Concentrations of 23 Trace Elements in Ground Water and Surface Water at and near the Idaho National Engineering Laboratory, Idaho, 1988-91

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CONVERSION FACTORS AND ABBREVIATED UNITS

Multiply	By	To obtain
inch (in.)	25.40	millimeter
foot (ft)	0.3048	meter
mile (mi)	1.609	kilometer
square mile (mi^2)	2.590	square kilometer
gallon	3.785	liter

For temperature, degrees Celsius (°C) may be converted to degrees Fahrenheit (°F) by using the equation °F = (1.8) (°C) + 32.
Abbreviated units used in report: microgram per liter (µg/L), milliliter (mL)

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by **Michael J. Liszewski and Larry J. Mann**

ABSTRACT

Analytical data for 23 trace elements are reported for ground- and surface-water samples collected at and near the Idaho National Engineering Laboratory during 1988-91. Water samples were collected from 148 wells completed in the Snake River Plain aquifer, 18 wells completed in discontinuous deep perched-water zones, and 1 well completed in an alluvial aquifer. Surface-water samples also were collected from three streams, two springs, two ponds, and one lake.

Data are categorized by concentrations of total recoverable or dissolved trace elements. Concentrations of total recoverable trace elements are reported for unfiltered water samples and include results for one or more of the following: aluminum, arsenic, barium, beryllium, cadmium, chromium, cobalt, copper, iron, lead, manganese, mercury, nickel, selenium, silver, and zinc. Concentrations of dissolved trace elements are reported for water samples filtered through a nominal 0.45-micron filter and may also include bromide, fluoride, lithium, molybdenum, strontium, thallium, and vanadium. Concentrations of dissolved hexavalent chromium also are reported for many samples. The water samples were analyzed at the U.S. Geological Survey's National Water Quality Laboratory in Arvada, Colorado. Methods used to collect the water samples and quality assurance instituted for the sampling program are described.

Concentrations of chromium equaled or exceeded the maximum contaminant level at 12 ground-water quality monitoring wells. Other trace elements did not exceed their respective maximum contaminant levels.

INTRODUCTION

The Idaho National Engineering Laboratory (INEL) includes about 890 mi^2 of the eastern Snake River Plain in southeastern Idaho (fig. 1). The INEL was established in 1949 and is used by the U.S. Department of Energy to test different types of nuclear reactors. The INEL is one of the main centers in the United States for developing peacetime uses of atomic energy and is a leading center for nuclear safety research, defense programs, nuclear-waste technology, and development of advanced energy concepts. At the INEL, compounds containing trace elements such as chromium and mercury historically have been used as corrosion inhibitors or in the reprocessing of spent fuels. Additionally, large quantities of lead are used to insulate workers and the environment from radiation associated with reactor operation.

As part of sitewide characterization and monitoring programs, 683 water samples were collected from 179 ground- and surface-water sites (figs. 2-3) at and near the INEL during 1988-91 and were analyzed for selected trace elements to determine their occurrence and distribution. Concentrations of one or more of the

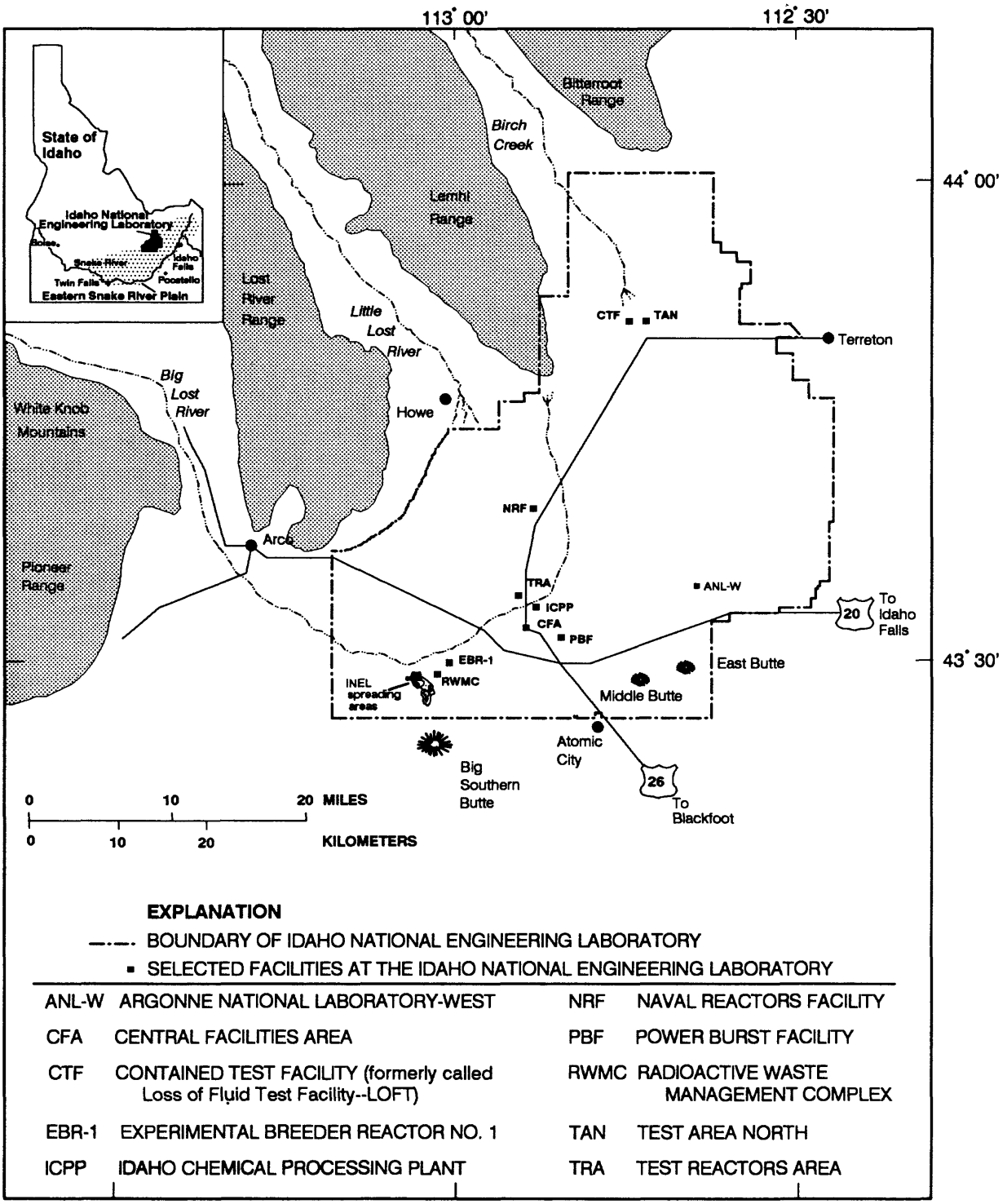

Figure 1.--Location of the Idaho National Engineering Laboratory and selected facilities.

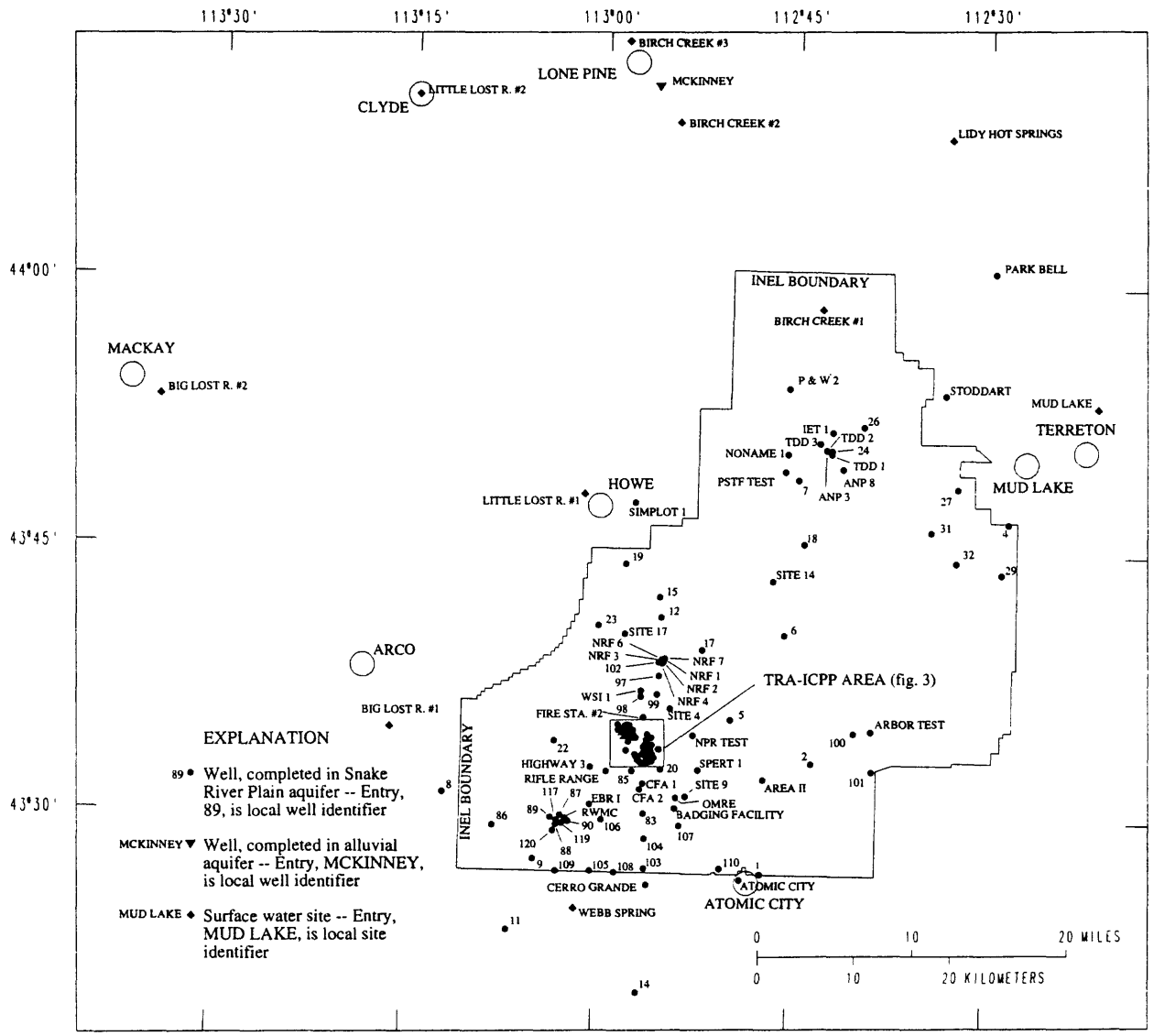

Figure 2.--Location of sites sampled for selected trace elements, 1988-91.

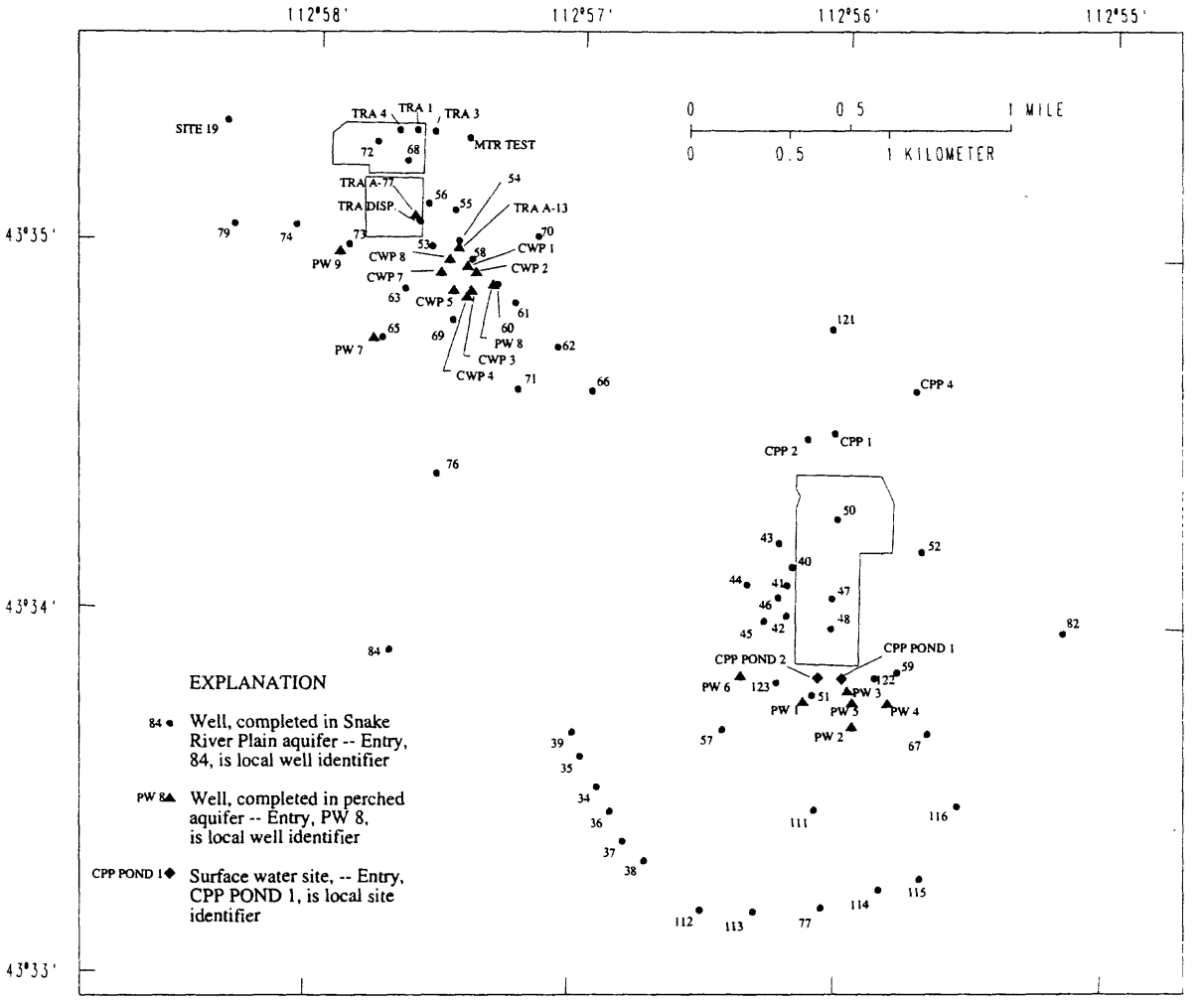

Figure 3.--Location of sites sampled for selected trace-elements in the vicinity of the Test Reactors Area (TRA) and Idaho Chemical Processing Plant (ICPP).

following total recoverable trace elements in unfiltered water samples were determined: aluminum, arsenic, barium, beryllium, cadmium, chromium, cobalt, copper, iron, lead, manganese, mercury, nickel, selenium, silver, and zinc. Concentrations of those and one or more of the following additional dissolved trace elements were determined in water samples filtered through a nominal 0.45-micron filter: bromide, fluoride, lithium, molybdenum, strontium, thallium, and vanadium. Concentrations of dissolved hexavalent chromium also were determined for many samples.

Samples were collected from: 137 ground-water-quality monitoring wells; 22 production wells; 8 miscellaneous wells including domestic, commercial, irrigation, or drainage-disposal wells; and 3 streams, 2 springs, 2 ponds, and 1 lake. Of the wells, 148 are completed in the Snake River Plain aquifer, 18 are completed in discontinuous deep perched-water zones, and 1 is completed in an alluvial aquifer. This report: (1) describes methods used to collect water samples and the quality assurance procedures instituted for the sampling program; and (2) presents the concentrations of the 23 trace elements analyzed in the water samples collected during 1988-91. The sampling program was conducted by the U.S. Geological Survey (USGS) in cooperation with the U.S. Department of Energy. Water samples were analyzed by the USGS's National Water Quality Laboratory (NWQL) in Arvada, Colorado.

Geohydrologic Setting

The eastern Snake River Plain is a northeast-trending structural basin about 200 mi long and 50 to 70 mi wide. The plain is underlain by a layered sequence of basaltic lava flows and cinder beds intercalated with alluvial and lakebed sedimentary deposits. Individual flows range from 10 to 50 ft in thickness, although the average thickness may be from 20 to 25 ft (Mundorff and others, 1964, p. 143). The sedimentary deposits consist mainly of lenticular beds of sand, silt, and clay with lesser amounts of gravel. Locally, rhyolitic lava flows and tuffs are exposed at the land surface or occur at depth. The basaltic lava flows and intercalated sedimentary deposits combine to form the Snake River Plain aquifer, which is the main source of water on the plain. The depth to water in the aquifer ranges from about 200 ft in the northern part of the INEL to more than 900 ft in the southern part (Orr and Cecil, 1991).

The INEL obtains its entire water supply from the Snake River Plain aquifer. Aqueous chemical and radioactive wastes generated at the INEL were discharged to ponds and deep injection wells from 1952 to 1984. Since February 1984, most of the aqueous wastes have been discharged to unlined infiltration ponds. Many of the waste constituents enter the aquifer indirectly by percolating through the unsaturated zone (Pittman and others, 1988).

Previous Investigations

The USGS has conducted geologic, hydrologic, and water-quality investigations at the INEL since it was selected as a reactor testing area in 1949. Ground-water-quality studies routinely include sampling and analysis for selected common ions, trace elements, and radionuclides. Selected trace elements—mainly chromium—in ground water were first investigated in the 1960's; results of the investigations are described by Robertson and others (1974), Barraclough and Jensen (1976), Barraclough and others (1982), Lewis and Jensen (1985), and Mann and Knobel (1988).

Acknowledgments

The authors gratefully acknowledge the many employees of the Department of Energy and its contractors at the INEL who aided in the sampling program. The authors are grateful to D.J. Parliman and S.R. Hannula of the USGS for their technical review of the manuscript.

METHODS AND QUALITY ASSURANCE

Methods used in sampling for trace elements generally followed the guidelines established by Wood (1981), Claassen (1982), and Feltz and others (1985). Methods used in the field and quality assurance practices are outlined in following sections.

Sample Containers and Preservatives

Sample containers and preservatives were supplied by the NWQL. Acid-rinsed 500-mL polyethylene bottles were used to collect water samples for analysis of all the trace elements except mercury. Samples for analysis of mercury were collected in acid-rinsed 250-mL glass bottles. After the bottles were filled with water, 2 mL of nitric acid were added to the polyethylene bottles and 10 mL of a solution of nitric acid and potassium dichromate were added to the glass bottles to stabilize the trace elements.

Sampling Equipment and Decontamination Procedures

Production, domestic, commercial, irrigation, and drainage-disposal wells are equipped with dedicated pumps and were sampled from supply lines at the well head or water spigots downstream from pressure tanks and, therefore, did not require decontamination. Many of the ground-water-quality monitoring wells are equipped with dedicated submersible or piston pumps. To divert excess flow and facilitate sample collection, monitoring wells equipped with dedicated submersible pumps were fitted with a portable discharge line about 2.5 ft long. The discharge line is a 1.5 in. inside diameter (I.D.) galvanized-steel pipe equipped with a brass valve to control the flow rate. A galvanized-steel T-joint was inserted into the line between the well head and the control valve to divert flow for sampling. A brass valve was attached to the T-joint to control the flow rate at the sampling port, and a series of galvanized-steel pipes and connectors were attached to the T-joint to reduce the discharge line I.D. to 9/32 in. to accommodate a 9/32-in. I.D. stainless-steel delivery pipe. The 9/32-in. I.D. stainless-steel pipe was bent 90 degrees to facilitate sample collection. All fittings and pipes were rinsed with deionized water before installation at the well head. Monitoring wells equipped with dedicated piston pumps were sampled using a Teflon hose attached to a discharge port. Discharge lines and hoses subsequently were flushed with several hundred to thousands of gallons of water pumped from the well to minimize cross-contamination from previously sampled wells.

Wells completed in perched-water zones and the alluvial aquifer were sampled with bailers or portable pumps washed with hot water and detergent and rinsed with deionized water prior to installation in the wells.

Sample Collection

At wells equipped with dedicated pumps or at which portable pumps are used, a volume of water equivalent to a minimum of 3 wellbore volumes was pumped from each well to ensure that water representative of the aquifer was being sampled. At many wells, 5 to 10 wellbore volumes were pumped prior to collecting the samples. The diameter of the wellbore, rather than the volume of the casing, was used to calculate the minimum volume to be pumped because of the potentially large difference between the two.

During pumping, specific conductance, pH, and water temperature were monitored using methods described by Wood (1981). When these measurements stabilized, indicating probable hydraulic and chemical stability, a water sample was collected using the following steps:

1. The field person responsible for collecting the water sample wore disposable vinyl gloves and stood in a position where neither the collector nor the sample could become contaminated.

2. The outside of the stainless-steel delivery pipe was rinsed thoroughly with water pumped from the well.

3. If required, sample containers and filtration equipment were rinsed thoroughly with water pumped from the well before being used. A new 0.45-micron filter was installed in an acrylic holder and then rinsed with a minimum of 750 mL of water pumped from the well; this amount is sufficient to remove any surfactants that may adhere to the filters. As much as 500 mL of deionized water can be substituted for well water.

4. A peristaltic pump was used to supply an uncontaminated full-column flow of water to the filter apparatus. Water then drained through the filter into the sample container.

5. Sample continers were capped and moved into the mobile field laboratory where they were uncapped and preserved.

6. The containers were than recapped, sealed with laboratory film, and labeled.

7. A laboratory request schedule was completed for use by the laboratory to which the sample(s) were sent for analysis.

8. The water samples were chilled, if necessary, and stored in the field laboratory until they could be transferred to a secured storage area. Samples were transported to the laboratory for analysis as soon as reasonably possible. Samples sent to the NWQL for analysis were transported in a sealed ice chest by a contract carrier; overnight delivery was stipulated for samples to be analyzed for analyses of nutrients and purgeable organic compounds.

9. All equipment was decontaminated with deionized water or, if necessary, organic-free water.

Some wells completed in the perched-water zones did not contain or produce enough water to be sampled with a portable pump. For those wells, a 1,000-mL Teflon bailer, a 200-mL galvanized-steel bailer, or a 1,000-mL brass thief sampler rigged as a bailer was used for sample collection. The well was bailed until enough water was collected for all the samples required or until the well went dry.

When the bailer was retrieved, water for samples that did not require filtration was placed directly into sample containers; water for samples that required filtration was placed directly into a hand-operated filter unit. The 250-mL hand-operated filter unit contained a 0.45-micron membrane filter that was rinsed with a minimum of 50 mL of water from the well before the sample was filtered. After the sample bottles were filled with water, samples were preserved and labeled, stored, and shipped as described previously in steps 6-8.

Some wells completed in perched-water zones contained enough water to use a portable pump, but had such low recovery rates that the wells pumped dry before 2 or 3 wellbore volumes could be evacuated. For those wells, a sample was collected when specific conductance, pH, and water temperature measurements stabilized. If the well pumped dry before measurements could stabilize, the field person waited for the well to recover to collect a pumped or bailed sample. If the well did not recover, the field person collected a grab sample from a prerinsed bucket into which water was discharged during pumping. This procedure and other exceptions to commonly used collection procedures are described in a field logbook.

Added precautions were taken at wells that were sampled with a portable submersible pump or bailer. The concentrations of most contaminants are greatest in wells nearest disposal sites and the concentrations decrease with increasing distance from the disposal sites. Therefore, wells most distant from disposal sites were sampled first. This process of sampling minimized the potential for measurable amounts of cross-contamination of samples collected using portable equipment.

At surface water sites, a grab sample was collected in a precleaned container. The inlet part of a peristaltic pump was placed into the container to supply sample water to the filter in a manner similar to that described for collection of ground-water samples. Samples that did not require filtration were collected by submersing the sample container into the surface-water body and following appropriate procedures described previously in steps 1-8.

Conditions at the well during sample collection were recorded in ink in a bound field logbook, and a chain-of-custody record was used to track samples from the time of collection until delivery to the laboratory. These records are available for inspection at the USGS Project Office at the INEL.

Quality Assurance

All samples were analyzed by the NWQL using methods prescribed by Skougstad and others (1979) and Barnett and Mallory (1981). A detailed description of internal quality control and of the overall quality assurance practices used by the NWQL is provided in a report by Friedman and Erdmann (1982). Additional quality assurance procedures instituted for this sampling program included: 60 blind replicates—duplicate samples with a different sample identification number that were sent to the laboratory—and 5 blank samples containing deionized water.

Concentrations of one or more trace elements in several blind replicates differed from concentrations in the original samples. Several blank samples contained concentrations of one or more trace elements. Analyses for blind replicate and blank samples are included in the tables to aid the reader in the interpretation of the sample data.

CONCENTRATIONS OF 23 TRACE ELEMENTS IN WATER

Nine of the 23 trace elements analyzed have maximum contaminant levels (MCL's) for total recoverable concentrations in drinking water as established by the U.S. Environmental Protection Agency (1991). MCL's and NWQL reporting levels for total recoverable and dissolved concentrations are shown on table 1. Concentrations of selected trace elements are shown on tables 2-4 at the end of this report; table 2 includes concentrations of total recoverable trace elements; table 3 includes concentrations of dissolved trace elements; and table 4 includes concentrations of total recoverable and dissolved chromium, and dissolved hexavalent chromium.

Data indicate that some water samples contained detectable concentrations of as many as 21 of the 23 trace elements, including aluminum, arsenic, barium, beryllium, bromide, cadmium, chromium, hexavalent chromium, cobalt, copper, iron, fluoride, lead, lithium, manganese, mercury, nickel, selenium, silver, strontium, vanadium, and zinc. Molybdenum and thallium were not detected in any sample. Except for chromium, the concentrations of total recoverable trace elements in water from all sites were less than the MCL's for drinking water established by the U.S. Environmental Protection Agency (tables 2-4). Water samples from 12 ground-water quality monitoring wells at the Test Reactors Area contained chromium concentrations equal to or greater than the maximum contaminant level of 50 µg/L. The largest concentration was 1,300 µg/L in two samples collected from well TRA A-77 in December 1989 and January 1990. Wells

used for drinking-water supplies did not contain concentrations of trace elements that exceeded the maximum contaminant levels.

Table 1.—Maximum contaminant levels in effect as of July, 1991 and reporting levels for total recoverable and dissolved concentrations of 23 trace elements

[The maximum contaminant levels are for total recoverable concentrations and were established pursuant to the recommendations of the U.S. Environmental Protection Agency (1991, p. 585) for community water systems. They are included only for comparison purposes. A reporting level is the lowest measured concentration of a constituent that may be reliably reported using a given analytical method (Pritt and Jones, 1989). Reporting levels are those of the U.S. Geological Survey's National Water Quality Laboratory in Arvada, Colorado. Reporting levels in tables 2-4 may differ from those listed here depending on sample matrix and other analytical considerations. Total recoverable refers to concentrations in unfiltered water samples and dissolved refers to concentrations in water samples filtered through a nominal 0.45-micron filter. A -- indicates data not available/not applicable. Units are in micrograms per liter, except for fluoride, which is in milligrams per liter]

Trace element	Maximum contaminant level	Reporting level (total recoverable)	Reporting level (dissolved)
Aluminum	Not established	10	10
Arsenic	50	1	1
Barium	1,000	100	2
Beryllium	Not established	10	.5
Bromide	Not established	--	.01
Cadmium	10	1	1
Chromium	50	1	5
Chromium (hexavalent)	Not established	--	1
Cobalt	Not established	50	3
Copper	Not established	1	10
Iron	Not established	10	3
Fluoride	4	--	.1
Lead	50	1	10
Lithium	Not established	--	4
Manganese	Not established	10	1
Mercury	2	.1	.1
Molybdenum	Not established	--	10
Nickel	Not established	1	10
Selenium	10	1	1
Silver	50	1	1
Strontium	Not established	--	.5
Thallium	Not established	--	1
Vanadium	Not established	--	6
Zinc	Not established	10	3

SUMMARY

From 1988 through 1991, 683 water samples were collected from 177 ground- and surface-water sites at and near the INEL and were analyzed for selected trace elements. Ground-water samples were collected from 148 wells completed in the Snake River Plain aquifer, 18 wells completed in discontinuous deep perched-water zones, and 1 well completed in an alluvial aquifer. Surface-water samples were collected from three streams, two springs, two ponds, and one lake.

Unfiltered water samples were analyzed for concentrations of the following total recoverable trace elements: aluminum, arsenic, barium, beryllium, cadmium, chromium, cobalt, copper, iron, lead, manganese, mercury, nickel, selenium, silver, and zinc. Filtered water samples were analyzed for dissolved concentrations of these trace elements and, in some cases, for bromide, fluoride, lithium, molybdenum, strontium, thallium, and vanadium. Many samples also were analyzed for concentrations of dissolved hexavalent chromium. In general, a water sample was collected and analyzed for concentrations of either total recoverable or dissolved trace elements; however, at some locations, samples were collected and analyzed for both.

Methods used to collect the water samples and quality assurance procedures instituted for the sampling program are described in detail. A field logbook was maintained to record conditions at the well during sample collection, and a chain-of-custody record was used to track samples from the time of collection until delivery to the NWQL in Arvada, Colorado for analysis.

Except for chromium, the concentrations of trace elements from all sites were less than the respective MCL's for drinking water established by the U.S. Environmental Protection Agency. Chromium equaled or exceeded the MCL at 12 water-quality monitoring wells.

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Table 2.--*Concentrations of selected total recoverable trace elements in ground and surface water at and near the INEL*

[Analyses were performed by the U. S. Geological Survey National Water Quality Laboratory. Site identifier: see figures 2 and 3 for location of sites. Units are military units for time and micrograms per liter for concentrations of trace elements. <10, concentration is less than the indicated reporting level. Continued on following page

Site identifier	Date sampled	Time sampled	Aluminum	Arsenic	Barium	Beryllium	Cadmium	Cobalt
12	06/15/90	1145	50	2	100	<10	<1	<50
12 Replicate	06/14/90	1400	10	2	100	<10	<1	<50
12	08/06/90	1515	-	2	<100	-	<1	-
12	10/10/90	1150	-	2	200	-	<1	-
12	12/11/90	1245	-	1	100	-	<1	-
12	02/07/91	1425	-	2	100	-	<1	-
12	04/11/91	1125	-	1	-	-	-	-
12	06/10/91	1200	-	-	-	-	-	-
12	09/06/91	1505	-	-	-	-	-	-
12 Replicate	09/06/91	1400	-	-	-	-	-	-
12	12/05/91	1125	-	-	-	-	-	-
15	06/06/90	1350	<10	1	100	<10	<1	<50
15	08/06/90	1145	-	2	<100	-	<1	-
15 Replicate	08/06/90	1200	-	12	<100	-	<1	-
15	10/09/90	1440	-	2	<100	-	<1	-
15	12/13/90	1450	-	2	<100	-	<1	-
15	02/11/91	1450	-	2	<100	-	<1	-
15	04/12/91	1745	-	2	<100	-	<1	-
15	06/10/91	1530	-	-	-	-	-	-
15	09/06/91	1240	-	-	-	-	-	-
15	12/04/91	1715	-	-	-	-	-	-
17	12/14/89	1300	40	2	<100	<10	<1	<50
17	03/20/90	1130	-	2	<100	-	<1	-
17	06/07/90	0940	-	2	<100	-	<1	-
17	08/02/90	1055	-	2	<100	-	<1	-
17	10/10/90	1450	-	2	<100	-	<1	-
17	12/10/90	1140	-	2	<100	-	<1	-
17	03/13/91	1145	-	-	-	-	-	-
17 Replicate	03/13/91	1200	-	-	-	-	-	-
17	06/06/91	1300	-	-	-	-	-	-
17	09/05/91	1150	-	-	-	-	-	-
17	12/03/91	1215	-	-	-	-	-	-
97	11/30/89	1055	<10	1	<100	<10	<1	60
97	03/19/90	1320	-	2	200	-	<1	-
97	06/07/90	1150	-	2	100	-	<1	-
97 Replicate	06/07/90	1200	-	2	100	-	<1	-
97	08/01/90	1245	-	2	<100	-	1	-
97	10/04/90	1055	-	2	200	-	<1	-
97	12/07/90	1330	-	2	<100	-	<1	-
97 Replicate	12/07/90	1300	-	1	<100	-	<1	-
97	03/13/91	1245	-	-	-	-	-	-
97	06/07/91	1050	-	-	-	-	-	-
97 Replicate	06/07/91	1000	-	-	-	-	-	-
97	09/05/91	1350	-	-	-	-	-	-
97	12/03/91	1425	-	-	-	-	-	-
98	11/29/89	1230	<10	2	<100	<10	<1	50
98	03/19/90	1000	-	2	<100	-	<1	-
98	06/05/90	1000	-	2	<100	-	<1	-
98	07/30/90	1055	-	2	<100	-	<1	-
98 Replicate	07/30/90	1200	-	1	<100	-	<1	-
98	10/03/90	1015	-	2	<100	-	<1	-
98	12/07/90	1005	-	2	<100	-	<1	-
98	03/13/91	0930	-	-	-	-	-	-
98	06/07/91	0900	-	-	-	-	-	-
98	09/05/91	1045	-	-	-	-	-	-

Table 2.--*Concentrations of selected total recoverable trace elements in ground and surface water at and near the INEL*--Continued

Replicate, a second sample from the indicated site was submitted for analysis with a different identifier (replicate dates and times may be fictitious). Blank, sample bottle contained deionized water. -, data unavailable]

Copper	Iron	Lead	Man-ganese	Mercury	Nickel	Selenium	Silver	Zinc
3	30	1	<10	<0.10	1	2	<1	10
3	50	1	<10	<0.10	2	2	<1	10
1	10	<1	<10	<0.10	<1	1	<1	<10
1	40	1	<10	<0.10	<1	1	<1	10
1	110	1	<10	<0.10	1	1	<1	10
2	60	1	<10	<0.10	<1	2	<1	<10
-	140	-	<10	0.10	-	3	<1	<10
-	120	1	-	<0.10	1	-	<1	-
-	50	<1	-	<0.10	1	-	<1	-
-	90	<1	-	<0.10	2	-	<1	-
-	70	<1	-	<0.10	1	-	<1	-
2	60	1	<10	<0.10	2	1	<1	<10
7	4,600	1	100	<0.10	15	1	<1	30
2	9,700	3	200	0.10	31	1	<1	50
1	<10	<1	<10	<0.10	<1	1	<1	<10
2	<10	1	<10	<0.10	2	<1	<1	<10
5	20	<1	<10	<0.10	2	<2	<1	10
<1	20	2	<10	<0.10	1	1	<1	<10
-	30	2	-	<0.10	1	-	<1	-
-	40	<1	-	<0.10	2	-	<1	-
-	<10	<1	-	<0.10	1	-	<1	-
1	120	1	20	<0.10	1	<1	<1	<10
3	240	2	<10	<0.10	2	<1	<1	<10
6	90	1	<10	<0.10	3	1	<1	10
1	340	1	10	<0.10	1	<1	<1	<10
1	50	1	<10	<0.10	<1	<1	<1	20
1	50	1	10	<0.10	1	<1	<1	<10
-	130	<1	-	<0.10	1	-	<1	-
-	110	1	-	<0.10	1	-	<1	-
-	140	2	-	<0.10	<1	-	<1	-
-	210	<1	-	<0.10	2	-	<1	-
-	270	<1	-	<0.10	2	-	<1	-
2	60	3	<10	<0.10	<1	2	<1	100
3	60	6	<10	<0.10	2	2	<1	170
4	90	3	<10	<0.10	1	2	<1	80
3	40	3	<10	<0.10	1	2	<1	80
7	40	5	<10	<0.10	8	2	<1	110
1	320	3	10	<0.10	<1	2	<1	120
5	<10	1	<10	<0.10	<1	1	<1	120
3	<10	5	<10	<0.10	1	1	<1	110
-	110	2	-	<0.10	2	-	<1	-
-	30	3	-	<0.10	<1	-	<1	-
-	20	3	-	<0.10	<1	-	<1	-
-	150	3	-	<0.10	<1	-	<1	-
-	260	6	-	<0.10	2	-	<1	-
7	20	2	<10	<0.10	1	1	<1	100
4	80	4	<10	<0.10	1	1	<1	190
2	40	2	<10	<0.10	1	1	<1	120
1	50	1	<10	<0.10	<1	1	<1	120
1	40	1	<10	<0.10	<1	1	<1	110
2	100	2	<10	<0.10	2	<1	<1	120
3	30	2	<10	<0.10	2	<1	<1	140
-	110	2	-	<0.10	<1	-	<1	-
-	100	2	-	<0.10	<1	-	<1	-
-	60	2	-	<0.10	2	-	<1	-

Table 2.--*Concentrations of selected total recoverable trace elements in ground and surface water at and near the INEL*--Continued

Site identifier	Date sampled	Time sampled	Aluminum	Arsenic	Barium	Beryllium	Cadmium	Cobalt
98	12/03/91	0940	-	-	-	-	-	-
99	11/30/89	1320	<10	1	<100	<10	<1	50
99	03/20/90	0925	-	1	<100	-	<1	-
99	06/05/90	1350	-	1	<100	-	<1	-
99	08/01/90	1010	-	1	200	-	<1	-
99	10/03/90	1335	-	2	<100	-	<1	-
99 Replicate	10/03/90	1330	-	2	<100	-	<1	-
99	12/10/90	1015	-	2	100	-	<1	-
99	03/13/91	1340	-	-	-	-	-	-
99	06/07/91	0955	-	-	-	-	-	-
99	09/05/91	1450	-	-	-	-	-	-
99	12/03/91	1510	-	-	-	-	-	-
102	06/08/90	0955	40	2	<100	<10	<1	<50
102	08/01/90	1415	-	2	200	-	<1	-
102	10/04/90	1245	-	2	<100	-	<1	-
102	12/10/90	1315	-	2	100	-	<1	-
102 Replicate	12/10/90	1230	-	2	100	-	<1	-
102	02/07/91	1035	-	2	100	-	<1	-
102	04/11/91	1245	-	1	<100	-	<1	-
102	06/07/91	1210	-	-	-	-	-	-
102	09/05/91	1250	-	-	-	-	-	-
102	12/03/91	1335	-	-	-	-	-	-
Blank	12/01/89	1440	20	<1	<100	<10	<1	<50
Blank	11/02/90	1100	-	<1	<100	-	<1	-
NRF 1	12/19/89	1325	<10	1	<100	10	<1	<50
NRF 1	03/21/90	1235	-	2	<100	-	<1	-
NRF 1	06/19/90	1345	-	2	100	-	<1	-
NRF 1	08/07/90	1245	-	2	<100	-	<1	-
NRF 1	10/02/90	1405	-	2	200	-	<1	-
NRF 1	12/06/90	1030	-	2	100	-	<1	-
NRF 1	03/05/91	1125	-	-	-	-	-	-
NRF 1	06/17/91	1135	-	-	-	-	-	-
NRF 1	09/09/91	1144	-	-	-	-	-	-
NRF 1 Replicate	09/09/91	1100	-	-	-	-	-	-
NRF 1	12/04/91	0940	-	-	-	-	-	-
NRF 2	12/21/89	1100	<10	2	300	<10	<1	<50
NRF 2	03/21/90	1130	-	2	<100	-	<1	-
NRF 2 Replicate	03/21/90	1000	-	2	<100	-	<1	-
NRF 2	06/19/90	1115	-	2	100	-	<1	-
NRF 2	08/07/90	1110	-	2	<100	-	<1	-
NRF 2	10/02/90	1255	-	2	200	-	<1	-
NRF 2	12/05/90	1010	-	2	100	-	<1	-
NRF 2	03/05/91	1145	-	-	-	-	-	-
NRF 2 Replicate	03/05/91	0900	-	-	-	-	-	-
NRF 2	06/17/91	1035	-	-	-	-	-	-
NRF 2	09/09/91	1049	-	-	-	-	-	-
NRF 2	12/04/91	1033	-	-	-	-	-	-
NRF 3	12/19/89	1305	10	1	<100	<10	<1	<50
NRF 3	03/21/90	1410	-	2	<100	-	<1	-
NRF 3	06/19/90	1325	-	2	100	-	<1	-
NRF 3	08/07/90	1315	-	2	<100	-	<1	-
NRF 3	10/02/90	1330	-	2	200	-	<1	-
NRF 3	12/06/90	1150	-	2	<100	-	<1	-
NRF 3	06/17/91	1120	-	-	-	-	-	-
NRF 3 Replicate	06/17/91	1100	-	-	-	-	-	-
NRF 3	12/04/91	0923	-	-	-	-	-	-
NRF 4	12/19/89	1016	20	1	<100	<10	<1	<50
NRF 4	06/19/90	0940	-	2	100	-	1	-
NRF 4	08/07/90	1000	-	2	<100	-	<1	-

Table 2.--*Concentrations of selected total recoverable trace elements in ground and surface water at and near the INEL*--Continued

Copper	Iron	Lead	Man-ganese	Mercury	Nickel	Selenium	Silver	Zinc
-	70	<1	-	<0.10	1	-	<1	-
2	50	3	<10	<0.10	1	1	<1	90
15	1,900	8	<10	<0.10	3	1	<1	160
2	50	3	<10	<0.10	1	1	<1	90
3	180	2	<10	<0.10	1	1	<1	100
1	230	3	30	<0.10	1	1	<1	90
1	320	3	20	<0.10	3	1	<1	80
3	610	4	10	<0.10	2	<1	<1	130
-	1,000	4	-	<0.10	2	-	<1	-
-	90	4	-	<0.10	<1	-	<1	-
-	150	3	-	<0.10	1	-	<1	-
-	200	<1	-	<0.10	2	-	<1	-
2	<10	2	<10	<0.10	2	2	<1	<10
1	<10	1	<10	<0.10	1	2	<1	<10
1	70	<1	<10	<0.10	<1	2	<1	<10
2	60	1	<10	<0.10	2	1	<1	<10
1	200	1	10	<0.10	1	1	<1	<10
3	1,300	3	20	<0.10	1	1	<1	20
2	300	2	<10	<0.10	2	2	<1	<10
-	100	1	-	<0.10	<1	-	<1	-
-	160	<1	-	<0.10	2	-	<1	-
-	2,100	2	-	<0.10	3	-	<1	-
15	80	3	<10	<0.10	-	<1	<1	10
1	<10	<1	<10	<0.10	1	<1	<1	<10
2	50	2	<10	<0.10	1	2	<1	40
3	50	1	<10	<0.10	2	1	<1	<10
3	30	1	<10	<0.10	<1	2	<1	<10
4	40	2	<10	<0.10	1	1	<1	<10
3	120	3	20	<0.10	3	1	<1	20
6	80	2	<10	<0.10	3	1	<1	20
-	190	1	-	<0.10	2	-	<1	-
-	140	4	-	<0.10	6	-	<1	-
-	470	1	-	<0.10	2	-	<1	-
-	240	<1	-	<0.10	2	-	<1	-
-	190	2	-	<0.10	1	-	<1	-
1	20	1	10	<0.10	1	2	<1	<10
16	50	2	<10	<0.10	3	1	<1	<10
3	50	1	<10	<0.10	2	2	<1	<10
4	40	1	<10	<0.10	<1	2	<1	<10
2	40	1	<10	<0.10	1	1	<1	<10
1	50	1	20	<0.10	2	1	<1	10
2	<10	2	<10	<0.10	2	<1	<1	<10
-	<10	<1	-	<0.10	<1	-	<1	-
-	10	<1	-	<0.10	<1	-	<1	-
-	20	1	-	<0.10	5	-	<1	-
-	30	4	-	<0.10	2	-	<1	-
-	<10	<1	-	<0.10	2	-	<1	-
6	120	1	10	<0.10	1	2	<1	30
4	110	1	<10	<0.10	1	2	<1	10
6	60	1	<10	<0.10	1	2	<1	<10
1	70	1	<10	<0.10	1	1	<1	20
2	50	2	20	<0.10	1	1	<1	20
2	150	2	<10	<0.10	<1	1	<1	40
-	60	2	-	<0.10	4	-	<1	-
-	120	2	-	<0.10	3	-	<1	-
-	120	<1	-	<0.10	2	-	<1	-
4	20	1	<10	<0.10	1	2	<1	<10
2	1,400	2	<10	<0.10	3	2	<1	<10
2	30	1	<10	<0.10	1	1	<1	<10

Table 2.--*Concentrations of selected total recoverable trace elements in ground and surface water at and near the INEL*--Continued

Site identifier	Date sampled	Time sampled	Aluminum	Arsenic	Barium	Beryllium	Cadmium	Cobalt
NRF 4	10/02/90	1125	-	2	<100	-	<1	-
NRF 4	12/05/90	1145	-	2	100	-	<1	-
NRF 4	02/07/91	1045	-	2	100	-	<1	-
NRF 4 Replicate	02/07/91	1400	-	2	100	-	<1	-
NRF 4	03/05/91	1040	-	-	-	-	-	-
NRF 4	09/09/91	0937	-	-	-	-	-	-
NRF 4	12/04/91	1209	-	-	-	-	-	-
NRF 6	09/09/91	1330	10	3	100	<10	<1	<1
NRF 6	11/06/91	1415	-	3	200	-	<1	-
NRF 7	09/10/91	1300	400	2	<100	<10	<1	<1
NRF 7	11/06/91	1245	-	2	<100	-	<1	-
TRA DISP.	07/30/91	1300	-	2	100	<10	-	-
WSI 1	12/14/89	1025	30	1	<100	<10	<1	<50
WSI 1	03/19/90	1210	-	1	<100	-	<1	-
WSI 1	06/05/90	1215	-	1	<100	-	<1	-
WSI 1	07/30/90	1315	-	1	<100	-	<1	-
WSI 1	10/03/90	1210	-	1	<100	-	<1	-
WSI 1	12/07/90	1145	-	1	<100	-	<1	-
WSI 1 Replicate	12/07/90	1100	-	1	<100	-	<1	-
WSI 1	03/13/91	1035	-	-	-	-	-	-
WSI 1	06/05/91	1040	-	-	-	-	-	-
WSI 1	09/05/91	0950	-	-	-	-	-	-
WSI 1	12/03/91	1100	-	-	-	-	-	-
WSI 1 Replicate	12/03/91	1100	-	-	-	-	-	-

Table 2.--*Concentrations of selected total recoverable trace elements in ground and surface water at and near the INEL*--Continued

Copper	Iron	Lead	Man-ganese	Mercury	Nickel	Selenium	Silver	Zinc
2	20	1	20	<0.10	2	2	<1	<10
2	<10	<1	<10	<0.10	1	1	<1	<10
2	50	<1	<10	<0.10	<1	2	<1	10
3	30	1	<10	<0.10	<1	2	<1	<10
-	70	1	-	<0.10	<1	-	<1	-
-	170	<1	-	<0.10	2	-	<1	-
-	20	<1	-	<0.10	2	-	<1	-
1	120	<1	20	<0.10	7	2	<1	10
-	260	<1	40	<0.10	21	3	<1	<10
4	670	<1	20	<0.10	9	<1	<1	<10
-	250	<1	20	<0.10	5	2	<1	<10
-	-	2	-	<0.10	-	1	-	-
3	630	3	30	<0.10	-	3	<1	130
2	400	3	<10	0.10	1	2	<1	170
2	470	2	<10	<0.10	1	3	<1	120
1	230	2	<10	<0.10	1	3	<1	120
3	830	2	20	<0.10	4	1	<1	140
2	210	1	10	<0.10	2	2	<1	130
2	150	2	<10	<0.10	<1	2	<1	120
-	200	2	-	<0.10	2	-	<1	-
-	90	2	-	<0.10	<1	-	<1	-
-	250	<1	-	<0.10	2	-	<1	-
-	200	3	-	<0.10	1	-	<1	-
-	170	<1	-	<0.10	<1	-	<1	-

Table 3.--*Concentrations of selected dissolved trace elements in ground and surface water at and near the INEL*

[Analyses were performed by the U. S. Geological Survey National Water Quality Laboratory. Site identifier: see figures 2 and 3 for location of sites. Units are military units for time and micrograms per liter for concentrations of trace elements, except fluoride, which is in milligrams per liter. <10, concentration is less than the indicated reporting level. Continued on following page

Site identifier	Date sampled	Time sampled	Aluminum	Arsenic	Barium	Beryllium	Bromide	Cadmium	Cobalt	Copper	Fluoride
1	05/30/91	1015	10	3	23	<0.5	0.030	<1.0	<3	<10	0.70
2	05/28/91	1145	<10	<1	32	<0.5	0.050	<1.0	<3	<10	0.70
2 Replicate	05/28/91	1200	20	2	31	<0.5	0.040	<1.0	<3	<10	0.80
4	06/04/91	1010	<10	5	130	<0.5	0.080	<1.0	<3	<10	0.30
4 Replicate	06/04/91	1200	<10	5	130	<0.5	0.070	<1.0	<3	<10	0.30
5	09/26/90	1040	-	1	89	-	-	<1.0	-	-	-
6	09/26/90	1410	-	6	75	-	-	<1.0	-	-	-
7	05/20/91	1130	<10	4	17	<0.5	0.030	<1.0	<3	<10	1.40
7 Replicate	05/20/91	1200	<10	4	17	<0.5	0.030	<1.0	<3	<10	1.60
8	10/25/90	1150	-	-	-	-	-	-	-	-	0.50
8	05/31/91	1405	<10	<1	70	<0.5	0.030	<1.0	<3	<10	0.30
9	09/28/90	1610	-	-	-	-	-	-	-	-	0.20
9	05/31/91	0935	10	1	33	<0.5	0.060	<1.0	<3	<10	0.20
11	09/13/89	1400	10	1	50	-	<0.010	<1.0	-	-	0.20
11	10/23/90	1035	-	-	-	-	-	-	-	-	0.40
12	06/15/90	1145	-	-	-	-	0.060	-	-	-	<0.10
12 Replicate	06/14/90	1400	-	-	-	-	0.060	-	-	-	.10
12	08/06/90	1515	-	-	-	-	0.080	-	-	-	.40
12	10/10/90	1150	-	-	-	-	0.070	-	-	-	.10
12	12/11/90	1245	-	-	-	-	0.060	-	-	-	.20
12	02/07/91	1425	-	-	-	-	0.070	-	-	-	.10
12	04/11/91	1125	-	-	-	-	0.060	-	-	-	.20
12	06/10/91	1200	-	-	-	-	0.080	-	-	-	.20
12	09/06/91	1505	-	-	-	-	0.080	-	-	-	.20
12 Replicate	09/06/91	1400	-	-	-	-	0.080	-	-	-	.20
12	12/05/91	1125	-	-	-	-	0.080	-	-	-	.20
14	09/14/89	1330	20	3	20	-	0.040	<1.0	-	-	1.00
14 Replicate	09/14/89	1500	<10	3	20	-	0.030	<1.0	-	-	1.00
14	07/17/90	1330	10	3	20	-	0.050	<1.0	-	-	1.00
14	09/28/90	1005	-	-	-	-	-	-	-	-	<0.10
15	06/06/90	1350	-	-	-	-	0.040	-	-	-	0.30
15	08/06/90	1145	-	-	-	-	0.070	-	-	-	0.40
15 Replicate	08/06/90	1200	-	-	-	-	0.070	-	-	-	0.40
15	10/09/90	1440	-	-	-	-	0.040	-	-	-	0.10
15	12/13/90	1450	-	-	-	-	0.020	-	-	-	0.60
15	02/11/91	1450	-	-	-	-	0.020	-	-	-	0.10
15	04/12/91	1745	-	-	-	-	0.020	-	-	-	0.10
15	06/10/91	1530	-	-	-	-	0.040	-	-	-	0.20
15	09/06/91	1240	-	-	-	-	0.050	-	-	-	0.10
15	12/04/91	1715	-	-	-	-	0.030	-	-	-	0.20
17	12/14/89	1300	-	-	-	-	0.020	-	-	-	0.20
17	03/20/90	1130	-	-	-	-	0.020	-	-	-	0.30
17	06/07/90	0940	-	-	-	-	<0.010	-	-	-	0.10
17	08/02/90	1055	-	-	-	-	0.030	-	-	-	0.20
17	10/10/90	1450	-	-	-	-	0.020	-	-	-	0.30
17	12/10/90	1140	-	-	-	-	<0.010	-	-	-	0.20
17	03/13/91	1145	-	-	-	-	0.020	-	-	-	0.20
17 Replicate	03/13/91	1200	-	-	-	-	0.020	-	-	-	0.20
17	06/06/91	1300	-	-	-	-	0.020	-	-	-	0.20
17	06/06/91	1305	10	2	35	<0.5	0.020	2.0	<3	<10	0.10
17	09/05/91	1150	-	-	-	-	0.030	-	-	-	0.30
17	12/03/91	1215	-	-	-	-	0.030	-	-	-	0.30
18	10/12/90	0950	-	3	51	-	-	<1.0	-	-	-
19	10/12/90	1310	-	-	-	-	-	-	-	-	<0.10

Table 3.--*Concentrations of selected dissolved trace elements in ground and surface water at and near the INEL*--Continued

Replicate, a second sample from the indicated site was submitted for analysis with a different identifier (replicate dates and times may be fictitious). Blank, sample bottle contained deionized water. -, data unavailable]

Iron	Lead	Lithium	Manganese	Mercury	Molybdenum	Nickel	Selenium	Silver	Strontium	Thallium	Vanadium	Zinc
18	<10	22	4	<0.1	<10	<10	<1	3.0	120	-	7	8
14	<10	22	2	<0.1	<10	<10	<1	<1.0	140	-	<6	10
16	<10	22	2	<0.1	<10	<10	<1	<1.0	130	-	<6	13
41	<10	25	<1	<0.1	<10	<10	4	2.0	280	-	7	10
110	<10	27	2	<0.1	<10	<10	4	2.0	280	-	6	22
-	1	-	-	<0.1	-	-	1	<1.0	-	-	-	-
-	<1	-	-	0.1	-	-	1	<1.0	-	-	-	-
10	<10	27	2	<0.1	<10	<10	<1	<1.0	120	-	<6	<3
7	<10	28	2	<0.1	<10	<10	<1	<1.0	120	-	<6	<3
-	-	-	-	-	-	-	-	-	-	-	-	-
21	<10	6	<1	<0.1	<10	<10	<1	<1.0	230	-	<6	14
-	-	-	-	-	-	-	-	-	-	-	-	-
27	<10	<4	2	<0.1	<10	<10	<1	<1.0	190	-	<6	160
8	<1	-	<1	<0.1	-	-	1	2.0	230	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	<1	-	-
-	-	-	-	-	-	-	-	-	-	<1	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-
15	2	-	<1	-	-	-	1	<1.0	170	-	-	-
15	2	-	<1	-	-	-	1	<1.0	170	-	-	-
21	1	-	3	<0.1	-	-	2	<1.0	170	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	<1	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	<1	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-
140	2	-	-	<0.1	-	<10	-	<1.0	-	-	-	-
9	<10	<4	2	<0.1	<10	<10	<1	<1.0	200	-	<6	11
-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-
-	<1	-	-	0.2	-	-	1	<1.0	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-

Table 3.--*Concentrations of selected dissolved trace elements in ground and surface water at and near the INEL*--Continued

Site identifier	Date sampled	Time sampled	Aluminum	Arsenic	Barium	Beryllium	Bromide	Cadmium	Cobalt	Copper	Fluoride
19 Replicate	10/12/90	1315	-	-	-	-	-	-	-	-	<0.10
19	05/21/91	1015	<10	2	80	<0.5	0.040	<1.0	<3	<10	0.30
20	10/25/90	1550	-	-	-	-	-	-	-	-	<0.10
20	05/30/91	1250	<10	1	47	<0.5	0.030	<1.0	<3	<10	0.20
22	10/24/90	1320	-	<1	17	-	-	<1.0	-	-	<0.10
23	05/21/91	1315	<10	1	56	<0.5	0.040	<1.0	<3	<10	0.20
24	02/28/89	1430	<10	2	190	-	0.300	<1.0	-	-	0.20
26	05/23/91	0950	<10	2	37	<0.5	0.040	<1.0	<3	<10	0.40
27	07/20/88	1045	-	3	69	<0.5	-	<1.0	-	-	-
27	10/12/90	1535	-	-	-	-	-	-	-	-	0.50
27	05/23/91	1225	10	2	<100	-	0.150	<1.0	-	-	0.60
29	06/12/91	1515	<10	2	60	<0.5	0.070	<1.0	<3	<10	0.40
31	06/12/91	1235	<10	3	40	0.5	0.041	<1.0	<3	<10	0.40
32	06/12/91	1800	<10	2	59	<0.5	0.120	2.0	<3	<10	0.40
34	10/02/90	1430	-	1	91	-	-	<1.0	-	-	0.30
35	10/25/90	1050	-	2	100	-	-	<1.0	-	-	0.10
36	10/25/90	1145	-	1	120	-	-	<1.0	-	-	0.30
37	10/17/90	1135	-	-	-	-	-	-	-	-	<0.10
38	10/05/90	1450	-	1	190	-	-	<1.0	-	-	0.10
39	10/25/90	0950	-	2	99	-	-	<1.0	-	-	0.10
40	10/16/90	1110	-	-	-	-	-	-	-	-	<0.10
40	01/17/91	1520	-	-	-	-	-	-	-	-	0.30
41	10/16/90	1215	-	1	78	-	-	<1.0	-	-	<0.10
42	10/16/90	1350	-	1	86	-	-	<1.0	-	-	<0.10
43	10/17/90	1415	-	-	-	-	-	-	-	-	<0.10
43	06/21/88	1540	-	2	84	<0.5	-	<1.0	-	-	-
44	10/26/90	1250	-	1	90	-	-	<1.0	-	-	<0.10
44 Replicate	10/26/90	1300	-	1	89	-	-	<1.0	-	-	<0.10
45	10/26/90	1115	-	2	80	-	-	<1.0	-	-	<0.10
46	10/26/90	1430	-	2	83	-	-	<1.0	-	-	<0.10
47	09/30/88	1230	<10	-	-	-	0.047	-	-	-	0.20
47	10/31/90	1125	-	-	-	-	-	-	-	-	0.30
47	01/17/91	1210	-	-	-	-	-	-	-	-	0.20
48	10/31/90	1245	-	2	77	-	-	<1.0	-	-	0.30
50	10/31/90	1005	-	-	-	-	-	-	-	-	0.20
50	01/17/91	1115	-	-	-	-	-	-	-	-	0.30
51	10/10/90	1115	-	-	-	-	-	-	-	-	<0.10
52	10/16/90	1525	-	1	90	-	-	<1.0	-	-	<0.10
53	09/24/90	1600	-	-	-	-	-	-	-	-	0.10
54	09/24/90	1055	-	-	-	-	-	-	-	-	<0.10
54	01/14/91	1145	-	-	-	-	-	-	-	-	0.40
54 Replicate	01/14/91	1200	-	-	-	-	-	-	-	-	0.30
55	09/24/90	1250	-	-	-	-	-	-	-	-	<0.10
56	10/22/90	1455	-	-	-	-	-	-	-	-	0.20
57	10/29/90	1300	-	-	-	-	-	-	-	-	0.40
57 Replicate	10/29/90	1600	-	-	-	-	-	-	-	-	0.40
57	12/06/90	1405	-	-	-	-	-	-	-	-	0.30
57	05/13/91	1410	10	2	170	<0.5	0.050	<1.0	<3	<10	0.30
59	10/12/90	1230	-	-	-	-	-	-	-	-	0.10
60	09/25/90	1220	-	-	-	-	-	-	-	-	0.20
60	01/04/91	1430	-	-	-	-	-	-	-	-	0.40
61	09/27/90	1345	-	-	-	-	-	-	-	-	<0.10
61 Replicate	09/27/90	1330	-	-	-	-	-	-	-	-	0.20
62	10/09/90	1255	-	-	-	-	-	-	-	-	0.20
63	10/12/90	1300	-	-	-	-	-	-	-	-	0.20
65	10/23/90	1220	-	-	-	-	-	-	-	-	0.20
65	01/11/91	1310	-	-	-	-	-	-	-	-	0.30
65	05/16/91	1020	<10	<1	56	<0.5	0.050	<1.0	<3	<10	<0.10
66	10/22/90	1320	-	-	-	-	-	-	-	-	0.20

Table 3.--*Concentrations of selected dissolved trace elements in ground and surface water at and near the INEL*--Continued

Iron	Lead	Lithium	Man-ganese	Mercury	Molyb-denum	Nickel	Sele-nium	Silver	Stron-tium	Thal-lium	Vana-dium	Zinc
-	-	-	-	-	-	-	-	-	-	-	-	-
11	<10	5	<1	<0.1	<10	<10	<1	<1.0	280	-	<6	5
-	-	-	-	-	-	-	-	-	-	-	-	-
21	<10	6	2	<0.1	<10	<10	<1	2.0	230	-	<6	21
-	1	-	-	0.1	-	-	<1	<1.0	-	-	-	-
17	<10	6	2	<0.1	<10	<10	<1	<1.0	230	-	<6	5
15	<5	-	2	-	-	-	<1	2.0	450	-	-	-
19	<10	17	2	<0.1	<10	<10	<1	<1.0	190	-	<6	<3
-	<5	-	-	<0.1	-	-	2	<1.0	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-
11	<1	-	<1	<0.1	-	-	<1	<1.0	230	-	-	-
26	<1	26	<1	<0.1	<10	<10	<1	<1.0	170	-	<6	5
17	1	18	<1	<0.1	<10	<10	<1	<1.0	200	-	<6	5
40	<1	21	<1	<0.1	<10	<10	<1	<1.0	270	-	<6	6
-	1	-	-	<0.1	-	-	1	<1.0	-	-	-	-
-	<1	-	-	<0.1	-	-	<1	<1.0	-	-	-	-
-	<1	-	-	<0.1	-	-	1	<1.0	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-
-	<1	-	-	0.2	-	-	1	<1.0	-	-	-	-
-	1	-	-	<0.1	-	-	<1	<1.0	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-
-	1	-	-	0.2	-	-	1	<1.0	-	-	-	-
-	1	-	-	<0.1	-	-	1	1.0	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-
-	<5	-	-	<0.1	-	-	1	<1.0	-	-	-	-
-	<1	-	-	0.1	-	-	2	<1.0	-	-	-	-
-	<1	-	-	0.1	-	-	2	<1.0	-	-	-	-
-	<1	-	-	0.1	-	-	1	<1.0	-	-	-	-
-	<1	-	-	<0.1	-	-	1	<1.0	-	-	-	-
7	<5	-	<1	0.5	-	-	-	-	270	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-
-	<1	-	-	0.2	-	-	1	<1.0	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-
-	1	-	-	0.1	-	-	1	2.0	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-
4	<10	<4	<1	0.2	<10	<10	<1	<1.0	360	-	<6	14
-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-
210	<10	5	3	<0.1	<10	<10	<1	<1.0	390	-	<6	420
-	-	-	-	-	-	-	-	-	-	-	-	-

Table 3.--*Concentrations of selected dissolved trace elements in ground and surface water at and near the INEL*--Continued

Site identifier	Date sampled	Time sampled	Aluminum	Arsenic	Barium	Beryllium	Bromide	Cadmium	Cobalt	Copper	Fluoride
67	10/03/90	1115	-	-	-	-	-	-	-	-	0.10
68	10/11/90	1400	-	-	-	-	-	-	-	-	2.70
68	01/18/91	1450	-	-	-	-	-	-	-	-	2.70
69	10/05/90	1250	-	-	-	-	-	-	-	-	<0.10
70	10/03/90	1145	-	-	-	-	-	-	-	-	<0.10
71	10/18/90	1530	-	-	-	-	-	-	-	-	0.20
72	10/11/90	1305	-	-	-	-	-	-	-	-	<0.10
73	10/22/90	1125	-	-	-	-	-	-	-	-	0.20
74	10/22/90	1045	-	-	-	-	-	-	-	-	0.20
76	10/17/90	1540	-	-	-	-	-	-	-	-	<0.10
76 Replicate	10/17/90	1500	-	-	-	-	-	-	-	-	<0.10
76	01/15/91	1435	-	-	-	-	-	-	-	-	0.20
77	10/25/90	1430	-	1	160	-	-	<1.0	-	-	0.20
79	10/01/90	1510	-	1	66	-	-	<1.0	-	-	0.10
82	10/03/90	1530	-	-	-	-	-	-	-	-	0.20
83	10/11/90	1245	-	-	-	-	-	-	-	-	0.20
83 Replicate	10/11/90	1500	-	-	-	-	-	-	-	-	<0.10
84	10/18/90	1430	-	-	-	-	-	-	-	-	0.20
85	10/24/90	1500	-	-	-	-	-	-	-	-	<0.10
85	06/04/91	1400	<10	2	110	<0.5	0.030	<1.0	<3	<10	0.20
86	09/28/90	1720	-	-	-	-	-	-	-	-	<0.10
86	05/31/91	1145	40	1	19	<0.5	0.060	2	3	<10	0.20
87	04/05/89	1340	<10	2	29	-	<0.010	<1.0	-	-	0.20
87	10/23/90	1545	-	-	-	-	-	-	-	-	0.20
87	01/03/91	1230	-	-	-	-	-	-	-	-	0.30
88	09/29/88	1005	<10	-	-	-	0.250	-	-	-	0.30
88	04/04/89	1250	<10	2	22	-	0.220	<1.0	-	-	0.30
88	08/28/90	1255	-	1	19	<0.5	-	<1.0	-	-	-
88	08/28/90	1315	-	2	21	<0.5	-	<1.0	-	-	-
88	01/02/91	1245	-	-	-	-	-	-	-	-	0.40
88	10/15/91	1550	-	1	18	<0.5	-	<1.0	<3	<10	-
89	04/04/89	1500	<10	2	17	-	0.120	<1.0	-	-	0.30
89	10/12/90	1400	-	-	-	-	-	-	-	-	0.10
89	01/02/91	1450	-	-	-	-	-	-	-	-	0.30
90	04/05/89	1125	<10	1	35	-	<0.010	<1.0	-	-	0.20
90	10/24/90	1050	-	-	-	-	-	-	-	-	<0.10
90	06/22/88	1103	-	1	36	<0.5	-	<1.0	-	-	-
97	09/26/88	1300	<10	-	-	-	0.065	-	-	-	0.20
97	11/30/89	1055	-	-	-	-	0.070	-	-	-	0.20
97	03/19/90	1320	-	-	-	-	0.060	-	-	-	0.20
97	06/07/90	1150	-	-	-	-	0.060	-	-	-	<0.10
97 Replicate	06/07/90	1200	-	-	-	-	0.060	-	-	-	0.40
97	08/01/90	1245	-	-	-	-	0.080	-	-	-	0.10
97	10/04/90	1055	-	-	-	-	0.070	-	-	-	<0.10
97	12/07/90	1330	-	-	-	-	0.060	-	-	-	0.10
97 Replicate	12/07/90	1300	-	-	-	-	0.060	-	-	-	0.10
97	01/03/91	1255	-	-	-	-	-	-	-	-	0.20
97	03/13/91	1245	-	-	-	-	0.070	-	-	-	0.20
97	06/07/91	1050	-	-	-	-	0.080	-	-	-	0.20
97 Replicate	06/07/91	1000	-	-	-	-	0.080	-	-	-	0.20
97	09/05/91	1350	-	-	-	-	0.080	-	-	-	0.20
97	12/03/91	1425	-	-	-	-	0.080	-	-	-	0.20
98	11/29/89	1230	<10	1	41	-	0.040	<1.0	-	-	0.20
98	03/19/90	1000	-	-	-	-	0.040	-	-	-	0.20
98	06/05/90	1000	-	-	-	-	0.040	-	-	-	0.30
98	07/30/90	1055	-	-	-	-	0.040	-	-	-	0.40
98 Replicate	07/30/90	1200	-	-	-	-	0.040	-	-	-	0.70
98	10/03/90	1015	-	-	-	-	0.040	-	-	-	<0.10
98	12/07/90	1005	-	-	-	-	0.030	-	-	-	0.20

Table 3.--*Concentrations of selected dissolved trace elements in ground and surface water at and near the INEL*--Continued

Iron	Lead	Lithium	Man-ganese	Mercury	Molyb-denum	Nickel	Sele-nium	Silver	Stron-tium	Thal-lium	Vana-dium	Zinc
-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-
-	<1	-	-	<0.1	-	-	2	<1.0	-	-	-	-
-	<1	-	-	0.1	-	-	<1	<1.0	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-
28	<10	6	3	<0.1	<10	<10	<1	3.0	310	-	<6	8
-	-	-	-	-	-	-	-	-	-	-	-	-
59	30	11	2	<0.1	<10	<10	-	<1.0	140	-	8	210
6	<5	-	3	-	-	-	1	2.0	230	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-
39	<5	-	14	<0.1	-	-	-	-	190	-	-	-
7	<5	-	6	-	-	-	3	1.0	190	-	-	-
-	<1	-	-	<0.1	-	-	2	<1.0	-	-	-	-
-	<1	-	-	<0.1	-	-	5	<1.0	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-
5	<10	9	16	-	<10	<10	2	<1.0	180	-	<6	220
4	6	-	1	-	-	-	4	1.0	130	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-
4	9	-	2	-	-	-	1	2.0	240	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-
-	<5	-	-	<0.1	-	-	1	<1.0	-	-	-	-
9	<5	-	<1	<0.1	-	-	-	-	280	-	-	-
-	-	-	-	-	-	-	-	-	-	<1	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-
4	<1	-	<1	-	-	-	1	2.0	220	<1	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-

Table 3.--*Concentrations of selected dissolved trace elements in ground and surface water at and near the INEL*--Continued

Site identifier	Date sampled	Time sampled	Aluminum	Arsenic	Barium	Beryllium	Bromide	Cadmium	Cobalt	Copper	Fluoride
98	01/07/91	1010	-	-	-	-	-	-	-	-	0.40
98	03/13/91	0930	-	-	-	-	0.040	-	-	-	0.20
98	06/07/91	0900	-	-	-	-	0.040	-	-	-	<0.10
98	09/05/91	1045	-	-	-	-	0.050	-	-	-	0.20
98	12/03/91	0940	-	-	-	-	0.041	-	-	-	0.20
99	11/30/89	1320	-	-	-	-	0.050	-	-	-	0.10
99	03/20/90	0925	-	-	-	-	0.050	-	-	-	0.20
99	06/05/90	1350	-	-	-	-	0.050	-	-	-	0.30
99	08/01/90	1010	-	-	-	-	0.050	-	-	-	0.20
99	10/03/90	1335	-	-	-	-	0.050	-	-	-	<0.10
99 Replicate	10/03/90	1330	-	-	-	-	0.050	-	-	-	<0.10
99	12/10/90	1015	-	-	-	-	0.040	-	-	-	0.10
99	01/03/91	1345	-	-	-	-	-	-	-	-	0.30
99	03/13/91	1340	-	-	-	-	0.060	-	-	-	0.10
99	06/07/91	0955	-	-	-	-	0.050	-	-	-	0.20
99	09/05/91	1450	-	-	-	-	0.060	-	-	-	0.20
99	12/03/91	1510	-	-	-	-	0.050	-	-	-	0.20
100	09/28/90	1225	-	-	-	-	-	-	-	-	0.70
100	01/07/91	1320	-	-	-	-	-	-	-	-	0.70
100 Replicate	01/07/91	1300	-	-	-	-	-	-	-	-	0.70
101	09/28/90	1345	-	-	-	-	-	-	-	-	0.90
101	05/15/91	1240	10	2	18	<0.5	0.030	<1.0	<3	<10	0.90
102	06/08/90	0955	-	-	-	-	0.050	-	-	-	0.20
102	08/01/90	1415	-	-	-	-	0.070	-	-	-	0.20
102	10/04/90	1245	-	-	-	-	0.070	-	-	-	<0.10
102	12/10/90	1315	-	-	-	-	0.050	-	-	-	0.20
102 Replicate	12/10/90	1230	-	-	-	-	0.060	-	-	-	0.10
102	02/07/91	1035	-	-	-	-	0.070	-	-	-	0.20
102	04/11/91	1245	-	-	-	-	0.070	-	-	-	0.20
102	06/07/91	1210	-	-	-	-	0.070	-	-	-	0.20
102	09/05/91	1250	-	-	-	-	0.070	-	-	-	0.20
102	12/03/91	1335	-	-	-	-	0.070	-	-	-	0.20
103	10/24/90	1435	-	-	-	-	-	-	-	-	0.60
104	10/24/90	1600	-	-	-	-	-	-	-	-	0.30
104	01/10/91	1330	-	-	-	-	-	-	-	-	0.20
104 Replicate	01/10/91	1400	-	-	-	-	-	-	-	-	0.20
105	09/28/90	1240	-	-	-	-	-	-	-	-	0.20
106	10/11/90	1500	-	-	-	-	-	-	-	-	<0.10
106	01/07/91	1530	-	-	-	-	-	-	-	-	0.30
107	10/22/90	1530	-	-	-	-	-	-	-	-	0.30
108	09/05/89	1230	<10	1	35	-	0.030	<1.0	-	-	0.20
108	10/24/90	1230	-	-	-	-	-	-	-	-	0.30
109	09/28/90	1445	-	-	-	-	-	-	-	-	<0.10
110	10/09/90	1430	-	-	-	-	-	-	-	-	0.50
110	05/08/91	1400	<10	2	39	<0.5	0.050	<1.0	<3	<10	0.50
111	01/15/91	1030	-	-	-	-	-	-	-	-	0.20
112	09/28/88	1050	<10	-	-	-	0.052	-	-	-	0.20
112 Replicate	09/28/88	1050	<10	-	-	-	0.050	-	-	-	0.20
112	10/23/90	0935	-	-	-	-	-	-	-	-	0.20
112	01/11/91	1125	-	-	-	-	-	-	-	-	0.20
112	05/13/91	1015	10	1	180	<0.5	0.050	<1.0	<3	<10	0.30
113	10/03/90	1455	-	-	-	-	-	-	-	-	0.20
113	01/15/91	1320	-	-	-	-	-	-	-	-	0.20
114	01/15/91	1235	-	-	-	-	-	-	-	-	0.20
115	10/23/90	1045	-	-	-	-	-	-	-	-	<0.10
115	01/11/91	1210	-	-	-	-	-	-	-	-	0.30
116	01/15/91	1125	-	-	-	-	-	-	-	-	0.20
117	04/03/89	1535	<10	3	17	-	<0.010	<1.0	-	-	0.20
117	08/29/90	1155	-	2	16	0.8	-	<1.0	-	-	-

Table 3.--*Concentrations of selected dissolved trace elements in ground and surface water at and near the INEL*--Continued

Iron	Lead	Lithium	Manganese	Mercury	Molybdenum	Nickel	Selenium	Silver	Strontium	Thallium	Vanadium	Zinc
-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	<1	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-
9	<10	28	<1	<0.1	<10	<10	<1	<1.0	90	-	<6	73
-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-
8	1	-	<1	<0.1	-	-	1	<1.0	200	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-
5	20	17	<1	<0.1	<10	<10	<1	<1.0	170	-	<6	130
-	-	-	-	-	-	-	-	-	-	-	-	-
6	<5	-	<1	0.3	-	-	-	-	400	-	-	-
8	<5	-	<1	0.3	-	-	-	-	400	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-
6	<10	5	<1	0.2	<10	<10	<1	<1.0	400	-	<6	92
-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-
14	5	-	<1	-	-	-	1	<1.0	160	-	-	-
-	<1	-	-	<0.1	-	-	1	<1.0	-	-	-	-

Table 3.--*Concentrations of selected dissolved trace elements in ground and surface water at and near the INEL*--Continued

Site identifier	Date sampled	Time sampled	Aluminum	Arsenic	Barium	Beryllium	Bromide	Cadmium	Cobalt	Copper	Fluoride
117	08/29/90	1214	-	2	18	<0.5	-	<1.0	-	-	-
117	01/04/91	1250	-	-	-	-	-	-	-	-	0.30
117	10/16/91	1005	-	3	18	<0.5	-	<1.0	<3	<10	-
119	04/03/89	1420	<10	3	28	-	0.060	<1.0	-	-	0.20
119	09/11/90	1145	<10	-	28	-	0.080	-	-	-	0.50
119	10/15/91	1320	-	3	28	0.7	-	<1.0	<3	<10	-
120	04/04/89	1100	<10	3	51	-	<0.010	<1.0	-	-	0.20
120	08/27/90	1443	-	3	50	<0.5	-	<1.0	-	-	-
120	08/27/90	1446	-	2	49	<0.5	-	<1.0	-	-	-
120	01/16/91	1030	-	-	-	-	-	-	-	-	0.20
120	10/25/91	0935	-	2	49	<0.5	-	<1.0	<3	<10	-
121	10/15/91	1540	-	1	81	<0.5	-	<1.0	<3	<10	-
122	10/15/91	1315	-	2	110	<0.5	-	<1.0	<3	<10	-
122 Replicate	10/15/91	1600	-	2	110	0.5	-	<1.0	<3	<10	-
123	10/15/91	1115	-	1	140	<0.5	-	<1.0	<3	<10	-
ANP 3	03/07/89	1310	<10	<1	130	-	0.310	<1.0	-	-	0.10
ANP 8	12/13/89	1135	20	2	86	-	0.040	1.0	-	-	0.20
ARBOR TEST	02/15/89	1115	<10	2	28	-	0.034	<1.0	-	-	0.80
ARBOR TEST	09/28/90	1130	-	-	-	-	-	-	-	-	0.70
AREA II	09/20/90	1530	-	3	34	-	-	<1.0	-	-	-
ATOMIC CITY	10/09/90	1345	-	-	-	-	-	-	-	-	0.40
BADGING FACILITY	10/15/90	0905	-	-	-	-	-	-	-	-	<0.10
BIG LOST R. #1	03/28/89	0830	-	-	-	-	-	-	-	-	0.30
BIG LOST R. #2	03/28/89	0950	-	-	-	-	-	-	-	-	0.20
BIG LOST R. #2	10/02/90	1130	-	-	-	-	-	-	-	-	0.20
BIRCH CREEK #1	03/28/89	1615	-	-	-	-	-	-	-	-	0.20
BIRCH CREEK #2	10/25/90	1500	-	-	-	-	-	-	-	-	0.30
BIRCH CREEK #3	03/28/89	1500	-	-	-	-	-	-	-	-	0.20
Blank	07/20/88	1000	-	<1	2	<0.5	-	<1.0	-	-	-
Blank	12/01/89	1440	-	-	-	-	<0.010	-	-	-	<0.10
Blank	11/02/90	1100	-	-	-	-	<0.010	-	-	-	<0.10
CERRO GRANDE	10/18/90	1145	-	-	-	-	-	-	-	-	0.30
CERRO GRANDE Rep.	10/18/90	1130	-	-	-	-	-	-	-	-	0.30
CFA 1	10/15/90	0950	-	-	-	-	-	-	-	-	<0.10
CFA 1	01/10/91	1000	-	-	-	-	-	-	-	-	0.10
CFA 1	06/19/91	0925	<10	<1	92	<0.5	0.140	<1.0	<3	<10	0.20
CFA 2	10/15/90	1025	-	-	-	-	-	-	-	-	<0.10
CFA 2	01/10/91	0930	-	-	-	-	-	-	-	-	0.10
CPP 1	10/31/90	1040	-	-	-	-	-	-	-	-	0.30
CPP 1 Replicate	10/31/90	1100	-	-	-	-	-	-	-	-	0.30
CPP 1	01/17/91	1040	-	-	-	-	-	-	-	-	0.20
CPP 2	10/31/90	1105	-	-	-	-	-	-	-	-	0.20
CPP 2	01/17/91	1020	-	-	-	-	-	-	-	-	0.30
CPP 4	10/18/90	0910	-	-	-	-	-	-	-	-	<0.10
CPP POND 1	06/06/91	0930	<10	1	81	<0.5	0.040	<1.0	<3	<10	0.10
CPP POND 2	01/25/88	1100	<10	1	4	<0.5	0.032	<1.0	-	-	0.30
CPP POND 2	04/26/88	0950	20	2	98	-	0.041	<1.0	-	-	0.30
CPP POND 2	07/28/88	0900	10	2	300	-	0.079	<1.0	-	-	0.20
CPP POND 2	10/31/88	0900	20	2	18	-	0.036	<1.0	-	-	0.20
CWP 1	10/03/90	1445	-	-	-	-	-	-	-	-	<0.10
CWP 2	10/05/90	1405	-	-	-	-	-	-	-	-	<0.10
CWP 3	10/09/90	1420	-	-	-	-	-	-	-	-	<0.10
CWP 4	10/09/90	1540	-	-	-	-	-	-	-	-	0.20
CWP 5	10/12/90	1445	-	-	-	-	-	-	-	-	0.20
EBR I	10/15/90	1155	-	-	-	-	-	-	-	-	<0.10
EBR I	06/19/91	1110	<10	1	21	<0.5	0.020	<1.0	<3	<10	0.20
FIRE STA. #2	10/15/90	1110	-	-	-	-	-	-	-	-	0.10
FIRE STA. #2	01/10/91	1030	-	-	-	-	-	-	-	-	0.10
FIRE STA. #2	06/19/91	1325	<10	<1	70	<0.5	0.040	<1.0	<3	<10	0.20

Table 3.--*Concentrations of selected dissolved trace elements in ground and surface water at and near the INEL*--Continued

Iron	Lead	Lithium	Manganese	Mercury	Molybdenum	Nickel	Selenium	Silver	Strontium	Thallium	Vanadium	Zinc
-	6	-	-	<0.1	-	-	1	<1.0	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-
8	<10	7	<1	-	<10	<10	1	<1.0	160	-	14	8
6	<1	-	4	<0.1	-	-	2	<1.0	130	-	-	-
16	<1	-	1	-	-	-	-	-	140	-	-	-
3	<10	5	<1	-	<10	<10	3	<1.0	140	-	13	8
8	<5	-	<1	-	-	-	2	<1.0	220	-	-	-
-	<1	-	-	<0.1	-	-	1	<1.0	-	-	-	-
-	1	-	-	0.1	-	-	1	1.0	_	-	_	_
-	-	-	-	-	-	-	-	-	-	-	-	-
10	<10	6	<1	-	<10	<10	2	<1.0	210	-	8	20
11	<10	5	11	-	<10	20	1	<1.0	270	-	<6	26
33	<10	5	13	-	<10	10	1	<1.0	290	-	<6	5
23	<10	6	12	-	<10	<10	<1	<1.0	290	-	<6	10
16	<10	6	7	-	<10	20	<1	<1.0	330	-	<6	24
410	<5	-	84	-	-	-	<1	<1.0	350	-	-	-
5	1	-	<1	<0.1	-	-	2	4.0	210	-	-	-
6	<5	-	<1	<0.1	-	-	<1	<1.0	120	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-
-	<1	-	-	<0.1	-	-	<1	<1.0	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-
14	-	-	8	-	-	-	-	-	-	-	-	-
11	-	-	2	-	-	-	-	-	-	-	-	-
-	-		-	-	-		-	-	-	-	-	-
23	-	-	1	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-
22	-	-	2	-	-	-	-	-	-	-	-	-
-	<5	-	-	<0.1	-	-	<1	<1.0	-	-	-	-
-	-	-	-	-	-	-	-	-	-	<1	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-
10	1	5	<1	<0.1	<10	<10	<1	<1.0	430	-	<6	5
-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-
16	20	11	<1	<0.1	<10	<10	<1	2.0	270	-	6	17
21	<5	-	<1	<0.1	-	-	1	<1.0	12	-	-	-
15	<5	-	2	<0.1	-	-	1	<1.0	340	-	-	-
20	<5	-	10	-	-	-	1	1.0	1,300	-	-	-
120	<5	-	6	0.4	-	-	1	<1.0	57	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-
6	1	<4	<1	<0.1	<10	<10	<1	<1.0	200	-	14	3
-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-
9	1	<4	<1	<0.1	<10	<10	<1	<1.0	280	-	6	15

Table 3.--*Concentrations of selected dissolved trace elements in ground and surface water at and near the INEL*--Continued

Site identifier	Date sampled	Time sampled	Aluminum	Arsenic	Barium	Beryllium	Bromide	Cadmium	Cobalt	Copper	Fluoride
HIGHWAY 3	10/23/90	1435	-	-	-	-	-	-	-	-	0.10
IET 1	03/01/89	1215	<10	2	110	-	0.049	<1.0	-	-	0.20
LITTLE LOST R. #1	03/28/89	1140	-	-	-	-	-	-	-	-	0.10
LITTLE LOST R. #1	10/02/90	1445	-	-	-	-	-	-	-	-	<0.10
LITTLE LOST R. #2	03/28/89	1300	-	-	-	-	-	-	-	-	0.20
LIDY HOT SPRINGS	11/05/90	1255	10	9	48	-	0.020	<1.0	-	-	4.80
MCKINNEY	06/13/91	1125	<10	2	64	<0.5	0.010	<1.0	<3	<10	0.20
MTR TEST	09/28/90	1520	-	-	-	-	-	-	-	-	0.20
MUD LAKE	10/02/90	1630	-	-	-	-	-	-	-	-	0.30
NO NAME 1	05/22/91	1140	<10	2	63	<0.5	0.040	<1.0	<3	<10	0.40
NPR TEST	06/20/91	1110	<10	1	84	<0.5	0.050	<1.0	<3	<10	0.20
NRF 1	12/19/89	1325	-	-	-	-	0.060	-	-	-	0.20
NRF 1	03/21/90	1235	-	-	-	-	0.060	-	-	-	<0.10
NRF 1	06/19/90	1345	-	-	-	-	0.070	-	-	-	0.30
NRF 1	08/07/90	1245	-	-	-	-	0.070	-	-	-	0.50
NRF 1	10/02/90	1405	-	-	-	-	0.070	-	-	-	<0.10
NRF 1	12/06/90	1030	-	-	-	-	0.060	-	-	-	0.20
NRF 1	03/05/91	1125	-	-	-	-	0.060	-	-	-	0.10
NRF 1	06/17/91	1135	-	-	-	-	0.070	-	-	-	0.20
NRF 1	09/09/91	1144	-	-	-	-	0.070	-	-	-	0.20
NRF 1 Replicate	09/09/91	1100	-	-	-	-	0.080	-	-	-	0.20
NRF 1	12/04/91	0940	-	-	-	-	0.080	-	-	-	0.20
NRF 2	05/23/89	1010	30	1	140	-	0.060	<1.0	-	-	0.30
NRF 2	12/21/89	1100	-	-	-	-	0.070	-	-	-	0.20
NRF 2	03/21/90	1130	-	-	-	-	0.070	-	-	-	0.10
NRF 2 Replicate	03/21/90	1000	-	-	-	-	0.060	-	-	-	<0.10
NRF 2	06/19/90	1115	-	-	-	-	0.080	-	-	-	0.30
NRF 2	08/07/90	1110	-	-	-	-	0.080	-	-	-	0.50
NRF 2	10/02/90	1255	-	-	-	-	0.070	-	-	-	<0.10
NRF 2	12/05/90	1010	-	-	-	-	0.060	-	-	-	0.30
NRF 2	03/05/91	1145	-	-	-	-	0.060	-	-	-	0.20
NRF 2 Replicate	03/05/91	0900	-	-	-	-	0.070	-	-	-	0.10
NRF 2	06/17/91	1035	-	-	-	-	0.070	-	-	-	0.20
NRF 2	09/09/91	1049	-	-	-	-	0.080	-	-	-	0.20
NRF 2	12/04/91	1033	-	-	-	-	0.080	-	-	-	0.20
NRF 3	12/19/89	1305	-	-	-	-	0.060	-	-	-	-
NRF 3	03/21/90	1410	-	-	-	-	0.060	-	-	-	0.10
NRF 3	06/19/90	1325	-	-	-	-	0.070	-	-	-	0.40
NRF 3	08/07/90	1315	-	-	-	-	0.070	-	-	-	0.60
NRF 3	10/02/90	1330	-	-	-	-	0.070	-	-	-	<0.10
NRF 3	12/06/90	1150	-	-	-	-	0.060	-	-	-	0.10
NRF 3	06/17/91	1120	-	-	-	-	0.070	-	-	-	0.20
NRF 3 Replicate	06/17/91	1100	-	-	-	-	0.070	-	-	-	0.20
NRF 3	12/04/91	0923	-	-	-	-	0.070	-	-	-	0.20
NRF 4	12/19/89	1016	-	-	-	-	0.060	-	-	-	0.20
NRF 4	06/19/90	0940	-	-	-	-	0.050	-	-	-	0.30
NRF 4	08/07/90	1000	-	-	-	-	0.070	-	-	-	0.60
NRF 4	10/02/90	1125	-	-	-	-	0.080	-	-	-	<0.10
NRF 4	12/05/90	1145	-	-	-	-	0.060	-	-	-	0.20
NRF 4	02/07/91	1045	-	-	-	-	0.060	-	-	-	0.10
NRF 4 Replicate	02/07/91	1400	-	-	-	-	0.070	-	-	-	0.20
NRF 4	03/05/91	1040	-	-	-	-	0.070	-	-	-	0.10
NRF 4	09/09/91	0937	-	-	-	-	0.070	-	-	-	0.20
NRF 4	12/04/91	1209	-	-	-	-	0.080	-	-	-	0.20
NRF 6	09/09/91	1330	-	-	-	-	0.090	-	-	-	0.20
NRF 6	11/06/91	1415	-	-	-	-	0.080	-	-	-	0.20
NRF 7	09/10/91	1300	-	-	-	-	0.021	-	-	-	0.20
NRF 7	11/06/91	1245	-	-	-	-	0.021	-	-	-	0.30
OMRE	10/15/90	1300	-	-	-	-	-	-	-	-	<0.10

Table 3.--*Concentrations of selected dissolved trace elements in ground and surface water at and near the INEL*--Continued

Iron	Lead	Lithium	Manganese	Mercury	Molybdenum	Nickel	Selenium	Silver	Strontium	Thallium	Vanadium	Zinc
-	-	-	-	-	-	-	-	-	-	-	-	-
120	<5	-	170	-	-	-	1	1.0	260	-	-	-
15	-	-	<1	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-
<3	-	-	<1	-	-	-	-	-	-	-	-	-
11	<1	-	12	<0.1	-	-	<1	<1.0	990	-	-	-
6	<1	5	<1	<0.1	<10	<10	<1	<1.0	160	-	<6	8
-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-
84	20	5	3	<0.1	<10	<10	2	2.0	160	-	<6	6
27	2	<4	4	<0.1	<10	<10	<1	<1.0	290	-	<6	150
-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-
6	1	-	<1	-	-	-	2	<1.0	300	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	<1	-	-
-	-	-	-	-	-	-	-	-	-	<1	-	-
-	-	-	-	-	-	-	-	-	-	<1	-	-
-	-	-	-	-	-	-	-	-	-	<1	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-

Table 3.--*Concentrations of selected dissolved trace elements in ground and surface water at and near the INEL*--Continued

Site identifier	Date sampled	Time sampled	Aluminum	Arsenic	Barium	Beryllium	Bromide	Cadmium	Cobalt	Copper	Fluoride
P&W 2	10/12/90	1130	-	-	-	-	-	-	-	-	<0.10
P&W 2	05/22/91	1405	<10	1	43	<0.5	0.020	<1.0	<3	<10	0.30
PARK BELL	06/11/91	1140	-	21	62	<0.5	-	<1.0	<3	<10	-
PSTF TEST	09/27/90	1210	-	2	70	-	-	<1.0	-	-	-
PW 1	09/28/90	1500	-	-	-	-	-	-	-	-	<0.10
PW 1	01/07/91	1430	-	-	-	-	-	-	-	-	0.30
PW 2	10/16/90	1035	-	-	-	-	-	-	-	-	0.30
PW 2	01/08/91	1115	-	-	-	-	-	-	-	-	0.40
PW 2 Replicate	01/08/91	1200	-	-	-	-	-	-	-	-	0.30
PW 3	10/16/90	1415	-	-	-	-	-	-	-	-	0.20
PW 3	01/08/91	1400	-	-	-	-	-	-	-	-	0.50
PW 4	10/17/90	1430	-	-	-	-	-	-	-	-	0.20
PW 4 Replicate	10/17/90	1445	-	-	-	-	-	-	-	-	0.20
PW 4	01/07/91	1500	-	-	-	-	-	-	-	-	0.20
PW 5	10/10/90	1340	-	-	-	-	-	-	-	-	0.20
PW 5	10/10/90	1220	-	-	-	-	-	-	-	-	<0.10
PW 6	10/18/90	1320	-	-	-	-	-	-	-	-	0.20
PW 6	01/14/91	1305	-	-	-	-	-	-	-	-	0.10
PW 7	10/22/90	1215	-	-	-	-	-	-	-	-	0.30
PW 7	01/11/91	1340	-	-	-	-	-	-	-	-	0.30
PW 8	01/04/91	1530	-	-	-	-	-	-	-	-	0.20
PW 9	10/22/90	1000	-	-	-	-	-	-	-	-	0.20
PW 9	01/14/91	1230	-	-	-	-	-	-	-	-	0.30
RIFLE RANGE	06/29/88	0920	<10	2	69	<0.5	0.029	<1.0	-	-	0.40
RWMC	03/23/89	1350	20	2	37	-	<0.010	<1.0	-	-	0.20
RWMC	10/30/90	0935	-	-	-	-	-	-	-	-	0.20
RWMC Replicate	10/30/90	1200	-	-	-	-	-	-	-	-	0.30
RWMC	01/03/91	1045	-	-	-	-	-	-	-	-	0.20
SIMPLOT 1	05/10/91	1100	<10	2	110	<0.5	0.040	<1.0	<3	<10	<0.10
SITE 9	10/23/90	1500	-	2	55	-	-	<1.0	-	-	<0.10
SITE 9	06/25/91	1430	<10	2	56	<0.5	0.030	<1.0	<3	<10	0.40
SITE 14	10/11/90	1445	-	-	-	-	-	-	-	-	0.40
SITE 14	06/13/91	1430	<10	4	63	<0.5	0.020	<1.0	<3	<10	0.50
SITE 17	06/18/91	1420	<10	2	78	<0.5	0.040	<1.0	<3	<10	0.10
SITE 17 Replicate	06/18/91	1500	<10	2	78	<0.5	0.040	<1.0	<3	<10	0.10
SITE 19	10/01/90	1345	-	-	-	-	-	-	-	-	0.10
SITE 19 Replicate	10/01/90	1400	-	-	-	-	-	-	-	-	0.20
SITE 19	05/09/91	1345	<10	1	45	<0.5	0.10	<1.0	<3	<10	<0.10
SPERT 1	10/15/90	1340	-	-	-	-	-	-	-	-	0.20
STODDART	06/12/91	0915	10	18	51	<0.5	0.030	<1.0	<3	<10	0.50
TDD 1	03/02/89	1320	<10	<1	68	-	0.140	<1.0	-	-	0.20
TDD 2	03/06/89	1315	10	2	240	-	0.310	<1.0	-	-	0.20
TDD 3	12/13/89	1305	20	2	84	-	0.030	<1.0	-	-	0.20
TRA A-13	09/24/90	1015	-	-	-	-	-	-	-	-	<0.10
TRA A-13	01/14/91	1215	-	-	-	-	-	-	-	-	0.30
TRA A-77	10/11/90	1445	-	-	-	-	-	-	-	-	<0.10
TRA A-77	01/18/91	0955	-	-	-	-	-	-	-	-	<0.10
TRA 1	10/11/90	1035	-	-	-	-	-	-	-	-	0.10
TRA 3	10/11/90	1100	-	-	-	-	-	-	-	-	0.20
TRA 4	10/11/90	1020	-	-	-	-	-	-	-	-	0.10
TRA DISP.	10/11/90	1530	-	-	-	-	-	-	-	-	<0.10
TRA DISP. Replicate	10/11/90	1515	-	-	-	-	-	-	-	-	<0.10
TRA DISP.	01/18/91	1410	-	-	-	-	-	-	-	-	0.20
WEBB SPRING	09/05/89	1445	<10	<1	16	-	0.010	<1.0	-	-	0.50
WSI 1	12/14/89	1025	-	-	-	-	0.350	-	-	-	0.10
WSI 1	03/19/90	1210	-	-	-	-	0.320	-	-	-	0.20
WSI 1	06/05/90	1215	-	-	-	-	0.330	-	-	-	0.30
WSI 1	07/30/90	1315	-	1	74	-	0.330	<1.0	-	-	0.50
WSI 1	10/03/90	1210	-	-	-	-	0.340	-	-	-	<0.10

Table 3.--*Concentrations of selected dissolved trace elements in ground and surface water at and near the INEL*--Continued

Iron	Lead	Lithium	Manganese	Mercury	Molybdenum	Nickel	Selenium	Silver	Strontium	Thallium	Vanadium	Zinc
-	-	-	-	-	-	-	-	-	-	-	-	-
18	20	6	<1	<0.1	<10	<10	<1	<1.0	140	-	<6	61
91	<10	71	80	<0.1	<10	<10	<1	<1.0	72	-	<6	10
-	<1	-	-	<0.1	-	-	<1	<1.0	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-
47	<5	-	3	<0.1	-	-	2	2.0	270	-	-	-
7	<5	-	130	-	-	-	2	<1.0	240	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-
19	<10	5	<1	<0.1	<10	<10	3	3.0	240	-	<6	64
-	<1	-	-	<0.1	-	-	<1	<1.0	-	-	-	-
20	<1	4	3	<0.1	<10	<10	<1	<1.0	200	-	6	5
-	-	-	-	-	-	-	-	-	-	-	-	-
17	1	13	<1	<0.1	<10	<10	<1	<1.0	180	-	7	190
8	<1	5	<1	<0.1	<10	<10	<1	<1.0	220	-	<6	7
7	<1	5	<1	<0.1	<10	<10	<1	<1.0	220	-	<6	7
-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-
4	<10	<4	<1	<0.1	<10	<10	<1	<1.0	230	-	<6	72
-	-	-	-	-	-	-	-	-	-	-	-	-
16	<1	47	15	<0.1	<10	<10	<1	<1.0	150	-	<6	7
30	<5	-	3	-	-	-	2	4.0	270	-	-	-
8	<5	-	17	-	-	-	<1	2.0	470	-	-	-
5	2	-	1	<0.1	-	-	2	<1.0	230	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-
2800	1	-	40	-	-	-	<1	<1.0	59	-	-	-
-	-	-	-	-	-	-	-	-	-	<1	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-
29	<1	-	-	0.1	-	-	3	<1.0	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-

Table 3.--*Concentrations of selected dissolved trace elements in ground and surface water at and near the INEL*--Continued

Site identifier	Date sampled	Time sampled	Aluminum	Arsenic	Barium	Beryllium	Bromide	Cadmium	Cobalt	Copper	Fluoride
WSI 1	12/07/90	1145	-	-	-	-	0.290	-	-	-	0.10
WSI 1 Replicate	12/07/90	1100	-	-	-	-	0.290	-	-	-	0.10
WSI 1	03/13/91	1035	-	-	-	-	0.300	-	-	-	0.10
WSI 1	06/05/91	1040	-	-	-	-	0.310	-	-	-	<0.10
WSI 1	09/05/91	0950	-	-	-	-	0.330	-	-	-	0.20
WSI 1	12/03/91	1100	-	-	-	-	0.310	-	-	-	0.20
WSI 1 Replicate	12/03/91	1100	-	-	-	-	0.310	-	-	-	0.20

Table 3.--*Concentrations of selected dissolved trace elements in ground and surface water at and near the INEL*--Continued

Iron	Lead	Lithium	Manganese	Mercury	Molybdenum	Nickel	Selenium	Silver	Strontium	Thallium	Vanadium	Zinc
-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-

Table 4.--*Concentrations of total recoverable, dissolved, and hexavalent chromium in ground and surface water at and near the INEL*

[Analyses were performed by the U. S. Geological Survey National Water Quality Laboratory. Site identifier: see figures 2 and 3 for location of sites. Units are military units for time and micrograms per liter for concentrations of trace elements. <5, concentration is less than the indicated reporting level. >25, concentration is greater than the indicated level. Replicate, a second sample from the indicated site was submitted for analysis with a different identifier (replicate dates and times may be fictitious). Blank, sample bottle contained deionized water. -, data unavailable]

Site identifier	Date sampled	Time sampled	Chromium, total	Chromium, dissolved	Chromium, hexavalent
1	05/30/91	1015	<1	<5	<1
2	05/28/91	1145	1	<5	2
2 Replicate	05/28/91	1200	3	<5	2
4	06/04/91	1010	11	10	9
4 Replicate	06/04/91	1200	12	10	10
5	09/26/90	1040	-	<1	-
6	09/26/90	1410	-	20	-
7	05/20/91	1130	3	<5	2
7 Replicate	05/20/91	1200	5	<5	1
8	05/31/91	1405	2	<5	2
9	05/31/91	0935	4	<5	4
11	09/13/89	1400	4	4	3
12	06/15/90	1145	8	-	-
12 Replicate	06/14/90	1400	7	-	-
12	08/06/90	1515	8	-	-
12	10/10/90	1150	8	-	-
12	12/11/90	1245	7	-	-
12	02/07/91	1425	7	-	-
12	06/10/91	1200	4	-	-
12	09/06/91	1505	7	-	-
12 Replicate	09/06/91	1400	6	-	-
12	12/05/91	1125	6	-	-
14	09/14/89	1330	4	5	5
14 Replicate	09/14/89	1500	4	5	4
14	07/17/90	1330	6	5	1
15	06/06/90	1350	8	-	-
15	08/06/90	1145	21	-	-
15 Replicate	08/06/90	1200	48	-	-
15	10/09/90	1440	8	-	-
15	12/13/90	1450	7	-	-
15	02/11/91	1450	8	-	-
15	04/12/91	1745	8	-	-
15	06/10/91	1530	3	-	-
15	09/06/91	1240	6	-	-
15	12/04/91	1715	8	-	-
17	12/14/89	1300	3	-	-
17	03/20/90	1130	2	-	-
17	06/07/90	0940	3	-	-
17	08/02/90	1055	3	-	-
17	10/10/90	1450	3	-	-
17	12/10/90	1140	2	-	-
17	03/13/91	1145	3	-	-
17 Replicate	03/13/91	1200	4	-	-
17	06/06/91	1300	1	-	-
17	06/06/91	1305	2	<5	2
17	09/05/91	1150	1	-	-
17	12/03/91	1215	<1	-	-
18	10/12/90	0950	-	4	-
19	05/21/91	1015	4	<5	<1
20	05/30/91	1250	8	7	7
22	10/24/90	1320	-	2	-
23	05/21/91	1315	3	<5	<1

Table 4.--*Concentrations of total recoverable, dissolved, and hexavalent chromium in ground and surface water at and near the INEL*--Continued

Site identifier	Date sampled	Time sampled	Chromium, total	Chromium, dissolved	Chromium, hexavalent
24	02/28/89	1430	-	4	3
26	05/23/91	0950	3	<5	6
27	07/20/88	1045	-	5	-
27	05/23/91	1225	8	2	6
29	06/12/91	1515	<1	4	3
31	06/12/91	1235	<1	2	2
32	06/12/91	1800	<1	5	3
34	10/02/90	1430	-	10	-
35	10/25/90	1050	-	10	-
36	10/25/90	1145	-	9	-
38	10/05/90	1450	-	6	-
39	10/25/90	0950	-	30	-
41	10/16/90	1215	-	7	-
42	10/16/90	1350	-	8	-
43	06/21/88	1540	-	7	-
44	10/26/90	1250	-	7	-
44 Replicate	10/26/90	1300	-	7	-
45	10/26/90	1115	-	8	-
46	10/26/90	1430	-	8	-
47	09/30/88	1230	7	-	4
48	10/31/90	1245	-	10	-
52	10/16/90	1525	-	8	-
53	04/13/90	0955	55	-	-
53	09/24/90	1600	-	20	8
53	04/08/91	1530	-	30	20
54	01/30/90	1301	14	-	-
54	03/13/90	1413	15	-	-
54	06/27/90	1020	11	-	-
54	09/24/90	1055	-	9	2
54	01/14/91	1145	-	8	<1
54 Replicate	01/14/91	1200	-	9	<1
54	04/03/91	1445	-	6	6
54	07/01/91	1430	-	8	1
55	04/13/90	1125	130	-	-
55	09/24/90	1250	-	130	>25
55	04/04/91	1045	-	60	48
56	11/15/89	1501	91	-	-
56 Replicate	11/15/89	1700	100	-	-
56	04/18/90	1020	61	-	-
56	10/22/90	1455	-	80	>25
56	04/15/91	1640	-	60	54
57	05/13/91	1410	8	<5	7
58	03/13/90	1107	11	-	-
58	09/24/90	1100	-	10	9
58	04/03/91	1150	-	10	10
58 Replicate	04/03/91	1210	-	7	4
60	10/30/89	1545	4	-	-
60	01/29/90	1317	4	-	-
60	03/21/90	1500	6	-	-
60	06/26/90	1345	6	-	-
60	09/25/90	1220	-	6	3
60	01/04/91	1430	-	5	6
60	04/05/91	1215	-	5	5
60	07/01/91	1130	-	4	<1
60	10/22/91	1525	-	7	3
61	10/25/89	1535	18	-	-
61	04/18/90	1530	21	-	-
61	09/27/90	1345	-	20	15
61 Replicate	09/27/90	1330	-	20	5

Table 4.--*Concentrations of total recoverable, dissolved, and hexavalent chromium in ground and surface water at and near the INEL*--Continued

Site identifier	Date sampled	Time sampled	Chromium, total	Chromium, dissolved	Chromium, hexavalent
61	04/09/91	1400	-	20	11
61	10/23/91	1135	-	20	5
62	10/26/89	1530	11	-	-
62	04/13/90	1515	13	-	-
62	10/09/90	1255	-	9	9
62	04/08/91	1410	-	8	7
62	10/23/91	1330	-	9	<1
63	10/31/89	1210	8	-	7
63	04/10/90	1520	9	-	-
63 Replicate	04/10/90	1500	9	-	-
63	10/12/90	1300	-	20	18
63	04/08/91	1215	-	9	8
63	10/23/91	1530	-	9	4
65	10/17/89	0957	210	-	190
65	01/02/90	1257	210	-	-
65	04/04/90	1000	210	-	-
65	07/11/90	1245	230	-	-
65	10/23/90	1220	-	210	120
65	01/11/91	1310	-	200	130
65	04/02/91	1115	-	200	140
65	05/16/91	1020	210	190	160
65	07/22/91	1255	-	190	140
65	10/15/91	1425	-	200	170
65 Replicate	10/15/91	1430	-	200	170
66	11/07/89	1300	100	-	-
66	04/26/90	1340	47	-	-
66	10/22/90	1320	-	7	2
66	04/22/91	1430	-	10	10
68	11/13/89	1120	13	-	12
68	01/18/90	1525	17	-	-
68	04/16/90	1330	28	-	-
68	07/16/90	1530	21	-	-
68	10/11/90	1400	-	20	9
68	01/18/91	1450	-	20	<1
68	04/25/91	1700	-	20	8
68	07/02/91	1100	-	20	<1
68 Replicate	07/02/91	1100	-	20	<1
68	10/30/91	1245	-	10	1
69	10/31/89	1535	3	-	-
69	04/09/90	1635	7	-	-
69	10/05/90	1250	-	4	1
69	04/08/91	1630	-	3	<1
69	10/24/91	1520	-	2	<1
69 Replicate	10/24/91	1200	-	<1	<1
70	11/14/89	1440	15	-	16
70	04/04/90	1130	20	-	-
70	10/03/90	1145	-	20	11
70	04/11/91	1245	-	20	17
70	10/18/91	1435	-	40	23
71	11/07/89	1230	<69	-	44
71	04/26/90	1040	71	-	-
71	10/18/90	1530	-	70	20
71	04/22/91	1300	-	60	58
71 Replicate	04/22/91	1420	-	60	32
71	10/29/91	1330	-	50	30
72	11/13/89	1305	32	-	-
72	04/16/90	1430	50	-	-
72	10/11/90	1305	-	<1	<1
72	04/25/91	1600	-	2	2

Table 4.--*Concentrations of total recoverable, dissolved, and hexavalent chromium in ground and surface water at and near the INEL*--Continued

Site identifier	Date sampled	Time sampled	Chromium, total	Chromium, dissolved	Chromium, hexavalent
72	10/30/91	1155	-	3	<1
73	11/15/89	1305	34	-	29
73	04/10/90	1125	46	-	-
73	10/22/90	1125	-	70	>25
73	04/15/91	1500	-	90	110
73	10/24/91	1105	-	70	24
74	11/06/89	1445	160	-	62
74	04/26/90	1250	110	-	-
74	10/22/90	1045	-	100	>25
74	04/26/91	1510	-	100	100
74	10/28/91	1525	-	90	50
76	01/05/90	1355	20	-	-
76 Replicate	01/05/90	1500	9	-	-
76	04/06/90	1305	12	-	-
76	07/03/90	1400	12	-	-
76	10/17/90	1540	-	10	12
76 Replicate	10/17/90	1500	-	10	11
76	01/15/91	1435	-	10	5
76	04/03/91	1400	-	10	10
76	07/17/91	1550	-	10	4
76	10/02/91	1125	-	10	12
77	10/25/90	1430	-	10	-
79	11/06/89	1530	13	-	-
79	04/26/90	1220	7	-	-
79	10/01/90	1510	-	7	1
79	04/02/91	1505	-	5	5
79	10/02/91	0950	-	6	4
84	11/14/89	1105	22	-	-
84	04/26/90	1420	33	-	-
84	10/18/90	1430	-	30	21
84	04/09/91	1140	-	<1	24
85	06/04/91	1400	12	10	12
86	05/31/91	1145	22	20	12
87	04/05/89	1340	15	10	2
88	09/29/88	1005	56	-	21
88	04/04/89	1250	49	30	30
88	08/28/90	1255	-	10	-
88	08/28/90	1315	-	40	-
88	10/15/91	1550	-	20	-
89	04/04/89	1500	49	50	38
90	04/05/89	1125	17	20	9
90	06/22/88	1103	-	10	-
97	09/26/88	1300	8	-	5
97	10/12/89	1025	6	-	-
97	11/30/89	1055	19	-	-
97	01/17/90	1104	4	-	-
97	03/19/90	1320	7	-	-
97	06/07/90	1150	8	-	-
97 Replicate	06/07/90	1200	9	-	-
97	07/03/90	1220	7	-	-
97	08/01/90	1245	8	-	-
97	10/04/90	1055	7	6	4
97	12/07/90	1330	7	-	-
97 Replicate	12/07/90	1300	7	-	-
97	01/03/91	1255	-	6	8
97	03/13/91	1245	8	-	-
97	04/10/91	0915	-	6	5
97	06/07/91	1050	5	-	-
97 Replicate	06/07/91	1000	8	-	-

Table 4.--*Concentrations of total recoverable, dissolved, and hexavalent chromium in ground and surface water at and near the INEL*--Continued

Site identifier	Date sampled	Time sampled	Chromium, total	Chromium, dissolved	Chromium, hexavalent
97	07/10/91	1540	-	4	<1
97	07/16/91	1545	-	6	<1
97	09/05/91	1350	9	-	-
97	10/01/91	1425	-	4	3
97	12/03/91	1425	7	-	-
98	10/10/89	1540	5	-	-
98	11/29/89	1230	7	6	4
98	01/17/90	1415	3	-	-
98	03/19/90	1000	4	-	-
98	06/05/90	1000	7	-	-
98	07/03/90	0910	6	-	-
98	07/30/90	1055	8	-	-
98 Replicate	07/30/90	1200	7	-	-
98	10/03/90	1015	7	5	2
98	12/07/90	1005	6	-	-
98	01/07/91	1010	-	5	1
98	03/13/91	0930	8	-	-
98	04/10/91	1215	-	4	3
98	06/07/91	0900	5	-	-
98	07/02/91	0955	-	5	<1
98	09/05/91	1045	7	-	-
98	10/22/91	1055	-	5	1
98	12/03/91	0940	5	-	-
99	10/10/89	1440	4	-	-
99	11/30/89	1320	8	-	-
99	01/17/90	1240	3	-	-
99	03/20/90	0925	7	-	-
99	06/05/90	1350	7	-	-
99	07/03/90	1115	5	-	-
99	08/01/90	1010	6	-	-
99	10/03/90	1335	5	5	1
99 Replicate	10/03/90	1330	6	-	-
99	12/10/90	1015	6	-	-
99	01/03/91	1345	-	5	5
99	03/13/91	1340	9	-	-
99	04/10/91	1050	-	4	3
99	06/07/91	0955	3	-	-
99	07/02/91	1110	-	5	<1
99	09/05/91	1450	5	-	-
99	10/22/91	1152	-	5	1
99	12/03/91	1510	5	-	-
100	10/13/89	1208	2	-	-
100	01/24/90	1440	<1	-	-
100	03/15/90	1150	3	-	-
100	06/28/90	0935	4	-	-
100	09/28/90	1225	-	2	5
100	01/07/91	1320	-	2	<1
100 Replicate	01/07/91	1300	-	2	<1
100	03/27/91	1535	-	<1	<1
100	07/08/91	1510	-	<1	<1
100	10/01/91	1300	-	2	<1
101	10/13/89	1445	<1	-	-
101	03/15/90	1400	1	-	-
101	09/28/90	1345	-	<1	3
101	03/28/91	1400	-	<1	1
101	05/15/91	1240	3	<5	<1
101	10/01/91	1455	-	<1	<1
102	06/08/90	0955	8	-	-
102	08/01/90	1415	8	-	-

Table 4.--*Concentrations of total recoverable, dissolved, and hexavalent chromium in ground and surface water at and near the INEL*--Continued

Site identifier	Date sampled	Time sampled	Chromium, total	Chromium, dissolved	Chromium, hexavalent
102	10/04/90	1245	7	-	-
102	12/10/90	1315	8	-	-
102 Replicate	12/10/90	1230	8	-	-
102	02/07/91	1035	10	-	-
102	04/11/91	1245	6	-	-
102	06/07/91	1210	6	-	-
102	09/05/91	1250	7	-	-
102	12/03/91	1335	7	-	-
108	09/05/89	1230	7	9	8
110	05/08/91	1400	5	<5	2
112	09/28/88	1050	8	-	6
112 Replicate	09/28/88	1050	9	-	6
112	05/13/91	1015	8	<5	6
117	04/03/89	1535	22	20	13
117	08/29/90	1155	-	20	-
117	08/29/90	1214	-	20	-
117	10/16/91	1005	-	20	-
119	04/03/89	1420	42	30	20
119	09/11/90	1145	31	-	26
119	10/15/91	1320	-	30	-
120	04/04/89	1100	10	8	<1
120	08/27/90	1443	-	8	-
120	08/27/90	1446	-	8	-
120	10/25/91	0935	-	8	-
121	10/15/91	1540	-	5	-
122	10/15/91	1315	-	9	-
122 Replicate	10/15/91	1600	-	8	-
123	10/15/91	1115	-	5	-
ANP 3	03/07/89	1310	4	<1	1
ANP 8	12/13/89	1135	6	5	3
ARBOR TEST	02/15/89	1115	3	2	1
ARBOR TEST	10/13/89	1030	1	-	-
ARBOR TEST	03/15/90	1025	2	-	-
ARBOR TEST	09/28/90	1130	-	1	5
ARBOR TEST	03/27/91	1345	-	<1	<1
ARBOR TEST	10/01/91	1150	-	<1	<1
ARBOR TEST Replicate	10/01/91	1200	-	2	<1
AREA II	09/20/90	1530	-	3	-
Blank	07/20/88	1000	-	<1	-
Blank	10/31/89	1300	<1	-	<1
Blank	12/01/89	1440	2	-	-
Blank	11/02/90	1100	1	-	-
Blank	10/21/91	1445	-	6	2
CFA 1	01/02/90	0912	18	-	-
CFA 1	07/11/90	1015	19	-	-
CFA 1	01/10/91	1000	-	10	4
CFA 1	06/19/91	0925	20	20	12
CFA 1	07/25/91	0935	-	10	2
CFA 2	01/26/90	1032	10	-	-
CFA 2	07/11/90	1048	13	-	-
CFA 2	01/10/91	0930	-	10	2
CFA 2 Replicate	07/25/91	0900	-	10	5
CFA 2	07/25/91	0905	-	10	6
CPP 1	10/19/89	0945	7	-	-
CPP 1 Replicate	11/06/89	0900	4	-	-
CPP 1	11/06/89	1016	2	-	-
CPP 1	01/19/90	1441	3	-	-
CPP 1	04/17/90	1300	6	-	-
CPP 1	07/24/90	1020	6	-	-

Table 4.--*Concentrations of total recoverable, dissolved, and hexavalent chromium in ground and surface water at and near the INEL*--Continued

Site identifier	Date sampled	Time sampled	Chromium, total	Chromium, dissolved	Chromium, hexavalent
CPP 1	10/31/90	1040	-	4	7
CPP 1 Replicate	10/31/90	1100	-	5	7
CPP 1	01/17/91	1040	-	5	<1
CPP 1	04/10/91	1010	-	3	5
CPP 1	07/19/91	1012	-	5	<1
CPP 1	10/24/91	0957	-	6	2
CPP 2	01/19/90	1422	3	-	-
CPP 2	04/17/90	1358	5	-	-
CPP 2	07/24/90	1000	7	-	-
CPP 2	10/31/90	1105	-	5	7
CPP 2	01/17/91	1020	-	5	<1
CPP 2	04/10/91	1043	-	3	3
CPP 2	07/19/91	0935	-	5	1
CPP 2	10/24/91	1035	-	6	2
CPP 4	11/06/89	1310	19	-	-
CPP 4	01/26/90	1229	7	-	-
CPP 4	04/17/90	1450	7	-	-
CPP 4 Replicate	07/23/90	1000	8	-	-
CPP 4	07/23/90	0915	8	-	-
CPP 4	10/18/90	0910	-	6	5
CPP 4	04/10/91	1245	-	4	7
CPP 4	07/19/91	1405	-	5	<1
CPP 4	10/31/91	1018	-	4	2
CPP POND 1	06/06/91	0930	6	7	5
CPP POND 2	01/25/88	1100	11	5	<1
CPP POND 2	04/26/88	0950	5	4	<1
CPP POND 2	07/28/88	0900	6	7	<1
CPP POND 2	10/31/88	0900	18	9	2
CWP 1	11/01/89	1441	6	-	-
CWP 1	03/22/90	1000	4	-	-
CWP 1	10/03/90	1445	-	7	5
CWP 1	04/17/91	1530	-	3	1
CWP 2	11/01/89	1458	1	-	-
CWP 2	03/22/90	1040	2	-	-
CWP 2	10/05/90	1405	-	<1	<1
CWP 2	04/23/91	1258	-	1	<1
CWP 2	10/21/91	1040	-	<1	<1
CWP 3	11/01/89	0927	-	-	<1
CWP 3	03/22/90	1240	6	-	-
CWP 3	10/09/90	1420	-	3	<1
CWP 3	04/17/91	1250	-	4	<1
CWP 4	11/01/89	1000	7	-	-
CWP 4	03/22/90	1325	6	-	-
CWP 4	10/09/90	1540	-	1	<1
CWP 4	04/17/91	1345	-	<1	<1
CWP 4 Replicate	04/17/91	1500	-	1	<1
CWP 4	10/21/91	1215	-	<1	<1
CWP 5	11/01/89	1117	12	-	-
CWP 5	03/22/90	1516	5	-	-
CWP 5	10/12/90	1445	-	7	4
CWP 5	04/24/91	1210	-	4	<1
CWP 7	03/23/90	1110	5	-	-
CWP 8	11/01/89	1247	<1	-	-
CWP 8	03/23/90	1210	9	-	-
CWP 8	10/15/90	1140	-	<1	<1
CWP 8	04/23/91	1203	-	2	2
EBR I	06/19/91	1110	7	5	3
FIRE STA. 2	10/26/89	1050	4	-	3
FIRE STA. 2	01/26/90	1334	3	-	-

Table 4.--*Concentrations of total recoverable, dissolved, and hexavalent chromium in ground and surface water at and near the INEL*--Continued

Site identifier	Date sampled	Time sampled	Chromium, total	Chromium, dissolved	Chromium, hexavalent
FIRE STA. 2	04/19/90	1050	4	-	-
FIRE STA. 2	07/11/90	1128	5	-	-
FIRE STA. 2	10/15/90	1110	-	6	5
FIRE STA. 2	01/10/91	1030	-	5	1
FIRE STA. 2 Replicate	04/18/91	1200	-	2	5
FIRE STA. 2	04/18/91	1210	-	4	5
FIRE STA. 2	06/19/91	1325	5	4	2
FIRE STA. 2	07/25/91	1010	-	4	<1
FIRE STA. 2	10/10/91	1253	-	4	5
IET 1	03/01/89	1215	3	<1	3
LIDY HOT SPRINGS	11/05/90	1255	2	1	<1
MCKINNEY	06/13/91	1125	<1	<1	<1
MTR TEST	09/28/90	1520	-	5	6
MTR TEST	04/03/91	1000	-	4	1
MTR TEST	10/02/91	1455	-	3	4
NO NAME 1	05/22/91	1140	22	10	8
NPR TEST	04/05/90	0955	4	-	-
NPR TEST	06/20/91	1110	6	5	2
NRF 1	12/19/89	1325	9	-	-
NRF 1	03/21/90	1235	9	-	-
NRF 1	06/19/90	1345	9	-	-
NRF 1	08/07/90	1245	8	-	-
NRF 1	10/02/90	1405	10	-	-
NRF 1	12/06/90	1030	8	-	-
NRF 1	03/05/91	1125	9	-	-
NRF 1	06/17/91	1135	9	-	-
NRF 1 Replicate	09/09/91	1100	11	-	-
NRF 1	09/09/91	1144	12	-	-
NRF 1	12/04/91	0940	8	-	-
NRF 2	05/23/89	1010	9	9	2
NRF 2	12/21/89	1100	13	-	-
NRF 2 Replicate	03/21/90	1000	14	-	-
NRF 2	03/21/90	1130	14	-	-
NRF 2	06/19/90	1115	14	-	-
NRF 2	08/07/90	1110	13	-	-
NRF 2	10/02/90	1255	10	-	-
NRF 2	12/05/90	1010	14	-	-
NRF 2 Replicate	03/05/91	0900	15	-	-
NRF 2	03/05/91	1145	14	-	-
NRF 2	06/17/91	1035	13	-	-
NRF 2	09/09/91	1049	11	-	-
NRF 2	12/04/91	1033	13	-	-
NRF 3	12/19/89	1305	7	-	-
NRF 3	03/21/90	1410	8	-	-
NRF 3	06/19/90	1325	8	-	-
NRF 3	08/07/90	1315	9	-	-
NRF 3	10/02/90	1330	8	-	-
NRF 3	12/06/90	1150	7	-	-
NRF 3 Replicate	06/17/91	1100	7	-	-
NRF 3	06/17/91	1120	7	-	-
NRF 3	12/04/91	0923	6	-	-
NRF 4	12/19/89	1016	11	-	-
NRF 4	06/19/90	0940	11	-	-
NRF 4	08/07/90	1000	9	-	-
NRF 4	10/02/90	1125	10	-	-
NRF 4	12/05/90	1145	11	-	-
NRF 4 Replicate	02/07/91	1400	10	-	-
NRF 4	02/07/91	1045	10	-	-
NRF 4	03/05/91	1040	8	-	-

Table 4.--*Concentrations of total recoverable, dissolved, and hexavalent chromium in ground and surface water at and near the INEL*--Continued

Site identifier	Date sampled	Time sampled	Chromium, total	Chromium, dissolved	Chromium, hexavalent
NRF 4	09/09/91	0937	10	-	-
NRF 4	12/04/91	1209	10	-	-
NRF 6	09/09/91	1330	29	-	-
NRF 6	11/06/91	1415	36	-	-
NRF 7	09/10/91	1300	10	-	-
NRF 7	11/06/91	1245	8	-	-
P&W 2	05/22/91	1405	2	<5	<1
PARK BELL	06/11/91	1140	-	<5	-
PSTF TEST	09/27/90	1210	-	<1	-
PW 7	01/02/90	1320	200	-	-
PW 7	04/10/90	1245	87	-	-
PW 7	07/02/90	1210	26	-	-
PW 7	10/22/90	1215	-	5	3
PW 7	01/11/91	1340	-	2	<1
PW 7	04/22/91	1110	-	5	3
PW 7	07/11/91	1415	-	<3	<1
PW 7	10/29/91	1210	-	2	<1
PW 8	10/30/89	1311	6	-	-
PW 8	01/29/90	1555	5	-	-
PW 8	03/21/90	1200	2	-	-
PW 8	06/27/90	1500	8	-	-
PW 8	09/26/90	1445	-	6	2
PW 8	01/04/91	1530	-	8	4
PW 8 Replicate	04/05/91	1459	-	7	5
PW 8	04/05/91	1415	-	7	5
PW 8	07/01/91	1230	-	6	<1
PW 8	10/22/91	1415	-	10	<1
PW 9	11/06/89	1410	240	-	-
PW 9	01/31/90	0900	190	-	-
PW 9	04/10/90	1030	190	-	-
PW 9	07/02/90	1100	99	-	-
PW 9	10/22/90	1000	-	20	17
PW 9	01/14/91	1230	-	90	50
PW 9	04/24/91	1300	-	70	40
PW 9	07/01/91	1545	-	70	20
PW 9	10/29/91	1315	-	90	65
RIFLE RANGE	06/29/88	0920	19	20	10
RWMC	03/23/89	1340	13	-	-
RWMC	03/23/89	1350	-	20	9
SIMPLOT 1	05/10/91	1100	6	8	3
SITE 4	04/18/91	1242	-	7	9
SITE 4	07/25/91	1040	-	10	2
SITE 9	10/23/90	1500	-	6	-
SITE 9	06/25/91	1430	6	6	3
SITE 14	10/12/89	1335	9	-	-
SITE 14	03/14/90	1510	5	-	-
SITE 14	10/11/90	1445	-	4	4
SITE 14	04/24/91	1645	-	4	2
SITE 14	06/13/91	1430	3	3	6
SITE 14	10/18/91	1708	-	5	<1
SITE 14 Replicate	10/18/91	1715	-	4	4
SITE 17	06/18/91	1420	6	4	1
SITE 17 Replicate	06/18/91	1500	5	4	<1
SITE 19	04/05/90	1545	3	-	-
SITE 19	10/01/90	1345	-	3	7
SITE 19 Replicate	10/01/90	1400	-	3	1
SITE 19	04/02/91	1330	-	1	1
SITE 19	05/09/91	1345	12	<5	10
SITE 19	10/22/91	1732	-	3	1

Table 4.--*Concentrations of total recoverable, dissolved, and hexavalent chromium in ground and surface water at and near the INEL*--Continued

Site identifier	Date sampled	Time sampled	Chromium, total	Chromium, dissolved	Chromium, hexavalent
STODDART	06/12/91	0915	<1	<1	3
TDD 1	03/02/89	1320	3	2	3
TDD 2	03/06/89	1315	5	<1	1
TDD 3	12/13/89	1305	5	3	<1
TRA 1	11/13/89	1447	<1	-	-
TRA 1	04/16/90	1445	3	-	-
TRA 1	10/11/90	1035	-	3	2
TRA 1	04/25/91	1040	-	3	2
TRA 1	10/30/91	1020	-	1	2
TRA 3	11/13/89	1531	<1	-	-
TRA 3	04/16/90	1520	3	-	-
TRA 3	10/11/90	1100	-	4	4
TRA 3	04/25/91	1420	-	2	2
TRA 3	10/30/91	1438	-	3	1
TRA 4	11/13/89	1400	<1	-	-
TRA 4 Replicate	11/13/89	1000	<1	-	-
TRA 4	04/16/90	1125	4	-	-
TRA 4	10/11/90	1020	-	4	2
TRA 4 Replicate	04/25/91	1200	-	3	<1
TRA 4	04/25/91	1015	-	4	<1
TRA 4	10/30/91	1003	-	3	2
TRA 4 Replicate	10/30/91	1030	-	3	1
TRA A-13	11/03/89	1109	<1	-	-
TRA A-13	01/30/90	1440	44	-	-
TRA A-13	03/13/90	1325	41	-	-
TRA A-13	06/27/90	1045	12	-	-
TRA A-13	09/24/90	1015	-	<1	<1
TRA A-13	01/14/91	1215	-	<1	<1
TRA A-13	04/04/91	1130	-	4	<1
TRA A-13	07/01/91	1500	-	20	<1
TRA A-77	11/13/89	1220	1,300	-	-
TRA A-77	01/18/90	1250	1,300	-	-
TRA A-77 Replicate	04/16/90	0900	120	-	-
TRA A-77	04/16/90	1110	20	-	-
TRA A-77	07/17/90	0853	47	-	-
TRA A-77	10/11/90	1445	-	40	6
TRA A-77	01/18/91	0955	-	8	<1
TRA A-77	04/25/91	1230	-	20	<1
TRA A-77	07/02/91	1230	-	6	<1
TRA A-77	10/30/91	0800	-	50	9
TRA DISP.	11/13/89	1225	3	-	-
TRA DISP.	01/18/90	1343	8	-	-
TRA DISP. Replicate	01/18/90	1400	9	-	-
TRA DISP.	04/16/90	1411	11	-	-
TRA DISP.	07/16/90	1553	13	-	-
TRA DISP.	10/11/90	1530	-	10	7
TRA DISP. Replicate	10/11/90	1515	-	10	1
TRA DISP.	01/18/91	1410	-	10	<1
TRA DISP.	04/25/91	1810	-	10	10
TRA DISP.	07/02/91	1430	-	10	1
TRA DISP.	10/30/91	1645	-	10	5
WEBB SPRING	09/05/89	1445	2	<1	1
WSI 1	10/10/89	1415	11	-	-
WSI 1	12/14/89	1025	12	-	-
WSI 1	03/19/90	1210	10	-	-
WSI 1	06/05/90	1215	12	-	-
WSI 1	07/30/90	1315	12	10	-
WSI 1	10/03/90	1210	10	9	2
WSI 1 Replicate	12/07/90	1100	10	-	-

Table 4.--*Concentrations of total recoverable, dissolved, and hexavalent chromium in ground and surface water at and near the INEL*--Continued

Site identifier	Date sampled	Time sampled	Chromium, total	Chromium, dissolved	Chromium, hexavalent
WSI 1	12/07/90	1145	10	-	-
WSI 1	03/13/91	1035	11	-	-
WSI 1	04/10/91	1345	-	8	9
WSI 1	06/05/91	1040	10	-	-
WSI 1	09/05/91	0950	10	-	-
WSI 1	10/22/91	0945	-	9	1
WSI 1	12/03/91	1100	9	-	-
WSI 1 Replicate	12/03/91	1100	7	-	-