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UMTRA GROUND WATER PROJECT

SITE OBSERVATIONAL WORK PLAN FOR THE UMTRA PROJECT SITE AT SPOOK, WYOMING

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Prepared by the
U.S. Department of Energy
Albuquerque, New Mexico

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**SITE OBSERVATIONAL WORK PLAN
FOR THE UMTRA PROJECT SITE
AT SPOOK, WYOMING**

September 1994

**Prepared for
U.S. Department of Energy
UMTRA Project Office
Albuquerque, New Mexico**

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EXECUTIVE SUMMARY

The requirements for ground water compliance for UMTRA Project sites, including the Spook, Wyoming, processing site, are found in the *Uranium Mill Tailings Radiation Control Act* (UMTRCA) of 1978 (42 USC §7901 *et seq.*) and Subparts B and Subpart C of U.S. Environmental Protection Agency's (EPA) "Health and Environmental Protection Standards for Uranium and Thorium Mill Tailings" codified in 40 CFR Part 192 (1994), and the associated proposed 1987 standards published in 52 FR 36000 (1987).

Ground water in the uppermost aquifer beneath and downgradient from the Spook site was contaminated by uranium-processing activities that occurred from 1962 until 1966. Contamination from the tailings pile and the acid pond (including uranium, selenium, nitrate, and radium-226 and -228) leached into the subsurface by infiltration and migrated into ground water, forming a plume extending approximately 2500 feet (ft) (760 meters [m]) downgradient from the site.

The surface remedial action at the Spook site under Subpart A of 40 CFR Part 192 consisted of stabilizing the uranium mill tailings and other residual radioactive materials in a disposal cell in the bottom of the Spook open-pit mine and covering the cell with overburden material. The ground water protection strategy was supplemental standards based on Class III ground water in the uppermost aquifer because of widespread ambient contamination.

The proposed ground water protection strategy to comply with Subpart B of 40 CFR Part 192 at the Spook site is to perform no remediation. This strategy is based on ground water in the uppermost aquifer (also the zone of contamination) being classified as Class III, which allows the application of supplemental standards. Class III ground water beneath the Spook site is neither a current nor a potential source of drinking water because of widespread, ambient contamination that cannot be cleaned up using treatment methods reasonably employed in public water supply systems (40 CFR §192.11(e)). Ground water at the Spook site contains widespread, ambient uranium and selenium contamination resulting from naturally-occurring conditions (natural uranium mineralization associated with an alteration front) and from the effects of broadscale human activity not related to uranium-milling operations (uranium exploration and mining activities). There is no apparent risk to human health and the environment because there are no known exposure pathways for ground water from the uppermost aquifer. No one is using or is projected to use the ground water from this aquifer for any purpose and there is no discharge of ground water from the uppermost aquifer to deeper aquifers used for domestic and agricultural purposes or to the surface or to surface water.

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LIST OF ACRONYMS AND ABBREVIATIONS

<u>Acronym</u>	<u>Definition</u>
ac	acre
ACL	alternate concentration limit
BAT	best available treatment
cm	centimeter
cm/s	centimeters per second
EA	environmental assessment
EPA	U.S. Environmental Protection Agency
ft	feet
gpm	gallons per minute
ha	hectare
km	kilometer
L/s	liters per second
m	meter
m ³	cubic meters
MCL	maximum concentration limit
mg/L	milligrams per liter
mi	mile
NEPA	National Environmental Policy Act
NRC	U.S. Nuclear Regulatory Commission
PEIS	Programmatic Environmental Impact Statement
pCi/L	picocuries per liter
RAP	Remedial Action Plan
RME	Rocky Mountain Energy
RRM	residual radioactive materials
SOWP	site observational work plan
TAGR	Technical Approach to Groundwater Restoration
UMTRA	Uranium Mill Tailing Remedial Action
UMTRCA	Uranium Mill Tailings Radiation Control Act
yd ³	cubic yards

1.0 INTRODUCTION

The Spook, Wyoming, site observational work plan (SOWP) proposes site-specific activities to achieve compliance with Subpart B of 40 CFR Part 192 (1994) of the proposed U. S. Environmental Protection Agency (EPA) ground water protection standards (52 FR 36000 (1987)) at this Uranium Mill Tailing Remedial Action (UMTRA) Project site.

1.1 PURPOSE AND CONTENT

The purpose of the SOWP is to recommend the site-specific ground water compliance strategy at the Spook UMTRA Project processing site. This draft SOWP (Revision 0) presents a comprehensive summary of existing site characterization data, a conceptual site model of the nature and extent of ground water contamination, exposure pathways, and potential impact to human health and the environment. Section 2.0 describes the requirements for meeting ground water standards at UMTRA Project sites. Section 3.0 defines past and current conditions, describes potential environmental and human health risks, and provides site-specific data that support the proposed ground water compliance strategy. Section 4.0 provides the justification for selecting the proposed ground water compliance strategy.

1.2 GROUND WATER COMPLIANCE STRATEGY

Ground water in the uppermost aquifer beneath and downgradient from the Spook site was contaminated by uranium processing activities that occurred from 1962 until 1966. Contamination from the tailings pile and the acid pond (including uranium, selenium, nitrate, and radium-226 and -228) was released into the subsurface by infiltration and migrated into ground water, forming a plume extending approximately 2500 feet (ft) (760 meters [m]) downgradient from the site.

The proposed ground water compliance strategy, in accordance with Subpart B of 40 CFR Part 192 (1994), is to perform no remediation at the Spook site. This strategy is based on ground water in the uppermost aquifer (also the zone of contamination) being classified as Class III, which allows the application of supplemental standards. Class III ground water beneath the Spook site is not a current or potential source of drinking water because of widespread, ambient contamination that cannot be cleaned up using treatment methods reasonably employed in public water supply systems (40 CFR §192.11(e)). Ground water in the uppermost aquifer contains widespread, ambient uranium and selenium contamination resulting from naturally-occurring conditions (natural uranium mineralization associated with an alteration front) and from the effects of broadscale human activity not related to uranium milling operations (uranium exploration and mining activities). The potential for impacts to human health and the environment related to ground water contamination associated with the Spook site is minimal because 1) ground water in the area has been affected by naturally-occurring uranium mineralization and human activities related to

regional uranium exploration and mining, 2) ground water in the uppermost aquifer is not locally used for any purposes, 3) the area is remote and has a low population density, 4) adequate ground water resources are available from deeper sandstone units, some under artesian conditions, and 5) there is no evidence of discharge of contaminated ground water from the uppermost aquifer to deeper aquifers used for domestic and agricultural purposes or to the surface or to surface water.

1.3 RELATIONSHIP TO OTHER GROUND WATER DOCUMENTS

Programmatic documents that provide guidance for the SOWP include the DOE *UMTRA Groundwater Program Plan* (DOE, 1992a), the "Programmatic Environmental Impact Statement for the Uranium Mill Tailings Remedial Action Ground Water Project" (PEIS) (DOE, 1994) and the *Technical Approach to Groundwater Restoration* (TAGR) (DOE, 1993a). The *UMTRA Groundwater Program Plan* states the objectives for the UMTRA Ground Water Project and provides an overall technical plan and management approach for conducting the program. The PEIS provides a 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 *National Environmental Policy Act* (NEPA) (42 USC §4321 *et seq.*) documentation more efficiently. The TAGR provides general technical guidance concerning how the Ground Water Project will be conducted.

The environmental impacts from the proposed compliance strategy presented in this SOWP will be assessed in appropriate site-specific NEPA documentation. The UMTRA Surface Project *Remedial Action Plan and Site Conceptual Design for Stabilization of the Inactive Uranium Mill Tailings Site at Spook, Wyoming* (RAP) (DOE, 1990) will be modified and submitted to the U.S. Nuclear Regulatory Commission (NRC) for concurrence on the UMTRA Project's proposed compliance strategy.

2.0 REGULATORY FRAMEWORK

The requirements for selecting a ground water compliance strategy for the Spook, Wyoming, processing site are described in this section. These requirements are found in the *Uranium Mill Tailings Radiation Control Act* (UMTRCA) of 1978 (42 USC §7901 *et seq.*) and Subpart B and of EPA's "Health and Environmental Protection Standards for Uranium and Thorium Mill Tailings" (40 CFR Part 192 (1994)).

2.1 URANIUM MILL TAILINGS RADIATION CONTROL ACT

The U.S. Congress passed the UMTRCA in 1978 in response to public concerns about the potential health hazards from exposure to uranium mill tailings over long periods of time. The UMTRCA authorized the DOE to stabilize, dispose of, and control uranium mill tailings and other residual radioactive materials (RRM) at uranium mill processing sites. The UMTRCA designates 24 inactive processing sites to undergo remediation; directs the EPA to promulgate standards; mandates the DOE to perform remedial action in accordance with standards prescribed by the EPA; directs the NRC to concur in the remedial actions; directs the NRC to license the disposal sites for long-term care; and directs the DOE to enter into cooperative agreements with the affected states and Indian tribes.

In 1988, Congress amended UMTRCA and authorized the DOE to extend without limitation the time needed to complete ground water restoration activities at the processing sites. Section 108 of the UMTRCA requires that the DOE comply with the proposed EPA standards (40 CFR Part 192 (1994)) in the absence of final standards.

2.1.1 EPA ground water standards

The UMTRCA requires the EPA to promulgate standards for protecting public health, safety, and the environment from radiological hazards and nonradiological hazards associated with processing of uranium and the resulting RRM. UMTRCA defines RRM as waste in the form of tailings resulting from the processing of ores for the extraction of uranium, and other wastes (which the Secretary of the Department of Energy determines to be radioactive) at a processing site that relate to such processing, including any residual stock of unprocessed ores or low-grade materials. The 1994 draft final rule for "Groundwater Standards for Remedial Actions at Inactive Uranium Processing Sites" (EPA, 1994) includes any residual stock of unprocessed ores or low grade materials, such as sludges and captured contaminated water from the processing site.

On January 5, 1983, the EPA published standards (40 CFR Part 192) for the disposal and cleanup of RRM. The EPA published proposed changes to the ground water standards in the *Federal Register* on September 24, 1987 (52 FR 36000). The standards address two ground water contamination scenarios:

Subpart A addresses future ground water contamination that may occur from RRM disposal, and Subpart B addresses the cleanup of contamination of ground water that occurred at the processing sites before disposal of the RRM. Protection of the ground water from future contamination at the disposal sites is required by Subpart A and has been addressed in the UMTRA Surface Project. The UMTRA Ground Water Project addresses the ground water contamination that occurred at the processing sites and is regulated by Subparts B and C of the proposed standards.

Subpart B

Subpart B, "Standards for Cleanup of Land and Buildings Contaminated with Residual Radioactive Materials from Inactive Uranium Processing Sites," requires that remedial action at processing sites be conducted to ensure that the amounts of RRM in ground water meet any one of three ground water standards:

- Background levels: concentrations of constituents in nearby ground water that were not affected by processing activities (52 FR 36007, 40 CFR §192.12(c)).
- Maximum concentration limits (MCL): 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 UMTRA Project sites are provided in Table 2.1 (52 FR 36007, 40 CFR §192.12(c)).
- Alternate concentration limits (ACL): alternate limits for hazardous constituents that do not pose a substantial present or potential hazard to human health or the environment as long as the limits are not exceeded (52 FR 36007, 40 CFR §192.12(c)(2)).

Subpart B also provides for active ground water remediation or for selecting natural flushing as a means to meet the proposed standards. Active ground water remediation would require the application of engineered ground water remediation methods such as gradient manipulation, ground water extraction and treatment, and *in situ* ground water treatment to achieve compliance with the proposed standards. Natural flushing means allowing natural ground water processes to reduce the contamination in ground water, and these processes must allow the standards to be met within 100 years. Institutional controls that protect human health (measures that restrict access to contamination and satisfy beneficial uses of ground water) and an adequate monitoring program must be established and maintained during the period of natural flushing. Ground water also must not currently be, or be projected to become, a source of drinking water during the period of natural flushing (52 FR 36007, 40 CFR §192.12(c)(4)).

**Table 2.1 MCLs for inorganic constituents for ground water protection
for UMTRA Project sites^a**

Constituent	Maximum concentration ^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-particle activity (excluding radon and uranium)	15 pCi/L

^a52 FR 36007 (1987).

^bMilligrams per liter unless otherwise noted.

^cEquivalent to 44 milligrams per liter (mg/L) nitrate expressed as NO₃.

^dEquivalent to 0.044 mg/L.

Subpart C

Subpart C, "Implementation," includes 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 be met on a site-specific basis, using information gathered from site characterization and monitoring. A remedial action plan must be presented, stating the schedule and steps necessary to complete the cleanup of ground water at the sites to meet the conditions of Subpart B (52 FR 36008, 40 CFR §192.20(b)(4)).

Subpart C provides guidance for implementing methods and procedures to provide reasonable assurance that the provisions of Subpart B are satisfied (52 FR 36008, 40 CFR §192.21(g)).

2.1.2 Cooperative agreements and state requirements

The UMTRCA requires that remedial action be accomplished with the full participation and concurrence of the affected states and Indian tribes on whose lands the uranium mill tailings are located or disposed. The UMTRCA also directed the DOE to enter into cooperative agreements with these states and Indian tribes. No Indian tribes are affected by the activities at the Spook site. A cooperative agreement for the UMTRA Surface Project with the state of Wyoming was executed February 16, 1984.

The Wyoming state regulations for ground water are in Chapter VIII of the state of Wyoming water quality standards (State of Wyoming, 1993) and are presented as points of reference that support the Class III EPA ground water definition. Ground water found closely associated with commercial deposits of minerals, as found at the Spook site, may be considered Class V ground water and is not suitable for domestic, agricultural, and livestock uses, fish and aquatic life, or industrial purposes (Section 4(d)(8)(b)). In addition, Class VI ground water may be unusable or unsuitable for use because it is so contaminated that it would be economically or technologically impractical to make the water usable (Section 4(d)(9)(b)). In classifying ground water, the state takes into account the technical practicality and economic reasonableness of treating ambient water quality to meet suitability standards for use (Section 5(a)). The state's water quality MCLs for domestic use (Section 4(d)(1)) are similar to those proposed by EPA MCLs with the exception of uranium. The state established a MCL of 5.0 mg/L; the EPA established a MCL for uranium of 0.044 mg/L.

2.2 NATIONAL ENVIRONMENTAL POLICY ACT

Implementation of the UMTRCA represents a major federal action subject to the requirements of NEPA. The Council on Environmental Quality's regulations that implement the NEPA are codified in 40 CFR Parts 1500-1508 (1994) and require that each federal agency develop its own implementing procedures (40 CFR §1507.3). The DOE NEPA regulations are contained in "National

Environmental Policy Act; Implementing Procedures" (10 CFR Part 1021 (1994)). DOE guidance is provided in *Recommendations for the Preparation of Environmental Assessments and Environmental Impact Statements* (DOE, 1993b).

Pursuant to the NEPA, the DOE drafted a PEIS in 1994 that analyzed potential impacts of implementing programmatic alternatives for conducting the Ground Water Project. The preferred alternative for conducting the Ground Water Project will be selected by the DOE and published in a record of decision. All subsequent actions on the UMTRA Ground Water Project, including preparation of site-specific NEPA documentation, must comply with the record of decision.

3.0 SUMMARY OF SITE CONDITIONS

This section describes the location and history of the Spook site, including local geography, past uranium mining and milling activities at and in the vicinity of the site, and the surface remedial action and associated ground water protection strategy. Site characterization data, and the conceptual site model are also presented.

3.1 SITE DESCRIPTION

3.1.1 Location

The Spook processing and disposal site is in northern Converse County, Wyoming, approximately 48 miles (mi) (77 kilometers [km]) northeast of Casper (Figure 3.1). The area is sparsely populated, with the nearest town, Glenrock, 31 mi (50 km) south of the site. The climate is semiarid and cool with moderate humidity. The average annual precipitation (measured in the Casper area) is 11 inches (28 centimeters [cm]) with 60 percent of the precipitation falling during the spring and summer months (DOE, 1989). The ground is covered principally with short-grass prairie vegetation.

The Spook site is situated in the southern end of the Powder River Basin, a deep structural basin that lies along the east flank of the Middle Rocky Mountains. Sedimentary rocks in the area generally dip less than 2 degrees to the northeast. The gently rolling topography in the vicinity of the site has an elevation of approximately 5100 ft (1555 m). Drainage in the area is to the east and southeast toward the Dry Fork of the Cheyenne River, an intermittent stream approximately 1 mi (1.6 km) south of the site. Surface drainage is controlled to the north by the Cheyenne River Divide.

The southern part of the Powder River Basin contains significant uranium and coal deposits. The site is underlain by uranium mineralization associated with an alteration front in sandstone in the Tertiary Wasatch Formation. Uranium has been mined from open-pit mines (including the Spook pit) along the alteration front in the area. The Bear Creek uranium mill site (an UMTRCA Title II site) is approximately 2 mi (3 km) north of the Spook site.

3.1.2 History of operations and surface remediation

Through the 1960s, much of the uranium ore mined in the United States was processed by private companies under contract to the federal government for use in national defense research and weapons development. The Spook site was formerly mined for this purpose by the Wyoming Mining and Milling Company and Western Nuclear, Inc.

The Spook open-pit mine was first excavated in 1962 and operated as a producing mine until 1966. A total of 42,600 tons (38,647 tonnes) of uranium ore were extracted. Initially uranium ore from the Spook mine was processed at

LEGEND

- INTERSTATE HIGHWAY
- U.S. HIGHWAY
- STATE HIGHWAY

5 0 10 MILES

5 0 20 KILOMETERS

FIGURE 3.1
LOCATION OF THE SPOOK, WYOMING, SITE

the uranium mill at Jeffrey City, Wyoming, 165 mi (265 km) west of the site. As lower-grade ore was mined, it became more economical to process the ore on the site, so a uranium upgrading plant was established at the Spook site.

The uranium milling process at the Spook upgrader consisted of an acid-curing process used in conjunction with percolation heap leaching. In this process, crushed sandstone containing the uranium was agglomerated into small pellets containing ore, water, and sulfuric acid. These pellets were loaded into large vats and allowed to cure (given time for the interstitial sulfuric acid to react with the ore the pellets). After curing, an acidified solution was circulated through the pellet bed within the vats and then drained. This pregnant, uranium-bearing solution was processed by ion exchange. The pelletized ore was then washed, and this wash solution was used to leach uranium from the next batch of pellets. The barren, washed pellets were disposed of in the open-pit mine. The uranium-bearing solution was passed through ion exchange columns containing an ammonium-bearing exchange resin. Uranyl sulfate complexes in the acid uranium-bearing solution were exchanged for ammonium, separating the uranium from other metals in the pregnant solution. The uranium was then removed from the exchanger (eluted) by passing another solution through the exchange column that released the uranium from exchange sites. There are several possible elutants, including 1) sulfuric acid solution or 2) acidified solutions of ammonium chloride or sodium nitrate. The latter elutant was probably used at the Spook upgrader, since this would explain the elevated concentrations of nitrate in ground water. After elution, the resins were regenerated using a solution of nitric acid followed by solutions of sodium and ammonium hydroxide. The eluted uranium was precipitated from solution as an oxide by neutralization with anhydrous ammonia. Some liquid was removed from this precipitate, leaving a thick slurry that was trucked to the uranium mill at Jeffrey City. The residue sands (tailings) were placed on the surface at the mill site or receded into the open-pit mine. The solutions used in the process were disposed of on the tailings pile and in the acid pond 1500 ft (460 m) south of the mill site (Merritt, 1971; Mashbir 1964).

As a result of this operation, process reagents in the contaminated ground water at the site include sulfate, ammonium, sodium, nitrate, and, possibly, chloride. In addition, leaching of the ore would have solubilized several metals and non-metals, including aluminum, iron, calcium, magnesium, potassium, manganese, selenium, molybdenum, chrome, nickel, zinc, and the thorium progeny of uranium decay, including thorium-230, radium-226, and lead-210.

Water used for ore processing came from two wells near the mill site completed to 350 and 700 ft (107 and 213 m) respectively. The volume of water used in the processing activities is not known, but the wells were capable of yielding 60 and 150 gallons per minute (gpm) (4 to 9.5 liters per second [L/s]) respectively, based on well permit information from the Wyoming State Engineer's Office.

Surface remediation at the Spook processing site under Subpart A of 40 CFR Part 192 (1994) consisted of stabilizing the RRM in a disposal cell in the bottom

of the Spook open-pit mine. Surface remedial action was completed in November 1989. An estimated 269,600 cubic yards (yd³) (206,200 cubic meters [m³]) of uranium mill tailings and other RRM were consolidated and stabilized in the disposal cell. The disposal cell includes a basal clay layer and is covered with a fine-grained infiltration and radon barrier. These features were designed to minimize infiltration, seepage, and migration of leachate from the bottom of the cell. The state of Wyoming then backfilled the Spook open-pit mine with overburden material. The surface was restored and revegetated. The top of the disposal cell is approximately 35 ft (11 m) below the existing land surface.

The surface remedial action ground water protection strategy at the Spook site, under Subpart A of 40 CFR Part 192, is application of supplemental standards based on Class III ground water in the uppermost aquifer because of widespread ambient contamination. The Class III designation is based on ground water in the uppermost aquifer not being currently or potentially a source of drinking water because it contains widespread, ambient uranium and selenium contamination resulting from 1) naturally-occurring conditions (natural uranium mineralization associated with an alteration front), and 2) the effects of broadscale human activity not related to uranium milling operations (uranium exploration and mining activities) such that it cannot be effectively cleaned up for drinking or other beneficial purposes using treatment methods reasonably employed in public water supply systems 52 FR 36007.

The state of Wyoming, as agent for the United States of America, acquired title to a 13.5-acre (ac) (5.5-hectare [ha]) surface area over the disposal cell. The NRC developed regulations for issuing a general license for the long-term care of Title I disposal sites (10 CFR part 40 (1994)). Under these regulations, the general license becomes effective when the NRC concurs with the DOE's certification that the surface remedial action at the site is complete, including the ground water protection strategy. In September 1993, the general license for Subpart A was issued for the Spook site.

3.1.3 Land and water use

The land surrounding the site is used predominantly for sheep and cattle ranching. Some hay production takes place along the Dry Fork of the Cheyenne River. Prior to 1982, uranium mines were also in production throughout the area.

Good quality ground water from confined aquifers in the Tertiary Wasatch and Fort Union Formations is used for domestic and stock watering purposes in the area. Ground water from the unconfined mineralized sandstone (uppermost aquifer) beneath the Spook site is not used because it is of marginal quality (because of mineralization and related mining and milling activities) and the sustained yield of ground water from the aquifer is less than yields from underlying confined aquifers.

3.1.4 Sources of existing data

Development and evaluation of the conceptual site model for the Spook site are based on a review of DOE site characterization data generated for the surface remediation phase of the UMTRA Project and reported in the RAP (DOE, 1990). Site characterization data include reconnaissance information, U.S. Geological Survey topographic maps, aerial photography, core and corehole logs, lithologic logs and well completion records from drilling and monitor well installation, data from water quality sampling, and aquifer testing data. Monitor well and water quality data are available in the UMTRA Project Software Program for Environmental Analysis and Reporting data base (DOE, 1992b).

DOE installed 35 monitor wells (SPK-01-910 through -944) in hydrogeologic units beneath the Spook site between December 1986 and August 1988 (Figure 3.2 and Table 3.1). Several monitor wells were decommissioned to facilitate remedial activities (SPK-01-910, -911, -928, -929 and -940) or because of well construction problems (SPK-01-926). Monitor wells were sampled for ground water quality from February 1987 through December 1988 (Table 3.2). The number of sampling rounds per well varies from two to six, depending on when the monitor wells were installed.

Water quality data through August 1988 were included in the RAP (DOE, 1990). A water sampling round was completed in December 1988 to verify data from the August 1988 sampling round, particularly for the new monitor wells installed during August 1988. These data fulfilled the requirements for site characterization in the RAP and allowed development of a ground water compliance strategy and concurrence from the NRC on the surface remedial action at the Spook site. With supplemental standards, based on Class III ground water, as the compliance strategy, the NRC, DOE, and state agreed that it would not be necessary to continue ground water monitoring for compliance purposes. Therefore ground water sampling was discontinued after December 1988 (DOE, 1993c).

Water levels were measured in the monitor wells during these sampling rounds, as well as during July 1994. Three domestic wells (SPK-01-800, -803, and -903) completed in deeper aquifers in the vicinity were also sampled for ground water quality. Details of well construction are not known. Water levels were not taken from these three wells, because two flowed at the surface and one had a windmill to provide water.

Relevant site characterization data are attached as Appendices A through E to this report. These data are monitor well lithologic logs (Appendix A); monitor well completion records (Appendix B); ground water elevations (Appendix C); ground water quality data by parameter (Appendix D); and a calculation set for aquifer pumping tests (Appendix E). Industry and government reports and

TABLE 3.1 MONITOR WELL INFORMATION AT THE SPOOK, WYOMING SITE
 SITE: SPK01 SPOOK
 REPORT DATE: 09/22/94

LOCATION ID	NORTH COORDINATE (FT)	EAST COORDINATE (FT)	GROUND ELEVATION (FT MSL)	BOREHOLE DEPTH (FT)	BOREHOLE DIAMETER (INCHES)	CASING ELEVATION (FT MSL)	CASING DEPTH (FT)	CASING DIAMETER (INCHES)	SCREEN BEGINNING DEPTH (FT)	SCREEN LENGTH (FT)	FLOW CODE	FORMATION OF COMPLETION
0910	56710.5	59662.9	5095.20	174.50	8.000	5097.10	176.50	4.000	164.50	10.0	N	WL
0911	56684.5	59695.9	5093.00	113.50	8.000	5094.80	115.50	4.000	98.50	15.0	N	WU
0912	57376.4	60319.0	5109.70	114.00	8.000	5111.10	116.25	4.000	99.25	15.0	N	WU
0913	58150.1	60546.0	5096.80	120.00	8.000	5098.60	122.00	4.000	105.00	15.0	N	WU
0914	58134.9	60512.1	5097.50	185.00	8.000	5099.50	187.00	4.000	170.00	15.0	N	WL
0915	58719.8	61452.6	5057.90	130.00	8.000	5059.60	132.00	4.000	115.00	15.0	N	WM
0916	59373.3	61439.6	5070.00	110.00	8.000	5071.60	112.00	4.000	95.00	15.0	N	WU
0917	58853.6	62234.5	5047.80	75.00	8.000	5049.60	77.00	4.000	65.00	10.0	N	WU
0918	57588.1	61629.1	5101.30	135.00	8.000	5103.10	137.00	4.000	120.00	15.0	N	WU
0919	56014.4	59867.6	5105.20	188.00	8.000	5107.00	190.00	4.000	178.00	10.0	N	WL
0920	56021.6	59923.7	5099.00	99.00	8.750	5101.10	98.00	4.000	85.75	10.0	N	WU
0921	58118.3	59198.9	5124.50	190.00	8.750	5127.00	190.00	4.000	177.75	10.0	N	WL
0922	58163.6	59210.6	5122.40	140.00	8.750	5124.80	139.75	4.000	127.50	10.0	N	WU
0923	59654.0	59828.6	5112.80	242.00	8.750	5115.00	234.30	4.000	222.05	10.0	N	WL
0924	59855.8	61191.0	5079.10	130.00	8.000	5081.20	129.90	4.000	117.65	10.0	N	WU
0925	59815.3	62832.1	5039.90	77.00	8.000	5042.10	79.00	4.000	66.75	10.0	N	WU
0926	-	-	-	62.00	8.000	-	64.25	4.000	52.00	10.0	N	WU
0927	59161.8	60115.4	5094.7	123.00	8.000	5096.7	125.00	4.000	112.75	10.0	N	WU
0928	57963.3	59497.0	5025.60	50.00	8.750	5028.50	42.50	4.000	30.25	10.0	N	WU
0929	56502.8	59663.1	5083.00	107.00	8.000	5085.00	109.00	4.000	96.75	10.0	N	WU
0930	56033.6	59898.5	5101.70	107.00	8.000	5104.10	109.00	4.000	97.00	10.0	N	WU
0931	59847.5	63505.7	5062.60	98.00	6.000	5064.8	100.00	2.000	87.50	10.0	N	WU
0932	59855.8	60115.7	5104.50	140.00	6.000	5106.9	142.00	2.000	129.50	10.0	N	WU
0933	60310.2	64205.1	5077.40	135.00	8.000	5079.70	127.50	4.000	115.00	10.0	N	WU
0934	60178.9	62032.2	5070.10	130.00	8.000	5072.30	117.50	4.000	105.00	10.0	N	WU
0935	57050.2	59205.8	5125.90	130.00	8.000	5128.10	122.50	4.000	100.00	10.0	N	WU
0936	56745.9	61019.6	5083.40	119.50	8.000	5086.10	102.50	4.000	90.10	10.0	N	WU
0937	55665.7	60303.9	5049.50	100.00	8.000	5052.80	97.50	4.000	85.00	10.0	N	WU
0938	58231.6	62849.7	5033.70	250.00	8.000	5036.00	242.50	4.000	230.00	10.0	N	WL
0939	56195.2	59518.6	5104.70	90.00	8.000	5106.70	92.40	4.000	80.00	10.0	N	WU
0940	58599.8	60040.7	5015.70	50.00	8.000	5016.70	37.50	4.000	25.00	10.0	N	WU
0941	58222.4	62882.6	5033.90	80.00	8.000	5036.10	82.50	4.000	70.00	10.0	N	WU
0942	56061.2	61105.4	5047.70	4.00	8.000	5049.10	87.50	4.000	75.00	10.0	N	WU
0943	59282.9	64523.6	5027.20	75.00	8.000	5028.40	62.50	4.000	50.00	10.0	N	WU
0944	60946.7	66463.1	4993.90	125.00	8.000	4995.90	122.50	4.000	110.00	10.0	N	WU

FORMATION OF COMPLETION CODE:
 WL - WASATCH - LOWER SANDSTONE
 WU - WASATCH - UPPER SANDSTONE
 WM - WASATCH - MIDDLE SHALE

FLOW RELATIONSHIP CODE:
 N - UNKNOWN

DATA FILE: \DART\SPK01\MWI10006.DAT

FIELDS DISPLAYED WITH A DASH INDICATE THE DATA IS UNAVAILABLE

SITE OBSERVATIONAL WORK PLAN FOR THE
 UMTRA PROJECT SITE AT SPOOK, WYOMING

SUMMARY OF SITE CONDITIONS

TABLE 3.2 GROUND WATER QUALITY SAMPLING HISTORY
AT THE SPOOK, WYOMING SITE
SITE: SPK01 SPOOK
LOG DATES: 11/18/85 TO 12/10/88
REPORT DATE: 09/23/94
PAGE 1a

LOCATION		SAMPLING PERIOD											
		02/87	09/87	01/88	02/88	04/88	08/88	12/88					
0910	WL	0910	0910	0910	.	0910	0910	0910					
0911	WL	0911	0911	0911	.	0911	0911	0911					
0912	WL	0912	.	.	0912	0912	0912	0912					
0913	WL	0913	0913	.	0913	0913	0913	0913					
0914	WL	0914	0914	.	0914	0914	0914	0914					
0915	WL	0915	0915	.	0915	0915	0915	0915					
0916	WL	0916	0916	.	0916	0916	0916	0916					
0917	WL	0917	0917	0917	.	0917	0917	0917					
0918	WL	0918	0918	.	0918	0918	0918	0918					
0919	WL	0919	0919	0919	.	0919	0919	0919					
0920	WL	.	0920	0920	.	0920	0920	0920					
0921	WL	.	0921	.	0921	0921	0921	0921					
0922	WL	.	0922	.	0922	0922	0922	0922					
0923	WL	.	0923	0923	.	0923	0923	0923					
0924	WL	.	0924	.	0924	0924	0924	0924					
0925	WL	.	0925	.	0925	0925	0925	0925					
0927	WL	.	0927	.	0927	0927	0927	0927					
0928	WL	.	0928	.	0928	0928	0928	0928					
0929	WL	.	0929	.	0929	0929	0929	.					
0930	WL	.	0930	0930	.	0930	0930	.					
0931	WL	.	.	0931	.	0931	0931	0931					
0932	WL	.	.	0932	.	0932	0932	0932					
0933	WL	.	.	.	.	.	0933	0933					
0934	WL	.	.	.	.	.	0934	0934					
0935	WL	.	.	.	.	.	0935	0935					
0936	WL	.	.	.	.	.	0936	0936					
0937	WL	.	.	.	.	.	0937	0937					
0938	WL	.	.	.	.	.	0938	0938					
0939	WL	.	.	.	.	.	0939	0939					
0940	WL	.	.	.	.	.	0940	0940					
0941	WL	.	.	.	.	.	0941	0941					
0942	WL	.	.	.	.	.	0942	0942					
0943	WL	.	.	.	.	.	0943	0943					
0944	WL	.	.	.	.	.	0944	0944					

DATA FILE NAME: M:\DART\SPK01\LOT10001.DAT

information from the literature were also used in the investigation and are listed in the reference section.

3.2 SITE CHARACTERIZATION

3.2.1 Hydrogeology

Continental fluvial sediments of the Tertiary Wasatch Formation, in excess of 300 ft (90 m) thick, underlie the Spook site and dip slightly to the northeast. The Wasatch Formation consists of lenticular fine-grained to conglomeratic arkosic sandstone, siltstone, claystone, carbonaceous shale, and coal. The Wasatch Formation is divided into three distinct hydrogeologic units: the upper sandstone unit, the middle shale unit, and the lower sandstone unit. The upper sandstone unit is considered the uppermost aquifer for demonstrating compliance with Subpart B of the proposed EPA ground water protection standards (52 FR 36000 (1987)).

The upper sandstone unit consists of moderately cemented, fine- to coarse-grained sandstone containing silty shale lenses. It ranges in thickness from 70 to 140 ft (21 to 43 m). The middle shale unit is composed of well-consolidated silty shale. It ranges in thickness from 40 ft (12 m) in the vicinity of the site to greater than 180 ft (55 m) east of the site. The lower sandstone unit consists of moderately cemented, fine- to coarse-grained sandstone, with the top of the unit in excess of 160 ft (49 m) below the surface near the site (Figures 3.2, 3.3, and 3.4).

Ground water beneath the Spook site occurs in the upper and lower sandstone units of the Wasatch Formation under unconfined and confined conditions, respectively. Depths to the water table in the upper sandstone unit range from 40 to 120 ft (12 to 37 m) below the ground surface. The observed saturated thickness of the upper sandstone unit is approximately 20 ft (6 m) in the vicinity of the site. The upper and lower sandstone units are separated by an aquitard consisting of a thick, laterally extensive silty-shale unit (middle shale unit) with no apparent hydraulic interconnection between the two units.

Ground water in the upper sandstone unit in the vicinity of the site is recharged by infiltration of precipitation and seepage from intermittent streams. Recharge also resulted from processing solutions used in milling during the 1960s. Ground water in the upper sandstone unit discharges by ground water underflow. There is no evidence of discharge of ground water from the upper sandstone unit to the land surface or surface water in the vicinity of the site (based on field observations and conversations with local ranchers). Inflow and outflow of ground water in the lower sandstone unit is by ground water underflow. Seasonal fluctuations of the potentiometric surfaces of the upper and lower sandstone units are generally less than 1 ft (0.3 m). Comparison of ground water elevations measured during 1987-1988 with elevations measured during July 1994 indicates relatively stable ground water conditions in the upper and lower sandstone units in the vicinity of the Spook site.

The predominant ground water flow direction in the upper sandstone unit is to the northeast, under a hydraulic gradient averaging 0.005 (Figure 3.5). The gradient becomes steeper northeast and southeast of the site. The configuration of the ground water table in the upper sandstone unit is controlled by the elevation of the top of the middle shale unit as well as land surface topography and recharge. The ground water flow direction in the lower sandstone unit is generally to the southeast under a hydraulic gradient averaging 0.01 (Figure 3.6).

Aquifer pumping tests were conducted in monitor wells SPK-01-913 and -928 to measure hydraulic parameters of the upper sandstone unit. The tests were run for 13.1 and 16.8 hours with an average discharge rate of 3.3 and 4.2 gpm (0.2 L/s and 0.26 L/s), respectively. The two tests indicated an average transmissivity of 225 ft²/day (2.42 cm²/s) in the upper sandstone unit. The average hydraulic conductivity of the upper sandstone unit, determined by dividing the transmissivity by the average saturated thickness (14.5 ft, [4.4 m]), was 15 ft/day (5.3×10^{-3} cm/s). The average linear ground water velocity in the upper sandstone unit is 0.38 ft/day (1.34×10^{-4} cm/s), based on the above hydraulic conductivity, a hydraulic gradient of 0.005, and an estimated effective porosity of 0.20. The aquifer pumping test calculations are presented in Appendix E.

Although the average discharge rate (yield) of ground water from the uppermost aquifer was sustained at approximately 4 gpm (0.25 L/s) during the aquifer pumping tests, steady-state conditions were not reached. Drawdown of approximately 4 to 5 ft (1 to 2 m) was observed in the monitor wells from an average saturated thickness of 14.5 ft (4.4 m). Thus, it is not anticipated that this aquifer would be able to sustain long-term pumping to provide an adequate supply of water for domestic purposes.

Based on the average linear ground water velocity in the upper sandstone unit, it is estimated that the contaminants in ground water could have migrated approximately 2500 ft (760 m) downgradient from the site since the period of uranium processing operations during the 1960s. This estimate is based on limited data and could change, depending on the spatial variability of aquifer parameters and the temporal variation in recharge to the system during and after uranium-processing activities. The maximum influx of fluids (and contaminants) into the ground water system would have occurred during the time uranium-processing activities were in progress. Fluid from the tailings (which were deposited adjacent to and into the Spook open-pit mine) would infiltrate from the bottom of the pit into ground water at a depth of approximately 20 ft (6 m) below the surface. After milling operations ceased, the principal driving force for contaminant migration decreased and steady-state conditions were reached in the aquifer over time. After completion of remedial action at the Spook site, the open-pit mine was filled in with overburden materials, causing the vertical distance to the water table to increase from 20 ft (6 m) to approximately 100 ft (30 m), reducing the ability of fluids to migrate into the ground water system.

3.2.2 Geochemistry and background ground water quality

The Spook uranium mill site is underlain by uranium mineralization associated with an alteration front in the upper sandstone unit. Uranium ore deposits characteristically occur at irregular intervals along the alteration front, as evidenced by the Bear Creek open-pit mine north of the Spook and Kerr McGee open-pit mines south of the site. The primary regional mineralization episode probably occurred during the Oligocene through early Miocene Ages as oxidizing ground water moved from the south through sandstone aquifers in the Wasatch Formation and through overlying formations, dissolving disseminated minerals that contained trace amounts of uranium, molybdenum, and selenium (Galloway, 1979). The metal-bearing ground water migrated toward the west, north, and east, until changes in physical and geochemical conditions caused precipitation of uranium, selenium, and molybdenum along the edges of the alteration front. Figure 3.7 shows the resulting pattern of mineralization, with the alteration front separating the unaltered sandstones (west, north, and east of the front) from the altered sandstones in the interior of the front. The Spook site lies on that front, at the boundary between altered and unaltered sandstones.

There is generally a geochemical gradient within uranium-mineralizing alteration fronts, with vanadium and selenium precipitates being concentrated on the altered (interior) side of the front, uranium concentrated in the middle, and molybdenum concentrated on the unaltered (exterior) side. In the Powder River basin, selenium precipitates have been identified as being ferroselite in the interior of the front, with some elemental selenium occurring on the reduced side (Granger and Warren, 1974).

At present, the ground water flow direction in the upper sandstone unit beneath the Spook site is from the southwest to northeast, moving from the unaltered sandstones, which contain no uranium mineralization, through the uranium-bearing alteration front, and into the oxidized, altered sandstones. As the ground water encounters uranium- and selenium-bearing minerals, it dissolves those minerals. Thus, as naturally-occurring ground water moves from the unaltered zones into the area of altered sandstones, ground water quality can be expected to degrade as naturally-occurring uranium and selenium are dissolved into the ground water. Evidence that this natural degradation of ground water quality has occurred in the vicinity of the alteration front is provided in Figure 3.7, which shows that uranium and selenium concentrations in natural ground waters are higher within the area of altered sandstones.

Ground water beneath the Spook site is located within the altered, oxidized interior of the alteration front. Ground water from the west side of this front (farther upgradient) would encounter conditions in unaltered, reduced sandstones, which are not representative of conditions beneath and downgradient from the Spook site.

FIGURE 3.7
ALTERATION FRONT IN THE VICINITY OF THE
SPOOK, WYOMING, SITE

Because of the influence of the alteration front geochemical gradient on ground water chemistry at the site, background ground water quality must be assessed using available information on regional background conditions and information from downgradient monitor wells that have not been impacted by processing operations. Background ground water quality is the quality of ground water expected in the vicinity of the Spook site if contamination had not occurred as a result of uranium-processing activities.

Regional background ground water quality data from the sandstone in the Wasatch Formation were collected by Rocky Mountain Energy (RME) from 22 domestic wells and monitor wells during the period between 1974 and 1977 (RME, 1983). The wells were completed in both the altered and unaltered portions of the Wasatch Formation, as determined by their location relative to the alteration front (Figure 3.7). The data were collected as part of a mining permit application, and ground water was sampled prior to mining and milling activities. Thus, the data represent natural, ambient ground water quality. These data are available from the state of Wyoming (RME, 1983). The average concentration of selected constituents and the depth for each well are summarized in Table 3.3, and the complete set of data are provided in Appendix D.

Regionally, in unaltered sandstones, uranium concentrations are generally less than 0.005 mg/L and selenium concentrations are generally less than 0.01 mg/L, reflecting the absence of mineralization within the unaltered sandstones (Table 3.3). Other metals associated with mineralization (molybdenum, and chrome) are also not present at levels above detection. Nitrate concentrations range up to 8.8 mg/L; ammonium is generally less than 0.3 mg/L; and the pH is slightly alkaline.

In contrast, regional data for the altered sandstones demonstrate that most ground water within the altered sandstones has elevated concentrations of uranium and selenium compared to ground water in the unaltered sandstones. Of the eight wells located within the altered sandstone, six have selenium concentrations in excess of the UMTRA Project proposed MCL for selenium (0.01 mg/L). Uranium exceeds the proposed MCL for uranium (0.044 mg/L) in one well. Molybdenum and chromium occur at levels that are close to or below detection levels. Ammonium is generally below detection; nitrate ranges from less than 0.2 to 38 mg/L (averaging 7.7 mg/L); and pH is slightly alkaline (Table 3.3).

The regional data demonstrate that ground water from the altered sandstones has uranium and selenium concentrations greater than those in the unaltered sandstones and that the altered sandstones may contain ground water with ambient uranium and selenium concentrations in excess of the proposed MCLs for UMTRA Project sites.

Table 3.3 Summary of regional ground water quality in altered and unaltered sandstone of the Wasatch Formation, Converse County, Wyoming

Well Id	Depth (ft)	Se mg/L	U mg/L	Cr mg/L	Mo mg/L	NO ₃ as mg/L NO3	SO ₄ mg/L	NH ₄ as N mg/L	pH
UNALTERED SANDSTONES^a									
Site 1	360	<0.010	<0.004	<0.006	<0.020	3.3	423	<0.5	7.4
Site 2	325	<0.010	<0.013	<0.004	<0.009	1.7	369	0.4	7.3
Site 3	270	<0.010	<0.003	<0.006	<0.010	3.9	167	0.5	7.6
Site 4	260	<0.010	<0.006	<0.006	<0.030	4.2	171	0.5	7.5
Site 5	80	<0.010	<0.004	<0.008	<0.006	6.8	770	<0.1	7.3
Site 8	515	<0.010	<0.002	<0.007	<0.020	2.5	26	<0.2	8.0
Site 9	410	<0.010	<0.002	<0.006	<0.009	2.8	78	0.3	7.6
Site 10	430	<0.010	<0.003	<0.009	<0.008	2.8	90	<0.2	8.2
Site 15	126	<0.012	<0.009	<0.006	<0.009	3.9	1392	<0.1	7.1
Site 16	240	0.010	<0.007	0.004	0.004	8.8	384	1.0	8.3
MW-1 ^b	200	<0.005	<0.003	<0.004	<0.010	0.6	577	<0.1	7.5
MW-2 ^b	273	<0.008	0.006	<0.006	<0.020	5.8	352	<0.1	7.2
MW-3 ^b	290	<0.008	<0.003	0.003	<0.005	5.6	562	<0.2	7.3
MW-21 ^b	203	na	na	na	na	0.4	274	<0.1	7.1
AVERAGE	284	<0.009	<0.005	<0.005	<0.011	3.8	403	0.31	7.5
ALTERED SANDSTONES									
Site 6	265	<0.015	0.017	<0.004	<0.006	38.0	128	<0.1	7.2
Site 7	322	<0.016	0.032	<0.006	<0.010	3.6	551	<0.1	7.5
MW-20 ^b	197	1.400	1.800	<0.02	<0.050	17.6	955	<0.1	7.8
MW-18 ^b	271	0.065	0.036	<0.02	<0.050	1.0	445	<0.1	7.6
MW-19 ^b	237	0.040	na	0.05	0.050	<0.2	221	<0.1	7.4
MW-17 ^b	176	0.031	0.023	<0.02	<0.050	0.4	888	<0.1	7.7
PW-2 ^b	222	0.056	<0.008	0.02	0.050	0.6	435	0.3	7.7
MW-16 ^b	240	0.037	0.007	0.05	0.100	0.3	766	<0.1	7.7
AVERAGE	241	0.208	0.240	<0.024	<0.046	7.7	549	<0.13	7.6

^aData listed are the average of one to seven sampling rounds per well. Averages as "less than"

are the average of detection limits and detected values.

^bData are for one sampling round only.

Background ground water quality at the Spook processing site

Six monitor wells (SPK-01-918, -925, -931, -933, -943, and -944) are located downgradient but beyond the area of contamination as defined above. That is, these samples had no ammonium, a neutral to slightly alkaline pH, and nitrate concentrations less than 13 mg/L. Data from these wells were also checked against other positive indicators of contamination, such as chloride, sodium, and sulfate. One monitor well at the edge of the identified area of ground water contamination, monitor well SPK-01-918, had a chloride concentration of 26 mg/L that may indicate contamination. However, the other five samples all had low chloride (less than 1 to 5.3 mg/L) and low sulfate (61 to 393 mg/L). The plume extends approximately 2500 ft (760 m) downgradient from the former tailings pile and acid pond. One well (SPK-01-925) lies close to the edge of the plume (within about 200 feet [61 m]) and was discounted as background simply because of its proximity to the plume.

The four remaining monitor wells in the upper sandstone (SPK-01-931, -933, -943, and -944) display no trends in nitrate, chloride, sulfate, or sodium as a function of distance from the core of contamination, and pH and major element chemistry are within the range of the regional background. These four wells are located 2900 to 6700 ft (880 to 2000 m) downgradient from the Spook site and 700 to 4200 ft (213 to 1300 m) beyond the edge of the plume.

Data from these four monitor wells determined to be beyond the influence of contamination were used to determine the quality of background ground water in the altered upper sandstone at the Spook site. The ground water quality data for these four wells are summarized in Table 3.4; locations are shown in Figure 3.8.

As with the regional background data, data from these background monitor wells on the site demonstrate the natural occurrence of uranium and selenium, in excess of MCLs for UMTRA Project sites, in ground water within the altered sandstones of the Wasatch Formation. Selenium concentrations (up to 1.1 mg/L) are within the observed range of regional background for altered sandstones (up to 1.4 mg/L), but uranium concentrations (0.89 to 2.9 mg/L) are slightly greater than observed regional range (up to 1.8 mg/L). Overall, the comparison to regional background ground water quality data demonstrates that background ground water from altered sandstones near the site is typical of regional background; together, both sets of data demonstrate that the concentrations of selenium in background ground water locally exceeds the MCLs for UMTRA Project sites for selenium and uranium. In addition, chromium exceeds the MCL in background ground water within the upper sandstone at the Spook site (Table 3.4).

3.3 CONCEPTUAL SITE MODEL

A conceptual model of the Spook site has been developed to provide a basis for assessing the interaction of site-related contaminants with the environmental

Table 3.4 Summary of ground water quality in the upper sandstone unit at the Spook, Wyoming, site

Parameter	MCLs	Containment ^a core			Outer plume ^b wells			Background ^c		
		Min	Median ^d	Max	Min	Median ^d	Max	Min	Median ^d	Max
Arsenic	0.05	0.004	0.012	0.05	<0.001	<0.01	0.02	<0.001	<0.01	<0.01
Barium	1.0	<0.01	<0.06	<0.10	<0.01	<0.10	0.36	0.03	<0.10	<0.10
Cadmium	0.01	<0.001	<0.005	0.021	<0.001	<0.001	0.011	<0.001	<0.001	<0.003
Chromium	0.05	<0.01	0.15	0.17	<0.01	0.06	0.23	0.04	0.06	0.08
Lead	0.05	<0.01	<0.01	0.03	<0.001	<0.01	0.02	<0.01	<0.01	<0.01
Mercury	0.002	<0.0002	<0.0002	0.0004	<0.0002	<0.0002	0.0005	<0.0002	<0.0002	0.0004
Molybdenum	0.10	0.02	0.07	0.18	<0.01	0.02	0.20	<0.01	0.01	0.02
Nitrate	44	160	350	690	<0.1	41	490	2.2	4.0	9.1
Selenium	0.01	0.045	0.96	6.6	<0.001	1.15	21	0.036	0.39	1.1
Silver	0.05	<0.01	0.03	0.04	<0.01	0.01	0.08	<0.01	0.01	0.02
Radium 226 + 228	5.0	3.4	44	94	0.9	8.5	194	1.3	2.2	3.4
Uranium	0.044	0.043	0.80	3.9	0.017	2.0	25	0.89	2.0	2.9
pH	No MCL	5.59	6.38	7.13	6.39	7.01	8.50	6.99	7.20	7.50
Total Dissolved Solids	No MCL	3670	4970	5490	55	870	2720	440	500	860
Ammonium	No MCL	69	98	300	<0.1	<0.1	22	<0.1	<0.1	<0.1
Sulfate	No MCL	1530	2940	3760	58	330	1300	146	159	393
Manganese	No MCL	5.0	15	28	<0.01	0.06	0.40	<0.01	0.02	0.05
Antimony	No MCL	0.001	0.020	0.036	<0.003	0.004	0.014	<0.003	<0.003	0.004

^aContaminant core wells are characterized by high ammonium and low pH. Wells used are DOE ID's 920, 930, 935 and 940.^bOuter plume wells lie outside the contaminant core but within the nitrate plume (fig. 3.7). Wells used are DOE ID's 911, 912, 913, 916, 917, 922, 924, 927, 928, 929, 932, 934, 936, 937, 939, 941 and 942.^cBackground wells are located at least 500 feet beyond the nitrate plume, downgradient of the processing site. Wells used are DOE ID's 931, 933, 943 and 944.^dThe median represents the 50th percentile of the pooled data from the wells in each category.

FIGURE 3.8
EXTENT OF CONTAMINATION IN THE UPPER SANDSTONE UNIT BASED ON DISTRIBUTION OF
AMMONIUM, ACID pH, AND NITRATE
AT THE SPOOK, WYOMING, SITE

setting, contaminant release mechanisms, contaminant fate and transport, and potential risks to human health and the environment. The conceptual model is used to identify additional data needs and is the foundation upon which an appropriate ground water compliance strategy is determined. Figure 3.9 depicts the conceptual site model for the Spook site.

3.3.1 Contaminant sources

Ground water in the uppermost aquifer (upper sandstone unit of the Tertiary Wasatch Formation) beneath and downgradient of the site has been contaminated by uranium-processing activities that occurred from 1962 until 1966. Site-related contaminants in ground water have been detected approximately 2500 ft (760 m) downgradient and include uranium, selenium, chromium, molybdenum, and radium-226 and -228. The primary sources of site-related contamination in ground water in the upper sandstone unit include chemical and radiological constituents derived from tailings and ore piles, the acid pond, and windblown tailings subjected to leaching during precipitation infiltration. The original site-related sources of shallow ground water contamination in the upper sandstone aquifer are no longer active, having been stabilized within the Spook open-pit mine.

Naturally-occurring alteration front mineralization within the saturated zone also constitutes a primary source of contamination for ground water in the upper sandstone unit.

3.3.2 Extent and magnitude of contamination

Process reagents that could reasonably be anticipated in the contaminated ground water at the site include sulfate, ammonium, sodium, nitrate, and possibly chloride. Comparison of the regional background ground water quality (Table 3.3) with samples from DOE monitor wells in the upper sandstone unit (Table 3.4) indicates that all of these anticipated process reagent contaminants are present at levels significantly greater than background levels. Of these, nitrate is the most useful for identifying the extent of contamination. Ammonium and pH are buffered by reactions with the solid rock matrix and only serve to identify the area most intensely affected by contaminants. In contrast, nitrate is a chemically conservative constituent (generally not affected by reactions with aquifer matrix) and delineates areas that have received lesser amounts of contaminated solutions because of dilution and chemical reactions. Nitrate is used in respiration by bacteria (denitrification); however, denitrification will not occur in the presence of dissolved oxygen (Rowell, 1981). Dissolved oxygen is present in ground waters in the region (RME, 1978) and on the site (DOE, 1990) in measurable amounts (averaging about 1.6 mg/L in the upper sandstone on the site). Thus, nitrate is probably not appreciably affected by denitrification in the upper sandstone on the site.

Together, ammonium and pH define a core of contamination in the upper sandstone centered on the sources of contamination, including the tailings pile,

FIGURE 3.9
CONCEPTUAL MODEL FOR THE
SPOOK, WYOMING, SITE

acid pond, and areas between (Table 3.4 and Figure 3.8). In this core area, ammonium generally is present at levels above those found in the regional background (less than 0.1 mg/L) and/or the pH is less than 7.0, lower than that observed in regional background (pH greater than 7.0). In addition, nitrate and sulfate are present in the contaminated ground water at relatively high concentrations in the core of contamination (up to 690 mg/L nitrate and 3760 mg/L sulfate) (Table 3.4).

Nitrate concentration in regional background ground water ranges from less than 0.2 to 38 mg/L, with an average of 5.2 mg/L and a standard deviation of 8.3 mg/L. Nitrate values at the site in excess of the regional mean plus one standard deviation (13 mg/L) delineate the contaminated area that includes the core of contamination and an outer zone of contamination with elevated nitrate, but little or no ammonium and generally neutral to slightly alkaline pH (Table 3.4 and Figure 3.8). The nitrate delineates two plumes: one extending northeast of the tailings pile, and a second extending east of the acid pond. The trends of these plumes are consistent with the hydrologic gradient, and the extent of the plumes is consistent with the ground water flow velocity computed from hydrologic tests. Not enough data exists to determine long-term time-dependent trends in the concentrations within the core and outer portions of the plumes.

The depth of contamination is restricted vertically to the upper sandstone unit, which is underlain by a persistent shale aquitard. Ground water in the lower sandstone unit is not contaminated as a result of milling operations at the Spook site, and concentrations of all constituents are below proposed MCLs for UMTRA Project sites (Table 3.5; Appendix D). Elevated concentrations of nitrate and uranium detected in monitor well SPK-01-910 during the initial round of sampling in February 1987 (a few weeks after completion of the well) were possibly the result of contamination introduced into the ground water during drilling and installation of the well. Five sampling rounds from September 1987 to December 1988 displayed a significant decrease in nitrate (from 60 to less than 10 mg/L) and uranium (from 0.08 to 0.01 mg/L), demonstrating that mixing and dilution with natural ground water are returning the ground water near this well to its natural state.

Data from the DOE background monitor wells in the upper sandstone unit were compared to the water quality data from wells located within the core and outer portions of the contaminant plume associated with the tailings pile and acid pond. The comparison of background to plume data indicate that, within the upper sandstone unit, several constituents in the plume are at concentrations above MCLs for UMTRA Project sites, including chromium, molybdenum, nitrate, selenium, uranium, and combined radium-226 and -228. In addition, a few samples within the plume exceeded the MCL for cadmium; however, most contaminated ground water contained less than 0.001 mg/L cadmium.

About half of the contaminants in the plume that exceed UMTRA Project proposed MCLs are present at levels 10 times or less that of background. These include chromium (about 2 times background), molybdenum (about 10

Table 3.5 Ground water quality in the lower sandstone unit at the Spook, Wyoming, site

Parameter	MW-910	MW-914	MW-919	MW-921	MW-923	MW-938
Alkalinity ¹	135	111	165	214	145	213
Ammonium	0.5	<0.1	<0.1	<0.1	<0.1	<0.1
Arsenic	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Cadmium	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Calcium	50	34	57	104	50	10
Chloride	<1.0	<1.0	<1.0	2.1	<1.0	<1.0
Chromium	0.05	0.01	0.02	0.04	0.02	<0.01
Gross alpha ⁴	12	11	5	0	4	2
Gross beta ⁴	7	4	7	17	6	4
Iron	0.04	<0.03	0.05	0.68	0.07	<0.03
Lead	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Magnesium	9	5	10	22	9	2
Manganese	0.04	0.02	0.03	0.07	0.04	<0.01
Nitrate ²	8	7	1	5	6	6
pH	8.0	8.2	7.6	7.3	7.7	8.6
Potassium	5	4	5	7	6	4
Radium-226 ⁴	0.7	0.3	1.3	0.6	0.8	0.3
Radium-228 ⁴	0.9	0.8	1.7	1.8	0.6	0.0
Selenium	0.006	0.005	0.006	<0.005	<0.005	<0.005
Silver	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Sodium	77	56	58	36	98	80
Sulfate	200	110	160	210	210	2
TDS ³	470	340	60	560	510	260
Uranium	0.0101	0.0012	0.0015	0.0006	0.0011	0.0004
Vanadium	<0.01	<0.01	<0.01	0.02	<0.01	<0.01

1. Alkalinity as mg/L CaCO₃.
2. Nitrate expressed as NO₃.
3. TDS - total dissolved solids.

Data are for filtered samples collected December 10, 1988. All data expressed as milligrams per liter (mg/L) unless noted as picocuries per liter (pCi/L).

times background), and uranium (about the same as background). Selenium is also generally present at concentrations near that of background (within 3 times that of background), though locally (in monitor well SPK-01-916), selenium exceeds background by a factor of about 20. Nitrate in the area of the plume is considerably above background levels (up to about 90 times background) but decreases steadily in the outer portions of the plume to near background levels. Combined radium-226 and radium-228 is present locally at concentrations up to 60 times background.

3.3.3 Potential release mechanisms

Based on available information regarding the uranium milling process, characterization of tailings solutions, and the distribution of contaminants in ground water, a reasonable model of the potential contaminant release mechanisms has been developed.

Acid solutions used in the uranium milling process at the Spook site were disposed of on the tailings pile and in the acid pond. Consequently, these solutions percolated into the vadose zone, where they were neutralized by reactions with carbonate minerals. However, several constituents remained in neutralized solutions, including uranium, selenium, and nitrate. Seepage of the process solutions from the tailings appears to have effectively drained process solutions from the tailings, such that, prior to surface remediation, the tailings were no longer saturated (DOE, 1990). Seepage from the acid pond resulted in the complete drainage of acid solutions from the pond prior to surface remediation. Thus the primary release of contaminants is thought to have been seepage of process solutions into the vadose zone prior to surface remediation. Potential secondary release mechanisms would include leaching of contaminants from tailings and subsoils immediately beneath the tailings and acid pond by infiltration of precipitation. Typically, leaching mechanisms include dissolution, desorption and cation exchange.

Surface remediation at the site has resulted in stabilization of site wastes in a disposal cell which incorporates features designed to provide long term hydrologic isolation. As a result, the primary and secondary release mechanisms as discussed above have been mitigated.

3.3.4 Contaminant fate and transport mechanisms

A geochemical reaction effective in decreasing or removing contaminants from the process solutions was neutralization of acid process solutions by carbonate minerals within soils immediately beneath the tailings pile and acid pond. This neutralization occurred within 12 ft (3.7 m) of the contact between the tailings and the Wasatch Formation (Shepard and Brown, 1983); thus, the pH of the contaminant plume beneath the site is neutral to slightly acid (Table 3.2). Geochemical modeling of contaminated ground water within the plume area was performed using the computer code PHREEQE (Parkhurst et al., 1980). This modeling indicates that most of the ground water is now equilibrated with

calcite (a calcium carbonate mineral responsible for neutralizing the acid process solutions). Neutralization is generally effective in decreasing total dissolved solids, sulfate, aluminum, iron, radium, and cation trace metal concentrations in contaminant solutions produced by uranium processing.

A second effective process for decreasing contaminant concentrations in the ground water is dilution. The decrease in contaminant concentrations in the outer portions of the plume, relative to the core of contamination, demonstrates that dilution has occurred at the Spook site (Table 3.2). This dilution is caused by the movement of ground water from southwest to northeast across the site. Mixing of the contaminated waters with natural waters downgradient of the site has resulted in five-fold or greater decreases in total dissolved solids, sulfate, and nitrate. Further dilution will occur in conjunction with contaminated ground water movement toward the northeast.

Dilution of the plume has little or no effect on the concentrations of uranium, molybdenum, selenium, and chromium because these constituents are present in background ground water at concentrations that are similar to, or even greater than, those in the plume. For example, most uranium concentrations in background ground water are the same as or greater than those in the core of the plume (Table 3.2), reflecting the fact that the principal source of uranium in both plume and background ground water is dissolution of uranium ores within the Wasatch Formation.

As with uranium and selenium, radium concentrations in the plume may also result from dissolution of the uranium ore deposit in the alteration front. The extent of radium-226 and radium-228 migration into the Wasatch Formation beneath the tailings pile was generally less than 3 ft (1 m), due to coprecipitation with sulfates formed in response to neutralization reactions (FBDU, 1981). Considering the general effectiveness of this process, it is likely that locally high concentrations of radium in the plume (up to 194 pCi/L combined radium-226 and -228 in monitoring well SPK-01-924) are related to local dissolution of ore in the alteration front. Radium is adsorbed onto clay minerals, iron oxyhydroxides, and manganese oxyhydroxides (Ames et al., 1983). These solids are present within the altered upper sandstone on the site (DOE, 1989) and thus adsorption may limit the transport of radium from local sources.

3.3.5 Background risk evaluation

A baseline risk assessment of site-related contamination was not performed for the Spook site because of the lack of exposure pathways for the uppermost aquifer and because of the naturally contaminated nature of background ground water from that aquifer.

The geochemical study presented above has demonstrated that widespread, ambient contamination exists in background ground water. To demonstrate the contaminated nature of the ambient background ground water from the

uppermost aquifer, a screening level risk analysis was performed using data from the four background wells within the alteration front, but beyond the farthest extent of tailings-related contamination (SPK-01-931, -933, -943, and -944). The risk analysis is provided in Appendix F. The risk analysis determined that site conditions support the proposed compliance strategy of performing no remediation.

Potential exposure pathways

There are no known current exposure pathways for ground water from the uppermost aquifer because no one is using the water and there is no ground water discharge to the surface. Water supply wells in the vicinity of the Spook site, some of which are under artesian (flowing) conditions, readily obtain good quality ground water for domestic purposes and stock watering from aquifers below the uppermost sandstone unit, protected from the effects of processing activities at the site.

The Spook site is in a remote area of Wyoming, well removed from any large population centers. The nearest residence is 1.4 mi (2.3 km) southwest of the Spook site. An estimated 10 residents live within a 3-mi (5-km) radius of the site. Conversations with the Converse County Planning Commissioner and the local ranchers indicated that the large ranches in the vicinity of the Spook site have been owned and operated by several generations of the same families currently in residence, and it appears that this trend likely will continue into the future (DOE, 1990). Thus, the current population density is very low and is likely to remain very low in the foreseeable future.

Conditions in the site area support the conclusion that there currently are no complete exposure pathways to ground water from the uppermost aquifer. Because there are no current or foreseeable future exposure pathways to ground water in the uppermost aquifer, this ground water does not present a risk to human health or the environment.

3.3.6 Treatability issues

The proposed EPA UMTRA Project site ground water cleanup standard for selenium is 0.01 mg/L (52 FR 36000 (1987)). Chapter VIII (4, (d)) of the Wyoming regulation states the ground water MCLs for domestic, agricultural, and livestock uses are 0.01, 0.02, and 0.05 mg/L respectively (State of Wyoming, 1993). Background ground water selenium concentrations at the Spook site are well above both the state ground water MCLs and proposed EPA ground water cleanup standards. The maximum background selenium concentration observed was 1.1 mg/L (Table 3.4). In addition, the background ground water concentrations of uranium exceed both the state and EPA limits described above (Table 3.4).

Selenium may be removed by several treatment methods. Treatment methods that are considered as best available treatment (BAT) methods by the EPA are

electrodialysis, lime softening, activated alumina fluoride (alumina), and ion exchange. Although not listed as a BAT, reverse osmosis and distillation will also remove selenium along with other dissolved metals and salts. Since the water must also be treated for uranium removal, the process design for water treatment becomes more complicated.

The elevated levels of selenium (1.1 mg/L maximum), uranium (2.9 mg/L maximum), calcium (179 mg/L maximum) and sulfate (393 mg/L maximum) make treatment of this water more akin to an industrial waste water treatment process than a public water supply treatment process. The need to achieve at least a 99 percent removal of selenium and uranium (to meet MCLs of 0.01 mg/L for selenium and 30 pCi/L, or 0.044 mg/L for uranium) emphasizes the difficulty.

A treatment system to meet the EPA drinking water MCLs for these two elements could consist of a pretreatment system such as lime softening and filtration to remove calcium (which can cause scale formation), followed by either reverse osmosis or electrodialysis to remove of the selenium and uranium as well as all other metals and salts. Because of the need to achieve 99 percent reduction of uranium and selenium, the treated water would be very low in total dissolved solids, which would require the addition of some salts to prevent the water from being excessively corrosive in water system distribution lines.

Alternately, pretreatment with a lime-softening unit could be used, followed by neutralization, filtration, and polishing with specific ion exchange resin units for selenium and uranium removal. The lime-softening pretreatment could remove 30 to 50 percent of the selenium and up to 90 percent of the uranium. Before polishing the water with the ion exchange units, ozone or chlorine would probably need to be added, as the selenium in the ground water is probably present as selenite (SeO_3^{-2}). Selenium removal with ion exchange resins is preferential to the removal of selenate (SeO_4^{-4}), as opposed to selenite. The same requirement for conversion of selenite to selenate exists with the use of alumina for the removal of selenium (Montgomery, 1985).

In addition to the complexity of the treatment system, the treatment processes used to remove the selenium and uranium may generate hazardous or mixed wastes in the sludges and brines generated during treatment. If these wastes meet hazardous waste criteria, proper disposal of these residues will be very costly.

Consistently achieving 99-percent-plus removal rates for selenium and uranium would be technically difficult. In addition to the high capital and operating costs for these systems, well-trained operating, maintenance, and laboratory personnel will be required at such a facility.

None of these treatment processes are used on a widespread basis within Wyoming or within EPA Region VIII for public water supply treatment (Jones, 1994).

The extensive contamination of the aquifer caused by natural mineralization and the inability to employ reasonable treatment methods qualify the aquifer in the upper sandstone unit as Class III ground water. The concentrations of selenium and uranium found in background ground water cannot be cleaned up by using treatment methods reasonably employed in public water supply systems.

3.4 DATA DEFICIENCIES

No data deficiencies have been identified, based on evaluation of existing data and the conceptual site model. Therefore, no additional site characterization data are required to support the selection of the compliance strategy for Subpart B of 40 CFR Part 192 at the Spook site.

The lack of recent ground water quality data is not considered a significant data deficiency. Since completion of surface remediation activities in November 1989, the source of ground water contamination has been minimized and the amount of infiltration through the contaminated materials has been significantly reduced. Existing site-related contamination in ground water would be diluted over time by ground water flow beneath the site. The extent of the contaminated area may increase with time, but concentrations of potentially hazardous constituents should decrease because of dilution. Based on existing characterization data and regional ground water quality (as previously discussed), any changes in ground water conditions beneath and downgradient from the Spook site are not expected to have any significant impact on human health and the environment.

4.0 GROUND WATER COMPLIANCE STRATEGY SELECTION

This section describes how requirements for meeting standards at UMTRA Project sites presented in Section 2.0 are fulfilled through the ground water compliance strategy selection framework (Figure 4.1). The site-specific data presented in Section 3.0 are used to answer the questions posed in the framework. This framework was developed in the UMTRA Ground Water Project PEIS (DOE, 1994). The three compliance strategies that could result from the use of the framework are as follows:

- **No remediation:** The strategy of no remediation means that compliance with the proposed standards would be met without altering the ground water or cleaning it up in any way. This could be applied at sites that have no contamination above MCLs or background levels or at sites that have contamination above MCLs or background levels but qualify for supplemental standards or ACLs.
- **Natural flushing:** This strategy allows the natural ground water movement and geochemical processes to reduce the constituent concentrations to levels within regulatory limits in a given time period. This could be applied at sites where ground water compliance would be achieved with the application of natural flushing within 100 years, where effective monitoring and institutional controls could be maintained, and where the ground water is not currently, and is not projected to be, a drinking water source.
- **Active ground water remediation:** This strategy would require the application of engineered ground water remediation methods such as gradient manipulation, ground water extraction and treatment, or *in situ* ground water treatment to achieve compliance with the proposed standards.

4.1 DECISION FRAMEWORK PROCESS

Figure 4.1 shows the ground water compliance strategy selection framework used to determine the strategy for the Spook site.

- **Assessment of existing data:** The first step in selecting the compliance strategy was to assess whether the existing data adequately characterized the hydrogeologic and ground water contamination conditions, or the collection of additional data was necessary. Section 3.0 provides a conceptual site model that includes the hydrogeologic setting, nature and extent of contamination, and contaminant fate and transport. Evaluation of the conceptual site model indicates that adequate hydrogeological and ground water contamination characterization has been completed. Ground water in the uppermost aquifer beneath and downgradient from the Spook site has been contaminated as a result of uranium processing activities that occurred from 1962 until 1966. Site-related contaminants in ground water have been detected approximately 2500 ft (760 m) downgradient, and include uranium, selenium, and nitrate.

FIGURE 4.1
GROUND WATER COMPLIANCE STRATEGY SELECTION FRAMEWORK
SPOOK, WYOMING, SITE

- Comparison with MCLs or background concentrations: The second step was to determine whether ground water contamination exceeds MCLs or background ground water quality. Section 3.0 summarizes the results of analytical data that show that site-related ground water contamination is present in excess of the MCLs for chromium, molybdenum, nitrate, selenium, uranium, and combined radium-226 and -228.
- Applicability of supplemental standards: The third step was to determine whether the contaminated ground water qualified for supplemental standards because of the classification of ground water as Class III. The conceptual site model describes the regional background ground water quality and the ground water quality of the uranium mineralization belt in the area of the Spook site. Section 3.2.2 shows that widespread, ambient contamination by uranium and selenium occurs in background ground water in the vicinity of the site. The widespread, ambient contamination and technical impracticability of treating the ground water meet the requirements for Class III designation under the surface remedial action ground water protection strategy. Section 3.3.6 discusses the treatability issues.
- Risk acceptability: The fourth step was to determine whether human health and environmental risks that result from applying supplemental standards were acceptable. The risk evaluation for the Spook site provided in Section 3.3.5 determines that ground water from the upper sandstone unit in the vicinity of the Spook site is not used as a source of drinking water or for any other beneficial purpose because of poor water quality resulting from naturally-occurring contamination and marginal sustained yield. The risk evaluation concludes that the ground water is not a present risk to human health or the environment because 1) the poor quality of the natural water from the upper aquifer is well-known; 2) good quality water is available from the lower confined aquifers, and 3) there are no current or foreseeable future exposure pathways to ground water in the uppermost aquifer.
- Compliance strategy: The fifth and final step in the framework leads to the compliance strategy to perform no remediation. This is based on ground water in the uppermost aquifer (also the zone of contamination) being classified as Class III, which allows the application of supplemental standards based on Class III classification. Class III ground water includes ground water that is neither a current nor a potential source of drinking water because of widespread, ambient contamination that cannot be cleaned up using treatment methods reasonably employed in public water supply systems (52 FR 36007) (40 CFR §192.11(e)).

4.2 CONCLUSION

Based on the decision framework process, it has been determined that ground water in the uppermost aquifer was contaminated by uranium processing activities at the Spook UMTRA Project site. Contaminants from site source

areas were released into the environment by infiltration and migrated into the ground water system in the uppermost aquifer, forming a plume measuring approximately 2500 ft (762 m) downgradient from the site. It has also been determined that widespread ambient contamination exists in ground water in the uppermost aquifer because of naturally-occurring conditions (natural uranium mineralization associated with an alteration front) and from the effects of broadscale human activity not related to uranium milling operations (uranium exploration and mining activities). Ground water from the uppermost aquifer is not used as a source of drinking water and cannot be effectively cleaned up. Therefore, ground water contamination resulting from uranium processing activities at the Spook site is in an aquifer already contaminated and not usable as a drinking water source. There is not apparent risk to human health and the environment because there are no known exposure pathways for contaminated ground water from the uppermost aquifer to lower aquifers or the surface. No one is using the ground water from this aquifer for any purpose and there is no discharge of ground water from the uppermost aquifer to the surface or to surface water.

The recommended compliance strategy for the Spook site is to perform no remediation based on the justification that ground water in the uppermost aquifer is Class III, and supplemental standards will be applied.

The next step in documenting compliance with Subpart B at the Spook site will include preparation of an environmental assessment (EA). Then, Section E4 of the RAP (DOE, 1990) will be modified to include the information in the SOWP and provide justification for the selection. The RAP will be modified and submitted to the NRC for concurrence of the proposed compliance strategy for Subpart B of 40 CFR Part 192 (1994).

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UNITED STATES CODE

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APPENDIX A
MONITOR WELL LITHOLOGIC LOGS

BOREHOLE LOG (ROCK)

Page 2 of 4

LOCATION MAP:

See pg. 1

SITE ID: SPK-01 LOCATION ID: 900 910
SITE COORDINATES (ft.):
N _____ E _____
GROUND ELEVATION (ft. MSL): 5089
DRILLING METHOD: Rotary - Air
DRILLING CONTR.: Bayles Bros.
DATE STARTED: 11-24-86
DATE COMPLETED: 11-26-86
FIELD REP.: L. Phyle

GROUNDWATER LEVELS

DATE	TIME	DEPTH (ft.)

LOCATION DESCRIPTION _____
SITE CONDITION _____

DEPTH (FT.)	BORING OPERATION	% CORE RECOVERY	% ROCK QUALITY DESIGNATION (RQD)	% DRILLING FLUID RECOVERY	PACKER TEST INTERVAL	SPACING	ORIENTATION	CONDITION	WEATHERING	LITHOLOGY	ROCK TYPE & REMARKS
60											
70											
80											becoming moist - color change to orange brn.
90											Shale, sandy, fissk, some coal stringers, dk grey to black
											Sandstone, fine to med. gr., grey damp

COMMENTS: _____

BORING OPERATION

H - 6 1/2 HOLLOW STEM AUGER
C - 4 1/2 CONTINUOUS FLIGHT AUGER
GB - GEAR BIT
NX - NX ROCK CORING
NQ - NQ WIRELINE ROCK CORING

BOREHOLE LOG (ROCK)

Page 3 of 4

LOCATION MAP:

See pg. 1

SITE ID: SPK-01 LOCATION ID: 900 910
SITE COORDINATES (ft.):
N _____ E _____
GROUND ELEVATION (ft. MSL): 5089
DRILLING METHOD: Rotary - Air
DRILLING CONTR.: Boyles Bros.
DATE STARTED: 11-24-86
DATE COMPLETED: 11-26-86
FIELD REP.: L. Phyle

GROUNDWATER LEVELS

DATE	TIME	DEPTH (ft.)

LOCATION DESCRIPTION _____
SITE CONDITION _____

ROCK TYPE & REMARKS

DEPTH (FT.)	BORING OPERATION	% CORE RECOVERY	% ROCK QUALITY DESIGNATION (ROD)	% DRILLING FLUID RECOVERY	PACKER TEST INTERVAL	SPACING	ORIENTATION	CONDITION	WEATHERING	LITHOLOGY
100'										
110										
120										
130										
140										
150										

*Shale, sandy, some silt, damp,
lt. gray.*

*Siltstone, trace fine sand, damp
lt. gray*

*Shale, some fine sand, fissile,
high plastic clays, interbedded
coal, lt. gray*

COMMENTS: _____

BORING OPERATION

H - 8 1/2 HOLLOW STEM AUGER
C - 4 1/2 CONTINUOUS FLIGHT AUGER
GB - GEAR BIT
NX - NX ROCK CORING
NQ - NQ WIRELINE ROCK CORING

BOREHOLE LOG (ROCK)

Page 4 of 4

LOCATION MAP:

See pg. 1

SITE ID: SPK-01 LOCATION ID: 400 910

SITE COORDINATES (ft.):

N _____ E _____

GROUND ELEVATION (ft. MSL): 5089

DRILLING METHOD: Rotary - Air/Hist

DRILLING CONTR.: Bayles Bros

DATE STARTED: 11-24-86

DATE COMPLETED: 11-26-86

FIELD REP.: L. Phyte

GROUNDWATER LEVELS

DATE	TIME	DEPTH (ft.)

LOCATION DESCRIPTION _____

SITE CONDITION _____

DEPTH (FT.)	BORING OPERATION	% CORE RECOVERY	% ROCK QUALITY DESIGNATION (RQD)	% DRILLING FLUID RECOVERY	PACKER TEST INTERVAL	SPACING	ORIENTATION	CONDITION	WEATHERING	LITHOLOGY	ROCK TYPE & REMARKS
50'											
											~ becoming sandier
60											
											Sandstone, medium to coarse, subrounded, grayish blue.
70											
											~ T.D. 175'
80											
90											
100											

COMMENTS: _____

BORING OPERATION

H - 8 1/2 HOLLOW STEM AUGER
C - 4 1/2 CONTINUOUS FLIGHT AUGER
GB - GEAR BIT
NX - NX ROCK CORING
NQ - NQ WIRELINE ROCK CORING

BOREHOLE LOG (ROCK)

Page 1 of 3

LOCATION MAP:

SITE ID: SPK-01 LOCATION ID: 901 911
SITE COORDINATES (ft.):
N _____ E _____
GROUND ELEVATION (ft. MSL): 5090
DRILLING METHOD: Rotary - Air
DRILLING CONTR.: Boyle Bros.
DATE STARTED: 11-23-86
DATE COMPLETED: 11-24-86
FIELD REP.: L. Phyle

GROUNDWATER LEVELS

DATE	TIME	DEPTH (ft.)
<u>11-23-86</u>	<u>3:30</u>	<u>≈ 93'</u>

LOCATION DESCRIPTION SITE CONDITION

Just inside tailings area south of ab. pile
Fairly flat, sage brush and grasses

ROCK TYPE & REMARKS

Top Soil - sandy clay, some silt.
moist

Sandstone, predominantly
med. to coarse, locally grades
fine to v. fine, occasional organic
material (wood), lt. gray to buff
weathers orange brn.

fine to v. fine

COMMENTS:

T.D. = 113.5'

BORING OPERATION

H - 6 1/2 HOLLOW STEM AUGER
C - 4 1/2 CONTINUOUS FLIGHT AUGER
GB - GEAR BIT
NX - NX ROCK CORING
NQ - NO WIRELINE ROCK CORING

Page 2 of 3

LOCATION MAP:

SITE ID: SPK-01 LOCATION ID: 901 911
SITE COORDINATES (ft.):
N _____ E _____
GROUND ELEVATION (ft. MSL): 5090
DRILLING METHOD: Rotary - Air
DRILLING CONTR.: Boyles Bros.
DATE STARTED: 11-23-86
DATE COMPLETED: 11-24-86
FIELD REP.: L. Phylte

GROUNDWATER LEVELS

DATE	TIME	DEPTH (ft.)

LOCATION DESCRIPTION

SITE CONDITION

DEPTH (FT.)	BORING OPERATION	% CORE RECOVERY	% ROCK QUALITY DESIGNATION (RQD)	% DRILLING FLUID RECOVERY	PACKER TEST INTERVAL	SPACING	ORIENTATION	CONDITION	WEATHERING	LITHOLOGY	ROCK TYPE & REMARKS
60											color change to orange brn.
70											
80											
90											Shale, sandy, fissile, lt. grey to black, dry occasional coal stringers
											Sandstone, fine to med. grained, greyish blue, damp to wet

COMMENTS:

BORING OPERATION

H - 6 1/2 HOLLOW STEM AUGER
C - 4 1/2 CONTINUOUS FLIGHT AUGER
GB - GEAR BIT
NX - NX ROCK CORING
NQ - NQ WIRELINE ROCK CORING

BOREHOLE LOG (ROCK)

Page 3 of 3

LOCATION MAP:

See pg. 1

SITE ID: SPK-81 LOCATION ID: 901 911
SITE COORDINATES (ft.):
N _____ E _____
GROUND ELEVATION (ft. MSL): 5090
DRILLING METHOD: Rotary - Air
DRILLING CONTR.: Bayless Bros
DATE STARTED: 11-23-86
DATE COMPLETED: 11-24-86
FIELD REP.: L. Phyle

GROUNDWATER LEVELS

DATE	TIME	DEPTH (ft.)

LOCATION DESCRIPTION _____

SITE CONDITION _____

ROCK TYPE & REMARKS

Shale, sandy, dry, grayish blue, coal stringers

T.D. 113.5'

COMMENTS: _____

BORING OPERATION

H - 1/2 HOLLOW STEM AUGER
C - 4 1/2 CONTINUOUS FLIGHT AUGER
GB - GEAR BIT
NX - NX ROCK CORING
NQ - NQ WIRELINE ROCK CORING

BOREHOLE LOG (ROCK)

Page 1 of 3

LOCATION MAP:

SITE ID: SPK-01 LOCATION ID: 902 912
SITE COORDINATES (ft.):
N _____ E _____
GROUND ELEVATION (ft. MSL): 5100
DRILLING METHOD: Rotary
DRILLING CONTR.: Boyles Bros. Drilling
DATE STARTED: 11-15-86
DATE COMPLETED: 11-23-86
FIELD REP.: L. Phyle

GROUNDWATER LEVELS

DATE	TIME	DEPTH (ft.)
<u>11-22-86</u>	<u>1:30 PM</u>	<u>110.0</u>

LOCATION DESCRIPTION
SITE CONDITION

Just East of Spk pit between spoil piles
Flat, salt brush and grasses

DEPTH (FT.)	BORING OPERATION	% CORE RECOVERY	% ROCK QUALITY DESIGNATION (RQD)	% DRILLING FLUID RECOVERY	PACKER TEST INTERVAL	SPACING	ORIENTATION	CONDITION	WEATHERING	LITHOLOGY	ROCK TYPE & REMARKS
10											Sandstone, some silt and clay interbeds, medium to coarse grained, well sorted and weakly cemented, lt. Tan to lt. olive brown. Damp.
20											
30											
40											Silt and Shale, sandy lt. gray to brown, Damp
50											Sandstone, fine to v. fine grained, well sorted, friable, buff.

COMMENTS:

I.D. = 115.0'

BORING OPERATION

H - 6 1/2 HOLLOW STEM AUGER
C - 4 1/2 CONTINUOUS FLIGHT AUGER
GB - GEAR BIT
NX - NX ROCK CORING
NQ - NQ WIRELINE ROCK CORING

BOREHOLE LOG (ROCK)

Page 2 of 3

LOCATION MAP:

See pg 1

SITE ID: SPK-01 LOCATION ID: 902 912
SITE COORDINATES (ft.):
N _____ E _____
GROUND ELEVATION (ft. MSL): 5100
DRILLING METHOD: Rotary - Air / Mist
DRILLING CONTR.: Bayler Bros.
DATE STARTED: 11-15-86
DATE COMPLETED: 11-23-86
FIELD REP.: L. Phyllis

GROUNDWATER LEVELS

DATE	TIME	DEPTH (ft.)

LOCATION DESCRIPTION _____
SITE CONDITION _____

DEPTH (FT.)	BORING OPERATION	% CORE RECOVERY	% ROCK QUALITY DESIGNATION (RQD)	% DRILLING FLUID RECOVERY	PACKER TEST INTERVAL	SPACING	ORIENTATION	CONDITION	WEATHERING	LITHOLOGY	ROCK TYPE & REMARKS
50											
60											
70											
80											
90											
100											

Sand become coarser - med. grained.

Shale lense, clayey, lt. grey ± 2'

COMMENTS: _____

BORING OPERATION

H - 6 1/2 HOLLOW STEM AUGER
C - 4 1/2 CONTINUOUS FLIGHT AUGER
GB - GEAR BIT
NX - NX ROCK CORING
NQ - NQ WIRELINE ROCK CORING

BOREHOLE LOG (ROCK)

Page 3 of 3

LOCATION MAP:

See pg 1.

SITE ID: SPK-01 LOCATION ID: 402 912
SITE COORDINATES (ft.):
N _____ E _____
GROUND ELEVATION (ft. MSL): 5100
DRILLING METHOD: Rotary - Air / Mud
DRILLING CONTR.: Boyle Bros.
DATE STARTED: 11-15-86
DATE COMPLETED: 11-23-86
FIELD REP.: L. Phyte

GROUNDWATER LEVELS

DATE	TIME	DEPTH (ft.)
<u>11-22-86</u>	<u>1:30</u>	<u>110'</u>

LOCATION DESCRIPTION: _____

SITE CONDITION: _____

DEPTH (FT.)	BORING OPERATION	% CORE RECOVERY	% ROCK QUALITY DESIGNATION (RQD)	% DRILLING FLUID RECOVERY	PACKER TEST INTERVAL	SPACING	ORIENTATION	CONDITION	WEATHERING	LITHOLOGY	ROCK TYPE & REMARKS
110											Sandstone, med to coarse, some shale, moist. - coal stringers
120											
130											Shale, fissile, some coal, gray to black, wet
140											
150											T.D. 115'
160											
170											
180											
190											
200											
210											
220											
230											
240											
250											
260											
270											
280											
290											
300											
310											
320											
330											
340											
350											
360											
370											
380											
390											
400											
410											
420											
430											
440											
450											
460											
470											
480											
490											
500											

COMMENTS: _____

BORING OPERATION

H - 6 1/2 HOLLOW STEM AUGER
C - 4 1/2 CONTINUOUS FLIGHT AUGER
GB - GEAR BIT
NX - NX ROCK CORING
NQ - NQ WIRELINE ROCK CORING

BOREHOLE LOG (ROCK)

Page 1 of 3

LOCATION MAP:

SITE ID: SPK-01 LOCATION ID: 903 913
SITE COORDINATES (ft.):
N _____ E _____
GROUND ELEVATION (ft. MSL): 5090
DRILLING METHOD: Rotary - Air / Mist
DRILLING CONTR.: Byrles Bros.
DATE STARTED: 12-13-86
DATE COMPLETED: 12-14-86
FIELD REP.: L. Phyle

GROUNDWATER LEVELS

DATE	TIME	DEPTH (ft.)
12-13-86	5:00	100'

LOCATION DESCRIPTION SITE CONDITION

In center of mill area, ~ 60' from spook pit
fairly flat, sparsely vegetated, snowy & wind blown

ROCK TYPE & REMARKS

DEPTH (FT.)	BORING OPERATION	% CORE RECOVERY	% ROCK QUALITY DESIGNATION (ROD)	% DRILLING FLUID RECOVERY	PACKER TEST INTERVAL	SPACING	ORIENTATION	CONDITION	WEATHERING	LITHOLOGY
0										
10										
20										
30										
40										
50										

Sandstone, fine to med. grained, moderately cemented. Lt. tan.

Silt and Clay, med. plastic, dk. brn. moist.

Sandstone, some silt, fine to medium grained, Lt. tan to orange brown. damp

~ grades coarser

} Clay & coal seams

COMMENTS:

T.D. @ 120.0'

BORING OPERATION

H - 8 1/2 HOLLOW STEM AUGER
C - 4 1/2 CONTINUOUS FLIGHT AUGER
GB - GEAR BIT
NX - NX ROCK CORING
NQ - NO WIRELINE ROCK CORING

BOREHOLE LOG (ROCK)

Page 2 of 3

LOCATION MAP:

See pg. 1

SITE ID: SPK-01 LOCATION ID: 903 913

SITE COORDINATES (ft.):

N _____ E _____

GROUND ELEVATION (ft. MSL): 5090

DRILLING METHOD: Rotary - Air / Mist

DRILLING CONTR.: Boyles Bros.

DATE STARTED: 12-13-86

DATE COMPLETED: 12-14-86

FIELD REP.: L. Phyte

GROUNDWATER LEVELS

DATE	TIME	DEPTH (ft.)

LOCATION DESCRIPTION _____

SITE CONDITION _____

DEPTH (FT.)	BORING OPERATION	% CORE RECOVERY	% ROCK QUALITY DESIGNATION (RQD)	% DRILLING FLUID RECOVERY	PACKER TEST INTERVAL	SPACING	ORIENTATION	CONDITION	WEATHERING	LITHOLOGY	ROCK TYPE & REMARKS
60											<i>Silt and Clay, moderately plastic, dk. brown.</i>
61											
62											
63											
64											
65											
66											
67											
68											
69											
70											<i>Sandstone, some clay (HPI), fine to medium gr., occasional coal seams - lt. tan to orange brn.</i>
71											
72											
73											
74											
75											
76											
77											
78											
79											
80											
81											
82											
83											
84											
85											
86											
87											
88											
89											

COMMENTS: _____

BORING OPERATION

H - 6 1/2 HOLLOW STEM AUGER
C - 4 1/2 CONTINUOUS FLIGHT AUGER
GB - GEAR BIT
NX - NX ROCK CORING
NQ - NQ WIRELINE ROCK CORING

BOREHOLE LOG (ROCK)

Page 3 of 3

LOCATION MAP:

See pg. 1

SITE ID: SPK-01 LOCATION ID: 903 913
SITE COORDINATES (ft.):
N _____ E _____
GROUND ELEVATION (ft. MSL): 5090
DRILLING METHOD: Rotary - Air / Mist
DRILLING CONTR.: Boultz Bros.
DATE STARTED: 12-13-86
DATE COMPLETED: 12-14-86
FIELD REP.: L. Flyte

GROUNDWATER LEVELS

DATE	TIME	DEPTH (ft.)
<u>12-13-86</u>	<u>5:00</u>	<u>100'</u>

LOCATION DESCRIPTION _____
SITE CONDITION _____

ROCK TYPE & REMARKS

DEPTH (FT.)	BORING OPERATION	% CORE RECOVERY	% ROCK QUALITY DESIGNATION (RQD)	% DRILLING FLUID RECOVERY	PACKER TEST INTERVAL	SPACING	ORIENTATION	CONDITION	WEATHERING	LITHOLOGY
100'										
110										
120										
130										
140										
150'										

Shale, sandy, fissile, with interbedded coal, lt. grey to black

T.T. @ 120.0'

COMMENTS: _____

BORING OPERATION

H - 6 1/2 HOLLOW STEM AUGER
C - 4 1/2 CONTINUOUS FLIGHT AUGER
GB - GEAR BIT
NX - NX ROCK CORING
NQ - NQ WIRELINE ROCK CORING

BOREHOLE LOG (ROCK)

Page 4 of 4

LOCATION MAP:

SITE ID: SPK-01 LOCATION ID: ~~904~~ 914

SITE COORDINATES (ft.):

N _____ E

GROUND ELEVATION (ft. MSL): 5090

DRILLING METHOD: Rotary - Air Mist

DRILLING CONTR.: Boyles Bros

DATE STARTED: 12-14-86

DATE COMPLETED: 12-15-86

FIELD REP.: L. Phife

GROUNDWATER LEVELS

DATE	TIME	DEPTH (ft.)
12-14-86	3:30	114'

LOCATION DESCRIPTION _____
SITE CONDITION _____

N. In center of mill area east of foundation walls fairly flat, wind blown & snowy, sparsely vegetated

DEPTH (FT.)	BORING OPERATION	% CORE RECOVERY	% ROCK QUALITY DESIGNATION (RQD)	% DRILLING FLUID RECOVERY	PACKER TEST INTERVAL	SPACING	ORIENTATION	CONDITION	WEATHERING	LITHOLOGY	ROCK TYPE & REMARKS
10											Sandstone, some silt, fine to med. gr., occasional coal seam, lt. tan to orange brn. } Clay seam ≈ 4' thick - gray (HPI)
20											
30											
40											Clay, sandy, with 15' coal seams. high plastic, lt. gray to black

COMMENTS:

T.D. @ 188.0' (Set casing to 1850' -
3' core in)

BORING OPERATION

H - 6 1/2 HOLLOW STEM AUGER

C - 4 1/2 CONTINUOUS FLIGHT AUGER

GB - GEAR BIT

NX - NX ROCK CORING

NQ - NQ WIRELINE ROCK CORING

BOREHOLE LOG (ROCK)

Page 2 of 4

LOCATION MAP:

See pg. 1

SITE ID: SPK-01 LOCATION ID: 904914
SITE COORDINATES (ft.):
N _____ E _____
GROUND ELEVATION (ft. MSL): 5090
DRILLING METHOD: Rotary-Air/Mist
DRILLING CONTR.: Boyles Bros.
DATE STARTED: 12-14-86
DATE COMPLETED: 12-15-86
FIELD REP.: L. Phyte

GROUNDWATER LEVELS

DATE	TIME	DEPTH (ft.)

LOCATION DESCRIPTION _____
SITE CONDITION _____

ROCK TYPE & REMARKS

DEPTH (FT.)	BORING OPERATION	% CORE RECOVERY	% ROCK QUALITY DESIGNATION (RQD)	% DRILLING FLUID RECOVERY	PACKER TEST INTERVAL	SPACING	ORIENTATION	CONDITION	WEATHERING	LITHOLOGY	ROCK TYPE & REMARKS
50											Sandstone, some silt, med. to coarse gr., orange brown.
60											
70											
80											
90											
											Silty Clay, some coarse sand, med. plastic, brown.
											Sandstone, med. to coarse gr., some silt, brown

COMMENTS: _____

BORING OPERATION

H - 6 1/2 HOLLOW STEM AUGER
C - 4 1/2 CONTINUOUS FLIGHT AUGER
GB - GEAR BIT
NX - NX ROCK CORING
NQ - NQ WIRELINE ROCK CORING

BOREHOLE LOG (ROCK)

Page 3 of 4

LOCATION MAP:

See pg. 1

SITE ID: SPK-01 LOCATION ID: 904 917
SITE COORDINATES (ft.):
N _____ E _____
GROUND ELEVATION (ft. MSL): 5090
DRILLING METHOD: Rotary - Air / Mist
DRILLING CONTR.: Boyles Bros.
DATE STARTED: 12-14-86
DATE COMPLETED: 12-15-86
FIELD REP.: L. Phute

GROUNDWATER LEVELS

DATE	TIME	DEPTH (ft.)
12-14-86	3:30	114'

LOCATION DESCRIPTION _____

SITE CONDITION _____

DEPTH (FT.)	BORING OPERATION	% CORE RECOVERY	% ROCK QUALITY DESIGNATION (ROD)	% DRILLING FLUID RECOVERY	PACKER TEST INTERVAL	SPACING	ORIENTATION	CONDITION	WEATHERING	LITHOLOGY	ROCK TYPE & REMARKS
110											
120											Shale and Coal, clayey, (HPI) lt. gray to black.
130											Siltstone, sandy, indurated. lt. grayish blue.
140											
150											
160											
170											
180											
190											
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390											
400											
410											
420											
430											
440											
450											
460											
470											
480											
490											
500											

COMMENTS: _____

BORING OPERATION

H - 6 1/2 HOLLOW STEM AUGER
C - 4 1/2 CONTINUOUS FLIGHT AUGER
GB - GEAR BIT
NX - NX ROCK CORING
NQ - NQ WIRELINE ROCK CORING

BOREHOLE LOG (ROCK)

Page 4 of 4

LOCATION MAP:

See pg. 1

SITE ID: SPK-01 LOCATION ID: 904 914
SITE COORDINATES (ft.):
N _____ E _____
GROUND ELEVATION (ft. MSL): 5090
DRILLING METHOD: Rotary - Air / Mist
DRILLING CONTR.: Bogles Bros.
DATE STARTED: 12-14-86
DATE COMPLETED: 12-15-86
FIELD REP.: L. Phyte

GROUNDWATER LEVELS

DATE	TIME	DEPTH (ft.)

LOCATION DESCRIPTION _____
SITE CONDITION _____

DEPTH (FT.)	BORING OPERATION	% CORE RECOVERY	% ROCK QUALITY DESIGNATION (ROD)	% DRILLING FLUID RECOVERY	PACKER TEST INTERVAL	SPACING	ORIENTATION	CONDITION	WEATHERING	LITHOLOGY	ROCK TYPE & REMARKS
150'											
160											Shale and Coal, fissile, some clay, lt. gray to black.
170											Siltstone, some shale, lt. grayish blue
180											Sandstone, fine to med. gr., trace of silt, lt. grayish blue.
190											T.D. @ 183.0'
200'											

COMMENTS: _____

BORING OPERATION

H - 6 1/2 HOLLOW STEM AUGER
C - 4 1/2 CONTINUOUS FLIGHT AUGER
GB - GEAR BIT
NX - NX ROCK CORING
NQ - NQ WIRELINE ROCK CORING

BOREHOLE LOG (ROCK)

Page 1 of 3

SITE ID: SPK-01 LOCATION ID: 905 915
SITE COORDINATES (ft.):
N _____ E _____
GROUND ELEVATION (ft. MSL): 5074
DRILLING METHOD: Rotary - Air / Mist
DRILLING CONTR.: Col/les Bros.
DATE STARTED: 12-6-86
DATE COMPLETED: 12-10-86
FIELD REP.: L.M. Phyllis

GROUNDWATER LEVELS		
DATE	TIME	DEPTH (ft.)
12-9-86	123 PM	124.0

LOCATION DESCRIPTION
SITE CONDITION

At NE end of site, approx. 75' west of ob. pile
Flat, sage brush and grasses

DEPTH (FT.)	BORING OPERATION	% CORE RECOVERY	% ROCK QUALITY DESIGNATION (ROD)	% DRILLING FLUID RECOVERY	PACKER TEST INTERVAL	SPACING	ORIENTATION	CONDITION	WEATHERING	LITHOLOGY	ROCK TYPE & REMARKS
											Sandstone, fine to med. gr., lt. brn.
											Silt and Clay, interbedded, loose to blocky, lt. brn. dry
											Sandstone, predominantly fine to med, very loose, dry, lt. brn to lt. tan
											~ grades coarse

COMMENTS:

T.D. @ 130'

BORING OPERATION

H - 6 1/2 HOLLOW STEM AUGER
C - 4 1/2 CONTINUOUS FLIGHT AUGER
GB - GEAR BIT
NX - NX ROCK CORING
NQ - NO WIRELINE ROCK CORING

BOREHOLE LOG (ROCK)

Page 2 of 3

LOCATION MAP:

See pg. 1

SITE ID: SPK-01 LOCATION ID: 905 915
SITE COORDINATES (ft.):
N _____ E _____
GROUND ELEVATION (ft. MSL): 5079
DRILLING METHOD: Rotary - Air / Hist
DRILLING CONTR.: Boyles Bros.
DATE STARTED: 12-6-86
DATE COMPLETED: 12-10-86
FIELD REP.: L. Flyte

GROUNDWATER LEVELS

DATE	TIME	DEPTH (ft.)

LOCATION DESCRIPTION: _____
SITE CONDITION: _____

DEPTH (FT.)	BORING OPERATION	% CORE RECOVERY	% ROCK QUALITY DESIGNATION (RQD)	% DRILLING FLUID RECOVERY	PACKER TEST INTERVAL	SPACING	ORIENTATION	CONDITION	WEATHERING	LITHOLOGY	ROCK TYPE & REMARKS
50											
60											
70											} clayey seams
80											
90											
100											
											Shale and coal, sandy, high plastic, fine, H. gray to black

COMMENTS: _____

BORING OPERATION

H - 6 1/2 HOLLOW STEM AUGER
C - 4 1/2 CONTINUOUS FLIGHT AUGER
GB - GEAR BIT
NX - NX ROCK CORING
NQ - NQ WIRELINE ROCK CORING

BOREHOLE LOG (ROCK)

Page 3 of 3

LOCATION MAP:

See pg. 1

SITE ID: SPK-01 LOCATION ID: 905 915
SITE COORDINATES (ft.):
N _____ E _____
GROUND ELEVATION (ft. MSL): 5074
DRILLING METHOD: Rotary - Air / Mist
DRILLING CONTR.: Boyles Bros.
DATE STARTED: 12-6-86
DATE COMPLETED: 12-10-86
FIELD REP.: L. Flyte

GROUNDWATER LEVELS

DATE	TIME	DEPTH (ft.)

LOCATION DESCRIPTION _____

SITE CONDITION _____

DEPTH (FT.)	BORING OPERATION	% CORE RECOVERY	% ROCK QUALITY DESIGNATION (RQD)	% DRILLING FLUID RECOVERY	PACKER TEST INTERVAL	SPACING	ORIENTATION	CONDITION	WEATHERING	LITHOLOGY	ROCK TYPE & REMARKS
110											coal seam $\approx$ 1.5' thick
120											
130											
140											
											T.D. @ 130'

COMMENTS: _____

BORING OPERATION

H - 6 1/2 HOLLOW STEM AUGER
C - 4 1/2 CONTINUOUS FLIGHT AUGER
GB - GEAR BIT
NX - NX ROCK CORING
NQ - NQ WIRELINE ROCK CORING

BOREHOLE LOG (ROCK)

Page 1 of 3

SITE ID: SPK-01 LOCATION ID: 906 916
SITE COORDINATES (ft.):
N _____ E _____
GROUND ELEVATION (ft. MSL): 5075
DRILLING METHOD: Rotary - Air / Mist
DRILLING CONTR.: Bayless Bros.
DATE STARTED: 12-5-86
DATE COMPLETED: 12-6-86
FIELD REP.: L. Phylte

GROUNDWATER LEVELS		
DATE	TIME	DEPTH (ft.)
<u>12-5-86</u>	<u>2:35</u>	<u>100'</u>

LOCATION DESCRIPTION At NE end of site approximately 50' west of spike Pile
SITE CONDITION Flat, sage brush and grasses

DEPTH (FT.)	BORING OPERATION	% CORE RECOVERY	% ROCK QUALITY DESIGNATION (RQD)	% DRILLING FLUID RECOVERY	PACKER TEST INTERVAL	SPACING	ORIENTATION	CONDITION	WEATHERING	LITHOLOGY
0										
10										
20										
30										
40										
50										
60										
70										
80										
90										
100										
110										
120										
130										
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870										
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890										
900										
910										
920										
930										
940										
950										
960										
970										
980										
990										
1000										

ROCK TYPE & REMARKS

Sandstone, some silty lenses, predominantly medium grained, poorly consolidated, dry, lt. brown to lt. tan.

occasional clay lenses

COMMENTS: T.D. @ 110.0'

BORING OPERATION

H - 6 1/2 HOLLOW STEM AUGER
C - 4 1/2 CONTINUOUS FLIGHT AUGER
GB - GEAR BIT
NX - NX ROCK CORING
NQ - NO WIRELINE ROCK CORING

BOREHOLE LOG (ROCK)

Page 2 of 3

LOCATION MAP:

See pg. 1

SITE ID: SPK-01 LOCATION ID: 906 916
SITE COORDINATES (ft.):
N _____ E _____
GROUND ELEVATION (ft. MSL): 5075
DRILLING METHOD: Rotary - Air / Mist
DRILLING CONTR.: Boyles Bros
DATE STARTED: 12-5-86
DATE COMPLETED: 12-6-86
FIELD REP.: L. M. Phyle

GROUNDWATER LEVELS

DATE	TIME	DEPTH (ft.)

LOCATION DESCRIPTION _____

SITE CONDITION _____

DEPTH (FT.)	BORING OPERATION	% CORE RECOVERY	% ROCK QUALITY DESIGNATION (RQD)	% DRILLING FLUID RECOVERY	PACKER TEST INTERVAL	SPACING	ORIENTATION	CONDITION	WEATHERING	LITHOLOGY
50										
60										
70										
80										
90										
100										
110										
120										
130										
140										
150										
160										
170										
180										
190										
200										
210										
220										
230										
240										
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390										
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860										
870										
880										
890										
900										
910										
920										
930										
940										
950										
960										
970										
980										
990										
1000										

ROCK TYPE & REMARKS

↑
Sandstone, med. to coarse,
↓ *lt. tan to orange brn.*

~ reddish clay seams

COMMENTS: _____

BORING OPERATION

H - 6 1/2 HOLLOW STEM AUGER
C - 4 1/2 CONTINUOUS FLIGHT AUGER
GB - GEAR BIT
NX - NX ROCK CORING
NQ - NQ WIRELINE ROCK CORING

BOREHOLE LOG (ROCK)

Page 1 of 2

LOCATION MAP:

SITE ID: SPK 01 LOCATION ID: 907-917
SITE COORDINATES (ft.):
N _____ E _____
GROUND ELEVATION (ft. MSL): 5075
DRILLING METHOD: Rotary - Air / Mist
DRILLING CONTR.: Boyles Bros.
DATE STARTED: 12-11-86
DATE COMPLETED: 12-11-86
FIELD REP.: L. Phyle

GROUNDWATER LEVELS

DATE	TIME	DEPTH (ft.)
12-11-86	10:30	70.0'

LOCATION DESCRIPTION SITE CONDITION

At NE end of site approx 75' from overburden pile
Flat small sage brush, grasses; sandy and windblown

DEPTH (FT.)	BORING OPERATION	% CORE RECOVERY	% ROCK QUALITY DESIGNATION (RQD)	% DRILLING FLUID RECOVERY	PACKER TEST INTERVAL	SPACING	ORIENTATION	CONDITION	WEATHERING	LITHOLOGY
0										
10										
20										
30										
40										
50'										

ROCK TYPE & REMARKS

*Sandstone, some silt, med.
to coarse gr., occasional clay
seams and organics (wood).
lt. tan to orange brown.*

occasional coal seams

COMMENTS:

BORING OPERATION

H - 6 1/2 HOLLOW STEM AUGER
C - 4 1/2 CONTINUOUS FLIGHT AUGER
GB - GEAR BIT
NX - NX ROCK CORING
NQ - NQ WIRELINE ROCK CORING

BOREHOLE LOG (ROCK)

Page 2 of 2

LOCATION MAP:

See pg 1

SITE ID: SPK-01 LOCATION ID: 907 917
SITE COORDINATES (ft.):
N _____ E _____
GROUND ELEVATION (ft. MSL): 5075
DRILLING METHOD: Rotary - Air / Hist
DRILLING CONTR.: Boyls Bros.
DATE STARTED: 12-11-86
DATE COMPLETED: 12-11-86
FIELD REP.: L. Phylle

GROUNDWATER LEVELS

DATE	TIME	DEPTH (ft.)

LOCATION DESCRIPTION _____
SITE CONDITION _____

DEPTH (FT.)	BORING OPERATION	% CORE RECOVERY	% ROCK QUALITY DESIGNATION (ROD)	% DRILLING FLUID RECOVERY	PACKER TEST INTERVAL	SPACING	ORIENTATION	CONDITION	WEATHERING	LITHOLOGY	ROCK TYPE & REMARKS
50'											
60											
70											color change to orange brown Shale, clayey, fissile, lt. grey
80											T.D. @ 75.0'
90											
100'											

COMMENTS: _____

BORING OPERATION

H - 8 1/2 HOLLOW STEM AUGER
C - 4 1/2 CONTINUOUS FLIGHT AUGER
GB - GEAR BIT
NX - NX ROCK CORING
NQ - NQ WIRELINE ROCK CORING

BOREHOLE LOG (ROCK)

Page 1 of 3

SITE ID: SPK-01 LOCATION ID: 908 918
SITE COORDINATES (ft.):
N _____ E _____
GROUND ELEVATION (ft. MSL): 5100
DRILLING METHOD: Rotary - Air / Mist
DRILLING CONTR.: Boyles Bros.
DATE STARTED: 12-11-86
DATE COMPLETED: 12-13-86
FIELD REP.: L. Phyle

GROUNDWATER LEVELS		
DATE	TIME	DEPTH (ft.)
12-12-86	10:30	125.0'

LOCATION DESCRIPTION
SITE CONDITION

Approximately 350' east of material storage area.
Sloping ground, snowy & wind blown, sparsely vegetated

DEPTH (FT.)	BORING OPERATION	% CORE RECOVERY	% ROCK QUALITY DESIGNATION (ROD)	% DRILLING FLUID RECOVERY	PACKER TEST INTERVAL	SPACING	ORIENTATION	CONDITION	WEATHERING	LITHOLOGY
0										
10										
20										
30										
40										
50										
60										
70										
80										
90										
100										
110										
120										
130										
140										
150										
160										
170										
180										
190										
200										

ROCK TYPE & REMARKS

Sandstone, silty, fine to med. grained,
loose, lt. tan, dry

Siltstone, sandy, blocky, lt. gray,
dry

Sandstone, fine to v. fine, loose
lt. tan, damp

COMMENTS:

T.D. @ 135.0'

BORING OPERATION

H - 6 1/2 HOLLOW STEM AUGER
C - 4 1/2 CONTINUOUS FLIGHT AUGER
GB - GEAR BIT
NX - NX ROCK CORING
NQ - NQ WIRELINE ROCK CORING

BOREHOLE LOG (ROCK)

Page 2 of 3

LOCATION MAP:

See pg. 1

SITE ID: SPK-01 LOCATION ID: 908 918
SITE COORDINATES (ft.):
N _____ E _____
GROUND ELEVATION (ft. MSL): 5100
DRILLING METHOD: Rotary - Air / Mist
DRILLING CONTR.: Boyles Bros.
DATE STARTED: 12-11-86
DATE COMPLETED: 12-13-86
FIELD REP.: L. Phylte

GROUNDWATER LEVELS

DATE	TIME	DEPTH (ft.)

LOCATION DESCRIPTION _____

SITE CONDITION _____

DEPTH (FT.)	BORING OPERATION	% CORE RECOVERY	% ROCK QUALITY DESIGNATION (RQD)	% DRILLING FLUID RECOVERY	PACKER TEST INTERVAL	SPACING	ORIENTATION	CONDITION	WEATHERING	LITHOLOGY
50'										
60										
70										
80										
90										
100'										

ROCK TYPE & REMARKS

~ grades med. to coarse

~ color change to reddish brn, damp.

COMMENTS: _____

BORING OPERATION

H - 8 1/2 HOLLOW STEM AUGER
C - 4 1/2 CONTINUOUS FLIGHT AUGER
GB - GEAR BIT
NX - NX ROCK CORING
NQ - NQ WIRELINE ROCK CORING

BOREHOLE LOG (ROCK)

Page 3 of 3

LOCATION MAP:

SITE ID: SPK-41 LOCATION ID: 908 918
SITE COORDINATES (ft.):
N _____ E _____
GROUND ELEVATION (ft. MSL): 5100
DRILLING METHOD: Rotary - Air / Hist
DRILLING CONTR.: Bayl's Bros.
DATE STARTED: 12-11-86
DATE COMPLETED: 12-13-86
FIELD REP.: L. Phyle

See pg. 1

GROUNDWATER LEVELS

DATE	TIME	DEPTH (ft.)
<u>12-12-86</u>	<u>10:30</u>	<u>125.0'</u>

LOCATION DESCRIPTION _____

SITE CONDITION _____

ROCK TYPE & REMARKS

*Shale and Coal, fissile and indurated,
some fine sand, lt. grey to black*

T.D. @ 135.0'

COMMENTS: _____

BORING OPERATION

H - 6 1/2 HOLLOW STEM AUGER
C - 4 1/2 CONTINUOUS FLIGHT AUGER
GB - GEAR BIT
NX - NX ROCK CORING
NQ - NO WIRELINE ROCK CORING

BOREHOLE LOG (ROCK)

Page 1 of 4

SITE ID: SPK-01 LOCATION ID: 909 919
SITE COORDINATES (ft.):
N _____ E _____
GROUND ELEVATION (ft. MSL): 5100
DRILLING METHOD: Rotary - Air / Mist
DRILLING CONTR.: Boyles Bros.
DATE STARTED: 12-2-86
DATE COMPLETED: 12-5-86
FIELD REP.: L. Phyte

GROUNDWATER LEVELS		
DATE	TIME	DEPTH (ft.)
12-3-86	10:30	170.0

LOCATION DESCRIPTION
SITE CONDITION _____

Near south of site just off Hornbuckle ranch road.
Recently disturbed (graded), sparsely vegetated.

[illegible]

COMMENTS:

T.P. @ 188.0'

BORING OPERATION

H - 8 1/2 HOLLOW STEM AUGER
C - 4 1/2 CONTINUOUS FLIGHT AUGER
GB - GEAR BIT
NX - NX ROCK CORING
NQ - NQ WIRELINE ROCK CORING

BOREHOLE LOG (ROCK)

Page 2 of 4

LOCATION MAP:

See pg. 1

SITE ID: SPK-01 LOCATION ID: 909 919
SITE COORDINATES (ft.):
N _____ E _____
GROUND ELEVATION (ft. MSL): 5100
DRILLING METHOD: Rotary - Air/Mist
DRILLING CONTR.: Byles Bros.
DATE STARTED: 12-2-80
DATE COMPLETED: 12-5-80
FIELD REP.: L. Phyle

GROUNDWATER LEVELS

DATE	TIME	DEPTH (ft.)

LOCATION DESCRIPTION _____

SITE CONDITION _____

DEPTH (FT.)	BORING OPERATION	% CORE RECOVERY	% ROCK QUALITY DESIGNATION (ROD)	% DRILLING FLUID RECOVERY	PACKER TEST INTERVAL	SPACING	ORIENTATION	CONDITION	WEATHERING	LITHOLOGY	ROCK TYPE & REMARKS
50											
60											~ Shale lense $\pm$ 2.0', clayey, lt. gray
70											
80											
90											~ color change to orange brn. Shale, sandy, fissile, lt. gray
100											

COMMENTS: _____

BORING OPERATION

H - 8 1/2 HOLLOW STEM AUGER
C - 4 1/2 CONTINUOUS FLIGHT AUGER
GB - GEAR BIT
NX - NX ROCK CORING
NQ - NQ WIRELINE ROCK CORING

BOREHOLE LOG (ROCK)

Page 3 of 4

LOCATION MAP:

See pg. 1

SITE ID: SPK-01 LOCATION ID: 909 919
SITE COORDINATES (ft.):
N _____ E _____
GROUND ELEVATION (ft. MSL): 5100
DRILLING METHOD: Rotary - Air / Mist
DRILLING CONTR.: Bayles Bros.
DATE STARTED: 12-2-86
DATE COMPLETED: 12-5-86
FIELD REP.: L. Phyte

GROUNDWATER LEVELS

DATE	TIME	DEPTH (ft.)

LOCATION DESCRIPTION _____

SITE CONDITION _____

ROCK TYPE & REMARKS

DEPTH (FT.)	BORING OPERATION	% CORE RECOVERY	% ROCK QUALITY DESIGNATION (RQD)	% DRILLING FLUID RECOVERY	PACKER TEST INTERVAL	SPACING	ORIENTATION	CONDITION	WEATHERING	LITHOLOGY
100'										
110										
120										
130										
140										
150'										

~ occasional coal seams

Siltstone, trace fine sand, some shaly interbeds, lt. gray.

Sandstone, shaly, fine to v. fine, lt. gray to black, moist

Shale, some silt, fissile, lt. gray to black, dry

Siltstone, some shale, lt. gray to black, moist.

COMMENTS: _____

BORING OPERATION

H - 6 1/2 HOLLOW STEM AUGER
C - 4 1/2 CONTINUOUS FLIGHT AUGER
GB - GEAR BIT
NX - NX ROCK CORING
NQ - NO WIRELINE ROCK CORING

BOREHOLE LOG (ROCK)

Page 4 of 4

LOCATION MAP:

See pg. 1

SITE ID: SPK-01 LOCATION ID: 909 919
SITE COORDINATES (ft.):
N _____ E _____
GROUND ELEVATION (ft. MSL): 5100
DRILLING METHOD: Rotary - Air / Mud
DRILLING CONTR.: Baykes Bros.
DATE STARTED: 12-21-86
DATE COMPLETED: 12-5-86
FIELD REP.: L. Flyte

GROUNDWATER LEVELS

DATE	TIME	DEPTH (ft.)
<u>12-3-86</u>	<u>10:30</u>	<u>170.0'</u>

LOCATION DESCRIPTION _____
SITE CONDITION _____

DEPTH (FT.)	BORING OPERATION	% CORE RECOVERY	% ROCK QUALITY DESIGNATION (ROD)	% DRILLING FLUID RECOVERY	PACKER TEST INTERVAL	SPACING	ORIENTATION	CONDITION	WEATHERING	LITHOLOGY	ROCK TYPE & REMARKS
50'											
160											coal seam $\approx$ 1.0' thick, dry
170											becoming moist
180											Sandstone, fine to med. grained, clean, lt. gray, wet.
190											T.D. 188.0'
200											
210											
220											
230											
240											
250											
260											
270											
280											
290											
300											
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870											
880											
890											
900											
910											
920											
930											
940											
950											
960											
970											
980											
990											
1000											

COMMENTS: _____

BORING OPERATION

H - 6 1/2 HOLLOW STEM AUGER
C - 4 1/2 CONTINUOUS FLIGHT AUGER
GB - GEAR BIT
NX - NX ROCK CORING
NQ - NQ WIRELINE ROCK CORING

BOREHOLE LOG (ROCK)

Page 1 of 2

LOCATION MAP:

919
63' → # 920

SITE ID: SPK-01 LOCATION ID: 920
APPROX. SITE COORDINATES (ft.):
N OK E OK
GROUND ELEVATION (ft. MSL): OK
DRILLING METHOD: Pottery Air/Mist
DRILLER: SUNBEL ENTERPRISES
DATE STARTED: 8/10/87
DATE COMPLETED: 8/11/87
FIELD REP.: A. Hoenig

GROUNDWATER LEVELS

DATE	TIME	DEPTH (ft.)
8/10	10 PM	8 1/2
8/10	2 PM	8 1/2
8/11	2 PM	8 1/2

LOCATION DESCRIPTION Approx 65' SE of SPK-01 - 919
SITE CONDITION bluffs to E, plain to W

DEPTH (FT)	BORING OPERATION	% CORE RECOVERY	% ROCK QUALITY DESIGNATION (RQD)	% DRILLING FLUID RECOVERY	PACKER TEST INTERVAL	DISCONTINUITIES							WEATHERING	LITHOLOGY	ROCK TYPE & REMARKS	
						SPACING					ORIENTATION					CONDITION
						WIDE ——— CLOSE					HORIZ. ——— VERT.					
						1	2	3	4	5	H	50°				
															Sm, silty sand, m. fine, all. & silty, NP, brown	
															Sm, silty sand, m. fine, all. & gravel, NP, brown. Note: weakly consolidated	
															Sandstone m. fine, rel. soft, brown	
</																

COMMENTS: Samples taken at 5' intervals, beginning at 5' - only chip cuttings available for logging.

BORING OPERATION
H - 6 1/2 HOLLOW STEM ANGER
C - 4 1/2 CONTINUOUS FLIGHT ANGER
GB - GEAR BIT
NX - NX ROCK CORING
NO - NO WIRELINE ROCK CORING

BOREHOLE LOG (ROCK)

Page 2 of 2

LOCATION MAP:

SEE PG 1062

SITE ID: SPK 61 LOCATION ID: 920
APPROX. SITE COORDINATES (ft.):
N 20K E 20K
GROUND ELEVATION (ft. MSL): 20K
DRILLING METHOD: Air / mist rotary
DRILLER: Surprise Enterprises
DATE STARTED: 2/10/87
DATE COMPLETED: 5/11/87
FIELD REP.: C. Heine

GROUNDWATER LEVELS

DATE	TIME	DEPTH (ft.)

LOCATION DESCRIPTION
SITE CONDITION _____

[illegible]

COMMENTS: Noticed hydro. oil on lubricating seal
sealing into hole for fire casing during installation.

BORING OPERATION
 M - 6 1/2 HOLLOW STEM ANGR
 C - 4 1/2 CONTINUOUS FLIGHT ANGLR
 GB - GEAR BIT
 NX - NX ROCK CORING
 NO - NO WIRELINE ROCK CORING

BOREHOLE LOG (ROCK)

Page 1 of 3

LOCATION MAP:

SITE ID: SPK-01 LOCATION ID: 921
APPROX. SITE COORDINATES (ft.):
N NK E NK
GROUND ELEVATION (ft. MSL): NK
DRILLING METHOD: Rotary / water
DRILLER: SKIDIFF FASTER DRILLS
DATE STARTED: 8/14/87
DATE COMPLETED: 8/15/87
FIELD REP.: C. Hainburg

GROUNDWATER LEVELS		
DATE	TIME	DEPTH (ft.)

LOCATION DESCRIPTION W side of snake pit, btwn fences
SITE CONDITION relatively flat, grass cover

[illegible]

COMMENTS: Samples taken @ 5' intervals

BORING OPERATION
 M - 6 1/2 HOLLOW STEM ANGR
 C - 4 1/2 CONTINUOUS FLIGHT ANGLR
 GB - GEAR BIT
 NX - NX ROCK CORING
 NO - NO WIRELINE ROCK CORING

BOREHOLE LOG (ROCK)

Page 2 of 3

LOCATION MAP:

ANN

SITE ID: SPK-D1 LOCATION ID: 921

APPROX. SITE COORDINATES (ft.):

N _____ E _____

GROUND ELEVATION (ft. MSL):

DRILLING METHOD: ROTARY / WATER

DRILLER: SURPRISE ENTERPRISES

DATE STARTED: 5/14/87

DATE COMPLETED: 8/15/87

FIELD REP.: D. Hornbush

GROUNDWATER LEVELS

DATE	TIME	DEPTH (ft.)

LOCATION DESCRIPTION

SITE CONDITION

[illegible]**COMMENTS:**

BORING OPERATION
 M - 6 1/2 HOLLOW STEM ANGR
 C - 4 1/2 CONTINUOUS FLIGHT ANGL
 GB - GEAR BIT
 NX - NX ROCK CORING
 NO - NO WIRELINE ROCK CORING

BOREHOLE LOG (SOIL)

Page 2 of 1

LOCATION MAP:

SITE ID: SPK-01 LOCATION ID: 922
SITE COORDINATES (ft.):
N OK E NK
GROUND ELEVATION (ft. MSL): NK
DRILLING METHOD: ROTARY / WATER
DRILLING CONTR.: SUNRISE ENTERPRISES
DATE STARTED: 8/16/87
DATE COMPLETED: 8/17/87
FIELD REP.: D. HOLMQUIST

GROUNDWATER LEVELS

DATE	TIME	DEPTH (ft.)

LOCATION DESCRIPTION

SITE CONDITION

DEPTH	SAMPLE INTERVAL	SAMPLE RECOVERY	SAMPLE RETAINED	TYPE	ID	BLOWS PER 6 In.	N VALUE	USCS	VISUAL CLASSIFICATION
0									CLAYEY SAND, fine, LP-MB, brn
5									SANDSTONE, med grained, brown, relatively soft
50									Shale with interbedded siltstone, blue-gray to tan
75									Sandstone, predominantly fine grained, brown
100									
125									U. hard siltstone @ 134'
150									Shale, blue-gray soft
									Stopped drilling @ 140' b/s

COMMENTS: NO SAMPLES SAVED - SEE SAMPLES SPK-01-921

SAMPLE TYPE

A - Auger cuttings
S - 2" 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

BOREHOLE LOG (ROCK)

Page 1 of 3

LOCATION MAP:

SITE ID: SPK-01LOCATION ID: 923

APPROX. SITE COORDINATES (ft.):

N 10KE 10KGROUND ELEVATION (ft. MSL): 10KDRILLING METHOD: ROTARY/WATERDRILLER: SUNRISE ENTERPRISESDATE STARTED: 8/16/87

DATE COMPLETED:

FIELD REP.: D. Holman 4151

GROUNDWATER LEVELS

DATE	TIME	DEPTH (ft.)

LOCATION DESCRIPTION ABANDONED AIRSTRIPSITE CONDITION Fair, dry

DEPTH (FT)	BORING OPERATION	% CORE RECOVERY	% ROCK QUALITY DESIGNATION (RQD)	% DRILLING FLUID RECOVERY	PACKER TEST INTERVAL	DISCONTINUITIES							CONDITION	WEATHERING	LITHOLOGY	ROCK TYPE & REMARKS
						SPACING					ORIENTATION					
						WIDE ——— CLOSE					HORIZ. ——— VERT.					
						1	2	3	4	5	H	50°				
																Silty shales, fine fine sand, argillaceous pel. 1.50 ft

COMMENTS: grab samples taken @ 5' intervals

BORING OPERATION
H - 6 1/2 HOLLOW STEM ANGLR
C - 4 1/2 CONTINUOUS FLIGHT ANGLR
GB - GEAR BIT
MX - MX ROCK CORING
NO - NO WIRELINE ROCK CORING

Page 2 of 3

AN

SITE ID: SPK-01 LOCATION ID: 923
APPROX. SITE COORDINATES (ft.):
N _____ E _____
GROUND ELEVATION (ft. MSL): _____
DRILLING METHOD: ROPER/WATER
DRILLER: E. T. M. 1110
DATE STARTED: 8/18/87
DATE COMPLETED: _____
FIELD REP.: MC HONN

DATE	TIME	DEPTH (ft.)

SITE CONDITION

[illegible]

COMMENTS:

BORING OPERATION
 M - 5 1/2 HOLLOW STEM ANGR
 C - 4 1/2 CONTINUOUS FLIGHT ANGL
 GB - GEAR BIT
 NX - NX ROCK CORING
 NO - NO WIRELINE ROCK CORING

Page 3 of 4

ANN

SITE ID: SPK-01 LOCATION ID: 923
APPROX. SITE COORDINATES (ft.):
N _____ E _____
GROUND ELEVATION (ft. MSL): _____
DRILLING METHOD: ROTARY / WATER
DRILLER: SUNRISE ENTERPRISES
DATE STARTED: 8/19/87
DATE COMPLETED: _____
FIELD REP.: D. Hormanist

DATE	TIME	DEPTH (ft.)

SITE CONDITION

[illegible]

COMMENTS: _____

BORING OPERATION
 M - 6 1/2 HOLLOW STEM ANGR
 C - 4 1/2 CONTINUOUS FLIGHT ANGR
 GB - GEAR BIT
 NX - NX ROCK CORING
 NO - NO WIRELINE ROCK CORING

BOREHOLE LOG (ROCK)

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LOCATION MAP:

SITE ID: SPK-01 LOCATION ID: 923

APPROX. SITE COORDINATES (ft.):

N _____ E _____

GROUND ELEVATION (ft. MSL):

DRILLING METHOD: Hand / 100%

DRILLER: SUNRISE ENTERPRISES

DATE STARTED: 6/13/87

DATE COMPLETED: 11/1/78

DATE COM: 11-1-66
FIELD REP.: *P. Holmquist*

GROUNDWATER LEVELS

DATE	TIME	DEPTH (ft.)

LOCATION DESCRIPTION

SITE CONDITION

[illegible]**COMMENTS:**

BORING OPERATION
 M - 6 1/2 HOLLOW STEM ANGR
 C - 4 1/2 CONTINUOUS FLIGHT ANGR
 GB - GEAR BIT
 NX - NX ROCK CORING
 NO - NO WIRELINE ROCK CORING

BOREHOLE LOG (SOIL)

Page 1 of 1

LOCATION MAP:

SITE ID: SPK-01 LOCATION ID: 924
SITE COORDINATES (ft.):
N NK E NK
GROUND ELEVATION (ft. MSL): 5080 (estimated)
DRILLING METHOD: ROTARY/WATER
DRILLING CONTR.: SUNRISE ENTERPRISES
DATE STARTED: 8/29/87
DATE COMPLETED: 8/30/87
FIELD REP.: D. HOLMGREN

GROUNDWATER LEVELS

DATE	TIME	DEPTH (ft.)

LOCATION DESCRIPTION SE corner of ore pile area
SITE CONDITION flat, grassy

DEPTH	SAMPLE INTERVAL	SAMPLE RECOVERY	SAMPLE RETAINED	TYPE	ID	BLOWS PER 6 in.	N VALUE	USCS	VISUAL CLASSIFICATION
0									clayey sand, LP-mb, brown
5									Sand/med. sandstone, m-fine, brown
10									
15									
20									Sandy shale, co-s.s. silt, brown
25									Siltstones/shales, brown
30									
35									Sandstone, fine to med, grey-brown
40									
45									
50									
55									
60									
65									
70									
75									
80									
85									
90									
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960									
965									
970									
975									
980									
985									
990									
995									
1000									

COMMENTS:

SAMPLE TYPE

- A - Auger cuttings
- S - 2" 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

925

SITE ID: SPK-01 LOCATION ID: 925
APPROX. SITE COORDINATES (ft.):
N NK E NK
GROUND ELEVATION (ft. MSL): NK
DRILLING METHOD: ROTARY/WATER
DRILLER: SUNRISE ENTERPRISES
DATE STARTED: 2/24/87
DATE COMPLETED: _____
FIELD REP.: O. Hornquist

GROUNDWATER LEVELS		
DATE	TIME	DEPTH (ft.)

LOCATION DESCRIPTION W/in Damaged Nbr of 57th
SITE CONDITION gassy, rel. flat

[illegible]

COMMENTS: Stopped Drilling @ TD=79'
Installed 106.5m well @ 77'

BORING OPERATION
 M - 6 1/2 HOLLOW STEM ANGR
 C - 4 1/2 CONTINUOUS FLIGHT ANGR
 GB - GEAR BIT
 NX - NX ROCK CORING
 NO - NO WIRELINE ROCK CORING

BOREHOLE LOG (ROCK)

Page 1 of 1

LOCATION MAP:

4 926

* 93

SITE ID: SPK-01 LOCATION ID: 926
APPROX. SITE COORDINATES (ft.):
N NK E NK
GROUND ELEVATION (ft. MSL): NK
DRILLING METHOD: ROTARY / WATER
DRILLER: E. TRUJILLO
DATE STARTED: 8/27/87
DATE COMPLETED: 8/27/87
FIELD REP.: W. H. HARRIS

GROUNDWATER LEVELS

DATE	TIME	DEPTH (ft.)

LOCATION DESCRIPTION East of creek pit & overburden piles
SITE CONDITION Flat, grassy

[illegible]**COMMENTS:**

BORING OPERATION
 H - 6 1/2 HOLLOW STEM ANGR
 C - 4 1/2 CONTINUOUS FLIGHT ANGR
 GB - GEAR BIT
 NX - NX ROCK CORING
 NO - NO WIRELINE ROCK CORING

BOREHOLE LOG (SOIL)

LOCATION MAP:

SITE ID: SPK-01 LOCATION ID: 927
SITE COORDINATES (ft.):
N _____ E _____
GROUND ELEVATION (ft. MSL): _____
DRILLING METHOD: ROTARY / WATER
DRILLING CONTR.: TRIUMPH ENTERPRISES
DATE STARTED: 8/27/07
DATE COMPLETED: _____
FIELD REP.: D. Hernandez

GROUNDWATER LEVELS

DATE	TIME	DEPTH (ft.)

LOCATION DESCRIPTION
SITE CONDITION

DEPTH	SAMPLE INTERVAL	SAMPLE RECOVERY	SAMPLE RETAINED	TYPE	ID	BLOWS PER 6 in.	N VALUE	USCS	VISUAL CLASSIFICATION
0									Sand, fr. to fine silt, tan, clay, LP, brn
									Sand stone, m. fin, brn
5									Sandstone, fine, yellow-brown, hard
									Shale, sandy, rel. soft, brown
7									INTERBEDDED SHALES / SANDY SILTSTONES
									Sandstone, M-Fine, brown, rel. soft
5									interbedded siltstone lenses 75-80' bed
									interbedded siltstones / sandstones, fine, hard, brown / grey-brown
10									Sandstone, M to Fine, grey-brn, soft (fr. calc Q3)
									Tr. shale 6' 11'
25									Shale, grey-brown
									Stopped @ 125' b/s

COMMENTS:

SAMPLE TYPE

A - Auger cuttings
S - 2" 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

BOREHOLE LOG (ROCK)

Page 1 of 2

LOCATION MAP:

SITE ID: SPK-01 LOCATION ID: 928

APPROX. SITE COORDINATES (ft.):

N NKE NKGROUND ELEVATION (ft. MSL): NKDRILLING METHOD: BATTERY/WATERDRILLER: SUNRISE ENTERPRISESDATE STARTED: 6/30/87DATE COMPLETED: 6/31/87FIELD REP.: O. HAMBURG

GROUNDWATER LEVELS

DATE	TIME	DEPTH (ft.)

LOCATION DESCRIPTION S.W. corner of Spook pitSITE CONDITION rel. flat, sandy

DEPTH (FT)	BORING OPERATION	% CORE RECOVERY	% ROCK QUALITY DESIGNATION (ROD)	% DRILLING FLUID RECOVERY	PACKER TEST INTERVAL	DISCONTINUITIES								CONDITION	WEATHERING	LITHOLOGY	ROCK TYPE & REMARKS
						SPACING					ORIENTATION						
						WIDE		CLOSE			HORIZ.		VERT.				
						1	2	3	4	5	H	50°	V				
0		0	0											Rh	Hw	SS	Sandstone Medium grained partly cemented rel. soft brown
		90	30	90+													
		95	50	90+													
10		20	0	90+													4" shat @ 15' 6" shat @ 16 1/2'
		95	75	80+													
20														Sm	Mw	Sh	Shale, grey-blue, soft
		85	40	80+										Rh	Mw	SS	Sandstone, fine, grey, brown
														Sm	Mw	Sh	Shale, grey-brown, soft
																	Sandstone, medium grained, partly cemented, brown
30																	

COMMENTS: NK core to 30'B³4 recovery to 40'

BORING OPERATION

H - 8 1/2 HOLLOW STEM ANGER
 C - 4 1/2 CONTINUOUS FLIGHT ANGER
 GB - GEAR BIT
 NX - NX ROCK CORING
 NO - NO WIRELINE ROCK CORING

BOREHOLE LOG (ROCK)

Page 2 of 2

LOCATION MAP:

SITE ID: SAK-01 LOCATION ID: 928
 APPROX. SITE COORDINATES (ft.):
 N NK E NK
 GROUND ELEVATION (ft. MSL): NK
 DRILLING METHOD: ROTARY / WATER
 DRILLER: SUNRISE ENTERPRISES
 DATE STARTED: 8/31/67
 DATE COMPLETED: 8/31/67
 FIELD REP.: D. Harmonist

GROUNDWATER LEVELS

DATE	TIME	DEPTH (ft.)

LOCATION DESCRIPTION

SITE CONDITION

[illegible]**COMMENTS:**

BORING OPERATION
 M - 6 1/2 HOLLOW STEM ANGR
 C - 4 1/2 CONTINUOUS FLIGHT ANGR
 GB - GEAR BIT
 RX - RX ROCK CORING
 ND - ND WIRELINE ROCK CORING

BOREHOLE LOG (ROCK)

Page 1 of 2

LOCATION MAP:

SITE ID: SPK-01 LOCATION ID: 929
APPROX. SITE COORDINATES (ft.):
N NK E NK
GROUND ELEVATION (ft. MSL): NK
DRILLING METHOD: AIR/WATER / Rotary / Mud / Core
DRILLER: ETRAILLO SURVISE F. ESTRELLA
DATE STARTED: 9/1/87
DATE COMPLETED: 9/4/87
FIELD REP.: HUMBERT

GROUNDWATER LEVELS

DATE	TIME	DEPTH (ft.)
9/3/87	7:31 AM	79.45

LOCATION DESCRIPTION within depleted sand pond
SITE CONDITION rel. flat, muddy, no vegetation

DEPTH (FT)	BORING OPERATION	% CORE RECOVERY	% ROCK QUALITY DESIGNATION (RQD)	% DRILLING FLUID RECOVERY	PACKER TEST INTERVAL	DISCONTINUITIES					CONDITION	WEATHERING	LITHOLOGY	ROCK TYPE & REMARKS				
						SPACING		ORIENTATION										
						WIDE	CLOSE	HORIZ.	VERT.									
						1	2	3	4	5	H	50°	V					
0														S. Hy sand, med to fine, brown pore. 10% clay, HP, brn @ 3m from				
3	NK	0	0	0														
4																		
5																		
6																		
7																		
8																		
9																		
10																		
11																		
22														Shale, soft, gray brown				
23																		
24																		
25																		
26																		
27																		
28																		
29																		
30																		
31																		
32														Shale, soft, gray brown				
33																		
34																		
35																		
36																		
37																		
38																		
39																		
40																		
41																		
42														Shale, soft, gray brown				
43																		
44																		
45																		
46																		
47																		
48																		
49																		
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51																		
52														Shale, soft, gray brown				
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61																		
62														Shale, soft, gray brown				
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72														Shale, soft, gray brown				
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82														Shale, soft, gray brown				
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87																		
88																		
89																		
90																		
91																		
92														Shale, soft, gray brown				
93																		
94																		
95																		
96																		
97																		
98																		
99																		
100																		

COMMENTS:

BORING OPERATION
H - 8 1/2 HOLLOW STEM ANGLER
C - 4 1/2 CONTINUOUS FLIGHT ANGLER
GB - GEAR BIT
MX - MX ROCK CORING
NQ - NO WIRELINE ROCK CORING

BOREHOLE LOG (ROCK)

Page 2 of 2

LOCATION MAP:

See pg 1 of 2

SITE ID: SPK-02 LOCATION ID: 929

APPROX. SITE COORDINATES (ft.):

N NK E NK

GROUND ELEVATION (ft. MSL): NK

DRILLING METHOD: AK core / rotary a. / water / fire

DRILLER: E. Trullio / Suroase Enterprises

DATE STARTED: 5/1/87

DATE COMPLETED: 9/4/87

FIELD REP.: D. Holmquist

GROUNDWATER LEVELS

DATE	TIME	DEPTH (ft.)

LOCATION DESCRIPTION

SITE CONDITION

[illegible]**COMMENTS:**

BORING OPERATION
 M - 6 1/2 HOLLOW STEM ANGR
 C - 4 1/2 CONTINUOUS FLIGHT ANGR
 GB - GEAR BIT
 NX - NX ROCK CORING
 NO - NO WIRELINE ROCK CORING

BOREHOLE LOG (ROCK)

Page 1 of 1

LOCATION MAP:

SITE ID: SPK-01 LOCATION ID: 930
SITE COORDINATES (ft.):
N NK E NK
GROUND ELEVATION (ft. MSL): NK
DRILLING METHOD: Triane Rotary Driller
DRILLING CONTR.: Sumac Enterprises
DATE STARTED: 9/18/87
DATE COMPLETED: 9/10/87
FIELD REP.: D. Holmquist

GROUNDWATER LEVELS

DATE	TIME	DEPTH (ft.)

LOCATION DESCRIPTION 35' NE of 920
SITE CONDITION Same as 920

ROCK TYPE & REMARKS

DEPTH (FT.)	BORING OPERATION	% CORE RECOVERY	% ROCK QUALITY DESIGNATION (ROD)	% DRILLING FLUID RECOVERY	PACKER TEST INTERVAL	SPACING	ORIENTATION	CONDITION	WEATHERING	LITHOLOGY	ROCK TYPE & REMARKS
0	GB									SN	Silty sand, pred. medium to fine, gray-brown
25										SS	Sandstone, med to coarse, weakly cemented, brown
50										SS	Siltstones, gray-brown, considerable interbedding w/ fine sandstones, brown
75										SS	Sandstone, medium grained, weakly cemented gray-brown.
100											Shale, brown, soft
											Sandstone, med to fine grained, weakly cemented, gray-brown
											Shale, soft, bluish gray
											Stopped @ 100'

COMMENTS: Cuttings samples grabbed @ 5' intervals

BORING OPERATION

H - 6 1/2 HOLLOW STEM AUGER
C - 4 1/2 CONTINUOUS FLIGHT AUGER
GB - GEAR BIT
NX - NX ROCK CORING
NQ - NO WIRELINE ROCK CORING

BOREHOLE LOG (ROCK)

Page 1 of 2

LOCATION MAP:

SITE ID: Spt #1 LOCATION ID: 931
SITE COORDINATES (ft.):
N N/K E N/K
GROUND ELEVATION (ft. MSL): N/K
DRILLING METHOD: HSA
DRILLING CONTR.: Boyles / Moore
DATE STARTED: 12/12/87
DATE COMPLETED: 12/13/87
FIELD REP.: J. F. H.

GROUNDWATER LEVELS

DATE	TIME	DEPTH (ft.)

LOCATION DESCRIPTION

SITE CONDITION East of 925, 150' S of fence line
gently sloping south, grass

DEPTH (FT.)	BORING OPERATION	% CORE RECOVERY	% ROCK QUALITY DESIGNATION (ROD)	% DRILLING FLUID RECOVERY	PACKER TEST INTERVAL	SPACING	ORIENTATION	CONDITION	WEATHERING	LITHOLOGY	ROCK TYPE & REMARKS
0											sample 10
10											001 silty clay, to sand, lt. brn, dry
20											002
30											003 Sandstone, fine, med hard, lt. gray Sandstone, fine to med, soft, red brn.
40											004
50											005 claystone, soft, gray
60											006 Sandstone, fine to med, soft, red-brn. color change to lt. brn.

COMMENTS: Installed 100' well (2' stickup)

BORING OPERATION

H - 6 1/2 HOLLOW STEM AUGER
C - 4 1/2 CONTINUOUS FLIGHT AUGER
GB - GEAR BIT
NX - NX ROCK CORING
NQ - NQ WIRELINE ROCK CORING

BOREHOLE LOG (ROCK)

Page 2 of 2

LOCATION MAP:

SITE ID: SPK01 LOCATION ID: 931
SITE COORDINATES (ft.):
N N/K E N/K
GROUND ELEVATION (ft. MSL): N/K
DRILLING METHOD: Rotary air
DRILLING CONTR.: Boyles Bros / S Moore
DATE STARTED: 12/12/92
DATE COMPLETED: 12/13/92
FIELD REP.: T F Fitts

GROUNDWATER LEVELS

DATE	TIME	DEPTH (ft.)

LOCATION DESCRIPTION

SITE CONDITION

[illegible]

COMMENTS:

COMMENTS: moist at 76'
the top lots of water 85-98'

BORING OPERATION

H - 6 1/2 HOLLOW STEM AUGER
C - 4 1/2 CONTINUOUS FLIGHT AUGER
GB - GEAR BIT
NX - NX ROCK CORING
NQ - NQ WIRELINE ROCK CORING

BOREHOLE LOG (ROCK)

Page 1 of 3

LOCATION MAP:

SITE ID: Spr 01 LOCATION ID: 932
SITE COORDINATES (ft.):
N _____ E _____
GROUND ELEVATION (ft. MSL): _____
DRILLING METHOD: rotary air
DRILLING CONTR.: Bayless Bros / S. Moore
DATE STARTED: 12/13/87
DATE COMPLETED: _____
FIELD REP.: J. Frith

GROUNDWATER LEVELS

DATE	TIME	DEPTH (ft.)
<u>12/14/87</u>	<u>11:45</u>	<u>12.3'</u>

LOCATION DESCRIPTION N of airstrip 300' NE of 923, 135' S of EW Fence line
SITE CONDITION gently sloping SE, grasses

DEPTH (FT.)	BORING OPERATION	% CORE RECOVERY	% ROCK QUALITY DESIGNATION (ROD)	% DRILLING FLUID RECOVERY	PACKER TEST INTERVAL	SPACING	ORIENTATION	CONDITION	WEATHERING	LITHOLOGY	ROCK TYPE & REMARKS
0											sample ID
10											001
20											silty clay, some sand, brn, dry soft
30											002
40											siltstone, soft, brn, dry.
50											increasing sand
60											003
70											fine sandstone, fine, yellow-brn.
80											
90											
100											
110											
120											
130											
140											
150											
160											
170											
180											
190											
200											

COMMENTS:

BORING OPERATION

H - 8 1/2 HOLLOW STEM AUGER
C - 4 1/2 CONTINUOUS FLIGHT AUGER
GB - GEAR BIT
NX - NX ROCK CORING
NQ - NQ WIRELINE ROCK CORING

BOREHOLE LOG (ROCK)

Page 2 of 3

LOCATION MAP:

SITE ID: Spk LOCATION ID: 982
SITE COORDINATES (ft.):
N _____ E _____
GROUND ELEVATION (ft. MSL): _____
DRILLING METHOD: rotary air
DRILLING CONTR.: Bowles / S Moore
DATE STARTED: 12/13/87
DATE COMPLETED: _____
FIELD REP.: J. Frills

GROUNDWATER LEVELS

DATE	TIME	DEPTH (ft.)

LOCATION DESCRIPTION _____
SITE CONDITION _____

DEPTH (FT.)	BORING OPERATION	% CORE RECOVERY	% ROCK QUALITY DESIGNATION (RQD)	% DRILLING FLUID RECOVERY	PACKER TEST INTERVAL	SPACING	ORIENTATION	CONDITION	WEATHERING	LITHOLOGY	ROCK TYPE & REMARKS
10	X										sample ID 004
20	X										005 silty shale, lt. brn. med hard. some fine sand
30	X										006 fine sandstone, fine, lt. brn. soft.
40	X										007 sandstone, fine to med, yellow brn, med
50											- rust-colored - 1' vein ss - tan colored (same litho) hard drillky 84-87!
60											008 1' shale seam, gray.
70	X										
80											
90											
100											

COMMENTS: _____

BORING OPERATION

H - 6 1/2 HOLLOW STEM AUGER
C - 4 1/2 CONTINUOUS FLIGHT AUGER
GB - GEAR BIT
NX - NX ROCK CORING
NQ - NQ WIRELINE ROCK CORING

BOREHOLE LOG (ROCK)

Page 2 of 3

LOCATION MAP:

SITE ID: Spk #1 LOCATION ID: 932
SITE COORDINATES (ft.):
N _____ E _____
GROUND ELEVATION (ft. MSL): _____
DRILLING METHOD: _____
DRILLING CONTR.: _____
DATE STARTED: _____
DATE COMPLETED: _____
FIELD REP.: _____

GROUNDWATER LEVELS

DATE	TIME	DEPTH (ft.)

LOCATION DESCRIPTION _____

SITE CONDITION _____

DEPTH (FT.)	BORING OPERATION	% CORE RECOVERY	% ROCK QUALITY DESIGNATION (ROD)	% DRILLING FLUID RECOVERY	PACKER TEST INTERVAL	SPACING	ORIENTATION	CONDITION	WEATHERING	LITHOLOGY	ROCK TYPE & REMARKS
100											
110											
116	X										6" yellow-brass
120											blue gray. med. hard shale, minor coal.
130											sandstone, fine to med. gr. tan. soft moist
140	X										0/0 to coal
146											0/1 coal
150											Stop drilling at 143

COMMENTS: _____

BORING OPERATION

H - 6 1/2 HOLLOW STEM AUGER
C - 4 1/2 CONTINUOUS FLIGHT AUGER
GB - GEAR BIT
NX - NX ROCK CORING
NQ - NO WIRELINE ROCK CORING

BOREHOLE LOG (SOIL)

Page 1 of 5

LOCATION MAP:

SITE ID: SPK-15 LOCATION ID: 933
SITE COORDINATES (ft.):
N E
GROUND ELEVATION (ft. MSL):
DRILLING METHOD: ROTARY AIR
DRILLING CONTR.: BARNHART
DATE STARTED: 7-28-88
DATE COMPLETED:
FIELD REP.: D. METZGER

GROUNDWATER LEVELS

DATE	TIME	DEPTH (ft.)

LOCATION DESCRIPTION ON HARDY LAND, 75' WEST OF SHILL RIZE
SITE CONDITION MOD. FLAT, SOME GRASS AND SPARSE CRASS COVER.

DEPTH	SAMPLE INTERVAL	SAMPLE RECOVERY	SAMPLE RETAINED	TYPE	ID	BLOWS PER 6 in.	N VALUE	USCS	VISUAL CLASSIFICATION
									topsoil
5					01			cl	dry to slight moist hd. to firm brown silty clay some organic contact topsoil c.s./chale
10					02			SM	yellow dry silty mod. sorted fine sand
15					03			CH	firm, moist massive clay, grey brown minor laminations, some iron stain on bedding.
20					04			cl/CH	firm, moist silty clay to fat clay
25					05				blue silty clay / clayey silt low to mod. plasticity
30					06				slight moist, blue clayey silt to clayey fine sand

COMMENTS:

SAMPLE TYPE

A - Auger cuttings
S - 2" O.D. 1.38" I.D. drive sample
U - 3" O.D. 2.42" I.D. tube sample
T - 3" O.D. thermal-walled Shelby tube

BOREHOLE LOG (SOIL)

Page 2 of 5

LOCATION MAP:

SITE ID: SPK-15 LOCATION ID: 933
SITE COORDINATES (ft.):
N _____ E _____
GROUND ELEVATION (ft. MSL): _____
DRILLING METHOD: _____
DRILLING CONTR.: _____
DATE STARTED: _____
DATE COMPLETED: _____
FIELD REP.: _____

GROUNDWATER LEVELS

DATE	TIME	DEPTH (ft.)

LOCATION DESCRIPTION _____

SITE CONDITION _____

DEPTH	SAMPLE INTERVAL	SAMPLE RECOVERY	SAMPLE RETAINED	TYPE	ID	BLOWS PER 6 in.	N VALUE	USCS	VISUAL CLASSIFICATION
35					07			CL	Greyish blue silty clay to lean clay massive, firm, slightly moist.
40					08			CL	moist, firm grey-blue siltstone / claystone
45					09			CL/SC	slightly moist firm blue fine sandy lean clay
50					10			CL	blue firm, moist lean clay minor silt / fine sand Contact _____ shale/clay red s.s.
55					11			SM	fine poorly graded, well sorted red iron ox. sandstone, clayballs abundant
60					12			SM	tan-yellow dry med. sorted silty fine sand

COMMENTS: _____

SAMPLE TYPE

A - Auger cuttings
S - 2" 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

BOREHOLE LOG (SOIL)

Page 3 of 5

LOCATION MAP:

SITE ID: SPK-15 LOCATION ID: 933
SITE COORDINATES (ft.):
N _____ E _____
GROUND ELEVATION (ft. MSL): _____
DRILLING METHOD: _____
DRILLING CONTR.: _____
DATE STARTED: _____
DATE COMPLETED: _____
FIELD REP.: _____

GROUNDWATER LEVELS

DATE	TIME	DEPTH (ft.)

LOCATION DESCRIPTION _____

SITE CONDITION _____

DEPTH	SAMPLE INTERVAL	SAMPLE RECOVERY	SAMPLE RETAINED	TYPE	ID	BLOWS PER 6 in.	N VALUE	USCS	VISUAL CLASSIFICATION
65					13			SM	same
70					14			SM	DRY, yellow-rose, fine sand
75					15			SM	mostly dry Lt. red medium grain Qtz rounded, mod to well sorted sandstone
80					16			SA	red, med grain, iron rich sandstone
85					17				med to coarse well rounded, speckled iron stained Qtz. S.S.
90					18				med grain SAND w/ minor SILTS

COMMENTS: _____

SAMPLE TYPE
A - Auger cuttings
S - 2" 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

BOREHOLE LOG (SOIL)

Page 4 of 5

LOCATION MAP:

SITE ID: SPK-15 LOCATION ID: 933
SITE COORDINATES (ft.):
N _____ E _____
GROUND ELEVATION (ft. MSL): _____
DRILLING METHOD: _____
DRILLING CONTR.: _____
DATE STARTED: _____
DATE COMPLETED: _____
FIELD REP.: _____

GROUNDWATER LEVELS

DATE	TIME	DEPTH (ft.)

LOCATION DESCRIPTION _____

SITE CONDITION _____

DEPTH	SAMPLE INTERVAL	SAMPLE RECOVERY	SAMPLE RETAINED	TYPE	ID	BLOWS PER 6 in.	N VALUE	USCS	VISUAL CLASSIFICATION
95					17			SM	brown silty fine to med. sandstone lithic clasts.
100					20			✓	brown silty fine sandstone
105					21			✓	hbk med grain well rounded s.s. cemented? (hard drilling)
110					22			-	same
115					23			✓	brown silty fine sandstone
120					24			✓	reddish br. silty fine sandstone

COMMENTS: _____

SAMPLE TYPE

A - Auger cuttings
S - 2" O.D. 1.38" I.D. drive sample
U - 3" O.D. 2.42" I.D. tube sample
T - 3" O.D. thermal Shelby tube

LOCATION MAP:

SITE ID: SPK-15 LOCATION ID: 933
SITE COORDINATES (ft.):
N _____ E _____
GROUND ELEVATION (ft. MSL): _____
DRILLING METHOD: _____
DRILLING CONTR.: _____
DATE STARTED: _____
DATE COMPLETED: 7-28-86
FIELD REP.: D. MATHIAS

GROUNDWATER LEVELS

DATE	TIME	DEPTH (ft.)

LOCATION DESCRIPTION

SITE CONDITION

[illegible]

COMMENTS:

1.3' / min : drilling time

SAMPLE TYPE

A - Auger cuttings
S - 2" 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

BOREHOLE LOG (SOIL)

Page 1 of 5

LOCATION MAP:

SITE ID: SPK-15 LOCATION ID: 934
SITE COORDINATES (ft.):
N NK E NK
GROUND ELEVATION (ft. MSL): NK
DRILLING METHOD: ROTARY AIR
DRILLING CONTR.: BARNHART
DATE STARTED: 7-27-88
DATE COMPLETED:
FIELD REP.: D Meteler

GROUNDWATER LEVELS

DATE	TIME	DEPTH (ft.)

LOCATION DESCRIPTION: SPK MOD. FLAT incised drainages, in close prov.
SITE CONDITION: slightly sloping, sparse sagebrush and short grasses.

DEPTH	SAMPLE INTERVAL	SAMPLE RECOVERY	SAMPLE RETAINED	TYPE	ID	BLOWS PER 6 in.	N VALUE	USCS	VISUAL CLASSIFICATION
									7-27-88 TOPSOIL
5	✓				01			SC	Br. DRY SILTY-CLAY sand w/ ROOTS
10	✓				02			SC	reddish-brown clayey sand slightly moist
									? contact topsoil s.s. ?
15	✓				03			SM/SC	Yellow tan, moist clayey fine well sorted lithic sandstone, "wedge"
									insected water
20	✓				04			CL/ML	wet. br. fine sand to silty lean clay.
									7-28-88
25	✓				05			CL/CH	Lt. Br. Sat. lean to fat silty clay
30					06			CL/CH	soft to hard Lt. Br. lean to fat silty clay / claystone.

COMMENTS:

SAMPLE TYPE

A - Auger cuttings
S - 2" 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

BOREHOLE LOG (SOIL)

Page 2 of 5

LOCATION MAP:

SITE ID: SPK-15 LOCATION ID: 934
SITE COORDINATES (ft.):
N NK E NK
GROUND ELEVATION (ft. MSL): NK
DRILLING METHOD: ROTARY AIR
DRILLING CONTR.: _____
DATE STARTED: _____
DATE COMPLETED: _____
FIELD REP.: _____

GROUNDWATER LEVELS

DATE	TIME	DEPTH (ft.)

LOCATION DESCRIPTION

SITE CONDITION

DEPTH	SAMPLE INTERVAL	SAMPLE RECOVERY	SAMPLE RETAINED	TYPE	ID	BLOWS PER 6 in.	N VALUE	USCS	VISUAL CLASSIFICATION
35	X				07			CL/CH	Loose to firm massive variable brown plastic claystone Contact _____ claystone organic clays
40	X				08			OH	wet, DK. chocolate brown organic rich - peat - ? - lignite clays.
45	X				09			OH	DK Br. fat clay, organic rich laterite w/ coal Contact _____ organic clay blue shale
50	X				10			CH	wet, grey-blue claystone shale.
55	X				11			CH	same
60	X				12			CH/CH	Contact _____ blue shale earthy red soft muddu shale red shale iron rich

COMMENTS:

58' - 60' iron rich soft clay: thin horizon

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

BOREHOLE LOG (SOIL)

Page 3 of 5

LOCATION MAP:

SITE ID: 4916-15 LOCATION ID: 937
SITE COORDINATES (ft.):
N _____ E _____
GROUND ELEVATION (ft. MSL): _____
DRILLING METHOD: _____
DRILLING CONTR.: _____
DATE STARTED: _____
DATE COMPLETED: _____
FIELD REP.: _____

GROUNDWATER LEVELS

DATE	TIME	DEPTH (ft.)

LOCATION DESCRIPTION _____

SITE CONDITION _____

DEPTH	SAMPLE INTERVAL	SAMPLE RECOVERY	SAMPLE RETAINED	TYPE	ID	BLOWS PER 6 in.	N VALUE	USCS	VISUAL CLASSIFICATION
65	X				13			SM	wet, tan brown, silty sand
70	X				14			SM	Lt. brownish-tan silty fine sand, lithic hard drilling - - - - - ?
75	X				15			SM	same
80	X				16			SM	Lt brown to tan, lithic fine sands
85	X				17				tan-red well cemented fine to coarse rounded atz., iron or stained s.s.
90	X				18			SW	red-brown iron rich, poorly sorted atz. s.s.

COMMENTS: Wet samples, water injected

SAMPLE TYPE

A - Auger cuttings
S - 2" 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

BOREHOLE LOG (SOIL)

Page 4 of 5

LOCATION MAP:

SITE ID: SDV-15 LOCATION ID: 934
SITE COORDINATES (ft.):
N _____ E _____
GROUND ELEVATION (ft. MSL): _____
DRILLING METHOD: _____
DRILLING CONTR.: _____
DATE STARTED: _____
DATE COMPLETED: _____
FIELD REP.: _____

GROUNDWATER LEVELS

DATE	TIME	DEPTH (ft.)

LOCATION DESCRIPTION

SITE CONDITION

DEPTH	SAMPLE INTERVAL	SAMPLE RECOVERY	SAMPLE RETAINED	TYPE	D	BLOWS PER 6 in.	N VALUE	USCS	VISUAL CLASSIFICATION
95									no sample
									same
100	X				19			SM	very cement. reddish br med. grain aty s.s.
105	X				20			SM	wet, grey brown moderately sorted little sandstone "wacke"
110	X				21			SM	same moderately sorted aty grains
115	X				22			SM	same
117	X				23			OK	DK. chocolate br. coaly sandy shale
120	X				24			CL	Blue-gray claystone

COMMENTS:

SAMPLE TYPE

A - Auger cuttings
S - 2" 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

BOREHOLE LOG (SOIL)

Page 1 of 5

LOCATION MAP:

SITE ID: _____ LOCATION ID: 935
SITE COORDINATES (ft.):
N _____ E _____
GROUND ELEVATION (ft. MSL): _____
DRILLING METHOD: _____
DRILLING CONTR.: _____
DATE STARTED: _____
DATE COMPLETED: _____
FIELD REP.: _____

GROUNDWATER LEVELS

DATE	TIME	DEPTH (ft.)

LOCATION DESCRIPTION _____

SITE CONDITION SPARSE GRASS AND SAGEBRUSH

DEPTH	SAMPLE INTERVAL	SAMPLE RECOVERY	SAMPLE RETAINED	TYPE	ID	BLOWS PER 6 in.	N VALUE	USCS	VISUAL CLASSIFICATION
1									TOP SOIL
5	X			G	01			SC	Br. slightly moist, mod. blocky clayey SILTY sand w/ minor rootlets
10	X				02			SC	moist Brown clayey sand, clay-balls. some rootlets. slightly plastic, mostly granular.
15					03			SM	contact top soil s.s. / ALLUVIUM ? yellowish-tan fine grain, mod. sorted. lithic s.s., mostly qtz. grained
20					04			SM	tan fine grain s.s. minor opaque minerals
25					05			SM	tan fine to med. grained. qtz s.s. poorly sorted
30					06			SM	tan, med. dry fine grain lithic s.s.

COMMENTS: _____

SAMPLE TYPE

A - Auger cuttings
S - 2" 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

BOREHOLE LOG (SOIL)

Page 2 of 5

LOCATION MAP:

SITE ID: _____ LOCATION ID: 935
SITE COORDINATES (ft.):
N _____ E _____
GROUND ELEVATION (ft. MSL): _____
DRILLING METHOD: _____
DRILLING CONTR.: _____
DATE STARTED: _____
DATE COMPLETED: _____
FIELD REP.: _____

GROUNDWATER LEVELS

DATE	TIME	DEPTH (ft.)

LOCATION DESCRIPTION _____
SITE CONDITION _____

DEPTH	SAMPLE INTERVAL	SAMPLE RECOVERY	SAMPLE RETAINED	TYPE	D	BLOWS PER 6 in.	N VALUE	USCS	VISUAL CLASSIFICATION
35	X				07			SM	dk tan, slightly moist poorly sorted fine lithic s.s. some FeOx
40	X				08			SM	yellowish dk tan, slightly moist poorly sorted lithic s.s.
45	X				09			SM	tanish-yellow poorly sorted fine to medium grained Qtz. s.s. contact ss
50	X				10			CH/ SM	Reddish-yellow mod sorted, rounded Qtz. FeOx coated s.s. w/ shale chips in cuttings stringer
55	X				11			CH	Gray-olive Fat clay stone, sample wet. highly plastic contact claystone ss
60	X				12			SM	lithic s.s. wet granular

infectee
water

COMMENTS: _____

SAMPLE TYPE

A - Auger cuttings
S - 2" 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

BOREHOLE LOG (SOIL)

Page 3 of 5

LOCATION MAP:

SITE ID: _____ LOCATION ID: 935
SITE COORDINATES (ft.):
N _____ E _____
GROUND ELEVATION (ft. MSL): _____
DRILLING METHOD: _____
DRILLING CONTR.: _____
DATE STARTED: _____
DATE COMPLETED: _____
FIELD REP.: _____

GROUNDWATER LEVELS

DATE	TIME	DEPTH (ft.)

LOCATION DESCRIPTION _____
SITE CONDITION _____

DEPTH	SAMPLE INTERVAL	SAMPLE RECOVERY	SAMPLE RETAINED	TYPE	ID	BLOWS PER 6 in.	N VALUE	USCS	VISUAL CLASSIFICATION
65	X				13			SM	wet, olive silty s.s.
70	X				14			SM	wet, med sorted, rounded lithic s.s. w/ small FeOx concretions loosely cemented.
75	X				15				tanish-gray poorly to med sorted med grained at ₃ s.s. with occasional very-red clay/ gougey laminated thin stringers. at ₃ grains angular to sub round.
80	X				16				reddish-rose silty s.s.
85	X				17				very hard, well cemented, blue lithic well rounded at ₃ , med grained s.s.
90	X				18				same becomes soft ↓

COMMENTS: _____

SAMPLE TYPE

A - Auger cuttings
S - 2" 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

BOREHOLE LOG (SOIL)

LOCATION MAP:

SITE ID: _____ LOCATION ID: 935
SITE COORDINATES (ft.):
N _____ E _____
GROUND ELEVATION (ft. MSL): _____
DRILLING METHOD: _____
DRILLING CONTR.: _____
DATE STARTED: _____
DATE COMPLETED: _____
FIELD REP.: _____

GROUNDWATER LEVELS

DATE	TIME	DEPTH (ft.)

LOCATION DESCRIPTION _____

SITE CONDITION _____

DEPTH	SAMPLE INTERVAL	SAMPLE RECOVERY	SAMPLE REMOVED	TYPE	ID	BLOWS PER 6 in.	N VALUE	USCS	VISUAL CLASSIFICATION
95					19			SM	tan silty sand, soft poorly cemented
100					20				yellowish-tan silty s.s. wet sample.
105					21				same
110	X				22			SM	SAME
115	X				23			SM	SAME
120	X				24			SP	olive yellow well rounded, coarse grain s.s.

COMMENTS: _____

SAMPLE TYPE

A - Auger cuttings
S - 2" 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

BOREHOLE LOG (SOIL)

Page 1 of 4

LOCATION MAP:

SITE ID: SPK-15 LOCATION ID: 936
SITE COORDINATES (ft.):
N NK E NK
GROUND ELEVATION (ft. MSL): NK
DRILLING METHOD: 5.0" AIR ROTARY
DRILLING CONTR.: BARNHART, WY
DATE STARTED: 7-15-88
DATE COMPLETED: 7-16-88
FIELD REP.: D. MGTZLER

GROUNDWATER LEVELS

DATE	TIME	DEPTH (ft.)
7-16-88	7:30 am	NO WATER

LOCATION DESCRIPTION APPROX. 100' EAST/SOUTH EAST OF STOCK
SITE CONDITION OVERBURDEN STOCK PILE: 17% SLOPE TO THE SW, GRASSY, SAGE.

DEPTH	SAMPLE INTERVAL	SAMPLE RECOVERY	SAMPLE RETAINED	TYPE	ID	BLOWS PER 6 in.	N VALUE	USCS	VISUAL CLASSIFICATION
1				G					TOP SOIL: Dry, thin grassy cover.
2									
3									
4									
5	X				01			SC	Brown sandy silty clay minor organics, MOD. DRY
									ALLUVIUM
10	X				02			SC/CL	Brown DENSE sandy clay chips of clay stone / SILTSTONE
15	X				03			SC/CL	DK. to MOD. Brown SILTY FINE SANDSTONE, laminated MOD. DENSE.
20	X				04			SW	Brownish Yellow, fine to medium grained MOD. well sorted Sand- stone, mostly qtz grains w/ little fragments. grains sub-rounded to rounded. some FeOx stain loose, weak to absent cementa- tion
23	X				05				tan to Lt Br. MOD. sorted Medium grain s.s. some FINEs Predominately qtz grains, minor FeOx stain poorly sorted SILTY sand, MOIST
25									
30	X				06				

COMMENTS: G = Grab sample

SAMPLE TYPE

A - Auger cuttings
S - 2" 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

BOREHOLE LOG (SOIL)

Page 2 of 4

LOCATION MAP:

SITE ID: _____ LOCATION ID: 936
SITE COORDINATES (ft.):
N _____ E _____
GROUND ELEVATION (ft. MSL): _____
DRILLING METHOD: _____
DRILLING CONTR.: _____
DATE STARTED: _____
DATE COMPLETED: _____
FIELD REP.: _____

GROUNDWATER LEVELS

DATE	TIME	DEPTH (ft.)

LOCATION DESCRIPTION _____

SITE CONDITION _____

DEPTH	SAMPLE INTERVAL	SAMPLE RECOVERY	SAMPLE RETAINED	TYPE	ID	BLOWS PER 6 in.	N VALUE	USCS	VISUAL CLASSIFICATION
35	X				67			SM	moist tan poorly sorted sandstone
40	X				08			SM	MOD. DRY Lt BR, predominantly Qtz of angular to sub round loose silty sandstone
									CONTACT
45	X				09				Hd. dense reddish + grey cemented lithic sandstone.
50	X				10				fine s.s. wet
55	X				11				med grain, rounded, Qtz in a red cemented matrix.
60	X				12				mod. well sorted, rounded Qtz grains

COMMENTS: Injected H₂O at 42' after drill string became stuck.

SAMPLE TYPE

A - Auger Cuttings
S - 2" O.D. 1.38" I.D. drive sample
U - 3" O.D. 2.42" I.D. tube sample
T - 3" O.D. ther-walled Shelby tube

BOREHOLE LOG (SOIL)

Page 2 of 4

LOCATION MAP:

SITE ID: _____ LOCATION ID: 936
SITE COORDINATES (ft.):
N _____ E _____
GROUND ELEVATION (ft. MSL): _____
DRILLING METHOD: _____
DRILLING CONTR.: _____
DATE STARTED: _____
DATE COMPLETED: _____
FIELD REP.: _____

GROUNDWATER LEVELS

DATE	TIME	DEPTH (ft.)

LOCATION DESCRIPTION _____
SITE CONDITION _____

DEPTH	SAMPLE INTERVAL	SAMPLE RECOVERY	SAMPLE RETAINED	TYPE	D	BLOWS PER 6 in.	N VALUE	USCS	VISUAL CLASSIFICATION
5	X			G	13				lt. tan well rounded, predominantly atz grained sandstone, ARENITE TYPE S.S.
0	X			H	14				Med. to coarse atz grained S.S. with some lithic grains rounded to well rounded.
5	X				15				med. to med. coarse S.S.
0	X				16				Med size grains, rounded med. atz. ARENITE S.S.
5	X				17				same
0	X				18				non. sorted, rounded, mostly atz grains

COMMENTS: _____

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

BOREHOLE LOG (SOIL)

LOCATION MAP:

SITE ID: _____ LOCATION ID: 936
SITE COORDINATES (ft.):
N _____ E _____
GROUND ELEVATION (ft. MSL): _____
DRILLING METHOD: _____
DRILLING CONTR.: _____
DATE STARTED: _____
DATE COMPLETED: 7-15-88 4:30 PM
FIELD REP.: MOTL GJR

GROUNDWATER LEVELS

DATE	TIME	DEPTH (ft.)

LOCATION DESCRIPTION _____
SITE CONDITION _____

DEPTH	SAMPLE INTERVAL	SAMPLE RECOVERY	SAMPLE RETAINED	TYPE	D	BLOWS PER 6 in.	N VALUE	USCS	VISUAL CLASSIFICATION
95	X			h	19			CH	mostly atz s.s. with dk hd. shale. ? stringers in the s.s.
100	✓				20			CL	stiff / hard dk grey / blue claystone w/ s.s. present.
									NOTE: the s.s. could be contaminant from higher interval ?
105									claystone is massive, shale is highly laminated, T.D.
									NOTE: most probable color change noticed at 95.0
110									EXTENDED BORING 7-16-88
									GRAYISH-BLUE SILTSTONE / SHALE
									greyish blue claystone
115								CH	hd laminated blue clay stone
									high plasticity
								CH	bluish dk grey massive claystone
120									high plasticity
									FINAL T.D. 120.0

COMMENTS: T.D. @ 100' 4:30 PM 7-15-88

SAMPLE TYPE

A - Auger cuttings
S - 2" 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

BOREHOLE LOG (SOIL)

Page 1 of 2

SITE ID: SPK-15 LOCATION ID: 937
SITE COORDINATES (ft.):
N NK E NK
GROUND ELEVATION (ft. MSL): NK
DRILLING METHOD: AIR - WET ROTARY
DRILLING CONTR.: BARNHART
DATE STARTED: 7-17-88
DATE COMPLETED: _____
FIELD REP.: D. METZLER

GROUNDWATER LEVELS

DATE	TIME	DEPTH (ft.)

LOCATION DESCRIPTION

SITE CONDITION

DEPTH	SAMPLE INTERVAL	SAMPLE RECOVERY	SAMPLE RETAINED	TYPE	B	BLOWS PER 6 in.	N VALUE	USCS	VISUAL CLASSIFICATION
0									TOP SOIL
									ALLUVIUM
5	X			G	01				MOD., DR. BROWN SILTY SAND
10					02			SM	TAN. BR. SILTY SAND
15					03			SM	Brownish tan - silty fine sand
20					04			SM	SAME
25					05			SM	Fairly sorted br. tan. fine silty sand.
30					06				SAME

COMMENTS:

SAMPLE TYPE

A - Auger cuttings
S - 2" 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

BOREHOLE LOG (SOIL)

Page 2 of 4

LOCATION MAP:

SITE ID: _____ LOCATION ID: 937
SITE COORDINATES (ft.):
N _____ E _____
GROUND ELEVATION (ft. MSL): _____
DRILLING METHOD: _____
DRILLING CONTR.: _____
DATE STARTED: _____
DATE COMPLETED: _____
FIELD REP.: _____

GROUNDWATER LEVELS

DATE	TIME	DEPTH (ft.)

LOCATION DESCRIPTION _____

SITE CONDITION _____

DEPTH	SAMPLE INTERVAL	SAMPLE RECOVERY	SAMPLE RETAINED	TYPE	ID	BLOWS PER 6 in.	Z VALUE	USCS	VISUAL CLASSIFICATION
35					07			SM	TAN SILTY SAND <u>INJECTED CLEAR WATER</u>
40					08			SM	TAN-BR. SILTY SAND 10-20% 2mm rounded <u>at 3</u> grains. <u>BED ROCK</u>
45					09			SM	<u>SILTY TAN at 3</u> S.S.
50					10				tawish SILTY med. grain rounded S.S.
55					11				Same very fast drilling
60					12				

COMMENTS: net samples 40 +

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

BOREHOLE LOG (SOIL)

Page 3 of 4

LOCATION MAP:

SITE ID: _____ LOCATION ID: 937
SITE COORDINATES (ft.):
N _____ E _____
GROUND ELEVATION (ft. MSL): _____
DRILLING METHOD: _____
DRILLING CONTR.: _____
DATE STARTED: _____
DATE COMPLETED: _____
FIELD REP.: _____

GROUNDWATER LEVELS

DATE	TIME	DEPTH (ft.)

LOCATION DESCRIPTION _____

SITE CONDITION _____

DEPTH	SAMPLE INTERVAL	SAMPLE RECOVERY	SAMPLE RETAINED	TYPE	B	BLOWS PER 6 in.	N VALUE	USCS	VISUAL CLASSIFICATION
65	X			G	13			SM	wet, Br. yellow silty s.s.
70	X			G	14			SM	wet, SILTY S.S.
75									Very wet conditions no sample until 85-90'
80									
85									
90	X				18				Wet, Br. yellow silty sand

COMMENTS: _____

SAMPLE TYPE

A - Auger cuttings
S - 2" 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

BOREHOLE LOG (SOIL)

Page 4 of 4

LOCATION MAP:

SITE ID: _____ LOCATION ID: 937
SITE COORDINATES (ft.):
N _____ E _____
GROUND ELEVATION (ft. MSL): _____
DRILLING METHOD: _____
DRILLING CONTR.: _____
DATE STARTED: _____
DATE COMPLETED: _____
FIELD REP.: _____

GROUNDWATER LEVELS

DATE	TIME	DEPTH (ft.)

LOCATION DESCRIPTION _____

SITE CONDITION _____

DEPTH	SAMPLE INTERVAL	SAMPLE RECOVERY	SAMPLE RETAINED	TYPE	ID	BLOWS PER 6 in.	N VALUE	USCS	VISUAL CLASSIFICATION
92									BECOMES HARDER ?
94									CONTACT S.S. ? SHALE
95	X				17			CL	SILTY S.S. CONTAMINATED w/ the Blue shale, possible coal stringer shale / claystone <u>wet</u>
100	X				20				wet, Blue shale / claystone
									T.D. 100'
									cleaned hole w/ injected water.
									NOTE: wet samples Are not field identified extensively!
									DM.

COMMENTS: _____

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

BOREHOLE LOG (SOIL)

Page 1 of 9

LOCATION MAP:

SITE ID: SPK-15 LOCATION ID: 938
SITE COORDINATES (ft.):
N _____ E _____
GROUND ELEVATION (ft. MSL): _____
DRILLING METHOD: ROTARY : SW
DRILLING CONTR.: BARNHART
DATE STARTED: 7-14-88
DATE COMPLETED: _____
FIELD REP.: D. METZGER

GROUNDWATER LEVELS

DATE	TIME	DEPTH (ft.)
7-20-88	10 ⁰⁰ AM	? 180.0

LOCATION DESCRIPTION EAST OF SPOCK PIT ~ 600'
SITE CONDITION Gently slope, sparse growth of sagebrush

DEPTH	SAMPLE INTERVAL	SAMPLE RECOVERY	SAMPLE RETAINED	TYPE	ID	BLOWS PER 6 IN.	N VALUE	USCS	VISUAL CLASSIFICATION
									TOP SOIL
5	X				01				DRY SILTY SAND
									Contact TOPSOIL S.S.
10	X				02				TOPSOIL: clayey sand and poorly sorted silty lithic S.S.
15	X				03				slightly moist, Lt. tan poorly sorted, angular to round, fine to coarse. qtz. grain S.S.
20	X				04				Contact tan coarse S.S. red fine S.S.
									mod. sorted, iron stained, reddish fine, lithic sandstone.
25	X				05				poorly sorted S.S.
									blow by - contamination
30	X				06				Poorly sorted, slightly moist, reddish tan lithic qtz. dom. S.S.

COMMENTS:

SAMPLE TYPE

A - Auger cuttings
S - 2" 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

BOREHOLE LOG (SOIL)

Page 2 of 9

LOCATION MAP:

SITE ID: SPK-15 LOCATION ID: 938
SITE COORDINATES (ft.):
N NK E NK
GROUND ELEVATION (ft. MSL): NK
DRILLING METHOD: ROTARY
DRILLING CONTR.: BARW HART
DATE STARTED: 7-19-88
DATE COMPLETED: _____
FIELD REP.: D. METZGER

GROUNDWATER LEVELS

DATE	TIME	DEPTH (ft.)
<u>7-20-88</u>	<u>800 am</u>	<u>c 60'</u>

LOCATION DESCRIPTION 600' East of Spook Pit, 35' S. of Dry Creek.
SITE CONDITION Gently sloping sparse grass & sage-brush

DEPTH	SAMPLE INTERVAL	SAMPLE RECOVERY	SAMPLE RETAINED	TYPE	ID	BLOWS PER 6 in.	N VALUE	USCS	VISUAL CLASSIFICATION
35	x				07				SLIGHTLY moist- Reddish-brown, poorly sorted, atz. ss.
40	x				08				same
45	x				09				Reddish-brown poorly sorted coarse sand (wet sample)
50	x				10				same
55	x				11				contact s.s. Blue shale
									Grey moist silty claystone
									very fine rounded atz grains in a clay matrix.
60	x				12				Grey blue moist massive atz. siltstone

COMMENTS:

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

BOREHOLE LOG (SOIL)

Page 3 of 9

LOCATION MAP:

SITE ID: _____ LOCATION ID: 938
SITE COORDINATES (ft.):
N _____ E _____
GROUND ELEVATION (ft. MSL): _____
DRILLING METHOD: _____
DRILLING CONTR.: _____
DATE STARTED: _____
DATE COMPLETED: _____
FIELD REP.: _____

GROUNDWATER LEVELS

DATE	TIME	DEPTH (ft.)

LOCATION DESCRIPTION _____

SITE CONDITION _____

DEPTH	SAMPLE INTERVAL	SAMPLE RECOVERY	SAMPLE RETAINED	TYPE	ID	BLOWS PER 6 in.	N VALUE	USCS	VISUAL CLASSIFICATION
65	X			G	13			CL	wet sample, blue grey siltstone / claystone.
70	Y				14				wet sample same
75	X				15				same
80	Y				16				same
85	Y				17				dense massive grey claystone
90	Y				18				oil residue floating on mud claystone

COMMENTS: _____

SAMPLE TYPE

A - Auger cuttings
S - 2" O.D. 1.38" I.D. drive sample
U - 3" O.D. 2.42" I.D. tube sample
T - 3" O.D. thermal-welded Shelby tube

BOREHOLE LOG (SOIL)

LOCATION MAP:

SITE ID: _____ LOCATION ID: 138
SITE COORDINATES (ft.):
N _____ E _____
GROUND ELEVATION (ft. MSL): _____
DRILLING METHOD: _____
DRILLING CONTR.: _____
DATE STARTED: _____
DATE COMPLETED: _____
FIELD REP.: _____

GROUNDWATER LEVELS

DATE	TIME	DEPTH (ft.)

LOCATION DESCRIPTION _____

SITE CONDITION _____

DEPTH	SAMPLE INTERVAL	SAMPLE RECOVERY	SAMPLE REMOVED	TYPE	D	BLOWS PER 6 in.	N VALUE	USCS	VISUAL CLASSIFICATION
95					19				dense claystone
100					20				dense blue-gray claystone, sub lignite coal stringers. Tar coating on claystone fracture surface.
105					21				
110					22				
115					23				shale w/ hard black bituminous coal, conchoidal fractures in coal
120					24				blue claystone with hard black coal chips

COMMENTS: _____

SAMPLE TYPE
A - Auger cuttings
S - 2" 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

BOREHOLE LOG (SOIL)

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LOCATION MAP:

A
22

SITE ID: _____ LOCATION ID: 938
SITE COORDINATES (ft.):
N _____ E _____
GROUND ELEVATION (ft. MSL): _____
DRILLING METHOD: _____
DRILLING CONTR.: _____
DATE STARTED: _____
DATE COMPLETED: _____
FIELD REP.: _____

GROUNDWATER LEVELS

DATE	TIME	DEPTH (ft.)

LOCATION DESCRIPTION _____
SITE CONDITION _____

DEPTH	SAMPLE INTERVAL	SAMPLE RECOVERY	SAMPLE RETAINED	TYPE	ID	BLOWS PER 6 in.	N VALUE	USCS	VISUAL CLASSIFICATION
125	X			G	25			CL	blue / gray shale / claystone
130	X				26			CL	same
135	X				27				mostly blue claystone w/ DK earthy brown laminated friable sub lignite shale
140	X				28				blue / gray claystones w/ occasionally chips of hard coal. abundant soft clay.
145	X				29				mostly blue / gray claystone
150					30				claystones, stringers of hard coal amber crystals in coal

COMMENTS: _____

SAMPLE TYPE

A - Auger cuttings
S - 2" 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

BOREHOLE LOG (SOIL)

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LOCATION MAP:

SITE ID: _____ LOCATION ID: 938
SITE COORDINATES (ft.):
N _____ E _____
GROUND ELEVATION (ft. MSL): _____
DRILLING METHOD: _____
DRILLING CONTR.: _____
DATE STARTED: _____
DATE COMPLETED: _____
FIELD REP.: _____

GROUNDWATER LEVELS

DATE	TIME	DEPTH (ft.)

LOCATION DESCRIPTION

SITE CONDITION

DEPTH	SAMPLE INTERVAL	SAMPLE RECOVERY	SAMPLE RETAINED	TYPE	ID	BLOWS PER 6 IN.	N VALUE	USCS	VISUAL CLASSIFICATION
150	X								very hard stringer
155	X				31				blue claystone / shale
160	X				32				massive blue gray claystone, no sample coal stringers
165	X				33				hard dense blue/gray shale
170	X				34				blue - gray claystones shales minor coal fragments.
175	X				35				blue and grey shales claystone soft drilling.
180	X				36				blue claystone

COMMENTS:

SAMPLE TYPE

A - Auger cuttings
S - 2" 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

BOREHOLE LOG (SOIL)

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LOCATION MAP:

SITE ID: _____ LOCATION ID: 938
SITE COORDINATES (ft.):
N _____ E _____
GROUND ELEVATION (ft. MSL): _____
DRILLING METHOD: _____
DRILLING CONTR.: _____
DATE STARTED: _____
DATE COMPLETED: _____
FIELD REP.: _____

GROUNDWATER LEVELS

DATE	TIME	DEPTH (ft.)

LOCATION DESCRIPTION _____

SITE CONDITION _____

DEPTH	SAMPLE INTERVAL	SAMPLE RECOVERY	SAMPLE RETAINED	TYPE	ID	BLOWS PER 6 in.	N VALUE	USCS	VISUAL CLASSIFICATION
185					37			cl	blue shale
190					38				blue shale
195					39				blue claystone w/ laminated (thinly) or grey variable siltstone
200					40				oil residue floating on cuttings - mud. same as above: chocolate mud color
205					41				mostly blue shale
210					42				shale w/ thick hd. black bitum. coal

COMMENTS: _____

SAMPLE TYPE

A - Auger cuttings
S - 2" 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

BOREHOLE LOG (SOIL)

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LOCATION MAP:

SITE ID: _____ LOCATION ID: 938
SITE COORDINATES (ft.):
N _____ E _____
GROUND ELEVATION (ft. MSL): _____
DRILLING METHOD: _____
DRILLING CONTR.: _____
DATE STARTED: _____
DATE COMPLETED: _____
FIELD REP.: _____

GROUNDWATER LEVELS

DATE	TIME	DEPTH (ft.)

LOCATION DESCRIPTION

SITE CONDITION

DEPTH	SAMPLE INTERVAL	SAMPLE RECOVERY	SAMPLE RETAINED	TYPE	ID	BLOWS PER 6 in.	N VALUE	USCS	VISUAL CLASSIFICATION
215	x			6	43				Mostly h. Black coal, gray shale laminated soft
220	x			6	44				Lots of water coming up hole. same
225	x				45				Lots of water. Blue-gray shales coal minor fine sand?
230	x				46				Same
235					47				contact claystone sandstone
240					48				Lots of water. Predominantly fine sandstone w/ rich. angular to rounded medium grained mostly atz. Sandstone

COMMENTS: making H₂O at 220'
High Volume H₂O at 230'

SAMPLE TYPE

A - Auger cuttings
S - 2" 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

BOREHOLE LOG (SOIL)

Page 1 of 3

LOCATION MAP:

SITE ID: SPK-15 LOCATION ID: 939
SITE COORDINATES (ft.):
N NK E NK
GROUND ELEVATION (ft. MSL): NK
DRILLING METHOD: 5" AIR ROTARY
DRILLING CONTR.: BARNHART
DATE STARTED: 7-16-88
DATE COMPLETED: _____
FIELD REP.: D. METZGER

GROUNDWATER LEVELS

DATE	TIME	DEPTH (ft.)

LOCATION DESCRIPTION MODERATELY FLAT, small rise

SITE CONDITION SPARSE GRASS & SAGE BRUSH

DEPTH	SAMPLE INTERVAL	SAMPLE RECOVERY	SAMPLE RETAINED	TYPE	ID	BLOWS PER 6 in.	N VALUE	USCS	VISUAL CLASSIFICATION
5	X				61				<p><u>TOP SOIL</u> MOD. BRN, IMMATURE, TRACE ORGANICS MED. BRN. SILTY SAND</p> <p>Poorly sorted yellowish br SILTY SAND NOTE: v. hard drilling</p> <p>yellowish tan silty fine sand well cemented.</p> <p>Poorly sorted silty sand well cemented wackestone lithic frags.</p> <p>lt. tan poorly sorted. angular atz. grained moist arenite minor lithic frags. drilling easier.</p> <p>moist tan-br poorly sorted silty sand atz grains sub rounded grain size .5-20 mm</p> <p>less fines, more rounded atz grains more sorted atz. arenite</p>
10					62				
15					63				
20					64				
25					65				
30									

COMMENTS: _____

SAMPLE TYPE

A - Auger cuttings
S - 2" 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

BOREHOLE LOG (SOIL)

Page 2 of 3

LOCATION MAP:

SITE ID: _____ LOCATION ID: 939
SITE COORDINATES (ft.):
N _____ E _____
GROUND ELEVATION (ft. MSL): _____
DRILLING METHOD: _____
DRILLING CONTR.: _____
DATE STARTED: _____
DATE COMPLETED: _____
FIELD REP.: _____

GROUNDWATER LEVELS

DATE	TIME	DEPTH (ft.)

LOCATION DESCRIPTION _____

SITE CONDITION _____

DEPTH	SAMPLE INTERVAL	SAMPLE RECOVERY	SAMPLE REMOVED	TYPE	ID	BLOWS PER 6 in.	N VALUE	USCS	VISUAL CLASSIFICATION
									Probably sand dune (wind blow) deposition
35	X				07				Sorted into 2 distinct qtz grain dia. 5 sub rounded, minor dark minerals, slightly moist, Lt tan arcuate type s.s.
40	X				08				Moist Reddish tan, poorly sorted minor lithic, med. rounded s.s. trace FeOx stain
45	X				09				poorly sorted, reddish tan s.s. hd. stringer 2 1-2' thick rose colored, well cemented
50	X				10				poorly sorted, s.s.
55	X				11				poorly sorted, wacke: stone some shale frags. Med. br
60	X				12				Moist, Lt. tan poorly sorted angular to sub rounded, mostly qtz grains

COMMENTS: _____

SAMPLE TYPE

A - Auger cuttings
S - 2" O.D. 1.38" I.D. drive sample
U - 3" O.D. 2.42" I.D. tube sample
T - 3" O.D. ther-waxed Shelby tube

BOREHOLE LOG (SOIL)

LOCATION MAP:

SITE ID: _____ LOCATION ID: 939
SITE COORDINATES (ft.):
N _____ E _____
GROUND ELEVATION (ft. MSL): _____
DRILLING METHOD: _____
DRILLING CONTR.: _____
DATE STARTED: _____
DATE COMPLETED: _____
FIELD REP.: _____

GROUNDWATER LEVELS

DATE	TIME	DEPTH (ft.)

LOCATION DESCRIPTION _____

SITE CONDITION _____

DEPTH	SAMPLE INTERVAL	SAMPLE RECOVERY	SAMPLE RETAINED	TYPE	D	BLOWS PER 6 in.	N VALUE	USCS	VISUAL CLASSIFICATION
65	X				13				mod. sorted, clean - rounded atz grains with some clay balls.
70	X				14				mod sorted, fine sand w/ clay balls
75	X				15				Moist, DK tan, poorly sorted medium grain S.S. large % lithics _____ <u>contact</u> _____
80	X				16				Moist, tan, well sorted, fine Sandstone _____ <u>contact</u> _____
85	X				17				Dr. Red Fe cemented S.S w/ odiferous layer of sub Lignite Moist DK Gray sandy shale w/ Coal stringers, soft laminated shales. T.D.
90									

COMMENTS: _____

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. ther-walled Shelby tube

BOREHOLE LOG (SOIL)

Page 1 of 2

LOCATION MAP:

SITE ID: SPK-15 LOCATION ID: 940
SITE COORDINATES (ft.):
N NK E NK
GROUND ELEVATION (ft. MSL): NK
DRILLING METHOD: AIR ROTARY
DRILLING CONTR.: BARNITART
DATE STARTED: 7-27-88
DATE COMPLETED: 7-27-88
FIELD REP.: D METZLER

GROUNDWATER LEVELS

DATE	TIME	DEPTH (ft.)
7-27-88	12 ⁰⁰ PM	18-19'

LOCATION DESCRIPTION: EAST ARM OF SPK PIT towards the "East-Gate"
SITE CONDITION: Loose sands, few weeds, dry surface.

DEPTH	SAMPLE INTERVAL	SAMPLE RECOVERY	SAMPLE RETAINED	TYPE	ID	BLOWS PER 6 IN.	N VALUE	USCS	VISUAL CLASSIFICATION
5					01			SM	loose, moist, lt. tan poorly sorted sands. hard s.s.
10					02			SM	hd. slightly moist lt. tan poorly sorted s.s.
15					03			SM	Moist, yellowish-tan poorly sorted s.s. w/ lithic frags. Qtz. fine to coarse.
20					04			SM	WATER TABLE: OBSERVED SATURATED Moist - wet reddish tan poorly sorted s.s.
25					05			SM	saturated tan br. sandstone, lithic
30					06			OH PI	contact sandstone / coal s.s. coal

COMMENTS: base sands caving near surface

SAMPLE TYPE

A - Auger cuttings
S - 2" O.D. 1.38" I.D. drive sample
U - 3" O.D. 2.42" I.D. tube sample
T - 3" O.D. thermal-shelby tube

BOREHOLE LOG (SOIL)

Page 2 of 2

LOCATION MAP:

SITE ID: 60K-15 LOCATION ID: 940
SITE COORDINATES (ft.):
N _____ E _____
GROUND ELEVATION (ft. MSL): _____
DRILLING METHOD: _____
DRILLING CONTR.: _____
DATE STARTED: _____
DATE COMPLETED: _____
FIELD REP.: _____

GROUNDWATER LEVELS

DATE	TIME	DEPTH (ft.)

LOCATION DESCRIPTION
SITE CONDITION _____

[illegible]**COMMENTS:**

SAMPLE TYPE

A - Auger cuttings
S - 2" 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

BOREHOLE LOG (SOIL)

Page 1 of 3

LOCATION MAP:

SITE ID: SPK-15 LOCATION ID: 941
SITE COORDINATES (ft.):
N NIL E NK
GROUND ELEVATION (ft. MSL): NK
DRILLING METHOD: ROTARY AIR
DRILLING CONTR.: BARNHART
DATE STARTED: 7-26-88
DATE COMPLETED: 7-26-88
FIELD REP.: D. METZGER

GROUNDWATER LEVELS

DATE	TIME	DEPTH (ft.)
7-27-88	7:45 am	45.0'

LOCATION DESCRIPTION Gently rolling top on a mod. sloping surface S. of driveway
SITE CONDITION SPARC sagebrush and short grasses. thin topsoil

DEPTH	SAMPLE INTERVAL	SAMPLE RECOVERY	SAMPLE RETAINED	TYPE	ID	BLOWS PER 6 in.	N VALUE	USCS	VISUAL CLASSIFICATION
									TOPSOIL
									Brown clayey, silty sand, trace rootlets, slightly moist
	X				01			cl	contact topsoil s.s.
2	X				02			SH	Brownish tan, moist poorly sorted sand stone, mostly qtz grains, angular to round.
5	X				03				Moist, qtz sandstone, mostly fine grain with minor coarse rounded clear qtz. grains.
9	X				03.5				small rounded dark-black mineral clasts.?, in a hard well cemented dense sandstone lense.
0					04			SM	Moist tan poorly sorted fine s.s.
5	X				05				coarser poorly sorted lithic rose-s.s. - orangeish-tan fine silty sand
0					06				slightly moist orangeish-tan mod sorted fine lithic s.s. with minor rounded qtz. coarse grains.

COMMENTS: _____

SAMPLE TYPE

A - Auger cuttings
S - 2" O.D. 1.38" I.D. drive sample
U - 3" O.D. 2.42" I.D. tube sample
T - 3" O.D. thermal-shield Shelby tube

BOREHOLE LOG (SOIL)

Page 2 of 3

LOCATION MAP:

SITE ID: SPZ-16 LOCATION ID: 941
SITE COORDINATES (ft.):
N _____ E _____
GROUND ELEVATION (ft. MSL): _____
DRILLING METHOD: _____
DRILLING CONTR.: _____
DATE STARTED: _____
DATE COMPLETED: _____
FIELD REP.: _____

GROUNDWATER LEVELS

DATE	TIME	DEPTH (ft.)

LOCATION DESCRIPTION Moderately sloping, 70' south of intermittent drainage
SITE CONDITION _____

DEPTH	SAMPLE INTERVAL	SAMPLE RECOVERY	SAMPLE RETAINED	TYPE	B	BLOWS PER 6 in.	N VALUE	USCS	VISUAL CLASSIFICATION
35	X				67			SM	Moist orangish-tan fine s.s. w/ some coarse clasts.
40	X				08			SM	Burnt orangish tan poorly sorted s.s.
									contact _____ s.s. claystone
45	X				09			SM/CL	s.s. and DK grey/deep brown firm massive claystone
50								CL/CH	fine grain massive claystone both DK grey and DK. Brown, plus s.s. contact from boring wall
	X				10				Grey clayst. Blue shale
55	X				11			CL	Blue-greenish grey silty shale easily broken, med. firm.
60	X				12			CL	Soft to firm blue shale w/ sandy grey shales and DK grey fissile shales.

COMMENTS: 36' started drilling w/ water

SAMPLE TYPE

A - Auger cuttings
S - 2" O.D. 1.38" I.D. drive sample
U - 3" O.D. 2.42" I.D. tube sample
T - 3" O.D. thermal-welded Shelby tube

LOCATION MAP:

SITE ID: SPK-15 LOCATION ID: 941

SITE COORDINATES (ft.):

2

GROUND ELEVATION (ft. MSL):

DRILLING METHOD: _____

DRILLING CONTR.:

DATE STARTED: _____

DATE COMPLETED: 7-26-86

FIELD REP.: D. Metzler

GROUNDWATER LEVELS

DATE	TIME	DEPTH (ft.)

LOCATION DESCRIPTION

SITE CONDITION

DEPTH	SAMPLE INTERVAL	SAMPLE RECOVERY	SAMPLE RETAINED	TYPE	D	BLOWS PER 6 in.	N VALUE	USCS	VISUAL CLASSIFICATION
									NOTE: OIL LIKE RESIDUE FLOATING ON CUTTINGS
65	X				13			SM/CL	Blue/gray shales w/ rounded qtz grains and abundant red oxide clasts.
70	X				14			CL/CH	Blue-green shales/claystone w/ large frags of D Brown to Black petroliferous shale or Lignite?
75	X				15			CL/CH	same as above
80	X				16				soft to firm Blue/gray claystones shales. T.D. @ 80'

COMMENTS:

SAMPLE TYPE

A - Auger cuttings
S - 2" 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

BOREHOLE LOG (SOIL)

Page 1 of 4

LOCATION MAP:

SITE ID: SPK-15 LOCATION ID: 942
SITE COORDINATES (ft.):
N NK E NK
GROUND ELEVATION (ft. MSL): NK
DRILLING METHOD: AIR ROTARY
DRILLING CONTR.: BARNHART
DATE STARTED: 7-18-88
DATE COMPLETED: _____
FIELD REP.: D. NETZLER

GROUNDWATER LEVELS

DATE	TIME	DEPTH (ft.)

LOCATION DESCRIPTION SPARSE GRASS & SAGEBRUSH, MODERATE SLOPE
SITE CONDITION WET, DRY, EROSIONAL SLOPING ALLUVIUM

DEPTH	SAMPLE INTERVAL	SAMPLE RECOVERY	SAMPLE RETAINED	TYPE	ID	BLOWS PER 6 in.	N VALUE	USCS	VISUAL CLASSIFICATION
									TOPSOIL
5	X				01			SM	BROWN SILTY SAND, ORGANIC ROOTLETS Blocky, / clayey sand
10	X				02			SM	BROWN, SLIGHTLY MOIST Blocky SILTY fine sand
15	X				03			SM	BROWN SILTY fine sand non plastic
20	X				04			SM	Br. SILTY fine sand
25	X				05			SM	Br. SILTY sand w/ Blocky laminated siltstone - shale chips.
30	X				06			SM	SLIGHTLY moist SILTY fine sand MOD. SORTED

COMMENTS: _____

SAMPLE TYPE

A - Auger cuttings
S - 2" 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

BOREHOLE LOG (SOIL)

Page 2 of 4

LOCATION MAP:

SITE ID: _____ LOCATION ID: 942
SITE COORDINATES (ft.):
N _____ E _____
GROUND ELEVATION (ft. MSL): _____
DRILLING METHOD: _____
DRILLING CONTR.: _____
DATE STARTED: _____
DATE COMPLETED: _____
FIELD REP.: _____

GROUNDWATER LEVELS

DATE	TIME	DEPTH (ft.)

LOCATION DESCRIPTION _____

SITE CONDITION _____

DEPTH	SAMPLE INTERVAL	SAMPLE RECOVERY	SAMPLE RETAINED	TYPE	ID	BLOWS PER 6 in.	Z VALUE	USCS	VISUAL CLASSIFICATION
									ALLUVIUM
									? CONTACT
									High Fe ₂ O ₃ S.S. ?
35	X				07			SP	SLIGHTLY MOIST REDDISH tan SILTY fine sand, med. sorted, mostly Qtz. grains, some lithic grains.
40	X				08			SP	SLIGHTLY MOIST, REDDISH tan, fine to med Qtz rich sandstone, Fe ₂ O ₃ present coating Qtz grains
45	X				09			SP	Pinkish-red fine sand, moderately sorted
50	X				10				Pinkish-red, well sorted fine Qtz S.S. w/ abundant Fe ₂ O ₃
55	X				11				Same as above, d = .25 mm slightly moist
60	X				12				Red, med. sorted, lithic S.S. w/ some clay balls, moist

COMMENTS: _____

SAMPLE TYPE

A - Auger cuttings
S - 2" 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

BOREHOLE LOG (SOIL)

Page 3 of 4

LOCATION MAP:

SITE ID: _____ LOCATION ID: 942
SITE COORDINATES (ft.):
N _____ E _____
GROUND ELEVATION (ft. MSL): _____
DRILLING METHOD: _____
DRILLING CONTR.: _____
DATE STARTED: _____
DATE COMPLETED: _____
FIELD REP.: _____

GROUNDWATER LEVELS

DATE	TIME	DEPTH (ft.)

LOCATION DESCRIPTION _____

SITE CONDITION _____

DEPTH	SAMPLE INTERVAL	SAMPLE RECOVERY	SAMPLE RETAINED	TYPE	ID	BLOWS PER 6 in.	N VALUE	USCS	VISUAL CLASSIFICATION
									CONTACT <u>S.S.</u>
									CLIVE CLAYSTONE
<u>65</u>	X				<u>13</u>			CL	Moist, hard, olive claystone
<u>67</u>									NOTE: injected H ₂ O - -
<u>70</u>	f				<u>14</u>			ch	CLIVE CLAYSTONE
<u>73</u>	X				<u>15</u>			CL	CONTACT: <u>CLIVE CLAYSTONE</u> wet sample <u>blue shale</u> blueish-green claystone/shale
<u>80</u>	X				<u>16</u>			CL	wet sample: <u>grey shaley</u> <u>siltstone / claystone</u>
<u>83</u>	X				<u>17</u>			ch	hard Dr. grey massive claystone some minor siltstone
									<u>T.B. 85</u>

COMMENTS: _____

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

Page 4 of 4

FIELD REP.: _____

DEPTH (ft.)

SITE CONDITION

COMMENTS: _____

SAMPLE TYPE
A - Auger cuttings
S - 2" 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

BOREHOLE LOG (SOIL)

Page 1 of 3

LOCATION MAP:

HARDY

SITE ID: SPK-15 LOCATION ID: 943
SITE COORDINATES (ft.):
N _____ E _____
GROUND ELEVATION (ft. MSL): _____
DRILLING METHOD: _____
DRILLING CONTR.: _____
DATE STARTED: _____
DATE COMPLETED: _____
FIELD REP.: _____

GROUNDWATER LEVELS

DATE	TIME	DEPTH (ft.)

LOCATION DESCRIPTION

300' south of the N. Boundary of Horatue/Hardy Prop

SITE CONDITION

Flat sage covered open land.

DEPTH	SAMPLE INTERVAL	SAMPLE RECOVERY	SAMPLE RETAINED	TYPE	ID	BLOWS PER 6 IN.	N VALUE	USCS	VISUAL CLASSIFICATION
									Topsoil
5	x				01			sc/cl	br. to rose silty clayey sand
10	x				02			sm	very lt reddish tan, dry med. to coarse grain, rounded, well sorted aty. S.S., (leached zone)
15	x				03			sm	rose-red, dry fine to med. iron stained aty S.S. angular to sub rounded grains.
20	x				04			sm	same
25	x				05				slightly moist rose-red fine grain iron stained lithic S.S., poorly to med. sorted, mostly sub angular grains
30	x				06				cemented bl. S.S. lens
									slightly moist, red fine S.S. some silt

COMMENTS:

SAMPLE TYPE

A - Auger cuttings
S - 2" 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

BOREHOLE LOG (SOIL)

Page 2 of 3

LOCATION MAP:

HARDY

HORN
BUCKLE

943

F.S.

SITE ID: SPV-15 LOCATION ID: 943
SITE COORDINATES (ft.):
N _____ E _____
GROUND ELEVATION (ft. MSL): _____
DRILLING METHOD: _____
DRILLING CONTR.: _____
DATE STARTED: _____
DATE COMPLETED: _____
FIELD REP.: _____

GROUNDWATER LEVELS

DATE	TIME	DEPTH (ft.)

LOCATION DESCRIPTION

SITE CONDITION

DEPTH	SAMPLE INTERVAL	SAMPLE RECOVERY	SAMPLE REMOVED	TYPE	D	BLOWS PER 6 in.	N VALUE	USCS	VISUAL CLASSIFICATION
35	X				07			SM	slight moist, red, iron matrix angular fine s.s. lithic clast some sst size particles
40	X				08			SI	Dry well cemented (? CaCO ₃) rounded fine to med. grain Qtz. s.s. Lt. tan, lacking the iron matrix
45	X				09			SM	slightly moist, tan-lt red, poorly sorted angular to sub rounded Qtz. s.s. silty to fine sand
50	X				10			SI	slightly moist, med sorted med. grain lithic, most Qtz. orange s.s.
55	X				11			SM	orangish-tan, sorted, mostly rounded med. grain Qtz. s.s. - injected water
60									red, wet, medium Qtz. s.s. / hd. shale stringer

COMMENTS:

SAMPLE TYPE

A - Auger cuttings
S - 2" 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

BOREHOLE LOG (ROCK)

Page 3 of 3

LOCATION MAP:

ran out of soil boring
Logs

SITE ID: SPN-15 LOCATION ID: 943
APPROX. SITE COORDINATES (ft.):
N _____ E _____
GROUND ELEVATION (ft. MSL): _____
DRILLING METHOD: _____
DRILLER: _____
DATE STARTED: _____
DATE COMPLETED: _____
FIELD REP.: _____

GROUNDWATER LEVELS

DATE	TIME	DEPTH (ft.)

LOCATION DESCRIPTION _____

SITE CONDITION _____

DEPTH (FT)	BORING OPERATION	% CORE RECOVERY	% ROCK QUALITY DESIGNATION (RQD)	% DRILLING FLUID RECOVERY	PACKER TEST INTERVAL	DISCONTINUITIES							CONDITION	WEATHERING	LITHOLOGY	ROCK TYPE & REMARKS
						SPACING					ORIENTATION					
						WIDE — CLOSE					HORIZ. — VERT.					
						1	2	3	4	5	H	50°				
62														SS	s.s. contact	
															Coal stringer	
															gray shale / claystone	
65 R														sh	Gray Plastic shale	
70															firm blue gray claystone / shale	
75															Blueish gray claystone	

COMMENTS:

T.D. 75' 11:50 AM

BORING OPERATION
N - 6 1/2 HOLLOW STEM ANGER
C - 4 1/2 CONTINUOUS FLIGHT ANGER
GB - GEAR BIT
NX - NX ROCK CORING
NQ - NQ WIRELINE ROCK CORING

BOREHOLE LOG (SOIL)

Page 1 of 5

LOCATION MAP:

SITE ID: SPK-15 LOCATION ID: 944
SITE COORDINATES (ft.):
N NK E NK
GROUND ELEVATION (ft. MSL): NK
DRILLING METHOD: ROTARY AIR
DRILLING CONTR.: BARNHART
DATE STARTED: 7-29-88
DATE COMPLETED: _____
FIELD REP.: D. METZGER

GROUNDWATER LEVELS

DATE	TIME	DEPTH (ft.)

LOCATION DESCRIPTION 400' South of Hardy's Windmill
SITE CONDITION MODERATELY FLAT SPARSE SHADE of SHORT GRASS

DEPTH	SAMPLE INTERVAL	SAMPLE RECOVERY	SAMPLE RETAINED	TYPE	ID	BLOWS PER 6 in.	N VALUE	USCS	VISUAL CLASSIFICATION
									TOPSOIL ? weathered zone of enrichment ↓
5	X				01			CL	Brown dry hd. sandy clay minor rootlets
10	X				02			CL	Lt. Br. DRY sandyclay to clayey sand
15	X				03			SM	Lt. Br. MOD. DRY SILTY fine sand, many black lithic clasts
20	X				04			SC	slightly moist br. sandy clay, fine sand fractions
25	X				05			SC	moist to dry, Lt. br. clayey fine sand
30	X				06			SC	Lt. br. clayey fine sand

COMMENTS: _____

SAMPLE TYPE

A - Auger cuttings
S - 2" O.D. 1.38" I.D. drive sample
U - 3" O.D. 2.42" I.D. tube sample
T - 3" O.D. ther-waxed Shelby tube

BOREHOLE LOG (SOIL)

Page 2 of 5

LOCATION MAP:

SITE ID: SPK-15 LOCATION ID: 944
SITE COORDINATES (ft.):
N _____ E _____
GROUND ELEVATION (ft. MSL): _____
DRILLING METHOD: _____
DRILLING CONTR.: _____
DATE STARTED: _____
DATE COMPLETED: _____
FIELD REP.: _____

GROUNDWATER LEVELS

DATE	TIME	DEPTH (ft.)

LOCATION DESCRIPTION _____

SITE CONDITION _____

DEPTH	SAMPLE INTERVAL	SAMPLE RECOVERY	SAMPLE RETAINED	TYPE	ID	BLOWS PER 6 in.	R. VALUE	USCS	VISUAL CLASSIFICATION
35	X				07			sc	moist br. clayey fine sand
									insectal water
40	X				08			cl	Br. sandy lean clay
45	V				09			cl	Br. lean clay
50	X				10			cl	Br. silty lean clay
									GRADATIONAL CHANGE:
55	X				11			sc	Brown-tan, clayey sand.
60	X				12			cl	Brown-tan silty clay

COMMENTS: _____

SAMPLE TYPE

A - Auger cuttings
S - 2" 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

BOREHOLE LOG (SOIL)

Page 3 of 5

LOCATION MAP:

SITE ID: 29K-15 LOCATION ID: 944
SITE COORDINATES (ft.):
N _____ E _____
GROUND ELEVATION (ft. MSL): _____
DRILLING METHOD: _____
DRILLING CONTR.: _____
DATE STARTED: _____
DATE COMPLETED: _____
FIELD REP.: _____

GROUNDWATER LEVELS

DATE	TIME	DEPTH (ft.)

LOCATION DESCRIPTION _____

SITE CONDITION _____

DEPTH	SAMPLE INTERVAL	SAMPLE RECOVERY	SAMPLE RETAINED	TYPE	ID	BLOWS PER 6 in.	N VALUE	USCS	VISUAL CLASSIFICATION
65	X				13			SM/SC	red, br. silty fine sand, some clay?
70	X				14				SMTC
75	X				15				same
80	X				16			SM	red- wet, fine lithic silty sand
85	X				17				lt. br. silty fine sand, clay?
90					18				lt. br. silty sand

COMMENTS: _____

SAMPLE TYPE

A - Auger cuttings
S - 2" 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

BOREHOLE LOG (SOIL)

Page 4 of 5

LOCATION MAP:

SITE ID: SPV-15 LOCATION ID: 944
SITE COORDINATES (ft.):
N _____ E _____
GROUND ELEVATION (ft. MSL): _____
DRILLING METHOD: _____
DRILLING CONTR.: _____
DATE STARTED: _____
DATE COMPLETED: _____
FIELD REP.: _____

GROUNDWATER LEVELS

DATE	TIME	DEPTH (ft.)

LOCATION DESCRIPTION _____

SITE CONDITION _____

DEPTH	SAMPLE INTERVAL	SAMPLE RECOVERY	SAMPLE RETAINED	TYPE	ID	BLOWS PER 6 in.	N VALUE	USCS	VISUAL CLASSIFICATION
95	X				19			ML	wet, br. med grain well sorted well rounded, S.S.
100					20				reddish br. iron ox stained, well sorted, rounded Qtz. S.S.
105					21				red/br. well sorted, rounded, med grain S.S.
110					22				same
115					23				tan-brown, well rounded, med sorted lithic Qtz S.S.
120					24				- <u>WATER BEARING</u> coarse S.S. / conl

COMMENTS: _____

SAMPLE TYPE

A - Auger cuttings
S - 2" 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

Page 5 of 5

SITE ID: SPK-15 LOCATION ID: 944
SITE COORDINATES (ft.):
N _____ E _____
GROUND ELEVATION (ft. MSL): _____
DRILLING METHOD: _____
DRILLING CONTR.: _____
DATE STARTED: _____
DATE COMPLETED: _____
FIELD REP.: _____

GROUNDWATER LEVELS		
DATE	TIME	DEPTH (ft.)

SITE CONDITION

[illegible]**COMMENTS:**

A - Auger cuttings
S - 2" O.D. 1.38" I.D. drive sample
U - 3" O.D. 2.42" I.D. tube sample
T - 3" O.D. ther-walled Shelby tube

APPENDIX B
MONITOR WELL COMPLETION RECORDS

JACOBS ENGINEERING GROUP INC.
ADVANCED SYSTEMS DIVISION, ALBUQUERQUE OPERATIONS

WELL COMPLETION RECORD

SITE ID: SPK LOCATION ID: 900 910 DATE INSTALLED: 11-26-86

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

OPEN AREA PER LINEAL FT. (IN²/FT.) _____

FORMATION OF COMPLETION: Wasatch (Sandstone)

FIELD REP.: L. Phyllis DRILLER: Boyles Bros.

COMMENTS: _____

BOREHOLE/WELL CONSTRUCTION LOG

SITE ID: SPK LOCATION ID: 900 910 FIELD REP: L. Phyle
APPROX. SITE COORDINATES (FT.): N _____ E _____
GROUND ELEVATION (FT. MSL): 5089 COMPLETION DATE: 11-26-86

BOREHOLE SUMMARY				CONSTRUCTION TIME LOG			
DRILLER: <u>Bayles Bros.</u>				ACTIVITY	START		END TIME
RIG TYPE: <u>Failing 1500</u>					DATE	TIME	
BIT TYPE	HOLE DIA. (in.)	END DEPTH (ft.)	FLUID TYPE	DRILLING	11-24-86	3:10	5:04
<u>Blade bit</u>	<u>8.0</u>	<u>174.5</u>	<u>Air/Mist</u>		<u>11-25-86</u>	<u>8:30</u>	<u>2:20</u>
				CASING	<u>11-26-86</u>	<u>10:15</u>	<u>11:30</u>
				FILTER PACK	<u>11-26-86</u>	<u>11:45</u>	<u>1:15</u>
				SEAL	<u>11-26-86</u>	<u>1:15</u>	<u>4:00</u>
				BACKFILL	<u>11-26-86</u>	<u>4:00</u>	<u>5:00</u>
					<u>12-2-86</u>	<u>8:15</u>	<u>12:30</u>
				DEVELOPMENT	<u>12-20-86</u>	<u>11:30</u>	<u>12:35</u>
				OTHER			

CASING SUMMARY			
CASING TYPE*	DESCRIPTION	DIA. (in.)	END DEPTH (ft.)
<u>* P</u>	<u>Protective Steel</u>	<u>8 3/8</u>	<u>5.5</u>
<u>B</u>	<u>Schedule 40 PVC</u>	<u>4.0</u>	<u>162.5</u>
<u>S</u>	<u>Sch. 40 PVC (.06)</u>	<u>4.0</u>	<u>172.5</u>
<u>B</u>	<u>Schedule 40 PVC</u>	<u>4.0</u>	<u>174.5</u>
	<u>* Set as permanent surface casing</u>		

* P-Protective S-Screen B-Blank O-Open N-None
† Depth from Top of Casing

WELL CONSTRUCTION			WELL DEVELOPMENT			
TYPE CODE*	DESCRIPTION	END DEPTH (ft.)	12-20-86	Ph	Ec (kHops)	Temp °C
<u>B</u>	<u>Cement-Bentonite Grout</u>	<u>149.0</u>	<u>11:45</u>	<u>8-9</u>	<u>75</u>	<u>9</u>
<u>S</u>	<u>Bentonite Pellets (1/4")</u>	<u>152.0</u>	<u>12:00</u>	<u>6-7</u>	<u>80</u>	<u>10</u>
<u>F</u>	<u>Silica Sand (8-12)</u>	<u>174.5</u>	<u>12:15</u>	<u>6-7</u>	<u>120</u>	<u>12</u>
			<u>12:30</u>	<u>6-7</u>	<u>140</u>	<u>11</u>
			<u>stop</u>			

COMMENTS: EC Meter ID # 12764
Developed with air until water
was clear & sed. free - Ph 6-7
EC 140 (kHops)

* B - Backfill S - Seal F - Filter Pack
† Depth from Ground Surface

WELL COMPLETION RECORD

SITE ID: SPK-01 LOCATION ID: 901 911 DATE INSTALLED: 11-24-86

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

OPEN AREA PER LINEAL FT. (IN²/FT.) _____

FORMATION OF COMPLETION: Wasatch (Sandstone)

FIELD REP.: L. Phute DRILLER: Bayles Bros.

COMMENTS: _____

WELL COMPLETION RECORD

SITE ID: SPK-01 LOCATION ID: 442 912 DATE INSTALLED: 11-23-86

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

OPEN AREA PER LINEAL FT. (IN²/FT.) _____

FORMATION OF COMPLETION: Wasatch

FIELD REP.: L. Platte DRILLER: Boyles Bros.

COMMENTS: _____

JACOBS ENGINEERING GROUP INC.
ADVANCED SYSTEMS DIVISION, ALBUQUERQUE OPERATIONS

BOREHOLE/WELL CONSTRUCTION LOG

SITE ID: SPK-01 LOCATION ID: 902 912 FIELD REP: L. Phyle

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

GROUND ELEVATION (FT. MSL): 5100 COMPLETION DATE: 11-23-86

BOREHOLE SUMMARY				CONSTRUCTION TIME LOG			
DRILLER: <u>Byles Bros.</u>				ACTIVITY	START		END TIME
RIG TYPE: <u>Fa. 1. ng 1500</u>					DATE	TIME	
BIT TYPE	HOLE DIA. (in.)	END DEPTH (ft.)	FLUID TYPE	DRILLING			
<u>Tricone</u>	<u>12</u>	<u>5.5</u>	<u>Air</u>		<u>11-22-86</u>	<u>3:40</u>	<u>4:30</u>
<u>Tricone</u>	<u>8</u>	<u>114.0</u>	<u>Air/Mist</u>			<u>11:15</u>	<u>1:00</u>
				CASING	<u>11-22-86</u>	<u>1:30</u>	<u>2:50</u>
				FILTER PACK	<u>11-22-86</u>	<u>2:50</u>	<u>3:40</u>
				SEAL	<u>11-22-86</u>	<u>3:40</u>	<u>4:15</u>
				BACKFILL	<u>11-23-86</u>	<u>11:00</u>	<u>12:30</u>
				DEVELOPMENT	<u>12-17-86</u>	<u>9:00</u>	<u>12:00</u>
				OTHER			

CASING SUMMARY			
CASING TYPE*	DESCRIPTION	DIA. (in.)	END DEPTH (ft.)
<u>*P</u>	<u>Protective Steel</u>	<u>8 7/8</u>	<u>5.5</u>
<u>B</u>	<u>Schedule 40 PVC</u>	<u>4</u>	<u>97.0</u>
<u>S</u>	<u>Sch 40 PVC slotted</u>	<u>4</u>	<u>112.0</u>
<u>B</u>	<u>Schedule 40 PVC</u>	<u>4</u>	<u>114.0</u>
	<u>*Set as permanent surface casing</u>		

* P-Protective S-Screen B-Blank O-Open N-None
* Depth from Top of Casing

WELL CONSTRUCTION			WELL DEVELOPMENT		
TYPE CODE*	DESCRIPTION	END DEPTH (ft.)			
<u>B</u>	<u>Cement-Bentonite Grout</u>	<u>76.5</u>	<u>12-17-86</u>	<u>PK</u>	<u>EC (Hrks)</u> <u>Developed</u>
<u>S</u>	<u>Bentonite Pellets</u>	<u>87.0</u>	<u>9:10</u>	<u>7-8</u>	<u>250 units Water was</u>
<u>F</u>	<u>Silica Sand (8-12)</u>	<u>114.0</u>	<u>10:00</u>	<u>7-8</u>	<u>275 clean and</u>
			<u>10:30</u>	<u>7-8</u>	<u>275 sediment</u>
			<u>11:15</u>	<u>7-8</u>	<u>275 free.</u>
COMMENTS: _____					

* B - Backfill S - Seal F - Filter Pack
* Depth from Ground Surface

JACOBS ENGINEERING GROUP INC.
ADVANCED SYSTEMS DIVISION, ALBUQUERQUE OPERATIONS

WELL COMPLETION RECORD

SITE ID: SPK-01 LOCATION ID: 903 913 DATE INSTALLED: 12-14-86

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

OPEN AREA PER LINEAL FT. (IN²/FT.) _____

FORMATION OF COMPLETION: Wasatch (SS/Sk)

FIELD REP.: L. Phylte DRILLER: Boykes Bros.

COMMENTS: _____

BOREHOLE/WELL CONSTRUCTION LOG

SITE ID: SPL-01 LOCATION ID: 903913 FIELD REP: L. Phylfe

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

GROUND ELEVATION (FT. MSL): 5090 COMPLETION DATE: 12-14-86

BOREHOLE SUMMARY				CONSTRUCTION TIME LOG			
DRILLER: <u>Boyles Bros.</u>				ACTIVITY	START		END TIME
RIG TYPE: <u>Failing 1500</u>					DATE	TIME	
BIT TYPE	HOLE DIA. (In.)	END DEPTH (ft.)	FLUID TYPE	DRILLING	12-13-86	3:10	5:15
<u>Tritone</u>	<u>8.0"</u>	<u>120.0'</u>	<u>Air/Mist</u>				
				CASING	12-14-86	9:45	10:06
				FILTER PACK	12-14-86	10:10	11:15
				SEAL	12-14-86	11:15	12:15
				BACKFILL	12-14-86	12:30	1:30
					12-16-86	9:30	11:30
				DEVELOPMENT	12-20-86	2:30	3:30
				OTHER			
CASING SUMMARY							
CASING TYPE*	DESCRIPTION	DIA. (In.)	END DEPTH (ft.)				
<u>*P</u>	<u>Protective Steel</u>	<u>8 3/8</u>	<u>5.5</u>				
<u>B</u>	<u>Schedule 40 PVC</u>	<u>4.0</u>	<u>103.0</u>				
<u>S</u>	<u>Sch 40 PVC (.06")</u>	<u>4.0</u>	<u>112.0</u>				
<u>B</u>	<u>Schedule 40 PVC</u>	<u>4.0</u>	<u>120.0</u>				
	<u>*Set as permanent surface casing</u>						
* P-Protective S-Screen B-Blank O-Open N-None † Depth from Top of Casing							
WELL CONSTRUCTION				WELL DEVELOPMENT			
TYPE CODE*	DESCRIPTION	END DEPTH (ft.)		<u>12-20-86</u>	<u>Ph</u>	<u>E (in Hrs)</u>	<u>Temp C°</u>
<u>B</u>	<u>Cement-Bentonite Grout</u>	<u>84.0</u>		<u>2:30</u>	<u>#7-8</u>	<u>360</u>	<u>10</u>
<u>S</u>	<u>Bentonite Pellets (1/4")</u>	<u>93.0</u>		<u>2:45</u>	<u>5-6</u>	<u>370</u>	<u>12</u>
<u>F</u>	<u>Colo. Silver Sand (8-12)</u>	<u>120.0</u>		<u>2:55</u>	<u>5-6</u>	<u>370</u>	<u>13</u>
				<u>3:15</u>	<u>5-6</u>	<u>375</u>	<u>13</u>
				<u>3:49</u>			
				COMMENTS: <u>EC meter I.D. #12764</u>			
				<u>Surged with air until water was free of sand and sediment.</u>			
* B - Backfill S - Seal F - Filter Pack † Depth from Ground Surface

JACOBS ENGINEERING GROUP INC.

ADVANCED SYSTEMS DIVISION, ALBUQUERQUE OPERATIONS

WELL COMPLETION RECORD

SITE ID: SPK-01 LOCATION ID: 904 914 DATE INSTALLED: 12-15-86

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

OPEN AREA PER LINEAL FT. (IN²/FT.) _____

FORMATION OF COMPLETION: Wasatch (SL/SS)

FIELD REP.: L. Phyle DRILLER: Boyles Bros.

COMMENTS: _____

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

BOREHOLE/WELL CONSTRUCTION LOG

SITE ID: SPK-01 LOCATION ID: 904 914 FIELD REP: L. Phyte
APPROX. SITE COORDINATES (FT.): N _____ E _____
GROUND ELEVATION (FT. MSL): 5090 COMPLETION DATE: 12-15-86

BOREHOLE SUMMARY				CONSTRUCTION TIME LOG			
DRILLER: <u>Boyles Bros.</u>				ACTIVITY	START		END TIME
RIG TYPE: <u>Failing 1500</u>					DATE	TIME	
BIT TYPE	HOLE DIA. (in.)	END DEPTH (ft.)	FLUID TYPE	DRILLING	12-14-86	1:45	5:00
<u>Tricone</u>	<u>8.0</u>	<u>185.0</u>	<u>Air / Mist</u>				
				CASING	12-15-86	1:50	2:40
				FILTER PACK	12-15-86	2:45	3:26
				SEAL	12-15-86	3:26	4:00
				BACKFILL	12-16-86	11:30	2:00
				DEVELOPMENT	12-20-86	4:00	5:15
				OTHER			
CASING SUMMARY							
CASING TYPE*	DESCRIPTION	DIA. (in.)	END DEPTH (ft.)				
<u>*P</u>	<u>Protective Steel</u>	<u>8 7/8</u>	<u>5.5</u>				
<u>B</u>	<u>Schedule 40 PVC</u>	<u>4.0</u>	<u>168.0</u>				
<u>S</u>	<u>Sch 40 PVC (106")</u>	<u>4.0</u>	<u>183.0</u>				
<u>B</u>	<u>Schedule 40 PVC</u>	<u>4.0</u>	<u>185.0</u>				
	<u>* Set as permanent surface casing</u>						
* P-Protective S-Screen B-Blank O-Open N-None							
+ Depth from Top of Casing							
WELL CONSTRUCTION				WELL DEVELOPMENT			
TYPE CODE*	DESCRIPTION	END DEPTH (ft.)		12-20-86	Ph	Ec (Cuthros)	Temp C°
<u>B</u>	<u>Cement-Bentonite Grout</u>	<u>147.0</u>		4:00	5-6	400	10
<u>S</u>	<u>Bentonite Pellets (1/4")</u>	<u>157.0</u>		4:20	5-6	400	10
<u>F</u>	<u>Colo. Siliceous Sand (8-12)</u>	<u>185.0</u>		4:40	6-7	330	11
				4:55	6-7	340	11
				<u>Stop</u>			
				COMMENTS: <u>Ec meter I.D. # 12764</u>			
				<u>Developed with air until water was</u>			
				<u>clear & sediment free. Litmus Paper</u>			
				<u>used for Ph check</u>			
* B - Backfill S - Seal F - Filter Pack							
+ Depth from Ground Surface

JACOBS ENGINEERING GROUP INC.

ADVANCED SYSTEMS DIVISION, ALBUQUERQUE OPERATIONS

WELL COMPLETION RECORDSITE ID: SPK-01 LOCATION ID: 905 915 DATE INSTALLED: 12-10-86

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

OPEN AREA PER LINEAL FT. (IN²/FT.) _____

FORMATION OF COMPLETION: _____

FIELD REP.: L. Phylfe DRILLER: Boyle Bros.

COMMENTS: _____

BOREHOLE/WELL CONSTRUCTION LOG

SITE ID: SPK-61 LOCATION ID: 905 915 FIELD REP: L. Phute

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

GROUND ELEVATION (FT. MSL): _____ COMPLETION DATE: 12-10-86

BOREHOLE SUMMARY				CONSTRUCTION TIME LOG				
DRILLER: <u>Boyles Bros.</u>				ACTIVITY	START		END TIME	
RIG TYPE: <u>Failing 1500</u>					DATE	TIME		
BIT TYPE	HOLE DIA. (in.)	END DEPTH (ft.)	FLUID TYPE	DRILLING	<u>12-6-86</u>	<u>11:30</u>	<u>1:30</u>	
<u>Tricone</u>	<u>8.0</u>	<u>130.0</u>	<u>Air/Mist</u>		<u>12-9-86</u>	<u>11:50</u>	<u>1:45</u>	
CASING SUMMARY				CASING	<u>12-9-86</u>	<u>3:59</u>	<u>5:00</u>	
CASING TYPE*	DESCRIPTION	DIA. (in.)	END DEPTH (ft.)	FILTER PACK	<u>12-9-86</u>	<u>5:00</u>	<u>5:25</u>	
<u>*P</u>	<u>Protective Steel</u>	<u>8 3/8</u>	<u>5.5</u>	SEAL	<u>12-9-86</u>	<u>5:25</u>	<u>6:00</u>	
<u>B</u>	<u>Schedule 40 PVC</u>	<u>4.0</u>	<u>113.0</u>	BACKFILL	<u>12-10-86</u>	<u>10:30</u>	<u>3:15</u>	
<u>S</u>	<u>Schedule 40 PVC (60')</u>	<u>4.0</u>	<u>128.0</u>					
<u>B</u>	<u>Schedule 40 PVC</u>	<u>4.0</u>	<u>130.0</u>	DEVELOPMENT	<u>12-19-86</u>	<u>12:20</u>	<u>3:50</u>	
				OTHER				
	<u>*Set as permanent surface casing</u>							
WELL CONSTRUCTION				WELL DEVELOPMENT				
TYPE CODE*	DESCRIPTION	END DEPTH (ft.)		<u>12-19-86</u>	<u>Ph</u>	<u>Ec (aHaks)</u>	<u>Temp C°</u>	
<u>B</u>	<u>Cement-Bentonite Grout</u>	<u>93.0</u>		<u>12:40</u>	<u>7-8</u>	<u>20</u>	<u>10</u>	
<u>S</u>	<u>Bentonite Pellets (1/4")</u>	<u>103.0</u>		<u>1:15</u>	<u>7-8</u>	<u>20</u>	<u>10</u>	
<u>F</u>	<u>Color Silica Sand (8-12)</u>	<u>130.0</u>		<u>1:48</u>	<u>6-7</u>	<u>15</u>	<u>12</u>	
				<u>12-20-86</u>				
				<u>8:00</u>	<u>6-7</u>	<u>12</u>	<u>11</u>	
				COMMENTS: <u>EE meter I.D. # 12764</u>				
				<u>12-20-86 Water check & sediment</u>				
				<u>Lithmus paper used to check pH</u>				
				<u>pH meter not working (# 350222)</u>

JACOBS ENGINEERING GROUP INC.
ADVANCED SYSTEMS DIVISION, ALBUQUERQUE OPERATIONS

WELL COMPLETION RECORD

SITE ID: SPK-01 LOCATION ID: 906 916 DATE INSTALLED: 12-6-86

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

OPEN AREA PER LINEAL FT. (IN²/FT.) _____

FORMATION OF COMPLETION: Washita (SS/SH)

FIELD REP.: L. Phylle DRILLER: Boyles Bros.

COMMENTS: _____

BOREHOLE/WELL CONSTRUCTION LOG

SITE ID: SPK-01 LOCATION ID: 906 916 FIELD REP: L. Phyle
APPROX. SITE COORDINATES (FT.): N _____ E _____
GROUND ELEVATION (FT. MSL): 5075 COMPLETION DATE: 12-6-86

BOREHOLE SUMMARY				CONSTRUCTION TIME LOG			
DRILLER: <u>Boyles Bros.</u>				ACTIVITY	START		END TIME
RIG TYPE: <u>Fa. Ling 1500</u>					DATE	TIME	
BIT TYPE	HOLE DIA. (in.)	END DEPTH (ft.)	FLUID TYPE	DRILLING	12-5-86	12:35	2:37
<u>Tricone</u>	<u>8.0</u>	<u>110.0</u>	<u>Air/Water</u>	CASING	12-5-86	3:30	4:00
CASING SUMMARY				FILTER PACK	12-5-86	4:00	4:35
CASING TYPE*	DESCRIPTION	DIA. (in.)	END DEPTH (ft.)	SEAL	12-5-86	4:35	5:00
<u>*P</u>	<u>Protective Steel</u>	<u>8 3/8</u>	<u>5-5</u>	BACKFILL	12-6-86	8:40	10:30
<u>B</u>	<u>Schedule 40 PVC</u>	<u>4.0</u>	<u>93.0</u>	DEVELOPMENT	12-12-86	2:05	3:00
<u>S</u>	<u>Sch. 40 PVC (.06")</u>	<u>4.0</u>	<u>108.0</u>	OTHER			
<u>B</u>	<u>Schedule 40 PVC</u>	<u>4.0</u>	<u>110.0</u>				
*Set as permanent surface casing							
* P-Protective S-Screen B-Slank O-Open N-None							
* Depth from Top of Casing							
WELL CONSTRUCTION				WELL DEVELOPMENT			
TYPE CODE*	DESCRIPTION	END DEPTH (ft.)		<u>12-12-86</u>	<u>Ph</u>	<u>Ec (uMho)</u>	<u>Temp C°</u>
<u>B</u>	<u>Cement-Bentonite Grout</u>	<u>75.0</u>		<u>2:20</u>	<u>6-7</u>	<u>20</u>	<u>10</u>
<u>S</u>	<u>Bentonite Pellets (1/4")</u>	<u>84.0</u>		<u>2:35</u>	<u>6-7</u>	<u>50</u>	<u>10</u>
<u>F</u>	<u>Color Silver Sand (#12)</u>	<u>110.0</u>		<u>2:50</u>	<u>6-7</u>	<u>60</u>	<u>8.5</u>
				<u>Water clear & sediment free</u>			
				COMMENTS: <u>Ec Meter I.D.# 12764</u>			
				<u>Lithium paper used to check Ph -</u>			
				<u>Ph meter I.D.# 350222 not</u>			
				<u>working.</u>			
* B - Backfill S - Seal F - Filter Pack							
* Depth from Ground Surface

JACOBS ENGINEERING GROUP INC.
ADVANCED SYSTEMS DIVISION, ALBUQUERQUE OPERATIONS

WELL COMPLETION RECORD

SITE ID: SPK-01 LOCATION ID: 907 917 DATE INSTALLED: 12-11-86

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

OPEN AREA PER LINEAL FT. (IN²/FT.) _____

FORMATION OF COMPLETION: Wasatch (ss/sh)

FIELD REP.: L. Phyte DRILLER: _____

COMMENTS: _____

BOREHOLE/WELL CONSTRUCTION LOG

SITE ID: SPK-01 LOCATION ID: 907 917 FIELD REP: L. Phylle

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

GROUND ELEVATION (FT. MSL): 5075 COMPLETION DATE: 12-11-86

BOREHOLE SUMMARY

DRILLER: Boyles Bros.

RIG TYPE: Fairing 1500

BIT TYPE	HOLE DIA. (in.)	END DEPTH (ft.)	FLUID TYPE
<u>Tricone</u>	<u>8.0</u>	<u>75.0</u>	<u>Air/Mist</u>

CASING SUMMARY

CASING TYPE*	DESCRIPTION	DIA. (in.)	END DEPTH (ft.)
<u>*P</u>	<u>Protective Steel</u>	<u>8 3/8</u>	<u>5.5</u>
<u>B</u>	<u>Schedule 40 PVC</u>	<u>4.0</u>	<u>63.0</u>
<u>S</u>	<u>Sch 40 PVC (.06")</u>	<u>4.0</u>	<u>73.0</u>
<u>B</u>	<u>Schedule 40 PVC</u>	<u>4.0</u>	<u>75.0</u>
	<u>* Set as permanent</u>		
	<u>Surface casing</u>		

* P-Protective S-Screen B-Blank O-Open N-None

† Depth from Top of Casing

WELL CONSTRUCTION

TYPE CODE*	DESCRIPTION	END DEPTH (ft.)
<u>B</u>	<u>Cement-Bentonite Grout</u>	<u>43.0</u>
<u>S</u>	<u>Bentonite Pellets (1/4")</u>	<u>54.0</u>
<u>F</u>	<u>Colo. Silica Sand (8-12)</u>	<u>75.0</u>

* B - Backfill S - Seal F - Filter Pack

† Depth from Ground Surface

CONSTRUCTION TIME LOG

ACTIVITY	START		END TIME
	DATE	TIME	
DRILLING	<u>12-11-86</u>	<u>9:10</u>	<u>10:30</u>
CASING	<u>12-11-86</u>	<u>12:10</u>	<u>12:38</u>
FILTER PACK	<u>12-11-86</u>	<u>12:38</u>	<u>1:15</u>
SEAL	<u>12-11-86</u>	<u>1:15</u>	<u>1:45</u>
BACKFILL	<u>12-11-86</u>	<u>1:45</u>	<u>2:40</u>
DEVELOPMENT	<u>12-18-86</u>	<u>1:00</u>	<u>1:50</u>
OTHER			

WELL DEVELOPMENT

<u>12-18-86</u>	<u>Ph</u>	<u>EC (uHole)</u>	<u>Temp C°</u>
<u>1:15</u>	<u>6-7</u>	<u>10</u>	<u>10</u>
<u>1:30</u>	<u>6-7</u>	<u>35</u>	<u>5</u>
<u>1:45</u>	<u>7-8</u>	<u>45</u>	<u>6</u>
<u>Water clear & sed free</u>			

COMMENTS: EC Meter ID. # 12764

JACOBS ENGINEERING GROUP INC.

ADVANCED SYSTEMS DIVISION, ALBUQUERQUE OPERATIONS

WELL COMPLETION RECORD

SITE ID: SPK-01 LOCATION ID: 908 918 DATE INSTALLED: 12-13-86

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

OPEN AREA PER LINEAL FT. (IN²/FT.) _____

FORMATION OF COMPLETION: _____

FIELD REP.: L. Phyte DRILLER: Boyles Bros.

COMMENTS: _____

BOREHOLE/WELL CONSTRUCTION LOG

SITE ID: SPK-01 LOCATION ID: 908918 FIELD REP: L. Phylfe
APPROX. SITE COORDINATES (FT.): N _____ E _____
GROUND ELEVATION (FT. MSL): 5100 COMPLETION DATE: 12-13-86

BOREHOLE SUMMARY				CONSTRUCTION TIME LOG			
DRILLER: <u>Boyles Bros.</u>				ACTIVITY	START		END TIME
RIG TYPE: <u>Failing 1500</u>					DATE	TIME	
BIT TYPE	HOLE DIA. (In.)	END DEPTH (ft.)	FLUID TYPE	DRILLING	12-11-86	4:00	4:30
<u>Tricone</u>	<u>8.0</u>	<u>135.0</u>	<u>Air/Mist</u>		<u>12-12-86</u>	<u>7:45</u>	<u>11:00</u>
				CASING	<u>12-13-86</u>	<u>10:15</u>	<u>10:45</u>
				FILTER PACK	<u>12-13-86</u>	<u>10:45</u>	<u>11:40</u>
				SEAL	<u>12-13-86</u>	<u>11:40</u>	<u>12:20</u>
				BACKFILL	<u>12-13-86</u>	<u>12:45</u>	<u>2:00</u>
				DEVELOPMENT	<u>12-20-86</u>	<u>12:45</u>	<u>2:00</u>
				OTHER			

CASING SUMMARY			
CASING TYPE*	DESCRIPTION	DIA. (In.)	END DEPTH (ft.)
<u>*P</u>	<u>Protective Steel</u>	<u>8 3/8</u>	<u>5-5</u>
<u>B</u>	<u>Schedule 40 PVC</u>	<u>4.0</u>	<u>118.0</u>
<u>S</u>	<u>Sch. 40 PVC (.06")</u>	<u>4.0</u>	<u>133.0</u>
<u>B</u>	<u>Schedule 40 PVC</u>	<u>4.0</u>	<u>135.0</u>
	<u>* Set as permanent surface casing</u>		

* P-Protective S-Screen B-Blank O-Open N-None
† Depth from Top of Casing

WELL CONSTRUCTION			WELL DEVELOPMENT			
TYPE CODE*	DESCRIPTION	END DEPTH (ft.)	12-20-86	Dr	Ee (in Holes)	Temp °
<u>B</u>	<u>Cement-Bentonite Grout</u>	<u>100.0</u>	<u>12:59</u>	<u>6-7</u>	<u>190</u>	<u>10</u>
<u>S</u>	<u>Bentonite Pellets</u>	<u>110.0</u>	<u>1:20</u>	<u>6-7</u>	<u>175</u>	<u>10</u>
<u>F</u>	<u>Color Silica Sand (8-12)</u>	<u>135.0</u>	<u>1:40</u>	<u>6-7</u>	<u>240</u>	<u>11</u>
			<u>2:00</u>	<u>6-7</u>	<u>260</u>	<u>11</u>
			<u>Stop</u>			

COMMENTS: Ee meter I.D. # 12764
Developed with air until water was
clear & sediment free.

* B - Backfill S - Seal F - Filter Pack
• Depth from Ground Surface

WELL COMPLETION RECORD

SITE ID: SPK LOCATION ID: 909 919 DATE INSTALLED: 12-5-86

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

OPEN AREA PER LINEAL FT. (IN²/FT.) _____

FORMATION OF COMPLETION: Wasatch (Sandstone)

FIELD REP.: L. Phutle DRILLER: Byles Bros.

COMMENTS: _____

BOREHOLE/WELL CONSTRUCTION LOG

SITE ID: SPK LOCATION ID: 987919 FIELD REP: L. Phyle
APPROX. SITE COORDINATES (FT.): N _____ E _____
GROUND ELEVATION (FT. MSL): 5100 COMPLETION DATE: 12-5-86

BOREHOLE SUMMARY				CONSTRUCTION TIME LOG				
DRILLER: <u>Boys Bros.</u>				ACTIVITY	START		END TIME	
RIG TYPE: <u>Failing 1500</u>					DATE	TIME		
BIT TYPE	HOLE DIA. (In.)	END DEPTH (ft.)	FLUID TYPE	DRILLING	12-2-86	3:10	4:30	
<u>Blade bit</u>	<u>8.0</u>	<u>188.0</u>	<u>Air/Mist</u>		<u>12-3-86</u>	<u>8:30</u>	<u>10:30</u>	
				CASING	<u>12-4-86</u>	<u>2:30</u>	<u>3:19</u>	
CASING SUMMARY				FILTER PACK	<u>12-4-86</u>	<u>3:20</u>	<u>4:15</u>	
CASING TYPE*	DESCRIPTION		DIA. (In.)	END DEPTH (ft.)	SEAL	<u>12-4-86</u>	<u>4:15</u>	<u>5:20</u>
<u>*P</u>	<u>Protective Steel</u>		<u>8 3/8</u>	<u>5.5</u>	BACKFILL	<u>12-5-86</u>	<u>8:30</u>	<u>11:15</u>
<u>B</u>	<u>Schedule 40 PVC</u>		<u>4.0</u>	<u>176.0</u>	DEVELOPMENT	<u>12-17-86</u>	<u>12:20</u>	<u>1:45</u>
<u>S</u>	<u>Sch. 40 PVC slotted</u>		<u>4.0</u>	<u>186.0</u>	OTHER			
<u>B</u>	<u>Schedule 40 PVC</u>		<u>4.0</u>	<u>188.0</u>				
	<u>*Set as permanent surface casing</u>							
* P-Protective S-Screen B-Blank O-Open N-None								
† Depth from Top of Casing								
WELL CONSTRUCTION				WELL DEVELOPMENT				
TYPE CODE*	DESCRIPTION		END DEPTH (ft.)	<u>12-17-86</u>	<u>Ph</u>	<u>Fe (uHols)</u>	<u>Temp °C</u>	
<u>B</u>	<u>Cement-Bentonite Grout</u>		<u>154.0</u>	<u>12:35</u>	<u>7-8</u>	<u>125</u>	<u>11</u>	
<u>S</u>	<u>Bentonite Pellets (1/4")</u>		<u>163.0</u>	<u>1:19</u>	<u>6-7</u>	<u>600</u>	<u>10</u>	
<u>F</u>	<u>Colo. Silica Sand (1/2")</u>		<u>188.0</u>	<u>1:30</u>	<u>6-7</u>	<u>675</u>	<u>10</u>	
				<u>Water clear & sed. free.</u>				
				COMMENTS: <u>Fe meter I.D.# 12764</u>				
				<u>Lithium paper used to check Ph-</u>				
				<u>Ph meter # 350222 not working-</u>				
● B - Backfill S - Seal F - Filter Pack								
● Depth from Ground Surface

JACOBS ENGINEERING GROUP INC.
ADVANCED SYSTEMS DIVISION, ALBUQUERQUE OPERATIONS

WELL COMPLETION RECORD

SITE ID: SPK-01 LOCATION ID: 920 DATE INSTALLED: 8/11/87

APPROX. SITE COORDINATES: (FT.) N 56,021.6 E 59,923.7

OPEN AREA PER LINEAL FT. (IN²/FT.) .05 slot

FORMATION OF COMPLETION: WASATCH Fm - Upper Sandstone

FIELD REP.: D. HOLMQUIST

DRILLER: SUNRISE ENTERPRISES / E. TRULLO

COMMENTS: _____

BOREHOLE/WELL CONSTRUCTION LOG

SITE ID: SPK-01 LOCATION ID: 920 FIELD REP: O. Hounquist
APPROX. SITE COORDINATES (FT.): N NK E NK
GROUND ELEVATION (FT. MSL): NK COMPLETION DATE: 8/11/87

BOREHOLE SUMMARY				CONSTRUCTION TIME LOG				
DRILLER: <u>SUNRISE ENTERPRISES</u>				ACTIVITY	START		END TIME	
RIG TYPE: <u>PORTA DRILL</u>					DATE	TIME		
BIT TYPE	HOLE DIA. (in.)	END DEPTH (ft.)	FLUID TYPE	DRILLING	8-10-87	7 ³⁰ AM 9 AM	9 AM 12 PM	
DRAG	5	98	AIR / WATER	CASING	8-10-87	12 PM	—	
ROLLER	8 3/4	99	AIR / WATER					
CASING SUMMARY				FILTER PACK	8-10-87	PM	—	
CASING TYPE*	DESCRIPTION		DIA. (in.)	END DEPTH (ft.)	SEAL	8-10-87	—	6 ¹⁵ PM
P					BACKFILL	8/11/87	3 PM	6 PM
B	SA 40 PVL		4"	86				
S	Sch 40 PVL, .05 slot		4"	96				
B	SA 40 PVL		4"	98	DEVELOPMENT	9/9/87	12 ¹⁵ PM	5 ³⁰ PM
P	8" STEEL CASING		8"	N/A				
				OTHER				
* P-Protective S-Screen B-Blank O-Open N-None								
* Depth from Top of Casing								
WELL CONSTRUCTION				WELL DEVELOPMENT				
TYPE CODE*	DESCRIPTION		END DEPTH (ft.)	WL Before development = 88' BPTC Well making logs - very dirty & cherty Well clean & free fine sand @ end of development WL 9/9/87 after development = 88.25' BPTC				
F	8-12 silica sand		96					
S	Bentonite pellets		75.25					
B	Bentonite grout (Type II B.T.)		67'					
B	Cased Sands		71'±					
				COMMENTS: <u>Suspected oil/grout contamination</u>				
* B - Backfill S - Seal F - Filter Pack * Depth from Ground Surface								

WELL COMPLETION RECORD

SITE ID: SPK-01 LOCATION ID: 921 DATE INSTALLED: 8-15-87
~~APPROX.~~ SITE COORDINATES: (FT.) N 58,118.3 E 59,198.9
OPEN AREA PER LINEAL FT. (IN²/FT.) 0.05 Slot -
FORMATION OF COMPLETION: WASATCH Fm - Lower Sandstone
FIELD REP.: D. HOLMAUST DRILLER: E. TRUJILLO / SUNRISE ENTERPRISES

COMMENTS: _____

WELL COMPLETION RECORD

SITE ID: SPK-01 LOCATION ID: 922 DATE INSTALLED: 8/17/87

APPROX. SITE COORDINATES: (FT.) N 58,163.6 E 59,210.6

OPEN AREA PER LINEAL FT. (IN²/FT.) .05 slot

FORMATION OF COMPLETION: WASATCH Fm - Upper Sandstone

FIELD REP.: D. HOLMQUIST DRILLER: SUNRISE ENTERPRISES / E. TRUJILLO

COMMENTS: _____

BOREHOLE SUMMARY	CONSTRUCTION TIME LOG
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COMMENT8:

JACOBS ENGINEERING GROUP INC.
ADVANCED SYSTEMS DIVISION, ALBUQUERQUE OPERATIONS

WELL COMPLETION RECORD

SITE ID: SPK-01 LOCATION ID: 923 DATE INSTALLED: 8/18/87
APPROX. SITE COORDINATES: (FT.) N 59,654.0 E 59,828.6
OPEN AREA PER LINEAL FT. (IN²/FT.) .05 slot
FORMATION OF COMPLETION: WASATCH Fm - Lower Sandstone
FIELD REP.: D. Holmquist DRILLER: SURPRISE ENTERPRISES / E. TRULLIO

COMMENTS: _____

SITE ID: SPK-01 LOCATION ID: 923 FIELD REP: O. Holmquist
APPROX. SITE COORDINATES (FT.): N NK E NK
GROUND ELEVATION (FT. MSL): NK COMPLETION DATE: 8/28/82

BOREHOLE SUMMARY				CONSTRUCTION TIME LOG			
DRILLER: <u>SUNRISE ENTERPRISES/E. TRUGLIO</u>				ACTIVITY	START		END TIME
RIG TYPE: <u>PORTADRILL 524</u>					DATE	TIME	
BIT TYPE	HOLE DIA. (in.)	END DEPTH (ft.)	FLUID TYPE	DRILLING	8/18/87	7 ³⁰ AM	1 ³⁰ PM
TRICONE/GARRET	8 3/4	242	WATER				
CASING SUMMARY				CASING	8/19/87	10 ³⁰ AM	11 ³⁰
CASING TYPE*	DESCRIPTION	DIA. (in.)	END DEPTH (ft.)				
P	Sch 40 STEEL	8	50				
B	Sch 40 PVC BRANK	4	222				
S	Sch 40 PIC, .05 slot	4	232	SEAL	8/19/87	12 ³⁰ PM	1 ¹⁰ PM
B	Sch 40 PVC, Sumc	4	234.3				
				BACKFILL	8/19/87	3 ¹⁰ PM	6 ²⁵ PM
				DEVELOPMENT	9/13/87	1 ³⁰ PM	5 ³⁰ PM
				OTHER			
* P-Protective S-Screen B-Blank O-Open N-None							
* Depth from Top of Casing							
WELL CONSTRUCTION				WELL DEVELOPMENT			
TYPE CODE*	DESCRIPTION	END DEPTH (ft.)	WCL Before Development = 119.75 BTDL 9/13/87				
B	BENTONITE CEMENT GROUT	201	WCL After development = 119.9 BTDL 9/14/87				
S	BENTONITE PERFORATORS	205	Water began very dirty @ 10-15 gpm				
F	8-12 SILICA SAND	232.3	Water ended clear @ 10-15 gpm				
			Finals:				
			S: 0.5%				
			C: 600 umphs				
			T: 15°C				
			PH = 6.0				
				COMMENTS:			
* B - Backfill S - Seal F - Filter Pack							
* Depth from Ground Surface							

WELL COMPLETION RECORD

SITE ID: SPK-01 LOCATION ID: 924 DATE INSTALLED: 8/30/87

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

OPEN AREA PER LINEAL FT. (IN²/FT.) 0.55/ft

FORMATION OF COMPLETION: WATCH

FIELD REP.: D. HOLMANIST DRILLER: SUNRISE ENTERPRISES/E. TRUJILLO

COMMENTS: _____

JACOBS ENGINEERING GROUP INC.

ADVANCED SYSTEMS DIVISION, ALBUQUERQUE OPERATIONS

BOREHOLE/WELL CONSTRUCTION LOG

SITE ID: SPK-01 LOCATION ID: 924 FIELD REP: D. H. MAHISTAPPROX. SITE COORDINATES (FT.): N NK E NKGROUND ELEVATION (FT. MSL): NK COMPLETION DATE: 8/30/87

BOREHOLE SUMMARY

DRILLER: SUNRISE ENTERPRISESRIG TYPE: PORTABLE #524

BIT TYPE	HOLE DIA. (in.)	END DEPTH (ft.)	FLUID TYPE
<u>8</u>			
<u>TRICONE</u>	<u>8 3/4</u>	<u>19</u>	<u>WATER</u>
<u>11</u>	<u>8</u>	<u>130</u>	<u>WATER</u>

CASING SUMMARY

CASING TYPE*	DESCRIPTION	DIA. (in.)	END DEPTH (ft.)
<u>P</u>	<u>Steel prot. casing</u>	<u>8</u>	<u>7 1/2</u>
<u>B</u>	<u>Sch 40 PVC Black</u>	<u>4</u>	<u>117.7</u>
<u>S</u>	<u>Sch 40 PVC, .055 slot</u>	<u>4</u>	<u>127.7</u>
<u>B</u>	<u>Sch 40 PVC, black seam</u>	<u>4</u>	<u>129.9</u>

* P-Protective S-Screen B-Blank O-Open N-None

* Depth from Top of Casing

WELL CONSTRUCTION

TYPE CODE*	DESCRIPTION	END DEPTH (ft.)
<u>B</u>	<u>3% PORTLAND CEMENT MORTAR</u>	<u>98.0</u>
<u>S</u>	<u>BARITE PELLETS</u>	<u>103.5</u>
<u>F</u>	<u>8-12 SILICA SAND</u>	<u>127.9</u>
		<u>21.4</u>

* B - Backfill S - Seal F - Filter Pack

* Depth from Ground Surface

CONSTRUCTION TIME LOG

ACTIVITY	START		END TIME
	DATE	TIME	
DRILLING	<u>8/29/87</u>	<u>7 40 AM</u>	<u>9 AM</u>
CASING	<u>8/30/87</u>	<u>9 15 AM</u>	<u>9 30 AM</u>
FILTER PACK	<u>8/30</u>	<u>9 45 AM</u>	<u>10 AM</u>
SEAL	<u>8/30</u>	<u>10 05</u>	<u>10 20</u>
BACKFILL	<u>8/30/87</u>	<u>11 30 AM</u>	<u>12 15 PM</u>
DEVELOPMENT	<u>9/14/87</u>	<u>8 45 AM</u>	<u>12 45 PM</u>
OTHER			

WELL DEVELOPMENT

Begin WL = 89.25 BTCL 5/11/87
 END WL = 89.25 BTCL 5/11/87
 WATER BEGAN RISING WHEN - FLOWED U. CLEAR
 2-3 PM
 FINAL READINGS:
 S = 0.75%
 L = 1000 ppm
 T = 16°C
 PH = 6.0

COMMENTS:

JACOBS ENGINEERING GROUP INC.

ADVANCED SYSTEMS DIVISION, ALBUQUERQUE OPERATIONS

WELL COMPLETION RECORD

SITE ID: SPK-01 LOCATION ID: 925 DATE INSTALLED: 8/24/87

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

OPEN AREA PER LINEAL FT. (IN²/FT.) .05 slot

FORMATION OF COMPLETION: WASATCH

FIELD REP.: D. Holmanist DRILLER: SUNRISE ENTERPRISES / E. T. JAMES

COMMENTS: _____

BOREHOLE/WELL CONSTRUCTION LOG

SITE ID: SK-01 LOCATION ID: 925 FIELD REP: A. HARMONIST

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

GROUND ELEVATION (FT. MSL): NK COMPLETION DATE: 8/24/87

BOREHOLE SUMMARY

CONSTRUCTION TIME LOG

DRILLER: SUNRISE ENTERPRISES / F. TEJALLO

RIG TYPE: PORT DRILL 4524

ACTIVITY

START

END TIME

DATE

TIME

BIT TYPE

HOLE DIA. (in.)

END DEPTH (ft.)

FLUID TYPE

DRILLING

8/24/87

9:45 AM

10:45 AM

CASING

8/24

10:45

—

FILTER PACK

8/24

—

—

SEAL

8/24

—

1:35 PM

BACKFILL

8/24

3:10 PM

3:45 PM

DEVELOPMENT

9/14/87
(A.R.V.P.)

1:20 PM

5:20 PM

OTHER

CASING SUMMARY

CASING TYPE*

DESCRIPTION

DIA. (in.)

END DEPTH (ft.)

P

8" steel prot. casing

8"

5'2" BIS

B

Sch 40 PVC

4"

67

S

Sch 40 PVC .05 slot

4"

77

B

Sch 40 PVC, sump

4"

79

* P-Protective B-Screen S-Blank O-Open N-None

* Depth from Top of Casing

WELL CONSTRUCTION

WELL DEVELOPMENT

TYPE CODE*

DESCRIPTION

END DEPTH (ft.)

Begin WL = 55.5 B.T.C. 9/14/87
End WL = 56.4 B.T.C. 9/15/87

Water began v. dirty - end v. clean
1-23 PM

FINAL READINGS:
S = 0.25%
C = 550 mg/l
T = 150 L
PH = 6.0

B

3% bentonite, Port. cement grout

52

S

Bentonite pellet sand

56

F

8-12 silica sand

77

COMMENTS:

* B - Backfill S - Seal F - Filter Pack

* Depth from Ground Surface

WELL COMPLETION RECORD

SITE ID: SPK-01 LOCATION ID: 926 DATE INSTALLED: 8/27/87

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

OPEN AREA PER LINEAL FT. (IN²/FT.) 055/ft

FORMATION OF COMPLETION: WASATCH

FIELD REP.: D. Holmquist DRILLER: SUNRISE ENTERPRISES / F. IRVING

COMMENTS: _____

BOREHOLE/WELL CONSTRUCTION LOG

SITE ID: SPK-01 LOCATION ID: 926 FIELD REP: D. HOLMQUIST

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

GROUND ELEVATION (FT. MSL): NK COMPLETION DATE: 8/2/87

BOREHOLE SUMMARY				CONSTRUCTION TIME LOG			
DRILLER: <u>SUNRISE ENTERPRISES / E. TEJESIN</u>				ACTIVITY	START		END TIME
RIG TYPE: <u>PORTADULL 524</u>					DATE	TIME	
BIT TYPE	HOLE DIA. (In.)	END DEPTH (ft.)	FLUID TYPE	DRILLING	8/27/87	9 ^{AM}	10 ¹⁵ AM
GEARBIT	8 3/4	19	WATER				
GEARBIT	8	65	WATER				
CASING SUMMARY				CASING	8/27/87	10 ³⁰	11 ^{AM}
CASING TYPE*	DESCRIPTION	DIA. (In.)	END DEPTH (ft.)	FILTER PACK	8/27/87	11 ⁰⁵	11 ²⁵
P	Sch 40 STEEL	8	5 ±	SEAL	8/27/87	11 ²⁵	11 ⁴⁵
B	Sch 40 PVC BLANK	4	52	BACKFILL	8/27/87	1 ¹⁵	1 ⁴⁵
S	Sch 40 PVC, 105 slot	4	62	DEVELOPMENT	9/15/87	12 ⁰⁵ PM	1 ³⁰ PM
B	Sch 40 PVC, sump	4	64.25	OTHER			
* P-Protective S-Screen B-Blank O-Open N-None							
* Depth from Top of Casing							
WELL CONSTRUCTION				WELL DEVELOPMENT			
TYPE CODE*	DESCRIPTION	END DEPTH (ft.)		Begin WL -			
B	BENTONITE-CEMENT GROUT	30		Well making very dirty water &			
S	BENTONITE PACKETS	38.75		a large amount of sand (filter pack)			
F	8-12 SILICA SAND	62		after getting development pipe to bottom			
				screen could not get clear again.			
* B - Backfill S - Seal F - Filter Pack				COMMENTS: <u>Broken screen / on casing - not developed</u>			
* Depth from Ground Surface							

WELL COMPLETION RECORD

SITE ID: SPK-01 LOCATION ID: 927 DATE INSTALLED: 8/28/87

APPROX. SITE COORDINATES: (FT.) N N/K E N/K

OPEN AREA PER LINEAL FT. (IN²/FT.) 0.05 slot

FORMATION OF COMPLETION: WASATCH

FIELD REP.: D. HOLMQUIST DRILLER: SHAPIRO ENTERPRISES / E TOWNS

COMMENTS: _____

BOREHOLE/WELL CONSTRUCTION LOG

SITE ID: SPK-01 LOCATION ID: 927 FIELD REP: D. Holmquist
APPROX. SITE COORDINATES (FT.): N N/K E N/K
GROUND ELEVATION (FT. MSL): N/K COMPLETION DATE: 8/28/87

BOREHOLE SUMMARY

CONSTRUCTION TIME LOG

DRILLER: SUNRISE ENTERPRISES (ETRIUM)

RIG TYPE: PORTADRILL #524

BIT TYPE	HOLE DIA. (in.)	END DEPTH (ft.)	FLUID TYPE
TRIPPER/RAISE	8 3/4	20	WATER
" "	8	125	WATER

CASING SUMMARY

CASING TYPE*	DESCRIPTION	DIA. (in.)	END DEPTH (ft.)
P	Steel foot casing	8	7 1/2
B	5h 40 PVC BLANK	4	113
S	5h 40 PVC, DISLOT	4	113
B	5h 40 PVC, SKIMP	4	125

* P-Protective S-Screen B-Blank O-Open N-None

† Depth from Top of Casing

WELL CONSTRUCTION

TYPE CODE*	DESCRIPTION	END DEPTH (ft.)
B	3% bentonite / Portland Cement grout	95
S	Bentonite Pellet seal	98
F	8-12 Silica Sand	123

* B - Backfill S - Seal F - Filter Pack

† Depth from Ground Surface

ACTIVITY

START

END TIME

DATE

TIME

DRILLING

8/29/87

3 45 PM

5 15 PM

CASING

8/28/87

9 45 AM

10 20 AM

FILTER PACK

8/28

10 30

11 AM

SEAL

8/28

11 00

11 15 AM

BACKFILL

8/28

1 30 PM

2 30 PM

DEVELOPMENT

9/15/87

3 30 PM

5 35 PM

9/16/87

6 50 AM

9 AM

OTHER

WELL DEVELOPMENT

Brun WL: 97.9 BTOL
End WL 97.9 BTOL 9/18/87

S: 1.25%
T: 1750.4406
PH: 12.50
60

Water very clean @ end of development

COMMENTS:

JACOBS ENGINEERING GROUP INC.
ADVANCED SYSTEMS DIVISION, ALBUQUERQUE OPERATIONS

WELL COMPLETION RECORD

SITE ID: SPK-01 LOCATION ID: 928 DATE INSTALLED: 8/31/87

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

OPEN AREA PER LINEAL FT. (IN²/FT.) 0.0536

FORMATION OF COMPLETION: W ASATCH

FIELD REP.: O. Holman DRILLER: SURPRISE ENTERPRISES

COMMENTS: Bentonite pellet seal in 40-50 interval to fill
corehole overdrill

BOREHOLE/WELL CONSTRUCTION LOG

SITE ID: SPK-01 LOCATION ID: 928 FIELD REP: O. Hamquist

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

GROUND ELEVATION (FT. MSL): N/K COMPLETION DATE: 8/31/87

BOREHOLE SUMMARY				CONSTRUCTION TIME LOG			
DRILLER: <u>SUNBSE ENTERPRISES/E. TRIVILL</u>				ACTIVITY	START		END TIME
RIG TYPE: <u>PORTADRILL 524</u>					DATE	TIME	
BIT TYPE	HOLE DIA. (in.)	END DEPTH (ft.)	FLUID TYPE	DRILLING	8/30/87	3 ²⁵ PM	5 ⁴⁵ PM
NX CORE	4	50	BENTONITE / GULCH L&L MUD		8/31/87	8 ³⁰ AM	12 ⁵⁰ PM
DRAG	5 7/8	30	BENTONITE / GULCH L&L MUD				
GEARBIT	8 3/4	40	WATER	CASING	8/31/87	1 PM	1 ¹⁰ PM
CASING SUMMARY				FILTER PACK	8/31/87	1 ¹⁰ PM	12 ⁵ PM
CASING TYPE*	DESCRIPTION		DIA. (in.)	END DEPTH (ft.)	SEAL	8/31/87	1 ³⁰ PM
P	Sch 40 STEEL		8	5 ±	BACKFILL	8/31/87	2 ¹⁵ PM
B	Sch 40 PVC BLANK		4	30.25	DEVELOPMENT	9/16/87	3 ⁴⁵ PM
S	Sch 40 PVC, .05 slot		4	40.25		9/17/87	6 ⁴⁰ AM
B	Sch 40 PVC, SUMP		4	42.5	OTHER		
* P-Protective S-Screen B-Blank O-Open N-None							
* Depth from Top of Casing							
WELL CONSTRUCTION				WELL DEVELOPMENT			
TYPE CODE*	DESCRIPTION		END DEPTH (ft.)	Begin well - 23' BTDC 9/16/87			
B	BENTONITE-CEMENT GROUT		16	End well - 23' BTDC 9/18/87			
F	BENTONITE PELLET SEAL		21	Water began dirty 1 in - 2 in			
F	8-12 SILICA SAND		40	water ended very clean			
S	BENTONITE PELLET SEAL		50	T = 10 PL			
				S = 1% O			
				C = 1330 minutes			
				pH = 5.54 ± 0.0			
				COMMENTS: 8/30/87, Core (NX) 40' 30"			
				8/30/87 Returned w/ 5 7/8 to 30, 10:15 (NX) to			
				50', 8/31/87 Returned to 8 3/4 to 40'			
* B - Backfill S - Seal F - Filter Pack							
* Depth from Ground Surface

JACOBS ENGINEERING GROUP INC.
ADVANCED SYSTEMS DIVISION, ALBUQUERQUE OPERATIONS

WELL COMPLETION RECORD

SITE ID: SPK-01 LOCATION ID: 929 DATE INSTALLED: 9/4/82

APPROX. SITE COORDINATES: (FT.) N PK E NK

OPEN AREA PER LINEAL FT. (IN²/FT.) 0.0528

FORMATION OF COMPLETION: WASATCH

FIELD REP.: D. Hennig DRILLER: SUNRISE ENTERPRISES / E. TRIVILLO

COMMENTS: _____

SITE ID: SPK-01 LOCATION ID: 929 FIELD REP: Ottomson, S

APPROX. SITE COORDINATES (FT.): N 15K E 20K

GROUND ELEVATION (FT. MSL): 20k COMPLETION DATE: 9/4/87

BOREHOLE SUMMARY				CONSTRUCTION TIME LOG			
DRILLER: <u>E. Trujillo</u>				ACTIVITY	START		END TIME
RIG TYPE: <u>Portadell 524</u>					DATE	TIME	
BIT TYPE	HOLE DIA. (in.)	END DEPTH (ft.)	FLUID TYPE	DRILLING	9/1/87	—	—
NX core	4	100	Air/water		9/3/87	—	—
Rotary core	8	110	Air/water		9/4/87	—	✓
				CASING	9/4/87	9 ^{AM}	9 ³⁰ AM
CASING SUMMARY				FILTER PACK	9/4/87	9 ⁴⁵	10 ²⁰
CASING TYPE*	DESCRIPTION	DIA. (in.)	END DEPTH (ft.)	SEAL	9/4/87	10 ²⁰	10 ²⁴
P	Steel prot. casing	8	7'12"	BACKFILL	9/4/87	1 ³⁰	2 ^{PM}
B	Sch 40 PVC Blank	4	94.75	DEVELOPMENT	9/18/87	8 ⁴⁵ AM	11 ³⁰ AM
S	Sch 40, .05 slot PVC	4	104.75	OTHER			
B	Sch 40 PVC screen	4	107.1				
* P-Protective S-Screen B-Blank O-Open N-None † Depth from Top of Casing				WELL DEVELOPMENT			
WELL CONSTRUCTION				Bgn well 79.5 BTOC 16.5 Much trouble with this well - casing broken - drilled thru - lost 2 3/4 hrs - pH x 8.5 to 9.0 Very little or no water recovery			
TYPE CODE*	DESCRIPTION	END DEPTH (ft.)	COMMENTS:				
B	Bedonite/grout seal	82.75					
S	BEDONITE PELLETS	82.75					
F	B-12 SILICA SAND	107					
* B - Backfill S - Seal F - Filter Pack † Depth from Ground Surface

JACOBS ENGINEERING GROUP INC.
ADVANCED SYSTEMS DIVISION, ALBUQUERQUE OPERATIONS

WELL COMPLETION RECORD

SITE ID: SPK-01 LOCATION ID: 930 DATE INSTALLED: 9/10/87

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

OPEN AREA PER LINEAL FT. (IN²/FT.) .05 slot

FORMATION OF COMPLETION: WASATCH

FIELD REP.: D. HOLMQUIST DRILLER: SUNRISE FERTILIZERS / E. TENSING

COMMENTS: _____

BOREHOLE/WELL CONSTRUCTION LOG

SITE ID: SPK-01 LOCATION ID: 930 FIELD REP: D. Holmquist
APPROX. SITE COORDINATES (FT.): N NK E NK
GROUND ELEVATION (FT. MSL): NK COMPLETION DATE: 9/10/87

BOREHOLE SUMMARY				CONSTRUCTION TIME LOG			
DRILLER: <u>E. Tanjilio / Sunrise Enterprises</u>				ACTIVITY	START		END TIME
RIG TYPE: <u>Porter 524</u>					DATE	TIME	
BIT TYPE	HOLE DIA. (in.)	END DEPTH (ft.)	FLUID TYPE	DRILLING	9/10/87	8:15 AM	9:30 AM
<u>8 3/4"</u>				CASING	9/10/87	10:45 AM	11 AM
<u>Roller/Hydrone</u>	<u>8 3/4"</u>	<u>19</u>	<u>Water</u>				
<u>Roller/Hydrone</u>	<u>8</u>	<u>107</u>	<u>Water</u>				
CASING SUMMARY				FILTER PACK	9/10/87	11:25 AM	11:45 AM
CASING TYPE*	DESCRIPTION	DIA. (in.)	END DEPTH (ft.)				
<u>P</u>	<u>8" sch 40 steel</u>	<u>8"</u>	<u>5</u>	SEAL	9/10/87	1:15 PM	1:50 PM
<u>B</u>	<u>sch 40 PVC blank</u>	<u>4</u>	<u>95</u>	BACKFILL	9/10/87	12:50 PM	1:45 PM
<u>S</u>	<u>sch 40 PVC .05 slit</u>	<u>4</u>	<u>105</u>				
<u>B</u>	<u>sch 40 PVC pump</u>	<u>4</u>	<u>107</u>	DEVELOPMENT	9/11/87	8:45 AM	
					9/16/87	10:35 AM	2 PM
				OTHER			
* P-Protective S-Screen B-Blank O-Open N-None † Depth from Top of Casing				WELL DEVELOPMENT			
WELL CONSTRUCTION				Water level - 9/14/87 7:30 PM = 89 BTDC 9/18/87 = 89 BTDC Water log on way down meas. recovery to test S.C.T. - pH ≈ 6.0			
TYPE CODE*	DESCRIPTION	END DEPTH (ft.)					
<u>B</u>	<u>Bentonite/Cement grout</u>	<u>71</u>					
<u>S</u>	<u>8-12 silica sand / Bent. Pellets</u>	<u>78</u>					
<u>P</u>	<u>8-12 silica sand</u>	<u>105</u>					
				COMMENTS:			
* B - Backfill S - Seal F - Filter Pack † Depth from Ground Surface

JACOBS ENGINEERING GROUP INC.

ADVANCED SYSTEMS DIVISION, ALBUQUERQUE OPERATIONS

WELL COMPLETION RECORD

SITE ID: Spk 41 LOCATION ID: 931 DATE INSTALLED: 12/13/87
APPROX. SITE COORDINATES: (FT.) N N/K E N/K
OPEN AREA PER LINEAL FT. (IN²/FT.) N/K
FORMATION OF COMPLETION: Wasatch
FIELD REP.: J Frith DRILLER: Boyles Bros / S Moore

COMMENTS: _____

BOREHOLE/WELL CONSTRUCTION LOG

SITE ID: Sphd1 LOCATION ID: 931 FIELD REP: J Fritts
APPROX. SITE COORDINATES (FT.): N N/A E N/A
GROUND ELEVATION (FT. MSL): N/A COMPLETION DATE: 12/13/97

BOREHOLE SUMMARY

DRILLER: Boyle Bros / Moore
RIG TYPE: Mobile Drill B-57

BIT TYPE	HOLE DIA. (in.)	END DEPTH (ft.)	FLUID TYPE
1/2" auger	6 5/8	5'	none
tricone		98'	air

CASING SUMMARY

CASING TYPE*	DESCRIPTION	DIA. (in.)	END DEPTH (ft.)
P	steel casing, 3' stickup	6"	5'
B	Sch 40 PVC	2"	83.5
S	Sch 40 PVC, 0.50 sbt	2"	97.5
B	Sch 40 PVC (2 1/2' sump)	2"	100.0

* P-Protective S-Screen B-Blank O-Open N-None

† Depth from Top of Casing

WELL CONSTRUCTION

TYPE CODE*	DESCRIPTION	END DEPTH (ft.)
B	Cement-bentonite grout	73'
S	bentonite pellets	80'
F	8-12 Silica sand	98'

* B - Backfill S - Seal F - Filter Pack

† Depth from Ground Surface

CONSTRUCTION TIME LOG

ACTIVITY	START		END TIME
	DATE	TIME	
DRILLING	12/12/97	9:05	12:05
CASING	12/12	2:00	2:10
FILTER PACK	12/12	2:10	2:20
SEAL	12/12	2:25	2:40
BACKFILL	12/13	8:15	9:45
DEVELOPMENT	12/17	12:35	1:50
OTHER			

WELL DEVELOPMENT

Initial: static 79' pH 7.5 Ec 10,800
Final pH 7, Ec 25, 10°C
Static 80.5

COMMENTS: _____

JACOBS ENGINEERING GROUP INC.

ADVANCED SYSTEMS DIVISION, ALBUQUERQUE OPERATIONS

WELL COMPLETION RECORD

SITE ID: Spl 01 LOCATION ID: 932 DATE INSTALLED: 12/16/02

APPROX. SITE COORDINATES: (FT.) N N/K E N/K

OPEN AREA PER LINEAL FT. (IN²/FT.) N/K

FORMATION OF COMPLETION: Wesatch

FIELD REP.: J Fritts DRILLER: Boyles Bros / S Moore

COMMENTS: drilled to 143' - 3' cave-in

BOREHOLE/WELL CONSTRUCTION LOG

SITE ID: Spk #1 LOCATION ID: 932 FIELD REP: J Fritts
APPROX. SITE COORDINATES (FT.): N N/k E N/k
GROUND ELEVATION (FT. MSL): N/k COMPLETION DATE: 12/16/82

BOREHOLE SUMMARY

DRILLER: Boxley Bros / S Moore

RIG TYPE: Mobile Drill B-57

BIT TYPE	HOLE DIA. (in.)	END DEPTH (ft.)	FLUID TYPE
HSA	6 5/8	5'	none
tricone		143' 1/2	none

K cased 3'

CASING SUMMARY

CASING TYPE*	DESCRIPTION	DIA. (in.)	END DEPTH (ft.)
P	Steel casing 3' stickup	6"	5'
B	Sch 40 PVC	2"	129.5
S	Sch 40 PVC, 0.50 slot	2"	139.5
B	Sch 40 PVC (2 1/2' sum)	2"	142.0

CONSTRUCTION TIME LOG

ACTIVITY	START		END TIME
	DATE	TIME	
DRILLING	12/13/82	12:45	4:15
	12/14	9:45	12:10
CASING	12/16	8:25	9:40
FILTER PACK	12/16	9:40	10:00
SEAL	12/16	10:00	10:10
BACKFILL	12/16	12:00	1:20
DEVELOPMENT	12/18	7:45	9:05
OTHER			

WELL CONSTRUCTION

TYPE CODE*	DESCRIPTION	END DEPTH (ft.)
B	Cement-bentonite grout	111'
S	bentonite pellets	121'
F	8-12 silica sand	140'

WELL DEVELOPMENT

Initial: 112' static pH 6.8,
Ec 10, 2 1/2 °C
Final: static pH 6.5
Ec 25, 5 °C

COMMENTS: _____

WELL COMPLETION RECORD

SITE ID: SPK-15 LOCATION ID: 933 DATE INSTALLED: 7-28-88

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

OPEN AREA PER LINEAL FT. (IN²/FT.) (7 7/8 - 4")²

FORMATION OF COMPLETION: Wasatch fm.

FIELD REP.: D. Metzler DRILLER: Barnhart

COMMENTS: _____

BOREHOLE/WELL CONSTRUCTION LOG

SITE ID: SPK-15 LOCATION ID: 933 FIELD REP: D. METZGER
APPROX. SITE COORDINATES (FT.): N NK E NK
GROUND ELEVATION (FT. MSL): NK COMPLETION DATE: 7-28-88

BOREHOLE SUMMARY				CONSTRUCTION TIME LOG			
DRILLER: <u>BARWART</u>				ACTIVITY	START		END TIME
RIG TYPE: _____					DATE	TIME	
BIT TYPE	HOLE DIA. (in.)	END DEPTH (ft.)	FLUID TYPE	DRILLING	7-28-88	2:45 pm	4:30
TRICONG TOOTH	9 7/8"	20'	AIR	stanced	"	4:20	5:00
TRICONG TOOTH	7 7/8"	135'	AIR +				
			WATER	CASING	7-28-88	5:00	5:20
CASING SUMMARY				FILTER PACK	7-28-88	5:20	5:45
CASING TYPE*	DESCRIPTION	DIA. (in.)	END DEPTH (ft.)	SEAL	7-28-88	5:45	5:50
O	FILTRM NO CASING	-	135'	BACKFILL	7-29-88	9:30 am	10:30 am
B	PVC SCH 40 SUMP CAP	4.0	127.5'	DEVELOPMENT			
S	" " " SCREEN	"	125.0'	OTHER			
B	" " " CASING	"	115.0'				
P	6' long 8 7/8 STEEL	8 7/8"	6.0'				
* P-Protective S-Screen B-Blank O-Open N-None							
* Depth from Top of Casing							
WELL CONSTRUCTION				WELL DEVELOPMENT			
TYPE CODE*	DESCRIPTION	END DEPTH (ft.)		COMMENTS: _____ _____ _____ _____			
F	8-12 SILICA	135.0					
S	bentonite seal 1/4" Pel.	99.0					
B	bentonite-cement grout	87.5					
* B - Backfill S - Seal F - Filter Pack							
* Depth from Ground Surface							

WELL COMPLETION RECORD

SITE ID: SPK-15 LOCATION ID: 934 DATE INSTALLED: 7-28-88

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

OPEN AREA PER LINEAL FT. (IN²/FT.) (7 7/8" - 4.0")²

FORMATION OF COMPLETION: WASATCH GM.

FIELD REP.: D. METZLER DRILLER: BARNHART

COMMENTS: _____

BOREHOLE/WELL CONSTRUCTION LOG

SITE ID: SPK-15 LOCATION ID: 934 FIELD REP: D. METZLER

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

GROUND ELEVATION (FT. MSL): NK COMPLETION DATE: 7-28-88

BOREHOLE SUMMARY

DRILLER: BARNHART

RIG TYPE: 5.D. 1500 ROTARY

BIT TYPE	HOLE DIA. (in.)	END DEPTH (ft.)	FLUID TYPE
TRI CONE TOOTH	9 7/8"	20'	AIR
TRI CONE TOOTH	7 7/8"	130'	WATER
			7 AIR

CASING SUMMARY

CASING TYPE*	DESCRIPTION	DIA. (in.)	END DEPTH (ft.)
N	SILICA SAND	4	130.0
B	TVC SCH 40 SUMP + CAP	4.0	117.5
S	" " " screen	"	115.0
B	" " "	"	105.0
P	8" I.D. 6' long steel	8 7/8	6.0

* P-Protective S-Screen B-Blank O-Open N-None

* Depth from Top of Casing

WELL CONSTRUCTION

TYPE CODE*	DESCRIPTION	END DEPTH (ft.)
F	8-12 SILICA SAND	130.0 117.5
S	1/4" bentonite sat. Pellets	94.5
B	bentonite-cement grout	83.0

* B - Backfill S - Seal F - Filter Pack

* Depth from Ground Surface

CONSTRUCTION TIME LOG

ACTIVITY	START		END TIME
	DATE	TIME	
DRILLING	7-27-88	500	6 ³⁰ PM
7-27-88	7-28-88	7 ⁴⁰ AM	9 ³⁰ AM
steamed	"	9 ³⁰ AM	10 ⁰⁰ AM
CASING	7-28-88	10 ⁰⁰ AM	10 ²⁰ AM
FILTER PACK	7-28-88	10 ²⁰ AM	10 ³⁵ AM
SEAL	7-28-88	10 ³⁵ AM	10 ⁴⁵ AM
BACKFILL	7-28-88	12 ⁴⁵ PM	1 ⁰⁰ PM
DEVELOPMENT			
OTHER			

COMMENTS: _____

WELL COMPLETION RECORD

SITE ID: SPK-15 LOCATION ID: 935 DATE INSTALLED: 7-19-88

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

OPEN AREA PER LINEAL FT. (IN²/FT.) (7 7/8" - 4 0")² / ft

FORMATION OF COMPLETION: WASATCH FM.

FIELD REP.: D. METZGER DRILLER: BARNHART

COMMENTS: OPEN HOLE UNDER SUMP = 10.0' Filled w/
8-12 SILICA

WELL COMPLETION RECORD

SITE ID: SPK-15 LOCATION ID: 936 DATE INSTALLED: 7-16-88

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

OPEN AREA PER LINEAL FT. (IN²/FT.) $\sqrt{8\frac{3}{4} - 4.0}^2$ for 20' / $\sqrt{7\frac{7}{8} - 4.0}^2$ to T.O.

FORMATION OF COMPLETION: WASATCH FM.

FIELD REP.: D. METZLER DRILLER: BARNHART

COMMENTS: 119.5' depth to 102.5' depth: a silica sand filler. 102.5' depth to 99.5' depth: a bentonite plug.

WELL COMPLETION RECORD

SITE ID: SPK-15 LOCATION ID: 937 DATE INSTALLED: 9-18-88

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

OPEN AREA PER LINEAL FT. (IN²/FT.) (8" - 4")² / 84

FORMATION OF COMPLETION: WAZATCH fm. top of Blue shale

FIELD REP.: D. METZLER DRILLER: _____

COMMENTS: From 100' depth to 94.0' depth: silt in hole.

BOREHOLE/WELL CONSTRUCTION LOG

SITE ID: SPK-15 LOCATION ID: 937 FIELD REP: D. NETZLER
APPROX. SITE COORDINATES (FT.): N UK E
GROUND ELEVATION (FT. MSL): UK COMPLETION DATE: 7-18-88

BOREHOLE SUMMARY

DRILLER: BARNHART
RIG TYPE: G.D. 15WD ROTARY

BIT TYPE	HOLE DIA. (in.)	END DEPTH (ft.)	FLUID TYPE
TRILECT	7 7/8"	100.0'	WATER

CASING SUMMARY

CASING TYPE*	DESCRIPTION	DIA. (in.)	END DEPTH (ft.)
B	PVC SCH 40 SUMP	4.0	94.5
S	" " "	"	92.0
B	" " "	"	82.0

* P-Protective S-Screen B-Blank O-Open N-None

* Depth from Top of Casing

WELL CONSTRUCTION

TYPE CODE*	DESCRIPTION	END DEPTH (ft.)
B	BORING WALL SLUFF	100.0
F	12 SACKS / 8-12 SILICA S.	94.5
S	3 SACKS bentonite 1/4"	80.0
B	bentonite-cement grout	71.5

* B - Backfill S - Seal F - Filter Pack

* Depth from Ground Surface

CONSTRUCTION TIME LOG

ACTIVITY	START		END TIME
	DATE	TIME	
DRILLING	7-17-88	12:15 PM	1:45 PM
7-17-88			
CLEANED HOLE	7-18-88	7:00 AM	8:00 AM
STEAMLED	7-17-88	1:45 PM	2:30 PM
CASING	7-18-88	8:00 AM	8:30 AM
FILTER PACK	7-18-88	8:30 AM	9:45 AM
SEAL	7-18-88	9:45 AM	10:00 AM
BACKFILL	7-18-88	11:05 AM	11:15 AM
DEVELOPMENT			
OTHER			

WELL DEVELOPMENT

COMMENTS: Large cavern in bottom of hole: 12 sacks of silica sand to cover screen about -7' below gr. level.

WELL COMPLETION RECORD

SITE ID: SPK-15 LOCATION ID: 938 DATE INSTALLED: 7-20-88

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

OPEN AREA PER LINEAL FT. (IN²/FT.) (7 7/8" - 4.0")

FORMATION OF COMPLETION: WATSATCH FM: LOWER CONFINED AQUIFER

FIELD REP.: D. METZLER DRILLER: BARNHART

COMMENTS: _____

BOREHOLE/WELL CONSTRUCTION LOG

SITE ID: SPK-15 LOCATION ID: 938 FIELD REP: D METZLER
APPROX. SITE COORDINATES (FT.): N UK E UK
GROUND ELEVATION (FT. MSL): UK COMPLETION DATE: 7-20-88

BOREHOLE SUMMARY				CONSTRUCTION TIME LOG			
DRILLER: <u>BARNHART</u>				ACTIVITY	START		END TIME
RIG TYPE: <u>G.D. ROTARY ISWD</u>					DATE	TIME	
BIT TYPE	HOLE DIA. (in.)	END DEPTH (ft.)	FLUID TYPE	DRILLING <u>relocate</u>	7-19-88	3 ³⁰ pm	4 ⁰⁰ pm
TRI-CONG	7 7/8"	250.0	AIR		7-19-88	4 ⁰⁰ pm	6 ³⁰ pm
			+ WATER		7-20-88	8 ⁰⁰ am	11 ³⁰ am
				CASING	7-20-88	3 ³⁰ pm	4 ³⁰ pm
CASING SUMMARY				FILTER PACK <u>12 SACKS</u>	7-20-88	4 ³⁰ pm	5 ⁰⁰ pm
CASING TYPE*	DESCRIPTION	DIA. (in.)	END DEPTH (ft.)				
B	PVC SCH 40	4.0	242.5	SEAL	7-20-88	5 ⁰⁰ pm	5 ¹⁵ pm
S	PVC SCH 40 SCREEN	"	240.0	BACKFILL	7-21-88	8 ⁴⁵ am	1 ¹⁵ pm
B	PVC SCH 40	"	230.0				
				DEVELOPMENT			
				OTHER			
* P-Protective S-Screen B-Blank O-Open N-None							
* Depth from Top of Casing							
WELL CONSTRUCTION				WELL DEVELOPMENT			
TYPE CODE*	DESCRIPTION	END DEPTH (ft.)					
F	12 SACKS / 8-12 SILICA SAND	250.0					
S	4 SACKS / bentonite 1/4"	202.0					
B	bentonite-cement grout	191.0					
			COMMENTS: <u>7-20-88 left seal open</u>				
			<u>to cure over night.</u>				
* B - Backfill S - Seal F - Filter Pack							
* Depth from Ground Surface

WELL COMPLETION RECORD

SITE ID: SPK-15 LOCATION ID: 939 DATE INSTALLED: 7-17-88

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

OPEN AREA PER LINEAL FT. (IN²/FT.) 7 7/8 - 4.0 = 3 7/8²/ft.

FORMATION OF COMPLETION: WASATCH FM:

FIELD REP.: D. METZLER DRILLER: BARNHART

COMMENTS: observations and time recorded. Tagged w/
100' tape.

BOREHOLE/WELL CONSTRUCTION LOG

SITE ID: SPK-16 LOCATION ID: 939 FIELD REP: D. METZLER
APPROX. SITE COORDINATES (FT.): N NK E NK
GROUND ELEVATION (FT. MSL): NK COMPLETION DATE: 7-17-88

BOREHOLE SUMMARY

DRILLER: BARNHART WY

RIG TYPE: G.D. 15 WD ROTARY

BIT TYPE	HOLE DIA. (in.)	END DEPTH (ft.)	FLUID TYPE
TRI-CONC	7 7/8"	90.2	AIR
* 1" 1"	11	90.2	WATER
* cleaned hole w/ water			
NOTE: DID NOT SET SURFACE CASING			

CASING SUMMARY

CASING TYPE*	DESCRIPTION	DIA. (in.)	END DEPTH (ft.)
B	PVC SCH 40 SUMP	4.0	89.2
S	" " "	"	87.4
B	" " "	"	77.4

* P-Protective S-Screen B-Blank O-Open N-None

* Depth from Top of Casing

WELL CONSTRUCTION

TYPE CODE*	DESCRIPTION	END DEPTH (ft.)
F	8-12 silica sand	89.2
S	Bentonite Pellets 1/4" H ₂ O	62.2
B	bentonite-cement grout	52.5

* B - Backfill S - Seal F - Filter Pack

* Depth from Ground Surface

CONSTRUCTION TIME LOG

ACTIVITY	START		END TIME
	DATE	TIME	
DRILLING	7-16-88	2 45 PM	5 00 PM
CLEANED HOLE	7-17-88	7 00 AM	8 00 AM
STEAMED CASING	7-17-88	8 00 AM	8 30 AM
	7-17-88	8 30 AM	9 00 AM
FILTER PACK	7-17-88	9 00 AM	9 10 AM
SEAL	7-17-88	9 10 AM	9 20 AM
BACKFILL	7-17-88	10 40 AM	11 15 AM
DEVELOPMENT	7-21-88	8 00 AM	12 00 PM
OTHER			

WELL DEVELOPMENT

Basically it's a dry hole. We'll try again next week. (7/21)

COMMENTS:

WELL COMPLETION RECORD

SITE ID: SPK-15 LOCATION ID: 940 DATE INSTALLED: 7-27-88

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

OPEN AREA PER LINEAL FT. (IN²/FT.) (7 7/8" - 4.0")

FORMATION OF COMPLETION: Bottom of Pit Wasatch fm.

FIELD REP.: D. MUELLER DRILLER: BARNHART

COMMENTS: from 50' to 19' interval is filter pack

BOREHOLE/WELL CONSTRUCTION LOG

SITE ID: SPK-15 LOCATION ID: 940 FIELD REP: D. METZGER

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

GROUND ELEVATION (FT. MSL): NK COMPLETION DATE: 7-27-88

BOREHOLE SUMMARY				CONSTRUCTION TIME LOG			
DRILLER: <u>BARNHART</u>				ACTIVITY	START		END TIME
RIG TYPE: <u>G.D. 1500 WD ROTARY</u>					DATE	TIME	
BIT TYPE	HOLE DIA. (in.)	END DEPTH (ft.)	FLUID TYPE	DRILLING	7-27-88	11:15 am	12:15 pm
TRI CONE TOOTH BIT	7 7/8	50.0	AIR	steamed	7-27-88	12:30 pm	1:00 pm
				tripped out	"	1:00 pm	1:20 pm
				CASING	7-27-88	1:15	1:35 pm
CASING SUMMARY				FILTER PACK	7-27-88	1:45	2:05 pm
CASING TYPE*	DESCRIPTION		DIA. (in.)	END DEPTH (ft.)	SEAL	7-27-88	2:05
B	PVC 5" x 40' SUMP		4.0	37.5			2:10 pm
S	" " " screen		4.0	35.0	BACKFILL	7-27-88	2:10 3:25 pm
B	" " " casing		4.0	25.0			
P	6' long steel casing 8 5/8"		8 5/8"	6.0	DEVELOPMENT		
					OTHER		
* P-Protective S-Screen B-Blank O-Open N-None							
* Depth from Top of Casing							
WELL CONSTRUCTION				WELL DEVELOPMENT			
TYPE CODE*	DESCRIPTION		END DEPTH (ft.)				
F	8-12 silica sand		50.0				
S	bentonite 1/4" pellets		19.0				
B	bentonite-cement grout		14.0				
				COMMENTS: <u>water level at 19'</u>			
* B - Backfill S - Seal F - Filter Pack							
* Depth from Ground Surface

JACOBS ENGINEERING GROUP INC.
ADVANCED SYSTEMS DIVISION, ALBUQUERQUE OPERATIONS

WELL COMPLETION RECORD

SITE ID: SPK-15 LOCATION ID: 941 DATE INSTALLED: 7-26-88

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

OPEN AREA PER LINEAL FT. (IN²/FT.) (7 7/8" - 4.0")²

FORMATION OF COMPLETION: shalely upper zone of watercatch fm.

FIELD REP.: D. METZGER DRILLER: BARWART

COMMENTS: Water level 7-27-88 7:30 am at 45.0'
bentonite seal cured all night

BOREHOLE/WELL CONSTRUCTION LOG

SITE ID: SPK-15 LOCATION ID: 941 FIELD REP: D. M6T26R
APPROX. SITE COORDINATES (FT.): N NK E NK
GROUND ELEVATION (FT. MSL): NK COMPLETION DATE: 7-26-88

BOREHOLE SUMMARY				CONSTRUCTION TIME LOG			
DRILLER: <u>BARNHART</u>				ACTIVITY	START		END TIME
RIG TYPE: <u>G.D. 1500 WD ROTARY</u>					DATE	TIME	
BIT TYPE	HOLE DIA. (in.)	END DEPTH (ft.)	FLUID TYPE	DRILLING			
TRI CONE	9 7/8"	20'	AIR	7-26-88	7-26-88	1:15 PM	3:50 PM
"TOOTH" BIT	7 7/8"	80'	AIR +	TRIPPED OUT	"	3:50 PM	4:05 PM
			WATER	steamed	"	4:05 PM	5:15 PM
				CASING	7-26-88	5:20 PM	5:45 PM
				FILTER PACK	7-26-88	5:50 PM	6:00 PM
				SEAL	7-26-88	6:00 PM	6:10 PM
				BACKFILL	7-27-88	8:45 AM	10:00 AM
				DEVELOPMENT			
				OTHER			

CASING SUMMARY			
CASING TYPE*	DESCRIPTION	DIA. (in.)	END DEPTH (ft.)
B	SCN 40 PVC	4.0	80.0
S	" " " screen	"	67.5
B	" " " "	"	57.5
P	6' long 8" I.D. steel	8.0	6.0

* P-Protective S-Screen B-Blank O-Open N-None
* Depth from Top of Casing

WELL CONSTRUCTION			WELL DEVELOPMENT	
TYPE CODE*	DESCRIPTION	END DEPTH (ft.)		
F	SILICA 8-12 sand	80.0		
S	bentonite grout 1/4" P.	41.5		
B	bentonite-cement grout	34.5		

* B - Backfill S - Seal F - Filter Pack
* Depth from Ground Surface

COMMENTS: water level 7-27-88
45'
coarse sand lower at 60'-65'

WELL COMPLETION RECORD

SITE ID: SPK-15 LOCATION ID: 942 DATE INSTALLED: 9-18-88

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

OPEN AREA PER LINEAL FT. (IN²/FT.) (7'18" - 4")² / ft

FORMATION OF COMPLETION: WASATCH SM.

FIELD REP.: D. METZGER DRILLER: BARNHART

COMMENTS: 5.5' shale contact at 62.0' depth

BOREHOLE/WELL CONSTRUCTION LOG

SITE ID: SPK-15 LOCATION ID: 942 FIELD REP: D. METZLER

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

GROUND ELEVATION (FT. MSL): NK COMPLETION DATE: 7-18-88

BOREHOLE SUMMARY

DRILLER: BARNHART

RIG TYPE: G.D. 15WD ROTARY

BIT TYPE	HOLE DIA. (in.)	END DEPTH (ft.)	FLUID TYPE
TRI-CONC	7 7/8"	85.0	AIR +
			SCHE H ₂ O

CASING SUMMARY

CASING TYPE*	DESCRIPTION	DIA. (in.)	END DEPTH (ft.)
B	PVC SCH 40	4.0	85.0
S	" " " SCREEN	"	62.5
B	" " "	"	52.5

* P-Protective S-Screen B-Blank O-Open N-None

* Depth from Top of Casing

WELL CONSTRUCTION

TYPE CODE*	DESCRIPTION	END DEPTH (ft.)
F	8 SACKS / 8-12 SILICA sand	85.0
S	2 SACKS bentonite 1/4"	44.0
B	bentonite-cement grout	36.5

* B - Backfill S - Seal F - Filter Pack

* Depth from Ground Surface

CONSTRUCTION TIME LOG

ACTIVITY	START		END TIME
	DATE	TIME	
DRILLING	7-18-88	12 ⁰⁰ PM	1 ¹⁵ PM
STEAMING	" "	1 ¹⁵ PM	1 ⁴⁵ PM
CASING	7-18-88	1 ⁴⁵ PM	2 ¹⁵ PM
FILTER PACK	7-18-88	2 ¹⁵ PM	2 ³⁰ PM
SEAL	7-18-88	2 ³⁰ PM	2 ⁴⁰ PM
BACKFILL	7-18-88	4 ⁰⁰ PM	4 ²⁰ PM
DEVELOPMENT			
OTHER			

WELL DEVELOPMENT

COMMENTS: 22.5' sweep in bottom of hole: putting the screen at contact s.s./shale.

WELL COMPLETION RECORD

SITE ID: SPK-15 LOCATION ID: 943 DATE INSTALLED: 7-30-88

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

OPEN AREA PER LINEAL FT. (IN²/FT.) (7 7/8 - 40)²

FORMATION OF COMPLETION: WASATCH PM

FIELD REP.: D. METZLER DRILLER: BARNHART

COMMENTS: * 1 1/2' of bentonite seal at 64 - 62 1/2 : Plug

BOREHOLE/WELL CONSTRUCTION LOG

SITE ID: SPK-15 LOCATION ID: 943 FIELD REP: D. METZLER
APPROX. SITE COORDINATES (FT.): N NK E NK
GROUND ELEVATION (FT. MSL): NK COMPLETION DATE: 7-30-88

BOREHOLE SUMMARY				CONSTRUCTION TIME LOG				
DRILLER: <u>BARNHART</u>				ACTIVITY	START		END TIME	
RIG TYPE: <u>G.D. 1500 WD ROTARY</u>					DATE	TIME		
BIT TYPE	HOLE DIA. (in.)	END DEPTH (ft.)	FLUID TYPE	DRILLING	7-30-88	1000 am	1130 am	
<u>TRICOR 6 TOOTH</u>	<u>7 7/8"</u>	<u>75.0</u>	<u>AIR +</u>	<u>steamed</u>	<u>"</u>	<u>1130 am</u>	<u>1200 pm</u>	
			<u>WATER</u>					
				CASING	7-30-88	1200	1215 pm	
CASING SUMMARY				FILTER PACK	7-30-88	1215 pm	1230	
CASING TYPE*	DESCRIPTION		DIA. (in.)	END DEPTH (ft.)	SEAL	7-30-88	1230	1235 pm
<u>N</u>	<u>8-12 SILICA SAND</u>		<u>8.0</u>	<u>75.0</u>	BACKFILL	7-30-88	200 pm	300 pm
<u>N</u>	<u>bentonite seal</u>		<u>8.0</u>	<u>64.0</u>				
<u>B</u>	<u>PVC SCH 40 SUMPTCAP</u>		<u>4.0</u>	<u>61.0</u>	DEVELOPMENT			
<u>S</u>	<u>" " " screen</u>		<u>"</u>	<u>58.5</u>				
<u>B</u>	<u>" " " "</u>		<u>"</u>	<u>48.5</u>				
<u>P</u>	<u>6' long steel casing</u>		<u>8 5/8</u>	<u>6.0</u>	OTHER			
* P-Protective S-Screen B-Blank O-Open N-None								
* Depth from Top of Casing								
WELL CONSTRUCTION				WELL DEVELOPMENT				
TYPE CODE*	DESCRIPTION		END DEPTH (ft.)	COMMENTS: <u>DICK ON site for observation</u>				
<u>F</u>	<u>8-12 SILICA BOTTOM PLUG</u>		<u>75.0</u>					
<u>S</u>	<u>bentonite plug seal</u>		<u>64.0</u>					
<u>F</u>	<u>8-12 SILICA FILTER</u>		<u>62.5</u>					
<u>S</u>	<u>bentonite 1/4" Pel</u>		<u>43.5</u>					
<u>B</u>	<u>bentonite-cement grout</u>		<u>35.0</u>					
* B - Backfill S - Seal F - Filter Pack								
* Depth from Ground Surface								

WELL COMPLETION RECORD

SITE ID: SPK-15 LOCATION ID: 944 DATE INSTALLED: 7-29-88
APPROX. SITE COORDINATES: (FT.) N NK E NK
OPEN AREA PER LINEAL FT. (IN²/FT.) (7 7/8" - 4.0")²
FORMATION OF COMPLETION: WATSATCH SM.
FIELD REP.: D. METZGER DRILLER: BARNHART

COMMENTS: 8 sacks of silica: most probably some fines are in
among the 8-12 silica

BOREHOLE/WELL CONSTRUCTION LOG

SITE ID: SPK-15 LOCATION ID: 944 FIELD REP: D. METZLER
APPROX. SITE COORDINATES (FT.): N NK E NK
GROUND ELEVATION (FT. MSL): NK COMPLETION DATE: 7-30-88

BOREHOLE SUMMARY

DRILLER: BARNHART

RIG TYPE: G.D. ROTARY AIR

BIT TYPE	HOLE DIA. (in.)	END DEPTH (ft.)	FLUID TYPE
TRI CONE TOOTH	7 7/8"	125.0	AIR +
			WATER +
			bentonite

CASING SUMMARY

CASING TYPE*	DESCRIPTION	DIA. (in.)	END DEPTH (ft.)
N	SLUFF		125.0
B	PVC SCH. 40 SUMP	4.0	120.0
S	" " " screen	"	117.5
B	" " "	"	107.5
P	8 5/8" 6' long steel	8 5/8	6

* P-Protective B-Screen S-Blank O-Open N-None

* Depth from Top of Casing

WELL CONSTRUCTION

TYPE CODE*	DESCRIPTION	END DEPTH (ft.)
F	B-12 silica B sucks + sluff	125.0
S	bentonite 1/4" Pel.	63.0
B	bentonite-cement grout	56.0

* B - Backfill S - Seal F - Filter Pack

* Depth from Ground Surface

CONSTRUCTION TIME LOG

ACTIVITY	START		END TIME
	DATE	TIME	
DRILLING	7-29-88	11:00 am	12:35 pm
steamed	"	1:00 pm	2:00 pm
CASING	7-29-88	2:30 pm	4:45 pm
hung up	.		
FILTER PACK	7-29-88	5:00 pm	5:45 pm
Developed w/ AIR	7-29-88	6:00 pm	6:45 pm
SEAL	7-29-88	6:45 pm	7:00 pm
BACKFILL	7-30-88	7:00 pm	8:30 am
DEVELOPMENT			
OTHER			

WELL DEVELOPMENT

bentonite slurry was pumped into well to prevent caving. well was developed with air for 2 hr after sand was installed.

COMMENTS: caving at 70' down
fine silts and clays.

APPENDIX C
GROUND WATER ELEVATIONS

STATIC GROUNDWATER LEVELS
SITE: SPK01 SPOOK
REPORT DATE: 08/03/94

LOCATION ID	NORTH COORDINATE (FT)	EAST COORDINATE (FT)	FORMATION OF COMPLETION	FLOW CODE	CASING ELEVATION (FT MSL)	GROUND ELEVATION (FT MSL)	LOG DATE	LOG TIME	DEPTH FROM TOP OF CASING (FT)	DEPTH FROM GROUND (FT)	GROUNDWATER ELEVATION (FT MSL)
0910	56710.5	59662.9	WL	N	5097.10	5095.20	12/20/86	15:30	112.27	110.37	4984.83
							02/17/87	09:35	112.48	110.58	4984.62
							01/29/88	09:30	102.45	100.55	4994.65
							04/19/88	10:10	111.81	109.91	4985.29
							08/11/88	10:30	112.00	110.10	4985.10
							12/09/88	14:41	113.70	111.80	4983.40
0911	56684.5	59695.9	WU	N	5094.80	5093.00	12/20/86	15:30	85.90	84.10	5008.90
							02/17/87	09:40	87.10	85.30	5007.70
							01/28/88	09:45	86.76	84.96	5008.04
							04/16/88	12:25	86.21	84.41	5008.59
							08/11/88	09:10	86.71	84.91	5008.09
							12/07/88	14:00	87.43	85.63	5007.37
0912	57376.4	60319.0	WU	N	5111.10	5109.70	12/20/86	15:30	107.80	106.40	5003.30
							02/18/87	09:00	108.00	106.60	5003.10
							01/30/88	09:30	108.42	107.02	5002.68
							04/21/88	13:00	108.42	107.02	5002.68
							08/26/88	18:00	108.85	107.45	5002.25
							11/30/88	13:00	109.16	107.76	5001.94
0913	58150.1	60546.0	WU	N	5098.60	5096.80	07/29/94	15:47	108.62	107.22	5002.48
							12/20/86	15:30	99.85	98.05	4998.75
							02/18/87	09:10	100.28	98.48	4998.32
							01/30/88	13:35	100.12	98.32	4998.48
							04/22/88	09:10	100.15	98.35	4998.45
							08/04/88	13:00	100.15	98.35	4998.45
0914	58134.9	60512.1	WL	N	5099.50	5097.50	12/08/88	12:50	100.55	98.75	4998.05
							07/29/94	14:10	101.62	99.82	4996.98
							12/20/86	15:30	104.15	102.15	4995.35
							02/18/87	01:18	105.10	103.10	4994.40
							01/30/88	15:26	105.00	103.00	4994.50
							04/19/88	15:10	105.01	103.01	4994.49
0915	58719.8	61452.6	WM	N	5059.60	5057.90	08/07/88	09:40	105.00	103.00	4994.50
							12/09/88	12:50	105.67	103.67	4993.83
							07/29/94	14:15	107.05	105.05	4992.45
0915	58719.8	61452.6	WM	N	5059.60	5057.90	12/20/86	15:30	68.20	66.50	4991.40
							02/19/87	01:30	65.98	64.28	4993.62
							02/01/88	14:00	66.69	64.99	4992.91

FORMATION OF COMPLETION CODE:
WL - WASATCH - LOWER SANDSTONE
WU - WASATCH - UPPER SANDSTONE
WM - WASATCH - MIDDLE SHALE

FLOW RELATIONSHIP CODE:
N - UNKNOWN

STATIC GROUNDWATER LEVELS
SITE: SPK01 SPOOK
REPORT DATE: 08/03/94

LOCATION ID	NORTH COORDINATE (FT)	EAST COORDINATE (FT)	FORMATION OF COMPLETION	FLOW CODE	CASING ELEVATION (FT MSL)	GROUND ELEVATION (FT MSL)	LOG DATE	LOG TIME	DEPTH FROM TOP OF CASING (FT)	DEPTH FROM GROUND (FT)	GROUNDWATER ELEVATION (FT MSL)
0915	58719.8	61452.6	WM	N	5059.60	5057.90	04/20/88	12:15	66.13	64.43	4993.47
							08/09/88	12:45	66.04	64.34	4993.56
							12/08/88	09:30	66.15	64.45	4993.45
							07/29/94	13:24	67.85	66.15	4991.75
0916	59373.3	61439.6	WU	N	5071.60	5070.00	12/20/86	15:30	78.68	77.08	4992.92
							02/20/87	02:30	80.22	78.62	4991.38
							02/02/88	10:15	79.89	78.29	4991.71
							04/20/88	10:00	79.86	78.26	4991.74
							08/04/88	10:00	79.94	78.34	4991.66
							12/05/88	13:50	80.00	78.40	4991.60
							07/29/94	13:17	81.02	79.42	4990.58
0917	58853.6	62234.5	WU	N	5049.60	5047.80	12/20/86	15:30	60.17	58.37	4989.43
							02/19/87	11:50	60.48	58.68	4989.12
							01/28/88	14:10	60.46	58.66	4989.14
							04/21/88	09:19	60.43	58.63	4989.17
							08/26/88	17:02	60.80	59.00	4988.80
							12/06/88	09:30	60.73	58.93	4988.87
							07/29/94	13:30	61.43	59.63	4988.17
0918	57588.1	61629.1	WU	N	5103.10	5101.30	12/20/86	15:30	108.90	107.10	4994.20
							02/20/87	10:35	108.70	106.90	4994.40
							01/31/88	09:30	109.05	107.25	4994.05
							04/21/88	10:35	108.86	107.06	4994.24
							08/25/88	15:15	108.92	107.12	4994.18
							12/03/88	10:45	109.41	107.61	4993.69
							07/29/94	14:00	110.18	108.38	4992.92
0919	56014.4	59867.6	WL	N	5107.00	5105.20	12/20/86	15:30	126.00	124.20	4981.00
							02/17/87	03:00	126.26	124.46	4980.74
							01/27/88	15:50	126.61	124.81	4980.39
							04/23/88	09:48	125.57	123.77	4981.43
							08/26/88	10:15	126.10	124.30	4980.90
							12/09/88	09:15	127.00	125.20	4980.00
							07/29/94	15:05	126.25	124.45	4980.75
0920	56021.6	59923.7	WU	N	5101.10	5099.00	01/27/88	10:30	86.72	84.62	5014.38
							04/23/88	11:50	85.38	83.28	5015.72
							08/26/88	13:00	86.82	84.72	5014.28
							12/07/88	11:30	87.27	85.17	5013.83

FORMATION OF COMPLETION CODE:
WM - WASATCH - MIDDLE SHALE
WU - WASATCH - UPPER SANDSTONE
WL - WASATCH - LOWER SANDSTONE

FLOW RELATIONSHIP CODE:
N - UNKNOWN

STATIC GROUNDWATER LEVELS
SITE: SPK01 SPOOK
REPORT DATE: 08/03/94

LOCATION ID	NORTH COORDINATE (FT)	EAST COORDINATE (FT)	FORMATION OF COMPLETION	FLOW CODE	CASING ELEVATION (FT MSL)	GROUND ELEVATION (FT MSL)	LOG DATE	LOG TIME	DEPTH FROM TOP OF CASING (FT)	DEPTH FROM GROUND (FT)	GROUNDWATER ELEVATION (FT MSL)
0920	56021.6	59923.7	WU	N	5101.10	5099.00	07/29/94	14:59	88.83	86.73	5012.27
0921	58118.3	59198.9	WL	N	5127.00	5124.50	02/03/88	10:00	123.25	120.75	5003.75
							04/24/88	09:15	122.26	119.76	5004.74
							08/09/88	10:40	123.55	121.05	5003.45
							12/07/88	14:50	124.38	121.88	5002.62
							07/29/94	11:35	125.76	123.26	5001.24
0922	58163.6	59210.6	WU	N	5124.80	5122.40	02/02/88	13:30	119.58	117.18	5005.22
							04/24/88	11:20	119.68	117.28	5005.12
							08/07/88	10:45	119.63	117.23	5005.17
							12/07/88	16:02	120.46	118.06	5004.34
							07/29/94	11:30	121.80	119.40	5003.00
0923	59654.0	59828.6	WL	N	5115.00	5112.80	01/29/88	12:45	119.96	117.76	4995.04
							04/25/88	09:35	119.86	117.66	4995.14
							08/08/88	14:20	119.84	117.64	4995.16
							12/09/88	10:00	120.73	118.53	4994.27
							07/29/94	11:47	121.32	119.12	4993.68
0924	59855.8	61191.0	WU	N	5081.20	5079.10	01/03/88	14:00	89.46	87.36	4991.74
							04/25/88	12:35	89.50	87.40	4991.70
							08/25/88	13:15	89.65	87.55	4991.55
							12/06/88	12:00	88.29	86.19	4992.91
							07/29/94	12:22	90.45	88.35	4990.75
0925	59815.3	62832.1	WU	N	5042.10	5039.90	02/02/88	13:45	55.98	53.78	4986.12
							04/25/88	13:57	55.86	53.66	4986.24
							08/25/88	10:08	56.17	53.97	4985.93
							12/04/88	10:45	56.05	53.85	4986.05
							07/29/94	12:42	56.31	54.11	4985.79
0927	59161.8	60115.4	WU	N	5096.7	5094.7	01/03/88	12:30	98.57	96.57	4998.13
							04/24/88	14:10	98.67	96.67	4998.03
							08/24/88	15:15	99.10	97.10	4997.60
							12/03/88	14:20	99.10	97.10	4997.60
							07/29/94	12:10	96.77	94.77	4999.93
0928	57963.3	59497.0	WU	N	5028.50	5025.60	01/31/88	11:00	23.65	20.75	5004.85
							04/22/88	11:28	23.76	20.86	5004.74
							08/03/88	13:15	24.08	21.18	5004.42
							12/02/88	09:00	24.39	21.49	5004.11

FORMATION OF COMPLETION CODE:
WU - WASATCH - UPPER SANDSTONE
WL - WASATCH - LOWER SANDSTONE

FLOW RELATIONSHIP CODE:
N - UNKNOWN

STATIC GROUNDWATER LEVELS
SITE: SPK01 SPOOK
REPORT DATE: 08/03/94

LOCATION ID	NORTH COORDINATE (FT)	EAST COORDINATE (FT)	FORMATION OF COMPLETION	FLOW CODE	CASING ELEVATION (FT MSL)	GROUND ELEVATION (FT MSL)	LOG DATE	LOG TIME	DEPTH FROM TOP OF CASING (FT)	DEPTH FROM GROUND (FT)	GROUNDWATER ELEVATION (FT MSL)
0929	56502.8	59663.1	WU	N	5085.00	5083.00	01/30/88	13:15	81.33	79.33	5003.67
							04/26/88	15:10	81.25	79.25	5003.75
							08/11/88	11:10	81.12	79.12	5003.88
0930	56033.6	59898.5	WU	N	5104.10	5101.70	01/27/88	14:30	89.86	87.46	5014.24
							04/23/88	13:20	89.51	87.11	5014.59
							08/26/88	14:44	89.86	87.46	5014.24
							07/29/94	15:02	91.75	89.35	5012.35
0931	59847.5	63505.7	WU	N	5064.8	5062.60	01/26/88	13:56	80.65	78.45	4984.15
							04/27/88	13:30	80.49	78.29	4984.31
							08/09/88	10:10	80.19	77.99	4984.61
							12/04/88	10:30	80.62	78.42	4984.18
							07/29/94	12:50	80.80	78.60	4984.00
0932	59855.8	60115.7	WU	N	5106.9	5104.50	01/29/88	11:10	112.70	110.30	4994.20
							04/26/88	11:00	112.50	110.10	4994.40
							08/08/88	14:35	112.26	109.86	4994.64
							12/05/88	09:15	112.75	110.35	4994.15
							07/29/94	12:00	113.51	111.11	4993.39
0933	60310.2	64205.1	WU	N	5079.70	5077.40	08/09/88	12:50	98.22	95.92	4981.48
							12/05/88	12:45	98.38	96.08	4981.32
							07/29/94	13:00	98.57	96.27	4981.13
0934	60178.9	62032.2	WU	N	5072.30	5070.10	08/10/88	14:31	83.64	81.44	4988.66
							12/05/88	11:00	84.01	81.81	4988.29
							07/29/94	12:33	84.37	82.17	4987.93
0935	57050.2	59205.8	WU	N	5128.10	5125.90	08/07/88	12:15	115.60	113.40	5012.50
							11/30/88	11:20	116.32	114.12	5011.78
							07/29/94	14:42	117.15	114.95	5010.95
0936	56745.9	61019.6	WU	N	5086.10	5083.40	08/06/88	09:40	88.50	85.80	4997.60
							12/02/88	12:00	88.89	86.19	4997.21
							07/29/94	15:56	88.53	85.83	4997.57
0937	55665.7	60303.9	WU	N	5052.80	5049.50	08/06/88	09:45	76.84	73.54	4975.96
							12/01/88	09:00	75.29	71.99	4977.51
							07/29/94	15:25	73.98	70.68	4978.82
0938	58231.6	62849.7	WL	N	5036.00	5033.70	08/07/88	14:10	56.15	53.85	4979.85

FORMATION OF COMPLETION CODE:
WU - WASATCH - UPPER SANDSTONE
WL - WASATCH - LOWER SANDSTONE

FLOW RELATIONSHIP CODE:
N - UNKNOWN

STATIC GROUNDWATER LEVELS
 SITE: SPK01 SPOOK
 REPORT DATE: 08/03/94

LOCATION ID	NORTH COORDINATE (FT)	EAST COORDINATE (FT)	FORMATION OF COMPLETION	FLOW CODE	CASING ELEVATION (FT MSL)	GROUND ELEVATION (FT MSL)	LOG DATE	LOG TIME	DEPTH FROM TOP OF CASING (FT)	DEPTH FROM GROUND (FT)	GROUNDWATER ELEVATION (FT MSL)
0938	58231.6	62849.7	WL	N	5036.00	5033.70	12/06/88 07/29/94	12:10 13:42	55.78 54.73	53.48 52.43	4980.22 4981.27
0939	56195.2	59518.6	WU	N	5106.70	5104.70	08/05/88 11/30/88 07/29/94	13:35 14:50 14:49	88.20 88.00 88.49	86.20 86.00 86.49	5018.50 5018.70 5018.21
0940	58599.8	60040.7	WU	N	5016.70	5015.70	08/06/88 12/01/88	11:15 13:20	16.11 16.48	15.11 15.48	5000.59 5000.22
0941	58222.4	62882.6	WU	N	5036.10	5033.90	08/06/88 12/07/88 07/29/94	14:40 13:00 13:39	47.72 48.19 48.39	45.52 45.99 46.19	4988.38 4987.91 4987.71
0942	56061.2	61105.4	WU	N	5049.10	5047.70	08/06/88 12/01/88 07/29/94	13:00 11:20 15:15	62.10 62.52 61.96	60.70 61.12 60.56	4987.00 4986.58 4987.14
0943	59282.9	64523.6	WU	N	5028.40	5027.20	08/08/88 12/06/88 07/29/94	12:00 10:45 16:48	49.84 50.00 50.30	48.64 48.80 49.10	4978.56 4978.40 4978.10
0944	60946.7	66463.1	WU	N	4995.90	4993.90	08/10/88 12/05/88 07/29/94	10:00 14:15 17:03	56.01 56.35 55.03	54.01 54.35 53.03	4939.89 4939.55 4940.87

FORMATION OF COMPLETION CODE:
 WL - WASATCH - LOWER SANDSTONE
 WU - WASATCH - UPPER SANDSTONE

FLOW RELATIONSHIP CODE:
 N - UNKNOWN

DATA FILE: M:\DART\SPK01\GWL10004.DAT

APPENDIX D

GROUND WATER QUALITY DATA BY PARAMETER

GROUNDWATER QUALITY DATA BY PARAMETER
 UPPER SANDSTONE UNIT
 SITE: SPK01 SPOOK
 02/17/87 TO 12/10/88
 REPORT DATE: 07/29/94

PARAMETER NAME	LOCATION ID	LOG DATE	SAMPLE ID	FORM COMP	FLOW REL.	UNITS OF MEASURE	PVI	PARAMETER VALUE	FLAGS	DETECTION LIMIT	PARAMETER UNCERTAINTY
ALKALINITY	0911	02/17/87	0001	WU	N	MG/L CACO3		210.		-	-
	0911	09/18/87	0001	WU	N			236.		-	-
	0911	01/30/88	0001	WU	N			236.		-	-
	0911	04/22/88	0001	WU	N			233.		-	-
	0911	08/11/88	0001	WU	N			228.0		-	-
	0911	12/10/88	0001	WU	N			226.		-	-
	0912	02/18/87	0001	WU	N			192.		-	-
	0912	02/03/88	0001	WU	N			187.		-	-
	0912	04/22/88	0001	WU	N			129.		-	-
	0912	08/27/88	0001	WU	N			182.0		-	-
	0912	12/04/88	0001	WU	N			178.		-	-
	0913	02/18/87	0001	WU	N			274.		-	-
	0913	09/18/87	0001	WU	N			196.		-	-
	0913	02/03/88	0001	WU	N			222.		-	-
	0913	04/22/88	0001	WU	N			207.		-	-
	0913	08/04/88	0001	WU	N			204.0		-	-
	0913	12/10/88	0001	WU	N			205.		-	-
	0916	02/20/87	0001	WU	N			297.		-	-
	0916	09/20/87	0001	WU	N			303.		-	-
	0916	02/03/88	0001	WU	N			311.		-	-
	0916	04/22/88	0001	WU	N			310.		-	-
	0916	08/04/88	0001	WU	N			321.0		-	-
	0916	12/07/88	0001	WU	N			320.		-	-
	0917	02/19/87	0001	WU	N			340.		-	-
	0917	09/20/87	0001	WU	N			313.		-	-
	0917	01/30/88	0001	WU	N			320.		-	-
	0917	04/22/88	0001	WU	N			335.		-	-
	0917	08/27/88	0001	WU	N			321.0		-	-
	0917	12/07/88	0001	WU	N			348.		-	-
	0918	02/20/87	0001	WU	N			217.		-	-
	0918	09/20/87	0001	WU	N			200.		-	-
	0918	02/03/88	0001	WU	N			191.		-	-
	0918	04/22/88	0001	WU	N			195.		-	-
	0918	08/26/88	0001	WU	N			195.0		-	-
	0918	12/04/88	0001	WU	N			204.		-	-
	0920	09/20/87	0001	WU	N			278.		-	-
	0920	01/30/88	0001	WU	N			308.		-	-
	0920	04/26/88	0001	WU	N			247.		-	-
	0920	08/27/88	0001	WU	N			247.0		-	-
	0920	12/10/88	0001	WU	N			260.		-	-
	0922	09/20/87	0001	WU	N			192.		-	-

FORMATION OF COMPLETION CODE:
 WU - WASATCH - UPPER SANDSTONE

FLOW RELATIONSHIP CODE:
 N - UNKNOWN

PARAMETER VALUE INDICATOR (PVI): < - LESS THAN DETECTION LIMIT

SAMPLE ID CODES:
 0001 - FILTERED SAMPLE (.45 MICRONS)

GROUNDWATER QUALITY DATA BY PARAMETER
 UPPER SANDSTONE UNIT
 SITE: SPK01 SPOOK
 02/17/87 TO 12/10/88
 REPORT DATE: 07/29/94

PARAMETER NAME	LOCATION ID	LOG DATE	SAMPLE ID	FORM COMP	FLOW REL.	UNITS OF MEASURE	PVI	PARAMETER VALUE	FLAGS	DETECTION LIMIT	PARAMETER UNCERTAINTY
ALKALINITY	0922	02/03/88	0001	WU	N	MG/L CACO3		185.		-	-
	0922	04/26/88	0001	WU	N			162.		-	-
	0922	08/08/88	0001	WU	N			160.0		-	-
	0922	12/10/88	0001	WU	N			168.		-	-
	0924	09/20/87	0001	WU	N			161.		-	-
	0924	02/04/88	0001	WU	N			172.		-	-
	0924	04/26/88	0001	WU	N			161.		-	-
	0924	08/26/88	0001	WU	N			151.0		-	-
	0924	12/07/88	0001	WU	N			166.		-	-
	0925	09/20/87	0001	WU	N			221.		-	-
	0925	02/03/88	0001	WU	N			233.		-	-
	0925	04/26/88	0001	WU	N			224.		-	-
	0925	08/26/88	0001	WU	N			212.		-	-
	0925	12/07/88	0001	WU	N			228.		-	-
	0927	09/20/87	0001	WU	N			138.		-	-
	0927	02/04/88	0001	WU	N			180.		-	-
	0927	04/26/88	0001	WU	N			166.		-	-
	0927	08/26/88	0001	WU	N			161.0		-	-
	0927	12/04/88	0001	WU	N			162.		-	-
	0928	09/20/87	0001	WU	N			39.		-	-
	0928	02/03/88	0001	WU	N			52.		-	-
	0928	04/22/88	0001	WU	N			47.		-	-
	0928	08/04/88	0001	WU	N			53.0		-	-
	0928	12/04/88	0001	WU	N			51.		-	-
	0929	09/20/87	0001	WU	N			77.		-	-
	0929	02/03/88	0001	WU	N			228.		-	-
	0929	04/28/88	0001	WU	N			400.	J	-	-
	0929	08/11/88	0001	WU	N			242.0		-	-
	0930	09/20/87	0001	WU	N			138.		-	-
	0930	01/30/88	0001	WU	N			156.		-	-
	0930	04/26/88	0001	WU	N			142.		-	-
	0930	08/27/88	0001	WU	N			215.0		-	-
	0931	01/30/88	0001	WU	N			255.		-	-
	0931	04/28/88	0001	WU	N			228.		-	-
	0931	08/10/88	0001	WU	N			223.0		-	-
	0931	12/04/88	0001	WU	N			223.		-	-
	0932	01/30/88	0001	WU	N			240.		-	-
	0932	04/28/88	0001	WU	N			251.		-	-
	0932	08/09/88	0001	WU	N			248.0		-	-
	0932	12/07/88	0001	WU	N			241.		-	-

FORMATION OF COMPLETION CODE:
 WU - WASATCH - UPPER SANDSTONE

FLOW RELATIONSHIP CODE:
 N - UNKNOWN

PARAMETER VALUE INDICATOR (PVI): < - LESS THAN DETECTION LIMIT

SAMPLE ID CODES:
 0001 - FILTERED SAMPLE (.45 MICRONS)

OTHER PARAMETER VALUE FLAGS:
 J - ESTIMATED VALUE

GROUNDWATER QUALITY DATA BY PARAMETER
 UPPER SANDSTONE UNIT
 SITE: SPK01 SPOOK
 02/17/87 TO 12/10/88
 REPORT DATE: 07/29/94

PARAMETER NAME	LOCATION ID	LOG DATE	SAMPLE ID	FORM COMP REL.	UNITS OF MEASURE	PVI VALUE	FLAGS	DETECTION LIMIT	PARAMETER UNCERTAINTY
ALKALINITY	0933	08/10/88	0001	WU	MG/L	235.0		-	-
	0933	12/07/88	0001	WU	MG/L	241.		-	-
	0934	08/11/88	0001	WU	MG/L	237.0		-	-
	0934	12/07/88	0001	WU	MG/L	243.		-	-
	0935	08/09/88	0001	WU	MG/L	148.0		-	-
	0935	12/04/88	0001	WU	MG/L	71.		-	-
	0936	08/08/88	0001	WU	MG/L	303.0		-	-
	0936	12/04/88	0001	WU	MG/L	322.		-	-
	0937	08/08/88	0001	WU	MG/L	194.0		-	-
	0937	12/04/88	0001	WU	MG/L	204.		-	-
	0939	08/08/88	0001	WU	MG/L	110.0		-	-
	0939	12/04/88	0001	WU	MG/L	147.		-	-
	0940	08/08/88	0001	WU	MG/L	185.0		-	-
	0940	12/04/88	0001	WU	MG/L	195.		-	-
	0941	08/08/88	0001	WU	MG/L	145.0		-	-
	0941	12/10/88	0001	WU	MG/L	159.		-	-
	0942	08/08/88	0001	WU	MG/L	214.0		-	-
	0942	12/04/88	0001	WU	MG/L	212.		-	-
	0943	08/09/88	0001	WU	MG/L	213.0		-	-
	0943	12/07/88	0001	WU	MG/L	226.		-	-
	0944	08/11/88	0001	WU	MG/L	265.0		-	-
	0944	12/07/88	0001	WU	MG/L	282.		-	-
ALUMINUM	0911	02/17/87	0001	WU	MG/L	0.1		0.1	-
	0911	09/18/87	0001	WU	MG/L	0.18		0.1	-
	0911	01/30/88	0001	WU	MG/L	0.06	J	0.1	-
	0911	04/22/88	0001	WU	MG/L	0.11		0.1	-
	0911	08/11/88	0001	WU	MG/L	0.1		0.1	-
	0912	02/18/87	0001	WU	MG/L	0.1		0.1	-
	0912	02/03/88	0001	WU	MG/L	0.01	J	0.1	-
	0912	04/22/88	0001	WU	MG/L	0.04	J	0.1	-
	0912	08/27/88	0001	WU	MG/L	0.1		0.1	-
	0913	02/18/87	0001	WU	MG/L	0.1		0.1	-
	0913	09/18/87	0001	WU	MG/L	0.44		0.1	-
	0913	02/03/88	0001	WU	MG/L	0.29		0.1	-
	0913	04/22/88	0001	WU	MG/L	0.26		0.1	-
	0913	08/04/88	0001	WU	MG/L	0.3		0.1	-
	0916	02/20/87	0001	WU	MG/L	0.1		0.1	-
	0916	09/20/87	0001	WU	MG/L	0.86		0.1	-
	0916	02/03/88	0001	WU	MG/L	0.70		0.1	-

FORMATION OF COMPLETION CODE:
 WU - WASATCH - UPPER SANDSTONE

FLOW RELATIONSHIP CODE:
 N - UNKNOWN

PARAMETER VALUE INDICATOR (PVI): < - LESS THAN DETECTION LIMIT

SAMPLE ID CODES:
 0001 - FILTERED SAMPLE (<.45 MICRONS)

OTHER PARAMETER VALUE FLAGS:
 J - ESTIMATED VALUE

GROUNDWATER QUALITY DATA BY PARAMETER
UPPER SANDSTONE UNIT
SITE: SPK01 SPOOK
02/17/87 TO 12/10/88
REPORT DATE: 07/29/94

PARAMETER NAME	LOCATION ID	LOG DATE	SAMPLE ID	FORM COMP	FLOW REL.	UNITS OF MEASURE	PVI	PARAMETER VALUE	FLAGS	DETECTION LIMIT	PARAMETER UNCERTAINTY
ALUMINUM	0916	04/22/88	0001	WU	N	MG/L		0.55		0.1	-
	0916	08/04/88	0001	WU	N			0.7		0.1	-
	0917	02/19/87	0001	WU	N		<	0.1		0.1	-
	0917	09/20/87	0001	WU	N			0.33		0.1	-
	0917	01/30/88	0001	WU	N			0.23		0.1	-
	0917	04/22/88	0001	WU	N			0.18		0.1	-
	0917	08/27/88	0001	WU	N			0.2		0.1	-
	0918	02/20/87	0001	WU	N		<	0.1		0.1	-
	0918	09/20/87	0001	WU	N			0.18		0.1	-
	0918	02/03/88	0001	WU	N			0.13		0.1	-
	0918	04/22/88	0001	WU	N			0.10		0.1	-
	0918	08/26/88	0001	WU	N			0.1		0.1	-
	0920	09/20/87	0001	WU	N			0.29		0.1	-
	0920	01/30/88	0001	WU	N			0.35		0.1	-
	0920	04/26/88	0001	WU	N			0.38		0.1	-
	0920	08/27/88	0001	WU	N			0.3		0.1	-
	0922	09/20/87	0001	WU	N			0.12		0.1	-
	0922	02/03/88	0001	WU	N			0.15		0.1	-
	0922	04/26/88	0001	WU	N			0.06	J	0.1	-
	0922	08/08/88	0001	WU	N		<	0.1		0.1	-
	0924	09/20/87	0001	WU	N			0.20		0.1	-
	0924	02/04/88	0001	WU	N			0.24		0.1	-
	0924	04/26/88	0001	WU	N			0.09	J	0.1	-
	0924	08/26/88	0001	WU	N			0.2		0.1	-
	0925	09/20/87	0001	WU	N			0.11		0.1	-
	0925	02/03/88	0001	WU	N			0.15		0.1	-
	0925	04/26/88	0001	WU	N			0.03	J	0.1	-
	0925	08/26/88	0001	WU	N			0.1		0.1	-
	0927	09/20/87	0001	WU	N			0.27		0.1	-
	0927	02/04/88	0001	WU	N			0.34		0.1	-
	0927	04/26/88	0001	WU	N			0.15		0.1	-
	0927	08/26/88	0001	WU	N			0.2		0.1	-
	0928	09/20/87	0001	WU	N			0.23		0.1	-
	0928	02/03/88	0001	WU	N			0.34		0.1	-
	0928	04/22/88	0001	WU	N			0.13		0.1	-
	0928	08/04/88	0001	WU	N			0.2		0.1	-
	0929	09/20/87	0001	WU	N			0.12		0.1	-
	0929	02/03/88	0001	WU	N			0.096	J	0.1	-
	0929	04/28/88	0001	WU	N			0.05	J	0.1	-
	0929	08/11/88	0001	WU	N		<	0.1		0.1	-

FORMATION OF COMPLETION CODE:
WU - WASATCH - UPPER SANDSTONE

FLOW RELATIONSHIP CODE:
N - UNKNOWN

PARAMETER VALUE INDICATOR (PVI): < - LESS THAN DETECTION LIMIT

SAMPLE ID CODES:
0001 - FILTERED SAMPLE (.45 MICRONS)

OTHER PARAMETER VALUE FLAGS:
J - ESTIMATED VALUE

GROUNDWATER QUALITY DATA BY PARAMETER
 UPPER SANDSTONE UNIT
 SITE: SPK01 SPOOK
 02/17/87 TO 12/10/88
 REPORT DATE: 07/29/94

PARAMETER NAME	LOCATION ID	LOG DATE	SAMPLE ID	FORM COMP REL.	UNITS OF MEASURE	PVI VALUE	FLAGS	DETECTION LIMIT	PARAMETER UNCERTAINTY
ALUMINIUM	0930	09/20/87	0001	WU	MG/L	0.29		0.1	-
	0930	01/30/88	0001	WU		0.289		0.1	-
	0930	04/26/88	0001	WU		0.37		0.1	-
	0930	08/27/88	0001	WU		0.2		0.1	-
	0931	01/30/88	0001	WU		0.112		0.1	-
	0931	04/28/88	0001	WU		0.05	J	0.1	-
	0931	08/10/88	0001	WU		0.2		0.1	-
	0932	01/30/88	0001	WU		0.108		0.1	-
	0932	04/28/88	0001	WU		0.06	J	0.1	-
	0932	08/09/88	0001	WU		0.15		0.1	-
	0933	08/10/88	0001	WU		11.		0.1	-
	0934	08/11/88	0001	WU		0.1		0.1	-
	0935	08/09/88	0001	WU		0.7		0.1	-
	0935	08/08/88	0001	WU		0.2		0.1	-
	0936	08/08/88	0001	WU		0.3		0.1	-
	0937	08/08/88	0001	WU		0.2		0.1	-
	0939	08/08/88	0001	WU		0.4		0.1	-
	0940	08/08/88	0001	WU		0.1		0.1	-
	0941	08/08/88	0001	WU		0.2		0.1	-
	0942	08/08/88	0001	WU		0.12		0.1	-
	0943	08/09/88	0001	WU		0.10		0.1	-
	0944	08/11/88	0001	WU				0.1	-
AMMONIUM	0911	02/17/87	0001	WU	MG/L	0.1		0.1	-
	0911	09/18/87	0001	WU		21.5		0.1	-
	0911	01/30/88	0001	WU		14.6		0.1	-
	0911	04/22/88	0001	WU		11.		0.1	-
	0911	08/11/88	0001	WU		9.8		0.1	-
	0911	12/10/88	0001	WU		6.7		0.1	-
	0912	02/18/87	0001	WU		0.1		0.1	-
	0912	02/03/88	0001	WU		0.1		0.1	-
	0912	04/22/88	0001	WU		0.1		0.1	-
	0912	08/27/88	0001	WU		0.1		0.1	-
	0912	12/04/88	0001	WU		0.2		0.1	-
	0913	02/18/87	0001	WU		0.1		0.1	-
	0913	09/18/87	0001	WU		0.1		0.1	-
	0913	02/03/88	0001	WU		0.1		0.1	-
	0913	04/22/88	0001	WU		0.1		0.1	-
	0913	08/04/88	0001	WU		0.1		0.1	-
	0913	12/10/88	0001	WU		0.1		0.1	-
	0916	02/20/87	0001	WU		0.1		0.1	-

FORMATION OF COMPLETION CODE:
 WU - WASATCH - UPPER SANDSTONE

FLOW RELATIONSHIP CODE:
 N - UNKNOWN

PARAMETER VALUE INDICATOR (PVI): < - LESS THAN DETECTION LIMIT

SAMPLE ID CODES:
 0001 - FILTERED SAMPLE (.45 MICRONS)

OTHER PARAMETER VALUE FLAGS:
 J - ESTIMATED VALUE

GROUNDWATER QUALITY DATA BY PARAMETER
 UPPER SANDSTONE UNIT
 SITE: SPK01 SPOOK
 02/17/87 TO 12/10/88
 REPORT DATE: 07/29/94

PARAMETER NAME	LOCATION ID	LOG DATE	SAMPLE ID	FORM COMP REL.	UNITS OF MEASURE	PVI	PARAMETER VALUE	FLAGS	DETECTION LIMIT	PARAMETER UNCERTAINTY
AMMONIUM	0916	09/20/87	0001	WU	MG/L	<	0.1		0.1	-
	0916	02/03/88	0001	WU		<	0.1		0.1	-
	0916	04/22/88	0001	WU		<	0.1		0.1	-
	0916	08/04/88	0001	WU		<	0.1		0.1	-
	0916	12/07/88	0001	WU		<	0.1		0.1	-
	0917	02/19/87	0001	WU		<	0.1		0.1	-
	0917	09/20/87	0001	WU		<	0.1		0.1	-
	0917	01/30/88	0001	WU		<	0.1		0.1	-
	0917	04/22/88	0001	WU		<	0.1		0.1	-
	0917	08/27/88	0001	WU		<	0.1		0.1	-
	0917	12/07/88	0001	WU		<	0.1		0.1	-
	0918	02/20/87	0001	WU		<	0.1		0.1	-
	0918	09/20/87	0001	WU		<	0.1		0.1	-
	0918	02/03/88	0001	WU		<	0.1		0.1	-
	0918	04/22/88	0001	WU		<	0.1		0.1	-
	0918	08/26/88	0001	WU		<	0.1		0.1	-
	0918	12/04/88	0001	WU		<	0.1		0.1	-
	0920	09/20/87	0001	WU		<	87.6		0.1	-
	0920	01/30/88	0001	WU		<	84.8		0.1	-
	0920	04/26/88	0001	WU		<	93.		0.1	-
	0920	08/27/88	0001	WU		<	98.		0.1	-
	0920	12/10/88	0001	WU		<	101.		0.1	-
	0922	09/20/87	0001	WU		<	0.1		0.1	-
	0922	02/03/88	0001	WU		<	0.1		0.1	-
	0922	04/26/88	0001	WU		<	0.1		0.1	-
	0922	08/08/88	0001	WU		<	0.1		0.1	-
	0922	12/10/88	0001	WU		<	0.1		0.1	-
	0924	09/20/87	0001	WU		<	0.1		0.1	-
	0924	02/04/88	0001	WU		<	0.1		0.1	-
	0924	04/26/88	0001	WU		<	0.1		0.1	-
	0924	08/26/88	0001	WU		<	0.1		0.1	-
	0924	12/07/88	0001	WU		<	0.1		0.1	-
	0925	09/20/87	0001	WU		<	0.1		0.1	-
	0925	02/03/88	0001	WU		<	0.1		0.1	-
	0925	04/26/88	0001	WU		<	0.1		0.1	-
	0925	08/26/88	0001	WU		<	0.1		0.1	-
	0925	12/07/88	0001	WU		<	0.1		0.1	-
	0927	09/20/87	0001	WU		<	0.1		0.1	-
	0927	02/04/88	0001	WU		<	0.1		0.1	-
	0927	04/26/88	0001	WU		<	0.1		0.1	-
	0927	08/26/88	0001	WU		<	0.1		0.1	-

FORMATION OF COMPLETION CODE:
 WU - WASATCH - UPPER SANDSTONE

FLOW RELATIONSHIP CODE:
 N - UNKNOWN

PARAMETER VALUE INDICATOR (PVI): < - LESS THAN DETECTION LIMIT

SAMPLE ID CODES:
 0001 - FILTERED SAMPLE (.45 MICRONS)

GROUNDWATER QUALITY DATA BY PARAMETER
UPPER SANDSTONE UNIT
SITE: SPK01 SPOOK
02/17/87 TO 12/10/88
REPORT DATE: 07/29/94

PARAMETER NAME	LOCATION ID	LOG DATE	SAMPLE ID	FORM COMP	FLOW REL.	UNITS OF MEASURE	PVI VALUE	PARAMETER VALUE	FLAGS	DETECTION LIMIT	PARAMETER UNCERTAINTY
AMMONIUM	0927	12/04/88	0001	WU	N	Mg/L	<	0.1		0.1	-
	0928	09/20/87	0001	WU	N		<	0.1		0.1	-
	0928	02/03/88	0001	WU	N		<	0.1		0.1	-
	0928	04/22/88	0001	WU	N		<	0.1		0.1	-
	0928	08/04/88	0001	WU	N		<	0.1		0.1	-
	0928	12/04/88	0001	WU	N		<	0.1		0.1	-
	0929	09/20/87	0001	WU	N			4.6		0.1	-
	0929	02/03/88	0001	WU	N			0.5		0.1	-
	0929	04/28/88	0001	WU	N			1.2		0.1	-
	0929	08/11/88	0001	WU	N		<	0.1	J	0.1	-
	0930	09/20/87	0001	WU	N			114.		0.1	-
	0930	01/30/88	0001	WU	N			197.		0.1	-
	0930	04/26/88	0001	WU	N			180.		0.1	-
	0930	08/27/88	0001	WU	N			98.		0.1	-
	0931	01/30/88	0001	WU	N		<	0.1		0.1	-
	0931	04/28/88	0001	WU	N		<	0.1		0.1	-
	0931	08/10/88	0001	WU	N		<	0.1		0.1	-
	0931	12/04/88	0001	WU	N		<	0.1		0.1	-
	0932	01/30/88	0001	WU	N		<	0.1		0.1	-
	0932	04/28/88	0001	WU	N		<	0.1		0.1	-
	0932	08/09/88	0001	WU	N		<	0.1		0.1	-
	0932	12/07/88	0001	WU	N		<	0.1		0.1	-
	0933	08/10/88	0001	WU	N		<	0.1		0.1	-
	0933	12/07/88	0001	WU	N		<	0.1		0.1	-
	0934	08/11/88	0001	WU	N		<	0.1		0.1	-
	0934	12/07/88	0001	WU	N		<	0.1		0.1	-
	0935	08/09/88	0001	WU	N			260.		0.1	-
	0935	12/04/88	0001	WU	N			300.		0.1	-
	0936	08/08/88	0001	WU	N		<	0.1		0.1	-
	0936	12/04/88	0001	WU	N		<	0.1		0.1	-
	0937	08/08/88	0001	WU	N		<	0.1		0.1	-
	0937	12/04/88	0001	WU	N		<	0.1		0.1	-
	0939	08/08/88	0001	WU	N		<	0.1		0.1	-
	0939	12/04/88	0001	WU	N			69.		0.1	-
	0940	08/08/88	0001	WU	N			72.		0.1	-
	0940	12/04/88	0001	WU	N		<	0.1		0.1	-
	0941	08/08/88	0001	WU	N		<	0.1		0.1	-
	0941	12/10/88	0001	WU	N		<	0.1		0.1	-
	0942	08/08/88	0001	WU	N		<	0.1		0.1	-
	0942	12/04/88	0001	WU	N		<	0.1		0.1	-

FORMATION OF COMPLETION CODE:
WU - WASATCH - UPPER SANDSTONE

FLOW RELATIONSHIP CODE:
N - UNKNOWN

PARAMETER VALUE INDICATOR (PVI): < - LESS THAN DETECTION LIMIT

SAMPLE ID CODES:
0001 - FILTERED SAMPLE (.45 MICRONS)

OTHER PARAMETER VALUE FLAGS:
J - ESTIMATED VALUE

GROUNDWATER QUALITY DATA BY PARAMETER

UPPER SANDSTONE UNIT

SITE: SPK01 SPOOK

02/17/87 TO 12/10/88

REPORT DATE: 07/29/94

PARAMETER NAME	LOCATION ID	LOG DATE	SAMPLE ID	FORM COMP	FLOW REL.	UNITS OF MEASURE	PVI VALUE	FLAGS	DETECTION LIMIT	PARAMETER UNCERTAINTY
AMMONIUM	0943	08/09/88	0001	WU	N	MG/L	<	0.1	0.1	-
	0943	12/07/88	0001	WU	N		<	0.1	0.1	-
	0944	08/11/88	0001	WU	N		<	0.1	0.1	-
	0944	12/07/88	0001	WU	N		<	0.1	0.1	-
ANTIMONY	0911	02/17/87	0001	WU	N	MG/L	<	0.003	0.003	-
	0911	09/18/87	0001	WU	N		<	0.003	0.003	-
	0911	01/30/88	0001	WU	N		<	0.003	0.003	-
	0911	04/22/88	0001	WU	N			0.003	0.003	-
	0911	08/11/88	0001	WU	N			0.004	0.003	-
	0912	02/18/87	0001	WU	N		<	0.003	0.003	-
	0912	02/03/88	0001	WU	N		<	0.003	0.003	-
	0912	04/22/88	0001	WU	N		<	0.014	0.003	-
	0912	08/27/88	0001	WU	N		<	0.003	0.003	-
	0913	02/18/87	0001	WU	N			0.007	0.003	-
	0913	09/18/87	0001	WU	N		<	0.003	0.003	-
	0913	02/03/88	0001	WU	N		<	0.003	0.003	-
	0913	04/22/88	0001	WU	N			0.007	0.003	-
	0913	08/04/88	0001	WU	N			0.004	0.003	-
	0916	02/20/87	0001	WU	N		<	0.003	0.003	-
	0916	09/20/87	0001	WU	N		<	0.003	0.003	-
	0916	02/03/88	0001	WU	N		<	0.003	0.003	-
	0916	04/22/88	0001	WU	N			0.010	0.003	-
	0916	08/04/88	0001	WU	N			0.008	0.003	-
	0917	02/19/87	0001	WU	N			0.004	0.003	-
	0917	09/20/87	0001	WU	N		<	0.003	0.003	-
	0917	01/30/88	0001	WU	N			0.004	0.003	-
	0917	04/22/88	0001	WU	N			0.004	0.003	-
	0917	08/27/88	0001	WU	N			0.004	0.003	-
	0918	02/20/87	0001	WU	N		<	0.003	0.003	-
	0918	09/20/87	0001	WU	N		<	0.003	0.003	-
	0918	02/03/88	0001	WU	N		<	0.003	0.003	-
	0918	04/22/88	0001	WU	N		<	0.003	0.003	-
	0918	08/26/88	0001	WU	N		<	0.003	0.003	-
	0920	09/20/87	0001	WU	N		<	0.003	0.003	-
	0920	01/30/88	0001	WU	N			0.019	0.003	-
	0920	04/26/88	0001	WU	N			0.020	0.003	-
	0920	08/27/88	0001	WU	N			0.036	0.003	-
	0922	09/20/87	0001	WU	N		<	0.003	0.003	-
	0922	02/03/88	0001	WU	N			0.004	0.003	-

FORMATION OF COMPLETION CODE:
WU - WASATCH - UPPER SANDSTONEFLOW RELATIONSHIP CODE:
N - UNKNOWN

PARAMETER VALUE INDICATOR (PVI): < - LESS THAN DETECTION LIMIT

SAMPLE ID CODES:
0001 - FILTERED SAMPLE (.45 MICRONS)OTHER PARAMETER VALUE FLAGS:
J - ESTIMATED VALUE

GROUNDWATER QUALITY DATA BY PARAMETER
 UPPER SANDSTONE UNIT
 SITE: SPK01 SPOOK
 02/17/87 TO 12/10/88
 REPORT DATE: 07/29/94

PARAMETER NAME	LOCATION ID	LOG DATE	SAMPLE ID	FORM COMP	FLOW REL.	UNITS OF MEASURE	PVI	PARAMETER VALUE	FLAGS	DETECTION LIMIT	PARAMETER UNCERTAINTY
ANTIMONY	0922	04/26/88	0001	WU	N	MG/L	<	0.003		0.003	-
	0922	08/08/88	0001	WU	N		<	0.003		0.003	-
	0924	09/20/87	0001	WU	N		<	0.003		0.003	-
	0924	02/04/88	0001	WU	N			0.008		0.003	-
	0924	04/26/88	0001	WU	N			0.007		0.003	-
	0924	08/26/88	0001	WU	N			0.012	J	0.003	-
	0925	09/20/87	0001	WU	N		<	0.003		0.003	-
	0925	02/03/88	0001	WU	N			0.003		0.003	-
	0925	04/26/88	0001	WU	N		<	0.003		0.003	-
	0925	08/26/88	0001	WU	N			0.005	J	0.003	-
	0927	09/20/87	0001	WU	N			0.005		0.003	-
	0927	02/04/88	0001	WU	N			0.012		0.003	-
	0927	04/26/88	0001	WU	N			0.010		0.003	-
	0927	08/26/88	0001	WU	N			0.013	J	0.003	-
	0928	09/20/87	0001	WU	N		<	0.003		0.003	-
	0928	02/03/88	0001	WU	N			0.012		0.003	-
	0928	04/22/88	0001	WU	N			0.010		0.003	-
	0928	08/04/88	0001	WU	N			0.007		0.003	-
	0929	09/20/87	0001	WU	N		<	0.003		0.003	-
	0929	02/03/88	0001	WU	N			0.004		0.003	-
	0929	04/28/88	0001	WU	N			0.004	J	0.003	-
	0929	08/11/88	0001	WU	N			0.008		0.003	-
	0930	09/20/87	0001	WU	N			0.015		0.003	-
	0930	01/30/88	0001	WU	N			0.019		0.003	-
	0930	04/26/88	0001	WU	N			0.028		0.003	-
	0930	08/27/88	0001	WU	N			0.024	J	0.003	-
	0931	01/30/88	0001	WU	N			0.004		0.003	-
	0931	04/28/88	0001	WU	N			0.003		0.003	-
	0931	08/10/88	0001	WU	N		<	0.003		0.003	-
	0932	01/30/88	0001	WU	N			0.006		0.003	-
	0932	04/28/88	0001	WU	N			0.005		0.003	-
	0932	08/09/88	0001	WU	N		<	0.003		0.003	-
	0933	08/10/88	0001	WU	N		<	0.003		0.003	-
	0934	08/11/88	0001	WU	N			0.003		0.003	-
	0935	08/09/88	0001	WU	N			0.016		0.003	-
	0936	08/08/88	0001	WU	N			0.003		0.003	-
	0937	08/08/88	0001	WU	N			0.003		0.003	-
	0939	08/08/88	0001	WU	N			0.009		0.003	-
	0940	08/08/88	0001	WU	N			0.011		0.003	-
	0941	08/08/88	0001	WU	N		<	0.003		0.003	-

FORMATION OF COMPLETION CODE:
 WU - WASATCH - UPPER SANDSTONE

FLOW RELATIONSHIP CODE:
 N - UNKNOWN

PARAMETER VALUE INDICATOR (PVI): < - LESS THAN DETECTION LIMIT

SAMPLE ID CODES:
 0001 - FILTERED SAMPLE (.45 MICRONS)

OTHER PARAMETER VALUE FLAGS:
 J - ESTIMATED VALUE

GROUNDWATER QUALITY DATA BY PARAMETER
 UPPER SANDSTONE UNIT
 SITE: SPK01 SPOOK
 02/17/87 TO 12/10/88
 REPORT DATE: 07/29/94

PARAMETER NAME	LOCATION ID	LOG DATE	SAMPLE ID	FORM COMP	FLOW REL.	UNITS OF MEASURE	PVI	PARAMETER VALUE	FLAGS	DETECTION LIMIT	PARAMETER UNCERTAINTY
ANTIMONY	0942	08/08/88	0001	WU	N	MG/L	<	0.003		0.003	-
	0943	08/09/88	0001	WU	N		<	0.003		0.003	-
	0944	08/11/88	0001	WU	N			0.003		0.003	-
ARSENIC	0911	02/17/87	0001	WU	N	MG/L	<	0.001	J	0.01	-
	0911	09/18/87	0001	WU	N		<	0.001	J	0.01	-
	0911	01/30/88	0001	WU	N		<	0.001	J	0.01	-
	0911	04/22/88	0001	WU	N		<	0.001	J	0.01	-
	0911	08/11/88	0001	WU	N		<	0.01		0.01	-
	0911	12/10/88	0001	WU	N		<	0.01		0.01	-
	0912	02/18/87	0001	WU	N			0.001	J	0.01	-
	0912	02/03/88	0001	WU	N		<	0.003	J	0.01	-
	0912	04/22/88	0001	WU	N		<	0.001	J	0.01	-
	0912	08/27/88	0001	WU	N		<	0.01		0.01	-
	0912	12/04/88	0001	WU	N		<	0.01		0.01	-
	0913	02/18/87	0001	WU	N		<	0.001	J	0.01	-
	0913	02/03/88	0001	WU	N			0.004	J	0.01	-
	0913	04/22/88	0001	WU	N			0.002	J	0.01	-
	0913	08/04/88	0001	WU	N		<	0.004	J	0.01	-
	0913	12/10/88	0001	WU	N		<	0.01		0.01	-
	0916	02/20/87	0001	WU	N		<	0.01		0.01	-
	0916	09/20/87	0001	WU	N		<	0.001	J	0.01	-
	0916	02/03/88	0001	WU	N			0.003	J	0.01	-
	0916	04/22/88	0001	WU	N			0.003	J	0.01	-
	0916	08/04/88	0001	WU	N		<	0.006	J	0.01	-
	0916	12/07/88	0001	WU	N		<	0.01		0.01	-
	0917	02/19/87	0001	WU	N		<	0.01		0.01	-
	0917	09/20/87	0001	WU	N		<	0.001	J	0.01	-
	0917	01/30/88	0001	WU	N			0.002	J	0.01	-
	0917	04/22/88	0001	WU	N			0.006	J	0.01	-
	0917	08/27/88	0001	WU	N		<	0.002	J	0.01	-
	0917	12/07/88	0001	WU	N		<	0.01		0.01	-
	0918	02/20/87	0001	WU	N		<	0.01		0.01	-
	0918	09/20/87	0001	WU	N		<	0.001	J	0.01	-
	0918	02/03/88	0001	WU	N			0.003	J	0.01	-
	0918	04/22/88	0001	WU	N		<	0.003	J	0.01	-
	0918	08/26/88	0001	WU	N		<	0.001	J	0.01	-
	0918	12/04/88	0001	WU	N		<	0.01		0.01	-
	0920	09/20/87	0001	WU	N			0.015		0.01	-

FORMATION OF COMPLETION CODE:
 WU - WASATCH - UPPER SANDSTONE

FLOW RELATIONSHIP CODE:
 N - UNKNOWN

PARAMETER VALUE INDICATOR (PVI): < - LESS THAN DETECTION LIMIT

SAMPLE ID CODES:
 0001 - FILTERED SAMPLE (<.45 MICRONS)

OTHER PARAMETER VALUE FLAGS:
 J - ESTIMATED VALUE

GROUNDWATER QUALITY DATA BY PARAMETER
 UPPER SANDSTONE UNIT
 SITE: SPK01 SPOOK
 02/17/87 TO 12/10/88
 REPORT DATE: 07/29/94

PARAMETER NAME	LOCATION ID	LOG DATE	SAMPLE ID	FORM COMP	FLOW REL.	UNITS OF MEASURE	PVI	PARAMETER VALUE	FLAGS	DETECTION LIMIT	PARAMETER UNCERTAINTY
ARSENIC	0920	01/30/88	0001	WU	N	MG/L		0.012		0.01	-
	0920	04/26/88	0001	WU	N			0.004	J	0.01	-
	0920	08/27/88	0001	WU	N			0.05		0.01	-
	0920	12/10/88	0001	WU	N		<	0.01		0.01	-
	0922	09/20/87	0001	WU	N			0.002	J	0.01	-
	0922	02/03/88	0001	WU	N		<	0.01		0.01	-
	0922	04/26/88	0001	WU	N		<	0.001	J	0.01	-
	0922	08/08/88	0001	WU	N		<	0.01		0.01	-
	0922	12/10/88	0001	WU	N		<	0.01		0.01	-
	0924	09/20/87	0001	WU	N			0.004	J	0.01	-
	0924	02/04/88	0001	WU	N		<	0.01		0.01	-
	0924	04/26/88	0001	WU	N		<	0.001	J	0.01	-
	0924	08/26/88	0001	WU	N			0.02		0.01	-
	0924	12/07/88	0001	WU	N		<	0.01		0.01	-
	0925	09/20/87	0001	WU	N			0.001	J	0.01	-
	0925	02/03/88	0001	WU	N		<	0.01		0.01	-
	0925	04/26/88	0001	WU	N		<	0.001	J	0.01	-
	0925	08/26/88	0001	WU	N		<	0.01		0.01	-
	0925	12/07/88	0001	WU	N		<	0.01		0.01	-
	0927	09/20/87	0001	WU	N			0.010		0.01	-
	0927	02/04/88	0001	WU	N		<	0.01		0.01	-
	0927	04/26/88	0001	WU	N		<	0.001	J	0.01	-
	0927	08/26/88	0001	WU	N		<	0.01		0.01	-
	0927	12/04/88	0001	WU	N		<	0.01		0.01	-
	0928	09/20/87	0001	WU	N			0.009	J	0.01	-
	0928	02/03/88	0001	WU	N		<	0.01		0.01	-
	0928	04/22/88	0001	WU	N		<	0.001	J	0.01	-
	0928	08/04/88	0001	WU	N		<	0.01		0.01	-
	0928	12/04/88	0001	WU	N		<	0.01		0.01	-
	0929	09/20/87	0001	WU	N			0.006	J	0.01	-
	0929	02/03/88	0001	WU	N			0.003	J	0.01	-
	0929	04/28/88	0001	WU	N			0.001	J	0.01	-
	0929	08/11/88	0001	WU	N		<	0.01		0.01	-
	0930	09/20/87	0001	WU	N			0.012		0.01	-
	0930	01/30/88	0001	WU	N			0.013		0.01	-
	0930	04/26/88	0001	WU	N			0.015		0.01	-
	0930	08/27/88	0001	WU	N			0.03		0.01	-
	0931	01/30/88	0001	WU	N			0.001	J	0.01	-
	0931	04/28/88	0001	WU	N		<	0.001	J	0.01	-
	0931	08/10/88	0001	WU	N		<	0.01		0.01	-

FORMATION OF COMPLETION CODE:
 WU - WASATCH - UPPER SANDSTONE

FLOW RELATIONSHIP CODE:
 N - UNKNOWN

PARAMETER VALUE INDICATOR (PVI): < - LESS THAN DETECTION LIMIT

SAMPLE ID CODES:
 0001 - FILTERED SAMPLE (.45 MICRONS)

OTHER PARAMETER VALUE FLAGS:
 J - ESTIMATED VALUE

GROUNDWATER QUALITY DATA BY PARAMETER
 UPPER SANDSTONE UNIT
 SITE: SPK01 SPOOK
 02/17/87 TO 12/10/88
 REPORT DATE: 07/29/94

PARAMETER NAME	LOCATION ID	LOG DATE	SAMPLE ID	FORM COMP	FLOW REL.	UNITS OF MEASURE	PVI VALUE	FLAGS	DETECTION LIMIT	PARAMETER UNCERTAINTY
ARSENIC	0931	12/04/88	0001	WU	N	MG/L	< 0.01		0.01	-
	0932	01/30/88	0001	WU	N		0.002	J	0.01	-
	0932	04/28/88	0001	WU	N		0.001	J	0.01	-
	0932	08/09/88	0001	WU	N		0.01		0.01	-
	0932	12/07/88	0001	WU	N		0.01		0.01	-
	0933	08/10/88	0001	WU	N		0.01		0.01	-
	0933	12/07/88	0001	WU	N		0.01		0.01	-
	0934	08/11/88	0001	WU	N		0.01		0.01	-
	0934	12/07/88	0001	WU	N		0.01		0.01	-
	0935	08/09/88	0001	WU	N		0.01		0.01	-
	0935	12/04/88	0001	WU	N		0.01		0.01	-
	0936	08/08/88	0001	WU	N		0.01		0.01	-
	0936	12/04/88	0001	WU	N		0.01		0.01	-
	0937	08/08/88	0001	WU	N		0.01		0.01	-
	0937	12/04/88	0001	WU	N		0.01		0.01	-
	0939	08/08/88	0001	WU	N		0.01		0.01	-
	0939	12/04/88	0001	WU	N		0.01		0.01	-
	0940	08/08/88	0001	WU	N		0.01		0.01	-
	0940	12/04/88	0001	WU	N		0.01		0.01	-
	0941	08/08/88	0001	WU	N		0.01		0.01	-
	0941	12/10/88	0001	WU	N		0.01		0.01	-
	0942	08/08/88	0001	WU	N		0.01		0.01	-
	0942	12/04/88	0001	WU	N		0.01		0.01	-
	0943	08/09/88	0001	WU	N		0.01		0.01	-
	0943	12/07/88	0001	WU	N		0.01		0.01	-
	0944	08/11/88	0001	WU	N		0.01		0.01	-
	0944	12/07/88	0001	WU	N		0.01		0.01	-
BARIUM	0911	02/17/87	0001	WU	N	MG/L	< 0.1		0.1	-
	0911	09/18/87	0001	WU	N		0.03	J	0.1	-
	0911	01/30/88	0001	WU	N		0.1		0.1	-
	0911	04/22/88	0001	WU	N		0.04	J	0.1	-
	0911	08/11/88	0001	WU	N		0.1		0.1	-
	0912	02/18/87	0001	WU	N		0.1		0.1	-
	0912	02/03/88	0001	WU	N		0.1		0.1	-
	0912	04/22/88	0001	WU	N		0.02	J	0.1	-
	0912	08/27/88	0001	WU	N		0.1		0.1	-
	0913	02/18/87	0001	WU	N		0.1		0.1	-
	0913	09/18/87	0001	WU	N		0.04	J	0.1	-
	0913	02/03/88	0001	WU	N		0.1		0.1	-
	0913									

FORMATION OF COMPLETION CODE:
 WU - WASATCH - UPPER SANDSTONE

FLOW RELATIONSHIP CODE:
 N - UNKNOWN

PARAMETER VALUE INDICATOR (PVI): < - LESS THAN DETECTION LIMIT

SAMPLE ID CODES:
 0001 - FILTERED SAMPLE (<.45 MICRONS)

OTHER PARAMETER VALUE FLAGS:
 J - ESTIMATED VALUE

GROUNDWATER QUALITY DATA BY PARAMETER
UPPER SANDSTONE UNIT
SITE: SPK01 SPOOK
02/17/87 TO 12/10/88
REPORT DATE: 07/29/94

PARAMETER NAME	LOCATION ID	LOG DATE	SAMPLE ID	FORM COMP REL.	UNITS OF MEASURE	PVI	PARAMETER VALUE	FLAGS	DETECTION LIMIT	PARAMETER UNCERTAINTY
BARIUM	0913	04/22/88	0001	WU	MG/L	<	0.03	J	0.1	-
	0913	08/04/88	0001	WU		<	0.1		0.1	-
	0916	02/20/87	0001	WU		<	0.1		0.1	-
	0916	09/20/87	0001	WU		<	0.05	J	0.1	-
	0916	02/03/88	0001	WU		<	0.1		0.1	-
	0916	04/22/88	0001	WU		<	0.04	J	0.1	-
	0916	08/04/88	0001	WU		<	0.1		0.1	-
	0917	02/19/87	0001	WU		<	0.1		0.1	-
	0917	09/20/87	0001	WU		<	0.06	J	0.1	-
	0917	01/30/88	0001	WU		<	0.1		0.1	-
	0917	04/22/88	0001	WU		<	0.06	J	0.1	-
	0917	08/27/88	0001	WU		<	0.1		0.1	-
	0918	02/20/87	0001	WU		<	0.1		0.1	-
	0918	09/20/87	0001	WU		<	0.06	J	0.1	-
	0918	02/03/88	0001	WU		<	0.1		0.1	-
	0918	04/22/88	0001	WU		<	0.1		0.1	-
	0918	08/26/88	0001	WU		<	0.05	J	0.1	-
	0920	09/20/87	0001	WU		<	0.1		0.1	-
	0920	01/30/88	0001	WU		<	0.04	J	0.1	-
	0920	04/26/88	0001	WU		<	0.01	J	0.1	-
	0920	08/27/88	0001	WU		<	0.02	J	0.1	-
	0922	09/20/87	0001	WU		<	0.1		0.1	-
	0922	02/03/88	0001	WU		<	0.02	J	0.1	-
	0922	04/26/88	0001	WU		<	0.02	J	0.1	-
	0922	08/08/88	0001	WU		<	0.1		0.1	-
	0924	09/20/87	0001	WU		<	0.03	J	0.1	-
	0924	02/04/88	0001	WU		<	0.01	J	0.1	-
	0924	04/26/88	0001	WU		<	0.03	J	0.1	-
	0925	09/20/87	0001	WU		<	0.1		0.1	-
	0925	02/03/88	0001	WU		<	0.02	J	0.1	-
	0925	04/26/88	0001	WU		<	0.01	J	0.1	-
	0925	08/26/88	0001	WU		<	0.03	J	0.1	-
	0927	09/20/87	0001	WU		<	0.1		0.1	-
	0927	02/04/88	0001	WU		<	0.04	J	0.1	-
	0927	04/26/88	0001	WU		<	0.018	J	0.1	-
	0927	08/26/88	0001	WU		<	0.04	J	0.1	-
	0928	09/20/87	0001	WU		<	0.1		0.1	-
	0928	02/03/88	0001	WU		<	0.03	J	0.1	-
	0928	04/22/88	0001	WU		<	0.018	J	0.1	-
	0928					<	0.02	J	0.1	-

FORMATION OF COMPLETION CODE:
WU - WASATCH - UPPER SANDSTONE

FLOW RELATIONSHIP CODE:
N - UNKNOWN

PARAMETER VALUE INDICATOR (PVI): < - LESS THAN DETECTION LIMIT

SAMPLE ID CODES:
0001 - FILTERED SAMPLE (.45 MICRONS)

OTHER PARAMETER VALUE FLAGS:
J - ESTIMATED VALUE

REPORT DATE: 07/29/94

OTHER PARAMETER VALUE FLAGS:
J - ESTIMATED VALUE

GROUNDWATER QUALITY DATA BY PARAMETER
 UPPER SANDSTONE UNIT
 SITE: SPK01 SPOOK
 02/17/87 TO 12/10/88
 REPORT DATE: 07/29/94

PARAMETER NAME	LOCATION ID	LOG DATE	SAMPLE ID	FORM COMP REL.	FLOW	UNITS OF MEASURE	PVI	PARAMETER VALUE	FLAGS	DETECTION LIMIT	PARAMETER UNCERTAINTY
BORON	0916	04/22/88	0001	WU	N	MG/L		0.10		0.1	-
	0916	08/04/88	0001	WU	N			0.1		0.1	-
	0917	09/20/87	0001	WU	N			0.05	J	0.1	-
	0917	01/30/88	0001	WU	N			0.13		0.1	-
	0917	04/22/88	0001	WU	N			0.05	J	0.1	-
	0917	08/27/88	0001	WU	N			0.1		0.1	-
	0918	09/20/87	0001	WU	N			0.03	J	0.1	-
	0918	02/03/88	0001	WU	N			0.11		0.1	-
	0918	04/22/88	0001	WU	N			0.04	J	0.1	-
	0918	08/26/88	0001	WU	N			0.1		0.1	-
	0920	09/20/87	0001	WU	N			0.15		0.1	-
	0920	01/30/88	0001	WU	N			0.23		0.1	-
	0920	04/26/88	0001	WU	N			0.16		0.1	-
	0920	08/27/88	0001	WU	N			0.2		0.1	-
	0922	09/20/87	0001	WU	N			0.06	J	0.1	-
	0922	02/03/88	0001	WU	N			0.12		0.1	-
	0922	04/26/88	0001	WU	N			0.05	J	0.1	-
	0922	08/08/88	0001	WU	N			0.1		0.1	-
	0924	09/20/87	0001	WU	N			0.05	J	0.1	-
	0924	02/04/88	0001	WU	N			0.14		0.1	-
	0924	04/26/88	0001	WU	N			0.05	J	0.1	-
	0924	08/26/88	0001	WU	N			0.1		0.1	-
	0925	09/20/87	0001	WU	N			0.05	J	0.1	-
	0925	02/03/88	0001	WU	N			0.14		0.1	-
	0925	04/26/88	0001	WU	N			0.05	J	0.1	-
	0925	08/26/88	0001	WU	N			0.1		0.1	-
	0927	09/20/87	0001	WU	N			0.07	J	0.1	-
	0927	02/04/88	0001	WU	N			0.16		0.1	-
	0927	04/26/88	0001	WU	N			0.07	J	0.1	-
	0927	08/26/88	0001	WU	N			0.1		0.1	-
	0928	09/20/87	0001	WU	N			0.11		0.1	-
	0928	02/03/88	0001	WU	N			0.16		0.1	-
	0928	04/22/88	0001	WU	N			0.09	J	0.1	-
	0928	08/04/88	0001	WU	N			0.1		0.1	-
	0929	09/20/87	0001	WU	N			0.12		0.1	-
	0929	02/03/88	0001	WU	N			0.142		0.1	-
	0929	04/28/88	0001	WU	N			0.07	J	0.1	-
	0929	08/11/88	0001	WU	N			0.1		0.1	-
	0930	09/20/87	0001	WU	N			0.14		0.1	-
	0930	01/30/88	0001	WU	N			0.199		0.1	-

FORMATION OF COMPLETION CODE:
 WU - WASATCH - UPPER SANDSTONE

FLOW RELATIONSHIP CODE:
 N - UNKNOWN

PARAMETER VALUE INDICATOR (PVI): < - LESS THAN DETECTION LIMIT

SAMPLE ID CODES:
 0001 - FILTERED SAMPLE (.45 MICRONS)

OTHER PARAMETER VALUE FLAGS:
 J - ESTIMATED VALUE

GROUNDWATER QUALITY DATA BY PARAMETER
 UPPER SANDSTONE UNIT
 SITE: SPK01 SPOOK
 02/17/87 TO 12/10/88
 REPORT DATE: 07/29/94

PARAMETER NAME	LOCATION ID	LOG DATE	SAMPLE ID	FORM COMP	FLOW REL.	UNITS OF MEASURE	PARAMETER VALUE	FLAGS	DETECTION LIMIT	PARAMETER UNCERTAINTY
BORON	0930	04/26/88	0001	HU	N	Mg/L	0.14		0.1	-
	0930	08/27/88	0001	HU	N		0.1		0.1	-
	0931	01/30/88	0001	HU	N		0.142		0.1	-
	0931	04/28/88	0001	HU	N		0.05	J	0.1	-
	0931	08/10/88	0001	HU	N		0.1		0.1	-
	0932	01/30/88	0001	HU	N		0.143		0.1	-
	0932	04/28/88	0001	HU	N		0.04	J	0.1	-
	0932	08/09/88	0001	HU	N		0.1		0.1	-
	0933	08/10/88	0001	HU	N		0.1		0.1	-
	0934	08/11/88	0001	HU	N		0.1		0.1	-
	0935	08/09/88	0001	HU	N		0.2		0.1	-
	0936	08/08/88	0001	HU	N		0.1		0.1	-
	0937	08/08/88	0001	HU	N		0.1		0.1	-
	0939	08/08/88	0001	HU	N		0.1		0.1	-
BROMIDE	0940	08/08/88	0001	HU	N		0.1		0.1	-
	0941	08/08/88	0001	HU	N		0.1		0.1	-
	0942	08/08/88	0001	HU	N		0.1		0.1	-
	0943	08/09/88	0001	HU	N		0.1		0.1	-
	0944	08/11/88	0001	HU	N		0.1		0.1	-
	0913	08/04/88	0001	HU	N	Mg/L	0.1		0.1	-
CADMIUM	0916	08/04/88	0001	HU	N		0.1		0.1	-
	0922	08/08/88	0001	HU	N		0.1		0.1	-
	0928	08/04/88	0001	HU	N		0.1		0.1	-
	0940	08/08/88	0001	HU	N		0.1		0.1	-
	0911	02/17/87	0001	HU	N	Mg/L	0.001		0.001	-
	0911	09/18/87	0001	HU	N		0.005		0.005	-
	0911	01/30/88	0001	HU	N		0.001		0.001	-
	0911	04/22/88	0001	HU	N		0.001		0.001	-
	0911	08/11/88	0001	HU	N		0.001		0.001	-
	0911	12/10/88	0001	HU	N		0.001		0.001	-
	0912	02/18/87	0001	HU	N		0.001		0.001	-
	0912	02/03/88	0001	HU	N		0.001		0.001	-
	0912	04/22/88	0001	HU	N		0.002		0.001	-
	0912	08/27/88	0001	HU	N		0.001		0.001	-
	0912	12/04/88	0001	HU	N		0.001		0.001	-
	0913	02/18/87	0001	HU	N		0.001		0.001	-
	0913	09/18/87	0001	HU	N		0.005		0.005	-
	0913	02/03/88	0001	HU	N		0.002		0.001	-

FORMATION OF COMPLETION CODE:
 HU - WASATCH - UPPER SANDSTONE

FLOW RELATIONSHIP CODE:
 N - UNKNOWN

PARAMETER VALUE INDICATOR (PVI): < - LESS THAN DETECTION LIMIT

SAMPLE ID CODES:
 0001 - FILTERED SAMPLE (.45 MICRONS)

OTHER PARAMETER VALUE FLAGS:
 J - ESTIMATED VALUE

GROUNDWATER QUALITY DATA BY PARAMETER
 UPPER SANDSTONE UNIT
 SITE: SPK01 SPOOK
 02/17/87 TO 12/10/88
 REPORT DATE: 07/29/94

PARAMETER NAME	LOCATION ID	LOG DATE	SAMPLE ID	FORM COMP REL.	UNITS OF MEASURE	PVI	PARAMETER VALUE	FLAGS	DETECTION LIMIT	PARAMETER UNCERTAINTY
CADMIUM	0913	04/22/88	0001	WU	N	<	0.002		0.001	-
	0913	08/04/88	0001	WU	N	<	0.001		0.001	-
	0913	12/10/88	0001	WU	N	<	0.001		0.001	-
	0916	02/20/87	0001	WU	N	<	0.005		0.001	-
	0916	09/20/87	0001	WU	N	<	0.005		0.005	-
	0916	02/03/88	0001	WU	N	<	0.002		0.001	-
	0916	04/22/88	0001	WU	N	<	0.011		0.001	-
	0916	08/04/88	0001	WU	N	<	0.001		0.001	-
	0916	12/07/88	0001	WU	N	<	0.001		0.001	-
	0917	02/19/87	0001	WU	N	<	0.001		0.001	-
	0917	09/20/87	0001	WU	N	<	0.005		0.005	-
	0917	01/30/88	0001	WU	N	<	0.001		0.001	-
	0917	04/22/88	0001	WU	N	<	0.003		0.001	-
	0917	08/27/88	0001	WU	N	<	0.001		0.001	-
	0917	12/07/88	0001	WU	N	<	0.001		0.001	-
	0918	02/20/87	0001	WU	N	<	0.001		0.001	-
	0918	09/20/87	0001	WU	N	<	0.005		0.005	-
	0918	02/03/88	0001	WU	N	<	0.001		0.001	-
	0918	04/22/88	0001	WU	N	<	0.001		0.001	-
	0918	08/26/88	0001	WU	N	<	0.001		0.001	-
	0918	12/04/88	0001	WU	N	<	0.001		0.001	-
	0920	09/20/87	0001	WU	N	<	0.005		0.005	-
	0920	01/30/88	0001	WU	N	<	0.003		0.001	-
	0920	04/26/88	0001	WU	N	<	0.021		0.001	-
	0920	08/27/88	0001	WU	N	<	0.003		0.001	-
	0920	12/10/88	0001	WU	N	<	0.005		0.001	-
	0922	09/20/87	0001	WU	N	<	0.005		0.005	-
	0922	02/03/88	0001	WU	N	<	0.001		0.001	-
	0922	04/26/88	0001	WU	N	<	0.001		0.001	-
	0922	08/08/88	0001	WU	N	<	0.001		0.001	-
	0922	12/10/88	0001	WU	N	<	0.001		0.001	-
	0924	09/20/87	0001	WU	N	<	0.005		0.005	-
	0924	02/04/88	0001	WU	N	<	0.001		0.001	-
	0924	04/26/88	0001	WU	N	<	0.001		0.001	-
	0924	08/26/88	0001	WU	N	<	0.001		0.001	-
	0924	12/07/88	0001	WU	N	<	0.001		0.001	-
	0925	09/20/87	0001	WU	N	<	0.005		0.005	-
	0925	02/03/88	0001	WU	N	<	0.001		0.001	-
	0925	04/26/88	0001	WU	N	<	0.002		0.001	-
	0925	08/26/88	0001	WU	N	<	0.001		0.001	-
	0925	12/07/88	0001	WU	N	<	0.001		0.001	-

FORMATION OF COMPLETION CODE:
 WU - WASATCH - UPPER SANDSTONE

FLOW RELATIONSHIP CODE:
 N - UNKNOWN

PARAMETER VALUE INDICATOR (PVI): < - LESS THAN DETECTION LIMIT

SAMPLE ID CODES:
 0001 - FILTERED SAMPLE (<.45 MICRONS)

GROUNDWATER QUALITY DATA BY PARAMETER
 UPPER SANDSTONE UNIT
 SITE: SPK01 SPOOK
 02/17/87 TO 12/10/88
 REPORT DATE: 07/29/94

PARAMETER NAME	LOCATION ID	LOG DATE	SAMPLE ID	FORM COMP REL.	UNITS OF MEASURE	PVI	PARAMETER VALUE	FLAGS	DETECTION LIMIT	PARAMETER UNCERTAINTY
CADMIUM	0927	09/20/87	0001	WU	MG/L	<	0.005		0.005	-
	0927	02/04/88	0001	WU	N		0.001		0.001	-
	0927	04/26/88	0001	WU	N		0.009		0.001	-
	0927	08/26/88	0001	WU	N		0.001		0.001	-
	0927	12/04/88	0001	WU	N	<	0.001		0.001	-
	0928	09/20/87	0001	WU	N	<	0.005		0.005	-
	0928	02/03/88	0001	WU	N	<	0.001		0.001	-
	0928	04/22/88	0001	WU	N		0.005		0.001	-
	0928	08/04/88	0001	WU	N	<	0.001		0.001	-
	0928	12/04/88	0001	WU	N		0.001		0.001	-
	0929	09/20/87	0001	WU	N	<	0.005		0.005	-
	0929	02/03/88	0001	WU	N	<	0.001		0.001	-
	0929	04/28/88	0001	WU	N		0.003	J	0.001	-
	0929	08/11/88	0001	WU	N	<	0.001		0.001	-
	0930	09/20/87	0001	WU	N	<	0.005		0.005	-
	0930	01/30/88	0001	WU	N		0.004		0.001	-
	0930	04/26/88	0001	WU	N		0.021		0.001	-
	0930	08/27/88	0001	WU	N		0.003		0.001	-
	0931	01/30/88	0001	WU	N	<	0.001		0.001	-
	0931	04/28/88	0001	WU	N		0.003		0.001	-
	0931	08/10/88	0001	WU	N	<	0.001		0.001	-
	0931	12/04/88	0001	WU	N	<	0.001		0.001	-
	0932	01/30/88	0001	WU	N	<	0.001		0.001	-
	0932	04/28/88	0001	WU	N		0.005		0.001	-
	0932	08/09/88	0001	WU	N		0.005		0.001	-
	0932	12/07/88	0001	WU	N	<	0.001		0.001	-
	0933	08/10/88	0001	WU	N	<	0.001		0.001	-
	0933	12/07/88	0001	WU	N	<	0.001		0.001	-
	0934	08/11/88	0001	WU	N		0.001		0.001	-
	0935	08/09/88	0001	WU	N		0.012		0.001	-
	0935	12/04/88	0001	WU	N		0.020		0.001	-
	0936	08/08/88	0001	WU	N		0.002		0.001	-
	0936	12/04/88	0001	WU	N		0.001		0.001	-
	0937	08/08/88	0001	WU	N		0.004		0.001	-
	0937	12/04/88	0001	WU	N	<	0.001		0.001	-
	0939	08/08/88	0001	WU	N	<	0.001		0.001	-
	0939	12/04/88	0001	WU	N	<	0.001		0.001	-
	0940	08/08/88	0001	WU	N	<	0.001		0.001	-
	0940	12/04/88	0001	WU	N		0.003		0.001	-

FORMATION OF COMPLETION CODE:
 WU - WASATCH - UPPER SANDSTONE

PARAMETER VALUE INDICATOR (PVI): < - LESS THAN DETECTION LIMIT

OTHER PARAMETER VALUE FLAGS:
 J - ESTIMATED VALUE

FLOW RELATIONSHIP CODE:
 N - UNKNOWN

SAMPLE ID CODES:
 0001 - FILTERED SAMPLE (.45 MICRONS)

GROUNDWATER QUALITY DATA BY PARAMETER
UPPER SANDSTONE UNIT
SITE: SPK01 SPOOK
02/17/87 TO 12/10/88
REPORT DATE: 07/29/94

PARAMETER NAME	LOCATION ID	LOG DATE	SAMPLE ID	FORM COMP REL.	UNITS OF MEASURE	PVI	PARAMETER VALUE	FLAGS	DETECTION LIMIT	PARAMETER UNCERTAINTY
CADMIUM	0941	08/08/88	0001	WU	MG/L	<	0.001		0.001	-
	0941	12/10/88	0001	WU	MG/L	<	0.001		0.001	-
	0942	08/08/88	0001	WU	MG/L	<	0.002		0.001	-
	0942	12/04/88	0001	WU	MG/L	<	0.001		0.001	-
	0943	08/09/88	0001	WU	MG/L	<	0.001		0.001	-
	0943	12/07/88	0001	WU	MG/L	<	0.001		0.001	-
CALCIUM	0944	08/11/88	0001	WU	MG/L	<	0.001		0.001	-
	0944	12/07/88	0001	WU	MG/L	<	0.001		0.001	-
	0911	02/17/87	0001	WU	MG/L		204.		0.01	-
	0911	09/18/87	0001	WU	MG/L		86.8		0.01	-
	0911	01/30/88	0001	WU	MG/L		98.3		0.01	-
	0911	04/22/88	0001	WU	MG/L		103.		0.01	-
	0911	08/11/88	0001	WU	MG/L		112.		0.01	-
	0911	12/10/88	0001	WU	MG/L		105.		0.01	-
	0912	02/18/87	0001	WU	MG/L		40.		0.01	-
	0912	02/03/88	0001	WU	MG/L		53.4		0.01	-
	0912	04/22/88	0001	WU	MG/L		53.9		0.01	-
	0912	08/27/88	0001	WU	MG/L		53.1		0.01	-
	0912	12/04/88	0001	WU	MG/L		52.5		0.01	-
	0913	02/18/87	0001	WU	MG/L		198.		0.01	-
	0913	09/18/87	0001	WU	MG/L		212.		0.01	-
	0913	02/03/88	0001	WU	MG/L		238.		0.01	-
	0913	04/22/88	0001	WU	MG/L		239.		0.01	-
	0913	08/04/88	0001	WU	MG/L		248.		0.01	-
	0913	12/10/88	0001	WU	MG/L		240.		0.01	-
	0916	02/20/87	0001	WU	MG/L		286.		0.01	-
	0916	09/20/87	0001	WU	MG/L		389.		0.01	-
	0916	02/03/88	0001	WU	MG/L		439.		0.01	-
	0916	04/22/88	0001	WU	MG/L		449.		0.01	-
	0916	08/04/88	0001	WU	MG/L		481.		0.01	-
	0916	12/07/88	0001	WU	MG/L		450.		0.01	-
	0917	02/19/87	0001	WU	MG/L		136.		0.01	-
	0917	09/20/87	0001	WU	MG/L		164.		0.01	-
	0917	01/30/88	0001	WU	MG/L		161.		0.01	-
	0917	04/22/88	0001	WU	MG/L		168.		0.01	-
	0917	08/27/88	0001	WU	MG/L		180.		0.01	-
	0917	12/07/88	0001	WU	MG/L		177.		0.01	-
	0918	02/20/87	0001	WU	MG/L		139.		0.01	-
	0918	09/20/87	0001	WU	MG/L		134.		0.01	-
	0918	02/03/88	0001	WU	MG/L		131.		0.01	-

FORMATION OF COMPLETION CODE:
WU - WASATCH - UPPER SANDSTONE

FLOW RELATIONSHIP CODE:
N - UNKNOWN

PARAMETER VALUE INDICATOR (PVI): < - LESS THAN DETECTION LIMIT
SAMPLE ID CODES:
0001 - FILTERED SAMPLE (<.45 MICRONS)

GROUNDWATER QUALITY DATA BY PARAMETER
 UPPER SANDSTONE UNIT
 SITE: SPK01 SPOOK
 02/17/87 TO 12/10/88
 REPORT DATE: 07/29/94

PARAMETER NAME	LOCATION ID	LOG DATE	SAMPLE ID	FORM COMP	FLOW REL.	UNITS OF MEASURE	PARAMETER PVI VALUE	FLAGS	DETECTION LIMIT	PARAMETER UNCERTAINTY
CALCIUM	0918	04/22/88	0001	WU	N	MG/L	139.		0.01	-
	0918	08/26/88	0001	WU	N		144.		0.01	-
	0918	12/04/88	0001	WU	N		138.		0.01	-
	0920	09/20/87	0001	WU	N		564.		0.01	-
	0920	01/30/88	0001	WU	N		491.		0.01	-
	0920	04/26/88	0001	WU	N		534.		0.01	-
	0920	08/27/88	0001	WU	N		535.		0.01	-
	0920	12/10/88	0001	WU	N		503.		0.01	-
	0922	09/20/87	0001	WU	N		152.		0.01	-
	0922	02/03/88	0001	WU	N		111.		0.01	-
	0922	04/26/88	0001	WU	N		119.		0.01	-
	0922	08/08/88	0001	WU	N		120.		0.01	-
	0922	12/10/88	0001	WU	N		118.		0.01	-
	0924	09/20/87	0001	WU	N		246.		0.01	-
	0924	02/04/88	0001	WU	N		234.		0.01	-
	0924	04/26/88	0001	WU	N		244.		0.01	-
	0924	08/26/88	0001	WU	N		249.		0.01	-
	0924	12/07/88	0001	WU	N		245.		0.01	-
	0925	09/20/87	0001	WU	N		105.		0.01	-
	0925	02/03/88	0001	WU	N		104.		0.01	-
	0925	04/26/88	0001	WU	N		106.		0.01	-
	0925	08/26/88	0001	WU	N		107.		0.01	-
	0925	12/07/88	0001	WU	N		107.		0.01	-
	0927	09/20/87	0001	WU	N		448.		0.01	-
	0927	02/04/88	0001	WU	N		424.		0.01	-
	0927	04/26/88	0001	WU	N		459.		0.01	-
	0927	08/26/88	0001	WU	N		466.		0.01	-
	0927	12/04/88	0001	WU	N		443.		0.01	-
	0928	09/20/87	0001	WU	N		351.		0.01	-
	0928	02/03/88	0001	WU	N		311.		0.01	-
	0928	04/22/88	0001	WU	N		341.		0.01	-
	0928	08/04/88	0001	WU	N		340.		0.01	-
	0928	12/04/88	0001	WU	N		320.		0.01	-
	0929	09/20/87	0001	WU	N		184.		0.01	-
	0929	02/03/88	0001	WU	N		71.7		0.01	-
	0929	04/28/88	0001	WU	N		82.7	J	0.01	-
	0929	08/11/88	0001	WU	N		86.7		0.01	-
	0930	09/20/87	0001	WU	N		565.		0.01	-
	0930	01/30/88	0001	WU	N		458.		0.01	-
	0930	04/26/88	0001	WU	N		498.		0.01	-

FORMATION OF COMPLETION CODE:
 WU - WASATCH - UPPER SANDSTONE

PARAMETER VALUE INDICATOR (PVI): < - LESS THAN DETECTION LIMIT

OTHER PARAMETER VALUE FLAGS:
 J - ESTIMATED VALUE

FLOW RELATIONSHIP CODE:
 N - UNKNOWN

SAMPLE ID CODES:
 0001 - FILTERED SAMPLE (.45 MICRONS)

GROUNDWATER QUALITY DATA BY PARAMETER
UPPER SANDSTONE UNIT
SITE: SPK01 SPOOK
02/17/87 TO 12/10/88
REPORT DATE: 07/29/94

PARAMETER NAME	LOCATION ID	LOG DATE	SAMPLE ID	FORM COMP REL.	UNITS OF MEASURE	PVI	PARAMETER VALUE	FLAGS	DETECTION LIMIT	PARAMETER UNCERTAINTY
CALCIUM	0930	08/27/88	0001	WU	MG/L		526.		0.01	-
	0931	01/30/88	0001	WU	N		100.		0.01	-
	0931	04/28/88	0001	WU	N		111.		0.01	-
	0931	08/10/88	0001	WU	N		113.		0.01	-
	0931	12/04/88	0001	WU	N		102.		0.01	-
	0932	01/30/88	0001	WU	N		141.		0.01	-
	0932	04/28/88	0001	WU	N		157.		0.01	-
	0932	08/09/88	0001	WU	N		153.		0.01	-
	0932	12/07/88	0001	WU	N		153.		0.01	-
	0933	08/10/88	0001	WU	N		113.		0.01	-
	0933	12/07/88	0001	WU	N		115.		0.01	-
	0934	08/11/88	0001	WU	N		106.		0.01	-
	0934	12/07/88	0001	WU	N		110.		0.01	-
	0935	08/09/88	0001	WU	N		480.		0.01	-
	0935	12/04/88	0001	WU	N		488.		0.01	-
	0936	08/08/88	0001	WU	N		249.		0.01	-
	0936	12/04/88	0001	WU	N		266.		0.01	-
	0937	08/08/88	0001	WU	N		157.		0.01	-
	0937	12/04/88	0001	WU	N		115.		0.01	-
	0939	08/08/88	0001	WU	N		225.		0.01	-
	0939	12/04/88	0001	WU	N		313.		0.01	-
	0940	08/08/88	0001	WU	N		678.		0.01	-
	0940	12/04/88	0001	WU	N		681.		0.01	-
	0941	08/08/88	0001	WU	N		60.0		0.01	-
	0941	12/10/88	0001	WU	N		60.5		0.01	-
	0942	08/08/88	0001	WU	N		101.		0.01	-
	0942	12/04/88	0001	WU	N		90.6		0.01	-
	0943	08/09/88	0001	WU	N		99.5		0.01	-
	0943	12/07/88	0001	WU	N		100.		0.01	-
	0944	08/11/88	0001	WU	N		179.		0.01	-
	0944	12/07/88	0001	WU	N		179.		0.01	-
CHLORIDE	0911	02/17/87	0001	WU	MG/L		2.3		1.	-
	0911	09/18/87	0001	WU	N		3.3		1.	-
	0911	01/30/88	0001	WU	N		3.8		1.	-
	0911	04/22/88	0001	WU	N		1.7		1.	-
	0911	08/11/88	0001	WU	N	<	1.0		1.	-
	0911	12/10/88	0001	WU	N	<	1.0		1.	-
	0912	02/18/87	0001	WU	N		1.7		1.	-
	0912	02/03/88	0001	WU	N		3.8		1.	-
	0912	04/22/88	0001	WU	N		4.3		1.	-

FORMATION OF COMPLETION CODE:
WU - WASATCH - UPPER SANDSTONE

FLOW RELATIONSHIP CODE:
N - UNKNOWN

PARAMETER VALUE INDICATOR (PVI): < - LESS THAN DETECTION LIMIT

SAMPLE ID CODES:
0001 - FILTERED SAMPLE (<.45 MICRONS)

GROUNDWATER QUALITY DATA BY PARAMETER
 UPPER SANDSTONE UNIT
 SITE: SPK01 SPOOK
 02/17/87 TO 12/10/88
 REPORT DATE: 07/29/94

PARAMETER NAME	LOCATION ID	LOG DATE	SAMPLE ID	FORM COMP REL.	UNITS OF MEASURE	PVI	PARAMETER VALUE	FLAGS	DETECTION LIMIT	PARAMETER UNCERTAINTY
CHLORIDE	0912	08/27/88	0001	WU	MG/L		2.1		1.	-
	0912	12/04/88	0001	WU			3.4		1.	-
	0913	02/18/87	0001	WU			22.		1.	-
	0913	09/18/87	0001	WU			24.3		1.	-
	0913	02/03/88	0001	WU			26.		1.	-
	0913	04/22/88	0001	WU			24.		1.	-
	0913	08/04/88	0001	WU			23.		1.	-
	0913	12/10/88	0001	WU			22.		1.	-
	0916	02/20/87	0001	WU			55.		1.	-
	0916	09/20/87	0001	WU			59.7		1.	-
	0916	02/03/88	0001	WU			74.		1.	-
	0916	04/22/88	0001	WU			74.		1.	-
	0916	08/04/88	0001	WU			73.		1.	-
	0916	12/07/88	0001	WU			69.		1.	-
	0917	02/19/87	0001	WU			21.		1.	-
	0917	09/20/87	0001	WU			19.2		1.	-
	0917	01/30/88	0001	WU			26.		1.	-
	0917	04/22/88	0001	WU			24.		1.	-
	0917	08/27/88	0001	WU			23.		1.	-
	0917	12/07/88	0001	WU			27.		1.	-
	0918	02/20/87	0001	WU			26.		1.	-
	0918	09/20/87	0001	WU			26.7		1.	-
	0918	02/03/88	0001	WU			32.		1.	-
	0918	04/22/88	0001	WU			30.		1.	-
	0918	08/26/88	0001	WU			31.		1.	-
	0918	12/04/88	0001	WU			31.		1.	-
	0920	09/20/87	0001	WU			36.2		1.	-
	0920	01/30/88	0001	WU			20.		1.	-
	0920	04/26/88	0001	WU			50.		1.	-
	0920	08/27/88	0001	WU			52.		1.	-
	0920	12/10/88	0001	WU			55.		1.	-
	0922	09/20/87	0001	WU			5.3		1.	-
	0922	02/03/88	0001	WU			2.5		1.	-
	0922	04/26/88	0001	WU			1.8		1.	-
	0922	08/08/88	0001	WU			1.5		1.	-
	0922	12/10/88	0001	WU			1.0		1.	-
	0924	09/20/87	0001	WU			22.8		1.	-
	0924	02/04/88	0001	WU			23.		1.	-
	0924	04/26/88	0001	WU			23.		1.	-
	0924	08/26/88	0001	WU			26.		1.	-
	0924	12/07/88	0001	WU			23.		1.	-

FORMATION OF COMPLETION CODE:
 WU - WASATCH - UPPER SANDSTONE

FLOW RELATIONSHIP CODE:
 N - UNKNOWN

PARAMETER VALUE INDICATOR (PVI): < - LESS THAN DETECTION LIMIT

SAMPLE ID CODES:
 0001 - FILTERED SAMPLE (.45 MICRONS)

GROUNDWATER QUALITY DATA BY PARAMETER
 UPPER SANDSTONE UNIT
 SITE: SPK01 SPOOK
 02/17/87 TO 12/10/88
 REPORT DATE: 07/29/94

PARAMETER NAME	LOCATION ID	LOG DATE	SAMPLE ID	FORM COMP	FLOW REL.	UNITS OF MEASURE	PVI	PARAMETER VALUE	FLAGS	DETECTION LIMIT	PARAMETER UNCERTAINTY
CHLORIDE	0925	09/20/87	0001	WU	N	MG/L		3.2		1.	-
	0925	02/03/88	0001	WU	N			1.3		1.	-
	0925	04/26/88	0001	WU	N			0.5	J	1.	-
	0925	08/26/88	0001	WU	N			2.1		1.	-
	0925	12/07/88	0001	WU	N			2.1		1.	-
	0927	09/20/87	0001	WU	N			6.8		1.	-
	0927	02/04/88	0001	WU	N			2.5		1.	-
	0927	04/26/88	0001	WU	N			3.1		1.	-
	0927	08/26/88	0001	WU	N			6.0		1.	-
	0927	12/04/88	0001	WU	N			6.1		1.	-
	0928	09/20/87	0001	WU	N			2.7		1.	-
	0928	02/03/88	0001	WU	N		<	0.1	J	1.	-
	0928	04/22/88	0001	WU	N			0.5	J	1.	-
	0928	08/04/88	0001	WU	N		<	1.0		1.	-
	0928	12/04/88	0001	WU	N		<	1.0		1.	-
	0929	09/20/87	0001	WU	N			8.8		1.	-
	0929	02/03/88	0001	WU	N			2.5		1.	-
	0929	04/28/88	0001	WU	N			2.4	J	1.	-
	0929	08/11/88	0001	WU	N		<	1.0		1.	-
	0930	09/20/87	0001	WU	N			18.1		1.	-
	0930	01/30/88	0001	WU	N			48.		1.	-
	0930	04/26/88	0001	WU	N			25.		1.	-
	0930	08/27/88	0001	WU	N			33.		1.	-
	0931	01/30/88	0001	WU	N			3.8		1.	-
	0931	04/28/88	0001	WU	N		<	1.0		1.	-
	0931	08/10/88	0001	WU	N		<	1.0		1.	-
	0931	12/04/88	0001	WU	N		<	1.0		1.	-
	0932	01/30/88	0001	WU	N			6.3		1.	-
	0932	04/28/88	0001	WU	N			5.0		1.	-
	0932	08/09/88	0001	WU	N			4.0		1.	-
	0932	12/07/88	0001	WU	N			4.7		1.	-
	0933	08/10/88	0001	WU	N		<	1.0		1.	-
	0933	12/07/88	0001	WU	N		<	1.0		1.	-
	0934	08/11/88	0001	WU	N		<	1.0		1.	-
	0935	08/09/88	0001	WU	N			14.		1.	-
	0935	12/04/88	0001	WU	N			18.		1.	-
	0936	08/08/88	0001	WU	N			59.		1.	-
	0936	12/04/88	0001	WU	N			63.		1.	-
	0937	08/08/88	0001	WU	N			4.0		1.	-
	0937	12/04/88	0001	WU	N			2.1		1.	-

FORMATION OF COMPLETION CODE:
 WU - WASATCH - UPPER SANDSTONE

FLOW RELATIONSHIP CODE:
 N - UNKNOWN

PARAMETER VALUE INDICATOR (PVI): < - LESS THAN DETECTION LIMIT

SAMPLE ID CODES:
 0001 - FILTERED SAMPLE (.45 MICRONS)

OTHER PARAMETER VALUE FLAGS:
 J - ESTIMATED VALUE

GROUNDWATER QUALITY DATA BY PARAMETER
 UPPER SANDSTONE UNIT
 SITE: SPK01 SPOOK
 02/17/87 TO 12/10/88
 REPORT DATE: 07/29/94

PARAMETER NAME	LOCATION ID	LOG DATE	SAMPLE ID	FORM COMP	FLOW REL.	UNITS OF MEASURE	PVI	PARAMETER VALUE	FLAGS	DETECTION LIMIT	PARAMETER UNCERTAINTY
CHLORIDE	0939	08/08/88	0001	WU	N	MG/L		16.		1.	-
	0939	12/04/88	0001	WU	N			11.		1.	-
	0940	08/08/88	0001	WU	N			700.		1.	-
	0940	12/04/88	0001	WU	N			730.		1.	-
	0941	08/08/88	0001	WU	N			5.3		1.	-
	0941	12/10/88	0001	WU	N			4.7		1.	-
	0942	08/08/88	0001	WU	N			5.3		1.	-
	0942	12/04/88	0001	WU	N			4.7		1.	-
	0943	08/09/88	0001	WU	N			1.5		1.	-
	0943	12/07/88	0001	WU	N		<	1.0		1.	-
	0944	08/11/88	0001	WU	N			1.5		1.	-
	0944	12/07/88	0001	WU	N			2.1		1.	-
CHROMIUM	0911	09/18/87	0001	WU	N	MG/L	<	0.01		0.01	-
	0911	01/30/88	0001	WU	N			0.02		0.01	-
	0911	04/22/88	0001	WU	N			0.06		0.01	-
	0911	08/11/88	0001	WU	N			0.04		0.01	-
	0911	12/10/88	0001	WU	N			0.05		0.01	-
	0912	02/03/88	0001	WU	N		<	0.01		0.01	-
	0912	04/22/88	0001	WU	N			0.03		0.01	-
	0912	08/27/88	0001	WU	N			0.03		0.01	-
	0912	12/04/88	0001	WU	N			0.03		0.01	-
	0913	09/18/87	0001	WU	N		<	0.01		0.01	-
	0913	02/03/88	0001	WU	N			0.08		0.01	-
	0913	04/22/88	0001	WU	N			0.13		0.01	-
	0913	08/04/88	0001	WU	N			0.10		0.01	-
	0913	12/10/88	0001	WU	N			0.12		0.01	-
	0916	09/20/87	0001	WU	N			0.01		0.01	-
	0916	02/03/88	0001	WU	N			0.17		0.01	-
	0916	04/22/88	0001	WU	N			0.23		0.01	-
	0916	08/04/88	0001	WU	N			0.19		0.01	-
	0916	12/07/88	0001	WU	N		<	0.23		0.01	-
	0917	09/20/87	0001	WU	N			0.01		0.01	-
	0917	01/30/88	0001	WU	N			0.06		0.01	-
	0917	04/22/88	0001	WU	N			0.09		0.01	-
	0917	08/27/88	0001	WU	N			0.09		0.01	-
	0917	12/07/88	0001	WU	N			0.10		0.01	-
	0918	09/20/87	0001	WU	N		<	0.01		0.01	-
	0918	02/03/88	0001	WU	N			0.04		0.01	-
	0918	04/22/88	0001	WU	N			0.08		0.01	-
	0918	08/26/88	0001	WU	N			0.06		0.01	-

FORMATION OF COMPLETION CODE:
 WU - WASATCH - UPPER SANDSTONE

FLOW RELATIONSHIP CODE:
 N - UNKNOWN

PARAMETER VALUE INDICATOR (PVI): < - LESS THAN DETECTION LIMIT

SAMPLE ID CODES:
 0001 - FILTERED SAMPLE (.45 MICRONS)

GROUNDWATER QUALITY DATA BY PARAMETER
 UPPER SANDSTONE UNIT
 SITE: SPK01 SPOOK
 02/17/87 TO 12/10/88
 REPORT DATE: 07/29/94

PARAMETER NAME	LOCATION ID	LOG DATE	SAMPLE ID	FORM COMP REL.	UNITS OF MEASURE	PVI	PARAMETER VALUE	FLAGS	DETECTION LIMIT	PARAMETER UNCERTAINTY
CHROMIUM	0918	12/04/88	0001	WU	MG/L	<	0.06		0.01	-
	0920	09/20/87	0001	WU			0.01		0.01	-
	0920	01/30/88	0001	WU			0.15		0.01	-
	0920	04/26/88	0001	WU			0.17		0.01	-
	0920	08/27/88	0001	WU			0.16		0.01	-
	0920	12/10/88	0001	WU			0.01		0.01	-
	0922	09/20/87	0001	WU		<	0.05		0.01	-
	0922	02/03/88	0001	WU			0.05		0.01	-
	0922	04/26/88	0001	WU			0.03		0.01	-
	0922	08/08/88	0001	WU			0.05		0.01	-
	0922	12/10/88	0001	WU			0.01		0.01	-
	0924	09/20/87	0001	WU		<	0.01		0.01	-
	0924	02/04/88	0001	WU			0.08		0.01	-
	0924	04/26/88	0001	WU			0.11		0.01	-
	0924	08/26/88	0001	WU			0.10		0.01	-
	0924	12/07/88	0001	WU			0.10		0.01	-
	0925	09/20/87	0001	WU		<	0.01		0.01	-
	0925	02/03/88	0001	WU			0.04		0.01	-
	0925	04/26/88	0001	WU			0.06		0.01	-
	0925	08/26/88	0001	WU			0.06		0.01	-
	0925	12/07/88	0001	WU			0.06		0.01	-
	0927	09/20/87	0001	WU		<	0.01		0.01	-
	0927	02/04/88	0001	WU			0.12		0.01	-
	0927	04/26/88	0001	WU			0.15		0.01	-
	0927	08/26/88	0001	WU			0.14		0.01	-
	0927	12/04/88	0001	WU		<	0.01		0.01	-
	0928	09/20/87	0001	WU			0.12		0.01	-
	0928	02/03/88	0001	WU			0.12		0.01	-
	0928	04/22/88	0001	WU			0.09		0.01	-
	0928	08/04/88	0001	WU			0.12		0.01	-
	0928	12/04/88	0001	WU			0.12		0.01	-
	0929	09/20/87	0001	WU		<	0.01		0.01	-
	0929	02/03/88	0001	WU			0.030		0.01	-
	0929	04/28/88	0001	WU			0.04	J	0.01	-
	0929	08/11/88	0001	WU			0.03		0.01	-
	0930	09/20/87	0001	WU		<	0.01		0.01	-
	0930	01/30/88	0001	WU			0.122		0.01	-
	0930	04/26/88	0001	WU			0.17		0.01	-
	0930	08/27/88	0001	WU			0.15		0.01	-
	0931	01/30/88	0001	WU			0.037		0.01	-

FORMATION OF COMPLETION CODE:
 WU - WASATCH - UPPER SANDSTONE

FLOW RELATIONSHIP CODE:
 N - UNKNOWN

PARAMETER VALUE INDICATOR (PVI): < - LESS THAN DETECTION LIMIT

SAMPLE ID CODES:
 0001 - FILTERED SAMPLE (<.45 MICRONS)

OTHER PARAMETER VALUE FLAGS:
 J - ESTIMATED VALUE

GROUNDWATER QUALITY DATA BY PARAMETER
 UPPER SANDSTONE UNIT
 SITE: SPK01 SPOOK
 02/17/87 TO 12/10/88
 REPORT DATE: 07/29/94

PARAMETER NAME	LOCATION ID	LOG DATE	SAMPLE ID	FORM COMP REL.	UNITS OF MEASURE	PARAMETER PVI VALUE	FLAGS	DETECTION LIMIT	PARAMETER UNCERTAINTY
CHROMIUM	0931	04/28/88	0001	WU	N	0.06		0.01	-
	0931	08/10/88	0001	WU	N	0.04		0.01	-
	0931	12/04/88	0001	WU	N	0.06		0.01	-
	0932	01/30/88	0001	WU	N	0.042		0.01	-
	0932	04/28/88	0001	WU	N	0.06		0.01	-
	0932	08/09/88	0001	WU	N	0.04		0.01	-
	0932	12/07/88	0001	WU	N	0.06		0.01	-
	0933	08/10/88	0001	WU	N	0.04		0.01	-
	0933	12/07/88	0001	WU	N	0.06		0.01	-
	0934	08/11/88	0001	WU	N	0.03		0.01	-
	0934	12/07/88	0001	WU	N	0.06		0.01	-
	0935	08/09/88	0001	WU	N	0.13		0.01	-
	0935	12/04/88	0001	WU	N	0.17		0.01	-
	0936	08/08/88	0001	WU	N	0.07		0.01	-
	0936	12/04/88	0001	WU	N	0.10		0.01	-
	0937	08/08/88	0001	WU	N	0.08		0.01	-
	0937	12/04/88	0001	WU	N	0.07		0.01	-
	0939	08/08/88	0001	WU	N	0.05		0.01	-
	0939	12/04/88	0001	WU	N	0.09		0.01	-
	0940	08/08/88	0001	WU	N	0.14		0.01	-
	0940	12/04/88	0001	WU	N	0.17		0.01	-
COBALT	0941	08/08/88	0001	WU	N	0.02		0.01	-
	0941	12/10/88	0001	WU	N	0.03		0.01	-
	0942	08/08/88	0001	WU	N	0.03		0.01	-
	0942	12/04/88	0001	WU	N	0.05		0.01	-
	0943	08/09/88	0001	WU	N	0.04		0.01	-
COPPER	0943	12/07/88	0001	WU	N	0.06		0.01	-
	0944	08/11/88	0001	WU	N	0.05		0.01	-
	0944	12/07/88	0001	WU	N	0.08		0.01	-
	0913	08/04/88	0001	WU	N	0.05		0.05	-
	0916	08/04/88	0001	WU	N	0.05		0.05	-
	0928	08/04/88	0001	WU	N	0.05		0.05	-
	0935	08/09/88	0001	WU	N	0.70		0.05	-
	0911	02/17/87	0001	WU	N	0.01	J	0.02	-
	0911	09/18/87	0001	WU	N	0.02		0.02	-
	0911	01/30/88	0001	WU	N	0.04		0.02	-
	0911	04/22/88	0001	WU	N	0.03		0.02	-
	0911	08/11/88	0001	WU	N	0.02		0.02	-

FORMATION OF COMPLETION CODE:
 WU - WASATCH - UPPER SANDSTONE

FLOW RELATIONSHIP CODE:
 N - UNKNOWN

PARAMETER VALUE INDICATOR (PVI): < - LESS THAN DETECTION LIMIT

SAMPLE ID CODES:
 0001 - FILTERED SAMPLE (.45 MICRONS)

OTHER PARAMETER VALUE FLAGS:
 J - ESTIMATED VALUE

GROUNDWATER QUALITY DATA BY PARAMETER
 UPPER SANDSTONE UNIT
 SITE: SPK01 SPOOK
 02/17/87 TO 12/10/88
 REPORT DATE: 07/29/94

PARAMETER NAME	LOCATION ID	LOG DATE	SAMPLE ID	FORM COMP REL.	FLOW	UNITS OF MEASURE	PVI	PARAMETER VALUE	FLAGS	DETECTION LIMIT	PARAMETER UNCERTAINTY
COPPER	0912	02/18/87	0001	WU	N	MG/L	<	0.01	J	0.02	-
	0912	02/03/88	0001	WU	N		<	0.01	J	0.02	-
	0912	04/22/88	0001	WU	N		<	0.01	J	0.02	-
	0912	08/27/88	0001	WU	N		<	0.02		0.02	-
	0913	02/18/87	0001	WU	N			0.02		0.02	-
	0913	09/18/87	0001	WU	N			0.02		0.02	-
	0913	02/03/88	0001	WU	N			0.02		0.02	-
	0913	04/22/88	0001	WU	N			0.02		0.02	-
	0913	08/04/88	0001	WU	N			0.03		0.02	-
	0916	02/20/87	0001	WU	N		<	0.01	J	0.02	-
	0916	09/20/87	0001	WU	N			0.06		0.02	-
	0916	02/03/88	0001	WU	N			0.05		0.02	-
	0916	04/22/88	0001	WU	N			0.05		0.02	-
	0916	08/04/88	0001	WU	N			0.06		0.02	-
	0917	02/19/87	0001	WU	N		<	0.01	J	0.02	-
	0917	09/20/87	0001	WU	N			0.02		0.02	-
	0917	01/30/88	0001	WU	N			0.02		0.02	-
	0917	04/22/88	0001	WU	N			0.02		0.02	-
	0917	08/27/88	0001	WU	N		<	0.02		0.02	-
	0918	02/20/87	0001	WU	N		<	0.01	J	0.02	-
	0918	09/20/87	0001	WU	N		<	0.01	J	0.02	-
	0918	02/03/88	0001	WU	N			0.02		0.02	-
	0918	04/22/88	0001	WU	N			0.02		0.02	-
	0918	08/26/88	0001	WU	N		<	0.02		0.02	-
	0920	09/20/87	0001	WU	N			0.05		0.02	-
	0920	01/30/88	0001	WU	N			0.03		0.02	-
	0920	04/26/88	0001	WU	N		<	0.03		0.02	-
	0920	08/27/88	0001	WU	N			0.02		0.02	-
	0922	09/20/87	0001	WU	N			0.02		0.02	-
	0922	02/03/88	0001	WU	N			0.01	J	0.02	-
	0922	04/26/88	0001	WU	N		<	0.01	J	0.02	-
	0922	08/08/88	0001	WU	N			0.02		0.02	-
	0924	09/20/87	0001	WU	N			0.03		0.02	-
	0924	02/04/88	0001	WU	N			0.02		0.02	-
	0924	04/26/88	0001	WU	N			0.02		0.02	-
	0924	08/26/88	0001	WU	N		<	0.02		0.02	-
	0925	09/20/87	0001	WU	N			0.02		0.02	-
	0925	02/03/88	0001	WU	N			0.01	J	0.02	-
	0925	04/26/88	0001	WU	N		<	0.01	J	0.02	-
	0925	08/26/88	0001	WU	N			0.02		0.02	-

FORMATION OF COMPLETION CODE:
 WU - WASATCH - UPPER SANDSTONE

FLOW RELATIONSHIP CODE:
 N - UNKNOWN

PARAMETER VALUE INDICATOR (PVI): < - LESS THAN DETECTION LIMIT

SAMPLE ID CODES:
 0001 - FILTERED SAMPLE (.45 MICRONS)

OTHER PARAMETER VALUE FLAGS:
 J - ESTIMATED VALUE

GROUNDWATER QUALITY DATA BY PARAMETER
 UPPER SANDSTONE UNIT
 SITE: SPK01 SPOOK
 02/17/87 TO 12/10/88
 REPORT DATE: 07/29/94

PARAMETER NAME	LOCATION ID	LOG DATE	SAMPLE ID	FORM COMP REL.	UNITS OF MEASURE	PVI	PARAMETER VALUE	FLAGS	DETECTION LIMIT	PARAMETER UNCERTAINTY
COPPER	0927	09/20/87	0001	WU	N		0.03		0.02	-
	0927	02/04/88	0001	WU	N		0.03		0.02	-
	0927	04/26/88	0001	WU	N		0.02		0.02	-
	0927	08/26/88	0001	WU	N	<	0.02		0.02	-
	0928	09/20/87	0001	WU	N	<	0.01	J	0.02	-
	0928	02/03/88	0001	WU	N		0.03		0.02	-
	0928	04/22/88	0001	WU	N		0.02		0.02	-
	0928	08/04/88	0001	WU	N		0.03		0.02	-
	0929	09/20/87	0001	WU	N	<	0.01	J	0.02	-
	0929	02/03/88	0001	WU	N	<	0.01	J	0.02	-
	0929	04/28/88	0001	WU	N		0.03	J	0.02	-
	0929	08/11/88	0001	WU	N	<	0.02		0.02	-
	0930	09/20/87	0001	WU	N		0.01	J	0.02	-
	0930	01/30/88	0001	WU	N		0.027		0.02	-
	0930	04/26/88	0001	WU	N		0.11		0.02	-
	0930	08/27/88	0001	WU	N		0.03		0.02	-
	0931	01/30/88	0001	WU	N	<	0.01	J	0.02	-
	0931	04/28/88	0001	WU	N		0.01	J	0.02	-
	0931	08/10/88	0001	WU	N	<	0.02		0.02	-
	0932	01/30/88	0001	WU	N	<	0.01	J	0.02	-
	0932	04/28/88	0001	WU	N		0.02		0.02	-
	0932	08/09/88	0001	WU	N	<	0.02		0.02	-
	0933	08/10/88	0001	WU	N	<	0.02		0.02	-
	0934	08/11/88	0001	WU	N	<	0.02		0.02	-
	0935	08/09/88	0001	WU	N		0.03		0.02	-
	0936	08/08/88	0001	WU	N		0.03		0.02	-
	0937	08/08/88	0001	WU	N		0.03		0.02	-
	0939	08/08/88	0001	WU	N		0.02		0.02	-
	0940	08/08/88	0001	WU	N		0.02		0.02	-
	0941	08/08/88	0001	WU	N	<	0.02		0.02	-
	0942	08/08/88	0001	WU	N	<	0.02		0.02	-
	0943	08/09/88	0001	WU	N	<	0.02		0.02	-
	0944	08/11/88	0001	WU	N	<	0.02		0.02	-
FLUORIDE	0911	02/17/87	0001	WU	N		0.3		0.1	-
	0911	09/18/87	0001	WU	N		0.18		0.1	-
	0911	01/30/88	0001	WU	N		0.15		0.1	-
	0911	04/22/88	0001	WU	N		0.22		0.1	-
	0911	08/11/88	0001	WU	N		0.2		0.1	-
	0912	02/18/87	0001	WU	N		0.3		0.1	-

FORMATION OF COMPLETION CODE:
 WU - WASATCH - UPPER SANDSTONE

FLOW RELATIONSHIP CODE:
 N - UNKNOWN

PARAMETER VALUE INDICATOR (PVI): < - LESS THAN DETECTION LIMIT

SAMPLE ID CODES:
 0001 - FILTERED SAMPLE (<.45 MICRONS)

OTHER PARAMETER VALUE FLAGS:
 J - ESTIMATED VALUE

GROUNDWATER QUALITY DATA BY PARAMETER
 UPPER SANDSTONE UNIT
 SITE: SPK01 SPOOK
 02/17/87 TO 12/10/88
 REPORT DATE: 07/29/94

PARAMETER NAME	LOCATION ID	LOG DATE	SAMPLE ID	FORM COMP	FLOW REL.	UNITS OF MEASURE	PARAMETER PVI VALUE	FLAGS	DETECTION LIMIT	PARAMETER UNCERTAINTY
FLUORIDE	0912	02/03/88	0001	WU	N	MG/L	0.18		0.1	-
	0912	04/22/88	0001	WU	N		0.22		0.1	-
	0912	08/27/88	0001	WU	N		0.2		0.1	-
	0913	02/18/87	0001	WU	N		0.3		0.1	-
	0913	09/18/87	0001	WU	N		0.30		0.1	-
	0913	02/03/88	0001	WU	N		0.27		0.1	-
	0913	04/22/88	0001	WU	N		0.30		0.1	-
	0913	08/04/88	0001	WU	N		0.3		0.1	-
	0916	02/20/87	0001	WU	N		0.3		0.1	-
	0916	09/20/87	0001	WU	N		0.37		0.1	-
	0916	02/03/88	0001	WU	N		0.28		0.1	-
	0916	04/22/88	0001	WU	N		0.37		0.1	-
	0916	08/04/88	0001	WU	N		0.3		0.1	-
	0917	02/19/87	0001	WU	N		0.3		0.1	-
	0917	09/20/87	0001	WU	N		0.25		0.1	-
	0917	01/30/88	0001	WU	N		0.24		0.1	-
	0917	04/22/88	0001	WU	N		0.27		0.1	-
	0917	08/27/88	0001	WU	N		0.2		0.1	-
	0918	02/20/87	0001	WU	N		0.2		0.1	-
	0918	09/20/87	0001	WU	N		0.28		0.1	-
	0918	02/03/88	0001	WU	N		0.27		0.1	-
	0918	04/22/88	0001	WU	N		0.30		0.1	-
	0918	08/26/88	0001	WU	N		0.3		0.1	-
	0920	09/20/87	0001	WU	N		0.17		0.1	-
	0920	01/30/88	0001	WU	N		0.13		0.1	-
	0920	04/26/88	0001	WU	N		0.14		0.1	-
	0920	08/27/88	0001	WU	N		0.1		0.1	-
	0922	09/20/87	0001	WU	N		0.65		0.1	-
	0922	02/03/88	0001	WU	N		0.53		0.1	-
	0922	04/26/88	0001	WU	N		0.48		0.1	-
	0922	08/08/88	0001	WU	N		0.5		0.1	-
	0924	09/20/87	0001	WU	N		0.60		0.1	-
	0924	02/04/88	0001	WU	N		0.61		0.1	-
	0924	04/26/88	0001	WU	N		0.64		0.1	-
	0924	08/26/88	0001	WU	N		0.6		0.1	-
	0925	09/20/87	0001	WU	N		0.26		0.1	-
	0925	02/03/88	0001	WU	N		0.26		0.1	-
	0925	04/26/88	0001	WU	N		0.25		0.1	-
	0925	08/26/88	0001	WU	N		0.3		0.1	-
	0927	09/20/87	0001	WU	N		0.42		0.1	-
	0927	02/04/88	0001	WU	N		0.40		0.1	-

FORMATION OF COMPLETION CODE:
 WU - WASATCH - UPPER SANDSTONE

FLOW RELATIONSHIP CODE:
 N - UNKNOWN

PARAMETER VALUE INDICATOR (PVI): < - LESS THAN DETECTION LIMIT

SAMPLE ID CODES:
 0001 - FILTERED SAMPLE (.45 MICRONS)

GROUNDWATER QUALITY DATA BY PARAMETER
 UPPER SANDSTONE UNIT
 SITE: SPK01 SPOOK
 02/17/87 TO 12/10/88
 REPORT DATE: 07/29/94

PARAMETER NAME	LOCATION ID	LOG DATE	SAMPLE ID	FORM COMP	FLOW REL.	UNITS OF MEASURE	PARAMETER PVI VALUE	FLAGS	DETECTION LIMIT	PARAMETER UNCERTAINTY
FLUORIDE	0927	04/26/88	0001	WU	N	MG/L	0.42		0.1	-
	0927	08/26/88	0001	WU	N		0.4		0.1	-
	0928	09/20/87	0001	WU	N		0.37		0.1	-
	0928	02/03/88	0001	WU	N		0.40		0.1	-
	0928	04/22/88	0001	WU	N		0.30		0.1	-
	0928	08/04/88	0001	WU	N		0.3		0.1	-
	0929	09/20/87	0001	WU	N		0.29		0.1	-
	0929	02/03/88	0001	WU	N		0.18		0.1	-
	0929	04/28/88	0001	WU	N		0.24	J	0.1	-
	0929	08/11/88	0001	WU	N		0.2		0.1	-
	0930	09/20/87	0001	WU	N		0.40		0.1	-
	0930	01/30/88	0001	WU	N		0.13		0.1	-
	0930	04/26/88	0001	WU	N		0.30		0.1	-
	0930	08/27/88	0001	WU	N		0.2		0.1	-
	0931	01/30/88	0001	WU	N		0.22		0.1	-
	0931	04/28/88	0001	WU	N		0.23		0.1	-
	0931	08/10/88	0001	WU	N		0.2		0.1	-
	0932	01/30/88	0001	WU	N		0.46		0.1	-
	0932	04/28/88	0001	WU	N		0.45		0.1	-
	0932	08/09/88	0001	WU	N		0.5		0.1	-
	0933	08/10/88	0001	WU	N		1.5		0.1	-
	0934	08/11/88	0001	WU	N		0.5		0.1	-
	0935	08/09/88	0001	WU	N		1.5		0.1	-
	0936	08/08/88	0001	WU	N		0.2		0.1	-
	0937	08/08/88	0001	WU	N		0.3		0.1	-
	0939	08/08/88	0001	WU	N		0.3		0.1	-
	0940	08/08/88	0001	WU	N		0.2		0.1	-
	0941	08/08/88	0001	WU	N		0.1		0.1	-
	0942	08/08/88	0001	WU	N		0.3		0.1	-
	0943	08/09/88	0001	WU	N		0.2		0.1	-
	0944	08/11/88	0001	WU	N		0.2		0.1	-
GROSS ALPHA	0911	09/18/87	0001	WU	N	PC1/L	980.		0.2	30.
	0911	01/30/88	0001	WU	N		970.		0.2	30.
	0911	04/22/88	0001	WU	N		1310.		0.2	40.
	0911	08/11/88	0001	WU	N		1060.		0.2	30.
	0911	12/10/88	0001	WU	N		1190.		0.2	30.
	0912	02/03/88	0001	WU	N		380.		0.2	20.
	0912	04/22/88	0001	WU	N		480.		0.2	20.
	0912	08/27/88	0001	WU	N		280.		0.2	10.

FORMATION OF COMPLETION CODE:
 WU - WASATCH - UPPER SANDSTONE

FLOW RELATIONSHIP CODE:
 N - UNKNOWN

PARAMETER VALUE INDICATOR (PVI): < - LESS THAN DETECTION LIMIT

SAMPLE ID CODES:
 0001 - FILTERED SAMPLE (.45 MICRONS)

OTHER PARAMETER VALUE FLAGS:
 J - ESTIMATED VALUE

GROUNDWATER QUALITY DATA BY PARAMETER
 UPPER SANDSTONE UNIT
 SITE: SPK01 SPOOK
 02/17/87 TO 12/10/88
 REPORT DATE: 07/29/94

PARAMETER NAME	LOCATION ID	LOG DATE	SAMPLE ID	FORM COMP	FLOW REL.	UNITS OF MEASURE	PVI	PARAMETER VALUE	FLAGS	DETECTION LIMIT	PARAMETER UNCERTAINTY
GROSS ALPHA	0912	12/04/88	0001	WU	N	PCI/L		410.		0.2	20.
	0913	09/18/87	0001	WU	N			6000.		0.2	100.
	0913	02/03/88	0001	WU	N			4800.		0.2	100.
	0913	04/22/88	0001	WU	N			6000.		0.2	100.
	0913	08/04/88	0001	WU	N			9100.		0.2	100.
	0913	12/10/88	0001	WU	N			7200.		0.2	100.
	0916	09/20/87	0001	WU	N			12700.		0.2	100.
	0916	02/03/88	0001	WU	N			11800.		0.2	300.
	0916	04/22/88	0001	WU	N			14200.		0.2	200.
	0916	08/04/88	0001	WU	N			17700.		0.2	300.
	0916	12/07/88	0001	WU	N			11700.		0.2	200.
	0917	09/20/87	0001	WU	N			3400.		0.2	100.
	0917	01/30/88	0001	WU	N			3400.		0.2	100.
	0917	04/22/88	0001	WU	N			4300.		0.2	100.
	0917	08/27/88	0001	WU	N			2400.		0.2	100.
	0917	12/07/88	0001	WU	N			3100.		0.2	100.
	0918	09/20/87	0001	WU	N			1070.		0.2	40.
	0918	02/03/88	0001	WU	N			1000.		0.2	40.
	0918	04/22/88	0001	WU	N			1410.		0.2	40.
	0918	08/26/88	0001	WU	N			970.		0.2	30.
	0918	12/04/88	0001	WU	N			990.		0.2	30.
	0920	09/20/87	0001	WU	N			870.		0.2	70.
	0920	01/30/88	0001	WU	N			840.		0.2	90.
	0920	04/26/88	0001	WU	N			1300.		0.2	100.
	0920	08/27/88	0001	WU	N			890.		0.2	120.
	0920	12/10/88	0001	WU	N			750.		0.2	70.
	0922	09/20/87	0001	WU	N			150.		0.2	20.
	0922	02/03/88	0001	WU	N			100.		0.2	10.
	0922	04/26/88	0001	WU	N			66.		0.2	9.0
	0922	08/08/88	0001	WU	N			72.		0.2	9.0
	0922	12/10/88	0001	WU	N			78.		0.2	9.0
	0924	09/20/87	0001	WU	N			2300.		0.2	100.
	0924	02/04/88	0001	WU	N			2000.		0.2	100.
	0924	04/26/88	0001	WU	N			2400.		0.2	100.
	0924	08/26/88	0001	WU	N			2200.		0.2	100.
	0924	12/07/88	0001	WU	N			2800.		0.2	100.
	0925	09/20/87	0001	WU	N			1220.		0.2	30.
	0925	02/03/88	0001	WU	N			1320.		0.2	30.
	0925	04/26/88	0001	WU	N			1560.		0.2	40.
	0925	08/26/88	0001	WU	N			1350.		0.2	30.
	0925	12/07/88	0001	WU	N			1190.		0.2	30.

FORMATION OF COMPLETION CODE:
 WU - WASATCH - UPPER SANDSTONE

FLOW RELATIONSHIP CODE:
 N - UNKNOWN

PARAMETER VALUE INDICATOR (PVI): < - LESS THAN DETECTION LIMIT

SAMPLE ID CODES:
 0001 - FILTERED SAMPLE (.45 MICRONS)

GROUNDWATER QUALITY DATA BY PARAMETER
 UPPER SANDSTONE UNIT
 SITE: SPK01 SPOOK
 02/17/87 TO 12/10/88
 REPORT DATE: 07/29/94

PARAMETER NAME	LOCATION ID	LOG DATE	SAMPLE ID	FORM COMP	FLOW REL.	UNITS OF MEASURE	PVI VALUE	FLAGS	DETECTION LIMIT	PARAMETER UNCERTAINTY
GROSS ALPHA	0927	09/20/87	0001	WU	N	PCI/L	1380.		0.2	80.
	0927	02/04/88	0001	WU	N		3200.		0.2	100.
	0927	04/26/88	0001	WU	N		3300.		0.2	100.
	0927	08/26/88	0001	WU	N		2500.		0.2	100.
	0927	12/04/88	0001	WU	N		3600.		0.2	100.
	0928	09/20/87	0001	WU	N		1100.		0.2	100.
	0928	02/03/88	0001	WU	N		1200.		0.2	100.
	0928	04/22/88	0001	WU	N		1400.		0.2	100.
	0928	08/04/88	0001	WU	N		1240.		0.2	50.
	0928	12/04/88	0001	WU	N		1440.		0.2	50.
	0929	09/20/87	0001	WU	N		77.		0.2	11.
	0929	02/03/88	0001	WU	N		17.		0.2	6.
	0929	04/28/88	0001	WU	N		12.	J	0.2	6.
	0929	08/11/88	0001	WU	N		16.		0.2	4.
	0930	09/20/87	0001	WU	N		230.		0.2	40.
	0930	01/30/88	0001	WU	N		73.		0.2	41.
	0930	04/26/88	0001	WU	N		70.		0.2	44.
	0930	08/27/88	0001	WU	N		340.		0.2	50.
	0931	01/30/88	0001	WU	N		1100.		0.2	40.
	0931	04/28/88	0001	WU	N		1880.		0.2	50.
	0931	08/10/88	0001	WU	N		1140.		0.2	30.
	0931	12/04/88	0001	WU	N		1200.		0.2	30.
	0932	01/30/88	0001	WU	N		270.		0.2	20.
	0932	04/28/88	0001	WU	N		300.		0.2	20.
	0932	08/09/88	0001	WU	N		280.		0.2	20.
	0933	08/10/88	0001	WU	N		900.		0.2	30.
	0933	12/07/88	0001	WU	N		920.		0.2	30.
	0934	08/11/88	0001	WU	N		560.		0.2	20.
	0934	12/07/88	0001	WU	N		590.		0.2	20.
	0935	08/09/88	0001	WU	N		540.		0.2	70.
	0935	12/04/88	0001	WU	N		1100.		0.2	100.
	0936	08/08/88	0001	WU	N		2000.		0.2	100.
	0936	12/04/88	0001	WU	N		1700.		0.2	100.
	0937	08/08/88	0001	WU	N		5000.		0.2	100.
	0937	12/04/88	0001	WU	N		3500.		0.2	100.
	0939	08/08/88	0001	WU	N		140.		0.2	20.
	0939	12/04/88	0001	WU	N		120.		0.2	20.
	0940	08/08/88	0001	WU	N		3300.		0.2	200.
	0940	12/04/88	0001	WU	N		2100.		0.2	100.
	0941	08/08/88	0001	WU	N		150.		0.2	10.

FORMATION OF COMPLETION CODE:
 WU - WASATCH - UPPER SANDSTONE

FLOW RELATIONSHIP CODE:
 N - UNKNOWN

PARAMETER VALUE INDICATOR (PVI): < - LESS THAN DETECTION LIMIT

SAMPLE ID CODES:
 0001 - FILTERED SAMPLE (.45 MICRONS)

OTHER PARAMETER VALUE FLAGS:
 J - ESTIMATED VALUE

GROUNDWATER QUALITY DATA BY PARAMETER
 UPPER SANDSTONE UNIT
 SITE: SPK01 SPOOK
 02/17/87 TO 12/10/88
 REPORT DATE: 07/29/94

PARAMETER NAME	LOCATION ID	LOG DATE	SAMPLE ID	FORM COMP	FLOW REL.	UNITS OF MEASURE	PVI	PARAMETER VALUE	FLAGS	DETECTION LIMIT	PARAMETER UNCERTAINTY
GROSS ALPHA	0941	12/10/88	0001	WU	N	PCI/L		160.		0.2	10.
	0942	08/08/88	0001	WU	N			550.		0.2	20.
	0942	12/04/88	0001	WU	N			370.		0.2	20.
	0943	08/09/88	0001	WU	N			1640.		0.2	40.
	0943	12/07/88	0001	WU	N			1720.		0.2	30.
	0944	08/11/88	0001	WU	N			590.		0.2	30.
	0944	12/07/88	0001	WU	N			560.		0.2	30.
GROSS BETA	0911	09/18/87	0001	WU	N	PCI/L		560.		1.	10.
	0911	01/30/88	0001	WU	N			470.		1.	10.
	0911	04/22/88	0001	WU	N			340.		1.	10.
	0911	08/11/88	0001	WU	N			300.		1.	10.
	0911	12/10/88	0001	WU	N			210.		1.	10.
	0912	02/03/88	0001	WU	N			210.		1.	10.
	0912	04/22/88	0001	WU	N			138.		1.	4.
	0912	08/27/88	0001	WU	N			110.		1.	4.
	0912	12/04/88	0001	WU	N			156.		1.	4.
	0913	09/18/87	0001	WU	N			3600.		1.	100.
	0913	02/03/88	0001	WU	N			2380.		1.	30.
	0913	04/22/88	0001	WU	N			2250.		1.	30.
	0913	08/04/88	0001	WU	N			2570.		1.	30.
	0913	12/10/88	0001	WU	N			1120.		1.	20.
	0916	09/20/87	0001	WU	N			8100.		1.	100.
	0916	02/03/88	0001	WU	N			5600.		1.	100.
	0916	04/22/88	0001	WU	N			5900.		1.	100.
	0916	08/04/88	0001	WU	N			6000.		1.	100.
	0916	12/07/88	0001	WU	N			3600.		1.	100.
	0917	09/20/87	0001	WU	N			2300.		1.	10.
	0917	01/30/88	0001	WU	N			1730.		1.	30.
	0917	04/22/88	0001	WU	N			1440.		1.	20.
	0917	08/27/88	0001	WU	N			1010.		1.	20.
	0917	12/07/88	0001	WU	N			950.		1.	20.
	0918	09/20/87	0001	WU	N			650.		1.	10.
	0918	02/03/88	0001	WU	N			380.		1.	10.
	0918	04/22/88	0001	WU	N			450.		1.	10.
	0918	08/26/88	0001	WU	N			360.		1.	10.
	0918	12/04/88	0001	WU	N			280.		1.	10.
	0920	09/20/87	0001	WU	N			600.		1.	30.
	0920	01/30/88	0001	WU	N			460.		1.	40.
	0920	04/26/88	0001	WU	N			450.		1.	30.
	0920	08/27/88	0001	WU	N			370.		1.	50.

FORMATION OF COMPLETION CODE:
 WU - WASATCH - UPPER SANDSTONE

FLOW RELATIONSHIP CODE:
 N - UNKNOWN

PARAMETER VALUE INDICATOR (PVI): < - LESS THAN DETECTION LIMIT

SAMPLE ID CODES:
 0001 - FILTERED SAMPLE (.45 MICRONS)

GROUNDWATER QUALITY DATA BY PARAMETER
 UPPER SANDSTONE UNIT
 SITE: SPK01 SPOOK
 02/17/87 TO 12/10/88
 REPORT DATE: 07/29/94

PARAMETER NAME	LOCATION ID	LOG DATE	SAMPLE ID	FORM COMP	FLOW REL.	UNITS OF MEASURE	PVI	PARAMETER VALUE	FLAGS	DETECTION LIMIT	PARAMETER UNCERTAINTY
GROSS BETA	0920	12/10/88	0001	WU	N	PCI/L		250.		1.	20.
	0922	09/20/87	0001	WU	N			100.		1.	10.
	0922	02/03/88	0001	WU	N			50.		1.	5.
	0922	04/26/88	0001	WU	N			39.		1.	3.
	0922	08/08/88	0001	WU	N			33.		1.	3.
	0922	12/10/88	0001	WU	N			24.		1.	3.
	0924	09/20/87	0001	WU	N			1210.		1.	20.
	0924	02/04/88	0001	WU	N			850.		1.	20.
	0924	04/26/88	0001	WU	N			900.		1.	20.
	0924	08/26/88	0001	WU	N			920.		1.	20.
	0924	12/07/88	0001	WU	N			750.		1.	20.
	0925	09/20/87	0001	WU	N			900.		1.	20.
	0925	02/03/88	0001	WU	N			575.		1.	10.
	0925	04/26/88	0001	WU	N			520.		1.	10.
	0925	08/26/88	0001	WU	N			460.		1.	10.
	0925	12/07/88	0001	WU	N			390.		1.	10.
	0927	09/20/87	0001	WU	N			2250.		1.	40.
	0927	02/04/88	0001	WU	N			1200.		1.	30.
	0927	04/26/88	0001	WU	N			1120.		1.	30.
	0927	08/26/88	0001	WU	N			980.		1.	30.
	0927	12/04/88	0001	WU	N			790.		1.	20.
	0928	09/20/87	0001	WU	N			600.		1.	30.
	0928	02/03/88	0001	WU	N			510.		1.	20.
	0928	04/22/88	0001	WU	N			510.		1.	20.
	0928	08/04/88	0001	WU	N			520.		1.	20.
	0928	12/04/88	0001	WU	N			450.		1.	10.
	0929	09/20/87	0001	WU	N			58.		1.	6.
	0929	02/03/88	0001	WU	N			30.		1.	3.
	0929	04/28/88	0001	WU	N			18.	J	1.	3.
	0929	08/11/88	0001	WU	N			20.		1.	2.
	0930	09/20/87	0001	WU	N			190.		1.	20.
	0930	01/30/88	0001	WU	N			93.		1.	23.
	0930	04/26/88	0001	WU	N			82.		1.	16.
	0930	08/27/88	0001	WU	N			160.		1.	20.
	0931	01/30/88	0001	WU	N			610.		1.	10.
	0931	04/28/88	0001	WU	N			680.		1.	10.
	0931	08/10/88	0001	WU	N			530.		1.	10.
	0931	12/04/88	0001	WU	N			370.		1.	10.
	0932	01/30/88	0001	WU	N			150.		1.	10.
	0932	04/28/88	0001	WU	N			140.		1.	10.

FORMATION OF COMPLETION CODE:
 WU - WASATCH - UPPER SANDSTONE

FLOW RELATIONSHIP CODE:
 N - UNKNOWN

PARAMETER VALUE INDICATOR (PVI): < - LESS THAN DETECTION LIMIT

SAMPLE ID CODES:
 0001 - FILTERED SAMPLE (.45 MICRONS)

OTHER PARAMETER VALUE FLAGS:
 J - ESTIMATED VALUE

GROUNDWATER QUALITY DATA BY PARAMETER
 UPPER SANDSTONE UNIT
 SITE: SPK01 SPOOK
 02/17/87 TO 12/10/88
 REPORT DATE: 07/29/94

PARAMETER NAME	LOCATION ID	LOG DATE	SAMPLE ID	FORM COMP	FLOW REL.	UNITS OF MEASURE	PVI	PARAMETER VALUE	FLAGS	DETECTION LIMIT	PARAMETER UNCERTAINTY
GROSS BETA	0932	08/09/88	0001	WU	N	PCI/L		140.		1.	10.
	0932	12/07/88	0001	WU	N			110.		1.	10.
	0933	08/10/88	0001	WU	N			350.		1.	10.
	0933	12/07/88	0001	WU	N			320.		1.	10.
	0934	08/11/88	0001	WU	N			210.		1.	10.
	0934	12/07/88	0001	WU	N			200.		1.	10.
	0935	08/09/88	0001	WU	N			290.		1.	20.
	0935	12/04/88	0001	WU	N			330.		1.	20.
	0936	08/08/88	0001	WU	N			700.		1.	20.
	0936	12/04/88	0001	WU	N			510.		1.	10.
	0937	08/08/88	0001	WU	N			1720.		1.	20.
	0937	12/04/88	0001	WU	N			860.		1.	10.
	0939	08/08/88	0001	WU	N			71.		1.	6.
	0939	12/04/88	0001	WU	N			49.		1.	6.
	0940	08/08/88	0001	WU	N			1400.		1.	100.
	0940	12/04/88	0001	WU	N			860.		1.	40.
	0941	08/08/88	0001	WU	N			57.		1.	3.
	0941	12/10/88	0001	WU	N			9.3		1.	2.4
	0942	08/08/88	0001	WU	N			190.		1.	10.
	0942	12/04/88	0001	WU	N			110.		1.	4.
	0943	08/09/88	0001	WU	N			640.		1.	10.
	0943	12/07/88	0001	WU	N			510.		1.	10.
	0944	08/11/88	0001	WU	N			220.		1.	10.
	0944	12/07/88	0001	WU	N			180.		1.	10.
IRON	0911	02/17/87	0001	WU	N	MG/L	<	0.03		0.03	-
	0911	09/18/87	0001	WU	N		<	0.01	J	0.03	-
	0911	01/30/88	0001	WU	N			0.49		0.03	-
	0911	04/22/88	0001	WU	N			0.04		0.03	-
	0911	08/11/88	0001	WU	N		<	0.03		0.03	-
	0911	12/10/88	0001	WU	N			0.03		0.03	-
	0912	02/18/87	0001	WU	N		<	0.03		0.03	-
	0912	02/03/88	0001	WU	N			0.16		0.03	-
	0912	04/22/88	0001	WU	N			0.02	J	0.03	-
	0912	08/27/88	0001	WU	N			0.06		0.03	-
	0912	12/04/88	0001	WU	N		<	0.03		0.03	-
	0913	02/18/87	0001	WU	N		<	0.03		0.03	-
	0913	09/18/87	0001	WU	N		<	0.01	J	0.03	-
	0913	02/03/88	0001	WU	N			1.77		0.03	-
	0913	04/22/88	0001	WU	N			0.08		0.03	-

FORMATION OF COMPLETION CODE:
 WU - WASATCH - UPPER SANDSTONE

PARAMETER VALUE INDICATOR (PVI): < - LESS THAN DETECTION LIMIT

OTHER PARAMETER VALUE FLAGS:
 J - ESTIMATED VALUE

FLOW RELATIONSHIP CODE:
 N - UNKNOWN

SAMPLE ID CODES:
 0001 - FILTERED SAMPLE (.45 MICRONS)

GROUNDWATER QUALITY DATA BY PARAMETER
 UPPER SANDSTONE UNIT
 SITE: SPK01 SPOOK
 02/17/87 TO 12/10/88
 REPORT DATE: 07/29/94

PARAMETER NAME	LOCATION ID	LOG DATE	SAMPLE ID	FORM COMP	FLOW REL.	UNITS OF MEASURE	PVI	PARAMETER VALUE	FLAGS	DETECTION LIMIT	PARAMETER UNCERTAINTY
IRON	0913	08/04/88	0001	WU	N	MG/L		0.11		0.03	-
	0913	12/10/88	0001	WU	N			0.07		0.03	-
	0916	02/20/87	0001	WU	N		<	0.03		0.03	-
	0916	09/20/87	0001	WU	N		<	0.01	J	0.03	-
	0916	02/03/88	0001	WU	N			3.74		0.03	-
	0916	04/22/88	0001	WU	N			0.13		0.03	-
	0916	08/04/88	0001	WU	N			0.19		0.03	-
	0916	12/07/88	0001	WU	N			0.12		0.03	-
	0917	02/19/87	0001	WU	N		<	0.03		0.03	-
	0917	09/20/87	0001	WU	N		<	0.01	J	0.03	-
	0917	01/30/88	0001	WU	N			1.30		0.03	-
	0917	04/22/88	0001	WU	N			0.06		0.03	-
	0917	08/27/88	0001	WU	N			0.07		0.03	-
	0917	12/07/88	0001	WU	N			0.05		0.03	-
	0918	02/20/87	0001	WU	N		<	0.03		0.03	-
	0918	09/20/87	0001	WU	N		<	0.01	J	0.03	-
	0918	02/03/88	0001	WU	N			0.81		0.03	-
	0918	04/22/88	0001	WU	N			0.04		0.03	-
	0918	08/26/88	0001	WU	N			0.05		0.03	-
	0918	12/04/88	0001	WU	N			0.04		0.03	-
	0920	09/20/87	0001	WU	N		<	0.01	J	0.03	-
	0920	01/30/88	0001	WU	N			0.16		0.03	-
	0920	04/26/88	0001	WU	N			0.23		0.03	-
	0920	08/27/88	0001	WU	N			0.27		0.03	-
	0920	12/10/88	0001	WU	N			0.15		0.03	-
	0922	09/20/87	0001	WU	N		<	0.01	J	0.03	-
	0922	02/03/88	0001	WU	N			0.06		0.03	-
	0922	04/26/88	0001	WU	N			0.10		0.03	-
	0922	08/08/88	0001	WU	N		<	0.03		0.03	-
	0922	12/10/88	0001	WU	N			0.08		0.03	-
	0924	09/20/87	0001	WU	N			0.05		0.03	-
	0924	02/04/88	0001	WU	N			0.14		0.03	-
	0924	04/26/88	0001	WU	N			0.16		0.03	-
	0924	08/26/88	0001	WU	N			0.15		0.03	-
	0924	12/07/88	0001	WU	N			0.13		0.03	-
	0925	09/20/87	0001	WU	N		<	0.01	J	0.03	-
	0925	02/03/88	0001	WU	N			0.03		0.03	-
	0925	04/26/88	0001	WU	N			0.05		0.03	-
	0925	08/26/88	0001	WU	N			0.05		0.03	-
	0925	12/07/88	0001	WU	N			0.05		0.03	-

FORMATION OF COMPLETION CODE:
 WU - WASATCH - UPPER SANDSTONE

FLOW RELATIONSHIP CODE:
 N - UNKNOWN

PARAMETER VALUE INDICATOR (PVI): < - LESS THAN DETECTION LIMIT

SAMPLE ID CODES:
 0001 - FILTERED SAMPLE (<.45 MICRONS)

OTHER PARAMETER VALUE FLAGS:
 J - ESTIMATED VALUE

GROUNDWATER QUALITY DATA BY PARAMETER
 UPPER SANDSTONE UNIT
 SITE: SPK01 SPOOK
 02/17/87 TO 12/10/88
 REPORT DATE: 07/29/94

PARAMETER NAME	LOCATION ID	LOG DATE	SAMPLE ID	FORM COMP REL.	UNITS OF MEASURE	PVI	PARAMETER VALUE	FLAGS	DETECTION LIMIT	PARAMETER UNCERTAINTY
IRON	0927	09/20/87	0001	WU	N		0.03		0.03	-
	0927	02/04/88	0001	WU	N		0.11		0.03	-
	0927	04/26/88	0001	WU	N		0.13		0.03	-
	0927	08/26/88	0001	WU	N		0.11		0.03	-
	0927	12/04/88	0001	WU	N		0.08		0.03	-
	0928	09/20/87	0001	WU	N		0.02	J	0.03	-
	0928	02/03/88	0001	WU	N		0.11		0.03	-
	0928	04/22/88	0001	WU	N		0.09		0.03	-
	0928	08/04/88	0001	WU	N		0.12		0.03	-
	0928	12/04/88	0001	WU	N		0.07		0.03	-
	0929	09/20/87	0001	WU	N	<	0.01	J	0.03	-
	0929	02/03/88	0001	WU	N		0.022	J	0.03	-
	0929	04/28/88	0001	WU	N		0.03	J	0.03	-
	0929	08/11/88	0001	WU	N	<	0.03		0.03	-
	0930	09/20/87	0001	WU	N	<	0.01	J	0.03	-
	0930	01/30/88	0001	WU	N		0.158		0.03	-
	0930	04/26/88	0001	WU	N		0.71		0.03	-
	0930	08/27/88	0001	WU	N		0.27		0.03	-
	0931	01/30/88	0001	WU	N		0.024	J	0.03	-
	0931	04/28/88	0001	WU	N		0.04		0.03	-
	0931	08/10/88	0001	WU	N		0.10		0.03	-
	0931	12/04/88	0001	WU	N		0.03		0.03	-
	0932	01/30/88	0001	WU	N		0.043		0.03	-
	0932	04/28/88	0001	WU	N		0.05		0.03	-
	0932	08/09/88	0001	WU	N		0.14		0.03	-
	0932	12/07/88	0001	WU	N		0.12		0.03	-
	0933	08/10/88	0001	WU	N	<	0.03		0.03	-
	0933	12/07/88	0001	WU	N		0.06		0.03	-
	0934	08/11/88	0001	WU	N	<	0.03		0.03	-
	0934	12/07/88	0001	WU	N		0.06		0.03	-
	0935	08/09/88	0001	WU	N		0.63		0.03	-
	0935	12/04/88	0001	WU	N		0.20		0.03	-
	0936	08/08/88	0001	WU	N		0.06		0.03	-
	0936	12/04/88	0001	WU	N		0.06		0.03	-
	0937	08/08/88	0001	WU	N		0.06		0.03	-
	0937	12/04/88	0001	WU	N		0.04		0.03	-
	0939	08/08/88	0001	WU	N		0.06		0.03	-
	0939	12/04/88	0001	WU	N		0.68		0.03	-
	0940	08/08/88	0001	WU	N		0.19		0.03	-
	0940	12/04/88	0001	WU	N		0.12		0.03	-

FORMATION OF COMPLETION CODE:
 WU - WASATCH - UPPER SANDSTONE

FLOW RELATIONSHIP CODE:
 N - UNKNOWN

PARAMETER VALUE INDICATOR (PVI): < - LESS THAN DETECTION LIMIT

SAMPLE ID CODES:
 0001 - FILTERED SAMPLE (.45 MICRONS)

OTHER PARAMETER VALUE FLAGS:
 J - ESTIMATED VALUE

GROUNDWATER QUALITY DATA BY PARAMETER
 UPPER SANDSTONE UNIT
 SITE: SPK01 SPOOK
 02/17/87 TO 12/10/88
 REPORT DATE: 07/29/94

PARAMETER NAME	LOCATION ID	LOG DATE	SAMPLE ID	FORM COMP	FLOW REL.	UNITS OF MEASURE	PVI	PARAMETER VALUE	FLAGS	DETECTION LIMIT	PARAMETER UNCERTAINTY
IRON	0941	08/08/88	0001	WU	N	MG/L	<	0.03		0.03	-
	0941	12/10/88	0001	WU	N		<	0.03		0.03	-
	0942	08/08/88	0001	WU	N		<	0.04		0.03	-
	0942	12/04/88	0001	WU	N		<	0.03		0.03	-
	0943	08/09/88	0001	WU	N		<	0.03		0.03	-
	0943	12/07/88	0001	WU	N		<	0.06		0.03	-
	0944	08/11/88	0001	WU	N		<	0.03		0.03	-
	0944	12/07/88	0001	WU	N		<	0.07		0.03	-
	0911	02/17/87	0001	WU	N	MG/L	<	0.001	J	0.01	-
	0911	09/18/87	0001	WU	N		<	0.02		0.02	-
LEAD	0911	01/30/88	0001	WU	N		<	0.01		0.01	-
	0911	04/22/88	0001	WU	N		<	0.01		0.01	-
	0911	08/11/88	0001	WU	N		<	0.01		0.01	-
	0911	12/10/88	0001	WU	N		<	0.01		0.01	-
	0912	02/18/87	0001	WU	N		<	0.001	J	0.01	-
	0912	02/03/88	0001	WU	N		<	0.01		0.01	-
	0912	04/22/88	0001	WU	N		<	0.01		0.01	-
	0912	08/27/88	0001	WU	N		<	0.01		0.01	-
	0912	12/04/88	0001	WU	N		<	0.01		0.01	-
	0913	02/18/87	0001	WU	N		<	0.001	J	0.01	-
	0913	09/18/87	0001	WU	N		<	0.02		0.02	-
	0913	02/03/88	0001	WU	N		<	0.01		0.01	-
	0913	04/22/88	0001	WU	N		<	0.01		0.01	-
	0913	08/04/88	0001	WU	N		<	0.01		0.01	-
	0913	12/10/88	0001	WU	N		<	0.01		0.01	-
	0916	02/20/87	0001	WU	N		<	0.001	J	0.01	-
	0916	09/20/87	0001	WU	N		<	0.02		0.02	-
	0916	02/03/88	0001	WU	N		<	0.01		0.01	-
	0916	04/22/88	0001	WU	N		<	0.01		0.01	-
	0916	08/04/88	0001	WU	N		<	0.01		0.01	-
	0916	12/07/88	0001	WU	N		<	0.01		0.01	-
	0917	02/19/87	0001	WU	N		<	0.001	J	0.01	-
	0917	09/20/87	0001	WU	N		<	0.02		0.02	-
	0917	01/30/88	0001	WU	N		<	0.01		0.01	-
	0917	04/22/88	0001	WU	N		<	0.01		0.01	-
	0917	08/27/88	0001	WU	N		<	0.01		0.01	-
	0917	12/07/88	0001	WU	N		<	0.01		0.01	-
	0918	02/20/87	0001	WU	N		<	0.013		0.01	-
	0918	09/20/87	0001	WU	N		<	0.02		0.02	-

FORMATION OF COMPLETION CODE:
 WU - WASATCH - UPPER SANDSTONE

FLOW RELATIONSHIP CODE:
 N - UNKNOWN

PARAMETER VALUE INDICATOR (PVI): < - LESS THAN DETECTION LIMIT

SAMPLE ID CODES:
 0001 - FILTERED SAMPLE (.45 MICRONS)

OTHER PARAMETER VALUE FLAGS:
 J - ESTIMATED VALUE

GROUNDWATER QUALITY DATA BY PARAMETER
 UPPER SANDSTONE UNIT
 SITE: SPK01 SPOOK
 02/17/87 TO 12/10/88
 REPORT DATE: 07/29/94

PARAMETER NAME	LOCATION ID	LOG DATE	SAMPLE ID	FORM COMP REL.	UNITS OF MEASURE	PVI	PARAMETER VALUE	FLAGS	DETECTION LIMIT	PARAMETER UNCERTAINTY
LEAD	0918	02/03/88	0001	WU	MG/L	<	0.01		0.01	-
	0918	04/22/88	0001	WU	N	<	0.01		0.01	-
	0918	08/26/88	0001	WU	N	<	0.01		0.01	-
	0918	12/04/88	0001	WU	N	<	0.01		0.01	-
	0920	09/20/87	0001	WU	N		0.03		0.01	-
	0920	01/30/88	0001	WU	N		0.01		0.01	-
	0920	04/26/88	0001	WU	N	<	0.01		0.01	-
	0920	08/27/88	0001	WU	N		0.01		0.01	-
	0920	12/10/88	0001	WU	N	<	0.01		0.01	-
	0922	09/20/87	0001	WU	N	<	0.01		0.01	-
	0922	02/03/88	0001	WU	N	<	0.01		0.01	-
	0922	04/26/88	0001	WU	N	<	0.01		0.01	-
	0922	08/08/88	0001	WU	N	<	0.01		0.01	-
	0922	12/10/88	0001	WU	N	<	0.01		0.01	-
	0924	09/20/87	0001	WU	N	<	0.01		0.01	-
	0924	02/04/88	0001	WU	N	<	0.01		0.01	-
	0924	04/26/88	0001	WU	N	<	0.01		0.01	-
	0924	08/26/88	0001	WU	N	<	0.01		0.01	-
	0924	12/07/88	0001	WU	N	<	0.01		0.01	-
	0925	09/20/87	0001	WU	N	<	0.01		0.01	-
	0925	02/03/88	0001	WU	N	<	0.01		0.01	-
	0925	04/26/88	0001	WU	N	<	0.01		0.01	-
	0925	08/26/88	0001	WU	N	<	0.01		0.01	-
	0925	12/07/88	0001	WU	N	<	0.01		0.01	-
	0927	09/20/87	0001	WU	N	<	0.01		0.01	-
	0927	02/04/88	0001	WU	N	<	0.01		0.01	-
	0927	04/26/88	0001	WU	N	<	0.02		0.01	-
	0927	08/26/88	0001	WU	N	<	0.01		0.01	-
	0927	12/04/88	0001	WU	N	<	0.01		0.01	-
	0928	09/20/87	0001	WU	N	<	0.02		0.02	-
	0928	02/03/88	0001	WU	N	<	0.01		0.01	-
	0928	04/22/88	0001	WU	N	<	0.01		0.01	-
	0928	08/04/88	0001	WU	N	<	0.01		0.01	-
	0928	12/04/88	0001	WU	N	<	0.01		0.01	-
	0929	09/20/87	0001	WU	N	<	0.02		0.02	-
	0929	02/03/88	0001	WU	N	<	0.01	J	0.01	-
	0929	04/28/88	0001	WU	N	<	0.01		0.01	-
	0929	08/11/88	0001	WU	N	<	0.01		0.01	-
	0930	09/20/87	0001	WU	N	<	0.02		0.02	-
	0930	01/30/88	0001	WU	N		0.01		0.01	-

FORMATION OF COMPLETION CODE:
 WU - WASATCH - UPPER SANDSTONE

FLOW RELATIONSHIP CODE:
 N - UNKNOWN

PARAMETER VALUE INDICATOR (PVI): < - LESS THAN DETECTION LIMIT

SAMPLE ID CODES:
 0001 - FILTERED SAMPLE (.45 MICRONS)

OTHER PARAMETER VALUE FLAGS:
 J - ESTIMATED VALUE

GROUNDWATER QUALITY DATA BY PARAMETER
 UPPER SANDSTONE UNIT
 SITE: SPK01 SPOOK
 02/17/87 TO 12/10/88
 REPORT DATE: 07/29/94

PARAMETER NAME	LOCATION ID	LOG DATE	SAMPLE ID	FORM COMP REL.	UNITS OF MEASURE	PVI	PARAMETER VALUE	FLAGS	DETECTION LIMIT	PARAMETER UNCERTAINTY
LEAD	0930	04/26/88	0001	WU	MG/L	<	0.01		0.01	-
	0930	08/27/88	0001	WU	N	<	0.01		0.01	-
	0931	01/30/88	0001	WU	N	<	0.01		0.01	-
	0931	04/28/88	0001	WU	N	<	0.01		0.01	-
	0931	08/10/88	0001	WU	N	<	0.01		0.01	-
	0931	12/04/88	0001	WU	N	<	0.01		0.01	-
	0932	01/30/88	0001	WU	N	<	0.01		0.01	-
	0932	04/28/88	0001	WU	N	<	0.01		0.01	-
	0932	08/09/88	0001	WU	N	<	0.01		0.01	-
	0932	12/07/88	0001	WU	N	<	0.01		0.01	-
	0933	08/10/88	0001	WU	N	<	0.01		0.01	-
	0933	12/07/88	0001	WU	N	<	0.02		0.01	-
	0934	08/11/88	0001	WU	N	<	0.01		0.01	-
	0934	12/07/88	0001	WU	N	<	0.01		0.01	-
	0935	08/09/88	0001	WU	N	<	0.01		0.01	-
	0935	12/04/88	0001	WU	N	<	0.01		0.01	-
	0936	08/08/88	0001	WU	N	<	0.01		0.01	-
	0936	12/04/88	0001	WU	N	<	0.01		0.01	-
	0937	08/08/88	0001	WU	N	<	0.01		0.01	-
	0937	12/04/88	0001	WU	N	<	0.01		0.01	-
	0939	08/08/88	0001	WU	N	<	0.01		0.01	-
	0939	12/04/88	0001	WU	N	<	0.01		0.01	-
	0940	08/08/88	0001	WU	N	<	0.01		0.01	-
	0940	12/04/88	0001	WU	N	<	0.01		0.01	-
	0941	08/08/88	0001	WU	N	<	0.01		0.01	-
	0941	12/10/88	0001	WU	N	<	0.01		0.01	-
	0942	08/08/88	0001	WU	N	<	0.01		0.01	-
	0942	12/04/88	0001	WU	N	<	0.01		0.01	-
	0943	08/09/88	0001	WU	N	<	0.01		0.01	-
	0943	12/07/88	0001	WU	N	<	0.01		0.01	-
	0944	08/11/88	0001	WU	N	<	0.01		0.01	-
	0944	12/07/88	0001	WU	N	<	0.01		0.01	-
LEAD-210	0911	09/18/87	0001	WU	PCI/L		3.3		1.5	1.1
	0911	01/30/88	0001	WU	N		1.0		1.5	1.1
	0911	04/22/88	0001	WU	N		1.7		1.5	1.1
	0911	08/11/88	0001	WU	N		1.0		1.5	1.0
	0912	02/03/88	0001	WU	N		46.		1.5	2.
	0912	04/22/88	0001	WU	N		77.		1.5	3.
	0912	08/27/88	0001	WU	N		9.5		1.5	1.1
	0913	09/18/87	0001	WU	N		140.		1.5	10.

FORMATION OF COMPLETION CODE:
 WU - WASATCH - UPPER SANDSTONE

FLOW RELATIONSHIP CODE:
 N - UNKNOWN

PARAMETER VALUE INDICATOR (PVI): < - LESS THAN DETECTION LIMIT

SAMPLE ID CODES:
 0001 - FILTERED SAMPLE (.45 MICRONS)

GROUNDWATER QUALITY DATA BY PARAMETER
UPPER SANDSTONE UNIT
SITE: SPK01 SPOOK
02/17/87 TO 12/10/88
REPORT DATE: 07/29/94

PARAMETER NAME	LOCATION ID	LOG DATE	SAMPLE ID	FORM COMP	FLOW REL.	UNITS OF MEASURE	PVI	PARAMETER VALUE	FLAGS	DETECTION LIMIT	PARAMETER UNCERTAINTY
LEAD-210	0913	02/03/88	0001	WU	N	PCI/L		100.		1.5	3.
	0913	04/22/88	0001	WU	N			22.		1.5	2.
	0913	08/04/88	0001	WU	N			94.		1.5	4.
	0916	09/20/87	0001	WU	N			19.		1.5	2.
	0916	02/03/88	0001	WU	N			20.		1.5	2.
	0916	04/22/88	0001	WU	N			5.0		1.5	1.2
	0916	08/04/88	0001	WU	N			8.1		1.5	1.2
	0917	09/20/87	0001	WU	N			2.9		1.5	1.1
	0917	01/30/88	0001	WU	N			0.0		1.5	0.9
	0917	04/22/88	0001	WU	N			1.2		1.5	1.0
	0917	08/27/88	0001	WU	N			2.1		1.5	0.8
	0918	09/20/87	0001	WU	N			4.1		1.5	1.1
	0918	02/03/88	0001	WU	N			0.6		1.5	1.0
	0918	04/22/88	0001	WU	N			0.3		1.5	0.8
	0918	08/26/88	0001	WU	N			0.9		1.5	0.8
	0920	09/20/87	0001	WU	N			9.5		1.5	1.4
	0920	01/30/88	0001	WU	N			15.		1.5	1.
	0920	04/26/88	0001	WU	N			11.		1.5	1.
	0920	08/27/88	0001	WU	N			14.		1.5	1.
	0922	09/20/87	0001	WU	N			0.9		1.5	1.0
	0922	02/03/88	0001	WU	N			1.1		1.5	0.8
	0922	04/26/88	0001	WU	N			0.0		1.5	0.9
	0922	08/08/88	0001	WU	N			1.8		1.5	1.1
	0924	09/20/87	0001	WU	N			21.		1.5	2.
	0924	02/04/88	0001	WU	N			18.		1.5	1.
	0924	04/26/88	0001	WU	N			9.9		1.5	1.1
	0924	08/26/88	0001	WU	N			15.		1.5	1.
	0925	09/20/87	0001	WU	N			1.8		1.5	1.2
	0925	02/03/88	0001	WU	N			1.3		1.5	0.8
	0925	04/26/88	0001	WU	N			0.0		1.5	0.8
	0925	08/26/88	0001	WU	N			0.4		1.5	0.8
	0927	09/20/87	0001	WU	N			5.7		1.5	1.5
	0927	02/04/88	0001	WU	N			5.5		1.5	1.0
	0927	04/26/88	0001	WU	N			3.3		1.5	1.0
	0927	08/26/88	0001	WU	N			5.5		1.5	1.1
	0928	09/20/87	0001	WU	N			8.8		1.5	1.3
	0928	02/03/88	0001	WU	N			8.6		1.5	1.1
	0928	04/22/88	0001	WU	N			7.3		1.5	1.1
	0928	08/04/88	0001	WU	N			1.3		1.5	1.1
	0929	09/20/87	0001	WU	N			0.4		1.5	1.0
	0929	02/03/88	0001	WU	N			0.0		1.5	0.8

FORMATION OF COMPLETION CODE:
WU - WASATCH - UPPER SANDSTONE

FLOW RELATIONSHIP CODE:
N - UNKNOWN

PARAMETER VALUE INDICATOR (PVI): < - LESS THAN DETECTION LIMIT

SAMPLE ID CODES:
0001 - FILTERED SAMPLE (.45 MICRONS)

GROUNDWATER QUALITY DATA BY PARAMETER
 UPPER SANDSTONE UNIT
 SITE: SPK01 SPOOK
 02/17/87 TO 12/10/88
 REPORT DATE: 07/29/94

PARAMETER NAME	LOCATION ID	LOG DATE	SAMPLE ID	FORM COMP	FLOW REL.	UNITS OF MEASURE	PVI	PARAMETER VALUE	FLAGS	DETECTION LIMIT	PARAMETER UNCERTAINTY
LEAD-210	0929	04/28/88	0001	WU	N	PCI/L		0.7	J	1.5	1.2
	0929	08/11/88	0001	WU	N			0.5		1.5	0.8
	0930	09/20/87	0001	WU	N			0.9		1.5	1.1
	0930	01/30/88	0001	WU	N			1.4		1.5	1.0
	0930	04/26/88	0001	WU	N			2.1		1.5	1.4
	0930	08/27/88	0001	WU	N			1.6		1.5	0.9
	0931	01/30/88	0001	WU	N			0.9		1.5	0.8
	0931	04/28/88	0001	WU	N			0.7		1.5	1.1
	0931	08/10/88	0001	WU	N			13.		1.5	1.
	0932	01/30/88	0001	WU	N			24.		1.5	1.
	0932	04/28/88	0001	WU	N			21.		1.5	2.
	0932	08/09/88	0001	WU	N			29.		1.5	2.
	0933	08/10/88	0001	WU	N			2.9		1.5	1.6
	0934	08/11/88	0001	WU	N			2.4		1.5	1.3
	0935	08/09/88	0001	WU	N			7.2		1.5	1.5
	0936	08/08/88	0001	WU	N			3.4		1.5	1.2
	0937	08/08/88	0001	WU	N			5.2		1.5	1.2
	0939	08/08/88	0001	WU	N			1.8		1.5	1.2
	0940	08/08/88	0001	WU	N			20.		1.5	2.
	0941	08/08/88	0001	WU	N			0.8		1.5	1.0
	0942	08/08/88	0001	WU	N			2.2		1.5	1.2
	0943	08/09/88	0001	WU	N			1.9		1.5	1.2
	0944	08/11/88	0001	WU	N			1.0		1.5	0.7
MAGNESIUM	0911	02/17/87	0001	WU	N	MG/L		48.3		0.001	-
	0911	09/18/87	0001	WU	N			21.3		0.001	-
	0911	01/30/88	0001	WU	N			23.4		0.001	-
	0911	04/22/88	0001	WU	N			22.8		0.001	-
	0911	08/11/88	0001	WU	N			22.7		0.001	-
	0911	12/10/88	0001	WU	N			23.4		0.001	-
	0912	02/18/87	0001	WU	N			5.25		0.001	-
	0912	02/03/88	0001	WU	N			11.3		0.001	-
	0912	04/22/88	0001	WU	N			10.3		0.001	-
	0912	08/27/88	0001	WU	N			10.7		0.001	-
	0912	12/04/88	0001	WU	N			10.7		0.001	-
	0913	02/18/87	0001	WU	N			39.4		0.001	-
	0913	09/18/87	0001	WU	N			44.8		0.001	-
	0913	02/03/88	0001	WU	N			49.6		0.001	-
	0913	04/22/88	0001	WU	N			46.3		0.001	-
	0913	08/04/88	0001	WU	N			48.7		0.001	-

FORMATION OF COMPLETION CODE:
 WU - WASATCH - UPPER SANDSTONE

FLOW RELATIONSHIP CODE:
 N - UNKNOWN

PARAMETER VALUE INDICATOR (PVI): < - LESS THAN DETECTION LIMIT

SAMPLE ID CODES:
 0001 - FILTERED SAMPLE (.45 MICRONS)

OTHER PARAMETER VALUE FLAGS:
 J - ESTIMATED VALUE

GROUNDWATER QUALITY DATA BY PARAMETER
 UPPER SANDSTONE UNIT
 SITE: SPK01 SPOOK
 02/17/87 TO 12/10/88
 REPORT DATE: 07/29/94

PARAMETER NAME	LOCATION	ID	LOG DATE	SAMPLE ID	FORM	FLOW	REL.	UNITS OF MEASURE	PVI VALUE	FLAGS	DETECTION LIMIT	PARAMETER UNCERTAINTY
MAGNESIUM	0913	12/10/88	0001	WU	N	MG/L		47.8			0.001	-
	0916	02/20/87	0001	WU	N			70.9			0.001	-
	0916	09/20/87	0001	WU	N			76.5			0.001	-
	0916	02/03/88	0001	WU	N			90.6			0.001	-
	0916	04/22/88	0001	WU	N			84.7			0.001	-
	0916	08/04/88	0001	WU	N			91.9			0.001	-
	0916	12/07/88	0001	WU	N			83.8			0.001	-
	0917	02/19/87	0001	WU	N			28.6			0.001	-
	0917	09/20/87	0001	WU	N			33.3			0.001	-
	0917	01/30/88	0001	WU	N			32.2			0.001	-
	0917	04/22/88	0001	WU	N			32.0			0.001	-
	0917	08/27/88	0001	WU	N			34.6			0.001	-
	0917	12/07/88	0001	WU	N			32.9			0.001	-
	0918	02/20/87	0001	WU	N			22.9			0.001	-
	0918	09/20/87	0001	WU	N			25.5			0.001	-
	0918	02/03/88	0001	WU	N			24.1			0.001	-
	0918	04/22/88	0001	WU	N			25.0			0.001	-
	0918	08/26/88	0001	WU	N			25.5			0.001	-
	0918	12/04/88	0001	WU	N			23.9			0.001	-
	0920	09/20/87	0001	WU	N			278.			0.001	-
	0920	01/30/88	0001	WU	N			265.			0.001	-
	0920	04/26/88	0001	WU	N			289.			0.001	-
	0920	08/27/88	0001	WU	N			283.			0.001	-
	0920	12/10/88	0001	WU	N			269.			0.001	-
	0922	09/20/87	0001	WU	N			31.6			0.001	-
	0922	02/03/88	0001	WU	N			26.3			0.001	-
	0922	04/26/88	0001	WU	N			29.7			0.001	-
	0922	08/08/88	0001	WU	N			32.9			0.001	-
	0922	12/10/88	0001	WU	N			29.4			0.001	-
	0924	09/20/87	0001	WU	N			41.6			0.001	-
	0924	02/04/88	0001	WU	N			47.4			0.001	-
	0924	04/26/88	0001	WU	N			45.6			0.001	-
	0924	08/26/88	0001	WU	N			48.8			0.001	-
	0924	12/07/88	0001	WU	N			47.3			0.001	-
	0925	09/20/87	0001	WU	N			18.8			0.001	-
	0925	02/03/88	0001	WU	N			20.3			0.001	-
	0925	04/26/88	0001	WU	N			19.6			0.001	-
	0925	08/26/88	0001	WU	N			20.4			0.001	-
	0925	12/07/88	0001	WU	N			20.0			0.001	-
	0927	09/20/87	0001	WU	N			80.7			0.001	-
	0927	02/04/88	0001	WU	N			85.3			0.001	-

FORMATION OF COMPLETION CODE:
 WU - WASATCH - UPPER SANDSTONE
 N - UNKNOWN
 FLOW RELATIONSHIP CODE:

PARAMETER VALUE INDICATOR (PVI):
 > - LESS THAN DETECTION LIMIT
 SAMPLE ID CODES:
 0001 - FILTERED SAMPLE (.45 MICRONS)

GROUNDWATER QUALITY DATA BY PARAMETER
 UPPER SANDSTONE UNIT
 SITE: SPK01 SPOOK
 02/17/87 TO 12/10/88
 REPORT DATE: 07/29/94

PARAMETER NAME	LOCATION ID	LOG DATE	SAMPLE ID	FORM COMP REL.	UNITS OF MEASURE	PVI	PARAMETER VALUE	FLAGS	DETECTION LIMIT	PARAMETER UNCERTAINTY
MAGNESIUM	0927	04/26/88	0001	WU	MG/L		85.4		0.001	-
	0927	08/26/88	0001	WU			91.6		0.001	-
	0927	12/04/88	0001	WU			85.0		0.001	-
	0928	09/20/87	0001	WU			86.6		0.001	-
	0928	02/03/88	0001	WU			82.2		0.001	-
	0928	04/22/88	0001	WU			83.9		0.001	-
	0928	08/04/88	0001	WU			89.6		0.001	-
	0928	12/04/88	0001	WU			83.2		0.001	-
	0929	09/20/87	0001	WU			36.7		0.001	-
	0929	02/03/88	0001	WU			17.3		0.001	-
	0929	04/28/88	0001	WU			19.0	J	0.001	-
	0929	08/11/88	0001	WU			19.4		0.001	-
	0930	09/20/87	0001	WU			195.		0.001	-
	0930	01/30/88	0001	WU			238.		0.001	-
	0930	04/26/88	0001	WU			231.		0.001	-
	0930	08/27/88	0001	WU			219.		0.001	-
	0931	01/30/88	0001	WU			19.3		0.001	-
	0931	04/28/88	0001	WU			20.1		0.001	-
	0931	08/10/88	0001	WU			20.2		0.001	-
	0932	12/04/88	0001	WU			18.6		0.001	-
	0932	01/30/88	0001	WU			30.0		0.001	-
	0932	04/28/88	0001	WU			31.7		0.001	-
	0932	08/09/88	0001	WU			31.3		0.001	-
	0932	12/07/88	0001	WU			30.6		0.001	-
	0933	08/10/88	0001	WU			21.0		0.001	-
	0933	12/07/88	0001	WU			20.4		0.001	-
	0934	08/11/88	0001	WU			21.7		0.001	-
	0934	12/07/88	0001	WU			21.2		0.001	-
	0935	08/09/88	0001	WU			291.		0.001	-
	0935	12/04/88	0001	WU			324.		0.001	-
	0936	08/08/88	0001	WU			42.0		0.001	-
	0936	12/04/88	0001	WU			44.5		0.001	-
	0937	08/08/88	0001	WU			29.5		0.001	-
	0937	12/04/88	0001	WU			21.0		0.001	-
	0939	08/08/88	0001	WU			45.3		0.001	-
	0939	12/04/88	0001	WU			62.3		0.001	-
	0940	08/08/88	0001	WU			143.		0.001	-
	0941	08/08/88	0001	WU			140.		0.001	-
	0941	08/08/88	0001	WU			10.3		0.001	-
	0941	12/10/88	0001	WU			10.4		0.001	-

FORMATION OF COMPLETION CODE:
 WU - WASATCH - UPPER SANDSTONE

FLOW RELATIONSHIP CODE:
 N - UNKNOWN

PARAMETER VALUE INDICATOR (PVI): < - LESS THAN DETECTION LIMIT

SAMPLE ID CODES:
 0001 - FILTERED SAMPLE (.45 MICRONS)

OTHER PARAMETER VALUE FLAGS:
 J - ESTIMATED VALUE

GROUNDWATER QUALITY DATA BY PARAMETER
 UPPER SANDSTONE UNIT
 SITE: SPK01 SPOOK
 02/17/87 TO 12/10/88
 REPORT DATE: 07/29/94

PARAMETER NAME	LOCATION ID	LOG DATE	SAMPLE ID	FORM COMP	FLOW REL.	UNITS OF MEASURE	PVI	PARAMETER VALUE	FLAGS	DETECTION LIMIT	PARAMETER UNCERTAINTY
MAGNESIUM	0942	08/08/88	0001	WU	N	MG/L		23.3		0.001	-
	0942	12/04/88	0001	WU	N			20.5		0.001	-
	0943	08/09/88	0001	WU	N			15.7		0.001	-
	0943	12/07/88	0001	WU	N			15.3		0.001	-
	0944	08/11/88	0001	WU	N			36.3		0.001	-
	0944	12/07/88	0001	WU	N			35.0		0.001	-
MANGANESE	0911	02/17/87	0001	WU	N	MG/L		0.40		0.01	-
	0911	09/18/87	0001	WU	N			0.10		0.01	-
	0911	01/30/88	0001	WU	N			0.10		0.01	-
	0911	04/22/88	0001	WU	N			0.09		0.01	-
	0911	08/11/88	0001	WU	N			0.10		0.01	-
	0911	12/10/88	0001	WU	N			0.09		0.01	-
	0912	02/18/87	0001	WU	N			0.02		0.01	-
	0912	02/03/88	0001	WU	N			0.01		0.01	-
	0912	04/22/88	0001	WU	N			0.02		0.01	-
	0912	08/27/88	0001	WU	N			0.08		0.01	-
	0912	12/04/88	0001	WU	N			0.06		0.01	-
	0913	02/18/87	0001	WU	N			0.03		0.01	-
	0913	09/18/87	0001	WU	N			0.03		0.01	-
	0913	02/03/88	0001	WU	N			0.02		0.01	-
	0913	04/22/88	0001	WU	N			0.02		0.01	-
	0913	08/04/88	0001	WU	N			0.03		0.01	-
	0913	12/10/88	0001	WU	N			0.02		0.01	-
	0916	02/20/87	0001	WU	N			0.03		0.01	-
	0916	09/20/87	0001	WU	N			0.04		0.01	-
	0916	02/03/88	0001	WU	N			0.02		0.01	-
	0916	04/22/88	0001	WU	N			0.03		0.01	-
	0916	08/04/88	0001	WU	N			0.03		0.01	-
	0916	12/07/88	0001	WU	N			0.03		0.01	-
	0917	02/19/87	0001	WU	N		<	0.01		0.01	-
	0917	09/20/87	0001	WU	N			0.01		0.01	-
	0917	01/30/88	0001	WU	N			0.01		0.01	-
	0917	04/22/88	0001	WU	N			0.01		0.01	-
	0917	08/27/88	0001	WU	N			0.01		0.01	-
	0917	12/07/88	0001	WU	N			0.01		0.01	-
	0918	02/20/87	0001	WU	N			0.04		0.01	-
	0918	09/20/87	0001	WU	N			0.01		0.01	-
	0918	02/03/88	0001	WU	N			0.01		0.01	-
	0918	04/22/88	0001	WU	N			0.01		0.01	-
	0918	08/26/88	0001	WU	N			0.01		0.01	-

FORMATION OF COMPLETION CODE:
 WU - WASATCH - UPPER SANDSTONE

FLOW RELATIONSHIP CODE:
 N - UNKNOWN

PARAMETER VALUE INDICATOR (PVI): < - LESS THAN DETECTION LIMIT

SAMPLE ID CODES:
 0001 - FILTERED SAMPLE (.45 MICRONS)

GROUNDWATER QUALITY DATA BY PARAMETER
UPPER SANDSTONE UNIT
SITE: SPK01 SPOOK
02/17/87 TO 12/10/88
REPORT DATE: 07/29/94

PARAMETER NAME	LOCATION ID	LOG DATE	SAMPLE ID	FORM COMP	FLOW REL.	UNITS OF MEASURE	PVI	PARAMETER VALUE	FLAGS	DETECTION LIMIT	PARAMETER UNCERTAINTY
MANGANESE	0918	12/04/88	0001	WU	N	MG/L	<	0.01		0.01	-
	0920	09/20/87	0001	WU	N			15.0		0.01	-
	0920	01/30/88	0001	WU	N			14.2		0.01	-
	0920	04/26/88	0001	WU	N			15.1		0.01	-
	0920	08/27/88	0001	WU	N			15.6		0.01	-
	0920	12/10/88	0001	WU	N			14.7		0.01	-
	0922	09/20/87	0001	WU	N			0.39		0.01	-
	0922	02/03/88	0001	WU	N			0.25		0.01	-
	0922	04/26/88	0001	WU	N			0.26		0.01	-
	0922	08/08/88	0001	WU	N			0.18		0.01	-
	0922	12/10/88	0001	WU	N			0.22		0.01	-
	0924	09/20/87	0001	WU	N			0.13		0.01	-
	0924	02/04/88	0001	WU	N			0.14		0.01	-
	0924	04/26/88	0001	WU	N			0.14		0.01	-
	0924	08/26/88	0001	WU	N			0.13		0.01	-
	0924	12/07/88	0001	WU	N			0.12		0.01	-
	0925	09/20/87	0001	WU	N			0.04		0.01	-
	0925	02/03/88	0001	WU	N			0.02		0.01	-
	0925	04/26/88	0001	WU	N			0.01		0.01	-
	0925	08/26/88	0001	WU	N			0.01		0.01	-
	0925	12/07/88	0001	WU	N		<	0.01		0.01	-
	0927	09/20/87	0001	WU	N			0.16		0.01	-
	0927	02/04/88	0001	WU	N			0.15		0.01	-
	0927	04/26/88	0001	WU	N			0.15		0.01	-
	0927	08/26/88	0001	WU	N			0.14		0.01	-
	0927	12/04/88	0001	WU	N			0.15		0.01	-
	0928	09/20/87	0001	WU	N			0.02		0.01	-
	0928	02/03/88	0001	WU	N			0.15		0.01	-
	0928	04/22/88	0001	WU	N			0.02		0.01	-
	0928	08/04/88	0001	WU	N			0.02		0.01	-
	0928	12/04/88	0001	WU	N			0.02		0.01	-
	0929	09/20/87	0001	WU	N			0.04		0.01	-
	0929	02/03/88	0001	WU	N			0.044		0.01	-
	0929	04/28/88	0001	WU	N			0.05	J	0.01	-
	0929	08/11/88	0001	WU	N			0.07		0.01	-
	0930	09/20/87	0001	WU	N			9.82		0.01	-
	0930	01/30/88	0001	WU	N			19.0		0.01	-
	0930	04/26/88	0001	WU	N			17.5		0.01	-
	0930	08/27/88	0001	WU	N			12.7		0.01	-
	0931	01/30/88	0001	WU	N			0.023		0.01	-

FORMATION OF COMPLETION CODE:
WU - WASATCH - UPPER SANDSTONE

FLOW RELATIONSHIP CODE:
N - UNKNOWN

PARAMETER VALUE INDICATOR (PVI): < - LESS THAN DETECTION LIMIT

SAMPLE ID CODES:
0001 - FILTERED SAMPLE (.45 MICRONS)

OTHER PARAMETER VALUE FLAGS:
J - ESTIMATED VALUE

GROUNDWATER QUALITY DATA BY PARAMETER
 UPPER SANDSTONE UNIT
 SITE: SPK01 SPOOK
 02/17/87 TO 12/10/88
 REPORT DATE: 07/29/94

PARAMETER NAME	LOCATION ID	LOG DATE	SAMPLE ID	FORM FLOW COMP REL.	UNITS OF MEASURE	PVI	PARAMETER VALUE	FLAGS	DETECTION LIMIT	PARAMETER UNCERTAINTY
MANGANESE	0931	04/28/88	0001	WU	MG/L	<	0.01		0.01	-
	0931	08/10/88	0001	WU	N	<	0.01		0.01	-
	0931	12/04/88	0001	WU	N	<	0.01		0.01	-
	0932	01/30/88	0001	WU	N		0.140		0.01	-
	0932	04/28/88	0001	WU	N		0.11		0.01	-
	0932	08/09/88	0001	WU	N		0.10		0.01	-
	0932	12/07/88	0001	WU	N		0.10		0.01	-
	0933	08/10/88	0001	WU	N		0.05		0.01	-
	0933	12/07/88	0001	WU	N	<	0.01		0.01	-
	0934	08/11/88	0001	WU	N		0.06		0.01	-
	0934	12/07/88	0001	WU	N		0.03		0.01	-
	0935	08/09/88	0001	WU	N		26.7		0.01	-
	0935	12/04/88	0001	WU	N		27.7		0.01	-
	0936	08/08/88	0001	WU	N		0.08		0.01	-
	0936	12/04/88	0001	WU	N		0.06		0.01	-
	0937	08/08/88	0001	WU	N		0.14		0.01	-
	0937	12/04/88	0001	WU	N		0.08		0.01	-
	0939	08/08/88	0001	WU	N		0.17		0.01	-
	0939	12/04/88	0001	WU	N		0.39		0.01	-
	0940	08/08/88	0001	WU	N		5.02		0.01	-
	0940	12/04/88	0001	WU	N		5.35		0.01	-
	0941	08/08/88	0001	WU	N	<	0.01		0.01	-
	0941	12/10/88	0001	WU	N		0.01		0.01	-
	0942	08/08/88	0001	WU	N		0.09		0.01	-
	0942	12/04/88	0001	WU	N		0.03		0.01	-
	0943	08/09/88	0001	WU	N		0.03		0.01	-
	0943	12/07/88	0001	WU	N		0.01		0.01	-
	0944	08/11/88	0001	WU	N		0.02		0.01	-
	0944	12/07/88	0001	WU	N		0.03		0.01	-
MERCURY	0911	02/17/87	0001	WU	MG/L	<	0.0002		0.0002	-
	0911	09/18/87	0001	WU	N	<	0.0002		0.0002	-
	0911	01/30/88	0001	WU	N		0.0004		0.0002	-
	0911	04/22/88	0001	WU	N	<	0.0002		0.0002	-
	0911	08/11/88	0001	WU	N	<	0.0002		0.0002	-
	0912	02/18/87	0001	WU	N	<	0.0002		0.0002	-
	0912	02/03/88	0001	WU	N		0.0003		0.0002	-
	0912	04/22/88	0001	WU	N	<	0.0002		0.0002	-
	0912	08/27/88	0001	WU	N	<	0.0002		0.0002	-
	0913	02/18/87	0001	WU	N	<	0.0002		0.0002	-
	0913	09/18/87	0001	WU	N	<	0.0002		0.0002	-
	0913		0001	WU	N					-

FORMATION OF COMPLETION CODE:
 WU - WASATCH - UPPER SANDSTONE

FLOW RELATIONSHIP CODE:
 N - UNKNOWN

PARAMETER VALUE INDICATOR (PVI): < - LESS THAN DETECTION LIMIT

SAMPLE ID CODES:
 0001 - FILTERED SAMPLE (.45 MICRONS)

GROUNDWATER QUALITY DATA BY PARAMETER

UPPER SANDSTONE UNIT
SITE: SPK01 SPOOK
02/17/87 TO 12/10/88
REPORT DATE: 07/29/94

PARAMETER NAME	LOCATION	ID	LOG DATE	SAMPLE ID	FORM	FLOW	REL.	UNITS OF MEASURE	PARAMETER VALUE	FLAGS	DETECTION LIMIT	PARAMETER UNCERTAINTY
MERCURY		0913	02/03/88	0001	MU	N		MG/L	0.0004		0.0002	-
		0913	04/22/88	0001	MU	N			0.0002		0.0002	-
		0916	02/03/88	0001	MU	N			0.0002		0.0002	-
		0916	08/04/88	0001	MU	N			0.0002		0.0002	-
		0916	04/22/88	0001	MU	N			0.0002		0.0002	-
		0916	02/03/88	0001	MU	N			0.0005		0.0002	-
		0916	09/20/87	0001	MU	N			0.0002		0.0002	-
		0916	02/20/87	0001	MU	N			0.0002		0.0002	-
		0917	08/27/88	0001	MU	N			0.0002		0.0002	-
		0917	04/22/88	0001	MU	N			0.0002		0.0002	-
		0917	01/30/88	0001	MU	N			0.0004		0.0002	-
		0917	09/20/87	0001	MU	N			0.0002		0.0002	-
		0917	02/19/87	0001	MU	N			0.0002		0.0002	-
		0918	02/20/87	0001	MU	N			0.0002		0.0002	-
		0918	09/20/87	0001	MU	N			0.0002		0.0002	-
		0918	02/03/88	0001	MU	N			0.0004		0.0002	-
		0918	04/22/88	0001	MU	N			0.0002		0.0002	-
		0918	08/26/88	0001	MU	N			0.0002		0.0002	-
		0920	09/20/87	0001	MU	N			0.0002		0.0002	-
		0920	04/26/88	0001	MU	N			0.0004		0.0002	-
		0920	08/27/88	0001	MU	N			0.0002		0.0002	-
		0922	09/20/87	0001	MU	N			0.0002		0.0002	-
		0922	02/03/88	0001	MU	N			0.0003		0.0002	-
		0922	04/26/88	0001	MU	N			0.0005		0.0002	-
		0922	08/08/88	0001	MU	N			0.0002		0.0002	-
		0924	09/20/87	0001	MU	N			0.0002		0.0002	-
		0924	08/26/88	0001	MU	N			0.0002		0.0002	-
		0924	02/04/88	0001	MU	N			0.0003		0.0002	-
		0924	04/26/88	0001	MU	N			0.0005		0.0002	-
		0924	09/20/87	0001	MU	N			0.0002		0.0002	-
		0925	09/20/87	0001	MU	N			0.0002		0.0002	-
		0925	02/03/88	0001	MU	N			0.0002		0.0002	-
		0925	04/26/88	0001	MU	N			0.0005		0.0002	-
		0925	08/26/88	0001	MU	N			0.0002		0.0002	-
		0927	09/20/87	0001	MU	N			0.0002		0.0002	-
		0927	02/04/88	0001	MU	N			0.0002		0.0002	-
		0927	04/26/88	0001	MU	N			0.0004		0.0002	-
		0927	08/26/88	0001	MU	N			0.0002		0.0002	-
		0928	09/20/87	0001	MU	N			0.0002		0.0002	-
		0928	02/03/88	0001	MU	N			0.0002		0.0002	-
		0928	04/22/88	0001	MU	N			0.0005		0.0002	-

FORMATION OF COMPLETION CODE:
MU - MASATCH - UPPER SANDSTONE

FLOW RELATIONSHIP CODE:
N - UNKNOWN

PARAMETER VALUE INDICATOR (PVI): > - LESS THAN DETECTION LIMIT

SAMPLE ID CODES:
0001 - FILTERED SAMPLE (.45 MICRONS)

GROUNDWATER QUALITY DATA BY PARAMETER
UPPER SANDSTONE UNIT
SITE: SPK01 SPOOK
02/17/87 TO 12/10/88
REPORT DATE: 07/29/94

PARAMETER NAME	LOCATION ID	LOG DATE	SAMPLE ID	FORM COMP REL.	UNITS OF MEASURE	PVI VALUE	PARAMETER FLAGS	DETECTION LIMIT	PARAMETER UNCERTAINTY
MERCURY	0928	08/04/88	0001	WU	MG/L	<	0.0002	0.0002	-
	0929	09/20/87	0001	WU	N	<	0.0002	0.0002	-
	0929	02/03/88	0001	WU	N	<	0.0002	0.0002	-
	0929	04/28/88	0001	WU	N	<	0.0002 J	0.0002	-
	0929	08/11/88	0001	WU	N	<	0.0002	0.0002	-
	0930	09/20/87	0001	WU	N	<	0.0002	0.0002	-
	0930	01/30/88	0001	WU	N	<	0.0002	0.0002	-
	0930	04/26/88	0001	WU	N	<	0.0004	0.0002	-
	0930	08/27/88	0001	WU	N	<	0.0002	0.0002	-
	0931	01/30/88	0001	WU	N	<	0.0002	0.0002	-
	0931	04/28/88	0001	WU	N	<	0.0004	0.0002	-
	0931	08/10/88	0001	WU	N	<	0.0002	0.0002	-
	0932	01/30/88	0001	WU	N	<	0.0002	0.0002	-
	0932	04/28/88	0001	WU	N	<	0.0002	0.0002	-
	0932	08/09/88	0001	WU	N	<	0.0002	0.0002	-
	0933	08/10/88	0001	WU	N	<	0.0002	0.0002	-
	0934	08/11/88	0001	WU	N	<	0.0002	0.0002	-
	0935	08/09/88	0001	WU	N	<	0.0002	0.0002	-
	0936	08/08/88	0001	WU	N	<	0.0002	0.0002	-
	0937	08/08/88	0001	WU	N	<	0.0002	0.0002	-
	0939	08/08/88	0001	WU	N	<	0.0002	0.0002	-
	0940	08/08/88	0001	WU	N	<	0.0002	0.0002	-
	0941	08/08/88	0001	WU	N	<	0.0002	0.0002	-
	0942	08/08/88	0001	WU	N	<	0.0002	0.0002	-
	0943	08/09/88	0001	WU	N	<	0.0002	0.0002	-
	0944	08/11/88	0001	WU	N	<	0.0002	0.0002	-
MOLYBDENUM	0911	02/17/87	0001	WU	MG/L	<	0.1	0.1	-
	0911	09/18/87	0001	WU	N	<	0.05	0.01	-
	0911	01/30/88	0001	WU	N	<	0.02	0.01	-
	0911	04/22/88	0001	WU	N	<	0.03	0.01	-
	0911	08/11/88	0001	WU	N	<	0.02	0.01	-
	0911	12/10/88	0001	WU	N	<	0.03	0.01	-
	0912	02/18/87	0001	WU	N	<	0.1	0.1	-
	0912	02/03/88	0001	WU	N	<	0.01	0.01	-
	0912	04/22/88	0001	WU	N	<	0.01	0.01	-
	0912	08/27/88	0001	WU	N	<	0.01	0.01	-
	0912	12/04/88	0001	WU	N	<	0.01	0.01	-
	0913	02/18/87	0001	WU	N	<	0.1	0.1	-
	0913	09/18/87	0001	WU	N	<	0.01	0.01	-

FORMATION OF COMPLETION CODE:
WU - WASATCH - UPPER SANDSTONE

FLOW RELATIONSHIP CODE:
N - UNKNOWN

PARAMETER VALUE INDICATOR (PVI): < - LESS THAN DETECTION LIMIT

SAMPLE ID CODES:
0001 - FILTERED SAMPLE (<.45 MICRONS)

OTHER PARAMETER VALUE FLAGS:
J - ESTIMATED VALUE

GROUNDWATER QUALITY DATA BY PARAMETER
 UPPER SANDSTONE UNIT
 SITE: SPK01 SPOOK
 02/17/87 TO 12/10/88
 REPORT DATE: 07/29/94

PARAMETER NAME	LOCATION ID	LOG DATE	SAMPLE ID	FORM COMP REL.	UNITS OF MEASURE	PVI	PARAMETER VALUE	FLAGS	DETECTION LIMIT	PARAMETER UNCERTAINTY
MOLYBDENUM	0913	02/03/88	0001	WU	MG/L		0.03		0.01	-
	0913	04/22/88	0001	WU			0.02		0.01	-
	0913	08/04/88	0001	WU			0.01		0.01	-
	0913	12/10/88	0001	WU			0.02		0.01	-
	0916	02/20/87	0001	WU			0.2		0.01	-
	0916	09/20/87	0001	WU		<	0.01		0.01	-
	0916	02/03/88	0001	WU			0.06		0.01	-
	0916	04/22/88	0001	WU			0.04		0.01	-
	0916	08/04/88	0001	WU			0.02		0.01	-
	0916	12/07/88	0001	WU			0.05		0.01	-
	0917	02/19/87	0001	WU			0.1		0.01	-
	0917	09/20/87	0001	WU		<	0.01		0.01	-
	0917	01/30/88	0001	WU			0.02		0.01	-
	0917	04/22/88	0001	WU			0.02		0.01	-
	0917	08/27/88	0001	WU			0.02		0.01	-
	0917	12/07/88	0001	WU			0.02		0.01	-
	0918	02/20/87	0001	WU		<	0.1		0.1	-
	0918	09/20/87	0001	WU		<	0.01		0.01	-
	0918	02/03/88	0001	WU			0.01		0.01	-
	0918	04/22/88	0001	WU			0.01		0.01	-
	0918	08/26/88	0001	WU		<	0.01		0.01	-
	0918	12/04/88	0001	WU			0.01		0.01	-
	0920	09/20/87	0001	WU			0.02		0.01	-
	0920	01/30/88	0001	WU			0.18		0.01	-
	0920	04/26/88	0001	WU			0.09		0.01	-
	0920	08/27/88	0001	WU			0.08		0.01	-
	0920	12/10/88	0001	WU		<	0.09		0.01	-
	0922	09/20/87	0001	WU			0.01		0.01	-
	0922	02/03/88	0001	WU			0.04		0.01	-
	0922	04/26/88	0001	WU		<	0.02		0.01	-
	0922	08/08/88	0001	WU			0.01		0.01	-
	0922	12/10/88	0001	WU		<	0.01		0.01	-
	0924	09/20/87	0001	WU			0.01		0.01	-
	0924	02/04/88	0001	WU			0.05		0.01	-
	0924	04/26/88	0001	WU			0.03		0.01	-
	0924	08/26/88	0001	WU			0.02		0.01	-
	0924	12/07/88	0001	WU			0.03		0.01	-
	0925	09/20/87	0001	WU		<	0.01		0.01	-
	0925	02/03/88	0001	WU			0.03		0.01	-
	0925	04/26/88	0001	WU			0.02		0.01	-
	0925	08/26/88	0001	WU			0.02		0.01	-

FORMATION OF COMPLETION CODE:
 WU - WASATCH - UPPER SANDSTONE

FLOW RELATIONSHIP CODE:
 N - UNKNOWN

PARAMETER VALUE INDICATOR (PVI): < - LESS THAN DETECTION LIMIT

SAMPLE ID CODES:
 0001 - FILTERED SAMPLE (.45 MICRONS)

GROUNDWATER QUALITY DATA BY PARAMETER
 UPPER SANDSTONE UNIT
 SITE: SPK01 SPOOK
 02/17/87 TO 12/10/88
 REPORT DATE: 07/29/94

PARAMETER NAME	LOCATION ID	LOG DATE	SAMPLE ID	FORM COMP REL.	UNITS OF MEASURE	PVI	PARAMETER VALUE	FLAGS	DETECTION LIMIT	PARAMETER UNCERTAINTY
MOLYBDENUM	0925	12/07/88	0001	WU	MG/L		0.02		0.01	-
	0927	09/20/87	0001	WU		<	0.01		0.01	-
	0927	02/04/88	0001	WU			0.07		0.01	-
	0927	04/26/88	0001	WU			0.04		0.01	-
	0927	08/26/88	0001	WU			0.03		0.01	-
	0927	12/04/88	0001	WU			0.04		0.01	-
	0928	09/20/87	0001	WU		<	0.01		0.01	-
	0928	02/03/88	0001	WU			0.07		0.01	-
	0928	04/22/88	0001	WU			0.03		0.01	-
	0928	08/04/88	0001	WU			0.02		0.01	-
	0928	12/04/88	0001	WU			0.04		0.01	-
	0929	09/20/87	0001	WU			0.03		0.01	-
	0929	02/03/88	0001	WU			0.01	J	0.01	-
	0929	04/28/88	0001	WU			0.02		0.01	-
	0929	08/11/88	0001	WU			0.01		0.01	-
	0930	09/20/87	0001	WU			0.02		0.01	-
	0930	01/30/88	0001	WU			0.12		0.01	-
	0930	04/26/88	0001	WU			0.07		0.01	-
	0930	08/27/88	0001	WU			0.06		0.01	-
	0931	01/30/88	0001	WU			0.01		0.01	-
	0931	04/28/88	0001	WU			0.02		0.01	-
	0931	08/10/88	0001	WU			0.01		0.01	-
	0931	12/04/88	0001	WU			0.01		0.01	-
	0932	01/30/88	0001	WU			0.02		0.01	-
	0932	04/28/88	0001	WU			0.02		0.01	-
	0932	08/09/88	0001	WU		<	0.01		0.01	-
	0932	12/07/88	0001	WU			0.02		0.01	-
	0933	08/10/88	0001	WU		<	0.01		0.01	-
	0933	12/07/88	0001	WU			0.01		0.01	-
	0934	08/11/88	0001	WU			0.01		0.01	-
	0934	12/07/88	0001	WU		<	0.02		0.01	-
	0935	08/09/88	0001	WU			0.05		0.01	-
	0935	12/04/88	0001	WU			0.10		0.01	-
	0936	08/08/88	0001	WU			0.02		0.01	-
	0936	12/04/88	0001	WU			0.02		0.01	-
	0937	08/08/88	0001	WU			0.03		0.01	-
	0937	12/04/88	0001	WU			0.02		0.01	-
	0939	08/08/88	0001	WU			0.07		0.01	-
	0939	12/04/88	0001	WU			0.07		0.01	-
	0940	08/08/88	0001	WU			0.03		0.01	-

FORMATION OF COMPLETION CODE:
 WU - WASATCH - UPPER SANDSTONE

FLOW RELATIONSHIP CODE:
 N - UNKNOWN

PARAMETER VALUE INDICATOR (PVI):
 < - LESS THAN DETECTION LIMIT

SAMPLE ID CODES:
 0001 - FILTERED SAMPLE (.45 MICRONS)

OTHER PARAMETER VALUE FLAGS:
 J - ESTIMATED VALUE

GROUNDWATER QUALITY DATA BY PARAMETER
 UPPER SANDSTONE UNIT
 SITE: SPK01 SPOOK
 02/17/87 TO 12/10/88
 REPORT DATE: 07/29/94

PARAMETER NAME	LOCATION ID	LOG DATE	SAMPLE ID	FORM COMP	FLOW REL.	UNITS OF MEASURE	PVI	PARAMETER VALUE	FLAGS	DETECTION LIMIT	PARAMETER UNCERTAINTY
MOLYBDENUM	0940	12/04/88	0001	WU	N	MG/L		0.06		0.01	-
	0941	08/08/88	0001	WU	N		<	0.01		0.01	-
	0941	12/10/88	0001	WU	N		<	0.01		0.01	-
	0942	08/08/88	0001	WU	N			0.02		0.01	-
	0942	12/04/88	0001	WU	N			0.02		0.01	-
	0943	08/09/88	0001	WU	N		<	0.01		0.01	-
	0943	12/07/88	0001	WU	N			0.02		0.01	-
	0944	08/11/88	0001	WU	N		<	0.01		0.01	-
	0944	12/07/88	0001	WU	N			0.02		0.01	-
NET GROSS ALPHA *	0911	09/18/87	0001	WU	N	PCI/L		-254.80		-	-
	0911	01/30/88	0001	WU	N			-203.06		-	-
	0911	04/22/88	0001	WU	N			6.60		-	-
	0911	08/11/88	0001	WU	N			106.46		-	-
	0911	12/10/88	0001	WU	N			44.38		-	-
	0912	02/03/88	0001	WU	N			-36.40		-	-
	0912	04/22/88	0001	WU	N			119.16		-	-
	0912	08/27/88	0001	WU	N			-106.22		-	-
	0912	12/04/88	0001	WU	N			38.19		-	-
	0913	09/18/87	0001	WU	N			-64.24		-	-
	0913	02/03/88	0001	WU	N			-1099.60		-	-
	0913	04/22/88	0001	WU	N			-290.62		-	-
	0913	08/04/88	0001	WU	N			3515.96		-	-
	0913	12/10/88	0001	WU	N			1327.84		-	-
	0916	09/20/87	0001	WU	N			-677.00		-	-
	0916	02/03/88	0001	WU	N			-2400.20		-	-
	0916	04/22/88	0001	WU	N			-2675.60		-	-
	0916	08/04/88	0001	WU	N			4597.40		-	-
	0916	12/07/88	0001	WU	N			-3392.00		-	-
	0917	09/20/87	0001	WU	N			-91.74		-	-
	0917	01/30/88	0001	WU	N			-174.06		-	-
	0917	04/22/88	0001	WU	N			184.00		-	-
	0917	08/27/88	0001	WU	N			-1160.34		-	-
	0917	12/07/88	0001	WU	N			-741.60		-	-
	0918	09/20/87	0001	WU	N			-34.46		-	-
	0918	02/03/88	0001	WU	N			-63.30		-	-
	0918	04/22/88	0001	WU	N			31.14		-	-
	0918	08/26/88	0001	WU	N			-189.34		-	-
	0918	12/04/88	0001	WU	N			-320.26		-	-

* NET GROSS ALPHA (GROSS ALPHA - URANIUM) WITH 1 MG URANIUM = 686 PCI

FORMATION OF COMPLETION CODE:
 WU - WASATCH - UPPER SANDSTONE

FLOW RELATIONSHIP CODE:
 N - UNKNOWN

PARAMETER VALUE INDICATOR (PVI): < - LESS THAN DETECTION LIMIT

SAMPLE ID CODES:
 0001 - FILTERED SAMPLE (.45 MICRONS)

GROUNDWATER QUALITY DATA BY PARAMETER
 UPPER SANDSTONE UNIT
 SITE: SPK01 SPOOK
 02/17/87 TO 12/10/88
 REPORT DATE: 07/29/94

PARAMETER NAME	LOCATION ID	LOG DATE	SAMPLE ID	FORM COMP	FLOW REL.	UNITS OF MEASURE	PVI	PARAMETER VALUE	FLAGS	DETECTION LIMIT	PARAMETER UNCERTAINTY
NET GROSS ALPHA *	0920	09/20/87	0001	WU	N	PCI/L		286.21		-	-
	0920	01/30/88	0001	WU	N			294.63		-	-
	0920	04/26/88	0001	WU	N			469.94		-	-
	0920	08/27/88	0001	WU	N			176.56		-	-
	0920	12/10/88	0001	WU	N			138.09		-	-
	0922	09/20/87	0001	WU	N			6.63		-	-
	0922	02/03/88	0001	WU	N			-12.50		-	-
	0922	04/26/88	0001	WU	N			-18.38		-	-
	0922	08/08/88	0001	WU	N			-0.72		-	-
	0922	12/10/88	0001	WU	N			-9.81		-	-
	0924	09/20/87	0001	WU	N			523.26		-	-
	0924	02/04/88	0001	WU	N			127.22		-	-
	0924	04/26/88	0001	WU	N			170.50		-	-
	0924	08/26/88	0001	WU	N			-159.84		-	-
	0924	12/07/88	0001	WU	N			296.10		-	-
	0925	09/20/87	0001	WU	N			-268.62		-	-
	0925	02/03/88	0001	WU	N			-113.74		-	-
	0925	04/26/88	0001	WU	N			-72.68		-	-
	0925	08/26/88	0001	WU	N			-207.22		-	-
	0925	12/07/88	0001	WU	N			-408.38		-	-
	0927	09/20/87	0001	WU	N			-1761.88		-	-
	0927	02/04/88	0001	WU	N			140.44		-	-
	0927	04/26/88	0001	WU	N			-260.34		-	-
	0927	08/26/88	0001	WU	N			-518.40		-	-
	0927	12/04/88	0001	WU	N			430.68		-	-
	0928	09/20/87	0001	WU	N			208.20		-	-
	0928	02/03/88	0001	WU	N			-137.70		-	-
	0928	04/22/88	0001	WU	N			34.86		-	-
	0928	08/04/88	0001	WU	N			-132.00		-	-
	0928	12/04/88	0001	WU	N			-254.42		-	-
	0929	09/20/87	0001	WU	N			23.49		-	-
	0929	02/03/88	0001	WU	N			3.76		-	-
	0929	04/28/88	0001	WU	N			-3.85		-	-
	0929	08/11/88	0001	WU	N			4.27		-	-
	0930	09/20/87	0001	WU	N			-53.32		-	-
	0930	01/30/88	0001	WU	N			37.74		-	-
	0930	04/26/88	0001	WU	N			40.02		-	-
	0930	08/27/88	0001	WU	N			213.09		-	-
	0931	01/30/88	0001	WU	N			-361.18		-	-

* NET GROSS ALPHA (GROSS ALPHA - URANIUM) WITH 1 MG URANIUM = 686 PCI

FORMATION OF COMPLETION CODE:
 WU - WASATCH - UPPER SANDSTONE

FLOW RELATIONSHIP CODE:
 N - UNKNOWN

PARAMETER VALUE INDICATOR (PVI): < - LESS THAN DETECTION LIMIT

SAMPLE ID CODES:
 0001 - FILTERED SAMPLE (.45 MICRONS)

GROUNDWATER QUALITY DATA BY PARAMETER
 UPPER SANDSTONE UNIT
 SITE: SPK01 SPOOK
 02/17/87 TO 12/10/88
 REPORT DATE: 07/29/94

PARAMETER NAME	LOCATION ID	LOG DATE	SAMPLE ID	FORM COMP	FLOW REL.	UNITS OF MEASURE	PVI	PARAMETER VALUE	FLAGS	DETECTION LIMIT	PARAMETER UNCERTAINTY
NET GROSS ALPHA *	0931	04/28/88	0001	WU	N	PCI/L		480.56		-	-
	0931	08/10/88	0001	WU	N			-232.00		-	-
	0931	12/04/88	0001	WU	N			-274.90		-	-
	0932	01/30/88	0001	WU	N			45.68		-	-
	0932	04/28/88	0001	WU	N			43.44		-	-
	0932	08/09/88	0001	WU	N			0.11		-	-
	0933	08/10/88	0001	WU	N			-444.56		-	-
	0933	12/07/88	0001	WU	N			-458.86		-	-
	0934	08/11/88	0001	WU	N			-139.72		-	-
	0934	12/07/88	0001	WU	N			-185.18		-	-
	0935	08/09/88	0001	WU	N			225.13		-	-
	0935	12/04/88	0001	WU	N			866.07		-	-
	0936	08/08/88	0001	WU	N			99.78		-	-
	0936	12/04/88	0001	WU	N			-316.84		-	-
	0937	08/08/88	0001	WU	N			760.52		-	-
	0937	12/04/88	0001	WU	N			275.80		-	-
	0939	08/08/88	0001	WU	N			61.80		-	-
	0939	12/04/88	0001	WU	N			39.74		-	-
	0940	08/08/88	0001	WU	N			1118.52		-	-
	0940	12/04/88	0001	WU	N			-582.26		-	-
	0941	08/08/88	0001	WU	N			-6.41		-	-
	0941	12/10/88	0001	WU	N			4.28		-	-
	0942	08/08/88	0001	WU	N			1.89		-	-
	0942	12/04/88	0001	WU	N			2.30		-	-
	0943	08/09/88	0001	WU	N			-349.40		-	-
	0943	12/07/88	0001	WU	N			-255.68		-	-
	0944	08/11/88	0001	WU	N			-71.99		-	-
	0944	12/07/88	0001	WU	N			-50.54		-	-
NICKEL	0911	09/18/87	0001	WU	N	MG/L	<	0.01	J	0.04	-
	0911	01/30/88	0001	WU	N		<	0.01	J	0.04	-
	0911	04/22/88	0001	WU	N		<	0.02	J	0.04	-
	0911	08/11/88	0001	WU	N		<	0.04	J	0.04	-
	0912	02/03/88	0001	WU	N		<	0.01	J	0.04	-
	0912	04/22/88	0001	WU	N		<	0.01	J	0.04	-
	0912	08/27/88	0001	WU	N		<	0.04	J	0.04	-
	0913	09/18/87	0001	WU	N		<	0.01	J	0.04	-
	0913	02/03/88	0001	WU	N		<	0.01	J	0.04	-

* NET GROSS ALPHA (GROSS ALPHA - URANIUM) WITH 1 MG URANIUM = 686 PCI

FORMATION OF COMPLETION CODE:
 WU - WASATCH - UPPER SANDSTONE

FLOW RELATIONSHIP CODE:
 N - UNKNOWN

PARAMETER VALUE INDICATOR (PVI): < - LESS THAN DETECTION LIMIT

SAMPLE ID CODES:
 0001 - FILTERED SAMPLE (.45 MICRONS)

OTHER PARAMETER VALUE FLAGS:
 J - ESTIMATED VALUE

GROUNDWATER QUALITY DATA BY PARAMETER
UPPER SANDSTONE UNIT
SITE: SPK01 SPOOK
02/17/87 TO 12/10/88
REPORT DATE: 07/29/94

PARAMETER NAME	LOCATION ID	LOG DATE	SAMPLE ID	FORM COMP REL.	UNITS OF MEASURE	PVI VALUE	FLAGS	DETECTION LIMIT	PARAMETER UNCERTAINTY
NICKEL	0913	04/22/88	0001	WU	MG/L	0.03	J	0.04	-
	0913	08/04/88	0001	WU		0.04		0.04	-
	0916	09/20/87	0001	WU		0.01	J	0.04	-
	0916	02/03/88	0001	WU		0.03	J	0.04	-
	0916	04/22/88	0001	WU		0.04		0.04	-
	0916	08/04/88	0001	WU		0.04		0.04	-
	0917	09/20/87	0001	WU		0.01	J	0.04	-
	0917	01/30/88	0001	WU		0.01	J	0.04	-
	0917	04/22/88	0001	WU		0.02	J	0.04	-
	0917	08/27/88	0001	WU		0.04		0.04	-
	0918	09/20/87	0001	WU		0.01	J	0.04	-
	0918	02/03/88	0001	WU		0.01	J	0.04	-
	0918	04/22/88	0001	WU		0.01	J	0.04	-
	0918	08/26/88	0001	WU		0.04		0.04	-
	0920	09/20/87	0001	WU		0.06		0.04	-
	0920	01/30/88	0001	WU		0.14		0.04	-
	0920	04/26/88	0001	WU		0.14		0.04	-
	0920	08/27/88	0001	WU		0.14		0.04	-
	0922	09/20/87	0001	WU		0.01	J	0.04	-
	0922	02/03/88	0001	WU		0.02	J	0.04	-
	0922	04/26/88	0001	WU		0.02	J	0.04	-
	0922	08/08/88	0001	WU		0.04		0.04	-
	0924	09/20/87	0001	WU		0.01	J	0.04	-
	0924	02/04/88	0001	WU		0.02	J	0.04	-
	0924	04/26/88	0001	WU		0.03	J	0.04	-
	0924	08/26/88	0001	WU		0.04		0.04	-
	0925	09/20/87	0001	WU		0.01	J	0.04	-
	0925	02/03/88	0001	WU		0.01	J	0.04	-
	0925	04/26/88	0001	WU		0.01	J	0.04	-
	0925	08/26/88	0001	WU		0.04		0.04	-
	0927	09/20/87	0001	WU		0.01	J	0.04	-
	0927	02/04/88	0001	WU		0.04		0.04	-
	0927	04/26/88	0001	WU		0.04		0.04	-
	0927	08/26/88	0001	WU		0.04		0.04	-
	0928	09/20/87	0001	WU		0.01	J	0.04	-
	0928	02/03/88	0001	WU		0.04		0.04	-
	0928	04/22/88	0001	WU		0.05		0.04	-
	0928	08/04/88	0001	WU		0.04		0.04	-
	0929	09/20/87	0001	WU		0.01	J	0.04	-
	0929	02/03/88	0001	WU		0.01	J	0.04	-

FORMATION OF COMPLETION CODE:
WU - WASATCH - UPPER SANDSTONE

FLOW RELATIONSHIP CODE:
N - UNKNOWN

PARAMETER VALUE INDICATOR (PVI): < - LESS THAN DETECTION LIMIT

SAMPLE ID CODES:
0001 - FILTERED SAMPLE (.45 MICRONS)

OTHER PARAMETER VALUE FLAGS:
J - ESTIMATED VALUE

GROUNDWATER QUALITY DATA BY PARAMETER
 UPPER SANDSTONE UNIT
 SITE: SPK01 SPOOK
 02/17/87 TO 12/10/88
 REPORT DATE: 07/29/94

PARAMETER NAME	LOCATION ID	LOG DATE	SAMPLE ID	FORM COMP	FLOW REL.	UNITS OF MEASURE	PVI	PARAMETER VALUE	FLAGS	DETECTION LIMIT	PARAMETER UNCERTAINTY
NICKEL	0929	04/28/88	0001	WU	N	MG/L	<	0.02	J	0.04	-
	0929	08/11/88	0001	WU	N	MG/L	<	0.04		0.04	-
	0930	09/20/87	0001	WU	N	MG/L		0.23		0.04	-
	0930	01/30/88	0001	WU	N	MG/L		0.762		0.04	-
	0930	04/26/88	0001	WU	N	MG/L		0.76		0.04	-
	0930	08/27/88	0001	WU	N	MG/L		0.39		0.04	-
	0931	01/30/88	0001	WU	N	MG/L	<	0.01	J	0.04	-
	0931	04/28/88	0001	WU	N	MG/L	<	0.01	J	0.04	-
	0931	08/10/88	0001	WU	N	MG/L		0.04		0.04	-
	0932	01/30/88	0001	WU	N	MG/L		0.018	J	0.04	-
	0932	04/28/88	0001	WU	N	MG/L		0.02	J	0.04	-
	0932	08/09/88	0001	WU	N	MG/L	<	0.04		0.04	-
	0933	08/10/88	0001	WU	N	MG/L	<	0.04		0.04	-
	0934	08/11/88	0001	WU	N	MG/L	<	0.04		0.04	-
	0935	08/09/88	0001	WU	N	MG/L		1.16		0.04	-
	0936	08/08/88	0001	WU	N	MG/L	<	0.04		0.04	-
	0937	08/08/88	0001	WU	N	MG/L	<	0.04		0.04	-
	0939	08/08/88	0001	WU	N	MG/L	<	0.04		0.04	-
	0940	08/08/88	0001	WU	N	MG/L	<	0.09		0.04	-
	0941	08/08/88	0001	WU	N	MG/L	<	0.04		0.04	-
	0942	08/08/88	0001	WU	N	MG/L	<	0.04		0.04	-
	0943	08/09/88	0001	WU	N	MG/L	<	0.04		0.04	-
	0944	08/11/88	0001	WU	N	MG/L	<	0.04		0.04	-
NITRATE	0911	02/17/87	0001	WU	N	MG/L		230.		1.	-
	0911	09/18/87	0001	WU	N	MG/L		18.6		1.	-
	0911	01/30/88	0001	WU	N	MG/L		7.1		1.	-
	0911	04/22/88	0001	WU	N	MG/L		5.0		1.	-
	0911	08/11/88	0001	WU	N	MG/L		4.7		1.	-
	0911	12/10/88	0001	WU	N	MG/L		7.4		1.	-
	0912	02/18/87	0001	WU	N	MG/L		3.1		1.	-
	0912	02/03/88	0001	WU	N	MG/L		0.8		1.	-
	0912	04/22/88	0001	WU	N	MG/L		2.7	J	1.	-
	0912	08/27/88	0001	WU	N	MG/L		2.9		1.	-
	0912	12/04/88	0001	WU	N	MG/L		2.5		1.	-
	0913	02/18/87	0001	WU	N	MG/L		84.		1.	-
	0913	09/18/87	0001	WU	N	MG/L		94.8		1.	-
	0913	02/03/88	0001	WU	N	MG/L		130.		1.	-
	0913	04/22/88	0001	WU	N	MG/L		140.		1.	-
	0913	08/04/88	0001	WU	N	MG/L		155.		1.	-

FORMATION OF COMPLETION CODE:
 WU - WASATCH - UPPER SANDSTONE

FLOW RELATIONSHIP CODE:
 N - UNKNOWN

PARAMETER VALUE INDICATOR (PVI): < - LESS THAN DETECTION LIMIT

SAMPLE ID CODES:
 0001 - FILTERED SAMPLE (<.45 MICRONS)

OTHER PARAMETER VALUE FLAGS:
 J - ESTIMATED VALUE

GROUNDWATER QUALITY DATA BY PARAMETER
 UPPER SANDSTONE UNIT
 SITE: SPK01 SPOOK
 02/17/87 TO 12/10/88
 REPORT DATE: 07/29/94

PARAMETER NAME	LOCATION ID	LOG DATE	SAMPLE ID	FORM COMP	FLOW REL.	UNITS OF MEASURE	PVI	PARAMETER VALUE	FLAGS	DETECTION LIMIT	PARAMETER UNCERTAINTY
NITRATE	0913	12/10/88	0001	WU	N	MG/L		210.		1.	-
	0916	02/20/87	0001	WU	N			100.		1.	-
	0916	09/20/87	0001	WU	N			425.		1.	-
	0916	02/03/88	0001	WU	N			450.		1.	-
	0916	04/22/88	0001	WU	N			490.		1.	-
	0916	08/04/88	0001	WU	N			460.		1.	-
	0916	12/07/88	0001	WU	N			490.		1.	-
	0917	02/19/87	0001	WU	N			10.		1.	-
	0917	09/20/87	0001	WU	N			110.		1.	-
	0917	01/30/88	0001	WU	N			120.		1.	-
	0917	04/22/88	0001	WU	N			133.		1.	-
	0917	08/27/88	0001	WU	N			130.		1.	-
	0917	12/07/88	0001	WU	N			150.		1.	-
	0918	02/20/87	0001	WU	N			1.6		1.	-
	0918	09/20/87	0001	WU	N			8.0		1.	-
	0918	02/03/88	0001	WU	N			7.1		1.	-
	0918	04/22/88	0001	WU	N			11.		1.	-
	0918	08/26/88	0001	WU	N			8.9		1.	-
	0918	12/04/88	0001	WU	N			7.8		1.	-
	0920	09/20/87	0001	WU	N			350.		1.	-
	0920	01/30/88	0001	WU	N			340.		1.	-
	0920	04/26/88	0001	WU	N			420.		1.	-
	0920	08/27/88	0001	WU	N			470.		1.	-
	0920	12/10/88	0001	WU	N			520.		1.	-
	0922	09/20/87	0001	WU	N			0.9	J	1.	-
	0922	02/03/88	0001	WU	N			1.1		1.	-
	0922	04/26/88	0001	WU	N			2.3		1.	-
	0922	08/08/88	0001	WU	N			4.5		1.	-
	0922	12/10/88	0001	WU	N			8.5		1.	-
	0924	09/20/87	0001	WU	N			76.6		1.	-
	0924	02/04/88	0001	WU	N			63.		1.	-
	0924	08/26/88	0001	WU	N			72.		1.	-
	0924	12/07/88	0001	WU	N			70.		1.	-
	0925	09/20/87	0001	WU	N			4.0		1.	-
	0925	02/03/88	0001	WU	N			4.0		1.	-
	0925	04/26/88	0001	WU	N			5.6		1.	-
	0925	08/26/88	0001	WU	N			5.3		1.	-
	0925	12/07/88	0001	WU	N			7.2		1.	-
	0927	09/20/87	0001	WU	N			120.		1.	-

FORMATION OF COMPLETION CODE:
 WU - WASATCH - UPPER SANDSTONE

FLOW RELATIONSHIP CODE:
 N - UNKNOWN

PARAMETER VALUE INDICATOR (PVI): < - LESS THAN DETECTION LIMIT

SAMPLE ID CODES:
 0001 - FILTERED SAMPLE (.45 MICRONS)

OTHER PARAMETER VALUE FLAGS:
 J - ESTIMATED VALUE

GROUNDWATER QUALITY DATA BY PARAMETER
 UPPER SANDSTONE UNIT
 SITE: SPK01 SPOOK
 02/17/87 TO 12/10/88
 REPORT DATE: 07/29/94

PARAMETER NAME	LOCATION ID	LOG DATE	SAMPLE ID	FORM COMP	FLOW REL.	UNITS OF MEASURE	PVI	PARAMETER VALUE	FLAGS	DETECTION LIMIT	PARAMETER UNCERTAINTY
NITRATE	0927	02/04/88	0001	WU	N	MG/L		110.		1.	-
	0927	04/26/88	0001	WU	N			120.		1.	-
	0927	08/26/88	0001	WU	N			120.		1.	-
	0927	12/04/88	0001	WU	N			120.		1.	-
	0928	09/20/87	0001	WU	N			34.		1.	-
	0928	02/03/88	0001	WU	N			41.		1.	-
	0928	04/22/88	0001	WU	N			45.		1.	-
	0928	08/04/88	0001	WU	N			50.		1.	-
	0928	12/04/88	0001	WU	N			66.		1.	-
	0929	09/20/87	0001	WU	N			2.2		1.	-
	0929	02/03/88	0001	WU	N		<	0.1	J	1.	-
	0929	04/28/88	0001	WU	N			3.2	J	1.	-
	0929	08/11/88	0001	WU	N			3.6		1.	-
	0930	09/20/87	0001	WU	N			213.		1.	-
	0930	01/30/88	0001	WU	N			340.		1.	-
	0930	04/26/88	0001	WU	N			330.		1.	-
	0930	08/27/88	0001	WU	N			390.		1.	-
	0931	01/30/88	0001	WU	N			2.2		1.	-
	0931	04/28/88	0001	WU	N			3.7		1.	-
	0931	08/10/88	0001	WU	N			3.1		1.	-
	0931	12/04/88	0001	WU	N			4.2		1.	-
	0932	01/30/88	0001	WU	N			4.4		1.	-
	0932	04/28/88	0001	WU	N			8.0		1.	-
	0932	08/09/88	0001	WU	N			4.2		1.	-
	0932	12/07/88	0001	WU	N			4.7		1.	-
	0933	08/10/88	0001	WU	N			2.6		1.	-
	0933	12/07/88	0001	WU	N			9.1		1.	-
	0934	08/11/88	0001	WU	N			3.6		1.	-
	0934	12/07/88	0001	WU	N			13.		1.	-
	0935	08/09/88	0001	WU	N			600.		1.	-
	0935	12/04/88	0001	WU	N			690.		1.	-
	0936	08/08/88	0001	WU	N			94.		1.	-
	0936	12/04/88	0001	WU	N			110.		1.	-
	0937	08/08/88	0001	WU	N			32.		1.	-
	0937	12/04/88	0001	WU	N			27.		1.	-
	0939	08/08/88	0001	WU	N		<	1.0		1.	-
	0939	12/04/88	0001	WU	N		<	1.0		1.	-
	0940	08/08/88	0001	WU	N			160.		1.	-
	0940	12/04/88	0001	WU	N			170.		1.	-
	0941	08/08/88	0001	WU	N			11.		1.	-

FORMATION OF COMPLETION CODE:
 WU - WASATCH - UPPER SANDSTONE

FLOW RELATIONSHIP CODE:
 N - UNKNOWN

PARAMETER VALUE INDICATOR (PVI): < - LESS THAN DETECTION LIMIT

SAMPLE ID CODES:
 0001 - FILTERED SAMPLE (.45 MICRONS)

OTHER PARAMETER VALUE FLAGS:
 J - ESTIMATED VALUE

GROUNDWATER QUALITY DATA BY PARAMETER
 UPPER SANDSTONE UNIT
 SITE: SPK01 SPOOK
 02/17/87 TO 12/10/88
 REPORT DATE: 07/29/94

PARAMETER NAME	LOCATION ID	LOG DATE	SAMPLE ID	FORM COMP	FLOW REL.	UNITS OF MEASURE	PVI	PARAMETER VALUE	FLAGS	DETECTION LIMIT	PARAMETER UNCERTAINTY
NITRATE	0941	12/10/88	0001	WU	N	MG/L		15.		1.	-
	0942	08/08/88	0001	WU	N			40.		1.	-
	0942	12/04/88	0001	WU	N			47.		1.	-
	0943	08/09/88	0001	WU	N			5.3		1.	-
	0943	12/07/88	0001	WU	N			8.9		1.	-
	0944	08/11/88	0001	WU	N			3.2		1.	-
	0944	12/07/88	0001	WU	N			5.8		1.	-
PH	0911	02/17/87	0001	WU	N	SU		7.19		-	-
	0911	09/18/87	0001	WU	N			7.43		-	-
	0911	01/30/88	0001	WU	N			7.61		-	-
	0911	04/22/88	0001	WU	N			7.36		-	-
	0911	08/11/88	0001	WU	N			7.17		-	-
	0911	12/10/88	0001	WU	N			7.74		-	-
	0912	02/18/87	0001	WU	N			7.31		-	-
	0912	02/03/88	0001	WU	N			7.68		-	-
	0912	04/22/88	0001	WU	N			7.61		-	-
	0912	08/27/88	0001	WU	N			7.29		-	-
	0912	12/04/88	0001	WU	N			7.35		-	-
	0913	02/18/87	0001	WU	N			6.98		-	-
	0913	09/18/87	0001	WU	N			6.84		-	-
	0913	02/03/88	0001	WU	N			6.93		-	-
	0913	04/22/88	0001	WU	N			6.74		-	-
	0913	08/04/88	0001	WU	N			6.67		-	-
	0913	12/10/88	0001	WU	N			6.78		-	-
	0916	02/20/87	0001	WU	N			6.97		-	-
	0916	09/20/87	0001	WU	N			6.89		-	-
	0916	02/03/88	0001	WU	N			6.79		-	-
	0916	04/22/88	0001	WU	N			6.82		-	-
	0916	08/04/88	0001	WU	N			6.68		-	-
	0916	12/07/88	0001	WU	N			6.69		-	-
	0917	02/19/87	0001	WU	N			7.34		-	-
	0917	09/20/87	0001	WU	N			7.12		-	-
	0917	01/30/88	0001	WU	N			7.01		-	-
	0917	04/22/88	0001	WU	N			7.14		-	-
	0917	08/27/88	0001	WU	N			7.01		-	-
	0917	12/07/88	0001	WU	N			7.44		-	-
	0918	02/20/87	0001	WU	N			7.28		-	-
	0918	09/20/87	0001	WU	N			7.12		-	-
	0918	02/03/88	0001	WU	N			7.47		-	-
	0918	04/22/88	0001	WU	N			7.31		-	-

FORMATION OF COMPLETION CODE:

WU - WASATCH - UPPER SANDSTONE

FLOW RELATIONSHIP CODE:

N - UNKNOWN

PARAMETER VALUE INDICATOR (PVI): < - LESS THAN DETECTION LIMIT

SAMPLE ID CODES:

0001 - FILTERED SAMPLE (.45 MICRONS)

GROUNDWATER QUALITY DATA BY PARAMETER
 UPPER SANDSTONE UNIT
 SITE: SPK01 SPOOK
 02/17/87 TO 12/10/88
 REPORT DATE: 07/29/94

PARAMETER NAME	LOCATION ID	LOG DATE	SAMPLE ID	FORM COMP	FLOW REL.	UNITS OF MEASURE	PVI	PARAMETER VALUE	FLAGS	DETECTION LIMIT	PARAMETER UNCERTAINTY
PH	0918	08/26/88	0001	WU	N	SU		7.12		-	-
	0918	12/04/88	0001	WU	N			7.38		-	-
	0920	09/20/87	0001	WU	N			6.59		-	-
	0920	01/30/88	0001	WU	N			6.29		-	-
	0920	04/26/88	0001	WU	N			6.38		-	-
	0920	08/27/88	0001	WU	N			6.37		-	-
	0920	12/10/88	0001	WU	N			6.70		-	-
	0922	09/20/87	0001	WU	N			7.06		-	-
	0922	02/03/88	0001	WU	N			6.39		-	-
	0922	04/26/88	0001	WU	N			6.87		-	-
	0922	08/08/88	0001	WU	N			7.11		-	-
	0922	12/10/88	0001	WU	N			6.97		-	-
	0924	09/20/87	0001	WU	N			7.10		-	-
	0924	02/04/88	0001	WU	N			6.95		-	-
	0924	04/26/88	0001	WU	N			6.96		-	-
	0924	08/26/88	0001	WU	N			6.94		-	-
	0924	12/07/88	0001	WU	N			7.00		-	-
	0925	09/20/87	0001	WU	N			7.09		-	-
	0925	02/03/88	0001	WU	N			7.23		-	-
	0925	04/26/88	0001	WU	N			7.06		-	-
	0925	08/26/88	0001	WU	N			7.00		-	-
	0925	12/07/88	0001	WU	N			7.01		-	-
	0927	09/20/87	0001	WU	N			6.95		-	-
	0927	02/04/88	0001	WU	N			6.87		-	-
	0927	04/26/88	0001	WU	N			6.91		-	-
	0927	08/26/88	0001	WU	N			6.93		-	-
	0927	12/04/88	0001	WU	N			6.88		-	-
	0928	09/20/87	0001	WU	N			6.52		-	-
	0928	02/03/88	0001	WU	N			6.43		-	-
	0928	04/22/88	0001	WU	N			6.54		-	-
	0928	08/04/88	0001	WU	N			6.43		-	-
	0928	12/04/88	0001	WU	N			6.42		-	-
	0929	09/20/87	0001	WU	N			8.50		-	-
	0929	02/03/88	0001	WU	N			7.78		-	-
	0929	04/28/88	0001	WU	N			7.47		-	-
	0929	08/11/88	0001	WU	N			7.28		-	-
	0930	09/20/87	0001	WU	N			7.13		-	-
	0930	01/30/88	0001	WU	N			6.09		-	-
	0930	04/26/88	0001	WU	N			6.24		-	-
	0930	08/27/88	0001	WU	N			6.51		-	-
	0931	01/30/88	0001	WU	N			6.99		-	-

FORMATION OF COMPLETION CODE:
 WU - WASATCH - UPPER SANDSTONE

FLOW RELATIONSHIP CODE:
 N - UNKNOWN

PARAMETER VALUE INDICATOR (PVI): < - LESS THAN DETECTION LIMIT

SAMPLE ID CODES:
 0001 - FILTERED SAMPLE (.45 MICRONS)

GROUNDWATER QUALITY DATA BY PARAMETER
 UPPER SANDSTONE UNIT
 SITE: SPK01 SPOOK
 02/17/87 TO 12/10/88
 REPORT DATE: 07/29/94

PARAMETER NAME	LOCATION ID	LOG DATE	SAMPLE ID	FORM COMP	FLOW REL.	UNITS OF MEASURE	PVI	PARAMETER VALUE	FLAGS	DETECTION LIMIT	PARAMETER UNCERTAINTY
PH	0931	04/28/88	0001	WU	N	SU		7.18		-	-
	0931	08/10/88	0001	WU	N			7.21		-	-
	0931	12/04/88	0001	WU	N			7.14		-	-
	0932	01/30/88	0001	WU	N			6.87		-	-
	0932	04/28/88	0001	WU	N			6.79		-	-
	0932	08/09/88	0001	WU	N			6.75		-	-
	0932	12/07/88	0001	WU	N			7.08		-	-
	0933	08/10/88	0001	WU	N			7.27		-	-
	0933	12/07/88	0001	WU	N			7.23		-	-
	0934	08/11/88	0001	WU	N			7.12		-	-
	0934	12/07/88	0001	WU	N			7.09		-	-
	0935	08/09/88	0001	WU	N			6.06		-	-
	0935	12/04/88	0001	WU	N			5.59		-	-
	0936	08/08/88	0001	WU	N			7.46		-	-
	0936	12/04/88	0001	WU	N			7.23		-	-
	0937	08/08/88	0001	WU	N			7.30		-	-
	0937	12/04/88	0001	WU	N			7.51		-	-
	0939	08/08/88	0001	WU	N			7.02		-	-
	0939	12/04/88	0001	WU	N			6.82		-	-
	0940	08/08/88	0001	WU	N			6.48		-	-
	0940	12/04/88	0001	WU	N			6.50		-	-
	0941	08/08/88	0001	WU	N			7.40		-	-
	0941	12/10/88	0001	WU	N			7.68		-	-
	0942	08/08/88	0001	WU	N			7.39		-	-
	0942	12/04/88	0001	WU	N			6.95		-	-
	0943	08/09/88	0001	WU	N			7.27		-	-
	0943	12/07/88	0001	WU	N			7.50		-	-
	0944	08/11/88	0001	WU	N			6.99		-	-
	0944	12/07/88	0001	WU	N			7.14		-	-
PHOSPHATE	0911	02/17/87	0001	WU	N	MG/L	<	0.1		0.1	-
	0911	09/18/87	0001	WU	N			0.2		0.1	-
	0911	01/30/88	0001	WU	N		<	0.1		0.1	-
	0911	04/22/88	0001	WU	N			0.3		0.1	-
	0911	08/11/88	0001	WU	N		<	0.1		0.1	-
	0912	02/18/87	0001	WU	N		<	0.1		0.1	-
	0912	02/03/88	0001	WU	N		<	0.1		0.1	-
	0912	04/22/88	0001	WU	N			0.3		0.1	-
	0912	08/27/88	0001	WU	N		<	0.1		0.1	-
	0913	02/18/87	0001	WU	N		<	0.1		0.1	-
	0913	09/18/87	0001	WU	N			0.1		0.1	-

FORMATION OF COMPLETION CODE:
 WU - WASATCH - UPPER SANDSTONE

FLOW RELATIONSHIP CODE:
 N - UNKNOWN

PARAMETER VALUE INDICATOR (PVI): < - LESS THAN DETECTION LIMIT

SAMPLE ID CODES:
 0001 - FILTERED SAMPLE (.45 MICRONS)

GROUNDWATER QUALITY DATA BY PARAMETER

UPPER SANDSTONE UNIT

SITE: SPK01 SPOOK

02/17/87 TO 12/10/88

REPORT DATE: 07/29/94

PARAMETER NAME	LOCATION ID	LOG DATE	SAMPLE ID	FORM COMP REL.	UNITS OF MEASURE	PVI	PARAMETER VALUE	FLAGS	DETECTION LIMIT	PARAMETER UNCERTAINTY
PHOSPHATE	0913	02/03/88	0001	WU	MG/L	<	0.1		0.1	-
	0913	04/22/88	0001	WU	N	<	0.1		0.1	-
	0913	08/04/88	0001	WU	N	<	0.1		0.1	-
	0916	02/20/87	0001	WU	N	<	0.1		0.1	-
	0916	09/20/87	0001	WU	N	<	0.4		0.1	-
	0916	02/03/88	0001	WU	N	<	0.1		0.1	-
	0916	04/22/88	0001	WU	N	<	0.1		0.1	-
	0916	08/04/88	0001	WU	N	<	0.1		0.1	-
	0917	02/19/87	0001	WU	N	<	0.1		0.1	-
	0917	09/20/87	0001	WU	N	<	0.1		0.1	-
	0917	01/30/88	0001	WU	N	<	0.1		0.1	-
	0917	04/22/88	0001	WU	N	<	0.1		0.1	-
	0917	08/27/88	0001	WU	N	<	0.1		0.1	-
	0918	02/20/87	0001	WU	N	<	0.1		0.1	-
	0918	09/20/87	0001	WU	N	<	0.1		0.1	-
	0918	02/03/88	0001	WU	N	<	0.1		0.1	-
	0918	04/22/88	0001	WU	N	<	0.1		0.1	-
	0918	08/26/88	0001	WU	N	<	0.1		0.1	-
	0920	09/20/87	0001	WU	N	<	0.8		0.1	-
	0920	01/30/88	0001	WU	N	<	0.1		0.1	-
	0920	04/26/88	0001	WU	N	<	0.1		0.1	-
	0920	08/27/88	0001	WU	N	<	0.1		0.1	-
	0922	09/20/87	0001	WU	N	<	0.1		0.1	-
	0922	02/03/88	0001	WU	N	<	0.1		0.1	-
	0922	04/26/88	0001	WU	N	<	0.1		0.1	-
	0922	08/08/88	0001	WU	N	<	0.1		0.1	-
	0924	09/20/87	0001	WU	N	<	0.1		0.1	-
	0924	02/04/88	0001	WU	N	<	0.1		0.1	-
	0924	04/26/88	0001	WU	N	<	0.1		0.1	-
	0924	08/26/88	0001	WU	N	<	0.1		0.1	-
	0925	09/20/87	0001	WU	N	<	0.1		0.1	-
	0925	02/03/88	0001	WU	N	<	0.1		0.1	-
	0925	04/26/88	0001	WU	N	<	0.1		0.1	-
	0925	08/26/88	0001	WU	N	<	0.1		0.1	-
	0927	09/20/87	0001	WU	N	<	0.1		0.1	-
	0927	02/04/88	0001	WU	N	<	0.1		0.1	-
	0927	04/26/88	0001	WU	N	<	0.1		0.1	-
	0927	08/26/88	0001	WU	N	<	0.1		0.1	-
	0928	09/20/87	0001	WU	N	<	0.2		0.1	-
	0928	02/03/88	0001	WU	N	<	0.1		0.1	-
	0928	04/22/88	0001	WU	N	<	0.1		0.1	-

FORMATION OF COMPLETION CODE:

WU - WASATCH - UPPER SANDSTONE

FLOW RELATIONSHIP CODE:

N - UNKNOWN

PARAMETER VALUE INDICATOR (PVI):

< - LESS THAN DETECTION LIMIT

SAMPLE ID CODES:

0001 - FILTERED SAMPLE (.45 MICRONS)

GROUNDWATER QUALITY DATA BY PARAMETER
UPPER SANDSTONE UNIT
SITE: SPK01 SPOOK
02/17/87 TO 12/10/88
REPORT DATE: 07/29/94

PARAMETER NAME	LOCATION ID	LOG DATE	SAMPLE ID	FORM COMP REL.	UNITS OF MEASURE	PVI	PARAMETER VALUE	FLAGS	DETECTION LIMIT	PARAMETER UNCERTAINTY
PHOSPHATE	0928	08/04/88	0001	WU	N	<	0.1		0.1	-
	0929	09/20/87	0001	WU	N	<	0.4		0.1	-
	0929	02/03/88	0001	WU	N	<	0.1		0.1	-
	0929	04/28/88	0001	WU	N	<	0.1	J	0.1	-
	0929	08/11/88	0001	WU	N	<	0.1		0.1	-
	0930	09/20/87	0001	WU	N	<	0.4		0.1	-
	0930	01/30/88	0001	WU	N	<	0.1		0.1	-
	0930	04/26/88	0001	WU	N	<	0.1		0.1	-
	0930	08/27/88	0001	WU	N	<	0.1		0.1	-
	0931	01/30/88	0001	WU	N	<	0.1		0.1	-
	0931	04/28/88	0001	WU	N	<	0.1		0.1	-
	0931	08/10/88	0001	WU	N	<	0.1		0.1	-
	0932	01/30/88	0001	WU	N	<	0.1		0.1	-
	0932	04/28/88	0001	WU	N	<	0.1		0.1	-
	0932	08/09/88	0001	WU	N	<	0.1		0.1	-
	0933	08/10/88	0001	WU	N	<	0.1		0.1	-
	0934	08/11/88	0001	WU	N	<	0.1		0.1	-
	0935	08/09/88	0001	WU	N	<	0.1		0.1	-
	0936	08/08/88	0001	WU	N	<	0.1		0.1	-
	0937	08/08/88	0001	WU	N	<	0.1		0.1	-
	0939	08/08/88	0001	WU	N	<	0.1		0.1	-
POLONIUM-210	0940	08/08/88	0001	WU	N	<	0.1		0.1	-
	0941	08/08/88	0001	WU	N	<	0.1		0.1	-
	0942	08/08/88	0001	WU	N	<	0.1		0.1	-
	0943	08/09/88	0001	WU	N	<	0.1		0.1	-
	0944	08/11/88	0001	WU	N	<	0.1		0.1	-
	0911	09/18/87	0001	WU	N		5.6		1.	1.4
	0911	01/30/88	0001	WU	N		2.3		1.	0.7
	0911	04/22/88	0001	WU	N		4.1		1.	0.8
	0911	08/11/88	0001	WU	N		1.4		1.	0.7
	0912	02/03/88	0001	WU	N		4.6		1.	0.9
	0912	04/22/88	0001	WU	N		2.7		1.	0.8
	0912	08/27/88	0001	WU	N		4.4		1.	0.8
	0913	09/18/87	0001	WU	N		37.		1.	3.
	0913	02/03/88	0001	WU	N		8.4		1.	1.2
	0913	04/22/88	0001	WU	N		9.9		1.	1.2
	0913	08/04/88	0001	WU	N		11.		1.	1.
	0916	09/20/87	0001	WU	N		0.7		1.	0.9
	0916	02/03/88	0001	WU	N		4.2		1.	0.9

FORMATION OF COMPLETION CODE:
WU - WASATCH - UPPER SANDSTONE

FLOW RELATIONSHIP CODE:
N - UNKNOWN

PARAMETER VALUE INDICATOR (PVI): < - LESS THAN DETECTION LIMIT

SAMPLE ID CODES:
0001 - FILTERED SAMPLE (.45 MICRONS)

OTHER PARAMETER VALUE FLAGS:
J - ESTIMATED VALUE

GROUNDWATER QUALITY DATA BY PARAMETER
 UPPER SANDSTONE UNIT
 SITE: SPK01 SPOOK
 02/17/87 TO 12/10/88
 REPORT DATE: 07/29/94

PARAMETER NAME	LOCATION ID	LOG DATE	SAMPLE ID	FORM COMP	FLOW REL.	UNITS OF MEASURE	PARAMETER PVI VALUE	FLAGS	DETECTION LIMIT	PARAMETER UNCERTAINTY
POLONIUM-210	0916	04/22/88	0001	WU	N	PCI/L	4.1		1.	0.8
	0916	08/04/88	0001	WU	N		5.0		1.	0.9
	0917	09/20/87	0001	WU	N		0.5		1.	0.9
	0917	01/30/88	0001	WU	N		3.6		1.	0.8
	0917	04/22/88	0001	WU	N		1.4		1.	0.6
	0917	08/27/88	0001	WU	N		0.8		1.	0.4
	0918	09/20/87	0001	WU	N		0.0		1.	0.8
	0918	02/03/88	0001	WU	N		0.7		1.	0.5
	0918	04/22/88	0001	WU	N		0.3		1.	0.4
	0918	08/26/88	0001	WU	N		0.2		1.	0.3
	0920	09/20/87	0001	WU	N		5.1		1.	1.4
	0920	01/30/88	0001	WU	N		3.9		1.	1.0
	0920	04/26/88	0001	WU	N		1.7		1.	0.6
	0920	08/27/88	0001	WU	N		0.8		1.	0.4
	0922	09/20/87	0001	WU	N		0.6		1.	0.9
	0922	02/03/88	0001	WU	N		0.0		1.	0.5
	0922	04/26/88	0001	WU	N		0.2		1.	0.4
	0922	08/08/88	0001	WU	N		0.0		1.	0.4
	0924	09/20/87	0001	WU	N		6.1		1.	1.5
	0924	02/04/88	0001	WU	N		3.7		1.	1.0
	0924	04/26/88	0001	WU	N		2.2		1.	0.7
	0924	08/26/88	0001	WU	N		3.2		1.	0.7
	0925	09/20/87	0001	WU	N		0.7		1.	0.9
	0925	02/03/88	0001	WU	N		0.6		1.	0.7
	0925	04/26/88	0001	WU	N		0.4		1.	0.4
	0925	08/26/88	0001	WU	N		0.5		1.	0.7
	0927	09/20/87	0001	WU	N		1.9		1.	1.1
	0927	02/04/88	0001	WU	N		4.9		1.	1.1
	0927	04/26/88	0001	WU	N		1.1		1.	0.5
	0927	08/26/88	0001	WU	N		0.9		1.	0.5
	0928	09/20/87	0001	WU	N		3.6		1.	1.1
	0928	02/03/88	0001	WU	N		1.6		1.	0.8
	0928	04/22/88	0001	WU	N		0.9		1.	0.5
	0928	08/04/88	0001	WU	N		1.5		1.	0.6
	0929	09/20/87	0001	WU	N		0.2		1.	0.5
	0929	02/03/88	0001	WU	N		0.5		1.	0.6
	0929	04/28/88	0001	WU	N		0.1	J	1.	0.4
	0929	08/11/88	0001	WU	N		0.0		1.	0.4
	0930	09/20/87	0001	WU	N		0.4		1.	0.6
	0930	01/30/88	0001	WU	N		0.6		1.	0.6

FORMATION OF COMPLETION CODE:
 WU - WASATCH - UPPER SANDSTONE

PARAMETER VALUE INDICATOR (PVI): < - LESS THAN DETECTION LIMIT

OTHER PARAMETER VALUE FLAGS:
 J - ESTIMATED VALUE

FLOW RELATIONSHIP CODE:
 N - UNKNOWN

SAMPLE ID CODES:
 0001 - FILTERED SAMPLE (.45 MICRONS)

GROUNDWATER QUALITY DATA BY PARAMETER
 UPPER SANDSTONE UNIT
 SITE: SPK01 SPOOK
 02/17/87 TO 12/10/88
 REPORT DATE: 07/29/94

PARAMETER NAME	LOCATION ID	LOG DATE	SAMPLE ID	FORM COMP	FLOW REL.	UNITS OF MEASURE	PVI	PARAMETER VALUE	FLAGS	DETECTION LIMIT	PARAMETER UNCERTAINTY
POLONIUM-210	0930	04/26/88	0001	WU	N	PCI/L		0.2		1.	0.4
	0930	08/27/88	0001	WU	N			1.2		1.	0.5
	0931	01/30/88	0001	WU	N			0.8		1.	0.6
	0931	04/28/88	0001	WU	N			0.3		1.	0.4
	0931	08/10/88	0001	WU	N			0.7		1.	0.5
	0932	01/30/88	0001	WU	N			3.5		1.	1.0
	0932	04/28/88	0001	WU	N			1.8		1.	0.6
	0932	08/09/88	0001	WU	N			2.5		1.	0.7
	0933	08/10/88	0001	WU	N			0.0		1.	0.4
	0934	08/11/88	0001	WU	N			0.7		1.	0.5
	0935	08/09/88	0001	WU	N			0.2		1.	0.5
	0936	08/08/88	0001	WU	N			1.0		1.	0.6
	0937	08/08/88	0001	WU	N			4.5		1.	0.9
	0940	08/08/88	0001	WU	N			2.5		1.	0.7
	0941	08/08/88	0001	WU	N			0.1		1.	0.5
	0942	08/08/88	0001	WU	N			1.2		1.	0.6
	0943	08/09/88	0001	WU	N			0.0		1.	0.4
	0944	08/11/88	0001	WU	N			0.0		1.	0.5
POTASSIUM	0911	02/17/87	0001	WU	N	MG/L		15.5		0.01	-
	0911	09/18/87	0001	WU	N			8.67		0.01	-
	0911	01/30/88	0001	WU	N			9.38		0.01	-
	0911	04/22/88	0001	WU	N			8.66		0.01	-
	0911	08/11/88	0001	WU	N			8.3		0.01	-
	0911	12/10/88	0001	WU	N			8.5		0.01	-
	0912	02/18/87	0001	WU	N			4.00		0.01	-
	0912	02/03/88	0001	WU	N			6.25		0.01	-
	0912	04/22/88	0001	WU	N			9.02		0.01	-
	0912	08/27/88	0001	WU	N			5.7		0.01	-
	0912	12/04/88	0001	WU	N			5.9		0.01	-
	0913	02/18/87	0001	WU	N			9.42		0.01	-
	0913	09/18/87	0001	WU	N			8.71		0.01	-
	0913	02/03/88	0001	WU	N			9.72		0.01	-
	0913	04/22/88	0001	WU	N			9.08		0.01	-
	0913	08/04/88	0001	WU	N			9.5		0.01	-
	0913	12/10/88	0001	WU	N			8.9		0.01	-
	0916	02/20/87	0001	WU	N			10.5		0.01	-
	0916	09/20/87	0001	WU	N			9.60		0.01	-
	0916	02/03/88	0001	WU	N			11.6		0.01	-
	0916	04/22/88	0001	WU	N			10.7		0.01	-
	0916	08/04/88	0001	WU	N			11.8		0.01	-

FORMATION OF COMPLETION CODE:
 WU - WASATCH - UPPER SANDSTONE

FLOW RELATIONSHIP CODE:
 N - UNKNOWN

PARAMETER VALUE INDICATOR (PVI): < - LESS THAN DETECTION LIMIT

SAMPLE ID CODES:
 0001 - FILTERED SAMPLE (.45 MICRONS)

GROUNDWATER QUALITY DATA BY PARAMETER
 UPPER SANDSTONE UNIT
 SITE: SPK01 SPOOK
 02/17/87 TO 12/10/88
 REPORT DATE: 07/29/94

PARAMETER NAME	LOCATION ID	LOG DATE	SAMPLE ID	FORM COMP REL.	UNITS OF MEASURE	PVI	PARAMETER VALUE	FLAGS	DETECTION LIMIT	PARAMETER UNCERTAINTY
POTASSIUM	0916	12/07/88	0001	WU	MG/L		10.5		0.01	-
	0917	02/19/87	0001	WU			8.38		0.01	-
	0917	09/20/87	0001	WU			7.57		0.01	-
	0917	01/30/88	0001	WU			7.75		0.01	-
	0917	04/22/88	0001	WU			7.60		0.01	-
	0917	08/27/88	0001	WU			8.2		0.01	-
	0917	12/07/88	0001	WU			7.6		0.01	-
	0918	02/20/87	0001	WU			8.96		0.01	-
	0918	09/20/87	0001	WU			7.74		0.01	-
	0918	02/03/88	0001	WU			7.72		0.01	-
	0918	04/22/88	0001	WU			7.57		0.01	-
	0918	08/26/88	0001	WU			7.7		0.01	-
	0918	12/04/88	0001	WU			9.1		0.01	-
	0920	09/20/87	0001	WU			30.9		0.01	-
	0920	01/30/88	0001	WU			19.8		0.01	-
	0920	04/26/88	0001	WU			28.7		0.01	-
	0920	08/27/88	0001	WU			31.0		0.01	-
	0920	12/10/88	0001	WU			28.7		0.01	-
	0922	09/20/87	0001	WU			8.07		0.01	-
	0922	02/03/88	0001	WU			4.22		0.01	-
	0922	04/26/88	0001	WU			6.19		0.01	-
	0922	08/08/88	0001	WU			6.6		0.01	-
	0922	12/10/88	0001	WU			5.8		0.01	-
	0924	09/20/87	0001	WU			8.76		0.01	-
	0924	02/04/88	0001	WU			4.74		0.01	-
	0924	04/26/88	0001	WU			6.71		0.01	-
	0924	08/26/88	0001	WU			7.3		0.01	-
	0925	12/07/88	0001	WU			6.9		0.01	-
	0925	09/20/87	0001	WU			7.14		0.01	-
	0925	02/03/88	0001	WU			4.39		0.01	-
	0925	04/26/88	0001	WU			6.69		0.01	-
	0925	08/26/88	0001	WU			6.6		0.01	-
	0925	12/07/88	0001	WU			6.6		0.01	-
	0927	09/20/87	0001	WU			9.59		0.01	-
	0927	02/04/88	0001	WU			5.71		0.01	-
	0927	04/26/88	0001	WU			8.33		0.01	-
	0927	08/26/88	0001	WU			8.9		0.01	-
	0927	12/04/88	0001	WU			8.4		0.01	-
	0928	09/20/87	0001	WU			8.19		0.01	-
	0928	02/03/88	0001	WU			6.22		0.01	-
	0928	04/22/88	0001	WU			8.39		0.01	-

FORMATION OF COMPLETION CODE:
 WU - WASATCH - UPPER SANDSTONE

FLOW RELATIONSHIP CODE:
 N - UNKNOWN

PARAMETER VALUE INDICATOR (PVI): < - LESS THAN DETECTION LIMIT

SAMPLE ID CODES:
 0001 - FILTERED SAMPLE (.45 MICRONS)

GROUNDWATER QUALITY DATA BY PARAMETER
 UPPER SANDSTONE UNIT
 SITE: SPK01 SPOOK
 02/17/87 TO 12/10/88
 REPORT DATE: 07/29/94

PARAMETER NAME	LOCATION ID	LOG DATE	SAMPLE ID	FORM COMP REL.	UNITS OF MEASURE	PVI	PARAMETER VALUE	FLAGS	DETECTION LIMIT	PARAMETER UNCERTAINTY
POTASSIUM	0928	08/04/88	0001	WU	MG/L		9.7		0.01	-
	0928	12/04/88	0001	WU			8.6		0.01	-
	0929	09/20/87	0001	WU			18.9		0.01	-
	0929	02/03/88	0001	WU			19.4		0.01	-
	0929	04/28/88	0001	WU			13.3	J	0.01	-
	0929	08/11/88	0001	WU			13.9		0.01	-
	0930	09/20/87	0001	WU			34.6		0.01	-
	0930	01/30/88	0001	WU			30.5		0.01	-
	0930	04/26/88	0001	WU			26.4		0.01	-
	0930	08/27/88	0001	WU			30.6		0.01	-
	0931	01/30/88	0001	WU			8.10		0.01	-
	0931	04/28/88	0001	WU			7.18		0.01	-
	0931	08/10/88	0001	WU			6.5		0.01	-
	0931	12/04/88	0001	WU			6.0		0.01	-
	0932	01/30/88	0001	WU			6.27		0.01	-
	0932	04/28/88	0001	WU			8.93		0.01	-
	0932	08/09/88	0001	WU			6.1		0.01	-
	0932	12/07/88	0001	WU			5.9		0.01	-
	0933	08/10/88	0001	WU			8.5		0.01	-
	0933	12/07/88	0001	WU			7.3		0.01	-
	0934	08/11/88	0001	WU			10.1		0.01	-
	0934	12/07/88	0001	WU			6.1		0.01	-
	0935	08/09/88	0001	WU			41.9		0.01	-
	0935	12/04/88	0001	WU			39.3		0.01	-
	0936	08/08/88	0001	WU			9.5		0.01	-
	0936	12/04/88	0001	WU			8.4		0.01	-
	0937	08/08/88	0001	WU			7.8		0.01	-
	0939	12/04/88	0001	WU			11.1		0.01	-
	0939	08/08/88	0001	WU			14.6		0.01	-
	0939	12/04/88	0001	WU			13.3		0.01	-
	0940	08/08/88	0001	WU			15.6		0.01	-
	0940	12/04/88	0001	WU			15.5		0.01	-
	0941	08/08/88	0001	WU			3.7		0.01	-
	0941	12/10/88	0001	WU			4.0		0.01	-
	0942	08/08/88	0001	WU			11.5		0.01	-
	0942	12/04/88	0001	WU			6.8		0.01	-
	0943	08/09/88	0001	WU			6.7		0.01	-
	0943	12/07/88	0001	WU			6.6		0.01	-
	0944	08/11/88	0001	WU			8.4		0.01	-
	0944	12/07/88	0001	WU			8.1		0.01	-

FORMATION OF COMPLETION CODE:
 WU - WASATCH - UPPER SANDSTONE

FLOW RELATIONSHIP CODE:
 N - UNKNOWN

PARAMETER VALUE INDICATOR (PVI): < - LESS THAN DETECTION LIMIT

SAMPLE ID CODES:
 0001 - FILTERED SAMPLE (.45 MICRONS)

OTHER PARAMETER VALUE FLAGS:
 J - ESTIMATED VALUE

GROUNDWATER QUALITY DATA BY PARAMETER
 UPPER SANDSTONE UNIT
 SITE: SPK01 SPOOK
 02/17/87 TO 12/10/88
 REPORT DATE: 07/29/94

PARAMETER NAME	LOCATION ID	LOG DATE	SAMPLE ID	FORM COMP	FLOW REL.	UNITS OF MEASURE	PARAMETER PVI VALUE	FLAGS	DETECTION LIMIT	PARAMETER UNCERTAINTY
RADIUM-226	0911	09/18/87	0001	WU	N	PCI/L	3.1		1.	0.6
	0911	01/30/88	0001	WU	N		1.3		1.	0.4
	0911	04/22/88	0001	WU	N		1.7		1.	0.5
	0911	08/11/88	0001	WU	N		1.4		1.	0.5
	0911	12/10/88	0001	WU	N		1.2		1.	0.4
	0912	02/03/88	0001	WU	N		31.		1.	2.
	0912	04/22/88	0001	WU	N		15.		1.	1.
	0912	08/27/88	0001	WU	N		29.		1.	2.
	0912	12/04/88	0001	WU	N		46.		1.	2.
	0913	09/18/87	0001	WU	N		120.		1.	10.
	0913	02/03/88	0001	WU	N		75.		1.	3.
	0913	04/22/88	0001	WU	N		88.		1.	3.
	0913	08/04/88	0001	WU	N		69.		1.	3.
	0913	12/10/88	0001	WU	N		43.		1.	2.
	0916	09/20/87	0001	WU	N		18.		1.	1.
	0916	02/03/88	0001	WU	N		16.		1.	1.
	0916	04/22/88	0001	WU	N		16.		1.	1.
	0916	08/04/88	0001	WU	N		9.7		1.	1.0
	0916	12/07/88	0001	WU	N		19.		1.	2.
	0917	09/20/87	0001	WU	N		3.0		1.	1.1
	0917	01/30/88	0001	WU	N		2.0		1.	0.5
	0917	04/22/88	0001	WU	N		1.9		1.	0.5
	0917	08/27/88	0001	WU	N		1.6		1.	0.4
	0917	12/07/88	0001	WU	N		1.5		1.	0.4
	0918	09/20/87	0001	WU	N		5.2		1.	1.0
	0918	02/03/88	0001	WU	N		3.3		1.	0.6
	0918	04/22/88	0001	WU	N		5.0		1.	0.7
	0918	08/26/88	0001	WU	N		6.4		1.	0.8
	0918	12/04/88	0001	WU	N		5.7		1.	0.8
	0920	09/20/87	0001	WU	N		2.5		1.	2.
	0920	01/30/88	0001	WU	N		37.		1.	1.
	0920	04/26/88	0001	WU	N		49.		1.	2.
	0920	08/27/88	0001	WU	N		40.		1.	2.
	0920	12/10/88	0001	WU	N		29.		1.	2.
	0922	09/20/87	0001	WU	N		1.9		1.	0.5
	0922	02/03/88	0001	WU	N		0.9		1.	0.2
	0922	04/26/88	0001	WU	N		1.2		1.	0.4
	0922	08/08/88	0001	WU	N		0.9		1.	0.3
	0922	12/10/88	0001	WU	N		1.3		1.	0.4
	0924	09/20/87	0001	WU	N		140.		1.	10.
	0924	02/04/88	0001	WU	N		140.		1.	10.

FORMATION OF COMPLETION CODE:
 WU - WASATCH - UPPER SANDSTONE

FLOW RELATIONSHIP CODE:
 N - UNKNOWN

PARAMETER VALUE INDICATOR (PVI): < - LESS THAN DETECTION LIMIT

SAMPLE ID CODES:
 0001 - FILTERED SAMPLE (.45 MICRONS)

GROUNDWATER QUALITY DATA BY PARAMETER
 UPPER SANDSTONE UNIT
 SITE: SPK01 SPOOK
 02/17/87 TO 12/10/88
 REPORT DATE: 07/29/94

PARAMETER NAME	LOCATION ID	LOG DATE	SAMPLE ID	FORM COMP	FLOW REL.	UNITS OF MEASURE	PVI	PARAMETER VALUE	FLAGS	DETECTION LIMIT	PARAMETER UNCERTAINTY
RADIUM-226	0924	04/26/88	0001	WU	N	PCI/L		123.		1.	4.
	0924	08/26/88	0001	WU	N			135.		1.	4.
	0924	12/07/88	0001	WU	N			190.		1.	10.
	0925	09/20/87	0001	WU	N			2.5		1.	0.6
	0925	02/03/88	0001	WU	N			0.6		1.	0.2
	0925	04/26/88	0001	WU	N			0.2		1.	0.5
	0925	08/26/88	0001	WU	N			0.9		1.	0.3
	0925	12/07/88	0001	WU	N			0.7		1.	0.3
	0927	09/20/87	0001	WU	N			13.		1.	1.
	0927	02/04/88	0001	WU	N			11.		1.	1.
	0927	04/26/88	0001	WU	N			9.6		1.	1.0
	0927	08/26/88	0001	WU	N			13.		1.	1.
	0927	12/04/88	0001	WU	N			10.		1.	1.
	0928	09/20/87	0001	WU	N			6.8		1.	0.9
	0928	02/03/88	0001	WU	N			8.3		1.	0.9
	0928	04/22/88	0001	WU	N			7.3		1.	0.9
	0928	08/04/88	0001	WU	N			4.6		1.	0.7
	0928	12/04/88	0001	WU	N			7.6		1.	1.0
	0929	09/20/87	0001	WU	N			1.2		1.	0.4
	0929	02/03/88	0001	WU	N			1.9		1.	0.5
	0929	04/28/88	0001	WU	N			0.4	J	1.	0.5
	0929	08/11/88	0001	WU	N			1.7		1.	0.5
	0930	09/20/87	0001	WU	N			3.3		1.	0.6
	0930	01/30/88	0001	WU	N			2.1		1.	0.5
	0930	04/26/88	0001	WU	N			2.7		1.	0.5
	0930	08/27/88	0001	WU	N			13.		1.	1.
	0931	01/30/88	0001	WU	N			0.7		1.	0.3
	0931	04/28/88	0001	WU	N			0.5		1.	0.3
	0931	08/10/88	0001	WU	N			1.0		1.	0.4
	0931	12/04/88	0001	WU	N			0.8		1.	0.3
	0932	01/30/88	0001	WU	N			14.		1.	1.
	0932	04/28/88	0001	WU	N			13.		1.	1.
	0932	08/09/88	0001	WU	N			47.		1.	2.
	0932	12/07/88	0001	WU	N			46.		1.	2.
	0933	08/10/88	0001	WU	N			0.7		1.	0.3
	0933	12/07/88	0001	WU	N			1.0		1.	0.4
	0934	08/11/88	0001	WU	N			3.8		1.	0.7
	0934	12/07/88	0001	WU	N			1.9		1.	0.5
	0935	08/09/88	0001	WU	N			46.		1.	2.
	0935	12/04/88	0001	WU	N			74.		1.	3.

FORMATION OF COMPLETION CODE:
 WU - WASATCH - UPPER SANDSTONE

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SAMPLE ID CODES:
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GROUNDWATER QUALITY DATA BY PARAMETER
 UPPER SANDSTONE UNIT
 SITE: SPK01 SPOOK
 02/17/87 TO 12/10/88
 REPORT DATE: 07/29/94

PARAMETER NAME	LOCATION ID	LOG DATE	SAMPLE ID	FORM COMP	FLOW REL.	UNITS OF MEASURE	PARAMETER PVI VALUE	FLAGS	DETECTION LIMIT	PARAMETER UNCERTAINTY
RADIUM-226	0936	08/08/88	0001	WU	N	PCI/L	5.4		1.	0.8
	0936	12/04/88	0001	WU	N		4.2		1.	0.7
	0937	08/08/88	0001	WU	N		3.3		1.	0.6
	0937	12/04/88	0001	WU	N		4.2		1.	0.7
	0939	08/08/88	0001	WU	N		3.7		1.	0.8
	0939	12/04/88	0001	WU	N		3.7		1.	0.7
	0940	08/08/88	0001	WU	N		61.		1.	3.
	0940	12/04/88	0001	WU	N		83.		1.	3.
	0941	08/08/88	0001	WU	N		0.9		1.	0.3
	0941	12/10/88	0001	WU	N		1.3		1.	0.4
	0942	08/08/88	0001	WU	N		1.3		1.	0.4
	0942	12/04/88	0001	WU	N		0.9		1.	0.3
	0943	08/09/88	0001	WU	N		0.7		1.	0.3
	0943	12/07/88	0001	WU	N		0.6		1.	0.3
	0944	08/11/88	0001	WU	N		0.5		1.	0.2
	0944	12/07/88	0001	WU	N		0.9		1.	0.3
RADIUM-226 + RADIUM-228	0911	09/18/87	0001	WU	N	PCI/L	4.00		-	-
	0911	01/30/88	0001	WU	N		1.40		-	-
	0911	04/22/88	0001	WU	N		2.50		-	-
	0911	08/11/88	0001	WU	N		2.60		-	-
	0911	12/10/88	0001	WU	N		2.10		-	-
	0912	02/03/88	0001	WU	N		31.30		-	-
	0912	04/22/88	0001	WU	N		15.60		-	-
	0912	08/27/88	0001	WU	N		30.20		-	-
	0912	12/04/88	0001	WU	N		47.10		-	-
	0913	09/18/87	0001	WU	N		122.70		-	-
	0913	02/03/88	0001	WU	N		77.80		-	-
	0913	04/22/88	0001	WU	N		90.10		-	-
	0913	08/04/88	0001	WU	N		71.30		-	-
	0913	12/10/88	0001	WU	N		45.30		-	-
	0916	09/20/87	0001	WU	N		22.10		-	-
	0916	02/03/88	0001	WU	N		21.10		-	-
	0916	04/22/88	0001	WU	N		21.80		-	-
	0916	08/04/88	0001	WU	N		15.10		-	-
	0916	12/07/88	0001	WU	N		24.60		-	-
	0917	09/20/87	0001	WU	N		5.50		-	-
	0917	01/30/88	0001	WU	N		4.60		-	-
	0917	04/22/88	0001	WU	N		6.00		-	-
	0917	08/27/88	0001	WU	N		5.00		-	-
	0917	12/07/88	0001	WU	N		5.90		-	-

FORMATION OF COMPLETION CODE:
 WU - WASATCH - UPPER SANDSTONE

FLOW RELATIONSHIP CODE:
 N - UNKNOWN

PARAMETER VALUE INDICATOR (PVI): < - LESS THAN DETECTION LIMIT

SAMPLE ID CODES:
 0001 - FILTERED SAMPLE (.45 MICRONS)

GROUNDWATER QUALITY DATA BY PARAMETER
 UPPER SANDSTONE UNIT
 SITE: SPK01 SPOOK
 02/17/87 TO 12/10/88
 REPORT DATE: 07/29/94

PARAMETER NAME	LOCATION	ID	LOG DATE	SAMPLE ID	FORM	FLOW	REL.	UNITS OF MEASURE	PARAMETER	PVI	VALUE	FLAGS	DETECTION LIMIT	PARAMETER UNCERTAINTY
RADIUM-226 + RADIUM-228		0918	09/20/87	0001	WU	N	PCI/L		5.30				-	-
		0918	02/03/88	0001	WU	N			4.60				-	-
		0918	04/22/88	0001	WU	N			6.70				-	-
		0918	08/26/88	0001	WU	N			7.60				-	-
		0918	12/04/88	0001	WU	N			7.20				-	-
		0920	09/20/87	0001	WU	N			7.50				-	-
		0920	01/30/88	0001	WU	N			44.40				-	-
		0920	04/26/88	0001	WU	N			55.60				-	-
		0920	08/27/88	0001	WU	N			46.60				-	-
		0920	12/10/88	0001	WU	N			35.00				-	-
		0922	09/20/87	0001	WU	N			2.30				-	-
		0922	02/03/88	0001	WU	N			1.10				-	-
		0922	04/26/88	0001	WU	N			1.90				-	-
		0922	08/08/88	0001	WU	N			1.60				-	-
		0922	12/10/88	0001	WU	N			2.40				-	-
		0924	09/20/87	0001	WU	N			141.90				-	-
		0924	02/04/88	0001	WU	N			142.40				-	-
		0924	04/26/88	0001	WU	N			127.20				-	-
		0924	08/26/88	0001	WU	N			138.50				-	-
		0924	12/07/88	0001	WU	N			193.60				-	-
		0925	09/20/87	0001	WU	N			4.80				-	-
		0925	02/03/88	0001	WU	N			2.20				-	-
		0925	04/26/88	0001	WU	N			1.80				-	-
		0925	08/26/88	0001	WU	N			3.00				-	-
		0925	12/07/88	0001	WU	N			3.30				-	-
		0927	09/20/87	0001	WU	N			13.90				-	-
		0927	02/04/88	0001	WU	N			13.00				-	-
		0927	04/26/88	0001	WU	N			13.20				-	-
		0927	08/26/88	0001	WU	N			16.90				-	-
		0927	12/04/88	0001	WU	N			13.80				-	-
		0928	09/20/87	0001	WU	N			9.80				-	-
		0928	02/03/88	0001	WU	N			10.50				-	-
		0928	04/22/88	0001	WU	N			10.20				-	-
		0928	08/04/88	0001	WU	N			6.60				-	-
		0928	12/04/88	0001	WU	N			10.50				-	-
		0929	09/20/87	0001	WU	N			2.70				-	-
		0929	02/03/88	0001	WU	N			2.50				-	-
		0929	04/28/88	0001	WU	N			0.90				-	-
		0929	08/11/88	0001	WU	N			2.80				-	-
		0930	09/20/87	0001	WU	N			5.90				-	-
		0930	01/30/88	0001	WU	N			3.40				-	-

FORMATION OF COMPLETION CODE:
 MU - WASATCH - UPPER SANDSTONE

PARAMETER VALUE INDICATOR (PVI): > - LESS THAN DETECTION LIMIT

SAMPLE ID CODES:
 0001 - FILTERED SAMPLE (.45 MICRONS)

FLOW RELATIONSHIP CODE:
 N - UNKNOWN

GROUNDWATER QUALITY DATA BY PARAMETER
 UPPER SANDSTONE UNIT
 SITE: SPK01 SPOOK
 02/17/87 TO 12/10/88
 REPORT DATE: 07/29/94

PARAMETER NAME	LOCATION ID	LOG DATE	SAMPLE ID	FORM COMP	FLOW REL.	UNITS OF MEASURE	PVI	PARAMETER VALUE	FLAGS	DETECTION LIMIT	PARAMETER UNCERTAINTY
RADIUM-226 + RADIUM-228	0930	04/26/88	0001	WU	N	PC1/L		4.90		-	-
	0930	08/27/88	0001	WU	N			16.80		-	-
	0931	01/30/88	0001	WU	N			1.60		-	-
	0931	04/28/88	0001	WU	N			2.20		-	-
	0931	08/10/88	0001	WU	N			2.80		-	-
	0931	12/04/88	0001	WU	N			2.60		-	-
	0932	01/30/88	0001	WU	N			15.40		-	-
	0932	04/28/88	0001	WU	N			14.00		-	-
	0932	08/09/88	0001	WU	N			48.40		-	-
	0932	12/07/88	0001	WU	N			47.80		-	-
	0933	08/10/88	0001	WU	N			2.10		-	-
	0933	12/07/88	0001	WU	N			2.90		-	-
	0934	08/11/88	0001	WU	N			5.10		-	-
	0934	12/07/88	0001	WU	N			3.50		-	-
	0935	08/09/88	0001	WU	N			54.80		-	-
	0935	12/04/88	0001	WU	N			89.00		-	-
	0936	08/08/88	0001	WU	N			7.10		-	-
	0936	12/04/88	0001	WU	N			6.40		-	-
	0937	08/08/88	0001	WU	N			4.10		-	-
	0937	12/04/88	0001	WU	N			5.80		-	-
	0939	08/08/88	0001	WU	N			4.20		-	-
	0939	12/04/88	0001	WU	N			4.80		-	-
	0940	08/08/88	0001	WU	N			68.70		-	-
	0940	12/04/88	0001	WU	N			94.00		-	-
	0941	08/08/88	0001	WU	N			2.30		-	-
	0941	12/10/88	0001	WU	N			3.20		-	-
	0942	08/08/88	0001	WU	N			1.30		-	-
	0942	12/04/88	0001	WU	N			1.00		-	-
	0943	08/09/88	0001	WU	N			1.30		-	-
	0943	12/07/88	0001	WU	N			1.80		-	-
	0944	08/11/88	0001	WU	N			1.90		-	-
	0944	12/07/88	0001	WU	N			3.40		-	-
RADIUM-228	0911	09/18/87	0001	WU	N	PC1/L		0.9		1.	1.2
	0911	01/30/88	0001	WU	N			0.1		1.	1.0
	0911	04/22/88	0001	WU	N			0.8		1.	0.7
	0911	08/11/88	0001	WU	N			1.2		1.	0.7
	0911	12/10/88	0001	WU	N			0.9		1.	0.9
	0912	02/03/88	0001	WU	N			0.3		1.	0.9
	0912	04/22/88	0001	WU	N			0.6		1.	0.8
	0912	08/27/88	0001	WU	N			1.2		1.	0.9

FORMATION OF COMPLETION CODE:
 WU - WASATCH - UPPER SANDSTONE

FLOW RELATIONSHIP CODE:
 N - UNKNOWN

PARAMETER VALUE INDICATOR (PVI): < - LESS THAN DETECTION LIMIT

SAMPLE ID CODES:
 0001 - FILTERED SAMPLE (.45 MICRONS)

GROUNDWATER QUALITY DATA BY PARAMETER
 UPPER SANDSTONE UNIT
 SITE: SPK01 SPOOK
 02/17/87 TO 12/10/88
 REPORT DATE: 07/29/94

PARAMETER NAME	LOCATION ID	LOG DATE	SAMPLE ID	FORM COMP	FLOW REL.	UNITS OF MEASURE	PARAMETER PVI VALUE	FLAGS	DETECTION LIMIT	PARAMETER UNCERTAINTY
RADIUM-228	0912	12/04/88	0001	WU	N	PCI/L	1.1		1.	0.8
	0913	09/18/87	0001	WU	N		2.7		1.	1.7
	0913	02/03/88	0001	WU	N		2.8		1.	1.0
	0913	04/22/88	0001	WU	N		2.1		1.	0.9
	0913	08/04/88	0001	WU	N		2.3		1.	0.9
	0913	12/10/88	0001	WU	N		2.3		1.	1.0
	0916	09/20/87	0001	WU	N		4.1		1.	2.0
	0916	02/03/88	0001	WU	N		5.1		1.	1.0
	0916	04/22/88	0001	WU	N		5.8		1.	1.0
	0916	08/04/88	0001	WU	N		5.4		1.	1.0
	0916	12/07/88	0001	WU	N		5.6		1.	1.1
	0917	09/20/87	0001	WU	N		2.5		1.	1.4
	0917	01/30/88	0001	WU	N		2.6		1.	0.9
	0917	04/22/88	0001	WU	N		4.1		1.	1.0
	0917	08/27/88	0001	WU	N		3.4		1.	0.9
	0917	12/07/88	0001	WU	N		4.4		1.	1.1
	0918	09/20/87	0001	WU	N		0.1		1.	1.4
	0918	02/03/88	0001	WU	N		1.3		1.	0.9
	0918	04/22/88	0001	WU	N		1.7		1.	0.8
	0918	08/26/88	0001	WU	N		1.2		1.	0.8
	0918	12/04/88	0001	WU	N		1.5		1.	0.9
	0920	09/20/87	0001	WU	N		5.0		1.	1.4
	0920	01/30/88	0001	WU	N		7.4		1.	1.7
	0920	04/26/88	0001	WU	N		6.6		1.	1.0
	0920	08/27/88	0001	WU	N		6.6		1.	1.0
	0920	12/10/88	0001	WU	N		6.0		1.	1.1
	0922	09/20/87	0001	WU	N		0.4		1.	1.1
	0922	02/03/88	0001	WU	N		0.2		1.	0.9
	0922	04/26/88	0001	WU	N		0.7		1.	0.8
	0922	08/08/88	0001	WU	N		0.7		1.	0.8
	0922	12/10/88	0001	WU	N		1.1		1.	0.9
	0924	09/20/87	0001	WU	N		1.9		1.	1.1
	0924	02/04/88	0001	WU	N		2.4		1.	1.0
	0924	04/26/88	0001	WU	N		4.2		1.	1.0
	0924	08/26/88	0001	WU	N		3.5		1.	1.0
	0924	12/07/88	0001	WU	N		3.6		1.	1.0
	0925	09/20/87	0001	WU	N		2.3		1.	1.2
	0925	02/03/88	0001	WU	N		1.6		1.	1.1
	0925	04/26/88	0001	WU	N		1.6		1.	0.8
	0925	08/26/88	0001	WU	N		2.1		1.	0.9
	0925	12/07/88	0001	WU	N		2.6		1.	0.9

FORMATION OF COMPLETION CODE:
 WU - WASATCH - UPPER SANDSTONE

FLOW RELATIONSHIP CODE:
 N - UNKNOWN

PARAMETER VALUE INDICATOR (PVI): < - LESS THAN DETECTION LIMIT

SAMPLE ID CODES:
 0001 - FILTERED SAMPLE (.45 MICRONS)

GROUNDWATER QUALITY DATA BY PARAMETER
 UPPER SANDSTONE UNIT
 SITE: SPK01 SPOOK
 02/17/87 TO 12/10/88
 REPORT DATE: 07/29/94

PARAMETER NAME	LOCATION ID	LOG DATE	SAMPLE ID	FORM COMP REL.	UNITS OF MEASURE	PVI VALUE	FLAGS	DETECTION LIMIT	PARAMETER UNCERTAINTY
RADIUM-228	0927	09/20/87	0001	WU	PCI/L	0.9		1.	1.0
	0927	02/04/88	0001	WU		2.0		1.	1.1
	0927	04/26/88	0001	WU		3.6		1.	0.9
	0927	08/26/88	0001	WU		3.9		1.	1.0
	0927	12/04/88	0001	WU		3.8		1.	1.1
	0928	09/20/87	0001	WU		3.0		1.	1.1
	0928	02/03/88	0001	WU		2.2		1.	1.1
	0928	04/22/88	0001	WU		2.9		1.	0.9
	0928	08/04/88	0001	WU		2.0		1.	1.0
	0928	12/04/88	0001	WU		2.9		1.	1.0
	0929	09/20/87	0001	WU		1.5		1.	1.1
	0929	02/03/88	0001	WU		0.6		1.	0.8
	0929	04/28/88	0001	WU		0.5	J	1.	0.8
	0929	08/11/88	0001	WU		1.1		1.	0.9
	0930	09/20/87	0001	WU		2.6		1.	1.3
	0930	01/30/88	0001	WU		1.3		1.	1.4
	0930	04/26/88	0001	WU		2.2		1.	0.8
	0930	08/27/88	0001	WU		3.8		1.	1.0
	0931	01/30/88	0001	WU		0.9		1.	0.8
	0931	04/28/88	0001	WU		1.7		1.	0.8
	0931	08/10/88	0001	WU		1.8		1.	0.9
	0931	12/04/88	0001	WU		1.8		1.	0.9
	0932	01/30/88	0001	WU		1.4		1.	1.0
	0932	04/28/88	0001	WU		1.0		1.	0.8
	0932	08/09/88	0001	WU		1.4		1.	0.8
	0932	12/07/88	0001	WU		1.8		1.	0.9
	0933	08/10/88	0001	WU		1.4		1.	0.9
	0933	12/07/88	0001	WU		1.9		1.	0.9
	0934	08/11/88	0001	WU		1.3		1.	0.9
	0934	12/07/88	0001	WU		1.6		1.	0.9
	0935	08/09/88	0001	WU		8.8		1.	1.3
	0935	12/04/88	0001	WU		15.		1.	2.
	0936	08/08/88	0001	WU		1.7		1.	0.9
	0936	12/04/88	0001	WU		2.2		1.	1.0
	0937	08/08/88	0001	WU		0.8		1.	0.7
	0937	12/04/88	0001	WU		1.6		1.	0.9
	0939	08/08/88	0001	WU		0.5		1.	1.0
	0939	12/04/88	0001	WU		1.1		1.	1.0
	0940	08/08/88	0001	WU		7.7		1.	1.1
	0940	12/04/88	0001	WU		11.		1.	2.

FORMATION OF COMPLETION CODE:
 WU - WASATCH - UPPER SANDSTONE

FLOW RELATIONSHIP CODE:
 N - UNKNOWN

PARAMETER VALUE INDICATOR (PVI): < - LESS THAN DETECTION LIMIT

SAMPLE ID CODES:
 0001 - FILTERED SAMPLE (.45 MICRONS)

OTHER PARAMETER VALUE FLAGS:
 J - ESTIMATED VALUE

GROUNDWATER QUALITY DATA BY PARAMETER
UPPER SANDSTONE UNIT
SITE: SPK01 SPOOK
02/17/87 TO 12/10/88
REPORT DATE: 07/29/94

PARAMETER NAME	LOCATION ID	LOG DATE	SAMPLE ID	FORM COMP REL.	UNITS OF MEASURE	PV1	PARAMETER VALUE	FLAGS	DETECTION LIMIT	PARAMETER UNCERTAINTY
RADIUM-228	0941	08/08/88	0001	WU	PCI/L		1.4		1.	0.9
	0941	12/10/88	0001	WU			1.9		1.	0.9
	0942	08/08/88	0001	WU			0.0		1.	0.7
	0942	12/04/88	0001	WU			0.1		1.	1.0
	0943	08/09/88	0001	WU			0.6		1.	0.9
	0943	12/07/88	0001	WU			1.2		1.	0.9
	0944	08/11/88	0001	WU			1.4		1.	0.8
	0944	12/07/88	0001	WU			2.5		1.	1.0
SELENIUM	0911	02/17/87	0001	WU	MG/L		0.004	J	0.005	-
	0911	09/18/87	0001	WU			0.006		0.005	-
	0911	01/30/88	0001	WU		<	0.005		0.005	-
	0911	04/22/88	0001	WU			0.003	J	0.005	-
	0911	08/11/88	0001	WU			0.002	J	0.005	-
	0911	12/10/88	0001	WU			0.008		0.005	-
	0912	02/18/87	0001	WU		<	0.001	J	0.005	-
	0912	02/03/88	0001	WU		<	0.005		0.005	-
	0912	04/22/88	0001	WU			0.003	J	0.005	-
	0912	08/27/88	0001	WU			0.005		0.005	-
	0912	12/04/88	0001	WU		<	0.006		0.005	-
	0913	02/18/87	0001	WU			3.80		0.005	-
	0913	09/18/87	0001	WU			3.27		0.005	-
	0913	02/03/88	0001	WU			3.19		0.005	-
	0913	04/22/88	0001	WU			3.24		0.005	-
	0913	08/04/88	0001	WU			3.80		0.005	-
	0913	12/10/88	0001	WU			4.04		0.005	-
	0916	02/20/87	0001	WU			1.15		0.005	-
	0916	09/20/87	0001	WU			21.0		0.005	-
	0916	02/03/88	0001	WU			12.3		0.005	-
	0916	04/22/88	0001	WU			11.6		0.005	-
	0916	08/04/88	0001	WU			12.8		0.005	-
	0916	12/07/88	0001	WU			13.9		0.005	-
	0917	02/19/87	0001	WU			2.71		0.005	-
	0917	09/20/87	0001	WU			3.49		0.005	-
	0917	01/30/88	0001	WU			2.77		0.005	-
	0917	04/22/88	0001	WU			2.88		0.005	-
	0917	08/27/88	0001	WU			5.44		0.005	-
	0917	12/07/88	0001	WU			3.53		0.005	-
	0918	02/20/87	0001	WU			1.40		0.005	-
	0918	09/20/87	0001	WU			1.84		0.005	-

FORMATION OF COMPLETION CODE:
WU - WASATCH - UPPER SANDSTONE

FLOW RELATIONSHIP CODE:
N - UNKNOWN

PARAMETER VALUE INDICATOR (PV1): < - LESS THAN DETECTION LIMIT

SAMPLE ID CODES:
0001 - FILTERED SAMPLE (.45 MICRONS)

OTHER PARAMETER VALUE FLAGS:
J - ESTIMATED VALUE

GROUNDWATER QUALITY DATA BY PARAMETER
 UPPER SANDSTONE UNIT
 SITE: SPK01 SPOOK
 02/17/87 TO 12/10/88
 REPORT DATE: 07/29/94

PARAMETER NAME	LOCATION ID	LOG DATE	SAMPLE ID	FORM COMP	FLOW REL.	UNITS OF MEASURE	PARAMETER PVI VALUE	FLAGS	DETECTION LIMIT	PARAMETER UNCERTAINTY
SELENIUM	0918	02/03/88	0001	WU	N	MG/L	1.49		0.005	-
	0918	04/22/88	0001	WU	N		1.38		0.005	-
	0918	08/26/88	0001	WU	N		2.66		0.005	-
	0918	12/04/88	0001	WU	N		0.939		0.005	-
	0920	09/20/87	0001	WU	N		1.41		0.005	-
	0920	01/30/88	0001	WU	N		1.12		0.005	-
	0920	04/26/88	0001	WU	N		0.953		0.005	-
	0920	08/27/88	0001	WU	N		2.09		0.005	-
	0920	12/10/88	0001	WU	N		0.865		0.005	-
	0922	09/20/87	0001	WU	N		0.043		0.005	-
	0922	02/03/88	0001	WU	N		0.153		0.005	-
	0922	04/26/88	0001	WU	N		0.105		0.005	-
	0922	08/08/88	0001	WU	N		0.177		0.005	-
	0922	12/10/88	0001	WU	N		0.152		0.005	-
	0924	09/20/87	0001	WU	N		2.14		0.005	-
	0924	02/04/88	0001	WU	N		1.83		0.005	-
	0924	04/26/88	0001	WU	N		1.80		0.005	-
	0924	08/26/88	0001	WU	N		2.74		0.005	-
	0924	12/07/88	0001	WU	N		1.85		0.005	-
	0925	09/20/87	0001	WU	N		1.51		0.005	-
	0925	02/03/88	0001	WU	N		1.43		0.005	-
	0925	04/26/88	0001	WU	N		1.37		0.005	-
	0925	08/26/88	0001	WU	N		2.17		0.005	-
	0925	12/07/88	0001	WU	N		1.79		0.005	-
	0927	09/20/87	0001	WU	N		8.95		0.005	-
	0927	02/04/88	0001	WU	N		6.60		0.005	-
	0927	04/26/88	0001	WU	N		7.05		0.005	-
	0927	08/26/88	0001	WU	N		10.9		0.005	-
	0927	12/04/88	0001	WU	N		5.04		0.005	-
	0928	09/20/87	0001	WU	N		3.15		0.005	-
	0928	02/03/88	0001	WU	N		3.76		0.005	-
	0928	04/22/88	0001	WU	N		4.14		0.005	-
	0928	08/04/88	0001	WU	N		3.87		0.005	-
	0928	12/04/88	0001	WU	N		2.63		0.005	-
	0929	09/20/87	0001	WU	N		0.020		0.005	-
	0929	02/03/88	0001	WU	N		0.005		0.005	-
	0929	04/28/88	0001	WU	N		0.005	J	0.005	-
	0929	08/11/88	0001	WU	N		0.006		0.005	-
	0930	09/20/87	0001	WU	N		0.442		0.005	-
	0930	01/30/88	0001	WU	N		0.045		0.005	-

FORMATION OF COMPLETION CODE:
 WU - WASATCH - UPPER SANDSTONE

FLOW RELATIONSHIP CODE:
 N - UNKNOWN

PARAMETER VALUE INDICATOR (PVI): < - LESS THAN DETECTION LIMIT

SAMPLE ID CODES:
 0001 - FILTERED SAMPLE (.45 MICRONS)

OTHER PARAMETER VALUE FLAGS:
 J - ESTIMATED VALUE

GROUNDWATER QUALITY DATA BY PARAMETER
 UPPER SANDSTONE UNIT
 SITE: SPK01 SPOOK
 02/17/87 TO 12/10/88
 REPORT DATE: 07/29/94

PARAMETER NAME	LOCATION ID	LOG DATE	SAMPLE ID	FORM COMP	FLOW REL.	UNITS OF MEASURE	PARAMETER PVI VALUE	FLAGS	DETECTION LIMIT	PARAMETER UNCERTAINTY
SELENIUM	0930	04/26/88	0001	WU	N	MG/L	0.749		0.005	-
	0930	08/27/88	0001	WU	N		0.959		0.005	-
	0931	01/30/88	0001	WU	N		0.909		0.005	-
	0931	04/28/88	0001	WU	N		0.730		0.005	-
	0931	08/10/88	0001	WU	N		0.826		0.005	-
	0931	12/04/88	0001	WU	N		1.08		0.005	-
	0932	01/30/88	0001	WU	N		0.072		0.005	-
	0932	04/28/88	0001	WU	N		0.065		0.005	-
	0932	08/09/88	0001	WU	N		0.043		0.005	-
	0932	12/07/88	0001	WU	N		0.063		0.005	-
	0933	08/10/88	0001	WU	N		0.275		0.005	-
	0933	12/07/88	0001	WU	N		0.302		0.005	-
	0934	08/11/88	0001	WU	N		0.277		0.005	-
	0934	12/07/88	0001	WU	N		0.352		0.005	-
	0935	08/09/88	0001	WU	N		0.262		0.005	-
	0935	12/04/88	0001	WU	N		1.05		0.005	-
	0936	08/08/88	0001	WU	N		5.25		0.005	-
	0936	12/04/88	0001	WU	N		5.08		0.005	-
	0937	08/08/88	0001	WU	N		0.305		0.005	-
	0937	12/04/88	0001	WU	N		0.166		0.005	-
	0939	08/08/88	0001	WU	N		0.025		0.005	-
	0939	12/04/88	0001	WU	N		0.014		0.005	-
	0940	08/08/88	0001	WU	N		3.83		0.005	-
	0940	12/04/88	0001	WU	N		6.59		0.005	-
	0941	08/08/88	0001	WU	N		0.101		0.005	-
	0941	12/10/88	0001	WU	N		0.074		0.005	-
	0942	08/08/88	0001	WU	N		0.272		0.005	-
	0942	12/04/88	0001	WU	N		0.148		0.005	-
	0943	08/09/88	0001	WU	N		0.351		0.005	-
	0943	12/07/88	0001	WU	N		0.424		0.005	-
	0944	08/11/88	0001	WU	N		0.052		0.005	-
	0944	12/07/88	0001	WU	N		0.036		0.005	-
SILICA - SiO2	0911	02/17/87	0001	WU	N	MG/L	14.		2.	-
	0911	09/18/87	0001	WU	N		8.00		2.	-
	0911	01/30/88	0001	WU	N		10.6		2.	-
	0911	04/22/88	0001	WU	N		9.60		2.	-
	0911	08/11/88	0001	WU	N		11.		2.	-
	0912	02/18/87	0001	WU	N		20.		2.	-
	0912	02/03/88	0001	WU	N		14.3		2.	-
	0912	04/22/88	0001	WU	N		13.4		2.	-

FORMATION OF COMPLETION CODE:
 WU - WASATCH - UPPER SANDSTONE

FLOW RELATIONSHIP CODE:
 N - UNKNOWN

PARAMETER VALUE INDICATOR (PVI): < - LESS THAN DETECTION LIMIT

SAMPLE ID CODES:
 0001 - FILTERED SAMPLE (.45 MICRONS)

GROUNDWATER QUALITY DATA BY PARAMETER
 UPPER SANDSTONE UNIT
 SITE: SPK01 SPOOK
 02/17/87 TO 12/10/88
 REPORT DATE: 07/29/94

PARAMETER NAME	LOCATION ID	LOG DATE	SAMPLE ID	FORM COMP	FLOW REL.	UNITS OF MEASURE	PVI	PARAMETER VALUE	FLAGS	DETECTION LIMIT	PARAMETER UNCERTAINTY
SILICA - SI02	0912	08/27/88	0001	UU	N	MG/L		14.2		2.	-
	0913	02/18/87	0001	UU	N			19.		2.	-
	0913	09/18/87	0001	UU	N			11.6		2.	-
	0913	02/03/88	0001	UU	N			14.0		2.	-
	0913	04/22/88	0001	UU	N			13.1		2.	-
	0913	08/04/88	0001	UU	N			14.		2.	-
	0916	02/20/87	0001	UU	N			19.		2.	-
	0916	09/20/87	0001	UU	N			13.7		2.	-
	0916	02/03/88	0001	UU	N			16.7		2.	-
	0916	04/22/88	0001	UU	N			15.6		2.	-
	0916	08/04/88	0001	UU	N			17.		2.	-
	0917	02/19/87	0001	UU	N			22.		2.	-
	0917	09/20/87	0001	UU	N			15.1		2.	-
	0917	01/30/88	0001	UU	N			15.6		2.	-
	0917	04/22/88	0001	UU	N			15.2		2.	-
	0917	08/27/88	0001	UU	N			16.8		2.	-
	0918	02/20/87	0001	UU	N			20.		2.	-
	0918	09/20/87	0001	UU	N			13.1		2.	-
	0918	02/03/88	0001	UU	N			13.7		2.	-
	0918	04/22/88	0001	UU	N			13.9		2.	-
	0918	08/26/88	0001	UU	N			14.8		2.	-
	0920	09/20/87	0001	UU	N			19.3		2.	-
	0920	01/30/88	0001	UU	N			25.0		2.	-
	0920	04/26/88	0001	UU	N			26.4		2.	-
	0920	08/27/88	0001	UU	N			26.4		2.	-
	0922	09/20/87	0001	UU	N			12.9		2.	-
	0922	02/03/88	0001	UU	N			14.9		2.	-
	0922	04/26/88	0001	UU	N			16.4		2.	-
	0922	08/08/88	0001	UU	N			15.		2.	-
	0924	09/20/87	0001	UU	N			12.6		2.	-
	0924	02/04/88	0001	UU	N			14.5		2.	-
	0924	04/26/88	0001	UU	N			14.6		2.	-
	0924	08/26/88	0001	UU	N			14.4		2.	-
	0925	09/20/87	0001	UU	N			13.5		2.	-
	0925	02/03/88	0001	UU	N			14.9		2.	-
	0925	04/26/88	0001	UU	N			15.2		2.	-
	0925	08/26/88	0001	UU	N			15.3		2.	-
	0927	09/20/87	0001	UU	N			15.2		2.	-
	0927	02/04/88	0001	UU	N			16.8		2.	-
	0927	04/26/88	0001	UU	N			17.7.		2.	-
	0927	08/26/88	0001	UU	N			18.0		2.	-

FORMATION OF COMPLETION CODE:
 UU - WASATCH - UPPER SANDSTONE

FLOW RELATIONSHIP CODE:
 N - UNKNOWN

PARAMETER VALUE INDICATOR (PVI): < - LESS THAN DETECTION LIMIT

SAMPLE ID CODES:
 0001 - FILTERED SAMPLE (<.45 MICRONS)

GROUNDWATER QUALITY DATA BY PARAMETER
 UPPER SANDSTONE UNIT
 SITE: SPK01 SPOOK
 02/17/87 TO 12/10/88
 REPORT DATE: 07/29/94

PARAMETER NAME	LOCATION ID	LOG DATE	SAMPLE ID	FORM COMP	FLOW REL.	UNITS OF MEASURE	PVI	PARAMETER VALUE	FLAGS	DETECTION LIMIT	PARAMETER UNCERTAINTY
SILICA - SiO2	0928	09/20/87	0001	WU	N	MG/L		16.8		2.	-
	0928	02/03/88	0001	WU	N			16.8		2.	-
	0928	04/22/88	0001	WU	N			18.9		2.	-
	0928	08/04/88	0001	WU	N			18.		2.	-
	0929	09/20/87	0001	WU	N			4.75		2.	-
	0929	02/03/88	0001	WU	N			8.0		2.	-
	0929	04/28/88	0001	WU	N			7.60	J	2.	-
	0929	08/11/88	0001	WU	N			9.0		2.	-
	0930	09/20/87	0001	WU	N			15.0		2.	-
	0930	01/30/88	0001	WU	N			30.7		2.	-
	0930	04/26/88	0001	WU	N			28.9		2.	-
	0930	08/27/88	0001	WU	N			23.7		2.	-
	0931	01/30/88	0001	WU	N			15.7		2.	-
	0931	04/28/88	0001	WU	N			15.7		2.	-
	0931	08/10/88	0001	WU	N			16.		2.	-
	0932	01/30/88	0001	WU	N			16.4		2.	-
	0932	04/28/88	0001	WU	N			17.4		2.	-
	0932	08/09/88	0001	WU	N			17.		2.	-
	0933	08/10/88	0001	WU	N			15.		2.	-
	0934	08/11/88	0001	WU	N			15.		2.	-
	0935	08/09/88	0001	WU	N			39.		2.	-
	0936	08/08/88	0001	WU	N			14.		2.	-
	0937	08/08/88	0001	WU	N			9.0		2.	-
	0939	08/08/88	0001	WU	N			7.		2.	-
	0940	08/08/88	0001	WU	N			20.		2.	-
	0941	08/08/88	0001	WU	N			15.		2.	-
	0942	08/08/88	0001	WU	N			13.		2.	-
	0943	08/09/88	0001	WU	N			16.		2.	-
	0944	08/11/88	0001	WU	N			14.		2.	-
SILVER	0911	02/17/87	0001	WU	N	MG/L	<	0.01		0.01	-
	0911	09/18/87	0001	WU	N		<	0.01		0.01	-
	0911	01/30/88	0001	WU	N		<	0.01		0.01	-
	0911	04/22/88	0001	WU	N			0.01		0.01	-
	0911	08/11/88	0001	WU	N		<	0.01		0.01	-
	0911	12/10/88	0001	WU	N		<	0.01		0.01	-
	0912	02/18/87	0001	WU	N		<	0.01		0.01	-
	0912	02/03/88	0001	WU	N		<	0.01		0.01	-
	0912	04/22/88	0001	WU	N		<	0.01		0.01	-
	0912	08/27/88	0001	WU	N		<	0.01		0.01	-

FORMATION OF COMPLETION CODE:
 WU - WASATCH - UPPER SANDSTONE

FLOW RELATIONSHIP CODE:
 N - UNKNOWN

PARAMETER VALUE INDICATOR (PVI): < - LESS THAN DETECTION LIMIT

SAMPLE ID CODES:
 0001 - FILTERED SAMPLE (.45 MICRONS)

OTHER PARAMETER VALUE FLAGS:
 J - ESTIMATED VALUE

GROUNDWATER QUALITY DATA BY PARAMETER
 UPPER SANDSTONE UNIT
 SITE: SPK01 SPOOK
 02/17/87 TO 12/10/88
 REPORT DATE: 07/29/94

PARAMETER NAME	LOCATION ID	LOG DATE	SAMPLE ID	FORM COMP	FLOW REL.	UNITS OF MEASURE	PVI	PARAMETER VALUE	FLAGS	DETECTION LIMIT	PARAMETER UNCERTAINTY
SILVER	0912	12/04/88	0001	WU	N	MG/L	<	0.01		0.01	-
	0913	02/18/87	0001	WU	N		<	0.01		0.01	-
	0913	09/18/87	0001	WU	N		<	0.01		0.01	-
	0913	02/03/88	0001	WU	N			0.02		0.01	-
	0913	04/22/88	0001	WU	N			0.04		0.01	-
	0913	08/04/88	0001	WU	N			0.02		0.01	-
	0913	12/10/88	0001	WU	N			0.03		0.01	-
	0916	02/20/87	0001	WU	N		<	0.01		0.01	-
	0916	09/20/87	0001	WU	N		<	0.01		0.01	-
	0916	02/03/88	0001	WU	N			0.06		0.01	-
	0916	04/22/88	0001	WU	N			0.08		0.01	-
	0916	08/04/88	0001	WU	N			0.05		0.01	-
	0916	12/07/88	0001	WU	N			0.08		0.01	-
	0917	02/19/87	0001	WU	N		<	0.01		0.01	-
	0917	09/20/87	0001	WU	N		<	0.01		0.01	-
	0917	01/30/88	0001	WU	N			0.02		0.01	-
	0917	04/22/88	0001	WU	N			0.02		0.01	-
	0917	08/27/88	0001	WU	N			0.01		0.01	-
	0917	12/07/88	0001	WU	N			0.03		0.01	-
	0918	02/20/87	0001	WU	N		<	0.01		0.01	-
	0918	09/20/87	0001	WU	N		<	0.01		0.01	-
	0918	02/03/88	0001	WU	N			0.01		0.01	-
	0918	04/22/88	0001	WU	N			0.01		0.01	-
	0918	08/26/88	0001	WU	N		<	0.01		0.01	-
	0918	12/04/88	0001	WU	N		<	0.01		0.01	-
	0920	09/20/87	0001	WU	N		<	0.01		0.01	-
	0920	01/30/88	0001	WU	N			0.03		0.01	-
	0920	04/26/88	0001	WU	N			0.03		0.01	-
	0920	08/27/88	0001	WU	N			0.02		0.01	-
	0920	12/10/88	0001	WU	N			0.03		0.01	-
	0922	09/20/87	0001	WU	N		<	0.01		0.01	-
	0922	02/03/88	0001	WU	N			0.02		0.01	-
	0922	04/26/88	0001	WU	N			0.01		0.01	-
	0922	08/08/88	0001	WU	N		<	0.01		0.01	-
	0922	12/10/88	0001	WU	N		<	0.01		0.01	-
	0924	09/20/87	0001	WU	N		<	0.01		0.01	-
	0924	02/04/88	0001	WU	N			0.02		0.01	-
	0924	04/26/88	0001	WU	N			0.03		0.01	-
	0924	08/26/88	0001	WU	N		<	0.01		0.01	-
	0924	12/07/88	0001	WU	N			0.03		0.01	-
	0925	09/20/87	0001	WU	N		<	0.01		0.01	-

FORMATION OF COMPLETION CODE:
 WU - WASATCH - UPPER SANDSTONE

FLOW RELATIONSHIP CODE:
 N - UNKNOWN

PARAMETER VALUE INDICATOR (PVI): < - LESS THAN DETECTION LIMIT

SAMPLE ID CODES:
 0001 - FILTERED SAMPLE (.45 MICRONS)

GROUNDWATER QUALITY DATA BY PARAMETER
 UPPER SANDSTONE UNIT
 SITE: SPK01 SPOOK
 02/17/87 TO 12/10/88
 REPORT DATE: 07/29/94

PARAMETER NAME	LOCATION ID	LOG DATE	SAMPLE ID	FORM COMP	FLOW REL.	UNITS OF MEASURE	PARAMETER PVI VALUE	FLAGS	DETECTION LIMIT	PARAMETER UNCERTAINTY
SILVER	0925	02/03/88	0001	WU	N	MG/L	0.01		0.01	-
	0925	04/26/88	0001	WU	N		0.02		0.01	-
	0925	08/26/88	0001	WU	N		< 0.01		0.01	-
	0925	12/07/88	0001	WU	N		0.01		0.01	-
	0927	09/20/87	0001	WU	N		< 0.01		0.01	-
	0927	02/04/88	0001	WU	N		0.03		0.01	-
	0927	04/26/88	0001	WU	N		0.03		0.01	-
	0927	08/26/88	0001	WU	N		0.02		0.01	-
	0927	12/04/88	0001	WU	N		0.03		0.01	-
	0928	09/20/87	0001	WU	N		< 0.01		0.01	-
	0928	02/03/88	0001	WU	N		0.03		0.01	-
	0928	04/22/88	0001	WU	N		0.03		0.01	-
	0928	08/04/88	0001	WU	N		0.01		0.01	-
	0928	12/04/88	0001	WU	N		0.03		0.01	-
	0929	09/20/87	0001	WU	N		< 0.01		0.01	-
	0929	02/03/88	0001	WU	N		0.01		0.01	-
	0929	04/28/88	0001	WU	N		0.01	J	0.01	-
	0929	08/11/88	0001	WU	N		< 0.01		0.01	-
	0930	09/20/87	0001	WU	N		< 0.01		0.01	-
	0930	01/30/88	0001	WU	N		0.018		0.01	-
	0930	04/26/88	0001	WU	N		0.04		0.01	-
	0930	08/27/88	0001	WU	N		0.02		0.01	-
	0931	01/30/88	0001	WU	N		< 0.01		0.01	-
	0931	04/28/88	0001	WU	N		0.02		0.01	-
	0931	08/10/88	0001	WU	N		< 0.01		0.01	-
	0931	12/04/88	0001	WU	N		0.01		0.01	-
	0932	01/30/88	0001	WU	N		< 0.01		0.01	-
	0932	04/28/88	0001	WU	N		0.01		0.01	-
	0932	08/09/88	0001	WU	N		< 0.01		0.01	-
	0932	12/07/88	0001	WU	N		< 0.01		0.01	-
	0933	08/10/88	0001	WU	N		0.01		0.01	-
	0933	12/07/88	0001	WU	N		0.01		0.01	-
	0934	08/11/88	0001	WU	N		< 0.01		0.01	-
	0934	12/07/88	0001	WU	N		< 0.01		0.01	-
	0935	08/09/88	0001	WU	N		0.01		0.01	-
	0935	12/04/88	0001	WU	N		0.03		0.01	-
	0936	08/08/88	0001	WU	N		0.01		0.01	-
	0936	12/04/88	0001	WU	N		0.03		0.01	-
	0937	08/08/88	0001	WU	N		0.03		0.01	-
	0937	12/04/88	0001	WU	N		0.02		0.01	-

FORMATION OF COMPLETION CODE:
 WU - WASATCH - UPPER SANDSTONE

FLOW RELATIONSHIP CODE:
 N - UNKNOWN

PARAMETER VALUE INDICATOR (PVI): < - LESS THAN DETECTION LIMIT

SAMPLE ID CODES:
 0001 - FILTERED SAMPLE (.45 MICRONS)

OTHER PARAMETER VALUE FLAGS:
 J - ESTIMATED VALUE

GROUNDWATER QUALITY DATA BY PARAMETER
 UPPER SANDSTONE UNIT
 SITE: SPK01 SPOOK
 02/17/87 TO 12/10/88
 REPORT DATE: 07/29/94

PARAMETER NAME	LOCATION ID	LOG DATE	SAMPLE ID	FORM COMP	FLOW REL.	UNITS OF MEASURE	PVI	PARAMETER VALUE	FLAGS	DETECTION LIMIT	PARAMETER UNCERTAINTY
SILVER	0939	08/08/88	0001	WU	N	MG/L		0.01		0.01	-
	0939	12/04/88	0001	WU	N			0.02		0.01	-
	0940	08/08/88	0001	WU	N			0.03		0.01	-
	0940	12/04/88	0001	WU	N			0.04		0.01	-
	0941	08/08/88	0001	WU	N		<	0.01		0.01	-
	0941	12/10/88	0001	WU	N		<	0.01		0.01	-
	0942	08/08/88	0001	WU	N		<	0.01		0.01	-
	0942	12/04/88	0001	WU	N		<	0.01		0.01	-
	0943	08/09/88	0001	WU	N			0.01		0.01	-
	0943	12/07/88	0001	WU	N			0.01		0.01	-
	0944	08/11/88	0001	WU	N		<	0.01		0.01	-
	0944	12/07/88	0001	WU	N			0.01		0.01	-
SODIUM	0911	02/17/87	0001	WU	N	MG/L		208.		0.002	-
	0911	09/18/87	0001	WU	N			41.6		0.002	-
	0911	01/30/88	0001	WU	N			21.3		0.002	-
	0911	04/22/88	0001	WU	N			16.4		0.002	-
	0911	08/11/88	0001	WU	N			14.4		0.002	-
	0911	12/10/88	0001	WU	N			14.6		0.002	-
	0912	02/18/87	0001	WU	N			75.0		0.002	-
	0912	02/03/88	0001	WU	N			55.1		0.002	-
	0912	04/22/88	0001	WU	N			51.6		0.002	-
	0912	08/27/88	0001	WU	N			50.1		0.002	-
	0912	12/04/88	0001	WU	N			55.2		0.002	-
	0913	02/18/87	0001	WU	N			113.		0.002	-
	0913	09/18/87	0001	WU	N			76.3		0.002	-
	0913	02/03/88	0001	WU	N			27.1		0.002	-
	0913	04/22/88	0001	WU	N			24.9		0.002	-
	0913	08/04/88	0001	WU	N			23.1		0.002	-
	0913	12/10/88	0001	WU	N			26.1		0.002	-
	0916	02/20/87	0001	WU	N			27.2		0.002	-
	0916	09/20/87	0001	WU	N			136.		0.002	-
	0916	02/03/88	0001	WU	N			32.9		0.002	-
	0916	04/22/88	0001	WU	N			31.4		0.002	-
	0916	08/04/88	0001	WU	N			29.2		0.002	-
	0916	12/07/88	0001	WU	N			30.6		0.002	-
	0917	02/19/87	0001	WU	N			18.4		0.002	-
	0917	09/20/87	0001	WU	N			25.8		0.002	-
	0917	01/30/88	0001	WU	N			19.0		0.002	-
	0917	04/22/88	0001	WU	N			18.6		0.002	-
	0917	08/27/88	0001	WU	N			18.5		0.002	-

FORMATION OF COMPLETION CODE:
 WU - HASATCH - UPPER SANDSTONE

FLOW RELATIONSHIP CODE:
 N - UNKNOWN

PARAMETER VALUE INDICATOR (PVI): < - LESS THAN DETECTION LIMIT

SAMPLE ID CODES:
 0001 - FILTERED SAMPLE (.45 MICRONS)

GROUNDWATER QUALITY DATA BY PARAMETER
 UPPER SANDSTONE UNIT
 SITE: SPK01 SPOOK
 02/17/87 TO 12/10/88
 REPORT DATE: 07/29/94

PARAMETER NAME	LOCATION ID	LOG DATE	SAMPLE ID	FORM COMP	FLOW REL.	UNITS OF MEASURE	PARAMETER PVI VALUE	FLAGS	DETECTION LIMIT	PARAMETER UNCERTAINTY
SODIUM	0917	12/07/88	0001	WU	N	MG/L	19.1		0.002	-
	0918	02/20/87	0001	WU	N		18.6		0.002	-
	0918	09/20/87	0001	WU	N		42.6		0.002	-
	0918	02/03/88	0001	WU	N		19.6		0.002	-
	0918	04/22/88	0001	WU	N		20.1		0.002	-
	0918	08/26/88	0001	WU	N		19.0		0.002	-
	0918	12/04/88	0001	WU	N		22.6		0.002	-
	0920	09/20/87	0001	WU	N		421.		0.002	-
	0920	01/30/88	0001	WU	N		395.		0.002	-
	0920	04/26/88	0001	WU	N		411.		0.002	-
	0920	08/27/88	0001	WU	N		400.		0.002	-
	0920	12/10/88	0001	WU	N		432.		0.002	-
	0922	09/20/87	0001	WU	N		23.6		0.002	-
	0922	02/03/88	0001	WU	N		15.7		0.002	-
	0922	04/26/88	0001	WU	N		15.4		0.002	-
	0922	08/08/88	0001	WU	N		18.3		0.002	-
	0922	12/10/88	0001	WU	N		16.6		0.002	-
	0924	09/20/87	0001	WU	N		20.7		0.002	-
	0924	02/04/88	0001	WU	N		19.0		0.002	-
	0924	04/26/88	0001	WU	N		18.1		0.002	-
	0924	08/26/88	0001	WU	N		18.2		0.002	-
	0924	12/07/88	0001	WU	N		19.0		0.002	-
	0925	09/20/87	0001	WU	N		16.2		0.002	-
	0925	02/03/88	0001	WU	N		14.3		0.002	-
	0925	04/26/88	0001	WU	N		13.8		0.002	-
	0925	08/26/88	0001	WU	N		13.4		0.002	-
	0925	12/07/88	0001	WU	N		13.9		0.002	-
	0927	09/20/87	0001	WU	N		56.3		0.002	-
	0927	02/04/88	0001	WU	N		51.9		0.002	-
	0927	04/26/88	0001	WU	N		52.5		0.002	-
	0927	08/26/88	0001	WU	N		53.8		0.002	-
	0927	12/04/88	0001	WU	N		53.0		0.002	-
	0928	09/20/87	0001	WU	N		28.1		0.002	-
	0928	02/03/88	0001	WU	N		22.1		0.002	-
	0928	04/22/88	0001	WU	N		22.7		0.002	-
	0928	08/04/88	0001	WU	N		21.9		0.002	-
	0928	12/04/88	0001	WU	N		22.2		0.002	-
	0929	09/20/87	0001	WU	N		45.1		0.002	-
	0929	02/03/88	0001	WU	N		24.8		0.002	-
	0929	04/28/88	0001	WU	N		20.4	J	0.002	-

FORMATION OF COMPLETION CODE:
 WU - WASATCH - UPPER SANDSTONE

FLOW RELATIONSHIP CODE:
 N - UNKNOWN

PARAMETER VALUE INDICATOR (PVI): < - LESS THAN DETECTION LIMIT

SAMPLE ID CODES:
 0001 - FILTERED SAMPLE (.45 MICRONS)

OTHER PARAMETER VALUE FLAGS:
 J - ESTIMATED VALUE

GROUNDWATER QUALITY DATA BY PARAMETER
 UPPER SANDSTONE UNIT
 SITE: SPK01 SPOOK
 02/17/87 TO 12/10/88
 REPORT DATE: 07/29/94

PARAMETER NAME	LOCATION ID	LOG DATE	SAMPLE ID	FORM COMP	FLOW REL.	UNITS OF MEASURE	PVI VALUE	FLAGS	DETECTION LIMIT	PARAMETER UNCERTAINTY
SODIUM	0929	08/11/88	0001	WU	N	MG/L	17.4		0.002	-
	0930	09/20/87	0001	WU	N		311.		0.002	-
	0930	01/30/88	0001	WU	N		375.		0.002	-
	0930	04/26/88	0001	WU	N		366.		0.002	-
	0930	08/27/88	0001	WU	N		325.		0.002	-
	0931	01/30/88	0001	WU	N		18.1		0.002	-
	0931	04/28/88	0001	WU	N		16.9		0.002	-
	0931	08/10/88	0001	WU	N		14.2		0.002	-
	0931	12/04/88	0001	WU	N		14.4		0.002	-
	0932	01/30/88	0001	WU	N		14.7		0.002	-
	0932	04/28/88	0001	WU	N		15.1		0.002	-
	0932	08/09/88	0001	WU	N		16.6		0.002	-
	0932	12/07/88	0001	WU	N		14.1		0.002	-
	0933	08/10/88	0001	WU	N		28.3		0.002	-
	0933	12/07/88	0001	WU	N		20.8		0.002	-
	0934	08/11/88	0001	WU	N		15.4		0.002	-
	0934	12/07/88	0001	WU	N		345.		0.002	-
	0935	08/09/88	0001	WU	N		408.		0.002	-
	0935	12/04/88	0001	WU	N		17.7		0.002	-
	0936	08/08/88	0001	WU	N		21.4		0.002	-
	0937	12/04/88	0001	WU	N		72.6		0.002	-
	0937	08/08/88	0001	WU	N		72.2		0.002	-
	0939	08/08/88	0001	WU	N		37.6		0.002	-
	0939	12/04/88	0001	WU	N		48.4		0.002	-
	0940	08/08/88	0001	WU	N		95.8		0.002	-
	0940	12/04/88	0001	WU	N		94.7		0.002	-
	0941	08/08/88	0001	WU	N		15.5		0.002	-
	0941	12/10/88	0001	WU	N		14.2		0.002	-
	0942	08/08/88	0001	WU	N		16.5		0.002	-
	0942	12/04/88	0001	WU	N		16.6		0.002	-
	0943	08/09/88	0001	WU	N		25.2		0.002	-
	0943	12/07/88	0001	WU	N		20.3		0.002	-
	0944	08/11/88	0001	WU	N		30.8		0.002	-
	0944	12/07/88	0001	WU	N		23.3		0.002	-
SPECIFIC CONDUCTANCE	0911	02/17/87	0001	WU	N	UMHO/CM	1350.		-	-
	0911	09/18/87	0001	WU	N		420.		-	-
	0911	01/30/88	0001	WU	N		390.		-	-
	0911	04/22/88	0001	WU	N		550.		-	-
	0911	08/11/88	0001	WU	N		550.0		-	-

FORMATION OF COMPLETION CODE:
 WU - WASATCH - UPPER SANDSTONE

FLOW RELATIONSHIP CODE:
 N - UNKNOWN

PARAMETER VALUE INDICATOR (PVI): < - LESS THAN DETECTION LIMIT

SAMPLE ID CODES:
 0001 - FILTERED SAMPLE (.45 MICRONS)

GROUNDWATER QUALITY DATA BY PARAMETER
UPPER SANDSTONE UNIT
SITE: SPK01 SPOOK
02/17/87 TO 12/10/88
REPORT DATE: 07/29/94

PARAMETER NAME	LOCATION ID	LOG DATE	SAMPLE ID	FORM COMP	FLOW REL.	UNITS OF MEASURE	PVI	PARAMETER VALUE	FLAGS	DETECTION LIMIT	PARAMETER UNCERTAINTY
SPECIFIC CONDUCTANCE	0911	12/10/88	0001	WU	N	UMHO/CM		500.		-	-
	0912	02/18/87	0001	WU	N			375.		-	-
	0912	02/03/88	0001	WU	N			300.		-	-
	0912	04/22/88	0001	WU	N			400.		-	-
	0912	08/27/88	0001	WU	N			380.0		-	-
	0912	12/04/88	0001	WU	N			370.		-	-
	0913	02/18/87	0001	WU	N			700.		-	-
	0913	09/18/87	0001	WU	N			460.		-	-
	0913	02/03/88	0001	WU	N			485.		-	-
	0913	04/22/88	0001	WU	N			975.		-	-
	0913	08/04/88	0001	WU	N			1050.0		-	-
	0913	12/10/88	0001	WU	N			950.		-	-
	0916	02/20/87	0001	WU	N			1150.		-	-
	0916	09/20/87	0001	WU	N			950.		-	-
	0916	02/03/88	0001	WU	N			1100.		-	-
	0916	04/22/88	0001	WU	N			1750.		-	-
	0916	08/04/88	0001	WU	N			1750.0		-	-
	0916	12/07/88	0001	WU	N			1550.		-	-
	0917	02/19/87	0001	WU	N			700.		-	-
	0917	09/20/87	0001	WU	N			360.		-	-
	0917	01/30/88	0001	WU	N			460.		-	-
	0917	04/22/88	0001	WU	N			650.		-	-
	0917	08/27/88	0001	WU	N			770.0		-	-
	0917	12/07/88	0001	WU	N			700.		-	-
	0918	02/20/87	0001	WU	N			450.		-	-
	0918	09/20/87	0001	WU	N			280.		-	-
	0918	02/03/88	0001	WU	N			380.		-	-
	0918	04/22/88	0001	WU	N			625.		-	-
	0918	08/26/88	0001	WU	N			600.0		-	-
	0918	12/04/88	0001	WU	N			600.		-	-
	0920	09/20/87	0001	WU	N			2100.		-	-
	0920	01/30/88	0001	WU	N			1830.		-	-
	0920	04/26/88	0001	WU	N			3600.		-	-
	0920	08/27/88	0001	WU	N			3500.0		-	-
	0920	12/10/88	0001	WU	N			3200.		-	-
	0922	09/20/87	0001	WU	N			410.		-	-
	0922	02/03/88	0001	WU	N			430.		-	-
	0922	04/26/88	0001	WU	N			600.		-	-
	0922	08/08/88	0001	WU	N			650.0		-	-
	0922	12/10/88	0001	WU	N			600.		-	-
	0924	09/20/87	0001	WU	N			700.		-	-

FORMATION OF COMPLETION CODE:
WU - WASATCH - UPPER SANDSTONE

FLOW RELATIONSHIP CODE:
N - UNKNOWN

PARAMETER VALUE INDICATOR (PVI): < - LESS THAN DETECTION LIMIT

SAMPLE ID CODES:
0001 - FILTERED SAMPLE (.45 MICRONS)

GROUNDWATER QUALITY DATA BY PARAMETER
 UPPER SANDSTONE UNIT
 SITE: SPK01 SPOOK
 02/17/87 TO 12/10/88
 REPORT DATE: 07/29/94

PARAMETER NAME	LOCATION ID	LOG DATE	SAMPLE ID	FORM COMP	FLOW REL.	UNITS OF MEASURE	PVI VALUE	FLAGS	DETECTION LIMIT	PARAMETER UNCERTAINTY
SPECIFIC CONDUCTANCE	0924	02/04/88	0001	WU	N	UMHO/CM	800.		-	-
	0924	04/26/88	0001	WU	N		950.		-	-
	0924	08/26/88	0001	WU	N		810.0		-	-
	0924	12/07/88	0001	WU	N		900.		-	-
	0925	09/20/87	0001	WU	N		305.		-	-
	0925	02/03/88	0001	WU	N		310.		-	-
	0925	04/26/88	0001	WU	N		450.		-	-
	0925	08/26/88	0001	WU	N		330.0		-	-
	0925	12/07/88	0001	WU	N		460.		-	-
	0927	09/20/87	0001	WU	N		1200.		-	-
	0927	02/04/88	0001	WU	N		1200.		-	-
	0927	04/26/88	0001	WU	N		1650.		-	-
	0927	08/26/88	0001	WU	N		1350.0		-	-
	0927	12/04/88	0001	WU	N		1500.		-	-
	0928	09/20/87	0001	WU	N		800.		-	-
	0928	02/03/88	0001	WU	N		480.		-	-
	0928	04/22/88	0001	WU	N		1300.		-	-
	0928	08/04/88	0001	WU	N		1300.0		-	-
	0928	12/04/88	0001	WU	N		1200.		-	-
	0929	09/20/87	0001	WU	N		700.		-	-
	0929	02/03/88	0001	WU	N		230.		-	-
	0929	04/28/88	0001	WU	N		425.		-	-
	0929	08/11/88	0001	WU	N		420.0		-	-
	0930	09/20/87	0001	WU	N		1800.		-	-
	0930	01/30/88	0001	WU	N		2190.		-	-
	0930	04/26/88	0001	WU	N		3850.		-	-
	0930	08/27/88	0001	WU	N		3400.0		-	-
	0931	01/30/88	0001	WU	N		195.		-	-
	0931	04/28/88	0001	WU	N		460.		-	-
	0931	08/10/88	0001	WU	N		500.		-	-
	0931	12/04/88	0001	WU	N		415.		-	-
	0932	01/30/88	0001	WU	N		380.		-	-
	0932	04/28/88	0001	WU	N		650.		-	-
	0932	08/09/88	0001	WU	N		700.0		-	-
	0932	12/07/88	0001	WU	N		600.		-	-
	0933	08/10/88	0001	WU	N		525.0		-	-
	0933	12/07/88	0001	WU	N		500.		-	-
	0934	08/11/88	0001	WU	N		525.0		-	-
	0934	12/07/88	0001	WU	N		480.		-	-
	0935	08/09/88	0001	WU	N		1400.0		-	-
	0935	12/04/88	0001	WU	N		3900.		-	-

FORMATION OF COMPLETION CODE:
 WU - HASATCH - UPPER SANDSTONE

FLOW RELATIONSHIP CODE:
 N - UNKNOWN

PARAMETER VALUE INDICATOR (PVI): < - LESS THAN DETECTION LIMIT

SAMPLE ID CODES:
 0001 - FILTERED SAMPLE (<.45 MICRONS)

GROUNDWATER QUALITY DATA BY PARAMETER
 UPPER SANDSTONE UNIT
 SITE: SPK01 SPOOK
 02/17/87 TO 12/10/88
 REPORT DATE: 07/29/94

PARAMETER NAME	LOCATION ID	LOG DATE	SAMPLE ID	FORM COMP	FLOW REL.	UNITS OF MEASURE	PVI	PARAMETER VALUE	FLAGS	DETECTION LIMIT	PARAMETER UNCERTAINTY
SPECIFIC CONDUCTANCE	0936	08/08/88	0001	WU	N	UMHO/CM		1300.0		-	-
	0936	12/04/88	0001	WU	N			1000.		-	-
	0937	08/08/88	0001	WU	N			800.0		-	-
	0937	12/04/88	0001	WU	N			600.		-	-
	0939	08/08/88	0001	WU	N			1100.0		-	-
	0939	12/04/88	0001	WU	N			1150.		-	-
	0940	08/08/88	0001	WU	N			3300.0		-	-
	0940	12/04/88	0001	WU	N			2900.		-	-
	0941	08/08/88	0001	WU	N			310.0		-	-
	0941	12/10/88	0001	WU	N			310.		-	-
	0942	08/08/88	0001	WU	N			700.0		-	-
	0942	12/04/88	0001	WU	N			400.		-	-
	0943	08/09/88	0001	WU	N			450.0		-	-
	0943	12/07/88	0001	WU	N			10.		-	-
	0944	08/11/88	0001	WU	N			800.0		-	-
	0944	12/07/88	0001	WU	N			800.		-	-
STRONTIUM	0911	09/18/87	0001	WU	N	MG/L		1.17		0.1	-
	0911	01/30/88	0001	WU	N			1.03		0.1	-
	0911	04/22/88	0001	WU	N			0.87		0.1	-
	0911	08/11/88	0001	WU	N			1.1		0.1	-
	0912	02/03/88	0001	WU	N			0.49		0.1	-
	0912	04/22/88	0001	WU	N			0.38		0.1	-
	0912	08/27/88	0001	WU	N			0.5		0.1	-
	0913	09/18/87	0001	WU	N			2.11		0.1	-
	0913	02/03/88	0001	WU	N			1.84		0.1	-
	0913	04/22/88	0001	WU	N			1.54		0.1	-
	0913	08/04/88	0001	WU	N			1.8		0.1	-
	0916	09/20/87	0001	WU	N			3.56		0.1	-
	0916	02/03/88	0001	WU	N			3.37		0.1	-
	0916	04/22/88	0001	WU	N			2.78		0.1	-
	0916	08/04/88	0001	WU	N			3.3		0.1	-
	0917	09/20/87	0001	WU	N			1.92		0.1	-
	0917	01/30/88	0001	WU	N			1.70		0.1	-
	0917	04/22/88	0001	WU	N			1.39		0.1	-
	0917	08/27/88	0001	WU	N			1.9		0.1	-
	0918	09/20/87	0001	WU	N			1.65		0.1	-
	0918	02/03/88	0001	WU	N			1.42		0.1	-
	0918	04/22/88	0001	WU	N			1.14		0.1	-
	0918	08/26/88	0001	WU	N			1.6		0.1	-
	0920	09/20/87	0001	WU	N			5.33		0.1	-

FORMATION OF COMPLETION CODE:
 WU - WASATCH - UPPER SANDSTONE

PARAMETER VALUE INDICATOR (PVI): < - LESS THAN DETECTION LIMIT

FLOW RELATIONSHIP CODE:
 N - UNKNOWN

SAMPLE ID CODES:
 0001 - FILTERED SAMPLE (.45 MICRONS)

GROUNDWATER QUALITY DATA BY PARAMETER
 UPPER SANDSTONE UNIT
 SITE: SPK01 SPOOK
 02/17/87 TO 12/10/88
 REPORT DATE: 07/29/94

PARAMETER NAME	LOCATION ID	LOG DATE	SAMPLE ID	FORM COMP	FLOW REL.	UNITS OF MEASURE	PVI	PARAMETER VALUE	FLAGS	DETECTION LIMIT	PARAMETER UNCERTAINTY
STRONTIUM	0920	01/30/88	0001	WU	N	MG/L		5.95		0.1	-
	0920	04/26/88	0001	WU	N			4.98		0.1	-
	0920	08/27/88	0001	WU	N			6.5		0.1	-
	0922	09/20/87	0001	WU	N			1.04		0.1	-
	0922	02/03/88	0001	WU	N			0.81		0.1	-
	0922	04/26/88	0001	WU	N			0.58		0.1	-
	0922	08/08/88	0001	WU	N			0.9		0.1	-
	0924	09/20/87	0001	WU	N			1.53		0.1	-
	0924	02/04/88	0001	WU	N			1.51		0.1	-
	0924	04/26/88	0001	WU	N			1.20		0.1	-
	0924	08/26/88	0001	WU	N			1.6		0.1	-
	0925	09/20/87	0001	WU	N			1.12		0.1	-
	0925	02/03/88	0001	WU	N			1.01		0.1	-
	0925	04/26/88	0001	WU	N			0.80		0.1	-
	0925	08/26/88	0001	WU	N			1.1		0.1	-
	0927	09/20/87	0001	WU	N			2.19		0.1	-
	0927	02/04/88	0001	WU	N			2.33		0.1	-
	0927	04/26/88	0001	WU	N			1.85		0.1	-
	0927	08/26/88	0001	WU	N			2.3		0.1	-
	0928	09/20/87	0001	WU	N			2.18		0.1	-
	0928	02/03/88	0001	WU	N			2.33		0.1	-
	0928	04/22/88	0001	WU	N			1.81		0.1	-
	0928	08/04/88	0001	WU	N			2.0		0.1	-
	0929	09/20/87	0001	WU	N			2.07		0.1	-
	0929	02/03/88	0001	WU	N			0.94		0.1	-
	0929	04/28/88	0001	WU	N			0.91	J	0.1	-
	0929	08/11/88	0001	WU	N			1.0		0.1	-
	0930	09/20/87	0001	WU	N			4.72		0.1	-
	0930	01/30/88	0001	WU	N			5.50		0.1	-
	0930	04/26/88	0001	WU	N			5.28		0.1	-
	0930	08/27/88	0001	WU	N			6.0		0.1	-
	0931	01/30/88	0001	WU	N			1.20		0.1	-
	0931	04/28/88	0001	WU	N			1.12		0.1	-
	0931	08/10/88	0001	WU	N			1.0		0.1	-
	0932	01/30/88	0001	WU	N			0.98		0.1	-
	0932	04/28/88	0001	WU	N			0.93		0.1	-
	0932	08/09/88	0001	WU	N			1.0		0.1	-
	0933	08/10/88	0001	WU	N			1.4		0.1	-
	0934	08/11/88	0001	WU	N			1.0		0.1	-
	0935	08/09/88	0001	WU	N			5.5		0.1	-

FORMATION OF COMPLETION CODE:
 WU - WASATCH - UPPER SANDSTONE

FLOW RELATIONSHIP CODE:
 N - UNKNOWN

PARAMETER VALUE INDICATOR (PVI): < - LESS THAN DETECTION LIMIT

SAMPLE ID CODES:
 0001 - FILTERED SAMPLE (.45 MICRONS)

OTHER PARAMETER VALUE FLAGS:
 J - ESTIMATED VALUE

GROUNDWATER QUALITY DATA BY PARAMETER
 UPPER SANDSTONE UNIT
 SITE: SPK01 SPOOK
 02/17/87 TO 12/10/88
 REPORT DATE: 07/29/94

PARAMETER NAME	LOCATION ID	LOG DATE	SAMPLE ID	FORM COMP	FLOW REL.	UNITS OF MEASURE	PVI	PARAMETER VALUE	FLAGS	DETECTION LIMIT	PARAMETER UNCERTAINTY
STRONTIUM	0936	08/08/88	0001	WU	N	MG/L		1.9		0.1	-
	0937	08/08/88	0001	WU	N			1.0		0.1	-
	0939	08/08/88	0001	WU	N			1.6		0.1	-
	0940	08/08/88	0001	WU	N			2.8		0.1	-
	0941	08/08/88	0001	WU	N			0.8		0.1	-
	0942	08/08/88	0001	WU	N			0.8		0.1	-
	0943	08/09/88	0001	WU	N			1.3		0.1	-
	0944	08/11/88	0001	WU	N			2.2		0.1	-
	0911	02/17/87	0001	WU	N	MG/L		688.		0.1	-
	0911	09/18/87	0001	WU	N			242.		0.1	-
SULFATE	0911	01/30/88	0001	WU	N			177.		0.1	-
	0911	04/22/88	0001	WU	N			174.		0.1	-
	0911	08/11/88	0001	WU	N			205.		0.1	-
	0911	12/10/88	0001	WU	N			177.		0.1	-
	0912	02/18/87	0001	WU	N			114.		0.1	-
	0912	02/03/88	0001	WU	N			103.		0.1	-
	0912	04/22/88	0001	WU	N			130.		0.1	-
	0912	08/27/88	0001	WU	N			97.		0.1	-
	0912	12/04/88	0001	WU	N			121.		0.1	-
	0913	02/18/87	0001	WU	N			455.		0.1	-
	0913	09/18/87	0001	WU	N			548.		0.1	-
	0913	02/03/88	0001	WU	N			521.		0.1	-
	0913	04/22/88	0001	WU	N			524.		0.1	-
	0913	08/04/88	0001	WU	N			525.		0.1	-
	0913	12/10/88	0001	WU	N			514.		0.1	-
	0916	02/20/87	0001	WU	N			674.		0.1	-
	0916	09/20/87	0001	WU	N			834.		0.1	-
	0916	02/03/88	0001	WU	N			785.		0.1	-
	0916	04/22/88	0001	WU	N			846.		0.1	-
	0916	08/04/88	0001	WU	N			873.		0.1	-
	0916	12/07/88	0001	WU	N			789.		0.1	-
	0917	02/19/87	0001	WU	N			149.		0.1	-
	0917	09/20/87	0001	WU	N			161.		0.1	-
	0917	01/30/88	0001	WU	N			158.		0.1	-
	0917	04/22/88	0001	WU	N			162.		0.1	-
	0917	08/27/88	0001	WU	N			156.		0.1	-
	0917	12/07/88	0001	WU	N			159.		0.1	-
	0918	02/20/87	0001	WU	N			253.		0.1	-
	0918	09/20/87	0001	WU	N			274.		0.1	-
	0918	02/03/88	0001	WU	N			261.		0.1	-

FORMATION OF COMPLETION CODE:
 WU - WASATCH - UPPER SANDSTONE

FLOW RELATIONSHIP CODE:
 N - UNKNOWN

PARAMETER VALUE INDICATOR (PVI): < - LESS THAN DETECTION LIMIT

SAMPLE ID CODES:
 0001 - FILTERED SAMPLE (.45 MICRONS)

GROUNDWATER QUALITY DATA BY PARAMETER
 UPPER SANDSTONE UNIT
 SITE: SPK01 SPOOK
 02/17/87 TO 12/10/88
 REPORT DATE: 07/29/94

PARAMETER NAME	LOCATION ID	LOG DATE	SAMPLE ID	FORM COMP	FLOW REL.	UNITS OF MEASURE	PARAMETER PVI VALUE	FLAGS	DETECTION LIMIT	PARAMETER UNCERTAINTY
SULFATE	0918	04/22/88	0001	WU	N	MG/L	264.		0.1	-
	0918	08/26/88	0001	WU	N		265.		0.1	-
	0918	12/04/88	0001	WU	N		263.		0.1	-
	0920	09/20/87	0001	WU	N		3030.		0.1	-
	0920	01/30/88	0001	WU	N		3240.		0.1	-
	0920	04/26/88	0001	WU	N		3240.		0.1	-
	0920	08/27/88	0001	WU	N		2870.		0.1	-
	0920	12/10/88	0001	WU	N		2760.		0.1	-
	0922	09/20/87	0001	WU	N		330.		0.1	-
	0922	02/03/88	0001	WU	N		274.		0.1	-
	0922	04/26/88	0001	WU	N		275.		0.1	-
	0922	08/08/88	0001	WU	N		304.		0.1	-
	0922	12/10/88	0001	WU	N		293.		0.1	-
	0924	09/20/87	0001	WU	N		556.		0.1	-
	0924	02/04/88	0001	WU	N		579.		0.1	-
	0924	04/26/88	0001	WU	N		606.		0.1	-
	0924	08/26/88	0001	WU	N		617.		0.1	-
	0924	12/07/88	0001	WU	N		634.		0.1	-
	0925	09/20/87	0001	WU	N		152.		0.1	-
	0925	02/03/88	0001	WU	N		151.		0.1	-
	0925	04/26/88	0001	WU	N		150.		0.1	-
	0925	08/26/88	0001	WU	N		156.		0.1	-
	0925	12/07/88	0001	WU	N		154.		0.1	-
	0927	09/20/87	0001	WU	N		1210.		0.1	-
	0927	02/04/88	0001	WU	N		1220.		0.1	-
	0927	04/26/88	0001	WU	N		1380.		0.1	-
	0927	08/26/88	0001	WU	N		1360.		0.1	-
	0927	12/04/88	0001	WU	N		1350.		0.1	-
	0928	09/20/87	0001	WU	N		1180.		0.1	-
	0928	02/03/88	0001	WU	N		1050.		0.1	-
	0928	04/22/88	0001	WU	N		1190.		0.1	-
	0928	08/04/88	0001	WU	N		1180.		0.1	-
	0928	12/04/88	0001	WU	N		1150.		0.1	-
	0929	09/20/87	0001	WU	N		576.		0.1	-
	0929	02/03/88	0001	WU	N		109.		0.1	-
	0929	04/28/88	0001	WU	N		100.	J	0.1	-
	0929	08/11/88	0001	WU	N		98.		0.1	-
	0930	09/20/87	0001	WU	N		2800.		0.1	-
	0930	01/30/88	0001	WU	N		2940.		0.1	-
	0930	04/26/88	0001	WU	N		3180.		0.1	-

FORMATION OF COMPLETION CODE:
 WU - WASATCH - UPPER SANDSTONE

FLOW RELATIONSHIP CODE:
 N - UNKNOWN

PARAMETER VALUE INDICATOR (PVI): < - LESS THAN DETECTION LIMIT

SAMPLE ID CODES:
 0001 - FILTERED SAMPLE (.45 MICRONS)

OTHER PARAMETER VALUE FLAGS:
 J - ESTIMATED VALUE

GROUNDWATER QUALITY DATA BY PARAMETER
 UPPER SANDSTONE UNIT
 SITE: SPK01 SPOOK
 02/17/87 TO 12/10/88
 REPORT DATE: 07/29/94

PARAMETER NAME	LOCATION ID	LOG DATE	SAMPLE ID	FORM COMP	FLOW REL.	UNITS OF MEASURE	PVI	PARAMETER VALUE	FLAGS	DETECTION LIMIT	PARAMETER UNCERTAINTY
SULFATE	0930	08/27/88	0001	WU	N	MG/L		2570.		0.1	-
	0931	01/30/88	0001	WU	N			162.		0.1	-
	0931	04/28/88	0001	WU	N			153.		0.1	-
	0931	08/10/88	0001	WU	N			156.		0.1	-
	0931	12/04/88	0001	WU	N			154.		0.1	-
	0932	01/30/88	0001	WU	N			262.		0.1	-
	0932	04/28/88	0001	WU	N			286.		0.1	-
	0932	08/09/88	0001	WU	N			296.		0.1	-
	0932	12/07/88	0001	WU	N			290.		0.1	-
	0933	08/10/88	0001	WU	N			197.		0.1	-
	0933	12/07/88	0001	WU	N			188.		0.1	-
	0934	08/11/88	0001	WU	N			170.		0.1	-
	0934	12/07/88	0001	WU	N			164.		0.1	-
	0935	08/09/88	0001	WU	N			3220.		0.1	-
	0935	12/04/88	0001	WU	N			3760.		0.1	-
	0936	08/08/88	0001	WU	N			442.		0.1	-
	0936	12/04/88	0001	WU	N			454.		0.1	-
	0937	08/08/88	0001	WU	N			437.		0.1	-
	0937	12/04/88	0001	WU	N			321.		0.1	-
	0939	08/08/88	0001	WU	N			749.		0.1	-
	0939	12/04/88	0001	WU	N			1040.		0.1	-
	0940	08/08/88	0001	WU	N			1533.		0.1	-
	0940	12/04/88	0001	WU	N			1540.		0.1	-
	0941	08/08/88	0001	WU	N			61.		0.1	-
	0941	12/10/88	0001	WU	N			58.		0.1	-
	0942	08/08/88	0001	WU	N			112.		0.1	-
	0942	12/04/88	0001	WU	N			123.		0.1	-
	0943	08/09/88	0001	WU	N			154.		0.1	-
	0943	12/07/88	0001	WU	N			146.		0.1	-
	0944	08/11/88	0001	WU	N			393.		0.1	-
	0944	12/07/88	0001	WU	N			391.		0.1	-
SULFIDE	0911	09/18/87	0001	WU	N	MG/L	<	0.1		0.1	-
	0911	01/30/88	0001	WU	N		<	0.1		0.1	-
	0911	04/22/88	0001	WU	N		<	0.1		0.1	-
	0911	08/11/88	0001	WU	N		<	0.1		0.1	-
	0912	02/03/88	0001	WU	N		<	0.1		0.1	-
	0912	04/22/88	0001	WU	N		<	0.1		0.1	-
	0912	08/27/88	0001	WU	N		<	0.1		0.1	-
	0913	09/18/87	0001	WU	N		<	0.1		0.1	-
	0913	02/03/88	0001	WU	N		<	0.1		0.1	-

FORMATION OF COMPLETION CODE:
 WU - WASATCH - UPPER SANDSTONE

FLOW RELATIONSHIP CODE:
 N - UNKNOWN

PARAMETER VALUE INDICATOR (PVI): < - LESS THAN DETECTION LIMIT

SAMPLE ID CODES:
 0001 - FILTERED SAMPLE (.45 MICRONS)

GROUNDWATER QUALITY DATA BY PARAMETER
 UPPER SANDSTONE UNIT
 SITE: SPK01 SPOOK
 02/17/87 TO 12/10/88
 REPORT DATE: 07/29/94

PARAMETER NAME	LOCATION ID	LOG DATE	SAMPLE ID	FORM COMP REL.	UNITS OF MEASURE	PVI	PARAMETER VALUE	FLAGS	DETECTION LIMIT	PARAMETER UNCERTAINTY
SULFIDE	0913	04/22/88	0001	WU	MG/L	<	0.1		0.1	-
	0913	08/04/88	0001	WU		<	0.1		0.1	-
	0916	09/20/87	0001	WU		<	0.1		0.1	-
	0916	02/03/88	0001	WU		<	0.1		0.1	-
	0916	04/22/88	0001	WU		<	0.1		0.1	-
	0916	08/04/88	0001	WU		<	0.1		0.1	-
	0917	09/20/87	0001	WU		<	0.1		0.1	-
	0917	01/30/88	0001	WU		<	0.1		0.1	-
	0917	04/22/88	0001	WU		<	0.1		0.1	-
	0917	08/27/88	0001	WU		<	0.1		0.1	-
	0918	09/20/87	0001	WU		<	0.1		0.1	-
	0918	02/03/88	0001	WU		<	0.1		0.1	-
	0918	04/22/88	0001	WU		<	0.1		0.1	-
	0918	08/26/88	0001	WU		<	0.1		0.1	-
	0920	09/20/87	0001	WU		<	0.1		0.1	-
	0920	01/30/88	0001	WU		<	0.1		0.1	-
	0920	04/26/88	0001	WU		<	0.1		0.1	-
	0920	08/27/88	0001	WU		<	0.1		0.1	-
	0922	09/20/87	0001	WU		<	0.1		0.1	-
	0922	02/03/88	0001	WU		<	0.1		0.1	-
	0922	04/26/88	0001	WU		<	0.1		0.1	-
	0922	08/08/88	0001	WU		<	0.1		0.1	-
	0924	09/20/87	0001	WU		<	0.1		0.1	-
	0924	02/04/88	0001	WU		<	0.1		0.1	-
	0924	04/26/88	0001	WU		<	0.1		0.1	-
	0924	08/26/88	0001	WU		<	0.1		0.1	-
	0925	09/20/87	0001	WU		<	0.1		0.1	-
	0925	02/03/88	0001	WU		<	0.1		0.1	-
	0925	04/26/88	0001	WU		<	0.1		0.1	-
	0925	08/26/88	0001	WU		<	0.1		0.1	-
	0927	09/20/87	0001	WU		<	0.1		0.1	-
	0927	02/04/88	0001	WU		<	0.1		0.1	-
	0927	04/26/88	0001	WU		<	0.1		0.1	-
	0927	08/26/88	0001	WU		<	0.1		0.1	-
	0928	09/20/87	0001	WU		<	0.1		0.1	-
	0928	02/03/88	0001	WU		<	0.1		0.1	-
	0928	04/22/88	0001	WU		<	0.1		0.1	-
	0928	08/04/88	0001	WU		<	0.1		0.1	-
	0929	09/20/87	0001	WU		<	0.1		0.1	-
	0929	02/03/88	0001	WU		<	0.1		0.1	-
	0929	04/28/88	0001	WU		<	0.1	J	0.1	-

FORMATION OF COMPLETION CODE:
 WU - WASATCH - UPPER SANDSTONE

FLOW RELATIONSHIP CODE:
 N - UNKNOWN

PARAMETER VALUE INDICATOR (PVI): < - LESS THAN DETECTION LIMIT

SAMPLE ID CODES:
 0001 - FILTERED SAMPLE (<.45 MICRONS)

OTHER PARAMETER VALUE FLAGS:
 J - ESTIMATED VALUE

GROUNDWATER QUALITY DATA BY PARAMETER
 UPPER SANDSTONE UNIT
 SITE: SPK01 SPOOK
 02/17/87 TO 12/10/88
 REPORT DATE: 07/29/94

PARAMETER NAME	LOCATION ID	LOG DATE	SAMPLE ID	FORM COMP REL.	UNITS OF MEASURE	PVI VALUE	FLAGS	DETECTION LIMIT	PARAMETER UNCERTAINTY
SULFIDE	0929	08/11/88	0001	WU	MG/L	<		0.1	-
	0930	09/20/87	0001	WU		<		0.1	-
	0930	01/30/88	0001	WU		<		0.1	-
	0930	04/26/88	0001	WU		<		0.1	-
	0930	08/27/88	0001	WU		<		0.1	-
	0931	01/30/88	0001	WU		<		0.1	-
	0931	04/28/88	0001	WU		<		0.1	-
	0931	08/10/88	0001	WU		<		0.1	-
	0932	01/30/88	0001	WU		<		0.1	-
	0932	04/28/88	0001	WU		<		0.1	-
	0932	08/09/88	0001	WU		<		0.1	-
	0933	08/10/88	0001	WU		<		0.1	-
	0934	08/11/88	0001	WU		<		0.1	-
	0935	08/09/88	0001	WU		<		0.1	-
	0936	08/08/88	0001	WU		<		0.1	-
	0937	08/08/88	0001	WU		<		0.1	-
	0939	08/08/88	0001	WU		<		0.1	-
	0940	08/08/88	0001	WU		<		0.1	-
	0941	08/08/88	0001	WU		<		0.1	-
	0942	08/08/88	0001	WU		<		0.1	-
	0943	08/09/88	0001	WU		<		0.1	-
	0944	08/11/88	0001	WU		<		0.1	-
TEMPERATURE	0911	02/17/87	0001	WU	C - DEGREE	10.0		-	-
	0911	09/18/87	0001	WU		13.0		-	-
	0911	01/30/88	0001	WU		11.0		-	-
	0911	04/22/88	0001	WU		13.0		-	-
	0911	08/11/88	0001	WU		17.0		-	-
	0911	12/10/88	0001	WU		10.0		-	-
	0912	02/18/87	0001	WU		10.5		-	-
	0912	02/03/88	0001	WU		12.0		-	-
	0912	04/22/88	0001	WU		12.0		-	-
	0912	08/27/88	0001	WU		13.0		-	-
	0912	12/04/88	0001	WU		11.		-	-
	0913	02/18/87	0001	WU		12.0		-	-
	0913	09/18/87	0001	WU		12.0		-	-
	0913	02/03/88	0001	WU		11.0		-	-
	0913	04/22/88	0001	WU		11.0		-	-
	0913	08/04/88	0001	WU		14.0		-	-
	0913	12/10/88	0001	WU		9.0		-	-
	0916	02/20/87	0001	WU		11.5		-	-

FORMATION OF COMPLETION CODE:
 WU - WASATCH - UPPER SANDSTONE

FLOW RELATIONSHIP CODE:
 N - UNKNOWN

PARAMETER VALUE INDICATOR (PVI): < - LESS THAN DETECTION LIMIT

SAMPLE ID CODES:
 0001 - FILTERED SAMPLE (.45 MICRONS)

GROUNDWATER QUALITY DATA BY PARAMETER
 UPPER SANDSTONE UNIT
 SITE: SPK01 SPOOK
 02/17/87 TO 12/10/88
 REPORT DATE: 07/29/94

PARAMETER NAME	LOCATION ID	LOG DATE	SAMPLE ID	FORM COMP REL.	UNITS OF MEASURE	PVI VALUE	FLAGS	DETECTION LIMIT	PARAMETER UNCERTAINTY
TEMPERATURE	0916	09/20/87	0001	WU	C - DEGREE	12.5		-	-
	0916	02/03/88	0001	WU		11.5		-	-
	0916	04/22/88	0001	WU		12.5		-	-
	0916	08/04/88	0001	WU		14.0		-	-
	0916	12/07/88	0001	WU		11.0		-	-
	0917	02/19/87	0001	WU		10.5		-	-
	0917	09/20/87	0001	WU		13.0		-	-
	0917	01/30/88	0001	WU		10.1		-	-
	0917	04/22/88	0001	WU		11.5		-	-
	0917	08/27/88	0001	WU		13.0		-	-
	0917	12/07/88	0001	WU		10.5		-	-
	0918	02/20/87	0001	WU		10.		-	-
	0918	09/20/87	0001	WU		12.0		-	-
	0918	02/03/88	0001	WU		11.0		-	-
	0918	04/22/88	0001	WU		12.0		-	-
	0918	08/26/88	0001	WU		14.0		-	-
	0918	12/04/88	0001	WU		11.		-	-
	0920	09/20/87	0001	WU		13.0		-	-
	0920	01/30/88	0001	WU		10.5		-	-
	0920	04/26/88	0001	WU		11.0		-	-
	0920	08/27/88	0001	WU		13.0		-	-
	0920	12/10/88	0001	WU		9.0		-	-
	0922	09/20/87	0001	WU		14.0		-	-
	0922	02/03/88	0001	WU		11.5		-	-
	0922	04/26/88	0001	WU		13.0		-	-
	0922	08/08/88	0001	WU		14.0		-	-
	0922	12/10/88	0001	WU		11.0		-	-
	0924	09/20/87	0001	WU		13.0		-	-
	0924	02/04/88	0001	WU		12.0		-	-
	0924	04/26/88	0001	WU		12.0		-	-
	0924	08/26/88	0001	WU		13.0		-	-
	0925	12/07/88	0001	WU		11.0		-	-
	0925	09/20/87	0001	WU		12.0		-	-
	0925	02/03/88	0001	WU		10.0		-	-
	0925	04/26/88	0001	WU		11.0		-	-
	0925	08/26/88	0001	WU		12.0		-	-
	0925	12/07/88	0001	WU		11.0		-	-
	0927	09/20/87	0001	WU		14.0		-	-
	0927	02/04/88	0001	WU		11.0		-	-
	0927	04/26/88	0001	WU		12.5		-	-
	0927	08/26/88	0001	WU		14.0		-	-

FORMATION OF COMPLETION CODE:
 WU - WASATCH - UPPER SANDSTONE

FLOW RELATIONSHIP CODE:
 N - UNKNOWN

PARAMETER VALUE INDICATOR (PVI): < - LESS THAN DETECTION LIMIT

SAMPLE ID CODES:
 0001 - FILTERED SAMPLE (<.45 MICRONS)

GROUNDWATER QUALITY DATA BY PARAMETER
 UPPER SANDSTONE UNIT
 SITE: SPK01 SPOOK
 02/17/87 TO 12/10/88
 REPORT DATE: 07/29/94

PARAMETER NAME	LOCATION ID	LOG DATE	SAMPLE ID	FORM COMP	FLOW REL.	UNITS OF MEASURE	PARAMETER PVI VALUE	FLAGS	DETECTION LIMIT	PARAMETER UNCERTAINTY
TEMPERATURE	0927	12/04/88	0001	WU	N	C - DEGREE	10.5		-	-
	0928	09/20/87	0001	WU	N		12.0		-	-
	0928	02/03/88	0001	WU	N		9.0		-	-
	0928	04/22/88	0001	WU	N		10.5		-	-
	0928	08/04/88	0001	WU	N		12.0		-	-
	0928	12/04/88	0001	WU	N		10.0		-	-
	0929	09/20/87	0001	WU	N		13.0		-	-
	0929	02/03/88	0001	WU	N		10.5		-	-
	0929	04/28/88	0001	WU	N		11.0		-	-
	0929	08/11/88	0001	WU	N		12.0		-	-
	0930	09/20/87	0001	WU	N		11.5		-	-
	0930	01/30/88	0001	WU	N		11.0		-	-
	0930	04/26/88	0001	WU	N		13.0		-	-
	0930	08/27/88	0001	WU	N		14.0		-	-
	0931	01/30/88	0001	WU	N		10.5		-	-
	0931	04/28/88	0001	WU	N		11.5		-	-
	0931	08/10/88	0001	WU	N		15.5		-	-
	0931	12/04/88	0001	WU	N		11.		-	-
	0932	01/30/88	0001	WU	N		13.0		-	-
	0932	04/28/88	0001	WU	N		10.0		-	-
	0932	08/09/88	0001	WU	N		13.5		-	-
	0932	12/07/88	0001	WU	N		11.		-	-
	0933	08/10/88	0001	WU	N		16.0		-	-
	0933	12/07/88	0001	WU	N		11.5		-	-
	0934	08/11/88	0001	WU	N		13.0		-	-
	0934	12/07/88	0001	WU	N		11.5		-	-
	0935	08/09/88	0001	WU	N		12.0		-	-
	0935	12/04/88	0001	WU	N		10.5		-	-
	0936	08/08/88	0001	WU	N		23.0		-	-
	0936	12/04/88	0001	WU	N		10.5		-	-
	0937	08/08/88	0001	WU	N		12.0		-	-
	0937	12/04/88	0001	WU	N		10.5		-	-
	0939	08/08/88	0001	WU	N		16.0		-	-
	0939	12/04/88	0001	WU	N		9.5		-	-
	0940	08/08/88	0001	WU	N		14.5		-	-
	0940	12/04/88	0001	WU	N		11.0		-	-
	0941	08/08/88	0001	WU	N		13.5		-	-
	0941	12/10/88	0001	WU	N		11.0		-	-
	0942	08/08/88	0001	WU	N		19.0		-	-
	0942	12/04/88	0001	WU	N		10.		-	-
	0943	08/09/88	0001	WU	N		11.5		-	-

FORMATION OF COMPLETION CODE:
 WU - WASATCH - UPPER SANDSTONE

FLOW RELATIONSHIP CODE:
 N - UNKNOWN

PARAMETER VALUE INDICATOR (PVI): < - LESS THAN DETECTION LIMIT

SAMPLE ID CODES:
 0001 - FILTERED SAMPLE (.45 MICRONS)

GROUNDWATER QUALITY DATA BY PARAMETER
 UPPER SANDSTONE UNIT
 SITE: SPX01 SPOOK
 02/17/87 TO 12/10/88
 REPORT DATE: 07/29/94

PARAMETER NAME	LOCATION ID	LOG DATE	SAMPLE ID	FORM COMP REL.	UNITS OF MEASURE	PVI VALUE	FLAGS	DETECTION LIMIT	PARAMETER UNCERTAINTY
TEMPERATURE	0943	12/07/88	0001	WU	N	10.5		-	-
	0944	08/11/88	0001	WU	N	14.0		-	-
	0944	12/07/88	0001	WU	N	11.5		-	-
THORIUM-230	0911	09/18/87	0001	WU	N	0.4		1.	0.5
	0911	01/30/88	0001	WU	N	0.0		1.	0.4
	0911	04/22/88	0001	WU	N	0.3		1.	0.5
	0911	08/11/88	0001	WU	N	0.7		1.	0.7
	0912	02/03/88	0001	WU	N	0.0		1.	0.5
	0912	04/22/88	0001	WU	N	0.7		1.	0.8
	0912	08/27/88	0001	WU	N	0.5		1.	0.6
	0913	09/18/87	0001	WU	N	1.7		1.	0.8
	0913	02/03/88	0001	WU	N	0.8		1.	0.6
	0913	04/22/88	0001	WU	N	0.5		1.	0.5
	0913	08/04/88	0001	WU	N	0.5		1.	0.7
	0916	09/20/87	0001	WU	N	8.6		1.	1.7
	0916	02/03/88	0001	WU	N	1.5		1.	1.6
	0916	04/22/88	0001	WU	N	0.9		1.	0.6
	0916	08/04/88	0001	WU	N	0.5		1.	0.7
	0917	09/20/87	0001	WU	N	1.0		1.	0.7
	0917	01/30/88	0001	WU	N	0.1		1.	0.4
	0917	04/22/88	0001	WU	N	0.8		1.	0.6
	0917	08/27/88	0001	WU	N	0.0		1.	0.4
	0918	09/20/87	0001	WU	N	0.2		1.	0.6
	0918	02/03/88	0001	WU	N	1.9		1.	0.8
	0918	04/22/88	0001	WU	N	0.3		1.	0.4
	0918	08/26/88	0001	WU	N	0.0		1.	0.3
	0920	09/20/87	0001	WU	N	0.5		1.	1.0
	0920	01/30/88	0001	WU	N	1.0		1.	0.8
	0920	04/26/88	0001	WU	N	0.4		1.	0.5
	0920	08/27/88	0001	WU	N	0.0		1.	0.4
	0922	09/20/87	0001	WU	N	0.2		1.	0.6
	0922	02/03/88	0001	WU	N	0.1		1.	0.6
	0922	04/26/88	0001	WU	N	0.2		1.	0.4
	0924	09/20/87	0001	WU	N	0.0		1.	0.5
	0924	02/04/88	0001	WU	N	1.0		1.	0.8
	0924	04/26/88	0001	WU	N	7.8		1.	1.8
	0924	08/26/88	0001	WU	N	0.6		1.	0.6
	0925	09/20/87	0001	WU	N	0.0		1.	0.5
	0925	02/03/88	0001	WU	N	7.0		1.	1.7

FORMATION OF COMPLETION CODE:
 WU - WASATCH - UPPER SANDSTONE

FLOW RELATIONSHIP CODE:
 N - UNKNOWN

PARAMETER VALUE INDICATOR (PVI): < - LESS THAN DETECTION LIMIT

SAMPLE ID CODES:
 0001 - FILTERED SAMPLE (.45 MICRONS)

GROUNDWATER QUALITY DATA BY PARAMETER
 UPPER SANDSTONE UNIT
 SITE: SPK01 SPOOK
 02/17/87 TO 12/10/88
 REPORT DATE: 07/29/94

PARAMETER NAME	LOCATION ID	LOG DATE	SAMPLE ID	FORM COMP	FLOW REL.	UNITS OF MEASURE	PARAMETER PVI VALUE	FLAGS	DETECTION LIMIT	PARAMETER UNCERTAINTY
THORIUM-230	0925	04/26/88	0001	WU	N	PCI/L	0.0		1.	0.4
	0925	08/26/88	0001	WU	N		0.1		1.	0.5
	0927	09/20/87	0001	WU	N		1.1		1.	0.8
	0927	02/04/88	0001	WU	N		2.5		1.	1.1
	0927	04/26/88	0001	WU	N		0.2		1.	0.4
	0927	08/26/88	0001	WU	N		0.7		1.	0.6
	0928	09/20/87	0001	WU	N		0.3		1.	0.4
	0928	02/03/88	0001	WU	N		0.8		1.	0.8
	0928	04/22/88	0001	WU	N		3.8		1.	1.1
	0928	08/04/88	0001	WU	N		0.0		1.	0.5
	0929	09/20/87	0001	WU	N		0.0		1.	0.3
	0929	02/03/88	0001	WU	N		0.0		1.	0.4
	0929	04/28/88	0001	WU	N		0.8	J	1.	0.6
	0929	08/11/88	0001	WU	N		0.0		1.	0.4
	0930	09/20/87	0001	WU	N		0.5		1.	0.8
	0930	01/30/88	0001	WU	N		0.0		1.	0.4
	0930	04/26/88	0001	WU	N		0.3		1.	0.5
	0930	08/27/88	0001	WU	N		0.1		1.	0.5
	0931	01/30/88	0001	WU	N		8.1		1.	1.8
	0931	04/28/88	0001	WU	N		0.0		1.	0.3
	0931	08/10/88	0001	WU	N		0.0		1.	0.5
	0932	01/30/88	0001	WU	N		0.4		1.	0.6
	0932	04/28/88	0001	WU	N		0.3		1.	0.5
	0932	08/09/88	0001	WU	N		0.0		1.	0.5
	0933	08/10/88	0001	WU	N		0.1		1.	0.6
	0934	08/11/88	0001	WU	N		0.0		1.	0.4
	0935	08/09/88	0001	WU	N		0.0		1.	0.5
	0936	08/08/88	0001	WU	N		0.0		1.	0.5
	0937	08/08/88	0001	WU	N		0.0		1.	0.5
	0940	08/08/88	0001	WU	N		0.0		1.	0.5
	0941	08/08/88	0001	WU	N		0.0		1.	0.5
	0942	08/08/88	0001	WU	N		0.0		1.	0.4
	0943	08/09/88	0001	WU	N		0.0		1.	0.5
	0944	08/11/88	0001	WU	N		0.0		1.	0.5
TIN	0911	09/18/87	0001	WU	N	MG/L	0.018		0.005	-
	0911	01/30/88	0001	WU	N		< 0.005		0.005	-
	0911	04/22/88	0001	WU	N		0.009		0.005	-
	0911	08/11/88	0001	WU	N		< 0.005		0.005	-
	0912	02/03/88	0001	WU	N		< 0.005		0.005	-

FORMATION OF COMPLETION CODE:
 WU - WASATCH - UPPER SANDSTONE

FLOW RELATIONSHIP CODE:
 N - UNKNOWN

PARAMETER VALUE INDICATOR (PVI): < - LESS THAN DETECTION LIMIT

SAMPLE ID CODES:
 0001 - FILTERED SAMPLE (.45 MICRONS)

OTHER PARAMETER VALUE FLAGS:
 J - ESTIMATED VALUE

GROUNDWATER QUALITY DATA BY PARAMETER
UPPER SANDSTONE UNIT
SITE: SPK01 SPOOK
02/17/87 TO 12/10/88
REPORT DATE: 07/29/94

PARAMETER NAME	LOCATION ID	LOG DATE	SAMPLE ID	FORM COMP REL.	UNITS OF MEASURE	PVI VALUE	FLAGS	DETECTION LIMIT	PARAMETER UNCERTAINTY
TIN	0912	04/22/88	0001	WU	N	<	0.017	0.005	-
	0912	08/27/88	0001	WU	N		0.005	0.005	-
	0913	09/18/87	0001	WU	N		0.029	0.005	-
	0913	02/03/88	0001	WU	N		0.008	0.005	-
	0913	04/22/88	0001	WU	N		0.013	0.005	-
	0913	08/04/88	0001	WU	N		0.009	0.005	-
	0916	09/20/87	0001	WU	N		0.044	0.005	-
	0916	02/03/88	0001	WU	N		0.013	0.005	-
	0916	04/22/88	0001	WU	N		0.025	0.005	-
	0916	08/04/88	0001	WU	N		0.020	0.005	-
	0917	09/20/87	0001	WU	N		0.024	0.005	-
	0917	01/30/88	0001	WU	N	<	0.005	0.005	-
	0917	04/22/88	0001	WU	N	<	0.014	0.005	-
	0917	08/27/88	0001	WU	N	<	0.005	0.005	-
	0918	09/20/87	0001	WU	N	<	0.020	0.005	-
	0918	02/03/88	0001	WU	N	<	0.005	0.005	-
	0918	04/22/88	0001	WU	N	<	0.012	0.005	-
	0918	08/26/88	0001	WU	N	<	0.005	0.005	-
	0920	09/20/87	0001	WU	N		0.157	0.005	-
	0920	01/30/88	0001	WU	N		0.042	0.005	-
	0920	04/26/88	0001	WU	N		0.020	0.005	-
	0920	08/27/88	0001	WU	N		0.024	0.005	-
	0922	09/20/87	0001	WU	N		0.019	0.005	-
	0922	02/03/88	0001	WU	N	<	0.005	0.005	-
	0922	04/26/88	0001	WU	N	<	0.007	0.005	-
	0922	08/08/88	0001	WU	N	<	0.003	0.005	-
	0924	09/20/87	0001	WU	N		0.026	0.005	-
	0924	02/04/88	0001	WU	N		0.005	0.005	-
	0924	04/26/88	0001	WU	N		0.012	0.005	-
	0924	08/26/88	0001	WU	N	<	0.005	0.005	-
	0925	09/20/87	0001	WU	N	<	0.012	0.005	-
	0925	02/03/88	0001	WU	N	<	0.005	0.005	-
	0925	04/26/88	0001	WU	N	<	0.005	0.005	-
	0925	08/26/88	0001	WU	N	<	0.005	0.005	-
	0927	09/20/87	0001	WU	N		0.051	0.005	-
	0927	02/04/88	0001	WU	N		0.011	0.005	-
	0927	04/26/88	0001	WU	N		0.022	0.005	-
	0927	08/26/88	0001	WU	N		0.005	0.005	-
	0928	09/20/87	0001	WU	N		0.036	0.005	-
	0928	02/03/88	0001	WU	N		0.011	0.005	-

FORMATION OF COMPLETION CODE:
WU - WASATCH - UPPER SANDSTONE

FLOW RELATIONSHIP CODE:
N - UNKNOWN

PARAMETER VALUE INDICATOR (PVI): < - LESS THAN DETECTION LIMIT

SAMPLE ID CODES:
0001 - FILTERED SAMPLE (.45 MICRONS)

OTHER PARAMETER VALUE FLAGS:
J - ESTIMATED VALUE

GROUNDWATER QUALITY DATA BY PARAMETER
UPPER SANDSTONE UNIT
SITE: SPK01 SPOOK
02/17/87 TO 12/10/88
REPORT DATE: 07/29/94

PARAMETER NAME	LOCATION ID	LOG DATE	SAMPLE ID	FORM COMP	FLOW REL.	UNITS OF MEASURE	PVI VALUE	FLAGS	DETECTION LIMIT	PARAMETER UNCERTAINTY
TIN	0928	04/22/88	0001	WU	N	MG/L	0.021		0.005	-
	0928	08/04/88	0001	WU	N		0.016		0.005	-
	0929	09/20/87	0001	WU	N		0.026		0.005	-
	0929	02/03/88	0001	WU	N		0.005		0.005	-
	0929	04/28/88	0001	WU	N		0.004	J	0.005	-
	0929	08/11/88	0001	WU	N		0.005		0.005	-
	0930	09/20/87	0001	WU	N		0.133		0.005	-
	0930	01/30/88	0001	WU	N		0.041		0.005	-
	0930	04/26/88	0001	WU	N		0.026		0.005	-
	0930	08/27/88	0001	WU	N		0.017		0.005	-
	0931	01/30/88	0001	WU	N		0.005		0.005	-
	0931	04/28/88	0001	WU	N		0.003	J	0.005	-
	0931	08/10/88	0001	WU	N		0.12		0.005	-
	0932	01/30/88	0001	WU	N		0.005		0.005	-
	0932	04/28/88	0001	WU	N		0.010		0.005	-
	0932	08/09/88	0001	WU	N		0.003	J	0.005	-
	0933	08/10/88	0001	WU	N		0.003	J	0.005	-
	0934	08/11/88	0001	WU	N		0.003	J	0.005	-
	0935	08/09/88	0001	WU	N		0.125		0.005	-
	0936	08/08/88	0001	WU	N		0.017		0.005	-
	0937	08/08/88	0001	WU	N		0.005		0.005	-
	0939	08/08/88	0001	WU	N		0.015		0.005	-
	0940	08/08/88	0001	WU	N		0.088		0.005	-
	0941	08/08/88	0001	WU	N		0.003	J	0.005	-
	0942	08/08/88	0001	WU	N		0.005		0.005	-
	0943	08/09/88	0001	WU	N		0.003	J	0.005	-
	0944	08/11/88	0001	WU	N		0.003	J	0.005	-
TOTAL DISSOLVED SOLIDS	0911	02/17/87	0001	WU	N	MG/L	1370.		10.	-
	0911	09/18/87	0001	WU	N		609.		10.	-
	0911	01/30/88	0001	WU	N		477.		10.	-
	0911	04/22/88	0001	WU	N		467.		10.	-
	0911	08/11/88	0001	WU	N		514.		10.	-
	0911	12/10/88	0001	WU	N		510.		10.	-
	0912	02/18/87	0001	WU	N		348.		10.	-
	0912	02/03/88	0001	WU	N		363.		10.	-
	0912	04/22/88	0001	WU	N		364.		10.	-
	0912	08/27/88	0001	WU	N		355.		10.	-
	0912	12/04/88	0001	WU	N		55.2		10.	-
	0913	02/18/87	0001	WU	N		1020.		10.	-

FORMATION OF COMPLETION CODE:
WU - WASATCH - UPPER SANDSTONE

FLOW RELATIONSHIP CODE:
N - UNKNOWN

PARAMETER VALUE INDICATOR (PVI): < - LESS THAN DETECTION LIMIT

SAMPLE ID CODES:
0001 - FILTERED SAMPLE (.45 MICRONS)

OTHER PARAMETER VALUE FLAGS:
J - ESTIMATED VALUE

GROUNDWATER QUALITY DATA BY PARAMETER
UPPER SANDSTONE UNIT
SITE: SPK01 SPOOK
02/17/87 TO 12/10/88
REPORT DATE: 07/29/94

PARAMETER NAME	LOCATION ID	LOG DATE	SAMPLE ID	FORM COMP	FLOW REL.	UNITS OF MEASURE	PVI VALUE	FLAGS	DETECTION LIMIT	PARAMETER UNCERTAINTY
TOTAL DISSOLVED SOLIDS	0913	09/18/87	0001	WU	N	MG/L	1220.		10.	-
	0913	02/03/88	0001	WU	N		1170.		10.	-
	0913	04/22/88	0001	WU	N		1170.		10.	-
	0913	08/04/88	0001	WU	N		1510.		10.	-
	0913	12/10/88	0001	WU	N		1290.		10.	-
	0916	02/20/87	0001	WU	N		1920.		10.	-
	0916	09/20/87	0001	WU	N		2200.		10.	-
	0916	02/03/88	0001	WU	N		2220.		10.	-
	0916	04/22/88	0001	WU	N		2320.		10.	-
	0916	08/04/88	0001	WU	N		2720.		10.	-
	0916	12/07/88	0001	WU	N		2130.		10.	-
	0917	02/19/87	0001	WU	N		764.		10.	-
	0917	09/20/87	0001	WU	N		827.		10.	-
	0917	01/30/88	0001	WU	N		754.		10.	-
	0917	04/22/88	0001	WU	N		760.		10.	-
	0917	08/27/88	0001	WU	N		886.		10.	-
	0917	12/07/88	0001	WU	N		772.		10.	-
	0918	02/20/87	0001	WU	N		670.		10.	-
	0918	09/20/87	0001	WU	N		728.		10.	-
	0918	02/03/88	0001	WU	N		640.		10.	-
	0918	04/22/88	0001	WU	N		643.		10.	-
	0918	08/26/88	0001	WU	N		708.		10.	-
	0918	12/04/88	0001	WU	N		642.		10.	-
	0920	09/20/87	0001	WU	N		4970.		10.	-
	0920	01/30/88	0001	WU	N		4980.		10.	-
	0920	04/26/88	0001	WU	N		5440.		10.	-
	0920	08/27/88	0001	WU	N		5490.		10.	-
	0920	12/10/88	0001	WU	N		5090.		10.	-
	0922	09/20/87	0001	WU	N		720.		10.	-
	0922	02/03/88	0001	WU	N		614.		10.	-
	0922	04/26/88	0001	WU	N		600.		10.	-
	0922	08/08/88	0001	WU	N		604.		10.	-
	0922	12/10/88	0001	WU	N		630.		10.	-
	0924	09/20/87	0001	WU	N		1110.		10.	-
	0924	02/04/88	0001	WU	N		1140.		10.	-
	0924	04/26/88	0001	WU	N		1180.		10.	-
	0924	08/26/88	0001	WU	N		1290.		10.	-
	0924	12/07/88	0001	WU	N		1180.		10.	-
	0925	09/20/87	0001	WU	N		495.		10.	-
	0925	02/03/88	0001	WU	N		484.		10.	-
	0925	04/26/88	0001	WU	N		477.		10.	-

FORMATION OF COMPLETION CODE:
WU - WASATCH - UPPER SANDSTONE

FLOW RELATIONSHIP CODE:
N - UNKNOWN

PARAMETER VALUE INDICATOR (PVI): < - LESS THAN DETECTION LIMIT

SAMPLE ID CODES:
0001 - FILTERED SAMPLE (.45 MICRONS)

GROUNDWATER QUALITY DATA BY PARAMETER
 UPPER SANDSTONE UNIT
 SITE: SPK01 SPOOK
 02/17/87 TO 12/10/88
 REPORT DATE: 07/29/94

PARAMETER NAME	LOCATION ID	LOG DATE	SAMPLE ID	FORM COMP	FLOW REL.	UNITS OF MEASURE	PVI	PARAMETER VALUE	FLAGS	DETECTION LIMIT	PARAMETER UNCERTAINTY
TOTAL DISSOLVED SOLIDS	0925	08/26/88	0001	WU	N	MG/L		474.		10.	-
	0925	12/07/88	0001	WU	N			477.		10.	-
	0927	09/20/87	0001	WU	N			2310.		10.	-
	0927	02/04/88	0001	WU	N			2230.		10.	-
	0927	04/26/88	0001	WU	N			2340.		10.	-
	0927	08/26/88	0001	WU	N			2360.		10.	-
	0927	12/04/88	0001	WU	N			2330.		10.	-
	0928	09/20/87	0001	WU	N			1900.		10.	-
	0928	02/03/88	0001	WU	N			1860.		10.	-
	0928	04/22/88	0001	WU	N			1860.		10.	-
	0928	08/04/88	0001	WU	N			1880.		10.	-
	0928	12/04/88	0001	WU	N			1790.		10.	-
	0929	09/20/87	0001	WU	N			1070.		10.	-
	0929	02/03/88	0001	WU	N			374.		10.	-
	0929	04/28/88	0001	WU	N			401.	J	10.	-
	0929	08/11/88	0001	WU	N			402.		10.	-
	0930	09/20/87	0001	WU	N			4360.		10.	-
	0930	01/30/88	0001	WU	N			4840.		10.	-
	0930	04/26/88	0001	WU	N			4670.		10.	-
	0930	08/27/88	0001	WU	N			4890.		10.	-
	0931	01/30/88	0001	WU	N			444.		10.	-
	0931	04/28/88	0001	WU	N			474.		10.	-
	0931	08/10/88	0001	WU	N			707.		10.	-
	0931	12/04/88	0001	WU	N			472.		10.	-
	0932	01/30/88	0001	WU	N			648.		10.	-
	0932	04/28/88	0001	WU	N			702.		10.	-
	0932	08/09/88	0001	WU	N			707.		10.	-
	0932	12/07/88	0001	WU	N			698.		10.	-
	0933	08/10/88	0001	WU	N			540.		10.	-
	0933	12/07/88	0001	WU	N			528.		10.	-
	0934	08/11/88	0001	WU	N			510.		10.	-
	0934	12/07/88	0001	WU	N			495.		10.	-
	0935	08/09/88	0001	WU	N			5450.		10.	-
	0935	12/04/88	0001	WU	N			5450.		10.	-
	0936	08/08/88	0001	WU	N			1200.		10.	-
	0936	12/04/88	0001	WU	N			1190.		10.	-
	0937	08/08/88	0001	WU	N			872.		10.	-
	0937	12/04/88	0001	WU	N			686.		10.	-
	0939	08/08/88	0001	WU	N			1250.		10.	-
	0939	12/04/88	0001	WU	N			1650.		10.	-

FORMATION OF COMPLETION CODE:
 WU - WASATCH - UPPER SANDSTONE

FLOW RELATIONSHIP CODE:
 N - UNKNOWN

PARAMETER VALUE INDICATOR (PVI): < - LESS THAN DETECTION LIMIT

SAMPLE ID CODES:
 0001 - FILTERED SAMPLE (.45 MICRONS)

OTHER PARAMETER VALUE FLAGS:
 J - ESTIMATED VALUE

GROUNDWATER QUALITY DATA BY PARAMETER
 UPPER SANDSTONE UNIT
 SITE: SPK01 SPOOK
 02/17/87 TO 12/10/88
 REPORT DATE: 07/29/94

PARAMETER NAME	LOCATION ID	LOG DATE	SAMPLE ID	FORM COMP	FLOW REL.	UNITS OF MEASURE	PVI	PARAMETER VALUE	FLAGS	DETECTION LIMIT	PARAMETER UNCERTAINTY
TOTAL DISSOLVED SOLIDS	0940	08/08/88	0001	WU	N	MG/L		4480.		10.	-
	0940	12/04/88	0001	WU	N			3670.		10.	-
	0941	08/08/88	0001	WU	N			292.		10.	-
	0941	12/10/88	0001	WU	N			304.		10.	-
	0942	08/08/88	0001	WU	N			433.		10.	-
	0942	12/04/88	0001	WU	N			449.		10.	-
	0943	08/09/88	0001	WU	N			475.		10.	-
	0943	12/07/88	0001	WU	N			464.		10.	-
	0944	08/11/88	0001	WU	N			859.		10.	-
	0944	12/07/88	0001	WU	N			823.		10.	-
URANIUM	0911	02/17/87	0001	WU	N	MG/L		1.77		0.003	-
	0911	09/18/87	0001	WU	N			1.80		0.003	-
	0911	01/30/88	0001	WU	N			1.71		0.003	-
	0911	04/22/88	0001	WU	N			1.90		0.003	-
	0911	08/11/88	0001	WU	N			1.39		0.003	-
	0911	12/10/88	0001	WU	N			1.67		0.003	-
	0912	02/18/87	0001	WU	N			0.632		0.003	-
	0912	02/03/88	0001	WU	N			0.607		0.003	-
	0912	04/22/88	0001	WU	N			0.526		0.003	-
	0912	08/27/88	0001	WU	N			0.563		0.003	-
	0912	12/04/88	0001	WU	N			0.542		0.003	-
	0913	02/18/87	0001	WU	N			8.23		0.003	-
	0913	09/18/87	0001	WU	N			8.84		0.003	-
	0913	02/03/88	0001	WU	N			8.60		0.003	-
	0913	04/22/88	0001	WU	N			9.17		0.003	-
	0913	08/04/88	0001	WU	N			8.14		0.003	-
	0913	12/10/88	0001	WU	N			8.56		0.003	-
	0916	02/20/87	0001	WU	N			15.4		0.003	-
	0916	09/20/87	0001	WU	N			19.5		0.003	-
	0916	02/03/88	0001	WU	N			20.7		0.003	-
	0916	04/22/88	0001	WU	N			24.6		0.003	-
	0916	08/04/88	0001	WU	N			19.1		0.003	-
	0916	12/07/88	0001	WU	N			22.0		0.003	-
	0917	02/19/87	0001	WU	N			5.43		0.003	-
	0917	09/20/87	0001	WU	N			5.09		0.003	-
	0917	01/30/88	0001	WU	N			5.21		0.003	-
	0917	04/22/88	0001	WU	N			6.00		0.003	-
	0917	08/27/88	0001	WU	N			5.19		0.003	-
	0917	12/07/88	0001	WU	N			5.60		0.003	-
	0918	02/20/87	0001	WU	N			1.60		0.003	-

FORMATION OF COMPLETION CODE:
 WU - WASATCH - UPPER SANDSTONE

FLOW RELATIONSHIP CODE:
 N - UNKNOWN

PARAMETER VALUE INDICATOR (PVI): < - LESS THAN DETECTION LIMIT

SAMPLE ID CODES:
 0001 - FILTERED SAMPLE (.45 MICRONS)

GROUNDWATER QUALITY DATA BY PARAMETER
 UPPER SANDSTONE UNIT
 SITE: SPK01 SPOOK
 02/17/87 TO 12/10/88
 REPORT DATE: 07/29/94

PARAMETER NAME	LOCATION ID	LOG DATE	SAMPLE ID	FORM COMP	FLOW REL.	UNITS OF MEASURE	PARAMETER PVI VALUE	FLAGS	DETECTION LIMIT	PARAMETER UNCERTAINTY
URANIUM	0918	09/20/87	0001	WU	N	MG/L	1.61		0.003	-
	0918	02/03/88	0001	WU	N		1.55		0.003	-
	0918	04/22/88	0001	WU	N		2.01		0.003	-
	0918	08/26/88	0001	WU	N		1.69		0.003	-
	0918	12/04/88	0001	WU	N		1.91		0.003	-
	0920	09/20/87	0001	WU	N		0.851		0.003	-
	0920	01/30/88	0001	WU	N		0.795		0.003	-
	0920	04/26/88	0001	WU	N		1.21		0.003	-
	0920	08/27/88	0001	WU	N		1.04		0.003	-
	0920	12/10/88	0001	WU	N		0.892		0.003	-
	0922	09/20/87	0001	WU	N		0.209		0.003	-
	0922	02/03/88	0001	WU	N		0.164		0.003	-
	0922	04/26/88	0001	WU	N		0.123		0.003	-
	0922	08/08/88	0001	WU	N		0.106		0.003	-
	0922	12/10/88	0001	WU	N		0.128		0.003	-
	0924	09/20/87	0001	WU	N		2.59		0.003	-
	0924	02/04/88	0001	WU	N		2.73		0.003	-
	0924	04/26/88	0001	WU	N		3.25		0.003	-
	0924	08/26/88	0001	WU	N		3.44		0.003	-
	0924	12/07/88	0001	WU	N		3.65		0.003	-
	0925	09/20/87	0001	WU	N		2.17		0.003	-
	0925	02/03/88	0001	WU	N		2.09		0.003	-
	0925	04/26/88	0001	WU	N		2.38		0.003	-
	0925	08/26/88	0001	WU	N		2.27		0.003	-
	0925	12/07/88	0001	WU	N		2.33		0.003	-
	0927	09/20/87	0001	WU	N		4.58		0.003	-
	0927	02/04/88	0001	WU	N		4.46		0.003	-
	0927	04/26/88	0001	WU	N		5.19		0.003	-
	0927	08/26/88	0001	WU	N		4.40		0.003	-
	0927	12/04/88	0001	WU	N		4.62		0.003	-
	0928	09/20/87	0001	WU	N		1.30		0.003	-
	0928	02/03/88	0001	WU	N		1.95		0.003	-
	0928	04/22/88	0001	WU	N		1.99		0.003	-
	0928	08/04/88	0001	WU	N		2.00		0.003	-
	0928	12/04/88	0001	WU	N		2.47		0.003	-
	0929	09/20/87	0001	WU	N		0.0780		0.003	-
	0929	02/03/88	0001	WU	N		0.0193		0.003	-
	0929	04/28/88	0001	WU	N		0.0231	J	0.003	-
	0929	08/11/88	0001	WU	N		0.0171		0.003	-
	0930	09/20/87	0001	WU	N		0.413		0.003	-

FORMATION OF COMPLETION CODE:
 WU - WASATCH - UPPER SANDSTONE

FLOW RELATIONSHIP CODE:
 N - UNKNOWN

PARAMETER VALUE INDICATOR (PVI): < - LESS THAN DETECTION LIMIT

SAMPLE ID CODES:
 0001 - FILTERED SAMPLE (.45 MICRONS)

OTHER PARAMETER VALUE FLAGS:
 J - ESTIMATED VALUE

GROUNDWATER QUALITY DATA BY PARAMETER
 UPPER SANDSTONE UNIT
 SITE: SPK01 SPOOK
 02/17/87 TO 12/10/88
 REPORT DATE: 07/29/94

PARAMETER NAME	LOCATION ID	LOG DATE	SAMPLE ID	FORM COMP	FLOW REL.	UNITS OF MEASURE	PVI	PARAMETER VALUE	FLAGS	DETECTION LIMIT	PARAMETER UNCERTAINTY
URANIUM	0930	01/30/88	0001	WU	N	MG/L		0.0514		0.003	-
	0930	04/26/88	0001	WU	N			0.0437		0.003	-
	0930	08/27/88	0001	WU	N			0.185		0.003	-
	0931	01/30/88	0001	WU	N			2.13		0.003	-
	0931	04/28/88	0001	WU	N			2.04		0.003	-
	0931	08/10/88	0001	WU	N			2.00		0.003	-
	0931	12/04/88	0001	WU	N			2.15		0.003	-
	0932	01/30/88	0001	WU	N			0.327		0.003	-
	0932	04/28/88	0001	WU	N			0.374		0.003	-
	0932	08/09/88	0001	WU	N			0.408		0.003	-
	0932	12/07/88	0001	WU	N			0.280		0.003	-
	0933	08/10/88	0001	WU	N			1.96		0.003	-
	0933	12/07/88	0001	WU	N			2.01		0.003	-
	0934	08/11/88	0001	WU	N			1.02		0.003	-
	0934	12/07/88	0001	WU	N			1.13		0.003	-
	0935	08/09/88	0001	WU	N			0.459		0.003	-
	0935	12/04/88	0001	WU	N			0.341		0.003	-
	0936	08/08/88	0001	WU	N			2.77		0.003	-
	0936	12/04/88	0001	WU	N			2.94		0.003	-
	0937	08/08/88	0001	WU	N			6.18		0.003	-
	0937	12/04/88	0001	WU	N			4.70		0.003	-
	0939	08/08/88	0001	WU	N			0.114		0.003	-
	0939	12/04/88	0001	WU	N			0.117		0.003	-
	0940	08/08/88	0001	WU	N			3.18		0.003	-
	0940	12/04/88	0001	WU	N			3.91		0.003	-
	0941	08/08/88	0001	WU	N			0.228		0.003	-
	0941	12/10/88	0001	WU	N			0.227		0.003	-
	0942	08/08/88	0001	WU	N			0.799		0.003	-
	0942	12/04/88	0001	WU	N			0.536		0.003	-
	0943	08/09/88	0001	WU	N			2.90		0.003	-
	0943	12/07/88	0001	WU	N			2.88		0.003	-
	0944	08/11/88	0001	WU	N			0.965		0.003	-
	0944	12/07/88	0001	WU	N			0.890		0.003	-
VANADIUM	0911	09/18/87	0001	WU	N	MG/L		0.05		0.01	-
	0911	01/30/88	0001	WU	N		<	0.01		0.01	-
	0911	04/22/88	0001	WU	N			0.02		0.01	-
	0911	08/11/88	0001	WU	N			0.01		0.01	-
	0911	12/10/88	0001	WU	N			0.02		0.01	-
	0912	02/03/88	0001	WU	N			0.01		0.01	-
	0912	04/22/88	0001	WU	N			0.03		0.01	-

FORMATION OF COMPLETION CODE:
 WU - WASATCH - UPPER SANDSTONE

FLOW RELATIONSHIP CODE:
 N - UNKNOWN

PARAMETER VALUE INDICATOR (PVI): < - LESS THAN DETECTION LIMIT

SAMPLE ID CODES:
 0001 - FILTERED SAMPLE (.45 MICRONS)

GROUNDWATER QUALITY DATA BY PARAMETER
 UPPER SANDSTONE UNIT
 SITE: SPK01 SPOOK
 02/17/87 TO 12/10/88
 REPORT DATE: 07/29/94

PARAMETER NAME	LOCATION ID	LOG DATE	SAMPLE ID	FORM COMP REL.	UNITS OF MEASURE	PV1	PARAMETER VALUE	FLAGS	DETECTION LIMIT	PARAMETER UNCERTAINTY
VANADIUM	0912	08/27/88	0001	WU	Mg/L		0.02		0.01	-
	0912	12/04/88	0001	WU			0.03		0.01	-
	0913	09/18/87	0001	WU			0.08		0.01	-
	0913	02/03/88	0001	WU			0.04		0.01	-
	0913	04/22/88	0001	WU			0.06		0.01	-
	0913	08/04/88	0001	WU			0.05		0.01	-
	0913	12/10/88	0001	WU			0.03		0.01	-
	0916	09/20/87	0001	WU			0.14		0.01	-
	0916	02/03/88	0001	WU			0.07		0.01	-
	0916	04/22/88	0001	WU			0.10		0.01	-
	0916	08/04/88	0001	WU			0.08		0.01	-
	0916	12/07/88	0001	WU			0.10		0.01	-
	0917	09/20/87	0001	WU			0.07		0.01	-
	0917	01/30/88	0001	WU			0.02		0.01	-
	0917	04/22/88	0001	WU			0.04		0.01	-
	0917	08/27/88	0001	WU			0.04		0.01	-
	0917	12/07/88	0001	WU			0.04		0.01	-
	0918	09/20/87	0001	WU			0.05		0.01	-
	0918	02/03/88	0001	WU			0.02		0.01	-
	0918	04/22/88	0001	WU			0.03		0.01	-
	0918	08/26/88	0001	WU			0.03		0.01	-
	0918	12/04/88	0001	WU			0.03		0.01	-
	0920	09/20/87	0001	WU			0.07		0.01	-
	0920	01/30/88	0001	WU			0.07		0.01	-
	0920	04/26/88	0001	WU			0.09		0.01	-
	0920	08/27/88	0001	WU			0.08		0.01	-
	0920	12/10/88	0001	WU			0.08		0.01	-
	0922	09/20/87	0001	WU			0.03		0.01	-
	0922	02/03/88	0001	WU			0.02		0.01	-
	0922	04/26/88	0001	WU			0.02		0.01	-
	0922	08/08/88	0001	WU			0.01		0.01	-
	0922	12/10/88	0001	WU			0.02		0.01	-
	0924	09/20/87	0001	WU			0.04		0.01	-
	0924	02/04/88	0001	WU			0.03		0.01	-
	0924	04/26/88	0001	WU			0.05		0.01	-
	0924	08/26/88	0001	WU			0.05		0.01	-
	0924	12/07/88	0001	WU			0.04		0.01	-
	0925	09/20/87	0001	WU			0.02		0.01	-
	0925	02/03/88	0001	WU			0.02		0.01	-
	0925	04/26/88	0001	WU			0.03		0.01	-
	0925	08/26/88	0001	WU			0.03		0.01	-

FORMATION OF COMPLETION CODE:
 WU - WASATCH - UPPER SANDSTONE

FLOW RELATIONSHIP CODE:
 N - UNKNOWN

PARAMETER VALUE INDICATOR (PV1): < - LESS THAN DETECTION LIMIT

SAMPLE ID CODES:
 0001 - FILTERED SAMPLE (.45 MICRONS)

GROUNDWATER QUALITY DATA BY PARAMETER
UPPER SANDSTONE UNIT
SITE: SPK01 SPOOK
02/17/87 TO 12/10/88
REPORT DATE: 07/29/94

PARAMETER NAME	LOCATION ID	LOG DATE	SAMPLE ID	FORM COMP REL.	UNITS OF MEASURE	PVI VALUE	FLAGS	DETECTION LIMIT	PARAMETER UNCERTAINTY
VANADIUM	0925	12/07/88	0001	WU	MG/L	0.03		0.01	-
	0927	09/20/87	0001	WU		0.05		0.01	-
	0927	02/04/88	0001	WU		0.05		0.01	-
	0927	04/26/88	0001	WU		0.06		0.01	-
	0927	08/26/88	0001	WU		0.05		0.01	-
	0927	12/04/88	0001	WU		0.06		0.01	-
	0928	09/20/87	0001	WU		0.05		0.01	-
	0928	02/03/88	0001	WU		0.05		0.01	-
	0928	04/22/88	0001	WU		0.05		0.01	-
	0928	08/04/88	0001	WU		0.04		0.01	-
	0928	12/04/88	0001	WU		0.05		0.01	-
	0929	09/20/87	0001	WU		0.04		0.01	-
	0929	02/03/88	0001	WU		0.015		0.01	-
	0929	04/28/88	0001	WU		0.02	J	0.01	-
	0929	08/11/88	0001	WU		0.01		0.01	-
	0930	09/20/87	0001	WU		0.08		0.01	-
	0930	01/30/88	0001	WU		0.059		0.01	-
	0930	04/26/88	0001	WU		0.08		0.01	-
	0930	08/27/88	0001	WU		0.07		0.01	-
	0931	01/30/88	0001	WU		0.016		0.01	-
	0931	08/10/88	0001	WU		0.03		0.01	-
	0931	12/04/88	0001	WU		0.02		0.01	-
	0932	01/30/88	0001	WU		0.03		0.01	-
	0932	04/28/88	0001	WU		0.021		0.01	-
	0932	08/09/88	0001	WU		0.03		0.01	-
	0932	12/07/88	0001	WU		0.02		0.01	-
	0933	08/10/88	0001	WU		0.03		0.01	-
	0933	12/07/88	0001	WU		0.02		0.01	-
	0934	08/11/88	0001	WU		0.03		0.01	-
	0934	12/07/88	0001	WU		0.01		0.01	-
	0935	08/09/88	0001	WU		0.07		0.01	-
	0935	12/04/88	0001	WU		0.09		0.01	-
	0936	08/08/88	0001	WU		0.03		0.01	-
	0936	12/04/88	0001	WU		0.04		0.01	-
	0937	08/08/88	0001	WU		0.04		0.01	-
	0937	12/04/88	0001	WU		0.03		0.01	-
	0939	08/08/88	0001	WU		0.02		0.01	-
	0939	12/04/88	0001	WU		0.04		0.01	-
	0940	08/08/88	0001	WU		0.06		0.01	-

FORMATION OF COMPLETION CODE:
WU - WASATCH - UPPER SANDSTONE

FLOW RELATIONSHIP CODE:
N - UNKNOWN

PARAMETER VALUE INDICATOR (PVI): < - LESS THAN DETECTION LIMIT

SAMPLE ID CODES:
0001 - FILTERED SAMPLE (.45 MICRONS)

OTHER PARAMETER VALUE FLAGS:
J - ESTIMATED VALUE

GROUNDWATER QUALITY DATA BY PARAMETER
 UPPER SANDSTONE UNIT
 SITE: SPK01 SPOOK
 02/17/87 TO 12/10/88
 REPORT DATE: 07/29/94

PARAMETER NAME	LOCATION ID	LOG DATE	SAMPLE ID	FORM COMP	FLOW REL.	UNITS OF MEASURE	PVI	PARAMETER VALUE	FLAGS	DETECTION LIMIT	PARAMETER UNCERTAINTY
VANADIUM	0940	12/04/88	0001	WU	N	MG/L		0.08		0.01	-
	0941	08/08/88	0001	WU	N			0.01		0.01	-
	0941	12/10/88	0001	WU	N			0.01		0.01	-
	0942	08/08/88	0001	WU	N			0.01		0.01	-
	0942	12/04/88	0001	WU	N			0.02		0.01	-
	0943	08/09/88	0001	WU	N			0.02		0.01	-
	0943	12/07/88	0001	WU	N			0.03		0.01	-
	0944	08/11/88	0001	WU	N			0.02		0.01	-
	0944	12/07/88	0001	WU	N			0.03		0.01	-
ZINC	0911	02/17/87	0001	WU	N	MG/L		0.030		0.005	-
	0911	09/18/87	0001	WU	N		<	0.005		0.005	-
	0911	01/30/88	0001	WU	N		<	0.005		0.005	-
	0911	04/22/88	0001	WU	N			0.012		0.005	-
	0911	08/11/88	0001	WU	N		<	0.005		0.005	-
	0912	02/18/87	0001	WU	N			0.008		0.005	-
	0912	02/03/88	0001	WU	N		<	0.005		0.005	-
	0912	04/22/88	0001	WU	N		<	0.005		0.005	-
	0912	08/27/88	0001	WU	N			0.009		0.005	-
	0913	02/18/87	0001	WU	N			0.076		0.005	-
	0913	09/18/87	0001	WU	N			0.007		0.005	-
	0913	02/03/88	0001	WU	N		<	0.005		0.005	-
	0913	04/22/88	0001	WU	N			0.007		0.005	-
	0913	08/04/88	0001	WU	N		<	0.005		0.005	-
	0916	02/20/87	0001	WU	N			0.018		0.005	-
	0916	09/20/87	0001	WU	N			0.012		0.005	-
	0916	02/03/88	0001	WU	N			0.005		0.005	-
	0916	04/22/88	0001	WU	N			0.006		0.005	-
	0916	08/04/88	0001	WU	N			0.005		0.005	-
	0917	02/19/87	0001	WU	N		<	0.025		0.005	-
	0917	09/20/87	0001	WU	N			0.005		0.005	-
	0917	01/30/88	0001	WU	N		<	0.005		0.005	-
	0917	04/22/88	0001	WU	N		<	0.005		0.005	-
	0917	08/27/88	0001	WU	N			0.013		0.005	-
	0918	02/20/87	0001	WU	N			0.027		0.005	-
	0918	09/20/87	0001	WU	N		<	0.005		0.005	-
	0918	02/03/88	0001	WU	N			0.005		0.005	-
	0918	04/22/88	0001	WU	N		<	0.005		0.005	-
	0918	08/26/88	0001	WU	N			0.009		0.005	-
	0920	09/20/87	0001	WU	N			0.036		0.005	-
	0920	01/30/88	0001	WU	N			0.019		0.005	-

FORMATION OF COMPLETION CODE:
 WU - WASATCH - UPPER SANDSTONE

FLOW RELATIONSHIP CODE:
 N - UNKNOWN

PARAMETER VALUE INDICATOR (PVI): < - LESS THAN DETECTION LIMIT

SAMPLE ID CODES:
 0001 - FILTERED SAMPLE (.45 MICRONS)

GROUNDWATER QUALITY DATA BY PARAMETER
UPPER SANDSTONE UNIT
SITE: SPK01 SPOOK
02/17/87 TO 12/10/88
REPORT DATE: 07/29/94

PARAMETER NAME	LOCATION ID	LOG DATE	SAMPLE ID	FORM COMP REL.	UNITS OF MEASURE	PVI VALUE	FLAGS	DETECTION LIMIT	PARAMETER UNCERTAINTY
ZINC	0920	04/26/88	0001	WU	MG/L	0.021		0.005	-
	0920	08/27/88	0001	WU		0.017		0.005	-
	0922	09/20/87	0001	WU		0.014		0.005	-
	0922	02/03/88	0001	WU		0.005		0.005	-
	0922	04/26/88	0001	WU		0.008		0.005	-
	0922	08/08/88	0001	WU		0.018		0.005	-
	0924	09/20/87	0001	WU		0.005		0.005	-
	0924	02/04/88	0001	WU		0.008		0.005	-
	0924	04/26/88	0001	WU		0.005		0.005	-
	0924	08/26/88	0001	WU		0.010		0.005	-
	0925	09/20/87	0001	WU		0.009		0.005	-
	0925	02/03/88	0001	WU		0.005		0.005	-
	0925	04/26/88	0001	WU		0.005		0.005	-
	0925	08/26/88	0001	WU		0.009		0.005	-
	0927	09/20/87	0001	WU		0.005		0.005	-
	0927	02/04/88	0001	WU		0.010		0.005	-
	0927	04/26/88	0001	WU		0.011		0.005	-
	0927	08/26/88	0001	WU		0.009		0.005	-
	0928	09/20/87	0001	WU		0.005		0.005	-
	0928	02/03/88	0001	WU		0.010		0.005	-
	0928	04/22/88	0001	WU		0.016		0.005	-
	0928	08/04/88	0001	WU		0.010		0.005	-
	0929	09/20/87	0001	WU		0.005		0.005	-
	0929	02/03/88	0001	WU		0.005		0.005	-
	0929	04/28/88	0001	WU		0.009	J	0.005	-
	0929	08/11/88	0001	WU		0.005		0.005	-
	0930	09/20/87	0001	WU		0.005		0.005	-
	0930	01/30/88	0001	WU		0.021		0.005	-
	0930	04/26/88	0001	WU		0.135		0.005	-
	0930	08/27/88	0001	WU		0.062		0.005	-
	0931	01/30/88	0001	WU		0.010		0.005	-
	0931	04/28/88	0001	WU		0.014		0.005	-
	0931	08/10/88	0001	WU		0.011		0.005	-
	0932	01/30/88	0001	WU		0.013		0.005	-
	0932	04/28/88	0001	WU		0.021		0.005	-
	0932	08/09/88	0001	WU		0.036		0.005	-
	0933	08/10/88	0001	WU		0.004	J	0.005	-
	0934	08/11/88	0001	WU		0.008		0.005	-
	0935	08/09/88	0001	WU		0.158		0.005	-
	0936	08/08/88	0001	WU		0.040		0.005	-

FORMATION OF COMPLETION CODE:
WU - WASATCH - UPPER SANDSTONE

FLOW RELATIONSHIP CODE:
N - UNKNOWN

PARAMETER VALUE INDICATOR (PVI): < - LESS THAN DETECTION LIMIT

SAMPLE ID CODES:
0001 - FILTERED SAMPLE (.45 MICRONS)

OTHER PARAMETER VALUE FLAGS:
J - ESTIMATED VALUE

GROUNDWATER QUALITY DATA BY PARAMETER
 UPPER SANDSTONE UNIT
 SITE: SPK01 SPOOK
 02/17/87 TO 12/10/88
 REPORT DATE: 07/29/94

PARAMETER NAME	LOCATION ID	LOG DATE	SAMPLE ID	FORM COMP	FLOW REL.	UNITS OF MEASURE	PARAMETER PVI VALUE	FLAGS	DETECTION LIMIT	PARAMETER UNCERTAINTY
ZINC	0937	08/08/88	0001	WU	N	MG/L	0.007		0.005	-
	0939	08/08/88	0001	WU	N		0.012		0.005	-
	0940	08/08/88	0001	WU	N		0.006		0.005	-
	0941	08/08/88	0001	WU	N		0.009		0.005	-
	0942	08/08/88	0001	WU	N		0.005		0.005	-
	0943	08/09/88	0001	WU	N		0.005		0.005	-
	0944	08/11/88	0001	WU	N		< 0.005		0.005	-

FORMATION OF COMPLETION CODE:
 WU - WASATCH - UPPER SANDSTONE

FLOW RELATIONSHIP CODE:
 N - UNKNOWN

PARAMETER VALUE INDICATOR (PVI): < - LESS THAN DETECTION LIMIT

SAMPLE ID CODES:
 0001 - FILTERED SAMPLE (.45 MICRONS)

DATA FILE NAME: M:\DART\SPK01\GWQ10001.DAT

GROUNDWATER QUALITY DATA BY PARAMETER
 LOWER SANDSTONE AND MIDDLE SHALE UNITS
 SITE: SPK01 SPOOK
 02/17/87 TO 12/10/88
 REPORT DATE: 07/29/94

PARAMETER NAME	LOCATION ID	LOG DATE	SAMPLE ID	FORM COMP	FLOW REL.	UNITS OF MEASURE	PVI	PARAMETER VALUE	FLAGS	DETECTION LIMIT	PARAMETER UNCERTAINTY
ALKALINITY	0910	02/17/87	0001	WL	N	MG/L CaCO3		114.		-	-
	0910	09/18/87	0001	WL	N			123.		-	-
	0910	01/30/88	0001	WL	N			126.		-	-
	0910	04/22/88	0001	WL	N			131.0		-	-
	0910	08/11/88	0001	WL	N			125.0		-	-
	0910	12/10/88	0001	WL	N			135.		-	-
	0914	02/18/87	0001	WL	N			190.		-	-
	0914	09/18/87	0001	WL	N			116.		-	-
	0914	02/03/88	0001	WL	N			115.		-	-
	0914	04/22/88	0001	WL	N			112.		-	-
	0914	08/08/88	0001	WL	N			114.0		-	-
	0914	12/10/88	0001	WL	N			111.		-	-
	0915	02/20/87	0001	WM	N			127.		-	-
	0915	09/20/87	0001	WM	N			134.	J	-	-
	0915	02/03/88	0001	WM	N			117.		-	-
	0915	04/22/88	0001	WM	N			121.		-	-
	0915	08/10/88	0001	WM	N			99.0		-	-
	0915	12/10/88	0001	WM	N			109.		-	-
	0919	02/19/87	0001	WL	N			150.		-	-
	0919	09/20/87	0001	WL	N			133.		-	-
	0919	01/30/88	0001	WL	N			143.		-	-
	0919	04/26/88	0001	WL	N			135.		-	-
	0919	08/27/88	0001	WL	N			139.0		-	-
	0919	12/10/88	0001	WL	N			165.		-	-
	0921	09/20/87	0001	WL	N			208.		-	-
	0921	02/04/88	0001	WL	N			260.		-	-
	0921	04/26/88	0001	WL	N			194.		-	-
	0921	08/10/88	0001	WL	N			215.0		-	-
	0921	12/10/88	0001	WL	N			214.		-	-
	0923	09/20/87	0001	WL	N			142.		-	-
	0923	01/30/88	0001	WL	N			144.		-	-
	0923	04/26/88	0001	WL	N			140.		-	-
	0923	08/09/88	0001	WL	N			130.0		-	-
	0923	12/10/88	0001	WL	N			145.		-	-
	0938	08/09/88	0001	WL	N			204.0	J	-	-
	0938	12/10/88	0001	WL	N			213.		-	-
ALUMINUM	0910	02/17/87	0001	WL	N	MG/L	<	0.1		0.1	-
	0910	09/18/87	0001	WL	N			0.13		0.1	-

FORMATION OF COMPLETION CODE:
 WL - WASATCH - LOWER SANDSTONE
 WM - WASATCH - MIDDLE SHALE

FLOW RELATIONSHIP CODE:
 N - UNKNOWN

PARAMETER VALUE INDICATOR (PVI): < - LESS THAN DETECTION LIMIT

SAMPLE ID CODES:
 0001 - FILTERED SAMPLE (.45 MICRONS)

OTHER PARAMETER VALUE FLAGS:
 J - ESTIMATED VALUE

GROUNDWATER QUALITY DATA BY PARAMETER
 LOWER SANDSTONE AND MIDDLE SHALE UNITS
 SITE: SPK01 SPOOK
 02/17/87 TO 12/10/88
 REPORT DATE: 07/29/94

PARAMETER NAME	LOCATION ID	LOG DATE	SAMPLE ID	FORM COMP	FLOW REL.	UNITS OF MEASURE	PVI	PARAMETER VALUE	FLAGS	DETECTION LIMIT	PARAMETER UNCERTAINTY
ALUMINUM	0910	01/30/88	0001	WL	N	MG/L	<	0.01	J	0.1	-
	0910	04/22/88	0001	WL	N			0.03	J	0.1	-
	0910	08/11/88	0001	WL	N		<	0.1		0.1	-
	0914	02/18/87	0001	WL	N		<	0.1		0.1	-
	0914	09/18/87	0001	WL	N			0.14		0.1	-
	0914	02/03/88	0001	WL	N			0.02	J	0.1	-
	0914	04/22/88	0001	WL	N			0.03	J	0.1	-
	0914	08/08/88	0001	WL	N			0.1		0.1	-
	0915	02/20/87	0001	WM	N		<	0.1		0.1	-
	0915	09/20/87	0001	WM	N			0.17	J	0.1	-
	0915	02/03/88	0001	WM	N			0.02	J	0.1	-
	0915	04/22/88	0001	WM	N			0.05	J	0.1	-
	0915	08/10/88	0001	WM	N			0.1		0.1	-
	0919	02/19/87	0001	WL	N		<	0.1		0.1	-
	0919	09/20/87	0001	WL	N			0.05	J	0.1	-
	0919	01/30/88	0001	WL	N			0.08	J	0.1	-
	0919	04/26/88	0001	WL	N			0.03	J	0.1	-
	0919	08/27/88	0001	WL	N		<	0.1		0.1	-
	0921	09/20/87	0001	WL	N			0.12		0.1	-
	0921	02/04/88	0001	WL	N			0.14		0.1	-
	0921	04/26/88	0001	WL	N			0.06	J	0.1	-
	0921	08/10/88	0001	WL	N		<	0.1		0.1	-
	0923	09/20/87	0001	WL	N			0.07	J	0.1	-
	0923	01/30/88	0001	WL	N			0.09	J	0.1	-
	0923	04/26/88	0001	WL	N			0.02	J	0.1	-
	0923	08/09/88	0001	WL	N		<	0.1		0.1	-
	0938	08/09/88	0001	WL	N			0.1	J	0.1	-
AMMONIUM	0910	02/17/87	0001	WL	N	MG/L	<	0.1		0.1	-
	0910	09/18/87	0001	WL	N			0.4		0.1	-
	0910	01/30/88	0001	WL	N			1.7		0.1	-
	0910	04/22/88	0001	WL	N			1.3		0.1	-
	0910	08/11/88	0001	WL	N			1.3		0.1	-
	0910	12/10/88	0001	WL	N			0.5		0.1	-
	0914	02/18/87	0001	WL	N		<	0.1		0.1	-
	0914	09/18/87	0001	WL	N			2.3		0.1	-
	0914	02/03/88	0001	WL	N		<	0.1		0.1	-
	0914	04/22/88	0001	WL	N		<	0.1		0.1	-
	0914	08/08/88	0001	WL	N		<	0.1		0.1	-

FORMATION OF COMPLETION CODE:
 WL - WASATCH - LOWER SANDSTONE
 WM - WASATCH - MIDDLE SHALE

FLOW RELATIONSHIP CODE:
 N - UNKNOWN

PARAMETER VALUE INDICATOR (PVI): < - LESS THAN DETECTION LIMIT

SAMPLE ID CODES:
 0001 - FILTERED SAMPLE (.45 MICRONS)

OTHER PARAMETER VALUE FLAGS:
 J - ESTIMATED VALUE

GROUNDWATER QUALITY DATA BY PARAMETER
 LOWER SANDSTONE AND MIDDLE SHALE UNITS
 SITE: SPK01 SPOOK
 02/17/87 TO 12/10/88
 REPORT DATE: 07/29/94

PARAMETER NAME	LOCATION ID	LOG DATE	SAMPLE ID	FORM COMP	FLOW REL.	UNITS OF MEASURE	PVI	PARAMETER VALUE	FLAGS	DETECTION LIMIT	PARAMETER UNCERTAINTY
AMMONIUM	0914	12/10/88	0001	WL	N	MG/L	<	0.1		0.1	-
	0915	02/20/87	0001	WM	N		<	0.1		0.1	-
	0915	09/20/87	0001	WM	N		<	0.1	J	0.1	-
	0915	02/03/88	0001	WM	N		<	0.1		0.1	-
	0915	04/22/88	0001	WM	N		<	0.1		0.1	-
	0915	08/10/88	0001	WM	N		<	0.1		0.1	-
	0915	12/10/88	0001	WM	N		<	0.1		0.1	-
	0919	02/19/87	0001	WL	N			0.5		0.1	-
	0919	09/20/87	0001	WL	N		<	0.1		0.1	-
	0919	01/30/88	0001	WL	N		<	0.1		0.1	-
	0919	04/26/88	0001	WL	N		<	0.1		0.1	-
	0919	08/27/88	0001	WL	N		<	0.1		0.1	-
	0919	12/10/88	0001	WL	N		<	0.1		0.1	-
	0921	09/20/87	0001	WL	N		<	0.1		0.1	-
	0921	02/04/88	0001	WL	N		<	0.1		0.1	-
	0921	04/26/88	0001	WL	N		<	0.1		0.1	-
	0921	08/10/88	0001	WL	N		<	0.1		0.1	-
	0921	12/10/88	0001	WL	N		<	0.1		0.1	-
	0923	09/20/87	0001	WL	N		<	0.1		0.1	-
	0923	01/30/88	0001	WL	N		<	0.1		0.1	-
	0923	04/26/88	0001	WL	N		<	0.1		0.1	-
	0923	08/09/88	0001	WL	N		<	0.1		0.1	-
	0923	12/10/88	0001	WL	N		<	0.1		0.1	-
	0938	08/09/88	0001	WL	N		<	0.1	J	0.1	-
	0938	12/10/88	0001	WL	N		<	0.1		0.1	-
ANTIMONY	0910	02/17/87	0001	WL	N	MG/L	<	0.003		0.003	-
	0910	09/18/87	0001	WL	N			0.004		0.003	-
	0910	01/30/88	0001	WL	N		<	0.003		0.003	-
	0910	04/22/88	0001	WL	N			0.004		0.003	-
	0910	08/11/88	0001	WL	N			0.005		0.003	-
	0914	02/18/87	0001	WL	N		<	0.003		0.003	-
	0914	09/18/87	0001	WL	N		<	0.003		0.003	-
	0914	02/03/88	0001	WL	N		<	0.003		0.003	-
	0914	04/22/88	0001	WL	N		<	0.003		0.003	-
	0914	08/08/88	0001	WL	N		<	0.003		0.003	-
	0915	02/20/87	0001	WM	N			0.003		0.003	-
	0915	09/20/87	0001	WM	N		<	0.003	J	0.003	-
	0915	02/03/88	0001	WM	N			0.004		0.003	-

FORMATION OF COMPLETION CODE:
 WL - WASATCH - LOWER SANDSTONE
 WM - WASATCH - MIDDLE SHALE

FLOW RELATIONSHIP CODE:
 N - UNKNOWN

PARAMETER VALUE INDICATOR (PVI): < - LESS THAN DETECTION LIMIT

SAMPLE ID CODES:
 0001 - FILTERED SAMPLE (.45 MICRONS)

OTHER PARAMETER VALUE FLAGS:
 J - ESTIMATED VALUE

GROUNDWATER QUALITY DATA BY PARAMETER
 LOWER SANDSTONE AND MIDDLE SHALE UNITS
 SITE: SPK01 SPOOK
 02/17/87 TO 12/10/88
 REPORT DATE: 07/29/94

PARAMETER NAME	LOCATION ID	LOG DATE	SAMPLE ID	FORM COMP	FLOW REL.	UNITS OF MEASURE	PVI	PARAMETER VALUE	FLAGS	DETECTION LIMIT	PARAMETER UNCERTAINTY
ANTIMONY	0915	04/22/88	0001	WM	N	MG/L	<	0.003		0.003	-
	0915	08/10/88	0001	WM	N		<	0.003		0.003	-
	0919	02/19/87	0001	WL	N		<	0.003		0.003	-
	0919	09/20/87	0001	WL	N		<	0.003		0.003	-
	0919	01/30/88	0001	WL	N			0.004		0.003	-
	0919	04/26/88	0001	WL	N		<	0.003		0.003	-
	0919	08/27/88	0001	WL	N		<	0.003	J	0.003	-
	0921	09/20/87	0001	WL	N		<	0.003		0.003	-
	0921	02/04/88	0001	WL	N			0.004		0.003	-
	0921	04/26/88	0001	WL	N			0.003		0.003	-
	0921	08/10/88	0001	WL	N		<	0.003		0.003	-
	0923	09/20/87	0001	WL	N		<	0.003		0.003	-
	0923	01/30/88	0001	WL	N		<	0.003		0.003	-
	0923	04/26/88	0001	WL	N		<	0.003		0.003	-
	0923	08/09/88	0001	WL	N		<	0.003		0.003	-
	0938	08/09/88	0001	WL	N		<	0.003	J	0.003	-
ARSENIC	0910	02/17/87	0001	WL	N	MG/L	<	0.001	J	0.01	-
	0910	09/18/87	0001	WL	N			0.002	J	0.01	-
	0910	01/30/88	0001	WL	N		<	0.001	J	0.01	-
	0910	04/22/88	0001	WL	N		<	0.001	J	0.01	-
	0910	08/11/88	0001	WL	N		<	0.01		0.01	-
	0910	12/10/88	0001	WL	N		<	0.01		0.01	-
	0914	02/18/87	0001	WL	N		<	0.001	J	0.01	-
	0914	09/18/87	0001	WL	N		<	0.001	J	0.01	-
	0914	02/03/88	0001	WL	N		<	0.001	J	0.01	-
	0914	04/22/88	0001	WL	N		<	0.001	J	0.01	-
	0914	08/08/88	0001	WL	N		<	0.01		0.01	-
	0914	12/10/88	0001	WL	N		<	0.01		0.01	-
	0915	02/20/87	0001	WM	N		<	0.001	J	0.01	-
	0915	09/20/87	0001	WM	N		<	0.001	J	0.01	-
	0915	02/03/88	0001	WM	N		<	0.001	J	0.01	-
	0915	04/22/88	0001	WM	N		<	0.001	J	0.01	-
	0915	08/10/88	0001	WM	N		<	0.01		0.01	-
	0915	12/10/88	0001	WM	N		<	0.01		0.01	-
	0919	02/19/87	0001	WL	N		<	0.001	J	0.01	-
	0919	09/20/87	0001	WL	N			0.001	J	0.01	-
	0919	01/30/88	0001	WL	N		<	0.01		0.01	-
	0919	04/26/88	0001	WL	N		<	0.001	J	0.01	-

FORMATION OF COMPLETION CODE:
 WM - WASATCH - MIDDLE SHALE
 WL - WASATCH - LOWER SANDSTONE

FLOW RELATIONSHIP CODE:
 N - UNKNOWN

PARAMETER VALUE INDICATOR (PVI): < - LESS THAN DETECTION LIMIT

SAMPLE ID CODES:
 0001 - FILTERED SAMPLE (.45 MICRONS)

OTHER PARAMETER VALUE FLAGS:
 J - ESTIMATED VALUE

GROUNDWATER QUALITY DATA BY PARAMETER
 LOWER SANDSTONE AND MIDDLE SHALE UNITS
 SITE: SPK01 SPOOK
 02/17/87 TO 12/10/88
 REPORT DATE: 07/29/94

PARAMETER NAME	LOCATION ID	LOG DATE	SAMPLE ID	FORM COMP	FLOW REL.	UNITS OF MEASURE	PVI	PARAMETER VALUE	FLAGS	DETECTION LIMIT	PARAMETER UNCERTAINTY
ARSENIC	0919	08/27/88	0001	WL	N	MG/L	<	0.01		0.01	-
	0919	12/10/88	0001	WL	N		<	0.01		0.01	-
	0921	09/20/87	0001	WL	N			0.004	J	0.01	-
	0921	02/04/88	0001	WL	N		<	0.01		0.01	-
	0921	04/26/88	0001	WL	N		<	0.001	J	0.01	-
	0921	08/10/88	0001	WL	N		<	0.01		0.01	-
	0921	12/10/88	0001	WL	N		<	0.01		0.01	-
	0923	09/20/87	0001	WL	N			0.001	J	0.01	-
	0923	01/30/88	0001	WL	N		<	0.01		0.01	-
	0923	04/26/88	0001	WL	N		<	0.001	J	0.01	-
	0923	08/09/88	0001	WL	N		<	0.01		0.01	-
	0923	12/10/88	0001	WL	N		<	0.01		0.01	-
	0938	08/09/88	0001	WL	N		<	0.01	J	0.01	-
	0938	12/10/88	0001	WL	N		<	0.01		0.01	-
BARIUM	0910	02/17/87	0001	WL	N	MG/L		0.1		0.1	-
	0910	09/18/87	0001	WL	N			0.02	J	0.1	-
	0910	01/30/88	0001	WL	N		<	0.1		0.1	-
	0910	04/22/88	0001	WL	N			0.02	J	0.1	-
	0910	08/11/88	0001	WL	N		<	0.1		0.1	-
	0914	02/18/87	0001	WL	N		<	0.1		0.1	-
	0914	09/18/87	0001	WL	N			0.03	J	0.1	-
	0914	02/03/88	0001	WL	N		<	0.1		0.1	-
	0914	04/22/88	0001	WL	N			0.02	J	0.1	-
	0914	08/08/88	0001	WL	N		<	0.1		0.1	-
	0915	02/20/87	0001	WM	N		<	0.1		0.1	-
	0915	09/20/87	0001	WM	N			0.03	J	0.1	-
	0915	02/03/88	0001	WM	N		<	0.1		0.1	-
	0915	04/22/88	0001	WM	N			0.02	J	0.1	-
	0915	08/10/88	0001	WM	N		<	0.1		0.1	-
	0919	02/19/87	0001	WL	N			0.1		0.1	-
	0919	09/20/87	0001	WL	N			0.01	J	0.1	-
	0919	01/30/88	0001	WL	N		<	0.01	J	0.1	-
	0919	04/26/88	0001	WL	N			0.02	J	0.1	-
	0919	08/27/88	0001	WL	N		<	0.1		0.1	-
	0921	09/20/87	0001	WL	N			0.01	J	0.1	-
	0921	02/04/88	0001	WL	N		<	0.01	J	0.1	-
	0921	04/26/88	0001	WL	N			0.02	J	0.1	-
	0921	08/10/88	0001	WL	N		<	0.1		0.1	-

FORMATION OF COMPLETION CODE:
 WL - WASATCH - LOWER SANDSTONE
 WM - WASATCH - MIDDLE SHALE

FLOW RELATIONSHIP CODE:
 N - UNKNOWN

PARAMETER VALUE INDICATOR (PVI): < - LESS THAN DETECTION LIMIT

SAMPLE ID CODES:
 0001 - FILTERED SAMPLE (.45 MICRONS)

OTHER PARAMETER VALUE FLAGS:
 J - ESTIMATED VALUE

GROUNDWATER QUALITY DATA BY PARAMETER
 LOWER SANDSTONE AND MIDDLE SHALE UNITS
 SITE: SPK01 SPOOK
 02/17/87 TO 12/10/88
 REPORT DATE: 07/29/94

PARAMETER NAME	LOCATION ID	LOG DATE	SAMPLE ID	FORM COMP	FLOW REL.	UNITS OF MEASURE	PVI	PARAMETER VALUE	FLAGS	DETECTION LIMIT	PARAMETER UNCERTAINTY
BARIUM	0923	09/20/87	0001	WL	N	MG/L		0.02	J	0.1	-
	0923	01/30/88	0001	WL	N		<	0.01	J	0.1	-
	0923	04/26/88	0001	WL	N			0.02	J	0.1	-
	0923	08/09/88	0001	WL	N		<	0.1		0.1	-
	0938	08/09/88	0001	WL	N			0.1	J	0.1	-
BORON	0910	09/18/87	0001	WL	N	MG/L		0.05	J	0.1	-
	0910	01/30/88	0001	WL	N			0.16		0.1	-
	0910	04/22/88	0001	WL	N			0.06	J	0.1	-
	0910	08/11/88	0001	WL	N		<	0.1		0.1	-
	0914	09/18/87	0001	WL	N			0.05	J	0.1	-
	0914	02/03/88	0001	WL	N			0.29		0.1	-
	0914	04/22/88	0001	WL	N			0.06	J	0.1	-
	0914	08/08/88	0001	WL	N		<	0.1		0.1	-
	0915	09/20/87	0001	WM	N			0.07	J	0.1	-
	0915	02/03/88	0001	WM	N			0.14		0.1	-
	0915	04/22/88	0001	WM	N			0.06	J	0.1	-
	0915	08/10/88	0001	WM	N		<	0.1		0.1	-
	0919	09/20/87	0001	WL	N			0.06	J	0.1	-
	0919	01/30/88	0001	WL	N			0.12		0.1	-
	0919	04/26/88	0001	WL	N			0.05	J	0.1	-
	0919	08/27/88	0001	WL	N		<	0.1		0.1	-
	0921	09/20/87	0001	WL	N			0.07	J	0.1	-
	0921	02/04/88	0001	WL	N			0.12		0.1	-
	0921	04/26/88	0001	WL	N			0.07	J	0.1	-
	0921	08/10/88	0001	WL	N		<	0.1		0.1	-
	0923	09/20/87	0001	WL	N			0.06	J	0.1	-
	0923	01/30/88	0001	WL	N			0.17		0.1	-
	0923	04/26/88	0001	WL	N			0.06	J	0.1	-
	0923	08/09/88	0001	WL	N		<	0.1		0.1	-
	0938	08/09/88	0001	WL	N		<	0.1	J	0.1	-
CADMIUM	0910	02/17/87	0001	WL	N	MG/L		0.001		0.001	-
	0910	09/18/87	0001	WL	N		<	0.005		0.005	-
	0910	01/30/88	0001	WL	N		<	0.001		0.001	-
	0910	04/22/88	0001	WL	N			0.003		0.001	-
	0910	08/11/88	0001	WL	N		<	0.001		0.001	-
	0910	12/10/88	0001	WL	N		<	0.001		0.001	-
	0914	02/18/87	0001	WL	N		<	0.001		0.001	-

FORMATION OF COMPLETION CODE:
 WL - WASATCH - LOWER SANDSTONE
 WM - WASATCH - MIDDLE SHALE

FLOW RELATIONSHIP CODE:
 N - UNKNOWN

PARAMETER VALUE INDICATOR (PVI): < - LESS THAN DETECTION LIMIT

SAMPLE ID CODES:
 0001 - FILTERED SAMPLE (.45 MICRONS)

OTHER PARAMETER VALUE FLAGS:
 J - ESTIMATED VALUE

GROUNDWATER QUALITY DATA BY PARAMETER
 LOWER SANDSTONE AND MIDDLE SHALE UNITS
 SITE: SPK01 SPOOK
 02/17/87 TO 12/10/88
 REPORT DATE: 07/29/94

PARAMETER NAME	LOCATION ID	LOG DATE	SAMPLE ID	FORM COMP	FLOW REL.	UNITS OF MEASURE	PVI	PARAMETER VALUE	FLAGS	DETECTION LIMIT	PARAMETER UNCERTAINTY
CADMIUM	0914	09/18/87	0001	WL	N	MG/L	<	0.005		0.005	-
	0914	02/03/88	0001	WL	N		<	0.001		0.001	-
	0914	04/22/88	0001	WL	N			0.002		0.001	-
	0914	08/08/88	0001	WL	N			0.002		0.001	-
	0914	12/10/88	0001	WL	N		<	0.001		0.001	-
	0915	02/20/87	0001	WM	N			0.001		0.001	-
	0915	09/20/87	0001	WM	N		<	0.005	J	0.005	-
	0915	02/03/88	0001	WM	N		<	0.001		0.001	-
	0915	04/22/88	0001	WM	N			0.001		0.001	-
	0915	08/10/88	0001	WM	N			0.005		0.001	-
	0915	12/10/88	0001	WM	N		<	0.001		0.001	-
	0919	02/19/87	0001	WL	N			0.002		0.001	-
	0919	09/20/87	0001	WL	N		<	0.005		0.005	-
	0919	01/30/88	0001	WL	N		<	0.001		0.001	-
	0919	04/26/88	0001	WL	N			0.001		0.001	-
	0919	08/27/88	0001	WL	N		<	0.001		0.001	-
	0919	12/10/88	0001	WL	N		<	0.001		0.001	-
	0921	09/20/87	0001	WL	N		<	0.005		0.005	-
	0921	02/04/88	0001	WL	N		<	0.001		0.001	-
	0921	04/26/88	0001	WL	N		<	0.001		0.001	-
	0921	08/10/88	0001	WL	N		<	0.001		0.001	-
	0921	12/10/88	0001	WL	N		<	0.001		0.001	-
	0923	09/20/87	0001	WL	N		<	0.005		0.005	-
	0923	01/30/88	0001	WL	N		<	0.001		0.001	-
	0923	04/26/88	0001	WL	N		<	0.001		0.001	-
	0923	08/09/88	0001	WL	N		<	0.001		0.001	-
	0923	12/10/88	0001	WL	N		<	0.001		0.001	-
	0938	08/09/88	0001	WL	N		<	0.001	J	0.001	-
	0938	12/10/88	0001	WL	N		<	0.001		0.001	-
CALCIUM	0910	02/17/87	0001	WL	N	MG/L		55.9		0.01	-
	0910	09/18/87	0001	WL	N			48.2		0.01	-
	0910	01/30/88	0001	WL	N			51.2		0.01	-
	0910	04/22/88	0001	WL	N			51.7		0.01	-
	0910	08/11/88	0001	WL	N			51.4		0.01	-
	0910	12/10/88	0001	WL	N			49.7		0.01	-
	0914	02/18/87	0001	WL	N			41.1		0.01	-
	0914	09/18/87	0001	WL	N			33.3		0.01	-
	0914	02/03/88	0001	WL	N			36.1		0.01	-

FORMATION OF COMPLETION CODE:
 WL - WASATCH - LOWER SANDSTONE
 WM - WASATCH - MIDDLE SHALE

FLOW RELATIONSHIP CODE:
 N - UNKNOWN

PARAMETER VALUE INDICATOR (PVI): < - LESS THAN DETECTION LIMIT

SAMPLE ID CODES:
 0001 - FILTERED SAMPLE (.45 MICRONS)

OTHER PARAMETER VALUE FLAGS:
 J - ESTIMATED VALUE

GROUNDWATER QUALITY DATA BY PARAMETER
 LOWER SANDSTONE AND MIDDLE SHALE UNITS
 SITE: SPK01 SPOOK
 02/17/87 TO 12/10/88
 REPORT DATE: 07/29/94

PARAMETER NAME	LOCATION ID	LOG DATE	SAMPLE ID	FORM COMP	FLOW REL.	UNITS OF MEASURE	PVI	PARAMETER VALUE	FLAGS	DETECTION LIMIT	PARAMETER UNCERTAINTY
CALCIUM	0914	04/22/88	0001	WL	N	MG/L		36.5		0.01	-
	0914	08/08/88	0001	WL	N			36.6		0.01	-
	0914	12/10/88	0001	WL	N			33.7		0.01	-
	0915	02/20/87	0001	WM	N			46.0		0.01	-
	0915	09/20/87	0001	WM	N			40.2	J	0.01	-
	0915	02/03/88	0001	WM	N			45.3		0.01	-
	0915	04/22/88	0001	WM	N			44.0		0.01	-
	0915	08/10/88	0001	WM	N			43.6		0.01	-
	0915	12/10/88	0001	WM	N			41.9		0.01	-
	0919	02/19/87	0001	WL	N			55.8		0.01	-
	0919	09/20/87	0001	WL	N			61.1		0.01	-
	0919	01/30/88	0001	WL	N			57.5		0.01	-
	0919	04/26/88	0001	WL	N			59.9		0.01	-
	0919	08/27/88	0001	WL	N			60.7		0.01	-
	0919	12/10/88	0001	WL	N			57.2		0.01	-
	0921	09/20/87	0001	WL	N			131.		0.01	-
	0921	02/04/88	0001	WL	N			101.		0.01	-
	0921	04/26/88	0001	WL	N			111.		0.01	-
	0921	08/10/88	0001	WL	N			108.		0.01	-
	0921	12/10/88	0001	WL	N			104.		0.01	-
	0923	09/20/87	0001	WL	N			58.1		0.01	-
	0923	01/30/88	0001	WL	N			51.1		0.01	-
	0923	04/26/88	0001	WL	N			53.9		0.01	-
	0923	08/09/88	0001	WL	N			55.0		0.01	-
	0923	12/10/88	0001	WL	N			49.5		0.01	-
	0938	08/09/88	0001	WL	N			14.3	J	0.01	-
	0938	12/10/88	0001	WL	N			9.50		0.01	-
CHLORIDE	0910	02/17/87	0001	WL	N	MG/L		2.3		1.	-
	0910	09/18/87	0001	WL	N			2.9		1.	-
	0910	01/30/88	0001	WL	N			3.8		1.	-
	0910	04/22/88	0001	WL	N			1.7		1.	-
	0910	08/11/88	0001	WL	N		<	1.0		1.	-
	0910	12/10/88	0001	WL	N		<	1.0		1.	-
	0914	02/18/87	0001	WL	N			2.3		1.	-
	0914	09/18/87	0001	WL	N			3.4		1.	-
	0914	02/03/88	0001	WL	N			3.8		1.	-
	0914	04/22/88	0001	WL	N			3.0		1.	-
	0914	08/08/88	0001	WL	N			1.5		1.	-

FORMATION OF COMPLETION CODE:
 WL - WASATCH - LOWER SANDSTONE
 WM - WASATCH - MIDDLE SHALE

FLOW RELATIONSHIP CODE:
 N - UNKNOWN

PARAMETER VALUE INDICATOR (PVI): < - LESS THAN DETECTION LIMIT

SAMPLE ID CODES:
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OTHER PARAMETER VALUE FLAGS:
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GROUNDWATER QUALITY DATA BY PARAMETER
 LOWER SANDSTONE AND MIDDLE SHALE UNITS
 SITE: SPK01 SPOOK
 02/17/87 TO 12/10/88
 REPORT DATE: 07/29/94

PARAMETER NAME	LOCATION ID	LOG DATE	SAMPLE ID	FORM COMP	FLOW REL.	UNITS OF MEASURE	PARAMETER PVI	VALUE	FLAGS	DETECTION LIMIT	PARAMETER UNCERTAINTY
CHLORIDE	0914	12/10/88	0001	WL	N	MG/L	<	1.0		1.	-
	0915	02/20/87	0001	WM	N			3.5		1.	-
	0915	09/20/87	0001	WM	N			4.5	J	1.	-
	0915	02/03/88	0001	WM	N			5.1		1.	-
	0915	04/22/88	0001	WM	N			3.0		1.	-
	0915	08/10/88	0001	WM	N			1.5		1.	-
	0915	12/10/88	0001	WM	N			1.4		1.	-
	0919	02/19/87	0001	WL	N			2.3		1.	-
	0919	09/20/87	0001	WL	N			2.8		1.	-
	0919	01/30/88	0001	WL	N			0.7	J	1.	-
	0919	04/26/88	0001	WL	N			0.5	J	1.	-
	0919	08/27/88	0001	WL	N			2.1		1.	-
	0919	12/10/88	0001	WL	N		<	1.0		1.	-
	0921	09/20/87	0001	WL	N			3.9		1.	-
	0921	02/04/88	0001	WL	N			1.3		1.	-
	0921	04/26/88	0001	WL	N			1.8		1.	-
	0921	08/10/88	0001	WL	N			1.5		1.	-
	0921	12/10/88	0001	WL	N			2.1		1.	-
	0923	09/20/87	0001	WL	N			2.8		1.	-
	0923	01/30/88	0001	WL	N			2.5		1.	-
	0923	04/26/88	0001	WL	N			0.5	J	1.	-
	0923	08/09/88	0001	WL	N		<	1.0		1.	-
	0923	12/10/88	0001	WL	N		<	1.0		1.	-
	0938	08/09/88	0001	WL	N			1.5	J	1.	-
	0938	12/10/88	0001	WL	N		<	1.0		1.	-
CHROMIUM	0910	09/18/87	0001	WL	N	MG/L	<	0.01		0.01	-
	0910	01/30/88	0001	WL	N		<	0.01		0.01	-
	0910	04/22/88	0001	WL	N			0.03		0.01	-
	0910	08/11/88	0001	WL	N			0.02		0.01	-
	0910	12/10/88	0001	WL	N			0.05		0.01	-
	0914	09/18/87	0001	WL	N		<	0.01		0.01	-
	0914	02/03/88	0001	WL	N		<	0.01		0.01	-
	0914	04/22/88	0001	WL	N			0.02		0.01	-
	0914	08/08/88	0001	WL	N			0.02		0.01	-
	0914	12/10/88	0001	WL	N			0.01		0.01	-
	0915	09/20/87	0001	WM	N		<	0.01	J	0.01	-
	0915	02/03/88	0001	WM	N			0.01		0.01	-
	0915	04/22/88	0001	WM	N			0.02		0.01	-

FORMATION OF COMPLETION CODE:
 WL - WASATCH - LOWER SANDSTONE
 WM - WASATCH - MIDDLE SHALE

FLOW RELATIONSHIP CODE:
 N - UNKNOWN

PARAMETER VALUE INDICATOR (PVI): < - LESS THAN DETECTION LIMIT

SAMPLE ID CODES:
 0001 - FILTERED SAMPLE (.45 MICRONS)

OTHER PARAMETER VALUE FLAGS:
 J - ESTIMATED VALUE

GROUNDWATER QUALITY DATA BY PARAMETER
 LOWER SANDSTONE AND MIDDLE SHALE UNITS
 SITE: SPK01 SPOOK
 02/17/87 TO 12/10/88
 REPORT DATE: 07/29/94

PARAMETER NAME	LOCATION ID	LOG DATE	SAMPLE ID	FORM COMP	FLOW REL.	UNITS OF MEASURE	PVI	PARAMETER VALUE	FLAGS	DETECTION LIMIT	PARAMETER UNCERTAINTY
CHROMIUM	0915	08/10/88	0001	WM	N	MG/L		0.02		0.01	-
	0915	12/10/88	0001	WM	N			0.01		0.01	-
	0919	09/20/87	0001	WL	N		<	0.01		0.01	-
	0919	01/30/88	0001	WL	N			0.02		0.01	-
	0919	04/26/88	0001	WL	N			0.04		0.01	-
	0919	08/27/88	0001	WL	N			0.02		0.01	-
	0919	12/10/88	0001	WL	N			0.02		0.01	-
	0921	09/20/87	0001	WL	N		<	0.01		0.01	-
	0921	02/04/88	0001	WL	N			0.04		0.01	-
	0921	04/26/88	0001	WL	N			0.05		0.01	-
	0921	08/10/88	0001	WL	N		<	0.03		0.03	-
	0921	12/10/88	0001	WL	N			0.04		0.01	-
	0923	09/20/87	0001	WL	N		<	0.01		0.01	-
	0923	01/30/88	0001	WL	N			0.03		0.01	-
	0923	04/26/88	0001	WL	N			0.04		0.01	-
	0923	08/09/88	0001	WL	N			0.02		0.01	-
	0923	12/10/88	0001	WL	N			0.02		0.01	-
	0938	08/09/88	0001	WL	N			0.02	J	0.01	-
	0938	12/10/88	0001	WL	N		<	0.01		0.01	-
COPPER	0910	02/17/87	0001	WL	N	MG/L	<	0.01	J	0.02	-
	0910	09/18/87	0001	WL	N		<	0.01	J	0.02	-
	0910	01/30/88	0001	WL	N		<	0.01	J	0.02	-
	0910	04/22/88	0001	WL	N			0.01	J	0.02	-
	0910	08/11/88	0001	WL	N		<	0.02		0.02	-
	0914	02/18/87	0001	WL	N		<	0.01	J	0.02	-
	0914	09/18/87	0001	WL	N		<	0.01	J	0.02	-
	0914	02/03/88	0001	WL	N		<	0.01	J	0.02	-
	0914	04/22/88	0001	WL	N			0.01	J	0.02	-
	0914	08/08/88	0001	WL	N		<	0.02		0.02	-
	0915	02/20/87	0001	WM	N		<	0.01	J	0.02	-
	0915	09/20/87	0001	WM	N			0.01	J	0.02	-
	0915	02/03/88	0001	WM	N		<	0.01	J	0.02	-
	0915	04/22/88	0001	WM	N			0.01	J	0.02	-
	0915	08/10/88	0001	WM	N		<	0.02		0.02	-
	0919	02/19/87	0001	WL	N		<	0.01	J	0.02	-
	0919	09/20/87	0001	WL	N		<	0.01	J	0.02	-
	0919	01/30/88	0001	WL	N		<	0.01	J	0.02	-
	0919	04/26/88	0001	WL	N			0.01	J	0.02	-

FORMATION OF COMPLETION CODE:
 WM - WASATCH - MIDDLE SHALE
 WL - WASATCH - LOWER SANDSTONE

FLOW RELATIONSHIP CODE:
 N - UNKNOWN

PARAMETER VALUE INDICATOR (PVI): < - LESS THAN DETECTION LIMIT

SAMPLE ID CODES:
 0001 - FILTERED SAMPLE (.45 MICRONS)

OTHER PARAMETER VALUE FLAGS:
 J - ESTIMATED VALUE

GROUNDWATER QUALITY DATA BY PARAMETER
 LOWER SANDSTONE AND MIDDLE SHALE UNITS
 SITE: SPK01 SPOOK
 02/17/87 TO 12/10/88
 REPORT DATE: 07/29/94

PARAMETER NAME	LOCATION ID	LOG DATE	SAMPLE ID	FORM COMP	FLOW REL.	UNITS OF MEASURE	PVI	PARAMETER VALUE	FLAGS	DETECTION LIMIT	PARAMETER UNCERTAINTY
COPPER	0919	08/27/88	0001	WL	N	MG/L	<	0.02		0.02	-
	0921	09/20/87	0001	WL	N			0.02		0.02	-
	0921	02/04/88	0001	WL	N			0.01	J	0.02	-
	0921	04/26/88	0001	WL	N			0.01	J	0.02	-
	0921	08/10/88	0001	WL	N		<	0.02		0.02	-
	0923	09/20/87	0001	WL	N			0.01	J	0.02	-
	0923	01/30/88	0001	WL	N			0.01	J	0.02	-
	0923	04/26/88	0001	WL	N		<	0.01	J	0.02	-
	0923	08/09/88	0001	WL	N		<	0.02		0.02	-
	0938	08/09/88	0001	WL	N		<	0.02	J	0.02	-
FLUORIDE	0910	02/17/87	0001	WL	N	MG/L		0.3		0.1	-
	0910	09/18/87	0001	WL	N			0.30		0.1	-
	0910	01/30/88	0001	WL	N			0.23		0.1	-
	0910	04/22/88	0001	WL	N			0.27		0.1	-
	0910	08/11/88	0001	WL	N			0.2		0.1	-
	0914	02/18/87	0001	WL	N			0.3		0.1	-
	0914	09/18/87	0001	WL	N			0.25		0.1	-
	0914	02/03/88	0001	WL	N			0.23		0.1	-
	0914	04/22/88	0001	WL	N			0.25		0.1	-
	0914	08/08/88	0001	WL	N			0.2		0.1	-
	0915	02/20/87	0001	WM	N			0.3		0.1	-
	0915	09/20/87	0001	WM	N			0.32	J	0.1	-
	0915	02/03/88	0001	WM	N			0.31		0.1	-
	0915	04/22/88	0001	WM	N			0.32		0.1	-
	0915	08/10/88	0001	WM	N			0.3		0.1	-
	0919	02/19/87	0001	WL	N			0.3		0.1	-
	0919	09/20/87	0001	WL	N			0.21		0.1	-
	0919	01/30/88	0001	WL	N			0.20		0.1	-
	0919	04/26/88	0001	WL	N			0.21		0.1	-
	0919	08/27/88	0001	WL	N			0.2		0.1	-
	0921	09/20/87	0001	WL	N			0.13		0.1	-
	0921	02/04/88	0001	WL	N			0.12		0.1	-
	0921	04/26/88	0001	WL	N			0.13		0.1	-
	0921	08/10/88	0001	WL	N			0.1		0.1	-
	0923	09/20/87	0001	WL	N			0.23		0.1	-
	0923	01/30/88	0001	WL	N			0.22		0.1	-
	0923	04/26/88	0001	WL	N			0.22		0.1	-
	0923	08/09/88	0001	WL	N			0.2		0.1	-

FORMATION OF COMPLETION CODE:
 WL - WASATCH - LOWER SANDSTONE
 WM - WASATCH - MIDDLE SHALE

FLOW RELATIONSHIP CODE:
 N - UNKNOWN

PARAMETER VALUE INDICATOR (PVI): < - LESS THAN DETECTION LIMIT

SAMPLE ID CODES:
 0001 - FILTERED SAMPLE (.45 MICRONS)

OTHER PARAMETER VALUE FLAGS:
 J - ESTIMATED VALUE

GROUNDWATER QUALITY DATA BY PARAMETER
 LOWER SANDSTONE AND MIDDLE SHALE UNITS
 SITE: SPK01 SPOOK
 02/17/87 TO 12/10/88
 REPORT DATE: 07/29/94

PARAMETER NAME	LOCATION ID	LOG DATE	SAMPLE ID	FORM COMP	FLOW REL.	UNITS OF MEASURE	PVI	PARAMETER VALUE	FLAGS	DETECTION LIMIT	PARAMETER UNCERTAINTY
FLUORIDE	0938	08/09/88	0001	WL	N	MG/L		0.5	J	0.1	-
GROSS ALPHA	0910	09/18/87	0001	WL	N	PCI/L		14.		0.2	4.
	0910	01/30/88	0001	WL	N			27.		0.2	6.
	0910	04/22/88	0001	WL	N			17.		0.2	5.
	0910	08/11/88	0001	WL	N			13.		0.2	3.
	0910	12/10/88	0001	WL	N			12.		0.2	4.
	0914	09/18/87	0001	WL	N			5.3		0.2	2.6
	0914	02/03/88	0001	WL	N			4.6		0.2	2.7
	0914	04/22/88	0001	WL	N			4.1		0.2	2.8
	0914	08/08/88	0001	WL	N			1.8		0.2	2.2
	0914	12/10/88	0001	WL	N			11.		0.2	3.
	0915	09/20/87	0001	WM	N			27.	J	0.2	5.
	0915	02/03/88	0001	WM	N			13.		0.2	4.
	0915	04/22/88	0001	WM	N			13.		0.2	4.
	0915	08/10/88	0001	WM	N			5.9		0.2	2.7
	0915	12/10/88	0001	WM	N			8.4		0.2	2.8
	0919	09/20/87	0001	WL	N			7.5		0.2	3.2
	0919	01/30/88	0001	WL	N			12.		0.2	4.
	0919	04/26/88	0001	WL	N			6.9		0.2	3.5
	0919	08/27/88	0001	WL	N			6.4		0.2	3.0
	0919	12/10/88	0001	WL	N			4.9		0.2	3.0
	0921	09/20/87	0001	WL	N			6.9		0.2	4.0
	0921	02/04/88	0001	WL	N			11.		0.2	5.
	0921	04/26/88	0001	WL	N			9.7		0.2	5.4
	0921	08/10/88	0001	WL	N			3.0		0.2	3.8
	0921	12/10/88	0001	WL	N			0.0		0.2	3.7
	0923	09/20/87	0001	WL	N			8.9		0.2	3.2
	0923	01/30/88	0001	WL	N			6.2		0.2	4.0
	0923	04/26/88	0001	WL	N			6.1		0.2	4.0
	0923	08/09/88	0001	WL	N			2.5		0.2	2.9
	0923	12/10/88	0001	WL	N			4.1		0.2	3.3
	0938	08/09/88	0001	WL	N			0.	J	0.2	100.
	0938	12/10/88	0001	WL	N			1.5		0.2	2.2
GROSS BETA	0910	09/18/87	0001	WL	N	PCI/L		13.		1.	3.
	0910	01/30/88	0001	WL	N			14.		1.	3.
	0910	04/22/88	0001	WL	N			12.		1.	2.
	0910	08/11/88	0001	WL	N			9.6		1.	1.5

FORMATION OF COMPLETION CODE:
 WL - WASATCH - LOWER SANDSTONE
 WM - WASATCH - MIDDLE SHALE

FLOW RELATIONSHIP CODE:
 N - UNKNOWN

PARAMETER VALUE INDICATOR (PVI): < - LESS THAN DETECTION LIMIT

SAMPLE ID CODES:
 0001 - FILTERED SAMPLE (.45 MICRONS)

OTHER PARAMETER VALUE FLAGS:
 J - ESTIMATED VALUE

GROUNDWATER QUALITY DATA BY PARAMETER
 LOWER SANDSTONE AND MIDDLE SHALE UNITS
 SITE: SPK01 SPOOK
 02/17/87 TO 12/10/88
 REPORT DATE: 07/29/94

PARAMETER NAME	LOCATION ID	LOG DATE	SAMPLE ID	FORM COMP	FLOW REL.	UNITS OF MEASURE	PVI	PARAMETER VALUE	FLAGS	DETECTION LIMIT	PARAMETER UNCERTAINTY
GROSS BETA	0910	12/10/88	0001	WL	N	PCI/L		7.4		1.	1.8
	0914	09/18/87	0001	WL	N			7.3		1.	2.2
	0914	02/03/88	0001	WL	N			6.4		1.	2.0
	0914	04/22/88	0001	WL	N			6.4		1.	1.6
	0914	08/08/88	0001	WL	N			6.1		1.	1.3
	0914	12/10/88	0001	WL	N			4.1		1.	1.4
	0915	09/20/87	0001	WM	N			19.	J	1.	2.
	0915	02/03/88	0001	WM	N			7.6		1.	2.2
	0915	04/22/88	0001	WM	N			12.		1.	2.
	0915	08/10/88	0001	WM	N			6.6		1.	1.3
	0915	12/10/88	0001	WM	N			5.7		1.	1.4
	0919	09/20/87	0001	WL	N			10.		1.	2.
	0919	01/30/88	0001	WL	N			10.		1.	2.
	0919	04/26/88	0001	WL	N			9.4		1.	1.7
	0919	08/27/88	0001	WL	N			8.6		1.	1.6
	0919	12/10/88	0001	WL	N			6.9		1.	1.7
	0921	09/20/87	0001	WL	N			15.		1.	3.
	0921	02/04/88	0001	WL	N			11.		1.	3.
	0921	04/26/88	0001	WL	N			11.		1.	3.
	0921	08/10/88	0001	WL	N			11.		1.	3.
	0921	12/10/88	0001	WL	N			17.		1.	3.
	0923	09/20/87	0001	WL	N			22.		1.	3.
	0923	01/30/88	0001	WL	N			7.7		1.	2.8
	0923	04/26/88	0001	WL	N			9.1		1.	2.0
	0923	08/09/88	0001	WL	N			7.1		1.	2.1
	0923	12/10/88	0001	WL	N			6.4		1.	3.9
	0938	08/09/88	0001	WL	N			93.	J	1.	51.
	0938	12/10/88	0001	WL	N			4.3		1.	1.4
IRON	0910	02/17/87	0001	WL	N	MG/L	<	0.03		0.03	-
	0910	09/18/87	0001	WL	N			0.02	J	0.03	-
	0910	01/30/88	0001	WL	N			0.11		0.03	-
	0910	04/22/88	0001	WL	N			0.04		0.03	-
	0910	08/11/88	0001	WL	N		<	0.03		0.03	-
	0910	12/10/88	0001	WL	N			0.04		0.03	-
	0914	02/18/87	0001	WL	N		<	0.03		0.03	-
	0914	09/18/87	0001	WL	N		<	0.01	J	0.03	-
	0914	02/03/88	0001	WL	N			0.12		0.03	-
	0914	04/22/88	0001	WL	N			0.02	J	0.03	-

FORMATION OF COMPLETION CODE:
 WL - WASATCH - LOWER SANDSTONE
 WM - WASATCH - MIDDLE SHALE

FLOW RELATIONSHIP CODE:
 N - UNKNOWN

PARAMETER VALUE INDICATOR (PVI): < - LESS THAN DETECTION LIMIT

SAMPLE ID CODES:
 0001 - FILTERED SAMPLE (.45 MICRONS)

OTHER PARAMETER VALUE FLAGS:
 J - ESTIMATED VALUE

GROUNDWATER QUALITY DATA BY PARAMETER
 LOWER SANDSTONE AND MIDDLE SHALE UNITS
 SITE: SPK01 SPOOK
 02/17/87 TO 12/10/88
 REPORT DATE: 07/29/94

PARAMETER NAME	LOCATION ID	LOG DATE	SAMPLE ID	FORM COMP	FLOW REL.	UNITS OF MEASURE	PVI	PARAMETER VALUE	FLAGS	DETECTION LIMIT	PARAMETER UNCERTAINTY
IRON	0914	08/08/88	0001	WL	N	MG/L		0.08		0.03	-
	0914	12/10/88	0001	WL	N		<	0.03		0.03	-
	0915	02/20/87	0001	WM	N		<	0.03		0.03	-
	0915	09/20/87	0001	WM	N		<	0.01	J	0.03	-
	0915	02/03/88	0001	WM	N			0.17		0.03	-
	0915	04/22/88	0001	WM	N			0.04		0.03	-
	0915	08/10/88	0001	WM	N			0.07		0.03	-
	0915	12/10/88	0001	WM	N		<	0.03		0.03	-
	0919	02/19/87	0001	WL	N			0.11		0.03	-
	0919	09/20/87	0001	WL	N			0.07		0.03	-
	0919	01/30/88	0001	WL	N			0.07		0.03	-
	0919	04/26/88	0001	WL	N			0.10		0.03	-
	0919	08/27/88	0001	WL	N			0.10		0.03	-
	0919	12/10/88	0001	WL	N			0.05		0.03	-
	0921	09/20/87	0001	WL	N			0.61		0.03	-
	0921	02/04/88	0001	WL	N			0.63		0.03	-
	0921	04/26/88	0001	WL	N			0.70		0.03	-
	0921	08/10/88	0001	WL	N			0.67		0.03	-
	0921	12/10/88	0001	WL	N			0.68		0.03	-
	0923	09/20/87	0001	WL	N			0.06		0.03	-
	0923	01/30/88	0001	WL	N			0.07		0.03	-
	0923	04/26/88	0001	WL	N			0.08		0.03	-
	0923	08/09/88	0001	WL	N			0.06		0.03	-
	0923	12/10/88	0001	WL	N			0.07		0.03	-
	0938	08/09/88	0001	WL	N			0.03	J	0.03	-
	0938	12/10/88	0001	WL	N		<	0.03		0.03	-
LEAD	0910	02/17/87	0001	WL	N	MG/L	<	0.001	J	0.01	-
	0910	09/18/87	0001	WL	N		<	0.02		0.02	-
	0910	01/30/88	0001	WL	N		<	0.01		0.01	-
	0910	04/22/88	0001	WL	N		<	0.01		0.01	-
	0910	08/11/88	0001	WL	N		<	0.01		0.01	-
	0910	12/10/88	0001	WL	N		<	0.01		0.01	-
	0914	02/18/87	0001	WL	N			0.001	J	0.01	-
	0914	09/18/87	0001	WL	N		<	0.02		0.02	-
	0914	02/03/88	0001	WL	N		<	0.01		0.01	-
	0914	04/22/88	0001	WL	N		<	0.01		0.01	-
	0914	08/08/88	0001	WL	N		<	0.01		0.01	-
	0914	12/10/88	0001	WL	N		<	0.01		0.01	-

FORMATION OF COMPLETION CODE:
 WL - WASATCH - LOWER SANDSTONE
 WM - WASATCH - MIDDLE SHALE

FLOW RELATIONSHIP CODE:
 N - UNKNOWN

PARAMETER VALUE INDICATOR (PVI): < - LESS THAN DETECTION LIMIT

SAMPLE ID CODES:
 0001 - FILTERED SAMPLE (.45 MICRONS)

OTHER PARAMETER VALUE FLAGS:
 J - ESTIMATED VALUE

GROUNDWATER QUALITY DATA BY PARAMETER
 LOWER SANDSTONE AND MIDDLE SHALE UNITS
 SITE: SPK01 SPOOK
 02/17/87 TO 12/10/88
 REPORT DATE: 07/29/94

PARAMETER NAME	LOCATION ID	LOG DATE	SAMPLE ID	FORM COMP	FLOW REL.	UNITS OF MEASURE	PVI	PARAMETER VALUE	FLAGS	DETECTION LIMIT	PARAMETER UNCERTAINTY
LEAD	0915	02/20/87	0001	WM	N	MG/L	<	0.001	J	0.01	-
	0915	09/20/87	0001	WM	N		<	0.02	J	0.02	-
	0915	02/03/88	0001	WM	N		<	0.01		0.01	-
	0915	04/22/88	0001	WM	N		<	0.01		0.01	-
	0915	08/10/88	0001	WM	N		<	0.01		0.01	-
	0915	12/10/88	0001	WM	N		<	0.01		0.01	-
	0919	02/19/87	0001	WL	N		<	0.010		0.01	-
	0919	09/20/87	0001	WL	N		<	0.01		0.01	-
	0919	01/30/88	0001	WL	N		<	0.01		0.01	-
	0919	04/26/88	0001	WL	N		<	0.01		0.01	-
	0919	08/27/88	0001	WL	N		<	0.01		0.01	-
	0919	12/10/88	0001	WL	N		<	0.01		0.01	-
	0921	02/20/87	0001	WL	N		<	0.01		0.01	-
	0921	02/04/88	0001	WL	N		<	0.01		0.01	-
	0921	04/26/88	0001	WL	N		<	0.01		0.01	-
	0921	08/10/88	0001	WL	N		<	0.01		0.01	-
	0921	12/10/88	0001	WL	N		<	0.01		0.01	-
	0923	09/20/87	0001	WL	N		<	0.01		0.01	-
	0923	01/30/88	0001	WL	N		<	0.01		0.01	-
	0923	04/26/88	0001	WL	N		<	0.01		0.01	-
	0923	08/09/88	0001	WL	N		<	0.01		0.01	-
	0923	12/10/88	0001	WL	N		<	0.01		0.01	-
	0938	08/09/88	0001	WL	N		<	0.01	J	0.01	-
	0938	12/10/88	0001	WL	N		<	0.01		0.01	-
LEAD-210	0910	09/18/87	0001	WL	N	PCI/L		2.0		1.5	1.4
	0910	01/30/88	0001	WL	N			0.0		1.5	1.0
	0910	04/22/88	0001	WL	N			0.1		1.5	0.9
	0910	08/11/88	0001	WL	N			0.9		1.5	0.9
	0914	09/18/87	0001	WL	N			0.0		1.5	1.0
	0914	02/03/88	0001	WL	N			0.7		1.5	0.9
	0914	04/22/88	0001	WL	N			0.0		1.5	1.0
	0914	08/08/88	0001	WL	N			0.9		1.5	0.9
	0915	09/20/87	0001	WM	N			1.4	J	1.5	0.9
	0915	02/03/88	0001	WM	N			0.0		1.5	1.1
	0915	04/22/88	0001	WM	N			1.4		1.5	0.9
	0915	08/10/88	0001	WM	N			0.5		1.5	0.8
	0919	09/20/87	0001	WL	N			1.6		1.5	1.1
	0919	01/30/88	0001	WL	N			0.1		1.5	0.8

FORMATION OF COMPLETION CODE:
 WM - WASATCH - MIDDLE SHALE
 WL - WASATCH - LOWER SANDSTONE

FLOW RELATIONSHIP CODE:
 N - UNKNOWN

PARAMETER VALUE INDICATOR (PVI): < - LESS THAN DETECTION LIMIT

SAMPLE ID CODES:
 0001 - FILTERED SAMPLE (<.45 MICRONS)

OTHER PARAMETER VALUE FLAGS:
 J - ESTIMATED VALUE

GROUNDWATER QUALITY DATA BY PARAMETER
 LOWER SANDSTONE AND MIDDLE SHALE UNITS
 SITE: SPK01 SPOOK
 02/17/87 TO 12/10/88
 REPORT DATE: 07/29/94

PARAMETER NAME	LOCATION ID	LOG DATE	SAMPLE ID	FORM COMP	FLOW REL.	UNITS OF MEASURE	PVI	PARAMETER VALUE	FLAGS	DETECTION LIMIT	PARAMETER UNCERTAINTY
LEAD-210	0919	04/26/88	0001	WL	N	PCI/L		0.0		1.5	0.8
	0919	08/27/88	0001	WL	N			0.1		1.5	0.7
	0921	09/20/87	0001	WL	N			1.6		1.5	1.0
	0921	02/04/88	0001	WL	N			0.0		1.5	0.8
	0921	04/26/88	0001	WL	N			0.0		1.5	0.6
	0921	08/10/88	0001	WL	N			0.6		1.5	1.2
	0923	09/20/87	0001	WL	N			0.6		1.5	0.9
	0923	01/30/88	0001	WL	N			0.1		1.5	0.8
	0923	04/26/88	0001	WL	N			0.0		1.5	0.8
	0923	08/09/88	0001	WL	N			0.6		1.5	1.2
	0938	08/09/88	0001	WL	N			0.9	J	1.5	1.0
MAGNESIUM	0910	02/17/87	0001	WL	N	MG/L		12.6		0.001	-
	0910	09/18/87	0001	WL	N			9.36		0.001	-
	0910	01/30/88	0001	WL	N			9.70		0.001	-
	0910	04/22/88	0001	WL	N			9.18		0.001	-
	0910	08/11/88	0001	WL	N			9.37		0.001	-
	0910	12/10/88	0001	WL	N			8.93		0.001	-
	0914	02/18/87	0001	WL	N			5.44		0.001	-
	0914	09/18/87	0001	WL	N			5.29		0.001	-
	0914	02/03/88	0001	WL	N			5.58		0.001	-
	0914	04/22/88	0001	WL	N			5.36		0.001	-
	0914	08/08/88	0001	WL	N			5.54		0.001	-
	0914	12/10/88	0001	WL	N			5.19		0.001	-
	0915	02/20/87	0001	WM	N			7.37		0.001	-
	0915	09/20/87	0001	WM	N			6.29	J	0.001	-
	0915	02/03/88	0001	WM	N			6.88		0.001	-
	0915	04/22/88	0001	WM	N			6.57		0.001	-
	0915	08/10/88	0001	WM	N			6.27		0.001	-
	0915	12/10/88	0001	WM	N			6.35		0.001	-
	0919	02/19/87	0001	WL	N			10.4		0.001	-
	0919	09/20/87	0001	WL	N			10.1		0.001	-
	0919	01/30/88	0001	WL	N			10.3		0.001	-
	0919	04/26/88	0001	WL	N			10.2		0.001	-
	0919	08/27/88	0001	WL	N			10.7		0.001	-
	0919	12/10/88	0001	WL	N			10.2		0.001	-
	0921	09/20/87	0001	WL	N			20.9		0.001	-
	0921	02/04/88	0001	WL	N			21.3		0.001	-
	0921	04/26/88	0001	WL	N			22.2		0.001	-

FORMATION OF COMPLETION CODE:
 WL - WASATCH - LOWER SANDSTONE
 WM - WASATCH - MIDDLE SHALE

FLOW RELATIONSHIP CODE:
 N - UNKNOWN

PARAMETER VALUE INDICATOR (PVI): < - LESS THAN DETECTION LIMIT

SAMPLE ID CODES:
 0001 - FILTERED SAMPLE (.45 MICRONS)

OTHER PARAMETER VALUE FLAGS:
 J - ESTIMATED VALUE

GROUNDWATER QUALITY DATA BY PARAMETER
 LOWER SANDSTONE AND MIDDLE SHALE UNITS
 SITE: SPK01 SPOOK
 02/17/87 TO 12/10/88
 REPORT DATE: 07/29/94

PARAMETER NAME	LOCATION ID	LOG DATE	SAMPLE ID	FORM COMP REL.	UNITS OF MEASURE	PVI VALUE	FLAGS	DETECTION LIMIT	PARAMETER UNCERTAINTY
MAGNESIUM	0921	08/10/88	0001	WL	MG/L	22.6		0.001	-
	0921	12/10/88	0001	WL		21.8		0.001	-
	0923	09/20/87	0001	WL		8.68		0.001	-
	0923	01/30/88	0001	WL		9.27		0.001	-
	0923	04/26/88	0001	WL		9.22		0.001	-
	0923	08/09/88	0001	WL		8.31		0.001	-
	0923	12/10/88	0001	WL		8.88		0.001	-
	0938	08/09/88	0001	WL		2.72	J	0.001	-
	0938	12/10/88	0001	WL		1.72		0.001	-
	0910	02/17/87	0001	WL	MG/L	0.06		0.01	-
MANGANESE	0910	09/18/87	0001	WL		0.04		0.01	-
	0910	01/30/88	0001	WL		0.04		0.01	-
	0910	04/22/88	0001	WL		0.04		0.01	-
	0910	08/11/88	0001	WL		0.04		0.01	-
	0910	12/10/88	0001	WL		0.04		0.01	-
	0914	02/18/87	0001	WL		0.03		0.01	-
	0914	09/18/87	0001	WL		0.03		0.01	-
	0914	02/03/88	0001	WL		0.02		0.01	-
	0914	04/22/88	0001	WL		0.03		0.01	-
	0914	08/08/88	0001	WL		0.03		0.01	-
	0914	12/10/88	0001	WL		0.02		0.01	-
	0915	02/20/87	0001	WM		0.03		0.01	-
	0915	02/03/88	0001	WM		0.02		0.01	-
	0915	04/22/88	0001	WM		0.01		0.01	-
	0915	08/10/88	0001	WM		0.02		0.01	-
	0915	12/10/88	0001	WM		0.01		0.01	-
	0919	02/19/87	0001	WL		0.03		0.01	-
	0919	09/20/87	0001	WL		0.05		0.01	-
	0919	01/30/88	0001	WL		0.03		0.01	-
	0919	04/26/88	0001	WL		0.04		0.01	-
	0919	08/27/88	0001	WL		0.04		0.01	-
	0919	12/10/88	0001	WL		0.03		0.01	-
	0921	09/20/87	0001	WL		0.07		0.01	-
	0921	02/04/88	0001	WL		0.07		0.01	-
	0921	04/26/88	0001	WL		0.09		0.01	-
	0921	08/10/88	0001	WL		0.07		0.01	-
	0921	12/10/88	0001	WL		0.07		0.01	-
	0923	09/20/87	0001	WL		0.04		0.01	-

FORMATION OF COMPLETION CODE:
 WL - WASATCH - LOWER SANDSTONE
 WM - WASATCH - MIDDLE SHALE

FLOW RELATIONSHIP CODE:
 N - UNKNOWN

PARAMETER VALUE INDICATOR (PVI): < - LESS THAN DETECTION LIMIT

SAMPLE ID CODES:
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OTHER PARAMETER VALUE FLAGS:
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GROUNDWATER QUALITY DATA BY PARAMETER
 LOWER SANDSTONE AND MIDDLE SHALE UNITS
 SITE: SPK01 SPOOK
 02/17/87 TO 12/10/88
 REPORT DATE: 07/29/94

PARAMETER NAME	LOCATION ID	LOG DATE	SAMPLE ID	FORM COMP	FLOW REL.	UNITS OF MEASURE	PVI	PARAMETER VALUE	FLAGS	DETECTION LIMIT	PARAMETER UNCERTAINTY
MANGANESE	0923	01/30/88	0001	WL	N	MG/L		0.03		0.01	-
	0923	04/26/88	0001	WL	N			0.04		0.01	-
	0923	08/09/88	0001	WL	N			0.03		0.01	-
	0923	12/10/88	0001	WL	N			0.04		0.01	-
	0938	08/09/88	0001	WL	N			0.01	J	0.01	-
	0938	12/10/88	0001	WL	N		<	0.01		0.01	-
MERCURY	0910	02/17/87	0001	WL	N	MG/L	<	0.0002		0.0002	-
	0910	09/18/87	0001	WL	N		<	0.0002		0.0002	-
	0910	01/30/88	0001	WL	N			0.0004		0.0002	-
	0910	04/22/88	0001	WL	N		<	0.0002		0.0002	-
	0910	08/11/88	0001	WL	N		<	0.0002		0.0002	-
	0914	02/18/87	0001	WL	N		<	0.0002		0.0002	-
	0914	09/18/87	0001	WL	N		<	0.0002		0.0002	-
	0914	02/03/88	0001	WL	N			0.0004		0.0002	-
	0914	04/22/88	0001	WL	N			0.0002		0.0002	-
	0914	08/08/88	0001	WL	N		<	0.0002		0.0002	-
	0915	02/20/87	0001	WM	N		<	0.0002		0.0002	-
	0915	09/20/87	0001	WM	N		<	0.0002	J	0.0002	-
	0915	02/03/88	0001	WM	N			0.0004		0.0002	-
	0915	04/22/88	0001	WM	N			0.0002		0.0002	-
	0915	08/10/88	0001	WM	N		<	0.0002		0.0002	-
	0919	02/19/87	0001	WL	N			0.0003		0.0002	-
	0919	09/20/87	0001	WL	N		<	0.0002		0.0002	-
	0919	01/30/88	0001	WL	N			0.0003		0.0002	-
	0919	04/26/88	0001	WL	N			0.0004		0.0002	-
	0919	08/27/88	0001	WL	N		<	0.0002		0.0002	-
	0921	09/20/87	0001	WL	N		<	0.0002		0.0002	-
	0921	02/04/88	0001	WL	N			0.0002		0.0002	-
	0921	04/26/88	0001	WL	N			0.0005		0.0002	-
	0921	08/10/88	0001	WL	N		<	0.0002		0.0002	-
	0923	09/20/87	0001	WL	N		<	0.0002		0.0002	-
	0923	01/30/88	0001	WL	N			0.0002		0.0002	-
	0923	04/26/88	0001	WL	N			0.0007		0.0002	-
	0923	08/09/88	0001	WL	N		<	0.0002		0.0002	-
	0938	08/09/88	0001	WL	N		<	0.0002	J	0.0002	-
MOLYBDENUM	0910	02/17/87	0001	WL	N	MG/L	<	0.1		0.1	-
	0910	09/18/87	0001	WL	N		<	0.01		0.01	-

FORMATION OF COMPLETION CODE:
 WL - WASATCH - LOWER SANDSTONE
 WM - WASATCH - MIDDLE SHALE

FLOW RELATIONSHIP CODE:
 N - UNKNOWN

PARAMETER VALUE INDICATOR (PVI): < - LESS THAN DETECTION LIMIT

SAMPLE ID CODES:
 0001 - FILTERED SAMPLE (.45 MICRONS)

OTHER PARAMETER VALUE FLAGS:
 J - ESTIMATED VALUE

GROUNDWATER QUALITY DATA BY PARAMETER
 LOWER SANDSTONE AND MIDDLE SHALE UNITS
 SITE: SPK01 SPOOK
 02/17/87 TO 12/10/88
 REPORT DATE: 07/29/94

PARAMETER NAME	LOCATION ID	LOG DATE	SAMPLE ID	FORM COMP	FLOW REL.	UNITS OF MEASURE	PVI	PARAMETER VALUE	FLAGS	DETECTION LIMIT	PARAMETER UNCERTAINTY
MOLYBDENUM	0910	01/30/88	0001	WL	N	MG/L	<	0.01		0.01	-
	0910	04/22/88	0001	WL	N			0.01		0.01	-
	0910	08/11/88	0001	WL	N		<	0.01		0.01	-
	0910	12/10/88	0001	WL	N		<	0.01		0.01	-
	0914	02/18/87	0001	WL	N		<	0.1		0.1	-
	0914	09/18/87	0001	WL	N		<	0.01		0.01	-
	0914	02/03/88	0001	WL	N		<	0.01		0.01	-
	0914	04/22/88	0001	WL	N			0.01		0.01	-
	0914	08/08/88	0001	WL	N		<	0.01		0.01	-
	0914	12/10/88	0001	WL	N		<	0.01		0.01	-
	0915	02/20/87	0001	WM	N			0.2		0.01	-
	0915	09/20/87	0001	WM	N		<	0.01	J	0.01	-
	0915	02/03/88	0001	WM	N		<	0.01		0.01	-
	0915	04/22/88	0001	WM	N			0.01		0.01	-
	0915	08/10/88	0001	WM	N		<	0.01		0.01	-
	0915	12/10/88	0001	WM	N		<	0.01		0.01	-
	0919	02/19/87	0001	WL	N		<	0.1		0.1	-
	0919	09/20/87	0001	WL	N		<	0.01		0.01	-
	0919	01/30/88	0001	WL	N			0.02		0.01	-
	0919	04/26/88	0001	WL	N			0.01		0.01	-
	0919	08/27/88	0001	WL	N		<	0.01		0.01	-
	0919	12/10/88	0001	WL	N		<	0.01		0.01	-
	0921	09/20/87	0001	WL	N		<	0.01		0.01	-
	0921	02/04/88	0001	WL	N			0.03		0.01	-
	0921	08/10/88	0001	WL	N		<	0.01		0.01	-
	0921	12/10/88	0001	WL	N			0.01		0.01	-
	0923	09/20/87	0001	WL	N		<	0.01		0.01	-
	0923	01/30/88	0001	WL	N			0.02		0.01	-
	0923	04/26/88	0001	WL	N			0.01		0.01	-
	0923	08/09/88	0001	WL	N		<	0.01		0.01	-
	0923	12/10/88	0001	WL	N		<	0.01		0.01	-
	0938	08/09/88	0001	WL	N			0.01	J	0.01	-
	0938	12/10/88	0001	WL	N		<	0.01		0.01	-
NET GROSS ALPHA *	0910	09/18/87	0001	WL	N	PCI/L		4.46		-	-
	0910	01/30/88	0001	WL	N			14.38		-	-
	0910	04/22/88	0001	WL	N			4.79		-	-

* NET GROSS ALPHA (GROSS ALPHA - URANIUM) WITH 1 MG URANIUM = 686 PCI

FORMATION OF COMPLETION CODE:
 WL - WASATCH - LOWER SANDSTONE
 WM - WASATCH - MIDDLE SHALE

FLOW RELATIONSHIP CODE:
 N - UNKNOWN

PARAMETER VALUE INDICATOR (PVI): < - LESS THAN DETECTION LIMIT

SAMPLE ID CODES:
 0001 - FILTERED SAMPLE (.45 MICRONS)

OTHER PARAMETER VALUE FLAGS:
 J - ESTIMATED VALUE

GROUNDWATER QUALITY DATA BY PARAMETER
 LOWER SANDSTONE AND MIDDLE SHALE UNITS
 SITE: SPK01 SPOOK
 02/17/87 TO 12/10/88
 REPORT DATE: 07/29/94

PARAMETER NAME	LOCATION ID	LOG DATE	SAMPLE ID	FORM COMP	FLOW REL.	UNITS OF MEASURE	PVI	PARAMETER VALUE	FLAGS	DETECTION LIMIT	PARAMETER UNCERTAINTY
NET GROSS ALPHA *	0910	08/11/88	0001	WL	N	PCI/L		4.97		-	-
	0910	12/10/88	0001	WL	N			5.07		-	-
	0914	09/18/87	0001	WL	N			0.84		-	-
	0914	02/03/88	0001	WL	N			3.09		-	-
	0914	04/22/88	0001	WL	N			2.45		-	-
	0914	08/08/88	0001	WL	N			0.63		-	-
	0914	12/10/88	0001	WL	N			10.18		-	-
	0915	09/20/87	0001	WM	N			9.92		-	-
	0915	02/03/88	0001	WM	N			4.49		-	-
	0915	04/22/88	0001	WM	N			-3.74		-	-
	0915	08/10/88	0001	WM	N			1.17		-	-
	0915	12/10/88	0001	WM	N			4.08		-	-
	0919	09/20/87	0001	WL	N			6.54		-	-
	0919	01/30/88	0001	WL	N			4.04		-	-
	0919	04/26/88	0001	WL	N			5.32		-	-
	0919	08/27/88	0001	WL	N			6.06		-	-
	0919	12/10/88	0001	WL	N			3.87		-	-
	0921	09/20/87	0001	WL	N			6.21		-	-
	0921	02/04/88	0001	WL	N			10.38		-	-
	0921	04/26/88	0001	WL	N			9.01		-	-
	0921	08/10/88	0001	WL	N			2.66		-	-
	0921	12/10/88	0001	WL	N			-0.41		-	-
	0923	09/20/87	0001	WL	N			7.46		-	-
	0923	01/30/88	0001	WL	N			5.03		-	-
	0923	04/26/88	0001	WL	N			5.07		-	-
	0923	08/09/88	0001	WL	N			1.47		-	-
	0923	12/10/88	0001	WL	N			3.35		-	-
	0938	08/09/88	0001	WL	N			-1.03		-	-
	0938	12/10/88	0001	WL	N			1.23		-	-
NICKEL	0910	09/18/87	0001	WL	N	MG/L	<	0.01	J	0.04	-
	0910	01/30/88	0001	WL	N		<	0.01	J	0.04	-
	0910	04/22/88	0001	WL	N			0.01	J	0.04	-
	0910	08/11/88	0001	WL	N		<	0.04		0.04	-
	0914	09/18/87	0001	WL	N		<	0.01	J	0.04	-
	0914	02/03/88	0001	WL	N		<	0.01	J	0.04	-
	0914	04/22/88	0001	WL	N		<	0.01	J	0.04	-

* NET GROSS ALPHA (GROSS ALPHA - URANIUM) WITH 1 MG URANIUM = 686 PCI

FORMATION OF COMPLETION CODE:
 WL - WASATCH - LOWER SANDSTONE
 WM - WASATCH - MIDDLE SHALE

FLOW RELATIONSHIP CODE:
 N - UNKNOWN

PARAMETER VALUE INDICATOR (PVI): < - LESS THAN DETECTION LIMIT

SAMPLE ID CODES:
 0001 - FILTERED SAMPLE (.45 MICRONS)

OTHER PARAMETER VALUE FLAGS:
 J - ESTIMATED VALUE

GROUNDWATER QUALITY DATA BY PARAMETER
 LOWER SANDSTONE AND MIDDLE SHALE UNITS
 SITE: SPK01 SPOOK
 02/17/87 TO 12/10/88
 REPORT DATE: 07/29/94

PARAMETER NAME	LOCATION ID	LOG DATE	SAMPLE ID	FORM COMP	FLOW REL.	UNITS OF MEASURE	PVI	PARAMETER VALUE	FLAGS	DETECTION LIMIT	PARAMETER UNCERTAINTY
NICKEL	0914	08/08/88	0001	WL	N	MG/L	<	0.04		0.04	-
	0915	09/20/87	0001	WM	N		<	0.01	J	0.04	-
	0915	02/03/88	0001	WM	N		<	0.01	J	0.04	-
	0915	04/22/88	0001	WM	N			0.01	J	0.04	-
	0915	08/10/88	0001	WM	N		<	0.04		0.04	-
	0919	09/20/87	0001	WL	N		<	0.01	J	0.04	-
	0919	01/30/88	0001	WL	N			0.01	J	0.04	-
	0919	04/26/88	0001	WL	N			0.01	J	0.04	-
	0919	08/27/88	0001	WL	N		<	0.04		0.04	-
	0921	09/20/87	0001	WL	N		<	0.01	J	0.04	-
	0921	02/04/88	0001	WL	N			0.01	J	0.04	-
	0921	04/26/88	0001	WL	N			0.02	J	0.04	-
	0921	08/10/88	0001	WL	N		<	0.04		0.04	-
	0923	09/20/87	0001	WL	N		<	0.01	J	0.04	-
	0923	01/30/88	0001	WL	N			0.01	J	0.04	-
	0923	04/26/88	0001	WL	N		<	0.01	J	0.04	-
	0923	08/09/88	0001	WL	N		<	0.04		0.04	-
	0938	08/09/88	0001	WL	N		<	0.04	J	0.04	-
NITRATE	0910	02/17/87	0001	WL	N	MG/L		60.2		1.	-
	0910	09/18/87	0001	WL	N			2.7		1.	-
	0910	01/30/88	0001	WL	N		<	0.1	J	1.	-
	0910	04/22/88	0001	WL	N			2.2		1.	-
	0910	08/11/88	0001	WL	N		<	1.0		1.	-
	0910	12/10/88	0001	WL	N			7.6		1.	-
	0914	02/18/87	0001	WL	N			0.4	J	1.	-
	0914	09/18/87	0001	WL	N			1.8		1.	-
	0914	02/03/88	0001	WL	N		<	0.1	J	1.	-
	0914	04/22/88	0001	WL	N			3.8		1.	-
	0914	08/08/88	0001	WL	N			1.6		1.	-
	0914	12/10/88	0001	WL	N			7.0		1.	-
	0915	02/20/87	0001	WM	N			0.4	J	1.	-
	0915	09/20/87	0001	WM	N			0.9	J	1.	-
	0915	02/03/88	0001	WM	N			0.7	J	1.	-
	0915	04/22/88	0001	WM	N			3.9		1.	-
	0915	08/10/88	0001	WM	N			3.8		1.	-
	0915	12/10/88	0001	WM	N			1.0		1.	-
	0919	02/19/87	0001	WL	N			0.8	J	1.	-
	0919	09/20/87	0001	WL	N		<	0.1	J	1.	-

FORMATION OF COMPLETION CODE:
 WL - WASATCH - LOWER SANDSTONE
 WM - WASATCH - MIDDLE SHALE

FLOW RELATIONSHIP CODE:
 N - UNKNOWN

PARAMETER VALUE INDICATOR (PVI): < - LESS THAN DETECTION LIMIT

SAMPLE ID CODES:
 0001 - FILTERED SAMPLE (.45 MICRONS)

OTHER PARAMETER VALUE FLAGS:
 J - ESTIMATED VALUE

GROUNDWATER QUALITY DATA BY PARAMETER
 LOWER SANDSTONE AND MIDDLE SHALE UNITS
 SITE: SPK01 SPOOK
 02/17/87 TO 12/10/88
 REPORT DATE: 07/29/94

PARAMETER NAME	LOCATION ID	LOG DATE	SAMPLE ID	FORM COMP	FLOW REL.	UNITS OF MEASURE	PVI	PARAMETER VALUE	FLAGS	DETECTION LIMIT	PARAMETER UNCERTAINTY
NITRATE	0919	01/30/88	0001	WL	N	MG/L	<	0.1	J	1.	-
	0919	04/26/88	0001	WL	N			2.3		1.	-
	0919	08/27/88	0001	WL	N			1.9		1.	-
	0919	12/10/88	0001	WL	N			1.0		1.	-
	0921	09/20/87	0001	WL	N		<	0.1	J	1.	-
	0921	02/04/88	0001	WL	N			1.8		1.	-
	0921	04/26/88	0001	WL	N			0.8	J	1.	-
	0921	08/10/88	0001	WL	N		<	1.0		1.	-
	0921	12/10/88	0001	WL	N			5.2		1.	-
	0923	09/20/87	0001	WL	N			0.4	J	1.	-
	0923	01/30/88	0001	WL	N			0.4	J	1.	-
	0923	04/26/88	0001	WL	N			1.6		1.	-
	0923	08/09/88	0001	WL	N		<	1.0		1.	-
	0923	12/10/88	0001	WL	N			5.5		1.	-
	0938	08/09/88	0001	WL	N		<	1.0	J	1.	-
	0938	12/10/88	0001	WL	N			5.9		1.	-
PH	0910	02/17/87	0001	WL	N	SU		8.54		-	-
	0910	09/18/87	0001	WL	N			7.77		-	-
	0910	01/30/88	0001	WL	N			8.00		-	-
	0910	04/22/88	0001	WL	N			7.81		-	-
	0910	08/11/88	0001	WL	N			7.67		-	-
	0910	12/10/88	0001	WL	N			7.96		-	-
	0914	02/18/87	0001	WL	N			8.18		-	-
	0914	09/18/87	0001	WL	N			8.09		-	-
	0914	02/03/88	0001	WL	N			8.12		-	-
	0914	04/22/88	0001	WL	N			8.03		-	-
	0914	08/08/88	0001	WL	N			7.85		-	-
	0914	12/10/88	0001	WL	N			8.15		-	-
	0915	02/20/87	0001	WM	N			7.68		-	-
	0915	09/20/87	0001	WM	N			7.70		-	-
	0915	02/03/88	0001	WM	N			7.43		-	-
	0915	04/22/88	0001	WM	N			7.78		-	-
	0915	08/10/88	0001	WM	N			7.62		-	-
	0915	12/10/88	0001	WM	N			7.67		-	-
	0919	02/19/87	0001	WL	N			7.87		-	-
	0919	09/20/87	0001	WL	N			7.44		-	-
	0919	01/30/88	0001	WL	N			7.75		-	-
	0919	04/26/88	0001	WL	N			7.47		-	-

FORMATION OF COMPLETION CODE:
 WL - WASATCH - LOWER SANDSTONE
 WM - WASATCH - MIDDLE SHALE

FLOW RELATIONSHIP CODE:
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PARAMETER VALUE INDICATOR (PVI): < - LESS THAN DETECTION LIMIT

SAMPLE ID CODES:
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OTHER PARAMETER VALUE FLAGS:
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GROUNDWATER QUALITY DATA BY PARAMETER
 LOWER SANDSTONE AND MIDDLE SHALE UNITS
 SITE: SPK01 SPOOK
 02/17/87 TO 12/10/88
 REPORT DATE: 07/29/94

PARAMETER NAME	LOCATION ID	LOG DATE	SAMPLE ID	FORM COMP	FLOW REL.	UNITS OF MEASURE	PVI	PARAMETER VALUE	FLAGS	DETECTION LIMIT	PARAMETER UNCERTAINTY
PH	0919	08/27/88	0001	WL	N	SU		7.43		-	-
	0919	12/10/88	0001	WL	N			7.55		-	-
	0921	09/20/87	0001	WL	N			7.25		-	-
	0921	02/04/88	0001	WL	N			7.13		-	-
	0921	04/26/88	0001	WL	N			7.15		-	-
	0921	08/10/88	0001	WL	N			7.13		-	-
	0921	12/10/88	0001	WL	N			7.28		-	-
	0923	09/20/87	0001	WL	N			7.57		-	-
	0923	01/30/88	0001	WL	N			7.85		-	-
	0923	04/26/88	0001	WL	N			7.53		-	-
	0923	08/09/88	0001	WL	N			7.48		-	-
	0923	12/10/88	0001	WL	N			7.71		-	-
	0938	08/09/88	0001	WL	N			7.94		-	-
	0938	12/10/88	0001	WL	N			8.55		-	-
PHOSPHATE	0910	02/17/87	0001	WL	N	MG/L	<	0.1		0.1	-
	0910	09/18/87	0001	WL	N			0.2		0.1	-
	0910	01/30/88	0001	WL	N			0.1		0.1	-
	0910	04/22/88	0001	WL	N			0.3		0.1	-
	0910	08/11/88	0001	WL	N		<	0.1		0.1	-
	0914	02/18/87	0001	WL	N		<	0.1		0.1	-
	0914	09/18/87	0001	WL	N			0.1		0.1	-
	0914	02/03/88	0001	WL	N		<	0.1		0.1	-
	0914	04/22/88	0001	WL	N		<	0.1		0.1	-
	0914	08/08/88	0001	WL	N		<	0.1		0.1	-
	0915	02/20/87	0001	WM	N		<	0.1		0.1	-
	0915	09/20/87	0001	WM	N			0.1	J	0.1	-
	0915	02/03/88	0001	WM	N		<	0.1		0.1	-
	0915	04/22/88	0001	WM	N		<	0.1		0.1	-
	0919	02/19/87	0001	WL	N		<	0.1		0.1	-
	0919	09/20/87	0001	WL	N		<	0.1		0.1	-
	0919	01/30/88	0001	WL	N		<	0.1		0.1	-
	0919	04/26/88	0001	WL	N		<	0.1		0.1	-
	0919	08/27/88	0001	WL	N		<	0.1		0.1	-
	0921	09/20/87	0001	WL	N		<	0.1		0.1	-
	0921	02/04/88	0001	WL	N		<	0.1		0.1	-
	0921	04/26/88	0001	WL	N		<	0.1		0.1	-
	0921	08/10/88	0001	WL	N		<	0.1		0.1	-
	0923	09/20/87	0001	WL	N		<	0.1		0.1	-

FORMATION OF COMPLETION CODE:
 WL - WASATCH - LOWER SANDSTONE
 WM - WASATCH - MIDDLE SHALE

FLOW RELATIONSHIP CODE:
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GROUNDWATER QUALITY DATA BY PARAMETER
 LOWER SANDSTONE AND MIDDLE SHALE UNITS
 SITE: SPK01 SPOOK
 02/17/87 TO 12/10/88
 REPORT DATE: 07/29/94

PARAMETER NAME	LOCATION ID	LOG DATE	SAMPLE ID	FORM COMP	FLOW REL.	UNITS OF MEASURE	PVI	PARAMETER VALUE	FLAGS	DETECTION LIMIT	PARAMETER UNCERTAINTY
PHOSPHATE	0923	01/30/88	0001	WL	N	MG/L	<	0.1		0.1	-
	0923	04/26/88	0001	WL	N		<	0.1		0.1	-
	0923	08/09/88	0001	WL	N		<	0.1		0.1	-
	0938	08/09/88	0001	WL	N		<	0.1	J	0.1	-
POLONIUM-210	0910	09/18/87	0001	WL	N	PCI/L		2.2		1.	1.1
	0910	01/30/88	0001	WL	N			0.0		1.	0.3
	0910	04/22/88	0001	WL	N			0.0		1.	0.3
	0910	08/11/88	0001	WL	N			0.0		1.	0.4
	0914	09/18/87	0001	WL	N			0.3		1.	0.9
	0914	02/03/88	0001	WL	N			0.2		1.	0.4
	0914	04/22/88	0001	WL	N			0.0		1.	0.3
	0914	08/08/88	0001	WL	N			0.8		1.	0.5
	0915	09/20/87	0001	WM	N			1.2	J	1.	1.0
	0915	02/03/88	0001	WM	N			0.1		1.	0.3
	0915	04/22/88	0001	WM	N			0.0		1.	0.4
	0915	08/10/88	0001	WM	N			2.5		1.	0.7
	0919	09/20/87	0001	WL	N			0.0		1.	0.8
	0919	01/30/88	0001	WL	N			0.3		1.	0.6
	0919	04/26/88	0001	WL	N			0.1		1.	0.4
	0919	08/27/88	0001	WL	N			0.0		1.	0.3
	0921	09/20/87	0001	WL	N			0.3		1.	0.9
	0921	02/04/88	0001	WL	N			0.0		1.	0.6
	0921	04/26/88	0001	WL	N			0.0		1.	0.4
	0921	08/10/88	0001	WL	N			0.0		1.	0.4
	0923	09/20/87	0001	WL	N			0.1		1.	0.8
	0923	01/30/88	0001	WL	N			0.0		1.	0.5
	0923	04/26/88	0001	WL	N			0.7		1.	0.5
	0923	08/09/88	0001	WL	N			0.0		1.	0.4
	0938	08/09/88	0001	WL	N			0.0	J	1.	0.4
POTASSIUM	0910	02/17/87	0001	WL	N	MG/L		8.82		0.01	-
	0910	09/18/87	0001	WL	N			4.74		0.01	-
	0910	01/30/88	0001	WL	N			5.25		0.01	-
	0910	04/22/88	0001	WL	N			4.88		0.01	-
	0910	08/11/88	0001	WL	N			5.2		0.01	-
	0910	12/10/88	0001	WL	N			4.8		0.01	-
	0914	02/18/87	0001	WL	N			4.21		0.01	-
	0914	09/18/87	0001	WL	N			3.56		0.01	-

FORMATION OF COMPLETION CODE:
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FLOW RELATIONSHIP CODE:
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GROUNDWATER QUALITY DATA BY PARAMETER
 LOWER SANDSTONE AND MIDDLE SHALE UNITS
 SITE: SPK01 SPOOK
 02/17/87 TO 12/10/88
 REPORT DATE: 07/29/94

PARAMETER NAME	LOCATION ID	LOG DATE	SAMPLE ID	FORM COMP REL.	UNITS OF MEASURE	PVI	PARAMETER VALUE	FLAGS	DETECTION LIMIT	PARAMETER UNCERTAINTY
POTASSIUM	0914	02/03/88	0001	WL	N		4.16		0.01	-
	0914	04/22/88	0001	WL	N		3.66		0.01	-
	0914	08/08/88	0001	WL	N		3.9		0.01	-
	0914	12/10/88	0001	WL	N		3.8		0.01	-
	0915	02/20/87	0001	WM	N		5.49		0.01	-
	0915	09/20/87	0001	WM	N		4.07	J	0.01	-
	0915	02/03/88	0001	WM	N		4.81		0.01	-
	0915	04/22/88	0001	WM	N		4.74		0.01	-
	0915	08/10/88	0001	WM	N		4.6		0.01	-
	0915	12/10/88	0001	WM	N		4.7		0.01	-
	0919	02/19/87	0001	WL	N		7.51		0.01	-
	0919	09/20/87	0001	WL	N		5.24		0.01	-
	0919	01/30/88	0001	WL	N		3.10		0.01	-
	0919	04/26/88	0001	WL	N		4.92		0.01	-
	0919	08/27/88	0001	WL	N		5.0		0.01	-
	0919	12/10/88	0001	WL	N		5.1		0.01	-
	0921	09/20/87	0001	WL	N		7.64		0.01	-
	0921	02/04/88	0001	WL	N		4.58		0.01	-
	0921	04/26/88	0001	WL	N		6.98		0.01	-
	0921	08/10/88	0001	WL	N		7.7		0.01	-
	0921	12/10/88	0001	WL	N		7.2		0.01	-
	0923	09/20/87	0001	WL	N		5.07		0.01	-
	0923	01/30/88	0001	WL	N		3.20		0.01	-
	0923	04/26/88	0001	WL	N		5.09		0.01	-
	0923	08/09/88	0001	WL	N		4.4		0.01	-
	0923	12/10/88	0001	WL	N		5.7		0.01	-
	0938	08/09/88	0001	WL	N		2.7	J	0.01	-
	0938	12/10/88	0001	WL	N		4.4		0.01	-
RADIUM-226	0910	09/18/87	0001	WL	N	PCI/L	0.6		1.	0.3
	0910	01/30/88	0001	WL	N		0.3		1.	0.2
	0910	04/22/88	0001	WL	N		0.9		1.	0.3
	0910	08/11/88	0001	WL	N		0.6		1.	0.3
	0910	12/10/88	0001	WL	N		0.7		1.	0.3
	0914	09/18/87	0001	WL	N		0.8		1.	0.3
	0914	02/03/88	0001	WL	N		0.7		1.	0.3
	0914	04/22/88	0001	WL	N		0.2		1.	0.2
	0914	08/08/88	0001	WL	N		0.3		1.	0.2
	0914	12/10/88	0001	WL	N		0.3		1.	0.2

FORMATION OF COMPLETION CODE:
 WL - WASATCH - LOWER SANDSTONE
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FLOW RELATIONSHIP CODE:
 N - UNKNOWN

PARAMETER VALUE INDICATOR (PVI): < - LESS THAN DETECTION LIMIT

SAMPLE ID CODES:
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OTHER PARAMETER VALUE FLAGS:
 J - ESTIMATED VALUE

GROUNDWATER QUALITY DATA BY PARAMETER
 LOWER SANDSTONE AND MIDDLE SHALE UNITS
 SITE: SPK01 SPOOK
 02/17/87 TO 12/10/88
 REPORT DATE: 07/29/94

PARAMETER NAME	LOCATION ID	LOG DATE	SAMPLE ID	FORM COMP	FLOW REL.	UNITS OF MEASURE	PVI	PARAMETER VALUE	FLAGS	DETECTION LIMIT	PARAMETER UNCERTAINTY
RADIUM-226	0915	09/20/87	0001	WM	N	PCI/L		2.1	J	1.	0.5
	0915	02/03/88	0001	WM	N			0.3		1.	0.2
	0915	04/22/88	0001	WM	N			0.8		1.	0.3
	0915	08/10/88	0001	WM	N			0.3		1.	0.2
	0915	12/10/88	0001	WM	N			0.5		1.	0.3
	0919	09/20/87	0001	WL	N			1.3		1.	0.4
	0919	01/30/88	0001	WL	N			1.2		1.	0.3
	0919	04/26/88	0001	WL	N			0.9		1.	0.3
	0919	08/27/88	0001	WL	N			1.1		1.	0.3
	0919	12/10/88	0001	WL	N			1.3		1.	0.4
	0921	09/20/87	0001	WL	N			0.5		1.	0.3
	0921	02/04/88	0001	WL	N			0.6		1.	0.2
	0921	04/26/88	0001	WL	N			0.4		1.	0.3
	0921	08/10/88	0001	WL	N			0.3		1.	0.2
	0921	12/10/88	0001	WL	N			0.6		1.	0.3
	0923	09/20/87	0001	WL	N			0.5		1.	0.3
	0923	01/30/88	0001	WL	N			0.8		1.	0.2
	0923	04/26/88	0001	WL	N			0.7		1.	0.3
	0923	08/09/88	0001	WL	N			0.3		1.	0.2
	0923	12/10/88	0001	WL	N			0.8		1.	0.3
	0938	08/09/88	0001	WL	N			0.3	J	1.	0.2
	0938	12/10/88	0001	WL	N			0.3		1.	0.2
RADIUM-226 + RADIUM-228	0910	09/18/87	0001	WL	N	PCI/L		1.00		-	-
	0910	01/30/88	0001	WL	N			0.90		-	-
	0910	04/22/88	0001	WL	N			1.20		-	-
	0910	08/11/88	0001	WL	N			1.10		-	-
	0910	12/10/88	0001	WL	N			1.60		-	-
	0914	09/18/87	0001	WL	N			0.80		-	-
	0914	02/03/88	0001	WL	N			0.70		-	-
	0914	04/22/88	0001	WL	N			0.50		-	-
	0914	08/08/88	0001	WL	N			0.50		-	-
	0914	12/10/88	0001	WL	N			1.10		-	-
	0915	09/20/87	0001	WM	N			2.10		-	-
	0915	02/03/88	0001	WM	N			0.30		-	-
	0915	04/22/88	0001	WM	N			1.70		-	-
	0915	08/10/88	0001	WM	N			0.70		-	-
	0915	12/10/88	0001	WM	N			0.90		-	-
	0919	09/20/87	0001	WL	N			3.30		-	-

FORMATION OF COMPLETION CODE:
 WM - WASATCH - MIDDLE SHALE
 WL - WASATCH - LOWER SANDSTONE

FLOW RELATIONSHIP CODE:
 N - UNKNOWN

PARAMETER VALUE INDICATOR (PVI): < - LESS THAN DETECTION LIMIT

SAMPLE ID CODES:
 0001 - FILTERED SAMPLE (.45 MICRONS)

OTHER PARAMETER VALUE FLAGS:
 J - ESTIMATED VALUE

GROUNDWATER QUALITY DATA BY PARAMETER
 LOWER SANDSTONE AND MIDDLE SHALE UNITS
 SITE: SPK01 SPOOK
 02/17/87 TO 12/10/88
 REPORT DATE: 07/29/94

PARAMETER NAME	LOCATION	ID	LOG DATE	SAMPLE ID	FORM	FLOW	COMP REL.	UNITS OF MEASURE	PARAMETER	PVI VALUE	FLAGS	DETECTION LIMIT	PARAMETER UNCERTAINTY
RADIUM-226 + RADIUM-228		0919	01/30/88	0001	WL	N		PC1/L		2.00		-	-
		0919	04/26/88	0001	WL	N		PC1/L		2.10		-	-
RADIUM-226		0919	08/27/88	0001	WL	N				2.10		-	-
		0919	12/10/88	0001	WL	N				3.00		-	-
RADIUM-228		0921	09/20/87	0001	WL	N				1.40		-	-
		0921	02/04/88	0001	WL	N				1.10		-	-
RADIUM-226 + RADIUM-228		0921	04/26/88	0001	WL	N				2.00		-	-
		0921	08/10/88	0001	WL	N				1.50		-	-
RADIUM-226 + RADIUM-228		0921	12/10/88	0001	WL	N				2.40		-	-
		0923	09/20/87	0001	WL	N				0.60		-	-
RADIUM-226 + RADIUM-228		0923	01/30/88	0001	WL	N				0.80		-	-
		0923	04/26/88	0001	WL	N				1.90		-	-
RADIUM-226 + RADIUM-228		0923	08/09/88	0001	WL	N				0.90		-	-
		0923	12/10/88	0001	WL	N				1.40		-	-
RADIUM-226 + RADIUM-228		0938	08/09/88	0001	WL	N				0.30		-	-
		0938	12/10/88	0001	WL	N				0.30		-	-
RADIUM-228		0910	04/22/88	0001	WL	N				0.6		1.4	0.9
		0910	01/30/88	0001	WL	N				0.4		1.1	0.8
RADIUM-228		0910	08/11/88	0001	WL	N				0.5		1.1	0.8
		0910	12/10/88	0001	WL	N				0.9		1.1	0.8
RADIUM-226 + RADIUM-228		0914	09/18/87	0001	WL	N				0.0		1.1	0.8
		0914	02/03/88	0001	WL	N				0.0		1.1	0.8
RADIUM-226 + RADIUM-228		0914	04/22/88	0001	WL	N				0.3		1.1	0.8
		0914	08/08/88	0001	WL	N				0.2		1.1	0.8
RADIUM-226 + RADIUM-228		0914	12/10/88	0001	WL	N				0.8		1.1	0.8
		0915	09/20/87	0001	WM	N				0.0	J	1.1	0.8
RADIUM-226 + RADIUM-228		0915	02/03/88	0001	WM	N				0.0		1.1	0.8
		0915	04/22/88	0001	WM	N				0.9		1.1	0.8
RADIUM-226 + RADIUM-228		0915	08/10/88	0001	WM	N				0.4		1.1	0.8
		0915	12/10/88	0001	WM	N				0.4		1.1	0.8
RADIUM-226 + RADIUM-228		0919	09/20/87	0001	WL	N				2.0		1.1	0.8
		0919	01/30/88	0001	WL	N				0.8		1.1	0.8
RADIUM-226 + RADIUM-228		0919	04/26/88	0001	WL	N				1.2		1.1	0.8
		0919	08/27/88	0001	WL	N				1.0		1.1	0.8
RADIUM-226 + RADIUM-228		0919	12/10/88	0001	WL	N				1.7		1.1	0.8
		0921	09/20/87	0001	WL	N				0.9		1.1	0.8
RADIUM-226 + RADIUM-228		0921	02/04/88	0001	WL	N				0.5		1.1	0.8
		0921	09/20/87	0001	WL	N				0.4		1.1	0.8

FORMATION OF COMPLETION CODE:
 WM - WASATCH - LOWER SANDSTONE
 WL - WASATCH - MIDDLE SHALE

PARAMETER VALUE INDICATOR (PVI): > - LESS THAN DETECTION LIMIT

SAMPLE ID CODES:
 0001 - FILTERED SAMPLE (.45 MICRONS)

OTHER PARAMETER VALUE FLAGS:
 J - ESTIMATED VALUE

GROUNDWATER QUALITY DATA BY PARAMETER
 LOWER SANDSTONE AND MIDDLE SHALE UNITS
 SITE: SPK01 SPOOK
 02/17/87 TO 12/10/88
 REPORT DATE: 07/29/94

PARAMETER NAME	LOCATION ID	LOG DATE	SAMPLE ID	FORM COMP	FLOW REL.	UNITS OF MEASURE	PVI	PARAMETER VALUE	FLAGS	DETECTION LIMIT	PARAMETER UNCERTAINTY
RADIUM-228	0921	04/26/88	0001	WL	N	PCI/L		1.6		1.	0.8
	0921	08/10/88	0001	WL	N			1.2		1.	0.8
	0921	12/10/88	0001	WL	N			1.8		1.	0.9
	0923	09/20/87	0001	WL	N			0.1		1.	1.1
	0923	01/30/88	0001	WL	N			0.0		1.	0.9
	0923	04/26/88	0001	WL	N			1.2		1.	0.8
	0923	08/09/88	0001	WL	N			0.6		1.	0.8
	0923	12/10/88	0001	WL	N			0.6		1.	0.9
	0938	08/09/88	0001	WL	N			0.0	J	1.	0.7
	0938	12/10/88	0001	WL	N			0.0		1.	0.9
SELENIUM	0910	02/17/87	0001	WL	N	MG/L		0.002	J	0.005	-
	0910	09/18/87	0001	WL	N			0.004	J	0.005	-
	0910	01/30/88	0001	WL	N		<	0.005		0.005	-
	0910	04/22/88	0001	WL	N			0.003	J	0.005	-
	0910	08/11/88	0001	WL	N			0.004	J	0.005	-
	0910	12/10/88	0001	WL	N			0.006		0.005	-
	0914	02/18/87	0001	WL	N		<	0.001	J	0.005	-
	0914	09/18/87	0001	WL	N			0.007		0.005	-
	0914	02/03/88	0001	WL	N		<	0.005		0.005	-
	0914	04/22/88	0001	WL	N		<	0.003	J	0.005	-
	0914	08/08/88	0001	WL	N			0.005		0.005	-
	0914	12/10/88	0001	WL	N			0.005		0.005	-
	0915	02/20/87	0001	WM	N			0.022		0.005	-
	0915	09/20/87	0001	WM	N			0.003	J	0.005	-
	0915	02/03/88	0001	WM	N		<	0.005		0.005	-
	0915	04/22/88	0001	WM	N		<	0.003	J	0.005	-
	0915	08/10/88	0001	WM	N			0.005		0.005	-
	0915	12/10/88	0001	WM	N			0.014		0.005	-
	0919	02/19/87	0001	WL	N			0.009		0.005	-
	0919	09/20/87	0001	WL	N		<	0.005		0.005	-
	0919	01/30/88	0001	WL	N		<	0.005		0.005	-
	0919	04/26/88	0001	WL	N		<	0.005		0.005	-
	0919	08/27/88	0001	WL	N		<	0.005		0.005	-
	0919	12/10/88	0001	WL	N			0.006		0.005	-
	0921	09/20/87	0001	WL	N			0.008		0.005	-
	0921	02/04/88	0001	WL	N			0.006		0.005	-
	0921	08/10/88	0001	WL	N		<	0.007		0.005	-
	0921	12/10/88	0001	WL	N			0.005		0.005	-

FORMATION OF COMPLETION CODE:
 WL - WASATCH - LOWER SANDSTONE
 WM - WASATCH - MIDDLE SHALE

FLOW RELATIONSHIP CODE:
 N - UNKNOWN

PARAMETER VALUE INDICATOR (PVI): < - LESS THAN DETECTION LIMIT

SAMPLE ID CODES:
 0001 - FILTERED SAMPLE (.45 MICRONS)

OTHER PARAMETER VALUE FLAGS:
 J - ESTIMATED VALUE

GROUNDWATER QUALITY DATA BY PARAMETER
 LOWER SANDSTONE AND MIDDLE SHALE UNITS
 SITE: SPK01 SPOOK
 02/17/87 TO 12/10/88
 REPORT DATE: 07/29/94

PARAMETER NAME	LOCATION ID	LOG DATE	SAMPLE ID	FORM COMP	FLOW REL.	UNITS OF MEASURE	PVI	PARAMETER VALUE	FLAGS	DETECTION LIMIT	PARAMETER UNCERTAINTY
SELENIUM	0923	09/20/87	0001	WL	N	MG/L		0.007		0.005	-
	0923	01/30/88	0001	WL	N		<	0.005		0.005	-
	0923	04/26/88	0001	WL	N			0.005		0.005	-
	0923	08/09/88	0001	WL	N			0.006		0.005	-
	0923	12/10/88	0001	WL	N		<	0.005		0.005	-
	0938	08/09/88	0001	WL	N		<	0.005	J	0.005	-
	0938	12/10/88	0001	WL	N		<	0.005		0.005	-
SILICA - SIO2	0910	02/17/87	0001	WL	N	MG/L		13.		2.	-
	0910	09/18/87	0001	WL	N			9.84		2.	-
	0910	01/30/88	0001	WL	N			11.5		2.	-
	0910	04/22/88	0001	WL	N			11.4		2.	-
	0910	08/11/88	0001	WL	N			12.		2.	-
	0914	02/18/87	0001	WL	N			14.		2.	-
	0914	09/18/87	0001	WL	N			9.16		2.	-
	0914	02/03/88	0001	WL	N			10.6		2.	-
	0914	04/22/88	0001	WL	N			10.0		2.	-
	0914	08/08/88	0001	WL	N			10.		2.	-
	0915	02/20/87	0001	WM	N			16.		2.	-
	0915	09/20/87	0001	WM	N			10.2	J	2.	-
	0915	02/03/88	0001	WM	N			11.1		2.	-
	0915	04/22/88	0001	WM	N			10.3		2.	-
	0915	08/10/88	0001	WM	N			11.		2.	-
	0919	02/19/87	0001	WL	N			20.		2.	-
	0919	09/20/87	0001	WL	N			13.8		2.	-
	0919	01/30/88	0001	WL	N			14.2		2.	-
	0919	04/26/88	0001	WL	N			14.8		2.	-
	0919	08/27/88	0001	WL	N			15.0		2.	-
	0921	09/20/87	0001	WL	N			14.8		2.	-
	0921	02/04/88	0001	WL	N			15.7		2.	-
	0921	04/26/88	0001	WL	N			17.3		2.	-
	0921	08/10/88	0001	WL	N			17.		2.	-
	0923	09/20/87	0001	WL	N			11.8		2.	-
	0923	01/30/88	0001	WL	N			12.5		2.	-
	0923	04/26/88	0001	WL	N			13.4		2.	-
	0923	08/09/88	0001	WL	N			12.		2.	-
	0938	08/09/88	0001	WL	N			10.	J	2.	-
SILVER	0910	02/17/87	0001	WL	N	MG/L	<	0.01		0.01	-

FORMATION OF COMPLETION CODE:
 WL - WASATCH - LOWER SANDSTONE
 WM - WASATCH - MIDDLE SHALE

FLOW RELATIONSHIP CODE:
 N - UNKNOWN

PARAMETER VALUE INDICATOR (PVI): < - LESS THAN DETECTION LIMIT

SAMPLE ID CODES:
 0001 - FILTERED SAMPLE (.45 MICRONS)

OTHER PARAMETER VALUE FLAGS:
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GROUNDWATER QUALITY DATA BY PARAMETER
 LOWER SANDSTONE AND MIDDLE SHALE UNITS
 SITE: SPK01 SPOOK
 02/17/87 TO 12/10/88
 REPORT DATE: 07/29/94

PARAMETER NAME	LOCATION ID	LOG DATE	SAMPLE ID	FORM COMP	FLOW REL.	UNITS OF MEASURE	PVI	PARAMETER VALUE	FLAGS	DETECTION LIMIT	PARAMETER UNCERTAINTY
SILVER	0910	09/18/87	0001	WL	N	MG/L	<	0.01		0.01	-
	0910	01/30/88	0001	WL	N		<	0.01		0.01	-
	0910	04/22/88	0001	WL	N		<	0.01		0.01	-
	0910	08/11/88	0001	WL	N		<	0.01		0.01	-
	0910	12/10/88	0001	WL	N		<	0.01		0.01	-
	0914	02/18/87	0001	WL	N		<	0.01		0.01	-
	0914	09/18/87	0001	WL	N		<	0.01		0.01	-
	0914	02/03/88	0001	WL	N		<	0.01		0.01	-
	0914	04/22/88	0001	WL	N		<	0.01		0.01	-
	0914	08/08/88	0001	WL	N		<	0.01		0.01	-
	0914	12/10/88	0001	WL	N		<	0.01		0.01	-
	0915	02/20/87	0001	WM	N		<	0.01		0.01	-
	0915	09/20/87	0001	WM	N		<	0.01	J	0.01	-
	0915	02/03/88	0001	WM	N		<	0.01		0.01	-
	0915	04/22/88	0001	WM	N		<	0.01		0.01	-
	0915	08/10/88	0001	WM	N		<	0.01		0.01	-
	0915	12/10/88	0001	WM	N		<	0.01		0.01	-
	0919	02/19/87	0001	WL	N		<	0.01		0.01	-
	0919	09/20/87	0001	WL	N		<	0.01		0.01	-
	0919	01/30/88	0001	WL	N		<	0.01		0.01	-
	0919	04/26/88	0001	WL	N		<	0.01		0.01	-
	0919	08/27/88	0001	WL	N		<	0.01		0.01	-
	0919	12/10/88	0001	WL	N		<	0.01		0.01	-
	0921	09/20/87	0001	WL	N		<	0.01		0.01	-
	0921	02/04/88	0001	WL	N			0.02		0.01	-
	0921	04/26/88	0001	WL	N			0.01		0.01	-
	0921	08/10/88	0001	WL	N		<	0.01		0.01	-
	0921	12/10/88	0001	WL	N		<	0.01		0.01	-
	0923	09/20/87	0001	WL	N		<	0.01		0.01	-
	0923	01/30/88	0001	WL	N			0.01		0.01	-
	0923	04/26/88	0001	WL	N		<	0.01		0.01	-
	0923	08/09/88	0001	WL	N		<	0.01		0.01	-
	0923	12/10/88	0001	WL	N		<	0.01		0.01	-
	0938	08/09/88	0001	WL	N		<	0.01	J	0.01	-
	0938	12/10/88	0001	WL	N		<	0.01		0.01	-
SODIUM	0910	02/17/87	0001	WL	N	MG/L		102.		0.002	-
	0910	09/18/87	0001	WL	N			85.9		0.002	-
	0910	01/30/88	0001	WL	N			82.6		0.002	-

FORMATION OF COMPLETION CODE:
 WL - WASATCH - LOWER SANDSTONE
 WM - WASATCH - MIDDLE SHALE

FLOW RELATIONSHIP CODE:
 N - UNKNOWN

PARAMETER VALUE INDICATOR (PVI): < - LESS THAN DETECTION LIMIT

SAMPLE ID CODES:
 0001 - FILTERED SAMPLE (.45 MICRONS)

OTHER PARAMETER VALUE FLAGS:
 J - ESTIMATED VALUE

GROUNDWATER QUALITY DATA BY PARAMETER
 LOWER SANDSTONE AND MIDDLE SHALE UNITS
 SITE: SPK01 SPOOK
 02/17/87 TO 12/10/88
 REPORT DATE: 07/29/94

PARAMETER NAME	LOCATION ID	LOG DATE	SAMPLE ID	FORM COMP	FLOW REL.	UNITS OF MEASURE	PARAMETER PVI VALUE	FLAGS	DETECTION LIMIT	PARAMETER UNCERTAINTY
SODIUM	0910	04/22/88	0001	WL	N	MG/L	79.1		0.002	-
	0910	08/11/88	0001	WL	N		75.0		0.002	-
	0910	12/10/88	0001	WL	N		77.2		0.002	-
	0914	02/18/87	0001	WL	N		84.8		0.002	-
	0914	09/18/87	0001	WL	N		61.3		0.002	-
	0914	02/03/88	0001	WL	N		59.8		0.002	-
	0914	04/22/88	0001	WL	N		56.7		0.002	-
	0914	08/08/88	0001	WL	N		51.5		0.002	-
	0914	12/10/88	0001	WL	N		56.4		0.002	-
	0915	02/20/87	0001	WM	N		39.3		0.002	-
	0915	09/20/87	0001	WM	N		44.0	J	0.002	-
	0915	02/03/88	0001	WM	N		51.9		0.002	-
	0915	04/22/88	0001	WM	N		70.5		0.002	-
	0915	08/10/88	0001	WM	N		37.3		0.002	-
	0915	12/10/88	0001	WM	N		43.6		0.002	-
	0919	02/19/87	0001	WL	N		55.1		0.002	-
	0919	09/20/87	0001	WL	N		54.2		0.002	-
	0919	01/30/88	0001	WL	N		54.5		0.002	-
	0919	04/26/88	0001	WL	N		55.6		0.002	-
	0919	08/27/88	0001	WL	N		54.7		0.002	-
	0919	12/10/88	0001	WL	N		57.6		0.002	-
	0921	09/20/87	0001	WL	N		41.7		0.002	-
	0921	02/04/88	0001	WL	N		32.9		0.002	-
	0921	04/26/88	0001	WL	N		35.3		0.002	-
	0921	08/10/88	0001	WL	N		39.3		0.002	-
	0921	12/10/88	0001	WL	N		36.0		0.002	-
	0923	09/20/87	0001	WL	N		101.		0.002	-
	0923	01/30/88	0001	WL	N		86.3		0.002	-
	0923	04/26/88	0001	WL	N		92.5		0.002	-
	0923	08/09/88	0001	WL	N		103.		0.002	-
	0923	12/10/88	0001	WL	N		97.6		0.002	-
	0938	12/10/88	0001	WL	N		80.3		0.002	-
SPECIFIC CONDUCTANCE	0910	02/17/87	0001	WL	N	UMHO/CM	525.		-	-
	0910	09/18/87	0001	WL	N		275.		-	-
	0910	01/30/88	0001	WL	N		330.		-	-
	0910	04/22/88	0001	WL	N		470.		-	-
	0910	08/11/88	0001	WL	N		460.0		-	-
	0910	12/10/88	0001	WL	N		475.		-	-

FORMATION OF COMPLETION CODE:
 WL - WASATCH - LOWER SANDSTONE
 WM - WASATCH - MIDDLE SHALE

FLOW RELATIONSHIP CODE:
 N - UNKNOWN

PARAMETER VALUE INDICATOR (PVI): < - LESS THAN DETECTION LIMIT

SAMPLE ID CODES:
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OTHER PARAMETER VALUE FLAGS:
 J - ESTIMATED VALUE

GROUNDWATER QUALITY DATA BY PARAMETER
 LOWER SANDSTONE AND MIDDLE SHALE UNITS
 SITE: SPK01 SPOOK
 02/17/87 TO 12/10/88
 REPORT DATE: 07/29/94

PARAMETER NAME	LOCATION ID	LOG DATE	SAMPLE ID	FORM COMP	FLOW REL.	UNITS OF MEASURE	PVI	PARAMETER VALUE	FLAGS	DETECTION LIMIT	PARAMETER UNCERTAINTY
STRONTIUM	0915	02/03/88	0001	WM	N	MG/L		0.53		0.1	-
	0915	04/22/88	0001	WM	N			0.43		0.1	-
	0915	08/10/88	0001	WM	N			0.3		0.1	-
	0919	09/20/87	0001	WL	N			0.744		0.1	-
	0919	01/30/88	0001	WL	N			0.67		0.1	-
	0919	04/26/88	0001	WL	N			0.52		0.1	-
	0919	08/27/88	0001	WL	N			0.8		0.1	-
	0921	09/20/87	0001	WL	N			1.35		0.1	-
	0921	02/04/88	0001	WL	N			1.23		0.1	-
	0921	04/26/88	0001	WL	N			0.98		0.1	-
	0921	08/10/88	0001	WL	N			1.4		0.1	-
	0923	09/20/87	0001	WL	N			0.655		0.1	-
	0923	01/30/88	0001	WL	N			0.62		0.1	-
	0923	04/26/88	0001	WL	N			0.47		0.1	-
	0923	08/09/88	0001	WL	N			0.8		0.1	-
	0938	08/09/88	0001	WL	N		<	0.1	J	0.1	-
SULFATE	0910	02/17/87	0001	WL	N	MG/L		290.		0.1	-
	0910	09/18/87	0001	WL	N			217.		0.1	-
	0910	01/30/88	0001	WL	N			212.		0.1	-
	0910	04/22/88	0001	WL	N			214.		0.1	-
	0910	08/11/88	0001	WL	N			216.		0.1	-
	0910	12/10/88	0001	WL	N			198.		0.1	-
	0914	02/18/87	0001	WL	N			124.		0.1	-
	0914	09/18/87	0001	WL	N			124.		0.1	-
	0914	02/03/88	0001	WL	N			119.		0.1	-
	0914	04/22/88	0001	WL	N			126.		0.1	-
	0914	08/08/88	0001	WL	N			133.		0.1	-
	0914	12/10/88	0001	WL	N			110.		0.1	-
	0915	02/20/87	0001	WM	N			116.		0.1	-
	0915	09/20/87	0001	WM	N			125.	J	0.1	-
	0915	02/03/88	0001	WM	N			135.		0.1	-
	0915	04/22/88	0001	WM	N			135.		0.1	-
	0915	08/10/88	0001	WM	N			114.		0.1	-
	0915	12/10/88	0001	WM	N			96.		0.1	-
	0919	02/19/87	0001	WL	N			171.		0.1	-
	0919	09/20/87	0001	WL	N			174.		0.1	-
	0919	01/30/88	0001	WL	N			155.		0.1	-
	0919	04/26/88	0001	WL	N			173.		0.1	-

FORMATION OF COMPLETION CODE:

WM - WASATCH - MIDDLE SHALE
 WL - WASATCH - LOWER SANDSTONE

FLOW RELATIONSHIP CODE:

N - UNKNOWN

PARAMETER VALUE INDICATOR (PVI): < - LESS THAN DETECTION LIMIT

SAMPLE ID CODES:

0001 - FILTERED SAMPLE (.45 MICRONS)

OTHER PARAMETER VALUE FLAGS:

J - ESTIMATED VALUE

GROUNDWATER QUALITY DATA BY PARAMETER
 LOWER SANDSTONE AND MIDDLE SHALE UNITS
 SITE: SPK01 SPOOK
 02/17/87 TO 12/10/88
 REPORT DATE: 07/29/94

PARAMETER NAME	LOCATION ID	LOG DATE	SAMPLE ID	FORM COMP	FLOW REL.	UNITS OF MEASURE	PVI	PARAMETER VALUE	FLAGS	DETECTION LIMIT	PARAMETER UNCERTAINTY
SPECIFIC CONDUCTANCE	0914	02/18/87	0001	WL	N	UMHO/CM		280.		-	-
	0914	09/18/87	0001	WL	N			150.		-	-
	0914	02/03/88	0001	WL	N			260.		-	-
	0914	04/22/88	0001	WL	N			350.		-	-
	0914	08/08/88	0001	WL	N			380.0		-	-
	0914	12/10/88	0001	WL	N			335.		-	-
	0915	02/20/87	0001	WM	N			320.		-	-
	0915	09/20/87	0001	WM	N			165.		-	-
	0915	02/03/88	0001	WM	N			205.		-	-
	0915	04/22/88	0001	WM	N			390.		-	-
	0915	08/10/88	0001	WM	N			315.0		-	-
	0915	12/10/88	0001	WM	N			270.		-	-
	0919	02/19/87	0001	WL	N			340.		-	-
	0919	09/20/87	0001	WL	N			280.		-	-
	0919	01/30/88	0001	WL	N			310.		-	-
	0919	04/26/88	0001	WL	N			425.		-	-
	0919	08/27/88	0001	WL	N			270.0		-	-
	0919	12/10/88	0001	WL	N			370.		-	-
	0921	09/20/87	0001	WL	N			380.		-	-
	0921	02/04/88	0001	WL	N			380.		-	-
	0921	04/26/88	0001	WL	N			575.		-	-
	0921	08/10/88	0001	WL	N			500.0		-	-
	0921	12/10/88	0001	WL	N			550.		-	-
	0923	09/20/87	0001	WL	N			370.		-	-
	0923	01/30/88	0001	WL	N			365.		-	-
	0923	04/26/88	0001	WL	N			525.		-	-
	0923	08/09/88	0001	WL	N			525.0		-	-
	0923	12/10/88	0001	WL	N			500.		-	-
	0938	08/09/88	0001	WL	N			275.0		-	-
	0938	12/10/88	0001	WL	N			270.		-	-
STRONTIUM	0910	09/18/87	0001	WL	N	MG/L		0.715		0.1	-
	0910	01/30/88	0001	WL	N			0.63		0.1	-
	0910	04/22/88	0001	WL	N			0.49		0.1	-
	0910	08/11/88	0001	WL	N			0.6		0.1	-
	0914	09/18/87	0001	WL	N			0.470		0.1	-
	0914	02/03/88	0001	WL	N			0.46		0.1	-
	0914	04/22/88	0001	WL	N			0.35		0.1	-
	0914	08/08/88	0001	WL	N			0.3		0.1	-
	0915	09/20/87	0001	WM	N			0.560 J		0.1	-

FORMATION OF COMPLETION CODE:
 WL - WASATCH - LOWER SANDSTONE
 WM - WASATCH - MIDDLE SHALE

FLOW RELATIONSHIP CODE:
 N - UNKNOWN

PARAMETER VALUE INDICATOR (PVI): < - LESS THAN DETECTION LIMIT

SAMPLE ID CODES:
 0001 - FILTERED SAMPLE (.45 MICRONS)

OTHER PARAMETER VALUE FLAGS:
 J - ESTIMATED VALUE

GROUNDWATER QUALITY DATA BY PARAMETER
 LOWER SANDSTONE AND MIDDLE SHALE UNITS
 SITE: SPK01 SPOOK
 02/17/87 TO 12/10/88
 REPORT DATE: 07/29/94

PARAMETER NAME	LOCATION ID	LOG DATE	SAMPLE ID	FORM COMP	FLOW REL.	UNITS OF MEASURE	PVI VALUE	FLAGS	DETECTION LIMIT	PARAMETER UNCERTAINTY
SULFATE	0919	08/27/88	0001	WL	N	MG/L	153.		0.1	-
	0919	12/10/88	0001	WL	N		164.		0.1	-
	0921	09/20/87	0001	WL	N		281.		0.1	-
	0921	02/04/88	0001	WL	N		196.		0.1	-
	0921	04/26/88	0001	WL	N		230.		0.1	-
	0921	08/10/88	0001	WL	N		233.		0.1	-
	0921	12/10/88	0001	WL	N		212.		0.1	-
	0923	09/20/87	0001	WL	N		244.		0.1	-
	0923	01/30/88	0001	WL	N		206.		0.1	-
	0923	04/26/88	0001	WL	N		241.		0.1	-
	0923	08/09/88	0001	WL	N		236.		0.1	-
	0923	12/10/88	0001	WL	N		214.		0.1	-
	0938	08/09/88	0001	WL	N		2.	J	0.1	-
	0938	12/10/88	0001	WL	N		2.		0.1	-
SULFIDE	0910	09/18/87	0001	WL	N	MG/L	<		0.1	-
	0910	01/30/88	0001	WL	N		<		0.1	-
	0910	04/22/88	0001	WL	N		<		0.1	-
	0910	08/11/88	0001	WL	N		<		0.1	-
	0914	09/18/87	0001	WL	N		<		0.1	-
	0914	02/03/88	0001	WL	N		<		0.1	-
	0914	04/22/88	0001	WL	N		<		0.1	-
	0914	08/08/88	0001	WL	N		<		0.1	-
	0915	09/20/87	0001	WM	N		<	J	0.1	-
	0915	02/03/88	0001	WM	N		<		0.1	-
	0915	04/22/88	0001	WM	N		<		0.1	-
	0915	08/10/88	0001	WM	N		<		0.1	-
	0919	09/20/87	0001	WL	N		<		0.1	-
	0919	01/30/88	0001	WL	N		<		0.1	-
	0919	04/26/88	0001	WL	N		<		0.1	-
	0919	08/27/88	0001	WL	N		<		0.1	-
	0921	09/20/87	0001	WL	N		<		0.1	-
	0921	02/04/88	0001	WL	N		<		0.1	-
	0921	04/26/88	0001	WL	N		<		0.1	-
	0921	08/10/88	0001	WL	N		<		0.1	-
	0923	09/20/87	0001	WL	N		<		0.1	-
	0923	01/30/88	0001	WL	N		<		0.1	-
	0923	04/26/88	0001	WL	N		<		0.1	-
	0923	08/09/88	0001	WL	N		<		0.1	-

FORMATION OF COMPLETION CODE:
 WL - WASATCH - LOWER SANDSTONE
 WM - WASATCH - MIDDLE SHALE

FLOW RELATIONSHIP CODE:
 N - UNKNOWN

PARAMETER VALUE INDICATOR (PVI): < - LESS THAN DETECTION LIMIT

SAMPLE ID CODES:
 0001 - FILTERED SAMPLE (<45 MICRONS)

OTHER PARAMETER VALUE FLAGS:
 J - ESTIMATED VALUE

GROUNDWATER QUALITY DATA BY PARAMETER
 LOWER SANDSTONE AND MIDDLE SHALE UNITS
 SITE: SPK01 SPOOK
 02/17/87 TO 12/10/88
 REPORT DATE: 07/29/94

PARAMETER NAME	LOCATION ID	LOG DATE	SAMPLE ID	FORM COMP	FLOW REL.	UNITS OF MEASURE	PVI	PARAMETER VALUE	FLAGS	DETECTION LIMIT	PARAMETER UNCERTAINTY
SULFIDE	0938	08/09/88	0001	WL	N	MG/L		0.1	J	0.1	-
TEMPERATURE	0910	02/17/87	0001	WL	N	C - DEGREE		12.0		-	-
	0910	09/18/87	0001	WL	N			13.0		-	-
	0910	01/30/88	0001	WL	N			12.0		-	-
	0910	04/22/88	0001	WL	N			13.0		-	-
	0910	08/11/88	0001	WL	N			14.0		-	-
	0910	12/10/88	0001	WL	N			11.5		-	-
	0914	02/18/87	0001	WL	N			11.0		-	-
	0914	09/18/87	0001	WL	N			12.5		-	-
	0914	02/03/88	0001	WL	N			12.0		-	-
	0914	04/22/88	0001	WL	N			13.0		-	-
	0914	08/08/88	0001	WL	N			18.5		-	-
	0914	12/10/88	0001	WL	N			11.5		-	-
	0915	02/20/87	0001	WM	N			10.		-	-
	0915	09/20/87	0001	WM	N			12.0		-	-
	0915	02/03/88	0001	WM	N			11.5		-	-
	0915	04/22/88	0001	WM	N			14.5		-	-
	0915	08/10/88	0001	WM	N			14.0		-	-
	0915	12/10/88	0001	WM	N			10.5		-	-
	0919	02/19/87	0001	WL	N			11.		-	-
	0919	09/20/87	0001	WL	N			13.0		-	-
	0919	01/30/88	0001	WL	N			11.5		-	-
	0919	04/26/88	0001	WL	N			12.0		-	-
	0919	08/27/88	0001	WL	N			13.0		-	-
	0919	12/10/88	0001	WL	N			10.0		-	-
	0921	09/20/87	0001	WL	N			13.0		-	-
	0921	02/04/88	0001	WL	N			11.5		-	-
	0921	04/26/88	0001	WL	N			12.5		-	-
	0921	08/10/88	0001	WL	N			14.0		-	-
	0921	12/10/88	0001	WL	N			11.0		-	-
	0923	09/20/87	0001	WL	N			13.0		-	-
	0923	01/30/88	0001	WL	N			12.5		-	-
	0923	04/26/88	0001	WL	N			13.0		-	-
	0923	08/09/88	0001	WL	N			13.75		-	-
	0923	12/10/88	0001	WL	N			12.0		-	-
	0938	08/09/88	0001	WL	N			13.75		-	-
	0938	12/10/88	0001	WL	N			12.0		-	-
THORIUM-230	0910	09/18/87	0001	WL	N	PCI/L		0.0		1.	0.5

FORMATION OF COMPLETION CODE:
 WL - WASATCH - LOWER SANDSTONE
 WM - WASATCH - MIDDLE SHALE

FLOW RELATIONSHIP CODE:
 N - UNKNOWN

PARAMETER VALUE INDICATOR (PVI): < - LESS THAN DETECTION LIMIT

SAMPLE ID CODES:
 0001 - FILTERED SAMPLE (.45 MICRONS)

OTHER PARAMETER VALUE FLAGS:
 J - ESTIMATED VALUE

GROUNDWATER QUALITY DATA BY PARAMETER
 LOWER SANDSTONE AND MIDDLE SHALE UNITS
 SITE: SPK01 SPOOK
 02/17/87 TO 12/10/88
 REPORT DATE: 07/29/94

PARAMETER NAME	LOCATION ID	LOG DATE	SAMPLE ID	FORM COMP	FLOW REL.	UNITS OF MEASURE	PVI	PARAMETER VALUE	FLAGS	DETECTION LIMIT	PARAMETER UNCERTAINTY
THORIUM-230	0910	01/30/88	0001	WL	N	PCI/L		0.0		1.	0.4
	0910	04/22/88	0001	WL	N			0.0		1.	0.3
	0910	08/11/88	0001	WL	N			0.1		1.	0.5
	0914	09/18/87	0001	WL	N			0.0		1.	0.5
	0914	02/03/88	0001	WL	N			0.1		1.	0.6
	0914	04/22/88	0001	WL	N			0.0		1.	0.4
	0914	08/08/88	0001	WL	N			0.1		1.	0.6
	0915	09/20/87	0001	WM	N			0.0	J	1.	0.4
	0915	02/03/88	0001	WM	N			0.0		1.	0.5
	0915	04/22/88	0001	WM	N			0.0		1.	0.4
	0915	08/10/88	0001	WM	N			0.0		1.	0.5
	0919	09/20/87	0001	WL	N			0.0		1.	0.5
	0919	01/30/88	0001	WL	N			0.0		1.	0.4
	0919	04/26/88	0001	WL	N			0.1		1.	0.4
	0919	08/27/88	0001	WL	N			0.2		1.	0.5
	0921	09/20/87	0001	WL	N			0.0		1.	0.4
	0921	02/04/88	0001	WL	N			0.4		1.	0.6
	0921	04/26/88	0001	WL	N			0.0		1.	0.2
	0921	08/10/88	0001	WL	N			0.1		1.	0.6
	0923	09/20/87	0001	WL	N			0.2		1.	0.6
	0923	01/30/88	0001	WL	N			0.2		1.	0.6
	0923	04/26/88	0001	WL	N			0.0		1.	0.3
	0923	08/09/88	0001	WL	N			0.0		1.	0.5
	0938	08/09/88	0001	WL	N			0.2	J	1.	0.6
TIN	0910	09/18/87	0001	WL	N	MG/L		0.026		0.005	-
	0910	01/30/88	0001	WL	N		<	0.005		0.005	-
	0910	04/22/88	0001	WL	N			0.010		0.005	-
	0910	08/11/88	0001	WL	N		<	0.005		0.005	-
	0914	09/18/87	0001	WL	N			0.021		0.005	-
	0914	02/03/88	0001	WL	N		<	0.005		0.005	-
	0914	04/22/88	0001	WL	N			0.010		0.005	-
	0914	08/08/88	0001	WL	N			0.005		0.005	-
	0915	09/20/87	0001	WM	N			0.018	J	0.005	-
	0915	02/03/88	0001	WM	N		<	0.005		0.005	-
	0915	04/22/88	0001	WM	N			0.010		0.005	-
	0915	08/10/88	0001	WM	N		<	0.005		0.005	-
	0919	09/20/87	0001	WL	N			0.020		0.005	-
	0919	01/30/88	0001	WL	N		<	0.005		0.005	-

FORMATION OF COMPLETION CODE:
 WL - WASATCH - LOWER SANDSTONE
 WM - WASATCH - MIDDLE SHALE

FLOW RELATIONSHIP CODE:
 N - UNKNOWN

PARAMETER VALUE INDICATOR (PVI): < - LESS THAN DETECTION LIMIT

SAMPLE ID CODES:
 0001 - FILTERED SAMPLE (.45 MICRONS)

OTHER PARAMETER VALUE FLAGS:
 J - ESTIMATED VALUE

GROUNDWATER QUALITY DATA BY PARAMETER
 LOWER SANDSTONE AND MIDDLE SHALE UNITS
 SITE: SPK01 SPOOK
 02/17/87 TO 12/10/88
 REPORT DATE: 07/29/94

PARAMETER NAME	LOCATION ID	LOG DATE	SAMPLE ID	FORM COMP	FLOW REL.	UNITS OF MEASURE	PARAMETER PVI VALUE	FLAGS	DETECTION LIMIT	PARAMETER UNCERTAINTY
TIN	0919	04/26/88	0001	WL	N	MG/L	0.005		0.005	-
	0919	08/27/88	0001	WL	N		< 0.005		0.005	-
	0921	09/20/87	0001	WL	N		0.016		0.005	-
	0921	02/04/88	0001	WL	N		< 0.005		0.005	-
	0921	04/26/88	0001	WL	N		0.007		0.005	-
	0921	08/10/88	0001	WL	N		< 0.003	J	0.005	-
	0923	09/20/87	0001	WL	N		0.026		0.005	-
	0923	01/30/88	0001	WL	N		< 0.005		0.005	-
	0923	04/26/88	0001	WL	N		0.007		0.005	-
	0923	08/09/88	0001	WL	N		< 0.003	J	0.005	-
	0938	08/09/88	0001	WL	N		< 0.005	J	0.005	-
TOTAL DISSOLVED SOLIDS	0910	02/17/87	0001	WL	N	MG/L	545.		10.	-
	0910	09/18/87	0001	WL	N		510.		10.	-
	0910	01/30/88	0001	WL	N		443.		10.	-
	0910	04/22/88	0001	WL	N		447.		10.	-
	0910	08/11/88	0001	WL	N		459.		10.	-
	0910	12/10/88	0001	WL	N		472.		10.	-
	0914	02/18/87	0001	WL	N		346.		10.	-
	0914	09/18/87	0001	WL	N		371.		10.	-
	0914	02/03/88	0001	WL	N		311.		10.	-
	0914	04/22/88	0001	WL	N		309.		10.	-
	0914	08/08/88	0001	WL	N		403.		10.	-
	0914	12/10/88	0001	WL	N		344.		10.	-
	0915	02/20/87	0001	WM	N		340.		10.	-
	0915	09/20/87	0001	WM	N		350.	J	10.	-
	0915	02/03/88	0001	WM	N		330.		10.	-
	0915	04/22/88	0001	WM	N		332.		10.	-
	0915	08/10/88	0001	WM	N		306.		10.	-
	0915	12/10/88	0001	WM	N		265.		10.	-
	0919	02/19/87	0001	WL	N		436.		10.	-
	0919	09/20/87	0001	WL	N		413.		10.	-
	0919	01/30/88	0001	WL	N		454.		10.	-
	0919	04/26/88	0001	WL	N		416.		10.	-
	0919	08/27/88	0001	WL	N		405.		10.	-
	0919	12/10/88	0001	WL	N		57.6		10.	-
	0921	09/20/87	0001	WL	N		600.		10.	-
	0921	02/04/88	0001	WL	N		611.		10.	-
	0921	04/26/88	0001	WL	N		585.		10.	-

FORMATION OF COMPLETION CODE:
 WL - WASATCH - LOWER SANDSTONE
 WM - WASATCH - MIDDLE SHALE

FLOW RELATIONSHIP CODE:
 N - UNKNOWN

PARAMETER VALUE INDICATOR (PVI): < - LESS THAN DETECTION LIMIT

SAMPLE ID CODES:
 0001 - FILTERED SAMPLE (.45 MICRONS)

OTHER PARAMETER VALUE FLAGS:
 J - ESTIMATED VALUE

GROUNDWATER QUALITY DATA BY PARAMETER
 LOWER SANDSTONE AND MIDDLE SHALE UNITS
 SITE: SPK01 SPOOK
 02/17/87 TO 12/10/88
 REPORT DATE: 07/29/94

PARAMETER NAME	LOCATION ID	LOG DATE	SAMPLE ID	FORM COMP	FLOW REL.	UNITS OF MEASURE	PVI	PARAMETER VALUE	FLAGS	DETECTION LIMIT	PARAMETER UNCERTAINTY
TOTAL DISSOLVED SOLIDS	0921	08/10/88	0001	WL	N	MG/L		564.		10.	-
	0921	12/10/88	0001	WL	N			555.		10.	-
	0923	09/20/87	0001	WL	N			523.		10.	-
	0923	01/30/88	0001	WL	N			549.		10.	-
	0923	04/26/88	0001	WL	N			509.		10.	-
	0923	08/09/88	0001	WL	N			503.		10.	-
	0923	12/10/88	0001	WL	N			510.		10.	-
	0938	08/09/88	0001	WL	N			265.	J	10.	-
	0938	12/10/88	0001	WL	N			264.		10.	-
URANIUM	0910	02/17/87	0001	WL	N	MG/L		0.0822		0.003	-
	0910	09/18/87	0001	WL	N			0.0139		0.003	-
	0910	01/30/88	0001	WL	N			0.0184		0.003	-
	0910	04/22/88	0001	WL	N			0.0178		0.003	-
	0910	08/11/88	0001	WL	N			0.0117		0.003	-
	0910	12/10/88	0001	WL	N			0.0101		0.003	-
	0914	02/18/87	0001	WL	N			0.0072		0.003	-
	0914	09/18/87	0001	WL	N			0.0065		0.003	-
	0914	02/03/88	0001	WL	N			0.0022	J	0.003	-
	0914	04/22/88	0001	WL	N			0.0024	J	0.003	-
	0914	08/08/88	0001	WL	N			0.0017	J	0.003	-
	0914	12/10/88	0001	WL	N			0.0012	J	0.003	-
	0915	02/20/87	0001	WM	N			0.0579		0.003	-
	0915	09/20/87	0001	WM	N			0.0249	J	0.003	-
	0915	02/03/88	0001	WM	N			0.0124		0.003	-
	0915	04/22/88	0001	WM	N			0.0244		0.003	-
	0915	08/10/88	0001	WM	N			0.0069		0.003	-
	0915	12/10/88	0001	WM	N			0.0063		0.003	-
	0919	02/19/87	0001	WL	N			0.0078		0.003	-
	0919	09/20/87	0001	WL	N			0.0014	J	0.003	-
	0919	01/30/88	0001	WL	N			0.0116		0.003	-
	0919	04/26/88	0001	WL	N			0.0023	J	0.003	-
	0919	08/27/88	0001	WL	N			0.0005	J	0.003	-
	0919	12/10/88	0001	WL	N			0.0015	J	0.003	-
	0921	09/20/87	0001	WL	N			0.0010	J	0.003	-
	0921	02/04/88	0001	WL	N			0.0009	J	0.003	-
	0921	04/26/88	0001	WL	N			0.0010	J	0.003	-
	0921	08/10/88	0001	WL	N			0.0005	J	0.003	-
	0921	12/10/88	0001	WL	N			0.0006	J	0.003	-

FORMATION OF COMPLETION CODE:
 WL - WASATCH - LOWER SANDSTONE
 WM - WASATCH - MIDDLE SHALE

FLOW RELATIONSHIP CODE:
 N - UNKNOWN

PARAMETER VALUE INDICATOR (PVI): < - LESS THAN DETECTION LIMIT

SAMPLE ID CODES:
 0001 - FILTERED SAMPLE (.45 MICRONS)

OTHER PARAMETER VALUE FLAGS:
 J - ESTIMATED VALUE

GROUNDWATER QUALITY DATA BY PARAMETER
 LOWER SANDSTONE AND MIDDLE SHALE UNITS
 SITE: SPK01 SPOOK
 02/17/87 TO 12/10/88
 REPORT DATE: 07/29/94

PARAMETER NAME	LOCATION ID	LOG DATE	SAMPLE ID	FORM COMP	FLOW REL.	UNITS OF MEASURE	PVI	PARAMETER VALUE	FLAGS	DETECTION LIMIT	PARAMETER UNCERTAINTY
URANIUM	0923	09/20/87	0001	WL	N	MG/L		0.0021	J	0.003	-
	0923	01/30/88	0001	WL	N			0.0017	J	0.003	-
	0923	04/26/88	0001	WL	N			0.0015	J	0.003	-
	0923	08/09/88	0001	WL	N		<	0.0003	J	0.003	-
	0923	12/10/88	0001	WL	N			0.0011	J	0.003	-
	0938	08/09/88	0001	WL	N		<	0.0003	J	0.003	-
	0938	12/10/88	0001	WL	N			0.0004	J	0.003	-
VANADIUM	0910	09/18/87	0001	WL	N	MG/L		0.05		0.01	-
	0910	01/30/88	0001	WL	N		<	0.01		0.01	-
	0910	04/22/88	0001	WL	N			0.01		0.01	-
	0910	08/11/88	0001	WL	N		<	0.01		0.01	-
	0910	12/10/88	0001	WL	N		<	0.01		0.01	-
	0914	09/18/87	0001	WL	N			0.05		0.01	-
	0914	02/03/88	0001	WL	N		<	0.01		0.01	-
	0914	04/22/88	0001	WL	N		<	0.01		0.01	-
	0914	08/08/88	0001	WL	N		<	0.01		0.01	-
	0914	12/10/88	0001	WL	N		<	0.01		0.01	-
	0915	09/20/87	0001	WM	N			0.06	J	0.01	-
	0915	02/03/88	0001	WM	N		<	0.01		0.01	-
	0915	04/22/88	0001	WM	N		<	0.01		0.01	-
	0915	08/10/88	0001	WM	N		<	0.01		0.01	-
	0915	12/10/88	0001	WM	N		<	0.01		0.01	-
	0919	09/20/87	0001	WL	N			0.01		0.01	-
	0919	01/30/88	0001	WL	N			0.01		0.01	-
	0919	04/26/88	0001	WL	N			0.01		0.01	-
	0919	08/27/88	0001	WL	N			0.01		0.01	-
	0919	12/10/88	0001	WL	N		<	0.01		0.01	-
	0921	09/20/87	0001	WL	N			0.03		0.01	-
	0921	02/04/88	0001	WL	N			0.02		0.01	-
	0921	04/26/88	0001	WL	N			0.02		0.01	-
	0921	08/10/88	0001	WL	N			0.01		0.01	-
	0921	12/10/88	0001	WL	N			0.02		0.01	-
	0923	09/20/87	0001	WL	N			0.02		0.01	-
	0923	01/30/88	0001	WL	N			0.01		0.01	-
	0923	04/26/88	0001	WL	N			0.01		0.01	-
	0923	08/09/88	0001	WL	N		<	0.01		0.01	-
	0923	12/10/88	0001	WL	N		<	0.01		0.01	-
	0938	08/09/88	0001	WL	N			0.01	J	0.01	-

FORMATION OF COMPLETION CODE:
 WL - WASATCH - LOWER SANDSTONE
 WM - WASATCH - MIDDLE SHALE

FLOW RELATIONSHIP CODE:
 N - UNKNOWN

PARAMETER VALUE INDICATOR (PVI): < - LESS THAN DETECTION LIMIT
 SAMPLE ID CODES:
 0001 - FILTERED SAMPLE (<.45 MICRONS)

OTHER PARAMETER VALUE FLAGS:
 J - ESTIMATED VALUE

GROUNDWATER QUALITY DATA BY PARAMETER
 LOWER SANDSTONE AND MIDDLE SHALE UNITS
 SITE: SPK01 SPOK
 02/17/87 TO 12/10/88
 REPORT DATE: 07/29/94

PARAMETER NAME	LOCATION ID	LOG DATE	SAMPLE ID	FORM COMP REL.	UNITS OF MEASURE	PVI	PARAMETER VALUE	FLAGS	DETECTION LIMIT	PARAMETER UNCERTAINTY
VANADIUM	0938	12/10/88	0001	WL	MG/L	<	0.01		0.01	-
ZINC	0910	02/17/87	0001	WL	MG/L		0.075		0.005	-
	0910	09/18/87	0001	WL	MG/L		0.017		0.005	-
	0910	01/30/88	0001	WL	MG/L		0.086		0.005	-
	0910	04/22/88	0001	WL	MG/L		0.030		0.005	-
	0910	08/11/88	0001	WL	MG/L		0.033		0.005	-
	0914	02/18/87	0001	WL	MG/L		0.006		0.005	-
	0914	09/18/87	0001	WL	MG/L		0.005		0.005	-
	0914	02/03/88	0001	WL	MG/L		0.005		0.005	-
	0914	04/22/88	0001	WL	MG/L		0.005		0.005	-
	0914	08/08/88	0001	WL	MG/L		0.007		0.005	-
	0915	02/20/87	0001	WM	MG/L		0.013		0.005	-
	0915	09/20/87	0001	WM	MG/L		0.005	J	0.005	-
	0915	02/03/88	0001	WM	MG/L		0.005		0.005	-
	0915	04/22/88	0001	WM	MG/L		0.005		0.005	-
	0915	08/10/88	0001	WM	MG/L		0.005		0.005	-
	0919	02/19/87	0001	WL	MG/L		0.055		0.005	-
	0919	09/20/87	0001	WL	MG/L		0.016		0.005	-
	0919	01/30/88	0001	WL	MG/L		0.010		0.005	-
	0919	04/26/88	0001	WL	MG/L		0.012		0.005	-
	0919	08/27/88	0001	WL	MG/L		0.030		0.005	-
	0921	09/20/87	0001	WL	MG/L		0.005		0.005	-
	0921	02/04/88	0001	WL	MG/L		0.005		0.005	-
	0921	04/26/88	0001	WL	MG/L		0.008		0.005	-
	0921	08/10/88	0001	WL	MG/L		0.009		0.005	-
	0923	09/20/87	0001	WL	MG/L		0.005		0.005	-
	0923	01/30/88	0001	WL	MG/L		0.005		0.005	-
	0923	04/26/88	0001	WL	MG/L		0.005		0.005	-
	0923	08/09/88	0001	WL	MG/L		0.005		0.005	-
	0938	08/09/88	0001	WL	MG/L		0.005	J	0.005	-

FORMATION OF COMPLETION CODE:
 WL - WASATCH - LOWER SANDSTONE
 WM - WASATCH - MIDDLE SHALE

FLOW RELATIONSHIP CODE:
 N - UNKNOWN

PARAMETER VALUE INDICATOR (PVI): < - LESS THAN DETECTION LIMIT

SAMPLE ID CODES:
 0001 - FILTERED SAMPLE (.45 MICRONS)

OTHER PARAMETER VALUE FLAGS:
 J - ESTIMATED VALUE

DATA FILE NAME: M:\DART\SPK01\GWQ1000.DAT

GROUNDWATER QUALITY DATA BY PARAMETER

Domestic wells

SITE: SPK01 SPOOK

11/18/85 TO 08/27/88

REPORT DATE: 07/29/94

PARAMETER NAME	LOCATION ID	LOG DATE	SAMPLE ID	FORM COMP	FLOW REL.	UNITS OF MEASURE	PVI	PARAMETER VALUE	FLAGS	DETECTION LIMIT	PARAMETER UNCERTAINTY
ALKALINITY	0800	08/11/88	0001	NR	N	MG/L CaCO3		160.0		-	-
	0803	08/27/88	0001	NR	N			165.0		-	-
	0903	11/18/85	0001	NR	N			232.		-	-
	0903	02/19/87	0001	NR	N			214.		-	-
	0903	08/11/88	0001	NR	N			174.0		-	-
ALUMINUM	0800	08/11/88	0001	NR	N	MG/L	<	0.1		0.1	-
	0803	08/27/88	0001	NR	N		<	0.1		0.1	-
	0903	11/18/85	0001	NR	N			0.4		0.1	-
	0903	02/19/87	0001	NR	N		<	0.1		0.1	-
	0903	08/11/88	0001	NR	N		<	0.1		0.1	-
AMMONIUM	0800	08/11/88	0001	NR	N	MG/L	<	0.1		0.1	-
	0803	08/27/88	0001	NR	N		<	0.1		0.1	-
	0903	11/18/85	0001	NR	N			0.1		0.1	-
	0903	02/19/87	0001	NR	N			0.5		0.1	-
	0903	08/11/88	0001	NR	N		<	0.1		0.1	-
ANTIMONY	0800	08/11/88	0001	NR	N	MG/L	<	0.003		0.003	-
	0803	08/27/88	0001	NR	N		<	0.003	J	0.003	-
	0903	11/18/85	0001	NR	N		<	0.003		0.003	-
	0903	02/19/87	0001	NR	N		<	0.003		0.003	-
	0903	08/11/88	0001	NR	N		<	0.003		0.003	-
ARSENIC	0800	08/11/88	0001	NR	N	MG/L	<	0.01		0.01	-
	0803	08/27/88	0001	NR	N		<	0.01		0.01	-
	0903	11/18/85	0001	NR	N		<	0.01		0.01	-
	0903	02/19/87	0001	NR	N		<	0.001	J	0.01	-
	0903	08/11/88	0001	NR	N		<	0.01		0.01	-
BARIUM	0800	08/11/88	0001	NR	N	MG/L	<	0.1		0.1	-
	0803	08/27/88	0001	NR	N		<	0.1		0.1	-
	0903	11/18/85	0001	NR	N			0.2		0.1	-
	0903	02/19/87	0001	NR	N			0.2		0.1	-
	0903	08/11/88	0001	NR	N		<	0.1		0.1	-
BORON	0800	08/11/88	0001	NR	N	MG/L	<	0.1		0.1	-
	0803	08/27/88	0001	NR	N		<	0.1		0.1	-
	0903	11/18/85	0001	NR	N			0.3		0.1	-
	0903	08/11/88	0001	NR	N		<	0.1		0.1	-

FORMATION OF COMPLETION CODE:
NR - NO RECOVERY OF DATA FOR CLASSIFYING

FLOW RELATIONSHIP CODE:
N - UNKNOWN

PARAMETER VALUE INDICATOR (PVI): < - LESS THAN DETECTION LIMIT

SAMPLE ID CODES:
0001 - FILTERED SAMPLE (.45 MICRONS)

OTHER PARAMETER VALUE FLAGS:
J - ESTIMATED VALUE

GROUNDWATER QUALITY DATA BY PARAMETER
Domestic wells
SITE: SPK01 SPOOK
11/18/85 TO 08/27/88
REPORT DATE: 07/29/94

PARAMETER NAME	LOCATION ID	LOG DATE	SAMPLE ID	FORM COMP	FLOW REL.	UNITS OF MEASURE	PVI	PARAMETER VALUE	FLAGS	DETECTION LIMIT	PARAMETER UNCERTAINTY
CADMIUM	0800	08/11/88	0001	NR	N	MG/L	<	0.001		0.001	-
	0803	08/27/88	0001	NR	N		<	0.001		0.001	-
	0903	11/18/85	0001	NR	N		<	0.001		0.001	-
	0903	02/19/87	0001	NR	N		<	0.001		0.001	-
	0903	08/11/88	0001	NR	N		<	0.001		0.001	-
CALCIUM	0800	08/11/88	0001	NR	N	MG/L		13.7		0.01	-
	0803	08/27/88	0001	NR	N			10.8		0.01	-
	0903	11/18/85	0001	NR	N			18.5		0.01	-
	0903	02/19/87	0001	NR	N			24.1		0.01	-
	0903	08/11/88	0001	NR	N			41.0		0.01	-
CHLORIDE	0800	08/11/88	0001	NR	N	MG/L	<	1.0		1.	-
	0803	08/27/88	0001	NR	N			3.4		1.	-
	0903	11/18/85	0001	NR	N			7.		1.	-
	0903	02/19/87	0001	NR	N			4.7		1.	-
	0903	08/11/88	0001	NR	N		<	1.0		1.	-
CHROMIUM	0800	08/11/88	0001	NR	N	MG/L	<	0.01		0.01	-
	0803	08/27/88	0001	NR	N			0.01		0.01	-
	0903	11/18/85	0001	NR	N			0.01		0.01	-
	0903	08/11/88	0001	NR	N			0.02		0.01	-
COBALT	0903	11/18/85	0001	NR	N	MG/L	<	0.05		0.05	-
COPPER	0800	08/11/88	0001	NR	N	MG/L	<	0.02		0.02	-
	0803	08/27/88	0001	NR	N		<	0.02		0.02	-
	0903	11/18/85	0001	NR	N			0.04		0.02	-
	0903	02/19/87	0001	NR	N		<	0.01	J	0.02	-
	0903	08/11/88	0001	NR	N		<	0.02		0.02	-
CYANIDE	0903	11/18/85	0001	NR	N	MG/L	<	0.01		0.01	-
FLUORIDE	0800	08/11/88	0001	NR	N	MG/L		0.2		0.1	-
	0803	08/27/88	0001	NR	N			0.3		0.1	-
	0903	11/18/85	0001	NR	N			1.2		0.1	-
	0903	02/19/87	0001	NR	N			0.5		0.1	-
	0903	08/11/88	0001	NR	N			0.3		0.1	-
GROSS ALPHA	0800	08/11/88	0001	NR	N	PCI/L		1.7		0.2	2.0

FORMATION OF COMPLETION CODE:
NR - NO RECOVERY OF DATA FOR CLASSIFYING

FLOW RELATIONSHIP CODE:
N - UNKNOWN

PARAMETER VALUE INDICATOR (PVI): < - LESS THAN DETECTION LIMIT

SAMPLE ID CODES:
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OTHER PARAMETER VALUE FLAGS:
J - ESTIMATED VALUE

GROUNDWATER QUALITY DATA BY PARAMETER
Domestic wells
SITE: SPK01 SPOOK
11/18/85 TO 08/27/88
REPORT DATE: 07/29/94

PARAMETER NAME	LOCATION ID	LOG DATE	SAMPLE ID	FORM COMP	FLOW REL.	UNITS OF MEASURE	PVI	PARAMETER VALUE	FLAGS	DETECTION LIMIT	PARAMETER UNCERTAINTY
GROSS ALPHA	0803	08/27/88	0001	NR	N	PCI/L		3.5		0.2	2.2
	0903	08/11/88	0001	NR	N			6.2		0.2	2.6
GROSS BETA	0800	08/11/88	0001	NR	N	PCI/L		4.5		1.	1.3
	0803	08/27/88	0001	NR	N			4.0		1.	1.3
	0903	08/11/88	0001	NR	N			8.9		1.	1.4
IRON	0800	08/11/88	0001	NR	N	MG/L		0.06		0.03	-
	0803	08/27/88	0001	NR	N		<	0.03		0.03	-
	0903	11/18/85	0001	NR	N			0.24		0.03	-
	0903	02/19/87	0001	NR	N		<	0.03		0.03	-
	0903	08/11/88	0001	NR	N		<	0.03		0.03	-
LEAD	0800	08/11/88	0001	NR	N	MG/L		0.04		0.01	-
	0803	08/27/88	0001	NR	N		<	0.01		0.01	-
	0903	11/18/85	0001	NR	N		<	0.01		0.01	-
	0903	02/19/87	0001	NR	N		<	0.001	J	0.01	-
	0903	08/11/88	0001	NR	N		<	0.01		0.01	-
LEAD-210	0903	11/18/85	0001	NR	N	PCI/L		0.8		1.5	0.7
MAGNESIUM	0800	08/11/88	0001	NR	N	MG/L		2.93		0.001	-
	0803	08/27/88	0001	NR	N			1.92		0.001	-
	0903	11/18/85	0001	NR	N			3.01		0.001	-
	0903	02/19/87	0001	NR	N			4.70		0.001	-
	0903	08/11/88	0001	NR	N			7.79		0.001	-
MANGANESE	0800	08/11/88	0001	NR	N	MG/L	<	0.01		0.01	-
	0803	08/27/88	0001	NR	N		<	0.01		0.01	-
	0903	11/18/85	0001	NR	N			0.04		0.01	-
	0903	02/19/87	0001	NR	N			0.021		0.01	-
	0903	08/11/88	0001	NR	N			0.02		0.01	-
MERCURY	0800	08/11/88	0001	NR	N	MG/L	<	0.0002		0.0002	-
	0803	08/27/88	0001	NR	N		<	0.0002		0.0002	-
	0903	11/18/85	0001	NR	N		<	0.0002		0.0002	-
	0903	02/19/87	0001	NR	N		<	0.0002		0.0002	-
	0903	08/11/88	0001	NR	N		<	0.0002		0.0002	-
MOLYBDENUM	0800	08/11/88	0001	NR	N	MG/L	<	0.01		0.01	-

FORMATION OF COMPLETION CODE:
NR - NO RECOVERY OF DATA FOR CLASSIFYING

FLOW RELATIONSHIP CODE:
N - UNKNOWN

PARAMETER VALUE INDICATOR (PVI): < - LESS THAN DETECTION LIMIT

SAMPLE ID CODES:
0001 - FILTERED SAMPLE (.45 MICRONS)

OTHER PARAMETER VALUE FLAGS:
J - ESTIMATED VALUE

GROUNDWATER QUALITY DATA BY PARAMETER

Domestic wells

SITE: SPK01 SPOOK

11/18/85 TO 08/27/88

REPORT DATE: 07/29/94

PARAMETER NAME	LOCATION ID	LOG DATE	SAMPLE ID	FORM COMP	FLOW REL.	UNITS OF MEASURE	PVI	PARAMETER VALUE	FLAGS	DETECTION LIMIT	PARAMETER UNCERTAINTY
MOLYBDENUM	0803	08/27/88	0001	NR	N	MG/L	<	0.01		0.01	-
	0903	11/18/85	0001	NR	N			0.06		0.01	-
	0903	02/19/87	0001	NR	N		<	0.1		0.1	-
	0903	08/11/88	0001	NR	N		<	0.01		0.01	-
NET GROSS ALPHA *	0800	08/11/88	0001	NR	N	PCI/L		0.19		-	-
	0803	08/27/88	0001	NR	N			2.47		-	-
	0903	08/11/88	0001	NR	N			5.03		-	-
NICKEL	0800	08/11/88	0001	NR	N	MG/L	<	0.04		0.04	-
	0803	08/27/88	0001	NR	N		<	0.04		0.04	-
	0903	11/18/85	0001	NR	N			0.04		0.04	-
	0903	08/11/88	0001	NR	N		<	0.04		0.04	-
NITRATE	0800	08/11/88	0001	NR	N	MG/L	<	1.0		1.	-
	0803	08/27/88	0001	NR	N			3.7		1.	-
	0903	11/18/85	0001	NR	N		<	1.		1.	-
	0903	02/19/87	0001	NR	N			0.4	J	1.	-
	0903	08/11/88	0001	NR	N			1.3		1.	-
NITRITE	0903	11/18/85	0001	NR	N	MG/L	<	0.1		0.1	-
PH	0800	08/11/88	0001	NR	N	SU		8.10		-	-
	0803	08/27/88	0001	NR	N			8.39		-	-
	0903	11/18/85	0001	NR	N			7.85		-	-
	0903	02/19/87	0001	NR	N			7.80		-	-
	0903	08/11/88	0001	NR	N			7.58		-	-
PHOSPHATE	0800	08/11/88	0001	NR	N	MG/L	<	0.1		0.1	-
	0803	08/27/88	0001	NR	N		<	0.1		0.1	-
	0903	11/18/85	0001	NR	N			0.1		0.1	-
	0903	02/19/87	0001	NR	N		<	0.1		0.1	-
	0903	08/11/88	0001	NR	N		<	0.1		0.1	-
POLONIUM-210	0903	11/18/85	0001	NR	N	PCI/L		0.6		1.	0.6
POTASSIUM	0800	08/11/88	0001	NR	N	MG/L		2.0		0.01	-
	0803	08/27/88	0001	NR	N			1.6		0.01	-

* NET GROSS ALPHA (GROSS ALPHA - URANIUM) WITH 1 MG URANIUM = 686 PCI

FORMATION OF COMPLETION CODE:

NR - NO RECOVERY OF DATA FOR CLASSIFYING

FLOW RELATIONSHIP CODE:

N - UNKNOWN

PARAMETER VALUE INDICATOR (PVI): < - LESS THAN DETECTION LIMIT

SAMPLE ID CODES:

0001 - FILTERED SAMPLE (.45 MICRONS)

OTHER PARAMETER VALUE FLAGS:

J - ESTIMATED VALUE

GROUNDWATER QUALITY DATA BY PARAMETER

Domestic wells

SITE: SPK01 SPOOK

11/18/85 TO 08/27/88

REPORT DATE: 07/29/94

PARAMETER NAME	LOCATION ID	LOG DATE	SAMPLE ID	FORM COMP	FLOW REL.	UNITS OF MEASURE	PARAMETER PVI VALUE	FLAGS	DETECTION LIMIT	PARAMETER UNCERTAINTY
POTASSIUM	0903	11/18/85	0001	NR	N	MG/L	3.78		0.01	-
	0903	02/19/87	0001	NR	N		3.34		0.01	-
	0903	08/11/88	0001	NR	N		4.4		0.01	-
RADIUM-226	0903	11/18/85	0001	NR	N	PCI/L	1.		1.	0.4
RADIUM-226 + RADIUM-228	0903	11/18/85	0001	NR	N	PCI/L	1.30		-	-
RADIUM-228	0903	11/18/85	0001	NR	N	PCI/L	0.3		1.	0.9
SELENIUM	0800	08/11/88	0001	NR	N	MG/L	0.004	J	0.005	-
	0803	08/27/88	0001	NR	N		< 0.005		0.005	-
	0903	11/18/85	0001	NR	N		< 0.005		0.005	-
	0903	02/19/87	0001	NR	N		< 0.001	J	0.005	-
	0903	08/11/88	0001	NR	N		< 0.001	J	0.005	-
SILICA - SiO2	0800	08/11/88	0001	NR	N	MG/L	15.		2.	-
	0803	08/27/88	0001	NR	N		12.2		2.	-
	0903	11/18/85	0001	NR	N		4.		2.	-
	0903	02/19/87	0001	NR	N		17.		2.	-
	0903	08/11/88	0001	NR	N		16.		2.	-
SILVER	0800	08/11/88	0001	NR	N	MG/L	< 0.01		0.01	-
	0803	08/27/88	0001	NR	N		< 0.01		0.01	-
	0903	11/18/85	0001	NR	N		< 0.01		0.01	-
	0903	02/19/87	0001	NR	N		< 0.01		0.01	-
	0903	08/11/88	0001	NR	N		< 0.01		0.01	-
SODIUM	0800	08/11/88	0001	NR	N	MG/L	86.3		0.002	-
	0803	08/27/88	0001	NR	N		99.6		0.002	-
	0903	11/18/85	0001	NR	N		72.8		0.002	-
	0903	02/19/87	0001	NR	N		76.6		0.002	-
	0903	08/11/88	0001	NR	N		56.6		0.002	-
SPECIFIC CONDUCTANCE	0800	08/11/88	0001	NR	N	UMHO/CM	370.0		-	-
	0803	08/27/88	0001	NR	N		335.0		-	-
	0903	11/18/85	0001	NR	N		220.		-	-
	0903	02/19/87	0001	NR	N		295.		-	-
	0903	08/11/88	0001	NR	N		295.0		-	-
STRONTIUM	0800	08/11/88	0001	NR	N	MG/L	< 0.1		0.1	-

FORMATION OF COMPLETION CODE:

NR - NO RECOVERY OF DATA FOR CLASSIFYING

FLOW RELATIONSHIP CODE:

N - UNKNOWN

PARAMETER VALUE INDICATOR (PVI): < - LESS THAN DETECTION LIMIT

SAMPLE ID CODES:

0001 - FILTERED SAMPLE (.45 MICRONS)

OTHER PARAMETER VALUE FLAGS:

J - ESTIMATED VALUE

GROUNDWATER QUALITY DATA BY PARAMETER
Domestic wells
SITE: SPK01 SPOOK
11/18/85 TO 08/27/88
REPORT DATE: 07/29/94

PARAMETER NAME	LOCATION ID	LOG DATE	SAMPLE ID	FORM COMP	FLOW REL.	UNITS OF MEASURE	PVI	PARAMETER VALUE	FLAGS	DETECTION LIMIT	PARAMETER UNCERTAINTY
STRONTIUM	0803	08/27/88	0001	NR	N	MG/L	<	0.1		0.1	-
	0903	11/18/85	0001	NR	N		<	0.1		0.1	-
	0903	08/11/88	0001	NR	N			0.5		0.1	-
SULFATE	0800	08/11/88	0001	NR	N	MG/L		81.		0.1	-
	0803	08/27/88	0001	NR	N			80.		0.1	-
	0903	11/18/85	0001	NR	N			5.4		0.1	-
	0903	02/19/87	0001	NR	N			46.1		0.1	-
	0903	08/11/88	0001	NR	N			81.		0.1	-
SULFIDE	0800	08/11/88	0001	NR	N	MG/L	<	0.1		0.1	-
	0803	08/27/88	0001	NR	N		<	0.1		0.1	-
	0903	11/18/85	0001	NR	N		<	0.1		0.1	-
	0903	08/11/88	0001	NR	N		<	0.1		0.1	-
TEMPERATURE	0800	08/11/88	0001	NR	N	C - DEGREE		16.0		-	-
	0803	08/27/88	0001	NR	N			17.25		-	-
	0903	11/18/85	0001	NR	N			3.		-	-
	0903	02/19/87	0001	NR	N			8.0		-	-
	0903	08/11/88	0001	NR	N			12.0		-	-
THORIUM-230	0903	11/18/85	0001	NR	N	PCI/L		0.5		1.	0.4
TIN	0800	08/11/88	0001	NR	N	MG/L	<	0.005		0.005	-
	0803	08/27/88	0001	NR	N		<	0.005		0.005	-
	0903	11/18/85	0001	NR	N		<	0.005		0.005	-
	0903	08/11/88	0001	NR	N		<	0.005		0.005	-
TOTAL DISSOLVED SOLIDS	0800	08/11/88	0001	NR	N	MG/L		302.		10.	-
	0803	08/27/88	0001	NR	N			299.		10.	-
	0903	11/18/85	0001	NR	N			320.		10.	-
	0903	02/19/87	0001	NR	N			280.		10.	-
	0903	08/11/88	0001	NR	N			310.		10.	-
TOTAL ORGANIC CARBON	0903	11/18/85	0001	NR	N	MG/L		51.		1.	-
URANIUM	0800	08/11/88	0001	NR	N	MG/L		0.0022	J	0.003	-
	0803	08/27/88	0001	NR	N		<	0.0003	J	0.003	-
	0903	11/18/85	0001	NR	N		<	0.0003	J	0.003	-
	0903	02/19/87	0001	NR	N		<	0.0003	J	0.003	-

FORMATION OF COMPLETION CODE:
NR - NO RECOVERY OF DATA FOR CLASSIFYING

FLOW RELATIONSHIP CODE:
N - UNKNOWN

PARAMETER VALUE INDICATOR (PVI): < - LESS THAN DETECTION LIMIT

SAMPLE ID CODES:
0001 - FILTERED SAMPLE (.45 MICRONS)

OTHER PARAMETER VALUE FLAGS:
J - ESTIMATED VALUE

GROUNDWATER QUALITY DATA BY PARAMETER

Domestic wells

SITE: SPK01 SPOOK

11/18/85 TO 08/27/88

REPORT DATE: 07/29/94

PARAMETER NAME	LOCATION ID	LOG DATE	SAMPLE ID	FORM COMP	FLOW REL.	UNITS OF MEASURE	PARAMETER PVI VALUE	FLAGS	DETECTION LIMIT	PARAMETER UNCERTAINTY
URANIUM	0903	08/11/88	0001	NR	N	MG/L	0.0017	J	0.003	-
VANADIUM	0800	08/11/88	0001	NR	N	MG/L	< 0.01		0.01	-
	0803	08/27/88	0001	NR	N		< 0.01		0.01	-
	0903	11/18/85	0001	NR	N		0.19		0.01	-
	0903	08/11/88	0001	NR	N		< 0.01		0.01	-
ZINC	0800	08/11/88	0001	NR	N	MG/L	< 0.005		0.005	-
	0803	08/27/88	0001	NR	N		0.011		0.005	-
	0903	11/18/85	0001	NR	N		0.082		0.005	-
	0903	02/19/87	0001	NR	N		< 0.005		0.005	-
	0903	08/11/88	0001	NR	N		< 0.005		0.005	-

FORMATION OF COMPLETION CODE:

NR - NO RECOVERY OF DATA FOR CLASSIFYING

FLOW RELATIONSHIP CODE:

N - UNKNOWN

PARAMETER VALUE INDICATOR (PVI): < - LESS THAN DETECTION LIMIT

SAMPLE ID CODES:

0001 - FILTERED SAMPLE (.45 MICRONS)

OTHER PARAMETER VALUE FLAGS:

J - ESTIMATED VALUE

DATA FILE NAME: M:\DART\SPK01\GWQ10010.DAT

APPENDIX E

AQUIFER PUMPING TEST CALCULATION SET

CALCULATION COVER SHEET

CALC NO. 07-756-01-00 DISCIPLINE Hydrology

NO. OF SHEETS 28 ~~24~~

PROJECT: Site Characterization

SITE: Spook, Wyoming

FEATURE: Hydraulic Conductivity

SOURCES OF DATA:

Aquifer pumping tests
Mar 913 & 928

SOURCES OF FORMULAE & REFERENCES:

Kruseman, G.P., and De Ridder, N.A., 1970. Analysis and Evaluation of Pumping Test Data, International Institute for Land Reclamation and Improvement/ILRI, Wageningen, The Netherlands.

Lohman, S.W., 1972, Groundwater Hydraulics, USGS Professional Paper 70B.

Department of Interior, Bureau of Reclamation, 1977. Ground Water Manual, A Water Resources Technical Publication.

PRELIMINARY CALC. ☐ FINAL CALC. ☒ SUPERSEDES CALC. NO. _____

			<u>20 Hayden Exp 880</u>	<u>Wiler</u>	<u>07/94</u>		
REV. NO.	REVISION	CALCULATION BY	DATE	CHECKED BY	DATE	APPROVED BY	DATE

1

SPOOK UMTRA PROJECT SITE, WYOMING

AQUIFER PUMPING TESTS

=====

A. Purpose of calculation:

To calculate transmissivity (T), storativity (S), and hydraulic conductivity (K) in sediments of the upper sandstone unit (uppermost aquifer) of the Tertiary Wasatch Formation beneath the Spook processing site.

B. Methods and procedures:

Aquifer pumping tests were performed in two monitor wells (SPK01-0913 and -0928) at the Spook processing site during August 1988 (see attached figure for location). The monitor wells were pumped at a relatively constant rate for various periods of time. Water from the pumped wells was discharged into the Spook open pit mine. Water level measurements were recorded using an electric sounder during pumping and recovery phases of the tests.

C. Assumptions:

- Aquifer has seemingly infinite areal extent.
- Aquifer homogeneous, isotropic, and of uniform thickness over area influenced by pumping test.
- Potentiometric surface nearly horizontal.
- Aquifer pumped at a constant discharge rate.
- Pumped well penetrates entire aquifer and thus received water from entire thickness by horizontal flow.

D. Material properties:

The upper sandstone unit of the Tertiary Wasatch Formation beneath the Spook site consists of moderately cemented, fine- to coarse-grained sandstone containing silty shale lenses. It ranges in thickness from 70 to 140 feet. Ground water occurs under unconfined conditions at depths ranging from 20 to 120 feet below ground surface. The observed saturated thickness of the upper sandstone unit is approximately 20 feet in the vicinity of the site. This unit is underlain by an aquitard consisting of well consolidated silty shale.

E. Data sources:

Aquifer pumping test data were collected at the Spook

processing site during August 1988 (see attached sheets).

F. Calculations and analyses:

Drawdown and recovery versus time graphs, equations, and calculations for T, K, and S are shown on the attached sheets for each monitor well tested.

G. Results:

Results of the calculations are summarized at the end of each monitor well section and on the attached table.

DATE _____

SUBJECT _____

SHEET NO. _____

BY _____ CHKD. _____

JOB NO. _____

Table B.2.3 (Ea) Hydraulic Conductivities from Aquifer
 D.6.4 (Ea) Pumping Tests - Upper Sandstone Unit
 Spook Site - Converse County, Wyoming

Monitor Well No	Date of Test	Length of Test (hr)	Average Discharge (Q) (gpm)	Saturated Thickness (b) (ft)	Transmissivity (T) (ft ² /day)	Hydraulic Conductivity (K) (ft/day)
913	08-15-88	13.1	3.33	15	211.65 (2.29 cm ² /s)	14.11 (5.0 x 10 ⁻³ cm/s)
928	08-13-88	16.8	4.20	14	225.96 (2.43 cm ² /s)	16.14 (5.7 x 10 ⁻³ cm/s)

(See Groundwater Calculation Number 07-756-01-00)

UNITED STATES DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

DELAYED-YIELD

After E

D TYPE CURVES

ton(1963, fig. 1)

DATE

SUBJECT

SHEET NO.

BY

RWH

CHKD.

AQUIFER PUMPING TEST

JOB NO.

SITE: SPOOK, WY
LOCATION: MW-913
PUMP-TEST WELL

DISCHARGE MEASURED BY: calibrated bucket
DROWDOWN MEASURED BY: Electrical sounder
REFERENCE POINT: top of PVC casing

Date	Time	Time (min)	Depth to Water, ft	Drawdown, ft	Discharge, gpm	Remarks
15 Aug 88	0815	0	100.25			Pump started
		0.5	101.70	1.45	3.33	
	0816	1.0	102.04	1.79		
		1.5	102.38	2.13		
	0817	2.0	102.50	2.25		
		2.5	102.63	2.38		
		3.25	102.91	2.66		
	0819	4.0	102.99	2.74		
	0820	5.0	103.12	2.87		
		6.5	103.25	3.00		
		8.0	103.38	3.13		
	0825	10.0	103.47	3.22		
		15	103.53	3.28		
	0835	20	103.72	3.47		
		25	103.84	3.59		
	0845	30	103.99	3.74		
		40	104.27	4.02		
	0905	50	104.33	4.08		
		65	104.33	4.08		
	0935	80	104.43	4.18		
	0955	100	104.53	4.28		
	1135	200	104.98	4.73		
	1315	300	105.03	4.78		
	1455	400	105.47	5.22		
	1635	500	105.60	5.35		
	1815	600	—	—		
	1955	700	105.83	5.58		
	2123	788	—	—		
	2135	800	—	—		
		900	—	—		
		1000	—	—		

→ Generator stopped @ 2123 (= 788 min) → Pump off ...

~ 5.70 = estim

DATE _____

SUBJECT _____

SHEET NO. _____

BY RJH CHKD. _____

AQUIFER PUMPING TEST

JOB NO. _____

SITE: SPOOK, WY
 LOCATION: MW-913
 RECOVERY - TEST WELL

Date	Time	t min	t' min	t/t'	Depth to water, ft	Recovery Drawdown, ft	Remarks
15 AUG 88	2123	788	0	0.0		≈ 5.70	Recovery Pump off
	2126	791	3	263.7	102.40	2.15	3.55
	2127	792	4	198.0	102.17	1.92	3.78
	2128	793	5	158.6	102.00	1.75	3.95
	2129	794	6	132.3	101.88	1.63	4.07
	2130	795	7	113.6	101.80	1.55	4.15
	2131	796	8	99.5	101.75	1.50	4.20
	2133	798	10	79.8	101.68	1.43	4.27
	2138	803	15	53.5	101.60	1.35	4.35
	2143	808	20	40.4	101.53	1.28	4.42
	2148	813	25	32.5	101.47	1.22	4.43
	2153	818	30	27.3	101.43	1.18	4.52
	2203	828	40	20.7	101.37	1.12	4.55
	2213	838	50	16.8	101.32	1.07	4.63
	2228	853	65	13.1	101.24	0.99	4.71
	2243	868	80	10.9	101.18	0.93	4.77
	2303	888	100	8.9	101.13	0.88	4.82
	2330	915	127	7.2	101.08	0.83	4.87

DATE

BY RJH CHKD. _____

SUBJECT

ARTIFER PUMPING TEST

SHEET NO. _____

JOB NO. _____

SITE: SPOOK, WY

REFERENCE POINT: TOP OF PVC casing

LOCATION: OW-913-1

PUMP MW-913 - OBSERVATION WELL 1

V=18.15' S39W

Date	Time	Time min	Depth to water, ft	Drawdown, ft	Remarks
15 AUG 88	0815	0	100.81	—	→ Pump started
		0.5	—	—	
	0816	1.0	100.81	0	
		1.5	100.82	0.01	
	0817	2.0	100.82	0.01	
		2.5	100.84	0.03	
		3.25	100.85	0.04	
	0819	4.0	100.86	0.05	
	0820	5.0	100.90	0.09	
		6.5	100.93	0.12	
		8.0	100.96	0.15	
	0825	10.0	100.99	0.18	
		15	101.05	0.24	
	0835	20	101.10	0.29	
		25	101.15	0.34	
	0845	30	101.20	0.39	
		40	101.26	0.45	
	0905	50	101.32	0.51	
		65	101.38	0.57	
	0935	80	101.42	0.61	
	0955	100	101.53	0.72	
	1135	200	101.65	0.84	
	1315	300	101.73	0.92	
	1455	400	101.83	1.02	
	1635	500	101.93	1.12	
	1815	600	—	—	
	1955	700	102.09	1.28	
	2123	788	102.12	1.31	→ Pump off - generator stopped...
		800	—	—	
		900	—	—	
		1000	—	—

DATE _____

SUBJECT _____

SHEET NO. _____

BY RJH CHKD. _____

AQUIFER PUMPING TEST

JOB NO. _____

SITE: SPOOK, WY

LOCATION: OW-913-1

RECOVERY - OBSERVATION WELL

DATE	Time	t min	t' min	t/t'	Depth to water, ft	Residual Drawdown, ft	Remarks
15 AUG 88	2123	788	0	0.0	102.12	1.31	Pump off
	2124	789	1	789.0	102.10	1.29 0.02	
		790.5	2.5	316.2	102.70	1.29 0.02	
	2128	793	5	158.6	102.03	1.22 0.09	
		794.5	6.5	122.2	102.00	1.19 0.12	
	2131	796	8	99.5	101.96	1.15 0.16	
	2133	798	10	79.8	101.93	1.12 0.19	
	2138	803	15	53.5	101.88	1.07 0.24	
	2143	808	20	40.4	101.83	1.02 0.29	
	2148	813	25	32.5	101.79	0.98 0.33	
	2153	818	30	27.3	101.76	0.95 0.36	
	2203	828	40	20.7	101.70	0.89 0.42	
	2213	838	50	16.8	101.67	0.86 0.45	
	2228	853	65	13.1	101.63	0.82 0.49	
	2243	868	80	10.9	101.59	0.78 0.53	
	2303	888	100	8.9	101.56	0.75 0.56	
	2330	915	127	7.2	101.49	0.68 0.63	

t (min)

s
(R)

t (min)

time after pumping started

SP00K, WY
MW-9/13
Pumping

t (min)

t (min)

time after pumping stopped

SP00K, wt
 MW-9/3
 recovery

recovery
 $A - t$
 (ft)

DATE Jun 25 1998

SUBJECT

SHEET NO. _____

BY RJH CHKD. _____

AQUIFER PUMPING TESTS

JOB NO. _____

MW-913

$$Q = 3.33 \text{ gpm} \times 1440 \text{ min/d} = 4795 \text{ gpd} \times 1.337 \times 10^{-1} = 641 \text{ ft}^3/\text{d}$$

$$r_1 = 18.2 \text{ ft}; \quad r_1^2 = 331 \text{ ft}^2$$

$$b = 15 \text{ ft}$$

Aquifer unconfined

(Note: Pump 1.337 x 10⁻¹)

1) MW-913 Pumping (Theis)

$$T = \frac{Q}{4 \cdot \pi \cdot r} \cdot W(u) \quad K = \frac{7}{6}$$

$$A \square \quad T(\text{early}) = \frac{641}{4 \cdot \pi \cdot 2.0} \cdot 1 = 25.50 \text{ ft}^2/\text{d}$$

$$K = \frac{25.50}{15} = 1.70 \text{ ft/d}$$

$$A \square \quad T(130) = \frac{641}{4 \cdot \pi \cdot 2.4} \cdot 1 = 21.25 \text{ ft}^2/\text{d}$$

$$K = \frac{21.25}{15} = 1.42 \text{ ft/d}$$

Note: These K values are not reliable due to well inefficiency and partial penetration effects

2) MW-913 Recovery (Theis)

$$A \square \quad T = \frac{641}{4 \cdot \pi \cdot 0.44} \cdot 1 = 115.93 \text{ ft}^2/\text{d}$$

$$K = \frac{115.93 \text{ ft}^2/\text{d}}{15 \text{ ft}} = 7.73 \text{ ft/d}$$

DATE Jun 25 1988

SUBJECT

SHEET NO. _____

BY RJL CHKD. _____

AQUIFER PUMPING TESTS

JOB NO. _____

3) MW-9/3 Recovery (straight line)

$$K = \underline{10.18 \text{ ft/d}} \text{ (see calculations on graph...)}$$

4) OW-9/3-1 Pumping (Theis)

$$B \square \quad T = \frac{641}{4 \cdot \pi \cdot 0.24} \cdot 1 = 212.54 \text{ ft}^2/\text{d}$$

$$K = \frac{212.54}{15} = \underline{14.17 \text{ ft/d}}$$

5) OW-9/3-1

$$S = \frac{4Ttu}{r^2}$$

$$S = \frac{4 \cdot 212.54 \cdot 0.025 \cdot 0.1}{331} = 6.4 \times 10^{-3} \text{ (early)}$$

(no indication of delayed yield phenomenon for S_y (1st)).

6) OW-9/3-1 Recovery (Theis)

$$T = \frac{641}{4 \cdot \pi \cdot 0.10} \cdot 1 = 203.38 \text{ ft}^2/\text{d}$$

$$K = \frac{203.38}{15} = \underline{13.56 \text{ ft/d}}$$

7) OW-9/3-1 Recovery (straight line)

$$K = \underline{19.59 \text{ ft/d}} \text{ (see calculations on graph...)}$$

DATE

Sun 25 Sep 08

SUBJECT

SHEET NO.

BY

RUH

CHKD.

AQUIFER PUMPING TESTS

JOB NO.

MW-913 (Cont.)

SUMMARY — K

MW-913	Recovery (Theis) *	7.73	ft/d
"	Recovery (St. Line)	10.18	"
OW-913-1	Pumping (Theis)	14.17	"
"	Recovery (Theis) *	18.89	"
"	Recovery (St. Line)	19.59	"

K average $\rightarrow$ 14.11 ~~14.11~~ ft/d(Range $\approx$ 8-20 ft/d)

DATE _____

SUBJECT _____

SHEET NO. _____

BY RJH CHKD. _____

ARTISER PUMPING TEST

JOB NO. _____

SITE: SPOOK, WY

LOCATION: MW-928

PUMP-TEST WELL

DISCHARGE MEASURED BY: Calibrated bucketDRAWDOWN MEASURED BY: Electrical sounderREFERENCE POINT: TOP OF PVC casing

DATE	TIME	TIME min	DEPTH to water, ft	DRAWDOWN, ft	DISCHARGE, gpm	REMARKS
13 AUG 88	1521	0	24.30			Pump started
		0.5	26.90	2.60	4.2	
		1.0	27.00	2.70		
		1.5				
		2.0	27.30	3.00		
		2.5	27.50	3.20		
		3.25	27.60	3.30		
		4.0	27.70	3.40		
	1526	5.0	27.80	3.50		
		6.5	27.90	3.60		
		8.0	27.95	3.65		
	1531	10.0	28.10	3.80		
		15	28.25	3.95		
	1541	20	28.30	4.00		
	1546	25	28.35	4.05		
	1551	30	28.40	4.10		
	1601	40	28.40	4.10		
		50	28.50	4.20		
		65	28.55	4.25		
	1641	80	28.60	4.30		
	1701	100	28.65	4.35		
	1841	200	28.72	4.42		
	2021	300	28.73	4.43		
	2201	400	28.76	4.46		
	2341	500	28.81	4.51		
14 AUG 88	0121	600	28.82	4.52		
	0301	700	28.86	4.56		
	0441	800	28.87	4.57		
	0621	900	28.96	4.66		
	0801	1000	29.04	4.74		Pump off @ 0810 = 1009 min

DATE _____

SUBJECT _____

SHEET NO. _____

BY RLT CHKD. _____

AQUIFER PUMPING TEST

JOB NO. _____

SITE: SPOOK, WY

LOCATION: MW-928

RECOVERY-TEST WELL

Date	Time	t min	t' min	t/t'	Depth to water, ft	Residual Drawdown, ft	Remarks
14 AUG 08	0800	1000	0	0.0	29.04	4.74	calc recovery pump off
	0811	1010	1.0	1010.0	25.84	1.54	3.20
		1010.5	1.5	673.7	25.52	1.22	3.52
		1011	2.0	505.5	25.40	1.60	3.64
		1011.5	2.5	404.6	25.34	1.04	3.70
		1012.25	3.25	311.5	25.28	0.98	3.76
		1013	4.0	253.3	25.24	0.94	3.80
	0815	1014	5.0	202.8	25.19	0.89	3.85
		1015.5	6.5	156.2	25.08	0.78	3.96
		1017	8.0	127.1	25.00	0.70	4.04
	0820	1019	10.0	101.9	24.92	0.62	4.12
		1024	15	68.3	24.83	0.53	4.21
	0830	1029	20	51.5	24.77	0.47	4.27
		1034	25	41.4	24.73	0.43	4.31
	0840	1039	30	34.6	24.71	0.41	4.33
	0850	1049	40	26.2	24.69	0.39	4.35
	0900	1059	50	21.2	24.67	0.37	4.37
		1069	65	16.5	24.66	0.36	4.38
	0930	1089	80	13.6	24.64	0.34	4.40
	0950	1109	100	11.1	24.61	0.31	4.43
	1130	1209	200	6.0	24.58	0.28	4.46

DATE _____

SUBJECT _____

SHEET NO. _____

BY RJH CHKD. _____

ARVIFER PUMPING TEST

JOB NO. _____

SITE: SPOOK, WYREFERENCE POINT: TOP OF PVC
CANISTERLOCATION: OW-928-1PUMP MW-928 — OBSERVATION WELL 1 R=20.0' S30W

Date	Time	Time, min	Depth to water, ft	Drawdown, ft	Remarks
13 Aug 88	1521	0	25.00	—	→ Pump started
		0.5	—	—	
		1.0	25.40	0.40	
		1.5	—	—	
		2.0	25.50	0.50	
		2.5	—	—	
		3.25	25.60	0.60	
		4.0	25.62	0.62	
	1526	5.0	25.67	0.67	
		6.5	25.68	0.68	
		8.0	25.70	0.70	
	1531	10.0	25.80	0.80	
		15	25.88	0.88	
	1541	20	25.90	0.90	
	1546	25	25.93	0.93	
	1551	30	26.00	1.00	
	1601	40	26.05	1.05	
		50	26.05	1.05	
		65	26.06	1.06	
	1641	80	26.08	1.08	
	1701	100	26.12	1.12	
	1841	200	26.20	1.20	
	2021	300	26.25	1.25	
	2201	400	26.28	1.28	
	2341	500	26.28	1.28	
14 Aug 88	0121	600	26.30	1.30	
	0301	700	26.33	1.33	
	0441	800	26.35	1.35	
	0621	900	26.40	1.40	
	0801	1000	26.45	1.45	Pump off @ 0810 = 1009 min

DATE

SUBJECT

SHEET NO.

BY

R/H

CHKD.

AQUIFER PUMPING TEST

JOB NO.

SITE: SPOOK, WY

LOCATION: OW-328-1

RECOVERY - OBSERVATION WELL 1

DATE	Time	t, min	t', min	t/ t'	Depth to water, ft	Peridyn Mondown, ft	Remarks
14 AUG 88	0810	1009	0	0.0	26.45	1.45	
	0811	1010	1.0	1010.0	—	—	—
		1010.5	1.5	673.7	—	—	—
		1011	2.0	505.5	25.93	0.93	0.92
		1011.5	2.5	404.6	—	—	—
		1012.25	3.25	311.5	25.81	0.81	0.64
		1013	4.0	253.3	25.73	0.73	0.72
	0815	1014	5.0	202.8	25.63	0.63	0.82
		1015.5	6.5	156.2	25.61	0.61	0.94
		1017	8.0	127.1	25.56	0.56	0.89
	0820	1019	10.0	101.9	25.50	0.50	0.95
		1024	15	68.3	25.46	0.46	0.99
	0830	1029	20	51.5	25.40	0.40	1.05
		1034	25	41.4	25.36	0.36	1.09
	0840	1039	30	34.6	25.34	0.34	1.11
	0850	1049	40	26.2	25.32	0.32	1.13
	0900	1059	50	21.2	25.30	0.30	1.15
		1074	65	16.5	25.27	0.27	1.18
	0930	1089	80	13.6	25.26	0.26	1.19
	0950	1109	100	11.1	25.23	0.23	1.22
	1130	1209	200	6.0	25.18	0.18	1.27

DATE _____

SUBJECT _____

SHEET NO. _____

BY RLH CHKD. _____

AQUIFER PUMPING TEST

JOB NO. _____

SITE: SPOOK, WY

REFERENCE POINT: TOP OF PVC casing

LOCATION: OW-928-2

PUMP MW-928 - OBSERVATION WELL 2 r = 81.0' NQOW

Date	Time	Time, min	Depth to water, ft	Diameter, ft	Remarks
BAUGER	1521	0	25.00		→ Pump started.
		0.5	—	—	
		1.0	—	—	
		1.5	25.00	0.00	
		2.0	—	—	
		2.5	25.00	0.00	
		3.25	—	—	
		4.0	—	—	
	1526	5.0	—	—	
		6.5	—	—	
		8.0	25.20	0.20	
	1531	10.0	—	—	
		15	25.20	0.20	
	1541	20	25.25	0.25	
	1546	25	25.25	0.25	
	1551	30	25.30	0.30	
	1601	40	25.30	0.30	
		50	—	—	
		65	—	—	
	1641	80	25.35	0.35	
	1701	100	25.38	0.38	
	1841	200	25.45	0.45	
	2021	300	25.47	0.47	
	2201	400	25.50	0.50	
	2341	500	25.52	0.52	
	0121	600	25.57	0.57	
	0301	700	25.55	0.55	
	0441	800	25.55	0.55	
	0621	900	25.58	0.58	
	0801	1000	25.60	0.60

DATE

SUBJECT

SHEET NO.

BY

RUL

CHKD.

ARTIFER PUMPING TEST

JOB NO.

SITE: SPOOK, WY

LOCATION: OW-928-2

RECOVERY - OBSERVATION WELL 2

Date	Time	t, min	t', min	t/ t'	Depth to water, ft	Residual Drawdown, ft	Remarks
14 AUG 88	0810	1009	0	0.0	25.60	0.60	
	0811	1010	1.0	1010.0	25.57	0.57	0.03
		1010.5	1.5	673.7	—	—	
		1011	2.0	505.5	—	—	
		1011.5	2.5	409.6	—	—	
		1012.25	3.25	311.5	—	—	
		1013	4.0	253.3	25.50	0.50	0.10
	0815	1014	5.0	202.8	—	—	
		1015.5	6.5	156.2	—	—	
		1017	8.0	127.1	25.45	0.45	0.15
	0820	1019	10.0	101.9	25.40	0.40	0.20
		1024	15	68.3	25.36	0.36	0.24
	0830	1029	20	51.5	25.33	0.33	0.27
		1034	25	41.4	25.31	0.31	0.29
	0840	1039	30	34.6	25.30	0.30	0.30
	0850	1049	40	26.2	25.29	0.29	0.31
	0900	1059	50	21.2	25.27	0.27	0.33
		1074	65	16.5	25.25	0.25	0.35
	0930	1089	80	13.6	25.24	0.24	0.36
	0950	1109	100	11.1	25.22	0.22	0.38
	1130	1209	200	6.0	25.19	0.19	0.41

$$t(m)$$

$$f(w, v)$$

time after pumping started.

520K, NW
NW-928
P12012129

$t' \text{ (min)}$

$t' \text{ (min)}$

time after pumping stopped

SPOOK, WY
MW-928
Dietzgen

Ratio t/t'

57006, 47

DATE Sun 25 Sep 88

SUBJECT

SHEET NO. _____

BY RJH CHKD. _____

AQUIFER PUMPING TESTS

JOB NO. _____

MW-928

$$Q = 4.2 \text{ gpm} \times 1440 \text{ m/d} = 6048 \text{ gpd} \times 1.337 \times 10^{-1} = 808.6 \text{ ft}^3/\text{d}$$

$$r_1 = 20 \text{ ft}; r_1^2 = 400 \text{ ft}^2; r_2 = 81 \text{ ft}; r_2^2 = 6561 \text{ ft}^2$$

$$b = 14 \text{ ft}$$

Aquifer = unconfined

1) MW-928 Pumping (Theis)

$$T = \frac{Q}{4\pi r} \cdot W(u \dots)$$

$$K = T/b$$

$$A \square T(\text{early}) = \frac{808.6 \text{ ft}^3/\text{d}}{4 \cdot \pi \cdot 1.8 \text{ ft}} \cdot 1 = 35.75 \text{ ft}^2/\text{d}$$

$$K = \frac{35.75}{14} = \underline{2.55 \text{ ft/d}}$$

Note: these K values not reliable due to well inefficiency & partial penetration effects.

$$A \square T(\text{late}) = \text{same as above} = \underline{2.55 \text{ ft/d}} = K$$

2) MW-928 Recovery (Theis)

$$A \square T = \frac{808.6}{4 \cdot \pi \cdot 3.0} \cdot 10 = 169.33 \text{ ft}^2/\text{d}$$

$$K = \frac{169.33}{14} = \underline{12.10 \text{ ft/d}}$$

3) MW-928 Recovery (straight line)

$$K = \underline{15.13 \text{ ft/d}} \quad (\text{see calculations on graph...})$$

DATE Jun 25 Sep 08

SUBJECT

SHEET NO. _____

BY RJH CHKD. _____

AQUIFER PUMPING TESTS

JOB NO. _____

MW-928 (cont.)

4) OW-928-1 Pumping (Theis)

$$B \square T(\text{early}) = \frac{808.6}{4 \cdot \pi \cdot 0.25} \cdot 1 = 257.39 \text{ ft}^2/\text{d}$$

$$K = \frac{257.39}{14} = \underline{18.38 \text{ ft/d}}$$

$$B \square T(\text{late}) = \frac{808.6}{4 \cdot \pi \cdot 0.33} \cdot 1 = 194.99 \text{ ft}^2/\text{d}$$

$$K = \frac{194.99}{14} = \underline{13.92 \text{ ft/d}}$$

5) OW-928-1

$$S = \frac{4T\epsilon U}{r^2}$$

$$B \square S(\text{early}) = \frac{4 \cdot 257.39 \cdot 0.01 \cdot 0.01}{400} = \underline{2.57 \times 10^{-4}}$$

$$B \square S_y(\text{late}) = \frac{4 \cdot 194.99 \cdot 0.052 \cdot 0.1}{400} = \underline{0.01}$$

$$\eta = \frac{S + S_y}{S} > 6.5 = \frac{2.57 \times 10^{-4} + 0.01}{2.57 \times 10^{-4}} = 39.9$$

6) OW-928-1 Recovery (Straight line)

$$K = \underline{21.18 \text{ ft/d}} \quad (\text{see calculations on graph...})$$

DATE Jun 25 Sep 08

SUBJECT

SHEET NO. _____

BY RSU CHKD. _____

AQUIFER PUMPING TESTS

JOB NO. _____

MW-928 (cont)7) OW-928-2 Pumping (Theis)

$$C_1 \square T(early) = \frac{008.6}{4 \cdot \pi \cdot 0.28} \cdot 1 = 229.81 \text{ ft}^2/\text{d}$$

$$K = \frac{229.81}{14} = \underline{16.41 \text{ ft/d}}$$

$$C_1 \square T(late) = \frac{008.6}{4 \cdot \pi \cdot 0.22} \cdot 1 = 292.48 \text{ ft}^2/\text{d}$$

$$K = \frac{292.48}{14} = \underline{20.89 \text{ ft/d}}$$

8) OW-928-2

$$C_1 \square S(early) = \frac{4 \cdot 229.81 \cdot 0.044 \cdot 0.1}{6561} = 6.16 \times 10^{-4}$$

$$C_1 \square S_l(late) = \frac{4 \cdot 292.48 \cdot 0.20 \cdot 0.1}{6561} = 0.004$$

$$\eta = \frac{S + S_l}{S} > 6.5 = 7.49$$

SUMMARY — K

MW-928	Recovery (Theis)	12.10	ft/d
"	Recovery (St. Line)	15.13	"
OW-928-1	Pumping (Theis)	16.15	"
"	Recovery (St. Line)	<u>21.18</u>	"

K average: 16.14 ft/d

(Range = 12-21 ft/d)

CALCULATION COVER SHEET

CALC NO. 07-756-01-00 DISCIPLINE Hydrology NO. OF SHEETS 24

PROJECT: Site Characterization

SITE: Spook, Wyoming

FEATURE: Hydraulic Conductivity

SOURCES OF DATA:
Aquifer pumping tests

SOURCES OF FORMULAE & REFERENCES:

Kruseman, G. P., and De Ridder, N. A., 1970. Analysis and Evaluation of Pumping Test Data, International Institute for Land Reclamation and Improvement/ILRI, Wageningen, The Netherlands.
Lohman, S. W., 1972, Groundwater Hydraulics, USGS Professional Paper 708.
Department of Interior, Bureau of Reclamation, 1977. Ground Water Manual, A Water Resources Technical Publication.

PRELIMINARY CALC. ☐ FINAL CALC. ☒ SUPERSEDES CALC. NO. _____

		<u>Elkaydenburg</u>	<u>Spook</u>	<u>Julian</u>	<u>07/94</u>		
REV. NO.	REVISION	CALCULATION BY	DATE	CHECKED BY	DATE	APPROVED BY	DATE

SPK - AQUIFER PUMPING TESTS

A summary sheet will be inserted stating:

- A. Purpose of calculation:
- B. Methods & procedures:
- C. Assumptions:
- D. Material properties:
- E. Data source:
- F. Calculations & analysis:
- G. Results:

UNITED STATES DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

DELAYED-YIE

After B

D TYPE CURVES

ton(1963, fig. 1)

DATE

SUBJECT

SHEET NO

BY

CHKD.

ARTISER PUMPING TEST

JOB NO.

SITE: SPOOK, WY

REFERENCE POINT: TOP of PVC casing

LOCATION: OW-913-1

PUMP MW-913 - OBSERVATION WELL 1

R = 18.15' S39W

Date	Time	Time min	Depth to water ft	Drawdown ft	Remarks
15 AUG 88	0815	0	100.81		→ pump started
		0.5			
	0816	1.0	100.81	0	
		1.5	100.82	0.01 ✓	
	0817	2.0	100.82	0.01 ✓	
		2.5	100.84	0.03 ✓	
		3.25	100.85	0.04 ✓	
	0819	4.0	100.86	0.05 ✓	
	0820	5.0	100.90	0.09 ✓	
		6.5	100.93	0.12 ✓	
		8.0	100.96	0.15 ✓	
	0825	10.0	100.99	0.18 ✓	
		15	101.05	0.24 ✓	
	0835	20	101.10	0.29 ✓	
		25	101.15	0.34 ✓	
	0845	30	101.20	0.39 ✓	
		40	101.26	0.45 ✓	
	0905	50	101.32	0.51 ✓	
		65	101.38	0.57 ✓	
	0935	80	101.42	0.61 ✓	
	0955	100	101.53	0.72 ✓	
	1135	200	101.65	0.84 ✓	
	1315	300	101.73	0.92 ✓	
	1455	400	101.83	1.02 ✓	
	1635	500	101.93	1.12 ✓	
	1815	600			
	1955	700	102.09	1.28	
	2123	800	102.12	1.31	→ pump off - generator stopped...
		900			
		1000

DATE

SUBJECT

SHEET NO.

BY

BLL

CHKD.

AQUIFER PUMPING TEST

JOB NO.

SITE: SPOOK, WY

LOCATION: MW-913

PUMP-TEST WELL

DISCHARGE MEASURED BY: calibrated bucket
DROWDOWN MEASURED BY: electrical sounder
REFERENCE POINT: top of PVC casing

Date	Time	Time, min	Depth to Water, ft	Drowdown, ft	Discharge, gpm	Remarks
15 Aug 88	0815	0	100.25			Pump started
		0.5	101.70	1.45	3.33	
	0816	1.0	102.04	1.79		
		1.5	102.38	2.13		
	0817	2.0	102.50	2.25		
		2.5	102.63	2.38		
		3.25	102.91	2.66		
	0819	4.0	102.99	2.74		
	0820	5.0	103.12	2.87		
		6.5	103.25	3.00		
		8.0	103.38	3.13		
	0825	10.0	103.47	3.22		
		15	103.53	3.28		
	0835	20	103.72	3.47		
		25	103.84	3.59		
	0845	30	103.99	3.74		
		40	104.27	4.02		
	0905	50	104.33	4.08		
		65	104.33	4.08		
	0935	80	104.43	4.18		
	0955	100	104.53	4.28		
	1135	200	104.98	4.73		
	1315	300	105.03	4.78		
	1455	400	105.47	5.22		
	1635	500	105.60	5.35		
	1815	600	—	—		
	1955	700	105.83	5.58		
	2123	788	—	—		
	2135	800	—	—		
		900	—	—		
		1000	—	—		

N 5.70 = Estim
 Generator stopped @ 2123 (= 788 min)
 → Pump off...

DATE

SUBJECT

SHEET NO.

BY

CHKD.

AQUIFER PUMPING TEST

JOB NO.

SITE: SPOOK, WY

LOCATION: MW-913

RECOVERY-TEST WELL

Date	Time	t min	t' min	t/t'	Depth to water, ft	Residual Drawdown, ft	Remarks
15 Aug 88	2123	788	0	0.0		≈ 5.70	Pump off
	2126	791	3	263.7 ✓	102.40	2.15 3.55	
	2127	792	4	198.0 ✓	102.17	1.92 3.78	
	2128	793	5	158.6 ✓	102.00	1.75 3.95	
	2129	794	6	132.3 ✓	101.88	1.63 4.07	
	2130	795	7	113.6 ✓	101.80	1.55 4.15	
	2131	796	8	99.5 ✓	101.75	1.50 4.20	
	2133	798	10	79.8 ✓	101.68	1.43 4.27	
	2138	803	15	53.5 ✓	101.60	1.35 4.35	
	2143	808	20	40.4 ✓	101.53	1.28 4.42	
	2148	813	25	32.5 ✓	101.47	1.22 4.48	
	2153	818	30	27.3 ✓	101.43	1.18 4.52	
	2203	828	40	20.7 ✓	101.37	1.12 4.58	
	2213	838	50	16.8 ✓	101.32	1.07 4.63	
	2228	853	65	13.1 ✓	101.24	0.99 4.71	
	2243	868	80	10.9 ✓	101.18	0.93 4.77	
	2303	888	100	8.9 ✓	101.13	0.88 4.82	
	2330	915	127	7.2 ✓	101.08	0.83 4.87	

DATE _____

SUBJECT _____

SHEET NO. _____

BY RJL CHKD. _____

AQUIFER PUMPING TEST

JOB NO. _____

SITE: SPOOK, WY

LOCATION: OW-913-1

RECOVERY - OBSERVATION WELL

DATE	Time	t min	t' min	t/t'	Depth to water, ft	Residual Drawdown, ft	Remarks
15 AUG 88	2123	788	0	0.0	102.12	1.31	Pump off
	2124	789	1	789.0	102.10	1.29 0.02	
		790.5	2.5	316.2	102.70	1.29 0.02	
	2128	793	5	158.6	102.03	1.22 0.09	
		794.5	6.5	122.2	102.00	1.19 0.12	
	2131	796	8	99.5	101.96	1.15 0.16	
	2133	798	10	79.8	101.93	1.12 0.19	
	2138	803	15	53.5	101.88	1.07 0.24	
	2143	808	20	40.4	101.83	1.02 0.29	
	2148	813	25	32.5	101.79	0.98 0.33	
	2153	818	30	27.3	101.76	0.95 0.36	
	2203	828	40	20.7	101.70	0.89 0.42	
	2213	838	50	16.8	101.67	0.86 0.45	
	2228	853	65	13.1	101.63	0.82 0.49	
	2243	868	80	10.9	101.59	0.78 0.53	
	2303	888	100	8.9	101.56	0.75 0.54	
	2330	915	127	7.2	101.49	0.68 0.63

DATE Jun 25 Sep 88

SUBJECT

SHEET NO. _____

BY RJH CHKD. _____

AQUIFER PUMPING TESTS

JOB NO. _____

3) MW-913 Recovery (straight line)

$$K = \underline{10.18 \text{ ft/d}} \text{ (see calculations on graph...)}$$

4) OW-913-1 Pumping (Theis)

$$B \square \quad T = \frac{641}{4 \cdot \pi \cdot 0.24} \cdot 1 = 212.54 \text{ ft}^2/\text{d}$$

$$K = \frac{212.54}{15} = \underline{14.17 \text{ ft/d}} \checkmark$$

5) OW-913-1

$$S = \frac{4Ttu}{r^2}$$

$$S = \frac{4 \cdot 212.54 \cdot 0.025 \cdot 0.1}{331} = 6.4 \times 10^{-3} \checkmark \text{ (early)}$$

(no indication of delayed yield phenomenon for S_y (1st)).

6) OW-913-1 Recovery (Theis)

$$T = \frac{641}{4 \cdot \pi \cdot 0.18} \cdot 1 = 283.38 \text{ ft}^2/\text{d}$$

$$K = \frac{283.38}{15} = \underline{18.89 \text{ ft/d}} \checkmark$$

7) OW-913-1 Recovery (straight line)

$$K = \underline{19.59 \text{ ft/d}} \text{ (see calculations on graph...)}$$

$t(\text{min})$

$t(\text{min})$

time after pumping started

SP00E, WY
MW-913
Pumping

500K, 0.12

t (min)

t (min)

time after pumping stopped

Spot, wt
MW-913
Brown

DATE Jun 25 1988

SUBJECT

SHEET NO. _____

BY RJH CHKD. _____

AQUIFER PUMPING TESTS

JOB NO. _____

MW-913

$$Q = 3.33 \text{ gpm} \times 1440 \text{ min/d} = 4795 \text{ gpd} \times 1.337 \times 10^{-1} = 641 \text{ ft}^3/\text{d}$$

$$r_1 = 18.2 \text{ ft}; \quad r_1^2 = 331 \text{ ft}^2$$

$$b = 15 \text{ ft}$$

Aquifer unconfined

1) MW-913 Pumping (Theis)

$$T = \frac{Q}{4 \cdot \pi \cdot s} \cdot W(u) \quad K = \frac{T}{b}$$

$$A \square \quad T(\text{early}) = \frac{641}{4 \cdot \pi \cdot 2.0} \cdot 1 = 25.50 \text{ ft}^2/\text{d}$$

$$K = \frac{25.50}{15} = 1.70 \text{ ft/d}$$

$$A_1 \square \quad T(\text{late}) = \frac{641}{4 \cdot \pi \cdot 2.4} \cdot 1 = 21.25 \text{ ft}^2/\text{d}$$

$$K = \frac{21.25}{15} = 1.42 \text{ ft/d}$$

Note: These K values not reliable due to well inefficiency and partial penetration effects.

1.526

2) MW-913 Recovery (Theis)

$$A \square \quad T = \frac{641}{4 \cdot \pi \cdot 0.44} \cdot 1 = 115.93 \text{ ft}^2/\text{d}$$

$$K = \frac{115.93 \text{ ft}^2/\text{d}}{15 \text{ ft}} = 7.73 \text{ ft/d}$$

DATE

Sun 25 Sep 88

SUBJECT

BY

RWH

CHKD.

AQUIFER PUMPING TESTS

SHEET NO.

JOB NO.

MW-913 (Cont)

SUMMARY — K

MW-913	Recovery (Theis) *	7.73	ft/d
"	Recovery (Steline)	10.18	"
OW-913-1	Pumping (Theis)	14.17	"
"	Recovery (Theis) *	18.89	"
"	Recovery (Steline)	19.59	"

K Average → 14.11 ~~14.11~~ ft/d

(Range ≈ 8-20 ft/d)

Ratio t/t'

928-9

57006, wt

$t' \text{ (min)}$

$t' \text{ (min)}$

time after pumping stopped

SP00K, WY
MW-928
Do, min. in

DATE _____

SUBJECT _____

SHEET NO. _____

BY RJH CHKD. _____

ARTISER PUMPING TEST

JOB NO. _____

SITE: SPOOK, WY

LOCATION: MW-928

PUMP-TEST WELL

DISCHARGE MEASURED BY: Calibrate bucket

DRAWDOWN MEASURED BY: Electrical sounder

REFERENCE POINT: TOP OF PVC casing

DATE	Time	Time, min	Depth to water, ft	Drawdown, ft	Discharge, gpm	Remarks
13 AUG 88	1521	0	24.30			→ Pump started
		0.5	24.90	2.60	4.2	
		1.0	27.00	2.70		
		1.5	—	—		
		2.0	27.30	3.00		
		2.5	27.50	3.20		
		3.25	27.60	3.30		
		4.0	27.70	3.40		
	1526	5.0	27.80	3.50		
		6.5	27.90	3.60		
		8.0	27.95	3.65		
	1531	10.0	28.10	3.80		
		15	28.25	3.95		
	1541	20	28.30	4.00		
	1546	25	28.35	4.05		
	1551	30	28.40	4.10		
	1601	40	28.40	4.10		
		50	28.50	4.20		
		65	28.55	4.25		
	1641	80	28.60	4.30		
14 AUG 88	1701	100	28.65	4.35		→ Pump off @ 0810 = 1009 min
	1841	200	28.72	4.42		
	2021	300	28.73	4.43		
	2201	400	28.76	4.46		
	2341	500	28.81	4.51		
	0121	600	28.82	4.52		
	0301	700	28.86	4.56		
	0441	800	28.87	4.57		✓
	0621	900	28.96	4.66		
	0801	1000	29.04	4.74

DATE

SUBJECT

SHEET NO.

BY

CHKD.

JOB NO.

R/L

AQUIFER PUMPING TEST

SITE: SPOOK, WY

LOCATION: MW-928

RECOVERY-TEST WELL

Date	Time	t min	t' min	t/t'	Depth to water, ft	Residual Drawdown, ft	Remarks
14/05/08	0800	1009	0	0.0	29.04	4.74	Calc. s_{w1} ; no pump off
	0811	1010	1.0	1010.0	25.84	1.54	3.20
		1010.5	1.5	673.7	25.52	1.22	3.52
		1011	2.0	505.5	25.40	1.10	3.64
		1011.5	2.5	404.6	25.34	1.04	3.70
		1012.25	3.25	311.5	25.28	0.98	3.76
		1013	4.0	253.3	25.24	0.94	3.80
	0815	1014	5.0	202.8	25.19	0.89	3.85
		1015.5	6.5	156.2	25.08	0.78	3.96
		1017	8.0	127.1	25.00	0.70	4.04
	0820	1019	10.0	101.9	24.92	0.62	4.12
		1024	15	68.3	24.83	0.53	4.21
	0830	1029	20	51.5	24.77	0.47	4.27
		1034	25	41.4	24.73	0.43	4.31
	0840	1039	30	34.6	24.71	0.41	4.33
	0850	1049	40	26.2	24.69	0.39	4.35
	0900	1059	50	21.2	24.67	0.37	4.37
		1089	65	16.5	24.66	0.36	4.38
	0930	1089	80	13.6	24.64	0.34	4.40
	0950	1109	100	11.1	24.61	0.31	4.43
	1130	1209	200	6.0	24.58	0.28	4.46
				✓		✓	✓

DATE _____

SUBJECT _____

SHEET NO. _____

BY RJH CHKD. _____

ARTIFER PUMPING TEST

JOB NO. _____

SITE: SPOOK, WY

REFERENCE POINT: TOP OF PVC
Casing

LOCATION: CW-928-1

PUMP MW-928 — OBSERVATION WELL 1 R=20.0' S30W

Date	Time	Time, min	Depth to water, ft	Drawdown, ft	Remarks
13 Aug 88	1521	0	25.00	—	→ Pump started
		0.5	—	—	
		1.0	25.40	0.40	
		1.5	—	—	
		2.0	25.50	0.50	
		2.5	—	—	
		3.25	25.60	0.60	
		4.0	25.62	0.62	
	1526	5.0	25.67	0.67	
		6.5	25.68	0.68	
		8.0	25.70	0.70	
	1531	10.0	25.80	0.80	
		15	25.88	0.88	
	1541	20	25.90	0.90	
	1546	25	25.93	0.93	
	1551	30	26.00	1.00	
	1601	40	26.05	1.05	
		50	26.05	1.05	
		65	26.06	1.06	
	1641	80	26.08	1.08	
	1701	100	26.12	1.12	
	1841	200	26.20	1.20	
	2021	300	26.25	1.25	
	2201	400	26.28	1.28	
	2341	500	26.28	1.28	
14 Aug 88	0121	600	26.30	1.30	
	0301	700	26.33	1.33	
	0441	800	26.35	1.35	
	0621	900	26.40	1.40	
	0801	1000	26.45	1.45	Pump off @ 0810 = 1009 min

DATE: 2/14 BY: CHKD SUBJECT: ADULTER PUMPING TEST SHEET NO. JOB NO.

SITE: SPOOK, WY
LOCATION: OW-928-1

RECOVERY - OBSERVATION WELL 1

DATE	TIME	T, min	T, min	T, min	DEPTH, ft	REMARKS
------	------	--------	--------	--------	-----------	---------

0810	0810	1009	0	0.0	26.45	1.45
0811	1010	1.0	1010.0	—	—	—
	1010.5	1.5	673.7	—	—	—
	1011	2.0	505.5	25.93	0.93	0.52
	1011.5	2.5	404.6	—	—	—
	1012.25	3.25	311.5	25.81	0.81	0.64
	1013	4.0	253.3	25.73	0.73	0.72
0815	1014	5.0	202.8	25.63	0.63	0.82
	1015.5	6.5	156.2	25.61	0.61	0.84
	1017	8.0	127.1	25.56	0.56	0.89
0820	1019	10.0	101.9	25.50	0.50	0.94
	1024	15	68.3	25.46	0.46	0.99
0830	1029	20	51.5	25.40	0.40	1.05
	1034	25	41.4	25.36	0.36	1.09
0840	1039	30	34.6	25.34	0.34	1.11
0850	1049	40	26.2	25.32	0.32	1.13
0900	1059	50	21.2	25.30	0.30	1.15
	1074	65	16.5	25.27	0.27	1.18
0930	1089	80	13.6	25.26	0.26	1.19
0950	1109	100	11.1	25.23	0.23	1.21
1130	1209	200	6.0	25.18	0.18	1.27

DATE

SUBJECT

SHEET NO.

BY

PWT

CHKD.

AQUIFER PUMPING TEST

JOB NO.

SITE: SPOOK, WY

REFERENCE POINT: TOP OF PVC casing

LOCATION: OW-928-2

PUMP MW-928 - OBSERVATION WELL 2 r = 81.0' N90W

Date	Time	Time, min	Depth to water, ft	Drawdown, ft	Remarks
BAUGER	1521	0	25.00		→ Pump started.
		0.5	—	—	
		1.0	—	—	
		1.5	25.00	0.00	
		2.0	—	—	
		2.5	25.00	0.00	
		3.25	—	—	
		4.0	—	—	
	1526	5.0	—	—	
		6.5	—	—	
		8.0	25.20	0.20	
	1531	10.0	—	—	
		15	25.20	0.20	
	1541	20	25.25	0.25	
	1546	25	25.25	0.25	
	1551	30	25.30	0.30	
	1601	40	25.30	0.30	
		50	—	—	
		65	—	—	
	1641	80	25.35	0.35	
	1701	100	25.38	0.38	
	1841	200	25.45	0.45	
	2021	300	25.47	0.47	
	2201	400	25.50	0.50	
	2341	500	25.52	0.52	
	0121	600	25.57	0.57	
	0301	700	25.55	0.55	
	0441	800	25.55	0.55	
	0621	900	25.58	0.58	
	0801	1000	25.60	0.60	

DATE _____ BY RLH CHKD _____
 SUBJECT RECIPIER PUMPING TEST
 SHEET NO. _____ JOB NO. _____

SITE: Spook, WY
 LOCATION: on -928-2
 RECOVERY - OBSERVATION WELL 2

date	time	t, min	t, min	t, min	depth to water, ft	remarks
------	------	--------	--------	--------	--------------------	---------

14 Aug 88	0810	1009	0	0.0	25.60	0.60
	0811	1010	1.0	1010.0	25.57	0.57
		1010.5	1.5	673.7	—	—
		1011	2.0	505.5	—	—
		1011.5	2.5	409.6	—	—
		1012.25	3.25	311.5	—	—
		1013	4.0	253.3	25.50	0.50
0815		1014	5.0	202.8	—	—
		1015.5	6.5	156.2	—	—
		1017	8.0	127.1	25.45	0.45
0820		1019	10.0	101.9	25.40	0.40
		1024	15	68.3	25.36	0.36
0830		1029	20	57.5	25.33	0.33
		1034	25	41.4	25.31	0.31
0840		1039	30	34.6	25.30	0.30
0850		1049	40	26.2	25.29	0.29
0900		1059	50	21.2	25.27	0.27
		1074	65	16.5	25.25	0.25
0930		1089	80	13.6	25.24	0.24
0950		1109	100	11.1	25.22	0.22
1130		1209	200	6.0	25.19	0.19

DATE Jan 25 Sep 88

SUBJECT

SHEET NO. _____

BY BW CHKD. _____

AQUIFER PUMPING TESTS

JOB NO. _____

MW-928

$$Q = 4.2 \text{ gpm} \times 1440 \frac{\text{min}}{\text{d}} = 6048 \text{ gpd} \times 1.337 \times 10^{-1} = 808.6 \text{ ft}^3/\text{d}$$

$$r_1 = 20 \text{ ft}; r_1^2 = 400 \text{ ft}^2; r_2 = 81 \text{ ft}; r_2^2 = 6561 \text{ ft}^2$$

$$b = 14 \text{ ft}$$

Aquifer = unconfined

1) MW-928 pumping (Theis)

$$T = \frac{Q}{4\pi r} \cdot W(u \dots) \quad K = \frac{T}{b}$$

$$A \square T(\text{early}) = \frac{808.6 \text{ ft}^3/\text{d}}{4 \cdot \pi \cdot 1.8 \text{ ft}} \cdot 1 = 35.75 \text{ ft}^2/\text{d}$$

$$K = \frac{35.75}{14} = \underline{2.55 \text{ ft/d}}$$

$$A \square T(\text{late}) = \text{same as above} = \underline{2.55 \text{ ft/d}} = K$$

Note: these K values not reliable due to well inefficiency, partial penetration effects...

2) MW-928 recovery (Theis)

$$A \square T = \frac{808.6}{4 \cdot \pi \cdot 3.8} \cdot 10 = 169.33 \text{ ft}^2/\text{d}$$

$$K = \frac{169.33}{14} = \underline{12.10 \text{ ft/d}}$$

3) MW-928 recovery (straight line)

$$K = \underline{15.13 \text{ ft/d}} \quad (\text{see calculations on graph...})$$

DATE

Jun 25 1988

SUBJECT

SHEET NO.

BY

RJW

CHKD.

JOB NO.

AQUIFER PUMPING TESTS

MW-928 (cont)

4) OW-928-1 Pumping (Theis)

$$B \cdot \square T(\text{early}) = \frac{808.6}{4 \cdot \pi \cdot 0.25} \cdot 1 = 257.39 \text{ ft}^2/\text{d}$$

$$K = \frac{257.39}{14} = 18.38 \text{ ft/d}$$

$$B \cdot \square T(\text{late}) = \frac{808.6}{4 \cdot \pi \cdot 0.33} \cdot 1 = 194.99 \text{ ft}^2/\text{d}$$

$$K = \frac{194.99}{14} = 13.92 \text{ ft/d}$$

5) OW-928-1

$$s' = \frac{4T \pm U}{r^2}$$

$$B \cdot \square s'(\text{early}) = \frac{4 \cdot 257.39 \cdot 0.01 \cdot 0.01}{400} = 2.57 \times 10^{-4}$$

$$B \cdot \square s'_g(\text{late}) = \frac{4 \cdot 194.99 \cdot 0.052 \cdot 0.1}{400} = 0.01$$

$$\eta = \frac{S + S_g}{S} > 6.5 = \frac{2.57 \times 10^{-4} \cdot 0.01}{2.57 \times 10^{-4}} = 39.9$$

6) OW-928-1 Recovery (Straight line)

$$K = 21.18 \text{ ft/d (see calculations on graph...)}$$

DATE Sun 25 Sep 88

SUBJECT

SHEET NO. _____

BY RLU CHKD. _____

AQUIFER PUMPING TESTS

JOB NO. _____

MW-928 (cont)

7) OW-928-2 Pumping (Theis)

$$C \square T(early) = \frac{BOB.L}{4 \cdot \pi \cdot 0.28} \cdot 1 = 229.81 \text{ ft/d}$$

$$K = \frac{229.81}{14} = 16.41 \text{ ft/d}$$

$$C_1 \square T(10\%) = \frac{BOB.L}{4 \cdot \pi \cdot 0.22} \cdot 1 = 292.48 \text{ ft/d}$$

$$K = \frac{292.48}{14} = 20.89 \text{ ft/d}$$

8) OW-928-2

$$C \square S(early) = \frac{4 \cdot 229.81 \cdot 0.044 \cdot 0.1}{6561} = 6.16 \times 10^{-4}$$

$$C_1 \square S_y(10\%) = \frac{4 \cdot 292.48 \cdot 0.20 \cdot 0.1}{6561} = 0.004$$

$$\eta = \frac{S + S_y}{S} > 6.5 = 7.49$$

SUMMARY - K

MW-928	Recovery (Theis)	12.10	ft/d
"	Recovery (St. Line)	15.13	"
OW-928-1	Pumping (Theis)	16.15	"
"	Recovery (St. Line)	<u>21.18</u>	"

K average: 16.14 ft/d

(range $\approx$ 12-21 ft/d)

DATE Jun 25 Sep 88

SUBJECT

SHEET NO. _____

BY RJL CHKD. _____

AQUIFER PUMPING TESTS

JOB NO. _____

MW-928 (cont)7) OW-928-2 Pumping (Theis)

$$C \square T(early) = \frac{0.08.6}{4 \cdot \pi \cdot 0.28} \cdot 1 = 229.81 \text{ ft}^2/\text{d}$$

$$K = \frac{229.81}{14} = 16.41 \text{ ft/d}$$

$$C_1 \square T(late) = \frac{0.08.6}{4 \cdot \pi \cdot 0.22} \cdot 1 = 292.48 \text{ ft}^2/\text{d}$$

$$K = \frac{292.48}{14} = 20.89 \text{ ft/d}$$

8) OW-928-2

$$C \square S(early) = \frac{4 \cdot 229.81 \cdot 0.044 \cdot 0.1}{6561} = 6.16 \times 10^{-4}$$

$$C_1 \square S_4(late) = \frac{4 \cdot 292.48 \cdot 0.20 \cdot 0.1}{6561} = 0.004$$

$$\eta = \frac{S + S_4}{S} > 6.5 = 7.49$$

SUMMARY - K

MW-928	Recovery (Theis)	12.10	ft/d
"	Recovery (St. Line)	15.13	"
OW-928-1	Pumping (Theis)	16.15	"
"	Recovery (St. Line)	<u>21.18</u>	"

K average: 16.14 ft/d

(range = 12-21 ft/d)

APPENDIX F
RISK ANALYSIS

RISK ANALYSIS

To demonstrate the naturally poor water quality and substantiate the lack of probable use, a risk analysis of background ground water quality from the uppermost aquifer was performed. Potential risks due to adult resident ingestion of background ground water from the uppermost aquifer were derived based on the average detected contaminant concentrations in the background monitor wells. The risk calculations were based on standard EPA risk assessment guidance (EPA, 1989), which assumes a 154-pound 70-kilogram) adult drinking a half-gallon (2 liters) of affected water per day, 350 days per year, for a period of 44 years (representing a farm residence). Potential risk for noncancer effects is evaluated by comparing the calculated intake of each constituent of concern (based on the presumed exposure scenario and intake parameters) with the EPA reference dose, which is the conservatively derived dose level considered by EPA to be protective of human health. Potential risk for cancer effects is given by the excess lifetime cancer risk. The National Contingency Plan (40 CFR Part 300 (1994)) states that exposures to noncarcinogenic chemicals should present no appreciable risk of significant adverse effects and that the cumulative excess lifetime cancer risk should not exceed 10^{-4} (40 CFR §300.430(e)(2)(i)(2)).

The doses based on the average background concentrations of selenium and soluble uranium salts (0.4 and 2 mg/L, respectively) exceeded the respective EPA reference doses for those chemicals (by 2.2 and 18 times the reference dose, respectively). The calculated excess lifetime cancer risk for the average detected uranium-234 and -238 concentration in the background ground water (1350 pCi/L) was 6.7×10^{-4} , which exceeds the 10^{-4} limit for acceptable cancer risk. Thus, the background concentrations of selenium and uranium are associated with unacceptable cancer and noncancer risks, which supports the conclusion that background ground water from the uppermost aquifer is not an acceptable source of drinking water for humans.

Potential risk to agricultural crops irrigated with background ground water from the uppermost aquifer was evaluated by comparing current monitoring data to maximum recommended safe concentrations for irrigation water (EPA, 1972). The results of that comparison are presented in Table F.1. The EPA comparison values reflect average rainfall conditions. Crops in arid regions, such as at the Spook site, are more susceptible to damage from elevated contaminant concentrations in irrigation water (relative to those in more humid regions) because of the increased requirement for irrigation water and the extended duration of the required irrigation period (i.e., crops in arid regions may require irrigation throughout the growing season rather than only during limited periods of the growing season) (EPA, 1972). Thus, it is possible that crop damage may occur at contaminant concentrations that are somewhat lower than those shown in Table F.1 because of the arid conditions at the site.

Two of the background contaminants (molybdenum and selenium) have maximum (0.03 and 2.17 mg/L, respectively) and average (0.018 and 0.4 mg/L, respectively) concentrations exceeding the maximum recommended safe concentrations in irrigation water (0.010 and 0.020 mg/L, respectively). These results indicate that naturally-occurring concentrations of contaminants in ground water from the uppermost aquifer are above the recommended concentrations for irrigation.

Table F.1 Background, agricultural irrigation water, and livestock drinking water contaminant concentration comparison at the Spook, Wyoming, site

Constituent	Background concentrations ^a		Comparison concentrations		Does background exceed safe concentration?
	Range of detects	Mean of detects ^b	Irrigation ^c	Livestock ^c	
Aluminum	0.03 - 0.2	2.8	5	5	N
Antimony	0.003 - 0.005	0.0025	---	---	---
Arsenic	0.001 - 0.001	0.004	0.1	0.2	N
Barium	0.02 - 0.05	0.048	---	---	---
Boron	0.05 - 0.14	0.062	0.75	---	N
Cadmium	0.002 - 0.003	0.0011	0.01	0.05	N
Calcium	99.5 - 179	120	---	---	---
Chloride	0.5 - 3.8	1.9	---	---	---
Chromium	0.037 - 0.08	0.054	0.1	1	N
Copper	0.01 - 0.02	0.01	0.2	1	N
Fluoride	0.2 - 0.3	0.53	1	2	N
Net gross alpha (pCi/L)	0 - 480	30	15 ^d	15 ^d	Y
Gross beta (pCi/L)	180 - 900	290	---	---	---
Iron	0.024 - 0.1	0.06	5	---	N
Lead-210 (pCi/L)	0 - 13	2.7	---	---	---
Magnesium	15.3 - 36.3	23	---	---	---
Manganese	0.01 - 0.04	0.03	0.2	---	N
Mercury	0.0002 - 0.0005	0.00015	---	0.01	N
Molybdenum	0.01 - 0.03	0.018	0.01	---	Y
Nickel	0.01 - 0.01	0.018	0.2	---	N
Nitrate	2.2 - 8.9	5.2	---	100	N

Table F.1 Background, agricultural irrigation water, and livestock drinking water contaminant concentration comparison at the Spook, Wyoming, site (concluded)

Constituent	Background concentrations ^a		Comparison concentrations		Does background exceed safe concentration?
	Range of detects	Mean of detects ^b	Irrigation ^c	Livestock ^c	
Polonium-210 (pCi/L)	0 - 0.8	0.15	---	---	---
Potassium	4.39 - 8.4	7.4	---	---	---
Radium-226 (pCi/L)	0.2 - 2.5	0.74	20	20	N
Radium-226/-228 (pCi/L)	1.3 - 4.8	2.3	5	5	N
Selenium	0.036 - 2.17	0.4	0.02	0.05	Y
Silica - SiO ₂	13.5 - 16	15	---	---	---
Silver	0.01 - 0.02	0.011	---	---	---
Sodium	13.4 - 30.8	23	---	---	---
Strontium	0.8 - 2.2	1.5	---	---	---
Sulfate	150 - 393	220	---	---	---
Thorium-230 (pCi/L)	0 - 8.1	0.7	---	---	---
Tin	0.003 - 0.12	0.017	---	---	---
Uranium	0.89 - 2.9	2	---	---	---
Uranium-234/238 (pCi/L)	610 - 1990	1350	30 ^d	30 ^d	Y
Vanadium	0.016 - 0.03	0.025	0.1	0.1	N
Zinc	0.005 - 0.014	0.0054	2	25	N

^aConcentrations are reported in milligrams per liter (mg/L) unless noted otherwise in first column.

^bMean of the average of detects for each background well. If a well had no detects, one-half the detection limit was used.

^cMaximum safe concentrations, EPA, 1972.

^dEPA (1972) states that the maximum recommended safe concentration for radionuclides in water for irrigation and livestock should be taken as the Federal Drinking Water Standard.

Livestock can be exposed to contaminants in ground water directly by drinking water or indirectly through ingestion of fodder irrigated with the affected ground water. Because ground water from the uppermost aquifer is not recommended for use as a source of irrigation water, the indirect exposure pathway is not relevant.

Potential risks related to direct exposure of livestock to background ground water concentrations were evaluated to demonstrate that naturally-occurring contaminant concentrations exceed recommended safe levels for ingestion of the water. Analysis of the potential toxicity of background ground water to livestock consisted of comparing background ground water concentrations to approximate drinking-water concentrations considered to be protective of livestock (EPA, 1972).

The average and maximum detected concentrations for selenium in the background ground water (0.4 and 2.17 mg/L, respectively) exceed the 0.05 mg/L level considered to be protective of livestock (EPA, 1972). These results indicate that the naturally elevated selenium concentration causes the ground water from the uppermost aquifer to be unusable for ingestion by livestock.

The indirect exposure pathways associated with ingestion of crops irrigated with background ground water or with ingestion of meat or milk from livestock that drink the ground water were not evaluated because the screening level risk analysis demonstrated that background ground water from the uppermost aquifer is not usable as a source of crop irrigation water or as a source of drinking water for cattle.

Conclusions of the risk analysis

The screening level risk analysis of background ground water from the uppermost aquifer demonstrates that use of naturally-occurring ground water from the uppermost aquifer (represented by monitor wells SPK-01-931, -933 -943, and -944) (Figure F.1) would constitute unacceptable risks to humans, livestock, and irrigated crops. The background risk analysis indicated that there is no beneficial use of the naturally-occurring ground water from the uppermost aquifer; therefore, a baseline risk assessment was not performed for the Spook site.

The results of this risk analysis support the DOE's proposed compliance strategy of no further remediation based on the application for supplemental standards. The affected ground water from the uppermost aquifer at the site poses no risk to human health and the environment because of the absence of relevant or realistic exposure pathways. The screening level risk analysis for background ground water from the uppermost aquifer demonstrates that naturally-occurring concentrations of uranium, selenium, and nitrate in that ground water cause unacceptable risks to humans, and the ground water is not recommended for use for livestock or irrigation.

FIGURE F.1
EXTENT OF CONTAMINATION IN THE UPPER SANDSTONE UNIT BASED ON DISTRIBUTION OF
AMMONIUM, ACID pH, AND NITRATE
AT THE SPOOK, WYOMING, SITE

REFERENCES

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CODE OF FEDERAL REGULATIONS

- 40 CFR Part 300, "National Oil and Hazardous Substance Pollution Contingency Plan," U.S. Environmental Protection Agency (1994).