COORDINATES: (FT.) N _____ E _____

OPEN AREA PER LINEAL FT. ($IN^2/FT.$) _____

FORMATION OF COMPLETION: Surficial Aquifer

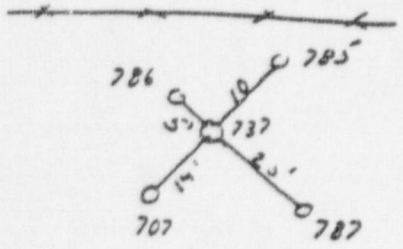
FIELD REP.: _____ DRILLER: _____



COMMENTS: _____

BOREHOLE LOG (SOIL)

LOCATION MAP:



SITE ID: RVT01 LOCATION ID: 785

SITE COORDINATES (ft.):

N _____ E _____

GROUND ELEVATION (ft. MSL): _____

DRILLING METHOD: Hollow Stem Auger

DRILLING CONTR.: Isbery Miller

DATE STARTED: July 25, 1995

DATE COMPLETED: July 25, 1995

FIELD REP.: D Isbery

GROUNDWATER LEVELS		
DATE	TIME	DEPTH (ft.)
7/25/95	1400	4.2

LOCATION DESCRIPTION _____

SITE CONDITION _____

DEPTH	DRIVEN RECOVERY	DRILLED RECOVERY	DRILLED RECOVERY	TYPE	ID	BLOWS PER 6 in.	N VALUE	Unified USCS	VISUAL CLASSIFICATION
0									
					A			MC/SC	Clayey SILT and fine Sand, Occasional Gravel Pale brown (5 YR 5/2)
2.0									
5								SW/GW	Coarse (+) to fine Sand and coarse to fine Gravel. Frequent Cobbles Grayish brown (5 yr 3/2)
					A				
10									
					A			SP	Uniform medium SAND, ~~occasional~~ little coarse to fine gravel occasional cobbles Grayish brown (5 yr 3/2)
16									
									End of Hole at 16'

COMMENTS: _____

SAMPLE TYPE
A - Auger cuttings
B - 3" OD 1.38" ID drive sample
U - 3" OD 2.87" ID tube sample
T - 3" OD thin-walled shelby tube

EG-AL-ENG-28 (4/85)

JACOBS ENGINEERING GROUP INC.
ADVANCED SYSTEMS DIVISION, ALBUQUERQUE OPERATIONS

WELL COMPLETION RECORD

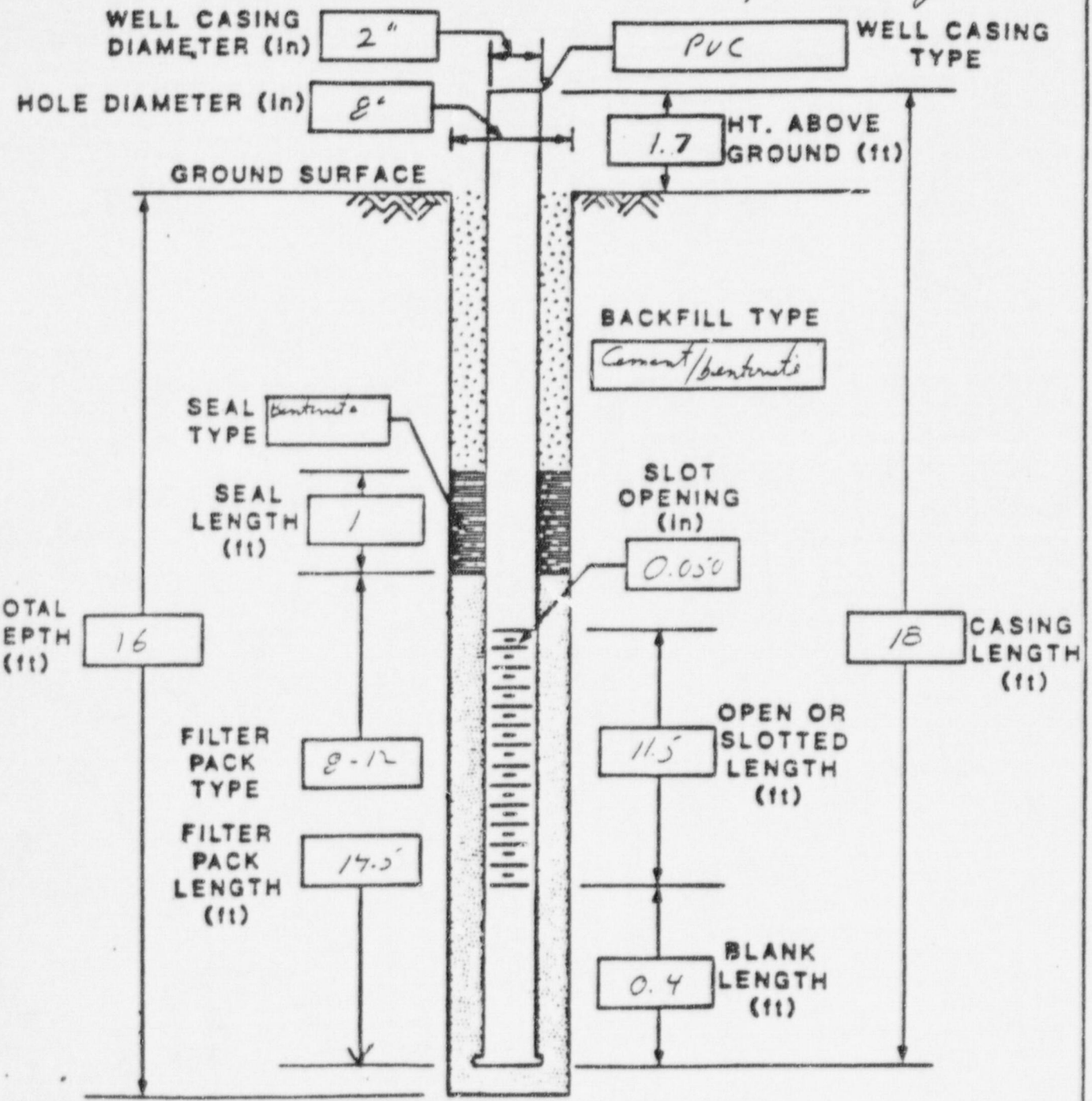
SITE ID: RVT LOCATION ID: 0786 DATE INSTALLED: 7-25-95

APPROX. SITE COORDINATES: (FT.) N _____ E _____

OPEN AREA PER LINEAL FT. ($IN^2/FT.$) _____

FORMATION OF COMPLETION: Surficial Aquifer

FIELD REP.: D Tarbox DRILLER: Isbeny-Mills Engineers



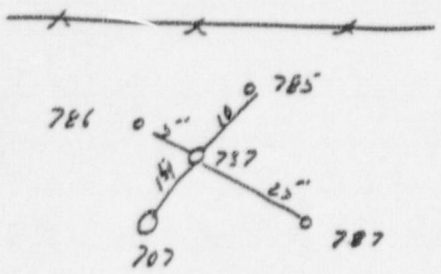
COMMENTS: _____

JE JACOBS ENGINEERING GROUP INC.
ADVANCED SYSTEMS DIVISION, ALBUQUERQUE OPERATIONS

BOREHOLE LOG (SOIL)

Page 1 of 1

LOCATION MAP:



SITE ID: KUT LOCATION ID: 786
SITE COORDINATES (ft.):
N _____ E _____
GROUND ELEVATION (ft. MSL): _____
DRILLING METHOD: Hollow Stem Auger
DRILLING CONTR.: Tibbets-Miller Engineers
DATE STARTED: 2/25/92
DATE COMPLETED: 2/25/92
FIELD REP.: D. Tudor

GROUNDWATER LEVELS		
DATE	TIME	DEPTH (ft.)
2-25-92	1600	41

LOCATION DESCRIPTION _____
SITE CONDITION _____

DEPTH	SAMPLE INTERVAL	SAMPLE RECOVERY	SAMPLE NUMBER	TYPE	ID	BLOWS PER 6 in.	N VALUE	Unified USCS	VISUAL CLASSIFICATION
3.2					A			MC/SC	Clayey SILT, and little fine Sand Occasional gravel and cobble Pale brown (5 YR 5/2)
9.5					A			SW/GW	Coarse to fine Sand and coarse to fine Gravel, ~~from 5 to 11 cm~~ Frequent cobbles Pale brown (5 YR 5/2)
14.5					P			SP	Coarse to fine SAND little fine Gravel Pale brown (5 YR 5/2)
17								SW/GW	Coarse to fine Sand and coarse to fine Gravel Frq cobbles Pale brown (5 YR 5/2)
									End of hole at 17'

COMMENTS: _____

SAMPLE TYPE
A - Auger cuttings
B - 3" OD 1.38" ID Drive Sample
U - 3" OD 2.42" ID Tube Sample
T - 3" OD Thin-walled Shelby Tube

JEQ-AL-ENG-28 (4/85)

JACOBS ENGINEERING GROUP INC.
ADVANCED SYSTEMS DIVISION, ALBUQUERQUE OPERATIONS

WELL COMPLETION RECORD

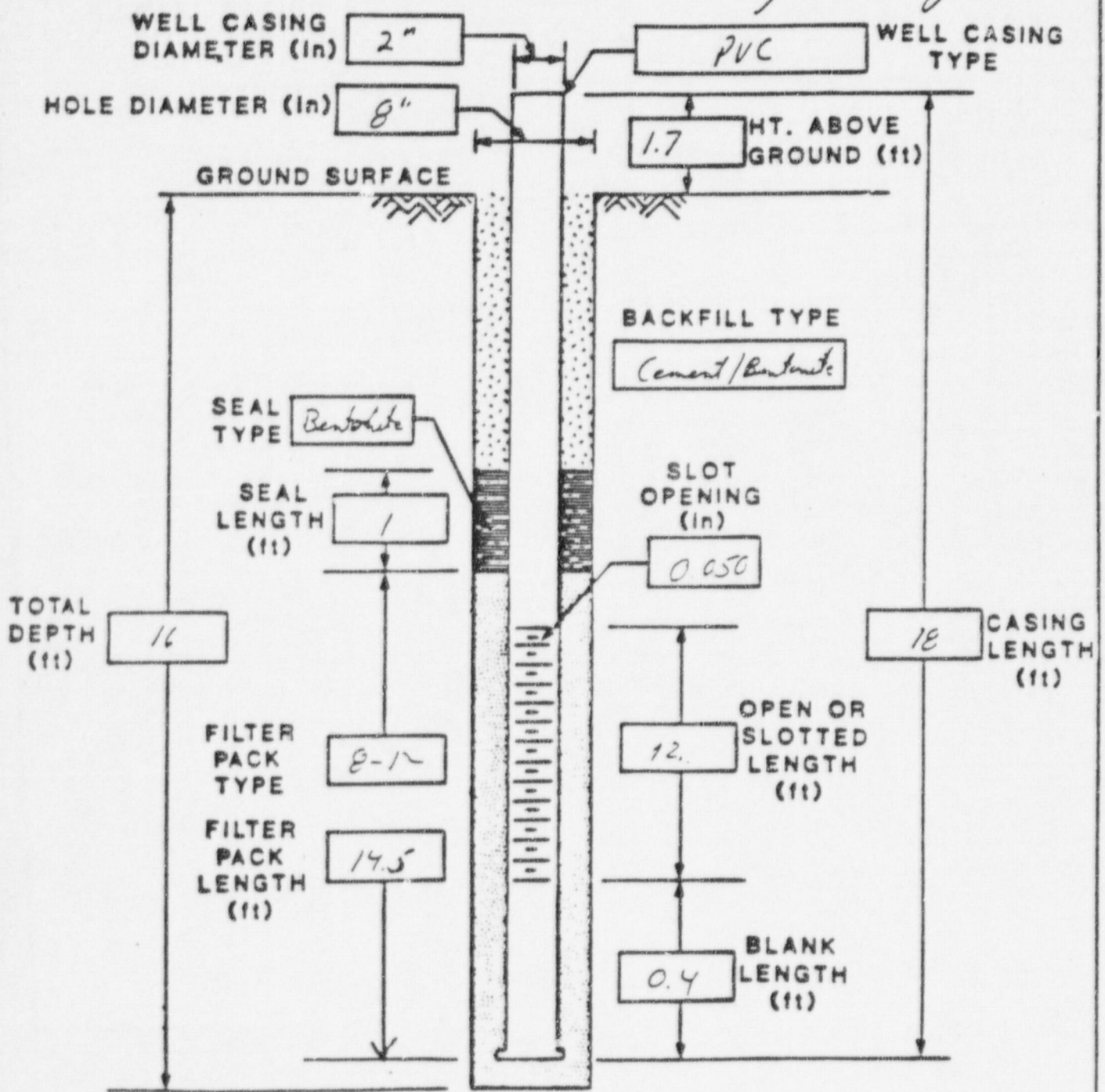
SITE ID: RVT 01 LOCATION ID: 0787 DATE INSTALLED: 7-26-95

APPROX. SITE COORDINATES: (FT.) N _____ E _____

OPEN AREA PER LINEAL FT. ($IN^2/FT.$) _____

FORMATION OF COMPLETION: Surficial Aquifer

FIELD REP.: D Tarbox DRILLER: Inberg Miller Engineers



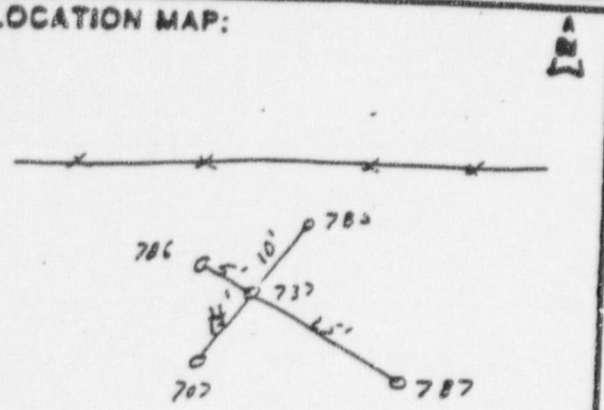
COMMENTS: _____

ADVANCED SYSTEMS DIVISION, ALBUQUERQUE OPERATIONS

BOREHOLE LOG (SOIL)

Page __ of __

LOCATION MAP:



SITE ID: RVT 01 LOCATION ID: 787
SITE COORDINATES (ft.):
N _____ E _____
GROUND ELEVATION (ft. MSL):
DRILLING METHOD: Hollow Stem Auger
DRILLING CONTR.: Inberg Miller Engineers
DATE STARTED: 7-26-95
DATE COMPLETED: 7-26-95
FIELD REP.: D Tarbox

GROUNDWATER LEVELS		
DATE	TIME	DEPTH (ft.)
7-26-95	0940	4' ±

LOCATION DESCRIPTION
SITE CONDITION

DEPTH	SAMPLE INTERVAL	SAMPLE RECOVERY	SAMPLE RETAINED	TYPE	ID	BLOWS PER 6 in.	N VALUE	Unified ~~USCS~~	VISUAL CLASSIFICATION
3.0				A				MC/SC	Clayey SILT, little fine Sand. Occasional cobbles. Pale brown (5 yr 5/2)
				A				GW/SW	Coarse to fine Gravel and coarse(+) to fine Sand, trace(-) Silt. Frequent cobbles Pale brown (5 yr 5/2)
16 16.5				A				CH	CLAY trace Silt. Plastic Medium bluish gray (5 B 5/1)

End of hole 16.5

COMMENTS:

SAMPLE TYPE
A - Auger cuttings
S - 2" O.D 1.38" I.D drive sample
U - 3" O.D 2.47" I.D tube sample
T - 3" O.D thin-walled Shelby tube

JEG-AL-ENG-28 (4/85)

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Appendix B1

Contaminants of Concern in Domestic Wells

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GROUND WATER QUALITY DATA BY LOCATION (USEE100) FOR SITE RVT01, RIVERTON
LOCATION: 0401 DOMESTIC WELL
REPORT DATE: 2/19/98 10:41:59 AM

PARAMETER	UNITS	SAMPLE: DATE	ID	RESULT	QUALIFIERS: LAB	DATA	QA	DETECTION LIMIT	UN-CERTAINTY
Arsenic	mg/L	05/29/85	0001	0.01	U		#	0.01	-
Lead-210	pCi/L	05/29/85	0001	0.50		J	#	1.5	± 0.70
Manganese	mg/L	05/29/85	0001	0.01	U		#	0.01	-
Molybdenum	mg/L	05/29/85	0001	0.01	U		#	0.01	-
Nickel	mg/L	05/29/85	0001	0.04	U	J	#	0.04	-
Polonium-210	pCi/L	05/29/85	0001	0.20			#	1	± 0.70
Sulfate	mg/L	05/29/85	0001	118.00			#	0.1	-
Thorium-230	pCi/L	05/29/85	0001	0.40		J	#	1	± 1.10
Uranium	mg/L	05/29/85	0001	0.0037			#	0.003	-
Vanadium	mg/L	05/29/85	0001	0.01	U	R	#	0.01	-

GROUND WATER QUALITY DATA BY LOCATION (USEE100) FOR SITE RVT01, RIVERTON
LOCATION: 0402 DOMESTIC WELL
REPORT DATE: 2/19/98 10:41:59 AM

PARAMETER	UNITS	SAMPLE: DATE	ID	RESULT	QUALIFIERS: LAB	DATA	QA	DETECTION LIMIT	UN-CERTAINTY
Arsenic	mg/L	05/29/85	0001	0.01	U		#	0.01	-
Lead-210	pCi/L	05/29/85	0001	1.20		J	#	1.5	± 0.60
Manganese	mg/L	05/29/85	0001	0.01	U		#	0.01	-
Molybdenum	mg/L	05/29/85	0001	0.01	U		#	0.01	-
Nickel	mg/L	05/29/85	0001	0.04	U	J	#	0.04	-
Polonium-210	pCi/L	05/29/85	0001	0.00			#	1	± 0.60
Sulfate	mg/L	05/29/85	0001	112.00			#	0.1	-
Thorium-230	pCi/L	05/29/85	0001	0.00		J	#	1	± 0.50
Uranium	mg/L	05/29/85	0001	0.0021		J	#	0.003	-
Vanadium	mg/L	05/29/85	0001	0.01	U	R	#	0.01	-

GROUND WATER QUALITY DATA BY LOCATION (USEE100) FOR SITE RVT01, RIVERTON
LOCATION: 0403 DOMESTIC WELL
REPORT DATE: 2/19/98 10:42:00 AM

PARAMETER	UNITS	SAMPLE: DATE	ID	RESULT	QUALIFIERS: LAB	DATA	QA	DETECTION LIMIT	UN-CERTAINTY
Arsenic	mg/L	05/29/85	0001	0.01	U		#	0.01	-
Lead-210	pCi/L	05/29/85	0001	0.60		J	#	1.5	± 0.90
Manganese	mg/L	05/29/85	0001	0.01	U		#	0.01	-
Molybdenum	mg/L	05/29/85	0001	0.01	U		#	0.01	-
Nickel	mg/L	05/29/85	0001	0.04	U	J	#	0.04	-
Polonium-210	pCi/L	05/29/85	0001	0.20			#	1	± 0.70
Sulfate	mg/L	05/29/85	0001	119.00			#	0.1	-
Thorium-230	pCi/L	05/29/85	0001	0.00		J	#	1	± 0.40
Uranium	mg/L	05/29/85	0001	0.0003	U	J	#	0.003	-
Vanadium	mg/L	05/29/85	0001	0.01	U	R	#	0.01	-

GROUND WATER QUALITY DATA BY LOCATION (USEE100) FOR SITE RVT01, RIVERTON
LOCATION: 0404 DOMESTIC WELL
REPORT DATE: 2/19/98 10:42:00 AM

PARAMETER	UNITS	SAMPLE: DATE	ID	RESULT	QUALIFIERS: LAB	DATA	QA	DETECTION LIMIT	UN-CERTAINTY
Arsenic	mg/L	05/28/85	0001	0.01	U		#	0.01	-
Lead-210	pCi/L	05/28/85	0001	0.30		J	#	1.5	± 0.70
Manganese	mg/L	05/28/85	0001	0.01	U		#	0.01	-
Molybdenum	mg/L	05/28/85	0001	0.01	U		#	0.01	-
Nickel	mg/L	05/28/85	0001	0.04	U	J	#	0.04	-
Polonium-210	pCi/L	05/28/85	0001	0.00			#	1	± 0.60
Sulfate	mg/L	05/28/85	0001	158.00			#	0.1	-
Thorium-230	pCi/L	05/28/85	0001	0.00		J	#	1	± 0.40
Uranium	mg/L	05/28/85	0001	0.0003	U	J	#	0.003	-
Vanadium	mg/L	05/28/85	0001	0.01	U	R	#	0.01	-

GROUND WATER QUALITY DATA BY LOCATION (USEE100) FOR SITE RVT01, RIVERTON
LOCATION: 0405 DOMESTIC WELL - BLOMBERG
REPORT DATE: 2/19/98 10:42:00 AM

PARAMETER	UNITS	SAMPLE: DATE	ID	RESULT	QUALIFIERS: LAB	DATA	QA	DETECTION LIMIT	UN-CERTAINTY
Arsenic	mg/L	12/08/83	0001	0.001	U		#	0.001	-
	mg/L	01/10/84	0001	0.005	U		#	0.005	-
	mg/L	06/07/84	0001	0.01	U		#	0.01	-
	mg/L	05/28/85	0001	0.01	U		#	0.01	-
	mg/L	11/15/90	0001	0.01	U	GJ	#	0.01	-
	mg/L	11/15/90	N001	0.01	U	G	#	0.01	-
	mg/L	03/29/91	0001	0.01	U	G	#	0.01	-
	mg/L	03/29/91	N001	0.01	U	G	#	0.01	-
	mg/L	06/03/91	N001	0.05	UI		#	0.05	-
	mg/L	10/24/91	N001	0.001	U		#	0.001	-
	mg/L	03/14/92	N001	0.03	UI		#	0.03	-
	mg/L	08/06/92	N001	0.01	U		#	0.01	-
	mg/L	03/15/93	N001	0.005	U		#	0.005	-
	mg/L	06/22/95	N001	0.005	U		#	0.005	-
	mg/L	02/07/97	N001	0.00022	U	G	#	0.00022	-
Lead-210	pCi/L	01/10/84	0001	1.50	U		#	1.5	± 0.00
	pCi/L	06/07/84	0001	0.00			#	1	± 1.40
	pCi/L	05/28/85	0001	1.10		J	#	1.5	± 0.70
	pCi/L	03/29/91	N001	0.9		G	#	1.5	± 1.50
	pCi/L	03/15/93	N001	0.4			#	3.6	± 2.20
	pCi/L	02/07/97	N001	1.63		UG	#	1.15	± 0.72
Manganese	mg/L	12/08/83	0001	0.02			#	0.01	-
	mg/L	01/10/84	0001	0.01	U		#	0.01	-
	mg/L	06/07/84	0001	0.01	U		#	0.01	-
	mg/L	05/28/85	0001	0.01			#	0.01	-
	mg/L	11/15/90	0001	0.01	U	G	#	0.01	-
	mg/L	11/15/90	N001	0.01	U	G	#	0.01	-
	mg/L	03/29/91	0001	0.01		G	#	0.01	-
	mg/L	03/29/91	N001	0.01		G	#	0.01	-
	mg/L	06/03/91	N001	0.01	U		#	0.01	-
	mg/L	10/24/91	N001	0.01	U		#	0.01	-
	mg/L	03/14/92	N001	0.01	U		#	0.01	-
	mg/L	08/06/92	N001	0.01	U		#	0.01	-
	mg/L	03/15/93	N001	0.01	U		#	0.01	-
	mg/L	06/22/95	N001	0.01	U		#	0.01	-
	mg/L	02/07/97	N001	0.0053	B	UG	#	-	-

GROUND WATER QUALITY DATA BY LOCATION (USEE100) FOR SITE RVT01, RIVERTON
LOCATION: 0405 DOMESTIC WELL - BLOMBERG
REPORT DATE: 2/19/98 10:42:01 AM

PARAMETER	UNITS	SAMPLE: DATE	ID	RESULT	QUALIFIERS: LAB	DATA	QA	DETECTION LIMIT	UN-CERTAINTY
Molybdenum	mg/L	12/08/83	0001	0.001	U		#	0.001	-
	mg/L	01/10/84	0001	0.005	U		#	0.005	-
	mg/L	06/07/84	0001	0.01	U		#	0.01	-
	mg/L	05/28/85	0001	0.01	U		#	0.01	-
	mg/L	11/15/90	0001	0.01		G	#	0.01	-
	mg/L	11/15/90	N001	0.01	U	G	#	0.01	-
	mg/L	03/29/91	0001	0.01	U	G	#	0.01	-
	mg/L	03/29/91	N001	0.01	U	G	#	0.01	-
	mg/L	06/03/91	N001	0.01	U		#	0.01	-
	mg/L	10/24/91	N001	0.01	U		#	0.01	-
	mg/L	03/14/92	N001	0.01	U		#	0.01	-
	mg/L	08/06/92	N001	0.01	U		#	0.01	-
	mg/L	03/15/93	N001	0.01	U		#	0.01	-
	mg/L	06/22/95	N001	0.01	U		#	0.01	-
	mg/L	02/07/97	N001	0.0051	B	G	#	-	-
Nickel	mg/L	12/08/83	0001	0.015			#	0.001	-
	mg/L	01/10/84	0001	0.04	U		#	0.04	-
	mg/L	06/07/84	0001	0.04	U		#	0.04	-
	mg/L	05/28/85	0001	0.04	U	J	#	0.04	-
	mg/L	11/15/90	0001	0.04	U	G	#	0.04	-
	mg/L	11/15/90	N001	0.04	U	G	#	0.04	-
	mg/L	03/29/91	0001	0.04	U	G	#	0.04	-
	mg/L	03/29/91	N001	0.04	U	G	#	0.04	-
	mg/L	06/03/91	N001	0.04	U		#	0.04	-
	mg/L	10/24/91	N001	0.01	U		#	0.01	-
	mg/L	03/14/92	N001	0.04	U		#	0.04	-
	mg/L	08/06/92	N001	0.04	U		#	0.04	-
	mg/L	03/15/93	N001	0.04	U		#	0.04	-
	mg/L	06/22/95	N001	0.04	U		#	0.04	-
	mg/L	02/07/97	N001	0.0078	U	G	#	0.0078	-
Polonium-210	pCi/L	12/08/83	0001	1.30			#	1	± 2.00
	pCi/L	05/28/85	0001	0.00			#	1	± 0.60
	pCi/L	03/29/91	N001	0.1		G	#	1	± 0.30
	pCi/L	03/15/93	N001	0.0			#	0.9	± 0.50
	pCi/L	02/07/97	N001	0.26		G	#	0.09	± 0.16

GROUND WATER QUALITY DATA BY LOCATION (USEE100) FOR SITE RVT01, RIVERTON
LOCATION: 0405 DOMESTIC WELL - BLOMBERG
REPORT DATE: 2/19/98 10:42:01 AM

PARAMETER	UNITS	SAMPLE: DATE	ID	RESULT	QUALIFIERS: LAB	DATA	QA	DETECTION LIMIT	UN-CERTAINTY
Sulfate	mg/L	06/12/81	0001	264.00			#	-	-
	mg/L	12/08/83	0001	263.00			#	0.1	-
	mg/L	01/10/84	0001	250.00			#	-	-
	mg/L	06/07/84	0001	117.00			#	0.1	-
	mg/L	05/28/85	0001	264.00			#	0.1	-
	mg/L	11/15/90	0001	277		G	#	0.1	-
	mg/L	11/15/90	N001	276		G	#	0.1	-
	mg/L	03/29/91	0001	339		G	#	10	-
	mg/L	06/03/91	N001	297			#	0.1	-
	mg/L	10/24/91	N001	245			#	0.1	-
	mg/L	03/14/92	N001	315			#	40	-
	mg/L	08/06/92	N001	277			#	30	-
	mg/L	03/15/93	N001	260			#	1	-
	mg/L	06/22/95	N001	290			#	1	-
	mg/L	02/07/97	N001	346.000		G	#	-	-
Thorium-230	pCi/L	12/08/83	0001	0.00			#	0.2	± 0.30
	pCi/L	01/10/84	0001	1.00	U		#	1	± 0.00
	pCi/L	06/07/84	0001	0.0002			#	0.0002	± 0.00
	pCi/L	05/28/85	0001	0.00		J	#	1	± 0.50
	pCi/L	11/15/90	0001	0.5		G	#	1	± 0.50
	pCi/L	11/15/90	N001	0.0		G	#	1	± 0.40
	pCi/L	03/29/91	N001	0.1		G	#	1	± 0.30
	pCi/L	03/15/93	N001	0.2			#	0.9	± 0.40
	pCi/L	02/07/97	N001	0.64	U	G	#	0.64	±
Uranium	mg/L	12/08/83	0001	0.0003	U		#	0.0003	-
	mg/L	01/10/84	0001	0.002			#	-	-
	mg/L	06/07/84	0001	0.0008			#	0.0003	-
	mg/L	05/28/85	0001	0.0003	U	J	#	0.003	-
	mg/L	11/15/90	0001	0.0003	U	G	#	0.0003	-
	mg/L	11/15/90	N001	0.0003	U	G	#	0.0003	-
	mg/L	03/29/91	0001	0.005		G	#	0.001	-
	mg/L	03/29/91	N001	0.001	U	G	#	0.001	-
	mg/L	06/03/91	N001	0.001	U		#	0.001	-
	mg/L	10/24/91	N001	0.0003	U		#	0.0003	-
	mg/L	03/14/92	N001	0.001			#	0.001	-
	mg/L	08/06/92	N001	0.001	U		#	0.001	-

GROUND WATER QUALITY DATA BY LOCATION (USEE100) FOR SITE RVT01, RIVERTON
LOCATION: 0405 DOMESTIC WELL - BLOMBERG
REPORT DATE: 2/19/98 10:42:02 AM

PARAMETER	UNITS	SAMPLE: DATE	ID	RESULT	QUALIFIERS: LAB	DATA	QA	DETECTION LIMIT	UN-CERTAINTY
Uranium	mg/L	03/15/93	N001	0.001	U		#	0.001	-
	mg/L	06/22/95	N001	0.001	U		#	0.001	-
	mg/L	02/07/97	N001	0.0011	U	G	#	0.0011	-
Vanadium	mg/L	12/08/83	0001	0.004	U		#	0.004	-
	mg/L	01/10/84	0001	0.004	U		#	0.004	-
	mg/L	06/07/84	0001	0.01	U		#	0.01	-
	mg/L	05/28/85	0001	0.01	U	R	#	0.01	-
	mg/L	11/15/90	0001	0.01	U	G	#	0.01	-
	mg/L	11/15/90	N001	0.01	U	G	#	0.01	-
	mg/L	03/29/91	0001	0.01	U	G	#	0.01	-
	mg/L	03/29/91	N001	0.01	U	G	#	0.01	-
	mg/L	06/03/91	N001	0.01	U		#	0.01	-
	mg/L	10/24/91	N001	0.01	U		#	0.01	-
	mg/L	03/14/92	N001	0.01	U		#	0.01	-
	mg/L	08/06/92	N001	0.01	U		#	0.01	-
	mg/L	03/15/93	N001	0.01	U		#	0.01	-
	mg/L	06/22/95	N001	0.01	U		#	0.01	-
	mg/L	02/07/97	N001	0.0044	U	G	#	0.0044	-

GROUND WATER QUALITY DATA BY LOCATION (USEE100) FOR SITE RVT01, RIVERTON
LOCATION: 0406 DOMESTIC WELL - CLARK/KNOWLES
REPORT DATE: 2/19/98 10:42:02 AM

PARAMETER	UNITS	SAMPLE: DATE	ID	RESULT	QUALIFIERS: LAB	DATA	QA	DETECTION LIMIT	UN-CERTAINTY
Arsenic	mg/L	11/19/90	0001	0.01	U	GJ	#	0.01	-
	mg/L	11/19/90	N001	0.01	U	G	#	0.01	-
	mg/L	03/29/91	0001	0.01	U	G	#	0.01	-
	mg/L	03/29/91	N001	0.01	U	G	#	0.01	-
	mg/L	06/03/91	0001	0.05	UI	G	#	0.05	-
	mg/L	10/24/91	N001	0.012			#	0.001	-
	mg/L	03/14/92	N001	0.03	UI		#	0.03	-
	mg/L	08/05/92	N001	0.01	U		#	0.01	-
	mg/L	03/15/93	N001	0.005	U		#	0.005	-
	mg/L	06/22/95	N001	0.005	U		#	0.005	-
	mg/L	02/07/97	N001	0.00022	UN	G	#	0.00022	-
Lead-210	pCi/L	03/29/91	N001	0.0		G	#	1.5	± 1.40
	pCi/L	03/15/93	N001	0.4			#	3.6	± 2.20
	pCi/L	02/07/97	N001	1.25	U	G	#	1.25	± 0.75
Manganese	mg/L	11/19/90	0001	0.01	U	G	#	0.01	-
	mg/L	11/19/90	N001	0.01	U	G	#	0.01	-
	mg/L	03/29/91	0001	0.01	U	G	#	0.01	-
	mg/L	03/29/91	N001	0.01	U	G	#	0.01	-
	mg/L	06/03/91	0001	0.01	U	G	#	0.01	-
	mg/L	10/24/91	N001	0.01	U		#	0.01	-
	mg/L	03/14/92	N001	0.01	U		#	0.01	-
	mg/L	08/05/92	N001	0.01	U		#	0.01	-
	mg/L	03/15/93	N001	0.01	U		#	0.01	-
	mg/L	06/22/95	N001	0.01	U		#	0.01	-
	mg/L	02/07/97	N001	0.0023	B	UG	#	-	-
Molybdenum	mg/L	11/19/90	0001	0.01	U	G	#	0.01	-
	mg/L	11/19/90	N001	0.01	U	G	#	0.01	-
	mg/L	03/29/91	0001	0.01	U	G	#	0.01	-
	mg/L	03/29/91	N001	0.01	U	G	#	0.01	-
	mg/L	06/03/91	0001	0.01	U	G	#	0.01	-
	mg/L	10/24/91	N001	0.01	U		#	0.01	-
	mg/L	03/14/92	N001	0.01	U		#	0.01	-
	mg/L	08/05/92	N001	0.01	U		#	0.01	-
	mg/L	03/15/93	N001	0.01	U		#	0.01	-
	mg/L	06/22/95	N001	0.01	U		#	0.01	-

GROUND WATER QUALITY DATA BY LOCATION (USEE100) FOR SITE RVT01, RIVERTON
LOCATION: 0406 DOMESTIC WELL - CLARK/KNOWLES
REPORT DATE: 2/19/98 10:42:02 AM

PARAMETER	UNITS	SAMPLE: DATE	ID	RESULT	QUALIFIERS: LAB	DATA	QA	DETECTION LIMIT	UN-CERTAINTY
Molybdenum	mg/L	02/07/97	N001	0.0046	B	G	#	-	-
Nickel	mg/L	11/19/90	0001	0.04	U	G	#	0.04	-
	mg/L	11/19/90	N001	0.04	U	G	#	0.04	-
	mg/L	03/29/91	0001	0.04	U	G	#	0.04	-
	mg/L	03/29/91	N001	0.04	U	G	#	0.04	-
	mg/L	06/03/91	0001	0.04	U	G	#	0.04	-
	mg/L	10/24/91	N001	0.01	U		#	0.01	-
	mg/L	03/14/92	N001	0.04	U		#	0.04	-
	mg/L	08/05/92	N001	0.04	U		#	0.04	-
	mg/L	03/15/93	N001	0.04	U		#	0.04	-
	mg/L	06/22/95	N001	0.04	U		#	0.04	-
	mg/L	02/07/97	N001	0.0078	U	G	#	0.0078	-
Polonium-210	pCi/L	03/29/91	N001	0.0		G	#	1	± 0.40
	pCi/L	03/15/93	N001	0.3			#	0.9	± 0.60
	pCi/L	02/07/97	N001	0.11	U	G	#	0.11	± -0.10
Sulfate	mg/L	07/21/81	0001	229.00			#	-	-
	mg/L	11/19/90	0001	297		G	#	0.1	-
	mg/L	11/19/90	N001	295		G	#	0.1	-
	mg/L	03/29/91	0001	358		G	#	10	-
	mg/L	06/03/91	0001	286		G	#	0.1	-
	mg/L	10/24/91	N001	345			#	0.1	-
	mg/L	03/14/92	N001	226			#	40	-
	mg/L	08/05/92	N001	312			#	30	-
	mg/L	03/15/93	N001	275			#	1	-
	mg/L	06/22/95	N001	260			#	1	-
	mg/L	02/07/97	N001	336.000		G	#	-	-
Thorium-230	pCi/L	11/19/90	0001	0.0		G	#	1	± 0.30
	pCi/L	11/19/90	N001	0.0		G	#	1	± 0.30
	pCi/L	03/29/91	N001	0.0		G	#	1	± 0.40
	pCi/L	03/15/93	N001	0.3			#	0.6	± 0.40
	pCi/L	02/07/97	N001	0.64	U	G	#	0.64	±
Uranium	mg/L	11/19/90	0001	0.0004		G	#	0.0003	-
	mg/L	11/19/90	N001	0.0003	U	G	#	0.0003	-
	mg/L	03/29/91	0001	0.010		G	#	0.001	-
	mg/L	03/29/91	N001	0.002		G	#	0.001	-

GROUND WATER QUALITY DATA BY LOCATION (USEE100) FOR SITE RVT01, RIVERTON
LOCATION: 0406 DOMESTIC WELL - CLARK/KNOWLES
REPORT DATE: 2/19/98 10:42:03 AM

PARAMETER	UNITS	SAMPLE: DATE	ID	RESULT	QUALIFIERS: LAB	DATA	QA	DETECTION LIMIT	UN-CERTAINTY
Uranium	mg/L	06/03/91	0001	0.014		G	#	0.001	-
	mg/L	10/24/91	N001	0.0003	U		#	0.0003	-
	mg/L	03/14/92	N001	0.001	U		#	0.001	-
	mg/L	08/05/92	N001	0.001	U		#	0.001	-
	mg/L	03/15/93	N001	0.001	U		#	0.001	-
	mg/L	06/22/95	N001	0.001	U		#	0.001	-
	mg/L	02/07/97	N001	0.0011	U	G	#	0.0011	-
Vanadium	mg/L	11/19/90	0001	0.01	U	G	#	0.01	-
	mg/L	11/19/90	N001	0.01	U	G	#	0.01	-
	mg/L	03/29/91	0001	0.02		G	#	0.01	-
	mg/L	03/29/91	N001	0.01	U	G	#	0.01	-
	mg/L	06/03/91	0001	0.01	U	G	#	0.01	-
	mg/L	10/24/91	N001	0.01	U		#	0.01	-
	mg/L	03/14/92	N001	0.01	U		#	0.01	-
	mg/L	08/05/92	N001	0.01	U		#	0.01	-
	mg/L	03/15/93	N001	0.01	U		#	0.01	-
	mg/L	06/22/95	N001	0.01	U		#	0.01	-
	mg/L	02/07/97	N001	0.0044	U	G	#	0.0044	-

GROUND WATER QUALITY DATA BY LOCATION (USEE100) FOR SITE RVT01, RIVERTON
LOCATION: 0409 DOMESTIC WELL
REPORT DATE: 2/19/98 10:42:03 AM

PARAMETER	UNITS	SAMPLE: DATE	ID	RESULT	QUALIFIERS: LAB	DATA	QA	DETECTION LIMIT	UN-CERTAINTY
Arsenic	mg/L	05/30/85	0001	0.01	U		#	0.01	-
Lead-210	pCi/L	05/30/85	0001	3.50		J	#	1.5	± 0.80
Manganese	mg/L	05/30/85	0001	0.01	U		#	0.01	-
Molybdenum	mg/L	05/30/85	0001	0.01	U		#	0.01	-
Nickel	mg/L	05/30/85	0001	0.04	U	J	#	0.04	-
Polonium-210	pCi/L	05/30/85	0001	0.00			#	1	± 0.70
Sulfate	mg/L	05/30/85	0001	370.00			#	0.1	-
Thorium-230	pCi/L	05/30/85	0001	0.20		J	#	1	± 0.50
Vanadium	mg/L	05/30/85	0001	0.01	U	R	#	0.01	-

GROUND WATER QUALITY DATA BY LOCATION (USEE100) FOR SITE RVT01, RIVERTON
LOCATION: 0410 DOMESTIC WELL - RUTH BIGLAKE
REPORT DATE: 2/19/98 10:42:03 AM

PARAMETER	UNITS	SAMPLE: DATE	ID	RESULT	QUALIFIERS: LAB	DATA	QA	DETECTION LIMIT	UN-CERTAINTY
Arsenic	mg/L	12/08/83	0001	0.001	U	G	#	0.001	-
	mg/L	01/10/84	0001	0.005	U		#	0.005	-
	mg/L	03/28/84	0001	0.001	U		#	0.001	-
	mg/L	06/07/84	0001	0.01	U		#	0.01	-
	mg/L	03/30/90	0001	0.01	U	GR	#	0.01	-
	mg/L	03/30/90	N001	0.01	U	G	#	0.01	-
	mg/L	11/15/90	0001	0.01	U	GJ	#	0.01	-
	mg/L	11/15/90	N001	0.01	U	G	#	0.01	-
	mg/L	03/28/91	0001	0.01	U	G	#	0.01	-
	mg/L	03/28/91	N001	0.01	U	G	#	0.01	-
	mg/L	06/03/91	N001	0.05	UI		#	0.05	-
	mg/L	10/23/91	N001	0.001	U		#	0.001	-
	mg/L	03/16/92	N001	0.005	U		#	0.005	-
	mg/L	08/05/92	N001	0.01	U		#	0.01	-
	mg/L	03/16/93	N001	0.005	U		#	0.005	-
	mg/L	03/16/93	N002	0.005	U		#	0.005	-
	mg/L	06/23/95	N001	0.005	U		#	0.005	-
	mg/L	02/06/97	N001	0.00022	U	G	#	0.00022	-
Lead-210	pCi/L	12/08/83	0001	0.00		G	#	1	± 3.00
	pCi/L	01/10/84	0001	1.50	U		#	1.5	± 0.00
	pCi/L	03/28/84	0001	1.80			#	1	± 1.10
	pCi/L	06/07/84	0001	0.20			#	1	± 1.30
	pCi/L	03/28/91	N001	1.6		G	#	1.5	± 1.50
	pCi/L	03/16/93	N001	0.5			#	1.8	± 1.10
	pCi/L	03/16/93	N002	0.4			#	1.8	± 1.10
	pCi/L	02/06/97	N001	0.97	U	G	#	0.97	± 0.58
Manganese	mg/L	12/08/83	0001	0.03		G	#	0.01	-
	mg/L	01/10/84	0001	0.01	U		#	0.01	-
	mg/L	03/28/84	0001	0.01	U		#	0.01	-
	mg/L	06/07/84	0001	0.01	U		#	0.01	-
	mg/L	03/30/90	0001	0.01	U	G	#	0.01	-
	mg/L	03/30/90	N001	0.01		G	#	0.01	-
	mg/L	11/15/90	0001	0.02		G	#	0.01	-
	mg/L	11/15/90	N001	0.02		G	#	0.01	-
	mg/L	03/28/91	0001	0.03		G	#	0.01	-
	mg/L	03/28/91	N001	0.02		G	#	0.01	-

GROUND WATER QUALITY DATA BY LOCATION (USEE100) FOR SITE RVT01, RIVERTON
LOCATION: 0410 DOMESTIC WELL - RUTH BIGLAKE
REPORT DATE: 2/19/98 10:42:04 AM

PARAMETER	UNITS	SAMPLE: DATE	ID	RESULT	QUALIFIERS: LAB	DATA	QA	DETECTION LIMIT	UN-CERTAINTY
Manganese	mg/L	06/03/91	N001	0.01	U		#	0.01	-
	mg/L	10/23/91	N001	0.01	U		#	0.01	-
	mg/L	03/16/92	N001	0.01			#	0.01	-
	mg/L	08/05/92	N001	0.01	U		#	0.01	-
	mg/L	03/16/93	N001	0.01	U		#	0.01	-
	mg/L	03/16/93	N002	0.01	U		#	0.01	-
	mg/L	06/23/95	N001	0.01	U		#	0.01	-
	mg/L	02/06/97	N001	0.0136		G	#	-	-
Molybdenum	mg/L	12/08/83	0001	0.001	U	G	#	0.001	-
	mg/L	01/10/84	0001	0.005	U		#	0.005	-
	mg/L	03/28/84	0001	0.001	U		#	0.001	-
	mg/L	06/07/84	0001	0.01	U		#	0.01	-
	mg/L	03/30/90	0001	0.01	U	G	#	0.01	-
	mg/L	03/30/90	N001	0.01	U	G	#	0.01	-
	mg/L	11/15/90	0001	0.02		G	#	0.01	-
	mg/L	11/15/90	N001	0.01	U	G	#	0.01	-
	mg/L	03/28/91	0001	0.01	U	G	#	0.01	-
	mg/L	03/28/91	N001	0.01	U	G	#	0.01	-
	mg/L	06/03/91	N001	0.01	U		#	0.01	-
	mg/L	10/23/91	N001	0.01	U		#	0.01	-
	mg/L	03/16/92	N001	0.01	U		#	0.01	-
	mg/L	08/05/92	N001	0.01	U		#	0.01	-
	mg/L	03/16/93	N001	0.01	U		#	0.01	-
	mg/L	03/16/93	N002	0.01	U		#	0.01	-
	mg/L	06/23/95	N001	0.01	U		#	0.01	-
	mg/L	02/06/97	N001	0.0029	B	G	#	-	-
Nickel	mg/L	12/08/83	0001	0.022		G	#	0.001	-
	mg/L	01/10/84	0001	0.04	U		#	0.04	-
	mg/L	03/28/84	0001	0.04	U		#	0.04	-
	mg/L	06/07/84	0001	0.04	U		#	0.04	-
	mg/L	03/30/90	0001	0.04	U	G	#	0.04	-
	mg/L	03/30/90	N001	0.04	U	G	#	0.04	-
	mg/L	11/15/90	0001	0.04	U	G	#	0.04	-
	mg/L	11/15/90	N001	0.04	U	G	#	0.04	-
	mg/L	03/28/91	0001	0.04	U	G	#	0.04	-
	mg/L	03/28/91	N001	0.04	U	G	#	0.04	-

GROUND WATER QUALITY DATA BY LOCATION (USEE100) FOR SITE RVT01, RIVERTON
LOCATION: 0410 DOMESTIC WELL - RUTH BIGLAKE
REPORT DATE: 2/19/98 10:42:04 AM

PARAMETER	UNITS	SAMPLE: DATE	ID	RESULT	QUALIFIERS: LAB	DATA	QA	DETECTION LIMIT	UN-CERTAINTY
Nickel	mg/L	06/03/91	N001	0.04	U		#	0.04	-
	mg/L	10/23/91	N001	0.01	U		#	0.01	-
	mg/L	03/16/92	N001	0.04	U		#	0.04	-
	mg/L	08/05/92	N001	0.04	U		#	0.04	-
	mg/L	03/16/93	N001	0.04	U		#	0.04	-
	mg/L	03/16/93	N002	0.04	U		#	0.04	-
	mg/L	06/23/95	N001	0.04	U		#	0.04	-
	mg/L	02/06/97	N001	0.0078	U	G	#	0.0078	-
Polonium-210	pCi/L	03/28/91	N001	0.0		G	#	1	± 0.20
	pCi/L	03/16/93	N001	0.0			#	0.9	± 0.50
	pCi/L	03/16/93	N002	0.1			#	0.9	± 0.60
	pCi/L	02/06/97	N001	0.17		UG	#	0.12	± 0.17
Sulfate	mg/L	12/08/83	0001	310.00		G	#	0.1	-
	mg/L	01/10/84	0001	290.00			#	-	-
	mg/L	03/28/84	0001	319.00			#	0.1	-
	mg/L	06/07/84	0001	122.00			#	0.1	-
	mg/L	03/30/90	0001	312		G	#	0.1	-
	mg/L	03/30/90	N001	305		G	#	0.1	-
	mg/L	11/15/90	0001	182		G	#	0.1	-
	mg/L	11/15/90	N001	184		G	#	0.1	-
	mg/L	03/28/91	0001	195		G	#	10	-
	mg/L	06/03/91	N001	274			#	0.1	-
	mg/L	10/23/91	N001	158			#	0.1	-
	mg/L	03/16/92	N001	178			#	40	-
	mg/L	08/05/92	N001	179			#	10	-
	mg/L	03/16/93	N001	182			#	1	-
	mg/L	03/16/93	N002	180			#	1	-
	mg/L	06/23/95	N001	200			#	1	-
	mg/L	02/06/97	N001	180.000		G	#	-	-
Thorium-230	pCi/L	12/08/83	0001	1.00		G	#	0.2	± 0.90
	pCi/L	01/10/84	0001	1.00	U		#	1	± 0.00
	pCi/L	03/28/84	0001	0.00			#	0.2	± 0.30
	pCi/L	06/07/84	0001	0.00			#	0.0002	± 0.00
	pCi/L	11/15/90	0001	0.1		G	#	1	± 0.40
	pCi/L	11/15/90	N001	0.0		G	#	1	± 0.50

GROUND WATER QUALITY DATA BY LOCATION (USEE100) FOR SITE RVT01, RIVERTON
LOCATION: 0410 DOMESTIC WELL - RUTH BIGLAKE
REPORT DATE: 2/19/98 10:42:04 AM

PARAMETER	UNITS	SAMPLE: DATE	ID	RESULT	QUALIFIERS: LAB	DATA	QA	DETECTION LIMIT	UN-CERTAINTY
Thorium-230	pCi/L	03/28/91	N001	0.0		G	#	1	± 0.40
	pCi/L	03/16/93	N001	0.8			#	0.7	± 0.50
	pCi/L	03/16/93	N002	0.6			#	0.6	± 0.40
	pCi/L	02/06/97	N001	0.64	U	G	#	0.64	±
Uranium	mg/L	12/08/83	0001	0.0003	U	G	#	0.0003	-
	mg/L	01/10/84	0001	0.002			#	-	-
	mg/L	03/28/84	0001	0.0003	U		#	0.0003	-
	mg/L	06/07/84	0001	0.0003	U		#	0.0003	-
	mg/L	03/30/90	0001	0.0003	U	GJ	#	0.003	-
	mg/L	03/30/90	N001	0.0003	U	GJ	#	0.003	-
	mg/L	11/15/90	0001	0.0003	U	G	#	0.0003	-
	mg/L	11/15/90	N001	0.0003	U	G	#	0.0003	-
	mg/L	03/28/91	0001	0.003		G	#	0.001	-
	mg/L	03/28/91	N001	0.001	U	G	#	0.001	-
	mg/L	06/03/91	N001	0.001	U		#	0.001	-
	mg/L	10/23/91	N001	0.0003	U		#	0.0003	-
	mg/L	03/16/92	N001	0.001	U		#	0.001	-
	mg/L	08/05/92	N001	0.001	U		#	0.001	-
	mg/L	03/16/93	N001	0.001	U		#	0.001	-
	mg/L	03/16/93	N002	0.001	U		#	0.001	-
	mg/L	06/23/95	N001	0.001	U		#	0.001	-
	mg/L	02/06/97	N001	0.0011	U	G	#	0.0011	-
Vanadium	mg/L	12/08/83	0001	0.004	U	G	#	0.004	-
	mg/L	01/10/84	0001	0.004	U		#	0.004	-
	mg/L	03/28/84	0001	0.004	U		#	0.004	-
	mg/L	06/07/84	0001	0.01	U		#	0.01	-
	mg/L	03/30/90	0001	0.01	U	G	#	0.01	-
	mg/L	03/30/90	N001	0.01	U	G	#	0.01	-
	mg/L	11/15/90	0001	0.01	U	G	#	0.01	-
	mg/L	11/15/90	N001	0.01	U	G	#	0.01	-
	mg/L	03/28/91	0001	0.02		G	#	0.01	-
	mg/L	03/28/91	N001	0.01	U	G	#	0.01	-
	mg/L	06/03/91	N001	0.01	U		#	0.01	-
	mg/L	10/23/91	N001	0.01	U		#	0.01	-
	mg/L	03/16/92	N001	0.01	U		#	0.01	-
	mg/L	08/05/92	N001	0.01	U		#	0.01	-

GROUND WATER QUALITY DATA BY LOCATION (USEE100) FOR SITE RVT01, RIVERTON
LOCATION: 0410 DOMESTIC WELL - RUTH BIGLAKE
REPORT DATE: 2/19/98 10:42:05 AM

PARAMETER	UNITS	SAMPLE: DATE	ID	RESULT	QUALIFIERS: LAB	DATA	QA	DETECTION LIMIT	UN-CERTAINTY
Vanadium	mg/L	03/16/93	N001	0.01	U		#	0.01	-
	mg/L	03/16/93	N002	0.01	U		#	0.01	-
	mg/L	06/23/95	N001	0.01	U		#	0.01	-
	mg/L	02/06/97	N001	0.0044	U	G	#	0.0044	-

GROUND WATER QUALITY DATA BY LOCATION (USEE100) FOR SITE RVT01, RIVERTON
LOCATION: 0411 DOMESTIC WELL - JOE GOGGLES SR
REPORT DATE: 2/19/98 10:42:05 AM

PARAMETER	UNITS	SAMPLE: DATE	ID	RESULT	QUALIFIERS: LAB	DATA	QA	DETECTION LIMIT	UN-CERTAINTY
Arsenic	mg/L	05/26/85	0001	0.01	U		#	0.01	-
	mg/L	11/28/88	0001	0.01	U		#	0.01	-
	mg/L	11/15/90	0001	0.01	U	GJ	#	0.01	-
	mg/L	11/15/90	N001	0.01	U	G	#	0.01	-
	mg/L	03/28/91	0001	0.01	U	G	#	0.01	-
	mg/L	03/28/91	N001	0.01	U	G	#	0.01	-
	mg/L	06/03/91	N001	0.05	UI	G	#	0.05	-
	mg/L	10/23/91	N001	0.001	U		#	0.001	-
	mg/L	03/16/92	N001	0.005	U		#	0.005	-
	mg/L	08/05/92	N001	0.01	U		#	0.01	-
	mg/L	03/16/93	N001	0.005	U		#	0.005	-
	mg/L	02/06/97	N001	0.00022	UN		#	0.00022	-
Lead-210	pCi/L	05/26/85	0001	0.10		J	#	1.5	± 1.10
	pCi/L	11/28/88	0001	1.0			#	1.5	± 0.80
	pCi/L	03/28/91	N001	1.7		G	#	1.5	± 1.50
	pCi/L	03/16/93	N001	0.7			#	1.8	± 1.10
	pCi/L	02/06/97	N001	1.30	U		#	1.3	± 0.78
Manganese	mg/L	05/26/85	0001	0.01			#	0.01	-
	mg/L	11/28/88	0001	0.02			#	0.01	-
	mg/L	11/15/90	0001	0.01		G	#	0.01	-
	mg/L	11/15/90	N001	0.01		G	#	0.01	-
	mg/L	03/28/91	0001	0.01	U	G	#	0.01	-
	mg/L	03/28/91	N001	0.01	U	G	#	0.01	-
	mg/L	06/03/91	N001	0.01	U	G	#	0.01	-
	mg/L	10/23/91	N001	0.01	U		#	0.01	-
	mg/L	03/16/92	N001	0.01			#	0.01	-
	mg/L	08/05/92	N001	0.01	U		#	0.01	-
	mg/L	03/16/93	N001	0.01	U		#	0.01	-
	mg/L	02/06/97	N001	0.0113			#	-	-
Molybdenum	mg/L	05/26/85	0001	0.01	U		#	0.01	-
	mg/L	11/28/88	0001	0.01	U		#	0.01	-
	mg/L	11/15/90	0001	0.01	U	G	#	0.01	-
	mg/L	11/15/90	N001	0.01	U	G	#	0.01	-
	mg/L	03/28/91	0001	0.01	U	G	#	0.01	-
	mg/L	03/28/91	N001	0.01	U	G	#	0.01	-

GROUND WATER QUALITY DATA BY LOCATION (USEE100) FOR SITE RVT01, RIVERTON
LOCATION: 0411 DOMESTIC WELL - JOE GOGGLES SR
REPORT DATE: 2/19/98 10:42:05 AM

PARAMETER	UNITS	SAMPLE: DATE	ID	RESULT	QUALIFIERS: LAB	DATA	QA	DETECTION LIMIT	UN-CERTAINTY
Molybdenum	mg/L	06/03/91	N001	0.01	U	G	#	0.01	-
	mg/L	10/23/91	N001	0.01	U		#	0.01	-
	mg/L	03/16/92	N001	0.01	U		#	0.01	-
	mg/L	08/05/92	N001	0.01	U		#	0.01	-
	mg/L	03/16/93	N001	0.01	U		#	0.01	-
	mg/L	02/06/97	N001	0.0024	B		#	-	-
Nickel	mg/L	05/26/85	0001	0.04	U	J	#	0.04	-
	mg/L	11/28/88	0001	0.04	U		#	0.04	-
	mg/L	11/15/90	0001	0.04	U	G	#	0.04	-
	mg/L	11/15/90	N001	0.04	U	G	#	0.04	-
	mg/L	03/28/91	0001	0.04	U	G	#	0.04	-
	mg/L	03/28/91	N001	0.04	U	G	#	0.04	-
	mg/L	06/03/91	N001	0.04	U	G	#	0.04	-
	mg/L	10/23/91	N001	0.01	U		#	0.01	-
	mg/L	03/16/92	N001	0.04	U		#	0.04	-
	mg/L	08/05/92	N001	0.04	U		#	0.04	-
	mg/L	03/16/93	N001	0.07			#	0.04	-
	mg/L	02/06/97	N001	0.0078	U		#	0.0078	-
Polonium-210	pCi/L	05/26/85	0001	0.00			#	1	± 0.60
	pCi/L	11/28/88	0001	0.3			#	1	± 0.30
	pCi/L	03/28/91	N001	0.0		G	#	1	± 0.10
	pCi/L	03/16/93	N001	0.1			#	0.9	± 0.60
	pCi/L	02/06/97	N001	0.20	U		#	0.2	± -0.18
Sulfate	mg/L	05/26/85	0001	303.00			#	0.1	-
	mg/L	11/28/88	0001	292			#	0.1	-
	mg/L	11/15/90	0001	302		G	#	0.1	-
	mg/L	11/15/90	N001	313		G	#	0.1	-
	mg/L	03/28/91	0001	321		G	#	10	-
	mg/L	06/03/91	N001	252		G	#	0.1	-
	mg/L	10/23/91	N001	267			#	0.1	-
	mg/L	03/16/92	N001	344			#	40	-
	mg/L	08/05/92	N001	318			#	30	-
	mg/L	03/16/93	N001	304			#	1	-
	mg/L	02/06/97	N001	289.000			#	-	-
Thorium-230	pCi/L	05/26/85	0001	0.00		J	#	1	± 0.50

GROUND WATER QUALITY DATA BY LOCATION (USEE100) FOR SITE RVT01, RIVERTON
LOCATION: 0411 DOMESTIC WELL - JOE GOGGLES SR
REPORT DATE: 2/19/98 10:42:05 AM

PARAMETER	UNITS	SAMPLE: DATE	ID	RESULT	QUALIFIERS: LAB	DATA	QA	DETECTION LIMIT	UN-CERTAINTY
Thorium-230	pCi/L	11/28/88	0001	0.0			#	1	± 0.30
	pCi/L	11/15/90	0001	0.0		G	#	1	± 0.30
	pCi/L	11/15/90	N001	0.0		G	#	1	± 0.30
	pCi/L	03/28/91	N001	0.0		G	#	1	± 0.30
	pCi/L	03/16/93	N001	0.3			#	0.2	± 0.20
	pCi/L	02/06/97	N001	0.64	U		#	0.64	±
Uranium	mg/L	05/26/85	0001	0.0003	U	J	#	0.003	-
	mg/L	11/28/88	0001	0.0003	U	J	#	0.003	-
	mg/L	11/15/90	0001	0.0003	U	G	#	0.0003	-
	mg/L	11/15/90	N001	0.0003	U	G	#	0.0003	-
	mg/L	03/28/91	0001	0.001		G	#	0.001	-
	mg/L	03/28/91	N001	0.001	U	G	#	0.001	-
	mg/L	06/03/91	N001	0.001	U	G	#	0.001	-
	mg/L	10/23/91	N001	0.0003	U		#	0.0003	-
	mg/L	03/16/92	N001	0.001			#	0.001	-
	mg/L	08/05/92	N001	0.001	U		#	0.001	-
	mg/L	03/16/93	N001	0.001			#	0.001	-
	mg/L	02/06/97	N001	0.0011	U		#	0.0011	-
Vanadium	mg/L	05/26/85	0001	0.01	U	R	#	0.01	-
	mg/L	11/28/88	0001	0.01	U		#	0.01	-
	mg/L	11/15/90	0001	0.01	U	G	#	0.01	-
	mg/L	11/15/90	N001	0.01	U	G	#	0.01	-
	mg/L	03/28/91	0001	0.01	U	G	#	0.01	-
	mg/L	03/28/91	N001	0.01	U	G	#	0.01	-
	mg/L	06/03/91	N001	0.01	U	G	#	0.01	-
	mg/L	10/23/91	N001	0.01	U		#	0.01	-
	mg/L	03/16/92	N001	0.01	U		#	0.01	-
	mg/L	08/05/92	N001	0.01	U		#	0.01	-
	mg/L	03/16/93	N001	0.01	U		#	0.01	-
	mg/L	02/06/97	N001	0.0044	U		#	0.0044	-

GROUND WATER QUALITY DATA BY LOCATION (USEE100) FOR SITE: RVT01, RIVERTON
LOCATION: 0412 DOMESTIC WELL
REPORT DATE: 2/19/98 10:42:06 AM

PARAMETER	UNITS	SAMPLE: DATE	ID	RESULT	QUALIFIERS: LAB	DATA	QA	DETECTION LIMIT	UN-CERTAINTY
Arsenic	mg/L	06/05/85	0001	0.01	U		#	0.01	-
	mg/L	06/05/85	0002	0.01	U		#	0.01	-
	mg/L	06/05/85	0003	0.01	U		#	0.01	-
	mg/L	06/05/85	0004	0.01	U		#	0.01	-
	mg/L	06/05/85	0005	0.01	U		#	0.01	-
Lead-210	pCi/L	06/05/85	0001	0.70			#	1.5	± 0.60
	pCi/L	06/05/85	0002	1.00			#	1.5	± 0.80
	pCi/L	06/05/85	0003	0.40			#	1.5	± 0.60
	pCi/L	06/05/85	0004	0.00			#	1.5	± 1.10
	pCi/L	06/05/85	0005	0.80			#	1.5	± 0.80
Manganese	mg/L	06/05/85	0001	0.01	U		#	0.01	-
	mg/L	06/05/85	0002	0.01	U		#	0.01	-
	mg/L	06/05/85	0003	0.01	U		#	0.01	-
	mg/L	06/05/85	0004	0.01	U		#	0.01	-
	mg/L	06/05/85	0005	0.01	U		#	0.01	-
Molybdenum	mg/L	06/05/85	0001	0.01	U		#	0.01	-
	mg/L	06/05/85	0002	0.01	U		#	0.01	-
	mg/L	06/05/85	0003	0.01	U		#	0.01	-
	mg/L	06/05/85	0004	0.01	U		#	0.01	-
	mg/L	06/05/85	0005	0.01	U		#	0.01	-
Nickel	mg/L	06/05/85	0001	0.04	U		#	0.04	-
	mg/L	06/05/85	0002	0.04	U		#	0.04	-
	mg/L	06/05/85	0003	0.04	U		#	0.04	-
	mg/L	06/05/85	0004	0.04	U		#	0.04	-
	mg/L	06/05/85	0005	0.04	U		#	0.04	-
Polonium-210	pCi/L	06/05/85	0001	0.00			#	1	± 0.60
	pCi/L	06/05/85	0002	0.20			#	1	± 0.70
	pCi/L	06/05/85	0003	0.00			#	1	± 0.60
	pCi/L	06/05/85	0004	0.00			#	1	± 0.60
	pCi/L	06/05/85	0005	0.20			#	1	± 0.80
Sulfate	mg/L	06/05/85	0001	166.00			#	0.1	-
	mg/L	06/05/85	0002	164.00			#	0.1	-
	mg/L	06/05/85	0003	164.00			#	0.1	-
	mg/L	06/05/85	0004	164.00			#	0.1	-
	mg/L	06/05/85	0005	164.00			#	0.1	-

GROUND WATER QUALITY DATA BY LOCATION (USEE100) FOR SITE RVT01, RIVERTON
LOCATION: 0412 DOMESTIC WELL
REPORT DATE: 2/19/98 10:42:06 AM

PARAMETER	UNITS	SAMPLE: DATE	ID	RESULT	QUALIFIERS: LAB	DATA	QA	DETECTION LIMIT	UN-CERTAINTY
Thorium-230	pCi/L	06/05/85	0001	0.00			#	1	± 0.40
	pCi/L	06/05/85	0002	0.00			#	1	± 0.40
	pCi/L	06/05/85	0004	0.00			#	1	± 0.50
	pCi/L	06/05/85	0005	0.10			#	1	± 0.50
Uranium	mg/L	06/05/85	0001	0.0122			#	0.003	-
	mg/L	06/05/85	0002	0.012			#	0.003	-
	mg/L	06/05/85	0003	0.0121			#	0.003	-
	mg/L	06/05/85	0004	0.0125			#	0.003	-
	mg/L	06/05/85	0005	0.0121			#	0.003	-
Vanadium	mg/L	06/05/85	0001	0.01	U		#	0.01	-
	mg/L	06/05/85	0002	0.01	U		#	0.01	-
	mg/L	06/05/85	0003	0.01	U		#	0.01	-
	mg/L	06/05/85	0004	0.01	U		#	0.01	-
	mg/L	06/05/85	0005	0.01	U		#	0.01	-

GROUND WATER QUALITY DATA BY LOCATION (USEE100) FOR SITE RVT01, RIVERTON
LOCATION: 0413 DOMESTIC WELL
REPORT DATE: 2/19/98 10:42:06 AM

PARAMETER	UNITS	SAMPLE: DATE	ID	RESULT	QUALIFIERS: LAB	DATA	QA	DETECTION LIMIT	UN-CERTAINTY
Arsenic	mg/L	05/30/85	0001	0.01	U		#	0.01	-
Lead-210	pCi/L	05/30/85	0001	0.40			#	1.5	± 0.80
Manganese	mg/L	05/30/85	0001	0.01	U		#	0.01	-
Molybdenum	mg/L	05/30/85	0001	0.01	U		#	0.01	-
Nickel	mg/L	05/30/85	0001	0.04	U		#	0.04	-
Polonium-210	pCi/L	05/30/85	0001	0.00			#	1	± 1.00
Sulfate	mg/L	05/30/85	0001	1270.00			#	0.1	-
Thorium-230	pCi/L	05/30/85	0001	0.00			#	1	± 0.40
Uranium	mg/L	05/30/85	0001	0.0003	U	J	#	0.003	-
Vanadium	mg/L	05/30/85	0001	0.08			#	0.01	-

GROUND WATER QUALITY DATA BY LOCATION (USEE100) FOR SITE RVT01, RIVERTON
LOCATION: 0415 DOMESTIC WELL - KRANZ
REPORT DATE: 2/19/98 10:42:06 AM

PARAMETER	UNITS	SAMPLE: DATE	ID	RESULT	QUALIFIERS: LAB	DATA	QA	DETECTION LIMIT	UN-CERTAINTY
Arsenic	mg/L	12/08/83	0001	0.001	U		#	0.001	-
	mg/L	12/08/83	0002	0.001	U		#	0.001	-
	mg/L	01/10/84	0001	0.005	U		#	0.005	-
	mg/L	01/10/84	0002	0.005	U		#	0.005	-
	mg/L	04/04/84	0001	0.01	U		#	0.01	-
Lead-210	pCi/L	12/08/83	0001	0.50			#	1	± 2.40
	pCi/L	12/08/83	0002	0.20			#	1	± 2.50
	pCi/L	01/10/84	0001	4.00			#	-	± 0.00
	pCi/L	01/10/84	0002	2.00			#	-	± 0.00
	pCi/L	04/04/84	0001	0.00			#	1	± 1.60
Manganese	mg/L	12/08/83	0001	0.07			#	0.01	-
	mg/L	12/08/83	0002	0.07			#	0.01	-
	mg/L	01/10/84	0001	0.06			#	-	-
	mg/L	01/10/84	0002	0.06			#	-	-
	mg/L	04/04/84	0001	0.01	U		#	0.01	-
Molybdenum	mg/L	12/08/83	0001	0.001	U		#	0.001	-
	mg/L	12/08/83	0002	0.001	U		#	0.001	-
	mg/L	01/10/84	0001	0.006			#	-	-
	mg/L	01/10/84	0002	0.006			#	-	-
	mg/L	04/04/84	0001	0.01	U		#	0.01	-
Nickel	mg/L	12/08/83	0001	0.022			#	0.001	-
	mg/L	12/08/83	0002	0.02			#	0.001	-
	mg/L	01/10/84	0001	0.04	U		#	0.04	-
	mg/L	01/10/84	0002	0.04	U		#	0.04	-
	mg/L	04/04/84	0001	0.04	U		#	0.04	-
Sulfate	mg/L	07/21/81	0001	200.00			#	-	-
	mg/L	12/08/83	0001	227.00			#	0.1	-
	mg/L	12/08/83	0002	222.00			#	0.1	-
	mg/L	01/10/84	0001	210.00			#	-	-
	mg/L	01/10/84	0002	200.00			#	-	-
	mg/L	04/04/84	0001	305.00			#	0.1	-
Thorium-230	pCi/L	12/08/83	0001	0.40			#	0.2	± 0.50
	pCi/L	12/08/83	0002	0.60			#	0.2	± 0.70
	pCi/L	01/10/84	0001	1.00	U		#	1	± 0.00
	pCi/L	01/10/84	0002	1.00	U		#	1	± 0.00

GROUND WATER QUALITY DATA BY LOCATION (USEE100) FOR SITE RVT01, RIVERTON
LOCATION: 0415 DOMESTIC WELL - KRANZ
REPORT DATE: 2/19/98 10:42:07 AM

PARAMETER	UNITS	SAMPLE: DATE	ID	RESULT	QUALIFIERS: LAB	DATA	QA	DETECTION LIMIT	UN-CERTAINTY
Thorium-230	pCi/L	04/04/84	0001	0.00			#	0.0002	± 0.00
Uranium	mg/L	12/08/83	0001	0.0042			#	0.0003	-
	mg/L	12/08/83	0002	0.0051			#	0.0003	-
	mg/L	01/10/84	0001	0.007			#	-	-
	mg/L	01/10/84	0002	0.006			#	-	-
	mg/L	04/04/84	0001	0.0011			#	0.0003	-
Vanadium	mg/L	12/08/83	0001	0.004	U		#	0.004	-
	mg/L	12/08/83	0002	0.004	U		#	0.004	-
	mg/L	01/10/84	0001	0.004	U		#	0.004	-
	mg/L	01/10/84	0002	0.004	U		#	0.004	-
	mg/L	04/04/84	0001	0.01	U		#	0.01	-

GROUND WATER QUALITY DATA BY LOCATION (USEE100) FOR SITE RVT01, RIVERTON
LOCATION: 0417 DOMESTIC WELL - MELVIN HUTCHINSON
REPORT DATE: 2/19/98 10:42:07 AM

PARAMETER	UNITS	SAMPLE: DATE	ID	RESULT	QUALIFIERS: LAB	DATA	QA	DETECTION LIMIT	UN-CERTAINTY
Arsenic	mg/L	11/19/90	0001	0.01	U	J	#	0.01	-
	mg/L	11/19/90	N001	0.01	U		#	0.01	-
	mg/L	03/29/91	0001	0.01	U		#	0.01	-
	mg/L	03/29/91	N001	0.01	U		#	0.01	-
	mg/L	08/06/92	N001	0.01	U		#	0.01	-
	mg/L	03/15/93	N001	0.005	UW		#	0.005	-
	mg/L	06/24/95	N001	0.005	U		#	0.005	-
	mg/L	06/24/95	N002	0.005	U		#	0.005	-
	mg/L	02/07/97	N001	0.0030	BN	J	#	-	-
	mg/L	02/07/97	N002	0.0028	BN	J	#	-	-
Lead-210	pCi/L	03/29/91	N001	1.2			#	1.5	± 1.50
	pCi/L	03/15/93	N001	0.1			#	1.7	± 1.00
	pCi/L	02/07/97	N001	1.25	U		#	1.25	± 0.74
	pCi/L	02/07/97	N002	1.67			#	1.21	± 0.73
Manganese	mg/L	11/19/90	0001	0.13			#	0.01	-
	mg/L	11/19/90	N001	0.13			#	0.01	-
	mg/L	03/29/91	0001	0.08			#	0.01	-
	mg/L	03/29/91	N001	0.07			#	0.01	-
	mg/L	08/06/92	N001	0.42			#	0.01	-
	mg/L	03/15/93	N001	0.01	U		#	0.01	-
	mg/L	06/24/95	N001	0.01	U		#	0.01	-
	mg/L	06/24/95	N002	0.01	U		#	0.01	-
	mg/L	02/07/97	N001	0.0044	B		#	-	-
	mg/L	02/07/97	N002	0.0064	B		#	-	-
Molybdenum	mg/L	11/19/90	0001	0.03			#	0.01	-
	mg/L	11/19/90	N001	0.01	U		#	0.01	-
	mg/L	03/29/91	0001	0.01	U		#	0.01	-
	mg/L	03/29/91	N001	0.01	U		#	0.01	-
	mg/L	08/06/92	N001	0.01	U		#	0.01	-
	mg/L	03/15/93	N001	0.01	U		#	0.01	-
	mg/L	06/24/95	N001	0.01	U		#	0.01	-
	mg/L	06/24/95	N002	0.01	U		#	0.01	-
	mg/L	02/07/97	N001	0.0033	B		#	-	-
	mg/L	02/07/97	N002	0.0034	B		#	-	-
Nickel	mg/L	11/19/90	0001	0.04	U		#	0.04	-

GROUND WATER QUALITY DATA BY LOCATION (USEE100) FOR SITE RVT01, RIVERTON
LOCATION: 0417 DOMESTIC WELL - MELVIN HUTCHINSON
REPORT DATE: 2/19/98 10:42:07 AM

PARAMETER	UNITS	SAMPLE: DATE	ID	RESULT	QUALIFIERS: LAB	DATA	QA	DETECTION LIMIT	UN-CERTAINTY
Nickel	mg/L	11/19/90	N001	0.04	U		#	0.04	-
	mg/L	03/29/91	0001	0.04	U		#	0.04	-
	mg/L	03/29/91	N001	0.04	U		#	0.04	-
	mg/L	08/06/92	N001	0.04	U		#	0.04	-
	mg/L	03/15/93	N001	0.04	U		#	0.04	-
	mg/L	06/24/95	N001	0.04	U		#	0.04	-
	mg/L	06/24/95	N002	0.04	U		#	0.04	-
	mg/L	02/07/97	N001	0.0078	U		#	0.0078	-
	mg/L	02/07/97	N002	0.0078	U		#	0.0078	-
Polonium-210	pCi/L	03/29/91	N001	0.2			#	1	± 0.50
	pCi/L	03/15/93	N001	0.0			#	0.9	± 0.50
	pCi/L	02/07/97	N001	0.06	U		#	0.06	± 0.07
	pCi/L	02/07/97	N002	0.17	U		#	0.17	± 0.18
Sulfate	mg/L	07/21/81	0001	149.00			#	-	-
	mg/L	11/19/90	0001	143			#	0.1	-
	mg/L	11/19/90	N001	144			#	0.1	-
	mg/L	03/29/91	0001	128			#	10	-
	mg/L	08/06/92	N001	97			#	10	-
	mg/L	03/15/93	N001	120			#	1	-
	mg/L	06/24/95	N001	160			#	1	-
	mg/L	06/24/95	N002	150			#	1	-
	mg/L	02/07/97	N001	106.000			#	-	-
	mg/L	02/07/97	N002	106.000			#	-	-
Thorium-230	pCi/L	11/19/90	0001	0.3			#	1	± 0.70
	pCi/L	11/19/90	N001	0.0			#	1	± 0.30
	pCi/L	03/29/91	N001	0.0			#	1	± 0.50
	pCi/L	03/15/93	N001	0.8			#	0.7	± 0.60
	pCi/L	02/07/97	N001	0.64	U		#	0.64	±
	pCi/L	02/07/97	N002	0.64	U		#	0.64	±
Uranium	mg/L	11/19/90	0001	0.0405			#	0.0003	-
	mg/L	11/19/90	N001	0.0385			#	0.0003	-
	mg/L	03/29/91	0001	0.019			#	0.001	-
	mg/L	03/29/91	N001	0.018			#	0.001	-
	mg/L	08/06/92	N001	0.018			#	0.001	-
	mg/L	03/15/93	N001	0.013			#	0.001	-

GROUND WATER QUALITY DATA BY LOCATION (USEE100) FOR SITE RVT01, RIVERTON
LOCATION: 0417 DOMESTIC WELL - MELVIN HUTCHINSON
REPORT DATE: 2/19/98 10:42:08 AM

PARAMETER	UNITS	SAMPLE: DATE	ID	RESULT	QUALIFIERS: LAB	DATA	QA	DETECTION LIMIT	UN-CERTAINTY
Uranium	mg/L	06/24/95	N001	0.018			#	0.001	-
	mg/L	06/24/95	N002	0.018			#	0.001	-
	mg/L	02/07/97	N001	0.0127			#	-	-
	mg/L	02/07/97	N002	0.0129			#	-	-
Vanadium	mg/L	07/21/81	0001	0.009			#	-	-
	mg/L	11/19/90	0001	0.01			#	0.01	-
	mg/L	11/19/90	N001	0.01			#	0.01	-
	mg/L	03/29/91	0001	0.01	U		#	0.01	-
	mg/L	03/29/91	N001	0.01	U		#	0.01	-
	mg/L	08/06/92	N001	0.02			#	0.01	-
	mg/L	03/15/93	N001	0.01	U		#	0.01	-
	mg/L	06/24/95	N001	0.01	U		#	0.01	-
	mg/L	06/24/95	N002	0.01	U		#	0.01	-
	mg/L	02/07/97	N001	0.0120			#	-	-
	mg/L	02/07/97	N002	0.0128			#	-	-

GROUND WATER QUALITY DATA BY LOCATION (USEE100) FOR SITE RVT01, RIVERTON
LOCATION: 0420 DOMESTIC WELL - MOSS #1
REPORT DATE: 2/19/98 10:42:08 AM

PARAMETER	UNITS	SAMPLE: DATE	ID	RESULT	QUALIFIERS: LAB	DATA	QA	DETECTION LIMIT	UN-CERTAINTY
Arsenic	mg/L	12/08/83	0001	0.001	U	G	#	0.001	-
	mg/L	12/08/83	0002	0.001	U	G	#	0.001	-
	mg/L	01/10/84	0001	0.005	U		#	0.005	-
	mg/L	01/10/84	0002	0.005	U		#	0.005	-
	mg/L	03/28/84	0001	0.001	U		#	0.001	-
	mg/L	06/07/84	0001	0.01	U		#	0.01	-
	mg/L	05/26/85	0001	0.01	U		#	0.01	-
	mg/L	04/01/90	0001	0.01	U	GR	#	0.01	-
	mg/L	04/01/90	N001	0.01	U	G	#	0.01	-
	mg/L	04/01/90	N002	0.01	U	G	#	0.01	-
	mg/L	04/01/90	N003	0.01	U	G	#	0.01	-
	mg/L	04/01/90	N004	0.01	U	G	#	0.01	-
	mg/L	04/01/90	N005	0.01	U	G	#	0.01	-
	mg/L	11/19/90	0001	0.01	U	GJ	#	0.01	-
	mg/L	11/19/90	N001	0.01	U	G	#	0.01	-
	mg/L	03/28/91	0001	0.01	U	G	#	0.01	-
	mg/L	03/28/91	N001	0.01	U	G	#	0.01	-
	mg/L	06/03/91	N001	0.05	UI	G	#	0.05	-
	mg/L	10/23/91	N001	0.001	U		#	0.001	-
	mg/L	03/13/92	N001	0.03	UI		#	0.03	-
	mg/L	08/06/92	N001	0.01	U		#	0.01	-
	mg/L	06/23/95	N001	0.005	UW	J	#	0.005	-
	mg/L	02/06/97	N001	0.00022	UN		#	0.00022	-
Lead-210	pCi/L	12/08/83	0001	0.00		G	#	1	± 2.10
	pCi/L	12/08/83	0002	0.00		G	#	1	± 2.10
	pCi/L	01/10/84	0001	1.50	U		#	1.5	± 0.00
	pCi/L	01/10/84	0002	1.50	U		#	1.5	± 0.00
	pCi/L	03/28/84	0001	1.40			#	1	± 1.10
	pCi/L	06/07/84	0001	0.00			#	1	± 1.00
	pCi/L	05/26/85	0001	0.00		J	#	1.5	± 0.90
	pCi/L	03/28/91	N001	0.1		G	#	1.5	± 1.40
	pCi/L	03/17/93	N001	1.1			#	1.7	± 1.00
	pCi/L	02/06/97	N001	1.49			#	1.22	± 0.73
Manganese	mg/L	12/08/83	0001	0.03		G	#	0.01	-
	mg/L	12/08/83	0002	0.02		G	#	0.01	-
	mg/L	01/10/84	0001	0.01			#	-	-

GROUND WATER QUALITY DATA BY LOCATION (USEE100) FOR SITE RVT01, RIVERTON
LOCATION: 0420 DOMESTIC WELL - MOSS #1
REPORT DATE: 2/19/98 10:42:08 AM

PARAMETER	UNITS	SAMPLE: DATE	ID	RESULT	QUALIFIERS: LAB	DATA	QA	DETECTION LIMIT	UN-CERTAINTY
Manganese	mg/L	01/10/84	0002	0.02			#	-	-
	mg/L	03/28/84	0001	0.01	U		#	0.01	-
	mg/L	06/07/84	0001	0.01	U		#	0.01	-
	mg/L	05/26/85	0001	0.01	U		#	0.01	-
	mg/L	04/01/90	0001	0.01	U	G	#	0.01	-
	mg/L	04/01/90	N001	0.01		G	#	0.01	-
	mg/L	04/01/90	N002	0.01		G	#	0.01	-
	mg/L	04/01/90	N003	0.01	U	G	#	0.01	-
	mg/L	04/01/90	N004	0.01	U	G	#	0.01	-
	mg/L	04/01/90	N005	0.01	U	G	#	0.01	-
	mg/L	11/19/90	0001	0.01		G	#	0.01	-
	mg/L	11/19/90	N001	0.02		G	#	0.01	-
	mg/L	03/28/91	0001	0.01		G	#	0.01	-
	mg/L	03/28/91	N001	0.02		G	#	0.01	-
	mg/L	06/03/91	N001	0.02		G	#	0.01	-
	mg/L	10/23/91	N001	0.01	U		#	0.01	-
	mg/L	03/13/92	N001	0.01			#	0.01	-
	mg/L	08/06/92	N001	0.01	U		#	0.01	-
	mg/L	06/23/95	N001	0.01	U		#	0.01	-
	mg/L	02/06/97	N001	0.0107	B		#	-	-
Molybdenum	mg/L	12/08/83	0001	0.001	U	G	#	0.001	-
	mg/L	12/08/83	0002	0.04		G	#	0.001	-
	mg/L	01/10/84	0001	0.005	U		#	0.005	-
	mg/L	01/10/84	0002	0.005	U		#	0.005	-
	mg/L	03/28/84	0001	0.001	U		#	0.001	-
	mg/L	06/07/84	0001	0.01	U		#	0.01	-
	mg/L	05/26/85	0001	0.01	U		#	0.01	-
	mg/L	04/01/90	0001	0.01	U	G	#	0.01	-
	mg/L	04/01/90	N001	0.01	U	G	#	0.01	-
	mg/L	04/01/90	N002	0.01	U	G	#	0.01	-
	mg/L	04/01/90	N003	0.01	U	G	#	0.01	-
	mg/L	04/01/90	N004	0.01	U	G	#	0.01	-
	mg/L	04/01/90	N005	0.01	U	G	#	0.01	-
	mg/L	11/19/90	0001	0.01	U	G	#	0.01	-
	mg/L	11/19/90	N001	0.01	U	G	#	0.01	-
	mg/L	03/28/91	0001	0.01	U	G	#	0.01	-

GROUND WATER [illegible]CATION (USEE100) FOR SITE RVT01, RIVERTON
LOCATION: 0420 [illegible]OSS #1
REPORT DATE: 2/1[illegible]

PARAMETER	UNIT	SAMPLE: DATE	ID	RESULT	QUALIFIERS: LAB	DATA	QA	DETECTION LIMIT	UNCERTAINTY
Molybdenum	mg/L	03/28/91	N001	0.01	U	G	#	0.01	-
	mg/L	06/03/91	N001	0.01	U	G	#	0.01	-
	mg/L	10/23/91	N001	0.01	U		#	0.01	-
	mg/L	03/13/92	N001	0.01	U		#	0.01	-
	mg/L	08/06/92	N001	0.01	U		#	0.01	-
	mg/L	06/23/95	N001	0.01	U		#	0.01	-
	mg/L	02/06/97	N001	0.0024	B		#	-	-
Nickel	mg/L	12/08/83	0001	0.024		G	#	0.001	-
	mg/L	12/08/83	0002	0.033		G	#	0.001	-
	mg/L	01/10/84	0001	0.04	U		#	0.04	-
	mg/L	01/10/84	0002	0.04	U		#	0.04	-
	mg/L	03/28/84	0001	0.04	U		#	0.04	-
	mg/L	06/07/84	0001	0.04	U		#	0.04	-
	mg/L	05/26/85	0001	0.04	U	J	#	0.04	-
	mg/L	04/01/90	0001	0.04	U	G	#	0.04	-
	mg/L	04/01/90	N001	0.04	U	G	#	0.04	-
	mg/L	04/01/90	N002	0.04	U	G	#	0.04	-
	mg/L	04/01/90	N003	0.04	U	G	#	0.04	-
	mg/L	04/01/90	N004	0.04	U	G	#	0.04	-
	mg/L	04/01/90	N005	0.04	U	G	#	0.04	-
	mg/L	11/19/90	0001	0.04	U	G	#	0.04	-
	mg/L	11/19/90	N001	0.04	U	G	#	0.04	-
	mg/L	03/28/91	0001	0.04	U	G	#	0.04	-
	mg/L	03/28/91	N001	0.04	U	G	#	0.04	-
	mg/L	06/03/91	N001	0.04	U	G	#	0.04	-
	mg/L	10/23/91	N001	0.01	U		#	0.01	-
	mg/L	03/13/92	N001	0.04	U		#	0.04	-
	mg/L	08/06/92	N001	0.04	U		#	0.04	-
	mg/L	06/23/95	N001	0.04	U		#	0.04	-
	mg/L	02/06/97	N001	0.0078	U		#	0.0078	-
Polonium-210	pCi/L	05/26/85	0001	0.50		J	#	1	± 0.80
	pCi/L	03/28/91	N001	0.2		G	#	1	± 0.30
	pCi/L	03/17/93	N001	0.8			#	0.9	± 0.70
	pCi/L	02/06/97	N001	0.05	U		#	0.05	± 0.05
Sulfate	mg/L	07/21/81	0001	264.00			#	-	-

GROUND WATER QUALITY DATA BY LOCATION (USEE100) FOR SITE RVT01, RIVERTON
LOCATION: 0420 DOMESTIC WELL - MOSS #1
REPORT DATE: 2/19/98 10:42:09 AM

PARAMETER	UNITS	SAMPLE: DATE	ID	RESULT	QUALIFIERS: LAB	DATA	QA	DETECTION LIMIT	UN-CERTAINTY
Sulfate	mg/L	12/08/83	0001	289.00		G	#	0.1	-
	mg/L	12/08/83	0002	291.00		G	#	0.1	-
	mg/L	01/10/84	0001	260.00			#	-	-
	mg/L	01/10/84	0002	260.00			#	-	-
	mg/L	03/28/84	0001	292.00			#	0.1	-
	mg/L	06/07/84	0001	127.00			#	0.1	-
	mg/L	05/26/85	0001	190.00			#	0.1	-
	mg/L	04/01/90	0001	280		G	#	0.1	-
	mg/L	04/01/90	N001	286		G	#	0.1	-
	mg/L	04/01/90	N002	283		G	#	0.1	-
	mg/L	04/01/90	N003	283		G	#	0.1	-
	mg/L	04/01/90	N004	284		G	#	0.1	-
	mg/L	04/01/90	N005	284		G	#	0.1	-
	mg/L	11/19/90	0001	267		G	#	0.1	-
	mg/L	11/19/90	N001	272		G	#	0.1	-
	mg/L	03/28/91	0001	274		G	#	10	-
	mg/L	06/03/91	N001	250		G	#	0.1	-
	mg/L	10/23/91	N001	242			#	0.1	-
	mg/L	03/13/92	N001	318			#	40	-
	mg/L	08/06/92	N001	268			#	30	-
	mg/L	03/17/93	N001	292			#	1	-
	mg/L	06/23/95	N001	290			#	1	-
	mg/L	02/06/97	N001	263.000			#	-	-
Thorium-230	pCi/L	12/08/83	0001	0.00		G	#	0.2	± 0.30
	pCi/L	12/08/83	0002	0.40		G	#	0.2	± 0.50
	pCi/L	01/10/84	0001	1.00	U		#	1	± 0.00
	pCi/L	01/10/84	0002	1.00	U		#	1	± 0.00
	pCi/L	03/28/84	0001	0.20			#	0.2	± 0.50
	pCi/L	06/07/84	0001	0.00			#	0.0002	± 0.00
	pCi/L	05/26/85	0001	0.00		J	#	1	± 0.40
	pCi/L	11/19/90	0001	0.0		G	#	1	± 0.30
	pCi/L	11/19/90	N001	0.0		G	#	1	± 0.40
	pCi/L	03/28/91	N001	0.0		G	#	1	± 0.50
	pCi/L	03/17/93	N001	0.3			#	0.6	± 0.30
	pCi/L	02/06/97	N001	0.64	U		#	0.64	±
Uranium	mg/L	12/08/83	0001	0.0003	U	G	#	0.0003	-

GROUND WATER QUALITY DATA BY LOCATION (USEE100) FOR SITE RVT01, RIVERTON
LOCATION: 0420 DOMESTIC WELL - MOSS #1
REPORT DATE: 2/19/98 10:42:09 AM

PARAMETER	UNITS	SAMPLE DATE	SAMPLE ID	RESULT	QUALIFIERS: LAB	QUALIFIERS: DATA	QUALIFIERS: QA	DETECTION LIMIT	UN-CERTAINTY
Uranium	mg/L	12/08/83	0002	0.0005		G	#	0.0003	-
	mg/L	01/10/84	0001	0.002	U		#	0.002	-
	mg/L	01/10/84	0002	0.005			#	-	-
	mg/L	03/28/84	0001	0.0003	U		#	0.0003	-
	mg/L	06/07/84	0001	0.0003	U		#	0.0003	-
	mg/L	05/26/85	0001	0.0003	U	J	#	0.003	-
	mg/L	04/01/90	0001	0.0003	U	GJ	#	0.003	-
	mg/L	04/01/90	N001	0.0004		GJ	#	0.003	-
	mg/L	04/01/90	N002	0.0003	U	GJ	#	0.003	-
	mg/L	04/01/90	N003	0.0003	U	GJ	#	0.003	-
	mg/L	04/01/90	N004	0.0003	U	GJ	#	0.003	-
	mg/L	04/01/90	N005	0.0003	U	GJ	#	0.003	-
	mg/L	11/19/90	0001	0.0003	U	G	#	0.0003	-
	mg/L	11/19/90	N001	0.0003	U	G	#	0.0003	-
	mg/L	03/28/91	0001	0.003		G	#	0.001	-
	mg/L	03/28/91	N001	0.001	U	G	#	0.001	-
	mg/L	06/03/91	N001	0.001	U	G	#	0.001	-
	mg/L	10/23/91	N001	0.0004			#	0.0003	-
	mg/L	03/13/92	N001	0.001			#	0.001	-
	mg/L	08/06/92	N001	0.001	U		#	0.001	-
	mg/L	03/17/93	N001	0.001	U		#	0.001	-
	mg/L	06/23/95	N001	0.001	U		#	0.001	-
	mg/L	02/06/97	N001	0.0011	U		#	0.0011	-
Vanadium	mg/L	12/08/83	0001	0.004	U	G	#	0.004	-
	mg/L	12/08/83	0002	0.004	U	G	#	0.004	-
	mg/L	01/10/84	0001	0.004	U		#	0.004	-
	mg/L	01/10/84	0002	0.004	U		#	0.004	-
	mg/L	03/28/84	0001	0.004	U		#	0.004	-
	mg/L	06/07/84	0001	0.01	U		#	0.01	-
	mg/L	05/26/85	0001	0.01	U	R	#	0.01	-
	mg/L	04/01/90	0001	0.01	U	G	#	0.01	-
	mg/L	04/01/90	N001	0.01	U	G	#	0.01	-
	mg/L	04/01/90	N002	0.01	U	G	#	0.01	-
	mg/L	04/01/90	N003	0.01	U	G	#	0.01	-
	mg/L	04/01/90	N004	0.01	U	G	#	0.01	-
	mg/L	04/01/90	N005	0.01	U	G	#	0.01	-

GROUND WATER QUALITY DATA BY LOCATION (USEE100) FOR SITE RVT01, RIVERTON
LOCATION: 0420 DOMESTIC WELL - MOSS #1
REPORT DATE: 2/19/98 10:42:10 AM

PARAMETER	UNITS	SAMPLE: DATE	ID	RESULT	QUALIFIERS: LAB	DATA	QA	DETECTION LIMIT	UN-CERTAINTY
Vanadium	mg/L	11/19/90	0001	0.01	U	G	#	0.01	-
	mg/L	11/19/90	N001	0.01	U	G	#	0.01	-
	mg/L	03/28/91	0001	0.01	U	G	#	0.01	-
	mg/L	03/28/91	N001	0.01	U	G	#	0.01	-
	mg/L	06/03/91	N001	0.01	U	G	#	0.01	-
	mg/L	10/23/91	N001	0.01	U		#	0.01	-
	mg/L	03/13/92	N001	0.01	U		#	0.01	-
	mg/L	08/06/92	N001	0.01	U		#	0.01	-
	mg/L	06/23/95	N001	0.01	U		#	0.01	-
	mg/L	02/06/97	N001	0.0044	U		#	0.0044	-

GROUND WATER QUALITY DATA BY LOCATION (USEE100) FOR SITE RVT01, RIVERTON
LOCATION: 0421 DOMESTIC WELL - HARRIS
REPORT DATE: 2/19/98 10:42:10 AM

PARAMETER	UNITS	SAMPLE: DATE	ID	RESULT	QUALIFIERS: LAB	DATA	QA	DETECTION LIMIT	UN-CERTAINTY
Arsenic	mg/L	05/26/85	0001	0.01	U	G	#	0.01	-
	mg/L	06/24/95	N001	0.005	UW	J	#	0.005	-
Lead-210	pCi/L	05/26/85	0001	0.10		GJ	#	1.5	± 0.90
Manganese	mg/L	05/26/85	0001	0.01	U	G	#	0.01	-
	mg/L	06/24/95	N001	0.01	U		#	0.01	-
Molybdenum	mg/L	05/26/85	0001	0.01	U	G	#	0.01	-
	mg/L	06/24/95	N001	0.01	U		#	0.01	-
Nickel	mg/L	05/26/85	0001	0.04	U	GJ	#	0.04	-
	mg/L	06/24/95	N001	0.04	U		#	0.04	-
Polonium-210	pCi/L	05/26/85	0001	0.00		G	#	1	± 0.60
Sulfate	mg/L	07/21/81	0001	212.00			#	-	-
	mg/L	05/26/85	0001	233.00		G	#	0.1	-
	mg/L	06/24/95	N001	260			#	1	-
Thorium-230	pCi/L	05/26/85	0001	0.00		GJ	#	1	± 0.40
Uranium	mg/L	05/26/85	0001	0.0003	U	GJ	#	0.003	-
	mg/L	06/24/95	N001	0.001	U		#	0.001	-
Vanadium	mg/L	05/26/85	0001	0.01	U	GR	#	0.01	-
	mg/L	06/24/95	N001	0.01	U		#	0.01	-

GROUND WATER QUALITY DATA BY LOCATION (USEE100) FOR SITE RVT01, RIVERTON
LOCATION: 0422 DOMESTIC WELL - LARSON
REPORT DATE: 2/19/98 10:42:10 AM

PARAMETER	UNITS	SAMPLE: DATE	ID	RESULT	QUALIFIERS: LAB	DATA	QA	DETECTION LIMIT	UN-CERTAINTY
Arsenic	mg/L	04/04/84	0001	0.01	U		#	0.01	-
	mg/L	05/28/85	0001	0.01	U		#	0.01	-
Lead-210	pCi/L	04/04/84	0001	0.20			#	1	± 2.00
	pCi/L	05/28/85	0001	0.00		J	#	1.5	± 0.90
Manganese	mg/L	04/04/84	0001	0.13			#	0.01	-
	mg/L	05/28/85	0001	0.15			#	0.01	-
Molybdenum	mg/L	04/04/84	0001	0.01	U		#	0.01	-
	mg/L	05/28/85	0001	0.01	U		#	0.01	-
Nickel	mg/L	04/04/84	0001	0.04	U		#	0.04	-
	mg/L	05/28/85	0001	0.04	U	J	#	0.04	-
Polonium-210	pCi/L	05/28/85	0001	0.00			#	1	± 0.60
Sulfate	mg/L	04/04/84	0001	366.00			#	0.1	-
	mg/L	05/28/85	0001	400.00			#	0.1	-
Thorium-230	pCi/L	04/04/84	0001	0.00			#	0.0002	± 0.00
	pCi/L	05/28/85	0001	0.00		J	#	1	± 0.40
Uranium	mg/L	04/04/84	0001	0.0013			#	0.0003	-
	mg/L	05/28/85	0001	0.0003	U	J	#	0.003	-
Vanadium	mg/L	04/04/84	0001	0.01	U		#	0.01	-
	mg/L	05/28/85	0001	0.01	U	R	#	0.01	-

GROUND WATER QUALITY DATA BY LOCATION (USEE100) FOR SITE RVT01, RIVERTON
LOCATION: 0423 DOMESTIC WELL - WHITEMAN #1
REPORT DATE: 2/19/98 10:42:10 AM

PARAMETER	UNITS	SAMPLE: DATE	ID	RESULT	QUALIFIERS: LAB	DATA	QA	DETECTION LIMIT	UN-CERTAINTY
Arsenic	mg/L	06/05/84	0001	0.01	U	F	#	0.01	-
	mg/L	06/06/85	0001	0.01	U		#	0.01	-
	mg/L	06/06/85	0002	0.01	U		#	0.01	-
	mg/L	06/06/85	0003	0.01	U		#	0.01	-
	mg/L	06/06/85	0004	0.01	U		#	0.01	-
	mg/L	06/06/85	0005	0.01	U		#	0.01	-
	mg/L	11/28/88	0001	0.01	U		#	0.01	-
	mg/L	11/19/90	0001	0.01	U	GJ	#	0.01	-
	mg/L	11/19/90	N001	0.01	U	G	#	0.01	-
	mg/L	03/28/91	0001	0.01	U	G	#	0.01	-
	mg/L	03/28/91	N001	0.01	U	G	#	0.01	-
	mg/L	06/03/91	N001	0.05	UI		#	0.05	-
	mg/L	10/24/91	N001	0.014			#	0.001	-
	mg/L	03/14/92	N001	0.005	U		#	0.005	-
	mg/L	08/05/92	N001	0.01	U		#	0.01	
	mg/L	03/15/93	N001	0.005	U		#	0.005	-
	mg/L	06/24/95	N001	0.005	UW	J	#	0.005	-
Lead-210	pCi/L	06/06/85	0001	0.10		J	#	1.5	± 0.80
	pCi/L	06/06/85	0002	0.00		J	#	1.5	± 0.70
	pCi/L	06/06/85	0003	0.10		J	#	1.5	± 0.70
	pCi/L	06/06/85	0004	0.30		J	#	1.5	± 0.70
	pCi/L	06/06/85	0005	0.00		J	#	1.5	± 0.70
	pCi/L	11/28/88	0001	0.0			#	1.5	± 0.60
	pCi/L	03/28/91	N001	0.4		G	#	1.5	± 1.50
	pCi/L	03/15/93	N001	0.6			#	1.7	± 1.00
Manganese	mg/L	06/05/84	0001	0.01	U	F	#	0.01	-
	mg/L	06/06/85	0001	0.01	U		#	0.01	-
	mg/L	06/06/85	0002	0.01	U		#	0.01	-
	mg/L	06/06/85	0003	0.01	U		#	0.01	-
	mg/L	06/06/85	0004	0.01	U		#	0.01	-
	mg/L	06/06/85	0005	0.01	U		#	0.01	-
	mg/L	11/28/88	0001	0.01	U		#	0.01	-
	mg/L	11/19/90	0001	0.01	U	G	#	0.01	-
	mg/L	11/19/90	N001	0.01	U	G	#	0.01	-
	mg/L	03/28/91	0001	0.01	U	G	#	0.01	-
	mg/L	[illegible]	N001	0.01	U	G	#	0.01	-

GROUN WATER QUALITY DATA BY LOCATION (USEE100) FOR SITE RVT01, RIVERTON
LOCATION: 0423 DOMESTIC WELL - WHITEMAN #1
REPORT DATE: 2/19/98 10:42:11 AM

PARAMETER	UNITS	SAMPLE: DATE	ID	RESULT	QUALIFIERS: LAB	DATA	QA	DETECTION LIMIT	UN-CERTAINTY
Manganese	mg/L	06/03/91	N001	0.01	U		#	0.01	-
	mg/L	10/24/91	N001	0.01	U		#	0.01	-
	mg/L	03/14/92	N001	0.01	U		#	0.01	-
	mg/L	08/05/92	N001	0.01	U		#	0.01	-
	mg/L	03/15/93	N001	0.01	U		#	0.01	-
	mg/L	06/24/95	N001	0.01	U		#	0.01	-
Molybdenum	mg/L	06/05/84	0001	0.01	U	F	#	0.01	-
	mg/L	06/06/85	0001	0.01	U		#	0.01	-
	mg/L	06/06/85	0002	0.01	U		#	0.01	-
	mg/L	06/06/85	0003	0.01	U		#	0.01	-
	mg/L	06/06/85	0004	0.01	U		#	0.01	-
	mg/L	06/06/85	0005	0.01	U		#	0.01	-
	mg/L	11/28/88	0001	0.01	U		#	0.01	-
	mg/L	11/19/90	0001	0.01		G	#	0.01	-
	mg/L	11/19/90	N001	0.01	U	G	#	0.01	-
	mg/L	03/28/91	0001	0.01	U	G	#	0.01	-
	mg/L	03/28/91	N001	0.01	U	G	#	0.01	-
	mg/L	06/03/91	N001	0.01	U		#	0.01	-
	mg/L	10/24/91	N001	0.01	U		#	0.01	-
	mg/L	03/14/92	N001	0.01	U		#	0.01	-
	mg/L	08/05/92	N001	0.01	U		#	0.01	-
	mg/L	03/15/93	N001	0.01	U		#	0.01	-
	mg/L	06/24/95	N001	0.01	U		#	0.01	-
Nickel	mg/L	06/05/84	0001	0.04	U	F	#	0.04	-
	mg/L	06/06/85	0001	0.04	U	J	#	0.04	-
	mg/L	06/06/85	0002	0.04	U	J	#	0.04	-
	mg/L	06/06/85	0003	0.04	U	J	#	0.04	-
	mg/L	06/06/85	0004	0.04	U	J	#	0.04	-
	mg/L	06/06/85	0005	0.04	U	J	#	0.04	-
	mg/L	11/28/88	0001	0.04	U		#	0.04	-
	mg/L	11/19/90	0001	0.04	U	G	#	0.04	-
	mg/L	11/19/90	N001	0.04	U	G	#	0.04	-
	mg/L	03/28/91	0001	0.04	U	G	#	0.04	-
	mg/L	03/28/91	N001	0.04	U	G	#	0.04	-
	mg/L	06/03/91	N001	0.04	U		#	0.04	-
	mg/L	10/24/91	N001	0.01	U		#	0.01	-

GROUND WATER QUALITY DATA BY LOCATION (USEE100) FOR SITE RVT01, RIVERTON
LOCATION: 0423 DOMESTIC WELL - WHITEMAN #1
REPORT DATE: 2/19/98 10:42:11 AM

PARAMETER	UNITS	SAMPLE: DATE	ID	RESULT	QUALIFIERS: LAB	DATA	QA	DETECTION LIMIT	UN-CERTAINTY
Nickel	mg/L	03/14/92	N001	0.04	U		#	0.04	-
	mg/L	08/05/92	N001	0.04	U		#	0.04	-
	mg/L	03/15/93	N001	0.04	U		#	0.04	-
	mg/L	06/24/95	N001	0.04	U		#	0.04	-
Polonium-210	pCi/L	06/06/85	0001	0.00			#	1	± 0.60
	pCi/L	06/06/85	0002	0.20			#	1	± 0.70
	pCi/L	06/06/85	0003	0.00			#	1	± 0.60
	pCi/L	06/06/85	0004	0.20			#	1	± 0.70
	pCi/L	06/06/85	0005	0.30			#	1	± 0.70
	pCi/L	11/28/88	0001	0.7			#	1	± 0.40
	pCi/L	03/28/91	N001	0.1		G	#	1	± 0.30
	pCi/L	03/15/93	N001	0.0			#	0.9	± 0.50
Sulfate	mg/L	06/05/84	0001	80.30		F	#	0.1	-
	mg/L	06/06/85	0001	167.00			#	0.1	-
	mg/L	06/06/85	0002	167.00			#	0.1	-
	mg/L	06/06/85	0003	167.00			#	0.1	-
	mg/L	06/06/85	0004	167.00			#	0.1	-
	mg/L	06/06/85	0005	167.00			#	0.1	-
	mg/L	11/28/88	0001	160			#	0.1	-
	mg/L	11/19/90	0001	165		G	#	0.1	-
	mg/L	11/19/90	N001	164		G	#	0.1	-
	mg/L	03/28/91	0001	175		G	#	10	-
	mg/L	06/03/91	N001	150			#	0.1	-
	mg/L	10/24/91	N001	156			#	0.1	-
	mg/L	03/14/92	N001	178			#	40	-
	mg/L	08/05/92	N001	162			#	10	-
	mg/L	03/15/93	N001	166			#	1	-
	mg/L	06/24/95	N001	180			#	1	-
Thorium-230	pCi/L	06/05/84	0001	0.00		F	#	0.0002	± 0.00
	pCi/L	06/06/85	0001	0.00		J	#	1	± 0.40
	pCi/L	06/06/85	0002	0.00		J	#	1	± 0.40
	pCi/L	06/06/85	0003	0.00		J	#	1	± 0.50
	pCi/L	06/06/85	0004	0.00		J	#	1	± 0.40
	pCi/L	06/06/85	0005	0.40		J	#	1	± 0.50
	pCi/L	11/28/88	0001	1.0			#	1	± 0.60

GROUND WATER QUALITY DATA BY LOCATION (USEE100) FOR SITE RVT01, RIVERTON
LOCATION: 0423 DOMESTIC WELL - WHITEMAN #1
REPORT DATE: 2/19/98 10:42:11 AM

PARAMETER	UNITS	SAMPLE: DATE	ID	RESULT	QUALIFIERS: LAB	DATA	QA	DETECTION LIMIT	UN-CERTAINTY
Thorium-230	pCi/L	11/19/90	0001	0.0		G	#	1	± 0.30
	pCi/L	11/19/90	N001	0.0		G	#	1	± 0.40
	pCi/L	03/28/91	N001	0.06		G	#	1	± 0.70
	pCi/L	03/15/93	N001	0.3			#	0.3	± 0.30
Uranium	mg/L	06/05/84	0001	0.0003	U	F	#	0.0003	-
	mg/L	06/06/85	0001	0.0018		J	#	0.003	-
	mg/L	06/06/85	0002	0.0003	U	J	#	0.003	-
	mg/L	06/06/85	0003	0.0003	U	J	#	0.003	-
	mg/L	06/06/85	0004	0.0003	U	J	#	0.003	-
	mg/L	06/06/85	0005	0.0003	U	J	#	0.003	-
	mg/L	11/28/88	0001	0.0003	U	J	#	0.003	-
	mg/L	11/19/90	0001	0.0005		G	#	0.0003	-
	mg/L	11/19/90	N001	0.0003		G	#	0.0003	-
	mg/L	03/28/91	0001	0.003		G	#	0.001	-
	mg/L	03/28/91	N001	0.001	U	G	#	0.001	-
	mg/L	06/03/91	N001	0.001	U		#	0.001	-
	mg/L	10/24/91	N001	0.0003	U		#	0.0003	-
	mg/L	03/14/92	N001	0.001			#	0.001	-
	mg/L	08/05/92	N001	0.001	U		#	0.001	-
	mg/L	03/15/93	N001	0.001	U		#	0.001	-
	mg/L	06/24/95	N001	0.001	U		#	0.001	-
Vanadium	mg/L	06/05/84	0001	0.01	U	F	#	0.01	-
	mg/L	06/06/85	0001	0.01	U	R	#	0.01	-
	mg/L	06/06/85	0002	0.01	U	R	#	0.01	-
	mg/L	06/06/85	0003	0.01	U	R	#	0.01	-
	mg/L	06/06/85	0004	0.01	U	R	#	0.01	-
	mg/L	06/06/85	0005	0.01	U	R	#	0.01	-
	mg/L	11/28/88	0001	0.01	U		#	0.01	-
	mg/L	11/19/90	0001	0.01	U	G	#	0.01	-
	mg/L	11/19/90	N001	0.01	U	G	#	0.01	-
	mg/L	03/28/91	0001	0.02		G	#	0.01	-
	mg/L	03/28/91	N001	0.01	U	G	#	0.01	-
	mg/L	06/03/91	N001	0.01	U		#	0.01	-
	mg/L	10/24/91	N001	0.01	U		#	0.01	-
	mg/L	03/14/92	N001	0.01	U		#	0.01	-
	mg/L	08/05/92	N001	0.01	U		#	0.01	-

GROUND WATER QUALITY DATA BY LOCATION (USEE100) FOR SITE RVT01, RIVERTON
LOCATION: 0423 DOMESTIC WELL - WHITEMAN #1
REPORT DATE: 2/19/98 10:42:12 AM

PARAMETER	UNITS	SAMPLE: DATE	ID	RESULT	QUALIFIERS: LAB	DATA	QA	DETECTION LIMIT	UN-CERTAINTY
Vanadium	mg/L	03/15/93	N001	0.01	U		#	0.01	-
	mg/L	06/24/95	N001	0.01	U		#	0.01	-

GROUND WATER QUALITY DATA BY LOCATION (USEE100) FOR SITE RVT01, RIVERTON
LOCATION: 0424 DOMESTIC WELL - WHITEMAN #2
REPORT DATE: 2/19/98 10:42:12 AM

PARAMETER	UNITS	SAMPLE: DATE	ID	RESULT	QUALIFIERS: LAB	DATA	QA	DETECTION LIMIT	UN-CERTAINTY
Arsenic	mg/L	06/05/84	0001	0.01	U		#	0.01	-
Lead-210	pCi/L	06/05/84	0001	0.80			#	1	± 1.30
Manganese	mg/L	06/05/84	0001	0.15			#	0.01	-
Molybdenum	mg/L	06/05/84	0001	0.01	U		#	0.01	-
Nickel	mg/L	06/05/84	0001	0.04	U		#	0.04	-
Sulfate	mg/L	06/05/84	0001	582.00			#	0.1	-
Thorium-230	pCi/L	06/05/84	0001	0.0005			#	0.0002	± 0.00
Uranium	mg/L	06/05/84	0001	0.0079			#	0.0003	-
Vanadium	mg/L	06/05/84	0001	0.01	U		#	0.01	-

GROUND WATER QUALITY DATA BY LOCATION (USEE100) FOR SITE RVT01, RIVERTON
LOCATION: 0425 DOMESTIC WELL - RALPH NORSE
REPORT DATE: 2/19/98 10:42:12 AM

PARAMETER	UNITS	SAMPLE: DATE	ID	RESULT	QUALIFIERS: LAB	DATA	QA	DETECTION LIMIT	UN-CERTAINTY
Arsenic	mg/L	03/30/84	0001	0.001	U		#	0.001	-
	mg/L	05/27/85	0001	0.01	U		#	0.01	-
Lead-210	pCi/L	03/30/84	0001	6.40			#	1	± 1.30
	pCi/L	05/27/85	0001	0.00		J	#	1.5	± 1.50
Manganese	mg/L	03/30/84	0001	0.04			#	0.01	-
Molybdenum	mg/L	03/30/84	0001	0.001	U		#	0.001	-
	mg/L	05/27/85	0001	0.01	U		#	0.01	-
Nickel	mg/L	03/30/84	0001	0.04	U		#	0.04	-
	mg/L	05/27/85	0001	0.04	U	J	#	0.04	-
Polonium-210	pCi/L	05/27/85	0001	0.00			#	1	± 0.60
Sulfate	mg/L	03/30/84	0001	341.00			#	0.1	-
	mg/L	05/27/85	0001	336.00			#	0.1	-
Thorium-230	pCi/L	03/30/84	0001	0.00			#	1	± 0.40
	pCi/L	05/27/85	0001	0.00		J	#	1	± 0.50
Uranium	mg/L	03/30/84	0001	0.0008			#	0.0003	-
	mg/L	05/27/85	0001	0.0003	U	J	#	0.003	-
Vanadium	mg/L	03/30/84	0001	0.004	U		#	0.004	-
	mg/L	05/27/85	0001	0.01	U	R	#	0.01	-

GROUND WATER QUALITY DATA BY LOCATION (USEE100) FOR SITE RVT01, RIVERTON
LOCATION: 0430 DOMESTIC WELL - LAWRENCE RAYMOND #1
REPORT DATE: 2/19/98 10:42:12 AM

PARAMETER	UNITS	SAMPLE: DATE	ID	RESULT	QUALIFIERS: LAB	DATA	QA	DETECTION LIMIT	UN-CERTAINTY
Arsenic	mg/L	12/08/83	0001	0.001	U		#	0.001	-
	mg/L	12/08/83	0002	0.001	U		#	0.001	-
	mg/L	01/10/84	0001	0.005	U		#	0.005	-
	mg/L	01/10/84	0002	0.005	U		#	0.005	-
	mg/L	04/04/84	0001	0.01	U		#	0.01	-
	mg/L	05/27/85	0001	0.01	U		#	0.01	-
	mg/L	11/19/90	0001	0.01	U	GJ	#	0.01	-
	mg/L	11/19/90	N001	0.01	U	G	#	0.01	-
	mg/L	03/28/91	0001	0.01	U	G	#	0.01	-
	mg/L	03/28/91	N001	0.01	U	G	#	0.01	-
	mg/L	06/03/91	N001	0.05	UI		#	0.05	-
	mg/L	03/14/92	N001	0.005	U		#	0.005	-
	mg/L	08/07/92	N001	0.01	U		#	0.01	-
	mg/L	03/16/93	N001	0.005	U		#	0.005	-
	mg/L	06/24/95	N001	0.005	U		#	0.005	-
	mg/L	02/08/97	N001	0.00022	UN		#	0.00022	-
Lead-210	pCi/L	12/08/83	0001	0.00			#	1	± 2.30
	pCi/L	12/08/83	0002	0.00			#	1	± 2.10
	pCi/L	01/10/84	0001	1.50	U		#	1.5	± 0.00
	pCi/L	01/10/84	0002	1.50	U		#	1.5	± 0.00
	pCi/L	04/04/84	0001	0.00			#	1	± 1.30
	pCi/L	05/27/85	0001	0.00		J	#	1.5	± 0.90
	pCi/L	03/28/91	N001	0.8		G	#	1.5	± 1.50
	pCi/L	03/16/93	N001	1.1			#	1.8	± 1.10
	pCi/L	02/08/97	N001	1.52			#	1.39	± 0.83
Manganese	mg/L	12/08/83	0001	0.02			#	0.01	-
	mg/L	12/08/83	0002	0.01			#	0.01	-
	mg/L	01/10/84	0001	0.01	U		#	0.01	-
	mg/L	01/10/84	0002	0.01	U		#	0.01	-
	mg/L	04/04/84	0001	0.01	U		#	0.01	-
	mg/L	05/27/85	0001	0.01	U		#	0.01	-
	mg/L	11/19/90	0001	0.01	U	G	#	0.01	-
	mg/L	11/19/90	N001	0.01	U	G	#	0.01	-
	mg/L	03/28/91	0001	0.01	U	G	#	0.01	-
	mg/L	03/28/91	N001	0.01	U	G	#	0.01	-
	mg/L	06/03/91	N001	0.01	U		#	0.01	-

GROUND WATER QUALITY DATA BY LOCATION (USEE100) FOR SITE RVT01, RIVERTON
LOCATION: 0430 DOMESTIC WELL - LAWRENCE RAYMOND #1
REPORT DATE: 2/19/98 10:42:13 AM

PARAMETER	UNITS	SAMPLE: DATE	ID	RESULT	QUALIFIERS: LAB	DATA	QA	DETECTION LIMIT	UN-CERTAINTY
Manganese	mg/L	03/14/92	N001	0.01	U		#	0.01	-
	mg/L	08/07/92	N001	0.01	U		#	0.01	-
	mg/L	03/16/93	N001	0.01	U		#	0.01	-
	mg/L	06/24/95	N001	0.01	U		#	0.01	-
	mg/L	02/08/97	N001	0.0049	B	U	#	-	-
Molybdenum	mg/L	06/12/81	0001	0.004			#	-	-
	mg/L	12/08/83	0001	0.001	U		#	0.001	-
	mg/L	12/08/83	0002	0.001	U		#	0.001	-
	mg/L	01/10/84	0001	0.005	U		#	0.005	-
	mg/L	01/10/84	0002	0.005	U		#	0.005	-
	mg/L	04/04/84	0001	0.01	U		#	0.01	-
	mg/L	05/27/85	0001	0.01	U		#	0.01	-
	mg/L	11/19/90	0001	0.01		G	#	0.01	-
	mg/L	11/19/90	N001	0.01	U	G	#	0.01	-
	mg/L	03/28/91	0001	0.01	U	G	#	0.01	-
	mg/L	03/28/91	N001	0.01	U	G	#	0.01	-
	mg/L	06/03/91	N001	0.01	U		#	0.01	-
	mg/L	03/14/92	N001	0.01	U		#	0.01	-
	mg/L	08/07/92	N001	0.01	U		#	0.01	-
	mg/L	03/16/93	N001	0.01	U		#	0.01	-
	mg/L	06/24/95	N001	0.01	U		#	0.01	-
	mg/L	02/08/97	N001	0.0025	B		#	-	-
Nickel	mg/L	12/08/83	0001	0.017			#	0.001	-
	mg/L	12/08/83	0002	0.018			#	0.001	-
	mg/L	01/10/84	0001	0.04	U		#	0.04	-
	mg/L	01/10/84	0002	0.04	U		#	0.04	-
	mg/L	04/04/84	0001	0.04	U		#	0.04	-
	mg/L	05/27/85	0001	0.04	U	J	#	0.04	-
	mg/L	11/19/90	0001	0.04	U	G	#	0.04	-
	mg/L	11/19/90	N001	0.04	U	G	#	0.04	-
	mg/L	03/28/91	0001	0.04	U	G	#	0.04	-
	mg/L	03/28/91	N001	0.04	U	G	#	0.04	-
	mg/L	06/03/91	N001	0.04	U		#	0.04	-
	mg/L	03/14/92	N001	0.04	U		#	0.04	-
	mg/L	08/07/92	N001	0.04	U		#	0.04	-
	mg/L	03/16/93	N001	0.04	U		#	0.04	-

GROUND WATER QUALITY DATA BY LOCATION (USEE100) FOR SITE RVT01, RIVERTON
LOCATION: 0430 DOMESTIC WELL - LAWRENCE RAYMOND #1
REPORT DATE: 2/19/98 10:42:13 AM

PARAMETER	UNITS	SAMPLE: DATE	ID	RESULT	QUALIFIERS: LAB	DATA	QA	DETECTION LIMIT	UN-CERTAINTY
Nickel	mg/L	06/24/95	N001	0.04	U		#	0.04	-
	mg/L	02/08/97	N001	0.0078	U		#	0.0078	-
Polonium-210	pCi/L	05/27/85	0001	0.00			#	1	± 0.60
	pCi/L	03/28/91	N001	0.0		G	#	1	± 0.20
	pCi/L	03/16/93	N001	0.0			#	0.9	± 0.60
	pCi/L	02/08/97	N001	0.69			#	0.14	± 0.33
Sulfate	mg/L	06/12/81	0001	205.00			#	-	-
	mg/L	12/08/83	0001	194.00			#	0.1	-
	mg/L	12/08/83	0002	189.00			#	0.1	-
	mg/L	01/10/84	0001	180.00			#	-	-
	mg/L	01/10/84	0002	180.00			#	-	-
	mg/L	04/04/84	0001	198.00			#	0.1	-
	mg/L	05/27/85	0001	192.00			#	0.1	-
	mg/L	11/19/90	0001	209		G	#	0.1	-
	mg/L	11/19/90	N001	209		G	#	0.1	-
	mg/L	03/28/91	0001	202		G	#	10	-
	mg/L	06/03/91	N001	185			#	0.1	-
	mg/L	03/14/92	N001	198			#	40	-
	mg/L	08/07/92	N001	208			#	20	-
	mg/L	03/16/93	N001	212			#	1	-
	mg/L	06/24/95	N001	210			#	1	-
	mg/L	02/08/97	N001	204.000			#	-	-
Thorium-230	pCi/L	12/08/83	0001	0.00			#	0.2	± 0.30
	pCi/L	12/08/83	0002	0.00			#	0.2	± 0.30
	pCi/L	01/10/84	0001	1.00	U		#	1	± 0.00
	pCi/L	01/10/84	0002	1.00	U		#	1	± 0.00
	pCi/L	04/04/84	0001	0.0002			#	0.0002	± 0.00
	pCi/L	05/27/85	0001	0.10		J	#	1	± 0.50
	pCi/L	11/19/90	0001	0.0		G	#	1	± 0.40
	pCi/L	11/19/90	N001	0.0		G	#	1	± 0.30
	pCi/L	03/28/91	N001	0.0		G	#	1	± 0.30
	pCi/L	03/16/93	N001	0.1			#	0.3	± 0.50
	pCi/L	02/08/97	N001	0.64	U		#	0.64	±
Uranium	mg/L	12/08/83	0001	0.0006			#	0.0003	-
	mg/L	12/08/83	0002	0.0003	U		#	0.0003	-

GROUND WATER QUALITY DATA BY LOCATION (USEE100) FOR SITE RVT01, RIVERTON
LOCATION: 0430 DOMESTIC WELL - LAWRENCE RAYMOND #1
REPORT DATE: 2/19/98 10:42:13 AM

PARAMETER	UNITS	SAMPLE: DATE	ID	RESULT	QUALIFIERS: LAB	DATA	QA	DETECTION LIMIT	UN-CERTAINTY
Uranium	mg/L	01/10/84	0001	0.002	U		#	0.002	-
	mg/L	01/10/84	0002	0.002	U		#	0.002	-
	mg/L	04/04/84	0001	0.0012			#	0.0003	-
	mg/L	05/27/85	0001	0.0003	U	J	#	0.003	-
	mg/L	11/19/90	0001	0.0003	U	G	#	0.0003	-
	mg/L	11/19/90	N001	0.0003	U	G	#	0.0003	-
	mg/L	03/28/91	0001	0.002		G	#	0.001	-
	mg/L	03/28/91	N001	0.001	U	G	#	0.001	-
	mg/L	06/03/91	N001	0.001	U		#	0.001	-
	mg/L	03/14/92	N001	0.001	U		#	0.001	-
	mg/L	08/07/92	N001	0.001	U		#	0.001	-
	mg/L	03/16/93	N001	0.003			#	0.001	-
	mg/L	06/24/95	N001	0.001	U		#	0.001	-
	mg/L	02/08/97	N001	0.0011	U		#	0.0011	-
Vanadium	mg/L	12/08/83	0001	0.004	U		#	0.004	-
	mg/L	12/08/83	0002	0.004	U		#	0.004	-
	mg/L	01/10/84	0001	0.004	U		#	0.004	-
	mg/L	01/10/84	0002	0.004	U		#	0.004	-
	mg/L	04/04/84	0001	0.01	U		#	0.01	-
	mg/L	05/27/85	0001	0.01	U	R	#	0.01	-
	mg/L	11/19/90	0001	0.01	U	G	#	0.01	-
	mg/L	11/19/90	N001	0.01	U	G	#	0.01	-
	mg/L	03/28/91	0001	0.01	U	G	#	0.01	-
	mg/L	03/28/91	N001	0.01	U	G	#	0.01	-
	mg/L	06/03/91	N001	0.01	U		#	0.01	-
	mg/L	03/14/92	N001	0.01	U		#	0.01	-
	mg/L	08/07/92	N001	0.01	U		#	0.01	-
	mg/L	03/16/93	N001	0.01	U		#	0.01	-
	mg/L	06/24/95	N001	0.01	U		#	0.01	-
	mg/L	02/08/97	N001	0.0044	U		#	0.0044	-

GROUND WATER QUALITY DATA BY LOCATION (USEE100) FOR SITE RVT01, RIVERTON
LOCATION: 0431 DOMESTIC WELL - RAYMOND #2
REPORT DATE: 2/19/98 10:42:14 AM

PARAMETER	UNITS	SAMPLE: DATE	ID	RESULT	QUALIFIERS: LAB	DATA	QA	DETECTION LIMIT	UN-CERTAINTY
Arsenic	mg/L	04/04/84	0001	0.01	U		#	0.01	-
	mg/L	05/27/85	0001	0.01	U		#	0.01	-
	mg/L	08/07/92	N001	0.01	U		#	0.01	-
	mg/L	03/16/93	N001	0.005	U		#	0.005	-
	mg/L	06/24/95	N001	0.005	U		#	0.005	-
	mg/L	02/17/96	N001	0.005	U		#	0.005	-
	mg/L	02/17/96	N002	0.005	U		#	0.005	-
	mg/L	02/08/97	N001	0.0029	BN	J	#	-	-
Lead-210	pCi/L	04/04/84	0001	0.20			#	1	± 1.90
	pCi/L	05/27/85	0001	0.30		J	#	1.5	± 0.90
	pCi/L	03/16/93	N001	2.2			#	1.8	± 1.20
	pCi/L	02/17/96	N001	2.2			#	0.9	± 0.60
	pCi/L	02/17/96	N002	1.1			#	0.9	± 0.60
	pCi/L	02/08/97	N001	1.98			#	1.21	± 0.73
Manganese	mg/L	04/04/84	0001	0.59			#	0.01	-
	mg/L	05/27/85	0001	0.27			#	0.01	-
	mg/L	08/07/92	N001	0.08			#	0.01	-
	mg/L	03/16/93	N001	0.06			#	0.01	-
	mg/L	06/24/95	N001	0.46			#	0.01	-
	mg/L	02/17/96	N001	0.37			#	0.01	-
	mg/L	02/17/96	N002	0.36			#	0.01	-
	mg/L	02/08/97	N001	0.0348			#	-	-
Molybdenum	mg/L	04/04/84	0001	0.01	U		#	0.01	-
	mg/L	05/27/85	0001	0.01	U		#	0.01	-
	mg/L	08/07/92	N001	0.01	U		#	0.01	-
	mg/L	03/16/93	N001	0.01	U		#	0.01	-
	mg/L	06/24/95	N001	0.01	U		#	0.01	-
	mg/L	02/17/96	N001	0.01	U		#	0.01	-
	mg/L	02/17/96	N002	0.01	U		#	0.01	-
	mg/L	02/08/97	N001	0.0020	B		#	-	-
Nickel	mg/L	04/04/84	0001	0.04	U		#	0.04	-
	mg/L	05/27/85	0001	0.04	U	J	#	0.04	-
	mg/L	08/07/92	N001	0.04	U		#	0.04	-
	mg/L	03/16/93	N001	0.04	U		#	0.04	-
	mg/L	06/24/95	N001	0.04	U		#	0.04	-

GROUND WATER QUALITY DATA BY LOCATION (USEE100) FOR SITE RVT01, RIVERTON
LOCATION: 0431 DOMESTIC WELL - RAYMOND #2
REPORT DATE: 2/19/98 10:42:14 AM

PARAMETER	UNITS	SAMPLE: DATE	ID	RESULT	QUALIFIERS: LAB	DATA	QA	DETECTION LIMIT	UN-CERTAINTY
Nickel	mg/L	02/17/96	N001	0.04	U		#	0.04	-
	mg/L	02/17/96	N002	0.04	U		#	0.04	-
	mg/L	02/08/97	N001	0.0078	U		#	0.0078	-
Polonium-210	pCi/L	05/27/85	0001	0.00			#	1	± 0.60
	pCi/L	03/16/93	N001	0.0			#	0.9	± 0.50
	pCi/L	02/17/96	N001	1.1			#	0.4	± 0.40
	pCi/L	02/17/96	N002	0.4			#	0.4	± 0.30
	pCi/L	02/08/97	N001	0.19			#	0.06	± 0.11
Sulfate	mg/L	04/04/84	0001	244.00			#	0.1	-
	mg/L	05/27/85	0001	199.00			#	0.1	-
	mg/L	08/07/92	N001	282			#	30	-
	mg/L	03/16/93	N001	176			#	1	-
	mg/L	06/24/95	N001	340			#	1	-
	mg/L	02/17/96	N001	268	I		#	1	-
	mg/L	02/17/96	N002	267	I		#	1	-
	mg/L	02/08/97	N001	263.000			#	-	-
Thorium-230	pCi/L	04/04/84	0001	0.00			#	0.0002	± 0.00
	pCi/L	05/27/85	0001	0.00		J	#	1	± 0.50
	pCi/L	03/16/93	N001	1.0			#	0.2	± 0.50
	pCi/L	02/17/96	N001	0.0			#	0.1	± 0.10
	pCi/L	02/17/96	N002	0.0			#	0.1	± 0.10
	pCi/L	02/08/97	N001	0.64	U		#	0.64	±
Uranium	mg/L	04/04/84	0001	0.0077			#	0.0003	-
	mg/L	05/27/85	0001	0.0103			#	0.003	-
	mg/L	08/07/92	N001	0.010			#	0.001	-
	mg/L	03/16/93	N001	0.016			#	0.001	-
	mg/L	06/24/95	N001	0.018			#	0.001	-
	mg/L	02/17/96	N001	0.024		J	#	0.001	-
	mg/L	02/17/96	N002	0.031			#	0.001	-
	mg/L	02/08/97	N001	0.0135			#	-	-
Vanadium	mg/L	04/04/84	0001	0.01	U		#	0.01	-
	mg/L	05/27/85	0001	0.01	U	R	#	0.01	-
	mg/L	08/07/92	N001	0.01	U		#	0.01	-
	mg/L	03/16/93	N001	0.01	U		#	0.01	-
	mg/L	06/24/95	N001	0.01	U		#	0.01	-

GROUND WATER QUALITY DATA BY LOCATION (USEE100) FOR SITE RVT01, RIVERTON
LOCATION: 0431 DOMESTIC WELL - RAYMOND #2
REPORT DATE: 2/19/98 10:42:14 AM

PARAMETER	UNITS	SAMPLE: DATE	ID	RESULT	QUALIFIERS: LAB	DATA	QA	DETECTION LIMIT	UN-CERTAINTY
Vanadium	mg/L	02/17/96	N001	0.01	U		#	0.01	-
	mg/L	02/17/96	N002	0.01	U		#	0.01	-
	mg/L	02/08/97	N001	0.0044	U		#	0.0044	-

GROUND WATER QUALITY DATA BY LOCATION (USEE100) FOR SITE RVT01, RIVERTON
LOCATION: 0435 DOMESTIC WELL
REPORT DATE: 2/19/98 10:42:15 AM

PARAMETER	UNITS	SAMPLE: DATE	ID	RESULT	QUALIFIERS: LAB	DATA	QA	DETECTION LIMIT	UN-CERTAINTY
Arsenic	mg/L	12/08/83	0001	0.001	U		#	0.001	-
	mg/L	01/10/84	0001	0.005	U		#	0.005	-
	mg/L	06/05/84	0001	0.01			#	0.001	-
Lead-210	pCi/L	12/08/83	0001	0.00			#	1	± 3.10
	pCi/L	01/10/84	0001	1.50	U		#	1.5	± 0.00
	pCi/L	06/05/84	0001	0.00			#	1	± 1.30
Manganese	mg/L	12/08/83	0001	0.02		J	#	10	-
	mg/L	01/10/84	0001	0.01	U		#	0.01	-
	mg/L	06/05/84	0001	0.01	U		#	0.01	-
Molybdenum	mg/L	12/08/83	0001	0.001	U		#	0.001	-
	mg/L	01/10/84	0001	0.005	U		#	0.005	-
	mg/L	06/05/84	0001	0.01	U		#	0.01	-
Nickel	mg/L	12/08/83	0001	0.024			#	0.001	-
	mg/L	01/10/84	0001	0.04	U		#	0.04	-
	mg/L	06/05/84	0001	0.04	U		#	0.04	-
Sulfate	mg/L	12/08/83	0001	170.00			#	0.1	-
	mg/L	01/10/84	0001	150.00			#	-	-
	mg/L	06/05/84	0001	168.00			#	0.1	-
Thorium-230	pCi/L	12/08/83	0001	0.40			#	0.2	± 0.50
	pCi/L	01/10/84	0001	1.00	U		#	1	± 0.00
	pCi/L	06/05/84	0001	0.00			#	0.0002	± 0.00
Uranium	mg/L	12/08/83	0001	0.0003	U		#	0.0003	-
	mg/L	01/10/84	0001	0.002	U		#	0.002	-
	mg/L	06/05/84	0001	0.0003	U		#	0.0003	-
Vanadium	mg/L	12/08/83	0001	0.004	U		#	0.004	-
	mg/L	01/10/84	0001	0.004	U		#	0.004	-
	mg/L	06/05/84	0001	0.01	U		#	0.01	-

GROUND WATER QUALITY DATA BY LOCATION (USEE100) FOR SITE RVT01, RIVERTON
LOCATION: 0436 DOMESTIC WELL - ST STEPHENS MISSION
REPORT DATE: 2/19/98 10:42:15 AM

PARAMETER	UNITS	SAMPLE: DATE	ID	RESULT	QUALIFIERS: LAB	DATA	QA	DETECTION LIMIT	UN-CERTAINTY
Arsenic	mg/L	06/03/91	N001	0.05	UI		#	0.05	-
	mg/L	10/26/91	N001	0.001	U		#	0.001	-
	mg/L	03/14/92	N001	0.005	U		#	0.005	-
	mg/L	08/05/92	N001	0.01	U		#	0.01	-
	mg/L	06/23/95	N001	0.005	U		#	0.005	-
Lead-210	pCi/L	03/17/93	N001	1.4			#	1.7	± 1.00
Manganese	mg/L	06/03/91	N001	0.01	U		#	0.01	-
	mg/L	10/26/91	N001	0.01	U		#	0.01	-
	mg/L	03/14/92	N001	0.01	U		#	0.01	-
	mg/L	08/05/92	N001	0.01	U		#	0.01	-
	mg/L	06/23/95	N001	0.01	U		#	0.01	-
Molybdenum	mg/L	06/03/91	N001	0.01	U		#	0.01	-
	mg/L	10/26/91	N001	0.01	U		#	0.01	-
	mg/L	03/14/92	N001	0.01	U		#	0.01	-
	mg/L	08/05/92	N001	0.01	U		#	0.01	-
	mg/L	06/23/95	N001	0.01	U		#	0.01	-
Nickel	mg/L	06/03/91	N001	0.04	U		#	0.04	-
	mg/L	10/26/91	N001	0.01	U		#	0.01	-
	mg/L	03/14/92	N001	0.04	U		#	0.04	-
	mg/L	08/05/92	N001	0.04	U		#	0.04	-
	mg/L	06/23/95	N001	0.04	U		#	0.04	-
Polonium-210	pCi/L	03/17/93	N001	0.8			#	0.9	± 0.70
Sulfate	mg/L	06/03/91	N001	186			#	0.1	-
	mg/L	10/26/91	N001	193			#	0.1	-
	mg/L	03/14/92	N001	235			#	40	-
	mg/L	08/05/92	N001	230			#	30	-
	mg/L	03/17/93	N001	217			#	1	-
	mg/L	06/23/95	N001	170			#	1	-
Thorium-230	pCi/L	03/17/93	N001	0.4			#	0.7	± 0.40
Uranium	mg/L	06/03/91	N001	0.001	U		#	0.001	-
	mg/L	10/29/91	N001	0.0003	U		#	0.0003	-
	mg/L	03/14/92	N001	0.001			#	0.001	-
	mg/L	08/05/92	N001	0.001	U		#	0.001	-
	mg/L	03/17/93	N001	0.001	U		#	0.001	-

GROUND WATER QUALITY DATA BY LOCATION (USEE100) FOR SITE RVT01, RIVERTON
LOCATION: 0436 DOMESTIC WELL - ST STEPHENS MISSION
REPORT DATE: 2/19/98 10:42:15 AM

PARAMETER	UNITS	SAMPLE: DATE	ID	RESULT	QUALIFIERS: LA	TA	QA	DETECTION LIMIT	UN-CERTAINTY
Uranium	mg/L	06/23/95	N001	0.001	U		#	0.001	-
Vanadium	mg/L	06/03/91	N001	0.01	U		#	0.01	-
	mg/L	10/26/91	N001	0.01			#	0.01	-
	mg/L	03/14/92	N001	0.01	U		#	0.01	-
	mg/L	08/05/92	N001	0.01	U		#	0.01	-
	mg/L	06/23/95	N001	0.01	U		#	0.01	-

GROUND WATER QUALITY DATA BY LOCATION (USEF100) FOR SITE RVT01, RIVERTON
LOCATION: 0437 DOMESTIC WELL
REPORT DATE: 2/19/98 10:42:15 AM

PARAMETER	UNITS	SAMPLE: DATE	ID	RESULT	QUALIFIERS: LAB	DATA	QA	DETECTION LIMIT	UN-CERTAINTY
Arsenic	mg/L	05/29/85	0001	0.01	U		#	0.01	-
Lead-210	pCi/L	05/29/85	0001	1.00		J	#	1.5	± 0.60
Manganese	mg/L	05/29/85	0001	0.01	U		#	0.01	-
Molybdenum	mg/L	05/29/85	0001	0.01	U		#	0.01	-
Nickel	mg/L	05/29/85	0001	0.04	U	J	#	0.04	-
Polonium-210	pCi/L	05/29/85	0001	0.00			#	1	± 0.60
Sulfate	mg/L	05/29/85	0001	83.90			#	0.1	-
Thorium-230	pCi/L	05/29/85	0001	0.00		J	#	1	± 0.40
Uranium	mg/L	05/29/85	0001	0.0017		J	#	0.003	-
Vanadium	mg/L	05/29/85	0001	0.01	U	R	#	0.01	-

GROUND WATER QUALITY DATA BY LOCATION (USEE100) FOR SITE RVT01, RIVERTON
LOCATION: 0440 DOMESTIC WELL - WESTLAKE #1
REPORT DATE: 2/19/98 10:42:16 AM

PARAMETER	UNITS	SAMPLE: DATE	ID	RESULT	QUALIFIERS: LAB	DATA	QA	DETECTION LIMIT	UN-CERTAINTY
Arsenic	mg/L	06/07/84	0001	0.01	U		#	0.01	-
	mg/L	05/25/85	0001	0.01	U		#	0.01	-
	mg/L	02/20/88	0001	0.002		J	#	0.01	-
	mg/L	04/01/90	0001	0.01	U	R	#	0.01	-
	mg/L	04/01/90	N001	0.01	U		#	0.01	-
	mg/L	11/19/90	0001	0.01	U	GJ	#	0.01	-
	mg/L	11/19/90	N001	0.01	U	G	#	0.01	-
	mg/L	06/23/95	N001	0.005	U		#	0.005	-
	mg/L	02/08/97	N001	0.00022	U		#	0.00022	-
Lead-210	pCi/L	06/07/84	0001	0.00			#	1	± 1.60
	pCi/L	05/25/85	0001	0.80		J	#	1.5	± 1.10
	pCi/L	02/08/97	N001	1.13	U		#	1.13	± 0.68
Manganese	mg/L	06/07/84	0001	1.32			#	0.01	-
	mg/L	05/25/85	0001	0.01	U		#	0.01	-
	mg/L	02/20/88	0001	0.01	U		#	0.01	-
	mg/L	04/01/90	0001	0.01	U		#	0.01	-
	mg/L	04/01/90	N001	0.01	U		#	0.01	-
	mg/L	11/19/90	0001	0.01	U	G	#	0.01	-
	mg/L	11/19/90	N001	0.01	U	G	#	0.01	-
	mg/L	06/23/95	N001	0.07			#	0.01	-
	mg/L	02/08/97	N001	0.0103	B		#	-	-
Molybdenum	mg/L	06/07/84	0001	0.01	U		#	0.01	-
	mg/L	05/25/85	0001	0.01	U		#	0.01	-
	mg/L	02/20/88	0001	0.01	U		#	0.01	-
	mg/L	04/01/90	0001	0.01	U		#	0.01	-
	mg/L	04/01/90	N001	0.01	U		#	0.01	-
	mg/L	11/19/90	0001	0.01		G	#	0.01	-
	mg/L	11/19/90	N001	0.01	U	G	#	0.01	-
	mg/L	06/23/95	N001	0.01	U		#	0.01	-
	mg/L	02/08/97	N001	0.0030	B		#	-	-
Nickel	mg/L	06/07/84	0001	0.04	U		#	0.04	-
	mg/L	05/25/85	0001	0.04	U	J	#	0.04	-
	mg/L	02/20/88	0001	0.02		J	#	0.04	-
	mg/L	04/01/90	0001	0.04	U		#	0.04	-
	mg/L	04/01/90	N001	0.04	U		#	0.04	-

GROUND WATER QUALITY DATA BY LOCATION (USEE100) FOR SITE RVT01, RIVERTON
LOCATION: 0440 DOMESTIC WELL - WESTLAKE #1
REPORT DATE: 2/19/98 10:42:16 AM

PARAMETER	UNITS	SAMPLE: DATE	ID	RESULT	QUALIFIERS: LAB	DATA	QA	DETECTION LIMIT	UN-CERTAINTY
Nickel	mg/L	11/19/90	0001	0.04	U	G	#	0.04	-
	mg/L	11/19/90	N001	0.04	U	G	#	0.04	-
	mg/L	06/23/95	N001	0.04	U		#	0.04	-
	mg/L	02/08/97	N001	0.0078	U		#	0.0078	-
Polonium-210	pCi/L	05/25/85	0001	0.00			#	1	± 0.60
	pCi/L	02/08/97	N001	0.13		U	#	0.1	± 0.15
Sulfate	mg/L	06/07/84	0001	691.00			#	0.1	-
	mg/L	05/25/85	0001	310.00			#	0.1	-
	mg/L	02/20/88	0001	286			#	0.1	-
	mg/L	04/01/90	0001	322			#	0.1	-
	mg/L	04/01/90	N001	322			#	0.1	-
	mg/L	11/19/90	[illegible]	317		G	#	0.1	-
	mg/L	11/19/90	[illegible]01	319		G	#	0.1	-
	mg/L	06/23/95	N001	340			#	1	-
	mg/L	02/08/97	N001	294.000			#	-	-
Thorium-230	pCi/L	06/07/84	0001	0.0003			#	0.0002	± 0.00
	pCi/L	05/25/85	0001	0.00		J	#	1	± 0.40
	[illegible]L	11/19/90	0001	0.1		G	#	1	± 0.40
	[illegible]L	11/19/90	N001	0.0		G	#	1	± 0.30
	[illegible]L	02/08/97	N001	0.64	U		#	0.64	±
Uranium	mg/L	06/07/84	0001	0.237			#	0.0003	-
	mg/L	05/25/85	0001	0.0003	U	J	#	0.003	-
	mg/L	02/20/88	0001	0.0003	U	J	#	0.003	-
	mg/L	04/01/90	0001	0.0003	U	J	#	0.003	-
	mg/L	04/01/90	N001	0.0006		J	#	0.003	-
	mg/L	11/19/90	0001	0.0003	U	G	#	0.0003	-
	mg/L	11/19/90	N001	0.0005		G	#	0.0003	-
	mg/L	06/23/95	N001	0.001	U		#	0.001	-
	mg/L	02/08/97	N001	0.0011	U		#	0.0011	-
Vanadium	mg/L	06/07/84	0001	0.01	U		#	0.01	-
	mg/L	05/25/85	0001	0.01	U	R	#	0.01	-
	mg/L	02/20/88	0001	0.02			#	0.01	-
	mg/L	04/01/90	0001	0.01	U		#	0.01	-
	mg/L	04/01/90	N001	0.01	U		#		-
	mg/L	11/19/90	0001	0.01	U	G	#		-

GROUND WATER QUALITY DATA BY LOCATION (USEE100) FOR SITE RVT01, RIVERTON
LOCATION: 0440 DOMESTIC WELL - WESTLAKE #1
REPORT DATE: 2/19/98 10:42:16 AM

PARAMETER	UNITS	SAMPLE: DATE	ID	RESULT	QUALIFIERS: LAB	DATA	QA	DETECTION LIMIT	UN-CERTAINTY
Vanadium	mg/L	11/19/90	N001	0.01	U	G	#	0.01	-
	mg/L	06/23/95	N001	0.01	U		#	0.01	-
	mg/L	02/08/97	N001	0.0044	U		#	0.0044	-

GROUND WATER QUALITY DATA BY LOCATION (USEE100) FOR SITE RVT01, RIVERTON
LOCATION: 0441 DOMESTIC WELL - WESTLAKE #2
REPORT DATE: 2/19/98 10:42:16 AM

PARAMETER	UNITS	SAMPLE: DATE	ID	RESULT	QUALIFIERS: LAB	DATA	QA	DETECTION LIMIT	UN-CERTAINTY
Arsenic	mg/L	06/23/95	N001	0.005	U		#	0.005	-
Manganese	mg/L	06/23/95	N001	0.15			#	0.01	-
Molybdenum	mg/L	06/23/95	N001	0.01	U		#	0.01	-
Nickel	mg/L	06/23/95	N001	0.04	U		#	0.04	-
Sulfate	mg/L	05/25/85	0001	897.00			#	0.1	-
	mg/L	06/23/95	N001	660			#	1	-
Uranium	mg/L	06/23/95	N001	0.153			#	0.001	-
Vanadium	mg/L	06/23/95	N001	0.01	U		#	0.01	-

GROUND WATER QUALITY DATA BY LOCATION (USEE100) FOR SITE RVT01, RIVERTON
LOCATION: 0442 DOMESTIC WELL - RUPERT GOGGLES #3
REPORT DATE: 2/19/98 10:42:16 AM

PARAMETER	UNITS	SAMPLE: DATE	ID	RESULT	QUALIFIERS: LAB	DATA	QA	DETECTION LIMIT	UN-CERTAINTY
Arsenic	mg/L	01/07/94	N001	0.005	U		#	0.005	-
	mg/L	06/23/95	N001	0.005	U		#	0.005	-
	mg/L	02/07/97	N001	0.00022	U	G	#	0.00022	-
Lead-210	pCi/L	02/07/97	N001	1.19	U	G	#	1.19	± 0.71
Manganese	mg/L	01/07/94	N001	0.01			#	0.01	-
	mg/L	06/23/95	N001	0.01	U		#	0.01	-
	mg/L	02/07/97	N001	0.0233		G	#	-	-
Molybdenum	mg/L	01/07/94	N001	0.01	U		#	0.01	-
	mg/L	06/23/95	N001	0.01	U		#	0.01	-
	mg/L	02/07/97	N001	0.0026	B	G	#	-	-
Nickel	mg/L	01/07/94	N001	0.04	U		#	0.04	-
	mg/L	06/23/95	N001	0.04	U		#	0.04	-
	mg/L	02/07/97	N001	0.0078	U	G	#	0.0078	-
Polonium-210	pCi/L	02/07/97	N001	0.19		UG	#	0.09	± 0.15
Sulfate	mg/L	01/07/94	N001	264			#	1	
	mg/L	06/23/95	N001	330			#	1	-
	mg/L	02/07/97	N001	290.000		G	#	-	-
Thorium-230	pCi/L	02/07/97	N001	0.64	U	G	#	0.64	±
Uranium	mg/L	01/07/94	N001	0.001	U		#	0.001	-
	mg/L	06/23/95	N001	0.001	U		#	0.001	-
	mg/L	02/07/97	N001	0.0011	U	G	#	0.0011	-
Vanadium	mg/L	01/07/94	N001	0.01	U		#	0.01	-
	mg/L	06/23/95	N001	0.01	U		#	0.01	-
	mg/L	02/07/97	N001	0.0044	U	G	#	0.0044	-

GROUND WATER QUALITY DATA BY LOCATION (USEE100) FOR SITE RVT01, RIVERTON
LOCATION: 0443 DOMESTIC WELL - SARAH BLACKBURN #1
REPORT DATE: 2/19/98 10:42:17 AM

PARAMETER	UNITS	SAMPLE: DATE	ID	RESULT	QUALIFIERS: LAB	DATA	QA	DETECTION LIMIT	UN-CERTAINTY
Arsenic	mg/L	01/06/94	N001	0.005	U		#	0.005	-
Manganese	mg/L	01/06/94	N001	0.03			#	0.01	-
Molybdenum	mg/L	01/06/94	N001	0.01	U		#	0.01	-
Nickel	mg/L	01/06/94	N001	0.04	U		#	0.04	-
Sulfate	mg/L	01/06/94	N001	209			#	1	-
Uranium	mg/L	01/06/94	N001	0.001	U		#	0.001	-
Vanadium	mg/L	01/06/94	N001	0.01	U		#	0.01	-

GROUND WATER QUALITY DATA BY LOCATION (USEE100) FOR SITE RVT01, RIVERTON
LOCATION: 0444 DOMESTIC WELL - MARGT BLACKBURN #2
REPORT DATE: 2/19/98 10:42:17 AM

PARAMETER	UNITS	SAMPLE: DATE	ID	RESULT	QUALIFIERS: LAB	DATA	QA	DETECTION LIMIT	UN-CERTAINTY
Arsenic	mg/L	01/06/94	N001	0.005	U		#	0.005	-
	mg/L	06/23/95	N001	0.005	U		#	0.005	-
	mg/L	02/07/97	N001	0.00022	U		#	0.00022	-
Lead-210	pCi/L	02/07/97	N001	1.13	U		#	1.13	± 0.67
Manganese	mg/L	01/06/94	N001	0.02			#	0.01	-
	mg/L	06/23/95	N001	0.01	U		#	0.01	-
	mg/L	02/07/97	N001	0.0041	B	U	#	-	-
Molybdenum	mg/L	01/06/94	N001	0.01	U		#	0.01	-
	mg/L	06/23/95	N001	0.01	U		#	0.01	-
	mg/L	02/07/97	N001	0.0034	B		#	-	-
Nickel	mg/L	01/06/94	N001	0.04	U		#	0.04	-
	mg/L	06/23/95	N001	0.04	U		#	0.04	-
	mg/L	02/07/97	N001	0.0078	U		#	0.0078	-
Polonium-210	pCi/L	02/07/97	N001	0.20		U	#	0.1	± 0.16
Sulfate	mg/L	01/06/94	N001	221			#	1	-
	mg/L	06/23/95	N001	250			#	1	-
	mg/L	02/07/97	N001	226.000			#	-	-
Thorium-230	pCi/L	02/07/97	N001	0.64	U		#	0.64	±
Uranium	mg/L	01/06/94	N001	0.001	U		#	0.001	-
	mg/L	06/23/95	N001	0.001	U		#	0.001	-
	mg/L	02/07/97	N001	0.0011	U		#	0.0011	-
Vanadium	mg/L	01/06/94	N001	0.01	U		#	0.01	-
	mg/L	06/23/95	N001	0.01	U		#	0.01	-
	mg/L	02/07/97	N001	0.0044	U		#	0.0044	-

GROUND WATER QUALITY DATA BY LOCATION (USEE100) FOR SITE RVT01, RIVERTON
LOCATION: 0445 DOMESTIC WELL - J.BLOMBERG #2
REPORT DATE: 2/19/98 10:42:17 AM

PARAMETER	UNITS	SAMPLE: DATE	ID	RESULT	QUALIFIERS: LAB	DATA	QA	DETECTION LIMIT	UN-CERTAINTY
Arsenic	mg/L	01/07/94	N001	0.008			#	0.005	-
	mg/L	06/22/95	N001	0.005	U	R	#	0.005	-
	mg/L	06/22/95	N002	0.005	U	R	#	0.005	-
	mg/L	02/10/97	N001	0.0045	B	J	#	-	-
Lead-210	pCi/L	02/10/97	N001	1.30	U		#	1.3	± 0.76
Manganese	mg/L	01/07/94	N001	0.01	U		#	0.01	-
	mg/L	06/22/95	N001	0.01	U	R	#	0.01	-
	mg/L	06/22/95	N002	0.03		R	#	0.01	-
	mg/L	02/10/97	N001	0.0059	B		#	-	-
Molybdenum	mg/L	01/07/94	N001	0.01	U		#	0.01	-
	mg/L	06/22/95	N001	0.01	U	R	#	0.01	-
	mg/L	06/22/95	N002	0.01	U	R	#	0.01	-
	mg/L	02/10/97	N001	0.0025	B		#	-	-
Nickel	mg/L	01/07/94	N001	0.04	U		#	0.04	-
	mg/L	06/22/95	N001	0.04	U	R	#	0.04	-
	mg/L	06/22/95	N002	0.04	U	R	#	0.04	-
	mg/L	02/10/97	N001	0.0078	U		#	0.0078	-
Polonium-210	pCi/L	02/10/97	N001	0.17		U	#	0.09	± 0.14
Sulfate	mg/L	01/07/94	N001	152			#	1	-
	mg/L	06/22/95	N001	180		R	#	1	-
	mg/L	06/22/95	N002	170		R	#	1	-
	mg/L	02/10/97	N001	130.000			#	-	-
Thorium-230	pCi/L	02/10/97	N001	0.64	U		#	0.64	±
Uranium	mg/L	01/07/94	N001	0.016			#	0.001	-
	mg/L	06/22/95	N001	0.015		R	#	0.001	-
	mg/L	06/22/95	N002	0.015		R	#	0.001	-
	mg/L	02/10/97	N001	0.0123			#	-	-
Vanadium	mg/L	01/07/94	N001	0.02			#	0.01	-
	mg/L	06/22/95	N001	0.01	U	R	#	0.01	-
	mg/L	06/22/95	N002	0.01		R	#	0.01	-
	mg/L	02/10/97	N001	0.0090	B		#	-	-

GROUND WATER QUALITY DATA BY LOCATION (USEE100) FOR SITE RVT01, RIVERTON
LOCATION: 0446 DOMESTIC WELL - CONNIE HILYARD
REPORT DATE: 2/19/98 10:42:18 AM

PARAMETER	UNITS	SAMPLE: DATE	ID	RESULT	QUALIFIERS: LAB	DATA	QA	DETECTION LIMIT	UN-CERTAINTY
Arsenic	mg/L	01/08/94	N001	0.005	U		#	0.005	-
	mg/L	06/24/95	N001	0.005	U		#	0.005	-
	mg/L	02/08/97	N001	0.00022	UN		#	0.00022	-
Lead-210	pCi/L	02/08/97	N001	1.20	U		#	1.2	± 0.72
Manganese	mg/L	01/08/94	N001	0.01	U		#	0.01	-
	mg/L	06/24/95	N001	0.01	U		#	0.01	-
	mg/L	02/08/97	N001	0.0050	B	U	#	-	-
Molybdenum	mg/L	01/08/94	N001	0.01	U		#	0.01	-
	mg/L	06/24/95	N001	0.01	U		#	0.01	-
	mg/L	02/08/97	N001	0.0026	B		#	-	-
Nickel	mg/L	01/08/94	N001	0.04	U		#	0.04	-
	mg/L	06/24/95	N001	0.04	U		#	0.04	-
	mg/L	02/08/97	N001	0.0078	U		#	0.0078	-
Polonium-210	pCi/L	02/08/97	N001	0.19		U	#	0.07	± 0.14
Sulfate	mg/L	01/08/94	N001	138			#	1	-
	mg/L	06/24/95	N001	150			#	1	-
	mg/L	02/08/97	N001	145.000			#	-	-
Thorium-230	pCi/L	02/08/97	N001	0.64	U		#	0.64	±
Uranium	mg/L	01/08/94	N001	0.001	U		#	0.001	-
	mg/L	06/24/95	N001	0.001	U		#	0.001	-
	mg/L	02/08/97	N001	0.0011	U		#	0.0011	-
Vanadium	mg/L	01/08/94	N001	0.01	U		#	0.01	-
	mg/L	06/24/95	N001	0.01	U		#	0.01	-
	mg/L	02/08/97	N001	0.0044	U		#	0.0044	-

GROUND WATER QUALITY DATA BY LOCATION (USEE100) FOR SITE RVT01, RIVERTON
LOCATION: 0448 DOMESTIC WELL - GARY/LORI MARTIN
REPORT DATE: 2/19/98 10:42:18 AM

PARAMETER	UNITS	SAMPLE: DATE	ID	RESULT	QUALIFIERS: LAB	DATA	QA	DETECTION LIMIT	UN-CERTAINTY
Arsenic	mg/L	01/08/94	N001	0.005	U		#	0.005	-
	mg/L	01/08/94	N002	0.005	U		#	0.005	-
	mg/L	06/22/95	N001	0.005	U		#	0.005	-
	mg/L	02/07/97	N001	0.00022	UN		#	0.00022	-
Lead-210	pCi/L	02/07/97	N001	1.58			#	1.26	± 0.76
Manganese	mg/L	01/08/94	N001	0.01	U		#	0.01	-
	mg/L	01/08/94	N002	0.01	U		#	0.01	-
	mg/L	06/22/95	N001	0.01	U		#	0.01	-
	mg/L	02/07/97	N001	0.0082	B		#	-	-
Molybdenum	mg/L	01/08/94	N001	0.01	U		#	0.01	-
	mg/L	01/08/94	N002	0.01	U		#	0.01	-
	mg/L	06/22/95	N001	0.01	U		#	0.01	-
	mg/L	02/07/97	N001	0.0033	B		#	-	-
Nickel	mg/L	01/08/94	N001	0.04	U		#	0.04	-
	mg/L	01/08/94	N002	0.04	U		#	0.04	-
	mg/L	06/22/95	N001	0.04	U		#	0.04	-
	mg/L	02/07/97	N001	0.0078	U		#	0.0078	-
Polonium-210	pCi/L	02/07/97	N001	0.20		U	#	0.12	± 0.18
Sulfate	mg/L	01/08/94	N001	173			#	1	-
	mg/L	01/08/94	N002	175			#	1	-
	mg/L	06/22/95	N001	190			#	1	-
	mg/L	02/07/97	N001	187.000			#	-	-
Thorium-230	pCi/L	02/07/97	N001	0.64	U		#	0.64	±
Uranium	mg/L	01/08/94	N001	0.001	U		#	0.001	-
	mg/L	01/08/94	N002	0.001	U		#	0.001	-
	mg/L	06/22/95	N001	0.001	U		#	0.001	-
	mg/L	02/07/97	N001	0.0011	U		#	0.0011	-
Vanadium	mg/L	01/08/94	N001	0.01	U		#	0.01	-
	mg/L	01/08/94	N002	0.01	U		#	0.01	-
	mg/L	06/22/95	N001	0.01	U		#	0.01	-
	mg/L	02/07/97	N001	0.0044	U		#	0.0044	-

GROUND WATER QUALITY DATA BY LOCATION (USEE100) FOR SITE RVT01, RIVERTON
LOCATION: 0451 DOMESTIC WELL - MARY BEAR
REPORT DATE: 2/19/98 10:42:18 AM

PARAMETER	UNITS	SAMPLE: DATE	ID	RESULT	QUALIFIERS: LAB	DATA	QA	DETECTION LIMIT	UN-CERTAINTY
Arsenic	mg/L	01/06/94	N001	0.005	U		#	0.005	-
	mg/L	06/24/95	N001	0.005	U		#	0.005	-
	mg/L	02/07/97	N001	0.00022	U		#	0.00022	-
Lead-210	pCi/L	02/07/97	N001	1.16	U		#	1.16	± 0.70
Manganese	mg/L	01/06/94	N001	0.01	U		#	0.01	-
	mg/L	06/24/95	N001	0.01	U		#	0.01	-
	mg/L	02/07/97	N001	0.0136			#	-	-
Molybdenum	mg/L	01/06/94	N001	0.01	U		#	0.01	-
	mg/L	06/24/95	N001	0.01	U		#	0.01	-
	mg/L	02/07/97	N001	0.0031	B		#	-	-
Nickel	mg/L	01/06/94	N001	0.04	U		#	0.04	-
	mg/L	06/24/95	N001	0.04	U		#	0.04	-
	mg/L	02/07/97	N001	0.0078	U		#	0.0078	-
Polonium-210	pCi/L	02/07/97	N001	0.20			#	0.07	± 0.13
Sulfate	mg/L	01/06/94	N001	206			#	1	-
	mg/L	06/24/95	N001	230			#	1	-
	mg/L	02/07/97	N001	223.000			#	-	-
Thorium-230	pCi/L	02/07/97	N001	0.64	U		#	0.64	±
Uranium	mg/L	01/06/94	N001	0.001	U		#	0.001	-
	mg/L	06/24/95	N001	0.001	U		#	0.001	-
	mg/L	02/07/97	N001	0.0011	U		#	0.0011	-
Vanadium	mg/L	01/06/94	N001	0.01	U		#	0.01	-
	mg/L	06/24/95	N001	0.01	U		#	0.01	-
	mg/L	02/07/97	N001	0.0044	U		#	0.0044	-

GROUND WATER QUALITY DATA BY LOCATION (USEE100) FOR SITE RVT01, RIVERTON
LOCATION: 0452 DOMESTIC WELL - KEN BLACKBURN
REPORT DATE: 2/19/98 10:42:18 AM

PARAMETER	UNITS	SAMPLE: DATE	ID	RESULT	QUALIFIERS: LAB	DATA	QA	DETECTION LIMIT	UN-CERTAINTY
Arsenic	mg/L	01/07/94	N001	0.005	U		#	0.005	-
	mg/L	06/24/95	N001	0.005	U		#	0.005	-
	mg/L	02/09/97	N001	0.00030	BN	J	#	-	-
Lead-210	pCi/L	02/09/97	N001	1.05	J		#	1.05	± 0.62
Manganese	mg/L	01/07/94	N001	0.01	U		#	0.01	-
	mg/L	06/24/95	N001	0.01	U		#	0.01	-
	mg/L	02/09/97	N001	0.0518			#	-	-
Molybdenum	mg/L	01/07/94	N001	0.01	U		#	0.01	-
	mg/L	06/24/95	N001	0.01	U		#	0.01	-
	mg/L	02/09/97	N001	0.0030	B		#	-	-
Nickel	mg/L	01/07/94	N001	0.04	U		#	0.04	-
	mg/L	06/24/95	N001	0.04	U		#	0.04	-
	mg/L	02/09/97	N001	0.0078	U		#	0.0078	-
Polonium-210	pCi/L	02/09/97	N001	0.29			#	0.07	± 0.14
Sulfate	mg/L	01/07/94	N001	106			#	1	-
	mg/L	06/24/95	N001	110			#	1	-
	mg/L	02/09/97	N001	330.000			#	-	-
Thorium-230	pCi/L	02/09/97	N001	0.64	U		#	0.64	±
Uranium	mg/L	01/07/94	N001	0.001	U		#	0.001	-
	mg/L	06/24/95	N001	0.001	U		#	0.001	-
	mg/L	02/09/97	N001	0.0011	U		#	0.0011	-
Vanadium	mg/L	01/07/94	N001	0.01	U		#	0.01	-
	mg/L	06/24/95	N001	0.01	U		#	0.01	-
	mg/L	02/09/97	N001	0.0044	U		#	0.0044	-

GROUND WATER QUALITY DATA BY LOCATION (USEE100) FOR SITE RVT01, RIVERTON
LOCATION: 0453 DOMESTIC WELL - JOANNE BLACKBURN
REPORT DATE: 2/19/98 10:42:19 AM

PARAMETER	UNITS	SAMPLE: DATE	ID	RESULT	QUALIFIERS: LAB	DATA	QA	DETECTION LIMIT	UN-CERTAINTY
Arsenic	mg/L	01/07/94	N001	0.005	U		#	0.005	-
	mg/L	06/23/95	N001	0.005	U		#	0.005	-
	mg/L	02/07/97	N001	0.00022	U		#	0.00022	-
Lead-210	pCi/L	02/07/97	N001	1.16	U		#	1.16	± 0.70
Manganese	mg/L	01/07/94	N001	0.01	U		#	0.01	-
	mg/L	06/23/95	N001	0.01	U		#	0.01	-
	mg/L	02/07/97	N001	0.0048	B	U	#	-	-
Molybdenum	mg/L	01/07/94	N001	0.01	U		#	0.01	-
	mg/L	06/23/95	N001	0.01	U		#	0.01	-
	mg/L	02/07/97	N001	0.0029	B		#	-	-
Nickel	mg/L	01/07/94	N001	0.04	U		#	0.04	-
	mg/L	06/23/95	N001	0.04	U		#	0.04	-
	mg/L	02/07/97	N001	0.0078	U		#	0.0078	-
Polonium-210	pCi/L	02/07/97	N001	0.17		U	#	0.07	± 0.13
Sulfate	mg/L	01/07/94	N001	220			#	1	-
	mg/L	06/23/95	N001	240			#	1	-
	mg/L	02/07/97	N001	229.000			#	-	-
Thorium-230	pCi/L	02/07/97	N001	0.64	U		#	0.64	±
Uranium	mg/L	01/07/94	N001	0.001	U		#	0.001	-
	mg/L	06/23/95	N001	0.001	U		#	0.001	-
	mg/L	02/07/97	N001	0.0011	U		#	0.0011	-
Vanadium	mg/L	01/07/94	N001	0.01	U		#	0.01	-
	mg/L	06/23/95	N001	0.01	U		#	0.01	-
	mg/L	02/07/97	N001	0.0044	U		#	0.0044	-

GROUND WATER QUALITY DATA BY LOCATION (USEE100) FOR SITE RVT01, RIVERTON
LOCATION: 0460 KOCH SULFURIC ACID PLANT - (WN)
REPORT DATE: 2/19/98 10:42:19 AM

PARAMETER	UNITS	SAMPLE: DATE	ID	RESULT	QUALIFIERS: LAB	DATA	QA	DETECTION LIMIT	UN-CERTAINTY
Arsenic	mg/L	06/18/84	0001	0.01	U		#	0.01	-
	mg/L	06/23/95	N001	0.005	UW	J	#	0.005	-
Lead-210	pCi/L	06/18/84	0001	0.0			#	1	± 1.50
	pCi/L	03/17/93	N001	0.1			#	1.7	± 1.00
Manganese	mg/L	06/18/84	0001	0.01	U		#	0.01	-
	mg/L	06/23/95	N001	0.01	U		#	0.01	-
Molybdenum	mg/L	06/18/84	0001	0.01	U		#	0.01	-
	mg/L	06/23/95	N001	0.01	U		#	0.01	-
Nickel	mg/L	06/18/84	0001	0.04	U		#	0.04	-
	mg/L	06/23/95	N001	0.04	U		#	0.04	-
Polonium-210	pCi/L	03/17/93	N001	1.4			#	0.9	± 0.70
Sulfate	mg/L	06/18/84	0001	145.00			#	0.1	-
	mg/L	03/17/93	N001	155			#	1	-
	mg/L	06/23/95	N001	160			#	1	-
Thorium-230	pCi/L	06/18/84	0001	0.0			#	0.2	± 0.50
	pCi/L	03/17/93	N001	0.5			#	0.4	± 0.50
Uranium	mg/L	06/18/84	0001	0.0003	U		#	0.0003	-
	mg/L	03/17/93	N001	0.001	U		#	0.001	-
	mg/L	06/23/95	N001	0.001	U		#	0.001	-
Vanadium	mg/L	06/18/84	0001	0.01	U		#	0.01	-
	mg/L	06/23/95	N001	0.01	U		#	0.01	-

GROUND WATER QUALITY DATA BY LOCATION (USEE100) FOR SITE RVT01, RIVERTON
LOCATION: 0461 LOC/COORDS ESTIMATED FROM MAP
REPORT DATE: 2/19/98 10:42:19 AM

PARAMETER	UNITS	SAMPLE: DATE	ID	RESULT	QUALIFIERS: LAB	DATA	QA	DETECTION LIMIT	UN-CERTAINTY
Arsenic	mg/L	02/16/96	0001	0.005	U	F	#	0.005	-
Manganese	mg/L	02/16/96	0001	0.01	U	F	#	0.01	-
Molybdenum	mg/L	02/16/96	0001	0.01	U	F	#	0.01	-
Nickel	mg/L	02/16/96	0001	0.04	U	F	#	0.04	-
Sulfate	mg/L	02/16/96	0001	122	I	F	#	1	-
Uranium	mg/L	02/16/96	0001	0.022		FJ	#	0.001	-
Vanadium	mg/L	02/16/96	0001	0.01	U	F	#	0.01	-

GROUND WATER QUALITY DATA BY LOCATION (USEE100) FOR SITE RVT01, RIVERTON
LOCATION: 0951 DOMESTIC WL -BROWN/TENNANT-LONEBEAR
REPORT DATE: 2/19/98 10:42:19 AM

PARAMETER	UNITS	SAMPLE: DATE	ID	RESULT	QUALIFIERS: LAB	DATA	QA	DETECTION LIMIT	UN-CERTAINTY
Arsenic	mg/L	11/28/88	0001	0.01	U		#	0.01	-
	mg/L	03/14/92	N001	0.005	U		#	0.005	-
	mg/L	08/06/92	N001	0.01	U		#	0.01	-
Lead-210	pCi/L	11/28/88	0001	0.1			#	1.5	± 0.80
Manganese	mg/L	11/28/88	0001	0.01	U		#	0.01	-
	mg/L	03/14/92	N001	0.01	U		#	0.01	-
	mg/L	08/06/92	N001	0.01	U		#	0.01	-
Molybdenum	mg/L	11/28/88	0001	0.01	U		#	0.01	-
	mg/L	03/14/92	N001	0.01	U		#	0.01	-
	mg/L	08/06/92	N001	0.01	U		#	0.01	-
Nickel	mg/L	11/28/88	0001	0.04	U		#	0.04	-
	mg/L	03/14/92	N001	0.04	U		#	0.04	-
	mg/L	08/06/92	N001	0.04	U		#	0.04	-
Polonium-210	pCi/L	11/28/88	0001	0.6			#	1	± 0.40
Sulfate	mg/L	11/28/88	0001	92			#	0.1	-
	mg/L	03/14/92	N001	239			#	40	-
	mg/L	08/06/92	N001	248			#	30	-
Thorium-230	pCi/L	11/28/88	0001	0.0			#	1	± 0.30
Uranium	mg/L	11/28/88	0001	0.0003	U	J	#	0.003	-
	mg/L	03/14/92	N001	0.001			#	0.001	-
	mg/L	08/06/92	N001	0.001	U		#	0.001	-
Vanadium	mg/L	11/28/88	0001	0.01	U		#	0.01	-
	mg/L	03/14/92	N001	0.01	U		#	0.01	-
	mg/L	08/06/92	N001	0.01	U		#	0.01	-

GROUND WATER QUALITY DATA BY LOCATION (USEE100) FOR SITE RVT01, RIVERTON
LOCATION: 0951 DOMESTIC WL -BROWN/TENNANT-LONEBEAR
REPORT DATE: 2/19/98 10:42:20 AM

PARAMETER	UNITS	SAMPLE: DATE	ID	RESULT	QUALIFIERS: LAB	DATA	QA	DETECTION LIMIT	UN-CERTAINTY

RECORDS: SELECTED FROM USEE100 WHERE site_code='RVT01' AND location_code in('0406','0407','0408','0409') AND cas in('ALKALINITY ')

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 compund (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.

DATA QUALIFIERS:

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

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

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Appendix B2

Contaminants of Concern in Monitor Wells

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GROUND WATER QUALITY DATA BY LOCATION (USEE100) FOR SITE RVT01, RIVERTON
LOCATION: 0101
REPORT DATE: 2/19/98 10:33:09 AM

PARAMETER	UNITS	SAMPLE: DATE	ID	RESULT	QUALIFIERS: LAB	DATA	QA	DETECTION LIMIT	UN-CERTAINTY
Arsenic	mg/L	12/08/83	0001	0.001	U		#	0.001	-
	mg/L	01/10/84	0001	0.005			#	-	-
	mg/L	06/18/84	0001	0.01	U		#	0.01	-
	mg/L	09/08/87	0001	0.002		J	#	0.01	-
	mg/L	11/21/87	0001	0.009		J	#	0.01	-
	mg/L	02/20/88	0001	0.011			#	0.01	-
	mg/L	05/16/88	0001	0.009		J	#	0.01	-
	mg/L	09/01/88	0001	0.006		J	#	0.01	-
	mg/L	10/27/88	0001	0.005		J	#	0.01	-
	mg/L	10/27/88	0002	0.006		J	#	0.01	-
	mg/L	10/27/88	0003	0.006		J	#	0.01	-
	mg/L	10/27/88	0004	0.006		J	#	0.01	-
	mg/L	10/27/88	0005	0.007		J	#	0.01	-
	mg/L	04/26/89	0001	0.01			#	0.01	-
	mg/L	04/26/89	0002	0.01			#	0.01	-
	mg/L	04/26/89	0003	0.01			#	0.01	-
	mg/L	04/26/89	0004	0.01			#	0.01	-
	mg/L	04/26/89	0005				#	0.01	-
	mg/L	11/21/89	0001	0.01	U	J	#	0.01	-
	mg/L	11/21/89	0002	0.01	U	J	#	0.01	-
	mg/L	11/21/89	0003	0.01	U	J	#	0.01	-
	mg/L	11/21/89	0004	0.01	U	J	#	0.01	-
	mg/L	11/21/89	0005	0.01	U	J	#	0.01	-
	mg/L	03/30/90	0001	0.01	U	R	#	0.01	-
	mg/L	03/30/90	N001	0.01	U		#	0.01	-
	mg/L	11/15/90	0001	0.01	U	J	#	0.01	-
	mg/L	11/15/90	N001	0.01	U		#	0.01	-
	mg/L	03/27/91	0001	0.01	U		#	0.01	-
	mg/L	03/27/91	N001	0.01	U		#	0.01	-
	mg/L	05/31/91	0001	0.01	U		#	0.01	-
	mg/L	10/25/91	0001	0.008			#	0.001	-
	mg/L	03/13/93	0001	0.006			#	0.005	-
	mg/L	03/13/93	N001	0.006			#	0.005	-
	mg/L	02/08/97	0001	0.0039	BN	JL	#	-	-
Lead-210	pCi/L	12/08/83	0001	0.80			#	1	± 2.50

GROUND WATER QUALITY DATA BY LOCATION (USEE100) FOR SITE RVT01, RIVERTON
LOCATION: 0101
REPORT DATE: 2/19/98 10:33:09 AM

PARAMETER	UNITS	SAMPLE: DATE	ID	RESULT	QUALIFIERS: LAB	DATA	QA	DETECTION LIMIT	UN-CERTAINTY
Lead-210	pCi/L	01/10/84	0001	1.50	U		#	1.5	± 0.00
	pCi/L	06/18/84	0001	0.20			#	1	± 1.90
	pCi/L	04/26/89	0001	0.4			#	1.5	± 0.70
	pCi/L	04/26/89	0002	0.6			#	1.5	± 0.80
	pCi/L	04/26/89	0003	0.2			#	1.5	± 0.80
	pCi/L	04/26/89	0004	0.2			#	1.5	± 0.80
	pCi/L	04/26/89	0005	2.0			#	1.5	± 0.90
	pCi/L	11/21/89	0001	0.0			#	1.5	± 0.60
	pCi/L	11/21/89	0002	1.1			#	1.5	± 0.70
	pCi/L	11/21/89	0003	1.3			#	1.5	± 0.70
	pCi/L	11/21/89	0004	0.4			#	1.5	± 0.70
	pCi/L	11/21/89	0005	0.9			#	1.5	± 0.70
	pCi/L	03/27/91	N001	6.4		R	#	1.5	± 1.70
	pCi/L	03/13/93	0001	0.5			#	2.7	± 1.60
	pCi/L	03/13/93	N001	0.4			#	2.7	± 1.60
	pCi/L	02/08/97	0001	0.96	U	L	#	0.96	± 0.57
Manganese	mg/L	12/08/83	0001	0.22			#	0.01	-
	mg/L	01/10/84	0001	0.23			#	-	-
	mg/L	06/18/84	0001	0.22			#	0.01	-
	mg/L	09/08/87	0001	0.04			#	0.01	-
	mg/L	11/21/87	0001	0.03			#	0.01	-
	mg/L	02/20/88	0001	0.05			#	0.01	-
	mg/L	05/16/88	0001	0.11			#	0.01	-
	mg/L	09/01/88	0001	0.15			#	0.01	-
	mg/L	10/27/88	0001	0.16			#	0.01	-
	mg/L	10/27/88	0002	0.18			#	0.01	
	mg/L	10/27/88	0003	0.18			#	0.01	-
	mg/L	10/27/88	0004	0.19			#	0.01	-
	mg/L	10/27/88	0005	0.20			#	0.01	-
	mg/L	04/26/89	0001	0.01	U		#	0.01	-
	mg/L	04/26/89	0002	0.01	U		#	0.01	-
	mg/L	04/26/89	0003	0.01	U		#	0.01	-
	mg/L	04/26/89	0004	0.01	U		#	0.01	-
	mg/L	04/26/89	0005	0.01	U		#	0.01	-
	mg/L	11/21/89	0001	0.02			#	0.01	-
	mg/L	11/21/89	0002	0.02			#	0.01	-

GROUND WATER QUALITY DATA BY LOCATION (USEE100) FOR SITE RVT01, RIVERTON
LOCATION: 0101
REPORT DATE: 2/19/98 10:33:10 AM

PARAMETER	UNITS	SAMPLE: DATE	ID	RESULT	QUALIFIERS: LAB	DATA	QA	DETECTION LIMIT	UN-CERTAINTY
Manganese	mg/L	11/21/89	0003	0.02			#	0.01	-
	mg/L	11/21/89	0004	0.02			#	0.01	-
	mg/L	11/21/89	0005	0.02			#	0.01	-
	mg/L	03/30/90	0001	0.02			#	0.01	-
	mg/L	03/30/90	N001	0.02			#	0.01	-
	mg/L	11/15/90	0001	0.02			#	0.01	-
	mg/L	11/15/90	N001	0.01			#	0.01	-
	mg/L	03/27/91	0001	0.02			#	0.01	-
	mg/L	03/27/91	N001	0.02			#	0.01	-
	mg/L	05/31/91	0001	0.02			#	0.01	-
	mg/L	10/25/91	0001	0.04			#	0.01	-
	mg/L	03/13/92	0001	0.04			#	0.01	-
	mg/L	08/07/92	0001	0.11			#	0.01	-
	mg/L	03/13/93	0001	0.12			#	0.01	-
	mg/L	03/13/93	N001	0.12			#	0.01	-
	mg/L	02/08/97	0001	0.165		L	#	-	-
Molybdenum	mg/L	12/08/83	0001	0.03			#	0.001	-
	mg/L	01/10/84	0001	0.08			#	-	-
	mg/L	06/18/84	0001	01	U		#	0.01	-
	mg/L	09/08/87	0001	0.04			#	0.01	-
	mg/L	11/21/87	0001	0.12			#	0.01	-
	mg/L	02/20/88	0001	0.10			#	0.01	-
	mg/L	05/16/88	0001	0.06			#	0.01	-
	mg/L	09/01/88	0001	0.052			#	0.01	-
	mg/L	10/27/88	0001	0.054		J	#	0.01	-
	mg/L	10/27/88	0002	0.050		J	#	0.01	-
	mg/L	10/27/88	0003	0.053		J	#	0.01	-
	mg/L	10/27/88	0004	0.055		J	#	0.01	-
	mg/L	10/27/88	0005	0.050		J	#	0.01	-
	mg/L	04/26/89	0001	0.03			#	0.01	-
	mg/L	04/26/89	0002	0.04			#	0.01	-
	mg/L	04/26/89	0003	0.03			#	0.01	-
	mg/L	04/26/89	0004	0.03			#	0.01	-
	mg/L	04/26/89	0005	0.03			#	0.01	-
	mg/L	11/21/89	0001	0.07			#	0.01	-
	mg/L	11/21/89	0002	0.07			#	0.01	-

GROUND WATER QUALITY DATA BY LOCATION (USEE100) FOR SITE RVT01, RIVERTON
LOCATION: 0101
REPORT DATE 2/19/98 10:33:11 AM

PARAMETER	UNITS	SAMPLE: DATE	ID	RESULT	QUALIFIERS: LAB	DATA	QA	DETECTION LIMIT	UN-CERTAINTY
Molybdenum	mg/L	11/21/89	0003	0.07			#	0.01	-
	mg/L	11/21/89	0004	0.07			#	0.01	-
	mg/L	11/21/89	0005	0.07			#	0.01	-
		03/30/90	0001	0.04			#	0.01	-
	mg/L	03/30/90	N001	0.06			#	0.01	-
	mg/L	11/15/90	0001	0.07			#	0.01	-
	mg/L	11/15/90	N001	0.05			#	0.01	-
	mg/L	03/27/91	0001	0.05			#	0.01	-
	mg/L	03/27/91	N001	0.05			#	0.01	-
	mg/L	05/31/91	0001	0.04			#	0.01	-
	mg/L	10/25/91	0001	0.05			#	0.01	-
	mg/L	03/13/92	0001	0.04			#	0.01	-
	mg/L	08/07/92	0001	0.04			#	0.01	-
	mg/L	03/13/93	0001	0.05			#	0.01	-
	mg/L	03/13/93	N001	0.05			#	0.01	-
	mg/L	02/08/97	0001	0.0361		L	#	-	-
Nickel	mg/L	12/08/83	0001	0.10			#	0.001	-
	mg/L	01/10/84	0001	0.04	U		#	0.04	-
	mg/L	06/18/84	0001	0.04	U		#	0.04	-
	mg/L	09/08/87	0001	0.01	U	J	#	0.04	-
	mg/L	11/21/87	0001	0.01	U	J	#	0.04	-
	mg/L	02/20/88	0001	0.03		J	#	0.04	-
	mg/L	05/16/88	0001	0.03		J	#	0.04	-
	mg/L	09/01/88	0001	0.02	U	J	#	0.04	-
	mg/L	10/27/88	0001	0.02		J	#	0.04	-
	mg/L	10/27/88	0002	0.02	U	J	#	0.04	-
	mg/L	10/27/88	0003	0.02	U	J	#	0.04	-
	mg/L	10/27/88	0004	0.02		J	#	0.04	-
	mg/L	10/27/88	0005	0.02	U	J	#	0.04	-
	mg/L	04/26/89	0001	0.04	U		#	0.04	-
	mg/L	04/26/89	0002	0.04	U		#	0.04	-
	mg/L	04/26/89	0003	0.04	U		#	0.04	-
	mg/L	04/26/89	0004	0.04	U		#	0.04	-
	mg/L	04/26/89	0005	0.04	U		#	0.04	-
	mg/L	11/21/89	0001	0.04	U		#	0.04	-
	mg/L	11/21/89	0002	0.04	U		#	0.04	-

GROUND WATER QUALITY DATA BY LOCATION (USEE100) FOR SITE RVT01, RIVERTON
LOCATION: 0101
REPORT DATE: 2/19/98 10:33:11 AM

PARAMETER	UNITS	SAMPLE: DATE	ID	RESULT	QUALIFIERS: LAB	DATA	QA	DETECTION LIMIT	UN-CERTAINTY
Nickel	mg/L	11/21/89	0003	0.04	U		#	0.04	-
	mg/L	11/21/89	0004	0.04	U		#	0.04	-
	mg/L	11/21/89	0005	0.04	U		#	0.04	-
	mg/L	03/30/90	0001	0.04	U		#	0.04	-
	mg/L	03/30/90	N001	0.04	U		#	0.04	-
	mg/L	11/15/90	0001	0.04	U		#	0.04	-
	mg/L	11/15/90	N001	0.04	U		#	0.04	-
	mg/L	03/27/91	0001	0.04	U		#	0.04	-
	mg/L	03/27/91	N001	0.04	U		#	0.04	-
	mg/L	05/31/91	0001	0.04	U		#	0.04	-
	mg/L	10/25/91	0001	0.01	U		#	0.01	-
	mg/L	03/13/92	0001	0.04	U		#	0.04	-
	mg/L	08/07/92	0001	0.04	U		#	0.04	-
	mg/L	03/13/93	0001	0.04	U		#	0.04	-
	mg/L	03/13/93	N001	0.04	U		#	0.04	-
	mg/L	02/08/97	0001	0.0070	U	L	#	0.007	-
Polonium-210	pCi/L	04/26/89	0001	0.2			#	1	± 0.20
	pCi/L	04/26/89	0002	0.2			#	1	± 0.20
	pCi/L	04/26/89	0003	0.0			#	1	± 0.10
	pCi/L	04/26/89	0004	0.1			#	1	± 0.40
	pCi/L	04/26/89	0005	0.5			#	1	± 0.40
	pCi/L	11/21/89	0001	1.1			#	1	± 0.50
	pCi/L	11/21/89	0002	0.4			#	1	± 0.40
	pCi/L	11/21/89	0003	1.4			#	1	± 0.50
	pCi/L	11/21/89	0004	0.6			#	1	± 0.40
	pCi/L	11/21/89	0005	1.6			#	1	± 0.60
	pCi/L	03/27/91	N001	0.0			#	1	± 0.20
	pCi/L	03/13/93	0001	0.0			#	1.3	± 0.80
	pCi/L	03/13/93	N001	0.0			#	0.9	± 0.50
	pCi/L	02/08/97	0001	0.13	U	L	#	0.13	± 0.16
Sulfate	mg/L	12/08/83	0001	577.00			#	0.1	-
	mg/L	01/10/84	0001	520.00			#	-	-
	mg/L	06/18/84	0001	360.00			#	0.1	-
	mg/L	09/08/87	0001	520			#	0.1	-
	mg/L	11/21/87	0001	429			#	0.1	-
	mg/L	02/20/88	0001	475			#	0.1	-

GROUND WATER QUALITY DATA BY LOCATION (USEE100) FOR SITE RVT01, RIVERTON
LOCATION: 0101
REPORT DATE: 2/19/98 10:33:12 AM

PARAMETER	UNITS	SAMPLE: DATE	ID	RESULT	QUALIFIERS: LAB	DATA	QA	DETECTION LIMIT	UN-CERTAINTY
Sulfate	mg/L	05/16/88	0001	553			#	0.1	-
	mg/L	09/01/88	0001	500			#	1	-
	mg/L	10/27/88	0001	510			#	0.1	-
	mg/L	10/27/88	0002	504			#	0.1	-
	mg/L	10/27/88	0003	502			#	0.1	-
	mg/L	10/27/88	0004	508			#	0.1	-
	mg/L	10/27/88	0005	502			#	0.1	-
	mg/L	04/26/89	0001	232			#	0.1	-
	mg/L	04/26/89	0002	226			#	0.1	-
	mg/L	04/26/89	0003	240			#	0.1	-
	mg/L	04/26/89	0004	230			#	0.1	-
	mg/L	04/26/89	0005	228			#	0.1	-
	mg/L	11/21/89	0001	320	H		#	0.1	-
	mg/L	11/21/89	0002	318	H		#	0.1	-
	mg/L	11/21/89	0003	318	H		#	0.1	-
	mg/L	11/21/89	0004	324	H		#	0.1	-
	mg/L	11/21/89	0005	319	H		#	0.1	-
	mg/L	03/30/90	0001	272			#	0.1	-
	mg/L	03/30/90	N001	267			#	0.1	-
	mg/L	11/15/90	0001	230			#	0.1	-
	mg/L	11/15/90	N001	221			#	0.1	-
	mg/L	03/27/91	0001	270			#	10	-
	mg/L	05/31/91	0001	306			#	10	-
	mg/L	10/25/91	0001	256			#	0.1	-
	mg/L	03/13/92	0001	356			#	40	-
	mg/L	08/07/92	0001	404			#	100	-
	mg/L	03/13/93	N001	432			#	1	-
	mg/L	02/08/97	0001	556 000		L	#	-	-
Thorium-230	pCi/L	12/08/83	0001	0 0006			#	0.0002	± 0.00
	pCi/L	01/10/84	0001	1 00	U		#	1	± 0.00
	pCi/L	06/18/84	0001	0 0002			#	0.0002	± 0.00
	pCi/L	11/21/87	0001	0 0			#	1	± 0.40
	pCi/L	10/27/88	0001	0 779			#	1	± 0.31
	pCi/L	10/27/88	0002	0 00			#	1	± 0.22
	pCi/L	10/27/88	0003	1 07			#	1	± 0.27
	pCi/L	10/27/88	0004	3 18			#	1	± 0.48

GROUND WATER QUALITY DATA BY LOCATION (USEE100) FOR SITE RVT01, RIVERTON
LOCATION: 0101
REPORT DATE: 2/19/98 10:33:13 AM

PARAMETER	UNITS	SAMPLE: DATE	ID	RESULT	QUALIFIERS: LAB	DATA	QA	DETECTION LIMIT	UN-CERTAINTY
Thorium-230	pCi/L	10/27/88	0005	0.00			#	1	± 0.16
	pCi/L	04/26/89	0001	0.2			#	1	± 0.30
	pCi/L	04/26/89	0002	0.4			#	1	± 0.30
	pCi/L	04/26/89	0003	0.9			#	1	± 0.40
	pCi/L	04/26/89	0004	0.8			#	1	± 0.40
	pCi/L	04/26/89	0005	0.5			#	1	± 0.40
	pCi/L	11/21/89	0001	0.0		J	#	1	± 0.30
	pCi/L	11/21/89	0002	0.0		J	#	1	± 0.30
	pCi/L	11/21/89	0003	0.8		J	#	1	± 0.60
	pCi/L	11/21/89	0004	0.0		J	#	1	± 0.30
	pCi/L	11/21/89	0005	0.7		J	#	1	± 0.60
	pCi/L	11/15/90	0001	0.1			#	1	± 0.40
	pCi/L	11/15/90	N001	0.0			#	1	± 0.40
	pCi/L	03/27/91	N001	0.0			#	1	± 0.40
	pCi/L	03/13/93	0001	0.6			#	0.2	± 0.40
	pCi/L	03/13/93	N001	0.9			#	0.2	± 0.40
	pCi/L	02/08/97	0001	0.64	UN	JL	#	0.64	±
Uranium	mg/L	12/08/83	0001	0.22			#	0.0003	-
	mg/L	01/10/84	0001	0.19			#	-	-
	mg/L	06/18/84	0001	0.415			#	0.0003	-
	mg/L	09/08/87	0001	0.122			#	0.003	-
	mg/L	11/21/87	0001	0.0931			#	0.003	-
	mg/L	02/20/88	0001	0.103			#	0.003	-
	mg/L	05/16/88	0001	0.168			#	0.003	-
	mg/L	09/01/88	0001	0.077			#	0.003	-
	mg/L	10/27/88	0001	0.132			#	0.003	-
	mg/L	10/27/88	0002	0.130			#	0.003	-
	mg/L	10/27/88	0003	0.113			#	0.003	-
	mg/L	10/27/88	0004	0.098			#	0.003	-
	mg/L	10/27/88	0005	0.101			#	0.003	-
	mg/L	04/26/89	0001	0.171			#	0.003	-
	mg/L	04/26/89	0002	0.154			#	0.003	-
	mg/L	04/26/89	0003	0.154			#	0.003	-
	mg/L	04/26/89	0004	0.163			#	0.003	-
	mg/L	04/26/89	0005	0.171			#	0.003	-
	mg/L	11/21/89	0001	0.245			#	0.003	-

GROUND WATER QUALITY DATA BY LOCATION (USEE100) FOR SITE RVT01, RIVERTON
LOCATION: 0101
REPORT DATE: 2/19/98 10:33:13 AM

PARAMETER	UNITS	SAMPLE: DATE	ID	RESULT	QUALIFIERS: LAB	DATA	QA	DETECTION LIMIT	UN-CERTAINTY
Uranium	mg/L	11/21/89	0002	0.231			#	0.003	-
	mg/L	11/21/89	0003	0.257			#	0.003	-
	mg/L	11/21/89	0004	0.271			#	0.003	-
	mg/L	11/21/89	0005	0.219			#	0.003	-
	mg/L	03/30/90	0001	0.147			#	0.003	-
	mg/L	03/30/90	N001	0.146			#	0.003	-
	mg/L	11/15/90	0001	0.0822			#	0.0003	-
	mg/L	11/15/90	N001	0.0749			#	0.0003	-
	mg/L	03/27/91	0001	0.216			#	0.001	-
	mg/L	03/27/91	N001	0.153			#	0.00.	-
	mg/L	05/31/91	0001	0.195			#	0.001	-
	mg/L	10/25/91	0001	0.0704			#	0.0003	-
	mg/L	03/13/92	0001	0.163			#	0.001	-
	mg/L	03/13/93	0001	0.225			#	0.001	-
	mg/L	03/13/93	N001	0.212			#	0.001	-
	mg/L	02/08/97	0001	0.0835		L	#	-	-
Vanadium	mg/L	12/08/83	0001	0.004	U		#	0.004	-
	mg/L	01/10/84	0001	0.005			#	-	-
	mg/L	06/18/84	0001	0.01	U		#	0.01	-
	mg/L	09/08/87	0001	0.03			#	0.01	-
	mg/L	11/21/87	0001	0.03			#	0.01	-
	mg/L	02/20/88	0001	0.04			#	0.01	-
	mg/L	05/16/88	0001	0.03			#	0.01	-
	mg/L	09/01/88	0001	0.01	U		#	0.01	-
	mg/L	10/27/88	0001	0.02			#	0.01	-
	mg/L	10/27/88	0002	0.01			#	0.01	-
	mg/L	10/27/88	0003	0.01			#	0.01	-
	mg/L	10/27/88	0004	0.01			#	0.01	-
	mg/L	10/27/88	0005	0.01	U		#	0.01	-
	mg/L	04/26/89	0001	0.01	U		#	0.01	-
	mg/L	04/26/89	0002	0.01	U		#	0.01	-
	mg/L	04/26/89	0003	0.01	U		#	0.01	-
	mg/L	04/26/89	0004	0.01	U		#	0.01	-
	mg/L	04/26/89	0005	0.01	U		#	0.01	-
	mg/L	11/21/89	0001	0.02			#	0.01	-
	mg/L	11/21/89	0002	0.03			#	0.01	-

GROUND WATER QUALITY DATA BY LOCATION (USEE100) FOR SITE RVT01, RIVERTON
LOCATION: 0101
REPORT DATE: 2/19/98 10:33:14 AM

PARAMETER	UNITS	SAMPLE: DATE	ID	RESULT	QUALIFIERS: LAB	DATA	QA	DETECTION LIMIT	UN-CERTAINTY
Vanadium	mg/L	11/21/89	0003	0.02			#	0.01	-
	mg/L	11/21/89	0004	0.02			#	0.01	-
	mg/L	11/21/89	0005	0.02			#	0.01	-
	mg/L	03/30/90	0001	0.01	U		#	0.01	-
	mg/L	03/30/90	N001	0.01	U		#	0.01	-
	mg/L	11/15/90	0001	0.02			#	0.01	-
	mg/L	11/15/90	N001	0.01	U		#	0.01	-
	mg/L	03/27/91	0001	0.01	U		#	0.01	-
	mg/L	03/27/91	N001	0.01	U		#	0.01	-
	mg/L	05/31/91	0001	0.01	U		#	0.01	-
	mg/L	10/25/91	0001	0.03			#	0.01	-
	mg/L	03/13/92	0001	0.01	U		#	0.01	-
	mg/L	08/07/92	0001	0.01			#	0.01	-
	mg/L	03/13/93	0001	0.01	U		#	0.01	-
	mg/L	03/13/93	N001	0.01	J		#	0.01	-
	mg/L	02/08/97	0001	0.0049	B	L	#	-	-

GROUND WATER QUALITY DATA BY LOCATION (USEE100) FOR SITE RVT01, RIVERTON
LOCATION: 0104
REPORT DATE: 2/19/98 10:33:14 AM

PARAMETER	UNITS	SAMPLE: DATE	ID	RESULT	QUALIFIERS: LAB	DATA	QA	DETECTION LIMIT	UN-CERTAINTY
Arsenic	mg/L	12/08/83	0001	0.001	U		#	0.001	-
	mg/L	01/10/84	0001	0.005	U		#	0.005	-
	mg/L	06/18/84	0001	0.01	U		#	0.01	-
	mg/L	11/15/90	0001	0.01	UJ	J	#	0.01	-
	mg/L	11/15/90	N001	0.01	U		#	0.01	-
	mg/L	03/27/91	0001	0.01	U		#	0.01	-
	mg/L	03/27/91	N001	0.01	U		#	0.01	-
	mg/L	06/01/91	0001	0.01	U		#	0.01	-
	mg/L	10/24/91	N001	0.013			#	0.001	-
	mg/L	03/13/92	0001	0.005	U		#	0.005	-
	mg/L	08/07/92	0001	0.005	U		#	0.005	-
	mg/L	03/14/93	0001	0.005	UW		#	0.005	-
	mg/L	03/14/93	0002	0.005	UW		#	0.005	-
	mg/L	03/14/93	N001	0.005	UW		#	0.005	-
	mg/L	03/14/93	N002	0.005	UW		#	0.005	-
	mg/L	02/08/97	0001	0.0025	B	J	#	-	-
Lead-210	pCi/L	12/08/83	0001	0.40			#	1	± 2.40
	pCi/L	01/10/84	0001	1.50	U		#	1.5	± 0.00
	pCi/L	06/18/84	0001	0.30			#	1	± 1.20
	pCi/L	03/27/91	N001	5.8			#	1.5	± 1.70
	pCi/L	03/14/93	0001	3.2			#	1.7	± 1.00
	pCi/L	03/14/93	0002	2.6			#	1.7	± 1.00
	pCi/L	03/14/93	N001	0.0			#	2.7	± 1.50
	pCi/L	03/14/93	N002	0.6			#	2.7	± 1.60
	pCi/L	02/08/97	0001	1.19	U		#	1.19	± 0.70
Manganese	mg/L	12/08/83	0001	0.27			#	0.01	-
	mg/L	01/10/84	0001	0.26			#	-	-
	mg/L	06/18/84	0001	0.06			#	0.01	-
	mg/L	11/15/90	0001	0.02			#	0.01	-
	mg/L	11/15/90	N001	0.02			#	0.01	-
	mg/L	03/27/91	0001	0.01	U		#	0.01	-
	mg/L	03/27/91	N001	0.14			#	0.01	-
	mg/L	06/01/91	0001	0.01	U		#	0.01	-
	mg/L	10/24/91	N001	0.01	U		#	0.01	-
	mg/L	03/13/92	0001	0.01	U		#	0.01	-
	mg/L	08/07/92	0001	0.01	U		#	0.01	-

GROUND WATER QUALITY DATA BY LOCATION (USEE100) FOR SITE RVT01, RIVERTON
LOCATION: 0104
REPORT DATE: 2/19/98 10:33:15 AM

PARAMETER	UNITS	SAMPLE: DATE	ID	RESULT	QUALIFIERS: LAB	DATA	QA	DETECTION LIMIT	UN-CERTAINTY
Manganese	mg/L	03/14/93	0001	0.01	U		#	0.01	-
	mg/L	03/14/93	0002	0.01	U		#	0.01	-
	mg/L	03/14/93	N001	0.04			#	0.01	-
	mg/L	03/14/93	N002	0.01			#	0.01	-
	mg/L	02/08/97	0001	0.0068	B		#	-	-
Molybdenum	mg/L	12/08/83	0001	0.034	H		#	0.001	-
	mg/L	01/10/84	0001	0.08			#	-	-
	mg/L	06/18/84	0001	0.01	U		#	0.01	-
	mg/L	11/15/90	0001	0.09			#	0.01	-
	mg/L	11/15/90	N001	0.06			#	0.01	-
	mg/L	03/27/91	0001	0.08			#	0.01	-
	mg/L	03/27/91	N001	0.08			#	0.01	-
	mg/L	06/01/91	0001	0.08			#	0.01	-
	mg/L	10/24/91	N001	0.14			#	0.01	-
	mg/L	03/13/92	0001	0.08			#	0.01	-
	mg/L	08/07/92	0001	0.06			#	0.01	-
	mg/L	03/14/93	0001	0.08			#	0.01	-
	mg/L	03/14/93	0002	0.08			#	0.01	-
	mg/L	03/14/93	N001	0.08			#	0.01	-
	mg/L	03/14/93	N002	0.08			#	0.01	-
	mg/L	02/08/97	0001	0.0567			#	-	-
Nickel	mg/L	12/08/83	0001	0.148			#	0.001	-
	mg/L	01/10/84	0001	0.04	U		#	0.04	-
	mg/L	06/18/84	0001	0.04	U		#	0.04	-
	mg/L	11/15/90	0001	0.04	U		#	0.04	-
	mg/L	11/15/90	N001	0.04	U		#	0.04	-
	mg/L	03/27/91	0001	0.04	U		#	0.04	-
	mg/L	03/27/91	N001	0.04	U		#	0.04	-
	mg/L	06/01/91	0001	0.04	U		#	0.04	-
	mg/L	10/24/91	N001	0.09			#	0.01	-
	mg/L	03/13/92	0001	0.04	U		#	0.04	-
	mg/L	08/07/92	0001	0.04	U		#	0.04	-
	mg/L	03/14/93	0001	0.04	U		#	0.04	-
	mg/L	03/14/93	0002	0.04	U		#	0.04	-
	mg/L	03/14/93	N001	0.04	U		#	0.04	-
	mg/L	03/14/93	N002	0.04	U		#	0.04	-

GROUND WATER QUALITY DATA BY LOCATION (USEE100) FOR SITE RVT01, RIVERTON
LOCATION: 0104
REPORT DATE: 2/19/98 10:33:15 AM

PARAMETER	UNITS	SAMPLE: DATE	ID	RESULT	QUALIFIERS: LAB	DATA	QA	DETECTION LIMIT	UN-CERTAINTY
Nickel	mg/L	02/08/97	0001	0.0070	U		#	0.007	-
Polonium-210	pCi/L	03/27/91	N001	0.0			#	1	± 0.40
	pCi/L	03/14/93	0001	0.9			#	1.3	± 0.90
	pCi/L	03/14/93	0002	0.2			#	1.3	± 0.80
	pCi/L	03/14/93	N001	0.0			#	0.9	± 0.50
	pCi/L	03/14/93	N002	0.4			#	0.9	± 0.60
	pCi/L	02/08/97	0001	0.19		U	#	0.08	± 0.14
ate	mg/L	12/08/83	0001	544.00	H	J	#	0.1	-
	mg/L	01/10/84	0001	520.00			#	-	-
	mg/L	06/18/84	0001	289.00			#	0.1	-
	mg/L	11/15/90	0001	271			#	0.1	-
	mg/L	11/15/90	N001	275			#	0.1	-
	mg/L	03/27/91	0001	272			#	10	-
	mg/L	06/01/91	0001	259			#	10	-
	mg/L	10/24/91	N001	267			#	0.1	-
	mg/L	03/13/92	0001	298			#	30	-
	mg/L	08/07/92	0001	293			#	100	-
	mg/L	03/14/93	N001	367			#	1	-
	mg/L	03/14/93	N002	369			#	1	-
	mg/L	02/08/97	0001	627.000			#	-	-
Thorium-230	pCi/L	12/08/83	0001	0.0012			#	0.0002	± 0.00
	pCi/L	01/10/84	0001	1.00	U		#	1	± 0.00
	pCi/L	06/18/84	0001	0.00			#	0.0002	± 0.00
	pCi/L	11/15/90	0001	0.1			#	1	± 0.40
	pCi/L	11/15/90	N001	0.1			#	1	± 0.40
	pCi/L	03/27/91	N001	0.0			#	1	± 0.30
	pCi/L	03/14/93	0001	0.9			#	0.2	± 0.40
	pCi/L	03/14/93	0002	0.4			#	0.5	± 0.30
	pCi/L	03/14/93	N001	0.5			#	0.7	± 0.40
	pCi/L	03/14/93	N002	0.7			#	0.3	± 0.40
	pCi/L	02/08/97	0001	0.64	U		#	0.64	±
Uranium	mg/L	12/08/83	0001	0.159			#	0.0003	-
	mg/L	01/10/84	0001	0.140			#	-	-
	mg/L	06/18/84	0001	0.159			#	0.0003	-
	mg/L	11/15/90	0001	0.0795			#	0.0003	-

GROUND WATER QUALITY DATA BY LOCATION (USEE100) FOR SITE RVT01, RIVERTON
LOCATION: 0104
REPORT DATE: 2/19/98 10:33:16 AM

PARAMETER	UNITS	SAMPLE: DATE	ID	RESULT	QUALIFIERS: LAB	DATA	QA	DETECTION LIMIT	UN-CERTAINTY
Uranium	mg/L	11/15/90	N001	0.0749			#	0.0003	-
	mg/L	03/27/91	0001	0.131			#	0.001	-
	mg/L	03/27/91	N001	0.119			#	0.001	-
	mg/L	06/01/91	0001	0.042			#	0.001	-
	mg/L	10/24/91	N001	0.0730			#	0.0003	-
	mg/L	03/13/92	0001	0.086			#	0.001	-
	mg/L	03/14/93	0001	0.095			#	0.001	-
	mg/L	03/14/93	0002	0.097			#	0.001	-
	mg/L	03/14/93	N001	0.089			#	0.001	-
	mg/L	03/14/93	N002	0.100			#	0.001	-
	mg/L	02/08/97	0001	0.122			#	-	-
Vanadium	mg/L	12/08/83	0001	0.004	U		#	0.004	-
	mg/L	01/10/84	0001	0.005			#	-	-
	mg/L	06/18/84	0001	0.01	U		#	0.01	-
	mg/L	11/15/90	0001	0.02			#	0.01	-
	mg/L	11/15/90	N001	0.01	U		#	0.01	-
	mg/L	03/27/91	0001	0.01	U		#	0.01	-
	mg/L	03/27/91	N001	0.01	U		#	0.01	-
	mg/L	06/01/91	0001	0.01	U		#	0.01	-
	mg/L	10/24/91	N001	0.18			#	0.01	-
	mg/L	03/13/92	0001	0.01	U		#	0.01	-
	mg/L	08/07/92	0001	0.04			#	0.01	-
	mg/L	03/14/93	0001	0.01	U		#	0.01	-
	mg/L	03/14/93	0002	0.01	U		#	0.01	-
	mg/L	03/14/93	N001	0.01	U		#	0.01	-
	mg/L	03/14/93	N002	0.01	U		#	0.01	-
	mg/L	02/08/97	0001	0.0040	U		#	0.004	-

GROUND WATER QUALITY DATA BY LOCATION (USEE100) FOR SITE RVT01, RIVERTON
LOCATION: 0105
REPORT DATE: 2/19/98 10:33:16 AM

PARAMETER	UNITS	SAMPLE: DATE	ID	RESULT	QUALIFIERS: LAB	DATA	QA	DETECTION LIMIT	UN-CERTAINTY
Arsenic	mg/L	03/29/84	0001	0.001	U		#	0.001	-
	mg/L	06/18/84	0001	0.01	U		#	0.01	-
Lead-210	pCi/L	03/29/84	0001	4.10			#	1	± 1.20
	pCi/L	06/18/84	0001	0.60			#	1	± 1.60
Manganese	mg/L	03/29/84	0001	0.15			#	0.01	-
	mg/L	06/18/84	0001	0.08			#	0.01	-
Molybdenum	mg/L	03/29/84	0001	0.033			#	0.001	-
	mg/L	06/18/84	0001	0.01	U		#	0.01	-
Nickel	mg/L	03/29/84	0001	0.04	U		#	0.04	-
	mg/L	06/18/84	0001	0.04	U		#	0.04	-
Sulfate	mg/L	03/29/84	0001	520.00			#	0.1	-
	mg/L	06/18/84	0001	284.00			#	0.1	-
Thorium-230	pCi/L	03/29/84	0001	0.00			#	0.0002	± 0.00
	pCi/L	06/18/84	0001	0.0017			#	0.0002	± 0.00
Uranium	mg/L	03/29/84	0001	0.2031			#	0.0003	-
	mg/L	06/18/84	0001	0.373			#	0.0003	-
Vanadium	mg/L	03/29/84	0001	0.004	U		#	0.004	-
	mg/L	06/18/84	0001	0.01	U		#	0.01	-

GROUND WATER QUALITY DATA BY LOCATION (USEE100) FOR SITE RVT01, RIVERTON
LOCATION: 0106
REPORT DATE: 2/19/98 10:33:17 AM

PARAMETER	UNITS	SAMPLE: DATE	ID	RESULT	QUALIFIERS: LAB	DATA	QA	DETECTION LIMIT	UN-CERTAINTY
Arsenic	mg/L	12/08/83	0001	0.001	U	F	#	0.001	-
	mg/L	01/10/84	0001	0.005	U		#	0.005	-
	mg/L	06/18/84	0001	0.01	U		#	0.01	-
	mg/L	05/30/85	0001	0.01	U		#	0.01	-
Lead-210	pCi/L	12/08/83	0001	0.00		F	#	1	± 3.60
	pCi/L	01/10/84	0001	1.50	U		#	1.5	± 0.00
	pCi/L	06/18/84	0001	0.90			#	1	± 1.30
	pCi/L	05/30/85	0001	0.50		J	#	1.5	± 0.80
Manganese	mg/L	12/08/83	0001	0.83		F	#	0.01	-
	mg/L	01/10/84	0001	0.86			#	-	-
	mg/L	06/18/84	0001	0.39			#	0.01	-
	mg/L	05/30/85	0001	0.39			#	0.01	-
Molybdenum	mg/L	12/08/83	0001	0.196		F	#	0.001	-
	mg/L	01/10/84	0001	1.10			#	-	-
	mg/L	06/18/84	0001	0.01	U		#	0.01	-
	mg/L	05/30/85	0001	1.69			#	0.01	-
Nickel	mg/L	12/08/83	0001	0.102		F	#	0.001	-
	mg/L	01/10/84	0001	0.04	U		#	0.04	-
	mg/L	06/18/84	0001	0.04	U		#	0.04	-
	mg/L	05/30/85	0001	0.04	U	J	#	0.04	-
Polonium-210	pCi/L	05/30/85	0001	0.00			#	1	± 0.60
Sulfate	mg/L	12/08/83	0001	747.00		F	#	0.1	-
	mg/L	01/10/84	0001	700.00			#	-	-
	mg/L	06/18/84	0001	583.00			#	0.1	-
	mg/L	05/30/85	0001	674.00			#	0.1	-
Thorium-230	pCi/L	12/08/83	0001	0.0004		F	#	0.0002	± 0.00
	pCi/L	01/10/84	0001	1.00	U		#	1	± 0.00
	pCi/L	06/18/84	0001	0.0004			#	0.0002	± 0.00
	pCi/L	05/30/85	0001	0.60		J	#	1	± 0.60
Uranium	mg/L	12/08/83	0001	0.0086		F	#	0.0003	-
	mg/L	01/10/84	0001	0.012			#	-	-
	mg/L	06/18/84	0001	0.0111			#	0.0003	-
	mg/L	05/30/85	0001	0.0064			#	0.003	-
Vanadium	mg/L	12/08/83	0001	0.004	U	F	#	0.004	-

GROUND WATER QUALITY DATA BY LOCATION (USEE100) FOR SITE RVT01, RIVERTON
LOCATION: 0106
REPORT DATE: 2/19/98 10:33:18 AM

PARAMETER	UNITS	SAMPLE: DATE	ID	RESULT	QUALIFIERS: LAB	DATA	QA	DETECTION LIMIT	UN-CERTAINTY
Vanadium	mg/L	01/10/84	0001	0.004	U		#	0.004	-
	mg/L	06/18/84	0001	0.01	U		#	0.01	-
	mg/L	05/30/85	0001	0.01	U	R	#	0.01	-

GROUND WATER QUALITY DATA BY LOCATION (USEE100) FOR SITE RVT01, RIVERTON
LOCATION: 0108
REPORT DATE: 2/19/98 10:33:18 AM

PARAMETER	UNITS	SAMPLE: DATE	ID	RESULT	QUALIFIERS: LAB	DATA	QA	DETECTION LIMIT	UN-CERTAINTY
Arsenic	mg/L	09/08/87	0001	0.001	U	J	#	0.01	-
	mg/L	09/08/87	0002	0.001	U	J	#	0.01	-
	mg/L	09/08/87	0003	0.001	U	J	#	0.01	-
	mg/L	09/08/87	0004	0.001	U	J	#	0.01	-
	mg/L	09/08/87	0005	0.001		J	#	0.01	-
	mg/L	11/21/87	0001	0.007		J	#	0.01	-
	mg/L	02/20/88	0001	0.010			#	0.01	-
	mg/L	05/16/88	0001	0.006		J	#	0.01	-
	mg/L	09/01/88	0001	0.001	U		#	0.001	-
	mg/L	04/27/89	0001	0.01	U		#	0.01	-
	mg/L	11/15/90	0001	0.01	U		#	0.01	-
	mg/L	03/13/91	0001	0.01	U		#	0.01	-
	mg/L	06/01/91	0001	0.01	U		#	0.01	-
	mg/L	10/24/91	0001	0.001	U		#	0.001	-
	mg/L	03/13/93	0001	0.005	U		#	0.005	-
	mg/L	03/13/93	N001	0.005	U		#	0.005	-
	mg/L	07/14/95	0001	0.005			#	0.005	-
	mg/L	02/08/97	0001	0.00036	B	J	#	-	-
Lead-210	pCi/L	04/27/89	0001	0.7			#	1.5	± 0.70
	pCi/L	03/13/93	0001	1.5			#	1.7	± 1.00
	pCi/L	03/13/93	N001	1.4			#	3.6	± 2.20
	pCi/L	02/08/97	0001	1.17	U		#	1.17	± 0.69
Manganese	mg/L	09/08/87	0001	0.15			#	0.01	-
	mg/L	09/08/87	0002	0.15			#	0.01	-
	mg/L	09/08/87	0003	0.15			#	0.01	-
	mg/L	09/08/87	0004	0.14			#	0.01	-
	mg/L	09/08/87	0005	0.14			#	0.01	-
	mg/L	11/21/87	0001	0.25			#	0.01	-
	mg/L	02/20/88	0001	0.28			#	0.01	-
	mg/L	05/16/88	0001	0.28			#	0.01	-
	mg/L	09/01/88	0001	0.18			#	0.01	-
	mg/L	04/27/89	0001	0.27			#	0.01	-
	mg/L	11/15/90	0001	0.20			#	0.01	-
	mg/L	03/13/91	0001	0.26			#	0.01	-
	mg/L	06/01/91	0001	0.27			#	0.01	-
	mg/L	10/24/91	0001	0.18			#	0.01	-

GROUND WATER QUALITY DATA BY LOCATION (USEE100) FOR SITE RVT01, RIVERTON
LOCATION: 0108
REPORT DATE: 2/19/98 10:33:18 AM

PARAMETER	UNITS	SAMPLE: DATE	ID	RESULT	QUALIFIERS: LAB	DATA	QA	DETECTION LIMIT	UN-CERTAINTY
Manganese	mg/L	03/13/92	0001	0.28			#	0.01	-
	mg/L	08/07/92	0001	0.26			#	0.01	-
	mg/L	03/13/93	0001	0.29			#	0.01	-
	mg/L	03/13/93	N001	0.28			#	0.01	-
	mg/L	07/14/95	0001	0.19			#	0.01	-
	mg/L	02/08/97	0001	0.172			#	-	-
Molybdenum	mg/L	09/08/87	0001	0.17			#	0.01	-
	mg/L	09/08/87	0002	0.15			#	0.01	-
	mg/L	09/08/87	0003	0.15			#	0.01	-
	mg/L	09/08/87	0004	0.15			#	0.01	-
	mg/L	09/08/87	0005	0.15			#	0.01	-
	mg/L	11/21/87	0001	0.64			#	0.01	-
	mg/L	02/20/88	0001	0.97			#	0.01	-
	mg/L	05/16/88	0001	0.88			#	0.01	-
	mg/L	09/01/88	0001	0.260			#	0.001	-
	mg/L	04/27/89	0001	0.89			#	0.01	-
	mg/L	11/15/90	0001	0.39			#	0.01	-
	mg/L	03/13/91	0001	1.00			#	0.01	-
	mg/L	06/01/91	0001	1.11			#	0.01	-
	mg/L	10/24/91	0001	0.31			#	0.01	-
	mg/L	03/13/92	0001	1.21			#	0.01	-
	mg/L	08/07/92	0001	0.94			#	0.01	-
	mg/L	03/13/93	0001	1.27			#	0.01	-
	mg/L	03/13/93	N001	1.27			#	0.01	-
	mg/L	07/14/95	0001	0.41			#	0.01	-
	mg/L	02/08/97	0001	0.432			#	-	-
Nickel	mg/L	09/08/87	0001	0.01	U	J	#	0.04	-
	mg/L	09/08/87	0002	0.01	U	J	#	0.04	-
	mg/L	09/08/87	0003	0.01	U	J	#	0.04	-
	mg/L	09/08/87	0004	0.01	U	J	#	0.04	-
	mg/L	09/08/87	0005	0.01	U	J	#	0.04	-
	mg/L	11/21/87	0001	0.01	U	J	#	0.04	-
	mg/L	02/20/88	0001	0.02		J	#	0.04	-
	mg/L	05/16/88	0001	0.02		J	#	0.04	-
	mg/L	09/01/88	0001	0.02	U	J	#	0.04	-
	mg/L	04/27/89	0001	0.04	U		#	0.04	-

GROUND WATER QUALITY DATA BY LOCATION (USEE100) FOR SITE RVT01, RIVERTON
LOCATION: 0108
REPORT DATE: 2/19/98 10:33:19 AM

PARAMETER	UNITS	SAMPLE: DATE	ID	RESULT	QUALIFIERS: LAB	DATA	QA	DETECTION LIMIT	UNCERTAINTY
Nickel	mg/L	11/15/90	0001	0.04	U		#	0.04	-
	mg/L	03/13/91	0001	0.04	U		#	0.04	-
	mg/L	06/01/91	0001	0.04	U		#	0.04	-
	mg/L	10/24/91	0001	0.01	U		#	0.01	-
	mg/L	03/13/92	0001	0.04	U		#	0.04	-
	mg/L	08/07/92	0001	0.04	U		#	0.04	-
	mg/L	03/13/93	0001	0.04	U		#	0.04	-
	mg/L	03/13/93	N001	0.04	U		#	0.04	-
	mg/L	07/14/95	0001	0.04	U		#	0.04	-
	mg/L	02/08/97	0001	0.0070	U		#	0.007	-
Polonium-210	pCi/L	04/27/89	0001	0.0			#	1	± 0.10
	pCi/L	03/13/93	0001	0.0			#	1.3	± 0.70
	pCi/L	03/13/93	N001	0.0			#	0.9	± 0.50
	pCi/L	02/08/97	0001	0.15		U	#	0.1	± 0.14
Sulfate	mg/L	09/08/87	0001	307			#	0.1	-
	mg/L	09/08/87	0002	312			#	0.1	-
	mg/L	09/08/87	0003	311			#	0.1	-
	mg/L	09/08/87	0004	310			#	0.1	-
	mg/L	09/08/87	0005	310			#	0.1	-
	mg/L	11/21/87	0001	429			#	0.1	-
	mg/L	02/20/88	0001	534			#	0.1	-
	mg/L	05/16/88	0001	577			#	0.1	-
	mg/L	09/01/88	0001	372			#	1	-
	mg/L	04/27/89	0001	550			#	0.1	-
	mg/L	11/15/90	0001	401			#	0.1	-
	mg/L	03/13/91	0001	584			#	10	-
	mg/L	06/01/91	0001	592			#	10	-
	mg/L	10/24/91	0001	332			#	0.1	-
	mg/L	03/13/92	0001	630			#	60	-
	mg/L	08/07/92	0001	543			#	100	-
	mg/L	03/13/93	N001	632			#	1	-
	mg/L	07/14/95	0001	530			#	1	-
	mg/L	02/08/97	0001	364.000			#	-	-
Thorium-230	pCi/L	11/21/87	0001	0.0			#	1	± 0.40
	pCi/L	04/27/89	0001	0.1			#	1	± 0.30

GROUND WATER QUALITY DATA BY LOCATION (USEE100) FOR SITE RVT01, RIVERTON
LOCATION: 0108
REPORT DATE: 2/19/98 10:33:20 AM

PARAMETER	UNITS	SAMPLE: DATE	ID	RESULT	QUALIFIERS: LAB	DATA	QA	DETECTION LIMIT	UN-CERTAINTY
Thorium-230	pCi/L	03/13/93	0001	0.2			#	0.4	± 0.30
	pCi/L	03/13/93	N001	0.6			#	0.4	± 0.40
	pCi/L	02/08/97	0001	0.64	U		#	0.64	±
Uranium	mg/L	09/08/87	0001	0.0003	U	J	#	0.003	-
	mg/L	09/08/87	0002	0.0003	U	J	#	0.003	-
	mg/L	09/08/87	0003	0.0003	U	J	#	0.003	-
	mg/L	09/08/87	0004	0.0003	U	J	#	0.003	-
	mg/L	09/08/87	0005	0.0020		J	#	0.003	-
	mg/L	11/21/87	0001	0.0030			#	0.003	-
	mg/L	02/20/88	0001	0.0032			#	0.003	-
	mg/L	05/16/88	0001	0.0030			#	0.003	-
	mg/L	09/01/88	0001	0.003	U		#	0.003	-
	mg/L	04/27/89	0001	0.003			#	0.003	-
	mg/L	11/15/90	0001	0.0013			#	0.0003	-
	mg/L	03/13/91	0001	0.002			#	0.001	-
	mg/L	06/01/91	0001	0.003			#	0.001	-
	mg/L	10/24/91	0001	0.0012			#	0.0003	-
	mg/L	03/13/92	0001	0.010			#	0.001	-
	mg/L	08/07/92	0001	0.005			#	0.001	-
	mg/L	03/13/93	0001	0.014			#	0.001	-
	mg/L	03/13/93	N001	0.011			#	0.001	-
	mg/L	07/14/95	0001	0.003			#	0.001	-
	mg/L	02/08/97	0001	0.0024			#	-	-
Vanadium	mg/L	09/08/87	0001	0.02			#	0.01	-
	mg/L	09/08/87	0002	0.02			#	0.01	-
	mg/L	09/08/87	0003	0.02			#	0.01	-
	mg/L	09/08/87	0004	0.02			#	0.01	-
	mg/L	09/08/87	0005	0.02			#	0.01	-
	mg/L	11/21/87	0001	0.03			#	0.01	-
	mg/L	02/20/88	0001	0.04			#	0.01	-
	mg/L	05/16/88	0001	0.03			#	0.01	-
	mg/L	09/01/88	0001	0.01	U		#	0.01	-
	mg/L	04/27/89	0001	0.01	U		#	0.01	-
	mg/L	11/15/90	0001	0.01			#	0.01	-
	mg/L	03/13/91	0001	0.01	U		#	0.01	-
	mg/L	06/01/91	0001	0.03			#	0.01	-

GROUND WATER QUALITY DATA BY LOCATION (USEE100) FOR SITE RVT01, RIVERTON
LOCATION: 0108
REPORT DATE: 2/19/98 10:33:20 AM

PARAMETER	UNITS	SAMPLE: DATE	ID	RESULT	QUALIFIERS: LAB	DATA	QA	DETECTION LIMIT	UN-CERTAINTY
Vanadium	mg/L	10/24/91	0001	0.04			#	0.01	-
	mg/L	03/13/92	0001	0.02			#	0.01	-
	mg/L	08/07/92	0001	0.02			#	0.01	-
	mg/L	03/13/93	0001	0.01	U		#	0.01	-
	mg/L	03/13/93	N001	0.01	U		#	0.01	-
	mg/L	07/14/95	0001	0.01	U		#	0.01	-
	mg/L	02/08/97	0001	0.0040	U		#	0.004	-

GROUND WATER QUALITY DATA BY LOCATION (USEE100) FOR SITE RVT01, RIVERTON
LOCATION: 0110
REPORT DATE: 2/19/98 10:33:20 AM

PARAMETER	UNITS	SAMPLE: DATE	ID	RESULT	QUALIFIERS: LAB	DATA	QA	DETECTION LIMIT	UN-CERTAINTY
Arsenic	mg/L	12/08/83	0001	0.001	U	F	#	0.001	-
	mg/L	01/10/84	0001	0.005	U		#	0.005	-
	mg/L	06/18/84	0001	0.01	U		#	0.01	-
	mg/L	05/30/85	0001	0.01	U	F	#	0.01	-
	mg/L	09/08/87	0001	0.001	U	J	#	0.01	-
	mg/L	11/21/87	0001	0.001	U	J	#	0.01	-
	mg/L	02/20/88	0001	0.001		J	#	0.01	-
	mg/L	05/16/88	0001	0.002		J	#	0.01	-
	mg/L	09/01/88	0001	0.001	U		#	0.001	-
	mg/L	10/27/88	0001	0.001	U	J	#	0.01	-
	mg/L	11/21/89	0001	0.01	U	J	#	0.01	-
	mg/L	03/30/90	0001	0.01	U	R	#	0.01	-
	mg/L	03/30/90	N001	0.01	U		#	0.01	-
	mg/L	11/15/90	0001	0.01	U	J	#	0.01	-
	mg/L	03/13/91	0001	0.01	U		#	0.01	-
	mg/L	06/01/91	0001	0.01	U		#	0.01	-
	mg/L	10/26/91	0001	0.001	U		#	0.001	-
	mg/L	03/13/93	0001	0.005	U		#	0.005	-
	mg/L	03/13/93	N001	0.005	U		#	0.005	-
	mg/L	02/08/97	0001	0.00038	BN	J	#	-	-
	mg/L	02/08/97	0002	0.00038	BN	J	#	-	-
Lead-210	pCi/L	12/08/83	0001	0.00		F	#	1	± 2.50
	pCi/L	01/10/84	0001	1.50	U		#	1.5	± 0.00
	pCi/L	06/18/84	0001	0.00			#	1	± 1.60
	pCi/L	05/30/85	0001	0.00		FJ	#	1.5	± 0.80
	pCi/L	11/21/89	0001	1.1			#	1.5	± 0.60
	pCi/L	03/13/93	0001	0.0			#	1.7	± 1.00
	pCi/L	03/13/93	N001	0.3			#	1.8	± 1.10
	pCi/L	02/08/97	0001	1.47			#	1.19	± 0.72
	pCi/L	02/08/97	0002	1.60			#	1.21	± 0.73
Manganese	mg/L	12/08/83	0001	0.64		F	#	0.01	-
	mg/L	01/10/84	0001	0.55			#	-	-
	mg/L	06/18/84	0001	0.30			#	0.01	-
	mg/L	05/30/85	0001	0.25		F	#	0.01	-
	mg/L	09/08/87	0001	0.22			#	0.01	-
	mg/L	11/21/87	0001	0.11			#	0.01	-

GROUND WATER QUALITY DATA BY LOCATION (USEE100) FOR SITE RVT01, RIVERTON
LOCATION: 0110
REPORT DATE: 2/19/98 10:33:21 AM

PARAMETER	UNITS	SAMPLE: DATE	ID	RESULT	QUALIFIERS: LAB	DATA	QA	DETECTION LIMIT	UN-CERTAINTY
Manganese	mg/L	02/20/88	0001	0.12			#	0.01	-
	mg/L	05/16/88	0001	0.11			#	0.01	-
	mg/L	09/01/88	0001	0.11			#	0.01	-
	mg/L	10/27/88	0001	0.09			#	0.01	-
	mg/L	11/21/89	0001	0.10			#	0.01	-
	mg/L	03/30/90	0001	0.07			#	0.01	-
	mg/L	03/30/90	N001	0.07			#	0.01	-
	mg/L	11/15/90	0001	0.07			#	0.01	-
	mg/L	03/13/91	0001	0.06			#	0.01	-
	mg/L	06/01/91	0001	0.06			#	0.01	-
	mg/L	10/26/91	0001	0.06			#	0.01	-
	mg/L	03/12/92	0001	0.06			#	0.01	-
	mg/L	08/07/92	0001	0.06			#	0.01	-
	mg/L	03/13/93	0001	0.06			#	0.01	-
	mg/L	03/13/93	N001	0.06			#	0.01	-
	mg/L	02/08/97	0001	0.0397			#	-	-
	mg/L	02/08/97	0002	0.0392			#	-	-
Molybdenum	mg/L	12/08/83	0001	0.072		F	#	0.001	-
	mg/L	01/10/84	0001	0.04			#	-	-
	mg/L	06/18/84	0001	0.01	U		#	0.01	-
	mg/L	05/30/85	0001	0.01	U	F	#	0.01	-
	mg/L	09/08/87	0001	0.02			#	0.01	-
	mg/L	11/21/87	0001	0.04			#	0.01	-
	mg/L	02/20/88	0001	0.01	U		#	0.01	-
	mg/L	05/16/88	0001	0.01			#	0.01	-
	mg/L	09/01/88	0001	0.004			#	0.001	-
	mg/L	10/27/88	0001	0.002		J	#	0.01	-
	mg/L	11/21/89	0001	0.01	U		#	0.01	-
	mg/L	03/30/90	0001	0.01	U		#	0.01	-
	mg/L	03/30/90	N001	0.01	U		#	0.01	-
	mg/L	11/15/90	0001	0.01			#	0.01	-
	mg/L	03/13/91	0001	0.01	U		#	0.01	-
	mg/L	06/01/91	0001	0.01			#	0.01	-
	mg/L	10/26/91	0001	0.01	U		#	0.01	-
	mg/L	03/12/92	0001	0.01	U		#	0.01	-
	mg/L	08/07/92	0001	0.05			#	0.01	-

GROUND WATER QUALITY DATA BY LOCATION (USEE100) FOR SITE RVT01, RIVERTON
LOCATION: 0110
REPORT DATE: 2/19/98 10:33:22 AM

PARAMETER	UNITS	SAMPLE: DATE	ID	RESULT	QUALIFIERS: LAB	DATA	QA	DETECTION LIMIT	UN-CERTAINTY
Molybdenum	mg/L	03/13/93	0001	0.01	U		#	0.01	-
	mg/L	03/13/93	N001	0.01	U		#	0.01	-
	mg/L	02/08/97	0001	0.0040	B		#	-	-
	mg/L	02/08/97	0002	0.0039	B		#	-	-
Nickel	mg/L	12/08/83	0001	0.057		F	#	0.001	-
	mg/L	01/10/84	0001	0.04	U		#	0.04	-
	mg/L	06/18/84	0001	0.04	U		#	0.04	-
	mg/l	05/30/85	0001	0.04	U	FJ	#	0.04	-
	mg/L	09/08/87	0001	0.01	U	J	#	0.04	-
	mg/L	11/21/87	0001	0.01	U	J	#	0.04	-
	mg/L	02/20/88	0001	0.02		J	#	0.04	-
	mg/L	05/16/88	0001	0.01		J	#	0.04	-
	mg/L	09/01/88	0001	0.02	U	J	#	0.04	-
	mg/L	10/27/88	0001	0.02	U	J	#	0.04	-
	mg/L	11/21/89	0001	0.04	U		#	0.04	-
	mg/L	03/30/90	0001	0.04	U		#	0.04	-
	mg/L	03/30/90	N001	0.04	U		#	0.04	-
	mg/L	11/15/90	0001	0.04	U		#	0.04	-
	mg/L	03/13/91	0001	0.04	U		#	0.04	-
	mg/L	06/01/91	0001	0.04	U		#	0.04	-
	mg/L	10/26/91	0001	0.01	U		#	0.01	-
	mg/L	03/12/92	0001	0.04	U		#	0.04	-
	mg/L	08/07/92	0001	0.04	U		#	0.04	-
	mg/L	03/13/93	0001	0.04	U		#	0.04	-
	mg/L	03/13/93	N001	0.04	U		#	0.04	-
	mg/L	02/08/97	0001	0.0070	U		#	0.007	-
	mg/L	02/08/97	0002	0.0070	U		#	0.007	-
Polonium-210	pCi/L	05/30/85	0001	0.00		F	#	1	± 0.60
	pCi/L	11/21/89	0001	0.9			#	1	± 0.50
	pCi/L	03/13/93	0001	0.0			#	1.3	± 0.70
	pCi/L	03/13/93	N001	0.0			#	0.9	± 0.40
	pCi/L	02/08/97	0001	0.09	U		#	0.09	± 0.09
	pCi/L	02/08/97	0002	0.08	U		#	0.08	± 0.08
Sulfate	mg/L	12/08/83	0001	277.00		F	#	0.1	-
	mg/L	01/10/84	0001	260.00			#	-	-

GROUND WATER QUALITY DATA BY LOCATION (USEE100) FOR SITE RVT01, RIVERTON
LOCATION: 0110
REPORT DATE: 2/19/98 10:33:22 AM

PARAMETER	UNITS	SAMPLE: DATE	ID	RESULT	QUALIFIERS: LAB	DATA	QA	DETECTION LIMIT	UN-CERTAINTY
Sulfate	mg/L	06/18/84	0001	88.50			#	0.1	-
	mg/L	05/30/85	0001	184.00		F	#	0.1	-
	mg/L	09/08/87	0001	188			#	0.1	-
	mg/L	11/21/87	0001	147			#	0.1	-
	mg/L	02/20/88	0001	166			#	0.1	-
	mg/L	05/16/88	0001	168			#	0.1	-
	mg/L	09/01/88	0001	183			#	1	-
	mg/L	10/27/88	0001	198			#	0.1	-
	mg/L	11/21/89	0001	187	H		#	0.1	-
	mg/L	03/30/90	0001	184			#	0.1	-
	mg/L	03/30/90	N001	181			#	0.1	-
	mg/L	11/15/90	0001	188			#	0.1	-
	mg/L	03/13/91	0001	185			#	10	-
	mg/L	06/01/91	0001	171			#	0.1	-
	mg/L	10/26/91	0001	165			#	0.1	-
	mg/L	03/12/92	0001	182			#	10	-
	mg/L	08/07/92	0001	178			#	20	-
	mg/L	03/13/93	N001	185			#	1	-
	mg/L	02/08/97	0001	173.000			#	-	-
	mg/L	02/08/97	0002	173.000			#	-	-
Thorium-230	pCi/L	12/08/83	0001	0.0004		F	#	0.0002	± 0.00
	pCi/L	01/10/84	0001	1.00	U		#	1	± 0.00
	pCi/L	06/18/84	0001	0.00			#	0.0002	± 0.00
	pCi/L	05/30/85	0001	0.00		FJ	#	1	± 0.40
	pCi/L	[illegible]21/87	0001	0.2			#	1	± 0.50
	pCi/L	10/27/88	0001	0.710			#	1	± 0.41
	pCi/L	11/21/89	0001	0.0		J	#	1	± 0.30
	pCi/L	03/13/93	0001	0.7			#	0.6	± 0.50
	pCi/L	03/13/93	N001	0.8			#	0.4	± 0.40
	pCi/L	02/08/97	0001	0.64	UN	J	#	0.64	±
	pCi/L	02/08/97	0002	0.64	UN	J	#	0.64	±
Uranium	mg/L	12/08/83	0001	0.0036		F	#	0.0003	-
	mg/L	01/10/84	0001	0.005			#	-	-
	mg/L	06/18/84	0001	0.0007			#	0.0003	-
	mg/L	05/30/85	0001	0.0005		FJ	#	0.003	-
	mg/L	09/08/87	0001	0.0003	U	J	#	0.003	-

GROUND WATER QUALITY DATA BY LOCATION (USEE100) FOR SITE RVT01, RIVERTON
LOCATION: 0110
REPORT DATE: 2/19/98 10:33:23 AM

PARAMETER	UNITS	SAMPLE: DATE	ID	RESULT	QUALIFIERS: LAB	DATA	QA	DETECTION LIMIT	UN-CERTAINTY
Uranium	mg/L	11/21/87	0001	0.0003	U	J	#	0.003	-
	mg/L	02/20/88	0001	0.0003	U	J	#	0.003	-
	mg/L	05/16/88	0001	0.0006		J	#	0.003	-
	mg/L	09/01/88	0001	0.003	U		#	0.003	-
	mg/L	10/27/88	0001	0.003	U		#	0.003	-
	mg/L	11/21/89	0001	0.0003	U	J	#	0.003	-
	mg/L	03/30/90	0001	0.0003	U	J	#	0.003	-
	mg/L	03/30/90	N001	0.0003	U	J	#	0.003	-
	mg/L	11/15/90	0001	0.0003	U		#	0.0003	-
	mg/L	03/13/91	0001	0.001			#	0.001	-
	mg/L	06/01/91	0001	0.006			#	0.001	-
	mg/L	10/26/91	0001	0.0003			#	0.0003	-
	mg/L	03/12/92	0001	0.001	U		#	0.001	-
	mg/L	08/07/92	0001	0.001	U		#	0.001	-
	mg/L	03/ /93	0001	0.001	U		#	0.001	-
	mg/L	03/13/93	N001	0.001			#	0.001	-
	mg/L	02/08/97	0001	0.0010	U		#	0.001	-
	mg/L	02/08/97	0002	0.0010	U		#	0.001	-
Vanadium	mg/L	12/08/83	0001	0.004	U	F	#	0.004	-
	mg/L	01/10/84	0001	0.004	U		#	0.004	-
	mg/L	06/18/84	0001	0.01	U		#	0.01	-
	mg/L	05/30/85	0001	0.01	U	FR	#	0.01	-
	mg/L	09/08/87	0001	0.01	U		#	0.01	-
	mg/L	11/21/87	0001	0.01	U		#	0.01	-
	mg/L	02/20/88	0001	0.02			#	0.01	-
	mg/L	05/16/88	0001	0.01	U		#	0.01	-
	mg/L	09/01/88	0001	0.01	U		#	0.01	-
	mg/L	10/27/88	0001	0.01	U		#	0.01	-
	mg/L	11/21/89	0001	0.01			#	0.01	-
	mg/L	03/30/90	0001	0.01	U		#	0.01	-
	mg/L	03/30/90	N001	0.01			#	0.01	-
	mg/L	11/15/90	0001	0.01	U		#	0.01	-
	mg/L	03/13/91	0001	0.01	U		#	0.01	-
	mg/L	06/01/91	0001	0.01	U		#	0.01	-
	mg/L	10/26/91	0001	0.01	U		#	0.01	-
	mg/L	03/12/92	0001	0.01	U		#	0.01	-

GROUND WATER QUALITY DATA BY LOCATION (USEE100) FOR SITE RVT01, RIVERTON
LOCATION: 0110
REPORT DATE: 2/19/98 10:33:23 AM

PARAMETER	UNITS	SAMPLE: DATE	ID	RESULT	QUALIFIERS: LAB	DATA	QA	DETECTION LIMIT	UN-CERTAINTY
Vanadium	mg/L	08/07/92	0001	0.05	UI		#	0.05	-
	mg/L	03/13/93	0001	0.01	U		#	0.01	-
	mg/L	03/13/93	N001	0.01	U		#	0.01	-
	mg/L	02/08/97	0001	0.0040	U		#	0.004	-
	mg/L	02/08/97	0002	0.0040	U		#	0.004	-

GROUND WATER QUALITY DATA BY LOCATION (USEE100) FOR SITE RVT01, RIVERTON
LOCATION: 0111
REPORT DATE: 2/19/98 10:33:24 AM

PARAMETER	UNITS	SAMPLE: DATE	ID	RESULT	QUALIFIERS: LAB	DATA	QA	DETECTION LIMIT	UN-CERTAINTY
Arsenic	mg/L	10/25/83	0001	0.01	U	R	#	0.01	-
	mg/L	10/25/83	0002	0.01	U	R	#	0.01	-
	mg/L	05/30/85	0002	0.01	U		#	0.01	-
	mg/L	05/30/85	0003	0.01	U		#	0.01	-
	mg/L	05/30/85	0004	0.01	U		#	0.01	-
	mg/L	05/30/85	0005	0.01	U		#	0.01	-
	mg/L	06/05/85	0001	0.01	U		#	0.01	-
	mg/L	07/15/95	0001	0.005	U		#	0.005	-
Lead-210	pCi/L	10/25/83	0001	2.00	U	R	#	2	± 0.00
	pCi/L	10/25/83	0002	2.00	U	R	#	2	± 0.00
	pCi/L	05/30/85	0002	0.40		J	#	1.5	± 0.70
	pCi/L	05/30/85	0003	0.00		J	#	1.5	± 0.70
	pCi/L	05/30/85	0004	0.50		J	#	1.5	± 0.70
	pCi/L	05/30/85	0005	0.00		J	#	1.5	± 0.70
	pCi/L	06/05/85	0001	0.80		J	#	1.5	± 0.70
Manganese	mg/L	10/25/83	0001	0.12		R	#	-	-
	mg/L	10/25/83	0002	0.12		R	#	-	-
	mg/L	05/30/85	0002	0.43			#	0.01	-
	mg/L	05/30/85	0003	0.44			#	0.01	-
	mg/L	05/30/85	0004	0.44			#	0.01	-
	mg/L	05/30/85	0005	0.44			#	0.01	-
	mg/L	06/05/85	0001	0.43			#	0.01	-
	mg/L	07/15/95	0001	0.23			#	0.01	-
Molybdenum	mg/L	10/25/83	0001	0.01	U	R	#	0.01	-
	mg/L	10/25/83	0002	0.02		R	#	-	-
	mg/L	05/30/85	0002	0.01	U		#	0.01	-
	mg/L	05/30/85	0003	0.01	U		#	0.01	-
	mg/L	05/30/85	0004	0.01	U		#	0.01	-
	mg/L	05/30/85	0005	0.01	U		#	0.01	-
	mg/L	06/05/85	0001	0.01	U		#	0.01	-
	mg/L	07/15/95	0001	0.01			#	0.01	-
Nickel	mg/L	10/25/83	0001	0.50	U	R	#	0.5	-
	mg/L	10/25/83	0002	0.50	U	R	#	0.5	-
	mg/L	05/30/85	0002	0.04	U	J	#	0.04	-
	mg/L	05/30/85	0003	0.04	U	J	#	0.04	-

PARAMETER	UNITS	SAMPLE: DATE	ID	RESULT	QUALIFIERS: LAB	DATA	QA	DETECTION LIMIT	UN-CERTAINTY
Nickel	mg/L	05/30/85	0004	0.04	U	J	#	0.04	-
	mg/L	05/30/85	0005	0.04	U	J	#	0.04	-
	mg/L	06/05/85	0001	0.04	U	J	#	0.04	-
	mg/L	07/15/95	0001	0.04	U		#	0.04	-
Polonium-210	pCi/L	05/30/85	0002	0.20			#	1	± 0.70
	pCi/L	05/30/85	0003	0.00			#	1	± 0.60
	pCi/L	05/30/85	0004	0.00			#	1	± 0.60
	pCi/L	05/30/85	0005	0.00			#	1	± 0.60
	pCi/L	06/05/85	0001	0.00			#	1	± 0.60
Sulfate	mg/L	10/25/83	0001	320.00		R	#	-	-
	mg/L	10/25/83	0002	310.00		R	#	-	-
	mg/L	05/30/85	0002	335.00			#	0.1	-
	mg/L	05/30/85	0003	334.00			#	0.1	-
	mg/L	05/30/85	0004	333.00			#	0.1	-
	mg/L	05/30/85	0005	335.00			#	0.1	-
	mg/L	06/05/85	0001	338.00			#	0.1	-
	mg/L	07/15/95	0001	340			#	1	-
Thorium-230	pCi/L	10/25/83	0001	1.00	U	R	#	1	± 0.00
	pCi/L	10/25/83	0002	1.00	U	R	#	1	± 0.00
	pCi/L	05/30/85	0002	0.30		J	#	1	± 0.60
	pCi/L	05/30/85	0003	0.20		J	#	1	± 0.50
	pCi/L	05/30/85	0004	0.30		J	#	1	± 0.70
	pCi/L	05/30/85	0005	0.10		J	#	1	± 0.50
	pCi/L	06/05/85	0001	0.00		J	#	1	± 0.40
Uranium	mg/L	05/30/85	0002	0.0062			#	0.003	-
	mg/L	05/30/85	0003	0.006			#	0.003	-
	mg/L	05/30/85	0004	0.0063			#	0.003	-
	mg/L	05/30/85	0005	0.0063			#	0.003	-
	mg/L	06/05/85	0001	0.0061			#	0.003	-
	mg/L	07/15/95	0001	0.005			#	0.001	-
Vanadium	mg/L	10/25/83	0001	0.01	U	R	#	0.01	-
	mg/L	10/25/83	0002	0.01	U	R	#	0.01	-
	mg/L	05/30/85	0002	0.01	U	R	#	0.01	-
	mg/L	05/30/85	0003	0.01	U	R	#	0.01	-
	mg/L	05/30/85	0004	0.01	U	R	#	0.01	-

GROUND WATER QUALITY DATA BY LOCATION (USEE100) FOR SITE RVT01, RIVERTON
LOCATION: 0111
REPORT DATE: 2/19/98 1 3:25 AM

PARAMETER	UNITS	SAMPLE: DATE	ID	RESULT	QUALIFIERS: LAB	DATA	QA	DETECTION LIMIT	UN-CERTAINTY
Vanadium	mg/L	05/30/85	0005	0.01	U	R	#	0.01	-
	mg/L	06/05/85	0001	0.01	U	R	#	0.01	-
	mg/L	07/15/95	0001	0.01	U		#	0.01	-

GROUND WATER QUALITY DATA BY LOCATION (USEE100) FOR SITE RVT01, RIVERTON
LOCATION: 0112
REPORT DATE: 2/19/98 10:33:25 AM

PARAMETER	UNITS	SAMPLE: DATE	ID	RESULT	QUALIFIERS: LAB	DATA	QA	DETECTION LIMIT	UN-CERTAINTY
Arsenic	mg/L	10/27/83	0001	0.01	U	R	#	0.01	-
	mg/L	10/27/83	0002	0.01	U	R	#	0.01	-
	mg/L	10/27/83	0003	0.01	U	R	#	0.01	-
Lead-210	pCi/L	10/27/83	0001	2.00	U	R	#	2	± 0.00
	pCi/L	10/27/83	0002	2.00	U	R	#	2	± 0.00
	pCi/L	10/27/83	0003	2.00	U	R	#	2	± 0.00
Manganese	mg/L	10/27/83	0001	0.52		R	#	-	-
	mg/L	10/27/83	0002	0.52		R	#	-	-
	mg/L	10/27/83	0003	0.55		R	#	-	-
Molybdenum	mg/L	10/27/83	0001	0.09		R	#	-	-
	mg/L	10/27/83	0002	0.09		R	#	-	-
	mg/L	10/27/83	0003	0.07		R	#	-	-
Nickel	mg/L	10/27/83	0001	0.50	U	R	#	0.5	-
	mg/L	10/27/83	0002	0.50	U	R	#	0.5	-
	mg/L	10/27/83	0003	0.50	U	R	#	0.5	-
Sulfate	mg/L	10/27/83	0001	560.00		R	#	-	-
	mg/L	10/27/83	0002	600.00		R	#	-	-
	mg/L	10/27/83	0003	580.00		R	#	-	-
Thorium-230	pCi/L	10/27/83	0001	1.00	U	R	#	1	± 0.00
	pCi/L	10/27/83	0002	2.60		R	#	-	± 0.00
	pCi/L	10/27/83	0003	1.00	U	R	#	1	± 0.00
Vanadium	mg/L	10/27/83	0001	0.01	U	R	#	0.01	-
	mg/L	10/27/83	0002	0.01	U	R	#	0.01	-
	mg/L	10/27/83	0003	0.01	U	R	#	0.01	-

GROUND WATER QUALITY DATA BY LOCATION (USEE100) FOR SITE RVT01, RIVERTON
LOCATION: 0113
REPORT DATE: 2/19/98 10:33:26 AM

PARAMETER	UNITS	SAMPLE: DATE	ID	RESULT	QUALIFIERS: LAB	DATA	QA	DETECTION LIMIT	UN-CERTAINTY
Arsenic	mg/L	12/08/83	0001	0.001	U	F	#	0.001	-
	mg/L	01/10/84	0001	0.005	U		#	0.005	-
	mg/L	06/18/84	0001	0.01	U		#	0.01	-
Lead-210	pCi/L	12/08/83	0001	0.00		F	#	1	± 2.70
	pCi/L	01/10/84	0001	1.05	U		#	1.05	± 0.00
	pCi/L	06/18/84	0001	1.00			#	1	± 1.10
Manganese	mg/L	12/08/83	0001	4.33		F	#	0.01	-
	mg/L	01/10/84	0001	5.20			#	-	-
	mg/L	06/18/84	0001	0.73			#	0.01	-
Molybdenum	mg/L	12/08/83	0001	0.175		F	#	0.001	-
	mg/L	01/10/84	0001	0.30			#	-	-
	mg/L	06/18/84	0001	0.01	U	R	#	0.01	-
Nickel	mg/L	12/08/83	0001	0.031		F	#	0.001	-
	mg/L	01/10/84	0001	0.04	U		#	0.04	-
	mg/L	06/18/84	0001	0.04	U		#	0.04	-
Sulfate	mg/L	12/08/83	0001	583.00		F	#	0.1	-
	mg/L	01/10/84	0001	540.00			#	-	-
	mg/L	06/18/84	0001	535.00			#	0.1	-
Thorium-230	pCi/L	12/08/83	0001	0.0012		F	#	0.0002	± 0.00
	pCi/L	01/10/84	0001	1.00	U		#	1	± 0.00
	pCi/L	06/18/84	0001	0.0006			#	0.0002	± 0.00
Uranium	mg/L	12/08/83	0001	0.11		F	#	0.0003	-
	mg/L	01/10/84	0001	0.11			#	-	-
	mg/L	06/18/84	0001	0.305			#	0.0003	-
Vanadium	mg/L	12/08/83	0001	0.004	U	F	#	0.004	-
	mg/L	01/10/84	0001	0.004	U		#	0.004	-
	mg/L	06/18/84	0001	0.01	U		#	0.01	-

GROUND WATER QUALITY DATA BY LOCATION (USEE100) FOR SITE RVT01, RIVERTON
LOCATION: 0701
REPORT DATE: 2/19/98 10:33:26 AM

PARAMETER	UNITS	SAMPLE: DATE	ID	RESULT	QUALIFIERS: LAB	DATA	QA	DETECTION LIMIT	UN-CERTAINTY
Arsenic	mg/L	05/29/85	0001	0.01	U	GF	#	0.01	-
Lead-210	pCi/L	05/29/85	0001	0.50		GFJ	#	1.5	± 0.90
Molybdenum	mg/L	05/29/85	0001	0.16		GF	#	0.01	-
Nickel	mg/L	05/29/85	0001	0.04	U	GFJ	#	0.04	-
Polonium-210	pCi/L	05/29/85	0001	0.00		GFJ	#	1	± 0.60
Sulfate	mg/L	05/29/85	0001	1300.00		GF	#	0.1	-
Thorium-230	pCi/L	05/29/85	0001	0.00		GFJ	#	1	± 0.40
Uranium	mg/L	05/29/85	0001	0.0003	U	GFJ	#	0.003	-
Vanadium	mg/L	05/29/85	0001	0.01	U	GFR	#	0.01	-

GROUND WATER QUALITY DATA BY LOCATION (USEE100) FOR SITE RVT01, RIVERTON
LOCATION: 0702
REPORT DATE: 2/19/98 10:33:26 AM

PARAMETER	UNITS	SAMPLE: DATE	ID	RESULT	QUALIFIERS: LAB	DATA	QA	DETECTION LIMIT	UN-CERTAINTY
Arsenic	mg/L	09/08/87	0001	0.001	U	GFJ	#	0.01	-
Manganese	mg/L	09/08/87	0001	0.01	U	GF	#	0.01	-
Molybdenum	mg/L	09/08/87	0001	0.02		GF	#	0.01	-
Nickel	mg/L	09/08/87	0001	0.01	U	GFJ	#	0.04	-
Sulfate	mg/L	09/08/87	0001	340		GF	#	0.1	-
Uranium	mg/L	09/08/87	0001	0.0003		GFJ	#	0.003	-
Vanadium	mg/L	09/08/87	0001	0.04		GF	#	0.01	-

GROUND WATER QUALITY DATA BY LOCATION (USER100) FOR SITE RVT01, RIVERTON
LOCATION: 0703
REPORT DATE: 2/19/98 10:33:27 AM

PARAMETER	UNITS	SAMPLE DATE	ID	RESULT	QUALIFIERS: LAB	DATA	QA	DETECTION LIMIT	UNCERTAINTY
Arsenic	mg/L	05/27/85	0001	0.01	U	GF	#	0.01	-
	mg/L	05/16/88	0001	0.001	U	GFJ	#	0.01	-
	mg/L	09/01/88	0001	0.001	U	GF	#	0.001	-
Lead-210	pCi/L	05/27/85	0001	1.20		GFJ	#	1.5	± 0.90
Manganese	mg/L	05/27/85	0001	0.01	U	GF	#	0.01	-
	mg/L	05/16/88	0001	0.01	U	GF	#	0.01	-
	mg/L	09/01/88	0001	0.01	U	GF	#	0.01	-
Molybdenum	mg/L	05/27/85	0001	0.01	U	GF	#	0.01	-
	mg/L	05/16/88	0001	0.01	U	GF	#	0.01	-
	mg/L	09/01/88	0001	0.004		GF	#	0.001	-
Nickel	mg/L	05/27/85	0001	0.04	U	GFJ	#	0.04	-
	mg/L	05/16/88	0001	0.01		GFJ	#	0.04	-
	mg/L	09/01/88	0001	0.02	U	GFJ	#	0.04	-
Polonium-210	pCi/L	05/27/85	0001	0.00		GF	#	1	± 0.60
Sulfate	mg/L	05/27/85	0001	87.70		GF	#	0.1	-
	mg/L	05/16/88	0001	110		GF	#	0.1	-
	mg/L	09/01/88	0001	134		GF	#	1	-
Thorium-230	pCi/L	05/27/85	0001	0.10		GFJ	#	1	± 0.50
Uranium	mg/L	05/27/85	0001	0.0003	U	GFJ	#	0.003	-
	mg/L	05/16/88	0001	0.0003	U	GF	#	0.003	-
	mg/L	09/01/88	0001	0.003	U	GF	#	0.003	-
Vanadium	mg/L	05/27/85	0001	0.01	U	GFR	#	0.01	-
	mg/L	05/16/88	0001	0.04		GF	#	0.01	-
	mg/L	09/01/88	0001	0.01		GF	#	0.01	-

GROUND WATER QUALITY DATA BY LOCATION (USEE100) FOR SITE RVT01, RIVERTON
LOCATION: 0704
REPORT DATE: 2/19/98 10:33:27 AM

PARAMETER	UNITS	SAMPLE: DATE	ID	RESULT	QUALIFIERS: LAB	DATA	QA	DETECTION LIMIT	UN-CERTAINTY
Arsenic	mg/L	06/05/85	0001	0.01	U	G	#	0.01	-
	mg/L	11/21/87	0001	0.004		GJ	#	0.01	-
	mg/L	05/16/88	0001	0.005		GJ	#	0.01	-
	mg/L	09/01/88	0001	0.001	U	G	#	0.001	-
	mg/L	10/27/88	0001	0.001		GJ	#	0.01	-
	mg/L	04/27/89	0001	0.01	U	G	#	0.01	-
	mg/L	12/02/89	0001	0.01	U	GJ	#	0.01	-
	mg/L	03/30/90	0001	0.01	U	GR	#	0.01	-
	mg/L	03/30/90	N001	0.01	U	G	#	0.01	-
	mg/L	03/12/91	0001	0.01	U	G	#	0.01	-
	mg/L	07/16/95	0001	0.005	U		#	0.005	-
	mg/L	07/16/95	0002	0.005	U		#	0.005	-
	mg/L	02/08/97	0001	0.00025	B	J	#	-	-
Lead-210	pCi/L	06/05/85	0001	0.00		GJ	#	1.3	± 0.70
	pCi/L	04/27/89	0001	0.2		G	#	1.5	± 0.70
	pCi/L	12/02/89	0001	0.2		G	#	1.5	± 0.60
	pCi/L	02/08/97	0001	1.24	U		#	1.24	± 0.72
Manganese	mg/L	06/05/85	0001	0.01	U	G	#	0.01	-
	mg/L	11/21/87	0001	0.01	U	G	#	0.01	-
	mg/L	05/16/88	0001	0.01	U	G	#	0.01	-
	mg/L	09/01/88	0001	0.01	U	G	#	0.01	-
	mg/L	10/27/88	0001	0.01	U	G	#	0.01	-
	mg/L	04/27/89	0001	0.01	U	G	#	0.01	-
	mg/L	12/02/89	0001	0.01	U	G	#	0.01	-
	mg/L	03/30/90	0001	0.01	U	G	#	0.01	-
	mg/L	03/30/90	N001	0.01	U	G	#	0.01	-
	mg/L	03/12/91	0001	0.01	U	G	#	0.01	-
	mg/L	07/16/95	0001	0.03			#	0.01	-
	mg/L	07/16/95	0002	0.03			#	0.01	-
	mg/L	02/08/97	0001	0.0233			#	-	-
Molybdenum	mg/L	06/05/85	0001	0.01	U	G	#	0.01	-
	mg/L	11/21/87	0001	0.04		G	#	0.01	-
	mg/L	05/16/88	0001	0.01	U	G	#	0.01	-
	mg/L	09/01/88	0001	0.002		G	#	0.001	-
	mg/L	10/27/88	0001	0.001		GJ	#	0.01	-

GROUND WATER QUALITY DATA BY LOCATION (USEE100) FOR SITE RVT01, RIVERTON
LOCATION: 0704
REPORT DATE: 2/19/98 10:33:28 AM

PARAMETER	UNITS	SAMPLE: DATE	ID	RESULT	QUALIFIERS: LAB	DATA	QA	DETECTION LIMIT	UN-CERTAINTY
Molybdenum	mg/L	04/27/89	0001	0.02		G	#	0.01	-
	mg/L	12/02/89	0001	0.01	U	G	#	0.01	-
	mg/L	03/30/90	0001	0.01	U	G	#	0.01	-
	mg/L	03/30/90	N001	0.01	U	G	#	0.01	-
	mg/L	03/12/91	0001	0.01	U	G	#	0.01	-
	mg/L	07/16/95	0001	0.01	U		#	0.01	-
	mg/L	07/16/95	0002	0.01	U		#	0.01	-
	mg/L	02/08/97	0001	0.0012	B		#	-	-
Nickel	mg/L	06/05/85	0001	0.04	U	GJ	#	0.04	-
	mg/L	11/21/87	0001	0.01	U	GJ	#	0.04	-
	mg/L	05/16/88	0001	0.02		GJ	#	0.04	-
	mg/L	09/01/88	0001	0.02	U	GJ	#	0.04	-
	mg/L	10/27/88	0001	0.02	U	GJ	#	0.04	-
	mg/L	04/27/89	0001	0.04	U	G	#	0.04	-
	mg/L	12/02/89	0001	0.04	U	G	#	0.04	-
	mg/L	03/30/90	0001	0.04	U	G	#	0.04	-
	mg/L	03/30/90	N001	0.04	U	G	#	0.04	-
	mg/L	03/12/91	0001	0.04	U	G	#	0.04	-
	mg/L	07/16/95	0001	0.04	U		#	0.04	-
	mg/L	07/16/95	0002	0.04	U		#	0.04	-
	mg/L	02/08/97	0001	0.0070	U		#	0.007	-
Polonium-210	pCi/L	06/05/85	0001	0.00		G	#	1	± 0.60
	pCi/L	04/27/89	0001	0.2		G	#	1	± 0.20
	pCi/L	12/02/89	0001	0.2		G	#	1	± 0.40
	pCi/L	02/08/97	0001	0.14		U	#	0.1	± 0.14
Sulfate	mg/L	06/05/85	0001	286.00		G	#	0.1	-
	mg/L	11/21/87	0001	307		G	#	0.1	-
	mg/L	05/16/88	0001	304		G	#	0.1	-
	mg/L	09/01/88	0001	313		G	#	1	-
	mg/L	10/27/88	0001	331		G	#	0.1	-
	mg/L	04/27/89	0001	286		G	#	0.1	-
	mg/L	12/02/89	0001	332		G	#	0.1	-
	mg/L	03/30/90	0001	313		G	#	0.1	-
	mg/L	03/30/90	N001	321		G	#	0.1	-
	mg/L	03/12/91	0001	321		G	#	10	-

GROUND WATER QUALITY DATA BY LOCATION (USEE100) FOR SITE RVT01, RIVERTON
LOCATION: 0704
REPORT DATE: 2/19/98 10:33:28 AM

PARAMETER	UNITS	SAMPLE: DATE	ID	RESULT	QUALIFIERS: LAB	DATA	QA	DETECTION LIMIT	UN-CERTAINTY
Sulfate	mg/L	07/16/95	0001	540			#	1	-
	mg/L	07/16/95	0002	470			#	1	-
	mg/L	02/08/97	0001	448.000			#	-	-
Thorium-230	pCi/L	06/05/85	0001	0.00		GJ	#	1	± 0.40
	pCi/L	11/21/87	0001	0.0		G	#	1	± 0.30
	pCi/L	10/27/88	0001	2.71		G	#	1	± 0.46
	pCi/L	04/27/89	0001	0.0		G	#	1	± 0.30
	pCi/L	12/02/89	0001	0.0		GJ	#	1	± 0.20
	pCi/L	02/08/97	0001	0.64	U		#	0.64	±
Uranium	mg/L	06/05/85	0001	0.0008		G	#	0.003	-
	mg/L	11/21/87	0001	0.0007		GJ	#	0.003	-
	mg/L	05/16/88	0001	0.0003	U	GJ	#	0.003	-
	mg/L	09/01/88	0001	0.003	U	G	#	0.003	-
	mg/L	10/27/88	0001	0.003	U	G	#	0.003	-
	mg/L	04/27/89	0001	0.003	U	G	#	0.003	-
	mg/L	12/02/89	0001	0.0003		GJ	#	0.003	-
	mg/L	03/30/90	0001	0.0003	U	GJ	#	0.003	-
	mg/L	03/30/90	N001	0.0007		GJ	#	0.003	-
	mg/L	03/12/91	0001	0.001	U	G	#	0.001	-
	mg/L	07/16/95	0001	0.001	U		#	0.001	-
	mg/L	07/16/95	0002	0.001	U		#	0.001	-
	mg/L	02/08/97	0001	0.0010	U		#	0.001	-
Vanadium	mg/L	06/05/85	0001	0.01	U	GR	#	0.01	-
	mg/L	11/21/87	0001	0.01	U	G	#	0.01	-
	mg/L	05/16/88	0001	0.01	U	G	#	0.01	-
	mg/L	09/01/88	0001	0.01	U	G	#	0.01	-
	mg/L	10/27/88	0001	0.01	U	G	#	0.01	-
	mg/L	04/27/89	0001	0.01	U	G	#	0.01	-
	mg/L	12/02/89	0001	0.01		G	#	0.01	-
	mg/L	03/30/90	0001	0.01	U	G	#	0.01	-
	mg/L	03/30/90	N001	0.01	U	G	#	0.01	-
	mg/L	03/12/91	0001	0.01	U	G	#	0.01	-
	mg/L	07/16/95	0001	0.01	U		#	0.01	-
	mg/L	07/16/95	0002	0.01	U		#	0.01	-
	mg/L	02/08/97	0001	0.0040	U		#	0.004	-

GROUND WATER QUALITY DATA BY LOCATION (USEE100) FOR SITE RVT01, RIVERTON
LOCATION: 0705
REPORT DATE: 2/19/98 10:33:29 AM

PARAMETER	UNITS	SAMPLE: DATE	ID	RESULT	QUALIFIERS: LAB	DATA	QA	DETECTION LIMIT	UN-CERTAINTY
Arsenic	mg/L	05/28/85	0001	0.01	U	GF	#	0.01	-
	mg/L	11/21/87	0001	0.003		GFJ	#	0.01	-
	mg/L	05/16/88	0001	0.006		GFJ	#	0.01	-
	mg/L	09/01/88	0001	0.002		GF	#	0.001	-
	mg/L	10/28/88	0001	0.001	U	GFJ	#	0.01	-
	mg/L	04/25/89	0001	0.03	U	GF	#	0.03	-
	mg/L	12/02/89	0001	0.01	U	FJ	#	0.01	-
	mg/L	04/01/90	0001	0.01	U	GFR	#	0.01	-
	mg/L	04/01/90	N001	0.01	U	GF	#	0.01	-
	mg/L	11/19/90	0001	0.01	U	F	#	0.01	-
	mg/L	03/11/91	0001	0.01	UW	F	#	0.01	-
	mg/L	06/02/91	0001	0.05	UI		#	0.05	-
	mg/L	10/25/91	0001	0.001	U	F	#	0.001	-
	mg/L	03/31/93	0001	0.005	UW	GF	#	0.005	-
	mg/L	03/31/93	N001	0.005	U	GF	#	0.005	-
	mg/L	02/18/96	0001	0.005	U	F	#	0.005	-
Lead-210	pCi/L	05/28/85	0001	0.60		GFJ	#	1.5	± 0.60
	pCi/L	04/25/89	0001	0.0		GF	#	1.5	± 0.70
	pCi/L	12/02/89	0001	0.6		F	#	1.5	± 0.60
	pCi/L	03/31/93	0001	0.8		GF	#	2.5	± 1.50
	pCi/L	03/31/93	N001	0.1		GF	#	2.8	± 1.70
Manganese	mg/L	05/28/85	0001	0.01	U	GF	#	0.01	-
	mg/L	11/21/87	0001	0.01	U	GF	#	0.01	-
	mg/L	05/16/88	0001	0.01	U	GF	#	0.01	-
	mg/L	09/01/88	0001	0.01	U	GF	#	0.01	-
	mg/L	10/28/88	0001	0.01		GF	#	0.01	-
	mg/L	04/25/89	0001	0.01	U	GF	#	0.01	-
	mg/L	12/02/[illegible]	0001	0.01	U	F	#	0.01	-
	mg/L	04/01/90	0001	0.01	U	GF	#	0.01	-
	mg/L	04/01/90	N001	0.01	U	GF	#	0.01	-
	mg/L	11/19/90	0001	0.01	U	F	#	0.01	-
	mg/L	03/11/91	0001	0.01	U	F	#	0.01	-
	mg/L	06/02/91	0001	0.01	U		#	0.01	-
	mg/L	10/25/91	0001	0.01	U	F	#	0.01	-
	mg/L	03/15/92	0001	0.01	U	F	#	0.01	-
	mg/L	08/08/92	0001	0.01	U	F	#	0.01	-

GROUND WATER QUALITY DATA BY LOCATION (USEE100) FOR SITE RVT01, RIVERTON
LOCATION: 0705
REPORT DATE: 2/19/98 10:33:30 AM

PARAMETER	UNITS	SAMPLE: DATE	ID	RESULT	QUALIFIERS: LAB	DATA	QA	DETECTION LIMIT	UN-CERTAINTY
Manganese	mg/L	03/31/93	0001	0.01		GF	#	0.01	-
	mg/L	03/31/93	N001	0.02		GF	#	0.01	-
	mg/L	02/18/96	0001	0.01		F	#	0.01	-
Molybdenum	mg/L	05/28/85	0001	0.01	U	GF	#	0.01	-
	mg/L	11/21/87	0001	0.01	U	GF	#	0.01	-
	mg/L	05/16/88	0001	0.01		GF	#	0.01	-
	mg/L	09/01/88	0001	0.001		GF	#	0.001	-
	mg/L	10/28/88	0001	0.001		GFJ	#	0.01	-
	mg/L	04/25/89	0001	0.01	U	GF	#	0.01	-
	mg/L	12/02/89	0001	0.01	U	F	#	0.01	-
	mg/L	04/01/90	0001	0.01	U	GF	#	0.01	-
	mg/L	04/01/90	N001	0.01	U	GF	#	0.01	-
	mg/L	11/19/90	0001	0.01		F	#	0.01	-
	mg/L	03/11/91	0001	0.01	U	F	#	0.01	-
	mg/L	06/02/91	0001	0.01			#	0.01	-
	mg/L	10/25/91	0001	0.01	U	F	#	0.01	-
	mg/L	03/15/92	0001	0.01	U	F	#	0.01	-
	mg/L	08/08/92	0001	0.01	U	F	#	0.01	-
	mg/L	03/31/93	0001	0.01	U	GF	#	0.01	-
	mg/L	03/31/93	N001	0.01	U	GF	#	0.01	-
	mg/L	02/18/96	0001	0.01	U	F	#	0.01	-
Nickel	mg/L	05/28/85	0001	0.04	U	GFJ	#	0.04	-
	mg/L	11/21/87	0001	0.01	U	GFJ	#	0.04	-
	mg/L	05/16/88	0001	0.01		GFJ	#	0.04	-
	mg/L	09/01/88	0001	0.02	U	GFJ	#	0.04	-
	mg/L	10/28/88	0001	0.02	U	GFJ	#	0.04	-
	mg/L	04/25/89	0001	0.04	U	GF	#	0.04	-
	mg/L	12/02/89	0001	0.04	U	F	#	0.04	-
	mg/L	04/01/90	0001	0.04	U	GF	#	0.04	-
	mg/L	04/01/90	N001	0.04	U	GF	#	0.04	-
	mg/L	11/19/90	0001	0.04	U	F	#	0.04	-
	mg/L	03/11/91	0001	0.04	U	F	#	0.04	-
	mg/L	06/02/91	0001	0.04	U		#	0.04	-
	mg/L	10/25/91	0001	0.01	U	F	#	0.01	-
	mg/L	03/15/92	0001	0.04	U	F	#	0.04	-
	mg/L	08/08/92	0001	0.04	U	F	#	0.04	-

GROUND WATER QUALITY DATA BY LOCATION (USEE100) FOR SITE RVT01, RIVERTON
LOCATION: 0705
REPORT DATE: 2/19/98 10:33:30 AM

PARAMETER	UNITS	SAMPLE: DATE	ID	RESULT	QUALIFIERS: LAB	DATA	QA	DETECTION LIMIT	UN-CERTAINTY
Nickel	mg/L	03/31/93	0001	0.04	U	GF	#	0.04	-
	mg/L	03/31/93	N001	0.04	U	GF	#	0.04	-
	mg/L	02/18/96	0001	0.04	U	F	#	0.04	-
Polonium-210	pCi/L	05/28/85	0001	0.00		GF	#	1	± 0.60
	pCi/L	04/25/89	0001	0.2		GF	#	1	± 0.20
	pCi/L	12/02/89	0001	0.0		F	#	1	± 0.40
	pCi/L	03/31/93	0001	0.0		GF	#	1.2	± 0.60
	pCi/L	03/31/93	N001	0.3		GF	#	0.9	± 0.60
Sulfate	mg/L	11/21/87	0001	330		GF	#	0.1	-
	mg/L	05/16/88	0001	379		GF	#	0.1	-
	mg/L	09/01/88	0001	428		GF	#	1	-
	mg/L	10/28/88	0001	442		GF	#	0.1	-
	mg/L	04/25/89	0001	424		GF	#	0.1	-
	mg/L	12/02/89	0001	433	H	F	#	0.1	-
	mg/L	04/01/90	0001	427		GF	#	0.1	-
	mg/L	04/01/90	N001	437		GF	#	0.1	-
	mg/L	11/19/90	0001	440		F	#	0.1	-
	mg/L	03/11/91	0001	401		F	#	10	-
	mg/L	06/02/91	0001	426			#	10	-
	mg/L	10/25/91	0001	379		F	#	0.1	-
	mg/L	03/15/92	0001	432		F	#	30	-
	mg/L	08/08/92	0001	413		F	#	100	-
	mg/L	03/31/93	0001	369		GF	#	1	-
	mg/L	02/18/96	0001	442	I	F	#	2	-
Thorium-230	pCi/L	05/28/85	0001	0.20		GFJ	#	1	± 0.50
	pCi/L	11/21/87	0001	0.0		GF	#	1	± 0.40
	pCi/L	10/28/88	0001	0.364		GF	#	1	± 0.48
	pCi/L	04/25/89	0001	0.3		GF	#	1	± 0.30
	pCi/L	12/02/89	0001	0.0		FJ	#	1	± 0.30
	pCi/L	03/31/93	0001	0.3		GF	#	0.4	± 0.30
	pCi/L	03/31/93	N001	0.6		GF	#	0.5	± 0.40
Uranium	mg/L	05/28/85	0001	0.0066		GF	#	0.003	-
	mg/L	11/21/87	0001	0.0022		GFJ	#	0.003	-
	mg/L	05/16/88	0001	0.0030		GF	#	0.003	-
	mg/L	09/01/88	0001	0.003	U	GF	#	0.003	-

GROUND WATER QUALITY DATA BY LOCATION (USEE100) FOR SITE RVT01, RIVERTON
LOCATION: 0705
REPORT DATE: 2/19/98 10:33:31 AM

PARAMETER	UNITS	SAMPLE: DATE	ID	RESULT	QUALIFIERS: LAB	DATA	QA	DETECTION LIMIT	UN-CERTAINTY
Uranium	mg/L	10/28/88	0001	0.003	U	GF	#	0.003	-
	mg/L	04/25/89	0001	0.005		GF	#	0.003	-
	mg/L	12/02/89	0001	0.0027		FJ	#	0.003	-
	mg/L	04/01/90	0001	0.0013		GFJ	#	0.003	-
	mg/L	04/01/90	N001	0.0045		GF	#	0.003	-
	mg/L	11/19/90	0001	0.0021		F	#	0.0003	-
	mg/L	03/11/91	0001	0.002		F	#	0.001	-
	mg/L	06/02/91	0001	0.001	U		#	0.001	-
	mg/L	10/25/91	0001	0.0009		F	#	0.0003	-
	mg/L	03/15/92	0001	0.001		F	#	0.001	-
	mg/L	08/08/92	0001	0.001	U	F	#	0.001	-
	mg/L	03/31/93	0001	0.001	U	GF	#	0.001	-
	mg/L	03/31/93	N001	0.001	U	GF	#	0.001	-
	mg/L	02/18/96	0001	0.007		FJ	#	0.001	-
Vanadium	mg/L	05/28/85	0001	0.01	U	GFR	#	0.01	-
	mg/L	11/21/87	0001	0.01	U	GF	#	0.01	-
	mg/L	05/16/88	0001	0.01	U	GF	#	0.01	-
	mg/L	09/01/88	0001	0.01	U	GF	#	0.01	-
	mg/L	10/28/88	0001	0.01	U	GF	#	0.01	-
	mg/L	04/25/89	0001	0.01	U	GF	#	0.01	-
	mg/L	12/02/89	0001	0.01		F	#	0.01	-
	mg/L	04/01/90	0001	0.01	U	GF	#	0.01	-
	mg/L	04/01/90	N001	0.01	U	GF	#	0.01	-
	mg/L	11/19/90	0001	0.01	U	F	#	0.01	-
	mg/L	03/11/91	0001	0.01	U	F	#	0.01	-
	mg/L	06/02/91	0001	0.01	U		#	0.01	-
	mg/L	10/25/91	0001	0.01		F	#	0.01	-
	mg/L	03/15/92	0001	0.01	U	F	#	0.01	-
	mg/L	08/08/92	0001	0.01	U	F	#	0.01	-
	mg/L	03/31/93	0001	0.01	U	GF	#	0.01	-
	mg/L	03/31/93	N001	0.01	U	GF	#	0.01	-
	mg/L	02/18/96	0001	0.01	U	F	#	0.01	-

GROUND WATER QUALITY DATA BY LOCATION (USEE100) FOR SITE RVT01, RIVERTON
LOCATION: 0706
REPORT DATE: 2/19/98 10:33:32 AM

PARAMETER	UNITS	SAMPLE: DATE	ID	RESULT	QUALIFIERS: LAB	DATA	QA	DETECTION LIMIT	UN-CERTAINTY
Arsenic	mg/L	05/27/85	0001	0.01	U		#	0.01	-
	mg/L	09/08/87	0001	0.001		J	#	0.01	-
	mg/L	11/21/87	0001	0.007		J	#	0.01	-
	mg/L	02/20/88	0001	0.007		J	#	0.01	-
	mg/L	05/16/88	0001	0.006		J	#	0.01	-
	mg/L	09/01/88	0001	0.001			#	0.001	-
	mg/L	09/01/88	0002	0.002		J	#	0.01	-
	mg/L	09/01/88	0003	0.002		J	#	0.01	-
	mg/L	09/01/88	0004	0.002		J	#	0.01	-
	mg/L	09/01/88	0005	0.001		J	#	0.01	-
	mg/L	10/26/88	0001	0.001		J	#	0.01	-
	mg/L	04/25/89	0001	0.01	U		#	0.01	-
	mg/L	11/21/89	0001	0.01	U	J	#	0.01	-
	mg/L	03/30/90	0001	0.01	U	R	#	0.01	-
	mg/L	03/30/90	N001	0.01	U		#	0.01	-
	mg/L	11/15/90	0001	0.01	U		#	0.01	-
	mg/L	03/12/91	0001	0.01	U		#	0.01	-
	mg/L	10/26/91	0001	0.001	U		#	0.001	-
	mg/L	03/13/92	0001	0.005	U		#	0.005	-
	mg/L	08/08/92	0001	0.005	U		#	0.005	-
	mg/L	03/11/93	0001	0.005	U		#	0.005	-
	mg/L	03/11/93	N001	0.005	U		#	0.005	-
	mg/L	07/16/95	0001	0.005	U		#	0.005	-
	mg/L	02/15/96	0001	0.005	U		#	0.005	-
	mg/L	02/05/97	0001	0.00050	B	J	#	-	-
Lead-210	pCi/L	05/27/85	0001	2.90		J	#	1.5	± 1.10
	pCi/L	04/25/89	0001	0.8			#	1.5	± 0.80
	pCi/L	11/21/89	0001	1.1			#	1.5	± 0.60
	pCi/L	03/11/93	0001	0.0			#	1.7	± 1.00
	pCi/L	03/11/93	N001	0.9			#	1.7	± 1.00
	pCi/L	02/05/97	0001	1.01			#	0.97	± 0.58
Manganese	mg/L	05/27/85	0001	1.05			#	0.01	-
	mg/L	09/08/87	0001	0.91			#	0.01	-
	mg/L	11/21/87	0001	1.42			#	0.01	-
	mg/L	02/20/88	0001	1.20			#	0.01	-
	mg/L	05/16/88	0001	1.09			#	0.01	-

GROUND WATER QUALITY DATA BY LOCATION (USEE100) FOR SITE RVT01, RIVERTON
LOCATION: 0706
REPORT DATE: 2/19/98 10:33:32 AM

PARAMETER	UNITS	SAMPLE: DATE	ID	RESULT	QUALIFIERS: LAB	DATA	QA	DETECTION LIMIT	UN-CERTAINTY
Manganese	mg/L	09/01/88	0001	1.08			#	0.01	-
	mg/L	09/01/88	0002	1.05			#	0.01	-
	mg/L	09/01/88	0003	1.05			#	0.01	-
	mg/L	09/01/88	0004	1.02			#	0.01	-
	mg/L	09/01/88	0005	1.03			#	0.01	-
	mg/L	10/26/88	0001	1.28			#	0.01	-
	mg/L	04/25/89	0001	1.12			#	0.01	-
	mg/L	11/21/89	0001	0.98			#	0.01	-
	mg/L	03/30/90	0001	0.90			#	0.01	-
	mg/L	03/30/90	N001	1.00			#	0.01	-
	mg/L	11/15/90	0001	0.79			#	0.01	-
	mg/L	03/12/91	0001	0.55			#	0.01	-
	mg/L	10/26/91	0001	0.48			#	0.01	-
	mg/L	03/13/92	0001	0.44			#	0.01	-
	mg/L	08/08/92	0001	0.31			#	0.01	-
	mg/L	03/11/93	0001	0.53			#	0.01	-
	mg/L	03/11/93	N001	0.55			#	0.01	-
	mg/L	07/16/95	0001	0.19			#	0.01	-
	mg/L	02/15/96	0001	0.04			#	0.01	-
	mg/L	02/05/97	0001	0.0101			#	-	-
Molybdenum	mg/L	05/27/85	0001	0.01	U		#	0.01	-
	mg/L	09/08/87	0001	0.01	U		#	0.01	-
	mg/L	11/21/87	0001	0.02			#	0.01	-
	mg/L	02/20/88	0001	0.05			#	0.01	-
	mg/L	05/16/88	0001	0.02			#	0.01	-
	mg/L	09/01/88	0001	0.004			#	0.001	-
	mg/L	09/01/88	0002	0.002		J	#	0.01	-
	mg/L	09/01/88	0003	0.003		J	#	0.01	-
	mg/L	09/01/88	0004	0.002		J	#	0.01	-
	mg/L	09/01/88	0005	0.002		J	#	0.01	-
	mg/L	10/26/88	0001	0.005		J	#	0.01	-
	mg/L	04/25/89	0001	0.01	U		#	0.01	-
	mg/L	11/21/89	0001	0.01	U		#	0.01	-
	mg/L	03/30/90	0001	0.01	U		#	0.01	-
	mg/L	03/30/90	N001	0.01	U		#	0.01	-
	mg/L	11/15/90	0001	0.01	U		#	0.01	-

GROUND WATER QUALITY DATA BY LOCATION (USEE100) FOR SITE RVT01, RIVERTON
LOCATION: 0706
REPORT DATE: 2/19/98 10:33:33 AM

PARAMETER	UNITS	SAMPLE: DATE	ID	RESULT	QUALIFIERS: LAB	DATA	QA	DETECTION LIMIT	UN-CERTAINTY
Molybdenum	mg/L	03/12/91	0001	0.01	U		#	0.01	-
	mg/L	10/26/91	0001	0.01	U		#	0.01	-
	mg/L	03/13/92	0001	0.01	U		#	0.01	-
	mg/L	08/08/92	0001	0.01	U		#	0.01	-
	mg/L	03/11/93	0001	0.01	U		#	0.01	-
	mg/L	03/11/93	N001	0.01	U		#	0.01	-
	mg/L	07/16/95	0001	0.01	U		#	0.01	-
	mg/L	02/15/96	0001	0.01	U		#	0.01	-
	mg/L	02/05/97	0001	0.0010	U		#	0.001	-
Nickel	mg/L	05/27/85	0001	0.04	U	J	#	0.04	-
	mg/L	09/08/87	0001	0.01	U	J	#	0.04	-
	mg/L	11/21/87	0001	0.01	U	J	#	0.04	-
	mg/L	02/20/88	0001	0.04			#	0.04	-
	mg/L	05/16/88	0001	0.03		J	#	0.04	-
	mg/L	09/01/88	0001	0.02	U	J	#	0.04	-
	mg/L	09/01/88	0002	0.02	U	J	#	0.04	-
	mg/L	09/01/88	0003	0.02	U	J	#	0.04	-
	mg/L	09/01/88	0004	0.02	U	J	#	0.04	-
	mg/L	09/01/88	0005	0.02	U	J	#	0.04	-
	mg/L	10/26/88	0001	0.02	U	J	#	0.04	-
	mg/L	04/25/89	0001	0.04	U		#	0.04	-
	mg/L	11/21/89	0001	0.04	U		#	0.04	-
	mg/L	03/30/90	0001	0.04	U		#	0.04	-
	mg/L	03/30/90	N001	0.04	U		#	0.04	-
	mg/L	11/15/90	0001	0.04	U		#	0.04	-
	mg/L	03/12/91	0001	0.04	U		#	0.04	-
	mg/L	10/26/91	0001	0.01	U		#	0.01	-
	mg/L	03/13/92	0001	0.04	U		#	0.04	-
	mg/L	08/08/92	0001	0.04	U		#	0.04	-
	mg/L	03/11/93	0001	0.04	U		#	0.04	-
	mg/L	03/11/93	N001	0.04	U		#	0.04	-
	mg/L	07/16/95	0001	0.04	U		#	0.04	-
	mg/L	02/15/96	0001	0.04	U		#	0.04	-
	mg/L	02/05/97	0001	0.0070	U		#	0.007	-
Polonium-210	pCi/L	05/27/85	0001	0.00			#	1	± 0.60
	pCi/L	04/25/89	0001	0.0			#	1	± 0.10

GROUND WATER QUALITY DATA BY LOCATION (USEE100) FOR SITE RVT01, RIVERTON
LOCATION: 0706
REPORT DATE: 2/19/98 10:33:34 AM

PARAMETER	UNITS	SAMPLE: DATE	ID	RESULT	QUALIFIERS: LAB	DATA	QA	DETECTION LIMIT	UN-CERTAINTY
Polonium-210	pCi/L	11/21/89	0001	0.5			#	1	± 0.40
	pCi/L	03/11/93	0001	0.0			#	1.3	± 0.80
	pCi/L	03/11/93	N001	0.7			#	0.9	± 0.60
	pCi/L	02/05/97	0001	0.23		U	#	0.12	± 0.18
Sulfate	mg/L	05/27/85	0001	461.00			#	0.1	-
	mg/L	09/08/87	0001	432			#	0.1	-
	mg/L	11/21/87	0001	555			#	0.1	-
	mg/L	02/20/88	0001	494			#	0.1	-
	mg/L	05/16/88	0001	487			#	0.1	-
	mg/L	09/01/88	0001	467			#	1	-
	mg/L	09/01/88	0002	465			#	0.1	-
	mg/L	09/01/88	0003	459			#	0.1	-
	mg/L	09/01/88	0004	465			#	0.1	-
	mg/L	09/01/88	0005	465			#	0.1	-
	mg/L	10/26/88	0001	630			#	0.1	-
	mg/L	04/25/89	0001	495			#	0.1	-
	mg/L	11/21/89	0001	453	H		#	0.1	-
	mg/L	03/30/90	0001	398			#	0.1	-
	mg/L	03/30/90	N001	407			#	0.1	-
	mg/L	11/15/90	0001	345			#	0.1	-
	mg/L	03/12/91	0001	354			#	10	-
	mg/L	10/26/91	0001	245			#	0.1	-
	mg/L	03/13/92	0001	327			#	30	-
	mg/L	08/08/92	0001	239			#	50	-
	mg/L	03/11/93	N001	320			#	1	-
	mg/L	07/16/95	0001	88			#	1	-
	mg/L	02/15/96	0001	246	I		#	1	-
	mg/L	02/05/97	0001	231.000			#	-	-
Thorium-230	pCi/L	05/27/85	0001	0.00		J	#	1	± 0.50
	pCi/L	11/21/87	0001	0.2			#	1	± 0.40
	pCi/L	10/26/88	0001	0.354			#	1	± 0.35
	pCi/L	04/25/89	0001	0.1			#	1	± 0.30
	pCi/L	11/21/89	0001	0.0		J	#	1	± 0.30
	pCi/L	03/11/93	0001	0.5			#	0.5	± 0.40
	pCi/L	03/11/93	N001	0.4			#	10.2	± 0.30
	pCi/L	02/05/97	0001	0.64	U		#	0.64	±

GROUND WATER QUALITY DATA BY LOCATION (USEE100) FOR SITE RVT01, RIVERTON
LOCATION: 0706
REPORT DATE: 2/19/98 10:33:34 AM

PARAMETER	UNITS	SAMPLE: DATE	ID	RESULT	QUALIFIERS: LAB	DATA	QA	DETECTION LIMIT	UN-CERTAINTY
Uranium	mg/L	05/27/85	0001	0.0127			#	0.003	-
	mg/L	09/08/87	0001	0.0120			#	0.003	-
	mg/L	11/21/87	0001	0.0164			#	0.003	-
	mg/L	02/20/88	0001	0.0227			#	0.003	-
	mg/L	05/16/88	0001	0.0173			#	0.003	-
	mg/L	09/01/88	0001	0.012			#	0.003	-
	mg/L	09/01/88	0002	0.013			#	0.003	-
	mg/L	09/01/88	0003	0.014			#	0.003	-
	mg/L	09/01/88	0004	0.013			#	0.003	-
	mg/L	09/01/88	0005	0.013			#	0.003	-
	mg/L	10/26/88	0001	0.003	U		#	0.003	-
	mg/L	04/25/89	0001	0.025			#	0.003	-
	mg/L	11/21/89	0001	0.013			#	0.003	-
	mg/L	03/30/90	0001	0.014			#	0.003	-
	mg/L	03/30/90	N001	0.013			#	0.003	-
	mg/L	11/15/90	0001	0.0093			#	0.0003	-
	mg/L	03/12/91	0001	0.011			#	0.001	-
	mg/L	10/26/91	0001	0.0057			#	0.0003	-
	mg/L	03/13/92	0001	0.009			#	0.001	-
	mg/L	08/08/92	0001	0.003			#	0.001	-
	mg/L	03/11/93	0001	0.011			#	0.001	-
	mg/L	03/11/93	N001	0.010			#	0.001	-
	mg/L	07/16/95	0001	0.002			#	0.001	-
	mg/L	02/15/96	0001	0.034			#	0.001	-
	mg/L	02/05/97	0001	0.0067			#	-	-
Vanadium	mg/L	05/27/85	0001	0.01	U	R	#	0.01	-
	mg/L	09/08/87	0001	0.03			#	0.01	-
	mg/L	11/21/87	0001	0.03			#	0.01	-
	mg/L	02/20/88	0001	0.04			#	0.01	-
	mg/L	05/16/88	0001	0.02			#	0.01	-
	mg/L	09/01/88	0001	0.01	U		#	0.01	-
	mg/L	09/01/88	0002	0.01	U		#	0.01	-
	mg/L	09/01/88	0003	0.01	U		#	0.01	-
	mg/L	09/01/88	0004	0.01	U		#	0.01	-
	mg/L	09/01/88	0005	0.01	U		#	0.01	-
	mg/L	10/26/88	0001	0.01	U		#	0.01	-

GROUND WATER QUALITY DATA BY LOCATION (USEE100) FOR SITE RVT01, RIVERTON
LOCATION: 0706
REPORT DATE: 2/19/98 10:33:35 AM

PARAMETER	UNITS	SAMPLE: DATE	ID	RESULT	QUALIFIERS: LAB	DATA	QA	DETECTION LIMIT	UN-CERTAINTY
Vanadium	mg/L	04/25/89	0001	0.01	U		#	0.01	-
	mg/L	11/21/89	0001	0.02			#	0.01	-
	mg/L	03/30/90	0001	0.01	U		#	0.01	-
	mg/L	03/30/90	N001	0.01	U		#	0.01	-
	mg/L	11/15/90	0001	0.01	U		#	0.01	-
	mg/L	03/12/91	0001	0.01	U		#	0.01	-
	mg/L	10/26/91	0001	0.03			#	0.01	-
	mg/L	03/13/92	0001	0.01	U		#	0.01	-
	mg/L	08/08/92	0001	0.01	U		#	0.01	-
	mg/L	03/11/93	0001	0.01	U		#	0.01	-
	mg/L	03/11/93	N001	0.01	U		#	0.01	-
	mg/L	07/16/95	0001	0.01	U		#	0.01	-
	mg/L	02/15/96	0001	0.01	U		#	0.01	-
	mg/L	02/05/97	0001	0.0040	U		#	0.004	-

GROUND WATER QUALITY DATA BY LOCATION (USEE100) FOR SITE RVT01, RIVERTON
LOCATION: 0707
REPORT DATE: 2/19/98 10:33:35 AM

PARAMETER	UNITS	SAMPLE: DATE	ID	RESULT	QUALIFIERS: LAB	DATA	QA	DETECTION LIMIT	UN-CERTAINTY
Arsenic	mg/L	09/08/87	0001	0.001		J	#	0.01	-
	mg/L	11/21/87	0001	0.019			#	0.01	-
	mg/L	11/21/87	0002	0.019			#	0.01	-
	mg/L	11/21/87	0003	0.020			#	0.01	-
	mg/L	11/21/87	0004	0.020			#	0.01	-
	mg/L	11/21/87	0005	0.021			#	0.01	-
	mg/L	02/20/88	0001	0.013			#	0.01	-
	mg/L	02/20/88	0002	0.018			#	0.01	-
	mg/L	02/20/88	0003	0.017			#	0.01	-
	mg/L	02/20/88	0004	0.018			#	0.01	-
	mg/L	02/20/88	0005	0.018			#	0.01	
	mg/L	05/16/88	0001	0.032			#	0.01	-
	mg/L	09/01/88	0001	0.001	U		#	0.001	-
	mg/L	10/28/88	0001	0.001		J	#	0.01	-
	mg/L	04/25/89	0001	0.01	U		#	0.01	-
	mg/L	12/02/89	0001	0.003	U	J	#	0.01	-
	mg/L	04/01/90	0001	0.02		R	#	0.01	-
	mg/L	04/01/90	N001	0.05			#	0.01	-
	mg/L	11/19/90	0001	0.01	U		#	0.01	-
	mg/L	03/12/91	0001	0.01	U		#	0.01	-
	mg/L	06/01/91	0001	0.05	UI		#	0.05	-
	mg/L	10/25/91	0001	0.01	UI		#	0.01	-
	mg/L	03/31/93	0001	0.005	U		#	0.005	-
	mg/L	03/31/93	N001	0.005	U		#	0.005	-
	mg/L	02/18/96	0001	0.005	U		#	0.005	-
	mg/L	02/09/97	0001	0.0010	B	J	#	-	-
Lead-210	pCi/L	04/25/89	0001	4.0			#	1.5	± 1.00
	pCi/L	12/02/89	0001	0.2			#	1.5	± 0.60
	pCi/L	03/31/93	0001	3.0			#	2.5	± 1.60
	pCi/L	03/31/93	N001	1.3			#	2.8	± 1.70
	pCi/L	02/09/97	0001	1.17	U		#	1.17	± 0.69
Manganese	mg/L	09/08/87	0001	4.69			#	0.01	-
	mg/L	11/21/87	0001	4.95			#	0.01	-
	mg/L	11/21/87	0002	5.07			#	0.01	-
	mg/L	11/21/87	0003	4.99			#	0.01	-
	mg/L	11/21/87	0004	4.96			#	0.01	-

GROUND WATER QUALITY DATA BY LOCATION (USEE100) FOR SITE RVT01, RIVERTON
LOCATION: 0707
REPORT DATE: 2/19/98 10:33:36 AM

PARAMETER	UNITS	SAMPLE: DATE	ID	RESULT	QUALIFIERS: LAB	DATA	QA	DETECTION LIMIT	UN-CERTAINTY
Manganese	mg/L	11/21/87	0005	4.93			#	0.01	-
	mg/L	02/20/88	0001	5.39			#	0.01	-
	mg/L	02/20/88	0002	5.15			#	0.01	-
	mg/L	02/20/88	0003	5.18			#	0.01	-
	mg/L	02/20/88	0004	5.04			#	0.01	-
	mg/L	02/20/88	0005	5.19			#	0.01	-
	mg/L	05/16/88	0001	4.73			#	0.01	-
	mg/L	09/01/88	0001	5.10			#	0.01	-
	mg/L	10/28/88	0001	4.38			#	0.01	-
	mg/L	04/25/89	0001	4.7			#	0.01	-
	mg/L	12/02/89	0001	4.73			#	0.01	-
	mg/L	04/01/90	0001	4.53			#	0.01	-
	mg/L	04/01/90	N001	4.81			#	0.01	-
	mg/L	11/19/90	0001	5.04			#	0.01	-
	mg/L	03/12/91	0001	4.83			#	0.01	-
	mg/L	06/01/91	0001	4.97			#	0.01	-
	mg/L	10/25/91	0001	6.4			#	0.01	-
	mg/L	03/15/92	0001	5.08			#	0.01	-
	mg/L	08/08/92	0001	4.42			#	0.01	-
	mg/L	03/31/93	0001	4.26			#	0.01	-
	mg/L	03/31/93	N001	3.73			#	0.01	-
	mg/L	02/18/96	0001	4.05			#	0.01	-
	mg/L	02/09/97	0001	3.540			#	-	-
Molybdenum	mg/L	09/08/87	0001	0.77			#	0.01	-
	mg/L	11/21/87	0001	1.02			#	0.01	-
	mg/L	11/21/87	0002	1.04			#	0.01	-
	mg/L	11/21/87	0003	1.03			#	0.01	-
	mg/L	11/21/87	0004	1.02			#	0.01	-
	mg/L	11/21/87	0005	1.02			#	0.01	-
	mg/L	02/20/88	0001	1.00			#	0.01	-
	mg/L	02/20/88	0002	0.94			#	0.01	-
	mg/L	02/20/88	0003	0.91			#	0.01	-
	mg/L	02/20/88	0004	0.90			#	0.01	-
	mg/L	02/20/88	0005	0.97			#	0.01	-
	mg/L	05/16/88	0001	0.81			#	0.01	-
	mg/L	09/01/88	0001	0.520			#	0.001	-

GROUND WATER QUALITY DATA BY LOCATION (USEE100) FOR SITE RVT01, RIVERTON
LOCATION: 0707
REPORT DATE: 2/19/98 10:33:36 AM

PARAMETER	UNITS	SAMPLE: DATE	ID	RESULT	QUALIFIERS: LAB	DATA	QA	DETECTION LIMIT	UN-CERTAINTY
Molybdenum	mg/L	10/28/88	0001	0.773		J	#	0.01	-
	mg/L	04/25/89	0001	0.70			#	0.01	-
	mg/L	12/02/89	0001	0.76			#	0.01	-
	mg/L	04/01/90	0001	0.68			#	0.01	-
	mg/L	04/01/90	N001	0.70			#	0.01	-
	mg/L	11/19/90	0001	0.83			#	0.01	-
	mg/L	03/12/91	0001	0.68			#	0.01	-
	mg/L	06/01/91	0001	0.68			#	0.01	-
	mg/L	10/25/91	0001	0.96			#	0.01	-
	mg/L	03/15/92	0001	0.86			#	0.01	-
	mg/L	08/08/92	0001	0.79			#	0.01	-
	mg/L	03/31/93	0001	0.83			#	0.01	-
	mg/L	03/31/93	N001	0.74			#	0.01	-
	mg/L	02/18/96	0001	1.08			#	0.01	-
	mg/L	02/09/97	0001	1.420			#	-	-
Nickel	mg/L	09/08/87	0001	0.10			#	0.04	-
	mg/L	11/21/87	0001	0.11			#	0.04	-
	mg/L	11/21/87	0002	0.11			#	0.04	-
	mg/L	11/21/87	0003	0.11			#	0.04	-
	mg/L	11/21/87	0004	0.10			#	0.04	-
	mg/L	11/21/87	0005	0.11			#	0.04	-
	mg/L	02/20/88	0001	0.21			#	0.04	-
	mg/L	02/20/88	0002	0.22			#	0.04	-
	mg/L	02/20/88	0003	0.19			#	0.04	-
	mg/L	02/20/88	0004	0.18			#	0.04	-
	mg/L	02/20/88	0005	0.19			#	0.04	-
	mg/L	05/16/88	0001	0.17			#	0.04	-
	mg/L	09/01/88	0001	0.10			#	0.04	-
	mg/L	10/28/88	0001	0.08			#	0.04	-
	mg/L	04/25/89	0001	0.12			#	0.04	-
	mg/L	12/02/89	0001	0.04	U		#	0.04	-
	mg/L	04/01/90	0001	0.17			#	0.04	-
	mg/L	04/01/90	N001	0.17			#	0.04	-
	mg/L	11/19/90	0001	0.23			#	0.04	-
	mg/L	03/12/91	0001	0.22			#	0.04	-
	mg/L	06/01/91	0001	0.22			#	0.04	-

GROUND WATER QUALITY DATA BY LOCATION (USEE100) FOR SITE RVT01, RIVERTON
LOCATION: 0707
REPORT DATE: 2/19/98 10:33:36 AM

PARAMETER	UNITS	SAMPLE: DATE	ID	RESULT	QUALIFIERS: LAB	DATA	QA	DETECTION LIMIT	UN-CERTAINTY
Nickel	mg/L	10/25/91	0001	0.28			#	0.01	-
	mg/L	03/15/92	0001	0.24			#	0.04	-
	mg/L	08/08/92	0001	0.20			#	0.04	-
	mg/L	03/31/93	0001	0.15			#	0.04	-
	mg/L	03/31/93	N001	0.14			#	0.04	-
	mg/L	02/18/96	0001	0.18			#	0.04	-
	mg/L	02/09/97	0001	0.120			#	-	-
Polonium-210	pCi/L	04/25/89	0001	0.1			#	1	± 0.10
	pCi/L	12/02/89	0001	2.4			#	1	± 0.60
	pCi/L	03/31/93	0001	0.9			#	1.2	± 0.80
	pCi/L	03/31/93	N001	0.2			#	0.9	± 0.60
	pCi/L	02/09/97	0001	0.36			#	0.08	± 0.19
Sulfate	mg/L	09/08/87	0001	3500			#	0.1	-
	mg/L	11/21/87	0001	2950			#	0.1	-
	mg/L	11/21/87	0002	2980			#	0.1	-
	mg/L	11/21/87	0003	2930			#	0.1	-
	mg/L	11/21/87	0004	2920			#	0.1	-
	mg/L	11/21/87	0005	2950			#	0.1	-
	mg/L	02/20/88	0001	3050			#	0.1	-
	mg/L	02/20/88	0002	3050			#	0.1	-
	mg/L	02/20/88	0003	3060			#	0.1	-
	mg/L	02/20/88	0004	3050			#	0.1	-
	mg/L	02/20/88	0005	3060			#	0.1	-
	mg/L	05/16/88	0001	3240			#	0.1	-
	mg/L	09/01/88	0001	3149			#	1	-
	mg/L	10/28/88	0001	2999			#	0.1	-
	mg/L	04/25/89	0001	3020			#	0.1	-
	mg/L	12/02/89	0001	2870	H		#	0.1	-
	mg/L	04/01/90	0001	2570			#	0.1	-
	mg/L	04/01/90	N001	2880			#	0.1	-
	mg/L	11/19/90	0001	2760			#	0.1	-
	mg/L	03/12/91	0001	2890			#	10	-
	mg/L	06/01/91	0001	2910			#	10	-
	mg/L	10/25/91	0001	4430			#	0.1	-
	mg/L	03/15/92	0001	3810			#	10	-
	mg/L	08/08/92	0001	3210			#	10	-

GROUND WATER QUALITY DATA BY LOCATION (USEE100) FOR SITE RVT01, RIVERTON
LOCATION: 0707
REPORT DATE: 2/19/98 10:33:37 AM

PARAMETER	UNITS	SAMPLE: DATE	ID	RESULT	QUALIFIERS: LAB	DATA	QA	DETECTION LIMIT	UN-CERTAINTY
Sulfate	mg/L	03/31/93	0001	2970			#	1	-
	mg/L	02/18/96	0001	4410	I		#	10	-
	mg/L	02/09/97	0001	3640.000			#	-	-
Thorium-230	pCi/L	11/21/87	0001	0.2			#	1	± 0.50
	pCi/L	11/21/87	0002	0.5			#	1	± 0.50
	pCi/L	11/21/87	0003	0.0			#	1	± 0.40
	pCi/L	11/21/87	0004	0.0			#	1	± 0.40
	pCi/L	11/21/87	0005	0.3			#	1	± 0.50
	pCi/L	10/28/88	0001	6.82			#	1	± 1.79
	pCi/L	04/25/89	0001	0.9			#	1	± 0.40
	pCi/L	12/02/89	0001	0.0		J	#	1	± 0.30
	pCi/L	03/31/93	0001	0.6			#	0.2	± 0.40
	pCi/L	03/31/93	N001	0.7			#	0.2	± 0.40
	pCi/L	02/09/97	0001	0.64	U		#	0.64	±
Uranium	mg/L	09/08/87	0001	1.58			#	0.003	-
	mg/L	11/21/87	0001	1.35			#	0.003	-
	mg/L	11/21/87	0002	1.44			#	0.003	-
	mg/L	11/21/87	0003	1.43			#	0.003	-
	mg/L	11/21/87	0004	1.43			#	0.003	-
	mg/L	11/21/87	0005	1.44			#	0.003	-
	mg/L	02/20/88	0001	1.66			#	0.003	-
	mg/L	02/20/88	0002	1.61			#	0.003	-
	mg/L	02/20/88	0003	1.55			#	0.003	-
	mg/L	02/20/88	0004	1.70			#	0.003	-
	mg/L	02/20/88	0005	1.70			#	0.003	-
	mg/L	05/16/88	0001	1.39			#	0.003	-
	mg/L	09/01/88	0001	1.094			#	0.003	-
	mg/L	10/28/88	C001	0.719			#	0.003	-
	mg/L	04/25/89	0001	1.37			#	0.003	-
	mg/L	12/02/89	0001	1.21			#	0.003	-
	mg/L	04/01/90	0001	0.998			#	0.003	-
	mg/L	04/01/90	N001	0.974			#	0.003	-
	mg/L	11/19/90	0001	1.00		J	#	0.0003	-
	mg/L	03/12/91	0001	0.729			#	0.001	-
	mg/L	06/01/91	0001	1.02			#	0.001	-
	mg/L	10/25/91	0001	1.97			#	0.0003	-

GROUND WATER QUALITY DATA BY LOCATION (USEE100) FOR SITE RVT01, RIVERTON
LOCATION: 0707
REPORT DATE: 2/19/98 10:33:37 AM

PARAMETER	UNITS	SAMPLE: DATE	ID	RESULT	QUALIFIERS: LAB	DATA QA	DETECTION LIMIT	UN-CERTAINTY
Uranium	mg/L	03/15/92	0001	1.22		#	0.001	-
	mg/L	08/08/92	0001	1.08		#	0.001	-
	mg/L	03/31/93	0001	0.957		#	001	-
	mg/L	03/31/93	N001	1.01		#	0.001	-
	mg/L	02/18/96	0001	1.97		#	0.001	-
	mg/L	02/09/97	0001	1.550		#	-	-
Vanadium	mg/L	09/08/87	0001	0.06		#	0.01	-
	mg/L	11/21/87	0001	0.06		#	0.01	-
	mg/L	11/21/87	0002	0.06		#	0.01	-
	mg/L	11/21/87	0003	0.06		#	0.01	-
	mg/L	11/21/87	0004	0.06		#	0.01	-
	mg/L	11/21/87	0005	0.06		#	0.01	-
	mg/L	02/20/88	0001	0.07		#	0.01	-
	mg/L	02/20/88	0002	0.06		#	0.01	-
	mg/L	02/20/88	0003	0.06		#	0.01	-
	mg/L	02/20/88	0004	0.06		#	0.01	-
	mg/L	02/20/88	0005	0.06		#	0.01	-
	mg/L	05/16/88	0001	0.06		#	0.01	-
	mg/L	09/01/88	0001	0.01	U	#	0.01	-
	mg/L	10/28/88	0001	0.01	U	#	0.01	-
	mg/L	04/25/89	0001	0.01	U	#	0.01	-
	mg/L	12/02/89	0001	0.01		#	0.01	-
	mg/L	04/01/90	0001	0.01	U	#	0.01	-
	mg/L	04/01/90	N001	0.02		#	0.01	-
	mg/L	11/19/90	0001	0.01		#	0.01	-
	mg/L	03/12/91	0001	0.01	U	#	0.01	-
	mg/L	06/01/91	0001	0.01	U	#	0.01	-
	mg/L	10/25/91	0001	0.14		#	0.01	-
	mg/L	03/15/92	0001	0.05	UI	#	0.05	-
	mg/L	08/08/92	0001	0.01		#	0.01	-
	mg/L	03/31/93	0001	0.01	U	#	0.01	-
	mg/L	03/31/93	N001	0.01	U	#	0.01	-
	mg/L	02/18/96	0001	0.01	U	#	0.01	-
	mg/L	02/09/97	0001	0.0040	U	#	0.004	-

GROUND WATER QUALITY DATA BY LOCATION (USEE100) FOR SITE RVT01, RIVERTON
LOCATION: 0708
REPORT DATE: 2/19/98 10:33:37 AM

PARAMETER	UNITS	SAMPLE: DATE	ID	RESULT	QUALIFIERS: LAB	DATA	QA	DETECTION LIMIT	UN-CERTAINTY
Arsenic	mg/L	05/27/85	0001	0.01	U	G	#	0.01	-
Manganese	mg/L	05/27/85	0001	0.01	U	G	#	0.01	-
Molybdenum	mg/L	05/27/85	0001	0.10		G	#	0.01	-
Nickel	mg/L	05/27/85	0001	0.04	U	GJ	#	0.04	-
Sulfate	mg/L	05/27/85	0001	548.00		G	#	0.1	-
Uranium	mg/L	05/27/85	0001	0.0003		GJ	#	0.2	-
Vanadium	mg/L	05/27/85	0001	0.01	U	GR	#	0.01	-

GROUND WATER QUALITY DATA BY LOCATION (USEE100) FOR SITE RVT01, RIVERTON
LOCATION: 0709
REPORT DATE: 2/19/98 10:33:38 AM

PARAMETER	UNITS	SAMPLE: DATE	ID	RESULT	QUALIFIERS: LAB	DATA	QA	DETECTION LIMIT	UN-CERTAINTY
Arsenic	mg/L	09/08/87	0001	0.001	U	GFJ	#	0.01	-
	mg/L	10/28/88	0001	0.001	U	GFJ	#	0.01	-
	mg/L	04/25/89	0001	0.01	U	GF	#	0.01	-
	mg/L	12/02/89	0001	0.01	U	GFJ	#	0.01	-
	mg/L	04/01/90	0001	0.01	U	GFR	#	0.01	-
	mg/L	04/01/90	N001	0.01	U	GF	#	0.01	-
	mg/L	11/19/90	0001	0.01	U	GF	#	0.01	-
	mg/L	03/11/91	0001	0.01	U	GF	#	0.01	-
	mg/L	06/02/91	0001	0.01	U	GF	#	0.01	-
	mg/L	10/25/91	0001	0.001	U	GF	#	0.001	-
	mg/L	03/11/93	N001	0.005	U	GF	#	0.005	-
	mg/L	03/12/93	0001	0.005	U	GF	#	0.005	-
	mg/L	02/10/97	0001	0.00020	UN	GJ	#	0.0002	-
Lead-210	pCi/L	04/25/89	0001	0.7		GF	#	1.5	± 0.80
	pCi/L	12/02/89	0001	0.9		GF	#	1.5	± 0.60
	pCi/L	03/12/93	0001	0.9		GF	#	1.7	± 1.00
	pCi/L	03/12/93	N001	1.1		GF	#	1.7	± 1.00
	pCi/L	02/10/97	0001	0.96	U	G	#	0.96	± 0.57
Manganese	mg/L	09/08/87	0001	0.01	U	GF	#	0.01	-
	mg/L	10/28/88	0001	0.01	U	GF	#	0.01	-
	mg/L	04/25/89	0001	0.01	U	GF	#	0.01	-
	mg/L	12/02/89	0001	0.01	U	GF	#	0.01	-
	mg/L	04/01/90	0001	0.01	U	GF	#	0.01	-
	mg/L	04/01/90	N001	0.01	U	GF	#	0.01	-
	mg/L	11/19/90	0001	0.01	U	GF	#	0.01	-
	mg/L	03/11/91	0001	0.01		GF	#	0.01	-
	mg/L	06/02/91	0001	0.01	U	GF	#	0.01	-
	mg/L	10/25/91	0001	0.01	U	GF	#	0.01	-
	mg/L	03/15/92	0001	0.01	U	GF	#	0.01	-
	mg/L	08/08/92	0001	0.01	U	GF	#	0.01	-
	mg/L	03/11/93	N001	0.01	U	GF	#	0.01	-
	mg/L	03/12/93	0001	0.01	U	GF	#	0.01	-
	mg/L	02/10/97	0001	0.0010	U	G	#	0.001	-
Molybdenum	mg/L	09/08/87	0001	0.01	J	GF	#	0.01	-
	mg/L	10/28/88	0001	0.015		GFJ	#	0.01	-

GROUND WATER QUALITY DATA BY LOCATION (USEE100) FOR SITE RVT01, RIVERTON
LOCATION: 0709
REPORT DATE: 2/19/98 10:33:38 AM

PARAMETER	UNITS	SAMPLE: DATE	ID	RESULT	QUALIFIERS: LAB	DATA	QA	DETECTION LIMIT	UN-CERTAINTY
Molybdenum	mg/L	04/25/89	0001	0.02		GF	#	0.01	-
	mg/L	12/02/89	0001	0.01		GF	#	0.01	-
	mg/L	04/01.90	0001	0.01	U	GF	#	0.01	-
	mg/L	04/01/90	N001	0.01		GF	#	0.01	-
	mg/L	11/19/90	0001	0.02		GF	#	0.01	-
	mg/L	03/11/91	0001	0.01		GF	#	0.01	-
	mg/L	06/02/91	0001	0.03		GF	#	0.01	-
	mg/L	10/25/91	0001	0.02		GF	#	0.01	-
	mg/L	03/15/92	0001	0.02		GF	#	0.01	-
	mg/L	08/08/92	0001	0.03		GF	#	0.01	-
	mg/L	03/11/93	N001	0.03		GF	#	0.01	-
	mg/L	03/12/93	0001	0.03		GF	#	0.01	-
	mg/L	02/10/97	0001	0.0427		G	#	-	-
Nickel	mg/L	09/08/87	0001	0.01	U	GFJ	#	0.04	-
	mg/L	10/28/88	0001	0.02	U	GFJ	#	0.04	-
	mg/L	04/25/89	0001	0.04	U	GF	#	0.04	-
	mg/L	12/02/89	0001	0.04	U	GF	#	0.04	-
	mg/L	04/01/90	0001	0.04	U	GF	#	0.04	-
	mg/L	04/01/90	N001	0.04	U	GF	#	0.04	-
	mg/L	11/19/90	0001	0.04	U	GF	#	0.04	-
	mg/L	03/11/91	0001	0.04	U	GF	#	0.04	-
	mg/L	06/02/91	0001	0.04	U	GF	#	0.04	-
	mg/L	10/25/91	0001	0.02		GF	#	0.01	-
	mg/L	03/15/92	0001	0.04	U	GF	#	0.04	-
	mg/L	08/08/92	0001	0.04	U	GF	#	0.04	-
	mg/L	03/11/93	N001	0.04	U	GF	#	0.04	-
	mg/L	03/12/93	0001	0.04	U	GF	#	0.04	-
	mg/L	02/10/97	0001	0.0070	U	G	#	0.007	-
Polonium-210	pCi/L	04/25/89	0001	0.4		GF	#	1	± 0.60
	pCi/L	12/02/89	0001	0.4		GF	#	1	± 0.40
	pCi/L	03/12/93	0001	1.1		GF	#	1.3	± 0.90
	pCi/L	03/12/93	N001	1.4		GF	#	0.9	± 0.70
	pCi/L	02/10/97	0001	0.19		G	#	0.06	± 0.12
Sulfate	mg/L	09/08/87	0001	8		GF	#	0.1	-
	mg/L	10/28/88	0001	74		GF	#	0.1	-

GROUND WATER QUALITY DATA BY LOCATION (USEE100) FOR SITE RVT01, RIVERTON
LOCATION: 0709
REPORT DATE: 2/19/98 10:33:38 AM

PARAMETER	UNITS	SAMPLE: DATE	ID	RESULT	QUALIFIERS: LAB	DATA	QA	DETECTION LIMIT	UN-CERTAINTY
Sulfate	mg/L	04/25/89	0001	68		GF	#	0.1	-
	mg/L	12/02/89	0001	76		GF	#	0.1	-
	mg/L	04/01/90	0001	83		GF	#	0.1	-
	mg/L	04/01/90	N001	91		GF	#	0.1	-
	mg/L	11/19/90	0001	86.4		GF	#	0.1	-
	mg/L	03/11/91	0001	115		GF	#	10	-
	mg/L	06/02/91	0001	155		GF	#	0.1	-
	mg/L	10/25/91	0001	178		GF	#	0.1	-
	mg/L	03/15/92	0001	162		GF	#	50	-
	mg/L	08/08/92	0001	130		GF	#	50	-
	mg/L	03/11/93	N001	112		GF	#	1	-
	mg/L	02/10/97	0001	161.000		G	#	-	-
Thorium-230	pCi/L	10/28/88	0001	3.13		GF	#	1	± 0.72
	pCi/L	04/25/89	0001	0.1		GF	#	1	± 0.30
	pCi/L	12/02/89	0001	0.0		GFJ	#	1	± 0.30
	pCi/L	03/12/93	0001	0.6		GF	#	0.5	± 0.40
	pCi/L	03/12/93	N001	0.4		GF	#	0.5	± 0.30
	pCi/L	02/10/97	0001	0.64	UN	GJ	#	0.64	±
Uranium	mg/L	09/08/87	0001	0.0003	U	GFJ	#	0.003	-
	mg/L	10/28/88	0001	0.003	U	GF	#	0.003	-
	mg/L	04/25/89	0001	0.003	U	GF	#	0.003	-
	mg/L	12/02/89	0001	0.0003	U	GFJ	#	0.003	-
	mg/L	04/01/90	0001	0.0003	U	GFJ	#	0.003	-
	mg/L	04/01/90	N001	0.0006		GFJ	#	0.003	-
	mg/L	11/19/90	0001	0.0003	U	GF	#	0.0003	-
	mg/L	03/11/91	0001	0.001	U	GF	#	0.001	-
	mg/L	06/02/91	0001	0.001	U	GF	#	0.001	-
	mg/L	10/25/91	0001	0.0003	U	GF	#	0.0003	-
	mg/L	03/15/92	0001	0.001	U	GF	#	0.001	-
	mg/L	08/08/92	0001	0.001	U	GF	#	0.001	-
	mg/L	03/12/93	0001	0.001	U	GF	#	0.001	-
	mg/L	03/12/93	N001	0.001	U	GF	#	0.001	-
	mg/L	02/10/97	0001	0.0010	U	G	#	0.001	-
Vanadium	mg/L	09/08/87	0001	0.06		GF	#	0.01	-
	mg/L	10/28/88	0001	0.01	U	GF	#	0.01	-

GROUND WATER QUALITY DATA BY LOCATION (USEE100) FOR SITE RVT01, RIVERTON
LOCATION: 0709
REPORT DATE: 2/19/98 10:33:39 AM

PARAMETI	UNITS	SAMPLE: DATE	ID	RESULT	QUALIFIERS: LAB	DATA	QA	DETECTION LIMIT	UN-CERTAINTY
Vanadium	mg/L	04/25/89	0001	0.01	U	GF	#	0.01	-
	mg/L	12/02/89	0001	0.02		GF	#	0.01	-
	mg/L	04/01/90	0001	0.01	U	GF	#	0.01	-
	mg/L	04/0[illegible]/90	N001	0.01	U	GF	#	0.01	-
	mg/L	11/19/90	0001	0.01	U	GF	#	0.01	-
	mg/L	03/11/91	0001	0.01	U	GF	#	0.01	-
	mg/L	06/02/91	0001	0.01		GF	#	0.01	-
	mg/L	10/25/91	0001	0.04		GF	#	0.01	-
	mg/L	03/15/92	0001	0.01	U	GF	#	0.01	-
	mg/L	08/08/92	0001	0.04		GF	#	0.01	-
	mg/L	03/11/93	N001	0.01	U	GF	#	0.01	-
	mg/L	03/12/93	0001	0.01	U	GF	#	0.01	-
	mg/L	02/10/97	0001	0.0062	B	G	#	-	-

GROUND WATER QUALITY DATA BY LOCATION (USEE100) FOR SITE RVT01, RIVERTON
LOCATION: 0710
REPORT DATE: 2/19/98 10:33:39 AM

PARAMETER	UNITS	SAMPLE: DATE	ID	RESULT	QUALIFIERS: LAB	DATA	QA	DETECTION LIMIT	UN-CERTAINTY
Arsenic	mg/L	05/26/85	0001	0.01	U		#	0.01	-
	mg/L	03/13/91	0001	0.01	U		#	0.01	-
	mg/L	06/01/91	0001	0.01	U		#	0.01	-
	mg/L	10/23/91	0001	0.003			#	0.001	-
	mg/L	03/12/92	0001	0.005	U		#	0.005	-
	mg/L	08/06/92	0001	0.005	U		#	0.005	-
	mg/L	03/11/93	0001	0.005	UW		#	0.005	-
	mg/L	03/11/93	N001	0.005	UW		#	0.005	-
	mg/L	07/14/95	0001	0.005	U		#	0.005	-
	mg/L	07/14/95	N001	0.005	U		#	0.005	-
	mg/L	02/16/96	0001	0.005	U		#	0.005	-
	mg/L	02/05/97	0001	0.0016	B	J	#	-	-
Lead-210	pCi/L	05/26/85	0001	0.60		J	#	1.5	± 0.60
	pCi/L	03/11/93	0001	0.2			#	1.7	± 1.00
	pCi/L	03/11/93	N001	0.9			#	1.7	± 1.00
	pCi/L	02/05/97	0001	0.93	U		#	0.98	± 0.59
Manganese	mg/L	05/26/85	0001	0.91			#	0.01	-
	mg/L	03/13/91	0001	0.01	U		#	0.01	-
	mg/L	06/01/91	0001	0.01	U		#	0.01	-
	mg/L	10/23/91	0001	0.03			#	0.01	-
	mg/L	03/12/92	0001	0.01	U		#	0.01	-
	mg/L	08/06/92	0001	0.01	U		#	0.01	-
	mg/L	03/11/93	0001	0.01	U		#	0.01	-
	mg/L	03/11/93	N001	0.20			#	0.01	-
	mg/L	07/14/95	0001	0.01	U		#	0.01	-
	mg/L	07/14/95	N001	0.01	U		#	0.01	-
	mg/L	02/16/96	0001	0.01	U		#	0.01	-
	mg/L	02/05/97	0001	0.0022	B		#	-	-
Molybdenum	mg/L	05/26/85	0001	0.01	U		#	0.01	-
	mg/L	03/13/91	0001	0.01	U		#	0.01	-
	mg/L	06/01/91	0001	0.01	U		#	0.01	-
	mg/L	10/23/91	0001	0.01	U		#	0.01	-
	mg/L	03/12/92	0001	0.01	U		#	0.01	-
	mg/L	08/06/92	0001	0.01	U		#	0.01	-
	mg/L	03/11/93	0001	0.01	U		#	0.01	-

GROUND WATER QUALITY DATA BY LOCATION (GEE100) FOR SITE RVT01, RIVERTON
LOCATION: 0710
REPORT DATE: 2/19/98 10:33:39 AM

PARAMETER	UNITS	SAMPLE: DATE	ID	RESULT	QUALIFIERS: LAB	DATA	QA	DETECTION LIMIT	UNCERTAINTY
Molybdenum	mg/L	03/11/93	N001	0.01	U		#	0.01	-
	mg/L	07/14/95	0001	0.01	U		#	0.01	-
	mg/L	07/14/95	N001	0.01	U		#	0.01	-
	mg/L	02/16/96	0001	0.01	U		#	0.01	-
	mg/L	02/05/97	0001	0.0019	B		#	-	-
Nickel	mg/L	05/26/85	0001	0.04	U	J	#	0.04	-
	mg/L	03/13/91	0001	0.04	U		#	0.04	-
	mg/L	06/01/91	0001	0.04	U		#	0.04	-
	mg/L	10/23/91	0001	0.01	U		#	0.01	-
	mg/L	03/12/92	0001	0.04	U		#	0.04	-
	mg/L	08/06/92	0001	0.04	U		#	0.04	-
	mg/L	03/11/93	0001	0.04	U		#	0.04	-
	mg/L	03/11/93	N001	0.04	U		#	0.04	-
	mg/L	07/14/95	0001	0.04	U		#	0.04	-
	mg/L	07/14/95	N001	0.04	U		#	0.04	-
	mg/L	02/16/96	0001	0.04	U		#	0.04	-
	mg/L	02/05/97	0001	0.0070	U		#	0.007	-
Polonium-210	pCi/L	05/26/85	0001	0.00			#	1	± 0.60
	pCi/L	03/11/93	0001	0.1			#	1.3	± 0.80
	pCi/L	03/11/93	N001	1.4			#	0.9	± 0.70
	pCi/L	02/05/97	0001	0.15		U	#	0.11	± 0.15
Sulfate	mg/L	05/26/85	0001	363.00			#	0.1	-
	mg/L	03/13/91	0001	101			#	10	-
	mg/L	06/01/91	0001	118			#	0.1	-
	mg/L	10/23/91	0001	84.7			#	0.1	-
	mg/L	03/12/92	0001	105			#	10	-
	mg/L	08/06/92	0001	120			#	20	-
	mg/L	03/11/93	N001	120			#	1	-
	mg/L	07/14/95	0001	830			#	1	-
	mg/L	02/16/96	0001	173	I		#	1	-
	mg/L	02/05/97	0001	111.000			#	-	-
Thorium-230	pCi/L	05/26/85	0001	0.10		J	#	1	± 0.50
	pCi/L	03/11/93	0001	1.7			#	0.3	± 0.70
	pCi/L	03/11/93	N001	0.4			#	0.3	± 0.40
Uranium	mg/L	05/26/85	0001	0.0156			#	0.003	-

GROUND WATER QUALITY DATA BY LOCATION (USEE100) FOR SITE RVT01, RIVERTON
LOCATION: 0710
REPORT DATE: 2/19/98 10:33:40 AM

PARAMETER	UNITS	SAMPLE: DATE	ID	RESULT	QUALIFIERS: LAB	DATA	QA	DETECTION LIMIT	UN-CERTAINTY
Uranium	mg/L	03/13/91	0001	0.003			#	0.001	-
	mg/L	06/01/91	0001	0.001	U		#	0.001	-
	mg/L	10/23/91	0001	0.0040			#	0.0003	-
	mg/L	03/12/92	0001	0.004			#	0.001	-
	mg/L	08/06/92	0001	0.001	U		#	0.001	-
	mg/L	03/11/93	0001	0.004			#	0.001	-
	mg/L	03/11/93	N001	0.004			#	0.001	-
	mg/L	07/14/95	0001	0.015			#	0.001	-
	mg/L	07/14/95	N001	0.016			#	0.001	-
	mg/L	02/16/96	0001	0.010		J	#	0.001	-
	mg/L	02/05/97	0001	0.0034			#	-	-
Vanadium	mg/L	05/26/85	0001	0.01	U	R	#	0.01	-
	mg/L	03/13/91	0001	0.01	U		#	0.01	-
	mg/L	06/01/91	0001	0.01	U		#	0.01	-
	mg/L	10/23/91	0001	0.03			#	0.01	-
	mg/L	03/12/92	0001	0.01	U		#	0.01	-
	mg/L	08/06/92	0001	0.02			#	0.01	-
	mg/L	03/11/93	0001	0.01	U		#	0.01	-
	mg/L	03/11/93	N001	0.01	U		#	0.01	-
	mg/L	07/14/95	0001	0.01	U		#	0.01	-
	mg/L	07/14/95	N001	0.01	U		#	0.01	-
	mg/L	02/16/96	0001	0.01	U		#	0.01	-
	mg/L	02/05/97	0001	0.0045	B		#	-	-

GROUND WATER QUALITY DATA BY LOCATION (USEE100) FOR SITE RVT01, RIVERTON
LOCATION: 0711
REPORT DATE: 2/19/98 10:33:40 AM

PARAMETER	UNITS	SAMPLE: DATE	ID	RESULT	QUALIFIERS: LAB	DATA	QA	DETECTION LIMIT	UN-CERTAINTY
Arsenic	mg/L	05/26/85	0001	0.01	U		#	0.01	-
	mg/L	05/26/85	0002	0.01	U		#	0.01	-
	mg/L	05/26/85	0003	0.01	U		#	0.01	-
	mg/L	05/26/85	0004	0.01	U		#	0.01	-
	mg/L	05/26/85	0005	0.01	U		#	0.01	-
	mg/L	11/21/87	0001	0.007		J	#	0.01	-
	mg/L	05/16/88	0001	0.002		J	#	0.01	-
	mg/L	05/16/88	0002	0.006		J	#	0.01	-
	mg/L	05/16/88	0003	0.006		J	#	0.01	-
	mg/L	05/16/88	0004	0.006		J	#	0.01	-
	mg/L	05/16/88	0005	0.006		J	#	0.01	-
	mg/L	09/01/88	0001	0.003			#	0.001	-
	mg/L	10/26/88	0001	0.003		J	#	0.01	-
	mg/L	04/26/89	0001	0.01	U		#	0.01	-
	mg/L	11/21/89	0001	0.01	U	J	#	0.01	-
	mg/L	03/30/90	0001	0.01	U	R	#	0.01	-
	mg/L	03/30/90	N001	0.01	U		#	0.01	-
	mg/L	11/15/90	0001	0.01	U	J	#	0.01	-
	mg/L	11/15/90	N001	0.01	U		#	0.01	-
	mg/L	03/27/91	0001	0.01	U		#	0.01	-
	mg/L	03/27/91	N001	0.01	U		#	0.01	-
	mg/L	06/01/91	0001	0.01	UW		#	0.01	-
	mg/L	10/23/91	0001	0.002			#	0.001	-
	mg/L	03/12/92	0001	0.005	U		#	0.005	-
	mg/L	08/07/92	0001	0.005	U		#	0.005	-
	mg/L	03/18/93	0001	0.005	U		#	0.005	-
	mg/L	03/18/93	N001	0.005	U		#	0.005	-
	mg/L	07/14/95	0001	0.005	U		#	0.005	-
	mg/L	07/14/95	N001	0.005	U		#	0.005	-
	mg/L	02/07/97	0001	0.0011	B	J	#	-	-
Lead-210	pCi/L	05/26/85	0001	0.40		J	#	1.5	± 0.70
	pCi/L	05/26/85	0002	0.00		J	#	1.5	± 0.90
	pCi/L	05/26/85	0003	0.90		J	#	1.5	± 0.90
	pCi/L	05/26/85	0004	0.40		J	#	1.5	± 0.80
	pCi/L	05/26/85	0005	0.00		J	#	1.5	± 0.80
	pCi/L	04/26/89	0001	0.0			#	1.5	± 0.70

GROUND WATER QUALITY DATA BY LOCATION (USEE100) FOR SITE RVT01, RIVERTON
LOCATION: 0711
REPORT DATE: 2/19/98 10:33:40 AM

PARAMETER	UNITS	SAMPLE: DATE	ID	RESULT	QUALIFIERS: LAB	DATA	QA	DETECTION LIMIT	UN-CERTAINTY
Lead-210	pCi/L	11/21/89	0001	0.9			#	1.5	± 0.60
	pCi/L	03/27/91	N001	0.2			#	1.5	± 1.40
	pCi/L	03/18/93	0001	0.1			#	1.7	± 1.00
	pCi/L	03/18/93	N001	1.2			#	1.7	± 1.00
	pCi/L	02/06/97	0001	1.11			#	0.95	± 0.57
Manganese	mg/L	05/26/85	0001	0.74			#	0.01	-
	mg/L	05/26/85	0002	0.23			#	0.01	-
	mg/L	05/26/85	0003	0.24			#	0.01	-
	mg/L	05/26/85	0004	0.74			#	0.01	-
	mg/L	05/26/85	0005	0.74			#	0.01	-
	mg/L	11/21/87	0001	2.09			#	0.01	-
	mg/L	05/16/88	0001	1.39			#	0.01	-
	mg/L	05/16/88	0002	1.40			#	0.01	-
	mg/L	05/16/88	0003	1.39			#	0.01	-
	mg/L	05/16/88	0004	1.37			#	0.01	-
	mg/L	05/16/88	0005	1.38			#	0.01	-
	mg/L	09/01/88	0001	3.56			#	0.01	-
	mg/L	10/26/88	0001	1.62			#	0.01	-
	mg/L	04/26/89	0001	0.87			#	0.01	-
	mg/L	11/21/89	0001	0.72			#	0.01	-
	mg/L	03/30/90	0001	0.52			#	0.01	-
	mg/L	03/30/90	N001	1.04			#	0.01	-
	mg/L	11/15/90	0001	1.08			#	0.01	-
	mg/L	11/15/90	N001	1.04			#	0.01	-
	mg/L	03/27/91	0001	0.61			#	0.01	-
	mg/L	03/27/91	N001	0.62			#	0.01	-
	mg/L	06/01/91	0001	0.70			#	0.01	-
	mg/L	10/23/91	0001	1.4			#	0.01	-
	mg/L	03/12/92	0001	0.64			#	0.01	-
	mg/L	08/07/92	0001	0.69			#	0.01	-
	mg/L	03/18/93	0001	0.77			#	0.01	-
	mg/L	03/18/93	N001	0.77			#	0.01	-
	mg/L	07/14/95	0001	1.1			#	0.01	-
	mg/L	07/14/95	N001	0.99			#	0.01	-
	mg/L	02/06/97	0001	1.270			#	-	-
Molybdenum	mg/L	05/26/85	0001	0.01	U		#	0.01	-

GROUND WATER QUALITY DATA BY LOCATION (USEE100) FOR SITE RVT01, RIVERTON
LOCATION: 0711
REPORT DATE: 2/19/98 10:33:41 AM

PARAMETER	UNITS	SAMPLE: DATE	ID	RESULT	QUALIFIERS: LAB	DATA	QA	DETECTION LIMIT	UN-CERTAINTY
Molybdenum	mg/L	05/26/85	0002	0.01	U		#	0.01	-
	mg/L	05/26/85	0003	0.01	U		#	0.01	-
	mg/L	05/26/85	0004	0.01	U		#	0.01	-
	mg/L	05/26/85	0005	0.01	U		#	0.01	-
	mg/L	11/21/87	0001	0.02			#	0.01	-
	mg/L	05/16/88	0001	0.01			#	0.01	-
	mg/L	05/16/88	0002	0.02			#	0.01	-
	mg/L	05/16/88	0003	0.02			#	0.01	-
	mg/L	05/16/88	0004	0.02			#	0.01	-
	mg/L	05/16/88	0005	1.38			#	0.01	-
	mg/L	09/01/88	0001	0.008			#	0.001	-
	mg/L	10/26/88	0001	0.003		J	#	0.01	-
	mg/L	04/26/89	0001	0.01	U		#	0.01	-
	mg/L	11/21/89	0001	0.01	U		#	0.01	-
	mg/L	03/30/90	0001	0.01	U		#	0.01	-
	mg/L	03/30/90	N001	0.01	U		#	0.01	-
	mg/L	11/15/90	0001	0.01			#	0.01	-
	mg/L	11/15/90	N001	0.01	U		#	0.01	-
	mg/L	03/27/91	0001	0.01	U		#	0.01	-
	mg/L	03/27/91	N001	0.01	U		#	0.01	-
	mg/L	06/01/91	0001	0.01	U		#	0.01	-
	mg/L	10/23/91	0001	0.01	U		#	0.01	-
	mg/L	03/12/92	0001	0.01	U		#	0.01	-
	mg/L	08/07/92	0001	0.01	U		#	0.01	-
	mg/L	03/18/93	0001	0.01	U		#	0.01	-
	mg/L	03/18/93	N001	0.01	U		#	0.01	-
	mg/L	07/14/95	0001	0.01	U		#	0.01	-
	mg/L	07/14/95	N001	0.01	U		#	0.01	-
	mg/L	02/06/97	0001	0.0018	B		#	-	-
Nickel	mg/L	05/26/85	0001	0.04	U	J	#	0.04	-
	mg/L	05/26/85	0002	0.04	U	J	#	0.04	-
	mg/L	05/26/85	0003	0.04	U	J	#	0.04	-
	mg/L	05/26/85	0004	0.04	U	J	#	0.04	-
	mg/L	05/26/85	0005	0.04	U	J	#	0.04	-
	mg/L	11/21/87	0001	0.01	U	J	#	0.04	-
	mg/L	05/16/88	0001	0.02		J	#	0.04	-

GROUND WATER QUALITY DATA BY LOCATION (USEE100) FOR SITE RVT01, RIVERTON
LOCATION: 0711
REPORT DATE: 2/19/98 10:33:41 AM

PARAMETER	UNITS	SAMPLE: DATE	ID	RESULT	QUALIFIERS: LAB	DATA	QA	DETECTION LIMIT	UN-CERTAINTY
Nickel	mg/L	05/16/88	0002	0.02		J	#	0.04	-
	mg/L	05/16/88	0003	0.03		J	#	0.04	-
	mg/L	05/16/88	0004	0.03		J	#	0.04	-
	mg/L	05/16/88	0005	0.03		J	#	0.04	-
	mg/L	09/01/88	0001	0.02	U	J	#	0.04	-
	mg/L	10/26/88	0001	0.02	U	J	#	0.04	-
	mg/L	04/26/89	0001	0.04	U		#	0.04	-
	mg/L	11/21/89	0001	0.04	U		#	0.04	-
	mg/L	03/30/90	0001	0.04	U		#	0.04	-
	mg/L	03/30/90	N001	0.04	U		#	0.04	-
	mg/L	11/15/90	0001	0.04	U		#	0.04	-
	mg/L	11/15/90	N001	0.04	U		#	0.04	-
	mg/L	03/27/91	0001	0.04	U		#	0.04	-
	mg/L	03/27/91	N001	0.04	U		#	0.04	-
	mg/L	06/01/91	0001	0.04	U		#	0.04	-
	mg/L	10/23/91	0001	0.02			#	0.01	-
	mg/L	03/12/92	0001	0.04	U		#	0.04	-
	mg/L	08/07/92	0001	0.04	U		#	0.04	-
	mg/L	03/18/93	0001	0.04	U		#	0.04	-
	mg/L	03/18/93	N001	0.04	U		#	0.04	-
	mg/L	07/14/95	0001	0.04	U		#	0.04	
	mg/L	07/14/95	N001	0.04	U		#	0.04	-
	mg/L	02/06/97	0001	0.0070	U		#	0.007	-
Polonium-210	pCi/L	05/26/85	0001	0.00			#	1	± 0.60
	pCi/L	05/26/85	0002	0.00			#	1	± 0.60
	pCi/L	05/26/85	0003	0.00			#	1	± 0.60
	pCi/L	05/26/85	0004	0.00			#	1	± 0.60
	pCi/L	05/26/85	0005	0.10			#	1	± 0.60
	pCi/L	04/26/89	0001	0.1			#	1	± 0.20
	pCi/L	11/21/89	0001	0.3			#	1	± 0.40
	pCi/L	03/27/91	N001	0.1			#	1	± 0.10
	pCi/L	03/18/93	0001	0.3			#	1.3	± 0.80
	pCi/L	03/18/93	N001	0.1			#	0.9	± 0.60
	pCi/L	02/06/97	0001	0.16		U	#	0.1	± 0.14
Sulfate	mg/L	05/26/85	0001	156.00			#	0.1	-
	mg/L	05/26/85	0002	155.00			#	0.1	-

GROUND WATER QUALITY DATA BY LOCATION (USEE100) FOR SITE RVT01, RIVERTON
LOCATION: 0711
REPORT DATE: 2/19/98 10:33:41 AM

PARAMETER	UNITS	SAMPLE: DATE	ID	RESULT	QUALIFIERS: LAB	DATA	QA	DETECTION LIMIT	UN-CERTAINTY
Sulfate	mg/L	05/26/85	0003	154.00			#	0.1	-
	mg/L	05/26/85	0004	154.00			#	0.1	-
	mg/L	05/26/85	0005	155.00			#	0.1	-
	mg/L	11/21/87	0001	438			#	0.1	-
	mg/L	05/16/88	0001	356			#	0.1	-
	mg/L	05/16/88	0002	357			#	0.1	-
	mg/L	05/16/88	0003	357			#	0.1	-
	mg/L	05/16/88	0004	357			#	0.1	-
	mg/L	05/16/88	0005	356			#	0.1	-
	mg/L	09/01/88	0001	854			#	1	-
	mg/L	10/26/88	0001	438			#	0.1	-
	mg/L	04/26/89	0001	212			#	0.1	-
	mg/L	11/21/89	0001	185	H		#	0.1	-
	mg/L	03/30/90	0001	154			#	0.1	-
	mg/L	03/30/90	N001	161			#	0.1	-
	mg/L	11/15/90	0001	278			#	0.1	-
	mg/L	11/15/90	N001	281			#	0.1	-
	mg/L	03/27/91	0001	150			#	10	-
	mg/L	06/01/91	0001	137			#	0.1	-
	mg/L	10/23/91	0001	379			#	0.1	-
	mg/L	03/12/92	0001	157			#	10	-
	mg/L	08/07/92	0001	93			#	10	-
	mg/L	03/18/93	0001	106			#	1	-
	mg/L	07/14/95	0001	260			#	1	-
	mg/L	02/06/97	0001	292.000			#	-	-
Thorium-230	pCi/L	05/26/85	0001	0.00		J	#	1	± 0.40
	pCi/L	05/26/85	0002	0.00		J	#	1	± 0.40
	pCi/L	05/26/85	0003	0.00		J	#	1	± 0.40
	pCi/L	05/26/85	0004	0.00		J	#	1	± 0.40
	pCi/L	05/26/85	0005	0.30		J	#	1	± 0.50
	pCi/L	11/21/87	0001	0.0			#	1	± 0.40
	pCi/L	10/26/88	0001	0.870			#	1	± 0.43
	pCi/L	04/26/89	0001	0.0			#	1	± 0.30
	pCi/L	11/21/89	0001	0.0		J	#	1	± 0.30
	pCi/L	11/15/90	0001	0.2			#	1	± 0.50
	pCi/L	11/15/90	N001	0.0			#	1	± 0.50

GROUND WATER QUALITY DATA BY LOCATION (USEE100) FOR SITE RVT01, RIVERTON
LOCATION: 0711
REPORT DATE: 2/19/98 10:33:42 AM

PARAMETER	UNITS	SAMPLE: DATE	ID	RESULT	QUALIFIERS: LAB	DATA	QA	DETECTION LIMIT	UN-CERTAINTY
Thorium-230	pCi/L	03/27/91	N001	0.0			#	1	± 0.20
	pCi/L	03/18/93	0001	3.8			#	0.2	± 1.10
	pCi/L	03/18/93	N001	0.3			#	0.5	± 0.30
	pCi/L	02/06/97	0001	0.64	U		#	0.64	±
Uranium	mg/L	05/26/85	0001	0.0007		J	#	0.003	-
	mg/L	05/26/85	0002	0.0003	U	J	#	0.003	-
	mg/L	05/26/85	0003	0.0005		J	#	0.003	-
	mg/L	05/26/85	0004	0.0003	U	J	#	0.003	-
	mg/L	05/26/85	0005	0.0007		J	#	0.003	-
	mg/L	11/21/87	0001	0.0042			#	0.003	-
	mg/L	05/16/88	0001	0.0044			#	0.003	-
	mg/L	05/16/88	0002	0.0045			#	0.003	-
	mg/L	05/16/88	0003	0.0046			#	0.003	-
	mg/L	05/16/88	0004	0.0042			#	0.003	-
	mg/L	05/16/88	0005	0.0043			#	0.003	-
	mg/L	09/01/88	0001	0.008		R	#	0.003	-
	mg/L	10/26/88	0001	0.003	U		#	0.003	-
	mg/L	04/26/89	0001	0.005			#	0.003	-
	mg/L	11/21/89	0001	0.0019		J	#	0.003	-
	mg/L	03/30/90	0001	0.0020		J	#	0.003	-
	mg/L	03/30/90	N001	0.0020		J	#	0.003	-
	mg/L	11/15/90	0001	0.0032			#	0.0003	-
	mg/L	11/15/90	N001	0.0027			#	0.0003	-
	mg/L	03/27/91	0001	0.004			#	0.001	-
	mg/L	03/27/91	N001	0.001	U		#	0.001	-
	mg/L	06/01/91	0001	0.001			#	0.001	-
	mg/L	10/23/91	0001	0.0046			#	0.0003	-
	mg/L	03/12/92	0001	0.003			#	0.001	-
	mg/L	08/07/92	0001	0.001	U		#	0.001	-
	mg/L	03/18/93	0001	0.002			#	0.001	-
	mg/L	03/18/93	N001	0.001			#	0.001	-
	mg/L	07/14/95	0001	0.001			#	0.001	-
	mg/L	07/14/95	N001	0.002			#	0.001	-
	mg/L	02/06/97	0001	0.0027			#	-	-
Vanadium	mg/L	05/26/85	0001	0.01	U	R	#	0.01	-
	mg/L	05/26/85	0002	0.01	U	R	#	0.01	-

GROUND WATER QUALITY DATA BY LOCATION (USEE100) FOR SITE RVT01, RIVERTON
LOCATION: 0711
REPORT DATE: 2/19/98 10:33:42 AM

PARAMETER	UNITS	SAMPLE: DATE	ID	RESULT	QUALIFIERS: LAB	DATA	QA	DETECTION LIMIT	UN-CERTAINTY
Vanadium	mg/L	05/26/85	0003	0.01	U	R	#	0.01	-
	mg/L	05/26/85	0004	0.01	U	R	#	0.01	-
	mg/L	05/26/85	0005	0.01	U	R	#	0.01	-
	mg/L	11/21/87	0001	0.04			#	0.01	-
	mg/L	05/16/88	0001	0.02			#	0.01	-
	mg/L	05/16/88	0002	0.02			#	0.01	-
	mg/L	05/16/88	0003	0.02			#	0.01	-
	mg/L	05/16/88	0004	0.03			#	0.01	-
	mg/L	05/16/88	0005	0.03			#	0.01	-
	mg/L	09/01/88	0001	0.01	U		#	0.01	-
	mg/L	10/26/88	0001	0.01	U		#	0.01	-
	mg/L	04/26/89	0001	0.01	U		#	0.01	-
	mg/L	11/21/89	0001	0.02			#	0.01	-
	mg/L	03/30/90	0001	0.01	U		#	0.01	-
	mg/L	03/30/90	N001	0.01	U		#	0.01	-
	mg/L	11/15/90	0001	0.01	U		#	0.01	-
	mg/L	11/15/90	N001	0.01	U		#	0.01	-
	mg/L	03/27/91	0001	0.01	U		#	0.01	-
	mg/L	03/27/91	N001	0.01	U		#	0.01	-
	mg/L	06/01/91	0001	0.01	U		#	0.01	-
	mg/L	10/23/91	0001	0.03			#	0.01	-
	mg/L	03/12/92	0001	0.01	U		#	0.01	-
	mg/L	08/07/92	0001	0.01	U		#	0.01	-
	mg/L	03/18/93	0001	0.01	U		#	0.01	-
	mg/L	03/18/93	N001	0.01	U		#	0.01	-
	mg/L	07/14/95	0001	0.01	U		#	0.01	-
	mg/L	07/14/95	N001	0.01	U		#	0.01	-
	mg/L	02/06/97	0001	0.0040	U		#	0.004	-

GROUND WATER QUALITY DATA BY LOCATION (USEE100) FOR SITE RVT01, RIVERTON
LOCATION: 0712
REPORT DATE: 2/19/98 10:33:42 AM

PARAMETER	UNITS	SAMPLE: DATE	ID	RESULT	QUALIFIERS: LAB	DATA	QA	DETECTION LIMIT	UN-CERTAINTY
Arsenic	mg/L	03/30/93	0001	0.005	U		#	0.005	-
	mg/L	03/30/93	N001	0.005	U		#	0.005	-
Lead-210	pCi/L	03/30/93	0001	1.1			#	2.5	± 1.50
	pCi/L	03/30/93	N001	0.8			#	2.8	± 1.70
Manganese	mg/L	03/30/93	0001	0.03			#	0.01	-
	mg/L	03/30/93	N001	0.06			#	0.01	-
Molybdenum	mg/L	03/30/93	0001	0.01	U		#	0.01	-
	mg/L	03/30/93	N001	0.01	U		#	0.01	-
Nickel	mg/L	03/30/93	0001	0.04	U		#	0.04	-
	mg/L	03/30/93	N001	0.04	U		#	0.04	-
Polonium-210	pCi/L	03/30/93	0001	0.0			#	1.2	± 0.60
	pCi/L	03/30/93	N001	0.7			#	0.9	± 0.70
Sulfate	mg/L	05/25/85	0001	376.00			#	0.1	-
	mg/L	03/30/93	0001	254			#	1	-
Thorium-230	pCi/L	05/25/85	0001	0.00		J	#	1	± 0.40
	pCi/L	03/30/93	0001	0.4			#	0.4	± 0.30
	pCi/L	03/30/93	N001	0.7			#	0.6	± 0.50
Uranium	mg/L	05/25/85	0001	0.0023		J	#	0.003	-
	mg/L	03/30/93	0001	0.002			#	0.001	-
	mg/L	03/30/93	N001	0.002			#	0.001	-
Vanadium	mg/L	03/30/93	0001	0.01	U		#	0.01	-
	mg/L	03/30/93	N001	0.01	U		#	0.01	-

GROUND WATER QUALITY DATA BY LOCATION (USEE100) FOR SITE RVT01, RIVERTON
LOCATION: 0713
REPORT DATE: 2/19/98 10:33:42 AM

PARAMETER	UNITS	SAMPLE: DATE	ID	RESULT	QUALIFIERS: LAB	DATA	QA	DETECTION LIMIT	UN-CERTAINTY
Arsenic	mg/L	05/25/85	0001	0.01	U		#	0.01	-
Lead-210	pCi/L	05/25/85	0001	0.70		J	#	1.5	± 0.70
Manganese	mg/L	05/25/85	0001	0.46			#	0.01	-
Molybdenum	mg/L	05/25/85	0001	0.01	U		#	0.01	-
Nickel	mg/L	05/25/85	0001	0.04	U	J	#	0.04	-
Polonium-210	pCi/L	05/25/85	0001	0.00			#	1	± 0.60
Sulfate	mg/L	05/25/85	0001	66.70			#	0.1	-
Thorium-230	pCi/L	05/25/85	0001	0.00		J	#	1	± 0.40
Uranium	mg/L	05/25/85	0001	0.0017		J	#	0.003	-
Vanadium	mg/L	05/25/85	0001	0.01	U	R	#	0.01	-

GROUND WATER QUALITY DATA BY LOCATION (USEE100) FOR SITE RVT01, RIVERTON
LOCATION: 0714
REPORT DATE: 2/19/98 10:33:43 AM

PARAMETER	UNITS	SAMPLE: DATE	ID	RESULT	QUALIFIERS: LAB	DATA	QA	DETECTION LIMIT	UN-CERTAINTY
Arsenic	mg/L	05/25/85	0001	0.01	U		#	0.01	-
Lead-210	pCi/L	05/25/85	0001	0.10		J	#	1.5	± 0.60
Manganese	mg/L	05/25/85	0001	2.26			#	0.01	-
Molybdenum	mg/L	05/25/85	0001	0.01	U		#	0.01	-
Nickel	mg/L	05/25/85	0001	0.04	U	J	#	0.04	-
Polonium-210	pCi/L	05/25/85	0001	0.00		J	#	1	± 0.60
Sulfate	mg/L	05/25/85	0001	42.30			#	0.1	-
Thorium-230	pCi/L	05/25/85	0001	0.00		J	#	1	± 0.40
Uranium	mg/L	05/25/85	0001	0.0003	U	J	#	0.003	-
Vanadium	mg/L	05/25/85	0001	0.01	U	R	#	0.01	-

GROUND WATER QUALITY DATA BY LOCATION (USEE100) FOR SITE RVT01, RIVERTON
LOCATION: 0716
REPORT DATE: 2/19/98 10:33:43 AM

PARAMETER	UNITS	SAMPLE: DATE	ID	RESULT	QUALIFIERS: LAB	DATA	QA	DETECTION LIMIT	UN-CERTAINTY
Arsenic	mg/L	04/01/93	0001	0.005	U		#	0.005	-
	mg/L	04/01/93	N001	0.005	U		#	0.005	-
	mg/L	01/09/94	0001	0.005	UW		#	0.005	-
	mg/L	02/16/96	0001	0.005	U		#	0.005	-
	mg/L	02/09/97	0001	0.00040	BN	J	#	-	-
Lead-210	pCi/L	04/01/93	0001	1.2			#	2.5	± 1.60
	pCi/L	04/01/93	N001	0.3			#	2.8	± 1.70
	pCi/L	02/09/97	0001	1.29	U		#	1.29	± 0.76
Manganese	mg/L	04/01/93	0001	0.74			#	0.01	-
	mg/L	04/01/93	N001	0.68			#	0.01	-
	mg/L	01/09/94	0001	0.74			#	0.01	-
	mg/L	02/16/96	0001	0.75			#	0.01	-
	mg/L	02/09/97	0001	0.681			#	-	-
Molybdenum	mg/L	04/01/93	0001	0.26			#	0.01	-
	mg/L	04/01/93	N001	0.23			#	0.01	-
	mg/L	01/09/94	0001	0.24			#	0.01	-
	mg/L	02/16/96	0001	0.21			#	0.01	-
	mg/L	02/09/97	0001	0.217			#	-	-
Nickel	mg/L	04/01/93	0001	0.04	U		#	0.04	-
	mg/L	04/01/93	N001	0.04	U		#	0.04	-
	mg/L	01/09/94	0001	0.04	U		#	0.04	-
	mg/L	02/16/96	0001	0.04	U		#	0.04	-
	mg/L	02/09/97	0001	0.0081	B		#	-	-
Polonium-210	pCi/L	04/01/93	0001	0.0			#	1.2	± 0.60
	pCi/L	04/01/93	N001	0.5			#	0.9	± 0.70
	pCi/L	02/09/97	0001	0.15		UJ	#	0.11	± 0.15
Sulfate	mg/L	04/01/93	0001	674			#	1	-
	mg/L	01/09/94	0001	775			#	1	-
	mg/L	02/16/96	0001	645	I		#	4	-
	mg/L	02/09/97	0001	662.000			#	-	-
Thorium-230	pCi/L	04/01/93	0001	0.8			#	0.6	± 0.60
	pCi/L	04/01/93	N001	0.8			#	0.4	± 0.50
	pCi/L	02/09/97	0001	0.64	UN	J	#	0.64	±
Uranium	mg/L	04/01/93	0001	0.591			#	0.001	-

GROUND WATER QUALITY DATA BY LOCATION (USEE100) FOR SITE RVT01, RIVERTON
LOCATION: 0716
REPORT DATE: 2/19/98 10:33:43 AM

PARAMETER	UNITS	SAMPLE: DATE	ID	RESULT	QUALIFIERS: LAB	DATA	QA	DETECTION LIMIT	UN-CERTAINTY
Uranium	mg/L	04/01/93	N0\	0.702			#	0.001	-
	mg/L	01/09/94	0001	0.718			#	0.001	-
	mg/L	02/16/96	0001	0.669			#	0.001	-
	mg/L	02/09/97	0001	[illegible]			#	-	-
Vanadium	mg/L	04/01/93	0001	0.01	U		#	0.01	-
	mg/L	04/01/93	N001	0.01	U		#	0.01	-
	mg/L	01/09/94	0001	0.01	U		#	0.01	-
	mg/L	02/16/96	0001	0.01	U		#	0.01	-
	mg/L	02/09/97	0001	0.0040	U		#	0.004	-

GROUND WATER QUALITY DATA BY LOCATION (USEE100) FOR SITE RVT01, RIVERTON
LOCATION: 0717
REPORT DATE: 2/19/98 10:33:43 AM

PARAMETER	UNITS	SAMPLE: DATE	ID	RESULT	QUALIFIERS: LAB	DATA	QA	DETECTION LIMIT	UN-CERTAINTY
Arsenic	mg/L	04/01/93	0001	0.005	UW		#	0.005	-
	mg/L	04/01/93	N001	0.005	U		#	0.005	-
	mg/L	01/09/94	0001	0.005	U		#	0.005	-
	mg/L	02/16/96	0001	0.005	U		#	0.005	-
	mg/L	02/09/97	0001	0.00020	U		#	0.0002	-
Lead-210	pCi/L	04/01/93	0001	0.6			#	2.5	± 1.50
	pCi/L	04/01/93	N001	0.5			#	2.8	± 1.70
	pCi/L	02/09/97	0001	1.18	U		#	1.18	± 0.70
Manganese	mg/L	04/01/93	0001	0.22			#	0.01	-
	mg/L	04/01/93	N001	0.19			#	0.01	-
	mg/L	01/09/94	0001	0.24			#	0.01	-
	mg/L	02/16/96	0001	0.23			#	0.01	-
	mg/L	02/09/97	0001	0.216			#	-	-
Molybdenum	mg/L	04/01/93	0001	0.01	U		#	0.01	-
	mg/L	04/01/93	N001	0.01	U		#	0.01	-
	mg/L	01/09/94	0001	0.01	U		#	0.01	-
	mg/L	02/16/96	0001	0.01	U		#	0.01	-
	mg/L	02/09/97	0001	0.0085	B		#	-	-
Nickel	mg/L	04/01/93	0001	0.04	U		#	0.04	-
	mg/L	04/01/93	N001	0.04	U		#	0.04	-
	mg/L	01/09/94	0001	0.04	U		#	0.04	-
	mg/L	02/16/96	0001	0.04	U		#	0.04	-
	mg/L	02/09/97	0001	0.0070	U		#	0.007	-
Polonium-210	pCi/L	04/01/93	0001	0.0			#	1.2	± 0.60
	pCi/L	04/01/93	N001	0.6			#	0.9	± 0.70
	pCi/L	02/09/97	0001	0.15	U		#	0.15	± 0.19
Sulfate	mg/L	04/01/93	0001	739			#	1	-
	mg/L	01/09/94	0001	707			#	1	-
	mg/L	02/16/96	0001	745	I		#	4	-
	mg/L	02/09/97	0001	728.000			#	-	-
Thorium-230	pCi/L	04/01/93	0001	0.1			#	0.1	± 0.40
	pCi/L	04/01/93	N001	0.5			#	0.2	± 0.30
	pCi/L	02/09/97	0001	0.64	U		#	0.64	±
Uranium	mg/L	04/01/93	0001	0.002			#	0.001	-

GROUND WATER QUALITY DATA BY LOCATION (USEE100) FOR SITE RVT01, RIVERTON
LOCATION: 0717
REPORT DATE: 2/19/98 10:33:44 AM

PARAMETER	UNITS	SAMPLE: DATE	ID	RESULT	QUALIFIERS: LAB	DATA	QA	DETECTION LIMIT	UN-CERTAINTY
Uranium	mg/L	04/01/93	N001	0.001	U		#	0.001	-
	mg/L	01/09/94	0001	0.001	U		#	0.001	-
	mg/L	02/16/96	0001	0.015		J	#	0.001	-
	mg/L	02/09/97	0001	0.0010	U		#	0.001	-
Vanadium	mg/L	04/01/93	0001	0.01	U		#	0.01	-
	mg/L	04/01/93	N001	0.01	U		#	0.01	-
	mg/L	01/09/94	0001	0.01	U		#	0.01	-
	mg/L	02/16/96	0001	0.01	U		#	0.01	-
	mg/L	02/09/97	0001	0.0040	U		#	0.004	-

GROUND WATER QUALITY DATA BY LOCATION (USEE100) FOR SITE RVT01, RIVERTON
LOCATION: 0718
REPORT DATE: 2/19/98 10:33:44 AM

PARAMETER	UNITS	SAMPLE: DATE	ID	RESULT	QUALIFIERS: LAB	DATA	QA	DETECTION LIMIT	UN-CERTAINTY
Arsenic	mg/L	04/01/93	0001	0.005	UW		#	0.005	-
	mg/L	04/01/93	N001	0.005	U		#	0.005	-
	mg/L	01/09/94	0001	0.005	UW		#	0.005	-
	mg/L	02/17/96	0001	0.005	U		#	0.005	-
	mg/L	02/07/97	0001	0.00071	B	J	#	-	-
Lead-210	pCi/L	04/01/93	0001	0.7			#	2.5	± 1.50
	pCi/L	04/01/93	N001	1.9			#	2.8	± 1.80
	pCi/L	02/07/97	0001	1.24	U		#	1.24	± 0.73
Manganese	mg/L	04/01/93	0001	1.85			#	0.01	-
	mg/L	04/01/93	N001	1.58			#	0.01	-
	mg/L	01/09/94	0001	3.28			#	0.01	-
	mg/L	02/17/96	0001	3.18			#	0.01	-
	mg/L	02/07/97	0001	2.580			#	-	-
Molybdenum	mg/L	04/01/93	0001	0.13			#	0.01	-
	mg/L	04/01/93	N001	0.12			#	0.01	-
	mg/L	01/09/94	0001	0.15			#	0.01	-
	mg/L	02/17/96	0001	0.14			#	0.01	-
	mg/L	02/07/97	0001	0.128			#	-	-
Nickel	mg/L	04/01/93	0001	0.04			#	0.04	-
	mg/L	04/01/93	N001	0.04			#	0.04	-
	mg/L	01/09/94	0001	0.06			#	0.04	-
	mg/L	02/17/96	0001	0.04	U		#	0.04	-
	mg/L	02/07/97	0001	0.0298	B		#	-	-
Polonium-210	pCi/L	04/01/93	0001	0.0			#	1.2	± 0.70
	pCi/L	04/01/93	N001	0.8			#	0.9	± 0.80
	pCi/L	02/07/97	0001	0.21		U	#	0.11	± 0.16
Sulfate	mg/L	04/01/93	0001	1830			#	1	-
	mg/L	01/09/94	0001	2480			#	1	-
	mg/L	02/17/96	0001	2960	I		#	8	-
	mg/L	02/07/97	0001	2400.000			#	-	-
Thorium-230	pCi/L	04/01/93	0001	1.1			#	1.1	± 0.50
	pCi/L	04/01/93	N001	0.8			#	0.4	± 0.40
	pCi/L	02/07/97	0001	0.64	U		#	0.64	±
Uranium	mg/L	04/01/93	0001	0.202			#	0.001	-

GROUND WATER QUALITY DATA BY LOCATION (USEE100) FOR SITE RVT01, RIVERTON
LOCATION: 0718
REPORT DATE: 2/19/98 10:33:44 AM

PARAMETER	UNITS	SAMPLE: DATE	ID	RESULT	QUALIFIERS: LAB	DATA	QA	DETECTION LIMIT	UN-CERTAINTY
Uranium	mg/L	04/01/93	N001	0.195			#	0.001	-
	mg/L	01/09/94	0001	0.328			#	0.001	-
	mg/L	02/17/96	0001	0.549			#	0.001	-
	mg/L	02/07/97	0001	0.343			#	-	-
Vanadium	mg/L	04/01/93	0001	0.01	U		#	0.01	-
	mg/L	04/01/93	N001	0.01	U		#	0.01	-
	mg/L	01/09/94	0001	0.01	U		#	0.01	-
	mg/L	02/17/96	0001	0.01	U		#	0.01	-
	mg/L	02/07/97	0001	0.0040	U		#	0.004	-

GROUND WATER QUALITY DATA BY LOCATION (USEE100) FOR SITE RVT01, RIVERTON
LOCATION: 0719
REPORT DATE: 2/19/98 10:33:44 AM

PARAMETER	UNITS	SAMPLE: DATE	ID	RESULT	QUALIFIERS: LAB	DATA	QA	DETECTION LIMIT	UN-CERTAINTY
Arsenic	mg/L	04/01/93	0001	0.005	UW	F	#	0.005	-
	mg/L	04/01/93	N001	0.005	U	F	#	0.005	-
	mg/L	01/09/94	0001	0.005	U	F	#	0.005	-
	mg/L	02/17/96	0001	0.005	U	F	#	0.005	-
	mg/L	02/06/97	0001	0.0013	B	J	#	-	-
Lead-210	pCi/L	04/01/93	0001	0.8		F	#	2.5	± 1.50
	pCi/L	04/01/93	N001	1.1		F	#	2.8	± 1.70
	pCi/L	02/06/97	0001	1.10	U		#	1.1	± 0.65
Manganese	mg/L	04/01/93	0001	0.13		F	#	0.01	-
	mg/L	04/01/93	N001	0.24		F	#	0.01	-
	mg/L	01/09/94	0001	0.22		F	#	0.01	-
	mg/L	02/17/96	0001	0.05		F	#	0.01	-
	mg/L	02/06/97	0001	0.123			#	-	-
Molybdenum	mg/L	04/01/93	0001	0.04		F	#	0.01	-
	mg/L	04/01/93	N001	0.03		F	#	0.01	-
	mg/L	01/09/94	0001	0.02		F	#	0.01	-
	mg/L	02/17/96	0001	0.02		F	#	0.01	-
	mg/L	02/06/97	0001	0.0222			#	-	-
Nickel	mg/L	04/01/93	0001	0.04	U	F	#	0.04	-
	mg/L	04/01/93	N001	0.04	U	F	#	0.04	-
	mg/L	01/09/94	0001	0.04	U	F	#	0.04	-
	mg/L	02/17/96	0001	0.04	U	F	#	0.04	-
	mg/L	02/06/97	0001	0.0070	U		#	0.007	-
Polonium-210	pCi/L	04/01/93	0001	0.6		F	#	1.2	± 0.80
	pCi/L	04/01/93	N001	1.2		F	#	0.9	± 0.80
	pCi/L	02/07/97	0001	0.15			#	0.06	± 0.10
Sulfate	mg/L	04/01/93	0001	592		F	#	1	-
	mg/L	01/09/94	0001	512		F	#	1	-
	mg/L	02/17/96	0001	485	I	F	#	1	-
	mg/L	02/06/97	0001	426.000			#	-	-
Thorium-230	pCi/L	04/01/93	0001	0.6		F	#	0.5	± 0.40
	pCi/L	04/01/93	N001	1.1		F	#	0.6	± 0.60
	pCi/L	02/06/97	0001	0.64	U		#	0.64	±
Uranium	mg/L	04/01/93	0001	0.017		F	#	0.001	-

GROUND WATER QUALITY DATA BY LOCATION (USEE100) FOR SITE RVT01, RIVERTON
LOCATION: 0719
REPORT DATE: 2/19/98 10:33:45 AM

PARAMETER	UNITS	SAMPLE: DATE	ID	RESULT	QUALIFIERS: LAB	DATA	QA	DETECTION LIMIT	UN-CERTAINTY
Uranium	mg/L	04/01/93	N001	0.012		F	#	0.001	-
	mg/L	01/09/94	0001	0.003		F	#	0.001	-
	mg/L	02/17/96	0001	0.001	U	F	#	0.001	-
	mg/L	02/06/97	0001	0.0010	U		#	0.001	-
Vanadium	mg/L	04/01/93	0001	0.01	U	F	#	0.01	-
	mg/L	04/01/93	N001	0.02		F	#	0.01	-
	mg/L	01/09/94	0001	0.01	U	F	#	0.01	-
	mg/L	02/17/96	0001	0.01	U	F	#	0.01	-
	mg/L	02/06/97	0001	0.0040	U		#	0.004	-

GROUND WATER QUALITY DATA BY LOCATION (USEE100) FOR SITE RVT01, RIVERTON
LOCATION: 0720
REPORT DATE: 2/19/98 10:33:45 AM

PARAMETER	UNITS	SAMPLE: DATE	ID	RESULT	QUALIFIERS: LAB	DATA	QA	DETECTION LIMIT	UN-CERTAINTY
Arsenic	mg/L	03/14/93	0001	0.005	U		#	0.005	-
	mg/L	03/14/93	N001	0.005	U		#	0.005	-
	mg/L	01/09/94	0001	0.005	U		#	0.005	-
	mg/L	02/18/96	0001	0.005	U		#	0.005	-
	mg/L	02/09/97	0001	0.00095	BN	J	#	-	-
Lead-210	pCi/L	03/14/93	0001	0.5			#	1.7	± 1.00
	pCi/L	03/14/93	N001	1.6			#	3.6	± 2.30
	pCi/L	02/09/97	0001	1.03	U		#	1.03	± 0.62
Manganese	mg/L	03/14/93	0001	0.35			#	0.01	-
	mg/L	03/14/93	N001	0.32			#	0.01	-
	mg/L	01/09/94	0001	1.15			#	0.01	-
	mg/L	02/18/96	0001	0.39			#	0.01	-
	mg/L	02/09/97	0001	0.156			#	-	-
Molybdenum	mg/L	02/25/93	0001	0.0082			#	0.0005	-
	mg/L	02/25/93	N001	0.0082			#	0.0005	-
	mg/L	03/14/93	0001	0.01	U		#	0.01	-
	mg/L	03/14/93	N001	0.01	U		#	0.01	-
	mg/L	01/09/94	0001	0.01	U		#	0.01	-
	mg/L	02/18/96	0001	0.01	U		#	0.01	-
	mg/L	02/09/97	0001	0.0024	B		#	-	-
Nickel	mg/L	03/14/93	0001	0.04	U		#	0.04	-
	mg/L	03/14/93	N001	0.04	U		#	0.04	-
	mg/L	01/09/94	0001	0.04	U		#	0.04	-
	mg/L	02/18/96	0001	0.04	U		#	0.04	-
	mg/L	02/09/97	0001	0.0070	U		#	0.007	-
Polonium-210	pCi/L	03/14/93	0001	0.0			#	1.3	± 0.80
	pCi/L	03/14/93	N001	0.0			#	0.9	± 0.50
	pCi/L	02/09/97	0001	0.28		U	#	0.12	± 0.20
Sulfate	mg/L	02/25/93	0001	406			#	1	-
	mg/L	02/25/93	N001	408			#	1	-
	mg/L	03/14/93	N001	351			#	1	-
	mg/L	01/09/94	0001	411			#	1	-
	mg/L	02/18/96	0001	331	I		#	1	-
	mg/L	02/09/97	0001	217.000			#	-	-

GROUND WATER QUALITY DATA BY LOCATION (USEE100) FOR SITE RVT01, RIVERTON
LOCATION: 0720
REPORT DATE: 2/19/98 10:33:45 AM

PARAMETER	UNITS	SAMPLE: DATE	ID	RESULT	QUALIFIERS: LAB	DATA	QA	DETECTION LIMIT	UN-CERTAINTY
Thorium-230	pCi/L	03/14/93	0001	0.7			#	0.2	± 0.40
	pCi/L	03/14/93	N001	0.4			#	0.5	± 0.30
	pCi/L	02/09/97	0001	0.64	UN	J	#	0.64	±
Uranium	mg/L	02/25/93	0001	0.0170			#	0.0002	-
	mg/L	02/25/93	N001	0.0176			#	0.0002	-
	mg/L	03/14/93	0001	0.010			#	0.001	-
	mg/L	03/14/93	N001	0.009			#	0.001	-
	mg/L	01/09/94	0001	0.008			#	0.001	-
	mg/L	02/18/96	0001	0.013		J	#	0.001	-
	mg/L	02/09/97	0001	0.0049			#	-	-
Vanadium	mg/L	03/14/93	0001	0.01	U		#	0.01	-
	mg/L	03/14/93	N001	0.01	U		#	0.01	-
	mg/L	01/09/94	0001	0.01	U		#	0.01	-
	mg/L	02/18/96	0001	0.01	U		#	0.01	-
	mg/L	02/09/97	0001	0.0040	U		#	0.004	-

GROUND WATER QUALITY DATA BY LOCATION (USEE100) FOR SITE RVT01, RIVERTON
LOCATION: 0721
REPORT DATE: 2/19/98 10:33:45 AM

PARAMETER	UNITS	SAMPLE: DATE	ID	RESULT	QUALIFIERS: LAB	DATA	QA	DETECTION LIMIT	UN-CERTAINTY
Arsenic	mg/L	03/14/93	0001	0.005	U		#	0.005	-
	mg/L	03/14/93	N001	0.005	U		#	0.005	-
	mg/L	01/09/94	0001	0.005	U		#	0.005	-
	mg/L	02/09/97	0001	0.00020	UN	J	#	0.0002	-
Lead-210	pCi/L	03/14/93	0001	0.0			#	1.7	± 1.00
	pCi/L	03/14/93	N001	1.6			#	3.6	± 2.20
	pCi/L	02/09/97	0001	0.94	U		#	0.94	± 0.55
Manganese	mg/L	03/14/93	0001	0.01			#	0.01	-
	mg/L	03/14/93	N001	0.01			#	0.01	-
	mg/L	01/09/94	0001	0.01	U		#	0.01	-
	mg/L	02/09/97	0001	0.0063	B		#	-	-
Molybdenum	mg/L	02/25/93	0001	0.0025			#	0.0005	-
	mg/L	02/25/93	N001	0.0032			#	0.0005	-
	mg/L	03/14/93	0001	0.01	U		#	0.01	-
	mg/L	03/14/93	N001	0.01	U		#	0.01	-
	mg/L	01/09/94	0001	0.01	U		#	0.01	-
	mg/L	02/09/97	0001	0.0030	B		#	-	-
Nickel	mg/L	03/14/93	0001	0.04	U		#	0.04	-
	mg/L	03/14/93	N001	0.04	U		#	0.04	-
	mg/L	01/09/94	0001	0.04	U		#	0.04	-
	mg/L	02/09/97	0001	0.0070	U		#	0.007	-
Polonium-210	pCi/L	03/14/93	0001	0.8			#	1.3	± 0.90
	pCi/L	03/14/93	N001	0.1			#	0.9	± 0.60
	pCi/L	02/09/97	0001	0.18		U	#	0.12	± 0.17
Sulfate	mg/L	02/25/93	0001	230			#	1	-
	mg/L	02/25/93	N001	255			#	1	-
	mg/L	03/14/93	N001	287			#	1	-
	mg/L	01/09/94	0001	274			#	1	-
	mg/L	02/09/97	0001	262.000			#	-	-
Thorium-230	pCi/L	03/14/93	0001	6.7			#	0.3	± 1.80
	pCi/L	03/14/93	N001	1.6			#	0.5	± 0.70
	pCi/L	02/09/97	0001	0.64	UN	J	#	0.64	±
Uranium	mg/L	02/25/93	0001	0.0005			#	0.0002	-
	mg/L	02/25/93	N001	0.0013			#	0.0002	-

GROUND WATER QUALITY DATA BY LOCATION (USEE100) FOR SITE: RVT01, RIVERTON
LOCATION: 0721
REPORT DATE: 2/19/98 10:33:46 AM

PARAMETER	UNITS	SAMPLE: DATE	ID	RESULT	QUALIFIERS: LAB	DATA	QA	DETECTION LIMIT	UN-CERTAINTY
Uranium	mg/L	03/14/93	0001	0.001	U		#	0.001	-
	mg/L	03/14/93	N001	0.001	U		#	0.001	-
	mg/L	01/09/94	0001	0.001	U		#	0.001	-
	mg/L	02/09/97	0001	0.0010	U		#	0.001	-
Vanadium	mg/L	03/14/93	0001	0.01	U		#	0.01	-
	mg/L	03/14/93	N001	0.01	U		#	0.01	-
	mg/L	01/09/94	0001	0.01	U		#	0.01	-
	mg/L	02/09/97	0001	0.0040	U		#	0.004	-

GROUND WATER QUALITY DATA BY LOCATION (USEE100) FOR SITE RVT01, RIVERTON
LOCATION: 0722
REPORT DATE: 2/19/98 10:33:46 AM

PARAMETER	UNITS	SAMPLE: DATE	ID	RESULT	QUALIFIERS: LAB	DATA	QA	DETECTION LIMIT	UN-CERTAINTY
Arsenic	mg/L	03/16/93	0001	0.005	U		#	0.005	-
	mg/L	03/16/93	N001	0.005	U		#	0.005	-
	mg/L	01/10/94	0001	0.005	UW		#	0.005	-
	mg/L	02/18/96	0001	0.005	U		#	0.005	-
	mg/L	02/06/97	0001	0.00020	UN	J	#	0.0002	-
Lead-210	pCi/L	03/16/93	0001	2.0			#	2.7	± 1.70
	pCi/L	03/16/93	N001	0.6			#	2.7	± 1.60
	pCi/L	02/06/97	0001	2.21			#	1.24	± 0.76
Manganese	mg/L	03/16/93	0001	2.61			#	0.01	-
	mg/L	03/16/93	N001	2.34			#	0.01	-
	mg/L	01/10/94	0001	2.71			#	0.01	-
	mg/L	02/18/96	0001	1.97			#	0.01	-
	mg/L	02/06/97	0001	1.840			#	-	-
Molybdenum	mg/L	02/25/93	0001	0.1440			#	0.0005	-
	mg/L	02/25/93	N001	0.1390			#	0.0005	-
	mg/L	03/16/93	0001	0.14			#	0.01	-
	mg/L	03/16/93	N001	0.12			#	0.01	-
	mg/L	01/10/94	0001	0.11			#	0.01	-
	mg/L	02/18/96	0001	0.11			#	0.01	-
	mg/L	02/06/97	0001	0.105			#	-	-
Nickel	mg/L	03/16/93	0001	0.04	U		#	0.04	-
	mg/L	03/16/93	N001	0.06			#	0.04	-
	mg/L	01/10/94	0001	0.04	U		#	0.04	-
	mg/L	02/18/96	0001	0.04	U		#	0.04	-
	mg/L	02/06/97	0001	0.0128	B		#	-	-
Polonium-210	pCi/L	03/16/93	0001	0.0			#	1.3	± 0.. J
	pCi/L	03/16/93	N001	0.0			#	0.9	± 0.60
	pCi/L	02/06/97	0001	0.12	U		#	0.12	± 0.12
Sulfate	mg/L	02/25/93	0001	1800			#	1	-
	mg/L	02/25/93	N001	1780			#	1	-
	mg/L	03/16/93	0001	1750			#	1	-
	mg/L	01/10/94	0001	1720			#	1	-
	mg/L	02/18/96	0001	1880	I		#	4	-
	mg/L	02/06/97	0001	1540.000			#	-	-

GROUND WATER QUALITY DATA BY LOCATION (USEE100) FOR SITE RVT01, RIVERTON
LOCATION: 0722
REPORT DATE: 2/19/98 10:33:46 AM

PARAMETER	UNITS	SAMPLE: DATE	ID	RESULT	QUALIFIERS: LAB	DATA	QA	DETECTION LIMIT	UN-CERTAINTY
Thorium-230	pCi/L	03/16/93	0001	0.6			#	1.6	± 0.40
	pCi/L	03/16/93	N001	0.3			#	0.3	± 0.20
	pCi/L	02/06/97	0001	0.64	UN	J	#	0.64	±
Uranium	mg/L	02/25/93	0001	1.5400			#	0.0002	-
	mg/L	02/25/93	N001	1.5700			#	0.0002	-
	mg/L	03/16/93	0001	1.39			#	0.001	-
	mg/L	01/10/94	0001	1.57			#	0.001	-
	mg/L	02/18/96	0001	1.88			#	0.001	-
	mg/L	02/06/97	0001	1.620			#	-	-
Vanadium	mg/L	03/16/93	0001	0.01	U		#	0.01	-
	mg/L	03/16/93	N001	0.01	U		#	0.01	-
	mg/L	01/10/94	0001	0.01	U		#	0.01	-
	mg/L	02/18/96	0001	0.01	U		#	0.01	-
	mg/L	02/06/97	0001	0.0040	U		#	0.004	-

GROUND WATER QUALITY DATA BY LOCATION (USEE100) FOR SITE RVT01, RIVERTON
LOCATION: 0723
REPORT DATE: 2/19/98 10:33:46 AM

PARAMETER	UNITS	SAMPLE: DATE	ID	RESULT	QUALIFIERS: LAB	DATA	QA	DETECTION LIMIT	UN-CERTAINTY
Arsenic	mg/L	03/16/93	0001	0.005	U		#	0.005	-
	mg/L	03/16/93	N001	0.005	U		#	0.005	-
	mg/L	01/10/94	0001	0.005	UW		#	0.005	-
	mg/L	02/18/96	0001	0.005	U		#	0.005	-
	mg/L	02/06/97	0001	0.00042	BN	J	#	-	-
Lead-210	pCi/L	03/16/93	0001	0.0			#	1.7	± 1.00
	pCi/L	03/16/93	N001	3.2			#	1.8	± 1.30
	pCi/L	02/06/97	0001	1.19	U		#	1.19	± 0.71
Manganese	mg/L	03/16/93	0001	0.91			#	0.01	-
	mg/L	03/16/93	N001	0.87			#	0.01	-
	mg/L	01/10/94	0001	0.72			#	0.01	-
	mg/L	02/18/96	0001	0.66			#	0.01	-
	mg/L	02/06/97	0001	0.789			#	-	-
Molybdenum	mg/L	02/25/93	0001	0.0035			#	0.0005	-
	mg/L	02/25/93	N001	0.0023			#	0.0005	-
	mg/L	03/16/93	0001	0.01	U		#	0.01	-
	mg/L	03/16/93	N001	0.01	U		#	0.01	-
	mg/L	01/10/94	0001	0.01	U		#	0.01	-
	mg/L	02/18/96	0001	0.01	U		#	0.01	-
	mg/L	02/06/97	0001	0.0010	U		#	0.001	-
Nickel	mg/L	03/16/93	0001	0.04	U		#	0.04	-
	mg/L	03/16/93	N001	0.04	U		#	0.04	-
	mg/L	01/10/94	0001	0.04	U		#	0.04	-
	mg/L	02/18/96	0001	0.04	U		#	0.04	-
	mg/L	02/06/97	0001	0.0070	U		#	0.007	-
Polonium-210	pCi/L	03/16/93	0001	0.1			#	1.3	± 0.80
	pCi/L	03/16/93	N001	0.0			#	0.9	± 0.50
	pCi/L	02/06/97	0001	0.12	U		#	0.12	± -0.11
Sulfate	mg/L	02/25/93	0001	2060			#	1	-
	mg/L	02/25/93	N001	2070			#	1	-
	mg/L	03/16/93	0001	1860			#	1	-
	mg/L	01/10/94	0001	1740			#	1	-
	mg/L	02/18/96	0001	1900	I		#	8	-
	mg/L	02/06/97	0001	1910.000			#	-	-

GROUND WATER QUALITY DATA BY LOCATION (USEE100) FOR SITE RVT01, RIVERTON
LOCATION: 0723
REPORT DATE: 2/19/98 10:33:47 AM

PARAMETER	UNITS	SAMPLE: DATE	ID	RESULT	QUALIFIERS: LAB	DATA	QA	DETECTION LIMIT	UN-CERTAINTY
Thorium-230	pCi/L	03/16/93	0001	0.0			#	0.6	± 1.80
	pCi/L	03/16/93	N001	0.2			#	0.3	± 0.20
	pCi/L	02/06/97	0001	0.64	UN	J	#	0.64	±
Uranium	mg/L	02/25/93	0001	0.0310			#	0.0002	-
	mg/L	02/25/93	N001	0.0164			#	0.0002	-
	mg/L	03/16/93	0001	0.008			#	0.001	-
	mg/L	03/16/93	N001	0.012			#	0.001	-
	mg/L	01/10/94	0001	0.001	U		#	0.001	-
	mg/L	02/18/96	0001	0.004		J	#	0.001	-
	mg/L	02/06/97	0001	0.0010	U		#	0.001	-
Vanadium	mg/L	03/16/93	0001	0.01	U		#	0.01	-
	mg/L	03/16/93	N001	0.01	U		#	0.01	-
	mg/L	01/10/94	0001	0.01	U		#	0.01	-
	mg/L	02/18/96	0001	0.01	U		#	0.01	-
	mg/L	02/06/97	0001	0.0040	U		#	0.004	-

GROUND WATER QUALITY DATA BY LOCATION (USEE100) FOR SITE RVT01, RIVERTON
LOCATION: 0724
REPORT DATE: 2/19/98 10:33:47 AM

PARAMETER	UNITS	SAMPLE: DATE	ID	RESULT	QUALIFIERS: LAB	DATA	QA	DETECTION LIMIT	UN-CERTAINTY
Arsenic	mg/L	04/02/93	0001	0.005	UW		#	0.005	-
	mg/L	04/02/93	N001	0.005	U		#	0.005	-
	mg/L	01/08/94	0001	0.005	U		#	0.005	-
	mg/L	02/07/97	0001	0.0024	BN	J	#	-	-
Lead-210	pCi/L	04/02/93	0001	0.3			#	2.5	± 1.50
	pCi/L	04/02/93	N001	0.3			#	2.5	± 1.50
	pCi/L	02/07/97	0001	1.30			#	1.08	± 0.65
Manganese	mg/L	04/02/93	0001	0.04			#	0.01	-
	mg/L	04/02/93	N001	0.03			#	0.01	-
	mg/L	01/08/94	0001	0.07			#	0.01	-
	mg/L	02/07/97	0001	0.0170			#	-	-
Molybdenum	mg/L	04/02/93	0001	0.01	U		#	0.01	-
	mg/L	04/02/93	N001	0.01	U		#	0.01	-
	mg/L	01/08/94	0001	0.01	U		#	0.01	-
	mg/L	02/07/97	0001	0.0048	B		#	-	-
Nickel	mg/L	04/02/93	0001	0.04	U		#	0.04	-
	mg/L	04/02/93	N001	0.04	U		#	0.04	-
	mg/L	01/08/94	0001	0.04	U		#	0.04	-
	mg/L	02/07/97	0001	0.0070	U		#	0.007	-
Polonium-210	pCi/L	04/02/93	0001	0.3			#	1.2	± 0.70
	pCi/L	04/02/93	N001	0.4			#	1.2	± 0.80
	pCi/L	02/07/97	0001	0.16	U		#	0.16	± -0.14
Sulfate	mg/L	04/02/93	0001	214			#	1	-
	mg/L	01/08/94	0001	225			#	1	-
	mg/L	02/07/97	0001	140.000			#	-	-
Thorium-230	pCi/L	04/02/93	0001	0.7			#	0.2	± 0.40
	pCi/L	04/02/93	N001	0.4			#	0.2	± 0.30
	pCi/L	02/07/97	0001	0.64	UN	J	#	0.64	±
Uranium	mg/L	04/02/93	0001	0.031			#	0.001	-
	mg/L	04/02/93	N001	0.028			#	0.001	-
	mg/L	01/08/94	0001	0.028			#	0.001	-
	mg/L	02/07/97	0001	0.0229			#	-	-
Vanadium	mg/L	04/02/93	0001	0.01	U		#	0.01	-
	mg/L	04/02/93	N001	0.01	U		#	0.01	-

GROUND WATER QUALITY DATA BY LOCATION (USEE100) FOR SITE RVT01, RIVERTON
LOCATION: 0724
REPORT DATE: 2/19/98 10:33:47 AM

PARAMETER	UNITS	SAMPLE: DATE	ID	RESULT	QUALIFIERS: LAB	DATA	QA	DETECTION LIMIT	UN-CERTAINTY
Vanadium	mg/L	01/08/94	0001	0.01	U		#	0.01	-
	mg/L	02/07/97	0001	0.0071	B		#	-	-

GROUND WATER QUALITY DATA BY LOCATION (USEE100) FOR SITE RVT01, RIVERTON
LOCATION: 0725
REPORT DATE: 2/19/98 10:33:47 AM

PARAMETER	UNITS	SAMPLE: DATE	ID	RESULT	QUALIFIERS: LAB	DATA	QA	DETECTION LIMIT	UN-CERTAINTY
Arsenic	mg/L	03/14/93	0001	0.005	U		#	0.005	-
	mg/L	03/14/93	N001	0.005	U		#	0.005	-
	mg/L	01/08/94	0001	0.005	U		#	0.005	-
	mg/L	07/16/95	0001	0.005	U		#	0.005	-
	mg/L	02/07/97	0001	0.0012	BN	JL	#	-	-
Lead-210	pCi/L	03/14/93	0001	0.3			#	1.7	± 1.00
	pCi/L	03/14/93	N001	2.4			#	3.6	± 2.30
	pCi/L	02/07/97	0001	1.11	U	L	#	1.11	± 0.66
Manganese	mg/L	03/14/93	0001	0.06			#	0.01	-
	mg/L	03/14/93	N001	0.06			#	0.01	-
	mg/L	01/08/94	0001	0.06			#	0.01	-
	mg/L	07/16/95	0001	0.07			#	0.01	-
	mg/L	02/07/97	0001	0.0598		L	#	-	-
Molybdenum	mg/L	03/14/93	0001	0.01	U		#	0.01	-
	mg/L	03/14/93	N001	0.01	U		#	0.01	-
	mg/L	01/08/94	0001	0.01	U		#	0.01	-
	mg/L	07/16/95	0001	0.01	U		#	0.01	-
	mg/L	02/07/97	0001	0.0036	B	L	#	-	-
Nickel	mg/L	03/14/93	0001	0.04	U		#	0.04	-
	mg/L	03/14/93	N001	0.04	U		#	0.04	-
	mg/L	01/08/94	0001	0.04	U		#	0.04	-
	mg/L	07/16/95	0001	0.04	U		#	0.04	-
	mg/L	02/07/97	0001	0.0070	U	L	#	0.007	-
Polonium-210	pCi/L	03/14/93	0001	0.0			#	1.3	± 0.70
	pCi/L	03/14/93	N001	0.1			#	0.9	± 0.60
	pCi/L	02/07/97	0001	0.16		UL	#	0.13	± 0.17
Sulfate	mg/L	03/14/93	N001	207			#	1	-
	mg/L	01/08/94	0001	1940		R	#	1	-
	mg/L	07/16/95	0001	220			#	1	-
	mg/L	02/07/97	0001	188.000		L	#	-	-
Thorium-230	pCi/L	03/14/93	0001	1.6			#	0.4	± 0.70
	pCi/L	03/14/93	N001	1.0			#	0.2	± 0.50
	pCi/L	02/07/97	0001	0.64	UN	JL	#	0.64	±
Uranium	mg/L	03/14/93	0001	0.008			#	0.001	-

GROUND WATER QUALITY DATA BY LOCATION (USEE100) FOR SITE RVT01, RIVERTON
LOCATION: 0725
REPORT DATE: 2/19/98 10:33:48 AM

PARAMETER	UNITS	SAMPLE: DATE	ID	RESULT	QUALIFIERS: LAB	DATA	QA	DETECTION LIMIT	UN-CERTAINTY
Uranium	mg/L	03/14/93	N001	0.008			#	0.001	-
	mg/L	01/08/94	0001	0.009			#	0.001	-
	mg/L	07/16/95	0001	0.006			#	0.001	-
	mg/L	02/07/97	0001	0.0081		L	#	-	-
Vanadium	mg/L	03/14/93	0001	0.01	U		#	0.01	-
	mg/L	03/14/93	N001	0.01	U		#	0.01	-
	mg/L	01/08/94	0001	0.01	U		#	0.01	-
	mg/L	07/16/95	0001	0.01	U		#	0.01	-
	mg/L	02/07/97	0001	0.0040	U	L	#	0.004	-

GROUND WATER QUALITY DATA BY LOCATION (USEE100) FOR SITE RVT01, RIVERTON
LOCATION: 0726
REPORT DATE: 2/19/98 10:33:48 AM

PARAMETER	UNITS	SAMPLE: DATE	ID	RESULT	QUALIFIERS: LAB	DATA	QA	DETECTION LIMIT	UN-CERTAINTY
Arsenic	mg/L	04/02/93	N001	0.017		GF	#	0.005	-
	mg/L	04/19/93	0001	0.005	UW	G	#	0.005	-
	mg/L	04/19/93	N001	0.005	U	G	#	0.005	-
	mg/L	04/19/93	N002	0.005	U	G	#	0.005	-
	mg/L	01/10/94	0001	0.005	U		#	0.005	-
	mg/L	07/15/95	0001	0.005	U		#	0.005	-
	mg/L	02/07/97	0001	0.00020	UN	GJ	#	0.0002	-
Lead-210	pCi/L	04/02/93	N001	1.6		GF	#	2.8	± 1.70
	pCi/L	04/19/93	0001	1.0		G	#	3	± 1.80
	pCi/L	04/19/93	N001	0.2		G	#	3	± 1.80
	pCi/L	04/19/93	N002	0.0		G	#	3	± 1.80
	pCi/L	02/07/97	0001	1.27	U	G	#	1.27	± 0.76
Manganese	mg/L	04/02/93	N001	0.37		GF	#	0.01	-
	mg/L	04/19/93	0001	0.01	U	G	#	0.01	-
	mg/L	04/19/93	N001	0.03		G	#	0.01	-
	mg/L	04/19/93	N002	0.02		G	#	0.01	-
	mg/L	01/10/94	0001	0.01	U		#	0.01	-
	mg/L	07/15/95	0001	0.01			#	0.01	-
	mg/L	02/07/97	0001	0.0093	B	G	#	-	-
Molybdenum	mg/L	04/02/93	N001	0.03		GF	#	0.01	-
	mg/L	04/19/93	0001	0.01	U	G	#	0.01	-
	mg/L	04/19/93	N001	0.01	U	G	#	0.01	-
	mg/L	04/19/93	N002	0.01	U	G	#	0.01	-
	mg/L	01/10/94	0001	0.01	U		#	0.01	-
	mg/L	07/15/95	0001	0.01	U		#	0.01	-
	mg/L	02/07/97	0001	0.0027	B	G	#	-	-
Nickel	mg/L	04/02/93	N001	0.06		GF	#	0.04	-
	mg/L	04/19/93	0001	0.04	U	G	#	0.04	-
	mg/L	04/19/93	N001	0.04	U	G	#	0.04	-
	mg/L	04/19/93	N002	0.04	U	G	#	0.04	-
	mg/L	01/10/94	0001	0.04	U		#	0.04	-
	mg/L	07/15/95	0001	0.04	U		#	0.04	-
	mg/L	02/07/97	0001	0.0070	U	G	#	0.007	-
Polonium-210	pCi/L	04/02/93	N001	0.6		GF	#	0.9	± 0.70
	pCi/L	04/19/93	0001	1.1		G	#	1.2	± 0.80

GROUND WATER QUALITY DATA BY LOCATION (USEE100) FOR SITE RVT01, RIVERTON
LOCATION: 0726
REPORT DATE: 2/19/98 10:33:48 AM

PARAMETER	UNITS	SAMPLE: DATE	ID	RESULT	QUALIFIERS: LAB	DATA	QA	DETECTION LIMIT	UN-CERTAINTY
Polonium-210	pCi/L	04/19/93	N001	0.9		G	#	0.9	± 0.80
	pCi/L	04/19/93	N002	1.0		G	#	0.8	± 0.80
	pCi/L	02/07/97	0001	0.20		UG	#	0.13	± 0.18
Sulfate	mg/L	04/02/93	N001	225		GF	#	1	-
	mg/L	04/19/93	0001	169		G	#	1	-
	mg/L	04/19/93	N002	162		G	#	1	-
	mg/L	01/10/94	C001	159			#	1	-
	mg/L	07/15/95	0001	170			#	1	-
	mg/L	02/07/97	0001	160.000		G	#	-	-
Thorium-230	pCi/L	04/02/93	N001	0.5		GF	#	0.2	± 0.30
	pCi/L	04/19/93	0001	0.4		G	#	0.2	± 0.30
	pCi/L	04/19/93	N001	0.5		G	#	0.2	± 0.30
	pCi/L	04/19/93	N002	0.4		G	#	0.7	± 0.40
	pCi/L	02/07/97	0001	0.64	UN	GJ	#	0.64	±
Uranium	mg/L	04/02/93	N001	0.008		GF	#	0.001	-
	mg/L	04/19/93	0001	0.001		G	#	0.001	-
	mg/L	04/19/93	N001	0.001	U	G	#	0.001	-
	mg/L	04/19/93	N002	0.001	U	G	#	0.001	-
	mg/L	01/10/94	0001	0.001	U		#	0.001	-
	mg/L	07/15/95	0001	0.001	U		#	0.001	-
	mg/L	02/07/97	0001	0.0010	U	G	#	0.001	-
Vanadium	mg/L	04/02/93	N001	0.07		GF	#	0.01	-
	mg/L	04/19/93	0001	0.01	U	G	#	0.01	-
	mg/L	04/19/93	N001	0.02	*	G	#	0.01	-
	mg/L	04/19/93	N002	0.01	U*	G	#	0.01	-
	mg/L	01/10/94	0001	0.01	U		#	0.01	-
	mg/L	07/15/95	0001	0.01	U		#	0.01	-
	mg/L	02/07/97	0001	0.0040	U	G	#	0.004	-

GROUND WATER QUALITY DATA BY LOCATION (USEE100) FOR SITE RVT01, RIVERTON
LOCATION: 0727
REPORT DATE: 2/19/98 10:33:48 AM

PARAMETER	UNITS	SAMPLE: DATE	ID	RESULT	QUALIFIERS: LAB	DATA	QA	DETECTION LIMIT	UN-CERTAINTY
Arsenic	mg/L	03/31/93	0001	0.005	UW		#	0.005	-
	mg/L	03/31/93	N001	0.005	U		#	0.005	-
	mg/L	01/08/94	0001	0.005	U		#	0.005	-
	mg/L	02/05/97	0001	0.0014	B	J	#	-	-
Lead-210	pCi/L	03/31/93	0001	1.5			#	2.5	± 1.60
	pCi/L	03/31/93	N001	0.9			#	2.8	± 1.70
	pCi/L	02/05/97	0001	1.23			#	0.96	± 0.58
Manganese	mg/L	03/31/93	0001	0.02			#	0.01	-
	mg/L	03/31/93	N001	0.01			#	0.01	-
	mg/L	01/08/94	0001	0.02			#	0.01	-
	mg/L	02/05/97	0001	0.0278			#	-	-
Molybdenum	mg/L	03/31/93	0001	0.01	U		#	0.01	-
	mg/L	03/31/93	N001	0.01	U		#	0.01	-
	mg/L	01/08/94	0001	0.01	U		#	0.01	-
	mg/L	02/05/97	0001	0.0035	B		#	-	-
Nickel	mg/L	03/31/93	0001	0.04	U		#	0.04	-
	mg/L	03/31/93	N001	0.04	U		#	0.04	-
	mg/L	01/08/94	0001	0.04	U		#	0.04	-
	mg/L	02/05/97	0001	0.0070	U		#	0.007	-
Polonium-210	pCi/L	03/31/93	0001	0.0			#	1.2	± 0.60
	pCi/L	03/31/93	N001	0.2			#	0.9	± 0.60
	pCi/L	02/05/97	0001	0.30			#	0.12	± 0.20
Sulfate	mg/L	03/31/93	0001	170			#	1	-
	mg/L	01/08/94	0001	141			#	1	-
	mg/L	02/05/97	0001	151.000			#	-	-
Thorium-230	pCi/L	03/31/93	0001	0.1			#	0.2	± 0.40
	pCi/L	03/31/93	N001	0.4			#	0.2	± 0.30
	pCi/L	02/05/97	0001	0.64	U		#	0.64	±
Uranium	mg/L	03/31/93	0001	0.002			#	0.001	-
	mg/L	03/31/93	N001	0.002			#	0.001	-
	mg/L	01/08/94	0001	0.001			#	0.001	-
	mg/L	02/05/97	0001	0.0010	U		#	0.001	-
Vanadium	mg/L	03/31/93	0001	0.01	U		#	0.01	-
	mg/L	03/31/93	N001	0.01	U		#	0.01	-

GROUND WATER QUALITY DATA BY LOCATION (USEE100) FOR SITE RVT01, RIVERTON
LOCATION: 0727
REPORT DATE: 2/19/98 10:33:49 AM

PARAMETER	UNITS	SAMPLE: DATE	ID	RESULT	QUALIFIERS: LAB	DATA	QA	DETECTION LIMIT	UN-CERTAINTY
Vanadium	mg/L	01/08/94	0001	0.01	U		#	0.01	-
	mg/L	02/05/97	0001	0.0040	U		#	0.004	-

GROUND WATER QUALITY DATA BY LOCATION (USEE100) FOR SITE RVT01, RIVERTON
LOCATION: 0728
REPORT DATE: 2/19/98 10:33:49 AM

PARAMETER	UNITS	SAMPLE: DATE	ID	RESULT	QUALIFIERS: LAB	DATA	QA	DETECTION LIMIT	UN-CERTAINTY
Arsenic	mg/L	03/31/93	0001	0.005	UW		#	0.005	-
	mg/L	03/31/93	N001	0.005	UW		#	0.005	-
	mg/L	01/08/94	0001	0.005	UW		#	0.005	-
	mg/L	02/05/97	0001	0.0023	BN	J	#	-	-
	mg/L	02/05/97	0002	0.0023	BN	J	#	-	-
Lead-210	pCi/L	03/31/93	0001	0.9			#	2.5	± 1.50
	pCi/L	03/31/93	N001	0.3			#	2.8	± 1.70
	pCi/L	02/05/97	0001	1.07	U		#	1.07	± 0.64
	pCi/L	02/05/97	0002	1.17	U		#	1.17	± 0.69
Manganese	mg/L	03/31/93	0001	0.01	U		#	0.01	-
	mg/L	03/31/93	N001	0.01	U		#	0.01	-
	mg/L	01/08/94	0001	0.01	U		#	0.01	-
	mg/L	02/05/97	0001	0.0019	B		#	-	-
	mg/L	02/05/97	0002	0.0044	B		#	-	-
Molybdenum	mg/L	03/31/93	0001	0.01	U		#	0.01	-
	mg/L	03/31/93	N001	0.01	U		#	0.01	-
	mg/L	01/08/94	0001	0.01	U		#	0.01	-
	mg/L	02/05/97	0001	0.0020	B		#	-	-
	mg/L	02/05/97	0002	0.0019	B		#	-	-
Nickel	mg/L	03/31/93	0001	0.04	U		#	0.04	-
	mg/L	03/31/93	N001	0.04	U		#	0.04	-
	mg/L	01/08/94	0001	0.04	U		#	0.04	-
	mg/L	02/05/97	0001	0.0070	U		#	0.007	-
	mg/L	02/05/97	0002	0.0070	U		#	0.007	-
Polonium-210	pCi/L	03/31/93	0001	0.0			#	1.2	± 0.70
	pCi/L	03/31/93	N001	0.0			#	0.9	± 0.60
	pCi/L	02/05/97	0001	0.10	U		#	0.1	± 0.12
	pCi/L	02/05/97	0002	0.05	U		#	0.05	± 0.06
Sulfate	mg/L	03/31/93	0001	106			#	1	-
	mg/L	01/08/94	0001	97			#	1	-
	mg/L	02/05/97	0001	113.000			#	-	-
	mg/L	02/05/97	0002	114.000			#	-	-
Thorium-230	pCi/L	03/31/93	0001	0.5			#	0.2	± 0.30
	pCi/L	03/31/93	N001	0.6			#	0.4	± 0.40

GROUND WATER QUALITY DATA BY LOCATION (USEE100) FOR SITE RVT01, RIVERTON
LOCATION: 0728
REPORT DATE: 2/19/98 10:33:49 AM

PARAMETER	UNITS	SAMPLE: DATE	ID	RESULT	QUALIFIERS: LAB	DATA	QA	DETECTION LIMIT	UN-CERTAINTY
Thorium-230	pCi/L	02/05/97	0001	1.0	N	UJ	#	-	±
	pCi/L	02/05/97	0002	0.64	UN	J	#	0.64	±
Uranium	mg/L	03/31/93	0001	0.015			#	0.001	-
	mg/L	03/31/93	N001	0.015			#	0.001	-
	mg/L	01/08/94	0001	0.014			#	0.001	-
	mg/L	02/05/97	0001	0.0101			#	-	-
	mg/L	02/05/97	0002	0.0103			#	-	-
Vanadium	mg/L	03/31/93	0001	0.01	U		#	0.01	-
	mg/L	03/31/93	N001	0.01	U		#	0.01	-
	mg/L	01/08/94	0001	0.01	U		#	0.01	-
	mg/L	02/05/97	0001	0.0049	B		#	-	-
	mg/L	02/05/97	0002	0.0058	B		#	-	-

GROUND WATER QUALITY DATA BY LOCATION (USEE100) FOR SITE RVT01, RIVERTON
LOCATION: 0729
REPORT DATE: 2/19/98 10:33:49 AM

PARAMETER	UNITS	SAMPLE: DATE	ID	RESULT	QUALIFIERS: LAB	DATA	QA	DETECTION LIMIT	UN-CERTAINTY
Arsenic	mg/L	04/02/93	0001	0.005	UW		#	0.005	-
	mg/L	04/02/93	N001	0.005	UW		#	0.005	-
	mg/L	01/10/94	0001	0.005	U		#	0.005	-
	mg/L	02/08/97	0001	0.0030	B	J	#	-	-
Lead-210	pCi/L	04/02/93	0001	1.6			#	2.5	± 1.60
	pCi/L	04/02/93	N001	0.0			#	2.8	± 1.60
	pCi/L	02/08/97	0001	1.21	U		#	1.21	± 0.72
Manganese	mg/L	04/02/93	0001	0.01			#	0.01	-
	mg/L	04/02/93	N001	0.01			#	0.01	-
	mg/L	01/10/94	0001	0.01	U		#	0.01	-
	mg/L	02/08/97	0001	0.0013	B		#	-	-
Molybdenum	mg/L	04/02/93	0001	0.01	U		#	0.01	-
	mg/L	04/02/93	N001	0.01	U		#	0.01	-
	mg/L	01/10/94	0001	0.01	U		#	0.01	-
	mg/L	02/08/97	0001	0.0023	B		#	-	-
Nickel	mg/L	04/02/93	0001	0.04	U		#	0.04	-
	mg/L	04/02/93	N001	0.04	U		#	0.04	-
	mg/L	01/10/94	0001	0.04	U		#	0.04	-
	mg/L	02/08/97	0001	0.0070	U		#	0.007	-
Polonium-210	pCi/L	04/02/93	0001	0.9			#	1.2	± 0.80
	pCi/L	04/02/93	N001	0.2			#	0.9	± 0.60
	pCi/L	02/08/97	0001	0.19			#	0.05	± 0.12
Sulfate	mg/L	04/02/93	0001	168			#	1	-
	mg/L	01/10/94	0001	143			#	1	-
	mg/L	02/08/97	0001	248.000			#	-	-
Thorium-230	pCi/L	04/02/93	0001	0.6			#	0.4	± 0.40
	pCi/L	04/02/93	N001	0.6			#	0.5	± 0.40
	pCi/L	02/08/97	0001	0.64	U		#	0.64	±
Uranium	mg/L	04/02/93	0001	0.015			#	0.001	-
	mg/L	04/02/93	N001	0.013			#	0.001	-
	mg/L	01/10/94	0001	0.018			#	0.001	-
	mg/L	02/08/97	0001	0.0186			#	-	-
Vanadium	mg/L	04/02/93	0001	0.01	U		#	0.01	-
	mg/L	04/02/93	N001	0.01	U		#	0.01	-

GROUND WATER QUALITY DATA BY LOCATION (USEE100) FOR SITE RVT01, RIVERTON
LOCATION: 0729
REPORT DATE: 2/19/98 10:33:50 AM

PARAMETER	UNITS	SAMPLE: DATE	ID	RESULT	QUALIFIERS: LAB	DATA	QA	DETECTION LIMIT	UN-CERTAINTY
Vanadium	mg/L	01/10/94	0001	0.01	U		#	0.01	-
	mg/L	02/08/97	0001	0.0078	B		#	-	-

GROUND WATER QUALITY DATA BY LOCATION (USEE100) FOR SITE RVT01, RIVERTON
LOCATION: 0730
REPORT DATE: 2/19/98 10:33:50 AM

PARAMETER	UNITS	SAMPLE: DATE	ID	RESULT	QUALIFIERS: LAB	DATA	QA	DETECTION LIMIT	UN-CERTAINTY
Arsenic	mg/L	04/02/93	0001	0.005	UW		#	0.005	-
	mg/L	04/02/93	N001	0.005	U		#	0.005	-
	mg/L	01/10/94	0001	0.005	U		#	0.005	-
	mg/L	01/10/94	0002	0.005	U		#	0.005	-
Lead-210	pCi/L	04/02/93	0001	0.9			#	2.5	± 1.50
	pCi/L	04/02/93	N001	1.6			#	2.8	± 1.70
Manganese	mg/L	04/02/93	0001	0.05			#	0.01	-
	mg/L	04/02/93	N001	0.04			#	0.01	-
	mg/L	01/10/94	0001	0.11			#	0.01	-
	mg/L	01/10/94	0002	0.11			#	0.01	-
Molybdenum	mg/L	04/02/93	0001	0.01	U		#	0.01	-
	mg/L	04/02/93	N001	0.01	U		#	0.01	-
	mg/L	01/10/94	0001	0.01	U		#	0.01	-
	mg/L	01/10/94	0002	0.01	U		#	0.01	-
Nickel	mg/L	04/02/93	0001	0.04	U		#	0.04	-
	mg/L	04/02/93	N001	0.04	U		#	0.04	-
	mg/L	01/10/94	0001	0.04	U		#	0.04	-
	mg/L	01/10/94	0002	0.04	U		#	0.04	-
Polonium-210	pCi/L	04/02/93	0001	0.6			#	1.2	± 0.80
	pCi/L	04/02/93	N001	1.1			#	0.9	± 0.80
Sulfate	mg/L	04/02/93	0001	400			#	1	-
	mg/L	01/10/94	0001	364			#	1	-
	mg/L	01/10/94	0002	371			#	1	-
Thorium-230	pCi/L	04/02/93	0001	0.6			#	0.4	± 0.40
	pCi/L	04/02/93	N001	0.5			#	0.3	± 0.30
Uranium	mg/L	04/02/93	0001	0.001			#	0.001	-
	mg/L	04/02/93	N001	0.001			#	0.001	-
	mg/L	01/10/94	0001	0.001	U		#	0.001	-
	mg/L	01/10/94	0002	0.001	U		#	0.001	-
Vanadium	mg/L	04/02/93	0001	0.01	U		#	0.01	-
	mg/L	04/02/93	N001	0.01	U		#	0.01	-
	mg/L	01/10/94	0001	0.01	U		#	0.01	-
	mg/L	01/10/94	0002	0.01	U		#	0.01	-

GROUND WATER QUALITY DATA BY LOCATION (USEE100) FOR SITE RVT01, RIVERTON
LOCATION: 0731
REPORT DATE: 2/19/98 10:33:50 AM

PARAMETER	UNITS	SAMPLE: DATE	ID	RESULT	QUALIFIERS: LAB	DATA	QA	DETECTION LIMIT	UN-CERTAINTY
Arsenic	mg/L	07/18/95	0001	0.050	I		#	0.025	-
	mg/L	07/18/95	N001	0.047	I		#	0.025	-
	mg/L	02/09/97	0001	0.0456		J	#	-	-
Lead-210	pCi/L	02/09/97	0001	1.45		U	#	1.26	± 0.77
Manganese	mg/L	07/18/95	0001	1.5			#	0.01	-
	mg/L	07/18/95	N001	1.4			#	0.01	-
	mg/L	02/09/97	0001	0.411			#	-	-
Molybdenum	mg/L	07/18/95	0001	0.12			#	0.01	-
	mg/L	07/18/95	N001	0.11			#	0.01	-
	mg/L	02/09/97	0001	0.0846			#	-	-
Nickel	mg/L	07/18/95	0001	0.10			#	0.04	-
	mg/L	07/18/95	N001	0.10			#	0.04	-
	mg/L	02/09/97	0001	0.0304	B		#	-	-
Polonium-210	pCi/L	02/09/97	0001	0.72			#	0.09	± 0.27
Sulfate	mg/L	07/18/95	0001	4200			#	1	-
	mg/L	02/09/97	0001	2650.000			#	-	-
Thorium-230	pCi/L	02/09/97	0001	0.64	U		#	0.64	±
Uranium	mg/L	07/18/95	0001	0.056			#	0.001	-
	mg/L	07/18/95	N001	0.057			#	0.001	-
	mg/L	02/09/97	0001	0.0280			#	-	-
Vanadium	mg/L	07/18/95	0001	0.03			#	0.01	-
	mg/L	07/18/95	N001	0.03			#	0.01	-
	mg/L	02/09/97	0001	0.0191			#	-	-

GROUND WATER QUALITY DATA BY LOCATION (USEE100) FOR SITE RVT01, RIVERTON
LOCATION: 0732
REPORT DATE: 2/19/98 10:33:50 AM

PARAMETER	UNITS	SAMPLE: DATE	ID	RESULT	QUALIFIERS: LAB	DATA	QA	DETECTION LIMIT	UN-CERTAINTY
Arsenic	mg/L	07/18/95	0001	0.005	U		#	0.005	-
Manganese	mg/L	07/18/95	0001	0.68			#	0.01	-
Molybdenum	mg/L	07/18/95	0001	0.10			#	0.01	-
Nickel	mg/L	07/18/95	0001	0.13			#	0.04	-
Sulfate	mg/L	07/18/95	0001	3000			#	1	-
Uranium	mg/L	07/18/95	0001	0.016			#	0.001	-
Vanadium	mg/L	07/18/95	0001	0.01	U		#	0.01	-

GROUND WATER QUALITY DATA BY LOCATION (USEE100) FOR SITE RVT01, RIVERTON
LOCATION: 0733
REPORT DATE: 2/19/98 10:33:51 AM

PARAMETER	UNITS	SAMPLE: DATE	ID	RESULT	QUALIFIERS: LAB	DATA	QA	DETECTION LIMIT	UN-CERTAINTY
Arsenic	mg/L	07/18/95	0001	0.005	U		#	0.005	-
Manganese	mg/L	07/18/95	0001	0.32			#	0.01	-
Molybdenum	mg/L	07/18/95	0001	0.01			#	0.01	-
Nickel	mg/L	07/18/95	0001	0.04	U		#	0.04	-
Sulfate	mg/L	07/18/95	0001	210			#	1	-
Uranium	mg/L	07/18/95	0001	0.005			#	0.001	-
Vanadium	mg/L	07/18/95	0001	0.01	U		#	0.01	-

GROUND WATER QUALITY DATA BY LOCATION (USEE100) FOR SITE RVT01, RIVERTON
LOCATION: 0734
REPORT DATE: 2/19/98 10:33:51 AM

PARAMETER	UNITS	SAMPLE: DATE	ID	RESULT	QUALIFIERS: LAB	DATA	QA	DETECTION LIMIT	UN-CERTAINTY
Arsenic	mg/L	02/17/96	0001	0.005	UW	J	#	0.005	-
Manganese	mg/L	02/17/96	0001	0.08			#	0.01	-
Molybdenum	mg/L	02/17/96	0001	0.01	U		#	0.01	-
Nickel	mg/L	02/17/96	0001	0.04	U		#	0.04	-
Sulfate	mg/L	02/17/96	0001	225	I		#	1	-
Uranium	mg/L	02/17/96	0001	0.004		J	#	0.001	-
Vanadium	mg/L	02/17/96	0001	0.01	U		#	0.01	-

GROUND WATER QUALITY DATA BY LOCATION (USEE100) FOR SITE RVT01, RIVERTON
LOCATION: 0735
REPORT DATE: 2/19/98 10:33:51 AM

PARAMETER	UNITS	SAMPLE: DATE	ID	RESULT	QUALIFIERS: LAB	DATA	QA	DETECTION LIMIT	UN-CERTAINTY
Arsenic	mg/L	02/15/96	0001	0.005	U		#	0.005	-
Manganese	mg/L	02/15/96	0001	0.12			#	0.01	-
Molybdenum	mg/L	02/15/96	0001	0.01	U		#	0.01	-
Nickel	mg/L	02/15/96	0001	0.04	U		#	0.04	-
Sulfate	mg/L	02/15/96	0001	572	I		#	3	-
Uranium	mg/L	02/15/96	0001	0.016			#	0.001	-
Vanadium	mg/L	02/15/96	0001	0.01	U		#	0.01	-

GROUND WATER QUALITY DATA BY LOCATION (USEE100) FOR SITE RVT01, RIVERTON
LOCATION: 0736
REPORT DATE: 2/19/98 10:33:51 AM

PARAMETER	UNITS	SAMPLE: DATE	ID	RESULT	QUALIFIERS: LAB	DATA	QA	DETECTION LIMIT	UN-CERTAINTY
Arsenic	mg/L	02/16/96	0001	0.005	U		#	0.005	-
Manganese	mg/L	02/16/96	0001	0.13			#	0.01	-
Molybdenum	mg/L	02/16/96	0001	0.01	U		#	0.01	-
Nickel	mg/L	02/16/96	0001	0.04	U		#	0.04	-
Sulfate	mg/L	02/16/96	0001	368	I		#	1	-
Uranium	mg/L	02/16/96	0001	0.005		J	#	0.001	-
Vanadium	mg/L	02/16/96	0001	0.01	U		#	0.01	-

GROUND WATER QUALITY DATA BY LOCATION (USEE100) FOR SITE RVT01, RIVERTON
LOCATION: 0781
REPORT DATE: 2/19/98 10:33:51 AM

PARAMETER	UNITS	SAMPLE: DATE	ID	RESULT	QUALIFIERS: LAB	DATA	QA	DETECTION LIMIT	UN-CERTAINTY
Arsenic	mg/L	02/09/97	0001	0.00034	B	J	#	-	-
Lead-210	pCi/L	02/09/97	0001	1.18	U		#	1.18	± 0.70
Manganese	mg/L	02/09/97	0001	0.955			#	-	-
Molybdenum	mg/L	02/09/97	0001	0.206			#	-	-
Nickel	mg/L	02/09/97	0001	0.0093	B		#	-	-
Polonium-210	pCi/L	02/09/97	0001	0.24		U	#	0.1	± 0.18
Sulfate	mg/L	02/09/97	0001	677.000			#	-	-
Thorium-230	pCi/L	02/09/97	0001	0.64	U		#	0.64	±
Uranium	mg/L	02/09/97	0001	0.605			#	-	-
Vanadium	mg/L	02/09/97	0001	0.0040	U		#	0.004	-

GROUND WATER QUALITY DATA BY LOCATION (USEE100) FOR SITE RVT01, RIVERTON
LOCATION: 0788
REPORT DATE: 2/19/98 10:33:51 AM

PARAMETER	UNITS	SAMPLE: DATE	ID	RESULT	QUALIFIERS: LAB	DATA	QA	DETECTION LIMIT	UN-CERTAINTY
Arsenic	mg/L	02/17/96	0001	0.005	U		#	0.005	-
	mg/L	02/09/97	0001	0.0013	B	J	#	-	-
Lead-210	pCi/L	02/09/97	0001	1.19	U		#	1.19	± 0.70
Manganese	mg/L	02/17/96	0001	0.37			#	0.01	-
	mg/L	02/09/97	0001	0.302			#	-	-
Molybdenum	mg/L	02/17/96	0001	0.03			#	0.01	-
	mg/L	02/09/97	0001	0.0364			#	-	-
Nickel	mg/L	02/17/96	0001	0.04	U		#	0.04	-
	mg/L	02/09/97	0001	0.0090	B		#	-	-
Polonium-210	pCi/L	02/09/97	0001	0.33			#	0.08	± 0.17
Sulfate	mg/L	02/17/96	0001	1890	I		#	4	-
	mg/L	02/09/97	0001	1580.000			#	-	-
Thorium-230	pCi/L	02/09/97	0001	0.64	U		#	0.64	±
Uranium	mg/L	02/17/96	0001	0.064			#	0.001	-
	mg/L	02/09/97	0001	0.0514			#	-	-
Vanadium	mg/L	02/17/96	0001	0.01	U		#	0.01	-
	mg/L	02/09/97	0001	0.0040	U		#	0.004	-

GROUND WATER QUALITY DATA BY LOCATION (USEE100) FOR SITE RVT01, RIVERTON
LOCATION: 0788
REPORT DATE: 2/19/98 10:33:51 AM

PARAMETER	UNITS	SAMPLE: DATE	ID	RESULT	QUALIFIERS: LAB	DATA	QA	DETECTION LIMIT	UN-CERTAINTY

RECORDS: SELECTED FROM USEE100 WHERE site_code='RVT01' AND location_code in('0406','0407','0408','0409') AND cas in('ALKALINITY ')

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 compund (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.

DATA QUALIFIERS:

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

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

Appendix C

Surface Water and Sediment Analytical Results

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SURFACE WATER QUALITY DATA BY LOCATION (USEE102) FOR SITE RVT01, RIVERTON
LOCATION: 0126
REPORT DATE: 2/18/98 11:26:49 AM

PARAMETER	UNITS	SAMPLE: DATE	ID	RESULT	QUALIFIERS: LAB	DATA	QA	DETECTION LIMIT	UN-CERTAINTY
Alkalinity as CaCO3	mg/L	01/13/85	N001	419.00			#	-	-
In-Situ pH	s.u.	01/13/85	N001	6.94			#	-	-
In-Situ Specific Conductanc	umhos/c	01/13/85	N001	5.31			#	-	-
In-Situ Temperature	C	01/13/85	N001	7.00			#	-	-

SURFACE WATER QUALITY DATA BY LOCATION (USEE102) FOR SITE RVT01, RIVERTON
LOCATION: 0132
REPORT DATE: 2/18/98 11:26:49 AM

PARAMETER	UNITS	SAMPLE: DATE	ID	RESULT	QUALIFIERS: LAB	DATA	QA	DETECTION LIMIT	UN-CERTAINTY
Alkalinity as CaCO3	mg/L	01/10/84	N001	620.00			#	-	-
Aluminum	mg/L	12/08/83	0001	0.029			#	0.003	-
	mg/L	01/10/84	0001	0.10	U		#	0.1	-
Ammonia as NH4	mg/L	12/08/83	0001	0.10	U		#	0.1	-
	mg/L	01/10/84	0001	0.10	U		#	0.1	-
Antimony	mg/L	12/08/83	0001	0.098			#	0.003	-
	mg/L	01/10/84	0001	0.003			#	-	-
Arsenic	mg/L	12/08/83	0001	0.02			#	0.001	-
	mg/L	01/10/84	0001	0.005			#	-	-
Barium	mg/L	12/08/83	0001	0.026			#	0.002	-
	mg/L	01/10/84	0001	0.10	U		#	0.1	-
Bromide	mg/L	01/10/84	0001	1.00	U		#	1	-
Cadmium	mg/L	12/08/83	0001	0.0065			#	0.0001	-
	mg/L	01/10/84	0001	0.005	U		#	0.005	-
Calcium	mg/L	12/08/83	0001	600.00			#	0.01	-
	mg/L	01/10/84	0001	600.00			#	-	-
Chloride	mg/L	12/08/83	0001	220.00			#	0.2	-
	mg/L	01/10/84	0001	640.00			#	-	-
Chromium	mg/L	12/08/83	0001	0.001	U		#	0.001	-
	mg/L	01/10/84	0001	0.031			#	-	-
Copper	mg/L	12/08/83	0001	0.02	U		#	0.02	-
	mg/L	01/10/84	0001	0.01	U		#	0.01	-
Fluoride	mg/L	12/08/83	0001	1.10			#	0.1	-
	mg/L	01/10/84	0001	0.70			#	-	-
Gross Alpha	pCi/L	01/10/84	0001	2500.00			#	-	± 0.00
In-Situ Specific Conductanc	umhos/c	01/10/84	N001	696.00			#	-	-
In-Situ Temperature	C	01/10/84	N001	3.40			#	-	-
Iron	mg/L	12/08/83	0001	0.57			#	0.03	-
	mg/L	01/10/84	0001	0.39			#	-	-
Lead	mg/L	12/08/83	0001	0.064			#	0.001	-
	mg/L	01/10/84	0001	0.001	U		#	0.001	-
Lead-210	pCi/L	12/08/83	0001	5.00			#	1	± 2.70

SURFACE WATER QUALITY DATA BY LOCATION (USEE102) FOR SITE RVT01, RIVERTON
LOCATION: 0132
REPORT DATE: 2/18/98 11:26:50 AM

PARAMETER	UNITS	SAMPLE: DATE	ID	RESULT	QUALIFIERS: LAB	DATA	QA	DETECTION LIMIT	UN-CERTAINTY
Lead-210	pCi/L	01/10/84	0001	3.00			#	-	± 0.00
Magnesium	mg/L	12/08/83	0001	348.00			#	0.001	-
	mg/L	01/10/84	0001	340.00			#	-	-
Manganese	mg/L	12/08/83	0001	11.30			#	0.01	-
	mg/L	01/10/84	0001	11.00			#	-	-
Mercury	mg/L	12/08/83	0001	0.0002	U		#	0.0002	-
	mg/L	01/10/84	0001	0.002	U		#	0.002	-
Molybdenum	mg/L	12/08/83	0001	0.118			#	0.001	-
	mg/L	01/10/84	0001	0.51			#	-	-
Nickel	mg/L	12/08/83	0001	0.054			#	0.001	-
	mg/L	01/10/84	0001	0.04	U		#	0.04	-
Nitrate	mg/L	12/08/83	0001	10.50			#	0.1	-
	mg/L	01/10/84	0001	1.00	U		#	1	-
pH	s.u.	01/10/84	N001	6.70			#	-	-
Potassium	mg/L	12/08/83	0001	33.30			#	0.01	-
	mg/L	01/10/84	0001	24.00			#	-	-
Radium-226	pCi/L	12/08/83	0001	0.00			#	0.2	± 0.20
	pCi/L	01/10/84	0001	1.00	U		#	1	± 0.00
Selenium	mg/L	12/08/83	0001	0.127			#	0.002	-
	mg/L	01/10/84	0001	0.005	U		#	0.005	-
Silica	mg/L	12/08/83	0001	33.60			#	0.1	-
Silicon	mg/L	01/10/84	0001	14.90			#	-	-
Silver	mg/L	12/08/83	0001	0.0135			#	0.0002	-
	mg/L	01/10/84	0001	0.01	U		#	0.01	-
Sodium	mg/L	12/08/83	0001	1610.00			#	0.002	-
	mg/L	01/10/84	0001	1600.00			#	-	-
Sulfate	mg/L	12/08/83	0001	5510.00			#	0.1	-
	mg/L	01/10/84	0001	4400.00			#	-	-
Thorium-230	pCi/L	12/08/83	0001	0.013			#	0.0002	± 0.00
	pCi/L	01/10/84	0001	1.00	U		#	1	± 0.00
Total Cyanide	mg/L	12/08/83	0001	0.001	U		#	0.001	-
Total Dissolved Solids	mg/L	12/08/83	0001	8960.00			#	10	-

SURFACE WATER QUALITY DATA BY LOCATION (USEE102) FOR SITE RVT01, RIVERTON
LOCATION: 0132
REPORT DATE: 2/18/98 11:26:50 AM

PARAMETER	UNITS	SAMPLE: DATE	ID	RESULT	QUALIFIERS: LAB	DATA	QA	DETECTION LIMIT	UN-CERTAINTY
Total Dissolved Solids	mg/L	01/10/84	0001	8864.00			#	-	-
Total Phosphorus as PO4	mg/L	12/03/83	0001	0.06			#	0.01	-
	mg/L	01/10/84	0001	0.10	U		#	0.1	-
Uranium	mg/L	12/08/83	0001	1.76			#	0.0003	-
	mg/L	01/10/84	0001	2.30			#	-	-
Vanadium	mg/L	12/08/83	0001	0.01			#	0.004	-
	mg/L	01/10/84	0001	0.004	U		#	0.004	-
Zinc	mg/L	12/08/83	0001	0.038			#	0.005	-
	mg/L	01/10/84	0001	0.007			#	-	-

SURFACE WATER QUALITY DATA BY LOCATION (USEE102) FOR SITE RVT01, RIVERTON
LOCATION: 0250
REPORT DATE: 2/18/98 11:26:51 AM

PARAMETER	UNITS	SAMPLE: DATE	ID	RESULT	QUALIFIERS: LAB	DATA	QA	DETECTION LIMIT	UN-CERTAINTY
Alkalinity as CaCO3	mg/L	01/10/84	N001	300.00			#	-	-
	mg/L	06/05/85	N001	327.00			#	-	-
Aluminum	mg/L	12/08/83	0001	0.015			#	0.003	-
	mg/L	01/10/84	0001	0.10	U		#	0.1	-
	mg/L	06/18/84	0001	0.10	U		#	0.1	-
	mg/L	06/05/85	0001	0.10	U		#	0.1	-
Ammonia as NH4	mg/L	12/08/83	0001	0.10	U		#	0.1	-
	mg/L	01/10/84	0001	0.20			#	-	-
	mg/L	06/18/84	0001	0.10	U		#	0.1	-
	mg/L	06/05/85	0001	0.10	U		#	0.1	-
Antimony	mg/L	12/08/83	0001	0.03			#	0.003	-
	mg/L	01/10/84	0001	0.003	U		#	0.003	-
	mg/L	06/18/84	0001	0.003	U		#	0.003	-
	mg/L	06/05/85	0001	0.003	U		#	0.003	-
Arsenic	mg/L	12/08/83	0001	0.021			#	0.001	-
	mg/L	01/10/84	0001	0.019			#	-	-
	mg/L	06/18/84	0001	0.01	U		#	0.01	-
	mg/L	06/05/85	0001	0.01	U		#	0.01	-
Barium	mg/L	12/08/83	0001	0.023			#	0.002	-
	mg/L	01/10/84	0001	0.10	U		#	0.1	-
	mg/L	06/18/84	0001	0.10	U		#	0.1	-
	mg/L	06/05/85	0001	0.10	U		#	0.1	-
Boron	mg/L	06/05/85	0001	0.10	U	J	#	0.1	-
Bromide	mg/L	01/10/84	0001	1.00	U		#	1	-
Cadmium	mg/L	12/08/83	0001	0.0008			#	0.0001	-
	mg/L	01/10/84	0001	0.005	U		#	0.005	-
	mg/L	06/18/84	0001	0.005	U		#	0.005	-
	mg/L	06/05/85	0001	0.001	U		#	0.001	-
Calcium	mg/L	12/08/83	0001	537.00			#	0.01	-
	mg/L	01/10/84	0001	560.00			#	-	-
	mg/L	06/18/84	0001	505.00			#	0.01	-
	mg/L	06/05/85	0001	459.00			#	0.01	-
Chloride	mg/L	12/08/83	0001	95.00			#	0.2	-
	mg/L	01/10/84	0001	100.00			#	-	-

SURFACE WATER QUALITY DATA BY LOCATION (USEE102) FOR SITE RVT01, RIVERTON
LOCATION: 0250
REPORT DATE: 2/18/98 11:26:51 AM

PARAMETER	UNITS	SAMPLE: DATE	ID	RESULT	QUALIFIERS: LAB	DATA	QA	DETECTION LIMIT	UN-CERTAINTY
Chloride	mg/L	06/18/84	0001	390.00			#	0.2	-
	mg/L	06/05/85	0001	70.00			#	1	-
Chromium	mg/L	12/08/83	0001	0.001	U		#	0.001	-
	mg/L	01/10/84	0001	0.008			#	-	-
	mg/L	06/13/84	0001	0.01	U		#	0.01	-
	mg/L	06/05/85	0001	0.01	U		#	0.01	-
Cobalt	mg/L	06/05/85	0001	0.05			#	0.05	-
Copper	mg/L	12/08/83	0001	0.02	U		#	0.02	-
	mg/L	01/10/84	0001	0.01	U		#	0.01	-
	mg/L	06/18/84	0001	0.02	U		#	0.02	-
	mg/L	06/05/85	0001	0.02			#	0.02	-
Fluoride	mg/L	12/08/83	0001	0.10	U		#	0.1	-
	mg/L	01/10/84	0001	0.40			#	-	-
	mg/L	06/18/84	0001	0.10	U		#	0.1	-
	mg/L	06/05/85	0001	0.20			#	0.1	-
Gross Alpha	pCi/L	01/10/84	0001	1200.00			#	-	± 0.00
	pCi/L	06/05/85	0001	440.00			#	0.2	± 50.0
Gross Beta	pCi/L	06/05/85	0001	170.00			#	1	± 20.0
Iron	mg/L	12/08/83	0001	26.70			#	0.03	-
	mg/L	01/10/84	0001	21.00			#	-	-
	mg/L	06/18/84	0001	31.80			#	0.03	-
	mg/L	06/05/85	0001	20.20			#	0.03	-
Lead	mg/L	12/08/83	0001	0.015			#	0.001	-
	mg/L	01/10/84	0001	0.001	U		#	0.001	-
	mg/L	06/18/84	0001	0.01	U		#	0.01	-
	mg/L	06/05/85	0001	0.01	U		#	0.01	-
Lead-210	pCi/L	12/08/83	0001	1.00			#	1	± 2.80
	pCi/L	01/10/84	0001	3.00			#	-	± 0.00
	pCi/L	06/18/84	0001	1.00			#	1	± 1.20
	pCi/L	06/05/85	0001	2.80		J	#	1.5	± 0.90
Magnesium	mg/L	12/08/83	0001	85.60			#	0.001	-
	mg/L	01/10/84	0001	76.00			#	-	-
	mg/L	06/18/84	0001	67.00			#	0.001	-
	mg/L	06/05/85	0001	64.80			#	0.001	-

SURFACE WATER QUALITY DATA BY LOCATION (USEE102) FOR SITE RVT01, RIVERTON
LOCATION: 0250
REPORT DATE: 2/18/98 11:26:52 AM

PARAMETER	UNITS	SAMPLE: DATE	ID	RESULT	QUALIFIERS: LAB	DATA	QA	DETECTION LIMIT	UN-CERTAINTY
Manganese	mg/L	12/08/83	0001	3.93			#	0.01	-
	mg/L	01/10/84	0001	4.60			#	-	-
	mg/L	06/18/84	0001	4.43			#	0.01	-
	mg/L	06/05/85	0001	2.86			#	0.01	-
Mercury	mg/L	12/08/83	0001	0.0002	U		#	0.0002	-
	mg/L	01/10/84	0001	0.0002			#	-	-
	mg/L	06/18/84	0001	0.0002	U		#	0.0002	-
	mg/L	06/05/85	0001	0.0002	U		#	0.0002	-
Molybdenum	mg/L	12/08/83	0001	0.062			#	0.001	-
	mg/L	01/10/84	0001	0.07			#	-	-
	mg/L	06/18/84	0001	0.01	U		#	0.01	-
	mg/L	06/05/85	0001	0.11	U		#	0.11	-
Nickel	mg/L	12/08/83	0001	0.074			#	0.001	-
	mg/L	01/10/84	0001	0.04	U		#	0.04	-
	mg/L	06/18/84	0001	0.06			#	0.04	-
	mg/L	06/05/85	0001	0.05	U	J	#	0.05	-
Nitrate	mg/L	12/08/83	0001	11.50			#	0.1	-
	mg/L	01/10/84	0001	1.00	U		#	1	-
	mg/L	06/18/84	0001	0.10	U		#	0.1	-
	mg/L	06/05/85	0001	1	U		#	1	-
Nitrite	mg/L	06/05/85	0001	0.10	U		#	0.1	-
pH	s.u.	01/10/84	N001	6.40			#	-	-
	s.u.	06/05/85	N001	6.40			#	-	-
Polonium-210	pCi/L	06/05/85	0001	0.00			#	1	± 0.60
Potassium	mg/L	12/08/83	0001	12.30			#	0.01	-
	mg/L	01/10/84	0001	10.00			#	-	-
	mg/L	06/18/84	0001	8.20			#	0.01	-
	mg/L	06/05/85	0001	8.69			#	0.01	-
Radium-226	pCi/L	12/08/83	0001	5.70			#	0.2	± 1.30
	pCi/L	01/10/84	0001	6.90			#	-	± 0.00
	pCi/L	06/18/84	0001	6.30			#	0.2	± 0.90
	pCi/L	06/05/85	0001	3.60			#	1	± 0.80
Radium-228	pCi/L	06/05/85	0001	0.00			#	1	± 1.10
Selenium	mg/L	12/08/83	0001	0.023			#	0.002	-

SURFACE WATER QUALITY DATA BY LOCATION (USEE102) FOR SITE RVT01, RIVERTON
LOCATION: 0250
REPORT DATE: 2/18/98 11:26:53 AM

PARAMETER	UNITS	SAMPLE: DATE	ID	RESULT	QUALIFIERS: LAB	DATA	QA	DETECTION LIMIT	UN-CERTAINTY
Selenium	mg/L	01/10/84	0001	0.005	U		#	0.005	-
	mg/L	06/18/84	0001	0.005	U		#	0.005	-
	mg/L	06/05/85	0001	0.005	U		#	0.005	-
Silica	mg/L	12/08/83	0001	13.10			#	0.1	-
	mg/L	06/18/84	0001	1.60			#	0.1	-
	mg/L	06/05/85	0001	10.00			#	2	-
Silicon	mg/L	01/10/84	0001	5.30			#	-	-
Silver	mg/L	12/08/83	0001	0.0032			#	0.0002	-
	mg/L	01/10/84	0001	0.01	U		#	0.01	-
	mg/L	06/18/84	0001	0.01	U		#	0.01	-
	mg/L	06/05/85	0001	0.01	U		#	0.01	-
Sodium	mg/L	12/08/83	0001	421.00			#	0.002	-
	mg/L	01/10/84	0001	330.00			#	-	-
	mg/L	06/18/84	0001	683.00			#	0.002	-
	mg/L	06/05/85	0001	333.00			#	0.002	-
Specific Conductance	umhos/c	06/05/85	N001	1650.00			#	-	-
Strontium	mg/L	06/05/85	0001	0.10	U		#	0.1	-
Sulfate	mg/L	12/08/83	0001	2000.00			#	0.1	-
	mg/L	01/10/84	0001	1900.00			#	-	-
	mg/L	06/18/84	0001	2140.00			#	0.1	-
	mg/L	06/05/85	0001	1700.00			#	0.1	-
Sulfide	mg/L	06/05/85	0001	0.10	U		#	0.1	-
Temperature	C	06/05/85	N001	10.00			#	-	-
Thorium-230	pCi/L	12/08/83	0001	0.0037			#	0.0002	± 0.00
	pCi/L	01/10/84	0001	1.00	U		#	1	± 0.00
	pCi/L	06/18/84	0001	0.0001			#	0.0002	± 0.00
	pCi/L	06/05/85	0001	0.60		J	#	1	± 0.60
Tin	mg/L	06/05/85	0001	0.005	U		#	0.005	-
Total Cyanide	mg/L	12/08/83	0001	0.001	U		#	0.001	-
	mg/L	06/18/84	0001	0.01	U		#	0.01	-
	mg/L	06/05/85	0001	0.01	U		#	0.01	-
Total Dissolved Solids	mg/L	12/08/83	0001	3470.00			#	10	-
	mg/L	01/10/84	0001	3414.00			#	-	-

SURFACE WATER QUALITY DATA BY LOCATION (USEE102) FOR SITE RVT01, RIVERTON
LOCATION: 0250
REPORT DATE: 2/18/98 11:26:53 AM

PARAMETER	UNITS	SAMPLE: DATE	ID	RESULT	QUALIFIERS: LAB	DATA	QA	DETECTION LIMIT	UN-CERTAINTY
Total Dissolved Solids	mg/L	06/18/84	0001	3590.00			#	10	-
	mg/L	06/05/85	0001	2900.00			#	10	-
Total Organic Carbon	mg/L	06/05/85	0001	79.00			#	1	-
Total Phosphorus as PO4	mg/L	12/08/83	0001	0.08			#	0.01	-
	mg/L	01/10/84	0001	0.10	U		#	0.1	-
	mg/L	06/18/84	0001	0.10	U		#	0.1	-
	mg/L	06/05/85	0001	0.30			#	0.1	-
Uranium	mg/L	12/08/83	0001	0.738			#	0.0003	-
	mg/L	01/10/84	0001	0.69			#	-	-
	mg/L	06/18/84	0001	0.509			#	0.0003	-
	mg/L	06/05/85	0001	0.78			#	0.003	-
Vanadium	mg/L	12/08/83	0001	0.027			#	0.004	-
	mg/L	01/10/84	0001	0.004	U		#	0.004	-
	mg/L	06/18/84	0001	0.01	U		#	0.01	-
	mg/L	06/05/85	0001	0.01	U	R	#	0.01	-
Zinc	mg/L	12/08/83	0001	0.015			#	0.005	-
	mg/L	01/10/84	0001	0.005	U		#	0.005	-
	mg/L	06/18/84	0001	0.033			#	0.005	-
	mg/L	06/05/85	0001	0.011			#	0.005	-

SURFACE WATER QUALITY DATA BY LOCATION (USEE102) FOR SITE RVT01, RIVERTON
LOCATION: 0622
REPORT DATE: 2/18/98 11:26:54 AM

PARAMETER	UNITS	SAMPLE: DATE	ID	RESULT	QUALIFIERS: LAB	DATA	QA	DETECTION LIMIT	UN-CERTAINTY
Alkalinity as CaCO3	mg/L	06/12/81	N001	207.00			#	-	-
Calcium	mg/L	06/12/81	0001	6.60			#	-	-
Chloride	mg/L	06/12/81	0001	11.00			#	-	-
Magnesium	mg/L	06/12/81	0001	0.05			#	-	-
pH	s.u.	06/12/81	N001	8.91			#	-	-
Potassium	mg/L	06/12/81	0001	0.35			#	-	-
Silicon	mg/L	06/12/81	0001	4.70			#	-	-
Sodium	mg/L	06/12/81	0001	142.00			#	-	-
Sulfate	mg/L	06/12/81	0001	133.00			#	-	-
Temperature	C	06/12/81	N001	21.00			#	-	-

SURFACE WATER QUALITY DATA BY LOCATION (USEE102) FOR SITE RVT01, RIVERTON
LOCATION: 0670 SURFACE WATER
REPORT DATE: 2/18/98 11:26:54 AM

PARAMETER	UNITS	SAMPLE: DATE	ID	RESULT	QUALIFIERS: LAB	DATA	QA	DETECTION LIMIT	UN-CERTAINTY
Aluminum	mg/L	08/01/81	00S1	0.013			#	-	-
Barium	mg/L	08/01/81	00S1	0.19			#	-	-
Cadmium	mg/L	08/01/81	00S1	0.001	U		#	0.001	-
Chromium	mg/L	08/01/81	00S1	0.001	U		#	0.001	-
Iron	mg/L	08/01/81	00S1	0.99			#	-	-
Lead	mg/L	08/01/81	00S1	0.001	U		#	0.001	-
Radium-226	pCi/L	08/01/81	00S1	0.21			#	-	± 0.00
Selenium	mg/L	08/01/81	00S1	0.021			#	-	-
Vanadium	mg/L	08/01/81	00S1	0.03			#	-	-

SURFACE WATER QUALITY DATA BY LOCATION (USEE102) FOR SITE RVT01, RIVERTON
LOCATION: 0671 SURFACE WATER
REPORT DATE: 2/18/98 11:26:54 AM

PARAMETER	UNITS	SAMPLE: DATE	ID	RESULT	QUALIFIERS: LAB	DATA	QA	DETECTION LIMIT	UN-CERTAINTY
Aluminum	mg/L	08/01/81	00S1	0.01			#	-	-
Barium	mg/L	08/01/81	00S1	0.14			#	-	-
Cadmium	mg/L	08/01/81	00S1	0.17			#	-	-
Chromium	mg/L	08/01/81	00S1	0.001	U		#	0.001	-
Iron	mg/L	08/01/81	00S1	0.74			#	-	-
Lead	mg/L	08/01/81	00S1	0.001	U		#	0.001	-
Radium-226	pCi/L	08/01/81	00S1	0.14			#	-	± 0.00
Selenium	mg/L	08/01/81	00S1	0.024			#	-	-
Vanadium	mg/L	08/01/81	00S1	0.06			#	-	-

SURFACE WATER QUALITY DATA BY LOCATION (USEE102) FOR SITE RVT01, RIVERTON
LOCATION: 0672 SURFACE WATER
REPORT DATE: 2/18/98 11:26:54 AM

PARAMETER	UNITS	SAMPLE: DATE	ID	RESULT	QUALIFIERS: LAB	DATA	QA	DETECTION LIMIT	UN-CERTAINTY
Aluminum	mg/L	08/01/81	00S1	0.001	U		#	0.001	-
Barium	mg/L	08/01/81	00S1	0.34			#	-	-
Cadmium	mg/L	08/01/81	00S1	0.001	U		#	0.001	-
Chromium	mg/L	08/01/81	00S1	0.001	U		#	0.001	-
Iron	mg/L	08/01/81	00S1	0.68			#	-	-
Lead	mg/L	08/01/81	00S1	0.001	U		#	0.001	-
Radium-226	pCi/L	08/01/81	00S1	0.16			#	-	± 0.00
Selenium	mg/L	08/01/81	00S1	0.026			#	-	-
Vanadium	mg/L	08/01/81	00S1	0.001	U		#	0.001	-

SURFACE WATER QUALITY DATA BY LOCATION (USEE102) FOR SITE RVT01, RIVERTON
LOCATION: 0673 SURFACE WATER
REPORT DATE: 2/18/98 11:26:55 AM

PARAMETER	UNITS	SAMPLE: DATE	ID	RESULT	QUALIFIERS: LAB	DATA	QA	DETECTION LIMIT	UN-CERTAINTY
Aluminum	mg/L	08/01/81	00S1	0.022			#	-	-
Barium	mg/L	08/01/81	00S1	0.50			#	-	-
Cadmium	mg/L	08/01/81	00S1	0.028			#	-	-
Chromium	mg/L	08/01/81	00S1	0.001	U		#	0.001	-
Iron	mg/L	08/01/81	00S1	4.90			#	-	-
Lead	mg/L	08/01/81	00S1	0.001	U		#	0.001	-
Radium-226	pCi/L	08/01/81	00S1	0.24			#	-	± 0.00
Selenium	mg/L	08/01/81	00S1	0.027			#	-	-
Vanadium	mg/L	08/01/81	00S1	0.001	U		#	0.001	-

SURFACE WATER QUALITY DATA BY LOCATION (USEE102) FOR SITE RVT01, RIVERTON
LOCATION: 0674 SURFACE WATER
REPORT DATE: 2/18/98 11:26:55 AM

PARAMETER	UNITS	SAMPLE: DATE	ID	RESULT	QUALIFIERS: LAB	DATA	QA	DETECTION LIMIT	UN-CERTAINTY
Aluminum	mg/L	08/01/81	00S1	0.001	U		#	0.001	-
Barium	mg/L	08/01/81	00S1	0.24			#	-	-
Cadmium	mg/L	08/01/81	00S1	0.032			#	-	-
Chromium	mg/L	08/01/81	00S1	0.028			#	-	-
Iron	mg/L	08/01/81	00S1	5.70			#	-	-
Lead	mg/L	08/01/81	00S1	0.004			#	-	-
Radium-226	pCi/L	08/01/81	00S1	0.14			#	-	± 0.00
Selenium	mg/L	08/01/81	00S1	0.017			#	-	-
Vanadium	mg/L	08/01/81	00S1	0.011			#	-	-

SURFACE WATER QUALITY DATA BY LOCATION (USEE102) FOR SITE RVT01, RIVERTON
LOCATION: 0675 SURFACE WATER
REPORT DATE: 2/18/98 11:26:55 AM

PARAMETER	UNITS	SAMPLE: DATE	ID	RESULT	QUALIFIERS: LAB	DATA	QA	DETECTION LIMIT	UN-CERTAINTY
Aluminum	mg/L	08/01/81	00S1	0.001	U		#	0.001	-
Barium	mg/L	08/01/81	00S1	0.20			#	-	-
Cadmium	mg/L	08/01/81	00S1	0.037			#	-	-
Chromium	mg/L	08/01/81	00S1	0.021			#	-	-
Iron	mg/L	08/01/81	00S1	4.80			#	-	-
Lead	mg/L	08/01/81	00S1	0.001	U		#	0.001	-
Radium-226	pCi/L	08/01/81	00S1	0.40			#	-	± 0.00
Selenium	mg/L	08/01/81	00S1	0.015			#	-	-
Vanadium	mg/L	08/01/81	00S1	0.04			#	-	-

SURFACE WATER QUALITY DATA BY LOCATION (USEE102) FOR SITE RVT01, RIVERTON
LOCATION: 0676 SURFACE WATER
REPORT DATE: 2/18/98 11:26:56 AM

PARAMETER	UNITS	SAMPLE: DATE	ID	RESULT	QUALIFIERS: LAB	DATA	QA	DETECTION LIMIT	UN-CERTAINTY
Aluminum	mg/L	08/01/81	00S1	0.039			#	-	-
Barium	mg/L	08/01/81	00S1	0.35			#	-	-
Cadmium	mg/L	08/01/81	00S1	0.001	U		#	0.001	-
Chromium	mg/L	08/01/81	00S1	0.001	U		#	0.001	-
Iron	mg/L	08/01/81	00S1	1.62			#	-	-
Lead	mg/L	08/01/81	00S1	0.001	U		#	0.001	-
Radium-226	pCi/L	08/01/81	00S1	0.12			#	-	± 0.00
Selenium	mg/L	08/01/81	00S1	0.254			#	-	-
Vanadium	mg/L	08/01/81	00S1	0.001	U		#	0.001	-

SURFACE WATER QUALITY DATA BY LOCATION (USEE102) FOR SITE RVT01, RIVERTON
LOCATION: 0677 SURFACE WATER
REPORT DATE: 2/18/98 11:26:56 AM

PARAMETER	UNITS	SAMPLE: DATE	ID	RESULT	QUALIFIERS: LAB	DATA	QA	DETECTION LIMIT	UN-CERTAINTY
Aluminum	mg/L	08/01/81	00S1	0.023			#	-	-
Barium	mg/L	08/01/81	00S1	0.20			#	-	-
Cadmium	mg/L	08/01/81	00S1	0.001	U		#	0.001	-
Chromium	mg/L	08/01/81	00S1	0.001	U		#	0.001	-
Iron	mg/L	08/01/81	00S1	0.066			#	-	-
Lead	mg/L	08/01/81	00S1	0.001	U		#	0.001	-
Radium-226	pCi/L	08/01/81	00S1	0.68			#	-	± 0.00
Selenium	mg/L	08/01/81	00S1	0.089			#	-	-
Vanadium	mg/L	08/01/81	00S1	0.41			#	-	-

SURFACE WATER QUALITY DATA BY LOCATION (USEE102) FOR SITE RVT01, RIVERTON
LOCATION: 0741 8/26/97 State plane north changed from 847666.3 to an estimation close to river
REPORT DATE: 2/18/98 11:26:56 AM

PARAMETER	UNITS	SAMPLE: DATE	ID	RESULT	QUALIFIERS: LAB	DATA	QA	DETECTION LIMIT	UN-CERTAINTY
Alkalinity as CaCO3	mg/L	07/14/97	N001	150			#	-	-
Arsenic	mg/L	09/13/95	0001	0.005	UW	J	#	0.005	-
	mg/L	09/13/95	N001	0.005	U		#	0.005	-
	mg/L	07/14/97	0001	0.0010	U		#	0.001	-
	mg/L	07/14/97	0002	0.0010	U		#	0.001	-
Calcium	mg/L	06/08/93	N001	46.3			#	1	-
	mg/L	06/08/93	N003	69.8			#	1	-
	mg/L	09/13/95	0001	99			#	0.5	-
	mg/L	07/14/97	0001	49.500			#	-	-
	mg/L	07/14/97	0002	48.200			#	-	-
Chloride	mg/L	09/13/95	0001	10			#	0.5	-
	mg/L	07/14/97	0001	3.080			#	-	-
	mg/L	07/14/97	0002	3.050			#	-	-
Gross Alpha	pCi/L	07/14/97	0001	2.71			#	2.45	± 1.64
	pCi/L	07/14/97	0002	2.45	U		#	2.45	± 1.39
Gross Beta	pCi/L	07/14/97	0001	3.83			#	2.54	± 1.62
	pCi/L	07/14/97	0002	3.70			#	2.53	± 1.61
Iron	mg/L	06/08/93	N001	0.43			#	0.03	-
	mg/L	06/08/93	N003	0.46			#	0.03	-
	mg/L	09/13/95	0001	0.03	U		#	0.03	-
	mg/L	09/13/95	[illegible]001	0.040	N	J	#	0.03	-
Lead	mg/L	06/08/93	[illegible]01	0.003	U		#	0.003	-
	mg/L	06/08/93	N003	0.003	U		#	0.003	-
	mg/L	09/13/95	0001	0.003	U		#	0.003	-
	mg/L	09/13/95	N001	0.003	U		#	0.003	-
Lead-210	pCi/L	07/14/97	0001	1.02	U		#	1.02	± 0.61
	pCi/L	07/14/97	0002	0.97	U		#	0.97	± 0.57
Magnesium	mg/L	06/08/93	N001	13.1			#	0.1	-
	mg/L	06/08/93	N003	20.1			#	0.1	-
	mg/L	09/13/95	0001	29	E	J	#	0.1	-
	mg/L	07/14/97	0001	13.800			#	-	-
	mg/L	07/14/97	0002	13.400			#	-	-
Manganese	mg/L	06/08/93	N001	0.05			#	0.01	-
	mg/L	06/08/93	N003	0.05			#	0.01	-

SURFACE WATER QUALITY DATA BY LOCATION (USEE102) FOR SITE RVT01, RIVERTON
LOCATION: 0741 8/26/97 State plane north changed from 847666.3 to an estimation close to river
REPORT DATE: 2/18/98 11:26:57 AM

PARAMETER	UNITS	SAMPLE: DATE	ID	RESULT	QUALIFIERS: LAB	DATA	QA	DETECTION LIMIT	UN-CERTAINTY
Manganese	mg/L	09/13/95	0001	0.02			#	0.01	-
	mg/L	09/13/95	N001	0.025			#	0.01	-
	mg/L	07/14/97	0001	0.0159			#	-	-
	mg/L	07/14/97	0002	0.0152			#	-	-
Molybdenum	mg/L	06/08/93	N001	0.02			#	0.01	-
	mg/L	06/08/93	N003	0.01	U		#	0.01	-
	mg/L	09/13/95	0001	0.01	U		#	0.01	-
	mg/L	09/13/95	N001	0.01	U		#	0.01	-
	mg/L	07/14/97	0001	0.0013	B		#	-	-
	mg/L	07/14/97	0002	0.0012	B		#	-	-
Nickel	mg/L	09/13/95	0001	0.04	U		#	0.04	-
	mg/L	09/13/95	N001	0.04	U		#	0.04	-
	mg/L	07/14/97	0001	0.0030	U		#	0.003	-
	mg/L	07/14/97	0002	0.0032	B		#	-	-
Nitrate	mg/L	07/14/97	0001	0.0513	B		#	-	-
	mg/L	07/14/97	0002	0.0504	B		#	-	-
pH	s.u.	07/14/97	N001	7.96			#	-	-
Polonium-210	pCi/L	07/14/97	0001	0.16		U	#	0.13	± 0.18
	pCi/L	07/14/97	0002	0.18		U	#	0.11	± 0.18
Potassium	mg/l	07/14/97	0001	2.540			#	-	-
	mg/L	07/14/97	0002	2.490			#	-	-
Redox Potential	mV	07/14/97	N001	101			#	-	-
Selenium	mg/L	09/13/95	0001	0.005	UW	J	#	0.005	-
	mg/L	09/13/95	N001	0.005	U		#	0.005	-
Sodium	mg/L	09/13/95	0001	85	E	J	#	1	-
	mg/L	07/14/97	0001	40.800			#	-	-
	mg/L	07/14/97	0002	39.900			#	-	-
Specific Conductance	umhos/c	07/14/97	N001	528			#	-	-
Strontium	mg/L	09/13/95	N001	0.89			#	0.01	-
Sulfate	mg/L	09/13/95	0001	270			#	1	-
	mg/L	07/14/97	0001	99.500			#	-	-
	mg/L	07/14/97	0002	99.000			#	-	-
Temperature	C	07/14/97	N001	22.0			#	-	-

SURFACE WATER QUALITY DATA BY LOCATION (USEE102) FOR SITE RVT01, RIVERTON
LOCATION: 0741 8/26/97 State plane north changed from 847666.3 to an estimation close to river
REPORT DATE: 2/18/98 11:26:57 AM

PARAMETER	UNITS	SAMPLE: DATE	ID	RESULT	QUALIFIERS: LAB	DATA	QA	DETECTION LIMIT	UN-CERTAINTY
Thorium-230	pCi/L	07/14/97	0001	0.60	U		#	0.6	±
	pCi/L	07/14/97	0002	0.73	B		#	-	±
Total Dissolved Solids	mg/L	09/13/95	0001	620			#	10	-
	mg/L	07/14/97	0001	330			#	-	-
	mg/L	07/14/97	0002	335			#	-	-
Turbidity	NTU	07/14/97	N001	2.72			#	-	-
Uranium	mg/L	06/08/93	N001	0.006			#	0.001	-
	mg/L	06/08/93	N003	0.006			#	0.001	-
	mg/L	09/13/95	0001	0.009			#	0.001	-
	mg/L	09/13/95	N001	0.009			#	0.001	-
	mg/L	07/14/97	0001	0.0025			#	-	-
	mg/L	07/14/97	0002	0.0024			#	-	-
Vanadium	mg/L	09/13/95	0001	0.01	U		#	0.01	-
	mg/L	09/13/95	N001	0.01	U		#	0.01	-
	mg/L	07/14/97	0001	0.0035	B		#	-	-
	mg/L	07/14/97	0002	0.0037	B		#	-	-
Zinc	mg/L	09/13/95	0001	0.05	U		#	0.05	-
	mg/L	09/13/95	N001	0.05	U		#	0.05	-

SURFACE WATER QUALITY DATA BY LOCATION (USEE102) FOR SITE RVT01, RIVERTON
LOCATION: 0742
REPORT DATE: 2/18/98 11:26:58 AM

PARAMETER	UNITS	SAMPLE: DATE	ID	RESULT	QUALIFIERS: LAB	DATA	QA	DETECTION LIMIT	UN-CERTAINTY
Alkalinity as CaCO3	mg/L	07/14/97	N001	78			#	-	-
Arsenic	mg/L	09/13/95	0001	0.005	UW	J	#	0.005	-
	mg/L	09/13/95	N001	0.005	U		#	0.005	-
	mg/L	07/14/97	0001	0.0010	U		#	0.001	-
Calcium	mg/L	06/08/93	N001	40.7			#	1	-
	mg/L	09/13/95	0001	93			#	0.5	-
	mg/L	07/14/97	0001	35.700			#	-	-
Chloride	mg/L	09/13/95	0001	7.0			#	0.5	-
	mg/L	07/14/97	0001	2.360			#	-	-
Gross Alpha	pCi/L	07/14/97	0001	1.94	U		#	1.94	± 1.19
Gross Beta	pCi/L	07/14/97	0001	2.68			#	2.27	± 1.42
Iron	mg/L	06/08/93	N001	1.41			#	0.03	-
	mg/L	09/13/95	0001	0.03	U		#	0.03	-
	mg/L	09/13/95	N001	0.38	N	J	#	0.03	-
Lead	mg/L	06/08/93	N001	0.004			#	0.003	-
	mg/L	09/13/95	0001	0.003	U		#	0.003	-
	mg/L	09/13/95	N001	0.003	U		#	0.003	-
Lead-210	pCi/L	07/14/97	0001	1.25			#	1.03	± 0.62
Magnesium	mg/L	06/08/93	N001	14.1			#	0.1	-
	mg/L	09/13/95	0001	37	E	J	#	0.1	-
	mg/L	07/14/97	0001	13.600			#	-	-
Manganese	mg/L	06/08/93	N001	0.12			#	0.01	-
	mg/L	09/13/95	0001	0.01			#	0.01	-
	mg/L	09/13/95	N001	0.03			#	0.01	-
	mg/L	07/14/97	0001	0.0047	B		#	-	-
Molybdenum	mg/L	06/08/93	N001	0.01	U		#	0.01	-
	mg/L	09/13/95	0001	0.01	U		#	0.01	-
	mg/L	09/13/95	N001	0.01	U		#	0.01	-
	mg/L	07/14/97	0001	0.0010	U		#	0.001	-
Nickel	mg/L	09/13/95	0001	0.04	U		#	0.04	-
	mg/L	09/13/95	N001	0.04	U		#	0.04	-
	mg/L	07/14/97	0001	0.0040	B		#	-	-
Nitrate	mg/L	07/14/97	0001	0.0294	B		#	-	-

SURFACE WATER QUALITY DATA BY LOCATION (USEE102) FOR SITE RVT01, RIVERTON
LOCATION: 0742
REPORT DATE: 2/18/98 11:26:58 AM

PARAMETER	UNITS	SAMPLE: DATE	ID	RESULT	QUALIFIERS: LAB	DATA	QA	DETECTION LIMIT	UN-CERTAINTY
pH	s.u.	07/14/97	N001	8.62			#	-	-
Polonium-210	pCi/L	07/14/97	0001	0.21		U	#	0.1	± 0.18
Potassium	mg/L	07/14/97	0001	1.400			#	-	-
Redox Potential	mV	07/14/97	N001	77			#	-	-
Selenium	mg/L	09/13/95	0001	0.005	U		#	0.005	-
	mg/L	09/13/95	N001	0.005	U		#	0.005	-
Sodium	mg/L	09/13/95	0001	65	E	J	#	1	-
	mg/L	07/14/97	0001	21.200			#	-	-
Specific Conductance	umhos/c	07/14/97	N001	430			#	-	-
Strontium	mg/L	09/13/95	N001	1.1			#	0.01	-
Sulfate	mg/L	09/13/95	0001	360			#	1	-
	mg/L	07/14/97	0001	99.000			#	-	-
Temperature	C	07/14/97	N001	22.7			#	-	-
Thorium-230	pCi/L	07/14/97	0001	0.60	U		#	0.6	±
Total Dissolved Solids	mg/L	09/13/95	0001	630			#	10	-
	mg/L	07/14/97	0001	258			#	-	-
Turbidity	NTU	07/14/97	N001	15.2			#	-	-
Uranium	mg/L	06/08/93	N001	0.025			#	0.001	-
	mg/L	09/13/95	0001	0.007			#	0.001	-
	mg/L	09/13/95	N001	0.006			#	0.001	-
	mg/L	07/14/97	0001	0.00_3			#	-	-
Vanadium	mg/L	09/13/95	0001	0.01	U		#	0.01	-
	mg/L	09/13/95	N001	0.01	U		#	0.01	-
	mg/L	07/14/97	0001	0.0017	B		#	-	-
Zinc	mg/L	09/13/95	0001	0.05	U		#	0.05	-
	mg/L	09/13/95	N001	0.05	U		#	0.05	-

SURFACE WATER QUALITY DATA BY LOCATION (USEE102) FOR SITE RVT01, RIVERTON
LOCATION: 0743
REPORT DATE: 2/18/98 11:26:59 AM

PARAMETER	UNITS	SAMPLE: DATE	ID	RESULT	QUALIFIERS: LAB	DATA	QA	DETECTION LIMIT	UN-CERTAINTY
Calcium	mg/L	06/09/93	N001	160			#	1	-
Iron	mg/L	06/09/93	N001	0.24			#	0.03	-
Lead	mg/L	06/09/93	N001	0.003	U		#	0.003	-
Magnesium	mg/L	06/09/93	N001	38.1			#	0.1	-
Manganese	mg/L	06/09/93	N001	0.12			#	0.01	-
Molybdenum	mg/L	06/09/93	N001	0.01			#	0.01	-
Uranium	mg/L	06/09/93	N001	0.013			#	0.001	-

SURFACE WATER QUALITY DATA BY LOCATION (USEE102) FOR SITE RVT01, RIVERTON
LOCATION: 0744
REPORT DATE: 2/18/98 11:26:59 AM

PARAMETER	UNITS	SAMPLE: DATE	ID	RESULT	QUALIFIERS: LAB	DATA	QA	DETECTION LIMIT	UN-CERTAINTY
Alkalinity as CaCO3	mg/L	07/15/97	N001	45			#	-	-
Arsenic	mg/L	09/12/95	0001	0.005	U		#	0.005	-
	mg/L	09/12/95	N001	0.005	U		#	0.005	-
	mg/L	07/15/97	0001	0.0029	B		#	-	-
Calcium	mg/L	06/09/93	N001	58.1			#	1	-
	mg/L	09/12/95	0001	70			#	0.5	-
	mg/L	07/15/97	0001	47.400			#	-	-
Chloride	mg/L	09/12/95	0001	3.7			#	0.5	-
	mg/L	07/15/97	0001	2.250			#	-	-
Gross Alpha	pCi/L	07/15/97	0001	2.33			#	2.33	± 1.54
Gross Beta	pCi/L	07/15/97	0001	2.55			#	2.29	± 1.43
Iron	mg/L	06/09/93	N001	0.13			#	0.03	-
	mg/L	09/12/95	0001	0.06			#	0.03	-
	mg/L	09/12/95	N001	0.18	N	J	#	0.03	-
Lead	mg/L	06/09/93	N001	0.003	U		#	0.003	-
	mg/L	09/12/95	0001	0.003	U		#	0.003	-
	mg/L	09/12/95	N001	0.003	U		#	0.003	-
Lead-210	pCi/L	07/15/97	0001	1.31			#	0.95	± 0.58
Magnesium	mg/L	06/09/93	N001	13.5			#	0.1	-
	mg/L	09/12/95	0001	16	E	J	#	0.1	-
	mg/L	07/15/97	0001	11.200			#	-	-
Manganese	mg/L	06/09/93	N001	0.02			#	0.01	-
	mg/L	09/12/95	0001	0.08			#	0.01	-
	mg/L	09/12/95	N001	0.05			#	0.01	-
	mg/L	07/15/97	0001	0.104			#	-	-
Molybdenum	mg/L	06/09/93	N001	0.01	U		#	0.01	-
	mg/L	09/12/95	0001	0.01	U		#	0.01	-
	mg/L	09/12/95	N001	0.01	U		#	0.01	-
	mg/L	07/15/97	0001	0.0024	B		#	-	-
Nickel	mg/L	09/12/95	0001	0.04	U		#	0.04	-
	mg/L	09/12/95	N001	0.04	U		#	0.04	-
	mg/L	07/15/97	0001	0.0030	U		#	0.003	-
Nitrate	mg/L	07/15/97	0001	0.465	B		#	-	-

SURFACE WATER QUALITY DATA BY LOCATION (USEE102) FOR SITE RVT01, RIVERTON
LOCATION: 0744
REPORT DATE: 2/18/98 11:27:00 AM

PARAMETER	UNITS	SAMPLE: DATE	ID	RESULT	QUALIFIERS: LAB	DATA	QA	DETECTION LIMIT	UN-CERTAINTY
pH	s.u.	07/15/97	N001	8.05			#	-	-
Polonium-210	pCi/L	07/15/97	0001	0.20		U	#	0.14	± 0.21
Potassium	mg/L	07/15/97	0001	2.330			#	-	-
Redox Potential	mV	07/15/97	N001	175			#	-	-
Selenium	mg/L	09/12/95	0001	0.005	UW	J	#	0.005	-
	mg/L	09/12/95	N001	0.005	UW	J	#	0.005	-
Sodium	mg/L	09/12/95	0001	27	E	J	#	1	-
	mg/L	07/15/97	0001	21.000			#	-	-
Specific Conductance	umhos/c	07/15/97	N001	446			#	-	-
Strontium	mg/L	09/12/95	N001	0.43			#	0.01	-
Sulfate	mg/L	09/12/95	0001	92			#	1	-
	mg/L	07/15/97	0001	37.300			#	-	-
Temperature	C	07/15/97	N001	18.5			#	-	-
Thorium-230	pCi/L	07/15/97	0001	0.60	U		#	0.6	±
Total Dissolved Solids	mg/L	09/12/95	0001	360			#	10	-
	mg/L	07/15/97	0001	270			#	-	-
Turbidity	NTU	07/15/97	N001	15.8			#	-	-
Uranium	mg/L	06/09/93	N001	0.016			#	0.001	-
	mg/L	09/12/95	0001	0.004			#	0.001	-
	mg/L	09/12/95	N001	0.004			#	0.001	-
	mg/L	07/15/97	0001	0.0042			#	-	-
Vanadium	mg/L	09/12/95	0001	0.01	U		#	0.01	-
	mg/L	09/12/95	N001	0.01	U		#	0.01	-
	mg/L	07/15/97	0001	0.0053	B		#	-	-
Zinc	mg/L	09/12/95	0001	0.05	U		#	0.05	-
	mg/L	09/12/95	N001	0.05	U		#	0.05	-

SURFACE WATER QUALITY DATA BY LOCATION (USEE102) FOR SITE RVT01, RIVERTON
LOCATION: 0745 8/26/97 State plane north changed from 847240.33 to an estimation close to river
REPORT DATE: 2/18/98 11:27:00 AM

PARAMETER	UNITS	SAMPLE: DATE	ID	RESULT	QUALIFIERS: LAB	DATA	QA	DETECTION LIMIT	UN-CERTAINTY
Alkalinity as CaCO3	mg/L	02/10/97	N001	1021			#	-	-
Arsenic	mg/L	02/10/97	0001	0.0016	BN	J	#	-	-
	mg/L	02/10/97	0002	0.0016	B	J	#	-	-
Calcium	mg/L	06/09/93	N001	81.0			#	1	-
	mg/L	02/10/97	0001	27.300			#	-	-
	mg/L	02/10/97	0002	27.400			#	-	-
Chloride	mg/L	02/10/97	0001	10.100			#	-	-
	mg/L	02/10/97	0002	10.200			#	-	-
Gross Alpha	pCi/L	02/10/97	0001	55.46	U		#	55.46	± 27.3
	pCi/L	02/10/97	0002	55.82	U		#	55.82	± 30.2
Gross Beta	pCi/L	02/10/97	0001	70.04	U		#	70.04	± 38.3
	pCi/L	02/10/97	0002	70.18	U		#	70.18	± 38.7
Iron	mg/L	06/09/93	N001	0.36			#	0.03	-
Lead	mg/L	06/09/93	N001	0.003	U		#	0.003	-
Lead-210	pCi/L	02/10/97	0001	0.96	U		#	0.96	± 0.58
	pCi/L	02/10/97	0002	0.93	U		#	0.93	± 0.56
Magnesium	mg/L	06/09/93	N001	21.9			#	0.1	-
	mg/L	02/10/97	0001	5.530			#	-	-
	mg/L	02/10/97	0002	5.470			#	-	-
Manganese	mg/L	06/09/93	N001	0.05			#	0.01	-
	mg/L	02/10/97	0001	0.0449			#	-	-
	mg/L	02/10/97	0002	0.0450			#	-	-
Molybdenum	mg/L	06/09/93	N001	0.01	U		#	0.01	-
	mg/L	02/10/97	0001	0.0171			#	-	-
	mg/L	02/10/97	0002	0.0172			#	-	-
Nickel	mg/L	02/10/97	0001	0.0191	B		#	-	-
	mg/L	02/10/97	0002	0.0245	B		#	-	-
Nitrate	mg/L	02/10/97	0001	0.769			#	-	-
	mg/L	02/10/97	0002	0.772			#	-	-
pH	s.u.	02/10/97	N001	7.94			#	-	-
Polonium-210	pCi/L	02/10/97	0001	0.26		U	#	0.1	± 0.18
	pCi/L	02/10/97	0002	0.19			#	0.06	± 0.12

SURFACE WATER QUALITY D. . .A BY LOCATION (USEE102) FOR RVT01, RIVERTON
LOCATION: 0745 8/26/97 State plane north changed from 847240.33 to an estimation close to river
REPORT DATE: 2/18/98 11:27:00 AM

PARAMETER	UNITS	SAMPLE: DATE	ID	RESULT	QUALIFIERS: LAB	DATA	QA	DETECTION LIMIT	UN-CERTAINTY
Potassium	mg/L	02/10/97	0001	1.310			#		
	mg/L	02/10/97	0002	1.290			#		
Redox Potential	mV	02/10/97	N001	48			#	-	-
Sodium	mg/L	02/10/97	0001	1080.000			#	-	-
	mg/L	02/10/97	0002	1080.000			#	-	-
Specific Conductance	umhos/c	02/10/97	N001	4650			#	-	-
Sulfate	mg/L	02/10/97	0001	1560.000			#	-	-
	mg/L	02/10/97	0002	1570.000			#	-	-
Temperature	C	02/10/97	N001	3.2			#	-	-
Thorium-230	pCi/L	02/10/97	0001	0.64	UN	J	#	0.64	±
	pCi/L	02/10/97	0002	0.64	U		#	0.64	±
Total Dissolved Solids	mg/L	02/10/97	0001	3280			#	-	-
	mg/L	02/10/97	0002	3300			#	-	-
Turbidity	NTU	02/10/97	N001	12.7			#	-	-
Uranium	mg/L	06/09/93	N001	0.008			#	0.001	-
	mg/L	02/10/97	0001	0.0045			#	-	-
	mg/L	02/10/97	0002	0.0044			#	-	-
Vanadium	mg/L	02/10/97	0001	0.0040	U		#	0.004	-
	mg/L	02/10/97	0002	0.0040	U		#	0.004	-

SURFACE WATER QUALITY DATA BY LOCATION (USE:E102) FOR SITE RVT01, RIVERTON
LOCATION: 0746
REPORT DATE: 2/18/98 11:27:01 AM

PARAMETER	UNITS	SAMPLE: DATE	ID	RESULT	QUALIFIERS: LAB	DATA	QA	DETECTION LIMIT	UN-CERTAINTY
Alkalinity as CaCO3	mg/L	07/15/97	N001	118			#	-	-
Arsenic	mg/L	09/12/95	0001	0.005	U		#	0.005	-
	mg/L	09/12/95	N001	0.005	U		#	0.005	-
	mg/L	07/15/97	0001	0.0010	B		#	-	-
Calcium	mg/L	06/09/93	N001	107			#	1	-
	mg/L	09/12/95	0001	56			#	0.5	-
	mg/L	07/15/97	0001	37.000			#	-	-
Chloride	mg/L	09/12/95	0001	3.8			#	0.5	-
	mg/L	07/15/97	0001	1.770			#	-	-
Gross Alpha	pCi/L	07/15/97	0001	1.98	U		#	1.98	± 1.16
Gross Beta	pCi/L	07/15/97	0001	4.06			#	2.27	± 1.48
Iron	mg/L	06/09/93	N001	0.09			#	0.03	-
	mg/L	09/12/95	0001	0.03	U		#	0.03	-
	mg/L	09/12/95	N001	0.03	UN	J	#	0.03	-
Lead	mg/L	06/09/93	N001	0.001	U		#	0.001	-
	mg/L	09/12/95	0001	0.003	U		#	0.003	-
	mg/L	09/12/95	N001	0.003	U		#	0.003	-
Lead-210	pCi/L	07/15/97	0001	1.78			#	1.03	± 0.63
Magnesium	mg/L	06/09/93	N001	39.4			#	0.1	-
	mg/L	09/12/95	0001	18	E	J	#	0.1	-
	mg/L	07/15/97	0001	9.900			#	-	-
Manganese	mg/L	06/09/93	N001	0.06			#	0.01	-
	mg/L	09/12/95	0001	0.01	U		#	0.01	-
	mg/L	09/12/95	N001	0.01	U		#	0.01	-
	mg/L	07/15/97	0001	0.0127			#	-	-
Molybdenum	mg/L	06/09/93	N001	0.01	U		#	0.01	-
	mg/L	09/12/95	0001	0.01	U		#	0.01	-
	mg/L	09/12/95	N001	0.01	U		#	0.01	-
	mg/L	07/15/97	0001	0.0011	B		#	-	-
Nickel	mg/L	09/12/95	0001	0.04	U		#	0.04	-
	mg/L	09/12/95	N001	0.04	U		#	0.04	-
	mg/L	07/15/97	0001	0.0030	U		#	0.003	-
Nitrate	mg/L	07/15/97	0001	0.0296	B		#	-	-

SURFACE WATER QUALITY DATA BY LOCATION (USEE102) FOR SITE RVT01, RIVERTON
LOCATION: 0746
REPORT DATE: 2/18/98 11:27:01 AM

PARAMETER	UNITS	SAMPLE: DATE	ID	RESULT	QUALIFIERS: LAB	DATA	QA	DETECTION LIMIT	UN-CERTAINTY
pH	s.u.	07/15/97	N001	7.31			#	-	-
Polonium-210	pCi/L	07/15/97	0001	0.18		U	#	0.12	± 0.18
Potassium	mg/L	07/15/97	0001	3.700			#	-	
Redox Potential	mV	07/15/97	N001	163			#	-	-
Selenium	mg/L	09/12/95	0001	0.005	U		#	0.005	-
	mg/L	09/12/95	N001	0.005	U		#	0.005	-
Sodium	mg/L	09/12/95	0001	29	E	J	#	1	-
	mg/L	07/15/97	0001	13.200			#	-	-
Specific Conductance	umhos/c	07/15/97	N001	401			#	-	-
Strontium	mg/L	09/12/95	N001	0.54			#	0.01	-
Sulfate	mg/L	09/12/95	0001	120			#	1	-
	mg/L	07/15/97	0001	33.100			#	-	-
Temperature	C	07/15/97	N001	17.0			#	-	-
Thorium-230	pCi/L	07/15/97	0001	0.60	U		#	0.6	±
Total Dissolved Solids	mg/L	09/12/95	0001	310			#	10	-
	mg/L	07/15/97	0001	210			#	-	-
Turbidity	NTU	07/15/97	N001	16.8			#	-	-
Uranium	mg/L	06/09/93	N001	0.008			#	0.001	-
	mg/L	09/12/95	0001	0.005			#	0.001	-
	mg/L	09/12/95	N001	0.004			#	0.001	-
	mg/L	07/15/97	0001	0.0013			#	-	-
Vanadium	mg/L	09/12/95	0001	0.01	U		#	0.01	-
	mg/L	09/12/95	N001	0.01	U		#	0.01	-
	mg/L	07/15/97	0001	0.0013	B		#	-	-
Zinc	mg/L	09/12/95	0001	0.05	U		#	0.05	-
	mg/L	09/12/95	N001	0.05	U		#	0.05	-

SURFACE WATER QUALITY DATA BY LOCATION (USEE102) FOR SITE RVT01, RIVERTON
LOCATION: 0747 8/26/97 State plane east changed from 594497.14 to an estimation close to river
REPORT DATE: 2/18/98 11:27:01 AM

PARAMETER	UNITS	SAMPLE: DATE	ID	RESULT	QUALIFIERS: LAB	DATA	QA	DETECTION LIMIT	UN-CERTAINTY
Alkalinity as CaCO3	mg/L	07/14/97	N001	120			#	-	-
Arsenic	mg/L	09/13/95	0001	0.005	U		#	0.005	-
	mg/L	09/13/95	0002	0.005	U		#	0.005	-
	mg/L	09/13/95	N001	0.005	UW	J	#	0.005	-
	mg/L	09/13/95	N002	0.005	UW	J	#	0.005	-
	mg/L	07/14/97	0001	0.0012	B		#	-	-
Calcium	mg/L	09/13/95	0001	400			#	0.5	-
	mg/L	09/13/95	0002	400			#	0.5	-
	mg/L	07/14/97	0001	125.000			#	-	-
Chloride	mg/L	09/13/95	0001	100			#	0.5	-
	mg/L	09/13/95	0002	89			#	0.5	-
	mg/L	07/14/97	0001	27.600			#	-	-
Gross Alpha	pCi/L	07/14/97	0001	108.45			#	8.47	± 13.2
Gross Beta	pCi/L	07/14/97	0001	38.68			#	9.62	± 7.05
Iron	mg/L	09/13/95	0001	0.03	U		#	0.03	-
	mg/L	09/13/95	0002	0.03	U		#	0.03	-
	mg/L	09/13/95	N001	1.1	N	J	#	0.03	-
	mg/L	09/13/95	N002	1.1	N	J	#	0.03	-
Lead	mg/L	09/13/95	0001	0.004	UI		#	0.004	-
	mg/L	09/13/95	0002	0.004	UI		#	0.004	-
	mg/L	09/13/95	N001	0.004	UI		#	0.004	-
	mg/L	09/13/95	N002	0.004	UI		#	0.004	-
Lead-210	pCi/L	07/14/97	0001	1.62			#	1.03	± 0.63
Magnesium	mg/L	09/13/95	0001	160	E	J	#	0.1	-
	mg/L	09/13/95	0002	170	E	J	#	0.1	-
	mg/L	07/14/97	0001	49.800			#	-	-
Manganese	mg/L	09/13/95	0001	1.5			#	0.01	-
	mg/L	09/13/95	0002	1.5			#	0.01	-
	mg/L	09/13/95	N001	2.5			#	0.01	-
	mg/L	09/13/95	N002	2.5			#	0.01	-
	mg/L	07/14/97	0001	0.880			#	-	-
Molybdenum	mg/L	09/13/95	0001	0.01			#	0.01	-
	mg/L	09/13/95	0002	0.01			#	0.01	-
	mg/L	09/13/95	N001	0.01			#	0.01	-

SURFACE WATER QUALITY DATA BY LOCATION (USEE102) FOR SITE RVT01, RIVERTON
LOCATION: 0747 8/26/97 State plane east changed from 594497.14 to an estimation close to river
REPORT DATE: 2/18/98 11:27:02 AM

PARAMETER	UNITS	SAMPLE: DATE	ID	RESULT	QUALIFIERS: LAB	DATA	QA	DETECTION LIMIT	UN-CERTAINTY
Molybdenum	mg/L	09/13/95	N002	0.01			#	0.01	-
	mg/L	07/14/97	0001	0.0155			#	-	-
Nickel	mg/L	09/13/95	0001	0.04	U		#	0.04	-
	mg/L	09/13/95	0002	0.04	U		#	0.04	-
	mg/L	09/13/95	N001	0.04	U		#	0.04	-
	mg/L	09/13/95	N002	0.04	U		#	0.04	-
	mg/L	07/14/97	0001	0.0067	B		#	-	-
Nitrate	mg/L	07/14/97	0001	0.0140	U		#	0.014	-
pH	s.u.	07/14/97	N001	8.23			#	-	-
Polonium-210	pCi/L	07/14/97	0001	0.19		U	#	0.11	± 0.17
Potassium	mg/L	07/14/97	0001	5.260			#	-	-
Redox Potential	mV	07/14/97	N001	142			#	-	-
Selenium	mg/L	09/13/95	0001	0.005	UW	J	#	0.005	-
	mg/L	09/13/95	0002	0.005	UW	J	#	0.005	-
	mg/L	09/13/95	N001	0.005	UW	J	#	0.005	-
	mg/L	09/13/95	N002	0.005	UW	J	#	0.005	-
Sodium	mg/L	09/13/95	0001	490	E	J	#	1	-
	mg/L	09/13/95	0002	490	E	J	#	1	-
	mg/L	07/14/97	0001	196 000			#	-	-
Specific Conductance	umhos/c	07/14/97	N001	1747			#	-	-
Strontium	mg/L	09/13/95	N001	2.8				0.01	-
	mg/L	09/13/95	N002	2.7				0.01	-
Sulfate	mg/L	09/13/95	0001	2600			#	1	-
	mg/L	09/13/95	0002	2500			#	1	-
	mg/L	07/14/97	0001	656 000			#	-	-
Temperature	C	07/14/97	N001	27.1			#	-	-
Thorium-230	pCi/L	07/14/97	0001	0.60	U		#	0.6	±
Total Dissolved Solids	mg/L	09/13/95	0001	3900			#	10	-
	mg/L	09/13/95	0002	3700			#	10	-
	mg/L	07/14/97	0001	1240			#	-	-
Turbidity	NTU	07/14/97	N001	61.8			#	-	-
Uranium	mg/L	09/13/95	0001	0.647			#	0.001	-

SURFACE WATER QUALITY DATA BY LOCATION (USEE102) FOR SITE RVT01, RIVERTON
LOCATION: 0747 8/26/97 State plane east changed from 594497.14 to an estimation close to river
REPORT DATE: 2/18/98 11:27:02 AM

PARAMETER	UNITS	SAMPLE: DATE	ID	RESULT	QUALIFIERS: LAB	DATA	QA	DETECTION LIMIT	UN-CERTAINTY
Uranium	mg/L	09/13/95	0002	0.639			#	0.001	-
	mg/L	09/13/95	N001	0.585			#	0.001	-
	mg/L	09/13/95	N002	0.581			#	0.001	-
	mg/L	07/14/97	0001	0.217			#	-	-
Vanadium	mg/L	09/13/95	0001	0.01	U		#	0.01	-
	mg/L	09/13/95	0002	0.01	U		#	0.01	-
	mg/L	09/13/95	N001	0.01	U		#	0.01	-
	mg/L	09/13/95	N002	0.01	U		#	0.01	-
	mg/L	07/14/97	0001	0.0024	B		#	-	-
Zinc	mg/L	09/13/95	0001	0.05	U		#	0.05	-
	mg/L	09/13/95	0002	0.05	U		#	0.05	-
	mg/L	09/13/95	N001	0.05	U		#	0.05	-
	mg/L	09/13/95	N002	0.05	U		#	0.05	-

SURFACE WATER QUALITY DATA BY LOCATION (USEE102) FOR SITE RVT01, RIVERTON
LOCATION: 0748
REPORT DATE: 2/18/98 11:27:02 AM

PARAMETER	UNITS	SAMPLE: DATE	ID	RESULT	QUALIFIERS: LAB	DATA	QA	DETECTION LIMIT	UN-CERTAINTY
Arsenic	mg/L	09/14/95	0001	0.005	U		#	0.005	-
	mg/L	09/14/95	N001	0.005	U		#	0.005	-
Calcium	mg/L	09/14/95	0001	58			#	0.5	-
Chloride	mg/L	09/14/95	0001	3.9			#	0.5	-
Iron	mg/L	09/14/95	0001	0.03	U		#	0.03	-
	mg/L	09/14/95	N001	0.54	N	J	#	0.03	-
Lead	mg/L	09/14/95	0001	0.003	U		#	0.003	-
	mg/L	09/14/95	N001	0.003	U		#	0.003	-
Magnesium	mg/L	09/14/95	0001	21	E	J	#	0.1	-
Manganese	mg/L	09/14/95	0001	0.01	U		#	0.01	-
	mg/L	09/14/95	N001	0.02			#	0.01	-
Molybdenum	mg/L	09/14/95	0001	0.01	U		#	0.01	-
	mg/L	09/14/95	N001	0.01	U		#	0.01	-
Nickel	mg/L	09/14/95	0001	0.04	U		#	0.04	-
	mg/L	09/14/95	N001	0.04	U		#	0.04	-
Selenium	mg/L	09/14/95	0001	0.005	U		#	0.005	-
	mg/L	09/14/95	N001	0.005	U		#	0.005	-
Sodium	mg/L	09/14/95	0001	33	E	J	#	1	-
Strontium	mg/L	09/14/95	N001	0.65			#	0.01	-
Sulfate	mg/L	09/14/95	0001	140			#	1	-
Total Dissolved Solids	mg/L	09/14/95	0001	310			#	10	-
Uranium	mg/L	09/14/95	0001	0.004			#	0.001	-
	mg/L	09/14/95	N001	0.004			#	0.001	-
Vanadium	mg/L	09/14/95	0001	0.01	U		#	0.01	-
	mg/L	09/14/95	N001	0.01	U		#	0.01	-
Zinc	mg/L	09/14/95	0001	0.05	U		#	0.05	-
	mg/L	09/14/95	N001	0.05	U		#	0.05	-

SURFACE WATER QUALITY DATA BY LOCATION (USEE102) FOR SITE RVT01, RIVERTON
LOCATION: 0749 8/26/97 State plane east changed from 589532.71 to an estimation close to river
REPORT DATE: 2/18/98 11:27:03 AM

PARAMETER	UNITS	SAMPLE: DATE	ID	RESULT	QUALIFIERS: LAB	DATA	QA	DETECTION LIMIT	UN-CERTAINTY
Alkalinity as CaCO3	mg/L	02/10/97	N001	1030			#	-	-
Arsenic	mg/L	09/14/95	0001	0.006	UIW	J	#	0.006	-
	mg/L	09/14/95	N001	0.007	UIW	J	#	0.007	-
	mg/L	02/10/97	0001	0.0025	BN	J	#	-	-
Calcium	mg/L	09/14/95	0001	9.6	I		#	0.5	-
	mg/L	02/10/97	0001	4.630			#	-	-
Chloride	mg/L	09/14/95	0001	14			#	0.5	-
	mg/L	02/10/97	0001	1.100			#	-	-
Gross Alpha	pCi/L	02/10/97	0001	68.44	U		#	68.44	± 34.4
Gross Beta	pCi/L	02/10/97	0001	85.66	U		#	85.66	± 49.0
Iron	mg/L	09/14/95	0001	0.03	UI		#	0.03	-
	mg/L	09/14/95	N001	4.5	N	J	#	0.03	-
Lead	mg/L	09/14/95	0001	0.008	UIW	J	#	0.008	-
	mg/L	09/14/95	N001	0.004	UIW	J	#	0.004	-
Lead-210	pCi/L	02/10/97	0001	0.94	U		#	0.94	± 0.55
Magnesium	mg/L	09/14/95	0001	2.7	IE	J	#	0.1	-
	mg/L	02/10/97	0001	0.113			#	-	-
Manganese	mg/L	09/14/95	0001	0.19	I		#	0.01	-
	mg/L	09/14/95	N001	0.20			#	0.01	-
	mg/L	02/10/97	0001	0.0307			#	-	-
Molybdenum	mg/L	09/14/95	0001	0.01	UI		#	0.01	-
	mg/L	09/14/95	N001	0.02			#	0.01	-
	mg/L	02/10/97	0001	0.0320			#	-	-
Nickel	mg/L	09/14/95	0001	0.04	UI		#	0.04	-
	mg/L	09/14/95	N001	0.04			#	0.04	-
	mg/L	02/10/97	0001	0.0148	B		#	-	-
Nitrate	mg/L	02/10/97	0001	0.278			#	-	-
pH	s.u.	02/10/97	N001	7.68			#	-	-
Polonium-210	pCi/L	02/10/97	0001	0.13	U		#	0.13	± 0.16
Potassium	mg/L	02/10/97	0001	0.750			#	-	-
Redox Potential	mV	02/10/97	N001	231			#	-	-
Selenium	mg/L	09/14/95	0001	0.005	UIW	J	#	0.005	-

SURFACE WATER QUALITY DATA BY LOCATION (USEE102) FOR SITE RVT01, RIVERTON
LOCATION: 0749 8/26/97 State plane east changed from 589532.71 to an estimation close to river
REPORT DATE: 2/18/98 11:27:03 AM

PARAMETER	UNITS	SAMPLE: DATE	ID	RESULT	QUALIFIERS: LAB	DATA	QA	DETECTION LIMIT	UN-CERTAINTY
Selenium	mg/L	09/14/95	N001	0.006	UIW	J	#	0.006	-
Sodium	mg/L	09/14/95	0001	2700	IE	J	#	1	-
	mg/L	02/10/97	0001	1370.000			#	-	-
Specific Conductance	umhos/c	02/10/97	N001	5660			#	-	-
Strontium	mg/L	09/14/95	N001	0.07			#	0.01	-
Sulfate	mg/L	09/14/95	0001	5900			#	1	-
	mg/L	02/10/97	0001	1960.000			#	-	-
Temperature	C	02/10/97	N001	5.5			#	-	-
Thorium-230	pCi/L	02/10/97	0001	0.64	UN	J	#	0.64	±
Total Dissolved Solids	mg/L	09/14/95	0001	8500			#	10	-
	mg/L	02/10/97	0001	4080			#	-	-
Uranium	mg/L	09/14/95	0001	0.001	U		#	0.001	-
	mg/L	09/14/95	N001	0.001	U		#	0.001	-
	mg/L	02/10/97	0001	0.0010	U		#	0.001	-
Vanadium	mg/L	09/14/95	0001	0.01	UI		#	0.01	-
	mg/L	09/14/95	N001	0.01	U		#	0.01	-
	mg/L	02/10/97	0001	0.0040	U		#	0.004	-
Zinc	mg/L	09/14/95	0001	0.05	UI		#	0.05	-
	mg/L	09/14/95	N001	0.05	U		#	0.05	-

SURFACE WATER QUALITY DATA BY LOCATION (USEE102) FOR SITE RVT01, RIVERTON
LOCATION: 0794 8/26/97 State plane north changed from 844178.27 to an estimation close to river
REPORT DATE: 2/18/98 11:27:03 AM

PARAMETER	UNITS	SAMPLE: DATE	ID	RESULT	QUALIFIERS: LAB	DATA	QA	DETECTION LIMIT	UN-CERTAINTY
Alkalinity as CaCO3	mg/L	09/08/87	N001	182			#	-	-
	mg/L	02/20/88	N001	184			#	-	-
	mg/L	05/16/88	N001	89			#	-	-
	mg/L	09/01/88	N001	211			#	-	-
	mg/L	10/26/88	N001	220			#	-	-
	mg/L	04/26/89	N001	143			#	-	-
	mg/L	11/21/89	N001	165			#	-	-
	mg/L	02/09/97	N001	16[illegible]			#	-	-
Aluminum	mg/L	09/08/87	0001	[illegible]		J	#	0.1	-
	mg/L	02/20/88	0001	[illegible].20			#	0.1	-
	mg/L	05/16/88	0001	0.12			#	0.1	-
	mg/L	09/01/88	0001	0.05	U	J	#	0.1	-
	mg/L	10/26/88	0001	0.05	U	J	#	0.1	-
	mg/L	04/26/89	0001	0.1	U		#	0.1	-
	mg/L	11/21/89	0001	0.1	U		#	0.1	-
Ammonia as NH4	mg/L	09/08/87	0001	0.1	U		#	0.1	-
	mg/L	02/20/88	0001	0.1	U		#	0.1	-
	mg/L	05/16/88	0001	0.1	U		#	0.1	-
	mg/L	09/01/88	0001	0.10			#	0.1	-
	mg/L	10/26/88	0001	0.05		J	#	0.1	-
	mg/L	04/26/89	0001	0.1	U		#	0.1	-
	mg/L	11/21/89	0001	0.1	U		#	0.1	-
Antimony	mg/L	09/08/87	0001	0.003	U		#	0.003	-
	mg/L	02/20/88	0001	0.003	U		#	0.003	-
	mg/L	05/16/88	0001	0.003	U		#	0.003	-
	mg/L	09/01/88	0001	0.001	U	J	#	0.003	-
	mg/L	10/26/88	0001	0.001	U	J	#	0.003	-
	mg/L	04/26/89	0001	0.003	U		#	0.003	-
	mg/L	11/21/89	0001	0.003	U		#	0.003	-
Arsenic	mg/L	09/08/87	0001	0.001		J	#	0.01	-
	mg/L	02/20/88	0001	0.005		J	#	0.01	-
	mg/L	05/16/88	0001	0.002		J	#	0.01	-
	mg/L	09/01/88	0001	0.002		J	#	0.01	-
	mg/L	10/26/88	0001	0.002		J	#	0.01	-
	mg/L	04/26/89	0001	0.01	U		#	0.01	-

SURFACE WATER QUALITY DATA BY LOCATION (USEE102) FOR SITE RVT01, RIVERTON
LOCATION: 0794 8/26/97 State plane north changed from 844178.27 to an estimation close to river
REPORT DATE: 2/18/98 11:27:04 AM

PARAMETER	UNITS	SAMPLE: DATE	ID	RESULT	QUALIFIERS: LAB	DATA	QA	DETECTION LIMIT	UN-CERTAINTY
Arsenic	mg/L	11/21/89	0001	0.01	U		#	0.01	-
	mg/L	09/13/95	0001	0.005	U		#	0.005	-
	mg/L	09/13/95	N001	0.005	UW	J	#	0.005	-
	mg/L	02/09/97	0001	0.00054	B	J	#	-	-
Barium	mg/L	09/08/87	0001	0.07		J	#	0.1	-
	mg/L	02/20/88	0001	0.14			#	0.1	-
	mg/L	05/16/88	0001	0.02		J	#	0.1	-
	mg/L	09/01/88	0001	0.05		J	#	0.1	-
	mg/L	10/26/88	0001	0.04		J	#	0.1	-
	mg/L	04/26/89	0001	0.1	U		#	0.1	-
	mg/L	11/21/89	0001	0.1	U		#	0.1	-
Beryllium	mg/L	11/21/89	0001	0.01	U		#	0.01	-
Boron	mg/L	04/26/89	0001	0.1	U		#	0.1	-
	mg/L	11/21/89	0001	0.1			#	0.1	-
Bromide	mg/L	04/26/89	0001	0.1	U		#	0.1	-
	mg/L	11/21/89	0001	0.1	U		#	0.1	-
Cadmium	mg/L	09/08/87	0001	0.005	U		#	0.005	-
	mg/L	02/20/88	0001	0.001	U		#	0.001	-
	mg/L	05/16/88	0001	0.001	U		#	0.001	-
	mg/L	09/01/88	0001	0.0001	U	J	#	0.001	-
	mg/L	10/26/88	0001	0.0004		J	#	0.001	-
	mg/L	04/26/89	0001	0.001	U		#	0.001	-
	mg/L	11/21/89	0001	0.001	U		#	0.001	-
Calcium	mg/L	09/08/87	0001	72.9			#	0.01	-
	mg/L	02/20/88	0001	89.4			#	0.01	-
	mg/L	05/16/88	0001	33.5			#	0.01	-
	mg/L	09/01/88	0001	103			#	0.01	-
	mg/L	10/26/88	0001	107			#	0.01	-
	mg/L	04/26/89	0001	71			#	0.01	-
	mg/L	11/21/89	0001	80.1			#	0.01	-
	mg/L	06/09/93	N001	40.9			#	1	-
	mg/L	09/13/95	0001	98			#	0.5	-
	mg/L	02/09/97	0001	82.900			#	-	-
Chloride	mg/L	09/08/87	0001	8.3			#	1	-
	mg/L	02/20/88	0001	14			#	1	-

SURFACE WATER QUALITY DATA BY LOCATION (USEE102) FOR SITE RVT01, RIVERTON
LOCATION: 0794 8/26/97 State plane north changed from 844178.27 to an estimation close to river
REPORT DATE: 2/18/98 11:27:04 AM

PARAMETER	UNITS	SAMPLE: DATE	ID	RESULT	QUALIFIERS: LAB	DATA	QA	DETECTION LIMIT	UN-CERTAINTY
Chloride	mg/L	05/16/88	0001	2.7			#	1	-
	mg/L	09/01/88	0001	10			#	1	-
	mg/L	10/26/88	0001	11			#	1	-
	mg/L	04/26/89	0001	12.9			#	1	-
	mg/L	11/21/89	0001	11			#	1	-
	mg/L	09/13/95	0001	7.6			#	0.5	-
	mg/L	02/09/97	0001	7.310			#	-	-
Chromium	mg/L	09/08/87	0001	0.01	U		#	0.01	-
	mg/L	02/20/88	0001	0.05			#	0.01	-
	mg/L	05/16/88	0001	0.03			#	0.01	-
	mg/L	09/01/88	0001	0.01	U		#	0.01	-
	mg/L	10/26/88	0001	0.01	U		#	0.01	-
	mg/L	04/26/89	0001	0.01	U		#	0.01	-
	mg/L	11/21/89	0001	0.01	U		#	0.01	-
Cobalt	mg/L	04/26/89	0001	0.05	U		#	0.05	-
	mg/L	11/21/89	0001	0.05	U		#	0.05	-
Copper	mg/L	09/08/87	0001	0.01	U	J	#	0.02	-
	mg/L	02/20/88	0001	0.02			#	0.02	-
	mg/L	05/16/88	0001	0.01	U	J	#	0.02	-
	mg/L	09/01/88	0001	0.01	U	J	#	0.02	-
	mg/L	10/26/88	0001	0.01		J	#	0.02	-
	mg/L	04/26/89	0001	0.01	U		#	0.01	-
	mg/L	11/21/89	0001	0.02	U		#	0.02	-
Fluoride	mg/L	04/26/89	0001	0.3			#	0.1	-
	mg/L	11/21/89	0001	0.4			#	0.1	-
Gross Alpha	pCi/L	04/26/89	0001	8.7			#	0.2	± 3.10
	pCi/L	11/21/89	0001	18			#	1	± 5.00
	pCi/L	02/09/97	0001	10.12		J	#	8.07	± 5.89
Gross Beta	pCi/L	04/26/89	0001	3.9			#	1	± 2.20
	pCi/L	11/21/89	0001	6.9			#	0.5	± 1.80
	pCi/L	02/09/97	0001	11.17	U		#	11.17	± 6.67
Iron	mg/L	09/08/87	0001	0.01	U	J	#	0.03	-
	mg/L	02/20/88	0001	0.08			#	0.03	-
	mg/L	05/16/88	0001	0.08			#	0.03	-
	mg/L	09/01/88	0001	0.02	U	J	#	0.03	-

SURFACE WATER QUALITY DATA BY LOCATION (USEE102) FOR SITE RVT01, RIVERTON
LOCATION: 0794 8/26/97 State plane north changed from 844178.27 to an estimation close to river
REPORT DATE: 2/18/98 11:27:04 AM

PARAMETER	UNITS	SAMPLE: DATE	ID	RESULT	QUALIFIERS: LAB	DATA	QA	DETECTION LIMIT	UN-CERTAINTY
Iron	mg/L	10/26/88	0001	0.02	U	J	#	0.03	-
	mg/L	04/26/89	0001	0.03	U		#	0.03	-
	mg/L	11/21/89	0001	0.03			#	0.03	-
	mg/L	06/09/93	N001	1.95			#	0.03	-
	mg/L	09/13/95	0001	0.03	U		#	0.03	-
	mg/L	09/13/95	N001	0.16	N	J	#	0.03	-
Lead	mg/L	09/08/87	0001	0.02	U		#	0.02	-
	mg/L	02/20/88	0001	0.01	U		#	0.01	-
	mg/L	05/16/88	0001	0.01	U		#	0.01	-
	mg/L	09/01/88	0001	0.001	U	J	#	0.01	-
	mg/L	10/26/88	0001	0.001	U	J	#	0.01	-
	mg/L	04/26/89	0001	0.01	U		#	0.01	-
	mg/L	11/21/89	0001	0.01	U		#	0.01	-
	mg/L	06/09/93	N001	0.004			#	0.001	-
	mg/L	09/13/95	0001	0.003	U		#	0.003	-
	mg/L	09/13/95	N001	0.003	U		#	0.003	-
Lead-210	pCi/L	04/26/89	0001	0.0			#	1.5	± 0.70
	pCi/L	11/21/89	0001	0.6			#	1.5	± 0.60
	pCi/L	02/09/97	0001	1.17	U		#	1.17	± 0.69
Magnesium	mg/L	09/08/87	0001	28.4			#	0.001	-
	mg/L	02/20/88	0001	35.0			#	0.001	-
	mg/L	05/16/88	0001	10.7			#	0.001	-
	mg/L	09/01/88	0001	41			#	0.001	-
	mg/L	10/26/88	0001	39			#	0.001	-
	mg/L	04/26/89	0001	26			#	0.001	-
	mg/L	11/21/89	0001	31.4			#	0.001	-
	mg/L	06/09/93	N001	13.8			#	0.1	-
	mg/L	09/13/95	0001	38	E	J	#	0.1	-
	mg/L	02/09/97	0001	30.400			#	-	-
Manganese	mg/L	09/08/87	0001	0.01	U		#	0.01	-
	mg/L	02/20/88	0001	0.05			#	0.01	-
	mg/L	05/16/88	0001	0.01			#	0.01	-
	mg/L	09/01/88	0001	0.02			#	0.01	-
	mg/L	10/26/88	0001	0.02			#	0.01	-
	mg/L	04/26/89	0001	0.05			#	0.01	-

SURFACE WATER QUALITY DATA BY LOCATION (USEE102) FOR SITE RVT01, RIVERTON
LOCATION: 0794 8/26/97 State plane north changed from 844178.27 to an estimation close to river
REPORT DATE: 2/18/98 11:27:05 AM

PARAMETER	UNITS	SAMPLE: DATE	ID	RESULT	QUALIFIERS: LAB	DATA	QA	DETECTION LIMIT	UN-CERTAINTY
Manganese	mg/L	11/21/89	0001	0.02			#	0.01	-
	mg/L	06/09/93	N001	0.09			#	0.01	-
	mg/L	09/13/95	0001	0.01	U		#	0.01	-
	mg/L	09/13/95	N001	0.02			#	0.01	-
	mg/L	02/09/97	0001	0.0228			#	-	-
Mercury	mg/L	09/08/87	0001	0.0002	U		#	0.0002	-
	mg/L	02/20/88	0001	0.0002	U		#	0.0002	-
	mg/L	05/16/88	0001	0.0003			#	0.0002	-
	mg/L	09/01/88	0001	0.0001	U	J	#	0.0002	-
	mg/L	10/26/88	0001	0.0001	U	J	#	0.0002	-
	mg/L	04/26/89	0001	0.0002	U		#	0.0002	-
	mg/L	11/21/89	0001	0.002	U		#	0.002	-
Molybdenum	mg/L	09/08/87	0001	0.01	U		#	0.01	-
	mg/L	02/20/88	0001	0.01	U		#	0.01	-
	mg/L	05/16/88	0001	0.01			#	0.01	-
	mg/L	09/01/88	0001	0.001		J	#	0.01	-
	mg/L	10/26/88	0001	0.002		J	#	0.01	-
	mg/L	04/26/89	0001	0.01	U		#	0.01	-
	mg/L	11/21/89	0001	0.01	U		#	0.01	-
	mg/L	06/09/93	N001	0.01	U		#	0.01	-
	mg/L	09/13/95	0001	0.01	U		#	0.01	-
	mg/L	09/13/95	N001	0.01	U		#	0.01	-
	mg/L	02/09/97	0001	0.0014	B		#	-	-
Nickel	mg/L	09/08/87	0001	0.01	U	J	#	0.04	-
	mg/L	02/20/88	0001	0.02		J	#	0.04	-
	mg/L	05/16/88	0001	0.02		J	#	0.04	-
	mg/L	09/01/88	0001	0.02	U	J	#	0.04	-
	mg/L	10/26/88	0001	0.02	U	J	#	0.04	-
	mg/L	04/26/89	0001	0.04	U		#	0.04	-
	mg/L	11/21/89	0001	0.04	U		#	0.04	-
	mg/L	09/13/95	0001	0.04	U		#	0.04	-
	mg/L	09/13/95	N001	0.04	U		#	0.04	-
	mg/L	02/09/97	0001	0.0070	U		#	0.007	-
Nitrate	mg/L	09/08/87	0001	2.2			#	1	-
	mg/L	02/20/88	0001	3.1			#	1	-

SURFACE WATER QUALITY DATA BY LOCATION (USEE102) FOR SITE RVT01, RIVERTON
LOCATION: 0794 8/26/97 State plane north changed from 844178.27 to an estimation close to river
REPORT DATE: 2/18/98 11:27:05 AM

PARAMETER	UNITS	SAMPLE: DATE	ID	RESULT	QUALIFIERS: LAB	DATA	QA	DETECTION LIMIT	UN-CERTAINTY
Nitrate	mg/L	05/16/88	0001	3.4			#	1	-
	mg/L	09/01/88	0001	6.6			#	1	-
	mg/L	10/26/88	0001	1.0			#	1	-
	mg/L	04/26/89	0001	1.0	U		#	1	-
	mg/L	11/21/89	0001	0.1	U	J	#	1	-
	mg/L	02/09/97	0001	1.580			#	-	-
Nitrate + Nitrite as Nitrogen	mg/L	02/20/88	0001	3.1			#	1	-
	mg/L	05/16/88	0001	3.4			#	1	-
	mg/L	09/01/88	0001	1.5			#	1	-
	mg/L	10/26/88	0001	0.22		J	#	1	-
Nitrite	mg/L	09/08/87	0001	0.1	U		#	0.1	-
pH	s.u.	09/08/87	N001	8.52			#	-	-
	s.u.	02/20/88	N001	7.48			#	-	-
	s.u.	05/16/88	N001	7.68			#	-	-
	s.u.	09/01/88	N001	8.18			#	-	-
	s.u.	10/26/88	N001	8.03			#	-	-
	s.u.	04/26/89	N001	8.60			#	-	-
	s.u.	11/21/89	N001	8.7			#	-	-
	s.u.	02/09/97	N001	7.93			#	-	-
Polonium-210	pCi/L	04/26/89	0001	0.0			#	1	± 0.10
	pCi/L	11/21/89	0001	1.0			#	1	± 0.50
	pCi/L	02/09/97	0001	0.20			#	0.05	± 0.12
Potassium	mg/L	09/08/87	0001	2.58			#	0.01	-
	mg/L	02/20/88	0001	5.69			#	0.01	-
	mg/L	05/16/88	0001	1.53			#	0.01	-
	mg/L	09/01/88	0001	4.0			#	0.01	-
	mg/L	10/26/88	0001	3.9			#	0.01	-
	mg/L	04/26/89	0001	2.5			#	0.01	-
	mg/L	11/21/89	0001	2.7			#	0.01	-
	mg/L	02/09/97	0001	2.660			#	-	-
Radium-226	pCi/L	05/16/88	0001	0.0			#	1	± 0.10
	pCi/L	09/01/88	0001	0.206			#	1	± 0.12
	pCi/L	10/26/88	0001	0.334			#	1	± 0.30
	pCi/L	04/26/89	0001	0.0			#	1	± 0.10
	pCi/L	11/21/89	0001	0.2			#	1	± 0.20

SURFACE WATER QUALITY DATA BY LOCATION (USEE102) FOR SITE RVT01, RIVERTON
LOCATION: 0794 8/26/97 State plane north changed from 844178.27 to an estimation close to river
REPORT DATE: 2/18/98 11:27:05 AM

PARAMETER	UNITS	SAMPLE: DATE	ID	RESULT	QUALIFIERS: LAB	DATA	QA	DETECTION LIMIT	UN-CERTAINTY
Radium-228	pCi/L	05/16/88	0001	0.2			#	1	± 0.70
	pCi/L	09/01/88	0001	0.00			#	1	± 1.15
	pCi/L	10/26/88	0001	0.228			#	1	± 0.58
	pCi/L	04/26/89	0001	0.5			#	1	± 1.50
	pCi/L	11/21/89	0001	0.3			#	1	± 0.90
Selenium	mg/L	09/08/87	0001	0.001	U	J	#	0.005	-
	mg/L	02/20/88	0001	0.005	U		#	0.005	-
	mg/L	05/16/88	0001	0.005	U		#	0.005	-
	mg/L	09/01/88	0001	0.001		J	#	0.005	-
	mg/L	10/26/88	0001	0.001		J	#	0.005	-
	mg/L	04/26/89	0001	0.005	U		#	0.005	-
	mg/L	11/21/89	0001	0.005	U		#	0.005	-
	mg/L	09/13/95	0001	0.005	UW	J	#	0.005	-
	mg/L	09/13/95	N001	0.005	UW	J	#	0.005	-
Silica	mg/L	04/26/89	0001	7.9			#	2	-
	mg/L	11/21/89	0001	6			#	2	-
Silver	mg/L	09/08/87	0001	0.01	U		#	0.01	-
	mg/L	02/20/88	0001	0.01			#	0.01	-
	mg/L	05/16/88	0001	0.01	U		#	0.01	-
	mg/L	09/01/88	0001	0.01	U		#	0.01	-
	mg/L	10/26/88	0001	0.01	U		#	0.01	-
	mg/L	04/26/89	0001	0.01	U		#	0.01	-
	mg/L	11/21/89	0001	0.01	U		#	0.01	-
Sodium	mg/L	09/08/87	0001	57.8			#	0.002	-
	mg/L	02/20/88	0001	67.4			#	0.002	-
	mg/L	05/16/88	0001	18.1			#	0.002	-
	mg/L	09/01/88	0001	92			#	0.002	-
	mg/L	10/26/88	0001	75			#	0.002	-
	mg/L	04/26/89	0001	56			#	0.002	-
	mg/L	11/21/89	0001	53.1			#	0.002	-
	mg/L	09/13/95	0001	67	E	J	#	1	-
	mg/L	02/09/97	0001	49.700			#	-	-
Specific Conductance	umhos/c	09/08/87	N001	700			#	-	-
	umhos/c	02/20/88	N001	500			#	-	-
	umhos/c	05/16/88	N001	230			#	-	-

SURFACE WATER QUALITY DATA BY LOCATION (USEE102) FOR SITE RVT01, RIVERTON
LOCATION: 0794 8/26/97 State plane north changed from 844178.27 to an estimation close to river
REPORT DATE: 2/18/98 11:27:06 AM

PARAMETER	UNITS	SAMPLE: DATE	ID	RESULT	QUALIFIERS: LAB	DATA	QA	DETECTION LIMIT	UN-CERTAINTY
Specific Conductance	umhos/c	09/01/88	N001	900			#	-	-
	umhos/c	10/26/88	N001	700			#	-	-
	umhos/c	04/26/89	N001	450			#	-	-
	umhos/c	11/21/89	N001	180			#	-	-
	umhos/c	02/09/97	N001	885			#	-	-
Strontium	mg/L	09/08/87	0001	0.90			#	0.1	-
	mg/L	02/20/88	0001	1.02			#	0.1	-
	mg/L	05/16/88	0001	0.41			#	0.1	-
	mg/L	09/01/88	0001	1.09			#	0.1	-
	mg/L	10/26/88	0001	1.06			#	0.1	-
	mg/L	04/26/89	0001	0.73			#	0.1	-
	mg/L	11/21/89	0001	0.87			#	0.1	-
	mg/L	09/13/95	N001	1.0			#	0.01	-
Sulfate	mg/L	09/08/87	0001	233			#	0.1	-
	mg/L	02/20/88	0001	293			#	0.1	-
	mg/L	05/16/88	0001	81			#	0.1	-
	mg/L	09/01/88	0001	381			#	0.1	-
	mg/L	10/26/88	0001	379			#	0.1	-
	mg/L	04/26/89	0001	228			#	0.1	-
	mg/L	11/21/89	0001	281			#	0.1	-
	mg/L	09/13/95	0001	350			#	1	-
	mg/L	02/09/97	0001	185.000			#	-	-
Sulfide	mg/L	04/26/89	0001	0.1	U		#	0.1	-
	mg/L	11/21/89	0001	4	U		#	4	-
Temperature	C	09/08/87	N001	23.5			#	-	-
	C	02/20/88	N001	2.0			#	-	-
	C	05/16/88	N001	12.0			#	-	-
	C	09/01/88	N001	21.0			#	-	-
	C	10/26/88	N001	11.0			#	-	-
	C	04/26/89	N001	14			#	-	-
	C	11/21/89	N001	6.0			#	-	-
	C	02/09/97	N001	0.5			#	-	-
Thallium	mg/L	11/21/89	0001	0.01	U		#	0.01	-
Thorium-230	pCi/L	10/26/88	0001	1.82			#	1	± 0.39
	pCi/L	04/26/89	0001	0.3			#	1	± 0.30

SURFACE WATER QUALITY DATA BY LOCATION (USEE102) FOR SITE RVT01, RIVERTON
LOCATION: 0794 8/26/97 State plane north changed from 844178.27 to an estimatior close to river
REPORT DATE: 2/18/98 11:27:06 AM

PARAMETER	UNITS	SAMPLE: DATE	ID	RESULT	QUALIFIERS: LAB	DATA	QA	DETECTION LIMIT	UN-CERTAINTY
Thorium-230	pCi/L	11/21/89	0001	0.1			#	1	± 0.40
	pCi/L	02/09/97	0001	0.64	U		#	0.64	±
Tin	mg/L	04/26/89	0001	0.005	U		#	0.005	-
	mg/L	11/21/89	0001	0.005	U		#	0.005	-
Total Cyanide	mg/L	04/26/89	0001	0.01	U		#	0.01	-
	mg/L	11/21/89	0001	0.01	U		#	0.01	-
Total Dissolved Solids	mg/L	09/08/87	0001	579			#	10	-
	mg/L	02/20/88	0001	637			#	10	-
	mg/L	05/16/88	0001	206			#	10	-
	mg/L	09/01/88	0001	754			#	10	-
	mg/L	10/26/88	0001	722			#	10	-
	mg/L	04/26/89	0001	505			#	10	-
	mg/L	11/21/89	0001	577			#	10	-
	mg/L	09/13/95	0001	630			#	10	-
	mg/L	02/09/97	0001	513			#	-	-
Total Organic Carbon	mg/L	04/26/89	0001	10			#	1	-
	mg/L	11/21/89	0001	2.6			#	1	-
Total Phosphorus as PO4	mg/L	09/08/87	0001	0.9			#	0.1	-
	mg/L	02/20/88	0001	0.1	U		#	0.1	-
	mg/L	05/16/88	0001	0.1	U		#	0.1	-
	mg/L	09/01/88	0001	0.1	U		#	0.1	-
	mg/L	10/26/88	0001	0.1	U		#	0.1	-
	mg/L	04/26/89	0001	0.1	U		#	0.1	-
	mg/L	11/21/89	0001	0.1	U		#	0.1	-
Uranium	mg/L	09/08/87	0001	0.0064			#	0.003	-
	mg/L	02/20/88	0001	0.0068			#	0.003	-
	mg/L	05/16/88	0001	0.0024		J	#	0.003	-
	mg/L	09/01/88	0001	0.011			#	0.003	-
	mg/L	10/26/88	0001	0.003	U		#	0.003	-
	mg/L	04/26/89	0001	0.009			#	0.003	-
	mg/L	11/21/89	0001	0.0040			#	0.003	-
	mg/L	06/09/93	N001	0.002			#	0.001	-
	mg/L	09/13/95	0001	0.008			#	0.001	-
	mg/L	09/13/95	N001	0.008			#	0.001	-
	mg/L	02/09/97	0001	0.0059			#	-	-

SURFACE WATER QUALITY DATA BY LOCATION (USEE102) FOR SITE RVT01, RIVERTON
LOCATION: 0794 8/26/97 State plane north changed from 844178.27 to an estimation close to river
REPORT DATE: 2/18/98 11:27:06 AM

PARAMETER	UNITS	SAMPLE: DATE	ID	RESULT	QUALIFIERS: LAB	DATA	QA	DETECTION LIMIT	UN-CERTAINTY
Vanadium	mg/L	09/08/87	0001	0.02			#	0.01	-
	mg/L	02/20/88	0001	0.03			#	0.01	-
	mg/L	05/16/88	0001	0.01	U		#	0.01	-
	mg/L	09/01/88	0001	0.01	U		#	0.01	-
	mg/L	10/26/88	0001	0.01	U		#	0.01	-
	mg/L	04/26/89	0001	0.01	U		#	0.01	-
	mg/L	11/21/89	0001	0.01			#	0.01	-
	mg/L	09/13/95	0001	0.01	U		#	0.01	-
	mg/L	09/13/95	N001	0.01	U		#	0.01	-
	mg/L	02/09/97	0001	0.0040	U		#	0.004	-
Zinc	mg/L	09/08/87	0001	0.005	U		#	0.005	-
	mg/L	02/20/88	0001	0.015			#	0.005	-
	mg/L	05/16/88	0001	0.005	U		#	0.005	-
	mg/L	09/01/88	0001	0.01	U		#	0.01	-
	mg/L	10/26/88	0001	0.01	U		#	0.01	-
	mg/L	04/26/89	0001	0.005	U		#	0.005	-
	mg/L	11/21/89	0001	0.005	U		#	0.005	-
	mg/L	09/13/95	0001	0.05	U		#	0.05	-
	mg/L	09/13/95	N001	0.05	U		#	0.05	-

SURFACE WATER QUALITY DATA BY LOCATION (USEE102) FOR SITE RVT01, RIVERTON
LOCATION: 0795 8/26/97 State plane north changed from 847571.6 to an estimation close to river
REPORT DATE: 2/18/98 11:27:07 AM

PARAMETER	UNITS	SAMPLE: DATE	ID	RESULT	QUALIFIERS: LAB	DATA	QA	DETECTION LIMIT	UN-CERTAINTY
Alkalinity as CaCO3	mg/L	02/09/97	N001	970			#	-	-
Arsenic	mg/L	09/14/95	0001	0.005	UW	J	#	0.005	-
	mg/L	09/14/95	N001	0.005	UW	J	#	0.005	-
	mg/L	02/09/97	0001	0.0020	BN	J	#	-	-
Calcium	mg/L	09/14/95	0001	84			#	0.5	-
	mg/L	02/09/97	0001	24.400			#	-	-
Chloride	mg/L	09/14/95	0001	10			#	0.5	-
	mg/L	02/09/97	0001	10.600			#	-	-
Gross Alpha	pCi/L	02/09/97	0001	60.20	U		#	60.2	± 29.7
Gross Beta	pCi/L	02/09/97	0001	77.02	U		#	77.02	± 40.6
Iron	mg/L	09/14/95	0001	0.03	U		#	0.03	-
	mg/L	09/14/95	N001	0.19	N	J	#	0.03	-
Lead	mg/L	09/14/95	0001	0.004	UI		#	0.004	-
	mg/L	09/14/95	N001	0.003	U		#	0.003	-
Lead-210	pCi/L	02/09/97	0001	1.18			#	0.96	± 0.58
Magnesium	mg/L	09/14/95	0001	27	E	J	#	0.1	-
	mg/L	02/09/97	0001	4.750			#	-	-
Manganese	mg/L	09/14/95	0001	0.05			#	0.01	-
	mg/L	09/14/95	N001	0.06			#	0.01	-
	mg/L	02/09/97	0001	0.0368			#	-	-
Molybdenum	mg/L	09/14/95	0001	0.01	U		#	0.01	-
	mg/L	09/14/95	N001	0.01	U		#	0.01	-
	mg/L	02/09/97	0001	0.0193			#	-	-
Nickel	mg/L	09/14/95	0001	0.04	U		#	0.04	-
	mg/L	09/14/95	N001	0.04	U		#	0.04	-
	mg/L	02/09/97	0001	0.0167	B		#	-	-
Nitrate	mg/L	02/09/97	0001	0.767			#	-	-
pH	s.u.	02/09/97	N001	7.70			#	-	-
Polonium-210	pCi/L	02/09/97	0001	0.18		U	#	0.11	± 0.16
Potassium	mg/L	02/09/97	0001	1.240			#	-	-
Redox Potential	mV	02/09/97	N001	85			#	-	-
Selenium	mg/L	09/14/95	0001	0.005	UW	J	#	0.005	-

SURFACE WATER QUALITY DATA BY LOCATION (USEE102) FOR SITE RVT01, RIVERTON
LOCATION: 0795 8/26/97 State plane north changed from 847571.6 to an estimation close to river
REPORT DATE: 2/18/98 11:27:07 AM

PARAMETER	UNITS	SAMPLE: DATE	ID	RESULT	QUALIFIERS: LAB	DATA	QA	DETECTION LIMIT	UN-CERTAINTY
Selenium	mg/L	09/14/95	N001	0.005	UW	J	#	0.005	-
Sodium	mg/L	09/14/95	0001	680	E	J	#	1	-
	mg/L	02/09/97	0001	1160.000			#	-	-
Specific Conductance	umhos/c	02/09/97	N001	5040			#	-	-
Strontium	mg/L	09/14/95	N001	0.76			#	0.01	-
Sulfate	mg/L	09/14/95	0001	1400			#	1	-
	mg/L	02/09/97	0001	1690.000			#	-	-
Temperature	C	02/09/97	N001	5.6			#	-	-
Thorium-230	pCi/L	02/09/97	0001	0.64	UN	J	#	0.64	±
Total Dissolved Solids	mg/L	09/14/95	0001	2300			#	10	-
	mg/L	02/09/97	0001	3540			#	-	-
Turbidity	NTU	02/09/97	N001	11.4			#	-	-
Uranium	mg/L	09/14/95	0001	0.007			#	0.001	-
	mg/L	09/14/95	N001	0.006			#	0.001	-
	mg/L	02/09/97	0001	0.0038			#	-	-
Vanadium	mg/L	09/14/95	0001	0.01	U		#	0.01	-
	mg/L	09/14/95	N001	0.01	U		#	0.01	-
	mg/L	02/09/97	0001	0.0040	U		#	0.004	-
Zinc	mg/L	09/14/95	0001	0.05	U		#	0.05	-
	mg/L	09/14/95	N001	0.05	U		#	0.05	-

SURFACE WATER QUALITY DATA BY LOCATION (USFE102) FOR SITE RVT01, RIVERTON
LOCATION: 0796
REPORT DATE: 2/18/98 11:27:07 AM

PARAMETER	UNITS	SAMPLE: DATE	ID	RESULT	QUALIFIERS: LAB	DATA	QA	DETECTION LIMIT	UN-CERTAINTY
Alkalinity as CaCO3	mg/L	09/08/87	N001	162			#	-	-
	mg/L	02/20/88	N001	170			#	-	-
	mg/L	05/16/88	N001	95			#	-	-
	mg/L	09/01/88	N001	232			#	-	-
	mg/L	10/26/88	N001	220			#	-	-
	mg/L	04/25/89	N001	136			#	-	-
	mg/L	11/21/89	N001	180			#	-	-
	mg/L	03/29/90	N001	175			#	-	-
	mg/L	02/10/97	N001	160			#	-	-
Aluminum	mg/L	09/08/87	0001	0.08		J	#	0.1	-
	mg/L	02/20/88	0001	0.18			#	0.1	-
	mg/L	05/16/88	0001	0.10			#	0.1	-
	mg/L	09/01/88	0001	0.05	U	J	#	0.1	-
	mg/L	10/26/88	0001	0.05	U	J	#	0.1	-
	mg/L	04/25/89	0001	0.1	U		#	0.1	-
	mg/L	11/21/89	0001	0.1	U		#	0.1	-
Ammonia as NH4	mg/L	09/08/87	0001	0.1	U		#	0.1	-
	mg/L	02/20/88	0001	0.1	U		#	0.1	-
	mg/L	05/16/88	0001	0.1	U		#	0.1	-
	mg/L	09/01/88	0001	0.07		J	#	0.1	-
	mg/L	10/26/88	0001	0.04		J	#	0.1	-
	mg/L	04/25/89	0001	0.1	U		#	0.1	-
	mg/L	11/21/89	0001	0.1	U		#	0.1	-
Antimony	mg/L	09/08/87	0001	0.003	U		#	0.003	-
	mg/L	02/20/88	0001	0.003	U		#	0.003	-
	mg/L	05/16/88	0001	0.003	U		#	0.003	-
	mg/L	09/01/88	0001	0.001	U	J	#	0.003	-
	mg/L	10/26/88	0001	0.001	U	J	#	0.003	-
	mg/L	04/25/89	0001	0.003	U		#	0.003	-
	mg/L	11/21/89	0001	0.003	U		#	0.003	-
	mg/L	03/29/90	0001	0.003	U		#	0.003	-
	mg/L	03/29/90	N001	0.003	U		#	0.003	-
Arsenic	mg/L	09/08/87	0001	0.001	U	J	#	0.01	-
	mg/L	02/20/88	0001	0.001		J	#	0.01	-
	mg/L	05/16/88	0001	0.001		J	#	0.01	-

SURFACE WATER QUALITY DATA BY LOCATION (USEE102) FOR SITE RVT01, RIVERTON
LOCATION: 0796
REPORT DATE: 2/18/98 11:27:08 AM

PARAMETER	UNITS	SAMPLE: DATE	ID	RESULT	QUALIFIERS: LAB	DATA	QA	DETECTION LIMIT	UN-CERTAINTY
Arsenic	mg/L	09/01/88	0001	0.002		J	#	0.01	-
	mg/L	10/26/88	0001	0.001	U	J	#	0.01	-
	mg/L	04/25/89	0001	0.01	U		#	0.01	-
	mg/L	11/21/89	0001	0.01	U		#	0.01	-
	mg/L	03/29/90	0001	0.01	U		#	0.01	-
	mg/L	03/29/90	N001	0.01	U		#	0.01	-
	mg/L	09/12/95	0001	0.005	U		#	0.005	-
	mg/L	09/12/95	N001	0.005	UW	J	#	0.005	-
	mg/L	02/10/97	0001	0.00033	B	J	#	-	-
Barium	mg/L	09/08/87	0001	0.05		J	#	0.1	-
	mg/L	02/20/88	0001	0.04		J	#	0.1	-
	mg/L	05/16/88	0001	0.02		J	#	0.1	-
	mg/L	09/01/88	0001	0.04		J	#	0.1	-
	mg/L	10/26/88	0001	0.04		J	#	0.1	-
	mg/L	04/25/89	0001	0.1	U		#	0.1	-
	mg/L	11/21/89	0001	0.1	U		#	0.1	-
	mg/L	03/29/90	0001	0.1	U		#	0.1	-
	mg/L	03/29/90	N001	0.1			#	0.1	-
Beryllium	mg/L	11/21/89	0001	0.01	U		#	0.01	-
	mg/L	03/29/90	0001	0.01	U		#	0.01	-
	mg/L	03/29/90	N001	0.01	U		#	0.01	-
Boron	mg/L	04/25/89	0001	0.1	U		#	0.1	-
	mg/L	11/21/89	0001	0.1	U		#	0.1	-
Bromide	mg/L	04/25/89	0001	0.1	U		#	0.1	-
	mg/L	11/21/89	0001	0.1	U		#	0.1	-
Cadmium	mg/L	09/08/87	0001	0.005	U		#	0.005	-
	mg/L	02/20/88	0001	0.001	U		#	0.001	-
	mg/L	05/16/88	0001	0.001	U		#	0.001	-
	mg/L	09/01/88	0001	0.0001	U	J	#	0.001	-
	mg/L	10/26/88	0001	0.0001	U	J	#	0.001	-
	mg/L	04/25/89	0001	0.001	U		#	0.001	-
	mg/L	11/21/89	0001	0.001	U		#	0.001	-
	mg/L	03/29/90	0001	0.001	U		#	0.001	-
	mg/L	03/29/90	N001	0.001	U		#	0.001	-
Calcium	mg/L	09/08/87	0001	69.9			#	0.01	-

SURFACE WATER QUALITY DATA BY LOCATION (USEE102) FOR SITE RVT01, RIVERTON
LOCATION: 0796
REPORT DATE: 2/18/98 11:27:08 AM

PARAMETER	UNITS	SAMPLE: DATE	ID	RESULT	QUALIFIERS: LAB	DATA	QA	DETECTION LIMIT	UN-CERTAINTY
Calcium	mg/L	02/20/88	0001	86.8			#	0.01	-
	mg/L	05/16/88	0001	37.8			#	0.01	-
	mg/L	09/01/88	0001	109			#	0.01	-
	mg/L	10/26/88	0001	111			#	0.01	-
	mg/L	04/25/89	0001	66			#	0.01	-
	mg/L	11/21/89	0001	78.0			#	0.01	-
	mg/L	03/29/90	0001	90.2			#	0.01	-
	mg/L	03/29/90	N001	101			#	0.01	-
	mg/L	06/09/93	N001	42.1			#	1	-
	mg/L	09/12/95	0001	92			#	0.5	-
	mg/L	02/10/97	0001	80.700			#	-	-
Chloride	mg/L	09/08/87	0001	7.1			#	1	-
	mg/L	02/20/88	0001	14			#	1	-
	mg/L	05/16/88	0001	4.6			#	1	-
	mg/L	09/01/88	0001	12			#	1	-
	mg/L	10/26/88	0001	11			#	1	-
	mg/L	04/25/89	0001	11.6			#	1	-
	mg/L	11/21/89	0001	10			#	1	-
	mg/L	03/29/90	0001	15			#	1	-
	mg/L	03/29/90	N001	16			#	1	-
	mg/L	09/12/95	0001	7.4			#	0.5	-
	mg/L	02/10/97	0001	10.900			#	-	-
Chromium	mg/L	09/08/87	0001	0.01	U		#	0.01	-
	mg/L	02/20/88	0001	0.05			#	0.01	-
	mg/L	05/16/88	0001	0.03			#	0.01	-
	mg/L	09/01/88	0001	0.01	U		#	0.01	-
	mg/L	10/26/88	0001	0.01	U		#	0.01	-
	mg/L	04/25/89	0001	0.01	U		#	0.01	-
	mg/L	11/21/89	0001	0.01	U		#	0.01	-
	mg/L	03/29/90	0001	0.01	U		#	0.01	-
	mg/L	03/29/90	N001	0.01	U		#	0.01	-
Cobalt	mg/L	04/25/89	0001	0.05	U		#	0.05	-
	mg/L	11/21/89	0001	0.05	U		#	0.05	-
	mg/L	03/29/90	0001	0.05	U		#	0.05	-
	mg/L	03/29/90	N001	0.05	U		#	0.05	-

SURFACE WATER QUALITY DATA BY LOCATION (USEE102) FOR SITE RVT01, RIVERTON
LOCATION: 0796
REPORT DATE: 2/18/98 11:27:08 AM

PARAMETER	UNITS	SAMPLE: DATE	ID	RESULT	QUALIFIERS: LAB	DATA	QA	DETECTION LIMIT	UN-CERTAINTY
Copper	mg/L	09/08/87	0001	0.01	U	J	#	0.02	-
	mg/L	02/20/88	0001	0.01	U	J	#	0.02	-
	mg/L	05/16/88	0001	0.01	U	J	#	0.02	-
	mg/L	09/01/88	0001	0.01	U	J	#	0.02	-
	mg/L	10/26/88	0001	0.01	U	J	#	0.02	-
	mg/L	04/25/89	0001	0.01	U		#	0.01	-
	mg/L	11/21/89	0001	0.02	U		#	0.02	-
	mg/L	03/29/90	0001	0.02	U		#	0.02	-
	mg/L	03/29/90	N001	0.04			#	0.02	-
Fluoride	mg/L	04/25/89	0001	0.2			#	0.1	-
	mg/L	11/21/89	0001	0.4			#	0.1	-
	mg/L	03/29/90	0001	0.4			#	0.1	-
	mg/L	03/29/90	N001	0.4			#	0.1	-
Gross Alpha	pCi/L	04/25/89	0001	5.7			#	0.2	± 2.80
	pCi/L	11/21/89	0001	9.3			#	1	± 3.90
	pCi/L	03/29/90	0001	7.3			#	1	± 3.80
	pCi/L	03/29/90	N001	8.1			#	1	± 4.30
	pCi/L	02/10/97	0001	7.67	U	J	#	7.67	± 4.30
Gross Beta	pCi/L	04/25/89	0001	5.0			#	1	± 2.30
	pCi/L	11/21/89	0001	6.3			#	0.5	± 1.80
	pCi/L	03/29/90	0001	5.3			#	0.5	± 2.20
	pCi/L	03/29/90	N001	6.6			#	0.5	± 2.30
	pCi/L	02/10/97	0001	10.15	U		#	10.15	± 6.32
Iron	mg/L	09/08/87	0001	0.01	U	J	#	0.03	-
	mg/L	02/20/88	0001	0.06			#	0.03	-
	mg/L	05/16/88	0001	0.05			#	0.03	-
	mg/L	09/01/88	0001	0.02	U	J	#	0.03	-
	mg/L	10/26/88	0001	0.02	U	J	#	0.03	-
	mg/L	04/25/89	0001	0.03	U		#	0.03	-
	mg/L	11/21/89	0001	0.04			#	0.03	-
	mg/L	03/29/90	0001	0.03	U		#	0.03	-
	mg/L	03/29/90	N001	2.09			#	0.03	-
	mg/L	06/09/93	N001	3.12			#	0.03	-
	mg/L	09/12/95	0001	0.03	U		#	0.03	-
	mg/L	09/12/95	N001	0.17	N	J	#	0.03	-

SURFACE WATER QUALITY DATA BY LOCATION (USEE102) FOR SITE RVT01, RIVERTON
LOCATION: 0796
REPORT DATE: 2/18/98 11:27:09 AM

PARAMETER	UNITS	SAMPLE: DATE	ID	RESULT	QUALIFIERS: LAB	DATA	QA	DETECTION LIMIT	UN-CERTAINTY
Lead	mg/L	09/08/87	0001	0.02	U		#	0.02	-
	mg/L	02/20/88	0001	0.01	U		#	0.01	-
	mg/L	05/16/88	0001	0.01	U		#	0.01	-
	mg/L	09/01/88	0001	0.001	U	J	#	0.01	-
	mg/L	10/26/88	0001	0.001	U	J	#	0.01	-
	mg/L	04/25/89	0001	0.01	U		#	0.01	-
	mg/L	11/21/89	0001	0.01	U		#	0.01	-
	mg/L	03/29/90	0001	0.01	U		#	0.01	-
	mg/L	03/29/90	N001	0.01	U		#	0.01	-
	mg/L	06/09/93	N001	0.004			#	0.001	-
	mg/L	09/12/95	0001	0.003	U		#	0.003	-
	mg/L	09/12/95	N001	0.003	U		#	0.003	-
Lead-210	pCi/L	04/25/89	0001	0.0			#	1.5	± 0.70
	pCi/L	11/21/89	0001	0.8			#	1.5	± 0.60
	pCi/L	02/10/97	0001	1.26	U		#	1.26	± 0.74
Magnesium	mg/L	09/08/87	0001	29.0			#	0.001	-
	mg/L	02/20/88	0001	33.4			#	0.001	-
	mg/L	05/16/88	0001	13.0			#	0.001	-
	mg/L	09/01/88	0001	48			#	0.001	-
	mg/L	10/26/88	0001	46			#	0.001	-
	mg/L	04/25/89	0001	24			#	0.001	-
	mg/L	11/21/89	0001	31.2			#	0.001	-
	mg/L	03/29/90	0001	36.6			#	0.001	-
	mg/L	03/29/90	N001	36.8			#	0.001	-
	mg/L	06/09/93	N001	14.2			#	0.1	-
	mg/L	09/12/95	C001	36	E	J	#	0.1	-
	mg/L	02/10/97	0001	29.800			#	-	-
Manganese	mg/L	09/08/87	0001	0.07			#	0.01	-
	mg/L	02/20/88	0001	0.06			#	0.01	-
	mg/L	05/16/88	0001	0.01			#	0.01	-
	mg/L	09/01/88	0001	0.04			#	0.01	-
	mg/L	10/26/88	0001	0.03			#	0.01	-
	mg/L	04/25/89	0001	0.05			#	0.01	-
	mg/L	11/21/89	0001	0.02			#	0.01	-
	mg/L	03/29/90	0001	0.04			#	0.01	-
	mg/L	03/29/90	N001	0.10			#	0.01	-

SURFACE WATER QUALITY DATA BY LOCATION (USEE102) FOR SITE RVT01, RIVERTON
LOCATION: 07[illegible]6
REPORT DATE: 2/18/98 11:27:09 AM

PARAMETER	UNITS	SAMPLE: DATE	ID	RESULT	QUALIFIERS: LAB	DATA	QA	DETECTION LIMIT	UN-CERTAINTY
Manganese	mg/L	06/09/93	N001	0.14			#	0.01	-
	mg/L	09/12/95	0001	0.01			#	0.01	-
	mg/L	09/12/95	N001	0.02			#	0.01	-
	mg/L	02/10/97	0001	0.0179			#	-	-
Mercury	mg/L	09/08/87	0001	0.0002	U		#	0.0002	-
	mg/L	02/20/88	0001	0.0002	U		#	0.0002	-
	mg/L	05/16/88	0001	0.0004			#	0.0002	-
	mg/L	09/01/88	0001	0.0001	U	J	#	0.0002	-
	mg/L	10/26/88	0001	0.0001	U	J	#	0.0002	-
	mg/L	04/25/89	0001	0.0002	U		#	0.0002	-
	mg/L	11/21/89	0001	0.0002			#	0.0002	-
	mg/L	03/29/90	0001	0.0002	U		#	0.0002	-
	mg/L	03/29/90	N001	0.0002	U		#	0.0002	-
Molybdenum	mg/L	09/08/87	0001	0.01	U		#	0.01	-
	mg/L	02/20/88	0001	0.01	U		#	0.01	-
	mg/L	05/16/88	0001	0.01	U		#	0.01	-
	mg/L	09/01/88	0001	0.002		J	#	0.01	-
	mg/L	10/26/88	0001	0.001		J	#	0.01	-
	mg/L	04/25/89	0001	0.01	U		#	0.01	-
	mg/L	11/21/89	0001	0.01	U		#	0.01	-
	mg/L	03/29/90	0001	0.01	U		#	0.01	-
	mg/L	03/29/90	N001	0.01	U		#	0.01	-
	mg/L	06/09/93	N001	0.01	U		#	0.01	-
	mg/L	09/12/95	0001	0.01	U		#	0.01	-
	mg/L	09/12/95	N001	0.01	U		#	0.01	-
	mg/L	02/10/97	0001	0.0014	B		#	-	-
Nickel	mg/L	09/08/87	0001	0.01	U	J	#	0.04	-
	mg/L	02/20/88	0001	0.02		J	#	0.04	-
	mg/L	05/16/88	0001	0.02		J	#	0.04	-
	mg/L	09/01/88	0001	0.02	U	J	#	0.04	-
	mg/L	10/26/88	0001	0.02	U	J	#	0.04	-
	mg/L	04/25/89	0001	0.04	U		#	0.04	-
	mg/L	11/21/89	0001	0.04	U		#	0.04	-
	mg/L	03/29/90	0001	0.04	U		#	0.04	-
	mg/L	03/29/90	N001	0.02	U	J	#	0.04	-
	mg/L	09/12/95	0001	0.04	U		#	0.04	-

SURFACE WATER QUALITY DATA BY LOCATION (USEE102) FOR SITE RVT01, RIVERTON
LOCATION: 0796
REPORT DATE: 2/18/98 11:27:09 AM

PARAMETER	UNITS	SAMPLE: DATE	ID	RESULT	QUALIFIERS: LAB	DATA	QA	DETECTION LIMIT	UN-CERTAINTY
Nickel	mg/L	09/12/95	N001	0.04	U		#	0.04	-
	mg/L	02/10/97	0001	0.0070	U		#	0.007	-
Nitrate	mg/L	09/08/87	0001	1.8			#	1	-
	mg/L	02/20/88	0001	1.8			#	1	-
	mg/L	05/16/88	0001	3.2			#	1	-
	mg/L	09/01/88	0001	6.2			#	1	-
	mg/L	10/26/88	0001	0.2		J	#	1	-
	mg/L	04/25/89	0001	4.9			#	1	-
	mg/L	11/21/89	0001	0.1	U	J	#	1	-
	mg/L	03/29/90	0001	0.1	U	J	#	1	-
	mg/L	02/10/97	0001	1.080			#	-	-
Nitrate + Nitrite as Nitrogen	mg/L	02/20/88	0001	1.8			#	1	-
	mg/L	05/16/88	0001	3.2			#	1	-
	mg/L	09/01/88	0001	1.4			#	1	-
	mg/L	10/26/88	0001	0.04		J	#	1	-
Nitrite	mg/L	09/08/87	0001	0.1	U		#	0.1	-
pH	s.u.	09/08/87	N001	8.78			#	-	-
	s.u.	02/20/88	N001	7.60			#	-	-
	s.u.	05/16/88	N001	7.90			#	-	-
	s.u.	09/01/88	N001	8.18			#	-	-
	s.u.	10/26/88	N001	8.03			#	-	-
	s.u.	04/25/89	N001	8.64			#	-	-
	s.u.	11/21/89	N001	8.55			#	-	-
	s.u.	03/29/90	N001	8.52			#	-	-
	s.u.	02/10/97	N001	8.04			#	-	-
Polonium-210	pCi/L	04/25/89	0001	0.1			#	1	± 0.10
	pCi/L	11/21/89	0001	0.4			#	1	± 0.40
	pCi/L	02/10/97	0001	0.17		U	#	0.05	± 0.12
Potassium	mg/L	09/08/87	0001	2.60			#	0.01	-
	mg/L	02/20/88	0001	5.22			#	0.01	-
	mg/L	05/16/88	0001	1.85			#	0.01	-
	mg/L	09/01/88	0001	4.2			#	0.01	-
	mg/L	10/26/88	0001	3.8			#	0.01	-
	mg/L	04/25/89	0001	2.3			#	0.01	-
	mg/L	11/21/89	0001	2.3			#	0.01	-

SURFACE WATER QUALITY DATA BY LOCATION (USCE102) FOR SITE RVT01, RIVERTON
LOCATION: 0796
REPORT DATE: 2/18/98 11:27:10 AM

PARAMETER	UNITS	SAMPLE: DATE	ID	RESULT	QUALIFIERS: LAB	DATA	QA	DETECTION LIMIT	UNCERTAINTY
Potassium	mg/L	03/29/90	0001	3.0			#	0.01	-
	mg/L	03/29/90	N001	4.0			#	0.01	-
	mg/L	02/10/97	0001	2.510			#	-	-
Radium-226	pCi/L	05/16/88	0001	0.1			#	1	± 0.20
	pCi/L	09/01/88	0001	0.285			#	1	± 0.19
	pCi/L	10/26/88	0001	0.811			#	1	± 0.32
	pCi/L	04/25/89	0001	0.1			#	1	± 0.10
	pCi/L	11/21/89	0001	0.0			#	1	± 0.10
	pCi/L	03/29/90	0001	0.2			#	1	± 0.20
	pCi/L	03/29/90	N001	0.5			#	1	± 0.30
Radium-228	pCi/L	05/16/88	0001	0.4			#	1	± 0.80
	pCi/L	09/01/88	0001	0.593			#	1	± 1.38
	pCi/L	10/26/88	0001	0.638			#	1	± 0.44
	pCi/L	04/25/89	0001	0.2			#	1	± 1.60
	pCi/L	11/21/89	0001	0.4			#	1	± 0.90
	pCi/L	03/29/90	0001	0.4			#	1	± 0.80
	pCi/L	03/29/90	N001	0.3			#	1	± 0.80
Redox Potential	mV	02/10/97	N001	178			#	-	-
Selenium	mg/L	09/08/87	0001	0.001	U	J	#	0.005	-
	mg/L	02/20/88	0001	0.005	U		#	0.005	-
	mg/L	05/16/88	0001	0.005	U		#	0.005	-
	mg/L	09/01/88	0001	0.001	U	J	#	0.005	-
	mg/L	10/26/88	0001	0.001		J	#	0.005	-
	mg/L	04/25/89	0001	0.005	U		#	0.005	-
	mg/L	11/21/89	0001	0.005	U		#	0.005	-
	mg/L	03/29/90	0001	0.005	U		#	0.005	-
	mg/L	03/29/90	N001	0.005	U		#	0.005	-
	mg/L	09/12/95	0001	0.005	UW	J	#	0.005	-
	mg/L	09/12/95	N001	0.005	UW	J	#	0.005	-
Silica	mg/L	04/25/89	0001	8.3			#	2	-
	mg/L	11/21/89	0001	5			#	2	-
Silver	mg/L	09/08/87	0001	0.01	U		#	0.01	-
	mg/L	02/20/88	0001	0.01	U		#	0.01	-
	mg/L	05/16/88	0001	0.01	U		#	0.01	-
	mg/L	09/01/88	0001	0.01	U		#	0.01	-

SURFACE WATER QUALITY DATA BY LOCATION (USEE102) FOR SITE RVT01, RIVERTON
LOCATION: 0796
REPORT DATE: 2/18/98 11:27:10 AM

PARAMETER	UNITS	SAMPLE: DATE	ID	RESULT	QUALIFIERS: LAB	DATA	QA	DETECTION LIMIT	UN-CERTAINTY
Silver	mg/L	10/26/88	0001	0.01	U		#	0.01	-
	mg/l	04/25/89	0001	0.01	U		#	0.01	-
	mg/L	11/21/89	0001	0.01	U		#	0.01	-
	mg/L	03/29/90	0001	0.01	U		#	0.01	-
	mg/L	03/29/90	N001	0.01	U		#	0.01	-
Sodium	mg/L	09/08/87	0001	64.5			#	0.002	-
	mg/L	02/20/88	0001	60.5			#	0.002	-
	mg/L	05/16/88	0001	22.0			#	0.002	-
	mg/L	09/01/88	0001	98			#	0.002	-
	mg/L	10/26/88	0001	77			#	0.002	-
	mg/L	04/25/89	0001	50			#	0.002	-
	mg/L	11/21/89	0001	50.2			#	0.002	-
	mg/L	03/29/90	0001	68.2			#	0.002	-
	mg/L	03/29/90	N001	62.3			#	0.002	-
	mg/L	09/12/95	0001	64	E	J	#	1	-
	mg/L	02/10/97	0001	49.900			#	-	-
Specific Conductance	umhos/c	09/08/87	N001	650			#	-	-
	umhos/c	02/20/88	N001	500			#	-	-
	umhos/c	05/16/88	N001	285			#	-	-
	umhos/c	09/01/88	N001	900			#	-	-
	umhos/c	10/26/88	N001	700			#	-	-
	umhos/c	04/25/89	N001	500			#	-	-
	umhos/c	11/21/89	N001	180			#	-	-
	umhos/c	03/29/90	N001	525			#	-	-
	umhos/c	02/10/97	N001	880			#	-	-
Strontium	mg/L	09/08/87	0001	0.88			#	0.1	-
	mg/L	02/20/88	0001	0.97			#	0.1	-
	mg/L	05/16/88	0001	0.37			#	0.1	-
	mg/L	09/01/88	0001	1.24			#	0.1	-
	mg/L	10/26/88	0001	1.28			#	0.1	-
	mg/L	04/25/89	0001	0.69			#	0.1	-
	mg/L	11/21/89	0001	0.85			#	0.1	-
	mg/L	09/12/95	N001	1.0			#	0.01	-
Sulfate	mg/L	09/08/87	0001	252			#	0.1	-
	mg/L	02/20/88	0001	281			#	0.1	-

SURFACE WATER QUALITY DATA BY LOCATION (USEE102) FOR SITE RVT01, RIVERTON
LOCATION: 0796
REPORT DATE: 2/10/98 11:27:10 AM

PARAMETER	UNITS	SAMPLE: DATE	ID	RESULT	QUALIFIERS: LAB	DATA	QA	DETECTION LIMIT	UN-CERTAINTY
Sulfate	mg/L	05/16/88	0001	103			#	0.1	-
	mg/L	09/01/88	0001	414			#	0.1	-
	mg/L	10/26/88	0001	438			#	0.1	-
	mg/L	04/25/89	0001	218			#	0.1	-
	mg/L	11/21/89	0001	273			#	0.1	-
	mg/L	03/29/90	0001	309			#	0.1	-
	mg/L	03/29/90	N001	333			#	0.1	-
	mg/L	09/12/95	0001	320			#	1	-
	mg/L	02/10/97	0001	230.000			#	-	-
Sulfide	mg/L	04/25/89	0001	0.1	U		#	0.1	-
	mg/L	11/21/89	0001	4	U		#	4	-
	mg/L	03/29/90	0001	0.1	U		#	0.1	-
Temperature	C	09/08/87	N001	22.0			#	-	-
	C	02/20/88	N001	2.0			#	-	-
	C	05/16/88	N001	13.5			#	-	-
	C	09/01/88	N001	20.0			#	-	-
	C	10/26/88	N001	7.5			#	-	-
	C	04/25/89	N001	19.5			#	-	-
	C	11/21/89	N001	6.0			#	-	-
	C	03/29/90	N001	7.5			#	-	-
	C	02/10/97	N001	-0.1			#	-	-
Thallium	mg/L	11/21/89	0001	0.01	U		#	0.01	-
	mg/L	03/29/90	0001	0.01	U		#	0.01	-
	mg/L	03/29/90	N001	0.01	U		#	0.01	-
Thorium-230	pCi/L	10/26/88	0001	0.710			#	1	± 0.45
	pCi/L	04/25/89	0001	0.5			#	1	± 0.30
	pCi/L	11/21/89	0001	0.0			#	1	± 0.30
	pCi/L	02/10/97	0001	0.64	U		#	0.64	±
Tin	mg/L	04/25/89	0001	0.005	U		#	0.005	-
	mg/L	11/21/89	0001	0.005	U		#	0.005	-
	mg/L	03/29/90	0001	0.005	U		#	0.005	-
	mg/L	03/29/90	N001	0.005	U		#	0.005	-
Total Cyanide	mg/L	04/25/89	0001	0.01	U		#	0.01	-
	mg/L	11/21/89	0001	0.01	U		#	0.01	-
	mg/L	03/29/90	0001	0.01	U	J	#	0.01	-

SURFACE WATER QUALITY DATA BY LOCATION (USEE102) FOR SITE RVT01, RIVERTON
LOCATION: 0796
REPORT DATE: 2/18/98 11:27:11 AM

PARAMETER	UNITS	SAMPLE: DATE	ID	RESULT	QUALIFIERS: LAB	DATA	QA	DETECTION LIMIT	UN-CERTAINTY
Total Dissolved Solids	mg/L	09/08/87	0001	567			#	10	-
	mg/L	02/20/88	0001	599			#	10	-
	mg/L	05/16/88	0001	249			#	10	-
	mg/L	09/01/88	0001	790			#	10	-
	mg/L	10/26/88	0001	816			#	10	-
	mg/L	04/25/89	0001	471			#	10	-
	mg/L	11/21/89	0001	572			#	10	-
	mg/L	03/29/90	0001	656			#	10	-
	mg/L	03/29/90	N001	654			#	10	-
	mg/L	09/12/95	0001	580			#	10	-
	mg/L	02/10/97	0001	530			#	-	-
Total Organic Carbon	mg/L	04/25/89	0001	6			#	1	-
	mg/L	11/21/89	0001	9.2			#	1	-
Total Phosphorus as PO4	mg/L	09/08/87	0001	0.5			#	0.1	-
	mg/L	02/20/88	0001	0.1	U		#	0.1	-
	mg/L	05/16/88	0001	0.1	U		#	0.1	-
	mg/L	09/01/88	0001	0.1	U		#	0.1	-
	mg/L	10/26/88	0001	0.1	U		#	0.1	-
	mg/L	04/25/89	0001	0.1	U		#	0.1	-
	mg/L	11/21/89	0001	0.1	U		#	0.1	-
Uranium	mg/L	09/08/87	0001	0.0148			#	0.003	-
	mg/L	02/20/88	0001	0.0102			#	0.003	-
	mg/L	05/16/88	0001	0.0023		J	#	0.003	-
	mg/L	09/01/88	0001	0.010			#	0.003	-
	mg/L	10/26/88	0001	0.003	U		#	0.003	-
	mg/L	04/25/89	0001	0.009			#	0.003	-
	mg/L	11/21/89	0001	0.0033			#	0.003	-
	mg/L	03/29/90	0001	0.0069			#	0.003	-
	mg/L	03/29/90	N001	0.0088			#	0.003	-
	mg/L	06/09/93	N001	0.002			#	0.001	-
	mg/L	09/12/95	0001	0.007			#	0.001	-
	mg/L	09/12/95	N001	0.006			#	0.001	-
	mg/L	02/10/97	0001	0.0060			#	-	-
Vanadium	mg/L	09/08/87	0001	0.02			#	0.01	-
	mg/L	02/20/88	0001	0.02			#	0.01	-

SURFACE WATER QUALITY DATA BY LOCATION (USEE102) FOR SITE RVT01, RIVERTON
LOCATION: 0796
REPORT DATE: 2/18/98 11:27:11 AM

PARAMETER	UNITS	SAMPLE: DATE	ID	RESULT	QUALIFIERS: LAB	DATA	QA	DETECTION LIMIT	UN-CERTAINTY
Vanadium	mg/L	05/16/88	0001	0.01	U		#	0.01	-
	mg/L	09/01/88	0001	0.01	U		#	0.01	-
	mg/L	10/26/88	0001	0.01	U		#	0.01	-
	mg/L	04/25/89	0001	0.01	U		#	0.01	-
	mg/L	11/21/89	0001	0.02			#	0.01	-
	mg/L	03/29/90	0001	0.01	U		#	0.01	-
	mg/L	03/29/90	N001	0.01			#	0.01	-
	mg/L	09/12/95	0001	0.01	U		#	0.01	-
	mg/L	09/12/95	N001	0.01	U		#	0.01	-
	mg/L	02/10/97	0001	0.0040	U		#	0.004	-
Zinc	mg/L	09/08/87	0001	0.005	U		#	0.005	-
	mg/L	02/20/88	0001	0.005	U		#	0.005	-
	mg/L	05/16/88	0001	0.005	U		#	0.005	-
	mg/L	09/01/88	0001	0.01	U		#	0.01	-
	mg/L	10/26/88	0001	0.01	U		#	0.01	-
	mg/L	04/25/89	0001	0.005	U		#	0.005	-
	mg/L	11/21/89	0001	0.009			#	0.005	-
	mg/L	03/29/90	0001	0.009			#	0.005	-
	mg/L	03/29/90	N001	0.128			#	0.005	-
	mg/L	09/12/95	0001	0.05	U		#	0.05	-
	mg/L	09/12/95	N001	0.05	U		#	0.05	-

SURFACE WATER QUALITY DATA BY LOCATION (USEE102) FOR SITE RVT01, RIVERTON
LOCATION: 0799
REPORT DATE: 2/18/98 11:27:11 AM

PARAMETER	UNITS	SAMPLE: DATE	ID	RESULT	QUALIFIERS: LAB	DATA	QA	DETECTION LIMIT	UN-CERTAINTY
Alkalinity as CaCO3	mg/L	10/28/88	N001	257		RX	#	-	-
	mg/L	04/26/89	N001	359		RX	#	-	-
Aluminum	mg/L	10/28/88	0001	0.05	U	RXJ	#	0.1	-
	mg/L	04/26/89	0001	0.1	U	RX	#	0.1	-
Ammonia as NH4	mg/L	10/28/88	0001	0.04		RXJ	#	0.1	-
	mg/L	04/26/89	0001	0.1		RX	#	0.1	-
Antimony	mg/L	10/28/88	0001	0.001	U	RXJ	#	0.003	-
	mg/L	04/26/89	0001	0.003	U	RX	#	0.003	-
Arsenic	mg/L	10/28/88	0001	0.004		RXJ	#	0.01	-
	mg/L	04/26/89	0001	0.02		RX	#	0.01	-
Barium	mg/L	10/28/88	0001	0.03		RXJ	#	0.1	-
	mg/L	04/26/89	0001	0.1	U	RX	#	0.1	-
Boron	mg/L	04/26/89	0001	0.1	U	RX	#	0.1	-
Bromide	mg/L	04/26/89	0001	0.2		RX	#	0.1	-
Cadmium	mg/L	10/28/88	0001	0.0002		RXJ	#	0.001	-
	mg/L	04/26/89	0001	0.001	U	RX	#	0.001	-
Calcium	mg/L	10/28/88	0001	249		RX	#	0.01	-
	mg/L	04/26/89	0001	560		RX	#	0.01	-
Chloride	mg/L	10/28/88	0001	70		RX	#	1	-
	mg/L	04/26/89	0001	51		RX	#	1	-
Chromium	mg/L	10/28/88	0001	0.01	U	RX	#	0.01	-
	mg/L	04/26/89	0001	0.01	U	RX	#	0.01	-
Cobalt	mg/L	04/26/89	0001	0.05	U	RX	#	0.05	-
Copper	mg/L	10/28/88	0001	0.01	U	RXJ	#	0.02	-
	mg/L	04/26/89	0001	0.01	U	RX	#	0.01	-
Fluoride	mg/L	04/26/89	0001	0.4		RX	#	0.1	-
Gross Alpha	pCi/L	04/26/89	0001	1135		RX	#	0.2	± 62.0
Gross Beta	pCi/L	04/26/89	0001	514		RX	#	1	± 32.0
Iron	mg/L	10/28/88	0001	0.02		RXJ	#	0.03	-
	mg/L	04/26/89	0001	1.27		RX	#	0.03	-
Lead	mg/L	10/28/88	0001	0.001	U	RXJ	#	0.01	-
	mg/L	04/26/89	0001	0.01	U	RX	#	0.01	-

SURFACE WATER QUALITY DATA BY LOCATION (USEE102) FOR SITE RVT01, RIVERTON
LOCATION: 0799
REPORT DATE: 2/18/98 11:27:12 AM

PARAMETER	UNITS	SAMPLE: DATE	ID	RESULT	QUALIFIERS: LAB	DATA	QA	DETECTION LIMIT	UN-CERTAINTY
Lead-210	pCi/L	04/26/89	0001	5.1		RX	#	1.5	± 1.00
Magnesium	mg/L	10/28/88	0001	32		RX	#	0.001	-
	mg/L	04/26/89	0001	74		RX	#	0.001	-
Manganese	mg/L	10/28/88	0001	0.65		RX	#	0.01	-
	mg/L	04/26/89	0001	2.78		RX	#	0.01	-
Mercury	mg/L	10/28/88	0001	0.0001	U	RXJ	#	0.0002	-
	mg/L	04/26/89	0001	0.0002	U	RX	#	0.000?	-
Molybdenum	mg/L	10/28/88	0001	0.128		RX	#	0.01	-
	mg/L	04/26/89	0001	0.22		RX	#	0.01	-
Nickel	mg/L	10/28/88	0001	0.02	U	RXJ	#	0.04	-
	mg/L	04/26/89	0001	0.04	U	RX	#	0.04	-
Nitrate	mg/L	10/28/88	0001	1.8		RX	#	1	-
	mg/L	04/26/89	0001	5.3		RX	#	1	-
Nitrate + Nitrite as Nitrogen	mg/L	10/28/88	0001	0.40		RXJ	#	1	-
pH	s.u.	10/28/88	N001	7.09		RX	#	-	-
	s.u.	04/26/89	N001	7.09		RX	#	-	-
Polonium-210	pCi/L	04/26/89	0001	0.4		RX	#	1	± 0.60
Potassium	mg/L	10/28/88	0001	6.2		RX	#	0.01	-
	mg/L	04/26/89	0001	8.3		RX	#	0.01	-
Radium-226	pCi/L	10/28/88	0001	0.929		RX	#	1	± 0.33
	pCi/L	04/26/89	0001	2.9		RX	#	1	± 0.50
Radium-228	pCi/L	10/28/88	0001	1.39		RX	#	1	± 0.62
	pCi/L	04/26/89	0001	0.0		RX	#	1	± 1.60
Selenium	mg/L	10/28/88	0001	0.067		RX	#	0.005	-
	mg/L	04/26/89	0001	0.01	U	RX	#	0.01	-
Silica	mg/L	04/26/89	0001	9.2		RX	#	2	-
Silver	mg/L	10/28/88	0001	0.01	U	RX	#	0.01	-
	mg/L	04/26/89	0001	0.01	U	RX	#	0.01	-
Sodium	mg/L	10/28/88	0001	105		RX	#	0.002	-
	mg/L	04/26/89	0001	246		RX	#	0.002	-
Specific Conductance	umhos/c	10/28/88	N001	1000		RX	#	-	-
	umhos/c	04/26/89	N001	925		RX	#	-	-

SURFACE WATER QUALITY DATA BY LOCATION (USEE102) FOR SITE RVT01, RIVERTON
LOCATION: 0799
REPORT DATE: 2/18/98 11:27:12 AM

PARAMETER	UNITS	SAMPLE: DATE	ID	RESULT	QUALIFIERS: LAB	DATA	QA	DETECTION LIMIT	UN-CERTAINTY
Strontium	mg/L	10/28/88	0001	0.77		RX	#	0.1	-
	mg/L	04/26/89	0001	1.34		RX	#	0.1	-
Sulfate	mg/L	10/28/88	0001	737		RX	#	0.1	-
	mg/L	04/26/89	0001	1800		RX	#	0.1	-
Sulfide	mg/L	04/26/89	0001	0.1	U	RX	#	0.1	-
Temperature	C	10/28/88	N001	10.0		RX	#	-	-
	C	04/26/89	N001	8.0		RX	#	-	-
Thorium-230	pCi/L	10/28/88	0001	2.65		RX	#	1	± 0.48
	pCi/L	04/26/89	0001	0.1		RX	#	1	± 0.40
Tin	mg/L	04/26/89	0001	0.005	U	RX	#	0.005	-
Total Cyanide	mg/L	04/26/89	0001	0.01	U	RX	#	0.01	-
Total Dissolved Solids	mg/L	10/28/88	0001	1290		RX	#	10	-
	mg/L	04/26/89	0001	3010		RX	#	10	-
Total Organic Carbon	mg/L	04/26/89	0001	4		RX	#	1	-
Total Phosphorus as PO4	mg/L	10/28/88	0001	0.1	U	RX	#	0.1	-
	mg/L	04/26/89	0001	0.1	U	RX	#	0.1	-
Uranium	mg/L	10/28/88	0001	0.377		RX	#	0.003	-
	mg/L	04/26/89	0001	2.40		RX	#	0.003	-
Vanadium	mg/L	10/28/88	0001	0.01		RX	#	0.01	-
	mg/L	04/26/89	0001	0.01	U	RX	#	0.01	-
Zinc	mg/L	10/28/88	0001	0.01		RX	#	0.005	-
	mg/L	04/26/89	0001	0.021		RX	#	0.005	-

SURFACE WATER QUALITY DATA BY LOCATION (USEE102) FOR SITE RVT01, RIVERTON
LOCATION: 0905
REPORT DATE: 2/18/98 11:27:12 AM

PARAMETER	UNITS	SAMPLE: DATE	ID	RESULT	QUALIFIERS: LAB	DATA	QA	DETECTION LIMIT	UN-CERTAINTY
Alkalinity as CaCO3	mg/L	06/11/81	N001	329.00			#	-	-
Calcium	mg/L	06/11/81	0001	128.00			#	-	-
Chloride	mg/L	06/11/81	0001	35.00			#	-	-
Iron	mg/L	06/11/81	0001	0.011			#	-	-
Magnesium	mg/L	06/11/81	0001	34.00			#	-	-
Molybdenum	mg/L	06/11/81	0001	0.12			#	-	-
pH	s.u.	06/11/81	N001	7.24			#	-	-
Potassium	mg/L	06/11/81	0001	9.50			#	-	-
Silicon	mg/L	06/11/81	0001	9.10			#	-	-
Sodium	mg/L	06/11/81	0001	77.00			#	-	-
Sulfate	mg/L	06/11/81	0001	384.00			#	-	-
Temperature	C	06/11/81	N001	25.00			#	-	-
Uranium	mg/L	06/11/81	0001	0.32			#	-	-

SURFACE WATER QUALITY DATA BY LOCATION (USEE102) FOR SITE RVT01, RIVERTON
LOCATION: 0908
REPORT DATE: 2/18/98 11:27:12 AM

PARAMETER	UNITS	SAMPLE: DATE	ID	RESULT	QUALIFIERS: LAB	DATA	QA	DETECTION LIMIT	UN-CERTAINTY
Alkalinity as CaCO3	mg/L	06/15/81	N001	301.00			#	-	-
Aluminum	mg/L	06/15/81	0001	0.25			#	-	-
Calcium	mg/L	06/15/81	0001	87.00			#	-	-
Chloride	mg/L	06/15/81	0001	12.00			#	-	-
Iron	mg/L	06/15/81	0001	0.012			#	-	-
Magnesium	mg/L	06/15/81	0001	19.80			#	-	-
pH	s.u.	06/15/81	N001	7.61			#	-	-
Potassium	mg/L	06/15/81	0001	7.90			#	-	-
Silicon	mg/L	06/15/81	0001	10.00			#	-	-
Sodium	mg/L	06/15/81	0001	71.00			#	-	-
Sulfate	mg/L	06/15/81	0001	185.00			#	-	-
Temperature	C	06/15/81	N001	21.00			#	-	-
Uranium	mg/L	06/15/81	0001	0.11			#	-	-

SURFACE WATER QUALITY DATA BY LOCATION (USEE102) FOR SITE RVT01, RIVERTON
LOCATION: 0909
REPORT DATE: 2/18/98 11:27:13 AM

PARAMETER	UNITS	SAMPLE: DATE	ID	RESULT	QUALIFIERS: LAB	DATA	QA	DETECTION LIMIT	UN-CERTAINTY
Alkalinity as CaCO3	mg/L	06/15/81	N001	646.00			#	-	-
Calcium	mg/L	06/15/81	0001	584.00			#	-	-
Chloride	mg/L	06/15/81	00J1	146.00			#	-	-
Iron	mg/L	06/15/81	0001	1.95			#	-	-
Magnesium	mg/L	06/15/81	0001	136.00			#	-	-
pH	s.u.	06/15/81	N001	7.52			#	-	-
Potassium	mg/L	06/15/81	0001	27.00			#	-	-
Silicon	mg/L	06/15/81	0001	15.00			#	-	-
Sodium	mg/L	06/15/81	0001	632.00			#	-	-
Temperature	C	06/15/81	N001	22.00			#	-	-
Uranium	mg/L	06/15/81	0001	1.50			#	-	-

SURFACE WATER QUALITY DATA BY LOCATION (USEE102) FOR SITE RVT01, RIVERTON
LOCATION: 0910
REPORT DATE: 2/18/98 11:27:13 AM

PARAMETER	UNITS	SAMPLE: DATE	ID	RESULT	QUALIFIERS: LAB	DATA	QA	DETECTION LIMIT	UN-CERTAINTY
Alkalinity as CaCO3	mg/L	06/15/81	N001	414.00			#	-	-
pH	s.u.	06/15/81	N001	7.40			#	-	-
Temperature	C	06/15/81	N001	22.00			#	-	-
Uranium	mg/L	06/15/81	0001	0.05			#	-	-

SURFACE WATER QUALITY DATA BY LOCATION (USEE102) FOR SITE RVT01, RIVERTON
LOCATION: 0980
REPORT DATE: 2/18/98 11:27:13 AM

PARAMETER	UNITS	SAMPLE: DATE	ID	RESULT	QUALIFIERS: LAB	DATA	QA	DETECTION LIMIT	UN-CERTAINTY
Alkalinity as CaCO3	mg/L	08/06/82	N006	433.00			#	-	-
Aluminum	mg/L	08/06/82	0001	32.00			#	0.1	-
	mg/L	08/06/82	0002	9.10			#	-	-
	mg/L	08/06/82	0003	0.81			#	-	-
	mg/L	08/06/82	0004	1.00			#	-	-
	mg/L	08/06/82	0005	1.10			#	-	-
Calcium	mg/L	08/06/82	0001	559.00			#	-	-
	mg/L	08/06/82	0002	509.00			#	-	-
	mg/L	08/06/82	0003	521.00			#	-	-
	mg/L	08/06/82	0004	561.00			#	-	-
	mg/L	08/06/82	0005	309.00			#	-	-
	mg/L	08/06/82	0006	283.00			#	-	-
Chloride	mg/L	08/06/82	0001	49.00			#	-	-
	mg/L	08/06/82	0002	73.00			#	-	-
	mg/L	08/06/82	0003	43.00			#	-	-
	mg/L	/06/82	0004	158.00			#	-	-
	mg/L	08/06/82	0005	50.00			#	-	-
	mg/L	08/06/82	0006	109.00			#	-	-
Chromium	mg/L	08/06/82	0001	0.00			#	-	-
	mg/L	08/06/82	0002	0.00			#	-	-
	mg/L	08/06/82	0003	0.0003			#	-	-
	mg/L	08/06/82	0004	0.00			#	-	-
	mg/L	08/06/82	0005	0.00			#	-	-
Iron	mg/L	08/06/82	0006	1.30			#	-	-
Magnesium	mg/L	08/06/82	0001	1180.00			#	-	-
	mg/L	08/06/82	0002	799.00			#	-	-
	mg/L	08/06/82	0003	677.00			#	-	-
	mg/L	08/06/82	0004	690.00			#	-	-
	mg/L	08/06/82	0005	109.00			#	-	-
	mg/L	08/06/82	0006	54.00			#	-	-
Molybdenum	mg/L	08/06/82	0001	0.013			#	-	-
	mg/L	08/06/82	0002	0.09			#	-	-
	mg/L	08/06/82	0003	0.072			#	-	-
	mg/L	08/06/82	0004	0.03			#	-	-
	mg/L	08/06/82	0005	0.013			#	-	-

SURFACE WATER QUALITY DATA BY LOCATION (USEE102) FOR SITE RVT01, RIVERTON
LOCATION: 0980
REPORT DATE: 2/18/98 11:27:13 AM

PARAMETER	UNITS	SAMPLE: DATE	ID	RESULT	QUALIFIERS: LAB	DATA	QA	DETECTION LIMIT	UN-CERTAINTY
pH	s.u.	08/06/82	N006	6.91			#	-	-
Potassium	mg/L	08/06/82	0001	68.00			#	-	-
	mg/L	08/06/82	0002	19.00			#	-	-
	mg/L	08/06/82	0003	25.00			#	-	-
	mg/L	08/06/82	0004	37.00			#	-	-
	mg/L	08/06/82	0005	11.00			#	-	-
	mg/L	08/06/82	0006	8.30			#	-	-
Redox Potential	mV	08/06/82	N006	0.11			#	-	-
Silicon	mg/L	08/06/82	0001	13.00			#	-	-
	mg/L	08/06/82	0002	13.00			#	-	-
	mg/L	08/06/82	0003	18.00			#	-	-
	mg/L	08/06/82	0004	13.00			#	-	-
	mg/L	08/06/82	0005	17.00			#	-	-
	mg/L	08/06/82	0006	39.00			#	-	-
Sodium	mg/L	08/06/82	0001	2550.00			#	-	-
	mg/L	08/06/82	0002	2370.00			#	-	-
	mg/L	08/06/82	0003	2480.00			#	-	-
	mg/L	08/06/82	0004	2760.00			#	-	-
	mg/L	08/06/82	0005	558.00			#	-	-
	mg/L	08/06/82	0006	157.00			#	-	-
Sulfate	mg/L	08/06/82	0001	0.131			#	-	-
	mg/L	08/06/82	0002	8420.00			#	-	-
	mg/L	08/06/82	0003	7830.00			#	-	-
	mg/L	08/06/82	0004	7540.00			#	-	-
	mg/L	08/06/82	0005	1970.00			#	-	-
Temperature	C	08/06/82	N006	11.00			#	-	-
Uranium	mg/L	08/06/82	0001	1.73			#	-	-
	mg/L	08/06/82	0002	0.618			#	-	-
	mg/L	08/06/82	0003	0.031			#	-	-
	mg/L	08/06/82	0004	1.66			#	-	-
	mg/L	08/06/82	0005	0.281			#	-	-
Zinc	mg/L	08/06/82	0001	0.001			#	-	-

SURFACE WATER QUALITY DATA BY LOCATION (USEE102) FOR SITE RVT01, RIVERTON
LOCATION: 0990
REPORT DATE: 2/18/98 11:27:13 AM

PARAMETER	UNITS	SAMPLE: DATE	ID	RESULT	QUALIFIERS: LAB	DATA	QA	DETECTION LIMIT	UN-CERTAINTY
Alkalinity as CaCO3	mg/L	06/12/81	N0S1	97.00			#	-	-
Aluminum	mg/L	06/12/81	00S1	0.23			#	-	-
Calcium	mg/L	06/12/81	00S1	26.40			#	-	-
Chloride	mg/L	06/12/81	00S1	2.80			#	-	-
Iron	mg/L	06/12/81	00S1	0.11			#	-	-
Magnesium	mg/L	06/12/81	00S1	5.29			#	-	-
pH	s.u.	06/12/81	N0S1	8.21			#	-	-
Potassium	mg/L	06/12/81	00S1	1.99			#	-	-
Silicon	mg/L	06/12/81	00S1	6.40			#	-	-
Sodium	mg/L	06/12/81	00S1	12.20			#	-	-
Sulfate	mg/L	06/12/81	00S1	78.00			#	-	-
Temperature	C	06/12/81	N0S1	17.00			#	-	-

SURFACE WATER QUALITY D. TA BY LOCATION (USEE102) FOR SITE RVT01, RIVERTON
LOCATION: 0991
REPORT DATE: 2/18/98 11:27:14 AM

PARAMETER	UNITS	SAMPLE: DATE	ID	RESULT	QUALIFIERS: LAB	DATA	QA	DETECTION LIMIT	UN-CERTAINTY
Alkalinity as CaCO3	mg/L	06/12/81	N0S1	91.00			#	-	-
Aluminum	mg/L	06/12/81	00S1	1.00			#	-	-
Calcium	mg/L	06/12/81	00S1	27.60			#	-	-
Chloride	mg/L	06/12/81	00S1	3.80			#	-	-
Iron	mg/L	06/12/81	00S1	0.11			#	-	-
Magnesium	mg/L	06/12/81	00S1	8.31			#	-	-
pH	s.u.	06/12/81	N0S1	8.25			#	-	-
Potassium	mg/L	06/12/81	00S1	1.45			#	-	-
Silicon	mg/L	06/12/81	00S1	2.00			#	-	-
Sodium	mg/L	06/12/81	00S1	14.30			#	-	-
Sulfate	mg/L	06/12/81	00S1	70.00			#	-	-
Temperature	C	06/12/81	N0S1	16.00			#	-	-

SURFACE WATER QUALITY DATA BY LOCATION (USEE102) FOR SITE RVT01, RIVERTON
LOCATION: 0992
REPORT DATE: 2/18/98 11:27:14 AM

PARAMETER	UNITS	SAMPLE: DATE	ID	RESULT	QUALIFIERS: LAB	DATA	QA	DETECTION LIMIT	UN-CERTAINTY
Alkalinity as CaCO3	mg/L	06/12/81	N0S1	176.00			#	-	-
Calcium	mg/L	06/12/81	00S1	354.00			#	-	-
Chloride	mg/L	06/12/81	00S1	16.60			#	-	-
Iron	mg/L	06/12/81	00S1	0.05			#	-	-
Magnesium	mg/L	06/12/81	00S1	97.90			#	-	-
pH	s.u.	06/12/81	N0S1	7.79			#	-	-
Potassium	mg/L	06/12/81	00S1	9.46			#	-	-
Silicon	mg/L	06/12/81	00S1	3.90			#	-	-
Sodium	mg/L	06/12/81	00S1	428.00			#	-	-
Sulfate	mg/L	06/12/81	00S1	642.00			#	-	-
Temperature	C	06/12/81	N0S1	21.00			#	-	-

SURFACE WATER QUALITY DATA BY LOCATION (USEE102) FOR SITE RVT01, RIVERTON
LOCATION: 0992
REPORT DATE: 2/18/98 11:27:14 AM

PARAMETER	UNITS	SAMPLE: DATE	ID	RESULT	QUALIFIERS: LAB	DATA	QA	DETECTION LIMIT	UN-CERTAINTY

RECORDS: SELECTED FROM USEE102

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 compund (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.

DATA QUALIFIERS

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

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

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SOIL CHEMISTRY DATA BY LOCATION (USEE500) FOR SITE RVT01, RIVERTON
LOCATION: 0741 8/26/97 State plane north changed from 847666.3 to an estimation close to river
REPORT DATE: 2/18/98 3:57:22 PM

PARAMETER	UNITS	SAMPLE DATE	SAMPLE ID	ELEV. RANGE (FT NGVD)	DIGEST CODE	SAMP DESC.	RESULT	QUALIFIERS: LAB	QUALIFIERS: DATA	QUALIFIERS: QA	DETECTION LIMIT	UN-CERTAINTY
Arsenic	mg/kg	09/13/95	0002	4941 - 4940.8	CLP		6.3			#	3.7	-
Cation Exchange Capacity	MEQ/100	09/13/95	0002	4941 - 4940.8	9081		50			#	0.1	-
Co[illegible]	mg/kg	09/13/95	0002	4941 - 4940.8	CLP		16			#	15	-
Iron	mg/kg	06/08/93	0002	4941 - 4941.2			10500			#	0.3	-
	mg/kg	06/08/93	0004	4941 - 4941.2			2960			#	0.3	-
Lead	mg/kg	06/08/93	0002	4941 - 4941.2			10.7			#	0.3	-
	mg/kg	06/08/93	0004	4941 - 4941.2			3.6			#	0.3	-
	mg/kg	09/13/95	0002	4941 - 4940.8	CLP		12			#	2.2	-
Manganese	mg/kg	06/08/93	0002	4941 - 4941.2			455			#	1	-
	mg/kg	06/08/93	0004	4941 - 4941.2			180			#	1	-
	mg/kg	09/13/95	0002	4941 - 4940.8	CLP		180			#	7.5	-
Molybdenum	mg/kg	06/08/93	0002	4941 - 4941.2			11			#	[illegible]	-
	mg/kg	06/08/93	0004	4941 - 4941.2			1	U		#	1	-
	mg/kg	09/13/95	0002	4941 - 4940.8	CLP		7.5	U		#	7.5	-
Nickel	mg/kg	09/13/95	0002	4941 - 4940.8	CLP		30	U		#	30	-
Percent Solids	%	06/08/93	0002	4941 - 4941.2			27.0			#	0.1	-
	%	06/08/93	0004	4941 - 4941.2			80.0			#	0.1	-
	%	09/13/95	0002	4941 - 4940.8	NONE		26.7			#	0.1	-
Selenium	mg/kg	09/13/95	0002	4941 - 4940.8	CLP		11	NS	R	#	3.7	-
Uranium	mg/kg	06/08/93	0002	4941 - 4941.2			7.62			#	0.001	-
	mg/kg	06/08/93	0004	4941 - 4941.2			1.94			#	0.001	-
	mg/kg	09/13/95	0002	4941 - 4940.8	CLP		14.0			#	0.07	-

SOIL CHEMISTRY DATA BY LOCATION (USEE503) FOR SITE RVT01, RIVERTON
LOCATION: 0741 8/26/97 State plane north changed from 847666.3 to an estimation close to river
REPORT DATE: 2/18/98 3:57:22 PM

PARAMETER	UNITS	SAMPLE DATE	SAMPLE ID	ELEV RANGE (FT NGVD)	DIGEST CODE	SAMP DESC	RESULT	QUALIFIERS: LAB	QUALIFIERS: DATA	QUALIFIERS: QA	DETECTION LIMIT	UN-CERTAINTY
Vanadium	mg/kg	09/13/95	0002	4941 - 4940.8	CLP		75			#	7.4	-
Zinc	mg/kg	09/13/95	0002	4941 - 4940.8	CLP		37	UE	J	#	37	-

SOIL CHEMISTRY DATA BY LOCATION (USEE500) FOR SITE RVT01, RIVERTON
LOCATION: 0742
REPORT DATE: 2/18/98 3:57:23 PM

PARAMETER	UNITS	SAMPLE DATE	SAMPLE ID	ELEV. RANGE (FT NGVD)	DIGEST CODE	SAMP DESC.	RESULT	QUALIFIERS LAB	QUALIFIERS DATA	QUALIFIERS QA	DETECTION LIMIT	UN-CERTAINTY
Arsenic	mg/kg	09/13/95	0002	4926 - 4925.4	CLP		2.2			#	1.3	-
Cation Exchange Capacity	MEQ/100	09/13/95	0002	4926 - 4925.4	9081		19			#	0.1	-
Copper	mg/kg	09/13/95	0002	4926 - 4925.4	CLP		5.3	U		#	5.3	-
Iron	mg/kg	06/08/93	0002	4926 - 4925.9			21200			#	0.3	-
Lead	mg/kg	06/08/93	0002	4926 - 4925.9			13.6			#	0.3	-
	mg/kg	09/13/95	0002	4926 - 4925.4	CLP		5.5			#	0.8	-
Manganese	mg/kg	06/08/93	0002	4926 - 4925.9			618			#	1	-
	mg/kg	09/13/95	0002	4926 - 4925.4	CLP		220			#	2.7	-
Molybdenum	mg/kg	06/08/93	0002	4926 - 4925.9			4	U		#	1	-
	mg/kg	09/13/95	0002	4926 - 4925.4	CLP		2.7	U		#	2.7	-
Nickel	mg/kg	09/13/95	0002	4926 - 4925.4	CLP		11	U		#	11	-
Percent Solids	%	06/08/93	0002	4926 - 4925.9			24.9			#	0.1	-
	%	09/13/95	0002	4926 - 4925.4	NONE		75.3			#	0.1	-
Selenium	mg/kg	09/13/95	0002	4926 - 4925.4	CLP		1.3	UNW	R	#	1.3	-
Uranium	mg/kg	06/08/93	0002	4926 - 4925.9			10.4			#	0.001	-
	mg/kg	09/13/95	0002	4926 - 4925.4	CLP		1.7			#	0.065	-
Vanadium	mg/kg	09/13/95	0002	4926 - 4925.4	CLP		12			#	2.7	-
Zinc	mg/kg	09/13/95	0002	4926 - 4925.4	CLP		22	E	J	#	13	-

SOIL CHEMISTRY DATA BY LOCATION (USEE500) FOR SITE RVT01, RIVERTON
LOCATION: 0743
REPORT DATE: 2/18/98 3:57:23 PM

PARAMETER	UNITS	SAMPLE DATE	SAMPLE ID	ELEV. RANGE (FT NGVD)	DIGEST CODE	SAMP DESC.	RESULT	QUALIFIERS: LAB	DATA	QA	DETECTION LIMIT	UN-CERTAINTY
Arsenic	mg/kg	09/13/95	0002	4932 - 4931.6	CLP		3.8			#	1.1	-
Cation Exchange Capacity	MEQ/100	09/13/95	0002	4932 - 4931.6	9081		70			#	0.1	-
Copper	mg/kg	09/13/95	0002	4932 - 4931.6	CLP		22			#	4.5	-
Iron	mg/kg	06/09/93	0002	4932 - 4931.8			18000			#	0.3	-
Lead	mg/kg	06/09/93	0002	4932 - 4931.8			21.9			#	0.3	-
	mg/kg	09/13/95	0002	4932 - 4931.6	CLP		21			#	0.84	-
Manganese	mg/kg	06/09/93	0002	4932 - 4931.8			235			#	1	-
	mg/kg	09/13/95	0002	4932 - 4931.6	CLP		320			#	2.2	-
Molybdenum	mg/kg	06/09/93	0002	4932 - 4931.8			2			#	1	-
	mg/kg	09/13/95	0002	4932 - 4931.6	CLP		2.2	U		#	2.2	-
Nickel	mg/kg	09/13/95	0002	4932 - 4931.6	CLP		32			#	9	-
Percent Solids	%	06/09/93	0002	4932 - 4931.8			44.7			#	0.1	-
	%	09/13/95	0002	4932 - 4931.6	NONE		89.2			#	0.1	-
Selenium	mg/kg	09/13/95	0002	4932 - 4931.6	CLP		5.6	UNW	R	#	5.6	-
Uranium	mg/kg	06/09/93	0002	4932 - 4931.8			5.04			#	0.001	-
	mg/kg	09/13/95	0002	4932 - 4931.6	CLP		3.2			#	0.057	-
Vanadium	mg/kg	09/13/95	0002	4932 - 4931.6	CLP		36			#	2.2	-
Zinc	mg/kg	09/13/95	0002	4932 - 4931.6	CLP		93	E	J	#	11	-

SOIL CHEMISTRY DATA BY LOCATION (USEE500) FOR SITE RVT01, RIVER
LOCATION: 0744
REPORT DATE: 2/18/96 3:57:24 PM

PARAMETER	UNITS	SAMPLE DATE	SAMPLE ID	ELEV RANGE (FT NGVD)	DIGEST CODE	SAMP DESC	RESULT	QUALIFIERS: LAB	DATA	QA	DETECTION LIMIT	UNCERTAINTY
Arsenic	mg/kg	09/12/95	0002	4933 - 4932.5	CLP		5.9			#	2.6	-
Cation Exchange Capacity	MEQ/100	09/12/95	0002	4933 - 4932.5	9081		32			#	0.1	-
Copper	mg/kg	09/12/95	0002	4933 - 4932.5	CLP		19			#	11	-
Iron	mg/kg	06/09/93	0002	4933 - 4932.9			12200			#	0.3	-
Lead	mg/kg	06/09/93	0002	4933 - 4932.9			6.0			#	0.3	-
	mg/kg	09/12/95	0002	4933 - 4932.5	CLP		6.2			#	1.5	-
Manganese	mg/kg	06/09/93	0002	4933 - 4932.9			187			#	1	-
	mg/kg	09/12/95	0002	4933 - 4932.5	CLP		120			#	5.1	-
Molybdenum	mg/kg	06/09/93	0002	4933 - 4932.9			1	U		#	1	-
	mg/kg	09/12/95	0002	4933 - 4932.5	CLP		11			#	5.1	-
Nickel	mg/kg	09/12/95	0002	4933 - 4932.5	CLP		22			#	21	-
Percent Solids	%	06/09/93	0002	4933 - 4932.9			73.3			#	0.1	-
	%	09/12/95	0002	4933 - 4932.5	NONE		38.5			#	0.1	-
Selenium	mg/kg	09/12/95	0002	4933 - 4932.5	CLP		6.7	N	R	#	2.6	-
Uranium	mg/kg	06/09/93	0002	4933 - 4932.9			5.50			#	0.001	-
	mg/kg	09/12/95	0002	4933 - 4932.5	CLP		28.0			#	0.07	-
Vanadium	mg/kg	09/12/95	0002	4933 - 4932.5	CLP		35			#	5.1	-
Zinc	mg/kg	09/12/95	0002	4933 - 4932.5	CLP		54	E	J	#	26	-

SOIL CHEMISTRY DATA BY LOCATION (USEE500) FOR SITE RVT01, RIVERTON
LOCATION: 0745 8/26/97 State plane north changed from 847240.33 to an estimation close to river
REPORT DATE: 2/18/98 3:57:24 PM

PARAMETER	UNITS	SAMPLE DATE	ID	ELEV. RANGE (FT NGVD)	DIGEST CODE	SAMP DESC.	RESULT	QUALIFIERS: LAB	DATA	QA	DETECTION LIMIT	UN-CERTAINTY
Arsenic	mg/kg	09/13/95	0002	4940 - 4939.2	CLP		3.2			#	1.6	-
Cation Exchange Capacity	MEQ/100	09/13/95	0002	4940 - 4939.2	9081		52			#	0.1	-
Copper	mg/kg	09/13/95	0002	4940 - 4939.2	CLP		6.6	U		#	6.6	-
Iron	mg/kg	06/09/93	0002	4940 - 4939.6			3150			#	0.3	-
Lead	mg/kg	06/09/93	0002	4940 - 4939.6			4.8			#	0.3	-
	mg/kg	09/13/95	0002	4940 - 4939.2	CLP		14			#	0.98	-
Manganese	mg/kg	06/09/93	0002	4940 - 4939.6			54			#	1	-
	mg/kg	09/13/95	0002	4940 - 4939.2	CLP		250			#	3.3	-
Molybdenum	mg/kg	06/09/93	0002	4940 - 4939.6			1			#	1	-
	mg/kg	09/13/95	0002	4940 - 4939.2	CLP		3.3	U		#	3.3	-
Nickel	mg/kg	09/13/95	0002	4940 - 4939.2	CLP		17			#	13	-
Percent Solids	%	06/09/93	0002	4940 - 4939.6			70.1			#	0.1	-
	%	09/13/95	0002	4940 - 4939.2	NONE		60.8			#	0.1	-
Selenium	mg/kg	09/13/95	0002	4940 - 4939.2	CLP		1.6	UNW	R	#	1.6	-
Uranium	mg/kg	06/09/93	0002	4940 - 4939.6			1.66			#	0.001	-
	mg/kg	09/13/95	0002	4940 - 4939.2	CLP		13.0			#	0.08	-
Vanadium	mg/kg	09/13/95	0002	4940 - 4939.2	CLP		23			#	3.3	-
Zinc	mg/kg	09/13/95	0002	4940 - 4939.2	CLP		38	E	J	#	16	-

SOIL CHEMISTRY DATA BY LOCATION (USEE500) FOR SITE RVT01, RIVERTON
LOCATION: 0746
REPORT DATE: 2/18/98 3:57:25 PM

PARAMETER	UNITS	SAMPLE DATE	SAMPLE ID	ELEV RANGE (FT NGVD)	DIGEST CODE	SAMP DESC	RESULT	QUALIFIERS: LAB	DATA	QA	DETECTION LIMIT	UN-CERTAINTY
Arsenic	mg/kg	09/12/95	0002	4924 - 4924.0	CLP		5.2	U		#	5.2	-
Cation Exchange Capacity	MEQ/100	09/12/95	0002	4924 - 4924.0	9081		60			#	0.1	-
Copper	mg/kg	09/12/95	0002	4924 - 4924.0	CLP		21	U		#	21	-
Iron	mg/kg	06/09/93	0002	4924 - 4924.2			11000			#	0.3	-
Lead	mg/kg	06/09/93	0002	4924 - 4924.2			67.7			#	0.3	-
	mg/kg	09/12/95	0002	4924 - 4924.0	CLP		25			#	3.2	-
Manganese	mg/kg	06/09/93	0002	4924 - 4924.2			314			#	1	-
	mg/kg	09/12/95	0002	4924 - 4924.0	CLP		890			#	11	-
Molybdenum	mg/kg	06/09/93	0002	4924 - 4924.2			9			#	1	-
	mg/kg	09/12/95	0002	4924 - 4924.0	CLP		10	U		#	10	-
Nickel	mg/kg	09/12/95	0002	4924 - 4924.0	CLP		42	U		#	42	-
Percent Solids	%	06/09/93	0002	4924 - 4924.2			22.0			#	0.1	-
	%	09/12/95	0002	4924 - 4924.0	NONE		19.1			#	0.1	-
Selenium	mg/kg	09/12/95	0002	4924 - 4924.0	CLP		5.2	UNW	R	#	5.2	-
Uranium	mg/kg	06/09/93	0002	4924 - 4924.2			11.3			#	0.001	-
	mg/kg	09/12/95	0002	4924 - 4924.0	CLP		3.6			#	0.075	-
Vanadium	mg/kg	09/12/95	0002	4924 - 4924.0	CLP		43			#	11	-
Zinc	mg/kg	09/12/95	0002	4924 - 4924.0	CLP		52	UE	J	#	52	-

SOIL CHEMISTRY DATA BY LOCATION (USEE500) FOR SITE RVT01, RIVERTON
LOCATION: 0747 8/26/97 State plane east changed from 594497.14 to an estimation close to river
REPORT DATE: 2/18/98 3:57:25 PM

PARAMETER	UNITS	SAMPLE: DATE	ID	ELEV RANGE (FT NGVD)	DIGEST CODE	SAMP DESC	RESULT	QUALIFIERS: LAB	DATA	QA	DETECTION LIMIT	UN-CERTAINTY
Arsenic	mg/kg	09/13/95	0003	4925 - 4925	CLP		1.4	U		#	1.4	-
	mg/kg	09/13/95	0004	4925 - 4925	CLP		4.1			#	2	-
Cation Exchange Capacity	MEQ/100	09/13/95	0003	4925 - 4925	9081		35			#	0.1	-
	MEQ/100	09/13/95	0004	4925 - 4925	9081		35			#	0.1	-
Copper	mg/kg	09/13/95	0003	4925 - 4925	CLP		5.4	U		#	5.4	-
	mg/kg	09/13/95	0004	4925 - 4925	CLP		8.6			#	8.3	-
Lead	mg/kg	09/13/95	0003	4925 - 4925	CLP		4.8			#	0.82	-
	mg/kg	09/13/95	0004	4925 - 4925	CLP		12			#	1.2	-
Manganese	mg/kg	09/13/95	0003	4925 - 4925	CLP		180			#	2.7	-
	mg/kg	09/13/95	0004	4925 - 4925	CLP		370			#	4.1	-
Molybdenum	mg/kg	09/13/95	0003	4925 - 4925	CLP		2.7	U		#	2.7	-
	mg/kg	09/13/95	0004	4925 - 4925	CLP		4.1	U		#	4.1	-
Nickel	mg/kg	09/13/95	0003	4925 - 4925	CLP		11	U		#	11	-
	mg/kg	09/13/95	0004	4925 - 4925	CLP		19			#	16	-
Percent Solids	%	09/13/95	0003	4925 - 4925	NONE		73.5			#	0.1	-
	%	09/13/95	0004	4925 - 4925	NONE		48.6			#	0.1	-
Selenium	mg/kg	09/13/95	0003	4925 - 4925	CLP		1.4	UNW	R	#	1.4	-
	mg/kg	09/13/95	0004	4925 - 4925	CLP		2.1	UNW	R	#	2.1	-
Uranium	mg/kg	09/13/95	0003	4925 - 4925	CLP		3.8			#	0.066	-
	mg/kg	09/13/95	0004	4925 - 4925	CLP		5.2			#	0.092	-
Vanadium	mg/kg	09/13/95	0003	4925 - 4925	CLP		12			#	2.7	-
	mg/kg	09/13/95	0004	4925 - 4925	CLP		26			#	4.1	-
Zinc	mg/kg	09/13/95	0003	4925 - 4925	CLP		17	E	J	#	14	-

SOIL CHEMISTRY DATA BY LOCATION (USEE500) FOR SITE RVT01, RIVERTON
LOCATION: 0747 8/26/97 State plane east changed from 594497.14 to an estimation close to river
REPORT DATE: 2/18/98 3:57:26 PM

PARAMETER	UNITS	SAMPLE DATE	SAMPLE ID	ELEV RANGE (FT NGVD)	DIGEST CODE	SAMP DESC	RESULT	QUALIFIERS: LAB	DATA	QA	DETECTION LIMIT	UN-CERTAINTY
Zinc	mg/kg	09/13/95	0004	4925 - 4925	CLP		43	E	J	#	20	-

SOIL CHEMISTRY DATA BY LOCATION (USEE500) FOR SITE RVT01, RIVERTON
LOCATION: 0748
REPORT DATE: 2/18/98 3:57:26 PM

PARAMETER	UNITS	SAMPLE DATE	SAMPLE ID	ELEV. RANGE (FT NGVD)	DIGEST CODE	SAMP DESC.	RESULT	QUALIFIERS: LAB	DATA	QA	DETECTION LIMIT	UN-CERTAINTY
Arsenic	mg/kg	09/14/95	0002	4948 - 4947.4	CLP		1.7	U		#	1.7	-
Cation Exchange Capacity	MEQ/100	09/14/95	0002	4948 - 4947.4	9081		31			#	0.1	-
Copper	mg/kg	09/14/95	0002	4948 - 4947.4	CLP		6.9	U		#	6.9	-
Lead	mg/kg	09/14/95	0002	4948 - 4947.4	CLP		7.3			#	1	-
Manganese	mg/kg	09/14/95	0002	4948 - 4947.4	CLP		270			#	3.4	-
Molybdenum	mg/kg	09/14/95	0002	4948 - 4947.4	CLP		3.4	U		#	3.4	-
Nickel	mg/kg	09/14/95	0002	4948 - 4947.4	CLP		25			#	14	-
Percent Solids	%	09/14/95	0002	4948 - 4947.4	NONE		58.1			#	0.1	-
Selenium	mg/kg	09/14/95	0002	4948 - 4947.4	CLP		1.7	UNW	R	#	1.7	-
Uranium	mg/kg	09/14/95	0002	4948 - 4947.4	CLP		1.1			#	0.065	-
Vanadium	mg/kg	09/14/95	0002	4948 - 4947.4	CLP		31			#	3.4	-
Zinc	mg/kg	09/14/95	0002	4948 - 4947.4	CLP		37	E	J	#	17	-

SOIL CHEMISTRY DATA BY LOCATION (USEE500) FOR SITE RVT01, RIVERTON
LOCATION: 0749 8/26/97 State plane east changed from 589532.71 to an estimation close to river
REPORT DATE: 2/18/98 3:57:26 PM

PARAMETER	UNITS	SAMPLE DATE	SAMPLE ID	ELEV. RANGE (FT NGVD)	DIGEST. CODE	SAMP DESC.	RESULT	QUALIFIERS: LAB	DATA	QA	DETECTION LIMIT	UN-CERTAINTY
Arsenic	mg/kg	09/14/95	0002	4944 - 4944.0	CLP		19			#	2	-
Cation Exchange Capacity	MEQ/100	09/14/95	0002	4944 - 4944.0	9081		28			#	0.1	-
Copper	mg/kg	09/14/95	0002	4944 - 4944.0	CLP		12			#	8.1	-
Lead	mg/kg	09/14/95	0002	4944 - 4944.0	CLP		54			#	1.5	-
Manganese	mg/kg	09/14/95	0002	4944 - 4944.0	CLP		80			#	4.1	-
Molybdenum	mg/kg	09/14/95	0002	4944 - 4944.0	CLP		5.1			#	4.1	-
Nickel	mg/kg	09/14/95	0002	4944 - 4944.0	CLP		45			#	16	-
Percent Solids	%	09/14/95	0002	4944 - 4944.0	NONE		49.3			#	0.1	-
Selenium	mg/kg	09/14/95	0002	4944 - 4944.0	CLP		2.0	UNW	R	#	2	-
Uranium	mg/kg	09/14/95	0002	4944 - 4944.0	CLP		0.74			#	0.062	-
Vanadium	mg/kg	09/14/95	0002	4944 - 4944.0	CLP		19			#	4.1	-
Zinc	mg/kg	09/14/95	0002	4944 - 4944.0	CLP		35	E	J	#	20	-

SOIL CHEMISTRY DATA BY LOCATION (USEE500) FOR SITE RVT01, RIVERTON
LOCATION: 0750 SCOLARULLO, TAC WELLS / WQ
REPORT DATE: 2/18/98 3:57:27 PM

PARAMETER	UNITS	SAMPLE: DATE	ID	ELEV. RANGE (FT NGVD)	DIGEST. CODE	SAMP DESC.	RESULT	QUALIFIERS: LAB	DATA	QA	DETECTION LIMIT	UN-CERTAINTY
Arsenic	mg/kg	09/14/95	0002	- - 33	CLP		2.2			#	1.1	-
Cation Exchange Capacity	MEQ/100	09/14/95	0002	- - 33	9081		32			#	0.1	-
Copper	mg/kg	09/14/95	0002	- - 33	CLP		5.2			#	4.6	-
Lead	mg/kg	09/14/95	0002	- - 33	CLP		8.5			#	0.7	-
Manganese	mg/kg	09/14/95	0002	- - 33	CLP		260			#	2.3	-
Molybdenum	mg/kg	09/14/95	0002	- - 33	CLP		2.3	U		#	2.3	-
Nickel	mg/kg	09/14/95	0002	- - 33	CLP		20			#	9.2	-
Percent Solids	%	09/14/95	0002	- - 33	NONE		87.1			#	0.1	-
Selenium	mg/kg	09/14/95	0002	- - 33	CLP		1.1	UNW	R	#	1.1	-
Uranium	mg/kg	09/14/95	0002	- - 33	CLP		1.6			#	0.048	-
Vanadium	mg/kg	09/14/95	0002	- - 33	CLP		33			#	2.3	-
Zinc	mg/kg	09/14/95	0002	- - 33	CLP		33	E	J	#	11	-

SOIL CHEMISTRY DATA BY LOCATION (USEE500) FOR SITE RVT01, RIVERTON
LOCATION: 0751 SCOLARULLO, TAC WELLS / WQ
REPORT DATE: 2/18/98 3:57:27 PM

PARAMETER	UNITS	SAMPLE DATE	SAMPLE ID	ELEV RANGE (FT NGVD)	DIGEST CODE	SAMP DESC	RESULT	QUALIFIERS: LAB	DATA	QA	DETECTION LIMIT	UN-CERTAINTY
Arsenic	mg/kg	09/12/95	0002	- -25	CLP		1.8			#	1.2	-
Cation Exchange Capacity	MEQ/100	09/12/95	0002	- -25	9081		32			#	0.1	-
Copper	mg/kg	09/12/95	0002	- -25	CLP		7.3			#	4.8	-
Lead	mg/kg	09/12/95	0002	- -25	CLP		12			#	0.71	-
Manganese	mg/kg	09/12/95	0002	- -25	CLP		380			#	2.4	-
Molybdenum	mg/kg	09/12/95	0002	- -25	CLP		2.4	U		#	2.4	-
Nickel	mg/kg	09/12/95	0002	- -25	CLP		16			#	9.5	-
Percent Solids	%	09/12/95	0002	- -25	NONE		83.9			#	0.1	-
Selenium	mg/kg	09/12/95	0002	- -25	CLP		1.2	UNW	R	#	1.2	-
Uranium	mg/kg	09/12/95	0002	- -25	CLP		3.8			#	0.054	-
Vanadium	mg/kg	09/12/95	0002	- -25	CLP		19			#	2.4	-
Zinc	mg/kg	09/12/95	0002	- -25	CLP		44	E	J	#	12	-

SOIL CHEMISTRY DATA BY LOCATION (USEE500) FOR SITE RVT01, RIVERTON
LOCATION: 0794 8/26/97 State plane north changed from 844178.27 to an estimation close to river
REPORT DATE: 2/18/98 3:57:27 PM

PARAMETER	UNITS	SAMPLE DATE	ID	ELEV RANGE (FT NGVD)	DIGEST CODE	SAMP DESC	RESULT	QUALIFIERS: LAB	DATA	QA	DETECTION LIMIT	UN-CERTAINTY
Arsenic	mg/kg	09/13/95	0002	4932 - 4931.4	CLP		2.5			#	1.3	-
Cation Exchange Capacity	MEQ/100	09/13/95	0002	4932 - 4931.4	9081		12			#	0.1	-
Copper	mg/kg	09/13/95	0002	4932 - 4931.4	CLP		5.1	U		#	5.1	-
Iron	mg/kg	06/09/93	0002	4932 - 4931.9			5860			#	0.3	-
Lead	mg/kg	06/09/93	0002	4932 - 4931.9			4.5			#	0.3	-
	mg/kg	09/13/95	0002	4932 - 4931.4	CLP		5.8			#	0.77	
Manganese	mg/kg	06/09/93	0002	4932 - 4931.9			167			#	1	-
	mg/kg	09/13/95	0002	4932 - 4931.4	CLP		130			#	2.6	-
Molybdenum	mg/kg	06/09/93	0002	4932 - 4931.9			1	U		#	1	-
	mg/kg	09/13/95	0002	4932 - 4931.4	CLP		2.6	U		#	2.6	-
Nickel	mg/kg	09/13/95	0002	4932 - 4931.4	CLP		11			#	10	-
Percent Solids	%	06/09/93	0002	4932 - 4931.9			75.6			#	0.1	-
	%	09/13/95	0002	4932 - 4931.4	NONE		78.0			#	0.1	-
Selenium	mg/kg	09/13/95	0002	4932 - 4931.4	CLP		1.3	UNW	R	#	1.3	-
Uranium	mg/kg	06/09/93	0002	4932 - 4931.9			2.03			#	0.001	-
	mg/kg	09/13/95	0002	4932 - 4931.4	CLP		0.83			#	0.056	-
Vanadium	mg/kg	09/13/95	0002	4932 - 4931.4	CLP		16			#	2.6	-
Zinc	mg/kg	09/13/95	0002	4932 - 4931.4	CLP		21	E	J	#	13	-

SOIL CHEMISTRY DATA BY LOCATION (USEE500) FOR SITE RVT01, RIVERTON
LOCATION: 0795 8/26/97 State plane north changed from 847571.6 to an estimation close to river
REPORT DATE: 2/18/98 3:57:28 PM

PARAMETER	UNITS	SAMPLE DATE	SAMPLE ID	ELEV RANGE (FT NGVD)	DIGEST CODE	SAMP DESC	RESULT	QUALIFIERS: LAB	QUALIFIERS: DATA	QUALIFIERS: QA	DETECTION LIMIT	UN-CERTAINTY
Arsenic	mg/kg	09/14/95	0002	4938 - 4937.8	CLP		8.2			#	3.6	-
Cation Exchange Capacity	MEQ/100	09/14/95	0002	4938 - 4937.8	9081		30			#	0.1	-
Copper	mg/kg	09/14/95	0002	4938 - 4937.8	CLP		14	U		#	14	-
Lead	mg/kg	09/14/95	0002	4938 - 4937.8	CLP		43			#	2.1	-
Manganese	mg/kg	09/14/95	0002	4938 - 4937.8	CLP		320			#	7	-
Molybdenum	mg/kg	09/14/95	0002	4938 - 4937.8	CLP		7.0	U		#	7	-
Nickel	mg/kg	09/14/95	0002	4938 - 4937.8	CLP		28	U		#	28	-
Percent Solids	%	09/14/95	0002	4938 - 4937.8	NONE		28.4			#	0.1	-
Selenium	mg/kg	09/14/95	0002	4938 - 4937.8	CLP		3.5	UNW	R	#	3.5	-
Uranium	mg/kg	09/14/95	0002	4938 - 4937.8	CLP		6.7			#	0.064	-
Vanadium	mg/kg	09/14/95	0002	4938 - 4937.8	CLP		17			#	7.1	-
Zinc	mg/kg	09/14/95	0002	4938 - 4937.8	CLP		35	UE	J	#	35	-

SOIL CHEMISTRY DATA BY LOCATION (USEE500) FOR SITE RVT01, RIVERTON
LOCATION: 0796
REPORT DATE: 2/18/98 3:57:28 PM

PARAMETER	UNITS	SAMPLE DATE	SAMPLE ID	ELEV. RANGE (FT NGVD)	DIGEST CODE	SAMP DESC.	RESULT	QUALIFIERS: LAB	QUALIFIERS: DATA	QUALIFIERS: QA	DETECTION LIMIT	UN-CERTAINTY
Arsenic	mg/kg	09/12/95	0002	4916 - 4915.5	CLP		2.0			#	1.4	-
Cation Exchange Capacity	MEQ/100	09/12/95	0002	4916 - 4915.5	9081		16			#	0.1	-
Copper	mg/kg	09/12/95	0002	4916 - 4915.5	CLP		5.8	U		#	5.8	-
Iron	mg/kg	06/09/93	0002	49[illegible] 4915.7			8530			#	0.3	-
Lead	mg/kg	06/09/93	0002	49[illegible] 4915.7			3.9			#	0.3	-
	mg/kg	09/12/95	0002	4916 - 4915.5	CLP		6.7			#	0.87	-
Manganese	mg/kg	06/09/93	0002	4916 - 4915.7			214			#	1	-
	mg/kg	09/12/95	0002	4916 - 4915.5	CLP		250			#	2.9	-
Molybdenum	mg/kg	06/09/93	0002	4916 - 4915.7			4			#	1	-
	mg/kg	09/12/95	0002	4916 - 4915.5	CLP		2.9	U		#	2.9	-
Nickel	mg/kg	09/12/95	0002	4916 - 4915.5	CLP		12	U		#	12	-
Percent Solids	%	06/09/93	0002	4916 - 4915.7			74.1			#	0.1	-
	%	09/12/95	0002	4916 - 4915.5	NONE		69.2			#	0.1	-
Selenium	mg/kg	09/12/95	0002	4916 - 4915.5	CLP		1.4	UNW	R	#	1.4	-
Uranium	mg/kg	06/09/93	0002	4916 - 4915.7			2.32			#	0.001	-
	mg/kg	09/12/95	0002	4916 - 4915.5	CLP		1.2			#	0.06	-
Vanadium	mg/kg	09/12/95	0002	4916 - 4915.5	CLP		21			#	2.9	-
Zinc	mg/kg	09/12/95	0002	4916 - 4915.5	CLP		26	E	J	#	14	-

SOIL CHEMISTRY DATA BY LOCATION (USEE500) FOR SITE RVT01, RIVERTON
LOCATION: 0850
REPORT DATE: 2/18/98 3:57:29 PM

PARAMETER	UNITS	SAMPLE DATE	SAMPLE ID	ELEV RANGE (FT NGVD)	DIGEST CODE	SAMP DESC	RESULT	QUALIFIERS LAB	QUALIFIERS DATA	QUALIFIERS QA	DETECTION LIMIT	UN-CERTAINTY
Arsenic	mg/kg	09/14/95	0002	4946 - 4945.1	CLP		1.7			#	1.1	-
Cation Exchange Capacity	MEQ/100	09/14/95	0002	4946 - 4945.1	9081		18			#	0.1	-
Copper	mg/kg	09/14/95	0002	4946 - 4945.1	CLP		7.7			#	4.3	-
Lead	mg/kg	09/14/95	0002	4946 - 4945.1	CLP		6.0	N*	J	#	0.6	-
Manganese	mg/kg	09/14/95	0002	4946 - 4945.1	CLP		210	N	J	#	2.1	-
Molybdenum	mg/kg	09/14/95	0002	4946 - 4945.1	CLP		2.1	U		#	2.1	-
Nickel	mg/kg	09/14/95	0002	4946 - 4945.1	CLP		11			#	8.5	-
Percent Solids	%	09/14/95	0002	4946 - 4945.1	NONE		94			#	0.1	-
Selenium	mg/kg	09/14/95	0002	4946 - 4945.1	CLP		1.1	UNW	J	#	1.1	-
Uranium	mg/kg	09/14/95	0002	4946 - 4945.1	CLP		0.94			#	0.047	-
Vanadium	mg/kg	09/14/95	0002	4946 - 4945.1	CLP		12			#	2.1	-
Zinc	mg/kg	09/14/95	0002	4946 - 4945.1	CLP		42	E	J	#	11	-

SOIL CHEMISTRY DATA BY LOCATION (USEE500) FOR SITE RVT01, RIVERTON
LOCATION: 0851
REPORT DATE: 2/18/98 3:57:29 PM

PARAMETER	UNITS	SAMPLE DATE	SAMPLE ID	ELEV RANGE (FT NGVD)	DIGEST CODE	SAMP DESC	RESULT	QUALIFIERS: LAB	DATA	QA	DETECTION LIMIT	UN-CERTAINTY
Arsenic	mg/kg	09/12/95	0002	4928 - 4927.5	CLP		1.0	U		#	1	-
Cation Exchange Capacity	MEQ/100	09/12/95	0002	4928 - 4927.5	9081		22			#	0.1	-
Copper	mg/kg	09/12/95	0002	4928 - 4927.5	CLP		6.2			#	4.2	-
Lead	mg/kg	09/12/95	0002	4928 - 4927.5	CLP		8.5	N*	J	#	0.6	-
Manganese	mg/kg	09/12/95	0002	4928 - 4927.5	CLP		320	N	J	#	2.1	-
Molybdenum	mg/kg	09/12/95	0002	4928 - 4927.5	CLP		2.1	U		#	2.1	-
Nickel	mg/kg	09/12/95	0002	4928 - 4927.5	CLP		8.4	U		#	8.4	-
Percent Solids	%	09/12/95	0002	4928 - 4927.5	NONE		96			#	0.1	-
Selenium	mg/kg	09/12/95	0002	4928 - 4927.5	CLP		1.0	UNW	J	#	1	-
Uranium	mg/kg	09/12/95	0002	4928 - 4927.5	CLP		0.96			#	0.047	-
Vanadium	mg/kg	09/12/95	0002	4928 - 4927.5	CLP		8.0			#	2.1	-
Zinc	mg/kg	09/12/95	0002	4928 - 4927.5	CLP		26	E	J	#	10	-

SOIL CHEMISTRY DATA BY LOCATION (USEE500) FOR SITE RVT01, RIVERTON
LOCATION: 0851
REPORT DATE: 2/18/98 3:57:30 PM

PARAMETER	UNITS	SAMPLE DATE	ID	ELEV RANGE (FT NGVD)	DIGEST CODE	SAMP DESC	RESULT	QUALIFIERS: LAB	DATA	QA	DETECTION LIMIT	UN-CERTAINTY

RECORDS SELECTED FROM USEE500

DIGESTION CODES

9081 USEPA SW-846 Method 9081, Cation Exchange Capacity
CLP USEPA CLP
NON No Digestion Performed

SAMPLE DESCRIPTORS (UNIFIED SOIL CLASSIFICATION SYSTEM)

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 compund (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.

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.

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Appendix D

Analysis of Natural Attenuation as the Preferred Groundwater Remedial Alternative at the DOE UMTRA Site Near Riverton, WY

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Analysis of Natural Attenuation as the Preferred Groundwater Remedial Alternative at the DOE UMTRA Site Near Riverton, WY

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February 1998

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1. Introduction

The Department of Energy (DOE) has responsibility for regulatory compliance at 24 formerly used uranium mill tailings sites around the country. The regulatory requirements are dictated by the Uranium Mill Tailings Radiation Control Act and the U.S. Environmental Protection Agency's Health and Environmental Protection Standards for Uranium and Thorium Mill Tailings (40 CFR Part 192; 60 FR 2854). The DOE's Uranium Mill Tailings Remedial Action (UMTRA) Project has been divided into a Surface Program and a Groundwater Program. Most of the 24 UMTRA sites have been addressed under the Surface Program, with the majority of the sites having completed major tailings removal, relocation and/or disposal actions. The Groundwater Program was begun in earnest some years after the Surface Program to allow for source term removal prior to addressing the potential for adverse groundwater impacts.

The Groundwater Program has identified at least one third of the UMTRA sites as potential candidates for a natural attenuation strategy for compliance with the applicable regulations. This compliance strategy has been discussed in the Programmatic Environmental Impact Statement (PEIS) (U.S. DOE, 1996). A natural attenuation strategy requires that, within a one-hundred year period, concentrations of the contaminants of concern be reduced below regulatory limits, or Maximum Contaminant Levels (MCLs), by natural processes. Several potential natural attenuation processes can be considered:

- hydrodynamic dispersion of the contaminants (e.g., mass spreading and concentration reduction);
- degradation and/or decay (e.g., mass reduction);
- dilution from recharge or infiltration (e.g., areal recharge, stream/irrigation leakage); and/or
- flushing (e.g., discharge to a gaining stream).

For the UMTRA sites, the degradation or decay of contaminants of concern (e.g., uranium) probably has a minimal attenuation effect because the constituents are inorganics and/or

radionuclides with relatively long half-lives. Dilution, dispersion, and especially flushing, are the main processes of interest.

1.1 Natural Attenuation Processes

Further discussion of each of the previously mentioned natural attenuation mechanisms and their effects on plume behavior is warranted because of the puzzle that is frequently encountered in attempting to identify the attenuation processes that are occurring and assessing the degree to which each is reducing contaminant concentrations. Stated another way, what one model and its set of parameters may provide as a logical explanation for an observed plume's movement is often totally different from another model's explanation. Because the exact fate and transport processes at a site cannot be determined uniquely, it does help to understand the relative effect that each attenuation mechanism will have on plume behavior, as well as their combined effects. With this understanding it may be possible to eliminate unrealistic or improbable mechanisms from further consideration. The following paragraphs provide a summary of the attenuation processes and their effects on contaminant levels.

Hydrodynamic dispersion is a phenomenon in which dissolved contaminant mass is spread beyond the space it would normally occupy due to average subsurface water movement alone. Transport by average water movement alone is typically referred to as advection, but it is improbable that contaminant transport in the subsurface can occur solely by advection without dispersion occurring as well. Dispersion affects a plume by smearing the contaminant levels along the leading edge of the plume as well as along its side and base edges. Dispersion occurs in contaminant transport in both the unsaturated and saturated zones.

Hydrodynamic dispersion is defined as having two separate components: (1) mechanical dispersion and (2) molecular diffusion. Mechanical dispersion in porous media flow is mixing that occurs as a consequence of local variations in velocity around some mean value of flow

velocity, whereas diffusive transport occurs in response to variations in dissolved concentration of a contaminant. Although both processes cause spreading of a plume, the mixing effects of mechanical dispersion usually dominate those of diffusion. Mechanical dispersion can also be characterized as either being longitudinal or transverse dispersion. Longitudinal dispersion is the mixing that occurs along the direction of flow, whereas transverse dispersion is the mixing that occurs in directions normal to the flow path. On a microscopic scale, transverse spreading of water flow occurs because individual flow paths within the porous medium diverge.

In solute transport, the release of a contaminant for a finite length of time is commonly referred to as a slug release. After a slug release, hydrodynamic dispersion will cause the concentrations within the plume to be less than they were initially during the release.

Sorption is the process in which contaminants leave the dissolved state in water to fixate on the solid particles comprising a porous medium. Several relationships can be used to mathematically describe the relative distribution of a contaminant between dissolved and sorbed states. The most common relationship used in transport modeling assumes linear equilibrium sorption. This relationship allows the propensity for a chemical to adsorb onto solid materials to be described in terms of a soil-water distribution coefficient, or K_d. The larger the K_d value, the greater the tendency is for the contaminant to sorb to subsurface media. Sorption retards the movement of a contaminant in groundwater, causing its bulk transport to take place at a rate that is slower than the average groundwater flow velocity. A retardation factor, which measures the ratio of the average groundwater velocity to the average velocity of a sorbing contaminant, can be determined from the contaminant's K_d.

Soil-water distribution coefficients are dependent on the dissolved form of the chemical involved in the reaction as well as the materials comprising the porous medium. For certain organic compounds the distribution coefficient is a function of the organic content in the porous materials. Inorganic chemical K_ds are strongly affected by soil makeup, particularly clay

content, and can be measured in laboratory experiments or determined through field tracer studies.

Use of a soil-water distribution coefficient and retardation factor implies that sorption is reversible, indicating that the porous material eventually releases the contaminant and allows it to go back into solution. As a consequence, sorption serves not only to delay the arrival of the contaminant, but the temporary storage of the contaminant mass in solid form also causes the peak dissolved concentrations from a slug release to be less than equivalent concentrations without sorption.

Decay refers to the degradation of a contaminant in the environment. There are numerous causes of decay including chemical reactions with water, known as hydrolysis, or the solid materials comprising a porous medium. Organic chemicals may undergo a form of decay called biotransformation. Radionuclides undergo a form of decay wherein mass is converted into radiation. Decay of a radionuclide is characterized by its half-life, which is a constant value. This in turn allows the degradation to be expressed as a first order decay process. Other types of contaminants may also decay in accordance with a first-order process, but, unlike radionuclides, the half-life of one these constituents may vary, depending on pH, oxidizing conditions, or temperature.

Decay influences transport by reducing the total mass of the contaminant, thereby decreasing both its dissolved and sorbed concentration.

Dilution of a dissolved contaminant occurs when clean water mixes with contaminated water. A given quantity of contaminant mass in a larger volume water causes a decrease in the contaminant's dissolved concentration. One form of dilution occurs when infiltrating water from a source that is widespread areally, such as precipitation or flood irrigation water, mixes with

shallow contaminated groundwater. Dilution from areal recharge is manifested in much the same way that decay affects contaminant concentrations.

Water infiltrating from the base of a surface waterway and recharging an aquifer can also cause dilution. Examples of waterways that tend to lose water in this manner include irrigation canals or a stream on the margin of an alluvial basin whose bed lies above local groundwater levels. Dilution brought about by this phenomenon differs from areally distributed recharge because the mixing of waters occurs generally beneath the waterway and not uniformly over the entire aquifer.

Natural flushing from a contaminated aquifer occurs when the contaminated groundwater discharges in whole or in part to a surface waterway such as a river or agricultural drain. Because the flow in a river is generally much larger than the contribution of locally contaminated groundwater, the contaminant levels in the river are highly diluted, often to non-threatening levels. Through this process, the aquifer can eventually purge its contamination to the point where residual contaminant concentrations no longer pose a threat to human or environmental health.

1.2 Evaluation Model

Sandia National Laboratories (SNL) has been supporting the UMTRA Groundwater Program for several years in developing an approach and associated computer tool to address groundwater issues at UMTRA sites. This approach is more robust than previous attempts to address natural attenuation concepts in that it explicitly accounts for uncertainty through the use of Monte Carlo simulation techniques. Therefore, the likelihood of success of the natural attenuation strategy can be evaluated with this approach. In contrast, conventional modeling approaches utilize discrete estimates of contaminant fate and transport behavior, which do not address uncertainty. The methodology and associated computer code developed by SNL is embodied in the

Groundwater Analysis and Network Design Tool, or GANDT. This tool was used to perform the analyses presented in this report.

As mentioned, the methodology employed within GANDT to explicitly address uncertainty is the stochastic Monte Carlo technique. With Monte Carlo simulation, the modeler benefits from evaluating the relative influence of model input parameters on model predictions. Parameters that have a profound effect on model results, as identified and evaluated with sensitivity analysis techniques, are often quite uncertain. The uncertainties associated with input parameters may be due to spatial variability, measurement error, an imperfect knowledge base, or other factors. One can statistically estimate the uncertainties associated with key input parameters by collecting data during a site characterization effort. Alternatively, parameter uncertainty may be estimated using literature sources, or with the use of expert judgment. Once the critical input parameters have been approximated by statistical distributions, the Monte Carlo method invokes sampling schemes to combine the suite of input parameters into multiple data sets. Model simulations are performed with all of these sets of input parameters. The combined results of the model runs are then statistically analyzed to form a probabilistic description of the uncertainty in model predictions. Appendix A provides a simplified discussion of the Monte Carlo method in quantifying uncertainties.

An aspect of the GANDT code that enhances its ability to address uncertainties is the use of an efficient, stratified sampling technique to assemble the input parameter sets that fully describe the stochastic nature of the problem. This method is called Latin Hypercube Sampling (Iman and Shortencarrier, 1984), or LHS. By invoking the LHS method, the number of Monte Carlo model runs required to capture the full behavior of model uncertainty is generally many times smaller than the number needed using pure random sampling (Peck et al., 1988). A recommended minimum number of model simulations when using LHS is 4/3 the number of uncertain parameters, whereas pure random sampling may require as many as ten or more times the number of stochastic variables. Thus LHS has a significant advantage over the conventional

sampling approach, making Monte Carlo analysis of groundwater flow and transport problems relatively efficient.

Another advantageous feature of the LHS methodology is its ability to specify correlations between parameters. If two or more input parameters can be demonstrated as having some degree of correlation with one another, such as through a regression analysis, accounting for it within LHS, as compared to allowing a totally random association of the parameters, may help to reduce uncertainty in model predictions.

Other functional aspects of the GANDT code, such as the flow and transport models incorporated in it, are discussed in subsequent sections. More detailed explanations of algorithms within it can be found in several publications regarding the tool and its applications (Knowlton et al., in press; Walker et al., 1996; Metzler et al., 1997).

This report provides a summary of analyses performed by SNL to evaluate the potential success of a natural attenuation strategy at the DOE UMTRA site near Riverton, Wyoming. The format of this report is based on the American Society for Testing Materials (ASTM) "*Standard Guide for Documenting a Groundwater Flow Model Application*" (ASTM, 1995), with some added sections discussing groundwater flow and contaminant transport aspects of the GANDT methodology. At the direction of DOE personnel, the natural attenuation modeling discussed herein has been performed for two constituents of concern: uranium and molybdenum.

2. Modeling Objectives

The main objective of this modeling effort is to evaluate the likelihood of success of a natural attenuation remedial option at the UMTRA site near Riverton, Wyoming. To help meet this objective, a probabilistic modeling approach has been applied, using Monte Carlo methods to quantify uncertainties. Specific objectives include:

- model the transport of constituents within and from a mill tailings source zone, using a pulsed leaching algorithm due to the fact that the tailings have been removed from the site;
- model the fate and transport of constituents through the vadose zone beneath the former tailings area;
- model the fate and transport of constituents in groundwater in the uppermost surficial aquifer at the site;
- perform Monte Carlo analyses to quantify the uncertainty in the distribution of contaminants in the aquifer over a 100-year period (including the utilization of a geostatistical technique to quantify spatial variability in the hydraulic conductivity field);
- condition the Monte Carlo simulation results on known water quality data, i.e., automated calibration based on the concentration data collected from local monitoring wells;
- develop average concentration distributions for the constituents of concern, based on the probabilistic analyses;
- develop probability distributions for MCL exceedance to visually illustrate the likelihood of meeting groundwater standards over a 100-year period;
- develop statistical ranges of water quality data at key monitor well locations over the next 100 years to be used to verify the progress of the natural attenuation processes; and
- develop conclusions/recommendations regarding the likelihood of success for natural attenuation.

3. Model Function

For the past several years SNL has been developing the Groundwater Analysis and Network Design Tool, or GANDT, to provide DOE Environmental Restoration programs with a comprehensive system for analyzing groundwater flow and associated contaminant transport, while directly accounting for transport uncertainty and providing decision analysis capabilities for monitor well network design. As a point of reference, GANDT began its development under the name Borehole Optimization Support System, or BOSS, but was changed due to copyright considerations. A draft report (Knowlton et al., in press) detailing the technical attributes of the GANDT code is under development and available for review. A draft user's manual has also been developed and is available from Sandia National Laboratories.

GANDT is a comprehensive groundwater analysis package, providing the following features:

- Utilizes flow and transport models in a probabilistic framework to account for uncertainty in contaminant movement and fate; and
- Simplifies the analysis of natural attenuation potential, providing an estimate of the likelihood of success of this option, thereby possibly avoiding costly and time-consuming pump-and-treat options for groundwater remediation.

The GANDT code contains a number of tools that, when combined, make it a unique modeling system. Some of these items are:

- Simulates leaching from contaminant source term, including a pulsed leaching time to account for source removal;
- Simulates either aqueous- or vapor-phase movement of contaminants in the unsaturated zone, and accounts for contaminant transfer into the underlying aquifer;
- Analytical and numerical solutions for the saturated zone (including FTWORK, a 3-D numerical finite difference code for flow and advective/dispersive transport [Faust et al., 1994]);

- An automatic grid generation module to simplify the numerical model input (and also automatically account for grid orientation when the user specifies uncertainty in the groundwater flow direction);
- Monte Carlo technique employed to propagate input parameter uncertainties into flow and transport uncertainties;
- Latin Hypercube Sampling (LHS) technique (Iman and Shortencarrier, 1984) employed to minimize computational burden by reducing the number of simulation runs required for the Monte Carlo analysis;
- Spatial variability explicitly accounted for using a geostatistical simulator (e.g., Sequential Gaussian simulator), which honors observed hydraulic conductivity estimates;
- Conditioning of simulation results on observed water quality data using statistical methods (e.g., essentially a built-in calibration method to honor water quality data); and
- An intuitive graphical user interface and graphical display of results for ease of use on PC Windows and Macintosh platforms.

GANDT currently has the capability to simulate flushing, dilution, and radioactive decay. The numerical simulation option in the GANDT code is currently set up to perform steady-state flow simulations and transient fate and transport analyses.

In conventional flow and transport simulations a calibration procedure is manually performed to "match" model results with observed site data, such as measured water levels and water quality data. One of the model parameters that is commonly adjusted to achieve a better match between observed and computed values is aquifer hydraulic conductivity. The calibration process can be quite tedious and time consuming. SNL has built an automated calibration capability in GANDT that effectively conditions, or honors, observed concentrations in the saturated zone through use of statistical analysis techniques. Any Monte Carlo simulation with a cumulative measure of the differences between observed and computed concentrations, which are commonly called residuals, that does not meet a specified statistical tolerance is omitted from the probabilistic

analysis. This feature is extremely important when the user is interested in probabilistic (i.e., Monte Carlo) analyses, where many simulations are performed to get a statistical representation of the uncertainty in model results. The user has the ability to choose from a chi-square test (Haan, 1977) for acceptance of a run or a root mean squared error (RMSE) analysis (Anderson and Woessner, 1992). To apply the chi-square method, the residuals must be normally or log-normally distributed. GANDT can graphically display data distributions to evaluate normality, giving the user great flexibility in selecting conditioning criteria.

It is important to note that the version of GANDT used for this study is limited to conditioning on water quality data. That is, conditioning to hydraulic heads (i.e. water levels) has not yet been included in the software due to the fact that, of the possible types of data used for model calibration in groundwater contamination investigations, water quality information is most effective in reducing transport uncertainty. This phenomenon was illustrated by Van Rooy and Rosbjerg (1988), who compared the relative ability of three different parameter estimation approaches - geostatistical conditional simulations of transmissivity, selection of groundwater flow model runs based on observed hydraulic heads, and selection of transport model runs based on measured concentrations - to produce a model that best approximated actual site conditions in a case study. Similar results were reported by McLaughlin et al. (1993), who used three comparable parameter estimation techniques to clearly show that the greatest reduction in model uncertainty was achieved by conditioning on water quality measurements. Though the current version of GANDT does not utilize water levels as calibration targets, SNL's experience with the code shows that it does quite well in matching hydraulic heads at sites characterized by relatively uniform flow fields. In addition, mass balance reports from individual simulations are provided, enabling the user to compare computed groundwater flow quantities with those that are expected for a site.

GANDT has the ability to display the results of probabilistic analyses in a variety of ways. Two-dimensional visualization graphics that the user can observe include hydraulic conductivity

distribution plots, contaminant distribution plots, and probability of exceedance plots. Contaminant distributions can be displayed for all user-specified time steps, and for each of as many as six layers in a numerical simulation. The types of contaminant plots available are:

- Plume concentrations from each Monte Carlo simulation, with user-specified color mapping of the contaminant concentrations, and an optional player mode that cycles the Monte Carlo simulation output in an "animation" format;
- Average plume distribution from all Monte Carlo runs;
- Standard deviation plot;
- Variance plot;
- Coefficient of variation plot; and
- Probability plots, wherein the user specifies a threshold contaminant concentration (e.g., MCL), and the resulting plot displays the probability of exceeding that concentration.

The last plotting option mentioned is extremely important in evaluating the likelihood of success of a natural attenuation approach to remediation.

4. General Setting

The former Riverton uranium processing site is located in Fremont County, Wyoming, approximately 2 miles southwest of the city of Riverton, Wyoming (Figure 4.1). The Riverton site encompasses about 80 acres on a level, alluvial terrace between the Wind River and the Little Wind River. The uranium mill operated from 1958 to 1963. The tailings pile and associated contaminated soils were removed in 1988 and 1989. Groundwater at the site occurs in an unconfined surficial aquifer, an underlying semiconfined aquifer, and a deep confined aquifer. The surficial aquifer, consisting of sand and gravel (16-20 feet [ft] thick), and the semiconfined aquifer containing sandstone (16-30 feet thick), are separated by an aquitard of shale and siltstone (6-10 feet thick). The depth to groundwater varies from 5.5 to 7.5 feet. Groundwater flow is generally toward the east-southeast, exhibiting a horizontal gradient of approximately 0.0024. In response to infiltration from a nearby irrigation canal, the flow direction can become more southerly and show a gradient of as much as 0.0034. Pumping tests at and near the site indicate that representative hydraulic conductivities for the surficial and semiconfined aquifers are 56 ft/day and 33 ft/day, respectively (DOE, 1985a). Assuming effective porosities of 0.30 and 0.15, respectively, in the two aquifers, and a hydraulic gradient of 0.0024, average linear groundwater velocities in the two respective units are computed to be 160 and 190 ft/year. Because an aquitard consisting of shale and minor sandstone lenses exists between the semiconfined aquifer and the deep confined aquifer, no hydraulic tests have been performed in the confined aquifer. Additional information on the general setting for the Riverton site, including more detailed discussions of the site hydrogeology, is presented in reports prepared by the U.S. Department of Energy (DOE) (1995a; 1995b).

A DOE Baseline Risk Assessment report (DOE, 1995b) indicated that constituents in the surficial aquifer comprise the greatest concern for groundwater contamination at the Riverton site. This and other previous investigations have suggested that contaminants in this aquifer are flushed out into the Little Wind River by natural groundwater flow.

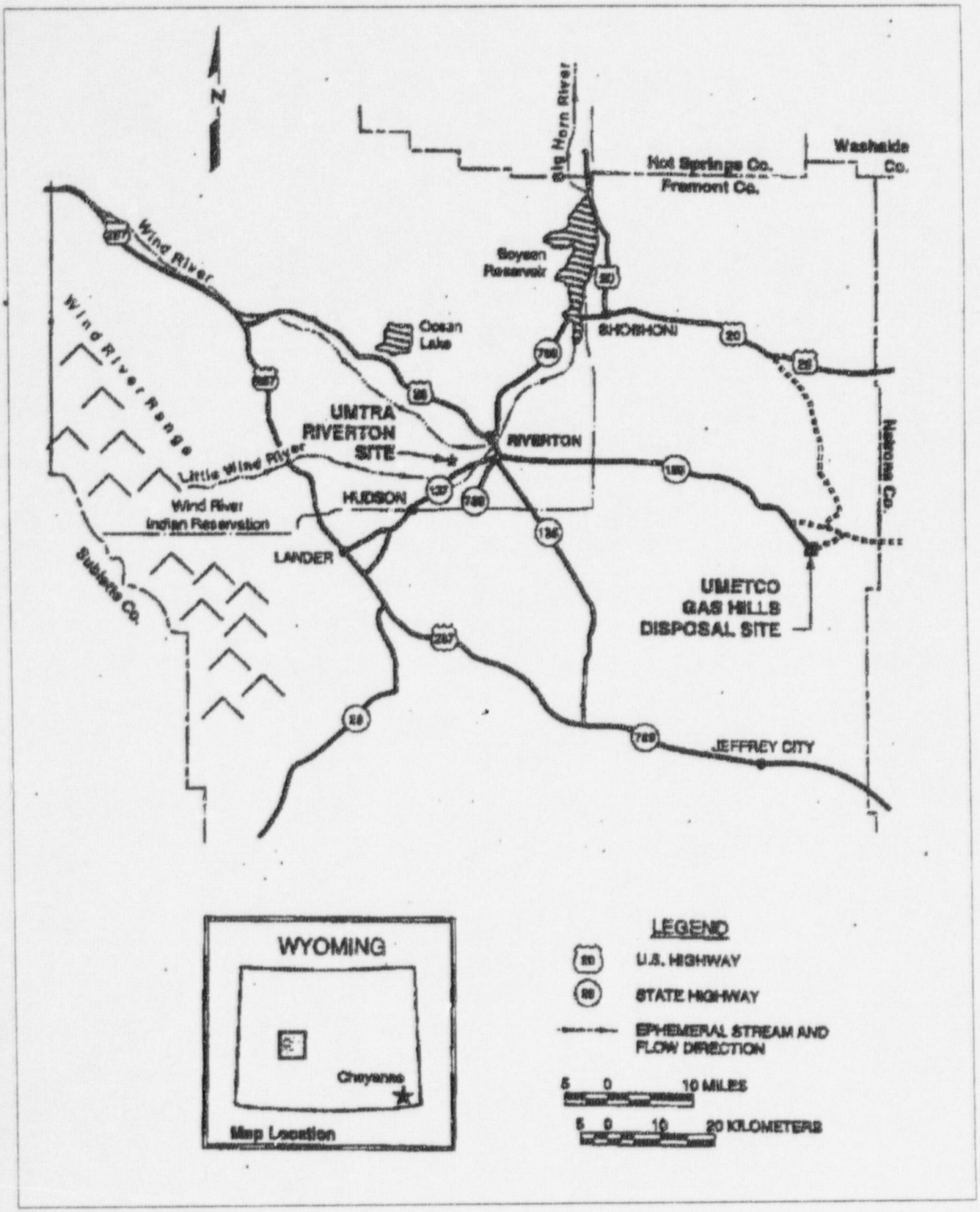

Figure 4.1 - Riverton, Wyoming, Site Location (after DOE, 1985a)

5. Conceptual Model

Because this investigation focuses on natural attenuation processes, development of a conceptual model for the Riverton site should focus on both general hydrogeologic processes and the phenomena that more specifically help to attenuate contaminant concentrations, including:

- dilution from areal recharge;
- dispersion as part of the transport process; and
- natural flushing to the Little Wind River (i.e., aquifer discharge to the gaining river).

The groundwater system at the site is hydraulically connected to the unsaturated zone, which, at one time, contained the contaminant source in the form of a tailings pile. The GANDT code simulates the leaching of contaminants from the source zone, subsequent transport through the unsaturated zone, and mass flux into and within underlying aquifers. Thus each of these zones must be examined in the conceptual model. In addition, the time frame of interest is approximately 140 years. This is because the facility was established in 1958, monitoring data from 1997 are used for the conditioning of transport simulations, and a 100-year time period after 1997 is considered when analyzing the potential for MCLs to be achieved by natural processes. Given a 140-year time frame of interest, it is assumed that the seasonal, transient behavior of the hydrologic system will be dampened, allowing the system to approximate some average form of behavior. Accordingly, steady-state flow conditions are assumed to be appropriate. Uncertainty associated with the long-term average flow conditions, such as the magnitude of the gradient and the direction of groundwater flow, is taken into account by establishing statistical distributions for these parameters in the Monte Carlo analysis.

5.1 Aquifer System

The aquifer system at the Riverton site consists of a surficial, unconfined unit, a semiconfined unit, and a deeper confined aquifer. The main aquifer of interest for groundwater compliance is

the surficial unit. An extensive amount of testing has been performed on this uppermost aquifer and has been documented in DOE (1995a) and SNL (1996). The depth to groundwater is relatively shallow, and ranges from 5.5 to 7.5 feet in the mill tailings area. South and east of the tailings are wetland areas characterized by groundwater discharge and high evapotranspiration potential; these areas are considered to have little impact on overall contaminant fate and transport in the subsurface. The surficial aquifer is 16-20 feet thick and is assumed to be hydraulically connected to the Little Wind River, located downgradient of the tailings. This hydraulic connection is assumed to be one in which the Little Wind River is a gaining stream, with the aquifer discharging to it.

5.2 Hydrologic Boundaries

For the purposes of this natural attenuation analysis, a steady-state flow system is assumed. This approach is taken on the premise that, though hydraulic heads change with both sporadic and periodic stresses (e.g., recharge from precipitation, high river conditions, flooding, irrigation, conveyance of water in irrigation canals, pumping), the average, long-term groundwater flow conditions (i.e., flow direction, flow rate) remain generally the same. This assumption corresponds with a state of "dynamic equilibrium" (Freeze, 1969), in which there are no long-term (several years) changes, or trends, in regional and local groundwater levels.

Though there are clear indications of short-term changes in hydraulic head at and near the Riverton site, there is little to no evidence collected thus far to clearly demonstrate that the regional groundwater flow system is undergoing major, lasting alterations. However, there is a distinct possibility that the hydraulic gradient within the groundwater system downgradient of the mill tailings was considerably larger than has been observed in recent years, which could be attributed to the large quantities of moisture that were likely in the tailings when they were first placed onsite. If such a relatively steep gradient existed for several years, it is also possible that the distribution of contaminants observed in today's groundwater system is a vestige of larger

groundwater flows than those occurring recently. Without direct evidence of such conditions, the approach taken in this study has been to use a range of groundwater flow directions and hydraulic gradients representative of recent times.

The assumption of a dynamic equilibrium state is partially supported by an analysis of the variation in head measurements at monitoring wells throughout the site. The analysis was performed by DOE-UMTRA personnel using the SEE.UMTRA database query system. Appendix B gives a summary of this statistical analysis. In short, the analysis showed a maximum observed standard deviation of observed heads in monitoring wells over a 10-year period of about 2 feet; this observation was made for a well adjacent to the Little Wind River, where fluctuations in response to changing river levels are likely to be more prominent than elsewhere. Hydraulic head variations of this magnitude are considered small in the context of transient flow conditions. Further evaluation of water levels at the site shows that the local hydraulic gradient can vary between 0.0024 and 0.0034 (SNL, 1996). This variability can be represented in GANDT using the probabilistic modeling features of the code. In addition, groundwater flow direction can be treated as an uncertain parameter in GANDT; consequently, assigning a probability distribution to this parameter may make it possible to capture some of the influences of temporally-variable flow directions occurring in response to irrigation, river flooding and other system stresses.

The assumption of steady-state flow conditions is made not only with respect to the time period between the mill startup and recent years, but also with respect to future conditions, extending as much as 100 years hence. It is true that it may not be possible to assure that such a system will continue for this length of time, as future land use and other regional trends may influence local groundwater flow. However, without direct knowledge of land-use plans for this area, the focus of this study was on the potential for natural flushing of site contaminants with conditions as they exist today.

In GANDT, steady-state flow is established by controlling boundary conditions in the code's flow simulator. The user specifies the hydraulic gradient (or a distribution representative of a range of gradients) and the groundwater flow direction. The code's automatic grid generator constructs a finite-difference grid oriented along the longitudinal axis of flow. Initially, the upgradient and downgradient ends of the model domain are set as constant head boundaries such that the specified hydraulic gradient is maintained. If a gaining stream is located downgradient of the contaminant source, the river trace is used to establish and replace the model's downgradient boundary condition. In such a case, the river is assigned constant heads, which are based on the prescribed gradient and an estimate of the head loss attributed to phenomena such as convergent flow, vertical flow across alluvial strata, and flow across semipermeable streambed materials (Peterson and Wilson, 1988) The boundaries parallel to the flow direction are set as no-flow boundaries.

Because the Little Wind River is assumed to be a gaining stream downgradient of the tailings area, the river is treated as a boundary, with flow from the aquifer entering the river. The river is assumed to act as a sink for all groundwater flow intersecting it, and no flow or contaminant transport occurs beyond the river. As previously mentioned, surface water levels in the river are specified using hydraulic heads initially established with the grid generation package and additional data provided by the user reflecting the degree to which local head losses are expected to reduce groundwater levels from those expected on the basis of the regional gradient. Treatment of the river in this manner has an effect on hydraulic heads upgradient of the river.

The Wind River flows in a west-to-east direction approximately two thirds of a mile north of the Riverton site. If a regional model was constructed for the flow simulations, this river would likely constitute the location for a model boundary. However, the simulations performed in this study are mainly focusing on flow and transport from the former milling site downgradient to the Little Wind River, and, consequently, do not directly account for the Wind River. The previously-mentioned GANDT methodology for prescribing constant head boundaries and

uncertainty distributions for the hydraulic gradient and the direction of groundwater flow should account for the relative effects of the Wind River on flow through the area of interest.

The assumption that the Little Wind River downgradient of the site is a gaining stream may be questioned due to the lack of conclusive evidence demonstrating such a phenomenon. However, in addition to the DOE analyses mentioned above, there are reasons to believe that the river is indeed gaining in the subject area. In particular, it is typical of perennial streams like the rivers in this region to benefit from groundwater inflows due to topography effects (Freeze and Cherry, 1979). Groundwater typically flows from higher areas, where recharge is relatively significant and water levels are elevated by the recharge, to lower areas, where streams are commonly found. Consequently, surface water bodies in the forms of streams, rivers, lakes, and wetlands tend to act as discharge sites for the upland recharge. For this natural recharge-discharge mechanism to be upset, in which a river begins losing its water to the subsurface rather than gaining from it, very large withdrawals of groundwater on a regional scale are quite often necessary (Peterson and Wilson, 1988). On the basis of data presented in the DOE reports (1995a; 1995b), there is no indication that such a reversal in flow has occurred at the Riverton site, especially not within the surficial aquifer.

5.3 Hydraulic Properties

Numerous field and laboratory tests have been performed to estimate hydraulic properties for the surficial, unconfined aquifer. Slug tests, aquifer pumping tests, tracer tests, and sorption tests are some of the key data collection activities that have taken place. Results of these analyses are summarized in DOE (1995a) and SNL (1996). Estimated hydraulic conductivities span several orders of magnitude, illustrating the importance of considering uncertainty and spatial variability in a modeling study of this nature. It should be pointed out that such a large range of reported conductivity values may reflect biases occurring in the methods used to estimate this parameter. This is mostly due to the fact that slug tests provide measures of material properties over

relatively small zones of influence (e.g., Domenico and Robbins, 1998), whereas long-term pump tests gauge aquifer response over distances spanning as much as hundreds of feet. Both types of data have been collected at the Riverton site, and are being employed in the model runs in the interest of using as much information as possible.

5.4 Sources and Sinks

There are no major pumping or injection wells in the model domain selected for the site. Several sources and sinks which may have minor effects on the flow model have been assessed. For example, a number of irrigation canals just north of the former milling site likely contribute recharge to the surficial aquifer. Detailed data describing the transient flows in and hydraulic characteristics of these canals were not available to this modeling study. In addition, little to no groundwater level data has been collected in the vicinity of the canals that would indicate groundwater mounding or more regional influences on general groundwater movement in the study area. Consequently, the GANDT analyses presented herein were based on the assumption that the influence of canal losses on long-term groundwater flow was insignificant. Dilution from recharge occurring as a result of irrigation water applied to local fields fed by the canals is accounted for in GANDT through the use of an assumed areally-distributed recharge rate, which can be considered uncertain in the model.

A water supply well is located at the St. Stephens facility situated southwest of the former milling site. The pumping rate at the well is considered negligible relative to the flow occurring within the model area of interest, and is assumed to have little to no influence on GANDT results. This conclusion is supported by the DOE (1995a; 1995b) reviews of concentration distributions for the contaminants of concern, and the fact that contaminant plumes have shown no tendency to diverge toward this well (DOE, 1995a).

5.5 Water Budget

Water budget considerations for the steady-state model used to simulate the surficial aquifer flow include (1) infiltration of water through the mill tailings source area, (2) groundwater discharge to the Little Wind River, and (3) areally-distributed recharge throughout the site. The first of these is assumed in GANDT to influence contaminant transport from the tailings but have no appreciable effect on the general hydraulic gradients and flow directions currently occurring in the model area. Reasons for this latter assumption were discussed previously as part of the rationale for adopting steady-state flow conditions (see Section 5.2). The second component, groundwater discharge, is determined in GANDT as a result of boundary conditions established in the code's automatic grid generation package, and is included in mass balance reports produced by the groundwater flow model. The third, areal recharge, comprises an input parameter for the Monte Carlo simulations. It has been assumed in this investigation that this latter component, like water seepage through mill tailings, is not substantial enough to influence general groundwater flow conditions and velocities. However, GANDT does account for the effects of areal recharge on contaminant dilution. This is accomplished through a version of the numerical groundwater model in the code that specifically addresses water-mass conservation in the solute transport equation (Voss, 1984; Knowlton et al., in press).

Water budget results will vary with each Monte Carlo run conducted with the GANDT code. Because each simulation makes use of a local finite difference grid of unique size and containing unique hydraulic properties, total cumulative flow volumes cannot be predicted a priori. What can be estimated prior to the Monte Carlo analysis, however, is the range of flows per unit width of the model. On the basis of reported hydraulic conductivities, hydraulic gradients, and aquifer thicknesses (see Chapter 4 and Section 7.2), these per-unit-width flows are expected to range from 1 ft^2/day to 7.5 ft^2/day (365 ft^2/yr to 2750 ft^2/yr).

An additional concern regarding water balances is found in the transient nature of overbank flooding from the Wind River and Little Wind River. These episodic events are not easily handled and cannot be predicted over a 139-year time window employed in the simulations for this study. Again, treating the hydraulic gradient and flow direction as uncertain is believed to be a method for simulating the long-term effects of occasional stresses such as those associated with flooding. If the objectives of this modeling study were aimed at ascertaining short-term system effects, influences like flood events would likely need to be addressed explicitly.

5.6 Contaminant Source Term

As previously mentioned, two contaminants of concern at the Riverton site are examined in this study: uranium and molybdenum. Other contaminants exist at the site, but most of them have been discounted from the list of contaminants of concern in the DOE Baseline Risk Assessment (DOE, 1995b). A contaminant of interest that does exist at the site in elevated concentrations is sulfate. Though no regulatory standard exists for sulfate at this time, assessment of its transport would be useful, as it is likely that this constituent will flush from the aquifer system more quickly than uranium or molybdenum due to its low sorption potential. Such analysis, however, is hampered due to the Koch sulfur producing plant which lies directly upgradient of the old tailings area, and is a continual source of sulfate leakage into the surficial aquifer. Accounting for the effects of the Koch operations is beyond the scope of work required for this investigation, and is not likely to be a concern for DOE UMTRA.

Concentrations of the contaminants of concern in the mill tailings source area when the tailings were present are very uncertain. The concentration distribution is generally established on the basis of expert judgment and trial and error in the modeling process. This also holds true for the overall physical dimensions of the source area, which are uncertain. The source term dimensions are established on the basis of measurements of the site layout and from information in the

SOWP (DOE, 1995b). Each of these types of source-term variables are treated as uncertain in the GANDT analyses.

5.7 Fate and Transport Properties

Model fate and transport properties are derived from field and laboratory testing (e.g., sorption tests), as well as literature values. Experimental data are available, for instance, on sorption coefficients for uranium and molybdenum (e.g., Yu et al., 1993; DOE, 1993). There is a fairly wide range of sorption coefficient values reported for each of these contaminants.

Geochemical processes that may have occurred, or are still occurring, at the site, are not easily accounted for in GANDT or any conventional groundwater modeling system. Specifically, when the tailings were emplaced at the site, the pH of the tailings and its leachate was relatively low, reflecting acidic conditions (personal communication, S. Morrison, MACTEC-Environmental Restoration Services). As a result, the effective sorption coefficients of uranium and molybdenum were likely lower than would be observed under today's more chemically-basic conditions. As the contaminants leached and migrated through the unsaturated zone soils and surficial aquifer, it is likely that additional geochemical interactions took place away from the source area whose net effect may have been to effectively increase the respective constituents' sorption potential. This in turn may signify faster contaminant movement in the early years during and after tailings emplacement than is currently taking place downgradient of the tailings area . Sufficient data do not exist to support extensive modeling of this transient scenario. However, because the GANDT model provides a mechanism for honoring water quality data, as discussed earlier in this report, it will attempt to approximate the effects of a transient phenomenon of this nature through adjustment of fate and transport parameters other than those based on the geochemical phenomena mentioned above.

6. Computer Code Description

The GANDT code can be used to analyze flow and transport of contaminants from a source area in the unsaturated zone, through the unsaturated soils underlying the source material, and subsequently into and within the saturated zone. Uncertainty analyses are directly addressed in GANDT through probabilistic simulations based on the Monte Carlo method in conjunction with Latin Hypercube Sampling (LHS) of stochastic model parameters. Probabilistic results from the code can help to provide estimates of the likelihood of occurrence of specific transport scenarios. GANDT contains options for simulating subsurface contaminant movement using screening level, analytical solutions of advective-dispersive transport. A numerical, three-dimensional, finite-difference groundwater flow and transport solution based on the public-domain code FTWORK (Faust et al., 1994) can also be employed. The numerical simulator is used for this study because of its ability to account for groundwater discharge to a river, including a sinuous waterway. Spatial variability of hydraulic conductivity is accounted for through the use of geostatistical conditional simulation (Peck et al., 1988) , the algorithms for which are taken from the GSLIB system of codes (Deutsch and Journel, 1992). GANDT is relatively unique because of its ability to automatically condition model runs on observed water quality data, which essentially provides the model user with a built-in calibration technique. The code employs an automatic grid generator for ease of use in setting up a finite- difference grid when employing FTWORK. Data input and the examination of results from probabilistic analyses are handled easily through an intuitive user interface.

Versions of GANDT exist for both on PC-Windows and PowerPC Macintosh platforms. A draft reference report detailing the algorithms used in GANDT is currently undergoing revision (Knowlton et al., in press), but is available for review. A draft user's manual for GANDT is also available.

6.1 Assumptions

The reader is referred to the draft reference manual for GANDT (Knowlton et al., in press) for a complete description of the flow and transport models and geostatistical algorithms employed in the software. Many of the assumptions upon which both the analytical and numerical simulators in the code have been developed are also provided in the reference manual. More detailed explanations of the FTWORK model are presented in Faust et al. (1994).

6.2 Limitations

Potential limitations of the modeling software that may be relevant to this natural attenuation evaluation include:

- Steady-state flow conditions - The current version of the code does not simulate transient groundwater flow.
- User-defined boundary and initial conditions - Boundary conditions within the model are currently established through an automatic grid generator within the code, thus limiting the ability of users to define their own boundary and initial conditions.
- Honoring of hydraulic head information - Water levels and hydraulic heads are now available for display in the model's graphical output, but the user does not have the ability to calibrate to the flow conditions of the site.
- Single time frame for conditioning - At this time, the user can only specify one time to be used for conditioning of model results on measured groundwater concentrations.
- Single source term - Currently, the GANDT user is limited to specifying a single source area for each transport simulation.

6.3 Solution Techniques

As mentioned above, both analytical and numerical models of subsurface flow and transport are provided in GANDT, discussion of which is presented in the draft reference manual (Knowlton et al., in press).

6.4 Effects on Model

Perhaps the biggest concern regarding the application of GANDT to this evaluation of natural attenuation is the model's utilization of steady-state flow solutions, as developed within the code using the automatic grid generation package in conjunction with the numerical simulator. However, as discussed in earlier report sections, utilization of steady-state conditions in the current study appears to be a legitimate approach to assessing the long-term prospects for natural attenuation at the Riverton site.

7. Model Construction

The GANDT system is designed to be user friendly and minimize work associated with data input. As a consequence, many of the groundwater flow and transport modeling steps that are necessary for conventional model construction have been simplified or automated. Some of these features are identified in the next few sections.

7.1 Model Domain

A local model domain is generated within each Monte Carlo simulation conducted with the numerical flow and transport model; the size of the domain and the quantity and size of the finite-difference blocks depends on parameters used to define the simulation. Prior to conducting a probabilistic analysis, a global domain must be established that encompasses an area significantly larger than the area of contamination and any region that is expected to be affected by future plume movement. The code's automatic grid generator uses the parameter set sampled for a given model run and employs algorithms to design a local grid that is appropriately sized and properly oriented. Other checks and balances are made by the automatic grid generator to assure that mass balance is conserved and phenomena such as numerical dispersion are minimized (Knowlton et al., in press).

7.2 Hydraulic Parameters

Hydraulic parameters used in this study were derived from Site Observational Workplans (DOE, 1995a; SNL, 1996). Figure 7.1 provides a plot of hydraulic conductivity values used in the numerical simulations. These data were derived from either aquifer pump test analyses or slug tests. As mentioned in Section 5.3, aquifer test data are representative of a larger portion of the aquifer than is tested with slug tests. In addition, the aquifer system is stressed for a longer duration under an aquifer test, making it possible to identify nearby hydraulic boundaries.

Although both types of analyses are used in this study, more emphasis is placed on aquifer test data than on slug test data at locales where both exist. Two slug test values associated with wells 717 and 722, as well as a value from a tracer test well, 785, were left out of the analysis of the spatial distribution of hydraulic conductivity because they either: 1) did not compare well to the aquifer test data; or 2) did not allow the transient contaminant plume simulations to honor the water quality data due to impeding effects (i.e., conductivity values were too low). As this figure indicates, the range of hydraulic conductivity values is quite large, spanning several orders of magnitude. The mean hydraulic conductivity used for the geostatistical simulations of spatial variability was 57 feet per day (ft/d). Values of hydraulic conductivity from the combined results of aquifer test and slug test analyses ranged from 1 to 178 ft/d.

The hydraulic conductivity data were subjected to a variogram analysis (Deutsch and Journel, 1992) so that input for GANDT's geostatistical simulation tool could be prepared. The variogram is used in the geostatistical simulator to approximate the spatial trends in the hydraulic conductivity data. A variography package known as Variowin (Pannatier, 1996) was employed to determine variogram descriptors. Prior to performing the variography analysis, the data were log-transformed, as hydraulic conductivity values from a study area are typically log-normally distributed (e.g., Domenico and Schwartz, 1998). Figure 7.2 illustrates the variogram that was ultimately selected to perform the conditional simulations. The variogram parameters were: spherical variogram model; nugget = 0.467; sill = 1.0; range = 1200 feet.

A Sequential Gaussian conditional simulation tool in GANDT was used to generate hydraulic conductivity values for each model block in each Monte Carlo run. Figures 7.3 and 7.4 show two examples of the variability that the geostatistical model can produce while honoring each of the hydraulic conductivities derived from field-tested wells. Figure 7.5 shows the average hydraulic conductivity distribution from all the simulations used in the uranium analysis.

Additional model parameters (e.g., porosity) were selected from publications that specifically discuss site characteristics (DOE, 1995a; DOE, 1995b; DOE, 1996) and from other literature sources, both pertaining to the site (e.g. Narasimhan et al., 1986) and those of a more general nature. The resulting parameter values, including the distribution descriptors for uncertain parameters, are listed for the contaminant source term, the unsaturated zone, and the saturated in Tables 7.1, 7.2, and 7.3, respectively. These tables also list the data sources used to justify the parameter values selected.

7.3 Sources and Sinks

As stated previously, no point sources or sinks (e.g. pumping wells) are considered in the Riverton analysis. The Little Wind River represents the sole discharge site within the groundwater flow model.

7.4 Boundary Conditions

As stated above, the flow model in GANDT is set up for steady-state conditions. The user-specified gradient is used to establish constant head boundaries on the upgradient and downgradient ends of the local domain for each Monte Carlo run. Side boundaries of each local domain are treated as no-flow boundaries.

7.5 Selection of Calibration Targets and Goals

As discussed in Section 5.2, the GANDT methodology relies on calibrating, or honoring, water quality data. This is accomplished through what is termed a post-conditioning exercise, which occurs after the Monte Carlo simulations have completed. At this time, GANDT does not specifically honor head data. Consequently, it cannot be used to perform a conventional flow field calibration on the basis of observed hydraulic heads. The current version of the model is

limited to conditioning on groundwater contaminant concentrations, as water quality data provide the means for effecting the greatest reduction in uncertainty of plume movement and contaminant fate (Van Rooy and Rosbjerg, 1988; McLaughlin et al., 1997).

The current GANDT code is capable of performing a conditioning analysis only on the basis of one time period. Thus groundwater water quality data from a single point in time are desired to perform the calibration. The year chosen for the data conditioning in this investigation was 1997. Figures 7.6 and 7.7 show the 1997 water concentrations for uranium and molybdenum, respectively, at each Riverton site monitoring well. These groundwater concentration data essentially comprise the model calibration targets.

Two types of tests are available in the GANDT code for honoring water quality data through a post-conditioning statistical test. The first is a chi-square distribution test (Haan, 1977) on the transport model residuals (i.e., differences between measured and simulated concentrations). For a chi-square test to be valid, the residuals must be either normally or log-normally distributed. Such a requirement was not met in the preliminary model runs made with GANDT. Consequently, a second method of assessing the differences between simulated and measured concentrations, the root mean squared error (RMSE) approach (Anderson and Woessner, 1992), was employed. A trial-and-error methodology, in which various parameter choices are tested to determine their effect on model residuals, was required to establish an appropriate RMSE value. Generally, an RMSE value on the order of the observed calibration targets (i.e., water quality concentrations) is typical. The RMSE criteria ultimately selected for the uranium and molybdenum simulations were 0.35 parts per million (ppm) and 0.45 ppm, respectively.

7.6 Numerical Parameters

The input parameters and distributions used in these simulations are shown in Tables 7.1, 7.2, and 7.3, for source term, unsaturated zone, and saturated zone parameters, respectively. A

parameter not included in the tables is the half-life of uranium, which is assumed to be 1×10^9 years. The data presented in these tables was derived from several sources: 1) site specific data and analyses, when available; 2) literature information; and 3) expert judgment, including trial and error in the modeling runs. Tables 7.1, 7.2, and 7.3 contain an annotation on the source of the information used for each of the parameters.

Table 7.1 - Source Term Parameters

TYPE OF PARAMETER	NAME OF PARAMETER [UNITS]	VALUE OR DISTRIBUTION	JUSTIFICATION FOR DATA
Geometry	Center of mass, X coord. [ft]	Uniform, min = 7440, max = 7570	Based on measurements at site, DOE (1985a).
	Center of mass, Y coord. [ft]	Uniform, min = 10100, max = 10200	Based on measurements at site, DOE (1985a).
	Length [ft]	Uniform, min = 1540, max = 1670	Based on measurements at site, DOE (1985a).
	Width [ft]	Uniform, min = 1180, max = 1310	Based on measurements at site, DOE (1985a).
	Thickness [ft]	Uniform, min = 1.6, max = 4.9	Based on information in DOE (1985a).
Flow	Infiltration rate [ft/yr]	Uniform, min = 0.26, max = 0.36	Expert judgment; model trials.
	Saturated hydraulic conductivity [ft/d]	Lognormal, min = 3.5, max = 18.0	Based on information in DOE (1985a) and SNL (1996).
	Porosity	Normal, $\mu = 0.3$, $\sigma = 0.02$	Based on information in DOE (1985a) and general literature.
	Residual water content	Normal, $\mu = 0.05$, $\sigma = 0.002$	General literature.
	van Genuchten n factor	Normal, $\mu = 3.9$, $\sigma = 0.5$	General literature.
Fate & Transport	Initial Soil Concentration [ppm]	Uranium: Normal, min = 0.5, max = 4; Molybdenum: Normal, min = 2, max = 8;	Expert judgment; model trials.
	Solubility of contaminant [ppm]	Uranium: 100; Molybdenum: 100	General literature.
	Distribution coefficient [cc/g][1]	Uranium: Uniform, min = 0.05, max = 0.1; Molybdenum: Uniform, min = 0.05, max = 0.1;	DOE (1983) and general literature.
	Dry bulk density [g/cc][1]	1.7	General literature.
	Time since waste release [y]	39	DOE (1985a).
	Pulse duration [y]	Uniform, min = 10, max =15	Expert judgment; model trials.

[1]Common unit of expression

Table 7.2 - Unsaturated Zone Parameters

TYPE OF PARAMETER	NAME OF PARAMETER [UNITS]	VALUE OR DISTRIBUTION	JUSTIFICATION FOR DATA
Geometry	Thickness [ft]	Uniform, min = 5.2, max = 8.2	DOE (1985a).
Flow	Saturated hydraulic conductivity [ft/d]	Lognormal, min = 3.5, max = 18.0	DOE (1985a) and SNL (1996).
	Porosity	Normal, $\mu = 0.3$, $\sigma = 0.02$	Based on information in DOE (1985a) and general literature.
	Residual water content	Normal, $\mu = 0.05$, $\sigma = 0.002$	General literature.
	van Genuchten α coefficient [1/ft]	Normal, $\mu = 0.1$, $\sigma = 0.015$	General literature.
	van Genuchten n factor	Normal, $\mu = 3.9$, $\sigma = 0.5$	General literature.
Fate & Transport	Longitudinal dispersivity [ft]	Uniform: min = 1.6, max = 3.3	Expert judgment and general literature.
	Distribution coefficient [cc/g] [1]	Uranium: Uniform, min = 0.05, max = 0.1; Molybdenum: Uniform, min = 0.05, max = 0.1;	DOE (1983) and general literature.
	Dry bulk density [g/cc] [1]	1.8	General literature.

[1] Common unit of expression

Table 7.3 - Saturated Zone Parameters

TYPE OF PARAMETER	NAME OF PARAMETER [UNITS]	VALUE OR DISTRIBUTION	JUSTIFICATION FOR DATA
Geometry	Thickness [ft]	Uniform, min = 5, max = 6	DOE (1985a).
Flow	Down gradient flow direction (counterclockwise from due east) [degrees]	Uniform, min = 310, max = 315	DOE (1985a) and expert judgment.
	Hydraulic gradient (horizontal)	Normal, $\mu = 0.0028$, $\sigma = 0.0003$	DOE (1985a) and expert judgment.
	Recharge rate [ft/y]	Normal, $\mu = 0.07$, $\sigma = 0.01$	Expert judgment and general literature.
	Mean saturated hydraulic conductivity [ft/d]	57	DOE (1985a), SNL (1996) and model trials.
	Hydraulic conductivity anisotropy (H/V)	100	Expert judgment and general literature.
	Porosity	Normal, $\mu = 0.3$, $\sigma = 0.02$	DOE (1985a) and general literature.
Fate & Transport	Longitudinal dispersivity [ft]	Uniform: min = 160, max = 230	Expert judgment and general literature.
	Dispersion anisotropy [long./trans]	Uniform: min = 10, max = 20	Expert judgment and general literature.
	Distribution coefficient [cc/g] [1]	Uranium: Uniform, min = 0.1, max = 0.2; Molybdenum: Uniform, min = 0.1, max = 0.3.	DOE (1983) and general literature.
	Dry bulk density [g/cc] [1]	1.8	General literature.
	Tortuosity	0.39	General literature.

[1] Common unit of expression

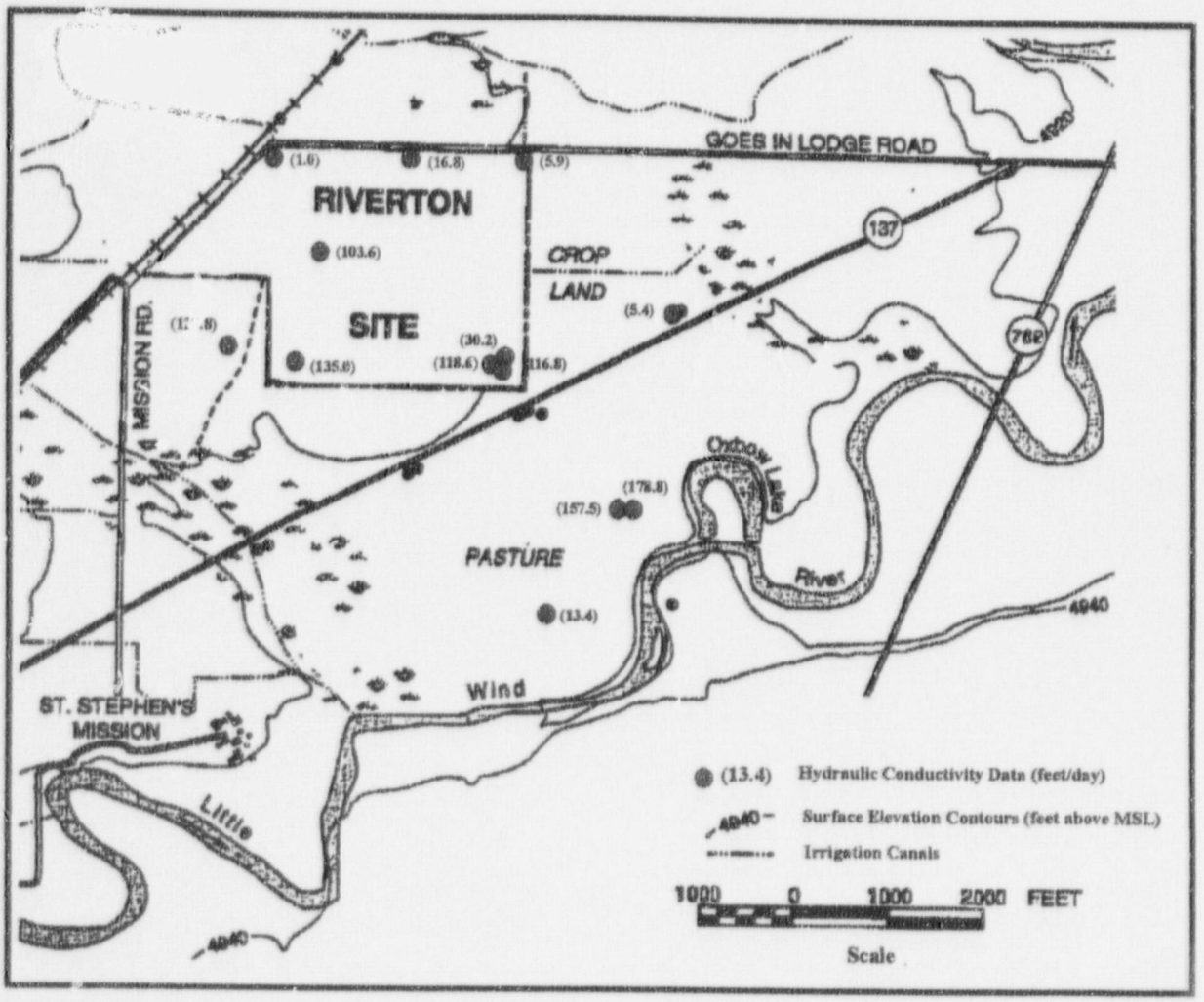

Figure 7.1 - Hydraulic Conductivity Data Used in Geostatistical Modeling of Spatial Variability, From DOE (1985a)

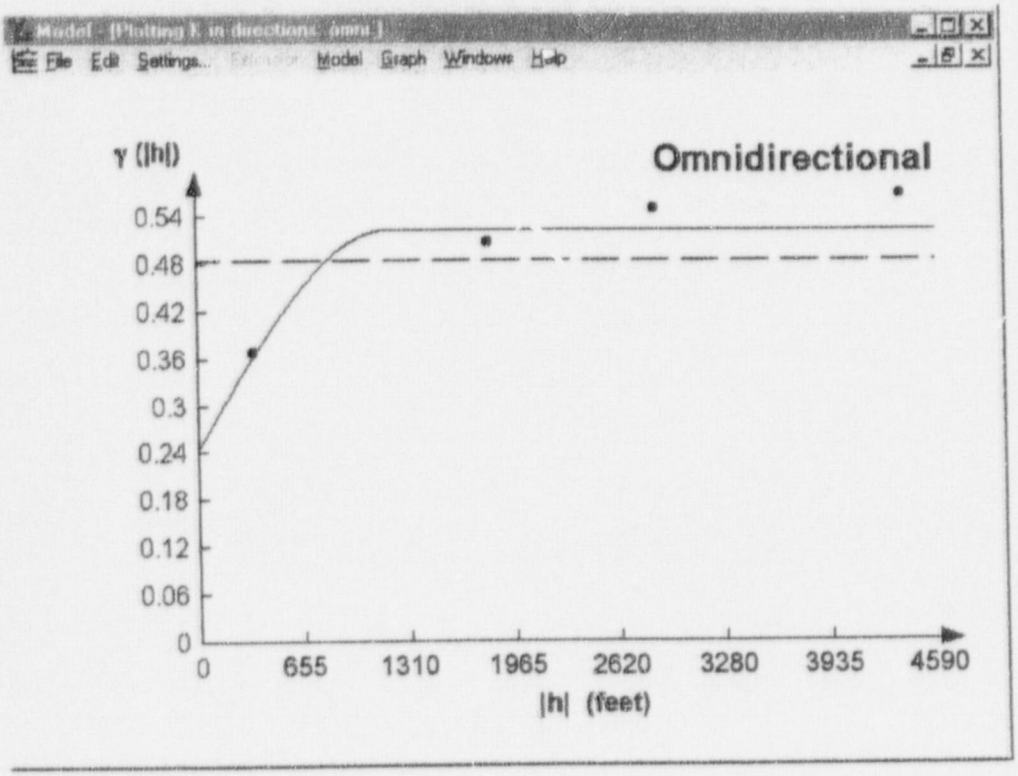

Figure 7.2 - Variography Results for Hydraulic Conductivity Data



Figure 7.3 - Sample Hydraulic Conductivity Distribution From Geostatistical Simulator

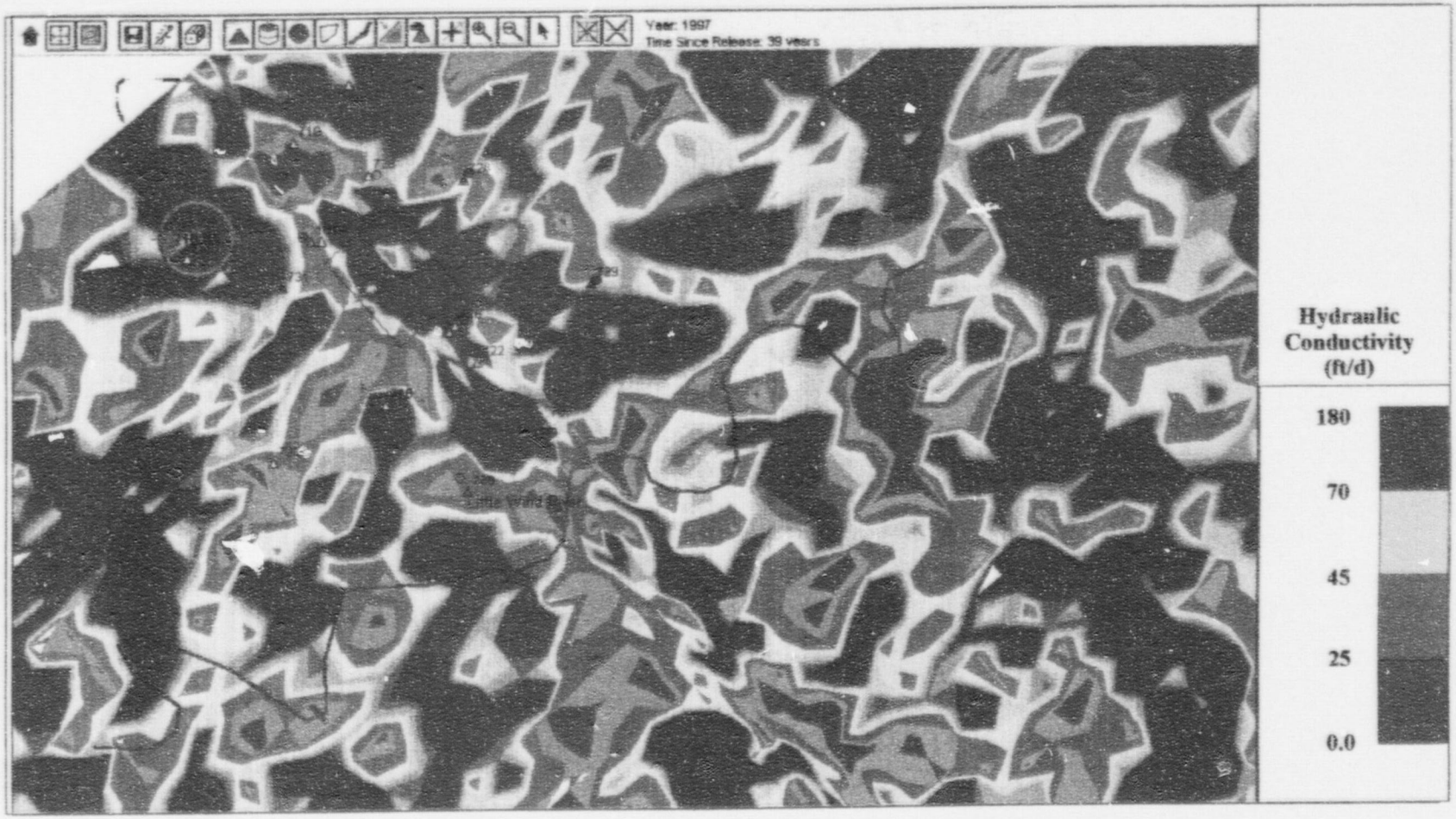

Figure 7.4 - Sample Hydraulic Conductivity Distribution From Geostatistical Simulator

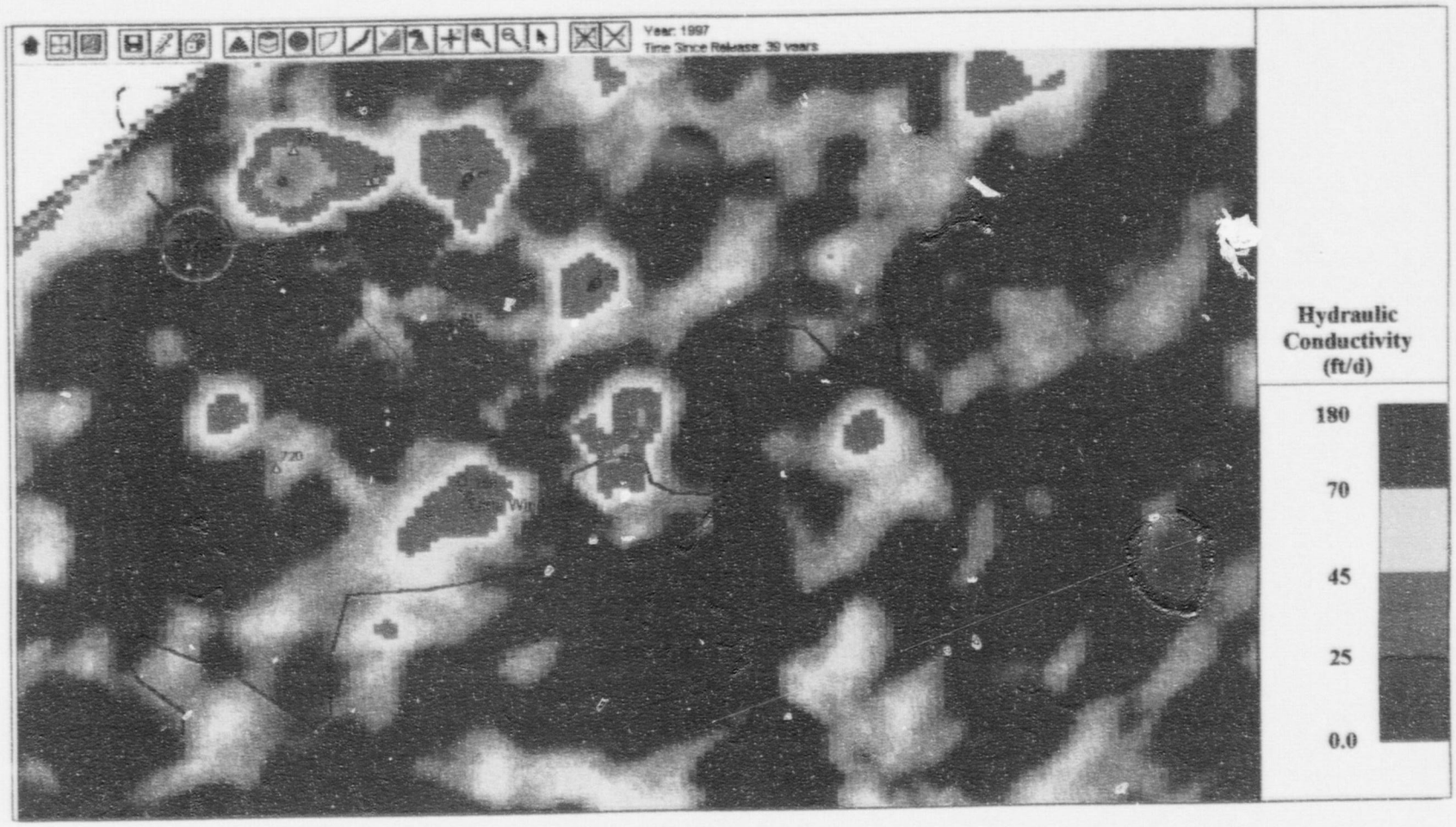

Figure 7.5 - Average Hydraulic Conductivity Distribution From Geostatistical Simulator for all Monte Carlo Runs

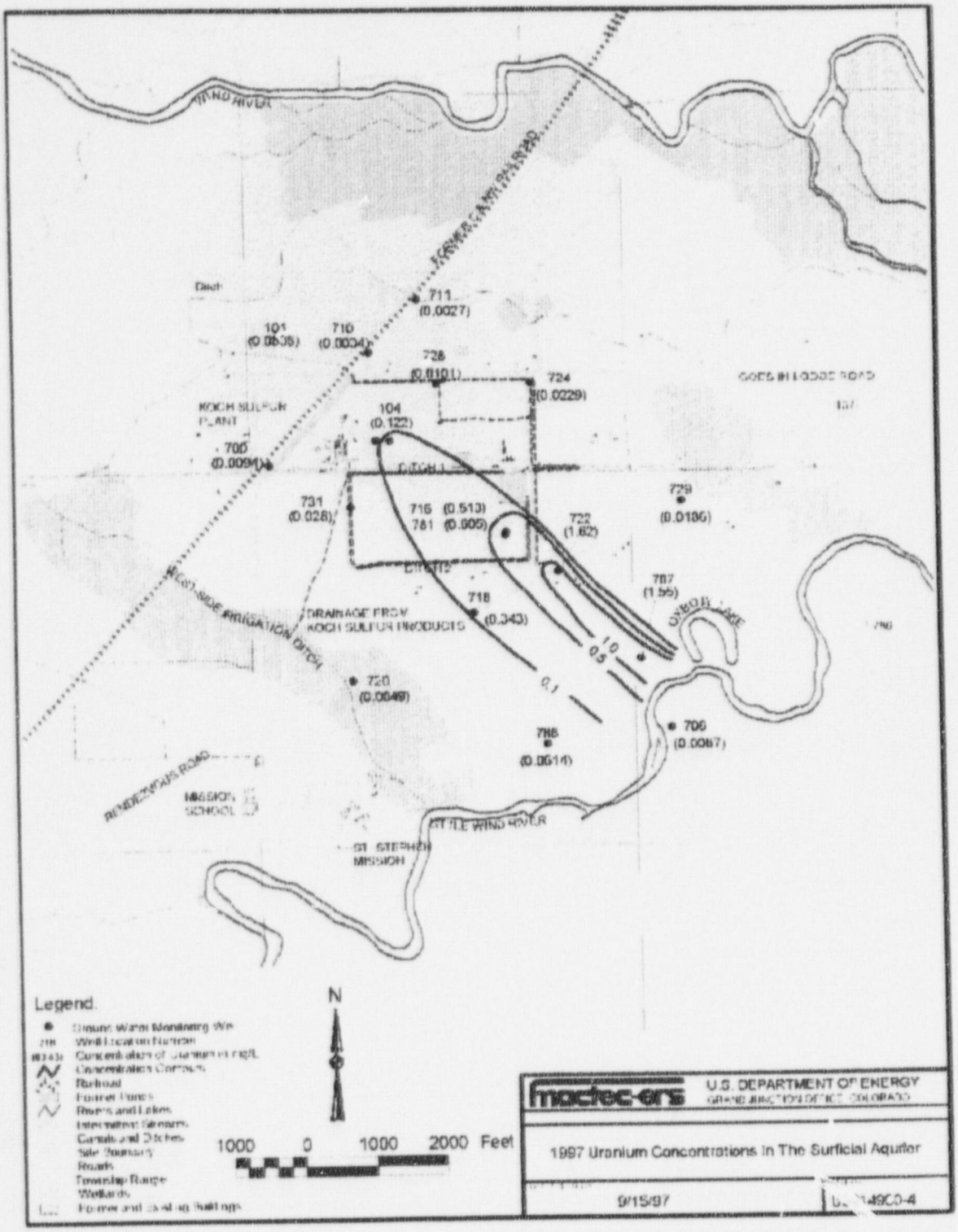

Figure 7.6 - Water Quality Data for Uranium From 1997 Sampling

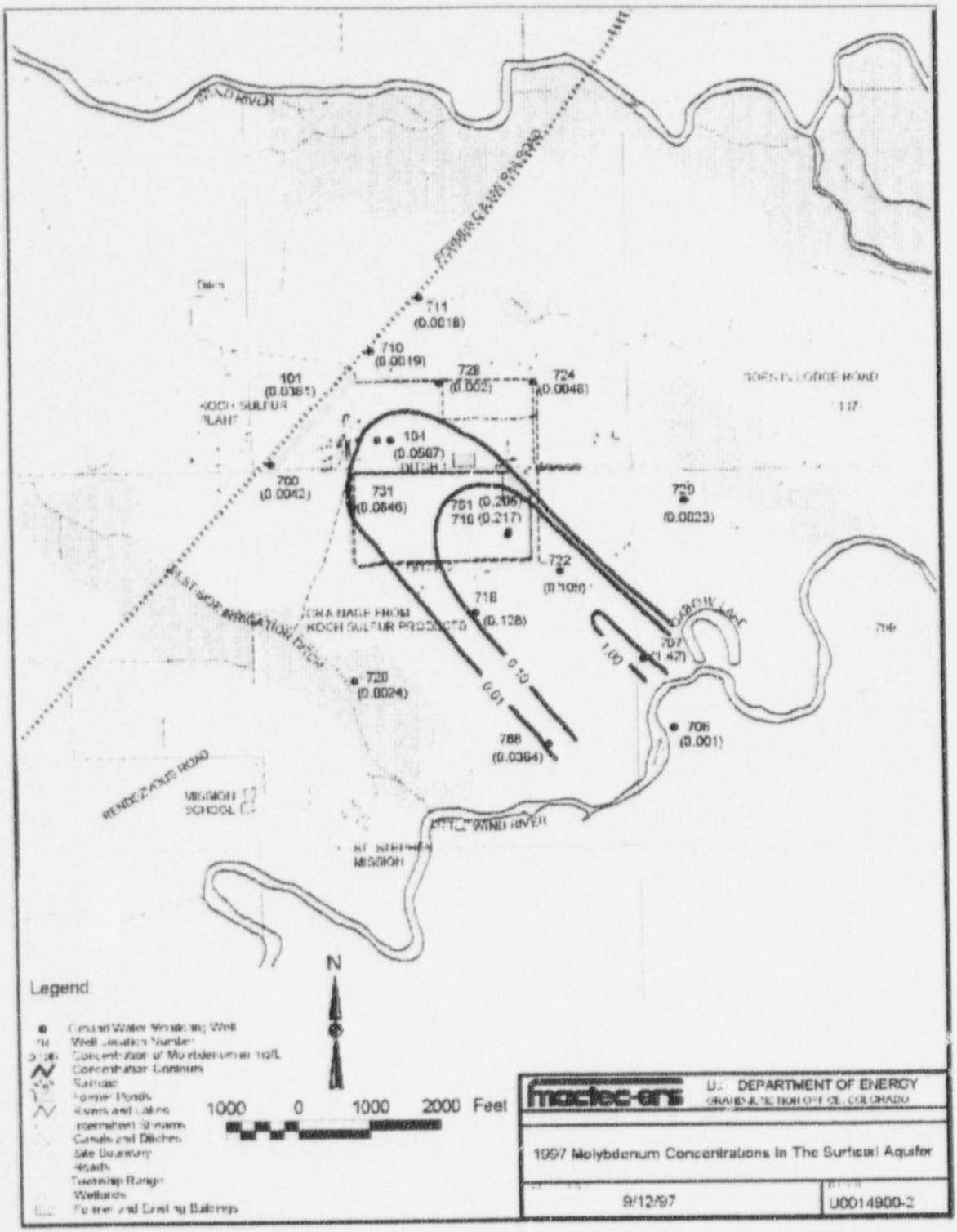

Figure 7.7 - Water Quality Data for Molybdenum From 1997 Sampling

8. Calibration

As mentioned above, the procedures used in GANDT to assume that model runs perform reasonably well in matching site conditions is quite different from traditional flow model calibration techniques based on matching observed hydraulic heads. Specifically, GANDT employs a post-conditioning algorithm that is based on the comparison of observed and simulated water quality data. The post-conditioning exercise is automated in the Monte Carlo simulation framework.

8.1 Qualitative/Quantitative Analysis

Post-conditioning results are somewhat a reflection of the appropriateness of available water quality data. Occasionally, when limited field data or inappropriate data (e.g., laboratory data that does not reflect field conditions) are used, few, if any, simulations meet the conditioning criteria. If the collected concentration data are representative of site contamination, one would expect a greater number of model runs to honor these data and pass the conditioning tests.

In a Monte Carlo analysis that incorporates LHS, it is theoretically possible to quantify uncertainties in the modeling results with as little runs as 4/3 times the number of uncertain variables. In practice a factor of 2 to 4 is recommended. There are 30 uncertain parameters in the analyses performed here for the Riverton site. Therefore, a minimum of 60 runs passing the conditioning test is desired. Using the flow, fate, and transport parameters listed in Tables 7.1, 7.2, and 7.3, and the RMSE criteria prescribed in Section 7.5, 68 runs out of 100 total met conditioning criteria in the uranium analyses, and 63 passed for the molybdenum analyses. The results of these analyses are presented in a subsequent section.

In an early review of this work, a concern was raised regarding the ability of the GANDT code to approximate the hydraulic head distribution generally observed at the Riverton site. To help

address this concern, GANDT was modified under this study to output hydraulic head information in ASCII format. The simulated heads form selected model runs were processed and compared with observed data, both numerically and graphically, to evaluate the appropriateness of the hydrologic information used in the simulations.

As a brief demonstration of the appropriateness of the model-produced hydraulic heads, results from several model runs are presented here. Each model run in the Monte Carlo suite was analyzed to compare simulated heads at representative monitoring wells with the observed hydraulic head elevations from the 1997 monitoring data. The comparison of simulated and measured heads for each run made use of a Root Mean Square Error (RMSE) analysis. Of all the Monte Carlo runs, the simulation with the best fit to observed data had an RMSE of 1.73 feet, whereas the simulation with the largest RMSE had a value of 2.95 feet. Figure 8.1 shows a contour plot of hydraulic heads developed from sampling data taken during 1997. These can be compared to the hydraulic head elevations from the simulation with the largest RMSE, shown in Figure 8.2. Figure 8.3 shows the head distribution for the model run with the smallest RMSE.

Other comparisons also help to assess the ability of the Monte Carlo simulations to represent groundwater flow conditions. The monitoring data depicted in Figure 8.1 are indicative of a groundwater flow system with a hydraulic gradient of about 0.0024. Heads from a Monte Carlo model run that exhibited a hydraulic gradient approximating 0.0024 are shown in Figure 8.4 for comparison. This model run had an RMSE of 2.25 feet. Finally, the head elevations from all model runs in the Monte Carlo suite were averaged and plotted in Figure 8.5. When compared with measured water levels, the average head distribution had an RMSE of 2.13 feet. It is concluded from all of these comparisons that the Monte Carlo simulations do reasonably well in replicating existing flow conditions, and that traditional flow calibration methods applied to this flow system would not necessarily provide better matches with existing data.

The computed rate of groundwater discharge to the Little Wind River in the Monte Carlo simulations that met conditioning criteria varied depending on saturated zone parameters such as spatially varying hydraulic conductivity, hydraulic gradient, and aquifer thickness. Though no detailed analyses of these discharges were carried out, cursory examination of several of the simulations' mass balance results indicated that the groundwater discharge rate to the river generally ranged between 1200 and 1700 ft^3/yr per foot of stream length.

8.2 Sensitivity Analysis

A formal sensitivity analysis with the Riverton simulations was not performed. The GANDT analysis resulted in a quantitative expression of the flow and transport uncertainty, which is a higher order step than intended by a conventional sensitivity analysis in terms of addressing variability or reliability in the results.

8.3 Model Application Verification

No additional time steps were evaluated against observed data for a verification analysis. The built-in conditioning/calibration step is considered adequate in defending the representativeness of the simulations.

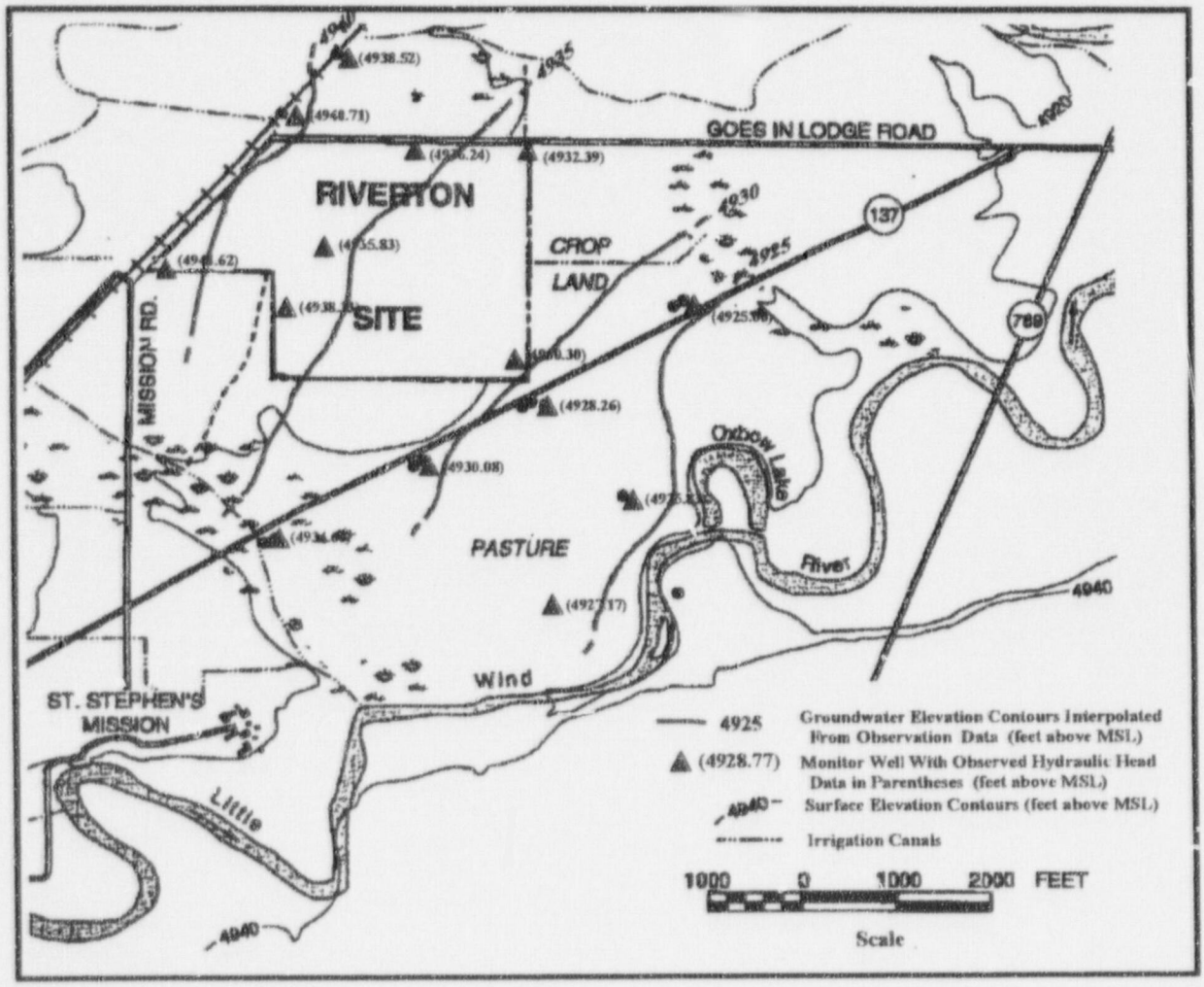

Figure 8.1 - Groundwater Elevations From 1997 Observed Hydraulic Head Data

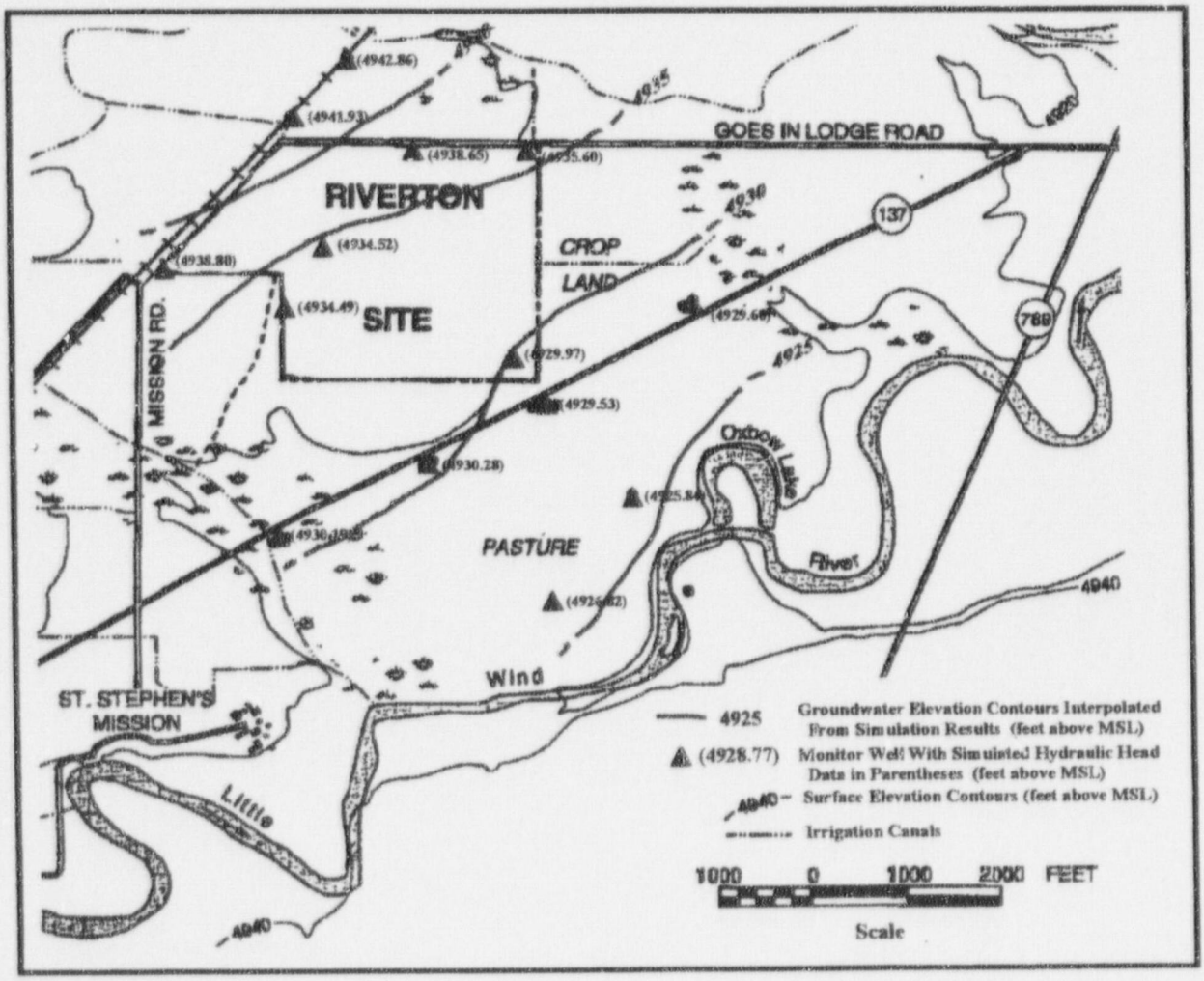

Figure 8.2 - Groundwater Elevations From Simulation Run With Largest RMSE Compared to Observed Head Data (2.95 feet)

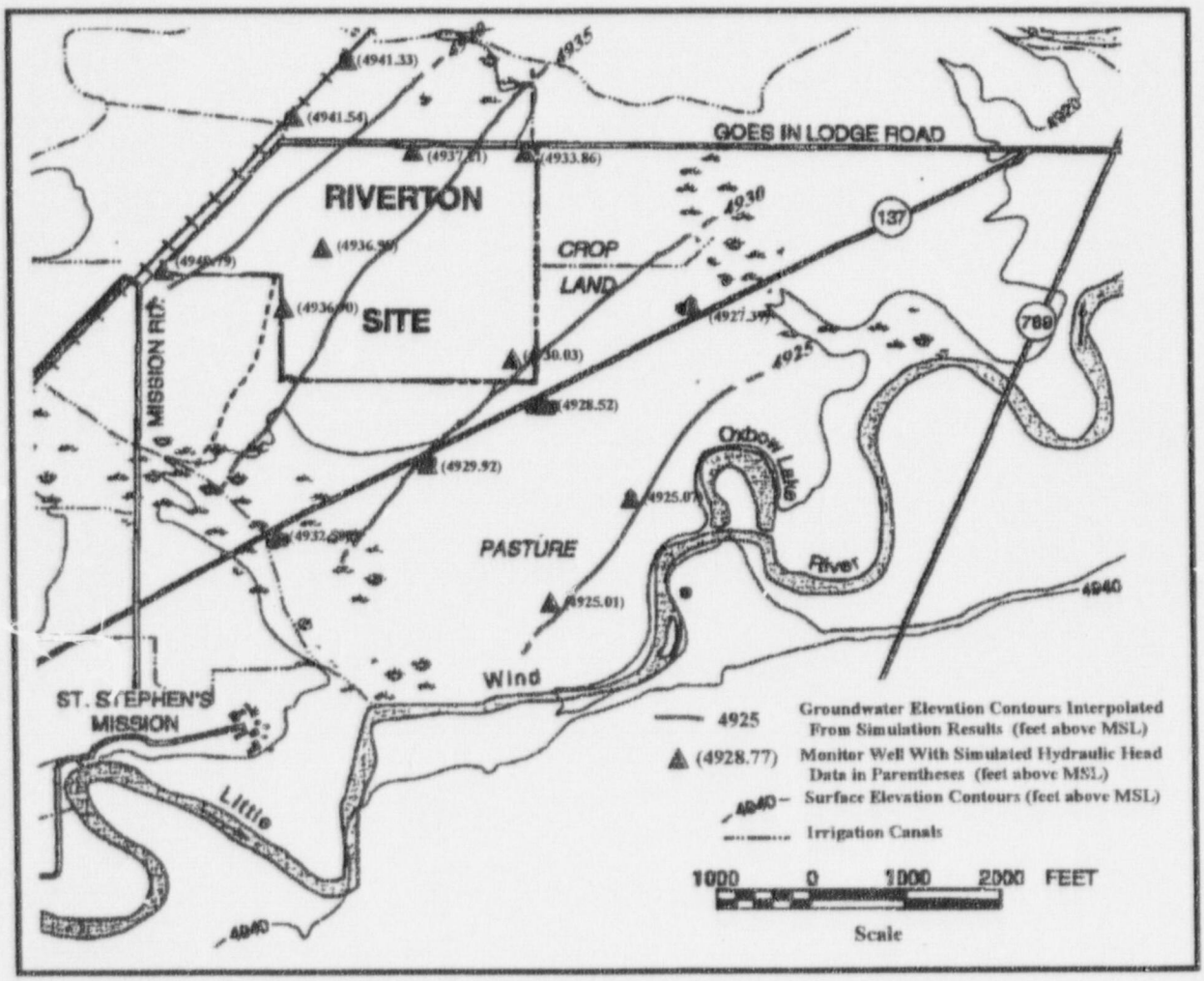

Figure 8.3 - Groundwater Elevations From Simulation Run With Smallest RMSE Compared to Observed Head Data (1.73 feet)

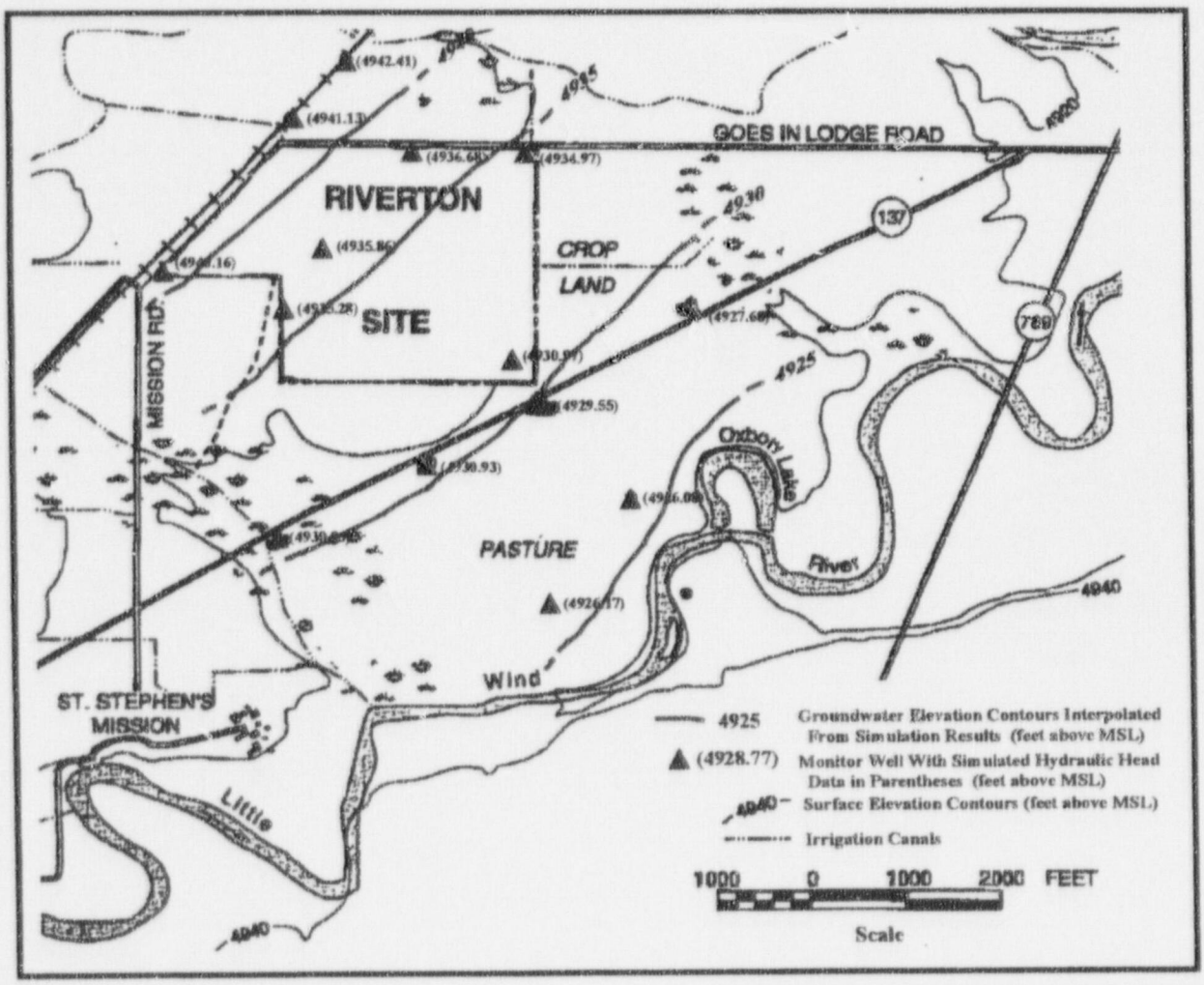

Figure 8.4 - Groundwater Elevations From Simulation Run With Gradient That Matches Observed Hydraulic Head Gradient (0.0024)

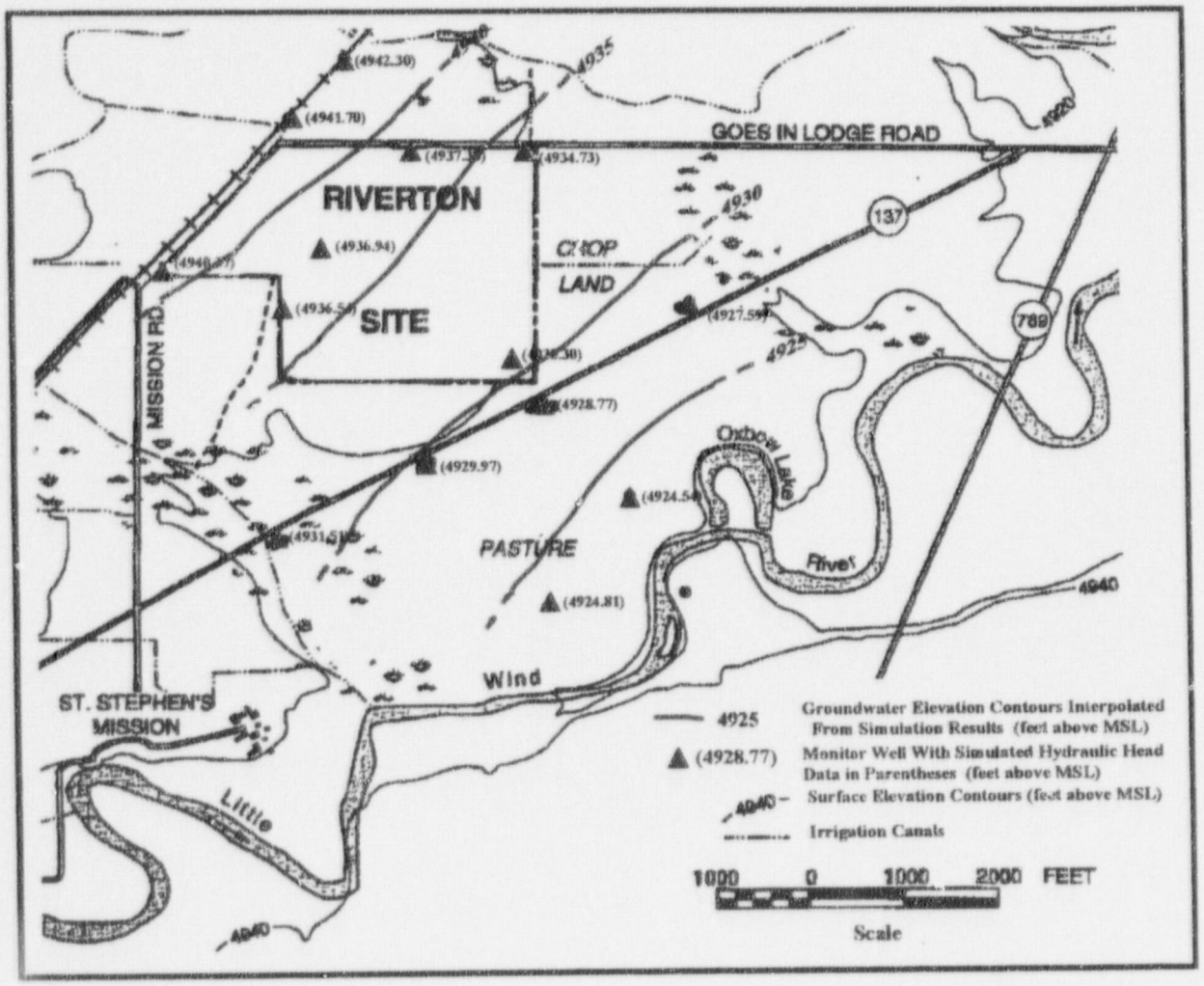

Figure 8.5 - Groundwater Elevations From Average Head Data Computed From All Monte Carlo Simulations

9. Predictive Simulations

Results of the predictive modeling simulations are quite encouraging with regard to the potential for natural attenuation as the preferred groundwater remedial alternative at the Riverton site. The modeling effort in this study yields a tremendous amount of information, both in the form of graphical and quantitative results. Most of the predictive modeling results are graphically presented for the purpose of showing the likelihood of natural attenuation. As part of this exercise, two types of plots have been selected for inclusion in the report.

The first type of plot contains the mean, or average, concentration distribution from all Monte Carlo runs that have met the conditioning criteria. The transient nature of the plume is visualized by displaying 4 separate time steps for the contaminants of concern: uranium and molybdenum.

The second type of graphic comprises a plot of the spatial distribution of the probability that concentrations are less than a specified threshold, preferably the contaminant's MCL. Such results are very useful in evaluating the likelihood of success of the proposed alternative. A plot indicating a very high probability that the concentrations are less than the MCL within a 100-year time frame is interpreted as a high likelihood of success for natural attenuation.

MCLs a. used as the concentration thresholds in the uranium and molybdenum simulations. The MCLs for uranium and molybdenum are 0.044 parts per million (ppm) and 0.1 ppm, respectively.

Figures 9.1 through 9.4 show the mean contaminant plume distributions for uranium through time. Figure 9.1 represents the plume distribution in 1997, the time at which the post-conditioning analysis was performed. Figure 9.2 represents the plume distribution 25 years past 1997 (2022); Figure 9.3 represents 50 years past 1997 (2047); and Figure 9.4 represents 75 years past 1997 (2072). The modeling results at 100 years past 1997 (2097) showed that the uranium is completely flushed from the system by this time.

Figures 9.5 through 9.8 show the results of the spatial distribution of the probability that concentrations are less than the MCL for uranium of 0.044 ppm, during the years 1997, 2022, 2047, and 2072.

The average molybdenum concentration distribution results are shown in Figures 9.9 through 9.12, with the same sequential time frames as those shown in the uranium results. Figures 9.13 through 9.16 display the distribution of the probability that concentrations are less than the molybdenum MCL of 0.1 ppm. The molybdenum is completely flushed from the aquifer by the 100-year mark (2097).

The results of this analysis suggest that there is a high likelihood of success for natural attenuation processes to be effective as a preferred remedial alternative for Riverton groundwater. The uranium predictive simulations show a zero probability of exceeding the MCL (0.044 ppm) for this contaminant after 100 years of natural attenuation beyond recent conditions. The molybdenum is also completely flushed from the aquifer system within 100 years. A verification monitoring program is essential to determining the probability of success as suggested by the simulations in this study. This is particularly true given that the model runs presented here serve primarily as an aid in decision making.

The GANDT code has the capability of supplying the user with predicted water quality concentrations at each monitor well for each run in a Monte Carlo suite. Accordingly, a distribution of concentrations can be obtained for each well from the probabilistic analyses. Such a distribution serves as a good indicator for concentrations that would be expected during a verification monitoring program. Of greatest importance in evaluating the potential for natural attenuation is the statistical bounds of the predicted concentrations at the verification monitor wells. A plot of average concentrations at each output time, together with the minimum and maximum predicted concentrations, can serve as a guide to the verification monitoring activities. If future monitoring of these wells produces water quality concentrations within these predicted ranges, it is likely the site would be on schedule for flushing within a 100-year time frame. If,

however, the observed concentrations from future monitoring activities are above these predicted ranges, the site may need to undergo additional analyses to evaluate whether it is a viable candidate for natural attenuation.

Key verification monitoring wells located within the area of the contaminant plume include wells 707, 716, 718, and 722. Figures 9.17 through 9.20 show the predicted uranium concentration versus time behavior at each of these wells. The data points represent average concentrations predicted by the simulations, and the error bars delineate the minimum and maximum predicted concentrations. The min-max bounds in each plot provide an estimate of the acceptable range of verification monitoring results that would suggest natural attenuation will lead to site cleanup within 100 years. Also included in these plots is a horizontal line showing the MCL for uranium. Figures 9.21 through 9.24 show comparable transient molybdenum concentrations for each of the key verification monitoring wells.

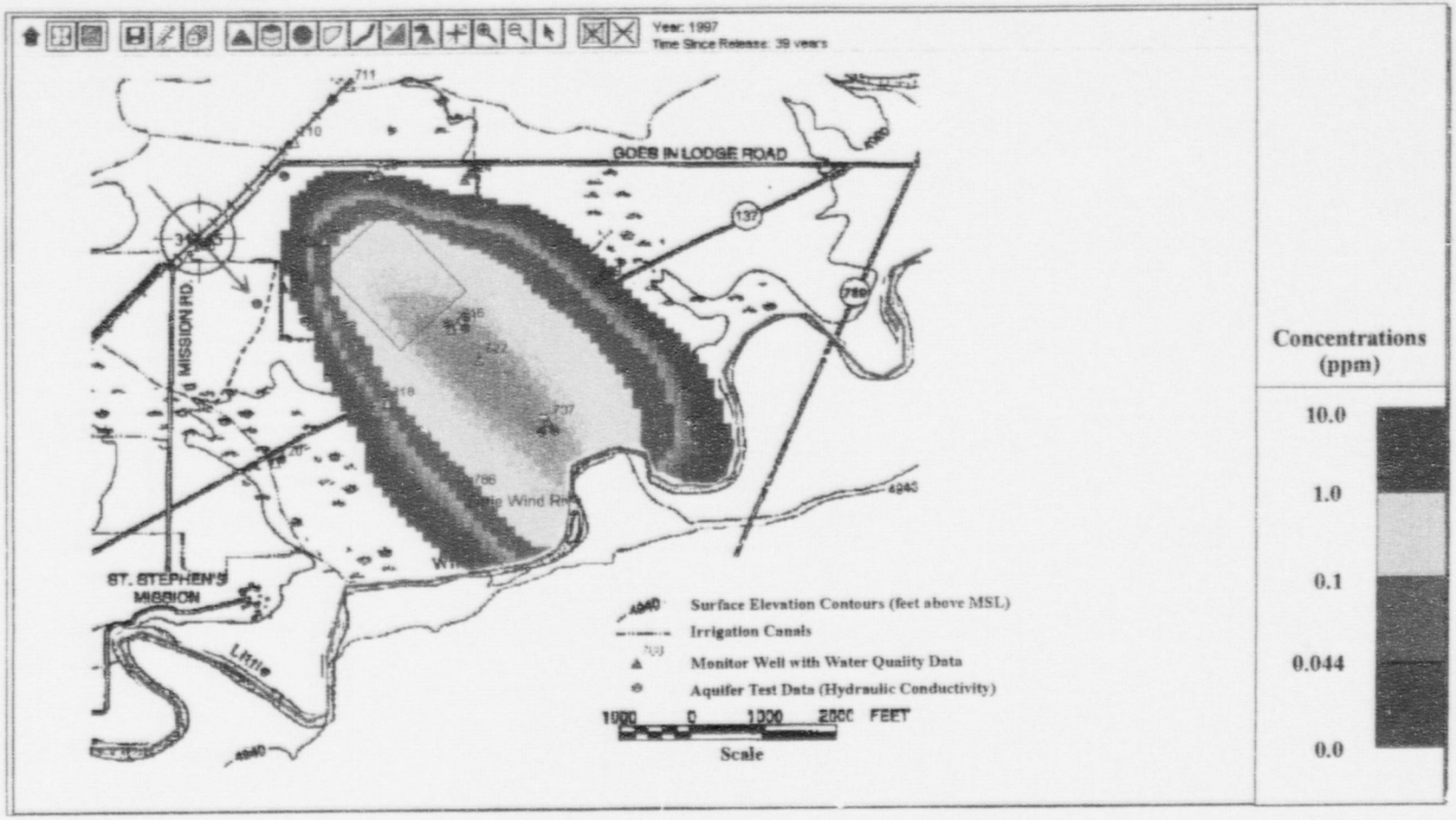

Figure 9.1 - Mean Concentration Distribution of Uranium From Uncertainty Analysis, at Conditioning Time - 1997

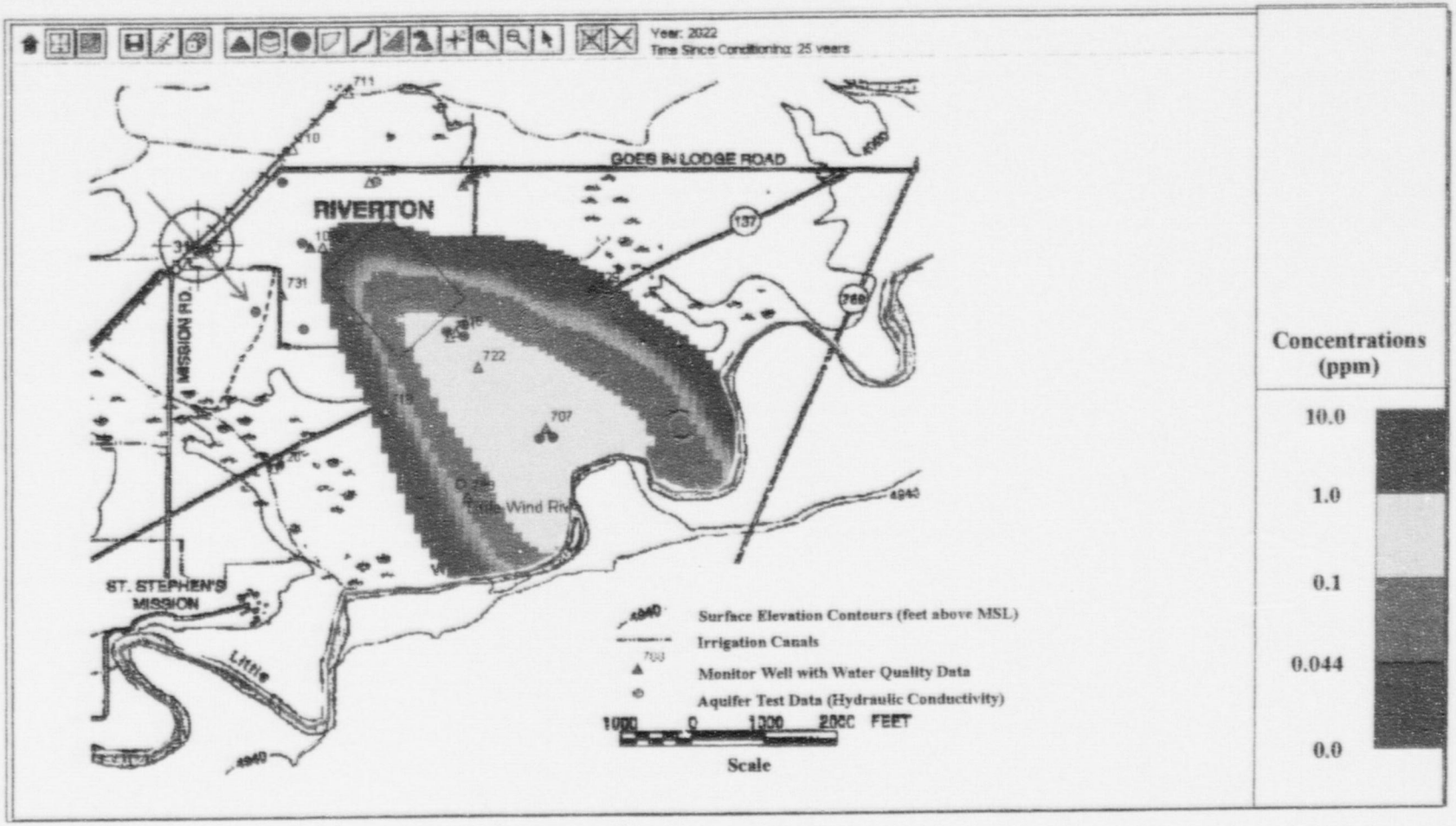

Figure 9.2 - Mean Concentration Distribution of Uranium From Uncertainty Analysis, 25 Years After Conditioning Time -2022

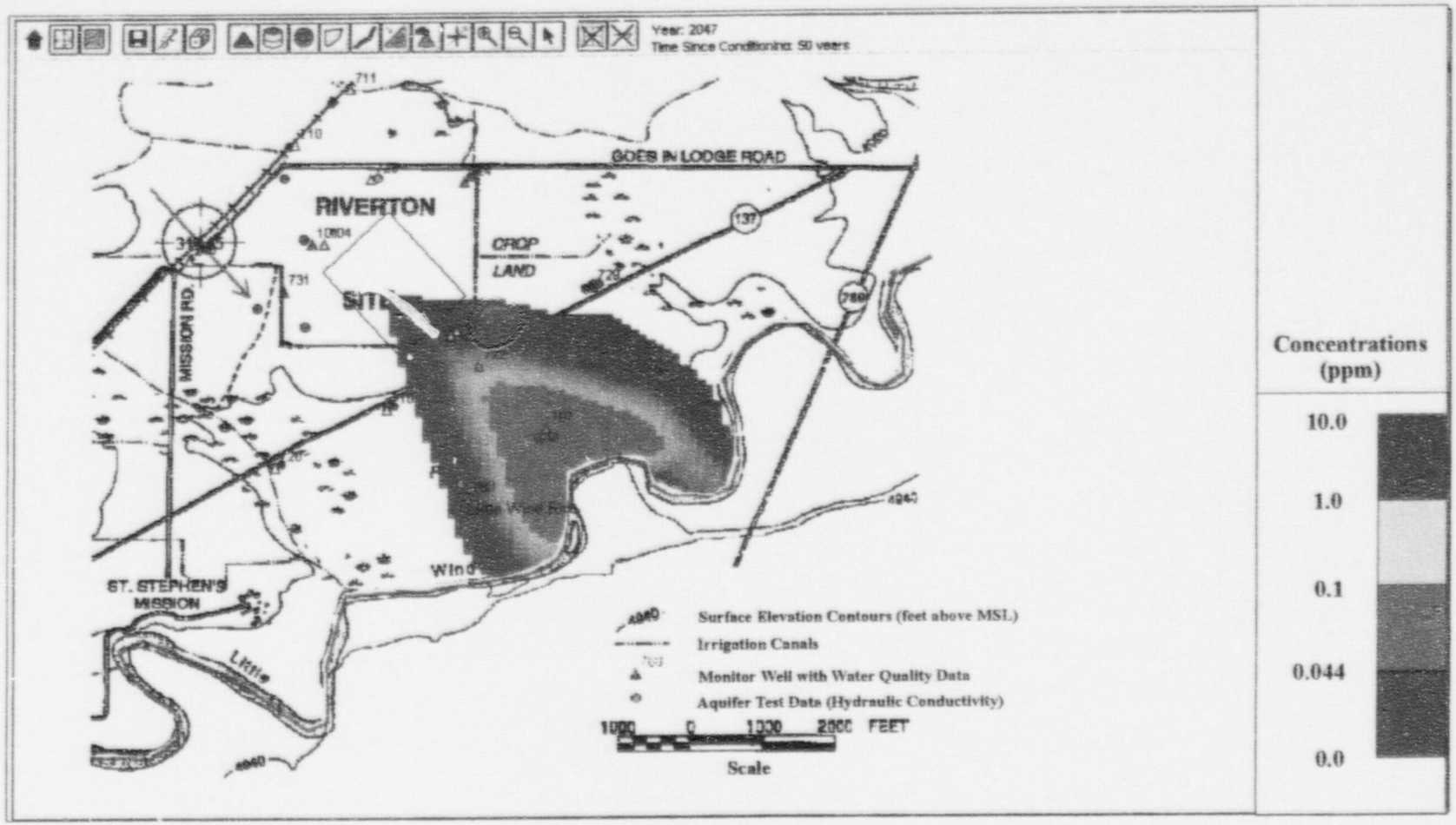

Figure 9.3 - Mean Concentration Distribution of Uranium From Uncertainty Analysis, 50 Years After Conditioning Time - 2047

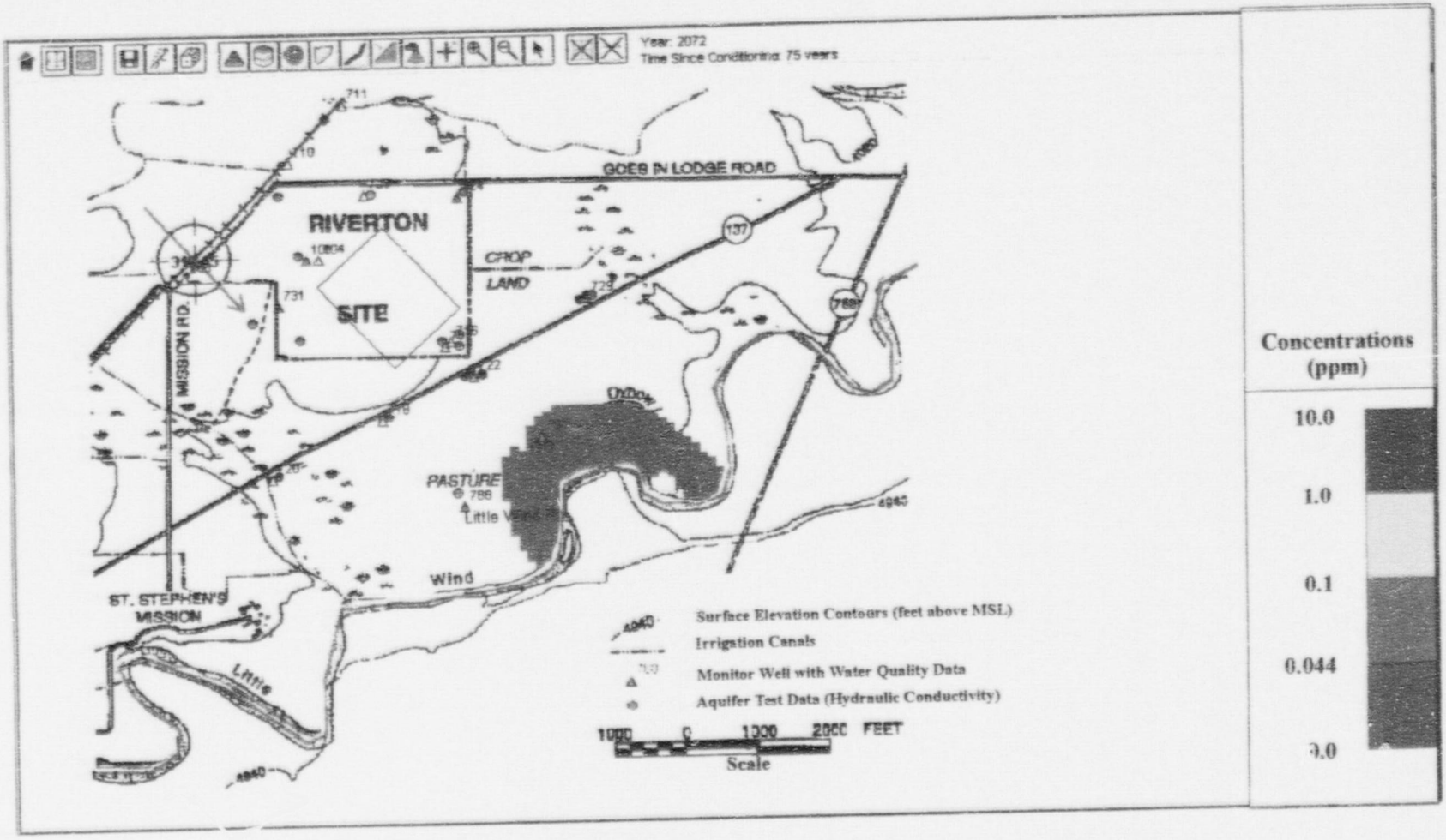

Figure 9.1 - Mean Concentration Distribution of Uranium From Uncertainty Analysis, 75 Years After Conditioning Time - 2072

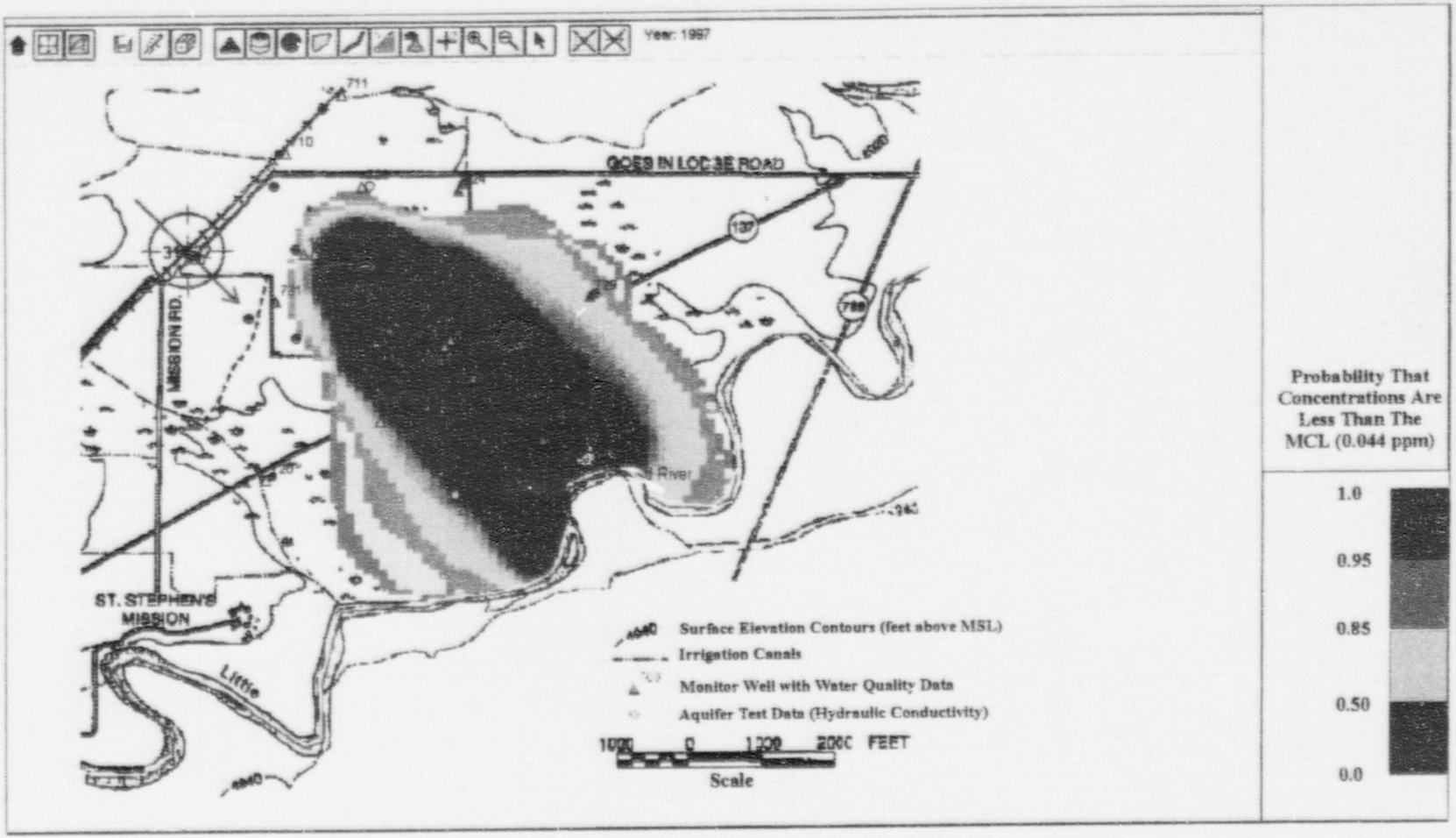

Figure 9.5 - Probability That Concentrations Are Less Than The Uranium MCL From Uncertainty Analysis, at Conditioning Time - 1997

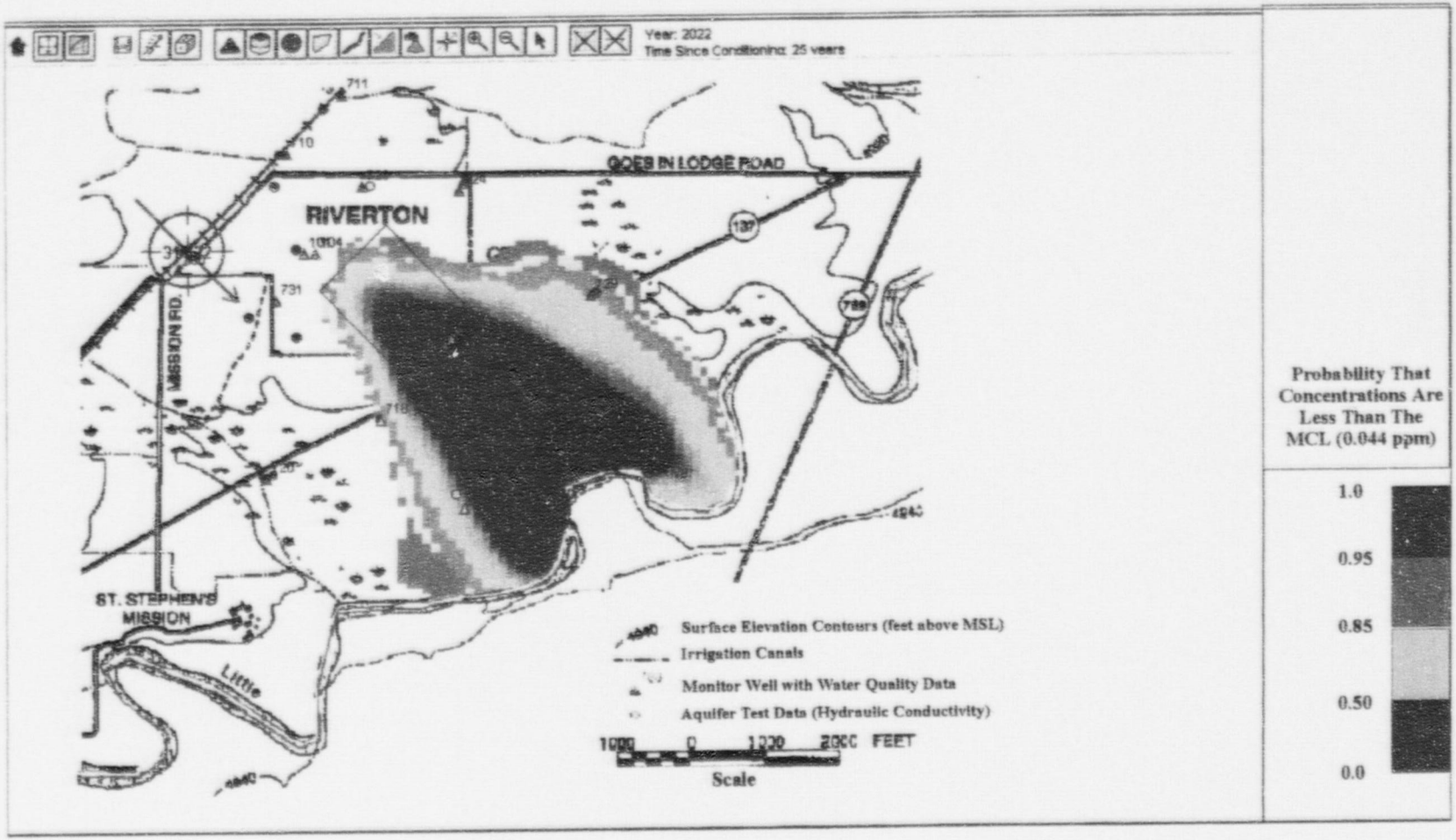

Figure 9.6 - Probability That Concentrations Are Less Than The Uranium MCL From Uncertainty Analysis, 25 Years After Conditioning Time - 2022

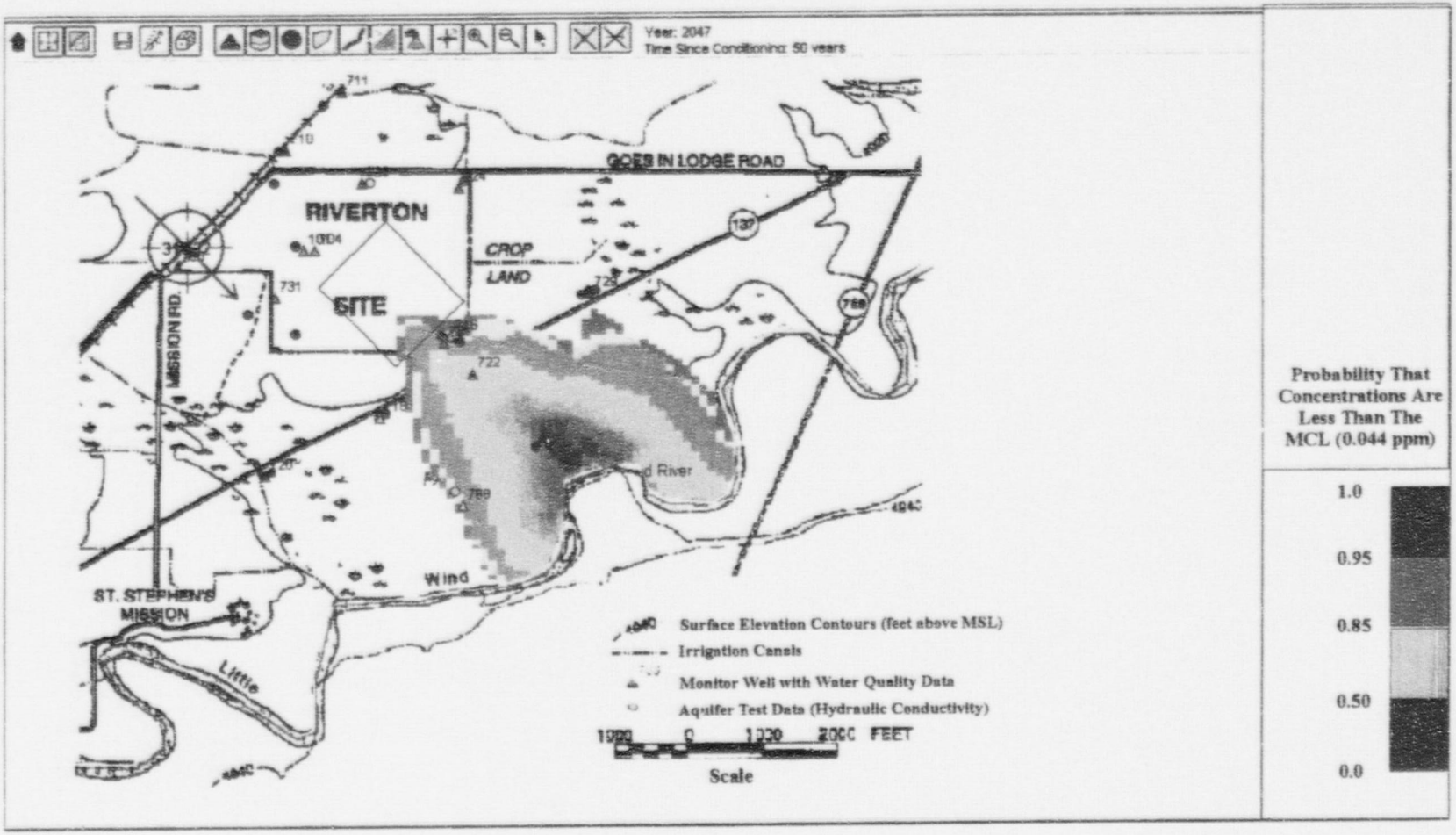

Figure 9.7 - Probability That Concentrations Are Less Than The Uranium MCL From Uncertainty Analysis, 50 Years After Conditioning Time -2047

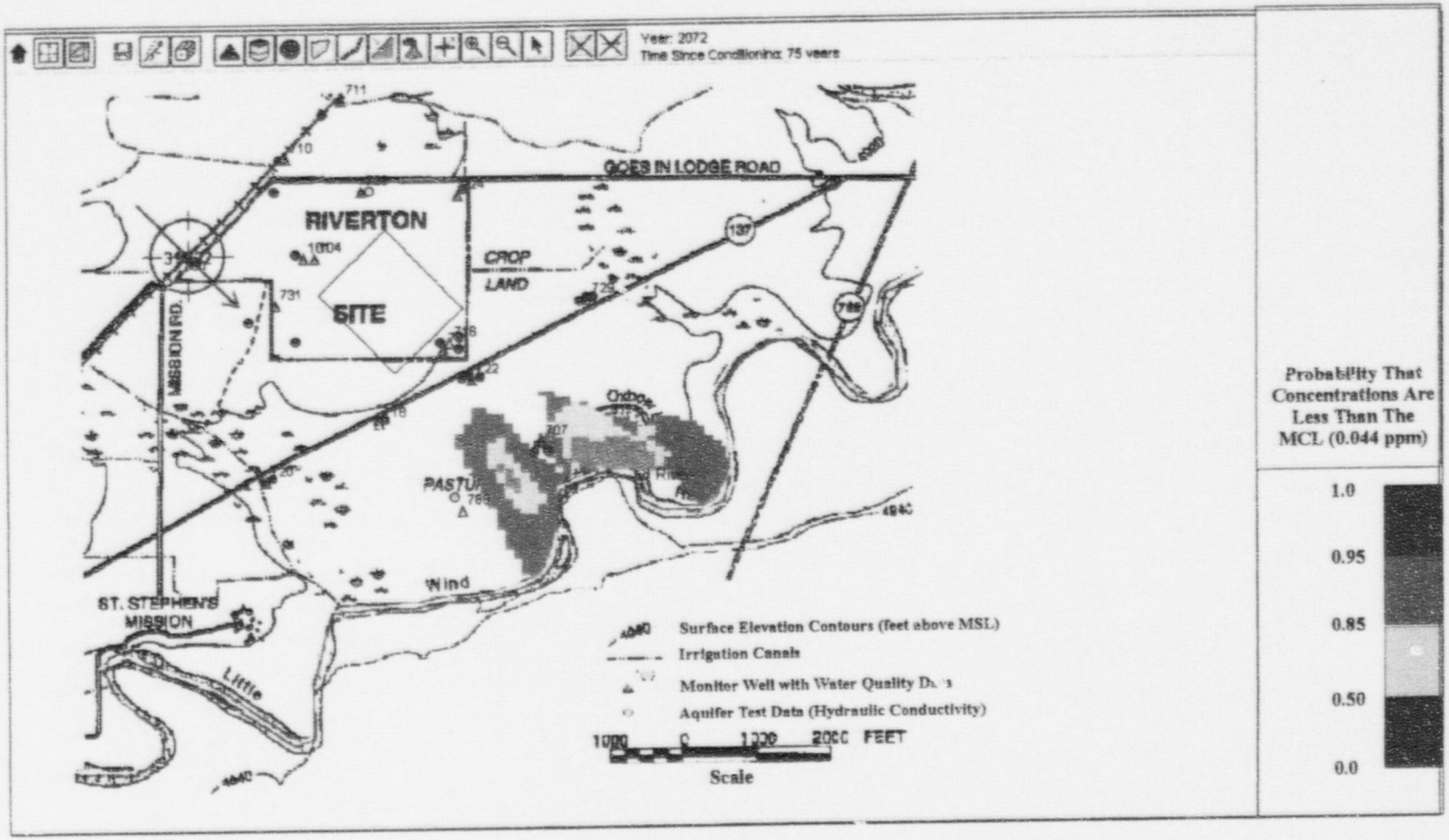

Figure 9.8 - Probability That Concentrations Are Less Than The Uranium MCL From Uncertainty Analysis, 75 Years After Conditioning Time -2072

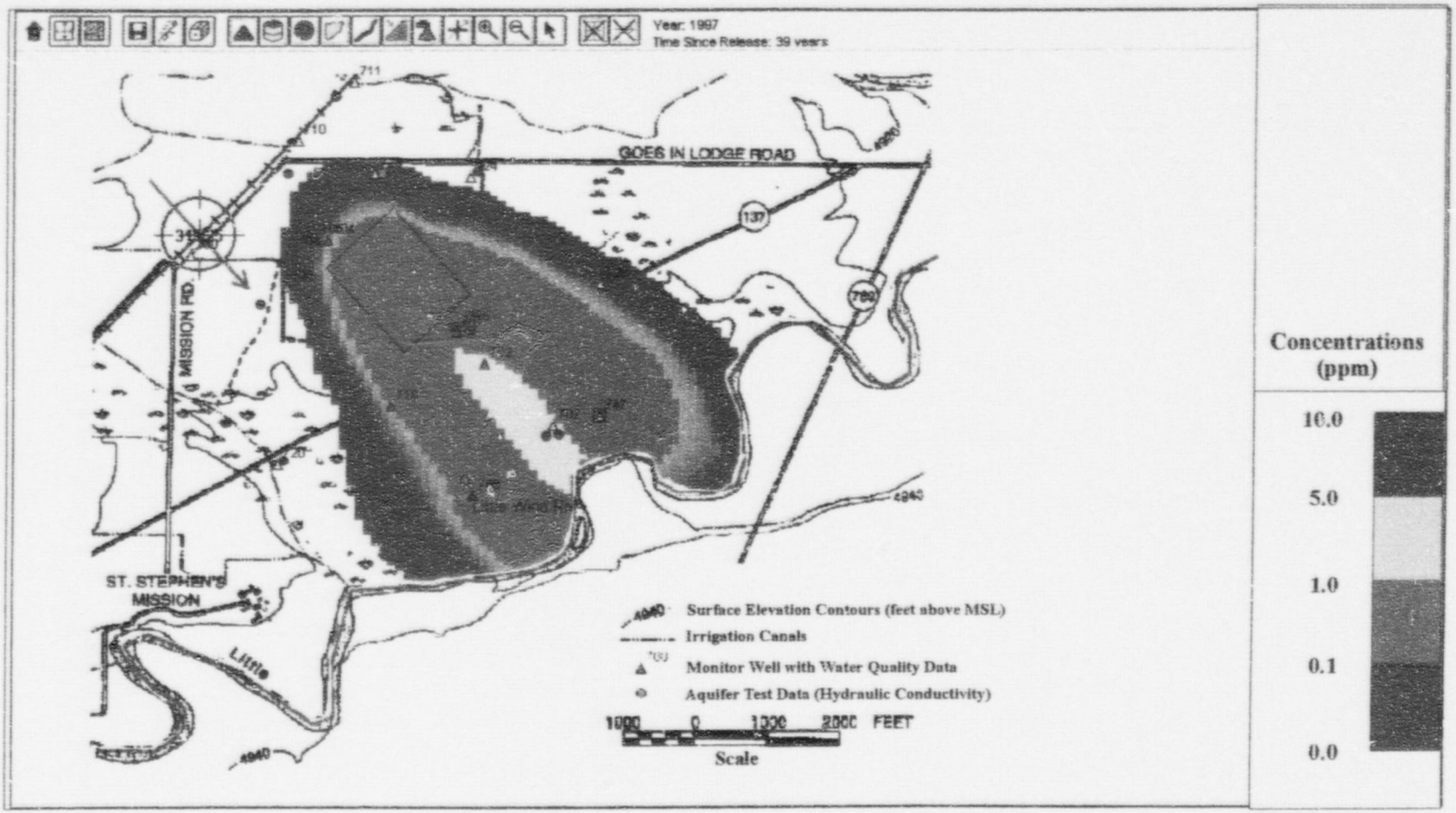

Figure 9.9 - Mean Concentration Distribution of Molybdenum From Uncertainty Analysis, at Conditioning Time - 1997

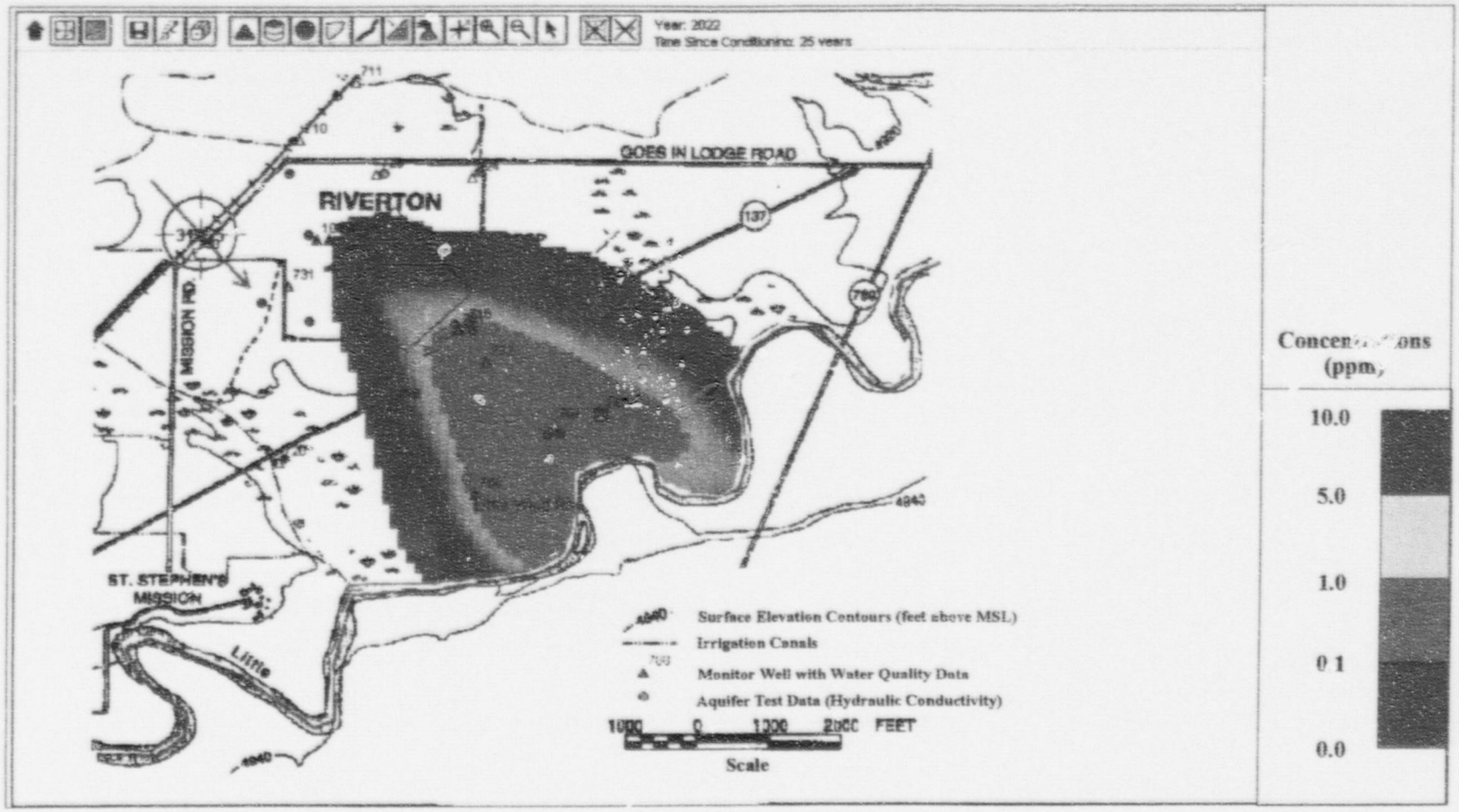

Figure 9.10 - Mean Concentration Distribution of Molybdenum From Uncertainty Analysis, 25 Years After Conditioning Time - 2022

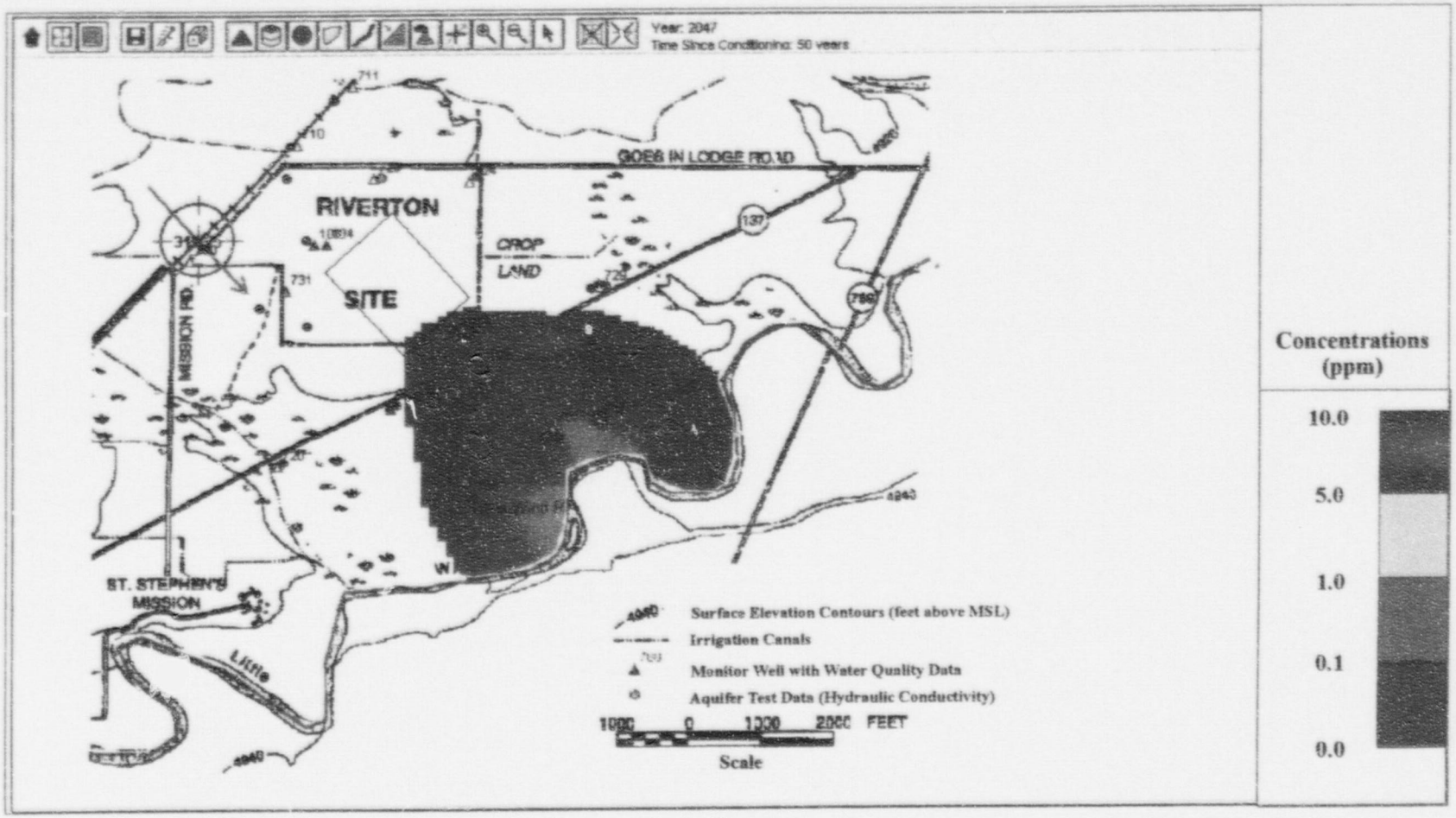

Figure 9.11 - Mean Concentration Distribution of Molybdenum From Uncertainty Analysis, 50 Years After Conditioning Time - 2047

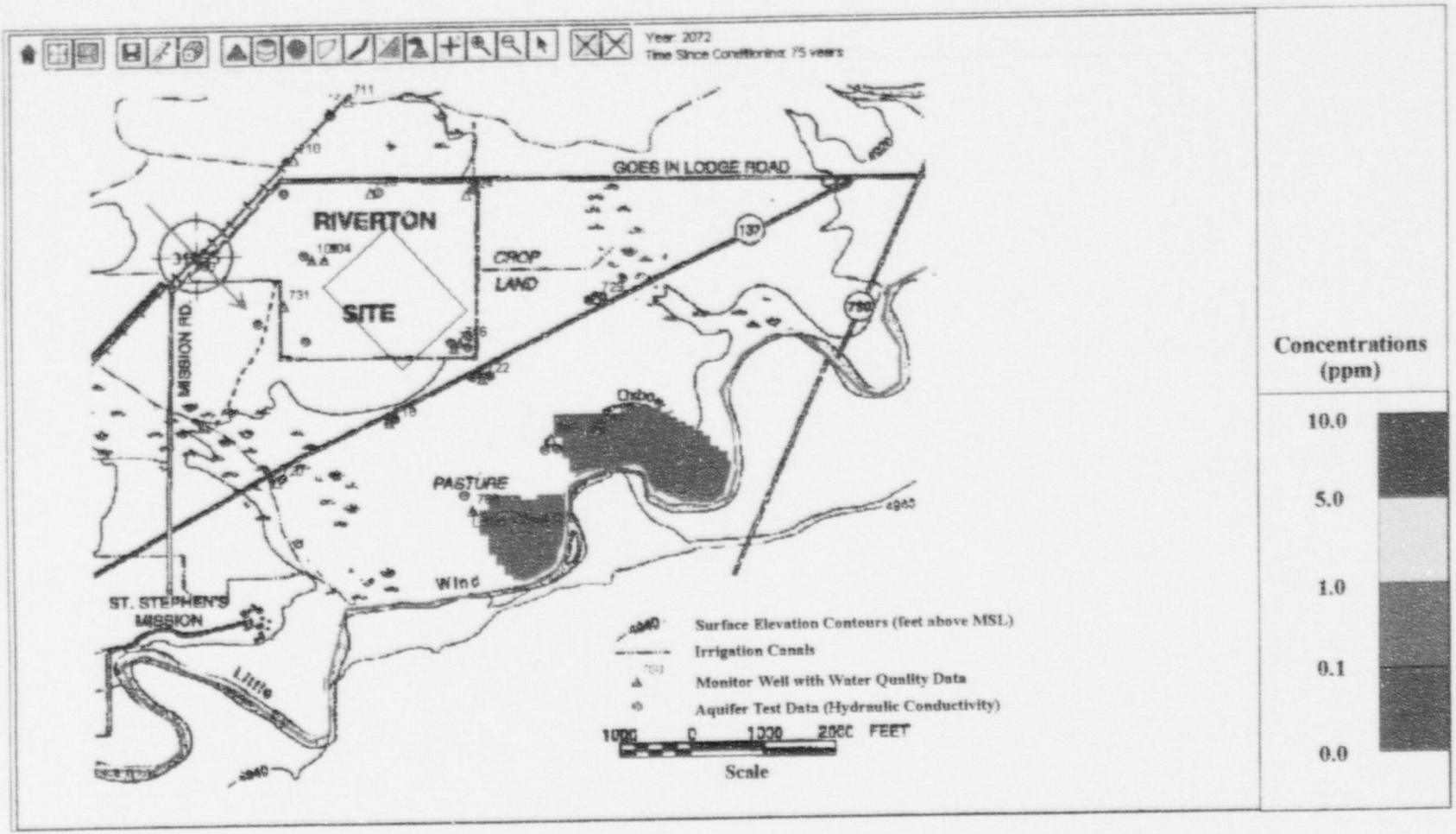

Figure 9.12 - Mean Concentration Distribution of Molybdenum From Uncertainty Analysis, 75 Years After Conditioning Time - 2072

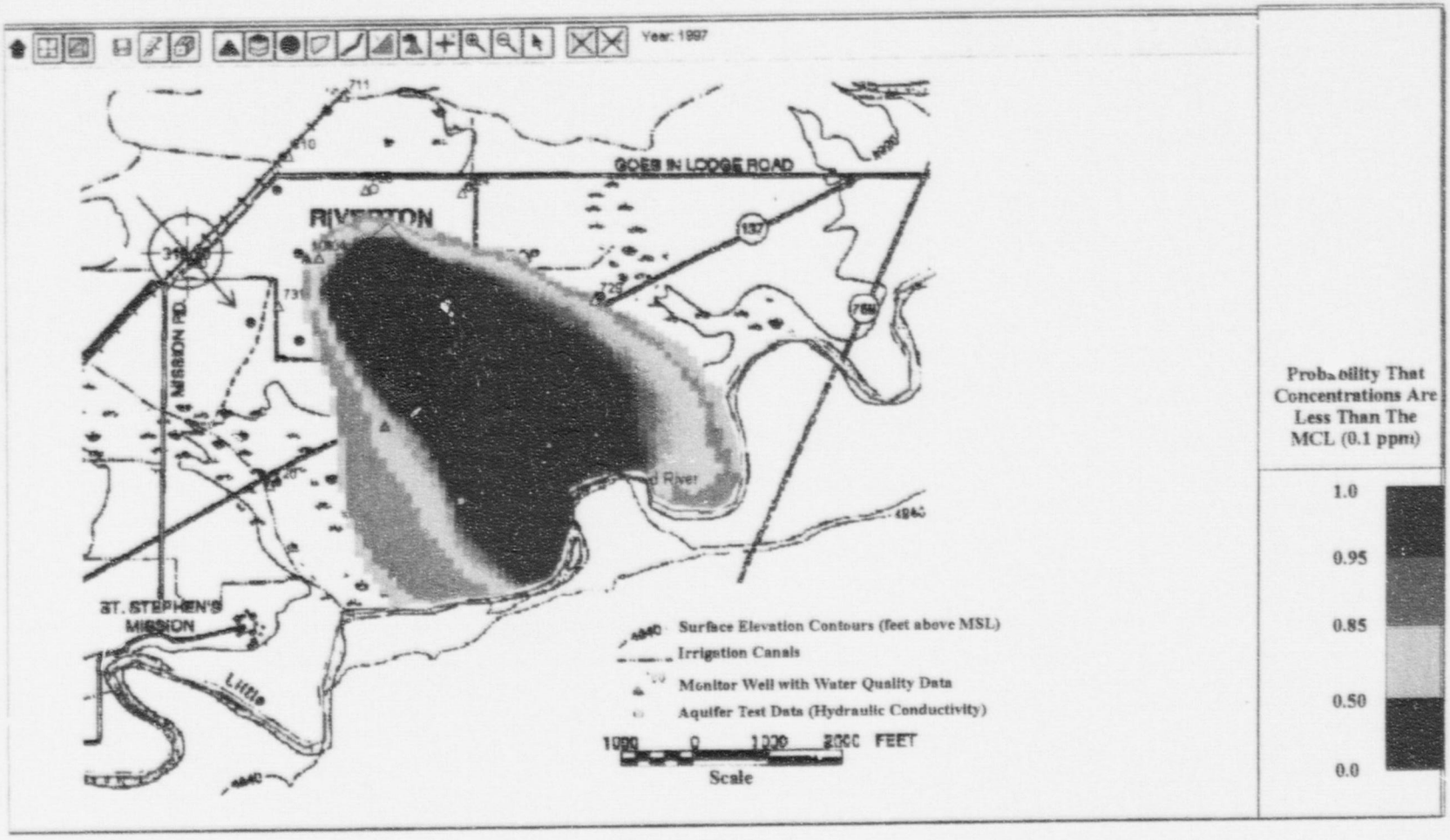

Figure 9.13 - Probability That Concentrations Are Less Than The Molybdenum MCL From Uncertainty Analysis, at Conditioning Time - 1997

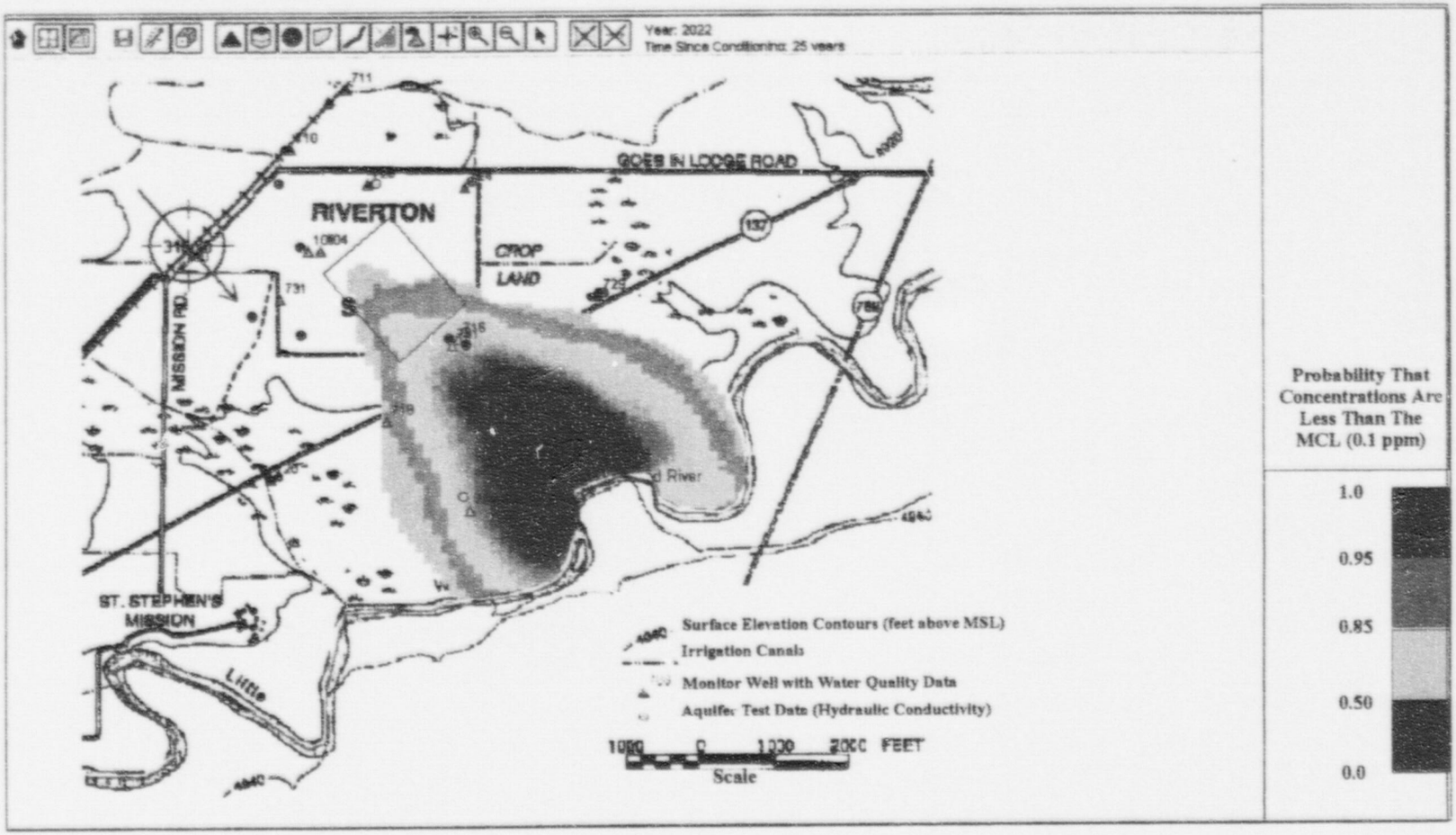

Figure 9.14 - Probability That Concentrations Are Less Than The Molybdenum MCL From Uncertainty Analysis, 25 Years After Conditioning Time - 2022

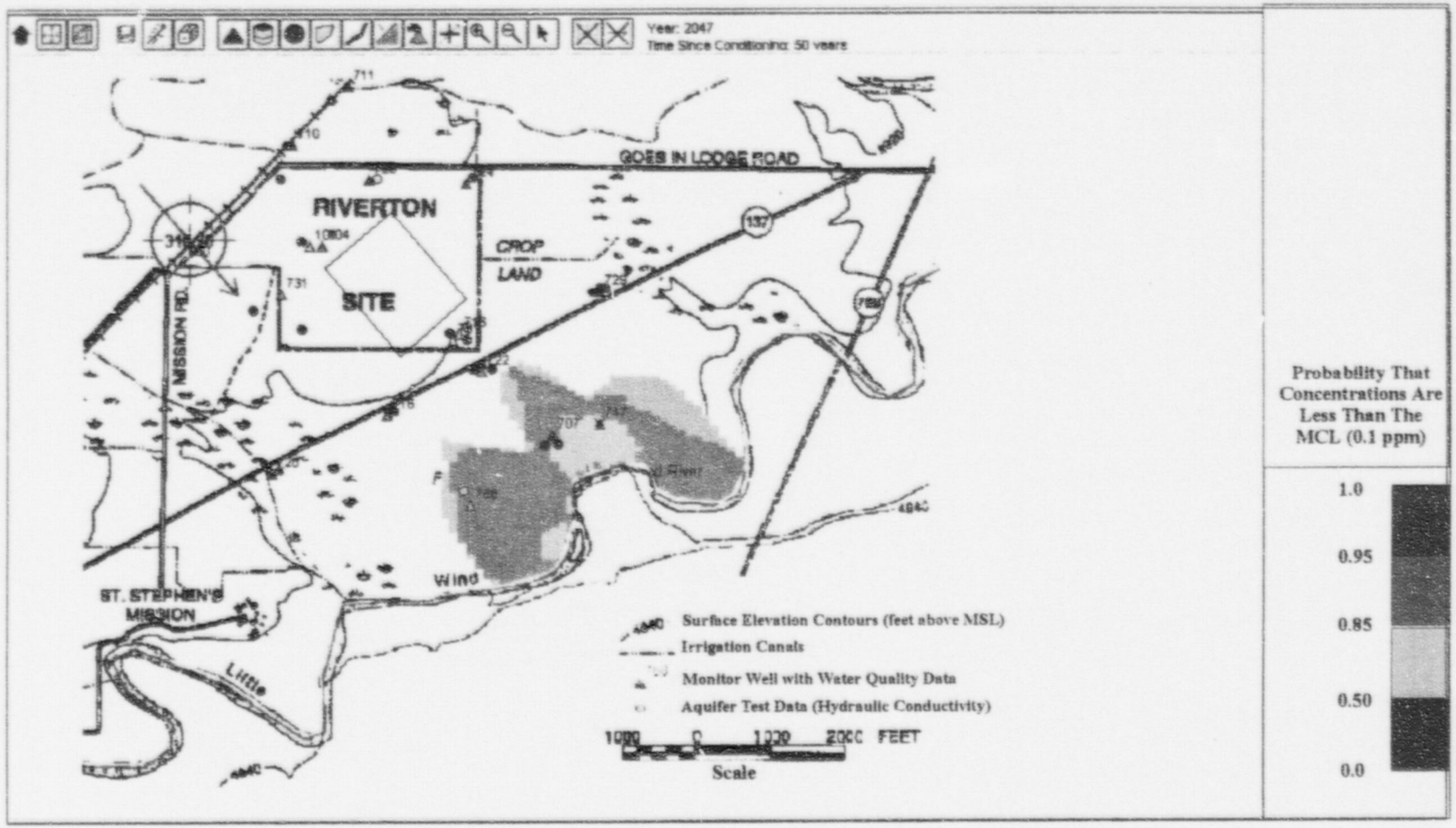

Figure 9.15 - Probability That Concentrations Are Less Than The Molybdenum MCL From Uncertainty Analysis, 50 Years After Conditioning Time - 2047

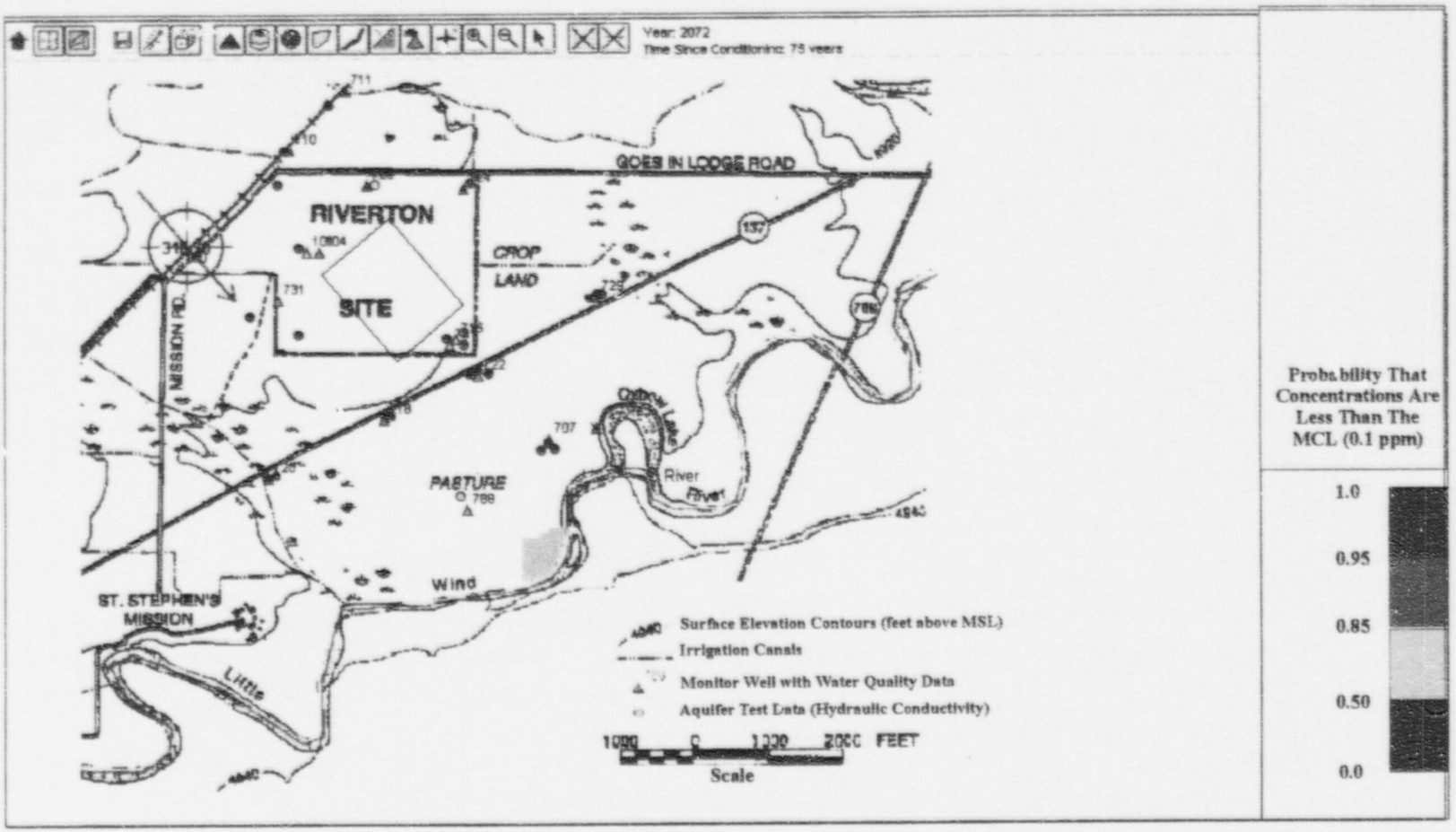

Figure 9.16 - Probability That Concentrations Are Less Than The Molybdenum MCL From Uncertainty Analysis, 75 Years After Conditioning Time -2072

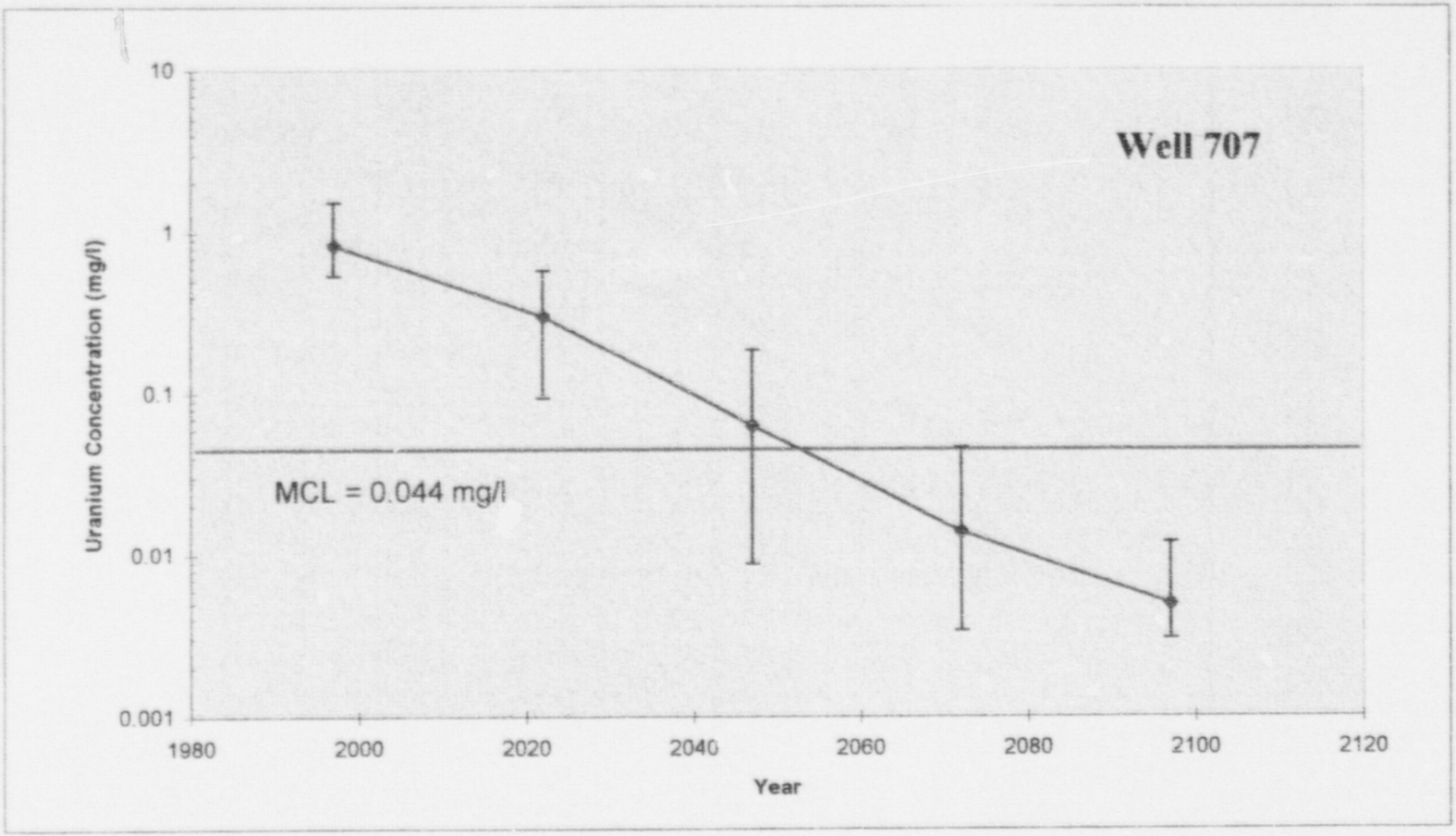

Figure 9.17 - Uranium Concentration Versus Time for Verification Monitoring in Well 707

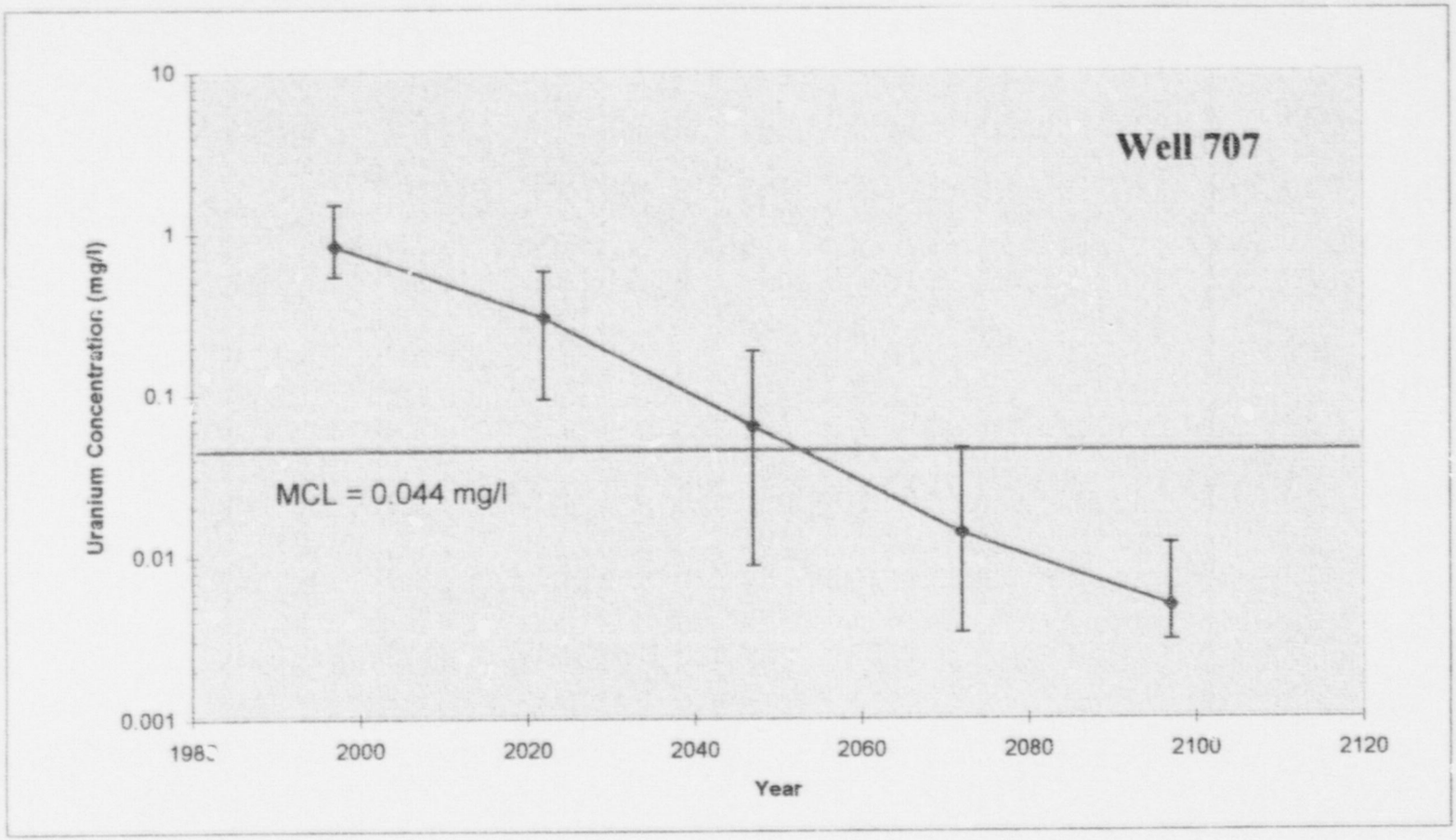

Figure 9.17 - Uranium Concentration Versus Time for Verification Monitoring in Well 707

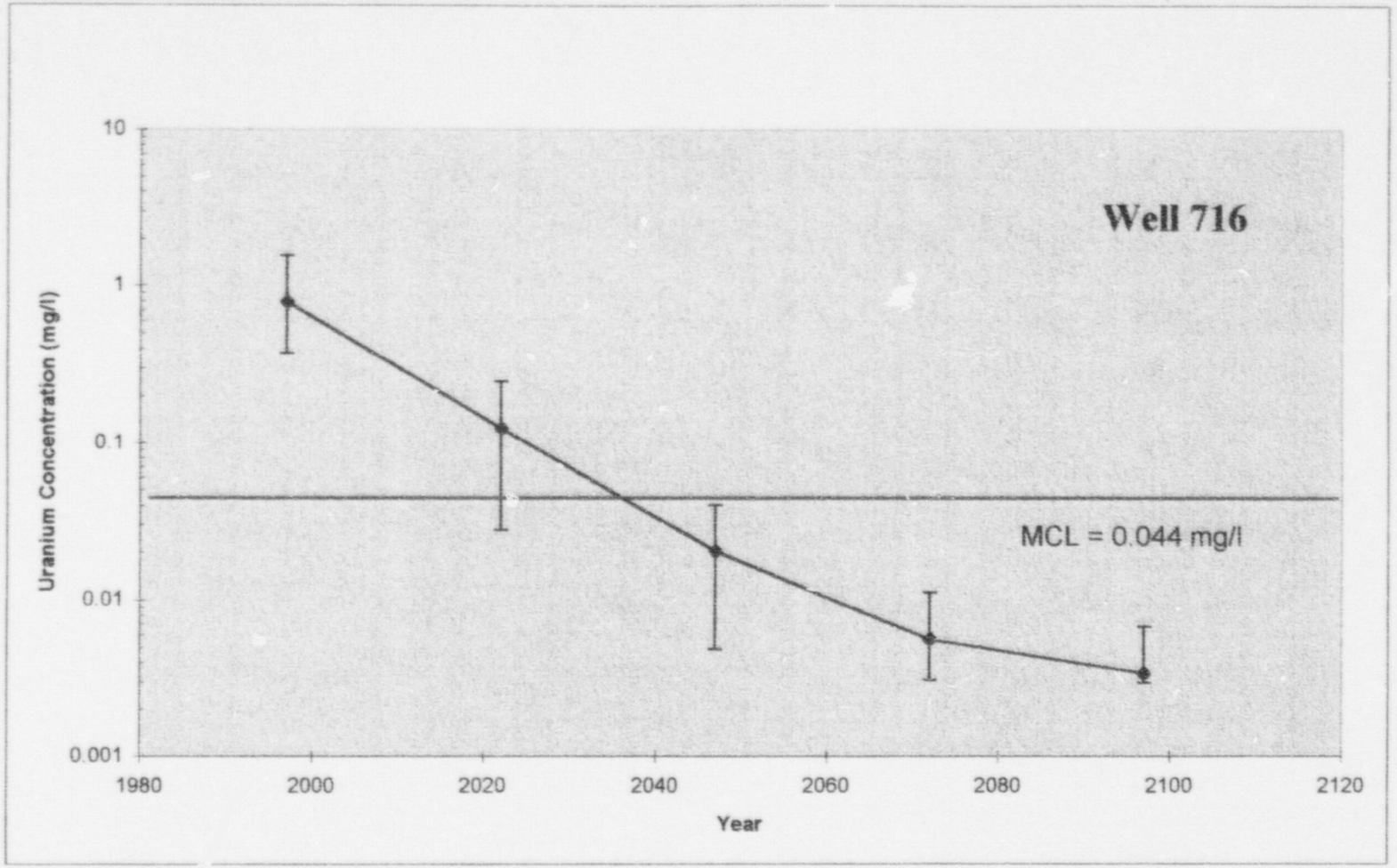

Figure 9.18 - Uranium Concentration Versus Time for Verification Monitoring in Well 716

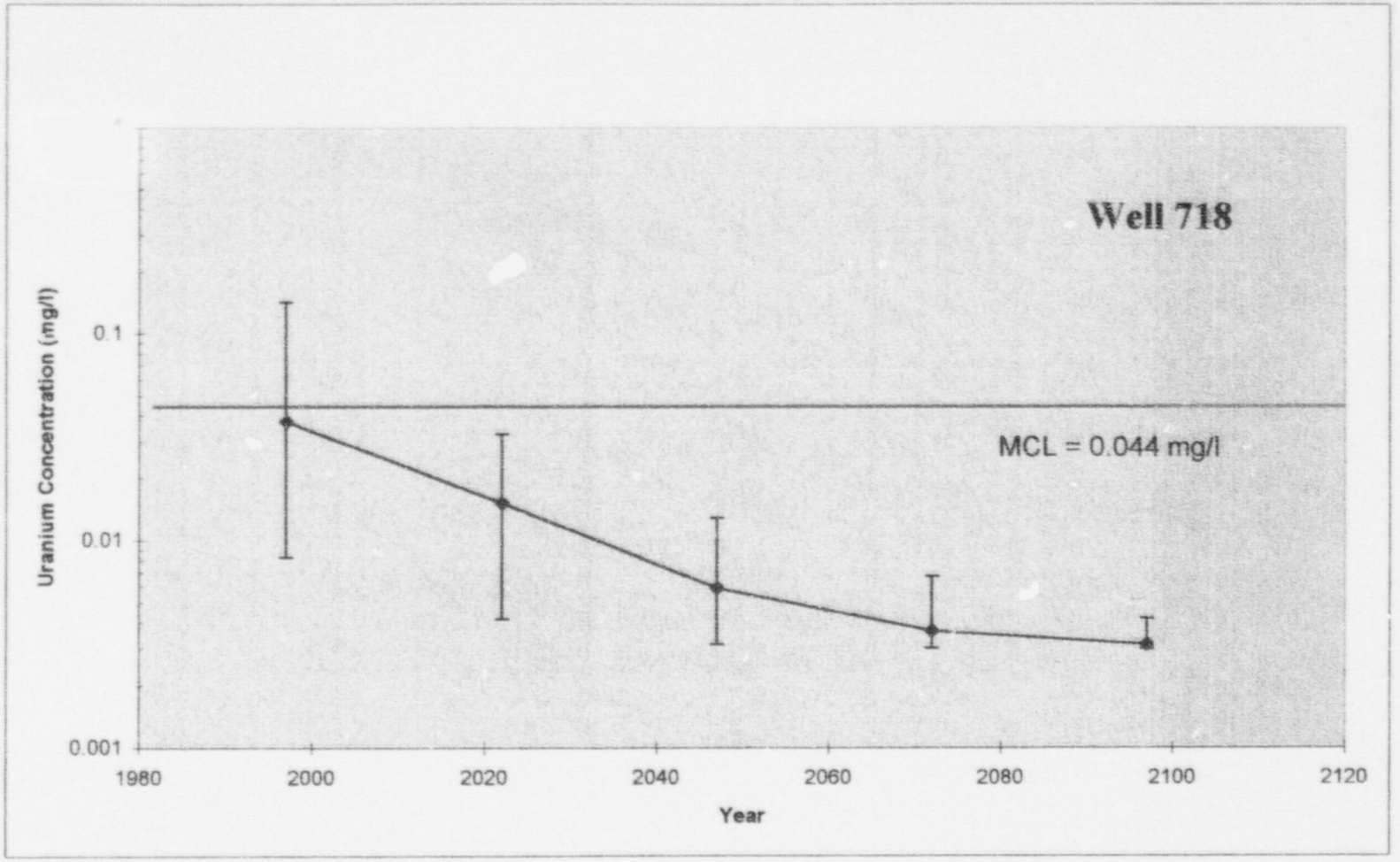

Figure 9.19 - Uranium Concentration Versus Time for Verification Monitoring in Well 718

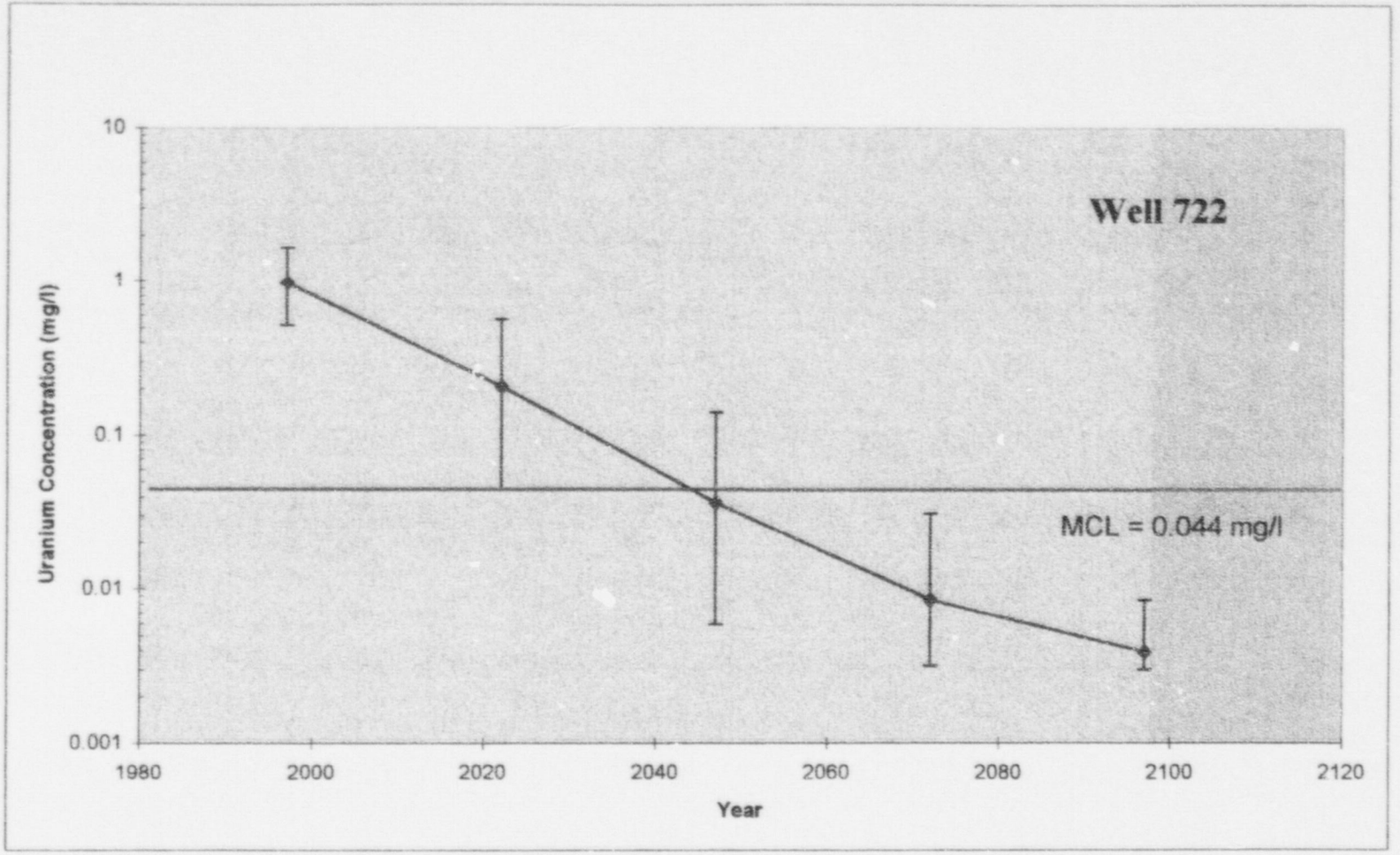

Figure 9.20 - Uranium Concentration Versus Time for Verification Monitoring in Well 722

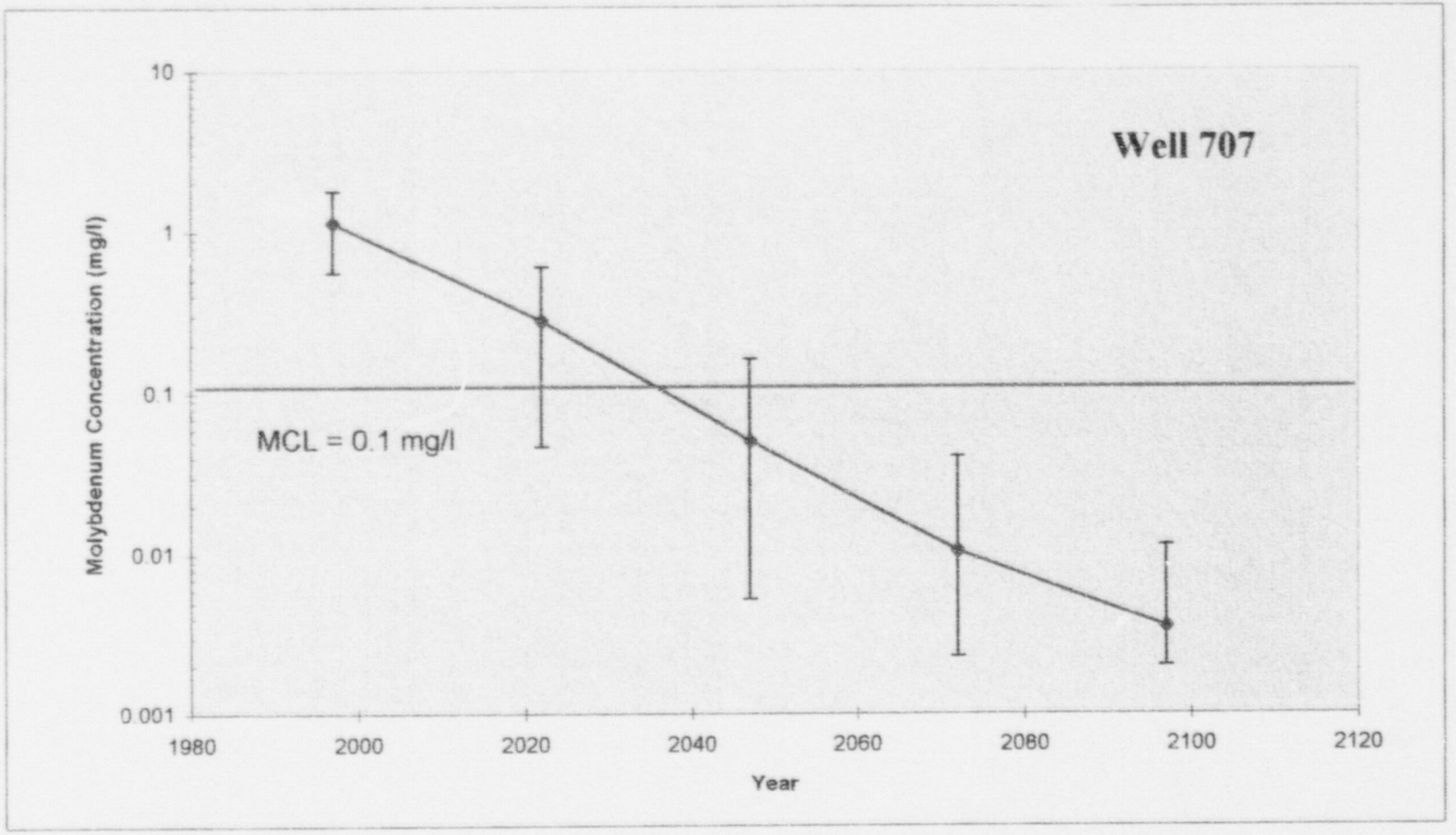

Figure 9.21 - Molybdenum Concentration Versus Time for Verification Monitoring in Well 707

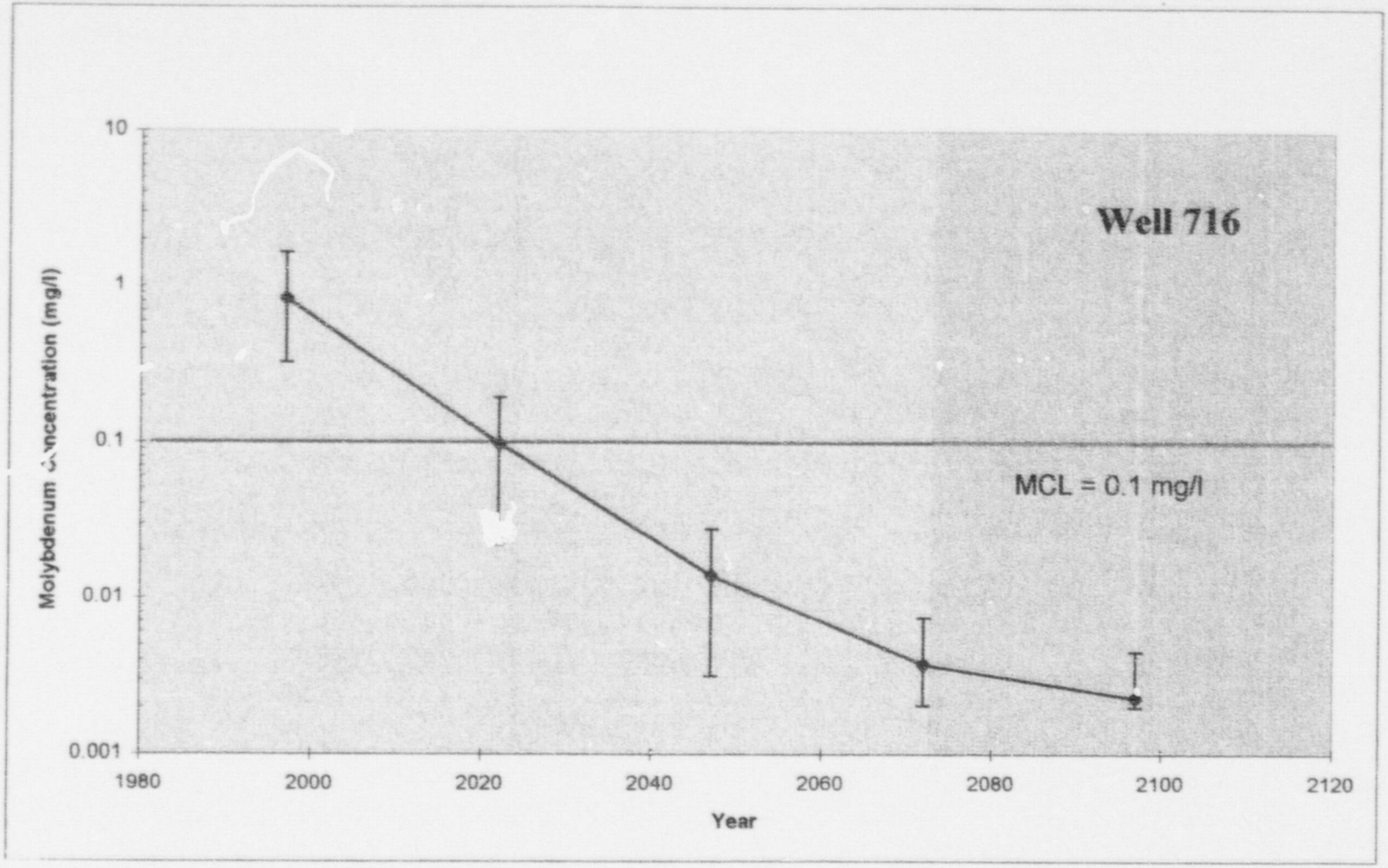

Figure 9.22 - Molybdenum Concentration Versus Time for Verification Monitoring in Well 716

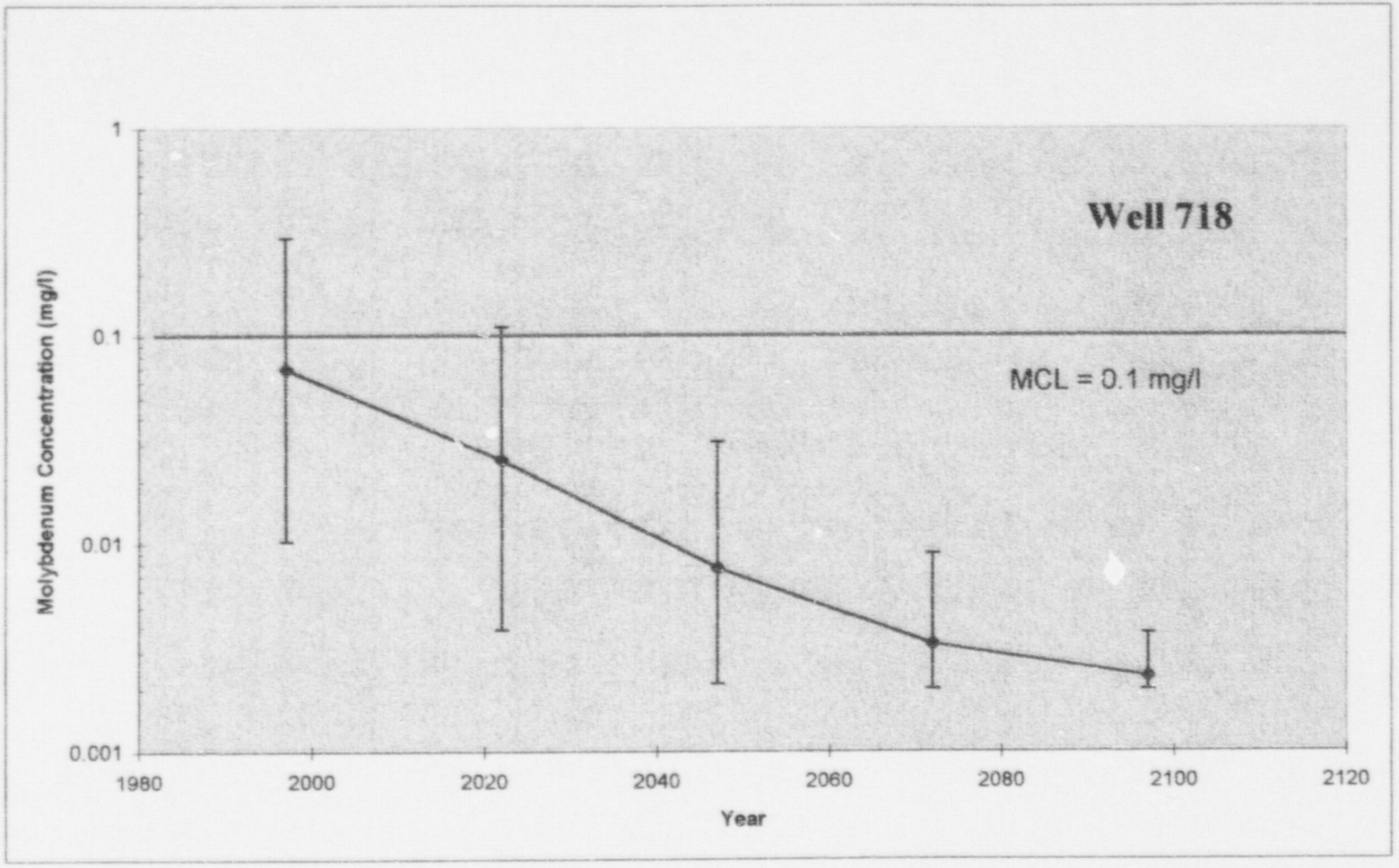

Figure 9.23 - Molybdenum Concentration Versus Time for Verification Monitoring in Well 718

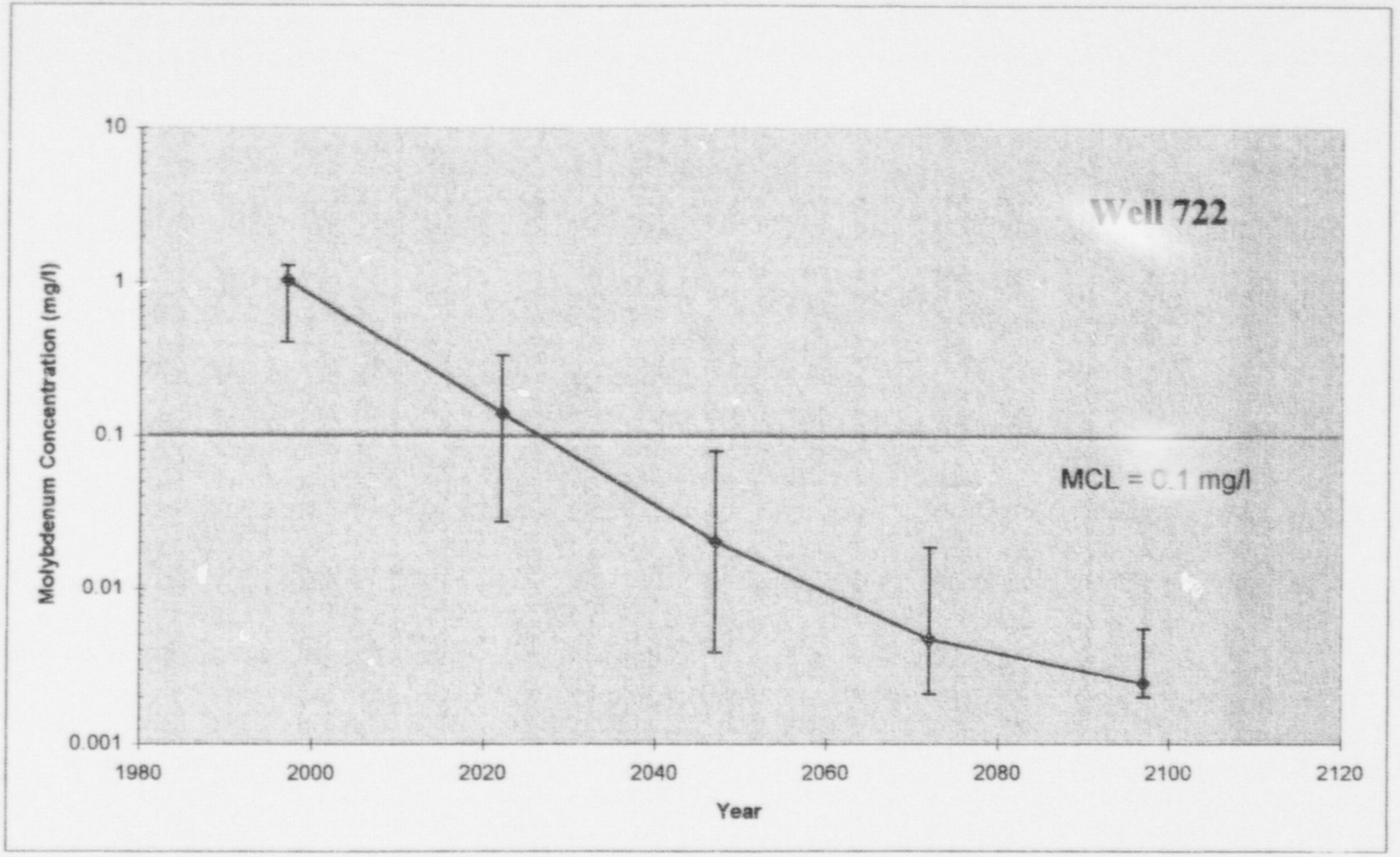

Figure 9.24 - Molybdenum Concentration Versus Time for Verification Monitoring in Well 722

10. Summary and Conclusions

Probabilistic analyses of groundwater flow and transport at the Riverton site were performed to assess the likelihood of success in implementing a natural attenuation strategy. The GANDT methodology and code set, developed at Sandia National Laboratories (SNL), were used to perform the analyses. Natural attenuation prospects were examined with respect to achieving maximum contaminant levels (MCLs) during a 100-year period, in which controls on site activities are proposed to be maintained.

The results of the probabilistic analyses were quite encouraging. Uranium and molybdenum transport simulations suggest a 100 percent probability of success for natural flushing to meet the MCL's for these contaminants. An important element of a successful natural attenuation strategy is the verification monitoring of groundwater concentrations during future years. This report supplies the predicted concentration ranges for key monitoring wells at the site. If the actual water quality data from these monitor wells is within these predicted ranges then the site should flush within the 100 year period. If observed concentrations are greater than those summarized in this analysis, then the site conditions should be reassessed with regard to the ability of the system to naturally flush. Though the GANDT modeling analysis accounts for uncertainties, it does not necessarily account for all uncertainties through time (e.g., conceptual model uncertainties, climatic changes, etc.). For this reason, and because of regulatory requirements, the site should be monitored routinely, and predictive transport modeling, such as that reported on here, should be revisited and updated if necessary.

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Appendix A

Explanation of Monte Carlo Method

Several studies during the last few years (e.g., NRC, 1994; EPA, 1997) have stressed the need for probabilistic modeling assessments, such as those based on Monte Carlo simulation, to address parameter uncertainty and variability explicitly and separately. Variability refers to the observed differences attributable to true heterogeneity or diversity in a parameter (e.g., natural variation in porosity, spatial variation in aquifer hydraulic conductivity), a phenomenon that can be approximated statistically from empirical data. In contrast, uncertainty refers to the lack of knowledge about a parameter, or even about the model that is used to represent a site (EPA, 1997). It stands to reason that an uncertain parameter is not readily measured, and, consequently, is more difficult to justify in the form of a probability density function, or PDF. As a result, any descriptions of the uncertainty in parameters, whether qualitative or quantitative, are likely to be subjective. Regardless of the difficulties that may arise in characterizing variability and uncertainty, there is a consensus among recent studies to insist that all information dealing with these topics for a modeling study should the taken into account, and modelers should not shy away from uncertainty and variability analyses (NRC, 1994; Risk Commission, 1997).

The most common method for quantifying uncertainty in a computer modeling system is through the implementation of the Monte Carlo method. In the Monte Carlo method the user specifies a statistical distribution for each uncertain parameter in the mathematical formulation under consideration (e.g., groundwater flow and solute transport equations). Values are selected from the statistical distributions to produce a sufficient number of input combinations to the model to characterize the probability density functions of the parameters. The input combinations are put to the numerical simulator to produce a set of statistical model output results. These results can be displayed in a variety of formats, from simple histograms of model output measures, to cumulative distribution functions, or probability plots of the spatial distribution of model outputs (e.g., average concentration distribution; probability of exceeding a specified concentration threshold, such as the MCL).

To illustrate the concept of the Monte Carlo method, a simple case study can be made of a common activity that most people can relate to that involves uncertainty: commuting. Figure A.1 shows a map of a city in which a person might commute each day from the northwest part of the city where they live to the southeast portion of the city where they work. There are a number of routes that the driver may take to make the commute both to and from work, which are illustrated by the red lines in the figure. The route he/she takes may be dependent on any number of factors and choices at his/her discretion. Factors affecting the time it takes to make the trip may be numerous. Several of these factors might be road construction, traffic congestion due to a large number of drivers on the road, inclement weather, and slow drivers impeding the flow of traffic. Each of these factors may contribute to the time it takes to make the commute, and may also be compounding if two or more affect the commute on a given day. Over the course of a year, for instance, these various factors will affect the commuting time and the driver could assemble statistics on the daily commuting time. Traffic engineers would suggest that mathematical models could be assembled to predict the commuting time, based on statistics associated with factors affecting the commute, as mentioned. Figure A.2 illustrates how this process of accounting for uncertainty in the commuting time might look with graphical constructs. The uncertain parameter distributions are sampled some number of times, run through the mathematical simulator, and a statistical expression of commuting time derived. The result might be that on the best day of the year the driver might make the commute in 20 minutes. On the worst day, when various factors combine to negatively influence the commuting time, the commute might be 2 hours. On average, the driver might have a 45-minute commute. The statistical distribution would illustrate this variability or uncertainty.

By comparison, the fate and transport of contaminants in subsurface media can be modeled to account for uncertainties in the travel time of constituents of concern. Figure A.3 shows a schematic representation of contaminants migrating more or less vertically through unsaturated soils and entering the underlying saturated zone, or aquifer, and eventually discharging to a well

or river. The routes that the contaminants take through the porous media may be varying and dependent on geologic heterogeneities. The factors affecting the flow and transport of the contaminants include hydraulic conductivity, porosity, sorption coefficient, and gradient, amongst others. Each of these factors may have associated uncertainty or variability. Obviously, mathematical models such as those employed in the GANDT code could be used to predict the travel time of the contaminants. Figure A.4 illustrates the relationship between these uncertain parameters and the modeled outcome of contaminant travel time within a Monte Carlo methodology.

A good technical discussion of the Monte Carlo method for quantifying uncertainties is given by Peck et al. (1988), as well as the EPA publication mentioned above (EPA, 1997).

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Figure A.1 - Various Commuter Routes Between the Northwest And Southeast Areas of the City

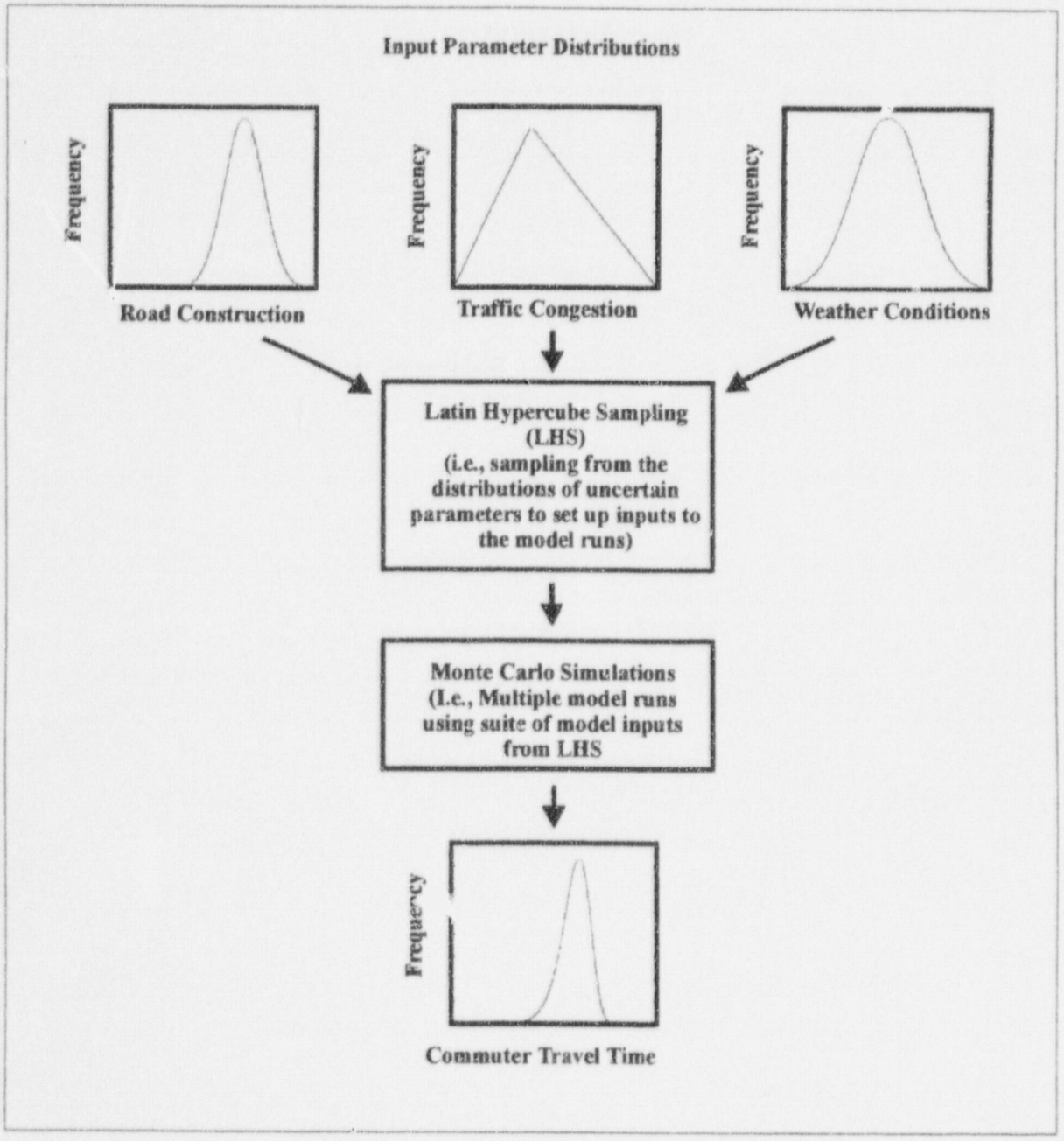

Figure A.2 - Conceptual Depiction of the Monte Carlo Simulation Process for Propagating Parameter Uncertainty into Model Output Uncertainty

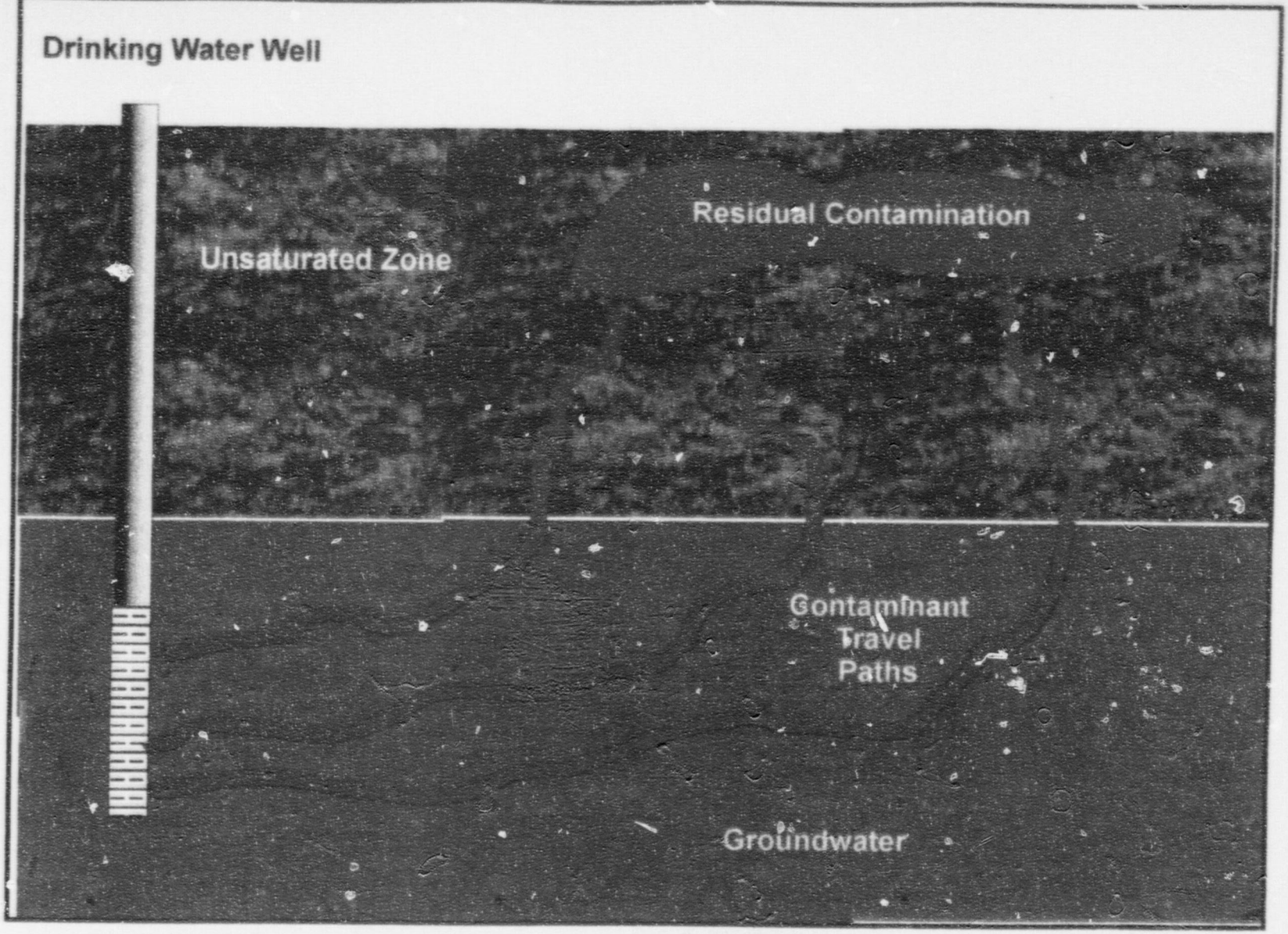

Figure A.3 - Contaminant Travel Paths Through Subsurface Soils and Groundwater

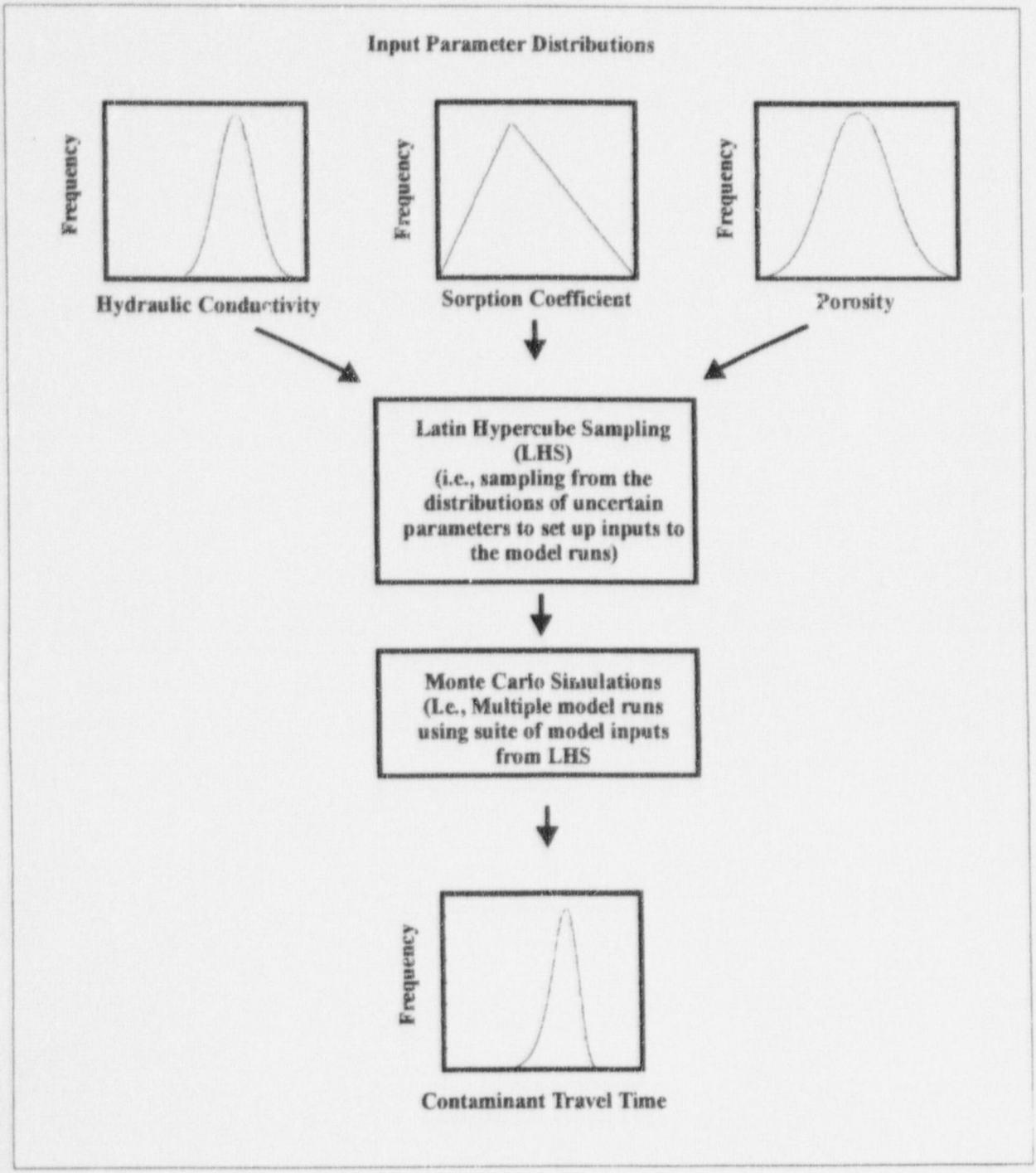

Figure A.4 - Conceptual Depiction of the Monte Carlo Simulation Process for Propagating Parameter Uncertainty into Model Output Uncertainty

Appendix B

Groundwater Elevation Data

Water Level Elevations from the SEE.UMTRA Database for the Riverton, WY Site

Well Location	Average Water Level Elevation*	Minimum Water Level Elevation*	Maximum Water Level Elevation*	Standard Deviation of Water Level Elevation
100	4938.35	4937.91	4939.56	0.59
101	4937.05	4935.91	4938.45	0.89
102	4937.10	4935.42	4937.93	1.07
103	4936.83	4935.83	4938.11	0.99
104	4938.44	4935.80	4937.53	0.58
105	4939.97	4935.93	4938.34	1.07
106	4935.35	4933.43	4937.32	1.01
107	4935.28	4933.98	4937.02	1.31
108	4935.25	4933.17	4942.05	2.36
109	4934.96	4933.63	4935.76	1.39
110	4935.68	4933.80	4937.39	1.38
111	4937.05	4936.29	4938.15	0.78
112	4938.36	4937.90	4939.48	0.58
113	4936.76	4935.60	4938.50	1.25
701	4926.82	4925.89	4928.70	1.23
702	4928.46	4925.17	4928.78	1.42
703	4929.09	4928.85	4930.53	1.32
704	4929.09	4925.13	4930.30	0.80
705	4925.71	4921.80	4928.59	1.56
706	4925.06	4923.32	4928.97	1.31
707	4926.71	4925.43	4928.00	0.94
708	4925.18	4922.14	4927.45	1.79
710	4941.41	4940.87	4942.58	0.54
711	4939.53	4938.10	4940.90	0.66
712	4937.33	4936.68	4938.70	0.55
713	4937.00	4936.00	4938.62	0.97
714	4936.52	4935.29	4937.00	0.90
715	4935.78	4934.80	4937.31	0.99
716	4931.00	4930.32	4931.78	0.53
717	4930.95	4930.29	4931.75	0.56
718	4930.74	4930.08	4931.33	0.51
719	4931.09	4930.49	4931.88	0.49
720	4935.19	4934.56	4935.71	0.48
721	4933.68	4932.91	4934.13	0.48
722	4928.92	4928.21	4929.62	0.56
723	4928.93	4928.22	4929.66	0.60
724	4933.35	4932.41	4934.87	1.08
725	4932.94	4932.32	4934.18	0.24
726	4935.79	4934.90	4937.17	0.97
727	4941.22	4940.17	4942.73	1.30
728	4938.33	4937.32	4938.81	1.22
729	4926.74	4925.02	4929.73	2.50
730	4926.20	4924.87	4928.47	1.98
733	4938.96	4937.19	4940.72	2.50

* - feet above mean sea level

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