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OAK RIDGE Y-12 PLANT

CALENDAR YEAR 1994 GROUNDWATER QUALITY REPORT FOR THE BEAR CREEK HYDROGEOLOGIC REGIME Y-12 PLANT, OAK RIDGE, TENNESSEE

MARTIN MARIETTA

1994 Groundwater Quality Data
and Calculated Rate of
Contaminant Migration

February 1995

Prepared by:

HSW ENVIRONMENTAL CONSULTANTS, INC.
Under Purchase Order 70Y-EAQ10C

for the

Environmental Management Department
Health, Safety, Environment, and Accountability Organization
Oak Ridge Y-12 Plant
Oak Ridge, Tennessee 37831

Managed By
MARTIN MARIETTA ENERGY SYSTEMS, INC.
for the
U.S. DEPARTMENT OF ENERGY
under contract
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MARTIN MARIETTA ENERGY SYSTEMS, INC.
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LIST OF ACRONYMS

ASO	Analytical Services Organization
ARAR	Applicable, or Relevant and Appropriate Requirement
BCV	Bear Creek Valley
BCK	Bear Creek Kilometer
bgs	below ground surface
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CY	Calendar Year
DOE	U.S. Department of Energy
EMD	Environmental Monitoring Database
EPA	U.S. Environmental Protection Agency
ft	feet
ft/day	feet per day
FFA	Federal Facility Agreement
gpm	gallons per minute
GWPP	Groundwater Protection Program
GWQR	Groundwater Quality Report
HSEA	Health, Safety, Environment, and Accountability (Organization)
IDL	Instrument Detection Limit
MDL	Method Detection Limit
mg/L	milligrams per liter
NT	Northern Tributary (to Bear Creek)
ORNL	Oak Ridge National Laboratory
ORR	Oak Ridge Reservation
OU	Operable Unit
PCPA	Post-Closure Permit Application
QA/QC	Quality Assurance/Quality Control
RCRA	Resource Conservation and Recovery Act
RI/FS	Remedial Investigation/Feasibility Study
SESD	K-25 Site Sampling and Environmental Support Department
SWMU	Solid Waste-Management Unit
TDEC	Tennessee Department of Environment and Conservation
TDS	Total Dissolved Solids
TSD	Treatment, Storage, and Disposal (Unit)
VOC	Volatile Organic Compound
WMA	Waste-Management Area

1.0 INTRODUCTION

This annual groundwater quality report (GWQR) contains groundwater and surface water quality data obtained during the 1994 calendar year (CY) at several hazardous and non-hazardous waste-management facilities associated with the U.S. Department of Energy (DOE) Y-12 Plant located on the DOE Oak Ridge Reservation (ORR) southeast of Oak Ridge, Tennessee (Figure 1).

The sites addressed by this document are located in Bear Creek Valley (BCV) west of the Y-12 Plant complex (directions in this report are in reference to the Y-12 administrative grid system) within the Bear Creek Hydrogeologic Regime (Bear Creek Regime), one of three hydrogeologic regimes defined for the purposes of groundwater and surface water quality monitoring at the Y-12 Plant (Figure 2). The Bear Creek Regime is bound to the north by Pine Ridge and to the south by Chestnut Ridge, and encompasses the portion of BCV extending from a surface water and shallow groundwater divide at the west end of the Y-12 Plant to the western boundary of the Bear Creek watershed (Figure 2).

The Environmental Management Department of the Y-12 Plant Health, Safety, Environment, and Accountability (HSEA) Organization manages the groundwater monitoring activities in the Bear Creek Regime under the auspices of the Y-12 Plant Groundwater Protection Program (GWPP). The purpose of the GWPP is to characterize the hydrogeology and to monitor groundwater quality at the Y-12 Plant and surrounding area to provide for protection of groundwater resources consistent with federal, state, and local requirements and in accordance with DOE Orders and Martin Marietta Energy Systems, Inc. (Energy Systems) corporate policy.

The annual GWQR for the Bear Creek Regime is completed in two parts. Part 1 (this report) consists primarily of data appendices and serves as a reference for the groundwater quality data obtained each CY under the lead of the Y-12 Plant GWPP. Because it contains information needed to comply with Resource Conservation and Recovery Act (RCRA) corrective action monitoring and interim status assessment monitoring and reporting requirements, this report is submitted to the Tennessee Department of Environment and Conservation (TDEC) by the RCRA reporting deadline (March 1 of the following CY). Part 2 of the report, to be issued mid-year, will contain an evaluation of the data with respect to regime-wide groundwater quality, present the findings and status of ongoing hydrogeologic studies, describe changes in monitoring

priorities, and present planned modifications to the groundwater sampling and analysis program for the following CY.

Changes to the regulatory status of waste sites in the Bear Creek Regime and the redirection of monitoring priorities has altered the form and content of annual regime-wide GWQRs. Beginning in 1994, the focus of the GWQRs shifted away from RCRA interim status assessment monitoring reporting requirements, which historically have been the chief purpose of the reports, towards use as: (1) a regime-wide data reporting mechanism (Part 1), and (2) a forum presenting regime-wide evaluations of groundwater quality, discussing scheduling issues, and describing the status of related groundwater monitoring projects performed under the lead of the Y-12 Plant GWPP (Part 2).

2.0 BACKGROUND INFORMATION

Groundwater quality monitoring activities at the waste-management sites in the Bear Creek Regime have been in progress since the late 1970s and have evolved in response to regulatory changes and monitoring results. A brief description of the waste-management facilities in the Bear Creek Regime, including waste inventories and disposal histories, and a discussion of the regulatory status and groundwater monitoring history of each site, are provided in the following sections.

2.1 CERCLA Operable Units

In 1984, the U.S. Environmental Protection Agency (EPA) and the TDEC determined that several of the waste-management sites at the Y-12 Plant were hazardous waste treatment, storage, and disposal (TSD) units subject to regulation under RCRA (Table 1). Three of the TSD units are located in the Bear Creek Regime: the S-3 Site, the Oil Landfarm waste-management area (WMA), and the Bear Creek Burial Grounds WMA (Figure 3). These sites were granted RCRA interim status until operating or post-closure RCRA permits were obtained by the DOE. The RCRA post-closure permit applications (PCPAs) for these sites were initially submitted to the TDEC in 1987. Also in 1987, Spoil Area I, the Rust Spoil Area, and the SY-200 Yard were identified as solid waste management units (SWMUs) subject to regulation under section 3004(u) of RCRA (Welch *et al.* 1987).

In November 1989, the ORR was added to the National Priority List and in January 1992, the DOE, the EPA, and the TDEC negotiated a Federal Facility Agreement (FFA) regarding environmental restoration on the ORR under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA). This agreement changed the regulatory status of the RCRA TSD units and SWMUs in the Bear Creek Regime to CERCLA Operable Units (OUs). As such, the DOE appealed the applicability of RCRA post-closure care, corrective action, and groundwater monitoring requirements to CERCLA OUs.

In April 1993, the DOE, TDEC, and Energy Systems signed an Agreed Order for a RCRA post-closure permit for the S-3 Site, thereby resolving the appeal and formally agreeing to proceed with CERCLA as a lead regulatory program with RCRA as an applicable, or relevant

and appropriate requirement (ARAR). Under this agreement, RCRA will be applied as an ARAR to the extent that post-closure maintenance and care of former TSD facilities will be conducted in compliance with the terms of RCRA post-closure permits. Groundwater monitoring is to be integrated with the CERCLA remedial investigation/feasibility study (RI/FS) programs, with RCRA corrective action deferred to CERCLA. Accordingly, groundwater monitoring data reporting will comply with RCRA post-closure permit conditions as well as RI/FS requirements.

Two types of CERCLA OUs are possible under the FFA: source control OUs and integrator OUs. Source control OUs are individual or groups of waste sites for which a RI/FS will be performed, including any interim actions and/or remedial actions. Integrator OUs encompass groundwater and surface water, and are considered separate from source control OUs that contribute to the contamination of these media. Integrator OUs were established because available data showed that contaminants from multiple sources had intermingled in the groundwater system and migrated through a common exit-pathway (U.S. Department of Energy 1994a).

The FFA originally established three source control OUs and one integrator OU that lie within the Bear Creek Regime (Table 1). Bear Creek OUs 01 and 02 include all of the waste-management sites in the regime. Groundwater and surface water in the regime, as well as contaminated sediments within the Bear Creek flood plain (originally addressed in the FFA as Bear Creek OU 03), comprise the integrator OU (Bear Creek OU 04).

Early in CY 1994, as the RIs within BCV progressed, data increasingly indicated that the separation of the source control and integrator OUs was not the most technically feasible approach to the RI/FS process. Negotiations with regulatory agencies and the DOE led to agreement for an integrated RI/FS approach that addressed source control and integrator units concurrently, and targeted focused studies on sites with the highest risk or concern. Additionally, efforts were initiated to develop a conceptual model of groundwater flow and contaminant migration that is tailored to the specific characteristics of the groundwater flow system in BCV.

2.1.1 Bear Creek Operable Unit 01

Bear Creek OU 01 is a source control OU comprised of the three former RCRA TSD units in the regime: the S-3 Site, the Oil Landfarm WMA, and the Bear Creek Burial Grounds WMA (Table 1). An RI work plan for this OU was prepared and approved by the EPA (Region IV) and the TDEC (U.S. Department of Energy 1993a). Field activities for the RI were initiated in August 1994 and are expected to be completed in March 1995.

2.1.1.1 S-3 Site

The S-3 Site is located near the west end of the Y-12 Plant (Figure 3), just west of the groundwater and surface water flow divide separating the Bear Creek Regime from the Upper East Fork Poplar Creek Hydrogeologic Regime (East Fork Regime). Formerly called the S-3 Ponds, the site was constructed in 1951 and consisted of four unlined ponds covering an area of roughly 400 x 400 feet (ft). Each pond was about 17 ft deep (excavations did not extend into bedrock), and had a storage capacity of about 2.5 million gallons (Geraghty & Miller, Inc. 1993).

Wastes discharged into the ponds consisted primarily of nitric and other acids, nitrate wastes, pickling and plating wastes, machine coolants, caustic solutions, depleted uranium in nitric acid solution, technetium in raffinate and condensate, and miscellaneous liquid wastes (mop waters) associated with routine clean-up and operations at the Y-12 Plant. Most of the acid wastes were discharged into the S-3 Ponds from a pipeline (the Nitric Acid Pipeline) connected to operations within Buildings 9212, 9206, and 9998 (the H-1 Foundry) located in the west central section of the Y-12 Plant complex. A small section of the Nitric Acid Pipeline lies within the easternmost part of the Bear Creek Regime. The remainder of the pipeline lies east of the groundwater and surface water divide separating the Bear Creek Regime from the East Fork Regime.

Waste disposal at the S-3 Ponds ceased in 1984 and, in 1988, the site was closed in accordance with a closure plan approved by the TDEC (Martin Marietta Energy Systems 1988a). When closed, the ponds contained 2 to 5 ft of sludge produced during in-situ denitrification and neutralization of wastewater in the ponds, and a small volume of contaminated sediments

removed from Bear Creek downstream of the site. Laboratory testing showed that the sludge was not leachable in weak acid and water (Geraghty & Miller, Inc. 1993). During closure, the sludge and sediments were stabilized with coarse aggregate and the ponds were covered with a low-permeability cap. Construction of an asphalt parking lot over the cap completed final closure of the site, which was certified by the TDEC on November 15, 1990.

2.1.1.2 Oil Landfarm Waste-Management Area

The Oil Landfarm WMA is approximately one mile west of the Y-12 Plant (Figure 3). The Oil Landfarm, the Boneyard, the Burnyard, the Chemical Storage Area, and Sanitary Landfill I comprise the Oil Landfarm WMA (Figure 4).

The Oil Landfarm consisted of three areas where waste oils and coolants were applied to nutrient-adjusted soil during the dry months of the year (April to October) to enhance biodegradation. These oils and coolants contained beryllium compounds, depleted uranium, polychlorinated biphenyls, and spent solvents. Approximately one million gallons of waste oil were applied to soils at the site between 1973 and 1982 (Geraghty & Miller, Inc. 1994a). In 1989, the site was covered with a low-permeability cap in accordance with a TDEC-approved closure plan (Martin Marietta Energy Systems, Inc. 1988b). The TDEC certified final closure of the Oil Landfarm on December 15, 1990.

The Boneyard was used for the disposal of magnesium chips and construction debris (e.g., concrete) in unlined shallow trenches. Magnesium chips were placed in the trenches and burned, and residues were covered with soil and compacted. Filled trenches were covered with top soil and seeded with grass (Geraghty & Miller, Inc. 1988).

The Burnyard consisted of two unlined trenches about 300 ft long by 40 ft wide. Between 1943 and 1968, various types of refuse (including pesticide containers, metal shavings, solvents, oils, and laboratory chemicals) were burned in the trenches. Some residues may have been buried in the Boneyard (Geraghty & Miller, Inc. 1988).

The Chemical Storage Area was constructed on top of the Burnyard and used as an area for releasing compressed gas from cylinders with leaking or damaged valves, and for disposal of reactive or explosive laboratory chemicals. Gas in the damaged cylinders was allowed to leak into the atmosphere or was bled off; corrosive gases were bled through neutralizing slurries.

Laboratory chemicals disposed at the site included acids, bases, organics, water-reactive compounds, and shock-sensitive compounds such as picric acid. The chemicals were handled to induce the expected reaction or explosion, and remaining liquids were discharged into a small unlined surface impoundment (Geraghty & Miller, Inc. 1988).

Sanitary Landfill I is south of the Oil Landfarm next to Bear Creek (Figure 4). The TDEC permitted the site for disposal of non-hazardous wastes generated at the Y-12 Plant, including paper, cardboard, plastics, rubber, wood, brush, organic refuse, textile products, and asphalt roofing materials. Waste disposal at the site started in 1968 and the site contained about 105,000 tons of waste when disposal activities ceased in 1982 (Geraghty & Miller, Inc. 1988). In 1983, the site was graded and capped in accordance with a TDEC-approved closure plan (Bailey 1983).

2.1.1.3 Bear Creek Burial Grounds Waste-Management Area

The Bear Creek Burial Grounds WMA, located approximately two miles west of the Y-12 Plant (Figure 3), is comprised of several waste disposal units designated Burial Grounds A (North and South), B (including the Walk-in-Pits), C, D, E, and J, and two ponds designated Oil Retention Ponds No. 1 and 2 (Figure 5). Only Burial Grounds A and C are RCRA interim status units. The Walk-in-Pits, recently closed, will also be incorporated into the Burial Grounds post-closure permit modification to monitor effectiveness of corrective actions.

Disposal units at the Bear Creek Burial Grounds WMA consisted of multiple trenches excavated 14 to 25 ft below ground surface (bgs) that were used for disposal of liquid and/or solid wastes. Perforated stand-pipes installed vertically in some trenches were used for liquid waste disposal; rock and gravel were backfilled around the standpipes for support and to maximize the drainage rate. Oil Retention Ponds No. 1 and 2 were constructed to collect oils seeping from disposal trenches in Burial Ground A South and A North, respectively (Figure 5).

Burial Grounds A (North and South) and C primarily received liquid wastes that generally consisted of waste oils and coolants, spent solvents, and mop waters. Solid wastes disposed at the site included salts, metals (primarily beryllium and uranium) and metal oxides, metal saw-fines, and asbestos. The Walk-in-Pits received various chemical wastes,

shock-sensitive reagents (picric acid), and uranium metal saw fines. Hazardous waste disposal activities ceased in 1981 (Geraghty & Miller, Inc. 1994b).

Burial Grounds A (North and South) and C, and the Oil Retention Ponds were closed in 1988 and 1989 in accordance with TDEC-approved closure plans (Martin Marietta Energy Systems, Inc. 1988c and 1988d). The TDEC certified final closure of Burial Ground A (North and South) on December 15, 1989. Certification of final closure of Burial Ground C was requested from the TDEC on December 27, 1990. The TDEC certified final closure of Oil Retention Ponds No. 1 and 2 on November 15, 1990, and December 11, 1990, respectively.

2.1.2 Bear Creek Operable Unit 02

Bear Creek OU 02 is a source control OU comprised of three former RCRA SWMUs: Spoil Area I, the SY-200 Yard, and the Rust Spoil Area (Table 1). The RI work plan for this OU (U.S. Department of Energy 1993b) has been approved by the EPA and the TDEC. Field work for the RI was completed in December 1993 and included a single round of groundwater sampling from monitoring wells located at each of the sites. A RI report for this OU was completed in August 1994 (U.S. Department of Energy 1994b). A FS/Environmental Assessment was completed in November 1994 (U.S. Department of Energy 1994c) and submitted for regulatory approval, which to date, has not been received. A Proposed Plan is also currently being prepared.

2.1.2.1 Spoil Area I

Spoil Area I is located on the northern slope of Chestnut Ridge, west of the Y-12 Plant near the intersection of Old Bear Creek Road and West Patrol Road (Figure 3). The five-acre site was used since about 1980 for disposal of non-radioactive construction debris. The TDEC permitted the site in 1986 (Permit No. DML011030012) for disposal of rubble and other non-combustible, stable solid wastes (Tennessee Department of Health and Environment 1986). Closure of the site began shortly thereafter by placing a minimum 2 ft clay layer over debris as it was emplaced. The site received approximately 100,000 cubic yards of debris, including

asphalt, brick, concrete, roofing materials, brush, steel rebar, rock, and tile (Battelle Columbus Division 1989a).

2.1.2.2 SY-200 Yard

The SY-200 Yard is located south of Bear Creek near the base of the northern slope of Chestnut Ridge, approximately one-half mile west of the Y-12 Plant (Figure 3). Operated from the 1950s to 1986, the SY-200 Yard was a 300 x 200 ft gravel-covered area used for temporary storage of equipment, machinery, and miscellaneous items. Records indicate that waste materials were not disposed or stored at the site (Geraghty & Miller, Inc. 1989a).

2.1.2.3 Rust Spoil Area

The Rust Spoil Area is a 5.4-acre site located west of the SY-200 Yard (Figure 3) that was used between 1975 and 1983 for disposal of solid wastes (spoil) generated during various renovation, maintenance, and construction operations at the Y-12 Plant. Waste materials were primarily non-radioactive soil, masonry, and concrete with steel rebar, but also may have included materials containing solvents, asbestos, mercury, and uranium (Battelle Columbus Division 1989b). The total waste volume is estimated at less than 100,000 cubic yards. Closure of the site was completed in 1984 in accordance with a TDEC-approved closure plan (MCI Consulting Engineers 1983). Data obtained during the RI for Bear Creek OU 02 indicate that the Rust Spoil Area is a source of trichloroethene to shallow groundwater (U.S. Department of Energy 1994b).

2.1.3 Bear Creek Operable Unit 04

Bear Creek OU 04 is the integrator OU encompassing groundwater, and surface water and stream sediments in Bear Creek and its tributaries within the regime. In January 1990, based on results of the site-specific RCRA monitoring programs, all groundwater monitoring activities in the Bear Creek Regime were combined into a single comprehensive program as described in the *Comprehensive Groundwater Monitoring Plan for the Department of Energy*

Y-12 Plant Oak Ridge, Tennessee (Comprehensive Monitoring Plan; Geraghty & Miller, Inc. 1990). This plan established the following monitoring objectives and priorities for the Bear Creek Regime: (1) monitor the established horizontal boundaries of the groundwater contaminant plumes for evidence of further contaminant migration; (2) define the maximum depth of groundwater contamination to the extent necessary for the evaluation and selection of remedial alternatives; (3) perform all groundwater monitoring activities in accordance with RCRA interim status assessment monitoring standards to ensure compliance with applicable regulatory requirements; and (4) monitor the principal subsurface migration pathway (the Maynardville Limestone) and surface migration pathway (Bear Creek) for evidence of contaminated groundwater and/or surface water exiting the Bear Creek Regime.

Although the change in regulatory primacy from RCRA to CERCLA may require some modification of monitoring priorities and data-quality objectives to support particular aspects of the CERCLA programs (e.g., risk assessments), implementation of the Comprehensive Monitoring Plan approach has provided a substantial portion of the groundwater and surface water quality data needed to effectively characterize the extent of contamination in the Bear Creek Regime. Along with development of the revised integrated RI/FS strategy for OUs in BCV, aspects of the RI for Bear Creek OU 04 relating to groundwater monitoring were renegotiated to maximize use of this available data. This is reflected by the elimination of groundwater monitoring activities originally specified in the approved RI work plan for OU 04 with field activities focused on data gaps relating primarily to surface water, sediment, and stormflow characterization (U.S. Department of Energy 1993c and 1994d). These sampling activities began in September 1993 and continued through January 1995.

Future groundwater monitoring activities will be performed primarily in support of CERCLA and DOE Order 5400.1 surveillance activities. Concurrent RCRA corrective action monitoring will also be performed in accordance with the conditions detailed in the RCRA post-closure permit for the Bear Creek Regime. Corrective action monitoring for the S-3 Site was initiated late in CY 1993. The RCRA corrective action monitoring program, as currently proposed, involves semiannual sampling of a specified network of exit pathway and background monitoring wells for the entire regime, and laboratory analysis of the samples for a suite of analytes specified in the permit attachments for each site. Selected point-of-compliance wells

adjacent to each site will be sampled in accordance with data needs under the CERCLA RI/FS process.

2.2 Above Grade Low-Level Waste Storage Facility

The Above Grade Low-Level Waste Storage Facility is located west of the Oil Landfarm WMA (Figure 3). An access road divides the facility into northern and southern sections. Construction of the northern section was completed in the second quarter of CY 1993; construction of the southern section has not yet started. The facility currently consists of six, 52 x 171 ft prefabricated rubber buildings engineered with concrete, slab-on-grade foundations with floor dikes as secondary containment. The facility is used to store low-level radioactive solid wastes including construction/demolition debris, process materials, rubbish, sludge and soil, and beryllium in drums and B-25 boxes.

3.0 1994 GROUNDWATER PROTECTION PROGRAM

The following sections describe the groundwater and surface water sampling activities performed during CY 1994 under the lead of the Y-12 Plant GWPP. Included are brief descriptions of the monitoring programs for which the sampling was performed, as well as details regarding sampling locations and frequencies, sample collection procedures, analytical parameters, quality assurance/quality control (QA/QC) sampling, and data management.

3.1 Sampling Locations

Groundwater monitoring during CY 1994 involved the collection of groundwater samples from 71 monitoring wells (Table 2 and Figure 6). Data regarding the aquifer zone and the screened or open hole interval monitored by the wells are provided in Table 3. Detailed well construction information is contained in Appendix C.

Surface water monitoring during CY 1994 involved the collection of samples from 3 springs and 6 surface water stations (Table 2 and Figure 6). The springs, located south of Bear Creek along the base of Chestnut Ridge, contribute significant year-round flow to Bear Creek. Sampling locations along Bear Creek are designated by the distance (in kilometers) (Bear Creek Kilometer [BCK]) from the confluence of Bear Creek and East Fork Poplar Creek. Four of the surface water sampling stations are located along Bear Creek (BCK-00.63, BCK-04.55, BCK-09.40, and BCK-11.97), and 2 sampling stations are located on northern tributaries (NT) to Bear Creek (NT-01 and NT-13). Background station NT-13 is in a tributary that has not been affected by waste-management activities in the Bear Creek Regime; water at station NT-01 has been impacted by discharge of groundwater containing contaminants (e.g. nitrate) from the S-3 Site.

Groundwater and surface water sampling activities during CY 1994 addressed the purposes of 5 monitoring programs: (1) RCRA corrective action monitoring; (2) RCRA assessment monitoring; (3) exit-pathway monitoring; (4) surveillance and maintenance monitoring; and (5) best-management practice monitoring. Each monitoring program is implemented within the context of the technical approach contained in the Comprehensive Monitoring Plan. However, in light of overlapping regulatory requirements, an increasing number of wells are sampled to meet multiple programmatic goals.

3.1.1 RCRA Corrective Action Monitoring

Twenty-four wells were sampled in CY 1994 as part of current or anticipated RCRA post-closure requirements. As noted in the preceding section, RCRA corrective action monitoring for the S-3 Site was initiated in October 1993 in accordance with the permit issued at that time. The terms of the permit were renegotiated in March 1994 and TDEC began the process of issuing a new permit modification for the S-3 Site. Corrective action monitoring currently follows the October 1993 permit in addition to agreed changes made in March 1994. In CY 1994, this program involved semiannual collection of groundwater samples from 13 monitoring wells (Table 2) located throughout the Bear Creek Regime, and analysis of the samples for the parameters specified in the post-closure permit. Two wells (GW-243 and GW-276) were sampled as the eligible cap performance wells. Three wells (GW-243, GW-324, and GW-325) were dropped from this monitoring program after the first quarter sampling event. These wells were discontinued after permit negotiations in March 1994, which required only one of a set of cap performance wells be monitored semiannually. In addition to the wells specified in the post-closure permit for the S-3 Site, groundwater samples were collected from 11 wells as part of a regime-wide background characterization that will be required as part of the permit for the entire regime. Analytical results for the corrective action wells are included in Appendix E. An evaluation of groundwater flow directions, a requirement of the monitoring program specified in the post-closure permit, is provided in Section 4.3.

3.1.2 RCRA Assessment Monitoring

Formal assessment monitoring in accordance with RCRA interim status requirements was continued during CY 1994 and included 5 monitoring wells (Table 2). However, data from all monitoring wells were used for continued assessment of groundwater contamination throughout the regime. Reduced emphasis on site-specific assessment monitoring is expected in CY 1995 and the program will be replaced by corrective action monitoring when the RCRA post-closure permit modifications for the Oil Landfarm and Bear Creek Burial Grounds WMAs are issued by the TDEC.

3.1.3 Exit Pathway Monitoring

Exit pathway monitoring is implemented under the Y-12 Plant GWPP to comply with the DOE Order 5400.1 requirements for monitoring groundwater and surface water that is or could be affected by operations at DOE facilities. Compliance with most of the DOE Order 5400.1 requirements is achieved through continued implementation of ongoing monitoring programs required under TDEC and EPA regulations. Exit pathway monitoring is intended to address the requirements for monitoring groundwater and surface water quality where contamination is most likely to be transported beyond the boundaries of the ORR.

In CY 1994, exit pathway monitoring involved semiannual sampling of groundwater from 19 monitoring wells completed in the Maynardville Limestone and from 3 springs discharging to Bear Creek, and surface water from 6 locations along Bear Creek and its tributaries (Table 2). Six exit pathway wells were also used for RCRA corrective action monitoring.

3.1.4 Surveillance and Maintenance Monitoring

During CY 1994, 20 wells were used to satisfy requirements of the surveillance and maintenance monitoring program implemented by the Y-12 Plant Environmental Restoration Program (Table 2). The wells are located near the closed and capped source control OUs, and are sampled quarterly to provide data needed to evaluate cap effectiveness in terms of water-quality trends over time as well as provide data on the extent of contamination within the Bear Creek Regime. Two wells were dropped from this monitoring program after the first quarter sampling event.

3.1.5 Best-Management Practice Monitoring

Groundwater samples were collected during CY 1994 from 3 monitoring wells at the Above Grade Low-Level Storage Facility as a best-management practice of the Y-12 Plant GWPP (Table 2). Groundwater monitoring at this site was requested by the TDEC and has been performed since CY 1991.

3.2 Sampling Frequency

Groundwater samples were collected during each quarter of CY 1994. First through fourth quarter sampling events were performed from February 14 to March 31, May 17 to June 28, July 28 to September 20, and November 2 to December 20, respectively.

Groundwater samples were collected quarterly from 37 wells, semiannually from 29 wells and 9 surface water stations, and once from 5 wells (Table 2). Quarterly sampling was performed for all wells in the RCRA interim status assessment monitoring and best-management practice monitoring programs, and for 11 wells in the RCRA corrective action monitoring program. Semiannual sampling was performed for all sampling locations in the exit pathway monitoring program and for 13 wells in the RCRA corrective action monitoring program. Five wells (GW-243, GW-324, GW-325, GW-345, and GW-601) that were dropped from the RCRA corrective action and the surveillance and maintenance monitoring programs were sampled only during the first quarter.

3.3 Sample Collection

Groundwater samples were collected by personnel from the Oak Ridge K-25 Site Sampling and Environmental Support Department (SESD); personnel from the Y-12 Plant Compliance Monitoring Services Section of the HSEA Organization collected the surface water samples. Pre-defined sampling sequences (listed in Appendix D) were followed to minimize the potential for cross-contamination, and generally involved sampling from the least contaminated wells to the most contaminated wells at a site or in a sampling group (a series of monitoring wells grouped for sampling and data-tracking purposes). Samples from the springs and surface water stations were collected from the farthest downstream (least contaminated) location (BCK-00.63) to the farthest upstream (most contaminated) location (NT-01).

Groundwater sampling was performed in accordance with the technical procedure for groundwater sampling (SESD-TD-8204) approved by the Y-12 Plant GWPP Manager. Descriptions of the field methods and procedures used to collect the groundwater and surface water samples are contained in *Environmental Surveillance Procedures Quality Control Program*, Martin Marietta Energy Systems, Inc. (Kimbrough et al. 1987). The EPA (Region IV) and the

TDEC have approved these methods and procedures (U.S. Environmental Protection Agency 1988a).

3.4 Quality Assurance/Quality Control Sampling

Quality assurance/quality control samples included laboratory blanks, trip blanks, equipment rinsates, field blanks, and duplicate groundwater samples. A total of 87 laboratory blanks, 124 trip blanks, 35 equipment rinsate samples, 3 field blanks, and 27 duplicate samples were analyzed during CY 1994. Similar numbers of QA/QC samples were analyzed during each quarterly sampling event: 18 to 26 laboratory blanks, 22 to 43 trip blanks, 5 to 12 equipment rinsates, 1 field blank (a field blank was not collected in the second quarter), and 5 to 8 duplicate samples.

Laboratory blanks were prepared using deionized water and analyzed along with the groundwater samples. Trip blanks were prepared in the laboratory using deionized water and transported unopened in coolers containing groundwater samples to be analyzed for volatile organic compounds (VOCs). Equipment rinsates were obtained from the deionized water used to decontaminate the groundwater sampling equipment. These samples were collected after a sampling team had completed sampling at a site or finished a sampling group (typically no more than 10 wells grouped for sampling and data-tracking purposes). If more than one team collected samples at a site or within a sampling group, each collected an equipment rinsate sample. Field blanks were prepared in the field using deionized water and were collected at a frequency of at least 10 percent of the sampling groups. Duplicate groundwater samples were collected at a frequency of at least one per sampling group.

3.5 Laboratory Analysis

Groundwater and surface water samples were analyzed for: principal cations and anions; trace metals (a term used to differentiate metals that are typically minor groundwater constituents, such as cobalt and nickel, from metals that are principal ions in groundwater, such as magnesium and sodium); VOCs; gross alpha activity and gross beta activity; total suspended solids, total dissolved solids (TDS), and turbidity; field and laboratory determinations of pH and

specific conductance; and field determinations of temperature, dissolved oxygen, and oxidation-reduction potential.

Samples from wells used for corrective action monitoring were analyzed for several additional analytes (e.g. radionuclides) required under the RCRA post-closure permit for the S-3 Site. Analyses for cadmium, chromium, lead, and mercury using atomic absorption methods also were performed on samples from selected wells with historically elevated concentrations of these metals. Samples from wells with elevated gross alpha and/or gross beta activity, as determined from CY 1993 data, were analyzed for selected radionuclides. The specific analytes for the samples from each well, spring, and surface water sampling station are identified in Table 2. The K-25 Analytical Services Organization (ASO) performed most of the analyses of the groundwater and surface water samples; some radiochemical analyses were performed by the Oak Ridge National Laboratory (ORNL) ASO.

All of the laboratory blanks, trip blanks, field blanks, and equipment rinsate samples were analyzed for the suite of VOCs listed in the notes for Table 2. Selected equipment rinsate samples also were analyzed for trace metals (Inductively Coupled Plasma analyses), gross alpha and gross beta activity, and radionuclides. Duplicate groundwater samples were analyzed for the constituents and parameters specified for the well from which the duplicate sample was collected.

The detection limit reported for total uranium analyses changed during the third quarter of CY 1994 from 0.001 to 0.015 milligrams per liter (mg/L). This change resulted from findings of an assessment of the K-25 Uranium Fluorometry Laboratory performed by the K-25 ASO. As part of this assessment, EPA contract laboratory program protocols were used to calculate the instrument detection limit (IDL) for the instrument used for fluorometric analyses. Based on these calculations, the IDL was determined to be 0.005 mg/L. The method detection limit (MDL), which also is the reporting limit for total uranium analyses, was set by the K-25 ASO at three times the IDL (0.015 mg/L). Because this MDL is too high to comply with the data quality objectives of the Y-12 Plant GWPP, an alternative analytical method for total uranium (inductively coupled plasma/mass spectrometry, EPA Method 200.8) will be implemented in the first quarter of CY 1995. This method has a standard reporting limit of 0.0005 mg/L.

3.6 Data Management

Analytical results obtained by the K-25 and ORNL laboratories were verified, entered into the Y-12 Plant Environmental Monitoring Database (EMD), and electronically processed through several data evaluation procedures. Brief descriptions of the data verification/entry/evaluation procedures follow; details are provided in the *Y-12 Plant Groundwater Protection Program Groundwater Monitoring Program Data Management Plan* (Martin Marietta Energy Systems, Inc. 1993).

Analytical results obtained from each quarterly sampling event were either downloaded directly into the EMD from data files provided by the analytical laboratory or were manually input from hardcopy documentation (laboratory reports and field data sheets). For manually input data, a double-entry procedure was followed whereby the hardcopy data were input twice into separate data files. A computer program then compared the two input data files and identified discrepancies, which were then accounted for and corrected. When all data from the quarterly sampling event were in the EMD, a computer program then verified that the parameter names were correct, correct units were reported, and that the results reported for each parameter were within an expected range or were valid numeric values. As a final step in the data entry/verification process, printouts of the data were visually checked against the laboratory reports and field data sheets for completeness and obvious data outliers. The appropriate laboratory was contacted to resolve incomplete data transfers, discrepancies between electronic and hardcopy versions of the data, and questions regarding data outliers.

Upon completion of data verification and entry into the EMD, a computer program was used to scan the monitoring data, flag questionable or suspect data based on pre-defined criteria, and prepare a report for transmittal to the appropriate laboratory. This data evaluation program calculated ion-charge balances for each sample, identified changes in analytical detection limits, and validated analytical results for VOCs using the QA/QC sample data in accordance with an EPA validation procedure (U.S. Environmental Protection Agency 1988b). Questionable or suspect data were reported to the appropriate analytical laboratory. Errors in the data were corrected, and questionable results unresolved by the appropriate laboratory were flagged.

3.7 Analytical Results

Groundwater quality data obtained during CY 1994 are contained in Appendices E through L. Appendix E contains the analytical results for each groundwater sample and Appendix F contain the results for the field duplicate samples. Ion-charge balances for each groundwater sample are presented in Appendix G. Appendix H contains trace metal results that exceed maximum contaminant levels. Analytical results for the QA/QC samples are summarized in Appendix I. Validated analytical results for VOCs are provided in Appendix J. Radiochemical data are summarized in Appendix K and annual average concentrations of nitrate (as N), a primary groundwater contaminant in the regime, determined for each well are provided in Appendix L. The data presented in these appendices were generated from the following quarterly datasets: first quarter - Q1_94R2.SD2, second quarter - Q2_94R2.SD2, third quarter - Q3_94R1.SD2, and fourth quarter - Q4_94.SD2 (H&R Technical Associates, Inc. 1995a, 1995b, 1995c, and 1995d).

4.0 HYDROGEOLOGIC FRAMEWORK

This section contains a general description of the highly complex hydrogeologic system in the Bear Creek Regime. It provides sufficient descriptive detail needed for RCRA assessment monitoring reporting requirements regarding evaluation of groundwater flow directions and estimates of contaminant migration rates. The description is based on the conceptual model and associated nomenclature presented in: *Status Report - A Hydrologic Framework for the Oak Ridge Reservation* (Solomon et al. 1992). However, a revised conceptual model of the groundwater flow system at the Y-12 Plant is currently being developed and will incorporate the findings of several ongoing and recently completed hydrogeologic (exit pathway and RI) studies. Development of a conceptual model specific to BCV was initiated because the Solomon et al. (1992) model does not explicitly address karst and fracture flow in the Maynardville Limestone, which is the principal groundwater flow and contaminant migration pathway in the Bear Creek Regime. The developing BCV model differs from the ORR framework in that: (1) the amount of recharge to the Knox Aquifer is thought to be higher in BCV than previous studies indicated, and (2) the influence of stormflow in BCV is thought to be lower than elsewhere on the ORR. In addition, the base of the active flow zone within the Maynardville Limestone is now believed to be deeper than previously thought and fractures and stratabound flow may exert as much influence as solution features on patterns of contaminant transport. If completed in time, the revised conceptual model will be incorporated into the description of the groundwater flow system included in the Part 2 GWQR.

4.1 Geology

The geology in the area of the Y-12 Plant is generally characterized by sequences of southeast-dipping, fractured clastic (primarily shale and siltstone) and carbonate (limestone and dolostone) strata of Lower Cambrian to Lower Ordovician age (Figure 7). Bear Creek Valley is underlain by the interbedded limestone and shale formations of the Conasauga Group. Shale and siltstone beds of the underlying Rome Formation form Pine Ridge to the north, and the primarily dolostone strata of the overlying Knox Group form Chestnut Ridge to the south.

Strike and dip of bedding in the Bear Creek Regime are generally N 55°E, and 45°SE (true direction), respectively.

Bedrock in the Bear Creek Regime is overlain by any of several materials, including alluvium, colluvium, man-made fill, fine-grained residuum from the weathering of the bedrock, and saprolite (weathered bedrock). In many areas, the saprolite retains primary textural features of the bedrock, including fractures (Solomon *et al.* 1992). The overall thickness of these materials in BCV is typically less than 40 ft (Geraghty & Miller, Inc. 1987).

The Maynardville Limestone is partially exposed along the axis of BCV at the base of Chestnut Ridge and the remaining underlying formations of the Conasauga Group are partially exposed successively to the north toward Pine Ridge (Figure 7). The Maynardville Limestone consists of fine- to coarse-grained, thin-bedded to massive limestone and dolostone (King and Haase 1987). Information obtained during 1992 indicates that the thickness of the Maynardville Limestone varies from about 300 to 620 ft and averages about 490 ft (Shevenell *et al.* 1993). Additionally, Shevenell *et al.* (1993) report, based on lithologic information obtained during installation of 26 exit-pathway monitoring wells, that most of the basal portion of the Maynardville Limestone (the Low Hollow member) is not present in an area southeast of the Bear Creek Burial Grounds WMA. This loss of stratigraphic section may reflect a facies change in the Maynardville, as suggested by Shevenell *et al.* (1993), or may be the result of structural displacement. Further investigation to explain the substantial thinning of the Maynardville Limestone in this area is ongoing.

Underlying formations of the Conasauga Group are, from youngest to oldest, the Nolichucky Shale, Maryville Limestone, Rogersville Shale, Rutledge Limestone, and Pumpkin Valley Shale (Figure 7). The lithologic compositions of the Nolichucky Shale and Maryville Limestone are similar in the Bear Creek Regime. These formations consist primarily of between 350 and 550 ft of massive to thin-bedded mudstone with interbedded limestone (King and Haase 1987). Beneath the Maryville Limestone are the massive mudstones of the Rogersville Shale and the interbedded limestone and shale of the Rutledge Limestone. The thickness of each of these formations ranges from 90 to 120 ft (King and Haase 1987). The Pumpkin Valley Shale consists of 260 to 320 ft of massive shale and mudstone with thin beds of siltstone and sandstone (King and Haase 1987).

The most pervasive structural features in the Bear Creek Regime are extensional, hybrid, and shear fractures (Solomon *et al.* 1992). Three major joint sets are evident in the Bear Creek Regime: one that roughly parallels bedding, one steeply dipping set that parallels geologic strike, and one steeply dipping set that trends perpendicular to strike (Dreier *et al.* 1987). Fracture densities ranging from about 1 to 60 per foot have been observed in rock outcrops near ORNL (Dreier *et al.* 1987; Sledz and Huff 1981). Most fractures are short, ranging from tenths of an inch to a few feet in length (Solomon *et al.* 1992).

Dissolution of carbonates along fractures, particularly in the Maynardville Limestone, has produced solutionally-enlarged features ranging from less than an inch to tens of feet in thickness. Shevenell *et al.* (1993) report that solution cavities occur throughout the Maynardville Limestone, but occur most frequently in the uppermost and lowermost of six stratigraphic zones defined by gamma-log signatures.

4.2 Groundwater System

Solomon *et al.* (1992) divide the groundwater system underlying the ORR into two basic hydrogeologic units with fundamentally different hydrologic characteristics: the Knox Aquifer and the ORR Aquitards. The Knox Aquifer consists of the Knox Group and the underlying Maynardville Limestone formation of the Conasauga Group. The remaining formations of the Conasauga Group, the underlying Rome Formation, and the Chickamauga Group form the ORR Aquitards. In this report, the term "ORR Aquitards" refers only to the Conasauga Group formations (excluding the Maynardville Limestone) and the Rome Formation.

Both the Knox Aquifer and the ORR Aquitards are divided by Solomon *et al.* (1992) into four parts: (1) the stormflow zone, (2) the vadose zone, (3) the groundwater zone (subdivided into water table, intermediate, and deep intervals), and (4) the aquiclude (Figure 8). The divisions are based on the amount of water transmitted by each subsystem (i.e., flux), which decreases with depth. The flow system is vertically gradational with no discreet boundaries separating the subsystems. However, the bulk permeability of the Knox Aquifer is about ten times greater than that of the ORR Aquitards (Solomon *et al.* 1992).

The stormflow zone occurs in regolith as does much of the vadose zone, although in some areas the vadose zone includes weathered and fresh bedrock. In the bedrock, orthogonal

sets of pervious, planar fractures form groundwater flow paths. Within a fracture, groundwater may flow either downdip, laterally, or in both directions. Changes in flow direction may occur at fracture splits and intersections, and groundwater flow paths may locally resemble stairsteps in both plan and sectional views (Moore 1989). Intersections of two or more fracture sets form permeable intervals or zones that transmit the bulk of the groundwater flux (Moore and Toran 1992). Fracture sets comprising the permeable zone in the water table interval are generally nonstratiform and groundwater generally flows in the direction of maximum hydraulic gradient along multiple, alternative flow paths (Moore and Toran 1992). Stratiform fracture sets are believed to form permeable zones at deeper intervals in the bedrock, and groundwater in these zones primarily flows in the direction of geologic strike (which may or may not correlate with the maximum hydraulic gradient) toward cross-cutting tributary streams (Moore and Toran 1992). Additionally, the vertical spacing between permeable zones increases with depth, and these zones are poorly connected in three dimensions (Solomon *et al.* 1992).

4.2.1 Stormflow Zone

Investigations in Bethel Valley and Melton Valley near ORNL show that groundwater occurs intermittently above the water table in the ORR Aquitards in a shallow "stormflow zone" that extends from ground surface to a depth of about 6 ft (Moore 1989). As part of the RI/FS in progress for Bear Creek OU 04, stormflow tubes installed at 6 sites (3 along the northern flank of Chestnut Ridge) have all showed brief periods of soil saturation in response to rainfall (Figure 9) (Science Applications International Corporation 1994). These findings suggest that stormflow also occurs in BCV, although capping of the WMAs has probably altered the stormflow zone in some areas of the Bear Creek Regime. Additionally, the hydrologic importance of stormflow in BCV is not fully understood but may not be as great as in Bethel Valley and Melton Valley.

Channels for lateral flow in the stormflow zone include macropores and mesopores, which are connected voids created by various processes, including biochanneling, cracking, and soil particle aggregation (Moore 1989). This zone is thicker and more permeable in forested areas than in grassy or brushy areas, and is more permeable near the land surface than at deeper levels (Moore 1989). Water is present in the stormflow zone during, and for short periods after,

significant rainfall events; some of the water is lost to evapotranspiration and recharge to the water table, and the remaining water discharges at nearby seeps, springs, and streams. Analysis of infiltrometer test results from Bethel Valley and Melton Valley suggest that the hydraulic conductivity of the stormflow zone averages about 29 feet per day (ft/day) near the top and 0.1 ft/day near the base (Moore 1989). Lateral flow in the stormflow zone is intermittent, lasting a few days to a few weeks after precipitation. Flow is fairly rapid when the zone is full of water, but relatively slow when nearly drained (Moore 1989).

4.2.2 Vadose Zone

The vadose zone, which is primarily composed of regolith, occurs between the stormflow zone and the water table (Figure 8). The geometric mean depth to the water table in the ORR Aquitard is about 13 ft (Moore 1989). Water is added to the vadose zone by percolation from the stormflow zone and is removed by transpiration and recharge to the water table. Solomon *et al.* (1992) estimate annual recharge rates for the Knox Aquifer and ORR Aquitards of about 2.5 and 0.8 inches, respectively. However, ongoing studies on the ORR suggest that recharge to the Knox Aquifer may be higher in BCV.

The vadose zone is unsaturated except in the capillary fringe above the water table and within wetting fronts during periods of vertical percolation from the stormflow zone (Moore 1989). A geometric mean hydraulic conductivity of about 0.006 ft/day was determined from analysis of infiltrometer tests in the vadose zone in Bethel Valley and Melton Valley (Moore 1989). Moore (1989) estimates the effective porosity (the porosity through which advective transport can occur) for regolith to be 0.01 to 0.15.

4.2.3 Groundwater Zone

Solomon *et al.* (1992) divide the saturated zone in the Knox Aquifer and ORR Aquitards into water table, intermediate, and deep intervals (Figure 8) based on observed changes in hydrologic characteristics and groundwater geochemistry; flow volumes decrease and solute residence times increase sharply with depth, and most groundwater flow is thought to occur at depths of less than 100 ft bgs (Solomon *et al.* 1992).

For the purposes of this report, the above subdivisions have been modified for the Bear Creek Regime to include a shallow interval between the water table and intermediate intervals. The boundary between the shallow and intermediate intervals is approximately 100 ft bgs, which generally corresponds with an aquifer subdivision noted by Moore (1989) in an evaluation of groundwater flow parameters, and is the depth at which a fairly abrupt change from calcium-magnesium-bicarbonate groundwater to sodium-bicarbonate groundwater typically occurs in the ORR Aquitards. Additionally, solution cavities and solutionally-enlarged (i.e., >0.5 ft) features in the Maynardville Limestone occur most frequently at depths less than 100 ft bgs, suggesting that the active karst flow system in the Maynardville Limestone is relatively shallow (Shevenell *et al.* 1993). However, water levels in many wells completed in the Maynardville Limestone at depths of 200 to 400 ft bgs show significant responses to rainfall events, suggesting that active flow may occur at greater depths than indicated by previous studies.

4.2.3.1 Water Table Interval

A permeable interval 3 to 15 ft thick usually occurs in the transitional horizon between regolith and unweathered bedrock, and the water table often occurs within this permeable interval (Solomon *et al.* 1992). The saturated thickness of the interval changes with cyclic variations in the water table elevation, and the interval may be nearly drained during seasonal water table declines. Moore (1989) estimates an average effective porosity of 0.0042 near the water table. Estimates of the permeability of the water table interval are provided by results of hydraulic conductivity tests performed in wells completed in regolith below the water table. Analysis of these test results indicated a range of hydraulic conductivity of 0.03 to 3.25 ft/day (Connell and Bailey 1989).

Results of geochemical dating studies of the ORR Aquitards in Melton Valley generally support the concept of a groundwater zone that is most active near the water table and becomes increasingly sluggish with depth (Solomon *et al.* 1992). Analyses of ^3H : ^3He ratios in groundwater samples collected from 1 to 6 ft below the water table showed ages ranging from 0.09 to 7.23 years. The presence of large amounts of ^4He in groundwater samples from greater depths (45 to 165 ft bgs) suggest much greater residence times (Poreda *et al.* 1988).

4.2.3.2 Shallow Interval

The shallow interval of the groundwater zone extends from the bottom of the water table interval to depths of about 100 ft bgs in the ORR Aquitards, and depths of 160 to 325 ft bgs in the Knox Aquifer (Moore 1989). Groundwater in this zone is typically encountered under unconfined conditions in fractures and solution cavities. Enlarged fractures and cavities are the primary water-producing features and solute-transport pathways, and are supplied by seepage through fractures in the rock matrix. Fractures outnumber the cavities, are interconnected, and provide the continuity for groundwater flow paths (Moore 1989).

Analysis of hydraulic conductivity test results for wells completed at shallow depths in the ORR Aquitards and the Knox Aquifer generally shows two populations: an upper population with a geometric mean hydraulic conductivity of about 0.15 ft/day and a lower population with a geometric mean hydraulic conductivity of about 0.0008 ft/day (Moore 1989). The upper population represents more permeable, water-producing intervals and the lower population represents less permeable matrix intervals. Assuming that interconnected permeable intervals can be treated as a continuum, Moore and Toran (1992) estimate an average hydraulic conductivity of about 0.6 ft/day for the ORR Aquitards.

The above estimates of hydraulic conductivity are probably not representative of the Knox Aquifer because the analysis included few wells completed in the Knox Group; hydraulic conductivity of the water-producing intervals in the Knox Aquifer is probably much greater than the ORR Aquitards because of an interconnected network of solution cavities and solutionally-enlarged fractures (Moore 1989). For instance, results of hydraulic conductivity tests for wells less than 100 ft bgs in the Maynardville Limestone, as summarized in Geraghty & Miller, Inc. (1989b), range from 0.13 to 99 ft/day and average about 22 ft/day. Additionally, Shevenell *et al.* (1993) report that fractures and solution cavities in the Maynardville Limestone encountered during installation of several exit-pathway wells yield as much as 200 to 300 gallons per minute (gpm), which is several orders-of-magnitude greater than the typical yield (0.25 gpm; Solomon *et al.* 1992) of wells completed in the ORR Aquitards. Results of a dye tracer test in the Maynardville Limestone near the Bear Creek Burial Grounds WMA suggested (qualitatively) a conduit flow rate of about 25 ft/day (Geraghty & Miller, Inc. 1989c).

Results of tracer tests performed in the Bear Creek Regime and calculations of the fracture porosity in bedrock provide estimates of the effective porosity of the ORR Aquitards and the Maynardville Limestone. Tracer tests have yielded effective porosity values ranging from 0.002 to 0.004 (Law Engineering Testing Company 1983; Lozier *et al.* 1987). Moore (1989) calculated a fracture porosity ranging from 0.001 to 0.002, using estimates of fracture density and average fracture aperture for water-producing intervals at shallow depths in the Conasauga Group. Moore and Toran (1992) estimate an effective fracture porosity of 0.00035 based on calculations of average fracture aperture and spacing, and assuming that effective porosity and specific yield are nearly equal (i.e., only water in fractures drains by gravity).

4.2.3.3 Intermediate Interval

Groundwater in the intermediate bedrock interval occurs in relatively permeable fractures (or possibly fractured intervals) within a relatively impermeable matrix. Review of data obtained with an electromagnetic borehole flowmeter suggest that the permeable regions commonly develop within a single layer of rock, and the average thickness of a permeable region (assuming an average dip of 35°) is less than 2 ft. The vertical spacing between permeable regions in the intermediate interval is believed to be more than 100 ft (Solomon *et al.* 1992). A vertical spacing of 150 ft is supported by results of matrix diffusion modeling of measured ¹⁴C and ³H activities (Toran *et al.* 1991). Results of straddle packer tests in wells completed in the intermediate interval of the ORR Aquitards at several locations in BCV and Melton Valley show mean hydraulic conductivity ranges of 0.006 to 0.016 ft/day (Solomon *et al.* 1992).

4.2.3.4 Deep Interval

Identification of the deep bedrock interval is based on hydraulic and geochemical data for several deep (greater than 500 ft bgs) monitoring wells and coreholes. Solomon *et al.* (1992) report that the boundary between the intermediate and deep intervals occurs at depths of about 325 ft bgs in the ORR Aquitards and 650 ft bgs in the Knox Aquifer. The boundary is based on lower hydraulic conductivity and unusually high hydraulic heads (estimated from packer

tests), although use of hydraulic conductivity may not always be a reliable indicator (Solomon et al. 1992).

In some areas of the Bear Creek Regime, the transition from the intermediate interval to the deep interval in the ORR Aquitards is indicated by a change from sodium-bicarbonate groundwater to sodium-chloride groundwater accompanied by a general increase in specific conductance and TDS. This change in groundwater geochemistry probably reflects longer residence times in the deep interval, and usually occurs at depths of more than 400 ft bgs (Solomon et al. 1992). However, no such change in groundwater geochemistry has been observed in the Knox Aquifer; calcium-magnesium-bicarbonate and calcium-sulfate groundwater occur at depths of 1,000 ft bgs (Dreier et al. 1993).

Evaluation of data obtained from straddle packer tests and slug tests, and slow-recovery analyses, indicates that the geometric mean hydraulic conductivity of the deep interval in the Bear Creek Regime is about 0.001 ft/day (Solomon et al. 1992). Although the mean hydraulic conductivity is comparable to that of the intermediate interval, measured conductivities in the deep interval are as low as 2.83×10^{-6} ft/day (Solomon et al. 1992). The low conductivities may reflect reduced fracture apertures or increased fracture spacing (Solomon et al. 1992).

4.2.4 Aquiclude

The aquiclude occurs below the deep groundwater interval and is generally marked by the presence of saline water with TDS concentrations of 40,000 to 300,000 mg/L (Solomon et al. 1992). The water in the aquiclude is a sodium-, calcium-, and chloride-rich brine that is chemically similar to brines associated with major sedimentary basins (Solomon et al. 1992). In Melton Valley, saline water typically occurs at depths of about 600 to 700 ft bgs (Solomon et al. 1992).

Saline groundwater has not been encountered at depth in the Bear Creek Regime. However, several wells completed at depths of about 500 to 1,000 ft bgs in the Bear Creek Regime monitor groundwater with TDS concentrations of several thousand mg/L to several tens of thousand mg/L. The presence of water with relatively high TDS (as well as increased sodium and chloride concentrations) in the deep groundwater interval in BCV may represent a mixing

zone or diffusion zone between the fresh and saline groundwater, suggesting that the aquiclude is most likely present at greater depth in BCV than in Melton Valley (Solomon *et al.* 1992).

4.3 Groundwater Flow Directions

Directions of groundwater flow in the Bear Creek Regime were evaluated from depth-to-water measurements obtained from 191 monitoring wells during January 1994 (the seasonally high water table) and from 155 wells in August 1994 (the seasonally low water table). Depth-to-water measurements and water-level elevations for each well are tabulated in Appendix M. Review of these data show that water level declines averaged about 3 ft in most of the wells, with the largest decreases occurring in shallow wells completed in the water table interval. Additionally, the pattern of water level decrease was the same in all wells; thus, there were no significant changes in groundwater flow directions (i.e., no reversal of horizontal hydraulic gradients).

Groundwater elevations in the water table interval and bedrock (shallow and intermediate) intervals during the seasonally high and seasonally low groundwater flow conditions are illustrated on Figures 10 and 11, respectively. Under both conditions, the water table is a subdued replica of surface topography, with steep gradients along the flanks of Pine Ridge and Chestnut Ridge and a gentle slope southwest down the axis of BCV. Groundwater in the ORR Aquitards generally flows toward the Maynardville Limestone, the hydrologic drain for the groundwater flow system in the regime. Flow in the Maynardville is generally along strike toward the west end of BCV. Horizontal hydraulic gradients determined from CY 1994 data are similar to previous estimates, averaging about 0.038 across strike in the ORR Aquitards and about 0.011 along strike in the Maynardville Limestone.

4.4 Rate of Contaminant Migration

The following estimates of contaminant migration rates are presented to comply with reporting requirements of RCRA interim status assessment monitoring. Migration rates were estimated only for the water table and shallow intervals in the groundwater zone. Migration rates in the stormflow zone were not estimated because waste sources in the Bear Creek Regime

lie below this zone. Estimates of migration rates in the intermediate and deep intervals also were not performed, but representative rates are probably as low as a few centimeters per year (Solomon *et al.* 1992). The migration rates estimated for the water table and shallow bedrock intervals are based on the assumption that contaminants move with the groundwater unimpeded by various retardation processes. Factors which would reduce transport rates, such as matrix diffusion, degradation, sorption, and chemical precipitation, or factors which may increase transport, such as dispersion, were not explicitly considered. Free product migration, which may occur independent of groundwater flow rates and directions, also was not considered.

The wide range of potential contaminant migration rates presented in this section demonstrate the uncertainty in determining a representative rate of solute transport for the groundwater flow system in the Bear Creek Regime. Long term transport of solutes in dual porosity and/or highly heterogeneous media is a complex physical and chemical process, and it is probable that at various times and under various conditions, migration rates throughout the given range occur. Nitrate, for instance, may move relatively rapidly through the flow system, while other more highly attenuated constituents, such trace metals, probably move much more slowly. Moreover, even the highly mobile compounds will diffuse into smaller pores from the large conduits and later, under a reverse concentration gradient, will slowly diffuse back out. Thus, although the actual transport rates may vary over several orders of magnitude, the relatively limited extent of the contaminant plumes in the Bear Creek Regime suggests that slower transport rates may dominate (particularly in the ORR Aquitards) and that attenuation processes such as matrix diffusion are an important controlling factor.

Assuming that saturated regolith and fractured bedrock can be treated as an equivalent porous medium, average groundwater flow rates can be estimated using the modified Darcy equation given by $v = Ki/n$, where; v is the average linear velocity of the groundwater, K is the hydraulic conductivity of the medium, i is the hydraulic gradient, and n is the effective porosity. Although the modified Darcy equation can be used to calculate average flow velocities in fractured rock, the velocities in individual fractures may vary over orders of magnitude, depending on the fracture aperture and wall roughness (Freeze and Cherry 1979).

Using the range of hydraulic conductivities for regolith (0.03 to 3.25 ft/day) reported by Connell and Bailey (1989), an effective porosity of 0.0042 (Moore 1989), an average strike-

parallel (down-valley) gradient of 0.011, and an average strike-normal (cross-valley) gradient of 0.038, calculated rates of solute transport in the water table interval are as follows:

v (ft/day)	K (ft/day)	i	n
0.08	0.03	0.011	0.0042
0.27	0.03	0.038	0.0042
8.51	3.25	0.011	0.0042
29.40	3.25	0.038	0.0042

However, the bulk of the water mass in the water table interval resides within porous matrix zones between fractures, and diffusive exchange between matrix and fractures would reduce contaminant migration rates relative to calculated flow rates (Solomon *et al.* 1992).

Estimates of contaminant transport rates for the shallow bedrock interval in the ORR Aquitards were based on: a geometric mean hydraulic conductivity of 0.0008 ft/day for matrix intervals (Moore 1989), 0.15 ft/day for permeable intervals (Moore 1989), and 0.6 ft/day for the continuum of permeable intervals (Moore and Toran 1992); effective porosity values ranging from 0.00035 (Moore and Toran 1992) to 0.004 (Lozier *et al.* 1987); and an average strike-normal hydraulic gradient of 0.038. As summarized in the following table, estimated migration rates range from 0.08 ft/day to about 65 ft/day.

v (ft/day)	K (ft/day)	i	n
0.87	0.008	0.038	0.00035
0.08	0.008	0.038	0.004
16.29	0.15	0.038	0.00035
1.43	0.15	0.038	0.004
65.14	0.6	0.038	0.00035
5.7	0.6	0.038	0.004

Contaminant transport rates for the shallow interval in the Maynardville Limestone were calculated using the average hydraulic conductivity (22 ft/day) determined from well test results

summarized in Geraghty & Miller, Inc. (1989b), the same range of effective porosity used in calculations for the ORR Aquitards, and an average strike-parallel hydraulic gradient of 0.011. Using these values, the rate of contaminant migration in the Maynardville Limestone ranges from about 60 to 691 ft/day. Relatively high transport rates in the Maynardville Limestone also are indicated by results of a dye-tracer study performed in the Bear Creek Regime which yielded a transport rate of about 200 ft/day (Geraghty & Miller, Inc. 1989c).

Contaminant migration rates in the Bear Creek Regime also were estimated based on the extent of the nitrate plume originating from the S-3 Site. Unlike most of the other groundwater contaminants in the Bear Creek Regime, many of which have multiple source areas, the S-3 Site is the only significant nitrate source in the regime. Moreover, nitrate salts are highly soluble and generally move with no significant sorption or decay during transport (Geraghty & Miller, Inc. 1989d). In CY 1990, the nitrate plume extended westward (along strike) from the S-3 Site for about 3,650 ft in the water table interval, approximately 2,000 ft at shallow depths in the ORR Aquitards, and about 9,500 ft west at shallow depths in the Maynardville Limestone (HSW Environmental Consultants, Inc. 1991). Given the 39 years between initial waste disposal at the S-3 Site in 1951 and the horizontal extent of the nitrate plume observed in 1990, the rate of nitrate transport ($v = \text{distance/time}$) is about 0.3 ft/day in the water table interval, about 0.1 ft/day in the ORR Aquitards, and about 0.7 ft/day in the Maynardville Limestone.

4.5 Surface Water System

Surface water in the Bear Creek Regime is drained by Bear Creek and its tributaries. The headwaters of Bear Creek are at the western end of the Y-12 Plant near the S-3 Site (Figure 6). From its headwaters, the creek flows west for approximately 4.5 miles, where it turns north through a gap in Pine Ridge and flows into East Fork Poplar Creek about 6 miles upstream of its confluence with the Clinch River.

Several sections of Bear Creek were modified since construction of the Y-12 Plant. The channel at the original headwaters was filled with rubble during construction of the S-3 Ponds and moved to its present location, and sections of the creek north of the Rust Spoil Area, east and south of the Oil Landfarm WMA, and south of the Bear Creek Burial Grounds WMA were rerouted. Spring SS-4, which discharges to Bear Creek south of the Bear Creek Burial Grounds

WMA (Figure 6), may be a seepage face for groundwater moving through the buried original creek channel located south of the present channel (Geraghty & Miller, Inc. 1989b).

The highest flows in Bear Creek occur in response to precipitation during winter and spring. Low flows occur during late summer and early fall, when several tributaries become dry and parts of the main channel within the Bear Creek Regime are dry. After periods of rainfall, the first several hundred feet of the creek headwaters may contain water from surface runoff, but at other times the headwaters remain dry for about 700 ft downstream of the S-3 Site. Flow in the creek during rainfall events is usually of short duration with rapid recession and no observed overbank flow (Geraghty & Miller, Inc. 1987).

Along much of its course through the Bear Creek Regime, Bear Creek lies entirely within the outcrop area of the Maynardville Limestone, and to a large extent, dissolution along fractures controls the position of the channel (Geraghty & Miller, Inc. 1987). Solution cavities have been encountered during drilling in the Maynardville near Bear Creek, indicating that they are an integral part of the Bear Creek flow system.

Shevenell *et al.* (1993) report evidence of hydraulic communication between subsurface conduits and springs discharging to Bear Creek observed during installation of several exit-pathway monitoring wells. For example, during installation of well GW-684 in the Maynardville Limestone (Figure 6), production of water from a fracture or cavity encountered at a depth of about 125 ft bgs impacted the turbidity and flow rate of one of two adjacent springs (SS-5 Spring) located about 100 ft north (updip) of the well (Shevenell *et al.* 1993). Surprisingly, hydraulic connection between the other spring at this location and the Copper Ridge Dolomite of the Knox Group was indicated by turbidity impacts observed during installation of an exit-pathway well (GW-683) located about 250 ft south of well GW-684 (Shevenell *et al.* 1993).

Because of the hydrologic interaction between the creek and the solution cavity system in the Maynardville Limestone, and possibly the Copper Ridge Dolomite, Bear Creek contains influent (losing) reaches where water flows from the creek to the groundwater system, and effluent (gaining) reaches where the creek receives groundwater discharge. A review of historical stream flow data performed as part of a dye-tracer study initiated to evaluate these hydrologic interactions indicated that Bear Creek loses flow during extreme low-flow conditions over much of its length in the Bear Creek Regime (Geraghty & Miller, Inc. 1989c). During

normal flow conditions, Bear Creek loses flow in its upper reaches but gains flow in its lower reaches downstream of the Bear Creek Burial Grounds WMA. Results of the dye test also produced conclusive evidence that some surface water lost through influent reaches of Bear Creek between the Oil Landfarm WMA and the Bear Creek Burial Grounds WMA discharges back into the creek from Spring SS-5 (Geraghty & Miller, Inc. 1989c).

5.0 REFERENCES

- Bailey, J.K. 1983. Closure Plan for the Y-12 Centralized Sanitary Landfill I, Department of Energy Y-12 Plant, Oak Ridge, Tennessee. Prepared by Union Carbide Corporation, Nuclear Division (Y-IA 160) (Revised).
- Battelle Columbus Division. 1989a. RCRA Facility Investigation Plan, Spoil Area I (D-107), Oak Ridge Y-12 Plant, Oak Ridge, Tennessee. Prepared for Martin Marietta Energy Systems, Inc. (Y/TS-363 R1).
- Battelle Columbus Division. 1989b. RCRA Facility Investigation Plan, Rust Spoil Area (D-106), Oak Ridge Y-12 Plant, Oak Ridge, Tennessee. Prepared for Martin Marietta Energy Systems, Inc. (Y/TS-354 R1).
- Connell, J.F. and Z.C. Bailey. 1989. Statistical and Simulation Analysis of Hydraulic-Conductivity Data For Bear Creek and Melton Valleys, Oak Ridge Reservation, Tennessee. U.S. Geological Survey Water-Resources Investigations Report 89-4062.
- Dreier, R.B., D.K. Solomon, and C.M. Beaudoin. 1987. Fracture Characterization in the Unsaturated Zone of a Shallow Land Burial Facility, in: *Flow and Transport through Fractured Rock*, American Geophysical Union Monograph 42.
- Dreier, R.B., T.O. Early, and H.L. King. 1993. Results and Interpretations of Groundwater Data Obtained from Multiport-Instrumented Coreholes (GW-131 through GW-135), Fiscal Years 1990 and 1991. Martin Marietta Energy Systems, Inc. (Y/TS-803).
- Evans, R.D. 1955. *The Atomic Nucleus*. McGraw-Hill, New York, N.Y.
- Freeze, R.A. and J.A. Cherry. 1979. *Groundwater*. Prentice-Hall, Inc., Eaglewood Cliffs, New Jersey, (pp. 408-409).
- Geraghty & Miller, Inc. 1987. Hydrogeologic Investigations of the S-3 Ponds Area at the Y-12 Plant. Prepared for Martin Marietta Energy Systems, Inc. (Y/SUB/87-002606C/18).
- Geraghty & Miller, Inc. 1988. Post Closure Permit Application for the Oil Landfarm Waste Management Area at the Y-12 Plant. Prepared for Martin Marietta Energy Systems, Inc. (Y/SUB/87-00206C/12).
- Geraghty & Miller, Inc. 1989a. RCRA Facility Investigation Plan, SY-200 Yard, Oak Ridge Y-12 Plant, Oak Ridge, Tennessee. Prepared for Martin Marietta Energy Systems, Inc. (Y/TS-598).
- Geraghty & Miller, Inc. 1989b. Development of Ground-Water Flow Models for the S-3 Waste Management Area, Y-12 Plant, Oak Ridge, Tennessee. Prepared for Martin Marietta Energy Systems, Inc. (Y/SUB/89-00206C/1).

- Geraghty & Miller, Inc. 1989c. Tracer Study of the Hydrologic System of Upper Bear Creek, Y-12 Plant, Oak Ridge, Tennessee. Prepared for Martin Marietta Energy Systems, Inc. (Y/SUB/89-00206C/4).
- Geraghty & Miller, Inc. 1989d. Development of Contaminant Transport Models for Four Constituents at the S-3 Site, Y-12 Plant, Oak Ridge, Tennessee. Prepared for Martin Marietta Energy Systems, Inc. (Y/SUB/89-00206C/3).
- Geraghty & Miller, Inc. 1990. Comprehensive Groundwater Monitoring Plan for the Department of Energy Y-12 Plant Oak Ridge, Tennessee. Prepared for Martin Marietta Energy Systems, Inc. (Y/SUB/90-00206C/5).
- Geraghty & Miller, Inc. 1993. Post Closure Permit Application for the Bear Creek Hydrogeologic Regime at the Oak Ridge Y-12 Plant: S-3 Site. Prepared for Martin Marietta Energy Systems, Inc. (Y/ER/SUB/91-ALV96/1).
- Geraghty & Miller, Inc. 1994a. Post Closure Permit Application for the Bear Creek Hydrogeologic Regime at the Y-12 Plant: Oil Landfarm Hazardous Waste Disposal Unit. Prepared for Martin Marietta Energy Systems, Inc. (Y/ER/SUB/91-ALV96/2, Rev. 2).
- Geraghty & Miller, Inc. 1994b. Post Closure Permit Application for the Bear Creek Hydrogeologic Regime at the Oak Ridge Y-12 Plant: Burial Grounds. Prepared for Martin Marietta Energy Systems, Inc. (Y/ER/SUB/91-ALV96/3, Rev. 2).
- H&R Technical Associates, Inc. 1995a. Letter and diskette to T.R. Harrison, HSW Environmental Consultants, Inc. January 19, 1995.
- H&R Technical Associates, Inc. 1995b. Letter and diskette to T.R. Harrison, HSW Environmental Consultants, Inc. February 7, 1995.
- H&R Technical Associates, Inc. 1995c. Letter and diskette to T.R. Harrison, HSW Environmental Consultants, Inc. February 9, 1995.
- H&R Technical Associates, Inc. 1995d. Letter and diskette to T.R. Harrison, HSW Environmental Consultants, Inc. February 10, 1995.
- HSW Environmental Consultants, Inc. 1991. Groundwater Quality Assessment for the Bear Creek Hydrogeologic Regime at the Y-12 Plant 1990: Data Interpretations and Proposed Program Modifications. Prepared for Martin Marietta Energy Systems, Inc. (Y/SUB/91-YP507C/1 Part 2).
- Jones, S.B., B.K. Harrington, and S.M. Field. 1994. Updated Subsurface Data Base for Bear Creek Valley, Chestnut Ridge, and Parts of Bethel Valley on the U.S. Department of Energy Oak Ridge Reservation. Martin Marietta Energy Systems, Inc. (Y/TS-881/R2).

- Kimbrough, C.W., L.W. Long, and L.W. McMahon (eds.). 1987. Environmental Surveillance Procedures Quality Control Program Martin Marietta Energy Systems, Inc. Prepared by Advanced Sciences, Inc. for the Environmental and Safety Activities Organization, Martin Marietta Energy Systems, Inc. (ESH/SUB/87-21706/1 Revision 1).
- King, H.L., and C.S. Haase. 1987. Subsurface-Controlled Geological Maps for the Y-12 Plant and Adjacent Areas of Bear Creek Valley. Oak Ridge National Laboratory (ORNL/TM-10112).
- Law Engineering Testing Company. 1983. Results of Ground-Water Monitoring Studies. Prepared for Union Carbide Corporation, Nuclear Division (Y/SUB/83-47936/1).
- Lozier, W.B., C.A. Spiers, and R. Peerson. 1987. Aquifer Pump Tests with Tracers. Prepared for Martin Marietta Energy Systems, Inc. (ORNL/SUB/86-32136).
- MCI Consulting Engineers, Inc. 1983. Closure Plan for Rust Engineering Y-12 Spoil Area, Oak Ridge, Tennessee. Prepared for Union Carbide Corporation, Nuclear Division. Included as Appendix B in RCRA Facility Investigation Plan, Rust Spoil Area (D-106), Oak Ridge Y-12 Plant, Oak Ridge, Tennessee.
- Martin Marietta Energy Systems, Inc. 1988a. Revised RCRA Closure Plan for the S-3 Ponds. Prepared by the Y-12 Plant Environmental Management Department; Health, Safety, Environment, and Accountability Division (Y/TS-393).
- Martin Marietta Energy Systems, Inc. 1988b. Revised RCRA Closure Plan for the Oil Landfarm. Prepared by the Y-12 Plant Environmental Management Department; Health, Safety, Environment, and Accountability Division (Y/TS-394).
- Martin Marietta Energy Systems, Inc. 1988c. Revised RCRA Closure Plan for the Bear Creek Burial Grounds. Prepared by the Y-12 Plant Environmental Management Department; Health, Safety, Environment, and Accountability Division (Y/TS-395).
- Martin Marietta Energy Systems, Inc. 1988d. Revised RCRA Closure Plan for the Oil Retention Ponds. Prepared by the Y-12 Plant Environmental Management Department; Health, Safety, Environment, and Accountability Division (Y/TS-392).
- Martin Marietta Energy Systems, Inc. 1993. Y-12 Plant Groundwater Protection Program-Groundwater Monitoring Program Data Management Plan. (Y/SUB/93-TK532C/1).
- Moore, G.K. 1989. Groundwater Parameters and Flow System Near Oak Ridge National Laboratory. Oak Ridge National Laboratory (ORNL/TM-11368).
- Moore, G.K. and L.E. Toran. 1992. Supplement to a Hydrogeologic Framework for the Oak Ridge Reservation, Oak Ridge, Tennessee. Oak Ridge National Laboratory (ORNL/TM-12191).

- Poreda, L.N., T.E. Cerling, and D.K. Solomon. 1988. Tritium and Helium Isotopes as Hydrologic Tracers in a Shallow Unconfined Aquifer. *Journal of Hydrology* (103:1-9).
- Science Applications International Corporation. 1994. Letter from P.D. Moss to J. Hodgins, Martin Marietta Energy Systems, Inc., July 19, 1994.
- Shevenell, L.A., R.B. Dreier, and W.K. Jago. 1993. 1992 Summary of Fiscal Years 1991 and 1992 Construction, Hydrologic, and Geologic Data Obtained from the Maynardville Limestone Exit-Pathway Monitoring Program. Martin Marietta Energy Systems, Inc. (Y/TS-814).
- Sledz, J.J., and D.D. Huff. 1981. Computer Model for Determining Fracture Porosity and Permeability in the Conasauga Group. Oak Ridge National Laboratory (ORNL/TM-7695).
- Solomon, D.K., G.K. Moore, L.E. Toran, R.B. Dreier, and W.M. McMaster. 1992. Status Report - A Hydrologic Framework for the Oak Ridge Reservation. Oak Ridge National Laboratory (ORNL/TM-12026).
- Tennessee Department of Health and Environment. 1986. Letter from T. Tiesler, Director of the Division of Solid Waste-Management, to J.L. Foutch, U.S. Department of Energy - Oak Ridge Operations, January 13, 1986.
- Toran, L.E., D.K. Solomon, W.M. McMaster, and C.M. Morrissey. 1991. Matrix Diffusion as a Mechanism to Explain Recent Tritium and old ^{14}C in Groundwater from Fractured Sedimentary Rock. *EOS Transactions* 72(17):111.
- U.S. Department of Energy. 1993a. Remedial Investigation Work Plan for Bear Creek Operable Unit 1 (S-3 Ponds, Boneyard/Burnyard, Oil Landfarm, Sanitary Landfill I, and the Bear Creek Burial Grounds Including Oil Retention Ponds 1 and 2) at the Oak Ridge Y-12 Plant, Oak Ridge, Tennessee. (DOE/OR/01-1161&D2).
- U.S. Department of Energy. 1993b. Remedial Investigation Work Plan for Bear Creek Operable Unit 2 (Rust Spoil Area, SY-200 Yard, Spoil Area I) at the Oak Ridge Y-12 Plant, Oak Ridge, Tennessee. (DOE/OR/01-1060&D3).
- U.S. Department of Energy. 1993c. Remedial Investigation Work Plan for Bear Creek Operable Unit 4 (Shallow Groundwater in Bear Creek Valley) at the Oak Ridge Y-12 Plant, Oak Ridge, Tennessee. (DOE/OR/01-1161&D1).
- U.S. Department of Energy. 1994a. Oak Ridge Reservation Site Management Plan for the Environmental Restoration Program. U.S. Department of Energy Oak Ridge Field Office (DOE/OR-1001/R3).
- U.S. Department of Energy. 1994b. Remedial Investigation Report on Bear Creek Operable Unit 2 (Rust Spoil Area, Spoil Area I, and SY 200 Yard) at the Oak Ridge Y-12 Plant, Oak Ridge, Tennessee. (DOE/OR/01-1273 V1 and V2, and D1).

- U.S. Department of Energy. 1994c. Feasibility Study for Y-12 Plant Bear Creek Valley Operable Unit 2, Spoil Area I, SY-200 Yard, Rust Spoil Area, Oak Ridge, Tennessee. (DOE/OR/002-1279 & D1).
- U.S. Department of Energy. 1994d. Soil Sampling and Analysis Plan for the Bear Creek Valley Floodplain at the Oak Ridge Y-12 Plant, Oak Ridge, Tennessee. (DOE/OR/01-1322 & D1).
- U.S. Environmental Protection Agency. 1988a. Letter from J.H. Scarbrough, Chief of the Region IV RCRA Branch, and T. Tiesler, Director of the Division of Solid Waste-Management, Tennessee Department of Health and Environment, to R.J. Spence, Y-12 Site Manager, U.S. Department of Energy - Oak Ridge Operations, November 18, 1988.
- U.S. Environmental Protection Agency. 1988b. Laboratory Data Validation Functional Guidelines for Evaluating Organics Analyses. U.S. EPA, Office of Solid Waste.
- Welch, S.H., C.S. Haase, C.W. Kimbrough, and T.M. Mercier. 1987. Solid Waste Management Unit Information for Y-12 Plant RCRA 3004(u) Facility Assessment, Volumes I, II, and III. Martin Marietta Energy Systems, Inc. (Y/TS-273).

APPENDIX A
FIGURES

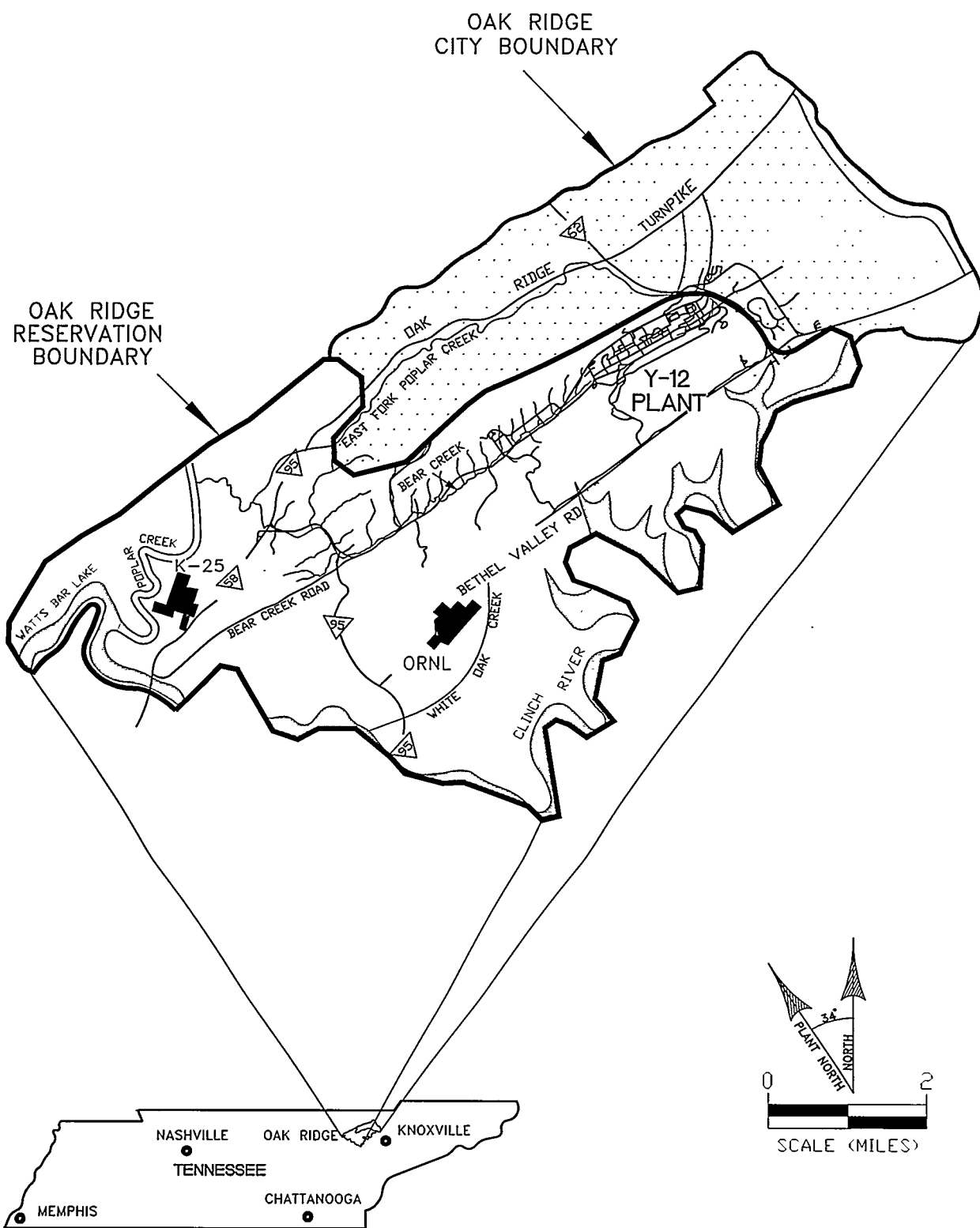


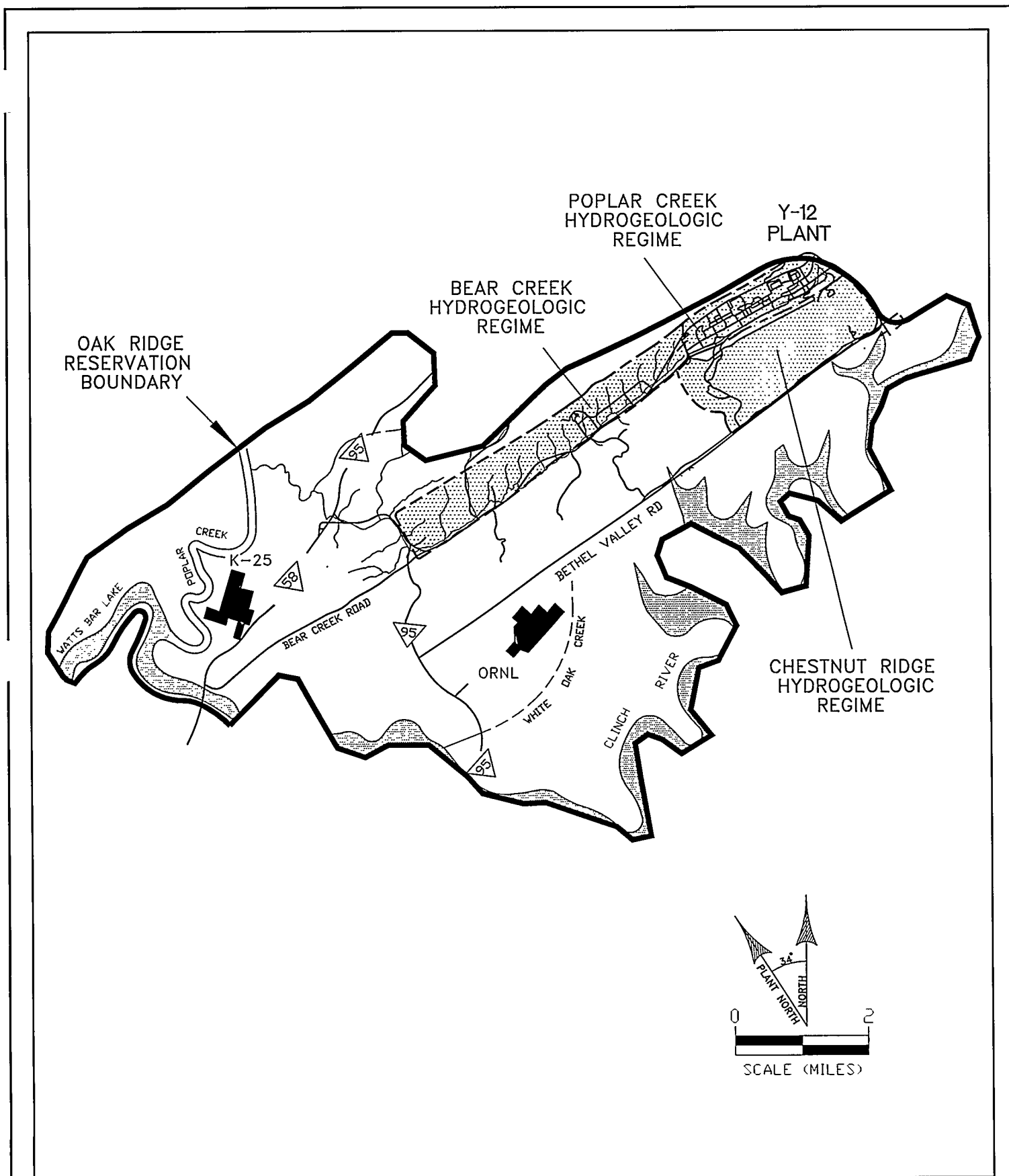
FIGURE 1

REGIONAL LOCATION OF THE Y-12 PLANT

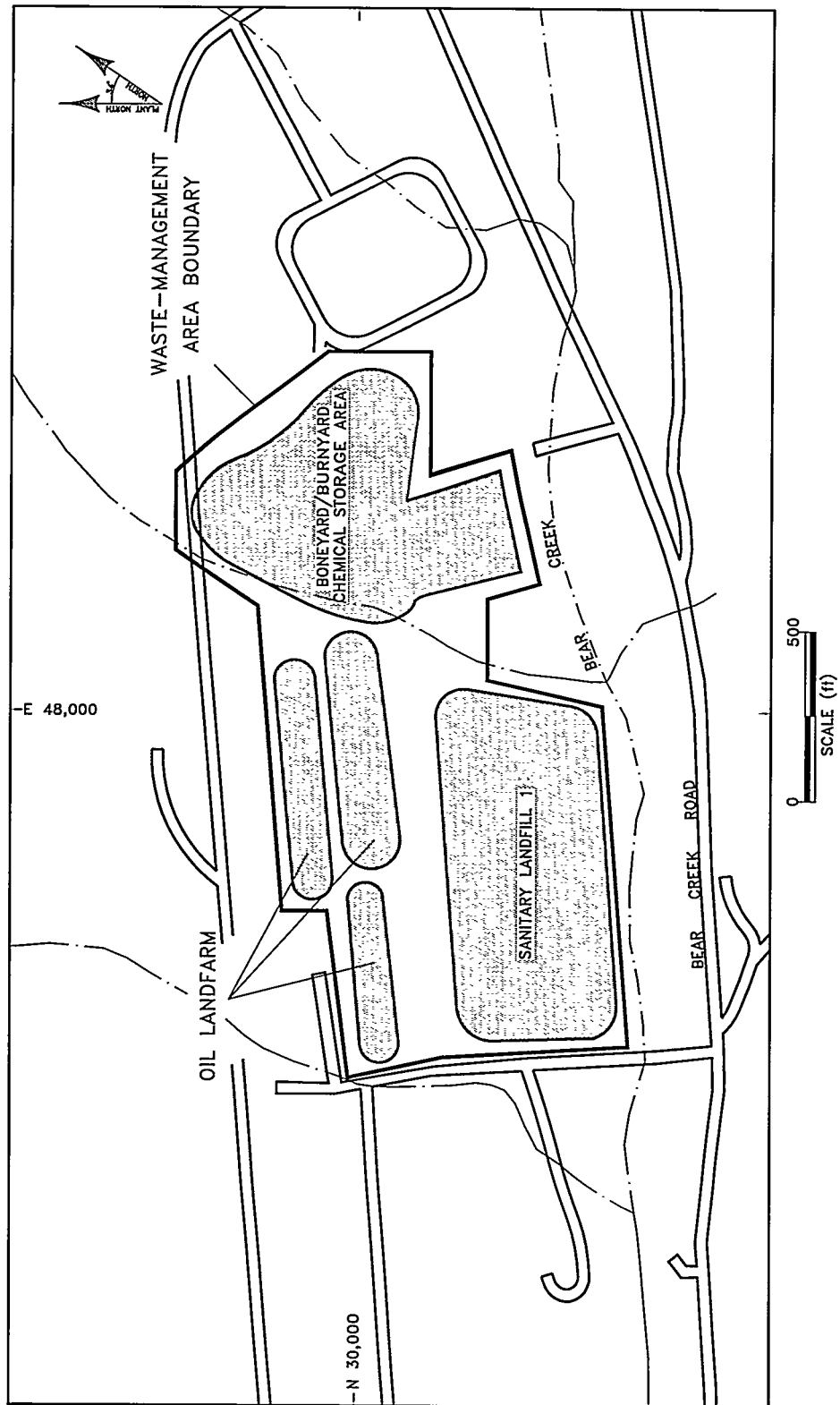
LOCATION: Y-12 PLANT
OAK RIDGE, TN.

DATE: 1-18-95

DWG ID.: OR250-HC



LOCATION:	Y-12 PLANT OAK RIDGE, TN.	FIGURE 2 HYDROGEOLOGIC REGIMES AT THE Y-12 PLANT
DATE:	1-25-95	
DWG ID.:	OR321-HC	



LOCATION:

Y-12 PLANT
OAK RIDGE, TN.

DATE:

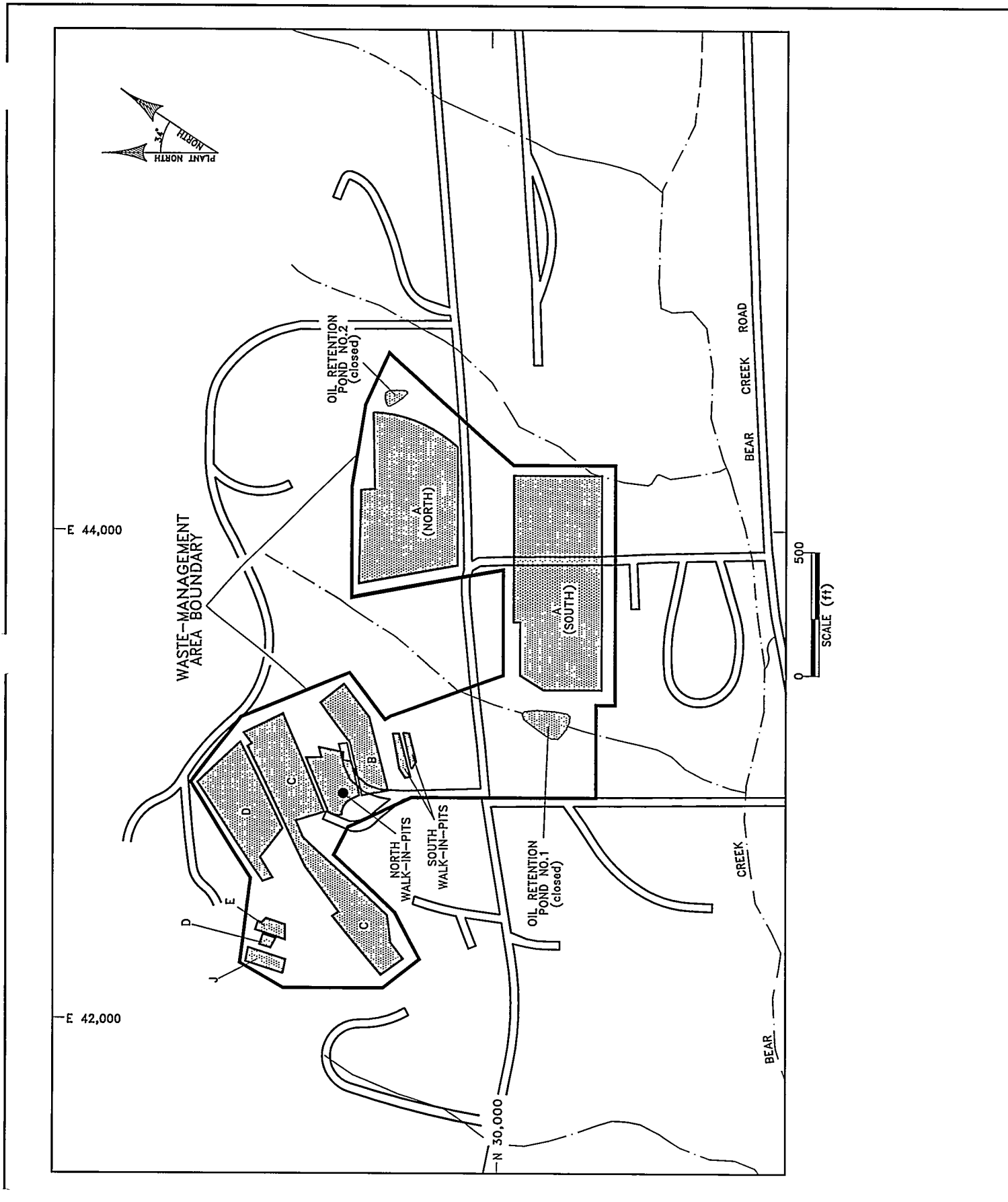
2-3-95

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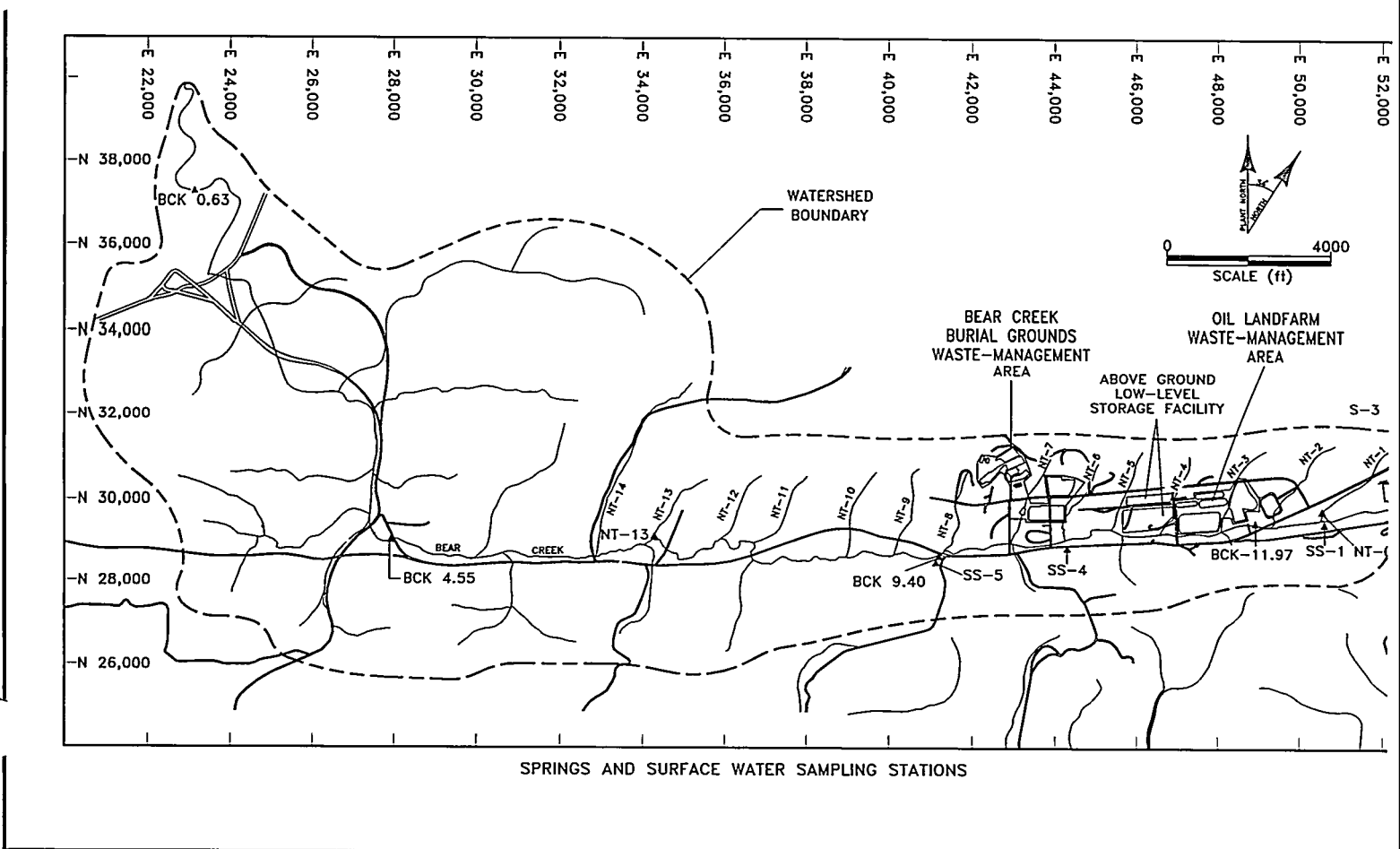
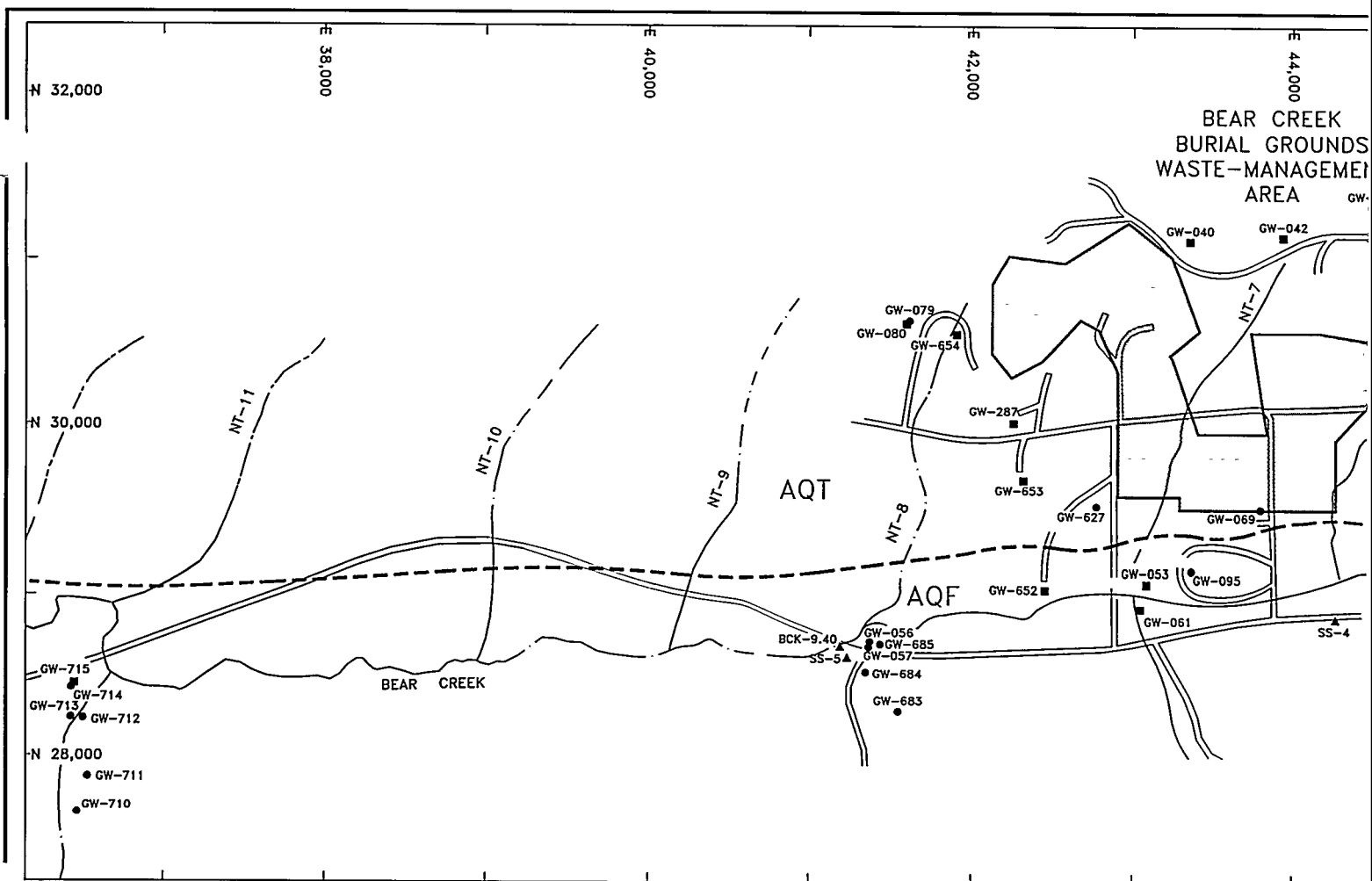
OR004-HC

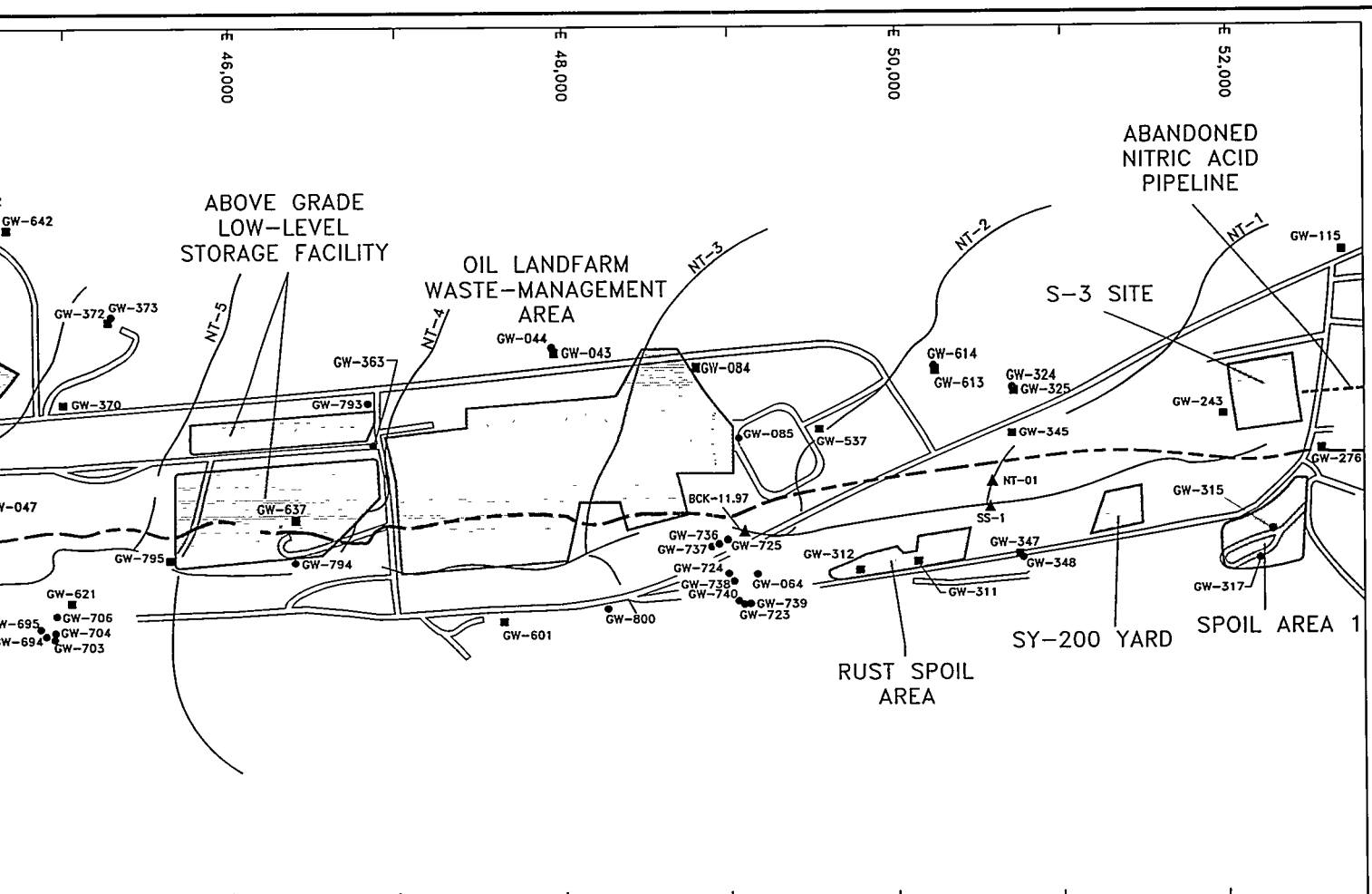
FIGURE 4

COMPONENTS OF THE OIL LANDFARM
WASTE-MANAGEMENT AREA



LOCATION:	Y-12 PLANT OAK RIDGE, TN.	FIGURE 5	
DATE:	1-27-94	COMPONENTS OF THE BEAR CREEK BURIAL GROUNDS WASTE-MANAGEMENT AREA	
DWG ID.:	OR005-HC		





EXPLANATION

GW - ■ - Water Table Monitoring Well

GW - ● - Bedrock Monitoring Well

SS -

BCK - ▲ - Spring (SS) or Surface-Water (BCK or NT) Sampling Station

NT -

— — Surface Drainage Feature

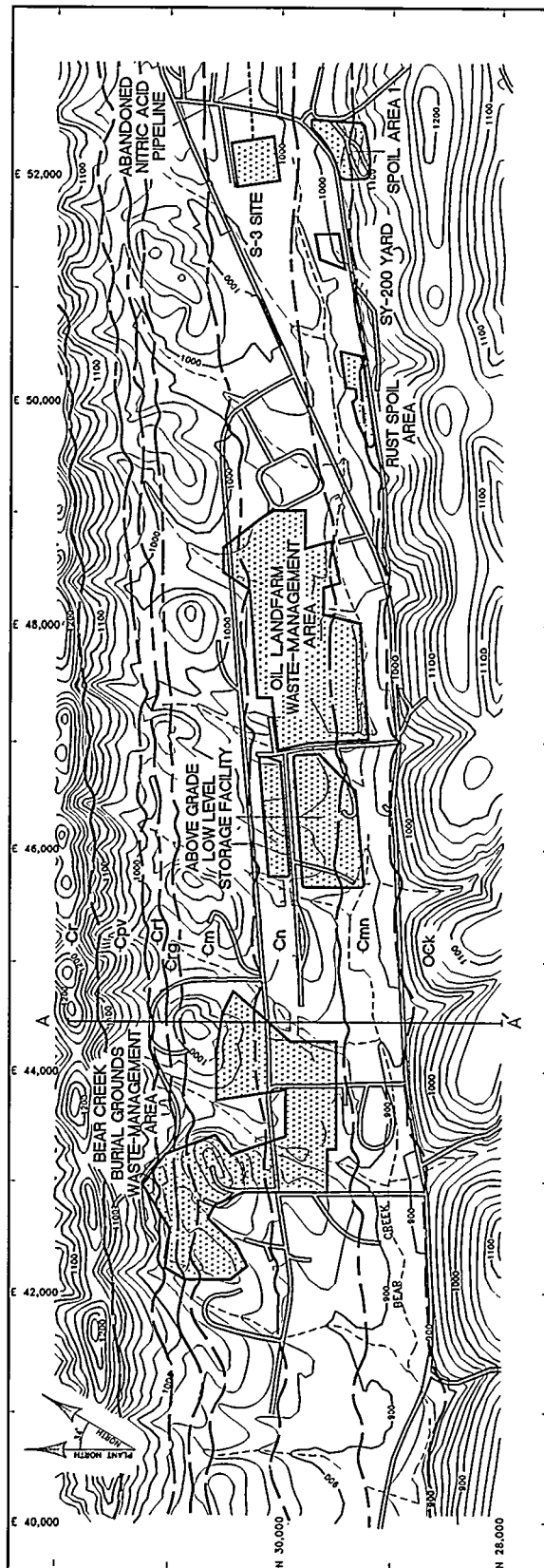
NT-5 - North Tributary

AQT - Oak Ridge Reservation Aquitards

- - - - - Approximate Nolichucky Shale/Maynardville Limestone Contact

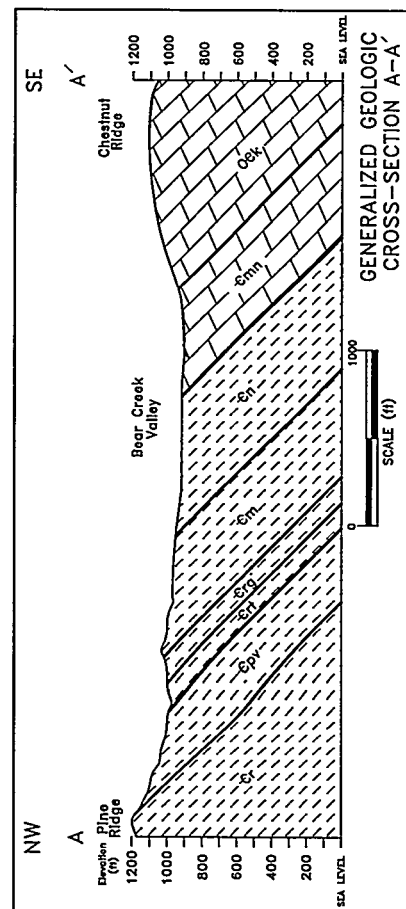
AQF - Knox Aquifer

LOCATION:	Y-12 PLANT OAK RIDGE, TN.	FIGURE 6 SAMPLING LOCATIONS FOR GROUNDWATER AND SURFACE WATER MONITORING DURING CY 1994
DATE:	2-5-95	
DWG ID.:	OR469-HC	



SOURCE: King and Haase, 1987

SYSTEM GROUP	HYDRO UNIT	FORMATION	MAP SYMBOL	THICKNESS (ft)
CAMBRIAN	KNOX	COPPER RIDGE DOLOMITE	Ock	NOT DETERMINED
		MAYNARDVILLE LIMESTONE	Cmn	418-450
ORR AQUITARDS	ORR AQUITARDS	NOLICHUCKY SHALE	Cn	422-550
		MARYVILLE LIMESTONE	Cm	346-445
		ROGERSVILLE SHALE	Cg	90-120
		RUTLEDGE LIMESTONE	Ch	90-120
		PUMPKIN VALLEY SHALE	Cpv	260-320
LOWER	CONASAUGA	ROME	Cr	NOT DETERMINED



ORR AQUITARDS KNOX AQUIFER

FIGURE 7

TOPOGRAPHY AND BEDROCK GEOLOGY
IN THE BEAR CREEK HYDROGEOLOGIC REGIME

LOCATION:

Y-12 PLANT
OAK RIDGE, TN.

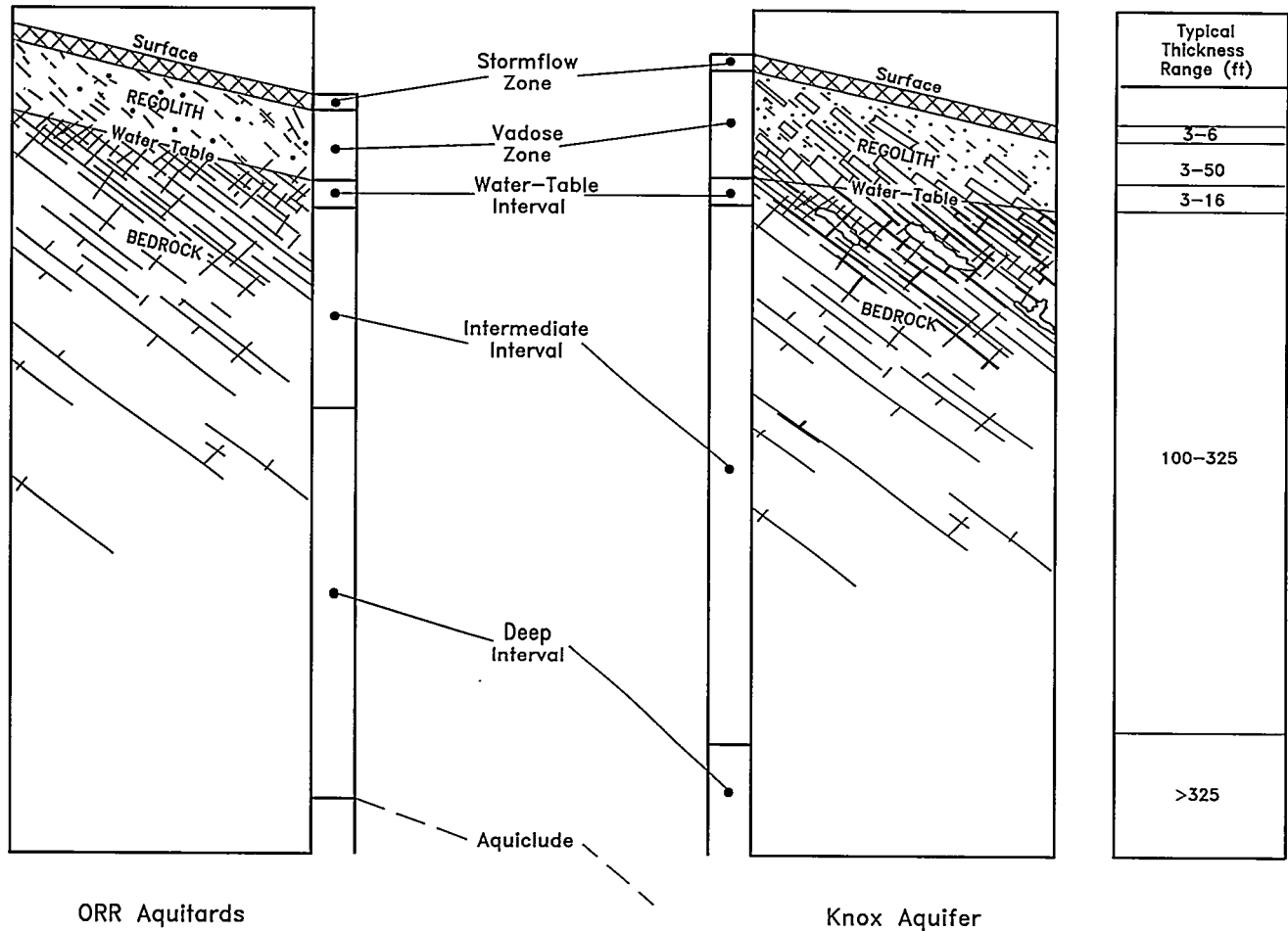
DATE:

2-3-95

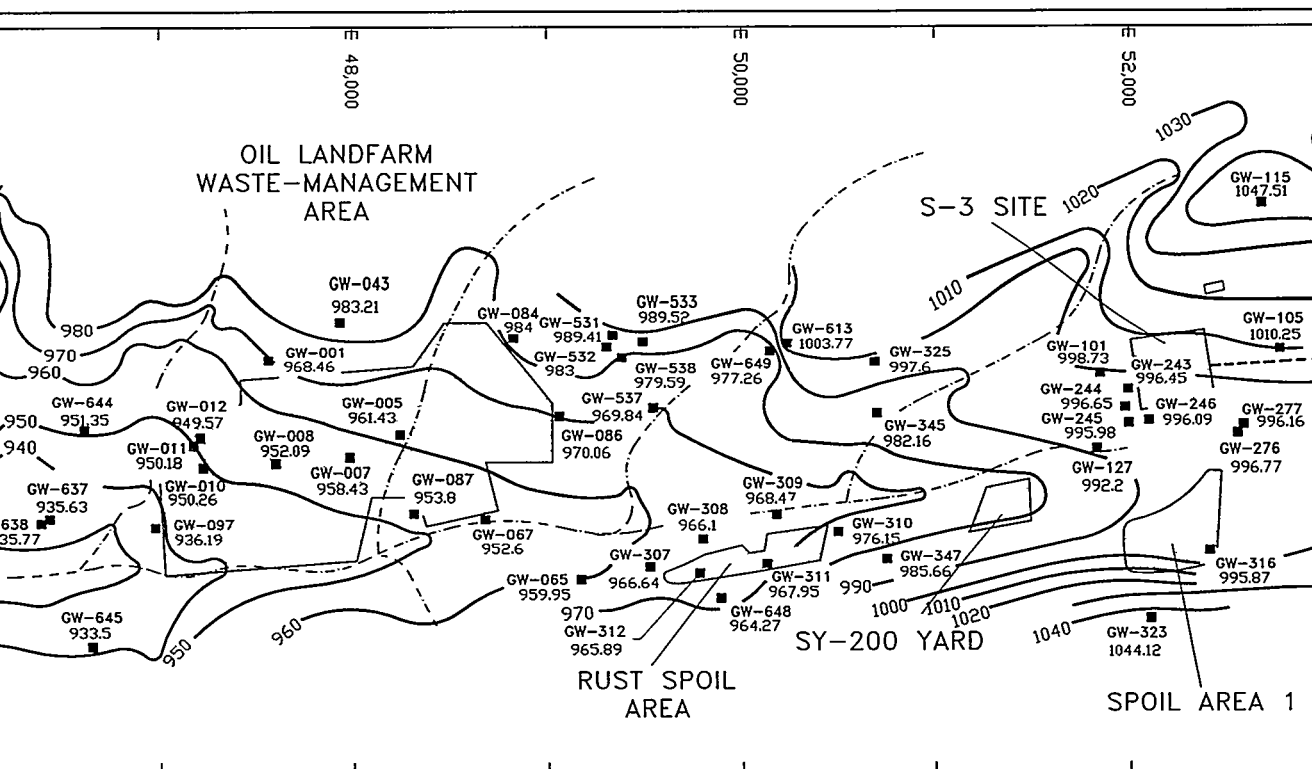
DWG ID.:

OR006-HC

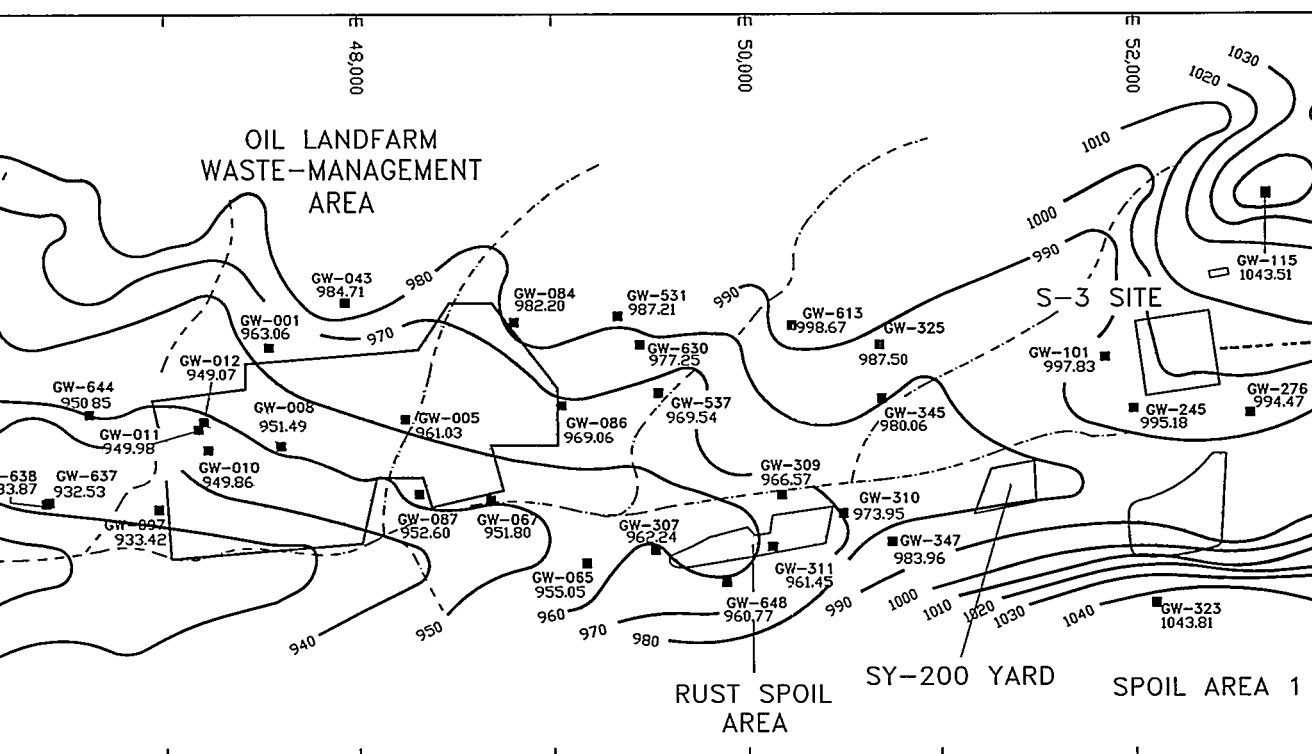
HYDROSTRATIGRAPHIC UNITS PROPOSED BY SOLOMON et al. (1992)



LOCATION:	Y-12 PLANT OAK RIDGE, TN.	FIGURE 8
DATE:	1-18-95	SCHEMATIC PROFILE OF HYDROSTRATIGRAPHIC UNITS IN THE BEAR CREEK HYDROGEOLOGIC REGIME
DWG ID.:	OR213-HC	



January 10-13, 1994

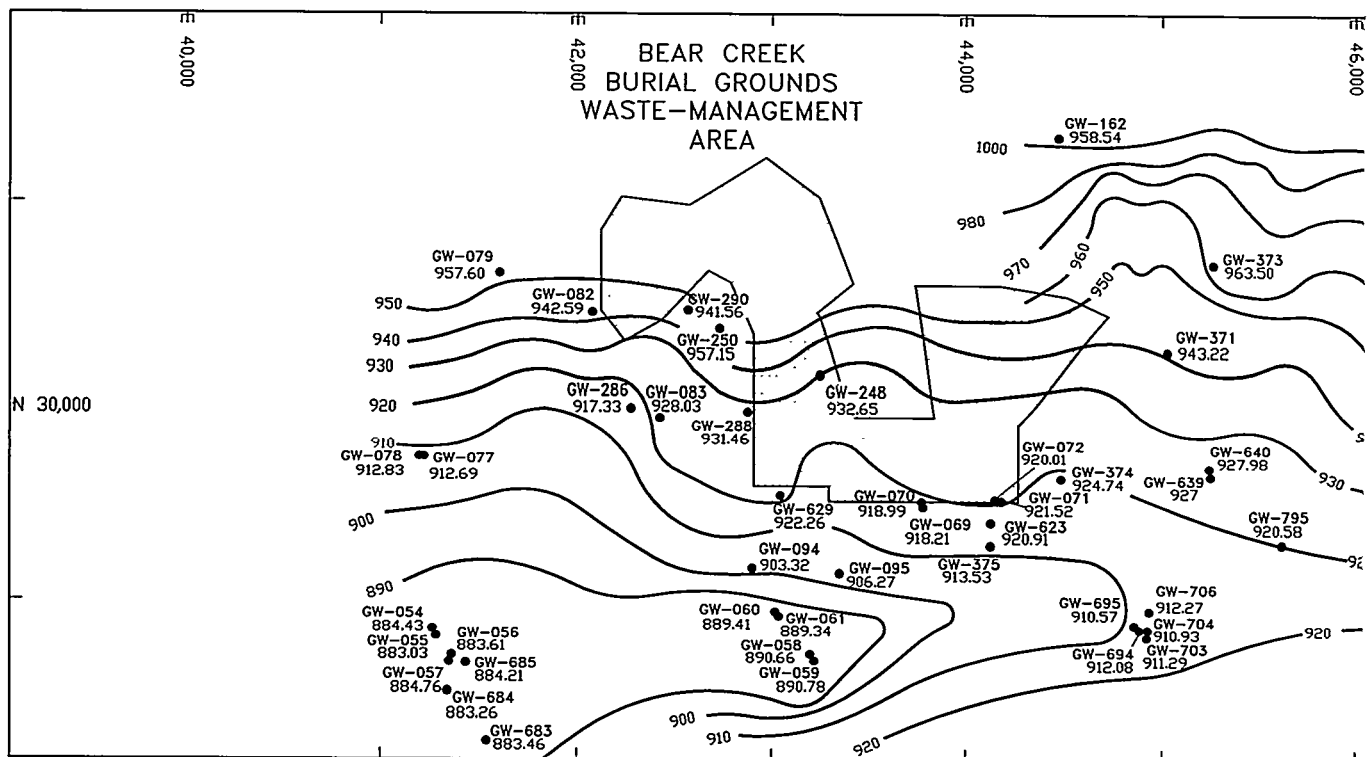
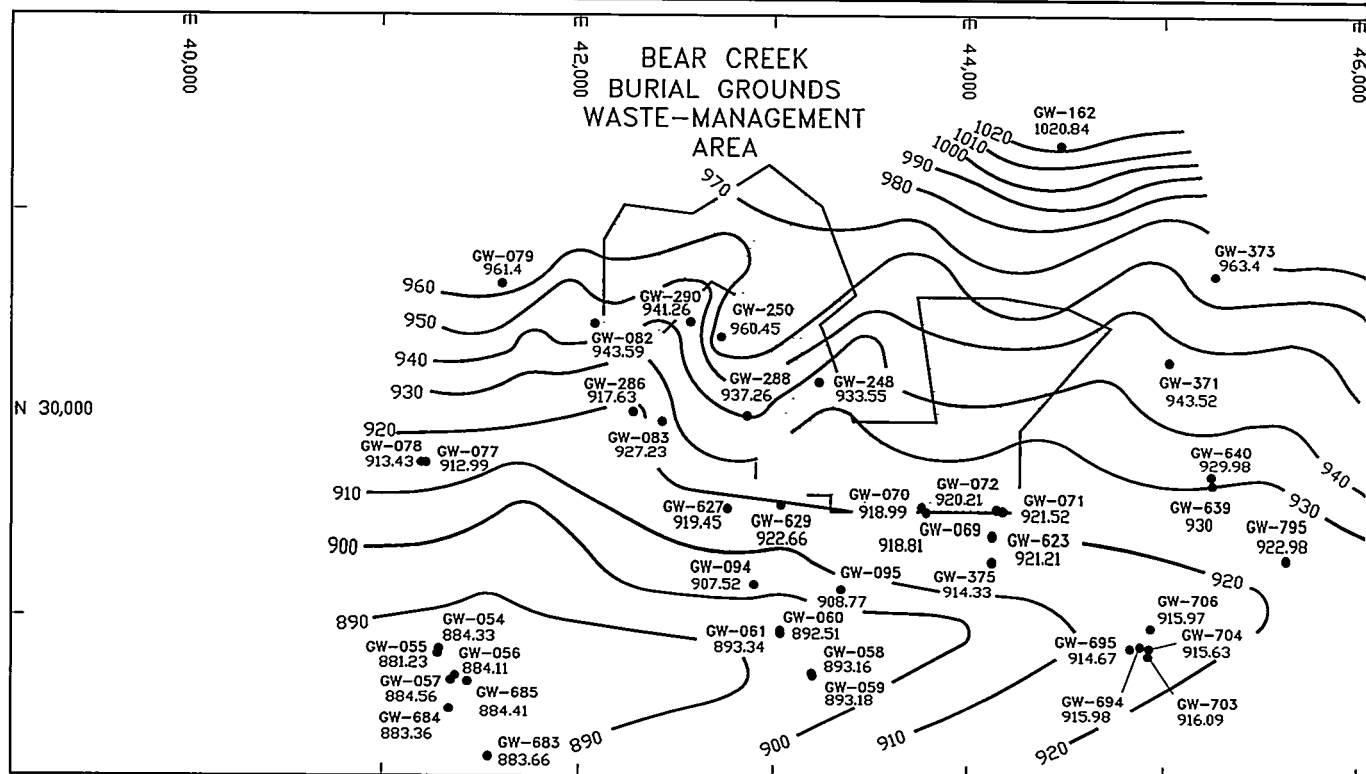


August 23-31, 1994

LOCATION:	Y-12 PLANT OAK RIDGE, TN.
DATE:	2-5-95
DWG ID.:	OR471-HC

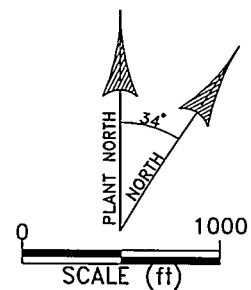
FIGURE 10

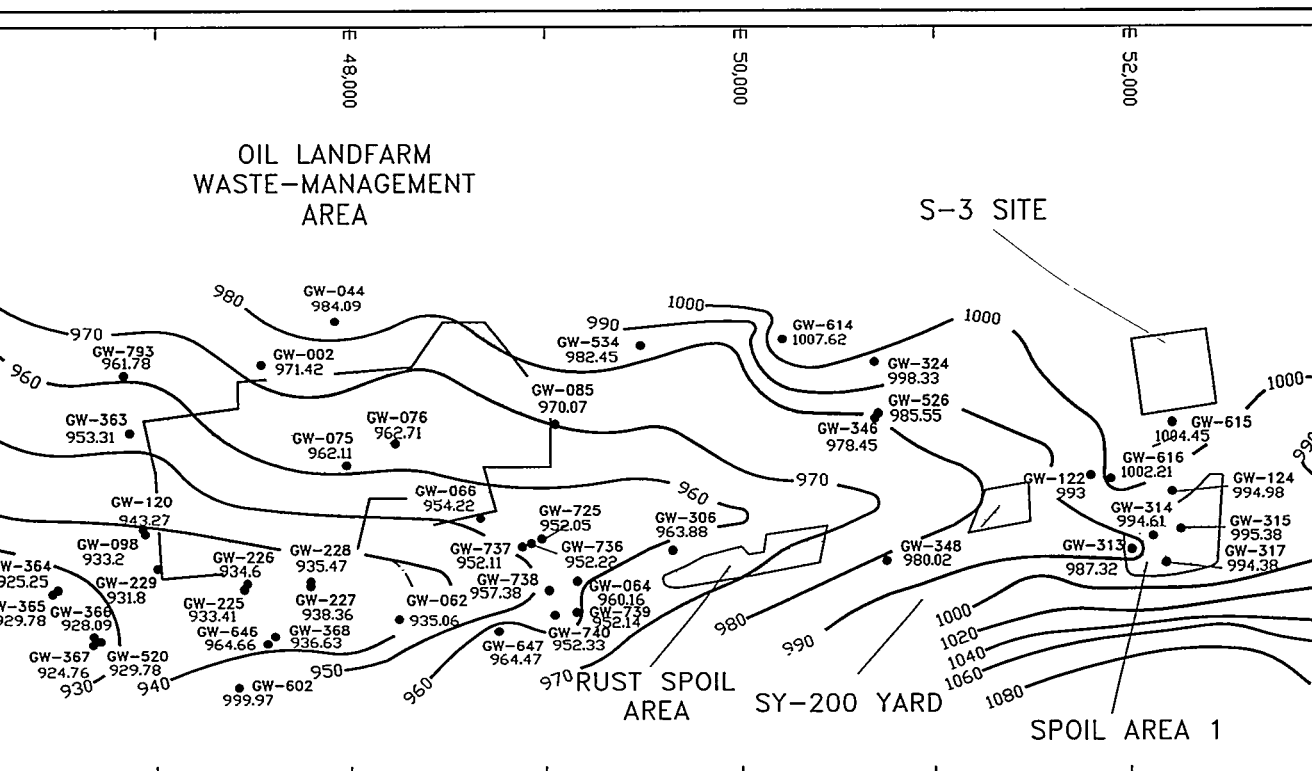
GROUNDWATER ELEVATIONS
IN THE WATER TABLE INTERVAL



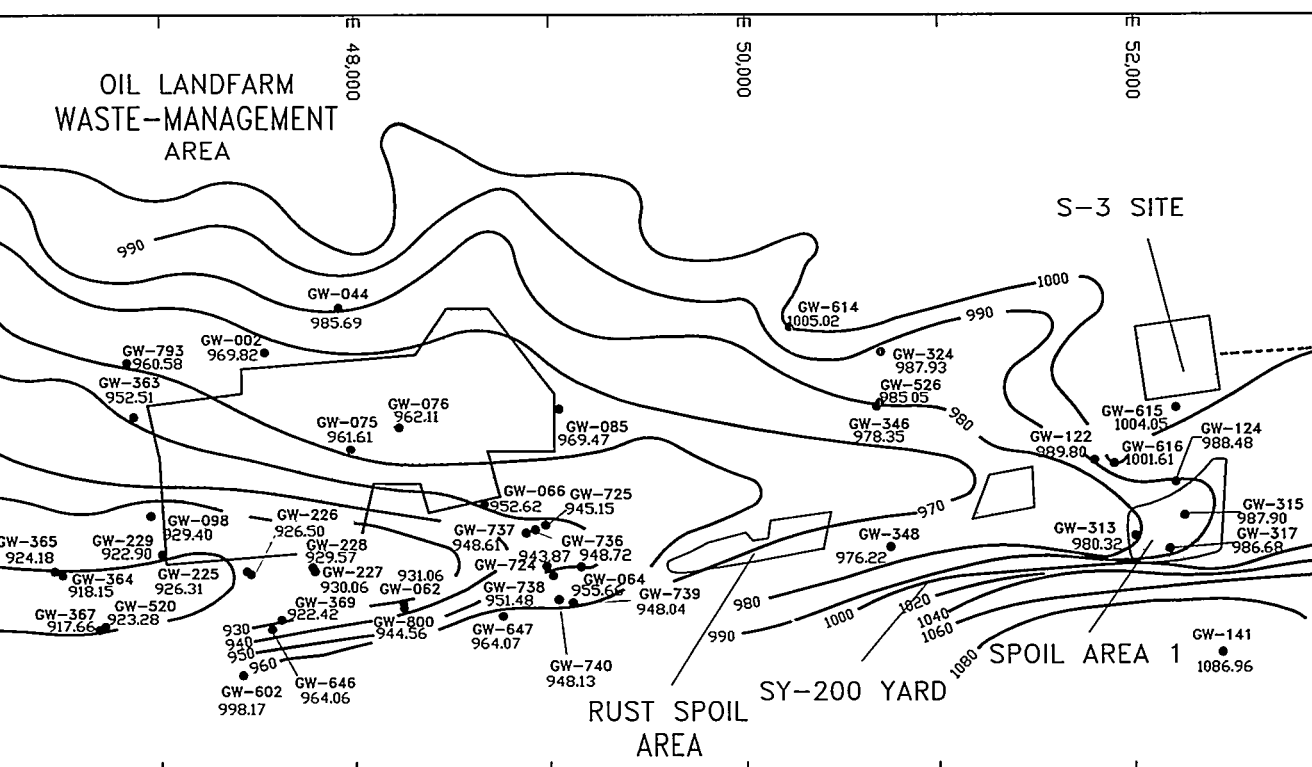
EXPLANATION

- GW-627 917.55 • — Bedrock Monitoring Well and Water Level Elevations
- Approximate Water Level Isopleth (ft msl)
- - - Surface Drainage Feature





January 10-13, 1994



January 23-31, 1994

LOCATION:	Y-12 PLANT OAK RIDGE, TN.	FIGURE 11 GROUNDWATER ELEVATIONS IN THE SHALLOW AND INTERMEDIATE BEDROCK INTERVALS
DATE:	2-5-95	
DWG ID.:	OR470-HC	

APPENDIX B

TABLES

Table 1. Waste-Management Sites Located in the Bear Creek Hydrogeologic Regime

Site Name	Regulatory Classification	
	Historical ¹	Current ²
S-3 Site	TSD Unit	TSD/BC OU 01
Oil Landfarm Waste-Management Area		
Oil Landfarm	TSD Unit	TSD/BC OU 01
Burnyard, Boneyard, and Hazardous Chemical Storage Area	SWMU	BC OU 01
Sanitary Landfill I	SWMU	BC OU 01
Bear Creek Burial Grounds Waste-Management Area		
Burial Grounds A (North and South)	TSD Unit	TSD/BC OU 01
Burial Grounds C	TSD Unit	TSD/BC OU 01
Burial Grounds B, D, E, and J	SWMUs	BC OU 01
Oil Retention Pond No. 1	SWMU	BC OU 01
Oil Retention Pond No. 2	SWMU	BC OU 01
Spoil Area I	SWMU	BC OU 02
SY-200 Yard	SWMU	BC OU 02
Rust Spoil Area	SWMU	BC OU 02
Bear Creek Groundwater, Surface Water, Creek Sediments, and Flood Plain Soils	N/A	BC OU 04
Above Grade Low-Level Storage Facility	N/A	N/A

Notes:

1 Regulatory status before 1992 Federal Facility Agreement.

- TSD Unit - RCRA-regulated land-based treatment, storage, or disposal unit.
- SWMU - RCRA-regulated solid waste management unit.
- N/A - Not Applicable (not previously regulated as a separate unit or not currently regulated).

2 Modified from: *Oak Ridge Reservation Site Management Plan for the Environmental Restoration Program* (U.S. Department of Energy 1994a).

- BC OU 01 - Bear Creek Operable Unit 01 (Source Control OU)
- BC OU 02 - Bear Creek Operable Unit 02 (Source Control OU)
- BC OU 04 - Bear Creek Operable Unit 04 (Integrator OU)

Table 2. Monitoring Programs Implemented During CY 1994

Monitoring Program	Sampling Point ¹	Location ²	Quarter Sampled ³				Analytical Parameters ⁴ /Notes
			1st	2nd	3rd	4th	
RCRA Corrective Action Monitoring							
	GW-040	BG	■	■	■	■	COMP
	GW-042	BG	■	■	■	■	COMP
	GW-043	OLF	■	■	■	■	COMP
	GW-044	OLF	■	■	■	■	COMP
	GW-079	BG	■	■	■	■	COMP
	GW-080	BG	■	■	■	■	COMP
	GW-084	OLF	■	■	■	■	COMP
	GW-115	S3	■	.	■	.	COMP, T-DCE
	GW-162	BG	■	■	■	■	COMP
	GW-243	S3	■	.	.	.	COMP, T-DCE/Dropped from program
	GW-276	S3	■	.	■	.	COMP, T-DCE
	GW-324	S3	■	.	.	.	COMP/Dropped from program
	GW-325	S3	■	.	.	.	COMP/Dropped from program
	GW-372	BG	■	■	■	■	COMP
	GW-373	BG	■	■	■	■	COMP
	GW-613	S3	■	.	■	.	COMP, T-DCE
	GW-614	S3	■	.	■	.	COMP, T-DCE
	GW-642	BG	■	■	■	■	COMP
	GW-710	EXP-W	■	.	■	.	COMP, T-DCE
	GW-711	EXP-W	■	.	■	.	COMP, T-DCE
	GW-712	EXP-W	■	.	■	.	COMP, T-DCE
	GW-713	EXP-W	■	.	■	.	COMP, T-DCE
	GW-714	EXP-W	■	.	■	.	COMP, T-DCE
	GW-715	EXP-W	■	.	■	.	COMP, T-DCE

Table 2 (cont'd)

Monitoring Program	Sampling Point ¹	Location ²	Quarter Sampled ³				Analytical Parameters ⁴ /Notes
			1st	2nd	3rd	4th	
RCRA Assessment Monitoring							
	GW-047	BG	■	■	■	■	STD, U
	GW-064	OLF	■	■	■	■	STD
	GW-311	RS	■	■	■	■	STD
	GW-312	RS	■	■	■	■	STD
	GW-317	SPI	■	■	■	■	STD
Exit Pathway Monitoring							
	GW-056	EXP-A	■	.	■	.	STD
	GW-057	EXP-A	■	.	■	.	STD
	GW-621	EXP-B	■	.	.	■	STD, MET
	GW-683	EXP-A	■	.	■	.	STD, BETA
	GW-684	EXP-A	■	.	■	.	STD, BETA
	GW-685	EXP-A	■	.	■	.	STD
	GW-694	EXP-B	■	.	.	■	STD, BETA
	GW-695	EXP-B	■	.	.	■	STD
	GW-703	EXP-B	■	.	.	■	STD
	GW-704	EXP-B	■	.	.	■	STD
	GW-706	EXP-B	■	.	.	■	STD, BETA
	GW-723	EXP-C	■	.	.	■	STD
	GW-724	EXP-C	■	.	.	■	STD
	GW-725	EXP-C	■	.	.	■	STD
	GW-736	EXP-C	■	.	.	■	STD
	GW-737	EXP-C	■	.	.	■	STD
	GW-738	EXP-C	■	.	.	■	STD
	GW-739	EXP-C	■	.	.	■	STD

Table 2 (cont'd)

Monitoring Program	Sampling Point ¹	Location ²	Quarter Sampled ³				Analytical Parameters ⁴ /Notes
			1st	2nd	3rd	4th	
Exit Pathway Monitoring (cont'd)							
	GW-740	EXP-C	■	.	.	■	STD
	BCK-00.63	EXP-SW	■	.	■	.	STD
	BCK-04.55	EXP-SW	■	.	■	.	STD
	BCK-09.40	EXP-SW	■	.	■	.	STD, BETA
	BCK-11.97	EXP-SW	■	.	■	.	STD, BETA
	NT-01	EXP-SW	■	.	■	.	STD, BETA
	NT-13	EXP-SW	■	.	■	.	STD
	SS-1	EXP-SW	■	.	■	.	STD, BETA
	SS-4	EXP-SW	■	.	■	.	STD, BETA
	SS-5	EXP-SW	■	.	■	.	STD
Surveillance and Maintenance Monitoring							
	GW-053	BG	■	■	■	■	STD, MET
	GW-061	BG	■	■	■	■	STD, BETA
	GW-069	BG	■	■	■	■	STD
	GW-085	OLF	■	■	■	■	STD, U, BETA
	GW-095	BG	■	■	■	■	STD
	GW-287	BG	■	■	■	■	STD
	GW-315	SPI	■	■	■	■	STD, BETA
	GW-345	S3	■	.	.	.	STD/Dropped from program
	GW-347	S3	■	■	■	■	STD, MET
	GW-348	S3	■	■	■	■	STD
	GW-363	OLF	■	■	■	■	STD
	GW-370	BG	■	■	■	■	STD
	GW-537	OLF	■	■	■	■	STD, MET, U, BETA

Table 2 (cont'd)

Monitoring Program	Sampling Point ¹	Location ²	Quarter Sampled ³				Analytical Parameters ⁴ /Notes
			1st	2nd	3rd	4th	
Surveillance and Maintenance Monitoring (cont'd)							
	GW-601	OLF	■	.	.	.	STD/Dropped from program
	GW-627	BG	■	■	■	■	STD
	GW-637	OLF	■	■	■	■	STD
	GW-652	BG	■	■	■	■	STD
	GW-653	BG	■	■	■	■	STD
	GW-654	BG	■	■	■	■	STD
	GW-800	OLF	■	■	■	■	STD
Best-Management Practice Monitoring							
	GW-793	AGLLSF	■	■	■	■	STD, U
	GW-794	AGLLSF	■	■	■	■	STD, U
	GW-795	AGLLSF	■	■	■	■	STD, U

Notes:

- 1
 - BCK - Bear Creek Kilometer
 - GW - Monitoring Well
 - NT - Northern Tributary
 - SS - Spring
- 2
 - AGLLSF - Above Grade Low-Level Storage Facility
 - BG - Bear Creek Burial Grounds WMA
 - EXP - Exit Pathway Monitoring Location:
 - Maynardville Limestone Transverse (-A, -B, -C, -W)
 - Spring or Surface Water Sampling Location (-SW)
 - OLF - Oil Landfarm WMA
 - RS - Rust Spoil Area
 - S3 - S-3 Site
 - SPI - Spoil Area I

Table 2 (cont'd)

Notes: (cont'd)

- 3
- - sample collected during specified quarter of CY 1994
 - - sample not collected
 - First Quarter: February 14 - March 31
 - Second Quarter: May 17 - June 28
 - Third Quarter: July 28 - September 20
 - Fourth Quarter: November 2 - December 20
- 4
- COMP - Corrective Action Monitoring Parameters; includes the following:
- STD - Standard suite of analytical parameters
 - MET - Drinking Water Metals
 - Radionuclides
 - Americium (²⁴¹Am)
 - Iodine (¹²⁹I)
 - Neptunium (²³⁷Np)
 - Plutonium (²³⁸Pu)
 - Radium (total)
 - Strontium (total)
 - Technetium (⁹⁹Tc)
 - Tritium (³H)
 - Isotopic Uranium (²³⁴U, ²³⁵U, ²³⁸U)
- T-DCE - Trans-1,2-Dichloroethene
- STD - Standard suite of analytical parameters, includes the following:
- Inductively Coupled Plasma (ICP) Metals

Aluminum	Chromium	Potassium
Antimony	Cobalt	Selenium
Arsenic	Copper	Silver
Barium	Iron	Sodium
Beryllium	Magnesium	Strontium
Boron	Manganese	Thorium
Cadmium	Molybdenum	Vanadium
Calcium	Nickel	Zinc
 - Uranium (Fluorometric Analysis)
 - Anions

Alkalinity - Carbonate	Nitrate (as N)
Alkalinity - Bicarbonate	Fluoride
Chloride	Sulfate

Table 2 (cont'd)

Notes: (cont'd)

4. (cont'd)

- Volatile Organic Compounds

Acetone	1,2-Dichloropropane
Benzene	cis-1,3-Dichloropropene
Bromodichloromethane	trans-1,3-Dichloropropene
Bromoform	Ethylbenzene
Bromomethane	2-Hexanone
2-Butanone	4-Methyl-2-pentanone
Carbon disulfide	Methylene chloride
Carbon tetrachloride	Styrene
Chlorobenzene	1,1,2,2-Tetrachloroethane
Chlorodibromomethane	Tetrachloroethene
Chloroethane	Toluene
Chloroform	1,1,1-Trichloroethane
Chloromethane	1,1,2-Trichloroethane
1,1-Dichloroethane	Trichloroethene
1,2-Dichloroethane	Vinyl acetate
1,1-Dichloroethene	Vinyl chloride
1,2-Dichloroethene	Xylenes
- Radiological Parameters

Gross Alpha Activity	Gross Beta Activity
----------------------	---------------------
- Miscellaneous Parameters

pH	Total Suspended Solids
Specific Conductance	Turbidity
Total Dissolved Solids	
- Field Measurements

Static Water Level	Dissolved Oxygen
pH	Specific Conductance
Temperature	Oxidation - Reduction Potential

MET - Drinking Water Metals

- Cadmium, Chromium, Lead (Atomic Absorption Spectroscopy)
- Mercury (Cold Vapor Atomic Absorption Spectroscopy)

BETA - Beta-emitting isotopes: Strontium (total), Technetium (⁹⁹Tc), Tritium (³H)

U - Isotopic Uranium (²³⁴U, ²³⁵U, ²³⁸U)

Table 3. General Construction Information¹ for Monitoring Wells Sampled During CY 1994

Well	Location ²	Aquifer ³			Monitored Interval ⁴					
		Unit	Form.	Interval	Depths			Elevations		
GW-040	BG	AQT	Cpv	WT	21.0	-	29.0	983.1	-	975.1
GW-042	BG	AQT	Cpv	WT	13.4	-	28.2	986.6	-	971.8
GW-043	OLF	AQT	Cm	WT	10.0	-	40.0	999.8	-	969.8
GW-044	OLF	AQT	Cm	BDR	42.5	-	70.0	967.8	-	940.3
GW-047	BG	AQT	Cn	WT	12.5	-	25.5	913.3	-	900.3
GW-053	BG	AQF	Cmn	WT	11.4	-	32.8	888.9	-	867.5
GW-056	EXP-A	AQF	Cmn	BDR	49.1	-	55.2	837.6	-	831.5
GW-057	EXP-A	AQF	Cmn	BDR	17.5	-	22.8	869.3	-	864.0
GW-061	BG	AQF	Cmn	BDR	17.5	-	24.6	883.3	-	876.2
GW-064	OLF	AQF	Cmn	BDR	46.8	-	52.7	932.4	-	926.5
GW-069	BG	AQT	Cn	BDR	79.0	-	99.2	845.3	-	825.1
GW-079	BG	AQT	Crg	BDR	49.9	-	64.9	927.2	-	912.2
GW-080	BG	AQT	Crg	WT	20.8	-	29.7	956.2	-	947.3
GW-084	OLF	AQT	Cm	WT	18.5	-	27.8	975.9	-	966.6
GW-085	OLF	AQT	Cn	BDR	48.4	-	58.8	931.4	-	921.0
GW-095	BG	AQF	Cmn	BDR	130.2	-	156.0	777.8	-	752.0
GW-115	S3	AQT	Cm	WT	37.6	-	53.0	1,014.3	-	998.9
GW-162 ^a	BG	AQT	Cpv	BDR	92.0	-	125.0	946.1	-	913.1
GW-243	S3	AQT	Cn	WT	43.2	-	77.0	965.4	-	931.6
GW-276	S3	AQT	Cn	WT	11.3	-	18.5	987.5	-	980.3
GW-287	BG	AQT	Cn	WT	5.6	-	12.5	919.0	-	912.1
GW-311	RS	AQF	Cmn	WT	25.6	-	40.3	970.8	-	956.1
GW-312	RS	AQF	Cmn	WT	29.6	-	41.0	964.5	-	953.1
GW-315	SPI	AQF	Cmn	BDR	90.0	-	104.0	954.8	-	940.8
GW-317	SPI	AQF	Cmn	BDR	117.0	-	132.0	943.8	-	928.8
GW-324	S3	AQT	Cn	BDR	66.5	-	80.0	934.9	-	921.4
GW-325	S3	AQT	Cn	WT	5.1	-	17.9	995.4	-	982.6

Table 3 (cont'd)

Well	Location ²	Aquifer ³			Monitored Interval ⁴					
		Unit	Form.	Interval	Depths			Elevations		
GW-345	S3	AQT	Cn	WT	15.2	-	26.3	979.7	-	968.6
GW-347	S3	AQF	Cmn	WT	9.5	-	27.8	988.3	-	970.0
GW-348	S3	AQF	Cmn	BDR	68.1	-	80.9	929.9	-	917.1
GW-363 ^a	OLF	AQT	Cn	BDR	50.0	-	75.0	905.4	-	880.4
GW-370	BG	AQT	Cm	WT	21.1	-	33.1	936.8	-	924.8
GW-372	BG	AQT	Cm	WT	39.8	-	51.6	940.1	-	928.3
GW-373 ^a	BG	AQT	Cm	BDR	123.0	-	158.0	857.8	-	822.8
GW-537	OLF	AQT	Cn	WT	4.8	-	23.3	969.4	-	950.9
GW-601 ^a	OLF	AQF	Cmn	BDR	318.5	-	356.0	680.6	-	643.1
GW-613	S3	AQT	Cn	WT	30.0	-	42.0	980.2	-	968.2
GW-614	S3	AQT	Cn	BDR	71.6	-	90.2	937.8	-	919.2
GW-621 ^a	EXP-B	AQF	Cmn	WT	23.3	-	40.5	899.8	-	882.6
GW-627	BG	AQT	Cn	BDR	254.0	-	270.0	686.4	-	670.4
GW-637	OLF	AQT	Cn	WT	14.5	-	27.5	923.8	-	910.8
GW-642	BG	AQT	Crg	WT	18.5	-	36.9	993.4	-	975.0
GW-652	BG	AQF	Cmn	WT	13.4	-	31.2	884.6	-	866.8
GW-653	BG	AQT	Cn	WT	26.3	-	39.0	902.6	-	889.9
GW-654	BG	AQT	Cm	WT	4.2	-	15.3	934.1	-	923.0
GW-683	EXP-A	AQF	OCk	BDR	133.9	-	196.8	835.6	-	772.7
GW-684	EXP-A	AQF	Cmn	BDR	106.4	-	128.4	789.1	-	767.1
GW-685 ^a	EXP-A	AQF	Cmn	BDR	88.5	-	138.3	800.8	-	751.0
GW-694 ^a	EXP-B	AQF	Cmn	BDR	154.0	-	204.5	784.6	-	734.1
GW-695	EXP-B	AQF	OCk	BDR	50.6	-	62.6	886.6	-	874.6
GW-703 ^a	EXP-B	AQF	Cmn	BDR	135.0	-	182.0	816.8	-	769.8
GW-704 ^a	EXP-B	AQF	Cmn	BDR	246.0	-	256.0	696.0	-	686.0
GW-706 ^a	EXP-B	AQF	Cmn	BDR	157.0	-	182.5	768.8	-	743.3
GW-710 ^a	EXP-W	AQF	OCk	BDR	539.7	-	744.5	368.3	-	163.5

Table 3 (cont'd)

Well	Location ²	Aquifer ³			Monitored Interval ⁴				
		Unit	Form.	Interval	Depths		Elevations		
GW-711 ^a	EXP-W	AQF	Cmn	BDR	616.0	- 666.2	286.0	-	235.8
GW-712 ^a	EXP-W	AQF	Ock	BDR	441.5	- 457.5	432.1	-	416.1
GW-713 ^a	EXP-W	AQF	Cmn	BDR	305.0	- 315.2	572.8	-	562.6
GW-714 ^a	EXP-W	AQF	Cmn	BDR	115.1	- 145.0	757.2	-	727.3
GW-715	EXP-W	AQF	Cmn	WT	32.0	- 44.0	840.2	-	828.2
GW-723 ^a	EXP-C	AQF	Cmn	BDR	340.6	- 444.5	678.7	-	574.8
GW-724 ^a	EXP-C	AQF	Cmn	BDR	289.6	- 301.6	687.0	-	675.0
GW-725 ^a	EXP-C	AQF	Cmn	BDR	132.5	- 142.5	825.8	-	815.8
GW-736	EXP-C	AQF	Cmn	BDR	92.0	- 105.0	865.6	-	852.6
GW-737	EXP-C	AQF	Cmn	BDR	79.0	- 89.5	878.5	-	868.0
GW-738	EXP-C	AQF	Cmn	BDR	63.5	- 88.0	916.9	-	892.4
GW-739 ^a	EXP-C	AQF	Cmn	BDR	289.2	- 320.0	731.5	-	700.7
GW-740 ^a	EXP-C	AQF	Cmn	BDR	165.6	- 190.0	851.4	-	827.0
GW-793	AGLLSF	AQT	Cn	BDR	16.9	- 29.0	948.2	-	936.1
GW-794	AGLLSF	AQT	Cn	BDR	25.8	- 39.3	905.1	-	891.6
GW-795	AGLLSF	AQT	Cn	BDR	7.5	- 20.1	915.4	-	902.8
GW-800	OLF	AQF	Ock	BDR	19.3	- 31.5	942.1	-	929.9

Notes:

- 1 Well construction information compiled from: *Updated Subsurface Data Base for Bear Creek Valley, Chestnut Ridge, and Parts of Bethel Valley on the U.S. Department of Energy Oak Ridge Reservation* (Jones et al. 1994).
- 2
 - AGLLSF - Above Grade Low-Level Storage Facility
 - BG - Bear Creek Burial Grounds WMA
 - EXP - Exit Pathway Monitoring Location:
Maynardville Limestone Transverse (-A, -B, -C, -W)
 - OLF - Oil Landfarm WMA
 - RS - Rust Spoil Area
 - S3 - S-3 Site
 - SPI - Spoil Area I

Table 3 (cont'd)

Notes: (cont'd)

- 3 Unit: Hydrostratigraphic unit
 AQF - Knox Aquifer
 AQT - ORR Aquitards

Form.: Geologic Formation

- OCk - Knox Group
 Cmn - Maynardville Limestone
 Cn - Nolichucky Shale
 Cm - Maryville Limestone
 Crg - Rogersville Shale
 Cpv - Pumpkin Valley Shale

Interval: determined from the placement of the top of the monitored interval

- BDR - Bedrock (Shallow, Intermediate, and Deep Intervals)
 WT - Water table Interval (above unweathered bedrock)

- 4 Depth in feet from the ground surface.
 Elevation in feet above mean sea level.

- a Open-hole well construction.

APPENDIX C

MONITORING WELL CONSTRUCTION DETAILS

EXPLANATION

LOCATION:

AGLLSF	-	Above Grade Low-Level Storage Facility
BG	-	Bear Creek Burial Grounds WMA
EXP	-	Exit Pathway Monitoring Location: Maynardville Limestone Transverse (-A, -B, -C, -W)
OLF	-	Oil Landfarm WMA
RS	-	Rust Spoil Area
S3	-	S-3 Site
SPI	-	Spoil Area I

GENERAL INFORMATION:

Coordinates	-	Y-12 Plant grid system
Elevations	-	Feet above mean sea level
Depths	-	Feet below ground surface
AQF	-	Knox Aquifer
AQT	-	ORR Aquitards
BDR	-	Bedrock Interval
WT	-	Water-Table Interval
Ock	-	Knox Group
Och	-	Chickamauga Group
.	-	Not Applicable or not available

CASING:

Casing Diameter	-	Outside diameter, in inches
Borehole Diameter	-	Nominal diameter, in inches
Casing Material:		
PVC	-	Polyvinyl chloride
SS	-	Stainless Steel

MONITORED INTERVAL:

Top	-	Depth to top of filter pack or open-hole
Bottom	-	Depth to bottom of filter pack or open-hole
Screen Material:		
PVC/sl	-	Slotted
PVC/sw/.01	-	Spiral wound, 0.01 inch slot size
SS/sw/.01	-	Spiral wound, 0.01 inch slot size

Length of screen and open hole interval is in feet.

NOTE:

Data Compiled from *Updated Subsurface Data Base for Bear Creek Valley, Chestnut Ridge, and parts of Bethel Valley on the U.S. Department of Energy Oak Ridge Reservation* (Jones et al. 1994).

APPENDIX C
Monitoring Well Construction Details

1

Well No.	GW-040	GW-042	GW-043	GW-044	GW-047	GW-053	GW-056
Location	BG	BG	OLF	OLF	BG	BG	EXP-A
GENERAL INFORMATION	.	.	.	.	.	.	.
East Coordinate	43358.00	43938.00	47932.00	47928.00	44503.00	43091.00	41384.00
North Coordinate	31111.00	31137.00	30522.00	30526.00	29609.00	29061.00	28698.00
Measuring Pt. Elevation	1008.02	1003.39	1011.51	1013.49	928.25	902.67	890.71
Surface Elevation	1004.11	999.95	1009.78	1010.30	925.79	900.33	886.65
Hydrostratigraphic Unit	AQT	AQT	AQT	AQT	AQT	AQF	AQF
Geologic Formation	Cpv	Cpv	Cm	Cm	Cn	Cmn	Cmn
Aquifer Zone	WT	WT	WT	BDR	WT	WT	BDR
Weathered Rock - Depth	.	3.5	1.0	1.0	4.0	4.0	.
Weathered Rock - Elevation	.	996.45	1008.78	1009.30	921.79	896.33	.
Fresh Rock - Depth	.	.	38.0	38.0	.	.	6.4
Fresh Rock - Elevation	.	.	971.78	972.30	.	.	880.25
Total Depth Drilled	35.0	30.0	40.0	70.0	25.5	39.7	55.2
SURFACE/CONDUCTOR CASING	.	.	.	.	.	.	.
Casing Depth	.	.	.	.	.	4.0	32.0
Casing Diameter	.	.	.	.	.	6.50	4.50
Casing Material	.	.	.	unknown	.	PVC/#40	PVC/#40
WELL CASING	.	.	.	.	.	.	.
Borehole Depth	35.0	30.0	40.0	70.0	25.5	39.7	55.2
Borehole Diameter	6.00	6.00	6.00	4.00	6.00	4.00	4.00
Well Casing Depth	27.7	26.9	32.8	58.0	23.5	31.6	55.2
Well Casing Diameter	2.37	2.37	2.37	2.37	2.37	2.37	2.37
Well Casing Material	SS/#304	SS/#304	SS/#304	SS/#304	SS/#304	SS/#304	SS/#304
MONITORED INTERVAL	.	.	.	.	.	.	.
Top - Depth	21.0	13.4	10.0	42.5	12.5	11.4	49.1
Top - Elevation	983.11	986.55	999.78	967.80	913.29	888.93	837.55
Midpoint - Depth	25.0	20.8	25.0	56.3	19.0	22.1	52.2
Midpoint - Elevation	979.11	979.15	984.78	954.05	906.79	878.23	834.50
Bottom - Depth	29.0	28.2	40.0	70.0	25.5	32.8	55.2
Bottom - Elevation	975.11	971.75	969.78	940.30	900.29	867.53	831.45
Screen Material	SS/sw/.01	SS/sw/.01	SS/sw/.01	SS/sw/.01	SS/sw/.01	SS/sw/.01	SS/sw/.01
Screen Length	2.0	2.0	10.0	10.0	5.0	5.0	2.0
Open-Hole Length	.	.	.	.	.	.	.
Open-Hole Diameter	.	.	.	.	.	.	.

(CONTINUED)

APPENDIX C
Monitoring Well Construction Details

2

Well No.	GW-057	GW-061	GW-064	GW-069	GW-079	GW-080	GW-084
Location	EXP-A	BG	OLF	BG	BG	BG	OLF
GENERAL INFORMATION	.	.	.	.	.	.	.
East Coordinate	41380.00	43048.00	49168.00	43803.00	41619.00	41622.00	48801.00
North Coordinate	28688.00	28917.00	29195.00	29490.00	30632.00	30624.00	30421.00
Measuring Pt. Elevation	889.36	904.44	981.56	927.01	980.50	980.31	996.60
Surface Elevation	886.83	900.78	979.17	924.25	977.14	977.03	994.37
Hydrostratigraphic Unit	AQF	AQF	AQF	AQT	AQT	AQT	AQT
Geologic Formation	Cmn	Cmn	Cmn	Cn	Crg	Crg	Cm
Aquifer Zone	BDR	BDR	BDR	BDR	BDR	WT	WT
Weathered Rock - Depth	.	.	.	3.0	4.0	3.5	4.0
Weathered Rock - Elevation	.	.	.	921.25	973.14	973.53	990.37
Fresh Rock - Depth	3.4	15.7	34.7	24.0	26.5	23.5	.
Fresh Rock - Elevation	883.43	885.08	944.47	900.25	950.64	953.53	.
Total Depth Drilled	25.0	25.0	57.0	100.0	65.0	30.0	34.0
SURFACE/CONDUCTOR CASING	.	.	.	.	.	.	.
Casing Depth	14.0	.	.	.	.	.	.
Casing Diameter	4.50	.	.	.	.	.	.
Casing Material	PVC/#40	.	unknown	unknown	.	.	.
WELL CASING	.	.	.	.	.	.	.
Borehole Depth	25.0	25.0	57.0	100.0	65.0	30.0	34.0
Borehole Diameter	4.00	4.75	4.00	7.88	6.50	6.50	6.50
Well Casing Depth	22.8	24.6	52.7	99.2	64.9	29.7	27.8
Well Casing Diameter	2.37	2.37	2.37	2.37	2.37	2.37	2.37
Well Casing Material	SS/#304	SS/#304	SS/#304	SS/#304	SS/#304	SS/#304	SS/#304
MONITORED INTERVAL	.	.	.	.	.	.	.
Top - Depth	17.5	17.5	46.8	79.0	49.9	20.8	18.5
Top - Elevation	869.33	883.28	932.37	845.25	927.24	956.23	975.87
Midpoint - Depth	20.2	21.1	49.8	89.1	57.4	25.3	23.2
Midpoint - Elevation	866.68	879.73	929.42	835.15	919.74	951.78	971.22
Bottom - Depth	22.8	24.6	52.7	99.2	64.9	29.7	27.8
Bottom - Elevation	864.03	876.18	926.47	825.05	912.24	947.33	966.57
Screen Material	SS/sw/.01	SS/sw/.01	SS/sw/.01	SS/sw/.01	SS/sw/.01	SS/sw/.01	SS/sw/.01
Screen Length	2.0	5.0	2.0	10.2	5.0	5.0	5.0
Open-Hole Length	.	.	.	.	.	.	.
Open-Hole Diameter	.	.	.	.	.	.	.

(CONTINUED)

APPENDIX C

3

Monitoring Well Construction Details

Well No.	GW-085	GW-095	GW-115	GW-162	GW-243	GW-276	GW-287
Location	OLF	BG	S3	BG	S3	S3	BG
GENERAL INFORMATION	.	.	.	.	.	.	.
East Coordinate	49058.00	43363.00	52685.00	44480.91	51990.00	52557.00	42288.00
North Coordinate	30002.00	29142.00	31073.00	31330.75	30155.00	29926.00	29989.00
Measuring Pt. Elevation	982.87	910.87	1054.41	1040.44	1011.55	1001.27	926.87
Surface Elevation	979.82	907.98	1051.92	1038.06	1008.58	998.80	924.60
Hydrostratigraphic Unit	AQT	AQF	AQT	AQT	AQT	AQT	AQT
Geologic Formation	Cn	Cmn	Cm	Cpv	Cn	Cn	Cn
Aquifer Zone	BDR	BDR	WT	BDR	WT	WT	WT
Weathered Rock - Depth	2.0	15.0	.	.	.	18.5	4.5
Weathered Rock - Elevation	977.82	892.98	.	.	.	980.30	920.10
Fresh Rock - Depth	40.0	24.0	.	12.0	.	.	11.0
Fresh Rock - Elevation	939.82	883.98	.	1026.06	.	.	913.60
Total Depth Drilled	62.0	156.0	53.0	125.0	77.0	18.5	12.5
SURFACE/CONDUCTOR CASING	.	.	.	.	.	.	.
Casing Depth	.	15.0	.	26.0	37.8	.	.
Casing Diameter	.	10.63	.	10.75	12.50	.	.
Casing Material	unknown	PVC/#40	.	.	PVC/#40	.	.
WELL CASING	.	.	.	.	.	.	.
Borehole Depth	62.0	156.0	53.0	92.0	77.0	18.5	12.5
Borehole Diameter	4.00	9.00	.	10.00	11.00	8.00	9.00
Well Casing Depth	58.8	155.8	53.0	92.0	72.9	18.3	12.3
Well Casing Diameter	2.37	4.50	2.37	6.62	6.50	4.50	4.50
Well Casing Material	SS/#304	SS/#304	SS/#304	Steel/F25	PVC/#40	SS/#304	SS/#304
MONITORED INTERVAL	.	.	.	.	.	.	.
Top - Depth	48.4	130.2	37.6	92.0	43.2	11.3	5.6
Top - Elevation	931.42	777.78	1014.32	946.06	965.38	987.50	919.00
Midpoint - Depth	53.6	143.1	45.3	108.5	60.1	14.9	9.1
Midpoint - Elevation	926.22	764.88	1006.62	929.56	948.48	983.90	915.55
Bottom - Depth	58.8	156.0	53.0	125.0	77.0	18.5	12.5
Bottom - Elevation	921.02	751.98	998.92	913.06	931.58	980.30	912.10
Screen Material	SS/sw/.01	SS/sw/.01	SS/sw/.01	.	PVC/sw/.01	SS/sw/.01	SS/sw/.01
Screen Length	5.0	21.0	10.0	.	27.9	5.3	5.0
Open-Hole Length	.	.	.	33.0	.	.	.
Open-Hole Diameter	.	.	.	6.00	.	.	.

(CONTINUED)

APPENDIX C
Monitoring Well Construction Details

4

Well No.	GW-311	GW-312	GW-315	GW-317	GW-324	GW-325	GW-345
Location	RS	RS	SPI	SPI	S3	S3	S3
GENERAL INFORMATION	.	.	.	.	.	.	.
East Coordinate	50126.00	49778.00	52268.00	52192.00	50700.00	50689.00	50700.00
North Coordinate	29267.00	29216.00	29455.00	29285.00	30307.00	30306.00	30029.00
Measuring Pt. Elevation	999.35	996.49	1047.28	1062.98	1003.83	1003.00	999.46
Surface Elevation	996.43	994.13	1044.84	1060.80	1001.44	1000.53	994.93
Hydrostratigraphic Unit	AQF	AQF	AQF	AQF	AQT	AQT	AQT
Geologic Formation	Cmn	Cmn	Cmn	Cmn	Cn	Cn	Cn
Aquifer Zone	WT	WT	BDR	BDR	BDR	WT	WT
Weathered Rock - Depth	40.3	.	54.0	.	.	.	9.0
Weathered Rock - Elevation	956.13	.	990.84	.	.	.	985.93
Fresh Rock - Depth	.	.	71.0	48.0	19.0	.	26.3
Fresh Rock - Elevation	.	.	973.84	1012.80	982.44	.	968.63
Total Depth Drilled	40.3	41.0	104.0	132.0	80.0	17.9	26.3
SURFACE/CONDUCTOR CASING	.	.	.	.	.	.	.
Casing Depth	.	.	84.4	49.3	25.0	.	.
Casing Diameter	.	.	10.75	10.75	10.75	.	.
Casing Material	.	.	.	.	.	.	.
WELL CASING	.	.	.	.	.	.	.
Borehole Depth	40.3	41.0	104.0	132.0	80.0	17.9	26.3
Borehole Diameter	10.00	12.00	10.00	10.00	10.00	10.00	14.50
Well Casing Depth	40.3	40.5	103.3	130.5	79.0	17.3	26.3
Well Casing Diameter	4.50	4.50	4.50	4.50	4.50	4.50	4.50
Well Casing Material	SS/#304	SS/#304	SS/#304	SS/#304	SS/#304	SS/#304	SS/#304
MONITORED INTERVAL	.	.	.	.	.	.	.
Top - Depth	25.6	29.6	90.0	117.0	66.5	5.1	15.2
Top - Elevation	970.83	964.53	954.84	943.80	934.94	995.43	979.73
Midpoint - Depth	33.0	35.3	97.0	124.5	73.3	11.5	20.8
Midpoint - Elevation	963.48	958.83	947.84	936.30	928.19	989.03	974.18
Bottom - Depth	40.3	41.0	104.0	132.0	80.0	17.9	26.3
Bottom - Elevation	956.13	953.13	940.84	928.80	921.44	982.63	968.63
Screen Material	SS/sw/.01	SS/sw/.01	SS/sw/.01	SS/sw/.01	SS/sw/.01	SS/sw/.01	SS/sw/.01
Screen Length	10.6	10.0	10.0	11.0	10.5	10.0	10.0
Open-Hole Length	.	.	.	.	.	.	.
Open-Hole Diameter	.	.	.	.	.	.	.

(CONTINUED)

APPENDIX C
Monitoring Well Construction Details

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Well No.	GW-347	GW-348	GW-363	GW-370	GW-372	GW-373	GW-537
Location	S3	S3	OLF	BG	BG	BG	OLF
GENERAL INFORMATION	.	.	.	.	.	.	.
East Coordinate	50750.00	50763.00	46872.00	44989.00	45257.00	45271.00	49539.23
North Coordinate	29292.00	29294.00	29961.00	30241.00	30673.00	30679.00	30057.19
Measuring Pt. Elevation	1001.56	1000.12	957.91	960.62	983.53	982.80	976.24
Surface Elevation	997.76	998.00	955.41	957.94	979.87	980.75	974.19
Hydrostratigraphic Unit	AQF	AQF	AQT	AQT	AQT	AQT	AQT
Geologic Formation	Cmn	Cmn	Cn	Cm	Cm	Cm	Cn
Aquifer Zone	WT	BDR	BDR	WT	WT	BDR	WT
Weathered Rock - Depth	26.5	35.8	9.0	11.0	14.5	21.0	14.9
Weathered Rock - Elevation	971.26	962.20	946.41	946.94	965.37	959.75	959.29
Fresh Rock - Depth	.	36.6	21.0	25.0	47.0	75.0	.
Fresh Rock - Elevation	.	961.40	934.41	932.94	932.87	905.75	.
Total Depth Drilled	27.8	80.9	75.0	33.1	51.6	158.0	24.5
SURFACE/CONDUCTOR CASING	.	.	.	.	.	.	.
Casing Depth	.	46.4	36.0	.	.	34.5	.
Casing Diameter	.	10.75	10.75	.	.	10.75	.
Casing Material	.	unknown	unknown	.	.	unknown	.
WELL CASING	.	.	.	.	.	.	.
Borehole Depth	27.8	80.9	50.0	33.1	51.6	123.0	24.5
Borehole Diameter	9.50	9.50	9.50	9.50	9.50	9.50	8.75
Well Casing Depth	27.8	80.9	50.0	33.1	51.6	123.0	23.3
Well Casing Diameter	4.50	4.50	6.62	4.50	4.50	6.62	4.50
Well Casing Material	SS/#304	SS/#304	Steel/F25	SS/#304	SS/#304	Steel/F25	SS/#304
MONITORED INTERVAL	.	.	.	.	.	.	.
Top - Depth	9.5	68.1	50.0	21.1	39.8	123.0	4.8
Top - Elevation	988.26	929.90	905.41	936.84	940.07	857.75	969.39
Midpoint - Depth	18.7	74.5	62.5	27.1	45.7	140.5	14.1
Midpoint - Elevation	979.11	923.50	892.91	930.84	934.17	840.25	960.14
Bottom - Depth	27.8	80.9	75.0	33.1	51.6	158.0	23.3
Bottom - Elevation	969.96	917.10	880.41	924.84	928.27	822.75	950.89
Screen Material	SS/sw/.01	SS/sw/.01	.	SS/sw/.01	SS/sw/.01	.	SS/sw/.01
Screen Length	15.8	10.4	.	10.0	10.0	.	15.0
Open-Hole Length	.	.	25.0	.	.	35.0	.
Open-Hole Diameter	.	.	6.00	.	.	6.00	.

(CONTINUED)

APPENDIX C
Monitoring Well Construction Details

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Well No.	GW-601	GW-613	GW-614	GW-621	GW-627	GW-637	GW-642
Location	OLF	S3	S3	EXP-B	BG	OLF	BG
GENERAL INFORMATION	.	.	.	.	.	.	.
East Coordinate	47629.49	50231.77	50223.05	45032.91	42774.10	46402.39	44654.05
North Coordinate	28902.55	30406.77	30425.77	29023.30	29505.05	29492.81	31215.27
Measuring Pt. Elevation	1002.20	1013.37	1012.22	925.24	942.85	941.83	1014.67
Surface Elevation	999.09	1010.17	1009.39	923.07	940.39	938.26	1011.93
Hydrostratigraphic Unit	AQF	AQT	AQT	AQF	AQT	AQT	AQT
Geologic Formation	Cmn	Cn	Cn	Cmn	Cn	Cn	Crg
Aquifer Zone	BDR	WT	BDR	WT	BDR	WT	WT
Weathered Rock - Depth	8.0	15.0	12.5	22.0	3.0	10.0	1.0
Weathered Rock - Elevation	991.09	995.17	996.89	901.07	937.39	928.26	1010.93
Fresh Rock - Depth	54.0	.	50.8	.	43.0	.	20.0
Fresh Rock - Elevation	945.09	.	958.59	.	897.39	.	991.93
Total Depth Drilled	356.0	42.0	90.2	43.0	270.0	27.5	36.9
SURFACE/CONDUCTOR CASING	.	.	.	.	.	.	.
Casing Depth	41.4	16.8	44.4	24.0	47.5	15.0	21.5
Casing Diameter	11.75	10.75	10.75	10.75	11.75	10.75	10.75
Casing Material	Steel	Steel	Steel	Steel	Steel	Steel	Steel
WELL CASING	.	.	.	.	.	.	.
Borehole Depth	319.0	42.0	90.2	43.0	254.0	27.5	36.9
Borehole Diameter	10.63	9.50	9.50	7.88	10.63	10.00	9.50
Well Casing Depth	318.5	42.0	90.2	40.5	254.0	27.5	36.9
Well Casing Diameter	7.00	4.50	4.50	4.50	7.00	4.50	4.50
Well Casing Material	Steel	SS/#304	SS/#304	SS/#304	Steel	SS/#304	SS/#304
MONITORED INTERVAL	.	.	.	.	.	.	.
Top - Depth	318.5	30.0	71.6	23.3	254.0	14.5	18.5
Top - Elevation	680.59	980.17	937.79	899.77	686.39	923.76	993.43
Midpoint - Depth	337.3	36.0	80.9	31.9	262.0	21.0	27.7
Midpoint - Elevation	661.84	974.17	928.49	891.17	678.39	917.26	984.23
Bottom - Depth	356.0	42.0	90.2	40.5	270.0	27.5	36.9
Bottom - Elevation	643.09	968.17	919.19	882.57	670.39	910.76	975.03
Screen Material	.	SS/sw/.01	SS/sw/.01	SS/sw/.01	.	SS/sw/.01	SS/sw/.01
Screen Length	.	10.3	15.0	15.7	.	10.0	16.2
Open-Hole Length	37.5	.	.	.	16.0	.	.
Open-Hole Diameter	6.25	.	.	.	6.25	.	.

(CONTINUED)

APPENDIX C
Monitoring Well Construction Details

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Well No.	GW-652	GW-653	GW-654	GW-683	GW-684	GW-685	GW-694
Location	BG	BG	BG	EXP-A	EXP-A	EXP-A	EXP-B
GENERAL INFORMATION	.	.	.	.	.	.	.
East Coordinate	42452.49	42317.29	41907.28	41552.33	41353.53	41447.78	44893.28
North Coordinate	29029.46	29660.39	30548.76	28281.78	28524.52	28667.40	28844.77
Measuring Pt. Elevation	900.83	931.60	940.79	972.06	898.66	891.51	941.38
Surface Elevation	897.98	928.85	938.26	969.45	895.53	889.28	938.58
Hydrostratigraphic Unit	AQF	AQT	AQT	AQF	AQF	AQF	AQF
Geologic Formation	Cmn	Cn	Cm	OCK	Cmn	Cmn	Cmn
Aquifer Zone	WT	WT	WT	BDR	BDR	BDR	BDR
Weathered Rock - Depth	9.5	3.5	4.0	22.0	.	5.0	11.0
Weathered Rock - Elevation	888.48	925.35	934.26	947.45	.	884.28	927.58
Fresh Rock - Depth	.	.	.	26.0	9.0	15.5	21.0
Fresh Rock - Elevation	.	.	.	943.45	886.53	873.78	917.58
Total Depth Drilled	31.2	39.0	15.5	197.5	129.6	138.3	204.5
SURFACE/CONDUCTOR CASING	.	.	.	.	.	.	.
Casing Depth	12.6	.	.	82.0	87.0	.	25.8
Casing Diameter	10.75	.	.	11.75	11.75	.	11.75
Casing Material	Steel	.	.	Steel	Steel	.	Steel
WELL CASING	.	.	.	.	.	.	.
Borehole Depth	31.2	39.0	15.5	197.5	129.6	88.5	154.0
Borehole Diameter	9.50	9.50	9.50	10.63	10.50	10.63	10.60
Well Casing Depth	31.2	39.0	15.3	197.1	128.8	88.3	153.0
Well Casing Diameter	4.50	4.50	4.50	4.50	4.50	7.00	7.00
Well Casing Material	SS/#304	SS/#304	SS/#304	SS/#304	SS/#304	Steel/F25	Steel/F25
MONITORED INTERVAL	.	.	.	.	.	.	.
Top - Depth	13.4	26.3	4.2	133.9	106.4	88.5	154.0
Top - Elevation	884.58	902.55	934.06	835.55	789.13	800.78	784.58
Midpoint - Depth	22.3	32.7	9.8	165.4	117.4	113.4	179.3
Midpoint - Elevation	875.68	896.20	928.51	804.10	778.13	775.88	759.33
Bottom - Depth	31.2	39.0	15.3	196.8	128.4	138.3	204.5
Bottom - Elevation	866.78	889.85	922.96	772.65	767.13	750.98	734.08
Screen Material	SS/sw/.01	SS/sw/.01	SS/sw/.01	SS/pp/.01	SS/pp/.01	.	.
Screen Length	16.2	10.0	10.0	50.8	14.6	.	.
Open-Hole Length	.	.	.	.	.	49.8	50.5
Open-Hole Diameter	.	.	.	.	.	6.63	6.25

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APPENDIX C

8

Monitoring Well Construction Details

Well No.	GW-695	GW-703	GW-704	GW-706	GW-710	GW-711	GW-712
Location	EXP-B	EXP-B	EXP-B	EXP-B	EXP-W	EXP-W	EXP-W
GENERAL INFORMATION	.	.	.	.	.	.	.
East Coordinate	44868.30	44930.51	44934.98	44943.63	36470.81	36535.38	36506.87
North Coordinate	28844.73	28806.34	28844.67	28946.41	27645.05	27872.80	28232.52
Measuring Pt. Elevation	939.37	954.69	944.73	928.67	911.26	905.20	877.09
Surface Elevation	937.22	951.80	941.99	925.78	908.03	901.96	873.61
Hydrostratigraphic Unit	AQF	AQF	AQF	AQF	AQF	AQF	AQF
Geologic Formation	OCk	Cmn	Cmn	Cmn	OCk	Cmn	OCk
Aquifer Zone	BDR	BDR	BDR	BDR	BDR	BDR	BDR
Weathered Rock - Depth	6.0	7.0	16.0	17.0	.	15.0	12.0
Weathered Rock - Elevation	931.22	944.80	925.99	908.78	.	886.96	861.61
Fresh Rock - Depth	18.0	10.0	23.0	27.0	3.5	20.5	66.0
Fresh Rock - Elevation	919.22	941.80	918.99	898.78	904.53	881.46	807.61
Total Depth Drilled	62.6	182.0	256.0	182.5	744.5	666.2	457.5
SURFACE/CONDUCTOR CASING	.	.	.	.	.	.	.
Casing Depth	22.5	.	21.0	40.3	83.4	17.0	44.8
Casing Diameter	11.75	.	11.75	11.75	11.75	11.75	11.75
Casing Material	Steel	.	Steel	Steel	Steel	Steel	Steel
WELL CASING	.	.	.	.	.	.	.
Borehole Depth	62.6	135.0	246.0	157.0	539.7	616.0	441.5
Borehole Diameter	9.88	10.63	10.63	10.60	10.60	10.60	10.60
Well Casing Depth	62.6	133.8	244.5	156.1	539.7	616.0	451.5
Well Casing Diameter	4.50	7.00	7.00	7.00	7.00	7.00	7.00
Well Casing Material	SS/#304	Steel/F25	Steel/F25	Steel/F25	Steel	Steel	Steel
MONITORED INTERVAL	.	.	.	.	.	.	.
Top - Depth	50.6	135.0	246.0	157.0	539.7	616.0	441.5
Top - Elevation	886.62	816.80	695.99	768.78	368.33	285.96	432.11
Midpoint - Depth	56.6	158.5	251.0	169.8	642.1	641.1	449.5
Midpoint - Elevation	880.62	793.30	690.99	756.03	265.93	260.86	424.11
Bottom - Depth	62.6	182.0	256.0	182.5	744.5	666.2	457.5
Bottom - Elevation	874.62	769.80	685.99	743.28	163.53	235.76	416.11
Screen Material	SS/sw/.01	.	.	.	.	.	.
Screen Length	10.0	.	.	.	.	.	.
Open-Hole Length	.	47.0	10.0	25.5	204.8	50.2	16.0
Open-Hole Diameter	.	6.25	6.50	6.25	6.25	6.25	6.25

(CONTINUED)

APPENDIX C
Monitoring Well Construction Details

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Well No.	GW-713	GW-714	GW-715	GW-723	GW-724	GW-725	GW-736
Location	EXP-W	EXP-W	EXP-W	EXP-C	EXP-C	EXP-C	EXP-C
GENERAL INFORMATION	.	.	.	.	.	.	.
East Coordinate	36434.40	36435.09	36453.11	49088.55	48995.17	48989.13	48936.00
North Coordinate	28235.95	28421.56	28424.58	29006.44	29198.24	29405.44	29381.00
Measuring Pt. Elevation	880.63	875.08	874.72	1022.23	979.27	961.05	960.12
Surface Elevation	877.83	872.30	872.17	1019.31	976.62	958.26	957.55
Hydrostratigraphic Unit	AQF	AQF	AQF	AQF	AQF	AQF	AQF
Geologic Formation	Cmn	Cmn	Cmn	Cmn	Cmn	Cmn	Cmn
Aquifer Zone	BDR	BDR	WT	BDR	BDR	BDR	BDR
Weathered Rock - Depth	26.8	27.0	34.0	26.7	33.5	14.0	7.5
Weathered Rock - Elevation	851.03	845.30	838.17	992.61	943.12	944.26	950.05
Fresh Rock - Depth	63.8	35.0	.	29.7	40.0	17.5	12.0
Fresh Rock - Elevation	814.03	837.30	.	989.61	936.62	940.76	945.55
Total Depth Drilled	315.2	145.0	44.6	444.5	301.6	142.5	105.0
SURFACE/CONDUCTOR CASING	.	.	.	.	.	.	.
Casing Depth	50.0	40.5	.	39.0	40.0	21.0	21.5
Casing Diameter	11.75	11.75	.	11.75	11.75	11.75	11.75
Casing Material	.	Steel	.	Steel	Steel	Steel	.
WELL CASING	.	.	.	.	.	.	.
Borehole Depth	305.0	115.1	44.6	340.6	289.6	132.5	102.5
Borehole Diameter	10.60	10.60	10.60	10.60	10.60	10.60	10.60
Well Casing Depth	305.0	113.8	33.1	340.6	289.6	132.5	102.5
Well Casing Diameter	7.00	7.00	4.25	7.00	7.00	7.00	4.50
Well Casing Material	Steel/F25	Steel	SS/#304	Steel	Steel	Steel	SS/#304
MONITORED INTERVAL	.	.	.	.	.	.	.
Top - Depth	305.0	115.1	32.0	340.6	289.6	132.5	92.0
Top - Elevation	572.83	757.20	840.17	678.71	687.02	825.76	865.55
Midpoint - Depth	310.1	130.0	38.0	392.6	295.6	137.5	98.5
Midpoint - Elevation	567.73	742.25	834.17	626.76	681.02	820.76	859.05
Bottom - Depth	315.2	145.0	44.0	444.5	301.6	142.5	105.0
Bottom - Elevation	562.63	727.30	828.17	574.81	675.02	815.76	852.55
Screen Material	.	.	SS/sw/.01	.	.	.	SS/sw/.01
Screen Length	.	.	9.9	.	.	.	10.1
Open-Hole Length	10.2	29.9	.	103.9	12.0	10.0	.
Open-Hole Diameter	6.25	6.25	.	6.25	6.25	6.25	.

(CONTINUED)

APPENDIX C
Monitoring Well Construction Details

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Well No. .	GW-737	GW-738	GW-739	GW-740	GW-793	GW-794	GW-795
Location	EXP-C	EXP-C	EXP-C	EXP-C	AGLLSF	AGLLSF	AGLLSF
GENERAL INFORMATION	.	.	.	.	.	.	.
	.	.	.	.	.	.	.
East Coordinate	48890.00	49026.00	49126.00	49055.00	46831.52	46392.92	45630.06
North Coordinate	29365.00	29150.00	29010.00	29027.00	30235.82	29273.17	29286.69
Measuring Pt. Elevation	959.91	983.08	1023.74	1019.63	968.18	934.17	925.98
Surface Elevation	957.50	980.36	1020.66	1016.95	965.05	930.91	922.92
Hydrostratigraphic Unit	AQF	AQF	AQF	AQF	AQT	AQT	AQT
Geologic Formation	Cmn	Cmn	Cmn	Cmn	Cn	Cn	Cn
Aquifer Zone	BDR	BDR	BDR	BDR	BDR	BDR	BDR
Weathered Rock - Depth	.	12.0	34.0	38.1	.	.	.
Weathered Rock - Elevation	.	968.36	986.66	978.85	.	.	.
Fresh Rock - Depth	14.0	15.1	42.0	45.1	.	.	.
Fresh Rock - Elevation	943.50	965.26	978.66	971.85	.	.	.
Total Depth Drilled	89.5	90.1	320.0	190.0	29.0	39.3	20.1
	.	.	.	.	.	.	.
SURFACE/CONDUCTOR CASING	.	.	.	.	.	.	.
	.	.	.	.	.	.	.
Casing Depth	22.0	16.5	60.3	46.9	.	.	.
Casing Diameter	11.75	11.75	11.75	11.75	.	.	.
Casing Material	.	.	.	.	.	.	.
	.	.	.	.	.	.	.
WELL CASING	.	.	.	.	.	.	.
	.	.	.	.	.	.	.
Borehole Depth	89.5	90.1	289.2	165.6	29.0	39.3	20.1
Borehole Diameter	10.60	10.60	10.60	10.60	9.87	9.87	9.87
Well Casing Depth	89.5	87.5	289.2	165.6	28.4	38.8	19.8
Well Casing Diameter	4.50	4.50	7.00	7.00	4.50	4.50	4.50
Well Casing Material	SS/#304	SS/#304	Steel	Steel	SS/#304	SS/#304	SS/#304
	.	.	.	.	.	.	.
MONITORED INTERVAL	.	.	.	.	.	.	.
	.	.	.	.	.	.	.
Top - Depth	79.0	63.5	289.2	165.6	16.9	25.8	7.5
Top - Elevation	878.50	916.86	731.46	851.35	948.15	905.11	915.42
Midpoint - Depth	84.3	75.8	304.6	177.8	23.0	32.6	13.8
Midpoint - Elevation	873.25	904.61	716.06	839.15	942.10	898.36	909.12
Bottom - Depth	89.5	88.0	320.0	190.0	29.0	39.3	20.1
Bottom - Elevation	868.00	892.36	700.66	826.95	936.05	891.61	902.82
Screen Material	SS/sw/.01	SS/sw/.01	.	.	SS/sw/.01	SS/sw/.01	SS/sw/.01
Screen Length	10.1	20.2	.	.	10.0	10.1	10.0
Open-Hole Length	.	.	30.8	24.4	.	.	.
Open-Hole Diameter	.	.	6.25	6.25	.	.	.

(CONTINUED)

APPENDIX C
Monitoring Well Construction Details

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Well No.	GW-800
Location	OLF
GENERAL INFORMATION	.
East Coordinate	48260.30
North Coordinate	28981.60
Measuring Pt. Elevation	964.36
Surface Elevation	961.40
Hydrostratigraphic Unit	AQF
Geologic Formation	Ock
Aquifer Zone	BDR
Weathered Rock - Depth	.
Weathered Rock - Elevation	.
Fresh Rock - Depth	.
Fresh Rock - Elevation	.
Total Depth Drilled	32.0
SURFACE/CONDUCTOR CASING	.
Casing Depth	.
Casing Diameter	.
Casing Material	.
WELL CASING	.
Borehole Depth	32.0
Borehole Diameter	10.63
Well Casing Depth	29.9
Well Casing Diameter	4.50
Well Casing Material	SS/#304
MONITORED INTERVAL	.
Top - Depth	19.3
Top - Elevation	942.10
Midpoint - Depth	25.4
Midpoint - Elevation	936.00
Bottom - Depth	31.5
Bottom - Elevation	929.90
Screen Material	SS/sw/.01
Screen Length	10.0
Open-Hole Length	.
Open-Hole Diameter	.

APPENDIX D
SAMPLING SEQUENCE

EXPLANATION

SAMPLING GROUP:

Series of sampling locations grouped for data tracking and accounting purposes.

SAMPLE IDENTITY:

Dupe	-	Field Duplicate Sample
ER	-	Equipment Rinsate Sample
FB	-	Field Blank
BCK	-	Bear Creek Kilometer
GW	-	Monitoring Well
NT	-	Northern Tributary
SS	-	Spring

LOCATION:

AGLLSF	-	Above Grade Low-Level Storage Facility
BG	-	Bear Creek Burial Grounds WMA
EXP	-	Exit Pathway Monitoring Location: Maynardville Limestone Transverse (-A, -B, -C, -W) Spring or Surface Water Sampling Location (-SW)
OLF	-	Oil Landfarm WMA
RS	-	Rust Spoil Area
S3	-	S-3 Site
SPI	-	Spoil Area I

PURGE TIME:

The time (in hours:minutes) that groundwater was purged from the monitoring well before samples were collected.

NOTE:

Data compiled from sample tracking datasets (H&R Technical Associates, Inc. 1995a, 1995b, 1995c, and 1995d).

APPENDIX D
Sampling Sequence, First Quarter 1994

Sampling Group	Sample Identity	Location	Pump No.	Purge Time	Date Sampled	Time Sampled
BC 1	GW-613	S3	6	0:42	02/14/94	13:00
BC 1	GW-614	S3	6	1:47	02/14/94	15:15
BC 1	GW-324	S3	6	1:36	02/15/94	10:51
BC 1	GW-325	S3	6	0:09	02/15/94	12:50
BC 1	GW-347	S3	6	0:12	02/16/94	12:30
BC 1	GW-348	S3	6	0:36	02/16/94	14:34
BC 1	GW-348 DUPE	S3	6	0:36	02/16/94	14:34
BC 1	GW-115	S3	W	0:23	02/17/94	9:33
BC 1	GW-317	SPI	6	0:48	02/17/94	12:00
BC 1	GW-315	SPI	6	1:15	02/17/94	13:55
BC 1	FB BC 1		6	.	02/18/94	10:30
BC 1	GW-345	S3	6	0:15	02/18/94	10:30
BC 1	ER BC 1		6	.	02/18/94	10:40
BC 1	GW-276	S3	4	0:08	03/30/94	10:30
BC 1	GW-243	S3	4	2:56	03/30/94	14:14
BC 1	ER BC 1		4	.	03/31/94	12:30
BC 2	GW-044	OLF	W	0:18	02/08/94	10:00
BC 2	GW-043	OLF	W	0:04	02/08/94	11:45
BC 2	GW-084	OLF	W	0:08	02/08/94	13:00
BC 2	GW-311	RS	10	0:06	02/09/94	11:30
BC 2	GW-312	RS	10	0:04	02/09/94	14:00
BC 2	GW-064	OLF	W	0:17	02/10/94	10:50
BC 2	GW-800	OLF	10	0:42	02/11/94	10:10
BC 2	GW-085	OLF	10	0:17	02/11/94	11:10
BC 2	ER BC 2		10	.	02/11/94	14:15
BC 2	GW-537	OLF	10	0:30	02/11/94	14:20
BC 2	GW-537 DUPE	OLF	10	0:30	02/11/94	14:20
BC 3	GW-740	EXP-C	2	5:45	03/14/94	16:00
BC 3	GW-739	EXP-C	8	.	03/16/94	11:02
BC 3	GW-738	EXP-C	8	1:25	03/16/94	13:45
BC 3	GW-723	EXP-C	2	.	03/17/94	10:30
BC 3	GW-725	EXP-C	2	.	03/18/94	11:47
BC 3	GW-724	EXP-C	8	.	03/18/94	14:30
BC 3	GW-724 DUPE	EXP-C	8	.	03/18/94	14:30
BC 3	ER BC 3		8	.	03/21/94	12:13
BC 3	GW-737	EXP-C	8	1:54	03/21/94	12:18
BC 3	ER BC 3		2	.	03/21/94	12:25
BC 3	GW-736	EXP-C	2	2:12	03/21/94	12:26
BC 4	GW-040	BG	B	.	03/08/94	9:55
BC 4	GW-162	BG	8	1:25	03/08/94	13:45
BC 4	GW-642	BG	8	0:26	03/09/94	10:30
BC 4	GW-372	BG	8	0:35	03/09/94	13:35
BC 4	GW-372 DUPE	BG	8	0:35	03/09/94	13:35
BC 4	GW-373	BG	8	.	03/10/94	9:45
BC 4	GW-370	BG	8	0:26	03/10/94	11:40
BC 4	ER BC 4		8	.	03/11/94	9:45
BC 4	GW-042	BG	W	.	03/11/94	10:00
BC 5	GW-793	AGLLSF	11	0:39	03/22/94	10:34
BC 5	GW-793	AGLLSF	11	0:39	03/22/94	10:34
BC 5	GW-363	OLF	11	1:23	03/22/94	13:30

APPENDIX D
Sampling Sequence, First Quarter 1994

Sampling Group	Sample Identity	Location	Pump No.	Purge Time	Date Sampled	Time Sampled
BC 5	GW-637	OLF	11	0:19	03/23/94	9:05
BC 5	GW-794	AGLLSF	11	0:26	03/23/94	10:45
BC 5	GW-795	AGLLSF	11	0:27	03/23/94	12:25
BC 5	GW-047	BG	W	0:09	03/24/94	8:14
BC 5	ER BC 5		11	.	03/24/94	8:25
BC 5	ER BC 5		6	.	03/25/94	13:30
BC 5	GW-601	OLF	6	.	03/25/94	13:36
BC 6	GW-621	EXP-B	8	0:39	02/18/94	9:54
BC 6	GW-695	EXP-B	8	0:30	02/21/94	10:45
BC 6	GW-703	EXP-B	8	.	02/23/94	10:15
BC 6	GW-704	EXP-B	8	.	02/25/94	14:35
BC 6	GW-704 DUPE	EXP-B	8	.	02/25/94	14:35
BC 6	GW-694	EXP-B	8	.	03/02/94	11:39
BC 6	ER BC 6		8	.	03/04/94	13:45
BC 6	GW-706	EXP-B	8	.	03/04/94	13:51
BC 7	GW-654	BG	11	0:07	03/04/94	12:45
BC 7	GW-080	BG	W	0:04	03/09/94	10:30
BC 7	GW-079	BG	11	0:09	03/09/94	11:00
BC 7	GW-287	BG	11	0:03	03/09/94	14:15
BC 7	GW-652	BG	11	0:37	03/09/94	15:22
BC 7	GW-095	BG	11	3:52	03/10/94	12:22
BC 7	GW-053	BG	11	0:05	03/10/94	15:30
BC 7	GW-069	BG	W	0:46	03/11/94	9:06
BC 7	GW-627	BG	11	.	03/14/94	15:26
BC 7	GW-061	BG	11	0:05	03/21/94	13:25
BC 7	ER BC 7		11	.	03/21/94	14:10
BC 8	GW-711	EXP-W	6	.	02/23/94	20:55
BC 8	GW-710	EXP-W	2	.	02/24/94	12:48
BC 8	GW-712	EXP-W	6	.	02/24/94	16:15
BC 8	GW-712	EXP-W	6	.	02/24/94	16:15
BC 8	GW-714	EXP-W	6	3:30	02/25/94	14:00
BC 8	GW-715	EXP-W	6	0:37	02/26/94	9:42
BC 8	GW-653	BG	6	0:29	02/26/94	10:56
BC 8	GW-056	EXP-A	W	0:27	02/26/94	13:00
BC 8	GW-057	EXP-A	W	0:07	02/26/94	15:00
BC 8	GW-713	EXP-W	2	.	02/27/94	13:16
BC 8	GW-685	EXP-A	6	4:40	02/27/94	14:40
BC 8	ER BC 8		2	.	02/28/94	13:20
BC 8	GW-683	EXP-A	6	2:30	03/04/94	11:45
BC 8	ER BC 8		6	.	03/04/94	14:55
BC 8	GW-684	EXP-A	6	2:36	03/04/94	15:01
BC 9	BCK-00.6	EXP-SW	.	.	02/14/94	7:55
BC 9	BCK-04.5	EXP-SW	.	.	02/14/94	8:15
BC 9	NT-13	EXP-SW	.	.	02/14/94	8:44
BC 9	BCK-09.4	EXP-SW	.	.	02/14/94	9:22
BC 9	SS-5	EXP-SW	.	.	02/14/94	9:26
BC 9	SS-4	EXP-SW	.	.	02/14/94	9:50
BC 9	BCK-11.9	EXP-SW	.	.	02/14/94	10:02
BC 9	SS-1	EXP-SW	.	.	02/14/94	10:17
BC 9	NT-01	EXP-SW	.	.	02/14/94	10:29

APPENDIX D
Sampling Sequence, Second Quarter 1994

Sampling Group	Sample Identity	Location	Pump No.	Purge Time	Date Sampled	Time Sampled
BC 2	GW-347	S3	10	0:08	06/17/94	10:00
BC 2	GW-317	SPI	10	0:45	06/17/94	13:30
BC 2	GW-348	S3	10	1:36	06/20/94	10:46
BC 2	GW-348 DUPE	S3	10	1:36	06/20/94	10:46
BC 2	ER BC 2		10	.	06/20/94	12:50
BC 2	GW-315	SPI	10	1:16	06/20/94	12:56
BC 3	GW-044	OLF	W	0:19	06/21/94	9:55
BC 3	GW-043	OLF	W	0:07	06/21/94	10:35
BC 3	GW-084	OLF	W	0:08	06/21/94	12:03
BC 3	GW-800	OLF	10	0:11	06/22/94	9:30
BC 3	GW-311	RS	10	0:03	06/22/94	12:00
BC 3	GW-312	RS	10	0:03	06/23/94	10:00
BC 3	GW-064	OLF	W	0:15	06/23/94	11:00
BC 3	GW-064 DUPE	OLF	W	0:15	06/23/94	11:00
BC 3	GW-085	OLF	10	0:20	06/24/94	9:00
BC 3	GW-537	OLF	10	0:35	06/24/94	10:00
BC 3	ER BC 3		10	.	06/24/94	10:05
BC 5	GW-040	BG	10	.	05/17/94	9:15
BC 5	GW-042	BG	W	1:25	05/17/94	11:51
BC 5	GW-162	BG	10	2:35	05/18/94	11:35
BC 5	GW-642	BG	10	0:19	05/19/94	10:15
BC 5	GW-372	BG	10	0:27	05/19/94	12:15
BC 5	GW-373	BG	10	.	05/21/94	8:15
BC 5	GW-370	BG	10	0:19	05/24/94	11:00
BC 5	GW-370 DUPE	BG	10	0:19	05/24/94	11:00
BC 5	ER BC 5		10	.	05/24/94	11:05
BC 6	GW-793	AGLLSF	10	0:33	05/25/94	13:13
BC 6	GW-363	OLF	10	1:22	05/26/94	11:20
BC 6	GW-363 DUPE	OLF	10	1:22	05/26/94	11:20
BC 6	GW-637	OLF	10	0:27	05/26/94	12:37
BC 6	GW-794	AGLLSF	10	0:22	05/27/94	10:52
BC 6	GW-795	AGLLSF	10	0:22	05/27/94	11:30
BC 6	GW-047	BG	W	1:00	05/31/94	10:00
BC 6	ER BC 6		10	.	05/31/94	10:15
BC 8	GW-079	BG	11	0:08	06/07/94	11:15
BC 8	GW-080	BG	W	1:21	06/07/94	11:45
BC 8	GW-654	BG	8	0:08	06/08/94	9:34
BC 8	GW-069	BG	W	0:45	06/08/94	11:17
BC 8	GW-287	BG	8	0:04	06/09/94	10:34
BC 8	GW-653	BG	8	0:26	06/09/94	12:16
BC 8	GW-652	BG	8	0:35	06/17/94	9:45
BC 8	GW-627	BG	8	.	06/23/94	11:30
BC 8	GW-627 DUPE	BG	8	.	06/23/94	11:30
BC 8	GW-053	BG	8	0:04	06/24/94	9:40
BC 8	ER BC 8		8	.	06/24/94	10:35
BC 8	GW-061	BG	8	0:04	06/24/94	10:40
BC 8	GW-095	BG	W	.	06/28/94	10:00

APPENDIX D
Sampling Sequence, Third Quarter 1994

Sampling Group	Sample Identity	Location	Pump No.	Purge Time	Date Sampled	Time Sampled
BC 1	GW-115	S3	W	0:21	08/15/94	11:08
BC 1	GW-613	S3	.	0:38	08/15/94	14:40
BC 1	GW-614	S3	.	1:51	08/16/94	12:41
BC 1	GW-711	EXP-W	6	.	08/18/94	7:52
BC 1	GW-712	EXP-W	8	.	08/18/94	17:32
BC 1	GW-713	EXP-W	6	.	08/19/94	12:16
BC 1	GW-713 DUPE	EXP-W	6	.	08/19/94	12:16
BC 1	GW-710	EXP-W	2	.	08/19/94	12:40
BC 1	GW-714	EXP-W	8	.	08/20/94	9:00
BC 1	GW-715	EXP-W	8	0:24	08/20/94	10:15
BC 1	FB BC 1		8	.	08/20/94	13:25
BC 1	GW-276	S3	8	0:10	08/20/94	13:30
BC 1	ER BC 1		8	.	08/20/94	13:35
BC 1	ER BC 1		6	.	08/22/94	10:30
BC 2	GW-317	SPI	11	0:45	08/29/94	15:10
BC 2	GW-347	S3	11	0:08	08/30/94	9:50
BC 2	GW-348	S3	11	1:17	08/30/94	11:32
BC 2	GW-348 DUPE	S3	11	1:17	08/30/94	11:32
BC 2	ER BC 2		11	.	08/30/94	13:10
BC 2	GW-315	SPI	11	1:01	08/30/94	13:16
BC 3	GW-044	OLF	W	0:17	08/31/94	11:27
BC 3	GW-043	OLF	W	0:04	08/31/94	12:15
BC 3	GW-084	OLF	W	0:08	09/01/94	12:15
BC 3	GW-064	OLF	W	0:14	09/01/94	13:04
BC 3	GW-800	OLF	4	0:35	09/02/94	11:45
BC 3	GW-800 DUPE	OLF	4	0:35	09/02/94	11:45
BC 3	GW-311	RS	4	0:04	09/06/94	10:30
BC 3	GW-312	RS	4	0:03	09/06/94	11:30
BC 3	GW-085	OLF	4	0:17	09/07/94	12:32
BC 3	ER BC 3		4	.	09/07/94	13:30
BC 3	GW-537	OLF	4	0:28	09/07/94	13:36
BC 5	GW-040	BG	B	.	08/22/94	14:30
BC 5	GW-162	BG	11	1:25	08/22/94	17:00
BC 5	GW-162 DUPE	BG	11	1:25	08/22/94	17:00
BC 5	GW-042	BG	W	0:00	08/23/94	10:30
BC 5	GW-642	BG	11	0:18	08/23/94	13:15
BC 5	GW-372	BG	11	0:29	08/23/94	14:45
BC 5	GW-373	BG	11	3:02	08/24/94	14:00
BC 5	GW-370	BG	11	0:20	08/25/94	11:00
BC 5	ER BC 5		11	.	08/26/94	.
BC 6	GW-793	AGLLSF	10	0:28	07/28/94	9:45
BC 6	GW-363	OLF	10	.	07/29/94	9:15
BC 6	GW-637	OLF	10	0:22	07/29/94	11:00
BC 6	GW-794	AGLLSF	10	0:23	08/04/94	10:20
BC 6	GW-795	AGLLSF	10	0:21	08/04/94	11:40
BC 6	GW-795 DUPE	AGLLSF	10	0:21	08/04/94	11:40
BC 6	ER BC 6		.	.	08/09/94	.
BC 6	GW-047	BG	W	0:09	08/09/94	9:50
BC 8	GW-080	BG	W	0:02	09/09/94	10:30
BC 8	GW-069	BG	W	0:45	09/09/94	12:00

APPENDIX D
Sampling Sequence, Third Quarter 1994

Sampling Group	Sample Identity	Location	Pump No.	Purge Time	Date Sampled	Time Sampled
BC 8	GW-095	BG	W	4:48	09/12/94	16:03
BC 8	GW-079	BG	7	0:06	09/12/94	17:30
BC 8	GW-654	BG	7	0:12	09/13/94	10:00
BC 8	GW-287	BG	7	0:04	09/13/94	11:00
BC 8	GW-653	BG	7	0:24	09/13/94	13:09
BC 8	GW-652	BG	7	0:36	09/13/94	14:10
BC 8	GW-627	BG	7	.	09/15/94	15:24
BC 8	GW-627 DUPE	BG	7	.	09/15/94	15:24
BC 8	GW-053	BG	7	0:04	09/15/94	17:15
BC 8	ER BC 8		7	.	09/15/94	17:55
BC 8	GW-061	BG	7	0:04	09/15/94	18:00
BC 9	GW-056	EXP-A	W	0:25	09/14/94	9:33
BC 9	GW-057	EXP-A	W	0:09	09/14/94	13:15
BC 9	GW-685	EXP-A	8	7:50	09/19/94	17:55
BC 9	GW-683	EXP-A	8	2:48	09/20/94	11:18
BC 9	GW-683 DUP	EXP-A	8	2:48	09/20/94	11:18
BC 9	ER BC 9		8	.	09/20/94	14:25
BC 9	GW-684	EXP-A	8	2:43	09/20/94	14:33
BC 10	BCK-00.6	EXP-SW	.	.	09/06/94	9:30
BC 10	BCK-04.5	EXP-SW	.	.	09/06/94	9:57
BC 10	NT-13	EXP-SW	.	.	09/06/94	10:30
BC 10	BCK-09.4	EXP-SW	.	.	09/06/94	11:00
BC 10	SS-5	EXP-SW	.	.	09/06/94	11:00
BC 10	SS-4	EXP-SW	.	.	09/06/94	11:25
BC 10	BCK-11.9	EXP-SW	.	.	09/06/94	11:40
BC 10	SS-1	EXP-SW	.	.	09/07/94	10:45
BC 10	NT-01	EXP-SW	.	.	09/07/94	11:15

APPENDIX D
Sampling Sequence, Fourth Quarter 1994

Sampling Group	Sample Identity	Location	Pump No.	Purge Time	Date Sampled	Time Sampled
BC 2	GW-317	SPI	7	0:37	12/04/94	11:15
BC 2	GW-347	S3	7	0:11	12/04/94	13:45
BC 2	GW-348	S3	7	1:34	12/05/94	11:20
BC 2	ER BC 2	.	.	.	12/05/94	13:44
BC 2	GW-315	SPI	7	1:10	12/05/94	13:49
BC 2	GW-315 DUPE	SPI	7	1:10	12/05/94	13:49
BC 3	GW-044	OLF	W	0:21	11/30/94	12:08
BC 3	GW-043	OLF	W	0:53	11/30/94	12:30
BC 3	GW-084	OLF	W	0:17	11/30/94	14:17
BC 3	GW-800	OLF	7	0:16	12/14/94	11:00
BC 3	GW-311	RS	7	0:02	12/14/94	13:06
BC 3	GW-312	RS	7	0:06	12/14/94	14:18
BC 3	GW-064	OLF	7	0:14	12/15/94	13:03
BC 3	FB BC 3	.	.	.	12/15/94	14:00
BC 3	GW-085	OLF	7	0:21	12/15/94	14:04
BC 3	ER BC 3	.	.	.	12/15/94	15:00
BC 3	GW-537	OLF	7	0:32	12/15/94	15:07
BC 3	GW-537 DUPE	OLF	7	0:32	12/15/94	15:07
BC 4	GW-740	EXP-C	6	2:31	12/17/94	12:08
BC 4	GW-738	EXP-C	6	1:22	12/17/94	14:07
BC 4	GW-738 DUPE	EXP-C	6	1:22	12/17/94	14:07
BC 4	GW-739	EXP-C	2	2:45	12/18/94	11:55
BC 4	GW-724	EXP-C	8	.	12/18/94	12:45
BC 4	GW-737	EXP-C	8	1:30	12/18/94	14:40
BC 4	GW-725	EXP-C	6	6:27	12/18/94	15:03
BC 4	ER BC 4	.	.	.	12/18/94	15:40
BC 4	ER BC 4	.	.	.	12/19/94	12:35
BC 4	GW-736	EXP-C	6	2:00	12/19/94	12:40
BC 4	ER BC 4	.	.	.	12/20/94	15:40
BC 4	GW-723	EXP-C	2	.	12/20/94	15:45
BC 5	GW-162	BG	6	2:15	11/07/94	11:30
BC 5	GW-642	BG	6	0:25	11/07/94	14:27
BC 5	GW-372	BG	6	0:18	11/08/94	10:40
BC 5	GW-372 DUPE	BG	6	0:18	11/08/94	10:40
BC 5	GW-373	BG	6	2:55	11/08/94	14:45
BC 5	GW-370	BG	6	0:28	11/09/94	11:06
BC 5	GW-040	BG	B	0:09	11/09/94	13:00
BC 5	ER BC 5	.	.	.	11/10/94	9:00
BC 5	GW-042	BG	W	0:03	11/23/94	13:00
BC 6	GW-793	AGLLSF	11	0:30	11/02/94	12:42
BC 6	GW-363	OLF	11	1:21	11/02/94	15:30
BC 6	GW-363 DUPE	OLF	11	1:21	11/02/94	15:30
BC 6	GW-637	OLF	11	0:11	11/07/94	10:00
BC 6	GW-794	AGLLSF	11	0:17	11/07/94	12:00
BC 6	ER BC 6	.	.	.	11/08/94	9:05
BC 6	GW-795	AGLLSF	11	0:31	11/08/94	9:10
BC 6	GW-047	BG	W	0:17	11/08/94	11:04
BC 7	GW-621	EXP-B	4	0:35	12/07/94	10:32
BC 7	GW-621 DUPE	EXP-B	4	0:35	12/07/94	10:32
BC 7	GW-695	EXP-B	4	0:21	12/07/94	15:00

APPENDIX D
Sampling Sequence, Fourth Quarter 1994

Sampling Group	Sample Identity	Location	Pump No.	Purge Time	Date Sampled	Time Sampled
BC 7	GW-703	EXP-B	4	4:00	12/12/94	16:00
BC 7	GW-704	EXP-B	5	.	12/13/94	15:00
BC 7	ER BC 7		4	.	12/13/94	17:25
BC 7	GW-694	EXP-B	4	7:48	12/13/94	17:33
BC 7	ER BC 7		5	.	12/15/94	10:40
BC 7	GW-706	EXP-B	5	.	12/15/94	10:50
BC 8	GW-095	BG	W	5:00	12/05/94	13:30
BC 8	GW-069	BG	W	0:45	12/06/94	10:07
BC 8	GW-069 DUPE	BG	W	0:45	12/06/94	10:07
BC 8	GW-080	BG	W	0:05	12/06/94	11:15
BC 8	GW-079	BG	7	0:06	12/06/94	14:22
BC 8	GW-654	BG	7	0:14	12/07/94	10:30
BC 8	GW-287	BG	7	0:05	12/07/94	12:45
BC 8	GW-653	BG	7	0:24	12/07/94	13:24
BC 8	GW-652	BG	7	0:32	12/07/94	14:18
BC 8	GW-627	BG	7	.	12/09/94	16:36
BC 8	GW-053	BG	7	0:03	12/12/94	12:39
BC 8	ER BC 8		7	.	12/12/94	13:05
BC 8	GW-061	BG	7	.	12/12/94	14:15

APPENDIX E
GROUNDWATER QUALITY DATA

EXPLANATION

SAMPLING POINT:

BCK - Bear Creek Kilometer
GW - Monitoring Well
NT - Northern Tributary
SS - Spring

UNIT:

AQF - Knox Aquifer
AQT - ORR Aquitard

LOCATION:

AGLLSF - Above Grade Low-Level Storage Facility
BG - Bear Creek Burial Grounds WMA
EXP - Exit Pathway Monitoring Location:
Maynardville Limestone Transverse (-A, -B, -C, -W)
Spring or Surface Water Sampling Location (-SW)
OLF - Oil Landfarm WMA
RS - Rust Spoil Area
S3 - S-3 Site
SPI - Spoil Area I

ALL DATA:

. - Not analyzed or not reported.

ORGANIC COMPOUNDS:

All results in micrograms per liter (ug/L).

U - Compound not detected at the reported minimum attainable detection limit.

EXPLANATION (cont'd)

METALS, ANIONS, MISCELLANEOUS, AND RADIOCHEMICAL PARAMETERS:

All analyses are by Inductively Coupled Plasma (ICP) Spectroscopy unless otherwise noted.

Bicarbonate and carbonate alkalinity reported as CaCO_3 .

<	-	Compound analyzed but not detected at the reported minimum attainable detection limit
mg/L	-	milligrams per liter
AAS	-	Atomic Absorption Spectroscopy
CVAA	-	Cold Vapor Atomic Absorption
Fluor	-	Fluorometric*
DIS	-	Dissolved Concentration (Filtered Sample)
TOT	-	Total Concentration (Unfiltered Sample)
TDS	-	Total Dissolved Solids
TSS	-	Total Suspended Solids
Sp. Cond.	-	Specific Conductance
ppm	-	parts per million
umho/cm	-	micromhos per centimeter
NTU	-	Nephelometric Turbidity Unit
mV	-	millivolts
pCi/L	-	picoCuries per liter
Bq/L	-	Becquerels per liter
CE +/-	-	Counting Error (two standard deviations)

Fourth quarter results for iodine activity for samples from wells GW-079 and GW-080 were not reported in time for this report. Data from these wells were obtained for assessment monitoring at the Bear Creek Burial Grounds WMA.

EXPLANATION (cont'd)

- * Fourth quarter results for samples from 9 sampling locations reported in Appendix E.1 as "Uranium (fluor)" were analyzed by ICP/MS (EPA Method 200.8). This method has a lower detection/reporting limit (0.0005 mg/L) than the fluorometric method (0.015 mg/L, fourth quarter). The following sample results were obtained by ICP/MS:

Sampling Point	Date Sampled	Uranium Concentration (mg/L)	
		Total	Dissolved
GW-723	12/20/94	0.0033	0.0035
GW-724	12/18/94	0.005	<0.005
GW-725	12/18/94	0.0048	0.0049
GW-736	12/19/94	0.0088	0.0085
GW-737	12/18/94	0.0089	0.0089
GW-738	12/17/94	0.0029	0.0034
GW-739	12/18/94	0.00086	0.00074
GW-740	12/17/94	<0.005	<0.005
GW-800	12/14/94	<0.005	<0.005

APPENDIX E.1
TRACE METALS AND ANIONS

Trace Metals and Anions, 1994

Sampling Point Unit Location Date Sampled Type	GW-040								GW-042	
	AQT								AQT	
	BG								BG	
	03/08/94		05/17/94		08/22/94		11/09/94		03/11/94	
	TOT	DIS	TOT	DIS	TOT	DIS	TOT	DIS	TOT	DIS
METALS (mg/L)	.	.	.	.	.	.	.	.	.	.
Aluminum	6.1	0.12	2.8	<0.02	11	0.026	7.8	0.029	<0.02	<0.02
Antimony	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Arsenic	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Barium	0.12	0.035	0.1	0.029	0.2	0.044	0.11	0.023	0.13	0.12
Beryllium	0.00036	<0.0003	0.00056	<0.0003	0.00065	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003
Boron	0.019	0.016	0.025	0.027	0.031	0.032	0.033	0.033	0.011	0.0074
Cadmium (AAS)	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	0.033	0.026
Cadmium	<0.003	<0.003	<0.003	<0.003	0.0037	<0.003	<0.003	<0.003	0.03	0.028
Calcium	5.8	5.3	7.3	6.5	6.8	6.1	7	6.8	3.5	3.7
Chromium (AAS)	0.095	<0.01	0.035	<0.01	0.068	<0.01	0.047	<0.01	<0.01	<0.01
Chromium	<0.01	<0.01	<0.01	<0.01	0.027	<0.01	<0.01	<0.01	<0.01	<0.01
Cobalt	0.0069	<0.005	<0.005	<0.005	0.012	<0.005	0.0059	<0.005	<0.005	<0.005
Copper	0.0089	<0.004	0.0058	<0.004	0.014	<0.004	0.0052	<0.004	0.017	0.013
Iron	11	0.16	4.5	0.023	18	0.091	9.7	0.4	0.8	0.49
Lead (AAS)	0.018	<0.004	0.012	<0.004	0.011	<0.004	0.0072	<0.004	0.011	<0.004
Lead	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Magnesium	7.9	5.8	8.1	6.9	9.5	6.9	8.4	7.1	4.5	4.3
Manganese	1	0.89	1.2	1.1	1.2	1.1	1.2	1.1	0.29	0.27
Mercury (CVAA)	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Molybdenum	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Nickel	0.017	<0.01	<0.01	<0.01	0.028	<0.01	0.016	<0.01	0.012	0.013
Potassium	3.3	1.4	2.1	1.6	6.2	2.3	4.9	1.6	1.2	1.1
Selenium	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Silver	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006
Sodium	9.8	10	12	12	11	12	12	12	5	3.1
Strontium	0.018	0.014	0.02	0.016	0.027	0.016	0.022	0.016	0.016	0.015
Thorium	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Uranium (Fluor)	<0.001	<0.001	<0.001	<0.001	0.001	<0.001	<0.015	<0.015	<0.001	<0.001
Vanadium	0.0067	<0.005	<0.005	<0.005	0.022	<0.005	0.0097	<0.005	<0.005	<0.005
Zinc	0.03	0.0044	0.031	0.019	0.057	0.021	0.018	0.0055	0.027	0.025
ANIONS (mg/L)	.	.	.	.	.	.	.	.	.	.
Alkalinity-HCO3	35	.	38	.	38	.	39	.	28	.
Alkalinity-CO3	<1	.	<1	.	<1	.	<1	.	<1	.
Chloride	2	.	2.1	.	2	.	2.4	.	2	.
Fluoride	0.3	.	0.2	.	0.4	.	0.4	.	0.2	.
Nitrate-N	<0.2	.	<0.2	.	<0.2	.	<0.2	.	<0.2	.
Sulfate	31	.	27.6	.	27.9	.	30	.	5	.
TSS (mg/L)	438	.	83	.	92	.	388	.	2	.
Turbidity (NTU)	500	.	170	.	360	.	390	.	3.5	.

(CONTINUED)

APPENDIX E.1
Trace Metals and Anions, 1994

2

Sampling Point . Unit . Location . Date Sampled . Type	GW-042						GW-043			
	AQT						AQT			
	BG						OLF			
	05/17/94		08/23/94		11/23/94		02/08/94		06/21/94	
	TOT	DIS	TOT	DIS	TOT	DIS	TOT	DIS	TOT	DIS
METALS (mg/L)	.	.	.	.	.	.	.	.	.	.
Aluminum	<0.02	<0.02	0.03	0.11	<0.02	<0.02	0.7	0.029	4	0.059
Antimony	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Arsenic	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Barium	0.15	0.13	0.14	0.14	0.14	0.14	0.026	0.02	0.028	0.017
Beryllium	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003
Boron	0.022	0.036	0.0096	0.017	0.035	0.065	0.025	0.031	0.018	0.013
Cadmium (AAS)	0.0037	0.0038	0.0028	0.0038	0.014	0.016	0.0034	0.0023	<0.002	<0.002
Cadmium	<0.003	<0.003	0.0042	0.004	0.015	0.018	0.0042	0.0044	<0.003	<0.003
Calcium	3.8	3.9	3.6	3.6	3.4	3.4	25	25	15	19
Chromium (AAS)	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Chromium	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Cobalt	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Copper	0.0045	0.016	0.0062	<0.004	0.007	0.008	0.008	0.0059	<0.004	<0.004
Iron	1.3	0.054	1.2	1.5	1.3	1.1	0.66	0.0082	2.2	0.0058
Lead (AAS)	0.0086	<0.004	<0.004	<0.004	<0.004	<0.004	0.017	<0.004	<0.004	<0.004
Lead	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Magnesium	4.7	4.8	4.6	4.7	4.2	4.2	4.3	4.1	3.3	3.3
Manganese	0.3	0.3	0.29	0.3	0.28	0.28	0.014	<0.001	0.028	0.0021
Mercury (CVAA)	0.00024	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Molybdenum	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Nickel	<0.01	<0.01	0.011	0.014	0.018	0.013	<0.01	<0.01	<0.01	0.01
Potassium	1.1	1	1.7	1.8	1.3	1.1	1.5	1.2	2	0.72
Selenium	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Silver	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	0.0061	<0.006	<0.006
Sodium	3.2	3.5	3.3	3.3	3.1	3.1	6.8	6.9	7.2	6.8
Strontium	0.016	0.016	0.016	0.016	0.015	0.015	0.041	0.041	0.029	0.034
Thorium	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Uranium (Fluor)	<0.001	<0.001	0.001	0.001	<0.015	<0.015	<0.001	0.001	<0.001	<0.001
Vanadium	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Zinc	0.0096	0.053	0.012	0.015	0.021	0.026	0.019	0.0044	0.013	0.0088
ANIONS (mg/L)	.	.	.	.	.	.	.	.	.	.
Alkalinity-HCO3	32	.	28	.	27	.	86	.	66	.
Alkalinity-CO3	<1	.	<1	.	<1	.	<1	.	<1	.
Chloride	1.7	.	2.3	.	2.4	.	1.2	.	1.2	.
Fluoride	0.2	.	0.3	.	0.2	.	0.1	.	<0.1	.
Nitrate-N	<0.2	.	<0.2	.	0.45	.	<0.2	.	<0.2	.
Sulfate	5.7	.	11	.	6.1	.	8.9	.	7.7	.
TSS (mg/L)	3	.	<1	.	<1	.	7	.	17	.
Turbidity (NTU)	12	.	4	.	1.6	.	8.2	.	20	.

(CONTINUED)

Sampling Point • Unit • Location • Date Sampled • Type	GW-043				GW-044					
	AQT				AQT					
	OLF				OLF					
	08/31/94		11/30/94		02/08/94		06/21/94		08/31/94	
	TOT	DIS	TOT	DIS	TOT	DIS	TOT	DIS	TOT	DIS
METALS (mg/L)	.	.	.	.	.	.	.	.	.	.
Aluminum	2.6	0.041	2.7	0.041	0.029	<0.02	0.027	<0.02	0.024	<0.02
Antimony	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Arsenic	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Barium	0.022	0.013	0.027	0.02	0.24	0.23	0.25	0.24	0.25	0.25
Beryllium	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003
Boron	0.037	0.13	0.027	0.026	0.014	0.015	0.014	0.017	0.068	0.03
Cadmium (AAS)	<0.002	<0.002	0.0024	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
Cadmium	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003
Calcium	12	14	21	23	48	49	47	45	49	51
Chromium (AAS)	<0.01	<0.01	0.011	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Chromium	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Cobalt	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Copper	<0.004	0.0098	0.0048	0.0098	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004
Iron	1.7	0.014	2.1	0.034	0.025	<0.005	<0.005	<0.005	0.014	<0.005
Lead (AAS)	<0.004	<0.004	0.0082	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004
Lead	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Magnesium	2.6	2.4	3.8	3.8	3.1	3.1	3.3	3.1	3.2	3.3
Manganese	0.026	0.0043	0.06	0.004	0.0098	<0.001	0.0033	0.0012	0.0065	0.0011
Mercury (CVAA)	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Molybdenum	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Nickel	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Potassium	1.1	0.81	1.8	1.4	<0.6	0.64	0.78	0.66	<0.6	1
Selenium	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Silver	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006
Sodium	7.4	7.9	7	7	5.1	5.1	5.1	4.9	5.3	5.2
Strontium	0.023	0.024	0.036	0.041	0.075	0.077	0.078	0.075	0.077	0.078
Thorium	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Uranium (Fluor)	<0.015	<0.015	0.00062	<0.0005	<0.001	0.001	<0.001	<0.001	<0.015	<0.015
Vanadium	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Zinc	0.0083	0.007	0.014	0.0052	0.0025	<0.002	0.0071	0.0021	0.0047	0.0079
ANIONS (mg/L)	.	.	.	.	.	.	.	.	.	.
Alkalinity-HCO3	40	.	69	.	138	.	130	.	136	.
Alkalinity-CO3	<1	.	<1	.	<1	.	<1	.	<1	.
Chloride	2.3	.	1.9	.	1.3	.	1.1	.	2	.
Fluoride	<0.1	.	<0.1	.	0.1	.	<0.1	.	0.1	.
Nitrate-N	<0.2	.	<0.2	.	<0.2	.	<0.2	.	<0.2	.
Sulfate	10	.	10	.	6.1	.	5.8	.	12	.
TSS (mg/L)	19	.	28	.	<1	.	1	.	6	.
Turbidity (NTU)	40	.	32	.	1.5	.	2.6	.	1.5	.

(CONTINUED)

APPENDIX E.1
Trace Metals and Anions, 1994

4

Sampling Point . Unit . Location . Date Sampled . Type	GW-044		GW-047							
	AQT		AQT							
	OLF		BG							
	11/30/94		03/24/94		05/31/94		08/09/94		11/08/94	
	TOT	DIS	TOT	DIS	TOT	DIS	TOT	DIS	TOT	DIS
METALS (mg/L)	.	.	.	.	.	.	.	.	.	.
Aluminum	<0.02	<0.02	1.5	<0.02	1	0.42	0.22	<0.02	1.2	0.021
Antimony	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Arsenic	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Barium	0.23	0.23	0.047	0.029	0.038	0.047	0.039	0.035	0.045	0.034
Beryllium	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003
Boron	0.0084	0.099	0.071	0.022	0.013	0.021	0.027	0.019	0.02	0.024
Cadmium (AAS)	<0.002	<0.002	.	.	.	.	.	.	.	.
Cadmium	<0.003	<0.003	<0.003	<0.003	<0.003	0.0036	<0.003	<0.003	<0.003	0.01
Calcium	50	50	8	8	9	8.9	7.8	7.7	9.7	8.8
Chromium (AAS)	<0.01	<0.01	.	.	.	.	.	.	.	.
Chromium	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Cobalt	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Copper	0.004	0.011	<0.004	0.0086	<0.004	0.0069	<0.004	0.01	0.0045	0.0052
Iron	0.016	<0.005	1.3	0.0087	0.27	0.079	0.22	0.023	0.9	0.016
Lead (AAS)	0.0078	<0.004	.	.	.	.	.	.	.	.
Lead	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Magnesium	3	3	1.3	1	3.7	2	1.1	1	1.3	1
Manganese	0.05	0.0013	0.031	<0.001	0.0072	0.0099	0.011	0.0021	0.02	0.0034
Mercury (CVAA)	<0.0002	<0.0002	.	.	.	.	.	.	.	.
Molybdenum	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Nickel	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Potassium	0.98	1.2	1.4	<0.6	1.2	1.1	0.86	0.78	0.88	1.4
Selenium	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Silver	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006
Sodium	4.8	5.1	3.5	3.4	3.3	6.3	3.2	3.2	3.4	3.3
Strontium	0.079	0.079	0.024	0.023	0.024	0.033	0.023	0.022	0.026	0.024
Thorium	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Uranium (Fluor)	<0.0005	<0.0005	<0.001	0.001	0.001	<0.001	<0.001	<0.001	<0.015	<0.015
Vanadium	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Zinc	0.0099	0.0058	0.17	0.0028	1.1	0.43	0.0059	0.0044	0.0088	0.012
ANIONS (mg/L)	.	.	.	.	.	.	.	.	.	.
Alkalinity-HCO3	136	.	28	.	28	.	30	.	33	.
Alkalinity-CO3	<1	.	<1	.	<1	.	<1	.	<1	.
Chloride	1.9	.	1	.	1.1	.	1.6	.	1.8	.
Fluoride	<0.1	.	<0.1	.	<0.1	.	<0.1	.	<0.1	.
Nitrate-N	0.35	.	<0.2	.	<0.2	.	0.24	.	<0.2	.
Sulfate	7.4	.	<1	.	1.1	.	6.9	.	7.6	.
TSS (mg/L)	<1	.	31	.	2	.	8	.	8	.
Turbidity (NTU)	1.4	.	17	.	2.6	.	9	.	20	.

(CONTINUED)

Sampling Point . Unit . Location . Date Sampled . Type	GW-053								GW-056	
	AQF								AQF	
	BG								EXP-A	
	03/10/94		06/24/94		09/15/94		12/12/94		02/26/94	
	TOT	DIS	TOT	DIS	TOT	DIS	TOT	DIS	TOT	DIS
METALS (mg/L)	.	.	.	.	.	.	.	.	.	.
Aluminum	1	0.04	0.047	<0.02	0.041	<0.02	0.056	0.064	0.48	<0.02
Antimony	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Arsenic	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Barium	0.3	0.22	0.28	0.29	0.26	0.24	0.26	0.32	0.12	0.13
Beryllium	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003
Boron	0.24	0.24	0.28	0.3	0.44	0.33	0.36	0.34	0.011	0.021
Cadmium (AAS)	.	.	.	.	.	.	.	.	0.0026	<0.002
Cadmium	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003
Calcium	120	110	120	130	120	120	130	130	92	95
Chromium (AAS)	.	.	.	.	.	.	.	.	0.036	<0.01
Chromium	0.075	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.029	<0.01
Cobalt	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Copper	0.0049	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004
Iron	3.8	0.027	0.38	0.22	0.79	0.21	0.14	0.046	1.1	0.36
Lead (AAS)	.	.	.	.	.	.	.	.	0.014	<0.004
Lead	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Magnesium	16	14	16	17	15	15	15	15	19	19
Manganese	0.093	0.069	0.096	0.098	0.12	0.092	0.1	0.11	0.2	0.31
Mercury (CVAA)	.	.	.	.	.	.	.	.	<0.0002	<0.0002
Molybdenum	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Nickel	0.021	<0.01	0.022	0.023	0.018	0.017	0.02	0.027	0.23	0.06
Potassium	3.2	1.9	2.4	2.5	2.2	2.3	2.4	2.4	2.5	1.8
Selenium	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Silver	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006
Sodium	7.7	7.5	8.9	9.4	10	9.2	9.7	9.8	58	73
Strontium	0.52	0.4	0.52	0.56	0.4	0.42	0.43	0.48	0.15	0.15
Thorium	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Uranium (Fluor)	<0.001	0.001	0.001	0.001	<0.015	<0.015	<0.015	<0.015	0.003	0.003
Vanadium	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Zinc	0.044	0.054	0.014	0.007	0.039	0.023	0.011	<0.002	0.011	0.0041
ANIONS (mg/L)	.	.	.	.	.	.	.	.	.	.
Alkalinity-HCO3	273	.	288	.	325	.	307	.	258	.
Alkalinity-CO3	<1	.	<1	.	<1	.	<1	.	<1	.
Chloride	33	.	34	.	27	.	28	.	126	.
Fluoride	<0.1	.	<0.1	.	<0.1	.	<0.1	.	<0.1	.
Nitrate-N	0.5	.	<0.2	.	<0.2	.	<0.2	.	0.5	.
Sulfate	40	.	23	.	21	.	24	.	30.4	.
TSS (mg/L)	25	.	3	.	5	.	<1	.	21	.
Turbidity (NTU)	25	.	3	.	2	.	0.7	.	9.7	.

(CONTINUED)

APPENDIX E.1
Trace Metals and Anions, 1994

6

Sampling Point	GW-056		GW-057				GW-061			
Unit	AQF		AQF				AQF			
Location	EXP-A		EXP-A				BG			
Date Sampled	09/14/94		02/26/94		09/14/94		03/21/94		06/24/94	
Type	TOT	DIS	TOT	DIS	TOT	DIS	TOT	DIS	TOT	DIS
METALS (mg/L)	.	.	.	.	.	.	.	.	.	.
Aluminum	0.17	<0.02	0.041	0.071	<0.02	0.034	0.48	<0.02	11	<0.02
Antimony	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Arsenic	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Barium	0.12	0.13	0.098	0.097	0.1	0.099	0.079	0.066	0.15	0.11
Beryllium	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	0.00056	<0.0003
Boron	0.048	0.03	0.029	0.51	0.023	0.026	0.053	0.039	0.1	0.09
Cadmium (AAS)	<0.002	<0.002	.	.	.	.	.	.	.	.
Cadmium	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003
Calcium	99	100	86	86	99	98	72	72	93	120
Chromium (AAS)	<0.01	<0.01	.	.	.	.	.	.	.	.
Chromium	<0.01	<0.01	0.044	<0.01	0.02	<0.01	<0.01	<0.01	0.019	<0.01
Cobalt	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Copper	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	0.0073	<0.004
Iron	1.2	0.65	0.25	<0.005	0.14	0.095	0.42	<0.005	8.2	0.0072
Lead (AAS)	<0.004	<0.004	.	.	.	.	.	.	.	.
Lead	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Magnesium	21	21	17	17	22	21	10	10	15	17
Manganese	0.45	0.45	0.024	0.0072	0.3	0.3	0.24	0.0024	1	0.0037
Mercury (CVAA)	<0.0002	<0.0002	.	.	.	.	.	.	.	.
Molybdenum	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.014	0.012
Nickel	0.11	0.1	<0.01	<0.01	<0.01	0.01	<0.01	<0.01	0.025	<0.01
Potassium	1.9	1.3	1.3	1.5	1.7	2.4	1.4	0.8	5.3	2.3
Selenium	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Silver	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006
Sodium	46	48	73	74	62	62	7.2	7.2	9.9	13
Strontium	0.16	0.16	0.15	0.15	0.16	0.16	0.11	0.12	0.17	0.21
Thorium	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Uranium (Fluor)	<0.015	<0.015	0.002	0.002	0.015	<0.015	0.04	0.034	0.017	0.053
Vanadium	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.011	<0.005
Zinc	0.0056	0.0027	0.012	0.0027	0.0095	0.0087	0.042	0.016	0.035	0.0047
ANIONS (mg/L)	.	.	.	.	.	.	.	.	.	.
Alkalinity-HCO3	255	.	230	.	295	.	160	.	155	.
Alkalinity-CO3	<1	.	<1	.	<1	.	<1	.	<1	.
Chloride	79	.	146	.	94	.	14.3	.	21	.
Fluoride	0.1	.	<0.1	.	0.1	.	0.1	.	0.1	.
Nitrate-N	0.2	.	0.36	.	<0.2	.	10.6	.	21	.
Sulfate	29	.	31.2	.	33	.	20.7	.	25	.
TSS (mg/L)	16	.	<1	.	<1	.	3	.	27	.
Turbidity (NTU)	8	.	2	.	1.5	.	6.4	.	180	.

(CONTINUED)

Sampling Point . Unit . Location . Date Sampled . Type	GW-061				GW-064					
	AQF				AQF					
	BG				OLF					
	09/15/94		12/12/94		02/10/94		06/23/94		09/01/94	
	TOT	DIS	TOT	DIS	TOT	DIS	TOT	DIS	TOT	DIS
METALS (mg/L)	.	.	.	.	.	.	.	.	.	.
Aluminum	5.6	<0.02	21	0.05	0.42	0.027	0.08	<0.02	0.056	<0.02
Antimony	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Arsenic	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Barium	0.17	0.11	0.28	0.073	0.049	0.046	0.045	0.042	0.045	0.04
Beryllium	<0.0003	<0.0003	0.0011	<0.0003	<0.0003	<0.0003	0.00044	<0.0003	<0.0003	<0.0003
Boron	0.15	0.1	0.074	0.073	0.052	0.072	0.03	0.062	0.026	0.031
Cadmium (AAS)	.	.	.	.	.	.	.	.	.	.
Cadmium	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	0.0037	<0.003
Calcium	100	100	100	85	110	110	100	99	100	96
Chromium (AAS)	.	.	.	.	.	.	.	.	.	.
Chromium	<0.01	<0.01	0.033	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Cobalt	<0.005	<0.005	0.021	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Copper	0.0042	<0.004	0.027	0.0061	0.0081	0.0098	0.0061	<0.004	0.0082	0.0067
Iron	4.8	<0.005	24	0.024	0.39	<0.005	0.11	<0.005	1	0.0097
Lead (AAS)	.	.	.	.	.	.	.	.	.	.
Lead	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Magnesium	18	16	18	11	16	16	15	15	16	14
Manganese	1.2	0.0056	5	0.0037	0.016	<0.001	0.0084	<0.001	0.0094	<0.001
Mercury (CVAA)	.	.	.	.	.	.	.	.	.	.
Molybdenum	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Nickel	<0.01	<0.01	0.051	0.011	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Potassium	3.2	1.7	6.7	1.7	2.4	2.3	2.3	2.6	3.2	2.8
Selenium	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Silver	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006
Sodium	12	12	6.6	7.2	5	4.9	4.4	4.4	4.5	4.1
Strontium	0.19	0.19	0.16	0.14	0.11	0.11	0.1	0.1	0.1	0.093
Thorium	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Uranium (Fluor)	0.088	0.079	0.029	0.015	0.001	0.001	0.001	0.001	<0.015	<0.015
Vanadium	0.0091	<0.005	0.03	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Zinc	0.04	<0.002	0.066	<0.002	0.0082	0.0042	0.0051	0.0049	0.016	0.011
ANIONS (mg/L)	.	.	.	.	.	.	.	.	.	.
Alkalinity-HCO3	220	.	177	.	302	.	282	.	269	.
Alkalinity-CO3	<1	.	<1	.	<1	.	<1	.	<1	.
Chloride	21	.	9.4	.	13	.	9.5	.	9.2	.
Fluoride	0.2	.	0.2	.	<0.1	.	<0.1	.	<0.1	.
Nitrate-N	23	.	8.6	.	7.1	.	5.5	.	5.4	.
Sulfate	29	.	21	.	22	.	18	.	22	.
TSS (mg/L)	69	.	614	.	5	.	5	.	2	.
Turbidity (NTU)	130	.	520	.	8.4	.	6	.	3.5	.

(CONTINUED)

APPENDIX E.1
Trace Metals and Anions, 1994

8

Sampling Point . Unit . Location . Date Sampled . Type	GW-064		GW-069							
	AQF		AQT							
	OLF		BG							
	12/15/94		03/11/94		06/08/94		09/09/94		12/06/94	
	TOT	DIS	TOT	DIS	TOT	DIS	TOT	DIS	TOT	DIS
METALS (mg/L)	.	.	.	.	.	.	.	.	.	.
Aluminum	4	0.45	0.026	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Antimony	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Arsenic	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Barium	0.074	0.054	0.33	0.27	0.41	0.45	0.38	0.32	0.38	0.37
Beryllium	0.00036	<0.0003	<0.0003	<0.0003	0.00057	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003
Boron	0.032	0.034	0.091	0.093	0.12	0.12	0.14	0.14	0.1	0.12
Cadmium (AAS)	.	.	.	.	.	.	.	.	.	.
Cadmium	0.0035	<0.003	<0.003	<0.003	<0.003	0.0097	<0.003	<0.003	<0.003	<0.003
Calcium	120	120	8.1	8.1	11	12	9.7	9.3	11	11
Chromium (AAS)	.	.	.	.	.	.	.	.	.	.
Chromium	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.012	<0.01	0.017	<0.01
Cobalt	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Copper	0.012	<0.004	0.0049	0.0045	<0.004	<0.004	0.012	<0.004	0.0044	<0.004
Iron	4.7	0.39	0.03	0.034	0.076	0.0068	0.16	<0.005	0.19	0.0063
Lead (AAS)	.	.	.	.	.	.	.	.	.	.
Lead	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Magnesium	16	16	5.3	4.8	5.9	6.7	5.7	5.3	5.3	5.2
Manganese	0.3	0.053	<0.001	<0.001	0.0028	0.0022	0.0025	0.0011	0.0043	0.0025
Mercury (CVAA)	.	.	.	.	.	.	.	.	.	.
Molybdenum	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Nickel	0.01	<0.01	<0.01	<0.01	<0.01	0.011	0.014	<0.01	0.015	0.01
Potassium	3.1	2.2	3.7	4.3	4.6	5.1	4.9	4.6	4.8	4.7
Selenium	<0.05	<0.05	<0.05	<0.05	0.06	<0.05	<0.05	<0.05	<0.05	<0.05
Silver	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006
Sodium	4.7	4.8	61	60	62	73	61	60	61	61
Strontium	0.11	0.12	0.82	0.74	0.94	1.1	0.87	0.79	0.91	0.9
Thorium	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Uranium (Fluor)	0.00086	0.00075	<0.001	<0.001	0.001	0.001	<0.015	<0.015	<0.015	<0.015
Vanadium	0.01	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Zinc	0.038	0.006	0.036	0.0056	0.0081	0.0051	0.0046	0.0053	0.0066	0.0042
ANIONS (mg/L)	.	.	.	.	.	.	.	.	.	.
Alkalinity-HCO3	290	.	112	.	124	.	121	.	126	.
Alkalinity-CO3	<1	.	16	.	8	.	10	.	6	.
Chloride	12	.	35	.	42	.	37	.	45	.
Fluoride	<0.1	.	<0.1	.	<0.1	.	0.1	.	0.1	.
Nitrate-N	7.4	.	<0.2	.	<0.2	.	<0.2	.	<0.2	.
Sulfate	23	.	1.8	.	7	.	8.1	.	2.8	.
TSS (mg/L)	60	.	<1	.	<1	.	<1	.	2	.
Turbidity (NTU)	126	.	0.9	.	0.6	.	1.5	.	1.6	.

(CONTINUED)

APPENDIX E.1
Trace Metals and Anions, 1994

9

Sampling Point . Unit . Location . Date Sampled . Type	GW-079								GW-080	
	AQT								AQT	
	BG								BG	
	03/09/94		06/07/94		09/12/94		12/06/94		03/09/94	
	TOT	DIS	TOT	DIS	TOT	DIS	TOT	DIS	TOT	DIS
METALS (mg/L)	.	.	.	.	.	.	.	.	.	.
Aluminum	0.078	0.021	0.032	0.023	0.23	<0.02	0.036	0.058	11	<0.02
Antimony	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Arsenic	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Barium	0.15	0.14	0.15	0.16	0.16	0.15	0.14	0.13	0.14	0.016
Beryllium	<0.0003	<0.0003	0.00031	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	0.00049	0.00037
Boron	0.021	0.021	0.0085	0.006	0.044	0.03	0.15	0.044	0.022	0.023
Cadmium (AAS)	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	0.0033	0.0023
Cadmium	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	0.0067	0.0033
Calcium	32	33	37	37	35	35	35	35	4	3.3
Chromium (AAS)	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.037	<0.01
Chromium	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.026	0.014
Cobalt	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.0091	<0.005
Copper	0.0045	0.0042	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	0.043	0.065
Iron	0.046	0.0076	0.041	0.027	0.25	<0.005	0.035	<0.005	9.4	0.15
Lead (AAS)	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	0.0096	<0.004
Lead	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Magnesium	3.4	3.6	3.8	3.8	3.6	3.5	3.2	3.2	5.6	3.5
Manganese	0.042	0.025	0.051	0.051	0.05	0.047	0.05	0.038	0.091	0.053
Mercury (CVAA)	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Molybdenum	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Nickel	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.02	0.014
Potassium	1.2	1.8	0.99	1	0.86	<0.6	1.3	1.1	5	1
Selenium	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Silver	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006
Sodium	4.4	4.6	4.3	4.4	4.3	4.3	4.5	4.4	5.6	5.4
Strontium	0.12	0.12	0.13	0.14	0.12	0.12	0.12	0.12	0.028	0.012
Thorium	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Uranium (Fluor)	<0.001	<0.001	<0.001	<0.001	<0.015	<0.015	<0.015	<0.015	<0.001	<0.001
Vanadium	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.012	<0.005
Zinc	0.007	<0.002	0.027	0.01	0.011	0.0023	0.0077	0.004	0.029	0.0069
ANIONS (mg/L)	.	.	.	.	.	.	.	.	.	.
Alkalinity-HCO3	107	.	108	.	107	.	104	.	23	.
Alkalinity-CO3	<1	.	<1	.	<1	.	<1	.	<1	.
Chloride	<1	.	1	.	<1	.	1.5	.	<1	.
Fluoride	<0.1	.	0.1	.	<0.1	.	<0.1	.	<0.1	.
Nitrate-N	<0.2	.	<0.2	.	<0.2	.	<0.2	.	<0.2	.
Sulfate	6	.	7	.	6.6	.	7.5	.	8	.
TSS (mg/L)	<1	.	2	.	20	.	<1	.	282	.
Turbidity (NTU)	1.3	.	1.4	.	32	.	0.5	.	220	.

(CONTINUED)

Trace Metals and Anions, 1994

Sampling Point . Unit . Location . Date Sampled . Type	GW-080						GW-084			
	AQT						AQT			
	BG						OLF			
	06/07/94		09/09/94		12/06/94		02/08/94		06/21/94	
	TOT	DIS	TOT	DIS	TOT	DIS	TOT	DIS	TOT	DIS
METALS (mg/L)	.	.	.	.	.	.	.	.	.	.
Aluminum	4.6	<0.02	4.6	<0.02	10	0.021	2.5	0.02	1.5	0.032
Antimony	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Arsenic	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Barium	0.054	0.018	0.054	0.014	0.16	0.016	0.18	0.16	0.15	0.17
Beryllium	0.00034	<0.0003	<0.0003	<0.0003	0.0028	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003
Boron	0.02	0.017	0.038	0.03	0.063	0.047	0.023	0.018	0.011	0.019
Cadmium (AAS)	0.0031	0.0025	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
Cadmium	<0.003	<0.003	<0.003	<0.003	0.0034	<0.003	<0.003	<0.003	<0.003	<0.003
Calcium	4.5	4.5	3.6	3.6	4.1	3.5	60	53	46	56
Chromium (AAS)	0.014	<0.01	<0.01	<0.01	0.047	<0.01	<0.01	<0.01	<0.01	<0.01
Chromium	<0.01	<0.01	<0.01	<0.01	0.018	<0.01	<0.01	<0.01	<0.01	<0.01
Cobalt	<0.005	<0.005	<0.005	<0.005	0.012	<0.005	<0.005	<0.005	<0.005	<0.005
Copper	0.04	0.014	0.017	0.009	0.028	0.0057	<0.004	<0.004	<0.004	<0.004
Iron	3.1	0.073	3.9	0.08	13	0.11	2.4	0.0057	1.5	0.028
Lead (AAS)	0.011	<0.004	<0.004	<0.004	0.012	<0.004	<0.004	<0.004	<0.004	<0.004
Lead	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Magnesium	5.2	4.5	4.5	3.8	5.7	3.4	4.6	3.7	3.7	4.2
Manganese	0.086	0.074	0.068	0.056	0.11	0.058	0.11	0.004	0.071	0.0085
Mercury (CVAA)	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Molybdenum	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Nickel	<0.01	<0.01	<0.01	<0.01	0.031	<0.01	<0.01	<0.01	<0.01	<0.01
Potassium	2.7	1.3	3	1.3	4.3	1.7	2	0.93	1	0.8
Selenium	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Silver	0.011	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006
Sodium	11	15	11	11	8.6	7.6	5.6	5.4	4.4	5.7
Strontium	0.022	0.017	0.018	0.013	0.032	0.014	0.08	0.074	0.067	0.082
Thorium	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Uranium (Fluor)	0.001	<0.001	<0.015	<0.015	<0.015	<0.015	<0.001	<0.001	<0.001	<0.001
Vanadium	<0.005	<0.005	0.0082	<0.005	0.018	<0.005	<0.005	<0.005	<0.005	<0.005
Zinc	0.037	0.02	0.01	0.0096	0.047	0.0083	0.0074	0.0025	0.0076	0.0028
ANIONS (mg/L)	.	.	.	.	.	.	.	.	.	.
Alkalinity-HCO3	40	.	34	.	34	.	156	.	154	.
Alkalinity-CO3	<1	.	<1	.	<1	.	<1	.	<1	.
Chloride	<1	.	1.6	.	1.4	.	1.1	.	<1	.
Fluoride	0.1	.	0.2	.	0.1	.	0.1	.	<0.1	.
Nitrate-N	<0.2	.	<0.2	.	<0.2	.	<0.2	.	<0.2	.
Sulfate	14	.	18	.	14	.	7	.	7.3	.
TSS (mg/L)	71	.	56	.	223	.	52	.	37	.
Turbidity (NTU)	66	.	64	.	240	.	25	.	16	.

(CONTINUED)

Sampling Point . Unit . Location . Date Sampled . Type	GW-084				GW-085					
	AQT				AQT					
	OLF				OLF					
	09/01/94		11/30/94		02/11/94		06/24/94		09/07/94	
	TOT	DIS	TOT	DIS	TOT	DIS	TOT	DIS	TOT	DIS
METALS (mg/L)	.	.	.	.	.	.	.	.	.	.
Aluminum	1.1	<0.02	0.82	<0.02	0.74	<0.02	1.4	<0.02	0.42	0.022
Antimony	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Arsenic	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Barium	0.18	0.16	0.17	0.15	0.97	0.37	0.68	0.64	0.75	0.8
Beryllium	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003
Boron	0.047	0.018	0.045	0.0094	0.047	0.068	0.026	0.048	0.012	0.013
Cadmium (AAS)	.	.	<0.002	<0.002	.	.	.	.	.	.
Cadmium	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003
Calcium	59	54	58	55	300	85	240	230	300	310
Chromium (AAS)	.	.	<0.01	<0.01	.	.	.	.	.	.
Chromium	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Cobalt	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Copper	<0.004	0.0063	<0.004	<0.004	0.0084	<0.004	<0.004	<0.004	<0.004	<0.004
Iron	1.5	0.0091	1.1	<0.005	0.7	<0.005	2	0.014	0.55	0.007
Lead (AAS)	.	.	0.0083	<0.004	.	.	.	.	.	.
Lead	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Magnesium	4.3	3.7	3.9	3.5	21	11	16	15	19	19
Manganese	0.091	0.0068	0.22	0.0086	0.027	0.0058	0.13	0.0046	0.031	0.0031
Mercury (CVAA)	.	.	<0.0002	<0.0002	.	.	.	.	.	.
Molybdenum	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Nickel	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Potassium	1.7	1.6	1.4	1.1	3	2.1	2.5	2.3	2	2.4
Selenium	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Silver	<0.006	<0.006	<0.006	<0.006	0.0078	<0.006	<0.006	<0.006	<0.006	<0.006
Sodium	5.8	5.5	5.3	5.3	13	12	10	10	10	11
Strontium	0.08	0.074	0.078	0.076	0.71	0.31	0.53	0.52	0.62	0.66
Thorium	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Uranium (Fluor)	<0.015	<0.015	<0.0005	<0.0005	<0.001	<0.001	0.001	<0.001	<0.015	<0.015
Vanadium	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.0052	<0.005	<0.005	<0.005
Zinc	0.0046	0.0069	0.011	<0.002	0.047	0.0091	0.029	0.02	0.012	0.021
ANIONS (mg/L)	.	.	.	.	.	.	.	.	.	.
Alkalinity-HCO3	156	.	158	.	126	.	116	.	131	.
Alkalinity-CO3	<1	.	<1	.	<1	.	<1	.	<1	.
Chloride	1.8	.	1.7	.	7	.	9	.	10	.
Fluoride	0.1	.	0.1	.	0.1	.	<0.1	.	<0.1	.
Nitrate-N	<0.2	.	<0.2	.	115	.	176	.	210	.
Sulfate	12	.	8.1	.	10	.	5.1	.	4.5	.
TSS (mg/L)	44	.	44	.	24	.	69	.	21	.
Turbidity (NTU)	25	.	26	.	6.1	.	32	.	17	.

(CONTINUED)

APPENDIX E.1
Trace Metals and Anions, 1994

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Sampling Point . Unit . Location . Date Sampled . Type	GW-085		GW-095							
	AQT		AQF							
	OLF		BG							
	12/15/94		03/10/94		06/28/94		09/12/94		12/05/94	
	TOT	DIS	TOT	DIS	TOT	DIS	TOT	DIS	TOT	DIS
METALS (mg/L)	.	.	.	.	.	.	.	.	.	.
Aluminum	0.44	0.034	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Antimony	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Arsenic	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Barium	0.73	0.7	0.027	0.026	0.03	0.015	0.027	0.011	0.026	0.0075
Beryllium	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	0.00062	<0.0003
Boron	0.024	0.079	0.98	0.97	0.35	1.1	1	1	1	1
Cadmium (AAS)	.	.	.	.	.	.	.	.	.	.
Cadmium	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003
Calcium	300	300	2.1	1.5	1.7	1.8	1.3	1.2	1.2	1.1
Chromium (AAS)	.	.	.	.	.	.	.	.	.	.
Chromium	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Cobalt	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Copper	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	0.0058
Iron	0.48	<0.005	<0.005	<0.005	0.0084	0.011	<0.005	<0.005	<0.005	0.011
Lead (AAS)	.	.	.	.	.	.	.	.	.	.
Lead	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Magnesium	17	17	0.57	0.5	0.46	0.42	0.38	0.32	0.35	0.29
Manganese	0.043	0.0039	<0.001	<0.001	<0.001	<0.001	0.0015	<0.001	0.0018	<0.001
Mercury (CVAA)	.	.	.	.	.	.	.	.	.	.
Molybdenum	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Nickel	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Potassium	2.2	2.5	1.6	1.4	1.8	2.1	2.1	1.9	1.7	2.2
Selenium	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Silver	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006
Sodium	11	10	120	120	140	130	130	130	130	130
Strontium	0.65	0.63	0.1	0.1	0.11	0.085	0.092	0.064	0.098	0.065
Thorium	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Uranium (Fluor)	<0.0005	<0.0005	<0.001	0.001	<0.001	<0.001	<0.015	<0.015	<0.015	<0.015
Vanadium	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Zinc	0.014	0.0033	0.2	0.0023	<0.002	0.0062	0.0035	0.014	0.0037	0.003
ANIONS (mg/L)	.	.	.	.	.	.	.	.	.	.
Alkalinity-HCO3	142	.	226	.	234	.	227	.	235	.
Alkalinity-CO3	<1	.	28	.	36	.	38	.	34	.
Chloride	10	.	2	.	1	.	1.4	.	2.3	.
Fluoride	<0.1	.	0.6	.	0.6	.	0.6	.	0.4	.
Nitrate-N	206	.	<0.2	.	<0.2	.	<0.2	.	<0.2	.
Sulfate	5.3	.	8	.	8	.	7.7	.	9	.
TSS (mg/L)	15	.	<1	.	<1	.	<1	.	<1	.
Turbidity (NTU)	14	.	0.9	.	0.7	.	0.8	.	0.9	.

(CONTINUED)

Sampling Point . Unit . Location . Date Sampled . Type	GW-115				GW-162					
	AQT				AQT					
	S3				BG					
	02/17/94		08/15/94		03/08/94		05/18/94		08/22/94	
	TOT	DIS	TOT	DIS	TOT	DIS	TOT	DIS	TOT	DIS
METALS (mg/L)	.	.	.	.	.	.	.	.	.	.
Aluminum	<0.02	<0.02	0.023	0.028	<0.02	<0.02	<0.02	<0.02	0.037	<0.02
Antimony	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Arsenic	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Barium	0.26	0.26	0.24	0.24	0.2	0.28	0.3	0.3	0.29	0.3
Beryllium	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	0.00092	<0.0003
Boron	0.018	0.017	0.03	0.022	0.045	0.045	0.051	0.05	0.051	0.058
Cadmium (AAS)	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
Cadmium	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003
Calcium	74	74	72	73	21	30	31	30	31	28
Chromium (AAS)	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Chromium	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Cobalt	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Copper	0.0071	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	0.0044	<0.004
Iron	0.23	0.19	0.45	0.44	5.3	0.19	4.9	0.64	3.4	0.98
Lead (AAS)	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004
Lead	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Magnesium	11	11	12	12	5.1	5.1	5.3	5.3	5.1	4.9
Manganese	0.15	0.14	0.38	0.39	0.059	0.062	0.13	0.1	0.14	0.12
Mercury (CVAA)	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Molybdenum	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Nickel	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Potassium	1.5	1.5	2.5	2.3	3.2	3.4	3	3	3.5	3.2
Selenium	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Silver	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006
Sodium	9.5	9.5	11	11	16	15	15	15	14	14
Strontium	0.13	0.13	0.12	0.12	0.66	0.74	0.79	0.79	0.76	0.76
Thorium	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Uranium (Fluor)	<0.001	<0.001	0.001	0.001	<0.001	<0.001	0.001	0.001	0.005	0.001
Vanadium	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Zinc	0.006	<0.002	<0.002	<0.002	0.0041	<0.002	0.0025	0.0043	0.01	<0.002
ANIONS (mg/L)	.	.	.	.	.	.	.	.	.	.
Alkalinity-HCO3	228	.	234	.	104	.	122	.	115	.
Alkalinity-CO3	<1	.	<1	.	<1	.	<1	.	<1	.
Chloride	4	.	6.2	.	3	.	3	.	3.4	.
Fluoride	0.1	.	0.1	.	<0.1	.	0.1	.	0.2	.
Nitrate-N	<0.2	.	<0.2	.	0.2	.	<0.2	.	<0.2	.
Sulfate	19	.	17	.	6	.	8	.	8.1	.
TSS (mg/L)	3	.	1	.	84	.	9	.	11	.
Turbidity (NTU)	2	.	6.5	.	100	.	15	.	14	.

(CONTINUED)

APPENDIX E.1
Trace Metals and Anions, 1994

14

Sampling Point	GW-162		GW-243		GW-276				GW-287	
Unit	AQT		AQT		AQT				AQT	
Location	BG		S3		S3				BG	
Date Sampled	11/07/94		03/30/94		03/30/94		08/20/94		03/09/94	
Type	TOT	DIS	TOT	DIS	TOT	DIS	TOT	DIS	TOT	DIS
METALS (mg/L)	.	.	.	.	.	.	.	.	.	.
Aluminum	0.79	<0.02	580	570	15	15	16	16	0.19	0.039
Antimony	<0.05	<0.05	<5	<5	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Arsenic	<0.05	<0.05	<5	<5	<0.05	<0.05	<0.05	0.16	<0.05	<0.05
Barium	0.37	0.26	18	3.4	0.61	0.54	0.73	0.6	0.075	0.072
Beryllium	<0.0003	<0.0003	0.059	0.06	0.0099	0.0096	0.012	0.013	<0.0003	<0.0003
Boron	0.071	0.058	0.8	0.88	0.036	0.038	0.068	0.059	0.049	0.025
Cadmium (AAS)	<0.002	<0.002	2.4	2.4	0.074	0.059	0.06	0.06	.	.
Cadmium	<0.003	<0.003	2.4	2.3	0.067	0.06	0.058	0.052	<0.003	<0.003
Calcium	32	31	6400	6300	130	120	140	130	22	22
Chromium (AAS)	<0.01	<0.01	0.3	0.3	<0.01	<0.01	<0.01	<0.01	.	.
Chromium	<0.01	<0.01	<1	<1	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Cobalt	<0.005	<0.005	1.2	1.2	0.21	0.21	0.21	0.21	<0.005	<0.005
Copper	<0.004	<0.004	0.76	0.93	0.037	0.037	0.041	0.034	0.0049	<0.004
Iron	43	0.0078	<0.5	3	0.31	<0.005	0.2	0.061	0.21	<0.005
Lead (AAS)	0.0045	<0.004	<0.008	<0.008	<0.008	<0.008	0.016	0.014	.	.
Lead	<0.05	<0.05	<5	<5	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Magnesium	5.1	4.8	690	680	25	24	29	26	3.7	3.7
Manganese	0.23	0.057	210	210	9.5	9.3	11	9.9	0.12	0.017
Mercury (CVAA)	<0.0002	<0.0002	0.11	0.088	<0.0002	<0.0002	<0.0002	<0.0002	.	.
Molybdenum	<0.01	<0.01	<1	<1	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Nickel	<0.01	<0.01	13	18	0.6	0.58	0.66	0.6	<0.01	<0.01
Potassium	3.3	3.7	71	110	12	12	16	14	1.2	1.1
Selenium	<0.05	<0.05	<5	<5	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Silver	<0.006	<0.006	<0.6	<0.6	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006
Sodium	15	15	740	730	73	71	69	64	4.1	4.1
Strontium	0.8	0.75	12	12	0.31	0.3	0.35	0.34	0.044	0.044
Thorium	<0.2	<0.2	<20	<20	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Uranium (Fluor)	<0.015	<0.015	30	30	1.16	1.2	1.55	1.69	<0.001	<0.001
Vanadium	<0.005	<0.005	<0.5	<0.5	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Zinc	0.011	0.0023	2.3	2.3	0.26	0.28	0.21	0.21	0.073	0.074
ANIONS (mg/L)	.	.	.	.	.	.	.	.	.	.
Alkalinity-HCO3	119	.	<1	.	<1	.	<1	.	66	.
Alkalinity-CO3	<1	.	<1	.	<1	.	<1	.	<1	.
Chloride	3.3	.	520	.	145	.	120.6	.	4	.
Fluoride	<0.1	.	0.4	.	0.3	.	6.2	.	0.2	.
Nitrate-N	<0.2	.	8927	.	147	.	152.9	.	<0.2	.
Sulfate	14	.	480	.	22	.	20	.	5	.
TSS (mg/L)	49	.	90	.	20	.	5	.	15	.
Turbidity (NTU)	220	.	30	.	10	.	2	.	2.4	.

(CONTINUED)

Sampling Point . Unit . Location . Date Sampled . Type	GW-287						GW-311			
	AQT						AQF			
	BG						RS			
	06/09/94		09/13/94		12/07/94		02/09/94		06/22/94	
	TOT	DIS	TOT	DIS	TOT	DIS	TOT	DIS	TOT	DIS
METALS (mg/L)	.	.	.	.	.	.	.	.	.	.
Aluminum	0.46	0.027	0.71	<0.02	0.35	<0.02	0.022	<0.02	0.032	<0.02
Antimony	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Arsenic	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Barium	0.12	0.14	0.14	0.11	0.11	0.11	0.016	0.016	0.02	0.025
Beryllium	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003
Boron	0.01	0.0057	0.041	0.074	0.034	0.033	0.03	0.031	0.027	0.072
Cadmium (AAS)	.	.	.	.	.	.	.	.	.	.
Cadmium	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003
Calcium	32	53	37	25	35	33	69	74	78	75
Chromium (AAS)	.	.	.	.	.	.	.	.	.	.
Chromium	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Cobalt	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Copper	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004
Iron	0.48	0.039	0.37	<0.005	0.21	<0.005	0.03	0.013	0.075	<0.005
Lead (AAS)	.	.	.	.	.	.	.	.	.	.
Lead	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Magnesium	6.3	5.6	6.8	5.7	4.7	4.7	4.3	4.7	4.9	4.8
Manganese	0.082	0.015	0.048	0.014	0.029	0.0075	0.0022	0.0011	0.0035	<0.001
Mercury (CVAA)	.	.	.	.	.	.	.	.	.	.
Molybdenum	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Nickel	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Potassium	1.4	0.95	1.1	1.6	1.4	1.3	1.1	0.86	1.7	1.2
Selenium	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Silver	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006
Sodium	5	4.3	4.2	5.8	5.4	5.6	2.2	2.3	1.6	1.7
Strontium	0.071	0.096	0.082	0.058	0.07	0.069	0.059	0.063	0.066	0.066
Thorium	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Uranium (Fluor)	<0.001	<0.001	<0.015	<0.015	<0.015	<0.015	0.003	<0.001	<0.001	0.001
Vanadium	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Zinc	0.013	0.0086	0.014	0.016	0.018	0.014	0.015	0.0088	0.029	0.065
ANIONS (mg/L)	.	.	.	.	.	.	.	.	.	.
Alkalinity-HCO3	85	.	82	.	110	.	213	.	209	.
Alkalinity-CO3	<1	.	<1	.	<1	.	<1	.	<1	.
Chloride	1.5	.	3.9	.	3.6	.	3	.	2.5	.
Fluoride	<0.1	.	0.2	.	0.2	.	<0.1	.	<0.1	.
Nitrate-N	<0.2	.	<0.2	.	0.31	.	0.4	.	0.47	.
Sulfate	5.8	.	7.8	.	8.6	.	3	.	5.2	.
TSS (mg/L)	7	.	4	.	3	.	1	.	2	.
Turbidity (NTU)	4	.	3.3	.	6.1	.	1.9	.	2	.

(CONTINUED)

APPENDIX E.1
Trace Metals and Anions, 1994

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Sampling Point . Unit . Location . Date Sampled . Type	GW-311				GW-312					
	AQF				AQF					
	RS				RS					
	09/06/94		12/14/94		02/09/94		06/23/94		09/06/94	
	TOT	DIS	TOT	DIS	TOT	DIS	TOT	DIS	TOT	DIS
METALS (mg/L)	.	.	.	.	.	.	.	.	.	.
Aluminum	0.082	<0.02	0.022	0.04	3.9	3.3	2.8	3.1	3.4	3
Antimony	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Arsenic	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Barium	0.022	0.028	0.02	0.02	0.02	0.019	0.016	0.023	0.043	0.019
Beryllium	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003
Boron	0.013	0.02	0.031	0.018	0.068	0.018	0.025	0.032	0.012	0.023
Cadmium (AAS)	.	.	.	.	.	.	.	.	.	.
Cadmium	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003
Calcium	85	86	82	80	120	120	89	120	180	100
Chromium (AAS)	.	.	.	.	.	.	.	.	.	.
Chromium	<0.01	<0.01	<0.01	<0.01	0.011	0.01	<0.01	0.013	0.021	0.012
Cobalt	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Copper	0.0074	0.015	<0.004	<0.004	0.0052	0.0052	<0.004	<0.004	0.02	0.0059
Iron	0.08	0.19	0.037	<0.005	0.13	0.012	0.052	0.0092	0.35	0.024
Lead (AAS)	.	.	.	.	.	.	.	.	.	.
Lead	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Magnesium	5.2	5.6	4.7	4.6	0.12	0.037	0.084	0.014	0.22	0.022
Manganese	0.011	0.0069	0.004	0.0026	0.0012	<0.001	0.0011	<0.001	0.004	<0.001
Mercury (CVAA)	.	.	.	.	.	.	.	.	.	.
Molybdenum	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Nickel	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Potassium	1.8	2.3	1.6	2.1	10	9.8	7.6	8.4	9.3	8.3
Selenium	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Silver	<0.006	<0.006	<0.006	<0.006	0.01	<0.006	<0.006	<0.006	<0.006	<0.006
Sodium	1.9	2.1	2.1	2.1	7.5	7.3	8.4	9.6	8.5	8.1
Strontium	0.072	0.075	0.07	0.069	0.36	0.36	0.24	0.33	0.43	0.27
Thorium	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Uranium (Fluor)	<0.015	<0.015	<0.0005	<0.0005	<0.001	<0.001	0.001	<0.001	<0.015	<0.015
Vanadium	<0.005	<0.005	<0.005	<0.005	0.009	0.0094	0.0093	0.006	<0.005	0.01
Zinc	0.02	0.022	0.0068	0.014	0.013	0.0042	0.011	<0.002	0.053	0.013
ANIONS (mg/L)	.	.	.	.	.	.	.	.	.	.
Alkalinity-HCO3	219	.	216	.	<1	.	<1	.	<1	.
Alkalinity-CO3	<1	.	<1	.	52	.	52	.	50	.
Chloride	2.4	.	3	.	<1	.	<1	.	1	.
Fluoride	<0.1	.	<0.1	.	0.2	.	0.1	.	0.2	.
Nitrate-N	0.5	.	0.74	.	0.4	.	0.49	.	0.4	.
Sulfate	3.8	.	3.7	.	4	.	4.3	.	4.3	.
TSS (mg/L)	2	.	<1	.	14	.	3	.	5	.
Turbidity (NTU)	4	.	1	.	4.1	.	1.5	.	1.4	.

(CONTINUED)

Sampling Point Unit Location Date Sampled Type	GW-312		GW-315							
	AQF		AQF							
	RS		SPI							
	12/14/94		02/17/94		06/20/94		08/30/94		12/05/94	
	TOT	DIS	TOT	DIS	TOT	DIS	TOT	DIS	TOT	DIS
METALS (mg/L)	.	.	.	.	.	.	.	.	.	.
Aluminum	3.3	2.8	<0.02	<0.02	<0.02	<0.02	0.024	0.025	<0.02	<0.02
Antimony	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Arsenic	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.069	<0.05	<0.05	<0.05
Barium	0.013	0.011	0.035	0.035	0.043	0.044	0.047	0.2	0.048	0.047
Beryllium	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003
Boron	0.0076	0.027	0.029	0.017	0.019	0.023	0.037	0.03	0.035	0.022
Cadmium (AAS)	.	.	.	.	.	.	.	.	.	.
Cadmium	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003
Calcium	98	83	80	78	88	89	98	86	94	94
Chromium (AAS)	.	.	.	.	.	.	.	.	.	.
Chromium	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Cobalt	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Copper	<0.004	0.0063	<0.004	<0.004	0.0041	<0.004	<0.004	<0.004	<0.004	<0.004
Iron	0.0077	<0.005	0.023	<0.005	0.0059	<0.005	<0.005	<0.005	0.0072	0.041
Lead (AAS)	.	.	.	.	.	.	.	.	.	.
Lead	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Magnesium	0.016	0.016	14	14	11	11	11	8.9	9.8	9.5
Manganese	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.0015	0.092	<0.001	<0.001
Mercury (CVAA)	.	.	.	.	.	.	.	.	.	.
Molybdenum	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Nickel	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Potassium	8.8	8.6	0.72	1.1	2.8	2.8	3	1.9	3.5	3.4
Selenium	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Silver	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	0.0071
Sodium	6.2	5.7	1.9	1.8	4.5	4.5	5.4	4.1	5.9	5.8
Strontium	0.28	0.24	0.092	0.089	0.14	0.14	0.16	0.24	0.16	0.16
Thorium	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Uranium (Fluor)	<0.0005	<0.0005	0.001	<0.001	<0.001	0.002	0.002	0.001	<0.015	<0.015
Vanadium	0.014	0.014	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Zinc	0.0061	0.0036	0.0049	0.0024	0.0042	<0.002	0.01	0.026	0.0025	0.003
ANIONS (mg/L)	.	.	.	.	.	.	.	.	.	.
Alkalinity-HCO3	<1	.	246	.	235	.	224	.	224	.
Alkalinity-CO3	60	.	<1	.	<1	.	<1	.	<1	.
Chloride	1.8	.	3	.	7.3	.	7.8	.	8.5	.
Fluoride	0.2	.	<0.1	.	<0.1	.	<0.1	.	<0.1	.
Nitrate-N	0.57	.	3.3	.	8.3	.	12	.	14	.
Sulfate	4.8	.	4	.	23.7	.	33	.	31	.
TSS (mg/L)	1	.	<1	.	<1	.	<1	.	<1	.
Turbidity (NTU)	0.7	.	1	.	1.7	.	0.5	.	0.1	.

(CONTINUED)

Trace Metals and Anions, 1994

Sampling Point . Unit . Location . Date Sampled . Type	GW-317								GW-324	
	AQF								AQT	
	SPI								S3	
	02/17/94		06/17/94		08/29/94		12/04/94		02/15/94	
	TOT	DIS	TOT	DIS	TOT	DIS	TOT	DIS	TOT	DIS
METALS (mg/L)	.	.	.	.	.	.	.	.	.	.
Aluminum	<0.02	<0.02	<0.02	<0.02	<0.02	0.039	<0.02	<0.02	<0.02	<0.02
Antimony	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Arsenic	<0.05	<0.05	<0.05	<0.05	0.093	<0.05	<0.05	<0.05	<0.05	<0.05
Barium	0.02	0.02	0.018	0.018	0.019	0.018	0.018	0.018	0.21	0.21
Beryllium	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003
Boron	0.011	0.0093	0.0059	0.0048	0.049	0.048	0.029	0.036	0.024	0.019
Cadmium (AAS)	.	.	.	.	.	.	.	.	<0.002	<0.002
Cadmium	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003
Calcium	48	47	46	48	47	45	40	41	30	30
Chromium (AAS)	.	.	.	.	.	.	.	.	<0.01	<0.01
Chromium	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Cobalt	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Copper	<0.004	<0.004	<0.004	0.0041	<0.004	<0.004	0.0065	<0.004	<0.004	<0.004
Iron	0.023	0.13	0.0055	<0.005	<0.005	<0.005	0.013	<0.005	0.06	0.049
Lead (AAS)	.	.	.	.	.	.	.	.	<0.004	<0.004
Lead	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Magnesium	21	21	23	23	23	21	19	19	5.6	5.6
Manganese	<0.001	<0.001	<0.001	<0.001	0.0033	0.0026	0.0015	<0.001	0.016	0.016
Mercury (CVAA)	.	.	.	.	.	.	.	.	<0.0002	<0.0002
Molybdenum	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Nickel	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Potassium	1.1	1.2	1.4	0.91	1.1	0.94	1.1	1.1	0.76	0.76
Selenium	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Silver	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006
Sodium	3.8	4.1	4	2.4	8.5	10	11	8.5	5	5
Strontium	0.033	0.032	0.04	0.036	0.048	0.036	0.03	0.029	0.24	0.24
Thorium	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Uranium (Fluor)	<0.001	<0.001	0.001	0.001	<0.001	0.001	<0.015	<0.015	<0.001	0.003
Vanadium	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Zinc	0.01	0.0024	0.0035	<0.002	0.02	<0.002	0.016	0.027	0.0043	<0.002
ANIONS (mg/L)	.	.	.	.	.	.	.	.	.	.
Alkalinity-HCO ₃	217	.	221	.	220	.	205	.	103	.
Alkalinity-CO ₃	<1	.	<1	.	<1	.	<1	.	<1	.
Chloride	1	.	1.6	.	2	.	2.1	.	1	.
Fluoride	0.1	.	<0.1	.	0.2	.	<0.1	.	<0.1	.
Nitrate-N	0.2	.	<0.2	.	0.29	.	0.51	.	<0.2	.
Sulfate	5	.	7.2	.	16	.	5.8	.	7	.
TSS (mg/L)	<1	.	2	.	2	.	<1	.	<1	.
Turbidity (NTU)	4	.	1.1	.	1.6	.	1.4	.	1.1	.

(CONTINUED)

Sampling Point . Unit . Location . Date Sampled . Type	GW-325		GW-345		GW-347					
	AQT		AQT		AQF					
	S3		S3		S3					
	02/15/94		02/18/94		02/16/94		06/17/94		08/30/94	
	TOT	DIS	TOT	DIS	TOT	DIS	TOT	DIS	TOT	DIS
METALS (mg/L)	.	.	.	.	.	.	.	.	.	.
Aluminum	0.54	0.05	0.056	<0.02	0.36	<0.02	0.3	0.07	0.58	0.046
Antimony	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Arsenic	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.14	0.12
Barium	0.042	0.039	0.053	0.051	0.011	0.009	0.013	0.013	0.011	0.011
Beryllium	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003
Boron	0.016	0.014	0.03	0.031	0.016	0.027	0.013	0.012	0.019	0.015
Cadmium (AAS)	<0.002	<0.002	.	.	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
Cadmium	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003
Calcium	2.4	2.4	7.4	7.3	41	34	26	27	27	27
Chromium (AAS)	<0.01	<0.01	.	.	0.015	0.012	<0.01	<0.01	<0.01	<0.01
Chromium	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Cobalt	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Copper	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004
Iron	0.45	0.009	0.17	<0.005	0.48	0.033	0.28	<0.005	0.56	<0.005
Lead (AAS)	<0.004	<0.004	.	.	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004
Lead	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Magnesium	1.1	1	1.8	1.8	3	2.5	2.2	2.2	2.1	2.1
Manganese	0.011	0.0076	0.025	0.022	0.009	0.0011	0.0082	0.0021	0.011	0.0015
Mercury (CVAA)	<0.0002	<0.0002	.	.	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Molybdenum	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Nickel	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.012	<0.01	<0.01	<0.01
Potassium	<0.6	<0.6	1.2	0.93	3.3	3.1	3.2	3.1	3.5	3
Selenium	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Silver	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006
Sodium	1.2	1.2	5.3	5.3	0.76	0.77	0.99	1	0.69	0.77
Strontium	0.0085	0.0089	0.03	0.03	0.039	0.032	0.028	0.028	0.025	0.027
Thorium	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Uranium (Fluor)	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.001	0.001	0.001	<0.001
Vanadium	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Zinc	0.059	0.054	0.013	0.012	0.013	0.0075	0.014	0.011	0.025	0.017
ANIONS (mg/L)	.	.	.	.	.	.	.	.	.	.
Alkalinity-HCO3	5	.	17	.	143	.	78	.	75	.
Alkalinity-CO3	<1	.	<1	.	<1	.	<1	.	<1	.
Chloride	2	.	5	.	<1	.	1.2	.	1.7	.
Fluoride	<0.1	.	<0.1	.	0.1	.	<0.1	.	0.1	.
Nitrate-N	<0.2	.	1.9	.	<0.2	.	0.2	.	<0.2	.
Sulfate	4	.	7	.	<1	.	3.7	.	11	.
TSS (mg/L)	<1	.	2	.	4	.	13	.	11	.
Turbidity (NTU)	26	.	2	.	16	.	22	.	28	.

(CONTINUED)

APPENDIX E.1
Trace Metals and Anions, 1994

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Sampling Point . Unit . Location . Date Sampled . Type	GW-347		GW-348							
	AQF		AQF							
	S3		S3							
	12/04/94		02/16/94		06/20/94		08/30/94		12/05/94	
	TOT	DIS	TOT	DIS	TOT	DIS	TOT	DIS	TOT	DIS
METALS (mg/L)	.	.	.	.	.	.	.	.	.	.
Aluminum	4.4	<0.02	0.049	<0.02	<0.02	<0.02	0.081	0.05	<0.02	<0.02
Antimony	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Arsenic	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Barium	0.016	0.0074	0.085	0.087	0.085	0.085	0.088	0.087	0.089	0.087
Beryllium	0.0022	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003
Boron	0.019	0.034	0.015	0.033	0.025	0.011	0.023	0.025	0.011	0.0065
Cadmium (AAS)	<0.002	<0.002	.	.	.	.	.	.	.	.
Cadmium	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003
Calcium	25	28	80	80	75	76	81	80	81	81
Chromium (AAS)	0.016	<0.01	.	.	.	.	.	.	.	.
Chromium	0.016	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Cobalt	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Copper	0.017	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004
Iron	4.2	<0.005	0.049	<0.005	<0.005	<0.005	0.011	<0.005	0.041	<0.005
Lead (AAS)	0.013	<0.004	.	.	.	.	.	.	.	.
Lead	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Magnesium	2.1	2	17	18	18	18	18	18	17	17
Manganese	0.059	0.0014	<0.001	<0.001	<0.001	<0.001	0.0011	0.0011	<0.001	<0.001
Mercury (CVAA)	<0.0002	<0.0002	.	.	.	.	.	.	.	.
Molybdenum	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Nickel	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Potassium	4.6	3.3	1.3	0.89	1.8	0.88	1.7	1.5	1.4	1.9
Selenium	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Silver	0.03	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006
Sodium	0.81	0.87	2.9	3	3	3	2.9	2.8	3.4	3.3
Strontium	0.025	0.025	0.087	0.088	0.088	0.089	0.098	0.097	0.093	0.094
Thorium	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Uranium (Fluor)	<0.015	<0.015	0.001	0.001	0.002	0.001	0.001	0.001	<0.015	<0.015
Vanadium	0.01	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Zinc	0.034	0.006	<0.002	0.0023	<0.002	<0.002	0.0034	0.0022	0.0023	<0.002
ANIONS (mg/L)	.	.	.	.	.	.	.	.	.	.
Alkalinity-HCO3	78	.	235	.	236	.	238	.	245	.
Alkalinity-CO3	<1	.	<1	.	<1	.	<1	.	<1	.
Chloride	1.6	.	10	.	8.5	.	7.7	.	9.3	.
Fluoride	<0.1	.	<0.1	.	<0.1	.	<0.1	.	<0.1	.
Nitrate-N	0.39	.	9.3	.	9.4	.	8.9	.	8.5	.
Sulfate	1.7	.	6	.	6	.	15	.	7.3	.
TSS (mg/L)	11	.	<1	.	1	.	<1	.	<1	.
Turbidity (NTU)	70	.	2.6	.	1.8	.	0.5	.	0.3	.

(CONTINUED)

Sampling Point. Unit Location Date Sampled Type	GW-363								GW-370	
	AQT								AQT	
	OLF								BG	
	03/22/94		05/26/94		07/29/94		11/02/94		03/10/94	
	TOT	DIS	TOT	DIS	TOT	DIS	TOT	DIS	TOT	DIS
METALS (mg/L)	.	.	.	.	.	.	.	.	.	.
Aluminum	0.55	<0.02	0.23	0.086	<0.02	<0.02	1.2	0.042	6.8	0.028
Antimony	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Arsenic	0.053	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Barium	0.05	0.041	0.056	0.048	0.11	0.1	0.056	0.024	0.074	0.059
Beryllium	0.00039	<0.0003	<0.0003	<0.0003	0.00043	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003
Boron	0.33	0.33	0.29	0.29	0.26	0.26	0.3	0.31	0.01	0.0076
Cadmium (AAS)	.	.	.	.	.	.	.	.	.	.
Cadmium	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003
Calcium	1.6	1.4	1.9	1.5	3.4	3.3	1.6	1.2	33	31
Chromium (AAS)	.	.	.	.	.	.	.	.	.	.
Chromium	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Cobalt	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Copper	0.0058	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	0.0054	0.0049	<0.004
Iron	0.98	<0.005	0.48	0.021	0.12	0.13	1.3	0.029	2.5	0.031
Lead (AAS)	.	.	.	.	.	.	.	.	.	.
Lead	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Magnesium	0.7	0.54	0.78	0.67	1.5	1.4	0.83	0.39	4.2	3.1
Manganese	0.0066	<0.001	0.0058	0.0012	0.0018	0.0018	0.0077	<0.001	0.03	0.0056
Mercury (CVAA)	.	.	.	.	.	.	.	.	.	.
Molybdenum	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Nickel	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Potassium	1.5	1.2	1.6	1.8	1.7	1.6	2	1	1.3	0.81
Selenium	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Silver	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006
Sodium	120	110	100	100	90	86	110	110	10	10
Strontium	0.069	0.07	0.072	0.068	0.13	0.12	0.068	0.045	0.057	0.052
Thorium	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Uranium (Fluor)	<0.001	<0.001	0.004	<0.001	0.001	0.002	<0.015	<0.015	0.001	<0.001
Vanadium	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Zinc	0.0027	<0.002	0.022	0.035	0.0036	0.0059	0.0037	0.0045	0.011	0.0067
ANIONS (mg/L)	.	.	.	.	.	.	.	.	.	.
Alkalinity-HCO3	209	.	198	.	188	.	198	.	100	.
Alkalinity-CO3	38	.	32	.	16	.	34	.	<1	.
Chloride	<1	.	<1	.	2.1	.	1.6	.	1	.
Fluoride	0.2	.	0.2	.	0.1	.	0.2	.	0.1	.
Nitrate-N	<0.2	.	<0.2	.	<0.2	.	<0.2	.	<0.2	.
Sulfate	5	.	7	.	13	.	12	.	10	.
TSS (mg/L)	9	.	13	.	2	.	12	.	2	.
Turbidity (NTU)	5.5	.	15	.	1.3	.	16	.	20	.

(CONTINUED)

APPENDIX E.1
Trace Metals and Anions, 1994

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Sampling Point . Unit . Location . Date Sampled . Type	GW-370						GW-372			
	AQT						AQT			
	BG						BG			
	05/24/94		08/25/94		11/09/94		03/09/94		05/19/94	
	TOT	DIS	TOT	DIS	TOT	DIS	TOT	DIS	TOT	DIS
METALS (mg/L)	.	.	.	.	.	.	.	.	.	.
Aluminum	0.88	<0.02	0.83	0.037	1.4	0.064	0.066	<0.02	0.17	<0.02
Antimony	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Arsenic	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Barium	0.068	0.056	0.077	0.055	0.091	0.056	0.071	0.07	0.073	0.076
Beryllium	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003
Boron	0.016	0.012	0.0099	0.029	0.028	0.021	0.011	0.012	0.016	0.03
Cadmium (AAS)	.	.	.	.	.	.	<0.002	<0.002	<0.002	<0.002
Cadmium	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003
Calcium	29	20	31	30	25	32	61	62	59	62
Chromium (AAS)	.	.	.	.	.	.	<0.01	<0.01	<0.01	<0.01
Chromium	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Cobalt	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Copper	<0.004	0.0065	0.0088	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004
Iron	0.52	0.015	0.72	<0.005	1.7	0.039	0.19	0.056	0.43	<0.005
Lead (AAS)	.	.	.	.	.	.	<0.004	<0.004	<0.004	<0.004
Lead	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Magnesium	3.3	2.2	3.3	3.1	2.6	3	11	11	11	12
Manganese	0.011	0.0074	0.018	0.0042	0.05	0.0041	0.063	0.033	0.021	0.014
Mercury (CVAA)	.	.	.	.	.	.	<0.0002	<0.0002	<0.0002	<0.0002
Molybdenum	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Nickel	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Potassium	0.65	<0.6	1.3	1.1	0.91	1.1	1.9	2.2	1.6	1.7
Selenium	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Silver	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006
Sodium	11	11	9.7	10	10	9.5	9.2	9.2	9.8	10
Strontium	0.058	0.04	0.056	0.051	0.05	0.049	0.16	0.16	0.19	0.19
Thorium	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Uranium (Fluor)	<0.001	<0.001	0.002	0.002	<0.015	<0.015	<0.001	<0.001	<0.001	0.001
Vanadium	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Zinc	0.0074	0.01	0.018	0.0074	0.011	0.007	0.0024	<0.002	0.006	0.0043
ANIONS (mg/L)	.	.	.	.	.	.	.	.	.	.
Alkalinity-HCO3	92	.	76	.	79	.	181	.	181	.
Alkalinity-CO3	<1	.	<1	.	<1	.	<1	.	<1	.
Chloride	1.5	.	2	.	1.9	.	2	.	2	.
Fluoride	0.1	.	0.2	.	0.2	.	0.2	.	0.2	.
Nitrate-N	<0.2	.	<0.2	.	<0.2	.	<0.2	.	<0.2	.
Sulfate	11.2	.	13	.	16	.	29	.	28	.
TSS (mg/L)	52	.	124	.	80	.	<1	.	8	.
Turbidity (NTU)	13	.	23	.	21	.	2.1	.	19	.

(CONTINUED)

Sampling Point . Unit . Location . Date Sampled . Type	GW-372				GW-373					
	AQT				AQT					
	BG				BG					
	08/23/94		11/08/94		03/10/94		05/21/94		08/24/94	
	TOT	DIS	TOT	DIS	TOT	DIS	TOT	DIS	TOT	DIS
METALS (mg/L)	.	.	.	.	.	.	.	.	.	.
Aluminum	0.37	0.021	0.18	<0.02	0.069	<0.02	0.19	<0.02	0.24	<0.02
Antimony	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Arsenic	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Barium	0.073	0.072	0.073	0.068	0.044	0.04	0.068	0.037	0.039	0.028
Beryllium	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003
Boron	0.016	0.017	0.038	0.082	0.15	0.16	0.19	0.19	0.18	0.16
Cadmium (AAS)	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
Cadmium	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003
Calcium	59	60	64	62	1.7	1.2	1.7	1.4	1.5	1.3
Chromium (AAS)	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Chromium	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Cobalt	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Copper	0.0062	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004
Iron	0.49	<0.005	0.29	<0.005	0.22	<0.005	1.3	0.014	1.4	0.11
Lead (AAS)	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	0.0044	<0.004
Lead	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Magnesium	11	11	12	11	0.18	0.11	0.26	0.17	0.2	0.14
Manganese	0.028	0.017	0.026	0.018	0.0044	<0.001	0.012	0.0024	0.0084	<0.001
Mercury (CVAA)	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Molybdenum	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Nickel	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Potassium	3.2	3.1	1.8	2.4	1.7	1.2	0.8	0.84	1.4	1.4
Selenium	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Silver	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006
Sodium	9.6	9.5	9.8	8.9	110	110	120	120	110	110
Strontium	0.18	0.18	0.18	0.17	0.062	0.06	0.074	0.061	0.061	0.057
Thorium	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Uranium (Fluor)	0.001	<0.001	<0.015	<0.015	<0.001	<0.001	<0.001	<0.001	0.001	0.001
Vanadium	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Zinc	0.013	0.0036	0.0099	<0.002	<0.002	<0.002	0.012	0.004	0.0056	0.0047
ANIONS (mg/L)	.	.	.	.	.	.	.	.	.	.
Alkalinity-HCO3	182	.	181	.	190	.	187	.	177	.
Alkalinity-CO3	<1	.	<1	.	24	.	28	.	34	.
Chloride	2.5	.	2.8	.	1	.	1	.	2	.
Fluoride	0.3	.	0.2	.	1.6	.	1.4	.	1.6	.
Nitrate-N	<0.2	.	<0.2	.	<0.2	.	<0.2	.	<0.2	.
Sulfate	32	.	34	.	29	.	29	.	29	.
TSS (mg/L)	6	.	<1	.	1	.	7	.	28	.
Turbidity (NTU)	7.3	.	2.1	.	2.6	.	3.9	.	12	.

(CONTINUED)

APPENDIX E.1
Trace Metals and Anions, 1994

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Sampling Point	GW-373		GW-537							
Unit	AQT		AQT							
Location	BG		OLF							
Date Sampled	11/08/94		02/11/94		06/24/94		09/07/94		12/15/94	
Type	TOT	DIS	TOT	DIS	TOT	DIS	TOT	DIS	TOT	DIS
METALS (mg/L)	.	.	.	.	.	.	.	.	.	.
Aluminum	0.3	0.023	<0.2	<0.2	0.065	0.051	0.086	<0.1	0.049	0.058
Antimony	<0.05	<0.05	<0.5	<0.5	<0.1	<0.1	<0.1	<0.25	<0.1	<0.1
Arsenic	<0.05	<0.05	<0.5	<0.5	<0.1	<0.1	<0.1	<0.25	<0.1	<0.1
Barium	0.041	0.02	3	2.6	2.7	2.4	1.7	2.3	2.4	2.3
Beryllium	<0.0003	<0.0003	<0.003	<0.003	<0.0006	<0.0006	<0.0006	<0.0015	<0.0006	<0.0006
Boron	0.18	0.18	<0.04	<0.04	<0.008	<0.008	0.022	<0.02	<0.008	0.025
Cadmium (AAS)	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
Cadmium	<0.003	<0.003	<0.03	<0.03	<0.006	<0.006	<0.006	<0.015	<0.006	<0.006
Calcium	1.5	1.2	1300	1100	1200	1100	810	1100	1200	1100
Chromium (AAS)	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Chromium	<0.01	<0.01	<0.1	<0.1	<0.02	<0.02	<0.02	<0.05	<0.02	<0.02
Cobalt	<0.005	<0.005	<0.05	<0.05	<0.01	<0.01	<0.01	<0.025	<0.01	<0.01
Copper	<0.004	<0.004	<0.04	<0.04	<0.008	<0.008	<0.008	<0.02	<0.008	<0.008
Iron	1.2	0.08	0.25	<0.05	0.14	<0.01	0.035	<0.025	<0.01	0.011
Lead (AAS)	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004
Lead	<0.05	<0.05	<0.5	<0.5	<0.1	<0.1	<0.1	<0.25	<0.1	<0.1
Magnesium	0.19	0.1	85	74	80	73	52	68	68	66
Manganese	0.0094	<0.001	0.029	0.016	0.0061	0.003	0.0039	0.0052	0.0059	0.0059
Mercury (CVAA)	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Molybdenum	<0.01	<0.01	<0.1	<0.1	<0.02	<0.02	<0.02	<0.05	<0.02	<0.02
Nickel	<0.01	<0.01	<0.1	<0.1	<0.02	<0.02	<0.02	<0.05	<0.02	<0.02
Potassium	0.87	0.85	<6	<6	3.5	3.2	3.1	4.5	3.6	3.6
Selenium	<0.05	<0.05	<0.5	<0.5	<0.1	<0.1	<0.1	<0.25	<0.1	<0.1
Silver	<0.006	<0.006	<0.06	<0.06	<0.012	<0.012	<0.012	<0.03	<0.012	<0.012
Sodium	130	130	38	33	35	32	24	31	33	32
Strontium	0.063	0.052	3.4	3	3.1	2.8	1.9	2.6	2.9	2.8
Thorium	<0.2	<0.2	<2	<2	<0.4	<0.4	<0.4	<1	<0.4	<0.4
Uranium (Fluor)	<0.015	<0.015	0.001	0.002	0.001	0.001	<0.015	<0.015	0.0015	0.0014
Vanadium	<0.005	<0.005	<0.05	<0.05	<0.01	<0.01	<0.01	<0.025	<0.01	<0.01
Zinc	<0.002	<0.002	0.034	0.026	0.0066	0.0095	<0.004	<0.01	<0.004	0.012
ANIONS (mg/L)	.	.	.	.	.	.	.	.	.	.
Alkalinity-HCO3	186	.	268	.	247	.	253	.	253	.
Alkalinity-CO3	26	.	<1	.	<1	.	<1	.	<1	.
Chloride	2	.	<100	.	<100	.	29	.	30	.
Fluoride	1.5	.	<0.1	.	<0.1	.	<0.1	.	<0.1	.
Nitrate-N	<0.2	.	1127	.	830	.	81	.	734	.
Sulfate	31	.	<100	.	<100	.	2.5	.	3.2	.
TSS (mg/L)	9	.	10	.	4	.	9	.	<1	.
Turbidity (NTU)	14	.	4	.	2.2	.	1.8	.	2.5	.

(CONTINUED)

Trace Metals and Anions, 1994

Sampling Point Unit Location Date Sampled Type	GW-601		GW-613				GW-614			
	AQF		AQT				AQT			
	OLF		S3				S3			
	03/25/94		02/14/94		08/15/94		02/14/94		08/16/94	
	TOT	DIS	TOT	DIS	TOT	DIS	TOT	DIS	TOT	DIS
METALS (mg/L)	.	.	.	.	.	.	.	.	.	.
Aluminum	<0.02	<0.02	0.037	<0.02	0.21	<0.02	0.059	<0.02	0.051	<0.02
Antimony	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Arsenic	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Barium	0.098	0.098	0.062	0.06	0.061	0.061	0.15	0.21	0.16	0.16
Beryllium	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003
Boron	0.13	0.16	0.014	0.011	0.062	0.013	0.039	0.052	0.026	0.031
Cadmium (AAS)	.	.	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
Cadmium	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003
Calcium	93	96	28	28	30	29	47	30	48	47
Chromium (AAS)	.	.	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Chromium	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Cobalt	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Copper	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004
Iron	1.1	0.011	0.0084	<0.005	0.018	<0.005	0.071	0.059	0.14	0.069
Lead (AAS)	.	.	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004
Lead	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Magnesium	48	49	2.9	2.8	3	2.9	9.7	5.7	10	10
Manganese	0.023	0.019	0.0011	<0.001	<0.001	<0.001	0.015	0.016	0.013	0.012
Mercury (CVAA)	.	.	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Molybdenum	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Nickel	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Potassium	2.2	2.3	<0.6	<0.6	0.96	0.64	1.5	0.81	2.2	1.8
Selenium	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Silver	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006
Sodium	48	49	3.5	3.5	3.9	3.9	10	5.1	11	10
Strontium	1.9	2	0.049	0.049	0.047	0.046	0.58	0.24	0.58	0.57
Thorium	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Uranium (Fluor)	0.001	<0.001	<0.001	<0.001	0.001	<0.001	<0.001	0.001	0.001	0.001
Vanadium	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Zinc	<0.002	<0.002	0.01	0.008	0.0037	<0.002	0.0055	0.005	<0.002	<0.002
ANIONS (mg/L)	.	.	.	.	.	.	.	.	.	.
Alkalinity-HCO3	195	.	87	.	87	.	173	.	173	.
Alkalinity-CO3	<1	.	<1	.	<1	.	<1	.	<1	.
Chloride	101	.	1.2	.	1.2	.	<1	.	<1	.
Fluoride	0.3	.	<0.1	.	0.1	.	<0.1	.	0.1	.
Nitrate-N	36.1	.	<0.2	.	<0.2	.	<0.2	.	<0.2	.
Sulfate	55	.	4.2	.	5	.	9.9	.	11	.
TSS (mg/L)	1	.	2	.	5	.	3	.	<1	.
Turbidity (NTU)	2	.	1.6	.	2.5	.	1	.	0.6	.

(CONTINUED)

APPENDIX E.1
Trace Metals and Anions, 1994

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Sampling Point . Unit . Location . Date Sampled . Type	GW-621				GW-627					
	AQF				AQT					
	EXP-B				BG					
	02/18/94		12/07/94		03/14/94		06/23/94		09/15/94	
	TOT	DIS	TOT	DIS	TOT	DIS	TOT	DIS	TOT	DIS
METALS (mg/L)	.	.	.	.	.	.	.	.	.	.
	.	.	.	.	.	.	.	.	.	.
Aluminum	0.74	0.022	1.6	<0.02	<0.02	0.048	<0.02	<0.02	<0.02	<0.02
Antimony	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Arsenic	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Barium	0.027	0.02	0.031	0.021	0.039	0.039	0.042	0.038	0.046	0.041
Beryllium	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003
Boron	0.022	0.014	0.02	0.013	0.44	0.44	0.58	0.55	0.48	0.5
Cadmium (AAS)	<0.002	<0.002	<0.002	<0.002	.	.	.	.	.	.
Cadmium	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003
Calcium	55	52	57	56	1.2	1.1	1.3	1.1	0.84	0.85
Chromium (AAS)	0.054	<0.01	0.077	<0.01	.	.	.	.	.	.
Chromium	0.065	<0.01	0.071	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Cobalt	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Copper	0.0054	<0.004	0.0048	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004
Iron	1.4	<0.005	1.9	0.044	0.0082	0.011	0.27	0.052	0.064	0.011
Lead (AAS)	<0.004	<0.004	<0.004	<0.004	.	.	.	.	.	.
Lead	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Magnesium	10	9.6	11	10	0.21	0.21	0.25	0.24	0.2	0.2
Manganese	0.11	<0.001	0.11	<0.001	0.0033	0.0032	0.011	0.0084	0.0042	0.0031
Mercury (CVAA)	<0.0002	<0.0002	<0.0002	<0.0002	.	.	.	.	.	.
Molybdenum	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Nickel	0.056	<0.01	0.053	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Potassium	3.9	3.9	2.1	1.6	1	1.6	1.7	1.5	1.8	0.96
Selenium	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Silver	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006
Sodium	2.2	2.2	2.4	2.4	270	270	350	330	290	290
Strontium	0.056	0.055	0.064	0.063	0.071	0.07	0.093	0.088	0.074	0.071
Thorium	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Uranium (Fluor)	0.002	0.002	<0.015	<0.015	<0.001	0.001	<0.001	<0.001	<0.015	<0.015
Vanadium	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Zinc	0.0094	<0.002	0.0063	<0.002	0.0026	0.008	<0.002	<0.002	0.0086	0.0048
	.	.	.	.	.	.	.	.	.	.
ANIONS (mg/L)	.	.	.	.	.	.	.	.	.	.
	.	.	.	.	.	.	.	.	.	.
Alkalinity-HCO3	158	.	171	.	490	.	482	.	485	.
Alkalinity-CO3	<1	.	<1	.	74	.	78	.	64	.
Chloride	5	.	4.6	.	23	.	25	.	24	.
Fluoride	<0.1	.	0.1	.	6	.	5.8	.	5.5	.
Nitrate-N	5.6	.	4.6	.	<0.2	.	<0.2	.	<0.2	.
Sulfate	4	.	4.7	.	29.8	.	28	.	31	.
	.	.	.	.	.	.	.	.	.	.
TSS (mg/L)	18	.	28	.	<1	.	1	.	<1	.
Turbidity (NTU)	20	.	39	.	1	.	1	.	0.5	.

(CONTINUED)

Sampling Point . Unit . Location . Date Sampled . Type	GW-627		GW-637							
	AQT		AQT							
	BG		OLF							
	12/09/94		03/23/94		05/26/94		07/29/94		11/07/94	
	TOT	DIS	TOT	DIS	TOT	DIS	TOT	DIS	TOT	DIS
METALS (mg/L)	.	.	.	.	.	.	.	.	.	.
Aluminum	<0.02	<0.02	<0.02	<0.02	1.2	0.17	0.37	<0.02	<0.02	0.03
Antimony	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Arsenic	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Barium	0.043	0.043	0.17	0.17	0.15	0.15	0.16	0.17	0.15	0.15
Beryllium	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003
Boron	0.52	0.51	0.016	0.034	0.033	0.02	0.021	0.029	0.068	0.023
Cadmium (AAS)	.	.	.	.	.	.	.	.	.	.
Cadmium	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003
Calcium	0.87	0.86	80	80	78	72	85	82	85	85
Chromium (AAS)	.	.	.	.	.	.	.	.	.	.
Chromium	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Cobalt	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Copper	<0.004	<0.004	<0.004	0.0043	0.015	<0.004	0.006	<0.004	<0.004	<0.004
Iron	0.067	0.028	0.035	0.007	0.87	0.036	0.28	0.05	0.055	0.051
Lead (AAS)	.	.	.	.	.	.	.	.	.	.
Lead	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Magnesium	0.2	0.19	6.8	6.8	5.7	6.1	6.6	6.8	5.6	5.7
Manganese	0.0041	0.004	0.034	0.033	0.034	0.025	0.032	0.031	0.033	0.033
Mercury (CVAA)	.	.	.	.	.	.	.	.	.	.
Molybdenum	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Nickel	<0.01	<0.01	<0.01	<0.01	0.011	<0.01	<0.01	<0.01	<0.01	<0.01
Potassium	1	1.9	1.5	1.4	1.8	1.9	1.8	1.6	1	1.3
Selenium	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Silver	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006
Sodium	300	300	2.7	2.7	2.5	2.7	2.7	2.8	2.8	2.7
Strontium	0.076	0.076	0.21	0.21	0.18	0.18	0.2	0.21	0.18	0.18
Thorium	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Uranium (Fluor)	<0.015	<0.015	0.001	0.001	0.001	0.001	<0.001	0.001	<0.015	<0.015
Vanadium	<0.005	<0.005	<0.005	<0.005	0.0057	<0.005	<0.005	<0.005	<0.005	<0.005
Zinc	0.0034	0.003	0.012	0.0055	0.035	0.082	0.012	0.0035	0.0083	<0.002
ANIONS (mg/L)	.	.	.	.	.	.	.	.	.	.
Alkalinity-HCO3	493	.	216	.	212	.	222	.	221	.
Alkalinity-CO3	70	.	<1	.	<1	.	<1	.	<1	.
Chloride	28	.	3	.	3	.	3.4	.	2.9	.
Fluoride	6.3	.	<0.1	.	<0.1	.	<0.1	.	<0.1	.
Nitrate-N	<0.2	.	<0.2	.	<0.2	.	<0.2	.	<0.2	.
Sulfate	33	.	6	.	7	.	13	.	7	.
TSS (mg/L)	<1	.	1	.	68	.	1	.	<1	.
Turbidity (NTU)	0.5	.	2.2	.	130	.	17	.	1.4	.

(CONTINUED)

APPENDIX E.1
Trace Metals and Anions, 1994

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Sampling Point . Unit . Location . Date Sampled . Type	GW-642								GW-652	
	AQT								AQF	
	BG								BG	
	03/09/94		05/19/94		08/23/94		11/07/94		03/09/94	
	TOT	DIS	TOT	DIS	TOT	DIS	TOT	DIS	TOT	DIS
METALS (mg/L)	.	.	.	.	.	.	.	.	.	.
Aluminum	0.037	<0.02	<0.02	<0.02	0.083	<0.02	1.6	<0.02	3.2	<0.02
Antimony	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Arsenic	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Barium	0.14	0.13	0.14	0.13	0.16	0.17	0.24	0.21	0.18	0.14
Beryllium	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003
Boron	0.015	0.015	0.023	0.024	0.014	0.02	0.05	0.026	0.03	0.031
Cadmium (AAS)	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	.	.
Cadmium	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003
Calcium	7.8	7.4	8.3	7.9	11	12	15	15	76	72
Chromium (AAS)	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.015	<0.01	.	.
Chromium	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Cobalt	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.0076	<0.005
Copper	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004
Iron	2.5	2.3	3.4	2.8	5.2	5	11	6.7	4.9	<0.005
Lead (AAS)	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	0.0042	<0.004	.	.
Lead	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Magnesium	8.3	8.3	8.5	8.2	9.8	10	11	11	7.8	8
Manganese	1.3	1.3	1.5	1.4	2.2	2.3	2.8	2.9	0.15	0.0014
Mercury (CVAA)	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	.	.
Molybdenum	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Nickel	0.03	0.03	0.014	0.016	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Potassium	1.9	1.7	1.6	1.7	2.5	2.9	2.4	2	3.2	2.3
Selenium	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Silver	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006
Sodium	8	8	7.9	7.8	7.5	7.3	8.2	8.4	1.2	1.2
Strontium	0.036	0.023	0.026	0.026	0.031	0.034	0.046	0.044	0.18	0.18
Thorium	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Uranium (Fluor)	<0.001	<0.001	0.001	0.001	0.002	<0.001	<0.015	<0.015	<0.001	<0.001
Vanadium	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.0054	<0.005	0.005	<0.005
Zinc	0.016	0.014	0.024	0.022	0.0092	0.014	0.03	0.0043	0.012	<0.002
ANIONS (mg/L)	.	.	.	.	.	.	.	.	.	.
Alkalinity-HCO3	61	.	64	.	81	.	104	.	200	.
Alkalinity-CO3	<1	.	<1	.	<1	.	<1	.	<1	.
Chloride	1	.	1	.	2	.	1.9	.	6	.
Fluoride	0.4	.	0.3	.	0.6	.	0.4	.	<0.1	.
Nitrate-N	<0.2	.	<0.2	.	<0.2	.	<0.2	.	<0.2	.
Sulfate	10	.	9	.	16	.	9.3	.	8	.
TSS (mg/L)	2	.	3	.	4	.	11	.	25	.
Turbidity (NTU)	9.8	.	0.5	.	3.8	.	34	.	54	.

(CONTINUED)

Sampling Point . Unit . Location . Date Sampled . Type	GW-652						GW-653			
	AQF						AQT			
	BG						BG			
	06/17/94		09/13/94		12/07/94		02/26/94		06/09/94	
	TOT	DIS	TOT	DIS	TOT	DIS	TOT	DIS	TOT	DIS
METALS (mg/L)	.	.	.	.	.	.	.	.	.	.
Aluminum	0.21	0.02	0.19	<0.02	0.23	0.022	0.2	<0.02	0.19	<0.02
Antimony	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Arsenic	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Barium	0.16	0.17	0.14	0.15	0.16	0.16	0.038	0.034	0.041	0.036
Beryllium	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003
Boron	0.027	0.017	0.029	0.056	0.023	0.062	0.022	0.015	0.0086	0.008
Cadmium (AAS)	.	.	.	.	.	.	.	.	.	.
Cadmium	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003
Calcium	73	79	74	72	78	80	2.1	2.1	2.4	2.5
Chromium (AAS)	.	.	.	.	.	.	.	.	.	.
Chromium	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Cobalt	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Copper	<0.004	<0.004	<0.004	<0.004	<0.004	0.0059	0.0046	<0.004	<0.004	<0.004
Iron	0.29	0.016	0.31	0.018	0.22	<0.005	0.48	0.023	0.14	0.0086
Lead (AAS)	.	.	.	.	.	.	.	.	.	.
Lead	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Magnesium	6.7	7.3	8	8.1	6.8	6.7	1.1	1	1.2	1.2
Manganese	0.0098	<0.001	0.015	<0.001	0.015	<0.001	0.0093	0.0036	0.009	0.0036
Mercury (CVAA)	.	.	.	.	.	.	.	.	.	.
Molybdenum	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Nickel	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Potassium	2.5	2.8	2.2	2.7	2.9	3.2	1.1	0.71	<0.6	<0.6
Selenium	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Silver	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006
Sodium	1.5	1.5	1.1	1.2	1.2	1.4	2.7	2.7	2.7	2.9
Strontium	0.16	0.18	0.15	0.15	0.16	0.16	0.019	0.019	0.02	0.021
Thorium	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Uranium (Fluor)	0.001	<0.001	<0.015	<0.015	<0.015	<0.015	<0.001	<0.001	<0.001	<0.001
Vanadium	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Zinc	<0.002	0.003	0.003	<0.002	0.005	0.0046	0.011	0.011	0.0093	0.01
ANIONS (mg/L)	.	.	.	.	.	.	.	.	.	.
Alkalinity-HCO3	194	.	207	.	207	.	15	.	12	.
Alkalinity-CO3	<1	.	<1	.	<1	.	<1	.	<1	.
Chloride	4.4	.	6.2	.	6.2	.	1.2	.	3.6	.
Fluoride	<0.1	.	<0.1	.	<0.1	.	<0.1	.	<0.1	.
Nitrate-N	0.8	.	<0.2	.	0.81	.	<0.2	.	<0.2	.
Sulfate	10	.	8.1	.	9.8	.	2.2	.	12	.
TSS (mg/L)	3	.	2	.	1	.	8	.	15	.
Turbidity (NTU)	5.5	.	5.1	.	6.3	.	3.5	.	2.8	.

(CONTINUED)

Sampling Point . Unit . Location . Date Sampled . Type	GW-653				GW-654					
	AQT				AQT					
	BG				BG					
	09/13/94		12/07/94		03/09/94		06/08/94		09/13/94	
	TOT	DIS	TOT	DIS	TOT	DIS	TOT	DIS	TOT	DIS
METALS (mg/L)	.	.	.	.	.	.	.	.	.	.
Aluminum	1	<0.02	1	<0.02	0.45	0.052	0.11	<0.02	3.2	<0.02
Antimony	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Arsenic	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Barium	0.052	0.032	0.07	0.029	0.19	0.1	0.12	0.11	0.12	0.091
Beryllium	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003
Boron	0.023	0.039	0.031	0.019	0.067	0.085	0.054	0.059	0.14	0.098
Cadmium (AAS)	.	.	.	.	.	.	.	.	.	.
Cadmium	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003
Calcium	2	1.9	2.4	1.9	16	21	18	19	17	15
Chromium (AAS)	.	.	.	.	.	.	.	.	.	.
Chromium	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Cobalt	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Copper	<0.004	<0.004	0.005	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004
Iron	0.8	<0.005	0.89	0.0069	3.4	<0.005	0.62	0.27	2.6	0.095
Lead (AAS)	.	.	.	.	.	.	.	.	.	.
Lead	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Magnesium	1.2	1	1.3	0.94	3.9	5.4	4.8	5	4.2	3.7
Manganese	0.032	0.004	0.072	0.0038	2.4	0.23	0.4	0.33	0.22	0.18
Mercury (CVAA)	.	.	.	.	.	.	.	.	.	.
Molybdenum	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Nickel	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Potassium	1.2	<0.6	1.6	0.85	1.3	0.94	1.6	1.5	2.1	1.2
Selenium	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Silver	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006
Sodium	2.5	2.4	2.7	2.5	33	20	33	34	44	42
Strontium	0.019	0.016	0.024	0.017	0.19	0.22	0.23	0.24	0.21	0.19
Thorium	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Uranium (Fluor)	<0.015	<0.015	<0.015	<0.015	<0.001	<0.001	<0.001	<0.001	<0.015	<0.015
Vanadium	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.006	<0.005
Zinc	0.016	0.041	0.011	0.0085	0.022	0.0048	0.017	0.016	0.0099	<0.002
ANIONS (mg/L)	.	.	.	.	.	.	.	.	.	.
Alkalinity-HCO3	12	.	14	.	111	.	119	.	131	.
Alkalinity-CO3	<1	.	<1	.	<1	.	<1	.	<1	.
Chloride	1.1	.	1.7	.	<1	.	1.4	.	<1	.
Fluoride	<0.1	.	<0.1	.	0.2	.	0.3	.	0.6	.
Nitrate-N	<0.2	.	<0.2	.	<0.2	.	<0.2	.	<0.2	.
Sulfate	1.4	.	2.2	.	11	.	16	.	14	.
TSS (mg/L)	86	.	133	.	23	.	2	.	194	.
Turbidity (NTU)	35	.	50	.	29	.	1.9	.	135	.

(CONTINUED)

Sampling Point	GW-654		GW-683				GW-684			
Unit	AQT		AQF				AQF			
Location	BG		EXP-A				EXP-A			
Date Sampled	12/07/94		03/04/94		09/20/94		03/04/94		09/20/94	
Type	TOT	DIS	TOT	DIS	TOT	DIS	TOT	DIS	TOT	DIS
METALS (mg/L)	.	.	.	.	.	.	.	.	.	.
Aluminum	0.18	<0.02	0.099	<0.02	<0.02	<0.02	0.23	<0.02	0.31	<0.02
Antimony	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Arsenic	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Barium	0.077	0.067	0.04	0.037	0.13	0.12	0.085	0.085	0.12	0.12
Beryllium	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003
Boron	0.12	0.11	0.043	0.044	0.082	0.08	0.033	0.04	0.093	0.11
Cadmium (AAS)	.	.	.	.	.	.	.	.	.	.
Cadmium	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003
Calcium	12	11	24	24	73	70	33	33	65	64
Chromium (AAS)	.	.	.	.	.	.	.	.	.	.
Chromium	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Cobalt	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Copper	<0.004	<0.004	<0.004	0.0052	<0.004	0.0057	<0.004	<0.004	0.008	0.0076
Iron	0.38	0.019	0.18	0.0085	0.036	<0.005	0.18	0.006	0.38	0.019
Lead (AAS)	.	.	.	.	.	.	.	.	.	.
Lead	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Magnesium	2.5	2.5	12	11	20	19	14	14	17	17
Manganese	0.13	0.066	0.0027	0.0012	0.0026	0.0014	0.0074	0.0062	0.011	0.0074
Mercury (CVAA)	.	.	.	.	.	.	.	.	.	.
Molybdenum	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Nickel	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Potassium	1.4	1.8	1	1.5	1.7	1.9	14	14	14	14
Selenium	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Silver	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006
Sodium	52	51	1.8	1.9	9.6	9.2	9.7	10	12	12
Strontium	0.15	0.14	0.025	0.025	0.14	0.14	0.084	0.084	0.17	0.17
Thorium	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Uranium (Fluor)	<0.015	<0.015	0.004	0.004	0.08	0.082	0.014	0.01	0.081	0.077
Vanadium	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Zinc	0.0066	0.0053	0.0036	0.0038	0.0035	<0.002	0.0064	<0.002	0.0085	<0.002
ANIONS (mg/L)	.	.	.	.	.	.	.	.	.	.
Alkalinity-HCO3	132	.	109	.	198	.	139	.	176	.
Alkalinity-CO3	<1	.	<1	.	<1	.	<1	.	<1	.
Chloride	1.5	.	4	.	13	.	15	.	20	.
Fluoride	0.6	.	<0.1	.	0.2	.	0.1	.	0.2	.
Nitrate-N	<0.2	.	0.5	.	12	.	4.3	.	12	.
Sulfate	14	.	4	.	21	.	9	.	21	.
TSS (mg/L)	4	.	1	.	<1	.	14	.	14	.
Turbidity (NTU)	5.8	.	2.7	.	1.4	.	5.7	.	9	.

(CONTINUED)

APPENDIX E.1
Trace Metals and Anions, 1994

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Sampling Point . Unit . Location . Date Sampled . Type	GW-685				GW-694				GW-695	
	AQF				AQF				AQF	
	EXP-A				EXP-B				EXP-B	
	02/27/94		09/19/94		03/02/94		12/13/94		02/21/94	
	TOT	DIS	TOT	DIS	TOT	DIS	TOT	DIS	TOT	DIS
METALS (mg/L)	.	.	.	.	.	.	.	.	.	.
Aluminum	0.24	<0.02	0.21	<0.02	0.03	<0.02	0.084	<0.02	0.99	0.023
Antimony	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Arsenic	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Barium	0.12	0.11	0.11	0.1	0.096	0.093	0.11	0.11	0.025	0.023
Beryllium	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003
Boron	0.057	0.062	0.038	0.037	0.038	0.065	0.091	0.1	0.037	0.041
Cadmium (AAS)	.	.	.	.	.	.	.	.	.	.
Cadmium	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003
Calcium	79	79	84	84	74	70	88	83	36	32
Chromium (AAS)	.	.	.	.	.	.	.	.	.	.
Chromium	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Cobalt	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Copper	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004
Iron	2.8	<0.005	1.2	<0.005	0.51	0.057	5.2	2.4	0.58	<0.005
Lead (AAS)	.	.	.	.	.	.	.	.	.	.
Lead	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Magnesium	24	24	24	24	19	18	18	18	17	16
Manganese	0.092	0.042	0.074	0.041	0.12	0.1	0.08	0.064	0.0046	<0.001
Mercury (CVAA)	.	.	.	.	.	.	.	.	.	.
Molybdenum	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Nickel	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Potassium	1.5	1.7	1.2	1.3	1.8	1.7	2.9	2.7	6	6.5
Selenium	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Silver	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006
Sodium	25	26	23	23	9.8	9.7	11	11	30	29
Strontium	0.11	0.11	0.12	0.12	0.14	0.14	0.21	0.2	0.053	0.05
Thorium	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Uranium (Fluor)	0.003	0.003	<0.015	<0.015	0.1	0.055	0.131	0.145	0.002	0.002
Vanadium	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Zinc	0.012	<0.002	0.0061	<0.002	0.0088	<0.002	0.0029	<0.002	0.0088	<0.002
ANIONS (mg/L)	.	.	.	.	.	.	.	.	.	.
Alkalinity-HCO3	266	.	257	.	219	.	223	.	196	.
Alkalinity-CO3	<1	.	<1	.	<1	.	<1	.	<1	.
Chloride	53	.	45	.	19	.	17	.	11	.
Fluoride	<0.1	.	0.1	.	0.3	.	0.4	.	0.1	.
Nitrate-N	2.48	.	4	.	7.9	.	16	.	9.8	.
Sulfate	20	.	20	.	15	.	32	.	11	.
TSS (mg/L)	7	.	4	.	3	.	12	.	114	.
Turbidity (NTU)	26	.	8.6	.	3	.	46	.	39	.

(CONTINUED)

Sampling Point Unit Location Date Sampled Type	GW-695		GW-703				GW-704			
	AQF		AQF				AQF			
	EXP-B		EXP-B				EXP-B			
	12/07/94		02/23/94		12/12/94		02/25/94		12/13/94	
	TOT	DIS	TOT	DIS	TOT	DIS	TOT	DIS	TOT	DIS
METALS (mg/L)	.	.	.	.	.	.	.	.	.	.
Aluminum	1.4	<0.02	0.023	0.021	<0.02	<0.02	<0.02	<0.02	0.05	0.035
Antimony	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Arsenic	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Barium	0.027	0.024	0.083	0.086	0.047	0.04	0.09	0.082	0.1	0.082
Beryllium	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003
Boron	0.052	0.058	0.06	0.08	0.065	0.061	0.075	0.031	0.076	0.066
Cadmium (AAS)	.	.	.	.	.	.	.	.	.	.
Cadmium	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003
Calcium	32	29	63	61	43	41	63	63	64	60
Chromium (AAS)	.	.	.	.	.	.	.	.	.	.
Chromium	0.024	0.021	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Cobalt	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Copper	<0.004	<0.004	<0.004	0.0047	<0.004	0.0071	<0.004	<0.004	<0.004	<0.004
Iron	0.94	0.016	0.91	1	3.1	0.011	3.9	0.2	8.7	0.3
Lead (AAS)	.	.	.	.	.	.	.	.	.	.
Lead	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Magnesium	18	17	28	28	29	28	31	31	31	30
Manganese	0.0081	<0.001	0.017	0.014	0.065	0.033	0.026	0.016	0.06	0.035
Mercury (CVAA)	.	.	.	.	.	.	.	.	.	.
Molybdenum	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Nickel	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Potassium	7.5	8.3	1.3	1.3	6.2	6.3	1.1	0.95	1.6	1.6
Selenium	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Silver	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006
Sodium	32	34	9.4	9.3	9.6	9.5	13	12	13	12
Strontium	0.054	0.051	0.19	0.19	0.15	0.15	0.39	0.38	0.39	0.38
Thorium	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Uranium (Fluor)	<0.015	<0.015	0.003	0.003	.	<0.015	0.001	<0.001	.	<0.015
Vanadium	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Zinc	0.01	<0.002	0.0044	0.0095	0.0037	<0.002	0.0042	<0.002	0.0087	<0.002
ANIONS (mg/L)	.	.	.	.	.	.	.	.	.	.
Alkalinity-HCO3	184	.	203	.	175	.	199	.	192	.
Alkalinity-CO3	<1	.	<1	.	<1	.	<1	.	<1	.
Chloride	7.4	.	20	.	16	.	27	.	26	.
Fluoride	0.1	.	0.2	.	0.1	.	0.1	.	0.2	.
Nitrate-N	6.4	.	21	.	9.1	.	20.8	.	18	.
Sulfate	10	.	19	.	19	.	<20	.	23	.
TSS (mg/L)	72	.	<1	.	6	.	7	.	24	.
Turbidity (NTU)	25	.	8	.	19	.	18	.	42	.

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APPENDIX E.1
Trace Metals and Anions, 1994

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Sampling Point . Unit . Location . Date Sampled . Type	GW-706				GW-710				GW-711	
	AQF				AQF				AQF	
	EXP-B				EXP-W				EXP-W	
	03/04/94		12/15/94		02/24/94		08/19/94		02/23/94	
	TOT	DIS	TOT	DIS	TOT	DIS	TOT	DIS	TOT	DIS
METALS (mg/L)	.	.	.	.	.	.	.	.	.	.
Aluminum	0.022	<0.02	<0.02	0.031	<0.2	<0.2	<0.02	<0.02	<0.2	<0.2
Antimony	<0.05	<0.05	<0.05	<0.05	<0.5	<0.5	<0.05	<0.05	<0.5	<0.5
Arsenic	<0.05	<0.05	<0.05	<0.05	<0.5	<0.5	<0.05	<0.05	<0.5	<0.5
Barium	0.093	0.09	0.17	0.17	<0.01	<0.01	0.009	0.0078	<0.01	<0.01
Beryllium	<0.0003	<0.0003	<0.0003	<0.0003	<0.003	<0.003	0.0006	<0.0003	<0.003	<0.003
Boron	0.069	0.041	0.14	0.14	0.086	0.23	0.33	0.34	1.2	0.95
Cadmium (AAS)	.	.	.	.	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
Cadmium	<0.003	<0.003	<0.003	<0.003	<0.03	<0.03	<0.003	<0.003	<0.03	<0.03
Calcium	69	69	110	110	470	570	560	580	530	560
Chromium (AAS)	.	.	.	.	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Chromium	<0.01	<0.01	<0.01	<0.01	<0.1	<0.1	<0.01	<0.01	<0.1	<0.1
Cobalt	<0.005	<0.005	<0.005	<0.005	<0.05	<0.05	<0.005	<0.005	<0.05	<0.05
Copper	<0.004	<0.004	<0.004	<0.004	<0.04	<0.04	<0.004	<0.004	<0.04	<0.04
Iron	0.37	0.019	5.9	4.6	2	2.4	7.4	7.6	5.1	5
Lead (AAS)	.	.	.	.	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004
Lead	<0.05	<0.05	<0.05	<0.05	<0.5	<0.5	<0.05	<0.05	<0.5	<0.5
Magnesium	18	18	23	23	150	180	190	190	220	230
Manganese	0.012	0.0078	0.047	0.042	0.021	0.025	0.15	0.16	0.049	0.05
Mercury (CVAA)	.	.	.	.	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Molybdenum	<0.01	<0.01	<0.01	<0.01	<0.1	<0.1	<0.01	<0.01	<0.1	<0.1
Nickel	<0.01	<0.01	<0.01	<0.01	<0.1	<0.1	<0.01	<0.01	<0.1	<0.1
Potassium	2.9	3.1	4.3	4.1	<6	<6	10	10	23	28
Selenium	<0.05	<0.05	<0.05	<0.05	<0.5	<0.5	<0.05	<0.05	<0.5	<0.5
Silver	<0.006	<0.006	<0.006	<0.006	<0.06	<0.06	<0.006	<0.006	<0.06	<0.06
Sodium	15	15	16	17	170	200	240	250	1200	1200
Strontium	0.17	0.17	0.3	0.3	6.3	7.6	8.5	8.8	12	12
Thorium	<0.2	<0.2	<0.2	<0.2	<2	<2	<0.2	<0.2	<2	<2
Uranium (Fluor)	0.039	0.043	0.117	0.093	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Vanadium	<0.005	<0.005	<0.005	<0.005	<0.05	<0.05	<0.005	<0.005	<0.05	<0.05
Zinc	0.0039	<0.002	0.0071	0.0026	<0.02	<0.02	0.0051	0.0031	<0.02	<0.02
ANIONS (mg/L)	.	.	.	.	.	.	.	.	.	.
Alkalinity-HCO3	188	.	248	.	164	.	166	.	155	.
Alkalinity-CO3	<1	.	<1	.	<1	.	<1	.	<1	.
Chloride	30	.	27	.	332	.	348	.	1934	.
Fluoride	0.1	.	0.1	.	1.7	.	1.7	.	1.6	.
Nitrate-N	13.8	.	35	.	<23	.	<0.2	.	<23	.
Sulfate	14	.	31	.	1866	.	2086	.	1749	.
TSS (mg/L)	1	.	9	.	3	.	14	.	13	.
Turbidity (NTU)	1.8	.	27	.	2.7	.	5	.	30	.

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APPENDIX E.1
Trace Metals and Anions, 1994

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Sampling Point Unit Location Date Sampled Type	GW-711		GW-712				GW-713			
	AQF		AQF				AQF			
	EXP-W		EXP-W				EXP-W			
	08/18/94		02/24/94		08/18/94		02/27/94		08/19/94	
	TOT	DIS	TOT	DIS	TOT	DIS	TOT	DIS	TOT	DIS
METALS (mg/L)	.	.	.	.	.	.	.	.	.	.
Aluminum	0.23	0.31	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.021	<0.02
Antimony	<0.25	<0.25	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Arsenic	0.57	<0.25	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Barium	0.015	0.0094	0.046	0.045	0.054	0.056	0.03	0.036	0.052	0.05
Beryllium	<0.0015	<0.0015	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003
Boron	1.3	1.4	0.11	0.06	0.12	0.12	0.065	0.063	0.11	0.098
Cadmium (AAS)	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
Cadmium	<0.015	<0.015	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003
Calcium	540	570	78	76	79	81	60	61	64	63
Chromium (AAS)	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Chromium	<0.05	<0.05	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Cobalt	<0.025	<0.025	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Copper	<0.02	<0.02	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	0.0044	<0.004
Iron	4	3.8	0.65	0.49	0.61	0.55	1.8	0.81	4.1	1.5
Lead (AAS)	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004
Lead	<0.25	<0.25	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Magnesium	220	230	34	34	39	40	26	27	33	33
Manganese	0.055	0.038	0.017	0.017	0.012	0.013	0.11	0.052	0.079	0.072
Mercury (CVAA)	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Molybdenum	<0.05	<0.05	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Nickel	<0.05	<0.05	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Potassium	24	25	2.3	1.6	2.7	2.7	2.5	2.5	3.3	3.1
Selenium	<0.25	<0.25	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Silver	<0.03	<0.03	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006
Sodium	1300	1300	20	19	22	22	9.1	9.4	16	16
Strontium	13	14	1.7	1.6	1.7	1.7	1.2	1.2	1.7	1.7
Thorium	<1	<1	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Uranium (Fluor)	<0.001	0.001	0.001	<0.001	0.001	0.001	<0.001	<0.001	0.001	<0.001
Vanadium	<0.025	<0.025	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Zinc	<0.01	0.013	0.018	<0.002	<0.002	<0.002	0.0044	<0.002	<0.002	<0.002
ANIONS (mg/L)	.	.	.	.	.	.	.	.	.	.
Alkalinity-HCO3	152	.	190	.	183	.	194	.	190	.
Alkalinity-CO3	<1	.	<1	.	<1	.	<1	.	<1	.
Chloride	1744	.	26	.	20	.	13	.	13	.
Fluoride	1.7	.	0.7	.	0.6	.	0.5	.	0.6	.
Nitrate-N	<0.2	.	0.3	.	0.3	.	0.47	.	<0.2	.
Sulfate	1989	.	168	.	184	.	79	.	110	.
TSS (mg/L)	14	.	2	.	2	.	2	.	8	.
Turbidity (NTU)	28	.	8.5	.	9.5	.	7	.	20	.

(CONTINUED)

APPENDIX E.1
Trace Metals and Anions, 1994

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Sampling Point	GW-714				GW-715				GW-723	
Unit	AQF				AQF				AQF	
Location	EXP-W				EXP-W				EXP-C	
Date Sampled	02/25/94		08/20/94		02/26/94		08/20/94		03/17/94	
Type	TOT	DIS	TOT	DIS	TOT	DIS	TOT	DIS	TOT	DIS
METALS (mg/L)	.	.	.	.	.	.	.	.	.	.
Aluminum	0.23	<0.02	0.036	0.046	0.17	<0.02	0.22	0.052	<0.02	<0.02
Antimony	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Arsenic	<0.05	<0.05	0.12	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Barium	0.061	0.061	0.061	0.058	0.071	0.073	0.069	0.067	0.055	0.055
Beryllium	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003
Boron	0.093	0.09	0.099	0.093	0.026	0.028	0.031	0.056	0.059	0.057
Cadmium (AAS)	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	.	.
Cadmium	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003
Calcium	56	59	57	56	68	72	70	69	60	62
Chromium (AAS)	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	.	.
Chromium	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Cobalt	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Copper	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004
Iron	1.3	<0.005	1.2	0.016	0.25	<0.005	0.33	<0.005	0.89	0.016
Lead (AAS)	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	.	.
Lead	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Magnesium	21	22	22	22	14	15	16	16	29	30
Manganese	0.016	0.0035	0.024	0.016	0.048	0.032	0.038	0.0011	0.04	0.023
Mercury (CVAA)	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	.	.
Molybdenum	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Nickel	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Potassium	1.7	2	1.3	1.1	2.1	2.3	1.6	1.7	2.3	2.5
Selenium	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Silver	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006
Sodium	3.3	3.3	3.5	3.5	18	18	11	10	8	8.3
Strontium	0.18	0.19	0.21	0.2	0.085	0.088	0.086	0.086	1.1	1.1
Thorium	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Uranium (Fluor)	0.001	0.001	0.003	0.003	<0.001	0.007	0.001	0.001	0.002	0.002
Vanadium	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Zinc	0.0091	<0.002	0.0098	0.0055	0.011	0.005	0.018	0.014	<0.002	<0.002
ANIONS (mg/L)	.	.	.	.	.	.	.	.	.	.
Alkalinity-HCO3	202	.	199	.	214	.	252	.	210	.
Alkalinity-CO3	<1	.	<1	.	<1	.	<1	.	<1	.
Chloride	9	.	7.9	.	36.6	.	20	.	12	.
Fluoride	0.1	.	0.2	.	<0.1	.	<0.1	.	0.5	.
Nitrate-N	4.7	.	4.3	.	0.5	.	0.41	.	7.6	.
Sulfate	23	.	24	.	6.1	.	7.2	.	40	.
TSS (mg/L)	6	.	2	.	3	.	3	.	8	.
Turbidity (NTU)	24	.	4	.	4.4	.	3.5	.	8.5	.

(CONTINUED)

Sampling Point Unit Location Date Sampled Type	GW-723		GW-724				GW-725			
	AQF		AQF				AQF			
	EXP-C		EXP-C				EXP-C			
	12/20/94		03/18/94		12/18/94		03/18/94		12/18/94	
	TOT	DIS	TOT	DIS	TOT	DIS	TOT	DIS	TOT	DIS
METALS (mg/L)	.	.	.	.	.	.	.	.	.	.
Aluminum	0.024	0.022	<0.02	<0.02	0.037	0.045	<0.02	<0.02	0.051	<0.02
Antimony	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Arsenic	<0.05	<0.05	<0.05	<0.05	0.055	<0.05	<0.05	<0.05	<0.05	<0.05
Barium	0.061	0.061	0.16	0.16	0.16	0.16	0.33	0.33	0.28	0.27
Beryllium	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003
Boron	0.066	0.078	0.061	0.058	0.094	0.098	0.029	0.033	0.059	0.062
Cadmium (AAS)	.	.	.	.	.	.	.	.	.	.
Cadmium	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003
Calcium	69	74	93	94	93	94	200	200	170	170
Chromium (AAS)	.	.	.	.	.	.	.	.	.	.
Chromium	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Cobalt	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Copper	0.0042	<0.004	<0.004	<0.004	<0.004	0.01	<0.004	<0.004	<0.004	<0.004
Iron	4.9	0.011	0.47	0.17	0.78	0.076	0.26	0.19	0.26	0.016
Lead (AAS)	.	.	.	.	.	.	.	.	.	.
Lead	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Magnesium	25	28	41	42	40	40	41	41	31	30
Manganese	0.099	0.048	0.031	0.028	0.043	0.036	0.12	0.12	0.24	0.23
Mercury (CVAA)	.	.	.	.	.	.	.	.	.	.
Molybdenum	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Nickel	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Potassium	2.3	2.8	1.9	2.1	1.9	2.1	3.1	2.9	2.9	2.8
Selenium	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Silver	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006
Sodium	8.8	9.6	19	20	22	22	22	22	20	20
Strontium	0.89	0.97	1.1	1.2	1.2	1.2	0.83	0.81	0.62	0.61
Thorium	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Uranium (Fluor)	0.0033	0.0035	<0.001	<0.001	0.0005	<0.0005	0.003	0.004	0.0048	0.0049
Vanadium	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Zinc	0.011	0.0053	<0.002	<0.002	0.0088	0.0099	<0.002	<0.002	0.0059	0.0038
ANIONS (mg/L)	.	.	.	.	.	.	.	.	.	.
Alkalinity-HCO3	209	.	211	.	215	.	285	.	298	.
Alkalinity-CO3	<1	.	<1	.	<1	.	<1	.	<1	.
Chloride	13	.	47	.	54	.	71	.	50	.
Fluoride	0.3	.	0.2	.	0.4	.	0.1	.	0.2	.
Nitrate-N	15	.	48.4	.	42	.	106	.	52	.
Sulfate	38	.	23	.	24	.	33	.	39	.
TSS (mg/L)	9	.	<1	.	1	.	2	.	1	.
Turbidity (NTU)	8	.	5.2	.	3.3	.	3	.	1.9	.

(CONTINUED)

Trace Metals and Anions, 1994

Sampling Point . Unit . Location . Date Sampled . Type	GW-736				GW-737				GW-738	
	AQF				AQF				AQF	
	EXP-C				EXP-C				EXP-C	
	03/21/94		12/19/94		03/21/94		12/18/94		03/16/94	
	TOT	DIS	TOT	DIS	TOT	DIS	TOT	DIS	TOT	DIS
METALS (mg/L)	.	.	.	.	.	.	.	.	.	.
Aluminum	<0.02	<0.02	0.047	0.027	<0.02	<0.02	0.062	0.023	0.086	<0.02
Antimony	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Arsenic	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Barium	0.21	0.21	0.21	0.21	0.24	0.25	0.21	0.21	0.048	0.047
Beryllium	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003
Boron	0.016	0.0075	0.07	0.043	0.0073	0.013	0.042	0.059	0.018	0.015
Cadmium (AAS)	.	.	.	.	.	.	.	.	.	.
Cadmium	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003
Calcium	170	170	160	160	170	170	160	160	110	110
Chromium (AAS)	.	.	.	.	.	.	.	.	.	.
Chromium	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Cobalt	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Copper	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	0.023	<0.004	0.007
Iron	0.015	<0.005	0.014	0.0071	0.022	<0.005	0.037	0.011	0.14	0.0077
Lead (AAS)	.	.	.	.	.	.	.	.	.	.
Lead	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Magnesium	23	23	23	23	25	26	24	24	26	26
Manganese	0.97	0.98	0.94	0.95	1	1	1.1	1.1	0.0073	<0.001
Mercury (CVAA)	.	.	.	.	.	.	.	.	.	.
Molybdenum	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Nickel	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Potassium	3.1	3.1	2.9	2.9	3.2	3.3	2.9	2.9	1.8	1.9
Selenium	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Silver	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006
Sodium	22	22	20	20	21	22	20	20	6.8	7.1
Strontium	0.34	0.34	0.33	0.34	0.37	0.38	0.32	0.32	0.1	0.11
Thorium	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Uranium (Fluor)	0.009	0.01	0.0088	0.0085	0.01	0.01	0.0089	0.0089	0.003	0.001
Vanadium	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Zinc	<0.002	<0.002	0.0045	0.005	<0.002	<0.002	0.009	0.01	<0.002	<0.002
ANIONS (mg/L)	.	.	.	.	.	.	.	.	.	.
Alkalinity-HCO3	330	.	319	.	328	.	320	.	297	.
Alkalinity-CO3	<1	.	<1	.	<1	.	<1	.	<1	.
Chloride	48	.	46	.	52	.	44	.	15	.
Fluoride	0.2	.	0.4	.	0.1	.	0.3	.	<0.1	.
Nitrate-N	37.79	.	34	.	41.99	.	34	.	17.3	.
Sulfate	42.6	.	43	.	40.1	.	43	.	25	.
TSS (mg/L)	<1	.	1	.	<1	.	1	.	7	.
Turbidity (NTU)	1.7	.	0.2	.	0.8	.	0.5	.	6.5	.

(CONTINUED)

Sampling Point . Unit . Location . Date Sampled . Type	GW-738		GW-739				GW-740			
	AQF		AQF				AQF			
	EXP-C		EXP-C				EXP-C			
	12/17/94		03/16/94		12/18/94		03/14/94		12/17/94	
	TOT	DIS	TOT	DIS	TOT	DIS	TOT	DIS	TOT	DIS
METALS (mg/L)	.	.	.	.	.	.	.	.	.	.
Aluminum	1.2	0.072	<0.02	<0.02	0.048	0.051	<0.02	<0.02	0.043	<0.02
Antimony	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Arsenic	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Barium	0.054	0.055	0.04	0.039	0.041	0.04	0.076	0.08	0.087	0.089
Beryllium	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003
Boron	0.043	0.037	0.013	0.012	0.03	0.028	0.019	0.011	0.046	0.018
Cadmium (AAS)	.	.	.	.	.	.	.	.	.	.
Cadmium	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003
Calcium	120	120	62	62	64	65	55	58	65	67
Chromium (AAS)	.	.	.	.	.	.	.	.	.	.
Chromium	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Cobalt	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Copper	<0.004	<0.004	<0.004	0.0086	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004
Iron	0.87	0.0057	0.58	0.06	0.68	0.061	1	0.13	0.17	0.051
Lead (AAS)	.	.	.	.	.	.	.	.	.	.
Lead	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Magnesium	25	23	29	29	28	28	30	31	30	31
Manganese	0.024	<0.001	0.061	0.059	0.03	0.031	0.043	0.038	0.0049	0.0049
Mercury (CVAA)	.	.	.	.	.	.	.	.	.	.
Molybdenum	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Nickel	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Potassium	2.1	2.1	1	1.1	1.2	1.2	1.3	1.6	1.3	1.3
Selenium	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Silver	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006
Sodium	7.7	8.1	2.4	2.5	2.5	2.4	1.7	1.7	2.1	2.1
Strontium	0.12	0.12	0.11	0.11	0.1	0.11	0.045	0.047	0.05	0.051
Thorium	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Uranium (Fluor)	0.0029	0.0034	0.001	0.001	0.00086	0.00074	<0.001	0.001	<0.0005	<0.0005
Vanadium	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Zinc	0.02	0.018	<0.002	<0.002	0.0054	0.0047	<0.002	<0.002	0.0059	0.0071
ANIONS (mg/L)	.	.	.	.	.	.	.	.	.	.
Alkalinity-HCO3	294	.	235	.	240	.	250	.	254	.
Alkalinity-CO3	<1	.	<1	.	<1	.	<1	.	<1	.
Chloride	17	.	6	.	6.5	.	6	.	6.8	.
Fluoride	<0.1	.	0.4	.	0.2	.	0.2	.	0.2	.
Nitrate-N	22	.	7	.	7	.	3.05	.	4.3	.
Sulfate	28	.	13	.	14	.	10.2	.	14	.
TSS (mg/L)	8	.	4	.	3	.	<1	.	<1	.
Turbidity (NTU)	22	.	3.5	.	3	.	8	.	1	.

(CONTINUED)

APPENDIX E.1
Trace Metals and Anions, 1994

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Sampling Point . Unit . Location . Date Sampled . Type	GW-793								GW-794	
	AQT								AQT	
	AGILSF								AGILSF	
	03/22/94		05/25/94		07/28/94		11/02/94		03/23/94	
	TOT	DIS	TOT	DIS	TOT	DIS	TOT	DIS	TOT	DIS
METALS (mg/L)	.	.	.	.	.	.	.	.	.	.
Aluminum	0.12	<0.02	0.42	0.085	<0.02	0.046	1.7	<0.02	0.42	<0.02
Antimony	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Arsenic	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Barium	0.15	0.15	0.15	0.14	0.14	0.14	0.15	0.14	0.13	0.11
Beryllium	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003
Boron	0.035	0.038	0.007	0.027	0.016	0.03	0.01	0.01	0.1	0.072
Cadmium (AAS)	.	.	.	.	.	.	.	.	.	.
Cadmium	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003
Calcium	55	54	52	52	54	52	53	54	92	96
Chromium (AAS)	.	.	.	.	.	.	.	.	.	.
Chromium	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Cobalt	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Copper	0.011	0.0067	0.0051	0.021	<0.004	0.0062	0.0058	<0.004	<0.004	0.005
Iron	0.093	<0.005	0.55	0.016	0.011	0.021	1.8	0.005	0.47	0.025
Lead (AAS)	.	.	.	.	.	.	.	.	.	.
Lead	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Magnesium	4.9	4.8	4.7	4.6	4.7	4.7	4.8	4.5	9.8	9.1
Manganese	0.12	0.035	0.11	0.086	0.086	0.083	0.14	0.076	0.057	0.033
Mercury (CVAA)	.	.	.	.	.	.	.	.	.	.
Molybdenum	<0.01	<0.01	<0.01	0.011	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Nickel	<0.01	<0.01	0.011	0.013	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Potassium	0.7	0.68	0.93	1.2	0.93	1	1.4	0.85	2.9	2.7
Selenium	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Silver	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006
Sodium	4	3.9	3.7	3.7	3.8	3.9	3.7	3.7	3.4	3.5
Strontium	0.1	0.099	0.093	0.093	0.096	0.095	0.091	0.091	0.19	0.19
Thorium	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Uranium (Fluor)	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.015	<0.015	0.001	0.001
Vanadium	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Zinc	0.0067	0.0046	0.024	0.021	0.0056	0.011	0.0082	<0.002	0.016	0.0062
ANIONS (mg/L)	.	.	.	.	.	.	.	.	.	.
Alkalinity-HCO3	153	.	156	.	150	.	151	.	232	.
Alkalinity-CO3	<1	.	<1	.	<1	.	<1	.	<1	.
Chloride	1	.	1	.	1.9	.	1.8	.	9	.
Fluoride	<0.1	.	0.1	.	0.1	.	0.2	.	<0.1	.
Nitrate-N	<0.2	.	<0.2	.	<0.2	.	<0.2	.	0.2	.
Sulfate	4	.	5	.	11	.	9.3	.	25	.
TSS (mg/L)	3	.	12	.	2	.	32	.	9	.
Turbidity (NTU)	2.3	.	12	.	1	.	24	.	9	.

(CONTINUED)

Sampling Point . Unit . Location . Date Sampled . Type	GW-794						GW-795			
	AQT						AQT			
	AGLLSF						AGLLSF			
	05/27/94		08/04/94		11/07/94		03/23/94		05/27/94	
	TOT	DIS	TOT	DIS	TOT	DIS	TOT	DIS	TOT	DIS
METALS (mg/L)	.	.	.	.	.	.	.	.	.	.
Aluminum	0.32	0.12	0.081	<0.02	0.21	0.027	0.041	<0.02	0.22	0.38
Antimony	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Arsenic	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Barium	0.11	0.098	0.11	0.092	0.12	0.13	0.056	0.054	0.056	0.057
Beryllium	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003
Boron	0.052	0.05	0.057	0.061	0.036	0.042	0.026	0.024	0.028	0.024
Cadmium (AAS)	.	.	.	.	.	.	.	.	.	.
Cadmium	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003
Calcium	95	94	97	99	87	87	84	81	78	80
Chromium (AAS)	.	.	.	.	.	.	.	.	.	.
Chromium	<0.01	<0.01	0.012	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Cobalt	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Copper	<0.004	0.0055	0.008	0.0042	0.0051	<0.004	0.0064	<0.004	<0.004	<0.004
Iron	0.24	0.02	0.14	0.01	0.23	0.0069	0.031	<0.005	0.093	0.074
Lead (AAS)	.	.	.	.	.	.	.	.	.	.
Lead	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Magnesium	8.3	7.9	7.1	6.7	9.1	9.6	3.6	3.4	3.7	4.4
Manganese	0.02	0.0039	0.021	0.0045	0.011	0.0048	0.014	0.0017	0.027	0.0053
Mercury (CVAA)	.	.	.	.	.	.	.	.	.	.
Molybdenum	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Nickel	<0.01	0.011	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Potassium	2.6	2.5	2.2	2.1	2.4	2.1	0.65	0.63	1.2	0.95
Selenium	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.05	<0.05
Silver	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	0.0065	<0.006
Sodium	3.6	3.6	3.6	3.8	3	2.9	2.1	2.1	2	2
Strontium	0.18	0.17	0.17	0.17	0.16	0.16	0.14	0.14	0.13	0.14
Thorium	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Uranium (Fluor)	0.001	0.001	<0.001	<0.001	<0.015	<0.015	0.001	0.001	0.001	<0.001
Vanadium	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Zinc	0.078	0.074	0.009	0.0076	0.0093	<0.002	0.0086	0.074	0.17	0.43
ANIONS (mg/L)	.	.	.	.	.	.	.	.	.	.
Alkalinity-HCO3	239	.	235	.	218	.	185	.	192	.
Alkalinity-CO3	<1	.	<1	.	<1	.	<1	.	<1	.
Chloride	12	.	11	.	9.4	.	4	.	4	.
Fluoride	<0.1	.	<0.1	.	<0.1	.	<0.1	.	<0.1	.
Nitrate-N	0.4	.	0.59	.	0.5	.	<0.2	.	<0.2	.
Sulfate	21	.	23	.	23	.	19	.	20	.
TSS (mg/L)	11	.	12	.	2	.	<1	.	<1	.
Turbidity (NTU)	13	.	12	.	6.4	.	1.5	.	2	.

(CONTINUED)

APPENDIX E.1
Trace Metals and Anions, 1994

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Sampling Point . Unit . Location . Date Sampled . Type	GW-795				GW-800					
	AQT				AQF					
	AGLLSF				OLF					
	08/04/94		11/08/94		02/11/94		06/22/94		09/02/94	
	TOT	DIS	TOT	DIS	TOT	DIS	TOT	DIS	TOT	DIS
METALS (mg/L)	.	.	.	.	.	.	.	.	.	.
Aluminum	<0.02	<0.02	0.035	0.042	1.1	0.02	<0.02	<0.02	0.51	0.061
Antimony	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Arsenic	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Barium	0.06	0.058	0.065	0.065	0.063	0.06	0.1	0.1	0.14	0.16
Beryllium	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003
Boron	0.037	0.041	0.044	0.041	0.11	0.024	0.041	0.07	0.042	0.057
Cadmium (AAS)	.	.	.	.	.	.	.	.	.	.
Cadmium	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003
Calcium	83	82	89	89	30	32	49	49	62	68
Chromium (AAS)	.	.	.	.	.	.	.	.	.	.
Chromium	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Cobalt	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Copper	<0.004	<0.004	<0.004	<0.004	0.007	<0.004	<0.004	<0.004	0.0067	0.0041
Iron	0.021	<0.005	0.0094	0.007	0.72	0.012	0.018	<0.005	0.48	<0.005
Lead (AAS)	.	.	.	.	.	.	.	.	.	.
Lead	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Magnesium	3.4	3.4	3.9	3.9	12	12	20	19	25	27
Manganese	0.023	0.023	0.071	0.067	0.0098	<0.001	0.0033	<0.001	0.079	0.0023
Mercury (CVAA)	.	.	.	.	.	.	.	.	.	.
Molybdenum	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Nickel	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Potassium	0.91	0.84	0.99	1.1	1.7	2.5	2	2.4	3.1	3
Selenium	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Silver	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006
Sodium	2	1.9	1.9	2	1	0.89	0.76	0.82	0.94	0.98
Strontium	0.14	0.14	0.15	0.15	0.093	0.094	0.12	0.12	0.23	0.32
Thorium	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Uranium (Fluor)	0.001	0.001	<0.015	<0.015	<0.001	<0.001	<0.001	<0.001	<0.015	<0.015
Vanadium	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Zinc	0.014	0.0074	0.0059	<0.002	0.011	0.0062	0.01	0.0052	0.027	0.018
ANIONS (mg/L)	.	.	.	.	.	.	.	.	.	.
Alkalinity-HCO3	202	.	215	.	121	.	201	.	242	.
Alkalinity-CO3	<1	.	<1	.	<1	.	<1	.	<1	.
Chloride	3.4	.	3.5	.	1	.	<1	.	1.6	.
Fluoride	<0.1	.	<0.1	.	<0.1	.	<0.1	.	<0.1	.
Nitrate-N	<0.2	.	<0.2	.	<0.2	.	<0.2	.	<0.2	.
Sulfate	22	.	21	.	10	.	6.5	.	11	.
TSS (mg/L)	<1	.	<1	.	7	.	78	.	4	.
Turbidity (NTU)	1.2	.	0.4	.	16	.	1.8	.	3.7	.

(CONTINUED)

Trace Metals and Anions, 1994

Sampling Point	GW-800	
.		
Unit	AQF	
.		
Location	OLF	
.		
Date Sampled	12/14/94	
.		
Type	TOT	DIS
METALS (mg/L)	.	.
.	.	.
Aluminum	<0.02	0.2
Antimony	<0.05	<0.05
Arsenic	<0.05	<0.05
Barium	0.1	0.11
Beryllium	<0.0003	<0.0003
Boron	0.021	0.019
Cadmium (AAS)	.	.
Cadmium	<0.003	<0.003
Calcium	52	53
Chromium (AAS)	.	.
Chromium	<0.01	<0.01
Cobalt	<0.005	<0.005
Copper	0.0051	0.0056
Iron	<0.005	0.19
Lead (AAS)	.	.
Lead	<0.05	<0.05
Magnesium	18	19
Manganese	0.002	0.029
Mercury (CVAA)	.	.
Molybdenum	<0.01	<0.01
Nickel	<0.01	<0.01
Potassium	2.6	2.3
Selenium	<0.05	<0.05
Silver	<0.006	<0.006
Sodium	0.71	0.73
Strontium	0.13	0.14
Thorium	<0.2	<0.2
Uranium (Fluor)	<0.0005	<0.0005
Vanadium	<0.005	<0.005
Zinc	0.0076	0.016
.	.	.
ANIONS (mg/L)	.	.
.	.	.
Alkalinity-HCO ₃	203	.
Alkalinity-CO ₃	<1	.
Chloride	2.3	.
Fluoride	<0.1	.
Nitrate-N	<0.2	.
Sulfate	12	.
.	.	.
TSS (mg/L)	14	.
Turbidity (NTU)	17	.

APPENDIX E.1
Trace Metals and Anions, 1994

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Sampling Point . Unit . Location . Date Sampled . Type	BCK-00.63				BCK-04.55				BCK-09.40	
	CREEK				CREEK				CREEK	
	EXP-SW				EXP-SW				EXP-SW	
	02/14/94		09/06/94		02/14/94		09/06/94		02/14/94	
	TOT	DIS	TOT	DIS	TOT	DIS	TOT	DIS	TOT	DIS
METALS (mg/L)	.	.	.	.	.	.	.	.	.	.
Aluminum	0.53	0.11	<0.02	<0.02	0.55	0.53	0.12	<0.02	0.49	0.39
Antimony	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Arsenic	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Barium	0.041	0.038	0.068	0.068	0.042	0.041	0.071	0.067	0.069	0.069
Beryllium	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003
Boron	0.071	0.066	0.067	0.066	0.13	0.047	0.07	0.074	0.1	0.082
Cadmium (AAS)	.	.	.	.	.	.	.	.	.	.
Cadmium	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003
Calcium	27	26	51	51	29	28	55	54	47	49
Chromium (AAS)	.	.	.	.	.	.	.	.	.	.
Chromium	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Cobalt	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Copper	<0.004	0.007	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	0.0073
Iron	0.61	0.14	<0.005	<0.005	0.39	0.42	0.1	<0.005	0.36	0.29
Lead (AAS)	.	.	.	.	.	.	.	.	.	.
Lead	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Magnesium	8.1	7.8	14	14	9.1	8.9	14	14	10	10
Manganese	0.021	0.018	0.019	0.023	0.021	0.02	0.092	0.04	0.059	0.061
Mercury (CVAA)	.	.	.	.	.	.	.	.	.	.
Molybdenum	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Nickel	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Potassium	0.7	<0.6	1.9	1.9	1.2	0.77	2.1	1.6	1.3	1.6
Selenium	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Silver	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006
Sodium	3.5	3.3	5.3	5.4	3.8	3.8	5.3	5.3	8.6	8.6
Strontium	0.045	0.043	0.092	0.092	0.047	0.048	0.095	0.095	0.11	0.11
Thorium	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Uranium (Fluor)	0.025	0.026	0.032	0.03	0.033	0.033	0.031	0.035	0.152	0.153
Vanadium	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Zinc	<0.002	<0.002	<0.002	<0.002	0.0038	0.0057	<0.002	<0.002	<0.002	0.0022
ANIONS (mg/L)	.	.	.	.	.	.	.	.	.	.
Alkalinity-HCO3	85	.	164	.	91	.	173	.	114	.
Alkalinity-CO3	<1	.	<1	.	<1	.	<1	.	<1	.
Chloride	6.1	.	8.4	.	6.9	.	8.3	.	14.8	.
Fluoride	0.1	.	<0.1	.	<0.1	.	0.1	.	0.3	.
Nitrate-N	1.31	.	3.6	.	1.56	.	3.9	.	6.62	.
Sulfate	7.8	.	10	.	8.4	.	10	.	22.6	.
TSS (mg/L)	7	.	2	.	6	.	16	.	4	.
Turbidity (NTU)	8.5	.	1.5	.	8.1	.	1.2	.	6.5	.

(CONTINUED)

Sampling Point	BCK-09.40		BCK-11.97				NT-01			
Unit	CREEK		CREEK				CREEK			
Location	EXP-SW		EXP-SW				EXP-SW			
Date Sampled	09/06/94		02/14/94		09/06/94		02/14/94		09/07/94	
Type	TOT	DIS	TOT	DIS	TOT	DIS	TOT	DIS	TOT	DIS
METALS (mg/L)	.	.	.	.	.	.	.	.	.	.
Aluminum	0.039	0.021	0.22	0.24	0.034	0.04	0.75	0.69	0.37	0.34
Antimony	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Arsenic	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Barium	0.12	0.12	0.18	0.17	0.49	0.46	0.34	0.34	1.1	0.91
Beryllium	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	0.00049	0.00045
Boron	0.34	0.34	0.062	0.081	0.08	0.067	0.046	0.043	0.069	0.09
Cadmium (AAS)	.	.	.	.	.	.	.	.	.	.
Cadmium	<0.003	<0.003	0.0038	0.0055	<0.003	<0.003	0.012	0.012	0.032	0.026
Calcium	84	83	130	130	270	250	120	120	340	310
Chromium (AAS)	.	.	.	.	.	.	.	.	.	.
Chromium	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Cobalt	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.013	0.01
Copper	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004
Iron	0.099	0.13	0.11	0.15	<0.005	<0.005	0.26	0.22	<0.005	<0.005
Lead (AAS)	.	.	.	.	.	.	.	.	.	.
Lead	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Magnesium	16	15	16	16	36	34	16	16	44	39
Manganese	0.051	0.06	0.8	0.8	0.81	0.76	2.1	2.2	5.9	4.8
Mercury (CVAA)	.	.	.	.	.	.	.	.	.	.
Molybdenum	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Nickel	<0.01	<0.01	0.018	0.017	0.02	0.014	0.048	0.054	0.12	0.1
Potassium	3.8	3.9	2.3	2.7	5.8	5.5	1.9	1.9	8.1	7.7
Selenium	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Silver	<0.006	<0.006	0.0068	0.0077	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006
Sodium	13	13	47	46	53	50	16	16	39	35
Strontium	0.22	0.22	0.34	0.33	0.76	0.72	0.33	0.33	1	0.91
Thorium	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Uranium (Fluor)	0.139	0.164	0.15	0.158	0.324	0.288	0.013	0.012	0.03	0.042
Vanadium	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Zinc	0.0033	0.0094	0.0024	0.0069	<0.002	<0.002	0.0069	0.0081	0.014	0.021
ANIONS (mg/L)	.	.	.	.	.	.	.	.	.	.
Alkalinity-HCO3	190	.	190	.	247	.	90	.	170	.
Alkalinity-CO3	<1	.	<1	.	<1	.	<1	.	<1	.
Chloride	23	.	81	.	62	.	18	.	22	.
Fluoride	0.3	.	0.5	.	1	.	0.6	.	1.8	.
Nitrate-N	22	.	44.66	.	160	.	83.62	.	228	.
Sulfate	20	.	56.7	.	50	.	19.9	.	38	.
TSS (mg/L)	2	.	3	.	2	.	8	.	5	.
Turbidity (NTU)	2.4	.	3.1	.	0.6	.	8.4	.	1.5	.

(CONTINUED)

APPENDIX E.1
Trace Metals and Anions, 1994

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Sampling Point . Unit . Location . Date Sampled . Type	NT-13				SS-1				SS-4	
	CREEK				SPRING				SPRING	
	EXP-SW				EXP-SW				EXP-SW	
	02/14/94		09/06/94		02/14/94		09/07/94		02/14/94	
	TOT	DIS	TOT	DIS	TOT	DIS	TOT	DIS	TOT	DIS
METALS (mg/L)	.	.	.	.	.	.	.	.	.	.
Aluminum	0.58	0.17	0.32	0.053	0.12	0.025	0.1	0.046	0.29	0.36
Antimony	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Arsenic	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Barium	0.034	0.033	0.086	0.083	0.081	0.085	0.1	0.098	0.079	0.078
Beryllium	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003
Boron	0.023	0.081	0.026	0.051	0.09	0.081	0.05	0.059	0.04	0.16
Cadmium (AAS)	.	.	.	.	.	.	.	.	.	.
Cadmium	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003
Calcium	4.2	4.1	23	23	190	190	190	190	57	55
Chromium (AAS)	.	.	.	.	.	.	.	.	.	.
Chromium	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Cobalt	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Copper	0.0064	0.0067	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	0.0084
Iron	0.41	0.22	1.2	0.85	0.13	<0.005	0.047	<0.005	0.46	0.47
Lead (AAS)	.	.	.	.	.	.	.	.	.	.
Lead	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Magnesium	1.2	1.1	3.5	3.8	18	18	18	18	18	17
Manganese	0.03	0.029	0.29	0.27	0.34	0.012	0.018	0.02	0.22	0.23
Mercury (CVAA)	.	.	.	.	.	.	.	.	.	.
Molybdenum	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Nickel	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Potassium	1.3	1.3	2.4	2.3	3.3	3.4	3.8	4	<0.6	1.2
Selenium	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Silver	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006
Sodium	1.4	1.5	6.4	6.4	12	12	19	19	7.2	7.3
Strontium	0.017	0.017	0.091	0.09	0.47	0.48	0.5	0.49	0.093	0.092
Thorium	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Uranium (Fluor)	<0.001	<0.001	<0.015	0.002	0.044	0.044	0.032	0.04	0.046	0.042
Vanadium	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Zinc	0.0029	0.0053	<0.002	0.0038	0.017	0.0021	0.0028	0.0056	<0.002	0.0026
ANIONS (mg/L)	.	.	.	.	.	.	.	.	.	.
Alkalinity-HCO3	11	.	80	.	334	.	342	.	181	.
Alkalinity-CO3	<1	.	<1	.	<1	.	<1	.	<1	.
Chloride	1	.	1.3	.	33	.	62	.	14.2	.
Fluoride	<0.1	.	0.1	.	0.2	.	0.2	.	0.2	.
Nitrate-N	<0.2	.	<0.2	.	17.77	.	30	.	3.12	.
Sulfate	6.2	.	6.2	.	99	.	60	.	11.3	.
TSS (mg/L)	6	.	10	.	3	.	8	.	14	.
Turbidity (NTU)	8.6	.	6	.	1	.	2.5	.	4.8	.

(CONTINUED)

APPENDIX E.1
Trace Metals and Anions, 1994

47

Sampling Point . Unit . Location . Date Sampled . Type	SS-4		SS-5			
	SPRING		SPRING			
	EXP-SW		EXP-SW			
	09/06/94		02/14/94		09/06/94	
	TOT	DIS	TOT	DIS	TOT	DIS
METALS (mg/L)	.	.	.	.	.	.
	.	.	.	.	.	.
Aluminum	0.097	0.046	0.36	0.35	0.058	0.02
Antimony	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Arsenic	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Barium	0.18	0.17	0.036	0.038	0.1	0.1
Beryllium	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003
Boron	0.18	0.21	0.019	0.063	0.099	0.096
Cadmium (AAS)	.	.	.	.	.	.
Cadmium	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003
Calcium	120	120	26	27	77	77
Chromium (AAS)	.	.	.	.	.	.
Chromium	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Cobalt	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Copper	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004
Iron	0.067	<0.005	0.28	0.4	<0.005	<0.005
Lead (AAS)	.	.	.	.	.	.
Lead	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Magnesium	24	23	12	13	17	17
Manganese	0.039	0.028	0.012	0.013	0.0023	0.0036
Mercury (CVAA)	.	.	.	.	.	.
Molybdenum	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Nickel	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Potassium	3.9	3.8	<0.6	<0.6	2	2.2
Selenium	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Silver	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006
Sodium	21	20	2.4	2.6	10	10
Strontium	0.33	0.33	0.025	0.026	0.17	0.17
Thorium	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Uranium (Fluor)	0.198	0.151	0.005	0.005	0.095	0.115
Vanadium	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Zinc	<0.002	<0.002	<0.002	<0.002	0.0024	<0.002
	.	.	.	.	.	.
ANIONS (mg/L)	.	.	.	.	.	.
	.	.	.	.	.	.
Alkalinity-HCO3	240	.	110	.	190	.
Alkalinity-CO3	<1	.	<1	.	<1	.
Chloride	30	.	6.1	.	17	.
Fluoride	0.5	.	<0.1	.	0.3	.
Nitrate-N	37	.	0.65	.	17	.
Sulfate	31	.	4	.	20	.
	.	.	.	.	.	.
TSS (mg/L)	5	.	5	.	2	.
Turbidity (NTU)	1.5	.	6.9	.	1.4	.

APPENDIX E.2
VOLATILE ORGANIC COMPOUNDS

APPENDIX E.2

Summary of VOCs Detected in Groundwater and Surface Water Samples

	Number of Samples				Total
	First Quarter	Second Quarter	Third Quarter	Fourth Quarter	
Total Samples	80	37	61	51	229
Samples without VOCs	45	24	43	29	141
Samples with VOCs	35	13	18	22	88
Compound					
Acetone	1	0	2	2	5
Benzene	1	0	0	0	1
Bromodichloromethane	1	1	0	1	3
Bromoform	0	0	0	0	0
Bromomethane	0	0	0	0	0
2-Butanone	0	0	2	3	5
Carbon disulfide	0	0	0	0	0
Carbon tetrachloride	6	2	1	2	11
Chlorobenzene	0	0	0	0	0
Chlorodibromomethane	0	0	0	0	0
Chloroethane	0	0	0	0	0
Chloroform	7	6	5	6	24
Chloromethane	0	0	0	0	0
1,1-Dichloroethane	3	2	2	3	10
1,2-Dichloroethane	0	0	0	0	0
1,1-Dichloroethene	2	0	0	2	4
1,2-Dichloroethene	19	4	9	17	49
1,2-Dichloropropane	0	0	0	0	0
cis-1,3-Dichloropropene	0	0	0	0	0
trans-1,3-Dichloropropene	0	0	0	0	0
Ethylbenzene	0	0	0	0	0
2-Hexanone	0	0	0	0	0
4-Methyl-2-pentanone	0	0	0	0	0
Methylene chloride	11	0	1	0	12
Styrene	0	0	0	0	0
1,1,2,2-Tetrachloroethane	0	0	0	0	0
Tetrachloroethene	17	6	6	6	35
Toluene	0	0	0	0	0
1,1,1-Trichloroethane	4	1	0	1	6
1,1,2-Trichloroethane	0	0	0	0	0
Trichloroethene	24	9	9	19	61
Vinyl acetate	0	0	0	0	0
Vinyl chloride	2	2	2	1	7
Xylenes	0	0	0	0	0

APPENDIX E.2
Volatile Organic Compounds, 1994

1

Sampling Point . Unit . Location . Date Sampled	GW-040				GW-042			
	AQT				AQT			
	BG				BG			
	03/08/94	05/17/94	08/22/94	11/09/94	03/11/94	05/17/94	08/23/94	11/23/94
Acetone	10U	10U	10U	10U	10U	10U	10U	10U
Benzene	5U	10U	10U	10U	5U	10U	10U	10U
Bromodichloromethane	5U	10U	10U	10U	5U	10U	10U	10U
Bromoform	5U	10U	10U	10U	5U	10U	10U	10U
Bromomethane	10U	10U	10U	10U	10U	10U	10U	10U
2-Butanone	10U	10U	10U	10U	10U	10U	10U	9
Carbon disulfide	5U	10U	10U	10U	5U	10U	10U	10U
Carbon tetrachloride	5U	10U	10U	10U	5U	10U	10U	10U
Chlorobenzene	5U	10U	10U	10U	5U	10U	10U	10U
Chlorodibromomethane	5U	10U	10U	10U	5U	10U	10U	10U
Chloroethane	10U	10U	10U	10U	10U	10U	10U	10U
Chloroform	5U	10U	10U	10U	5U	10U	10U	10U
Chloromethane	10U	10U	10U	10U	10U	10U	10U	10U
1,1-Dichloroethane	5U	10U	10U	10U	5U	10U	10U	10U
1,2-Dichloroethane	5U	10U	10U	10U	5U	10U	10U	10U
1,1-Dichloroethene	5U	10U	10U	10U	5U	10U	10U	10U
1,2-Dichloroethene	5U	10U	10U	10U	5U	10U	10U	10U
trans-1,2-Dichloroethene	.	.	.	.	.	.	.	.
1,2-Dichloropropane	5U	10U	10U	10U	5U	10U	10U	10U
cis-1,3-Dichloropropene	5U	10U	10U	10U	5U	10U	10U	10U
trans-1,3-Dichloropropene	5U	10U	10U	10U	5U	10U	10U	10U
Ethylbenzene	5U	10U	10U	10U	5U	10U	10U	10U
2-Hexanone	10U	10U	10U	10U	10U	10U	10U	10U
4-Methyl-2-pentanone	10U	10U	10U	10U	10U	10U	10U	10U
Methylene chloride	5U	10U	10U	10U	1	10U	10U	10U
Styrene	5U	10U	10U	10U	5U	10U	10U	10U
1,1,2,2-Tetrachloroethane	5U	10U	10U	10U	5U	10U	10U	10U
Tetrachloroethene	5U	10U	10U	10U	5U	10U	10U	10U
Toluene	5U	10U	10U	10U	5U	10U	10U	10U
1,1,1-Trichloroethane	5U	10U	10U	10U	5U	10U	10U	10U
1,1,2-Trichloroethane	5U	10U	10U	10U	5U	10U	10U	10U
Trichloroethene	5U	10U	10U	10U	5U	10U	10U	10U
Vinyl acetate	10U	10U	10U	10U	10U	10U	10U	10U
Vinyl chloride	10U	10U	10U	10U	10U	10U	10U	10U
Xylenes	5U	10U	10U	10U	5U	10U	10U	10U

(CONTINUED)

APPENDIX E.2
Volatile Organic Compounds, 1994

2

Sampling Point . Unit . Location . Date Sampled	GW-043				GW-044			
	AQT				AQT			
	OLF				OLF			
	02/08/94	06/21/94	08/31/94	11/30/94	02/08/94	06/21/94	08/31/94	11/30/94
Acetone	10U	10U	10U	10U	10U	10U	10U	10U
Benzene	5U	10U	10U	10U	5U	10U	10U	10U
Bromodichloromethane	5U	10U	10U	10U	5U	10U	10U	10U
Bromoform	5U	10U	10U	10U	5U	10U	10U	10U
Bromomethane	10U	10U	10U	10U	10U	10U	10U	10U
2-Butanone	10U	10U	10U	10U	10U	10U	10U	10U
Carbon disulfide	5U	10U	10U	10U	5U	10U	10U	10U
Carbon tetrachloride	5U	10U	10U	10U	5U	10U	10U	10U
Chlorobenzene	5U	10U	10U	10U	5U	10U	10U	10U
Chlorodibromomethane	5U	10U	10U	10U	5U	10U	10U	10U
Chloroethane	10U	10U	10U	10U	10U	10U	10U	10U
Chloroform	5U	10U	10U	10U	5U	10U	10U	10U
Chloromethane	10U	10U	10U	10U	10U	10U	10U	10U
1,1-Dichloroethane	5U	10U	10U	10U	5U	10U	10U	10U
1,2-Dichloroethane	5U	10U	10U	10U	5U	10U	10U	10U
1,1-Dichloroethene	5U	10U	10U	10U	5U	10U	10U	10U
1,2-Dichloroethene	5U	10U	10U	10U	5U	10U	10U	10U
trans-1,2-Dichloroethene	.	.	.	.	.	.	.	.
1,2-Dichloropropane	5U	10U	10U	10U	5U	10U	10U	10U
cis-1,3-Dichloropropene	5U	10U	10U	10U	5U	10U	10U	10U
trans-1,3-Dichloropropene	5U	10U	10U	10U	5U	10U	10U	10U
Ethylbenzene	5U	10U	10U	10U	5U	10U	10U	10U
2-Hexanone	10U	10U	10U	10U	10U	10U	10U	10U
4-Methyl-2-pentanone	10U	10U	10U	10U	10U	10U	10U	10U
Methylene chloride	5U	10U	10U	10U	5U	10U	10U	10U
Styrene	5U	10U	10U	10U	5U	10U	10U	10U
1,1,2,2-Tetrachloroethane	5U	10U	10U	10U	5U	10U	10U	10U
Tetrachloroethene	5U	10U	10U	10U	5U	10U	10U	10U
Toluene	5U	10U	10U	10U	5U	10U	10U	10U
1,1,1-Trichloroethane	5U	10U	10U	10U	5U	10U	10U	10U
1,1,2-Trichloroethane	5U	10U	10U	10U	5U	10U	10U	10U
Trichloroethene	5U	10U	10U	10U	5U	10U	10U	10U
Vinyl acetate	10U	10U	10U	10U	10U	10U	10U	10U
Vinyl chloride	10U	10U	10U	10U	10U	10U	10U	10U
Xylenes	5U	10U	10U	10U	5U	10U	10U	10U

(CONTINUED)

APPENDIX E.2
Volatile Organic Compounds, 1994

3

Sampling Point . Unit . Location . Date Sampled	GW-047				GW-053			
	AQT				AQF			
	BG				BG			
	03/24/94	05/31/94	08/09/94	11/08/94	03/10/94	06/24/94	09/15/94	12/12/94
Acetone	10U	10U	10U	10U	10U	10U	6	10U
Benzene	5U	10U	10U	10U	5U	10U	10U	10U
Bromodichloromethane	5U	10U	10U	10U	5U	10U	10U	10U
Bromoform	5U	10U	10U	10U	5U	10U	10U	10U
Bromomethane	10U	10U	10U	10U	10U	10U	10U	10U
2-Butanone	10U	10U	10U	10U	10U	10U	16	10U
Carbon disulfide	5U	10U	10U	10U	5U	10U	10U	10U
Carbon tetrachloride	5U	10U	10U	10U	5U	10U	10U	10U
Chlorobenzene	5U	10U	10U	10U	5U	10U	10U	10U
Chlorodibromomethane	5U	10U	10U	10U	5U	10U	10U	10U
Chloroethane	10U	10U	10U	10U	10U	10U	10U	10U
Chloroform	5U	10U	10U	10U	5U	10U	10U	10U
Chloromethane	10U	10U	10U	10U	10U	10U	10U	10U
1,1-Dichloroethane	5U	10U	10U	10U	6	7	8	8
1,2-Dichloroethane	5U	10U	10U	10U	5U	10U	10U	10U
1,1-Dichloroethene	5U	10U	10U	10U	5U	10U	10U	10U
1,2-Dichloroethene	5U	10U	10U	10U	10	15	18	18
trans-1,2-Dichloroethene	.	.	.	.	.	.	.	.
1,2-Dichloropropane	5U	10U	10U	10U	5U	10U	10U	10U
cis-1,3-Dichloropropene	5U	10U	10U	10U	5U	10U	10U	10U
trans-1,3-Dichloropropene	5U	10U	10U	10U	5U	10U	10U	10U
Ethylbenzene	5U	10U	10U	10U	5U	10U	10U	10U
2-Hexanone	10U	10U	10U	10U	10U	10U	10U	10U
4-Methyl-2-pentanone	10U	10U	10U	10U	10U	10U	10U	10U
Methylene chloride	5U	10U	10U	10U	5U	10U	10U	10U
Styrene	5U	10U	10U	10U	5U	10U	10U	10U
1,1,2,2-Tetrachloroethane	5U	10U	10U	10U	5U	10U	10U	10U
Tetrachloroethene	5U	10U	10U	10U	5U	0.7	1	1
Toluene	5U	10U	10U	10U	5U	10U	10U	10U
1,1,1-Trichloroethane	5U	10U	10U	10U	5U	10U	10U	10U
1,1,2-Trichloroethane	5U	10U	10U	10U	5U	10U	10U	10U
Trichloroethene	5U	10U	10U	10U	1	2	3	3
Vinyl acetate	10U	10U	10U	10U	10U	10U	10U	10U
Vinyl chloride	10U	10U	10U	10U	8	11	7	9
Xylenes	5U	10U	10U	10U	5U	10U	10U	10U

(CONTINUED)

APPENDIX E.2
Volatile Organic Compounds, 1994

4

Sampling Point . Unit . Location . Date Sampled	GW-056		GW-057		GW-061			
	AQF		AQF		AQF			
	EXP-A		EXP-A		BG			
	02/26/94	09/14/94	02/26/94	09/14/94	03/21/94	06/24/94	09/15/94	12/12/94
Acetone	10U	10U	10U	10U	10U	10U	6	10U
Benzene	5U	10U	5U	10U	5U	10U	10U	10U
Bromodichloromethane	5U	10U	5U	10U	5U	10U	10U	10U
Bromoform	5U	10U	5U	10U	5U	10U	10U	10U
Bromomethane	10U	10U	10U	10U	10U	10U	10U	10U
2-Butanone	10U	10U	10U	10U	10U	10U	8	10U
Carbon disulfide	5U	10U	5U	10U	5U	10U	10U	10U
Carbon tetrachloride	5U	10U	5U	10U	5U	10U	10U	10U
Chlorobenzene	5U	10U	5U	10U	5U	10U	10U	10U
Chlorodibromomethane	5U	10U	5U	10U	5U	10U	10U	10U
Chloroethane	10U	10U	10U	10U	10U	10U	10U	10U
Chloroform	5U	10U	5U	10U	5U	10U	10U	10U
Chloromethane	10U	10U	10U	10U	10U	10U	10U	10U
1,1-Dichloroethane	5U	10U	5U	10U	5U	10U	10U	10U
1,2-Dichloroethane	5U	10U	5U	10U	5U	10U	10U	10U
1,1-Dichloroethene	5U	10U	5U	10U	5U	10U	10U	10U
1,2-Dichloroethene	5U	10U	5U	10U	5U	10U	10U	10U
trans-1,2-Dichloroethene	.	.	.	.	.	.	.	.
1,2-Dichloropropane	5U	10U	5U	10U	5U	10U	10U	10U
cis-1,3-Dichloropropene	5U	10U	5U	10U	5U	10U	10U	10U
trans-1,3-Dichloropropene	5U	10U	5U	10U	5U	10U	10U	10U
Ethylbenzene	5U	10U	5U	10U	5U	10U	10U	10U
2-Hexanone	10U	10U	10U	10U	10U	10U	10U	10U
4-Methyl-2-pentanone	10U	10U	10U	10U	10U	10U	10U	10U
Methylene chloride	5U	10U	5U	10U	5U	10U	10U	10U
Styrene	5U	10U	5U	10U	5U	10U	10U	10U
1,1,2,2-Tetrachloroethane	5U	10U	5U	10U	5U	10U	10U	10U
Tetrachloroethene	5U	10U	5U	10U	5U	10U	10U	10U
Toluene	5U	10U	5U	10U	5U	10U	10U	10U
1,1,1-Trichloroethane	5U	10U	5U	10U	5U	10U	10U	10U
1,1,2-Trichloroethane	5U	10U	5U	10U	5U	10U	10U	10U
Trichloroethene	5U	10U	5U	10U	5U	0.7	10U	10U
Vinyl acetate	10U	10U	10U	10U	10U	10U	10U	10U
Vinyl chloride	10U	10U	10U	10U	10U	10U	10U	10U
Xylenes	5U	10U	5U	10U	5U	10U	10U	10U

(CONTINUED)

APPENDIX E.2
Volatile Organic Compounds, 1994

5

Sampling Point . Unit . Location . Date Sampled	GW-064				GW-069			
	AQF				AQT			
	OLF				BG			
	02/10/94	06/23/94	09/01/94	12/15/94	03/11/94	06/08/94	09/09/94	12/06/94
Acetone	10U	10U	10U	10U	10U	10U	10U	10U
Benzene	5U	10U	10U	10U	5U	10U	10U	10U
Bromodichloromethane	5U	10U	10U	10U	5U	10U	10U	10U
Bromoform	5U	10U	10U	10U	5U	10U	10U	10U
Bromomethane	10U	10U	10U	10U	10U	10U	10U	10U
2-Butanone	10U	10U	10U	10U	10U	10U	10U	10U
Carbon disulfide	5U	10U	10U	10U	5U	10U	10U	10U
Carbon tetrachloride	2	1	10U	2	5U	10U	10U	10U
Chlorobenzene	5U	10U	10U	10U	5U	10U	10U	10U
Chlorodibromomethane	5U	10U	10U	10U	5U	10U	10U	10U
Chloroethane	10U	10U	10U	10U	10U	10U	10U	10U
Chloroform	2	2	10U	2	5U	10U	10U	10U
Chloromethane	10U	10U	10U	10U	10U	10U	10U	10U
1,1-Dichloroethane	5U	10U	10U	10U	5U	10U	10U	10U
1,2-Dichloroethane	5U	10U	10U	10U	5U	10U	10U	10U
1,1-Dichloroethene	5U	10U	10U	10U	5U	10U	10U	10U
1,2-Dichloroethene	6	5	6	7	5U	10U	10U	10U
trans-1,2-Dichloroethene	.	.	.	.	.	.	.	.
1,2-Dichloropropane	5U	10U	10U	10U	5U	10U	10U	10U
cis-1,3-Dichloropropene	5U	10U	10U	10U	5U	10U	10U	10U
trans-1,3-Dichloropropene	5U	10U	10U	10U	5U	10U	10U	10U
Ethylbenzene	5U	10U	10U	10U	5U	10U	10U	10U
2-Hexanone	10U	10U	10U	10U	10U	10U	10U	10U
4-Methyl-2-pentanone	10U	10U	10U	10U	10U	10U	10U	10U
Methylene chloride	5U	10U	10U	10U	5U	10U	10U	10U
Styrene	5U	10U	10U	10U	5U	10U	10U	10U
1,1,2,2-Tetrachloroethane	5U	10U	10U	10U	5U	10U	10U	10U
Tetrachloroethene	2	1	10U	10U	5U	10U	10U	10U
Toluene	5U	10U	10U	10U	5U	10U	10U	10U
1,1,1-Trichloroethane	0.8	0.7	10U	10U	5U	10U	10U	10U
1,1,2-Trichloroethane	5U	10U	10U	10U	5U	10U	10U	10U
Trichloroethene	84	64	81	78	5U	10U	10U	10U
Vinyl acetate	10U	10U	10U	10U	10U	10U	10U	10U
Vinyl chloride	10U	10U	10U	10U	2	2	2	10U
Xylenes	5U	10U	10U	10U	5U	10U	10U	10U

(CONTINUED)

APPENDIX E.2
Volatile Organic Compounds, 1994

6

Sampling Point . Unit . Location . Date Sampled	GW-079				GW-080			
	AQT				AQT			
	BG				BG			
	03/09/94	06/07/94	09/12/94	12/06/94	03/09/94	06/07/94	09/09/94	12/06/94
Acetone	10U	10U	10U	10U	10U	10U	10U	10U
Benzene	5U	10U	10U	10U	5U	10U	10U	10U
Bromodichloromethane	5U	10U	10U	10U	5U	10U	10U	10U
Bromoform	5U	10U	10U	10U	5U	10U	10U	10U
Bromomethane	10U	10U	10U	10U	10U	10U	10U	10U
2-Butanone	10U	10U	10U	10U	10U	10U	10U	10U
Carbon disulfide	5U	10U	10U	10U	5U	10U	10U	10U
Carbon tetrachloride	5U	10U	10U	10U	5U	10U	10U	10U
Chlorobenzene	5U	10U	10U	10U	5U	10U	10U	10U
Chlorodibromomethane	5U	10U	10U	10U	5U	10U	10U	10U
Chloroethane	10U	10U	10U	10U	10U	10U	10U	10U
Chloroform	5U	10U	10U	10U	5U	10U	10U	10U
Chloromethane	10U	10U	10U	10U	10U	10U	10U	10U
1,1-Dichloroethane	5U	10U	10U	10U	5U	10U	10U	10U
1,2-Dichloroethane	5U	10U	10U	10U	5U	10U	10U	10U
1,1-Dichloroethene	5U	10U	10U	10U	5U	10U	10U	10U
1,2-Dichloroethene	5U	10U	10U	10U	5U	10U	10U	10U
trans-1,2-Dichloroethene	.	.	.	.	.	.	.	.
1,2-Dichloropropane	5U	10U	10U	10U	5U	10U	10U	10U
cis-1,3-Dichloropropene	5U	10U	10U	10U	5U	10U	10U	10U
trans-1,3-Dichloropropene	5U	10U	10U	10U	5U	10U	10U	10U
Ethylbenzene	5U	10U	10U	10U	5U	10U	10U	10U
2-Hexanone	10U	10U	10U	10U	10U	10U	10U	10U
4-Methyl-2-pentanone	10U	10U	10U	10U	10U	10U	10U	10U
Methylene chloride	5U	10U	10U	10U	5U	10U	10U	10U
Styrene	5U	10U	10U	10U	5U	10U	10U	10U
1,1,2,2-Tetrachloroethane	5U	10U	10U	10U	5U	10U	10U	10U
Tetrachloroethene	5U	10U	10U	10U	5U	10U	10U	10U
Toluene	5U	10U	10U	10U	5U	10U	10U	10U
1,1,1-Trichloroethane	5U	10U	10U	10U	5U	10U	10U	10U
1,1,2-Trichloroethane	5U	10U	10U	10U	5U	10U	10U	10U
Trichloroethene	5U	10U	10U	10U	5U	10U	10U	10U
Vinyl acetate	10U	10U	10U	10U	10U	10U	10U	10U
Vinyl chloride	10U	10U	10U	10U	10U	10U	10U	10U
Xylenes	5U	10U	10U	10U	5U	10U	10U	10U

(CONTINUED)

APPENDIX E.2
Volatile Organic Compounds, 1994

7

Sampling Point . Unit . Location . Date Sampled	GW-084				GW-085			
	AQT				AQT			
	OLF				OLF			
	02/08/94	06/21/94	09/01/94	11/30/94	02/11/94	06/24/94	09/07/94	12/15/94
Acetone	10U	10U	10U	10U	10U	10U	10U	10U
Benzene	5U	10U	10U	10U	5U	10U	10U	10U
Bromodichloromethane	5U	10U	10U	10U	5U	3	10U	2
Bromoform	5U	10U	10U	10U	5U	10U	10U	10U
Bromomethane	10U	10U	10U	10U	10U	10U	10U	10U
2-Butanone	10U	10U	10U	10U	10U	10U	10U	10U
Carbon disulfide	5U	10U	10U	10U	5U	10U	10U	10U
Carbon tetrachloride	5U	10U	10U	10U	5U	10U	10U	10U
Chlorobenzene	5U	10U	10U	10U	5U	10U	10U	10U
Chlorodibromomethane	5U	10U	10U	10U	5U	10U	10U	10U
Chloroethane	10U	10U	10U	10U	10U	10U	10U	10U
Chloroform	5U	10U	10U	10U	5U	25	10U	15
Chloromethane	10U	10U	10U	10U	10U	10U	10U	10U
1,1-Dichloroethane	5U	10U	10U	10U	5U	10U	10U	10U
1,2-Dichloroethane	5U	10U	10U	10U	5U	10U	10U	10U
1,1-Dichloroethene	5U	10U	10U	10U	5U	10U	10U	10U
1,2-Dichloroethene	5U	10U	10U	10U	5U	10U	10U	10U
trans-1,2-Dichloroethene	.	.	.	.	.	.	.	.
1,2-Dichloropropane	5U	10U	10U	10U	5U	10U	10U	10U
cis-1,3-Dichloropropene	5U	10U	10U	10U	5U	10U	10U	10U
trans-1,3-Dichloropropene	5U	10U	10U	10U	5U	10U	10U	10U
Ethylbenzene	5U	10U	10U	10U	5U	10U	10U	10U
2-Hexanone	10U	10U	10U	10U	10U	10U	10U	10U
4-Methyl-2-pentanone	10U	10U	10U	10U	10U	10U	10U	10U
Methylene chloride	1	10U	10U	10U	5U	10U	10U	10U
Styrene	5U	10U	10U	10U	5U	10U	10U	10U
1,1,2,2-Tetrachloroethane	5U	10U	10U	10U	5U	10U	10U	10U
Tetrachloroethene	5U	10U	10U	10U	5U	10U	10U	10U
Toluene	5U	10U	10U	10U	5U	10U	10U	10U
1,1,1-Trichloroethane	5U	10U	10U	10U	5U	10U	10U	10U
1,1,2-Trichloroethane	5U	10U	10U	10U	5U	10U	10U	10U
Trichloroethene	5U	10U	10U	10U	5U	10U	10U	10U
Vinyl acetate	10U	10U	10U	10U	10U	10U	10U	10U
Vinyl chloride	10U	10U	10U	10U	10U	10U	10U	10U
Xylenes	5U	10U	10U	10U	5U	10U	10U	10U

(CONTINUED)

APPENDIX E.2
Volatile Organic Compounds, 1994

8

Sampling Point . Unit . Location . Date Sampled	GW-095				GW-115		GW-162	
	AQF				AQT		AQT	
	BG				S3		BG	
	03/10/94	06/28/94	09/12/94	12/05/94	02/17/94	08/15/94	03/08/94	05/18/94
Acetone	10U	10U	10U	10U	10U	10U	10U	10U
Benzene	5U	10U	10U	10U	5U	10U	5U	10U
Bromodichloromethane	5U	10U	10U	10U	5U	10U	5U	10U
Bromoform	5U	10U	10U	10U	5U	10U	5U	10U
Bromomethane	10U	10U	10U	10U	10U	10U	10U	10U
2-Butanone	10U	10U	10U	10U	10U	10U	10U	10U
Carbon disulfide	5U	10U	10U	10U	5U	10U	5U	10U
Carbon tetrachloride	5U	10U	10U	10U	5U	10U	5U	10U
Chlorobenzene	5U	10U	10U	10U	5U	10U	5U	10U
Chlorodibromomethane	5U	10U	10U	10U	5U	10U	5U	10U
Chloroethane	10U	10U	10U	10U	10U	10U	10U	10U
Chloroform	5U	10U	10U	10U	5U	10U	5U	10U
Chloromethane	10U	10U	10U	10U	10U	10U	10U	10U
1,1-Dichloroethane	5U	10U	10U	10U	5U	10U	5U	10U
1,2-Dichloroethane	5U	10U	10U	10U	5U	10U	5U	10U
1,1-Dichloroethene	5U	10U	10U	10U	5U	10U	5U	10U
1,2-Dichloroethene	5U	10U	10U	10U	5U	10U	5U	10U
trans-1,2-Dichloroethene	.	.	.	.	5U	10U	.	.
1,2-Dichloropropane	5U	10U	10U	10U	5U	10U	5U	10U
cis-1,3-Dichloropropene	5U	10U	10U	10U	5U	10U	5U	10U
trans-1,3-Dichloropropene	5U	10U	10U	10U	5U	10U	5U	10U
Ethylbenzene	5U	10U	10U	10U	5U	10U	5U	10U
2-Hexanone	10U	10U	10U	10U	10U	10U	10U	10U
4-Methyl-2-pentanone	10U	10U	10U	10U	10U	10U	10U	10U
Methylene chloride	5U	10U	10U	10U	5U	10U	5U	10U
Styrene	5U	10U	10U	10U	5U	10U	5U	10U
1,1,2,2-Tetrachloroethane	5U	10U	10U	10U	5U	10U	5U	10U
Tetrachloroethene	5U	10U	10U	10U	5U	10U	5U	10U
Toluene	5U	10U	10U	10U	5U	10U	5U	10U
1,1,1-Trichloroethane	5U	10U	10U	10U	5U	10U	5U	10U
1,1,2-Trichloroethane	5U	10U	10U	10U	5U	10U	5U	10U
Trichloroethene	5U	10U	10U	10U	5U	10U	5U	10U
Vinyl acetate	10U	10U	10U	10U	10U	10U	10U	10U
Vinyl chloride	10U	10U	10U	10U	10U	10U	10U	10U
Xylenes	5U	10U	10U	10U	5U	10U	5U	10U

(CONTINUED)

APPENDIX E.2
Volatile Organic Compounds, 1994

9

Sampling Point	GW-162		GW-243	GW-276		GW-287		
Unit	AQT		AQT	AQT		AQT		
Location	BG		S3	S3		BG		
Date Sampled	08/22/94	11/07/94	03/30/94	03/30/94	08/20/94	03/09/94	06/09/94	09/13/94
Acetone	10U	10U	500U	10U	10U	10U	10U	10U
Benzene	10U	10U	250U	5U	10U	5U	10U	10U
Bromodichloromethane	10U	10U	250U	5U	10U	5U	10U	10U
Bromoform	10U	10U	250U	5U	10U	5U	10U	10U
Bromomethane	10U	10U	500U	10U	10U	10U	10U	10U
2-Butanone	10U	10U	500U	10U	10U	10U	10U	10U
Carbon disulfide	10U	10U	250U	5U	10U	5U	10U	10U
Carbon tetrachloride	10U	10U	250U	5U	10U	5U	10U	10U
Chlorobenzene	10U	10U	250U	5U	10U	5U	10U	10U
Chlorodibromomethane	10U	10U	250U	5U	10U	5U	10U	10U
Chloroethane	10U	10U	500U	10U	10U	10U	10U	10U
Chloroform	10U	10U	250U	1	1	5U	10U	10U
Chloromethane	10U	10U	500U	10U	10U	10U	10U	10U
1,1-Dichloroethane	10U	10U	250U	5U	10U	5U	10U	10U
1,2-Dichloroethane	10U	10U	250U	5U	10U	5U	10U	10U
1,1-Dichloroethene	10U	10U	250U	5U	10U	5U	10U	10U
1,2-Dichloroethene	10U	10U	75	5U	10U	5U	10U	10U
trans-1,2-Dichloroethene	.	.	250U	5U	10U	.	.	.
1,2-Dichloropropane	10U	10U	250U	5U	10U	5U	10U	10U
cis-1,3-Dichloropropene	10U	10U	250U	5U	10U	5U	10U	10U
trans-1,3-Dichloropropene	10U	10U	250U	5U	10U	5U	10U	10U
Ethylbenzene	10U	10U	250U	5U	10U	5U	10U	10U
2-Hexanone	10U	10U	500U	10U	10U	10U	10U	10U
4-Methyl-2-pentanone	10U	10U	500U	10U	10U	10U	10U	10U
Methylene chloride	10U	10U	370	5U	10U	5U	10U	10U
Styrene	10U	10U	250U	5U	10U	5U	10U	10U
1,1,2,2-Tetrachloroethane	10U	10U	250U	5U	10U	5U	10U	10U
Tetrachloroethene	10U	10U	7900	52	43	2	2	10U
Toluene	10U	10U	250U	5U	10U	5U	10U	10U
1,1,1-Trichloroethane	10U	10U	250U	5U	10U	5U	10U	10U
1,1,2-Trichloroethane	10U	10U	250U	5U	10U	5U	10U	10U
Trichloroethene	10U	10U	250U	5U	10U	5U	10U	10U
Vinyl acetate	10U	10U	500U	10U	10U	10U	10U	10U
Vinyl chloride	10U	10U	500U	10U	10U	10U	10U	10U
Xylenes	10U	10U	250U	5U	10U	5U	10U	10U

(CONTINUED)

APPENDIX E.2
Volatile Organic Compounds, 1994

10

Sampling Point	GW-287	GW-311				GW-312		
Unit	AQT	AQF				AQF		
Location	BG	RS				RS		
Date Sampled	12/07/94	02/09/94	06/22/94	09/06/94	12/14/94	02/09/94	06/23/94	09/06/94
Acetone	10U	10U	10U	10U	10U	10U	10U	10U
Benzene	10U	5U	10U	10U	10U	5U	10U	10U
Bromodichloromethane	10U	5U	10U	10U	10U	5U	10U	10U
Bromoform	10U	5U	10U	10U	10U	5U	10U	10U
Bromomethane	10U	10U	10U	10U	10U	10U	10U	10U
2-Butanone	10U	10U	10U	10U	10U	10U	10U	10U
Carbon disulfide	10U	5U	10U	10U	10U	5U	10U	10U
Carbon tetrachloride	10U	0.7	1	1	10U	5U	10U	10U
Chlorobenzene	10U	5U	10U	10U	10U	5U	10U	10U
Chlorodibromomethane	10U	5U	10U	10U	10U	5U	10U	10U
Chloroethane	10U	10U	10U	10U	10U	10U	10U	10U
Chloroform	10U	0.8	1	1	1	1	1	1
Chloromethane	10U	10U	10U	10U	10U	10U	10U	10U
1,1-Dichloroethane	10U	5U	10U	10U	10U	5U	10U	10U
1,2-Dichloroethane	10U	5U	10U	10U	10U	5U	10U	10U
1,1-Dichloroethene	10U	5U	10U	10U	10U	5U	10U	10U
1,2-Dichloroethene	10U	5U	10U	10U	10U	5U	10U	10U
trans-1,2-Dichloroethene	.	.	.	.	.	.	.	.
1,2-Dichloropropane	10U	5U	10U	10U	10U	5U	10U	10U
cis-1,3-Dichloropropene	10U	5U	10U	10U	10U	5U	10U	10U
trans-1,3-Dichloropropene	10U	5U	10U	10U	10U	5U	10U	10U
Ethylbenzene	10U	5U	10U	10U	10U	5U	10U	10U
2-Hexanone	10U	10U	10U	10U	10U	10U	10U	10U
4-Methyl-2-pentanone	10U	10U	10U	10U	10U	10U	10U	10U
Methylene chloride	10U	5U	10U	10U	10U	5U	10U	10U
Styrene	10U	5U	10U	10U	10U	5U	10U	10U
1,1,2,2-Tetrachloroethane	10U	5U	10U	10U	10U	5U	10U	10U
Tetrachloroethene	10U	5U	10U	10U	10U	5U	10U	10U
Toluene	10U	5U	10U	10U	10U	5U	10U	10U
1,1,1-Trichloroethane	10U	5U	10U	10U	10U	5U	10U	10U
1,1,2-Trichloroethane	10U	5U	10U	10U	10U	5U	10U	10U
Trichloroethene	10U	10	18	19	18	80	59	56
Vinyl acetate	10U	10U	10U	10U	10U	10U	10U	10U
Vinyl chloride	10U	10U	10U	10U	10U	10U	10U	10U
Xylenes	10U	5U	10U	10U	10U	5U	10U	10U

(CONTINUED)

APPENDIX E.2
Volatile Organic Compounds, 1994

11

Sampling Point	GW-312	GW-315				GW-317		
Unit	AQF	AQF				AQF		
Location	RS	SPI				SPI		
Date Sampled	12/14/94	02/17/94	06/20/94	08/30/94	12/05/94	02/17/94	06/17/94	08/29/94
Acetone	10U	10U	10U	10U	10U	10U	10U	10U
Benzene	10U	5U	10U	10U	10U	5U	10U	10U
Bromodichloromethane	10U	1	10U	10U	10U	5U	10U	10U
Bromoform	10U	5U	10U	10U	10U	5U	10U	10U
Bromomethane	10U	10U	10U	10U	10U	10U	10U	10U
2-Butanone	10U	10U	10U	10U	10U	10U	10U	10U
Carbon disulfide	10U	5U	10U	10U	10U	5U	10U	10U
Carbon tetrachloride	10U	5U	10U	10U	10U	5U	10U	10U
Chlorobenzene	10U	5U	10U	10U	10U	5U	10U	10U
Chlorodibromomethane	10U	5U	10U	10U	10U	5U	10U	10U
Chloroethane	10U	10U	10U	10U	10U	10U	10U	10U
Chloroform	2	6	2	3	2	5U	10U	10U
Chloromethane	10U	10U	10U	10U	10U	10U	10U	10U
1,1-Dichloroethane	10U	5U	10U	10U	10U	5U	10U	10U
1,2-Dichloroethane	10U	5U	10U	10U	10U	5U	10U	10U
1,1-Dichloroethene	10U	5U	10U	10U	10U	5U	10U	10U
1,2-Dichloroethene	1	9	14	14	8	5U	10U	10U
trans-1,2-Dichloroethene	.	.	.	.	.	.	.	.
1,2-Dichloropropane	10U	5U	10U	10U	10U	5U	10U	10U
cis-1,3-Dichloropropene	10U	5U	10U	10U	10U	5U	10U	10U
trans-1,3-Dichloropropene	10U	5U	10U	10U	10U	5U	10U	10U
Ethylbenzene	10U	5U	10U	10U	10U	5U	10U	10U
2-Hexanone	10U	10U	10U	10U	10U	10U	10U	10U
4-Methyl-2-pentanone	10U	10U	10U	10U	10U	10U	10U	10U
Methylene chloride	10U	5U	10U	10U	10U	5U	10U	1
Styrene	10U	5U	10U	10U	10U	5U	10U	10U
1,1,2,2-Tetrachloroethane	10U	5U	10U	10U	10U	5U	10U	10U
Tetrachloroethene	10U	11	16	23	11	5U	10U	10U
Toluene	10U	5U	10U	10U	10U	5U	10U	10U
1,1,1-Trichloroethane	10U	5U	10U	10U	10U	5U	10U	10U
1,1,2-Trichloroethane	10U	5U	10U	10U	10U	5U	10U	10U
Trichloroethene	71	6	11	11	6	5U	10U	10U
Vinyl acetate	10U	10U	10U	10U	10U	10U	10U	10U
Vinyl chloride	10U	10U	10U	10U	10U	10U	10U	10U
Xylenes	10U	5U	10U	10U	10U	5U	10U	10U

(CONTINUED)

APPENDIX E.2
Volatile Organic Compounds, 1994

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Sampling Point	GW-317	GW-324	GW-325	GW-345	GW-347			
Unit	AQF	AQT	AQT	AQT	AQF			
Location	SPI	S3	S3	S3	S3			
Date Sampled	12/04/94	02/15/94	02/15/94	02/18/94	02/16/94	06/17/94	08/30/94	12/04/94
Acetone	10U	10U	10U	10U	10U	10U	10U	10U
Benzene	10U	5U	5U	5U	5U	10U	10U	10U
Bromodichloromethane	10U	5U	5U	5U	5U	10U	10U	10U
Bromoform	10U	5U	5U	5U	5U	10U	10U	10U
Bromomethane	10U	10U	10U	10U	10U	10U	10U	10U
2-Butanone	10U	10U	10U	10U	10U	10U	10U	10U
Carbon disulfide	10U	5U	5U	5U	5U	10U	10U	10U
Carbon tetrachloride	10U	5U	5U	5U	5U	10U	10U	10U
Chlorobenzene	10U	5U	5U	5U	5U	10U	10U	10U
Chlorodibromomethane	10U	5U	5U	5U	5U	10U	10U	10U
Chloroethane	10U	10U	10U	10U	10U	10U	10U	10U
Chloroform	10U	5U	5U	5U	5U	10U	10U	10U
Chloromethane	10U	10U	10U	10U	10U	10U	10U	10U
1,1-Dichloroethane	10U	5U	5U	5U	5U	10U	10U	10U
1,2-Dichloroethane	10U	5U	5U	5U	5U	10U	10U	10U
1,1-Dichloroethene	10U	5U	5U	5U	5U	10U	10U	10U
1,2-Dichloroethene	10U	5U	5U	5U	5U	10U	10U	10U
trans-1,2-Dichloroethene	.	.	.	.	.	.	.	.
1,2-Dichloropropane	10U	5U	5U	5U	5U	10U	10U	10U
cis-1,3-Dichloropropene	10U	5U	5U	5U	5U	10U	10U	10U
trans-1,3-Dichloropropene	10U	5U	5U	5U	5U	10U	10U	10U
Ethylbenzene	10U	5U	5U	5U	5U	10U	10U	10U
2-Hexanone	10U	10U	10U	10U	10U	10U	10U	10U
4-Methyl-2-pentanone	10U	10U	10U	10U	10U	10U	10U	10U
Methylene chloride	10U	5U	5U	5U	5U	10U	10U	10U
Styrene	10U	5U	5U	5U	5U	10U	10U	10U
1,1,2,2-Tetrachloroethane	10U	5U	5U	5U	5U	10U	10U	10U
Tetrachloroethene	10U	5U	5U	5U	5U	10U	10U	10U
Toluene	10U	5U	5U	5U	5U	10U	10U	10U
1,1,1-Trichloroethane	10U	5U	5U	5U	5U	10U	10U	10U
1,1,2-Trichloroethane	10U	5U	5U	5U	5U	10U	10U	10U
Trichloroethene	10U	5U	5U	5U	5U	10U	10U	10U
Vinyl acetate	10U	10U	10U	10U	10U	10U	10U	10U
Vinyl chloride	10U	10U	10U	10U	10U	10U	10U	10U
Xylenes	10U	5U	5U	5U	5U	10U	10U	10U

(CONTINUED)

APPENDIX E.2
Volatile Organic Compounds, 1994

13

Sampling Point . Unit . Location . Date Sampled	GW-348				GW-363			
	AQF				AQT			
	S3				OLF			
	02/16/94	06/20/94	08/30/94	12/05/94	03/22/94	05/26/94	07/29/94	11/02/94
Acetone	10U	10U	10U	10U	10U	10U	10U	10U
Benzene	5U	10U	10U	10U	5U	10U	10U	10U
Bromodichloromethane	5U	10U	10U	10U	5U	10U	10U	10U
Bromoform	5U	10U	10U	10U	5U	10U	10U	10U
Bromomethane	10U	10U	10U	10U	10U	10U	10U	10U
2-Butanone	10U	10U	10U	10U	10U	10U	10U	10U
Carbon disulfide	5U	10U	10U	10U	5U	10U	10U	10U
Carbon tetrachloride	5U	10U	10U	10U	5U	10U	10U	10U
Chlorobenzene	5U	10U	10U	10U	5U	10U	10U	10U
Chlorodibromomethane	5U	10U	10U	10U	5U	10U	10U	10U
Chloroethane	10U	10U	10U	10U	10U	10U	10U	10U
Chloroform	5U	10U	10U	10U	5U	10U	10U	10U
Chloromethane	10U	10U	10U	10U	10U	10U	10U	10U
1,1-Dichloroethane	5U	10U	10U	10U	5U	10U	10U	10U
1,2-Dichloroethane	5U	10U	10U	10U	5U	10U	10U	10U
1,1-Dichloroethene	5U	10U	10U	10U	5U	10U	10U	10U
1,2-Dichloroethene	5U	10U	10U	10U	5U	10U	10U	10U
trans-1,2-Dichloroethene	.	.	.	.	.	.	.	.
1,2-Dichloropropane	5U	10U	10U	10U	5U	10U	10U	10U
cis-1,3-Dichloropropene	5U	10U	10U	10U	5U	10U	10U	10U
trans-1,3-Dichloropropene	5U	10U	10U	10U	5U	10U	10U	10U
Ethylbenzene	5U	10U	10U	10U	5U	10U	10U	10U
2-Hexanone	10U	10U	10U	10U	10U	10U	10U	10U
4-Methyl-2-pentanone	10U	10U	10U	10U	10U	10U	10U	10U
Methylene chloride	5U	10U	10U	10U	5U	10U	10U	10U
Styrene	5U	10U	10U	10U	5U	10U	10U	10U
1,1,2,2-Tetrachloroethane	5U	10U	10U	10U	5U	10U	10U	10U
Tetrachloroethene	0.9	10U	10U	10U	5U	10U	10U	10U
Toluene	5U	10U	10U	10U	5U	10U	10U	10U
1,1,1-Trichloroethane	5U	10U	10U	10U	5U	10U	10U	10U
1,1,2-Trichloroethane	5U	10U	10U	10U	5U	10U	10U	10U
Trichloroethene	5U	6	10U	10U	5U	10U	10U	10U
Vinyl acetate	10U	10U	10U	10U	10U	10U	10U	10U
Vinyl chloride	10U	10U	10U	10U	10U	10U	10U	10U
Xylenes	5U	10U	10U	10U	5U	10U	10U	10U

(CONTINUED)

APPENDIX E.2
Volatile Organic Compounds, 1994

14

Sampling Point . Unit . Location . Date Sampled	GW-370				GW-372			
	AQT				AQT			
	BG				BG			
	03/10/94	05/24/94	08/25/94	11/09/94	03/09/94	05/19/94	08/23/94	11/08/94
Acetone	10U	10U	10U	10U	10U	10U	10U	10U
Benzene	5U	10U	10U	10U	5U	10U	10U	10U
Bromodichloromethane	5U	10U	10U	10U	5U	10U	10U	10U
Bromoform	5U	10U	10U	10U	5U	10U	10U	10U
Bromomethane	10U	10U	10U	10U	10U	10U	10U	10U
2-Butanone	10U	10U	10U	10U	10U	10U	10U	10U
Carbon disulfide	5U	10U	10U	10U	5U	10U	10U	10U
Carbon tetrachloride	5U	10U	10U	10U	5U	10U	10U	10U
Chlorobenzene	5U	10U	10U	10U	5U	10U	10U	10U
Chlorodibromomethane	5U	10U	10U	10U	5U	10U	10U	10U
Chloroethane	10U	10U	10U	10U	10U	10U	10U	10U
Chloroform	5U	10U	10U	10U	5U	10U	10U	10U
Chloromethane	10U	10U	10U	10U	10U	10U	10U	10U
1,1-Dichloroethane	5U	10U	10U	10U	5U	10U	10U	10U
1,2-Dichloroethane	5U	10U	10U	10U	5U	10U	10U	10U
1,1-Dichloroethene	5U	10U	10U	10U	5U	10U	10U	10U
1,2-Dichloroethene	5U	10U	10U	10U	5U	10U	10U	10U
trans-1,2-Dichloroethene	.	.	.	.	.	.	.	.
1,2-Dichloropropane	5U	10U	10U	10U	5U	10U	10U	10U
cis-1,3-Dichloropropene	5U	10U	10U	10U	5U	10U	10U	10U
trans-1,3-Dichloropropene	5U	10U	10U	10U	5U	10U	10U	10U
Ethylbenzene	5U	10U	10U	10U	5U	10U	10U	10U
2-Hexanone	10U	10U	10U	10U	10U	10U	10U	10U
4-Methyl-2-pentanone	10U	10U	10U	10U	10U	10U	10U	10U
Methylene chloride	5U	10U	10U	10U	5U	10U	10U	10U
Styrene	5U	10U	10U	10U	5U	10U	10U	10U
1,1,2,2-Tetrachloroethane	5U	10U	10U	10U	5U	10U	10U	10U
Tetrachloroethene	5U	10U	10U	10U	5U	10U	10U	10U
Toluene	5U	10U	10U	10U	5U	10U	10U	10U
1,1,1-Trichloroethane	5U	10U	10U	10U	5U	10U	10U	10U
1,1,2-Trichloroethane	5U	10U	10U	10U	5U	10U	10U	10U
Trichloroethene	5U	10U	10U	10U	5U	10U	10U	10U
Vinyl acetate	10U	10U	10U	10U	10U	10U	10U	10U
Vinyl chloride	10U	10U	10U	10U	10U	10U	10U	10U
Xylenes	5U	10U	10U	10U	5U	10U	10U	10U

(CONTINUED)

APPENDIX E.2
Volatile Organic Compounds, 1994

15

Sampling Point . Unit . Location . Date Sampled	GW-373				GW-537			
	AQT				AQT			
	BG				OLF			
	03/10/94	05/21/94	08/24/94	11/08/94	02/11/94	06/24/94	09/07/94	12/15/94
Acetone	10U	10U	10U	10U	10U	10U	10U	10U
Benzene	5U	10U	10U	10U	5U	10U	10U	10U
Bromodichloromethane	5U	10U	10U	10U	5U	10U	10U	10U
Bromoform	5U	10U	10U	10U	5U	10U	10U	10U
Bromomethane	10U	10U	10U	10U	10U	10U	10U	10U
2-Butanone	10U	10U	10U	10U	10U	10U	10U	10U
Carbon disulfide	5U	10U	10U	10U	5U	10U	10U	10U
Carbon tetrachloride	5U	10U	10U	10U	5U	10U	10U	10U
Chlorobenzene	5U	10U	10U	10U	5U	10U	10U	10U
Chlorodibromomethane	5U	10U	10U	10U	5U	10U	10U	10U
Chloroethane	10U	10U	10U	10U	10U	10U	10U	10U
Chloroform	5U	10U	10U	10U	5U	0.9	1	10U
Chloromethane	10U	10U	10U	10U	10U	10U	10U	10U
1,1-Dichloroethane	5U	10U	10U	10U	5U	10U	10U	10U
1,2-Dichloroethane	5U	10U	10U	10U	5U	10U	10U	10U
1,1-Dichloroethene	5U	10U	10U	10U	5U	10U	10U	10U
1,2-Dichloroethene	5U	10U	10U	10U	5U	10U	10U	10U
trans-1,2-Dichloroethene	.	.	.	.	.	.	.	.
1,2-Dichloropropane	5U	10U	10U	10U	5U	10U	10U	10U
cis-1,3-Dichloropropene	5U	10U	10U	10U	5U	10U	10U	10U
trans-1,3-Dichloropropene	5U	10U	10U	10U	5U	10U	10U	10U
Ethylbenzene	5U	10U	10U	10U	5U	10U	10U	10U
2-Hexanone	10U	10U	10U	10U	10U	10U	10U	10U
4-Methyl-2-pentanone	10U	10U	10U	10U	10U	10U	10U	10U
Methylene chloride	5U	10U	10U	10U	5U	10U	10U	10U
Styrene	5U	10U	10U	10U	5U	10U	10U	10U
1,1,2,2-Tetrachloroethane	5U	10U	10U	10U	5U	10U	10U	10U
Tetrachloroethene	5U	10U	10U	10U	5U	10U	10U	10U
Toluene	5U	10U	10U	10U	5U	10U	10U	10U
1,1,1-Trichloroethane	5U	10U	10U	10U	5U	10U	10U	10U
1,1,2-Trichloroethane	5U	10U	10U	10U	5U	10U	10U	10U
Trichloroethene	5U	10U	10U	10U	5U	10U	10U	10U
Vinyl acetate	10U	10U	10U	10U	10U	10U	10U	10U
Vinyl chloride	10U	10U	10U	10U	10U	10U	10U	10U
Xylenes	5U	10U	10U	10U	5U	10U	10U	10U

(CONTINUED)

APPENDIX E.2
Volatile Organic Compounds, 1994

16

Sampling Point	GW-601	GW-613		GW-614		GW-621		GW-627
Unit	AQF	AQT		AQT		AQF		AQT
Location	OLF	S3		S3		EXP-B		BG
Date Sampled	03/25/94	02/14/94	08/15/94	02/14/94	08/16/94	02/18/94	12/07/94	03/14/94
Acetone	10U	10U	10U	10U	10U	10U	10U	16
Benzene	5U	5U	10U	5U	10U	5U	10U	5U
Bromodichloromethane	5U	5U	10U	5U	10U	5U	10U	5U
Bromoform	5U	5U	10U	5U	10U	5U	10U	5U
Bromomethane	10U	10U	10U	10U	10U	10U	10U	10U
2-Butanone	10U	10U	10U	10U	10U	10U	10U	10U
Carbon disulfide	5U	5U	10U	5U	10U	5U	10U	5U
Carbon tetrachloride	2	5U	10U	5U	10U	5U	10U	5U
Chlorobenzene	5U	5U	10U	5U	10U	5U	10U	5U
Chlorodibromomethane	5U	5U	10U	5U	10U	5U	10U	5U
Chloroethane	10U	10U	10U	10U	10U	10U	10U	10U
Chloroform	5U	5U	10U	5U	10U	5U	10U	5U
Chloromethane	10U	10U	10U	10U	10U	10U	10U	10U
1,1-Dichloroethane	5U	5U	10U	5U	10U	5U	10U	3
1,2-Dichloroethane	5U	5U	10U	5U	10U	5U	10U	5U
1,1-Dichloroethene	5U	5U	10U	5U	10U	5U	10U	5U
1,2-Dichloroethene	5U	5U	10U	5U	10U	5U	10U	5U
trans-1,2-Dichloroethene	.	5U	10U	5U	10U	.	.	.
1,2-Dichloropropane	5U	5U	10U	5U	10U	5U	10U	5U
cis-1,3-Dichloropropene	5U	5U	10U	5U	10U	5U	10U	5U
trans-1,3-Dichloropropene	5U	5U	10U	5U	10U	5U	10U	5U
Ethylbenzene	5U	5U	10U	5U	10U	5U	10U	5U
2-Hexanone	10U	10U	10U	10U	10U	10U	10U	10U
4-Methyl-2-pentanone	10U	10U	10U	10U	10U	10U	10U	10U
Methylene chloride	1	5U	10U	5U	10U	5U	10U	2
Styrene	5U	5U	10U	5U	10U	5U	10U	5U
1,1,2,2-Tetrachloroethane	5U	5U	10U	5U	10U	5U	10U	5U
Tetrachloroethene	1	5U	10U	5U	10U	5U	10U	30
Toluene	5U	5U	10U	5U	10U	5U	10U	5U
1,1,1-Trichloroethane	5U	5U	10U	5U	10U	5U	10U	5U
1,1,2-Trichloroethane	5U	5U	10U	5U	10U	5U	10U	5U
Trichloroethene	98	5U	10U	5U	10U	5U	10U	4
Vinyl acetate	10U	10U	10U	10U	10U	10U	10U	10U
Vinyl chloride	10U	10U	10U	10U	10U	10U	10U	10U
Xylenes	5U	5U	10U	5U	10U	5U	10U	5U

(CONTINUED)

APPENDIX E.2
Volatile Organic Compounds, 1994

17

Sampling Point . Unit . Location . Date Sampled	GW-627			GW-637				GW-642
	AQT			AQT				AQT
	BG			OLF				BG
	06/23/94	09/15/94	12/09/94	03/23/94	05/26/94	07/29/94	11/07/94	03/09/94
Acetone	10U	10U	10U	10U	10U	10U	10U	10U
Benzene	10U	10U	10U	5U	10U	10U	10U	5U
Bromodichloromethane	10U	10U	10U	5U	10U	10U	10U	5U
Bromoform	10U	10U	10U	5U	10U	10U	10U	5U
Bromomethane	10U	10U	10U	10U	10U	10U	10U	10U
2-Butanone	10U	10U	10U	10U	10U	10U	10U	10U
Carbon disulfide	10U	10U	10U	5U	10U	10U	10U	5U
Carbon tetrachloride	10U	10U	10U	5U	10U	10U	10U	5U
Chlorobenzene	10U	10U	10U	5U	10U	10U	10U	5U
Chlorodibromomethane	10U	10U	10U	5U	10U	10U	10U	5U
Chloroethane	10U	10U	10U	10U	10U	10U	10U	10U
Chloroform	10U	10U	10U	5U	10U	10U	10U	5U
Chloromethane	10U	10U	10U	10U	10U	10U	10U	10U
1,1-Dichloroethane	4	4	4	5U	10U	10U	10U	5U
1,2-Dichloroethane	10U	10U	10U	5U	10U	10U	10U	5U
1,1-Dichloroethene	10U	10U	10U	5U	10U	10U	10U	5U
1,2-Dichloroethene	10U	10U	10U	5U	10U	10U	10U	5U
trans-1,2-Dichloroethene	.	.	.	.	.	.	.	.
1,2-Dichloropropane	10U	10U	10U	5U	10U	10U	10U	5U
cis-1,3-Dichloropropene	10U	10U	10U	5U	10U	10U	10U	5U
trans-1,3-Dichloropropene	10U	10U	10U	5U	10U	10U	10U	5U
Ethylbenzene	10U	10U	10U	5U	10U	10U	10U	5U
2-Hexanone	10U	10U	10U	10U	10U	10U	10U	10U
4-Methyl-2-pentanone	10U	10U	10U	10U	10U	10U	10U	10U
Methylene chloride	10U	10U	10U	5U	10U	10U	10U	5U
Styrene	10U	10U	10U	5U	10U	10U	10U	5U
1,1,2,2-Tetrachloroethane	10U	10U	10U	5U	10U	10U	10U	5U
Tetrachloroethene	44	37	44	5U	10U	10U	10U	5U
Toluene	10U	10U	10U	5U	10U	10U	10U	5U
1,1,1-Trichloroethane	10U	10U	10U	5U	10U	10U	10U	5U
1,1,2-Trichloroethane	10U	10U	10U	5U	10U	10U	10U	5U
Trichloroethene	7	5	7	5U	10U	10U	10U	5U
Vinyl acetate	10U	10U	10U	10U	10U	10U	10U	10U
Vinyl chloride	10U	10U	10U	10U	10U	10U	10U	10U
Xylenes	10U	10U	10U	5U	10U	10U	10U	5U

(CONTINUED)

APPENDIX E.2
Volatile Organic Compounds, 1994

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Sampling Point . Unit . Location . Date Sampled	GW-642			GW-652				GW-653
	AQT			AQF				AQT
	BG			BG				BG
	05/19/94	08/23/94	11/07/94	03/09/94	06/17/94	09/13/94	12/07/94	02/26/94
Acetone	10U	10U	10U	10U	10U	10U	10U	10U
Benzene	10U	10U	10U	5U	10U	10U	10U	5U
Bromodichloromethane	10U	10U	10U	5U	10U	10U	10U	5U
Bromoform	10U	10U	10U	5U	10U	10U	10U	5U
Bromomethane	10U	10U	10U	10U	10U	10U	10U	10U
2-Butanone	10U	10U	10U	10U	10U	10U	10U	10U
Carbon disulfide	10U	10U	10U	5U	10U	10U	10U	5U
Carbon tetrachloride	10U	10U	10U	5U	10U	10U	10U	5U
Chlorobenzene	10U	10U	10U	5U	10U	10U	10U	5U
Chlorodibromomethane	10U	10U	10U	5U	10U	10U	10U	5U
Chloroethane	10U	10U	10U	10U	10U	10U	10U	10U
Chloroform	10U	10U	10U	5U	10U	10U	10U	5U
Chloromethane	10U	10U	10U	10U	10U	10U	10U	10U
1,1-Dichloroethane	10U	10U	10U	5U	10U	10U	10U	2
1,2-Dichloroethane	10U	10U	10U	5U	10U	10U	10U	5U
1,1-Dichloroethene	10U	10U	10U	5U	10U	10U	10U	5U
1,2-Dichloroethene	10U	10U	10U	5U	10U	10U	10U	20
trans-1,2-Dichloroethene	.	.	.	.	.	.	.	.
1,2-Dichloropropane	10U	10U	10U	5U	10U	10U	10U	5U
cis-1,3-Dichloropropene	10U	10U	10U	5U	10U	10U	10U	5U
trans-1,3-Dichloropropene	10U	10U	10U	5U	10U	10U	10U	5U
Ethylbenzene	10U	10U	10U	5U	10U	10U	10U	5U
2-Hexanone	10U	10U	10U	10U	10U	10U	10U	10U
4-Methyl-2-pentanone	10U	10U	10U	10U	10U	10U	10U	10U
Methylene chloride	10U	10U	10U	5U	10U	10U	10U	1
Styrene	10U	10U	10U	5U	10U	10U	10U	5U
1,1,2,2-Tetrachloroethane	10U	10U	10U	5U	10U	10U	10U	5U
Tetrachloroethene	10U	10U	10U	5U	10U	10U	10U	5
Toluene	10U	10U	10U	5U	10U	10U	10U	5U
1,1,1-Trichloroethane	10U	10U	10U	5U	10U	10U	10U	0.7
1,1,2-Trichloroethane	10U	10U	10U	5U	10U	10U	10U	5U
Trichloroethene	10U	10U	10U	5U	10U	10U	10U	2
Vinyl acetate	10U	10U	10U	10U	10U	10U	10U	10U
Vinyl chloride	10U	10U	10U	10U	10U	10U	10U	10U
Xylenes	10U	10U	10U	5U	10U	10U	10U	5U

(CONTINUED)

APPENDIX E.2
Volatile Organic Compounds, 1994

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Sampling Point . Unit . Location . Date Sampled	GW-653			GW-654				GW-683
	AQT			AQT				AQF
	BG			BG				EXP-A
	06/09/94	09/13/94	12/07/94	03/09/94	06/08/94	09/13/94	12/07/94	03/04/94
Acetone	10U	10U	10U	10U	10U	10U	10U	10U
Benzene	10U	10U	10U	5U	10U	10U	10U	5U
Bromodichloromethane	10U	10U	10U	5U	10U	10U	10U	5U
Bromoform	10U	10U	10U	5U	10U	10U	10U	5U
Bromomethane	10U	10U	10U	10U	10U	10U	10U	10U
2-Butanone	10U	10U	10U	10U	10U	10U	10U	10U
Carbon disulfide	10U	10U	10U	5U	10U	10U	10U	5U
Carbon tetrachloride	10U	10U	10U	5U	10U	10U	10U	5U
Chlorobenzene	10U	10U	10U	5U	10U	10U	10U	5U
Chlorodibromomethane	10U	10U	10U	5U	10U	10U	10U	5U
Chloroethane	10U	10U	10U	10U	10U	10U	10U	10U
Chloroform	10U	10U	10U	5U	10U	10U	10U	5U
Chloromethane	10U	10U	10U	10U	10U	10U	10U	10U
1,1-Dichloroethane	10U	10U	10U	5U	10U	10U	10U	5U
1,2-Dichloroethane	10U	10U	10U	5U	10U	10U	10U	5U
1,1-Dichloroethene	10U	10U	10U	5U	10U	10U	10U	5U
1,2-Dichloroethene	6	9	10	5U	10U	10U	10U	5U
trans-1,2-Dichloroethene	.	.	.	.	.	.	.	.
1,2-Dichloropropane	10U	10U	10U	5U	10U	10U	10U	5U
cis-1,3-Dichloropropene	10U	10U	10U	5U	10U	10U	10U	5U
trans-1,3-Dichloropropene	10U	10U	10U	5U	10U	10U	10U	5U
Ethylbenzene	10U	10U	10U	5U	10U	10U	10U	5U
2-Hexanone	10U	10U	10U	10U	10U	10U	10U	10U
4-Methyl-2-pentanone	10U	10U	10U	10U	10U	10U	10U	10U
Methylene chloride	10U	10U	10U	5U	10U	10U	10U	5U
Styrene	10U	10U	10U	5U	10U	10U	10U	5U
1,1,2,2-Tetrachloroethane	10U	10U	10U	5U	10U	10U	10U	5U
Tetrachloroethene	2	2	2	5U	10U	10U	10U	5U
Toluene	10U	10U	10U	5U	10U	10U	10U	5U
1,1,1-Trichloroethane	10U	10U	10U	5U	10U	10U	10U	5U
1,1,2-Trichloroethane	10U	10U	10U	5U	10U	10U	10U	5U
Trichloroethene	0.6	10U	10U	5U	10U	10U	10U	5U
Vinyl acetate	10U	10U	10U	10U	10U	10U	10U	10U
Vinyl chloride	10U	10U	10U	10U	10U	10U	10U	10U
Xylenes	10U	10U	10U	5U	10U	10U	10U	5U

(CONTINUED)

APPENDIX E.2
Volatile Organic Compounds, 1994

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Sampling Point	GW-683	GW-684		GW-685		GW-694		GW-695
Unit	AQF	AQF		AQF		AQF		AQF
Location	EXP-A	EXP-A		EXP-A		EXP-B		EXP-B
Date Sampled	09/20/94	03/04/94	09/20/94	02/27/94	09/19/94	03/02/94	12/13/94	02/21/94
Acetone	10U	10U	10U	10U	10U	10U	10U	10U
Benzene	10U	5U	10U	5U	10U	5U	10U	5U
Bromodichloromethane	10U	5U	10U	5U	10U	5U	10U	5U
Bromoform	10U	5U	10U	5U	10U	5U	10U	5U
Bromomethane	10U	10U	10U	10U	10U	10U	10U	10U
2-Butanone	10U	10U	10U	10U	10U	10U	10U	10U
Carbon disulfide	10U	5U	10U	5U	10U	5U	10U	5U
Carbon tetrachloride	10U	5U	10U	5U	10U	5U	10U	5U
Chlorobenzene	10U	5U	10U	5U	10U	5U	10U	5U
Chlorodibromomethane	10U	5U	10U	5U	10U	5U	10U	5U
Chloroethane	10U	10U	10U	10U	10U	10U	10U	10U
Chloroform	10U	5U	10U	5U	10U	5U	10U	5U
Chloromethane	10U	10U	10U	10U	10U	10U	10U	10U
1,1-Dichloroethane	10U	5U	10U	5U	10U	5U	10U	5U
1,2-Dichloroethane	10U	5U	10U	5U	10U	5U	10U	5U
1,1-Dichloroethene	10U	5U	10U	5U	10U	1	10U	5U
1,2-Dichloroethene	1	5U	1	1	1	9	8	2
trans-1,2-Dichloroethene	.	.	.	.	.	.	.	.
1,2-Dichloropropane	10U	5U	10U	5U	10U	5U	10U	5U
cis-1,3-Dichloropropene	10U	5U	10U	5U	10U	5U	10U	5U
trans-1,3-Dichloropropene	10U	5U	10U	5U	10U	5U	10U	5U
Ethylbenzene	10U	5U	10U	5U	10U	5U	10U	5U
2-Hexanone	10U	10U	10U	10U	10U	10U	10U	10U
4-Methyl-2-pentanone	10U	10U	10U	10U	10U	10U	10U	10U
Methylene chloride	10U	5U	10U	5U	10U	5U	10U	5U
Styrene	10U	5U	10U	5U	10U	5U	10U	5U
1,1,2,2-Tetrachloroethane	10U	5U	10U	5U	10U	5U	10U	5U
Tetrachloroethene	10U	5U	10U	5U	10U	5U	10U	5U
Toluene	10U	5U	10U	5U	10U	5U	10U	5U
1,1,1-Trichloroethane	10U	5U	10U	5U	10U	5U	10U	5U
1,1,2-Trichloroethane	10U	5U	10U	5U	10U	5U	10U	5U
Trichloroethene	1	5U	1	5U	10U	8	12	4
Vinyl acetate	10U	10U	10U	10U	10U	10U	10U	10U
Vinyl chloride	10U	10U	10U	10U	10U	10U	10U	10U
Xylenes	10U	5U	10U	5U	10U	5U	10U	5U

(CONTINUED)

APPENDIX E.2
Volatile Organic Compounds, 1994

21

Sampling Point	GW-695	GW-703		GW-704		GW-706		GW-710
Unit	AQF	AQF		AQF		AQF		AQF
Location	EXP-B	EXP-B		EXP-B		EXP-B		EXP-W
Date Sampled	12/07/94	02/23/94	12/12/94	02/25/94	12/13/94	03/04/94	12/15/94	02/24/94
Acetone	10U	10U	10U	10U	10U	10U	10U	10U
Benzene	10U	5U	10U	5U	10U	5U	10U	5U
Bromodichloromethane	10U	5U	10U	5U	10U	5U	10U	5U
Bromoform	10U	5U	10U	5U	10U	5U	10U	5U
Bromomethane	10U	10U	10U	10U	10U	10U	10U	10U
2-Butanone	10U	10U	10U	10U	10U	10U	10U	10U
Carbon disulfide	10U	5U	10U	5U	10U	5U	10U	5U
Carbon tetrachloride	10U	5U	10U	1	2	5U	10U	5U
Chlorobenzene	10U	5U	10U	5U	10U	5U	10U	5U
Chlorodibromomethane	10U	5U	10U	5U	10U	5U	10U	5U
Chloroethane	10U	10U	10U	10U	10U	10U	10U	10U
Chloroform	10U	5U	10U	5U	10U	5U	10U	5U
Chloromethane	10U	10U	10U	10U	10U	10U	10U	10U
1,1-Dichloroethane	10U	5U	10U	5U	1	5U	10U	5U
1,2-Dichloroethane	10U	5U	10U	5U	10U	5U	10U	5U
1,1-Dichloroethene	10U	5U	10U	6	8	5U	10U	5U
1,2-Dichloroethene	2	8	7	3	3	5	13	5U
trans-1,2-Dichloroethene	.	.	.	.	.	.	.	5U
1,2-Dichloropropane	10U	5U	10U	5U	10U	5U	10U	5U
cis-1,3-Dichloropropene	10U	5U	10U	5U	10U	5U	10U	5U
trans-1,3-Dichloropropene	10U	5U	10U	5U	10U	5U	10U	5U
Ethylbenzene	10U	5U	10U	5U	10U	5U	10U	5U
2-Hexanone	10U	10U	10U	10U	10U	10U	10U	10U
4-Methyl-2-pentanone	10U	10U	10U	10U	10U	10U	10U	10U
Methylene chloride	10U	5U	10U	5U	10U	5U	10U	5U
Styrene	10U	5U	10U	5U	10U	5U	10U	5U
1,1,2,2-Tetrachloroethane	10U	5U	10U	5U	10U	5U	10U	5U
Tetrachloroethene	10U	5U	10U	5U	10U	5U	10U	5U
Toluene	10U	5U	10U	5U	10U	5U	10U	5U
1,1,1-Trichloroethane	10U	5U	10U	2	2	5U	10U	5U
1,1,2-Trichloroethane	10U	5U	10U	5U	10U	5U	10U	5U
Trichloroethene	4	26	19	84	100	5	16	5U
Vinyl acetate	10U	10U	10U	10U	10U	10U	10U	10U
Vinyl chloride	10U	10U	10U	10U	10U	10U	10U	10U
Xylenes	10U	5U	10U	5U	10U	5U	10U	5U

(CONTINUED)

APPENDIX E.2
Volatile Organic Compounds, 1994

22

Sampling Point	GW-710	GW-711		GW-712		GW-713		GW-714
Unit	AQF	AQF		AQF		AQF		AQF
Location	EXP-W	EXP-W		EXP-W		EXP-W		EXP-W
Date Sampled	08/19/94	02/23/94	08/18/94	02/24/94	08/18/94	02/27/94	08/19/94	02/25/94
Acetone	10U	10U	10U	10U	10U	10U	10U	10U
Benzene	10U	5U	10U	5U	10U	5U	10U	5U
Bromodichloromethane	10U	5U	10U	5U	10U	5U	10U	5U
Bromoform	10U	5U	10U	5U	10U	5U	10U	5U
Bromomethane	10U	10U	10U	10U	10U	10U	10U	10U
2-Butanone	10U	10U	10U	10U	10U	10U	10U	10U
Carbon disulfide	10U	5U	10U	5U	10U	5U	10U	5U
Carbon tetrachloride	10U	5U	10U	5U	10U	5U	10U	5U
Chlorobenzene	10U	5U	10U	5U	10U	5U	10U	5U
Chlorodibromomethane	10U	5U	10U	5U	10U	5U	10U	5U
Chloroethane	10U	10U	10U	10U	10U	10U	10U	10U
Chloroform	10U	5U	10U	5U	10U	5U	10U	5U
Chloromethane	10U	10U	10U	10U	10U	10U	10U	10U
1,1-Dichloroethane	10U	5U	10U	5U	10U	5U	10U	5U
1,2-Dichloroethane	10U	5U	10U	5U	10U	5U	10U	5U
1,1-Dichloroethene	10U	5U	10U	5U	10U	5U	10U	5U
1,2-Dichloroethene	10U	5U	10U	5U	10U	5U	10U	5U
trans-1,2-Dichloroethene	10U	5U	10U	5U	10U	5U	10U	5U
1,2-Dichloropropane	10U	5U	10U	5U	10U	5U	10U	5U
cis-1,3-Dichloropropene	10U	5U	10U	5U	10U	5U	10U	5U
trans-1,3-Dichloropropene	10U	5U	10U	5U	10U	5U	10U	5U
Ethylbenzene	10U	5U	10U	5U	10U	5U	10U	5U
2-Hexanone	10U	10U	10U	10U	10U	10U	10U	10U
4-Methyl-2-pentanone	10U	10U	10U	10U	10U	10U	10U	10U
Methylene chloride	10U	5U	10U	5U	10U	5U	10U	5U
Styrene	10U	5U	10U	5U	10U	5U	10U	5U
1,1,2,2-Tetrachloroethane	10U	5U	10U	5U	10U	5U	10U	5U
Tetrachloroethene	10U	5U	10U	5U	10U	5U	10U	5U
Toluene	10U	5U	10U	5U	10U	5U	10U	5U
1,1,1-Trichloroethane	10U	5U	10U	5U	10U	5U	10U	5U
1,1,2-Trichloroethane	10U	5U	10U	5U	10U	5U	10U	5U
Trichloroethene	10U	5U	10U	5U	10U	5U	10U	5U
Vinyl acetate	10U	10U	10U	10U	10U	10U	10U	10U
Vinyl chloride	10U	10U	10U	10U	10U	10U	10U	10U
Xylenes	10U	5U	10U	5U	10U	5U	10U	5U

(CONTINUED)

APPENDIX E.2
Volatile Organic Compounds, 1994

23

Sampling Point	GW-714	GW-715		GW-723		GW-724		GW-725
Unit	AQF	AQF		AQF		AQF		AQF
Location	EXP-W	EXP-W		EXP-C		EXP-C		EXP-C
Date Sampled	08/20/94	02/26/94	08/20/94	03/17/94	12/20/94	03/18/94	12/18/94	03/18/94
Acetone	10U	10U	10U	10U	9	10U	10U	10U
Benzene	10U	5U	10U	5U	10U	5U	10U	1
Bromodichloromethane	10U	5U	10U	5U	10U	5U	10U	5U
Bromoform	10U	5U	10U	5U	10U	5U	10U	5U
Bromomethane	10U	10U	10U	10U	10U	10U	10U	10U
2-Butanone	10U	10U	10U	10U	10	10U	10U	10U
Carbon disulfide	10U	5U	10U	5U	10U	5U	10U	5U
Carbon tetrachloride	10U	5U	10U	5U	10U	5U	10U	5U
Chlorobenzene	10U	5U	10U	5U	10U	5U	10U	5U
Chlorodibromomethane	10U	5U	10U	5U	10U	5U	10U	5U
Chloroethane	10U	10U	10U	10U	10U	10U	10U	10U
Chloroform	10U	5U	10U	5U	10U	5U	10U	5U
Chloromethane	10U	10U	10U	10U	10U	10U	10U	10U
1,1-Dichloroethane	10U	5U	10U	5U	10U	5U	10U	5U
1,2-Dichloroethane	10U	5U	10U	5U	10U	5U	10U	5U
1,1-Dichloroethene	10U	5U	10U	5U	10U	5U	10U	5U
1,2-Dichloroethene	10U	5U	10U	5U	10U	2	2	3
trans-1,2-Dichloroethene	10U	5U	10U	.	.	.	.	.
1,2-Dichloropropane	10U	5U	10U	5U	10U	5U	10U	5U
cis-1,3-Dichloropropene	10U	5U	10U	5U	10U	5U	10U	5U
trans-1,3-Dichloropropene	10U	5U	10U	5U	10U	5U	10U	5U
Ethylbenzene	10U	5U	10U	5U	10U	5U	10U	5U
2-Hexanone	10U	10U	10U	10U	10U	10U	10U	10U
4-Methyl-2-pentanone	10U	10U	10U	10U	10U	10U	10U	10U
Methylene chloride	10U	5U	10U	5U	10U	5U	10U	5U
Styrene	10U	5U	10U	5U	10U	5U	10U	5U
1,1,2,2-Tetrachloroethane	10U	5U	10U	5U	10U	5U	10U	5U
Tetrachloroethene	10U	5U	10U	5U	10U	1	2	2
Toluene	10U	5U	10U	5U	10U	5U	10U	5U
1,1,1-Trichloroethane	10U	5U	10U	5U	10U	5U	10U	5U
1,1,2-Trichloroethane	10U	5U	10U	5U	10U	5U	10U	5U
Trichloroethene	10U	5U	10U	8	6	70	98	30
Vinyl acetate	10U	10U	10U	10U	10U	10U	10U	10U
Vinyl chloride	10U	10U	10U	10U	10U	10U	10U	10U
Xylenes	10U	5U	10U	5U	10U	5U	10U	5U

(CONTINUED)

APPENDIX E.2
Volatile Organic Compounds, 1994

24

Sampling Point	GW-725	GW-736		GW-737		GW-738		GW-739
Unit	AQF	AQF		AQF		AQF		AQF
Location	EXP-C	EXP-C		EXP-C		EXP-C		EXP-C
Date Sampled	12/18/94	03/21/94	12/19/94	03/21/94	12/18/94	03/16/94	12/17/94	03/16/94
Acetone	10U	10U	5	10U	10U	10U	10U	10U
Benzene	10U	5U	10U	5U	10U	5U	10U	5U
Bromodichloromethane	10U	5U	10U	5U	10U	5U	10U	5U
Bromoform	10U	5U	10U	5U	10U	5U	10U	5U
Bromomethane	10U	10U	10U	10U	10U	10U	10U	10U
2-Butanone	10U	10U	6	10U	10U	10U	10U	10U
Carbon disulfide	10U	5U	10U	5U	10U	5U	10U	5U
Carbon tetrachloride	10U	5U	10U	5U	10U	2	10U	1
Chlorobenzene	10U	5U	10U	5U	10U	5U	10U	5U
Chlorodibromomethane	10U	5U	10U	5U	10U	5U	10U	5U
Chloroethane	10U	10U	10U	10U	10U	10U	10U	10U
Chloroform	10U	5U	10U	5U	10U	2	10U	5U
Chloromethane	10U	10U	10U	10U	10U	10U	10U	10U
1,1-Dichloroethane	10U	5U	10U	5U	10U	5U	10U	5U
1,2-Dichloroethane	10U	5U	10U	5U	10U	5U	10U	5U
1,1-Dichloroethene	1	5U	10U	5U	10U	5U	10U	5U
1,2-Dichloroethene	1	3	2	2	4	4	1	2
trans-1,2-Dichloroethene	.	.	.	.	.	.	.	.
1,2-Dichloropropane	10U	5U	10U	5U	10U	5U	10U	5U
cis-1,3-Dichloropropene	10U	5U	10U	5U	10U	5U	10U	5U
trans-1,3-Dichloropropene	10U	5U	10U	5U	10U	5U	10U	5U
Ethylbenzene	10U	5U	10U	5U	10U	5U	10U	5U
2-Hexanone	10U	10U	10U	10U	10U	10U	10U	10U
4-Methyl-2-pentanone	10U	10U	10U	10U	10U	10U	10U	10U
Methylene chloride	10U	5U	10U	5U	10U	2	10U	5U
Styrene	10U	5U	10U	5U	10U	5U	10U	5U
1,1,2,2-Tetrachloroethane	10U	5U	10U	5U	10U	5U	10U	5U
Tetrachloroethene	10U	1	10U	2	3	0.8	10U	5U
Toluene	10U	5U	10U	5U	10U	5U	10U	5U
1,1,1-Trichloroethane	10U	5U	10U	5U	10U	0.7	10U	5U
1,1,2-Trichloroethane	10U	5U	10U	5U	10U	5U	10U	5U
Trichloroethene	70	6	4	4	12	55	20	35
Vinyl acetate	10U	10U	10U	10U	10U	10U	10U	10U
Vinyl chloride	10U	10U	10U	10U	10U	10U	10U	10U
Xylenes	10U	5U	10U	5U	10U	5U	10U	5U

(CONTINUED)

APPENDIX E.2
Volatile Organic Compounds, 1994

25

Sampling Point	GW-739	GW-740		GW-793				GW-794
Unit	AQF	AQF		AQT				AQT
Location	EXP-C	EXP-C		AGLLSF				AGLLSF
Date Sampled	12/18/94	03/14/94	12/17/94	03/22/94	05/25/94	07/28/94	11/02/94	03/23/94
Acetone	10U	10U	10U	10U	10U	10U	10U	10U
Benzene	10U	5U	10U	5U	10U	10U	10U	5U
Bromodichloromethane	10U	5U	10U	5U	10U	10U	10U	5U
Bromoform	10U	5U	10U	5U	10U	10U	10U	5U
Bromomethane	10U	10U	10U	10U	10U	10U	10U	10U
2-Butanone	10U	10U	10U	10U	10U	10U	10U	10U
Carbon disulfide	10U	5U	10U	5U	10U	10U	10U	5U
Carbon tetrachloride	10U	5U	10U	5U	10U	10U	10U	5U
Chlorobenzene	10U	5U	10U	5U	10U	10U	10U	5U
Chlorodibromomethane	10U	5U	10U	5U	10U	10U	10U	5U
Chloroethane	10U	10U	10U	10U	10U	10U	10U	10U
Chloroform	10U	1	1	5U	10U	10U	10U	5U
Chloromethane	10U	10U	10U	10U	10U	10U	10U	10U
1,1-Dichloroethane	10U	5U	10U	5U	10U	10U	10U	5U
1,2-Dichloroethane	10U	5U	10U	5U	10U	10U	10U	5U
1,1-Dichloroethene	10U	5U	10U	5U	10U	10U	10U	5U
1,2-Dichloroethene	1	2	2	5U	10U	10U	10U	5U
trans-1,2-Dichloroethene	.	.	.	.	.	.	.	.
1,2-Dichloropropane	10U	5U	10U	5U	10U	10U	10U	5U
cis-1,3-Dichloropropene	10U	5U	10U	5U	10U	10U	10U	5U
trans-1,3-Dichloropropene	10U	5U	10U	5U	10U	10U	10U	5U
Ethylbenzene	10U	5U	10U	5U	10U	10U	10U	5U
2-Hexanone	10U	10U	10U	10U	10U	10U	10U	10U
4-Methyl-2-pentanone	10U	10U	10U	10U	10U	10U	10U	10U
Methylene chloride	10U	5U	10U	1	10U	10U	10U	5U
Styrene	10U	5U	10U	5U	10U	10U	10U	5U
1,1,2,2-Tetrachloroethane	10U	5U	10U	5U	10U	10U	10U	5U
Tetrachloroethene	10U	5U	10U	5U	10U	10U	10U	5U
Toluene	10U	5U	10U	5U	10U	10U	10U	5U
1,1,1-Trichloroethane	10U	5U	10U	5U	10U	10U	10U	5U
1,1,2-Trichloroethane	10U	5U	10U	5U	10U	10U	10U	5U
Trichloroethene	35	45	28	5U	10U	10U	10U	5U
Vinyl acetate	10U	10U	10U	10U	10U	10U	10U	10U
Vinyl chloride	10U	10U	10U	10U	10U	10U	10U	10U
Xylenes	10U	5U	10U	5U	10U	10U	10U	5U

(CONTINUED)

APPENDIX E.2
Volatile Organic Compounds, 1994

26

Sampling Point . Unit . Location . Date Sampled	GW-794			GW-795				GW-800
	AQT			AQT				AQF
	AGLLSF			AGLLSF				OLF
	05/27/94	08/04/94	11/07/94	03/23/94	05/27/94	08/04/94	11/08/94	02/11/94
Acetone	10U	10U	10U	10U	10U	10U	10U	10U
Benzene	10U	10U	10U	5U	10U	10U	10U	5U
Bromodichloromethane	10U	10U	10U	5U	10U	10U	10U	5U
Bromoform	10U	10U	10U	5U	10U	10U	10U	5U
Bromomethane	10U	10U	10U	10U	10U	10U	10U	10U
2-Butanone	10U	10U	10U	10U	10U	10U	10U	10U
Carbon disulfide	10U	10U	10U	5U	10U	10U	10U	5U
Carbon tetrachloride	10U	10U	10U	5U	10U	10U	10U	5U
Chlorobenzene	10U	10U	10U	5U	10U	10U	10U	5U
Chlorodibromomethane	10U	10U	10U	5U	10U	10U	10U	5U
Chloroethane	10U	10U	10U	10U	10U	10U	10U	10U
Chloroform	10U	10U	10U	5U	10U	10U	10U	5U
Chloromethane	10U	10U	10U	10U	10U	10U	10U	10U
1,1-Dichloroethane	10U	10U	10U	5U	10U	10U	10U	5U
1,2-Dichloroethane	10U	10U	10U	5U	10U	10U	10U	5U
1,1-Dichloroethene	10U	10U	10U	5U	10U	10U	10U	5U
1,2-Dichloroethene	10U	10U	10U	5U	10U	10U	10U	5U
trans-1,2-Dichloroethene	.	.	.	.	.	.	.	.
1,2-Dichloropropane	10U	10U	10U	5U	10U	10U	10U	5U
cis-1,3-Dichloropropene	10U	10U	10U	5U	10U	10U	10U	5U
trans-1,3-Dichloropropene	10U	10U	10U	5U	10U	10U	10U	5U
Ethylbenzene	10U	10U	10U	5U	10U	10U	10U	5U
2-Hexanone	10U	10U	10U	10U	10U	10U	10U	10U
4-Methyl-2-pentanone	10U	10U	10U	10U	10U	10U	10U	10U
Methylene chloride	10U	10U	10U	5U	10U	10U	10U	5U
Styrene	10U	10U	10U	5U	10U	10U	10U	5U
1,1,2,2-Tetrachloroethane	10U	10U	10U	5U	10U	10U	10U	5U
Tetrachloroethene	10U	10U	10U	5U	10U	10U	10U	5U
Toluene	10U	10U	10U	5U	10U	10U	10U	5U
1,1,1-Trichloroethane	10U	10U	10U	5U	10U	10U	10U	5U
1,1,2-Trichloroethane	10U	10U	10U	5U	10U	10U	10U	5U
Trichloroethene	10U	10U	10U	5U	10U	10U	10U	5U
Vinyl acetate	10U	10U	10U	10U	10U	10U	10U	10U
Vinyl chloride	10U	10U	10U	10U	10U	10U	10U	10U
Xylenes	10U	10U	10U	5U	10U	10U	10U	5U

(CONTINUED)

APPENDIX E.2
Volatile Organic Compounds, 1994

27

Sampling Point . Unit . Location . Date Sampled	GW-800		
	AQF		
	OLF		
	06/22/94	09/02/94	12/14/94
Acetone	10U	10U	10U
Benzene	10U	10U	10U
Bromodichloromethane	10U	10U	10U
Bromoform	10U	10U	10U
Bromomethane	10U	10U	10U
2-Butanone	10U	10U	10U
Carbon disulfide	10U	10U	10U
Carbon tetrachloride	10U	10U	10U
Chlorobenzene	10U	10U	10U
Chlorodibromomethane	10U	10U	10U
Chloroethane	10U	10U	10U
Chloroform	10U	10U	10U
Chloromethane	10U	10U	10U
1,1-Dichloroethane	10U	10U	10U
1,2-Dichloroethane	10U	10U	10U
1,1-Dichloroethene	10U	10U	10U
1,2-Dichloroethene	10U	10U	10U
trans-1,2-Dichloroethene	.	.	.
1,2-Dichloropropane	10U	10U	10U
cis-1,3-Dichloropropene	10U	10U	10U
trans-1,3-Dichloropropene	10U	10U	10U
Ethylbenzene	10U	10U	10U
2-Hexanone	10U	10U	10U
4-Methyl-2-pentanone	10U	10U	10U
Methylene chloride	10U	10U	10U
Styrene	10U	10U	10U
1,1,2,2-Tetrachloroethane	10U	10U	10U
Tetrachloroethene	10U	10U	10U
Toluene	10U	10U	10U
1,1,1-Trichloroethane	10U	10U	10U
1,1,2-Trichloroethane	10U	10U	10U
Trichloroethene	10U	10U	10U
Vinyl acetate	10U	10U	10U
Vinyl chloride	10U	10U	10U
Xylenes	10U	10U	10U

APPENDIX E.2
Volatile Organic Compounds, 1994

28

Sampling Point	BCK-00.63		BCK-04.55		BCK-09.40		BCK-11.97	
Unit	CREEK		CREEK		CREEK		CREEK	
Location	EXP-SW		EXP-SW		EXP-SW		EXP-SW	
Date Sampled	02/14/94	09/06/94	02/14/94	09/06/94	02/14/94	09/06/94	02/14/94	09/06/94
Acetone	10U	10U	10U	10U	10U	10U	10U	10U
Benzene	5U	10U	5U	10U	5U	10U	5U	10U
Bromodichloromethane	5U	10U	5U	10U	5U	10U	5U	10U
Bromoform	5U	10U	5U	10U	5U	10U	5U	10U
Bromomethane	10U	10U	10U	10U	10U	10U	10U	10U
2-Butanone	10U	10U	10U	10U	10U	10U	10U	10U
Carbon disulfide	5U	10U	5U	10U	5U	10U	5U	10U
Carbon tetrachloride	5U	10U	5U	10U	5U	10U	5U	10U
Chlorobenzene	5U	10U	5U	10U	5U	10U	5U	10U
Chlorodibromomethane	5U	10U	5U	10U	5U	10U	5U	10U
Chloroethane	10U	10U	10U	10U	10U	10U	10U	10U
Chloroform	5U	10U	5U	10U	5U	10U	5U	10U
Chloromethane	10U	10U	10U	10U	10U	10U	10U	10U
1,1-Dichloroethane	5U	10U	5U	10U	5U	10U	5U	10U
1,2-Dichloroethane	5U	10U	5U	10U	5U	10U	5U	10U
1,1-Dichloroethene	5U	10U	5U	10U	5U	10U	5U	10U
1,2-Dichloroethene	5U	10U	5U	10U	5	6	5U	10U
trans-1,2-Dichloroethene	.	.	.	.	.	.	.	.
1,2-Dichloropropane	5U	10U	5U	10U	5U	10U	5U	10U
cis-1,3-Dichloropropene	5U	10U	5U	10U	5U	10U	5U	10U
trans-1,3-Dichloropropene	5U	10U	5U	10U	5U	10U	5U	10U
Ethylbenzene	5U	10U	5U	10U	5U	10U	5U	10U
2-Hexanone	10U	10U	10U	10U	10U	10U	10U	10U
4-Methyl-2-pentanone	10U	10U	10U	10U	10U	10U	10U	10U
Methylene chloride	5U	10U	5U	10U	1	10U	5U	10U
Styrene	5U	10U	5U	10U	5U	10U	5U	10U
1,1,2,2-Tetrachloroethane	5U	10U	5U	10U	5U	10U	5U	10U
Tetrachloroethene	5U	10U	5U	10U	1	10U	5U	10U
Toluene	5U	10U	5U	10U	5U	10U	5U	10U
1,1,1-Trichloroethane	5U	10U	5U	10U	5U	10U	5U	10U
1,1,2-Trichloroethane	5U	10U	5U	10U	5U	10U	5U	10U
Trichloroethene	5U	10U	5U	10U	0.6	10U	5U	10U
Vinyl acetate	10U	10U	10U	10U	10U	10U	10U	10U
Vinyl chloride	10U	10U	10U	10U	10U	10U	10U	10U
Xylenes	5U	10U	5U	10U	5U	10U	5U	10U

(CONTINUED)

APPENDIX E.2
Volatile Organic Compounds, 1994

29

Sampling Point	NT-01		NT-13		SS-1		SS-4	
Unit	CREEK		CREEK		SPRING		SPRING	
Location	EXP-SW		EXP-SW		EXP-SW		EXP-SW	
Date Sampled	02/14/94	09/07/94	02/14/94	09/06/94	02/14/94	09/07/94	02/14/94	09/06/94
Acetone	10U	10U	10U	10U	10U	10U	10U	10U
Benzene	5U	10U	5U	10U	5U	10U	5U	10U
Bromodichloromethane	5U	10U	5U	10U	5U	10U	5U	10U
Bromoform	5U	10U	5U	10U	5U	10U	5U	10U
Bromomethane	10U	10U	10U	10U	10U	10U	10U	10U
2-Butanone	10U	10U	10U	10U	10U	10U	10U	10U
Carbon disulfide	5U	10U	5U	10U	5U	10U	5U	10U
Carbon tetrachloride	5U	10U	5U	10U	5U	10U	5U	10U
Chlorobenzene	5U	10U	5U	10U	5U	10U	5U	10U
Chlorodibromomethane	5U	10U	5U	10U	5U	10U	5U	10U
Chloroethane	10U	10U	10U	10U	10U	10U	10U	10U
Chloroform	5U	10U	5U	10U	5U	10U	5U	10U
Chloromethane	10U	10U	10U	10U	10U	10U	10U	10U
1,1-Dichloroethane	5U	10U	5U	10U	5U	10U	5U	10U
1,2-Dichloroethane	5U	10U	5U	10U	5U	10U	5U	10U
1,1-Dichloroethene	5U	10U	5U	10U	5U	10U	5U	10U
1,2-Dichloroethene	5U	10U	5U	10U	5U	10U	5U	5
trans-1,2-Dichloroethene	.	.	.	.	.	.	.	.
1,2-Dichloropropane	5U	10U	5U	10U	5U	10U	5U	10U
cis-1,3-Dichloropropene	5U	10U	5U	10U	5U	10U	5U	10U
trans-1,3-Dichloropropene	5U	10U	5U	10U	5U	10U	5U	10U
Ethylbenzene	5U	10U	5U	10U	5U	10U	5U	10U
2-Hexanone	10U	10U	10U	10U	10U	10U	10U	10U
4-Methyl-2-pentanone	10U	10U	10U	10U	10U	10U	10U	10U
Methylene chloride	2	10U	1	10U	5U	10U	5U	10U
Styrene	5U	10U	5U	10U	5U	10U	5U	10U
1,1,2,2-Tetrachloroethane	5U	10U	5U	10U	5U	10U	5U	10U
Tetrachloroethene	4	6	5U	10U	2	10U	5U	10U
Toluene	5U	10U	5U	10U	5U	10U	5U	10U
1,1,1-Trichloroethane	5U	10U	5U	10U	5U	10U	5U	10U
1,1,2-Trichloroethane	5U	10U	5U	10U	5U	10U	5U	10U
Trichloroethene	5U	10U	5U	10U	2	10U	3	4
Vinyl acetate	10U	10U	10U	10U	10U	10U	10U	10U
Vinyl chloride	10U	10U	10U	10U	10U	10U	10U	10U
Xylenes	5U	10U	5U	10U	5U	10U	5U	10U

(CONTINUED)

APPENDIX E.2
Volatile Organic Compounds, 1994

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Sampling Point . Unit . Location . Date Sampled	SS-5	
	SPRING	
	EXP-SW	
	02/14/94	09/06/94
Acetone	10U	10U
Benzene	5U	10U
Bromodichloromethane	5U	10U
Bromoform	5U	10U
Bromomethane	10U	10U
2-Butanone	10U	10U
Carbon disulfide	5U	10U
Carbon tetrachloride	5U	10U
Chlorobenzene	5U	10U
Chlorodibromomethane	5U	10U
Chloroethane	10U	10U
Chloroform	5U	10U
Chloromethane	10U	10U
1,1-Dichloroethane	5U	10U
1,2-Dichloroethane	5U	10U
1,1-Dichloroethene	5U	10U
1,2-Dichloroethene	5U	10U
trans-1,2-Dichloroethene	.	.
1,2-Dichloropropane	5U	10U
cis-1,3-Dichloropropene	5U	10U
trans-1,3-Dichloropropene	5U	10U
Ethylbenzene	5U	10U
2-Hexanone	10U	10U
4-Methyl-2-pentanone	10U	10U
Methylene chloride	5U	10U
Styrene	5U	10U
1,1,2,2-Tetrachloroethane	5U	10U
Tetrachloroethene	5U	10U
Toluene	5U	10U
1,1,1-Trichloroethane	5U	10U
1,1,2-Trichloroethane	5U	10U
Trichloroethene	5U	10U
Vinyl acetate	10U	10U
Vinyl chloride	10U	10U
Xylenes	5U	10U

APPENDIX E.3

**FIELD, MISCELLANEOUS, AND
GROSS ALPHA AND GROSS BETA ACTIVITIES**

APPENDIX E.3

1

Field Measurements, Miscellaneous Parameters, and Radiochemistry, 1994

Sampling Point . Unit . Location . Date Sampled	GW-040				GW-042			
	AQT				AQT			
	BG				BG			
	03/08/94	05/17/94	08/22/94	11/09/94	03/11/94	05/17/94	08/23/94	11/23/94
FIELD MEASUREMENTS	.	.	.	.	.	.	.	.
Depth to Water (ft)	13.7	19.25	15.3	21.6	17.5	21	20.8	22.52
Water Temp (degrees C)	15.1	15.1	16.8	16.2	14	15.4	16.3	11.5
pH (pH units)	6.3	6.1	5.7	6	7.8	5.9	5.6	6.3
Sp. Cond. (umho/cm)	139	194	149	202	112	72	96	84
Dissolved Oxygen (ppm)	6.2	4.8	2.8	1.6	6.2	2.8	4.1	5.5
Oxidation/Reduction (mV)	183	219	156	72	140	203	52	75
MISCELLANEOUS PARAMETERS	.	.	.	.	.	.	.	.
pH (pH units)	6.3	6.9	6.6	6.4	7.1	7.2	6.3	6.3
Sp. Cond. (umho/cm)	152	150	146	156	75	75	76	72
TDS (mg/L)	298	266	154	150	68	88	80	124
TSS (mg/L)	438	83	92	388	2	3	<1	<1
Turbidity (NTU)	500	170	360	390	3.5	12	4	1.6
RADIOCHEMICAL PARAMETERS	.	.	.	.	.	.	.	.
Gross Alpha (pCi/L)	2.25	1.54	9.44	1.78	-0.46	-0.00	0.30	1.17
Gross Alpha (CE+/-)	2.00	1.40	3.60	1.40	1.20	0.85	1.00	1.40
Gross Beta (pCi/L)	2.73	4.05	35.90	0.94	-1.47	-0.27	-0.34	-0.51
Gross Beta (CE+/-)	2.70	2.60	5.50	2.30	2.50	2.50	2.40	4.50

(CONTINUED)

APPENDIX E.3

2

Field Measurements, Miscellaneous Parameters, and Radiochemistry, 1994

Sampling Point . Unit . Location . Date Sampled	GW-043				GW-044			
	AQT				AQT			
	OLF				OLF			
	02/08/94	06/21/94	08/31/94	11/30/94	02/08/94	06/21/94	08/31/94	11/30/94
FIELD MEASUREMENTS	.	.	.	.	.	.	.	.
	.	.	.	.	.	.	.	.
Depth to Water (ft)	25.15	23.55	27.55	30.98	25.96	24.5	28.8	32
Water Temp (degrees C)	14.6	15.9	15.6	14.1	14.2	15.5	15.1	14.1
pH (pH units)	6.7	5.6	6.3	6.6	7.1	6.9	7.1	7.4
Sp. Cond. (umho/cm)	187	82	123	137	279	250	260	260
Dissolved Oxygen (ppm)	3.5	5.7	4.8	3.3	3.5	4.1	3.2	3.2
Oxidation/Reduction (mV)	192	187	191	210	155	182	17	174
	.	.	.	.	.	.	.	.
MISCELLANEOUS PARAMETERS	.	.	.	.	.	.	.	.
	.	.	.	.	.	.	.	.
pH (pH units)	7.1	7.1	6.3	6.9	7.6	7.8	7.5	7.4
Sp. Cond. (umho/cm)	183	136	95	160	272	252	269	277
TDS (mg/L)	120	128	86	132	178	184	148	188
TSS (mg/L)	7	17	19	28	<1	1	6	<1
Turbidity (NTU)	8.2	20	40	32	1.5	2.6	1.5	1.4
	.	.	.	.	.	.	.	.
RADIOCHEMICAL PARAMETERS	.	.	.	.	.	.	.	.
	.	.	.	.	.	.	.	.
Gross Alpha (pCi/L)	0.16	0.30	-0.01	0.59	0.34	-0.00	0.48	0.61
Gross Alpha (CE+/-)	0.58	0.61	2.00	1.20	0.69	0.47	2.10	1.20
Gross Beta (pCi/L)	3.39	0.82	3.20	-1.82	2.23	0.08	1.72	3.95
Gross Beta (CE+/-)	2.60	2.40	2.90	4.40	2.50	2.30	2.70	4.80

(CONTINUED)

APPENDIX E.3

3

Field Measurements, Miscellaneous Parameters, and Radiochemistry, 1994

Sampling Point . Unit . Location . Date Sampled	GW-047				GW-053			
	AQT				AQF			
	BG				BG			
	03/24/94	05/31/94	08/09/94	11/08/94	03/10/94	06/24/94	09/15/94	12/12/94
FIELD MEASUREMENTS	.	.	.	.	.	.	.	.
Depth to Water (ft)	7.57	8	8.05	8.65	3.75	9.45	9.74	6
Water Temp (degrees C)	13.3	13.2	14.6	15	10.3	19.7	18	10.3
pH (pH units)	5.6	6	5.6	6.1	7.7	6	7	7.6
Sp. Cond. (umho/cm)	63	66	79	74	630	619	690	617
Dissolved Oxygen (ppm)	5	3.2	3.7	3.3	6.6	5	1.1	12.6
Oxidation/Reduction (mV)	204	212	251	188	30	111	8	192
MISCELLANEOUS PARAMETERS	.	.	.	.	.	.	.	.
pH (pH units)	6.6	7.4	6.4	6.7	7.9	7.3	7.9	7.5
Sp. Cond. (umho/cm)	60	69	65	73	641	667	700	698
TDS (mg/L)	76	56	80	78	402	412	420	414
TSS (mg/L)	31	2	8	8	25	3	5	<1
Turbidity (NTU)	17	2.6	9	20	25	3	2	0.7
RADIOCHEMICAL PARAMETERS	.	.	.	.	.	.	.	.
Gross Alpha (pCi/L)	-0.00	-0.31	0.43	0.15	-1.03	1.12	2.93	2.06
Gross Alpha (CE+/-)	0.99	0.98	1.00	1.20	1.10	1.30	2.50	1.60
Gross Beta (pCi/L)	0.42	-1.53	0.16	0.94	5.40	3.22	6.36	3.43
Gross Beta (CE+/-)	2.80	2.60	2.30	2.70	2.60	2.40	3.00	2.40

(CONTINUED)

APPENDIX E.3

4

Field Measurements, Miscellaneous Parameters, and Radiochemistry, 1994

Sampling Point	GW-056		GW-057		GW-061			
Unit	AQF		AQF		AQF			
Location	EXP-A		EXP-A		BG			
Date Sampled	02/26/94	09/14/94	02/26/94	09/14/94	03/21/94	06/24/94	09/15/94	12/12/94
FIELD MEASUREMENTS	.	.	.	.	.	.	.	.
Depth to Water (ft)	4.25	8.45	5	7	13.45	14.73	17.6	11.95
Water Temp (degrees C)	13.1	15.8	12.4	18.2	13.2	17.9	16.5	12.6
pH (pH units)	7.4	7.4	7.1	6.9	6.9	6.9	7.2	7
Sp. Cond. (umho/cm)	865	710	802	875	430	264	679	404
Dissolved Oxygen (ppm)	7.3	2.6	6.8	0.9	4.4	6.9	1	6.5
Oxidation/Reduction (mV)	88	-10	81	44	203	158	98	210
MISCELLANEOUS PARAMETERS	.	.	.	.	.	.	.	.
pH (pH units)	7.6	7.5	7.5	7.2	7.5	7.2	7.3	7.5
Sp. Cond. (umho/cm)	970	767	930	835	466	642	678	481
TDS (mg/L)	538	422	504	480	288	206	418	286
TSS (mg/L)	21	16	<1	<1	3	27	69	614
Turbidity (NTU)	9.7	8	2	1.5	6.4	180	130	520
RADIOCHEMICAL PARAMETERS	.	.	.	.	.	.	.	.
Gross Alpha (pCi/L)	1.61	2.91	2.54	1.28	14.60	18.00	37.10	12.80
Gross Alpha (CE+/-)	2.00	2.10	2.00	1.80	3.80	4.30	8.90	3.50
Gross Beta (pCi/L)	5.10	4.45	3.66	7.10	26.90	57.10	71.70	36.00
Gross Beta (CE+/-)	2.60	2.70	2.60	2.90	4.70	7.40	11.00	5.40

(CONTINUED)

APPENDIX E.3

5

Field Measurements, Miscellaneous Parameters, and Radiochemistry, 1994

Sampling Point . Unit . Location . Date Sampled	GW-064				GW-069			
	AQF				AQT			
	OLF				BG			
	02/10/94	06/23/94	09/01/94	12/15/94	03/11/94	06/08/94	09/09/94	12/06/94
FIELD MEASUREMENTS	.	.	.	.	.	.	.	.
	.	.	.	.	.	.	.	.
Depth to Water (ft)	19.9	26.65	26.65	25.14	7.65	9.1	9.95	9.4
Water Temp (degrees C)	12.6	16	15.5	13.2	14.3	16.3	16.1	15.1
pH (pH units)	7.1	7.1	7.3	7.2	9.2	8.3	8.7	8.6
Sp. Cond. (umho/cm)	590	650	628	501	351	430	320	422
Dissolved Oxygen (ppm)	2	2.4	3.1	1.9	7.7	2	1.52	0.8
Oxidation/Reduction (mV)	200	154	120	234	-148	-60	-136	-122
	.	.	.	.	.	.	.	.
MISCELLANEOUS PARAMETERS	.	.	.	.	.	.	.	.
	.	.	.	.	.	.	.	.
pH (pH units)	7.5	7.6	7.4	7.4	8.9	8.6	8.7	8.6
Sp. Cond. (umho/cm)	655	590	569	674	365	378	365	384
TDS (mg/L)	386	410	394	334	220	220	240	232
TSS (mg/L)	5	5	2	60	<1	<1	<1	2
Turbidity (NTU)	8.4	6	3.5	126	0.9	0.6	1.5	1.6
	.	.	.	.	.	.	.	.
RADIOCHEMICAL PARAMETERS	.	.	.	.	.	.	.	.
	.	.	.	.	.	.	.	.
Gross Alpha (pCi/L)	1.67	0.74	1.96	2.59	-0.19	-0.76	-3.14	0.63
Gross Alpha (CE+/-)	1.30	0.92	1.80	1.80	1.20	1.40	2.10	1.60
Gross Beta (pCi/L)	16.90	13.40	15.80	13.80	1.02	0.72	-4.44	2.59
Gross Beta (CE+/-)	3.60	3.10	3.70	3.40	2.30	2.60	3.10	3.20

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APPENDIX E.3

6

Field Measurements, Miscellaneous Parameters, and Radiochemistry, 1994

Sampling Point . Unit . Location . Date Sampled	GW-079				GW-080			
	AQT				AQT			
	BG				BG			
	03/09/94	06/07/94	09/12/94	12/06/94	03/09/94	06/07/94	09/09/94	12/06/94
FIELD MEASUREMENTS	.	.	.	.	.	.	.	.
	.	.	.	.	.	.	.	.
Depth to Water (ft)	17	21.75	23.7	23.55	20.43	24.45	24.8	23.64
Water Temp (degrees C)	12	15.5	16.4	15.9	13.1	15.3	14.6	14.5
pH (pH units)	7.6	8.4	8.1	8	6.9	8.4	6.1	5.6
Sp. Cond. (umho/cm)	218	315	201	249	115	196	98	113
Dissolved Oxygen (ppm)	7.7	3.8	1	1.2	10.8	1.4	2.5	1.3
Oxidation/Reduction (mV)	13	30	87	150	38	-91	113	64
	.	.	.	.	.	.	.	.
MISCELLANEOUS PARAMETERS	.	.	.	.	.	.	.	.
	.	.	.	.	.	.	.	.
pH (pH units)	8.1	7.6	8.1	8	6.4	7	6.6	6.3
Sp. Cond. (umho/cm)	219	218	212	212	77	125	102	92
TDS (mg/L)	144	154	156	128	106	114	96	94
TSS (mg/L)	<1	2	20	<1	282	71	56	223
Turbidity (NTU)	1.3	1.4	32	0.5	220	66	64	240
	.	.	.	.	.	.	.	.
RADIOCHEMICAL PARAMETERS	.	.	.	.	.	.	.	.
	.	.	.	.	.	.	.	.
Gross Alpha (pCi/L)	-1.16	0.32	-1.46	-0.78	2.60	1.41	-0.32	0.94
Gross Alpha (CE+/-)	1.40	0.66	1.80	1.20	2.00	1.10	1.90	1.60
Gross Beta (pCi/L)	-0.40	-0.65	-0.57	2.94	3.07	1.72	1.83	4.06
Gross Beta (CE+/-)	2.50	2.20	2.60	2.60	2.80	2.40	2.80	2.70

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Field Measurements, Miscellaneous Parameters, and Radiochemistry, 1994

Sampling Point . Unit . Location . Date Sampled	GW-084				GW-085			
	AQT				AQT			
	OLF				OLF			
	02/08/94	06/21/94	09/01/94	11/30/94	02/11/94	06/24/94	09/07/94	12/15/94
FIELD MEASUREMENTS	.	.	.	.	.	.	.	.
	.	.	.	.	.	.	.	.
Depth to Water (ft)	13.84	15.25	15.17	15.17	11.5	13.6	14.25	14
Water Temp (degrees C)	15.6	15.6	15.9	15.2	13.4	18	16.8	13.9
pH (pH units)	7.3	7.5	7.4	8	7.2	6.7	6.94	7.1
Sp. Cond. (umho/cm)	307	291	315	289	1815	1519	1786	1675
Dissolved Oxygen (ppm)	1.5	1.9	2.8	1.1	1.6	3.2	1.7	2.1
Oxidation/Reduction (mV)	54	162	121	174	182	203	65	227
	.	.	.	.	.	.	.	.
MISCELLANEOUS PARAMETERS	.	.	.	.	.	.	.	.
	.	.	.	.	.	.	.	.
pH (pH units)	7.9	8.1	7.5	7.7	7.6	6.9	7.1	7.4
Sp. Cond. (umho/cm)	301	297	290	309	1850	1520	1830	1826
TDS (mg/L)	192	206	236	204	1414	1194	1474	1418
TSS (mg/L)	52	37	44	44	24	69	21	15
Turbidity (NTU)	25	16	25	26	6.1	32	17	14
	.	.	.	.	.	.	.	.
RADIOCHEMICAL PARAMETERS	.	.	.	.	.	.	.	.
	.	.	.	.	.	.	.	.
Gross Alpha (pCi/L)	2.42	1.21	0.66	1.84	-8.52	3.42	13.20	0.61
Gross Alpha (CE+/-)	1.40	1.00	1.40	1.80	32.00	5.40	10.00	1.20
Gross Beta (pCi/L)	5.55	-0.09	-0.58	1.80	67.90	71.50	142.00	102.00
Gross Beta (CE+/-)	2.80	2.30	2.50	4.70	57.00	14.00	17.00	12.00

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Field Measurements, Miscellaneous Parameters, and Radiochemistry, 1994

Sampling Point . Unit . Location . Date Sampled	GW-095				GW-115		GW-162	
	AQF				AQT		AQT	
	BG				S3		BG	
	03/10/94	06/28/94	09/12/94	12/05/94	02/17/94	08/15/94	03/08/94	05/18/94
FIELD MEASUREMENTS	.	.	.	.	.	.	.	.
	.	.	.	.	.	.	.	.
Depth to Water (ft)	2	4.3	8.95	3.95	7.31	11.25	15.6	19
Water Temp (degrees C)	12.2	14.6	15	14.5	15	17.3	13.6	18.7
pH (pH units)	9.2	8.9	9.2	8.9	7.5	7.5	8.6	7.9
Sp. Cond. (umho/cm)	453	544	507	560	447	458	191	225
Dissolved Oxygen (ppm)	2	0.3	0.6	0.8	6.1	1.87	5.2	10.1
Oxidation/Reduction (mV)	103	118	22	122	46	-83	93	-47
	.	.	.	.	.	.	.	.
MISCELLANEOUS PARAMETERS	.	.	.	.	.	.	.	.
	.	.	.	.	.	.	.	.
pH (pH units)	9.1	9.1	9	9.1	7.8	7.6	8.3	8.1
Sp. Cond. (umho/cm)	492	508	509	526	463	478	198	242
TDS (mg/L)	332	328	318	328	294	326	140	148
TSS (mg/L)	<1	<1	<1	<1	3	1	84	9
Turbidity (NTU)	0.9	0.7	0.8	0.9	2	6.5	100	15
	.	.	.	.	.	.	.	.
RADIOCHEMICAL PARAMETERS	.	.	.	.	.	.	.	.
	.	.	.	.	.	.	.	.
Gross Alpha (pCi/L)	-0.39	-0.01	4.07	0.56	0.81	-0.01	1.05	-0.01
Gross Alpha (CE+/-)	1.20	0.95	2.30	1.10	2.70	1.20	1.80	1.10
Gross Beta (pCi/L)	2.04	1.34	5.95	2.79	-0.58	2.21	0.22	2.75
Gross Beta (CE+/-)	2.30	2.30	3.00	2.30	3.20	2.50	2.60	2.50

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Field Measurements, Miscellaneous Parameters, and Radiochemistry, 1994

Sampling Point	GW-162		GW-243	GW-276		GW-287		
Unit	AQT		AQT	AQT		AQT		
Location	BG		S3	S3		BG		
Date Sampled	08/22/94	11/07/94	03/30/94	03/30/94	08/20/94	03/09/94	06/09/94	09/13/94
FIELD MEASUREMENTS	.	.	.	.	.	.	.	.
Depth to Water (ft)	21.3	22.35	14.5	5.11	6.1	9.14	9.65	9.73
Water Temp (degrees C)	17.4	19.8	16	12.6	22.5	11.8	16.4	18
pH (pH units)	8	8.5	4	4.2	5.4	7.1	6.5	6.7
Sp. Cond. (umho/cm)	257	275	34400	1542	2920	572	269	209
Dissolved Oxygen (ppm)	0.6	5.3	0.9	4.8	2.3	8.7	1.5	4.2
Oxidation/Reduction (mV)	-70	122	415	347	206	93	259	176
MISCELLANEOUS PARAMETERS	.	.	.	.	.	.	.	.
pH (pH units)	8.1	8.1	3.9	4.2	4.2	6.7	6.6	7.2
Sp. Cond. (umho/cm)	242	254	36800	1630	1700	160	32	217
TDS (mg/L)	336	178	36172	1090	1110	110	178	128
TSS (mg/L)	11	49	90	20	5	15	7	4
Turbidity (NTU)	14	220	30	10	2	2.4	4	3.3
RADIOCHEMICAL PARAMETERS	.	.	.	.	.	.	.	.
Gross Alpha (pCi/L)	0.32	0.98	3530.00	398.00	454.00	0.97	-0.17	2.60
Gross Alpha (CE+/-)	1.10	1.10	440.00	56.00	53.00	1.40	0.73	1.90
Gross Beta (pCi/L)	3.82	3.16	22700.00	1110.00	1180.00	6.83	2.35	2.41
Gross Beta (CE+/-)	2.70	2.50	650.00	120.00	120.00	2.80	2.40	2.80

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Field Measurements, Miscellaneous Parameters, and Radiochemistry, 1994

Sampling Point	GW-287	GW-311				GW-312		
Unit	AQT	AQF				AQF		
Location	BG	RS				RS		
Date Sampled	12/07/94	02/09/94	06/22/94	09/06/94	12/14/94	02/09/94	06/23/94	09/06/94
FIELD MEASUREMENTS	.	.	.	.	.	.	.	.
Depth to Water (ft)	9	32.64	39	39.05	34.4	31.72	37.05	37.47
Water Temp (degrees C)	14	14.2	19.2	16.1	13.7	13.2	18	16.1
pH (pH units)	7.1	7.2	7.4	7.4	7.4	11.6	11.7	12
Sp. Cond. (umho/cm)	213	428	466	462	379	1430	1158	1081
Dissolved Oxygen (ppm)	12.9	4.9	5.5	6.1	8.4	1.6	3	2
Oxidation/Reduction (mV)	198	171	115	97	159	-3	2	-17
MISCELLANEOUS PARAMETERS	.	.	.	.	.	.	.	.
pH (pH units)	7	7.6	7.4	7.8	7.5	11.8	11.6	11.7
Sp. Cond. (umho/cm)	238	383	384	402	420	1400	997	1400
TDS (mg/L)	142	210	240	232	194	332	342	380
TSS (mg/L)	3	1	2	2	<1	14	3	5
Turbidity (NTU)	6.1	1.9	2	4	1	4.1	1.5	1.4
RADIOCHEMICAL PARAMETERS	.	.	.	.	.	.	.	.
Gross Alpha (pCi/L)	1.07	1.35	1.19	1.02	1.35	1.13	0.36	0.38
Gross Alpha (CE+/-)	1.60	1.10	1.00	1.50	1.40	1.10	0.73	1.50
Gross Beta (pCi/L)	-1.54	1.10	2.75	0.07	2.28	7.42	6.73	7.40
Gross Beta (CE+/-)	2.90	2.30	2.10	2.60	2.50	2.80	2.50	3.00

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Field Measurements, Miscellaneous Parameters, and Radiochemistry, 1994

Sampling Point	GW-312	GW-315				GW-317		
Unit	AQF	AQF				AQF		
Location	RS	SPI				SPI		
Date Sampled	12/14/94	02/17/94	06/20/94	08/30/94	12/05/94	02/17/94	06/17/94	08/29/94
FIELD MEASUREMENTS	.	.	.	.	.	.	.	.
	.	.	.	.	.	.	.	.
Depth to Water (ft)	34.77	48.05	59.1	59.35	59.15	63.2	74.85	75.45
Water Temp (degrees C)	12.5	15.1	17.1	17.4	15.7	11.3	17.1	17.2
pH (pH units)	11.9	7.2	6.9	7.1	6.3	7.8	7.8	7.7
Sp. Cond. (umho/cm)	879	473	555	574	720	381	403	411
Dissolved Oxygen (ppm)	13.8	7.2	3.2	3.4	2.2	7.7	6.3	14.7
Oxidation/Reduction (mV)	-16	126	135	138	181	94	112	172
	.	.	.	.	.	.	.	.
MISCELLANEOUS PARAMETERS	.	.	.	.	.	.	.	.
	.	.	.	.	.	.	.	.
pH (pH units)	11.8	7.5	7.3	7.3	7.2	8.1	7.9	8
Sp. Cond. (umho/cm)	1464	507	543	600	603	410	387	400
TDS (mg/L)	364	272	340	352	372	216	228	240
TSS (mg/L)	1	<1	<1	<1	<1	<1	2	2
Turbidity (NTU)	0.7	1	1.7	0.5	0.1	4	1.1	1.6
	.	.	.	.	.	.	.	.
RADIOCHEMICAL PARAMETERS	.	.	.	.	.	.	.	.
	.	.	.	.	.	.	.	.
Gross Alpha (pCi/L)	3.81	1.63	0.89	0.54	2.89	0.49	1.49	2.00
Gross Alpha (CE+/-)	2.00	2.00	1.40	1.90	9.40	1.20	1.10	1.70
Gross Beta (pCi/L)	7.18	7.11	25.60	30.60	30.00	5.70	3.79	5.58
Gross Beta (CE+/-)	2.80	3.30	4.40	5.10	26.00	2.80	2.20	2.90

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Field Measurements, Miscellaneous Parameters, and Radiochemistry, 1994

Sampling Point	GW-317	GW-324	GW-325	GW-345	GW-347			
Unit	AQF	AQT	AQT	AQT	AQF			
Location	SPI	S3	S3	S3	S3			
Date Sampled	12/04/94	02/15/94	02/15/94	02/18/94	02/16/94	06/17/94	08/30/94	12/04/94
FIELD MEASUREMENTS	.	.	.	.	.	.	.	.
Depth to Water (ft)	76.65	6.31	7.9	17.81	14.21	18.48	17.9	18.15
Water Temp (degrees C)	13.7	13.5	12.5	14.1	13	18.8	16.8	14.5
pH (pH units)	7.8	8	5.4	5.2	7.2	6.8	7.3	7.4
Sp. Cond. (umho/cm)	410	200	38	87	241	152	206	227
Dissolved Oxygen (ppm)	8.7	2.5	7.6	7.1	9.4	7.9	9.9	13.2
Oxidation/Reduction (mV)	165	125	200	195	175	166	136	190
MISCELLANEOUS PARAMETERS	.	.	.	.	.	.	.	.
pH (pH units)	7.9	8.2	5.9	5.7	7.7	7.4	7.2	7.7
Sp. Cond. (umho/cm)	404	215	35	86	205	148	154	189
TDS (mg/L)	224	130	38	98	162	110	88	110
TSS (mg/L)	<1	<1	<1	2	4	13	11	11
Turbidity (NTU)	1.4	1.1	26	2	16	22	28	70
RADIOCHEMICAL PARAMETERS	.	.	.	.	.	.	.	.
Gross Alpha (pCi/L)	-0.01	0.48	0.74	0.59	2.08	0.62	0.91	1.44
Gross Alpha (CE+/-)	0.81	0.74	0.79	1.70	1.60	0.77	1.40	1.30
Gross Beta (pCi/L)	3.90	10.10	2.88	6.15	5.80	4.49	4.28	6.62
Gross Beta (CE+/-)	2.50	3.20	2.80	3.20	2.90	2.30	2.90	2.70

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Field Measurements, Miscellaneous Parameters, and Radiochemistry, 1994

Sampling Point . Unit . Location . Date Sampled	GW-348				GW-363			
	AQF				AQT			
	S3				OLF			
	02/16/94	06/20/94	08/30/94	12/05/94	03/22/94	05/26/94	07/29/94	11/02/94
FIELD MEASUREMENTS	.	.	.	.	.	.	.	.
Depth to Water (ft)	16.77	24.2	24.4	23.59	4.85	5.75	5.4	6
Water Temp (degrees C)	13.7	16	15.8	14.8	15.8	16.2	16.4	16.8
pH (pH units)	7.3	7.2	7.4	7.4	9.2	9.2	7.8	9.2
Sp. Cond. (umho/cm)	505	546	531	656	479	445	420	439
Dissolved Oxygen (ppm)	6.4	1.9	1.7	1	1.1	3.6	5.2	2.5
Oxidation/Reduction (mV)	174	145	151	193	-110	-99	168	-85
MISCELLANEOUS PARAMETERS	.	.	.	.	.	.	.	.
pH (pH units)	7.7	7.6	7.6	7.5	9.2	9.2	8.9	9.2
Sp. Cond. (umho/cm)	531	519	553	556	470	443	352	455
TDS (mg/L)	306	318	318	338	306	290	260	294
TSS (mg/L)	<1	1	<1	<1	9	13	2	12
Turbidity (NTU)	2.6	1.8	0.5	0.3	5.5	15	1.3	16
RADIOCHEMICAL PARAMETERS	.	.	.	.	.	.	.	.
Gross Alpha (pCi/L)	1.57	1.00	2.75	1.43	-0.20	-1.41	-1.38	0.20
Gross Alpha (CE+/-)	1.20	0.97	1.90	1.40	1.40	1.30	1.40	1.60
Gross Beta (pCi/L)	28.70	17.70	25.60	27.90	-0.95	-2.70	0.39	0.89
Gross Beta (CE+/-)	4.70	3.50	4.60	4.60	2.40	2.50	2.20	2.70

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Field Measurements, Miscellaneous Parameters, and Radiochemistry, 1994

Sampling Point . Unit . Location . Date Sampled	GW-370				GW-372			
	AQT				AQT			
	BG				BG			
	03/10/94	05/24/94	08/25/94	11/09/94	03/09/94	05/19/94	08/23/94	11/08/94
FIELD MEASUREMENTS	.	.	.	.	.	.	.	.
Depth to Water (ft)	10.75	13.3	14.25	15.67	16.4	20.5	24.65	27
Water Temp (degrees C)	11.3	18.7	18.2	15.9	13.4	15.5	16.4	14.6
pH (pH units)	6.8	6.6	6.3	6.5	7.6	7.5	7.7	7.8
Sp. Cond. (umho/cm)	209	191	180	221	380	365	463	436
Dissolved Oxygen (ppm)	6.5	2.9	5.2	1.8	6.3	5.2	5	4.4
Oxidation/Reduction (mV)	194	183	197	161	74	-8	4	127
MISCELLANEOUS PARAMETERS	.	.	.	.	.	.	.	.
pH (pH units)	7.3	7.1	7.1	7.1	7.7	7.7	7.8	7.7
Sp. Cond. (umho/cm)	217	196	185	232	398	364	403	414
TDS (mg/L)	186	188	172	146	248	246	268	262
TSS (mg/L)	2	52	124	80	<1	8	6	<1
Turbidity (NTU)	20	13	23	21	2.1	19	7.3	2.1
RADIOCHEMICAL PARAMETERS	.	.	.	.	.	.	.	.
Gross Alpha (pCi/L)	0.51	0.97	1.54	1.26	-0.23	0.36	1.72	1.58
Gross Alpha (CE+/-)	1.30	1.60	2.70	1.50	2.00	1.10	1.60	1.40
Gross Beta (pCi/L)	4.37	0.97	-3.42	-0.67	-1.27	1.41	3.30	2.50
Gross Beta (CE+/-)	2.50	2.70	3.20	2.50	2.50	2.40	2.60	2.40

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Field Measurements, Miscellaneous Parameters, and Radiochemistry, 1994

Sampling Point . Unit . Location . Date Sampled	GW-373				GW-537			
	AQT				AQT			
	BG				OLF			
	03/10/94	05/21/94	08/24/94	11/08/94	02/11/94	06/24/94	09/07/94	12/15/94
FIELD MEASUREMENTS	.	.	.	.	.	.	.	.
Depth to Water (ft)	16.55	16.8	19.18	21.6	4.73	6.72	7.19	7.12
Water Temp (degrees C)	12.3	14.2	16.3	15.6	12.3	15.8	16.9	15.4
pH (pH units)	9.4	9.3	8.9	9.3	6.7	6.5	6.8	6.9
Sp. Cond. (umho/cm)	506	486	461	503	5810	5020	4770	5000
Dissolved Oxygen (ppm)	6.7	5.5	2.2	4.4	1.4	0.8	0.8	1.4
Oxidation/Reduction (mV)	184	217	112	90	210	196	82	227
MISCELLANEOUS PARAMETERS	.	.	.	.	.	.	.	.
pH (pH units)	9.1	9	9.2	9.1	7.1	6.8	6.9	7.2
Sp. Cond. (umho/cm)	482	485	463	480	6380	5500	5600	5770
TDS (mg/L)	318	300	334	308	5364	4576	4672	4342
TSS (mg/L)	1	7	28	9	10	4	9	<1
Turbidity (NTU)	2.6	3.9	12	14	4	2.2	1.8	2.5
RADIOCHEMICAL PARAMETERS	.	.	.	.	.	.	.	.
Gross Alpha (pCi/L)	-1.04	0.19	-0.77	1.67	-6.11	-2.71	32.60	0.28
Gross Alpha (CE+/-)	1.60	1.20	1.40	1.50	35.00	5.80	14.00	2.60
Gross Beta (pCi/L)	-0.48	-0.80	-0.86	1.79	713.00	397.00	392.00	350.00
Gross Beta (CE+/-)	2.50	2.20	2.80	2.40	88.00	46.00	25.00	39.00

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Field Measurements, Miscellaneous Parameters, and Radiochemistry, 1994

Sampling Point	GW-601	GW-613		GW-614		GW-621		GW-627
Unit	AQF	AQT		AQT		AQF		AQT
Location	OLF	S3		S3		EXP-B		BG
Date Sampled	03/25/94	02/14/94	08/15/94	02/14/94	08/16/94	02/18/94	12/07/94	03/14/94
FIELD MEASUREMENTS	.	.	.	.	.	.	.	.
Depth to Water (ft)	66	10.24	14.83	3.13	7.7	10.1	12	22.1
Water Temp (degrees C)	12.6	12	17.2	12.5	15.1	13	13.9	15.8
pH (pH units)	7.6	6.8	7	7.5	7.6	7.6	7.6	9.3
Sp. Cond. (umho/cm)	953	160	181	309	329	331	388	1150
Dissolved Oxygen (ppm)	1.1	6.5	3.2	2.3	0.6	4.7	4.8	0.15
Oxidation/Reduction (mV)	198	178	180	138	-30	223	191	-70
MISCELLANEOUS PARAMETERS	.	.	.	.	.	.	.	.
pH (pH units)	7.9	7.4	7	8.1	7.7	7.7	7.8	9.1
Sp. Cond. (umho/cm)	990	179	179	346	343	372	369	1220
TDS (mg/L)	566	96	150	194	250	244	236	750
TSS (mg/L)	1	2	5	3	<1	18	28	<1
Turbidity (NTU)	2	1.6	2.5	1	0.6	20	39	1
RADIOCHEMICAL PARAMETERS	.	.	.	.	.	.	.	.
Gross Alpha (pCi/L)	2.78	0.15	0.15	0.17	-0.01	3.18	3.81	-0.85
Gross Alpha (CE+/-)	2.30	0.56	1.10	0.61	1.20	1.80	2.20	1.90
Gross Beta (pCi/L)	25.50	15.80	1.90	8.89	1.82	16.10	9.32	0.58
Gross Beta (CE+/-)	4.50	3.70	2.60	3.00	2.50	3.70	3.50	2.60

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Field Measurements, Miscellaneous Parameters, and Radiochemistry, 1994

Sampling Point . Unit . Location . Date Sampled	GW-627			GW-637				GW-642
	AQT			AQT				AQT
	BG			OLF				BG
	06/23/94	09/15/94	12/09/94	03/23/94	05/26/94	07/29/94	11/07/94	03/09/94
FIELD MEASUREMENTS	.	.	.	.	.	.	.	.
	.	.	.	.	.	.	.	.
Depth to Water (ft)	23.6	24.4	24.15	8	11.3	7.4	12.05	17.5
Water Temp (degrees C)	18.4	17.3	14.6	11.3	16.8	17.2	13.2	14
pH (pH units)	9.1	9.3	9.1	7.3	7.4	7.3	7.3	6.4
Sp. Cond. (umho/cm)	1074	1196	1161	382	462	434	405	135
Dissolved Oxygen (ppm)	0.7	0.4	1	4	1	2.9	12	7
Oxidation/Reduction (mV)	-49	27	-5	137	14	62	101	5
	.	.	.	.	.	.	.	.
MISCELLANEOUS PARAMETERS	.	.	.	.	.	.	.	.
	.	.	.	.	.	.	.	.
pH (pH units)	9.1	9	9	7.7	7.8	7.7	7.5	6.6
Sp. Cond. (umho/cm)	1120	1150	1173	420	415	412	443	147
TDS (mg/L)	746	712	698	248	248	282	266	108
TSS (mg/L)	1	<1	<1	1	68	1	<1	2
Turbidity (NTU)	1	0.5	0.5	2.2	130	17	1.4	9.8
	.	.	.	.	.	.	.	.
RADIOCHEMICAL PARAMETERS	.	.	.	.	.	.	.	.
	.	.	.	.	.	.	.	.
Gross Alpha (pCi/L)	0.89	1.09	0.98	0.17	-0.18	2.31	1.26	-1.27
Gross Alpha (CE+/-)	1.40	2.00	1.40	1.40	1.50	2.20	2.80	1.10
Gross Beta (pCi/L)	1.12	1.75	2.79	0.94	0.07	7.87	7.42	4.48
Gross Beta (CE+/-)	2.30	2.70	2.60	2.60	2.60	2.80	5.50	2.90

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Field Measurements, Miscellaneous Parameters, and Radiochemistry, 1994

Sampling Point . Unit . Location . Date Sampled	GW-642			GW-652				GW-653
	AQT			AQF				AQT
	BG			BG				BG
	05/19/94	08/23/94	11/07/94	03/09/94	06/17/94	09/13/94	12/07/94	02/26/94
FIELD MEASUREMENTS	.	.	.	.	.	.	.	.
Depth to Water (ft)	20.6	20.25	22.82	9.32	11.1	11.95	9.31	18.8
Water Temp (degrees C)	16.1	16.8	16.1	12.8	13.9	14.7	13.8	12.4
pH (pH units)	6.3	5.9	6.8	7.6	7.1	7.3	7.2	5.6
Sp. Cond. (umho/cm)	151	190	165	411	351	396	425	33
Dissolved Oxygen (ppm)	3.5	0.9	0.4	6.2	5.3	1.1	2.1	7.9
Oxidation/Reduction (mV)	-32	-50	-55	93	192	192	225	170
MISCELLANEOUS PARAMETERS	.	.	.	.	.	.	.	.
pH (pH units)	6.6	6.6	7	7.7	7.2	7.6	7.5	6
Sp. Cond. (umho/cm)	128	183	206	398	383	400	426	37
TDS (mg/L)	108	136	138	282	224	232	240	48
TSS (mg/L)	3	4	11	25	3	2	1	8
Turbidity (NTU)	0.5	3.8	34	54	5.5	5.1	6.3	3.5
RADIOCHEMICAL PARAMETERS	.	.	.	.	.	.	.	.
Gross Alpha (pCi/L)	-0.65	0.32	2.04	-0.19	0.35	5.92	3.51	0.58
Gross Alpha (CE+/-)	0.65	1.10	1.40	1.20	1.00	2.50	2.10	1.10
Gross Beta (pCi/L)	0.98	3.02	2.70	2.36	7.27	6.30	1.73	0.32
Gross Beta (CE+/-)	2.40	2.60	2.50	2.40	2.70	3.00	3.10	2.50

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Field Measurements, Miscellaneous Parameters, and Radiochemistry, 1994

Sampling Point . Unit . Location . Date Sampled	GW-653			GW-654				GW-683
	AQT			AQT				AQF
	BG			BG				EXP-A
	06/09/94	09/13/94	12/07/94	03/09/94	06/08/94	09/13/94	12/07/94	03/04/94
FIELD MEASUREMENTS	.	.	.	.	.	.	.	.
	.	.	.	.	.	.	.	.
Depth to Water (ft)	23	23.85	23.21	6.89	7.5	8.45	7	86.35
Water Temp (degrees C)	15.2	15	13.5	11.2	16.1	17.1	13.8	12.6
pH (pH units)	5.1	5.5	5.3	7.6	6.8	7.5	7.5	7.4
Sp. Cond. (umho/cm)	37	34	35	264	277	268	279	230
Dissolved Oxygen (ppm)	6.7	6.6	6.3	4.6	6.3	0.7	1.3	8.8
Oxidation/Reduction (mV)	301	197	245	46	65	94	119	247
	.	.	.	.	.	.	.	.
MISCELLANEOUS PARAMETERS	.	.	.	.	.	.	.	.
	.	.	.	.	.	.	.	.
pH (pH units)	7.1	6	5.7	7.5	7.7	7.8	7.7	7.7
Sp. Cond. (umho/cm)	235	<50	33	242	245	267	284	217
TDS (mg/L)	46	18	42	174	168	198	174	106
TSS (mg/L)	15	86	133	23	2	194	4	1
Turbidity (NTU)	2.8	35	50	29	1.9	135	5.8	2.7
	.	.	.	.	.	.	.	.
RADIOCHEMICAL PARAMETERS	.	.	.	.	.	.	.	.
	.	.	.	.	.	.	.	.
Gross Alpha (pCi/L)	0.60	1.94	5.90	-0.01	-0.85	1.18	-0.32	3.35
Gross Alpha (CE+/-)	0.96	1.60	2.70	1.20	1.20	1.60	1.40	1.60
Gross Beta (pCi/L)	-0.10	0.84	19.00	3.47	-0.17	0.78	-0.78	1.95
Gross Beta (CE+/-)	2.40	2.90	4.00	2.50	2.60	2.60	3.00	2.70

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Field Measurements, Miscellaneous Parameters, and Radiochemistry, 1994

Sampling Point	GW-683	GW-684		GW-685		GW-694		GW-695
Unit	AQF	AQF		AQF		AQF		AQF
Location	EXP-A	EXP-A		EXP-A		EXP-B		EXP-B
Date Sampled	09/20/94	03/04/94	09/20/94	02/27/94	09/19/94	03/02/94	12/13/94	02/21/94
FIELD MEASUREMENTS	.	.	.	.	.	.	.	.
Depth to Water (ft)	79.8	13.85	15.9	6.5	7.43	24.46	27.43	25
Water Temp (degrees C)	13.8	15.2	14.3	13.2	16	12.6	12.4	13.3
pH (pH units)	7.3	7.9	7.5	7.5	7.5	7.2	6.9	7.6
Sp. Cond. (umho/cm)	516	397	512	685	664	515	625	479
Dissolved Oxygen (ppm)	6.3	4.5	5.5	10.2	8.3	4.1	2.4	9.2
Oxidation/Reduction (mV)	164	224	133	44	102	149	-76	140
MISCELLANEOUS PARAMETERS	.	.	.	.	.	.	.	.
pH (pH units)	7.3	8	7.5	7.7	7.6	7.3	7.3	8.1
Sp. Cond. (umho/cm)	530	358	531	698	662	552	649	481
TDS (mg/L)	278	202	300	400	358	310	384	304
TSS (mg/L)	<1	14	14	7	4	3	12	114
Turbidity (NTU)	1.4	5.7	9	26	8.6	3	46	39
RADIOCHEMICAL PARAMETERS	.	.	.	.	.	.	.	.
Gross Alpha (pCi/L)	22.20	8.37	16.40	0.97	4.94	37.00	63.40	6.00
Gross Alpha (CE+/-)	5.00	2.70	4.20	1.60	2.50	6.50	9.40	2.50
Gross Beta (pCi/L)	34.30	20.10	40.20	2.91	11.40	30.00	85.90	21.20
Gross Beta (CE+/-)	5.40	4.10	6.00	2.40	3.20	5.00	10.00	4.10

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Field Measurements, Miscellaneous Parameters, and Radiochemistry, 1994

Sampling Point	GW-695	GW-703		GW-704		GW-706		GW-710
Unit	AQF	AQF		AQF		AQF		AQF
Location	EXP-B	EXP-B		EXP-B		EXP-B		EXP-W
Date Sampled	12/07/94	02/23/94	12/12/94	02/25/94	12/13/94	03/04/94	12/15/94	02/24/94
FIELD MEASUREMENTS	.	.	.	.	.	.	.	.
Depth to Water (ft)	27.6	37.26	41.63	20.95	30.4	9.98	15.42	66.52
Water Temp (degrees C)	13.2	14	11.8	13	12.1	14.9	12.1	13.1
pH (pH units)	8	7.9	8.1	7.5	7.6	7.8	7.4	7.3
Sp. Cond. (umho/cm)	462	550	484	577	515	581	751	3120
Dissolved Oxygen (ppm)	8.7	3.9	2.2	2.5	2.2	6.2	2.4	1.2
Oxidation/Reduction (mV)	181	205	181	-87	39	125	3	-88
MISCELLANEOUS PARAMETERS	.	.	.	.	.	.	.	.
pH (pH units)	8.2	7.8	8.2	7.8	7.7	7.9	7.4	7.4
Sp. Cond. (umho/cm)	425	591	489	630	629	568	886	3980
TDS (mg/L)	278	316	260	366	342	316	526	3698
TSS (mg/L)	72	<1	6	7	24	1	9	3
Turbidity (NTU)	25	8	19	18	42	1.8	27	2.7
RADIOCHEMICAL PARAMETERS	.	.	.	.	.	.	.	.
Gross Alpha (pCi/L)	4.45	4.92	1.72	3.44	3.09	24.60	38.10	-43.10
Gross Alpha (CE+/-)	2.20	2.30	1.50	2.00	1.90	5.00	6.80	44.00
Gross Beta (pCi/L)	-0.52	44.50	19.40	14.60	9.62	24.30	78.00	-76.20
Gross Beta (CE+/-)	3.00	6.30	3.90	3.50	3.00	4.50	9.50	59.00

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Field Measurements, Miscellaneous Parameters, and Radiochemistry, 1994

Sampling Point	GW-710	GW-711		GW-712		GW-713		GW-714
Unit	AQF	AQF		AQF		AQF		AQF
Location	EXP-W	EXP-W		EXP-W		EXP-W		EXP-W
Date Sampled	08/19/94	02/23/94	08/18/94	02/24/94	08/18/94	02/27/94	08/19/94	02/25/94
FIELD MEASUREMENTS	.	.	.	.	.	.	.	.
Depth to Water (ft)	68.45	58.2	66.65	24.87	35.48	30.8	40.75	19.57
Water Temp (degrees C)	17.3	13.3	14.8	10.8	15.3	11.8	15.9	12.9
pH (pH units)	6.4	7.4	7	7.6	7.6	7.7	7.5	7.5
Sp. Cond. (umho/cm)	3760	7380	7020	673	722	498	587	424
Dissolved Oxygen (ppm)	0.2	4.8	1.5	2.2	0.8	0.4	0.7	7.6
Oxidation/Reduction (mV)	-166	-34	-91	-38	-18	-89	-101	-11
MISCELLANEOUS PARAMETERS	.	.	.	.	.	.	.	.
pH (pH units)	7.4	7.4	7.8	7.8	8.1	7.7	8	7.7
Sp. Cond. (umho/cm)	3680	8340	8130	750	718	550	575	471
TDS (mg/L)	3856	6124	6126	500	504	346	398	278
TSS (mg/L)	14	13	14	2	2	2	8	6
Turbidity (NTU)	5	30	28	8.5	9.5	7	20	24
RADIOCHEMICAL PARAMETERS	.	.	.	.	.	.	.	.
Gross Alpha (pCi/L)	9.27	-69.60	-4.79	-0.94	-0.21	0.17	-0.01	1.14
Gross Alpha (CE+/-)	15.00	47.00	15.00	2.90	1.40	2.80	1.30	2.80
Gross Beta (pCi/L)	-5.66	-80.90	8.92	-0.09	1.18	-2.27	2.12	7.68
Gross Beta (CE+/-)	23.00	60.00	25.00	3.30	2.40	3.10	2.50	3.60

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Field Measurements, Miscellaneous Parameters, and Radiochemistry, 1994

Sampling Point	GW-714	GW-715		GW-723		GW-724		GW-725
Unit	AQF	AQF		AQF		AQF		AQF
Location	EXP-W	EXP-W		EXP-C		EXP-C		EXP-C
Date Sampled	08/20/94	02/26/94	08/20/94	03/17/94	12/20/94	03/18/94	12/18/94	03/18/94
FIELD MEASUREMENTS	.	.	.	.	.	.	.	.
Depth to Water (ft)	31.5	18.3	28.61	66.35	73.55	27.7	31.7	9.33
Water Temp (degrees C)	18.1	11.2	15.5	12.6	12.3	15.8	12.3	14.7
pH (pH units)	7.4	7.1	6.8	8.4	7.6	7.6	7.5	7
Sp. Cond. (umho/cm)	482	480	508	524	521	870	794	1315
Dissolved Oxygen (ppm)	1.6	8.3	2.6	6	1.6	2.5	2.1	0.6
Oxidation/Reduction (mV)	146	51	177	118	205	114	60	165
MISCELLANEOUS PARAMETERS	.	.	.	.	.	.	.	.
pH (pH units)	8.1	7.3	7.2	8	7.7	7.7	7.5	7.5
Sp. Cond. (umho/cm)	493	540	542	516	617	944	949	1510
TDS (mg/L)	292	284	318	320	352	514	534	916
TSS (mg/L)	2	3	3	8	9	<1	1	2
Turbidity (NTU)	4	4.4	3.5	8.5	8	5.2	3.3	3
RADIOCHEMICAL PARAMETERS	.	.	.	.	.	.	.	.
Gross Alpha (pCi/L)	1.73	0.49	1.58	1.45	6.07	-0.77	0.96	0.44
Gross Alpha (CE+/-)	2.50	2.70	2.50	1.70	2.40	1.60	1.30	1.90
Gross Beta (pCi/L)	12.60	-1.76	4.61	19.20	37.50	41.80	39.40	33.00
Gross Beta (CE+/-)	3.50	3.10	2.90	4.00	5.50	6.10	5.70	5.30

(CONTINUED)

APPENDIX E.3

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Field Measurements, Miscellaneous Parameters, and Radiochemistry, 1994

Sampling Point	GW-725	GW-736		GW-737		GW-738		GW-739
Unit	AQF	AQF		AQF		AQF		AQF
Location	EXP-C	EXP-C		EXP-C		EXP-C		EXP-C
Date Sampled	12/18/94	03/21/94	12/19/94	03/21/94	12/18/94	03/16/94	12/17/94	03/16/94
FIELD MEASUREMENTS	.	.	.	.	.	.	.	.
	.	.	.	.	.	.	.	.
Depth to Water (ft)	12.87	8.95	12	8.84	14.4	26.91	29.75	70.6
Water Temp (degrees C)	12.6	14.7	14.4	14.7	13.7	14.5	13.1	12.3
pH (pH units)	6.9	6.8	6.8	7	6.9	7.4	7.2	7.8
Sp. Cond. (umho/cm)	1110	1075	903	1109	909	691	543	449
Dissolved Oxygen (ppm)	1	1	1.4	0.99	0.3	3.1	3.4	2.8
Oxidation/Reduction (mV)	101	160	185	237	106	156	87	176
	.	.	.	.	.	.	.	.
MISCELLANEOUS PARAMETERS	.	.	.	.	.	.	.	.
	.	.	.	.	.	.	.	.
pH (pH units)	7.1	7.3	7.1	7.2	7	7.6	7.2	7.9
Sp. Cond. (umho/cm)	1174	1090	1062	1110	1069	749	807	522
TDS (mg/L)	716	704	660	722	622	468	448	314
TSS (mg/L)	1	<1	1	<1	1	7	8	4
Turbidity (NTU)	1.9	1.7	0.2	0.8	0.5	6.5	22	3.5
	.	.	.	.	.	.	.	.
RADIOCHEMICAL PARAMETERS	.	.	.	.	.	.	.	.
	.	.	.	.	.	.	.	.
Gross Alpha (pCi/L)	0.59	2.18	1.98	3.15	3.20	0.17	2.08	1.31
Gross Alpha (CE+/-)	1.20	2.20	1.60	2.30	1.90	1.60	1.60	1.70
Gross Beta (pCi/L)	36.00	49.50	47.90	44.10	42.70	48.30	50.00	13.90
Gross Beta (CE+/-)	5.40	6.80	6.50	6.30	6.00	6.70	6.80	3.50

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APPENDIX E.3

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Field Measurements, Miscellaneous Parameters, and Radiochemistry, 1994

Sampling Point	GW-739	GW-740		GW-793				GW-794
Unit	AQF	AQF		AQT				AQT
Location	EXP-C	EXP-C		AGLLSF				AGLLSF
Date Sampled	12/18/94	03/14/94	12/17/94	03/22/94	05/25/94	07/28/94	11/02/94	03/23/94
FIELD MEASUREMENTS	.	.	.	.	.	.	.	.
Depth to Water (ft)	75.49	66.5	71.35	7.28	9	6.95	10.04	12.58
Water Temp (degrees C)	12	14.5	13.1	14.2	16	15.8	15.7	13.9
pH (pH units)	7.6	7.5	7.5	7	7.3	7	7.1	7.7
Sp. Cond. (umho/cm)	460	507	440	280	280	277	270	473
Dissolved Oxygen (ppm)	1.8	2.6	4	1	0.9	1.3	1.2	6.2
Oxidation/Reduction (mV)	212	172	-14	162	165	163	151	147
MISCELLANEOUS PARAMETERS	.	.	.	.	.	.	.	.
pH (pH units)	7.6	7.8	7.5	7.7	7.7	7.5	7.4	7.7
Sp. Cond. (umho/cm)	539	523	554	293	308	286	300	505
TDS (mg/L)	308	302	308	190	172	198	200	292
TSS (mg/L)	3	<1	<1	3	12	2	32	9
Turbidity (NTU)	3	8	1	2.3	12	1	24	9
RADIOCHEMICAL PARAMETERS	.	.	.	.	.	.	.	.
Gross Alpha (pCi/L)	0.68	-0.01	1.59	-0.51	-0.68	-0.17	-0.01	1.13
Gross Alpha (CE+/-)	1.10	1.40	1.40	1.00	0.96	0.98	2.80	1.50
Gross Beta (pCi/L)	12.90	7.33	10.60	0.96	-1.92	1.14	6.56	3.90
Gross Beta (CE+/-)	3.30	3.00	3.10	2.50	2.40	2.40	5.20	2.90

(CONTINUED)

APPENDIX E.3

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Field Measurements, Miscellaneous Parameters, and Radiochemistry, 1994

Sampling Point	GW-794			GW-795				GW-800
Unit	AQT			AQT				AQF
Location	AGLLSF			AGLLSF				OLF
Date Sampled	05/27/94	08/04/94	11/07/94	03/23/94	05/27/94	08/04/94	11/08/94	02/11/94
FIELD MEASUREMENTS	.	.	.	.	.	.	.	.
Depth to Water (ft)	16.85	16	20	4.95	7.12	5.93	8.48	7.16
Water Temp (degrees C)	14.8	16.9	16.4	13.7	14.2	18.4	14.7	10.8
pH (pH units)	7.6	7.4	7.6	7.6	7.2	7.1	7.1	7.3
Sp. Cond. (umho/cm)	495	493	434	380	382	401	420	240
Dissolved Oxygen (ppm)	12.1	8.9	10.9	1.1	1.6	0.9	1.2	8.3
Oxidation/Reduction (mV)	206	171	147	123	173	117	169	173
MISCELLANEOUS PARAMETERS	.	.	.	.	.	.	.	.
pH (pH units)	7.6	7.6	7.7	7.5	7.5	7.4	7.4	7.7
Sp. Cond. (umho/cm)	462	499	483	402	367	411	447	248
TDS (mg/L)	332	274	280	262	266	216	260	154
TSS (mg/L)	11	12	2	<1	<1	<1	<1	7
Turbidity (NTU)	13	12	6.4	1.5	2	1.2	0.4	16
RADIOCHEMICAL PARAMETERS	.	.	.	.	.	.	.	.
Gross Alpha (pCi/L)	0.36	1.97	0.88	-0.54	-0.01	1.74	0.86	0.47
Gross Alpha (CE+/-)	1.40	2.80	1.60	0.95	1.20	1.60	1.60	0.72
Gross Beta (pCi/L)	1.80	7.25	5.76	-0.33	0.86	3.63	4.59	3.19
Gross Beta (CE+/-)	2.60	5.50	2.80	2.60	2.60	2.70	2.70	2.50

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APPENDIX E.3

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Field Measurements, Miscellaneous Parameters, and Radiochemistry, 1994

Sampling Point . Unit . Location . Date Sampled	GW-800		
	AQF		
	OLF		
	06/22/94	09/02/94	12/14/94
FIELD MEASUREMENTS	.	.	.
	.	.	.
Depth to Water (ft)	18.97	19.47	19.3
Water Temp (degrees C)	14.6	15.5	9.3
pH (pH units)	6.9	6.9	7.2
Sp. Cond. (umho/cm)	371	427	328
Dissolved Oxygen (ppm)	6.7	6	18.5
Oxidation/Reduction (mV)	157	184	200
	.	.	.
MISCELLANEOUS PARAMETERS	.	.	.
	.	.	.
pH (pH units)	7.3	7.1	7.3
Sp. Cond. (umho/cm)	366	454	407
TDS (mg/L)	274	292	154
TSS (mg/L)	78	4	14
Turbidity (NTU)	1.8	3.7	17
	.	.	.
RADIOCHEMICAL PARAMETERS	.	.	.
	.	.	.
Gross Alpha (pCi/L)	0.68	2.24	2.03
Gross Alpha (CE+/-)	0.84	1.80	1.50
Gross Beta (pCi/L)	4.17	4.50	2.35
Gross Beta (CE+/-)	2.30	2.90	2.50

APPENDIX E.3

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Field Measurements, Miscellaneous Parameters, and Radiochemistry, 1994

Sampling Point . Unit . Location . Date Sampled	BCK-00.63		BCK-04.55		BCK-09.40		BCK-11.97	
	CREEK		CREEK		CREEK		CREEK	
	EXP-SW		EXP-SW		EXP-SW		EXP-SW	
	02/14/94	09/06/94	02/14/94	09/06/94	02/14/94	09/06/94	02/14/94	09/06/94
FIELD MEASUREMENTS	.	.	.	.	.	.	.	.
Depth to Water (ft)	.	.	.	.	.	.	.	.
Water Temp (degrees C)	6	17.8	6.2	16.8	4.8	19	3.6	20.5
pH (pH units)	7.3	7.8	7.2	7.8	7	7.7	7.2	7.5
Sp. Cond. (umho/cm)	130	320	150	320	220	525	650	1700
Dissolved Oxygen (ppm)	10.3	8	10.8	6	11.6	6.2	11.2	7.5
Oxidation/Reduction (mV)	.	.	.	.	.	.	.	.
MISCELLANEOUS PARAMETERS	.	.	.	.	.	.	.	.
pH (pH units)	7.8	7.8	7.8	7.6	8	7.9	7.8	8
Sp. Cond. (umho/cm)	212	348	232	372	367	569	1030	1790
TDS (mg/L)	116	246	126	254	220	390	620	1420
TSS (mg/L)	7	2	6	16	4	2	3	2
Turbidity (NTU)	8.5	1.5	8.1	1.2	6.5	2.4	3.1	0.6
RADIOCHEMICAL PARAMETERS	.	.	.	.	.	.	.	.
Gross Alpha (pCi/L)	11.10	7.31	15.10	9.74	60.20	44.60	33.10	62.00
Gross Alpha (CE+/-)	2.90	3.40	3.50	3.70	8.90	7.60	6.50	11.00
Gross Beta (pCi/L)	11.10	13.40	13.70	12.90	58.90	68.20	118.00	405.00
Gross Beta (CE+/-)	3.10	4.20	3.40	4.10	7.60	8.70	13.00	42.00

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APPENDIX E.3

29

Field Measurements, Miscellaneous Parameters, and Radiochemistry, 1994

Sampling Point	NT-01		NT-13		SS-1		SS-4	
Unit	CREEK		CREEK		SPRING		SPRING	
Location	EXP-SW		EXP-SW		EXP-SW		EXP-SW	
Date Sampled	02/14/94	09/07/94	02/14/94	09/06/94	02/14/94	09/07/94	02/14/94	09/06/94
FIELD MEASUREMENTS	.	.	.	.	.	.	.	.
Depth to Water (ft)	.	.	.	.	.	.	.	.
Water Temp (degrees C)	2.9	19.6	4.3	19.8	9.9	19.4	10.5	17.1
pH (pH units)	7.4	7.6	7.7	7.8	6.9	8.2	7.1	7.6
Sp. Cond. (umho/cm)	500	2000	30	150	710	1000	305	750
Dissolved Oxygen (ppm)	11.2	6.6	11	7	7.8	6.5	9	7.2
Oxidation/Reduction (mV)	.	.	.	.	.	.	.	.
MISCELLANEOUS PARAMETERS	.	.	.	.	.	.	.	.
pH (pH units)	7.2	7.5	7.2	7.6	7.5	8	7.7	8
Sp. Cond. (umho/cm)	852	2320	45	158	1060	1120	437	806
TDS (mg/L)	538	1674	40	132	634	826	228	590
TSS (mg/L)	8	5	6	10	3	8	14	5
Turbidity (NTU)	8.4	1.5	8.6	6	1	2.5	4.8	1.5
RADIOCHEMICAL PARAMETERS	.	.	.	.	.	.	.	.
Gross Alpha (pCi/L)	6.26	8.11	1.02	-2.35	21.90	13.10	15.30	67.40
Gross Alpha (CE+/-)	2.80	3.80	0.88	2.00	5.20	4.20	3.80	10.00
Gross Beta (pCi/L)	166.00	364.00	2.19	-6.09	43.50	65.00	20.60	111.00
Gross Beta (CE+/-)	18.00	38.00	2.50	3.10	6.10	8.40	4.00	13.00

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APPENDIX E.3

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Field Measurements, Miscellaneous Parameters, and Radiochemistry, 1994

Sampling Point	SS-5	
Unit	SPRING	
Location	EXP-SW	
Date Sampled	02/14/94	09/06/94
FIELD MEASUREMENTS	.	.
Depth to Water (ft)	.	.
Water Temp (degrees C)	11.5	15.3
pH (pH units)	6.5	7.4
Sp. Cond. (umho/cm)	180	450
Dissolved Oxygen (ppm)	9.4	5
Oxidation/Reduction (mV)	.	.
MISCELLANEOUS PARAMETERS	.	.
pH (pH units)	7.4	7.4
Sp. Cond. (umho/cm)	243	511
TDS (mg/L)	124	350
TSS (mg/L)	5	2
Turbidity (NTU)	6.9	1.4
RADIOCHEMICAL PARAMETERS	.	.
Gross Alpha (pCi/L)	4.60	28.80
Gross Alpha (CE+/-)	1.80	6.10
Gross Beta (pCi/L)	4.04	50.30
Gross Beta (CE+/-)	2.60	7.30

APPENDIX E.4
RADIONUCLIDES

APPENDIX E.4
Radionuclides, 1994

1

Sampling Point . Unit . Location . Date Sampled	GW-040				GW-042			
	AQT				AQT			
	BG				BG			
	03/08/94	05/17/94	08/22/94	11/09/94	03/11/94	05/17/94	08/23/94	11/23/94
Gross Alpha (pCi/L)	2.25	1.54	9.44	1.78	-0.46	-0.00	0.30	1.17
Gross Alpha (CE+/-)	2.00	1.40	3.60	1.40	1.20	0.85	1.00	1.40
Gross Beta (pCi/L)	2.73	4.05	35.90	0.94	-1.47	-0.27	-0.34	-0.51
Gross Beta (CE+/-)	2.70	2.60	5.50	2.30	2.50	2.50	2.40	4.50
RADIONUCLIDES	.	.	.	.	.	.	.	.
Americium 241 (pCi/L)	0.77	0.00	0.35	0.48	-2.11	3.09	0.72	0.00
Americium 241 (CE+/-)	2.40	1.50	0.70	0.95	11.00	3.30	1.00	1.90
Cesium 137 (pCi/l)	.	.	.	.	.	.	.	.
Cesium 137 (CE +/-)	.	.	.	.	.	.	.	.
Iodine 129 (Bq/L)	0.10	0.10	0.01	0.01	0.01	0.10	0.01	0.10
Iodine 129 (CE +/-)	2.10	1.00	0.80	0.77	0.75	1.40	0.83	1.50
Iodine 131 (Bq/L)	0.04	-0.02	.	.	0.00	0.05	.	.
Iodine 131 (CE +/-)	0.23	0.12	.	.	0.09	0.15	.	.
Iodine 133 (Bq/L)	.	.	.	.	.	.	.	.
Iodine 133 (CE +/-)	.	.	.	.	.	.	.	.
Iodine 135 (Bq/L)	.	.	.	.	.	.	.	.
Iodine 135 (CE +/-)	.	.	.	.	.	.	.	.
Neptunium 237 (pCi/L)	0.17	0.00	0.00	0.16	0.19	0.00	0.00	0.16
Neptunium 237 (CE+/-)	0.34	0.63	0.66	0.33	0.37	0.63	0.67	0.32
Potassium 40 (pCi/L)	.	.	.	.	.	.	.	.
Potassium 40 (CE+/-)	.	.	.	.	.	.	.	.
Plutonium 238 (pCi/L)	-0.75	0.00	0.00	0.00	-0.61	0.00	0.00	-0.90
Plutonium 238 (CE+/-)	0.92	0.68	0.72	0.53	1.10	0.69	0.74	0.90
Plutonium 239 (pCi/L)	0.37	-0.20	-0.21	0.00	-0.20	-0.20	-0.21	0.15
Plutonium 239 (CE+/-)	0.92	0.79	0.83	0.53	0.71	0.80	0.85	0.30
Radium (Bq/L)	0.04	0.05	0.10	0.05	0.01	0.04	0.01	0.01
Radium (CE+/-)	0.04	0.06	0.04	0.05	0.02	0.06	0.01	0.02
Strontium (pCi/L)	14.70	-5.22	-8.76	15.50	47.30	-1.32	-4.95	26.40
Strontium (CE+/-)	21.00	6.50	21.00	29.00	24.00	6.90	22.00	21.00
Technetium 99 (pCi/L)	82.70	84.90	32.50	53.50	32.50	105.00	63.90	33.60
Technetium 99 (CE+/-)	61.00	61.00	38.00	38.00	60.00	62.00	39.00	38.00
Thorium 234 (pCi/l)	.	.	.	.	.	.	.	.
Thorium 234 (CE +/-)	.	.	.	.	.	.	.	.
Tritium (Bq/L)	16.00	-19.00	-1.00	9.40	7.00	-31.00	6.00	11.70
Tritium (CE+/-)	24.00	25.00	23.00	9.50	24.00	24.00	25.00	10.00
Uranium 234 (pCi/L)	0.00	33.20	0.66	0.62	1.23	0.00	-0.39	0.00
Uranium 234 (CE+/-)	1.00	38.00	0.79	0.65	1.60	57.00	1.30	0.39
Uranium 235 (pCi/L)	31.20	9.05	-22.20	6.67	8.41	-0.01	19.90	-0.21
Uranium 235 (CE+/-)	75.00	92.00	120.00	44.00	17.00	0.09	120.00	7.20
Uranium 238 (pCi/L)	-0.21	0.00	-0.13	0.49	9.83	16.40	-0.39	-0.11
Uranium 238 (CE+/-)	0.73	38.00	0.53	0.49	3.30	33.00	1.50	0.45

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APPENDIX E.4
Radionuclides, 1994

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Sampling Point	GW-043				GW-044			
Unit	AQT				AQT			
Location	OLF				OLF			
Date Sampled	02/08/94	06/21/94	08/31/94	11/30/94	02/08/94	06/21/94	08/31/94	11/30/94
Gross Alpha (pCi/L)	0.16	0.30	-0.01	0.59	0.34	-0.00	0.48	0.61
Gross Alpha (CE+/-)	0.58	0.61	2.00	1.20	0.69	0.47	2.10	1.20
Gross Beta (pCi/L)	3.39	0.82	3.20	-1.82	2.23	0.08	1.72	3.95
Gross Beta (CE+/-)	2.60	2.40	2.90	4.40	2.50	2.30	2.70	4.80
RADIONUCLIDES	.	.	.	.	.	.	.	.
Americium 241 (pCi/L)	-1.14	0.95	0.88	-0.29	-0.83	0.00	0.55	-0.56
Americium 241 (CE+/-)	2.30	1.30	1.20	1.70	2.60	1.70	1.10	1.60
Cesium 137 (pCi/L)	.	.	.	.	.	.	.	.
Cesium 137 (CE +/-)	.	.	.	.	.	.	.	.
Iodine 129 (Bq/L)	0.01	0.02	0.10	0.10	0.02	0.10	0.10	0.10
Iodine 129 (CE +/-)	0.57	0.94	1.40	1.40	0.92	1.20	1.00	1.50
Iodine 131 (Bq/L)	0.00	-0.06	-0.01	.	-0.01	0.19	0.02	.
Iodine 131 (CE +/-)	0.03	0.69	0.13	.	0.05	0.75	0.10	.
Iodine 133 (Bq/L)	-0.01	.	.	.	0.00	.	.	.
Iodine 133 (CE +/-)	0.05	.	.	.	0.07	.	.	.
Iodine 135 (Bq/L)	0.03	.	.	.	-0.25	.	.	.
Iodine 135 (CE +/-)	0.03	.	.	.	0.65	.	.	.
Neptunium 237 (pCi/L)	-0.35	0.66	0.83	0.34	-0.18	0.00	0.00	0.16
Neptunium 237 (CE+/-)	0.79	0.93	0.74	0.48	0.64	1.20	0.58	0.32
Potassium 40 (pCi/L)	.	.	.	.	.	.	.	106.00
Potassium 40 (CE+/-)	.	.	.	.	.	.	.	130.00
Plutonium 238 (pCi/L)	-0.19	0.00	0.36	-0.31	0.00	0.00	0.00	-0.74
Plutonium 238 (CE+/-)	0.78	1.00	0.51	0.99	0.57	1.10	0.63	0.78
Plutonium 239 (pCi/L)	-0.97	0.36	0.00	0.00	-0.20	0.00	0.00	0.00
Plutonium 239 (CE+/-)	1.10	0.72	0.63	0.54	1.20	1.40	0.63	0.51
Radium (Bq/L)	0.11	0.01	0.01	0.08	0.14	0.01	0.07	0.06
Radium (CE+/-)	0.06	0.03	0.03	0.05	0.06	0.03	0.03	0.04
Strontium (pCi/L)	3.09	-3.12	-33.00	9.61	22.60	0.07	-36.30	51.00
Strontium (CE+/-)	16.00	19.00	24.00	19.00	19.00	19.00	23.00	23.00
Technetium 99 (pCi/L)	34.90	38.70	32.60	8.18	69.10	29.50	-6.81	11.00
Technetium 99 (CE+/-)	60.00	38.00	38.00	37.00	61.00	38.00	36.00	37.00
Thorium 234 (pCi/L)	.	.	.	.	.	.	.	.
Thorium 234 (CE +/-)	.	.	.	.	.	.	.	.
Tritium (Bq/L)	-4.00	-14.00	24.00	-10.00	5.00	-15.00	20.00	1.00
Tritium (CE+/-)	22.00	23.00	24.00	22.00	24.00	23.00	24.00	23.00
Uranium 234 (pCi/L)	2.01	0.30	0.38	0.00	0.21	0.00	0.00	0.37
Uranium 234 (CE+/-)	1.10	0.60	0.75	0.42	0.41	1.00	0.49	0.42
Uranium 235 (pCi/L)	-29.10	-37.50	-30.40	2.74	6.23	75.60	59.70	-8.59
Uranium 235 (CE+/-)	68.00	93.00	93.00	7.50	18.00	90.00	92.00	22.00
Uranium 238 (pCi/L)	0.31	0.30	0.00	-0.12	0.00	0.00	0.00	-0.12
Uranium 238 (CE+/-)	0.44	0.60	1.30	0.49	0.71	1.00	0.49	0.49

(CONTINUED)

APPENDIX E.4
Radionuclides, 1994

3

Sampling Point . Unit . Location . Date Sampled	GW-047				GW-053	GW-061		
	AQT				AQF	AQF		
	BG				BG	BG		
	03/24/94	05/31/94	08/09/94	11/08/94	12/12/94	03/21/94	06/24/94	09/15/94
Gross Alpha (pCi/L)	-0.00	-0.31	0.43	0.15	2.06	14.60	18.00	37.10
Gross Alpha (CE+/-)	0.99	0.98	1.00	1.20	1.60	3.80	4.30	8.90
Gross Beta (pCi/L)	0.42	-1.53	0.16	0.94	3.43	26.90	57.10	71.70
Gross Beta (CE+/-)	2.80	2.60	2.30	2.70	2.40	4.70	7.40	11.00
RADIONUCLIDES	.	.	.	.	.	.	.	.
Americium 241 (pCi/L)	.	.	.	.	.	.	.	.
Americium 241 (CE+/-)	.	.	.	.	.	.	.	.
Cesium 137 (pCi/L)	.	.	.	.	.	.	.	.
Cesium 137 (CE +/-)	.	.	.	.	.	.	.	.
Iodine 129 (Bq/L)	.	.	.	.	.	.	.	.
Iodine 129 (CE +/-)	.	.	.	.	.	.	.	.
Iodine 131 (Bq/L)	.	.	.	.	.	.	.	.
Iodine 131 (CE +/-)	.	.	.	.	.	.	.	.
Iodine 133 (Bq/L)	.	.	.	.	.	.	.	.
Iodine 133 (CE +/-)	.	.	.	.	.	.	.	.
Iodine 135 (Bq/L)	.	.	.	.	.	.	.	.
Iodine 135 (CE +/-)	.	.	.	.	.	.	.	.
Neptunium 237 (pCi/L)	.	.	.	.	.	.	.	.
Neptunium 237 (CE+/-)	.	.	.	.	.	.	.	.
Potassium 40 (pCi/L)	.	388.00	.	.	.	.	.	.
Potassium 40 (CE+/-)	.	330.00	.	.	.	.	.	.
Plutonium 238 (pCi/L)	.	.	.	.	.	.	.	.
Plutonium 238 (CE+/-)	.	.	.	.	.	.	.	.
Plutonium 239 (pCi/L)	.	.	.	.	.	.	.	.
Plutonium 239 (CE+/-)	.	.	.	.	.	.	.	.
Radium (Bq/L)	.	.	.	.	.	.	.	.
Radium (CE+/-)	.	.	.	.	.	.	.	.
Strontium (pCi/L)	.	.	.	.	27.70	8.31	-0.96	26.80
Strontium (CE+/-)	.	.	.	.	22.00	18.00	20.00	26.00
Technetium 99 (pCi/L)	.	.	.	.	12.30	362.00	72.20	91.70
Technetium 99 (CE+/-)	.	.	.	.	37.00	70.00	60.00	39.00
Thorium 234 (pCi/L)	.	.	.	.	.	.	.	.
Thorium 234 (CE +/-)	.	.	.	.	.	.	.	.
Tritium (Bq/L)	.	.	.	.	.	-2.00	2.00	-24.00
Tritium (CE+/-)	.	.	.	.	.	23.00	23.00	24.00
Uranium 234 (pCi/L)	0.36	0.11	0.51	-0.19	.	.	.	.
Uranium 234 (CE+/-)	1.50	0.39	0.51	0.74	.	.	.	.
Uranium 235 (pCi/L)	32.10	12.30	87.00	22.70	.	.	.	.
Uranium 235 (CE+/-)	75.00	18.00	91.00	18.00	.	.	.	.
Uranium 238 (pCi/L)	0.91	0.11	0.13	0.00	.	.	.	.
Uranium 238 (CE+/-)	0.81	0.22	0.44	0.64	.	.	.	.

(CONTINUED)

APPENDIX E.4
Radionuclides, 1994

4

Sampling Point	GW-061	GW-079				GW-080		
Unit	AQF	AQT				AQT		
Location	BG	BG				BG		
Date Sampled	12/12/94	03/09/94	06/07/94	09/12/94	12/06/94	03/09/94	06/07/94	09/09/94
Gross Alpha (pCi/L)	12.80	-1.16	0.32	-1.46	-0.78	2.60	1.41	-0.32
Gross Alpha (CE+/-)	3.50	1.40	0.66	1.80	1.20	2.00	1.10	1.90
Gross Beta (pCi/L)	36.00	-0.40	-0.65	-0.57	2.94	3.07	1.72	1.83
Gross Beta (CE+/-)	5.40	2.50	2.20	2.60	2.60	2.80	2.40	2.80
RADIONUCLIDES	.	.	.	.	.	.	.	.
Americium 241 (pCi/L)	.	-1.29	0.00	2.07	3.31	2.58	0.53	0.61
Americium 241 (CE+/-)	.	3.20	12.00	2.10	2.60	3.20	1.10	1.20
Cesium 137 (pCi/L)	.	.	.	.	.	.	.	.
Cesium 137 (CE +/-)	.	.	.	.	.	.	.	.
Iodine 129 (Bq/L)	.	0.10	0.01	0.10	0.10	0.01	0.01	0.01
Iodine 129 (CE +/-)	.	1.80	0.07	1.20	1.90	0.81	0.73	0.82
Iodine 133 (Bq/L)	.	.	.	.	.	.	.	.
Iodine 133 (CE +/-)	.	.	.	.	.	.	.	.
Iodine 135 (Bq/L)	.	.	.	.	.	.	.	.
Iodine 135 (CE +/-)	.	.	.	.	.	.	.	.
Neptunium 237 (pCi/L)	.	0.19	0.00	0.34	-0.53	0.55	2.10	0.00
Neptunium 237 (CE+/-)	.	0.37	1.20	0.48	0.78	0.64	1.70	0.57
Potassium 40 (pCi/L)	.	.	.	.	.	.	717.00	.
Potassium 40 (CE+/-)	.	.	.	.	.	.	890.00	.
Plutonium 238 (pCi/L)	.	-0.82	0.00	0.37	-0.16	-0.81	-0.38	0.00
Plutonium 238 (CE+/-)	.	1.00	1.00	0.53	0.57	0.99	1.50	0.62
Plutonium 239 (pCi/L)	.	-0.41	0.00	0.00	0.16	0.20	0.00	0.18
Plutonium 239 (CE+/-)	.	0.91	1.30	0.65	0.33	0.90	1.30	0.36
Radium (Bq/L)	.	-0.01	0.03	-0.02	0.03	0.06	0.09	0.01
Radium (CE+/-)	.	0.02	0.05	0.01	0.03	0.05	0.07	0.04
Strontium (pCi/L)	65.70	9.10	-13.20	-47.90	-36.00	33.40	0.77	-21.70
Strontium (CE+/-)	26.00	20.00	18.00	22.00	27.00	23.00	19.00	25.00
Technetium 99 (pCi/L)	50.90	-9.66	18.40	5.24	12.10	3.18	54.20	-10.30
Technetium 99 (CE+/-)	38.00	59.00	37.00	37.00	37.00	59.00	38.00	36.00
Thorium 234 (pCi/L)	.	.	.	.	.	.	.	.
Thorium 234 (CE +/-)	.	.	.	.	.	.	.	.
Tritium (Bq/L)	14.00	4.00	23.00	-8.00	20.00	3.00	13.00	-4.00
Tritium (CE+/-)	23.00	24.00	26.00	25.00	28.00	24.00	25.00	25.00
Uranium 234 (pCi/L)	.	-0.26	0.44	0.15	0.45	-0.33	0.00	0.14
Uranium 234 (CE+/-)	.	1.10	0.62	0.30	0.63	1.50	0.92	0.27
Uranium 235 (pCi/L)	.	7.40	18.80	-1.95	-17.70	3.91	-6.65	-9.80
Uranium 235 (CE+/-)	.	18.00	18.00	92.00	44.00	68.00	91.00	92.00
Uranium 238 (pCi/L)	.	-0.26	0.00	0.00	0.11	-0.33	0.00	0.00
Uranium 238 (CE+/-)	.	0.88	0.76	0.53	0.22	1.10	0.92	0.47

(CONTINUED)

APPENDIX E.4
Radionuclides, 1994

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Sampling Point	GW-080	GW-084				GW-085		
Unit	AQT	AQT				AQT		
Location	BG	OLF				OLF		
Date Sampled	12/06/94	02/08/94	06/21/94	09/01/94	11/30/94	02/11/94	06/24/94	09/07/94
Gross Alpha (pCi/L)	0.94	2.42	1.21	0.66	1.84	-8.52	3.42	13.20
Gross Alpha (CE+/-)	1.60	1.40	1.00	1.40	1.80	32.00	5.40	10.00
Gross Beta (pCi/L)	4.06	5.55	-0.09	-0.58	1.80	67.90	71.50	142.00
Gross Beta (CE+/-)	2.70	2.80	2.30	2.50	4.70	57.00	14.00	17.00
RADIONUCLIDES	.	.	.	.	.	.	.	.
Americium 241 (pCi/L)	0.33	-0.73	0.00	.	-0.82	.	.	.
Americium 241 (CE+/-)	2.00	2.30	25.00	.	1.40	.	.	.
Cesium 137 (pCi/l)	.	.	.	.	.	.	.	.
Cesium 137 (CE +/-)	.	.	.	.	.	.	.	.
Iodine 129 (Bq/L)	0.10	0.01	0.02	0.01	0.10	.	.	.
Iodine 129 (CE +/-)	1.10	0.58	0.95	0.82	1.50	.	.	.
Iodine 133 (Bq/L)	.	0.01	.	.	.	.	.	.
Iodine 133 (CE +/-)	.	0.04	.	.	.	.	.	.
Iodine 135 (Bq/L)	.	0.18	.	.	.	.	.	.
Iodine 135 (CE +/-)	.	0.27	.	.	.	.	.	.
Neptunium 237 (pCi/L)	-0.68	-0.37	0.00	.	0.00	.	.	.
Neptunium 237 (CE+/-)	0.89	0.82	1.30	.	0.55	.	.	.
Potassium 40 (pCi/L)	.	.	.	.	.	.	.	.
Potassium 40 (CE+/-)	.	.	.	.	.	.	.	.
Plutonium 238 (pCi/L)	-0.32	0.00	0.00	.	-0.90	.	.	.
Plutonium 238 (CE+/-)	0.70	0.57	1.10	.	0.90	.	.	.
Plutonium 239 (pCi/L)	0.00	-1.00	0.00	.	0.00	.	.	.
Plutonium 239 (CE+/-)	0.54	1.10	1.40	.	0.52	.	.	.
Radium (Bq/L)	0.04	0.02	0.01	0.02	0.01	.	.	.
Radium (CE+/-)	0.04	0.04	0.04	0.04	0.02	.	.	.
Strontium (pCi/L)	-17.80	18.20	-10.10	.	27.60	-14.80	2.94	-38.20
Strontium (CE+/-)	28.00	18.00	18.00	.	21.00	18.00	20.00	22.00
Technetium 99 (pCi/L)	-28.60	93.80	53.90	.	8.83	331.00	291.00	273.00
Technetium 99 (CE+/-)	35.00	62.00	38.00	.	37.00	69.00	68.00	45.00
Thorium 234 (pCi/l)	.	.	.	.	.	.	.	.
Thorium 234 (CE +/-)	.	.	.	.	.	.	.	.
Tritium (Bq/L)	7.00	20.00	-6.00	-20.00	-1.00	6.00	2.00	-13.00
Tritium (CE+/-)	28.00	24.00	24.00	24.00	22.00	24.00	23.00	24.00
Uranium 234 (pCi/L)	0.25	0.44	0.00	.	0.25	-0.33	-1.64	0.39
Uranium 234 (CE+/-)	0.62	0.51	0.84	.	0.35	0.92	1.30	0.39
Uranium 235 (pCi/L)	4.04	44.10	9.89	.	-11.10	12.10	49.20	62.20
Uranium 235 (CE+/-)	44.00	70.00	18.00	.	21.00	68.00	90.00	120.00
Uranium 238 (pCi/L)	0.25	0.00	0.24	.	0.00	0.33	-0.70	0.58
Uranium 238 (CE+/-)	0.36	0.51	0.48	.	0.35	0.46	0.66	0.47

(CONTINUED)

APPENDIX E.4
Radionuclides, 1994

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Sampling Point	GW-085	GW-115		GW-162				GW-243
Unit	AQT	AQT		AQT				AQT
Location	OLF	S3		BG				S3
Date Sampled	12/15/94	02/17/94	08/15/94	03/08/94	05/18/94	08/22/94	11/07/94	03/30/94
Gross Alpha (pCi/L)	0.61	0.81	-0.01	1.05	-0.01	0.32	0.98	3530.00
Gross Alpha (CE+/-)	1.20	2.70	1.20	1.80	1.10	1.10	1.10	440.00
Gross Beta (pCi/L)	102.00	-0.58	2.21	0.22	2.75	3.82	3.16	22700.00
Gross Beta (CE+/-)	12.00	3.20	2.50	2.60	2.50	2.70	2.50	650.00
RADIONUCLIDES	.	.	.	.	.	.	.	.
Americium 241 (pCi/L)	.	-2.43	3.27	-1.14	-28.30	0.61	0.00	31.50
Americium 241 (CE+/-)	.	3.80	2.00	2.80	110.00	0.86	1.30	9.70
Cesium 137 (pCi/L)	.	.	.	.	.	.	.	.
Cesium 137 (CE +/-)	.	.	.	.	.	.	.	.
Iodine 129 (Bq/L)	.	0.10	0.10	0.10	0.20	0.10	0.10	0.10
Iodine 129 (CE +/-)	.	1.00	1.00	1.90	1.40	1.10	1.20	1.70
Iodine 131 (Bq/L)	.	0.03	.	-0.04	0.04	.	.	-0.02
Iodine 131 (CE +/-)	.	0.11	.	0.26	0.14	.	.	0.11
Iodine 133 (Bq/L)	.	.	.	.	.	.	.	.
Iodine 133 (CE +/-)	.	.	.	.	.	.	.	.
Iodine 135 (Bq/L)	.	.	.	.	.	.	.	.
Iodine 135 (CE +/-)	.	.	.	.	.	.	.	.
Neptunium 237 (pCi/L)	.	-0.18	0.95	0.00	0.00	0.00	0.67	374.00
Neptunium 237 (CE+/-)	.	0.71	0.85	0.62	0.66	0.66	0.67	280.00
Potassium 40 (pCi/L)	.	.	.	.	517.00	.	.	.
Potassium 40 (CE+/-)	.	.	.	.	360.00	.	.	.
Plutonium 238 (pCi/L)	.	-0.20	0.21	-0.39	0.00	0.00	0.00	-10.20
Plutonium 238 (CE+/-)	.	0.78	0.42	1.10	0.72	0.72	0.54	41.00
Plutonium 239 (pCi/L)	.	0.00	0.21	0.59	-0.21	-0.21	0.00	-30.60
Plutonium 239 (CE+/-)	.	0.55	0.42	1.00	0.84	0.84	0.54	50.00
Radium (Bq/L)	.	0.02	-0.00	0.02	0.07	0.02	0.11	1.30
Radium (CE+/-)	.	0.03	0.01	0.03	0.07	0.02	0.06	0.30
Strontium (pCi/L)	-0.64	0.55	24.50	13.80	-3.35	-30.00	34.00	103.00
Strontium (CE+/-)	23.00	20.00	26.00	21.00	6.70	19.00	30.00	28.00
Technetium 99 (pCi/L)	255.00	197.00	75.00	-4.12	76.50	73.70	15.90	54700.00
Technetium 99 (CE+/-)	44.00	37.00	39.00	59.00	61.00	39.00	37.00	740.00
Thorium 234 (pCi/L)	.	.	.	.	.	.	.	.
Thorium 234 (CE +/-)	.	.	.	.	.	.	.	.
Tritium (Bq/L)	-6.00	6.00	-4.00	-6.00	-22.00	-12.00	2.60	140.00
Tritium (CE+/-)	21.00	24.00	23.00	23.00	24.00	23.00	9.00	30.00
Uranium 234 (pCi/L)	0.20	0.66	0.22	-0.68	0.94	0.12	0.48	4210.00
Uranium 234 (CE+/-)	0.88	0.66	0.32	1.10	0.77	0.54	0.72	120.00
Uranium 235 (pCi/L)	74.10	-45.00	72.50	8.17	5.68	-43.90	24.60	86.20
Uranium 235 (CE+/-)	91.00	74.00	91.00	18.00	17.00	120.00	43.00	85.00
Uranium 238 (pCi/L)	-0.20	0.17	0.00	-0.45	0.16	-0.12	0.48	7810.00
Uranium 238 (CE+/-)	0.68	0.33	0.39	1.00	0.31	0.48	0.55	160.00

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APPENDIX E.4
Radionuclides, 1994

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Sampling Point	GW-276		GW-315				GW-324	GW-325
Unit	AQT		AQF				AQT	AQT
Location	S3		SPI				S3	S3
Date Sampled	03/30/94	08/20/94	02/17/94	06/20/94	08/30/94	12/05/94	02/15/94	02/15/94
Gross Alpha (pCi/L)	398.00	454.00	1.63	0.89	0.54	2.89	0.48	0.74
Gross Alpha (CE+/-)	56.00	53.00	2.00	1.40	1.90	9.40	0.74	0.79
Gross Beta (pCi/L)	1110.00	1180.00	7.11	25.60	30.60	30.00	10.10	2.88
Gross Beta (CE+/-)	120.00	120.00	3.30	4.40	5.10	26.00	3.20	2.80
	.	.	.	.	.	.	.	.
RADIONUCLIDES	.	.	.	.	.	.	.	.
	.	.	.	.	.	.	.	.
Americium 241 (pCi/L)	-0.56	1.24	.	.	.	.	0.67	-0.85
Americium 241 (CE+/-)	3.70	1.80	.	.	.	.	2.50	2.70
Cesium 137 (pCi/L)	.	.	.	.	.	.	.	.
Cesium 137 (CE +/-)	.	.	.	.	.	.	.	.
Iodine 129 (Bq/L)	0.10	0.01	.	.	.	.	0.01	0.10
Iodine 129 (CE +/-)	1.30	0.87	.	.	.	.	0.82	1.20
Iodine 131 (Bq/L)	-0.01	.	.	.	.	.	-0.12	0.22
Iodine 131 (CE +/-)	0.14	.	.	.	.	.	0.59	0.72
Iodine 133 (Bq/L)	.	.	.	.	.	.	.	.
Iodine 133 (CE +/-)	.	.	.	.	.	.	.	.
Iodine 135 (Bq/L)	.	.	.	.	.	.	.	.
Iodine 135 (CE +/-)	.	.	.	.	.	.	.	.
Neptunium 237 (pCi/L)	56.80	37.10	.	.	.	.	-0.36	-0.38
Neptunium 237 (CE+/-)	110.00	5.40	.	.	.	.	0.80	0.85
Potassium 40 (pCi/L)	.	.	.	.	.	.	.	.
Potassium 40 (CE+/-)	.	.	.	.	.	.	.	.
Plutonium 238 (pCi/L)	0.00	0.00	.	.	.	.	0.00	-0.21
Plutonium 238 (CE+/-)	29.00	0.75	.	.	.	.	0.55	0.83
Plutonium 239 (pCi/L)	-30.30	0.22	.	.	.	.	-0.59	-1.04
Plutonium 239 (CE+/-)	49.00	0.43	.	.	.	.	1.00	1.20
Radium (Bq/L)	0.20	0.13	.	.	.	.	0.01	0.04
Radium (CE+/-)	0.08	0.04	.	.	.	.	0.03	0.04
Strontium (pCi/L)	48.10	-24.10	0.02	-0.67	19.50	28.10	33.50	20.40
Strontium (CE+/-)	23.00	22.00	20.00	20.00	26.00	26.00	20.00	18.00
Technetium 99 (pCi/L)	1570.00	1120.00	101.00	194.00	114.00	117.00	146.00	73.50
Technetium 99 (CE+/-)	190.00	64.00	62.00	65.00	40.00	40.00	66.00	61.00
Thorium 234 (pCi/L)	.	946.00	.	.	.	.	.	.
Thorium 234 (CE +/-)	.	780.00	.	.	.	.	.	.
Tritium (Bq/L)	8.00	7.00	5.00	-22.00	-4.00	19.00	7.00	14.00
Tritium (CE+/-)	23.00	25.00	23.00	1.00	22.00	28.00	23.00	24.00
Uranium 234 (pCi/L)	179.00	225.00	.	.	.	.	0.00	0.00
Uranium 234 (CE+/-)	13.00	10.00	.	.	.	.	0.76	0.60
Uranium 235 (pCi/L)	32.30	-22.70	.	.	.	.	63.80	0.39
Uranium 235 (CE+/-)	67.00	94.00	.	.	.	.	71.00	18.00
Uranium 238 (pCi/L)	387.00	519.00	.	.	.	.	0.00	0.00
Uranium 238 (CE+/-)	20.00	15.00	.	.	.	.	0.76	0.60

(CONTINUED)

APPENDIX E.4
Radionuclides, 1994

8

Sampling Point	GW-345	GW-372				GW-373		
Unit	AQT	AQT				AQT		
Location	S3	BG				BG		
Date Sampled	02/18/94	03/09/94	05/19/94	08/23/94	11/08/94	03/10/94	05/21/94	08/24/94
Gross Alpha (pCi/L)	0.59	-0.23	0.36	1.72	1.58	-1.04	0.19	-0.77
Gross Alpha (CE+/-)	1.70	2.00	1.10	1.60	1.40	1.60	1.20	1.40
Gross Beta (pCi/L)	6.15	-1.27	1.41	3.30	2.50	-0.48	-0.80	-0.86
Gross Beta (CE+/-)	3.20	2.50	2.40	2.60	2.40	2.50	2.20	2.80
RADIONUCLIDES	.	.	.	.	.	.	.	.
Americium 241 (pCi/L)	.	10.40	2.11	0.33	1.45	-1.43	-13.00	1.94
Americium 241 (CE+/-)	.	5.70	2.00	0.67	1.40	2.10	52.00	1.90
Cesium 137 (pCi/L)	.	.	.	.	.	.	.	.
Cesium 137 (CE +/-)	.	.	.	.	.	.	.	.
Iodine 129 (Bq/L)	.	0.10	0.40	0.01	0.10	0.01	-0.20	0.01
Iodine 129 (CE +/-)	.	1.90	1.30	0.83	1.40	0.82	1.00	0.08
Iodine 131 (Bq/L)	.	-0.04	0.01	.	.	0.04	-0.02	-0.02
Iodine 131 (CE +/-)	.	0.26	0.14	.	.	0.10	0.11	0.09
Iodine 133 (Bq/L)	.	.	.	.	.	.	.	.
Iodine 133 (CE +/-)	.	.	.	.	.	.	.	.
Iodine 135 (Bq/L)	.	.	.	.	.	.	.	.
Iodine 135 (CE +/-)	.	.	.	.	.	.	.	.
Neptunium 237 (pCi/L)	.	0.00	0.54	0.18	0.48	0.00	0.20	0.00
Neptunium 237 (CE+/-)	.	0.62	0.62	0.36	0.55	0.68	0.39	0.64
Potassium 40 (pCi/L)	.	.	.	.	.	.	.	.
Potassium 40 (CE+/-)	.	.	.	.	.	.	.	.
Plutonium 238 (pCi/L)	.	-0.79	0.00	0.00	0.00	-0.86	0.00	0.00
Plutonium 238 (CE+/-)	.	0.97	0.68	0.69	0.52	1.10	0.74	0.70
Plutonium 239 (pCi/L)	.	0.00	-0.20	0.00	0.00	-0.43	0.00	-0.20
Plutonium 239 (CE+/-)	.	0.79	0.78	0.56	0.52	0.96	0.60	0.81
Radium (Bq/L)	.	0.02	0.04	0.02	0.10	0.02	0.04	0.03
Radium (CE+/-)	.	0.03	0.05	0.03	0.07	0.03	0.04	0.04
Strontium (pCi/L)	-6.78	10.80	-0.80	-19.10	1.99	11.50	-5.58	-21.30
Strontium (CE+/-)	19.00	20.00	6.90	20.00	28.00	20.00	6.50	20.00
Technetium 99 (pCi/L)	162.00	41.90	14.50	46.50	30.30	38.90	123.00	104.00
Technetium 99 (CE+/-)	64.00	61.00	59.00	38.00	38.00	60.00	63.00	40.00
Thorium 234 (pCi/L)	.	.	.	.	.	.	.	.
Thorium 234 (CE +/-)	.	.	.	.	.	.	.	.
Tritium (Bq/L)	-4.00	-24.00	-5.00	3.00	11.80	7.00	2.00	-5.00
Tritium (CE+/-)	22.00	22.00	25.00	25.00	9.70	24.00	24.00	22.00
Uranium 234 (pCi/L)	.	1.59	0.65	0.00	0.87	-0.46	0.18	0.25
Uranium 234 (CE+/-)	.	1.50	0.74	0.67	0.82	0.92	0.37	0.61
Uranium 235 (pCi/L)	.	-5.10	21.00	62.30	33.20	54.30	14.20	117.00
Uranium 235 (CE+/-)	.	68.00	91.00	120.00	44.00	75.00	18.00	110.00
Uranium 238 (pCi/L)	.	0.20	0.43	-0.17	0.72	-0.23	0.00	-0.12
Uranium 238 (CE+/-)	.	0.89	0.61	0.67	0.65	0.79	0.64	0.50

(CONTINUED)

APPENDIX E.4
Radionuclides, 1994

9

Sampling Point	GW-373	GW-537				GW-613		GW-614
Unit	AQT	AQT				AQT		AQT
Location	BG	OLF				S3		S3
Date Sampled	11/08/94	02/11/94	06/24/94	09/07/94	12/15/94	02/14/94	08/15/94	02/14/94
Gross Alpha (pCi/L)	1.67	-6.11	-2.71	32.60	0.28	0.15	0.15	0.17
Gross Alpha (CE+/-)	1.50	35.00	5.80	14.00	2.60	0.56	1.10	0.61
Gross Beta (pCi/L)	1.79	713.00	397.00	392.00	350.00	15.80	1.90	8.89
Gross Beta (CE+/-)	2.40	88.00	46.00	25.00	39.00	3.70	2.60	3.00
	.	.	.	.	.	.	.	.
RADIONUCLIDES	.	.	.	.	.	.	.	.
	.	.	.	.	.	.	.	.
Americium 241 (pCi/L)	1.04	.	.	.	.	14.40	1.93	-3.45
Americium 241 (CE+/-)	1.20	.	.	.	.	5.10	1.60	6.90
Cesium 137 (pCi/l)	.	.	.	.	.	.	31.40	.
Cesium 137 (CE +/-)	.	.	.	.	.	.	33.00	.
Iodine 129 (Bq/L)	0.10	.	.	.	.	0.10	0.01	0.01
Iodine 129 (CE +/-)	1.50	.	.	.	.	1.20	0.85	0.75
Iodine 131 (Bq/L)	.	.	.	.	.	0.03	.	0.01
Iodine 131 (CE +/-)	.	.	.	.	.	0.15	.	0.10
Iodine 133 (Bq/L)	.	.	.	.	.	.	.	.
Iodine 133 (CE +/-)	.	.	.	.	.	.	.	.
Iodine 135 (Bq/L)	.	.	.	.	.	.	.	.
Iodine 135 (CE +/-)	.	.	.	.	.	.	.	.
Neptunium 237 (pCi/L)	0.00	.	.	.	.	-0.20	0.36	-0.19
Neptunium 237 (CE+/-)	0.55	.	.	.	.	0.68	0.51	0.65
Potassium 40 (pCi/L)	.	.	.	.	.	.	.	.
Potassium 40 (CE+/-)	.	.	.	.	.	.	.	.
Plutonium 238 (pCi/L)	0.00	.	.	.	.	-0.22	0.20	0.00
Plutonium 238 (CE+/-)	0.51	.	.	.	.	0.86	0.40	0.58
Plutonium 239 (pCi/L)	0.00	.	.	.	.	-1.08	0.00	-0.82
Plutonium 239 (CE+/-)	0.51	.	.	.	.	1.20	0.68	1.00
Radium (Bq/L)	0.05	.	.	.	.	0.06	0.01	0.00
Radium (CE+/-)	0.04	.	.	.	.	0.05	0.02	0.03
Strontium (pCi/L)	-2.10	-6.13	-15.30	-23.60	11.50	13.00	-9.55	10.20
Strontium (CE+/-)	27.00	19.00	18.00	23.00	24.00	17.00	23.00	17.00
Technetium 99 (pCi/L)	53.80	1460.00	1040.00	1020.00	1070.00	92.00	11.30	62.50
Technetium 99 (CE+/-)	38.00	95.00	86.00	62.00	63.00	62.00	37.00	61.00
Thorium 234 (pCi/l)	620.00	.	.	.	.	.	.	.
Thorium 234 (CE +/-)	690.00	.	.	.	.	.	.	.
Tritium (Bq/L)	5.00	5.00	25.00	11.00	10.00	20.00	6.00	-4.00
Tritium (CE+/-)	9.50	24.00	24.00	27.00	22.00	24.00	25.00	22.00
Uranium 234 (pCi/L)	0.29	2.33	-1.45	1.61	0.61	0.31	0.29	0.30
Uranium 234 (CE+/-)	0.57	1.90	1.40	0.86	1.10	0.44	0.42	0.42
Uranium 235 (pCi/L)	2.81	-0.16	-3.04	-10.10	6.75	53.60	16.50	2.95
Uranium 235 (CE+/-)	93.00	18.00	17.00	120.00	12.00	64.00	68.00	72.00
Uranium 238 (pCi/L)	0.00	0.42	-0.49	0.35	0.00	0.16	0.74	0.00
Uranium 238 (CE+/-)	0.49	0.60	0.77	0.40	0.81	0.31	0.66	0.51

(CONTINUED)

APPENDIX E.4
Radionuclides, 1994

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Sampling Point	GW-614	GW-642					GW-683		GW-684
Unit	AQT	AQT					AQF		AQF
Location	S3	BG					EXP-A		EXP-A
Date Sampled	08/16/94	03/09/94	05/19/94	08/23/94	11/07/94	03/04/94	09/20/94	03/04/94	
Gross Alpha (pCi/L)	-0.01	-1.27	-0.65	0.32	2.04	3.35	22.20	8.37	
Gross Alpha (CE+/-)	1.20	1.10	0.65	1.10	1.40	1.60	5.00	2.70	
Gross Beta (pCi/L)	1.82	4.48	0.98	3.02	2.70	1.95	34.30	20.10	
Gross Beta (CE+/-)	2.50	2.90	2.40	2.60	2.50	2.70	5.40	4.10	
	.	.	.	.	.	.	.	.	
RADIONUCLIDES	.	.	.	.	.	.	.	.	
	.	.	.	.	.	.	.	.	
Americium 241 (pCi/L)	0.62	-1.46	0.39	0.68	1.72	.	.	.	
Americium 241 (CE+/-)	0.88	2.20	1.30	0.97	1.50	.	.	.	
Cesium 137 (pCi/L)	.	.	.	.	.	.	.	.	
Cesium 137 (CE +/-)	.	.	.	.	.	.	.	.	
Iodine 129 (Bq/L)	0.10	0.10	-0.10	0.10	0.10	.	.	.	
Iodine 129 (CE +/-)	1.00	1.90	1.00	1.30	1.00	.	.	.	
Iodine 131 (Bq/L)	.	-0.05	-0.01	.	.	.	.	.	
Iodine 131 (CE +/-)	.	0.25	0.12	.	.	.	.	.	
Iodine 133 (Bq/L)	.	.	.	.	.	.	.	.	
Iodine 133 (CE +/-)	.	.	.	.	.	.	.	.	
Iodine 135 (Bq/L)	.	.	.	.	.	.	.	.	
Iodine 135 (CE +/-)	.	.	.	.	.	.	.	.	
Neptunium 237 (pCi/L)	0.00	0.17	0.00	0.00	0.16	.	.	.	
Neptunium 237 (CE+/-)	0.62	0.34	0.66	0.65	0.32	.	.	.	
Potassium 40 (pCi/L)	.	.	.	.	487.00	.	.	.	
Potassium 40 (CE+/-)	.	.	.	.	870.00	.	.	.	
Plutonium 238 (pCi/L)	0.39	-0.19	0.00	0.21	0.00	.	.	.	
Plutonium 238 (CE+/-)	0.55	1.10	0.72	0.41	0.51	.	.	.	
Plutonium 239 (pCi/L)	0.00	0.00	-0.21	-0.21	0.00	.	.	.	
Plutonium 239 (CE+/-)	0.68	0.74	0.83	0.82	0.51	.	.	.	
Radium (Bq/L)	0.02	0.03	0.06	0.05	0.08	.	.	.	
Radium (CE+/-)	0.02	0.04	0.06	0.03	0.06	.	.	.	
Strontium (pCi/L)	-15.70	33.20	-5.02	-19.00	-4.70	78.20	-11.10	-8.26	
Strontium (CE+/-)	23.00	23.00	6.50	20.00	27.00	27.00	23.00	19.00	
Technetium 99 (pCi/L)	64.10	76.90	10.90	93.70	29.80	166.00	67.10	125.00	
Technetium 99 (CE+/-)	39.00	62.00	59.00	40.00	37.00	64.00	39.00	63.00	
Thorium 234 (pCi/L)	.	.	.	.	.	.	.	.	
Thorium 234 (CE +/-)	.	.	.	.	.	.	.	.	
Tritium (Bq/L)	-13.00	5.00	-29.00	-12.00	2.80	7.00	-24.00	-5.00	
Tritium (CE+/-)	23.00	24.00	24.00	22.00	9.20	24.00	30.00	23.00	
Uranium 234 (pCi/L)	0.11	0.43	0.74	0.00	-0.12	.	.	.	
Uranium 234 (CE+/-)	0.21	1.20	0.74	0.74	0.48	.	.	.	
Uranium 235 (pCi/L)	-2.61	-15.70	0.03	-59.00	17.00	.	.	.	
Uranium 235 (CE+/-)	68.00	68.00	0.09	120.00	92.00	.	.	.	
Uranium 238 (pCi/L)	0.31	-0.21	0.00	0.00	0.12	.	.	.	
Uranium 238 (CE+/-)	0.36	0.74	0.64	0.52	0.24	.	.	.	

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APPENDIX E.4
Radionuclides, 1994

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Sampling Point	GW-684	GW-694		GW-706		GW-710		GW-711
Unit	AQF	AQF		AQF		AQF		AQF
Location	EXP-A	EXP-B		EXP-B		EXP-W		EXP-W
Date Sampled	09/20/94	03/02/94	12/13/94	03/04/94	12/15/94	02/24/94	08/19/94	02/23/94
Gross Alpha (pCi/L)	16.40	37.00	63.40	24.60	38.10	-43.10	9.27	-69.60
Gross Alpha (CE+/-)	4.20	6.50	9.40	5.00	6.80	44.00	15.00	47.00
Gross Beta (pCi/L)	40.20	30.00	85.90	24.30	78.00	-76.20	-5.66	-80.90
Gross Beta (CE+/-)	6.00	5.00	10.00	4.50	9.50	59.00	23.00	60.00
	.	.	.	.	.	.	.	.
RADIONUCLIDES	.	.	.	.	.	.	.	.
	.	.	.	.	.	.	.	.
Americium 241 (pCi/L)	.	.	.	.	.	0.76	1.91	-0.51
Americium 241 (CE+/-)	.	.	.	.	.	5.90	3.80	3.70
Cesium 137 (pCi/L)	.	.	.	.	.	.	.	.
Cesium 137 (CE +/-)	.	.	.	.	.	.	.	.
Iodine 129 (Bq/L)	.	.	.	.	.	0.01	0.10	0.01
Iodine 129 (CE +/-)	.	.	.	.	.	0.77	0.90	0.82
Iodine 131 (Bq/L)	.	.	.	.	.	-0.02	.	0.03
Iodine 131 (CE +/-)	.	.	.	.	.	0.09	.	0.09
Iodine 133 (Bq/L)	.	.	.	.	.	.	.	.
Iodine 133 (CE +/-)	.	.	.	.	.	.	.	.
Iodine 135 (Bq/L)	.	.	.	.	.	.	.	.
Iodine 135 (CE +/-)	.	.	.	.	.	.	.	.
Neptunium 237 (pCi/L)	.	.	.	.	.	-0.17	0.00	0.74
Neptunium 237 (CE+/-)	.	.	.	.	.	0.68	0.67	0.91
Potassium 40 (pCi/L)	.	.	.	.	.	.	.	.
Potassium 40 (CE+/-)	.	.	.	.	.	.	.	.
Plutonium 238 (pCi/L)	.	.	.	.	.	0.19	0.00	0.20
Plutonium 238 (CE+/-)	.	.	.	.	.	0.65	0.73	0.70
Plutonium 239 (pCi/L)	.	.	.	.	.	-0.19	0.21	0.00
Plutonium 239 (CE+/-)	.	.	.	.	.	0.75	0.42	0.57
Radium (Bq/L)	.	.	.	.	.	0.21	0.26	0.19
Radium (CE+/-)	.	.	.	.	.	0.11	0.08	0.07
Strontium (pCi/L)	-16.30	2.10	32.20	-15.40	6.28	-6.40	-17.50	-2.64
Strontium (CE+/-)	22.00	20.00	23.00	18.00	20.00	19.00	23.00	19.00
Technetium 99 (pCi/L)	101.00	163.00	52.90	142.00	101.00	130.00	46.50	166.00
Technetium 99 (CE+/-)	40.00	64.00	38.00	63.00	40.00	36.00	38.00	37.00
Thorium 234 (pCi/L)	.	.	.	.	.	.	638.00	.
Thorium 234 (CE +/-)	.	.	.	.	.	.	620.00	.
Tritium (Bq/L)	5.00	13.00	-11.00	4.00	2.00	4.00	-14.00	2.00
Tritium (CE+/-)	24.00	24.00	21.00	24.00	22.00	24.00	22.00	24.00
Uranium 234 (pCi/L)	.	.	.	.	.	0.00	0.27	0.00
Uranium 234 (CE+/-)	.	.	.	.	.	1.30	0.38	0.50
Uranium 235 (pCi/L)	.	.	.	.	.	-27.40	52.40	19.30
Uranium 235 (CE+/-)	.	.	.	.	.	74.00	77.00	25.00
Uranium 238 (pCi/L)	.	.	.	.	.	0.27	0.00	0.00
Uranium 238 (CE+/-)	.	.	.	.	.	1.20	0.46	0.50

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APPENDIX E.4
Radionuclides, 1994

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Sampling Point	GW-711	GW-712		GW-713		GW-714		GW-715
Unit	AQF	AQF		AQF		AQF		AQF
Location	EXP-W	EXP-W		EXP-W		EXP-W		EXP-W
Date Sampled	08/18/94	02/24/94	08/18/94	02/27/94	08/19/94	02/25/94	08/20/94	02/26/94
Gross Alpha (pCi/L)	-4.79	-0.94	-0.21	0.17	-0.01	1.14	1.73	0.49
Gross Alpha (CE+/-)	15.00	2.90	1.40	2.80	1.30	2.80	2.50	2.70
Gross Beta (pCi/L)	8.92	-0.09	1.18	-2.27	2.12	7.68	12.60	-1.76
Gross Beta (CE+/-)	25.00	3.30	2.40	3.10	2.50	3.60	3.50	3.10
	.	.	.	.	.	.	.	.
RADIONUCLIDES	.	.	.	.	.	.	.	.
	.	.	.	.	.	.	.	.
Americium 241 (pCi/L)	3.14	-1.64	2.81	-5.62	0.63	-2.30	4.62	-6.88
Americium 241 (CE+/-)	3.10	5.70	1.90	5.10	0.89	5.10	2.90	6.20
Cesium 137 (pCi/L)	.	.	.	.	.	.	.	.
Cesium 137 (CE +/-)	.	.	.	.	.	.	.	.
Iodine 129 (Bq/L)	0.01	-0.01	0.10	0.01	0.01	0.10	0.10	0.01
Iodine 129 (CE +/-)	0.86	0.74	1.00	0.75	0.83	2.00	1.00	0.70
Iodine 131 (Bq/L)	.	-0.05	.	-0.03	.	0.06	.	0.04
Iodine 131 (CE +/-)	.	0.19	.	0.09	.	0.25	.	0.08
Iodine 133 (Bq/L)	.	.	.	.	.	.	.	.
Iodine 133 (CE +/-)	.	.	.	.	.	.	.	.
Iodine 135 (Bq/L)	.	.	.	.	.	.	.	.
Iodine 135 (CE +/-)	.	.	.	.	.	.	.	.
Neptunium 237 (pCi/L)	0.20	-0.18	0.00	0.00	0.00	-0.18	0.34	0.19
Neptunium 237 (CE+/-)	0.39	0.71	0.63	0.50	0.65	0.72	0.48	0.65
Potassium 40 (pCi/L)	.	.	.	.	.	.	.	.
Potassium 40 (CE+/-)	.	.	.	.	.	.	.	.
Plutonium 238 (pCi/L)	0.21	-0.20	0.00	-0.19	0.00	0.00	0.00	-0.20
Plutonium 238 (CE+/-)	0.43	0.78	0.69	0.78	0.71	0.56	0.65	0.82
Plutonium 239 (pCi/L)	0.21	-0.20	0.00	-0.19	0.21	0.20	0.00	-0.20
Plutonium 239 (CE+/-)	0.43	0.78	0.69	0.78	0.41	0.68	0.65	0.82
Radium (Bq/L)	0.19	0.03	0.02	0.02	0.03	0.13	0.03	0.02
Radium (CE+/-)	0.07	0.05	0.02	0.04	0.03	0.08	0.02	0.04
Strontium (pCi/L)	-28.70	-9.63	-22.00	-12.70	-12.50	-5.03	-20.70	-14.90
Strontium (CE+/-)	21.00	19.00	22.00	18.00	23.00	19.00	25.00	18.00
Technetium 99 (pCi/L)	52.00	203.00	73.50	111.00	24.90	126.00	30.90	145.00
Technetium 99 (CE+/-)	38.00	38.00	39.00	36.00	38.00	36.00	38.00	37.00
Thorium 234 (pCi/L)	.	.	593.00	.	1000.00	.	548.00	.
Thorium 234 (CE +/-)	.	.	690.00	.	630.00	.	740.00	.
Tritium (Bq/L)	-6.00	-15.00	13.00	0.00	1.00	26.00	-1.00	10.00
Tritium (CE+/-)	23.00	31.00	25.00	27.00	24.00	25.00	23.00	24.00
Uranium 234 (pCi/L)	0.31	1.33	0.62	0.39	0.33	0.16	0.79	0.82
Uranium 234 (CE+/-)	0.44	1.00	0.56	0.45	0.37	0.33	0.64	0.67
Uranium 235 (pCi/L)	-19.30	0.91	14.50	39.80	25.90	0.22	-18.50	19.20
Uranium 235 (CE+/-)	93.00	80.00	93.00	80.00	92.00	75.00	93.00	25.00
Uranium 238 (pCi/L)	0.00	0.19	0.12	0.13	0.22	0.98	0.79	0.00
Uranium 238 (CE+/-)	0.54	0.38	0.25	0.26	0.31	0.80	0.64	0.47

(CONTINUED)

APPENDIX E.4
Radionuclides, 1994

13

Sampling Point	GW-715	GW-793				GW-794		
Unit	AQF	AQT				AQT		
Location	EXP-W	AGLLSF				AGLLSF		
Date Sampled	08/20/94	03/22/94	05/25/94	07/28/94	11/02/94	03/23/94	05/27/94	08/04/94
Gross Alpha (pCi/L)	1.58	-0.51	-0.68	-0.17	-0.01	1.13	0.36	1.97
Gross Alpha (CE+/-)	2.50	1.00	0.96	0.98	2.80	1.50	1.40	2.80
Gross Beta (pCi/L)	4.61	0.96	-1.92	1.14	6.56	3.90	1.80	7.25
Gross Beta (CE+/-)	2.90	2.50	2.40	2.40	5.20	2.90	2.60	5.50
RADIONUCLIDES	.	.	.	.	.	.	.	.
Americium 241 (pCi/L)	13.10	.	.	.	.	.	.	.
Americium 241 (CE+/-)	19.00	.	.	.	.	.	.	.
Cesium 137 (pCi/L)	.	.	.	.	.	.	.	.
Cesium 137 (CE +/-)	.	.	.	.	.	.	.	.
Iodine 129 (Bq/L)	0.01	.	.	.	.	.	.	.
Iodine 129 (CE +/-)	0.78	.	.	.	.	.	.	.
Iodine 131 (Bq/L)	.	.	.	.	.	.	.	.
Iodine 131 (CE +/-)	.	.	.	.	.	.	.	.
Iodine 133 (Bq/L)	.	.	.	.	.	.	.	.
Iodine 133 (CE +/-)	.	.	.	.	.	.	.	.
Iodine 135 (Bq/L)	.	.	.	.	.	.	.	.
Iodine 135 (CE +/-)	.	.	.	.	.	.	.	.
Neptunium 237 (pCi/L)	0.00	.	.	.	.	.	.	.
Neptunium 237 (CE+/-)	0.59	.	.	.	.	.	.	.
Potassium 40 (pCi/L)	.	.	.	.	.	.	0.47	.
Potassium 40 (CE+/-)	.	.	.	.	.	.	0.31	.
Plutonium 238 (pCi/L)	0.00	.	.	.	.	.	.	.
Plutonium 238 (CE+/-)	0.65	.	.	.	.	.	.	.
Plutonium 239 (pCi/L)	0.00	.	.	.	.	.	.	.
Plutonium 239 (CE+/-)	0.65	.	.	.	.	.	.	.
Radium (Bq/L)	0.01	.	.	.	.	.	.	.
Radium (CE+/-)	0.02	.	.	.	.	.	.	.
Strontium (pCi/L)	-31.80	10.80	.	.	.	.	.	.
Strontium (CE+/-)	24.00	19.00	.	.	.	.	.	.
Technetium 99 (pCi/L)	31.60	373.00	.	.	.	.	.	.
Technetium 99 (CE+/-)	38.00	70.00	.	.	.	.	.	.
Thorium 234 (pCi/L)	870.00	.	.	.	136.00	.	.	1010.00
Thorium 234 (CE +/-)	670.00	.	.	.	150.00	.	.	510.00
Tritium (Bq/L)	13.00	.	.	.	.	.	.	.
Tritium (CE+/-)	25.00	.	.	.	.	.	.	.
Uranium 234 (pCi/L)	0.16	-0.71	0.16	0.10	0.36	0.00	0.55	-0.12
Uranium 234 (CE+/-)	0.31	0.86	0.55	0.19	0.41	1.40	0.82	0.52
Uranium 235 (pCi/L)	-67.00	7.60	16.00	-2.06	-18.50	41.50	-0.01	-41.70
Uranium 235 (CE+/-)	94.00	68.00	18.00	67.00	20.00	63.00	0.02	94.00
Uranium 238 (pCi/L)	0.00	0.00	0.00	-0.10	0.00	0.18	0.18	0.12
Uranium 238 (CE+/-)	0.54	0.61	0.55	0.39	0.41	0.36	0.37	0.41

(CONTINUED)

APPENDIX E.4
Radionuclides, 1994

14

Sampling Point	GW-794	GW-795			
Unit	AQT	AQT			
Location	AGLLSF	AGLLSF			
Date Sampled	11/07/94	03/23/94	05/27/94	08/04/94	11/08/94
Gross Alpha (pCi/L)	0.88	-0.54	-0.01	1.74	0.86
Gross Alpha (CE+/-)	1.60	0.95	1.20	1.60	1.60
Gross Beta (pCi/L)	5.76	-0.33	0.86	3.63	4.59
Gross Beta (CE+/-)	2.80	2.60	2.60	2.70	2.70
	.	.	.	.	.
RADIONUCLIDES	.	.	.	.	.
	.	.	.	.	.
Americium 241 (pCi/L)	.	.	.	.	.
Americium 241 (CE+/-)	.	.	.	.	.
Cesium 137 (pCi/L)	.	.	.	.	5.13
Cesium 137 (CE +/-)	.	.	.	.	4.80
Iodine 129 (Bq/L)	.	.	.	.	.
Iodine 129 (CE +/-)	.	.	.	.	.
Iodine 131 (Bq/L)	.	.	.	.	.
Iodine 131 (CE +/-)	.	.	.	.	.
Iodine 133 (Bq/L)	.	.	.	.	.
Iodine 133 (CE +/-)	.	.	.	.	.
Iodine 135 (Bq/L)	.	.	.	.	.
Iodine 135 (CE +/-)	.	.	.	.	.
Neptunium 237 (pCi/L)	.	.	.	.	.
Neptunium 237 (CE+/-)	.	.	.	.	.
Potassium 40 (pCi/L)	.	.	.	.	.
Potassium 40 (CE+/-)	.	.	.	.	.
Plutonium 238 (pCi/L)	.	.	.	.	.
Plutonium 238 (CE+/-)	.	.	.	.	.
Plutonium 239 (pCi/L)	.	.	.	.	.
Plutonium 239 (CE+/-)	.	.	.	.	.
Radium (Bq/L)	.	.	.	.	.
Radium (CE+/-)	.	.	.	.	.
Strontium (pCi/L)	.	.	.	.	.
Strontium (CE+/-)	.	.	.	.	.
Technetium 99 (pCi/L)	.	.	.	.	.
Technetium 99 (CE+/-)	.	.	.	.	.
Thorium 234 (pCi/L)	.	.	.	.	.
Thorium 234 (CE +/-)	.	.	.	.	.
Tritium (Bq/L)	.	.	.	.	.
Tritium (CE+/-)	.	.	.	.	.
Uranium 234 (pCi/L)	0.16	1.33	0.36	-0.12	0.21
Uranium 234 (CE+/-)	0.54	1.60	0.53	0.54	0.43
Uranium 235 (pCi/L)	4.87	18.20	-0.01	77.60	0.92
Uranium 235 (CE+/-)	7.10	17.00	0.09	93.00	7.30
Uranium 238 (pCi/L)	0.32	0.67	0.72	0.00	0.21
Uranium 238 (CE+/-)	0.44	0.67	0.58	0.34	0.30

APPENDIX E.4
Radionuclides, 1994

15

Sampling Point . Unit . Location . Date Sampled	BCK-09.40		BCK-11.97		NT-01		SS-1	
	CREEK		CREEK		CREEK		SPRING	
	EXP-SW		EXP-SW		EXP-SW		EXP-SW	
	02/14/94	09/06/94	02/14/94	09/06/94	02/14/94	09/07/94	02/14/94	09/07/94
Gross Alpha (pCi/L)	60.20	44.60	33.10	62.00	6.26	8.11	21.90	13.10
Gross Alpha (CE+/-)	8.90	7.60	6.50	11.00	2.80	3.80	5.20	4.20
Gross Beta (pCi/L)	58.90	68.20	118.00	405.00	166.00	364.00	43.50	65.00
Gross Beta (CE+/-)	7.60	8.70	13.00	42.00	18.00	38.00	6.10	8.40
RADIONUCLIDES	.	.	.	.	.	.	.	.
Americium 241 (pCi/L)	.	.	.	.	.	.	.	.
Americium 241 (CE+/-)	.	.	.	.	.	.	.	.
Cesium 137 (pCi/L)	.	.	.	.	.	.	.	.
Cesium 137 (CE +/-)	.	.	.	.	.	.	.	.
Iodine 129 (Bq/L)	.	.	.	.	.	.	.	.
Iodine 129 (CE +/-)	.	.	.	.	.	.	.	.
Iodine 131 (Bq/L)	.	.	.	.	.	.	.	.
Iodine 131 (CE +/-)	.	.	.	.	.	.	.	.
Iodine 133 (Bq/L)	.	.	.	.	.	.	.	.
Iodine 133 (CE +/-)	.	.	.	.	.	.	.	.
Iodine 135 (Bq/L)	.	.	.	.	.	.	.	.
Iodine 135 (CE +/-)	.	.	.	.	.	.	.	.
Neptunium 237 (pCi/L)	.	.	.	.	.	.	.	.
Neptunium 237 (CE+/-)	.	.	.	.	.	.	.	.
Potassium 40 (pCi/L)	.	.	.	.	.	.	.	.
Potassium 40 (CE+/-)	.	.	.	.	.	.	.	.
Plutonium 238 (pCi/L)	.	.	.	.	.	.	.	.
Plutonium 238 (CE+/-)	.	.	.	.	.	.	.	.
Plutonium 239 (pCi/L)	.	.	.	.	.	.	.	.
Plutonium 239 (CE+/-)	.	.	.	.	.	.	.	.
Radium (Bq/L)	.	.	.	.	.	.	.	.
Radium (CE+/-)	.	.	.	.	.	.	.	.
Strontium (pCi/L)	-4.55	10.00	374.00	-9.31	0.05	-27.10	-9.70	-26.80
Strontium (CE+/-)	20.00	25.00	46.00	23.00	21.00	21.00	20.00	21.00
Technetium 99 (pCi/L)	158.00	80.00	263.00	751.00	458.00	786.00	223.00	166.00
Technetium 99 (CE+/-)	64.00	39.00	67.00	56.00	72.00	57.00	66.00	42.00
Thorium 234 (pCi/L)	.	.	.	.	.	.	.	.
Thorium 234 (CE +/-)	.	.	.	.	.	.	.	.
Tritium (Bq/L)	-2.00	4.00	2.00	-8.00	22.00	-10.00	3.00	-2.00
Tritium (CE+/-)	22.00	26.00	23.00	25.00	24.00	25.00	24.00	25.00
Uranium 234 (pCi/L)	.	.	.	.	.	.	.	.
Uranium 234 (CE+/-)	.	.	.	.	.	.	.	.
Uranium 235 (pCi/L)	.	.	.	.	.	.	.	.
Uranium 235 (CE+/-)	.	.	.	.	.	.	.	.
Uranium 238 (pCi/L)	.	.	.	.	.	.	.	.
Uranium 238 (CE+/-)	.	.	.	.	.	.	.	.

(CONTINUED)

APPENDIX E.4
Radionuclides, 1994

16

Sampling Point . Unit . Location . Date Sampled	SS-4	
	SPRING	
	EXP-SW	
	02/14/94	09/06/94
Gross Alpha (pCi/L)	15.30	67.40
Gross Alpha (CE+/-)	3.80	10.00
Gross Beta (pCi/L)	20.60	111.00
Gross Beta (CE+/-)	4.00	13.00
	.	.
RADIONUCLIDES	.	.
	.	.
Americium 241 (pCi/L)	.	.
Americium 241 (CE+/-)	.	.
Cesium 137 (pCi/L)	.	.
Cesium 137 (CE +/-)	.	.
Iodine 129 (Bq/L)	.	.
Iodine 129 (CE +/-)	.	.
Iodine 131 (Bq/L)	.	.
Iodine 131 (CE +/-)	.	.
Iodine 133 (Bq/L)	.	.
Iodine 133 (CE +/-)	.	.
Iodine 135 (Bq/L)	.	.
Iodine 135 (CE +/-)	.	.
Neptunium 237 (pCi/L)	.	.
Neptunium 237 (CE+/-)	.	.
Potassium 40 (pCi/L)	.	.
Potassium 40 (CE+/-)	.	.
Plutonium 238 (pCi/L)	.	.
Plutonium 238 (CE+/-)	.	.
Plutonium 239 (pCi/L)	.	.
Plutonium 239 (CE+/-)	.	.
Radium (Bq/L)	.	.
Radium (CE+/-)	.	.
Strontium (pCi/L)	313.00	-1.30
Strontium (CE+/-)	43.00	24.00
Technetium 99 (pCi/L)	137.00	156.00
Technetium 99 (CE+/-)	63.00	42.00
Thorium 234 (pCi/L)	.	.
Thorium 234 (CE +/-)	.	.
Tritium (Bq/L)	11.00	26.00
Tritium (CE+/-)	24.00	27.00
Uranium 234 (pCi/L)	.	.
Uranium 234 (CE+/-)	.	.
Uranium 235 (pCi/L)	.	.
Uranium 235 (CE+/-)	.	.
Uranium 238 (pCi/L)	.	.
Uranium 238 (CE+/-)	.	.

APPENDIX F
FIELD DUPLICATE DATA

EXPLANATION

SAMPLING POINT:

BCK - Bear Creek Kilometer
GW - Monitoring Well
NT - Northern Tributary
SS - Spring

UNIT:

AQF - Knox Aquifer
AQT - ORR Aquitard

LOCATION:

AGLLSF - Above Grade Low-Level Storage Facility
BG - Bear Creek Burial Grounds WMA
EXP - Exit Pathway Monitoring Location:
Maynardville Limestone Transverse (-A, -B, -C, -W)
Spring or Surface Water Sampling Location (-SW)
OLF - Oil Landfarm WMA
RS - Rust Spoil Area
S3 - S-3 Site
SPI - Spoil Area I

ALL DATA:

. - Not analyzed or not reported.

ORGANIC COMPOUNDS:

All results in micrograms per liter (ug/L).

U - Compound not detected at the reported minimum attainable detection limit.

EXPLANATION (cont'd)

METALS, ANIONS, MISCELLANEOUS, AND RADIOCHEMICAL PARAMETERS:

All analyses are by Inductively Coupled Plasma (ICP) Spectroscopy unless otherwise noted.

Bicarbonate and carbonate alkalinity reported as CaCO_3 .

<	-	Compound analyzed but not detected at the reported minimum attainable detection limit
mg/L	-	milligrams per liter
AAS	-	Atomic Absorption Spectroscopy
CVAA	-	Cold Vapor Atomic Absorption
Fluor	-	Fluorometric*
DIS	-	Dissolved Concentration (Filtered Sample)
TOT	-	Total Concentration (Unfiltered Sample)
TDS	-	Total Dissolved Solids
TSS	-	Total Suspended Solids
Sp. Cond.	-	Specific Conductance
ppm	-	parts per million
umho/cm	-	micromhos per centimeter
NTU	-	Nephelometric Turbidity Unit
mV	-	millivolts
pCi/L	-	picoCuries per liter
Bq/L	-	Becquerels per liter
CE +/-	-	Counting Error (two standard deviations)

* Fourth quarter results for a duplicate sample from 1 well reported in Appendix F.1 as "Uranium (fluor)" was analyzed by ICP/MS (EPA Method 200.8). This method has a lower detection/reporting limit (0.0005 mg/L) than the fluorometric method (0.015 mg/L, fourth quarter). The following sample results were obtained by ICP/MS:

Sampling Point	Date Sampled	Uranium Concentration (mg/L)	
		Total	Dissolved
GW-738	12/17/94	0.003	0.0033

APPENDIX F.1
TRACE METALS AND ANIONS

Field Duplicate Data: Trace Metals and Anions, 1994

Sampling Point	GW-064		GW-069		GW-095		GW-162		GW-315	
Unit	AQF		AQT		AQF		AQT		AQF	
Location	OLF		BG		BG		BG		SPI	
Date Sampled	06/23/94		12/06/94		03/10/94		08/22/94		12/05/94	
Type	TOT	DIS	TOT	DIS	TOT	DIS	TOT	DIS	TOT	DIS
METALS (mg/L)	.	.	.	.	.	.	.	.	.	.
Aluminum	0.089	<0.02	<0.02	<0.02	<0.02	<0.02	0.039	<0.02	<0.02	<0.02
Antimony	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Arsenic	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Barium	0.046	0.045	0.38	0.39	0.026	0.021	0.31	0.31	0.048	0.048
Beryllium	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	0.00044	<0.0003	<0.0003	<0.0003
Boron	0.047	0.035	0.15	0.15	0.99	0.96	0.051	0.051	0.022	0.038
Cadmium (AAS)	.	.	.	.	.	.	<0.002	<0.002	.	.
Cadmium	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003
Calcium	99	100	11	11	1.6	1.5	32	29	98	95
Chromium (AAS)	.	.	.	.	.	.	<0.01	<0.01	.	.
Chromium	<0.01	<0.01	0.014	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Cobalt	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Copper	0.0056	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004
Iron	0.12	0.011	0.18	0.0066	0.0066	<0.005	6.7	0.98	0.006	0.019
Lead (AAS)	.	.	.	.	.	.	<0.004	<0.004	.	.
Lead	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Magnesium	15	15	5.3	5.4	0.53	0.5	5.3	5	10	9.7
Manganese	0.0092	<0.001	0.0046	0.0027	<0.001	<0.001	0.15	0.12	<0.001	<0.001
Mercury (CVAA)	.	.	.	.	.	.	<0.0002	<0.0002	.	.
Molybdenum	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Nickel	<0.01	<0.01	0.02	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Potassium	2.3	1.9	4.8	4.9	1.5	1.8	3	3.3	3.4	3.4
Selenium	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Silver	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006
Sodium	4.5	4.5	61	63	120	120	15	14	6	5.9
Strontium	0.1	0.1	0.91	0.93	0.1	0.096	0.78	0.78	0.16	0.16
Thorium	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Uranium (Fluor)	0.001	0.001	<0.015	<0.015	<0.001	<0.001	0.003	0.002	<0.015	<0.015
Vanadium	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Zinc	0.0097	<0.002	0.0081	0.003	0.033	<0.002	0.01	0.0031	0.0033	<0.002
ANIONS (mg/L)	.	.	.	.	.	.	.	.	.	.
Alkalinity-HCO3	284	.	127	.	224	.	116	.	223	.
Alkalinity-CO3	<1	.	8	.	32	.	<1	.	<1	.
Chloride	9.4	.	44	.	2	.	3.5	.	8.8	.
Fluoride	<0.1	.	0.1	.	0.6	.	0.1	.	<0.1	.
Nitrate-N	5.2	.	<0.2	.	<0.2	.	<0.2	.	14	.
Sulfate	17	.	2.8	.	8	.	8.8	.	31	.
TSS (mg/L)	6	.	1	.	<1	.	8	.	<1	.
Turbidity (NTU)	6	.	1.7	.	0.9	.	15	.	0.1	.

(CONTINUED)

Field Duplicate Data: Trace Metals and Anions, 1994

Sampling Point . Unit . Location . Date Sampled . Type	GW-348						GW-363			
	AQF						AQT			
	S3						OLF			
	02/16/94		06/20/94		08/30/94		05/26/94		11/02/94	
	TOT	DIS	TOT	DIS	TOT	DIS	TOT	DIS	TOT	DIS
METALS (mg/L)	.	.	.	.	.	.	.	.	.	.
Aluminum	0.06	<0.02	<0.02	<0.02	0.077	0.049	0.31	0.09	1.5	0.23
Antimony	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Arsenic	<0.05	<0.05	<0.05	<0.05	0.064	0.097	<0.05	<0.05	<0.05	<0.05
Barium	0.087	0.086	0.085	0.085	0.087	0.083	0.055	0.046	0.076	0.04
Beryllium	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003
Boron	0.016	0.025	0.016	0.024	0.046	0.025	0.28	0.3	0.3	0.3
Cadmium (AAS)	.	.	.	.	.	.	.	.	.	.
Cadmium	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003
Calcium	81	79	75	75	80	77	2.1	1.4	2.8	1.2
Chromium (AAS)	.	.	.	.	.	.	.	.	.	.
Chromium	<0.01	<0.01	<0.01	<0.01	<0.01	0.019	<0.01	<0.01	<0.01	<0.01
Cobalt	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Copper	<0.004	<0.004	0.0049	<0.004	<0.004	<0.004	0.0073	0.021	0.0061	<0.004
Iron	0.075	<0.005	0.0091	<0.005	0.012	0.078	0.59	0.019	2.7	4.3
Lead (AAS)	.	.	.	.	.	.	.	.	.	.
Lead	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Magnesium	18	18	18	18	18	17	0.82	0.64	1.3	0.48
Manganese	<0.001	<0.001	<0.001	<0.001	<0.001	0.0025	0.0082	0.0014	0.022	0.014
Mercury (CVAA)	.	.	.	.	.	.	.	.	.	.
Molybdenum	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Nickel	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Potassium	1	1.2	2	2	1.6	1.5	1.9	2	2.3	1.2
Selenium	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Silver	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	0.0068	0.0064	<0.006
Sodium	3	3	3	3	3	2.8	110	100	120	110
Strontium	0.088	0.087	0.089	0.088	0.097	0.092	0.071	0.065	0.087	0.055
Thorium	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Uranium (Fluor)	0.001	0.001	0.001	0.001	0.001	0.001	<0.001	<0.001	<0.015	<0.015
Vanadium	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Zinc	0.0023	0.0021	<0.002	<0.002	0.0039	0.0049	0.027	0.032	0.012	0.0032
ANIONS (mg/L)	.	.	.	.	.	.	.	.	.	.
Alkalinity-HCO3	235	.	237	.	243	.	206	.	199	.
Alkalinity-CO3	<1	.	<1	.	<1	.	36	.	32	.
Chloride	10	.	8.9	.	7.7	.	<1	.	1.5	.
Fluoride	<0.1	.	<0.1	.	0.1	.	0.2	.	0.3	.
Nitrate-N	9.3	.	8.7	.	9.1	.	<0.2	.	<0.2	.
Sulfate	5	.	5.8	.	15	.	7	.	12	.
TSS (mg/L)	<1	.	1	.	<1	.	13	.	11	.
Turbidity (NTU)	2.7	.	1.3	.	0.5	.	8.1	.	16	.

(CONTINUED)

Field Duplicate Data: Trace Metals and Anions, 1994

Sampling Point Unit Location Date Sampled Type	GW-370		GW-372				GW-537			
	AQT		AQT				AQT			
	BG		BG				OLF			
	05/24/94		03/09/94		11/08/94		02/11/94		12/15/94	
	TOT	DIS	TOT	DIS	TOT	DIS	TOT	DIS	TOT	DIS
METALS (mg/L)	.	.	.	.	.	.	.	.	.	.
Aluminum	0.74	<0.02	0.075	<0.02	0.24	<0.02	0.28	<0.2	<0.04	0.057
Antimony	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.5	<0.5	<0.1	<0.1
Arsenic	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.5	<0.5	<0.1	<0.1
Barium	0.074	0.054	0.07	0.07	0.073	0.069	2.6	2.6	2.2	2.4
Beryllium	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.003	<0.003	<0.0006	<0.0006
Boron	0.02	0.012	0.0096	0.014	0.031	0.018	<0.04	<0.04	0.013	0.023
Cadmium (AAS)	.	.	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
Cadmium	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.03	<0.03	<0.006	<0.006
Calcium	31	27	62	62	63	62	1100	1100	1000	1100
Chromium (AAS)	.	.	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Chromium	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.1	<0.1	<0.02	<0.02
Cobalt	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.05	<0.05	<0.01	<0.01
Copper	<0.004	0.0063	<0.004	<0.004	<0.004	<0.004	<0.04	<0.04	<0.008	<0.008
Iron	0.5	0.013	0.15	0.055	0.32	<0.005	0.25	<0.05	0.02	<0.01
Lead (AAS)	.	.	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004
Lead	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.5	<0.5	<0.1	<0.1
Magnesium	3.5	3	11	11	12	11	77	75	61	66
Manganese	0.013	0.0048	0.035	0.032	0.023	0.018	0.016	0.013	0.0064	0.0049
Mercury (CVAA)	.	.	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Molybdenum	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.1	<0.1	<0.02	<0.02
Nickel	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.1	<0.1	<0.02	<0.02
Potassium	<0.6	<0.6	1.9	1.9	1.9	2.7	<6	<6	4.2	3.8
Selenium	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.5	<0.5	<0.1	<0.1
Silver	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.06	<0.06	<0.012	<0.012
Sodium	11	11	9.2	9.3	9.8	8.9	34	33	30	32
Strontium	0.061	0.053	0.16	0.16	0.18	0.17	3.1	3	2.5	2.8
Thorium	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<2	<2	<0.4	<0.4
Uranium (Fluor)	0.002	<0.001	0.001	0.002	<0.015	<0.015	0.002	0.001	0.0012	0.0014
Vanadium	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.05	<0.05	<0.01	<0.01
Zinc	0.014	0.0071	<0.002	<0.002	0.013	<0.002	0.03	0.03	0.005	0.016
ANIONS (mg/L)	.	.	.	.	.	.	.	.	.	.
Alkalinity-HCO3	91	.	184	.	182	.	276	.	253	.
Alkalinity-CO3	<1	.	<1	.	<1	.	<1	.	<1	.
Chloride	1.5	.	2	.	2.8	.	<100	.	35	.
Fluoride	0.1	.	0.1	.	0.2	.	<0.1	.	<0.1	.
Nitrate-N	<0.2	.	<0.2	.	<0.2	.	941	.	814	.
Sulfate	11	.	30	.	33	.	<100	.	3.2	.
TSS (mg/L)	52	.	<1	.	<1	.	6	.	<1	.
Turbidity (NTU)	13	.	2.1	.	2	.	4	.	1.9	.

(CONTINUED)

Field Duplicate Data: Trace Metals and Anions, 1994

Sampling Point	GW-621		GW-627				GW-683		GW-704	
Unit	AQF		AQT				AQF		AQF	
Location	EXP-B		BG				EXP-A		EXP-B	
Date Sampled	12/07/94		06/23/94		09/15/94		09/20/94		02/25/94	
Type	TOT	DIS	TOT	DIS	TOT	DIS	TOT	DIS	TOT	DIS
METALS (mg/L)	.	.	.	.	.	.	.	.	.	.
Aluminum	2	0.021	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Antimony	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Arsenic	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Barium	0.034	0.024	0.043	0.032	0.045	0.035	0.12	0.12	0.085	0.079
Beryllium	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003
Boron	0.021	0.017	0.6	0.58	0.5	0.5	0.08	0.08	0.039	0.043
Cadmium (AAS)	<0.002	<0.002	.	.	.	.	.	.	.	.
Cadmium	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003
Calcium	56	56	1.3	1.3	0.85	1	71	71	61	62
Chromium (AAS)	0.072	<0.01	.	.	.	.	.	.	.	.
Chromium	0.072	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Cobalt	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Copper	0.0081	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004
Iron	2.2	0.029	0.23	0.05	0.11	0.0096	0.069	0.011	3.8	0.17
Lead (AAS)	<0.004	<0.004	.	.	.	.	.	.	.	.
Lead	<0.05	<0.05	0.059	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Magnesium	11	10	0.26	0.26	0.21	0.23	19	19	30	30
Manganese	0.13	0.0011	0.011	0.0048	0.0048	0.0024	0.0025	0.0014	0.026	0.015
Mercury (CVAA)	<0.0002	<0.0002	.	.	.	.	.	.	.	.
Molybdenum	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Nickel	0.065	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Potassium	2.1	1.5	1.8	1.5	0.91	1.7	2.1	2.1	1.1	0.68
Selenium	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Silver	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006
Sodium	2.4	2.4	350	330	290	290	9.4	9.5	12	12
Strontium	0.065	0.063	0.096	0.082	0.074	0.066	0.14	0.14	0.37	0.37
Thorium	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Uranium (Fluor)	<0.015	<0.015	<0.001	0.001	<0.015	<0.015	0.077	0.072	0.002	0.002
Vanadium	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Zinc	0.0085	0.0034	0.0034	<0.002	<0.002	<0.002	0.0051	<0.002	0.0074	0.0021
ANIONS (mg/L)	.	.	.	.	.	.	.	.	.	.
Alkalinity-HCO ₃	166	.	478	.	480	.	199	.	200	.
Alkalinity-CO ₃	<1	.	72	.	70	.	<1	.	<1	.
Chloride	4.6	.	25	.	26	.	13	.	26	.
Fluoride	<0.1	.	6	.	5.5	.	0.2	.	0.1	.
Nitrate-N	4.7	.	<0.2	.	<0.2	.	12	.	20.7	.
Sulfate	4.9	.	28	.	30	.	22	.	<20	.
TSS (mg/L)	16	.	1	.	<1	.	<1	.	9	.
Turbidity (NTU)	35	.	1.2	.	0.4	.	1.5	.	18	.

(CONTINUED)

Field Duplicate Data: Trace Metals and Anions, 1994

Sampling Point	GW-712		GW-713		GW-724		GW-738		GW-793	
Unit	AQF		AQF		AQF		AQF		AQT	
Location	EXP-W		EXP-W		EXP-C		EXP-C		AGLLSF	
Date Sampled	02/24/94		08/19/94		03/18/94		12/17/94		03/22/94	
Type	TOT	DIS	TOT	DIS	TOT	DIS	TOT	DIS	TOT	DIS
METALS (mg/L)	.	.	.	.	.	.	.	.	.	.
Aluminum	<0.02	<0.02	0.02	<0.02	<0.02	<0.02	1	0.033	0.13	<0.02
Antimony	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Arsenic	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Barium	0.043	0.043	0.052	0.051	0.17	0.16	0.056	0.056	0.15	0.15
Beryllium	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003
Boron	0.095	0.095	0.1	0.1	0.058	0.07	0.034	0.029	0.052	0.07
Cadmium (AAS)	<0.002	<0.002	<0.002	<0.002	.	.	.	.	.	.
Cadmium	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003
Calcium	74	74	64	65	99	93	120	130	55	55
Chromium (AAS)	<0.01	<0.01	<0.01	<0.01	.	.	.	.	.	.
Chromium	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Cobalt	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Copper	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	0.0064	0.0045
Iron	0.58	0.47	4.5	1.6	0.54	0.18	0.89	0.005	0.16	<0.005
Lead (AAS)	<0.004	<0.004	<0.004	<0.004	.	.	.	.	.	.
Lead	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Magnesium	33	33	33	33	45	42	25	24	4.9	4.9
Manganese	0.017	0.017	0.08	0.072	0.032	0.029	0.026	<0.001	0.13	0.035
Mercury (CVAA)	<0.0002	<0.0002	<0.0002	<0.0002	.	.	.	.	.	.
Molybdenum	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Nickel	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Potassium	3.2	2.8	3.2	3.1	2.1	1.8	2.1	2	0.81	0.64
Selenium	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Silver	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006
Sodium	18	18	16	16	21	19	7.8	8.3	4	4
Strontium	1.6	1.6	1.7	1.7	1.2	1.2	0.12	0.13	0.099	0.098
Thorium	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Uranium (Fluor)	0.001	<0.001	0.001	0.001	0.002	<0.001	0.003	0.0033	<0.001	<0.001
Vanadium	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Zinc	0.013	<0.002	<0.002	<0.002	<0.002	<0.002	0.011	0.0063	0.0071	0.0058
ANIONS (mg/L)	.	.	.	.	.	.	.	.	.	.
Alkalinity-HCO3	190	.	180	.	211	.	291	.	152	.
Alkalinity-CO3	<1	.	<1	.	<1	.	<1	.	<1	.
Chloride	24	.	12	.	46	.	17	.	1	.
Fluoride	0.7	.	0.6	.	0.3	.	<0.1	.	<0.1	.
Nitrate-N	0.3	.	<0.2	.	48.6	.	22	.	<0.2	.
Sulfate	167	.	111	.	22	.	28	.	4	.
TSS (mg/L)	1	.	8	.	<1	.	8	.	3	.
Turbidity (NTU)	8.8	.	17	.	5.3	.	20	.	2	.

(CONTINUED)

Field Duplicate Data: Trace Metals and Anions, 1994

Sampling Point . Unit . Location . Date Sampled . Type	GW-795		GW-800	
	AQT		AQF	
	AGLLSF		OLF	
	08/04/94		09/02/94	
	TOT	DIS	TOT	DIS
METALS (mg/L)	.	.	.	.
	.	.	.	.
Aluminum	<0.02	<0.02	0.41	0.028
Antimony	<0.05	<0.05	<0.05	<0.05
Arsenic	<0.05	<0.05	<0.05	<0.05
Barium	0.058	0.06	0.15	0.14
Beryllium	<0.0003	<0.0003	<0.0003	<0.0003
Boron	0.054	0.036	0.036	0.052
Cadmium (AAS)	.	.	.	.
Cadmium	<0.003	<0.003	<0.003	<0.003
Calcium	80	82	66	60
Chromium (AAS)	.	.	.	.
Chromium	<0.01	<0.01	<0.01	<0.01
Cobalt	<0.005	<0.005	<0.005	<0.005
Copper	<0.004	0.0045	0.0078	0.0044
Iron	0.0069	0.019	0.35	<0.005
Lead (AAS)	.	.	.	.
Lead	<0.05	<0.05	<0.05	<0.05
Magnesium	3.3	3.5	26	24
Manganese	0.023	0.027	0.085	0.0024
Mercury (CVAA)	.	.	.	.
Molybdenum	<0.01	<0.01	<0.01	<0.01
Nickel	<0.01	<0.01	<0.01	<0.01
Potassium	1	1	3.1	3
Selenium	<0.05	<0.05	<0.05	<0.05
Silver	<0.006	<0.006	<0.006	<0.006
Sodium	1.9	1.9	0.95	0.89
Strontium	0.13	0.14	0.24	0.28
Thorium	<0.2	<0.2	<0.2	<0.2
Uranium (Fluor)	0.001	0.001	<0.015	<0.015
Vanadium	<0.005	<0.005	<0.005	<0.005
Zinc	0.016	0.0097	0.024	0.019
	.	.	.	.
ANIONS (mg/L)	.	.	.	.
	.	.	.	.
Alkalinity-HCO ₃	206	.	240	.
Alkalinity-CO ₃	<1	.	<1	.
Chloride	3.4	.	1.6	.
Fluoride	0.1	.	<0.1	.
Nitrate-N	<0.2	.	<0.2	.
Sulfate	22	.	11	.
	.	.	.	.
TSS (mg/L)	<1	.	3	.
Turbidity (NTU)	0.8	.	4.5	.

APPENDIX F.2
VOLATILE ORGANIC COMPOUNDS

APPENDIX F.2

1

Field Duplicate Data: Volatile Organic Compounds, 1994

Sampling Point	GW-064	GW-069	GW-095	GW-162	GW-315	GW-348		
Unit	AQF	AQT	AQF	AQT	AQF	AQF		
Location	OLF	BG	BG	BG	SPI	S3		
Date Sampled	06/23/94	12/06/94	03/10/94	08/22/94	12/05/94	02/16/94	06/20/94	08/30/94
Acetone	10U	10U	10U	10U	10U	10U	10U	10U
Benzene	10U	10U	5U	10U	10U	5U	10U	10U
Bromodichloromethane	10U	10U	5U	10U	10U	5U	10U	10U
Bromoform	10U	10U	5U	10U	10U	5U	10U	10U
Bromomethane	10U	10U	10U	10U	10U	10U	10U	10U
2-Butanone	10U	10U	10U	10U	10U	10U	10U	10U
Carbon disulfide	10U	10U	5U	10U	10U	5U	10U	10U
Carbon tetrachloride	1	10U	5U	10U	10U	5U	10U	10U
Chlorobenzene	10U	10U	5U	10U	10U	5U	10U	10U
Chlorodibromomethane	10U	10U	5U	10U	10U	5U	10U	10U
Chloroethane	10U	10U	10U	10U	10U	10U	10U	10U
Chloroform	2	10U	5U	10U	2	5U	10U	10U
Chloromethane	10U	10U	10U	10U	10U	10U	10U	10U
1,1-Dichloroethane	10U	10U	5U	10U	10U	5U	10U	10U
1,2-Dichloroethane	10U	10U	5U	10U	10U	5U	10U	10U
1,1-Dichloroethene	10U	10U	5U	10U	10U	5U	10U	10U
1,2-Dichloroethene	5	10U	5U	10U	7	5U	10U	10U
trans-1,2-Dichloroethene	.	.	.	.	.	.	.	.
1,2-Dichloropropane	10U	10U	5U	10U	10U	5U	10U	10U
cis-1,3-Dichloropropene	10U	10U	5U	10U	10U	5U	10U	10U
trans-1,3-Dichloropropene	10U	10U	5U	10U	10U	5U	10U	10U
Ethylbenzene	10U	10U	5U	10U	10U	5U	10U	10U
2-Hexanone	10U	10U	10U	10U	10U	10U	10U	10U
4-Methyl-2-pentanone	10U	10U	10U	10U	10U	10U	10U	10U
Methylene chloride	10U	10U	5U	10U	10U	5U	10U	10U
Styrene	10U	10U	5U	10U	10U	5U	10U	10U
1,1,2,2-Tetrachloroethane	10U	10U	5U	10U	10U	5U	10U	10U
Tetrachloroethene	1	10U	5U	10U	11	5U	10U	10U
Toluene	10U	10U	5U	10U	10U	5U	10U	10U
1,1,1-Trichloroethane	0.7	10U	5U	10U	10U	5U	10U	10U
1,1,2-Trichloroethane	10U	10U	5U	10U	10U	5U	10U	10U
Trichloroethene	67	10U	5U	10U	6	5U	2	10U
Vinyl acetate	10U	10U	10U	10U	10U	10U	10U	10U
Vinyl chloride	10U	10U	10U	10U	10U	10U	10U	10U
Xylenes	10U	10U	5U	10U	10U	5U	10U	10U

(CONTINUED)

APPENDIX F.2

2

Field Duplicate Data: Volatile Organic Compounds, 1994

Sampling Point	GW-363		GW-370	GW-372		GW-537		GW-621
Unit	AQT		AQT	AQT		AQT		AQF
Location	OLF		BG	BG		OLF		EXP-B
Date Sampled	05/26/94	11/02/94	05/24/94	03/09/94	11/08/94	02/11/94	12/15/94	12/07/94
Acetone	10U	10U	10U	10U	10U	10U	10U	10U
Benzene	10U	10U	10U	5U	10U	5U	10U	10U
Bromodichloromethane	10U	10U	10U	5U	10U	5U	10U	10U
Bromoform	10U	10U	10U	5U	10U	5U	10U	10U
Bromomethane	10U	10U	10U	10U	10U	10U	10U	10U
2-Butanone	10U	10U	10U	10U	10U	10U	10U	10U
Carbon disulfide	10U	10U	10U	5U	10U	5U	10U	10U
Carbon tetrachloride	10U	10U	10U	5U	10U	5U	10U	10U
Chlorobenzene	10U	10U	10U	5U	10U	5U	10U	10U
Chlorodibromomethane	10U	10U	10U	5U	10U	5U	10U	10U
Chloroethane	10U	10U	10U	10U	10U	10U	10U	10U
Chloroform	10U	10U	10U	5U	10U	5U	10U	10U
Chloromethane	10U	10U	10U	10U	10U	10U	10U	10U
1,1-Dichloroethane	10U	10U	10U	5U	10U	5U	10U	10U
1,2-Dichloroethane	10U	10U	10U	5U	10U	5U	10U	10U
1,1-Dichloroethene	10U	10U	10U	5U	10U	5U	10U	10U
1,2-Dichloroethene	10U	10U	10U	5U	10U	5U	10U	10U
trans-1,2-Dichloroethene	.	.	.	.	.	.	.	.
1,2-Dichloropropane	10U	10U	10U	5U	10U	5U	10U	10U
cis-1,3-Dichloropropene	10U	10U	10U	5U	10U	5U	10U	10U
trans-1,3-Dichloropropene	10U	10U	10U	5U	10U	5U	10U	10U
Ethylbenzene	10U	10U	10U	5U	10U	5U	10U	10U
2-Hexanone	10U	10U	10U	10U	10U	10U	10U	10U
4-Methyl-2-pentanone	10U	10U	10U	10U	10U	10U	10U	10U
Methylene chloride	10U	10U	10U	5U	10U	5U	10U	10U
Styrene	10U	10U	10U	5U	10U	5U	10U	10U
1,1,2,2-Tetrachloroethane	10U	10U	10U	5U	10U	5U	10U	10U
Tetrachloroethene	10U	10U	10U	5U	10U	5U	10U	10U
Toluene	10U	10U	10U	5U	10U	5U	10U	10U
1,1,1-Trichloroethane	10U	10U	10U	5U	10U	5U	10U	10U
1,1,2-Trichloroethane	10U	10U	10U	5U	10U	5U	10U	10U
Trichloroethene	10U	10U	10U	5U	10U	5U	10U	10U
Vinyl acetate	10U	10U	10U	10U	10U	10U	10U	10U
Vinyl chloride	10U	10U	10U	10U	10U	10U	10U	10U
Xylenes	10U	10U	10U	5U	10U	5U	10U	10U

(CONTINUED)

Field Duplicate Data: Volatile Organic Compounds, 1994

Sampling Point	GW-627		GW-683	GW-704	GW-712	GW-713	GW-724	GW-738
Unit	AQT		AQF	AQF	AQF	AQF	AQF	AQF
Location	BG		EXP-A	EXP-B	EXP-W	EXP-W	EXP-C	EXP-C
Date Sampled	06/23/94	09/15/94	09/20/94	02/25/94	02/24/94	08/19/94	03/18/94	12/17/94
Acetone	10U	10U	10U	10U	10U	10U	10U	10U
Benzene	10U	10U	10U	5U	5U	10U	5U	10U
Bromodichloromethane	10U	10U	10U	5U	5U	10U	5U	10U
Bromoform	10U	10U	10U	5U	5U	10U	5U	10U
Bromomethane	10U	10U	10U	10U	10U	10U	10U	10U
2-Butanone	10U	10U	10U	10U	10U	10U	10U	10U
Carbon disulfide	10U	10U	10U	5U	5U	10U	5U	10U
Carbon tetrachloride	10U	10U	10U	1	5U	10U	5U	10U
Chlorobenzene	10U	10U	10U	5U	5U	10U	5U	10U
Chlorodibromomethane	10U	10U	10U	5U	5U	10U	5U	10U
Chloroethane	10U	10U	10U	10U	10U	10U	10U	10U
Chloroform	10U	10U	10U	5U	5U	10U	5U	10U
Chloromethane	10U	10U	10U	10U	10U	10U	10U	10U
1,1-Dichloroethane	4	3	10U	5U	5U	10U	5U	10U
1,2-Dichloroethane	10U	10U	10U	5U	5U	10U	5U	10U
1,1-Dichloroethene	10U	10U	10U	6	5U	10U	5U	10U
1,2-Dichloroethene	10U	10U	1	3	5U	10U	2	2
trans-1,2-Dichloroethene	.	.	.	.	5U	10U	.	.
1,2-Dichloropropane	10U	10U	10U	5U	5U	10U	5U	10U
cis-1,3-Dichloropropene	10U	10U	10U	5U	5U	10U	5U	10U
trans-1,3-Dichloropropene	10U	10U	10U	5U	5U	10U	5U	10U
Ethylbenzene	10U	10U	10U	5U	5U	10U	5U	10U
2-Hexanone	10U	10U	10U	10U	10U	10U	10U	10U
4-Methyl-2-pentanone	10U	10U	10U	10U	10U	10U	10U	10U
Methylene chloride	10U	10U	10U	5U	5U	10U	5U	10U
Styrene	10U	10U	10U	5U	5U	10U	5U	10U
1,1,2,2-Tetrachloroethane	10U	10U	10U	5U	5U	10U	5U	10U
Tetrachloroethene	44	42	10U	5U	5U	10U	2	10U
Toluene	10U	10U	10U	5U	5U	10U	5U	10U
1,1,1-Trichloroethane	10U	10U	10U	2	5U	10U	5U	10U
1,1,2-Trichloroethane	10U	10U	10U	5U	5U	10U	5U	10U
Trichloroethene	7	6	1	84	5U	10U	78	21
Vinyl acetate	10U	10U	10U	10U	10U	10U	10U	10U
Vinyl chloride	10U	10U	10U	10U	10U	10U	10U	10U
Xylenes	10U	10U	10U	5U	5U	10U	5U	10U

(CONTINUED)

APPENDIX F.2

4

Field Duplicate Data: Volatile Organic Compounds, 1994

Sampling Point	GW-793	GW-795	GW-800
.			
Unit	AQT	AQT	AQF
.			
Location	AGLLSF	AGLLSF	OLF
.			
Date Sampled	03/22/94	08/04/94	09/02/94
Acetone	10U	10U	10U
Benzene	5U	10U	10U
Bromodichloromethane	5U	10U	10U
Bromoform	5U	10U	10U
Bromomethane	10U	10U	10U
2-Butanone	10U	10U	10U
Carbon disulfide	5U	10U	10U
Carbon tetrachloride	5U	10U	10U
Chlorobenzene	5U	10U	10U
Chlorodibromomethane	5U	10U	10U
Chloroethane	10U	10U	10U
Chloroform	5U	10U	10U
Chloromethane	10U	10U	10U
1,1-Dichloroethane	5U	10U	10U
1,2-Dichloroethane	5U	10U	10U
1,1-Dichloroethene	5U	10U	10U
1,2-Dichloroethene	5U	10U	10U
trans-1,2-Dichloroethene	.	.	.
1,2-Dichloropropane	5U	10U	10U
cis-1,3-Dichloropropene	5U	10U	10U
trans-1,3-Dichloropropene	5U	10U	10U
Ethylbenzene	5U	10U	10U
2-Hexanone	10U	10U	10U
4-Methyl-2-pentanone	10U	10U	10U
Methylene chloride	5U	10U	10U
Styrene	5U	10U	10U
1,1,2,2-Tetrachloroethane	5U	10U	10U
Tetrachloroethene	5U	10U	10U
Toluene	5U	10U	10U
1,1,1-Trichloroethane	5U	10U	10U
1,1,2-Trichloroethane	5U	10U	10U
Trichloroethene	5U	10U	10U
Vinyl acetate	10U	10U	10U
Vinyl chloride	10U	10U	10U
Xylenes	5U	10U	10U

APPENDIX F.3

FIELD, MISCELLANEOUS, AND GROSS ALPHA AND GROSS BETA ACTIVITIES

APPENDIX F.3

1

Field Duplicate Data: Field, Miscellaneous, and Radiochemistry, 1994

Sampling Point	GW-064	GW-069	GW-095	GW-162	GW-315	GW-348		
Unit	AQF	AQT	AQF	AQT	AQF	AQF		
Location	OLF	BG	BG	BG	SPI	S3		
Date Sampled	06/23/94	12/06/94	03/10/94	08/22/94	12/05/94	02/16/94	06/20/94	08/30/94
FIELD MEASUREMENTS	.	.	.	.	.	.	.	.
	.	.	.	.	.	.	.	.
Depth to Water (ft)	.	.	.	.	.	.	.	.
Water Temp (degrees C)	16	15	12.4	17.3	15.6	13.7	16.2	15.8
pH (pH units)	7	8.6	9.2	7.9	6.2	7.3	7.2	7.4
Sp. Cond. (umho/cm)	600	420	472	256	719	505	517	520
Dissolved Oxygen (ppm)	3.1	0.7	2.4	0.6	2.5	6.4	2	1.7
Oxidation/Reduction (mV)	132	-112	102	-62	178	171	142	152
	.	.	.	.	.	.	.	.
MISCELLANEOUS PARAMETERS	.	.	.	.	.	.	.	.
	.	.	.	.	.	.	.	.
pH (pH units)	7.6	8.6	9	8.1	7.2	7.7	7.6	7.6
Sp. Cond. (umho/cm)	598	386	490	242	602	532	521	553
TDS (mg/L)	390	220	322	178	366	304	318	322
TSS (mg/L)	6	1	<1	8	<1	<1	1	<1
Turbidity (NTU)	6	1.7	0.9	15	0.1	2.7	1.3	0.5
	.	.	.	.	.	.	.	.
RADIOCHEMICAL PARAMETERS	.	.	.	.	.	.	.	.
	.	.	.	.	.	.	.	.
Gross Alpha (pCi/L)	1.09	1.46	1.98	0.65	-1.54	1.22	2.11	1.70
Gross Alpha (CE+/-)	1.00	1.80	1.90	1.20	7.80	1.10	1.30	1.70
Gross Beta (pCi/L)	12.20	1.91	2.03	5.78	29.30	24.80	21.00	28.70
Gross Beta (CE+/-)	3.00	3.10	2.30	2.80	26.00	4.30	3.80	4.90

(CONTINUED)

APPENDIX F.3

2

Field Duplicate Data: Field, Miscellaneous, and Radiochemistry, 1994

Sampling Point	GW-363		GW-370	GW-372		GW-537		GW-621
Unit	AQT		AQT	AQT		AQT		AQF
Location	OLF		BG	BG		OLF		EXP-B
Date Sampled	05/26/94	11/02/94	05/24/94	03/09/94	11/08/94	02/11/94	12/15/94	12/07/94
FIELD MEASUREMENTS	.	.	.	.	.	.	.	.
Depth to Water (ft)	.	.	.	.	.	.	.	.
Water Temp (degrees C)	16	15.5	18.3	14	14.3	12.4	15.3	13.8
pH (pH units)	9.2	9.2	6.5	7.5	7.8	6.7	6.9	7.5
Sp. Cond. (umho/cm)	450	423	186	387	432	5880	5500	392
Dissolved Oxygen (ppm)	1.6	8.8	3.4	6.5	4.2	1.5	1	4.9
Oxidation/Reduction (mV)	-106	-32	176	74	129	210	227	189
MISCELLANEOUS PARAMETERS	.	.	.	.	.	.	.	.
pH (pH units)	9.2	9.2	7.1	7.8	7.7	7.1	7.3	7.7
Sp. Cond. (umho/cm)	453	455	192	403	414	5950	5560	374
TDS (mg/L)	300	290	178	252	260	4914	4680	214
TSS (mg/L)	13	11	52	<1	<1	6	<1	16
Turbidity (NTU)	8.1	16	13	2.1	2	4	1.9	35
RADIOCHEMICAL PARAMETERS	.	.	.	.	.	.	.	.
Gross Alpha (pCi/L)	-0.99	1.17	1.47	0.90	1.21	-6.08	2.86	2.01
Gross Alpha (CE+/-)	1.40	1.80	1.70	2.20	1.30	34.00	3.20	1.80
Gross Beta (pCi/L)	-2.23	0.24	0.64	-2.30	0.15	633.00	216.00	8.60
Gross Beta (CE+/-)	2.50	2.60	2.70	2.40	2.30	85.00	25.00	3.50

(CONTINUED)

APPENDIX F.3

3

Field Duplicate Data: Field, Miscellaneous, and Radiochemistry, 1994

Sampling Point	GW-627		GW-683	GW-704	GW-712	GW-713	GW-724	GW-738
Unit	AQT		AQF	AQF	AQF	AQF	AQF	AQF
Location	BG		EXP-A	EXP-B	EXP-W	EXP-W	EXP-C	EXP-C
Date Sampled	06/23/94	09/15/94	09/20/94	02/25/94	02/24/94	08/19/94	03/18/94	12/17/94
FIELD MEASUREMENTS	.	.	.	.	.	.	.	.
Depth to Water (ft)	23.6	.	.	.	.	.	.	.
Water Temp (degrees C)	18.5	17.2	13.8	13.1	11.4	14.7	15.4	12.7
pH (pH units)	9.1	9.2	7.3	7.5	7.6	7.5	7.6	7.2
Sp. Cond. (umho/cm)	1033	1193	511	581	700	566	851	457
Dissolved Oxygen (ppm)	0.6	0.42	6.1	2.4	1.7	0.6	2.4	3.5
Oxidation/Reduction (mV)	-70	24	166	-83	-36	-102	104	88
MISCELLANEOUS PARAMETERS	.	.	.	.	.	.	.	.
pH (pH units)	9.1	9	7.3	7.8	7.8	7.9	7.7	7.2
Sp. Cond. (umho/cm)	1130	1150	527	633	757	578	936	807
TDS (mg/L)	734	720	276	370	498	400	506	444
TSS (mg/L)	1	<1	<1	9	1	8	<1	8
Turbidity (NTU)	1.2	0.4	1.5	18	8.8	17	5.3	20
RADIOCHEMICAL PARAMETERS	.	.	.	.	.	.	.	.
Gross Alpha (pCi/L)	-0.01	1.69	18.60	3.71	-1.88	1.14	2.01	1.70
Gross Alpha (CE+/-)	1.10	2.30	4.50	2.10	2.80	1.60	2.20	1.50
Gross Beta (pCi/L)	1.69	0.55	27.40	13.30	-3.24	2.59	42.50	50.80
Gross Beta (CE+/-)	2.30	2.70	4.80	3.40	3.10	2.50	6.20	6.80

(CONTINUED)

APPENDIX F.3

4

Field Duplicate Data: Field, Miscellaneous, and Radiochemistry, 1994

Sampling Point	GW-793	GW-795	GW-800
.			
Unit	AQT	AQT	AQF
.			
Location	AGLLSF	AGLLSF	OLF
.			
Date Sampled	03/22/94	08/04/94	09/02/94
FIELD MEASUREMENTS	.	.	.
.	.	.	.
Depth to Water (ft)	.	.	.
Water Temp (degrees C)	14.1	17.4	15.5
pH (pH units)	7.1	7.1	7
Sp. Cond. (umho/cm)	288	406	430
Dissolved Oxygen (ppm)	0.8	0.5	5.8
Oxidation/Reduction (mV)	166	115	189
.	.	.	.
MISCELLANEOUS PARAMETERS	.	.	.
.	.	.	.
pH (pH units)	7.7	7.3	7.1
Sp. Cond. (umho/cm)	296	412	454
TDS (mg/L)	190	212	288
TSS (mg/L)	3	<1	3
Turbidity (NTU)	2	0.8	4.5
.	.	.	.
RADIOCHEMICAL PARAMETERS	.	.	.
.	.	.	.
Gross Alpha (pCi/L)	-0.67	0.71	1.54
Gross Alpha (CE+/-)	0.95	1.40	1.70
Gross Beta (pCi/L)	-0.89	3.47	1.77
Gross Beta (CE+/-)	2.40	2.70	2.70

APPENDIX F.4
RADIONUCLIDES

APPENDIX F.4

1

Field Duplicate Data: Radionuclides, 1994

Sampling Point	GW-162	GW-315	GW-372		GW-537		GW-683	GW-712
Unit	AQT	AQF	AQT		AQT		AQF	AQF
Location	BG	SPI	BG		OLF		EXP-A	EXP-W
Date Sampled	08/22/94	12/05/94	03/09/94	11/08/94	02/11/94	12/15/94	09/20/94	02/24/94
Gross Alpha (pCi/L)	0.65	-1.54	0.90	1.21	-6.08	2.86	18.60	-1.88
Gross Alpha (CE+/-)	1.20	7.80	2.20	1.30	34.00	3.20	4.50	2.80
Gross Beta (pCi/L)	5.78	29.30	-2.30	0.15	633.00	216.00	27.40	-3.24
Gross Beta (CE+/-)	2.80	26.00	2.40	2.30	85.00	25.00	4.80	3.10
	.	.	.	.	.	.	.	.
RADIONUCLIDES	.	.	.	.	.	.	.	.
	.	.	.	.	.	.	.	.
Americium 241 (pCi/L)	0.34	.	0.00	1.00	.	.	.	0.93
Americium 241 (CE+/-)	0.69	.	3.10	1.20	.	.	.	7.20
Iodine 129 (Bq/L)	0.01	.	0.10	0.10	.	.	.	0.13
Iodine 129 (CE +/-)	0.73	.	2.20	1.70	.	.	.	0.19
Iodine 131 (Bq/L)	.	.	-0.02	.	.	.	.	0.03
Iodine 131 (CE +/-)	.	.	0.24	.	.	.	.	0.19
Neptunium 237 (pCi/L)	0.00	.	0.53	0.32	.	.	.	0.00
Neptunium 237 (CE+/-)	0.63	.	0.61	0.45	.	.	.	0.48
Plutonium 238 (pCi/L)	0.20	.	-0.97	0.00	.	.	.	0.00
Plutonium 238 (CE+/-)	0.40	.	1.10	0.52	.	.	.	0.53
Plutonium 239 (pCi/L)	0.00	.	0.00	0.00	.	.	.	-0.19
Plutonium 239 (CE+/-)	0.56	.	0.78	0.52	.	.	.	0.74
Radium (Bq/L)	0.00	.	-0.01	0.04	.	.	.	0.03
Radium (CE+/-)	0.01	.	0.02	0.04	.	.	.	0.05
Strontium (pCi/L)	-10.30	28.40	8.08	1.66	-12.00	41.00	-25.70	-9.92
Strontium (CE+/-)	21.00	26.00	20.00	28.00	18.00	27.00	21.00	18.00
Technetium 99 (pCi/L)	24.90	66.40	49.10	46.70	1120.00	756.00	73.90	137.00
Technetium 99 (CE+/-)	37.00	39.00	61.00	38.00	88.00	56.00	39.00	36.00
Tritium (Bq/L)	-8.00	44.00	4.00	17.00	14.00	8.00	-5.00	17.00
Tritium (CE+/-)	22.00	29.00	24.00	23.00	25.00	23.00	25.00	24.00
Uranium 234 (pCi/L)	0.29	.	-0.46	0.55	0.48	0.00	.	0.45
Uranium 234 (CE+/-)	0.70	.	0.91	0.67	1.10	0.56	.	0.64
Uranium 235 (pCi/L)	3.67	.	31.10	40.00	36.60	-82.70	.	4.52
Uranium 235 (CE+/-)	120.00	.	58.00	90.00	70.00	93.00	.	24.00
Uranium 238 (pCi/L)	0.57	.	0.00	0.14	0.79	-0.14	.	0.23
Uranium 238 (CE+/-)	0.70	.	0.91	0.28	0.71	0.48	.	0.45

(CONTINUED)

APPENDIX F.4

2

Field Duplicate Data: Radionuclides, 1994

Sampling Point	GW-713	GW-793	GW-795
Unit	AQF	AQT	AQT
Location	EXP-W	AGLLSF	AGLLSF
Date Sampled	08/19/94	03/22/94	08/04/94
Gross Alpha (pCi/L)	1.14	-0.67	0.71
Gross Alpha (CE+/-)	1.60	0.95	1.40
Gross Beta (pCi/L)	2.59	-0.89	3.47
Gross Beta (CE+/-)	2.50	2.40	2.70
RADIONUCLIDES	.	.	.
Americium 241 (pCi/L)	2.38	.	.
Americium 241 (CE+/-)	1.80	.	.
Iodine 129 (Bq/L)	0.10	.	.
Iodine 129 (CE +/-)	1.00	.	.
Iodine 131 (Bq/L)	.	.	.
Iodine 131 (CE +/-)	.	.	.
Neptunium 237 (pCi/L)	0.00	.	.
Neptunium 237 (CE+/-)	0.64	.	.
Plutonium 238 (pCi/L)	0.00	.	.
Plutonium 238 (CE+/-)	0.70	.	.
Plutonium 239 (pCi/L)	0.20	.	.
Plutonium 239 (CE+/-)	0.41	.	.
Radium (Bq/L)	-0.01	.	.
Radium (CE+/-)	0.01	.	.
Strontium (pCi/L)	-18.70	12.20	.
Strontium (CE+/-)	22.00	19.00	.
Technetium 99 (pCi/L)	21.80	344.00	.
Technetium 99 (CE+/-)	37.00	69.00	.
Tritium (Bq/L)	-5.00	.	.
Tritium (CE+/-)	23.00	.	.
Uranium 234 (pCi/L)	0.41	-0.23	-0.21
Uranium 234 (CE+/-)	0.41	0.65	0.42
Uranium 235 (pCi/L)	52.40	11.40	-48.10
Uranium 235 (CE+/-)	120.00	18.00	94.00
Uranium 238 (pCi/L)	0.00	0.12	0.00
Uranium 238 (CE+/-)	0.36	0.23	0.30

APPENDIX G
ION-CHARGE BALANCE CALCULATIONS

EXPLANATION

SAMPLING POINT:

BCK - Bear Creek Kilometer
GW - Monitoring Well
NT - Northern Tributary
SS - Spring

UNIT:

AQF - Knox Aquifer
AQT - ORR Aquitard

LOCATION:

AGLLSF - Above Grade Low-Level Storage Facility
BG - Bear Creek Burial Grounds WMA
EXP - Exit Pathway Monitoring Location:
Maynardville Limestone Transverse (-A, -B, -C, -W)
Spring or Surface Water Sampling Location (-SW)
OLF - Oil Landfarm WMA
RS - Rust Spoil Area
S3 - S-3 Site
SPI - Spoil Area I

NOTES:

mg/L - milligrams per liter
meq/L - milliequivalents per liter
TDS - Total Dissolved Solids
TSS - Total Suspended Solids

Bicarbonate and carbonate alkalinities (reported as CaCO_3) were converted to HCO_3 and CO_3 as described in Martin Marietta Energy Systems (1993).

EXPLANATION (cont'd)

Charge balances for each sample were evaluated by computing a relative percent difference (RPD) between the summed milliequivalent concentrations of the principal cations and anions using the following formula:

$$RPD = \left(\frac{\sum \text{cations} - \sum \text{anions}}{\sum \text{cations} + \sum \text{anions}} \right) \times 100$$

Using this formula, the RPD calculated for the following samples exceeded 10%:

Monitoring Well	Location	Unit	Sampling Date	RPD
GW-047	BG	AQT	5/31/94	19.5
GW-047	BG	AQT	8/9/94	-12.5
GW-047	BG	AQT	11/8/94	-10.7
GW-061	BG	AQF	6/24/94	16.7
GW-080	BG	AQT	12/6/94	-10.1
GW-085	OLF	AQT	2/11/94	-32.1
GW-243	S3	AQT	3/30/94	-24.1
GW-276	S3	AQT	3/30/94	-13.8
GW-276	S3	AQT	8/20/94	-12.0
GW-287	BG	AQT	6/9/94	28.1
GW-312	RS	AQF	6/23/94	12.5
GW-312	RS	AQF	12/14/94	-25.2
GW-347	S3	AQF	2/16/94	-17.4
GW-370	BG	AQT	5/24/94	-12.2
GW-537	OLF	AQT	2/11/94	-15.8
GW-537	OLF	AQT	9/7/94	68.2
GW-614	S3	AQT	2/14/94	-24.8
GW-653	BG	AQT	6/9/94	-25.7
GW-653	BG	AQT	12/7/94	-10.2
GW-145	KHQ	AQF	7/26/94	17.3
GW-562	CDLVII	AQF	4/19/94	10.1

APPENDIX G
Ion-Charge Balance Calculations, 1994

Sampling Point Unit Location	GW-040						GW-042						GW-043						GW-044	
	AQT						AQT						AQT						AQT	
	BG						BG						OLF						OLF	
	03/08/94	05/17/94	08/22/94	11/09/94	03/11/94	05/17/94	08/23/94	11/23/94	02/08/94	06/21/94	08/31/94	11/30/94	02/08/94	06/21/94	08/31/94	11/30/94	02/08/94	06/21/94		
CATIONS (meq/L)																				
Calcium	0.26	0.32	0.30	0.34	0.18	0.19	0.18	0.17	0.15	0.95	0.70	1.15	0.45	0.25	0.31	1.15	0.45	0.25		
Magnesium	0.48	0.57	0.57	0.58	0.35	0.39	0.39	0.35	0.34	0.27	0.20	0.31	0.26	0.26	0.04	0.31	0.26	0.26		
Potassium	0.04	0.04	0.06	0.04	0.03	0.03	0.05	0.03	0.03	0.02	0.02	0.04	0.02	0.02	0.04	0.04	0.02	0.02		
Sodium	0.44	0.52	0.52	0.52	0.13	0.15	0.14	0.13	0.30	0.30	0.34	0.30	0.22	0.21	0.30	0.30	0.22	0.21		
Hydrogen Ion	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
Total Cations	1.21	1.45	1.45	1.49	0.70	0.77	0.76	0.68	1.92	1.53	1.26	1.80	2.94	2.73	1.80	1.80	2.94	2.73		
ANIONS (meq/L)																				
Alkalinity-CO3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
Alkalinity-HCO3	0.70	0.76	0.76	0.78	0.56	0.64	0.56	0.54	1.72	1.32	0.80	1.38	2.76	2.60	0.80	1.38	2.76	2.60		
Chloride	0.06	0.06	0.06	0.07	0.06	0.05	0.06	0.07	0.03	0.03	0.06	0.05	0.04	0.03	0.06	0.05	0.04	0.03		
Fluoride	0.02	0.01	0.02	0.02	0.01	0.01	0.02	0.01	0.01	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.01	0.00		
Nitrate Nitrogen	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
Sulfate	0.65	0.57	0.58	0.62	0.10	0.12	0.23	0.13	0.19	0.16	0.21	0.21	0.13	0.12	0.21	0.21	0.13	0.12		
Hydroxyl Ion	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
Total Anions	1.42	1.40	1.42	1.49	0.73	0.82	0.87	0.78	1.94	1.51	1.07	1.64	2.93	2.75	1.07	1.64	2.93	2.75		
CHARGE BALANCE (%)	-8	2	1	-0	-2	-3	-7	-7	-1	1	8	5	0	-0	8	5	0	-0		
TDS (mg/L)	298	266	154	150	68	88	80	124	120	128	86	132	178	184	86	132	178	184		
TSS (mg/L)	438	83	92	388	2	3	<1	<1	7	17	19	28	<1	1	19	28	<1	1		
Turbidity (NTU)	500	170	360	390	3.5	12	4	1.6	8.2	20	40	32	1.5	2.6	40	32	1.5	2.6		

(CONTINUED)

APPENDIX G
Ion-Charge Balance Calculations, 1994

Sampling Point .	GW-044		GW-047				GW-053				GW-056		GW-057	
	AQF		AQF				AQF				AQF		AQF	
	OLF		BG				BG				EXP-A		EXP-A	
Date Sampled	08/31/94	11/30/94	03/24/94	05/31/94	08/09/94	11/08/94	03/10/94	06/24/94	09/15/94	12/12/94	02/26/94	09/14/94	02/26/94	09/14/94
CATIONS (meq/L)	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Calcium	2.54	2.50	0.40	0.44	0.38	0.44	5.49	6.49	5.99	6.49	4.74	4.99	4.29	4.89
Magnesium	0.27	0.25	0.08	0.16	0.08	0.08	1.15	1.40	1.23	1.23	1.56	1.73	1.40	1.73
Potassium	0.03	0.03	0.00	0.03	0.02	0.04	0.05	0.06	0.06	0.06	0.05	0.03	0.04	0.06
Sodium	0.23	0.22	0.15	0.27	0.14	0.14	0.33	0.41	0.40	0.43	3.18	2.09	3.22	2.70
Hydrogen Ion	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Total Cations	3.07	2.99	0.63	0.91	0.63	0.70	7.02	8.36	7.68	8.21	9.52	8.84	8.95	9.38
ANIONS (meq/L)	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Alkalinity-CO3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Alkalinity-HCO3	2.72	2.72	0.56	0.56	0.60	0.66	5.46	5.76	6.49	6.13	5.16	5.10	4.60	5.90
Chloride	0.06	0.05	0.03	0.03	0.05	0.05	0.93	0.96	0.76	0.79	3.55	2.23	4.12	2.65
Fluoride	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.01
Nitrate Nitrogen	0.00	0.02	0.00	0.00	0.02	0.00	0.04	0.00	0.00	0.00	0.04	0.01	0.03	0.00
Sulfate	0.25	0.15	0.00	0.02	0.14	0.16	0.83	0.48	0.44	0.50	0.63	0.60	0.65	0.69
Hydroxyl Ion	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Total Anions	3.03	2.95	0.59	0.61	0.81	0.87	7.26	7.19	7.69	7.43	9.38	7.95	9.39	9.24
CHARGE BALANCE (%)	.	.	.	.	.	.	.	.	.	.	.	.	.	.
	1	1	3	19	-13	-11	-2	7	-0	5	1	5	-2	1
TDS (mg/L)	148	188	76	56	80	78	402	412	420	414	538	422	504	480
TSS (mg/L)	6	<1	31	2	8	8	25	3	5	<1	21	16	<1	<1
Turbidity (NTU)	1.5	1.4	17	2.6	9	20	25	3	2	0.7	9.7	8	2	1.5

(CONTINUED)

APPENDIX G
Ion-Charge Balance Calculations, 1994

Sampling Point Unit Location	GW-061						GW-064						GW-069				GW-079	
	AQF						AQF						AQF				AQF	
	BG						OLF						BG				BG	
	03/21/94	06/24/94	09/15/94	12/12/94	02/10/94	06/23/94	09/01/94	12/15/94	03/11/94	06/08/94	09/09/94	12/06/94	03/09/94	06/07/94				
CATIONS (meq/L)																		
Calcium	3.59	5.99	4.99	4.24	5.49	4.94	4.79	5.99	0.40	0.60	0.46	0.55	1.65	1.85				
Magnesium	0.82	1.40	1.32	0.90	1.32	1.23	1.15	1.32	0.39	0.55	0.44	0.43	0.30	0.31				
Potassium	0.02	0.06	0.04	0.04	0.06	0.07	0.07	0.06	0.11	0.13	0.12	0.12	0.05	0.03				
Sodium	0.31	0.57	0.52	0.31	0.21	0.19	0.18	0.21	2.61	3.18	2.61	2.65	0.20	0.19				
Hydrogen Ion	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00				
Total Cations	4.75	8.01	6.87	5.50	7.08	6.43	6.19	7.57	3.52	4.46	3.63	3.75	2.19	2.38				
ANIONS (meq/L)																		
Alkalinity-CO3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.32	0.16	0.20	0.12	0.00	0.00				
Alkalinity-HCO3	3.20	3.10	4.40	3.54	6.04	5.64	5.38	5.80	2.24	2.48	2.42	2.52	2.14	2.16				
Chloride	0.40	0.59	0.59	0.27	0.37	0.27	0.26	0.34	0.99	1.18	1.04	1.27	0.00	0.03				
Fluoride	0.01	0.01	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.00	0.01				
Nitrate Nitrogen	0.76	1.50	1.64	0.61	0.51	0.39	0.39	0.53	0.00	0.00	0.00	0.00	0.00	0.00				
Sulfate	0.43	0.52	0.60	0.44	0.46	0.37	0.46	0.48	0.04	0.15	0.17	0.06	0.12	0.15				
Hydroxyl Ion	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.01	0.00	0.00	0.00				
Total Anions	4.79	5.72	7.25	4.86	7.37	6.67	6.48	7.14	3.59	3.97	3.84	3.97	2.26	2.34				
CHARGE BALANCE (%)	-0	17	-3	6	-2	-2	-2	3	-1	6	-3	-3	-2	1				
TDS (mg/L)	288	206	418	286	386	410	394	334	220	220	240	232	144	154				
TSS (mg/L)	3	27	69	614	5	5	2	60	<1	<1	<1	2	<1	2				
Turbidity (NTU)	6.4	180	130	520	8.4	6	3.5	126	0.9	0.6	1.5	1.6	1.3	1.4				

(CONTINUED)

APPENDIX G
Ion-Charge Balance Calculations, 1994

Sampling Point .	GW-079			GW-080				GW-084				GW-085			
	AQT			AQT				AQT				AQT			
	BG			BG				OLF				OLF			
Date Sampled	09/12/94	12/06/94	03/09/94	06/07/94	09/09/94	12/06/94	02/08/94	06/21/94	09/01/94	11/30/94	02/11/94	06/24/94	09/07/94	12/15/94	
CATIONS (meq/L)	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Calcium	1.75	1.75	0.16	0.22	0.18	0.17	2.64	2.79	2.69	2.74	4.24	11.48	15.47	14.97	.
Magnesium	0.29	0.26	0.29	0.37	0.31	0.28	0.30	0.35	0.30	0.29	0.90	1.23	1.56	1.40	.
Potassium	0.00	0.03	0.03	0.03	0.03	0.04	0.02	0.02	0.04	0.03	0.05	0.06	0.06	0.06	.
Sodium	0.19	0.19	0.23	0.65	0.48	0.33	0.23	0.25	0.24	0.23	0.52	0.44	0.48	0.44	.
Hydrogen Ion	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	.
Total Cations	2.22	2.23	0.71	1.28	1.00	0.83	3.21	3.41	3.28	3.29	5.72	13.20	17.57	16.87	.
ANIONS (meq/L)	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Alkalinity-CO3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	.
Alkalinity-HCO3	2.14	2.08	0.46	0.80	0.68	0.68	3.12	3.08	3.12	3.16	2.52	2.32	2.62	2.84	.
Chloride	0.00	0.04	0.00	0.00	0.05	0.04	0.03	0.00	0.05	0.05	0.20	0.25	0.28	0.28	.
Fluoride	0.00	0.00	0.00	0.01	0.01	0.01	0.01	0.00	0.01	0.01	0.01	0.00	0.00	0.00	.
Nitrate Nitrogen	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	8.21	12.57	14.99	14.71	.
Sulfate	0.14	0.16	0.17	0.29	0.37	0.29	0.15	0.15	0.25	0.17	0.21	0.11	0.09	0.11	.
Hydroxyl Ion	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	.
Total Anions	2.28	2.28	0.63	1.10	1.11	1.02	3.30	3.23	3.42	3.38	11.14	15.25	17.99	17.94	.
CHARGE BALANCE (%)	-1	-1	7	8	-5	-10	-1	3	-2	-1	-32	-7	-1	-3	.
TDS (mg/L)	156	128	106	114	96	94	192	206	236	204	1414	1194	1474	1418	.
TSS (mg/L)	20	<1	282	71	56	223	52	37	44	44	24	69	21	15	.
Turbidity (NTU)	32	0.5	220	66	64	240	25	16	25	26	6.1	32	17	14	.

(CONTINUED)

APPENDIX G
Ion-Charge Balance Calculations, 1994

Sampling Point • Unit • Location	GW-095				GW-115		GW-162					GW-243	GW-276		GW-287
	AQF				AQT		AQT					AQT	AQT		AQT
	BG				S3		BG					S3	S3		BG
Date Sampled	03/10/94	06/28/94	09/12/94	12/05/94	02/17/94	08/15/94	03/08/94	05/18/94	08/22/94	11/07/94	03/30/94	03/30/94	08/20/94	03/09/94	
CATIONS (meq/L)															
Calcium	0.07	0.09	0.06	0.05	3.69	3.64	1.50	1.50	1.40	1.55	5.99	314.37	5.99	6.49	1.10
Magnesium	0.04	0.03	0.03	0.02	0.90	0.99	0.42	0.44	0.40	0.39	1.97	55.94	1.97	2.14	0.30
Potassium	0.04	0.05	0.05	0.06	0.04	0.06	0.09	0.08	0.08	0.09	0.31	2.81	0.31	0.36	0.03
Sodium	5.22	5.66	5.66	5.66	0.41	0.48	0.65	0.65	0.61	0.65	3.09	31.76	3.09	2.78	0.18
Hydrogen Ion	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.06	0.13	0.06	0.06	0.00
Total Cations	5.37	5.83	5.79	5.79	5.05	5.17	2.66	2.66	2.49	2.69	11.42	405.00	11.42	11.83	1.61
ANIONS (meq/L)															
Alkalinity-CO3	0.56	0.72	0.76	0.68	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Alkalinity-HCO3	4.52	4.68	4.54	4.70	4.56	4.68	2.08	2.44	2.30	2.38	0.00	0.00	0.00	0.00	1.32
Chloride	0.06	0.03	0.04	0.06	0.11	0.17	0.08	0.08	0.10	0.09	4.09	14.67	4.09	3.40	0.11
Fluoride	0.03	0.03	0.03	0.02	0.01	0.01	0.00	0.01	0.01	0.00	0.02	0.02	0.02	0.33	0.01
Nitrate Nitrogen	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	10.50	637.43	10.50	10.92	0.00
Sulfate	0.17	0.17	0.16	0.19	0.40	0.35	0.12	0.17	0.17	0.29	0.46	10.00	0.46	0.42	0.10
Hydroxyl Ion	0.01	0.01	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total Anions	5.34	5.63	5.54	5.66	5.07	5.21	2.30	2.70	2.57	2.76	15.06	662.12	15.06	15.06	1.55
CHARGE BALANCE (%)															
	0	2	2	1	-0	-0	7	-1	-2	-1	-14	-24	-14	-12	2
TDS (mg/L)	332	328	318	328	294	326	140	148	336	178	1090	36172	1110	1110	110
TSS (mg/L)	<1	<1	<1	<1	3	1	84	9	11	49	20	90	20	5	15
Turbidity (NTU)	0.9	0.7	0.8	0.9	2	6.5	100	15	14	220	10	30	10	2	2.4

(CONTINUED)

APPENDIX G
Ion-Charge Balance Calculations, 1994

Sampling Point .	GW-287				GW-311				GW-312				GW-315			
	AQT				AQF				AQF				AQF			
	BG				RS				RS				SPI			
Date Sampled	06/09/94	09/13/94	12/07/94	02/09/94	06/22/94	09/06/94	12/14/94	02/09/94	06/23/94	09/06/94	12/14/94	02/17/94	06/20/94	08/30/94		
CATIONS (meq/L)	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Calcium	2.64	1.25	1.65	3.69	3.74	4.29	3.99	5.99	5.99	4.99	4.14	3.89	4.44	4.29	.	.
Magnesium	0.46	0.47	0.39	0.39	0.39	0.46	0.38	0.00	0.00	0.00	0.00	1.15	0.90	0.73	.	.
Potassium	0.02	0.04	0.03	0.02	0.03	0.06	0.05	0.25	0.21	0.21	0.22	0.03	0.07	0.05	.	.
Sodium	0.19	0.25	0.24	0.10	0.07	0.09	0.09	0.32	0.42	0.35	0.25	0.08	0.20	0.18	.	.
Hydrogen Ion	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	.	.
Total Cations	3.32	2.01	2.31	4.20	4.24	4.90	4.52	6.56	6.62	5.56	4.61	5.15	5.61	5.25	.	.
ANIONS (meq/L)	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Alkalinity-CO3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.04	1.04	1.00	1.20	0.00	0.00	0.00	.	.
Alkalinity-HCO3	1.70	1.64	2.20	4.26	4.18	4.38	4.32	0.00	0.00	0.00	0.00	4.92	4.70	4.48	.	.
Chloride	0.04	0.11	0.10	0.08	0.07	0.07	0.08	0.00	0.00	0.03	0.05	0.08	0.21	0.22	.	.
Fluoride	0.00	0.01	0.01	0.00	0.00	0.00	0.00	0.01	0.01	0.01	0.01	0.00	0.00	0.00	.	.
Nitrate Nitrogen	0.00	0.00	0.02	0.03	0.03	0.04	0.05	0.03	0.03	0.03	0.04	0.24	0.59	0.86	.	.
Sulfate	0.12	0.16	0.18	0.06	0.11	0.08	0.08	0.08	0.09	0.09	0.10	0.08	0.49	0.69	.	.
Hydroxyl Ion	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.31	3.98	5.01	6.31	0.00	0.00	0.00	.	.
Total Anions	1.86	1.92	2.51	4.43	4.39	4.56	4.53	7.47	5.15	6.17	7.71	5.32	5.99	6.24	.	.
CHARGE BALANCE (%)	28	2	-4	-3	-2	4	-0	-6	13	-5	-25	-2	-3	-9	.	.
TDS (mg/L)	178	128	142	210	240	232	194	332	342	380	364	272	340	352	.	.
TSS (mg/L)	7	4	3	1	2	2	<1	14	3	5	1	<1	<1	<1	.	.
Turbidity (NTU)	4	3.3	6.1	1.9	2	4	1	4.1	1.5	1.4	0.7	1	1.7	0.5	.	.

(CONTINUED)

APPENDIX G
Ion-Charge Balance Calculations, 1994

Sampling Point	GW-315	GW-317				GW-324	GW-325	GW-345	GW-347				GW-348	
Unit	AQF	AQF				AQF	AQF	AQF	AQF				AQF	
Location	SPI	SPI				S3	S3	S3	S3				S3	
Date Sampled	12/05/94	02/17/94	06/17/94	08/29/94	12/04/94	02/15/94	02/15/94	02/18/94	02/16/94	06/17/94	08/30/94	12/04/94	02/16/94	06/20/94
CATIONS (meq/L)														
Calcium	4.69	2.35	2.40	2.25	2.05	1.50	0.12	0.36	1.70	1.35	1.35	1.40	3.99	3.79
Magnesium	0.78	1.73	1.89	1.73	1.56	0.46	0.08	0.15	0.21	0.18	0.17	0.16	1.48	1.48
Potassium	0.09	0.03	0.02	0.02	0.03	0.02	0.00	0.02	0.08	0.08	0.08	0.08	0.02	0.02
Sodium	0.25	0.18	0.10	0.44	0.37	0.22	0.05	0.23	0.03	0.04	0.03	0.04	0.13	0.13
Hydrogen Ion	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total Cations	5.81	4.28	4.41	4.43	4.01	2.19	0.26	0.77	2.02	1.65	1.63	1.68	5.63	5.43
ANIONS (meq/L)														
Alkalinity-CO3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Alkalinity-HCO3	4.48	4.34	4.42	4.40	4.10	2.06	0.10	0.34	2.86	1.56	1.50	1.56	4.70	4.72
Chloride	0.24	0.03	0.05	0.06	0.06	0.03	0.06	0.14	0.00	0.03	0.05	0.05	0.28	0.24
Fluoride	0.00	0.01	0.00	0.01	0.00	0.00	0.00	0.00	0.01	0.00	0.01	0.00	0.00	0.00
Nitrate Nitrogen	1.00	0.01	0.00	0.02	0.04	0.00	0.00	0.14	0.00	0.01	0.00	0.03	0.66	0.67
Sulfate	0.65	0.10	0.15	0.33	0.12	0.15	0.08	0.15	0.00	0.08	0.23	0.04	0.12	0.12
Hydroxyl Ion	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total Anions	6.36	4.49	4.61	4.82	4.31	2.23	0.24	0.76	2.86	1.68	1.78	1.67	5.77	5.75
CHARGE BALANCE (%)	-5	-2	-2	-4	-4	-1	3	0	-17	-1	-4	0	-1	-3
TDS (mg/L)	372	216	228	240	224	130	38	98	162	110	88	110	306	318
TSS (mg/L)	<1	<1	2	2	<1	<1	<1	2	4	13	11	11	<1	1
Turbidity (NTU)	0.1	4	1.1	1.6	1.4	1.1	26	2	16	22	28	70	2.6	1.8

(CONTINUED)

APPENDIX G
Ion-Charge Balance Calculations, 1994

Sampling Point	GW-348		GW-363					GW-370					GW-372				
	AQF		AQF					AQF					AQF				
	S3		OLF					BG					BG				
Date Sampled	08/30/94	12/05/94	03/22/94	05/26/94	07/29/94	11/02/94	03/10/94	05/24/94	08/25/94	11/09/94	03/09/94	05/19/94	08/23/94	11/08/94			
CATIONS (meq/L)																	
Calcium	3.99	4.04	0.07	0.07	0.16	0.06	1.55	1.00	1.50	1.60	3.09	3.09	2.99	3.09			
Magnesium	1.48	1.40	0.04	0.06	0.12	0.03	0.26	0.18	0.26	0.25	0.90	0.99	0.90	0.90			
Potassium	0.04	0.05	0.03	0.05	0.04	0.03	0.02	0.00	0.03	0.03	0.06	0.04	0.08	0.06			
Sodium	0.12	0.14	4.79	4.35	3.74	4.79	0.44	0.48	0.44	0.41	0.40	0.44	0.41	0.39			
Hydrogen Ion	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00			
Total Cations	5.63	5.63	4.93	4.53	4.06	4.90	2.26	1.66	2.22	2.29	4.46	4.56	4.39	4.45			
ANIONS (meq/L)																	
Alkalinity-CO3	0.00	0.00	0.76	0.64	0.32	0.68	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00			
Alkalinity-HCO3	4.76	4.90	4.18	3.96	3.76	3.96	2.00	1.84	1.52	1.58	3.62	3.62	3.64	3.62			
Chloride	0.22	0.26	0.00	0.00	0.06	0.05	0.03	0.04	0.06	0.05	0.06	0.06	0.07	0.08			
Fluoride	0.00	0.00	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.02	0.01			
Nitrate Nitrogen	0.64	0.61	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00			
Sulfate	0.31	0.15	0.10	0.15	0.27	0.25	0.21	0.23	0.27	0.33	0.60	0.58	0.67	0.71			
Hydroxyl Ion	0.00	0.00	0.02	0.02	0.01	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00			
Total Anions	5.92	5.92	5.07	4.77	4.42	4.96	2.24	2.12	1.86	1.98	4.29	4.27	4.39	4.42			
CHARGE BALANCE (%)	-2	-2	-1	-3	-4	-1	0	-12	9	7	2	3	0	0			
TDS (mg/L)	318	338	306	290	260	294	186	188	172	146	248	246	268	262			
TSS (mg/L)	<1	<1	9	13	2	12	2	52	124	80	<1	8	6	<1			
Turbidity (NTU)	0.5	0.3	5.5	15	1.3	16	20	13	23	21	2.1	19	7.3	2.1			

(CONTINUED)

APPENDIX G
Ion-Charge Balance Calculations, 1994

Sampling Point	GW-373					GW-537					GW-601	GW-613		GW-614		GW-621
Unit	AQT					AQT					AQF	AQT		AQT		AQF
Location	BG					OLF					OLF	S3		S3		EXP-B
Date Sampled	03/10/94	05/21/94	08/24/94	11/08/94	02/11/94	06/24/94	09/07/94	12/15/94	03/25/94	02/14/94	08/15/94	02/14/94	08/16/94	02/18/94		
CATIONS (meq/L)																
Calcium	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Magnesium	0.06	0.07	0.06	0.06	54.89	54.89	54.89	54.89	4.79	1.40	1.45	1.50	2.35	2.59		
Potassium	0.01	0.01	0.01	0.01	6.09	6.00	5.59	5.43	4.03	0.23	0.24	0.47	0.82	0.79		
Sodium	0.03	0.02	0.04	0.02	0.00	0.08	0.12	0.09	0.06	0.00	0.02	0.02	0.05	0.10		
Hydrogen Ion	4.79	5.22	4.79	5.66	1.44	1.39	1.35	1.39	2.13	0.15	0.17	0.22	0.44	0.10		
	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
Total Cations	4.88	5.33	4.90	5.74	62.41	62.37	61.95	61.80	11.01	1.78	1.87	2.21	3.65	3.58		
ANIONS (meq/L)																
Alkalinity-CO3	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Alkalinity-HCO3	0.48	0.56	0.68	0.52	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
Chloride	3.80	3.74	3.54	3.72	5.36	4.94	5.06	5.06	3.90	1.74	1.74	3.46	3.46	3.16		
Fluoride	0.03	0.03	0.06	0.06	0.00	0.00	0.82	0.85	2.85	0.03	0.03	0.00	0.00	0.14		
Nitrate Nitrogen	0.08	0.07	0.08	0.08	0.00	0.00	0.00	0.00	0.02	0.00	0.01	0.00	0.01	0.00		
Sulfate	0.00	0.00	0.00	0.00	80.47	59.27	5.78	52.41	2.58	0.00	0.00	0.00	0.00	0.40		
Hydroxyl Ion	0.60	0.60	0.60	0.65	0.00	0.00	0.05	0.07	1.15	0.09	0.10	0.21	0.23	0.08		
	0.01	0.01	0.02	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
Total Anions	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
	5.01	5.01	4.98	5.03	85.83	64.20	11.71	58.38	10.49	1.86	1.88	3.66	3.69	3.78		
CHARGE BALANCE (%)	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
	-1	3	-1	7	-16	-1	68	3	2	-2	-0	-25	-1	-3		
TDS (mg/L)	318	300	334	308	5364	4576	4672	4342	566	96	150	194	250	244		
TSS (mg/L)	1	7	28	9	10	4	9	<1	1	2	5	3	<1	18		
Turbidity (NTU)	2.6	3.9	12	14	4	2.2	1.8	2.5	2	1.6	2.5	1	0.6	20		

(CONTINUED)

APPENDIX G
Ion-Charge Balance Calculations, 1994

Sampling Point	GW-621	GW-627				GW-637				GW-642				GW-652
Unit	AQF	AQF				AQF				AQF				AQF
Location	EXP-B	BG				OLF				BG				BG
Date Sampled	12/07/94	03/14/94	06/23/94	09/15/94	12/09/94	03/23/94	05/26/94	07/29/94	11/07/94	03/09/94	05/19/94	08/23/94	11/07/94	03/09/94
CATIONS (meq/L)														
Calcium	2.79	0.05	0.05	0.04	0.04	3.99	3.59	4.09	4.24	0.37	0.39	0.60	0.75	3.59
Magnesium	0.82	0.02	0.02	0.02	0.02	0.56	0.50	0.56	0.47	0.68	0.67	0.82	0.90	0.66
Potassium	0.04	0.04	0.04	0.02	0.05	0.04	0.05	0.04	0.03	0.04	0.04	0.07	0.05	0.06
Sodium	0.10	11.75	14.36	12.62	13.05	0.12	0.12	0.12	0.12	0.35	0.34	0.32	0.37	0.05
Hydrogen Ion	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total Cations	3.76	11.86	14.47	12.70	13.16	4.70	4.26	4.81	4.86	1.44	1.45	1.81	2.07	4.36
ANIONS (meq/L)														
Alkalinity-CO3	0.00	1.48	1.56	1.28	1.40	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Alkalinity-HCO3	3.42	9.79	9.63	9.69	9.85	4.32	4.24	4.44	4.42	1.22	1.28	1.62	2.08	4.00
Chloride	0.13	0.65	0.71	0.68	0.79	0.08	0.08	0.10	0.08	0.03	0.03	0.06	0.05	0.17
Fluoride	0.01	0.32	0.31	0.29	0.33	0.00	0.00	0.00	0.00	0.02	0.02	0.03	0.02	0.00
Nitrate Nitrogen	0.33	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Sulfate	0.10	0.62	0.58	0.65	0.69	0.12	0.15	0.27	0.15	0.21	0.19	0.33	0.19	0.17
Hydroxyl Ion	0.00	0.01	0.01	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total Anions	3.98	12.87	12.80	12.59	13.07	4.53	4.47	4.80	4.64	1.48	1.51	2.04	2.35	4.33
CHARGE BALANCE (%)	-3	-4	6	0	0	2	-2	0	2	-1	-2	-6	-6	0
TDS (mg/L)	236	750	746	712	698	248	248	282	266	108	108	136	138	282
TSS (mg/L)	28	<1	1	<1	<1	1	68	1	<1	2	3	4	11	25
Turbidity (NTU)	39	1	1	0.5	0.5	2.2	130	17	1.4	9.8	0.5	3.8	34	54

(CONTINUED)

APPENDIX G
Ion-Charge Balance Calculations, 1994

Sampling Point Unit Location Date Sampled	GW-652				GW-653				GW-654				GW-683		GW-684	
	AQF				AQF				AQF				AQF		AQF	
	BG				BG				BG				EXP-A		EXP-A	
	06/17/94	09/13/94	12/07/94	02/26/94	06/09/94	09/13/94	12/07/94	03/09/94	06/08/94	09/13/94	12/07/94	03/04/94	09/20/94	03/04/94		
CATIONS (meq/L)	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Calcium	3.94	3.59	3.99	0.10	0.12	0.09	0.09	1.05	0.95	0.75	0.55	1.20	3.49	1.65	.	.
Magnesium	0.60	0.67	0.55	0.08	0.10	0.08	0.08	0.44	0.41	0.30	0.21	0.90	1.56	1.15	.	.
Potassium	0.07	0.07	0.08	0.02	0.00	0.00	0.02	0.02	0.04	0.03	0.05	0.04	0.05	0.36	.	.
Sodium	0.07	0.05	0.06	0.12	0.13	0.10	0.11	0.87	1.48	1.83	2.22	0.08	0.40	0.44	.	.
Hydrogen Ion	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	.	.
Total Cations	4.68	4.38	4.69	0.32	0.35	0.28	0.30	2.39	2.88	2.91	3.02	2.22	5.50	3.59	.	.
ANIONS (meq/L)	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Alkalinity-CO3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	.	.
Alkalinity-HCO3	3.88	4.14	4.14	0.30	0.24	0.24	0.28	2.22	2.38	2.62	2.64	2.18	3.96	2.78	.	.
Chloride	0.12	0.17	0.17	0.03	0.10	0.03	0.05	0.00	0.04	0.00	0.04	0.11	0.37	0.42	.	.
Fluoride	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.02	0.03	0.03	0.00	0.01	0.01	.	.
Nitrate Nitrogen	0.06	0.00	0.06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.04	0.86	0.31	.	.
Sulfate	0.21	0.17	0.20	0.05	0.25	0.03	0.05	0.23	0.33	0.29	0.29	0.08	0.44	0.19	.	.
Hydroxyl Ion	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	.	.
Total Anions	4.27	4.48	4.57	0.38	0.59	0.30	0.37	2.46	2.77	2.94	3.00	2.41	5.63	3.70	.	.
CHARGE BALANCE (%)	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
	5	-1	1	-8	-26	-3	-10	-1	2	-1	0	-4	-1	-2	.	.
TDS (mg/L)	224	232	240	48	46	18	42	174	168	198	174	106	278	202	.	.
TSS (mg/L)	3	2	1	8	15	86	133	23	2	194	4	1	<1	14	.	.
Turbidity (NTU)	5.5	5.1	6.3	3.5	2.8	35	50	29	1.9	135	5.8	2.7	1.4	5.7	.	.

(CONTINUED)

APPENDIX G
Ion-Charge Balance Calculations, 1994

Sampling Point	GW-684	GW-685		GW-694		GW-695		GW-703		GW-704		GW-706		GW-710
Unit	AQF	AQF		AQF		AQF		AQF		AQF		AQF		AQF
Location	EXP-A	EXP-A		EXP-B		EXP-B		EXP-B		EXP-B		EXP-B		EXP-W
Date Sampled	09/20/94	02/27/94	09/19/94	03/02/94	12/13/94	02/21/94	12/07/94	02/23/94	12/12/94	02/25/94	12/13/94	03/04/94	12/15/94	02/24/94
CATIONS (meq/L)														
Calcium	3.19	3.94	4.19	3.49	4.14	1.60	1.45	3.04	2.05	3.14	2.99	3.44	5.49	28.44
Magnesium	1.40	1.97	1.97	1.48	1.48	1.32	1.40	2.30	2.30	2.55	2.47	1.48	1.89	14.81
Potassium	0.36	0.04	0.03	0.04	0.07	0.17	0.21	0.03	0.16	0.02	0.04	0.08	0.10	0.00
Sodium	0.52	1.13	1.00	0.42	0.48	1.26	1.48	0.40	0.41	0.52	0.52	0.65	0.74	8.70
Hydrogen Ion	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total Cations	5.47	7.09	7.20	5.44	6.17	4.34	4.54	5.78	4.92	6.24	6.02	5.66	8.23	51.95
ANIONS (meq/L)														
Alkalinity-CO3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Alkalinity-HCO3	3.52	5.32	5.14	4.38	4.46	3.92	3.68	4.06	3.50	3.98	3.84	3.76	4.96	3.28
Chloride	0.56	1.50	1.27	0.54	0.48	0.31	0.21	0.56	0.45	0.76	0.73	0.85	0.76	9.37
Fluoride	0.01	0.00	0.01	0.02	0.02	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.09
Nitrate Nitrogen	0.86	0.18	0.29	0.56	1.14	0.70	0.46	1.50	0.65	1.49	1.29	0.99	2.50	0.00
Sulfate	0.44	0.42	0.42	0.31	0.67	0.23	0.21	0.40	0.40	0.00	0.48	0.29	0.65	38.87
Hydroxyl Ion	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total Anions	5.39	7.40	7.11	5.80	6.77	5.16	4.56	6.53	5.00	6.23	6.35	5.89	8.87	51.60
CHARGE BALANCE (%)														
	1	-2	1	-3	-5	-9	-0	-6	-1	0	-3	-2	-4	0
TDS (mg/L)	300	400	358	310	384	304	278	316	260	366	342	316	526	3698
TSS (mg/L)	14	7	4	3	12	114	72	<1	6	7	24	1	9	3
Turbidity (NTU)	9	26	8.6	3	46	39	25	8	19	18	42	1.8	27	2.7

(CONTINUED)

APPENDIX G
Ion-Charge Balance Calculations, 1994

Sampling Point • Unit • Location • Date Sampled	GW-710		GW-711		GW-712		GW-713		GW-714		GW-715		GW-723		GW-724	
	AQF		AQF		AQF		AQF		AQF		AQF		AQF		AQF	
	EXP-W		EXP-W		EXP-W		EXP-W		EXP-W		EXP-W		EXP-C		EXP-C	
	08/19/94	02/23/94	08/18/94	02/24/94	08/18/94	02/27/94	08/19/94	02/25/94	08/20/94	02/26/94	08/20/94	03/17/94	12/20/94	03/18/94		
CATIONS (meq/L)																
Calcium	28.94	27.94	28.44	3.79	4.04	3.04	3.14	2.94	2.79	3.59	3.44	3.09	3.69	4.69		
Magnesium	15.63	18.92	18.92	2.80	3.29	2.22	2.71	1.81	1.81	1.23	1.32	2.47	2.30	3.45		
Potassium	0.26	0.72	0.64	0.04	0.07	0.06	0.08	0.05	0.03	0.06	0.04	0.06	0.07	0.05		
Sodium	10.88	52.20	56.55	0.83	0.96	0.41	0.70	0.14	0.15	0.78	0.44	0.36	0.42	0.87		
Hydrogen Ion	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
Total Cations	55.70	99.78	104.55	7.46	8.36	5.74	6.63	4.95	4.78	5.67	5.24	5.99	6.49	9.07		
ANIONS (meq/L)																
Alkalinity-CO3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
Alkalinity-HCO3	3.32	3.10	3.04	3.80	3.66	3.88	3.80	4.04	3.98	4.28	5.04	4.20	4.18	4.22		
Chloride	9.82	54.56	49.20	0.73	0.56	0.37	0.37	0.25	0.22	1.03	0.56	0.34	0.37	1.33		
Fluoride	0.09	0.08	0.09	0.04	0.03	0.03	0.03	0.01	0.01	0.00	0.00	0.03	0.02	0.01		
Nitrate Nitrogen	0.00	0.00	0.00	0.02	0.02	0.03	0.00	0.34	0.31	0.04	0.03	0.54	1.07	3.46		
Sulfate	43.45	36.43	41.43	3.50	3.83	1.65	2.29	0.48	0.50	0.13	0.15	0.83	0.79	0.48		
Hydroxyl Ion	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
Total Anions	56.68	94.17	93.76	8.09	8.11	5.95	6.49	5.11	5.02	5.47	5.78	5.94	6.42	9.49		
CHARGE BALANCE (%)	-1	3	5	-4	2	-2	1	-2	-2	2	-5	0	0	-2		
TDS (mg/L)	3856	6124	6126	500	504	346	398	278	292	284	318	320	352	514		
TSS (mg/L)	14	13	14	2	2	2	8	6	2	3	3	8	9	<1		
Turbidity (NTU)	5	30	28	8.5	9.5	7	20	24	4	4.4	3.5	8.5	8	5.2		

(CONTINUED)

APPENDIX G
Ion-Charge Balance Calculations, 1994

Sampling Point	GW-724	GW-725		GW-736		GW-737		GW-738		GW-739		GW-740		GW-793
Unit	AQF	AQF		AQF		AQF		AQF		AQF		AQF		AQT
Location	EXP-C	EXP-C		EXP-C		EXP-C		EXP-C		EXP-C		EXP-C		AGLSF
Date Sampled	12/18/94	03/18/94	12/18/94	03/21/94	12/19/94	03/21/94	12/18/94	03/16/94	12/17/94	03/16/94	12/18/94	03/14/94	12/17/94	03/22/94
CATIONS (meq/L)														
Calcium	4.69	9.98	8.48	8.48	7.98	8.48	7.98	5.49	5.99	3.09	3.24	2.89	3.34	2.69
Magnesium	3.29	3.37	2.47	1.89	1.89	2.14	1.97	2.14	1.89	2.39	2.30	2.55	2.55	0.39
Potassium	0.05	0.07	0.07	0.08	0.07	0.08	0.07	0.05	0.05	0.03	0.03	0.04	0.03	0.02
Sodium	0.96	0.96	0.87	0.96	0.87	0.96	0.87	0.31	0.35	0.11	0.10	0.07	0.09	0.17
Hydrogen Ion	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total Cations	8.99	14.38	11.89	11.41	10.82	11.66	10.90	7.99	8.29	5.62	5.68	5.56	6.02	3.28
ANIONS (meq/L)														
Alkalinity-CO3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Alkalinity-HCO3	4.30	5.70	5.96	6.59	6.37	6.55	6.39	5.94	5.88	4.70	4.80	5.00	5.08	3.06
Chloride	1.52	2.00	1.41	1.35	1.30	1.47	1.24	0.42	0.48	0.17	0.18	0.17	0.19	0.03
Fluoride	0.02	0.01	0.01	0.01	0.02	0.01	0.02	0.00	0.00	0.02	0.01	0.01	0.01	0.00
Nitrate Nitrogen	3.00	7.57	3.71	2.70	2.43	3.00	2.43	1.24	1.57	0.50	0.50	0.22	0.31	0.00
Sulfate	0.50	0.69	0.81	0.89	0.90	0.84	0.90	0.52	0.58	0.27	0.29	0.21	0.29	0.08
Hydroxyl Ion	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total Anions	9.34	15.96	11.90	11.55	11.02	11.86	10.98	8.11	8.51	5.66	5.78	5.61	5.88	3.17
CHARGE BALANCE (%)	-2	-5	-0	-1	-1	-1	-0	-1	-1	-0	-1	-0	1	2
TDS (mg/L)	534	916	716	704	660	722	622	468	448	314	308	302	308	190
TSS (mg/L)	1	2	1	<1	1	<1	1	7	8	4	3	<1	<1	3
Turbidity (NTU)	3.3	3	1.9	1.7	0.2	0.8	0.5	6.5	22	3.5	3	8	1	2.3

(CONTINUED)

APPENDIX G
Ion-Charge Balance Calculations, 1994

Sampling Point • Unit • Location • Date Sampled	GW-793				GW-794				GW-795				GW-800			
	AQT				AQT				AQT				AQT			
	AGLISF				AGLISF				AGLISF				AGLISF			
	05/25/94	07/28/94	11/02/94	03/23/94	05/27/94	08/04/94	11/07/94	03/23/94	05/27/94	08/04/94	11/08/94	02/11/94	06/22/94	09/02/94		
CATIONS (meq/L)																
Calcium	2.59	2.59	2.69	4.79	4.69	4.94	4.34	4.04	3.99	4.09	4.44	1.60	2.45	3.39		
Magnesium	0.38	0.39	0.37	0.75	0.65	0.55	0.79	0.28	0.36	0.28	0.32	0.99	1.56	2.22		
Potassium	0.03	0.03	0.02	0.07	0.06	0.05	0.05	0.02	0.02	0.02	0.03	0.06	0.06	0.08		
Sodium	0.16	0.17	0.16	0.15	0.16	0.17	0.13	0.09	0.09	0.08	0.09	0.04	0.04	0.04		
Hydrogen Ion	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
Total Cations	3.16	3.18	3.25	5.76	5.56	5.71	5.31	4.43	4.47	4.48	4.88	2.69	4.11	5.73		
ANIONS (meq/L)																
Alkalinity-CO3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
Alkalinity-HCO3	3.12	3.00	3.02	4.64	4.78	4.70	4.36	3.70	3.84	4.04	4.30	2.42	4.02	4.84		
Chloride	0.03	0.05	0.05	0.25	0.34	0.31	0.27	0.11	0.11	0.10	0.10	0.03	0.00	0.05		
Fluoride	0.01	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
Nitrate Nitrogen	0.00	0.00	0.00	0.01	0.03	0.04	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
Sulfate	0.10	0.23	0.19	0.52	0.44	0.48	0.48	0.40	0.42	0.46	0.44	0.21	0.14	0.23		
Hydroxyl Ion	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
Total Anions	3.26	3.29	3.27	5.43	5.58	5.53	5.14	4.21	4.37	4.59	4.83	2.66	4.15	5.11		
CHARGE BALANCE (%)	-1	-2	-0	3	-0	2	2	3	1	-1	0	1	-1	6		
TDS (mg/L)	172	198	200	292	332	274	280	262	266	216	260	154	274	292		
TSS (mg/L)	12	2	32	9	11	12	12	<1	<1	<1	<1	7	78	4		
Turbidity (NTU)	12	1	24	9	13	12	6.4	1.5	2	1.2	0.4	16	1.8	3.7		

(CONTINUED)

APPENDIX G
Ion-Charge Balance Calculations, 1994

Sampling Point	GW-800
Unit	AQF
Location	OLF
Date Sampled	12/14/94
CATIONS (meq/L)	.
Calcium	2.64
Magnesium	1.56
Potassium	0.06
Sodium	0.03
Hydrogen Ion	0.00
Total Cations	4.30
ANIONS (meq/L)	.
Alkalinity-CO3	0.00
Alkalinity-HCO3	4.06
Chloride	0.06
Fluoride	0.00
Nitrate Nitrogen	0.00
Sulfate	0.25
Hydroxyl Ion	0.00
Total Anions	4.37
CHARGE BALANCE (%)	-1
TDS (mg/L)	154
TSS (mg/L)	14
Turbidity (NTU)	17

APPENDIX G

Ion-Charge Balance Calculations, 1994

Sampling Point	BCK-00.63		BCK-04.55		BCK-09.40		BCK-11.97		NT-01		NT-13		SS-1	
Unit	CREEK		CREEK		CREEK		CREEK		CREEK		CREEK		SPRING	
Location	EXP-SW		EXP-SW		EXP-SW		EXP-SW		EXP-SW		EXP-SW		EXP-SW	
Date Sampled	02/14/94	09/06/94	02/14/94	09/06/94	02/14/94	09/06/94	02/14/94	09/06/94	02/14/94	09/07/94	02/14/94	09/06/94	02/14/94	09/07/94
CATIONS (meq/L)														
Calcium	1.30	2.54	1.40	2.69	2.45	4.14	6.49	12.48	5.99	15.47	0.20	1.15	9.48	9.48
Magnesium	0.64	1.15	0.73	1.15	0.82	1.23	1.32	2.80	1.32	3.21	0.09	0.31	1.48	1.48
Potassium	0.00	0.05	0.02	0.04	0.04	0.10	0.07	0.14	0.05	0.20	0.03	0.06	0.09	0.10
Sodium	0.14	0.23	0.17	0.23	0.37	0.57	2.00	2.18	0.70	1.52	0.07	0.28	0.52	0.83
Hydrogen Ion	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total Cations	2.08	3.98	2.31	4.12	3.68	6.04	9.87	17.59	8.05	20.40	0.39	1.80	11.57	11.89
ANIONS (meq/L)														
Alkalinity-CO3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Alkalinity-HCO3	1.70	3.28	1.82	3.46	2.28	3.80	3.80	4.94	1.80	3.40	0.22	1.60	6.67	6.83
Chloride	0.17	0.24	0.19	0.23	0.42	0.65	2.29	1.75	0.51	0.62	0.03	0.04	0.93	1.75
Fluoride	0.01	0.00	0.00	0.01	0.02	0.02	0.03	0.05	0.03	0.09	0.00	0.01	0.01	0.01
Nitrate Nitrogen	0.09	0.26	0.11	0.28	0.47	1.57	3.19	11.42	5.97	16.28	0.00	0.00	1.27	2.14
Sulfate	0.16	0.21	0.17	0.21	0.47	0.42	1.18	1.04	0.41	0.79	0.13	0.13	2.06	1.25
Hydroxyl Ion	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total Anions	2.13	3.98	2.30	4.18	3.66	6.45	10.48	19.20	8.72	21.18	0.38	1.77	10.95	11.99
CHARGE BALANCE (%)	-1	-0	0	-1	0	-3	-3	-4	-4	-2	2	1	3	-0
TDS (mg/L)	116	246	126	254	220	390	620	1420	538	1674	40	132	634	826
TSS (mg/L)	7	2	6	16	4	2	3	2	8	5	6	10	3	8
Turbidity (NTU)	8.5	1.5	8.1	1.2	6.5	2.4	3.1	0.6	8.4	1.5	8.6	6	1	2.5

(CONTINUED)

APPENDIX G
Ion-Charge Balance Calculations, 1994

Sampling Point	SS-4		SS-5	
• Unit	SPRING		SPRING	
• Location	EXP-SW		EXP-SW	
• Date Sampled	02/14/94	09/06/94	02/14/94	09/06/94
CATIONS (meq/L)	•	•	•	•
Calcium	2.74	5.99	1.35	3.84
Magnesium	1.40	1.89	1.07	1.40
Potassium	0.03	0.10	0.00	0.06
Sodium	0.32	0.87	0.11	0.44
Hydrogen Ion	0.00	0.00	0.00	0.00
•	•	•	•	•
Total Cations	4.49	8.85	2.53	5.73
ANIONS (meq/L)	•	•	•	•
Alkalinity-CO3	•	•	•	•
Alkalinity-HCO3	0.00	0.00	0.00	0.00
Chloride	3.62	4.80	2.20	3.80
Fluoride	0.40	0.85	0.17	0.48
Nitrate Nitrogen	0.01	0.03	0.00	0.02
Sulfate	0.22	2.64	0.05	1.21
Hydroxyl Ion	0.24	0.65	0.08	0.42
•	0.00	0.00	0.00	0.00
Total Anions	4.49	8.96	2.50	5.92
CHARGE BALANCE (%)	•	•	•	•
	0	-1	1	-2
TDS (mg/L)	•	•	•	•
TSS (mg/L)	228	590	124	350
Turbidity (NTU)	14	5	5	2
	4.8	1.5	6.9	1.4

APPENDIX H

TRACE METAL CONCENTRATIONS THAT EXCEED MAXIMUM CONTAMINANT LEVELS

EXPLANATION

SAMPLING POINT:

BCK	-	Bear Creek Kilometer
GW	-	Monitoring Well
NT	-	Northern Tributary
SS	-	Spring

UNIT:

AQF	-	Knox Aquifer
AQT	-	ORR Aquitard

LOCATION:

AGLLSF	-	Above Grade Low-Level Storage Facility
BG	-	Bear Creek Burial Grounds WMA
EXP	-	Exit Pathway Monitoring Location: Maynardville Limestone Transverse (-A, -B, -C, -W) Spring or Surface Water Sampling Location (-SW)
OLF	-	Oil Landfarm WMA
RS	-	Rust Spoil Area
S3	-	S-3 Site
SPI	-	Spoil Area I

NOTES:

mg/L	-	milligrams per liter
.	-	Total Metal Concentration less than the Maximum Contaminant Level (MCL)
TOT	-	Total Concentration (Unfiltered Sample)
DIS	-	Dissolved Concentration (Filtered Sample)
TSS	-	Total Suspended Solids

MCLS:

<u>Metal</u>	<u>Maximum Contaminant Level (mg/L)</u>
Barium (ICP)	2.0
Cadmium (AAS)	0.005
Chromium (AAS)	0.10
Lead (AAS)	0.05
Mercury (CVAA)	0.002

Because of inherent analytical interferences, ICP results for arsenic, selenium, and silver were not evaluated with respect to MCLs. Historical AAS results for these metals have shown only isolated and sporadic occurrences where concentrations exceeded MCLs.

APPENDIX H

1

Trace Metal Concentrations That Exceed
Maximum Contaminant Levels, 1994

Sampling Point	GW-042				GW-080		GW-243		GW-276	
Unit	AQT				AQT		AQT		AQT	
Location	BG				BG		S3		S3	
Date Sampled	03/11/94		11/23/94		03/09/94		03/30/94		03/30/94	
Type	TOT	DIS	TOT	DIS	TOT	DIS	TOT	DIS	TOT	DIS
Barium	.	.	.	.	.	.	18	3.4	.	.
Cadmium (AAS)	0.033	0.026	0.014	0.016	.	.	2.4	2.4	0.074	0.059
Cadmium	0.03	0.028	0.015	0.018	0.0067	0.0033	2.4	2.3	0.067	0.06
Chromium (AAS)	.	.	.	.	.	.	0.3	0.3	.	.
Chromium	.	.	.	.	.	.	.	.	.	.
Lead (AAS)	.	.	.	.	.	.	.	.	.	.
Lead	.	.	.	.	.	.	.	.	.	.
Mercury (CVAA)	.	.	.	.	.	.	0.11	0.088	.	.
.	.	.	.	.	.	.	.	.	.	.
TSS (mg/L)	2	0	<1	0	282	0	90	0	20	0
Turbidity (NTU)	3.5	3.5	1.6	1.6	220	220	30	30	10	10

(CONTINUED)

Sampling Point	GW-276		GW-537						NT-01	
Unit	AQT		AQT						CREEK	
Location	S3		OLF						EXP-SW	
Date Sampled	08/20/94		02/11/94		06/24/94		12/15/94		02/14/94	
Type	TOT	DIS	TOT	DIS	TOT	DIS	TOT	DIS	TOT	DIS
Barium	.	.	3	2.6	2.7	2.4	2.4	2.3	.	.
Cadmium (AAS)	0.06	0.06	.	.	.	.	.	.	.	.
Cadmium	0.058	0.052	.	.	.	.	.	.	0.012	0.012
Chromium (AAS)	.	.	.	.	.	.	.	.	.	.
Chromium	.	.	.	.	.	.	.	.	.	.
Lead (AAS)	.	.	.	.	.	.	.	.	.	.
Lead	.	.	.	.	.	.	.	.	.	.
Mercury (CVAA)	.	.	.	.	.	.	.	.	.	.
.	.	.	.	.	.	.	.	.	.	.
TSS (mg/L)	5	0	10	0	4	0	<1	0	8	0
Turbidity (NTU)	2	2	4	4	2.2	2.2	2.5	2.5	8.4	8.4

(CONTINUED)

APPENDIX H

2

Trace Metal Concentrations That Exceed
Maximum Contaminant Levels, 1994

Sampling Point	NT-01	
Unit	CREEK	
Location	EXP-SW	
Date Sampled	09/07/94	
Type	TOT	DIS
Barium	.	.
Cadmium (AAS)	.	.
Cadmium	0.032	0.026
Chromium (AAS)	.	.
Chromium	.	.
Lead (AAS)	.	.
Lead	.	.
Mercury (CVAA)	.	.
.	.	.
TSS (mg/L)	5	0
Turbidity (NTU)	1.5	1.5

APPENDIX I
QA/QC DATA SUMMARIES

EXPLANATION

SAMPLING POINT:

BCK - Bear Creek Kilometer
GW - Monitoring Well
NT - Northern Tributary
SS - Spring

LOCATION:

AGLLSF - Above Grade Low-Level Storage Facility
BG - Bear Creek Burial Grounds WMA
EXP - Exit Pathway Monitoring Location:
Maynardville Limestone Transverse (-A, -B, -C, -W)
Spring or Surface Water Sampling Location (-SW)
OLF - Oil Landfarm WMA
RS - Rust Spoil Area
S3 - S-3 Site
SPI - Spoil Area I

NOTES:

. - Not analyzed
U - Compound not detected at the reported minimum attainable detection limit.

UNITS:

ug/L - micrograms per liter
mg/L - milligrams per liter
pCi/L - picoCuries per liter
Bq/L - Becquerels per liter
CE +/- - Counting Error (two standard deviations)

APPENDIX I.1

**CORRELATION OF GROUNDWATER AND SURFACE WATER
SAMPLES TO ASSOCIATED BLANKS**

APPENDIX I.1
Correlation of Samples to Associated Blanks
First Quarter 1994

Sampling Point	Location	Date Sampled	Sample No.	Trip Blank No.	Lab Blank No.
GW-040	BG	03/08/94	940309-001	940309-005	940309-056
GW-042	BG	03/11/94	940311-050	940311-052	940315-007
GW-043	OLF	02/08/94	940208-107	940208-113	940214-006
GW-044	OLF	02/08/94	940208-109	940208-113	940214-006
GW-047	BG	03/24/94	940324-030	940324-033	940328-002
GW-053	BG	03/10/94	940311-007	940311-009	940314-026
GW-056	EXP-A	02/26/94	940228-068	940228-072	940301-001
GW-057	EXP-A	02/26/94	940228-066	940228-072	940301-001
GW-061	BG	03/21/94	940321-135	940321-137	940324-005
GW-064	OLF	02/10/94	940210-058	940210-060	940215-029
GW-069	BG	03/11/94	940311-064	940311-066	940315-007
GW-079	BG	03/09/94	940310-009	940310-019	940310-084
GW-080	BG	03/09/94	940310-011	940310-019	940310-084
GW-084	OLF	02/08/94	940208-111	940208-113	940214-006
GW-085	OLF	02/11/94	940214-032	940214-038	940211-089
GW-095	BG	03/10/94	940310-105	940310-109	940314-026
GW-115	S3	02/17/94	940217-129	940217-131	940221-165
GW-162	BG	03/08/94	940309-003	940309-005	940309-056
GW-243	S3	03/30/94	940331-002	940331-006	940404-021
GW-276	S3	03/30/94	940331-004	940331-006	940404-021
GW-287	BG	03/09/94	940310-015	940310-019	940310-084
GW-311	RS	02/09/94	940209-256	940209-260	940215-029
GW-312	RS	02/09/94	940209-258	940209-260	940215-029
GW-315	SPI	02/17/94	940217-125	940217-131	940221-165
GW-317	SPI	02/17/94	940217-127	940217-131	940221-165
GW-324	S3	02/15/94	940215-107	940215-111	940217-056
GW-325	S3	02/15/94	940215-109	940215-111	940217-056
GW-345	S3	02/18/94	940218-043	940218-045	940221-165
GW-347	S3	02/16/94	940217-005	940217-007	940221-005
GW-348	S3	02/16/94	940217-001	940217-007	940221-005
GW-363	OLF	03/22/94	940322-043	940322-049	940324-005
GW-370	BG	03/10/94	940310-142	940310-146	940314-026
GW-372	BG	03/09/94	940310-004	940310-008	940310-084
GW-373	BG	03/10/94	940310-144	940310-146	940314-026
GW-537	OLF	02/11/94	940214-034	940214-038	940211-089
GW-601	OLF	03/25/94	940325-095	940325-097	940328-002
GW-613	S3	02/14/94	940215-015	940215-019	940216-072
GW-614	S3	02/14/94	940215-017	940215-019	940216-072
GW-621	EXP-B	02/18/94	940218-040	940218-042	940221-165
GW-627	BG	03/14/94	940315-001	940315-003	940316-001
GW-637	OLF	03/23/94	940323-117	940323-119	940325-003
GW-642	BG	03/09/94	940310-002	940310-008	940310-001
GW-652	BG	03/09/94	940310-017	940310-019	940310-084
GW-653	BG	02/26/94	940228-064	940228-072	940301-001
GW-654	BG	03/09/94	940310-013	940310-019	940310-084
GW-683	EXP-A	03/04/94	940304-085	940304-089	940307-038

APPENDIX I.1
Correlation of Samples to Associated Blanks
First Quarter 1994

Sampling Point	Location	Date Sampled	Sample No.	Trip Blank No.	Lab Blank No.
GW-684	EXP-A	03/04/94	940304-087	940304-089	940307-038
GW-685	EXP-A	02/27/94	940228-073	940228-075	940301-001
GW-694	EXP-B	03/02/94	940302-127	940302-129	940307-001
GW-695	EXP-B	02/21/94	940221-205	940221-207	940223-080
GW-703	EXP-B	02/23/94	940223-098	940223-100	940223-080
GW-704	EXP-B	02/25/94	940225-179	940225-181	940302-060
GW-706	EXP-B	03/04/94	940304-067	940304-069	940307-038
GW-710	EXP-W	02/24/94	940225-001	940225-007	940228-079
GW-711	EXP-W	02/23/94	940224-034	940224-036	940228-079
GW-712	EXP-W	02/24/94	940225-003	940225-007	940302-060
GW-713	EXP-W	02/27/94	940228-002	940228-004	940228-079
GW-714	EXP-W	02/25/94	940225-176	940225-178	940302-060
GW-715	EXP-W	02/26/94	940228-070	940228-072	940302-060
GW-723	EXP-C	03/17/94	940318-026	940318-028	940318-001
GW-724	EXP-C	03/18/94	940321-003	940321-007	940322-013
GW-725	EXP-C	03/18/94	940321-001	940321-007	940322-013
GW-736	EXP-C	03/21/94	940321-128	940321-132	940322-013
GW-737	EXP-C	03/21/94	940321-130	940321-132	940322-013
GW-738	EXP-C	03/16/94	940317-033	940317-037	940318-001
GW-739	EXP-C	03/16/94	940317-035	940317-037	940318-001
GW-740	EXP-C	03/14/94	940315-004	940315-006	940316-001
GW-793	AGLLSF	03/22/94	940322-045	940322-049	940324-005
GW-794	AGLLSF	03/23/94	940323-113	940323-119	940325-003
GW-795	AGLLSF	03/23/94	940323-115	940323-119	940325-003
GW-800	OLF	02/11/94	940214-030	940214-038	940211-089
SS-1	EXP-SW	02/14/94	940214-102	940214-108	940217-016
SS-4	EXP-SW	02/14/94	940214-098	940214-108	940217-016
SS-5	EXP-SW	02/14/94	940214-096	940214-108	940217-016
BCK-00.63	EXP-SW	02/14/94	940214-088	940214-108	940216-072
BCK-04.55	EXP-SW	02/14/94	940214-090	940214-108	940216-072
BCK-09.40	EXP-SW	02/14/94	940214-094	940214-108	940217-016
BCK-11.97	EXP-SW	02/14/94	940214-100	940214-108	940217-016
NT-01	EXP-SW	02/14/94	940214-104	940214-108	940217-016
NT-13	EXP-SW	02/14/94	940214-092	940214-108	940217-016

APPENDIX I.1
Correlation of Samples to Associated Blanks
Second Quarter 1994

Sampling Point	Location	Date Sampled	Sample No.	Trip Blank No.	Lab Blank No.
GW-040	BG	05/17/94	940517-078	940517-080	940519-032
GW-042	BG	05/17/94	940517-076	940517-080	940519-032
GW-043	OLF	06/21/94	940621-115	940621-121	940622-001
GW-044	OLF	06/21/94	940621-119	940621-121	940622-001
GW-047	BG	05/31/94	940531-052	940531-054	940602-282
GW-053	BG	06/24/94	940624-028	940624-030	940627-002
GW-061	BG	06/24/94	940624-026	940624-030	940627-002
GW-064	OLF	06/23/94	940623-131	940623-137	940628-001
GW-069	BG	06/08/94	940608-105	940608-109	940610-006
GW-079	BG	06/07/94	940607-116	940607-120	940608-024
GW-080	BG	06/07/94	940607-118	940607-120	940608-024
GW-084	OLF	06/21/94	940621-117	940621-121	940622-001
GW-085	OLF	06/24/94	940624-020	940624-024	940628-001
GW-095	BG	06/28/94	940628-049	940628-051	940629-001
GW-162	BG	05/18/94	940518-064	940518-066	940520-009
GW-287	BG	06/09/94	940609-321	940609-325	940613-001
GW-311	RS	06/22/94	940622-043	940622-047	940623-001
GW-312	RS	06/23/94	940623-135	940623-137	940628-001
GW-315	SPI	06/20/94	940620-080	940620-086	940624-099
GW-317	SPI	06/17/94	940617-049	940617-053	940620-001
GW-347	S3	06/17/94	940617-051	940617-053	940620-008
GW-348	S3	06/20/94	940620-082	940620-086	940624-099
GW-363	OLF	05/26/94	940526-083	940526-087	940531-062
GW-370	BG	05/24/94	940524-114	940524-118	940526-027
GW-372	BG	05/19/94	940519-062	940519-064	940524-113
GW-373	BG	05/21/94	940524-058	940524-060	940526-027
GW-537	OLF	06/24/94	940624-022	940624-024	940627-002
GW-627	BG	06/23/94	940623-147	940623-151	940628-001
GW-637	OLF	05/26/94	940526-081	940526-087	940531-062
GW-642	BG	05/19/94	940519-060	940519-064	940524-113
GW-652	BG	06/17/94	940617-037	940617-039	940620-001
GW-653	BG	06/09/94	940609-323	940609-325	940613-001
GW-654	BG	06/08/94	940608-107	940608-109	940610-006
GW-793	AGLLSF	05/25/94	940525-044	940525-046	940527-113
GW-794	AGLLSF	05/27/94	940527-095	940527-099	940602-282
GW-795	AGLLSF	05/27/94	940527-097	940527-099	940602-282
GW-800	OLF	06/22/94	940622-045	940622-047	940623-001

APPENDIX I.1
Correlation of Samples to Associated Blanks
Third Quarter 1994

Sampling Point	Location	Date Sampled	Sample No.	Trip Blank No.	Lab Blank No.
GW-040	BG	08/22/94	940823-017	940823-019	940825-025
GW-042	BG	08/23/94	940824-004	940824-006	940826-024
GW-043	OLF	08/31/94	940901-109	940901-113	940901-132
GW-044	OLF	08/31/94	940901-111	940901-113	940906-003
GW-047	BG	08/09/94	940809-040	940809-042	940810-113
GW-053	BG	09/15/94	940916-039	940916-045	940921-033
GW-056	EXP-A	09/14/94	940914-105	940914-109	940915-001
GW-057	EXP-A	09/14/94	940914-107	940914-109	940915-001
GW-061	BG	09/15/94	940916-041	940916-045	940921-033
GW-064	OLF	09/01/94	940901-176	940901-180	940907-011
GW-069	BG	09/09/94	940909-130	940909-132	940913-018
GW-079	BG	09/12/94	940913-019	940913-023	940914-001
GW-080	BG	09/09/94	940909-128	940909-132	940913-018
GW-084	OLF	09/01/94	940901-178	940901-180	940907-011
GW-085	OLF	09/07/94	940907-105	940907-107	940912-004
GW-095	BG	09/12/94	940913-021	940913-023	940914-001
GW-115	S3	08/15/94	940816-047	940816-049	940818-106
GW-162	BG	08/22/94	940823-013	940823-019	940825-025
GW-276	S3	08/20/94	940822-025	940822-029	940822-080
GW-287	BG	09/13/94	940913-120	940913-126	940914-085
GW-311	RS	09/06/94	940907-030	940907-034	940909-009
GW-312	RS	09/06/94	940907-032	940907-034	940909-009
GW-315	SPI	08/30/94	940830-065	940830-073	940901-132
GW-317	SPI	08/29/94	940830-015	940830-017	940831-018
GW-347	S3	08/30/94	940830-067	940830-073	940901-132
GW-348	S3	08/30/94	940830-069	940830-073	940901-132
GW-363	OLF	07/29/94	940729-057	940803-017	940801-060
GW-370	BG	08/25/94	940825-107	940825-109	940829-002
GW-372	BG	08/23/94	940824-007	940824-006	940826-024
GW-373	BG	08/24/94	940824-141	940824-143	940826-024
GW-537	OLF	09/07/94	940907-103	940907-107	940909-009
GW-613	S3	08/15/94	940816-045	940816-049	940818-106
GW-614	S3	08/16/94	940816-093	940816-095	940818-106
GW-627	BG	09/15/94	940916-043	940916-045	940921-033
GW-637	OLF	07/29/94	940729-059	940803-017	940801-060
GW-642	BG	08/23/94	940824-009	940824-006	940826-024
GW-652	BG	09/13/94	940913-118	940913-126	940914-085
GW-653	BG	09/13/94	940913-122	940913-126	940914-085
GW-654	BG	09/13/94	940913-124	940913-126	940914-085
GW-683	EXP-A	09/20/94	940921-018	940921-024	940923-001
GW-684	EXP-A	09/20/94	940921-022	940921-024	940923-001
GW-685	EXP-A	09/19/94	940920-006	940920-008	940922-001
GW-710	EXP-W	08/19/94	940819-140	940819-142	940822-080
GW-711	EXP-W	08/18/94	940819-078	940819-080	940822-080
GW-712	EXP-W	08/18/94	940819-081	940819-083	940822-080
GW-713	EXP-W	08/19/94	940819-120	940819-124	940822-080

APPENDIX I.1
Correlation of Samples to Associated Blanks
Third Quarter 1994

Sampling Point	Location	Date Sampled	Sample No.	Trip Blank No.	Lab Blank No.
GW-714	EXP-W	08/20/94	940822-027	940822-029	940822-080
GW-715	EXP-W	08/20/94	940822-030	940822-029	940822-080
GW-793	AGLLSF	07/28/94	940728-069	940728-071	940729-001
GW-794	AGLLSF	08/04/94	940804-157	940804-163	940808-002
GW-795	AGLLSF	08/04/94	940804-159	940804-163	940808-002
GW-800	OLF	09/02/94	940902-127	940902-131	940907-011
BCK-00.63	EXP-SW	09/06/94	940906-094	940906-108	940907-086
BCK-04.55	EXP-SW	09/06/94	940906-096	940906-108	940907-086
BCK-09.40	EXP-SW	09/06/94	940906-100	940906-108	940907-086
BCK-11.97	EXP-SW	09/06/94	940906-106	940906-108	940907-086
NT-01	EXP-SW	09/07/94	940908-079	940906-108	940909-110
NT-13	EXP-SW	09/06/94	940906-098	940906-108	940907-086
SS-1	EXP-SW	09/07/94	940908-077	940906-108	940909-110
SS-4	EXP-SW	09/06/94	940906-104	940906-108	940907-086
SS-5	EXP-SW	09/06/94	940906-102	940906-108	940907-086

APPENDIX I.1
Correlation of Samples to Associated Blanks
Fourth Quarter 1994

Sampling Point	Location	Date Sampled	Sample No.	Trip Blank No.	Lab Blank No.
GW-040	BG	11/09/94	941110-010	941110-012	941114-032
GW-042	BG	11/23/94	941123-055	941123-059	941128-044
GW-043	OLF	11/30/94	941130-094	941130-098	941202-013
GW-044	OLF	11/30/94	941130-096	941130-098	941202-013
GW-047	BG	11/08/94	941108-049	941108-051	941110-027
GW-053	BG	12/12/94	941212-143	941212-145	941215-001
GW-061	BG	12/12/94	941212-141	941212-145	941215-001
GW-064	OLF	12/15/94	941216-008	941216-018	941220-049
GW-069	BG	12/06/94	941206-168	941206-170	941208-033
GW-079	BG	12/06/94	941207-022	941207-024	941208-013
GW-080	BG	12/06/94	941206-166	941206-170	941208-033
GW-084	OLF	11/30/94	941130-092	941130-098	941202-013
GW-085	OLF	12/15/94	941216-010	941216-018	941219-047
GW-095	BG	12/05/94	941206-065	941206-067	941208-013
GW-162	BG	11/07/94	941108-005	941108-007	941108-010
GW-287	BG	12/07/94	941207-112	941207-116	941208-033
GW-311	RS	12/14/94	941214-077	941214-081	941215-001
GW-312	RS	12/14/94	941214-075	941214-081	941215-001
GW-315	SPI	12/05/94	941206-044	941206-050	941207-044
GW-317	SPI	12/04/94	941205-057	941205-096	941207-044
GW-347	S3	12/04/94	941205-059	941205-096	941207-044
GW-348	S3	12/05/94	941206-048	941206-050	941207-044
GW-363	OLF	11/02/94	941103-038	941103-044	941104-040
GW-370	BG	11/09/94	941110-008	941110-012	941111-037
GW-372	BG	11/08/94	941109-033	941109-035	941111-037
GW-373	BG	11/08/94	941109-038	941109-035	941111-037
GW-537	OLF	12/15/94	941216-012	941216-018	941220-049
GW-621	EXP-B	12/07/94	941207-103	941207-109	941209-042
GW-627	BG	12/09/94	941212-069	941212-071	941214-016
GW-637	OLF	11/07/94	941107-076	941107-078	941110-027
GW-642	BG	11/07/94	941108-008	941108-007	941110-027
GW-652	BG	12/07/94	941207-117	941207-116	941209-038
GW-653	BG	12/07/94	941207-110	941207-116	941208-033
GW-654	BG	12/07/94	941207-114	941207-116	941208-033
GW-694	EXP-B	12/13/94	941214-057	941214-059	941216-092
GW-695	EXP-B	12/07/94	941207-107	941207-109	941209-042
GW-703	EXP-B	12/12/94	941213-002	941213-004	941215-001
GW-704	EXP-B	12/13/94	941214-054	941214-056	941216-092
GW-706	EXP-B	12/15/94	941215-042	941215-044	941219-047
GW-723	EXP-C	12/20/94	941221-008	941221-010	941222-079
GW-724	EXP-C	12/18/94	941219-023	941219-014	941222-007
GW-725	EXP-C	12/18/94	941219-009	941219-011	941222-007
GW-736	EXP-C	12/19/94	941219-077	941219-079	941222-079
GW-737	EXP-C	12/18/94	941219-012	941219-014	941222-007
GW-738	EXP-C	12/17/94	941219-050	941219-054	941220-049
GW-739	EXP-C	12/18/94	941219-030	941219-032	941222-007

APPENDIX I.1
Correlation of Samples to Associated Blanks
Fourth Quarter 1994

Sampling Point	Location	Date Sampled	Sample No.	Trip Blank No.	Lab Blank No.
GW-740	EXP-C	12/17/94	941219-048	941219-054	941220-049
GW-793	AGLLSF	11/02/94	941103-042	941103-044	941104-040
GW-794	AGLLSF	11/07/94	941107-074	941107-078	941110-027
GW-795	AGLLSF	11/08/94	941108-047	941108-051	941110-027
GW-800	OLF	12/14/94	941214-079	941214-081	941215-001

APPENDIX I.2
TRIP BLANK DATA SUMMARY

APPENDIX L2
VOCs Detected in Trip Blank Samples, CY 1994

	1st Quarter		2nd Quarter		3rd Quarter		4th Quarter		Total	
	No.	%	No.	%	No.	%	No.	%	No.	%
Total Samples	43		22		30		29		124	
Samples without VOCs	28	65	20	91	25	83	21	72	94	76
Samples with VOCs	15	35	2	9	5	17	8	28	30	24
Compound										
Acetone	2	5		-		-	7	24	9	7
Benzene		-		-		-		-	0	-
Bromodichloromethane		-	1	5		-		-	1	1
Bromoform		-		-		-		-	0	-
Bromomethane		-		-		-		-	0	-
2-Butanone	1	2		-		-	2	7	3	2
Carbon disulfide		-		-		-		-	0	-
Carbon tetrachloride		-		-		-		-	0	-
Chlorobenzene		-		-		-		-	0	-
Chlorodibromomethane		-		-		-		-	0	-
Chloroethane		-		-		-		-	0	-
Chloroform		-	1	5		-		-	1	1
Chloromethane		-		-		-		-	0	-
1,1-Dichloroethane		-		-		-		-	0	-
1,2-Dichloroethane		-		-		-		-	0	-
1,1-Dichloroethene		-		-		-		-	0	-
1,2-Dichloroethene		-		-		-		-	0	-
1,2-Dichloropropane		-	1	5		-		-	1	1
cis-1,3-Dichloropropene		-		-		-		-	0	-
trans-1,3-Dichloropropene		-		-		-		-	0	-
Ethylbenzene		-		-		-		-	0	-
2-Hexanone		-		-		-		-	0	-
4-Methyl-2-pentanone		-		-		-		-	0	-
Methylene chloride	15	35	1	5	1	3		-	17	14
Styrene		-		-		-		-	0	-
1,1,2,2-Tetrachloroethane		-		-		-		-	0	-
Tetrachloroethene		-		-		-		-	0	-
Toluene		-		-		-		-	0	-
1,1,1-Trichloroethane		-		-	4	13		-	4	3
1,1,2-Trichloroethane		-		-		-		-	0	-
Trichloroethene		-		-		-		-	0	-
Vinyl acetate		-		-		-		-	0	-
Vinyl chloride		-		-		-		-	0	-
Xylenes		-		-		-		-	0	-

APPENDIX I.2

1

VOCs Detected in Trip Blank Samples, First Quarter 1994

Sample No.	940208- 113	940209- 260	940210- 060	940214- 038	940214- 108	940215- 019	940215- 111	940217- 007
Acetone	8	10U	10U	10U	10U	10U	10U	10U
2-Butanone	15	10U	10U	10U	10U	10U	10U	10U
Methylene chloride	10	5U	5U	1	0.9	5U	5U	5U

(CONTINUED)

Sample No.	940217- 131	940218- 042	940218- 045	940221- 207	940223- 100	940224- 036	940225- 007	940225- 178
Acetone	10U	10U	10U	10U	10U	8	10U	10U
2-Butanone	10U	10U	10U	10U	10U	10U	10U	10U
Methylene chloride	5U	5U	5U	5U	5U	2	1	5U

(CONTINUED)

Sample No.	940225- 181	940228- 004	940228- 072	940228- 075	940302- 129	940304- 069	940304- 089	940309- 005
Acetone	10U	10U	10U	10U	10U	10U	10U	10U
2-Butanone	10U	10U	10U	10U	10U	10U	10U	10U
Methylene chloride	2	1	1	5U	2	5U	5U	5U

(CONTINUED)

Sample No.	940310- 008	940310- 019	940310- 109	940310- 146	940311- 009	940311- 052	940311- 066	940315- 003
Acetone	10U	10U	10U	10U	10U	10U	10U	10U
2-Butanone	10U	10U	10U	10U	10U	10U	10U	10U
Methylene chloride	1	5U	1	5U	5U	5U	2	1

(CONTINUED)

APPENDIX I.2

2

VOCs Detected in Trip Blank Samples, First Quarter 1994

Sample No.	940315- 006	940317- 037	940318- 028	940321- 007	940321- 132	940321- 137	940322- 049	940323- 119
Acetone	10U	10U	10U	10U	10U	10U	10U	10U
2-Butanone	10U	10U	10U	10U	10U	10U	10U	10U
Methylene chloride	1	5U	5U	5U	5U	5U	5U	1

(CONTINUED)

Sample No.	940324- 033	940325- 097	940331- 006
Acetone	10U	10U	10U
2-Butanone	10U	10U	10U
Methylene chloride	5U	5U	5U

APPENDIX I.2

3

VOCs Detected in Trip Blank Samples, Second Quarter 1994

Sample No.	940517- 080	940518- 066	940519- 064	940524- 060	940524- 118	940525- 046	940526- 087	940527- 099
Bromodichloromethane	10U	10U	10U	10U	10U	10U	10U	10U
Chloroform	10U	10U	10U	10U	10U	10U	10U	10U
1,2-Dichloropropane	10U	10U	10U	10U	10U	10U	10U	10U
Methylene chloride	10U	10U	10U	10U	10U	10U	10U	10U

(CONTINUED)

Sample No.	940531- 054	940607- 120	940608- 109	940609- 325	940617- 039	940617- 053	940620- 086	940621- 121
Bromodichloromethane	4	10U	10U	10U	10U	10U	10U	10U
Chloroform	32	10U	10U	10U	10U	10U	10U	10U
1,2-Dichloropropane	4	10U	10U	10U	10U	10U	10U	10U
Methylene chloride	10U	10U	1	10U	10U	10U	10U	10U

(CONTINUED)

Sample No.	940622- 047	940623- 137	940623- 151	940624- 024	940624- 030	940628- 051
Bromodichloromethane	10U	10U	10U	10U	10U	10U
Chloroform	10U	10U	10U	10U	10U	10U
1,2-Dichloropropane	10U	10U	10U	10U	10U	10U
Methylene chloride	10U	10U	10U	10U	10U	10U

APPENDIX I.2

4

VOCs Detected in Trip Blank Samples, Third Quarter 1994

Sample No.	940728- 071	940803- 017	940804- 163	940809- 042	940816- 049	940816- 095	940819- 080	940819- 083
Methylene chloride	10U	10U	10U	10U	10U	10U	10U	10U
1,1,1-Trichloroethane	10U	10U	10U	10U	10U	10U	1	1

(CONTINUED)

Sample No.	940819- 124	940819- 142	940822- 029	940823- 019	940824- 006	940824- 143	940825- 109	940830- 017
Methylene chloride	10U	10U	10U	10U	10U	10U	10U	2
1,1,1-Trichloroethane	1	1	10U	10U	10U	10U	10U	10U

(CONTINUED)

Sample No.	940830- 073	940901- 113	940901- 180	940902- 131	940906- 108	940907- 034	940907- 107	940909- 132
Methylene chloride	10U	10U	10U	10U	10U	10U	10U	10U
1,1,1-Trichloroethane	10U	10U	10U	10U	10U	10U	10U	10U

(CONTINUED)

Sample No.	940913- 023	940913- 126	940914- 109	940916- 045	940920- 008	940921- 024
Methylene chloride	10U	10U	10U	10U	10U	10U
1,1,1-Trichloroethane	10U	10U	10U	10U	10U	10U

APPENDIX I.2

5

VOCs Detected in Trip Blank Samples, Fourth Quarter 1994

Sample No.	941103- 044	941107- 078	941108- 007	941108- 051	941109- 035	941110- 012	941123- 059	941130- 098
Acetone	10U	10U	10U	10U	10U	10U	10U	10U
2-Butanone	10U	10U	10U	10U	10U	10U	11	10U

(CONTINUED)

Sample No.	941205- 096	941206- 050	941206- 067	941206- 170	941207- 024	941207- 109	941207- 116	941212- 071
Acetone	10U	21	24	10U	10U	10U	10U	18
2-Butanone	10U	10U	10U	10U	10U	10U	10U	10U

(CONTINUED)

Sample No.	941212- 145	941213- 004	941214- 056	941214- 059	941214- 081	941215- 044	941216- 018	941219- 011
Acetone	10U	10	10U	10U	9	10U	10U	10U
2-Butanone	10U	10U	10U	10U	10U	10U	10U	10U

(CONTINUED)

Sample No.	941219- 014	941219- 032	941219- 054	941219- 079	941221- 010
Acetone	10U	10U	10U	13	9
2-Butanone	10U	10U	10U	7	10U

APPENDIX I.3
LABORATORY BLANK DATA SUMMARY

APPENDIX I.3
VOCs Detected in Laboratory Blank Samples, CY 1994

	1st Quarter		2nd Quarter		3rd Quarter		4th Quarter		Total	
	No.	%	No.	%	No.	%	No.	%	No.	%
Total Samples	26		18		24		19		87	
Samples without VOCs	15	58	13	72	23	96	17	89	68	78
Samples with VOCs	11	42	5	28	1	4	2	11	19	22
Compound										
Acetone		-		-		-	1	5	1	1
Benzene		-		-		-		-	0	-
Bromodichloromethane		-		-		-		-	0	-
Bromoform		-		-		-		-	0	-
Bromomethane		-		-		-		-	0	-
2-Butanone		-		-		-	1	5	1	1
Carbon disulfide		-		-		-		-	0	-
Carbon tetrachloride		-		-		-		-	0	-
Chlorobenzene		-		-		-		-	0	-
Chlorodibromomethane		-		-		-		-	0	-
Chloroethane		-		-		-		-	0	-
Chloroform		-		-		-		-	0	-
Chloromethane		-		-		-		-	0	-
1,1-Dichloroethane		-		-		-		-	0	-
1,2-Dichloroethane		-		-		-		-	0	-
1,1-Dichloroethene		-		-		-		-	0	-
1,2-Dichloroethene		-		-		-		-	0	-
1,2-Dichloropropane		-		-		-		-	0	-
cis-1,3-Dichloropropene		-		-		-		-	0	-
trans-1,3-Dichloropropene		-		-		-		-	0	-
Ethylbenzene		-		-		-		-	0	-
2-Hexanone		-		-		-		-	0	-
4-Methyl-2-pentanone		-	1	6		-		-	1	1
Methylene chloride	11	42	4	22	1	4		-	16	18
Styrene		-		-		-		-	0	-
1,1,2,2-Tetrachloroethane		-	1	6		-		-	1	1
Tetrachloroethene		-		-		-		-	0	-
Toluene		-		-		-		-	0	-
1,1,1-Trichloroethane		-		-		-		-	0	-
1,1,2-Trichloroethane		-		-		-		-	0	-
Trichloroethene		-		-		-		-	0	-
Vinyl acetate		-		-		-		-	0	-
Vinyl chloride		-		-		-		-	0	-
Xylenes		-		-		-		-	0	-

APPENDIX I.3

1

VOCs Detected in Laboratory Blank Samples, First Quarter 1994

Sample No.	940211- 089	940214- 006	940215- 029	940216- 072	940217- 016	940217- 056	940221- 005	940221- 165
Methylene chloride	5U	5U	5U	5U	1	5U	1	5U

(CONTINUED)

Sample No.	940223- 080	940228- 079	940301- 001	940302- 060	940307- 001	940307- 038	940309- 056	940310- 001
Methylene chloride	5U	5U	2	5U	1	5U	5U	2

(CONTINUED)

Sample No.	940310- 084	940314- 026	940315- 007	940316- 001	940318- 001	940322- 013	940324- 005	940325- 003
Methylene chloride	5U	5U	2	2	2	5U	2	2

(CONTINUED)

Sample No.	940328- 002	940404- 021
Methylene chloride	2	5U

VOCs Detected in Laboratory Blank Samples, Second Quarter 1994

Sample No.	940519- 032	940520- 009	940524- 113	940526- 027	940527- 113	940531- 062	940602- 282	940608- 024
4-Methyl-2-pentanone	10U	10U	10U	10U	10U	10U	10U	10U
Methylene chloride	10U	10U	10U	10U	10U	10U	10U	10U
1,1,2,2-Tetrachloroethane	10U	10U	10U	10U	10U	10U	10U	10U

(CONTINUED)

Sample No.	940610- 006	940613- 001	940620- 001	940620- 008	940622- 001	940623- 001	940624- 099	940627- 002
4-Methyl-2-pentanone	10U	10U	10U	10U	10U	10U	6	10U
Methylene chloride	2	10U	10U	10U	1	0.8	10U	1
1,1,2,2-Tetrachloroethane	10U	10U	10U	10U	10U	10U	4	10U

(CONTINUED)

Sample No.	940628- 001	940629- 001
4-Methyl-2-pentanone	10U	10U
Methylene chloride	10U	10U
1,1,2,2-Tetrachloroethane	10U	10U

3

3

3

3

3

3

3

APPENDIX I.3

4

VOCs Detected in Laboratory Blank Samples, Fourth Quarter 1994

Sample No.	941104- 040	941108- 010	941110- 027	941111- 037	941114- 032	941128- 044	941202- 013	941207- 044
Acetone	10U	10U	10U	10U	10U	10U	10U	10U
2-Butanone	10U	10U	10U	10U	10U	9	10U	10U

(CONTINUED)

Sample No.	941208- 013	941208- 033	941209- 038	941209- 042	941214- 016	941215- 001	941216- 092	941219- 047
Acetone	10U	10U	10U	10U	10U	10U	10U	10U
2-Butanone	10U	10U	10U	10U	10U	10U	10U	10U

(CONTINUED)

Sample No.	941220- 049	941222- 007	941222- 079
Acetone	10U	10U	7
2-Butanone	10U	10U	10U

APPENDIX I.4
EQUIPMENT RINSATE DATA SUMMARY

Equipment Rinsate Data Summary, First Quarter 1994

Sampling Group	ER BC 1		ER BC 2	ER BC 3		ER BC 4	ER BC 5	
Associated Well	GW-243	GW-345	GW-537	GW-736	GW-737	GW-370	GW-601	GW-795
Pump Number	4	6	10	2	8	8	6	11
VOLATILE ORGANICS (ug/L)	.	.	.	.	.	.	.	.
	.	.	.	.	.	.	.	.
Methylene chloride	5U	5U	5U	5U	5U	2	5U	5U
Tetrachloroethene	3	5U	5U	5U	5U	5U	5U	5U
	.	.	.	.	.	.	.	.
NITRATE/METALS (mg/L)	.	.	.	.	.	.	.	.
	.	.	.	.	.	.	.	.
Nitrate (as N)	<0.2	<0.2	.	.	.	.	.	.
Aluminum	<0.02	<0.02	.	.	.	.	.	.
Antimony	<0.05	<0.05	.	.	.	.	.	.
Arsenic	<0.05	<0.05	.	.	.	.	.	.
Barium	<0.001	<0.001	.	.	.	.	.	.
Beryllium	<0.0003	<0.0003	.	.	.	.	.	.
Boron	0.0042	0.0068	.	.	.	.	.	.
Cadmium	<0.003	<0.003	.	.	.	.	.	.
Calcium	0.16	0.086	.	.	.	.	.	.
Chromium	<0.01	<0.01	.	.	.	.	.	.
Cobalt	<0.005	<0.005	.	.	.	.	.	.
Copper	0.011	<0.004	.	.	.	.	.	.
Iron	<0.005	<0.005	.	.	.	.	.	.
Magnesium	0.037	0.018	.	.	.	.	.	.
Manganese	<0.001	<0.001	.	.	.	.	.	.
Molybdenum	<0.01	<0.01	.	.	.	.	.	.
Nickel	<0.01	<0.01	.	.	.	.	.	.
Potassium	<0.6	<0.6	.	.	.	.	.	.
Selenium	<0.05	<0.05	.	.	.	.	.	.
Silver	<0.006	<0.006	.	.	.	.	.	.
Sodium	0.089	0.041	.	.	.	.	.	.
Strontium	<0.0004	<0.0004	.	.	.	.	.	.
Thorium	<0.2	<0.2	.	.	.	.	.	.
Vanadium	<0.005	<0.005	.	.	.	.	.	.
Zinc	0.0081	0.0037	.	.	.	.	.	.

(CONTINUED)

APPENDIX I.4

2

Equipment Rinsate Data Summary, First Quarter 1994

Sampling Group	ER BC 6	ER BC 7	ER BC 8	
Associated Well	GW-706	GW-061	GW-684	GW-713
Pump Number	8	11	6	2
VOLATILE ORGANICS (ug/L)	.	.	.	.
	.	.	.	.
Methylene chloride	5U	1	5U	5U
Tetrachloroethene	5U	5U	5U	5U
	.	.	.	.
NITRATE/METALS (mg/L)	.	.	.	.
	.	.	.	.
Nitrate (as N)	.	.	.	.
Aluminum	.	.	.	.
Antimony	.	.	.	.
Arsenic	.	.	.	.
Barium	.	.	.	.
Beryllium	.	.	.	.
Boron	.	.	.	.
Cadmium	.	.	.	.
Calcium	.	.	.	.
Chromium	.	.	.	.
Cobalt	.	.	.	.
Copper	.	.	.	.
Iron	.	.	.	.
Magnesium	.	.	.	.
Manganese	.	.	.	.
Molybdenum	.	.	.	.
Nickel	.	.	.	.
Potassium	.	.	.	.
Selenium	.	.	.	.
Silver	.	.	.	.
Sodium	.	.	.	.
Strontium	.	.	.	.
Thorium	.	.	.	.
Vanadium	.	.	.	.
Zinc	.	.	.	.

APPENDIX I.4

3

Equipment Rinsate Data Summary, First Quarter 1994

Sampling Group . Associated Well . Pump Number	ER BC 1		ER BC 4
	GW-243	GW-345	GW-370
	4	6	8
Gross Alpha (pCi/L)	4.85	0.00	-0.72
Gross Alpha (CE+/-)	7.00	2.20	1.10
Gross Beta (pCi/L)	2.97	-3.26	-3.04
Gross Beta (CE+/-)	14.00	3.00	2.50
RADIONUCLIDES	.	.	.
	.	.	.
	.	.	.
Americium 241 (pCi/L)	-5.28	-2.41	0.42
Americium 241 (CE+/-)	5.60	2.90	2.50
Iodine 129 (Bq/L)	0.01	0.10	0.01
Iodine 129 (CE +/-)	0.75	1.00	0.70
Iodine 131 (Bq/L)	-0.03	0.01	-0.03
Iodine 131 (CE +/-)	0.09	0.12	0.09
Neptunium 237 (pCi/L)	0.00	0.19	0.54
Neptunium 237 (CE+/-)	190.00	0.66	0.62
Plutonium 238 (pCi/L)	-10.00	-0.21	-0.78
Plutonium 238 (CE+/-)	40.00	0.83	0.96
Plutonium 239 (pCi/L)	-10.00	-0.21	-0.39
Plutonium 239 (CE+/-)	45.00	0.83	0.87
Radium (Bq/L)	0.06	0.08	-0.00
Radium (CE+/-)	0.05	0.05	0.01
Strontium (pCi/L)	21.40	8.86	25.30
Strontium (CE+/-)	20.00	21.00	22.00
Technetium 99 (pCi/L)	342.00	154.00	-24.40
Technetium 99 (CE+/-)	160.00	37.00	58.00
Tritium (Bq/L)	8.00	13.00	4.00
Tritium (CE+/-)	23.00	24.00	24.00
Uranium 234 (pCi/L)	0.44	0.30	0.00
Uranium 234 (CE+/-)	0.88	0.42	1.20
Uranium 235 (pCi/L)	9.19	3.62	-16.10
Uranium 235 (CE+/-)	18.00	81.00	67.00
Uranium 238 (pCi/L)	0.44	0.00	0.00
Uranium 238 (CE+/-)	0.88	0.51	1.00

APPENDIX I.4

4

Equipment Rinsate Data Summary, Second Quarter 1994

Sampling Group	ER BC 2	ER BC 3	ER BC 5	ER BC 6	ER BC 8
Associated Well	GW-315	GW-537	GW-370	GW-795	GW-061
Pump Number	10	10	10	10	8
VOLATILE ORGANICS (ug/L)	.	.	.	.	.
None Detected	.	.	.	.	.
NITRATE/METALS (mg/L)	.	.	.	.	.
Nitrate (as N)	.	.	.	.	.
Aluminum	.	.	.	.	.
Antimony	.	.	.	.	.
Arsenic	.	.	.	.	.
Barium	.	.	.	.	.
Beryllium	.	.	.	.	.
Boron	.	.	.	.	.
Cadmium	.	.	.	.	.
Calcium	.	.	.	.	.
Chromium	.	.	.	.	.
Cobalt	.	.	.	.	.
Copper	.	.	.	.	.
Iron	.	.	.	.	.
Magnesium	.	.	.	.	.
Manganese	.	.	.	.	.
Molybdenum	.	.	.	.	.
Nickel	.	.	.	.	.
Potassium	.	.	.	.	.
Selenium	.	.	.	.	.
Silver	.	.	.	.	.
Sodium	.	.	.	.	.
Strontium	.	.	.	.	.
Thorium	.	.	.	.	.
Vanadium	.	.	.	.	.
Zinc	.	.	.	.	.

Equipment Rinsate Data Summary, Second Quarter 1994

Sampling Group	ER BC 5
• Associated Well	GW-370
• Pump Number	10
Gross Alpha (pCi/L)	-0.14
Gross Alpha (CE+/-)	0.74
Gross Beta (pCi/L)	-1.97
Gross Beta (CE+/-)	2.30
RADIONUCLIDES	.
Americium 241 (pCi/L)	1.87
Americium 241 (CE+/-)	2.00
Iodine 129 (Bq/L)	0.20
Iodine 129 (CE +/-)	0.84
Iodine 131 (Bq/L)	0.01
Iodine 131 (CE +/-)	0.10
Neptunium 237 (pCi/L)	0.00
Neptunium 237 (CE+/-)	0.63
Plutonium 238 (pCi/L)	0.00
Plutonium 238 (CE+/-)	0.69
Plutonium 239 (pCi/L)	0.00
Plutonium 239 (CE+/-)	0.56
Radium (Bq/L)	0.00
Radium (CE+/-)	0.02
Strontium (pCi/L)	-3.33
Strontium (CE+/-)	6.70
Technetium 99 (pCi/L)	127.00
Technetium 99 (CE+/-)	63.00
Thorium 234 (pCi/l)	511.00
Thorium 234 (CE +/-)	710.00
Tritium (Bq/L)	46.00
Tritium (CE+/-)	26.00
Uranium 234 (pCi/L)	0.18
Uranium 234 (CE+/-)	0.37
Uranium 235 (pCi/L)	33.10
Uranium 235 (CE+/-)	91.00
Uranium 238 (pCi/L)	0.00
Uranium 238 (CE+/-)	0.63

APPENDIX I.4

6

Equipment Rinsate Data Summary, Third Quarter 1994

Sampling Group	ER BC 1		ER BC 2	ER BC 3	ER BC 5	ER BC 6	ER BC 8	ER BC 9
Associated Well	GW-276	GW-713	GW-315	GW-537	GW-370	GW-047	GW-061	GW-684
Pump Number	8	6	11	4	11	10	7	8
VOLATILE ORGANICS (ug/L)	.	.	.	.	.	.	.	.
	.	.	.	.	.	.	.	.
2-Butanone	10U	10U	10U	10U	10U	10U	8	10U
Methylene chloride	10U	2	10U	10U	10U	10U	10U	10U
	.	.	.	.	.	.	.	.
NITRATE/METALS (mg/L)	.	.	.	.	.	.	.	.
	.	.	.	.	.	.	.	.
Nitrate (as N)	0.43	<0.2	.	.	.	.	.	.
Aluminum	<0.02	<0.02	.	.	.	.	.	.
Antimony	<0.05	<0.05	.	.	.	.	.	.
Arsenic	<0.05	<0.05	.	.	.	.	.	.
Barium	0.025	<0.001	.	.	.	.	.	.
Beryllium	<0.0003	<0.0003	.	.	.	.	.	.
Boron	0.037	0.016	.	.	.	.	.	.
Cadmium	<0.003	<0.003	.	.	.	.	.	.
Calcium	29	0.65	.	.	.	.	.	.
Chromium	<0.01	<0.01	.	.	.	.	.	.
Cobalt	<0.005	<0.005	.	.	.	.	.	.
Copper	<0.004	<0.004	.	.	.	.	.	.
Iron	<0.005	<0.005	.	.	.	.	.	.
Magnesium	8.1	0.13	.	.	.	.	.	.
Manganese	<0.001	<0.001	.	.	.	.	.	.
Molybdenum	<0.01	<0.01	.	.	.	.	.	.
Nickel	<0.01	<0.01	.	.	.	.	.	.
Potassium	1.3	<0.6	.	.	.	.	.	.
Selenium	<0.05	0.056	.	.	.	.	.	.
Silver	<0.006	<0.006	.	.	.	.	.	.
Sodium	3.8	0.17	.	.	.	.	.	.
Strontium	0.074	0.013	.	.	.	.	.	.
Thorium	<0.2	<0.2	.	.	.	.	.	.
Vanadium	<0.005	<0.005	.	.	.	.	.	.
Zinc	0.56	0.0088	.	.	.	.	.	.

APPENDIX I.4

7

Equipment Rinsate Data Summary, Third Quarter 1994

Sampling Group . Associated Well . Pump Number	ER BC 1		ER BC 5
	GW-276	GW-713	GW-370
	8	6	11
Gross Alpha (pCi/L)	4.48	-2.01	-0.28
Gross Alpha (CE+/-)	2.60	1.50	0.79
Gross Beta (pCi/L)	11.40	-2.06	-1.00
Gross Beta (CE+/-)	3.50	2.60	2.40
	.	.	.
RADIONUCLIDES	.	.	.
	.	.	.
Americium 241 (pCi/L)	0.37	0.72	1.26
Americium 241 (CE+/-)	0.73	1.00	1.50
Iodine 129 (Bq/L)	0.10	0.10	0.02
Iodine 129 (CE +/-)	1.30	1.00	0.95
Iodine 131 (Bq/L)	.	.	0.01
Iodine 131 (CE +/-)	.	.	0.10
Neptunium 237 (pCi/L)	0.00	0.16	0.00
Neptunium 237 (CE+/-)	0.60	0.33	0.67
Plutonium 238 (pCi/L)	0.00	0.00	0.21
Plutonium 238 (CE+/-)	0.66	0.62	0.42
Plutonium 239 (pCi/L)	0.00	0.18	-0.21
Plutonium 239 (CE+/-)	0.66	0.36	0.84
Radium (Bq/L)	-0.00	-0.00	0.02
Radium (CE+/-)	0.01	0.01	0.04
Strontium (pCi/L)	-37.70	-43.20	47.90
Strontium (CE+/-)	23.00	23.00	26.00
Technetium 99 (pCi/L)	40.10	53.70	83.00
Technetium 99 (CE+/-)	38.00	38.00	39.00
Thorium 234 (pCi/l)	663.00	.	.
Thorium 234 (CE +/-)	480.00	.	.
Tritium (Bq/L)	31.00	-2.00	25.00
Tritium (CE+/-)	26.00	23.00	24.00
Uranium 234 (pCi/L)	3.43	0.13	0.00
Uranium 234 (CE+/-)	1.30	0.27	0.51
Uranium 235 (pCi/L)	21.90	-57.60	5.50
Uranium 235 (CE+/-)	92.00	95.00	120.00
Uranium 238 (pCi/L)	4.89	0.00	0.00
Uranium 238 (CE+/-)	1.50	0.47	0.36

Equipment Rinsate Data Summary, Fourth Quarter 1994

Sampling Group	ER BC 2	ER BC 3	ER BC 4			ER BC 5	ER BC 6	ER BC 7
Associated Well	GW-315	GW-537	GW-723	GW-736	GW-737	GW-370	GW-795	GW-694
Pump Number	7	7	2	6	8	6	11	4
VOLATILE ORGANICS (ug/L)	.	.	.	.	.	.	.	.
Acetone	25	10U	12	10U	10U	10U	10U	10U
2-Butanone	10U	10U	7	8	10U	10U	10U	10U
RADIOCHEMISTRY	.	.	.	.	.	.	.	.
Gross Alpha (pCi/L)	.	.	.	.	.	0.545	.	.
Gross Alpha (CE+/-)	.	.	.	.	.	0.87	.	.
Gross Beta (pCi/L)	.	.	.	.	.	-1.59	.	.
Gross Beta (CE+/-)	.	.	.	.	.	2.3	.	.
Americium 241 (pCi/L)	.	.	.	.	.	0	.	.
Americium 241 (CE+/-)	.	.	.	.	.	2.5	.	.
Neptunium 237 (pCi/L)	.	.	.	.	.	0.324	.	.
Neptunium 237 (CE+/-)	.	.	.	.	.	0.46	.	.
Plutonium 238 (pCi/L)	.	.	.	.	.	0.151	.	.
Plutonium 238 (CE+/-)	.	.	.	.	.	0.3	.	.
Plutonium 239 (pCi/L)	.	.	.	.	.	0	.	.
Plutonium 239 (CE+/-)	.	.	.	.	.	0.52	.	.
Radium (Bq/L)	.	.	.	.	.	0.04	.	.
Radium (CE+/-)	.	.	.	.	.	0.044	.	.
Strontium (pCi/L)	.	.	.	.	.	15.8	.	.
Strontium (CE+/-)	.	.	.	.	.	29	.	.
Technetium 99 (pCi/L)	.	.	.	.	.	37.9	.	.
Technetium 99 (CE+/-)	.	.	.	.	.	38	.	.
Tritium (Bq/L)	.	.	.	.	.	8.3	.	.
Tritium (CE+/-)	.	.	.	.	.	9.4	.	.
Uranium 234 (pCi/L)	.	.	.	.	.	-0.133	.	.
Uranium 234 (CE+/-)	.	.	.	.	.	0.53	.	.
Uranium 235 (pCi/L)	.	.	.	.	.	29.5	.	.
Uranium 235 (CE+/-)	.	.	.	.	.	92	.	.
Uranium 238 (pCi/L)	.	.	.	.	.	0.133	.	.
Uranium 238 (CE+/-)	.	.	.	.	.	0.27	.	.

(CONTINUED)

Equipment Rinsate Data Summary, Fourth Quarter 1994

Sampling Group	ER BC 7	ER BC 8
• Associated Well	GW-706	GW-061
• Pump Number	5	7
VOLATILE ORGANICS (ug/L)	.	.
	.	.
Acetone	10U	10U
2-Butanone	10U	10U
	.	.
RADIOCHEMISTRY	.	.
	.	.
Gross Alpha (pCi/L)	.	.
Gross Alpha (CE+/-)	.	.
Gross Beta (pCi/L)	.	.
Gross Beta (CE+/-)	.	.
Americium 241 (pCi/L)	.	.
Americium 241 (CE+/-)	.	.
Neptunium 237 (pCi/L)	.	.
Neptunium 237 (CE+/-)	.	.
Plutonium 238 (pCi/L)	.	.
Plutonium 238 (CE+/-)	.	.
Plutonium 239 (pCi/L)	.	.
Plutonium 239 (CE+/-)	.	.
Radium (Bq/L)	.	.
Radium (CE+/-)	.	.
Strontium (pCi/L)	.	.
Strontium (CE+/-)	.	.
Technetium 99 (pCi/L)	.	.
Technetium 99 (CE+/-)	.	.
Tritium (Bq/L)	.	.
Tritium (CE+/-)	.	.
Uranium 234 (pCi/L)	.	.
Uranium 234 (CE+/-)	.	.
Uranium 235 (pCi/L)	.	.
Uranium 235 (CE+/-)	.	.
Uranium 238 (pCi/L)	.	.
Uranium 238 (CE+/-)	.	.

APPENDIX I.5

FIELD BLANK DATA SUMMARY

APPENDIX I.5
Field Blank Data Summary, 1994

1

Sampling Group	FB BC 1		FB BC 3
Date Sampled	02/18/94	08/22/94	12/16/94
VOLATILE ORGANICS (ug/L)	.	.	.
	.	.	.
Bromodichloromethane	5U	5	10U
Chloroform	5U	32	10U
1,2-Dichloropropane	5U	3	10U
	.	.	.
NITRATE/METALS (mg/L)	.	.	.
	.	.	.
Nitrate (as N)	<0.2	0.43	<0.2
Aluminum	<0.02	<0.02	0.059
Antimony	<0.05	<0.05	<0.05
Arsenic	<0.05	<0.05	<0.05
Barium	<0.001	0.027	<0.001
Beryllium	<0.0003	<0.0003	<0.0003
Boron	0.013	0.048	0.029
Cadmium	<0.003	<0.003	<0.003
Calcium	<0.008	30	1.3
Chromium	<0.01	<0.01	<0.01
Cobalt	<0.005	<0.005	<0.005
Copper	0.0049	<0.004	0.0073
Iron	<0.005	<0.005	0.013
Magnesium	0.0038	8.2	1.5
Manganese	<0.001	<0.001	<0.001
Molybdenum	<0.01	<0.01	<0.01
Nickel	<0.01	<0.01	<0.01
Potassium	<0.6	1.4	0.84
Selenium	<0.05	<0.05	<0.05
Silver	<0.006	<0.006	<0.006
Sodium	0.043	3.9	3.3
Strontium	<0.0004	0.076	0.0027
Thorium	<0.2	<0.2	<0.2
Vanadium	<0.005	<0.005	<0.005
Zinc	<0.002	0.94	0.018
	.	.	.
RADIOCHEMISTRY (pCi/L)	.	.	.
	.	.	.
Gross Alpha (pCi/L)	-0.141	-2.8	0.351
Gross Alpha (CE+/-)	0.82	2	1
Gross Beta (pCi/L)	0.58	-0.741	91.8
Gross Beta (CE+/-)	2.6	3.3	11

APPENDIX J

VALIDATED RESULTS OF VOLATILE ORGANIC COMPOUND ANALYSES

EXPLANATION

SAMPLING POINT:

BCK	-	Bear Creek Kilometer
GW	-	Monitoring Well
NT	-	Northern Tributary
SS	-	Spring

UNIT:

AQF	-	Knox Aquifer
AQT	-	ORR Aquitard

LOCATION:

AGLLSF	-	Above Grade Low-Level Storage Facility
BG	-	Bear Creek Burial Grounds WMA
EXP	-	Exit Pathway Monitoring Location: Maynardville Limestone Transverse (-A, -B, -C, -W) Spring or Surface Water Sampling Location (-SW)
OLF	-	Oil Landfarm WMA
RS	-	Rust Spoil Area
S3	-	S-3 Site
SPI	-	Spoil Area I

NOTES:

All results in micrograms per liter (ug/L).

FP1	-	False Positive result, screened by laboratory blank
FP2	-	False Positive result, screened by trip blank
.	-	Compound not detected at the reported minimum attainable detection limit.

Results of VOC analyses reported for each groundwater sample were evaluated using results for each associated laboratory and trip blank sample to identify false positives (i.e., results that are probable artifacts of the groundwater sampling or analysis procedures). To identify the false positives, the maximum concentration of each VOC detected in either blank sample (Appendix I) is multiplied by a qualification factor to determine the blank qualification result (BQR) for the compound. A factor of 5 is used for most compounds and a factor of 10 is used for the common laboratory reagents methylene chloride, acetone, 2-butanone, and toluene (U.S. Environmental Protection Agency 1988b). If a compound detected in the blank samples is also detected in an associated groundwater sample, the concentration reported for the groundwater sample (Appendix E) is compared to the corresponding BQR. If the concentration of the compound in the groundwater sample is at or below the BQR, the result is considered a false positive and is excluded from the summed VOC concentration determined for the sample.

Anomalous VOC results were not identified for this report. In the Part 1 GWQR for CY 1993, a result was assumed to be anomalous if a compound was detected in only one of at least four consecutive samples collected at a sampling point. For CY 1994, anomalous VOC results will be identified in part 2 of the GWQR.

APPENDIX J
Validated VOC Results, 1994

1

Sampling Point . Unit . Location . Date Sampled	GW-040				GW-042			
	AQT				AQT			
	BG				BG			
	03/08/94	05/17/94	08/22/94	11/09/94	03/11/94	05/17/94	08/23/94	11/23/94
Acetone	.	.	.	.	.	.	.	.
Benzene	.	.	.	.	.	.	.	.
Bromodichloromethane	.	.	.	.	.	.	.	.
Bromoform	.	.	.	.	.	.	.	.
Bromomethane	.	.	.	.	.	.	.	.
2-Butanone	.	.	.	.	.	.	.	FP1
Carbon disulfide	.	.	.	.	.	.	.	.
Carbon tetrachloride	.	.	.	.	.	.	.	.
Chlorobenzene	.	.	.	.	.	.	.	.
Chlorodibromomethane	.	.	.	.	.	.	.	.
Chloroethane	.	.	.	.	.	.	.	.
Chloroform	.	.	.	.	.	.	.	.
Chloromethane	.	.	.	.	.	.	.	.
1,1-Dichloroethane	.	.	.	.	.	.	.	.
1,2-Dichloroethane	.	.	.	.	.	.	.	.
1,1-Dichloroethene	.	.	.	.	.	.	.	.
1,2-Dichloroethene	.	.	.	.	.	.	.	.
1,2-Dichloropropane	.	.	.	.	.	.	.	.
cis-1,3-Dichloropropene	.	.	.	.	.	.	.	.
trans-1,3-Dichloropropene	.	.	.	.	.	.	.	.
Ethylbenzene	.	.	.	.	.	.	.	.
2-Hexanone	.	.	.	.	.	.	.	.
4-Methyl-2-pentanone	.	.	.	.	.	.	.	.
Methylene chloride	.	.	.	.	FP1	.	.	.
Styrene	.	.	.	.	.	.	.	.
1,1,2,2-Tetrachloroethane	.	.	.	.	.	.	.	.
Tetrachloroethene	.	.	.	.	.	.	.	.
Toluene	.	.	.	.	.	.	.	.
1,1,1-Trichloroethane	.	.	.	.	.	.	.	.
1,1,2-Trichloroethane	.	.	.	.	.	.	.	.
Trichloroethene	.	.	.	.	.	.	.	.
Vinyl acetate	.	.	.	.	.	.	.	.
Vinyl chloride	.	.	.	.	.	.	.	.
Xylenes	.	.	.	.	.	.	.	.

(CONTINUED)

APPENDIX J
Validated VOC Results, 1994

2

Sampling Point . Unit . Location . Date Sampled	GW-043				GW-044			
	AQT				AQT			
	OLF				OLF			
	02/08/94	06/21/94	08/31/94	11/30/94	02/08/94	06/21/94	08/31/94	11/30/94
Acetone	.	.	.	.	.	.	.	.
Benzene	.	.	.	.	.	.	.	.
Bromodichloromethane	.	.	.	.	.	.	.	.
Bromoform	.	.	.	.	.	.	.	.
Bromomethane	.	.	.	.	.	.	.	.
2-Butanone	.	.	.	.	.	.	.	.
Carbon disulfide	.	.	.	.	.	.	.	.
Carbon tetrachloride	.	.	.	.	.	.	.	.
Chlorobenzene	.	.	.	.	.	.	.	.
Chlorodibromomethane	.	.	.	.	.	.	.	.
Chloroethane	.	.	.	.	.	.	.	.
Chloroform	.	.	.	.	.	.	.	.
Chloromethane	.	.	.	.	.	.	.	.
1,1-Dichloroethane	.	.	.	.	.	.	.	.
1,2-Dichloroethane	.	.	.	.	.	.	.	.
1,1-Dichloroethene	.	.	.	.	.	.	.	.
1,2-Dichloroethene	.	.	.	.	.	.	.	.
1,2-Dichloropropane	.	.	.	.	.	.	.	.
cis-1,3-Dichloropropene	.	.	.	.	.	.	.	.
trans-1,3-Dichloropropene	.	.	.	.	.	.	.	.
Ethylbenzene	.	.	.	.	.	.	.	.
2-Hexanone	.	.	.	.	.	.	.	.
4-Methyl-2-pentanone	.	.	.	.	.	.	.	.
Methylene chloride	.	.	.	.	.	.	.	.
Styrene	.	.	.	.	.	.	.	.
1,1,2,2-Tetrachloroethane	.	.	.	.	.	.	.	.
Tetrachloroethene	.	.	.	.	.	.	.	.
Toluene	.	.	.	.	.	.	.	.
1,1,1-Trichloroethane	.	.	.	.	.	.	.	.
1,1,2-Trichloroethane	.	.	.	.	.	.	.	.
Trichloroethene	.	.	.	.	.	.	.	.
Vinyl acetate	.	.	.	.	.	.	.	.
Vinyl chloride	.	.	.	.	.	.	.	.
Xylenes	.	.	.	.	.	.	.	.

(CONTINUED)

APPENDIX J
Validated VOC Results, 1994

3

Sampling Point . Unit . Location . Date Sampled	GW-047				GW-053			
	AQT				AQF			
	BG				BG			
	03/24/94	05/31/94	08/09/94	11/08/94	03/10/94	06/24/94	09/15/94	12/12/94
Acetone	.	.	.	.	.	.	6	.
Benzene	.	.	.	.	.	.	.	.
Bromodichloromethane	.	.	.	.	.	.	.	.
Bromoform	.	.	.	.	.	.	.	.
Bromomethane	.	.	.	.	.	.	.	.
2-Butanone	.	.	.	.	.	.	16	.
Carbon disulfide	.	.	.	.	.	.	.	.
Carbon tetrachloride	.	.	.	.	.	.	.	.
Chlorobenzene	.	.	.	.	.	.	.	.
Chlorodibromomethane	.	.	.	.	.	.	.	.
Chloroethane	.	.	.	.	.	.	.	.
Chloroform	.	.	.	.	.	.	.	.
Chloromethane	.	.	.	.	.	.	.	.
1,1-Dichloroethane	.	.	.	.	6	7	8	8
1,2-Dichloroethane	.	.	.	.	.	.	.	.
1,1-Dichloroethene	.	.	.	.	.	.	.	.
1,2-Dichloroethene	.	.	.	.	10	15	18	18
1,2-Dichloropropane	.	.	.	.	.	.	.	.
cis-1,3-Dichloropropene	.	.	.	.	.	.	.	.
trans-1,3-Dichloropropene	.	.	.	.	.	.	.	.
Ethylbenzene	.	.	.	.	.	.	.	.
2-Hexanone	.	.	.	.	.	.	.	.
4-Methyl-2-pentanone	.	.	.	.	.	.	.	.
Methylene chloride	.	.	.	.	.	.	.	.
Styrene	.	.	.	.	.	.	.	.
1,1,2,2-Tetrachloroethane	.	.	.	.	.	.	.	.
Tetrachloroethene	.	.	.	.	.	0.7	1	1
Toluene	.	.	.	.	.	.	.	.
1,1,1-Trichloroethane	.	.	.	.	.	.	.	.
1,1,2-Trichloroethane	.	.	.	.	.	.	.	.
Trichloroethene	.	.	.	.	1	2	3	3
Vinyl acetate	.	.	.	.	.	.	.	.
Vinyl chloride	.	.	.	.	8	11	7	9
Xylenes	.	.	.	.	.	.	.	.

(CONTINUED)

APPENDIX J
Validated VOC Results, 1994

4

Sampling Point	GW-056		GW-057		GW-061			
Unit	AQF		AQF		AQF			
Location	EXP-A		EXP-A		BG			
Date Sampled	02/26/94	09/14/94	02/26/94	09/14/94	03/21/94	06/24/94	09/15/94	12/12/94
Acetone	.	.	.	.	.	.	6	.
Benzene	.	.	.	.	.	.	.	.
Bromodichloromethane	.	.	.	.	.	.	.	.
Bromoform	.	.	.	.	.	.	.	.
Bromomethane	.	.	.	.	.	.	.	.
2-Butanone	.	.	.	.	.	.	8	.
Carbon disulfide	.	.	.	.	.	.	.	.
Carbon tetrachloride	.	.	.	.	.	.	.	.
Chlorobenzene	.	.	.	.	.	.	.	.
Chlorodibromomethane	.	.	.	.	.	.	.	.
Chloroethane	.	.	.	.	.	.	.	.
Chloroform	.	.	.	.	.	.	.	.
Chloromethane	.	.	.	.	.	.	.	.
1,1-Dichloroethane	.	.	.	.	.	.	.	.
1,2-Dichloroethane	.	.	.	.	.	.	.	.
1,1-Dichloroethene	.	.	.	.	.	.	.	.
1,2-Dichloroethene	.	.	.	.	.	.	.	.
1,2-Dichloropropane	.	.	.	.	.	.	.	.
cis-1,3-Dichloropropene	.	.	.	.	.	.	.	.
trans-1,3-Dichloropropene	.	.	.	.	.	.	.	.
Ethylbenzene	.	.	.	.	.	.	.	.
2-Hexanone	.	.	.	.	.	.	.	.
4-Methyl-2-pentanone	.	.	.	.	.	.	.	.
Methylene chloride	.	.	.	.	.	.	.	.
Styrene	.	.	.	.	.	.	.	.
1,1,2,2-Tetrachloroethane	.	.	.	.	.	.	.	.
Tetrachloroethene	.	.	.	.	.	.	.	.
Toluene	.	.	.	.	.	.	.	.
1,1,1-Trichloroethane	.	.	.	.	.	.	.	.
1,1,2-Trichloroethane	.	.	.	.	.	.	.	.
Trichloroethene	.	.	.	.	.	0.7	.	.
Vinyl acetate	.	.	.	.	.	.	.	.
Vinyl chloride	.	.	.	.	.	.	.	.
Xylenes	.	.	.	.	.	.	.	.

(CONTINUED)

APPENDIX J
Validated VOC Results, 1994

5

Sampling Point . Unit . Location . Date Sampled	GW-064				GW-069			
	AQF				AQT			
	OLF				BG			
	02/10/94	06/23/94	09/01/94	12/15/94	03/11/94	06/08/94	09/09/94	12/06/94
Acetone	.	.	.	.	.	.	.	.
Benzene	.	.	.	.	.	.	.	.
Bromodichloromethane	.	.	.	.	.	.	.	.
Bromoform	.	.	.	.	.	.	.	.
Bromomethane	.	.	.	.	.	.	.	.
2-Butanone	.	.	.	.	.	.	.	.
Carbon disulfide	.	.	.	.	.	.	.	.
Carbon tetrachloride	2	1	.	2	.	.	.	.
Chlorobenzene	.	.	.	.	.	.	.	.
Chlorodibromomethane	.	.	.	.	.	.	.	.
Chloroethane	.	.	.	.	.	.	.	.
Chloroform	2	2	.	2	.	.	.	.
Chloromethane	.	.	.	.	.	.	.	.
1,1-Dichloroethane	.	.	.	.	.	.	.	.
1,2-Dichloroethane	.	.	.	.	.	.	.	.
1,1-Dichloroethene	.	.	.	.	.	.	.	.
1,2-Dichloroethene	6	5	6	7	.	.	.	.
1,2-Dichloropropane	.	.	.	.	.	.	.	.
cis-1,3-Dichloropropene	.	.	.	.	.	.	.	.
trans-1,3-Dichloropropene	.	.	.	.	.	.	.	.
Ethylbenzene	.	.	.	.	.	.	.	.
2-Hexanone	.	.	.	.	.	.	.	.
4-Methyl-2-pentanone	.	.	.	.	.	.	.	.
Methylene chloride	.	.	.	.	.	.	.	.
Styrene	.	.	.	.	.	.	.	.
1,1,2,2-Tetrachloroethane	.	.	.	.	.	.	.	.
Tetrachloroethene	2	1	.	.	.	.	.	.
Toluene	.	.	.	.	.	.	.	.
1,1,1-Trichloroethane	0.8	0.7	.	.	.	.	.	.
1,1,2-Trichloroethane	.	.	.	.	.	.	.	.
Trichloroethene	84	64	81	78	.	.	.	.
Vinyl acetate	.	.	.	.	.	.	.	.
Vinyl chloride	.	.	.	.	2	2	2	.
Xylenes	.	.	.	.	.	.	.	.

(CONTINUED)

APPENDIX J
Validated VOC Results, 1994

6

Sampling Point . Unit . Location . Date Sampled	GW-079				GW-080			
	AQT				AQT			
	BG				BG			
	03/09/94	06/07/94	09/12/94	12/06/94	03/09/94	06/07/94	09/09/94	12/06/94
Acetone	.	.	.	.	.	.	.	.
Benzene	.	.	.	.	.	.	.	.
Bromodichloromethane	.	.	.	.	.	.	.	.
Bromoform	.	.	.	.	.	.	.	.
Bromomethane	.	.	.	.	.	.	.	.
2-Butanone	.	.	.	.	.	.	.	.
Carbon disulfide	.	.	.	.	.	.	.	.
Carbon tetrachloride	.	.	.	.	.	.	.	.
Chlorobenzene	.	.	.	.	.	.	.	.
Chlorodibromomethane	.	.	.	.	.	.	.	.
Chloroethane	.	.	.	.	.	.	.	.
Chloroform	.	.	.	.	.	.	.	.
Chloromethane	.	.	.	.	.	.	.	.
1,1-Dichloroethane	.	.	.	.	.	.	.	.
1,2-Dichloroethane	.	.	.	.	.	.	.	.
1,1-Dichloroethene	.	.	.	.	.	.	.	.
1,2-Dichloroethene	.	.	.	.	.	.	.	.
1,2-Dichloropropane	.	.	.	.	.	.	.	.
cis-1,3-Dichloropropene	.	.	.	.	.	.	.	.
trans-1,3-Dichloropropene	.	.	.	.	.	.	.	.
Ethylbenzene	.	.	.	.	.	.	.	.
2-Hexanone	.	.	.	.	.	.	.	.
4-Methyl-2-pentanone	.	.	.	.	.	.	.	.
Methylene chloride	.	.	.	.	.	.	.	.
Styrene	.	.	.	.	.	.	.	.
1,1,2,2-Tetrachloroethane	.	.	.	.	.	.	.	.
Tetrachloroethene	.	.	.	.	.	.	.	.
Toluene	.	.	.	.	.	.	.	.
1,1,1-Trichloroethane	.	.	.	.	.	.	.	.
1,1,2-Trichloroethane	.	.	.	.	.	.	.	.
Trichloroethene	.	.	.	.	.	.	.	.
Vinyl acetate	.	.	.	.	.	.	.	.
Vinyl chloride	.	.	.	.	.	.	.	.
Xylenes	.	.	.	.	.	.	.	.

(CONTINUED)

APPENDIX J
Validated VOC Results, 1994

7

Sampling Point . Unit . Location . Date Sampled	GW-084				GW-085			
	AQT				AQT			
	OLF				OLF			
	02/08/94	06/21/94	09/01/94	11/30/94	02/11/94	06/24/94	09/07/94	12/15/94
Acetone	.	.	.	.	.	.	.	.
Benzene	.	.	.	.	.	.	.	.
Bromodichloromethane	.	.	.	.	.	3	.	2
Bromoform	.	.	.	.	.	.	.	.
Bromomethane	.	.	.	.	.	.	.	.
2-Butanone	.	.	.	.	.	.	.	.
Carbon disulfide	.	.	.	.	.	.	.	.
Carbon tetrachloride	.	.	.	.	.	.	.	.
Chlorobenzene	.	.	.	.	.	.	.	.
Chlorodibromomethane	.	.	.	.	.	.	.	.
Chloroethane	.	.	.	.	.	.	.	.
Chloroform	.	.	.	.	.	25	.	15
Chloromethane	.	.	.	.	.	.	.	.
1,1-Dichloroethane	.	.	.	.	.	.	.	.
1,2-Dichloroethane	.	.	.	.	.	.	.	.
1,1-Dichloroethene	.	.	.	.	.	.	.	.
1,2-Dichloroethene	.	.	.	.	.	.	.	.
1,2-Dichloropropane	.	.	.	.	.	.	.	.
cis-1,3-Dichloropropene	.	.	.	.	.	.	.	.
trans-1,3-Dichloropropene	.	.	.	.	.	.	.	.
Ethylbenzene	.	.	.	.	.	.	.	.
2-Hexanone	.	.	.	.	.	.	.	.
4-Methyl-2-pentanone	.	.	.	.	.	.	.	.
Methylene chloride	FP2	.	.	.	.	.	.	.
Styrene	.	.	.	.	.	.	.	.
1,1,2,2-Tetrachloroethane	.	.	.	.	.	.	.	.
Tetrachloroethene	.	.	.	.	.	.	.	.
Toluene	.	.	.	.	.	.	.	.
1,1,1-Trichloroethane	.	.	.	.	.	.	.	.
1,1,2-Trichloroethane	.	.	.	.	.	.	.	.
Trichloroethene	.	.	.	.	.	.	.	.
Vinyl acetate	.	.	.	.	.	.	.	.
Vinyl chloride	.	.	.	.	.	.	.	.
Xylenes	.	.	.	.	.	.	.	.

(CONTINUED)

APPENDIX J
Validated VOC Results, 1994

8

Sampling Point . Unit . Location . Date Sampled	GW-095				GW-115		GW-162	
	AQF				AQT		AQT	
	BG				S3		BG	
	03/10/94	06/28/94	09/12/94	12/05/94	02/17/94	08/15/94	03/08/94	05/18/94
Acetone	.	.	.	.	.	.	.	.
Benzene	.	.	.	.	.	.	.	.
Bromodichloromethane	.	.	.	.	.	.	.	.
Bromoform	.	.	.	.	.	.	.	.
Bromomethane	.	.	.	.	.	.	.	.
2-Butanone	.	.	.	.	.	.	.	.
Carbon disulfide	.	.	.	.	.	.	.	.
Carbon tetrachloride	.	.	.	.	.	.	.	.
Chlorobenzene	.	.	.	.	.	.	.	.
Chlorodibromomethane	.	.	.	.	.	.	.	.
Chloroethane	.	.	.	.	.	.	.	.
Chloroform	.	.	.	.	.	.	.	.
Chloromethane	.	.	.	.	.	.	.	.
1,1-Dichloroethane	.	.	.	.	.	.	.	.
1,2-Dichloroethane	.	.	.	.	.	.	.	.
1,1-Dichloroethene	.	.	.	.	.	.	.	.
1,2-Dichloroethene	.	.	.	.	.	.	.	.
1,2-Dichloropropane	.	.	.	.	.	.	.	.
cis-1,3-Dichloropropene	.	.	.	.	.	.	.	.
trans-1,3-Dichloropropene	.	.	.	.	.	.	.	.
Ethylbenzene	.	.	.	.	.	.	.	.
2-Hexanone	.	.	.	.	.	.	.	.
4-Methyl-2-pentanone	.	.	.	.	.	.	.	.
Methylene chloride	.	.	.	.	.	.	.	.
Styrene	.	.	.	.	.	.	.	.
1,1,2,2-Tetrachloroethane	.	.	.	.	.	.	.	.
Tetrachloroethene	.	.	.	.	.	.	.	.
Toluene	.	.	.	.	.	.	.	.
1,1,1-Trichloroethane	.	.	.	.	.	.	.	.
1,1,2-Trichloroethane	.	.	.	.	.	.	.	.
Trichloroethene	.	.	.	.	.	.	.	.
Vinyl acetate	.	.	.	.	.	.	.	.
Vinyl chloride	.	.	.	.	.	.	.	.
Xylenes	.	.	.	.	.	.	.	.

(CONTINUED)

APPENDIX J
Validated VOC Results, 1994

9

Sampling Point . Unit . Location . Date Sampled	GW-162		GW-243	GW-276		GW-287		
	AQT		AQT	AQT		AQT		
	BG		S3	S3		BG		
	08/22/94	11/07/94	03/30/94	03/30/94	08/20/94	03/09/94	06/09/94	09/13/94
Acetone	.	.	.	.	.	.	.	.
Benzene	.	.	.	.	.	.	.	.
Bromodichloromethane	.	.	.	.	.	.	.	.
Bromoform	.	.	.	.	.	.	.	.
Bromomethane	.	.	.	.	.	.	.	.
2-Butanone	.	.	.	.	.	.	.	.
Carbon disulfide	.	.	.	.	.	.	.	.
Carbon tetrachloride	.	.	.	.	.	.	.	.
Chlorobenzene	.	.	.	.	.	.	.	.
Chlorodibromomethane	.	.	.	.	.	.	.	.
Chloroethane	.	.	.	.	.	.	.	.
Chloroform	.	.	.	1	1	.	.	.
Chloromethane	.	.	.	.	.	.	.	.
1,1-Dichloroethane	.	.	.	.	.	.	.	.
1,2-Dichloroethane	.	.	.	.	.	.	.	.
1,1-Dichloroethene	.	.	.	.	.	.	.	.
1,2-Dichloroethene	.	.	75	.	.	.	.	.
1,2-Dichloropropane	.	.	.	.	.	.	.	.
cis-1,3-Dichloropropene	.	.	.	.	.	.	.	.
trans-1,3-Dichloropropene	.	.	.	.	.	.	.	.
Ethylbenzene	.	.	.	.	.	.	.	.
2-Hexanone	.	.	.	.	.	.	.	.
4-Methyl-2-pentanone	.	.	.	.	.	.	.	.
Methylene chloride	.	.	370	.	.	.	.	.
Styrene	.	.	.	.	.	.	.	.
1,1,2,2-Tetrachloroethane	.	.	.	.	.	.	.	.
Tetrachloroethene	.	.	7900	52	43	2	2	.
Toluene	.	.	.	.	.	.	.	.
1,1,1-Trichloroethane	.	.	.	.	.	.	.	.
1,1,2-Trichloroethane	.	.	.	.	.	.	.	.
Trichloroethene	.	.	.	.	.	.	.	.
Vinyl acetate	.	.	.	.	.	.	.	.
Vinyl chloride	.	.	.	.	.	.	.	.
Xylenes	.	.	.	.	.	.	.	.

(CONTINUED)

APPENDIX J
Validated VOC Results, 1994

10

Sampling Point	GW-287	GW-311				GW-312		
Unit	AQT	AQF				AQF		
Location	BG	RS				RS		
Date Sampled	12/07/94	02/09/94	06/22/94	09/06/94	12/14/94	02/09/94	06/23/94	09/06/94
Acetone	.	.	.	.	.	.	.	.
Benzene	.	.	.	.	.	.	.	.
Bromodichloromethane	.	.	.	.	.	.	.	.
Bromoform	.	.	.	.	.	.	.	.
Bromomethane	.	.	.	.	.	.	.	.
2-Butanone	.	.	.	.	.	.	.	.
Carbon disulfide	.	.	.	.	.	.	.	.
Carbon tetrachloride	.	0.7	1	1	.	.	.	.
Chlorobenzene	.	.	.	.	.	.	.	.
Chlorodibromomethane	.	.	.	.	.	.	.	.
Chloroethane	.	.	.	.	.	.	.	.
Chloroform	.	0.8	1	1	1	1	1	1
Chloromethane	.	.	.	.	.	.	.	.
1,1-Dichloroethane	.	.	.	.	.	.	.	.
1,2-Dichloroethane	.	.	.	.	.	.	.	.
1,1-Dichloroethene	.	.	.	.	.	.	.	.
1,2-Dichloroethene	.	.	.	.	.	.	.	.
1,2-Dichloropropane	.	.	.	.	.	.	.	.
cis-1,3-Dichloropropene	.	.	.	.	.	.	.	.
trans-1,3-Dichloropropene	.	.	.	.	.	.	.	.
Ethylbenzene	.	.	.	.	.	.	.	.
2-Hexanone	.	.	.	.	.	.	.	.
4-Methyl-2-pentanone	.	.	.	.	.	.	.	.
Methylene chloride	.	.	.	.	.	.	.	.
Styrene	.	.	.	.	.	.	.	.
1,1,2,2-Tetrachloroethane	.	.	.	.	.	.	.	.
Tetrachloroethene	.	.	.	.	.	.	.	.
Toluene	.	.	.	.	.	.	.	.
1,1,1-Trichloroethane	.	.	.	.	.	.	.	.
1,1,2-Trichloroethane	.	.	.	.	.	.	.	.
Trichloroethene	.	10	18	19	18	80	59	56
Vinyl acetate	.	.	.	.	.	.	.	.
Vinyl chloride	.	.	.	.	.	.	.	.
Xylenes	.	.	.	.	.	.	.	.

(CONTINUED)

APPENDIX J
Validated VOC Results, 1994

11

Sampling Point	GW-312	GW-315				GW-317		
Unit	AQF	AQF				AQF		
Location	RS	SPI				SPI		
Date Sampled	12/14/94	02/17/94	06/20/94	08/30/94	12/05/94	02/17/94	06/17/94	08/29/94
Acetone	.	.	.	.	.	.	.	.
Benzene	.	.	.	.	.	.	.	.
Bromodichloromethane	.	1	.	.	.	.	.	.
Bromoform	.	.	.	.	.	.	.	.
Bromomethane	.	.	.	.	.	.	.	.
2-Butanone	.	.	.	.	.	.	.	.
Carbon disulfide	.	.	.	.	.	.	.	.
Carbon tetrachloride	.	.	.	.	.	.	.	.
Chlorobenzene	.	.	.	.	.	.	.	.
Chlorodibromomethane	.	.	.	.	.	.	.	.
Chloroethane	.	.	.	.	.	.	.	.
Chloroform	2	6	2	3	2	.	.	.
Chloromethane	.	.	.	.	.	.	.	.
1,1-Dichloroethane	.	.	.	.	.	.	.	.
1,2-Dichloroethane	.	.	.	.	.	.	.	.
1,1-Dichloroethene	.	.	.	.	.	.	.	.
1,2-Dichloroethene	1	9	14	14	8	.	.	.
1,2-Dichloropropane	.	.	.	.	.	.	.	.
cis-1,3-Dichloropropene	.	.	.	.	.	.	.	.
trans-1,3-Dichloropropene	.	.	.	.	.	.	.	.
Ethylbenzene	.	.	.	.	.	.	.	.
2-Hexanone	.	.	.	.	.	.	.	.
4-Methyl-2-pentanone	.	.	.	.	.	.	.	.
Methylene chloride	.	.	.	.	.	.	.	FP2
Styrene	.	.	.	.	.	.	.	.
1,1,2,2-Tetrachloroethane	.	.	.	.	.	.	.	.
Tetrachloroethene	.	11	16	23	11	.	.	.
Toluene	.	.	.	.	.	.	.	.
1,1,1-Trichloroethane	.	.	.	.	.	.	.	.
1,1,2-Trichloroethane	.	.	.	.	.	.	.	.
Trichloroethene	71	6	11	11	6	.	.	.
Vinyl acetate	.	.	.	.	.	.	.	.
Vinyl chloride	.	.	.	.	.	.	.	.
Xylenes	.	.	.	.	.	.	.	.

(CONTINUED)

APPENDIX J
Validated VOC Results, 1994

12

Sampling Point	GW-317	GW-324	GW-325	GW-345	GW-347			
Unit	AQF	AQT	AQT	AQT	AQF			
Location	SPI	S3	S3	S3	S3			
Date Sampled	12/04/94	02/15/94	02/15/94	02/18/94	02/16/94	06/17/94	08/30/94	12/04/94
Acetone	.	.	.	.	.	.	.	.
Benzene	.	.	.	.	.	.	.	.
Bromodichloromethane	.	.	.	.	.	.	.	.
Bromoform	.	.	.	.	.	.	.	.
Bromomethane	.	.	.	.	.	.	.	.
2-Butanone	.	.	.	.	.	.	.	.
Carbon disulfide	.	.	.	.	.	.	.	.
Carbon tetrachloride	.	.	.	.	.	.	.	.
Chlorobenzene	.	.	.	.	.	.	.	.
Chlorodibromomethane	.	.	.	.	.	.	.	.
Chloroethane	.	.	.	.	.	.	.	.
Chloroform	.	.	.	.	.	.	.	.
Chloromethane	.	.	.	.	.	.	.	.
1,1-Dichloroethane	.	.	.	.	.	.	.	.
1,2-Dichloroethane	.	.	.	.	.	.	.	.
1,1-Dichloroethene	.	.	.	.	.	.	.	.
1,2-Dichloroethene	.	.	.	.	.	.	.	.
1,2-Dichloropropane	.	.	.	.	.	.	.	.
cis-1,3-Dichloropropene	.	.	.	.	.	.	.	.
trans-1,3-Dichloropropene	.	.	.	.	.	.	.	.
Ethylbenzene	.	.	.	.	.	.	.	.
2-Hexanone	.	.	.	.	.	.	.	.
4-Methyl-2-pentanone	.	.	.	.	.	.	.	.
Methylene chloride	.	.	.	.	.	.	.	.
Styrene	.	.	.	.	.	.	.	.
1,1,2,2-Tetrachloroethane	.	.	.	.	.	.	.	.
Tetrachloroethene	.	.	.	.	.	.	.	.
Toluene	.	.	.	.	.	.	.	.
1,1,1-Trichloroethane	.	.	.	.	.	.	.	.
1,1,2-Trichloroethane	.	.	.	.	.	.	.	.
Trichloroethene	.	.	.	.	.	.	.	.
Vinyl acetate	.	.	.	.	.	.	.	.
Vinyl chloride	.	.	.	.	.	.	.	.
Xylenes	.	.	.	.	.	.	.	.

(CONTINUED)

APPENDIX J
Validated VOC Results, 1994

13

Sampling Point . Unit . Location . Date Sampled	GW-348				GW-363			
	AQF				AQT			
	S3				OLF			
	02/16/94	06/20/94	08/30/94	12/05/94	03/22/94	05/26/94	07/29/94	11/02/94
Acetone	.	.	.	.	.	.	.	.
Benzene	.	.	.	.	.	.	.	.
Bromodichloromethane	.	.	.	.	.	.	.	.
Bromoform	.	.	.	.	.	.	.	.
Bromomethane	.	.	.	.	.	.	.	.
2-Butanone	.	.	.	.	.	.	.	.
Carbon disulfide	.	.	.	.	.	.	.	.
Carbon tetrachloride	.	.	.	.	.	.	.	.
Chlorobenzene	.	.	.	.	.	.	.	.
Chlorodibromomethane	.	.	.	.	.	.	.	.
Chloroethane	.	.	.	.	.	.	.	.
Chloroform	.	.	.	.	.	.	.	.
Chloromethane	.	.	.	.	.	.	.	.
1,1-Dichloroethane	.	.	.	.	.	.	.	.
1,2-Dichloroethane	.	.	.	.	.	.	.	.
1,1-Dichloroethene	.	.	.	.	.	.	.	.
1,2-Dichloroethene	.	.	.	.	.	.	.	.
1,2-Dichloropropane	.	.	.	.	.	.	.	.
cis-1,3-Dichloropropene	.	.	.	.	.	.	.	.
trans-1,3-Dichloropropene	.	.	.	.	.	.	.	.
Ethylbenzene	.	.	.	.	.	.	.	.
2-Hexanone	.	.	.	.	.	.	.	.
4-Methyl-2-pentanone	.	.	.	.	.	.	.	.
Methylene chloride	.	.	.	.	.	.	.	.
Styrene	.	.	.	.	.	.	.	.
1,1,2,2-Tetrachloroethane	.	.	.	.	.	.	.	.
Tetrachloroethene	0.9	.	.	.	.	.	.	.
Toluene	.	.	.	.	.	.	.	.
1,1,1-Trichloroethane	.	.	.	.	.	.	.	.
1,1,2-Trichloroethane	.	.	.	.	.	.	.	.
Trichloroethene	.	6	.	.	.	.	.	.
Vinyl acetate	.	.	.	.	.	.	.	.
Vinyl chloride	.	.	.	.	.	.	.	.
Xylenes	.	.	.	.	.	.	.	.

(CONTINUED)

APPENDIX J
Validated VOC Results, 1994

14

Sampling Point . Unit . Location . Date Sampled	GW-370				GW-372			
	AQT				AQT			
	BG				BG			
	03/10/94	05/24/94	08/25/94	11/09/94	03/09/94	05/19/94	08/23/94	11/08/94
Acetone	.	.	.	.	.	.	.	.
Benzene	.	.	.	.	.	.	.	.
Bromodichloromethane	.	.	.	.	.	.	.	.
Bromoform	.	.	.	.	.	.	.	.
Bromomethane	.	.	.	.	.	.	.	.
2-Butanone	.	.	.	.	.	.	.	.
Carbon disulfide	.	.	.	.	.	.	.	.
Carbon tetrachloride	.	.	.	.	.	.	.	.
Chlorobenzene	.	.	.	.	.	.	.	.
Chlorodibromomethane	.	.	.	.	.	.	.	.
Chloroethane	.	.	.	.	.	.	.	.
Chloroform	.	.	.	.	.	.	.	.
Chloromethane	.	.	.	.	.	.	.	.
1,1-Dichloroethane	.	.	.	.	.	.	.	.
1,2-Dichloroethane	.	.	.	.	.	.	.	.
1,1-Dichloroethene	.	.	.	.	.	.	.	.
1,2-Dichloroethene	.	.	.	.	.	.	.	.
1,2-Dichloropropane	.	.	.	.	.	.	.	.
cis-1,3-Dichloropropene	.	.	.	.	.	.	.	.
trans-1,3-Dichloropropene	.	.	.	.	.	.	.	.
Ethylbenzene	.	.	.	.	.	.	.	.
2-Hexanone	.	.	.	.	.	.	.	.
4-Methyl-2-pentanone	.	.	.	.	.	.	.	.
Methylene chloride	.	.	.	.	.	.	.	.
Styrene	.	.	.	.	.	.	.	.
1,1,2,2-Tetrachloroethane	.	.	.	.	.	.	.	.
Tetrachloroethene	.	.	.	.	.	.	.	.
Toluene	.	.	.	.	.	.	.	.
1,1,1-Trichloroethane	.	.	.	.	.	.	.	.
1,1,2-Trichloroethane	.	.	.	.	.	.	.	.
Trichloroethene	.	.	.	.	.	.	.	.
Vinyl acetate	.	.	.	.	.	.	.	.
Vinyl chloride	.	.	.	.	.	.	.	.
Xylenes	.	.	.	.	.	.	.	.

(CONTINUED)

APPENDIX J
Validated VOC Results, 1994

15

Sampling Point . Unit . Location . Date Sampled	GW-373				GW-537			
	AQT				AQT			
	BG				OLF			
	03/10/94	05/21/94	08/24/94	11/08/94	02/11/94	06/24/94	09/07/94	12/15/94
Acetone	.	.	.	.	.	.	.	.
Benzene	.	.	.	.	.	.	.	.
Bromodichloromethane	.	.	.	.	.	.	.	.
Bromoform	.	.	.	.	.	.	.	.
Bromomethane	.	.	.	.	.	.	.	.
2-Butanone	.	.	.	.	.	.	.	.
Carbon disulfide	.	.	.	.	.	.	.	.
Carbon tetrachloride	.	.	.	.	.	.	.	.
Chlorobenzene	.	.	.	.	.	.	.	.
Chlorodibromomethane	.	.	.	.	.	.	.	.
Chloroethane	.	.	.	.	.	.	.	.
Chloroform	.	.	.	.	.	0.9	1	.
Chloromethane	.	.	.	.	.	.	.	.
1,1-Dichloroethane	.	.	.	.	.	.	.	.
1,2-Dichloroethane	.	.	.	.	.	.	.	.
1,1-Dichloroethene	.	.	.	.	.	.	.	.
1,2-Dichloroethene	.	.	.	.	.	.	.	.
1,2-Dichloropropane	.	.	.	.	.	.	.	.
cis-1,3-Dichloropropene	.	.	.	.	.	.	.	.
trans-1,3-Dichloropropene	.	.	.	.	.	.	.	.
Ethylbenzene	.	.	.	.	.	.	.	.
2-Hexanone	.	.	.	.	.	.	.	.
4-Methyl-2-pentanone	.	.	.	.	.	.	.	.
Methylene chloride	.	.	.	.	.	.	.	.
Styrene	.	.	.	.	.	.	.	.
1,1,2,2-Tetrachloroethane	.	.	.	.	.	.	.	.
Tetrachloroethene	.	.	.	.	.	.	.	.
Toluene	.	.	.	.	.	.	.	.
1,1,1-Trichloroethane	.	.	.	.	.	.	.	.
1,1,2-Trichloroethane	.	.	.	.	.	.	.	.
Trichloroethene	.	.	.	.	.	.	.	.
Vinyl acetate	.	.	.	.	.	.	.	.
Vinyl chloride	.	.	.	.	.	.	.	.
Xylenes	.	.	.	.	.	.	.	.

(CONTINUED)

APPENDIX J
Validated VOC Results, 1994

16

Sampling Point	GW-601	GW-613		GW-614		GW-621		GW-627
Unit	AQF	AQT		AQT		AQF		AQT
Location	OLF	S3		S3		EXP-B		BG
Date Sampled	03/25/94	02/14/94	08/15/94	02/14/94	08/16/94	02/18/94	12/07/94	03/14/94
Acetone	.	.	.	.	.	.	.	16
Benzene	.	.	.	.	.	.	.	.
Bromodichloromethane	.	.	.	.	.	.	.	.
Bromoform	.	.	.	.	.	.	.	.
Bromomethane	.	.	.	.	.	.	.	.
2-Butanone	.	.	.	.	.	.	.	.
Carbon disulfide	.	.	.	.	.	.	.	.
Carbon tetrachloride	2	.	.	.	.	.	.	.
Chlorobenzene	.	.	.	.	.	.	.	.
Chlorodibromomethane	.	.	.	.	.	.	.	.
Chloroethane	.	.	.	.	.	.	.	.
Chloroform	.	.	.	.	.	.	.	.
Chloromethane	.	.	.	.	.	.	.	.
1,1-Dichloroethane	.	.	.	.	.	.	.	3
1,2-Dichloroethane	.	.	.	.	.	.	.	.
1,1-Dichloroethene	.	.	.	.	.	.	.	.
1,2-Dichloroethene	.	.	.	.	.	.	.	.
1,2-Dichloropropane	.	.	.	.	.	.	.	.
cis-1,3-Dichloropropene	.	.	.	.	.	.	.	.
trans-1,3-Dichloropropene	.	.	.	.	.	.	.	.
Ethylbenzene	.	.	.	.	.	.	.	.
2-Hexanone	.	.	.	.	.	.	.	.
4-Methyl-2-pentanone	.	.	.	.	.	.	.	.
Methylene chloride	FP1	.	.	.	.	.	.	FP1
Styrene	.	.	.	.	.	.	.	.
1,1,2,2-Tetrachloroethane	.	.	.	.	.	.	.	.
Tetrachloroethene	1	.	.	.	.	.	.	30
Toluene	.	.	.	.	.	.	.	.
1,1,1-Trichloroethane	.	.	.	.	.	.	.	.
1,1,2-Trichloroethane	.	.	.	.	.	.	.	.
Trichloroethene	98	.	.	.	.	.	.	4
Vinyl acetate	.	.	.	.	.	.	.	.
Vinyl chloride	.	.	.	.	.	.	.	.
Xylenes	.	.	.	.	.	.	.	.

(CONTINUED)

APPENDIX J
Validated VOC Results, 1994

17

Sampling Point . Unit . Location . Date Sampled	GW-627			GW-637				GW-642
	AQT			AQT				AQT
	BG			OLF				BG
	06/23/94	09/15/94	12/09/94	03/23/94	05/26/94	07/29/94	11/07/94	03/09/94
Acetone	.	.	.	.	.	.	.	.
Benzene	.	.	.	.	.	.	.	.
Bromodichloromethane	.	.	.	.	.	.	.	.
Bromoform	.	.	.	.	.	.	.	.
Bromomethane	.	.	.	.	.	.	.	.
2-Butanone	.	.	.	.	.	.	.	.
Carbon disulfide	.	.	.	.	.	.	.	.
Carbon tetrachloride	.	.	.	.	.	.	.	.
Chlorobenzene	.	.	.	.	.	.	.	.
Chlorodibromomethane	.	.	.	.	.	.	.	.
Chloroethane	.	.	.	.	.	.	.	.
Chloroform	.	.	.	.	.	.	.	.
Chloromethane	.	.	.	.	.	.	.	.
1,1-Dichloroethane	4	4	4	.	.	.	.	.
1,2-Dichloroethane	.	.	.	.	.	.	.	.
1,1-Dichloroethene	.	.	.	.	.	.	.	.
1,2-Dichloroethene	.	.	.	.	.	.	.	.
1,2-Dichloropropane	.	.	.	.	.	.	.	.
cis-1,3-Dichloropropene	.	.	.	.	.	.	.	.
trans-1,3-Dichloropropene	.	.	.	.	.	.	.	.
Ethylbenzene	.	.	.	.	.	.	.	.
2-Hexanone	.	.	.	.	.	.	.	.
4-Methyl-2-pentanone	.	.	.	.	.	.	.	.
Methylene chloride	.	.	.	.	.	.	.	.
Styrene	.	.	.	.	.	.	.	.
1,1,2,2-Tetrachloroethane	.	.	.	.	.	.	.	.
Tetrachloroethene	44	37	44	.	.	.	.	.
Toluene	.	.	.	.	.	.	.	.
1,1,1-Trichloroethane	.	.	.	.	.	.	.	.
1,1,2-Trichloroethane	.	.	.	.	.	.	.	.
Trichloroethene	7	5	7	.	.	.	.	.
Vinyl acetate	.	.	.	.	.	.	.	.
Vinyl chloride	.	.	.	.	.	.	.	.
Xylenes	.	.	.	.	.	.	.	.

(CONTINUED)

APPENDIX J
Validated VOC Results, 1994

18

Sampling Point . Unit . Location . Date Sampled	GW-642			GW-652				GW-653
	AQT			AQF				AQT
	BG			BG				BG
	05/19/94	08/23/94	11/07/94	03/09/94	06/17/94	09/13/94	12/07/94	02/26/94
Acetone	.	.	.	.	.	.	.	.
Benzene	.	.	.	.	.	.	.	.
Bromodichloromethane	.	.	.	.	.	.	.	.
Bromoform	.	.	.	.	.	.	.	.
Bromomethane	.	.	.	.	.	.	.	.
2-Butanone	.	.	.	.	.	.	.	.
Carbon disulfide	.	.	.	.	.	.	.	.
Carbon tetrachloride	.	.	.	.	.	.	.	.
Chlorobenzene	.	.	.	.	.	.	.	.
Chlorodibromomethane	.	.	.	.	.	.	.	.
Chloroethane	.	.	.	.	.	.	.	.
Chloroform	.	.	.	.	.	.	.	.
Chloromethane	.	.	.	.	.	.	.	.
1,1-Dichloroethane	.	.	.	.	.	.	.	2
1,2-Dichloroethane	.	.	.	.	.	.	.	.
1,1-Dichloroethene	.	.	.	.	.	.	.	.
1,2-Dichloroethene	.	.	.	.	.	.	.	20
1,2-Dichloropropane	.	.	.	.	.	.	.	.
cis-1,3-Dichloropropene	.	.	.	.	.	.	.	.
trans-1,3-Dichloropropene	.	.	.	.	.	.	.	.
Ethylbenzene	.	.	.	.	.	.	.	.
2-Hexanone	.	.	.	.	.	.	.	.
4-Methyl-2-pentanone	.	.	.	.	.	.	.	.
Methylene chloride	.	.	.	.	.	.	.	FP1
Styrene	.	.	.	.	.	.	.	.
1,1,2,2-Tetrachloroethane	.	.	.	.	.	.	.	.
Tetrachloroethene	.	.	.	.	.	.	.	5
Toluene	.	.	.	.	.	.	.	.
1,1,1-Trichloroethane	.	.	.	.	.	.	.	0.7
1,1,2-Trichloroethane	.	.	.	.	.	.	.	.
Trichloroethene	.	.	.	.	.	.	.	2
Vinyl acetate	.	.	.	.	.	.	.	.
Vinyl chloride	.	.	.	.	.	.	.	.
Xylenes	.	.	.	.	.	.	.	.

(CONTINUED)

APPENDIX J
Validated VOC Results, 1994

19

Sampling Point	GW-653			GW-654				GW-683
Unit	AQT			AQT				AQF
Location	BG			BG				EXP-A
Date Sampled	06/09/94	09/13/94	12/07/94	03/09/94	06/08/94	09/13/94	12/07/94	03/04/94
Acetone	.	.	.	.	.	.	.	.
Benzene	.	.	.	.	.	.	.	.
Bromodichloromethane	.	.	.	.	.	.	.	.
Bromoform	.	.	.	.	.	.	.	.
Bromomethane	.	.	.	.	.	.	.	.
2-Butanone	.	.	.	.	.	.	.	.
Carbon disulfide	.	.	.	.	.	.	.	.
Carbon tetrachloride	.	.	.	.	.	.	.	.
Chlorobenzene	.	.	.	.	.	.	.	.
Chlorodibromomethane	.	.	.	.	.	.	.	.
Chloroethane	.	.	.	.	.	.	.	.
Chloroform	.	.	.	.	.	.	.	.
Chloromethane	.	.	.	.	.	.	.	.
1,1-Dichloroethane	.	.	.	.	.	.	.	.
1,2-Dichloroethane	.	.	.	.	.	.	.	.
1,1-Dichloroethene	.	.	.	.	.	.	.	.
1,2-Dichloroethene	6	9	10	.	.	.	.	.
1,2-Dichloropropane	.	.	.	.	.	.	.	.
cis-1,3-Dichloropropene	.	.	.	.	.	.	.	.
trans-1,3-Dichloropropene	.	.	.	.	.	.	.	.
Ethylbenzene	.	.	.	.	.	.	.	.
2-Hexanone	.	.	.	.	.	.	.	.
4-Methyl-2-pentanone	.	.	.	.	.	.	.	.
Methylene chloride	.	.	.	.	.	.	.	.
Styrene	.	.	.	.	.	.	.	.
1,1,2,2-Tetrachloroethane	.	.	.	.	.	.	.	.
Tetrachloroethene	2	2	2	.	.	.	.	.
Toluene	.	.	.	.	.	.	.	.
1,1,1-Trichloroethane	.	.	.	.	.	.	.	.
1,1,2-Trichloroethane	.	.	.	.	.	.	.	.
Trichloroethene	0.6	.	.	.	.	.	.	.
Vinyl acetate	.	.	.	.	.	.	.	.
Vinyl chloride	.	.	.	.	.	.	.	.
Xylenes	.	.	.	.	.	.	.	.

(CONTINUED)

APPENDIX J
Validated VOC Results, 1994

20

Sampling Point	GW-683	GW-684		GW-685		GW-694		GW-695
Unit	AQF	AQF		AQF		AQF		AQF
Location	EXP-A	EXP-A		EXP-A		EXP-B		EXP-B
Date Sampled	09/20/94	03/04/94	09/20/94	02/27/94	09/19/94	03/02/94	12/13/94	02/21/94
Acetone	.	.	.	.	.	.	.	.
Benzene	.	.	.	.	.	.	.	.
Bromodichloromethane	.	.	.	.	.	.	.	.
Bromoform	.	.	.	.	.	.	.	.
Bromomethane	.	.	.	.	.	.	.	.
2-Butanone	.	.	.	.	.	.	.	.
Carbon disulfide	.	.	.	.	.	.	.	.
Carbon tetrachloride	.	.	.	.	.	.	.	.
Chlorobenzene	.	.	.	.	.	.	.	.
Chlorodibromomethane	.	.	.	.	.	.	.	.
Chloroethane	.	.	.	.	.	.	.	.
Chloroform	.	.	.	.	.	.	.	.
Chloromethane	.	.	.	.	.	.	.	.
1,1-Dichloroethane	.	.	.	.	.	.	.	.
1,2-Dichloroethane	.	.	.	.	.	.	.	.
1,1-Dichloroethene	.	.	.	.	.	1	.	.
1,2-Dichloroethene	1	.	1	1	1	9	8	2
1,2-Dichloropropane	.	.	.	.	.	.	.	.
cis-1,3-Dichloropropene	.	.	.	.	.	.	.	.
trans-1,3-Dichloropropene	.	.	.	.	.	.	.	.
Ethylbenzene	.	.	.	.	.	.	.	.
2-Hexanone	.	.	.	.	.	.	.	.
4-Methyl-2-pentanone	.	.	.	.	.	.	.	.
Methylene chloride	.	.	.	.	.	.	.	.
Styrene	.	.	.	.	.	.	.	.
1,1,2,2-Tetrachloroethane	.	.	.	.	.	.	.	.
Tetrachloroethene	.	.	.	.	.	.	.	.
Toluene	.	.	.	.	.	.	.	.
1,1,1-Trichloroethane	.	.	.	.	.	.	.	.
1,1,2-Trichloroethane	.	.	.	.	.	.	.	.
Trichloroethene	1	.	1	.	.	8	12	4
Vinyl acetate	.	.	.	.	.	.	.	.
Vinyl chloride	.	.	.	.	.	.	.	.
Xylenes	.	.	.	.	.	.	.	.

(CONTINUED)

APPENDIX J
Validated VOC Results, 1994

21

Sampling Point	GW-695	GW-703		GW-704		GW-706		GW-710
Unit	AQF	AQF		AQF		AQF		AQF
Location	EXP-B	EXP-B		EXP-B		EXP-B		EXP-W
Date Sampled	12/07/94	02/23/94	12/12/94	02/25/94	12/13/94	03/04/94	12/15/94	02/24/94
Acetone	.	.	.	.	.	.	.	.
Benzene	.	.	.	.	.	.	.	.
Bromodichloromethane	.	.	.	.	.	.	.	.
Bromoform	.	.	.	.	.	.	.	.
Bromomethane	.	.	.	.	.	.	.	.
2-Butanone	.	.	.	.	.	.	.	.
Carbon disulfide	.	.	.	.	.	.	.	.
Carbon tetrachloride	.	.	.	1	2	.	.	.
Chlorobenzene	.	.	.	.	.	.	.	.
Chlorodibromomethane	.	.	.	.	.	.	.	.
Chloroethane	.	.	.	.	.	.	.	.
Chloroform	.	.	.	.	.	.	.	.
Chloromethane	.	.	.	.	.	.	.	.
1,1-Dichloroethane	.	.	.	.	1	.	.	.
1,2-Dichloroethane	.	.	.	.	.	.	.	.
1,1-Dichloroethene	.	.	.	6	8	.	.	.
1,2-Dichloroethene	2	8	7	3	3	5	13	.
1,2-Dichloropropane	.	.	.	.	.	.	.	.
cis-1,3-Dichloropropene	.	.	.	.	.	.	.	.
trans-1,3-Dichloropropene	.	.	.	.	.	.	.	.
Ethylbenzene	.	.	.	.	.	.	.	.
2-Hexanone	.	.	.	.	.	.	.	.
4-Methyl-2-pentanone	.	.	.	.	.	.	.	.
Methylene chloride	.	.	.	.	.	.	.	.
Styrene	.	.	.	.	.	.	.	.
1,1,2,2-Tetrachloroethane	.	.	.	.	.	.	.	.
Tetrachloroethene	.	.	.	.	.	.	.	.
Toluene	.	.	.	.	.	.	.	.
1,1,1-Trichloroethane	.	.	.	2	2	.	.	.
1,1,2-Trichloroethane	.	.	.	.	.	.	.	.
Trichloroethene	4	26	19	84	100	5	16	.
Vinyl acetate	.	.	.	.	.	.	.	.
Vinyl chloride	.	.	.	.	.	.	.	.
Xylenes	.	.	.	.	.	.	.	.

(CONTINUED)

APPENDIX J
Validated VOC Results, 1994

22

Sampling Point	GW-710		GW-711		GW-712		GW-713		GW-714
Unit	AQF		AQF		AQF		AQF		AQF
Location	EXP-W		EXP-W		EXP-W		EXP-W		EXP-W
Date Sampled	08/19/94	02/23/94	08/18/94	02/24/94	08/18/94	02/27/94	08/19/94	02/25/94	
Acetone	.	.	.	.	.	.	.	.	.
Benzene	.	.	.	.	.	.	.	.	.
Bromodichloromethane	.	.	.	.	.	.	.	.	.
Bromoform	.	.	.	.	.	.	.	.	.
Bromomethane	.	.	.	.	.	.	.	.	.
2-Butanone	.	.	.	.	.	.	.	.	.
Carbon disulfide	.	.	.	.	.	.	.	.	.
Carbon tetrachloride	.	.	.	.	.	.	.	.	.
Chlorobenzene	.	.	.	.	.	.	.	.	.
Chlorodibromomethane	.	.	.	.	.	.	.	.	.
Chloroethane	.	.	.	.	.	.	.	.	.
Chloroform	.	.	.	.	.	.	.	.	.
Chloromethane	.	.	.	.	.	.	.	.	.
1,1-Dichloroethane	.	.	.	.	.	.	.	.	.
1,2-Dichloroethane	.	.	.	.	.	.	.	.	.
1,1-Dichloroethene	.	.	.	.	.	.	.	.	.
1,2-Dichloroethene	.	.	.	.	.	.	.	.	.
1,2-Dichloropropane	.	.	.	.	.	.	.	.	.
cis-1,3-Dichloropropene	.	.	.	.	.	.	.	.	.
trans-1,3-Dichloropropene	.	.	.	.	.	.	.	.	.
Ethylbenzene	.	.	.	.	.	.	.	.	.
2-Hexanone	.	.	.	.	.	.	.	.	.
4-Methyl-2-pentanone	.	.	.	.	.	.	.	.	.
Methylene chloride	.	.	.	.	.	.	.	.	.
Styrene	.	.	.	.	.	.	.	.	.
1,1,2,2-Tetrachloroethane	.	.	.	.	.	.	.	.	.
Tetrachloroethene	.	.	.	.	.	.	.	.	.
Toluene	.	.	.	.	.	.	.	.	.
1,1,1-Trichloroethane	.	.	.	.	.	.	.	.	.
1,1,2-Trichloroethane	.	.	.	.	.	.	.	.	.
Trichloroethene	.	.	.	.	.	.	.	.	.
Vinyl acetate	.	.	.	.	.	.	.	.	.
Vinyl chloride	.	.	.	.	.	.	.	.	.
Xylenes	.	.	.	.	.	.	.	.	.

(CONTINUED)

APPENDIX J
Validated VOC Results, 1994

23

Sampling Point	GW-714	GW-715		GW-723		GW-724		GW-725
Unit	AQF	AQF		AQF		AQF		AQF
Location	EXP-W	EXP-W		EXP-C		EXP-C		EXP-C
Date Sampled	08/20/94	02/26/94	08/20/94	03/17/94	12/20/94	03/18/94	12/18/94	03/18/94
Acetone	.	.	.	.	FP1	.	.	.
Benzene	.	.	.	.	.	.	.	1
Bromodichloromethane	.	.	.	.	.	.	.	.
Bromoform	.	.	.	.	.	.	.	.
Bromomethane	.	.	.	.	.	.	.	.
2-Butanone	.	.	.	.	10	.	.	.
Carbon disulfide	.	.	.	.	.	.	.	.
Carbon tetrachloride	.	.	.	.	.	.	.	.
Chlorobenzene	.	.	.	.	.	.	.	.
Chlorodibromomethane	.	.	.	.	.	.	.	.
Chloroethane	.	.	.	.	.	.	.	.
Chloroform	.	.	.	.	.	.	.	.
Chloromethane	.	.	.	.	.	.	.	.
1,1-Dichloroethane	.	.	.	.	.	.	.	.
1,2-Dichloroethane	.	.	.	.	.	.	.	.
1,1-Dichloroethene	.	.	.	.	.	.	.	.
1,2-Dichloroethene	.	.	.	.	.	2	2	3
1,2-Dichloropropane	.	.	.	.	.	.	.	.
cis-1,3-Dichloropropene	.	.	.	.	.	.	.	.
trans-1,3-Dichloropropene	.	.	.	.	.	.	.	.
Ethylbenzene	.	.	.	.	.	.	.	.
2-Hexanone	.	.	.	.	.	.	.	.
4-Methyl-2-pentanone	.	.	.	.	.	.	.	.
Methylene chloride	.	.	.	.	.	.	.	.
Styrene	.	.	.	.	.	.	.	.
1,1,2,2-Tetrachloroethane	.	.	.	.	.	.	.	.
Tetrachloroethene	.	.	.	.	.	1	2	2
Toluene	.	.	.	.	.	.	.	.
1,1,1-Trichloroethane	.	.	.	.	.	.	.	.
1,1,2-Trichloroethane	.	.	.	.	.	.	.	.
Trichloroethene	.	.	.	8	6	70	98	30
Vinyl acetate	.	.	.	.	.	.	.	.
Vinyl chloride	.	.	.	.	.	.	.	.
Xylenes	.	.	.	.	.	.	.	.

(CONTINUED)

APPENDIX J
Validated VOC Results, 1994

24

Sampling Point	GW-725	GW-736		GW-737		GW-738		GW-739
Unit	AQF	AQF		AQF		AQF		AQF
Location	EXP-C	EXP-C		EXP-C		EXP-C		EXP-C
Date Sampled	12/18/94	03/21/94	12/19/94	03/21/94	12/18/94	03/16/94	12/17/94	03/16/94
Acetone	.	.	FP1	.	.	.	.	.
Benzene	.	.	.	.	.	.	.	.
Bromodichloromethane	.	.	.	.	.	.	.	.
Bromoform	.	.	.	.	.	.	.	.
Bromomethane	.	.	.	.	.	.	.	.
2-Butanone	.	.	FP2	.	.	.	.	.
Carbon disulfide	.	.	.	.	.	.	.	.
Carbon tetrachloride	.	.	.	.	.	2	.	1
Chlorobenzene	.	.	.	.	.	.	.	.
Chlorodibromomethane	.	.	.	.	.	.	.	.
Chloroethane	.	.	.	.	.	.	.	.
Chloroform	.	.	.	.	.	2	.	.
Chloromethane	.	.	.	.	.	.	.	.
1,1-Dichloroethane	.	.	.	.	.	.	.	.
1,2-Dichloroethane	.	.	.	.	.	.	.	.
1,1-Dichloroethene	1	.	.	.	.	.	.	.
1,2-Dichloroethene	1	3	2	2	4	4	1	2
1,2-Dichloropropane	.	.	.	.	.	.	.	.
cis-1,3-Dichloropropene	.	.	.	.	.	.	.	.
trans-1,3-Dichloropropene	.	.	.	.	.	.	.	.
Ethylbenzene	.	.	.	.	.	.	.	.
2-Hexanone	.	.	.	.	.	.	.	.
4-Methyl-2-pentanone	.	.	.	.	.	.	.	.
Methylene chloride	.	.	.	.	.	FP1	.	.
Styrene	.	.	.	.	.	.	.	.
1,1,2,2-Tetrachloroethane	.	.	.	.	.	.	.	.
Tetrachloroethene	.	1	.	2	3	0.8	.	.
Toluene	.	.	.	.	.	.	.	.
1,1,1-Trichloroethane	.	.	.	.	.	0.7	.	.
1,1,2-Trichloroethane	.	.	.	.	.	.	.	.
Trichloroethene	70	6	4	4	12	55	20	35
Vinyl acetate	.	.	.	.	.	.	.	.
Vinyl chloride	.	.	.	.	.	.	.	.
Xylenes	.	.	.	.	.	.	.	.

(CONTINUED)

APPENDIX J
Validated VOC Results, 1994

25

Sampling Point	GW-739	GW-740		GW-793				GW-794
Unit	AQF	AQF		AQT				AQT
Location	EXP-C	EXP-C		AGLLSF				AGLLSF
Date Sampled	12/18/94	03/14/94	12/17/94	03/22/94	05/25/94	07/28/94	11/02/94	03/23/94
Acetone	.	.	.	.	.	.	.	.
Benzene	.	.	.	.	.	.	.	.
Bromodichloromethane	.	.	.	.	.	.	.	.
Bromoform	.	.	.	.	.	.	.	.
Bromomethane	.	.	.	.	.	.	.	.
2-Butanone	.	.	.	.	.	.	.	.
Carbon disulfide	.	.	.	.	.	.	.	.
Carbon tetrachloride	.	.	.	.	.	.	.	.
Chlorobenzene	.	.	.	.	.	.	.	.
Chlorodibromomethane	.	.	.	.	.	.	.	.
Chloroethane	.	.	.	.	.	.	.	.
Chloroform	.	1	1	.	.	.	.	.
Chloromethane	.	.	.	.	.	.	.	.
1,1-Dichloroethane	.	.	.	.	.	.	.	.
1,2-Dichloroethane	.	.	.	.	.	.	.	.
1,1-Dichloroethene	.	.	.	.	.	.	.	.
1,2-Dichloroethene	1	2	2	.	.	.	.	.
1,2-Dichloropropane	.	.	.	.	.	.	.	.
cis-1,3-Dichloropropene	.	.	.	.	.	.	.	.
trans-1,3-Dichloropropene	.	.	.	.	.	.	.	.
Ethylbenzene	.	.	.	.	.	.	.	.
2-Hexanone	.	.	.	.	.	.	.	.
4-Methyl-2-pentanone	.	.	.	.	.	.	.	.
Methylene chloride	.	.	.	FP1	.	.	.	.
Styrene	.	.	.	.	.	.	.	.
1,1,2,2-Tetrachloroethane	.	.	.	.	.	.	.	.
Tetrachloroethene	.	.	.	.	.	.	.	.
Toluene	.	.	.	.	.	.	.	.
1,1,1-Trichloroethane	.	.	.	.	.	.	.	.
1,1,2-Trichloroethane	.	.	.	.	.	.	.	.
Trichloroethene	35	45	28	.	.	.	.	.
Vinyl acetate	.	.	.	.	.	.	.	.
Vinyl chloride	.	.	.	.	.	.	.	.
Xylenes	.	.	.	.	.	.	.	.

(CONTINUED)

APPENDIX J
Validated VOC Results, 1994

26

Sampling Point . Unit . Location . Date Sampled	GW-794			GW-795				GW-800
	AQT			AQT				AQF
	AGLLSF			AGLLSF				OLF
	05/27/94	08/04/94	11/07/94	03/23/94	05/27/94	08/04/94	11/08/94	02/11/94
Acetone	.	.	.	.	.	.	.	.
Benzene	.	.	.	.	.	.	.	.
Bromodichloromethane	.	.	.	.	.	.	.	.
Bromoform	.	.	.	.	.	.	.	.
Bromomethane	.	.	.	.	.	.	.	.
2-Butanone	.	.	.	.	.	.	.	.
Carbon disulfide	.	.	.	.	.	.	.	.
Carbon tetrachloride	.	.	.	.	.	.	.	.
Chlorobenzene	.	.	.	.	.	.	.	.
Chlorodibromomethane	.	.	.	.	.	.	.	.
Chloroethane	.	.	.	.	.	.	.	.
Chloroform	.	.	.	.	.	.	.	.
Chloromethane	.	.	.	.	.	.	.	.
1,1-Dichloroethane	.	.	.	.	.	.	.	.
1,2-Dichloroethane	.	.	.	.	.	.	.	.
1,1-Dichloroethene	.	.	.	.	.	.	.	.
1,2-Dichloroethene	.	.	.	.	.	.	.	.
1,2-Dichloropropane	.	.	.	.	.	.	.	.
cis-1,3-Dichloropropene	.	.	.	.	.	.	.	.
trans-1,3-Dichloropropene	.	.	.	.	.	.	.	.
Ethylbenzene	.	.	.	.	.	.	.	.
2-Hexanone	.	.	.	.	.	.	.	.
4-Methyl-2-pentanone	.	.	.	.	.	.	.	.
Methylene chloride	.	.	.	.	.	.	.	.
Styrene	.	.	.	.	.	.	.	.
1,1,2,2-Tetrachloroethane	.	.	.	.	.	.	.	.
Tetrachloroethene	.	.	.	.	.	.	.	.
Toluene	.	.	.	.	.	.	.	.
1,1,1-Trichloroethane	.	.	.	.	.	.	.	.
1,1,2-Trichloroethane	.	.	.	.	.	.	.	.
Trichloroethene	.	.	.	.	.	.	.	.
Vinyl acetate	.	.	.	.	.	.	.	.
Vinyl chloride	.	.	.	.	.	.	.	.
Xylenes	.	.	.	.	.	.	.	.

(CONTINUED)

APPENDIX J
Validated VOC Results, 1994

27

Sampling Point . Unit . Location . Date Sampled	GW-800		
	AQF		
	OLF		
	06/22/94	09/02/94	12/14/94
Acetone	.	.	.
Benzene	.	.	.
Bromodichloromethane	.	.	.
Bromoform	.	.	.
Bromomethane	.	.	.
2-Butanone	.	.	.
Carbon disulfide	.	.	.
Carbon tetrachloride	.	.	.
Chlorobenzene	.	.	.
Chlorodibromomethane	.	.	.
Chloroethane	.	.	.
Chloroform	.	.	.
Chloromethane	.	.	.
1,1-Dichloroethane	.	.	.
1,2-Dichloroethane	.	.	.
1,1-Dichloroethene	.	.	.
1,2-Dichloroethene	.	.	.
1,2-Dichloropropane	.	.	.
cis-1,3-Dichloropropene	.	.	.
trans-1,3-Dichloropropene	.	.	.
Ethylbenzene	.	.	.
2-Hexanone	.	.	.
4-Methyl-2-pentanone	.	.	.
Methylene chloride	.	.	.
Styrene	.	.	.
1,1,2,2-Tetrachloroethane	.	.	.
Tetrachloroethene	.	.	.
Toluene	.	.	.
1,1,1-Trichloroethane	.	.	.
1,1,2-Trichloroethane	.	.	.
Trichloroethene	.	.	.
Vinyl acetate	.	.	.
Vinyl chloride	.	.	.
Xylenes	.	.	.

APPENDIX J
Validated VOC Results, 1994

28

Sampling Point . Unit . Location . Date Sampled	BCK-00.63		BCK-04.55		BCK-09.40		BCK-11.97	
	CREEK		CREEK		CREEK		CREEK	
	EXP-SW		EXP-SW		EXP-SW		EXP-SW	
	02/14/94	09/06/94	02/14/94	09/06/94	02/14/94	09/06/94	02/14/94	09/06/94
Acetone	.	.	.	.	.	.	.	.
Benzene	.	.	.	.	.	.	.	.
Bromodichloromethane	.	.	.	.	.	.	.	.
Bromoform	.	.	.	.	.	.	.	.
Bromomethane	.	.	.	.	.	.	.	.
2-Butanone	.	.	.	.	.	.	.	.
Carbon disulfide	.	.	.	.	.	.	.	.
Carbon tetrachloride	.	.	.	.	.	.	.	.
Chlorobenzene	.	.	.	.	.	.	.	.
Chlorodibromomethane	.	.	.	.	.	.	.	.
Chloroethane	.	.	.	.	.	.	.	.
Chloroform	.	.	.	.	.	.	.	.
Chloromethane	.	.	.	.	.	.	.	.
1,1-Dichloroethane	.	.	.	.	.	.	.	.
1,2-Dichloroethane	.	.	.	.	.	.	.	.
1,1-Dichloroethene	.	.	.	.	.	.	.	.
1,2-Dichloroethene	.	.	.	.	5	6	.	.
1,2-Dichloropropane	.	.	.	.	.	.	.	.
cis-1,3-Dichloropropene	.	.	.	.	.	.	.	.
trans-1,3-Dichloropropene	.	.	.	.	.	.	.	.
Ethylbenzene	.	.	.	.	.	.	.	.
2-Hexanone	.	.	.	.	.	.	.	.
4-Methyl-2-pentanone	.	.	.	.	.	.	.	.
Methylene chloride	.	.	.	.	FP1	.	.	.
Styrene	.	.	.	.	.	.	.	.
1,1,2,2-Tetrachloroethane	.	.	.	.	.	.	.	.
Tetrachloroethene	.	.	.	.	1	.	.	.
Toluene	.	.	.	.	.	.	.	.
1,1,1-Trichloroethane	.	.	.	.	.	.	.	.
1,1,2-Trichloroethane	.	.	.	.	.	.	.	.
Trichloroethene	.	.	.	.	0.6	.	.	.
Vinyl acetate	.	.	.	.	.	.	.	.
Vinyl chloride	.	.	.	.	.	.	.	.
Xylenes	.	.	.	.	.	.	.	.

(CONTINUED)

APPENDIX J
Validated VOC Results, 1994

29

Sampling Point	NT-01		NT-13		SS-1		SS-4	
Unit	CREEK		CREEK		SPRING		SPRING	
Location	EXP-SW		EXP-SW		EXP-SW		EXP-SW	
Date Sampled	02/14/94	09/07/94	02/14/94	09/06/94	02/14/94	09/07/94	02/14/94	09/06/94
Acetone	.	.	.	.	.	.	.	.
Benzene	.	.	.	.	.	.	.	.
Bromodichloromethane	.	.	.	.	.	.	.	.
Bromoform	.	.	.	.	.	.	.	.
Bromomethane	.	.	.	.	.	.	.	.
2-Butanone	.	.	.	.	.	.	.	.
Carbon disulfide	.	.	.	.	.	.	.	.
Carbon tetrachloride	.	.	.	.	.	.	.	.
Chlorobenzene	.	.	.	.	.	.	.	.
Chlorodibromomethane	.	.	.	.	.	.	.	.
Chloroethane	.	.	.	.	.	.	.	.
Chloroform	.	.	.	.	.	.	.	.
Chloromethane	.	.	.	.	.	.	.	.
1,1-Dichloroethane	.	.	.	.	.	.	.	.
1,2-Dichloroethane	.	.	.	.	.	.	.	.
1,1-Dichloroethene	.	.	.	.	.	.	.	.
1,2-Dichloroethene	.	.	.	.	.	.	.	5
1,2-Dichloropropane	.	.	.	.	.	.	.	.
cis-1,3-Dichloropropene	.	.	.	.	.	.	.	.
trans-1,3-Dichloropropene	.	.	.	.	.	.	.	.
Ethylbenzene	.	.	.	.	.	.	.	.
2-Hexanone	.	.	.	.	.	.	.	.
4-Methyl-2-pentanone	.	.	.	.	.	.	.	.
Methylene chloride	FP1	.	FP1	.	.	.	.	.
Styrene	.	.	.	.	.	.	.	.
1,1,2,2-Tetrachloroethane	.	.	.	.	.	.	.	.
Tetrachloroethene	4	6	.	.	2	.	.	.
Toluene	.	.	.	.	.	.	.	.
1,1,1-Trichloroethane	.	.	.	.	.	.	.	.
1,1,2-Trichloroethane	.	.	.	.	.	.	.	.
Trichloroethene	.	.	.	.	2	.	3	4
Vinyl acetate	.	.	.	.	.	.	.	.
Vinyl chloride	.	.	.	.	.	.	.	.
Xylenes	.	.	.	.	.	.	.	.

(CONTINUED)

APPENDIX J
Validated VOC Results, 1994

Sampling Point	SS-5	
Unit	SPRING	
Location	EXP-SW	
Date Sampled	02/14/94	09/06/94
Acetone	.	.
Benzene	.	.
Bromodichloromethane	.	.
Bromoform	.	.
Bromomethane	.	.
2-Butanone	.	.
Carbon disulfide	.	.
Carbon tetrachloride	.	.
Chlorobenzene	.	.
Chlorodibromomethane	.	.
Chloroethane	.	.
Chloroform	.	.
Chloromethane	.	.
1,1-Dichloroethane	.	.
1,2-Dichloroethane	.	.
1,1-Dichloroethene	.	.
1,2-Dichloroethene	.	.
1,2-Dichloropropane	.	.
cis-1,3-Dichloropropene	.	.
trans-1,3-Dichloropropene	.	.
Ethylbenzene	.	.
2-Hexanone	.	.
4-Methyl-2-pentanone	.	.
Methylene chloride	.	.
Styrene	.	.
1,1,2,2-Tetrachloroethane	.	.
Tetrachloroethene	.	.
Toluene	.	.
1,1,1-Trichloroethane	.	.
1,1,2-Trichloroethane	.	.
Trichloroethene	.	.
Vinyl acetate	.	.
Vinyl chloride	.	.
Xylenes	.	.

APPENDIX K
RADIOCHEMICAL DATA SUMMARY

EXPLANATION

SAMPLING POINT:

BCK - Bear Creek Kilometer
GW - Monitoring Well
NT - Northern Tributary
SS - Spring

UNIT:

AQF - Knox Aquifer
AQT - ORR Aquitard

LOCATION:

AGLLSF - Above Grade Low-Level Storage Facility
BG - Bear Creek Burial Grounds WMA
EXP - Exit Pathway Monitoring Location:
Maynardville Limestone Transverse (-A, -B, -C, -W)
Spring or Surface Water Sampling Location (-SW)
OLF - Oil Landfarm WMA
RS - Rust Spoil Area
S3 - S-3 Site
SPI - Spoil Area I

NOTES:

pCi/L - picoCuries per liter
CE +/- - Counting Error (two standard deviations)
. - Not sampled

Mean counting error (e) calculated using the following formula from Evans (1955):

$$e = \sqrt{\frac{E_1^2}{n^2} + \frac{E_2^2}{n^2} + \frac{E_3^2}{n^2} + \dots}$$

where $E_1, E_2, \dots, E_x$ are the individual errors, and n is the number of observations.

APPENDIX K

1

Gross Alpha and Gross Beta Activity Data Summary, 1994

Sampling Point	GW-040		GW-042		GW-043		GW-044		GW-047	
Unit	AQT		AQT		AQT		AQT		AQT	
Location	BG		BG		OLF		OLF		BG	
Type	pCi/L	CE +/-	pCi/L	CE +/-	pCi/L	CE +/-	pCi/L	CE +/-	pCi/L	CE +/-
GROSS ALPHA MEAN ACTIVITY	3.75	1.10	0.25	0.60	0.26	0.60	0.35	0.60	0.07	0.50
	.	.	.	.	.	.	.	.	.	.
First Quarter	2.25	2.00	-0.46	1.20	0.16	0.58	0.34	0.69	-0.00	0.99
Second Quarter	1.54	1.40	-0.00	0.85	0.30	0.61	-0.00	0.47	-0.31	0.98
Third Quarter	9.44	3.60	0.30	1.00	-0.01	2.00	0.48	2.10	0.43	1.00
Fourth Quarter	1.78	1.40	1.17	1.40	0.59	1.20	0.61	1.20	0.15	1.20
	.	.	.	.	.	.	.	.	.	.
GROSS BETA MEAN ACTIVITY	10.90	1.80	-0.64	1.60	1.40	1.60	2.00	1.60	-0.00	1.30
	.	.	.	.	.	.	.	.	.	.
First Quarter	2.73	2.70	-1.47	2.50	3.39	2.60	2.23	2.50	0.42	2.80
Second Quarter	4.05	2.60	-0.27	2.50	0.82	2.40	0.08	2.30	-1.53	2.60
Third Quarter	35.90	5.50	-0.34	2.40	3.20	2.90	1.72	2.70	0.16	2.30
Fourth Quarter	0.94	2.30	-0.51	4.50	-1.82	4.40	3.95	4.80	0.94	2.70

(CONTINUED)

Sampling Point	GW-053		GW-056		GW-057		GW-061		GW-064	
Unit	AQF		AQF		AQF		AQF		AQF	
Location	BG		EXP-A		EXP-A		BG		OLF	
Type	pCi/L	CE +/-	pCi/L	CE +/-	pCi/L	CE +/-	pCi/L	CE +/-	pCi/L	CE +/-
GROSS ALPHA MEAN ACTIVITY	1.27	0.90	2.26	1.50	1.91	1.30	20.63	2.80	1.74	0.80
	.	.	.	.	.	.	.	.	.	.
First Quarter	-1.03	1.10	1.61	2.00	2.54	2.00	14.60	3.80	1.67	1.30
Second Quarter	1.12	1.30	.	.	.	.	18.00	4.30	0.74	0.92
Third Quarter	2.93	2.50	2.91	2.10	1.28	1.80	37.10	8.90	1.96	1.80
Fourth Quarter	2.06	1.60	.	.	.	.	12.80	3.50	2.59	1.80
	.	.	.	.	.	.	.	.	.	.
GROSS BETA MEAN ACTIVITY	4.60	1.30	4.78	1.90	5.38	1.90	47.93	3.80	14.98	1.70
	.	.	.	.	.	.	.	.	.	.
First Quarter	5.40	2.60	5.10	2.60	3.66	2.60	26.90	4.70	16.90	3.60
Second Quarter	3.22	2.40	.	.	.	.	57.10	7.40	13.40	3.10
Third Quarter	6.36	3.00	4.45	2.70	7.10	2.90	71.70	11.00	15.80	3.70
Fourth Quarter	3.43	2.40	.	.	.	.	36.00	5.40	13.80	3.40

(CONTINUED)

APPENDIX K

2

Gross Alpha and Gross Beta Activity Data Summary, 1994

Sampling Point . Unit . Location . Type	GW-069		GW-079		GW-080		GW-084		GW-085	
	AQT		AQT		AQT		AQT		AQT	
	BG		BG		BG		OLF		OLF	
	pCi/L	CE +/-	pCi/L	CE +/-	pCi/L	CE +/-	pCi/L	CE +/-	pCi/L	CE +/-
GROSS ALPHA MEAN ACTIVITY	-0.86	0.80	-0.77	0.70	1.16	0.80	1.53	0.70	2.18	8.50
	.	.	.	.	.	.	.	.	.	.
First Quarter	-0.19	1.20	-1.16	1.40	2.60	2.00	2.42	1.40	-8.52	32.00
Second Quarter	-0.76	1.40	0.32	0.66	1.41	1.10	1.21	1.00	3.42	5.40
Third Quarter	-3.14	2.10	-1.46	1.80	-0.32	1.90	0.66	1.40	13.20	10.00
Fourth Quarter	0.63	1.60	-0.78	1.20	0.94	1.60	1.84	1.80	0.61	1.20
	.	.	.	.	.	.	.	.	.	.
GROSS BETA MEAN ACTIVITY	-0.03	1.40	0.33	1.20	2.67	1.30	1.67	1.60	95.85	15.60
	.	.	.	.	.	.	.	.	.	.
First Quarter	1.02	2.30	-0.40	2.50	3.07	2.80	5.55	2.80	67.90	57.00
Second Quarter	0.72	2.60	-0.65	2.20	1.72	2.40	-0.09	2.30	71.50	14.00
Third Quarter	-4.44	3.10	-0.57	2.60	1.83	2.80	-0.58	2.50	142.00	17.00
Fourth Quarter	2.59	3.20	2.94	2.60	4.06	2.70	1.80	4.70	102.00	12.00

(CONTINUED)

Sampling Point . Unit . Location . Type	GW-095		GW-115		GW-162		GW-243		GW-276	
	AQF		AQT		AQT		AQT		AQT	
	BG		S3		BG		S3		S3	
	pCi/L	CE +/-	pCi/L	CE +/-	pCi/L	CE +/-	pCi/L	CE +/-	pCi/L	CE +/-
GROSS ALPHA MEAN ACTIVITY	1.06	0.70	0.40	1.50	0.59	0.70	3530.00	440.00	426.00	38.60
	.	.	.	.	.	.	.	.	.	.
First Quarter	-0.39	1.20	0.81	2.70	1.05	1.80	3530.00	440.00	398.00	56.00
Second Quarter	-0.01	0.95	.	.	-0.01	1.10	.	.	.	.
Third Quarter	4.07	2.30	-0.01	1.20	0.32	1.10	.	.	454.00	53.00
Fourth Quarter	0.56	1.10	.	.	0.98	1.10	.	.	.	.
	.	.	.	.	.	.	.	.	.	.
GROSS BETA MEAN ACTIVITY	3.03	1.20	0.81	2.00	2.49	1.30	22700.00	650.00	1145.00	84.90
	.	.	.	.	.	.	.	.	.	.
First Quarter	2.04	2.30	-0.58	3.20	0.22	2.60	22700.00	650.00	1110.00	120.00
Second Quarter	1.34	2.30	.	.	2.75	2.50	.	.	.	.
Third Quarter	5.95	3.00	2.21	2.50	3.82	2.70	.	.	1180.00	120.00
Fourth Quarter	2.79	2.30	.	.	3.16	2.50	.	.	.	.

(CONTINUED)

APPENDIX K

3

Gross Alpha and Gross Beta Activity Data Summary, 1994

Sampling Point . Unit . Location . Type	GW-287		GW-311		GW-312		GW-315		GW-317	
	AQT		AQF		AQF		AQF		AQF	
	BG		RS		RS		SPI		SPI	
	pCi/L	CE +/-	pCi/L	CE +/-	pCi/L	CE +/-	pCi/L	CE +/-	pCi/L	CE +/-
GROSS ALPHA MEAN ACTIVITY	1.12	0.70	1.23	0.60	1.42	0.70	1.49	2.50	0.99	0.60
	.	.	.	.	.	.	.	.	.	.
First Quarter	0.97	1.40	1.35	1.10	1.13	1.10	1.63	2.00	0.49	1.20
Second Quarter	-0.17	0.73	1.19	1.00	0.36	0.73	0.89	1.40	1.49	1.10
Third Quarter	2.60	1.90	1.02	1.50	0.38	1.50	0.54	1.90	2.00	1.70
Fourth Quarter	1.07	1.60	1.35	1.40	3.81	2.00	2.89	9.40	-0.01	0.81
	.	.	.	.	.	.	.	.	.	.
GROSS BETA MEAN ACTIVITY	2.51	1.40	1.55	1.20	7.18	1.40	23.33	6.80	4.74	1.30
	.	.	.	.	.	.	.	.	.	.
First Quarter	6.83	2.80	1.10	2.30	7.42	2.80	7.11	3.30	5.70	2.80
Second Quarter	2.35	2.40	2.75	2.10	6.73	2.50	25.60	4.40	3.79	2.20
Third Quarter	2.41	2.80	0.07	2.60	7.40	3.00	30.60	5.10	5.58	2.90
Fourth Quarter	-1.54	2.90	2.28	2.50	7.18	2.80	30.00	26.00	3.90	2.50

(CONTINUED)

Sampling Point . Unit . Location . Type	GW-324		GW-325		GW-345		GW-347		GW-348	
	AQT		AQT		AQT		AQF		AQF	
	S3		S3		S3		S3		S3	
	pCi/L	CE +/-	pCi/L	CE +/-	pCi/L	CE +/-	pCi/L	CE +/-	pCi/L	CE +/-
GROSS ALPHA MEAN ACTIVITY	0.48	0.70	0.74	0.80	0.59	1.70	1.26	0.70	1.69	0.70
	.	.	.	.	.	.	.	.	.	.
First Quarter	0.48	0.74	0.74	0.79	0.59	1.70	2.08	1.60	1.57	1.20
Second Quarter	.	.	.	.	.	.	0.62	0.77	1.00	0.97
Third Quarter	.	.	.	.	.	.	0.91	1.40	2.75	1.90
Fourth Quarter	.	.	.	.	.	.	1.44	1.30	1.43	1.40
	.	.	.	.	.	.	.	.	.	.
GROSS BETA MEAN ACTIVITY	10.10	3.20	2.88	2.80	6.15	3.20	5.30	1.40	24.98	2.20
	.	.	.	.	.	.	.	.	.	.
First Quarter	10.10	3.20	2.88	2.80	6.15	3.20	5.80	2.90	28.70	4.70
Second Quarter	.	.	.	.	.	.	4.49	2.30	17.70	3.50
Third Quarter	.	.	.	.	.	.	4.28	2.90	25.60	4.60
Fourth Quarter	.	.	.	.	.	.	6.62	2.70	27.90	4.60

(CONTINUED)

APPENDIX K

4

Gross Alpha and Gross Beta Activity Data Summary, 1994

Sampling Point . Unit . Location . Type	GW-363		GW-370		GW-372		GW-373		GW-537	
	AQT		AQT		AQT		AQT		AQT	
	OLF		BG		BG		BG		OLF	
	pCi/L	CE +/-	pCi/L	CE +/-	pCi/L	CE +/-	pCi/L	CE +/-	pCi/L	CE +/-
GROSS ALPHA MEAN ACTIVITY	-0.70	0.70	1.07	0.90	0.86	0.80	0.01	0.70	6.01	9.60
	.	.	.	.	.	.	.	.	.	.
First Quarter	-0.20	1.40	0.51	1.30	-0.23	2.00	-1.04	1.60	-6.11	35.00
Second Quarter	-1.41	1.30	0.97	1.60	0.36	1.10	0.19	1.20	-2.71	5.80
Third Quarter	-1.38	1.40	1.54	2.70	1.72	1.60	-0.77	1.40	32.60	14.00
Fourth Quarter	0.20	1.60	1.26	1.50	1.58	1.40	1.67	1.50	0.28	2.60
	.	.	.	.	.	.	.	.	.	.
GROSS BETA MEAN ACTIVITY	-0.59	1.20	0.31	1.40	1.49	1.20	-0.09	1.20	463.00	27.40
	.	.	.	.	.	.	.	.	.	.
First Quarter	-0.95	2.40	4.37	2.50	-1.27	2.50	-0.48	2.50	713.00	88.00
Second Quarter	-2.70	2.50	0.97	2.70	1.41	2.40	-0.80	2.20	397.00	46.00
Third Quarter	0.39	2.20	-3.42	3.20	3.30	2.60	-0.86	2.80	392.00	25.00
Fourth Quarter	0.89	2.70	-0.67	2.50	2.50	2.40	1.79	2.40	350.00	39.00

(CONTINUED)

Sampling Point . Unit . Location . Type	GW-601		GW-613		GW-614		GW-621		GW-627	
	AQF		AQT		AQT		AQF		AQT	
	OLF		S3		S3		EXP-B		BG	
	pCi/L	CE +/-	pCi/L	CE +/-	pCi/L	CE +/-	pCi/L	CE +/-	pCi/L	CE +/-
GROSS ALPHA MEAN ACTIVITY	2.78	2.30	0.15	0.60	0.08	0.70	3.50	1.40	0.53	0.80
	.	.	.	.	.	.	.	.	.	.
First Quarter	2.78	2.30	0.15	0.56	0.17	0.61	3.18	1.80	-0.85	1.90
Second Quarter	.	.	.	.	.	.	.	.	0.89	1.40
Third Quarter	.	.	0.15	1.10	-0.01	1.20	.	.	1.09	2.00
Fourth Quarter	.	.	.	.	.	.	3.81	2.20	0.98	1.40
	.	.	.	.	.	.	.	.	.	.
GROSS BETA MEAN ACTIVITY	25.50	4.50	8.85	2.30	5.35	2.00	12.71	2.50	1.56	1.30
	.	.	.	.	.	.	.	.	.	.
First Quarter	25.50	4.50	15.80	3.70	8.89	3.00	16.10	3.70	0.58	2.60
Second Quarter	.	.	.	.	.	.	.	.	1.12	2.30
Third Quarter	.	.	1.90	2.60	1.82	2.50	.	.	1.75	2.70
Fourth Quarter	.	.	.	.	.	.	9.32	3.50	2.79	2.60

(CONTINUED)

APPENDIX K

5

Gross Alpha and Gross Beta Activity Data Summary, 1994

Sampling Point	GW-637		GW-642		GW-652		GW-653		GW-654	
Unit	AQT		AQT		AQF		AQT		AQT	
Location	OLF		BG		BG		BG		BG	
Type	pCi/L	CE +/-	pCi/L	CE +/-	pCi/L	CE +/-	pCi/L	CE +/-	pCi/L	CE +/-
GROSS ALPHA										
MEAN ACTIVITY	0.89	1.00	0.11	0.50	2.40	0.90	2.26	0.90	0.00	0.70
	.	.	.	.	.	.	.	.	.	.
First Quarter	0.17	1.40	-1.27	1.10	-0.19	1.20	0.58	1.10	-0.01	1.20
Second Quarter	-0.18	1.50	-0.65	0.65	0.35	1.00	0.60	0.96	-0.85	1.20
Third Quarter	2.31	2.20	0.32	1.10	5.92	2.50	1.94	1.60	1.18	1.60
Fourth Quarter	1.26	2.80	2.04	1.40	3.51	2.10	5.90	2.70	-0.32	1.40
	.	.	.	.	.	.	.	.	.	.
GROSS BETA										
MEAN ACTIVITY	4.08	1.80	2.80	1.30	4.41	1.40	5.01	1.50	0.83	1.30
	.	.	.	.	.	.	.	.	.	.
First Quarter	0.94	2.60	4.48	2.90	2.36	2.40	0.32	2.50	3.47	2.50
Second Quarter	0.07	2.60	0.98	2.40	7.27	2.70	-0.10	2.40	-0.17	2.60
Third Quarter	7.87	2.80	3.02	2.60	6.30	3.00	0.84	2.90	0.78	2.60
Fourth Quarter	7.42	5.50	2.70	2.50	1.73	3.10	19.00	4.00	-0.78	3.00

(CONTINUED)

Sampling Point	GW-683		GW-684		GW-685		GW-694		GW-695	
Unit	AQF		AQF		AQF		AQF		AQF	
Location	EXP-A		EXP-A		EXP-A		EXP-B		EXP-B	
Type	pCi/L	CE +/-	pCi/L	CE +/-	pCi/L	CE +/-	pCi/L	CE +/-	pCi/L	CE +/-
GROSS ALPHA										
MEAN ACTIVITY	12.78	2.60	12.39	2.50	2.96	1.50	50.20	5.70	5.23	1.70
	.	.	.	.	.	.	.	.	.	.
First Quarter	3.35	1.60	8.37	2.70	0.97	1.60	37.00	6.50	6.00	2.50
Second Quarter	.	.	.	.	.	.	.	.	.	.
Third Quarter	22.20	5.00	16.40	4.20	4.94	2.50	.	.	.	.
Fourth Quarter	.	.	.	.	.	.	63.40	9.40	4.45	2.20
	.	.	.	.	.	.	.	.	.	.
GROSS BETA										
MEAN ACTIVITY	18.13	3.00	30.15	3.60	7.16	2.00	57.95	5.60	10.34	2.50
	.	.	.	.	.	.	.	.	.	.
First Quarter	1.95	2.70	20.10	4.10	2.91	2.40	30.00	5.00	21.20	4.10
Second Quarter	.	.	.	.	.	.	.	.	.	.
Third Quarter	34.30	5.40	40.20	6.00	11.40	3.20	.	.	.	.
Fourth Quarter	.	.	.	.	.	.	85.90	10.00	-0.52	3.00

(CONTINUED)

APPENDIX K

6

Gross Alpha and Gross Beta Activity Data Summary, 1994

Sampling Point Unit Location Type	GW-703		GW-704		GW-706		GW-710		GW-711	
	AQF		AQF		AQF		AQF		AQF	
	EXP-B		EXP-B		EXP-B		EXP-W		EXP-W	
	pCi/L	CE +/-	pCi/L	CE +/-	pCi/L	CE +/-	pCi/L	CE +/-	pCi/L	CE +/-
GROSS ALPHA MEAN ACTIVITY	3.32	1.40	3.27	1.40	31.35	4.20	-16.91	23.20	-37.20	24.70
First Quarter	4.92	2.30	3.44	2.00	24.60	5.00	-43.10	44.00	-69.60	47.00
Second Quarter	.	.	.	.	.	.	.	.	.	.
Third Quarter	.	.	.	.	.	.	9.27	15.00	-4.79	15.00
Fourth Quarter	1.72	1.50	3.09	1.90	38.10	6.80	.	.	.	.
GROSS BETA MEAN ACTIVITY	31.95	3.70	12.11	2.30	51.15	5.30	-40.93	31.70	-35.99	32.50
First Quarter	44.50	6.30	14.60	3.50	24.30	4.50	-76.20	59.00	-80.90	60.00
Second Quarter	.	.	.	.	.	.	.	.	.	.
Third Quarter	.	.	.	.	.	.	-5.66	23.00	8.92	25.00
Fourth Quarter	19.40	3.90	9.62	3.00	78.00	9.50	.	.	.	.

(CONTINUED)

Sampling Point Unit Location Type	GW-712		GW-713		GW-714		GW-715		GW-723	
	AQF		AQF		AQF		AQF		AQF	
	EXP-W		EXP-W		EXP-W		EXP-W		EXP-C	
	pCi/L	CE +/-	pCi/L	CE +/-	pCi/L	CE +/-	pCi/L	CE +/-	pCi/L	CE +/-
GROSS ALPHA MEAN ACTIVITY	-0.58	1.60	0.08	1.50	1.44	1.90	1.04	1.80	3.76	1.50
First Quarter	-0.94	2.90	0.17	2.80	1.14	2.80	0.49	2.70	1.45	1.70
Second Quarter	.	.	.	.	.	.	.	.	.	.
Third Quarter	-0.21	1.40	-0.01	1.30	1.73	2.50	1.58	2.50	.	.
Fourth Quarter	.	.	.	.	.	.	.	.	6.07	2.40
GROSS BETA MEAN ACTIVITY	0.55	2.00	-0.07	2.00	10.14	2.50	1.43	2.10	28.35	3.40
First Quarter	-0.09	3.30	-2.27	3.10	7.68	3.60	-1.76	3.10	19.20	4.00
Second Quarter	.	.	.	.	.	.	.	.	.	.
Third Quarter	1.18	2.40	2.12	2.50	12.60	3.50	4.61	2.90	.	.
Fourth Quarter	.	.	.	.	.	.	.	.	37.50	5.50

(CONTINUED)

APPENDIX K

7

Gross Alpha and Gross Beta Activity Data Summary, 1994

Sampling Point . Unit . Location . Type	GW-724		GW-725		GW-736		GW-737		GW-738	
	AQF		AQF		AQF		AQF		AQF	
	EXP-C		EXP-C		EXP-C		EXP-C		EXP-C	
	pCi/L	CE +/-	pCi/L	CE +/-	pCi/L	CE +/-	pCi/L	CE +/-	pCi/L	CE +/-
GROSS ALPHA MEAN ACTIVITY	0.10	1.00	0.51	1.10	2.08	1.40	3.18	1.50	1.13	1.10
First Quarter	-0.77	1.60	0.44	1.90	2.18	2.20	3.15	2.30	0.17	1.60
Second Quarter	.	.	.	.	.	.	.	.	.	.
Third Quarter	.	.	.	.	.	.	.	.	.	.
Fourth Quarter	0.96	1.30	0.59	1.20	1.98	1.60	3.20	1.90	2.08	1.60
GROSS BETA MEAN ACTIVITY	40.60	4.20	34.50	3.80	48.70	4.70	43.40	4.40	49.15	4.80
First Quarter	41.80	6.10	33.00	5.30	49.50	6.80	44.10	6.30	48.30	6.70
Second Quarter	.	.	.	.	.	.	.	.	.	.
Third Quarter	.	.	.	.	.	.	.	.	.	.
Fourth Quarter	39.40	5.70	36.00	5.40	47.90	6.50	42.70	6.00	50.00	6.80

(CONTINUED)

Sampling Point . Unit . Location . Type	GW-739		GW-740		GW-793		GW-794		GW-795	
	AQF		AQF		AQT		AQT		AQT	
	EXP-C		EXP-C		AGLLSF		AGLLSF		AGLLSF	
	pCi/L	CE +/-	pCi/L	CE +/-	pCi/L	CE +/-	pCi/L	CE +/-	pCi/L	CE +/-
GROSS ALPHA MEAN ACTIVITY	1.00	1.00	0.79	1.00	-0.34	0.80	1.09	1.00	0.51	0.70
First Quarter	1.31	1.70	-0.01	1.40	-0.51	1.00	1.13	1.50	-0.54	0.95
Second Quarter	.	.	.	.	-0.68	0.96	0.36	1.40	-0.01	1.20
Third Quarter	.	.	.	.	-0.17	0.98	1.97	2.80	1.74	1.60
Fourth Quarter	0.68	1.10	1.59	1.40	-0.01	2.80	0.88	1.60	0.86	1.60
GROSS BETA MEAN ACTIVITY	13.40	2.40	8.97	2.20	1.68	1.70	4.68	1.80	2.19	1.30
First Quarter	13.90	3.50	7.33	3.00	0.96	2.50	3.90	2.90	-0.33	2.60
Second Quarter	.	.	.	.	-1.92	2.40	1.80	2.60	0.86	2.60
Third Quarter	.	.	.	.	1.14	2.40	7.25	5.50	3.63	2.70
Fourth Quarter	12.90	3.30	10.60	3.10	6.56	5.20	5.76	2.80	4.59	2.70

(CONTINUED)

8

Gross Alpha and Gross Beta Activity Data Summary, 1994

Sampling Point • Unit • Location • Type	GW-800		BCK-00.63		BCK-04.55		BCK-09.40		BCK-11.97	
	AQF		CREEK		CREEK		CREEK		CREEK	
	OLF		EXP-SW		EXP-SW		EXP-SW		EXP-SW	
	pCi/L	CE +/-	pCi/L	CE +/-	pCi/L	CE +/-	pCi/L	CE +/-	pCi/L	CE +/-
GROSS ALPHA										
MEAN ACTIVITY	1.36	0.60	9.21	2.20	12.42	2.50	52.40	5.90	47.55	6.40
•	•	•	•	•	•	•	•	•	•	•
First Quarter	0.47	0.72	11.10	2.90	15.10	3.50	60.20	8.90	33.10	6.50
Second Quarter	0.68	0.84	•	•	•	•	•	•	•	•
Third Quarter	2.24	1.80	7.31	3.40	9.74	3.70	44.60	7.60	62.00	11.00
Fourth Quarter	2.03	1.50	•	•	•	•	•	•	•	•
•	•	•	•	•	•	•	•	•	•	•
GROSS BETA										
MEAN ACTIVITY	3.55	1.30	12.25	2.60	13.30	2.70	63.55	5.80	261.50	22.00
•	•	•	•	•	•	•	•	•	•	•
First Quarter	3.19	2.50	11.10	3.10	13.70	3.40	58.90	7.60	118.00	13.00
Second Quarter	4.17	2.30	•	•	•	•	•	•	•	•
Third Quarter	4.50	2.90	13.40	4.20	12.90	4.10	68.20	8.70	405.00	42.00
Fourth Quarter	2.35	2.50	•	•	•	•	•	•	•	•

(CONTINUED)

[illegible]

APPENDIX L
NITRATE CONCENTRATIONS

EXPLANATION

SAMPLING POINT:

BCK	-	Bear Creek Kilometer
GW	-	Monitoring Well
NT	-	Northern Tributary
SS	-	Spring

UNIT:

AQF	-	Knox Aquifer
AQT	-	ORR Aquitard

LOCATION:

AGLLSF	-	Above Grade Low-Level Storage Facility
BG	-	Bear Creek Burial Grounds WMA
EXP	-	Exit Pathway Monitoring Location: Maynardville Limestone Transverse (-A, -B, -C, -W) Spring or Surface Water Sampling Location (-SW)
OLF	-	Oil Landfarm WMA
RS	-	Rust Spoil Area
S3	-	S-3 Site
SPI	-	Spoil Area I
SPI	-	Spoil Area I

NOTES:

All concentrations reported as nitrate (as N) in milligrams per liter (mg/L).

Results reported as less than the detection limit were not used to calculate mean concentrations.

ND	-	Not detected, annual average
.	-	Not sampled
<	-	Not detected at the reported minimum attainable detection limit.

APPENDIX L
Annual Average Nitrate Concentrations, 1994

SAMPLING POINT	UNIT	LOCATION	1994 AVERAGE	QUARTERLY CONCENTRATION (MG/L)			
				First	Second	Third	Fourth
GW-040	AQT	BG	ND	<0.2	<0.2	<0.2	<0.2
GW-042	AQT	BG	0.45	<0.2	<0.2	<0.2	0.45
GW-043	AQT	OLF	ND	<0.2	<0.2	<0.2	<0.2
GW-044	AQT	OLF	0.35	<0.2	<0.2	<0.2	0.35
GW-047	AQT	BG	0.24	<0.2	<0.2	0.24	<0.2
GW-053	AQF	BG	0.5	0.5	<0.2	<0.2	<0.2
GW-056	AQF	EXP-A	0.35	0.5	.	0.2	.
GW-057	AQF	EXP-A	0.36	0.36	.	<0.2	.
GW-061	AQF	BG	15.8	10.6	21	23	8.6
GW-064	AQF	OLF	6.35	7.1	5.5	5.4	7.4
GW-069	AQT	BG	ND	<0.2	<0.2	<0.2	<0.2
GW-079	AQT	BG	ND	<0.2	<0.2	<0.2	<0.2
GW-080	AQT	BG	ND	<0.2	<0.2	<0.2	<0.2
GW-084	AQT	OLF	ND	<0.2	<0.2	<0.2	<0.2
GW-085	AQT	OLF	176.75	115	176	210	206
GW-095	AQF	BG	ND	<0.2	<0.2	<0.2	<0.2
GW-115	AQT	S3	ND	<0.2	.	<0.2	.
GW-162	AQT	BG	0.2	0.2	<0.2	<0.2	<0.2
GW-243	AQT	S3	8927	8927	.	.	.
GW-276	AQT	S3	149.95	147	.	152.9	.
GW-287	AQT	BG	0.31	<0.2	<0.2	<0.2	0.31
GW-311	AQF	RS	0.53	0.4	0.47	0.5	0.74
GW-312	AQF	RS	0.47	0.4	0.49	0.4	0.57
GW-315	AQF	SPI	9.4	3.3	8.3	12	14
GW-317	AQF	SPI	0.33	0.2	<0.2	0.29	0.51
GW-324	AQT	S3	ND	<0.2	.	.	.
GW-325	AQT	S3	ND	<0.2	.	.	.
GW-345	AQT	S3	1.9	1.9	.	.	.
GW-347	AQF	S3	0.3	<0.2	0.2	<0.2	0.39
GW-348	AQF	S3	9.03	9.3	9.4	8.9	8.5
GW-363	AQT	OLF	ND	<0.2	<0.2	<0.2	<0.2
GW-370	AQT	BG	ND	<0.2	<0.2	<0.2	<0.2
GW-372	AQT	BG	ND	<0.2	<0.2	<0.2	<0.2
GW-373	AQT	BG	ND	<0.2	<0.2	<0.2	<0.2
GW-537	AQT	OLF	693	1127	830	81	734
GW-601	AQF	OLF	36.1	36.1	.	.	.
GW-613	AQT	S3	ND	<0.2	.	<0.2	.
GW-614	AQT	S3	ND	<0.2	.	<0.2	.
GW-621	AQF	EXP-B	5.1	5.6	.	.	4.6
GW-627	AQT	BG	ND	<0.2	<0.2	<0.2	<0.2
GW-637	AQT	OLF	ND	<0.2	<0.2	<0.2	<0.2
GW-642	AQT	BG	ND	<0.2	<0.2	<0.2	<0.2
GW-652	AQF	BG	0.81	<0.2	0.8	<0.2	0.81
GW-653	AQT	BG	ND	<0.2	<0.2	<0.2	<0.2
GW-654	AQT	BG	ND	<0.2	<0.2	<0.2	<0.2

APPENDIX L
Annual Average Nitrate Concentrations, 1994

SAMPLING POINT	UNIT	LOCATION	1994 AVERAGE	QUARTERLY CONCENTRATION (MG/L)			
				First	Second	Third	Fourth
GW-683	AQF	EXP-A	6.25	0.5	.	12	.
GW-684	AQF	EXP-A	8.15	4.3	.	12	.
GW-685	AQF	EXP-A	3.24	2.48	.	4	.
GW-694	AQF	EXP-B	11.95	7.9	.	.	16
GW-695	AQF	EXP-B	8.1	9.8	.	.	6.4
GW-703	AQF	EXP-B	15.05	21	.	.	9.1
GW-704	AQF	EXP-B	19.4	20.8	.	.	18
GW-706	AQF	EXP-B	24.4	13.8	.	.	35
GW-710	AQF	EXP-W	ND	<23	.	<0.2	.
GW-711	AQF	EXP-W	ND	<23	.	<0.2	.
GW-712	AQF	EXP-W	0.3	0.3	.	0.3	.
GW-713	AQF	EXP-W	0.47	0.47	.	<0.2	.
GW-714	AQF	EXP-W	4.5	4.7	.	4.3	.
GW-715	AQF	EXP-W	0.46	0.5	.	0.41	.
GW-723	AQF	EXP-C	11.3	7.6	.	.	15
GW-724	AQF	EXP-C	45.2	48.4	.	.	42
GW-725	AQF	EXP-C	79	106	.	.	52
GW-736	AQF	EXP-C	35.9	37.79	.	.	34
GW-737	AQF	EXP-C	38	41.99	.	.	34
GW-738	AQF	EXP-C	19.65	17.3	.	.	22
GW-739	AQF	EXP-C	7	7	.	.	7
GW-740	AQF	EXP-C	3.68	3.05	.	.	4.3
GW-793	AQT	AGLLSF	ND	<0.2	<0.2	<0.2	<0.2
GW-794	AQT	AGLLSF	0.42	0.2	0.4	0.59	0.5
GW-795	AQT	AGLLSF	ND	<0.2	<0.2	<0.2	<0.2
GW-800	AQF	OLF	ND	<0.2	<0.2	<0.2	<0.2
BCK-00.63	CREEK	EXP-SW	2.46	1.31	.	3.6	.
BCK-04.55	CREEK	EXP-SW	2.73	1.56	.	3.9	.
BCK-09.40	CREEK	EXP-SW	14.31	6.62	.	22	.
BCK-11.97	CREEK	EXP-SW	102.33	44.66	.	160	.
NT-01	CREEK	EXP-SW	155.81	83.62	.	228	.
NT-13	CREEK	EXP-SW	ND	<0.2	.	<0.2	.
SS-1	SPRING	EXP-SW	23.89	17.77	.	30	.
SS-4	SPRING	EXP-SW	20.06	3.12	.	37	.
SS-5	SPRING	EXP-SW	8.83	0.65	.	17	.

APPENDIX M
GROUNDWATER ELEVATIONS

EXPLANATION

LOCATION:

AGLLSF	-	Above Grade Low-Level Storage Facility
BG	-	Bear Creek Burial Grounds WMA
EXP	-	Exit Pathway Monitoring Location: Maynardville Limestone Transverse (-A, -B, -C, -W) Spring or Surface Water Sampling Location (-SW)
GBR	-	Gum Branch Road
GC	-	Grassy Creek
LD	-	Lysimeter Demonstration Site
OLF	-	Oil Landfarm WMA
RS	-	Rust Spoil Area
S3	-	S-3 Site
SPI	-	Spoil Area I

SAMPLED IN 94:

Y	-	Well included in the 1994 groundwater monitoring program.
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NOTES:

CTP Elev.	-	The elevation of the centerpoint of the monitored interval.
January	-	Measuring event from January 11 to 24, 1994.
August	-	Measuring event from August 22 to 31, 1994.
Depth	-	The distance in ft from the top-of-casing measuring point to the static water level.
Elev.	-	The groundwater elevation in ft above mean sea level.
+/- Ft	-	The calculated drop in water-level from the January to the August measuring events. Negative results show a rise in water level.
.	-	No information available.

APPENDIX M
Groundwater Elevations, 1994

Sampling Pt.	Location	Sampled in 94	CTP Elev.	January Depth	January Elev.	August Depth	August Elev.	+/- Ft
Water Table Interval								
1034 .	BG		933.93	9.6	927.75	10.5	926.85	0.9
GW-001	OLF		958.44	12.4	968.46	13.9	966.96	1.5
GW-005	OLF		954.62	3.7	961.43	4.1	961.03	0.4
GW-007	OLF		949.92	5.1	958.43	.	.	.
GW-008	OLF		942.86	12.7	952.09	13.3	951.49	0.6
GW-010	OLF		940.63	2.5	950.26	2.9	949.86	0.4
GW-011	OLF		911.90	2.9	950.18	3.1	949.98	0.2
GW-012	OLF		937.40	4.0	949.57	4.5	949.07	0.5
GW-014	BG		922.29	5.8	927.96	6.4	927.36	0.6
GW-015	BG		917.46	3.7	921.73	.	.	.
GW-016	BG		914.67	8.5	919.56	9.0	919.06	0.5
GW-018	BG		906.14	6.8	917.69	7.7	916.79	0.9
GW-041	BG		981.52	13.8	993.75	20.7	986.85	6.9
GW-043	OLF	Y	984.78	28.3	983.21	26.8	984.71	-1.5
GW-045	BG		898.65	6.4	903.39	.	.	.
GW-047	BG	Y	906.79	.	.	7.6	920.65	.
GW-050	BG		901.93	13.9	900.68	.	.	.
GW-051	BG		900.55	9.6	901.11	9.8	900.91	0.2
GW-052	BG		891.96	7.6	898.44	12.8	893.24	5.2
GW-053	BG	Y	878.23	4.6	898.07	8.5	894.17	3.9
GW-065	OLF		948.07	22.3	959.95	27.2	955.05	4.9
GW-067	OLF		945.13	8.9	952.60	9.7	951.80	0.8
GW-080	BG	Y	951.78	20.4	959.91	23.0	957.31	2.6
GW-084	OLF	Y	971.22	12.6	984.00	14.4	982.20	1.8
GW-086	OLF		954.20	12.7	970.06	13.7	969.06	1.0
GW-087	OLF		943.72	6.7	953.80	7.9	952.60	1.2
GW-089	BG		939.98	1.9	962.46	19.9	944.46	18.0
GW-090	BG		946.52	4.4	957.48	6.1	955.78	1.7
GW-091	BG		928.17	8.8	944.68	9.1	944.38	0.3
GW-096A	BG		860.92	8.1	913.31	11.1	910.31	3.0
GW-097	OLF		927.20	.	.	11.2	933.42	.
GW-097A	OLF		925.79	8.6	936.19	.	.	.
GW-101	S3		992.20	8.6	998.73	9.5	997.83	0.9
GW-115	S3	Y	1006.62	6.9	1047.51	10.9	1043.51	4.0
GW-127	S3		984.67	13.7	992.20	.	.	.
GW-133	S3		695.57	80.1	945.76	.	.	.
GW-136	GBR		436.47	4.0	855.41	.	.	.
GW-243	S3	Y	948.48	15.1	996.45	.	.	.
GW-244	S3		946.93	12.6	996.65	.	.	.
GW-245	S3		955.41	13.1	995.98	13.9	995.18	0.8
GW-246	S3		950.97	13.1	996.09	.	.	.
GW-249	BG		956.82	29.8	961.35	35.2	955.95	5.4
GW-257	BG		932.86	28.1	933.58	28.9	932.78	0.8

APPENDIX M
Groundwater Elevations, 1994

Sampling Pt.	Location	Sampled in 94	CTP Elev.	January Depth	January Elev.	August Depth	August Elev.	+/- Ft
GW-276	S3	Y	983.90	4.5	996.77	6.8	994.47	2.3
GW-277	S3		929.25	5.6	996.16	6.4	995.36	0.8
GW-287	BG	Y	915.55	9.2	917.67	9.3	917.57	0.1
GW-289	BG		911.47	11.9	936.57	17.4	931.07	5.5
GW-291	BG		931.89	9.7	938.66	10.1	938.26	0.4
GW-307	RS		955.86	26.5	966.64	30.9	962.24	4.4
GW-308	RS		961.27	27.7	966.10	.	.	.
GW-309	RS		954.27	19.7	968.47	21.6	966.57	1.9
GW-310	RS		969.10	19.2	976.15	21.4	973.95	2.2
GW-311	RS	Y	963.48	31.4	967.95	37.9	961.45	6.5
GW-312	RS	Y	958.83	30.6	965.89	.	.	.
GW-316	SPI		970.98	51.3	995.87	.	.	.
GW-323	SPI		1026.41	86.0	1044.12	86.3	1043.81	0.3
GW-325	S3	Y	989.03	5.4	997.60	15.5	987.50	10.1
GW-345	S3	Y	974.18	17.3	982.16	19.4	980.06	2.1
GW-347	S3	Y	979.11	15.9	985.66	17.6	983.96	1.7
GW-370	BG	Y	930.84	14.3	946.32	13.7	946.92	-0.6
GW-372	BG	Y	934.17	19.4	964.13	24.7	958.83	5.3
GW-443	GBR		784.00	5.8	823.57	.	.	.
GW-445	GBR		802.15	5.7	840.83	.	.	.
GW-531	LD		971.94	15.2	989.41	17.4	987.21	2.2
GW-532	LD		974.30	13.9	983.00	.	.	.
GW-533	LD		977.36	14.3	989.52	.	.	.
GW-537	OLF	Y	960.14	6.4	969.84	6.7	969.54	0.3
GW-538	LD		960.12	17.3	979.59	.	.	.
GW-613	S3	Y	974.17	9.6	1003.77	14.7	998.67	5.1
GW-621	EXP-B	Y	891.17	10.7	914.54	13.4	911.84	2.7
GW-622	BG		907.89	7.9	916.26	9.7	914.46	1.8
GW-624	BG		898.72	8.9	913.06	10.3	911.66	1.4
GW-626	BG		869.45	26.1	916.51	26.1	916.51	0.0
GW-630	LD		962.83	.	.	9.4	977.25	.
GW-637	OLF	Y	917.26	6.2	935.63	9.3	932.53	3.1
GW-638	OLF		931.14	6.0	935.77	7.9	933.87	1.9
GW-641	BG		926.36	16.5	930.16	18.3	928.36	1.8
GW-642	BG	Y	984.23	18.3	996.37	28.6	986.07	10.3
GW-644	OLF		939.93	8.4	951.35	8.9	950.85	0.5
GW-645	OLF		931.80	72.9	933.50	.	.	.
GW-648	RS		953.93	64.9	964.27	68.4	960.77	3.5
GW-649	OLF		966.46	6.4	977.26	.	.	.
GW-651	BG		854.15	4.2	898.92	9.3	893.82	5.1
GW-652	BG	Y	875.68	8.8	892.03	11.3	889.53	2.5
GW-653	BG	Y	896.20	21.5	910.10	23.6	908.00	2.1
GW-654	BG	Y	928.51	6.9	933.89	7.3	933.49	0.4
GW-715	EXP-W	Y	834.17	20.9	853.82	28.2	846.52	7.3

APPENDIX M
Groundwater Elevations, 1994

Sampling Pt.	Location	Sampled in 94	CTP Elev.	January Depth	January Elev.	August Depth	August Elev.	+/- Ft
Bedrock Interval								
GW-002	OLF		928.91	11.0	971.42	12.6	969.82	1.6
GW-044	OLF	Y	954.05	29.4	984.09	27.8	985.69	-1.6
GW-054	BG		855.66	9.0	884.33	8.9	884.43	-0.1
GW-055	BG		871.71	11.3	881.23	9.5	883.03	-1.8
GW-056	EXP-A	Y	834.50	6.6	884.11	7.1	883.61	0.5
GW-057	EXP-A	Y	866.68	4.8	884.56	4.6	884.76	-0.2
GW-058	BG		867.77	19.8	893.16	22.3	890.66	2.5
GW-059	BG		887.72	19.3	893.18	21.7	890.78	2.4
GW-060	BG		856.61	11.9	892.51	15.0	889.41	3.1
GW-061	BG	Y	879.73	11.1	893.34	15.1	889.34	4.0
GW-062	OLF		911.23	27.1	935.06	31.1	931.06	4.0
GW-064	OLF	Y	929.42	21.4	960.16	25.9	955.66	4.5
GW-066	OLF		904.87	7.5	954.22	9.1	952.62	1.6
GW-069	BG	Y	835.15	8.2	918.81	8.8	918.21	0.6
GW-070	BG		793.36	7.4	918.99	7.4	918.99	0.0
GW-071	BG		718.42	6.9	921.52	6.9	921.52	0.0
GW-072	BG		834.97	9.7	920.21	9.9	920.01	0.2
GW-075	OLF		774.05	2.2	962.11	2.7	961.61	0.5
GW-076	OLF		888.53	3.3	962.71	3.9	962.11	0.6
GW-077	BG		820.57	5.4	912.99	5.7	912.69	0.3
GW-078	BG		897.98	3.9	913.43	4.5	912.83	0.6
GW-079	BG	Y	919.74	19.1	961.40	22.9	957.60	3.8
GW-082	BG		927.59	18.9	943.59	19.9	942.59	1.0
GW-083	BG		909.49	10.6	927.23	9.8	928.03	-0.8
GW-085	OLF	Y	926.22	12.8	970.07	13.4	969.47	0.6
GW-094	BG		808.51	5.6	907.52	9.8	903.32	4.2
GW-095	BG	Y	764.88	2.1	908.77	4.6	906.27	2.5
GW-098	OLF		851.54	11.9	933.20	15.7	929.40	3.8
GW-112	GC		640.88	23.5	853.98	.	.	.
GW-113	GC		726.57	17.3	857.49	.	.	.
GW-118	BG		359.37	2.9	909.49	.	.	.
GW-120	OLF		789.19	4.0	943.27	.	.	.
GW-122	S3		887.15	14.2	993.00	17.4	989.80	3.2
GW-123	S3		457.43	5.8	1001.65	4.2	1003.25	-1.6
GW-124	S3		878.51	11.8	994.98	18.3	988.48	6.5
GW-162	BG	Y	929.56	19.6	1020.84	81.9	958.54	62.3
GW-211	EXP		386.14	9.9	786.36	.	.	.
GW-225	OLF		765.21	9.7	933.41	16.8	926.31	7.1
GW-226	OLF		890.56	8.8	934.60	16.9	926.50	8.1
GW-227	OLF		908.91	8.1	938.36	16.4	930.06	8.3
GW-228	OLF		853.85	11.0	935.47	16.9	929.57	5.9
GW-229	OLF		898.21	17.2	931.80	26.1	922.90	8.9
GW-248	BG		903.27	27.7	933.55	28.6	932.65	0.9

APPENDIX M
Groundwater Elevations, 1994

Sampling Pt.	Location	Sampled in 94	CTP Elev.	January Depth	January Elev.	August Depth	August Elev.	+/- Ft
GW-250	BG		932.80	30.8	960.45	34.1	957.15	3.3
GW-286	BG		898.62	9.2	917.63	9.5	917.33	0.3
GW-288	BG		893.07	11.1	937.26	16.9	931.46	5.8
GW-290	BG		916.46	7.2	941.26	6.9	941.56	-0.3
GW-306	RS		937.09	27.9	963.88	.	.	.
GW-313	SPI		944.77	65.2	987.32	72.2	980.32	7.0
GW-314	SPI		939.20	55.2	994.61	.	.	.
GW-315	SPI	Y	947.84	51.9	995.38	59.4	987.90	7.5
GW-317	SPI	Y	936.30	68.6	994.38	76.3	986.68	7.7
GW-324	S3	Y	928.19	5.5	998.33	15.9	987.93	10.4
GW-346	S3		936.88	17.2	978.45	17.3	978.35	0.1
GW-348	S3	Y	923.50	20.1	980.02	23.9	976.22	3.8
GW-363	OLF	Y	892.91	4.6	953.31	5.4	952.51	0.8
GW-364	OLF		879.74	10.7	925.25	17.8	918.15	7.1
GW-365	OLF		794.68	5.8	929.78	11.4	924.18	5.6
GW-366	OLF		891.16	60.7	928.09	.	.	.
GW-367	OLF		848.71	63.4	924.76	70.5	917.66	7.1
GW-368	OLF		763.63	63.9	936.63	.	.	.
GW-369	OLF		864.86	68.3	931.42	77.3	922.42	9.0
GW-371	BG		840.63	16.7	943.52	17.0	943.22	0.3
GW-373	BG	Y	840.25	19.4	963.40	19.3	963.50	-0.1
GW-374	BG		787.94	.	.	2.2	924.74	.
GW-375	BG		776.23	6.5	914.33	7.3	913.53	0.8
GW-520	OLF		911.03	57.6	929.78	64.1	923.28	6.5
GW-526	S3		883.34	11.9	985.55	12.4	985.05	0.5
GW-534	LD		959.61	18.4	982.45	.	.	.
GW-601	OLF	Y	661.84	63.6	938.60	.	.	.
GW-602	OLF		870.76	77.8	999.97	79.6	998.17	1.8
GW-614	S3	Y	928.49	4.6	1007.62	7.2	1005.02	2.6
GW-615	S3		780.42	12.3	1004.45	12.7	1004.05	0.4
GW-616	S3		765.81	9.6	1002.21	10.2	1001.61	0.6
GW-623	BG		665.86	4.0	921.21	4.3	920.91	0.3
GW-627	BG	Y	678.39	23.4	919.45	24.1	918.75	0.7
GW-629	BG		637.27	4.5	922.66	4.9	922.26	0.4
GW-639	BG		827.48	10.7	930.00	.	.	.
GW-640	BG		901.39	15.4	929.98	17.4	927.98	2.0
GW-646	OLF		932.41	39.8	964.66	40.4	964.06	0.6
GW-647	OLF		945.64	68.8	964.47	.	.	.
GW-683	EXP-A	Y	804.10	88.4	883.66	88.6	883.46	0.2
GW-684	EXP-A	Y	778.13	15.3	883.36	15.4	883.26	0.1
GW-685	EXP-A	Y	775.88	7.1	884.41	7.3	884.21	0.2
GW-694	EXP-B	Y	759.33	25.4	915.98	29.3	912.08	3.9
GW-695	EXP-B	Y	880.62	24.7	914.67	28.8	910.57	4.1
GW-703	EXP-B	Y	793.30	38.6	916.09	43.4	911.29	4.8
GW-704	EXP-B	Y	690.99	29.1	915.63	33.8	910.93	4.7

APPENDIX M
Groundwater Elevations, 1994

Sampling Pt.	Location	Sampled in 94	CTP Elev.	January Depth	January Elev.	August Depth	August Elev.	+/- Ft
GW-705	EXP		652.96	23.4	905.07	19.1	909.37	-4.3
GW-706	EXP-B	Y	756.03	12.7	915.97	16.4	912.27	3.7
GW-710	EXP-W	Y	265.93	61.8	849.46	68.2	843.06	6.4
GW-711	EXP-W	Y	260.86	61.1	844.10	66.6	838.60	5.5
GW-712	EXP-W	Y	424.11	29.2	847.89	34.5	842.59	5.3
GW-713	EXP-W	Y	567.73	32.3	848.33	37.6	843.03	5.3
GW-714	EXP-W	Y	742.25	23.1	851.98	30.2	844.88	7.1
GW-723	EXP-C	Y	626.76	71.9	950.33	.	.	.
GW-724	EXP-C	Y	681.02	27.7	951.57	.	.	.
GW-725	EXP-C	Y	820.76	9.0	952.05	.	.	.
GW-736	EXP-C	Y	859.05	7.9	952.22	11.4	948.72	3.5
GW-737	EXP-C	Y	873.25	7.8	952.11	11.3	948.61	3.5
GW-738	EXP-C	Y	904.61	25.7	957.38	.	.	.
GW-739	EXP-C	Y	716.06	71.6	952.14	75.7	948.04	4.1
GW-740	EXP-C	Y	839.15	67.3	952.33	71.5	948.13	4.2
GW-793	AGLLSF	Y	942.10	6.4	961.78	7.6	960.58	1.2
GW-795	AGLLSF	Y	909.12	3.0	922.98	5.4	920.58	2.4
GW-800	OLF	Y	936.00	17.3	947.06	19.8	944.56	2.5
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