Purgeable Organic Compounds in Water at or near the Idaho National Engineering Laboratory, Idaho, 1992-95

by Michael R. Greene *and* Betty J. Tucker

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CONVERSION FACTORS AND ABBREVIATED UNITS

Multiply	By	To obtain
gallon (gal)	3.785	liter
mile (mi)	1.609	kilometer
foot (ft)	0.3048	meter
square mile (mi^2)	2.590	square kilometer
inch (in.)	25.4	millimeter

For temperature, degrees Celsius (°C) can be converted to degrees Fahrenheit (°F) by using the formula °F = (1.8)(°C)+32.

Abbreviated units used in report: mL (milliliter); L (liter); µg/L (microgram per liter); mg/L (milligram per liter).

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Abstract

Water samples from 54 wells and 6 surface-water sites at or near the Idaho National Engineering Laboratory were analyzed for 63 purgeable organic compounds during 1992–95. The samples were collected and analyzed as a continuation of water-quality studies initiated in 1987 and conducted by the U.S. Geological Survey in cooperation with the U.S. Department of Energy. Water from 53 of the wells comes from the Snake River Plain aquifer. The remaining well was completed in a perched water zone above the Snake River Plain aquifer.

Water samples from 23 wells completed in the Snake River Plain aquifer contained detectable concentrations of at least 1 of 14 selected purgeable organic compounds. The most commonly detected compounds were carbon tetrachloride, chloroform, 1,1,1-trichloroethane, and trichloroethylene. The concentrations of most compounds were less than the laboratory reporting levels. The water sample from the perched zone contained detectable concentrations of 18 purgeable organic compounds.

INTRODUCTION

The Idaho National Engineering Laboratory (INEL) includes about 890 mi^2 of the eastern Snake River Plain in southeastern Idaho (fig. 1). The INEL was established in 1949 and is used by the U.S. Department of Energy (DOE) for nuclear-reactor testing and nuclear-fuel reprocessing. Today the INEL is one of the main centers in the United States for developing peacetime uses of atomic energy, environmental programs, development of advanced energy concepts, and researching nuclear safety.

In 1949, the U.S. Atomic Energy Commission, later to become the DOE, requested that the U.S. Geological Survey (USGS) describe the water resources of the area now known as the INEL. The purpose of the resulting study was to characterize these resources before the development of nuclear-reactor testing facilities. Since 1949, the USGS has maintained monitoring networks at the INEL to determine hydrologic trends and to delineate the movement of facility-related radionuclide and chemical wastes in the Snake River Plain aquifer. This project is conducted in cooperation with the DOE.

Purgeable organic compounds historically have been used at the INEL for degreasing, decontamination, construction and maintenance activities. In addition, an estimated 88,400 gal of organic waste was buried before 1970 at the Subsurface Disposal Area at the Radioactive Waste Management Complex (RWMC) (D.E. Kudera, EG&G Idaho, Inc., written commun., 1987). The buried waste included an estimated 24,400 gal of carbon tetrachloride. The remaining volume consisted of about 39,000 gal of lubricating oil used in machinery processes and about 25,000 gal of other purgeable organic compounds including trichloroethane, trichloroethylene, perchloroethylene, toluene, and benzene.

This report summarizes concentrations of purgeable organic compounds detected in water samples collected during 1992–95. A total of 270 water samples were collected from 54 wells and 6 surface-water sites.

During 1992–95, samples were collected from 54 INEL wells (figs. 2 and 3): 32 as requested by the DOE for its ground-water monitoring plan (Sehlke and Bickford, 1993), 9 as a part of routine monitoring at or near the RWMC, 6 near the RWMC as requested by the contractor, 2 as part of the Magic Valley sampling program (Bartholomay

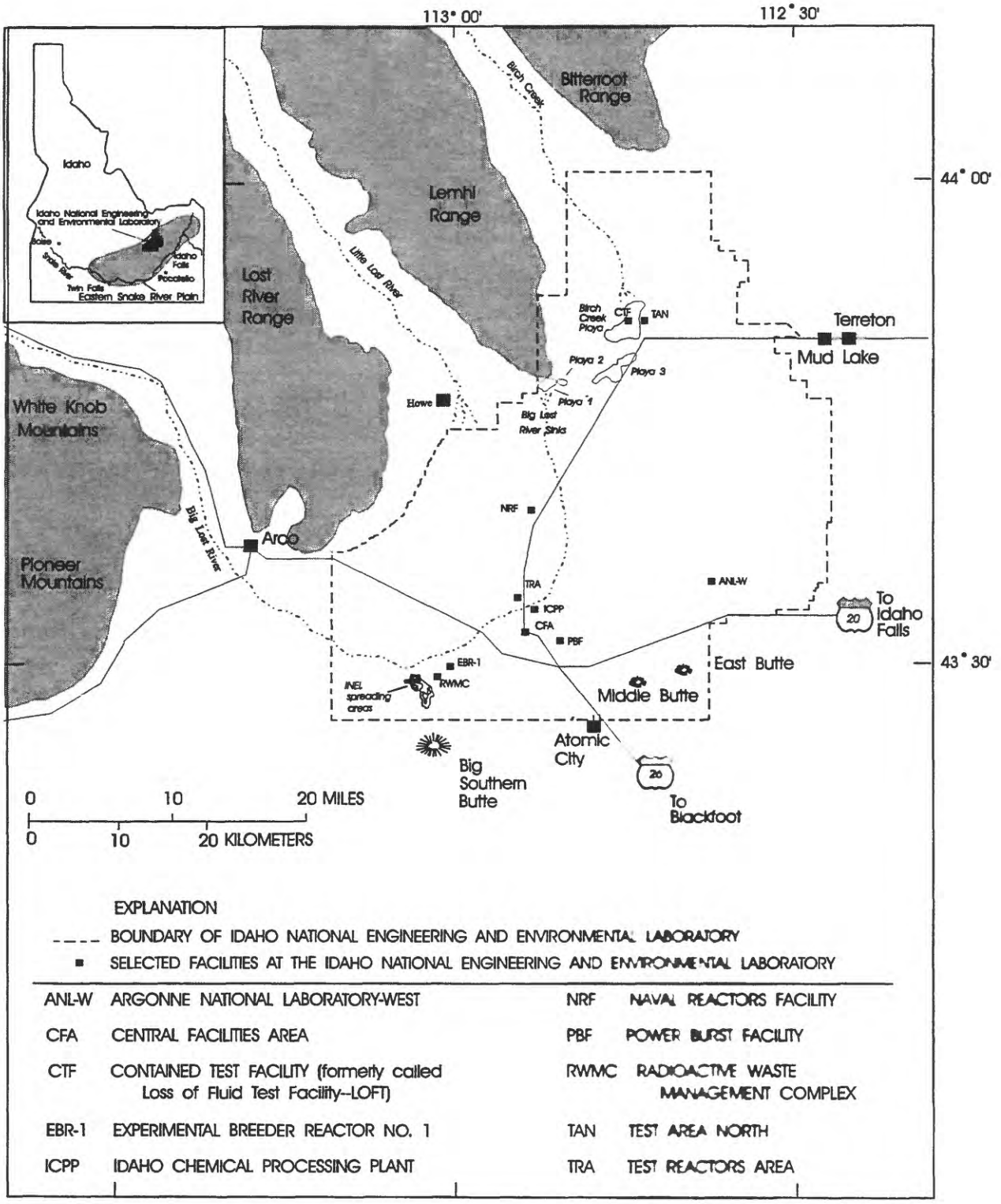

Figure 1. Location of the Idaho National Engineering Laboratory and selected facilities.

and others, 1994, 1995b), 2 that were newly completed, 1 as part of the INEL oversight program's straddle packer study to isolate selected borehole segments, 1 as requested by a well owner, and 1 as a resample because of a large chloroform concentration detected in the well in 1991.

In 1995, six surface-water sites were sampled for purgeable organics. Three of the sites were at drainages to disposal wells near the Power Burst Facility (SPERT DD1, DD2, and DD3) (fig. 2), two were in small drainage basins near the RWMC (fig. 3), and one was at the Big Lost River downstream from the INEL diversion near Arco, Idaho (site 13-1325.20, fig. 2).

Geohydrologic Setting

The eastern Snake River Plain is a northeast-trending structural basin about 200 mi long and 50 to 70 mi wide. The plain is underlain by a layered sequence of basaltic lava flows and cinder beds intercalated with alluvial and lakebed deposits. Individual flows range from 10 to 50 ft in thickness, although the average thickness may be from 20 to 25 ft (Mundorff and others, 1964, p. 143). The sedimentary deposits consist mainly of lenticular beds of sand, silt, clay, and lesser amounts of gravel. Locally, rhyolitic lava flows and tuffs are exposed at the land surface or occur at depth. The basaltic lava flows and intercalated sedimentary deposits combine to form the Snake River Plain aquifer, which is the main source of ground water on the 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). The depth to water in the aquifer ranges from about 200 ft below land surface in the northern part of the INEL to more than 900 ft in the southeastern part (Bartholomay and others, 1995a, p. 18).

The INEL obtains its entire water supply from the Snake River Plain aquifer. Wastewater containing radioactive and non-radioactive chemical constituents generated at the INEL was discharged to ponds and wells from 1952 to 1983. Much of the wastewater was injected directly into the aquifer through injection wells. Since 1983, most of the wastewater has been discharged to unlined infiltration ponds. This wastewater enters the aquifer indirectly after percolating through the unsaturated zone (Pittman and others, 1988).

Previous Investigations

The USGS has conducted geologic, hydrologic, and water-quality investigations at the INEL since it was selected as a reactor-testing area in 1949. Ground-water studies routinely include analyses of selected common ions, trace elements, and radionuclides. Purgeable organic compounds in ground water were investigated by Leenheer and Bagby (1982), Mann and Knobel (1987), Mann (1990), Liszewski and Mann (1992), and Bartholomay and others (1995a).

During June to November 1987, a reconnaissance-level sampling program was conducted to document concentrations of purgeable organic compounds in ground water at the INEL. The sampling program was conducted by the USGS in cooperation with the DOE. Water samples were collected from 82 wells; 81 of the wells are completed in the Snake River Plain aquifer and 1 well is completed in a perched ground-water zone. In 1987, water samples from a disposal well at the Test Area North (TAN) contained 35,000 µg/L of trichloroethylene and lesser amounts of other purgeable organic compounds (Mann and Knobel, 1987, table 2). Water from production wells TAN-1 and -2 also contained detectable concentrations of tetrachloroethylene and trichloroethylene.

During 1988–89, 10 wells completed in the Snake River Plain aquifer not sampled in 1987 were equipped with portable or dedicated submersible pumps for collection of water samples; 1 well not sampled in 1987 was sampled with a thief sampler. Samples also were collected from 27 wells; water in these wells had contained purgeable organic compounds in 1987. Production wells TAN-1 and -2 were not sampled by the USGS during 1988–91; samples were collected and analyzed by EG&G Idaho, Inc., the operating contractor for the DOE (Mann, 1990).

During 1990–91, samples were collected from eight wells, including the RWMC production well, at and near the RWMC, as part of the routine mon-

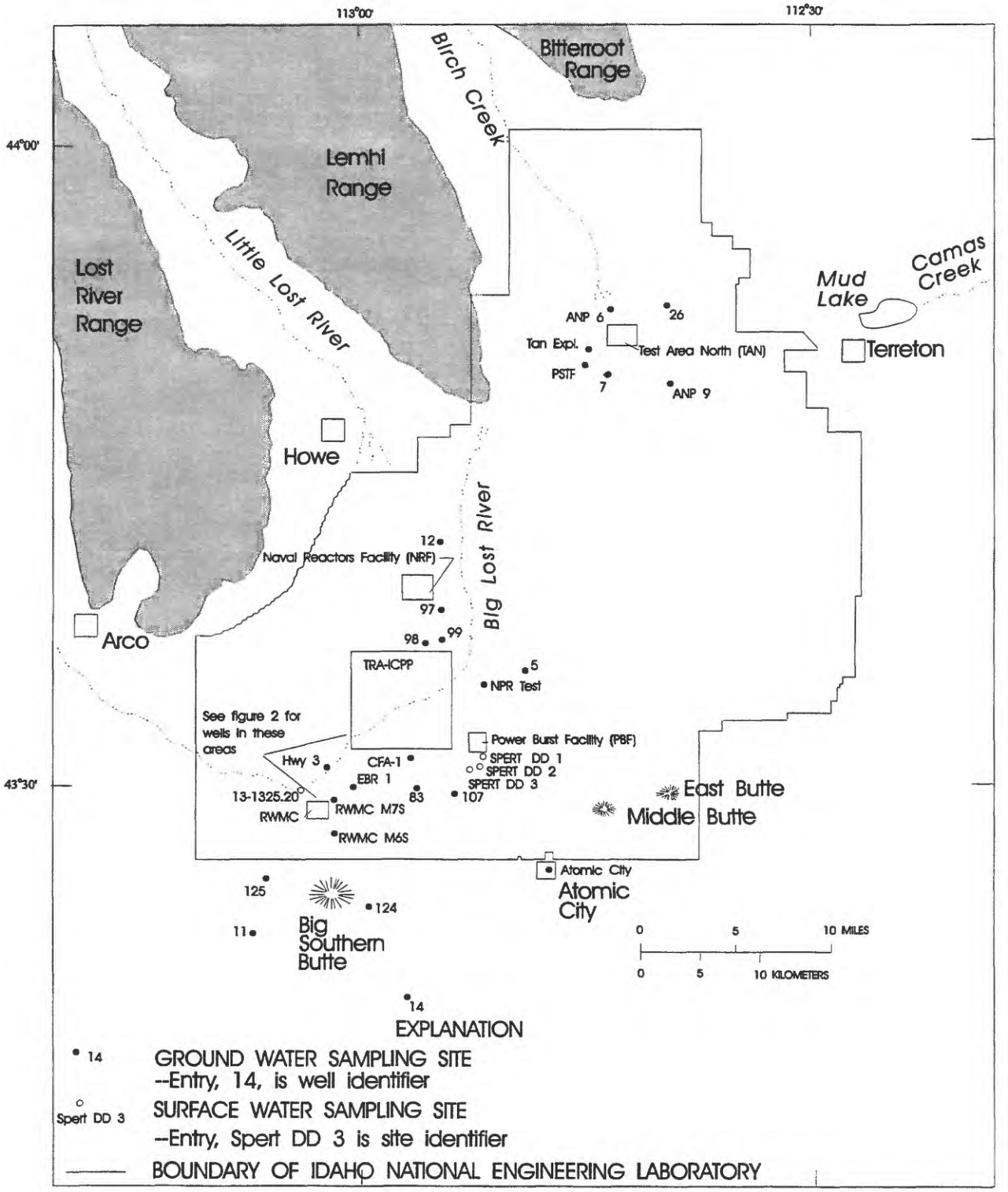

Figure 2. Location of sites sampled for purgeable organic compounds, 1992–95.

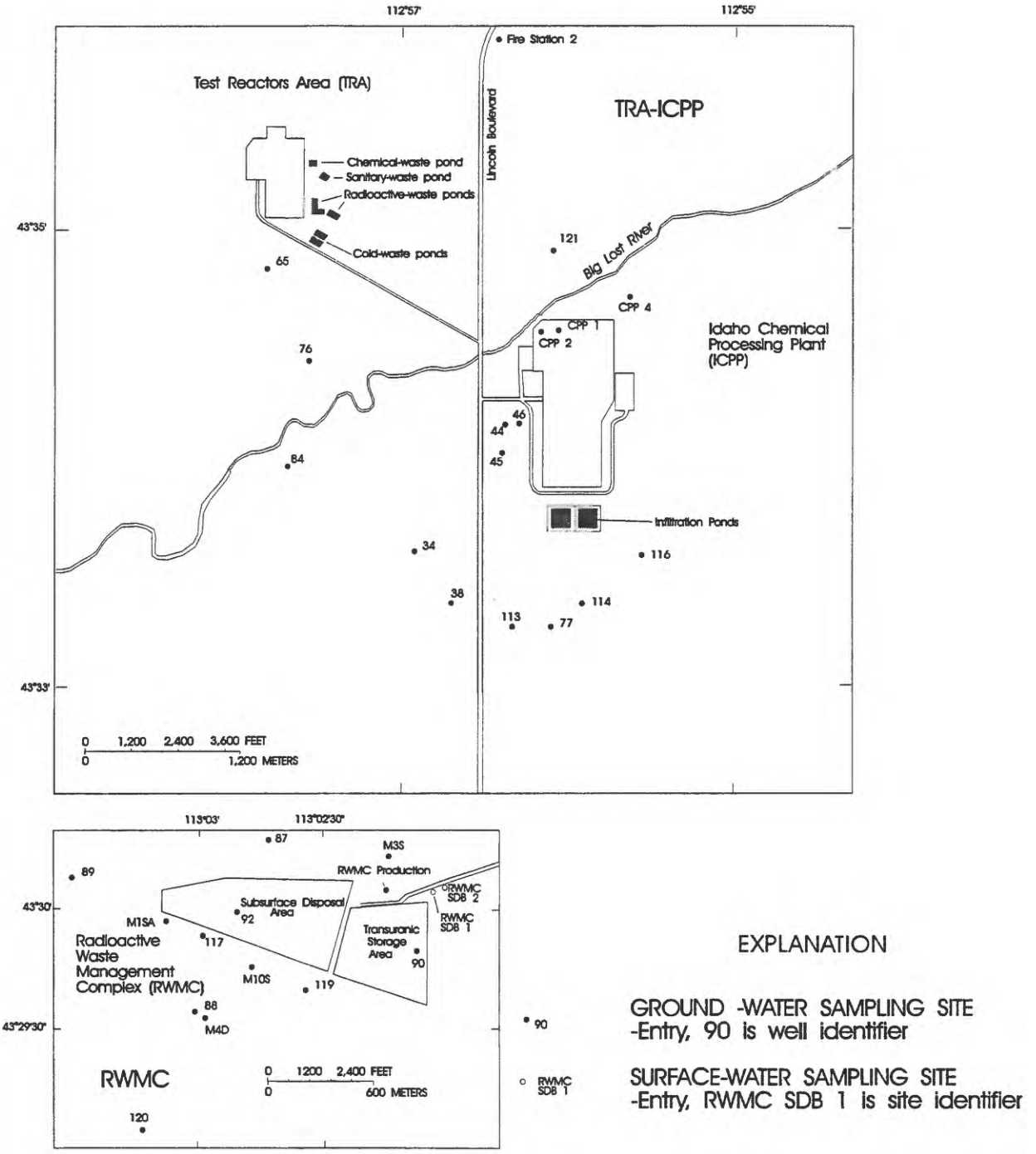

Figure 3. Location of sites sampled for purgeable organic compounds at or near the Test Reactor Area, the Idaho Chemical Processing Plant, and Radioactive Waste Management Complex, 1992–95.

itoring program. Multiple samples also were collected from 20 INEL wells that had not been sampled previously. Additional samples were collected from 37 wells and a hot spring as part of a geochemical characterization study. Water samples were collected from five wells as part of the Naval Reactors Facility (NRF) study (fig. 1), three of which were recently drilled and two of which had new submersible pumps installed. Additionally, samples were collected from NRF-1–4, Atomic City, and Highway 3 wells (Liszewski and Mann, 1992).

Acknowledgments

The authors are grateful to Roy C. Bartholomay and Steven J. Gerner, both of the USGS for technically reviewing the manuscript.

METHODS AND QUALITY ASSURANCE

Baked 40-mL amber glass vials with inert septum caps were supplied by the USGS National Water Quality Laboratory (NWQL) in Arvada, Colo., were used to collect the water samples. The vials are specialty containers cleaned in compliance with U.S. Environmental Protection Agency Federal Regulations CFR 40-136 and CFR 40-141 (U.S. Environmental Protection Agency, 1995). Four vials of water were collected at each site after rinsing with three vial volumes of sample water and taking care to exclude air bubbles from the samples. The samples were protected from direct sunlight, sealed, and chilled at 4°C to minimize the loss of purgeable organic compounds through the septum caps during transport to the laboratory.

Sample Methods and Decontamination Procedures

Seven production wells were sampled either from special delivery lines at the wellhead or from water spigots downstream from pressure tanks. Two public-supply wells were sampled from spigots. The remaining ground-water-quality monitoring wells were sampled using dedicated submersible pumps. The production and public-supply wells are equipped with dedicated pumps and supply lines and did not require decontamination. Before sample collection, monitoring wells were fitted with a 1.5 in. inside diameter (I.D.) stainless steel (SS) pipe equipped with an SS valve to control the flow rate. An SS T-joint was inserted into the pipe downstream of the valve, and a second SS pipe and second valve control the flow rate to the sample port. SS connectors were attached after the second valve to reduce the diameter so that a 1/4-in. I.D. SS pipe could be attached as the sampling port. The 1/4-in. I.D. SS pipe was bent 90 degrees to facilitate sample collection. All fittings and pipes were rinsed with deionized water before installation at the wellhead. Subsequent flushing by a minimum of three well-bore volumes minimized cross-contamination from previously sampled wells. A detailed discussion of techniques used for collecting samples that represent aquifer water chemistry is presented in a report by Claassen (1982).

Collection of water samples at surface-water sites was by the grab-sample method.

Sample Collection

To ensure that water representative of the Snake River Plain aquifer was sampled, a volume of water equivalent to a minimum of 3 well-bore volumes was pumped from each well; at some wells, 5 to 10 well-bore volumes were pumped before collecting the samples. The diameter of the well bore, rather than the diameter of the casing, was used to calculate the minimum volume because of the potentially large difference between the two. In addition, temperature, specific conductance, and pH were monitored during pumping using methods described by Wood (1981). When these properties of the water stabilized, which indicated that water quality was at a steady state, a water sample was collected using the following protocol:

1. The field person collecting the water sample wore disposable vinyl gloves and stood where neither the field person nor the sample could be contaminated.
2. The outside of the sample supply line was rinsed thoroughly with well water.
3. The sample supply line was inserted to the bottom of the sample vial and a minimum of three vial volumes was allowed to overflow.

3. The sample supply line was inserted to the bottom of the sample vial and a minimum of three vial volumes was allowed to overflow.
4. The vial was lowered gently to ensure that air bubbles did not form in the vial.
5. The vial immediately was capped and inspected for air bubbles; if bubbles were detected, the vial was drained, reflushed, and refilled.
6. The exterior of the vial was dried, sealed with laboratory film, labeled, and stored in an ice chest.
7. Steps 3 through 6 were repeated until the required number of vials were collected successfully.
8. The vials were transferred to a secured refrigerator until they could be transported to the NWQL for analyses. Samples were packed in a sealed ice chest for priority delivery mail and shipped to the laboratory. Quality control procedures for the laboratory require a maximum holding time—the time from date of sampling to date of analysis—of 14 days (Jones, 1987, p, 5). All samples were analyzed within 14 days after collection.

Quality Assurance

The water samples were collected in accordance with a draft quality-assurance plan that was implemented in 1988, finalized in June 1989, and revised in March 1992. Conditions at the site during sample collection were recorded in a field logbook and a chain-of-custody record was used to track samples from the time of collection until delivery to the NWQL. The quality-assurance plan, field logbooks, and chain-of-custody records are available for inspection at the USGS Project Office at the INEL.

Detailed descriptions of the overall quality-assurance practices and the internal quality control used by the NWQL are provided in reports by Friedman and Erdmann (1982), Jones (1987), and Pritt and Raese (1992). Additional quality assurance during 1992–95 included collection and analyses of 15 blind sequential replicates—duplicate samples with a different sample identification number sent to the same laboratory—and 6 blank samples. One of the blanks was processed as an equipment blank, and two were carried into the field for trip blanks. Ground-water and quality-assurance samples were analyzed by the NWQL using a method that conforms to the U.S. Environmental Protection Agency's method 524.2 (U.S. Environmental Protection Agency, 1995, CFR 40; p. 972). The reporting level for most analyses was 0.2 µg/L. A reporting level is the lowest measured concentration of a constituent that may be reliably reported using a given analytical method (Timme 1994).

Some blank samples collected during previous investigations contained concentrations of one or more of the following compounds: bromoform, chloroform, combined xylene, dibromochloromethane, 1,2-dichloroethane, methylene chloride, and toluene (Mann, 1990, table 2). Some blank samples collected during 1992–95 contained concentrations of only the compounds methylene chloride and toluene. Some of these compounds are common environmental contaminants and frequently are present in small concentrations in deionized water (L.D. Becker, USGS, oral commun., 1987). Others of these compounds may be contained in or inadvertently introduced into the deionized water during handling in the field or laboratory.

PURGEABLE ORGANIC COMPOUNDS IN WATER

The 63 purgeable organic compounds for which analyses were performed are shown in table 1. Samples were analyzed for only 36 of these compounds in January 1992. Samples were analyzed for 60 compounds from February 1992 to April 1993, 63 compounds from May 1993 to September 1994, and 61 compounds from October 1994 to November 1995. Concentrations of selected purgeable organic compounds are shown in table 2. Purgeable organic compounds listed in table 1, but not in table 2, were present at concentrations less than the reporting level of 0.20 ug/L.

Water samples from 23 wells completed in the Snake River Plain aquifer contained detectable concentrations of at least 1 of 14 purgeable organic compounds (table 2). The most commonly detected

water from the Snake River Plain aquifer was 11.0 µg/L of toluene in ANP-9; concentrations of most compounds were less than the reporting level of 0.20 µg/L. Only one of the purgeable organic compounds exceeded maximum contaminant levels or proposed maximum contaminant levels established by the U.S. Environmental Protection Agency (table 1). The carbon tetrachloride concentration at site RWMC M7S, sampled July 18, 1995, was 5.7 µg/L, which was above the MCL of 5.0 µg/L. The water sample bailed from the perched zone in USGS 92 contained detectable concentrations of 18 purgeable organic compounds (table 2).

Concentrations of purgeable organic compounds at the six surface-water sites were less than the reporting level of 0.20 µg/L. These surface water results are not included in Table 2.

REFERENCES CITED

Bartholomay, R.C., Edwards, D.D., and Campbell, L.J., 1994, Radionuclides, stable isotopes, inorganic constituents, and organic compounds in water from selected wells and springs from the southern boundary of the Idaho National Engineering Laboratory to the Hagerman area, Idaho, 1993: U.S. Geological Survey Open-File Report 94-503 (DOE/ID-22117), 35 p.

Bartholomay, R.C., Orr, B.R., Liszewski, M.J., and Jensen, R.G., 1995a, Hydrologic conditions and distribution of selected radiochemical and chemical constituents in water, Snake River Plain aquifer, Idaho National Engineering Laboratory, Idaho, 1989 through 1991: U.S. Geological Survey Water-Resources Investigations Report 95-4175 (DOE/ID-22123), 47 p.

Bartholomay, R.C., Williams, L.M., and Campbell, L.J., 1995b, Radionuclides, stable isotopes, inorganic constituents, and organic compounds in water from selected wells and springs from the southern boundary of the Idaho National Engineering Laboratory to the Hagerman area, Idaho, 1989 through 1992: U.S. Geological Survey Water-Resources Investigations Report 97-4007 (DOE/ID-22133), 73 p.

Claassen, H.C., 1982, Guidelines and techniques for obtaining water samples that accurately represent the water chemistry of an aquifer: U.S. Geological Survey Open-File Report 82-1024, 49 p.

Friedman, L.C., and Erdmann, D.E., 1982, Quality assurance practices for the chemical and biological analyses of water and fluvial sediments: U.S. Geological Survey Techniques of Water-Resources Investigations, book 5, chap. A6, 181 p.

Jones, B.E., 1987, Quality control manual of the U.S. Geological Survey's National Water Quality Laboratory: U.S. Geological Survey Open-File Report 87-457, 17 p.

Leenheer, J.A., and Bagby, J.C., 1982, Organic solutes in ground water at the Idaho National Engineering Laboratory: U.S. Geological Survey Water-Resources Investigations Report 82-15, 39 p.

Liszewski, M.J., and Mann, L.J., 1992, Purgeable organic compounds in ground water at the Idaho National Engineering Laboratory, Idaho—1990 and 1991: U.S. Geological Survey Open-File Report 92-174 (DOE/ID-22104), 19 p.

Mann, L.J., 1986, Hydraulic properties of rock units and chemical quality of water for INEL-1—a 10,365-foot deep test hole drilled at the Idaho National Engineering Laboratory, Idaho: U.S. Geological Survey Water-Resources Investigations Report 86-4020 (DOE/ID-22070), 23 p.

Mann, L.J., 1990, Purgeable organic compounds in ground water at the Idaho National Engineering Laboratory, Idaho—1988 and 1989: U.S. Geological Survey Open-File Report 90-367 (DOE/ID-22074), 17 p.

Mann, L.J., and Knobel, L.L., 1987, Purgeable organic compounds in ground water at the Idaho National Engineering Laboratory, Idaho: U.S. Geological Survey Open-File Report 87-766 (DOE/ID-22074), 23 p.

Idaho: U.S. Geological Survey Open-File Report 87-766 (DOE/ID-22074), 23 p.

Mundorff, M.J., Crosthwaite, E.G., and Kilburn, Chabot, 1964, Ground water for irrigation in the Snake River Basin in Idaho: U.S. Geological Survey Water-Supply Paper 1654 (DOE/ID-22089), 224 p.

Pittman, J.R., Jensen, R.G., and Fischer, P.R., 1988, Hydrologic conditions at the Idaho National Engineering Laboratory, 1982-1985: U.S. Geological Survey Water-Resources Investigations Report 89-4008 (DOE/ID-22078), 73 p.

Pritt, J.W., and Raese, J.W., eds., 1992, Quality assurance/quality control manual—National Water Quality Laboratory: U.S. Geological Survey Open-File Report 92-495, 33 p.

Sehlke, G., and Bickford, F.E., 1993, Idaho National Engineering Laboratory groundwater monitoring plan: EG&G Idaho, Inc., and Golder Associates, Inc., (DOE/ID-10441 revision 1, volumes 1 and 2), variously paged.

Timme, P.J., 1994, National Water Quality Laboratory, 1994 services catalog: U.S. Geological Survey Open-File Report 94-304, 103 p.

U.S. Environmental Protection Agency, 1995, Protection of environment, Code of Federal Regulations 40: Washington, D.C., Office of the Federal Register, National Archives and Records Administration, parts 87 to 149, 1,346 p.

Wood, W.W., 1981, Guidelines for collection and field analysis of ground-water samples for selected unstable constituents: U.S. Geological Survey Techniques of Water-Resources Investigations, book 1, chap. D2, 24 p.

Table 1. Maximum contaminant levels and minimum reporting levels of purgeable organic compounds for which water samples were analyzed

[Analyses were performed by the U.S. Geological Survey's National Water Quality Laboratory using an analytical method that conforms to U.S. Environmental Protection Agency method 524.2. Maximum contaminant levels (MCL) were established pursuant to the recommendation of the U.S. Environmental Protection Agency (1995, p. 972) for community water systems and are included for comparison purposes only. Minimum reporting levels (MRL) are from Timme (1994). Units are in micrograms per liter (µg/L). Symbols: ••, maximum contaminant level has not been established or proposed; * total trihalomethanes—which include bromoform, chlorodibromomethane, chloroform, and dichlorobromomethane—in community water systems serving 10,000 or more persons cannot exceed 100 µg/L (U.S. Environmental Protection Agency, 1995, p. 912)]

Compound	MCL	MRL	Compound	MCL	MRL
Acrolein	••	20	1,2-Dichloropropane	5	0.2
Acrylonitrile	••	20	1,3-Dichloropropane	••	.2
Benzene	5	.2	2,2-Dichloropropane	••	.2
Bromobenzene	••	.2	Cis-1,3-Dichloropropene	••	.2
Bromochloromethane	••	.2	Trans-1,3-Dichloropropene	••	.2
Bromoform	*	.2	1,1-Dichloropropene	••	.2
Bromomethane	••	.2	Ethylbenzene	700	.2
n-Butylbenzene	••	.2	Hexachlorobutadiene	••	.2
Sec-butylbenzene	••	.2	Isopropylbenzene	••	.2
Tert-butylbenzene	••	.2	p-Isopropyltoluene	••	.2
Carbon tetrachloride	5	.2	Methylene chloride	5	.2
Chlorobenzene	100	.2	Methyltertbutylether	••	1
Chlorodibromomethane	*	.2	Naphthalene	••	.2
Chloroethane	••	.2	n-Propylbenzene	••	.2
2-Chloroethylvinylether	••	1	Styrene	100	.2
Chloroform	*	.2	1,1,1,2-Tetrachloroethane	••	.2
Chloromethane	••	.2	1,1,2,2-Tetrachloroethane	••	.2
2-Chlorotoluene	••	.2	Tetrachloroethylene	5	.2
4-Chlorotoluene	••	.2	Toluene	1,000	.2
1,2-Dibromo-3-chloropropane	.2	1	1,2,3-Trichlorobenzene	••	.2
1,2-Dibromoethane	.05	.2	1,2,4-Trichlorobenzene	70	.2
Dibromomethane	••	.2	1,1,1-Trichloroethane	200	.2
1,2-Dichlorobenzene	600	.2	1,1,2-Trichloroethane	5	.2
1,3-Dichlorobenzene	600	.2	Trichloroethylene	5	.2
1,4-Dichlorobenzene	75	.2	Trichlorofluoromethane	••	.2
Dichlorobromomethane	*	.2	1,2,3-Trichloropropane	••	.2
Dichlorodifluoromethane	••	.2	Trichlorotrifluoroethane	••	.5
1,1-Dichloroethane	••	.2	1,2,4-Trimethylbenzene	••	.2
1,2-Dichloroethane	5	.2	1,3,5-Trimethylbenzene	••	.2
Cis-1,2-Dichloroethene	••	.2	Vinyl chloride	2	.2
1,1-Dichloroethylene	7	.2	Xylenes, total ortho, meta, and para	10,000	.2
1,2-Transdichloroethene	100	.2			

Table 2. Concentrations of selected purgeable organic compounds in water

[Analyses were performed by the U.S. Geological Survey's National Water Quality Laboratory using an analytical method that conforms to U.S. Environmental Protection Agency method 524.2. See figures 2 and 3 for locations of wells. Concentrations are expressed in micrograms per liter. Symbol: <, indicates the concentration was less than the reporting level. Abbreviations: QA, quality assurance; OSW, Omni-Solv® water; OFN, organic free water; DIW, deionized water. Remarks: Replicate-indicates a second sample submitted for analysis usinga different identifier]

Well identifier	Date sampled	Time sampled	Carbon tetra-chloride	Chloro-form	Dichloro-difluoro-methane	Tetra-chloro-ethylene	1,1-Di-chloro-ethylene	Methy-lene chloride	Toluene	1,1,1-Trichloro-ethane	Trichloro-ethylene	Remarks
USGS-5	10/12/94	1305	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	*<0.30	<0.20	*Reporting level raised to 0.30 because of instrument interference
	10/25/95	1350	<.20	<.20	<.20	<.20	<.20	<.20	<.20	<.20	<.20	
7	3/30/94	1010	<.20	<.20	<.20	<.20	<.20	<.20	<.20	<.20	<.20	
	10/14/94	0930	<.20	<.20	<.20	<.20	<.20	<.20	<.20	<.20	<.20	
	4/06/95	1205	<.20	<.20	<.20	<.20	<.20	<.20	<.20	<.20	<.20	
	4/06/95	1235	<.20	<.20	<.20	<.20	<.20	<.20	<.20	<.20	<.20	QA replicate
	10/04/95	1027	<.20	<.20	<.20	<.20	<.20	<.20	<.20	<.20	<.20	
11	8/16/94	1740	<.20	<.20	<.20	<.20	<.20	<.20	<.20	<.20	<.20	
12	3/11/94	1441	<.20	<.20	<.20	<.20	<.20	<.20	<.20	<.20	<.20	
	10/27/94	1305	<.20	<.20	<.20	<.20	<.20	<.20	<.20	<.20	<.20	
	3/20/95	1451	<.20	<.20	<.20	<.20	<.20	<.20	<.20	<.20	<.20	
	11/02/95	1407	<.20	<.20	<.20	<.20	<.20	<.20	<.20	<.20	<.20	
14	8/11/93	1050	<.20	<.20	<.20	<.20	<.20	<.20	<.20	<.20	<.20	
26	3/31/94	1032	<.20	<.20	<.20	<.20	<.20	<.20	<.20	<.20	<.20	
	10/14/94	1320	<.20	<.20	<.20	<.20	<.20	<.20	<.20	<.20	<.20	
	4/11/95	1204	<.20	<.20	<.20	<.20	<.20	<.20	<.20	<.20	<.20	
	4/11/95	1315	<.20	<.20	<.20	<.20	<.20	<.20	<.20	<.20	<.20	QA replicate
	10/04/95	1512	<.20	<.20	<.20	<.20	<.20	<.20	<.20	<.20	<.20	
34	4/25/94	1608	<.20	<.20	<.20	<.20	<.20	.50	<.20	.20	<.20	
	10/17/94	1538	<.20	<.20	<.20	<.20	<.20	<.20	<.20	.20	<.20	
	4/05/95	1110	<.20	<.20	<.20	<.20	<.20	<.20	<.20	.20	<.20	
	10/11/95	1410	<.20	<.20	<.20	<.20	<.20	<.20	<.20	.20	<.20	

Table 2. Concentrations of selected purgeable organic compounds in water—continued

Well identifier	Date sampled	Time sampled	Carbon tetra-chloride	Chloro-form	Dichloro-difluoro-methane	Tetra-chloro-ethylene	1,1-Di-chloro-ethylene	Methy-lene chloride	Toluene	1,1,1-Trichloro-ethane	Trichloro-ethylene	Remarks
38	4/18/94	1325	<.20	<.20	<.20	<.20	<.20	<.20	1.20	.30	<.20	
	10/14/94	1220	<.20	<.20	<.20	<.20	<.20	<.20	<.20	.30	<.20	
	4/05/95	1500	<.20	<.20	<.20	<.20	<.20	<.20	<.20	.30	<.20	
	10/12/95	1320	<.20	<.20	<.20	<.20	<.20	<.20	<.20	.20	<.20	
44	7/01/92	1112	<.20	<.20	<.20	<.20	<.20	<.20	<.20	<.20	<.20	Before packer study ←
	7/20/92	1545	<.20	<.20	<.20	<.20	<.20	<.20	.20	.30	<.20	495-515 |
	7/24/92	1230	<.20	<.20	<.20	<.20	<.20	<.20	1.40	.20	<.20	535-555 Straddle
	7/28/92	1228	<.20	<.20	<.20	<.20	<.20	<.20	.60	<.20	<.20	557-577 interval, in
	7/30/92	1216	<.20	<.20	<.20	<.20	<.20	<.20	1.10	.20	<.20	580-bottom feet below
	8/03/92	1507	<.20	<.20	<.20	<.20	<.20	<.20	<.20	<.20	<.20	580-600 land surface
	8/14/92	1105	<.20	<.20	<.20	<.20	<.20	<.20	<.20	.50	<.20	467-482 |
	8/18/92	1210	<.20	<.20	<.20	<.20	<.20	<.20	.80	.30	<.20	519-534 ←
45	7/01/92	1335	<.20	<.20	<.20	<.20	<.20	<.20	<.20	<.20	<.20	
46	7/01/92	1535	<.20	<.20	<.20	<.20	<.20	<.20	<.20	<.20	<.20	
65	4/15/94	1335	<.20	<.20	<.20	<.20	<.20	<.20	<.20	.40	<.20	
	10/12/94	0946	<.20	<.20	<.20	<.20	<.20	<.20	<.20	.40	<.20	
	4/12/95	1326	<.20	<.20	<.20	<.20	<.20	<.20	<.20	.40	<.20	
	10/11/95	1130	<.20	<.20	<.20	<.20	<.20	<.20	<.20	.40	<.20	
76	4/26/94	1107	<.20	<.20	<.20	<.20	<.20	<.20	<.20	<.20	<.20	
	10/12/94	1505	<.20	<.20	<.20	<.20	<.20	<.20	<.20	<.20	<.20	
77	4/24/95	1405	<.20	<.20	<.20	<.20	.20	<.20	<.20	.50	<.20	
	10/24/95	1550	<.20	<.20	<.20	<.20	<.20	<.20	<.20	.40	<.20	
83	10/05/94	1538	<.20	<.20	<.20	<.20	<.20	<.20	<.20	<.20	<.20	
84	4/14/94	1310	<.20	<.20	<.20	<.20	<.20	<.20	<.20	<.20	<.20	
	10/18/94	0905	<.20	<.20	<.20	<.20	<.20	<.20	<.20	<.20	<.20	
	3/29/95	1510	<.20	<.20	<.20	<.20	<.20	<.20	<.20	<.20	<.20	

Table 2. Concentrations of selected purgeable organic compounds in water—continued

Well identifier	Date sampled	Time sampled	Carbon tetra-chloride	Chloro-form	Dichloro-difluoro-methane	Tetra-chloro-ethylene	1,1-Di-chloro-ethylene	Methy-lene chloride	Toluene	1,1,1-Trichloro-ethane	Trichloro-ethylene	Remarks
84—cont	10/18/95	1400	<.20	<.20	<.20	<.20	<.20	<.20	<.20	<.20	<.20	
87	1/14/92	1430	.70	<.20	<.20	<.20	<.20	<.20	<.20	<.20	.20	
	4/21/92	1500	.80	<.20	<.20	<.20	<.20	<.20	<.20	<.20	.20	QA replicate
	4/21/92	1540	.90	<.20	<.20	<.20	<.20	<.20	<.20	<.20	.20	
	7/09/92	1550	.90	<.20	<.20	<.20	<.20	<.20	<.20	.20	.20	
	10/07/92	1535	.90	<.20	<.20	<.20	<.20	<.20	<.20	<.20	.20	
	1/19/93	1455	1.20	.20	<.20	<.20	<.20	<.20	<.20	.20	.30	
	4/15/93	1450	.70	<.20	<.20	<.20	<.20	<.20	<.20	<.20	.30	
	7/15/93	1400	1.30	<.20	<.20	<.20	<.20	<.20	<.20	.20	.30	
	10/18/93	1150	1.00	<.20	<.20	<.20	<.20	<.20	<.20	.20	.30	
	1/10/94	1350	1.00	<.20	<.20	<.20	<.20	<.20	<.20	.20	.30	
	4/13/94	1430	1.30	<.20	<.20	<.20	<.20	<.20	<.20	<.20	.40	
	7/12/94	1410	1.40	<.20	<.20	<.20	<.20	<.20	<.20	<.20	.40	
	10/12/94	1500	1.30	<.20	<.20	<.20	<.20	<.20	<.20	<.20	.40	
	1/11/95	1242	1.90	<.20	<.20	<.20	<.20	<.20	<.20	.20	.40	
	1/11/95	1300	1.90	<.20	<.20	<.20	<.20	<.20	<.20	.20	.40	QA replicate
	4/17/95	1220	1.60	<.20	<.20	<.20	<.20	<.20	<.20	<.20	.40	
	7/11/95	1200	1.60	<.20	<.20	<.20	<.20	<.20	<.20	<.20	.50	
	10/16/95	1230	1.70	<.20	<.20	<.20	<.20	<.20	<.20	<.20	.40	
88	1/16/92	1300	1.70	.40	<.20	<.20	<.20	<.20	<.20	.20	.60	
	4/15/92	1315	1.30	.50	<.20	<.20	<.20	<.20	<.20	<.20	.60	
	7/10/92	1605	1.60	.50	<.20	<.20	<.20	<.20	<.20	.20	.70	
	10/13/92	1240	1.20	.50	<.20	<.20	.20	<.20	<.20	.30	.70	
	1/20/93	1450	2.40	.50	<.20	<.20	<.20	<.20	<.20	.30	.80	
	1/20/93	1400	2.30	.60	<.20	<.20	<.20	<.20	<.20	.30	1.00	QA replicate
	4/20/93	1330	1.30	.50	<.20	<.20	<.20	<.20	<.20	.20	.60	
	7/26/93	1230	1.50	.40	<.20	<.20	<.20	<.20	<.20	.30	.80	
	10/05/93	1530	1.40	.40	<.20	<.20	<.20	<.20	<.20	.20	.50	
	1/12/94	1145	1.50	.50	<.20	<.20	<.20	<.20	<.20	.20	.80	
	5/02/94	1806	1.20	.50	<.20	<.20	<.20	<.20	<.20	.20	.60	
	7/11/94	1055	1.60	.40	<.20	<.20	<.20	<.20	<.20	.20	.90	
	9/28/94	1215	1.70	.50	<.20	<.20	<.20	<.20	<.20	.20	.80	

Table 2. Concentrations of selected purgeable organic compounds in water—continued

Well identifier	Date sampled	Time sampled	Carbon tetra-chloride	Chloro-form	Dichloro-difluoro-methane	Tetra-chloro-ethylene	1,1-Di-chloro-ethylene	Methy-lene chloride	Toluene	1,1,1-Trichloro-ethane	Trichloro-ethylene	Remarks
88—cont.	1/24/95	1310	1.60	.40	<.20	<.20	<.20	*<3.90	<.20	.20	.70	*Reporting level raised to 3.90 because of laboratory contamination
	4/18/95	1500	1.60	.40	<.20	<.20	<.20	<.20	<.20	.20	.70	
	7/10/95	1135	1.60	.40	<.20	<.20	<.20	<.20	<.20	.20	.80	
	10/23/95	1325	1.90	.40	<.20	<.20	<.20	<.20	<.20	.20	.80	
89	4/15/92	1620	<.20	<.20	.50	<.20	<.20	<.20	.40	<.20	<.20	Styrene, 0.50
	10/05/92	1150	<.20	<.20	.20	<.20	<.20	<.20	<.20	.20	<.20	
	4/21/93	1620	<.20	<.20	<.20	<.20	<.20	<.20	<.20	.20	<.20	
	10/06/93	1230	<.20	<.20	<.20	<.20	<.20	<.20	<.20	<.20	<.20	
	5/02/94	1408	<.20	<.20	<.20	<.20	<.20	<.20	<.20	<.20	<.20	
	10/07/94	1358	<.20	<.20	<.20	<.20	<.20	<.20	<.20	<.20	<.20	
	4/21/95	1214	<.20	<.20	<.20	<.20	<.20	<.20	<.20	<.20	<.20	
	10/25/95	1633	<.20	<.20	<.20	<.20	<.20	<.20	<.20	<.20	<.20	
90	1/16/92	1450	1.10	<.20	.40	<.20	<.20	<.20	<.20	.20	.50	
	1/16/92	1500	1.10	1.20	.50	<.20	<.20	<.20	<.20	.20	.40	QA replicate; Chlorodibromo methane, 0.90; Dichlorobromo methane, 0.90; Bromoform, 0.60
	4/20/92	1115	1.20	<.20	.30	<.20	<.20	<.20	<.20	.20	.50	
	4/20/92	1200	1.30	<.20	.30	<.20	<.20	<.20	<.20	.20	.50	QA replicate
	7/15/92	1155	1.30	<.20	.70	<.20	<.20	<.20	<.20	.40	.40	
	10/06/92	1225	1.10	<.20	.40	<.20	<.20	<.20	<.20	.20	.40	
	5/03/93	1620	1.30	<.20	<.20	<.20	<.20	<.20	<.20	.30	.50	
	10/04/93	1400	1.30	<.20	<.20	<.20	<.20	<.20	<.20	.20	.40	QA replicate
	10/04/93	1535	1.30	<.20	<.20	<.20	<.20	<.20	<.20	.20	.40	
	1/11/94	1415	1.20	<.20	<.20	<.20	<.20	<.20	<.20	.30	.50	
	5/02/94	1208	1.50	<.20	<.20	<.20	<.20	<.20	<.20	.30	.50	
	1/12/95	1335	2.20	<.20	<.20	<.20	<.20	<.20	.20	.30	.80	
	4/21/95	1030	1.90	<.20	<.20	<.20	<.20	<.20	<.20	.30	.80	
	7/07/95	1155	1.80	<.20	<.20	<.20	<.20	<.20	<.20	.30	.80	
	10/25/95	1433	2.20	.20	<.20	<.20	<.20	<.20	<.20	.30	.90	

Table 2. Concentrations of selected purgeable organic compounds in water—continued

Well identifier	Date sampled	Time sampled	Carbon tetra-chloride	Chloro-form	Dichloro-difluoro-methane	Tetra-chloro-ethylene	1,1-Di-chloro-ethylene	Methy-lene chloride	Toluene	1,1,1-Trichloro-ethane	Trichloro-ethylene	Remarks
92	4/27/92	1030	2400	1500	.2	180	23	<.2	.3	210	1500	Benzene 0.2 Cis-1,2-Dichloroethene 1.4 Dichlorobromomethane 0.2 1,1-Dichloroethane 18 1,2-Dichloroethane 1.6 1,2-Dichloropropane 9,6 1,1,1,2 Tetrachloroethane 0.3 1,1,2-Trichloroethane 0.9 Trichlorofluoromethane 0.4 1,2-transdichloroethene 0.3
97	3/14/94	1446	<.20	<.20	<.20	<.20	<.20	<.20	<.20	<.20	<.20	
	11/10/94	1020	<.20	<.20	<.20	<.20	<.20	<.20	<.20	<.20	<.20	
	3/16/95	1331	<.20	<.20	<.20	<.20	<.20	<.20	<.20	<.20	<.20	
	11/06/95	1552	<.20	<.20	<.20	<.20	<.20	<.20	<.20	<.20	<.20	
98	3/14/94	1201	<.20	<.20	<.20	<.20	<.20	<.20	<.20	<.20	<.20	
	11/09/94	1245	<.20	<.20	<.20	<.20	<.20	<.20	<.20	<.20	<.20	
	3/15/95	1206	<.20	<.20	<.20	<.20	<.20	<.20	<.20	<.20	<.20	
	11/06/95	1202	<.20	<.20	<.20	<.20	<.20	<.20	<.20	<.20	<.20	
99	3/14/94	1326	<.20	<.20	<.20	<.20	<.20	<.20	<.20	<.20	<.20	
	11/09/94	1420	<.20	<.20	<.20	<.20	<.20	<.20	<.20	<.20	<.20	
107	10/05/94	0955	<.20	<.20	<.20	<.20	<.20	<.20	<.20	<.20	<.20	
	10/26/95	1120	<.20	<.20	<.20	<.20	<.20	<.20	<.20	<.20	<.20	
113	4/20/94	1615	<.20	<.20	<.20	<.20	<.20	<.20	<.20	.30	<.20	
	10/17/94	1722	<.20	<.20	<.20	<.20	<.20	<.20	<.20	.30	<.20	
114	4/20/94	1432	<.20	<.20	<.20	<.20	.20	<.20	<.20	.40	<.20	
	10/13/94	1500	<.20	<.20	<.20	<.20	.20	<.20	<.20	.50	<.20	
116	4/20/94	1157	<.20	.30	<.20	<.20	<.20	<.20	<.20	.20	<.20	
	10/13/94	1324	<.20	<.20	<.20	<.20	<.20	<.20	<.20	<.20	<.20	

Table 2. Concentrations of selected purgeable organic compounds in water—continued

Well identifier	Date sampled	Time sampled	Carbon tetra-chloride	Chloro-form	Dichloro-difluoro-methane	Tetra-chloro-ethylene	1,1-Di-chloro-ethylene	Methy-lene chloride	Toluene	1,1,1-Trichloro-ethane	Trichloro-ethylene	Remarks
117	4/15/92	1450	<.20	<.20	<.20	<.20	<.20	<.20	<.20	<.20	<.20	
	10/05/92	1435	<.20	<.20	<.20	<.20	<.20	<.20	<.20	<.20	<.20	
	10/05/93	1040	<.20	<.20	<.20	<.20	<.20	<.20	<.20	<.20	<.20	
	4/11/94	1125	<.20	<.20	<.20	<.20	<.20	<.20	<.20	<.20	<.20	
	10/05/94	1535	<.20	<.20	<.20	<.20	<.20	<.20	<.20	<.20	<.20	
	4/21/95	1630	<.20	<.20	<.20	<.20	<.20	<.20	<.20	<.20	<.20	
	10/24/95	1500	<.20	<.20	<.20	<.20	<.20	<.20	<.20	<.20	<.20	
119	4/16/92	1340	<.20	<.20	<.20	<.20	<.20	<.20	<.20	<.20	<.20	
	10/09/92	1305	<.20	<.20	<.20	<.20	<.20	<.20	<.20	<.20	<.20	
	4/23/93	1425	<.20	<.20	<.20	<.20	<.20	<.20	<.20	<.20	<.20	
	10/04/93	1230	<.20	<.20	<.20	<.20	<.20	<.20	<.20	<.20	<.20	
	4/04/94	1220	<.20	<.20	<.20	<.20	<.20	<.20	<.20	<.20	<.20	
	10/06/94	1320	<.20	<.20	<.20	<.20	<.20	<.20	<.20	<.20	<.20	
	4/17/95	1642	<.20	<.20	<.20	<.20	<.20	<.20	<.20	<.20	<.20	
	10/25/95	1228	<.20	<.20	<.20	<.20	<.20	<.20	<.20	<.20	<.20	
	10/25/95	1300	<.20	<.20	<.20	<.20	<.20	<.20	<.20	<.20	<.20	QA replicate
120	1/16/92	1030	.60	<.20	<.20	<.20	<.20	<.20	<.20	<.20	<.20	
	4/15/92	1020	.70	<.20	<.20	<.20	<.20	<.20	<.20	<.20	.20	
	7/10/92	1325	.90	<.20	<.20	<.20	<.20	<.20	<.20	.20	.20	
	10/05/92	1305	.40	<.20	<.20	<.20	<.20	<.20	<.20	<.20	<.20	
	1/20/93	1005	.50	.20	<.20	<.20	<.20	<.20	<.20	<.20	<.20	
	4/20/93	1455	.40	<.20	<.20	<.20	<.20	<.20	<.20	<.20	<.20	
	6/22/93	1100	.90	<.20	<.20	<.20	<.20	<.20	<.20	.20	.20	
	10/06/93	1010	.90	<.20	<.20	<.20	<.20	<.20	<.20	.20	.30	
	1/06/94	1355	.40	<.20	<.20	<.20	<.20	<.20	<.20	<.20	<.20	
	4/20/94	1315	.70	<.20	<.20	<.20	<.20	<.20	<.20	<.20	<.20	
	7/11/94	1245	.50	<.20	<.20	<.20	<.20	<.20	<.20	<.20	<.20	
	10/06/94	1510	.60	<.20	<.20	<.20	<.20	<.20	<.20	<.20	<.20	
	1/25/95	1045	.70	<.20	<.20	<.20	<.20	*<4.30	<.20	<.20	<.20	*Reporting level raised to 4.30 because of laboratory contamination

Table 2. Concentrations of selected purgeable organic compounds in water—continued

Well identifier	Date sampled	Time sampled	Carbon tetra-chloride	Chloro-form	Dichloro-difluoro-methane	Tetra-chloro-ethylene	1,1-Di-chloro-ethylene	Methy-lene chloride	Toluene	1,1,1-Trichloro-ethane	Trichloro-ethylene	Remarks
120 - cont.	4/12/95	1552	.40	<.20	<.20	<.20	<.20	<.20	<.20	<.20	<.20	
	7/10/95	1250	.50	<.20	<.20	<.20	<.20	<.20	<.20	<.20	<.20	
	10/23/95	1506	.70	<.20	<.20	<.20	<.20	<.20	<.20	<.20	<.20	
	10/23/95	1600	.70	<.20	<.20	<.20	<.20	<.20	<.20	<.20	<.20	QA replicate
121	4/25/94	1030	<.20	<.20	<.20	<.20	<.20	<.20	<.20	<.20	<.20	
	10/24/94	1020	<.20	<.20	<.20	<.20	<.20	<.20	<.20	<.20	<.20	
	10/24/94	1100	<.20	<.20	<.20	<.20	<.20	<.20	<.20	<.20	<.20	QA replicate
124	9/30/94	1325	<.20	<.20	<.20	<.20	<.20	<.20	<.20	<.20	<.20	
	4/21/94	1405	<.20	<.20	<.20	<.20	<.20	<.20	<.20	<.20	<.20	
125	4/27/95	1300	<.20	<.20	<.20	<.20	<.20	<.20	<.20	<.20	<.20	
ANP-6	4/11/94	1345	<.20	<.20	<.20	<.20	<.20	<.20	<.20	<.20	<.20	
	10/14/94	1130	<.20	<.20	<.20	<.20	<.20	<.20	<.20	<.20	<.20	
ANP-9	4/13/94	1432	<.20	<.20	<.20	<.20	<.20	<.20	11.0	<.20	<.20	
	10/14/94	1500	<.20	<.20	<.20	<.20	<.20	<.20	<.20	*<.30	<.20	QA replicate. *Reporting level raised to 0.30 because of instrument interference
	10/14/94	1550	<.20	<.20	<.20	<.20	<.20	<.20	<.20	<.20	<.20	
	4/06/95	1542	<.20	<.20	<.20	<.20	<.20	<.20	<.20	<.20	<.20	
	10/10/95	1049	<.20	<.20	<.20	<.20	<.20	<.20	<.20	<.20	<.20	
Atomic city well	8/22/92	0926	<.20	<.20	<.20	<.20	<.20	<.20	<.20	<.20	<.20	
CFA-1	4/09/92	1027	<.20	6.20	<.20	<.20	<.20	<.20	<.20	.40	.60	
CPP-1	4/22/94	1335	<.20	<.20	<.20	<.20	<.20	<.20	<.20	<.20	<.20	
	10/19/94	1245	<.20	<.20	<.20	<.20	<.20	<.20	<.20	<.20	<.20	
	4/13/95	1320	<.20	<.20	<.20	<.20	<.20	<.20	<.20	<.20	<.20	
	10/16/95	1445	<.20	<.20	<.20	<.20	<.20	<.20	<.20	<.20	<.20	

Table 2. Concentrations of selected purgeable organic compounds in water—continued

Well identifier	Date sampled	Time sampled	Carbon tetra-chloride	Chloro-form	Dichloro-difluoro-methane	Tetra-chloro-ethylene	1,1-Di-chloro-ethylene	Methy-lene chloride	Toluene	1,1,1-Trichloro-ethane	Trichloro-ethylene	Remarks
CPP-2	5/04/94	1000	<.20	<.20	<.20	<.20	<.20	<.20	<.20	<.20	<.20	
	11/02/94	1110	<.20	<.20	<.20	<.20	<.20	<.20	<.20	<.20	<.20	
CPP-4	4/13/94	1050	<.20	<.20	<.20	<.20	<.20	<.20	<.20	<.20	<.20	
	10/12/94	1025	<.20	<.20	<.20	<.20	<.20	<.20	<.20	<.20	<.20	
EBR-1	10/06/94	1130	<.20	<.20	<.20	<.20	<.20	<.20	<.20	<.20	<.20	
	10/11/95	1146	<.20	<.20	<.20	<.20	<.20	<.20	<.20	<.20	<.20	
Fire Station 2	4/07/94	1030	<.20	<.20	<.20	<.20	<.20	<.20	<.20	1.60	<.20	
	10/06/94	1030	<.20	<.20	<.20	<.20	.20	<.20	<.20	1.70	<.20	
Highway 3	10/09/92	0850	<.20	<.20	<.20	<.20	<.20	<.20	<.20	<.20	<.20	
	10/07/93	1125	<.20	<.20	<.20	<.20	<.20	<.20	<.20	<.20	<.20	
	10/11/94	0905	<.20	<.20	<.20	<.20	<.20	<.20	<.20	<.20	<.20	
	10/12/94	1345	<.20	<.20	<.20	<.20	<.20	<.20	<.20	<.20	<.20	QA replicate, sampling delayed 30 hrs
	10/16/95	0820	<.20	<.20	<.20	<.20	<.20	<.20	<.20	<.20	<.20	
No Name #1	4/12/94	1420	<.20	<.20	<.20	<.20	<.20	<.20	<.20	<.20	<.20	
	4/12/94	1515	<.20	<.20	<.20	<.20	<.20	<.20	<.20	<.20	<.20	QA replicate
	10/13/94	1325	<.20	<.20	<.20	<.20	<.20	<.20	<.20	<.20	<.20	Isopropylbenzene 1.10
	4/10/95	1712	<.20	<.20	<.20	<.20	<.20	<.20	<.20	<.20	<.20	
	10/03/95	1214	<.20	<.20	<.20	<.20	<.20	<.20	<.20	<.20	<.20	
NPR-Test	10/18/94	1204	<.20	<.20	<.20	<.20	<.20	<.20	<.20	<.20	<.20	
	10/23/95	1415	<.20	<.20	<.20	<.20	<.20	<.20	<.20	<.20	<.20	
PSTF	4/12/94	1041	<.20	<.20	<.20	<.20	<.20	<.20	<.20	<.20	<.20	
	10/13/94	1530	<.20	<.20	<.20	<.20	<.20	<.20	<.20	<.20	<.20	
	4/10/95	1320	<.20	<.20	<.20	<.20	<.20	<.20	<.20	<.20	<.20	
	4/10/95	1400	<.20	<.20	<.20	<.20	<.20	<.20	<.20	<.20	<.20	QA replicate
	10/04/95	1307	<.20	<.20	<.20	<.20	<.20	<.20	<.20	<.20	<.20	

Table 2. Concentrations of selected purgeable organic compounds in water—continued

Well identifier	Date sampled	Time sampled	Carbon tetra-chloride	Chloro-form	Dichloro-difluoro-methane	Tetra-chloro-ethylene	1,1-Di-chloro-ethylene	Methy-lene chloride	Toluene	1,1,1-Trichloro-ethane	Trichloro-ethylene	Remarks
RWMC M1SA	2/25/93	1150	<.20	<.20	<.20	<.20	<.20	<.20	<.20	<.20	<.20	
RWMC M3S	2/26/93	1115	1.10	<.20	<.20	<.20	<.20	<.20	<.20	.20	2.40	
RWMC M4D	3/04/93	1215	<.20	<.20	<.20	<.20	<.20	<.20	4.70	<.20	<.20	
RWMC M6S	3/04/93	1430	1.20	.30	<.20	<.20	<.20	<.20	<.20	.30	.50	
RWMC M7S	3/04/93	1630	2.00	.50	<.20	.20	<.20	<.20	<.20	.60	1.50	
	7/27/93	1145	4.30	.50	<.20	.40	<.20	<.20	<.20	.80	2.10	
	11/02/94	0935	4.90	.60	<.20	.40	<.20	<.20	<.20	.90	2.40	
	7/18/95	1115	5.70	.60	<.20	.40	<.20	<.20	<.20	.90	2.70	
RWMC M10S	2/26/93	1425	.60	.50	<.20	<.20	<.20	<.20	<.20	<.20	<.20	
RWMC Production	1/14/92	1325	2.00	.30	<.20	<.20	<.20	<.20	<.20	.40	1.00	
	2/19/92	1345	2.30	.30	<.20	<.20	<.20	<.20	<.20	.50	1.00	
	3/17/92	1440	2.30	.30	<.20	<.20	<.20	<.20	<.20	.40	1.10	
	4/21/92	1415	2.40	.30	<.20	<.20	<.20	<.20	<.20	.40	1.10	
	5/19/92	1405	2.00	.30	<.20	<.20	<.20	<.20	<.20	.40	1.10	
	6/18/92	1034	2.00	.30	<.20	<.20	<.20	<.20	<.20	.30	1.00	
	7/14/92	1345	2.30	.30	<.20	<.20	<.20	<.20	<.20	.50	1.10	
	8/13/92	1405	1.30	.20	<.20	<.20	<.20	<.20	<.20	.30	.90	
	9/16/92	1009	1.90	.20	<.20	<.20	<.20	<.20	<.20	.40	.80	
	10/26/92	0950	2.50	.30	<.20	<.20	<.20	<.20	<.20	.40	1.00	
	11/16/92	1415	2.20	.30	<.20	<.20	<.20	<.20	<.20	.40	.90	
	12/16/92	1515	2.10	.30	<.20	<.20	<.20	<.20	<.20	.50	.90	
	1/19/93	1405	2.60	.50	<.20	<.20	<.20	<.20	<.20	.40	1.20	
	2/18/93	1353	3.10	.40	<.20	.20	<.20	<.20	<.20	.50	1.40	
	3/15/93	1353	2.00	.40	<.20	<.20	<.20	<.20	<.20	.40	1.10	
	4/15/93	1325	2.00	.30	<.20	<.20	<.20	<.20	<.20	.40	1.10	
	5/19/93	1355	2.80	.30	<.20	<.20	<.20	<.20	<.20	.50	1.30	
	6/15/93	1432	2.10	.40	<.20	<.20	<.20	<.20	<.20	.50	1.10	
	7/15/93	1200	2.40	.30	<.20	<.20	<.20	<.20	<.20	.40	1.10	

Table 2. Concentrations of selected purgeable organic compounds in water—continued

Well identifier	Date sampled	Time sampled	Carbon tetra-chloride	Chloro-form	Dichloro-difluoro-methane	Tetra-chloro-ethylene	1,1-Di-chloro-ethylene	Methy-lene chloride	Toluene	1,1,1-Trichloro-ethane	Trichloro-ethylene	Remarks
RWMC Production—cont.	8/18/93	1355	1.60	.20	<.20	<.20	<.20	<.20	<.20	.30	.90	
	9/15/93	1455	2.30	.30	<.20	<.20	<.20	<.20	<.20	.50	1.00	
	10/18/93	1005	2.10	.40	<.20	<.20	<.20	<.20	<.20	.40	1.00	
	11/15/93	1350	2.50	.30	<.20	<.20	<.20	<.20	<.20	.40	1.20	
	12/16/93	1354	2.20	.30	<.20	<.20	<.20	<.20	<.20	.40	1.10	
	1/10/94	1120	2.30	.30	<.20	<.20	<.20	<.20	<.20	.40	1.30	
	2/15/94	1400	3.00	.40	<.20	.20	<.20	<.20	<.20	.50	1.70	
	3/15/94	1420	3.00	.40	<.20	.20	<.20	<.20	<.20	.50	1.60	
	4/13/94	1330	3.00	.40	<.20	<.20	<.20	<.20	<.20	.50	1.50	
	5/17/94	1422	2.70	.40	<.20	<.20	<.20	*<.40	<.20	.40	1.40	*Reporting level raised to 0.40 because of laboratory interference
	6/15/94	1045	3.00	.40	<.20	<.20	<.20	<.20	<.20	.50	1.40	
	7/14/94	1105	2.60	.30	<.20	<.20	<.20	<.20	<.20	.40	1.20	
	8/16/94	0933	2.60	.30	<.20	<.20	<.20	<.20	<.20	.40	1.20	
	9/13/94	1036	2.90	.30	<.20	<.20	<.20	<.20	<.20	.50	1.30	
	10/12/94	1445	2.60	.30	<.20	<.20	<.20	<.20	<.20	.40	1.30	
	11/16/94	1000	3.10	.50	<.20	<.20	<.20	<.20	<.20	.50	1.50	
	12/14/94	1348	4.70	.60	<.20	.20	<.20	<.20	<.20	.70	1.80	
	1/05/95	1020	4.10	.50	<.20	.20	<.20	<.20	<.20	.60	1.70	
	2/14/95	1415	2.80	.50	<.20	<.20	<.20	<.20	<.20	*<.50	1.70	*Reporting level raised to 0.50 because of laboratory contamination
	3/15/95	1402	3.50	.50	<.20	<.20	<.20	<.20	<.20	.50	1.80	
	4/17/95	1056	3.80	.50	<.20	<.20	<.20	<.20	<.20	.50	1.90	
	5/15/95	1102	3.40	.50	<.20	<.20	<.20	<.20	<.20	.50	1.80	
	6/13/95	1102	3.70	.60	<.20	<.20	<.20	<.20	<.20	.50	1.90	
	7/11/95	0950	2.60	.50	<.20	<.20	<.20	<.20	<.20	.40	1.60	
	8//15/95	0952	3.70	.50	<.20	<.20	<.20	<.20	<.20	.50	1.80	
	9/06/95	0925	4.00	.50	<.20	.20	<.20	<.20	<.20	.60	1.90	
	10/12/95	0845	3.80	.50	<.20	.20	<.20	<.20	<.20	.50	1.70	
	11/20/95	0940	3.80	.50	<.20	<.20	<.20	<.20	<.20	.50	1.60	
	12/18/95	0935										**

Table 2. Concentrations of selected purgeable organic compounds in water—continued

Well identifier	Date sampled	Time sampled	Carbon tetra-chloride	Chloro-form	Dichloro-difluoro-methane	Tetra-chloro-ethylene	1,1-Di-chloro-ethylene	Methy-lene chloride	Toluene	1,1,1-Trichloro-ethane	Trichloro-ethylene	Remarks
Blank (OSW)	2/21/92	1410	<.20	<.20	<.20	<.20	<.20	9.00	<.20	<.20	<.20	QA equipment blank
Blank (OFW)	11/12/92	1445	<.20	<.20	<.20	<.20	<.20	1.90	<.20	<.20	<.20	QA source blank
Blank (DIW)	5/07/93	1225	<.20	<.20	<.20	<.20	<.20	.20	.30	<.20	<.20	QA source blank
Blank (DIW)	1/09/95	0945	<.20	<.20	<.20	<.20	<.20	<.20	<.20	<.20	<.20	QA source blank
Blank (DIW)	2/01/95	1000	<.20	<.20	<.20	<.20	<.20	<.20	<.20	<.20	<.20	QA trip blank
Blank (OFW)	4/20/92	1200	<.20	<.20	<.20	<.20	<.20	<.20	<.20	<.20	<.20	QA trip blank

**December 1995, samples collected, but not analyzed because of lab closure due to Government furlough