

Evaluation of Radionuclide, Inorganic Constituent, and Organic Compound Data from Selected Wells and Springs from the Southern Boundary of the Idaho National Engineering Laboratory to the Hagerman Area, Idaho, 1989 through 1992

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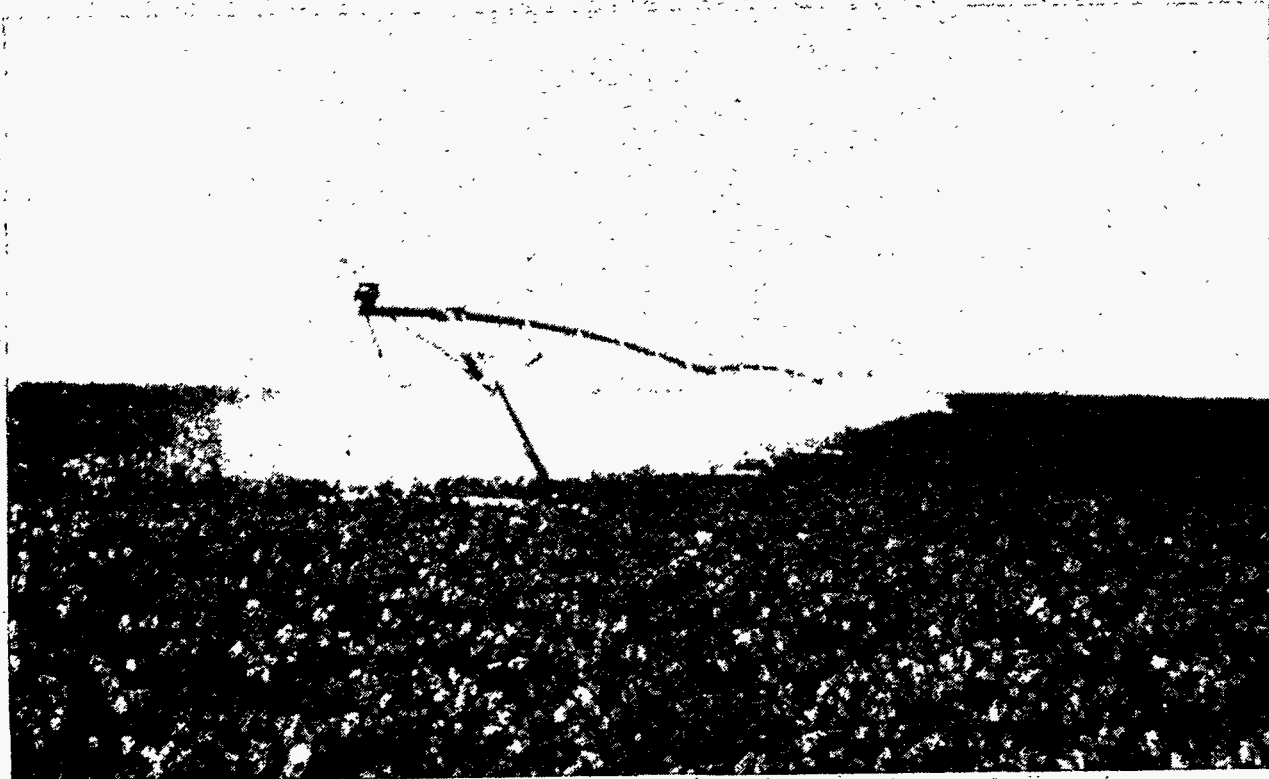
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Water-Resources Investigations Report 97-4007



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Evaluation of Radionuclide, Inorganic Constituent, and Organic Compound Data from Selected Wells and Springs from the Southern Boundary of the Idaho National Engineering Laboratory to the Hagerman Area, Idaho, 1989 through 1992

By ROY C. BARTHOLOMAY and LINDA M. WILLIAMS,
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RESOURCES

U.S. GEOLOGICAL SURVEY

Water Resources Investigations Report 97-4007

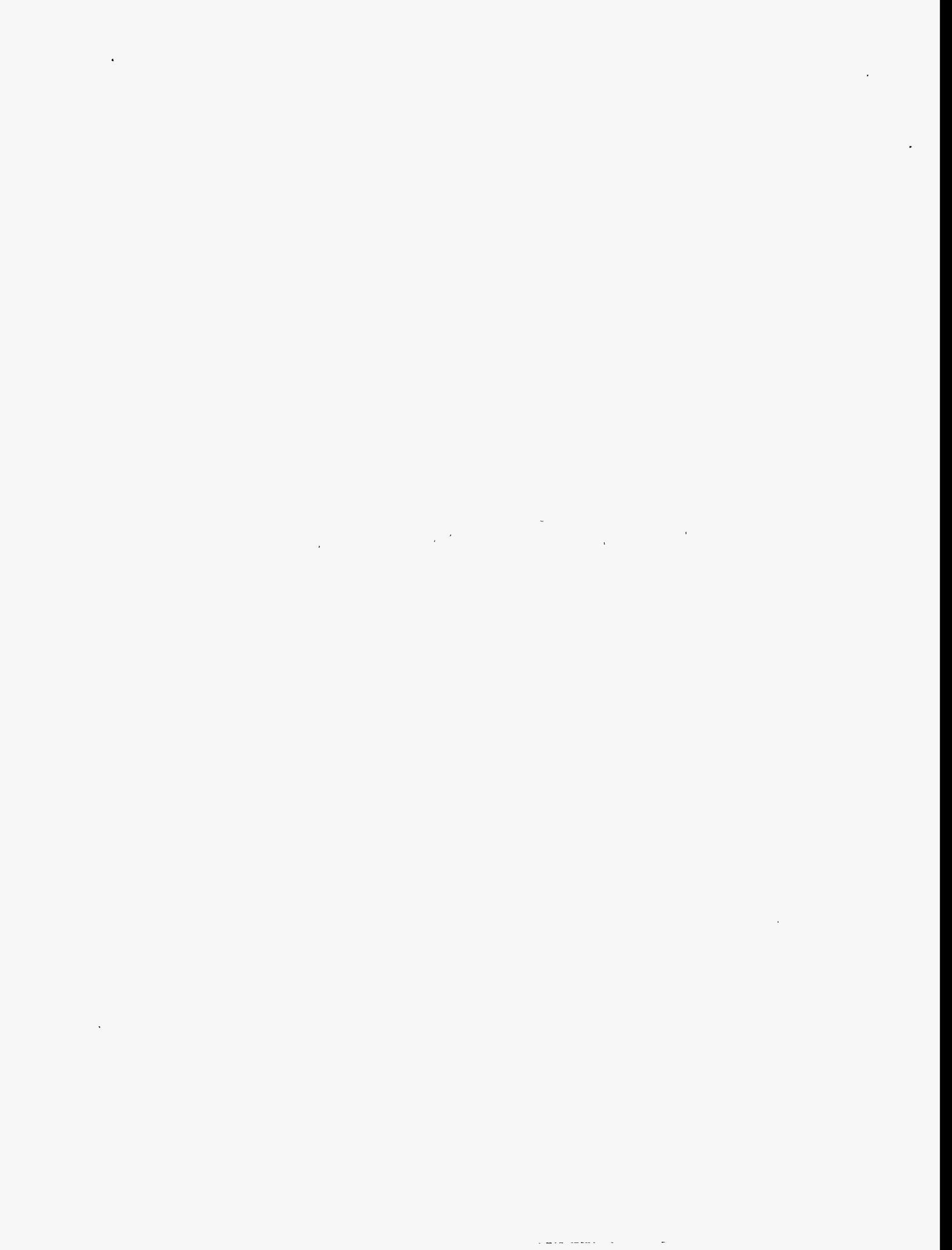
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**Idaho Falls, Idaho
January 1997**



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CONVERSION FACTORS AND ABBREVIATED UNITS

	Multiply	By	To Obtain
acre-foot per year (acre-ft/yr)		1,233	cubic meter per year
foot (ft)		0.3048	meter
gallon (gal)		3.785	liter
mile (mi)		1.609	kilometer
millirem per year (mrem/yr)		0.010	millisievert per year
picocurie per liter (pCi/L)		0.037	becquerel per liter
square mile (mi ²)		2.590	square kilometer

Temperature can be converted from degrees Celsius (°C) to degrees Fahrenheit (°F) by the equation: °F = (°C × 1.8) + 32

Abbreviated units used in report: gram (g); milliliter (mL); liter (L); microgram per liter (µg/L); milligram per liter (mg/L); micrometer (µm); and microsiemens per centimeter at 25 degrees Celsius (µS/cm).

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by Roy C. Bartholomay and Linda M. Williams, U.S. Geological Survey, and Linford J. Campbell, Idaho Department of Water Resources

ABSTRACT

The U.S. Geological Survey and the Idaho Department of Water Resources, in cooperation with the U.S. Department of Energy, evaluated the water quality data collected from 55 wells and springs during 1989 and 1990 through 1992 from the southern boundary of the Idaho National Engineering Laboratory to the Hagerman area, Idaho. Water samples collected in 1989-92 were analyzed for selected radionuclides, inorganic constituents, and organic compounds. A statistical comparison between data collected in 1989 and data collected in 1990-92 along with a comparison of replicate pairs was used to evaluate changes in water quality between samples and to assess sampling and analysis precision for individual constituents.

The comparisons of radionuclide data showed no pattern of water quality change between samples as concentrations randomly increased or decreased. Tritium concentrations did show a consistent pattern with location in the aquifer. The largest tritium concentrations occurred in water from wells in the Big Wood and Little Wood River drainages and in the southern part of the study area where heavy irrigation occurs. The variability of radionuclide concentrations may be attributed to the change in the contract laboratory used for radiochemical analyses between 1989 and 1990. The replicate data for radionuclides showed better overall reproducibility for data collected in 1990-92 than for 1989, as 70 of 76 replicate pairs were statistically equivalent for 1990-92 data whereas

only 55 of 73 replicate pairs were equivalent for 1989 data.

The comparisons of most of the inorganic constituent data showed no statistical change between samples. Exceptions include nitrite plus nitrate as nitrogen and orthophosphate as phosphorus data. Fifteen sample pairs for nitrite plus nitrate and 18 sample pairs for orthophosphate were not statistically equivalent and concentrations randomly increased or decreased. Nitrite plus nitrate concentrations showed a consistent pattern with location as concentrations were larger in agriculture areas than in rangeland areas. The replicate data for inorganic constituents showed good reproducibility as 117 of 120 replicate pairs were statistically equivalent.

The comparison of most of the organic compound data showed no statistical change between samples. Anionic surfactants is an exception as only 13 of 55 sample pairs were statistically equivalent and values randomly increased or decreased. Most of the purgeable organic compounds, insecticides, herbicides, and polychlorinated compounds had concentrations below the laboratory reporting levels and were considered statistically equivalent. The replicate data for organic compounds showed good reproducibility as all but three replicate pairs were statistically equivalent.

INTRODUCTION

Recently, the public has expressed concern about waste disposal practices at the Idaho National

Engineering Laboratory (INEL) and the impact these practices might have had on the water quality of the Snake River Plain aquifer. The U.S. Department of Energy (DOE) requested that the U.S. Geological Survey (USGS) conduct two studies to respond to the public's concern and to gain a greater understanding of the chemical quality of water in the aquifer. The first study described a one-time sampling effort in the eastern part of the A & B Irrigation District in Minidoka County (Mann and Knobel, 1990). The second study, an ongoing annual sampling effort in the area between the southern boundary of the INEL and Hagerman (fig. 1), is being conducted in cooperation with the Idaho Department of Water Resources (IDWR) and the DOE. The initial round of sampling for the second study involved analyzing water samples collected from 55 sites during August and September 1989 (Wegner and Campbell, 1991). The second round of sampling involved analyzing water samples collected from 19 of the initial 55 sites in 1990 (Bartholomay and others, 1992), another 18 of the initial 55 sites in 1991 (Bartholomay and others, 1993), and the remaining 18 sites in 1992 (Bartholomay and others, 1994).

The purpose of this report is to evaluate the USGS data from the first and second rounds of the second study. Analytical results for radionuclides, inorganic constituents, and organic compounds for samples collected in 1989 are statistically compared to results from the same well or spring that was sampled in 1990, 1991, or 1992. An evaluation of the quality-assurance data from the two rounds is also given. Data comparison between rounds is useful in determining changes in water quality between samples and sampling and analysis precision for individual constituents which helps to determine sampling strategy in future rounds.

Geohydrologic Setting and Wastewater Disposal at the Idaho National Engineering Laboratory

The eastern Snake River Plain is a northeast-trending structural basin about 200 mi long and 50 to 70 mi wide. The basin, bounded by faults on the northwest and down-warping and faulting on the southeast, has been filled with basaltic lava flows interbedded with terrestrial sediments (Whitehead, 1986). Individual basalt flows average 20 to 25 ft in thickness with an aggregate thickness of several thousand feet in places. Alluvial fan deposits are

composed primarily of sand and gravel, whereas in areas where streams were dammed by basalt flows, the sediments are predominantly silt and clay (Garabedian, 1986). Rhyolitic lava flows and tuffs are exposed locally at the surface and may exist at depth under most of the eastern plain. A 10,365-ft-deep test hole at the INEL penetrated about 2,160 ft of basalt and sediment and 8,205 ft of tuffaceous and rhyolitic volcanic rocks (Mann, 1986).

Movement of water in the aquifer generally is from the northeast to the southwest. Water moves horizontally through basalt interflow zones and vertically through joints and interfingering edges of the interflow zones. Infiltration of surface water, heavy pumpage, geologic conditions, and seasonal fluxes in recharge and discharge locally affect the movement of ground water (Garabedian, 1986).

The Snake River Plain aquifer is recharged by seepage from the upper reaches of the Snake River, tributaries and canals, infiltration from irrigation and precipitation, and underflow from tributary valleys on the perimeter of the plain. Discharge from the aquifer primarily is by pumpage for irrigation and flow from springs to the Snake River (Mann and Knobel, 1990). Between 1902 and 1980, spring flow to the Snake River increased from about 3.1 million to about 4.3 million acre-ft/yr, largely as a result of increased recharge from infiltration of irrigation water (Kjelstrom, 1992, fig. 27).

The INEL includes about 890 mi² of the northeastern part of the eastern Snake River Plain and is about 110 mi northeast of the Hagerman area (fig. 1). Wastewater containing chemical and radiochemical wastes generated at the INEL was discharged mostly to ponds and wells in the past. Since 1983, most aqueous wastes have been discharged to infiltration ponds. Many of the constituents in the wastewater enter the aquifer indirectly following percolation through the unsaturated zone (Pittman and others, 1988). Several wells at the INEL have elevated concentrations of tritium, strontium-90, chromium, sodium, chloride, sulfate, nitrate, and some purgeable organic compounds that are a result of the waste disposal practices (Bartholomay and others, 1995).

Chemical and radioactive wastes have migrated from less than 1 to about 9 mi southwest of the disposal areas at the INEL. Tritium was detected periodically at concentrations of 3,400±200 pCi/L or less in water from three wells along the southern boundary of the INEL between 1983 and 1985 (Pittman and others.

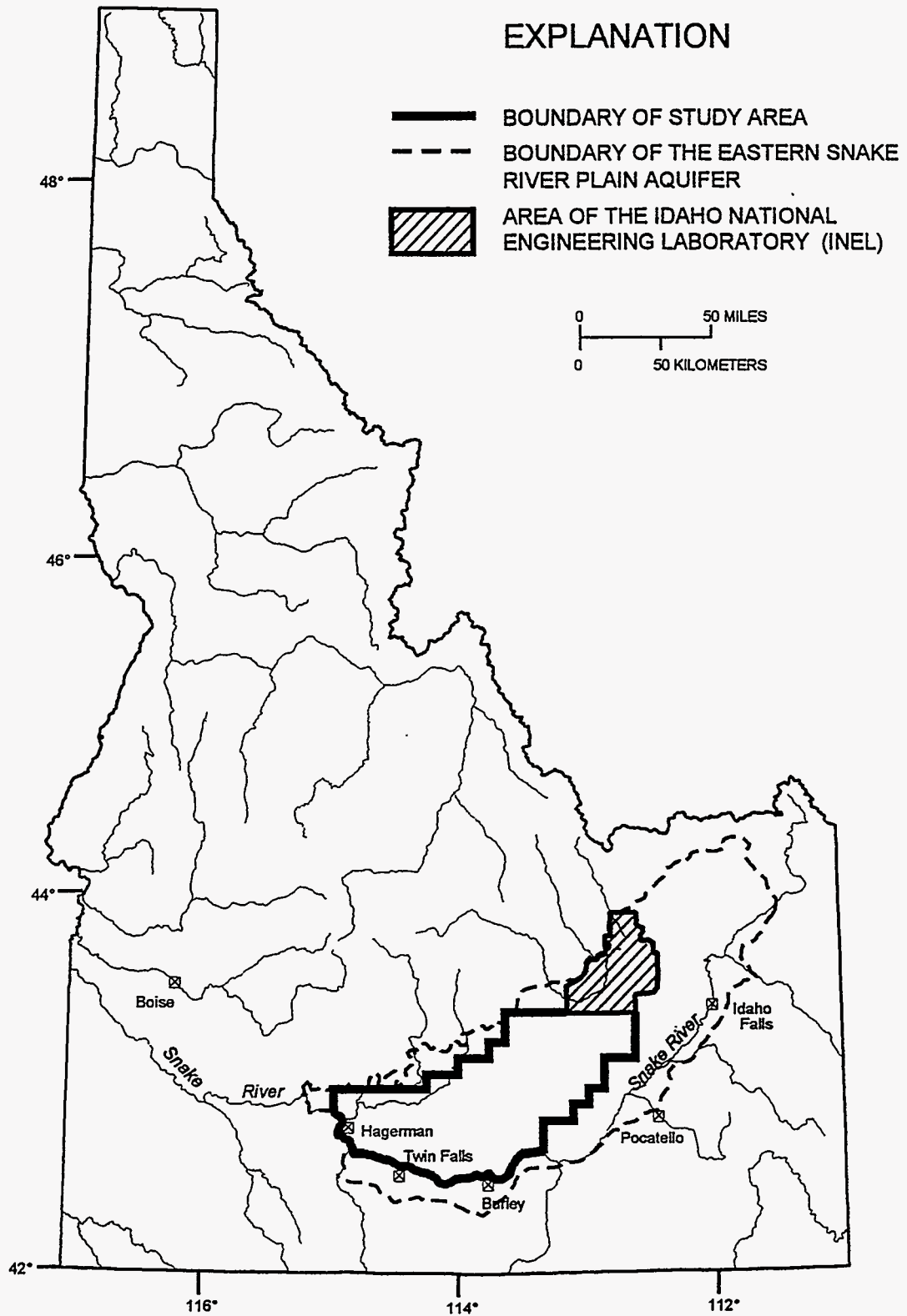


Figure 1. Location of the study area, between the Idaho National Engineering Laboratory and Hagerman, Idaho.

1988, p. 51; Mann and Cecil, 1990, p. 27). Since 1985, tritium concentrations in water from wells near the southern boundary of the INEL have been less than the reporting level (Bartholomay and others, 1995, p. 22).

Acknowledgments

The authors gratefully acknowledge the well owners for granting permission to collect the water samples. Special thanks are given to Ron Conklin and Dale Connell of the Shoshone District of the Bureau of Land Management, Downy Strode of the Tikura Cattlemen's Association, and Mike Smith of the Minidoka Grazing Association for their help in locating and pumping wells for sample collection. The authors are grateful for technical review of the manuscript by Joe A. Baldwin of the Division of Environmental Quality, Idaho Department of Health and Welfare, and by LeRoy L. Knobel of the USGS.

METHODS AND QUALITY ASSURANCE

The methods used in sampling and analyzing for selected chemicals generally followed the guidelines established by the USGS (Goerlitz and Brown, 1972; Stevens and others, 1975; Thatcher and others, 1977; Wood, 1981; Claassen, 1982; W.L. Bradford, USGS written commun., 1985; Wershaw and others, 1987; Fishman and Friedman, 1989; Faires, 1992; and Fishman, 1993). Sample containers and preservatives were collected and preserved in accordance with laboratory requirements specified by Pritt and Jones (1989). The methods used in the field and quality assurance practices are outlined in the following sections.

Site Selection

Round one and round two water samples were collected at 55 sites (fig. 2), consisting of 26 irrigation wells, 13 domestic wells, 5 springs, 4 stock wells, 3 dairy wells, 2 observation wells, 1 commercial well, and 1 public-supply well (table 1). The irrigation wells and public-supply well were equipped with turbine pumps. The domestic, stock, observation, dairy, and commercial wells were equipped with submersible pumps. Criteria for site selection were geographic

location, ease of sample collection, and long-term access.

Sample Collection

Nine of the irrigation wells discharged into stilling ponds and were sampled near the discharge pipe. The rest of the irrigation wells and the public supply well were sampled from spigots in discharge lines near pumps. The domestic, dairy, and commercial wells were sampled from the closest spigots available to pumps. The stock wells were sampled at water-tank inlet pipes. The observation wells were sampled at well heads. All the wells either were being pumped on arrival of the sampling team or the pumps were started on arrival and, when possible, pumped long enough to ensure that pressure tanks and pumping systems had been thoroughly flushed as evidenced by stable pH, specific conductance, and temperature measurements. The five springs were sampled as near the source as possible by collecting a grab sample from an area of moving water.

Chemical and physical characteristics monitored at the water-sampling sites included pH, specific conductance, and water temperature during round one. Alkalinity and dissolved oxygen measurements were added in round two. These characteristics were monitored during pumping using methods described by Wood (1981) and Hardy and others (1989). A water sample was collected when measurements of these properties indicated probable hydraulic and chemical stability. After collection, sample containers were sealed with laboratory film, labeled, and packed into ice chests for shipment by overnight-delivery mail to the USGS National Water Quality Laboratory (NWQL).

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

Quality Assurance

Detailed descriptions of internal quality control and overall quality assurance practices used by the NWQL are provided in reports by Friedman and Erdmann (1982), Jones (1987), and Pritt and Raese

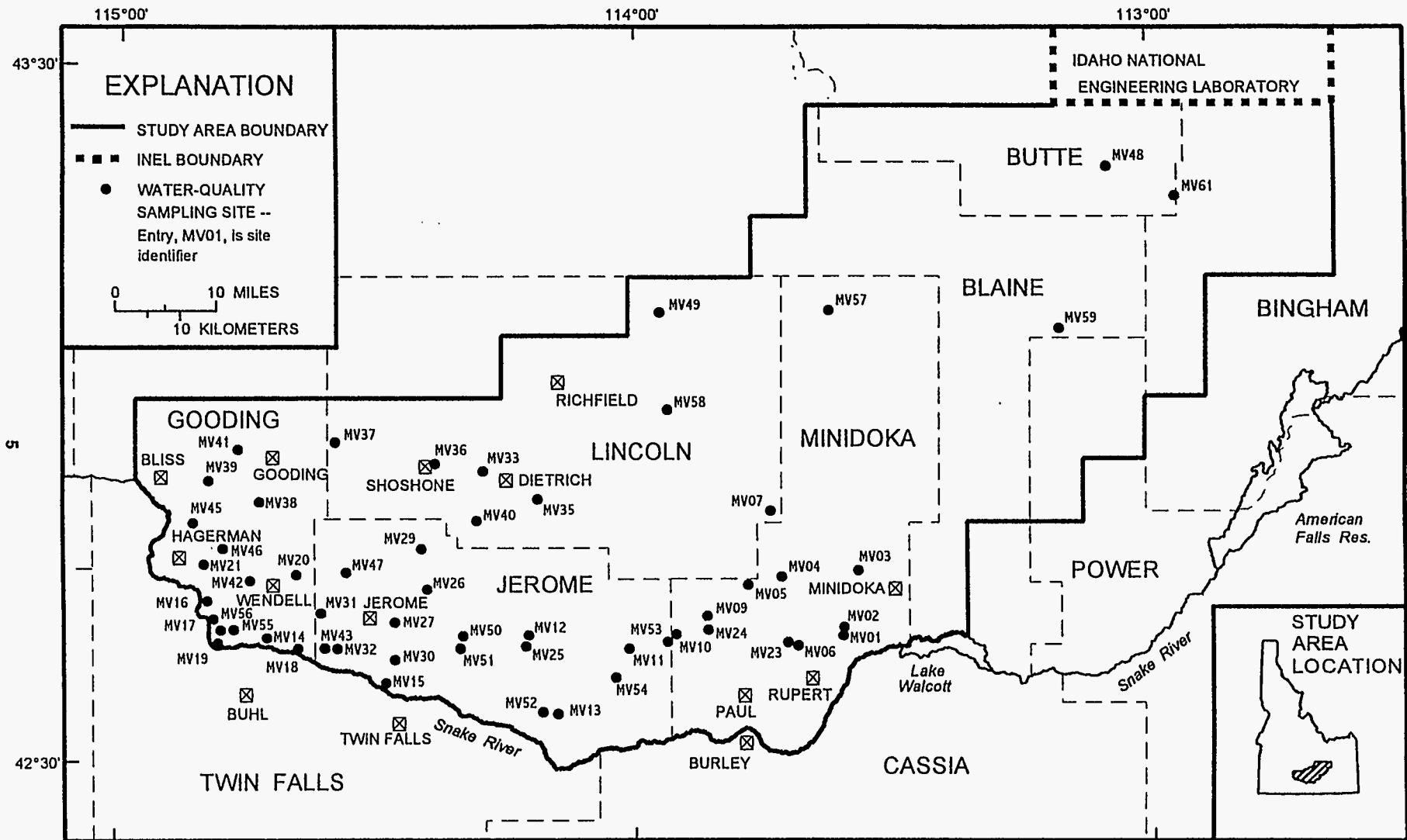


Figure 2. -- Location of selected water-quality sampling sites on the eastern Snake River Plain.

(1992). Water samples analyzed by the NWQL were collected in accordance with a quality assurance plan for quality-of-water activities conducted by personnel at the USGS Project Office at the INEL. The plan was finalized in June 1989, revised in March 1992, and is available for inspection at the USGS Project Office at the INEL. About 10 percent of the water samples collected from 1989 to 1992 were quality assurance samples. A statistical evaluation of the quality assurance data will be included with the individual constituents described later in this report.

STATISTICAL COMPARISONS OF SAMPLE AND REPLICATE PAIRS

If the standard deviations are known, it is possible to determine, within specified confidence levels, whether the results of a pair of samples are statistically equal. When the standard deviations are unknown, approximations of the standard deviations are used for the statistical comparison. The comparison can be done using an adaptation of the equation to determine the standard deviate, Z , or the number of standard deviations the variable deviates from the mean (Volk, 1969, p. 55), where Z is the ratio of the absolute value of the difference of the two results and the square root of the sum of the squares of the standard deviations (the pooled standard deviation). In that way, a comparison can be made of two analytical results on the basis of the overall precision, or an approximation of the overall precision, associated with each of the results:

$$Z = \frac{|x - y|}{\sqrt{(s_x)^2 + (s_y)^2}} \quad (1)$$

where:

- x is the result of one sample,
- y is the result of the other sample,
- s_x is the standard deviation of x , and
- s_y is the standard deviation of y .

When the population is distributed normally and the standard deviation is known, the analytical results of sample or replicate pairs can be considered statistically equal at the 95-percent confidence level if the Z value is less than or equal to 1.96. When the population is not distributed normally or an approximation of the standard deviation is used, a Z value less than or

equal to 1.96 must be considered a guide to testing for nonequivalence. At the 95-percent confidence level, the probability of error is 0.05. In other words, when Z is less than or equal to 1.96, the results are within approximately two standard deviations of each other. Equation 1 is used to compare quality assurance data at the INEL Project Office (Williams, 1996), and is essentially the equation used to compare replicate data in the USGS protocol for collection and processing surface-water samples (Horowitz and others, 1995, p. 36).

Gross Radioactivity and Radionuclides

The use of equation 1 is straightforward in determining if the results of radiochemical determinations of a pair of samples are equivalent. Because the NWQL reports radiochemical results and two standard deviations, it is necessary to divide the value by two to compute the one standard deviation required by equation 1. The results and reported standard deviations for the analyses of gross radioactivity and radionuclides in the sample or replicate pairs and the Z values for each pair are included in tables 1-15. Calculations using equation 1 were performed on each replicate pair. If the analytical results of the pair are not in statistical agreement, an "N" appears in the column labeled "Remark".

Inorganic Constituents

Equation 1 cannot be applied directly to results when no standard deviations or uncertainties are reported. The analyses for inorganic constituents from the NWQL were not reported with standard deviations; therefore, approximations of standard deviations are used. The USGS Branch of Quality Assurance (BQA) conducts a Blind Sample Program (BSP) in which reference samples disguised as environmental samples are submitted to the NWQL for analysis. A report by Maloney and others (1993) describes the program and evaluates the analytical results. The BSP data are stored in the QADATA program which is available through the USGS computer network (Lucey, 1990, p. 1). The statistical analyses included in the program generate linear regression equations that allow the calculation of a most probable deviation (MPD) at any concentration for most analyses. There are a few analyses where a minimum MPD has been established for low concentrations (Maloney and others, 1993,

p. 4). The linear regression equations can be used to determine if the analytical results of the replicate pairs are statistically equivalent by calculating a MPD for each result and substituting for the standard deviation in equation 1. Because these are approximate standard deviations, the Z value of 1.96 must be considered a guide in testing for nonequivalence.

The results of the sample or replicate pairs of the inorganic constituent analyses and the Z values for each pair are included in tables 16-27. If analytical results of the pair are not in statistical agreement, that is, if the Z value is greater than 1.96, an "N" appears in the column labeled "Remark."

In many samples, the concentration of a specific constituent is less than the reporting level. If the results of both samples were less than the same reporting level, it can be assumed the results were equal and the Z value is reported as a zero. If, however, only one of the results is less than the reporting level, there are two possible approaches to consider. The first approach applies when one result is less than its reporting level and the other exceeds its reporting level. The second approach applies when one result is less than the reporting level and the other is at the reporting level; or when the reporting levels differ and one result is less than its reporting level and the other value exceeds its reporting level, but is below the reporting level of the other sample.

When using the first approach, the MPD of the numerical value and the MPD of the numerical value of the reporting level (the largest possible concentration) and zero (the smallest possible concentration) are substituted in equation 1 for one of the results. For example: the analytical results of cadmium in the samples collected at MV-49 on September 21, 1989 and August 21, 1991, are $<1 \mu\text{g/L}$ and $3 \mu\text{g/L}$ (table 18). Using the minimum MPD of $0.75 \mu\text{g/L}$ which has been set for this analysis (Maloney and others, 1993, p. 5), the results would be $1 \pm 0.75 \mu\text{g/L}$ and $3 \pm 0.75 \mu\text{g/L}$. The Z value, calculated from equation 1, equals 1.89, which is less than 1.96; however, if zero is used for the concentration less than the reporting level, the results would be 0 ± 0.75 and $3 \pm 0.75 \mu\text{g/L}$. The Z value, calculated from equation 1, equals 2.83 which is greater than 1.96, therefore the statistical equivalence of the two samples is uncertain. In this case, the range of Z values is given in the tables.

When using the second approach, the MPD of the result was calculated at the reporting level using the linear regression equation for that analysis. To compare

the two results using the overall precision associated with them, the deviation is multiplied by 1.96. If the range of the deviation includes zero, the results are equal because any determination less than the reporting level is included in the 95-percent confidence level. For example, the analytical results of cadmium analyses of the pair of samples collected at MV-1 on August 14, 1989 and August 13, 1990 are $<1 \mu\text{g/L}$ and $1 \mu\text{g/L}$ (table 18). The linear regression equation generates an MPD of 0.54, but a minimum MPD of $0.75 \mu\text{g/L}$ has been set for this analysis (Maloney and others, 1993, p. 5). Therefore, the result, $<1 \mu\text{g/L}$, would have an MPD of $1.96 \times 0.75 \mu\text{g/L}$ at the 95-percent confidence level: $1 \pm 1.47 \mu\text{g/L}$. The range includes zero and the results are considered equal. If the range had not included zero, as often is the case when the MPD is very small, equivalence cannot be determined and a "U" appears in the column labeled "Remark" signifying that agreement is uncertain.

Organic Compounds

Organic constituents were not included in the BQA Blind Sample Program. Therefore, for anionic surfactants, herbicides, insecticides, and polychlorinated compounds, standard deviations are calculated from the relative standard deviations (RSD) reported in Wershaw and others (1987) and in the NWQL catalog (Pritt and Jones, 1989). The standard deviations of the purgeable organic compounds are calculated from the RSD provided by Rose and Schroeder (1995, p. 18-23). Analytical results for organic constituents are included in tables 28-30. Calculations using equation 1 were performed on each pair of samples and the Z values are also presented in the tables. If analytical results of the pair are not in statistical agreement, an "N" appears in the column labelled "Remark". If it cannot be determined whether the results are equal, a "U" appears in the column labeled "Remark" signifying that agreement is uncertain.

EVALUATION OF STATISTICAL COMPARISON OF SAMPLE AND REPLICATE PAIRS

The following sections evaluate the statistical comparison of analytes analyzed in 1989 to analytes analyzed in 1990, 1991, or 1992. Replicate pairs of data are also evaluated for each analyte.

Gross Radioactivity and Radionuclides

Radon-222.—Radon-222 is a naturally-occurring radioactive gas that results from the decay of radium-226 and has a half-life of 3.82 days (Walker and others, 1989, p. 45). A comparison of results of samples collected in 1989 with samples collected in 1990, 1991, or 1992, along with a comparison of replicate pairs, is shown in table 1.

The comparison between data collected in 1989 and data collected in 1990, 1991, or 1992 indicates that 27 of 55 sample sites had radon-222 concentrations that were statistically equivalent. Seven of 10 replicate pairs of data were statistically equivalent (table 1). The data indicate there is no apparent pattern of change in radon-222 concentrations as some values decreased while others increased. Because radon-222 is a gas, it readily migrates in the presence of moving water, so a change in concentration with time is expected. In general, radon-222 data are hard to interpret because of the short half-life and complex nature of the factors affecting radon-222 concentrations (Durrance, 1986, p. 219).

Strontium-90.—Strontium-90 is a fission product that was widely distributed in the environment during atmospheric weapons tests. Strontium-90 generally is present in ground water as a result of those tests and from nuclear industry disposal. Strontium-90 has a half-life of 29.1 years (Walker and others, 1989, p. 29).

A comparison of results of samples collected in 1989 with samples collected in 1990, 1991, or 1992, along with a comparison of replicate pairs, is shown in table 2. The comparisons show that 44 of 55 sample sites had strontium-90 concentrations that were statistically equivalent. The lack of statistical equivalence in 11 of the samples may partly be due to a change in the contract laboratory used for radiochemical analyses between 1989 and 1990. There is no apparent pattern of change of strontium-90 concentrations as some values decreased while others increased.

Eight of 10 replicate pairs were statistically equivalent (table 2). Both replicate pairs that were not equivalent had one sample with a concentration greater than the reporting level of three times the analytical uncertainty and one sample with a concentration less than the reporting level. Subsequent samples from these two wells (MV-7 and MV-61) also had concentrations less than the reporting level. This indicates that the initial laboratory analyses of these two samples probably are not reliable.

Tritium.—Tritium, a radioactive isotope of hydrogen, is formed in nature by interactions of cosmic rays with gases in the upper atmosphere. Tritium also is produced in thermonuclear detonations and is a waste product of the nuclear power industry. Tritium has a half-life of 12.3 years (Walker and others, 1989, p. 20).

A comparison of results of samples collected in 1989 with samples collected in 1990, 1991, and 1992, along with a comparison of replicate pairs, is shown in table 3. The comparisons show that all but three of the 54 sample pairs analyzed for tritium were statistically equivalent. Analyses of seven of nine replicate pairs were statistically equivalent. Tritium concentrations did not change even though laboratory methods changed between 1989 and 1990. In 1989, a liquid scintillation method with a 1,200 minute counting period and an analytical method detection limit of 26 pCi/L was used. In 1990-92, an enrichment and gas counting technique with a 360 to 1,200 minute counting period and an analytical method detection limit of 0.3 pCi/L was used. Overall, the tritium concentrations did not show consistent increases or decreases between samples, but there is a consistent pattern of tritium concentrations by well location in the Snake River Plain aquifer. Figure 3 shows sample site locations with tritium concentrations from 1990-92. Larger concentrations of tritium are present at sites located in and around the Big Wood and Little Wood River drainages. Larger concentrations of tritium can also be found in the southern part of the study area where heavy irrigation occurs. The tritium data showed a consistent pattern with the three categories of tritium concentrations described in Mann and Low (1994).

Gross Alpha-Particle Radioactivity.—Gross alpha-particle radioactivity is a measure of the total radioactivity given off as alpha particles during the radioactive decay process. Laboratories normally report the radioactivity as if it were all given off by one radionuclide. The NWQL reports results as gross alpha dissolved as thorium-230, suspended as thorium-230, dissolved as natural uranium, and suspended as natural uranium. A comparison of results of samples collected in 1989 with samples collected in 1990, 1991, and 1992, and a comparison of replicate pairs, for gross alpha dissolved as thorium-230, gross alpha suspended as thorium-230, gross alpha dissolved as uranium, and gross alpha suspended as uranium are shown in tables 4-7, respectively.

The comparisons show that 35 of 55 sample pairs analyzed for gross alpha dissolved as thorium-230, 41 of 55 samples analyzed for gross alpha suspended as thorium-230, 32 of 55 samples analyzed for gross alpha dissolved as uranium, and 45 of 55 samples analyzed for gross alpha suspended as uranium during 1989-92 were statistically equivalent. The lack of statistical equivalence of some of the samples may be due to a change in the contract laboratory used for radiochemical analyses between 1989 and 1990. There was no apparent pattern of change in gross alpha-particle radioactivity during 1989-92 as some values decreased and others increased.

Seven of 10 replicate pairs analyzed for gross alpha dissolved as thorium-230 and gross alpha dissolved as uranium were statistically equivalent. The same three wells (MV-27, MV-33, and MV-61) were not in statistical agreement with their replicate pairs. Nine of 10 replicate pairs analyzed for gross alpha suspended as thorium-230 and gross alpha suspended as uranium were statistically equivalent. Well MV-61 was not statistically equivalent with its replicate for both analyses.

Gross Beta-Particle Radioactivity.—Gross beta-particle radioactivity is a measure of the total radioactivity given off as beta particles during the radioactive decay process. The NWQL instruments for these measurements are calibrated to either a single radionuclide, cesium-137, or a pair of radionuclides, strontium-90 in equilibrium with yttrium-90. A comparison of results of samples collected in 1989 with samples collected in 1990, 1991, and 1992, along with a comparison of replicate pairs, for gross beta dissolved as cesium-137, gross beta suspended as cesium-137, gross beta dissolved as strontium-90 in equilibrium with yttrium-90 and gross beta suspended as strontium-90 in equilibrium with yttrium-90 are shown in tables 8-11, respectively.

The comparisons show that 42 of 55 sample pairs analyzed for gross beta dissolved as cesium-137, 42 of 55 samples analyzed for gross beta suspended as cesium-137, 30 of 55 samples analyzed for gross beta dissolved as strontium-90 in equilibrium with yttrium-90, and 41 of 55 samples analyzed for gross beta suspended as strontium-90 in equilibrium with yttrium-90 during 1989-92 were statistically equivalent. The lack of statistical equivalence of some of the samples may be due to a change in the contract laboratory used for radiochemical analyses between 1989 and 1990. There was no apparent pattern of change in gross beta-

particle radioactivity during 1989-92 as some values decreased and others increased. Nine of 10 replicate pairs analyzed for gross beta dissolved as cesium-137, 7 of 10 replicate pairs analyzed for gross beta dissolved as strontium-90 in equilibrium with yttrium-90, and 10 of 10 replicate pairs analyzed for gross beta suspended as cesium-137 and gross beta suspended as strontium-90 in equilibrium with yttrium-90 were in statistical agreement.

Total Uranium.—Uranium is a widely distributed element that has three principal naturally occurring radioactive isotopes: uranium-238, uranium-235, and uranium-234. These isotopes undergo a complex radioactive decay series that results in their ultimate conversion to stable isotopes of lead (Haglund, 1972, p. 1,216-1,219). Total uranium is a measurement of the combined concentrations of all radioactive uranium isotopes, however the three principal isotopes make up 99.9957 percent of the total. Uranium enters the aqueous phase during the weathering of material that contains it. A comparison of results of samples collected in 1989 with samples collected in 1990, 1991, or 1992, along with a comparison of replicate pairs, for dissolved total uranium is shown in table 12. The comparison showed that only 6 of 55 samples are statistically equivalent. Analyses of 9 of 10 replicate pairs were statistically equivalent. The lack of statistical equivalence between most of the sample pairs may be due to a change in the contract laboratory used for radiochemical analyses between 1989 and 1990 and due to the small uncertainties of the uranium analyses. There is no apparent pattern of change in total uranium concentrations during 1989-92 as some values decreased and others increased.

Radium.—Radium-226 and radium-228 are naturally occurring radioactive decay products of uranium-238 and thorium-232, respectively. Radium enters the aqueous phase during the weathering of material that contains it. A comparison of results of samples collected in 1989 with samples collected in 1990, 1991, or 1992, along with a comparison of replicate pairs, for dissolved radium-226 and dissolved radium-228 are shown in tables 13-14. The comparison shows that 17 of 55 samples for radium-226 and 47 of 54 samples for radium-228 were statistically equivalent. The lack of equivalence for most of the radium-226 analyses may be due to the change in the contract laboratory used for radiochemical analyses between 1989 and 1990 and because of the small uncertainties of the analyses. Analyses of 8 of 10

replicate pairs for radium-226 and 10 of 10 replicate pairs for radium-228 were statistically equivalent. There is no apparent pattern of change of radium-226 and radium-228 values in the aquifer.

Gamma Spectrometry.—Gamma spectrometry uses a semiconductor detector coupled with supporting electronic equipment to simultaneously determine the concentrations of a variety of radionuclides by the detection and sorting of their characteristic gamma-ray emissions. Several radionuclides, consisting of potassium-40, thorium-234, lead-212, bismuth-212, cobalt-60, americium-241, bismuth-214, cesium-137, lead-214, radium-226, uranium-235, and uranium-238, were detected in various water samples collected from 1989 through 1992, but little consistency was found between the radionuclides detected in samples collected in 1989 with the samples collected in 1990 through 1992 (Bartholomay and others, 1992, 1993, 1994; Wegner and Campbell, 1991). For example, only 14 sample pairs had the same radionuclide identified during both sampling periods (table 15). Of the 14 sample pairs, analyses of only 2 sample pairs were statistically equivalent. The lack of consistency in the radionuclides detected may be due to the change in the contract laboratory used for radionuclide analyses between 1989 and 1990. In addition, overall reproducibility of these analyses is questionable. For example, replicate data collected during 1989 through 1992 showed that in 16 replicate pairs a radionuclide was detected in one sample of the replicate pair, but was not detected in the other sample (table 15). Ten samples had a radionuclide detected in both samples of the replicate pair; analyses of 8 of the 10 sample pairs were statistically equivalent.

Inorganic Constituents

Arsenic.—A comparison of results of samples collected in 1989 with samples collected in 1990, 1991, or 1992, along with a comparison of replicate pairs, for dissolved arsenic is shown in table 16. The comparison showed that analyses of all 55 of the sample pairs were statistically equivalent. Analyses of all 10 of the replicate pairs were also statistically equivalent.

Barium.—A comparison of results of samples collected in 1989 with samples collected in 1990, 1991, or 1992, along with a comparison of replicate pairs, for dissolved barium is shown in table 17. The comparison showed that analyses of 54 of 55 sample pairs were statistically equivalent. The sample from MV-42 on

August 13, 1991, was not statistically equivalent to the sample collected in 1989 because it was taken from a line off a water softener system. Analyses of all 10 of the replicate pairs were statistically equivalent.

Cadmium.—A comparison of results of samples collected in 1989 with samples collected in 1990, 1991, or 1992, along with a comparison of replicate pairs, for dissolved cadmium is shown in table 18. The comparison showed that analyses of 54 of 55 sample pairs were statistically equivalent. The equivalence of one sample pair is uncertain. Analyses of all 10 of the replicate pairs were statistically equivalent.

Chromium.—A comparison of results of samples collected in 1989 with samples collected in 1990, 1991, or 1992, along with a comparison of replicate pairs, for dissolved chromium is shown in table 19. The comparison showed that analyses of all 55 of the sample pairs were statistically equivalent. Analyses of all 10 of the replicate pairs were statistically equivalent.

Lead.—A comparison of results of samples collected in 1989 with samples collected in 1990, 1991, or 1992, along with a comparison of replicate pairs, for dissolved lead is shown in table 20. The comparison showed that analyses of all 55 of the sample pairs were statistically equivalent. Analyses of all 10 of the replicate pairs were also statistically equivalent.

Mercury.—A comparison of results of samples collected in 1989 with samples collected in 1990, 1991, or 1992, along with a comparison of replicate pairs, for dissolved mercury is shown in table 21. The comparison showed that analyses of 54 of 55 sample pairs were statistically equivalent. The sample from MV-40 on August 18, 1989 was 4.7 µg/L, which exceeded the maximum contaminant level of 2 µg/L. The mercury concentrations in two subsequent samples collected in 1991 were less than the laboratory reporting level. The sample collected in 1989 may have been contaminated during collection or analysis. Analyses of all 10 of the replicate pairs were statistically equivalent.

Selenium.—A comparison of results of samples collected in 1989 with samples collected in 1990, 1991, or 1992, along with a comparison of replicate pairs, for dissolved selenium is shown in table 22. The comparison showed that analyses of all 55 of the sample pairs were statistically equivalent. Analyses of all 10 of the replicate pairs were also statistically equivalent.

Silver.—A comparison of results of samples collected in 1989 with samples collected in 1990, 1991, or 1992, along with a comparison of replicate pairs, for

dissolved silver is shown in table 23. The comparison showed that analyses of all 55 of the sample pairs were statistically equivalent. Analyses of all 10 of the replicate pairs were also statistically equivalent.

Ammonia as Nitrogen.—A comparison of results of samples collected in 1989 with samples collected in 1990, 1991, or 1992, along with a comparison of replicate pairs, for dissolved ammonia as nitrogen is shown in table 24. The comparison showed that analyses of all 55 of the sample pairs were statistically equivalent. Analyses of all 10 of the replicate pairs were also statistically equivalent.

Nitrite as Nitrogen.—A comparison of results of samples collected in 1989 with samples collected in 1990, 1991, or 1992, along with a comparison of replicate pairs, for dissolved nitrite as nitrogen is shown in table 25. The comparison showed that analyses of 54 of 55 sample pairs were statistically equivalent; the equivalence of one sample pair was uncertain. Analyses of all 10 of the replicate pairs were also statistically equivalent.

Nitrite plus Nitrate as Nitrogen.—A comparison of results of samples collected in 1989 with samples collected in 1990, 1991, or 1992, along with a comparison of replicate pairs, for dissolved nitrite plus nitrate is shown in table 26. The comparison showed that analyses of 40 of 55 sample pairs were statistically equivalent. There is no pattern of change in nitrite plus nitrate as nitrogen concentrations as some sites showed increases while others decreased. Nitrite plus nitrate concentrations were larger in agricultural areas than in rangeland areas, consistent with interpretations by Rupert (1994). Analyses of all 10 of the replicate pairs were statistically equivalent.

Orthophosphate as Phosphorus.—A comparison of results of samples collected in 1989 with samples collected in 1990, 1991, or 1992, along with a comparison of replicate pairs, for dissolved orthophosphate as phosphorus is shown in table 27. The comparison showed that analyses of 32 of 55 sample pairs were statistically equivalent, 18 of 55 sample pairs were not statistically equivalent, and the equivalence of 5 sample pairs was uncertain. Analyses of 7 of 10 replicate pairs were statistically equivalent; 1 pair was not statistically equivalent, and the equivalence of 2 pairs was uncertain.

Organic Compounds

Anionic Surfactants.—A comparison of results of samples collected in 1989 with samples collected in 1990, 1991, or 1992, along with a comparison of replicate pairs, for anionic surfactants is shown in table 28. The comparison showed that analyses of 13 of 55 sample pairs were statistically equivalent. Analyses of 8 of 10 replicate pairs were statistically equivalent. The lack of equivalence in many of the samples was due to the small uncertainties used in the comparison. There was no apparent pattern of change in anionic surfactant concentrations as some values increased while others decreased.

Purgeable Organic Compounds.—Samples were analyzed for 36 purgeable organic compounds in 1989, 1990, and 1991, and 63 compounds in 1992 (Wegner and Campbell, 1991, table 13; Bartholomay and others, 1992, table 14; 1993, table 17; and 1994, table 16). In 1989, several compounds had concentrations greater than their reporting levels as a result of equipment contamination from a garden hose. Concentrations of *n*-propylbenzene, 1,2,4-trimethylbenzene, and 1,3,5-trimethylbenzene were found in several samples collected through a garden hose and in an equipment blank of water run through the hose, but were not found in five sites resampled without the hose (Wegner and Campbell, 1991, p. 37).

Three other compounds (1,1,1-trichloroethane, toluene, and total xylene) had concentrations greater than or equal to their reporting levels at various sites during round-one and -two sampling. A statistical comparison of the samples that had concentrations greater than or equal to the reporting level along with a comparison of replicate pairs is shown in table 29. Because neither an MPD nor a standard deviation is available for purgeable organic compounds, the standard deviations were calculated from the RSD provided by Rose and Schroeder (1995). The RSD was 12 percent for 1,1,1-trichloroethane and 11 percent for total toluene and total xylene.

The three compounds with concentrations greater than or equal to the reporting level in either round one or two had concentrations less than the reporting level in the other round of sampling and most were not statistically equivalent (table 29); however, 1,959 sample pairs of purgeable organic compounds had concentrations less than their reporting levels in both rounds and analyses were considered statistically equivalent. Analyses of all but one set of replicate pairs were statistically equivalent.

Insecticides, Polychlorinated Compounds, and Herbicides.—Water samples were analyzed for concentrations of 10 carbamate insecticides, 11 organophosphorous insecticides, 15 organochlorine insecticides, gross polychlorinated biphenyls (PCBs), gross polychlorinated naphthalenes (PCNs), 12 triazine herbicides, and 4 chlorophenoxy-acid herbicides in 1989 (Wegner and Campbell, 1991, tables 15 and 16), 1990 (Bartholomay and others, 1992, tables 15 and 16), 1991 (Bartholomay and others, 1993, tables 18 and 19), and 1992 (Bartholomay and others, 1994, tables 17 and 18). A statistical comparison of the samples that had concentrations greater than or equal to the reporting level, along with a comparison of replicate pairs that had concentrations greater than or equal to the reporting level, is shown in table 30. Because neither an MPD nor a standard deviation is available for insecticides and herbicides, the standard deviations are calculated from the RSD provided by Wershaw and others (1987) and Pritt and Jones (1989). The RSD was 11 percent for diazinon, 32 percent for malathion, 19 percent for DDT, and 10 percent for 2,4-D.

For both rounds of sampling, 2,963 sample pairs of the insecticides, polychlorinated compounds, and herbicides had concentrations less than their reporting levels in both rounds and are considered equal. All the insecticides or herbicides with concentrations greater than or equal to the reporting level in either round one or two (listed in table 30) had concentrations less than the reporting level in the other round of sampling. Analyses of two sample pairs were not statistically equivalent, and the equivalence of five sample pairs was uncertain (table 30). Analyses of all replicate pairs were statistically equivalent.

SUMMARY AND CONCLUSIONS

The USGS and the IDWR, in cooperation with the DOE, evaluated the water quality data collected from 55 wells and springs during 1989 and 1990-92 from the southern boundary of the INEL to the Hagerman area, Idaho. A statistical comparison was done between data collected in 1989 and data collected in 1990-92 along with a comparison of replicate pairs. Water samples were analyzed for selected radionuclides, inorganic constituents, and organic compounds. The data were evaluated to delineate changes in water quality between samples and to assess sampling and analysis precision for individual constituents.

The statistical comparison of data collected in 1989 with data collected in 1990-92 and analyzed for gross radioactivity and radionuclides showed no distinct pattern of change between the analyses. Concentrations randomly increased and decreased in sites sampled. Tritium concentrations did show a consistent pattern with location in the aquifer. The largest tritium concentrations occurred in water collected from wells in the Big Wood and Little Wood River drainages and in the southern part of the study area where heavy irrigation occurs. The variability of gross radioactivity and radionuclide concentrations in sites sampled may be attributed to the change in the contract laboratory used for radiochemical analyses between 1989 and 1990.

The replicate data collected for gross radioactivity and radionuclides showed better overall reproducibility for data collected in 1990-92 than for 1989, as 70 of 76 replicate pairs were statistically equivalent for 1990-92 data whereas only 55 of 73 replicate pairs were equivalent for 1989 data.

The statistical comparison of data collected in 1989 with data collected in 1990-92 and analyzed for eight trace elements showed that trace element concentrations did not statistically change between samples. Analyses of 437 of 440 sample pairs were statistically equivalent. Analyses of a sample pair collected for barium were not statistically equivalent because one sample was collected through a water-softener system whereas the other was not. The mercury concentration of 4.7 µg/L may have been the result of sampling or laboratory contamination. The equivalence of one sample pair for cadmium was uncertain. All 80 of the replicate pairs were statistically equivalent.

The statistical comparison of data collected in 1989 with data collected in 1990-92 and analyzed for nutrients showed that ammonia as nitrogen and nitrite as nitrogen did not statistically change between samples; all but one of the 110 sample-pair analyses were statistically equivalent. Analyses of 40 of 55 sample pairs collected for nitrite plus nitrate as nitrogen were statistically equivalent. In the 15 sample-pair analyses that were not equivalent, nitrite plus nitrate increased or decreased randomly. Overall, nitrite plus nitrate concentrations were larger in agriculture areas than in rangeland areas. Analyses of 32 of 55 sample pairs collected for orthophosphate as phosphorus were statistically equivalent, 18 sample pairs were not equivalent, and the equivalence of 5 sample pairs was uncertain. Analyses of 37 of 40 replicate pairs of

nutrients were statistically equivalent; the equivalence of 2 replicate pairs was uncertain and 1 replicate pair was not equivalent.

The statistical comparison of data collected in 1989 with data collected in 1990-92 and analyzed for anionic surfactants showed there was no apparent pattern of change in concentrations between samples as some values increased while others decreased. Only 13 of 55 sample-pair analyses were statistically equivalent partly because of the small uncertainties used in the comparisons. Analyses of 8 of 10 replicate pairs were statistically equivalent.

Sample sites from round one and two were analyzed for at least 36 purgeable organic compounds, 10 carbamate insecticides, 11 organophosphorous insecticides, 15 organochlorine insecticides, gross PCBs, gross PCNs, 12 triazine herbicides, and 4 chlorophenoxy-acid herbicides during 1989 to 1992. Most of the compounds analyzed from both rounds had concentrations below the laboratory reporting levels and are considered statistically equivalent. Analyses of all but one replicate pair had statistically equal concentrations.

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Table 1. Comparison of radon-222 analyses from water samples collected in 1989 with samples collected in 1990, 1991, or 1992 including a comparison of replicate pairs, selected wells and springs, eastern Snake River Plain

[Concentrations and associated uncertainties are in picocuries per liter. Analytical uncertainties are reported as 2 times the sample standard deviation. Site identifier: see figure 2 for location of the sites. Site use: I, irrigation; H, domestic, D, dairy; Sp, spring; C, commercial; P, public supply; O, observation; S, stock. Z value: see section on statistical comparisons of sample and replicate pairs. Abbreviations: N, the analytical results are not in statistical agreement; QA, quality-assurance replicate sample. Replicate pairs: site identifiers are listed with QA identifier followed by original site identifier in parentheses]

Site identifier	Site use	Date sampled	Concentration	Date sampled	Concentration	Z value	Remark
MV-1	I	8/14/89	12±37	8/13/90	70±25	2.60	N
MV-2	H	8/14/89	2±32	8/12/91	79±46	2.75	N
MV-3	I	8/15/89	18±30	7/28/92	175±31	7.28	N
MV-4	I	8/15/89	38±31	8/13/90	24±35	.60	
MV-5	I	8/15/89	0±29	7/30/92	197±50	6.82	N
MV-6	I	8/15/89	36±32	7/28/92	149±30	5.15	N
MV-7	I	8/16/89	8±29	7/30/92	162±62	4.50	N
MV-9	I	8/16/89	64±26	8/14/90	46±27	.96	
MV-10	I	8/16/89	55±46	8/12/91	70±31	.54	
MV-11	I	8/16/89	29±63	8/14/90	49±26	.59	
MV-12	D	8/17/89	74±48	8/14/91	42±47	.95	
MV-13	I	8/17/89	103±42	6/23/92	114±25	.45	
MV-14	D	8/17/89	32±38	8/16/90	-20±63	1.41	
MV-15	Sp	8/18/89	-7±44	8/16/90	-5±25	.08	
MV-16	Sp	8/18/89	0±42	8/13/91	106±34	3.92	N
MV-17	Sp	8/18/89	15±47	7/27/92	126±35	3.79	N
MV-18	Sp	8/18/89	51±40	8/16/90	-39±43	3.06	N
MV-19	Sp	8/18/89	15±43	8/15/91	45±36	1.07	
MV-20	I	8/19/89	2±48	7/27/92	107±23	3.95	N
MV-21	D	8/19/89	15±45	8/15/90	-36±32	1.85	
MV-23	I	8/21/89	23±35	8/13/90	46±29	1.01	
MV-24	H	8/21/89	27±38	8/12/91	43±31	.65	
MV-25	H	8/22/89	-6±37	8/16/90	-3±32	.12	
MV-26	I	8/15/89	1±26	8/16/91	15±34	.65	
MV-27	I	8/15/89	12±36	7/27/92	138±33	5.16	N
MV-29	I	8/16/89	45±28	8/14/91	107±41	2.50	N
MV-30	C	8/16/89	11±30	8/17/90	71±41	2.36	N
MV-31	I	8/16/89	22±26	6/23/92	62±24	2.26	N
MV-32	H	8/16/89	149±47	8/15/91	15±41	4.30	N
MV-33	H	8/17/89	43±47	8/15/90	11±26	1.19	
MV-35	I	8/17/89	24±48	6/24/92	106±23	3.08	N
MV-36	P	8/17/89	64±43	7/29/92	236±40	5.86	N
MV-37	H	8/18/89	29±59	8/17/90	38±41	.25	
MV-38	I	8/18/89	86±48	7/29/92	215±38	4.21	N
MV-39	I	8/18/89	72±46	8/15/90	29±33	1.52	
MV-40	I	8/18/89	42±51	8/15/91	56±42	.42	
MV-41	I	8/21/89	58±40	8/13/91	26±26	1.34	
MV-42	H	8/21/89	124±38	8/13/91	152±34	1.10	

Table 1. Comparison of radon-222 analyses from water samples collected in 1989 with samples collected in 1990, 1991, or 1992 including a comparison of replicate pairs, selected wells and springs, eastern Snake River Plain—Continued

Site identifier	Site use	Date sampled	Concentration	Date sampled	Concentration	Z value	Remark
MV-43	I	8/22/89	80±39	8/15/90	19±29	2.51	N
MV-45	I	8/22/89	196±34	8/13/91	124±26	3.36	N
MV-46	I	8/22/89	32±33	6/23/92	137±33	4.50	N
MV-47	D	9/07/89	49±27	8/17/90	-1±41	2.04	N
MV-48	O	9/13/89	7±27	8/21/91	138±61	3.93	N
MV-49	S	9/21/89	51±28	8/21/91	82±62	.91	
MV-50	I	8/14/89	163±34	9/15/92	297±32	5.74	N
MV-51	H	8/15/89	80±26	8/14/90	89±24	.51	
MV-52	H	8/22/89	32±38	8/14/91	66±29	1.42	
MV-53	H	8/21/89	38±38	7/28/92	163±54	3.79	N
MV-54	H	8/21/89	5±36	8/14/91	43±31	1.60	
MV-55	I	8/22/89	-15±35	7/30/92	194±50	6.85	N
MV-56	H	8/22/89	1±34	8/16/91	31±35	1.23	
MV-57	S	9/26/89	-19±27	6/30/92	32±29	2.57	N
MV-58	S	9/26/89	-9±26	6/30/92	49±30	2.92	N
MV-59	S	9/27/89	79±23	8/24/90	77±34	.10	
MV-61	O	9/14/89	5±24	7/17/90	14±28	.49	

Replicate pairs					
Site identifiers	Date sampled	QA concentration	Concentration	Z value	Remark
MV-28(27)	8/15/89	-19±34	12±36	1.25	
MV-8(7)	8/16/89	49±26	8±29	2.11	N
MV-34(33)	8/17/89	39±45	43±47	.12	
MV-44(43)	8/22/89	104±40	80±39	.86	
MV-60(61)	9/14/89	-8±23	5±24	.78	
MV-8(4)	8/13/90	31±24	24±35	.33	
MV-28(24)	8/12/91	81±32	43±31	2.00	N
MV-34(40)	8/15/91	137±37	56±42	2.89	N
MV-44(46)	6/23/92	134±33	137±33	.13	
MV-60(36)	7/29/92	268±43	236±40	1.09	

Table 2. Comparison of strontium-90 analyses from water samples collected in 1989 with samples collected in 1990, 1991, or 1992 including a comparison of replicate pairs, selected wells and springs, eastern Snake River Plain

[Concentrations and associated uncertainties are in picocuries per-liter. Analytical uncertainties are reported as 2 times the sample standard deviation. Site identifier: see figure 2 for location of the sites. Z value: see section on statistical comparisons of sample and replicate pairs. Abbreviations: N, the analytical results are not in statistical agreement; QA, quality-assurance replicate sample. Replicate pairs: site identifiers are listed with QA identifier followed by original site identifier in parentheses]

Site identifier	Date sampled	Concentration	Date sampled	Concentration	Z value	Remark
MV-1	8/14/89	0.206±0.240	8/13/90	-0.049±0.231	1.53	
MV-2	8/14/89	.019±0.050	8/12/91	.106±0.217	.78	
MV-3	8/15/89	-.026±0.200	7/28/92	.032±0.213	.39	
MV-4	8/15/89	.180±0.180	8/13/90	.063±0.215	.83	
MV-5	8/15/89	.209±0.220	7/30/92	.115±0.240	.58	
MV-6	8/15/89	.290±0.220	7/28/92	-.025±0.170	2.23	N
MV-7	8/16/89	1.150±0.260	7/30/92	.008±0.205	6.90	N
MV-9	8/16/89	.190±0.190	8/14/90	.273±0.270	.50	
MV-10	8/16/89	-.111±0.049	8/12/91	.090±0.192	2.03	N
MV-11	8/16/89	.140±0.240	8/14/90	.141±0.312	.01	
MV-12	8/17/89	-.260±0.208	8/14/91	.007±0.190	1.90	
MV-13	8/17/89	.239±0.056	6/23/92	.034±0.165	2.35	N
MV-14	8/17/89	-.136±0.057	8/16/90	.166±0.257	2.29	N
MV-15	8/18/89	.130±0.187	8/16/90	.272±0.277	.85	
MV-16	8/18/89	.303±0.275	8/13/91	.093±0.220	1.19	
MV-17	8/18/89	.124±0.226	7/27/92	.162±0.245	.23	
MV-18	8/18/89	.361±0.230	8/16/90	.074±0.247	1.68	
MV-19	8/18/89	.055±0.047	8/15/91	.040±0.207	.14	
MV-20	8/19/89	-.051±0.046	7/27/92	.021±0.213	.66	
MV-21	8/19/89	.183±0.047	8/15/90	.223±0.264	.30	
MV-23	8/21/89	-.098±0.051	8/13/90	.128±0.417	1.08	
MV-24	8/21/89	.095±0.182	8/12/91	.055±0.195	.30	
MV-25	8/22/89	-.024±0.044	8/16/90	.277±0.414	1.45	
MV-26	8/15/89	.240±0.170	8/16/91	.024±0.200	1.65	
MV-27	8/15/89	.270±0.170	7/27/92	.127±0.216	1.04	
MV-29	8/16/89	-.439±0.281	8/14/91	.091±0.214	3.00	N
MV-30	8/16/89	.210±0.160	8/17/90	.127±0.256	.55	
MV-31	8/16/89	.050±0.200	6/23/92	.070±0.168	.15	
MV-32	8/16/89	.060±0.170	8/15/91	.120±0.223	.43	
MV-33	8/17/89	.270±0.160	8/15/90	.078±0.256	1.27	
MV-35	8/17/89	.300±0.240	6/24/92	.072±0.176	1.53	
MV-36	8/17/89	.004±0.190	7/29/92	-.001±0.207	.04	
MV-37	8/18/89	-.306±0.218	8/17/90	.140±0.243	2.73	N
MV-38	8/18/89	.120±0.120	7/29/92	.077±0.142	.46	
MV-39	8/18/89	-.060±0.051	8/15/90	-.005±0.371	.29	
MV-40	8/18/89	-.113±0.046	8/15/91	.022±0.196	1.34	
MV-41	8/21/89	-.511±0.082	8/13/91	.062±0.213	5.02	N
MV-42	8/21/89	-.140±0.370	8/13/91	.188±0.222	1.52	
MV-43	8/22/89	.010±0.051	8/15/90	.213±0.245	1.62	

Table 2. Comparison of strontium-90 analyses from water samples collected in 1989 with samples collected in 1990, 1991, or 1992 including a comparison of replicate pairs, selected wells and springs, eastern Snake River Plain—Continued

Site Identifier	Date sampled	Concentration	Date sampled	Concentration	Z value	Remark
MV-45	8/22/89	-.080±0.170	8/13/91	.104±0.200	1.40	
MV-46	8/22/89	-.110±0.170	6/23/92	-.007±0.145	.92	
MV-47	9/07/89	.160±0.180	8/17/90	.194±0.256	.22	
MV-48	9/13/89	.080±0.170	8/21/91	.120±0.363	.20	
MV-49	9/21/89	.308±0.256	8/21/91	-.085±0.199	2.42	N
MV-50	8/14/89	-.316±0.239	9/15/92	.185±0.241	2.95	N
MV-51	8/15/89	-.136±0.187	8/14/90	.165±0.247	1.94	
MV-52	8/22/89	-.023±0.200	8/14/91	.052±0.216	.51	
MV-53	8/21/89	.116±0.198	7/28/92	-.022±0.199	.98	
MV-54	8/21/89	-.043±0.207	8/14/91	.155±0.238	1.26	
MV-55	8/22/89	.112±0.184	7/30/92	.142±0.221	.21	
MV-56	8/22/89	.008±0.055	8/16/91	.162±0.225	1.33	
MV-57	9/26/89	.086±0.195	6/30/92	.055±0.177	.24	
MV-58	9/26/89	.152±0.046	6/30/92	.094±0.177	.63	
MV-59	9/27/89	.133±0.264	8/24/90	.009±0.204	.74	
MV-61	9/14/89	2.930±0.400	7/17/90	.177±0.408	9.64	N

Replicate pairs					
Site Identifiers	Date sampled	QA concentration	Concentration	Z value	Remark
MV-28(27)	8/15/89	0.09±0.17	0.27±0.17	1.50	
MV-8(7)	8/16/89	.030±0.191	1.15±0.26	6.32	N
MV-34(33)	8/17/89	.16±0.17	.27±0.16	.94	
MV-44(43)	8/22/89	-.06±0.17	.010±0.051	.79	
MV-60(61)	9/14/89	.06±0.18	2.93±0.40	13.09	N
MV-8(4)	8/13/90	.037±0.229	.063±0.215	.17	
MV-28(24)	8/12/91	.210±0.233	.055±0.195	1.02	
MV-34(40)	8/15/91	.060±0.238	.022±0.196	.25	
MV-44(46)	6/23/92	.052±0.204	-.007±0.145	.47	
MV-60(36)	7/29/92	.136±0.270	-.001±0.207	.81	

Table 3. Comparison of tritium analyses from water samples collected in 1989 with samples collected in 1990, 1991, or 1992 including a comparison of replicate pairs, selected wells and springs, eastern Snake River Plain

[Concentrations and associated uncertainties are in picocuries per liter. Analytical uncertainties are reported as 2 times the sample standard deviation. Site identifier: see figure 2 for location of the sites. Z value: see section on statistical comparisons of sample and replicate pairs. Abbreviations: N, the analytical results are not in statistical agreement; QA, quality-assurance replicate sample; SL, sample lost; NA, not applicable. Replicate pairs: site identifiers are listed with QA identifier followed by original site identifier in parentheses]

Site identifier	Date sampled	Concentration	Date sampled	Concentration	Z value	Remark
MV-1	8/14/89	86.4±25.6	8/13/90	65.28±4.48	1.63	
MV-2	8/14/89	48.0±25.6	8/12/91	37.40±2.56	.82	
MV-3	8/15/89	-12.8±25.6	7/28/92	1.00±0.58	1.08	
MV-4	8/15/89	3.2±25.6	8/13/90	4.67±0.57	.11	
MV-5	8/15/89	22.4±25.6	7/30/92	10.20±0.77	.95	
MV-6	8/15/89	89.6±25.6	7/28/92	70.40±4.48	.48	
MV-7	8/16/89	-3.2±25.6	7/30/92	0.58±0.58	.30	
MV-9	8/16/89	99.2±25.6	8/14/90	85.44±5.76	1.05	
MV-10	8/16/89	35.2±25.6	8/12/91	48.30±3.20	1.02	
MV-11	8/16/89	124.8±25.6	8/14/90	106.56±7.04	1.37	
MV-12	8/17/89	32.0±25.6	8/14/91	39.70±2.56	.60	
MV-13	8/17/89	64.0±25.6	6/23/92	69.40±5.12	.41	
MV-14	8/17/89	6.4±25.6	8/16/90	29.18±2.04	1.77	
MV-15	8/18/89	54.4±25.6	8/16/90	72.64±4.48	1.40	
MV-16	8/18/89	3.2±25.6	8/13/91	13.60±0.90	.81	
MV-17	8/18/89	12.8±25.6	7/27/92	9.60±0.70	.25	
MV-18	8/18/89	92.8±25.6	8/16/90	64.32±3.84	2.20	N
MV-19	8/18/89	6.4±25.6	8/15/91	15.40±0.77	.70	
MV-20	8/19/89	38.4±25.6	7/27/92	20.10±1.34	1.43	
MV-21	8/19/89	25.6±25.6	8/15/90	17.50±0.96	.63	
MV-23	8/21/89	86.4±25.6	8/13/90	70.08±4.48	1.26	
MV-24	8/21/89	89.6±25.6	8/12/91	82.60±5.76	.53	
MV-25	8/22/89	73.6±25.6	8/16/90	72.00±5.12	.12	
MV-26	8/15/89	-6.4±25.6	8/16/91	9.50±0.77	1.24	
MV-27	8/15/89	44.8±25.6	7/27/92	44.80±3.20	.00	
MV-29	8/16/89	3.2±25.6	8/14/91	3.81±0.58	.05	
MV-30	8/16/89	134.4±25.6	8/17/90	78.40±5.12	4.29	N
MV-31	8/16/89	60.8±25.6	6/23/92	33.90±2.56	2.09	N
MV-32	8/16/89	67.2±25.6	8/15/91	73.60±5.12	.49	
MV-33	8/17/89	3.2±25.6	8/15/90	6.04±0.57	.22	
MV-35	8/17/89	3.2±25.6	6/24/92	3.17±0.58	.00	
MV-36	8/17/89	57.6±25.6	7/29/92	58.20±3.84	.05	
MV-37	8/18/89	89.6±25.6	8/17/90	74.24±5.12	1.18	
MV-38	8/18/89	70.4±25.6	7/29/92	49.30±3.20	1.64	
MV-39	8/18/89	70.4±25.6	8/15/90	74.88±5.12	.34	
MV-40	8/18/89	22.4±25.6	8/15/91	13.70±0.90	.68	
MV-41	8/21/89	83.2±25.6	8/13/91	70.40±4.48	.99	
MV-42	8/21/89	41.6±25.6	8/13/91	29.80±1.98	.92	
MV-43	8/22/89	SL	8/15/90	78.4±5.12	NA	

Table 3. Comparison of tritium analyses from water samples collected in 1989 with samples collected in 1990, 1991, or 1992 including a comparison of replicate pairs, selected wells and springs, eastern Snake River Plain—Continued

Site identifier	Date sampled	Concentration	Date sampled	Concentration	Z value	Remark
MV-45	8/22/89	19.2±25.6	8/13/91	22.60±1.47	.27	
MV-46	8/22/89	25.6±25.6	6/23/92	11.80±1.02	1.08	
MV-47	9/07/89	6.4±25.6	8/17/90	12.89±0.89	.51	
MV-48	9/13/89	38.4±25.6	8/21/91	29.20±1.92	.72	
MV-49	9/21/89	73.6±25.6	8/21/91	85.40±5.76	.90	
MV-50	8/14/89	80.0±25.6	9/15/92	64.00±5.12	1.23	
MV-51	8/15/89	86.4±25.6	8/14/90	71.68±4.48	1.13	
MV-52	8/22/89	96.0±25.6	8/14/91	78.10±5.12	1.37	
MV-53	8/21/89	83.2±25.6	7/28/92	65.30±4.48	1.38	
MV-54	8/21/89	92.8±25.6	8/14/91	85.40±5.76	.56	
MV-55	8/22/89	3.2±25.6	7/30/92	9.50±0.64	.49	
MV-56	8/22/89	3.2±25.6	8/16/91	9.76±0.64	.51	
MV-57	9/26/89	-9.6±25.6	6/30/92	-0.19±0.58	.73	
MV-58	9/26/89	41.6±25.6	6/30/92	46.40±3.20	.37	
MV-59	9/27/89	-6.4±25.6	8/24/90	-0.09±0.57	.49	
MV-61	9/14/89	3.2±25.6	7/17/90	22.78±1.28	1.53	

Replicate pairs					
Site identifiers	Date sampled	QA concentration	Concentration	Z value	Remark
MV-28(27)	8/15/89	64.0±25.6	44.8±25.6	1.06	
MV-8(7)	8/16/89	3.2±25.6	-3.2±25.6	.35	
MV-34(33)	8/17/89	3.2±25.6	3.2±25.6	.00	
MV-44(43)	8/22/89	73.6±25.6	SL	NA	
MV-60(61)	9/14/89	19.2±25.6	3.2±25.6	.88	
MV-8(4)	8/13/90	4.96±0.57	4.67±5.76	.72	
MV-28(24)	8/12/91	90.6±5.76	82.6±5.76	1.96	N
MV-34(40)	8/15/91	14.2±0.96	13.7±0.90	.76	
MV-44(46)	6/23/92	10.3±0.77	11.8±1.02	2.35	N
MV-60(36)	7/29/92	60.2±3.84	58.2±3.84	.74	

Table 4. Comparison of gross alpha-particle radioactivity dissolved as thorium-230 analyses from water samples collected in 1989 with samples collected in 1990, 1991, or 1992 including a comparison of replicate pairs, selected wells and springs, eastern Snake River Plain

[Concentrations and associated uncertainties are in picocuries per liter. Analytical uncertainties are reported as 2 times the sample standard deviation. Site identifier: see figure 2 for location of the sites. Z value: see section on statistical comparisons of sample and replicate pairs. Abbreviations: N, the analytical results are not in statistical agreement; QA, quality-assurance replicate sample. Replicate pairs: site identifiers are listed with QA identifier followed by original site identifier in parentheses]

Site identifier	Date sampled	Concentration	Date sampled	Concentration	Z value	Remark
MV-1	8/14/89	2.11±0.61	8/13/90	2.06±0.76	0.10	
MV-2	8/14/89	2.75±0.69	8/12/91	1.19±0.59	3.44	N
MV-3	8/15/89	2.62±0.65	7/28/92	2.00±0.76	1.24	
MV-4	8/15/89	4.09±0.84	8/13/90	4.07±1.09	.03	
MV-5	8/15/89	4.65±0.85	7/30/92	2.22±0.80	4.15	N
MV-6	8/15/89	1.88±0.50	7/28/92	1.67±0.65	.51	
MV-7	8/16/89	2.46±0.62	7/30/92	1.51±0.63	2.15	N
MV-9	8/16/89	4.51±0.80	8/14/90	3.43±0.97	1.72	
MV-10	8/16/89	2.87±0.65	8/12/91	3.35±0.97	.82	
MV-11	8/16/89	3.05±0.65	8/14/90	3.91±1.04	1.40	
MV-12	8/17/89	2.70±0.66	8/14/91	2.28±0.79	.82	
MV-13	8/17/89	5.12±0.97	6/23/92	2.15±0.72	4.92	N
MV-14	8/17/89	2.94±0.65	8/16/90	1.97±0.72	2.00	N
MV-15	8/18/89	2.30±0.54	8/16/90	2.58±0.82	.57	
MV-16	8/18/89	2.32±0.66	8/13/91	1.95±0.73	.75	
MV-17	8/18/89	1.07±0.59	7/27/92	1.31±0.06	.57	
MV-18	8/18/89	3.41±0.76	8/16/90	2.45±0.80	1.74	
MV-19	8/18/89	2.85±0.67	8/15/91	2.36±0.78	.95	
MV-20	8/19/89	1.08±0.52	7/27/92	1.92±0.74	1.86	
MV-21	8/19/89	2.67±0.64	8/15/90	1.75±0.69	1.96	
MV-23	8/21/89	1.85±0.48	8/13/90	2.39±0.79	1.17	
MV-24	8/21/89	4.41±0.98	8/12/91	3.53±1.00	1.26	
MV-25	8/22/89	4.80±0.90	8/16/90	4.54±1.14	.36	
MV-26	8/15/89	2.32±0.62	8/16/91	1.59±0.65	1.63	
MV-27	8/15/89	4.09±0.80	7/27/92	2.62±0.82	2.57	N
MV-29	8/16/89	1.12±0.38	8/14/91	1.55±0.66	1.13	
MV-30	8/16/89	3.72±0.73	8/17/90	2.19±0.07	2.96	N
MV-31	8/16/89	3.04±0.72	6/23/92	2.31±0.77	1.38	
MV-32	8/16/89	6.00±1.04	8/15/91	3.75±1.05	3.04	N
MV-33	8/17/89	.68±0.46	8/15/90	2.29±0.81	3.46	N
MV-35	8/17/89	2.28±0.61	6/24/92	.97±0.49	3.35	N
MV-36	8/17/89	5.12±1.00	7/29/92	2.10±0.70	4.95	N
MV-37	8/18/89	4.75±0.99	8/17/90	4.15±1.06	.83	
MV-38	8/18/89	1.86±0.51	7/29/92	1.19±0.58	1.74	
MV-39	8/18/89	5.01±0.96	8/15/90	4.30±1.09	.98	
MV-40	8/18/89	2.28±0.56	8/15/91	1.63±0.69	1.46	
MV-41	8/21/89	4.76±0.98	8/13/91	5.24±1.15	.64	
MV-42	8/21/89	2.08±0.55	8/13/91	3.18±0.93	2.04	N
MV-43	8/22/89	5.01±0.92	8/15/90	4.58±1.13	.59	

Table 4. Comparison of gross alpha-particle radioactivity dissolved as thorium-230 analyses from water samples collected in 1989 with samples collected in 1990, 1991, or 1992 including a comparison of replicate pairs, selected wells and springs, eastern Snake River Plain—Continued

Site identifier	Date sampled	Concentration	Date sampled	Concentration	Z value	Remark
MV-45	8/22/89	18.70±2.40	8/13/91	1.27±0.54	14.17	N
MV-46	8/22/89	1.82±0.53	6/23/92	1.10±0.54	1.91	
MV-47	9/07/89	1.66±0.51	8/17/90	2.02±0.73	.81	
MV-48	9/13/89	2.12±0.57	8/21/91	1.95±0.72	.37	
MV-49	9/21/89	.00±0.70	8/21/91	1.56±0.63	3.31	N
MV-50	8/14/89	7.74±1.33	9/15/92	3.09±0.87	5.86	N
MV-51	8/15/89	2.92±0.67	8/14/90	3.15±0.93	.40	
MV-52	8/22/89	3.80±0.73	8/14/91	4.00±1.02	.32	
MV-53	8/21/89	3.25±0.69	7/28/92	2.89±0.87	.65	
MV-54	8/21/89	3.87±0.75	8/14/91	2.38±0.84	2.66	N
MV-55	8/22/89	2.38±0.65	7/30/92	1.57±0.63	1.79	
MV-56	8/22/89	1.97±0.59	8/16/91	1.48±0.66	1.11	
MV-57	9/26/89	.03±0.29	6/30/92	1.34±.058	4.04	N
MV-58	9/26/89	2.08±0.54	6/30/92	1.02±0.50	2.88	N
MV-59	9/27/89	.31±0.26	8/24/90	1.76±0.67	4.05	N
MV-61	9/14/89	11.20±1.60	7/17/90	2.97±0.95	8.84	N

Replicate pairs					
Site identifiers	Date sampled	QA concentration	Concentration	Z value	Remark
MV-28(27)	8/15/89	2.45±0.56	4.09±0.80	3.36	N
MV-8(7)	8/16/89	1.91±0.87	2.46±0.62	1.03	
MV-34(33)	8/17/89	2.07±0.51	.681±0.462	4.04	N
MV-44(43)	8/22/89	5.56±1.00	5.01±0.92	.81	
MV-60(61)	9/14/89	2.94±0.63	11.2±1.60	9.61	N
MV-8(4)	8/13/90	2.79±0.845	4.07±1.09	1.86	
MV-28(24)	8/12/91	3.69±1.03	3.53±1.00	.22	
MV-34(40)	8/15/91	1.66±0.689	1.63±0.691	.06	
MV-44(46)	6/23/92	1.27±0.554	1.10±0.535	.44	
MV-60(36)	7/29/92	2.39±0.801	2.10±0.699	.55	

Table 5. Comparison of gross alpha-particle radioactivity suspended as thorium-230 analyses from water samples collected in 1989 with samples collected in 1990, 1991, or 1992 including a comparison of replicate pairs, selected wells and springs, eastern Snake River Plain

[Concentrations and associated uncertainties are in picocuries per liter. Analytical uncertainties are reported as 2 times the sample standard deviation. Site identifier: see figure 2 for location of the sites. Z value: see section on statistical comparisons of sample and replicate pairs. Abbreviations: N, the analytical results are not in statistical agreement; QA, quality-assurance replicate sample. Replicate pairs: site identifiers are listed with QA identifier followed by original site identifier in parentheses]

Site identifier	Date sampled	Concentration	Date sampled	Concentration	Z value	Remark
MV-1	8/14/89	-0.044±0.058	8/13/90	-0.014±0.246	0.24	
MV-2	8/14/89	.069±0.067	8/12/91	-.162±0.180	2.41	N
MV-3	8/15/89	-.054±0.052	7/28/92	-.110±0.206	.53	
MV-4	8/15/89	-.003±0.028	8/13/90	-.148±0.180	1.59	
MV-5	8/15/89	.073±0.057	7/30/92	-.130±0.165	2.33	N
MV-6	8/15/89	.027±0.027	7/28/92	.042±0.174	.17	
MV-7	8/16/89	.006±0.012	7/30/92	.072±0.162	.81	
MV-9	8/16/89	.007±0.013	8/14/90	-.047±0.224	.48	
MV-10	8/16/89	.000±0.000	8/12/91	-.105±0.197	1.07	
MV-11	8/16/89	.036±0.043	8/14/90	-.083±0.212	1.10	
MV-12	8/17/89	.037±0.061	8/14/91	-.005±0.247	.33	
MV-13	8/17/89	.041±0.037	6/23/92	-.129±0.164	2.02	N
MV-14	8/17/89	.015±0.021	8/16/90	1.100±0.563	3.85	N
MV-15	8/18/89	.060±0.040	8/16/90	.010±0.178	.55	
MV-16	8/18/89	-.031±0.062	8/13/91	-.017±0.184	.14	
MV-17	8/18/89	.009±0.031	7/27/92	-.050±0.195	.60	
MV-18	8/18/89	.000±0.042	8/16/90	-.064±0.215	.58	
MV-19	8/18/89	.039±0.032	8/15/91	-.005±0.250	.35	
MV-20	8/19/89	-.037±0.054	7/27/92	-.196±0.199	1.54	
MV-21	8/19/89	.027±0.032	8/15/90	-.101±0.173	1.46	
MV-23	8/21/89	.022±0.047	8/13/90	.044±0.197	.22	
MV-24	8/21/89	.013±0.070	8/12/91	-.066±0.130	1.07	
MV-25	8/22/89	.047±0.036	8/16/90	.061±0.207	.13	
MV-26	8/15/89	.037±0.061	8/16/91	-.063±0.093	1.80	
MV-27	8/15/89	.025±0.041	7/27/92	-.195±0.198	2.18	N
MV-29	8/16/89	.066±0.053	8/14/91	.207±0.356	.78	
MV-30	8/16/89	.050±0.038	8/17/90	-.034±0.207	.80	
MV-31	8/16/89	.078±0.048	6/23/92	.057±0.231	.18	
MV-32	8/16/89	.100±0.084	8/15/91	.268±0.344	.95	
MV-33	8/17/89	.030±0.041	8/15/90	.024±0.160	.07	
MV-35	8/17/89	.043±0.045	6/24/92	-.209±0.190	2.58	N
MV-36	8/17/89	-.028±0.057	7/29/92	.046±0.142	.97	
MV-37	8/18/89	.004±0.055	8/17/90	-.003±0.191	.07	
MV-38	8/18/89	.021±0.025	7/29/92	-.126±0.160	1.82	
MV-39	8/18/89	-.003±0.052	8/15/90	-.149±0.180	1.56	
MV-40	8/18/89	.055±0.059	8/15/91	-.130±0.166	2.10	N
MV-41	8/21/89	.084±0.060	8/13/91	.048±0.273	.26	
MV-42	8/21/89	.031±0.061	8/13/91	.015±0.272	.11	
MV-43	8/22/89	.003±0.032	8/15/90	-.020±0.188	.24	

Table 5. Comparison of gross alpha-particle radioactivity suspended as thorium-230 analyses from water samples collected in 1989 with samples collected in 1990, 1991, or 1992 including a comparison of replicate pairs, selected wells and springs, eastern Snake River Plain—Continued

Site identifier	Date sampled	Concentration	Date sampled	Concentration	Z value	Remark
MV-45	8/22/89	.030±0.060	8/13/91	-.030±0.232	.50	
MV-46	8/22/89	.058±0.050	6/23/92	-.163±0.213	2.02	N
MV-47	9/07/89	.040±0.070	8/17/90	-.167±0.173	2.22	N
MV-48	9/13/89	.085±0.069	8/21/91	-.076±0.187	1.62	
MV-49	9/21/89	.397±0.141	8/21/91	.101±0.258	2.01	N
MV-50	8/14/89	-.871±0.183	9/15/92	-.015±0.162	7.00	N
MV-51	8/15/89	.010±0.034	8/14/90	-.071±0.160	.99	
MV-52	8/22/89	.050±0.038	8/14/91	-.105±0.181	1.68	
MV-53	8/21/89	.183±0.098	7/28/92	-.025±0.207	1.82	
MV-54	8/21/89	.022±0.037	8/14/91	.039±0.210	.16	
MV-55	8/22/89	.026±0.026	7/30/92	-.168±0.216	1.78	
MV-56	8/22/89	.031±0.052	8/16/91	-.156±0.171	2.09	N
MV-57	9/26/89	.359±0.125	6/30/92	-.139±0.213	4.03	N
MV-58	9/26/89	.172±0.138	6/30/92	.258±0.344	.46	
MV-59	9/27/89	.567±0.147	8/24/90	.161±0.256	2.75	N
MV-61	9/14/89	.145±0.078	7/17/90	.074±0.286	.48	

Replicate pairs					
Site identifiers	Date sampled	QA concentration	Concentration	Z value	Remark
MV-28(27)	8/15/89	0.007±0.015	0.025±0.041	0.82	
MV-8(7)	8/16/89	-.003±0.046	.006±0.012	.38	
MV-34(33)	8/17/89	.033±0.030	.030±0.041	.12	
MV-44(43)	8/22/89	.024±0.040	.003±0.032	.85	
MV-60(61)	9/14/89	-.031±0.080	.145±0.078	3.17	N
MV-8(4)	8/13/90	-.087±0.150	-.148±0.180	.52	
MV-28(24)	8/12/91	-.063±0.124	-.066±0.130	.03	
MV-34(40)	8/15/91	-.065±1.128	-.130±0.166	.62	
MV-44(46)	6/23/92	.005±0.203	-.163±0.213	1.14	
MV-60(36)	7/29/92	-.050±0.197	.046±0.142	.79	

Table 6. Comparison of gross alpha-particle radioactivity dissolved as uranium analyses from water samples collected in 1989 with samples collected in 1990, 1991, or 1992 including a comparison of replicate pairs, selected wells and springs, eastern Snake River Plain

[Concentrations and associated uncertainties are in micrograms per liter. Analytical uncertainties are reported as 2 times the sample standard deviation. Site identifier: see figure 2 for location of the sites. Z value: see section on statistical comparisons of sample and replicate pairs. Abbreviations: N, the analytical results are not in statistical agreement; QA, quality-assurance replicate sample. Replicate pairs: site identifiers are listed with QA identifier followed by original site identifier in parentheses]

Site identifier	Date sampled	Concentration	Date sampled	Concentration	Z value	Remark
MV-01	8/14/89	1.92±0.55	8/13/90	2.98±1.08	1.75	
MV-02	8/14/89	2.50±0.63	8/12/91	1.70±0.84	1.52	
MV-03	8/15/89	2.40±0.60	7/28/92	2.74±1.05	.56	
MV-04	8/15/89	3.73±0.77	8/13/90	5.62±1.51	2.23	N
MV-05	8/15/89	4.25±0.78	7/30/92	3.04±1.10	1.79	
MV-06	8/15/89	1.71±0.46	7/28/92	2.39±0.92	1.32	
MV-07	8/16/89	2.22±0.56	7/30/92	2.15±0.89	.13	
MV-09	8/16/89	4.15±0.74	8/14/90	4.92±1.38	.98	
MV-10	8/16/89	2.60±0.59	8/12/91	4.84±1.38	2.99	N
MV-11	8/16/89	2.77±0.60	8/14/90	5.59±1.47	3.55	N
MV-12	8/17/89	2.44±0.60	8/14/91	3.29±1.13	1.33	
MV-13	8/17/89	4.65±0.89	6/23/92	3.13±1.05	2.21	N
MV-14	8/17/89	2.64±0.59	8/16/90	2.88±1.04	.40	
MV-15	8/18/89	2.53±0.59	8/16/90	3.71±1.18	1.79	
MV-16	8/18/89	1.97±0.56	8/13/91	2.82±1.04	1.44	
MV-17	8/18/89	.96±0.53	7/27/92	1.89±0.87	1.83	
MV-18	8/18/89	3.06±0.69	8/16/90	3.54±1.15	.72	
MV-19	8/18/89	2.61±0.61	8/15/91	3.39±1.12	1.22	
MV-20	8/19/89	.98±0.47	7/27/92	3.07±1.13	3.42	N
MV-21	8/19/89	2.47±0.59	8/15/90	2.46±0.98	.02	
MV-23	8/21/89	1.68±0.44	8/13/90	3.44±1.13	2.90	N
MV-24	8/21/89	3.88±0.86	8/12/91	4.86±1.38	1.21	
MV-25	8/22/89	4.39±0.83	8/16/90	6.33±1.59	2.16	N
MV-26	8/15/89	2.11±0.56	8/16/91	2.23±0.91	.22	
MV-27	8/15/89	3.73±0.73	7/27/92	3.78±1.18	.07	
MV-29	8/16/89	1.02±0.35	8/14/91	2.15±0.91	2.32	N
MV-30	8/16/89	3.40±0.66	8/17/90	3.20±1.06	.32	
MV-31	8/16/89	2.77±0.66	6/23/92	3.26±1.08	.77	
MV-32	8/16/89	5.44±0.94	8/15/91	5.30±1.47	.16	
MV-33	8/17/89	.62±0.42	8/15/90	3.19±1.12	4.30	N
MV-35	8/17/89	2.08±0.55	6/24/92	1.40±0.71	1.52	
MV-36	8/17/89	4.59±0.89	7/29/92	3.07±1.03	2.23	N
MV-37	8/18/89	4.11±0.86	8/17/90	5.98±1.52	2.14	N
MV-38	8/18/89	1.70±0.46	7/29/92	1.91±0.90	.42	
MV-39	8/18/89	4.51±0.86	8/15/90	6.16±1.55	1.86	
MV-40	8/18/89	2.09±0.51	8/15/91	2.34±0.99	.45	
MV-41	8/21/89	4.27±0.88	8/13/91	7.65±1.69	3.55	N
MV-42	8/21/89	1.91±0.50	8/13/91	4.58±1.32	3.78	N
MV-43	8/22/89	4.62±0.85	8/15/90	6.56±1.60	2.14	N

Table 6. Comparison of gross alpha-particle radioactivity dissolved as uranium analyses from water samples collected in 1989 with samples collected in 1990, 1991, or 1992 including a comparison of replicate pairs, selected wells and springs, eastern Snake River Plain—Continued

Site Identifier	Date sampled	Concentration	Date sampled	Concentration	Z value	Remark
MV-45	8/22/89	17.10±2.20	8/13/91	1.87±0.80	13.02	N
MV-46	8/22/89	1.66±0.48	6/23/92	1.79±0.84	.27	
MV-47	9/07/89	1.53±0.47	8/17/90	2.89±1.04	2.38	N
MV-48	9/13/89	1.93±0.53	8/21/91	2.79±1.03	1.48	
MV-49	9/21/89	.00±0.44	8/21/91	2.27±0.91	4.49	N
MV-50	8/14/89	6.93±1.19	9/15/92	4.48±1.26	2.83	N
MV-51	8/15/89	2.63±0.60	8/14/90	4.57±1.33	2.66	N
MV-52	8/22/89	3.46±0.67	8/14/91	5.67±1.45	2.77	N
MV-53	8/21/89	2.96±0.63	7/28/92	4.04±1.22	1.57	
MV-54	8/21/89	3.55±0.68	8/14/91	3.39±1.19	.23	
MV-55	8/22/89	2.15±0.59	7/30/92	2.26±0.91	.20	
MV-56	8/22/89	1.78±0.53	8/16/91	2.12±0.94	.63	
MV-57	9/26/89	.02±0.26	6/30/92	1.95±0.83	4.44	N
MV-58	9/26/89	1.87±0.49	6/30/92	1.47±0.72	.92	
MV-59	9/27/89	.28±0.24	8/24/90	2.54±0.95	4.61	N
MV-61	9/14/89	1.20±1.50	7/17/90	4.73±1.43	5.28	N

Replicate pairs					
Site identifiers	Date sampled	QA concentration	Concentration	Z value	Remark
MV-28(27)	8/15/89	2.24±0.51	3.73±0.73	3.35	N
MV-8(7)	8/16/89	1.73±0.79	2.22±0.56	1.01	
MV-34(33)	8/17/89	1.90±0.465	.623±0.423	4.09	N
MV-44(43)	8/22/89	5.06±0.91	4.62±0.85	.71	
MV-60(61)	9/14/89	2.69±0.57	10.2±1.50	9.36	N
MV-8(4)	8/13/90	4.04±1.22	5.62±1.51	1.63	
MV-28(24)	8/12/91	5.28±1.46	4.86±1.38	.42	
MV-34(40)	8/15/91	2.38±0.982	2.34±0.987	.06	
MV-44(46)	6/23/92	1.84±0.798	1.79±0.843	.09	
MV-60(36)	7/29/92	3.40±1.13	3.07±1.03	.43	

Table 7. Comparison of gross alpha-particle radioactivity suspended as uranium analyses from water samples collected in 1989 with samples collected in 1990, 1991, or 1992 including a comparison of replicate pairs, selected wells and springs, eastern Snake River Plain

[Concentrations and associated uncertainties are in micrograms per liter. Analytical uncertainties are reported as 2 times the sample standard deviation. Site identifier: see figure 2 for location of the sites. Z value: see section on statistical comparisons of sample and replicate pairs. Abbreviations: N, the analytical results are not in statistical agreement; QA, quality-assurance replicate sample. Replicate pairs: site identifiers are listed with QA identifier followed by original site identifier in parentheses]

Site identifier	Date sampled	Concentration	Date sampled	Concentration	Z value	Remark
MV-1	8/14/89	-0.045±0.059	8/13/90	-0.026±0.449	0.08	
MV-2	8/14/89	.070±0.069	8/12/91	-.291±0.308	2.29	N
MV-3	8/15/89	-.056±0.053	7/28/92	-.193±0.352	.77	
MV-4	8/15/89	-.003±0.029	8/13/90	-.276±0.318	1.71	
MV-5	8/15/89	.075±0.059	7/30/92	-.230±0.280	2.13	N
MV-6	8/15/89	.027±0.027	7/28/92	.075±0.310	.31	
MV-7	8/16/89	.006±0.013	7/30/92	.129±0.285	.86	
MV-9	8/16/89	.007±0.013	8/14/90	-.088±0.414	.46	
MV-10	8/16/89	.000±0.000	8/12/91	-.198±0.362	1.09	
MV-11	8/16/89	.037±0.046	8/14/90	-.155±0.395	.97	
MV-12	8/17/89	.038±0.062	8/14/91	-.009±0.440	.21	
MV-13	8/17/89	.041±0.037	6/23/92	-.232±0.283	1.91	
MV-14	8/17/89	.015±0.022	8/16/90	2.10±1.00	4.17	N
MV-15	8/18/89	.061±0.041	8/16/90	.019±0.329	.25	
MV-16	8/18/89	-.032±0.064	8/13/91	-.025±0.269	.05	
MV-17	8/18/89	.009±0.032	7/27/92	-.091±0.354	.56	
MV-18	8/18/89	.000±0.043	8/16/90	-.120±0.401	.60	
MV-19	8/18/89	.040±0.033	8/15/91	-.009±0.444	.22	
MV-20	8/19/89	-.038±0.055	7/27/92	-.337±0.319	1.85	
MV-21	8/19/89	.027±0.031	8/15/90	-.187±0.314	1.36	
MV-23	8/21/89	.022±0.048	8/13/90	.081±0.361	.32	
MV-24	8/21/89	.013±0.071	8/12/91	-.121±0.235	1.09	
MV-25	8/22/89	.048±0.036	8/16/90	.117±0.394	.35	
MV-26	8/15/89	.038±0.062	8/16/91	-.109±0.155	1.76	
MV-27	8/15/89	.025±0.042	7/27/92	-.339±0.320	2.26	N
MV-29	8/16/89	.068±0.055	8/14/91	.356±0.608	.94	
MV-30	8/16/89	.051±0.039	8/17/90	-.062±0.381	.59	
MV-31	8/16/89	.080±0.049	6/23/92	.101±0.410	.10	
MV-32	8/16/89	.101±0.086	8/15/91	.358±0.455	1.11	
MV-33	8/17/89	.031±0.042	8/15/90	.044±0.290	.09	
MV-35	8/17/89	.044±0.046	6/24/92	-.396±0.342	2.55	N
MV-36	8/17/89	-.029±0.058	7/29/92	.084±0.253	.87	
MV-37	8/18/89	.004±0.056	8/17/90	-.006±0.359	.06	
MV-38	8/18/89	.022±0.025	7/29/92	-.239±0.291	1.79	
MV-39	8/18/89	-.003±0.053	8/15/90	-.274±0.316	1.69	
MV-40	8/18/89	.056±0.060	8/15/91	-.230±0.281	1.99	N
MV-41	8/21/89	.085±0.061	8/13/91	.082±0.472	.01	
MV-42	8/21/89	.032±0.063	8/13/91	.029±0.514	.01	
MV-43	8/22/89	.003±0.033	8/15/90	-.038±0.355	.23	

Table 7. Comparison of gross alpha-particle radioactivity suspended as uranium analyses from water samples collected in 1989 with samples collected in 1990, 1991, or 1992 including a comparison of replicate pairs, selected wells and springs, eastern Snake River Plain—Continued

Site Identifier	Date sampled	Concentration	Date sampled	Concentration	Z value	Remark
MV-45	8/22/89	.031±0.061	8/13/91	-.057±0.435	.40	
MV-46	8/22/89	.059±0.052	6/23/92	-.302±0.384	1.86	
MV-47	9/07/89	.041±0.071	8/17/90	-.304±0.296	2.27	N
MV-48	9/13/89	.087±0.069	8/21/91	-.140±0.340	1.31	
MV-49	9/21/89	.404±0.143	8/21/91	.146±0.367	1.31	
MV-50	8/14/89	-.891±0.177	9/15/92	-.028±0.301	4.94	N
MV-51	8/15/89	.010±0.035	8/14/90	-.134±0.299	.96	
MV-52	8/22/89	.052±0.039	8/14/91	-.183±0.307	1.52	
MV-53	8/21/89	.187±0.101	7/28/92	-.046±0.378	1.19	
MV-54	8/21/89	.023±0.038	8/14/91	.062±0.337	.23	
MV-55	8/22/89	.027±0.027	7/30/92	-.321±0.409	1.70	
MV-56	8/22/89	.031±0.052	8/16/91	-.280±0.297	2.06	N
MV-57	9/26/89	.364±0.127	6/30/92	-.255±0.380	3.09	N
MV-58	9/26/89	.175±0.162	6/30/92	.480±0.570	1.03	
MV-59	9/27/89	.576±0.149	8/24/90	.299±0.463	1.14	
MV-61	9/14/89	.148±0.080	7/17/90	.130±0.499	.07	

Replicate pairs					
Site identifiers	Date sampled	QA concentration	Concentration	Z value	Remark
MV-28(27)	8/15/89	0.007±0.015	0.025±0.042	0.81	
MV-8(7)	8/16/89	-.003±0.046	.006±0.013	.38	
MV-34(33)	8/17/89	.034±0.030	.031±0.042	.12	
MV-44(43)	8/22/89	.025±0.041	.003±0.033	.85	
MV-60(61)	9/14/89	-.032±0.081	.148±0.080	3.16	N
MV-8(4)	8/13/90	-.166±0.278	-.276±0.318	.52	
MV-28(24)	8/12/91	-.120±0.232	-.121±0.235	.01	
MV-34(40)	8/15/91	-.117±0.228	-.230±0.281	.63	
MV-44(46)	6/23/92	.010±0.387	-.302±0.384	1.47	
MV-60(36)	7/29/92	-.094±0.365	.084±0.253	.80	

Table 8. Comparison of gross beta-particle radioactivity dissolved as cesium-137 analyses from water samples collected in 1989 with samples collected in 1990, 1991, or 1992 including a comparison of replicate pairs, selected wells and springs, eastern Snake River Plain

[Concentrations and associated uncertainties are in picocuries per liter. Analytical uncertainties are reported as 2 times the sample standard deviation. Site identifier: see figure 2 for location of the sites. Z value: see section on statistical comparisons of sample and replicate pairs. Abbreviations: N, the analytical results are not in statistical agreement; QA, quality-assurance replicate sample. Replicate pairs: site identifiers are listed with QA identifier followed by original site identifier in parentheses]

Site identifier	Date sampled	Concentration	Date sampled	Concentration	Z value	Remark
MV-1	8/14/89	7.80±1.21	8/13/90	7.30±1.65	0.49	
MV-2	8/14/89	10.65±1.65	8/12/91	7.57±2.01	2.37	N
MV-3	8/15/89	4.88±0.77	7/28/92	4.33±1.28	.74	
MV-4	8/15/89	6.54±1.20	8/13/90	7.38±1.67	.82	
MV-5	8/15/89	7.36±1.29	7/30/92	6.69±1.51	.67	
MV-6	8/15/89	6.12±1.02	7/28/92	8.01±1.63	1.97	N
MV-7	8/16/89	4.62±0.77	7/30/92	4.00±1.26	.84	
MV-9	8/16/89	10.60±2.00	8/14/90	8.96±2.31	1.07	
MV-10	8/16/89	10.60±1.70	8/12/91	9.67±2.23	.66	
MV-11	8/16/89	11.50±1.90	8/14/90	13.40±2.85	1.11	
MV-12	8/17/89	7.26±1.25	8/14/91	7.43±1.78	.16	
MV-13	8/17/89	9.31±1.50	6/23/92	7.50±1.54	1.68	
MV-14	8/17/89	5.36±1.17	8/16/90	3.56±1.12	2.22	N
MV-15	8/18/89	8.25±1.39	8/16/90	10.60±2.22	1.79	
MV-16	8/18/89	4.39±0.73	8/13/91	3.99±1.27	.55	
MV-17	8/18/89	4.64±0.79	7/27/92	4.15±1.24	.67	
MV-18	8/18/89	7.73±1.38	8/16/90	7.51±1.86	.19	
MV-19	8/18/89	6.80±1.07	8/15/91	4.70±1.40	2.38	N
MV-20	8/19/89	6.17±1.01	7/27/92	4.51±1.14	2.18	N
MV-21	8/19/89	4.98±0.80	8/15/90	4.60±1.29	.50	
MV-23	8/21/89	9.37±1.53	8/13/90	8.41±1.89	.79	
MV-24	8/21/89	12.80±2.20	8/12/91	10.60±2.59	1.29	
MV-25	8/22/89	22.21±2.85	8/16/90	9.13±2.08	7.41	N
MV-26	8/15/89	5.99±0.92	8/16/91	5.40±1.26	.76	
MV-27	8/15/89	6.81±1.04	7/27/92	6.73±1.51	.09	
MV-29	8/16/89	5.43±0.90	8/14/91	3.96±1.20	1.96	
MV-30	8/16/89	7.16±1.22	8/17/90	6.25±1.62	.90	
MV-31	8/16/89	6.80±1.22	6/23/92	7.32±1.55	.53	
MV-32	8/16/89	8.38±1.38	8/15/91	8.15±1.91	.20	
MV-33	8/17/89	4.82±0.78	8/15/90	3.27±1.06	2.36	N
MV-35	8/17/89	5.16±0.79	6/24/92	2.89±0.84	3.94	N
MV-36	8/17/89	5.44±0.91	7/29/92	4.80±1.18	.86	
MV-37	8/18/89	6.83±1.07	8/17/90	4.75±1.45	2.31	N
MV-38	8/18/89	3.65±0.69	7/29/92	3.87±1.21	.32	
MV-39	8/18/89	8.56±1.52	8/15/90	7.81±1.88	.62	
MV-40	8/18/89	5.93±0.90	8/15/91	4.11±1.19	2.44	N
MV-41	8/21/89	6.39±1.04	8/13/91	7.33±1.89	.87	
MV-42	8/21/89	6.00±0.94	8/13/91	0.71±0.58	9.60	N
MV-43	8/22/89	10.10±1.71	8/15/90	9.17±2.13	.68	

Table 8. Comparison of gross beta-particle radioactivity dissolved as cesium-137 analyses from water samples collected in 1989 with samples collected in 1990, 1991, or 1992 including a comparison of replicate pairs, selected wells and springs, eastern Snake River Plain—Continued

Site identifier	Date sampled	Concentration	Date sampled	Concentration	Z value	Remark
MV-45	8/22/89	4.69±0.78	8/13/91	4.45±1.30	.32	
MV-46	8/22/89	4.49±0.73	6/23/92	4.17±1.25	.44	
MV-47	9/07/89	4.82±0.76	8/17/90	4.07±1.06	1.15	
MV-48	9/13/89	4.20±0.71	8/21/91	3.07±0.92	1.95	
MV-49	9/21/89	3.62±0.70	8/21/91	2.53±0.87	1.95	
MV-50	8/14/89	7.51±1.25	9/15/92	8.75±1.77	1.14	
MV-51	8/15/89	8.06±1.53	8/14/90	7.22±1.83	.70	
MV-52	8/22/89	9.56±1.44	8/14/91	8.93±1.88	.53	
MV-53	8/21/89	9.43±1.58	7/28/92	9.94±2.06	.39	
MV-54	8/21/89	8.82±1.52	8/14/91	9.19±2.12	.28	
MV-55	8/22/89	4.80±0.92	7/30/92	3.55±1.10	1.74	
MV-56	8/22/89	4.89±0.86	8/16/91	4.73±1.32	.20	
MV-57	9/26/89	4.11±0.67	6/30/92	2.81±0.85	2.41	N
MV-58	9/26/89	5.62±0.92	6/30/92	3.56±0.97	3.09	N
MV-59	9/27/89	5.35±0.83	8/24/90	4.37±1.24	1.31	
MV-61	9/14/89	4.65±0.85	7/17/90	4.70±1.35	.06	

Replicate pairs					
Site identifiers	Date sampled	QA concentration	Concentration	Z value	Remark
MV-28(27)	8/15/89	6.47±1.17	6.81±1.04	0.43	
MV-8(7)	8/16/89	3.37±0.65	4.62±0.77	2.48	N
MV-34(33)	8/17/89	4.92±0.77	4.82±0.78	.18	
MV-44(43)	8/22/89	11.9±2.00	10.10±1.71	1.37	
MV-60(61)	9/14/89	3.86±0.72	4.65±0.85	1.42	
MV-8(4)	8/13/90	5.94±1.40	7.38±1.67	1.32	
MV-28(24)	8/12/91	11.9±2.86	10.6±2.59	.67	
MV-34(40)	8/15/91	4.36±1.25	4.11±1.19	.29	
MV-44(46)	6/23/92	2.79±0.959	4.17±1.25	1.75	
MV-60(36)	7/29/92	4.63±1.17	4.80±1.18	.20	

Table 9. Comparison of gross beta-particle radioactivity suspended as cesium-137 analyses from water samples collected in 1989 with samples collected in 1990, 1991, or 1992 including a comparison of replicate pairs, selected wells and springs, eastern Snake River Plain

[Concentrations and associated uncertainties are in picocuries per liter. Analytical uncertainties are reported as 2 times the sample standard deviation. Site identifier: see figure 2 for location of the sites. Z value: see section on statistical comparisons of sample and replicate pairs. Abbreviations: N, the analytical results are not in statistical agreement; QA, quality-assurance replicate sample. Replicate pairs: site identifiers are listed with QA identifier followed by original site identifier in parentheses]

Site identifier	Date sampled	Concentration	Date sampled	Concentration	Z value	Remark
MV-1	8/14/89	-0.214±0.270	8/13/90	0.269±0.484	1.74	
MV-2	8/14/89	-.093±0.266	8/12/91	-.248±0.487	.56	
MV-3	8/15/89	.199±0.264	7/28/92	.140±0.458	.22	
MV-4	8/15/89	.154±0.249	8/13/90	.009±0.512	.51	
MV-5	8/15/89	-1.160±0.230	7/30/92	-.109±0.502	3.81	N
MV-6	8/15/89	.192±0.285	7/28/92	.313±0.508	.42	
MV-7	8/16/89	.138±0.278	7/30/92	.232±0.468	.35	
MV-9	8/16/89	.369±0.250	8/14/90	.257±0.591	.35	
MV-10	8/16/89	1.160±0.350	8/12/91	.163±0.481	3.35	N
MV-11	8/16/89	.503±0.300	8/14/90	.418±0.514	.29	
MV-12	8/17/89	-.091±0.222	8/14/91	.341±0.476	1.65	
MV-13	8/17/89	-.253±0.262	6/23/92	.260±0.464	1.93	
MV-14	8/17/89	.134±0.276	8/16/90	.253±0.561	.38	
MV-15	8/18/89	.336±0.302	8/16/90	-.116±0.561	1.42	
MV-16	8/18/89	-.023±0.260	8/13/91	.375±0.487	1.44	
MV-17	8/18/89	-.078±0.260	7/27/92	.027±0.495	.38	
MV-18	8/18/89	.294±0.252	8/16/90	.482±0.526	.64	
MV-19	8/18/89	-.236±0.244	8/15/91	.224±0.463	1.76	
MV-20	8/19/89	1.200±0.360	7/27/92	.479±0.490	2.37	N
MV-21	8/19/89	-.099±0.257	8/15/90	.448±0.599	1.68	
MV-23	8/21/89	-.285±0.264	8/13/90	.002±0.589	.89	
MV-24	8/21/89	.070±0.288	8/12/91	.553±0.508	1.65	
MV-25	8/22/89	.839±0.313	8/16/90	-.069±0.580	2.76	N
MV-26	8/15/89	.329±0.254	8/16/91	.136±0.444	.75	
MV-27	8/15/89	-.157±0.268	7/27/92	.164±0.458	1.21	
MV-29	8/16/89	.360±0.274	8/14/91	.392±0.483	.12	
MV-30	8/16/89	.551±0.299	8/17/90	-.304±0.569	2.66	N
MV-31	8/16/89	.227±0.258	6/23/92	.394±0.569	.59	
MV-32	8/16/89	.640±0.293	8/15/91	1.160±0.625	1.51	
MV-33	8/17/89	.008±0.256	8/15/90	-.078±0.501	.31	
MV-35	8/17/89	.435±0.292	6/24/92	.193±0.453	.90	
MV-36	8/17/89	-.085±0.260	7/29/92	.481±0.506	1.99	N
MV-37	8/18/89	.353±0.262	8/17/90	.312±0.586	.13	
MV-38	8/18/89	.319±0.248	7/29/92	.447±0.501	.46	
MV-39	8/18/89	.365±0.271	8/15/90	.086±0.569	.89	
MV-40	8/18/89	-.358±0.249	8/15/91	.207±0.460	2.16	N
MV-41	8/21/89	.362±0.270	8/13/91	.507±0.539	.48	
MV-42	8/21/89	.538±0.275	8/13/91	.225±0.500	1.10	
MV-43	8/22/89	.095±0.240	8/15/90	.125±0.586	.09	

Table 9. Comparison of gross beta-particle radioactivity suspended as cesium-137 analyses from water samples collected in 1989 with samples collected in 1990, 1991, or 1992 including a comparison of replicate pairs, selected wells and springs, eastern Snake River Plain—Continued

Site Identifier	Date sampled	Concentration	Date sampled	Concentration	Z value	Remark
MV-45	8/22/89	.281±0.251	8/13/91	.147±0.466	.51	
MV-46	8/22/89	.250±0.249	6/23/92	.119±0.511	.46	
MV-47	9/07/89	.112±0.251	8/17/90	.338±0.594	.70	
MV-48	9/13/89	.313±0.250	8/21/91	.872±0.549	1.85	
MV-49	9/21/89	.358±0.295	8/21/91	.278±0.492	.28	
MV-50	8/14/89	-.176±0.255	9/15/92	.224±0.444	1.56	
MV-51	8/15/89	.120±0.241	8/14/90	.233±0.570	.37	
MV-52	8/22/89	.092±0.280	8/14/91	-.443±0.462	1.98	N
MV-53	8/21/89	-.288±0.258	7/28/92	.368±0.489	2.37	N
MV-54	8/21/89	-.197±0.252	8/14/91	.375±0.481	2.11	N
MV-55	8/22/89	-.074±0.257	7/30/92	.495±0.492	2.05	N
MV-56	8/22/89	-.198±0.268	8/16/91	.340±0.480	1.96	
MV-57	9/26/89	.083±0.247	6/30/92	.616±0.502	1.91	
MV-58	9/26/89	.928±0.302	6/30/92	.091±0.494	2.89	N
MV-59	9/27/89	.261±0.239	8/24/90	-.561±0.538	2.79	N
MV-61	9/14/89	.353±0.268	7/17/90	-.033±0.576	1.22	

Replicate pairs					
Site Identifiers	Date sampled	QA concentration	Concentration	Z value	Remark
MV-28(27)	8/15/89	0.000±0.260	-0.157±0.268	0.84	
MV-8(7)	8/16/89	-.137±0.257	.138±0.278	1.45	
MV-34(33)	8/17/89	.044±0.248	.008±0.256	.20	
MV-44(43)	8/22/89	.172±0.249	.095±0.240	.45	
MV-60(61)	9/14/89	.183±0.265	.353±0.268	.90	
MV-8(4)	8/13/90	-.207±0.549	.009±0.512	.58	
MV-28(24)	8/12/91	.059±0.468	.553±0.508	1.43	
MV-34(40)	8/15/91	-.182±0.496	.207±0.460	1.18	
MV-44(46)	6/23/92	.308±0.445	.119±0.511	.56	
MV-60(36)	7/29/92	.348±0.471	.481±0.506	.38	

Table 10. Comparison of gross beta-particle radioactivity dissolved as strontium-90 in equilibrium with yttrium-90 analyses from water samples collected in 1989 with samples collected in 1990, 1991, or 1992 including a comparison of replicate pairs, selected wells and springs, eastern Snake River Plain

[Concentrations and associated uncertainties are in picocuries per liter. Analytical uncertainties are reported as 2 times the sample standard deviation. Site identifier: see figure 2 for location of the sites. Z value: see section on statistical comparisons of sample and replicate pairs. Abbreviations: N, the analytical results are not in statistical agreement; QA, quality-assurance replicate sample. Replicate pairs: site identifiers are listed with QA identifier followed by original site identifier in parentheses]

Site identifier	Date sampled	Concentration	Date sampled	Concentration	Z value	Remark
MV-1	8/14/89	6.85±1.06	8/13/90	5.46±1.24	1.70	
MV-2	8/14/89	9.00±1.40	8/12/91	5.43±1.22	3.84	N
MV-3	8/15/89	4.07±0.70	7/28/92	3.15±1.27	1.27	
MV-4	8/15/89	6.19±1.14	8/13/90	5.48±1.24	.84	
MV-5	8/15/89	6.52±1.15	7/30/92	5.05±1.14	1.82	
MV-6	8/15/89	6.32±1.06	7/28/92	6.07±1.24	.31	
MV-7	8/16/89	3.94±0.66	7/30/92	2.93±0.79	1.96	
MV-9	8/16/89	9.11±1.71	8/14/90	6.86±1.77	1.83	
MV-10	8/16/89	9.33±1.50	8/12/91	7.25±1.67	1.85	
MV-11	8/16/89	10.10±1.70	8/14/90	9.97±2.12	.10	
MV-12	8/17/89	6.36±1.09	8/14/91	5.68±1.36	.78	
MV-13	8/17/89	8.19±1.31	6/23/92	5.59±1.15	2.98	N
MV-14	8/17/89	4.44±0.96	8/16/90	2.77±0.87	2.58	N
MV-15	8/18/89	7.04±1.19	8/16/90	8.00±1.68	.93	
MV-16	8/18/89	3.85±0.64	8/13/91	2.88±0.79	1.90	
MV-17	8/18/89	4.10±0.70	7/27/92	3.02±0.79	2.05	N
MV-18	8/18/89	6.77±1.21	8/16/90	5.72±1.42	1.13	
MV-19	8/18/89	5.91±0.93	8/15/91	3.41±1.39	2.99	N
MV-20	8/19/89	5.30±0.87	7/27/92	3.46±0.87	2.99	N
MV-21	8/19/89	4.41±0.70	8/15/90	3.37±0.81	1.94	
MV-23	8/21/89	7.89±1.30	8/13/90	6.27±1.41	1.69	
MV-24	8/21/89	11.00±1.90	8/12/91	8.10±1.98	2.11	N
MV-25	8/22/89	19.03±2.44	8/16/90	6.85±1.56	8.41	N
MV-26	8/15/89	5.68±0.87	8/16/91	4.10±0.96	2.44	N
MV-27	8/15/89	6.65±1.02	7/27/92	5.02±1.12	2.15	N
MV-29	8/16/89	4.60±0.76	8/14/91	2.95±1.08	2.50	N
MV-30	8/16/89	6.95±1.19	8/17/90	4.74±1.23	2.58	N
MV-31	8/16/89	6.57±1.18	6/23/92	5.46±1.16	1.34	
MV-32	8/16/89	8.24±1.36	8/15/91	6.10±1.43	2.17	N
MV-33	8/17/89	4.30±0.70	8/15/90	2.45±0.92	3.20	N
MV-35	8/17/89	4.62±0.71	6/24/92	2.32±0.67	4.71	N
MV-36	8/17/89	4.73±0.79	7/29/92	3.66±0.90	1.79	
MV-37	8/18/89	5.95±0.93	8/17/90	3.49±1.38	2.96	N
MV-38	8/18/89	3.10±0.58	7/29/92	2.86±1.10	.39	
MV-39	8/18/89	7.31±1.30	8/15/90	5.92±1.42	1.44	
MV-40	8/18/89	5.01±0.76	8/15/91	3.02±0.76	3.71	N
MV-41	8/21/89	5.81±0.95	8/13/91	5.48±1.41	.39	
MV-42	8/21/89	5.84±0.91	8/13/91	-0.54±0.43	10.58	N
MV-43	8/22/89	8.61±1.46	8/15/90	6.86±1.60	1.62	

Table 10. Comparison of gross beta-particle radioactivity dissolved as strontium-90 in equilibrium with yttrium-90 analyses from water samples collected in 1989 with samples collected in 1990, 1991, or 1992 including a comparison of replicate pairs, selected wells and springs, eastern Snake River Plain—Continued

Site Identifier	Date sampled	Concentration	Date sampled	Concentration	Z value	Remark
MV-45	8/22/89	4.49±0.75	8/13/91	3.26±1.26	1.68	
MV-46	8/22/89	3.98±0.65	6/23/92	3.13±0.78	1.68	
MV-47	9/07/89	4.42±0.70	8/17/90	3.13±0.81	2.41	N
MV-48	9/13/89	3.76±0.64	8/21/91	2.39±0.71	2.86	N
MV-49	9/21/89	3.23±0.63	8/21/91	1.93±0.67	2.84	N
MV-50	8/14/89	6.65±1.11	9/15/92	6.52±1.32	.15	
MV-51	8/15/89	6.76±1.28	8/14/90	5.42±1.38	1.42	
MV-52	8/22/89	8.44±1.27	8/14/91	6.75±1.42	1.77	
MV-53	8/21/89	8.36±1.40	7/28/92	7.38±1.53	.95	
MV-54	8/21/89	8.98±1.39	8/14/91	6.99±1.62	1.86	
MV-55	8/22/89	4.00±0.77	7/30/92	2.60±0.72	2.66	N
MV-56	8/22/89	4.24±0.75	8/16/91	3.40±0.82	1.52	
MV-57	9/26/89	3.50±0.57	6/30/92	2.22±0.67	2.91	N
MV-58	9/26/89	4.61±0.75	6/30/92	2.76±0.75	3.49	N
MV-59	9/27/89	4.61±0.72	8/24/90	3.26±0.80	2.52	N
MV-61	9/14/89	3.96±0.72	7/17/90	3.40±0.85	1.01	

Replicate pairs					
Site identifiers	Date sampled	QA concentration	Concentration	Z value	Remark
MV-28(27)	8/15/89	5.67±1.02	6.65±1.02	1.36	
MV-8(7)	8/16/89	2.83±0.54	3.94±0.66	2.60	N
MV-34(33)	8/17/89	4.45±0.70	4.30±0.70	.30	
MV-44(43)	8/22/89	11.20±1.90	8.61±1.46	2.16	N
MV-60(61)	9/14/89	3.37±0.62	3.96±0.72	1.24	
MV-8(4)	8/13/90	4.51±1.07	5.48±1.24	1.18	
MV-28(24)	8/12/91	8.91±2.14	8.10±1.98	.56	
MV-34(40)	8/15/91	3.22±0.795	3.02±0.756	.36	
MV-44(46)	6/23/92	2.09±0.652	3.13±0.776	2.05	N
MV-60(36)	7/29/92	3.47±0.877	3.66±0.899	.30	

Table 11. Comparison of gross beta-particle radioactivity suspended as strontium-90 in equilibrium with yttrium-90 analyses from water samples collected in 1989 with samples collected in 1990, 1991, or 1992 including a comparison of replicate pairs, selected wells and springs, eastern Snake River Plain

[Concentrations and associated uncertainties are in picocuries per liter. Analytical uncertainties are reported as 2 times the sample standard deviation. Site identifier: see figure 2 for location of the sites. Z value: see section on statistical comparisons of sample and replicate pairs. Abbreviations: N, the analytical results are not in statistical agreement; QA, quality-assurance replicate sample. Replicate pairs: site identifiers are listed with QA identifier followed by original site identifier in parentheses]

Site identifier	Date sampled	Concentration	Date sampled	Concentration	Z value	Remark
MV-1	8/14/89	-0.217±0.273	8/13/90	0.261±0.468	1.76	
MV-2	8/14/89	-.092±0.265	8/12/91	-.241±0.474	.55	
MV-3	8/15/89	-.207±0.276	7/28/92	.136±0.446	1.31	
MV-4	8/15/89	.161±0.260	8/13/90	.008±0.498	.54	
MV-5	8/15/89	-1.210±0.240	7/30/92	-.105±0.480	4.12	N
MV-6	8/15/89	.200±0.298	7/28/92	.296±0.479	.34	
MV-7	8/16/89	.144±0.290	7/30/92	.219±0.442	.28	
MV-9	8/16/89	.385±0.261	8/14/90	.205±0.471	.67	
MV-10	8/16/89	1.140±0.340	8/12/91	.154±0.454	3.48	N
MV-11	8/16/89	.525±0.313	8/14/90	.399±0.492	.43	
MV-12	8/17/89	-.094±0.231	8/14/91	.321±0.449	1.64	
MV-13	8/17/89	-.246±0.255	6/23/92	.252±0.449	1.93	
MV-14	8/17/89	.134±0.274	8/16/90	.204±0.452	.26	
MV-15	8/18/89	.424±0.381	8/16/90	-.109±0.530	1.63	
MV-16	8/18/89	.024±0.272	8/13/91	.362±0.470	1.24	
MV-17	8/18/89	-.081±0.271	7/27/92	.025±0.473	.39	
MV-18	8/18/89	.307±0.263	8/16/90	.469±0.512	.56	
MV-19	8/18/89	-.246±0.255	8/15/91	.216±0.448	1.79	
MV-20	8/19/89	1.160±0.350	7/27/92	.466±0.477	2.35	N
MV-21	8/19/89	-.016±0.275	8/15/90	.354±0.473	1.35	
MV-23	8/21/89	-.280±0.259	8/13/90	.002±0.499	1.00	
MV-24	8/21/89	.067±0.276	8/12/91	.529±0.486	1.65	
MV-25	8/22/89	.875±0.327	8/16/90	-.058±0.491	3.16	N
MV-26	8/15/89	.343±0.265	8/16/91	.129±0.419	.86	
MV-27	8/15/89	-.164±0.280	7/27/92	.154±0.432	1.24	
MV-29	8/16/89	.376±0.286	8/14/91	.370±0.456	.02	
MV-30	8/16/89	.575±0.312	8/17/90	-.242±0.453	2.97	N
MV-31	8/16/89	.236±0.270	6/23/92	.383±0.489	.53	
MV-32	8/16/89	.628±0.288	8/15/91	1.110±0.597	1.45	
MV-33	8/17/89	.008±0.267	8/15/90	-.076±0.487	.30	
MV-35	8/17/89	.453±0.305	6/24/92	.187±0.439	1.00	
MV-36	8/17/89	-.088±0.271	7/29/92	.460±0.484	1.98	N
MV-37	8/18/89	.368±0.273	8/17/90	-.246±0.463	2.28	N
MV-38	8/18/89	.333±0.258	7/29/92	.428±0.480	.35	
MV-39	8/18/89	.381±0.283	8/15/90	.068±0.453	1.17	
MV-40	8/18/89	-.374±0.260	8/15/91	.200±0.446	2.22	N
MV-41	8/21/89	.378±0.282	8/13/91	.485±0.516	.36	
MV-42	8/21/89	.561±0.287	8/13/91	.216±0.478	1.24	
MV-43	8/22/89	.099±0.251	8/15/90	.101±0.472	.01	

Table 11. Comparison of gross beta-particle radioactivity suspended as strontium-90 in equilibrium with yttrium-90 analyses from water samples collected in 1989 with samples collected in 1990, 1991, or 1992 including a comparison of replicate pairs, selected wells and springs, eastern Snake River Plain—Continued

Site Identifier	Date sampled	Concentration	Date sampled	Concentration	Z value	Remark
MV-45	8/22/89	.293±0.262	8/13/91	.142±0.451	.58	
MV-46	8/22/89	.261±0.260	6/23/92	.112±0.483	.54	
MV-47	9/07/89	.116±0.262	8/17/90	.286±0.503	.60	
MV-48	9/13/89	.311±0.248	8/21/91	.823±0.518	1.78	
MV-49	9/21/89	.356±0.293	8/21/91	.270±0.478	.31	
MV-50	8/14/89	-.183±0.266	9/15/92	.211±0.419	1.59	
MV-51	8/15/89	.125±0.251	8/14/90	.184±0.450	.23	
MV-52	8/22/89	.096±0.292	8/14/91	-.431±0.449	1.97	N
MV-53	8/21/89	-.301±0.270	7/28/92	.347±0.461	2.43	N
MV-54	8/21/89	-.206±0.263	8/14/91	.354±0.454	2.13	N
MV-55	8/22/89	-.078±0.269	7/30/92	.481±0.479	2.04	N
MV-56	8/22/89	-.192±0.260	8/16/91	.329±0.465	1.96	
MV-57	9/26/89	.080±0.237	6/30/92	.590±0.480	1.91	
MV-58	9/26/89	.940±0.305	6/30/92	.089±0.481	2.99	N
MV-59	9/27/89	.256±0.234	8/24/90	-.446±0.428	2.88	N
MV-61	9/14/89	.357±0.271	7/17/90	-.026±0.463	1.43	

Replicate pairs					
Site identifiers	Date sampled	QA concentration	Concentration	Z value	Remark
MV-28(27)	8/15/89	0.000±0.272	-0.164±0.280	0.84	
MV-8(7)	8/16/89	-.143±0.268	.144±0.290	1.45	
MV-34(33)	8/17/89	.046±0.259	.008±0.267	.20	
MV-44(43)	8/22/89	.180±0.260	.099±0.251	.45	
MV-60(61)	9/14/89	.180±0.260	.357±0.271	.94	
MV-8(4)	8/13/90	-.195±0.519	.008±0.498	.56	
MV-28(24)	8/12/91	.057±0.456	.529±0.486	1.42	
MV-34(40)	8/15/91	-.177±0.482	.200±0.446	1.15	
MV-44(46)	6/23/92	.295±0.426	.112±0.483	.57	
MV-60(36)	7/29/92	.339±0.458	.460±0.484	.36	

Table 12. Comparison of dissolved total uranium analyses from water samples collected in 1989 with samples collected in 1990, 1991, or 1992 including a comparison of replicate pairs, selected wells and springs, eastern Snake River Plain

[Concentrations and associated uncertainties are in micrograms per liter. Analytical uncertainties are reported as 2 times the sample standard deviation. Site identifier: see figure 2 for location of the sites. Z value: see section on statistical comparisons of sample and replicate pairs. Abbreviations: N, the analytical results are not in statistical agreement; QA, quality-assurance replicate sample. Replicate pairs: site identifiers are listed with QA identifier followed by original site identifier in parentheses]

Site identifier	Date sampled	Concentration	Date sampled	Concentration	Z value	Remark
MV-1	8/14/89	2.66±0.40	8/13/90	2.13±0.32	2.07	N
MV-2	8/14/89	2.68±0.28	8/12/91	1.68±0.25	5.31	N
MV-3	8/15/89	2.60±0.50	7/28/92	1.75±0.26	3.01	N
MV-4	8/15/89	4.65±0.63	8/13/90	3.35±0.50	3.23	N
MV-5	8/15/89	4.50±0.61	7/30/92	2.80±0.42	4.59	N
MV-6	8/15/89	3.03±0.32	7/28/92	2.05±0.31	4.41	N
MV-7	8/16/89	1.78±0.33	7/30/92	1.43±0.21	1.78	
MV-9	8/16/89	5.25±0.75	8/14/90	4.48±0.67	1.53	
MV-10	8/16/89	4.16±0.59	8/12/91	1.59±0.24	8.07	N
MV-11	8/16/89	4.76±0.66	8/14/90	3.52±0.53	2.93	N
MV-12	8/17/89	3.61±0.54	8/14/91	2.57±0.39	3.14	N
MV-13	8/17/89	5.16±0.87	6/23/92	2.83±0.42	4.81	N
MV-14	8/17/89	3.46±0.54	8/16/90	2.37±0.36	3.37	N
MV-15	8/18/89	4.08±0.57	8/16/90	3.52±0.53	1.44	
MV-16	8/18/89	2.27±0.36	8/13/91	1.56±0.24	3.27	N
MV-17	8/18/89	2.11±0.32	7/27/92	1.74±0.26	1.79	
MV-18	8/18/89	4.06±0.62	8/16/90	3.19±0.48	2.22	N
MV-19	8/18/89	3.76±0.53	8/15/91	2.11±0.32	5.34	N
MV-20	8/19/89	2.19±0.24	7/27/92	2.05±0.31	.72	
MV-21	8/19/89	3.11±0.47	8/15/90	1.78±0.27	4.92	N
MV-23	8/21/89	2.85±0.30	8/13/90	2.03±0.30	3.84	N
MV-24	8/21/89	6.35±0.92	8/12/91	3.35±0.50	5.72	N
MV-25	8/22/89	6.00±0.84	8/16/90	4.26±0.64	3.30	N
MV-26	8/15/89	2.70±0.28	8/16/91	1.64±0.25	5.70	N
MV-27	8/15/89	3.59±0.38	7/27/92	2.65±0.40	3.42	N
MV-29	8/16/89	2.40±0.25	8/14/91	1.48±0.22	5.50	N
MV-30	8/16/89	4.94±0.69	8/17/90	1.34±0.35	11.88	N
MV-31	8/16/89	3.78±0.54	6/23/92	2.46±0.37	4.03	N
MV-32	8/16/89	6.24±0.97	8/15/91	3.16±0.47	5.71	N
MV-33	8/17/89	2.08±0.22	8/15/90	1.26±0.19	5.65	N
MV-35	8/17/89	2.16±0.22	6/24/92	1.22±0.18	6.58	N
MV-36	8/17/89	4.51±0.63	7/29/92	3.16±0.47	3.42	N
MV-37	8/18/89	6.92±0.99	8/17/90	4.66±0.70	3.73	N
MV-38	8/18/89	3.68±0.53	7/29/92	2.58±0.39	3.36	N
MV-39	8/18/89	.47±0.05	8/15/90	6.10±0.92	12.29	N
MV-40	8/18/89	2.96±0.44	8/15/91	1.48±0.22	6.01	N
MV-41	8/21/89	3.52±0.53	8/13/91	6.37±0.96	5.22	N
MV-42	8/21/89	3.63±0.54	8/13/91	1.39±0.21	7.74	N
MV-43	8/22/89	7.00±1.05	8/15/90	4.66±0.70	3.71	N

Table 12. Comparison of dissolved total uranium analyses from water samples collected in 1989 with samples collected in 1990, 1991, or 1992 including a comparison of replicate pairs, selected wells and springs, eastern Snake River Plain—Continued

Site Identifier	Date sampled	Concentration	Date sampled	Concentration	Z value	Remark
MV-45	8/22/89	3.26±0.34	8/13/91	1.67±0.25	7.54	N
MV-46	8/22/89	2.47±0.26	6/23/92	1.36±0.21	6.70	N
MV-47	9/07/89	2.19±0.39	8/17/90	1.70±0.25	2.11	N
MV-48	9/13/89	2.43±0.48	8/21/91	1.66±0.25	2.85	N
MV-49	9/21/89	.02±0.01	8/21/91	1.68±0.25	13.16	N
MV-50	8/14/89	2.55±0.50	9/15/92	3.18±0.48	1.82	
MV-51	8/15/89	4.30±0.62	8/14/90	3.08±0.46	3.16	N
MV-52	8/22/89	5.12±0.74	8/14/91	3.41±0.51	3.80	N
MV-53	8/21/89	4.23±0.68	7/28/92	3.30±0.50	2.21	N
MV-54	8/21/89	5.00±0.82	8/14/91	2.85±0.43	4.65	N
MV-55	8/22/89	2.59±0.27	7/30/92	1.81±0.27	4.07	N
MV-56	8/22/89	2.53±0.26	8/16/91	1.55±0.23	5.62	N
MV-57	9/26/89	.01±0.01	6/30/92	1.08±0.16	13.18	N
MV-58	9/26/89	1.64±0.28	6/30/92	1.18±0.18	2.78	N
MV-59	9/27/89	1.15±0.16	8/24/90	1.61±0.24	3.18	N
MV-61	9/14/89	2.77±0.45	7/17/90	2.06±0.31	2.60	N

Replicate pairs					
Site Identifiers	Date sampled	QA concentration	Concentration	Z value	Remark
MV-28(27)	8/15/89	3.88±0.61	3.59±0.38	0.81	
MV-8(7)	8/16/89	1.86±0.29	1.78±0.33	.36	
MV-34(33)	8/17/89	1.97±0.21	2.08±0.22	.72	
MV-44(43)	8/22/89	6.86±0.98	7.00±1.05	.19	
MV-60(61)	9/14/89	2.97±0.59	5.75±0.61	6.55	N
MV-8(4)	8/13/90	3.40±0.510	3.35±0.503	.14	
MV-28(24)	8/12/91	3.31±0.497	3.35±0.503	.11	
MV-34(40)	8/15/91	1.59±0.239	1.48±0.221	.68	
MV-44(46)	6/23/92	1.65±0.247	1.36±0.205	1.81	
MV-60(36)	7/29/92	3.10±0.465	3.16±0.474	.18	

Table 13. Comparison of dissolved radium-226 analyses from water samples collected in 1989 with samples collected in 1990, 1991, or 1992 including a comparison of replicate pairs, selected wells and springs, eastern Snake River Plain

[Concentrations and associated uncertainties are in picocuries per liter. Analytical uncertainties are reported as 2 times the sample standard deviation. Site identifier: see figure 2 for location of the sites. Z value: see section on statistical comparisons of sample and replicate pairs. Abbreviations: N, the analytical results are not in statistical agreement; QA, quality-assurance replicate sample. Replicate pairs: site identifiers are listed with QA identifier followed by original site identifier in parentheses]

Site identifier	Date sampled	Concentration	Date sampled	Concentration	Z value	Remark
MV-1	8/14/89	0.091±0.020	8/13/90	0.072±0.016	1.48	
MV-2	8/14/89	.026±0.012	8/12/91	.033±0.009	.93	
MV-3	8/15/89	.080±0.020	7/28/92	.024±0.009	5.11	N
MV-4	8/15/89	.062±0.014	8/13/90	.058±0.018	.35	
MV-5	8/15/89	.095±0.023	7/30/92	.031±0.011	5.02	N
MV-6	8/15/89	.083±0.017	7/28/92	.028±0.011	5.43	N
MV-7	8/16/89	.112±0.024	7/30/92	.004±0.211	1.02	
MV-9	8/16/89	.058±0.013	8/14/90	.054±0.014	.42	
MV-10	8/16/89	.049±0.013	8/12/91	.036±0.011	1.53	
MV-11	8/16/89	.052±0.015	8/14/90	.145±0.026	6.20	N
MV-12	8/17/89	.369±0.145	8/14/91	.036±0.014	4.57	N
MV-13	8/17/89	.067±0.016	6/23/92	.034±0.010	3.50	N
MV-14	8/17/89	.075±0.019	8/16/90	.154±0.026	4.91	N
MV-15	8/18/89	.101±0.022	8/16/90	.129±0.024	1.72	
MV-16	8/18/89	.099±0.025	8/13/91	.024±0.008	5.71	N
MV-17	8/18/89	.089±0.019	7/27/92	.023±0.008	6.40	N
MV-18	8/18/89	.033±0.012	8/16/90	.097±0.018	5.92	N
MV-19	8/18/89	.039±0.015	8/15/91	.028±0.008	1.29	
MV-20	8/19/89	.055±0.019	7/27/92	.022±0.008	3.20	N
MV-21	8/19/89	.038±0.013	8/15/90	.073±0.020	2.93	N
MV-23	8/21/89	.050±0.016	8/13/90	.022±0.008	3.13	N
MV-24	8/21/89	.041±0.015	8/12/91	.030±0.009	1.26	
MV-25	8/22/89	.043±0.020	8/16/90	.074±0.020	2.19	N
MV-26	8/15/89	.064±0.017	8/16/91	.033±0.010	3.14	N
MV-27	8/15/89	.073±0.018	7/27/92	.036±0.010	3.59	N
MV-29	8/16/89	.071±0.021	8/14/91	.028±0.014	3.41	N
MV-30	8/16/89	.097±0.019	8/17/90	.098±0.020	.07	
MV-31	8/16/89	.114±0.023	6/23/92	.033±0.014	6.02	N
MV-32	8/16/89	.075±0.015	8/15/91	.021±0.007	6.52	N
MV-33	8/17/89	.065±0.015	8/15/90	.090±0.016	2.28	N
MV-35	8/17/89	.093±0.020	6/24/92	.010±0.011	7.27	N
MV-36	8/17/89	.078±0.020	7/29/92	.024±0.008	5.01	N
MV-37	8/18/89	.056±0.013	8/17/90	.108±0.022	4.07	N
MV-38	8/18/89	.141±0.025	7/29/92	.026±0.008	8.76	N
MV-39	8/18/89	.061±0.016	8/15/90	.106±0.020	3.51	N
MV-40	8/18/89	.034±0.017	8/15/91	.027±0.011	.69	
MV-41	8/21/89	.088±0.017	8/13/91	.062±0.015	2.29	N
MV-42	8/21/89	.069±0.015	8/13/91	.031±0.012	3.96	N
MV-43	8/22/89	.091±0.022	8/15/90	.134±0.022	2.76	N

Table 13. Comparison of dissolved radium-226 analyses from water samples collected in 1989 with samples collected in 1990, 1991, or 1992 including a comparison of replicate pairs, selected wells and springs, eastern Snake River Plain—Continued

Site Identifier	Date sampled	Concentration	Date sampled	Concentration	Z value	Remark
MV-45	8/22/89	.081±0.021	8/13/91	.018±0.011	5.31	N
MV-46	8/22/89	.088±0.018	6/23/92	.035±0.014	4.65	N
MV-47	9/07/89	.114±0.022	8/17/90	.103±0.020	.74	
MV-48	9/13/89	.058±0.015	8/21/91	.032±0.009	2.97	N
MV-49	9/21/89	.047±0.016	8/21/91	.030±0.008	1.90	
MV-50	8/14/89	.113±0.024	9/15/92	.059±0.015	3.82	N
MV-51	8/15/89	.149±0.031	8/14/90	.135±0.024	.71	
MV-52	8/22/89	.078±0.015	8/14/91	.039±0.015	3.68	N
MV-53	8/21/89	.072±0.018	7/28/92	.035±0.009	3.68	N
MV-54	8/21/89	.080±0.020	8/14/91	.035±0.010	4.02	N
MV-55	8/22/89	.052±0.019	7/30/92	.026±0.009	2.47	N
MV-56	8/22/89	.076±0.019	8/16/91	.030±0.009	4.38	N
MV-57	9/26/89	.047±0.018	6/30/92	.028±0.009	1.89	
MV-58	9/26/89	.076±0.018	6/30/92	.028±0.008	4.87	N
MV-59	9/27/89	.062±0.017	8/24/90	.054±0.014	.73	
MV-61	9/14/89	.085±0.017	7/17/90	.082±0.016	.26	

Replicate pairs					
Site identifiers	Date sampled	QA concentration	Concentration	Z value	Remark
MV-28(27)	8/15/89	0.064±0.015	0.073±0.018	0.77	
MV-8(7)	8/16/89	1.47±0.026	.112±0.024	1.98	N
MV-34(33)	8/17/89	.048±0.013	.065±0.015	1.71	
MV-44(43)	8/22/89	.069±0.019	.091±0.022	1.51	
MV-60(61)	9/14/89	.096±0.019	.085±0.017	.86	
MV-8(4)	8/13/90	.079±0.016	.058±0.018	1.74	
MV-28(24)	8/12/91	.032±0.012	.030±0.009	.27	
MV-34(40)	8/15/91	.028±0.011	.027±0.011	.13	
MV-44(46)	6/23/92	.049±0.015	.035±0.014	1.36	
MV-60(36)	7/29/92	.061±0.013	.024±0.008	4.85	N

Table 14. Comparison of dissolved radium-228 analyses from water samples collected in 1989 with samples collected in 1990, 1991, or 1992 including a comparison of replicate pairs, selected wells and springs, eastern Snake River Plain

[Concentrations and associated uncertainties are in picocuries per liter. Analytical uncertainties are reported as 2 times the sample standard deviation. Site identifier: see figure 2 for location of the sites. Z value: see section on statistical comparisons of sample and replicate pairs. Abbreviations: N, the analytical results are not in statistical agreement; QA, quality-assurance replicate sample; --, no analysis available; NA, not applicable. Replicate pairs: site identifiers are listed with QA identifier followed by original site identifier in parentheses]

Site identifier	Date sampled	Concentration	Date sampled	Concentration	Z value	Remark
MV-1	8/14/89	-0.320±1.270	8/13/90	0.018±0.464	0.50	
MV-2	8/14/89	.941±0.722	8/12/91	.153±0.429	1.88	
MV-3	8/15/89	-.180±0.790	7/28/92	.454±0.324	1.49	
MV-4	8/15/89	.252±0.600	8/13/90	.182±0.498	.18	
MV-5	8/15/89	-.600±0.790	7/30/92	.041±0.235	1.56	
MV-6	8/15/89	1.360±0.750	7/28/92	.732±0.386	1.49	
MV-7	8/16/89	.170±0.590	7/30/92	.042±0.013	.43	
MV-9	8/16/89	.403±1.930	8/14/90	.327±0.444	.08	
MV-10	8/16/89	.715±0.838	8/12/91	.211±0.318	1.12	
MV-11	8/16/89	.247±0.599	8/14/90	-.081±0.496	.84	
MV-12	8/17/89	.136±0.652	8/14/91	.424±0.356	.78	
MV-13	8/17/89	.539±0.616	6/23/92	.195±0.267	1.02	
MV-14	8/17/89	.369±0.690	8/16/90	.192±0.308	.47	
MV-15	8/18/89	.625±0.717	8/16/90	.308±0.316	.81	
MV-16	8/18/89	-.360±0.790	8/13/91	.118±0.341	1.11	
MV-17	8/18/89	.080±0.590	7/27/92	.274±0.302	.59	
MV-18	8/18/89	-.837±0.697	8/16/90	.383±0.404	3.03	N
MV-19	8/18/89	.590±0.807	8/15/91	.173±0.286	.97	
MV-20	8/19/89	.129±0.988	7/27/92	.238±0.307	.21	
MV-21	8/19/89	.097±0.595	8/15/90	.280±0.332	.54	
MV-23	8/21/89	.081±0.746	8/13/90	.311±0.530	.50	
MV-24	8/21/89	.067±0.655	8/12/91	.600±0.574	1.22	
MV-25	8/22/89	.103±0.946	8/16/90	.111±0.278	.02	
MV-26	8/15/89	.030±0.990	8/16/91	.208±0.324	.34	
MV-27	8/15/89	.570±0.650	7/27/92	.371±0.310	.55	
MV-29	8/16/89	.702±0.603	8/14/91	.182±0.451	1.38	
MV-30	8/16/89	.620±0.595	8/17/90	.126±0.356	1.42	
MV-31	8/16/89	.297±0.962	6/23/92	.332±0.346	.07	
MV-32	8/16/89	.450±0.650	8/15/91	.401±0.356	.13	
MV-33	8/17/89	.490±1.030	8/15/90	.158±0.504	.58	
MV-35	8/17/89	.155±0.758	6/24/92	.419±0.317	.64	
MV-36	8/17/89	-.094±0.818	7/29/92	.100±0.275	.45	
MV-37	8/18/89	.864±0.728	8/17/90	.035±0.389	2.01	N
MV-38	8/18/89	2.090±1.440	7/29/92	.155±0.318	2.62	N
MV-39	8/18/89	2.690±1.010	8/15/90	.176±0.328	4.73	N
MV-40	8/18/89	.761±0.774	8/15/91	.213±0.312	1.31	
MV-41	8/21/89	2.110±0.700	8/13/91	.176±0.345	4.96	N
MV-42	8/21/89	.670±0.970	8/13/91	.195±0.348	.92	
MV-43	8/22/89	1.430±1.050	8/15/90	.250±0.318	2.15	N

Table 14. Comparison of dissolved radium-228 analyses from water samples collected in 1989 with samples collected in 1990, 1991, or 1992 including a comparison of replicate pairs, selected wells and springs, eastern Snake River Plain—Continued

Site identifier	Date sampled	Concentration	Date sampled	Concentration	Z value	Remark
MV-45	8/22/89	.166±0.652	8/13/91	.336±0.377	.45	
MV-46	8/22/89	.286±0.585	6/23/92	.227±0.296	.18	
MV-47	9/07/89	.242±0.645	8/17/90	.127±0.280	.33	
MV-48	9/13/89	.245±0.458	8/21/91	.372±0.347	.44	
MV-49	9/21/89	-.447±0.566	8/21/91	.110±0.366	1.65	
MV-50	8/14/89	.760±0.900	9/15/92	.375±0.307	.81	
MV-51	8/15/89	.466±0.695	8/14/90	.164±0.464	.72	
MV-52	8/22/89	.229±0.575	8/14/91	.451±0.401	.63	
MV-53	8/21/89	.220±0.670	7/28/92	1.620±0.590	3.14	N
MV-54	8/21/89	.000±0.650	8/14/91	.096±0.396	.25	
MV-55	8/22/89	.287±0.503	7/30/92	.917±0.473	1.82	
MV-56	8/22/89	.816±0.640	8/16/91	.261±0.305	1.57	
MV-57	9/26/89	.018±0.356	6/30/92	.468±0.309	1.91	
MV-58	9/26/89	--	6/30/92	.107±0.223	NA	
MV-59	9/27/89	.051±0.491	8/24/90	.239±0.286	.66	
MV-61	9/14/89	.618±0.623	7/17/90	.218±0.424	1.06	

Replicate pairs					
Site identifiers	Date sampled	QA concentration	Concentration	Z value	Remark
MV-28(27)	8/15/89	0.579±1.07	0.57±0.65	0.01	
MV-8(7)	8/16/89	.03±0.62	.17±0.59	.33	
MV-34(33)	8/17/89	.464±0.691	.49±1.03	.04	
MV-44(43)	8/22/89	.81±0.72	1.43±1.05	.97	
MV-60(61)	9/14/89	-.116±0.784	.618±0.623	1.47	
MV-8(4)	8/13/90	.071±0.460	.182±0.498	.33	
MV-28(24)	8/12/91	.113±0.337	.600±0.574	1.46	
MV-34(40)	8/15/91	.265±0.304	.213±0.312	.24	
MV-44(46)	6/23/92	.226±0.283	.227±0.296	.00	
MV-60(36)	7/29/92	.216±0.340	.100±0.275	.27	

Table 15. Comparison of selected radionuclides detected using gamma spectrometry from water samples collected in 1989 with samples collected in 1990, 1991, or 1992 including a comparison of replicate pairs from selected wells, eastern Snake River Plain

[Concentrations and associated uncertainties are in picocuries per liter. Analytical uncertainties are reported as 2 times the sample standard deviation. Site identifiers: see figure 2 for location of the sites. Z value: see section on statistical comparisons of sample and replicate pairs. Abbreviations: N, the analytical results are not in statistical agreement; QA, quality-assurance replicate sample; NI, not identified; NA, not applicable. Replicate pairs: Site identifiers are listed with QA identifier followed by original site identifier in parentheses. Sample pairs not listed did not have the radionuclide identified in both sample periods. Replicate sample pairs not listed did not have a radionuclide detected in either sample]

Site identifier	Date sampled	Concentration	Date sampled	Concentration	Z value	Remark
Potassium-40						
MV-3	8/15/89	8.77±2.17	7/28/92	5.80±1.50	2.25	N
MV-5	8/15/89	6.89±1.42	7/30/92	4.32±1.44	2.54	N
MV-7	8/16/89	2.44±1.51	7/30/92	6.72±1.74	3.72	N
MV-19	8/18/89	8.52±1.90	8/15/91	5.721±3.124	1.53	
MV-20	8/19/89	5.31±1.28	7/27/92	8.03±1.58	2.68	N
MV-36	8/17/89	.22±0.12	7/29/92	1.48±2.36	1.07	
MV-40	8/18/89	7.01±1.51	8/15/91	3.271±2.471	2.58	N
MV-50	8/14/89	1.42±1.36	9/15/92	7.81±1.83	5.61	N
MV-53	8/21/89	6.09±1.38	7/28/92	.892±2.32	3.85	N
Lead-212						
MV-19	8/18/89	.508±0.143	8/15/91	.257±0.153	2.40	N
MV-24	8/21/89	.768±0.146	8/12/91	.227±0.133	5.48	N
MV-29	8/16/89	.539±0.143	8/14/91	.203±0.140	3.36	N
MV-39	8/18/89	.961±0.383	8/15/90	.180±0.121	3.89	N
MV-43	8/22/89	.754±0.441	8/15/90	.166±0.114	2.58	N

Replicate pairs					
Site identifiers	Date sampled	QA concentration	Concentration	Z value	Remark
Cesium-137					
MV-8(4)	8/13/90	0.013±0.103	NI	NA	
MV-28(24)	8/12/91	-.039±0.096	.057±0.115	1.28	
MV-34(40)	8/15/91	-.063±0.094	.014±0.097	1.13	
MV-44(46)	6/23/92	.014±0.090	.007±0.087	.11	
MV-60(36)	7/29/92	-.051±0.092	.031±0.096	1.23	
Potassium-40					
MV-28(27)	8/15/89	9.43±1.94	NI	NA	
MV-8(7)	8/16/89	1.39±1.39	2.44±1.51	1.02	
MV-60(61)	9/14/89	2.84±1.42	5.68±1.27	2.97	N
MV-34(40)	8/15/91	NI	3.27±2.47	NA	
MV-60(36)	7/29/92	1.56±3.22	1.48±2.36	.04	
Thorium-234					
MV-8(7)	8/16/89	3.72±0.94	4.09±1.09	.51	
MV-28(27)	8/15/89	10.06±1.13	NI	NA	
MV-44(43)	8/22/89	1.92±0.52	NI	NA	
MV-60(61)	9/14/89	3.38±0.96	NI	NA	

Table 15. Comparison of selected radionuclides detected using gamma spectrometry from water samples collected in 1989 with samples collected in 1990, 1991, or 1992 including a comparison of replicate pairs from selected wells, eastern Snake River Plain—Continued

Replicate pairs					
Site identifiers	Date sampled	QA concentration	Concentration	Z value	Remark
Lead-212					
MV-8(7)	8/16/89	.806±0.137	.204±0.101	12.37	N
MV-28(27)	8/15/89	.683±0.166	NI	NA	
MV-44(43)	8/22/89	NI	.754±0.441	NA	
MV-28(24)	8/12/91	NI	.227±0.133	NA	
Lead-214					
MV-8(4)	8/13/90	NI	.318±0.244	NA	
Radium-226					
MV-60(61)	9/14/89	NI	.39±0.14	NA	
MV-44(46)	6/23/92	.317±0.200	.351±0.196	.24	
Uranium-238					
MV-60(36)	7/29/92	.497±0.175	NI	NA	
Radium-228					
MV-28(27)	8/15/89	.571±0.369	NI	NA	
MV-8(7)	8/16/89	NI	.457±0.259	NA	
MV-60(61)	9/14/89	.393±0.233	NI	NA	
Cobalt-60					
MV-60(61)	9/14/89	NI	.31±0.08	NA	

Table 16. Comparison of dissolved arsenic analyses from water samples collected in 1989 with samples collected in 1990, 1991, or 1992 including a comparison of replicate pairs, selected wells and springs, eastern Snake River Plain

[Concentrations are in micrograms per liter. Site identifier: see figure 2 for location of the sites. Z value: see section on statistical comparisons of sample and replicate pairs. Remark: all analytical results are in statistical agreement. Abbreviation: QA, quality-assurance replicate sample. Replicate pairs: site identifiers are listed with QA identifier followed by original site identifier in parentheses]

Site identifier	Date sampled	Concentration	Date sampled	Concentration	Z value	Remark
MV-1	8/14/89	3	8/13/90	3	0.00	
MV-2	8/14/89	3	8/12/91	3	.00	
MV-3	8/15/89	3	7/28/92	2	.78	
MV-4	8/15/89	4	8/13/90	3	.70	
MV-5	8/15/89	3	7/30/92	3	.00	
MV-6	8/15/89	3	7/28/92	3	.00	
MV-7	8/16/89	2	7/30/92	2	.00	
MV-9	8/16/89	4	8/14/90	4	.00	
MV-10	8/16/89	2	8/12/91	2	.00	
MV-11	8/16/89	2	8/14/90	3	.78	
MV-12	8/17/89	2	8/14/91	2	.00	
MV-13	8/17/89	3	6/23/92	4	.70	
MV-14	8/17/89	2	8/16/90	2	.00	
MV-15	8/18/89	2	8/16/90	2	.00	
MV-16	8/18/89	2	8/13/91	2	.00	
MV-17	8/18/89	2	7/27/92	2	.00	
MV-18	8/18/89	2	8/16/90	3	.78	
MV-19	8/18/89	2	8/15/91	2	.00	
MV-20	8/19/89	2	7/27/92	2	.00	
MV-21	8/19/89	2	8/15/90	2	.00	
MV-23	8/21/89	3	8/13/90	3	.00	
MV-24	8/21/89	3	8/12/91	3	.00	
MV-25	8/22/89	4	8/16/90	4	.00	
MV-26	8/15/89	2	8/16/91	2	.00	
MV-27	8/15/89	2	7/27/92	2	.00	
MV-29	8/16/89	2	8/14/91	2	.00	
MV-30	8/16/89	3	8/17/90	2	.78	
MV-31	8/16/89	2	6/23/92	2	.00	
MV-32	8/16/89	2	8/15/91	2	.00	
MV-33	8/17/89	2	8/15/90	3	.78	
MV-35	8/17/89	2	6/24/92	2	.00	
MV-36	8/17/89	1	7/29/92	2	.87	
MV-37	8/18/89	1	8/17/90	2	.87	
MV-38	8/18/89	1	7/29/92	1	.00	
MV-39	8/18/89	3	8/15/90	3	.00	
MV-40	8/18/89	2	8/15/91	2	.00	
MV-41	8/21/89	3	8/13/91	3	.00	
MV-42	8/21/89	3	8/13/91	3	.00	
MV-43	8/22/89	2	8/15/90	2	.00	

Table 16. Comparison of dissolved arsenic analyses from water samples collected in 1989 with samples collected in 1990, 1991, or 1992 including a comparison of replicate pairs, selected wells and springs, eastern Snake River Plain—Continued

Site identifier	Date sampled	Concentration	Date sampled	Concentration	Z value	Remark
MV-45	8/22/89	3	8/13/91	2	.78	
MV-46	8/22/89	2	6/23/92	2	.00	
MV-47	9/07/89	2	8/17/90	2	.00	
MV-48	9/13/89	1	8/21/91	1	.00	
MV-49	9/21/89	2	8/21/91	1	.87	
MV-50	8/14/89	2	9/15/92	3	.78	
MV-51	8/15/89	3	8/14/90	3	.00	
MV-52	8/22/89	5	8/14/91	5	.00	
MV-53	8/21/89	2	7/28/92	2	.00	
MV-54	8/21/89	2	8/14/91	2	.00	
MV-55	8/22/89	2	7/30/92	2	.00	
MV-56	8/22/89	2	8/16/91	2	.00	
MV-57	9/26/89	2	6/30/92	2	.00	
MV-58	9/26/89	2	6/30/92	3	.78	
MV-59	9/27/89	2	8/24/90	2	.00	
MV-61	9/14/89	3	7/17/90	3	.00	

Replicate pairs					
Site identifiers	Date sampled	QA concentration	Concentration	Z value	Remark
MV-28(27)	8/15/89	2	2	0.00	
MV-8(7)	8/16/89	2	2	.00	
MV-34(33)	8/17/89	2	2	.00	
MV-44(43)	8/22/89	2	2	.00	
MV-60(61)	9/14/89	3	3	.00	
MV-8(4)	8/13/90	4	3	1.40	
MV-28(24)	8/12/91	3	3	.00	
MV-34(40)	8/15/91	2	2	.00	
MV-44(46)	6/23/92	2	2	.00	
MV-60(36)	7/29/92	2	2	.00	

Table 17. Comparison of dissolved barium analyses from water samples collected in 1989 with samples collected in 1990, 1991, or 1992 including a comparison of replicate pairs, selected wells and springs, eastern Snake River Plain

[Concentrations are in micrograms per liter. Site identifier: see figure 2 for location of the sites. Z value: see section on statistical comparisons of sample and replicate pairs. Abbreviations: N, the analytical results are not in statistical agreement; QA, quality-assurance replicate sample. Symbol: <, concentration is less than the reporting level. Replicate pairs: site identifiers are listed with QA identifier followed by original site identifier in parentheses]

Site identifier	Date sampled	Concentration	Date sampled	Concentration	Z value	Remark
MV-1	8/14/89	70	8/13/90	73	0.43	
MV-2	8/14/89	62	8/12/91	68	.91	
MV-3	8/15/89	24	7/28/92	21	.76	
MV-4	8/15/89	46	8/13/90	46	.00	
MV-5	8/15/89	55	7/30/92	48	1.22	
MV-6	8/15/89	76	7/28/92	77	.14	
MV-7	8/16/89	20	7/30/92	20	.00	
MV-9	8/16/89	140	8/14/90	140	.00	
MV-10	8/16/89	87	8/12/91	85	.25	
MV-11	8/16/89	110	8/14/90	110	.00	
MV-12	8/17/89	51	8/14/91	56	.85	
MV-13	8/17/89	88	6/23/92	82	.77	
MV-14	8/17/89	42	8/16/90	44	.38	
MV-15	8/18/89	82	8/16/90	82	.00	
MV-16	8/18/89	21	8/13/91	25	1.01	
MV-17	8/18/89	23	7/27/92	22	.25	
MV-18	8/18/89	60	8/16/90	59	.16	
MV-19	8/18/89	33	8/15/91	30	.67	
MV-20	8/19/89	22	7/27/92	21	.26	
MV-21	8/19/89	20	8/15/90	20	.00	
MV-23	8/21/89	97	8/13/90	100	.35	
MV-24	8/21/89	140	8/12/91	140	.00	
MV-25	8/22/89	56	8/16/90	58	.33	
MV-26	8/15/89	26	8/16/91	27	.24	
MV-27	8/15/89	53	7/27/92	54	.17	
MV-29	8/16/89	19	8/14/91	22	.78	
MV-30	8/16/89	70	8/17/90	73	.43	
MV-31	8/16/89	49	6/23/92	49	.00	
MV-32	8/16/89	89	8/15/91	85	.50	
MV-33	8/17/89	13	8/15/90	15	.59	
MV-35	8/17/89	13	6/24/92	12	.30	
MV-36	8/17/89	45	7/29/92	43	.38	
MV-37	8/18/89	52	8/17/90	53	.17	
MV-38	8/18/89	29	7/29/92	28	.23	
MV-39	8/18/89	59	8/15/90	61	.32	
MV-40	8/18/89	18	8/15/91	18	.00	
MV-41	8/21/89	76	8/13/91	80	.54	
MV-42	8/21/89	28	8/13/91	<2	7.28	N
MV-43	8/22/89	90	8/15/90	90	.00	

Table 17. Comparison of dissolved barium analyses from water samples collected in 1989 with samples collected in 1990, 1991, or 1992 including a comparison of replicate pairs, selected wells and springs, eastern Snake River Plain—Continued

Site identifier	Date sampled	Concentration	Date sampled	Concentration	Z value	Remark
MV-45	8/22/89	23	8/13/91	25	.50	
MV-46	8/22/89	16	6/23/92	16	.00	
MV-47	9/07/89	18	8/17/90	18	.00	
MV-48	9/13/89	50	8/21/91	50	.00	
MV-49	9/21/89	57	8/21/91	54	.50	
MV-50	8/14/89	56	9/15/92	57	.16	
MV-51	8/15/89	62	8/14/90	63	.16	
MV-52	8/22/89	76	8/14/91	74	.28	
MV-53	8/21/89	100	7/28/92	91	1.06	
MV-54	8/21/89	110	8/14/91	120	1.03	
MV-55	8/22/89	22	7/30/92	22	.00	
MV-56	8/22/89	22	8/16/91	25	.75	
MV-57	9/26/89	5	6/30/92	5	.00	
MV-58	9/26/89	19	6/30/92	19	.00	
MV-59	9/27/89	9	8/24/90	10	.32	
MV-61	9/14/89	20	7/17/90	20	.00	

Replicate pairs					
Site identifiers	Date sampled	QA concentration	Concentration	Z value	Remark
MV-28(27)	8/15/89	52	53	0.34	
MV-8(7)	8/16/89	20	20	.00	
MV-34(33)	8/17/89	13	13	.00	
MV-44(43)	8/22/89	89	90	.25	
MV-60(61)	9/14/89	20	20	.00	
MV-8(4)	8/13/90	42	46	1.12	
MV-28(24)	8/12/91	150	140	1.73	
MV-34(40)	8/15/91	18	18	.00	
MV-44(46)	6/23/92	16	16	.00	
MV-60(36)	7/29/92	44	43	.38	

Table 18. Comparison of dissolved cadmium analyses from water samples collected in 1989 with samples collected in 1990, 1991, or 1992 including a comparison of replicate pairs, selected wells and springs, eastern Snake River Plain

[Concentrations and associated uncertainties are in micrograms per liter. Site identifier: see figure 2 for location of the sites. Z value: see section on statistical comparisons of sample and replicate pairs. Abbreviations: U, statistical agreement is uncertain; QA, quality-assurance replicate sample. Symbol: <, concentration is less than the reporting level. Replicate pairs: site identifiers are listed with QA identifier followed by original site identifier in parentheses]

Site identifier	Date sampled	Concentration	Date sampled	Concentration	Z value	Remark
MV-1	8/14/89	<1	8/13/90	1	0	
MV-2	8/14/89	2	8/12/91	<1	.94 to 1.89	
MV-3	8/15/89	<1	7/28/92	<1	0	
MV-4	8/15/89	<1	8/13/90	<1	0	
MV-5	8/15/89	<1	7/30/92	<1	0	
MV-6	8/15/89	<1	7/28/92	<1	0	
MV-7	8/16/89	<1	7/30/92	1	0	
MV-9	8/16/89	<1	8/14/90	<1	0	
MV-10	8/16/89	1	8/12/91	<1	0	
MV-11	8/16/89	<1	8/14/90	1	0	
MV-12	8/17/89	<1	8/14/91	<1	0	
MV-13	8/17/89	<1	6/23/92	<1	0	
MV-14	8/17/89	<1	8/16/90	<1	0	
MV-15	8/18/89	<1	8/16/90	<1	0	
MV-16	8/18/89	<1	8/13/91	<1	0	
MV-17	8/18/89	<1	7/27/92	<1	0	
MV-18	8/18/89	<1	8/16/90	<1	0	
MV-19	8/18/89	<1	8/15/91	<1	0	
MV-20	8/19/89	<1	7/27/92	<1	0	
MV-21	8/19/89	<1	8/15/90	<1	0	
MV-23	8/21/89	<1	8/13/90	<1	0	
MV-24	8/21/89	<1	8/12/91	<1	0	
MV-25	8/22/89	<1	8/16/90	<1	0	
MV-26	8/15/89	<1	8/16/91	<1	0	
MV-27	8/15/89	<1	7/27/92	<1	0	
MV-29	8/16/89	<1	8/14/91	<1	0	
MV-30	8/16/89	<1	8/17/90	<1	0	
MV-31	8/16/89	<1	6/23/92	<1	0	
MV-32	8/16/89	<1	8/15/91	<1	0	
MV-33	8/17/89	<1	8/15/90	<1	0	
MV-35	8/17/89	<1	6/24/92	<1	0	
MV-36	8/17/89	<1	7/29/92	<1	0	
MV-37	8/18/89	<1	8/17/90	<1	0	
MV-38	8/18/89	<1	7/29/92	1	0	
MV-39	8/18/89	<1	8/15/90	<1	0	
MV-40	8/18/89	<1	8/15/91	<1	0	
MV-41	8/21/89	<1	8/13/91	<1	0	
MV-42	8/21/89	<1	8/13/91	<1	0	
MV-43	8/22/89	<1	8/15/90	<1	0	

Table 18. Comparison of dissolved cadmium analyses from water samples collected in 1989 with samples collected in 1990, 1991, or 1992 including a comparison of replicate pairs, selected wells and springs, eastern Snake River Plain—Continued

Site Identifier	Date sampled	Concentration	Date sampled	Concentration	Z value	Remark
MV-45	8/22/89	<1	8/13/91	<1	0	
MV-46	8/22/89	<1	6/23/92	<1	0	
MV-47	9/07/89	<1	8/17/90	<1	0	
MV-48	9/13/89	<1	8/21/91	2	.94 to 1.89	
MV-49	9/21/89	<1	8/21/91	3	1.89 to 2.83	U
MV-50	8/14/89	<1	9/15/92	<1	0	
MV-51	8/15/89	<1	8/14/90	<1	0	
MV-52	8/22/89	<1	8/14/91	<1	0	
MV-53	8/21/89	<1	7/28/92	<1	0	
MV-54	8/21/89	<1	8/14/91	1	0	
MV-55	8/22/89	<1	7/30/92	2	.94 to 1.89	
MV-56	8/22/89	<1	8/16/91	<1	0	
MV-57	9/26/89	<1	6/30/92	<1	0	
MV-58	9/26/89	<1	6/30/92	<1	0	
MV-59	9/27/89	<1	8/24/90	<1	0	
MV-61	9/14/89	<1	7/17/90	<1	0	

Replicate pairs					
Site identifiers	Date sampled	QA concentration	Concentration	Z value	Remark
MV-28(27)	8/15/89	<1	<1	0	
MV-8(7)	8/16/89	<1	<1	0	
MV-34(33)	8/17/89	<1	<1	0	
MV-44(43)	8/22/89	<1	<1	0	
MV-60(61)	9/14/89	<1	<1	0	
MV-8(4)	8/13/90	<1	<1	0	
MV-28(24)	8/12/91	<1	<1	0	
MV-34(40)	8/15/91	<1	<1	0	
MV-44(46)	6/23/92	<1	<1	0	
MV-60(36)	7/29/92	<1	<1	0	

Table 19. Comparison of dissolved chromium analyses from water samples collected in 1989 with samples collected in 1990, 1991, or 1992 including a comparison of replicate pairs, selected wells and springs, eastern Snake River Plain

[Concentrations are in micrograms per liter. Site identifier: see figure 2 for location of the sites. Z value: see section on statistical comparisons of sample and replicate pairs. Remark: all analytical results are in statistical agreement. Abbreviation: QA, quality-assurance replicate sample. Symbol: <, concentration is less than the reporting level. Replicate pairs: site identifiers are listed with QA identifier followed by original site identifier in parentheses]

Site identifier	Date sampled	Concentration	Date sampled	Concentration	Z value	Remark
MV-1	8/14/89	2	8/13/90	2	0.00	
MV-2	8/14/89	2	8/12/91	<5	0	
MV-3	8/15/89	3	7/28/92	<5	0	
MV-4	8/15/89	2	8/13/90	<1	.31 to .62	
MV-5	8/15/89	2	7/30/92	<5	0	
MV-6	8/15/89	2	7/28/92	<5	0	
MV-7	8/16/89	3	7/30/92	<5	0	
MV-9	8/16/89	2	8/14/90	<1	.31 to .62	
MV-10	8/16/89	3	8/12/91	<5	0	
MV-11	8/16/89	2	8/14/90	<1	.31 to .62	
MV-12	8/17/89	2	8/14/91	<5	0	
MV-13	8/17/89	3	6/23/92	<5	0	
MV-14	8/17/89	3	8/16/90	2	.30	
MV-15	8/18/89	2	8/16/90	2	.00	
MV-16	8/18/89	4	8/13/91	<5	0	
MV-17	8/18/89	3	7/27/92	<5	0	
MV-18	8/18/89	2	8/16/90	1	.31	
MV-19	8/18/89	3	8/15/91	<5	0	
MV-20	8/19/89	3	7/27/92	<5	0	
MV-21	8/19/89	4	8/15/90	3	.30	
MV-23	8/21/89	2	8/13/90	<1	.31 to .62	
MV-24	8/21/89	2	8/12/91	<5	0	
MV-25	8/22/89	2	8/16/90	<1	.31 to .62	
MV-26	8/15/89	1	8/16/91	<5	0	
MV-27	8/15/89	3	7/27/92	<5	0	
MV-29	8/16/89	3	8/14/91	2	.30	
MV-30	8/16/89	2	8/17/90	<5	0	
MV-31	8/16/89	3	6/23/92	<5	0	
MV-32	8/16/89	3	8/15/91	<5	0	
MV-33	8/17/89	4	8/15/90	4	.00	
MV-35	8/17/89	4	6/24/92	<5	0	
MV-36	8/17/89	2	7/29/92	<5	0	
MV-37	8/18/89	2	8/17/90	2	.00	
MV-38	8/18/89	2	7/29/92	<5	0	
MV-39	8/18/89	1	8/15/90	4	.91	
MV-40	8/18/89	4	8/15/91	<5	0	
MV-41	8/21/89	2	8/13/91	<5	0	
MV-42	8/21/89	4	8/13/91	<5	0	
MV-43	8/22/89	2	8/15/90	1	.31	

Table 19. Comparison of dissolved chromium analyses from water samples collected in 1989 with samples collected in 1990, 1991, or 1992 including a comparison of replicate pairs, selected wells and springs, eastern Snake River Plain—Continued

Site identifier	Date sampled	Concentration	Date sampled	Concentration	Z value	Remark
MV-45	8/22/89	3	8/13/91	<5	0	
MV-46	8/22/89	3	6/23/92	<5	0	
MV-47	9/07/89	3	8/17/90	3	.00	
MV-48	9/13/89	4	8/21/91	<5	0	
MV-49	9/21/89	3	8/21/91	<5	0	
MV-50	8/14/89	2	9/15/92	<5	0	
MV-51	8/15/89	2	8/14/90	<1	.31 to .62	
MV-52	8/22/89	2	8/14/91	<5	0	
MV-53	8/21/89	2	7/28/92	<5	0	
MV-54	8/21/89	3	8/14/91	<5	0	
MV-55	8/22/89	4	7/30/92	<5	0	
MV-56	8/22/89	4	8/16/91	<5	0	
MV-57	9/26/89	4	6/30/92	<5	0	
MV-58	9/26/89	3	6/30/92	<5	0	
MV-59	9/27/89	3	8/24/90	2	.30	
MV-61	9/14/89	5	7/17/90	5	.00	

Replicate pairs					
Site identifiers	Date sampled	QA concentration	Concentration	Z value	Remark
MV-28(27)	8/15/89	2	3	0.61	
MV-8(7)	8/16/89	3	3	.00	
MV-34(33)	8/17/89	4	4	.00	
MV-44(43)	8/22/89	2	2	.00	
MV-60(61)	9/14/89	5	5	.00	
MV-8(4)	8/13/90	4	<1	.91 to 1.22	
MV-28(24)	8/12/91	<5	<5	0	
MV-34(40)	8/15/91	<5	<5	0	
MV-44(46)	6/23/92	<5	<5	0	
MV-60(36)	7/29/92	<5	<5	0	

Table 20. Comparison of dissolved lead analyses from water samples collected in 1989 with samples collected in 1990, 1991, or 1992 including a comparison of replicate pairs, selected wells and springs, eastern Snake River Plain

[Concentrations are in micrograms per liter. Site identifier: see figure 2 for location of the sites. Z value: see section on statistical comparisons of sample and replicate pairs. Remark: all analytical results are in statistical agreement. Abbreviation: QA, quality-assurance replicate sample. Symbol: <, concentration is less than the reporting level. Replicate pairs: site identifiers are listed with QA identifier followed by original site identifier in parentheses]

Site identifier	Date sampled	Concentration	Date sampled	Concentration	Z value	Remark
MV-1	8/14/89	<1	8/13/90	<1	0	
MV-2	8/14/89	1	8/12/91	<1	0	
MV-3	8/15/89	1	7/28/92	<1	0	
MV-4	8/15/89	<1	8/13/90	<1	0	
MV-5	8/15/89	<1	7/30/92	<1	0	
MV-6	8/15/89	<1	7/28/92	<1	0	
MV-7	8/16/89	2	7/30/92	<1	.31 to .64	
MV-9	8/16/89	<1	8/14/90	1	0	
MV-10	8/16/89	4	8/12/91	<1	.89 to 1.21	
MV-11	8/16/89	<1	8/14/90	<1	0	
MV-12	8/17/89	1	8/14/91	<1	0	
MV-13	8/17/89	<1	6/23/92	<1	0	
MV-14	8/17/89	1	8/16/90	1	.00	
MV-15	8/18/89	1	8/16/90	<1	0	
MV-16	8/18/89	3	8/13/91	<1	.61 to .93	
MV-17	8/18/89	<1	7/27/92	<1	0	
MV-18	8/18/89	<1	8/16/90	1	0	
MV-19	8/18/89	<1	8/15/91	<1	0	
MV-20	8/19/89	<1	7/27/92	<1	0	
MV-21	8/19/89	<1	8/15/90	1	0	
MV-23	8/21/89	<1	8/13/90	<1	0	
MV-24	8/21/89	<1	8/12/91	<1	0	
MV-25	8/22/89	1	8/16/90	1	.00	
MV-26	8/15/89	<1	8/16/91	<1	0	
MV-27	8/15/89	<1	7/27/92	<1	0	
MV-29	8/16/89	<1	8/14/91	<1	0	
MV-30	8/16/89	1	8/17/90	1	.00	
MV-31	8/16/89	2	6/23/92	<1	.31 to .64	
MV-32	8/16/89	<1	8/15/91	<1	0	
MV-33	8/17/89	1	8/15/90	1	.00	
MV-35	8/17/89	<1	6/24/92	<1	0	
MV-36	8/17/89	<1	7/29/92	<1	0	
MV-37	8/18/89	<1	8/17/90	<1	0	
MV-38	8/18/89	<1	7/29/92	<1	0	
MV-39	8/18/89	1	8/15/90	1	.00	
MV-40	8/18/89	<1	8/15/91	1	0	
MV-41	8/21/89	1	8/13/91	<1	0	
MV-42	8/21/89	<1	8/13/91	<1	0	
MV-43	8/22/89	1	8/15/90	1	.00	

Table 20. Comparison of dissolved lead analyses from water samples collected in 1989 with samples collected in 1990, 1991, or 1992 including a comparison of replicate pairs, selected wells and springs, eastern Snake River Plain—Continued

Site identifier	Date sampled	Concentration	Date sampled	Concentration	Z value	Remark
MV-45	8/22/89	1	8/13/91	<1	0	
MV-46	8/22/89	<1	6/23/92	<1	0	
MV-47	9/07/89	4	8/17/90	1	.89	
MV-48	9/13/89	<1	8/21/91	1	0	
MV-49	9/21/89	1	8/21/91	<1	0	
MV-50	8/14/89	<1	9/15/92	<1	0	
MV-51	8/15/89	1	8/14/90	1	.00	
MV-52	8/22/89	2	8/14/91	<1	.31 to .64	
MV-53	8/21/89	<1	7/28/92	<1	0	
MV-54	8/21/89	<1	8/14/91	<1	0	
MV-55	8/22/89	<1	7/30/92	<1	0	
MV-56	8/22/89	<1	8/16/91	<1	0	
MV-57	9/26/89	<1	6/30/92	<1	0	
MV-58	9/26/89	<1	6/30/92	<1	0	
MV-59	9/27/89	2	8/24/90	8	1.61	
MV-61	9/14/89	2	7/17/90	1	.31	

Replicate pairs					
Site identifiers	Date sampled	QA concentration	Concentration	Z value	Remark
MV-28(27)	8/15/89	1	<1	0	
MV-8(7)	8/16/89	1	2	.31	
MV-34(33)	8/17/89	3	1	.61	
MV-44(43)	8/22/89	1	1	.00	
MV-60(61)	9/14/89	2	2	.00	
MV-8(4)	8/13/90	<1	<1	0	
MV-28(24)	8/12/91	<1	<1	0	
MV-34(40)	8/15/91	2	1	.31	
MV-44(46)	6/23/92	<1	<1	0	
MV-60(36)	7/29/92	<1	<1	0	

Table 21. Comparison of dissolved mercury analyses from water samples collected in 1989 with samples collected in 1990, 1991, or 1992 including a comparison of replicate pairs, selected wells and springs, eastern Snake River Plain

[Concentrations are in micrograms per liter. Site identifier: see figure 2 for location of the sites. Z value: see section on statistical comparisons of sample and replicate pairs. Abbreviations: N, the analytical results are not in statistical agreement; QA, quality-assurance replicate sample. Symbol: <, concentration is less than the reporting level. Replicate pairs: site identifiers are listed with QA identifier followed by original site identifier in parentheses]

Site identifier	Date sampled	Concentration	Date sampled	Concentration	Z value	Remark
MV-1	8/14/89	<0.1	8/13/90	<0.1	0	
MV-2	8/14/89	<.1	8/12/91	<.1	0	
MV-3	8/15/89	<.1	7/28/92	<.1	0	
MV-4	8/15/89	<.1	8/13/90	<.1	0	
MV-5	8/15/89	<.1	7/30/92	<.1	0	
MV-6	8/15/89	<.1	7/28/92	<.1	0	
MV-7	8/16/89	<.1	7/30/92	<.1	0	
MV-9	8/16/89	<.1	8/14/90	<.1	0	
MV-10	8/16/89	<.1	8/12/91	<.1	0	
MV-11	8/16/89	<.1	8/14/90	<.1	0	
MV-12	8/17/89	<.1	8/14/91	<.1	0	
MV-13	8/17/89	<.1	6/23/92	<.1	0	
MV-14	8/17/89	<.1	8/16/90	<.1	0	
MV-15	8/18/89	<.1	8/16/90	<.1	0	
MV-16	8/18/89	<.1	8/13/91	<.1	0	
MV-17	8/18/89	<.1	7/27/92	<.1	0	
MV-18	8/18/89	<.1	8/16/90	<.1	0	
MV-19	8/18/89	<.1	8/15/91	<.1	0	
MV-20	8/19/89	<.1	7/27/92	<.1	0	
MV-21	8/19/89	<.1	8/15/90	<.1	0	
MV-23	8/21/89	<.1	8/13/90	<.1	0	
MV-24	8/21/89	<.1	8/12/91	<.1	0	
MV-25	8/22/89	<.1	8/16/90	<.1	0	
MV-26	8/15/89	<.1	8/16/91	<.1	0	
MV-27	8/15/89	<.1	7/27/92	<.1	0	
MV-29	8/16/89	<.1	8/14/91	<.1	0	
MV-30	8/16/89	<.1	8/17/90	<.1	0	
MV-31	8/16/89	<.1	6/23/92	<.1	0	
MV-32	8/16/89	<.1	8/15/91	<.1	0	
MV-33	8/17/89	<.1	8/15/90	<.1	0	
MV-35	8/17/89	<.1	6/24/92	<.1	0	
MV-36	8/17/89	<.1	7/29/92	<.1	0	
MV-37	8/18/89	<.1	8/17/90	<.1	0	
MV-38	8/18/89	<.1	7/29/92	<.1	0	
MV-39	8/18/89	<.1	8/15/90	<.1	0	
MV-40	8/18/89	4.7	8/15/91	<.1	7.48 to 7.66	N
MV-41	8/21/89	.1	8/13/91	<.1	0	
MV-42	8/21/89	<.1	8/13/91	<.1	0	
MV-43	8/22/89	<.1	8/15/90	<.1	0	

Table 21. Comparison of dissolved mercury analyses from water samples collected in 1989 with samples collected in 1990, 1991, or 1992 including a comparison of replicate pairs, selected wells and springs, eastern Snake River Plain—Continued

Site identifier	Date sampled	Concentration	Date sampled	Concentration	Z value	Remark
MV-45	8/22/89	<.1	8/13/91	<.1	0	
MV-46	8/22/89	<.1	6/23/92	<.1	0	
MV-47	9/07/89	<.1	8/17/90	<.1	0	
MV-48	9/13/89	<.1	8/21/91	<.1	0	
MV-49	9/21/89	<.1	8/21/91	<.1	0	
MV-50	8/14/89	<.1	9/15/92	<.1	0	
MV-51	8/15/89	<.1	8/14/90	<.1	0	
MV-52	8/22/89	<.1	8/14/91	<.1	0	
MV-53	8/21/89	<.1	7/28/92	<.1	0	
MV-54	8/21/89	<.1	8/14/91	<.1	0	
MV-55	8/22/89	.2	7/30/92	<.1	.66 to 1.39	
MV-56	8/22/89	.1	8/16/91	<.1	0	
MV-57	9/26/89	<.1	6/30/92	<.1	0	
MV-58	9/26/89	<.1	6/30/92	<.1	0	
MV-59	9/27/89	<.1	8/24/90	<.1	0	
MV-61	9/14/89	<.1	7/17/90	<.1	0	

Replicate pairs					
Site identifiers	Date sampled	QA concentration	Concentration	Z value	Remark
MV-28(27)	8/15/89	<0.1	<0.1	0	
MV-8(7)	8/16/89	<.1	<.1	0	
MV-34(33)	8/17/89	<.1	<.1	0	
MV-44(43)	8/22/89	<.1	<.1	0	
MV-60(61)	9/14/89	<.1	<.1	0	
MV-8(4)	8/13/90	<.1	<.1	0	
MV-28(24)	8/12/91	<.1	<.1	0	
MV-34(40)	8/15/91	<.1	<.1	0	
MV-44(46)	6/23/92	<.1	<.1	0	
MV-60(36)	7/29/92	<.1	<.1	0	

Table 22. Comparison of dissolved selenium analyses from water samples collected in 1989 with samples collected in 1990, 1991, or 1992 including a comparison of replicate pairs, selected wells and springs, eastern Snake River Plain

[Concentrations are in micrograms per liter. Site identifier: see figure 2 for location of the sites. Z value: see section on statistical comparisons of sample and replicate pairs. Remark: all analytical results are in statistical agreement. Abbreviation: QA, quality-assurance replicate sample. Symbol: <, concentration is less than the reporting level. Replicate pairs: site identifiers are listed with QA identifier followed by original site identifier in parentheses]

Site identifier	Date sampled	Concentration	Date sampled	Concentration	Z value	Remark
MV-1	8/14/89	<1	8/13/90	<1	0	
MV-2	8/14/89	1	8/12/91	<1	0	
MV-3	8/15/89	<1	7/28/92	<1	0	
MV-4	8/15/89	1	8/13/90	<1	0	
MV-5	8/15/89	1	7/30/92	1	.00	
MV-6	8/15/89	<1	7/28/92	<1	0	
MV-7	8/16/89	<1	7/30/92	<1	0	
MV-9	8/16/89	1	8/14/90	1	.00	
MV-10	8/16/89	1	8/12/91	1	.00	
MV-11	8/16/89	<1	8/14/90	1	0	
MV-12	8/17/89	<1	8/14/91	1	0	
MV-13	8/17/89	1	6/23/92	<1	0	
MV-14	8/17/89	<1	8/16/90	<1	0	
MV-15	8/18/89	<1	8/16/90	<1	0	
MV-16	8/18/89	<1	8/13/91	<1	0	
MV-17	8/18/89	<1	7/27/92	<1	0	
MV-18	8/18/89	<1	8/16/90	<1	0	
MV-19	8/18/89	<1	8/15/91	<1	0	
MV-20	8/19/89	<1	7/27/92	<1	0	
MV-21	8/19/89	<1	8/15/90	<1	0	
MV-23	8/21/89	<1	8/13/90	1	0	
MV-24	8/21/89	1	8/12/91	1	.00	
MV-25	8/22/89	<1	8/16/90	1	0	
MV-26	8/15/89	<1	8/16/91	<1	0	
MV-27	8/15/89	1	7/27/92	<1	0	
MV-29	8/16/89	<1	8/14/91	<1	0	
MV-30	8/16/89	<1	8/17/90	1	0	
MV-31	8/16/89	<1	6/23/92	<1	0	
MV-32	8/16/89	<1	8/15/91	<1	0	
MV-33	8/17/89	<1	8/15/90	<1	0	
MV-35	8/17/89	<1	6/24/92	<1	0	
MV-36	8/17/89	<1	7/29/92	<1	0	
MV-37	8/18/89	<1	8/17/90	<1	0	
MV-38	8/18/89	<1	7/29/92	<1	0	
MV-39	8/18/89	<1	8/15/90	<1	0	
MV-40	8/18/89	<1	8/15/91	<1	0	
MV-41	8/21/89	<1	8/13/91	<1	0	
MV-42	8/21/89	<1	8/13/91	<1	0	
MV-43	8/22/89	<1	8/15/90	<1	0	

Table 22. Comparison of dissolved selenium analyses from water samples collected in 1989 with samples collected in 1990, 1991, or 1992 including a comparison of replicate pairs, selected wells and springs, eastern Snake River Plain—Continued

Site Identifier	Date sampled	Concentration	Date sampled	Concentration	Z value	Remark
MV-45	8/22/89	<1	8/13/91	<1	0	
MV-46	8/22/89	<1	6/23/92	<1	0	
MV-47	9/07/89	<1	8/17/90	<1	0	
MV-48	9/13/89	1	8/21/91	1	.00	
MV-49	9/21/89	<1	8/21/91	<1	0	
MV-50	8/14/89	1	9/15/92	1	.00	
MV-51	8/15/89	1	8/14/90	1	.00	
MV-52	8/22/89	<1	8/14/91	<1	0	
MV-53	8/21/89	1	7/28/92	<1	0	
MV-54	8/21/89	1	8/14/91	<1	0	
MV-55	8/22/89	<1	7/30/92	<1	0	
MV-56	8/22/89	<1	8/16/91	<1	0	
MV-57	9/26/89	<1	6/30/92	1	0	
MV-58	9/26/89	<1	6/30/92	<1	0	
MV-59	9/27/89	1	8/24/90	<1	0	
MV-61	9/14/89	1	7/17/90	2	.79	

Replicate pairs					
Site Identifiers	Date sampled	QA concentration	Concentration	Z value	Remark
MV-28(27)	8/15/89	<1	1	0	
MV-8(7)	8/16/89	<1	<1	0	
MV-34(33)	8/17/89	<1	<1	0	
MV-44(43)	8/22/89	<1	<1	0	
MV-60(61)	9/14/89	1	1	.00	
MV-8(4)	8/13/90	<1	<1	0	
MV-28(24)	8/12/91	1	1	.00	
MV-34(40)	8/15/91	<1	<1	0	
MV-44(46)	6/23/92	<1	<1	0	
MV-60(36)	7/29/92	<1	<1	0	

Table 23. Comparison of dissolved silver analyses from water samples collected in 1989 with samples collected in 1990, 1991, or 1992 including a comparison of replicate pairs, selected wells and springs, eastern Snake River Plain

[Concentrations are in micrograms per liter. Site identifier: see figure 2 for location of the sites. Z value: see section on statistical comparisons of sample and replicate pairs. Remark: all analytical results are in statistical agreement. Abbreviation: QA, quality-assurance replicate sample. Symbol: <, concentration is less than the reporting level. Replicate pairs: site identifiers are listed with QA identifier followed by original site identifier in parentheses]

Site identifier	Date sampled	Concentration	Date sampled	Concentration	Z value	Remark
MV-1	8/14/89	<1	8/13/90	<1	0	
MV-2	8/14/89	2	8/12/91	2	.00	
MV-3	8/15/89	<1	7/28/92	<1	0	
MV-4	8/15/89	<1	8/13/90	<1	0	
MV-5	8/15/89	1	7/30/92	1	.00	
MV-6	8/15/89	1	7/28/92	<1	0	
MV-7	8/16/89	1	7/30/92	<1	0	
MV-9	8/16/89	<1	8/14/90	<1	0	
MV-10	8/16/89	<1	8/12/91	<1	0	
MV-11	8/16/89	<1	8/14/90	<1	0	
MV-12	8/17/89	2	8/14/91	1	.68	
MV-13	8/17/89	<1	6/23/92	<1	0	
MV-14	8/17/89	<1	8/16/90	<1	0	
MV-15	8/18/89	<1	8/16/90	<1	0	
MV-16	8/18/89	<1	8/13/91	<1	0	
MV-17	8/18/89	1	7/27/92	<1	0	
MV-18	8/18/89	1	8/16/90	<1	0	
MV-19	8/18/89	1	8/15/91	<1	0	
MV-20	8/19/89	1	7/27/92	<1	0	
MV-21	8/19/89	<1	8/15/90	<1	0	
MV-23	8/21/89	<1	8/13/90	<1	0	
MV-24	8/21/89	<1	8/12/91	<1	0	
MV-25	8/22/89	<1	8/16/90	<1	0	
MV-26	8/15/89	<1	8/16/91	<1	0	
MV-27	8/15/89	<1	7/27/92	<1	0	
MV-29	8/16/89	<1	8/14/91	<1	0	
MV-30	8/16/89	<1	8/17/90	<1	0	
MV-31	8/16/89	<1	6/23/92	<1	.0	
MV-32	8/16/89	<1	8/15/91	<1	0	
MV-33	8/17/89	<1	8/15/90	<1	0	
MV-35	8/17/89	<1	6/24/92	<1	0	
MV-36	8/17/89	2	7/29/92	1	.68	
MV-37	8/18/89	<1	8/17/90	<1	0	
MV-38	8/18/89	<1	7/29/92	<1	0	
MV-39	8/18/89	<1	8/15/90	<1	0	
MV-40	8/18/89	<1	8/15/91	<1	.0	
MV-41	8/21/89	<1	8/13/91	<1	0	
MV-42	8/21/89	<1	8/13/91	2	.68 to 1.43	
MV-43	8/22/89	<1	8/15/90	<1	0	

Table 23. Comparison of dissolved silver analyses from water samples collected in 1989 with samples collected in 1990, 1991, or 1992 including a comparison of replicate pairs, selected wells and springs, eastern Snake River Plain—Continued

Site Identifier	Date sampled	Concentration	Date sampled	Concentration	Z value	Remark
MV-45	8/22/89	1	8/13/91	1	.00	
MV-46	8/22/89	<1	6/23/92	<1	0	
MV-47	9/07/89	2	8/17/90	<1	.68 to 1.43	
MV-48	9/13/89	2	8/21/91	<1	.68 to 1.43	
MV-49	9/21/89	<1	8/21/91	<1	0	
MV-50	8/14/89	<1	9/15/92	1	0	
MV-51	8/15/89	<1	8/14/90	<1	0	
MV-52	8/22/89	<1	8/14/91	<1	0	
MV-53	8/21/89	<1	7/28/92	<1	0	
MV-54	8/21/89	<1	8/14/91	2	.68 to 1.43	
MV-55	8/22/89	<1	7/30/92	<1	0	
MV-56	8/22/89	<1	8/16/91	<1	0	
MV-57	9/26/89	<1	6/30/92	1	0	
MV-58	9/26/89	<1	6/30/92	<1	0	
MV-59	9/27/89	<1	8/24/90	<1	0	
MV-61	9/14/89	<1	7/17/90	<1	0	

Replicate pairs					
Site identifiers	Date sampled	QA concentration	Concentration	Z value	Remark
MV-28(27)	8/15/89	<1	<1	0	
MV-8(7)	8/16/89	<1	1	0	
MV-34(33)	8/17/89	<1	<1	0	
MV-44(43)	8/22/89	<1	<1	0	
MV-60(61)	9/14/89	<1	<1	0	
MV-8(4)	8/13/90	<1	<1	0	
MV-28(24)	8/12/91	<1	<1	0	
MV-34(40)	8/15/91	<1	<1	0	
MV-44(46)	6/23/92	<1	<1	0	
MV-60(36)	7/29/92	<1	1	0	

Table 24. Comparison of dissolved ammonia as nitrogen analyses from water samples collected in 1989 with samples collected in 1990, 1991, or 1992 including a comparison of replicate pairs, selected wells and springs, eastern Snake River Plain

[Concentrations are in milligrams per liter. Site identifier: see figure 2 for location of the sites. Z value: see section on statistical comparisons of sample and replicate pairs. Remark: all analytical results are in statistical agreement. Abbreviation: QA, quality-assurance replicate sample. Symbol: <, concentration is less than the reporting level. Replicate pairs: site identifiers are listed with QA identifier followed by original site identifier in parentheses]

Site identifier	Date sampled	Concentration	Date sampled	Concentration	Z value	Remark
MV-1	8/14/89	<0.01	8/13/90	0.02	0.44 to 0.90	
MV-2	8/14/89	.01	8/12/91	<.01	0	
MV-3	8/15/89	<.01	7/28/92	<.01	0	
MV-4	8/15/89	<.01	8/13/90	<.01	0	
MV-5	8/15/89	.01	7/30/92	.03	.86	
MV-6	8/15/89	.01	7/28/92	<.01	0	
MV-7	8/16/89	<.01	7/30/92	<.01	0	
MV-9	8/16/89	.01	8/14/90	.01	.00	
MV-10	8/16/89	<.01	8/12/91	<.01	.0	
MV-11	8/16/89	<.01	8/14/90	<.01	0	
MV-12	8/17/89	<.01	8/14/91	<.01	0	
MV-13	8/17/89	<.01	6/23/92	.04	1.25 to 1.71	
MV-14	8/17/89	<.01	8/16/90	.04	1.25 to 1.71	
MV-15	8/18/89	<.01	8/16/90	.02	.44 to .90	
MV-16	8/18/89	<.01	8/13/91	<.01	0	
MV-17	8/18/89	<.01	7/27/92	.01	0	
MV-18	8/18/89	<.01	8/16/90	.02	.44 to .90	
MV-19	8/18/89	<.01	8/15/91	<.01	0	
MV-20	8/19/89	<.01	7/27/92	<.01	0	
MV-21	8/19/89	<.01	8/15/90	.03	.86 to 1.31	
MV-23	8/21/89	<.01	8/13/90	<.01	0	
MV-24	8/21/89	<.01	8/12/91	<.01	0	
MV-25	8/22/89	<.01	8/16/90	.02	.44 to .90	
MV-26	8/15/89	<.01	8/16/91	.01	0	
MV-27	8/15/89	.01	7/27/92	.03	.86	
MV-29	8/16/89	.03	8/14/91	<.01	.86 to 1.31	
MV-30	8/16/89	.01	8/17/90	.02	.44	
MV-31	8/16/89	.01	6/23/92	<.01	0	
MV-32	8/16/89	<.01	8/15/91	<.01	0	
MV-33	8/17/89	<.01	8/15/90	<.01	0	
MV-35	8/17/89	<.01	6/24/92	<.01	0	
MV-36	8/17/89	<.01	7/29/92	.01	0	
MV-37	8/18/89	.01	8/17/90	.03	.86	
MV-38	8/18/89	<.01	7/29/92	.02	.44 to .90	
MV-39	8/18/89	<.01	8/15/90	.02	.44 to .90	
MV-40	8/18/89	<.01	8/15/91	<.01	0	
MV-41	8/21/89	<.01	8/13/91	<.01	0	
MV-42	8/21/89	<.01	8/13/91	<.01	0	
MV-43	8/22/89	<.01	8/15/90	.01	0	

Table 24. Comparison of dissolved ammonia as nitrogen analyses from water samples collected in 1989 with samples collected in 1990, 1991, or 1992 including a comparison of replicate pairs, selected wells and springs, eastern Snake River Plain—Continued

Site identifier	Date sampled	Concentration	Date sampled	Concentration	Z value	Remark
MV-45	8/22/89	<.01	8/13/91	<.01	0	
MV-46	8/22/89	<.01	6/23/92	<.01	0	
MV-47	9/07/89	.03	8/17/90	.04	.44	
MV-48	9/13/89	<.01	8/21/91	<.01	0	
MV-49	9/21/89	.01	8/21/91	<.01	0	
MV-50	8/14/89	<.01	9/15/92	.02	.44 to .90	
MV-51	8/15/89	.02	8/14/90	.01	.44	
MV-52	8/22/89	<.01	8/14/91	<.01	0	
MV-53	8/21/89	<.01	7/28/92	<.01	0	
MV-54	8/21/89	<.01	8/14/91	<.01	0	
MV-55	8/22/89	<.01	7/30/92	.03	.86 to 1.31	
MV-56	8/22/89	<.01	8/16/91	.02	.44 to .90	
MV-57	9/26/89	<.01	6/30/92	.02	.44 to .90	
MV-58	9/26/89	<.01	6/30/92	.03	.86 to 1.31	
MV-59	9/27/89	<.01	8/24/90	.01	0	
MV-61	9/14/89	.01	7/17/90	.02	.44	

Replicate pairs					
Site identifiers	Date sampled	QA concentration	Concentration	Z value	Remark
MV-28(27)	8/15/89	0.01	0.01	0.00	
MV-8(7)	8/16/89	<.01	<.01	0	
MV-34(33)	8/17/89	<.01	<.01	0	
MV-44(43)	8/22/89	<.01	<.01	0	
MV-60(61)	9/14/89	.01	.01	.00	
MV-8(4)	8/13/90	<.01	<.01	0	
MV-28(24)	8/12/91	<.01	<.01	0	
MV-34(40)	8/15/91	<.01	<.01	0	
MV-44(46)	6/23/92	<.01	<.01	0	
MV-60(36)	7/29/92	.01	.01	.00	

Table 25. Comparison of dissolved nitrite as nitrogen analyses from water samples collected in 1989 with samples collected in 1990, 1991, or 1992 including a comparison of replicate pairs, selected wells and springs, eastern Snake River Plain

[Concentrations are in milligrams per liter. Site identifier: see figure 2 for location of the sites. Z value: see section on statistical comparisons of sample and replicate pairs. Abbreviations: U, statistical agreement is uncertain; QA, quality-assurance replicate sample. Symbol: <, concentration is less than the reporting level. Replicate pairs: site identifiers are listed with QA identifier followed by original site identifier in parentheses]

Site identifier	Date sampled	Concentration	Date sampled	Concentration	Z value	Remark
MV-1	8/14/89	<0.01	8/13/90	<0.01	0	
MV-2	8/14/89	<.01	8/12/91	<.01	0	
MV-3	8/15/89	<.01	7/28/92	<.01	0	
MV-4	8/15/89	<.01	8/13/90	<.01	0	
MV-5	8/15/89	<.01	7/30/92	<.01	0	
MV-6	8/15/89	<.01	7/28/92	<.01	0	
MV-7	8/16/89	<.01	7/30/92	<.01	0	
MV-9	8/16/89	<.01	8/14/90	<.01	0	
MV-10	8/16/89	<.01	8/12/91	<.01	0	
MV-11	8/16/89	<.01	8/14/90	<.01	0	
MV-12	8/17/89	<.01	8/14/91	<.01	0	
MV-13	8/17/89	<.01	6/23/92	.01	0	U
MV-14	8/17/89	<.01	8/16/90	<.01	0	
MV-15	8/18/89	<.01	8/16/90	<.01	0	
MV-16	8/18/89	<.01	8/13/91	<.01	0	
MV-17	8/18/89	<.01	7/27/92	<.01	0	
MV-18	8/18/89	<.01	8/16/90	<.01	0	
MV-19	8/18/89	<.01	8/15/91	<.01	0	
MV-20	8/19/89	<.01	7/27/92	<.01	0	
MV-21	8/19/89	<.01	8/15/90	<.01	0	
MV-23	8/21/89	<.01	8/13/90	<.01	0	
MV-24	8/21/89	<.01	8/12/91	<.01	0	
MV-25	8/22/89	<.01	8/16/90	<.01	0	
MV-26	8/15/89	<.01	8/16/91	<.01	0	
MV-27	8/15/89	<.01	7/27/92	<.01	0	
MV-29	8/16/89	<.01	8/14/91	<.01	0	
MV-30	8/16/89	<.01	8/17/90	<.01	0	
MV-31	8/16/89	<.01	6/23/92	<.01	0	
MV-32	8/16/89	<.01	8/15/91	<.01	0	
MV-33	8/17/89	<.01	8/15/90	<.01	0	
MV-35	8/17/89	<.01	6/24/92	<.01	0	
MV-36	8/17/89	<.01	7/29/92	<.01	0	
MV-37	8/18/89	<.01	8/17/90	<.01	0	
MV-38	8/18/89	<.01	7/29/92	<.01	0	
MV-39	8/18/89	<.01	8/15/90	<.01	0	
MV-40	8/18/89	<.01	8/15/91	<.01	0	
MV-41	8/21/89	<.01	8/13/91	<.01	0	
MV-42	8/21/89	<.01	8/13/91	<.01	0	
MV-43	8/22/89	<.01	8/15/90	<.01	0	

Table 25. Comparison of dissolved nitrite as nitrogen analyses from water samples collected in 1989 with samples collected in 1990, 1991, or 1992 including a comparison of replicate pairs, selected wells and springs, eastern Snake River Plain—Continued

Site Identifier	Date sampled	Concentration	Date sampled	Concentration	Z value	Remark
MV-45	8/22/89	<.01	8/13/91	<.01	0	
MV-46	8/22/89	<.01	6/23/92	<.01	0	
MV-47	9/07/89	<.01	8/17/90	<.01	0	
MV-48	9/13/89	<.01	8/21/91	<.01	0	
MV-49	9/21/89	<.01	8/21/91	<.01	0	
MV-50	8/14/89	<.01	9/15/92	<.01	0	
MV-51	8/15/89	<.01	8/14/90	<.01	0	
MV-52	8/22/89	<.01	8/14/91	<.01	0	
MV-53	8/21/89	<.01	7/28/92	<.01	0	
MV-54	8/21/89	<.01	8/14/91	<.01	0	
MV-55	8/22/89	<.01	7/30/92	<.01	0	
MV-56	8/22/89	<.01	8/16/91	<.01	0	
MV-57	9/26/89	<.01	6/30/92	<.01	0	
MV-58	9/26/89	<.01	6/30/92	<.01	0	
MV-59	9/27/89	<.01	8/24/90	<.01	0	
MV-61	9/14/89	<.01	7/17/90	<.01	0	

Replicate pairs					
Site identifiers	Date sampled	QA concentration	Concentration	Z value	Remark
MV-28(27)	8/15/89	<.01	<.01	0	
MV-8(7)	8/16/89	<.01	<.01	0	
MV-34(33)	8/17/89	<.01	<.01	0	
MV-44(43)	8/22/89	<.01	<.01	0	
MV-60(61)	9/14/89	<.01	<.01	0	
MV-8(4)	8/13/90	<.01	<.01	0	
MV-28(24)	8/12/91	<.01	<.01	0	
MV-34(40)	8/15/91	<.01	<.01	0	
MV-44(46)	6/23/92	<.01	<.01	0	
MV-60(36)	7/29/92	<.01	<.01	0	

Table 26. Comparison of dissolved nitrite plus nitrate as nitrogen analyses from water samples collected in 1989 with samples collected in 1990, 1991, or 1992 including a comparison of replicate pairs, selected wells and springs, eastern Snake River Plain

[Concentrations are in milligrams per liter. Site identifier: see figure 2 for location of the sites. Z value: see section on statistical comparisons of sample and replicate pairs. Abbreviations: N, the analytical results are not in statistical agreement; QA, quality-assurance replicate sample. Symbol: <, concentration is less than the reporting level. Replicate pairs: site identifiers are listed with QA identifier followed by original site identifier in parentheses]

Site identifier	Date sampled	Concentration	Date sampled	Concentration	Z value	Remark
MV-1	8/14/89	1.3	8/13/90	1.2	0.66	
MV-2	8/14/89	1.3	8/12/91	1.1	1.36	
MV-3	8/15/89	1.3	7/28/92	.99	2.16	N
MV-4	8/15/89	2.1	8/13/90	1.8	1.49	
MV-5	8/15/89	2.1	7/30/92	1.9	.97	
MV-6	8/15/89	3.5	7/28/92	3.8	.93	
MV-7	8/16/89	.40	7/30/92	.42	.22	
MV-9	8/16/89	5.0	8/14/90	5.5	1.14	
MV-10	8/16/89	2.8	8/12/91	2.7	.39	
MV-11	8/16/89	4.6	8/14/90	4.9	.74	
MV-12	8/17/89	2.2	8/14/91	1.7	2.47	N
MV-13	8/17/89	1.8	6/23/92	1.5	1.67	
MV-14	8/17/89	1.7	8/16/90	1.6	.56	
MV-15	8/18/89	.62	8/16/90	2.1	8.83	N
MV-16	8/18/89	2.0	8/13/91	.95	6.12	N
MV-17	8/18/89	.84	7/27/92	1.8	6.01	N
MV-18	8/18/89	2.2	8/16/90	2.2	.00	
MV-19	8/18/89	.90	8/15/91	1.9	6.03	N
MV-20	8/19/89	1.9	7/27/92	1.4	2.77	N
MV-21	8/19/89	.99	8/15/90	1.0	.08	
MV-23	8/21/89	3.0	8/13/90	3.7	2.31	N
MV-24	8/21/89	5.0	8/12/91	5.7	1.56	
MV-25	8/22/89	2.7	8/16/90	2.7	.00	
MV-26	8/15/89	.87	8/16/91	.89	.16	
MV-27	8/15/89	1.5	7/27/92	.87	4.26	N
MV-29	8/16/89	.52	8/14/91	.51	.10	
MV-30	8/16/89	2.4	8/17/90	2.5	.42	
MV-31	8/16/89	1.4	6/23/92	1.4	.00	
MV-32	8/16/89	4.3	8/15/91	3.2	3.30	N
MV-33	8/17/89	.53	8/15/90	.50	.31	
MV-35	8/17/89	1.5	6/24/92	.52	7.09	N
MV-36	8/17/89	1.5	7/29/92	1.6	.58	
MV-37	8/18/89	2.2	8/17/90	2.0	.94	
MV-38	8/18/89	1.2	7/29/92	1.2	.00	
MV-39	8/18/89	2.3	8/15/90	2.4	.43	
MV-40	8/18/89	.73	8/15/91	.69	.36	
MV-41	8/21/89	2.6	8/13/91	2.6	.00	
MV-42	8/21/89	1.4	8/13/91	1.3	.63	
MV-43	8/22/89	4.3	8/15/90	4.1	.55	

Table 26. Comparison of dissolved nitrite plus nitrate as nitrogen analyses from water samples collected in 1989 with samples collected in 1990, 1991, or 1992 including a comparison of replicate pairs, selected wells and springs, eastern Snake River Plain—Continued

Site identifier	Date sampled	Concentration	Date sampled	Concentration	Z value	Remark
MV-45	8/22/89	.71	8/13/91	1.0	2.36	N
MV-46	8/22/89	.61	6/23/92	.61	.00	
MV-47	9/07/89	.88	8/17/90	.70	1.53	
MV-48	9/13/89	.69	8/21/91	.77	.70	
MV-49	9/21/89	1.5	8/21/91	1.7	1.13	
MV-50	8/14/89	1.8	9/15/92	2.1	1.49	
MV-51	8/15/89	2.1	8/14/90	3.5	5.23	N
MV-52	8/22/89	2.6	8/14/91	1.8	3.61	N
MV-53	8/21/89	3.5	7/28/92	3.4	.32	
MV-54	8/21/89	4.4	8/14/91	4.3	.27	
MV-55	8/22/89	1.0	7/30/92	1.1	.73	
MV-56	8/22/89	1.0	8/16/91	.93	.54	
MV-57	9/26/89	.44	6/30/92	.41	.33	
MV-58	9/26/89	1.5	6/30/92	1.5	.00	
MV-59	9/27/89	<.10	8/24/90	.70	6.51 to 7.81	N
MV-61	9/14/89	.98	7/17/90	1.1	.88	

Replicate pairs					
Site identifiers	Date sampled	QA concentration	Concentration	Z value	Remark
MV-28(27)	8/15/89	1.5	1.5	0.00	
MV-8(7)	8/16/89	.45	.40	1.09	
MV-34(33)	8/17/89	.54	.53	.20	
MV-44(43)	8/22/89	4.3	4.3	.00	
MV-60(61)	9/14/89	.97	.98	.15	
MV-8(4)	8/13/90	1.9	1.8	1.03	
MV-28(24)	8/12/91	5.7	5.7	.00	
MV-34(40)	8/15/91	.67	.69	.36	
MV-44(46)	6/23/92	.62	.61	.19	
MV-60(36)	7/29/92	1.7	1.6	1.11	

Table 27. Comparison of dissolved orthophosphate as phosphorus analyses from water samples collected in 1989 with samples collected in 1990, 1991, or 1992 including a comparison of replicate pairs, selected wells and springs, eastern Snake River Plain

[Concentrations are in milligrams per liter. Site identifier: see figure 2 for location of the sites. Z value: see section on statistical comparisons of sample and replicate pairs. Abbreviations: N, the analytical results are not in statistical agreement; U, statistical agreement is uncertain; QA, quality-assurance replicate sample. Symbol: <, concentration is less than the reporting level. Replicate pairs: site identifiers are listed with QA identifier followed by original site identifier in parentheses]

Site identifier	Date sampled	Concentration	Date sampled	Concentration	Z value	Remark
MV-1	8/14/89	0.01	8/13/90	0.01	0.00	
MV-2	8/14/89	.02	8/12/91	<.01	2.45 to 5.35	N
MV-3	8/15/89	<.01	7/28/92	.02	2.45 to 5.35	N
MV-4	8/15/89	.01	8/13/90	.01	.00	
MV-5	8/15/89	.02	7/30/92	.02	.00	
MV-6	8/15/89	.02	7/28/92	.02	.00	
MV-7	8/16/89	.01	7/30/92	.02	2.45	N
MV-9	8/16/89	.02	8/14/90	.02	.00	
MV-10	8/16/89	.01	8/12/91	<.01		U
MV-11	8/16/89	<.01	8/14/90	<.01	0	
MV-12	8/17/89	.02	8/14/91	.02	.00	
MV-13	8/17/89	.01	6/23/92	.02	2.45	N
MV-14	8/17/89	<.01	8/16/90	<.01	0	
MV-15	8/18/89	.02	8/16/90	<.01	2.45 to 5.35	N
MV-16	8/18/89	.02	8/13/91	.02	.00	
MV-17	8/18/89	.01	7/27/92	.02	2.45	N
MV-18	8/18/89	.01	8/16/90	<.01		U
MV-19	8/18/89	.02	8/15/91	.02	.00	
MV-20	8/19/89	.01	7/27/92	.02	2.45	N
MV-21	8/19/89	<.01	8/15/90	.02	2.45 to 5.35	N
MV-23	8/21/89	.04	8/13/90	.05	1.53	
MV-24	8/21/89	.02	8/12/91	.02	.00	
MV-25	8/22/89	.08	8/16/90	.07	1.11	
MV-26	8/15/89	.02	8/16/91	.02	.00	
MV-27	8/15/89	.01	7/27/92	.03	4.40	N
MV-29	8/16/89	<.01	8/14/91	.01		U
MV-30	8/16/89	.02	8/17/90	<.01	2.45 to 5.35	N
MV-31	8/16/89	.01	6/23/92	.01	.00	
MV-32	8/16/89	.02	8/15/91	.02	.00	
MV-33	8/17/89	.01	8/15/90	.01	.00	
MV-35	8/17/89	.02	6/24/92	<.01	2.45 to 5.35	N
MV-36	8/17/89	.03	7/29/92	.03	.00	
MV-37	8/18/89	.05	8/17/90	.04	1.37	
MV-38	8/18/89	.02	7/29/92	.02	.00	
MV-39	8/18/89	.05	8/15/90	.05	.00	
MV-40	8/18/89	.02	8/15/91	.02	.00	
MV-41	8/21/89	.05	8/13/91	.07	2.57	N
MV-42	8/21/89	.04	8/13/91	.04	.00	
MV-43	8/22/89	.01	8/15/90	<.01		U

Table 27. Comparison of dissolved orthophosphate as phosphorus analyses from water samples collected in 1989 with samples collected in 1990, 1991, or 1992 including a comparison of replicate pairs, selected wells and springs, eastern Snake River Plain—Continued

Site identifier	Date sampled	Concentration	Date sampled	Concentration	Z value	Remark
MV-45	8/22/89	.01	8/13/91	.01	.00	
MV-46	8/22/89	.02	6/23/92	<.01	2.45 to 5.35	N
MV-47	9/07/89	.02	8/17/90	<.01	2.45 to 5.35	N
MV-48	9/13/89	.01	8/21/91	<.01		U
MV-49	9/21/89	.05	8/21/91	.02	5.15	N
MV-50	8/14/89	.02	9/15/92	.02	.00	
MV-51	8/15/89	.04	8/14/90	.04	.00	
MV-52	8/22/89	.07	8/14/91	.02	7.32	N
MV-53	8/21/89	.01	7/28/92	.01	.00	
MV-54	8/21/89	.01	8/14/91	.02	2.45	N
MV-55	8/22/89	.01	7/30/92	.01	.00	
MV-56	8/22/89	.01	8/16/91	.02	2.45	N
MV-57	9/26/89	.01	6/30/92	.01	.00	
MV-58	9/26/89	.02	6/30/92	.03	1.82	
MV-59	9/27/89	<.01	8/24/90	<.01	0	
MV-61	9/14/89	<.01	7/17/90	<.01	0	

Replicate pairs					
Site identifiers	Date sampled	QA concentration	Concentration	Z value	Remark
MV-28(27)	8/15/89	0.02	0.01	2.45	N
MV-8(7)	8/16/89	.01	.01	.00	
MV-34(33)	8/17/89	<.01	.01		U
MV-44(43)	8/22/89	.01	.01	.00	
MV-60(61)	9/14/89	<.01	<.01	0	
MV-8(4)	8/13/90	<.01	.01		U
MV-28(24)	8/12/91	.01	.01	.00	
MV-34(40)	8/15/91	.02	.02	.00	
MV-44(46)	6/23/92	<.01	<.01	0	
MV-60(36)	7/29/92	.03	.03	.00	

Table 28. Comparison of anionic surfactant analyses from water samples collected in 1989 with samples collected in 1990, 1991, or 1992 including a comparison of replicate pairs, selected wells and springs, eastern Snake River Plain

[Concentrations are in milligrams per liter. Site identifier: see figure 2 for location of the sites. Z value: see section on statistical comparisons of sample and replicate pairs. Relative standard deviation of 10 percent is used for the uncertainty. Abbreviations: N, the analytical results are not in statistical agreement; QA, quality-assurance replicate sample. Symbol: <, concentration is less than the reporting level. Replicate pairs: site identifiers are listed with QA identifier followed by original site identifier in parentheses]

Site identifier	Date sampled	Concentration	Date sampled	Concentration	Z value	Remark
MV-1	8/14/89	0.03	8/13/90	0.05	3.43	N
MV-2	8/14/89	.04	8/12/91	.02	4.47	N
MV-3	8/15/89	.02	7/28/92	.03	2.77	N
MV-4	8/15/89	.06	8/13/90	.04	2.77	N
MV-5	8/15/89	.05	7/30/92	.03	3.43	N
MV-6	8/15/89	.05	7/28/92	.04	1.56	
MV-7	8/16/89	.01	7/30/92	.01	.00	
MV-9	8/16/89	.09	8/14/90	.07	1.75	
MV-10	8/16/89	.08	8/12/91	.04	4.47	N
MV-11	8/16/89	.10	8/14/90	.06	3.43	N
MV-12	8/17/89	.06	8/14/91	.02	6.32	N
MV-13	8/17/89	.09	6/23/92	.02	7.59	N
MV-14	8/17/89	.06	8/16/90	.04	2.77	N
MV-15	8/18/89	.06	8/16/90	.05	1.28	
MV-16	8/18/89	.05	8/13/91	.01	7.84	N
MV-17	8/18/89	.02	7/27/92	.03	2.77	N
MV-18	8/18/89	.04	8/16/90	.05	1.56	
MV-19	8/18/89	.07	8/15/91	.03	5.25	N
MV-20	8/19/89	.05	7/27/92	.02	5.57	N
MV-21	8/19/89	.02	8/15/90	.03	2.77	N
MV-23	8/21/89	.06	8/13/90	.05	1.28	
MV-24	8/21/89	.11	8/12/91	.07	3.07	N
MV-25	8/22/89	.05	8/16/90	.06	1.28	
MV-26	8/15/89	.03	8/16/91	.02	2.77	N
MV-27	8/15/89	.05	7/27/92	.01	7.84	N
MV-29	8/16/89	.04	8/14/91	<.01	7.28 to 10	N
MV-30	8/16/89	.05	8/17/90	.05	.00	
MV-31	8/16/89	.05	6/23/92	.02	5.57	N
MV-32	8/16/89	.09	8/15/91	.04	5.08	N
MV-33	8/17/89	.01	8/15/90	.03	6.32	N
MV-35	8/17/89	.04	6/24/92	<.01	7.28 to 10	N
MV-36	8/17/89	.04	7/29/92	.02	4.47	N
MV-37	8/18/89	.05	8/17/90	.04	1.56	
MV-38	8/18/89	.02	7/29/92	.02	.00	
MV-39	8/18/89	.05	8/15/90	.05	.00	
MV-40	8/18/89	.03	8/15/91	<.01	6.32 to 10	N
MV-41	8/21/89	.05	8/13/91	.03	3.43	N
MV-42	8/21/89	.04	8/13/91	.02	4.47	N
MV-43	8/22/89	.08	8/15/90	.07	.94	

Table 28. Comparison of anionic surfactant analyses from water samples collected in 1989 with samples collected in 1990, 1991, or 1992 including a comparison of replicate pairs, selected wells and springs, eastern Snake River Plain—Continued

Site identifier	Date sampled	Concentration	Date sampled	Concentration	Z value	Remark
MV-45	8/22/89	.02	8/13/91	.01	4.47	N
MV-46	8/22/89	.02	6/23/92	<.01	4.47	N
MV-47	9/07/89	.02	8/17/90	.03	2.77	N
MV-48	9/13/89	.01	8/21/91	.02	4.47	N
MV-49	9/21/89	.05	8/21/91	.03	3.43	N
MV-50	8/14/89	.05	9/15/92	.05	.00	
MV-51	8/15/89	.03	8/14/90	.04	2.00	N
MV-52	8/22/89	.06	8/14/91	.02	6.32	N
MV-53	8/21/89	.09	7/28/92	.05	3.89	N
MV-54	8/21/89	.08	8/14/91	.05	3.18	N
MV-55	8/22/89	.03	7/30/92	.02	2.77	N
MV-56	8/22/89	.04	8/16/91	.02	4.47	N
MV-57	9/26/89	.08	6/30/92	<.01	8.68 to 10	N
MV-58	9/26/89	.09	6/30/92	.01	8.83	N
MV-59	9/27/89	.08	8/24/90	.03	5.85	N
MV-61	9/14/89	<.01	7/17/90	.05	7.84 to 10	N

Replicate pairs						
Site identifiers	Date sampled	QA concentration	Concentration	Z value	Remark	
MV-8(7)	8/16/89	0.02	0.01	4.47	N	
MV-28(27)	8/15/89	.05	.05	.00		
MV-34(33)	8/17/89	.01	.01	.00		
MV-44(43)	8/22/89	.09	.08	.83		
MV-60(61)	9/14/89	.02	<.01	4.47 to 10	N	
MV-8(4)	8/13/90	.04	.04	.00		
MV-28(24)	8/12/91	.08	.07	.94		
MV-34(40)	8/15/91	<.01	<.01	0		
MV-44(46)	6/23/92	<.01	<.01	0		
MV-60(36)	7/29/92	.02	.02	.00		

Table 29. Comparison of selected purgeable organic compound analyses from water samples collected in 1989 with samples collected in 1990, 1991, or 1992 including a comparison of replicate pairs, selected wells, eastern Snake River Plain

[Concentrations are in micrograms per liter. Site identifier: see figure 2 for location of the sites. Z value: see section on statistical comparisons of sample and replicate pairs. The relative standard deviations of 11 percent for toluene and total xylene and 12 percent for 1,1,1-trichloroethane were used for the uncertainty. Abbreviations: N, the analytical results are not in statistical agreement; U, statistical agreement is uncertain; QA, quality-assurance replicate sample. Symbol: <, concentration is less than the reporting level. Replicate pairs: site identifiers are listed with QA identifier followed by original site identifier in parentheses]

Site identifier	Date sampled	Concentration	Date sampled	Concentration	Z value	Remark
Toluene						
MV-11	8/16/89	<0.2	8/14/90	0.3	2.52 to 9.09	N
MV-48	9/13/89	1.7	8/21/91	<.2	7.97 to 9.09	N
MV-49	9/21/89	.5	8/21/91	<.2	5.06 to 9.09	N
MV-61	9/14/89	1.0	7/17/90	<.2	7.13 to 9.09	N
Total xylene						
MV-29	8/16/89	.7	8/14/91	<.2	6.24 to 9.09	N
MV-30	8/16/89	.8	8/17/90	<.2	6.61 to 9.09	N
MV-31	8/16/89	.9	6/23/92	<.2	6.90 to 9.09	N
MV-33	8/17/89	.4	8/15/90	<.2	4.07 to 9.09	N
MV-35	8/17/89	.5	6/24/92	<.2	5.06 to 9.09	N
MV-36	8/17/89	.5	7/29/92	<.2	5.06 to 9.09	N
MV-38	8/18/89	.4	7/29/92	<.2	4.07 to 9.09	N
MV-39	8/18/89	.3	8/15/90	<.2	2.52 to 9.09	
MV-40	8/18/89	.2	8/15/91	<.2		U
MV-41	8/21/89	.6	8/13/91	<.2	5.75 to 9.09	N
MV-43	8/22/89	.4	8/15/90	<.2	4.07 to 9.09	N
MV-45	8/22/89	.5	8/13/91	<.2	5.06 to 9.09	N
MV-46	8/22/89	.5	6/23/92	<.2	5.06 to 9.09	N
MV-49	9/21/89	1.1	8/21/91	<.2	7.32 to 9.09	N
MV-50	8/14/89	.9	9/15/92	<.2	6.90 to 9.09	N
1,1,1-Trichloroethane						
MV-29	8/16/89	<.2	8/14/91	.2		U
MV-45	8/22/89	<.2	8/13/91	.3	2.31 to 8.33	N

Replicate pairs						
Site identifiers	Date sampled	Constituent	QA concentration	Concentration	Z value	Remark
MV-34(33)	8/17/89	Total xylene	0.2	0.4	4.07	N
MV-44(43)	8/22/89	Total xylene	.4	.4	.00	
MV-60(61)	9/14/89	Toluene	.9	1.0	.68	

Table 30. Comparison of selected insecticide and herbicide analyses from water samples collected in 1989 with samples collected in 1990, 1991, or 1992 including a comparison of replicate pairs, selected wells, eastern Snake River Plain

[Concentrations are in micrograms per liter. Site identifier: see figure 2 for location of the sites. Z value: see section on statistical comparisons of sample and replicate pairs. The relative standard deviations of 11 percent for diazinon, 32 percent for malathion, 19 percent for DDT, and 10 percent for 2,4-D was used for the uncertainty. Abbreviations: N, the analytical results are not in statistical agreement; U, statistical agreement is uncertain; QA, quality-assurance replicate sample. Symbol: <, concentration is less than the reporting level. Replicate pairs: site identifiers are listed with QA identifier followed by original site identifier in parentheses]

Site Identifier	Date sampled	Concentration	Date sampled	Concentration	Z value	Remark
Diazinon						
MV-24	8/21/89	0.03	8/12/91	<0.01	5.75 to 9.09	N
MV-25	8/22/89	.01	8/16/90	<.01		U
Malathion						
MV-24	8/21/89	.01	8/12/91	<.01		U
MV-25	8/22/89	.01	8/16/90	<.01		U
DDT						
MV-43	8/22/89	.041	8/15/90	<.01	3.87 to 5.26	N
2,4-D						
MV-40	8/18/89	<.01	8/15/91	.01		U
MV-56	8/22/89	<.01	8/16/91	.01		U

Replicate pairs						
Site Identifiers	Date sampled	Constituent	QA concentration	Concentration	Z value	Remark
MV-44(43)	8/22/89	DDT	0.041	0.041	0.00	
MV-60(61)	9/14/89	2,4-D	.01	.01	.00	