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CALENDAR YEAR 1999 GROUNDWATER MONITORING REPORT FOR THE GROUNDWATER PROTECTION PROGRAM, U.S. DEPARTMENT OF ENERGY Y-12 PLANT, OAK RIDGE, TENNESSEE

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AJA TECHNICAL SERVICES, INC.
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Oak Ridge, Tennessee 37831

Managed by

LOCKHEED MARTIN ENERGY SYSTEMS, INC.
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Acronyms and Abbreviations

ACO	Y-12 Plant Analytical Chemistry Organization
BCK	Bear Creek Kilometer
BCV	Bear Creek Valley
Bear Creek Regime	Bear Creek Hydrogeologic Regime
BQR	blank qualification result
CERCLA	Comprehensive Environmental Response, Compensations, and Liability Act
Chestnut Ridge Regime	Chestnut Ridge Hydrogeologic Regime
CRSDB	Chestnut Ridge Sediment Disposal Basin
CRSP	Chestnut Ridge Security Pits
CY	calendar year
DOE	U.S. Department of Energy
DQO	data quality objective
East Fork Regime	Upper East Fork Poplar Creek Hydrogeologic Regime
ft	feet
FY	fiscal year
GWPP	Y-12 Plant Groundwater Protection Program
IWQP	Integrated Water Quality Program
LMES	Lockheed Martin Energy Systems, Inc.
MDA	minimum detectable activity
µg/L	micrograms per liter
ORR	Oak Ridge Reservation
PCP	post closure permit (RCRA)
pCi/L	picoCuries per liter
QA/QC	quality assurance/quality control
RCRA	Resource Conservation and Recovery Act
ROD	record of decision (CERCLA)
RPD	relative percent difference
SS	South Side (of Bear Creek)
SWDF	Solid Waste Disposal Facility
TDEC	Tennessee Department of Environment and Conservation
VOC	volatile organic compound

1.0 INTRODUCTION

This report contains the calendar year (CY) 1999 groundwater and surface water quality monitoring data that were obtained at the U.S. Department of Energy (DOE) Y-12 Plant in Oak Ridge, Tennessee, in accordance with the applicable requirements of DOE Order 5400.1. Groundwater and surface water quality monitoring for the purposes of DOE Order 5400.1, as defined in the *Environmental Monitoring Plan for the Oak Ridge Reservation* (DOE 1996), includes site surveillance monitoring and exit pathway/perimeter monitoring. Site surveillance monitoring is intended to provide data regarding groundwater/surface water quality in areas that are, or could be, affected by operations at the Y-12 Plant. Exit pathway/perimeter monitoring is intended to provide data regarding groundwater and surface water quality where contaminants from the Y-12 Plant are most likely to migrate beyond the boundaries of the DOE Oak Ridge Reservation (ORR).

In addition to the groundwater and surface water quality data obtained specifically for the purposes of DOE Order 5400.1, this report incorporates CY 1999 monitoring results obtained for the purposes of: (1) detection monitoring at several nonhazardous solid waste disposal facilities (SWDFs) associated with the Y-12 Plant, as specified in site-specific operating permits issued by the Tennessee Department of Environment and Conservation (TDEC) Division of Solid Waste Management; (2) Resource Conservation and Recovery Act (RCRA) post closure detection monitoring and RCRA post closure corrective action monitoring at several closed hazardous waste treatment, storage, and disposal facilities associated with the Y-12 Plant, as specified in applicable RCRA post closure permits (PCP) issued by the TDEC; and (3) Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) remedial effectiveness monitoring, as specified in the applicable CERCLA record of decision (ROD) or decision documents pending final approval, and CERCLA pre-remediation baseline water quality monitoring. Groundwater and surface water monitoring data obtained for the purposes of these programs during CY 1999 have also been presented in: (1) annual RCRA groundwater monitoring reports (Bechtel Jacobs Company LLC 2000a, 2000b, and 2000c); (2) semiannual RCRA groundwater monitoring reports (Bechtel Jacobs Company 1999a, 1999b, 2000d, 2000e); (3) semiannual SWDF detection monitoring reports (Bechtel Jacobs Company 1999c, 1999d, 1999e, 1999f, 1999g, 1999h, 1999i, 1999j, and 1999k); and (4) the CERCLA remediation effectiveness report for fiscal year (FY) 1999 (DOE 2000). Data obtained from these monitoring programs are used to identify trends in groundwater/surface water quality at the Y-12 Plant, which is required under DOE Order 5400.1. Also, by incorporating the data from these monitoring programs, this report serves as a consolidated reference for groundwater and surface water quality data obtained at the Y-12 Plant during CY 1999.

Section 2 of this report provides detailed descriptions of the CY 1999 groundwater and surface water sampling activities at the Y-12 Plant, including: sampling locations and dates; groundwater and surface water sampling methods; field measurements and laboratory analyses; quality assurance/quality control (QA/QC) sampling associated with monitoring performed by the Y-12 Plant Groundwater Protection Program (GWPP); data management protocols; and the process used to identify groundwater and surface water quality results that do not meet the data quality objectives (DQOs) of the GWPP. Section 3 describes the semiannual water table elevation monitoring performed at the Y-12 Plant during CY 1999, along with a short discussion of seasonal water table fluctuations and general flow directions. Documents cited for more detailed operational, regulatory, or technical information regarding the CY 1999 groundwater and surface water monitoring activities at the Y-12 Plant are listed in Section 4.

2.0 CY 1999 GROUNDWATER AND SURFACE WATER SAMPLING

Groundwater and surface water quality monitoring at the Y-12 Plant during CY 1999 involved sampling locations in the three hydrogeologic regimes (Figure 1): the Bear Creek Hydrogeologic Regime (Bear Creek Regime), which encompasses a section of Bear Creek Valley (BCV) between the west end of the Y-12 Plant and the west end of BCV (directions are in reference to the Y-12 Plant grid system); the Upper East Fork Poplar Creek Hydrogeologic Regime (East Fork Regime), which encompasses the Y-12 Plant industrial facilities and support structures located between Scarboro Road at the east end of the plant and Old Bear Creek Road at the west end of the plant; and the Chestnut Ridge Hydrogeologic Regime (Chestnut Ridge Regime), which encompasses a section of Chestnut Ridge west of Scarboro Road and east of an unnamed drainage feature southwest of the Y-12 Plant. Monitoring activities in each regime were performed as part of the GWPP, which is managed by Lockheed Martin Energy Systems, Inc. (LMES), and the Integrated Water Quality Program (IWQP), which is managed by Bechtel Jacobs Company. Monitoring implemented by the GWPP during CY 1999 include DOE Order 5400.1 site surveillance and exit pathway/perimeter monitoring (collectively referenced as DOE Order 5400.1 monitoring) in each hydrogeologic regime and along the ORR boundary north of the Y-12 Plant, and SWDF detection monitoring in the Chestnut Ridge Regime, with the associated groundwater and surface water sampling activities performed in accordance with the *Y-12 Plant Groundwater Protection Program Groundwater and Surface Water Sampling and Analysis Plan for Calendar Year 1999* (LMES 1998a), as modified by applicable addenda (Table B.1). Monitoring implemented by the IWQP during CY 1999 include RCRA post-closure groundwater monitoring and CERCLA monitoring in each regime, as well as CERCLA monitoring in Union Valley to the east of the ORR boundary, with the associated groundwater and surface water sampling activities performed in accordance with the IWQP sampling and analysis plans for FY 1999 (Bechtel Jacobs Company 1998) and FY 2000 (Bechtel Jacobs Company 1999l).

2.1 SAMPLING LOCATIONS AND FREQUENCY

The CY 1999 groundwater and surface sampling locations in the Bear Creek, East Fork, and Chestnut Ridge hydrogeologic regimes include 149 monitoring wells, 19 springs, 28 surface water locations, and five building sumps (Tables 2, 3, and 4). Seven of the monitoring wells are equipped with Westbay™ multi-port sampling equipment, hereafter referenced as Westbay wells, which allow collection of groundwater samples from several discrete depth intervals. Information regarding the total depth, geologic formation, aquifer zone, and complete construction details for each monitoring well are provided in Appendix C.1.

2.1.1 Bear Creek Regime

As shown in the following summary, 58 monitoring wells (including five Westbay wells), 7 springs, and 12 surface water stations in the Bear Creek Regime (Figure 2) were sampled during CY 1999 for the purposes of DOE Order 5400.1 monitoring, RCRA monitoring, and CERCLA monitoring (Table B.2).

Table 1. CY 1999 sampling locations in the Bear Creek Regime

Monitoring Driver	Monitoring Wells	Westbay Wells	Springs	Surface Water Stations
DOE Order 5400.1	34	5	4	12
RCRA PCP	8	0	0	0
CERCLA	13	0	6	4
Totals:	**53**	**5**	**7**	**13**

As reflected in the totals shown on Table 1, samples were collected from eight monitoring locations for both DOE Order 5400.1 monitoring and CERCLA monitoring, including two monitoring wells, three springs, and three surface water stations (Table B.2).

Twenty-six monitoring wells, including Westbay wells GW-132 (seven sampling ports), GW-133 (eight sampling ports), GW-134 (10 sampling ports), GW-135 (10 sampling ports), and GW-726 (eight sampling ports), and four surface water sampling stations were sampled for the purposes of DOE Order 5400.1 site surveillance monitoring during CY 1999 (Table B.2). Schematic diagrams showing the number and depth of the sampling ports in each Westbay well are presented in Figure 3 (GW-132, GW-133, GW-134, and GW-135) and Figure 4 (GW-726). Groundwater samples were obtained only once during CY 1999 from most of the monitoring wells, which are located at several waste management facilities within the regime (Figure 2), primarily the S-3 Site (GW-132, GW-133, GW-134, GW-135, GW-236, GW-345, GW-346, and GW-526), the Oil Landfarm (GW-087, GW-228, and GW-601), and the Bear Creek Burial Grounds (GW-082, GW-126, GW-242, and GW-726). One groundwater sample was collected from a recently discovered water supply well (DC WELL, see Addendum 99-04 on Table B.1) that is about six ft in diameter and 20 ft deep, located at an old homestead about 3,000 ft west of the Bear Creek Burial Grounds (Figure 2). Also, water samples were collected only once during CY 1999 from the surface water stations (Table B.2) which are located in northern tributaries of Bear Creek near the Oil Landfarm Waste Management Area (NT-02) and the Bear Creek Burial Grounds Waste Management Area (NT-06, NT-07, and NT-08). Samples were collected semiannually from 10 monitoring wells (Table B.2) located near Spoil Area I (GW-315), Rust Spoil Area (GW-311), the Oil Landfarm Waste Management Area (GW-085, GW-226, GW-537, and GW-829), and the Bear Creek Burial Grounds Waste Management Area (GW-053, GW-287, GW-627, and GW-653) (Figure 2).

Thirteen monitoring wells, four springs, and seven surface water sampling stations were sampled for the purposes of DOE Order 5400.1 exit-pathway/perimeter monitoring during CY 1999 (Table B.2). Groundwater or surface water samples were collected semiannually from all of the sampling locations except surface water station BCK-10.60 which was dry in August (Table B.2). Most of the monitoring wells are components of three Maynardville Limestone Exit Pathway Pickets in the Bear Creek Regime (Figure 2). These Exit Pathway Pickets are located about 2,500 feet (ft) southwest of the Bear Creek Burial Grounds (Picket A); about 1,000 ft southwest of the Oil Landfarm (Picket B); and about 3,000 ft southwest of the S-3 Site (Picket C). The wells in each Exit Pathway Picket are completed at various depths within hydraulically conductive stratigraphic zones along strike-normal transects across the Maynardville Limestone, which is the primary groundwater pathway for groundwater exiting the Bear Creek Regime. Note that the wells comprising Exit Pathway Picket W, which is about a mile west of the Bear Creek Burial Grounds (Figure 2), also serve the purposes of RCRA post-closure corrective action monitoring in the Bear Creek Regime (Table B.2). Each of the springs discharge into Bear Creek from the south side (SS) and are located west of the S-3 Site (SS-1), south of the Oil Landfarm (SS-4), and west of the Bear Creek Burial Grounds (SS-5 and SS-6). The surface water stations, as designated by the Bear Creek kilometer (BCK) value measured upstream from the confluence of Bear Creek and East Fork Poplar Creek, are located north of Pine Ridge (BCK-00.63); near the west end of Bear Creek Valley (BCK-04.55); about 6,200 ft (BCK-07.87) and 1,600 ft (BCK-09.40) downstream of the Bear Creek Burial Grounds; about midway between the Oil Landfarm and the Bear Creek Burial Grounds (BCK-10.60); about 3,600 ft downstream of the S-3 Site (BCK-11.97); and in a northern tributary of Bear Creek (NT-01) about 1,500 ft west of the S-3 Site (Figure 2).

Eight monitoring wells were sampled semiannually during CY 1999 for the purposes of RCRA post closure corrective action monitoring in the Bear Creek Regime (Table B.2). These wells include background well GW-115 located hydraulically upgradient of contaminated groundwater in the regime; point-of-compliance wells located downgradient of the S-3 Site (GW-276), the Oil Landfarm (GW-008), and the Bear Creek Burial Grounds (GW-046); and plume boundary wells GW-712, GW-713, GW-714, and GW-715 located at Exit Pathway Picket

W (Figure 2). Note that the RCRA monitoring data obtained from these plume boundary wells also serve the purposes of DOE Order 5400.1 exit-pathway/perimeter monitoring in the Bear Creek Regime.

Thirteen monitoring wells, six springs that discharge into Bear Creek (SS-4, SS-5, SS-6, SS-6.6, SS-7, and SS-8), and four surface water stations in Bear Creek and two of its northern tributaries (BCK-07.87, BCK-09.47, NT-07 and NT-08) were sampled for the purposes of CERCLA baseline monitoring in the Bear Creek Regime during CY 1999 (Table B.2). Eight of these locations also were used for DOE Order 5400.1 monitoring purposes, including two monitoring wells (GW-704 and GW-706), three springs (SS-4, SS-5, and SS-6), and three surface water stations (BCK-07.87, NT-07 and NT-08). Groundwater or surface water samples were collected semiannually (wet and dry season) from all these locations except for the wells (GW-006, GW-043, GW-044, GW-838, GW-840, GW-904, and GW-905) at the Environmental Management Waste Management Facility, which were sampled quarterly. This site, for which construction has not begun, will be located northwest of the Oil Landfarm Waste Management Area (Figure 2).

2.1.2 Chestnut Ridge Regime

As shown in the following summary, 36 monitoring wells, eight springs, and three surface water stations in the Chestnut Ridge Regime were sampled during CY 1999 for the purposes of DOE Order 5400.1 monitoring, SWDF monitoring, RCRA monitoring, and CERCLA monitoring (Table B.3).

Table 2. CY 1999 sampling locations in the Chestnut Ridge Regime

Monitoring Driver	Monitoring Wells	Springs	Surface Water Stations
DOE Order 5400.1	0	5	0
SWDF permit	17	1	0
RCRA PCP	13	0	0
CERCLA	6	2	3
Totals:	**36**	**8**	**3**

Five springs (SCR2.1SP, SCR2.2SP, SCR3.4SP, SCR5.1SP, and SCR5.4SP) in the Chestnut Ridge Regime were sampled semiannually during CY 1999 for the purposes of DOE Order 5400.1 exit pathway/perimeter monitoring (Table B.3). These springs are located in an unnamed surface drainage feature about 1,000 ft southeast of Industrial Landfill II (SCR2.1SP); in Bethel Valley about 2,500 ft west of Rogers Quarry (SCR2.2SP); in McCoy Branch about 1,600 ft downstream (south) of the Filled Coal Ash Pond (SCR3.4SP); and in an unnamed drainage feature about 1,600 ft north (SCR5.1SP) and 1,200 ft south (SCR5.4SP) of Kerr Hollow Quarry (Figure 5). Groundwater or surface water sampling for the specific purpose of DOE Order 5400.1 site surveillance monitoring in the Chestnut Ridge Regime was not performed during CY 1999 because sufficient data suitable to the purpose of this program were obtained from other monitoring programs (e.g., SWDF detection monitoring).

Seventeen monitoring wells in the Chestnut Ride Regime were sampled semiannually during CY 1999 for the purposes of SWDF detection monitoring (Table B.3); GW-540, GW-709 and GW-757 at Industrial Landfill II; GW-141, GW-217, GW-305, GW-521, GW-522 at Industrial Landfill IV; GW-557, GW-796, GW-797, GW-799, and GW-801 at Industrial Landfill V; and GW-542, GW-543, GW-544, and GW-827 at Construction/Demolition Landfill VI (Figure 5). Well GW-540 serves as an upgradient well for Industrial Landfill II and a downgradient well for Construction/Demolition Landfill VI. Additionally, a spring (SCR4.3SP) located about 2,400 ft southeast

of Industrial Landfill V (Figure 5) was sampled semiannually for the purposes of SWDF detection monitoring at this site. Note that the SWDF detection monitoring results for wells GW-521, GW-557, GW-796, GW-799, and GW-801 also serve the purposes of RCRA post closure corrective action monitoring at the Chestnut Ridge Security Pits (CRSP).

Four monitoring wells in the Chestnut Ridge Regime were sampled semiannually during CY 1999 for the specific purposes of RCRA post-closure corrective action monitoring at the CRSP (Table B.3). These wells include a point-of-compliance well (GW-609) located about 800 ft east (downgradient) of the site and three plume delineation wells located at the Chestnut Ridge Borrow Area Waste Pile (GW-301) about 3,000 ft east of the site, at the Construction/Demolition Landfill VII (GW-798) about 1,500 ft southeast of the site, and at the Filled Coal Ash Pond (GW-831) about 2,000 ft southwest of the site (Figure 5). As noted previously, the sampling results for the remainder of the CY 1999 RCRA monitoring well network for the CRSP, including upgradient/background well GW-521, point of compliance well GW-796, and plume delineation wells GW-557, GW-799, and GW-801, were obtained from semiannual SWDF detection monitoring at Industrial Landfill IV (GW-521) and Industrial Landfill V (GW-557, GW-796, GW-799 and GW-801).

Nine monitoring wells in the Chestnut Ridge Regime were sampled semiannually during CY 1999 for the purposes of RCRA post closure detection monitoring at the Chestnut Ridge Sediment Disposal Basin (CRSDB) and Kerr Hollow Quarry (Table B.3). The RCRA monitoring well network at the CRSDB includes one well (GW-159) located hydraulically upgradient (northwest) of the site and three point-of-compliance wells (GW-156, GW-731, and GW-732) to the east-southeast (hydraulically downgradient) of the site (Figure 5). Two upgradient/background wells (GW-142 and GW-231) and three downgradient point-of-compliance wells (GW-143, GW-144, and GW-145) comprise the RCRA monitoring well network at Kerr Hollow Quarry (Figure 5). Note that four replicate groundwater samples (Table B.3) were collected from each of the RCRA monitoring wells at the CRSDB and Kerr Hollow Quarry during each semiannual sampling event (replicate sampling is required under site-specific conditions of the PCP for the Chestnut Ridge Regime).

Six monitoring wells at the United Nuclear Corporation Site (1090, GW-203, GW-205, GW-221, GW-302, and GW-339), which is in the northwest portion of the Chestnut Ridge Regime (Figure 5), and Outfall 301 at Kerr Hollow Quarry were sampled semiannually (wet season and dry season) during CY 1999 for the purposes of the respective CERCLA ROD for each site (Table B.3). Note that the data obtained from RCRA monitoring at Kerr Hollow Quarry are also used for the monitoring purposes defined in the ROD for this site.

Two surface water stations (MCK 2.0 and MCK 2.05) and two springs (SCR1.25SP and SCR2.1SP) were sampled semiannually during CY 1999 for CERCLA baseline monitoring purposes (Table B.3). The surface water stations are located in McCoy Branch, which drains the west-central part of the regime, and the springs discharge into unnamed surface drainage features in the southwestern portion of the regime (Figure 5).

2.1.3 East Fork Regime

As shown in the following summary, 55 monitoring wells (including two Westbay wells), 13 surface water stations, five building sumps, and four springs were sampled for the purposes of DOE Order 5400.1 monitoring, RCRA monitoring, and CERCLA monitoring in the East Fork Regime (Table B.4).

Table 3. CY 1999 sampling locations in the East Fork Regime, north of Pine Ridge, and in Union Valley

Monitoring Driver	Monitoring Wells	Westbay Wells	Springs	Bldg. Sumps	Surface Water Stations
DOE Order 5400.1	36	2	0	5	6
RCRA	5	0	0	0	0
CERCLA	14	0	4	0	7
Totals:	**53**	**2**	**4**	**5**	**13**

Samples collected from two of the monitoring wells (GW-220 and GW-618) were collected for both DOE Order 5400.1 monitoring and CERCLA monitoring purposes.

Fourteen of these sampling locations lie outside the boundaries of the East Fork Regime. Six wells (GW-169, GW-170, GW-171, GW-172, GW-230, and GW-232) and three springs (SCR7.1SP, SCR7.18SP and SCR7.8SP) are in Union Valley east of Scarboro Road (Figure 6) beyond the ORR boundary, and surface water stations NPR07.0SW, NPR10.0SW, NPR12.0SW, GHK2.51ESW, and GHK2.51NSW are along the ORR boundary north of Pine Ridge (Figure 7).

Twenty-six monitoring wells and five building sumps were sampled during CY 1999 for the purposes of DOE Order 5400.1 site surveillance monitoring in the East Fork Regime (Table B.4). Groundwater samples were obtained semiannually from most of the monitoring wells, which are located at several sites within the regime (Figure 6), including New Hope Pond (GW-148, GW-153, GW-223, and GW-383), the Beta-4 Security Pits (GW-192), Tank-0134U (GW-204), the Uranium Oxide Vault (GW-218 and GW-219), the S-2 Site (GW-251), the Waste Coolant Processing Facility (GW-337), the S-3 Site (GW-109), and the Fire Training Facility (GW-620). Groundwater samples were collected in February 1999 from selected sumps in the basements of Building 9201-5, 9204-2, and 9204-4, which are located in the west-central part of the regime (Figure 6).

Twelve monitoring wells, including Westbay wells GW-722 (10 sampling ports, Figure 8) and GW-131 (10 sampling ports, Figure 9), and five surface water stations were sampled during CY 1999 for the purposes of DOE Order 5400.1 exit pathway/perimeter monitoring in the East Fork Regime (Table B.4). Groundwater samples were collected only once from the Westbay well GW-131, which is located on the northern flank of Chestnut Ridge about 700 ft south of Westbay well GW-722 (Figure 6). Also, surface water samples were collected only once from the sampling stations GHK2.51ESW, GHK2.51WSW, NPR07.0SW, and NPR12.0SW, which discharge into surface drainage features north of Pine Ridge (Figure 6). The remaining monitoring wells and the surface water station in the Lake Reality Spillway were sampled semiannually (Table B.4). These monitoring wells are located northeast of the S-2 Site (GW-618), hydraulically upgradient (GW-153 and GW-380) and downgradient (GW-220) of New Hope Pond, near the ORR Boundary along Scarboro Road (Westbay well GW-722, GW-735, and GW-750), and next to Upper East Fork Poplar Creek in the gap through Pine Ridge (GW-207, GW-208, and GW-816) northeast of the Y-12 Plant (Figure 6).

The well network used for CY 1999 RCRA post closure corrective action monitoring in the East Fork Regime included point-of-compliance well GW-108 located in the western part of the East Fork Regime about 800 ft southeast of the S-3 Site; and plume delineation wells located near Tank 2331-U (GW-193) and upgradient (GW-605 and GW-606) or downgradient (GW-733) of New Hope Pond (Figure 6). The background well (GW-115) used for RCRA purposes in the East Fork Regime is located in the Bear Creek Regime (Figure 2) about 500 ft

north (upgradient) of the S-3 Site. As required by the PCP for the East Fork Regime, groundwater samples were collected from each well semiannually during CY 1999 (Table B.4).

CERCLA ROD monitoring involves semiannual sampling of six monitoring wells and three springs in Union Valley beyond the ORR boundary (Figure 6). CERCLA baseline monitoring included eight monitoring wells, five storm drain outfalls, one spring, and two surface water stations. The monitoring wells are located in the Western Plant Area near the S-2 Site (GW-253 and GW-618) and in the Eastern Plant Area near New Hope Pond (GW-151, GW-154, GW-220, GW-382, GW-762, and GW-832). Also sampled were three storm drain outfalls in the Western Plant Area near the Y-12 Salvage Yard (OF 195, OF 221, and OF 225), Outfall 51 and Spring 17 (SP-17) in the Central Plant Area, and Outfall 200, Station 8, and Station 17 located in Upper East Fork Poplar Creek (Figure 6).

2.2 SAMPLE COLLECTION AND HANDLING

The following discussion pertains to the groundwater and surface water sampling activities performed under the auspices of the GWPP during CY 1999. Personnel from the Sampling and Environmental Support Department of the LMES Analytical Chemistry Organization (ACO) were responsible for collection, transportation, and chain-of-custody control of the groundwater and surface water samples. Groundwater and surface water sampling was performed in accordance with the most recent version of the technical procedure approved by the GWPP Manager (LMES 1997).

The low-flow minimal drawdown sampling method was used to collect groundwater samples from all monitoring wells except Westbay wells (GW-131, GW-132, GW-133, GW-134, GW-135, GW-722, and GW-726) during CY 1999. In accordance with this method, field personnel must determine the pumping flow rate low enough (<300 milliliters per minute) to stabilize the drawdown of the water level in the well (<0.1 ft per quarter-hour) and then obtain field measurements (pH, conductivity, temperature, oxidation-reduction potential, and dissolved oxygen) that show minimal variation over four consecutive readings in the groundwater purged from the well before collecting groundwater samples. Using the minimal drawdown method, representative groundwater samples are obtained with no influence from the stagnant water in the well casing.

Groundwater samples were collected from Westbay wells in accordance with the most recent version (draft) of the technical procedure, *Groundwater Sampling of Westbay ™ Instrumented Wells* (LMES 1996a). The groundwater samples from each sampling port were collected in one or more 250-milliliter non-vented stainless steel sample collection bottles that were filled at the designated depth in the well by opening the sampling port valve. Once filled, the bottles were raised to the surface and the sample was transferred to laboratory sample bottles. Normally, several runs of sample collection bottles were necessary to obtain enough groundwater from the sample zone to fill all of the laboratory sample bottles. The first run of sample collection bottles filled at the sample zone was used as a “formation rinse” to obtain field measurements and condition the sample collection bottles for each particular zone.

Filtered samples were collected from selected monitoring wells and all of the Westbay wells, springs, and surface water stations. Groundwater and surface water samples were filtered using a 0.45-micron filter in the field. All samples were collected in appropriate containers, labeled, logged, placed in ice-filled coolers, and transported to the appropriate ACO laboratory in accordance with chain-of-custody control requirements.

2.3 FIELD MEASUREMENTS AND LABORATORY ANALYTES

The field measurements and laboratory analytes in the following discussion pertain to samples collected for the GWPP during CY 1999, although the samples collected for the IWQP underwent functionally equivalent analyses (Bechtel Jacobs Company 1998 and 1999l). In general, the analytical results for the IWQP reported fewer metals and volatile organic compounds (VOCs) than the results for the GWPP, and not all IWQP samples were analyzed for the major ions. Field measurements and analytical results for both monitoring programs are presented, with the applicable program identified for each sample, in Appendix D (Bear Creek Regime), Appendix E (Chestnut Ridge Regime), and Appendix F (East Fork Regime). Reporting limits vary according to the monitoring program and are specified at the beginning of each appendix. Only analytes with results that exceed the applicable reporting limit in at least one sample are presented in these appendices (i.e., analytes never detected are excluded).

Field personnel measured the depth to water before purging and sampling groundwater in each monitoring well. Sampling personnel also recorded field measurements of pH, temperature, conductivity, dissolved oxygen, and oxidation-reduction potential for each sampling location (Table B.5). Applicable measurements recorded the sampling locations in each regime are presented in Appendices D.1, E.1, and F.1.

Laboratory analyses of most groundwater samples and surface water samples include the following standard suite of analytes: (1) miscellaneous laboratory analytes — pH, conductivity, turbidity, total suspended solids, and total dissolved solids; (2) major ions and trace metals, which is the term used hereafter to differentiate metals that are typically minor constituents in groundwater (e.g., cobalt) from metals that are usually major ionic species (e.g., magnesium); (3)VOCs; and (4) gross alpha and gross beta activity (Table B.5). Unfiltered groundwater and surface water samples were analyzed for all of the standard laboratory analytes; filtered samples were analyzed only for the major cations and trace metals.

Laboratory analyses of the groundwater and surface water samples collected for the GWPP were performed in accordance with the analytical methods listed in Table B.5, and the ACO laboratories located at the Y-12 Plant performed all of the analyses during 1999. Commercial laboratories were subcontracted by Bechtel Jacobs Company to perform the analyses of the samples collected for the IWQP.

2.4 QUALITY ASSURANCE/QUALITY CONTROL SAMPLING

Quality assurance/quality control samples associated with the GWPP sampling activities include a total of 73 laboratory blanks, 144 trip blanks, seven field blanks, and 12 equipment rinsate samples (Table B.6 and Appendix G). The QA/QC samples were prepared and analyzed as specified in the ACO Laboratory Quality Assurance Project Plan (Martin Marietta Energy Systems, Inc. 1991). Laboratory blanks were samples of deionized water analyzed along with several associated groundwater and/or surface water samples to assess the environmental conditions in the laboratory while the associated samples were analyzed. Trip blanks were samples of deionized water prepared in the laboratory and transported in each cooler containing groundwater and surface water samples scheduled for VOC analyses to evaluate the environmental conditions under which the associated samples were transported and stored. Field blanks were samples of deionized water collected at selected monitoring wells to represent field conditions under which the groundwater samples were collected. The deionized water was transported in a sealed glass container and transferred to sample bottles at a monitoring well immediately before groundwater samples were collected. Equipment rinsates were collected to evaluate the procedure used to decontaminate nondedicated sampling equipment. These are samples of the deionized water from the final rinse used to decontaminate nondedicated Well Wizard™ pumps and tubing or the equipment used for the last sampling port of a Westbay well. Rinsate samples were collected after a sampling team had completed sampling at each administrative sampling group (a series of sampling locations grouped for data tracking and management

purposes [LMES 1998a]). If more than one nondedicated Well Wizard™ pump was used for a sampling group, an equipment rinsate sample was collected from each.

Laboratory blanks, trip blanks, field blanks, and equipment rinsate samples were analyzed for VOCs; equipment rinsates were also analyzed for miscellaneous analytes (e.g., pH), major ions, trace metals, and radioanalytes. Analytical results for the QA/QC blanks and equipment rinsate samples prepared for the GWPP are presented in respective subsections of Appendix G.

A summary of organic compounds detected in the blank samples prepared for the GWPP during each quarterly sampling event of CY 1999 is provided in Table B.6. Most of the blank samples were uncontaminated; only 3% of the trip blanks, 1% of the laboratory blanks, 17% of the equipment rinsates, and 14% of the field blanks were contaminated with at least one compound. The proportion of contaminated QA/QC samples is significantly lower than what was reported in previous years. In CY 1998, at least one VOC was detected in 72% of the trip blanks, 54% of the laboratory blanks, 100% of the rinsates, and 80% of the field blanks, and acetone and 2-butanone were most commonly detected.

Corrective actions taken during CY 1998 by the ACO are responsible for nearly eliminating the detection of acetone and 2-butanone in the blank samples analyzed during CY 1999. Personnel of the ACO determined that the occurrence of these compounds in blank samples resulted from a combination of: (1) uncertainty associated with reporting results below the method detection limit and (2) use of a grade of laboratory solvent contaminated with low concentrations of acetone and 2-butanone to clean equipment and prepare standards. In previous years, the ACO reported detection of all VOCs below the contract required reporting limit (typically 5 micrograms per liter [µg/L] or 10 µg/L) down to 1 µg/L with a J (estimated) qualifier, even though the method detection limits were often higher (e.g., 3.8 µg/L for acetone and 2.8 µg/L for 2-butanone). This reporting procedure was modified so that results between the reporting limit and the method detection limit were reported with a J qualifier and results below the method detection limit were reported as not detected at the reporting limit (e.g., 5 U or 10 U). After discovering that low levels of acetone and 2-butanone were present in the General grade methanol used by the laboratory for internal standards and surrogate standards, the ACO replaced the General grade methanol with Purge and Trap grade methanol.

The source for the deionized water used to prepare the trip blanks, equipment rinsates, and field blanks for the Westbay wells is in a different location than the source water used for all of the other sampling locations. The results for the QA/QC samples suggest that the Westbay source water may be contaminated. For example, the only contaminated field blank sample (acetone, 2-butanone, and 2-hexanone) was associated with a second quarter sample from Westbay port GW-131-36, and these compounds were not detected in the associated groundwater sample (see Appendix D.2). Additionally, carbon disulfide was detected only in two equipment rinsate samples and one trip blank sample, all of which were associated with Westbay wells (GW-131-36, GW-132-25, and GW-133-01). The ACO successfully eliminated contamination of the source water used to prepare the QA/QC samples for non-Westbay sampling locations by adding a reverse osmosis deionizing system as a final treatment.

Results for a third quarter trip blank sample suggest cross contamination from the associated groundwater sample. High concentrations of tetrachloroethene (1,500 µg/L), trichloroethene (250 µg/L), and cis-1,2-dichloroethene (940 µg/L) were reported for the September 1999 sample collected from well GW-820 (see Appendix F.2). Similar proportions, but much lower concentrations of tetrachloroethene (12 µg/L), trichloroethene (2 µg/L), and cis-1,2-dichloroethene (8 µg/L), were reported for the trip blank sample associated with this sample.

In addition to the blank samples and equipment rinsates, 32 field duplicate samples were collected for QA/QC purposes from locations in each hydrogeologic regime (see Tables B.2, B.3, and B.4). The duplicate samples were analyzed for the same constituents and parameters specified for the well from which they were collected; analytical results are presented with the regular sample results in Appendices D, E, and F.

2.5 DATA MANAGEMENT

Analytical results for the GWPP groundwater and surface water samples were downloaded directly into SAS® groundwater data files from data files provided by the ACO laboratories. Sampling personnel of the ACO manually input information from field data sheets before electronic transfer to the groundwater database management subcontractor. Downloaded and manually input data were verified in accordance with the *Y-12 Plant Groundwater Protection Program - Groundwater Monitoring Program Data Management Plan* (Martin Marietta Energy Systems, Inc. 1993). The groundwater database management subcontractor and the appropriate ACO staff worked to resolve any incomplete data transfers, irregular parameter names or reporting units, and discrepancies between electronic and hardcopy versions of the data.

Analytical results and field measurements for the IWQP groundwater and surface water samples were extracted from the Project Environmental Measurements System by the GWPP groundwater database management subcontractor and formatted as SAS® files for presentation in this report. The IWQP data management process is similar to the process described above for the GWPP (Bechtel Jacobs Company 1999m).

2.6 DATA QUALITY OBJECTIVE SCREENING

The following sections describe the process used to identify groundwater and surface water quality data that do not meet DQOs as defined in the *Y-12 Plant Groundwater Protection Program - Groundwater Monitoring Program Data Management Plan* (Martin Marietta Energy Systems, Inc. 1993). The DQOs apply to the groundwater and surface water quality data obtained by the GWPP during CY 1999 (i.e., DOE Order 5400.1 monitoring and SWDF monitoring results). The following summary shows the DQO criteria applicable to analytical results for principal ions, trace metals, VOCs, radiological analytes (gross alpha, gross beta, and radionuclides), and miscellaneous laboratory analytes (total suspended solids, total dissolved solids, and turbidity).

Table 4. DQO criteria for GWPP groundwater and surface water samples

DQO Criteria	Major Ions		Trace Metals	VOCs	Radiological Analytes	Misc. Analytes
	Anions	Cations				
Duplicate Sample Results	Ž	Ž	Ž	Ž	Ž	Ž
Filtered/Unfiltered Sample Results		Ž	Ž			
Ion Charge Balance Errors	Ž	Ž				
False-Positive Results				Ž		
Counting Errors					Ž	

Results for the specified groups of analytes that do not meet the specified DQO criteria were replaced with a designated surrogate value (i.e., screened) for data evaluation purposes. All of the screened results were reported

for inorganic and radiological analytes. For the first time since DQO screening began, no false-positive VOC results (analytical artifacts) were screened. Details regarding the data screening process for CY 1999 groundwater and surface water quality data that do not meet applicable DQOs are provided in the following paragraphs.

A total of 32 duplicate samples were collected from 20 monitoring wells, seven Westbay wells, three springs, and one surface water station managed by the GWPP during CY 1999. These duplicates include 12 sampling locations (five wells, five Westbay ports, one spring, and one surface water station) in the Bear Creek Regime (Table B.2); 10 sampling locations (eight wells and two springs) in the Chestnut Ridge Regime (Table B.3); and 10 locations (seven wells and three Westbay ports) in the East Fork Regime (Table B.4). Duplicate samples were analyzed for the suite of laboratory analytes required by the applicable monitoring program. Corresponding results for duplicate samples that differ by an order of magnitude or more were replaced with a missing value (DUP OUT). Only two sets of trace metal results (unfiltered aluminum and filtered iron) reported for a Westbay port (GW-726-09) in the Bear Creek Regime were screened during CY 1999 (see Appendix D).

Filtered and unfiltered groundwater and surface water samples were analyzed for the principal cations and trace metals. Results were replaced with missing values if the dissolved (filtered) concentration exceeded the corresponding total (unfiltered) concentration by an order of magnitude or more. Three sets of results for samples in the East Fork Regime show such a difference and were replaced with a missing value (DIS>TOT): lead concentrations in the July 1999 sample from GW-722-22 and the March 1999 sample from GW-722-26; and zinc concentrations in the September 1999 sample from GHK2.51ESW (see Appendix F).

Analytical results for the major anions (bicarbonate alkalinity, carbonate alkalinity, chloride, fluoride, nitrate, and sulfate) and cations (calcium, magnesium, potassium, and sodium) were screened based on the calculated ion charge balance. The ion charge balance, or the relative percent difference (RPD) between respective summed milliequivalent concentrations (i.e., molecular weight of the ion divided by the net ionic charge) of the total (unfiltered sample) cations and anions, was calculated using the following equation:

$$\mathbf{RPD = ((\ \Sigma\ cations\ -\ \Sigma\ anions) \div (\ \Sigma\ cations + \Sigma\ anions)) \times 100}.$$

If the RPD (absolute value) is equal to or greater than 20%, results for all the principal ions were considered qualitative (i.e., excluded from quantitative evaluation). A total of six samples collected during CY 1999 had unacceptable ion charge balance RPDs. Three of these samples were from locations in the Bear Creek Regime (see Appendix D), including the August 1999 sample from GW-131-15 (-21.3%), the March 1999 sample from GW-346 (-42.1%), and the February 1999 sample from spring SS-8 (-84.4%). The other three samples with high RPDs were collected from locations in the East Fork Regime (see Appendix F), including the July 1999 sample (and duplicate) from GW-605 (-55.7% and -57.4%, respectively) and the November 1999 sample from well GW-620 (-32.5%).

Results for the laboratory blank and trip blank samples associated with each groundwater and surface water sample were used to calculate blank qualification results (BQRs) and identify false-positive results (i.e., sampling and/or analytical artifacts) for VOCs; these results were replaced with zero as a surrogate value. A false-positive result is defined as a VOC concentration that is less than the BQR for the respective compound. The BQRs for acetone, methylene chloride, toluene, and 2-butanone (common laboratory reagents) represent the highest concentration in either associated blank sample multiplied by a factor of 10; BQRs for all other VOCs are similarly calculated using a factor of 5 (U.S. Environmental Protection Agency 1988). There were no false-positive results determined for the samples collected by the GWPP during CY 1999. This lack of false-positive results most likely reflects corrective actions taken by the ACO and the modified reporting method, whereby only results above the method detection limit and below the contract required detection limit are reported as an estimated value

(see Section 2.4). Most of the false-positive VOC results in the past were common laboratory reagents that were detected at or below the method detection limits. Note that false-positive VOC results for the IWQP data were reported as nondetected results.

Results for radioanalytes (gross alpha, gross beta, and radioisotopes) were screened based on the minimum detectable activity (MDA) and counting error reported with each result. The counting error, reported in picoCuries per liter (pCi/L), expresses the degree of analytical uncertainty and is defined as twice the standard deviation for sample activity. A result was replaced with a missing value (<CE) if the reported activity for each radioanalyte was equal to or greater than the specified MDA but less than the reported counting error. A total of nine results were screened, including samples from eight locations (GW-006, GW-043, GW-132-13, GW-526, GW-840, GW-905, SS-6, and SS-7) in the Bear Creek Regime (see Appendix D.3), two gross alpha results for samples (GW-557 and SCR2.2SP) in the Chestnut Ridge Regime (see Appendix E.3), and two results for samples (GW-832 and OF 221) in the East Fork Regime (see Appendix F.3).

Results obtained by the IWQP were subject to similar DQOs (Bechtel Jacobs Company 1999m) and were screened before being combined with the GWPP monitoring results. Therefore, the results presented in Appendices D, E, and F are functionally equivalent to and equally usable as the Y-12 GWPP results.

3.0 CY 1999 GROUNDWATER ELEVATION MONITORING

The following sections contain a brief overview of the groundwater elevation monitoring in the Bear Creek, Chestnut Ridge, and East Fork regimes performed during CY 1999 at the Y-12 Plant. Presampling depth-to-water measurements were not used for this purpose because they were less contemporaneous and probably reflect varying hydrologic conditions across the regime. The wet season water level measurements (April 1999) were obtained by Y-12 GWPP personnel and the dry season water level measurements (September 1999) were obtained by IWQP personnel.

3.1 BEAR CREEK HYDROGEOLOGIC REGIME

Groundwater surface elevations in the Bear Creek Regime were determined from depth-to-water measurements (Table B.7) obtained from 62 monitoring wells during April 4 - 8, 1999 (the seasonally high water table) and September 13 - 24, 1999 (the seasonally low water table). Seasonal contour maps of the water table prepared from these groundwater elevation data (Figure 10) were used to evaluate regime-wide groundwater flow directions.

Isopleths of seasonal groundwater elevations in the Bear Creek Regime generally mirror surface topography, and indicate southwesterly (strike-normal) flow in the Aquitard toward the Aquifer (Maynardville Limestone), with more westerly (strike-parallel) flow in the Maynardville Limestone (the hydrologic drain for the groundwater flow system). Seasonal water level fluctuations, which were less than 10 ft in most wells (Table B.7), influenced the magnitude of horizontal hydraulic gradients but did not significantly alter the overall directions of groundwater flow in the Bear Creek Regime (Figure 10).

3.2 CHESTNUT RIDGE HYDROGEOLOGIC REGIME

Groundwater surface elevations were determined from depth-to-water measurements obtained from 83 monitoring wells during April 4 - 8, 1999 (the seasonally high water table) and 81 monitoring wells during September 13 - 27, 1999 (the seasonally low water table) in the Chestnut Ridge Regime. The water level measurements and calculated groundwater elevations in each well are summarized in Table B.8. Groundwater elevation isopleths indicate eastward (strike parallel) flow along the ridge crest in the northern part of the regime, which is a recharge area and a flow divide, with flow components to the north (across strike) toward the Maynardville Limestone at the base of the ridge, and south (parallel to dip) toward the tributaries on the southern flank of the ridge (Figure 11). Radial groundwater flow directions from hilltops toward crosscutting tributaries dominate the central part of the regime, and flow in the southernmost part of the regime is south toward Melton Hill Reservoir (Clinch River). Seasonal water table fluctuations, which are greatest (>15 ft) in wells located along the crest of Chestnut Ridge (Table B.8), do not significantly alter the overall directions of groundwater flow.

Groundwater elevations in several wells located on the ridge crest, notably well GW-293 at the East Chestnut Ridge Waste Pile and well GW-322 at the CRSP (Figure 11), are more than 10 ft lower than in nearby wells located east and along strike (downgradient direction). Substantial differences between water table elevations over such short distances potentially reflect localized depressions in the water table associated with highly permeable conduits that function as local drains for the shallow karst network. The location of such conduits may correspond with the bedding plane or fracture set potentially associated with a strike-parallel series of sinkholes along the crest of the ridge (Figure 11).

3.3 UPPER EAST FORK POPLAR CREEK HYDROGEOLOGIC REGIME

Groundwater surface elevations determined from depth-to-water measurements recorded for 57 monitoring wells during April 4 - 8, 1999 (the seasonally high water table) and 60 wells during September 10 - 24, 1999 (the seasonally low water table) were used to evaluate groundwater flow directions in the East Fork Regime (Table B.9). Isopleths of seasonal groundwater surface elevations in the water table interval (Figure 12) generally show southeasterly (strike-normal) flow in the Aquitard toward the Aquifer (Maynardville Limestone), the hydrologic drain for the groundwater flow system in the East Fork Regime, and easterly (strike-parallel) flow in the Maynardville Limestone toward the east end of the Y-12 Plant. Seasonal water level fluctuations during CY 1999, typically less than 5 ft throughout the regime (Table B.9), influenced the magnitude of horizontal hydraulic gradients but did not significantly alter the overall directions of groundwater flow in the regime (Figure 12).

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APPENDIX A

FIGURES

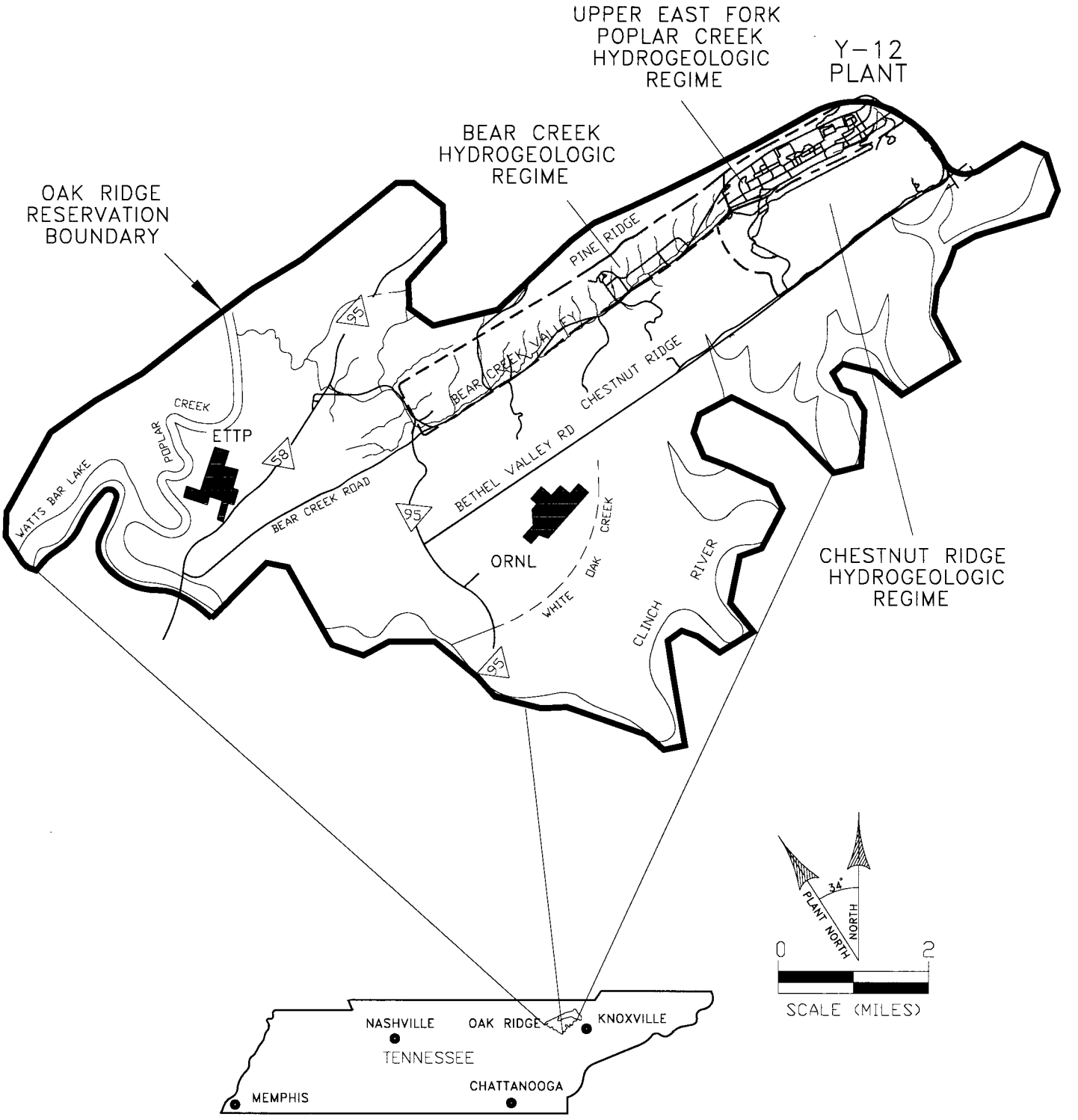

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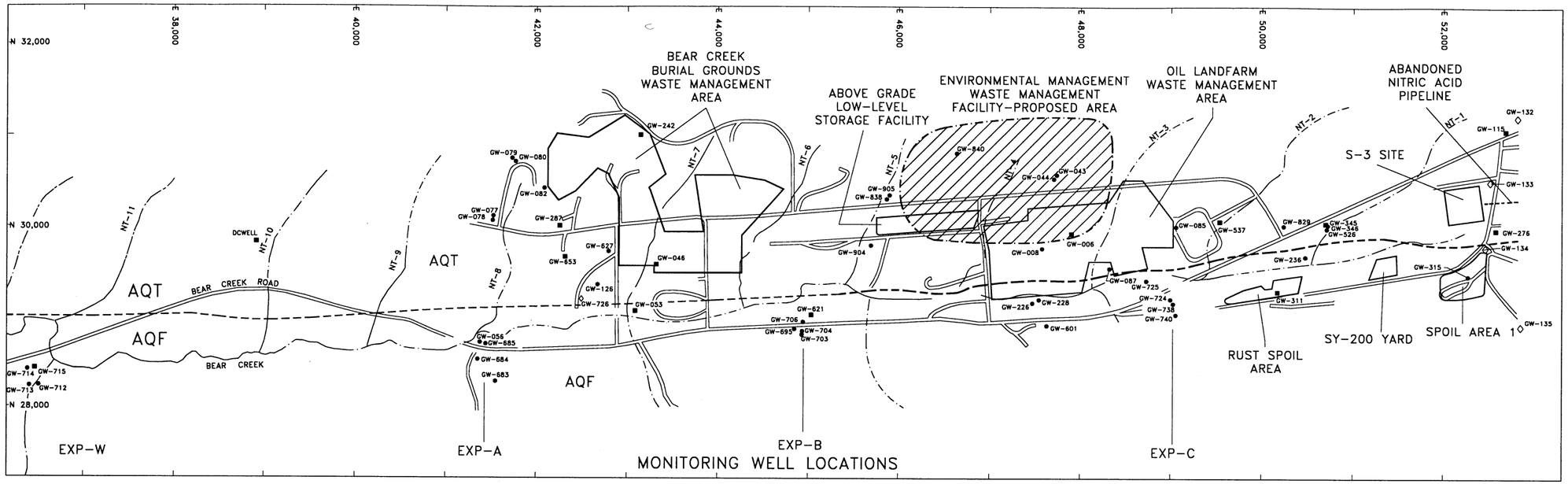
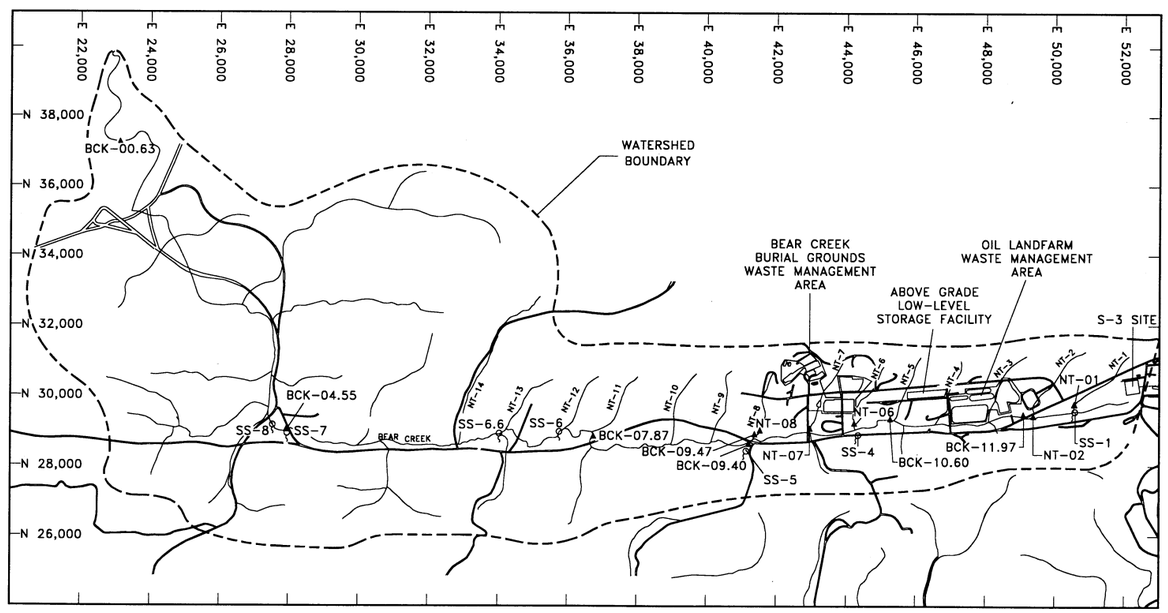
Fig. 1. Hydrogeologic regimes at the Y-12 Plant.



MONITORING WELL LOCATIONS



SPRINGS AND SURFACE WATER SAMPLING LOCATIONS

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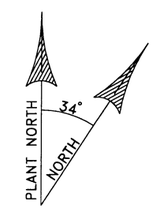
SCALE (ft)

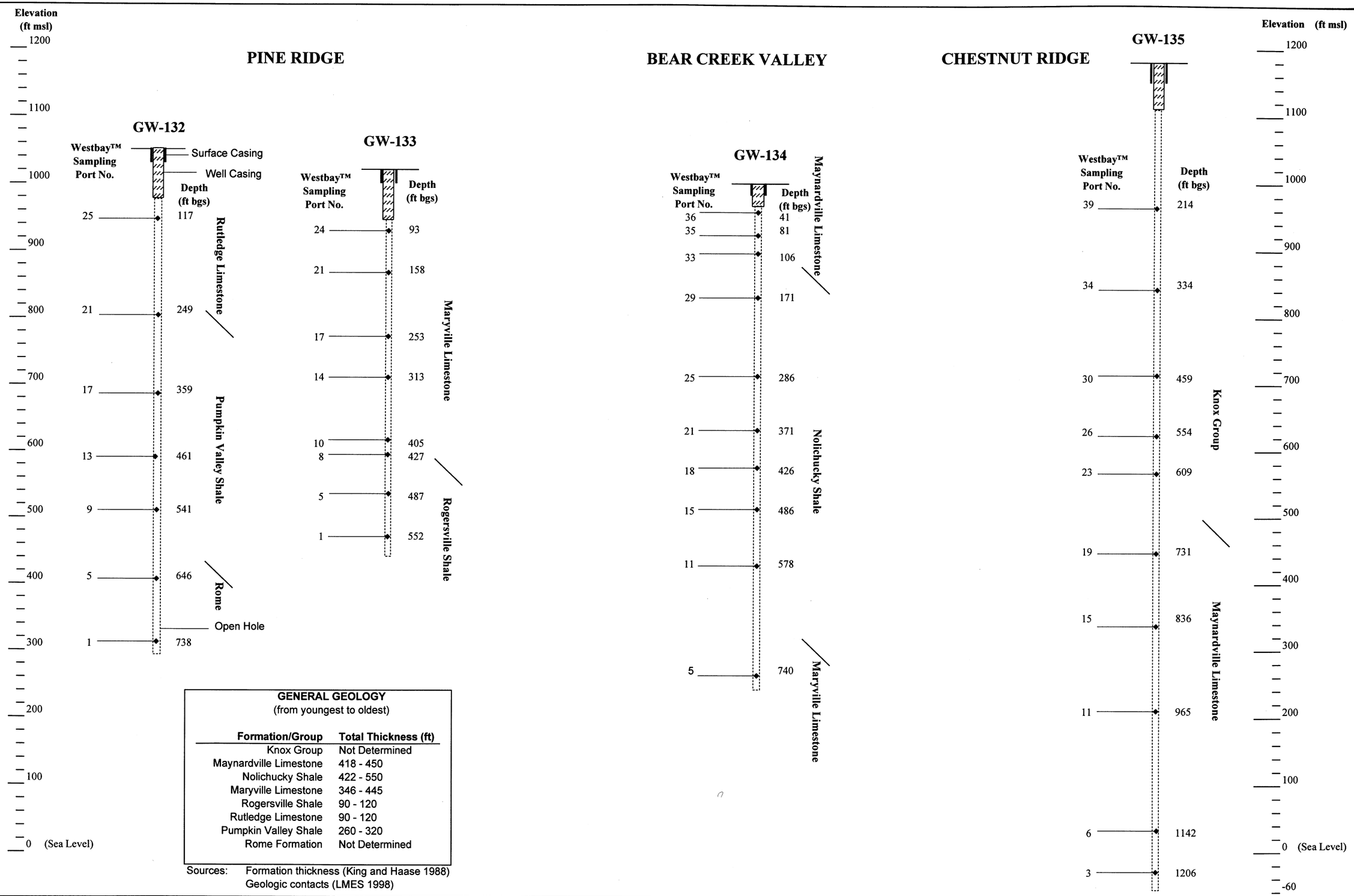


EXPLANATION

- ■ — Water Table Monitoring Well
- ● — Bedrock Monitoring Well
- ◊ — Well With Westbay Multiport Monitoring System
- ▲ — Surface Water Sampling Station
- ♀ — Spring Sampling Station
- EXP-C — Exit Pathway, Maynardville Limestone Picket
- ------ — Surface Drainage Feature
- NT-5 — North Tributary
- AQT — Aquitard
- ---- — Approximate Nolichucky Shale\Maynardville Limestone Contact
- AQF — Aquifer

GMR99_02 03/9/00

Fig.2. CY 1999 Sampling Locations in the Bear Creek Hydrogeologic Regime.



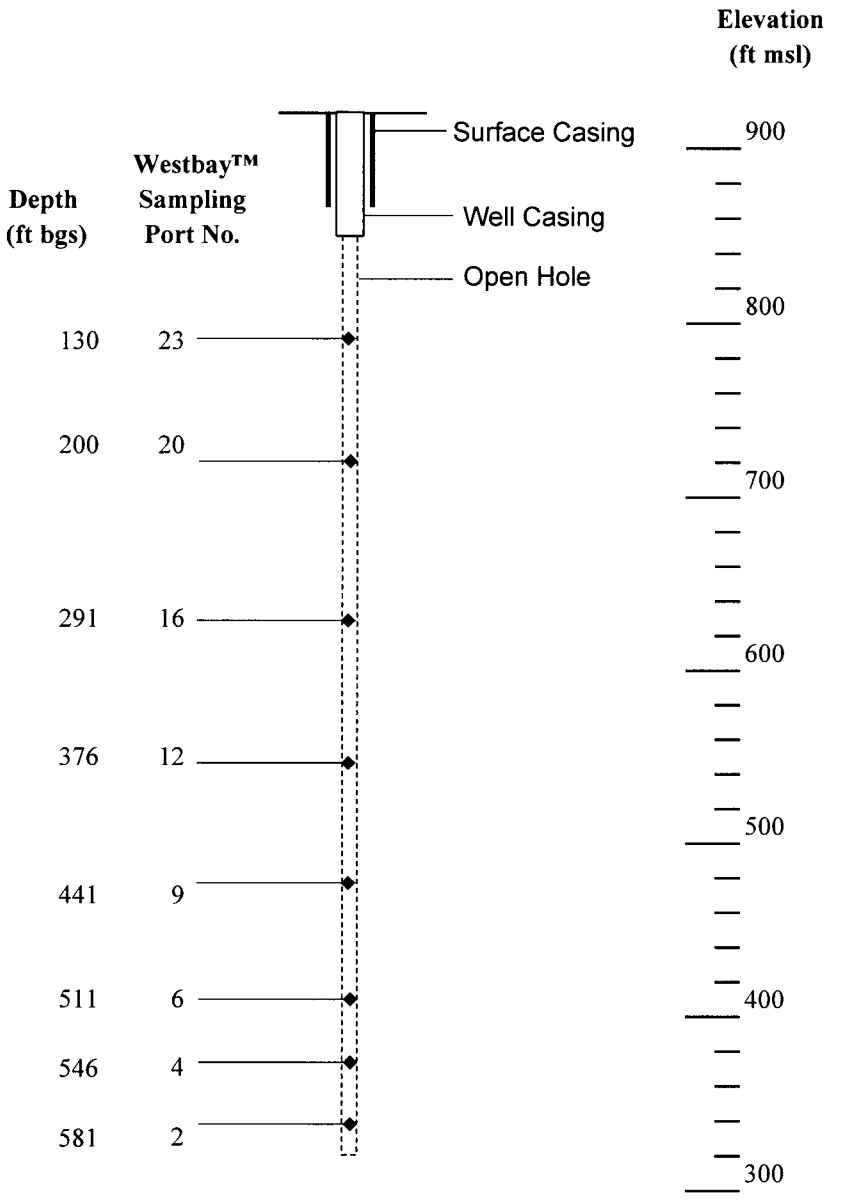
GENERAL GEOLOGY
(from youngest to oldest)

Formation/Group	Total Thickness (ft)
Knox Group	Not Determined
Maynardville Limestone	418 - 450
Nolichucky Shale	422 - 550
Maryville Limestone	346 - 445
Rogersville Shale	90 - 120
Rutledge Limestone	90 - 120
Pumpkin Valley Shale	260 - 320
Rome Formation	Not Determined

Sources: Formation thickness (King and Haase 1988)
Geologic contacts (LMES 1998)

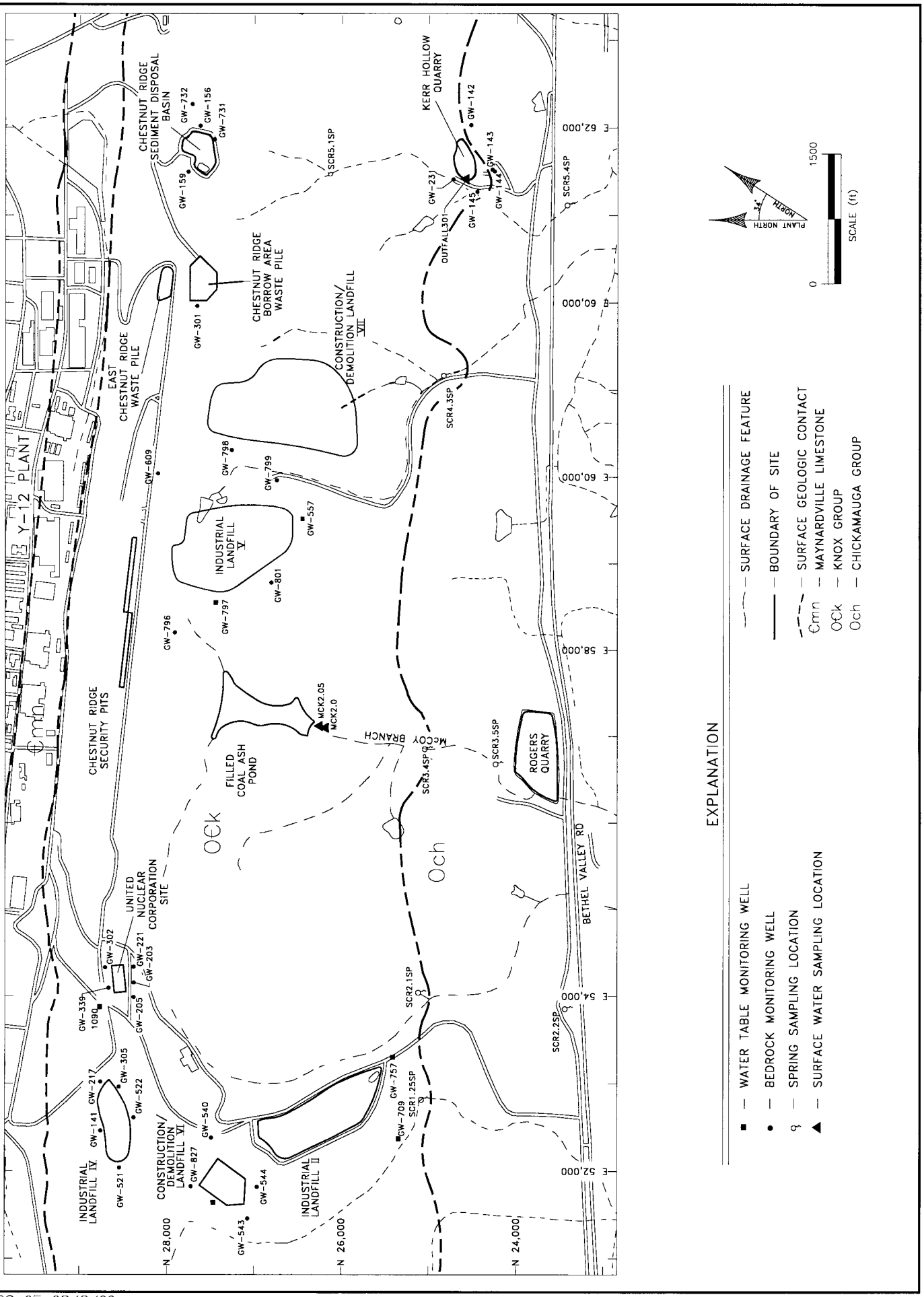
GWMR99_f 03/03/00

Fig.3. Westbay™ monitoring system sampling port depths in wells GW-132, GW-133, GW-134, and GW-135.



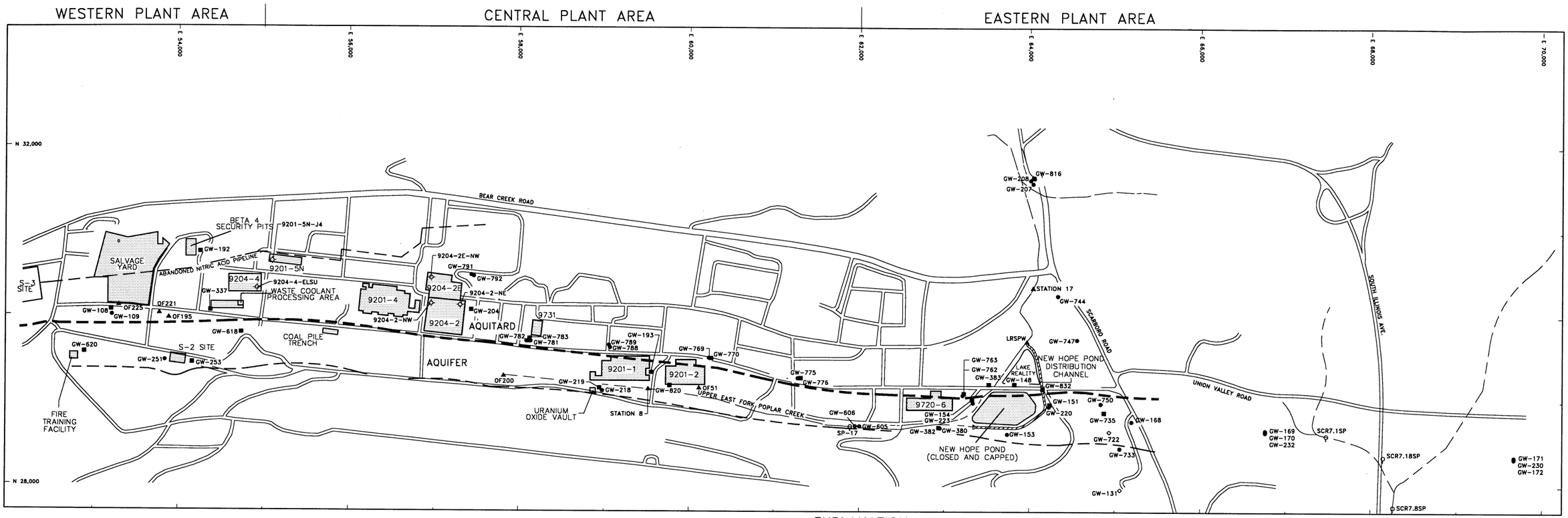
GWMR99_f 01/13/00

Fig.4. Westbay™ monitoring system sampling port depths in well GW-726.



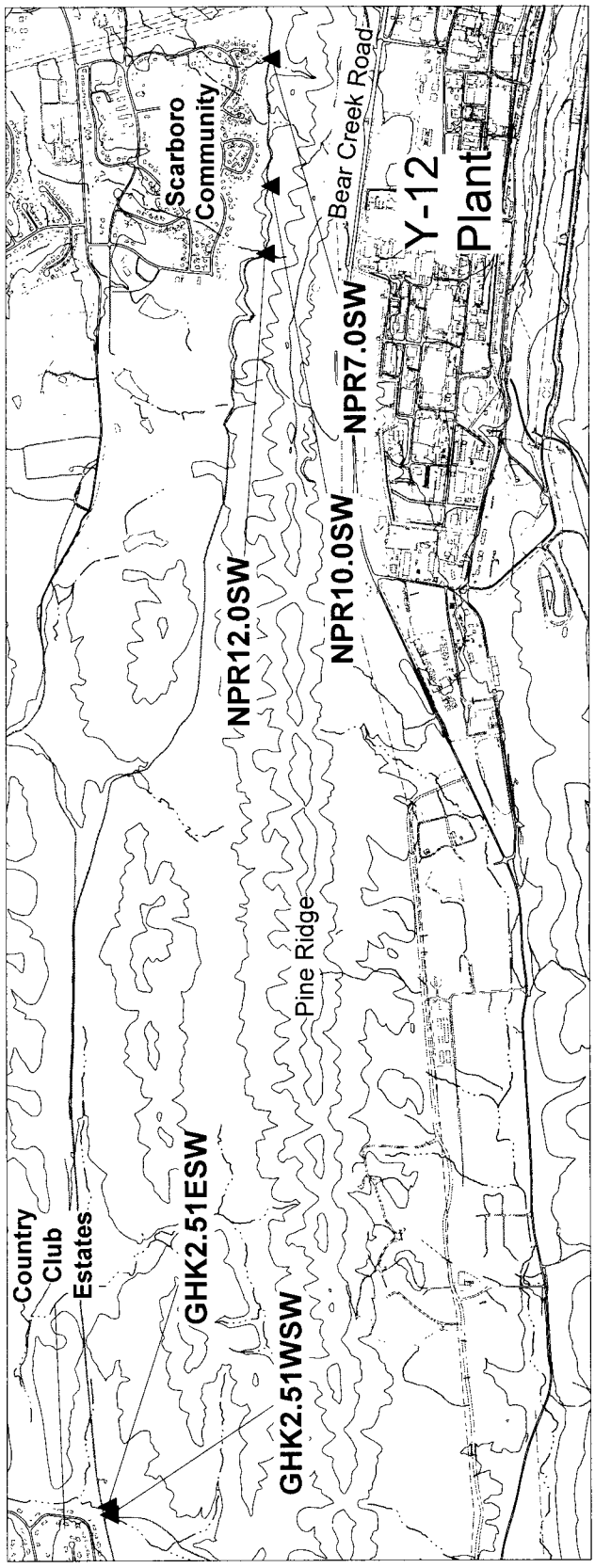
GMR99-05 03/9/00

Fig. 5. CY 1999 Sampling Locations in the Chestnut Ridge Hydrogeologic Regime.



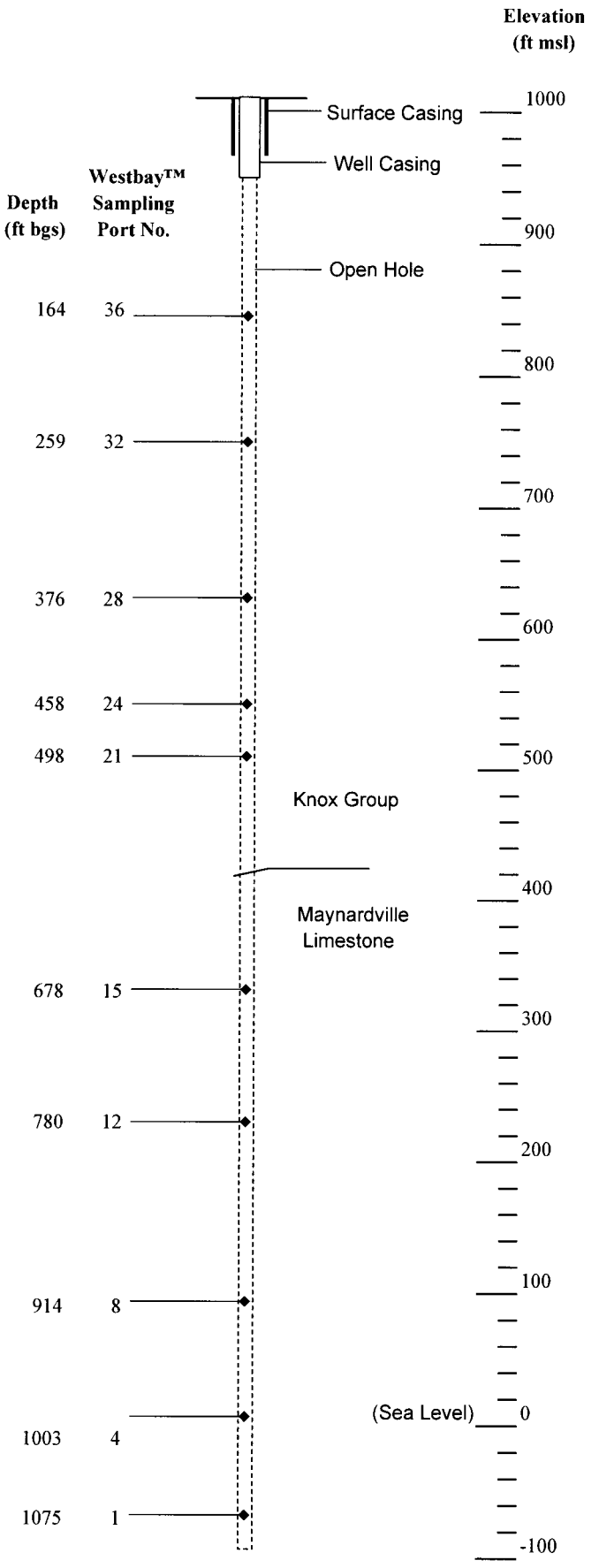
GMR99-06 03/9/00

Fig. 6. CY 1999 Sampling locations in the Upper East Fork Poplar Creek Hydrogeologic Regime and in Union Valley.



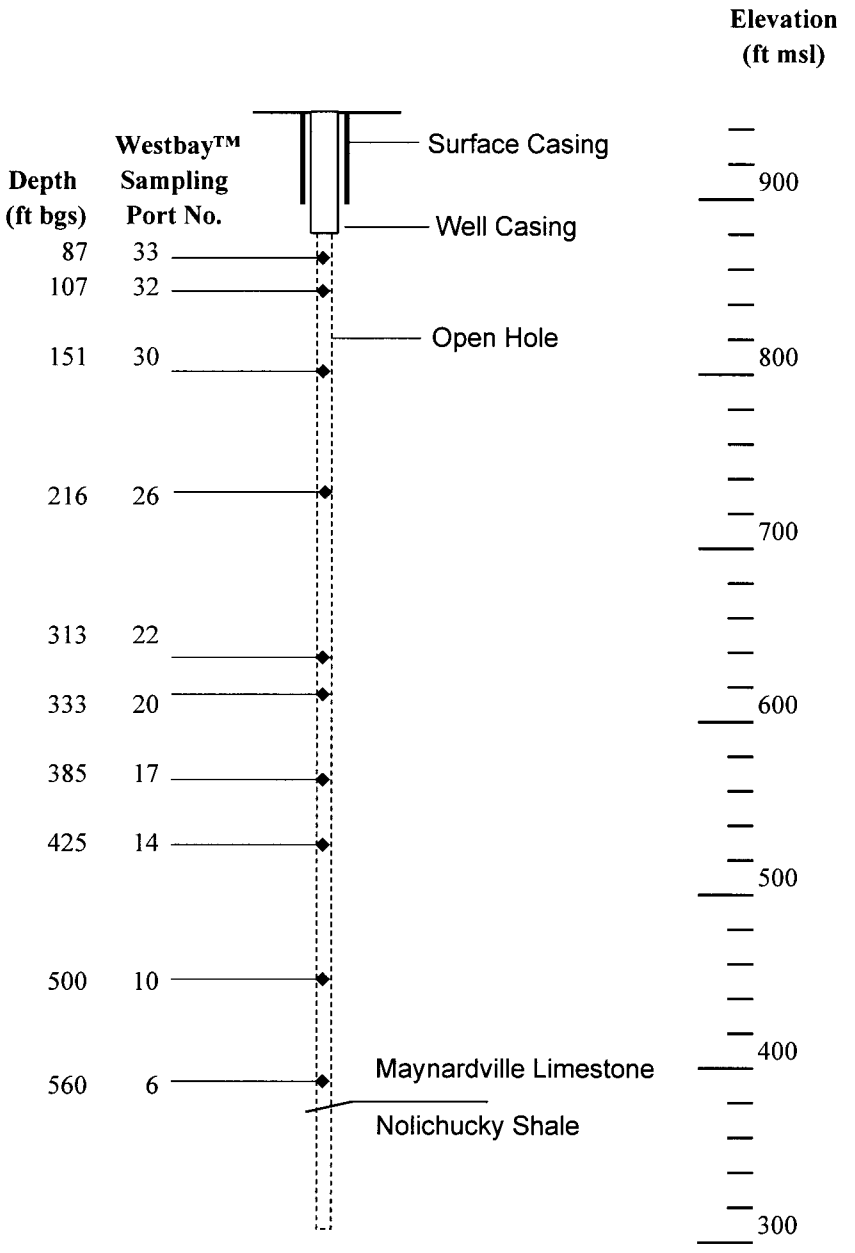
N_pine_r_aja wor 03/02/2000

Fig. 7. CY 1999 sampling locations north of Pine Ridge.



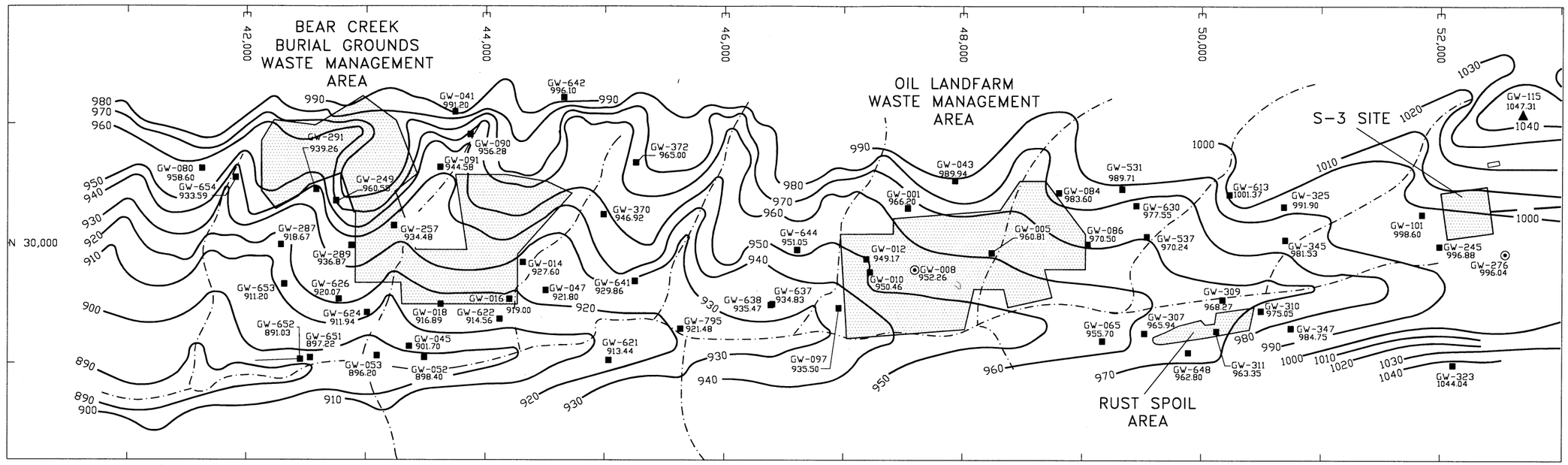
GWMR99_f 01/13/00

Fig.8. Westbay™ monitoring system sampling port depths in well GW-131.

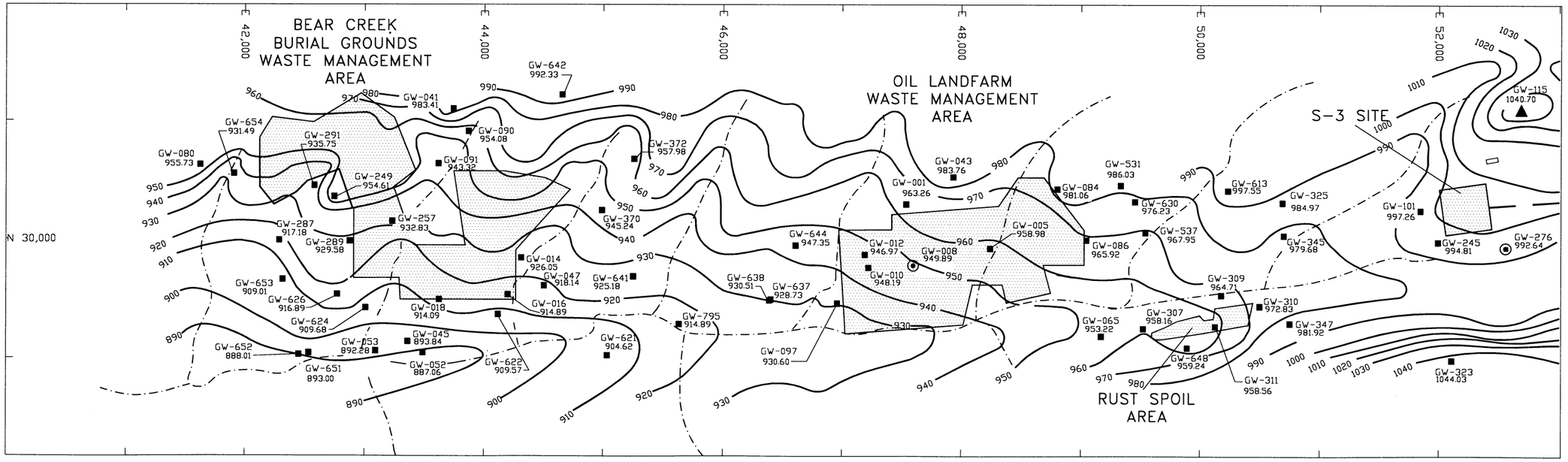


GWMR99_f 03/03/00

Fig.9. Westbay™ monitoring system sampling port depths in well GW-722.



GROUNDWATER ELEVATIONS APRIL 4 - 8, 1999



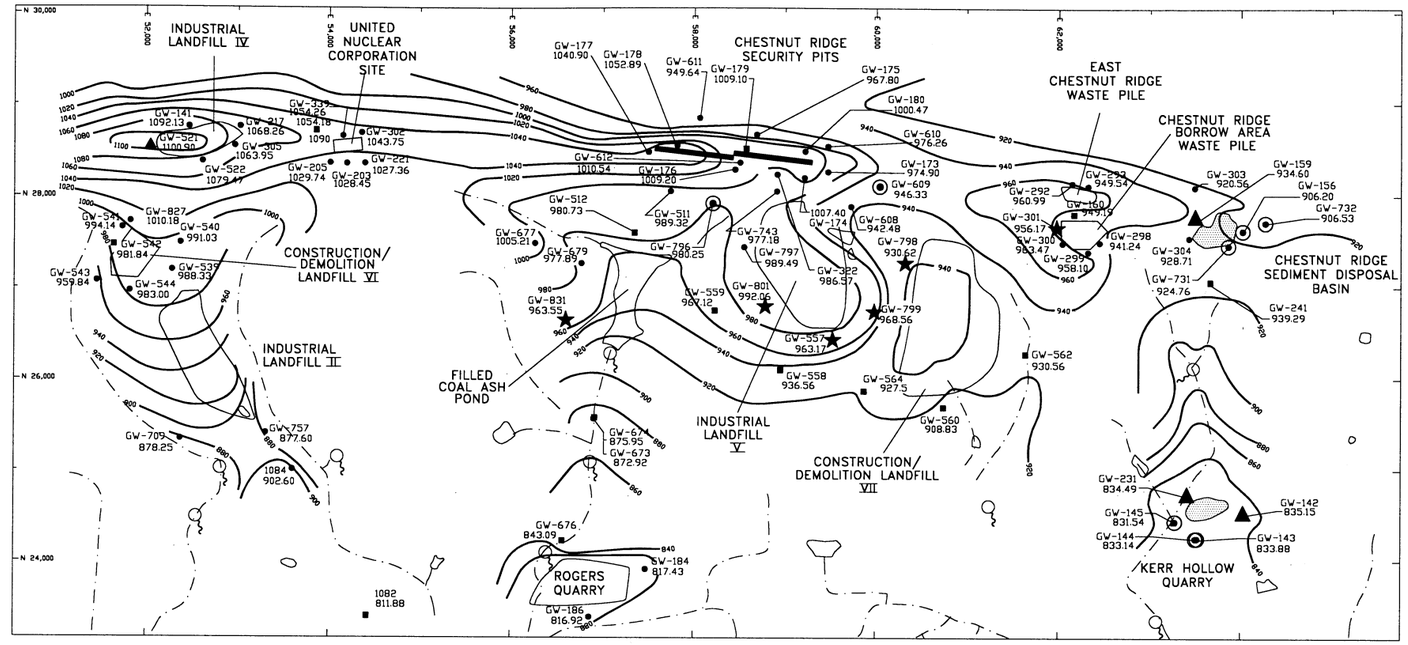
GROUNDWATER ELEVATIONS SEPTEMBER 13 - 24, 1999

EXPLANATION

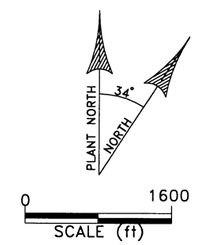
- ▪ WATER TABLE INTERVAL MONITORING WELL
- ▲ RCRA BACKGROUND / UPGRADIENT MONITORING WELL
- ⊙ RCRA POINT-OF-COMPLIANCE MONITORING WELL
- 920 WATER-LEVEL ISOPLETH (ft msl)
- SURFACE DRAINAGE FEATURE
- SPRING

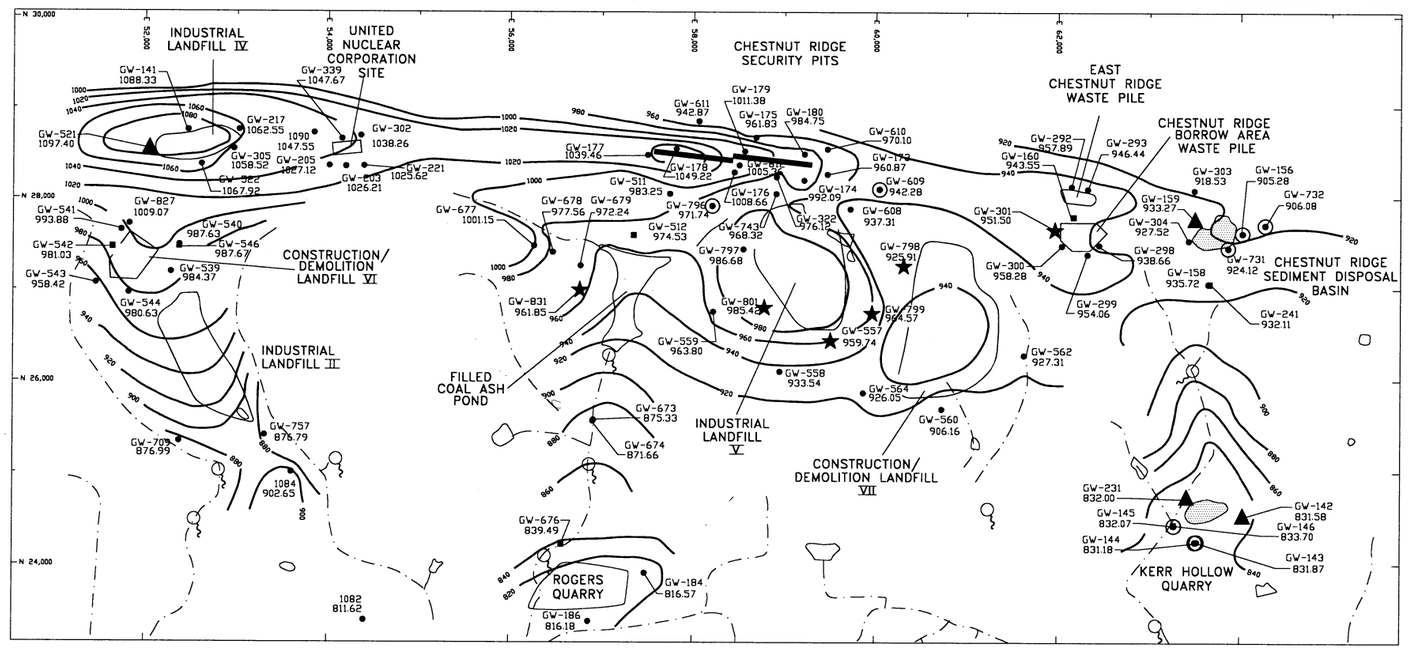
GMR99_10 03/06/00

Fig. 10. Seasonal groundwater elevations in the Bear Creek Hydrogeologic Regime, 1999.



GROUNDWATER ELEVATIONS
APRIL 4 - 8, 1999





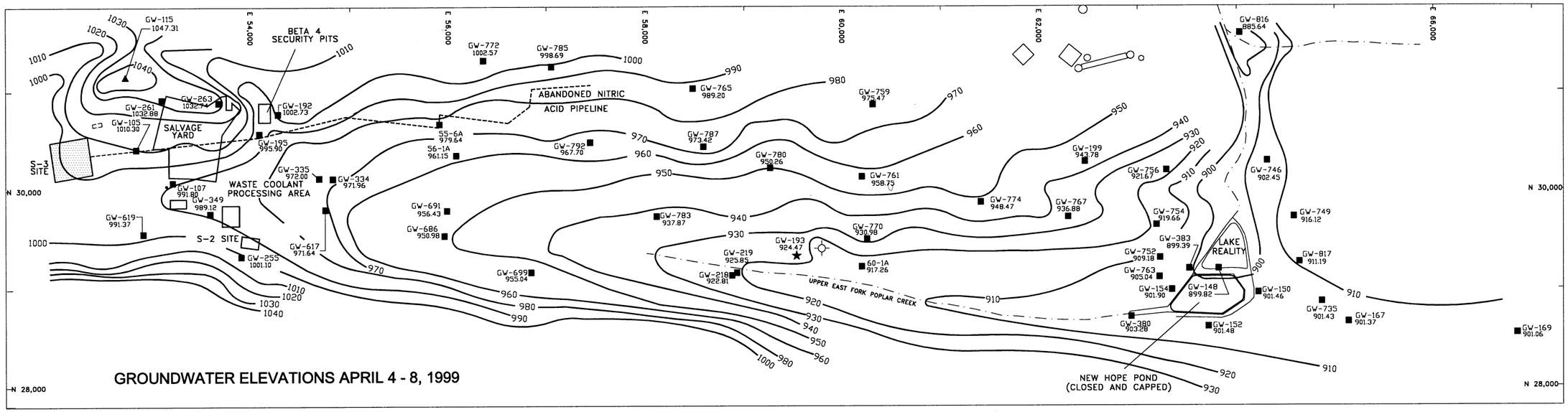
GROUNDWATER ELEVATIONS
SEPTEMBER 13 - 27, 1999

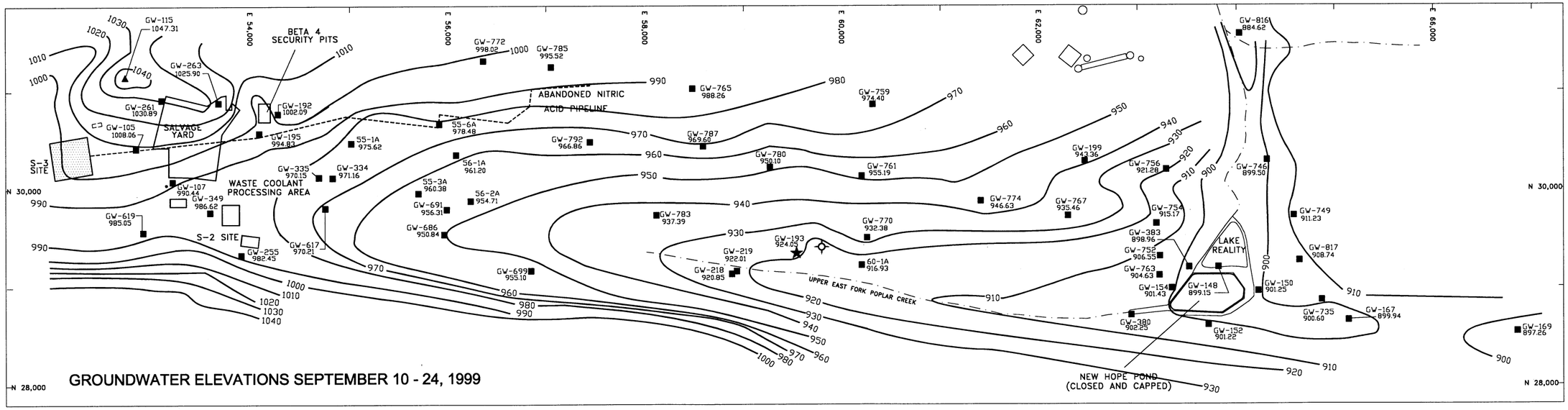
EXPLANATION

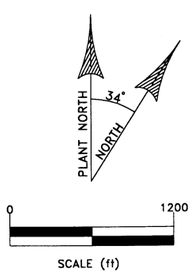
- ▪ WATER TABLE INTERVAL MONITORING WELL
- • BEDROCK INTERVAL MONITORING WELL
- ★ RCRA PLUME DELINEATION MONITORING WELL
- ▲ RCRA BACKGROUND / UPGRADIENT MONITORING WELL
- ⊙ RCRA POINT-OF-COMPLIANCE MONITORING WELL
- —920— WATER-LEVEL ISOPLETH (ft msl)
- —·—·— SURFACE DRAINAGE FEATURE
- SPRING

GMR99_11 03/06/00

Fig. 11. Seasonal groundwater elevations in the Chestnut Ridge Hydrogeologic Regime, 1999.







EXPLANATION

- ■ — WATER TABLE INTERVAL MONITORING WELL
- ▲ — RCRA BACKGROUND / UPGRADIENT MONITORING WELL
- ★ — RCRA PLUME DELINEATION MONITORING WELL
- 980 — APPROXIMATE WATER-LEVEL ISOPLETH (ft msl)
- — SURFACE DRAINAGE FEATURE
- — BUILDING 9201-2 SUMP

GMR99_12 03/03/00

Fig. 12. Seasonal groundwater elevations in the Upper East Fork Poplar Creek Hydrogeologic Regime, 1999.

APPENDIX B

TABLES

Table B.1. Summary of CY 1999 sampling and analysis plan addenda

Addendum No.	Effective Date	Modification to the CY 1999 Sampling and Analysis Plan [1]
99-01	01/15/99	Changed the collection of samples fromWestbay well GW-726 (BC-WB) from the first quarter to the second quarter sampling schedule.
99-02	02/16/99	Added building sumps (9204-4EL, 9204-2NE, 9204-2NW, 9201-5N_J-4, 9204-2E_NW) to the first quarter sampling schedule (East Fork Regime).
99-03	03/12/99	Removed an equipment rinsate sample from group BC-4 during the first quarter.
99-04	03/15/99	Added a sample from an old homestead water supply well at Douglas Cemetery (DC WELL) to the first quarter sampling schedule (BC-2).
99-05	04/01/99	Added samples from 10 ports of Westbay well GW-131 to sample group EF-WB and a rinsate and field blank sample to the second quarter sampling schedule.
99-06	07/30/99	Added samples from Westbay wells GW-132 (7 ports), GW-133 (8 ports), GW-134 (10 ports), and GW-135 (10 ports) plus rinsates to the third quarter sampling schedule as sample groups BC-8, BC-6, BC-5, and BC-7, respectively.
99-07	08/17/99	Added surface water stations north of Pine Ridge (NPR7.0SW, NPR10.0SW, NPR12.0SW, GHK2.51ESW, and GHK2.51WSW) as sample group EF-5 to the third quarter sampling schedule at the request of the U.S. DOE.
99-08	08/26/99	Added samples from seven wells in the East Fork Regime (EF-6) and two wells in the Bear Creek Regime (BC-9) plus rinsates to the third quarter sampling schedule to supplement DOE Order Surveillance monitoring.
99-09	10/13/99	Changed the collection of a field duplicate sample from well GW-219 to GW-218 in EF-4 for the fourth quarter sampling schedule.
99-10	11/03/99	Added two sampling events at well GW-305 (CR-1) to the fourth quarter sampling schedule to assess microbial activity.

Note:

1 Modification to the *Y-12 Plant Groundwater Protection Program Groundwater and Surface Water Monitoring Sampling and Analysis Plan for Calendar Year 1999* (Lockheed Martin Energy Systems, Inc. 1998a).

Table B.2. CY 1999 groundwater and surface water sampling dates in the Bear Creek Hydrogeologic Regime

IWQP[1]		CERCLA Monitoring							
		RCRA Corrective Action Monitoring							
Y-12 Plant GWPP[2]		DOE Order 5400.1 Exit Pathway/Perimeter Monitoring							
		DOE Order 5400.1 Surveillance Monitoring							
Sampling Point[3]	Sampling Location[4]	CY 1999 Sampling Date[5]							
		1st Quarter	2nd Quarter	3rd Quarter	4th Quarter				
BCK-00.63	EXP-SW	02/23/99	.	08/10/99	.		!		
BCK-04.55	EXP-SW	02/23/99	.	08/10/99	.		!		
BCK-07.87	EXP-SW	**02/23/99 D**	.	08/10/99	.		!		
BCK-07.87	EXP-SW	02/03/99	.	08/10/99	.				!
BCK-09.40	EXP-SW	02/24/99	.	08/11/99	.		!		
BCK-09.47	EXP-SW	02/03/99	.	07/29/99	.				!
BCK-10.60	EXP-SW	02/24/99	.	DRY	.		!		
BCK-11.97	EXP-SW	02/25/99	.	08/10/99	.		!		
DC WELL	DCHAPCEM	03/24/99	.	.	.	!			
GW-006	EMWMF	03/30/99	**05/25/99 D**	**08/03/99 D**	10/20/99				!
GW-008	OLF	02/08/99	.	07/15/99	.			!	
GW-043	EMWMF	03/11/99	05/17/99	07/27/99	10/18/99				!
GW-044	EMWMF	03/18/99	05/18/99	07/28/99	10/19/99				!
GW-046	BG	**02/08/99 D**	.	07/15/99	.			!	
GW-053	BG	03/24/99	.	08/26/99	.	!			
GW-056	EXP-A	02/09/99	.	07/28/99	.		!		
GW-077	BG	02/03/99		08/17/99	.				!
GW-078	BG	**02/02/99 D**		08/17/99	.				!
GW-079	BG	02/02/99		08/12/99	.				!
GW-080	BG	02/03/99		**08/12/99D**	.				!
GW-082	BG	03/04/99	.	.	.	!			
GW-085	OLF	03/17/99	.	08/31/99	.	!			
GW-087	OLF	03/11/99	.	.	.	!			
GW-115	S3	01/25/99	.	07/01/99	.			!	
GW-126	BG	03/02/99	.	.	.	!			
GW-132-01	S3	.	.	09/23/99	.	!			
GW-132-05	S3	.	.	09/27/99	.	!			
GW-132-09	S3	.	.	**09/27/99 D**	.	!			
GW-132-13	S3	.	.	09/28/99	.	!			
GW-132-17	S3	.	.	09/28/99	.	!			
GW-132-21	S3	.	.	09/28/99	.	!			
GW-132-25	S3	.	.	09/28/99	.	!			

Table B.2 (continued)

IWQP [1]		CERCLA Monitoring							
		RCRA Corrective Action Monitoring							
Y-12 Plant GWPP [2]		DOE Order 5400.1 Exit Pathway/Perimeter Monitoring							
		DOE Order 5400.1 Surveillance Monitoring							
Sampling Point [3]	Sampling Location [4]	CY 1999 Sampling Date [5]							
		1st Quarter	2nd Quarter	3rd Quarter	4th Quarter				
GW-133-01	S3	.	.	08/16/99	.	!			
GW-133-05	S3	.	.	08/17/99	.	!			
GW-133-08	S3	.	.	08/17/99	.	!			
GW-133-10	S3	.	.	**08/18/99 D**	.	!			
GW-133-14	S3	.	.	08/18/99	.	!			
GW-133-17	S3	.	.	08/18/99	.	!			
GW-133-21	S3	.	.	08/19/99	.	!			
GW-133-24	S3	.	.	08/19/99	.	!			
GW-134-05	S3	.	.	08/03/99 *	.	!			
GW-134-11	S3	.	.	08/04/99 *	.	!			
GW-134-15	S3	.	.	08/04/99 *	.	!			
GW-134-18	S3	.	.	08/04/99 *	.	!			
GW-134-21	S3	.	.	08/05/99 *	.	!			
GW-134-25	S3	.	.	**08/10/99 D**	.	!			
GW-134-29	S3	.	.	08/11/99	.	!			
GW-134-33	S3	.	.	08/11/99	.	!			
GW-134-35	S3	.	.	08/11/99	.	!			
GW-134-36	S3	.	.	08/11/99	.	!			
GW-135-03	S3	.	.	09/08/99	.	!			
GW-135-06	S3	.	.	09/13/99	.	!			
GW-135-11	S3	.	.	09/13/99	.	!			
GW-135-15	S3	.	.	09/14/99	.	!			
GW-135-19	S3	.	.	09/14/99	.	!			
GW-135-23	S3	.	.	09/15/99	.	!			
GW-135-26	S3	.	.	09/15/99	.	!			
GW-135-30	S3	.	.	**09/15/99 D**	.	!			
GW-135-34	S3	.	.	09/16/99	.	!			
GW-135-39	S3	.	.	09/16/99	.	!			
GW-226	OLF	03/18/99	.	**08/31/99 D**	.	!			
GW-228	OLF	.	.	09/09/99	.	!			
GW-236	S3	.	.	09/08/99	.	!			
GW-242	BG	03/08/99	.	.	.	!			
GW-276	S3	02/04/99	.	07/16/99	.			!	
GW-287	BG	03/23/99	.	08/19/99	.	!			
GW-311	RS	03/16/99	.	08/30/99	.	!			

Table B.2 (continued)

IWQP [1]		CERCLA Monitoring							
		RCRA Corrective Action Monitoring							
Y-12 Plant GWPP [2]		DOE Order 5400.1 Exit Pathway/Perimeter Monitoring							
		DOE Order 5400.1 Surveillance Monitoring							
Sampling Point [3]	Sampling Location [4]	CY 1999 Sampling Date [5]							
		1st Quarter	2nd Quarter	3rd Quarter	4th Quarter				
GW-315	SPI	03/16/99	.	08/30/99	.	!			
GW-345	S3	03/09/99	.	.	.	!			
GW-346	S3	03/09/99	.	.	.	!			
GW-526	S3	**03/11/99**	.	.	.	!			
GW-537	OLF	03/18/99	.	08/31/99	.	!			
GW-601	OLF	03/08/99	.	.	.	!			
GW-621	EXP-B	02/15/99	.	08/02/99	.		!		
GW-627	BG	**03/24/99 D**	.	08/26/99	.	!			
GW-653	BG	03/23/99	.	08/19/99	.	!			
GW-683	EXP-A	02/11/99	.	07/29/99	.		!		
GW-684	EXP-A	02/10/99	.	07/29/99	.		!		
GW-685	EXP-A	02/09/99	.	07/28/99	.		!		
GW-695	EXP-B	02/15/99	.	08/02/99	.		!		
GW-703	EXP-B	02/16/99	.	08/03/99	.		!		
GW-704	EXP-B	02/16/99	.	08/04/99 *	.		!		
GW-704	EXP-B	02/02/99	.	08/04/99	.				!
GW-706	EXP-B	**02/17/99 D**	.	08/04/99 *	.		!		
GW-706	EXP-B	02/02/99	.	08/04/99	.				!
GW-712	EXP-W	01/25/99	.	07/01/99	.		**R**	!	
GW-713	EXP-W	01/26/99	.	07/19/99	.		**R**	!	
GW-714	EXP-W	01/26/99	.	07/15/99	.		**R**	!	
GW-715	EXP-W	02/04/99	.	**07/15/99 D**	.		**R**	!	
GW-724	EXP-C	02/22/99	.	08/09/99	.		!		
GW-725	EXP-C	02/22/99	.	**08/09/99 D**	.		!		
GW-726-02	BG	.	06/01/99	.	.	!			
GW-726-04	BG	.	06/08/99	.	.	!			
GW-726-06	BG	.	06/08/99	.	.	!			
GW-726-09	BG	.	**06/09/99 D**	.	.	!			
GW-726-12	BG	.	06/09/99	.	.	!			
GW-726-16	BG	.	06/10/99	.	.	!			
GW-726-20	BG	.	06/10/99	.	.	!			
GW-726-23	BG	.	06/10/99	.	.	!			
GW-738	EXP-C	02/18/99	.	08/05/99 *	.		!		
GW-740	EXP-C	02/18/99	.	08/05/99 *	.		!		
GW-829	OLF	03/17/99	.	08/30/99		!			

Table B.2 (continued)

IWQP [1]		CERCLA Monitoring							
		RCRA Corrective Action Monitoring							
Y-12 Plant GWPP [2]		DOE Order 5400.1 Exit Pathway/Perimeter Monitoring							
		DOE Order 5400.1 Surveillance Monitoring							
Sampling Point [3]	Sampling Location [4]	CY 1999 Sampling Date [5]							
		1st Quarter	2nd Quarter	3rd Quarter	4th Quarter				
GW-838	EMWMF	03/22/99	05/19/99	07/28/99	10/21/99				!
GW-840	EMWMF	.	05/20/99	07/29/99	10/19/99				!
GW-904	EMWMF	03/29/99	05/24/99	08/02/99	10/20/99				!
GW-905	EMWMF	03/25/99	05/24/99	08/02/99	10/21/99				!
NT-01	EXP-SW	02/25/99	.	08/11/99	.		!		
NT-02	EXP-SW	03/02/99	.	.	.	!			
NT-06	EXP-SW	03/02/99	.	.	.	!			
NT-07	EXP-SW	03/02/99	.	.	.	!			
NT-07	EXP-SW	02/02/99	.	07/29/99	.				!
NT-08	EXP-SW	03/02/99	.	.	.	!			
NT-08	EXP-SW	02/02/99	.	07/29/99	.				!
SS-1	EXP-SW	02/25/99	.	08/11/99	.		!		
SS-4	EXP-SW	02/24/99	.	**08/11/99 D**	.		!		
SS-4	EXP-SW	02/02/99	.	**08/11/99 D**	.				!
SS-5	EXP-SW	02/23/99	.	08/11/99	.		!		
SS-5	EXP-SW	02/02/99	.	08/11/99	.				!
SS-6	EXP-SW	02/23/99	.	08/10/99	.		!		
SS-6	EXP-SW	02/03/99	.	08/10/99	.				!
SS-6.6	EXP-SW	02/03/99	.	**07/29/99 D**	.				!
SS-7	EXP-SW	02/02/99	.	07/29/99	.				!
SS-8	EXP-SW	02/03/99	.	07/29/99	.				!

Notes:

1 Groundwater and surface water monitoring performed by the Integrated Water Quality Program, managed by Bechtel Jacobs Company LLC.

2 Groundwater and surface water monitoring performed by the Y-12 Plant Groundwater Protection Program managed by Lockheed Martin Energy Systems, Inc.

R - Required for DOE Order 5400.1 exit pathway/perimeter monitoring; samples were collected by the IWQP for RCRA corrective action monitoring.

Table B.2 (continued)

Notes: (continued)

3	BCK	-	Bear Creek Kilometer
	GW	-	Groundwater Monitoring Well; Westbay wells are GW-132, GW-133, GW-134, GW-135, and GW-726.
	NT	-	Northern Tributary (to Bear Creek)
	SS	-	Spring sampling location (south side of Bear Creek)
4	BG	-	Bear Creek Burial Grounds Waste Management Area
	DCHAPCEM	-	Douglas Chapel Cemetery
	EMWMF	-	Environmental Management Waste Management Facility
	EXP-A	-	Exit Pathway (Maynardville Limestone) Picket A
	EXP-B	-	Exit Pathway Picket B
	EXP-C	-	Exit Pathway Picket C
	EXP-W	-	Exit Pathway Picket W
	EXP-SW	-	Exit Pathway (Bear Creek) Surface Water
	OLF	-	Oil Landfarm Waste Management Area
	RS	-	Rust Spoil Area
	SPI	-	Spoil Area I
	S3	-	S-3 Site
5	.	=	Not sampled
	D	=	Duplicate sample was collected (shown in bold typeface)
	*	=	Additional sample was collected on August 24, 1999 for organics analysis because the holding time was missed.

Table B.3. CY 1999 groundwater and surface water sampling dates in the Chestnut Ridge Hydrogeologic Regime

IWQP [1]		CERCLA ROD (!) and Baseline (") Monitoring							
		RCRA Detection (!) and Corrective Action (") Monitoring							
Y-12 Plant GWPP [2]		SWDF Detection Monitoring							
		DOE Order 5400.1 Exit Pathway/Perimeter Monitoring							
Sampling Point [3]	Sampling Location [4]	CY 1999 Sampling Date [5]							
		1st Quarter	2nd Quarter	3rd Quarter	4th Quarter				
1090	UNCS	02/04/99	.	**08/09/99 D**	.				!
GW-141	LIV	01/12/99	.	07/15/99	.		!		
GW-142	KHQ	.	04/12-15/99 **REP**	.	10/04-07/99 REP			!	
GW-143	KHQ	.	04/12-15/99 REP	.	10/04-07/99 **REP**			!	
GW-144	KHQ	.	04/12-15/99 **REP**	.	10/04-07/99 **REP**			!	
GW-145	KHQ	.	04/13-16/99 REP	.	10/04-07/99 REP			!	
GW-156	CRSDB	.	04/19-22/99 REP	.	10/11-14/99 **REP**			!	
GW-159	CRSDB	.	04/27-30/99 **REP**	.	10/11-14/99 REP			!	
GW-203	UNCS	02/04/99	.	08/09/99	.				!
GW-205	UNCS	02/04/99	.	08/10/99	.				!
GW-217	LIV	**01/12/99 D**	.	07/14/99	.		!		
GW-221	UNCS	02/05/99	.	08/10/99	.				!
GW-231	KHQ	.	04/12-15/99 REP	.	10/04-07/99 REP			!	
GW-301	CRBAWP	01/20/99	.	07/14/99	.			"	
GW-302	UNCS	02/05/99	.	08/11/99	.				!
GW-305	LIV	01/14/99	.	**07/20/99 D**	11/3-4/99		!		
GW-339	UNCS	02/04/99	.	**08/11/99 D**	.				!
GW-521	LIV	01/19/99	.	07/15/99	.		!	**R**	
GW-522	LIV	01/14/99	.	07/20/99	.		!		
GW-540	LII / CDLVI	.	**04/05/99 D**	.	10/13/99		!		
GW-542	CDLVI	.	04/07/99	.	**10/18/99 D**		!		
GW-543	CDLVI	.	04/08/99	.	10/19/99		!		
GW-544	CDLVI	.	04/08/99	.	10/19/99		!		
GW-557	LV	01/20/99	.	07/12/99	.		!	**R**	
GW-609	CRSP	01/20/99	.	07/16/99	.			"	
GW-709	LII	.	04/05/99	.	**10/14/99 D**		!		
GW-731	CRSDB	.	04/19-22/99 REP	.	10/11-14/99 REP			!	
GW-732	CRSDB	.	04/19-22/99 **REP**	.	10/11-14/99 **REP**			!	
GW-757	LII	.	04/06/99	.	10/14/99		!		
GW-796	LV	01/21/99	.	07/13/99	.		!	**R**	
GW-797	LV	**01/20/99 D**	.	07/13/99	.		!		

Table B.3 (continued)

IWQP [1]		CERCLA ROD (!) and Baseline (") Monitoring							
		RCRA Detection (!) and Corrective Action (") Monitoring							
Y-12 Plant GWPP [2]		SWDF Detection Monitoring							
		DOE Order 5400.1 Exit Pathway/Perimeter Monitoring							
Sampling Point [3]	Sampling Location [4]	CY 1999 Sampling Date [5]							
		1st Quarter	2nd Quarter	3rd Quarter	4th Quarter				
GW-798	CDLVII	01/19/99	.	07/13/99	.			"	
GW-799	LV	01/20/99	.	07/12/99	.		!	R	
GW-801	LV	01/21/99	.	**07/14/99 D**	.		!	R	
GW-827	CDLVI	.	**04/07/99 D**	.	10/18/99		!		
GW-831	FCAP	01/19/99	.	07/13/99	.			"	
MCK 2.0	FCAP	02/16/99	.	08/18/99	.				"
MCK 2.05	FCAP	02/16/99	.	**08/18/99 D**	.				"
OF 301	KHQ	03/03/99		07/20/99	10/12/99				!
SCR1.25SP	EXP	02/16/99	.	08/11/99	.				"
SCR2.1SP	EXP	**02/02/99 D**	.	07/21/99	.	!			
SCR2.2SP	EXP	02/02/99	.	**07/21/99 D**	.	!			
SCR3.4SP	EXP	02/03/99	.	07/21/99	.	!			
SCR3.5SP	EXP	02/16/99	.	08/11/99	.				"
SCR4.3SP	LV	01/19/99	.	07/14/99	.		!		
SCR5.1SP	EXP	02/03/99	.	07/21/99	.	!			
SCR5.4SP	EXP	02/03/99	.	07/21/99	.	!			

Notes:

1 Groundwater and surface water monitoring performed by the Integrated Water Quality Program, managed by Bechtel Jacobs Company LLC.

R - Required by the RCRA post closure permit for the Chestnut Ridge Regime (corrective action monitoring), but collected by the GWPP for SWDF detection monitoring.

2 Groundwater and surface water monitoring performed by the Y-12 Plant Groundwater Protection Program managed by Lockheed Martin Energy Systems, Inc.

3
GW - Groundwater monitoring well (also 1090)
MCK - McCoy Branch Kilometer
OF 301 - Outfall 301: surface water station located where water exits Kerr Hollow Quarry
SCR - South Chestnut Ridge (tributary prefix)
SP - Spring location (suffix)

Table B.3 (continued)

Notes: (continued)

4	CDLVI	-	Construction/Demolition Landfill VI
	CDLVII	-	Construction/Demolition Landfill VII
	CRBAWP	-	Chestnut Ridge Borrow Area Waste Pile
	CRSDB	-	Chestnut Ridge Sediment Disposal Basin
	CRSP	-	Chestnut Ridge Security Pits
	EXP	-	Exit Pathway (spring sampling location)
	FCAP	-	Filled Coal Ash Pond
	KHQ	-	Kerr Hollow Quarry
	LII	-	Industrial Landfill II
	LIV	-	Industrial Landfill IV
	LV	-	Industrial Landfill V
	UNCS	-	United Nuclear Corporation Site
5	.	-	Not Sampled.
	D	-	Duplicate sample was collected (shown in bold typeface).
	REP	-	Four replicate groundwater samples were collected from the well over the specified date range. **BOLD** indicates that duplicate groundwater samples were collected from the specified well on the following replicate sampling dates: 04/12/99 (GW-144), 04/14/99 (GW-142), 04/22/99 (GW-732), 04/28/99 (GW-159), 10/04/99 (GW-143), 10/06/99 (GW-144), 10/12/99 (GW-732) and 10/14/99 (GW-156).

Table B.4. CY 1999 groundwater and surface water sampling dates in the Upper East Fork Poplar Creek Hydrogeologic Regime

IWQP [1]		CERCLA ROD (!) and Baseline (") Monitoring							
		RCRA Corrective Action Monitoring							
Y-12 Plant GWPP [2]		DOE Order 5400.1 Exit Pathway/Perimeter Monitoring							
		DOE Order 5400.1 Surveillance Monitoring							
Sampling Point [3]	Sampling Location [4]	CY 1999 Sampling Date [5]							
		1st Quarter	2nd Quarter	3rd Quarter	4th Quarter				
9201-5N-J4	B9201-5	02/16/99	.	.	.	!			
9204-2E-NW	B9204-2E	02/23/99	.	.	.	!			
9204-2-NE	B9204-2	02/16/99	.	.	.	!			
9204-2-NW	B9204-2	02/16/99	.	.	.	!			
9204-4ELSU	B9204-4	02/17/99	.	.	.	!			
GHK2.51ESW	EXP-NPR	.	.	09/01/99	.		!		
GHK2.51WSW	EXP-NPR	.	.	09/01/99	.		!		
GW-108	S3	02/15/99	.	07/27/99	.			!	
GW-109	S3	.	.	09/02/99	.	!			
GW-131-01	EXP	.	06/14/99	.	.		!		
GW-131-04	EXP	.	06/15/99	.	.		!		
GW-131-08	EXP	.	06/16/99	.	.		!		
GW-131-12	EXP	.	06/16/99	.	.		!		
GW-131-15	EXP	.	06/17/99	.	.		!		
GW-131-21	EXP	.	**06/21/99D**	.	.		!		
GW-131-24	EXP	.	06/17/99	.	.		!		
GW-131-28	EXP	.	06/22/99	.	.		!		
GW-131-32	EXP	.	06/22/99	.	.		!		
GW-131-36	EXP	.	06/23/99	.	.		!		
GW-148	NHP	.	06/01/99	.	11/09/99	!			
GW-151	NHP	02/08/99	.	08/16/99	.				"
GW-153	NHP	.	06/02/99	.	**11/09/99 D**	!			
GW-154	NHP	02/10/99	.	08/30/99	.				"
GW-168	EXP	.	.	09/08/99	.	!			
GW-169	EXP-UV	02/08/99	.	09/01/99	.				!
GW-170	EXP-UV	**02/08/99 D**	.	**08/31/99 D**	.				!
GW-171	EXP-UV	02/11/99	.	08/25/99	.				!
GW-172	EXP-UV	02/11/99	.	08/25/99	.				!
GW-192	B4	.	05/26/99 A	.	11/01/99	!			
GW-193	T2331	02/16/99	.	07/20/99	.			!	
GW-204	T0134	.	.	09/13/99	.	!			
GW-207	EXP-SR	.	06/08/99	.	12/07/99		!		
GW-208	EXP-SR	.	06/08/99	.	11/17/99		!		

Table B.4 (continued)

IWQP [1]		CERCLA ROD (!) and Baseline (") Monitoring							
		RCRA Corrective Action Monitoring							
Y-12 Plant GWPP [2]		DOE Order 5400.1 Exit Pathway/Perimeter Monitoring							
		DOE Order 5400.1 Surveillance Monitoring							
Sampling Point [3]	Sampling Location [4]	CY 1999 Sampling Date [5]							
		1st Quarter	2nd Quarter	3rd Quarter	4th Quarter				
GW-218	UOV	.	.	.	**12/06/99 D**	!			
GW-219	UOV	.	.	.	12/02/99	!			
GW-220	NHP	.	06/02/99	.	11/10/99		!		
GW-220	NHP	02/08/99	.	08/16/99	.				"
GW-223	NHP	.	.	09/07/99	.	!			
GW-230	EXP-UV	**02/11/99 D**	.	09/01/99	.				!
GW-232	EXP-UV	02/08/99	.	09/01/99	.				!
GW-251	S2	.	**05/27/99 D**	.	11/02/99	!			
GW-253	S2	02/08/99	.	08/24/99	11/8/99				"
GW-337	WC	.	.	09/02/99	.	!			
GW-380	NHP	.	06/04/99	.	11/10/99		!		
GW-382	NHP	.	.	09/02/99	.				"
GW-383	NHP	.	06/03/99	.	11/11/99	!			
GW-605	EXP-I	02/11/99	.	07/20/99	.			!	
GW-606	EXP-I	**02/15/99 D**	.	07/21/99	.			!	
GW-618	EXP-E	.	05/26/99	.	11/01/99		!		
GW-618	EXP-E	.	.	.	11/09/99				"
GW-620	FTF	.	05/27/99	.	11/08/99	!			
GW-722-06	EXP-J	02/25/99 *	.	07/19/99	.		!		
GW-722-10	EXP-J	03/01/99	.	07/20/99	.		!		
GW-722-14	EXP-J	03/02/99	.	07/21/99	.		!		
GW-722-17	EXP-J	03/04/99	.	07/22/99	.		!		
GW-722-20	EXP-J	03/16/99	.	**07/27/99 D**	.		!		
GW-722-22	EXP-J	**03/17/99 D**	.	07/22/99	.		!		
GW-722-26	EXP-J	03/18/99	.	07/28/99	.		!		
GW-722-30	EXP-J	03/23/99	.	07/28/99	.		!		
GW-722-32	EXP-J	03/30/99	.	07/28/99	.		!		
GW-722-33	EXP-J	03/30/99	.	07/28/99	.		!		
GW-733	EXP-J	02/11/99	.	07/20/99	.			!	
GW-735	EXP-J	.	06/15/99	.	11/29/99		!		
GW-744	GRIDK1	.	06/09/99	.	11/17/99		!		
GW-747	GRIDK2	.	06/09/99	.	11/29/99		!		
GW-750	EXP-J	.	06/15/99	.	**12/01/99 D**		!		
GW-762	GRIDJ3	02/09/99	.	**08/24/99 D**	.				"
GW-763	GRIDJ3	.	06/01/99	.	11/08/99	!			

Table B.4 (continued)

IWQP [1]		CERCLA ROD (!) and Baseline (") Monitoring							
		RCRA Corrective Action Monitoring							
Y-12 Plant GWPP [2]		DOE Order 5400.1 Exit Pathway/Perimeter Monitoring							
		DOE Order 5400.1 Surveillance Monitoring							
Sampling Point [3]	Sampling Location [4]	CY 1999 Sampling Date [5]							
		1st Quarter	2nd Quarter	3rd Quarter	4th Quarter				
GW-769	GRIDG3	.	04/20/99	.	10/21/99	!			
GW-770	GRIDG3	.	04/20/99	.	10/21/99	!			
GW-775	GRIDH3	.	04/22/99	.	10/27/99	!			
GW-776	GRIDH3	.	04/22/99	.	10/27/99	!			
GW-781	GRIDE3	.	05/25/99	.	10/26/99	!			
GW-782	GRIDE3	.	**05/24/99 D**	.	10/25/99	!			
GW-783	GRIDE3	.	05/24/99	.	10/25/99	!			
GW-788	GRIDF3	.	04/19/99	.	10/20/99	!			
GW-789	GRIDF3	.	04/19/99	.	10/20/99	!			
GW-791	GRIDD2	.	05/25/99	.	**11/28/99 D**	!			
GW-792	GRIDD2	.	05/25/99	.	11/28/99	!			
GW-816	EXP-SR	.	**06/07/99 D**	.	11/16/99		!		
GW-820	B9201-2	.	.	09/10/99	.	!			
GW-832	NHP	02/09/99	.	08/31/99	.				"
LRSPW	EXP-SW	.	06/03/99	.	11/15/99		!		
NPR07.0SW	EXP-NPR	.	.	09/01/99	.		!		
NPR10.0SW	EXP-NPR	.	.	DRY	.		!		
NPR12.0SW	EXP-NPR	.	.	09/01/99	.		!		
OF 195	EXP-SW	.	04/28/99	09/21/99	.				"
OF 200	EXP-SW	.	04/28/99	**07/12 & 15/99 S**	.				"
OF 221	EXP-SW	.	04/28/99	09/21/99	.				"
OF 225	EXP-SW	.	04/28/99	09/21/99	.				"
OF 51	EXP-SW	02/10/99	.	08/17/99	.				"
SCR7.1SP	EXP-SW	02/04/99	.	08/30/99	.				!
SCR7.18SP	EXP-SW	02/04/99	.	08/30/99	.				!
SCR7.8SP	EXP-SW	02/04/99	.	08/30/99	.				!
SP-17	EXP-SW	02/10/99	.	08/17/99	.				"
STATION 17	EXP-SW	02/12/99	04/28/99 *	07/12 & 15/99 S	.				"
STATION 8	EXP-SW	02/12/99	04/29/99	07/12 & 15/99 S	.				"

Notes:

1 Groundwater and surface water monitoring performed by the Integrated Water Quality Program, managed by Bechtel Jacobs Company LLC.

2 Groundwater and surface water monitoring performed by the Y-12 Plant Groundwater Protection Program managed by Lockheed Martin Energy Systems, Inc.

Table B.4 (continued)

Notes: (continued)

3	GHK	-	Gum Hollow Branch Kilometer (surface water sampling location)
	GW	-	Groundwater Monitoring Well; Westbay wells are GW-131 and GW-722
	LRSPW	-	Lake Reality Emergency Spillway (surface water sampling location)
	NPR	-	North of Pine Ridge near the Scarboro Community (surface water sampling location)
	OF	-	Storm drain outfall (surface water sampling location)
	SCR	-	Spring sampling location in Union Valley
	SP	-	Spring sampling location
	STATION	-	Surface water sampling location in Upper East Fork Poplar Creek
4	B4	-	Beta-4 Security Pits
	B9201-2	-	Building 9201-2
	B9201-5	-	Building 9201-5 (sump sampling location)
	B9204-2	-	Building 9204-2 (two sump sampling locations)
	B9204-2E	-	Building 9204-2E (sump sampling location)
	B9204-4	-	Building 9204-4 (sump sampling location)
	EXP	-	Exit Pathway monitoring location:
		!	-E, -I, or -J: Maynardville Limestone Picket monitoring well.
		!	-NPR: Surface water station located north of Pine Ridge where drainage exits the Oak Ridge Reservation.
		!	-SW: Onsite spring or surface water station
		!	-SR: Along Scarboro Road in the gap through Pine Ridge
		!	-UV: East of the Oak Ridge Reservation boundary in Union Valley
	FTF	-	Fire Training Facility
	GRID	-	Comprehensive Groundwater Monitoring Plan Grid Location
	NHP	-	New Hope Pond
	S2	-	S-2 Site
	S3	-	S-3 Ponds Site
	T0134	-	Tank 0134-U
	T2331	-	Tank 2331-U
	UOV	-	Uranium Oxide Vault
	WC	-	Waste Coolant Processing Area
5	**.**	-	Not sampled.
	D	-	Duplicate sample was collected (shown in bold typeface).
	*	-	Sample collection spanned two days.
	A	-	Resampled on June 6, 1999 for anions analyses (GW-192).
	S	-	Two sets of samples were collected: a stormflow sample (within six hours after a 0.5-inch or more rain) and a baseflow sample (about 72 hours after the stormflow sample).

Table B.5. Field measurements and laboratory analytes for CY 1999 groundwater and surface water samples

Field Measurements	Analytical Method [1]	Detection Limit [2]	Units [3]
Depth to Water	SESD-TP-8204 (R.3)	NA	ft
Water Temperature	SESD-TP-8204 (R.3)	NA	centigrade
pH	SESD-TP-8204 (R.3)	NA	pH units
Conductivity	SESD-TP-8204 (R.3)	NA	µmho/cm
Dissolved Oxygen	SESD-TP-8204 (R.3)	NA	ppm
Oxidation-Reduction Potential	SESD-TP-8204 (R.3)	NA	mV
Miscellaneous Laboratory Analytes			
pH	EPA-9040	NA	pH units
Conductivity	EPA-9050	NA	µmho/cm
Total Dissolved Solids	EPA-160.1	1	mg/L
Total Suspended Solids	EPA-160.2	1	mg/L
Turbidity	EPA-180.1	0.1	NTU
Biochemical Oxygen Demand	EPA 405.1	5.0	mg/L
Iron Related Bacteria	ASO-SOP-0028	500	cfu/mL
Slime Forming Bacteria	ASO-SOP-0028	500	cfu/mL
Sulfate Reducing Bacteria	ASO-SOP-0028	500	cfu/mL
Total Organic Carbon	SW846-9060	1.0	mg/L
Anions			
Alkalinity - HCO3	EPA-310.1	1.0	mg/L
Alkalinity - CO3	EPA-310.1	1.0	mg/L
Chloride	EPA-300.0	0.2	mg/L
Fluoride	EPA-340.2	0.1	mg/L
Nitrate (as Nitrogen)	EPA-300.0	0.028	mg/L
Sulfate	EPA-300.0	0.25	mg/L
Metals/Cations: Unfiltered & Filtered [4]			
Aluminum	SW846-6010A	0.2	mg/L
Antimony	EPA-200.8	0.0005/ 0.0025	mg/L
Arsenic	EPA-200.8	0.005	mg/L
Barium	SW846-6010A	0.004	mg/L
Beryllium	SW846-6010A	0.001	mg/L
Boron	SW846-6010A	0.1	mg/L
Cadmium	EPA-200.8	0.0005	mg/L
Calcium	SW846-6010A	0.2	mg/L
Chromium	SW846-6010A	0.02	mg/L
Cobalt	SW846-6010A	0.02	mg/L
Copper	SW846-6010A	0.02	mg/L
Iron	SW846-6010A	0.05	mg/L
Lead	EPA-200.8	0.0005	mg/L
Lithium	SW846-6010A	0.01	mg/L

Table B.5 (continued)

Metals/Cations (continued)	Analytical Method [1]	Detection Limit [2]	Units [3]
Magnesium	SW846-6010A	0.2	mg/L
Manganese	SW846-6010A	0.005	mg/L
Mercury	SW846-7470	0.0002	mg/L
Molybdenum	SW846-6010A	0.05	mg/L
Nickel	SW846-6010A	0.05	mg/L
Potassium	SW846-6010A	2	mg/L
Selenium	EPA-200.8	0.01	mg/L
Silver	SW846-6010A	0.02	mg/L
Sodium	SW846-6010A	0.2	mg/L
Strontium	SW846-6010A	0.005	mg/L
Thallium	EPA-200.8	0.0005	mg/L
Thorium	SW846-6010A	0.2	mg/L
Uranium	EPA-200.8	0.0005	mg/L
Vanadium	SW846-6010A	0.02	mg/L
Zinc	SW846-6010A	0.05	mg/L
Volatile Organic Compounds		**CRQL [5]**	
Acetone	SW846-8260 UP	10	µg/L
Acrolein	SW846-8260 UP	10	µg/L
Acrylonitrile	SW846-8260 UP	10	µg/L
Benzene	SW846-8260 UP	5	µg/L
Bromochloromethane	SW846-8260 UP	10	µg/L
Bromodichloromethane	SW846-8260 UP	5	µg/L
Bromoform	SW846-8260 UP	5	µg/L
Bromomethane	SW846-8260 UP	10	µg/L
2-Butanone	SW846-8260 UP	10	µg/L
Carbon disulfide	SW846-8260 UP	5	µg/L
Carbon tetrachloride	SW846-8260 UP	5	µg/L
Chlorobenzene	SW846-8260 UP	5	µg/L
Chloroethane	SW846-8260 UP	10	µg/L
2-Chloroethyl vinyl ether	SW846-8260 UP	10	µg/L
Chloroform	SW846-8260 UP	5	µg/L
Chloromethane	SW846-8260 UP	10	µg/L
Dibromochloromethane	SW846-8260 UP	5	µg/L
1,2-Dibromo-3-chloropropane	SW846-8260 UP	10	µg/L
1,2-Dibromoethane	SW846-8260 UP	5	µg/L
Dibromomethane	SW846-8260 UP	10	µg/L
1,2-Dichlorobenzene	SW846-8260 UP	5	µg/L
1,4-Dichlorobenzene	SW846-8260 UP	5	µg/L
1,4-Dichloro-2-butene	SW846-8260 UP	5	µg/L
trans-1,4-Dichloro-2-butene	SW846-8260 UP	5	µg/L
Dichlorodifluoromethane	SW846-8260 UP	5	µg/L
1,1-Dichloroethane	SW846-8260 UP	5	µg/L

Table B.5 (continued)

Volatile Organic Compounds (cont'd)	Analytical Method [1]	CRQL [5]	Units [3]
1,2-Dichloroethane	SW846-8260 UP	5	µg/L
1,1-Dichloroethene	SW846-8260 UP	5	µg/L
cis-1,2-Dichloroethene	SW846-8260 UP	5	µg/L
trans-1,2-Dichloroethene	SW846-8260 UP	5	µg/L
1,2-Dichloropropane	SW846-8260 UP	5	µg/L
cis-1,3-Dichloropropene	SW846-8260 UP	5	µg/L
trans-1,3-Dichloropropene	SW846-8260 UP	5	µg/L
Dimethylbenzene	SW846-8260 UP	5	µg/L
Ethanol	SW846-8260 UP	500	µg/L
Ethylbenzene	SW846-8260 UP	5	µg/L
Ethyl methacrylate	SW846-8260 UP	5	µg/L
2-Hexanone	SW846-8260 UP	10	µg/L
Iodomethane	SW846-8260 UP	5	µg/L
4-Methyl-2-pentanone	SW846-8260 UP	10	µg/L
Methylene chloride	SW846-8260 UP	5	µg/L
Styrene	SW846-8260 UP	5	µg/L
1,1,1,2-Tetrachloroethane	SW846-8260 UP	10	µg/L
1,1,2,2-Tetrachloroethane	SW846-8260 UP	5	µg/L
Tetrachloroethene	SW846-8260 UP	5	µg/L
Toluene	SW846-8260 UP	5	µg/L
1,1,1-Trichloroethane	SW846-8260 UP	5	µg/L
1,1,2-Trichloroethane	SW846-8260 UP	5	µg/L
Trichloroethene	SW846-8260 UP	5	µg/L
Trichlorofluoromethane	SW846-8260 UP	5	µg/L
1,2,3-Trichloropropane	SW846-8260 UP	5	µg/L
Vinyl acetate	SW846-8260 UP	10	µg/L
Vinyl chloride	SW846-8260 UP	10	µg/L
Radiological Analytes		**Target MDA [6]**	
Gross Alpha Activity	EPA-900.0	3.5	pCi/L
Gross Beta Activity	EPA-900.0	7.0	pCi/L
Americium-241	ASO-AC-MM-2-22012	0.4	pCi/L
Iodine-129	EPA-901.1	3.0	pCi/L
Neptunium-237	ASO-Y/P65-7206	0.4	pCi/L
Plutonium-238 & -239/240	ASO-AC-MM-2-22012	0.4	pCi/L
Radium-223/224/226	EPA-903.0 / 904.0	0.5	pCi/L
Strontium-89/90	EPA-905.0	4.0	pCi/L
Technetium-99	ASO-Y/P65-7154	10	pCi/L
Thorium-228, 230, 232, & 234	ASO-Y/P65-7206	0.4	pCi/L
Tritium	EPA-906.0	300	pCi/L
Uranium-234, 235, & 238	ASO-AC-MM-2-22012	0.4	pCi/L

Table B.5 (continued)

Notes:

1 Analytical/field methods/procedures from:

- Y-12 Plant System Operation Procedures (LMES 1996b, 1999a, and 1999b)
- *Test Methods for Evaluating Solid Waste Physical/Chemical Methods* (U.S. Environmental Protection Agency 1996)
- *Methods for Chemical Analysis of Water and Wastes* (U.S. Environmental Protection Agency 1983)
- Lockheed Martin Energy Systems ACO Control Procedures: SESD-TP-8204 (R.3), ASO-AC-MM-2-22012, ASO-Y/P65-7206, and ASO-Y/P65-7154

2 NA - not applicable

Detection limits for metals/cations by Inductively Coupled Plasma spectroscopy changed during the second quarter sampling event. The first detection limit was used until April; the second one listed was used thereafter.

3
- cfu/mL - colony forming units per milliliter
- ft - feet
- µg/L - micrograms per liter
- µmho/cm - micromhos per centimeter
- mg/L - milligrams per liter
- mV - millivolts
- NTU - nephelometric turbidity units
- ppm - parts per million
- pCi/L - picoCuries per liter

4 Samples for dissolved metals analysis as selected monitoring locations were collected using a 0.45-micron filter. The reporting limit for antimony increased from 0.0005 mg/L to 0.0025 mg/L on April 18, 1999.

5 CRQL - contract-required quantitation limit

6 MDA - minimum detectable activity. The target MDA may be obtained under optimal analytical conditions; actual MDAs are sample-specific and may vary significantly from the target value.

Table B.6. VOCs detected in CY 1999 Y-12 Plant GWPP QA/QC samples

Sample Type/ Compounds Detected	Number of Results, Quarter of CY 1999 [1]				Annual Total
	First	Second	Third	Fourth	
Trip Blank Samples:					
Total Number of Samples	41	31	48	24	144
Samples with VOCs	2	0	3	0	5
Percent Contaminated	5%	0%	6%	0%	3%
Acetone	1	0	0	0	1
Carbon disulfide	0	0	1	0	1
cis-1,2-Dichloroethene	0	0	2	0	2
Tetrachloroethene	0	0	2	0	2
1,1,1-Trichloroethane	1	0	0	0	1
Trichloroethene	0	0	2	0	2
Laboratory Blank Samples:					
Total Number of Samples	21	16	22	14	73
Samples with VOCs	0	1	0	0	1
Percent Contaminated	0%	6%	0%	0%	1%
Acetone	0	1	0	0	1
Equipment Rinsate Samples:					
Total Number of Samples	1	2	9	0	12
Samples with VOCs	0	1	1	NA	2
Percent Contaminated	0%	50%	11%	NA	17%
Carbon disulfide	0	1	1	0	2
Field Blank Samples:					
Total Number of Samples	2	2	3	0	7
Samples with VOCs	0	1	0	NA	1
Percent Contaminated	0%	50%	0%	NA	14%
Acetone	0	1	0	0	1
2-Butanone	0	1	0	0	1
2-Hexanone	0	1	0	0	1

Note:

1 NA - Not applicable.

Table B.7. Depth-to-water measurements and groundwater elevations in the Bear Creek Hydrogeologic Regime, 1999.

Well Number[1]	Location[2]	Hydrogeologic Unit: Aquifer	Hydrogeologic Unit: Aquitard	Measuring Point Elevation[3]	Depth-to-Water (ft below measuring point): April 4 - 8, 1999	Depth-to-Water (ft below measuring point): September 13 - 24, 1999	Seasonal Fluctuation (+/- ft)	Groundwater Elevation (ft above mean sea level): April 4 - 8, 1999	Groundwater Elevation (ft above mean sea level): September 13 - 24, 1999
GW-001	OLF		Ž	981.00	14.8	17.74	-2.94	966.20	963.26
GW-005	OLF		Ž	967.87	7.0	8.89	-1.83	960.81	958.98
GW-008 *	OLF		Ž	967.43	15.1	17.54	-2.37	952.26	949.89
GW-010	OLF		Ž	952.76	2.3	4.57	-2.27	950.46	948.19
GW-011	OLF		Ž	953.08	3.1	4.92	-2.34	950.50	948.16
GW-012	OLF		Ž	955.64	6.4	8.67	-2.20	949.17	946.97
GW-014	BG		Ž	934.57	6.9	8.52	-1.55	927.60	926.05
GW-016	BG		Ž	928.87	9.8	13.98	-4.11	919.00	914.89
GW-018	BG		Ž	924.49	7.6	10.40	-2.80	916.89	914.09
GW-041	BG		Ž	1008.17	16.9	24.76	-7.79	991.20	983.41
GW-043 *	OLF		Ž	1013.44	24.1	29.68	-6.18	989.94	983.76
GW-045	BG	M		909.70	8.6	15.86	-7.86	901.70	893.84
GW-047	BG		Ž	928.40	7.2	10.26	-3.66	921.80	918.14
GW-052	BG	M		905.70	7.3	18.64	-11.34	898.40	887.06
GW-053 *	BG	Ž		903.47	7.2	11.19	-3.92	896.20	892.28
GW-065	OLF	M		982.50	26.8	29.28	-2.48	955.70	953.22
GW-080 *	BG		Ž	981.07	22.4	25.34	-2.87	958.60	955.73
GW-084	OLF		Ž	996.60	13.6	15.54	-2.54	983.60	981.06
GW-086	OLF		Ž	982.80	12.3	16.88	-4.58	970.50	965.92
GW-090	BG		Ž	961.88	5.6	7.80	-2.20	956.28	954.08
GW-091	BG		Ž	953.48	8.9	10.16	-1.26	944.58	943.32
GW-097	OLF		Ž	944.70	9.8	14.10	-4.90	935.50	930.60
GW-101	S3		Ž	1007.40	9.4	10.14	-1.34	998.60	997.26
GW-115 *	S3		Ž	1054.41	7.7	13.71	-6.61	1047.31	1040.70
GW-245	S3		Ž	1009.08	12.2	14.27	-2.07	996.88	994.81
GW-249	BG		Ž	991.15	30.6	36.54	-5.94	960.55	954.61
GW-257	BG		Ž	961.68	27.2	28.85	-1.65	934.48	932.83
GW-276 *	S3		Ž	1001.48	5.5	8.84	-3.40	996.04	992.64
GW-277	S3		Ž	1001.76	5.2	7.33	-2.13	996.56	994.43
GW-287 *	BG		Ž	927.04	8.4	9.86	-1.49	918.67	917.18

Table B.7 (continued)

Well Number[1]	Location[2]	Hydrogeologic Unit: Aquifer	Hydrogeologic Unit: Aquitard	Measuring Point Elevation[3]	Depth-to-Water (ft below measuring point): April 4 - 8, 1999	Depth-to-Water (ft below measuring point): September 13 - 24, 1999	Seasonal Fluctuation (+/- ft)	Groundwater Elevation (ft above mean sea level): April 4 - 8, 1999	Groundwater Elevation (ft above mean sea level): September 13 - 24, 1999
GW-289	BG		Ž	948.72	11.6	19.14	-7.29	936.87	929.58
GW-291	BG		Ž	948.55	9.3	12.80	-3.51	939.26	935.75
GW-307	RS	Ž		993.14	27.2	34.98	-7.78	965.94	958.16
GW-309	RS	Ž		988.17	19.9	23.46	-3.56	968.27	964.71
GW-310	RS	Ž		995.35	20.3	22.52	-2.22	975.05	972.83
GW-311 *	RS	Ž		999.56	36.3	41.00	-4.79	963.35	958.56
GW-323	SPI	Ž		1130.11	86.1	86.08	-0.01	1044.04	1044.03
GW-325	S3		Ž	1003.00	11.1	18.03	-6.93	991.90	984.97
GW-345 *	S3		Ž	997.94	16.2	18.26	-1.85	981.53	979.68
GW-347	S3	M		1001.05	16.3	19.13	-2.83	984.75	981.92
GW-370	BG		Ž	960.79	13.9	15.55	-1.68	946.92	945.24
GW-372	BG		Ž	983.16	18.2	25.18	-7.02	965.00	957.98
GW-531	LD		Ž	1004.61	14.9	18.58	-3.68	989.71	986.03
GW-537 *	OLF		Ž	976.41	6.2	8.46	-2.29	970.24	967.95
GW-613	S3		Ž	1013.56	12.2	16.01	-3.82	1001.37	997.55
GW-621 *	EXP-B	Ž		925.45	12.0	20.83	-8.82	913.44	904.62
GW-622	BG		Ž	924.16	9.6	14.59	-4.99	914.56	909.57
GW-624	BG		Ž	922.14	10.2	12.46	-2.26	911.94	909.68
GW-626	BG		Ž	942.87	22.8	25.98	-3.18	920.07	916.89
GW-630	LD		Ž	986.65	9.1	10.42	-1.32	977.55	976.23
GW-637	OLF		Ž	941.83	7.0	13.10	-6.10	934.83	928.73
GW-638	OLF		Ž	941.77	6.3	11.26	-4.96	935.47	930.51
GW-641	BG		Ž	946.66	16.8	21.48	-4.68	929.86	925.18
GW-642	BG		Ž	1014.95	18.8	22.62	-3.77	996.10	992.33
GW-644	OLF		Ž	959.75	8.7	12.40	-3.70	951.05	947.35
GW-648	RS	M		1029.20	66.4	69.96	-3.56	962.80	959.24
GW-651	BG	M		903.12	5.9	10.12	-4.22	897.22	893.00
GW-652	BG	M		900.83	9.8	12.82	-3.02	891.03	888.01
GW-653 *	BG		Ž	931.81	20.6	22.80	-2.19	911.20	909.01
GW-654	BG		Ž	940.79	7.2	9.30	-2.10	933.59	931.49
GW-715 *	EXP-W	Ž		874.89	28.8	29.30	-0.53	846.12	845.59
GW-795	AGLLSF		Ž	925.98	4.5	11.09	-6.59	921.48	914.89

Table B.7 (continued)

Notes:

1 * - Wells sampled during CY 1999

2 AGLLSF - Above Grade Low-Level Storage Facility
BG - Bear Creek Burial Grounds Waste Management Area
EXP-B - Exit Pathway (Maynardville Limestone) Picket B
EXP-W - Exit Pathway (Maynardville Limestone) Picket W
LD - Lysimeter Demonstration Site
OLF - Oil Landfarm Waste Management Area
RS - Rust Spoil Area
SPI - Spoil Area I
S3 - S-3 Site

3 Measuring point (top of well casing or Well Wizard™) elevation

4 NM - Not Measured

5 NA - Not Applicable

Table B.8. Depth-to-water measurements and groundwater elevations for monitoring wells in the Chestnut Ridge Hydrogeologic Regime, 1999.

Groundwater Elevation (ft above mean sea level)			September 13 - 27, 1999	April 4 - April 8, 1999	Seasonal Fluctuation (+/- ft)		
Depth-to-Water (ft below measuring point)			September 13 - 27, 1999	April 4 - April 8, 1999			
Well Number[1]	Location[2]	Measuring Point Elevation [3] (ft above mean sea level)					
1082	ORSF	837.28	25.4	25.66	-0.26	811.88	811.62
1084	ORSF	965.4	62.8	62.75	0.05	902.60	902.65
1090 *	UNCS	1104.44	50.3	56.89	-6.63	1054.18	1047.55
GW-141 *	LIV	1186.23	94.1	97.90	-3.80	1092.13	1088.33
GW-142 *	KHQ	971.08	136	139.50	-3.57	835.15	831.58
GW-143 *	KHQ	913.98	80.1	82.11	-2.01	833.88	831.87
GW-144 *	KHQ	913.52	80.4	82.34	-1.96	833.14	831.18
GW-145 *	KHQ	840.21	8.7	8.14	0.53	831.54	832.07
GW-146	KHQ	838.16	2.9	4.46	-1.56	835.26	833.70
GW-147	KHQ	851.62	17.2	19.65	-2.45	834.42	831.97
GW-156 *	CRSDB	1049.27	143.1	143.99	-0.92	906.20	905.28
GW-158	CRSDB	983.05	44.4	47.33	-2.93	938.65	935.72
GW-159 *	CRSDB	1051.38	116.8	118.11	-1.33	934.60	933.27
GW-160	CRBAWP	1093.09	143.9	149.54	-5.64	949.19	943.55
GW-161	CRBAWP	1093.54	158.9	161.67	-2.77	934.64	931.87
GW-173	CRSP	1115	140.1	154.13	-14.03	974.90	960.87
GW-174	CRSP	1116.5	109.1	124.41	-15.31	1007.40	992.09
GW-175	CRSP	1084	116.2	122.17	-5.97	967.80	961.83
GW-176	CRSP	1125.3	116.1	116.64	-0.54	1009.20	1008.66
GW-177	CRSP	1158	117.3	118.54	-1.44	1040.90	1039.46
GW-178	CRSP	1143.49	90.6	94.27	-3.67	1052.89	1049.22
GW-179	CRSP	1128	118.9	116.62	2.28	1009.10	1011.38
GW-180	CRSP	1103.97	103.5	119.22	-15.72	1000.47	984.75
GW-184	RQ	927.63	110.2	111.06	-0.86	817.43	816.57
GW-186	RQ	831.32	14.4	15.14	-0.74	816.92	816.18
GW-203 *	UNCS	1105.43	77	79.22	-2.24	1028.45	1026.21
GW-205 *	UNCS	1104.14	74.4	77.02	-2.62	1029.74	1027.12
GW-217 *	LIV	1177.03	108.8	114.48	-5.71	1068.26	1062.55
GW-221 *	UNCS	1106.17	78.8	80.55	-1.74	1027.36	1025.62
GW-231 *	KHQ	849.64	15.2	17.64	-2.49	834.49	832.00
GW-241	CRSDB	982.64	43.4	50.53	-7.18	939.29	932.11
GW-292	ECRWP	1073	112	115.11	-3.10	960.99	957.89
GW-293	ECRWP	1063.9	114.4	117.46	-3.10	949.54	946.44
GW-298	CRBAWP	1049.01	107.8	110.35	-2.58	941.24	938.66

Table 8 (continued)

Groundwater Elevation (ft above mean sea level)			September 13 - 27, 1999	April 4 - April 8, 1999	Seasonal Fluctuation (+/- ft)		
Depth-to-Water (ft below measuring point)			September 13 - 27, 1999	April 4 - April 8, 1999			
Well Number[1]	Location[2]	Measuring Point Elevation [3] (ft above mean sea level)					
GW-299	CRBAWP	1053.86	95.8	99.80	-4.04	958.10	954.06
GW-300	CRBAWP	1073.12	109.7	114.84	-5.19	963.47	958.28
GW-301 *	CRBAWP	1086.55	130.4	135.05	-4.67	956.17	951.50
GW-302 *	UNCS	1141.84	98.1	103.58	-5.49	1043.75	1038.26
GW-303	CRSDB	1007.16	86.6	88.63	-2.03	920.56	918.53
GW-304	CRSDB	1045.49	116.8	117.97	-1.19	928.71	927.52
GW-305 *	LIV	1183.73	119.8	125.21	-5.43	1063.95	1058.52
GW-322	CRSP	1134.9	148.3	158.78	-10.45	986.57	976.12
GW-339 *	UNCS	1124.83	70.6	77.16	-6.59	1054.26	1047.67
GW-511	CRSP	1093.21	103.9	109.96	-6.07	989.32	983.25
GW-512	FCAP	1001.54	20.8	27.01	-6.20	980.73	974.53
GW-514	FCAP	1001.22	20.9	27.42	-6.48	980.28	973.80
GW-521 *	LIV	1182.89	82	85.49	-3.50	1100.90	1097.40
GW-522 *	LIV	1175.48	96	107.56	-11.55	1079.47	1067.92
GW-539	LII	1093.22	104.9	108.85	-3.96	988.33	984.37
GW-540 *	CDLVI	1072.28	81.3	84.65	-3.40	991.03	987.63
GW-541	CDLVI	1058.4	64.3	64.52	-0.26	994.14	993.88
GW-542 *	CDLVI	1051.77	69.9	70.74	-0.81	981.84	981.03
GW-543 *	CDLVI	1023.98	64.1	65.56	-1.42	959.84	958.42
GW-544 *	CDLVI	1045.2	62.2	64.57	-2.37	983.00	980.63
GW-546	CDLVI	1072.21	81.7	84.54	-2.87	990.54	987.67
GW-557 *	LV	1081.33	118.2	121.59	-3.43	963.17	959.74
GW-558	SSCR	983.97	47.4	50.43	-3.02	936.56	933.54
GW-559	SSCR	1102.79	135.7	138.99	-3.32	967.12	963.80
GW-560	CDLVII	949.09	40.2	42.93	-2.67	908.83	906.16
GW-562	CDLVII	934.66	4.1	7.35	-3.25	930.56	927.31
GW-564	CDLVII	937.94	10.5	11.89	-1.45	927.50	926.05
GW-608	CRSP	1075.48	132.3	138.17	-5.17	942.48	937.31
GW-609 *	CRSP	1112.28	166	170.00	-4.05	946.33	942.28
GW-610	CRSP	1059.44	83.2	89.34	-6.16	976.26	970.10
GW-611	CRSP	1048.38	98.7	105.51	-6.77	949.64	942.87
GW-612	CRSP	1131.03	120.5	125.67	-5.18	1010.54	1005.36
GW-673	FCAP	882.01	9.1	10.35	-1.26	872.92	871.66
GW-674	FCAP	883.79	7.8	8.46	-0.62	875.95	875.33
GW-676	FCAP	846.5	3.4	7.01	-3.60	843.09	839.49

Table 8 (continued)

Groundwater Elevation (ft above mean sea level)			September 13 - 27, 1999				
			April 4 - April 8, 1999				
			Seasonal Fluctuation (+/- ft)				
Depth-to-Water (ft below measuring point)			September 13 - 27, 1999				
			April 4 - April 8, 1999				
Well Number[1]	Location[2]	Measuring Point Elevation [3] (ft above mean sea level)					
GW-677	FCAP	1030.4	25.2	29.25	-4.06	1005.21	1001.15
GW-678	FCAP	1000.7	NM[4]	23.14	NA[5]	NA[5]	977.56
GW-679	FCAP	1026.9	49	54.66	-5.65	977.89	972.24
GW-709 *	LII	906.78	28.5	29.79	-1.26	878.25	876.99
GW-731 *	CRSDB	1049.35	124.6	125.23	-0.64	924.76	924.12
GW-732 *	CRSDB	1064.26	157.8	158.18	-0.45	906.53	906.08
GW-743	CRSP	1100.36	123.2	132.04	-8.86	977.18	968.32
GW-757 *	LII	961.61	84	84.82	-0.81	877.60	876.79
GW-796 *	LV	1052.6	12.4	80.86	-68.51	1040.25	971.74
GW-797 *	LV	1059.97	70.5	73.29	-2.81	989.49	986.68
GW-798 *	CDLVII	1005.97	75.4	80.06	-4.71	930.62	925.91
GW-799 *	LV	981.26	12.7	16.69	-3.99	968.56	964.57
GW-801 *	LV	1097.14	105.1	111.72	-6.64	992.06	985.42
GW-827 *	CDLVI	1051.56	41.4	42.49	-1.11	1010.18	1009.07
GW-831 *	FCAP	1091.26	127.7	129.41	-1.70	963.55	961.85

Notes:

1 * - Wells sampled during CY 1999

2 CDLVI - Construction/Demolition Landfill VI
CDLVII - Construction/Demolition Landfill VII
CRBAWP - Chestnut Ridge Borrow Area Waste Pile
CRSDB - Chestnut Ridge Sediment Disposal Basin
CRSP - Chestnut Ridge Security Pits
ECRWP - East Chestnut Ridge Waste Pile
FCAP - Filled Coal Ash Pond
KHQ - Kerr Hollow Quarry
LII - Industrial Landfill II
LIV - Industrial Landfill IV
LV - Industrial Landfill V
ORSF - Oak Ridge Sludge Farm
RQ - Rogers Quarry
SSCR - South Side Chestnut Ridge
UNCS - United Nuclear Corporation Site

3 Measuring point (top of well casing or Well Wizard™) elevation

4 NM - Not Measured

5 NA - Not Applicable

Table B.9. Depth-to-water measurements and groundwater elevations in the Upper East Fork Poplar Creek Hydrogeologic Regime, 1999

Well Number[1]	Location[2]	Hydrogeologic Unit: Aquifer	Hydrogeologic Unit: Aquitard	Measuring Point Elevation[3]	Depth-to-Water (ft below measuring point): September 10 - 24, 1999	Depth-to-Water (ft below measuring point): April 4 - 9, 1999	Seasonal Fluctuation (+/- ft)	Groundwater Elevation (ft above mean sea level): April 4 - 9, 1999	Groundwater Elevation (ft above mean sea level): September 10 - 24, 1999
55-1A	Y12		Ž	986.67	NM	11.05	NA	NA	975.62
55-3A	Y12		Ž	972.46	NM	12.08	NA	NA	960.38
55-6A	Y12		Ž	989.04	9.4	10.56	-1.16	979.64	978.48
56-1A	Y12		Ž	969.25	8.1	8.05	0.05	961.15	961.20
56-2A	Y12		Ž	963.30	NM	8.59	NA	NA	954.71
60-1A	Y12	Ž		929.66	12.4	12.73	-0.33	917.26	916.93
GW-105	S3		Ž	1017.60	7.9	9.54	-2.24	1010.30	1008.06
GW-106	S3		Ž	1016.70	4.4	5.66	-1.86	1012.90	1011.04
GW-107	S3		Ž	998.40	7.2	7.96	-1.36	991.80	990.44
GW-115 *	S3		Ž	1054.41	7.7	13.71	-6.61	1047.31	1040.70
GW-148 *	NHP	Ž		908.17	8.4	9.02	-0.67	899.82	899.15
GW-150	NHP	Ž		915.56	14.1	14.31	-0.21	901.46	901.25
GW-152	NHP	Ž		921.18	19.7	19.96	-0.26	901.48	901.22
GW-154 *	NHP	Ž		911.50	9.6	10.07	-0.47	901.90	901.43
GW-167	EXP	Ž		931.38	30.6	31.44	-1.43	901.37	899.94
GW-169 *	EXP-UV	Ž		931.50	31.1	34.24	-3.80	901.06	897.26
GW-171 *	EXP-UV	Ž		920.77	10.3	14.86	-4.51	910.42	905.91
GW-191	B4		Ž	1011.27	4.4	5.86	-1.46	1006.87	1005.41
GW-192 *	B4		Ž	1009.41	6.1	7.32	-0.64	1002.73	1002.09
GW-193 *	T2331		Ž	934.17	9.7	10.12	-0.42	924.47	924.05
GW-195	B4		Ž	1002.90	7.0	8.07	-1.07	995.90	994.83
GW-199	GRIDI1		Ž	961.08	17.3	17.72	-0.42	943.78	943.36
GW-218 *	UOV	Ž		935.81	13.0	14.96	-1.96	922.81	920.85
GW-219 *	UOV	Ž		935.83	10.0	13.82	-3.84	925.85	922.01
GW-255	S2	Ž		1027.13	26.0	44.68	-18.65	1001.10	982.45
GW-261	SY		Ž	1049.99	17.1	19.10	-1.99	1032.88	1030.89
GW-263	SY		Ž	1057.70	25.0	31.80	-6.84	1032.74	1025.90
GW-334	WC		Ž	983.73	11.8	12.57	-0.80	971.96	971.16
GW-335	WC		Ž	981.88	9.9	11.73	-1.85	972.00	970.15
GW-349	S2	Ž		993.50	4.4	6.88	-2.50	989.12	986.62
GW-380 *	NHP	Ž		913.55	10.3	11.30	-1.03	903.28	902.25
GW-383 *	NHP		Ž	908.77	9.4	9.81	-0.43	899.39	898.96
GW-384	NHP		Ž	909.16	11.2	11.58	-0.43	898.01	897.58

Table B.9 (continued)

Well Number[1]	Location[2]	Hydrogeologic Unit: Aquifer	Hydrogeologic Unit: Aquitard	Measuring Point Elevation[3]	Depth-to-Water (ft below measuring point): September 10 - 24, 1999	Depth-to-Water (ft below measuring point): April 4 - 9, 1999	Seasonal Fluctuation (+/- ft)	Groundwater Elevation (ft above mean sea level): September 10 - 24, 1999	Groundwater Elevation (ft above mean sea level): April 4 - 9, 1999
GW-617	EXP-E	Ž		985.28	13.7	15.07	-1.43	971.64	970.21
GW-618 *	EXP-E	Ž		985.17	13.6	14.94	-1.34	971.57	970.23
GW-619	FTF	Ž		1015.49	24.1	30.44	-6.32	991.37	985.05
GW-620 *	FTF	Ž		1015.57	24.9	29.98	-5.07	990.66	985.59
GW-686	CPT	Ž		963.76	12.8	12.92	-0.14	950.98	950.84
GW-691	CPT	Ž		968.59	12.2	12.28	-0.12	956.43	956.31
GW-699	B8110	Ž		971.14	16.1	16.04	0.06	955.04	955.10
GW-735 *	EXP-J		Ž	924.46	23.0	23.86	-0.83	901.43	900.60
GW-746 *	GRIDK1		Ž	907.06	4.6	7.56	-2.95	902.45	899.50
GW-749	GRIDK2		Ž	921.39	5.3	10.16	-4.89	916.12	911.23
GW-752	GRIDJ3		Ž	912.78	3.6	6.23	-2.63	909.18	906.55
GW-754	GRIDJ2		Ž	928.77	9.1	13.60	-4.49	919.66	915.17
GW-756	GRIDJ1		Ž	928.12	6.5	6.84	-0.39	921.67	921.28
GW-759	GRIDG1		Ž	994.01	18.5	19.61	-1.07	975.47	974.40
GW-761	GRIDG2		Ž	968.23	9.5	13.04	-3.56	958.75	955.19
GW-763 *	GRIDJ3		Ž	915.04	10.0	10.41	-0.41	905.04	904.63
GW-765	GRIDE1		Ž	1008.54	19.3	20.28	-0.94	989.20	988.26
GW-767	GRIDI2		Ž	948.54	11.7	13.08	-1.42	936.88	935.46
GW-770 *	GRIDG3		Ž	944.72	13.7	12.34	1.40	930.98	932.38
GW-772	GRIDC1		Ž	1012.66	10.1	14.64	-4.55	1002.57	998.02
GW-774	GRIDH2		Ž	963.16	14.7	16.53	-1.84	948.47	946.63
GW-780	GRIDF2		Ž	963.40	13.1	13.30	-0.16	950.26	950.10
GW-783 *	GRIDE3		Ž	948.49	10.6	11.10	-0.48	937.87	937.39
GW-785	GRIDD1		Ž	1009.43	10.7	13.91	-3.17	998.69	995.52
GW-787	GRIDE2		Ž	987.85	14.4	18.25	-3.82	973.42	969.60
GW-792 *	GRIDD2		Ž	992.74	25.0	25.88	-0.84	967.70	966.86
GW-816 *	EXP-SR		Ž	898.43	12.8	13.81	-1.02	885.64	884.62
GW-817	GRIDK3		Ž	918.32	7.1	9.58	-2.45	911.19	908.74

Table B.9 (continued)

Notes:

1 * - Well sampled during CY 1999

2 B4 - Beta-4 Security Pits
B8110 - Building 8110
CPT - Coal Pile Trench
EXP - Exit Pathway (Maynardville Limestone) monitoring well
- **!** -E or -J: Maynardville Limestone Picket
- **!** -UV: Offsite in Union Valley
- **!** -SR: Along Scarboro Road in the gap through Pine Ridge

FTF - Fire Training Facility
GRID - Comprehensive Groundwater Monitoring Plan Grid Location
NHP - New Hope Pond
RDS - Ravine Disposal Site
RG - Rust Garage Area
S2 - S-2 Site
S3 - S-3 Ponds Site
SY - Y-12 Plant Salvage Yard
T2331 - Tank 2331-U
UOV - Uranium Oxide Vault
WC - Waste Coolant Processing Area
Y12 - Y-12 Plant Complex

3 Measuring point (top of casing or Well Wizard™) elevation

4 NM - Not measured

5 NA - Not applicable

APPENDIX C

MONITORING WELL CONSTRUCTION DETAILS

EXPLANATION

LOCATION:

Bear Creek Regime

BG	-	Bear Creek Burial Grounds WMA
EMWMF	-	Environmental Management Waste Management Facility
EXP	-	Exit Pathway Monitoring Location: Maynardville Limestone Picket (-A, -B, -C, -W)
OLF	-	Oil Landfarm WMA
RS	-	Rust Spoil Area
S3	-	S-3 Site
SPI	-	Spoil Area I

Chestnut Ridge Regime

CDLVI	-	Construction/Demolition Landfill VI
CDLVII	-	Construction/Demolition Landfill VII
CRBAWP	-	Chestnut Ridge Borrow Area Waste Pile
CRSDB	-	Chestnut Ridge Sediment Disposal Basin
CRSP	-	Chestnut Ridge Security Pits
FCAP	-	Filled Coal Ash Pond
KHQ	-	Kerr Hollow Quarry
LII	-	Industrial Landfill II
LIV	-	Industrial Landfill IV
LV	-	Industrial Landfill V
UNCS	-	United Nuclear Corporation Site

East Fork Regime

B4	-	Beta-4 Security Pits
B9201-2	-	Building 9201-2
EXP	-	Exit Pathway Monitoring Location: Maynardville Limestone Picket (-E, -I, -J) Along Scarboro Road in the gap through Pine Ridge (-SR)
FTF	-	Fire Training Facility
GRID	-	Comprehensive Groundwater Monitoring Plan Grid Location
NHP	-	New Hope Pond
S2	-	S-2 Site
S3	-	S-3 Site
T0134	-	Tank 0134-U
T2331	-	Tank 2331-U, near Building 9201-1
UOV	-	Uranium Oxide Vault
WC	-	Waste Coolant Processing Area

EXPLANATION (continued)

GENERAL INFORMATION:

Coordinates	-	Y-12 Plant grid system
Measuring Point (Pt.)	-	Top of well casing or Well Wizard™
Elevation	-	Feet above mean sea level
Depth	-	Feet below ground surface
Diameter	-	Outside dimensions, in inches (nominal)
.	-	Not Applicable or not available

CASING:

Diameter	-	Outside dimensions, in inches (nominal)
PVC/#40	-	Polyvinyl chloride, schedule 40
SS/#304	-	Stainless steel, schedule 304
Steel	-	Carbon steel
F25/J55	-	American Petroleum Institute Grade

MONITORED INTERVAL

Hydrostratigraphic Unit:		
AQF	-	Knox Aquifer (Maynardville Limestone and Knox Group)
AQT	-	ORR Aquitard (other formations of the Conasauga Group)
Aquifer Zone:		
BDR	-	Bedrock Interval (monitored interval top is in fresh rock)
WT	-	Water Table Interval (monitored interval top is above fresh rock)
Geologic Formation:		
OCk	-	Knox Group
CON	-	Conasauga Group, undifferentiated
Cm	-	Maryville Limestone
Cn	-	Nolichucky Shale
Cmn	-	Maynardville Limestone
Cpv	-	Pumpkin Valley Shale
Crg	-	Rogersville Shale
Cr	-	Rome Formation
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	-	PVC/slotted
PVC/sw/.01	-	PVC, spiral wound, 0.01 inch slot size
SS/sw/.01	-	Stainless steel, spiral wound, 0.01 inch slot size
SS/pp/.01	-	Stainless steel prepack screen, spiral wound, 0.01 inch slot size

NOTE:

Data compiled from the *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* (LMES 1998).

APPENDIX C.1

BEAR CREEK HYDROGEOLOGIC REGIME

APPENDIX C.1: BEAR CREEK HYDROGEOLOGIC REGIME, 1999
Monitoring Well Construction Details

Well Number	GW-006	GW-008	GW-043	GW-044	GW-046	GW-053	GW-056	GW-077
Monitoring Program	IWQP	IWQP	IWQP	IWQP	IWQP	GWPP	GWPP	IWQP
Location	EMWMF	OLF	EMWMF	EMWMF	BG	BG	EXP-A	BG
GENERAL INFORMATION								
East Coordinate	47995.00	47597.00	47932.00	47928.00	43284.00	43091.00	41384.00	41234.00
North Coordinate	29810.00	29781.00	30522.00	30526.00	29562.00	29061.00	28698.00	29731.00
Measuring Pt. Elevation	962.75	965.39	1014.04	1014.20	921.17	903.40	891.50	919.30
Surface Elevation	962.40	962.11	1009.80	1010.30	917.21	900.33	886.65	914.42
Hydrostratigraphic Unit	AQT	AQT	AQT	AQT	AQT	AQF	AQF	AQT
Geologic Formation	Cn	Cn	Cm	Cm	Cn	Cmn	Cmn	Cn
Aquifer Zone	WT	WT	WT	BDR	WT	WT	BDR	BDR
Weathered Rock - Depth	7.0	0.6	1.0	1.0	7.7	4.0	.	7.0
Weathered Rock - Elevation	955.40	961.51	1008.80	1009.30	909.51	896.33	.	907.42
Fresh Rock - Depth	16.5	.	38.0	38.0	.	.	6.4	13.0
Fresh Rock - Elevation	945.90	.	971.80	972.30	.	.	880.25	901.42
Total Depth Drilled	46.8	25.5	40.0	70.0	20.5	39.7	55.2	100.5
SURFACE/CONDUCTOR CASING								
Casing Depth	.	.	.	.	.	4.0	32.0	35.0
Casing Diameter	.	.	.	.	.	6.50	4.50	4.50
Casing Material	unknown	unknown	none	unknown	none	PVC/#40	PVC/#40	PVC/#40
WELL CASING								
Borehole Depth	46.8	25.5	40.0	70.0	20.5	39.7	55.2	100.5
Borehole Diameter	4.50	4.50	6.00	4.00	6.00	4.00	4.00	3.88
Well Casing Depth	37.3	15.7	22.8	48.0	8.1	26.6	53.2	90.3
Well Casing Diameter	2.37	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	SS/#304
MONITORED INTERVAL								
Top - Depth	15.3	13.0	10.0	42.5	5.0	11.4	49.1	87.4
Midpoint - Depth	31.1	19.3	25.0	56.3	12.7	22.1	52.2	93.9
Bottom - Depth	46.8	25.5	40.0	70.0	20.3	32.8	55.2	100.3
Top - Elevation	947.10	949.11	999.80	967.80	912.21	888.93	837.55	827.02
Midpoint - Elevation	931.35	942.86	984.80	954.05	904.56	878.23	834.50	820.57
Bottom - Elevation	915.60	936.61	969.80	940.30	896.91	867.53	831.45	814.12
Screen Material	SS/sw/.01	SS/sw/.01	SS/sw/.01	SS/sw/.01	SS/sw/.01	SS/sw/.01	SS/sw/.01	SS/sw/.01
Screen Length	5.0	5.0	10.0	10.0	10.0	5.0	2.0	10.0
Open-Hole Length	.	.	.	.	.	.	.	.
Open-Hole Diameter	.	.	.	.	.	.	.	.

(CONTINUED)

APPENDIX C.1: BEAR CREEK HYDROGEOLOGIC REGIME, 1999
Monitoring Well Construction Details

Well Number	GW-078	GW-079	GW-080	GW-082	GW-085	GW-087	GW-115	GW-126
Monitoring Program	IWQP	IWQP	IWQP	GWPP	GWPP	GWPP	IWQP	GWPP
Location	BG	BG	BG	BG	OLF	OLF	S3	BG
GENERAL INFORMATION								
East Coordinate	41210.00	41619.00	41622.00	42090.00	49058.00	48313.00	52685.00	42679.00
North Coordinate	29732.00	30632.00	30624.00	30434.00	30002.00	29534.00	31073.00	29361.00
Measuring Pt. Elevation	918.10	981.20	981.00	964.00	983.50	961.20	1055.01	932.06
Surface Elevation	914.38	977.14	977.03	959.49	979.82	956.97	1051.90	929.02
Hydrostratigraphic Unit	AQT	AQT	AQT	AQT	AQT	AQT	AQT	AQT
Geologic Formation	Cn	Crg	Crg	Cm	Cn	Cn	Cm	Cn
Aquifer Zone	BDR	BDR	WT	BDR	BDR	WT	WT	BDR
Weathered Rock - Depth	6.5	4.0	3.5	7.0	2.0	19.0	.	.
Weathered Rock - Elevation	907.88	973.14	973.53	952.49	977.82	937.97	.	.
Fresh Rock - Depth	8.5	26.5	23.5	23.0	40.0	.	.	27.0
Fresh Rock - Elevation	905.88	950.64	953.53	936.49	939.82	.	.	902.02
Total Depth Drilled	21.1	65.0	30.0	35.0	62.0	19.0	53.0	155.0
SURFACE/CONDUCTOR CASING								
Casing Depth	.	.	.	25.0	.	.	.	31.0
Casing Diameter	.	.	.	6.50	.	.	.	10.75
Casing Material	none	none	none	PVC/#40	unknown	none	none	Steel/F25
WELL CASING								
Borehole Depth	21.1	65.0	30.0	35.0	62.0	19.0	53.0	105.0
Borehole Diameter	6.50	6.50	6.50	4.00	4.00	6.50	.	9.87
Well Casing Depth	16.1	59.9	24.7	29.4	53.8	9.0	42.0	105.0
Well Casing Diameter	2.37	2.37	2.37	2.37	2.37	2.37	2.37	4.50
Well Casing Material	SS/#304	SS/#304	SS/#304	SS/#304	SS/#304	SS/#304	SS/#304	Steel/F25
MONITORED INTERVAL								
Top - Depth	11.7	49.9	20.8	29.4	48.4	7.5	37.6	105.0
Midpoint - Depth	16.4	57.4	25.3	31.9	53.6	13.3	45.3	130.0
Bottom - Depth	21.1	64.9	29.7	34.4	58.8	19.0	53.0	155.0
Top - Elevation	902.68	927.24	956.23	930.09	931.42	949.47	1014.30	824.02
Midpoint - Elevation	897.98	919.74	951.78	927.59	926.22	943.72	1006.60	799.02
Bottom - Elevation	893.28	912.24	947.33	925.09	921.02	937.97	998.90	774.02
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	5.0	5.0	5.0	5.0	5.0	10.0	10.0	.
Open-Hole Length	.	.	.	.	.	.	.	50.0
Open-Hole Diameter	.	.	.	.	.	.	.	4.00

(CONTINUED)

APPENDIX C.1: BEAR CREEK HYDROGEOLOGIC REGIME, 1999
Monitoring Well Construction Details

Well Number	GW-132	GW-133	GW-134	GW-135	GW-226	GW-228	GW-236	GW-242
Monitoring Program	GWPP	GWPP	GWPP	GWPP	GWPP	GWPP	GWPP	GWPP
Location	S3	S3	S3	S3	OLF	OLF	S3	BG
GENERAL INFORMATION								
East Coordinate	52805.00	52637.00	52533.00	53053.00	47473.00	47791.00	50453.00	43144.00
North Coordinate	31210.00	30659.00	29741.00	28731.00	29156.00	29171.00	29712.00	31004.00
Measuring Pt. Elevation	1053.90	1025.90	1005.60	1177.80	943.40	946.47	983.21	978.12
Surface Elevation	1051.00	1022.60	1002.50	1175.40	940.56	943.85	980.39	974.78
Hydrostratigraphic Unit	AQT	AQT	AQT	AQF	AQF	AQF	AQF	AQT
Geologic Formation	Cr	Crt	Cm	Cn	Cmn	Cmn	Cmn	Cpv
Aquifer Zone	BDR	BDR	BDR	BDR	BDR	BDR	WT	WT
Weathered Rock - Depth	.	.	.	.	.	.	9.0	9.0
Weathered Rock - Elevation	.	.	.	.	.	.	971.39	965.78
Fresh Rock - Depth	.	.	.	.	28.0	24.0	18.5	.
Fresh Rock - Elevation	.	.	.	.	912.56	919.85	961.89	.
Total Depth Drilled	759.5	599.0	842.0	1275.0	55.0	100.0	18.5	17.0
SURFACE/CONDUCTOR CASING								
Casing Depth	20.0	20.0	30.0	55.0	30.0	32.0	.	.
Casing Diameter	10.75	10.75	10.75	10.75	10.75	10.75	.	.
Casing Material	Steel/F25	Steel/F25	Steel/F25	Steel/F25	Steel	Steel	none	none
WELL CASING								
Borehole Depth	97.0	55.0	35.0	80.0	45.0	80.0	18.5	17.0
Borehole Diameter	9.87	9.87	9.87	9.87	10.00	10.00	8.00	8.00
Well Casing Depth	97.0	55.0	35.0	80.0	45.0	80.0	13.0	10.6
Well Casing Diameter	4.50	4.50	4.50	4.50	4.50	4.50	4.50	2.37
Well Casing Material	Steel/F25	Steel/F25	Steel/F25	Steel/F25	Steel	Steel	PVC/#40	SS/#304
MONITORED INTERVAL								
Top - Depth	97.0	55.0	35.0	80.0	45.0	80.0	10.0	9.0
Midpoint - Depth	428.3	327.0	438.5	677.5	50.0	90.0	14.3	13.0
Bottom - Depth	759.5	599.0	842.0	1275.0	55.0	100.0	18.5	17.0
Top - Elevation	954.00	967.60	967.50	1095.40	895.56	863.85	970.39	965.78
Midpoint - Elevation	622.75	695.60	564.00	497.90	890.56	853.85	966.14	961.78
Bottom - Elevation	291.50	423.60	160.50	-99.60	885.56	843.85	961.89	957.78
Screen Material	.	.	.	.	.	.	PVC/sw/.01	SS/sw/.01
Screen Length	.	.	.	.	.	.	5.0	6.4
Open-Hole Length	662.5	544.0	807.0	1195.0	10.0	20.0	.	.
Open-Hole Diameter	3.70	3.70	3.70	3.70	4.00	4.00	.	.

(CONTINUED)

APPENDIX C.1: BEAR CREEK HYDROGEOLOGIC REGIME, 1999
Monitoring Well Construction Details

Well Number	GW-276	GW-287	GW-311	GW-315	GW-345	GW-346	GW-526	GW-537
Monitoring Program	IWQP	GWPP	GWPP	GWPP	GWPP	GWPP	GWPP	GWPP
Location	S3	BG	RS	SPI	S3	S3	S3	OLF
GENERAL INFORMATION								
East Coordinate	52557.00	42288.00	50126.00	52268.00	50700.00	50703.00	50708.00	49539.23
North Coordinate	29926.00	29989.00	29267.00	29455.00	30029.00	30030.00	30033.00	30057.19
Measuring Pt. Elevation	1001.57	927.07	999.65	1047.48	999.46	995.65	998.25	976.44
Surface Elevation	998.80	924.60	996.43	1044.80	994.93	995.08	995.34	974.19
Hydrostratigraphic Unit	AQT	AQT	AQF	AQF	AQT	AQT	AQT	AQT
Geologic Formation	Cn	Cm	Cmn	Cmn	Cn	Cn	Cn	Cn
Aquifer Zone	WT	WT	WT	BDR	WT	BDR	BDR	WT
Weathered Rock - Depth	18.5	4.5	40.3	54.0	9.0	11.0	3.5	14.9
Weathered Rock - Elevation	980.30	920.10	956.13	990.80	985.93	984.08	991.84	959.29
Fresh Rock - Depth	.	11.0	.	71.0	26.3	22.8	23.6	.
Fresh Rock - Elevation	.	913.60	.	973.80	968.63	972.28	971.74	.
Total Depth Drilled	18.5	12.5	40.3	104.0	26.3	65.3	123.0	24.5
SURFACE/CONDUCTOR CASING								
Casing Depth	.	.	.	84.4	.	22.8	23.6	.
Casing Diameter	.	.	.	10.75	.	10.75	10.75	.
Casing Material	none	none	none	Steel/F25	none	unknown	unknown	none
WELL CASING								
Borehole Depth	18.5	12.5	40.3	104.0	26.3	65.3	101.0	24.5
Borehole Diameter	8.00	9.00	10.00	10.00	14.50	9.50	9.50	8.75
Well Casing Depth	13.0	7.3	29.7	93.3	16.0	54.6	101.0	8.0
Well Casing Diameter	4.50	4.50	4.50	4.50	4.50	4.50	6.62	4.50
Well Casing Material	SS/#304	SS/#304	SS/#304	SS/#304	SS/#304	SS/#304	Steel/F25	SS/#304
MONITORED INTERVAL								
Top - Depth	11.3	5.6	25.6	90.0	15.2	51.5	101.0	4.8
Midpoint - Depth	14.9	9.1	33.0	97.0	20.8	58.2	112.0	14.1
Bottom - Depth	18.5	12.5	40.3	104.0	26.3	64.9	123.0	23.3
Top - Elevation	987.50	919.00	970.83	954.80	979.73	943.58	894.34	969.39
Midpoint - Elevation	983.90	915.55	963.48	947.80	974.18	936.88	883.34	960.14
Bottom - Elevation	980.30	912.10	956.13	940.80	968.63	930.18	872.34	950.89
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	5.3	5.0	10.6	10.0	10.0	10.0	.	15.0
Open-Hole Length	.	.	.	.	.	.	22.0	.
Open-Hole Diameter	.	.	.	.	.	.	6.10	.

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APPENDIX C.1: BEAR CREEK HYDROGEOLOGIC REGIME, 1999
Monitoring Well Construction Details

Well Number	GW-601	GW-621	GW-627	GW-653	GW-683	GW-684	GW-685	GW-695
Monitoring Program	GWPP	GWPP	GWPP	GWPP	GWPP	GWPP	GWPP	GWPP
Location	OLF	EXP-B	BG	BG	EXP-A	EXP-A	EXP-A	EXP-B
GENERAL INFORMATION								
East Coordinate	47629.49	45032.91	42774.10	42317.29	41552.33	41353.53	41447.78	44868.30
North Coordinate	28902.55	29023.30	29505.05	29660.39	28281.78	28524.52	28667.40	28844.73
Measuring Pt. Elevation	1002.20	925.44	943.65	931.80	972.26	898.86	891.51	939.57
Surface Elevation	999.09	923.07	940.39	928.85	969.45	895.53	889.28	937.22
Hydrostratigraphic Unit	AQF	AQF	AQT	AQT	AQF	AQF	AQF	AQF
Geologic Formation	Cmn	Cmn	Cn	Cn	OCk	Cmn	Cmn	OCk
Aquifer Zone	BDR	WT	BDR	WT	BDR	BDR	BDR	BDR
Weathered Rock - Depth	8.0	22.0	3.0	3.5	22.0	.	5.0	6.0
Weathered Rock - Elevation	991.09	901.07	937.39	925.35	947.45	.	884.28	931.22
Fresh Rock - Depth	54.0	.	43.0	.	26.0	9.0	15.5	18.0
Fresh Rock - Elevation	945.09	.	897.39	.	943.45	886.53	873.78	919.22
Total Depth Drilled	356.0	43.0	270.0	39.0	197.5	129.6	138.3	62.6
SURFACE/CONDUCTOR CASING								
Casing Depth	41.4	24.0	47.5	.	82.0	87.0	.	22.5
Casing Diameter	11.75	10.75	11.75	.	11.75	11.75	.	11.75
Casing Material	Steel	Steel/J55	Steel/J55	none	Steel/J55	Steel/J55	none	Steel/J55
WELL CASING								
Borehole Depth	319.0	43.0	254.0	39.0	197.5	129.6	88.5	62.6
Borehole Diameter	10.63	7.88	10.63	9.50	10.63	10.50	10.63	9.88
Well Casing Depth	318.5	24.8	254.0	29.0	146.0	113.8	88.3	52.4
Well Casing Diameter	7.00	4.50	7.00	4.50	4.50	4.50	7.00	4.50
Well Casing Material	Steel	SS/#304	Steel/F25	SS/#304	SS/#304	SS/#304	Steel/F25	SS/#304
MONITORED INTERVAL								
Top - Depth	318.5	23.3	254.0	26.3	133.9	106.4	88.5	50.6
Midpoint - Depth	337.3	31.9	262.0	32.7	165.4	117.4	113.4	56.6
Bottom - Depth	356.0	40.5	270.0	39.0	196.8	128.4	138.3	62.6
Top - Elevation	680.59	899.77	686.39	902.55	835.55	789.13	800.78	886.62
Midpoint - Elevation	661.84	891.17	678.39	896.20	804.10	778.13	775.88	880.62
Bottom - Elevation	643.09	882.57	670.39	889.85	772.65	767.13	750.98	874.62
Screen Material	.	SS/sw/.01	.	SS/sw/.01	SS/pp/.01	SS/pp/.01	.	SS/sw/.01
Screen Length	.	15.7	.	10.0	50.8	14.6	.	10.0
Open-Hole Length	37.5	.	16.0	.	.	.	49.8	.
Open-Hole Diameter	6.25	.	6.25	.	.	.	6.63	.

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Monitoring Well Construction Details

Well Number	GW-703	GW-704	GW-706	GW-712	GW-713	GW-714	GW-715	GW-724
Monitoring Program	GWPP	GWPP	GWPP	IWQP	IWQP	IWQP	IWQP	GWPP
Location	EXP-B	EXP-B	EXP-B	EXP-W	EXP-W	EXP-W	EXP-W	EXP-C
GENERAL INFORMATION								
East Coordinate	44930.51	44934.98	44943.63	36506.87	36434.40	36435.09	36453.11	48995.17
North Coordinate	28806.34	28844.67	28946.41	28232.52	28235.95	28421.56	28424.58	29198.24
Measuring Pt. Elevation	954.69	944.73	929.47	877.89	881.43	875.88	874.92	979.27
Surface Elevation	951.80	941.99	925.78	873.61	877.83	872.30	872.17	976.62
Hydrostratigraphic Unit	AQF	AQF	AQF	AQF	AQF	AQF	AQF	AQF
Geologic Formation	Cmn	Cmn	Cmn	OCk	Cmn	Cmn	Cmn	Cmn
Aquifer Zone	BDR	BDR	BDR	BDR	BDR	BDR	WT	BDR
Weathered Rock - Depth	7.0	16.0	17.0	12.0	26.8	27.0	34.0	33.5
Weathered Rock - Elevation	944.80	925.99	908.78	861.61	851.03	845.30	838.17	943.12
Fresh Rock - Depth	10.0	23.0	27.0	66.0	63.8	35.0	.	40.0
Fresh Rock - Elevation	941.80	918.99	898.78	807.61	814.03	837.30	.	936.62
Total Depth Drilled	182.0	256.0	182.5	457.5	315.2	145.0	44.6	301.6
SURFACE/CONDUCTOR CASING								
Casing Depth	.	21.0	40.3	44.8	50.0	40.5	.	40.0
Casing Diameter	.	11.75	11.75	11.75	11.75	11.75	.	11.75
Casing Material	none	Steel/J55	Steel/J55	Steel/J55	Steel/J55	Steel/J55	none	Steel/J55
WELL CASING								
Borehole Depth	135.0	246.0	157.0	441.5	305.0	115.1	44.6	289.6
Borehole Diameter	10.63	10.63	10.60	10.60	10.60	10.60	10.60	10.60
Well Casing Depth	133.8	244.5	156.1	440.2	305.0	115.1	33.1	289.6
Well Casing Diameter	7.00	7.00	7.00	7.00	7.00	7.00	4.25	7.00
Well Casing Material	Steel/F25	Steel/F25	Steel/F25	Steel/F25	Steel/F25	Steel/F25	SS/#304	Steel/F25
MONITORED INTERVAL								
Top - Depth	135.0	246.0	157.0	441.5	305.0	115.1	32.0	289.6
Midpoint - Depth	158.5	251.0	169.8	449.5	310.1	130.1	38.0	295.6
Bottom - Depth	182.0	256.0	182.5	457.5	315.2	145.0	44.0	301.6
Top - Elevation	816.80	695.99	768.78	432.11	572.83	757.20	840.17	687.02
Midpoint - Elevation	793.30	690.99	756.03	424.11	567.73	742.25	834.17	681.02
Bottom - Elevation	769.80	685.99	743.28	416.11	562.63	727.30	828.17	675.02
Screen Material	.	.	.	.	.	.	SS/sw/.01	.
Screen Length	.	.	.	.	.	.	10.0	.
Open-Hole Length	47.0	10.0	25.5	16.0	10.2	29.9	.	12.0
Open-Hole Diameter	6.25	6.50	6.25	6.25	6.25	6.25	.	6.25

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APPENDIX C.1: BEAR CREEK HYDROGEOLOGIC REGIME, 1999
Monitoring Well Construction Details

Well Number	GW-725	GW-726	GW-738	GW-740	GW-829	GW-838	GW-840
Monitoring Program	GWPP	GWPP	GWPP	GWPP	GWPP	IWQP	IWQP
Location	EXP-C	BG	EXP-C	EXP-C	OLF	EMWMF	EMWMF
GENERAL INFORMATION							
East Coordinate	48989.13	42467.12	49026.00	49055.00	50035.53	46084.20	47090.25
North Coordinate	29405.44	29200.66	29150.00	29027.00	29952.81	30395.55	31173.36
Measuring Pt. Elevation	961.05	925.39	983.08	1019.60	985.98	967.73	1027.63
Surface Elevation	958.26	922.77	980.36	1017.00	981.92	964.42	1024.24
Hydrostratigraphic Unit	AQF	.	AQF	AQF	AQT	AQT	AQT
Geologic Formation	Cmn	Cn	Cmn	Cmn	Cn	.	.
Aquifer Zone	BDR	BDR	BDR	BDR	BDR	BDR	BDR
Weathered Rock - Depth	14.0	3.0	12.0	38.1	1.3	.	.
Weathered Rock - Elevation	944.26	919.77	968.36	978.90	980.62	.	.
Fresh Rock - Depth	17.5	25.5	15.1	45.1	29.0	.	.
Fresh Rock - Elevation	940.76	897.27	965.26	971.90	952.92	.	.
Total Depth Drilled	142.5	600.0	90.1	190.0	115.0	31.5	32.5
SURFACE/CONDUCTOR CASING							
Casing Depth	21.0	.	16.5	46.9	.	.	.
Casing Diameter	11.75	.	11.75	11.75	.	.	.
Casing Material	Steel/J55	none	Steel/J55	Steel/J55	none	.	.
WELL CASING							
Borehole Depth	132.5	600.0	90.1	165.6	115.0	.	.
Borehole Diameter	10.60	3.64	10.60	10.60	9.87	.	.
Well Casing Depth	132.5	39.9	67.3	165.6	104.7	19.5	11.5
Well Casing Diameter	7.00	7.00	4.50	7.00	4.50	2.37	2.37
Well Casing Material	Steel/F25	Steel/F25	SS/#304	Steel/F25	SS/#304	PVC/#40	PVC/#40
MONITORED INTERVAL							
Top - Depth	132.5	39.9	63.5	165.6	102.9	.	.
Midpoint - Depth	137.5	320.0	75.8	177.8	108.8	24.5	22.0
Bottom - Depth	142.5	600.0	88.0	190.0	114.6	.	.
Top - Elevation	825.76	882.87	916.86	851.40	879.02	946.92	1012.74
Midpoint - Elevation	820.76	602.82	904.61	839.20	873.17	939.92	1002.24
Bottom - Elevation	815.76	322.77	892.36	827.00	867.32	932.92	991.74
Screen Material	.	.	SS/sw/.01	.	SS/sw/.01	PVC/sl	PVC/sl
Screen Length	.	.	20.2	.	9.9	.	.
Open-Hole Length	10.0	560.1	.	24.4	.	.	.
Open-Hole Diameter	6.25	3.64	.	6.25	.	.	.

APPENDIX C.2

CHESTNUT RIDGE HYDROGEOLOGIC REGIME

APPENDIX C.2: CHESTNUT RIDGE HYDROGEOLOGIC REGIME, 1999
Monitoring Well Construction Details

Well Number	1090	GW-141	GW-142	GW-143	GW-144	GW-145	GW-156	GW-159
Monitoring Program	IWQP	GWPP	IWQP	IWQP	IWQP	IWQP	IWQP	IWQP
Location	UNCS	LIV	KHQ	KHQ	KHQ	KHQ	CRSDB	CRSDB
GENERAL INFORMATION								
East Coordinate	53853.02	52463.00	64030.00	63522.00	63502.00	63266.00	64020.00	63496.00
North Coordinate	28718.02	28755.00	24524.00	24257.00	24255.00	24441.00	27626.00	27764.00
Measuring Pt. Elevation	1104.48	1186.23	971.15	913.98	913.54	840.24	1049.30	1051.40
Surface Elevation	1101.60	1183.50	968.29	911.04	910.48	837.29	1046.90	1048.80
Hydrostratigraphic Unit	AQF	AQF	AQF	AQF	AQF	AQF	AQF	AQF
Geologic Formation	OCk	OCk	OCk	OCk	OCk	OCk	OCk	OCk
Aquifer Zone	WT	BDR	BDR	BDR	BDR	WT	BDR	BDR
Weathered Rock - Depth	.	.	.	.	.	.	84.0	.
Weathered Rock - Elevation	.	.	.	.	.	.	962.90	.
Fresh Rock - Depth	.	57.0	.	18.0	.	.	93.0	100.0
Fresh Rock - Elevation	.	1126.50	.	893.04	.	.	953.90	948.80
Total Depth Drilled	96.7	156.0	295.0	253.0	195.0	110.0	157.0	157.0
SURFACE/CONDUCTOR CASING								
Casing Depth	.	65.0	20.0	20.0	40.0	12.0	94.0	123.0
Casing Diameter	.	10.75	12.50	10.63	12.50	12.50	10.75	10.75
Casing Material	none	Steel/F25	PVC/#40	PVC/#40	PVC/#40	PVC/#40	Steel/F25	Steel/F25
WELL CASING								
Borehole Depth	96.7	156.0	250.0	205.0	195.0	110.0	157.0	157.0
Borehole Diameter	8.00	10.00	11.00	10.00	11.00	11.00	8.50	8.50
Well Casing Depth	0.5	144.5	248.5	205.0	150.0	88.5	147.0	147.0
Well Casing Diameter	6.50	4.50	6.62	6.62	4.50	4.50	4.50	4.50
Well Casing Material	PVC/#40	SS/#304	Steel/F25	Steel/F25	PVC/#40	PVC/#40	PVC/#40	PVC/#40
MONITORED INTERVAL								
Top - Depth	0.0	141.0	248.5	205.0	148.0	86.0	146.0	146.0
Midpoint - Depth	0.0	148.5	271.8	229.0	171.5	98.0	151.5	151.5
Bottom - Depth	0.0	156.0	295.0	253.0	195.0	110.0	157.0	157.0
Top - Elevation	.	1042.50	719.79	706.04	762.48	751.29	900.90	902.80
Midpoint - Elevation	.	1035.00	696.54	682.04	738.98	739.29	895.40	897.30
Bottom - Elevation	.	1027.50	673.29	658.04	715.48	727.29	889.90	891.80
Screen Material	PVC/sl	SS/sw/.01	.	.	PVC/sw/.01	PVC/sw/.01	PVC/sw/.01	PVC/sw/.01
Screen Length	.	10.7	.	.	40.0	20.0	10.0	10.0
Open-Hole Length	.	.	46.5	48.0	.	.	.	.
Open-Hole Diameter	.	.	6.00	6.00	.	.	.	.

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APPENDIX C.2: CHESTNUT RIDGE HYDROGEOLOGIC REGIME, 1999
Monitoring Well Construction Details

Well Number	GW-203	GW-205	GW-217	GW-221	GW-231	GW-301	GW-302	GW-305
Monitoring Program	IWQP	IWQP	GWPP	IWQP	IWQP	IWQP	IWQP	GWPP
Location	UNCS	UNCS	LIV	UNCS	KHQ	CRBAWP	UNCS	LIV
GENERAL INFORMATION								
East Coordinate	54190.48	54008.30	53020.00	54388.57	63410.00	61964.00	54353.40	52962.00
North Coordinate	28355.82	28362.98	28758.00	28359.44	24725.00	27662.00	28693.55	28548.00
Measuring Pt. Elevation	1105.45	1104.14	1177.06	1106.16	849.67	1086.55	1141.84	1183.75
Surface Elevation	1102.30	1101.50	1174.30	1103.40	846.90	1083.90	1139.60	1181.10
Hydrostratigraphic Unit	AQF	AQF	AQF	AQF	AQF	AQF	AQF	AQF
Geologic Formation	OCk	OCk	OCk	OCk	OCk	OCk	OCk	OCk
Aquifer Zone	BDR	BDR	BDR	BDR	BDR	BDR	BDR	BDR
Weathered Rock - Depth	86.0	100.0	55.0	36.0	.	94.0	63.0	53.0
Weathered Rock - Elevation	1016.30	1001.50	1119.30	1067.40	.	989.90	1076.60	1128.10
Fresh Rock - Depth	93.0	146.0	75.0	90.0	10.5	136.0	102.0	84.0
Fresh Rock - Elevation	1009.30	955.50	1099.30	1013.40	836.40	947.90	1037.60	1097.10
Total Depth Drilled	156.0	164.0	180.0	158.0	35.0	163.5	136.0	179.6
SURFACE/CONDUCTOR CASING								
Casing Depth	94.0	154.0	81.7	92.0	11.0	105.0	63.8	64.0
Casing Diameter	10.75	10.75	10.75	6.63	10.63	10.75	10.75	10.75
Casing Material	Steel/F25	Steel/F25	Steel/F25	Steel/F25	PVC/#40	Steel/F25	Steel	Steel/F25
WELL CASING								
Borehole Depth	156.0	164.0	180.0	158.0	35.0	163.5	136.0	179.6
Borehole Diameter	8.50	10.00	10.00	6.00	11.00	10.00	9.50	10.00
Well Casing Depth	146.0	154.0	166.8	148.0	24.5	151.0	124.5	168.9
Well Casing Diameter	4.50	4.50	4.50	4.50	4.50	4.50	4.50	4.50
Well Casing Material	PVC/#40	PVC/#40	SS/#304	PVC/#40	PVC/#40	SS/#304	SS/#304	SS/#304
MONITORED INTERVAL								
Top - Depth	144.0	154.0	165.2	147.0	22.8	148.5	121.5	165.3
Midpoint - Depth	150.0	159.0	172.6	152.5	28.9	156.0	128.2	172.5
Bottom - Depth	156.0	164.0	180.0	158.0	35.0	163.5	134.8	179.6
Top - Elevation	958.30	947.50	1009.10	956.40	824.10	935.40	1018.10	1015.80
Midpoint - Elevation	952.30	942.50	1001.70	950.90	818.00	927.90	1011.45	1008.65
Bottom - Elevation	946.30	937.50	994.30	945.40	811.90	920.40	1004.80	1001.50
Screen Material	PVC/sw/.01	PVC/sw/.01	SS/sw/.01	PVC/sw/.01	PVC/sw/.01	SS/sw/.01	SS/sw/.01	SS/sw/.01
Screen Length	10.0	10.0	10.6	10.0	10.0	10.0	10.3	10.7
Open-Hole Length	.	.	.	.	.	.	.	.
Open-Hole Diameter	.	.	.	.	.	.	.	.

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Monitoring Well Construction Details

Well Number	GW-339	GW-521	GW-522	GW-540	GW-542	GW-543	GW-544	GW-557
Monitoring Program	IWQP	GWPP	GWPP	GWPP	GWPP	GWPP	GWPP	GWPP
Location	UNCS	LIV	LIV	LII	CDLVI	CDLVI	CDLVI	LV
GENERAL INFORMATION								
East Coordinate	54146.52	52040.00	52612.00	52371.31	51641.74	51458.48	51819.56	59519.59
North Coordinate	28658.72	28541.00	28377.00	27489.06	27466.22	27072.06	26963.22	26450.11
Measuring Pt. Elevation	1124.83	1182.88	1175.49	1072.32	1051.77	1023.98	1045.20	1081.36
Surface Elevation	1122.20	1179.50	1172.00	1069.40	1049.00	1021.20	1042.50	1078.60
Hydrostratigraphic Unit	AQF	AQF	AQF	AQF	AQF	AQF	AQF	AQF
Geologic Formation	OCk	OCk	OCk	OCk	OCk	OCk	OCk	OCk
Aquifer Zone	BDR	BDR	BDR	BDR	WT	BDR	BDR	WT
Weathered Rock - Depth	45.0	.	85.0	110.0	.	16.0	47.0	.
Weathered Rock - Elevation	1077.20	.	1087.00	959.40	.	1005.20	995.50	.
Fresh Rock - Depth	91.0	54.0	130.0	150.0	.	37.0	52.5	.
Fresh Rock - Elevation	1031.20	1125.50	1042.00	919.40	.	984.20	990.00	.
Total Depth Drilled	114.0	136.0	195.5	171.5	77.5	94.0	110.0	139.0
SURFACE/CONDUCTOR CASING								
Casing Depth	91.0	60.5	90.0	154.0	.	29.3	54.5	85.0
Casing Diameter	10.75	10.75	10.75	10.75	.	10.75	10.75	10.75
Casing Material	Steel	unknown	unknown	Steel	none	Steel	Steel	Steel
WELL CASING								
Borehole Depth	114.0	136.0	195.5	171.5	76.5	93.6	109.3	138.0
Borehole Diameter	9.50	9.50	9.50	9.25	9.25	9.25	9.25	9.50
Well Casing Depth	103.7	124.9	184.6	161.2	60.8	78.0	93.4	115.8
Well Casing Diameter	4.50	4.50	4.50	4.50	4.50	4.50	4.50	4.00
Well Casing Material	SS/#304	SS/#304	SS/#304	SS/#304	SS/#304	SS/#304	SS/#304	SS/#304
MONITORED INTERVAL								
Top - Depth	101.0	123.2	183.0	158.5	59.0	76.2	91.0	112.9
Midpoint - Depth	107.5	129.6	189.2	165.0	67.8	84.9	100.2	125.5
Bottom - Depth	114.0	136.0	195.3	171.5	76.5	93.6	109.3	138.0
Top - Elevation	1021.20	1056.30	989.00	910.90	990.00	945.00	951.50	965.70
Midpoint - Elevation	1014.70	1049.90	982.85	904.40	981.25	936.30	942.35	953.15
Bottom - Elevation	1008.20	1043.50	976.70	897.90	972.50	927.60	933.20	940.60
Screen Material	SS/sw/.01	SS/sw/.01	SS/sw/.01	SS/sl/.01	SS/sl/.01	SS/sl/.01	SS/sl/.01	SS/sw/.01
Screen Length	10.3	10.3	10.4	10.3	15.7	15.6	15.9	20.0
Open-Hole Length	.	.	.	.	.	.	.	.
Open-Hole Diameter	.	.	.	.	.	.	.	.

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APPENDIX C.2: CHESTNUT RIDGE HYDROGEOLOGIC REGIME, 1999
Monitoring Well Construction Details

Well Number	GW-609	GW-709	GW-731	GW-732	GW-757	GW-796	GW-797	GW-798
Monitoring Program	IWQP	GWPP	IWQP	IWQP	GWPP	GWPP	GWPP	IWQP
Location	CRSP	LII	CRSDB	CRSDB	LII	LV	LV	CDLVII
GENERAL INFORMATION								
East Coordinate	60039.73	52371.88	63863.14	64267.74	53302.52	58206.40	58550.40	60309.95
North Coordinate	28109.43	25344.08	27463.65	27716.72	25409.50	27923.90	27446.60	27264.85
Measuring Pt. Elevation	1112.31	906.78	1049.38	1064.29	961.61	1052.62	1060.00	1006.00
Surface Elevation	1109.70	903.84	1045.80	1060.70	958.65	1048.80	1056.10	1002.42
Hydrostratigraphic Unit	AQF	AQF	AQF	AQF	AQF	AQF	AQF	AQF
Geologic Formation	OCk	OCk	OCk	OCk	OCk	OCk	OCk	OCk
Aquifer Zone	BDR	BDR	BDR	BDR	BDR	BDR	BDR	BDR
Weathered Rock - Depth	.	39.0	95.4	85.0	29.5	102.0	67.1	94.4
Weathered Rock - Elevation	.	864.84	950.40	975.70	929.15	946.80	989.00	908.02
Fresh Rock - Depth	107.0	43.0	129.4	96.0	48.0	103.0	89.0	95.8
Fresh Rock - Elevation	1002.70	860.84	916.40	964.70	910.65	945.80	967.10	906.62
Total Depth Drilled	269.0	80.6	180.4	190.6	166.5	139.7	134.1	135.5
SURFACE/CONDUCTOR CASING								
Casing Depth	107.0	50.0	122.0	100.7	46.8	107.6	95.0	99.7
Casing Diameter	10.75	11.75	11.75	11.75	10.75	10.75	10.75	10.75
Casing Material	Steel/J55	Steel/J55	Steel/J55	Steel/J55	Steel/J55	Steel/J55	Steel/J55	Steel/J55
WELL CASING								
Borehole Depth	269.0	80.6	175.4	189.5	166.5	139.7	134.1	135.5
Borehole Diameter	9.50	10.60	10.60	10.60	9.62	9.50	9.50	9.50
Well Casing Depth	258.7	70.4	165.2	179.3	135.5	126.5	123.5	124.5
Well Casing Diameter	4.50	4.25	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	SS/#304
MONITORED INTERVAL								
Top - Depth	256.4	68.7	164.0	178.3	134.0	122.9	118.0	122.0
Midpoint - Depth	262.7	74.7	171.4	184.2	150.4	129.7	126.1	128.7
Bottom - Depth	269.0	80.6	178.7	190.0	166.7	136.5	134.1	135.4
Top - Elevation	853.30	835.14	881.80	882.40	824.65	925.90	938.10	880.42
Midpoint - Elevation	847.00	829.19	874.45	876.55	808.30	919.10	930.05	873.72
Bottom - Elevation	840.70	823.24	867.10	870.70	791.95	912.30	922.00	867.02
Screen Material	SS/sw/.01	SS/sw/.01	SS/sw/.01	SS/sw/.01	SS/sw/.01	SS/sw/.01	SS/sw/.01	SS/sw/.01
Screen Length	10.3	10.0	10.0	10.0	30.0	10.0	10.0	10.0
Open-Hole Length	.	.	.	.	.	.	.	.
Open-Hole Diameter	.	.	.	.	.	.	.	.

(CONTINUED)

APPENDIX C.2: CHESTNUT RIDGE HYDROGEOLOGIC REGIME, 1999
Monitoring Well Construction Details

Well Number	GW-799	GW-801	GW-827	GW-831
Monitoring Program	GWPP	GWPP	GWPP	IWQP
Location	LV	LV	CDLVI	FCAP
GENERAL INFORMATION				
East Coordinate	59961.20	58779.90	51826.32	56593.48
North Coordinate	26745.50	26807.80	27721.42	26653.53
Measuring Pt. Elevation	981.29	1097.16	1051.58	1091.29
Surface Elevation	978.10	1093.82	1048.13	1088.04
Hydrostratigraphic Unit	AQF	AQF	AQF	AQF
Geologic Formation	OCk	OCk	OCk	OCk
Aquifer Zone	BDR	BDR	BDR	BDR
Weathered Rock - Depth	60.8	112.5	.	134.8
Weathered Rock - Elevation	917.30	981.32	.	953.24
Fresh Rock - Depth	62.8	113.4	40.5	140.8
Fresh Rock - Elevation	915.30	980.42	1007.63	947.24
Total Depth Drilled	92.0	188.9	135.0	200.0
SURFACE/CONDUCTOR CASING				
Casing Depth	65.0	115.4	43.4	138.3
Casing Diameter	10.75	10.75	10.75	10.75
Casing Material	Steel/J55	Steel/J55	Steel	Steel
WELL CASING				
Borehole Depth	92.0	188.9	135.0	200.0
Borehole Diameter	9.50	9.87	9.87	9.87
Well Casing Depth	81.0	178.1	124.1	183.2
Well Casing Diameter	4.50	4.50	4.50	4.50
Well Casing Material	SS/#304	SS/#304	SS/#304	SS/#304
MONITORED INTERVAL				
Top - Depth	78.7	175.8	122.1	182.0
Midpoint - Depth	85.4	182.4	128.5	190.8
Bottom - Depth	92.0	188.9	134.8	199.6
Top - Elevation	899.40	918.02	926.03	906.04
Midpoint - Elevation	892.75	911.47	919.68	897.24
Bottom - Elevation	886.10	904.92	913.33	888.44
Screen Material	SS/sw/.01	SS/sw/.01	SS/sw/.01	SS/sw/.01
Screen Length	10.0	10.0	10.0	10.4
Open-Hole Length	.	.	.	.
Open-Hole Diameter	.	.	.	.

APPENDIX C.3

UPPER EAST FORK POPLAR CREEK HYDROGEOLOGIC REGIME

APPENDIX C.3: UPPER EAST FORK POPLAR CREEK HYDROGEOLOGIC REGIME, 1999
Monitoring Well Construction Details

Well Number	GW-108	GW-109	GW-131	GW-148	GW-151	GW-153	GW-154	GW-168
Monitoring Program	IWQP	GWPP	GWPP	GWPP	IWQP	GWPP	IWQP	GWPP
Location	S3	S3	SR	NHP	NHP	NHP	NHP	EXP
GENERAL INFORMATION								
East Coordinate	53207.00	53207.00	65059.00	63817.00	64232.00	63728.00	63346.00	65167.20
North Coordinate	30069.00	30055.00	27989.00	29202.00	28958.00	28613.00	28987.00	28698.45
Measuring Pt. Elevation	999.00	998.20	1011.30	907.36	916.17	921.64	911.70	932.21
Surface Elevation	995.61	994.54	1008.40	904.53	913.06	918.53	908.60	929.30
Hydrostratigraphic Unit	AQT	AQT	AQF	AQF	AQF	AQF	AQF	AQT
Geologic Formation	Cn	Cn	Cmn	Cmn	Cmn	Cmn	Cmn	Cn
Aquifer Zone	WT	BDR	BDR	WT	BDR	BDR	WT	BDR
Weathered Rock - Depth	4.0	5.0	.	11.1	.	.	11.2	.
Weathered Rock - Elevation	991.61	989.54	.	893.43	.	.	897.40	.
Fresh Rock - Depth	.	16.0	.	.	12.0	14.0	.	29.0
Fresh Rock - Elevation	.	978.54	.	.	901.06	904.53	.	900.30
Total Depth Drilled	58.6	147.6	1096.5	11.1	96.5	60.0	11.2	135.4
SURFACE/CONDUCTOR CASING								
Casing Depth	20.7	20.0	40.0	.	12.0	14.0	.	30.0
Casing Diameter	10.63	10.63	10.75	.	12.50	12.50	.	8.63
Casing Material	PVC/#40	PVC/#40	Steel/F25	none	PVC/#40	PVC/#40	none	PVC/#40
WELL CASING								
Borehole Depth	58.6	147.6	43.0	11.1	96.5	60.0	11.2	104.0
Borehole Diameter	9.00	9.00	9.87	8.00	11.00	11.00	8.00	6.62
Well Casing Depth	46.7	102.9	43.0	5.6	86.0	49.5	5.7	104.0
Well Casing Diameter	4.50	4.50	4.50	4.50	4.50	4.50	4.50	4.38
Well Casing Material	PVC/#40	PVC/#40	Steel/F25	PVC/#40	PVC/#40	PVC/#40	PVC/#40	Steel
MONITORED INTERVAL								
Top - Depth	41.0	96.6	43.0	4.6	85.0	45.0	4.7	104.0
Midpoint - Depth	49.8	112.6	569.8	7.9	90.8	52.5	8.0	119.7
Bottom - Depth	58.6	128.5	1096.5	11.1	96.5	60.0	11.2	135.4
Top - Elevation	954.61	897.94	965.40	899.93	828.06	873.53	903.90	825.30
Midpoint - Elevation	945.81	881.99	438.65	896.68	822.31	866.03	900.65	809.60
Bottom - Elevation	937.01	866.04	-88.10	893.43	816.56	858.53	897.40	793.90
Screen Material	PVC/sl/.01	PVC/sl/.01	.	PVC/sw/.01	PVC/sw/.01	PVC/sw/.01	PVC/sw/.01	.
Screen Length	10.1	19.0	.	5.0	10.0	10.0	5.0	.
Open-Hole Length	.	.	1053.5	.	.	.	.	31.4
Open-Hole Diameter	.	.	3.70	.	.	.	.	3.88

(CONTINUED)

Monitoring Well Construction Details

Well Number	GW-169	GW-170	GW-171	GW-172	GW-192	GW-193	GW-204	GW-207
Monitoring Program	IWQP	IWQP	IWQP	IWQP	GWPP	IWQP	GWPP	GWPP
Location	EXP-UV	EXP-UV	EXP-UV	EXP-UV	B4	T2331	T0134	EXP-SR
GENERAL INFORMATION								
East Coordinate	66855.00	66843.00	69654.00	69578.94	54277.00	59536.17	57410.93	64023.00
North Coordinate	28545.00	28545.00	28403.00	28358.45	30772.00	29343.93	29955.91	31596.00
Measuring Pt. Elevation	932.12	932.63	920.72	926.57	1008.83	934.17	958.57	898.36
Surface Elevation	929.95	930.70	918.55	922.85	1006.00	931.11	955.47	894.61
Hydrostratigraphic Unit	AQF	AQF	AQF	AQF	AQT	AQT	AQT	AQT
Geologic Formation	Cmn	Cmn	Cmn	Cmn	Cm	CON	CON	Cr
Aquifer Zone	WT	BDR	WT	BDR	WT	WT	WT	BDR
Weathered Rock - Depth	.	.	.	15.0	17.5	2.5	10.0	.
Weathered Rock - Elevation	.	.	.	907.85	988.50	928.61	945.47	.
Fresh Rock - Depth	.	30.0	.	19.0	.	.	.	.
Fresh Rock - Elevation	.	900.70	.	903.85	.	.	.	.
Total Depth Drilled	42.0	156.9	31.2	133.8	17.5	18.5	17.5	109.6
SURFACE/CONDUCTOR CASING								
Casing Depth	.	30.0	.	35.0	.	.	.	17.0
Casing Diameter	.	8.63	.	8.63	.	.	.	8.63
Casing Material	none	PVC/#40	none	Steel/F25	none	none	none	PVC/#40
WELL CASING								
Borehole Depth	42.0	104.0	31.2	105.0	17.5	18.5	17.5	100.0
Borehole Diameter	8.00	6.62	8.00	6.62	6.00	8.00	6.00	7.87
Well Casing Depth	29.7	104.0	26.8	105.0	7.5	8.2	7.3	100.0
Well Casing Diameter	2.37	4.38	2.37	4.38	4.50	4.50	4.50	4.38
Well Casing Material	PVC/#40	Steel	PVC/#40	Steel	PVC/#40	SS/#304	SS/#304	PVC/#40
MONITORED INTERVAL								
Top - Depth	28.7	104.0	26.0	105.0	6.5	5.5	6.5	100.0
Midpoint - Depth	31.7	130.5	28.6	119.4	12.0	12.0	11.9	104.8
Bottom - Depth	34.7	156.9	31.2	133.8	17.5	18.4	17.3	109.6
Top - Elevation	901.25	826.70	892.55	817.85	999.50	925.61	948.97	794.61
Midpoint - Elevation	898.25	800.25	889.95	803.45	994.00	919.16	943.57	789.81
Bottom - Elevation	895.25	773.80	887.35	789.05	988.50	912.71	938.17	785.01
Screen Material	PVC/sl	.	PVC/sl	.	PVC/sw/.01	SS/sw/.01	SS/sw/.01	.
Screen Length	5.0	.	4.4	.	10.0	10.3	10.0	.
Open-Hole Length	.	52.9	.	28.8	.	.	.	9.6
Open-Hole Diameter	.	3.88	.	3.63	.	.	.	3.88

(CONTINUED)

Monitoring Well Construction Details

Well Number	GW-208	GW-218	GW-219	GW-220	GW-223	GW-230	GW-232	GW-251
Monitoring Program	GWPP	GWPP	GWPP	GWPP	GWPP	IWQP	IWQP	GWPP
Location	EXP-SR	UOV	UOV	NHP	NHP	EXP-UV	EXP-UV	S2
GENERAL INFORMATION								
East Coordinate	64007.00	58878.00	58929.00	64225.00	63311.00	69616.86	66863.00	53843.00
North Coordinate	31612.00	29136.00	29163.00	28949.00	28938.00	28388.20	28546.00	29467.00
Measuring Pt. Elevation	897.72	935.81	935.64	915.84	911.62	923.14	931.42	1003.80
Surface Elevation	894.38	932.77	931.27	912.74	908.97	919.57	929.52	1001.60
Hydrostratigraphic Unit	AQT	AQF	AQF	AQF	AQF	AQF	AQF	AQF
Geologic Formation	Cr	Cmn	Cmn	Cmn	Cmn	Cmn	Cmn	Cmn
Aquifer Zone	BDR	WT	WT	BDR	BDR	BDR	BDR	BDR
Weathered Rock - Depth	.	6.0	.	.	.	19.0	.	.
Weathered Rock - Elevation	.	926.77	.	.	.	900.57	.	.
Fresh Rock - Depth	12.0	.	.	11.0	10.0	38.0	.	32.5
Fresh Rock - Elevation	882.38	.	.	901.74	898.97	881.57	.	969.10
Total Depth Drilled	412.8	27.5	11.3	45.2	90.5	406.4	411.7	51.0
SURFACE/CONDUCTOR CASING								
Casing Depth	24.0	.	.	13.0	11.0	31.0	33.0	.
Casing Diameter	8.63	.	.	12.50	12.50	8.63	8.63	.
Casing Material	PVC/#40	none	none	PVC/#40	PVC/#40	Steel	PVC/#40	none
WELL CASING								
Borehole Depth	404.0	27.5	11.3	45.2	90.5	341.0	401.0	51.0
Borehole Diameter	6.62	8.00	10.00	11.00	11.00	5.50	6.62	8.25
Well Casing Depth	404.0	17.1	5.7	34.7	80.0	341.0	401.0	37.5
Well Casing Diameter	4.38	4.50	4.50	4.50	4.50	4.38	4.38	4.50
Well Casing Material	Steel	SS/#304	SS/#304	PVC/#40	PVC/#40	Steel	Steel	PVC/#40
MONITORED INTERVAL								
Top - Depth	404.0	14.4	4.3	31.0	79.0	341.0	401.0	35.0
Midpoint - Depth	408.4	21.0	7.8	38.1	84.8	373.7	406.4	43.0
Bottom - Depth	412.8	27.5	11.3	45.2	90.5	406.4	411.7	51.0
Top - Elevation	490.38	918.37	926.97	881.74	829.97	578.57	528.52	966.60
Midpoint - Elevation	485.98	911.82	923.47	874.64	824.22	545.87	523.17	958.60
Bottom - Elevation	481.58	905.27	919.97	867.54	818.47	513.17	517.82	950.60
Screen Material	.	SS/sw/.01	SS/sw/.01	PVC/sw/.01	PVC/sw/.01	.	.	PVC/sw/.01
Screen Length	.	10.0	5.6	10.0	10.0	.	.	9.6
Open-Hole Length	8.8	.	.	.	.	65.4	10.7	.
Open-Hole Diameter	3.63	.	.	.	.	3.63	3.88	.

(CONTINUED)

Monitoring Well Construction Details

Well Number	GW-253	GW-337	GW-380	GW-382	GW-383	GW-605	GW-606	GW-618
Monitoring Program	IWQP	GWPP	GWPP	IWQP	GWPP	IWQP	IWQP	GWPP
Location	S2	WC	NHP	NHP	NHP	EXP-I	EXP-I	EXP-E
GENERAL INFORMATION								
East Coordinate	54057.00	54519.00	62938.00	62956.00	63522.00	62001.50	61951.42	54738.12
North Coordinate	29404.00	30057.00	28714.00	28716.00	29201.00	28706.83	28708.32	29798.46
Measuring Pt. Elevation	1004.00	987.31	913.75	913.17	908.77	919.06	919.59	985.14
Surface Elevation	1001.60	984.12	913.66	913.16	906.00	916.97	916.98	982.64
Hydrostratigraphic Unit	AQF	AQT	AQF	AQF	AQT	AQF	AQF	AQF
Geologic Formation	Cmn	Cn	Cmn	Cmn	Cn	Cmn	Cmn	Cmn
Aquifer Zone	WT	WT	WT	BDR	WT	BDR	BDR	WT
Weathered Rock - Depth	.	.	15.5	12.7	11.5	.	.	27.0
Weathered Rock - Elevation	.	.	898.16	900.46	894.50	.	.	955.64
Fresh Rock - Depth	.	.	.	17.0	.	9.5	10.8	.
Fresh Rock - Elevation	.	.	.	896.16	.	907.47	906.18	.
Total Depth Drilled	50.0	22.1	15.5	173.0	24.1	40.5	175.0	37.0
SURFACE/CONDUCTOR CASING								
Casing Depth	.	.	.	12.7	5.0	9.5	10.8	27.5
Casing Diameter	.	.	.	10.75	10.75	11.75	16.00	10.75
Casing Material	none	none	none	unknown	unknown	Steel/J55	Steel/J55	Steel/J55
WELL CASING								
Borehole Depth	50.0	22.1	15.5	125.0	24.1	40.5	175.0	37.0
Borehole Diameter	8.25	10.00	10.00	9.50	8.75	10.60	9.63	9.50
Well Casing Depth	37.0	16.7	9.8	125.0	18.1	29.7	161.0	26.7
Well Casing Diameter	4.50	4.50	4.50	6.62	4.50	4.25	4.25	4.50
Well Casing Material	PVC/#40	SS/#304	SS/#304	Steel/F25	SS/#304	SS/#304	SS/#304	SS/#304
MONITORED INTERVAL								
Top - Depth	36.2	15.0	2.8	125.0	16.6	28.2	155.0	26.0
Midpoint - Depth	43.1	18.6	9.2	149.0	20.1	34.1	163.0	31.5
Bottom - Depth	50.0	22.1	15.5	173.0	23.6	39.9	171.0	37.0
Top - Elevation	965.40	969.12	910.86	788.16	889.40	888.77	761.98	956.64
Midpoint - Elevation	958.50	965.57	904.51	764.16	885.90	882.92	753.98	951.14
Bottom - Elevation	951.60	962.02	898.16	740.16	882.40	877.07	745.98	945.64
Screen Material	PVC/sw/.01	SS/sw/.01	SS/sw/.01	.	SS/sw/.01	SS/sw/.01	SS/pp/.01	SS/sw/.01
Screen Length	9.6	5.4	5.4	.	5.0	10.0	10.0	10.3
Open-Hole Length	.	.	.	48.0	.	.	.	.
Open-Hole Diameter	.	.	.	6.13	.	.	.	.

(CONTINUED)

Monitoring Well Construction Details

Well Number	GW-620	GW-722	GW-733	GW-735	GW-744	GW-747	GW-750	GW-762
Monitoring Program	GWPP	GWPP	IWQP	GWPP	GWPP	GWPP	GWPP	IWQP
Location	FTF	NHP	EXP-J	EXP-J	GRIDK1	GRIDK2	EXP-J	GRIDJ3
GENERAL INFORMATION								
East Coordinate	52894.57	64925.78	65057.00	64872.00	64324.00	64569.57	64835.48	63192.53
North Coordinate	29564.54	28532.41	28447.00	28867.00	30282.00	29729.81	28974.53	29114.91
Measuring Pt. Elevation	1015.54	953.71	959.84	924.46	907.62	921.13	919.03	915.34
Surface Elevation	1012.80	951.04	955.69	921.34	905.05	918.33	915.96	911.85
Hydrostratigraphic Unit	AQF	AQF	AQF	AQT	AQT	AQT	AQT	AQT
Geologic Formation	Cmn	Cmn	Cmn	Cn	Cpv	Cm	Cn	Cn
Aquifer Zone	WT	BDR	BDR	WT	BDR	BDR	BDR	BDR
Weathered Rock - Depth	41.0	54.0	42.5	19.0	9.6	10.5	18.5	12.0
Weathered Rock - Elevation	971.80	897.04	913.19	902.34	895.45	907.83	897.46	899.85
Fresh Rock - Depth	70.0	73.0	47.1	77.5	14.6	12.0	24.8	14.5
Fresh Rock - Elevation	942.80	878.04	908.59	843.84	890.45	906.33	891.16	897.35
Total Depth Drilled	75.0	644.3	256.5	83.0	69.5	79.9	72.8	60.2
SURFACE/CONDUCTOR CASING								
Casing Depth	42.5	56.2	51.8	25.5	27.6	23.8	21.7	11.5
Casing Diameter	10.75	10.75	11.75	11.75	10.75	10.75	11.75	16.75
Casing Material	Steel/J55	Steel/J55	Steel/J55	Steel/J55	Steel/J55	Steel/J55	Steel/J55	Steel/J55
WELL CASING								
Borehole Depth	75.0	75.0	240.1	83.0	69.5	79.9	72.8	60.2
Borehole Diameter	9.50	6.00	10.60	10.60	9.87	9.87	10.60	9.87
Well Casing Depth	64.2	75.0	240.1	67.9	57.0	69.2	62.4	48.2
Well Casing Diameter	4.50	4.50	7.00	4.50	4.50	4.50	4.50	4.50
Well Casing Material	SS/#304	Steel/J55	Steel/F25	SS/#304	SS/#304	SS/#304	SS/#304	SS/#304
MONITORED INTERVAL								
Top - Depth	61.7	75.0	240.1	67.5	55.0	67.4	61.2	46.4
Midpoint - Depth	68.4	359.7	248.3	73.4	62.3	73.5	67.0	52.6
Bottom - Depth	75.0	644.3	256.5	79.2	69.5	79.6	72.7	58.7
Top - Elevation	951.10	876.04	715.59	853.84	850.05	850.93	854.76	865.45
Midpoint - Elevation	944.45	591.39	707.39	847.99	842.80	844.83	849.01	859.30
Bottom - Elevation	937.80	306.74	699.19	842.14	835.55	838.73	843.26	853.15
Screen Material	SS/sw/.01	.	.	SS/sw/.01	SS/sw/.01	SS/sw/.01	SS/sw/.01	SS/sw/.01
Screen Length	10.8	.	.	10.2	10.0	9.9	10.0	10.0
Open-Hole Length	.	569.3	16.4	.	.	.	.	.
Open-Hole Diameter	.	3.50	6.25	.	.	.	.	.

(CONTINUED)

Monitoring Well Construction Details

Well Number	GW-763	GW-769	GW-770	GW-775	GW-776	GW-781	GW-782	GW-783
Monitoring Program	GWPP	GWPP	GWPP	GWPP	GWPP	GWPP	GWPP	GWPP
Location	GRIDJ3	GRIDG3	GRIDG3	GRIDH3	GRIDH3	GRIDE3	GRIDE3	GRIDE3
GENERAL INFORMATION								
East Coordinate	63219.76	60230.01	60255.00	61277.82	61309.10	58117.83	58099.21	58112.53
North Coordinate	29117.17	29510.42	29504.56	29272.38	29271.39	29710.78	29718.84	29734.28
Measuring Pt. Elevation	915.05	944.44	944.71	931.35	931.25	947.89	947.76	948.49
Surface Elevation	911.38	941.53	941.67	931.48	931.44	944.66	944.48	945.81
Hydrostratigraphic Unit	AQT	AQT	AQT	AQT	AQT	AQT	AQT	AQT
Geologic Formation	Cn	Cn	Cn	Cn	Cn	Cn	Cn	Cn
Aquifer Zone	WT	BDR	WT	BDR	WT	BDR	BDR	WT
Weathered Rock - Depth	17.0	14.2	12.0	.	14.5	0.9	1.0	1.0
Weathered Rock - Elevation	894.38	927.33	929.67	.	916.94	943.76	943.48	944.81
Fresh Rock - Depth	.	.	16.5	16.7	19.3	14.0	7.5	8.5
Fresh Rock - Elevation	.	.	925.17	914.78	912.14	930.66	936.98	937.31
Total Depth Drilled	17.0	61.4	20.0	60.5	24.0	69.6	36.0	16.3
SURFACE/CONDUCTOR CASING								
Casing Depth	.	14.2	.	16.7	.	23.8	.	.
Casing Diameter	.	16.75	.	11.75	.	10.75	.	.
Casing Material	none	Steel/J55	none	Steel/J55	none	Steel/J55	none	none
WELL CASING								
Borehole Depth	17.0	61.4	20.0	60.5	24.0	69.6	36.0	16.3
Borehole Diameter	8.00	10.62	10.62	10.62	9.87	9.87	9.87	9.87
Well Casing Depth	5.2	49.4	8.5	46.3	12.3	57.8	25.0	4.2
Well Casing Diameter	4.50	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	SS/#304
MONITORED INTERVAL								
Top - Depth	4.0	48.2	7.5	45.0	10.6	56.0	23.8	3.6
Midpoint - Depth	10.0	54.3	13.3	50.7	16.8	62.7	29.9	10.0
Bottom - Depth	16.0	60.3	19.0	56.4	23.0	69.3	35.9	16.3
Top - Elevation	907.38	893.33	934.17	886.48	920.84	888.66	920.68	942.21
Midpoint - Elevation	901.38	887.28	928.42	880.78	914.64	882.01	914.63	935.86
Bottom - Elevation	895.38	881.23	922.67	875.08	908.44	875.36	908.58	929.51
Screen Material	SS/sw/.01	SS/sw/.01	SS/sw/.01	SS/sw/.01	SS/sw/.01	SS/sw/.01	SS/sw/.01	SS/sw/.01
Screen Length	10.3	10.0	10.0	10.0	10.0	10.3	10.0	9.8
Open-Hole Length	.	.	.	.	.	.	.	.
Open-Hole Diameter	.	.	.	.	.	.	.	.

(CONTINUED)

APPENDIX C.3: UPPER EAST FORK POPLAR CREEK HYDROGEOLOGIC REGIME, 1999
Monitoring Well Construction Details

Well Number	GW-788	GW-789	GW-791	GW-792	GW-816	GW-820	GW-832
Monitoring Program	GWPP	GWPP	GWPP	GWPP	GWPP	GWPP	IWQP
Location	GRIDF3	GRIDF3	GRIDD2	GRIDD2	EXP-SR	B9201-2	NHP
GENERAL INFORMATION							
East Coordinate	59043.21	59044.56	57423.24	57442.11	64031.36	59772.96	64133.61
North Coordinate	29617.94	29644.68	30482.73	30481.15	31581.50	29174.65	29141.95
Measuring Pt. Elevation	937.23	937.48	992.16	992.74	898.41	929.57	906.18
Surface Elevation	933.84	934.37	988.51	989.60	894.56	929.67	906.83
Hydrostratigraphic Unit	AQT	AQT	AQT	AQT	AQT	.	AQF
Geologic Formation	Cn	Cn	Cm	Cm	Cr	.	Cmn
Aquifer Zone	BDR	BDR	BDR	WT	WT	WT	WT
Weathered Rock - Depth	5.4	.	14.7	14.5	.	.	.
Weathered Rock - Elevation	928.44	.	973.81	975.10	.	.	.
Fresh Rock - Depth	9.0	10.0	26.0	.	.	.	.
Fresh Rock - Elevation	924.84	924.37	962.51	.	.	.	.
Total Depth Drilled	67.9	23.8	70.6	29.2	16.1	.	11.9
SURFACE/CONDUCTOR CASING							
Casing Depth	7.5	.	31.5	.	.	.	.
Casing Diameter	10.75	.	10.75	.	.	.	.
Casing Material	Steel/J55	none	Steel/J55	none	none	.	none
WELL CASING							
Borehole Depth	67.9	23.8	70.6	29.2	15.8	0.0	11.9
Borehole Diameter	9.87	9.87	9.87	9.87	10.00	.	12.00
Well Casing Depth	57.1	12.2	59.0	18.5	4.2	0.5	5.9
Well Casing Diameter	4.50	4.50	4.50	4.50	4.50	4.50	6.63
Well Casing Material	SS/#304	SS/#304	SS/#304	SS/#304	SS/#304	PVC/#40	PVC/#40
MONITORED INTERVAL							
Top - Depth	55.9	10.7	57.5	17.0	2.9	0.0	4.0
Midpoint - Depth	61.9	17.3	64.1	23.0	9.4	0.0	7.9
Bottom - Depth	67.8	23.8	70.6	29.0	15.8	0.0	11.8
Top - Elevation	877.94	923.67	931.01	972.60	891.66	.	902.83
Midpoint - Elevation	871.99	917.12	924.46	966.60	885.21	.	898.93
Bottom - Elevation	866.04	910.57	917.91	960.60	878.76	.	895.03
Screen Material	SS/sw/.01	SS/sw/.01	SS/sw/.01	SS/sw/.01	SS/sw/.01	.	PVC/sl/.01
Screen Length	9.7	10.5	10.0	9.8	9.4	.	5.0
Open-Hole Length	.	.	.	.	.	.	.
Open-Hole Diameter	.	.	.	.	.	.	.

APPENDIX D

CY 1999 MONITORING DATA FOR THE BEAR CREEK HYDROGEOLOGIC REGIME

EXPLANATION

SAMPLING POINT:

BCK - Bear Creek Kilometer
GW - Monitoring Well
NT - Northern Tributary (Bear Creek)
SS - South Side (of Bear Creek, spring sampling station)

LOCATION:

BG - Bear Creek Burial Grounds WMA
DCHAPCEM - Douglas Chapel Cemetery
EMWMF - Environmental Management Waste Management Facility
EXP - Exit Pathway Monitoring Location:
Maynardville Limestone Picket (-A, -B, -C, -W)
Spring or Surface Water Location (-SW)
OLF - Oil Landfarm WMA
RS - Rust Spoil Area
S3 - S-3 Site
SPI - Spoil Area I

MONITORING PROGRAM:

GWPP - Y-12 Plant Groundwater Protection Program
IWQP - Integrated Water Quality Program

TYPE:

DUP - Field Duplicate Sample
DIS - Dissolved concentration (filtered sample)
TOT - Total concentration (unfiltered sample)
ACT - Activity
ERR - Counting Error (two standard deviations)
MDA - Minimum Detectable Activity

UNITS:

ft - feet (elevations are above mean sea level and depths are below grade)
ug/L - micrograms per liter
mg/L - milligrams per liter
mV - millivolts
umho/cm - micromhos per centimeter
NTU - Nephelometric Turbidity Units
pCi/L - picoCuries per liter
ppm - parts per million

EXPLANATION (continued)

NOTES:

Only the analytes that were detected above the program reporting limits in at least one sample are included in this appendix. Additionally, results that are below the reporting limits are replaced with missing values to emphasize the detected results. The following sections describe the analytes, reporting limits, and data qualifiers for each subappendix. A comprehensive list of the GWPP analytes, analytical methods, and reporting limits is provided in Appendix B, Table B.5.

D.1 Field Measurements, Miscellaneous Analytes, Major Ions, and Trace Metals:

All analytes are included in this appendix except the trace metals (silver, thallium, and thorium) that were not detected in at least one sample at a level above the reporting limits shown in the following summary.

Analyte	Reporting Limit (mg/L)		Analyte	Reporting Limit (mg/L)	
	GWPP	IWQP		GWPP	IWQP
Cations			**Anions**		
Calcium	0.2	0.25	Alkalinity - HCO3	1.0	1.0
Magnesium	0.2	0.05	Alkalinity - CO3	1.0	.
Potassium	2.0	0.25	Chloride	0.2	0.1
Sodium	0.2	0.25	Fluoride	0.1	0.05
			Nitrate (as Nitrogen)	0.028	0.1
			Sulfate	0.25	0.1
Trace Metals					
Aluminum	0.2	0.05	Manganese	0.005	0.005
Antimony (PMS)	0.0025	0.006	Mercury	0.0002	0.0002
Arsenic (PMS)	0.005	0.005	Molybdenum	0.05	.
Barium	0.004	0.005	Nickel	0.05	0.01
Beryllium	0.001	0.001	Selenium (PMS)	0.01	0.005
Boron	0.1	0.01	Silver	0.02	0.005
Cadmium	0.0005	0.001	Strontium	0.005	0.005
Chromium	0.02	0.005	Thallium (PMS)	0.0005	0.002
Cobalt	0.02	0.005	Thorium	0.2	.
Copper	0.02	0.005	Uranium (PMS)	0.0005	0.05
Iron	0.05	0.01	Uranium (KPA)	.	0.004
Lead (PMS)	0.0005	0.003	Vanadium	0.01	.
Lithium	0.01	0.01	Zinc	0.01	.

All metals analyses were performed using the inductively coupled plasma (ICP) spectroscopy method (SW846-6010A) unless otherwise noted.

CVAA - Cold Vapor Atomic Absorption (EPA-7470)
KPA - Kinetic Phosphorescent Analysis (ASTM-D5174-M)
PMS - Plasma Mass Spectroscopy (EPA-200.8, GWPP only); the IWQP laboratory did not use this method, so the corresponding reporting limits are for ICP analyses.

EXPLANATION (continued)

The major ion results for the following samples are qualitative because the ion charge balance (relative percent difference [RPD]) exceeds 20% (see Section 2.6).

Sampling Point	Date Sampled	Ion Charge Balance (RPD)	Suspected Source of Error
GW-134-15	08/04/99	-21.3	High nitrate concentration
GW-346	03/09/99	-42.1	High nitrate/low cation concentrations
SS-8	02/02/99	-84.4	High nitrate concentration

For IWQP results, total alkalinity is presented as bicarbonate alkalinity (HCO3) and nitrate/nitrite (as nitrogen) is presented as nitrate-N.

The following symbols are used in Appendix D.1:

. - Not analyzed or not applicable

< - Analyzed but not detected at the project reporting level

DUP OUT - Duplicate samples that differ by more than an order of magnitude (shown below) and do not meet data quality objectives (see Section 2.6)

Sampling Location	Trace Metal	Date Sampled	Sample Result (mg/L)	Duplicate Result (mg/L)
GW-726-09	Aluminum (total)	06/09/99	<0.2	3.55
	Iron (dissolved)	06/09/99	<0.05	0.893

ICP Dilution Factor - A factor of 1 indicates that the standard reporting limits (shown above) were replaced with the "<" symbol. Nineteen samples were diluted before analysis to obtain an optimum matrix, elevating the reporting limits by the associated dilution factor.

EXPLANATION (continued)

D.2 Volatile Organic Compounds:

Results for the compounds shown in bold typeface are included in this appendix. The other compounds were never detected at levels above the following reporting limits, in micrograms per liter.

Volatile Organic Compound	Reporting Limit		Volatile Organic Compound	Reporting Limit	
	GWPP	IWQP		GWPP	IWQP
Acetone	10	10	**1,1-Dichloroethene**	5	5
Acrolein	10	.	**cis-1,2-Dichloroethene**	5	5
Acrylonitrile	10	.	**trans-1,2-Dichloroethene**	5	5
Benzene	5	5	1,2-Dichloropropane	5	5
Bromochloromethane	10	.	cis-1,3-Dichloropropene	5	5
Bromodichloromethane	5	5	trans-1,3-Dichloropropene	5	5
Bromoform	5	5	Dimethylbenzene	5	5
Bromomethane	10	10	Ethanol	500	.
2-Butanone	10	10	**Ethylbenzene**	5	5
Carbon disulfide	5	5	Ethyl methacrylate	5	.
Carbon tetrachloride	5	5	2-Hexanone	10	10
Chlorobenzene	5	5	Iodomethane	5	.
Chloroethane	10	10	**4-Methyl-2-pentanone**	10	10
2-Chloroethyl vinyl ether	10	.	Methylene chloride	5	5
Chloroform	5	5	**Styrene**	5	5
Chloromethane	10	10	1,1,1,2-Tetrachloroethane	10	.
Dibromochloromethane	5	5	1,1,2,2-Tetrachloroethane	5	5
1,2-Dibromo-3-chloropropane	10	.	**Tetrachloroethene**	5	5
1,2-Dibromoethane	5	.	**Toluene**	5	5
Dibromomethane	10	.	**1,1,1-Trichloroethane**	5	5
1,2-Dichlorobenzene	5	.	1,1,2-Trichloroethane	5	5
1,4-Dichlorobenzene	5	.	**Trichloroethene**	5	5
1,4-Dichloro-2-butene	5	.	Trichlorofluoromethane	5	.
trans-1,4-Dichloro-2-butene	5	.	1,2,3-Trichloropropane	5	.
Dichlorodifluoromethane	5	.	Vinyl acetate	10	.
1,1-Dichloroethane	5	5	**Vinyl chloride**	10	2
1,2-Dichloroethane	5	5			

The following symbols and data qualifiers are used in Appendix D.2.

. - Not analyzed or not applicable

< - Analyzed but not detected at the project reporting level (also false-positive results for data provided by the IWQP)

EXPLANATION (continued)

The following laboratory qualifiers are **NOT** presented with results in Appendix D.2:

D — Six results were reported with a "D" qualifier, indicating that the analysis for a specific compound was performed at a secondary dilution factor to obtain an optimum matrix. This qualifier was reported with the results from wells GW-082 (1,1-dichloroethane and cis-1,2-dichloroethene), GW-226 (trichloroethene), and GW-627 (tetrachloroethene). Additionally, the samples from well GW-046 were diluted before analysis which elevated the reporting limit for all compounds in each sample. The dilution factor was 50 for the February 1999 sample and was 20 for the July 1999 sample from well GW-046. Results for this well are qualitative because compounds may be present at concentrations below the elevated reporting limits.

J — A result less than the reporting limit is an estimated value and assigned a "J" qualifier by the laboratory. The standard reporting limits for the organic compounds are 5 ug/L, 10ug/L, and 500 ug/L; therefore, all results less than 5 ug/L are estimated values. The following results are estimated values greater than or equal to 5 ug/L:

Sampling Location	Date Sampled	Compound	Reporting Limit (ug/L)	Result (ug/L)
GW-046	07/15/99	Benzene	100	42
GW-046	02/08/99	1,1-Dichloroethane	250	230
GW-046 D	02/08/99	1,1-Dichloroethane	250	240
GW-046	02/08/99	1,1-Dichloroethene	250	98
GW-046 D	02/08/99	1,1-Dichloroethene	250	120
GW-046	07/15/99	trans-1,2-Dichloroethene	100	25
GW-046	02/08/99	1,1,1-Trichloroethane	250	120
GW-046 D	02/08/99	1,1,1-Trichloroethane	250	130
GW-053	03/24/99	Vinyl Chloride	10	5
GW-053	08/26/99	Vinyl Chloride	10	5
GW-056	02/09/99	Acetone	10	5
GW-703	08/03/99	cis-1,2-Dichloroethene	5	5
GW-726-09	06/09/99	Acrylonitrile	10	5

Note: D = field duplicate sample

EXPLANATION (continued)

D.3 Radiological Analytes:

The following summary shows the radiological analytes reported for at least one groundwater or surface water sample collected during CY 1999 in the Bear Creek Regime.

Analyte	No. of Results	No. Detected	Analyte	No. of Results	No. Detected
Gross Alpha	161	69	**Radium (total)**	18	6
Gross Beta	164	74	Radium-223/224/226	2	0
Actinium-228	16	0	**Radium-226**	16	6
Americium-241	20	8	Radium-228	16	0
Bismuth-214	16	2	**Strontium-89**	49	1
Bismuth-212	16	0	**Strontium-90**	49	1
Cesium-137	31	0	Strontium-89/90	2	0
Cobalt-60	31	1	**Technetium-99**	66	13
Iodine-129	2	0	**Thallium-208**	16	1
Lead-214	16	4	Thorium-232	2	0
Lead-212	16	0	**Thorium-230**	2	1
Neptunium-237	20	5	**Thorium-234**	18	4
Plutonium-238	33	3	Thorium-228	2	0
Plutonium-239	30	1	Tritium	2	0
Potassium-40	16	1	**Uranium-234**	79	48
Protactinium-234	16	0	**Uranium-235**	88	20
Protactinium-234m	16	0	**Uranium-236**	70	17
			Uranium-238	88	44

All of the results for gross alpha and gross beta are presented in the first part of Appendix D.3, followed by the results for isotopes that were detected in at least one sample (shown in bold typeface above).

Results that are not detected or do not meet data quality objectives are replaced with the following:

<MDA - Reported activity is less than the minimum detectable activity (MDA).
< CE - Reported activity is greater than or equal to the minimum detectable activity, but less than the associated counting error, summarized below.

Sampling Location	Date Sampled	Radioanalyte	MDA (pCi/L)	Activity ± Error (pCi/L)
GW-006 D	05/25/99	Plutonium-238	0.116	0.116 ± 0.136
GW-043	05/17/99	Uranium-238	0.0381	0.0381 ± 0.0442
GW-043	07/27/99	Plutonium-238	0.108	0.108 ± 0.126
GW-132-13	09/28/99	Gross Alpha	11	12 ± 14
GW-526	03/11/99	Gross Alpha	18	20 ± 23
GW-840	07/29/99	Lead-214	4.1	4.25 ± 5.02
GW-905	08/02/99	Uranium-238	0.1	0.1 ± 0.116
SS-6	08/10/99	Uranium-236	0.21	0.24 ± 0.28
SS-7	02/02/99	Uranium-234	0.1	0.11 ± 0.13

Note: D = field duplicate sample

APPENDIX D.1

FIELD MEASUREMENTS, MISCELLANEOUS ANALYTES, MAJOR IONS, AND TRACE METALS

APPENDIX D.1: BEAR CREEK HYDROGEOLOGIC REGIME, 1999
Field Measurements, Miscellaneous Analytes, Major Ions, and Trace Metals

Sampling Point	BCK-00.63		BCK-04.55		BCK-07.87			
Location	EXP-SW		EXP-SW		EXP-SW			
Date Sampled	02/23/99	08/10/99	02/23/99	08/10/99	02/03/99	02/23/99		08/10/99
Monitoring Program	GWPP	GWPP	GWPP	GWPP	IWQP	GWPP		GWPP
Type							DUP	
	TOT	TOT	TOT	TOT	TOT	TOT	TOT	TOT
FIELD MEASUREMENTS								
Measuring Pt. Elev. (ft)	.	.	.	.	.	.	.	.
Depth to Water (ft)	.	.	.	.	.	.	.	.
Water-Level Elev. (ft)	.	.	.	.	.	.	.	.
Water Temp. (degrees C)	5.4	20.4	6.1	18.2	8.7	5.7	.	20.6
pH (standard units)	8.24	8.02	8.39	7.79	7.68	8.38	.	8.24
Conductivity (umho/cm)	594	771	509	479	0.289	431	.	445
Dissolved Oxygen (ppm)	8.07	3.98	7.43	4.28	11.15	7.86	.	4.45
Oxidation/Reduction (mV)	211	201	206	189	.	189	.	177
MISCELLANEOUS ANALYTES								
pH (standard units)	8.15	8.06	8	7.84	.	8.24	8.23	8.3
Conductivity (umho/cm)	275	314	293	349	.	388	388	474
Dissolved Solids (mg/L)	150	228	154	206	.	206	232	298
Suspended Solids (mg/L)	<	<	<	<	.	<	<	<
Turbidity (NTU)	2.1	1.76	2.25	2.27	7	1.68	1.73	0.98
MAJOR IONS (mg/L)								
Calcium	36.8	48.4	40.1	45.2	.	55.2	55.2	64.4
Magnesium	9.66	16.1	9.83	16.5	.	11.2	11.1	17.7
Potassium	<	<	<	<	.	<	<	<
Sodium	4.18	4.67	4.89	3.64	.	7.63	7.67	7.67
Alkalinity-HCO3	108	156	118	164	.	134	134	190
Alkalinity-CO3	<	<	<	<	.	<	<	<
Chloride	7.42	4.347	10.1	6.127	.	15.9	16.2	14.16
Fluoride	0.11	0.11	0.12	<	.	0.21	0.22	0.15
Nitrate-N	1.89	0.756	2.75	1.293	.	6.71	6.84	6.325
Sulfate	19.4	30.25	14.4	7.339	.	21.3	21.8	14.49
Ion Charge Balance (RPD)	-1.8	0.1	-2.0	1.0	.	-0.7	-1.1	0.4
TRACE METALS (mg/L)								
Aluminum	<	<	<	<	.	<	<	<
Antimony (PMS)	<	<	<	<	.	<	<	<
Arsenic (PMS)	<	<	<	<	.	<	<	<
Arsenic	.	.	.	.	.	.	.	.
Barium	0.0468	0.0653	0.0498	0.0616	.	0.0665	0.067	0.0827
Beryllium	<	<	<	<	.	<	<	<
Boron	<	<	<	<	.	<	<	<
Cadmium (PMS)	<	<	<	<	.	<	<	<
Cadmium	.	.	.	.	.	.	.	.
Chromium	<	<	<	<	.	<	<	<
Cobalt	<	<	<	<	.	<	<	<
Copper	<	<	<	<	.	<	<	<
Iron	0.0852	0.0607	0.0839	0.0809	.	0.0528	0.0558	<
Lead (PMS)	<	0.000762	<	<	.	<	0.00189	<
Lead	.	.	.	.	.	.	.	.
Lithium	<	<	<	<	.	0.0152	0.0152	0.0168
Manganese	0.0138	0.0306	0.0109	0.0281	.	0.00674	0.00697	0.00577
Mercury (CVAA)	<	<	<	<	.	<	<	<
Molybdenum	<	<	<	<	.	<	<	<
Nickel	<	<	<	<	.	<	<	<
Selenium (PMS)	<	<	<	<	.	<	<	<
Strontium	0.0916	0.15	0.0762	0.0712	.	0.126	0.126	0.141
Uranium (PMS)	0.0334	0.0221	0.053	0.0416	.	0.115	0.116	0.0844
Uranium (KPA)	.	.	.	.	.	.	.	.
Uranium	.	.	.	.	.	.	.	.
Vanadium	<	<	<	<	.	<	<	<
Zinc	<	<	<	<	.	<	<	<
ICP Dilution Factor	1	1	1	1	1	1	1	1

(CONTINUED)

APPENDIX D.1: BEAR CREEK HYDROGEOLOGIC REGIME, 1999
Field Measurements, Miscellaneous Analytes, Major Ions, and Trace Metals

Sampling Point	BCK-09.40		BCK-09.47	BCK-10.60	BCK-11.97		DCWELL	GW-006
Location	EXP-SW		EXP-SW	EXP-SW	EXP-SW		DCHAPCEM	EMWMF
Date Sampled	02/24/99	08/11/99	07/29/99	02/24/99	02/25/99	08/10/99	03/24/99	03/30/99
Monitoring Program	GWPP	GWPP	IWQP	GWPP	GWPP	GWPP	GWPP	IWQP
Type	TOT	TOT	TOT	TOT	TOT	TOT	TOT	TOT
FIELD MEASUREMENTS								
Measuring Pt. Elev. (ft)	.	.	.	.	.	.	.	962.75
Depth to Water (ft)	.	.	.	.	.	.	19.30	9.84
Water-Level Elev. (ft)	.	.	.	.	.	.	.	952.91
Water Temp. (degrees C)	6.1	19.1	22.2	5.8	7.6	23.6	12.2	14.8
pH (standard units)	8.61	8.01	7.47	8.2	8.35	8.02	8.13	7.24
Conductivity (umho/cm)	891	722	0.313	455	1117	1078	125	371
Dissolved Oxygen (ppm)	9.02	4.81	3.26	8.17	7.78	4.18	4	0.79
Oxidation/Reduction (mV)	213	197	90	168	207	204	181	.
MISCELLANEOUS ANALYTES								
pH (standard units)	8.2	7.81	.	7.82	7.87	7.97	6.92	.
Conductivity (umho/cm)	457	472	557	435	1126	1154	80.9	398
Dissolved Solids (mg/L)	268	250	310	243	664	910	92	280
Suspended Solids (mg/L)	<	<	<	7	<	2	19	<
Turbidity (NTU)	1.72	0.751	110	3.99	1.83	1.2	49.6	0.14
MAJOR IONS (mg/L)								
Calcium	64.8	64.5	75.4	63.3	155	158	8.64	73.7
Magnesium	11.5	13.5	13.8	9.72	20.2	24.1	1.47	7.64
Potassium	<	2.09	2.71	2.17	3.44	4.76	3.52	1.94
Sodium	9.28	7.36	9.94	9.65	34.5	41.9	1.82	8.25
Alkalinity-HCO3	144	182	174	118	212	218	26	198
Alkalinity-CO3	<	<	.	<	<	<	<	.
Chloride	21	15.6	15	18.7	80.2	86.31	2.6	11.7
Fluoride	0.3	0.19	0.27	0.4	0.74	0.56	<	<
Nitrate-N	10.5	4.701	8.8	12.2	62.5	45.49	0.21	2.2
Sulfate	25.8	12.13	28.9	26.9	45.4	49.3	6.68	17.5
Ion Charge Balance (RPD)	-2.1	0.3	2.4	1.1	-4.2	3.1	-1.8	-1.0
TRACE METALS (mg/L)								
Aluminum	<	<	0.0852	1.07	<	<	4.17	<
Antimony (PMS)	<	<	.	<	<	<	<	.
Arsenic (PMS)	<	<	.	<	<	<	<	.
Arsenic	.	.	<	.	.	.	.	<
Barium	0.0784	0.0889	0.104	0.0924	0.21	0.268	0.0393	0.282
Beryllium	<	<	<	<	<	<	<	<
Boron	0.137	0.324	0.133	<	<	<	<	<
Cadmium (PMS)	<	<	.	0.000683	0.00444	<	<	.
Cadmium	.	.	<	.	.	.	.	0.0018
Chromium	<	<	<	<	<	<	<	<
Cobalt	<	<	<	<	<	<	<	<
Copper	<	<	<	<	<	<	<	<
Iron	0.0881	0.105	0.138	1.02	<	<	2.64	<
Lead (PMS)	0.000544	<	.	0.000828	<	<	0.00198	.
Lead	.	.	<	.	.	.	.	<
Lithium	0.0316	0.0555	0.0367	0.0119	<	<	<	0.0243
Manganese	0.0225	0.0378	0.033	0.123	0.831	0.0139	0.153	0.0437
Mercury (CVAA)	<	<	<	<	<	<	<	<
Molybdenum	<	<	<	<	<	<	<	<
Nickel	<	<	<	<	<	<	<	<
Selenium (PMS)	<	<	.	<	<	<	<	.
Strontium	0.166	0.147	.	0.18	0.453	0.581	0.0227	.
Uranium (PMS)	0.208	0.149	.	0.201	0.142	0.207	<	.
Uranium (KPA)	.	.	.	.	.	.	.	.
Uranium	.	.	0.17	.	.	.	.	<
Vanadium	<	<	<	<	<	<	<	<
Zinc	<	<	<	<	<	<	<	<
ICP Dilution Factor	1	1	1	1	1	1	1	1

(CONTINUED)

APPENDIX D.1: BEAR CREEK HYDROGEOLOGIC REGIME, 1999
Field Measurements, Miscellaneous Analytes, Major Ions, and Trace Metals

Sampling Point	GW-006							GW-008
Location	EMWMF							OLF
Date Sampled	03/30/99	05/25/99		08/03/99		10/20/99		02/08/99
Monitoring Program	IWQP	IWQP		IWQP		IWQP		IWQP
Type	DUP		DUP		DUP		DUP	
	TOT	TOT	TOT	TOT	TOT	TOT	TOT	TOT
FIELD MEASUREMENTS								
Measuring Pt. Elev. (ft)	.	962.75	.	962.75	.	962.75	.	965.39
Depth to Water (ft)	.	9.85	.	9.23	.	12.03	.	14.90
Water-Level Elev. (ft)	.	952.90	.	953.52	.	950.72	.	950.49
Water Temp. (degrees C)	.	16.9	.	20.5	.	15.7	.	14.6
pH (standard units)	.	7.2	.	7.19	.	7.08	.	5.22
Conductivity (umho/cm)	.	390	.	453	.	373	.	137
Dissolved Oxygen (ppm)	.	1.95	.	1.42	.	1.45	.	141
Oxidation/Reduction (mV)	.	177	.	28	.	196	.	.
MISCELLANEOUS ANALYTES								
pH (standard units)	.	.	.	.	.	.	.	.
Conductivity (umho/cm)	388	.	.	.	.	.	.	100
Dissolved Solids (mg/L)	280	.	.	.	.	250	280	69
Suspended Solids (mg/L)	<	.	.	.	.	<	<	<
Turbidity (NTU)	0.13	.	.	.	.	11	.	0.55
MAJOR IONS (mg/L)								
Calcium	76.2	.	.	.	.	72.9	73.8	10.3
Magnesium	7.85	.	.	.	.	7.4	7.47	6.6
Potassium	1.98	.	.	.	.	2.14	2.18	1.23
Sodium	8.46	.	.	.	.	8.21	8.34	1.58
Alkalinity-HCO3	193	197	199	203	203	183	183	47.6
Alkalinity-CO3	.	<	<	<	<	<	<	.
Chloride	13.2	11.7	11.8	10.9	11.1	10.9	10.6	5.4
Fluoride	0.13	<	<	<	<	<	<	<
Nitrate-N	2.2	2.2	2.4	2.4	2.5	.	.	<
Sulfate	19.1	12.9	12.8	18.3	18.3	17.9	17.8	1.4
Ion Charge Balance (RPD)	0.8	.	.	.	.	.	.	1.3
TRACE METALS (mg/L)								
Aluminum	<	.	.	.	.	<	<	<
Antimony (PMS)	.	.	.	.	.	.	.	.
Arsenic (PMS)	.	.	.	.	.	.	.	.
Arsenic	<	<	<	<	<	<	<	<
Barium	0.285	0.235	0.242	0.26	0.256	0.255	0.258	0.089
Beryllium	<	.	.	.	.	<	<	<
Boron	0.0235	.	.	.	.	0.0224	0.0212	<
Cadmium (PMS)	.	.	.	.	.	.	.	.
Cadmium	0.0019	0.0015	0.0016	0.0013	0.0013	<	<	<
Chromium	<	<	<	<	<	<	<	<
Cobalt	<	.	.	.	.	<	<	0.0267
Copper	<	.	.	.	.	<	<	<
Iron	0.0171	.	.	.	.	<	0.0269	2.86
Lead (PMS)	.	.	.	.	.	.	.	.
Lead	<	<	<	<	<	<	<	<
Lithium	0.0254	.	.	.	.	0.024	0.0243	<
Manganese	0.0436	.	.	.	.	0.0195	0.0199	2.14
Mercury (CVAA)	<	<	<	<	0.00024	<	<	<
Molybdenum	<	.	.	.	.	.	.	<
Nickel	<	.	.	.	.	<	<	0.0236
Selenium (PMS)	.	.	.	.	.	.	.	.
Strontium	.	.	.	.	.	0.301	0.304	.
Uranium (PMS)	.	.	.	.	.	.	.	.
Uranium (KPA)	.	.	.	.	.	.	.	.
Uranium	<	<	<	<	<	<	<	<
Vanadium	<	.	.	.	.	<	<	<
Zinc	<	.	.	.	.	<	<	0.0139
ICP Dilution Factor	1	1	1	1	1	1	1	1

(CONTINUED)

APPENDIX D.1: BEAR CREEK HYDROGEOLOGIC REGIME, 1999
Field Measurements, Miscellaneous Analytes, Major Ions, and Trace Metals

Sampling Point	GW-008	GW-043				GW-044		
Location	OLF	EMWMF				EMWMF		
Date Sampled	07/15/99	03/11/99	05/17/99	07/27/99	10/18/99	03/18/99	05/18/99	07/28/99
Monitoring Program	IWQP	IWQP	IWQP	IWQP	IWQP	IWQP	IWQP	IWQP
Type	TOT	TOT	TOT	TOT	TOT	TOT	TOT	TOT
FIELD MEASUREMENTS								
Measuring Pt. Elev. (ft)	965.39	1014.04	1014.04	1014.04	1014.04	1014.20	1014.20	1014.20
Depth to Water (ft)	14.05	25.77	23.30	25.50	32.51	20.73	21.72	23.95
Water-Level Elev. (ft)	951.34	988.27	990.74	988.54	981.53	993.47	992.48	990.25
Water Temp. (degrees C)	19.9	12.2	16.7	23.7	18.3	15	15.8	16
pH (standard units)	5.06	6.68	6.63	5.64	6.12	7.36	7.21	7.07
Conductivity (umho/cm)	171	142	168	223	225	255	250	396
Dissolved Oxygen (ppm)	1.48	4.12	3.44	5.49	3.8	6.56	2.22	1.85
Oxidation/Reduction (mV)	151	.	230	144	216	.	214	87
MISCELLANEOUS ANALYTES								
pH (standard units)	5.7	.	.	.	.	.	.	.
Conductivity (umho/cm)	120	148	.	.	.	245	.	.
Dissolved Solids (mg/L)	82	110	.	.	100	180	.	.
Suspended Solids (mg/L)	<	<	.	.	<	<	.	.
Turbidity (NTU)	.	5	.	.	10	2.5	.	.
MAJOR IONS (mg/L)								
Calcium	10.5	24.5	.	.	19	51.9	.	.
Magnesium	6.23	4.16	.	.	3.52	3.51	.	.
Potassium	1.22	0.836	.	.	0.789	0.748	.	.
Sodium	1.63	6.55	.	.	6.91	5.28	.	.
Alkalinity-HCO3	57	79.3	130	86.4	122	140	160	158
Alkalinity-CO3	.	.	<	<	<	.	<	<
Chloride	5.7	1.3	1.3	1.1	1.1	1.4	1.4	1.3
Fluoride	<	<	<	0.1	0.11	<	<	<
Nitrate-N	0.12	0.04	<	<	.	0.05	<	<
Sulfate	21.8	10.6	9.2	9.3	8.9	7.2	7.1	7.1
Ion Charge Balance (RPD)	-21.1	0.7	.	.	.	2.2	.	.
TRACE METALS (mg/L)								
Aluminum	<	0.479	.	.	0.369	0.102	.	.
Antimony (PMS)	.	.	.	.	.	.	.	.
Arsenic (PMS)	.	.	.	.	.	.	.	.
Arsenic	<	<	<	<	<	<	<	<
Barium	0.0926	0.0209	0.019	0.0203	0.0203	0.26	0.246	0.243
Beryllium	<	<	.	.	<	<	.	.
Boron	<	<	.	.	<	<	.	.
Cadmium (PMS)	.	.	.	.	.	.	.	.
Cadmium	<	<	<	<	<	<	<	<
Chromium	<	<	<	<	<	<	<	<
Cobalt	0.029	<	.	.	<	<	.	.
Copper	<	<	.	.	<	<	.	.
Iron	3.44	0.488	.	.	0.489	0.164	.	.
Lead (PMS)	.	.	.	.	.	.	.	.
Lead	<	<	<	<	<	<	<	<
Lithium	<	<	.	.	<	0.0105	.	.
Manganese	2.3	0.014	.	.	0.0209	0.0377	.	.
Mercury (CVAA)	<	<	<	<	<	<	<	<
Molybdenum	<	<	.	.	.	<	.	.
Nickel	0.0237	<	.	.	<	<	.	.
Selenium (PMS)	.	.	.	.	.	.	.	.
Strontium	.	.	.	.	0.0348	.	.	.
Uranium (PMS)	.	.	.	.	.	.	.	.
Uranium (KPA)	<	.	.	.	.	.	.	.
Uranium	<	<	<	<	<	0.0721	<	<
Vanadium	<	<	.	.	<	<	.	.
Zinc	0.0126	<	.	.	<	<	.	.
ICP Dilution Factor	1	1	1	1	1	1	1	1

(CONTINUED)

APPENDIX D.1: BEAR CREEK HYDROGEOLOGIC REGIME, 1999
Field Measurements, Miscellaneous Analytes, Major Ions, and Trace Metals

Sampling Point	GW-044	GW-046			GW-053		GW-056	
Location	EMWMF	BG			BG		EXP-A	
Date Sampled	10/19/99	02/08/99		07/15/99	03/24/99	08/26/99	02/09/99	07/28/99
Monitoring Program	IWQP	IWQP		IWQP	GWPP	GWPP	GWPP	GWPP
Type			DUP					
	TOT	TOT	TOT	TOT	TOT	TOT	TOT	TOT
FIELD MEASUREMENTS								
Measuring Pt. Elev. (ft)	1014.20	921.17	.	921.17	903.40	903.40	891.50	891.50
Depth to Water (ft)	31.92	4.09	.	1.97	5.89	10.50	8.00	6.93
Water-Level Elev. (ft)	982.28	917.08	.	919.20	897.51	892.90	883.50	884.57
Water Temp. (degrees C)	14.6	15	.	21.1	12.2	15.4	13.1	18
pH (standard units)	6.94	5.12	.	5.01	7.25	7	7.52	7.3
Conductivity (umho/cm)	250	173	.	242	683	635	815	785
Dissolved Oxygen (ppm)	2.39	0.38	.	0.2	0.82	0.2	0.22	0.28
Oxidation/Reduction (mV)	172	.	.	164	52	-2	13	-3
MISCELLANEOUS ANALYTES								
pH (standard units)	.	.	.	5.8	7.19	7.09	7.44	7.67
Conductivity (umho/cm)	.	189	190	247	705	741	937	739
Dissolved Solids (mg/L)	200	140	130	200	398	426	495	479
Suspended Solids (mg/L)	<	<	<	<	<	<	217	72
Turbidity (NTU)	10	0.92	0.72	.	0.638	0.993	135	111
MAJOR IONS (mg/L)								
Calcium	55.8	27.1	27	30.4	118	131	99.6	93.7
Magnesium	3.76	7.25	7.07	6.48	14.5	13.7	20.1	20
Potassium	1.11	3.18	3.08	2.1	2.37	2.12	<	<
Sodium	4.96	5.5	5.38	7.25	7.67	8.81	68.8	46.9
Alkalinity-HCO3	171	58.7	59.2	68.9	322	342	272	256
Alkalinity-CO3	<	.	.	.	<	<	<	<
Chloride	1.4	28.2	27.7	31.5	19.7	18.32	143	69.61
Fluoride	0.12	<	<	<	<	<	0.13	<
Nitrate-N	.	0.46	0.47	1.3	<	<	0.35	0.2896
Sulfate	7.4	8.7	8.6	4.3	18.9	18.17	29	24.17
Ion Charge Balance (RPD)	.	2.1	1.6	-0.4	0.6	2.3	-2.5	4.7
TRACE METALS (mg/L)								
Aluminum	<	<	<	<	<	<	1.71	1.7
Antimony (PMS)	.	.	.	.	<	<	0.0009	<
Arsenic (PMS)	.	.	.	.	<	<	0.0058	<
Arsenic	<	<	<	<	.	.	.	.
Barium	0.251	0.208	0.2	0.208	0.197	0.204	0.11	0.1
Beryllium	<	<	<	<	<	<	<	<
Boron	0.0104	0.0417	0.0405	0.0414	0.27	0.31	<	<
Cadmium (PMS)	.	.	.	.	<	<	0.0012	0.00122
Cadmium	<	<	<	<	.	.	.	.
Chromium	<	<	<	<	<	<	0.103	0.257
Cobalt	<	0.0216	0.021	0.009	<	<	<	<
Copper	<	<	<	<	<	<	<	<
Iron	0.0543	0.4	0.344	0.156	0.0784	0.152	5.17	5.66
Lead (PMS)	.	.	.	.	0.00106	<	0.0124	0.00743
Lead	<	<	<	<	.	.	.	.
Lithium	0.0109	0.206	0.196	0.416	0.363	0.435	<	<
Manganese	0.0166	1.38	1.34	0.557	0.085	0.0892	0.264	0.224
Mercury (CVAA)	<	<	<	<	<	<	<	<
Molybdenum	.	<	<	<	<	<	<	<
Nickel	<	0.0214	0.0208	0.0178	<	<	0.0997	0.247
Selenium (PMS)	.	.	.	.	<	0.0154	<	<
Strontium	0.0922	.	.	.	0.405	0.392	0.15	0.149
Uranium (PMS)	.	.	.	.	0.00191	0.00236	0.0049	0.00358
Uranium (KPA)	.	.	.	<	.	.	.	.
Uranium	<	<	<	<	.	.	.	.
Vanadium	<	<	<	<	<	<	<	<
Zinc	<	<	<	<	<	<	0.0547	<
ICP Dilution Factor	1	1	1	1	1	1	1	1

(CONTINUED)

APPENDIX D.1: BEAR CREEK HYDROGEOLOGIC REGIME, 1999
Field Measurements, Miscellaneous Analytes, Major Ions, and Trace Metals

Sampling Point	GW-077		GW-078		GW-079		GW-080	
Location	BG		BG		BG		BG	
Date Sampled	02/03/99	08/17/99	02/02/99	08/17/99	02/02/99	08/12/99	02/03/99	08/12/99
Monitoring Program	IWQP	IWQP	IWQP	IWQP	IWQP	IWQP	IWQP	IWQP
Type	TOT	TOT	TOT	TOT	TOT	TOT	TOT	TOT
FIELD MEASUREMENTS								
Measuring Pt. Elev. (ft)	919.30	919.30	918.10	918.10	981.20	981.20	981.00	981.00
Depth to Water (ft)	4.75	11.16	3.14	10.26	17.98	21.56	19.99	24.65
Water-Level Elev. (ft)	914.55	908.14	914.96	907.84	963.22	959.64	961.01	956.35
Water Temp. (degrees C)	11.53	19.7	11.5	19.1	12.92	17.4	14.7	20.2
pH (standard units)	8.06	7.58	7.26	7.05	7.42	7.25	6.7	6.08
Conductivity (umho/cm)	221	305	0.346	320	22900	204	158	180
Dissolved Oxygen (ppm)	11.04	1.62	3.43	0.45	7.66	0.48	5.71	0.75
Oxidation/Reduction (mV)	.	-68	.	121	.	-227	.	57
MISCELLANEOUS ANALYTES								
pH (standard units)	.	.	.	.	.	.	.	.
Conductivity (umho/cm)	.	329	.	338	.	253	.	184
Dissolved Solids (mg/L)	.	200	.	220	.	150	.	120
Suspended Solids (mg/L)	.	<	.	<	.	<	.	20
Turbidity (NTU)	.	.	.	.	.	.	.	.
MAJOR IONS (mg/L)								
Calcium	.	.	.	.	.	.	.	.
Magnesium	.	.	.	.	.	.	.	.
Potassium	.	.	.	.	.	.	.	.
Sodium	.	.	.	.	.	.	.	.
Alkalinity-HCO3	.	.	.	.	.	.	.	.
Alkalinity-CO3	.	.	.	.	.	.	.	.
Chloride	.	.	.	.	.	.	.	.
Fluoride	.	.	.	.	.	.	.	.
Nitrate-N	0.11	0.09	<	0.05	<	<	431	0.03
Sulfate	.	.	.	.	.	.	.	.
Ion Charge Balance (RPD)	.	.	.	.	.	.	.	.
TRACE METALS (mg/L)								
Aluminum	.	.	.	.	.	.	.	.
Antimony (PMS)	.	.	.	.	.	.	.	.
Arsenic (PMS)	.	.	.	.	.	.	.	.
Arsenic	.	.	.	.	.	.	.	.
Barium	.	.	.	.	.	.	.	.
Beryllium	.	.	.	.	.	.	.	.
Boron	.	.	.	.	.	.	.	.
Cadmium (PMS)	.	.	.	.	.	.	.	.
Cadmium	.	.	.	.	.	.	.	.
Chromium	.	.	.	.	.	.	.	.
Cobalt	.	.	.	.	.	.	.	.
Copper	.	.	.	.	.	.	.	.
Iron	.	.	.	.	.	.	.	.
Lead (PMS)	.	.	.	.	.	.	.	.
Lead	.	.	.	.	.	.	.	.
Lithium	.	.	.	.	.	.	.	.
Manganese	.	.	.	.	.	.	.	.
Mercury (CVAA)	.	.	.	.	.	.	.	.
Molybdenum	.	.	.	.	.	.	.	.
Nickel	.	.	.	.	.	.	.	.
Selenium (PMS)	.	.	.	.	.	.	.	.
Strontium	.	.	.	.	.	.	.	.
Uranium (PMS)	.	.	.	.	.	.	.	.
Uranium (KPA)	.	.	.	.	.	.	.	.
Uranium	.	.	.	.	.	.	.	.
Vanadium	.	.	.	.	.	.	.	.
Zinc	.	.	.	.	.	.	.	.
ICP Dilution Factor	1	1	1	1	1	1	1	1

(CONTINUED)

APPENDIX D.1: BEAR CREEK HYDROGEOLOGIC REGIME, 1999
Field Measurements, Miscellaneous Analytes, Major Ions, and Trace Metals

Sampling Point	GW-082		GW-085		GW-087		GW-115	
Location	BG		OLF		OLF		S3	
Date Sampled	03/04/99		03/17/99	08/31/99	03/11/99		01/25/99	07/01/99
Monitoring Program	GWPP		GWPP	GWPP	GWPP		IWQP	IWQP
Type								
	TOT	DIS	TOT	TOT	TOT	DIS	TOT	TOT
FIELD MEASUREMENTS								
Measuring Pt. Elev. (ft)	964.00	.	983.50	983.50	961.20	.	1055.01	1055.01
Depth to Water (ft)	20.12	.	12.39	15.70	7.02	.	8.03	9.30
Water-Level Elev. (ft)	943.88	.	971.11	967.80	954.18	.	1046.98	1045.71
Water Temp. (degrees C)	13.2	.	16.4	17.2	11.7	.	15.2	20.3
pH (standard units)	7.34	.	6.81	6.96	5.05	.	7.52	7.24
Conductivity (umho/cm)	605	.	1142	1261	403	.	444	538
Dissolved Oxygen (ppm)	2.33	.	1.54	0.94	0.21	.	0.32	0.68
Oxidation/Reduction (mV)	70	.	132	167	94	.	.	-136
MISCELLANEOUS ANALYTES								
pH (standard units)	7.39	.	7.34	7.31	6.3	.	.	7.6
Conductivity (umho/cm)	938	.	1263	1420	356	.	633	552
Dissolved Solids (mg/L)	614	.	908	1360	214	.	360	350
Suspended Solids (mg/L)	<	.	45	33	9	.	<	<
Turbidity (NTU)	1.15	.	37.4	25	18.4	.	1	.
MAJOR IONS (mg/L)								
Calcium	140	137	220	231	51.9	41.6	103	80.9
Magnesium	15.4	15.2	14.6	15.9	7.08	6.4	14.8	14.1
Potassium	<	<	3.19	2.37	5.96	5.92	1.72	1.65
Sodium	7.41	7.4	10.2	10.6	15.2	14.7	11	10.4
Alkalinity-HCO3	266	.	160	166	132	.	236	254
Alkalinity-CO3	<	.	<	<	<	.	.	.
Chloride	147	.	8.14	8.379	7.04	.	48.8	25.8
Fluoride	0.17	.	<	<	<	.	<	<
Nitrate-N	<	.	103	133.9	<	.	0.04	0.03
Sulfate	5.2	.	5.86	5.96	31.7	.	20	16.3
Ion Charge Balance (RPD)	-5.5	.	7.6	0.4	6.6	.	2.7	-3.8
TRACE METALS (mg/L)								
Aluminum	<	<	2.81	1.61	0.314	<	<	<
Antimony (PMS)	<	<	<	<	<	<	.	.
Arsenic (PMS)	<	<	<	<	<	<	.	.
Arsenic	.	.	.	.	.	.	<	<
Barium	0.905	0.873	0.583	0.662	0.111	0.102	0.282	0.231
Beryllium	<	<	<	<	<	<	<	<
Boron	9.32	8.63	<	<	0.203	0.214	0.0126	0.0146
Cadmium (PMS)	<	<	<	<	0.000518	<	.	.
Cadmium	.	.	.	.	.	.	<	<
Chromium	0.0369	<	<	<	<	<	<	<
Cobalt	<	<	<	<	<	<	<	<
Copper	<	<	<	<	<	<	<	<
Iron	0.389	0.0903	1.84	1.1	2	0.354	0.199	0.32
Lead (PMS)	0.000576	<	0.00184	0.00186	0.0104	<	.	.
Lead	.	.	.	.	.	.	<	<
Lithium	0.121	0.112	0.0195	0.0202	0.0118	<	0.0204	0.0192
Manganese	0.862	0.796	0.0671	0.0435	1.15	1.07	0.293	0.574
Mercury (CVAA)	<	<	<	<	<	<	<	<
Molybdenum	<	<	<	<	<	<	<	<
Nickel	0.0533	0.0531	<	<	<	<	<	<
Selenium (PMS)	<	<	<	<	<	<	.	.
Strontium	0.256	0.252	0.493	0.552	0.11	0.0976	.	.
Uranium (PMS)	<	<	<	<	0.0806	0.104	.	.
Uranium (KPA)	.	.	.	.	.	.	.	<
Uranium	.	.	.	.	.	.	<	<
Vanadium	<	<	<	<	<	<	<	<
Zinc	<	<	<	<	<	<	<	<
ICP Dilution Factor	1	1	1	1	1	1	1	1

(CONTINUED)

APPENDIX D.1: BEAR CREEK HYDROGEOLOGIC REGIME, 1999
Field Measurements, Miscellaneous Analytes, Major Ions, and Trace Metals

Sampling Point	GW-126		GW-132-01		GW-132-05		GW-132-09	
Location	BG		S3		S3		S3	
Date Sampled	03/02/99		09/23/99		09/27/99		09/27/99	
Monitoring Program	GWPP		GWPP		GWPP		GWPP	
Type								
	TOT	DIS	TOT	DIS	TOT	DIS	TOT	DIS
FIELD MEASUREMENTS								
Measuring Pt. Elev. (ft)	932.06	.	.	.	.	.	.	.
Depth to Water (ft)	16.46	.	.	.	.	.	.	.
Water-Level Elev. (ft)	915.60	.	.	.	.	.	.	.
Water Temp. (degrees C)	13.5	.	16.1	.	17.5	.	21	.
pH (standard units)	8.43	.	9.51	.	9.51	.	8.14	.
Conductivity (umho/cm)	800	.	775	.	626	.	892	.
Dissolved Oxygen (ppm)	0.62	.	11.31	.	12.43	.	4.92	.
Oxidation/Reduction (mV)	201	.	-62	.	16	.	-100	.
MISCELLANEOUS ANALYTES								
pH (standard units)	8.93	.	9.5	.	9.56	.	8.93	.
Conductivity (umho/cm)	788	.	748	.	572	.	845	.
Dissolved Solids (mg/L)	458	.	447	.	347	.	536	.
Suspended Solids (mg/L)	<	.	1	.	<	.	2	.
Turbidity (NTU)	4.28	.	5.04	.	0.764	.	4.76	.
MAJOR IONS (mg/L)								
Calcium	1.68	1.77	0.606	0.565	0.688	0.751	0.946	1.03
Magnesium	0.617	0.632	<	<	<	<	<	<
Potassium	2.17	2.21	<	<	<	<	<	<
Sodium	193	197	175	174	135	134	217	216
Alkalinity-HCO3	314	.	242	.	244	.	398	.
Alkalinity-CO3	64	.	88	.	28	.	44	.
Chloride	15.5	.	1.254	.	1.177	.	1.528	.
Fluoride	2.72	.	0.94	.	0.63	.	2.28	.
Nitrate-N	<	.	<	.	<	.	<	.
Sulfate	30.9	.	37.409	.	15.874	.	3.931	.
Ion Charge Balance (RPD)	-1.1	.	1.0	.	0.4	.	2.2	.
TRACE METALS (mg/L)								
Aluminum	<	<	<	<	<	<	<	<
Antimony (PMS)	<	<	<	<	<	<	<	<
Arsenic (PMS)	<	<	<	<	<	<	<	<
Arsenic	.	.	.	.	.	.	.	.
Barium	0.0728	0.0713	0.0383	0.0209	0.0461	0.0444	0.0392	0.0351
Beryllium	<	<	<	<	<	<	<	<
Boron	0.627	0.643	0.7	0.691	0.372	0.371	0.312	0.316
Cadmium (PMS)	<	<	<	<	<	<	<	<
Cadmium	.	.	.	.	.	.	.	.
Chromium	<	<	<	<	<	<	<	<
Cobalt	<	<	<	<	<	<	<	<
Copper	<	<	<	<	<	<	<	<
Iron	0.572	<	0.194	<	0.0673	<	0.63	0.101
Lead (PMS)	<	<	<	<	0.000517	0.000789	0.000769	<
Lead	.	.	.	.	.	.	.	.
Lithium	0.0878	0.0908	0.0949	0.0932	0.0691	0.07	0.0774	0.0768
Manganese	0.00759	<	<	<	<	<	0.0148	0.00552
Mercury (CVAA)	<	<	<	<	<	<	<	<
Molybdenum	<	<	<	<	<	<	<	<
Nickel	<	<	<	<	<	<	<	<
Selenium (PMS)	<	<	<	<	<	<	<	<
Strontium	0.152	0.155	0.0196	0.0182	0.0185	0.0214	0.0424	0.0418
Uranium (PMS)	<	<	<	<	<	<	<	<
Uranium (KPA)	.	.	.	.	.	.	.	.
Uranium	.	.	.	.	.	.	.	.
Vanadium	<	<	<	<	<	<	<	<
Zinc	<	<	0.086	<	0.0531	<	0.0567	<
ICP Dilution Factor	1	1	1	1	1	1	1	1

(CONTINUED)

APPENDIX D.1: BEAR CREEK HYDROGEOLOGIC REGIME, 1999
Field Measurements, Miscellaneous Analytes, Major Ions, and Trace Metals

Sampling Point	GW-132-09		GW-132-13		GW-132-17		GW-132-21	
Location	S3		S3		S3		S3	
Date Sampled	09/27/99		09/28/99		09/28/99		09/28/99	
Monitoring Program	GWPP		GWPP		GWPP		GWPP	
Type	DUP							
	TOT	DIS	TOT	DIS	TOT	DIS	TOT	DIS
FIELD MEASUREMENTS								
Measuring Pt. Elev. (ft)	.	.	.	.	.	.	.	.
Depth to Water (ft)	.	.	.	.	.	.	.	.
Water-Level Elev. (ft)	.	.	.	.	.	.	.	.
Water Temp. (degrees C)	.	.	20.7	.	21.1	.	20.2	.
pH (standard units)	.	.	9.32	.	9.6	.	8.16	.
Conductivity (umho/cm)	.	.	675	.	530	.	515	.
Dissolved Oxygen (ppm)	.	.	10.53	.	8.16	.	11.03	.
Oxidation/Reduction (mV)	.	.	-74	.	-32	.	33	.
MISCELLANEOUS ANALYTES								
pH (standard units)	8.93	.	9.48	.	9.57	.	8.98	.
Conductivity (umho/cm)	841	.	717	.	565	.	533	.
Dissolved Solids (mg/L)	528	.	420	.	341	.	342	.
Suspended Solids (mg/L)	<	.	1	.	1	.	<	.
Turbidity (NTU)	4.68	.	0.921	.	4.16	.	1.93	.
MAJOR IONS (mg/L)								
Calcium	0.959	1.04	0.687	0.722	0.63	0.666	1.73	1.69
Magnesium	<	<	<	<	<	<	0.214	<
Potassium	<	<	<	<	<	<	<	<
Sodium	214	215	178	176	133	137	134	133
Alkalinity-HCO3	420	.	290	.	226	.	254	.
Alkalinity-CO3	24	.	48	.	40	.	20	.
Chloride	1.488	.	1.452	.	1.282	.	1.27	.
Fluoride	2.22	.	1.05	.	0.54	.	0.46	.
Nitrate-N	<	.	<	.	<	.	<	.
Sulfate	4.158	.	15.33	.	3.039	.	0.399	.
Ion Charge Balance (RPD)	1.3	.	3.9	.	3.0	.	3.4	.
TRACE METALS (mg/L)								
Aluminum	<	<	<	<	0.585	<	0.202	<
Antimony (PMS)	<	<	<	<	<	<	<	<
Arsenic (PMS)	<	<	<	<	<	<	<	<
Arsenic	.	.	.	.	.	.	.	.
Barium	0.0405	0.0353	0.0223	0.0214	0.0367	0.0294	0.0751	0.0657
Beryllium	<	<	<	<	<	<	<	<
Boron	0.306	0.314	0.307	0.304	0.258	0.273	0.207	0.204
Cadmium (PMS)	<	<	<	<	<	<	<	<
Cadmium	.	.	.	.	.	.	.	.
Chromium	<	<	<	<	<	<	<	<
Cobalt	<	<	<	<	<	<	<	<
Copper	<	<	<	<	<	<	<	<
Iron	0.653	0.0975	<	<	0.476	0.0869	0.429	0.078
Lead (PMS)	0.000999	<	<	<	0.000525	0.000885	0.000695	<
Lead	.	.	.	.	.	.	.	.
Lithium	0.0763	0.0764	0.0571	0.0548	0.0409	0.0434	0.055	0.055
Manganese	0.0148	0.0054	<	<	0.0101	<	0.0106	0.00627
Mercury (CVAA)	<	<	<	<	<	<	<	<
Molybdenum	<	<	<	<	<	<	<	<
Nickel	<	<	<	<	<	<	<	<
Selenium (PMS)	<	<	<	<	<	<	<	<
Strontium	0.0421	0.0416	0.0266	0.0263	0.0224	0.0225	0.0655	0.0631
Uranium (PMS)	<	<	<	<	<	<	<	<
Uranium (KPA)	.	.	.	.	.	.	.	.
Uranium	.	.	.	.	.	.	.	.
Vanadium	<	<	<	<	<	<	<	<
Zinc	0.155	<	<	<	<	0.296	0.18	<
ICP Dilution Factor	1	1	1	1	1	1	1	1

(CONTINUED)

APPENDIX D.1: BEAR CREEK HYDROGEOLOGIC REGIME, 1999
Field Measurements, Miscellaneous Analytes, Major Ions, and Trace Metals

Sampling Point	GW-132-25		GW-133-01		GW-133-05		GW-133-08	
Location	S3		S3		S3		S3	
Date Sampled	09/28/99		08/16/99		08/17/99		08/17/99	
Monitoring Program	GWPP		GWPP		GWPP		GWPP	
Type								
	TOT	DIS	TOT	DIS	TOT	DIS	TOT	DIS
FIELD MEASUREMENTS								
Measuring Pt. Elev. (ft)	.	.	.	.	.	.	.	.
Depth to Water (ft)	.	.	.	.	.	.	.	.
Water-Level Elev. (ft)	.	.	.	.	.	.	.	.
Water Temp. (degrees C)	19.3	.	20.6	.	20.4	.	20.8	.
pH (standard units)	7.61	.	7.67	.	8.47	.	8.11	.
Conductivity (umho/cm)	587	.	1520	.	1033	.	873	.
Dissolved Oxygen (ppm)	7.13	.	4.01	.	4.75	.	4.3	.
Oxidation/Reduction (mV)	-60	.	-144	.	-138	.	-126	.
MISCELLANEOUS ANALYTES								
pH (standard units)	8.04	.	8.66	.	9.06	.	9.04	.
Conductivity (umho/cm)	545	.	1423	.	1014	.	833	.
Dissolved Solids (mg/L)	330	.	1120	.	657	.	555	.
Suspended Solids (mg/L)	8	.	156	.	6	.	<	.
Turbidity (NTU)	21.3	.	204	.	33	.	27.6	.
MAJOR IONS (mg/L)								
Calcium	16.5	16.8	12.2	3.09	1.06	0.959	1.97	0.935
Magnesium	4.92	5.02	6.2	1.31	0.316	<	0.291	<
Potassium	2.81	3.01	8.47	4.13	<	<	<	<
Sodium	124	122	365	372	257	250	209	204
Alkalinity-HCO3	318	.	764	.	488	.	390	.
Alkalinity-CO3	<	.	32	.	60	.	68	.
Chloride	1.898	.	7.707	.	1.702	.	3.452	.
Fluoride	0.17	.	4.66	.	1.93	.	1.37	.
Nitrate-N	<	.	<	.	<	.	<	.
Sulfate	<	.	0.727	.	2.353	.	1.209	.
Ion Charge Balance (RPD)	2.1	.	2.5	.	0.5	.	-0.7	.
TRACE METALS (mg/L)								
Aluminum	<	<	23.8	7.48	2.07	0.676	1.2	<
Antimony (PMS)	<	<	<	<	<	<	<	<
Arsenic (PMS)	<	<	<	<	<	<	<	<
Arsenic	.	.	.	.	.	.	.	.
Barium	0.433	0.436	0.431	0.105	0.067	0.0461	0.0495	0.036
Beryllium	<	<	<	<	<	<	<	<
Boron	0.21	0.212	0.193	0.196	0.227	0.219	0.228	0.17
Cadmium (PMS)	<	0.00064	0.000945	0.000703	<	<	<	<
Cadmium	.	.	.	.	.	.	.	.
Chromium	<	<	0.0646	<	<	<	<	<
Cobalt	<	<	<	<	<	<	<	<
Copper	<	<	<	<	<	<	<	<
Iron	0.233	0.128	29.4	4.69	0.951	0.343	0.661	<
Lead (PMS)	<	<	0.00788	0.00118	<	<	0.000725	<
Lead	.	.	.	.	.	.	.	.
Lithium	0.0703	0.0693	0.101	0.0815	0.053	0.049	0.106	0.048
Manganese	0.0222	0.0214	0.392	0.0561	0.0109	0.00509	0.00594	<
Mercury (CVAA)	<	<	<	<	<	<	<	<
Molybdenum	<	<	0.0734	0.0699	<	<	<	<
Nickel	<	<	<	<	<	<	<	<
Selenium (PMS)	<	<	<	<	<	<	<	<
Strontium	0.861	0.874	0.156	0.0981	0.0535	0.0501	0.0602	0.0469
Uranium (PMS)	<	<	<	<	<	<	<	<
Uranium (KPA)	.	.	.	.	.	.	.	.
Uranium	.	.	.	.	.	.	.	.
Vanadium	<	<	0.0254	<	<	<	<	<
Zinc	0.0515	<	1.21	0.163	<	<	0.0797	<
ICP Dilution Factor	1	1	1	1	1	1	1	1

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APPENDIX D.1: BEAR CREEK HYDROGEOLOGIC REGIME, 1999
Field Measurements, Miscellaneous Analytes, Major Ions, and Trace Metals

Sampling Point	GW-133-10				GW-133-14		GW-133-17	
Location	S3				S3		S3	
Date Sampled	08/18/99				08/18/99		08/18/99	
Monitoring Program	GWPP				GWPP		GWPP	
Type			DUP					
	TOT	DIS	TOT	DIS	TOT	DIS	TOT	DIS
FIELD MEASUREMENTS								
Measuring Pt. Elev. (ft)	.	.	.	.	.	.	.	.
Depth to Water (ft)	.	.	.	.	.	.	.	.
Water-Level Elev. (ft)	.	.	.	.	.	.	.	.
Water Temp. (degrees C)	20.5	.	.	.	18.8	.	19.4	.
pH (standard units)	8.18	.	.	.	8.61	.	8.49	.
Conductivity (umho/cm)	1065	.	.	.	1196	.	979	.
Dissolved Oxygen (ppm)	4.7	.	.	.	7.15	.	4.43	.
Oxidation/Reduction (mV)	-78	.	.	.	-80	.	-53	.
MISCELLANEOUS ANALYTES								
pH (standard units)	9.06	.	9.06	.	8.94	.	9.02	.
Conductivity (umho/cm)	1053	.	1060	.	1134	.	942	.
Dissolved Solids (mg/L)	658	.	661	.	718	.	620	.
Suspended Solids (mg/L)	22	.	27	.	4	.	19	.
Turbidity (NTU)	79	.	71	.	29.2	.	75	.
MAJOR IONS (mg/L)								
Calcium	1.4	1.05	1.18	1.08	1.32	1.17	1.85	1.07
Magnesium	0.53	<	0.485	<	0.349	0.291	0.651	0.257
Potassium	3.07	<	3.22	<	<	<	2.4	<
Sodium	255	251	260	260	291	297	236	229
Alkalinity-HCO3	490	.	492	.	566	.	482	.
Alkalinity-CO3	64	.	60	.	44	.	<	.
Chloride	1.638	.	1.045	.	2.453	.	1.568	.
Fluoride	2.54	.	2.38	.	2.7	.	2.7	.
Nitrate-N	<	.	<	.	<	.	<	.
Sulfate	1.972	.	2.725	.	1.579	.	1.326	.
Ion Charge Balance (RPD)	-0.0	.	1.1	.	1.2	.	3.1	.
TRACE METALS (mg/L)								
Aluminum	4.31	<	4.03	<	0.615	<	2.82	<
Antimony (PMS)	<	<	<	<	<	<	<	<
Arsenic (PMS)	<	<	<	<	<	<	<	<
Arsenic	.	.	.	.	.	.	.	.
Barium	0.0778	0.0477	0.0758	0.05	0.0885	0.0768	0.125	0.0789
Beryllium	<	<	<	<	<	<	<	<
Boron	0.196	0.192	0.194	0.194	0.187	0.191	0.284	0.273
Cadmium (PMS)	<	<	<	<	0.000754	0.000816	0.00063	<
Cadmium	.	.	.	.	.	.	.	.
Chromium	<	<	<	<	<	<	<	<
Cobalt	<	<	<	<	<	<	<	<
Copper	<	<	<	<	<	<	<	<
Iron	1.3	0.0695	1.13	<	0.603	<	2.03	<
Lead (PMS)	0.000845	<	<	<	<	<	<	0.00095
Lead	.	.	.	.	.	.	.	.
Lithium	0.0555	0.0523	0.0572	0.0531	0.0677	0.0697	0.0582	0.0536
Manganese	0.00929	<	0.00956	<	0.00793	<	0.0236	<
Mercury (CVAA)	<	<	<	<	<	<	<	<
Molybdenum	<	<	<	<	0.242	0.252	<	<
Nickel	<	<	<	<	<	<	<	<
Selenium (PMS)	<	<	<	<	<	<	<	<
Strontium	0.0762	0.0639	0.0712	0.0651	0.0898	0.0887	0.0891	0.0762
Uranium (PMS)	<	<	<	<	0.00137	<	<	<
Uranium (KPA)	.	.	.	.	.	.	.	.
Uranium	.	.	.	.	.	.	.	.
Vanadium	<	<	<	<	<	<	<	<
Zinc	0.144	<	<	<	<	<	<	<
ICP Dilution Factor	1	1	1	1	1	1	1	1

(CONTINUED)

APPENDIX D.1: BEAR CREEK HYDROGEOLOGIC REGIME, 1999
Field Measurements, Miscellaneous Analytes, Major Ions, and Trace Metals

Sampling Point	GW-133-21		GW-133-24		GW-134-05		GW-134-11	
Location	S3		S3		S3		S3	
Date Sampled	08/19/99		08/19/99		08/03/99		08/04/99	
Monitoring Program	GWPP		GWPP		GWPP		GWPP	
Type								
	TOT	DIS	TOT	DIS	TOT	DIS	TOT	DIS
FIELD MEASUREMENTS								
Measuring Pt. Elev. (ft)	.	.	.	.	.	.	.	.
Depth to Water (ft)	.	.	.	.	.	.	.	.
Water-Level Elev. (ft)	.	.	.	.	.	.	.	.
Water Temp. (degrees C)	19.4	.	20.6	.	20.3	.	20.9	.
pH (standard units)	7.84	.	7.29	.	7.23	.	7.94	.
Conductivity (umho/cm)	554	.	497	.	11200	.	3750	.
Dissolved Oxygen (ppm)	4.3	.	4.33	.	2.45	.	4.5	.
Oxidation/Reduction (mV)	-60	.	-57	.	218	.	.	.
MISCELLANEOUS ANALYTES								
pH (standard units)	7.89	.	7.78	.	7.51	.	8.17	.
Conductivity (umho/cm)	470	.	417	.	12430	.	3510	.
Dissolved Solids (mg/L)	295	.	271	.	9200	.	2640	.
Suspended Solids (mg/L)	<	.	10	.	<	.	<	.
Turbidity (NTU)	3.58	.	15.2	.	0.468	.	2.26	.
MAJOR IONS (mg/L)								
Calcium	22.1	21.3	36.1	34.6	77.9	78.6	6.25	6.67
Magnesium	10.3	9.91	7.5	7.06	24.7	25	1.76	1.97
Potassium	2.95	2.85	2.87	2.26	13.4	13.3	4.28	4.57
Sodium	76.9	74.7	58.5	58.8	2690	2700	793	854
Alkalinity-HCO3	264	.	236	.	708	.	928	.
Alkalinity-CO3	<	.	<	.	<	.	<	.
Chloride	1.152	.	3.961	.	1337	.	30.16	.
Fluoride	<	.	0.27	.	2.64	.	5.68	.
Nitrate-N	<	.	<	.	1173	.	237.4	.
Sulfate	0.337	.	1.659	.	11.01	.	48.57	.
Ion Charge Balance (RPD)	0.5	.	1.6	.	-4.9	.	-3.6	.
TRACE METALS (mg/L)								
Aluminum	<	<	2.04	<	<	<	<	<
Antimony (PMS)	<	<	<	<	<	<	<	<
Arsenic (PMS)	<	<	<	<	<	<	<	<
Arsenic	.	.	.	.	.	.	.	.
Barium	0.749	0.712	0.607	0.57	2.72	2.73	0.165	0.169
Beryllium	<	<	<	<	<	<	<	<
Boron	<	<	<	<	0.511	0.514	0.421	0.449
Cadmium (PMS)	<	<	<	<	<	<	<	<
Cadmium	.	.	.	.	.	.	.	.
Chromium	<	<	<	<	<	<	<	<
Cobalt	<	<	<	<	<	<	<	<
Copper	<	<	<	<	<	<	<	<
Iron	0.14	0.0555	1.82	0.175	<	<	<	<
Lead (PMS)	<	<	<	<	0.00055	<	<	0.000791
Lead	.	.	.	.	.	.	.	.
Lithium	0.028	0.0282	0.0248	0.0243	0.909	0.919	0.309	0.33
Manganese	0.0137	0.0122	0.0432	0.023	<	<	<	<
Mercury (CVAA)	<	<	<	<	<	<	<	<
Molybdenum	<	<	<	<	<	<	<	<
Nickel	<	<	<	<	<	<	<	<
Selenium (PMS)	<	<	<	<	0.123	0.13	<	<
Strontium	1.4	1.34	0.463	0.455	9.36	9.45	0.638	0.691
Uranium (PMS)	<	<	<	<	0.00154	0.00345	0.00157	0.00157
Uranium (KPA)	.	.	.	.	.	.	.	.
Uranium	.	.	.	.	.	.	.	.
Vanadium	<	<	<	<	<	<	<	<
Zinc	<	<	0.0692	<	0.288	<	0.18	0.0976
ICP Dilution Factor	1	1	1	1	5	5	1	1

(CONTINUED)

Field Measurements, Miscellaneous Analytes, Major Ions, and Trace Metals

Sampling Point	GW-134-15		GW-134-18		GW-134-21		GW-134-25	
Location	S3		S3		S3		S3	
Date Sampled	08/04/99		08/04/99		08/05/99		08/10/99	
Monitoring Program	GWPP		GWPP		GWPP		GWPP	
Type								
	TOT	DIS	TOT	DIS	TOT	DIS	TOT	DIS
FIELD MEASUREMENTS								
Measuring Pt. Elev. (ft)	.	.	.	.	.	.	.	.
Depth to Water (ft)	.	.	.	.	.	.	.	.
Water-Level Elev. (ft)	.	.	.	.	.	.	.	.
Water Temp. (degrees C)	19.3	.	20.7	.	21.3	.	19.7	.
pH (standard units)	6.83	.	7.14	.	7.9	.	8.9	.
Conductivity (umho/cm)	18500	.	15340	.	8070	.	3220	.
Dissolved Oxygen (ppm)	4	.	3.5	.	4.6	.	6	.
Oxidation/Reduction (mV)	.	.	.	.	321	.	-2	.
MISCELLANEOUS ANALYTES								
pH (standard units)	7.53	.	7.81	.	8.15	.	9	.
Conductivity (umho/cm)	19020	.	14780	.	7210	.	1447	.
Dissolved Solids (mg/L)	16500	.	12700	.	5620	.	918	.
Suspended Solids (mg/L)	<	.	<	.	<	.	2	.
Turbidity (NTU)	3.66	.	1.04	.	0.451	.	13.1	.
MAJOR IONS (mg/L)								
Calcium	194	201	109	111	22	21.3	2.06	1.68
Magnesium	50.3	52.9	28.7	29.2	5.89	5.79	0.424	0.41
Potassium	25.5	25.7	23.3	22.4	12	11.9	2.83	3.23
Sodium	4080	4250	3330	3360	1660	1610	367	375
Alkalinity-HCO3	382	.	270	.	572	.	640	.
Alkalinity-CO3	<	.	<	.	<	.	80	.
Chloride	128.7	.	15.14	.	87.4	.	5.792	.
Fluoride	1.86	.	1.31	.	1.89	.	1.89	.
Nitrate-N	3987	.	2333	.	818.2	.	0.05331	.
Sulfate	4.884	.	5.642	.	21.09	.	29.9	.
Ion Charge Balance (RPD)	-21.3	.	-5.9	.	0.8	.	2.8	.
TRACE METALS (mg/L)								
Aluminum	<	<	<	<	<	<	<	<
Antimony (PMS)	<	<	<	<	<	<	<	<
Arsenic (PMS)	<	<	<	<	<	<	<	<
Arsenic	.	.	.	.	.	.	.	.
Barium	7.75	8.02	6.69	6.72	1.14	1.1	0.0636	0.0591
Beryllium	<	<	<	<	<	<	<	<
Boron	<	<	0.621	0.623	0.892	0.866	1.62	1.62
Cadmium (PMS)	0.000572	0.000589	<	<	<	0.000513	<	<
Cadmium	.	.	.	.	.	.	.	.
Chromium	<	<	<	<	<	<	<	<
Cobalt	<	<	<	<	<	<	<	<
Copper	<	<	<	<	<	<	<	<
Iron	<	<	<	<	<	<	0.101	<
Lead (PMS)	0.000936	<	0.000695	<	<	<	<	<
Lead	.	.	.	.	.	.	.	.
Lithium	1.53	1.58	1.49	1.49	0.862	0.825	0.231	0.223
Manganese	<	<	<	<	0.0076	0.00657	<	<
Mercury (CVAA)	<	<	<	<	<	<	<	<
Molybdenum	<	<	<	<	0.0657	0.0623	<	<
Nickel	<	<	<	<	<	<	<	<
Selenium (PMS)	0.0256	0.0227	<	<	<	0.0135	<	<
Strontium	22.3	23.1	14.1	14.2	2.85	2.77	0.15	0.156
Uranium (PMS)	0.0018	0.00251	0.00284	0.00276	0.00235	0.00234	0.00086	0.00108
Uranium (KPA)	.	.	.	.	.	.	.	.
Uranium	.	.	.	.	.	.	.	.
Vanadium	<	<	<	<	<	<	<	<
Zinc	<	<	0.265	<	0.0695	0.0674	0.16	<
ICP Dilution Factor	10	10	5	5	1	1	1	1

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APPENDIX D.1: BEAR CREEK HYDROGEOLOGIC REGIME, 1999
Field Measurements, Miscellaneous Analytes, Major Ions, and Trace Metals

Sampling Point	GW-134-25		GW-134-29		GW-134-33		GW-134-35	
Location	S3		S3		S3		S3	
Date Sampled	08/10/99		08/11/99		08/11/99		08/11/99	
Monitoring Program	GWPP		GWPP		GWPP		GWPP	
Type	DUP							
	TOT	DIS	TOT	DIS	TOT	DIS	TOT	DIS
FIELD MEASUREMENTS								
Measuring Pt. Elev. (ft)	.	.	.	.	.	.	.	.
Depth to Water (ft)	.	.	.	.	.	.	.	.
Water-Level Elev. (ft)	.	.	.	.	.	.	.	.
Water Temp. (degrees C)	.	.	21.4	.	22.7	.	22.7	.
pH (standard units)	.	.	9.4	.	7.7	.	7.5	.
Conductivity (umho/cm)	.	.	774	.	2050	.	2680	.
Dissolved Oxygen (ppm)	.	.	5.1	.	5	.	5.1	.
Oxidation/Reduction (mV)	.	.	-9	.	296	.	310	.
MISCELLANEOUS ANALYTES								
pH (standard units)	9.03	.	9.15	.	7.41	.	7.32	.
Conductivity (umho/cm)	1450	.	660	.	1719	.	2570	.
Dissolved Solids (mg/L)	913	.	410	.	1560	.	2180	.
Suspended Solids (mg/L)	2	.	<	.	<	.	<	.
Turbidity (NTU)	13.3	.	2.42	.	0.545	.	2.76	.
MAJOR IONS (mg/L)								
Calcium	1.69	1.69	1.9	1.93	236	222	334	324
Magnesium	0.391	0.396	0.483	0.459	67.6	64.1	77.3	75
Potassium	2.72	2.92	2.02	2.59	5.67	5.53	6.33	6.17
Sodium	353	365	156	158	20.8	21	16.3	16.1
Alkalinity-HCO3	638	.	298	.	178	.	204	.
Alkalinity-CO3	96	.	44	.	<	.	<	.
Chloride	5.698	.	1.1	.	15.94	.	24.49	.
Fluoride	1.81	.	0.66	.	<	.	<	.
Nitrate-N	<	.	0.05376	.	214.5	.	290.5	.
Sulfate	29.67	.	6.689	.	13.4	.	15.43	.
Ion Charge Balance (RPD)	-0.0	.	-0.7	.	-3.2	.	-3.9	.
TRACE METALS (mg/L)								
Aluminum	<	<	<	<	<	<	<	<
Antimony (PMS)	<	<	<	<	<	<	<	<
Arsenic (PMS)	<	<	<	<	<	<	<	<
Arsenic	.	.	.	.	.	.	.	.
Barium	0.0587	0.0573	0.0423	0.0399	0.469	0.463	0.77	0.746
Beryllium	<	<	<	<	<	<	<	<
Boron	1.58	1.6	1.4	1.4	<	<	<	<
Cadmium (PMS)	<	<	<	<	<	<	<	<
Cadmium	.	.	.	.	.	.	.	.
Chromium	<	<	<	<	<	<	<	<
Cobalt	<	<	<	<	<	<	<	<
Copper	<	<	<	<	<	<	<	<
Iron	0.184	<	0.165	<	0.0966	<	0.116	<
Lead (PMS)	<	<	0.00104	<	<	<	<	<
Lead	.	.	.	.	.	.	.	.
Lithium	0.209	0.214	0.102	0.102	0.0199	0.0199	0.0186	0.0174
Manganese	<	<	<	<	0.0615	0.0562	0.0832	0.0783
Mercury (CVAA)	<	<	<	<	<	<	<	<
Molybdenum	<	<	<	<	<	<	<	<
Nickel	<	<	<	<	<	<	<	<
Selenium (PMS)	<	<	<	<	<	<	<	<
Strontium	0.14	0.154	0.133	0.134	1.89	1.81	1.7	1.66
Uranium (PMS)	0.000879	0.000877	0.000721	0.000706	<	<	<	<
Uranium (KPA)	.	.	.	.	.	.	.	.
Uranium	.	.	.	.	.	.	.	.
Vanadium	<	<	<	<	<	<	<	<
Zinc	<	<	<	<	<	<	<	0.0748
ICP Dilution Factor	1	1	1	1	1	1	1	1

(CONTINUED)

APPENDIX D.1: BEAR CREEK HYDROGEOLOGIC REGIME, 1999
Field Measurements, Miscellaneous Analytes, Major Ions, and Trace Metals

Sampling Point	GW-134-36		GW-135-03		GW-135-06		GW-135-11	
Location	S3		S3		S3		S3	
Date Sampled	08/11/99		09/08/99		09/13/99		09/13/99	
Monitoring Program	GWPP		GWPP		GWPP		GWPP	
Type								
	TOT	DIS	TOT	DIS	TOT	DIS	TOT	DIS
FIELD MEASUREMENTS								
Measuring Pt. Elev. (ft)	.	.	.	.	.	.	.	.
Depth to Water (ft)	.	.	.	.	.	.	.	.
Water-Level Elev. (ft)	.	.	.	.	.	.	.	.
Water Temp. (degrees C)	25.2	.	19	.	17.9	.	16.7	.
pH (standard units)	7.7	.	6.87	.	7.01	.	6.87	.
Conductivity (umho/cm)	1220	.	63200	.	8300	.	2970	.
Dissolved Oxygen (ppm)	6.2	.	4.02	.	4.16	.	12.74	.
Oxidation/Reduction (mV)	305	.	-109	.	-156	.	-70	.
MISCELLANEOUS ANALYTES								
pH (standard units)	7.94	.	7.14	.	7.19	.	7.16	.
Conductivity (umho/cm)	863	.	64800	.	8620	.	3440	.
Dissolved Solids (mg/L)	791	.	43700	.	6000	.	<	.
Suspended Solids (mg/L)	9	.	2	.	2.5	.	<	.
Turbidity (NTU)	29.9	.	16.9	.	49.3	.	2.27	.
MAJOR IONS (mg/L)								
Calcium	124	111	1750	1780	346	354	484	487
Magnesium	16.6	15.5	746	755	148	153	168	166
Potassium	28	28.6	101	99.4	17.3	18.2	<	<
Sodium	16.9	16.4	13800	13800	1510	1590	159	149
Alkalinity-HCO3	102	.	238	.	416	.	216	.
Alkalinity-CO3	<	.	<	.	<	.	<	.
Chloride	11.13	.	22660	.	1748	.	85.68	.
Fluoride	<	.	0.48	.	0.68	.	1.21	.
Nitrate-N	72.98	.	<	.	<	.	<	.
Sulfate	10.61	.	2822	.	2462	.	1888	.
Ion Charge Balance (RPD)	7.3	.	3.4	.	-6.5	.	-1.4	.
TRACE METALS (mg/L)								
Aluminum	2.48	<	<	<	<	<	<	<
Antimony (PMS)	<	<	<	<	<	<	<	<
Arsenic (PMS)	<	<	<	<	<	<	<	<
Arsenic	.	.	.	.	.	.	.	.
Barium	0.159	0.14	<	<	0.0248	0.0272	0.0269	0.0232
Beryllium	<	<	<	<	<	<	<	<
Boron	0.307	<	3.11	3.12	1.98	2	1.14	1.14
Cadmium (PMS)	<	<	0.00409	0.00309	<	<	<	<
Cadmium	.	.	.	.	.	.	.	.
Chromium	<	<	<	<	<	<	<	<
Cobalt	<	<	<	<	<	<	<	<
Copper	<	<	<	<	<	<	<	<
Iron	2.03	0.238	<	<	<	<	0.476	<
Lead (PMS)	0.00239	<	0.00169	0.00172	<	<	0.00272	<
Lead	.	.	.	.	.	.	.	.
Lithium	0.775	0.347	9.97	9.83	0.946	0.995	0.186	0.175
Manganese	0.0727	0.0515	0.308	0.31	0.0785	0.0768	0.0332	0.0321
Mercury (CVAA)	<	<	<	<	<	<	<	<
Molybdenum	<	<	<	<	<	<	<	<
Nickel	<	<	<	<	<	<	<	<
Selenium (PMS)	<	<	1.25	1.32	0.0188	0.018	<	<
Strontium	1.64	1.62	38.8	38.6	4.55	4.73	7.58	7.58
Uranium (PMS)	<	<	<	<	0.000533	0.000508	<	<
Uranium (KPA)	.	.	.	.	.	.	.	.
Uranium	.	.	.	.	.	.	.	.
Vanadium	<	<	<	<	<	<	<	<
Zinc	0.0579	<	<	<	<	<	0.451	<
ICP Dilution Factor	1	1	20	20	5	5	5	5

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APPENDIX D.1: BEAR CREEK HYDROGEOLOGIC REGIME, 1999
Field Measurements, Miscellaneous Analytes, Major Ions, and Trace Metals

Sampling Point	GW-135-15		GW-135-19		GW-135-23		GW-135-26	
Location	S3		S3		S3		S3	
Date Sampled	09/14/99		09/14/99		09/15/99		09/15/99	
Monitoring Program	GWPP		GWPP		GWPP		GWPP	
Type								
	TOT	DIS	TOT	DIS	TOT	DIS	TOT	DIS
FIELD MEASUREMENTS								
Measuring Pt. Elev. (ft)	.	.	.	.	.	.	.	.
Depth to Water (ft)	.	.	.	.	.	.	.	.
Water-Level Elev. (ft)	.	.	.	.	.	.	.	.
Water Temp. (degrees C)	16.8	.	18	.	17.6	.	17.6	.
pH (standard units)	7.7	.	7.87	.	7.23	.	7.24	.
Conductivity (umho/cm)	478	.	333	.	2950	.	2680	.
Dissolved Oxygen (ppm)	7.36	.	7.77	.	10.41	.	10.65	.
Oxidation/Reduction (mV)	-29	.	-57	.	-43	.	-50	.
MISCELLANEOUS ANALYTES								
pH (standard units)	7.74	.	7.73	.	7.53	.	7.26	.
Conductivity (umho/cm)	438	.	369	.	3400	.	3030	.
Dissolved Solids (mg/L)	336	.	317	.	3390	.	2810	.
Suspended Solids (mg/L)	<	.	<	.	2	.	6	.
Turbidity (NTU)	6.62	.	2.57	.	14.5	.	48.8	.
MAJOR IONS (mg/L)								
Calcium	51.8	52.3	43.3	42.2	540	532	565	573
Magnesium	24.6	24.7	22.6	22	218	216	167	170
Potassium	<	<	<	<	61.1	60.1	22.5	23.6
Sodium	3.51	2.75	1.21	0.977	67.4	65.9	5.28	5.9
Alkalinity-HCO3	208	.	178	.	192	.	222	.
Alkalinity-CO3	<	.	<	.	<	.	<	.
Chloride	4.075	.	2.282	.	3.317	.	2.568	.
Fluoride	1.01	.	0.43	.	1.89	.	1.68	.
Nitrate-N	<	.	<	.	<	.	<	.
Sulfate	9.476	.	14.14	.	2052.187	.	1821.533	.
Ion Charge Balance (RPD)	2.6	.	1.7	.	2.7	.	0.2	.
TRACE METALS (mg/L)								
Aluminum	<	<	<	<	<	<	<	<
Antimony (PMS)	<	<	<	<	<	<	<	<
Arsenic (PMS)	<	<	<	<	<	<	<	<
Arsenic	.	.	.	.	.	.	.	.
Barium	0.273	0.273	0.3	0.296	<	0.0272	0.0141	0.0153
Beryllium	<	<	<	<	<	<	<	<
Boron	<	<	<	<	2.08	2.04	0.931	0.966
Cadmium (PMS)	<	<	<	<	<	<	<	<
Cadmium	.	.	.	.	.	.	.	.
Chromium	<	<	<	<	<	<	<	<
Cobalt	<	<	<	<	<	<	<	<
Copper	<	<	<	<	<	<	<	<
Iron	0.904	0.448	0.237	0.126	1.79	1.25	3.59	3.23
Lead (PMS)	<	<	<	<	0.00183	0.000611	<	<
Lead	.	.	.	.	.	.	.	.
Lithium	<	<	<	<	0.401	0.4	0.222	0.228
Manganese	0.0479	0.0462	0.00945	0.00861	0.0364	0.0333	0.0582	0.0581
Mercury (CVAA)	<	<	<	<	<	<	<	<
Molybdenum	<	<	<	<	<	<	<	<
Nickel	<	<	<	<	<	<	<	<
Selenium (PMS)	<	<	<	<	<	<	<	<
Strontium	0.526	0.539	0.0973	0.0961	8.43	8.21	7.53	7.7
Uranium (PMS)	<	<	0.00101	0.000981	0.000668	0.000694	<	0.000522
Uranium (KPA)	.	.	.	.	.	.	.	.
Uranium	.	.	.	.	.	.	.	.
Vanadium	<	<	<	<	<	<	<	<
Zinc	0.23	<	0.231	<	<	<	<	<
ICP Dilution Factor	1	1	1	1	5	5	2	2

(CONTINUED)

APPENDIX D.1: BEAR CREEK HYDROGEOLOGIC REGIME, 1999
Field Measurements, Miscellaneous Analytes, Major Ions, and Trace Metals

Sampling Point	GW-135-30				GW-135-34		GW-135-39	
Location	S3				S3		S3	
Date Sampled	09/15/99				09/16/99		09/16/99	
Monitoring Program	GWPP				GWPP		GWPP	
Type			DUP					
	TOT	DIS	TOT	DIS	TOT	DIS	TOT	DIS
FIELD MEASUREMENTS								
Measuring Pt. Elev. (ft)	.	.	.	.	.	.	.	.
Depth to Water (ft)	.	.	.	.	.	.	.	.
Water-Level Elev. (ft)	.	.	.	.	.	.	.	.
Water Temp. (degrees C)	16.5	.	.	.	17	.	16.7	.
pH (standard units)	7.69	.	.	.	7.49	.	7.32	.
Conductivity (umho/cm)	495	.	.	.	323	.	301	.
Dissolved Oxygen (ppm)	5.9	.	.	.	6.62	.	9.58	.
Oxidation/Reduction (mV)	93	.	.	.	107	.	106	.
MISCELLANEOUS ANALYTES								
pH (standard units)	8.19	.	8.06	.	7.91	.	7.79	.
Conductivity (umho/cm)	353	.	354	.	345	.	321	.
Dissolved Solids (mg/L)	275	.	246	.	194	.	149	.
Suspended Solids (mg/L)	2	.	1	.	4	.	1	.
Turbidity (NTU)	2.61	.	2.82	.	2.03	.	1.71	.
MAJOR IONS (mg/L)								
Calcium	38.4	39.6	37.5	38.9	37.9	38.2	34.9	34.3
Magnesium	25.2	25.9	24.9	25.3	23.1	23.7	21.1	21.9
Potassium	<	<	<	<	<	<	<	<
Sodium	0.589	0.744	0.434	0.635	0.541	0.705	0.772	0.865
Alkalinity-HCO3	184	.	186	.	188	.	168	.
Alkalinity-CO3	<	.	<	.	<	.	<	.
Chloride	1.076	.	0.896	.	1.371	.	2.016	.
Fluoride	0.35	.	0.34	.	<	.	<	.
Nitrate-N	0.0323	.	0.03411	.	0.134	.	0.2616	.
Sulfate	4.764	.	4.528	.	3.332	.	1.421	.
Ion Charge Balance (RPD)	2.4	.	1.0	.	-0.8	.	0.7	.
TRACE METALS (mg/L)								
Aluminum	<	<	<	<	<	<	<	<
Antimony (PMS)	<	<	<	<	<	<	<	<
Arsenic (PMS)	<	<	<	<	<	<	<	<
Arsenic	.	.	.	.	.	.	.	.
Barium	0.7	0.696	0.708	0.68	0.851	0.841	0.0704	0.0975
Beryllium	<	<	<	<	<	<	<	<
Boron	<	<	<	<	<	<	<	<
Cadmium (PMS)	<	<	<	<	<	<	<	<
Cadmium	.	.	.	.	.	.	.	.
Chromium	<	<	<	<	<	<	<	<
Cobalt	<	<	<	<	<	<	<	<
Copper	<	<	<	<	<	<	<	<
Iron	0.176	<	0.0946	<	<	<	0.06	<
Lead (PMS)	0.00216	<	0.000594	<	0.00626	0.000652	0.000562	<
Lead	.	.	.	.	.	.	.	.
Lithium	<	<	<	<	<	<	<	<
Manganese	<	<	<	<	<	<	<	<
Mercury (CVAA)	<	<	<	<	<	<	<	<
Molybdenum	<	<	<	<	<	<	<	<
Nickel	<	<	<	<	<	<	<	<
Selenium (PMS)	<	<	<	<	<	<	<	<
Strontium	0.0468	0.0602	0.042	0.0598	0.0216	0.0275	0.0114	0.0155
Uranium (PMS)	0.000879	0.00222	0.000892	0.000847	0.00127	0.00115	<	<
Uranium (KPA)	.	.	.	.	.	.	.	.
Uranium	.	.	.	.	.	.	.	.
Vanadium	<	<	<	<	<	<	<	<
Zinc	0.351	<	0.0774	<	0.0578	0.0553	<	<
ICP Dilution Factor	1	1	1	1	1	1	1	1

(CONTINUED)

APPENDIX D.1: BEAR CREEK HYDROGEOLOGIC REGIME, 1999
Field Measurements, Miscellaneous Analytes, Major Ions, and Trace Metals

Sampling Point	GW-226			GW-228	GW-236	GW-242		GW-276
Location	OLF			OLF	S3	BG		S3
Date Sampled	03/18/99	08/31/99		09/09/99	09/08/99	03/08/99		02/04/99
Monitoring Program	GWPP	GWPP		GWPP	GWPP	GWPP		IWQP
Type			DUP					
	TOT	TOT	TOT	TOT	TOT	TOT	DIS	TOT
FIELD MEASUREMENTS								
Measuring Pt. Elev. (ft)	943.40	943.40	.	946.47	983.21	978.12	.	1001.57
Depth to Water (ft)	8.87	18.52	.	14.87	12.61	6.05	.	6.00
Water-Level Elev. (ft)	934.53	924.88	.	931.60	970.60	972.07	.	995.57
Water Temp. (degrees C)	14.9	18.1	.	18.8	21.8	13.4	.	16.4
pH (standard units)	7.1	6.96	.	9.16	4.73	6.12	.	5.67
Conductivity (umho/cm)	947	641	.	314	575	335	.	862
Dissolved Oxygen (ppm)	0.09	0.26	.	1.35	0.63	0.08	.	2.89
Oxidation/Reduction (mV)	144	44	.	63	258	10	.	.
MISCELLANEOUS ANALYTES								
pH (standard units)	7.25	7.68	7.38	9.21	4.93	6.61	.	.
Conductivity (umho/cm)	1049	552	552	327	594	355	.	1000
Dissolved Solids (mg/L)	573	274	306	262	422	232	.	870
Suspended Solids (mg/L)	1	<	<	<	<	23	.	<
Turbidity (NTU)	11.7	3.78	3.71	5.57	0.638	47.1	.	0.19
MAJOR IONS (mg/L)								
Calcium	131	81.8	84	11.7	60.1	39.2	38.9	121
Magnesium	44.1	26.5	27.1	14.4	9.33	13.4	13.1	18.4
Potassium	2.78	5.77	5.24	3.88	3.2	3.02	2.78	11.1
Sodium	19.4	18.5	18.1	18.9	18.7	11.4	11.2	62.1
Alkalinity-HCO3	298	172	172	26	10	134	.	11.9
Alkalinity-CO3	<	<	<	20	<	<	.	.
Chloride	56	28.18	31.46	37.44	21.49	11.4	.	149
Fluoride	0.11	<	<	0.16	0.27	0.22	.	2.6
Nitrate-N	28.6	7.066	10.23	6.112	47.73	0.045	.	86.3
Sulfate	33.5	19.83	24	22.3	37.99	15.1	.	33.7
Ion Charge Balance (RPD)	3.7	16.7	13.9	-3.7	-3.5	4.4	.	-4.1
TRACE METALS (mg/L)								
Aluminum	<	<	<	<	0.945	0.933	<	3.77
Antimony (PMS)	<	<	<	<	<	0.000828	<	.
Arsenic (PMS)	<	<	<	<	<	<	<	.
Arsenic	.	.	.	.	.	.	.	<
Barium	0.199	0.123	0.125	0.0518	0.256	0.12	0.106	0.282
Beryllium	<	<	<	<	0.00235	<	<	0.0047
Boron	0.114	<	<	<	<	<	<	0.0374
Cadmium (PMS)	<	<	<	<	0.00213	<	<	.
Cadmium	.	.	.	.	.	.	.	0.0253
Chromium	<	<	<	<	<	<	<	<
Cobalt	<	<	<	<	<	<	<	0.0857
Copper	<	<	<	<	<	<	<	0.0056
Iron	0.941	0.358	0.214	1.33	<	6.8	5	<
Lead (PMS)	0.00134	<	<	<	<	<	<	.
Lead	.	.	.	.	.	.	.	<
Lithium	0.0176	0.0135	0.0127	0.0156	<	0.119	0.115	0.0175
Manganese	1.05	0.479	0.487	0.0128	2.88	2.34	2.28	4.88
Mercury (CVAA)	<	<	<	<	<	<	<	<
Molybdenum	<	<	<	<	<	<	<	<
Nickel	<	<	<	<	<	<	<	0.219
Selenium (PMS)	<	<	<	<	<	<	<	.
Strontium	0.659	0.403	0.412	0.174	0.157	0.235	0.23	.
Uranium (PMS)	0.0136	0.00765	0.00784	<	0.00696	<	<	.
Uranium (KPA)	.	.	.	.	.	.	.	.
Uranium	.	.	.	.	.	.	.	0.706
Vanadium	<	<	<	<	<	<	<	<
Zinc	<	<	<	<	<	<	<	0.0587
ICP Dilution Factor	1	1	1	1	1	1	1	1

(CONTINUED)

APPENDIX D.1: BEAR CREEK HYDROGEOLOGIC REGIME, 1999
Field Measurements, Miscellaneous Analytes, Major Ions, and Trace Metals

Sampling Point	GW-276	GW-287		GW-311		GW-315		GW-345
Location	S3	BG		RS		SPI		S3
Date Sampled	07/16/99	03/23/99	08/19/99	03/16/99	08/30/99	03/16/99	08/30/99	03/09/99
Monitoring Program	IWQP	GWPP	GWPP	GWPP	GWPP	GWPP	GWPP	GWPP
Type	TOT	TOT	TOT	TOT	TOT	TOT	TOT	TOT
FIELD MEASUREMENTS								
Measuring Pt. Elev. (ft)	1001.57	927.07	927.07	999.65	999.65	1047.48	1047.48	999.46
Depth to Water (ft)	6.85	8.75	9.58	28.50	39.48	49.89	60.79	16.61
Water-Level Elev. (ft)	994.72	918.32	917.49	971.15	960.17	997.59	986.69	982.85
Water Temp. (degrees C)	20.9	11.4	19.1	15.5	18.1	14.6	15.4	12.7
pH (standard units)	2.59	7.02	6.18	7.46	7.52	7.42	7.53	5.19
Conductivity (umho/cm)	1306	219	178	425	424	773	630	106
Dissolved Oxygen (ppm)	0.97	2.91	0.51	3.7	3.16	0.3	0.15	1.81
Oxidation/Reduction (mV)	315	179	180	116	95	184	125	272
MISCELLANEOUS ANALYTES								
pH (standard units)	4.9	7.16	6.26	7.45	7.41	7.34	7.13	5.66
Conductivity (umho/cm)	1020	227	177.9	280	475	777	694	86.6
Dissolved Solids (mg/L)	1000	155	98	241	266	482	444	76
Suspended Solids (mg/L)	<	1	<	<	<	<	<	<
Turbidity (NTU)	.	9.51	2.3	0.354	1.08	0.335	0.097	0.145
MAJOR IONS (mg/L)								
Calcium	83.7	33.5	19.8	85.7	90.7	144	126	5.24
Magnesium	15.6	4.16	3.44	5.75	6	16.2	13.1	2.02
Potassium	10.8	<	<	<	<	3.94	3.7	<
Sodium	70.9	6.1	5.65	2.88	2.76	10.6	9.58	6.98
Alkalinity-HCO3	3.5	106	42	230	246	284	262	22
Alkalinity-CO3	.	<	<	<	<	<	<	<
Chloride	148	2.32	2.655	3.12	1.551	18.4	17.21	4.14
Fluoride	2.6	0.11	<	<	<	<	<	<
Nitrate-N	68	<	<	0.67	0.2905	8.04	9.785	0.48
Sulfate	50.7	8.61	8.479	3.07	3.101	73.8	56.65	8.64
Ion Charge Balance (RPD)	5.1	-1.9	16.4	0.8	0.9	4.5	1.8	-2.2
TRACE METALS (mg/L)								
Aluminum	6.92	2	0.348	<	<	<	<	<
Antimony (PMS)	.	<	<	<	<	<	<	<
Arsenic (PMS)	.	<	<	<	<	<	<	<
Arsenic	<	.	.	.	.	.	.	.
Barium	0.253	0.102	0.0782	0.0191	0.02	0.0706	0.0598	0.0506
Beryllium	0.0076	<	<	<	<	<	<	<
Boron	0.0333	<	<	<	<	<	<	<
Cadmium (PMS)	.	<	<	<	<	0.000519	0.000597	<
Cadmium	0.0286	.	.	.	.	.	.	.
Chromium	<	<	<	<	<	<	<	<
Cobalt	0.116	<	<	<	<	<	<	<
Copper	0.0138	<	<	<	<	<	<	<
Iron	<	0.684	0.151	<	<	<	<	<
Lead (PMS)	.	0.000759	<	<	<	<	<	<
Lead	<	.	.	.	.	.	.	.
Lithium	0.0305	<	<	<	<	<	<	<
Manganese	5.64	<	0.0369	<	<	0.0493	0.0267	0.0297
Mercury (CVAA)	<	<	<	<	<	<	<	<
Molybdenum	<	<	<	<	<	<	<	<
Nickel	0.284	<	<	<	<	<	<	<
Selenium (PMS)	.	<	<	<	<	<	<	<
Strontium	.	0.0633	0.0459	0.0706	0.0766	0.234	0.198	0.0279
Uranium (PMS)	.	<	<	<	0.000668	0.0028	0.00179	<
Uranium (KPA)	0.98562	.	.	.	.	.	.	.
Uranium	1.02	.	.	.	.	.	.	.
Vanadium	<	<	<	<	<	<	<	<
Zinc	0.0878	<	<	<	<	<	<	<
ICP Dilution Factor	1	1	1	1	1	1	1	1

(CONTINUED)

APPENDIX D.1: BEAR CREEK HYDROGEOLOGIC REGIME, 1999
Field Measurements, Miscellaneous Analytes, Major Ions, and Trace Metals

Sampling Point	GW-345	GW-346		GW-526				GW-537
Location	S3	S3		S3				OLF
Date Sampled	03/09/99	03/09/99		03/11/99				03/18/99
Monitoring Program	GWPP	GWPP		GWPP				GWPP
Type						DUP		
	DIS	TOT	DIS	TOT	DIS	TOT	DIS	TOT
FIELD MEASUREMENTS								
Measuring Pt. Elev. (ft)	.	995.65	.	998.25	.	.	.	976.44
Depth to Water (ft)	.	13.79	.	13.10	.	.	.	5.69
Water-Level Elev. (ft)	.	981.86	.	985.15	.	.	.	970.75
Water Temp. (degrees C)	.	9.8	.	7.33	.	.	.	15.3
pH (standard units)	.	7.17	.	6.97	.	.	.	6.76
Conductivity (umho/cm)	.	5190	.	8590	.	.	.	4900
Dissolved Oxygen (ppm)	.	1.09	.	0.22	.	.	.	0.22
Oxidation/Reduction (mV)	.	111	.	288	.	.	.	161
MISCELLANEOUS ANALYTES								
pH (standard units)	.	7.26	.	7.94	.	7.97	.	6.93
Conductivity (umho/cm)	.	6070	.	8910	.	8940	.	5210
Dissolved Solids (mg/L)	.	4440	.	7350	.	7330	.	4140
Suspended Solids (mg/L)	.	<	.	<	.	<	.	<
Turbidity (NTU)	.	0.183	.	4.06	.	4.01	.	0.887
MAJOR IONS (mg/L)								
Calcium	5.06	406	418	161	165	172	164	937
Magnesium	1.88	98.6	101	59.2	60.6	63.4	60.3	68.9
Potassium	<	8.28	8.25	24.4	24.5	26	25	<
Sodium	6.8	49.3	50.1	1810	1850	1940	1840	37.9
Alkalinity-HCO3	.	118	.	50	.	52	.	314
Alkalinity-CO3	.	<	.	<	.	<	.	<
Chloride	.	31.5	.	29.2	.	29.4	.	32.2
Fluoride	.	<	.	<	.	<	.	<
Nitrate-N	.	1005	.	1180	.	1200	.	579
Sulfate	.	15.9	.	2.83	.	2.82	.	3.99
Ion Charge Balance (RPD)	.	-42.1	.	3.4	.	6.0	.	5.3
TRACE METALS (mg/L)								
Aluminum	<	<	<	<	<	<	<	<
Antimony (PMS)	<	<	<	<	<	<	<	<
Arsenic (PMS)	<	<	<	<	<	<	<	<
Arsenic	.	.	.	.	.	.	.	.
Barium	0.0462	0.674	0.709	14.9	15	16	15	2.18
Beryllium	<	<	<	<	<	<	<	<
Boron	<	<	<	0.21	0.228	0.238	0.22	<
Cadmium (PMS)	<	<	<	<	0.000517	0.000571	<	<
Cadmium	.	.	.	.	.	.	.	.
Chromium	<	<	<	<	<	<	<	<
Cobalt	<	<	<	<	<	<	<	<
Copper	<	<	<	<	<	<	<	<
Iron	<	<	<	0.134	<	0.163	<	<
Lead (PMS)	<	<	<	<	<	<	0.00142	0.000811
Lead	.	.	.	.	.	.	.	.
Lithium	<	0.0733	0.0751	0.715	0.733	0.764	0.727	0.0402
Manganese	0.0298	0.116	0.122	0.0375	0.0399	0.0395	0.0369	<
Mercury (CVAA)	<	<	<	<	<	<	<	<
Molybdenum	<	<	<	<	<	<	<	<
Nickel	<	<	<	<	<	<	<	<
Selenium (PMS)	<	<	<	<	<	<	<	<
Strontium	0.0263	9.11	9.4	18.6	19.1	20.1	19	2.57
Uranium (PMS)	<	0.0039	0.00352	<	<	<	<	0.00142
Uranium (KPA)	.	.	.	.	.	.	.	.
Uranium	.	.	.	.	.	.	.	.
Vanadium	<	<	<	<	<	<	<	<
Zinc	<	<	<	<	<	<	<	<
ICP Dilution Factor	1	1	1	1	1	1	1	2

(CONTINUED)

APPENDIX D.1: BEAR CREEK HYDROGEOLOGIC REGIME, 1999
Field Measurements, Miscellaneous Analytes, Major Ions, and Trace Metals

Sampling Point	GW-537	GW-601		GW-621		GW-627		
Location	OLF	OLF		EXP-B		BG		
Date Sampled	08/31/99	03/08/99		02/15/99	08/02/99	03/24/99		08/26/99
Monitoring Program	GWPP	GWPP		GWPP	GWPP	GWPP		GWPP
Type							DUP	
	TOT	TOT	DIS	TOT	TOT	TOT	TOT	TOT
FIELD MEASUREMENTS								
Measuring Pt. Elev. (ft)	976.44	1002.20	.	925.44	925.44	943.65	.	943.65
Depth to Water (ft)	7.84	64.55	.	11.89	13.71	22.47	.	23.91
Water-Level Elev. (ft)	968.60	937.65	.	913.55	911.73	921.18	.	919.74
Water Temp. (degrees C)	16.8	11.7	.	13.5	16.6	15.2	.	18
pH (standard units)	6.63	7.79	.	7.82	7.81	9.63	.	9.4
Conductivity (umho/cm)	4680	849	.	350	354	1168	.	1082
Dissolved Oxygen (ppm)	0.22	0.82	.	4.32	2.28	0.1	.	0.21
Oxidation/Reduction (mV)	97	21	.	186	149	-145	.	-244
MISCELLANEOUS ANALYTES								
pH (standard units)	6.9	7.72	.	8.06	7.8	9.27	9.27	9.3
Conductivity (umho/cm)	5470	1000	.	331	347	1249	1243	1268
Dissolved Solids (mg/L)	4210	560	.	194	210	731	728	725
Suspended Solids (mg/L)	<	2	.	16	13	<	<	<
Turbidity (NTU)	1.08	16.4	.	36.3	38.3	0.868	0.857	0.325
MAJOR IONS (mg/L)								
Calcium	964	88	89.8	54.5	53.3	1.29	1.3	1.37
Magnesium	66.6	46.7	47.5	9.41	9.3	0.237	0.235	0.252
Potassium	<	2.86	2.67	<	<	<	<	<
Sodium	37.1	46	47.2	2.04	1.5	296	297	302
Alkalinity-HCO3	292	198	.	166	166	520	520	462
Alkalinity-CO3	<	<	.	<	<	80	80	112
Chloride	29.34	75.6	.	3.49	2.72	43.1	41.8	43.57
Fluoride	<	0.51	.	<	<	4.84	5.16	5.08
Nitrate-N	897.2	14	.	1.71	1.621	<	<	<
Sulfate	3.489	49.3	.	2.6	2.333	14.7	14.2	13.83
Ion Charge Balance (RPD)	-12.4	11.7	.	-0.1	-1.0	-3.2	-2.9	-0.2
TRACE METALS (mg/L)								
Aluminum	<	<	<	2.2	1.72	<	<	<
Antimony (PMS)	<	<	<	<	<	<	<	<
Arsenic (PMS)	<	<	<	<	<	<	<	<
Arsenic	.	.	.	.	.	.	.	.
Barium	2.2	0.0891	0.0883	0.0297	0.0292	0.0446	0.0449	0.0471
Beryllium	<	<	<	<	<	<	<	<
Boron	<	0.119	0.119	<	<	0.478	0.483	0.474
Cadmium (PMS)	<	<	<	<	<	<	<	<
Cadmium	.	.	.	.	.	.	.	.
Chromium	<	<	<	0.0229	<	<	<	<
Cobalt	<	<	<	<	<	<	<	<
Copper	<	<	<	<	<	<	<	<
Iron	<	1.44	<	2.22	2.21	0.191	0.0985	0.1
Lead (PMS)	<	<	<	0.002	0.00194	0.000589	<	<
Lead	.	.	.	.	.	.	.	.
Lithium	0.0387	0.037	0.0359	<	<	0.0874	0.087	0.0884
Manganese	<	0.192	0.192	0.0924	0.109	0.0148	0.0138	0.0133
Mercury (CVAA)	<	<	<	<	<	<	<	<
Molybdenum	<	<	<	<	<	<	<	<
Nickel	<	<	<	<	<	<	<	<
Selenium (PMS)	<	<	<	<	<	<	<	<
Strontium	2.55	1.48	1.5	0.0604	0.0601	0.0884	0.0893	0.091
Uranium (PMS)	0.00127	<	<	0.0013	0.000773	<	<	<
Uranium (KPA)	.	.	.	.	.	.	.	.
Uranium	.	.	.	.	.	.	.	.
Vanadium	<	<	<	<	<	<	<	<
Zinc	<	<	<	<	<	<	<	<
ICP Dilution Factor	2	1	1	1	1	1	1	1

(CONTINUED)

APPENDIX D.1: BEAR CREEK HYDROGEOLOGIC REGIME, 1999
Field Measurements, Miscellaneous Analytes, Major Ions, and Trace Metals

Sampling Point	GW-653		GW-683		GW-684		GW-685	
Location	BG		EXP-A		EXP-A		EXP-A	
Date Sampled	03/23/99	08/19/99	02/11/99	07/29/99	02/10/99	07/29/99	02/09/99	07/28/99
Monitoring Program	GWPP	GWPP	GWPP	GWPP	GWPP	GWPP	GWPP	GWPP
Type	TOT	TOT	TOT	TOT	TOT	TOT	TOT	TOT
FIELD MEASUREMENTS								
Measuring Pt. Elev. (ft)	931.80	931.80	972.26	972.26	898.86	898.86	891.51	891.51
Depth to Water (ft)	19.39	22.16	88.71	88.80	15.46	15.55	8.33	7.80
Water-Level Elev. (ft)	912.41	909.64	883.55	883.46	883.40	883.31	883.18	883.71
Water Temp. (degrees C)	13.8	15.1	13.3	14.4	13.4	14.2	15.2	19.9
pH (standard units)	5.52	5.58	7.6	6.52	7.77	7.41	7.43	6.81
Conductivity (umho/cm)	35	42	400	340	474	386	715	756
Dissolved Oxygen (ppm)	4.44	2.66	3.6	2.05	0.32	0.38	3.62	0.95
Oxidation/Reduction (mV)	263	218	135	82	190	168	57	9
MISCELLANEOUS ANALYTES								
pH (standard units)	5.35	5.51	7.63	7.59	7.76	7.72	7.47	7.37
Conductivity (umho/cm)	32	43.3	410	388	473	413	834	842
Dissolved Solids (mg/L)	53	32	274	215	253	236	447	509
Suspended Solids (mg/L)	<	<	<	<	<	<	5	1
Turbidity (NTU)	0.323	0.163	0.377	0.414	0.754	1.67	35.6	22
MAJOR IONS (mg/L)								
Calcium	2.16	2.03	50.5	45.5	58.3	50.4	95.5	93.7
Magnesium	1.12	1.09	15.8	18.5	19.1	17.7	30	28.4
Potassium	<	<	<	<	7.33	7.19	<	<
Sodium	2.04	2.21	6.5	3.35	6.86	5.71	36.9	40.6
Alkalinity-HCO3	16	10	158	158	202	190	314	310
Alkalinity-CO3	<	<	<	<	<	<	<	<
Chloride	0.87	0.984	12.6	4.586	17.4	10.38	82.2	71.97
Fluoride	<	<	0.15	0.11	0.21	0.18	0.13	<
Nitrate-N	<	0.04766	4.88	1.692	4.13	0.9878	2.44	1.985
Sulfate	1.44	1.464	18	13.24	14.5	10.74	24.3	23.2
Ion Charge Balance (RPD)	-12.4	5.1	-1.7	3.3	-1.7	0.1	-2.4	-0.4
TRACE METALS (mg/L)								
Aluminum	<	<	<	<	<	<	<	<
Antimony (PMS)	<	<	<	<	<	<	<	<
Arsenic (PMS)	<	<	<	<	<	<	<	<
Arsenic	.	.	.	.	.	.	.	.
Barium	0.0334	0.0333	0.0873	0.114	0.0968	0.089	0.103	0.106
Beryllium	<	<	<	<	<	<	<	<
Boron	<	<	<	<	<	<	<	<
Cadmium (PMS)	<	<	<	<	<	<	<	<
Cadmium	.	.	.	.	.	.	.	.
Chromium	<	<	<	<	<	<	<	<
Cobalt	<	<	<	<	<	<	<	<
Copper	<	<	<	<	<	<	<	<
Iron	<	<	<	<	<	0.119	1.74	2.51
Lead (PMS)	<	<	<	<	<	<	<	<
Lead	.	.	.	.	.	.	.	.
Lithium	<	<	<	<	0.0253	0.0278	<	<
Manganese	<	<	<	<	0.0157	0.0138	0.161	0.16
Mercury (CVAA)	<	<	<	<	<	<	<	<
Molybdenum	<	<	<	<	<	<	<	<
Nickel	<	<	<	<	<	<	<	<
Selenium (PMS)	<	<	<	<	<	<	<	<
Strontium	0.0187	0.0174	0.0974	0.0964	0.119	0.108	0.13	0.131
Uranium (PMS)	<	<	0.0446	0.0247	0.0285	0.0178	0.0066	0.00643
Uranium (KPA)	.	.	.	.	.	.	.	.
Uranium	.	.	.	.	.	.	.	.
Vanadium	<	<	<	<	<	<	<	<
Zinc	<	<	<	<	<	<	<	<
ICP Dilution Factor	1	1	1	1	1	1	1	1

(CONTINUED)

APPENDIX D.1: BEAR CREEK HYDROGEOLOGIC REGIME, 1999
Field Measurements, Miscellaneous Analytes, Major Ions, and Trace Metals

Sampling Point	GW-695		GW-703		GW-704			GW-706
Location	EXP-B		EXP-B		EXP-B			EXP-B
Date Sampled	02/15/99	08/02/99	02/16/99	08/03/99	02/02/99	02/16/99	08/04/99	02/02/99
Monitoring Program	GWPP	GWPP	GWPP	GWPP	IWQP	GWPP	GWPP	IWQP
Type	TOT	TOT	TOT	TOT	TOT	TOT	TOT	TOT
FIELD MEASUREMENTS								
Measuring Pt. Elev. (ft)	939.57	939.57	954.69	954.69	944.73	944.73	944.73	929.47
Depth to Water (ft)	27.09	28.78	41.09	39.54	30.30	33.10	35.22	13.46
Water-Level Elev. (ft)	912.48	910.79	913.60	915.15	914.43	911.63	909.51	916.01
Water Temp. (degrees C)	11.6	18	10.9	18.1	12.48	13.4	14.9	13.74
pH (standard units)	7.78	7.43	8	7.56	8.11	7.69	8.03	7.03
Conductivity (umho/cm)	543	468	579	539	0.384	604	410	0.835
Dissolved Oxygen (ppm)	3.56	2.28	0.34	1.64	8.42	0.3	1.08	6.31
Oxidation/Reduction (mV)	152	91	206	154	.	163	162	.
MISCELLANEOUS ANALYTES								
pH (standard units)	8.04	7.77	8.09	7.84	.	7.81	8.02	.
Conductivity (umho/cm)	543	518	573	625	.	639	509	.
Dissolved Solids (mg/L)	274	276	280	386	.	328	298	.
Suspended Solids (mg/L)	<	<	2	<	.	<	<	.
Turbidity (NTU)	0.905	0.615	9.05	0.658	.	0.693	5.12	.
MAJOR IONS (mg/L)								
Calcium	61	53.1	52.8	61.5	.	68.6	35.7	.
Magnesium	30.1	25.1	29.1	29.6	.	31.6	29	.
Potassium	2.45	2.36	8.62	6.68	.	3.17	13.4	.
Sodium	7.26	6.47	10.1	11.1	.	11.8	13.2	.
Alkalinity-HCO3	224	200	196	202	.	222	174	.
Alkalinity-CO3	<	<	<	<	.	<	<	.
Chloride	15	10.74	17.1	19.02	.	27.8	21.28	.
Fluoride	<	<	0.16	0.14	.	0.18	0.14	.
Nitrate-N	10.7	9.144	0.98	9.399	.	14.7	7.197	.
Sulfate	11.9	10.66	22.4	22.6	.	20.7	20.99	.
Ion Charge Balance (RPD)	-0.1	-1.2	7.0	3.7	.	-0.7	0.5	.
TRACE METALS (mg/L)								
Aluminum	<	<	<	<	.	<	<	.
Antimony (PMS)	<	<	<	<	.	<	<	.
Arsenic (PMS)	<	<	<	<	.	<	<	.
Arsenic	.	.	.	.	.	.	.	.
Barium	0.0474	0.0406	0.0569	0.0742	.	0.104	0.07	.
Beryllium	<	<	<	<	.	<	<	.
Boron	<	<	<	<	.	<	<	.
Cadmium (PMS)	<	<	<	<	.	<	<	.
Cadmium	.	.	.	.	.	.	.	.
Chromium	<	<	<	<	.	<	<	.
Cobalt	<	<	<	<	.	<	<	.
Copper	<	<	<	<	.	<	<	.
Iron	<	<	1.13	0.109	.	0.0883	0.539	.
Lead (PMS)	<	<	0.0009	<	.	<	0.000572	.
Lead	.	.	.	.	.	.	.	.
Lithium	0.011	<	0.0262	0.0243	.	0.0174	0.0244	.
Manganese	<	<	0.0716	0.0493	.	0.013	0.0232	.
Mercury (CVAA)	<	<	<	<	.	<	<	.
Molybdenum	<	<	<	<	.	<	<	.
Nickel	<	<	<	<	.	<	<	.
Selenium (PMS)	<	<	<	<	.	<	<	.
Strontium	0.0927	0.0813	0.206	0.237	.	0.327	0.182	.
Uranium (PMS)	0.0031	0.00323	0.0039	0.00366	.	0.0053	0.00217	.
Uranium (KPA)	.	.	.	.	.	.	.	.
Uranium	.	.	.	.	.	.	.	.
Vanadium	<	<	<	<	.	<	<	.
Zinc	<	<	<	<	.	<	<	.
ICP Dilution Factor	1	1	1	1	1	1	1	1

(CONTINUED)

APPENDIX D.1: BEAR CREEK HYDROGEOLOGIC REGIME, 1999
Field Measurements, Miscellaneous Analytes, Major Ions, and Trace Metals

Sampling Point	GW-706			GW-712		GW-713		GW-714
Location	EXP-B			EXP-W		EXP-W		EXP-W
Date Sampled	02/17/99		08/04/99	01/25/99	07/01/99	01/26/99	07/19/99	01/26/99
Monitoring Program	GWPP		GWPP	IWQP	IWQP	IWQP	IWQP	IWQP
Type		DUP						
	TOT	TOT	TOT	TOT	TOT	TOT	TOT	TOT
FIELD MEASUREMENTS								
Measuring Pt. Elev. (ft)	929.47	.	929.47	877.89	877.89	881.43	881.43	875.88
Depth to Water (ft)	15.07	.	18.17	32.26	33.20	36.33	37.25	28.26
Water-Level Elev. (ft)	914.40	.	911.30	845.63	844.69	845.10	844.18	847.62
Water Temp. (degrees C)	13.6	.	15.9	12.9	15	10.4	18.5	12.8
pH (standard units)	6.43	.	7.42	8.17	7.84	7.95	7.53	7.8
Conductivity (umho/cm)	899	.	705	354	384	367	504	295
Dissolved Oxygen (ppm)	0.1	.	0.75	0.18	0.37	1.14	0.8	0.92
Oxidation/Reduction (mV)	263	.	129	.	-262	.	-184	.
MISCELLANEOUS ANALYTES								
pH (standard units)	7.69	7.78	7.7	.	7.8	.	7.7	.
Conductivity (umho/cm)	895	908	698	510	439	542	542	475
Dissolved Solids (mg/L)	507	504	493	300	280	340	390	230
Suspended Solids (mg/L)	<	<	<	8.2	<	<	16	<
Turbidity (NTU)	0.648	0.666	1.67	37.4	.	43.6	.	42.4
MAJOR IONS (mg/L)								
Calcium	111	111	101	42.2	26.6	56.7	63.8	66.6
Magnesium	24.2	24.3	22.6	32.8	32.6	25	32.8	33.5
Potassium	8.06	8.16	6.94	2.24	2.15	1.73	2.78	2.81
Sodium	19.7	19.7	15.8	14.8	15.7	4.36	11.8	11.8
Alkalinity-HCO3	194	194	214	147	128	190	189	194
Alkalinity-CO3	<	<	<	.	.	.	.	.
Chloride	52.9	52.9	38.68	15.6	15	15.7	14.2	10.5
Fluoride	0.32	0.32	0.28	0.36	0.3	0.57	0.61	0.24
Nitrate-N	44.6	44.2	25.95	<	0.05	<	0.02	1.5
Sulfate	36.2	36.1	25.25	107	92.4	104	111	26.1
Ion Charge Balance (RPD)	-4.1	-3.9	0.0	-1.1	-1.8	-11.4	-0.4	15.9
TRACE METALS (mg/L)								
Aluminum	<	<	<	<	<	<	<	<
Antimony (PMS)	<	<	<	.	.	.	.	.
Arsenic (PMS)	<	<	<	.	.	.	.	.
Arsenic	.	.	.	<	<	<	<	<
Barium	0.167	0.166	0.151	0.0254	0.0179	0.0543	0.0423	0.0438
Beryllium	<	<	<	<	<	<	<	<
Boron	<	<	<	0.0826	0.0814	0.0669	0.0684	0.069
Cadmium (PMS)	<	<	<	.	.	.	.	.
Cadmium	.	.	.	<	<	<	<	<
Chromium	<	<	<	<	<	<	<	<
Cobalt	<	<	<	<	<	<	<	<
Copper	<	<	<	<	<	<	<	<
Iron	0.369	0.263	0.397	4.82	3.4	2.53	3.12	3.66
Lead (PMS)	<	<	<	.	.	.	.	.
Lead	.	.	.	<	<	<	<	<
Lithium	0.0213	0.0213	0.0229	0.0158	0.0155	<	0.0152	0.0158
Manganese	0.00601	<	<	0.305	0.338	0.0974	0.108	0.114
Mercury (CVAA)	<	<	<	<	<	<	<	<
Molybdenum	<	<	<	<	<	<	<	<
Nickel	<	<	<	<	<	<	<	<
Selenium (PMS)	<	<	<	.	.	.	.	.
Strontium	0.435	0.433	0.416	.	.	.	.	.
Uranium (PMS)	0.113	0.112	0.0942	.	.	.	.	.
Uranium (KPA)	.	.	.	.	<	.	<	.
Uranium	.	.	.	<	<	<	<	<
Vanadium	<	<	<	<	<	<	<	<
Zinc	<	<	<	<	<	<	<	<
ICP Dilution Factor	1	1	1	1	1	1	1	1

(CONTINUED)

APPENDIX D.1: BEAR CREEK HYDROGEOLOGIC REGIME, 1999
Field Measurements, Miscellaneous Analytes, Major Ions, and Trace Metals

Sampling Point	GW-714	GW-715			GW-724		GW-725	
Location	EXP-W	EXP-W			EXP-C		EXP-C	
Date Sampled	07/15/99	02/04/99	07/15/99		02/22/99	08/09/99	02/22/99	08/09/99
Monitoring Program	IWQP	IWQP	IWQP		GWPP	GWPP	GWPP	GWPP
Type				DUP				
	TOT	TOT	TOT	TOT	TOT	TOT	TOT	TOT
FIELD MEASUREMENTS								
Measuring Pt. Elev. (ft)	875.88	874.92	874.92	.	979.27	979.27	961.05	961.05
Depth to Water (ft)	25.12	27.68	24.01	.	28.71	31.03	9.91	11.90
Water-Level Elev. (ft)	850.76	847.24	850.91	.	950.56	948.24	951.14	949.15
Water Temp. (degrees C)	19.3	13	16.3	.	13.6	14.9	13.5	14.9
pH (standard units)	6.56	6.83	6.05	.	7.64	7.48	7.19	7.1
Conductivity (umho/cm)	382	398	490	.	889	781	930	911
Dissolved Oxygen (ppm)	3.1	5.5	5.01	.	1.8	0.3	0.05	0.4
Oxidation/Reduction (mV)	222	.	131	.	211	129	114	139
MISCELLANEOUS ANALYTES								
pH (standard units)	7.9	.	7.1	7.1	8.04	7.45	7.84	7.07
Conductivity (umho/cm)	406	476	524	526	929	918	1053	1067
Dissolved Solids (mg/L)	270	330	330	330	532	523	642	696
Suspended Solids (mg/L)	8.9	<	<	<	4	<	<	<
Turbidity (NTU)	.	0.84	.	.	8.5	7.01	0.775	4.66
MAJOR IONS (mg/L)								
Calcium	55.9	87	75.1	73.8	94.1	91.7	163	158
Magnesium	23	12.1	11.3	11.2	41.6	38.5	25.1	25.8
Potassium	1.41	1.83	1.51	1.51	2.2	2.14	3.17	3.04
Sodium	4.11	22.6	27.3	26.5	26.8	26.5	26.9	25.6
Alkalinity-HCO3	195	215	206	204	230	222	338	332
Alkalinity-CO3	.	.	.	.	<	<	<	<
Chloride	11.5	56.9	54.2	54.2	92.8	69.96	85.2	63.71
Fluoride	0.23	0.1	<	<	0.2	0.17	0.23	0.18
Nitrate-N	1.8	<	0.54	0.55	30.6	24.96	22.8	22.09
Sulfate	27.4	8.6	11.2	11.1	26.3	26.92	46.7	40.1
Ion Charge Balance (RPD)	-0.4	2.3	-0.1	-0.7	-3.2	1.1	-1.4	1.6
TRACE METALS (mg/L)								
Aluminum	<	<	<	<	<	<	<	<
Antimony (PMS)	.	.	.	.	0.000585	<	<	<
Arsenic (PMS)	.	.	.	.	<	<	<	<
Arsenic	<	<	<	<	.	.	.	.
Barium	0.0588	0.085	0.0816	0.0811	0.172	0.169	0.233	0.241
Beryllium	<	<	<	<	<	<	<	<
Boron	0.0619	0.0238	0.015	0.0133	<	<	<	<
Cadmium (PMS)	.	.	.	.	<	<	<	<
Cadmium	<	<	<	<	.	.	.	.
Chromium	<	0.0249	0.0489	0.0497	<	<	<	<
Cobalt	<	<	<	<	<	<	<	<
Copper	<	<	<	<	<	<	<	<
Iron	4.47	0.292	0.407	0.382	2.27	0.888	0.429	0.426
Lead (PMS)	.	.	.	.	<	<	<	<
Lead	<	<	<	<	.	.	.	.
Lithium	<	<	<	<	0.0175	0.0182	<	<
Manganese	0.0495	0.0074	0.0236	0.0223	0.0183	0.0117	0.785	0.629
Mercury (CVAA)	<	<	<	<	<	<	<	<
Molybdenum	<	<	<	<	<	<	<	<
Nickel	<	0.0865	0.152	0.15	<	<	<	<
Selenium (PMS)	.	.	.	.	<	<	<	<
Strontium	.	.	.	.	1.25	1.24	0.386	0.451
Uranium (PMS)	.	.	.	.	0.000556	0.00128	0.0089	0.0078
Uranium (KPA)	<	.	<	<	.	.	.	.
Uranium	<	<	<	<	.	.	.	.
Vanadium	<	<	<	<	<	<	<	<
Zinc	<	<	<	<	<	<	<	<
ICP Dilution Factor	1	1	1	1	1	1	1	1

(CONTINUED)

APPENDIX D.1: BEAR CREEK HYDROGEOLOGIC REGIME, 1999
Field Measurements, Miscellaneous Analytes, Major Ions, and Trace Metals

Sampling Point	GW-725	GW-726-02		GW-726-04		GW-726-06		GW-726-09
Location	EXP-C	BG		BG		BG		BG
Date Sampled	08/09/99	06/01/99		06/08/99		06/08/99		06/09/99
Monitoring Program	GWPP	GWPP		GWPP		GWPP		GWPP
Type	DUP							
	TOT	TOT	DIS	TOT	DIS	TOT	DIS	TOT
FIELD MEASUREMENTS								
Measuring Pt. Elev. (ft)	.	.	.	.	.	.	.	.
Depth to Water (ft)	.	.	.	.	.	.	.	.
Water-Level Elev. (ft)	.	.	.	.	.	.	.	.
Water Temp. (degrees C)	.	18.1	.	17.6	.	24.7	.	17.1
pH (standard units)	.	7.31	.	7.59	.	7.84	.	7.98
Conductivity (umho/cm)	.	5070	.	483	.	3000	.	2240
Dissolved Oxygen (ppm)	.	8.3	.	5.26	.	4.21	.	7.61
Oxidation/Reduction (mV)	.	179	.	186	.	170	.	114
MISCELLANEOUS ANALYTES								
pH (standard units)	7.09	8.44	.	8.56	.	8.52	.	8.67
Conductivity (umho/cm)	1064	5630	.	5400	.	3280	.	2640
Dissolved Solids (mg/L)	702	3130	.	3070	.	1900	.	1570
Suspended Solids (mg/L)	<	3	.	<	.	<	.	<
Turbidity (NTU)	4.54	16.2	.	0.63	.	0.959	.	4.07
MAJOR IONS (mg/L)								
Calcium	158	9.89	9.75	8.07	7.81	3.64	3.91	2.82
Magnesium	25.8	2.73	2.67	2.37	2.27	1.03	1.09	0.757
Potassium	3.1	7.21	6.09	5.71	5.44	3.55	4.12	2.93
Sodium	25.5	1230	1210	1160	1120	755	794	627
Alkalinity-HCO3	330	414	.	476	.	630	.	698
Alkalinity-CO3	<	60	.	36	.	104	.	84
Chloride	62.51	1556	.	1333	.	590	.	348
Fluoride	0.18	3.08	.	3.14	.	5.28	.	5.32
Nitrate-N	22.52	<	.	<	.	<	.	<
Sulfate	39.96	0.38	.	1.77	.	45.75	.	37.44
Ion Charge Balance (RPD)	1.8	0.8	.	3.2	.	1.0	.	1.9
TRACE METALS (mg/L)								
Aluminum	<	<	<	<	<	<	<	DUP OUT
Antimony (PMS)	<	<	<	<	<	<	<	<
Arsenic (PMS)	<	0.0295	0.0326	0.0123	0.0146	0.0121	<	<
Arsenic	.	.	.	.	.	.	.	.
Barium	0.24	0.411	0.381	0.361	0.322	0.14	0.144	0.0962
Beryllium	<	<	<	<	<	<	<	<
Boron	<	0.326	0.32	0.342	0.327	0.393	0.411	0.477
Cadmium (PMS)	<	0.000698	0.000914	<	<	<	<	<
Cadmium	.	.	.	.	.	.	.	.
Chromium	<	<	<	<	<	<	<	<
Cobalt	<	<	<	<	<	<	<	<
Copper	<	<	0.022	<	<	<	<	<
Iron	0.797	0.468	0.0682	0.19	<	0.105	0.0667	0.0665
Lead (PMS)	<	<	0.00135	<	<	0.000634	0.00054	0.000585
Lead	.	.	.	.	.	.	.	.
Lithium	<	0.438	0.442	0.421	0.407	0.289	0.305	0.272
Manganese	0.631	0.00934	0.00743	0.00736	0.00575	<	<	<
Mercury (CVAA)	<	<	<	<	<	<	<	<
Molybdenum	<	<	<	<	<	<	<	<
Nickel	<	<	<	<	<	<	<	<
Selenium (PMS)	<	0.159	0.176	0.0687	0.0793	0.0665	0.0704	0.0569
Strontium	0.45	1.13	1.1	0.966	0.912	0.436	0.457	0.314
Uranium (PMS)	0.00796	<	<	0.0363	0.00212	0.000862	<	<
Uranium (KPA)	.	.	.	.	.	.	.	.
Uranium	.	.	.	.	.	.	.	.
Vanadium	<	<	<	<	<	<	<	<
Zinc	<	0.0753	<	<	<	0.065	<	0.0768
ICP Dilution Factor	1	1	1	1	1	1	1	1

(CONTINUED)

APPENDIX D.1: BEAR CREEK HYDROGEOLOGIC REGIME, 1999
Field Measurements, Miscellaneous Analytes, Major Ions, and Trace Metals

Sampling Point	GW-726-09			GW-726-12		GW-726-16		GW-726-20
Location	BG			BG		BG		BG
Date Sampled	06/09/99			06/09/99		06/10/99		06/10/99
Monitoring Program	GWPP			GWPP		GWPP		GWPP
Type		DUP						
	DIS	TOT	DIS	TOT	DIS	TOT	DIS	TOT
FIELD MEASUREMENTS								
Measuring Pt. Elev. (ft)	.	.	.	.	.	.	.	.
Depth to Water (ft)	.	.	.	.	.	.	.	.
Water-Level Elev. (ft)	.	.	.	.	.	.	.	.
Water Temp. (degrees C)	.	.	.	18.9	.	15.7	.	17.6
pH (standard units)	.	.	.	7.47	.	8.11	.	8.65
Conductivity (umho/cm)	.	.	.	1983	.	1313	.	838
Dissolved Oxygen (ppm)	.	.	.	6.81	.	5.65	.	5.8
Oxidation/Reduction (mV)	.	.	.	128	.	137	.	40
MISCELLANEOUS ANALYTES								
pH (standard units)	.	8.66	.	8.8	.	9.02	.	9.23
Conductivity (umho/cm)	.	2630	.	1712	.	1358	.	862
Dissolved Solids (mg/L)	.	1580	.	1210	.	880	.	582
Suspended Solids (mg/L)	.	<	.	<	.	3	.	<
Turbidity (NTU)	.	3.97	.	3.41	.	9.24	.	3.92
MAJOR IONS (mg/L)								
Calcium	2.96	10.6	2.99	2.63	1.8	1.39	1.35	1.04
Magnesium	0.773	0.936	0.772	0.498	0.478	0.338	0.274	0.234
Potassium	2.94	3.2	3.06	2.46	2.43	2.46	2.43	2.02
Sodium	615	633	629	483	470	345	340	210
Alkalinity-HCO3	.	750	.	684	.	528	.	384
Alkalinity-CO3	.	32	.	52	.	92	.	28
Chloride	.	371	.	157	.	34.83	.	5.02
Fluoride	.	5.44	.	6.48	.	6.08	.	2.46
Nitrate-N	.	<	.	<	.	<	.	<
Sulfate	.	36.69	.	45.87	.	47.36	.	16.81
Ion Charge Balance (RPD)	.	1.9	.	1.9	.	1.6	.	2.2
TRACE METALS (mg/L)								
Aluminum	<	DUP OUT	<	0.456	<	0.477	<	0.209
Antimony (PMS)	<	<	<	<	<	<	<	<
Arsenic (PMS)	<	<	<	<	<	<	<	<
Arsenic	.	.	.	.	.	.	.	.
Barium	0.0982	0.105	0.1	0.063	0.0609	0.0558	0.0524	0.0335
Beryllium	<	<	<	<	<	<	<	<
Boron	0.466	0.817	0.478	0.68	0.637	0.891	0.873	1.07
Cadmium (PMS)	<	<	<	<	<	<	<	<
Cadmium	.	.	.	.	.	.	.	.
Chromium	<	<	<	<	<	<	<	<
Cobalt	<	<	<	<	<	<	<	<
Copper	<	<	<	<	<	<	<	<
Iron	DUP OUT	0.184	DUP OUT	0.0999	<	0.246	<	0.161
Lead (PMS)	0.000613	0.00368	0.00105	0.000917	0.000541	0.000627	<	0.000509
Lead	.	.	.	.	.	.	.	.
Lithium	0.263	1.06	0.271	0.314	0.24	0.17	0.171	0.104
Manganese	<	<	0.0103	<	<	<	<	<
Mercury (CVAA)	<	<	<	<	<	<	<	<
Molybdenum	<	<	<	<	<	<	<	<
Nickel	<	<	<	<	<	<	<	<
Selenium (PMS)	0.0522	0.0236	0.0267	0.0214	0.0108	<	<	<
Strontium	0.319	0.393	0.329	0.21	0.2	0.119	0.118	0.073
Uranium (PMS)	<	<	<	<	<	0.000949	0.00076	<
Uranium (KPA)	.	.	.	.	.	.	.	.
Uranium	.	.	.	.	.	.	.	.
Vanadium	<	<	<	<	<	<	<	<
Zinc	<	<	<	0.133	<	0.109	<	0.0694
ICP Dilution Factor	1	1	1	1	1	1	1	1

(CONTINUED)

APPENDIX D.1: BEAR CREEK HYDROGEOLOGIC REGIME, 1999
Field Measurements, Miscellaneous Analytes, Major Ions, and Trace Metals

Sampling Point	GW-726-20	GW-726-23		GW-738		GW-740		GW-829
Location	BG	BG		EXP-C		EXP-C		OLF
Date Sampled	06/10/99	06/10/99		02/18/99	08/05/99	02/18/99	08/05/99	03/17/99
Monitoring Program	GWPP	GWPP		GWPP	GWPP	GWPP	GWPP	GWPP
Type	DIS	TOT	DIS	TOT	TOT	TOT	TOT	TOT
FIELD MEASUREMENTS								
Measuring Pt. Elev. (ft)	.	.	.	983.08	983.08	1019.60	1019.60	985.98
Depth to Water (ft)	.	.	.	28.53	29.78	69.75	71.23	12.85
Water-Level Elev. (ft)	.	.	.	954.55	953.30	949.85	948.37	973.13
Water Temp. (degrees C)	.	19.4	.	14.2	16.3	13.1	14.3	16.2
pH (standard units)	.	8.22	.	7.32	6.73	7.48	7.35	8.69
Conductivity (umho/cm)	.	422	.	811	663	544	503	566
Dissolved Oxygen (ppm)	.	1.71	.	0.29	7.06	2.97	1.16	2.2
Oxidation/Reduction (mV)	.	131	.	147	185	208	179	177
MISCELLANEOUS ANALYTES								
pH (standard units)	.	9.03	.	7.11	7.3	7.4	7.6	8.87
Conductivity (umho/cm)	.	426	.	802	710	530	532	623
Dissolved Solids (mg/L)	.	286	.	475	475	305	329	396
Suspended Solids (mg/L)	.	5	.	<	<	<	<	<
Turbidity (NTU)	.	5.96	.	0.347	0.217	0.245	1.2	0.818
MAJOR IONS (mg/L)								
Calcium	1.1	1.93	1.52	127	116	64.5	66.5	16.4
Magnesium	0.204	0.596	0.467	25	25.7	33.5	31	5.6
Potassium	<	2.08	2.03	2.21	2.02	<	<	5.04
Sodium	216	105	105	8.28	6.77	1.85	1.96	114
Alkalinity-HCO3	.	208	.	320	326	268	262	164
Alkalinity-CO3	.	<	.	<	<	<	<	36
Chloride	.	0.88	.	18.1	12.08	6.41	5.132	3.43
Fluoride	.	0.45	.	<	<	0.22	0.18	0.42
Nitrate-N	.	<	.	19.3	10.31	2.19	2.512	3.17
Sulfate	.	7.44	.	31.8	26.35	12.1	11.04	15
Ion Charge Balance (RPD)	.	4.4	.	-0.8	0.7	0.8	1.3	15.5
TRACE METALS (mg/L)								
Aluminum	<	0.277	<	<	<	<	<	<
Antimony (PMS)	<	<	<	<	<	<	<	0.00077
Arsenic (PMS)	<	<	<	<	<	<	<	<
Arsenic	.	.	.	.	.	.	.	.
Barium	0.0322	0.0627	0.0538	0.0588	0.0492	0.0893	0.0895	0.488
Beryllium	<	<	<	<	<	<	<	<
Boron	1.09	0.538	0.536	<	<	<	<	0.278
Cadmium (PMS)	0.000658	<	<	<	<	<	<	<
Cadmium	.	.	.	.	.	.	.	.
Chromium	<	<	<	<	<	<	<	<
Cobalt	<	<	<	<	<	<	<	<
Copper	<	<	<	<	<	<	<	<
Iron	<	0.327	<	<	<	<	0.0845	<
Lead (PMS)	<	0.000759	<	<	<	0.0014	<	<
Lead	.	.	.	.	.	.	.	.
Lithium	0.11	0.0623	0.0617	<	<	0.016	0.016	0.0528
Manganese	<	0.00551	<	<	<	<	<	<
Mercury (CVAA)	<	<	<	<	<	<	<	<
Molybdenum	<	<	<	<	<	<	<	<
Nickel	<	<	<	<	<	<	<	<
Selenium (PMS)	<	<	<	<	<	<	<	<
Strontium	0.0768	0.116	0.107	0.134	0.114	0.0557	0.0556	0.919
Uranium (PMS)	<	<	<	0.0022	0.00176	<	0.000543	0.00124
Uranium (KPA)	.	.	.	.	.	.	.	.
Uranium	.	.	.	.	.	.	.	.
Vanadium	<	<	<	<	<	<	<	<
Zinc	<	0.225	<	<	<	<	<	<
ICP Dilution Factor	1	1	1	1	1	1	1	1

(CONTINUED)

APPENDIX D.1: BEAR CREEK HYDROGEOLOGIC REGIME, 1999
Field Measurements, Miscellaneous Analytes, Major Ions, and Trace Metals

Sampling Point	GW-829	GW-838				GW-840		
Location	OLF	EMWMF				EMWMF		
Date Sampled	08/30/99	03/22/99	05/19/99	07/28/99	10/21/99	05/20/99	07/29/99	10/19/99
Monitoring Program	GWPP	IWQP	IWQP	IWQP	IWQP	IWQP	IWQP	IWQP
Type	TOT	TOT	TOT	TOT	TOT	TOT	TOT	TOT
FIELD MEASUREMENTS								
Measuring Pt. Elev. (ft)	985.98	967.73	967.73	967.73	967.73	1027.63	1027.63	1027.63
Depth to Water (ft)	13.42	15.72	17.80	17.71	20.40	24.44	24.14	26.42
Water-Level Elev. (ft)	972.56	952.01	949.93	950.02	947.33	1003.19	1003.49	1001.21
Water Temp. (degrees C)	18.6	13.9	14.4	17.8	13.9	16	20.1	13.9
pH (standard units)	9.15	7.1	6.81	5.53	6.74	6.53	6.41	6.45
Conductivity (umho/cm)	535	243	246	174	331	261	252	219
Dissolved Oxygen (ppm)	1.28	3.4	2.66	2.88	1.01	1.72	2.95	3.28
Oxidation/Reduction (mV)	50	.	200	184	232	209	125	224
MISCELLANEOUS ANALYTES								
pH (standard units)	8.95	.	.	.	.	.	.	.
Conductivity (umho/cm)	608	227	.	.	.	.	.	.
Dissolved Solids (mg/L)	397	140	.	.	240	.	.	190
Suspended Solids (mg/L)	<	<	.	.	<	.	.	<
Turbidity (NTU)	1.45	0.27	.	.	1	.	.	5
MAJOR IONS (mg/L)								
Calcium	14.7	50.8	.	.	62.3	.	.	36.4
Magnesium	5.29	2.32	.	.	5.16	.	.	7.25
Potassium	4.85	0.776	.	.	0.87	.	.	3.04
Sodium	110	4.58	.	.	7.34	.	.	10.3
Alkalinity-HCO3	178	130	128	73.4	178	147	151	173
Alkalinity-CO3	20	.	<	<	<	<	<	<
Chloride	2.251	1.6	1.7	1.5	1.4	1.7	1.6	1.8
Fluoride	0.46	0.12	<	<	0.17	<	0.12	0.16
Nitrate-N	23.97	0.1	0.13	<	.	<	<	.
Sulfate	15.54	12.2	10.1	10.2	15	5.8	4.7	4.3
Ion Charge Balance (RPD)	-0.1	0.6	.	.	.	.	.	.
TRACE METALS (mg/L)								
Aluminum	<	<	.	.	<	.	.	0.0811
Antimony (PMS)	<	.	.	.	.	.	.	.
Arsenic (PMS)	<	.	.	.	.	.	.	.
Arsenic	.	<	<	<	<	<	<	<
Barium	0.482	0.0684	0.0624	0.0549	0.0911	0.29	0.319	0.287
Beryllium	<	<	.	.	<	.	.	<
Boron	0.25	<	.	.	<	.	.	0.0133
Cadmium (PMS)	<	.	.	.	.	.	.	.
Cadmium	.	<	<	<	<	<	<	<
Chromium	<	<	<	<	<	0.0065	<	<
Cobalt	<	<	.	.	<	.	.	<
Copper	<	<	.	.	<	.	.	<
Iron	<	0.0301	.	.	0.191	.	.	0.0891
Lead (PMS)	0.000579	.	.	.	.	.	.	.
Lead	.	<	<	<	<	0.0135	<	<
Lithium	0.0552	<	.	.	0.011	.	.	<
Manganese	<	0.0127	.	.	0.104	.	.	3.71
Mercury (CVAA)	<	<	0.0002	<	<	<	<	<
Molybdenum	<	<	.	.	.	.	.	.
Nickel	<	<	.	.	<	.	.	<
Selenium (PMS)	<	.	.	.	.	.	.	.
Strontium	0.886	.	.	.	0.0861	.	.	0.0771
Uranium (PMS)	0.00115	.	.	.	.	.	.	.
Uranium (KPA)	.	.	.	.	.	.	.	.
Uranium	.	<	<	<	<	<	<	<
Vanadium	<	<	.	.	<	.	.	<
Zinc	<	<	.	.	<	.	.	<
ICP Dilution Factor	1	1	1	1	1	1	1	1

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APPENDIX D.1: BEAR CREEK HYDROGEOLOGIC REGIME, 1999
Field Measurements, Miscellaneous Analytes, Major Ions, and Trace Metals

Sampling Point	GW-840	GW-904				GW-905		
Location	EMWMF	EMWMF				EMWMF		
Date Sampled	10/21/99	03/29/99	05/24/99	08/02/99	10/20/99	03/25/99	05/24/99	08/02/99
Monitoring Program	IWQP	IWQP	IWQP	IWQP	IWQP	IWQP	IWQP	IWQP
Type	TOT	TOT	TOT	TOT	TOT	TOT	TOT	TOT
FIELD MEASUREMENTS								
Measuring Pt. Elev. (ft)	1027.63	952.88	952.88	952.88	952.88	973.59	973.59	973.59
Depth to Water (ft)	26.60	9.60	9.41	9.27	11.98	20.39	21.75	21.85
Water-Level Elev. (ft)	1001.03	943.28	943.47	943.61	940.90	953.20	951.84	951.74
Water Temp. (degrees C)	13.7	11.2	15.9	19.9	16.2	12	15.8	19.1
pH (standard units)	6.34	9.99	10.16	8.32	10.04	7.54	7.59	7.43
Conductivity (umho/cm)	162	936	983	887	886	205	307	324
Dissolved Oxygen (ppm)	4.75	0.57	1.27	0.55	2.65	1.57	1.97	3.1
Oxidation/Reduction (mV)	143	.	-49	6	28	.	159	75
MISCELLANEOUS ANALYTES								
pH (standard units)	.	.	.	.	.	.	.	.
Conductivity (umho/cm)	.	921	.	.	.	287	.	.
Dissolved Solids (mg/L)	.	760	.	.	710	210	.	.
Suspended Solids (mg/L)	.	14	.	.	6	<	.	.
Turbidity (NTU)	4	65	.	.	34	0.67	.	.
MAJOR IONS (mg/L)								
Calcium	.	2.26	.	.	1.91	54.3	.	.
Magnesium	.	0.904	.	.	0.677	6.23	.	.
Potassium	.	27.2	.	.	21.7	1.37	.	.
Sodium	.	199	.	.	241	9.25	.	.
Alkalinity-HCO3	.	526	340	231	320	165	175	177
Alkalinity-CO3	.	.	205	320	168	.	<	<
Chloride	.	2.5	3.9	2.8	2.7	1.2	1.4	1.1
Fluoride	.	3.2	3.4	3.2	4.2	0.15	0.16	0.14
Nitrate-N	.	0.06	.	<	.	0.1	<	<
Sulfate	.	37.9	43	40.3	37.1	18.4	13	18.3
Ion Charge Balance (RPD)	.	-9.9	.	.	.	-1.0	.	.
TRACE METALS (mg/L)								
Aluminum	.	4.28	.	.	3.26	<	.	.
Antimony (PMS)	.	.	.	.	.	.	.	.
Arsenic (PMS)	.	.	.	.	.	.	.	.
Arsenic	.	<	<	0.0051	<	<	<	<
Barium	.	0.046	0.0413	0.0457	0.0435	0.135	0.124	0.137
Beryllium	.	<	.	.	<	<	.	.
Boron	.	0.418	.	.	0.423	<	.	.
Cadmium (PMS)	.	.	.	.	.	.	.	.
Cadmium	.	<	<	<	<	<	<	<
Chromium	.	0.0142	0.0126	0.0119	0.0114	<	<	<
Cobalt	.	<	.	.	<	<	.	.
Copper	.	0.0257	.	.	0.0212	<	.	.
Iron	.	2.24	.	.	1.89	0.103	.	.
Lead (PMS)	.	.	.	.	.	.	.	.
Lead	.	<	0.0047	0.0034	0.0042	<	<	<
Lithium	.	0.112	.	.	0.098	0.0166	.	.
Manganese	.	0.0174	.	.	0.0136	0.0161	.	.
Mercury (CVAA)	.	<	<	<	<	<	<	<
Molybdenum	.	0.0108	.	.	.	<	.	.
Nickel	.	<	.	.	<	<	.	.
Selenium (PMS)	.	.	.	.	.	.	.	.
Strontium	.	.	.	.	0.103	.	.	.
Uranium (PMS)	.	.	.	.	.	.	.	.
Uranium (KPA)	.	.	.	.	.	.	.	.
Uranium	.	<	<	<	<	<	<	<
Vanadium	.	<	.	.	<	<	.	.
Zinc	.	0.0106	.	.	<	<	.	.
ICP Dilution Factor	1	1	1	1	1	1	1	1

(CONTINUED)

APPENDIX D.1: BEAR CREEK HYDROGEOLOGIC REGIME, 1999
Field Measurements, Miscellaneous Analytes, Major Ions, and Trace Metals

Sampling Point	GW-905	NT-01		NT-02	NT-06	NT-07		
Location	EMWMF	EXP-SW		EXP-SW	EXP-SW	EXP-SW		
Date Sampled	10/21/99	02/25/99	08/11/99	03/02/99	03/02/99	02/02/99	03/02/99	07/29/99
Monitoring Program	IWQP	GWPP	GWPP	GWPP	GWPP	IWQP	GWPP	IWQP
Type	TOT	TOT	TOT	TOT	TOT	TOT	TOT	TOT
FIELD MEASUREMENTS								
Measuring Pt. Elev. (ft)	973.59	.	.	.	.	.	.	.
Depth to Water (ft)	24.35	.	.	.	.	.	.	.
Water-Level Elev. (ft)	949.24	.	.	.	.	.	.	.
Water Temp. (degrees C)	10.7	8	28.4	11.3	11.2	9.9	9.2	17.7
pH (standard units)	7.5	7.38	6.58	7.49	7.75	7.86	7.77	7.17
Conductivity (umho/cm)	293	1205	4620	260	162	0.248	267	0.325
Dissolved Oxygen (ppm)	3.28	5.8	3.86	5.79	4.93	9.95	6.57	4.96
Oxidation/Reduction (mV)	201	191	198	80	13	.	78	109
MISCELLANEOUS ANALYTES								
pH (standard units)	.	7.37	7.03	7.5	7.51	.	8.05	.
Conductivity (umho/cm)	.	1304	4310	236	148.3	.	288	493
Dissolved Solids (mg/L)	210	859	3370	194	121	.	183	290
Suspended Solids (mg/L)	9	37	106	2	4	.	<	8
Turbidity (NTU)	5	12	10.4	9.92	8.02	6	3.5	107
MAJOR IONS (mg/L)								
Calcium	52.3	190	648	29.3	19.1	.	44	.
Magnesium	6.03	26.1	70.6	4.16	3.63	.	6.93	.
Potassium	1.12	3.49	7.76	<	<	.	2.18	.
Sodium	11	21.6	55	3.31	2.51	.	4.22	.
Alkalinity-HCO3	168	110	244	34	50	.	112	.
Alkalinity-CO3	<	<	<	<	<	.	<	.
Chloride	1.3	23.8	50.54	3.54	3.71	.	10.8	.
Fluoride	<	0.91	1.38	<	<	.	<	.
Nitrate-N	.	141	520.2	16	<	.	0.27	.
Sulfate	18.4	23.9	25.8	13.7	17.6	.	19.9	.
Ion Charge Balance (RPD)	.	-3.2	-3.9	-6.2	-3.9	.	0.5	.
TRACE METALS (mg/L)								
Aluminum	<	0.452	0.615	0.688	0.537	.	<	.
Antimony (PMS)	.	<	<	<	<	.	<	.
Arsenic (PMS)	.	<	<	<	<	.	<	.
Arsenic	<	.	.	.	.	.	.	.
Barium	0.133	0.443	2.08	0.0936	0.0397	.	0.0346	.
Beryllium	<	<	<	<	<	.	<	.
Boron	<	<	<	<	<	.	0.172	.
Cadmium (PMS)	.	0.00563	0.0102	<	<	.	<	.
Cadmium	<	.	.	.	.	.	.	.
Chromium	<	<	<	<	<	.	<	.
Cobalt	<	<	<	<	<	.	<	.
Copper	<	<	<	<	<	.	<	.
Iron	0.0663	0.294	0.438	0.544	0.435	.	0.088	.
Lead (PMS)	.	<	0.000936	0.000507	0.000649	.	<	.
Lead	<	.	.	.	.	.	.	.
Lithium	0.016	<	<	<	<	.	0.0419	.
Manganese	0.0272	0.933	1.3	0.0347	0.0148	.	0.0077	.
Mercury (CVAA)	<	<	<	<	<	.	<	.
Molybdenum	.	<	<	<	<	.	<	.
Nickel	<	<	<	<	<	.	<	.
Selenium (PMS)	.	<	<	<	<	.	<	.
Strontium	0.153	0.591	2.22	0.0965	0.0471	.	0.0891	.
Uranium (PMS)	.	0.00927	0.0672	<	0.00655	.	0.0269	.
Uranium (KPA)	.	.	.	.	.	.	.	.
Uranium	<	.	.	.	.	.	.	.
Vanadium	<	<	<	<	<	.	<	.
Zinc	<	<	<	<	<	.	<	.
ICP Dilution Factor	1	1	2	1	1	1	1	1

(CONTINUED)

APPENDIX D.1: BEAR CREEK HYDROGEOLOGIC REGIME, 1999
Field Measurements, Miscellaneous Analytes, Major Ions, and Trace Metals

Sampling Point	NT-08			SS-1		SS-4		
Location	EXP-SW			EXP-SW		EXP-SW		
Date Sampled	02/02/99	03/02/99	07/29/99	02/25/99	08/11/99	02/02/99	02/24/99	08/11/99
Monitoring Program	IWQP	GWPP	IWQP	GWPP	GWPP	IWQP	GWPP	GWPP
Type	TOT	TOT	TOT	TOT	TOT	TOT	TOT	TOT
FIELD MEASUREMENTS								
Measuring Pt. Elev. (ft)	.	.	.	.	.	.	.	.
Depth to Water (ft)	.	.	.	.	.	.	.	.
Water-Level Elev. (ft)	.	.	.	.	.	.	.	.
Water Temp. (degrees C)	9.9	11	21.6	12.5	22.5	12.7	11.2	16.9
pH (standard units)	7.69	7.61	7.36	7.74	7.15	7.24	7.41	6.97
Conductivity (umho/cm)	0.157	199	0.218	1056	1080	0.482	698	672
Dissolved Oxygen (ppm)	9.67	5.51	3.2	6.61	5.01	7.21	8.71	2.07
Oxidation/Reduction (mV)	.	67	82	204	183	.	190	205
MISCELLANEOUS ANALYTES								
pH (standard units)	.	7.86	.	7.75	7.71	.	7.52	7.52
Conductivity (umho/cm)	.	207	350	1137	1174	.	642	745
Dissolved Solids (mg/L)	.	143	200	652	835	.	374	405
Suspended Solids (mg/L)	.	2	<	9	10	.	<	<
Turbidity (NTU)	13	7.99	27	3.97	2.79	16	1.17	0.512
MAJOR IONS (mg/L)								
Calcium	.	27.6	.	179	183	.	86.8	96.8
Magnesium	.	3.71	.	17.4	18.2	.	17.4	24.9
Potassium	.	<	.	4.18	4.29	.	2.24	2.55
Sodium	.	2.63	.	29.3	26.9	.	13.5	15.5
Alkalinity-HCO3	.	82	.	334	354	.	192	238
Alkalinity-CO3	.	<	.	<	<	.	<	<
Chloride	.	6.19	.	105	88.81	.	30.8	29.51
Fluoride	.	0.12	.	0.39	0.35	.	0.47	0.26
Nitrate-N	.	0.54	.	18.5	18.03	.	18.2	18.27
Sulfate	.	12.1	.	59	56.29	.	34.1	23.67
Ion Charge Balance (RPD)	.	-8.0	.	-1.9	-0.6	.	-2.5	1.5
TRACE METALS (mg/L)								
Aluminum	.	0.492	.	<	0.328	.	0.312	<
Antimony (PMS)	.	<	.	<	<	.	<	<
Arsenic (PMS)	.	<	.	<	<	.	<	<
Arsenic	.	.	.	.	.	.	.	.
Barium	.	0.0498	.	0.0833	0.0936	.	0.11	0.154
Beryllium	.	<	.	<	<	.	<	<
Boron	.	0.382	.	<	<	.	<	0.102
Cadmium (PMS)	.	<	.	<	0.000516	.	0.00118	<
Cadmium	.	.	.	.	.	.	.	.
Chromium	.	<	.	<	<	.	<	<
Cobalt	.	<	.	<	<	.	<	<
Copper	.	<	.	<	<	.	<	<
Iron	.	0.44	.	0.108	0.574	.	0.431	0.0718
Lead (PMS)	.	<	.	<	0.0014	.	0.000566	<
Lead	.	.	.	.	.	.	.	.
Lithium	.	0.118	.	<	<	.	0.0132	0.0173
Manganese	.	0.055	.	0.0286	0.111	.	0.224	0.0201
Mercury (CVAA)	.	<	.	<	<	.	<	<
Molybdenum	.	<	.	<	<	.	<	<
Nickel	.	<	.	<	<	.	<	<
Selenium (PMS)	.	<	.	<	<	.	<	<
Strontium	.	0.0687	.	0.763	0.756	.	0.227	0.265
Uranium (PMS)	.	0.35	.	0.0436	0.0443	.	0.239	0.109
Uranium (KPA)	.	.	.	.	.	.	.	.
Uranium	.	.	.	.	.	.	.	.
Vanadium	.	<	.	<	<	.	<	<
Zinc	.	<	.	<	<	.	<	<
ICP Dilution Factor	1	1	1	1	1	1	1	1

(CONTINUED)

APPENDIX D.1: BEAR CREEK HYDROGEOLOGIC REGIME, 1999
Field Measurements, Miscellaneous Analytes, Major Ions, and Trace Metals

Sampling Point	SS-4	SS-5			SS-6			SS-6.6
Location	EXP-SW	EXP-SW			EXP-SW			EXP-SW
Date Sampled	08/11/99	02/02/99	02/23/99	08/11/99	02/03/99	02/23/99	08/10/99	02/03/99
Monitoring Program	GWPP	IWQP	GWPP	GWPP	IWQP	GWPP	GWPP	IWQP
Type	DUP							
	TOT	TOT	TOT	TOT	TOT	TOT	TOT	TOT
FIELD MEASUREMENTS								
Measuring Pt. Elev. (ft)	.	.	.	.	.	.	.	.
Depth to Water (ft)	.	.	.	.	.	.	.	.
Water-Level Elev. (ft)	.	.	.	.	.	.	.	.
Water Temp. (degrees C)	.	12.9	12	15.2	11.7	11.2	15.5	12.9
pH (standard units)	.	7.3	7.48	7.27	7.34	7.53	7.27	7
Conductivity (umho/cm)	.	0.354	429	527	0.174	324	398	0.386
Dissolved Oxygen (ppm)	.	7.13	6.21	5.48	9.11	6.59	3.48	5.72
Oxidation/Reduction (mV)	.	.	159	200	.	180	192	.
MISCELLANEOUS ANALYTES								
pH (standard units)	7.39	.	7.45	7.6	.	7.59	7.4	.
Conductivity (umho/cm)	695	.	385	530	.	266	377	.
Dissolved Solids (mg/L)	401	.	217	280	.	129	232	240
Suspended Solids (mg/L)	<	.	<	<	.	<	<	<
Turbidity (NTU)	0.534	4	1.24	0.997	11	2.01	1.47	1
MAJOR IONS (mg/L)								
Calcium	97.3	.	52.5	65.1	.	33.3	48.1	59.2
Magnesium	25.1	.	12.6	18.8	.	14.2	19.8	16.9
Potassium	2.65	.	<	<	.	<	<	1.27
Sodium	15.7	.	7.2	8.05	.	2.59	3.14	6.95
Alkalinity-HCO3	236	.	140	198	.	124	162	184
Alkalinity-CO3	<	.	<	<	.	<	<	.
Chloride	29.11	.	15.4	15.9	.	5.87	5.335	16.3
Fluoride	0.26	.	0.21	0.21	.	<	0.67	<
Nitrate-N	18.71	.	6.03	7.109	.	0.68	0.9259	0.6
Sulfate	23.29	.	19.5	17.73	.	9.07	11.76	12.5
Ion Charge Balance (RPD)	2.0	.	-1.4	-1.4	.	1.0	5.5	2.6
TRACE METALS (mg/L)								
Aluminum	<	.	<	<	.	<	<	0.132
Antimony (PMS)	<	.	<	<	.	<	<	.
Arsenic (PMS)	<	.	<	<	.	<	<	.
Arsenic	.	.	.	.	.	.	.	<
Barium	0.156	.	0.0624	0.0872	.	0.0527	0.079	0.0574
Beryllium	<	.	<	<	.	<	<	<
Boron	0.105	.	<	<	.	<	<	<
Cadmium (PMS)	<	.	<	<	.	<	<	.
Cadmium	.	.	.	.	.	.	.	<
Chromium	<	.	<	<	.	<	<	<
Cobalt	<	.	<	<	.	<	<	<
Copper	<	.	<	<	.	<	<	<
Iron	0.0628	.	<	<	.	<	<	0.243
Lead (PMS)	<	.	<	<	.	<	<	.
Lead	.	.	.	.	.	.	.	<
Lithium	0.0162	.	<	0.0105	.	<	<	<
Manganese	0.0134	.	<	<	.	<	0.00871	0.0113
Mercury (CVAA)	<	.	<	<	.	<	<	<
Molybdenum	<	.	<	<	.	<	<	<
Nickel	<	.	<	<	.	<	<	<
Selenium (PMS)	<	.	<	<	.	<	<	.
Strontium	0.267	.	0.102	0.14	.	0.0463	0.0763	.
Uranium (PMS)	0.108	.	0.0606	0.0746	.	0.00625	0.0109	.
Uranium (KPA)	.	.	.	.	.	.	.	.
Uranium	.	.	.	.	.	.	.	<
Vanadium	<	.	<	<	.	<	<	<
Zinc	<	.	<	<	.	<	<	<
ICP Dilution Factor	1	1	1	1	1	1	1	1

(CONTINUED)

APPENDIX D.1: BEAR CREEK HYDROGEOLOGIC REGIME, 1999
Field Measurements, Miscellaneous Analytes, Major Ions, and Trace Metals

Sampling Point	SS-6.6		SS-7			SS-8	
Location	EXP-SW		EXP-SW			EXP-SW	
Date Sampled	07/29/99		02/02/99		07/29/99	02/03/99	07/29/99
Monitoring Program	IWQP		IWQP		IWQP	IWQP	IWQP
Type		DUP		DUP			
	TOT	TOT	TOT	TOT	TOT	TOT	TOT
FIELD MEASUREMENTS							
Measuring Pt. Elev. (ft)	.	.	.	.	.	.	.
Depth to Water (ft)	.	.	.	.	.	.	.
Water-Level Elev. (ft)	.	.	.	.	.	.	.
Water Temp. (degrees C)	19.1	.	13	.	14.2	12.7	14.4
pH (standard units)	7.34	.	7.29	.	6.71	7.17	6.35
Conductivity (umho/cm)	0.153	.	0.216	.	0.193	0.191	0.188
Dissolved Oxygen (ppm)	3.53	.	9.07	.	2.59	8.55	2.77
Oxidation/Reduction (mV)	119	.	.	.	85	.	101
MISCELLANEOUS ANALYTES							
pH (standard units)	.	.	.	.	.	.	.
Conductivity (umho/cm)	258	261	.	.	330	.	274
Dissolved Solids (mg/L)	150	140	130	120	170	110	150
Suspended Solids (mg/L)	6.1	5.5	<	<	<	8.5	<
Turbidity (NTU)	50	.	8	.	133	5	135
MAJOR IONS (mg/L)							
Calcium	30.1	30.7	26	26.5	35.8	29.1	39
Magnesium	14.4	14.6	12.2	12.3	17	9.21	11.8
Potassium	0.624	0.621	0.777	0.754	0.905	0.722	0.953
Sodium	0.479	0.519	4.25	4.13	3.22	2.82	2.2
Alkalinity-HCO3	129	130	101	102	151	95.9	139
Alkalinity-CO3	.	.	.	.	.	.	.
Chloride	0.94	0.9	9.4	9.4	5.3	5.9	3.4
Fluoride	<	<	<	<	<	<	<
Nitrate-N	0.03	0.03	0.13	0.14	0.58	358	0.43
Sulfate	8.3	7.9	5.5	5.6	5.4	3.2	2.4
Ion Charge Balance (RPD)	-1.0	-0.3	2.0	2.1	0.4	-84.4	1.4
TRACE METALS (mg/L)							
Aluminum	0.176	0.077	0.174	0.201	<	0.133	0.0755
Antimony (PMS)	.	.	.	.	.	.	.
Arsenic (PMS)	.	.	.	.	.	.	.
Arsenic	<	<	<	<	<	<	<
Barium	0.0366	0.0372	0.0357	0.0356	0.0558	0.0316	0.0439
Beryllium	<	<	<	<	<	<	<
Boron	<	<	<	<	0.0152	<	<
Cadmium (PMS)	.	.	.	.	.	.	.
Cadmium	<	<	<	<	<	<	<
Chromium	<	<	<	<	<	<	<
Cobalt	<	<	<	<	<	<	<
Copper	<	<	<	<	<	<	<
Iron	0.232	0.156	0.236	0.227	0.0453	0.235	0.0908
Lead (PMS)	.	.	.	.	.	.	.
Lead	<	<	<	<	<	<	<
Lithium	<	<	<	<	<	<	<
Manganese	0.0983	0.115	<	<	<	<	0.0056
Mercury (CVAA)	<	<	<	<	<	<	<
Molybdenum	<	<	<	<	<	<	<
Nickel	<	<	<	<	<	<	<
Selenium (PMS)	.	.	.	.	.	.	.
Strontium	.	.	.	.	.	.	.
Uranium (PMS)	.	.	.	.	.	.	.
Uranium (KPA)	.	.	.	.	.	.	.
Uranium	<	<	<	<	<	<	<
Vanadium	<	<	<	<	<	<	<
Zinc	<	<	<	<	<	<	<
ICP Dilution Factor	1	1	1	1	1	1	1

APPENDIX D.2

VOLATILE ORGANIC COMPOUNDS

APPENDIX D.2: BEAR CREEK HYDROGEOLOGIC REGIME, 1999
Volatile Organic Compounds (ug/L)

Sampling Point	BCK-00.63		BCK-04.55		BCK-07.87			BCK-09.40	
Location	EXP-SW		EXP-SW		EXP-SW			EXP-SW	
Date Sampled	02/23/99	08/10/99	02/23/99	08/10/99	02/23/99		08/10/99	02/24/99	08/11/99
Monitoring Program	GWPP	GWPP	GWPP	GWPP	GWPP		GWPP	GWPP	GWPP
Type						DUP			
Acetone	<	<	<	<	<	<	<	<	<
Acrylonitrile	<	<	<	<	<	<	<	<	<
Benzene	<	<	<	<	<	<	<	<	<
2-Butanone	<	<	<	<	<	<	<	<	<
Carbon disulfide	<	<	<	<	<	<	<	<	<
Carbon tetrachloride	<	<	<	<	<	<	<	<	<
Chloroethane	<	<	<	<	<	<	<	<	<
Chloroform	<	<	<	<	<	<	<	<	<
1,1-Dichloroethane	<	<	<	<	<	<	<	<	<
1,2-Dichloroethane	<	<	<	<	<	<	<	<	<
1,1-Dichloroethene	<	<	<	<	<	<	<	<	<
cis-1,2-Dichloroethene	<	<	<	<	<	<	<	17	3
trans-1,2-Dichloroethene	<	<	<	<	<	<	<	<	<
1,2-Dichloropropane	<	<	<	<	<	<	<	<	<
Ethylbenzene	<	<	<	<	<	<	<	<	<
4-Methyl-2-pentanone	<	<	<	<	<	<	<	<	3
Methylene chloride	<	<	<	<	<	<	<	<	<
Styrene	<	<	<	<	<	<	<	<	<
Tetrachloroethene	<	<	<	<	<	<	<	3	<
Toluene	<	<	<	<	<	<	<	<	<
1,1,1-Trichloroethane	<	<	<	<	<	<	<	<	<
Trichloroethene	<	<	<	<	<	<	<	2	<
Vinyl chloride	<	<	<	<	<	<	<	<	<

(CONTINUED)

Sampling Point	BCK-09.47	BCK-10.60	BCK-11.97		DCWELL	GW-006			
Location	EXP-SW	EXP-SW	EXP-SW		DCHAPCEM	EMWMF			
Date Sampled	07/29/99	02/24/99	02/25/99	08/10/99	03/24/99	03/30/99		05/25/99	
Monitoring Program	IWQP	GWPP	GWPP	GWPP	GWPP	IWQP		IWQP	
Type							DUP		DUP
Acetone	<	<	<	<	<	<	<	<	<
Acrylonitrile	.	<	<	<	<	.	.	.	.
Benzene	<	<	<	<	<	<	<	<	<
2-Butanone	<	<	<	<	<	<	<	<	<
Carbon disulfide	<	<	<	<	<	<	<	<	<
Carbon tetrachloride	<	<	<	<	<	<	<	<	<
Chloroethane	<	<	<	<	<	<	<	<	<
Chloroform	<	<	<	<	<	<	<	<	<
1,1-Dichloroethane	<	<	<	<	<	16	16	8	9
1,2-Dichloroethane	<	<	<	<	<	<	<	<	<
1,1-Dichloroethene	<	<	<	<	<	1	2	1	1
cis-1,2-Dichloroethene	15	<	<	<	<	9	9	.	.
trans-1,2-Dichloroethene	<	<	<	<	<	<	<	<	<
1,2-Dichloropropane	<	<	<	<	<	<	<	<	<
Ethylbenzene	<	<	<	<	<	<	<	<	<
4-Methyl-2-pentanone	<	<	<	<	<	<	<	<	<
Methylene chloride	<	<	<	<	<	<	<	<	<
Styrene	<	<	<	<	<	<	<	<	<
Tetrachloroethene	1	<	<	<	<	1	1	0.7	0.7
Toluene	<	<	<	<	<	<	<	<	<
1,1,1-Trichloroethane	<	<	<	<	<	1	1	<	<
Trichloroethene	1	<	<	<	<	5	5	4	4
Vinyl chloride	<	<	<	<	<	<	<	<	<

(CONTINUED)

APPENDIX D.2: BEAR CREEK HYDROGEOLOGIC REGIME, 1999
Volatile Organic Compounds (ug/L)

Sampling Point	GW-006				GW-008		GW-043		
Location	EMWMF				OLF		EMWMF		
Date Sampled	08/03/99		10/20/99		02/08/99	07/15/99	03/11/99	05/17/99	07/27/99
Monitoring Program	IWQP		IWQP		IWQP	IWQP	IWQP	IWQP	IWQP
Type		DUP		DUP					
Acetone	<	<	<	<	<	<	<	<	<
Acrylonitrile	.	.	.	.	.	.	.	.	.
Benzene	<	<	<	<	<	1	<	<	<
2-Butanone	<	<	<	<	<	<	<	<	<
Carbon disulfide	<	<	<	<	<	<	<	<	<
Carbon tetrachloride	<	<	<	<	<	<	<	<	<
Chloroethane	<	<	<	<	<	2	<	<	<
Chloroform	<	<	<	<	<	<	<	<	<
1,1-Dichloroethane	2	2	13	12	9	7	<	<	<
1,2-Dichloroethane	<	<	<	<	<	<	<	<	<
1,1-Dichloroethene	<	<	<	<	4	3	<	<	<
cis-1,2-Dichloroethene	.	.	6	5	17	15	<	.	.
trans-1,2-Dichloroethene	<	<	<	<	<	<	<	<	<
1,2-Dichloropropane	<	<	<	<	3	2	<	<	<
Ethylbenzene	<	<	<	<	<	<	<	<	<
4-Methyl-2-pentanone	<	<	<	<	<	<	<	<	<
Methylene chloride	<	<	<	<	<	<	<	<	2
Styrene	<	<	<	<	<	<	<	<	<
Tetrachloroethene	<	<	<	<	10	7	<	<	<
Toluene	<	<	<	<	<	<	<	<	<
1,1,1-Trichloroethane	<	<	<	<	<	<	<	<	<
Trichloroethene	1	1	4	4	3	2	<	<	<
Vinyl chloride	<	<	<	<	<	<	<	<	<

(CONTINUED)

Sampling Point	GW-043	GW-044				GW-046			GW-053
Location	EMWMF	EMWMF				BG			BG
Date Sampled	10/18/99	03/18/99	05/18/99	07/28/99	10/19/99	02/08/99		07/15/99	03/24/99
Monitoring Program	IWQP	IWQP	IWQP	IWQP	IWQP	IWQP		IWQP	GWPP
Type							DUP		
Acetone	<	<	<	<	<	<	<	<	<
Acrylonitrile	.	.	.	.	.	.	.	.	<
Benzene	<	<	<	<	<	<	<	42	<
2-Butanone	<	<	<	<	<	<	<	<	<
Carbon disulfide	<	<	<	<	<	<	<	<	<
Carbon tetrachloride	<	<	<	<	<	<	<	<	<
Chloroethane	<	<	<	<	<	<	<	<	<
Chloroform	<	<	<	<	<	<	<	<	<
1,1-Dichloroethane	<	<	<	<	<	230	240	220	6
1,2-Dichloroethane	<	<	<	<	<	<	<	<	<
1,1-Dichloroethene	<	<	<	<	<	98	120	100	<
cis-1,2-Dichloroethene	<	.	.	.	<	4400	4600	3900	13
trans-1,2-Dichloroethene	<	.	<	<	<	<	<	25	<
1,2-Dichloropropane	<	<	<	<	<	<	<	<	<
Ethylbenzene	<	<	<	<	<	<	<	<	<
4-Methyl-2-pentanone	<	<	<	<	<	<	<	<	<
Methylene chloride	<	<	<	<	<	<	<	<	<
Styrene	<	<	<	<	<	<	<	<	<
Tetrachloroethene	<	<	<	<	<	1100	1100	3000	<
Toluene	<	<	<	<	<	<	<	<	<
1,1,1-Trichloroethane	<	<	<	<	<	120	130	120	<
Trichloroethene	<	<	<	<	<	1500	1400	2100	3
Vinyl chloride	<	<	<	<	<	550	550	630	5

(CONTINUED)

APPENDIX D.2: BEAR CREEK HYDROGEOLOGIC REGIME, 1999
Volatile Organic Compounds (ug/L)

Sampling Point	GW-053	GW-056		GW-077		GW-078			GW-079
Location	BG	EXP-A		BG		BG			BG
Date Sampled	08/26/99	02/09/99	07/28/99	02/03/99	08/17/99	02/02/99		08/17/99	02/02/99
Monitoring Program	GWPP	GWPP	GWPP	IWQP	IWQP	IWQP		IWQP	IWQP
Type							DUP		
Acetone	<	5	<	<	<	<	<	<	<
Acrylonitrile	<	<	<	.	.	.	.	.	.
Benzene	<	<	<	<	<	<	<	<	<
2-Butanone	<	<	<	<	<	<	<	<	<
Carbon disulfide	<	<	<	<	<	<	<	<	<
Carbon tetrachloride	<	<	<	<	<	<	<	<	<
Chloroethane	<	<	<	<	<	<	<	<	<
Chloroform	<	<	<	<	<	<	<	<	<
1,1-Dichloroethane	7	<	<	<	<	<	<	<	<
1,2-Dichloroethane	<	<	<	<	<	<	<	<	<
1,1-Dichloroethene	<	<	<	<	<	<	<	<	<
cis-1,2-Dichloroethene	15	<	<	<	<	<	<	<	<
trans-1,2-Dichloroethene	<	<	<	<	<	<	<	<	<
1,2-Dichloropropane	<	<	<	<	<	<	<	<	<
Ethylbenzene	<	<	<	<	<	<	<	<	<
4-Methyl-2-pentanone	<	<	<	<	<	<	<	<	<
Methylene chloride	<	<	<	<	<	<	<	<	<
Styrene	<	<	<	<	<	<	<	<	<
Tetrachloroethene	<	<	<	<	<	<	<	<	<
Toluene	<	<	<	<	<	<	<	<	<
1,1,1-Trichloroethane	<	<	<	<	<	<	<	<	<
Trichloroethene	3	<	<	<	<	<	<	<	<
Vinyl chloride	5	<	<	<	<	<	<	<	<

(CONTINUED)

Sampling Point	GW-079	GW-080			GW-082	GW-085		GW-087	GW-115
Location	BG	BG			BG	OLF		OLF	S3
Date Sampled	08/12/99	02/03/99	08/12/99		03/04/99	03/17/99	08/31/99	03/11/99	01/25/99
Monitoring Program	IWQP	IWQP	IWQP		GWPP	GWPP	GWPP	GWPP	IWQP
Type				DUP					
Acetone	<	<	<	<	<	<	<	<	<
Acrylonitrile	.	.	.	.	<	<	<	<	.
Benzene	<	<	<	<	6	<	<	<	<
2-Butanone	<	<	<	<	<	<	<	<	<
Carbon disulfide	<	<	<	<	<	<	<	<	<
Carbon tetrachloride	<	<	<	<	<	<	<	<	<
Chloroethane	<	<	<	<	12	<	<	<	<
Chloroform	<	<	<	<	<	<	<	<	<
1,1-Dichloroethane	<	<	<	<	410	<	<	<	<
1,2-Dichloroethane	<	<	<	<	<	<	<	<	<
1,1-Dichloroethene	<	<	<	<	8	<	<	<	<
cis-1,2-Dichloroethene	<	<	<	<	380	<	<	55	<
trans-1,2-Dichloroethene	<	<	<	<	<	<	<	<	<
1,2-Dichloropropane	<	<	<	<	<	<	<	<	<
Ethylbenzene	<	<	<	<	<	<	<	<	<
4-Methyl-2-pentanone	<	<	<	<	<	<	<	<	<
Methylene chloride	<	<	<	<	<	<	<	<	<
Styrene	<	<	<	<	<	<	<	<	<
Tetrachloroethene	<	<	<	<	<	<	<	31	<
Toluene	<	<	<	<	<	<	<	<	<
1,1,1-Trichloroethane	<	2	<	<	<	<	<	<	<
Trichloroethene	<	<	<	<	<	<	<	43	<
Vinyl chloride	<	<	<	<	150	<	<	<	<

(CONTINUED)

APPENDIX D.2: BEAR CREEK HYDROGEOLOGIC REGIME, 1999
Volatile Organic Compounds (ug/L)

Sampling Point	GW-115	GW-126	GW-132-01	GW-132-05	GW-132-09		GW-132-13	GW-132-17	GW-132-21
Location	S3	BG	S3	S3	S3		S3	S3	S3
Date Sampled	07/01/99	03/02/99	09/23/99	09/27/99	09/27/99		09/28/99	09/28/99	09/28/99
Monitoring Program	IWQP	GWPP	GWPP	GWPP	GWPP		GWPP	GWPP	GWPP
Type						DUP			
Acetone	<	4	<	<	<	<	<	<	<
Acrylonitrile	.	<	<	<	<	<	<	<	<
Benzene	<	<	<	<	<	<	<	<	<
2-Butanone	<	<	<	<	<	<	<	<	<
Carbon disulfide	<	<	<	<	<	<	<	<	<
Carbon tetrachloride	<	<	<	<	<	<	<	<	<
Chloroethane	<	<	<	<	<	<	<	<	<
Chloroform	<	<	<	<	<	<	<	<	<
1,1-Dichloroethane	<	<	<	<	<	<	<	<	<
1,2-Dichloroethane	<	<	<	<	<	<	<	<	<
1,1-Dichloroethene	<	<	<	<	<	<	<	<	<
cis-1,2-Dichloroethene	<	<	<	<	<	<	<	<	<
trans-1,2-Dichloroethene	<	<	<	<	<	<	<	<	<
1,2-Dichloropropane	<	<	<	<	<	<	<	<	<
Ethylbenzene	<	<	<	<	<	<	<	<	<
4-Methyl-2-pentanone	<	<	<	<	<	<	<	<	<
Methylene chloride	<	<	<	<	<	<	<	<	<
Styrene	<	<	<	<	<	<	<	<	<
Tetrachloroethene	<	<	<	<	<	<	<	<	<
Toluene	<	<	<	<	<	<	<	<	<
1,1,1-Trichloroethane	<	<	<	<	<	<	<	<	<
Trichloroethene	<	<	<	<	<	<	<	<	<
Vinyl chloride	<	<	<	<	<	<	<	<	<

(CONTINUED)

Sampling Point	GW-132-25	GW-133-01	GW-133-05	GW-133-08	GW-133-10		GW-133-14	GW-133-17	GW-133-21
Location	S3	S3	S3	S3	S3		S3	S3	S3
Date Sampled	09/28/99	08/16/99	08/17/99	08/17/99	08/18/99		08/18/99	08/18/99	08/19/99
Monitoring Program	GWPP	GWPP	GWPP	GWPP	GWPP		GWPP	GWPP	GWPP
Type						DUP			
Acetone	<	<	<	<	<	<	<	<	<
Acrylonitrile	<	<	<	<	<	<	<	<	<
Benzene	<	<	<	<	<	<	3	1	<
2-Butanone	<	<	<	<	<	<	<	<	<
Carbon disulfide	<	<	<	<	<	<	<	<	<
Carbon tetrachloride	<	<	<	<	<	<	<	<	<
Chloroethane	<	<	<	<	<	<	<	<	<
Chloroform	<	<	<	<	<	<	<	<	<
1,1-Dichloroethane	<	<	<	<	<	<	<	<	<
1,2-Dichloroethane	<	<	<	<	<	<	<	<	<
1,1-Dichloroethene	<	<	<	<	<	<	<	<	<
cis-1,2-Dichloroethene	<	<	<	<	<	<	<	<	<
trans-1,2-Dichloroethene	<	<	<	<	<	<	<	<	<
1,2-Dichloropropane	<	<	<	<	<	<	<	<	<
Ethylbenzene	3	<	<	8	<	<	1	<	<
4-Methyl-2-pentanone	<	<	<	<	<	<	<	<	<
Methylene chloride	<	<	<	<	<	<	<	<	<
Styrene	2	<	<	3	<	<	1	<	<
Tetrachloroethene	<	<	<	<	<	<	<	<	<
Toluene	<	<	<	2	<	<	<	<	<
1,1,1-Trichloroethane	<	<	<	<	<	<	<	<	1
Trichloroethene	<	<	<	<	<	<	<	<	<
Vinyl chloride	<	<	<	<	<	<	<	<	<

(CONTINUED)

APPENDIX D.2: BEAR CREEK HYDROGEOLOGIC REGIME, 1999
Volatile Organic Compounds (ug/L)

Sampling Point	GW-133-24	GW-134-05	GW-134-11	GW-134-15	GW-134-18	GW-134-21	GW-134-25		GW-134-29
Location	S3	S3	S3	S3	S3	S3	S3		S3
Date Sampled	08/19/99	08/24/99	08/24/99	08/24/99	08/24/99	08/24/99	08/10/99		08/11/99
Monitoring Program	GWPP	GWPP	GWPP	GWPP	GWPP	GWPP	GWPP		GWPP
Type								DUP	
Acetone	<	<	<	<	<	<	<	<	<
Acrylonitrile	<	<	<	<	<	<	<	<	<
Benzene	<	1	<	<	<	<	<	<	<
2-Butanone	<	<	<	<	<	<	<	<	<
Carbon disulfide	<	<	2	<	<	<	<	<	<
Carbon tetrachloride	2	<	<	<	<	<	<	<	<
Chloroethane	<	<	<	<	<	<	<	<	<
Chloroform	<	<	<	<	<	<	<	<	<
1,1-Dichloroethane	<	<	<	<	<	<	<	<	<
1,2-Dichloroethane	<	<	<	<	<	<	<	<	<
1,1-Dichloroethene	<	<	<	<	<	<	<	<	<
cis-1,2-Dichloroethene	<	<	<	<	<	<	<	<	<
trans-1,2-Dichloroethene	<	<	<	<	<	<	<	<	<
1,2-Dichloropropane	<	<	<	<	<	<	<	<	<
Ethylbenzene	<	<	<	<	<	<	<	<	<
4-Methyl-2-pentanone	<	<	<	<	<	<	<	<	<
Methylene chloride	<	<	<	<	<	<	<	<	<
Styrene	1	<	<	<	3	<	1	1	<
Tetrachloroethene	<	<	<	<	<	<	<	<	<
Toluene	<	<	<	<	<	<	<	<	<
1,1,1-Trichloroethane	2	<	<	<	<	<	<	<	<
Trichloroethene	<	<	<	<	<	<	<	<	<
Vinyl chloride	<	<	<	<	<	<	<	<	<

(CONTINUED)

Sampling Point	GW-134-33	GW-134-35	GW-134-36	GW-135-03	GW-135-06	GW-135-11	GW-135-15	GW-135-19	GW-135-23
Location	S3	S3	S3	S3	S3	S3	S3	S3	S3
Date Sampled	08/11/99	08/11/99	08/11/99	09/08/99	09/13/99	09/13/99	09/14/99	09/14/99	09/15/99
Monitoring Program	GWPP	GWPP	GWPP	GWPP	GWPP	GWPP	GWPP	GWPP	GWPP
Type									
Acetone	<	<	<	<	<	<	<	<	<
Acrylonitrile	<	<	<	13	<	<	<	<	<
Benzene	<	<	<	13	2	34	<	<	14
2-Butanone	<	<	<	<	<	<	<	<	<
Carbon disulfide	<	<	<	<	<	<	<	<	<
Carbon tetrachloride	<	<	<	<	<	<	<	<	<
Chloroethane	<	<	<	<	<	<	<	<	<
Chloroform	3	3	<	<	<	<	<	<	<
1,1-Dichloroethane	<	<	<	<	<	<	<	<	<
1,2-Dichloroethane	<	<	<	<	<	<	<	<	<
1,1-Dichloroethene	<	<	<	<	<	<	<	<	<
cis-1,2-Dichloroethene	14	13	<	<	<	<	<	<	<
trans-1,2-Dichloroethene	<	<	<	<	<	<	<	<	<
1,2-Dichloropropane	<	<	<	<	<	<	<	<	<
Ethylbenzene	<	<	<	<	<	<	<	<	3
4-Methyl-2-pentanone	<	<	<	<	<	<	<	<	<
Methylene chloride	<	<	<	<	<	<	<	<	<
Styrene	<	<	<	3	<	<	<	<	<
Tetrachloroethene	10	11	<	<	<	<	<	<	<
Toluene	<	<	<	<	<	<	<	<	3
1,1,1-Trichloroethane	<	<	<	<	<	<	<	<	<
Trichloroethene	30	19	<	<	<	<	<	<	<
Vinyl chloride	<	<	<	<	<	<	<	<	<

(CONTINUED)

APPENDIX D.2: BEAR CREEK HYDROGEOLOGIC REGIME, 1999
Volatile Organic Compounds (ug/L)

Sampling Point	GW-135-26	GW-135-30		GW-135-34	GW-135-39	GW-226			GW-228
Location	S3	S3		S3	S3	OLF			OLF
Date Sampled	09/15/99	09/15/99		09/16/99	09/16/99	03/18/99	08/31/99		09/09/99
Monitoring Program	GWPP	GWPP		GWPP	GWPP	GWPP	GWPP		GWPP
Type			DUP					DUP	
Acetone	<	<	<	<	<	<	<	<	<
Acrylonitrile	<	<	<	<	<	<	<	<	<
Benzene	4	<	<	<	<	<	<	<	<
2-Butanone	<	<	<	<	<	<	<	<	<
Carbon disulfide	<	<	<	<	<	<	<	<	<
Carbon tetrachloride	<	<	<	<	<	3	2	2	<
Chloroethane	<	<	<	<	<	<	<	<	<
Chloroform	<	<	<	<	<	<	<	<	<
1,1-Dichloroethane	<	<	<	<	<	<	<	<	<
1,2-Dichloroethane	<	<	<	<	<	<	<	<	<
1,1-Dichloroethene	<	<	<	<	<	2	<	<	<
cis-1,2-Dichloroethene	<	<	<	<	<	4	3	3	8
trans-1,2-Dichloroethene	<	<	<	<	<	<	<	<	<
1,2-Dichloropropane	<	<	<	<	<	<	<	<	<
Ethylbenzene	3	<	<	<	<	<	<	<	<
4-Methyl-2-pentanone	<	<	<	<	<	<	<	<	<
Methylene chloride	<	<	<	<	<	<	<	<	<
Styrene	1	<	<	<	<	<	<	<	<
Tetrachloroethene	<	<	<	<	<	<	<	<	<
Toluene	<	<	<	<	<	<	<	<	<
1,1,1-Trichloroethane	<	<	<	<	<	<	<	<	<
Trichloroethene	<	<	<	<	<	210	110	120	55
Vinyl chloride	<	<	<	<	<	<	<	<	<

(CONTINUED)

Sampling Point	GW-236	GW-242	GW-276		GW-287		GW-311		GW-315
Location	S3	BG	S3		BG		RS		SPI
Date Sampled	09/08/99	03/08/99	02/04/99	07/16/99	03/23/99	08/19/99	03/16/99	08/30/99	03/16/99
Monitoring Program	GWPP	GWPP	IWQP	IWQP	GWPP	GWPP	GWPP	GWPP	GWPP
Type									
Acetone	<	<	<	<	<	<	<	<	<
Acrylonitrile	<	<	.	.	<	<	<	<	<
Benzene	<	<	<	<	<	<	<	<	<
2-Butanone	<	<	<	<	<	<	<	<	<
Carbon disulfide	<	<	<	<	<	<	<	<	<
Carbon tetrachloride	<	<	<	<	<	<	<	<	<
Chloroethane	<	<	<	<	<	<	<	<	<
Chloroform	<	<	<	<	<	<	<	<	<
1,1-Dichloroethane	2	5	<	<	<	<	<	<	<
1,2-Dichloroethane	<	<	<	<	<	<	<	<	<
1,1-Dichloroethene	<	<	<	<	<	<	<	<	<
cis-1,2-Dichloroethene	<	82	<	<	<	<	<	<	3
trans-1,2-Dichloroethene	<	<	<	<	<	<	<	<	<
1,2-Dichloropropane	<	<	<	<	<	<	<	<	<
Ethylbenzene	<	<	<	<	<	<	<	<	<
4-Methyl-2-pentanone	<	<	<	<	<	<	<	<	<
Methylene chloride	<	<	<	<	<	<	<	<	<
Styrene	<	<	<	<	<	<	<	<	<
Tetrachloroethene	<	<	11	14	<	4	<	<	14
Toluene	<	<	<	<	<	<	<	<	<
1,1,1-Trichloroethane	<	<	<	<	<	<	<	<	<
Trichloroethene	<	3	<	<	<	<	7	7	6
Vinyl chloride	<	45	<	<	<	<	<	<	<

(CONTINUED)

APPENDIX D.2: BEAR CREEK HYDROGEOLOGIC REGIME, 1999
Volatile Organic Compounds (ug/L)

Sampling Point	GW-315	GW-345	GW-346	GW-526		GW-537		GW-601	GW-621
Location	SPI	S3	S3	S3		OLF		OLF	EXP-B
Date Sampled	08/30/99	03/09/99	03/09/99	03/11/99		03/18/99	08/31/99	03/08/99	02/15/99
Monitoring Program	GWPP	GWPP	GWPP	GWPP		GWPP	GWPP	GWPP	GWPP
Type					DUP				
Acetone	<	<	<	<	<	<	<	<	<
Acrylonitrile	<	<	<	<	<	<	<	<	<
Benzene	<	<	<	<	<	<	<	<	<
2-Butanone	<	<	<	<	<	<	<	<	<
Carbon disulfide	<	<	<	<	<	<	<	<	<
Carbon tetrachloride	<	<	<	<	<	<	<	<	<
Chloroethane	<	<	<	<	<	<	<	<	<
Chloroform	<	<	<	<	<	<	2	<	<
1,1-Dichloroethane	<	<	<	<	<	<	<	<	<
1,2-Dichloroethane	<	<	<	<	<	<	<	<	<
1,1-Dichloroethene	<	<	<	<	<	<	<	<	<
cis-1,2-Dichloroethene	3	<	<	<	<	<	<	<	<
trans-1,2-Dichloroethene	<	<	<	<	<	<	<	<	<
1,2-Dichloropropane	<	<	<	<	<	<	<	<	<
Ethylbenzene	<	<	<	<	<	<	<	<	<
4-Methyl-2-pentanone	<	<	<	<	<	<	<	<	<
Methylene chloride	<	<	<	<	<	<	<	<	<
Styrene	<	<	<	<	<	<	<	<	<
Tetrachloroethene	13	<	<	<	<	<	<	<	<
Toluene	<	<	<	<	<	<	<	<	<
1,1,1-Trichloroethane	<	<	<	<	<	<	<	<	<
Trichloroethene	6	<	<	<	<	<	<	96	<
Vinyl chloride	<	<	<	<	<	<	<	<	<

(CONTINUED)

Sampling Point	GW-621	GW-627			GW-653		GW-683		GW-684
Location	EXP-B	BG			BG		EXP-A		EXP-A
Date Sampled	08/02/99	03/24/99		08/26/99	03/23/99	08/19/99	02/11/99	07/29/99	02/10/99
Monitoring Program	GWPP	GWPP		GWPP	GWPP	GWPP	GWPP	GWPP	GWPP
Type			DUP						
Acetone	<	<	<	<	<	<	<	<	<
Acrylonitrile	<	<	<	<	<	<	<	<	<
Benzene	<	<	<	<	<	<	<	<	<
2-Butanone	<	<	<	<	<	<	<	<	<
Carbon disulfide	<	<	<	<	<	<	<	<	<
Carbon tetrachloride	<	<	<	<	<	<	<	<	<
Chloroethane	<	<	<	<	<	<	<	<	<
Chloroform	<	<	<	<	<	<	<	<	<
1,1-Dichloroethane	<	48	50	57	2	<	<	<	<
1,2-Dichloroethane	<	<	<	<	<	<	<	<	<
1,1-Dichloroethene	<	13	13	15	<	<	<	<	<
cis-1,2-Dichloroethene	<	7	7	8	32	22	<	<	<
trans-1,2-Dichloroethene	<	3	3	3	<	<	<	<	<
1,2-Dichloropropane	<	<	<	<	<	<	<	<	<
Ethylbenzene	<	<	<	<	<	<	<	<	<
4-Methyl-2-pentanone	<	<	<	<	<	<	<	<	<
Methylene chloride	<	<	<	<	<	<	<	<	<
Styrene	<	<	<	<	<	<	<	<	<
Tetrachloroethene	<	360	340	470	3	2	<	<	<
Toluene	<	<	<	<	<	<	<	<	<
1,1,1-Trichloroethane	<	<	<	<	<	<	<	<	<
Trichloroethene	<	120	120	150	2	<	<	<	<
Vinyl chloride	<	11	11	12	<	<	<	<	<

(CONTINUED)

APPENDIX D.2: BEAR CREEK HYDROGEOLOGIC REGIME, 1999
Volatile Organic Compounds (ug/L)

Sampling Point	GW-684	GW-685		GW-695		GW-703		GW-704	
Location	EXP-A	EXP-A		EXP-B		EXP-B		EXP-B	
Date Sampled	07/29/99	02/09/99	07/28/99	02/15/99	08/02/99	02/16/99	08/03/99	02/16/99	08/24/99
Monitoring Program	GWPP	GWPP	GWPP	GWPP	GWPP	GWPP	GWPP	GWPP	GWPP
Type									
Acetone	<	<	<	<	<	<	<	<	<
Acrylonitrile	<	<	<	<	<	<	<	<	<
Benzene	<	<	<	<	<	<	<	<	<
2-Butanone	<	<	<	<	<	<	<	<	<
Carbon disulfide	<	<	<	<	<	<	4	<	<
Carbon tetrachloride	<	<	<	<	<	<	<	<	<
Chloroethane	<	<	<	<	<	<	<	<	<
Chloroform	<	<	<	<	<	<	<	<	<
1,1-Dichloroethane	<	<	<	<	<	<	<	<	2
1,2-Dichloroethane	<	<	<	<	<	<	<	<	<
1,1-Dichloroethene	<	<	<	<	<	<	<	4	6
cis-1,2-Dichloroethene	<	<	<	5	3	3	5	5	2
trans-1,2-Dichloroethene	<	<	<	<	<	<	<	<	<
1,2-Dichloropropane	<	<	<	<	<	<	<	<	<
Ethylbenzene	<	<	<	<	<	<	<	<	<
4-Methyl-2-pentanone	<	<	<	<	<	<	<	<	<
Methylene chloride	<	<	<	<	<	<	<	<	<
Styrene	<	<	<	<	<	<	<	<	<
Tetrachloroethene	<	<	<	<	<	<	<	<	<
Toluene	<	<	<	<	<	<	<	<	<
1,1,1-Trichloroethane	<	<	<	<	<	<	<	<	<
Trichloroethene	<	<	<	8	4	20	16	52	79
Vinyl chloride	<	<	<	<	<	<	<	<	<

(CONTINUED)

Sampling Point	GW-706			GW-712		GW-713		GW-714	
Location	EXP-B			EXP-W		EXP-W		EXP-W	
Date Sampled	02/17/99		08/24/99	01/25/99	07/01/99	01/26/99	07/19/99	01/26/99	07/15/99
Monitoring Program	GWPP		GWPP	IWQP	IWQP	IWQP	IWQP	IWQP	IWQP
Type		DUP							
Acetone	<	<	<	<	<	<	<	<	<
Acrylonitrile	<	<	<	.	.	.	.	.	.
Benzene	<	<	<	<	<	<	<	<	<
2-Butanone	<	<	<	<	<	<	<	<	<
Carbon disulfide	<	<	<	<	<	<	<	<	<
Carbon tetrachloride	<	<	<	<	<	<	<	<	<
Chloroethane	<	<	<	<	<	<	<	<	<
Chloroform	<	<	<	<	<	<	<	<	<
1,1-Dichloroethane	<	<	<	<	<	<	<	<	<
1,2-Dichloroethane	<	<	<	<	<	<	<	<	3
1,1-Dichloroethene	<	<	<	<	<	<	<	<	<
cis-1,2-Dichloroethene	12	12	6	<	<	<	<	<	<
trans-1,2-Dichloroethene	<	<	<	<	<	<	<	<	<
1,2-Dichloropropane	<	<	<	<	<	<	<	<	<
Ethylbenzene	<	<	<	<	<	<	<	<	<
4-Methyl-2-pentanone	<	<	<	<	<	<	<	<	<
Methylene chloride	<	<	<	<	<	<	<	<	<
Styrene	<	<	<	<	<	<	<	<	<
Tetrachloroethene	<	<	<	<	<	<	<	<	<
Toluene	<	<	<	<	<	<	<	<	<
1,1,1-Trichloroethane	<	<	<	<	<	<	<	<	<
Trichloroethene	20	19	13	<	<	<	<	<	<
Vinyl chloride	<	<	<	<	<	<	<	<	<

(CONTINUED)

APPENDIX D.2: BEAR CREEK HYDROGEOLOGIC REGIME, 1999
Volatile Organic Compounds (ug/L)

Sampling Point	GW-715			GW-724		GW-725			GW-726-02
Location	EXP-W			EXP-C		EXP-C			BG
Date Sampled	02/04/99	07/15/99		02/22/99	08/09/99	02/22/99	08/09/99		06/01/99
Monitoring Program	IWQP	IWQP		GWPP	GWPP	GWPP	GWPP		GWPP
Type			DUP					DUP	
Acetone	<	<	<	<	<	<	<	<	<
Acrylonitrile	.	.	.	<	<	<	<	<	<
Benzene	<	<	<	<	<	<	<	<	<
2-Butanone	<	<	<	<	<	<	<	<	<
Carbon disulfide	<	<	<	<	<	<	<	<	<
Carbon tetrachloride	<	<	<	<	<	<	<	<	<
Chloroethane	<	<	<	<	<	<	<	<	<
Chloroform	<	<	<	<	<	<	<	<	<
1,1-Dichloroethane	<	<	<	<	<	<	<	<	<
1,2-Dichloroethane	<	2	2	<	<	<	<	<	<
1,1-Dichloroethene	<	<	<	<	<	<	<	<	<
cis-1,2-Dichloroethene	<	<	<	3	4	3	3	4	<
trans-1,2-Dichloroethene	<	<	<	<	<	<	<	<	<
1,2-Dichloropropane	<	<	<	<	<	<	<	<	<
Ethylbenzene	<	<	<	<	<	<	<	<	<
4-Methyl-2-pentanone	<	<	<	<	<	<	<	<	<
Methylene chloride	<	<	<	<	<	<	<	<	<
Styrene	<	<	<	<	<	<	<	<	<
Tetrachloroethene	<	<	<	4	<	3	<	<	<
Toluene	<	<	<	<	<	<	<	<	<
1,1,1-Trichloroethane	<	<	<	<	<	<	<	<	<
Trichloroethene	<	<	<	120	110	19	29	45	<
Vinyl chloride	<	<	<	<	<	<	<	<	<

(CONTINUED)

Sampling Point	GW-726-04	GW-726-06	GW-726-09		GW-726-12	GW-726-16	GW-726-20	GW-726-23	GW-738
Location	BG	BG	BG		BG	BG	BG	BG	EXP-C
Date Sampled	06/08/99	06/08/99	06/09/99		06/09/99	06/10/99	06/10/99	06/10/99	02/18/99
Monitoring Program	GWPP	GWPP	GWPP		GWPP	GWPP	GWPP	GWPP	GWPP
Type				DUP					
Acetone	<	<	<	<	<	<	<	<	<
Acrylonitrile	<	<	5	<	<	<	<	<	<
Benzene	<	<	<	<	<	<	<	<	<
2-Butanone	<	<	<	<	<	<	<	<	<
Carbon disulfide	<	<	<	<	<	<	7	<	<
Carbon tetrachloride	<	<	<	<	<	<	<	<	<
Chloroethane	<	<	<	<	<	<	<	<	<
Chloroform	<	<	<	<	<	<	<	<	<
1,1-Dichloroethane	<	<	<	<	<	<	<	<	<
1,2-Dichloroethane	<	<	<	<	<	<	<	<	<
1,1-Dichloroethene	<	<	<	<	<	<	<	<	<
cis-1,2-Dichloroethene	<	<	<	<	<	<	<	<	2
trans-1,2-Dichloroethene	<	<	<	<	<	<	<	<	<
1,2-Dichloropropane	<	<	<	<	<	<	<	<	<
Ethylbenzene	<	<	<	<	<	<	<	<	<
4-Methyl-2-pentanone	<	<	<	<	<	<	<	<	<
Methylene chloride	<	<	<	<	<	<	<	<	<
Styrene	<	2	<	<	<	<	<	<	<
Tetrachloroethene	<	<	<	<	<	<	<	<	<
Toluene	<	<	<	<	<	<	<	<	<
1,1,1-Trichloroethane	<	<	<	<	<	<	<	<	<
Trichloroethene	<	<	<	<	<	<	<	<	36
Vinyl chloride	<	<	<	<	<	<	<	<	<

(CONTINUED)

APPENDIX D.2: BEAR CREEK HYDROGEOLOGIC REGIME, 1999
Volatile Organic Compounds (ug/L)

Sampling Point	GW-738	GW-740		GW-829		GW-838			
Location	EXP-C	EXP-C		OLF		EMWMF			
Date Sampled	08/24/99	02/18/99	08/24/99	03/17/99	08/30/99	03/22/99	05/19/99	07/28/99	10/21/99
Monitoring Program	GWPP	GWPP	GWPP	GWPP	GWPP	IWQP	IWQP	IWQP	IWQP
Type									
Acetone	<	<	<	<	<	<	<	<	<
Acrylonitrile	<	<	<	<	<	.	.	.	.
Benzene	<	<	<	<	<	<	<	<	<
2-Butanone	<	<	<	<	<	<	<	<	<
Carbon disulfide	<	<	<	<	<	<	<	<	<
Carbon tetrachloride	<	2	2	<	<	<	<	<	<
Chloroethane	<	<	<	<	<	<	<	<	<
Chloroform	<	<	<	<	<	<	<	<	<
1,1-Dichloroethane	<	<	<	<	<	<	<	<	<
1,2-Dichloroethane	<	<	<	<	<	<	<	<	<
1,1-Dichloroethene	<	<	<	<	<	<	<	<	<
cis-1,2-Dichloroethene	2	3	2	<	<	<	.	.	<
trans-1,2-Dichloroethene	<	<	<	<	<	<	<	<	<
1,2-Dichloropropane	<	<	<	<	<	<	<	<	<
Ethylbenzene	<	<	<	<	<	<	<	<	<
4-Methyl-2-pentanone	<	<	<	<	<	<	<	<	<
Methylene chloride	<	<	<	<	<	<	<	<	<
Styrene	<	<	<	<	<	<	<	<	<
Tetrachloroethene	<	<	<	<	<	<	<	<	<
Toluene	<	<	<	<	<	<	<	<	<
1,1,1-Trichloroethane	<	3	<	<	<	<	<	<	<
Trichloroethene	38	65	64	<	<	<	<	<	<
Vinyl chloride	<	<	<	<	<	<	<	<	<

(CONTINUED)

Sampling Point	GW-840			GW-904				GW-905	
Location	EMWMF			EMWMF				EMWMF	
Date Sampled	05/20/99	07/29/99	10/21/99	03/29/99	05/24/99	08/02/99	10/20/99	03/25/99	05/24/99
Monitoring Program	IWQP	IWQP	IWQP	IWQP	IWQP	IWQP	IWQP	IWQP	IWQP
Type									
Acetone	<	6	<	<	<	<	<	<	<
Acrylonitrile	.	.	.	.	.	.	.	.	.
Benzene	<	<	<	<	<	<	<	<	<
2-Butanone	<	<	<	3	<	<	<	<	<
Carbon disulfide	<	<	<	3	2	1	3	<	<
Carbon tetrachloride	<	<	<	<	<	<	<	<	<
Chloroethane	<	<	<	<	<	<	<	<	<
Chloroform	<	<	<	<	<	<	<	<	<
1,1-Dichloroethane	<	<	<	<	<	<	<	<	<
1,2-Dichloroethane	<	<	<	1	<	<	<	<	<
1,1-Dichloroethene	<	<	<	<	<	<	<	<	<
cis-1,2-Dichloroethene	.	.	<	<	.	.	<	<	.
trans-1,2-Dichloroethene	<	<	<	<	<	<	<	<	<
1,2-Dichloropropane	<	<	<	<	<	<	<	<	<
Ethylbenzene	<	<	<	<	<	<	<	<	<
4-Methyl-2-pentanone	<	<	<	<	<	<	<	<	<
Methylene chloride	<	<	<	<	<	<	<	<	0.9
Styrene	<	<	<	<	<	<	<	<	<
Tetrachloroethene	<	<	<	<	<	<	<	<	<
Toluene	<	<	<	<	<	<	<	<	<
1,1,1-Trichloroethane	<	<	<	<	<	<	<	<	<
Trichloroethene	<	<	<	<	<	<	<	<	<
Vinyl chloride	<	<	<	<	<	<	<	<	<

(CONTINUED)

APPENDIX D.2: BEAR CREEK HYDROGEOLOGIC REGIME, 1999
Volatile Organic Compounds (ug/L)

Sampling Point	GW-905		NT-01		NT-02	NT-06	NT-07		
Location	EMWMF		EXP-SW		EXP-SW	EXP-SW	EXP-SW		
Date Sampled	08/02/99	10/21/99	02/25/99	08/11/99	03/02/99	03/02/99	02/02/99	03/02/99	07/29/99
Monitoring Program	IWQP	IWQP	GWPP	GWPP	GWPP	GWPP	IWQP	GWPP	IWQP
Type									
Acetone	<	<	<	<	<	<	<	<	<
Acrylonitrile	.	.	<	<	<	<	.	<	.
Benzene	<	<	<	<	<	<	<	<	<
2-Butanone	<	<	<	<	<	<	<	<	<
Carbon disulfide	<	<	<	<	<	<	<	<	<
Carbon tetrachloride	<	<	<	<	<	<	<	<	<
Chloroethane	<	<	<	<	<	<	<	<	<
Chloroform	<	<	<	<	<	<	1	<	<
1,1-Dichloroethane	<	<	<	<	<	<	5	7	<
1,2-Dichloroethane	<	<	<	<	<	<	<	<	<
1,1-Dichloroethene	<	<	<	<	<	<	2	3	<
cis-1,2-Dichloroethene	.	<	<	<	<	3	60	82	<
trans-1,2-Dichloroethene	<	<	<	<	<	<	<	<	<
1,2-Dichloropropane	<	<	<	<	<	<	<	<	<
Ethylbenzene	<	<	<	<	<	<	<	<	<
4-Methyl-2-pentanone	<	<	<	<	<	<	<	<	<
Methylene chloride	<	<	<	<	<	<	<	<	<
Styrene	<	<	<	<	<	<	<	<	<
Tetrachloroethene	<	<	5	<	<	3	17	28	<
Toluene	<	<	<	<	<	<	<	<	<
1,1,1-Trichloroethane	<	<	<	<	<	4	2	3	<
Trichloroethene	<	<	<	<	<	<	13	21	<
Vinyl chloride	<	<	<	<	<	<	3	3	<

(CONTINUED)

Sampling Point	NT-08			SS-1		SS-4			SS-5
Location	EXP-SW			EXP-SW		EXP-SW			EXP-SW
Date Sampled	02/02/99	03/02/99	07/29/99	02/25/99	08/11/99	02/24/99	08/11/99		02/23/99
Monitoring Program	IWQP	GWPP	IWQP	GWPP	GWPP	GWPP	GWPP		GWPP
Type								DUP	
Acetone	<	<	<	<	<	<	<	<	<
Acrylonitrile	.	<	.	<	<	<	<	<	<
Benzene	1	<	<	<	<	<	<	<	<
2-Butanone	<	<	<	<	<	<	<	<	<
Carbon disulfide	<	<	<	<	<	<	<	<	<
Carbon tetrachloride	<	<	<	<	<	<	<	<	<
Chloroethane	<	<	<	<	<	<	<	<	<
Chloroform	2	<	<	<	<	<	<	<	<
1,1-Dichloroethane	13	5	3	<	<	<	<	<	<
1,2-Dichloroethane	1	<	<	<	<	<	<	<	<
1,1-Dichloroethene	5	2	<	<	<	<	<	<	<
cis-1,2-Dichloroethene	200	83	48	<	<	2	6	6	<
trans-1,2-Dichloroethene	<	<	<	<	<	<	<	<	<
1,2-Dichloropropane	<	<	<	<	<	<	<	<	<
Ethylbenzene	<	<	<	<	<	<	<	<	<
4-Methyl-2-pentanone	<	<	<	<	<	<	<	<	<
Methylene chloride	<	<	<	<	<	<	<	<	<
Styrene	<	<	<	<	<	<	<	<	<
Tetrachloroethene	23	11	4	<	<	<	<	<	<
Toluene	<	<	<	<	<	<	<	<	<
1,1,1-Trichloroethane	3	<	<	<	<	<	<	<	<
Trichloroethene	15	7	3	<	<	7	11	11	<
Vinyl chloride	11	3	<	<	<	<	<	<	<

(CONTINUED)

APPENDIX D.2: BEAR CREEK HYDROGEOLOGIC REGIME, 1999
Volatile Organic Compounds (ug/L)

Sampling Point	SS-5	SS-6		SS-6.6			SS-7		
Location	EXP-SW	EXP-SW		EXP-SW			EXP-SW		
Date Sampled	08/11/99	02/23/99	08/10/99	02/03/99	07/29/99		02/02/99		07/29/99
Monitoring Program	GWPP	GWPP	GWPP	IWQP	IWQP		IWQP		IWQP
Type						DUP		DUP	
Acetone	<	<	<	<	<	<	<	<	<
Acrylonitrile	<	<	<	.	.	.	.	.	.
Benzene	<	<	<	<	<	<	<	<	<
2-Butanone	<	<	<	<	<	<	<	<	<
Carbon disulfide	<	<	<	<	<	<	<	<	<
Carbon tetrachloride	<	<	<	<	<	<	<	<	<
Chloroethane	<	<	<	<	<	<	<	<	<
Chloroform	<	<	<	<	<	<	<	<	<
1,1-Dichloroethane	<	<	<	<	<	<	<	<	<
1,2-Dichloroethane	<	<	<	<	<	<	<	<	<
1,1-Dichloroethene	<	<	<	<	<	<	<	<	<
cis-1,2-Dichloroethene	<	<	<	<	<	<	<	<	<
trans-1,2-Dichloroethene	<	<	<	<	<	<	<	<	<
1,2-Dichloropropane	<	<	<	<	<	<	<	<	<
Ethylbenzene	<	<	<	<	<	<	<	<	<
4-Methyl-2-pentanone	<	<	<	<	<	<	<	<	<
Methylene chloride	<	<	<	<	<	<	<	<	<
Styrene	<	<	<	<	<	<	<	<	<
Tetrachloroethene	<	<	<	<	<	<	<	<	<
Toluene	<	<	<	<	<	<	<	<	<
1,1,1-Trichloroethane	<	<	<	<	<	<	<	<	<
Trichloroethene	<	<	<	<	<	<	<	<	<
Vinyl chloride	<	<	<	<	<	<	<	<	<

(CONTINUED)

Sampling Point	SS-8	
Location	EXP-SW	
Date Sampled	02/03/99	07/29/99
Monitoring Program	IWQP	IWQP
Type		
Acetone	<	<
Acrylonitrile	.	.
Benzene	<	<
2-Butanone	<	<
Carbon disulfide	<	<
Carbon tetrachloride	<	<
Chloroethane	<	<
Chloroform	<	<
1,1-Dichloroethane	<	<
1,2-Dichloroethane	<	<
1,1-Dichloroethene	<	<
cis-1,2-Dichloroethene	<	<
trans-1,2-Dichloroethene	<	<
1,2-Dichloropropane	<	<
Ethylbenzene	<	<
4-Methyl-2-pentanone	<	<
Methylene chloride	<	<
Styrene	<	<
Tetrachloroethene	<	<
Toluene	<	<
1,1,1-Trichloroethane	<	<
Trichloroethene	<	<
Vinyl chloride	<	<

APPENDIX D.3

RADIOLOGICAL ANALYTES

APPENDIX D.3: BEAR CREEK HYDROGEOLOGIC REGIME, 1999
Radiogical Analytes: Alpha and Beta Activity (pCi/L)

Sampling Point	BCK-00.63						BCK-04.55		
Location	EXP-SW						EXP-SW		
Date Sampled	02/23/99			08/10/99			02/23/99		
Monitoring Program	GWPP			GWPP			GWPP		
Type									
	ACT	ERR	MDA	ACT	ERR	MDA	ACT	ERR	MDA
Gross Alpha	22	6	3.1	16	5.2	3.2	21	6.2	3.8
Gross Beta	8	5.2	8	11	5.5	8.1	11	5.6	8.3

(CONTINUED)

Sampling Point	BCK-04.55			BCK-07.87					
Location	EXP-SW			EXP-SW					
Date Sampled	08/10/99			02/23/99					
Monitoring Program	GWPP			GWPP					
Type							DUP		
	ACT	ERR	MDA	ACT	ERR	MDA	ACT	ERR	MDA
Gross Alpha	15	5.8	3.8	52	9	3	51	9.1	3.5
Gross Beta	16	5.7	7.8	34	7.3	8.6	30	6.9	8.6

(CONTINUED)

Sampling Point	BCK-07.87			BCK-09.40					
Location	EXP-SW			EXP-SW					
Date Sampled	08/10/99			02/24/99			08/11/99		
Monitoring Program	GWPP			GWPP			GWPP		
Type									
	ACT	ERR	MDA	ACT	ERR	MDA	ACT	ERR	MDA
Gross Alpha	35	8.2	1.3	110	15	4.1	64	12	1.4
Gross Beta	32	7.6	9.2	80	9.9	9.3	47	9.1	9.9

(CONTINUED)

Sampling Point	BCK-09.47			BCK-10.60			BCK-11.97		
Location	EXP-SW			EXP-SW			EXP-SW		
Date Sampled	07/29/99			02/24/99			02/25/99		
Monitoring Program	IWQP			GWPP			GWPP		
Type									
	ACT	ERR	MDA	ACT	ERR	MDA	ACT	ERR	MDA
Gross Alpha	76.29	5.56	1.31	89	12	3.2	56	11	5.4
Gross Beta	44.09	2.56	2.19	40	7.7	8.8	130	11	8.2

(CONTINUED)

Radiogical Analytes: Alpha and Beta Activity (pCi/L)

Sampling Point	BCK-11.97			DCWELL			GW-008		
Location	EXP-SW			DCHAPCEM			OLF		
Date Sampled	08/10/99			03/24/99			02/08/99		
Monitoring Program	GWPP			GWPP			IWQP		
Type									
	ACT	ERR	MDA	ACT	ERR	MDA	ACT	ERR	MDA
Gross Alpha	55	11	7.6	<MDA	.	3	1.49	0.57	0.63
Gross Beta	120	11	8.9	<MDA	.	8.6	<MDA	.	1.45

(CONTINUED)

Sampling Point	GW-008			GW-046					
Location	OLF			BG					
Date Sampled	07/15/99			02/08/99					
Monitoring Program	IWQP			IWQP					
Type							DUP		
	ACT	ERR	MDA	ACT	ERR	MDA	ACT	ERR	MDA
Gross Alpha	<MDA	.	1.22	0.85	0.57	0.8	1.12	0.69	0.94
Gross Beta	<MDA	.	1.77	1.75	0.98	1.59	<MDA	.	1.93

(CONTINUED)

Sampling Point	GW-046			GW-053					
Location	BG			BG					
Date Sampled	07/15/99			03/24/99			08/26/99		
Monitoring Program	IWQP			GWPP			GWPP		
Type									
	ACT	ERR	MDA	ACT	ERR	MDA	ACT	ERR	MDA
Gross Alpha	<MDA	.	1.63	<MDA	.	6.5	<MDA	.	3.4
Gross Beta	2.35	1.2	1.87	<MDA	.	9.6	<MDA	.	8.9

(CONTINUED)

Sampling Point	GW-056						GW-082		
Location	EXP-A						BG		
Date Sampled	02/09/99			07/28/99			03/04/99		
Monitoring Program	GWPP			GWPP			GWPP		
Type									
	ACT	ERR	MDA	ACT	ERR	MDA	ACT	ERR	MDA
Gross Alpha	8.3	5	6	6.7	4.8	6.4	<MDA	.	5.6
Gross Beta	12	5.4	7.7	<MDA	.	9.4	<MDA	.	8.7

(CONTINUED)

Sampling Point	GW-085						GW-087		
Location	OLF						OLF		
Date Sampled	03/17/99			08/31/99			03/11/99		
Monitoring Program	GWPP			GWPP			GWPP		
Type									
	ACT	ERR	MDA	ACT	ERR	MDA	ACT	ERR	MDA
Gross Alpha	<MDA	.	3.2	<MDA	.	4	36	8.3	5.6
Gross Beta	48	8	8.7	93	10	9	38	7.4	7.9

(CONTINUED)

Sampling Point	GW-115						GW-126		
Location	S3						BG		
Date Sampled	01/25/99			07/01/99			03/02/99		
Monitoring Program	IWQP			IWQP			GWPP		
Type									
	ACT	ERR	MDA	ACT	ERR	MDA	ACT	ERR	MDA
Gross Alpha	<MDA	.	1.08	<MDA	.	2.01	<MDA	.	4.8
Gross Beta	<MDA	.	2.32	<MDA	.	0.72	<MDA	.	8.5

(CONTINUED)

Sampling Point	GW-132-01			GW-132-05			GW-132-09		
Location	S3			S3			S3		
Date Sampled	09/23/99			09/27/99			09/27/99		
Monitoring Program	GWPP			GWPP			GWPP		
Type									
	ACT	ERR	MDA	ACT	ERR	MDA	ACT	ERR	MDA
Gross Alpha	5.2	3.7	4.2	<MDA	.	4	<MDA	.	7.6
Gross Beta	<MDA	.	9	<MDA	.	7.3	<MDA	.	8.9

(CONTINUED)

Sampling Point	GW-132-09			GW-132-13			GW-132-17		
Location	S3			S3			S3		
Date Sampled	09/27/99			09/28/99			09/28/99		
Monitoring Program	GWPP			GWPP			GWPP		
Type	DUP								
	ACT	ERR	MDA	ACT	ERR	MDA	ACT	ERR	MDA
Gross Alpha	<MDA	.	7.6	< CE	14	11	<MDA	.	43
Gross Beta	<MDA	.	7.3	<MDA	.	89	<MDA	.	88

(CONTINUED)

Radiogical Analytes: Alpha and Beta Activity (pCi/L)

Sampling Point	GW-132-21			GW-132-25			GW-133-01		
Location	S3			S3			S3		
Date Sampled	09/28/99			09/28/99			08/16/99		
Monitoring Program	GWPP			GWPP			GWPP		
Type									
	ACT	ERR	MDA	ACT	ERR	MDA	ACT	ERR	MDA
Gross Alpha	2.5	2.3	1.4	<MDA	.	12	<MDA	.	17
Gross Beta	<MDA	.	9	<MDA	.	16	<MDA	.	18

(CONTINUED)

Sampling Point	GW-133-05			GW-133-08			GW-133-10		
Location	S3			S3			S3		
Date Sampled	08/17/99			08/17/99			08/18/99		
Monitoring Program	GWPP			GWPP			GWPP		
Type									
	ACT	ERR	MDA	ACT	ERR	MDA	ACT	ERR	MDA
Gross Alpha	<MDA	.	12	<MDA	.	7.6	<MDA	.	8.6
Gross Beta	<MDA	.	17	<MDA	.	19	<MDA	.	19

(CONTINUED)

Sampling Point	GW-133-10			GW-133-14			GW-133-17		
Location	S3			S3			S3		
Date Sampled	08/18/99			08/18/99			08/18/99		
Monitoring Program	GWPP			GWPP			GWPP		
Type	DUP								
	ACT	ERR	MDA	ACT	ERR	MDA	ACT	ERR	MDA
Gross Alpha	<MDA	.	16	<MDA	.	15	<MDA	.	12
Gross Beta	<MDA	.	17	<MDA	.	19	<MDA	.	17

(CONTINUED)

Sampling Point	GW-133-21			GW-133-24			GW-134-05		
Location	S3			S3			S3		
Date Sampled	08/19/99			08/19/99			08/03/99		
Monitoring Program	GWPP			GWPP			GWPP		
Type									
	ACT	ERR	MDA	ACT	ERR	MDA	ACT	ERR	MDA
Gross Alpha	<MDA	.	9.6	270	30	9.7	<MDA	.	64
Gross Beta	<MDA	.	16	56	14	17	<MDA	.	79

(CONTINUED)

Radiogical Analytes: Alpha and Beta Activity (pCi/L)

Sampling Point	GW-134-11			GW-134-15			GW-134-18		
Location	S3			S3			S3		
Date Sampled	08/04/99			08/04/99			08/04/99		
Monitoring Program	GWPP			GWPP			GWPP		
Type									
	ACT	ERR	MDA	ACT	ERR	MDA	ACT	ERR	MDA
Gross Alpha	<MDA	.	51	<MDA	.	330	<MDA	.	120
Gross Beta	<MDA	.	79	<MDA	.	900	<MDA	.	890

(CONTINUED)

Sampling Point	GW-134-21			GW-134-25					
Location	S3			S3					
Date Sampled	08/05/99			08/10/99					
Monitoring Program	GWPP			GWPP					
Type							DUP		
	ACT	ERR	MDA	ACT	ERR	MDA	ACT	ERR	MDA
Gross Alpha	<MDA	.	50	<MDA	.	5.1	<MDA	.	9.7
Gross Beta	<MDA	.	96	<MDA	.	8.4	<MDA	.	9

(CONTINUED)

Sampling Point	GW-134-29			GW-134-33			GW-134-35		
Location	S3			S3			S3		
Date Sampled	08/11/99			08/11/99			08/11/99		
Monitoring Program	GWPP			GWPP			GWPP		
Type									
	ACT	ERR	MDA	ACT	ERR	MDA	ACT	ERR	MDA
Gross Alpha	<MDA	.	4.1	<MDA	.	7.5	<MDA	.	7.7
Gross Beta	<MDA	.	8.3	210	16	9.5	330	19	9.4

(CONTINUED)

Sampling Point	GW-134-36			GW-135-03			GW-135-06		
Location	S3			S3			S3		
Date Sampled	08/11/99			09/08/99			09/13/99		
Monitoring Program	GWPP			GWPP			GWPP		
Type									
	ACT	ERR	MDA	ACT	ERR	MDA	ACT	ERR	MDA
Gross Alpha	4.8	3.5	4.2	<MDA	.	590	<MDA	.	68
Gross Beta	32	7.5	9.2	<MDA	.	670	<MDA	.	78

(CONTINUED)

Radiological Analytes: Alpha and Beta Activity (pCi/L)

Sampling Point	GW-135-11			GW-135-15			GW-135-19		
Location	S3			S3			S3		
Date Sampled	09/13/99			09/14/99			09/14/99		
Monitoring Program	GWPP			GWPP			GWPP		
Type									
	ACT	ERR	MDA	ACT	ERR	MDA	ACT	ERR	MDA
Gross Alpha	<MDA	.	60	<MDA	.	4.6	5.6	3.8	5
Gross Beta	<MDA	.	85	<MDA	.	7.6	<MDA	.	8.7

(CONTINUED)

Sampling Point	GW-135-23			GW-135-26			GW-135-30		
Location	S3			S3			S3		
Date Sampled	09/15/99			09/15/99			09/15/99		
Monitoring Program	GWPP			GWPP			GWPP		
Type									
	ACT	ERR	MDA	ACT	ERR	MDA	ACT	ERR	MDA
Gross Alpha	<MDA	.	44	<MDA	.	57	11	4.9	5.2
Gross Beta	<MDA	.	89	<MDA	.	97	<MDA	.	9.1

(CONTINUED)

Sampling Point	GW-135-30			GW-135-34			GW-135-39		
Location	S3			S3			S3		
Date Sampled	09/15/99			09/16/99			09/16/99		
Monitoring Program	GWPP			GWPP			GWPP		
Type	DUP								
	ACT	ERR	MDA	ACT	ERR	MDA	ACT	ERR	MDA
Gross Alpha	<MDA	.	4.9	5.9	3.2	1.2	<MDA	.	5.3
Gross Beta	<MDA	.	8.6	6.5	4.1	6.1	<MDA	.	7.8

(CONTINUED)

Sampling Point	GW-226								
Location	OLF								
Date Sampled	03/18/99			08/31/99					
Monitoring Program	GWPP			GWPP					
Type							DUP		
	ACT	ERR	MDA	ACT	ERR	MDA	ACT	ERR	MDA
Gross Alpha	6.6	3.9	3.7	<MDA	.	5.4	<MDA	.	4.9
Gross Beta	20	6.1	8.1	18	6.3	8.4	18	6.2	8.3

(CONTINUED)

Radiogical Analytes: Alpha and Beta Activity (pCi/L)

Sampling Point	GW-228			GW-236			GW-242		
Location	OLF			S3			BG		
Date Sampled	09/09/99			09/08/99			03/08/99		
Monitoring Program	GWPP			GWPP			GWPP		
Type									
	ACT	ERR	MDA	ACT	ERR	MDA	ACT	ERR	MDA
Gross Alpha	<MDA	.	4.3	5.9	3.7	4	<MDA	.	3.4
Gross Beta	<MDA	.	8.2	85	9.7	8.5	7.4	4.8	7.2

(CONTINUED)

Sampling Point	GW-276						GW-287		
Location	S3						BG		
Date Sampled	02/04/99			07/16/99			03/23/99		
Monitoring Program	IWQP			IWQP			GWPP		
Type									
	ACT	ERR	MDA	ACT	ERR	MDA	ACT	ERR	MDA
Gross Alpha	354.5	15.16	3.73	514.95	15.13	3.62	<MDA	.	4.1
Gross Beta	806.17	9.79	2.35	473.92	7.29	2.66	<MDA	.	8.3

(CONTINUED)

Sampling Point	GW-287			GW-311					
Location	BG			RS					
Date Sampled	08/19/99			03/16/99			08/30/99		
Monitoring Program	GWPP			GWPP			GWPP		
Type									
	ACT	ERR	MDA	ACT	ERR	MDA	ACT	ERR	MDA
Gross Alpha	<MDA	.	5	<MDA	.	4.6	<MDA	.	4.8
Gross Beta	<MDA	.	8.5	<MDA	.	8.3	<MDA	.	6.6

(CONTINUED)

Sampling Point	GW-315						GW-345		
Location	SPI						S3		
Date Sampled	03/16/99			08/30/99			03/09/99		
Monitoring Program	GWPP			GWPP			GWPP		
Type									
	ACT	ERR	MDA	ACT	ERR	MDA	ACT	ERR	MDA
Gross Alpha	<MDA	.	3.9	<MDA	.	5.1	<MDA	.	3
Gross Beta	30	7.4	9.2	31	7	8.3	<MDA	.	7.6

(CONTINUED)

Radiogical Analytes: Alpha and Beta Activity (pCi/L)

Sampling Point	GW-346			GW-526					
Location	S3			S3					
Date Sampled	03/09/99			03/11/99					
Monitoring Program	GWPP			GWPP					
Type							DUP		
	ACT	ERR	MDA	ACT	ERR	MDA	ACT	ERR	MDA
Gross Alpha	<MDA	.	57	< CE	23	18	<MDA	.	56
Gross Beta	<MDA	.	79	<MDA	.	88	<MDA	.	97

(CONTINUED)

Sampling Point	GW-537						GW-601		
Location	OLF						OLF		
Date Sampled	03/18/99			08/31/99			03/08/99		
Monitoring Program	GWPP			GWPP			GWPP		
Type									
	ACT	ERR	MDA	ACT	ERR	MDA	ACT	ERR	MDA
Gross Alpha	4.3	2.9	1.3	<MDA	.	17	<MDA	.	5.6
Gross Beta	<MDA	.	8.9	420	28	15	<MDA	.	10

(CONTINUED)

Sampling Point	GW-621						GW-627		
Location	EXP-B						BG		
Date Sampled	02/15/99			08/02/99			03/24/99		
Monitoring Program	GWPP			GWPP			GWPP		
Type									
	ACT	ERR	MDA	ACT	ERR	MDA	ACT	ERR	MDA
Gross Alpha	4.3	2.9	3.1	<MDA	.	5.7	<MDA	.	9
Gross Beta	<MDA	.	8	<MDA	.	9.4	<MDA	.	9.8

(CONTINUED)

Sampling Point	GW-627						GW-653		
Location	BG						BG		
Date Sampled	03/24/99			08/26/99			03/23/99		
Monitoring Program	GWPP			GWPP			GWPP		
Type	DUP								
	ACT	ERR	MDA	ACT	ERR	MDA	ACT	ERR	MDA
Gross Alpha	<MDA	.	6.6	<MDA	.	9.9	<MDA	.	0.99
Gross Beta	<MDA	.	9.1	<MDA	.	17	<MDA	.	8

(CONTINUED)

Radiogical Analytes: Alpha and Beta Activity (pCi/L)

Sampling Point	GW-653			GW-683					
Location	BG			EXP-A					
Date Sampled	08/19/99			02/11/99			07/29/99		
Monitoring Program	GWPP			GWPP			GWPP		
Type									
	ACT	ERR	MDA	ACT	ERR	MDA	ACT	ERR	MDA
Gross Alpha	<MDA	.	4.4	26	6.8	3.7	16	5.4	3.8
Gross Beta	<MDA	.	9.7	20	6.2	8.3	21	6.4	8.1

(CONTINUED)

Sampling Point	GW-684						GW-685		
Location	EXP-A						EXP-A		
Date Sampled	02/10/99			07/29/99			02/09/99		
Monitoring Program	GWPP			GWPP			GWPP		
Type									
	ACT	ERR	MDA	ACT	ERR	MDA	ACT	ERR	MDA
Gross Alpha	14	5.6	5.6	14	5	3.2	7.8	4.4	4.6
Gross Beta	28	6.6	8	24	6.5	8.1	<MDA	.	8.5

(CONTINUED)

Sampling Point	GW-685			GW-695					
Location	EXP-A			EXP-B					
Date Sampled	07/28/99			02/15/99			08/02/99		
Monitoring Program	GWPP			GWPP			GWPP		
Type									
	ACT	ERR	MDA	ACT	ERR	MDA	ACT	ERR	MDA
Gross Alpha	<MDA	.	5.9	<MDA	.	3.9	<MDA	.	4.7
Gross Beta	11	5.6	8.2	25	6.9	8.9	29	6.8	8.1

(CONTINUED)

Sampling Point	GW-703						GW-704		
Location	EXP-B						EXP-B		
Date Sampled	02/16/99			08/03/99			02/16/99		
Monitoring Program	GWPP			GWPP			GWPP		
Type									
	ACT	ERR	MDA	ACT	ERR	MDA	ACT	ERR	MDA
Gross Alpha	4.6	3	3.1	<MDA	.	5.1	5.7	3.9	5
Gross Beta	18	5.6	7.1	34	6.9	7.9	22	5.9	7.5

(CONTINUED)

Radiogical Analytes: Alpha and Beta Activity (pCi/L)

Sampling Point	GW-704			GW-706					
Location	EXP-B			EXP-B					
Date Sampled	08/04/99			02/17/99					
Monitoring Program	GWPP			GWPP					
Type							DUP		
	ACT	ERR	MDA	ACT	ERR	MDA	ACT	ERR	MDA
Gross Alpha	3.6	2.6	1.2	43	8.9	4	43	9	1.3
Gross Beta	<MDA	.	8.9	120	11	8.7	110	10	7.8

(CONTINUED)

Sampling Point	GW-706			GW-712					
Location	EXP-B			EXP-W					
Date Sampled	08/04/99			01/25/99			07/01/99		
Monitoring Program	GWPP			IWQP			IWQP		
Type									
	ACT	ERR	MDA	ACT	ERR	MDA	ACT	ERR	MDA
Gross Alpha	38	8.4	4	<MDA	.	0.96	<MDA	.	2.35
Gross Beta	86	10	9.6	20.78	1.93	2.2	<MDA	.	1.96

(CONTINUED)

Sampling Point	GW-713						GW-714		
Location	EXP-W						EXP-W		
Date Sampled	01/26/99			07/19/99			01/26/99		
Monitoring Program	IWQP			IWQP			IWQP		
Type									
	ACT	ERR	MDA	ACT	ERR	MDA	ACT	ERR	MDA
Gross Alpha	1.68	1.15	1.65	2.49	1.31	1.78	1.39	0.78	1.05
Gross Beta	<MDA	.	2.53	3.84	1.32	2.02	5	1.13	1.63

(CONTINUED)

Sampling Point	GW-714			GW-715					
Location	EXP-W			EXP-W					
Date Sampled	07/15/99			02/04/99			07/15/99		
Monitoring Program	IWQP			IWQP			IWQP		
Type									
	ACT	ERR	MDA	ACT	ERR	MDA	ACT	ERR	MDA
Gross Alpha	<MDA	.	2.28	7.74	2.37	2.52	<MDA	.	3.21
Gross Beta	3.88	1.34	1.97	158.44	4.45	1.94	2.5	1.52	2.42

(CONTINUED)

Radiogical Analytes: Alpha and Beta Activity (pCi/L)

Sampling Point	GW-715			GW-724					
Location	EXP-W			EXP-C					
Date Sampled	07/15/99			02/22/99			08/09/99		
Monitoring Program	IWQP			GWPP			GWPP		
Type	DUP								
	ACT	ERR	MDA	ACT	ERR	MDA	ACT	ERR	MDA
Gross Alpha	<MDA	.	2.86	<MDA	.	4.2	<MDA	.	1.3
Gross Beta	3.21	1.31	1.99	27	6.8	8.8	33	7.1	8.4

(CONTINUED)

Sampling Point	GW-725								
Location	EXP-C								
Date Sampled	02/22/99			08/09/99					
Monitoring Program	GWPP			GWPP					
Type							DUP		
	ACT	ERR	MDA	ACT	ERR	MDA	ACT	ERR	MDA
Gross Alpha	<MDA	.	5.5	3.7	2.8	1.4	<MDA	.	3.9
Gross Beta	34	7.1	7.9	36	7.9	9.1	30	7.1	8.5

(CONTINUED)

Sampling Point	GW-726-02			GW-726-04			GW-726-06		
Location	BG			BG			BG		
Date Sampled	06/01/99			06/08/99			06/08/99		
Monitoring Program	GWPP			GWPP			GWPP		
Type									
	ACT	ERR	MDA	ACT	ERR	MDA	ACT	ERR	MDA
Gross Alpha	<MDA	.	65	<MDA	.	100	<MDA	.	50
Gross Beta	<MDA	.	78	<MDA	.	87	<MDA	.	100

(CONTINUED)

Sampling Point	GW-726-09						GW-726-12		
Location	BG						BG		
Date Sampled	06/09/99						06/09/99		
Monitoring Program	GWPP						GWPP		
Type				DUP					
	ACT	ERR	MDA	ACT	ERR	MDA	ACT	ERR	MDA
Gross Alpha	<MDA	.	58	<MDA	.	47	<MDA	.	37
Gross Beta	<MDA	.	78	<MDA	.	100	<MDA	.	86

(CONTINUED)

Radiogical Analytes: Alpha and Beta Activity (pCi/L)

Sampling Point	GW-726-16			GW-726-20			GW-726-23		
Location	BG			BG			BG		
Date Sampled	06/10/99			06/10/99			06/10/99		
Monitoring Program	GWPP			GWPP			GWPP		
Type									
	ACT	ERR	MDA	ACT	ERR	MDA	ACT	ERR	MDA
Gross Alpha	<MDA	.	54	<MDA	.	2.2	<MDA	.	4.7
Gross Beta	<MDA	.	94	<MDA	.	9.3	<MDA	.	8.8

(CONTINUED)

Sampling Point	GW-738						GW-740		
Location	EXP-C						EXP-C		
Date Sampled	02/18/99			08/05/99			02/18/99		
Monitoring Program	GWPP			GWPP			GWPP		
Type									
	ACT	ERR	MDA	ACT	ERR	MDA	ACT	ERR	MDA
Gross Alpha	<MDA	.	3.7	<MDA	.	7.4	4.6	3.1	3.4
Gross Beta	46	8.2	8.9	30	6.7	7.7	<MDA	.	7.5

(CONTINUED)

Sampling Point	GW-740			GW-829					
Location	EXP-C			OLF					
Date Sampled	08/05/99			03/17/99			08/30/99		
Monitoring Program	GWPP			GWPP			GWPP		
Type									
	ACT	ERR	MDA	ACT	ERR	MDA	ACT	ERR	MDA
Gross Alpha	<MDA	.	5.5	<MDA	.	53	<MDA	.	6
Gross Beta	<MDA	.	9.6	580	86	87	<MDA	.	7.2

(CONTINUED)

Sampling Point	NT-01						NT-02		
Location	EXP-SW						EXP-SW		
Date Sampled	02/25/99			08/11/99			03/02/99		
Monitoring Program	GWPP			GWPP			GWPP		
Type									
	ACT	ERR	MDA	ACT	ERR	MDA	ACT	ERR	MDA
Gross Alpha	6.4	4	4	23	13	15	1.9	1.9	1.3
Gross Beta	220	15	8.8	500	31	18	13	5.9	8.5

(CONTINUED)

Radiogical Analytes: Alpha and Beta Activity (pCi/L)

Sampling Point	NT-06			NT-07			NT-08		
Location	EXP-SW			EXP-SW			EXP-SW		
Date Sampled	03/02/99			03/02/99			03/02/99		
Monitoring Program	GWPP			GWPP			GWPP		
Type									
	ACT	ERR	MDA	ACT	ERR	MDA	ACT	ERR	MDA
Gross Alpha	6.1	3.7	3.9	11	4.7	1.3	140	16	1.3
Gross Beta	<MDA	.	8	<MDA	.	10	44	8.1	8.9

(CONTINUED)

Sampling Point	SS-1						SS-4		
Location	EXP-SW						EXP-SW		
Date Sampled	02/25/99			08/11/99			02/24/99		
Monitoring Program	GWPP			GWPP			GWPP		
Type									
	ACT	ERR	MDA	ACT	ERR	MDA	ACT	ERR	MDA
Gross Alpha	23	7.7	4.6	19	7.1	4.6	110	14	3.5
Gross Beta	37	7.7	8.4	42	8.3	9.1	60	8.2	7.5

(CONTINUED)

Sampling Point	SS-4						SS-5		
Location	EXP-SW						EXP-SW		
Date Sampled	08/11/99						02/23/99		
Monitoring Program	GWPP						GWPP		
Type				DUP					
	ACT	ERR	MDA	ACT	ERR	MDA	ACT	ERR	MDA
Gross Alpha	34	9.3	7.3	42	9.6	4	29	7	1.2
Gross Beta	56	9.7	10	57	9.3	9.3	25	6.3	7.7

(CONTINUED)

Sampling Point	SS-5			SS-6					
Location	EXP-SW			EXP-SW					
Date Sampled	08/11/99			02/23/99			08/10/99		
Monitoring Program	GWPP			GWPP			GWPP		
Type									
	ACT	ERR	MDA	ACT	ERR	MDA	ACT	ERR	MDA
Gross Alpha	24	7	4.1	3	2.4	3	5.5	3.4	3.4
Gross Beta	29	7.4	9.6	<MDA	.	8.1	<MDA	.	9

(CONTINUED)

Radiological Analytes: Alpha and Beta Activity (pCi/L)

Sampling Point	SS-6.6								
Location	EXP-SW								
Date Sampled	02/03/99			07/29/99					
Monitoring Program	IWQP			IWQP					
Type							DUP		
	ACT	ERR	MDA	ACT	ERR	MDA	ACT	ERR	MDA
Gross Alpha	.	.	.	1.33	0.81	0.96	1.36	0.79	0.92
Gross Beta	<MDA	.	1.86	<MDA	.	1.86	<MDA	.	1.85

(CONTINUED)

Sampling Point	SS-7								
Location	EXP-SW								
Date Sampled	02/02/99						07/29/99		
Monitoring Program	IWQP						IWQP		
Type				DUP					
	ACT	ERR	MDA	ACT	ERR	MDA	ACT	ERR	MDA
Gross Alpha	.	.	.	.	.	.	4.62	1.43	1.06
Gross Beta	<MDA	.	1.71	<MDA	.	1.73	4.42	1.3	1.89

(CONTINUED)

Sampling Point	SS-8					
Location	EXP-SW					
Date Sampled	02/03/99			07/29/99		
Monitoring Program	IWQP			IWQP		
Type						
	ACT	ERR	MDA	ACT	ERR	MDA
Gross Alpha	1.02	0.44	0.55	1.9	0.96	1.02
Gross Beta	<MDA	.	0.95	<MDA	.	1.88

APPENDIX D.3: BEAR CREEK HYDROGEOLOGIC REGIME, 1999
Radiogical Analytes: Isotope Activity (pCi/L)

Sampling Point	BCK-07.87						BCK-09.47		
Location	EXP-SW						EXP-SW		
Date Sampled	02/03/99			08/10/99			02/03/99		
Monitoring Program	IWQP			IWQP			IWQP		
Type									
	ACT	ERR	MDA	ACT	ERR	MDA	ACT	ERR	MDA
Gross Alpha	.	.	.	.	.	.	.	.	.
Gross Beta	.	.	.	.	.	.	.	.	.
Americium-241	.	.	.	.	.	.	.	.	.
Bismuth-214	.	.	.	.	.	.	.	.	.
Cobalt-60	.	.	.	.	.	.	.	.	.
Lead-214	.	.	.	.	.	.	.	.	.
Neptunium-237	.	.	.	.	.	.	.	.	.
Plutonium-238	.	.	.	.	.	.	.	.	.
Plutonium-239	.	.	.	.	.	.	.	.	.
Potassium-40	.	.	.	.	.	.	.	.	.
Radium (total)	.	.	.	.	.	.	.	.	.
Radium-226	.	.	.	.	.	.	.	.	.
Strontium-89	.	.	.	.	.	.	.	.	.
Strontium-90	.	.	.	.	.	.	.	.	.
Technetium-99	14.39	1.94	2.78	21.69	8.93	14.46	.	.	.
Thallium-208	.	.	.	.	.	.	.	.	.
Thorium-230	.	.	.	.	.	.	.	.	.
Thorium-234	.	.	.	.	.	.	.	.	.
Uranium-234	21.05	4.98	0.31	15.45	3.59	0.57	18.64	4.69	0.51
Uranium-235	1.54	0.78	0.38	1.48	0.85	0.59	1.55	0.84	0.26
Uranium-236	1.02	0.59	0.34	0.47	0.44	0.45	0.7	0.51	0.24
Uranium-238	47.73	10.55	0.36	30.51	6.31	0.47	48.24	11.09	0.36

(CONTINUED)

Sampling Point	BCK-09.47			BCK-11.97					
Location	EXP-SW			EXP-SW					
Date Sampled	07/29/99			02/25/99			08/10/99		
Monitoring Program	IWQP			GWPP			GWPP		
Type									
	ACT	ERR	MDA	ACT	ERR	MDA	ACT	ERR	MDA
Gross Alpha	76.29	5.56	1.31	56	11	5.4	55	11	7.6
Gross Beta	44.09	2.56	2.19	130	11	8.2	120	11	8.9
Americium-241	.	.	.	0.51	0.32	0.44	0.43	0.26	0.31
Bismuth-214	.	.	.	.	.	.	.	.	.
Cobalt-60	.	.	.	.	.	.	.	.	.
Lead-214	.	.	.	.	.	.	.	.	.
Neptunium-237	.	.	.	1.4	0.47	0.3	<MDA	.	0.21
Plutonium-238	.	.	.	<MDA	.	0.24	0.37	0.22	0.32
Plutonium-239	.	.	.	<MDA	.	0.15	<MDA	.	0.26
Potassium-40	.	.	.	.	.	.	.	.	.
Radium (total)	.	.	.	.	.	.	.	.	.
Radium-226	.	.	.	.	.	.	.	.	.
Strontium-89	.	.	.	.	.	.	.	.	.
Strontium-90	.	.	.	.	.	.	.	.	.
Technetium-99	38.85	8.66	13.3	260	12	13	180	11	13
Thallium-208	.	.	.	.	.	.	.	.	.
Thorium-230	.	.	.	<MDA	.	0.33	0.43	0.35	0.39
Thorium-234	.	.	.	48	4.9	0.056	66	7.1	0.071
Uranium-234	31.27	6.83	0.32	25	2.7	0.056	33	3.8	0.17
Uranium-235	1.25	0.71	0.52	1.3	0.38	0.07	1.5	0.48	0.22
Uranium-236	1.4	0.71	0.21	.	.	.	.	.	.
Uranium-238	69.06	14.29	0.49	48	4.9	0.056	66	7.1	0.071

(CONTINUED)

Radiogical Analytes: Isotope Activity (pCi/L)

Sampling Point	GW-006								
Location	EMWMF								
Date Sampled	03/30/99						05/25/99		
Monitoring Program	IWQP						IWQP		
Type				DUP					
	ACT	ERR	MDA	ACT	ERR	MDA	ACT	ERR	MDA
Gross Alpha	.	.	.	.	.	.	.	.	.
Gross Beta	.	.	.	.	.	.	.	.	.
Americium-241	.	.	.	.	.	.	.	.	.
Bismuth-214	.	.	.	.	.	.	<MDA	.	9.84
Cobalt-60	<MDA	.	7.06	<MDA	.	4.81	<MDA	.	3.23
Lead-214	.	.	.	.	.	.	<MDA	.	9.51
Neptunium-237	.	.	.	.	.	.	.	.	.
Plutonium-238	<MDA	.	0.56	<MDA	.	0.49	<MDA	.	0.208
Plutonium-239	<MDA	.	0.33	<MDA	.	0.38	<MDA	.	0.1
Potassium-40	.	.	.	.	.	.	<MDA	.	52.2
Radium (total)	.	.	.	.	.	.	.	.	.
Radium-226	.	.	.	.	.	.	<MDA	.	7.04
Strontium-89	<MDA	.	10.58	<MDA	.	9.89	<MDA	.	0.687
Strontium-90	<MDA	.	1.87	<MDA	.	1.75	<MDA	.	1.03
Technetium-99	<MDA	.	13.52	<MDA	.	13.62	<MDA	.	21.3
Thallium-208	.	.	.	.	.	.	<MDA	.	4.1
Thorium-230	.	.	.	.	.	.	.	.	.
Thorium-234	.	.	.	.	.	.	<MDA	.	150
Uranium-234	0.53	0.37	0.32	0.64	0.4	0.38	<MDA	.	0.229
Uranium-235	<MDA	.	0.39	<MDA	.	0.33	<MDA	.	0.23
Uranium-236	<MDA	.	0.3	<MDA	.	0.35	.	.	.
Uranium-238	0.35	0.29	0.27	<MDA	.	0.4	<MDA	.	0.194

(CONTINUED)

Sampling Point	GW-006								
Location	EMWMF								
Date Sampled	05/25/99			08/03/99					
Monitoring Program	IWQP			IWQP					
Type	DUP						DUP		
	ACT	ERR	MDA	ACT	ERR	MDA	ACT	ERR	MDA
Gross Alpha	.	.	.	.	.	.	.	.	.
Gross Beta	.	.	.	.	.	.	.	.	.
Americium-241	.	.	.	.	.	.	.	.	.
Bismuth-214	<MDA	.	10.9	<MDA	.	6.22	<MDA	.	7.02
Cobalt-60	<MDA	.	4.02	<MDA	.	2.73	<MDA	.	2.77
Lead-214	8.72	8.44	7.24	<MDA	.	4.8	<MDA	.	6.85
Neptunium-237	.	.	.	.	.	.	.	.	.
Plutonium-238	< CE	0.136	0.116	<MDA	.	0.205	<MDA	.	0.244
Plutonium-239	<MDA	.	0.204	<MDA	.	0.27	<MDA	.	0.118
Potassium-40	<MDA	.	51	<MDA	.	40.9	<MDA	.	32.7
Radium (total)	.	.	.	.	.	.	.	.	.
Radium-226	12	7.59	6.59	<MDA	.	4.7	<MDA	.	5.28
Strontium-89	<MDA	.	1	<MDA	.	1.37	<MDA	.	1.53
Strontium-90	<MDA	.	1.26	<MDA	.	1.37	<MDA	.	1.53
Technetium-99	<MDA	.	21.2	22	13.1	21.3	<MDA	.	20.7
Thallium-208	<MDA	.	4.12	<MDA	.	3.03	<MDA	.	3.19
Thorium-230	.	.	.	.	.	.	.	.	.
Thorium-234	<MDA	.	154	<MDA	.	39	<MDA	.	134
Uranium-234	0.27	0.207	0.254	<MDA	.	0.203	<MDA	.	0.2
Uranium-235	<MDA	.	0.101	<MDA	.	0.173	<MDA	.	0.201
Uranium-236	.	.	.	.	.	.	.	.	.
Uranium-238	<MDA	.	0.101	<MDA	.	0.172	<MDA	.	0.223

(CONTINUED)

Radiogical Analytes: Isotope Activity (pCi/L)

Sampling Point	GW-006						GW-008		
Location	EMWMF						OLF		
Date Sampled	10/20/99						02/08/99		
Monitoring Program	IWQP						IWQP		
Type				DUP					
	ACT	ERR	MDA	ACT	ERR	MDA	ACT	ERR	MDA
Gross Alpha	.	.	.	.	.	.	1.49	0.57	0.63
Gross Beta	.	.	.	.	.	.	<MDA	.	1.45
Americium-241	.	.	.	.	.	.	0.89	0.57	0.58
Bismuth-214	.	.	.	.	.	.	.	.	.
Cobalt-60	9.45	.	8.98	<MDA	.	9.15	.	.	.
Lead-214	.	.	.	.	.	.	.	.	.
Neptunium-237	.	.	.	.	.	.	<MDA	.	0.57
Plutonium-238	<MDA	.	0.56	<MDA	.	0.44	.	.	.
Plutonium-239	<MDA	.	0.42	<MDA	.	0.37	.	.	.
Potassium-40	.	.	.	.	.	.	.	.	.
Radium (total)	.	.	.	.	.	.	0.99	0.55	0.44
Radium-226	.	.	.	.	.	.	.	.	.
Strontium-89	<MDA	.	2.64	<MDA	.	2.59	<MDA	.	4.9
Strontium-90	<MDA	.	2.14	<MDA	.	2.1	<MDA	.	3.7
Technetium-99	<MDA	.	13.97	<MDA	.	15.79	<MDA	.	2.69
Thallium-208	.	.	.	.	.	.	.	.	.
Thorium-230	.	.	.	.	.	.	.	.	.
Thorium-234	.	.	.	.	.	.	.	.	.
Uranium-234	<MDA	.	0.37	0.78	0.52	0.45	<MDA	.	0.2
Uranium-235	<MDA	.	0.46	<MDA	.	0.5	<MDA	.	0.22
Uranium-236	<MDA	.	0.32	<MDA	.	0.38	<MDA	.	0.11
Uranium-238	<MDA	.	0.37	<MDA	.	0.45	<MDA	.	0.17

(CONTINUED)

Sampling Point	GW-008			GW-043					
Location	OLF			EMWMF					
Date Sampled	07/15/99			03/11/99			05/17/99		
Monitoring Program	IWQP			IWQP			IWQP		
Type									
	ACT	ERR	MDA	ACT	ERR	MDA	ACT	ERR	MDA
Gross Alpha	<MDA	.	1.22	.	.	.	.	.	.
Gross Beta	<MDA	.	1.77	.	.	.	.	.	.
Americium-241	<MDA	.	0.64	.	.	.	.	.	.
Bismuth-214	.	.	.	.	.	.	<MDA	.	9.56
Cobalt-60	.	.	.	<MDA	.	5.74	<MDA	.	4.74
Lead-214	.	.	.	.	.	.	<MDA	.	8.65
Neptunium-237	<MDA	.	0.33	.	.	.	.	.	.
Plutonium-238	.	.	.	<MDA	.	0.58	<MDA	.	0.186
Plutonium-239	.	.	.	<MDA	.	0.29	<MDA	.	0.136
Potassium-40	.	.	.	.	.	.	<MDA	.	58.8
Radium (total)	<MDA	.	1.22	.	.	.	.	.	.
Radium-226	.	.	.	.	.	.	<MDA	.	7.68
Strontium-89	<MDA	.	3.38	<MDA	.	8.61	<MDA	.	0.915
Strontium-90	<MDA	.	2.25	<MDA	.	1.52	<MDA	.	1.5
Technetium-99	<MDA	.	14.04	<MDA	.	14.2	<MDA	.	25.7
Thallium-208	.	.	.	.	.	.	<MDA	.	4.7
Thorium-230	.	.	.	.	.	.	.	.	.
Thorium-234	.	.	.	.	.	.	<MDA	.	271
Uranium-234	<MDA	.	0.38	<MDA	.	0.48	<MDA	.	0.103
Uranium-235	<MDA	.	0.18	<MDA	.	0.36	<MDA	.	0.0792
Uranium-236	<MDA	.	0.28	<MDA	.	0.44	.	.	.
Uranium-238	<MDA	.	0.25	<MDA	.	0.29	< CE	0.0442	0.0381

(CONTINUED)

Radiogical Analytes: Isotope Activity (pCi/L)

Sampling Point	GW-043						GW-044		
Location	EMWMF						EMWMF		
Date Sampled	07/27/99			10/18/99			03/18/99		
Monitoring Program	IWQP			IWQP			IWQP		
Type									
	ACT	ERR	MDA	ACT	ERR	MDA	ACT	ERR	MDA
Gross Alpha	.	.	.	.	.	.	.	.	.
Gross Beta	.	.	.	.	.	.	.	.	.
Americium-241	.	.	.	.	.	.	.	.	.
Bismuth-214	35.3	8.52	5.22	.	.	.	.	.	.
Cobalt-60	<MDA	.	3.75	<MDA	.	14.12	<MDA	.	6.75
Lead-214	33	7.88	5.11	.	.	.	.	.	.
Neptunium-237	.	.	.	.	.	.	.	.	.
Plutonium-238	< CE	0.126	0.108	<MDA	.	1.32	<MDA	.	0.32
Plutonium-239	<MDA	.	0.108	.	.	.	<MDA	.	0.21
Potassium-40	<MDA	.	28	.	.	.	.	.	.
Radium (total)	.	.	.	.	.	.	.	.	.
Radium-226	35.3	8.52	5.22	.	.	.	.	.	.
Strontium-89	<MDA	.	0.806	3.6	1.73	3.46	<MDA	.	8.43
Strontium-90	<MDA	.	1.17	<MDA	.	2.14	<MDA	.	1.5
Technetium-99	<MDA	.	22.2	<MDA	.	23.61	<MDA	.	13.19
Thallium-208	<MDA	.	3.53	.	.	.	.	.	.
Thorium-230	.	.	.	.	.	.	.	.	.
Thorium-234	57.5	48.3	42.7	.	.	.	.	.	.
Uranium-234	<MDA	.	0.367	<MDA	.	0.67	<MDA	.	0.44
Uranium-235	<MDA	.	0.324	<MDA	.	0.83	<MDA	.	0.34
Uranium-236	.	.	.	<MDA	.	0.74	<MDA	.	0.26
Uranium-238	<MDA	.	0.266	<MDA	.	1.01	<MDA	.	0.3

(CONTINUED)

Sampling Point	GW-044								
Location	EMWMF								
Date Sampled	05/18/99			07/28/99			10/19/99		
Monitoring Program	IWQP			IWQP			IWQP		
Type									
	ACT	ERR	MDA	ACT	ERR	MDA	ACT	ERR	MDA
Gross Alpha	.	.	.	.	.	.	.	.	.
Gross Beta	.	.	.	.	.	.	.	.	.
Americium-241	.	.	.	.	.	.	.	.	.
Bismuth-214	<MDA	.	10.5	33.9	7.57	4.8	.	.	.
Cobalt-60	<MDA	.	5.07	<MDA	.	2.27	<MDA	.	9.01
Lead-214	<MDA	.	9.17	32.5	7.83	5.06	.	.	.
Neptunium-237	.	.	.	.	.	.	.	.	.
Plutonium-238	<MDA	.	0.182	<MDA	.	0.0915	<MDA	.	0.97
Plutonium-239	<MDA	.	0.0668	<MDA	.	0.0915	.	.	.
Potassium-40	<MDA	.	68.8	<MDA	.	24.1	.	.	.
Radium (total)	.	.	.	.	.	.	.	.	.
Radium-226	11.3	9.18	7.37	33.9	7.57	4.8	.	.	.
Strontium-89	<MDA	.	0.653	<MDA	.	0.843	<MDA	.	3.02
Strontium-90	<MDA	.	0.949	<MDA	.	0.979	<MDA	.	1.9
Technetium-99	<MDA	.	25.1	<MDA	.	22.7	<MDA	.	28.24
Thallium-208	<MDA	.	5.43	<MDA	.	2.89	.	.	.
Thorium-230	.	.	.	.	.	.	.	.	.
Thorium-234	<MDA	.	237	<MDA	.	136	.	.	.
Uranium-234	<MDA	.	0.112	<MDA	.	0.355	<MDA	.	1.39
Uranium-235	<MDA	.	0.0394	<MDA	.	0.109	<MDA	.	1.64
Uranium-236	.	.	.	.	.	.	<MDA	.	0.92
Uranium-238	<MDA	.	0.069	<MDA	.	0.225	<MDA	.	0.97

(CONTINUED)

Radiogical Analytes: Isotope Activity (pCi/L)

Sampling Point	GW-046								
Location	BG								
Date Sampled	02/08/99						07/15/99		
Monitoring Program	IWQP						IWQP		
Type				DUP					
	ACT	ERR	MDA	ACT	ERR	MDA	ACT	ERR	MDA
Gross Alpha	0.85	0.57	0.8	1.12	0.69	0.94	<MDA	.	1.63
Gross Beta	1.75	0.98	1.59	<MDA	.	1.93	2.35	1.2	1.87
Americium-241	<MDA	.	0.8	<MDA	.	0.53	<MDA	.	0.81
Bismuth-214	.	.	.	.	.	.	.	.	.
Cobalt-60	.	.	.	.	.	.	.	.	.
Lead-214	.	.	.	.	.	.	.	.	.
Neptunium-237	<MDA	.	0.27	<MDA	.	0.39	0.23	0.18	0.18
Plutonium-238	.	.	.	.	.	.	.	.	.
Plutonium-239	.	.	.	.	.	.	.	.	.
Potassium-40	.	.	.	.	.	.	.	.	.
Radium (total)	0.62	0.44	0.44	0.54	0.41	0.44	<MDA	.	1.16
Radium-226	.	.	.	.	.	.	.	.	.
Strontium-89	<MDA	.	11	<MDA	.	7.3	<MDA	.	3.41
Strontium-90	<MDA	.	7.5	<MDA	.	5.1	<MDA	.	2.26
Technetium-99	<MDA	.	2.69	2.93	1.61	2.65	<MDA	.	14.34
Thallium-208	.	.	.	.	.	.	.	.	.
Thorium-230	.	.	.	.	.	.	.	.	.
Thorium-234	.	.	.	.	.	.	.	.	.
Uranium-234	<MDA	.	0.27	<MDA	.	0.2	<MDA	.	0.36
Uranium-235	<MDA	.	0.25	<MDA	.	0.12	<MDA	.	0.36
Uranium-236	<MDA	.	0.2	<MDA	.	0.11	<MDA	.	0.25
Uranium-238	<MDA	.	0.23	<MDA	.	0.24	<MDA	.	0.32

(CONTINUED)

Sampling Point	GW-077						GW-078		
Location	BG						BG		
Date Sampled	02/03/99			08/17/99			02/02/99		
Monitoring Program	IWQP			IWQP			IWQP		
Type									
	ACT	ERR	MDA	ACT	ERR	MDA	ACT	ERR	MDA
Gross Alpha	.	.	.	.	.	.	.	.	.
Gross Beta	.	.	.	.	.	.	.	.	.
Americium-241	.	.	.	.	.	.	.	.	.
Bismuth-214	.	.	.	.	.	.	.	.	.
Cobalt-60	.	.	.	.	.	.	.	.	.
Lead-214	.	.	.	.	.	.	.	.	.
Neptunium-237	.	.	.	.	.	.	.	.	.
Plutonium-238	.	.	.	.	.	.	.	.	.
Plutonium-239	.	.	.	.	.	.	.	.	.
Potassium-40	.	.	.	.	.	.	.	.	.
Radium (total)	.	.	.	.	.	.	.	.	.
Radium-226	.	.	.	.	.	.	.	.	.
Strontium-89	.	.	.	.	.	.	.	.	.
Strontium-90	.	.	.	.	.	.	.	.	.
Technetium-99	.	.	.	.	.	.	.	.	.
Thallium-208	.	.	.	.	.	.	.	.	.
Thorium-230	.	.	.	.	.	.	.	.	.
Thorium-234	.	.	.	.	.	.	.	.	.
Uranium-234	<MDA	.	0.48	<MDA	.	0.67	0.34	0.23	0.19
Uranium-235	<MDA	.	0.21	<MDA	.	0.75	<MDA	.	0.2
Uranium-236	<MDA	.	0.31	<MDA	.	0.26	<MDA	.	0.11
Uranium-238	<MDA	.	0.33	<MDA	.	0.64	<MDA	.	0.23

(CONTINUED)

Radiogical Analytes: Isotope Activity (pCi/L)

Sampling Point	GW-078						GW-079		
Location	BG						BG		
Date Sampled	02/02/99			08/17/99			02/02/99		
Monitoring Program	IWQP			IWQP			IWQP		
Type	DUP								
	ACT	ERR	MDA	ACT	ERR	MDA	ACT	ERR	MDA
Gross Alpha	.	.	.	.	.	.	.	.	.
Gross Beta	.	.	.	.	.	.	.	.	.
Americium-241	.	.	.	.	.	.	.	.	.
Bismuth-214	.	.	.	.	.	.	.	.	.
Cobalt-60	.	.	.	.	.	.	.	.	.
Lead-214	.	.	.	.	.	.	.	.	.
Neptunium-237	.	.	.	.	.	.	.	.	.
Plutonium-238	.	.	.	.	.	.	.	.	.
Plutonium-239	.	.	.	.	.	.	.	.	.
Potassium-40	.	.	.	.	.	.	.	.	.
Radium (total)	.	.	.	.	.	.	.	.	.
Radium-226	.	.	.	.	.	.	.	.	.
Strontium-89	.	.	.	.	.	.	.	.	.
Strontium-90	.	.	.	.	.	.	.	.	.
Technetium-99	.	.	.	.	.	.	.	.	.
Thallium-208	.	.	.	.	.	.	.	.	.
Thorium-230	.	.	.	.	.	.	.	.	.
Thorium-234	.	.	.	.	.	.	.	.	.
Uranium-234	0.28	0.22	0.25	<MDA	.	0.69	<MDA	.	0.21
Uranium-235	<MDA	.	0.13	<MDA	.	0.48	<MDA	.	0.12
Uranium-236	<MDA	.	0.11	<MDA	.	0.25	<MDA	.	0.18
Uranium-238	0.18	0.17	0.17	0.67	0.49	0.55	<MDA	.	0.19

(CONTINUED)

Sampling Point	GW-079			GW-080					
Location	BG			BG					
Date Sampled	08/12/99			02/03/99			08/12/99		
Monitoring Program	IWQP			IWQP			IWQP		
Type									
	ACT	ERR	MDA	ACT	ERR	MDA	ACT	ERR	MDA
Gross Alpha	.	.	.	.	.	.	.	.	.
Gross Beta	.	.	.	.	.	.	.	.	.
Americium-241	.	.	.	.	.	.	.	.	.
Bismuth-214	.	.	.	.	.	.	.	.	.
Cobalt-60	.	.	.	.	.	.	.	.	.
Lead-214	.	.	.	.	.	.	.	.	.
Neptunium-237	.	.	.	.	.	.	.	.	.
Plutonium-238	.	.	.	.	.	.	.	.	.
Plutonium-239	.	.	.	.	.	.	.	.	.
Potassium-40	.	.	.	.	.	.	.	.	.
Radium (total)	.	.	.	.	.	.	.	.	.
Radium-226	.	.	.	.	.	.	.	.	.
Strontium-89	.	.	.	.	.	.	.	.	.
Strontium-90	.	.	.	.	.	.	.	.	.
Technetium-99	.	.	.	.	.	.	.	.	.
Thallium-208	.	.	.	.	.	.	.	.	.
Thorium-230	.	.	.	.	.	.	.	.	.
Thorium-234	.	.	.	.	.	.	.	.	.
Uranium-234	2.66	1.08	0.64	0.57	0.31	0.22	<MDA	.	0.37
Uranium-235	<MDA	.	0.68	<MDA	.	0.12	<MDA	.	0.38
Uranium-236	<MDA	.	0.55	<MDA	.	0.19	<MDA	.	0.14
Uranium-238	0.64	0.49	0.55	0.24	0.2	0.2	<MDA	.	0.33

(CONTINUED)

Radiogical Analytes: Isotope Activity (pCi/L)

Sampling Point	GW-080			GW-115					
Location	BG			S3					
Date Sampled	08/12/99			01/25/99			07/01/99		
Monitoring Program	IWQP			IWQP			IWQP		
Type	DUP								
	ACT	ERR	MDA	ACT	ERR	MDA	ACT	ERR	MDA
Gross Alpha	.	.	.	<MDA	.	1.08	<MDA	.	2.01
Gross Beta	.	.	.	<MDA	.	2.32	<MDA	.	0.72
Americium-241	.	.	.	<MDA	.	0.37	0.72	0.49	0.5
Bismuth-214	.	.	.	.	.	.	.	.	.
Cobalt-60	.	.	.	.	.	.	.	.	.
Lead-214	.	.	.	.	.	.	.	.	.
Neptunium-237	.	.	.	0.47	0.38	0.44	<MDA	.	0.39
Plutonium-238	.	.	.	.	.	.	.	.	.
Plutonium-239	.	.	.	.	.	.	.	.	.
Potassium-40	.	.	.	.	.	.	.	.	.
Radium (total)	.	.	.	<MDA	.	1	<MDA	.	0.65
Radium-226	.	.	.	.	.	.	.	.	.
Strontium-89	.	.	.	<MDA	.	2.6	<MDA	.	3.11
Strontium-90	.	.	.	<MDA	.	1.6	<MDA	.	1.91
Technetium-99	.	.	.	<MDA	.	2.58	<MDA	.	27.5
Thallium-208	.	.	.	.	.	.	.	.	.
Thorium-230	.	.	.	.	.	.	.	.	.
Thorium-234	.	.	.	.	.	.	.	.	.
Uranium-234	<MDA	.	0.28	<MDA	.	0.25	<MDA	.	0.43
Uranium-235	<MDA	.	0.29	<MDA	.	0.33	<MDA	.	0.22
Uranium-236	<MDA	.	0.15	<MDA	.	0.25	<MDA	.	0.2
Uranium-238	<MDA	.	0.31	<MDA	.	0.22	<MDA	.	0.3

(CONTINUED)

Sampling Point	GW-276						GW-704		
Location	S3						EXP-B		
Date Sampled	02/04/99			07/16/99			02/02/99		
Monitoring Program	IWQP			IWQP			IWQP		
Type									
	ACT	ERR	MDA	ACT	ERR	MDA	ACT	ERR	MDA
Gross Alpha	354.5	15.16	3.73	514.95	15.13	3.62	.	.	.
Gross Beta	806.17	9.79	2.35	473.92	7.29	2.66	.	.	.
Americium-241	<MDA	.	0.69	<MDA	.	5.24	.	.	.
Bismuth-214	.	.	.	.	.	.	.	.	.
Cobalt-60	.	.	.	.	.	.	.	.	.
Lead-214	.	.	.	.	.	.	.	.	.
Neptunium-237	20.4	6.42	0.35	11.62	3.11	0.15	.	.	.
Plutonium-238	.	.	.	.	.	.	.	.	.
Plutonium-239	.	.	.	.	.	.	.	.	.
Potassium-40	.	.	.	.	.	.	.	.	.
Radium (total)	2.03	0.91	0.94	4.67	1.27	0.83	.	.	.
Radium-226	.	.	.	.	.	.	.	.	.
Strontium-89	<MDA	.	7.6	<MDA	.	3.31	.	.	.
Strontium-90	<MDA	.	4.7	4.34	1.28	2.2	.	.	.
Technetium-99	683.07	17.77	13.17	591.49	16.97	13.62	.	.	.
Thallium-208	.	.	.	.	.	.	.	.	.
Thorium-230	.	.	.	.	.	.	.	.	.
Thorium-234	.	.	.	.	.	.	.	.	.
Uranium-234	113.8	25.51	4.16	178.5	40.15	2.51	1.61	0.6	0.34
Uranium-235	7.07	4.4	3.29	10.53	4.85	2.05	<MDA	.	0.23
Uranium-236	3.17	2.74	2.52	8.6	4.13	2.15	<MDA	.	0.12
Uranium-238	253.4	51.04	2.65	425.9	91.27	0.97	1.72	0.62	0.26

(CONTINUED)

Radiogical Analytes: Isotope Activity (pCi/L)

Sampling Point	GW-704			GW-706					
Location	EXP-B			EXP-B					
Date Sampled	08/04/99			02/02/99			08/04/99		
Monitoring Program	IWQP			IWQP			IWQP		
Type									
	ACT	ERR	MDA	ACT	ERR	MDA	ACT	ERR	MDA
Gross Alpha	.	.	.	.	.	.	.	.	.
Gross Beta	.	.	.	.	.	.	.	.	.
Americium-241	.	.	.	.	.	.	.	.	.
Bismuth-214	.	.	.	.	.	.	.	.	.
Cobalt-60	.	.	.	.	.	.	.	.	.
Lead-214	.	.	.	.	.	.	.	.	.
Neptunium-237	.	.	.	.	.	.	.	.	.
Plutonium-238	.	.	.	.	.	.	.	.	.
Plutonium-239	.	.	.	.	.	.	.	.	.
Potassium-40	.	.	.	.	.	.	.	.	.
Radium (total)	.	.	.	.	.	.	.	.	.
Radium-226	.	.	.	.	.	.	.	.	.
Strontium-89	.	.	.	.	.	.	.	.	.
Strontium-90	.	.	.	.	.	.	.	.	.
Technetium-99	.	.	.	.	.	.	.	.	.
Thallium-208	.	.	.	.	.	.	.	.	.
Thorium-230	.	.	.	.	.	.	.	.	.
Thorium-234	.	.	.	.	.	.	.	.	.
Uranium-234	1.31	0.84	0.76	18.07	3.8	0.27	9.51	2.51	0.21
Uranium-235	<MDA	.	0.86	0.83	0.49	0.37	0.62	0.4	0.15
Uranium-236	<MDA	.	0.59	0.83	0.45	0.15	0.41	0.3	0.14
Uranium-238	1.03	0.76	0.85	33.46	6.63	0.27	18.99	4.65	0.12

(CONTINUED)

Sampling Point	GW-712						GW-713		
Location	EXP-W						EXP-W		
Date Sampled	01/25/99			07/01/99			01/26/99		
Monitoring Program	IWQP			IWQP			IWQP		
Type									
	ACT	ERR	MDA	ACT	ERR	MDA	ACT	ERR	MDA
Gross Alpha	<MDA	.	0.96	<MDA	.	2.35	1.68	1.15	1.65
Gross Beta	20.78	1.93	2.2	<MDA	.	1.96	<MDA	.	2.53
Americium-241	<MDA	.	0.42	<MDA	.	0.59	0.51	0.35	0.4
Bismuth-214	.	.	.	.	.	.	.	.	.
Cobalt-60	.	.	.	.	.	.	.	.	.
Lead-214	.	.	.	.	.	.	.	.	.
Neptunium-237	<MDA	.	0.25	<MDA	.	0.58	<MDA	.	0.4
Plutonium-238	.	.	.	.	.	.	.	.	.
Plutonium-239	.	.	.	.	.	.	.	.	.
Potassium-40	.	.	.	.	.	.	.	.	.
Radium (total)	<MDA	.	0.6	<MDA	.	0.87	<MDA	.	0.64
Radium-226	.	.	.	.	.	.	.	.	.
Strontium-89	<MDA	.	2.2	<MDA	.	3.26	<MDA	.	2.5
Strontium-90	<MDA	.	1.3	<MDA	.	2.13	<MDA	.	1.7
Technetium-99	<MDA	.	2.56	<MDA	.	12.76	<MDA	.	2.65
Thallium-208	.	.	.	.	.	.	.	.	.
Thorium-230	.	.	.	.	.	.	.	.	.
Thorium-234	.	.	.	.	.	.	.	.	.
Uranium-234	<MDA	.	0.42	0.53	0.39	0.49	0.29	0.22	0.11
Uranium-235	<MDA	.	0.37	<MDA	.	0.45	<MDA	.	0.14
Uranium-236	<MDA	.	0.26	<MDA	.	0.34	<MDA	.	0.12
Uranium-238	<MDA	.	0.3	0.66	0.44	0.31	<MDA	.	0.29

(CONTINUED)

Radiogical Analytes: Isotope Activity (pCi/L)

Sampling Point	GW-713			GW-714					
Location	EXP-W			EXP-W					
Date Sampled	07/19/99			01/26/99			07/15/99		
Monitoring Program	IWQP			IWQP			IWQP		
Type									
	ACT	ERR	MDA	ACT	ERR	MDA	ACT	ERR	MDA
Gross Alpha	2.49	1.31	1.78	1.39	0.78	1.05	<MDA	.	2.28
Gross Beta	3.84	1.32	2.02	5	1.13	1.63	3.88	1.34	1.97
Americium-241	<MDA	.	1.69	<MDA	.	0.56	3.09	2.02	2.32
Bismuth-214	.	.	.	.	.	.	.	.	.
Cobalt-60	.	.	.	.	.	.	.	.	.
Lead-214	.	.	.	.	.	.	.	.	.
Neptunium-237	<MDA	.	0.67	<MDA	.	0.23	<MDA	.	0.27
Plutonium-238	.	.	.	.	.	.	.	.	.
Plutonium-239	.	.	.	.	.	.	.	.	.
Potassium-40	.	.	.	.	.	.	.	.	.
Radium (total)	1.57	1.1	1.36	<MDA	.	0.61	<MDA	.	1.03
Radium-226	.	.	.	.	.	.	.	.	.
Strontium-89	<MDA	.	6.32	<MDA	.	2.8	<MDA	.	2.91
Strontium-90	<MDA	.	3.92	<MDA	.	1.8	<MDA	.	1.93
Technetium-99	<MDA	.	14.49	4.84	1.71	2.74	<MDA	.	14.17
Thallium-208	.	.	.	.	.	.	.	.	.
Thorium-230	.	.	.	.	.	.	.	.	.
Thorium-234	.	.	.	.	.	.	.	.	.
Uranium-234	<MDA	.	0.59	0.69	0.37	0.34	0.73	0.4	0.34
Uranium-235	<MDA	.	0.56	<MDA	.	0.32	0.38	0.31	0.31
Uranium-236	<MDA	.	0.5	<MDA	.	0.26	<MDA	.	0.24
Uranium-238	<MDA	.	0.59	0.3	0.23	0.26	0.71	0.39	0.28

(CONTINUED)

Sampling Point	GW-715								
Location	EXP-W								
Date Sampled	02/04/99			07/15/99					
Monitoring Program	IWQP			IWQP					
Type							DUP		
	ACT	ERR	MDA	ACT	ERR	MDA	ACT	ERR	MDA
Gross Alpha	7.74	2.37	2.52	<MDA	.	3.21	<MDA	.	2.86
Gross Beta	158.44	4.45	1.94	2.5	1.52	2.42	3.21	1.31	1.99
Americium-241	0.4	0.23	0.24	0.81	0.56	0.62	<MDA	.	0.56
Bismuth-214	.	.	.	.	.	.	.	.	.
Cobalt-60	.	.	.	.	.	.	.	.	.
Lead-214	.	.	.	.	.	.	.	.	.
Neptunium-237	<MDA	.	0.34	<MDA	.	0.43	<MDA	.	0.39
Plutonium-238	.	.	.	.	.	.	.	.	.
Plutonium-239	.	.	.	.	.	.	.	.	.
Potassium-40	.	.	.	.	.	.	.	.	.
Radium (total)	<MDA	.	1.05	<MDA	.	2.64	<MDA	.	0.91
Radium-226	.	.	.	.	.	.	.	.	.
Strontium-89	<MDA	.	5	<MDA	.	3.07	<MDA	.	2.83
Strontium-90	<MDA	.	3.2	<MDA	.	2.04	<MDA	.	1.88
Technetium-99	<MDA	.	13.58	<MDA	.	14.55	<MDA	.	13.34
Thallium-208	.	.	.	.	.	.	.	.	.
Thorium-230	.	.	.	.	.	.	.	.	.
Thorium-234	.	.	.	.	.	.	.	.	.
Uranium-234	1.11	0.48	0.23	1.09	0.49	0.27	0.92	0.48	0.48
Uranium-235	<MDA	.	0.29	<MDA	.	0.15	<MDA	.	0.35
Uranium-236	<MDA	.	0.13	<MDA	.	0.13	<MDA	.	0.32
Uranium-238	1.41	0.55	0.23	1.23	0.52	0.24	1.59	0.64	0.38

(CONTINUED)

Radiogical Analytes: Isotope Activity (pCi/L)

Sampling Point	GW-838								
Location	EMWMF								
Date Sampled	03/22/99			05/19/99			07/28/99		
Monitoring Program	IWQP			IWQP			IWQP		
Type									
	ACT	ERR	MDA	ACT	ERR	MDA	ACT	ERR	MDA
Gross Alpha	.	.	.	.	.	.	.	.	.
Gross Beta	.	.	.	.	.	.	.	.	.
Americium-241	.	.	.	.	.	.	.	.	.
Bismuth-214	.	.	.	<MDA	.	10.4	<MDA	.	7.28
Cobalt-60	<MDA	.	6.33	<MDA	.	4.49	<MDA	.	2.62
Lead-214	.	.	.	<MDA	.	10	9.23	5.63	5.32
Neptunium-237	.	.	.	.	.	.	.	.	.
Plutonium-238	<MDA	.	0.67	<MDA	.	0.189	<MDA	.	0.0853
Plutonium-239	<MDA	.	0.45	<MDA	.	0.123	<MDA	.	0.0853
Potassium-40	.	.	.	<MDA	.	45.5	<MDA	.	37.8
Radium (total)	.	.	.	.	.	.	.	.	.
Radium-226	.	.	.	12.7	7.22	7.66	9.27	5.52	4.71
Strontium-89	<MDA	.	11.02	<MDA	.	0.816	<MDA	.	0.771
Strontium-90	<MDA	.	1.95	<MDA	.	1.1	<MDA	.	1.03
Technetium-99	<MDA	.	13.28	<MDA	.	25.5	<MDA	.	21.9
Thallium-208	.	.	.	4.93	3.87	3.93	<MDA	.	2.69
Thorium-230	.	.	.	.	.	.	.	.	.
Thorium-234	.	.	.	<MDA	.	202	<MDA	.	137
Uranium-234	0.26	0.22	0.23	<MDA	.	0.105	<MDA	.	0.266
Uranium-235	<MDA	.	0.35	<MDA	.	0.0649	<MDA	.	0.128
Uranium-236	<MDA	.	0.22	.	.	.	.	.	.
Uranium-238	<MDA	.	0.38	<MDA	.	0.0763	<MDA	.	0.296

(CONTINUED)

Sampling Point	GW-838			GW-840					
Location	EMWMF			EMWMF					
Date Sampled	10/21/99			05/20/99			07/29/99		
Monitoring Program	IWQP			IWQP			IWQP		
Type									
	ACT	ERR	MDA	ACT	ERR	MDA	ACT	ERR	MDA
Gross Alpha	.	.	.	.	.	.	.	.	.
Gross Beta	.	.	.	.	.	.	.	.	.
Americium-241	.	.	.	.	.	.	.	.	.
Bismuth-214	.	.	.	<MDA	.	9.88	<MDA	.	5.37
Cobalt-60	<MDA	.	9.5	<MDA	.	4.7	<MDA	.	2.44
Lead-214	.	.	.	<MDA	.	9.41	< CE	5.02	4.1
Neptunium-237	.	.	.	.	.	.	.	.	.
Plutonium-238	<MDA	.	0.51	5.46	1.14	0.176	<MDA	.	0.249
Plutonium-239	<MDA	.	0.42	0.241	0.127	0.0968	<MDA	.	0.223
Potassium-40	.	.	.	<MDA	.	50.4	<MDA	.	23.3
Radium (total)	.	.	.	.	.	.	.	.	.
Radium-226	.	.	.	<MDA	.	9.88	<MDA	.	3.88
Strontium-89	<MDA	.	2.62	<MDA	.	0.477	<MDA	.	0.791
Strontium-90	<MDA	.	2.13	<MDA	.	1.07	<MDA	.	1.1
Technetium-99	<MDA	.	14.09	<MDA	.	25.4	<MDA	.	15.5
Thallium-208	.	.	.	<MDA	.	5.07	<MDA	.	2.59
Thorium-230	.	.	.	.	.	.	.	.	.
Thorium-234	.	.	.	<MDA	.	275	<MDA	.	42.8
Uranium-234	1.34	0.9	0.99	<MDA	.	0.127	<MDA	.	0.239
Uranium-235	<MDA	.	1.01	<MDA	.	0.0362	<MDA	.	0.205
Uranium-236	<MDA	.	0.78	.	.	.	.	.	.
Uranium-238	<MDA	.	0.86	<MDA	.	0.103	<MDA	.	0.183

(CONTINUED)

Radiogical Analytes: Isotope Activity (pCi/L)

Sampling Point	GW-840			GW-904					
Location	EMWMF			EMWMF					
Date Sampled	10/19/99			03/29/99			05/24/99		
Monitoring Program	IWQP			IWQP			IWQP		
Type									
	ACT	ERR	MDA	ACT	ERR	MDA	ACT	ERR	MDA
Gross Alpha	.	.	.	.	.	.	.	.	.
Gross Beta	.	.	.	.	.	.	.	.	.
Americium-241	.	.	.	.	.	.	.	.	.
Bismuth-214	.	.	.	.	.	.	<MDA	.	7.62
Cobalt-60	<MDA	.	9.14	<MDA	.	7.26	<MDA	.	4.12
Lead-214	.	.	.	.	.	.	<MDA	.	7.33
Neptunium-237	.	.	.	.	.	.	.	.	.
Plutonium-238	<MDA	.	1.09	<MDA	.	0.41	<MDA	.	0.112
Plutonium-239	.	.	.	<MDA	.	0.33	<MDA	.	0.197
Potassium-40	.	.	.	.	.	.	52.9	34.7	32.4
Radium (total)	.	.	.	.	.	.	.	.	.
Radium-226	.	.	.	.	.	.	<MDA	.	7.62
Strontium-89	<MDA	.	2.99	<MDA	.	11.59	<MDA	.	1.07
Strontium-90	<MDA	.	1.84	<MDA	.	2.05	<MDA	.	1.43
Technetium-99	<MDA	.	14.2	<MDA	.	20.55	<MDA	.	23.1
Thallium-208	.	.	.	.	.	.	<MDA	.	4.16
Thorium-230	.	.	.	.	.	.	.	.	.
Thorium-234	.	.	.	.	.	.	<MDA	.	157
Uranium-234	1.11	0.89	0.75	1	0.52	0.39	0.534	0.311	0.313
Uranium-235	<MDA	.	0.54	<MDA	.	0.34	<MDA	.	0.27
Uranium-236	<MDA	.	0.84	<MDA	.	0.3	.	.	.
Uranium-238	<MDA	.	1.2	0.71	0.43	0.44	0.494	0.287	0.204

(CONTINUED)

Sampling Point	GW-904						GW-905		
Location	EMWMF						EMWMF		
Date Sampled	08/02/99			10/20/99			03/25/99		
Monitoring Program	IWQP			IWQP			IWQP		
Type									
	ACT	ERR	MDA	ACT	ERR	MDA	ACT	ERR	MDA
Gross Alpha	.	.	.	.	.	.	.	.	.
Gross Beta	.	.	.	.	.	.	.	.	.
Americium-241	.	.	.	.	.	.	.	.	.
Bismuth-214	<MDA	.	7.15	.	.	.	.	.	.
Cobalt-60	<MDA	.	2.92	<MDA	.	6.11	<MDA	.	6.49
Lead-214	<MDA	.	7	.	.	.	.	.	.
Neptunium-237	.	.	.	.	.	.	.	.	.
Plutonium-238	<MDA	.	0.313	<MDA	.	1.46	<MDA	.	0.35
Plutonium-239	<MDA	.	0.28	<MDA	.	1.31	<MDA	.	0.27
Potassium-40	<MDA	.	29.9	.	.	.	.	.	.
Radium (total)	.	.	.	.	.	.	.	.	.
Radium-226	<MDA	.	5.35	.	.	.	.	.	.
Strontium-89	<MDA	.	1.95	<MDA	.	2.9	<MDA	.	11.16
Strontium-90	<MDA	.	1.95	<MDA	.	2.35	<MDA	.	1.98
Technetium-99	<MDA	.	25.5	<MDA	.	14.56	<MDA	.	14.26
Thallium-208	<MDA	.	3.46	.	.	.	.	.	.
Thorium-230	.	.	.	.	.	.	.	.	.
Thorium-234	<MDA	.	156	.	.	.	.	.	.
Uranium-234	0.573	0.297	0.216	0.83	0.56	0.6	0.47	0.32	0.38
Uranium-235	<MDA	.	0.216	<MDA	.	0.62	<MDA	.	0.35
Uranium-236	.	.	.	<MDA	.	0.39	<MDA	.	0.35
Uranium-238	0.677	0.324	0.216	0.57	0.45	0.46	<MDA	.	0.28

(CONTINUED)

Radiogical Analytes: Isotope Activity (pCi/L)

Sampling Point	GW-905								
Location	EMWMF								
Date Sampled	05/24/99			08/02/99			10/21/99		
Monitoring Program	IWQP			IWQP			IWQP		
Type									
	ACT	ERR	MDA	ACT	ERR	MDA	ACT	ERR	MDA
Gross Alpha	.	.	.	.	.	.	.	.	.
Gross Beta	.	.	.	.	.	.	.	.	.
Americium-241	.	.	.	.	.	.	.	.	.
Bismuth-214	<MDA	.	7.88	<MDA	.	5.71	.	.	.
Cobalt-60	<MDA	.	3.77	<MDA	.	2.75	<MDA	.	6.98
Lead-214	<MDA	.	7.48	<MDA	.	5.95	.	.	.
Neptunium-237	.	.	.	.	.	.	.	.	.
Plutonium-238	0.569	0.329	0.218	<MDA	.	0.207	<MDA	.	0.89
Plutonium-239	<MDA	.	0.124	<MDA	.	0.0998	<MDA	.	0.69
Potassium-40	<MDA	.	38.2	<MDA	.	28.2	.	.	.
Radium (total)	.	.	.	.	.	.	.	.	.
Radium-226	<MDA	.	7.88	<MDA	.	5.71	.	.	.
Strontium-89	<MDA	.	0.802	<MDA	.	1.47	<MDA	.	2.45
Strontium-90	<MDA	.	1.21	<MDA	.	1.68	<MDA	.	1.99
Technetium-99	<MDA	.	20.7	<MDA	.	20.3	<MDA	.	28.21
Thallium-208	<MDA	.	4.2	<MDA	.	3.35	.	.	.
Thorium-230	.	.	.	.	.	.	.	.	.
Thorium-234	<MDA	.	186	260	207	151	.	.	.
Uranium-234	<MDA	.	0.164	<MDA	.	0.1	1.87	1.14	1.05
Uranium-235	<MDA	.	0.194	<MDA	.	0.176	<MDA	.	1.09
Uranium-236	.	.	.	.	.	.	<MDA	.	0.69
Uranium-238	<MDA	.	0.164	< CE	0.116	0.1	<MDA	.	0.73

(CONTINUED)

Sampling Point	NT-07						NT-08		
Location	EXP-SW						EXP-SW		
Date Sampled	02/02/99			07/29/99			02/02/99		
Monitoring Program	IWQP			IWQP			IWQP		
Type									
	ACT	ERR	MDA	ACT	ERR	MDA	ACT	ERR	MDA
Gross Alpha	.	.	.	.	.	.	.	.	.
Gross Beta	.	.	.	.	.	.	.	.	.
Americium-241	.	.	.	.	.	.	.	.	.
Bismuth-214	.	.	.	.	.	.	.	.	.
Cobalt-60	.	.	.	.	.	.	.	.	.
Lead-214	.	.	.	.	.	.	.	.	.
Neptunium-237	.	.	.	.	.	.	.	.	.
Plutonium-238	.	.	.	.	.	.	.	.	.
Plutonium-239	.	.	.	.	.	.	.	.	.
Potassium-40	.	.	.	.	.	.	.	.	.
Radium (total)	.	.	.	.	.	.	.	.	.
Radium-226	.	.	.	.	.	.	.	.	.
Strontium-89	.	.	.	.	.	.	.	.	.
Strontium-90	.	.	.	.	.	.	.	.	.
Technetium-99	.	.	.	.	.	.	.	.	.
Thallium-208	.	.	.	.	.	.	.	.	.
Thorium-230	.	.	.	.	.	.	.	.	.
Thorium-234	.	.	.	.	.	.	.	.	.
Uranium-234	6.42	1.57	0.34	17.21	3.72	0.37	16.75	6.18	1.05
Uranium-235	<MDA	.	0.23	0.89	0.54	0.35	2.57	1.68	0.58
Uranium-236	0.18	0.18	0.12	1.01	0.55	0.18	1.35	1.1	0.52
Uranium-238	8.14	1.9	0.26	43	8.4	0.4	137.6	43.33	0.8

(CONTINUED)

Radiogical Analytes: Isotope Activity (pCi/L)

Sampling Point	NT-08			SS-4					
Location	EXP-SW			EXP-SW					
Date Sampled	07/29/99			02/02/99			08/11/99		
Monitoring Program	IWQP			IWQP			IWQP		
Type									
	ACT	ERR	MDA	ACT	ERR	MDA	ACT	ERR	MDA
Gross Alpha	.	.	.	.	.	.	.	.	.
Gross Beta	.	.	.	.	.	.	.	.	.
Americium-241	.	.	.	.	.	.	.	.	.
Bismuth-214	.	.	.	.	.	.	.	.	.
Cobalt-60	.	.	.	.	.	.	.	.	.
Lead-214	.	.	.	.	.	.	.	.	.
Neptunium-237	.	.	.	.	.	.	.	.	.
Plutonium-238	.	.	.	.	.	.	.	.	.
Plutonium-239	.	.	.	.	.	.	.	.	.
Potassium-40	.	.	.	.	.	.	.	.	.
Radium (total)	.	.	.	.	.	.	.	.	.
Radium-226	.	.	.	.	.	.	.	.	.
Strontium-89	.	.	.	.	.	.	.	.	.
Strontium-90	.	.	.	.	.	.	.	.	.
Technetium-99	.	.	.	.	.	.	.	.	.
Thallium-208	.	.	.	.	.	.	.	.	.
Thorium-230	.	.	.	.	.	.	.	.	.
Thorium-234	.	.	.	.	.	.	.	.	.
Uranium-234	19.48	4.83	0.39	23.39	5.36	0.43	19.46	4.53	0.5
Uranium-235	1.11	0.73	0.56	1.96	0.87	0.35	1.24	0.71	0.24
Uranium-236	0.92	0.62	0.43	0.44	0.37	0.41	0.86	0.56	0.37
Uranium-238	73.32	16.19	0.55	45.31	9.86	0.33	43.31	9.28	0.33

(CONTINUED)

Sampling Point	SS-4			SS-5					
Location	EXP-SW			EXP-SW					
Date Sampled	08/11/99			02/02/99			08/11/99		
Monitoring Program	IWQP			IWQP			IWQP		
Type	DUP								
	ACT	ERR	MDA	ACT	ERR	MDA	ACT	ERR	MDA
Gross Alpha	.	.	.	.	.	.	.	.	.
Gross Beta	.	.	.	.	.	.	.	.	.
Americium-241	.	.	.	.	.	.	.	.	.
Bismuth-214	.	.	.	.	.	.	.	.	.
Cobalt-60	.	.	.	.	.	.	.	.	.
Lead-214	.	.	.	.	.	.	.	.	.
Neptunium-237	.	.	.	.	.	.	.	.	.
Plutonium-238	.	.	.	.	.	.	.	.	.
Plutonium-239	.	.	.	.	.	.	.	.	.
Potassium-40	.	.	.	.	.	.	.	.	.
Radium (total)	.	.	.	.	.	.	.	.	.
Radium-226	.	.	.	.	.	.	.	.	.
Strontium-89	.	.	.	.	.	.	.	.	.
Strontium-90	.	.	.	.	.	.	.	.	.
Technetium-99	.	.	.	18.42	2.06	2.84	26.45	8.86	14.17
Thallium-208	.	.	.	.	.	.	.	.	.
Thorium-230	.	.	.	.	.	.	.	.	.
Thorium-234	.	.	.	.	.	.	.	.	.
Uranium-234	22.97	4.7	0.33	8.1	1.82	0.11	14.91	3.63	0.37
Uranium-235	1.35	0.65	0.18	0.47	0.32	0.22	0.75	0.53	0.39
Uranium-236	0.72	0.44	0.28	0.39	0.27	0.12	0.84	0.53	0.21
Uranium-238	43.7	8.45	0.3	15.06	3.08	0.21	28.61	6.41	0.37

(CONTINUED)

Radiogical Analytes: Isotope Activity (pCi/L)

Sampling Point	SS-6						SS-6.6		
Location	EXP-SW						EXP-SW		
Date Sampled	02/03/99			08/10/99			02/03/99		
Monitoring Program	IWQP			IWQP			IWQP		
Type									
	ACT	ERR	MDA	ACT	ERR	MDA	ACT	ERR	MDA
Gross Alpha	.	.	.	.	.	.	.	.	.
Gross Beta	.	.	.	.	.	.	<MDA	.	1.86
Americium-241	.	.	.	.	.	.	.	.	.
Bismuth-214	.	.	.	.	.	.	.	.	.
Cobalt-60	.	.	.	.	.	.	.	.	.
Lead-214	.	.	.	.	.	.	.	.	.
Neptunium-237	.	.	.	.	.	.	.	.	.
Plutonium-238	.	.	.	.	.	.	.	.	.
Plutonium-239	.	.	.	.	.	.	.	.	.
Potassium-40	.	.	.	.	.	.	.	.	.
Radium (total)	.	.	.	.	.	.	.	.	.
Radium-226	.	.	.	.	.	.	.	.	.
Strontium-89	.	.	.	.	.	.	.	.	.
Strontium-90	.	.	.	.	.	.	.	.	.
Technetium-99	<MDA	.	2.75	<MDA	.	14.54	<MDA	.	2.68
Thallium-208	.	.	.	.	.	.	.	.	.
Thorium-230	.	.	.	.	.	.	.	.	.
Thorium-234	.	.	.	.	.	.	.	.	.
Uranium-234	0.32	0.25	0.3	2.78	1.08	0.56	0.44	0.29	0.25
Uranium-235	<MDA	.	0.32	<MDA	.	0.48	<MDA	.	0.14
Uranium-236	<MDA	.	0.2	< CE	0.28	0.21	<MDA	.	0.13
Uranium-238	0.54	0.31	0.22	3.69	1.29	0.33	1.24	0.51	0.25

(CONTINUED)

Sampling Point	SS-6.6						SS-7		
Location	EXP-SW						EXP-SW		
Date Sampled	07/29/99						02/02/99		
Monitoring Program	IWQP						IWQP		
Type				DUP					
	ACT	ERR	MDA	ACT	ERR	MDA	ACT	ERR	MDA
Gross Alpha	1.33	0.81	0.96	1.36	0.79	0.92	.	.	.
Gross Beta	<MDA	.	1.86	<MDA	.	1.85	<MDA	.	1.71
Americium-241	.	.	.	.	.	.	.	.	.
Bismuth-214	.	.	.	.	.	.	.	.	.
Cobalt-60	.	.	.	.	.	.	.	.	.
Lead-214	.	.	.	.	.	.	.	.	.
Neptunium-237	.	.	.	.	.	.	.	.	.
Plutonium-238	.	.	.	.	.	.	.	.	.
Plutonium-239	.	.	.	.	.	.	.	.	.
Potassium-40	.	.	.	.	.	.	.	.	.
Radium (total)	.	.	.	.	.	.	.	.	.
Radium-226	.	.	.	.	.	.	.	.	.
Strontium-89	.	.	.	.	.	.	.	.	.
Strontium-90	.	.	.	.	.	.	.	.	.
Technetium-99	<MDA	.	13.17	<MDA	.	13.2	<MDA	.	2.77
Thallium-208	.	.	.	.	.	.	.	.	.
Thorium-230	.	.	.	.	.	.	.	.	.
Thorium-234	.	.	.	.	.	.	.	.	.
Uranium-234	0.3	0.26	0.27	0.34	0.25	0.23	< CE	0.13	0.1
Uranium-235	<MDA	.	0.38	<MDA	.	0.28	<MDA	.	0.21
Uranium-236	<MDA	.	0.3	<MDA	.	0.13	<MDA	.	0.11
Uranium-238	0.3	0.25	0.3	0.25	0.21	0.25	0.61	0.32	0.1

(CONTINUED)

Radiogical Analytes: Isotope Activity (pCi/L)

Sampling Point	SS-7						SS-8		
Location	EXP-SW						EXP-SW		
Date Sampled	02/02/99			07/29/99			02/03/99		
Monitoring Program	IWQP			IWQP			IWQP		
Type	DUP								
	ACT	ERR	MDA	ACT	ERR	MDA	ACT	ERR	MDA
Gross Alpha	.	.	.	4.62	1.43	1.06	1.02	0.44	0.55
Gross Beta	<MDA	.	1.73	4.42	1.3	1.89	<MDA	.	0.95
Americium-241	.	.	.	.	.	.	.	.	.
Bismuth-214	.	.	.	.	.	.	.	.	.
Cobalt-60	.	.	.	.	.	.	.	.	.
Lead-214	.	.	.	.	.	.	.	.	.
Neptunium-237	.	.	.	.	.	.	.	.	.
Plutonium-238	.	.	.	.	.	.	.	.	.
Plutonium-239	.	.	.	.	.	.	.	.	.
Potassium-40	.	.	.	.	.	.	.	.	.
Radium (total)	.	.	.	.	.	.	.	.	.
Radium-226	.	.	.	.	.	.	.	.	.
Strontium-89	.	.	.	.	.	.	.	.	.
Strontium-90	.	.	.	.	.	.	.	.	.
Technetium-99	<MDA	.	2.77	19.42	8.34	13.51	<MDA	.	2.72
Thallium-208	.	.	.	.	.	.	.	.	.
Thorium-230	.	.	.	.	.	.	.	.	.
Thorium-234	.	.	.	.	.	.	.	.	.
Uranium-234	0.34	0.22	0.15	1.24	0.59	0.44	0.26	0.21	0.18
Uranium-235	0.19	0.18	0.11	<MDA	.	0.34	<MDA	.	0.13
Uranium-236	<MDA	.	0.09	<MDA	.	0.35	<MDA	.	0.12
Uranium-238	0.36	0.23	0.19	1.53	0.66	0.46	<MDA	.	0.23

(CONTINUED)

Sampling Point	SS-8		
Location	EXP-SW		
Date Sampled	07/29/99		
Monitoring Program	IWQP		
Type			
	ACT	ERR	MDA
Gross Alpha	1.9	0.96	1.02
Gross Beta	<MDA	.	1.88
Americium-241	.	.	.
Bismuth-214	.	.	.
Cobalt-60	.	.	.
Lead-214	.	.	.
Neptunium-237	.	.	.
Plutonium-238	.	.	.
Plutonium-239	.	.	.
Potassium-40	.	.	.
Radium (total)	.	.	.
Radium-226	.	.	.
Strontium-89	.	.	.
Strontium-90	.	.	.
Technetium-99	<MDA	.	13.29
Thallium-208	.	.	.
Thorium-230	.	.	.
Thorium-234	.	.	.
Uranium-234	<MDA	.	0.43
Uranium-235	<MDA	.	0.54
Uranium-236	<MDA	.	0.28
Uranium-238	<MDA	.	0.43

APPENDIX E

CY 1999 MONITORING DATA FOR THE CHESTNUT RIDGE HYDROGEOLOGIC REGIME

EXPLANATION

SAMPLING POINT:

GW - Groundwater monitoring well (also 1090)
MCK - McCoy Branch Kilometer
OF 301 - Outfall 301: surface water station located where water exits Kerr Hollow Quarry
SCR - South Chestnut Ridge (tributary prefix for spring sampling locations)

LOCATION:

CDLVI - Construction/Demolition Landfill VI
CDLVII - Construction/Demolition Landfill VII
CRBAWP - Chestnut Ridge Borrow Area Waste Pile
CRSDB - Chestnut Ridge Sediment Disposal Basin
CRSP - Chestnut Ridge Security Pits
EXP - Exit Pathway (spring sampling location)
FCAP - Filled Coal Ash Pond
KHQ - Kerr Hollow Quarry
LII - Industrial Landfill II
LIV - Industrial Landfill IV
LV - Industrial Landfill V
UNCS - United Nuclear Corporation Site

MONITORING PROGRAM:

GWPP - Y-12 Plant Groundwater Protection Program
IWQP - Integrated Water Quality Program

SAMPLE TYPE:

DUP - Field Duplicate Sample
DIS - Dissolved concentration (filtered sample)
TOT - Total concentration (unfiltered sample)
ACT - Activity
ERR - Counting Error (two standard deviations)
MDA - Minimum Detectable Activity

UNITS:

ft - feet (elevations are above mean sea level and depths are below grade)
ug/L - micrograms per liter
mg/L - milligrams per liter
mV - millivolts
umho/cm - micromhos per centimeter
NTU - Nephelometric Turbidity Units
pCi/L - picoCuries per liter
ppm - parts per million

EXPLANATION (continued)

NOTES:

Only the analytes that were detected above the program reporting limits in at least one sample are included in this appendix. Additionally, results that are below the reporting limits are replaced with missing values to emphasize the detected results. The following sections describe the analytes, reporting limits, and data qualifiers for each subappendix. A comprehensive list of the GWPP analytes, analytical methods, and reporting limits is provided in Appendix B, Table B.5.

E.1 Field Measurements, Miscellaneous Analytes, Major Ions, and Trace Metals:

All analytes are included in this appendix except the trace metals that were not detected in any sample at a level above the reporting limits shown in the following summary. Results for the trace metals shown in bold typeface are presented in Appendix E.1.

Analyte	Reporting Limit (mg/L)		Analyte	Reporting Limit (mg/L)	
	GWPP	IWQP		GWPP	IWQP
Cations			**Anions**		
Calcium	0.2	0.25	Alkalinity - HCO3	1.0	1.0
Magnesium	0.2	0.05	Alkalinity - CO3	1.0	1.0
Potassium	2.0	0.25	Chloride	0.2	0.1
Sodium	0.2	0.25	Fluoride	0.1	0.05
			Nitrate (as Nitrogen)	0.028	0.1
			Sulfate	0.25	0.1
Trace Metals					
Aluminum	0.2	0.05	**Manganese**	0.005	0.005
Antimony	0.0025	0.006	Mercury (CVAA)	0.0002	0.0002
Arsenic (PMS)	0.005	0.005	**Molybdenum**	0.05	.
Barium	0.004	0.005	**Nickel**	0.05	0.01
Beryllium	0.001	0.001	Selenium (PMS)	0.01	0.005
Boron	0.1	0.01	Silver	0.02	0.005
Cadmium (PMS)	0.0005	0.001	**Strontium**	0.005	0.005
Chromium	0.02	0.005	**Thallium (PMS)**	0.0005	0.002
Cobalt	0.02	0.005	Thorium	0.2	.
Copper	0.02	0.005	**Uranium (PMS)**	0.0005	0.05
Iron	0.05	0.01	**Uranium (KPA)**	.	0.004
Lead (PMS)	0.0005	0.003	**Vanadium**	0.01	.
Lithium	0.01	0.01	**Zinc**	0.01	.

All metals analyses were performed using the inductively coupled plasma (ICP) spectroscopy method (SW846-6010A) unless otherwise noted.

CVAA - Cold Vapor Atomic Absorption (EPA-7470)
KPA - Kinetic Phosphorescent Analysis (ASTM-D5174-M)
PMS - Plasma Mass Spectroscopy (EPA-200.8, GWPP only); the IWQP laboratory did not use this method, so the corresponding reporting limits are for ICP analyses.

EXPLANATION (continued)

The following symbols are used in Appendix E.1:

. - Not analyzed or not applicable
< - Analyzed but not detected at the project reporting level

E.2 Volatile Organic Compounds:

Results for the compounds shown in bold typeface are included in this appendix. The other compounds were never detected at levels above the following reporting limits, in micrograms per liter.

Volatile Organic Compound	Reporting Limit		Volatile Organic Compound	Reporting Limit	
	GWPP	IWQP		GWPP	IWQP
Acetone	10	10	**1,1-Dichloroethene**	5	5
Acrolein	10	.	**cis-1,2-Dichloroethene**	5	5
Acrylonitrile	10	.	trans-1,2-Dichloroethene	5	5
Benzene	5	5	1,2-Dichloropropane	5	5
Bromochloromethane	10	.	cis-1,3-Dichloropropene	5	5
Bromodichloromethane	5	5	trans-1,3-Dichloropropene	5	5
Bromoform	5	5	Dimethylbenzene	5	5
Bromomethane	10	10	Ethanol	500	.
2-Butanone	10	10	Ethylbenzene	5	5
Carbon disulfide	5	5	Ethyl methacrylate	5	.
Carbon tetrachloride	5	5	2-Hexanone	10	10
Chlorobenzene	5	5	Iodomethane	5	.
Chloroethane	10	10	4-Methyl-2-pentanone	10	10
2-Chloroethyl vinyl ether	10	.	Methylene chloride	5	5
Chloroform	5	5	Styrene	5	5
Chloromethane	10	10	1,1,1,2-Tetrachloroethane	10	.
Dibromochloromethane	5	5	1,1,2,2-Tetrachloroethane	5	5
1,2-Dibromo-3-chloropropane	10	.	**Tetrachloroethene**	5	5
1,2-Dibromoethane	5	.	Toluene	5	5
Dibromomethane	10	.	**1,1,1-Trichloroethane**	5	5
1,2-Dichlorobenzene	5	.	1,1,2-Trichloroethane	5	5
1,4-Dichlorobenzene	5	.	Trichloroethene	5	5
1,4-Dichloro-2-butene	5	.	Trichlorofluoromethane	5	.
trans-1,4-Dichloro-2-butene	5	.	1,2,3-Trichloropropane	5	.
Dichlorodifluoromethane	5	.	Vinyl acetate	10	.
1,1-Dichloroethane	5	5	Vinyl chloride	10	2
1,2-Dichloroethane	5	5			

The following symbols are used in Appendix E.2.

. - Not analyzed or not applicable
< - Analyzed but not detected at the project reporting level (also false-positive results for data provided by the IWQP)

EXPLANATION (continued)

The following laboratory qualifier is **NOT** presented with results in Appendix E.2:

J A result less than the reporting limit is an estimated value and assigned a "J" qualifier by the laboratory. The standard reporting limits for the organic compounds are 5 ug/L, 10 ug/L, and 500 ug/L; therefore, all results less than 5 ug/L are estimated values. Only the acetone result for the April sample from well GW-709 (6 J ug/L) was an estimated value greater than 5 ug/L.

E.3 Radiological Analytes:

The following summary shows the radiological analytes reported for at least one groundwater sample collected during CY 1999 in the Chestnut Ridge Regime.

Analyte	No. of Results	No. Detected	Analyte	No. of Results	No. Detected
Gross Alpha	132	53	Technetium-99	3	0
Gross Beta	132	56	Thorium-232	2	0
Americium-241	1	1	Thorium-230	2	1
Cesium-137	1	0	Thorium-228	2	0
Cobalt-60	1	0	Tritium	2	1
Neptunium-237	1	0	Uranium-234	2	1
Radium (total)	1	0	Uranium-235	2	0
Strontium-89	1	0	Uranium-236	2	0
Strontium-90	15	0	Uranium-238	2	1

All of the results for gross alpha and gross beta are presented in Appendix E.3 and the isotopic results that exceed the minimum detectable activity (MDA) are for samples from surface water station OF 301, summarized below.

Isotope	Date Sampled	MDA (pCi/L)	Result (pCi/L)
Americium-241	07/20/99	0.85	0.92 ± 0.71
Thorium-230	07/20/99	1.57	2.2 ± 1.61
Tritium	03/03/99	1580.02	2127.6 ± 987.6
Uranium-234	07/20/99	1.57	4.3 ± 2.28
Uranium-238	07/20/99	1.57	2.2 ± 1.61

Results that are not detected or do not meet data quality objectives are replaced with the following:

<MDA - Reported activity is less than the minimum detectable activity.

< CE - Reported activity is greater than or equal to the MDA, but less than the associated counting error. Two gross alpha results were screened: the January 1999 sample from GW-557 (1.3 ± 1.4 pCi/L, MDA = 1.1 pCi/L) and the February 1999 sample from SCR2.2SP (1.2 ± 1.4 pCi/L, MDA = 1.1 pCi/L).

EXPLANATION (continued)

Additional Analytes Not Presented in Appendix E tables:

Two groundwater samples were collected in November 1999 from well GW-305 to assess microbial activity (see Addendum 10, Table B.1). The first sample was collected using the low-flow minimal drawdown method (see Section 2.2) and the second sample was collected using the conventional method, whereby 103 gallons of groundwater (three well volumes) were purged at a high flow rate (1.3 gallons per minute) before the sample was collected. Results for all analytes and field measurements are included in Appendix E.1, except the results shown below.

Sample Date	11/03/99	11/04/99
Sample Collection Method	Low-Flow	Conventional
ANALYTES:		
Total Organic Carbon (mg/L)	<1	<1
Biochemical Oxygen Demand (mg/L)	<5	<5
Iron Related Bacteria(cfu/ml)	5,000	5,000 - 100,000
Slime Forming Bacteria(cfu/ml)	50,000	50,000
Sulfate Reducing Bacteria(cfu/ml)	10,000	10,000 - 100,000

Note: cfu/ml = colony forming units per milliliter (maximum result of duplicate sample analysis)

The bacterial counts are estimates based on appearance of the sample after a three- to four-day growth period. The results also noted the presence of pseudomonads (aerobic bacteria), anaerobic bacteria, and a complex bacterial consortium in the samples after an eight-day growth period.

APPENDIX E.1

FIELD MEASUREMENTS, MISCELLANEOUS ANALYTES, MAJOR IONS, AND TRACE METALS

APPENDIX E.1: CHESTNUT RIDGE HYDROGEOLOGIC REGIME, 1999
Field Measurements, Miscellaneous Analytes, Major Ions, and Trace Metals

Sampling Point	1090		GW-141				GW-142	
Location	UNCS		LIV				KHQ	
Date Sampled	02/04/99	08/09/99	01/12/99		07/15/99		04/12/99	04/13/99
Monitoring Program	IWQP	IWQP	GWPP		GWPP		IWQP	IWQP
Type								
	TOT	TOT	TOT	DIS	TOT	DIS	TOT	TOT
FIELD MEASUREMENTS								
Measuring Pt. Elev. (ft)	1104.48	1104.48	1186.23	.	1186.23	.	971.15	971.15
Depth to Water (ft)	42.99	51.15	94.23	.	90.67	.	136.90	137.65
Water-Level Elev. (ft)	1061.49	1053.33	1092.00	.	1095.56	.	834.25	833.50
Water Temp. (degrees C)	14.91	17.5	13.4	.	17.1	.	15.4	13.7
pH (standard units)	7.1	6.94	7.33	.	6.83	.	7.7	7.62
Conductivity (umho/cm)	491	453	371	.	296	.	362	308
Dissolved Oxygen (ppm)	2.45	2.03	6.08	.	5.07	.	1.73	1.64
Oxidation/Reduction (mV)	.	99	150	.	168	.	-48	-126
MISCELLANEOUS ANALYTES								
pH (standard units)	.	7.4	7.5	.	7.21	.	.	.
Conductivity (umho/cm)	.	529	394	.	326	.	361	344
Dissolved Solids (mg/L)	290	320	192	.	188	.	200	180
Suspended Solids (mg/L)	<	<	<	.	<	.	<	<
Turbidity (NTU)	.	.	2.57	.	8.8	.	23.5	15.3
MAJOR IONS (mg/L)								
Calcium	53.7	55.4	43.5	44.8	38.1	38.9	36.9	36.6
Magnesium	31.7	33	25.9	26.6	24.4	24.6	32.8	32.5
Potassium	0.927	0.993	<	<	<	<	3.8	3.65
Sodium	10.6	11	0.684	0.718	0.621	0.641	1.1	1.08
Alkalinity-HCO3	265	266	208	.	184	.	212	212
Alkalinity-CO3	.	.	<	.	<	.	.	.
Chloride	21.4	22.6	1.4	.	1.702	.	1.6	1.7
Fluoride	<	<	<	.	<	.	0.59	0.58
Nitrate-N	0.8	0.82	0.48	.	0.5096	.	0.02	0.02
Sulfate	4	4	3.69	.	2.602	.	5.6	5
Ion Charge Balance (RPD)	-2.3	-0.9	0.3	.	1.5	.	2.8	2.4
TRACE METALS (mg/L)								
Aluminum	<	<	<	<	<	<	<	<
Antimony (PMS)	.	.	<	<	<	<	.	.
Arsenic	<	<	.	.	.	.	<	<
Barium	0.0299	0.0297	0.015	0.0164	0.0172	0.0173	0.44	0.435
Boron	0.0217	<	<	<	<	<	0.039	0.0382
Chromium	<	<	<	<	<	<	<	<
Cobalt	<	<	<	<	<	<	<	<
Copper	<	<	<	<	<	<	<	<
Iron	0.0121	0.0161	0.123	<	0.259	<	3.02	2.93
Lead (PMS)	.	.	<	<	<	<	.	.
Lead	<	<	.	.	.	.	<	<
Lithium	<	<	<	<	<	<	0.0292	0.0287
Manganese	<	<	<	<	<	<	0.0714	0.0713
Molybdenum	<	<	<	<	<	<	<	<
Nickel	<	<	<	<	<	<	<	<
Strontium	.	.	0.0154	0.0164	0.015	0.0154	.	.
Thallium (PMS)	.	.	<	<	<	<	.	.
Thallium	<	<	.	.	.	.	<	<
Uranium (PMS)	.	.	<	<	<	<	.	.
Uranium (KPA)	.	.	.	.	.	.	.	.
Uranium	<	<	.	.	.	.	<	<
Vanadium	<	<	<	<	<	<	<	<
Zinc	<	<	<	<	<	<	<	<

(CONTINUED)

APPENDIX E.1: CHESTNUT RIDGE HYDROGEOLOGIC REGIME, 1999
Field Measurements, Miscellaneous Analytes, Major Ions, and Trace Metals

Sampling Point	GW-142							GW-143
Location	KHQ							KHQ
Date Sampled	04/14/99		04/15/99	10/04/99	10/05/99	10/06/99	10/07/99	04/12/99
Monitoring Program	IWQP		IWQP	IWQP	IWQP	IWQP	IWQP	IWQP
Type		DUP						
	TOT	TOT	TOT	TOT	TOT	TOT	TOT	TOT
FIELD MEASUREMENTS								
Measuring Pt. Elev. (ft)	971.15	.	971.15	971.15	971.15	971.15	971.15	913.98
Depth to Water (ft)	137.86	.	138.29	138.96	139.46	139.67	139.65	80.33
Water-Level Elev. (ft)	833.29	.	832.86	832.19	831.69	831.48	831.50	833.65
Water Temp. (degrees C)	12.5	.	12.9	16.9	18.7	15.5	15	14.9
pH (standard units)	7.63	.	7.57	7.91	8.01	7.86	7.88	7.69
Conductivity (umho/cm)	294	.	323	0.37	368	382	415	414
Dissolved Oxygen (ppm)	1.86	.	1.07	2.41	3.29	1.26	2.8	1.75
Oxidation/Reduction (mV)	230	.	-142	-151	-20	-130	-140	-83
MISCELLANEOUS ANALYTES								
pH (standard units)	.	.	.	.	.	.	.	.
Conductivity (umho/cm)	315	293	336	.	.	.	.	441
Dissolved Solids (mg/L)	180	210	220	200	190	190	220	280
Suspended Solids (mg/L)	<	<	<	11	<	11	<	<
Turbidity (NTU)	11	13.8	10.4	.	.	.	.	4.1
MAJOR IONS (mg/L)								
Calcium	37.2	37.5	35.3	34.6	34.2	35.1	35	32.7
Magnesium	33	33.3	31.1	31.8	31.2	32	32	26.8
Potassium	3.77	3.8	3.82	4.48	4.21	4.53	4.27	17.1
Sodium	1.1	1.1	1.11	1.15	1.18	1.15	1.13	21.9
Alkalinity-HCO3	210	211	210	.	.	.	.	202
Alkalinity-CO3	.	.	.	.	.	.	.	.
Chloride	1.7	1.7	1.7	.	.	.	.	7.2
Fluoride	0.58	0.58	0.57	.	.	.	.	3.1
Nitrate-N	0.06	0.04	0.04	.	.	.	.	0.02
Sulfate	5	5	4.9	.	.	.	.	38.5
Ion Charge Balance (RPD)	3.6	3.9	1.0	.	.	.	.	0.2
TRACE METALS (mg/L)								
Aluminum	<	<	<	<	<	<	<	<
Antimony (PMS)	.	.	.	.	.	.	.	.
Arsenic	<	<	<	<	<	<	<	<
Barium	0.438	0.441	0.442	0.446	0.436	0.447	0.45	0.0434
Boron	0.0399	0.0418	0.0395	0.0374	0.0367	0.0375	0.0378	0.858
Chromium	<	<	<	<	<	<	<	<
Cobalt	<	<	<	<	<	<	<	<
Copper	<	<	<	<	<	0.0083	<	<
Iron	2.37	2.5	2.33	3.4	2.6	2.19	2.94	0.571
Lead (PMS)	.	.	.	.	.	.	.	.
Lead	<	<	<	<	<	<	<	<
Lithium	0.0289	0.0291	0.0271	0.0276	0.0269	0.0277	0.0278	0.314
Manganese	0.0698	0.0699	0.0662	0.0647	0.0659	0.066	0.0675	0.0174
Molybdenum	<	<	<	.	.	.	.	<
Nickel	<	<	<	<	<	<	<	<
Strontium	.	.	.	0.403	0.394	0.407	0.407	.
Thallium (PMS)	.	.	.	.	.	.	.	.
Thallium	<	<	<	<	<	<	<	0.0027
Uranium (PMS)	.	.	.	.	.	.	.	.
Uranium (KPA)	.	.	.	<	<	<	<	.
Uranium	<	<	<	.	.	.	.	<
Vanadium	<	<	<	<	<	<	<	<
Zinc	<	<	<	<	<	<	<	<

(CONTINUED)

APPENDIX E.1: CHESTNUT RIDGE HYDROGEOLOGIC REGIME, 1999
Field Measurements, Miscellaneous Analytes, Major Ions, and Trace Metals

Sampling Point	GW-143							
Location	KHQ							
Date Sampled	04/13/99	04/14/99	04/15/99	10/04/99		10/05/99	10/06/99	10/07/99
Monitoring Program	IWQP	IWQP	IWQP	IWQP		IWQP	IWQP	IWQP
Type					DUP			
	TOT	TOT	TOT	TOT	TOT	TOT	TOT	TOT
FIELD MEASUREMENTS								
Measuring Pt. Elev. (ft)	913.98	913.98	913.98	913.98	.	913.98	913.98	913.98
Depth to Water (ft)	81.09	81.35	81.50	81.50	.	82.93	83.00	82.90
Water-Level Elev. (ft)	832.89	832.63	832.48	832.48	.	831.05	830.98	831.08
Water Temp. (degrees C)	15.3	14.6	14.9	18.1	.	17.7	17.9	18.1
pH (standard units)	7.71	7.77	7.83	7.89	.	7.84	7.78	7.7
Conductivity (umho/cm)	374	355	391	437	.	415	402	432
Dissolved Oxygen (ppm)	1.24	1.73	2.34	1.54	.	8.56	0.84	2.7
Oxidation/Reduction (mV)	-134	-94	-55	-117	.	-34	-126	-139
MISCELLANEOUS ANALYTES								
pH (standard units)	.	.	.	.	.	.	.	.
Conductivity (umho/cm)	423	374	271	.	.	.	.	.
Dissolved Solids (mg/L)	240	240	270	280	300	260	250	300
Suspended Solids (mg/L)	<	<	<	8	12	<	<	<
Turbidity (NTU)	4.8	3.3	3	.	.	.	.	.
MAJOR IONS (mg/L)								
Calcium	31.7	32.2	30.6	30.8	31.3	30.2	30.1	29.9
Magnesium	26.2	26.5	24.9	25.6	25.9	25.2	25	24.8
Potassium	17	17.2	17.9	19.2	19.3	18.5	18.5	18.1
Sodium	23.4	23.8	23	21.6	21.8	22.8	22.8	22.8
Alkalinity-HCO3	201	200	200	.	.	.	.	.
Alkalinity-CO3	.	.	.	.	.	.	.	.
Chloride	7.1	7.3	7.2	.	.	.	.	.
Fluoride	3	2.9	3	.	.	.	.	.
Nitrate-N	0.02	0.02	0.02	.	.	.	.	.
Sulfate	33.7	37.2	36.6	.	.	.	.	.
Ion Charge Balance (RPD)	1.1	1.2	-0.9	.	.	.	.	.
TRACE METALS (mg/L)								
Aluminum	<	<	<	<	<	<	<	<
Antimony (PMS)	.	.	.	.	.	.	.	.
Arsenic	<	<	<	<	<	<	<	<
Barium	0.0366	0.0353	0.0344	0.0465	0.0467	0.0363	0.0353	0.0337
Boron	0.896	0.925	0.904	0.859	0.868	0.913	0.914	0.914
Chromium	<	<	<	<	<	<	<	<
Cobalt	<	<	<	<	<	<	<	<
Copper	<	<	<	<	<	<	<	<
Iron	0.694	0.474	0.41	0.777	0.82	0.596	0.558	0.47
Lead (PMS)	.	.	.	.	.	.	.	.
Lead	<	<	<	<	<	<	<	<
Lithium	0.328	0.335	0.324	0.317	0.321	0.332	0.332	0.331
Manganese	0.0224	0.0171	0.0136	0.0149	0.0151	0.0161	0.0142	0.0134
Molybdenum	<	<	<	.	.	.	.	.
Nickel	<	<	<	<	<	<	<	<
Strontium	.	.	.	2.98	3.02	2.75	2.72	2.67
Thallium (PMS)	.	.	.	.	.	.	.	.
Thallium	<	<	<	<	<	<	<	<
Uranium (PMS)	.	.	.	.	.	.	.	.
Uranium (KPA)	.	.	.	<	<	<	<	<
Uranium	<	<	<	.	.	.	.	.
Vanadium	<	<	<	<	<	<	<	<
Zinc	<	<	<	<	<	<	<	<

(CONTINUED)

APPENDIX E.1: CHESTNUT RIDGE HYDROGEOLOGIC REGIME, 1999
Field Measurements, Miscellaneous Analytes, Major Ions, and Trace Metals

Sampling Point	GW-144							
Location	KHQ							
Date Sampled	04/12/99		04/13/99	04/14/99	04/15/99	10/04/99	10/05/99	10/06/99
Monitoring Program	IWQP		IWQP	IWQP	IWQP	IWQP	IWQP	IWQP
Type		DUP						
	TOT	TOT	TOT	TOT	TOT	TOT	TOT	TOT
FIELD MEASUREMENTS								
Measuring Pt. Elev. (ft)	913.54	.	913.54	913.54	913.54	913.54	913.54	913.54
Depth to Water (ft)	80.50	.	80.60	80.68	80.57	82.20	82.00	82.17
Water-Level Elev. (ft)	833.04	.	832.94	832.86	832.97	831.34	831.54	831.37
Water Temp. (degrees C)	14.8	.	15.2	14.9	14.9	15.6	15.1	15.6
pH (standard units)	7.7	.	7.35	7.68	7.74	6.72	7.59	7.11
Conductivity (umho/cm)	274	.	248	214	265	290	319	289
Dissolved Oxygen (ppm)	5.83	.	6.21	6.27	5.57	3.04	3.1	4.5
Oxidation/Reduction (mV)	138	.	150	76	66	221	146	207
MISCELLANEOUS ANALYTES								
pH (standard units)	.	.	.	.	.	.	.	.
Conductivity (umho/cm)	292	286	279	264	252	.	.	.
Dissolved Solids (mg/L)	170	160	160	150	130	220	210	210
Suspended Solids (mg/L)	<	<	<	<	<	10	<	<
Turbidity (NTU)	0.1	0.17	0.15	<	0.06	.	.	.
MAJOR IONS (mg/L)								
Calcium	43.5	44.2	43.3	44.6	42.4	61.8	52.9	52.1
Magnesium	15.8	16.1	15.7	16.2	15.4	17.9	17.3	17.2
Potassium	1.26	1.32	1.29	1.33	1.3	2.17	1.77	1.74
Sodium	0.951	0.978	0.977	1	0.946	2.63	1.41	1.45
Alkalinity-HCO3	151	152	152	150	150	.	.	.
Alkalinity-CO3	.	.	.	.	.	.	.	.
Chloride	2.2	2.2	2.2	2.2	2.2	.	.	.
Fluoride	0.1	0.1	0.1	0.1	0.1	.	.	.
Nitrate-N	3.4	3.4	3.3	3.2	3.2	.	.	.
Sulfate	4.9	5.1	4.9	4.9	4.9	.	.	.
Ion Charge Balance (RPD)	1.6	2.2	1.2	3.4	0.9	.	.	.
TRACE METALS (mg/L)								
Aluminum	<	<	<	<	<	<	<	<
Antimony (PMS)	.	.	.	.	.	.	.	.
Arsenic	<	<	<	<	<	<	<	<
Barium	0.0411	0.0419	0.0415	0.0424	0.0427	0.0579	0.0519	0.0512
Boron	0.0123	0.0132	0.0124	0.0127	0.0129	0.0366	0.0224	0.0211
Chromium	<	<	<	<	<	<	<	<
Cobalt	<	<	<	<	<	<	<	<
Copper	<	<	<	<	<	<	<	<
Iron	<	0.0126	<	<	<	0.0594	0.0119	0.0128
Lead (PMS)	.	.	.	.	.	.	.	.
Lead	<	<	<	<	<	<	<	<
Lithium	0.0242	0.0247	0.0243	0.0249	0.0228	0.031	0.0284	0.0279
Manganese	<	<	<	<	<	0.012	<	<
Molybdenum	<	<	<	<	<	.	.	.
Nickel	<	<	<	<	<	<	<	<
Strontium	.	.	.	.	.	0.177	0.113	0.111
Thallium (PMS)	.	.	.	.	.	.	.	.
Thallium	<	<	<	<	<	<	<	<
Uranium (PMS)	.	.	.	.	.	.	.	.
Uranium (KPA)	.	.	.	.	.	<	<	<
Uranium	<	<	<	<	<	.	.	.
Vanadium	<	<	<	<	<	<	<	<
Zinc	<	<	<	<	<	0.0109	<	<

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APPENDIX E.1: CHESTNUT RIDGE HYDROGEOLOGIC REGIME, 1999
Field Measurements, Miscellaneous Analytes, Major Ions, and Trace Metals

Sampling Point	GW-144		GW-145					
Location	KHQ		KHQ					
Date Sampled	10/06/99	10/07/99	04/13/99	04/14/99	04/15/99	04/16/99	10/04/99	10/05/99
Monitoring Program	IWQP	IWQP	IWQP	IWQP	IWQP	IWQP	IWQP	IWQP
Type	DUP							
	TOT	TOT	TOT	TOT	TOT	TOT	TOT	TOT
FIELD MEASUREMENTS								
Measuring Pt. Elev. (ft)	.	913.54	840.24	840.24	840.24	840.24	840.24	840.24
Depth to Water (ft)	.	82.19	6.22	6.70	6.73	6.75	8.20	8.42
Water-Level Elev. (ft)	.	831.35	834.02	833.54	833.51	833.49	832.04	831.82
Water Temp. (degrees C)	.	16.2	14.7	12.4	12.5	11.3	18.8	17.7
pH (standard units)	.	7.32	7.64	7.73	7.75	8	6.85	7.71
Conductivity (umho/cm)	.	303	428	390	398	410	486	494
Dissolved Oxygen (ppm)	.	3.83	7.72	7.96	9.15	6.8	5.6	8.1
Oxidation/Reduction (mV)	.	206	120	214	157	139	231	211
MISCELLANEOUS ANALYTES								
pH (standard units)	.	.	.	.	.	.	.	.
Conductivity (umho/cm)	.	.	514	436	461	469	.	.
Dissolved Solids (mg/L)	200	210	300	300	330	330	300	330
Suspended Solids (mg/L)	6	<	<	<	<	<	10	<
Turbidity (NTU)	.	.	0.06	0.25	0.11	0.22	.	.
MAJOR IONS (mg/L)								
Calcium	54	54.3	42.1	43.9	41.8	43.7	41.1	42.3
Magnesium	17.9	17.9	36.4	37.9	36.1	37.7	35.8	36.5
Potassium	1.82	1.75	20	20.3	20.3	20.7	20.9	20
Sodium	1.51	1.4	10.6	11	10.4	10.8	11.3	11.3
Alkalinity-HCO3	.	.	192	237	236	235	.	.
Alkalinity-CO3	.	.	.	.	.	.	.	.
Chloride	.	.	11.9	12	12.3	12.1	.	.
Fluoride	.	.	2.5	2.4	2.4	2.4	.	.
Nitrate-N	.	.	0.24	0.22	0.24	0.2	.	.
Sulfate	.	.	42.5	43.4	44.7	43.7	.	.
Ion Charge Balance (RPD)	.	.	7.6	1.5	-0.9	1.5	.	.
TRACE METALS (mg/L)								
Aluminum	<	<	<	<	<	<	<	<
Antimony (PMS)	.	.	.	.	.	.	.	.
Arsenic	<	<	<	<	<	<	<	<
Barium	0.0527	0.0527	0.0824	0.0847	0.084	0.088	0.0865	0.0868
Boron	0.0215	0.0197	0.233	0.241	0.237	0.249	0.236	0.239
Chromium	<	<	<	<	<	<	<	<
Cobalt	<	<	<	<	<	<	<	<
Copper	<	<	<	<	<	<	<	<
Iron	0.0158	0.0124	<	<	<	<	<	<
Lead (PMS)	.	.	.	.	.	.	.	.
Lead	<	<	<	<	<	<	<	<
Lithium	0.029	0.0288	0.126	0.131	0.125	0.132	0.125	<
Manganese	<	<	<	<	<	<	<	<
Molybdenum	.	.	0.0149	0.0155	0.0151	0.0155	.	.
Nickel	<	<	<	<	<	<	<	<
Strontium	0.114	0.11	.	.	.	.	7.16	7.29
Thallium (PMS)	.	.	.	.	.	.	.	.
Thallium	<	<	<	<	<	<	<	<
Uranium (PMS)	.	.	.	.	.	.	.	.
Uranium (KPA)	<	<	.	.	.	.	0.0164	0.0161
Uranium	.	.	<	<	<	<	.	.
Vanadium	<	<	<	<	<	<	<	<
Zinc	<	<	<	<	<	<	<	<

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APPENDIX E.1: CHESTNUT RIDGE HYDROGEOLOGIC REGIME, 1999
Field Measurements, Miscellaneous Analytes, Major Ions, and Trace Metals

Sampling Point	GW-145		GW-156					
Location	KHQ		CRSDB					
Date Sampled	10/06/99	10/07/99	04/19/99	04/20/99	04/21/99	04/22/99	10/11/99	10/12/99
Monitoring Program	IWQP	IWQP	IWQP	IWQP	IWQP	IWQP	IWQP	IWQP
Type	TOT	TOT	TOT	TOT	TOT	TOT	TOT	TOT
FIELD MEASUREMENTS								
Measuring Pt. Elev. (ft)	840.24	840.24	1049.30	1049.30	1049.30	1049.30	1049.30	1049.30
Depth to Water (ft)	8.66	8.42	143.25	143.53	143.29	143.29	143.77	143.79
Water-Level Elev. (ft)	831.58	831.82	906.05	905.77	906.01	906.01	905.53	905.51
Water Temp. (degrees C)	15.8	16.4	14.8	16.5	15.9	18.6	19	18.7
pH (standard units)	7.53	7.28	7.41	7.32	7.11	7	7.04	6.89
Conductivity (umho/cm)	446	461	500	516	531	536	555	590
Dissolved Oxygen (ppm)	7.1	6.2	7.25	6.47	6.35	6.58	5.1	6.49
Oxidation/Reduction (mV)	214	259	156	265	238	136	197	213
MISCELLANEOUS ANALYTES								
pH (standard units)	.	.	.	.	.	.	.	.
Conductivity (umho/cm)	.	.	615	560	508	520	.	.
Dissolved Solids (mg/L)	320	300	370	360	350	330	360	330
Suspended Solids (mg/L)	<	<	<	<	<	<	<	<
Turbidity (NTU)	.	.	0.08	<	0.05	0.11	.	.
MAJOR IONS (mg/L)								
Calcium	42.6	42.8	68.5	66.5	66.2	67.6	71.8	68.3
Magnesium	36.9	37	42.1	41.1	41	42	44.4	42.5
Potassium	20.4	20.2	19.4	17.1	14.4	13.5	16.9	15.2
Sodium	11.5	11.5	6.11	5.32	5.01	4.36	5.83	5.3
Alkalinity-HCO3	.	.	349	344	342	336	.	.
Alkalinity-CO3	.	.	.	.	.	.	.	.
Chloride	.	.	3.9	3.7	3.5	3.4	.	.
Fluoride	.	.	<	<	<	<	.	.
Nitrate-N	.	.	0.31	0.3	0.34	0.28	.	.
Sulfate	.	.	8.2	7.4	6.8	6.3	.	.
Ion Charge Balance (RPD)	.	.	2.5	1.5	1.1	2.8	.	.
TRACE METALS (mg/L)								
Aluminum	<	<	<	<	<	<	<	<
Antimony (PMS)	.	.	.	.	.	.	.	.
Arsenic	<	<	<	<	<	<	<	<
Barium	0.0886	0.0897	0.0349	0.0316	0.0288	0.0276	0.0338	0.0311
Boron	0.245	0.243	<	<	<	<	<	<
Chromium	<	<	<	<	<	<	<	<
Cobalt	<	<	<	<	<	<	<	<
Copper	<	<	<	<	<	<	<	<
Iron	0.0108	<	0.0101	<	<	<	<	<
Lead (PMS)	.	.	.	.	.	.	.	.
Lead	<	<	<	<	<	<	<	0.004
Lithium	0.128	0.128	<	<	<	<	<	<
Manganese	<	<	<	<	<	<	<	<
Molybdenum	.	.	<	<	<	<	.	.
Nickel	<	<	<	<	<	<	<	<
Strontium	7.41	7.45	.	.	.	.	0.0297	0.0281
Thallium (PMS)	.	.	.	.	.	.	.	.
Thallium	<	<	<	<	<	<	<	<
Uranium (PMS)	.	.	.	.	.	.	.	.
Uranium (KPA)	0.0155	0.0151	<	<	<	<	<	<
Uranium	.	.	<	<	<	<	.	.
Vanadium	<	<	<	<	<	<	<	<
Zinc	<	<	<	<	0.0117	<	0.0153	0.013

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APPENDIX E.1: CHESTNUT RIDGE HYDROGEOLOGIC REGIME, 1999
Field Measurements, Miscellaneous Analytes, Major Ions, and Trace Metals

Sampling Point	GW-156			GW-159				
Location	CRSDB			CRSDB				
Date Sampled	10/13/99	10/14/99		04/27/99	04/28/99		04/29/99	04/30/99
Monitoring Program	IWQP	IWQP		IWQP	IWQP		IWQP	IWQP
Type			DUP			DUP		
	TOT	TOT	TOT	TOT	TOT	TOT	TOT	TOT
FIELD MEASUREMENTS								
Measuring Pt. Elev. (ft)	1049.30	1049.30	.	1051.40	1051.40	.	1051.40	1051.40
Depth to Water (ft)	143.78	143.84	.	117.20	117.67	.	117.80	118.95
Water-Level Elev. (ft)	905.52	905.46	.	934.20	933.73	.	933.60	932.45
Water Temp. (degrees C)	17.4	16.2	.	16.1	15.5	.	13.1	13.3
pH (standard units)	7.03	6.91	.	7.59	7.55	.	7.57	7.56
Conductivity (umho/cm)	582	516	.	294	291	.	241	293
Dissolved Oxygen (ppm)	7.38	5.47	.	4.38	4.32	.	4.2	4.82
Oxidation/Reduction (mV)	207	266	.	211	214	.	213	206
MISCELLANEOUS ANALYTES								
pH (standard units)	.	.	.	.	.	.	.	.
Conductivity (umho/cm)	.	.	.	337	359	339	348	350
Dissolved Solids (mg/L)	360	350	350	220	210	220	190	200
Suspended Solids (mg/L)	<	<	<	<	<	<	<	<
Turbidity (NTU)	.	.	.	0.41	0.13	0.14	0.26	0.06
MAJOR IONS (mg/L)								
Calcium	66.8	69	66.3	41.4	42	42.1	42	41.6
Magnesium	41.6	43	41.2	25.3	25.5	25.3	25.3	25.3
Potassium	14.1	13.5	13.2	1.51	1.47	1.33	1.33	1.39
Sodium	4.86	4.65	4.52	0.542	0.55	0.522	0.524	0.537
Alkalinity-HCO3	.	.	.	195	195	195	195	195
Alkalinity-CO3	.	.	.	.	.	.	.	.
Chloride	.	.	.	1.6	1.6	1.6	1.6	1.6
Fluoride	.	.	.	<	<	<	<	<
Nitrate-N	.	.	.	0.22	0.18	0.18	0.18	0.16
Sulfate	.	.	.	9.7	9.5	9.4	9.6	9.8
Ion Charge Balance (RPD)	.	.	.	0.6	1.2	1.0	0.9	0.7
TRACE METALS (mg/L)								
Aluminum	<	<	<	<	<	<	<	<
Antimony (PMS)	.	.	.	.	.	.	.	.
Arsenic	<	<	<	<	<	<	<	<
Barium	0.0292	0.0287	0.0283	0.0146	0.0147	0.0141	0.0141	0.0145
Boron	<	<	<	<	<	<	<	<
Chromium	<	<	<	<	<	<	<	<
Cobalt	<	<	<	<	<	<	<	<
Copper	<	<	<	<	<	<	<	<
Iron	<	<	0.012	0.012	0.0156	0.013	0.0133	<
Lead (PMS)	.	.	.	.	.	.	.	.
Lead	<	<	<	<	<	<	<	<
Lithium	<	<	<	<	<	<	<	<
Manganese	<	<	<	<	<	<	<	<
Molybdenum	.	.	.	<	<	<	<	<
Nickel	<	<	<	<	<	<	<	<
Strontium	0.0274	0.0276	0.0264	.	.	.	.	.
Thallium (PMS)	.	.	.	.	.	.	.	.
Thallium	<	<	<	<	<	<	<	<
Uranium (PMS)	.	.	.	.	.	.	.	.
Uranium (KPA)	<	<	<	<	<	<	<	<
Uranium	.	.	.	<	<	<	<	<
Vanadium	<	<	<	<	<	<	<	<
Zinc	0.0118	0.0106	<	<	<	<	<	<

(CONTINUED)

APPENDIX E.1: CHESTNUT RIDGE HYDROGEOLOGIC REGIME, 1999
Field Measurements, Miscellaneous Analytes, Major Ions, and Trace Metals

Sampling Point	GW-159				GW-203		GW-205	
Location	CRSDB				UNCS		UNCS	
Date Sampled	10/11/99	10/12/99	10/13/99	10/14/99	02/04/99	08/09/99	02/04/99	08/10/99
Monitoring Program	IWQP	IWQP	IWQP	IWQP	IWQP	IWQP	IWQP	IWQP
Type	TOT	TOT	TOT	TOT	TOT	TOT	TOT	TOT
FIELD MEASUREMENTS								
Measuring Pt. Elev. (ft)	1051.40	1051.40	1051.40	1051.40	1105.45	1105.45	1104.14	1104.14
Depth to Water (ft)	118.33	118.89	119.42	119.56	80.60	76.75	76.88	74.34
Water-Level Elev. (ft)	933.07	932.51	931.98	931.84	1024.85	1028.70	1027.26	1029.80
Water Temp. (degrees C)	21.4	18.1	16.9	15.8	15.38	19	15.29	18.9
pH (standard units)	7.56	7.4	7.45	7.54	7.66	7.33	9.3	9.7
Conductivity (umho/cm)	381	370	408	413	251	223	249	286
Dissolved Oxygen (ppm)	6.09	6.43	6.27	6.45	6.72	5.15	6.52	4.3
Oxidation/Reduction (mV)	171	176	200	191	.	122	.	158
MISCELLANEOUS ANALYTES								
pH (standard units)	.	.	.	.	.	8	.	9.8
Conductivity (umho/cm)	.	.	.	.	.	250	.	322
Dissolved Solids (mg/L)	190	190	210	200	150	140	150	270
Suspended Solids (mg/L)	<	<	<	<	<	<	<	<
Turbidity (NTU)	.	.	.	.	.	.	.	.
MAJOR IONS (mg/L)								
Calcium	41.5	397	42.1	42.5	30.7	29	1.45	1.32
Magnesium	26.6	25.1	26.4	26.5	17.3	16.7	13.6	12.6
Potassium	1.61	1.39	1.4	1.34	0.714	0.752	49.4	63.5
Sodium	0.53	0.515	0.534	0.535	0.496	0.5	7.79	10
Alkalinity-HCO3	.	.	.	.	151	139	145	154
Alkalinity-CO3	.	.	.	.	.	.	.	.
Chloride	.	.	.	.	2.2	1.2	2.1	2.3
Fluoride	.	.	.	.	<	<	<	<
Nitrate-N	.	.	.	.	0.86	1.4	0.06	0.05
Sulfate	.	.	.	.	1.3	0.78	1.3	1.2
Ion Charge Balance (RPD)	.	.	.	.	-2.8	-1.1	-3.7	-0.9
TRACE METALS (mg/L)								
Aluminum	<	<	<	<	<	<	<	<
Antimony (PMS)	.	.	.	.	.	.	.	.
Arsenic	<	<	<	<	<	<	<	<
Barium	0.0158	0.0141	0.0148	0.0145	0.0105	0.0093	<	<
Boron	<	<	<	<	<	<	<	<
Chromium	<	<	<	<	<	<	<	<
Cobalt	<	<	<	<	<	<	<	<
Copper	<	<	<	<	<	<	<	<
Iron	0.0183	<	<	<	<	<	<	<
Lead (PMS)	.	.	.	.	.	.	.	.
Lead	<	<	<	<	<	<	<	<
Lithium	<	<	<	<	<	<	0.0818	0.103
Manganese	<	<	<	<	<	<	<	<
Molybdenum	.	.	.	.	<	<	<	<
Nickel	<	<	<	<	<	<	<	<
Strontium	0.0232	0.02	0.0203	0.0197	.	.	.	.
Thallium (PMS)	.	.	.	.	.	.	.	.
Thallium	<	<	<	<	<	<	<	<
Uranium (PMS)	.	.	.	.	.	.	.	.
Uranium (KPA)	<	<	<	<	.	.	.	.
Uranium	.	.	.	.	<	<	<	<
Vanadium	<	<	<	<	<	<	<	<
Zinc	<	<	<	<	<	<	<	<

(CONTINUED)

APPENDIX E.1: CHESTNUT RIDGE HYDROGEOLOGIC REGIME, 1999
Field Measurements, Miscellaneous Analytes, Major Ions, and Trace Metals

Sampling Point	GW-217						GW-221	
Location	LIV						UNCS	
Date Sampled	01/12/99				07/14/99		02/05/99	08/10/99
Monitoring Program	GWPP				GWPP		IWQP	IWQP
Type			DUP					
	TOT	DIS	TOT	DIS	TOT	DIS	TOT	TOT
FIELD MEASUREMENTS								
Measuring Pt. Elev. (ft)	1177.06	.	.	.	1177.06	.	1106.16	1106.16
Depth to Water (ft)	110.63	.	.	.	106.56	.	82.58	78.35
Water-Level Elev. (ft)	1066.43	.	.	.	1070.50	.	1023.58	1027.81
Water Temp. (degrees C)	10.3	.	.	.	18.3	.	14.07	19
pH (standard units)	8.31	.	.	.	7.77	.	7.57	7.08
Conductivity (umho/cm)	358	.	.	.	326	.	247	231
Dissolved Oxygen (ppm)	5.61	.	.	.	3.48	.	7.55	5.47
Oxidation/Reduction (mV)	203	.	.	.	144	.	.	171
MISCELLANEOUS ANALYTES								
pH (standard units)	7.8	.	8.17	.	8.13	.	.	7.9
Conductivity (umho/cm)	340	.	342	.	337	.	.	274
Dissolved Solids (mg/L)	169	.	171	.	189	.	140	140
Suspended Solids (mg/L)	<	.	<	.	<	.	<	<
Turbidity (NTU)	0.27	.	0.262	.	0.55	.	.	.
MAJOR IONS (mg/L)								
Calcium	32.9	32.9	34	33.9	32.6	33.6	28.9	31.1
Magnesium	19.9	20.1	20.7	20.7	21.4	22	17.4	18.4
Potassium	2.56	2.55	2.97	2.67	2.5	2.33	0.783	0.877
Sodium	7.36	7.45	7.69	7.54	7.39	7.64	0.486	0.455
Alkalinity-HCO3	170	.	172	.	172	.	145	145
Alkalinity-CO3	<	.	<	.	<	.	.	.
Chloride	1.93	.	1.96	.	1.907	.	1.4	1
Fluoride	<	.	<	.	<	.	<	<
Nitrate-N	0.43	.	0.44	.	0.3628	.	0.65	0.64
Sulfate	9.33	.	9.22	.	8.27	.	1.1	1.1
Ion Charge Balance (RPD)	-0.2	.	1.2	.	1.1	.	-1.6	1.9
TRACE METALS (mg/L)								
Aluminum	<	<	<	<	<	<	<	<
Antimony (PMS)	<	<	<	<	<	<	.	.
Arsenic	.	.	.	.	.	.	<	<
Barium	0.0301	0.0314	0.0322	0.0312	0.0298	0.0304	0.0071	0.0075
Boron	0.124	0.127	0.131	0.131	0.117	0.12	<	<
Chromium	<	<	<	<	<	<	<	<
Cobalt	<	<	<	<	<	<	<	<
Copper	<	<	<	<	<	<	<	<
Iron	<	<	<	<	<	<	<	0.0106
Lead (PMS)	<	0.0005	<	<	<	<	.	.
Lead	.	.	.	.	.	.	<	<
Lithium	<	<	<	<	<	<	<	<
Manganese	<	<	<	<	<	<	<	<
Molybdenum	<	<	<	<	<	<	<	<
Nickel	<	<	<	<	<	<	<	<
Strontium	0.0169	0.0173	0.0179	0.0177	0.0158	0.0164	.	.
Thallium (PMS)	<	<	<	<	<	<	.	.
Thallium	.	.	.	.	.	.	<	<
Uranium (PMS)	0.0005	<	0.0008	<	<	<	.	.
Uranium (KPA)	.	.	.	.	.	.	.	.
Uranium	.	.	.	.	.	.	<	<
Vanadium	<	<	<	<	<	<	<	<
Zinc	0.0591	0.0634	0.0615	0.0601	<	<	<	<

(CONTINUED)

APPENDIX E.1: CHESTNUT RIDGE HYDROGEOLOGIC REGIME, 1999
Field Measurements, Miscellaneous Analytes, Major Ions, and Trace Metals

Sampling Point	GW-231							
Location	KHQ							
Date Sampled	04/12/99	04/13/99	04/14/99	04/15/99	10/04/99	10/05/99	10/06/99	10/07/99
Monitoring Program	IWQP	IWQP	IWQP	IWQP	IWQP	IWQP	IWQP	IWQP
Type	TOT	TOT	TOT	TOT	TOT	TOT	TOT	TOT
FIELD MEASUREMENTS								
Measuring Pt. Elev. (ft)	849.67	849.67	849.67	849.67	849.67	849.67	849.67	849.67
Depth to Water (ft)	15.45	15.55	15.67	15.70	17.76	17.72	17.68	17.71
Water-Level Elev. (ft)	834.22	834.12	834.00	833.97	831.91	831.95	831.99	831.96
Water Temp. (degrees C)	13.2	12.4	12.1	11.2	16.5	16	15.1	15.4
pH (standard units)	7.44	7.27	7.5	7.23	6.44	7.32	7.16	7.24
Conductivity (umho/cm)	245	207	158	166	312	340	345	337
Dissolved Oxygen (ppm)	3.4	3.95	5.22	5.98	0.56	0.96	1.07	1.12
Oxidation/Reduction (mV)	2	81	135	120	230	171	201	231
MISCELLANEOUS ANALYTES								
pH (standard units)	.	.	.	.	.	.	.	.
Conductivity (umho/cm)	241	238	213	225	.	.	.	.
Dissolved Solids (mg/L)	120	120	120	150	200	200	230	210
Suspended Solids (mg/L)	<	<	<	<	11	<	<	<
Turbidity (NTU)	0.9	0.3	0.12	0.14	.	.	.	.
MAJOR IONS (mg/L)								
Calcium	31.3	31.2	32.4	31.3	46.7	47.2	46.4	46.8
Magnesium	16.1	15.9	16.5	15.8	24.7	25	24.5	24.8
Potassium	3.26	2.65	2.15	2.04	1.48	1.61	1.67	1.63
Sodium	0.975	0.901	0.875	0.833	0.766	0.786	0.795	0.789
Alkalinity-HCO3	130	132	133	136	.	.	.	.
Alkalinity-CO3	.	.	.	.	.	.	.	.
Chloride	1.7	1.7	1.7	1.5	.	.	.	.
Fluoride	<	<	<	<	.	.	.	.
Nitrate-N	1.4	1.2	1.1	1	.	.	.	.
Sulfate	3.2	3.3	3.3	3.3	.	.	.	.
Ion Charge Balance (RPD)	3.4	2.3	3.6	0.8	.	.	.	.
TRACE METALS (mg/L)								
Aluminum	<	<	<	<	<	<	<	<
Antimony (PMS)	.	.	.	.	.	.	.	.
Arsenic	<	<	<	<	<	<	<	<
Barium	0.0402	0.0409	0.0441	0.0438	0.102	0.104	0.102	0.104
Boron	<	<	<	<	<	<	<	<
Chromium	<	<	<	<	<	<	<	<
Cobalt	<	<	<	<	<	<	<	<
Copper	<	<	<	<	<	<	<	<
Iron	<	<	0.0154	0.0205	<	0.0212	0.0167	<
Lead (PMS)	.	.	.	.	.	.	.	.
Lead	<	<	<	<	<	<	<	<
Lithium	<	<	<	<	<	<	<	<
Manganese	<	<	<	<	<	<	<	<
Molybdenum	<	<	<	<	.	.	.	.
Nickel	<	<	<	<	<	<	<	<
Strontium	.	.	.	.	0.0457	0.047	0.0456	0.0485
Thallium (PMS)	.	.	.	.	.	.	.	.
Thallium	<	<	<	<	<	<	<	<
Uranium (PMS)	.	.	.	.	.	.	.	.
Uranium (KPA)	.	.	.	.	<	<	<	<
Uranium	<	<	<	<	.	.	.	.
Vanadium	<	<	<	<	<	<	<	<
Zinc	<	<	<	<	<	<	<	<

(CONTINUED)

APPENDIX E.1: CHESTNUT RIDGE HYDROGEOLOGIC REGIME, 1999
Field Measurements, Miscellaneous Analytes, Major Ions, and Trace Metals

Sampling Point	GW-301		GW-302		GW-305			
Location	CRBAWP		UNCS		LIV			
Date Sampled	01/20/99	07/14/99	02/05/99	08/11/99	01/14/99		07/20/99	
Monitoring Program	IWQP	IWQP	IWQP	IWQP	GWPP		GWPP	
Type								
	TOT	TOT	TOT	TOT	TOT	DIS	TOT	DIS
FIELD MEASUREMENTS								
Measuring Pt. Elev. (ft)	1086.55	1086.55	1141.84	1141.84	1183.75	.	1183.75	.
Depth to Water (ft)	132.63	130.25	98.18	99.15	122.35	.	117.43	.
Water-Level Elev. (ft)	953.92	956.30	1043.66	1042.69	1061.40	.	1066.32	.
Water Temp. (degrees C)	15.1	16.9	12.73	19.9	13.4	.	19.2	.
pH (standard units)	8.41	7.29	7.4	7.16	7.97	.	8.43	.
Conductivity (umho/cm)	281	300	502	409	262	.	271	.
Dissolved Oxygen (ppm)	6.17	7.67	10.16	9.19	4.81	.	4.64	.
Oxidation/Reduction (mV)	.	148	.	71	238	.	80	.
MISCELLANEOUS ANALYTES								
pH (standard units)	.	8.1	.	7.6	8.37	.	8.41	.
Conductivity (umho/cm)	294	337	.	530	277	.	212	.
Dissolved Solids (mg/L)	160	160	300	280	168	.	158	.
Suspended Solids (mg/L)	<	<	<	<	<	.	<	.
Turbidity (NTU)	<	.	.	.	0.963	.	0.262	.
MAJOR IONS (mg/L)								
Calcium	33.5	36.8	49.3	50.6	25.7	25.9	26.8	26.8
Magnesium	22.4	23	30.2	30.5	19	19.1	20.1	20.4
Potassium	0.625	0.591	0.945	1.04	<	<	<	<
Sodium	0.829	0.653	17.3	15.2	1.93	2.07	3.54	3.8
Alkalinity-HCO3	158	.	224	232	148	.	148	.
Alkalinity-CO3	.	.	.	.	<	.	<	.
Chloride	1.1	.	51.2	30.9	2.13	.	2.312	.
Fluoride	<	.	<	<	<	.	<	.
Nitrate-N	0.28	.	1.2	0.98	0.36	.	0.3309	.
Sulfate	3.3	.	4	11.9	2.17	.	3.694	.
Ion Charge Balance (RPD)	4.2	.	-3.1	-0.9	-2.7	.	0.3	.
TRACE METALS (mg/L)								
Aluminum	<	<	<	<	<	<	<	<
Antimony (PMS)	.	.	.	.	<	<	<	<
Arsenic	<	<	<	<	.	.	.	.
Barium	0.0202	0.0192	0.0234	0.0222	0.00976	0.00908	0.0106	0.0105
Boron	0.0103	<	<	<	<	<	<	<
Chromium	<	<	0.365	0.0718	<	<	<	<
Cobalt	<	<	<	<	<	<	<	<
Copper	<	<	<	<	<	<	<	<
Iron	<	<	1.81	0.757	<	<	<	<
Lead (PMS)	.	.	.	.	<	<	<	<
Lead	<	<	<	<	.	.	.	.
Lithium	<	<	<	<	<	<	<	<
Manganese	<	<	0.042	0.0205	<	<	<	<
Molybdenum	<	<	<	<	<	<	<	<
Nickel	<	<	0.233	0.209	0.0713	0.0682	0.143	0.12
Strontium	.	.	.	.	0.0133	0.0135	0.0159	0.0159
Thallium (PMS)	.	.	.	.	<	<	<	<
Thallium	<	<	<	<	.	.	.	.
Uranium (PMS)	.	.	.	.	<	<	<	<
Uranium (KPA)	.	.	.	.	.	.	.	.
Uranium	<	<	<	<	.	.	.	.
Vanadium	<	<	<	<	<	<	<	<
Zinc	<	<	<	<	<	0.0728	<	<

(CONTINUED)

APPENDIX E.1: CHESTNUT RIDGE HYDROGEOLOGIC REGIME, 1999
Field Measurements, Miscellaneous Analytes, Major Ions, and Trace Metals

Sampling Point	GW-305						GW-339	
Location	LIV						UNCS	
Date Sampled	07/20/99		11/03/99		11/04/99		02/04/99	08/11/99
Monitoring Program	GWPP		GWPP		GWPP		IWQP	IWQP
Type	DUP							
	TOT	DIS	TOT	DIS	TOT	DIS	TOT	TOT
FIELD MEASUREMENTS								
Measuring Pt. Elev. (ft)	.	.	1183.75	.	1183.75	.	1124.83	1124.83
Depth to Water (ft)	.	.	128.15	.	128.50	.	64.79	71.95
Water-Level Elev. (ft)	.	.	1055.60	.	1055.25	.	1060.04	1052.88
Water Temp. (degrees C)	.	.	12.2	.	12.1	.	16.37	20.2
pH (standard units)	.	.	8.45	.	7.97	.	7.28	6.92
Conductivity (umho/cm)	.	.	295	.	233	.	506	415
Dissolved Oxygen (ppm)	.	.	4.65	.	4.53	.	4.14	2.59
Oxidation/Reduction (mV)	.	.	148	.	166	.	.	133
MISCELLANEOUS ANALYTES								
pH (standard units)	8.42	.	.	.	.	.	.	7.6
Conductivity (umho/cm)	213	.	.	.	.	.	.	539
Dissolved Solids (mg/L)	152	.	154	.	161	.	300	290
Suspended Solids (mg/L)	<	.	<	.	2	.	<	<
Turbidity (NTU)	0.263	.	.	.	.	.	.	.
MAJOR IONS (mg/L)								
Calcium	27	25.2	24.8	23.5	27.1	27.1	56.2	60.8
Magnesium	20.2	19.3	20.1	19.7	18.1	19.8	32.8	35.3
Potassium	<	<	<	<	<	<	1.08	1.36
Sodium	3.51	3.64	5.08	4.95	3.22	1.85	11	12
Alkalinity-HCO3	142	.	.	.	.	.	276	274
Alkalinity-CO3	4	.	.	.	.	.	.	.
Chloride	2.199	.	3.01	.	3.8	.	23.1	24
Fluoride	<	.	.	.	.	.	<	<
Nitrate-N	0.3424	.	0.768	.	0.323	.	0.81	0.75
Sulfate	4.066	.	9.55	.	4.54	.	3.9	3.8
Ion Charge Balance (RPD)	1.1	.	.	.	.	.	-2.4	1.6
TRACE METALS (mg/L)								
Aluminum	<	<	<	<	<	<	<	<
Antimony (PMS)	<	<	<	<	<	<	.	.
Arsenic	.	.	.	.	.	.	<	<
Barium	0.0109	0.0106	0.012	0.011	0.0214	0.0108	0.021	0.0218
Boron	<	<	<	<	<	<	<	<
Chromium	<	<	<	<	0.0216	<	0.0181	<
Cobalt	<	<	<	<	<	<	<	<
Copper	<	<	<	<	<	<	<	<
Iron	<	<	<	<	1.31	<	0.968	0.204
Lead (PMS)	<	<	<	<	<	<	.	.
Lead	.	.	.	.	.	.	<	<
Lithium	<	<	<	<	<	<	<	<
Manganese	<	<	0.0101	0.00593	0.13	0.00877	0.0224	0.0135
Molybdenum	<	<	<	<	<	<	<	<
Nickel	0.159	0.119	0.229	0.137	0.689	0.0701	0.31	0.322
Strontium	0.0165	0.015	0.0187	0.0157	0.024	0.0133	.	.
Thallium (PMS)	<	<	<	<	<	<	.	.
Thallium	.	.	.	.	.	.	<	<
Uranium (PMS)	<	<	0.00122	0.000591	<	<	.	.
Uranium (KPA)	.	.	.	.	.	.	.	.
Uranium	.	.	.	.	.	.	<	<
Vanadium	<	<	<	<	<	<	<	<
Zinc	<	<	<	<	<	<	<	<

(CONTINUED)

APPENDIX E.1: CHESTNUT RIDGE HYDROGEOLOGIC REGIME, 1999
Field Measurements, Miscellaneous Analytes, Major Ions, and Trace Metals

Sampling Point	GW-339	GW-521				GW-522		
Location	UNCS	LIV				LIV		
Date Sampled	08/11/99	01/19/99		07/15/99		01/14/99		07/20/99
Monitoring Program	IWQP	GWPP		GWPP		GWPP		GWPP
Type	DUP							
	TOT	TOT	DIS	TOT	DIS	TOT	DIS	TOT
FIELD MEASUREMENTS								
Measuring Pt. Elev. (ft)	.	1182.88	.	1182.88	.	1175.49	.	1175.49
Depth to Water (ft)	.	85.15	.	80.53	.	111.49	.	103.65
Water-Level Elev. (ft)	.	1097.73	.	1102.35	.	1064.00	.	1071.84
Water Temp. (degrees C)	.	14.2	.	17.1	.	14.2	.	16.6
pH (standard units)	.	8.59	.	8.27	.	7.72	.	8.04
Conductivity (umho/cm)	.	259	.	231	.	244	.	321
Dissolved Oxygen (ppm)	.	6.05	.	3.68	.	7.11	.	6.3
Oxidation/Reduction (mV)	.	178	.	108	.	211	.	137
MISCELLANEOUS ANALYTES								
pH (standard units)	7.7	8.2	.	7.21	.	8.11	.	7.91
Conductivity (umho/cm)	549	290	.	349	.	251	.	172.2
Dissolved Solids (mg/L)	310	165	.	137	.	166	.	163
Suspended Solids (mg/L)	<	<	.	<	.	9	.	<
Turbidity (NTU)	.	3.18	.	0.729	.	17.9	.	1.19
MAJOR IONS (mg/L)								
Calcium	61.6	27.2	27.5	23.7	23.9	27.6	26.6	31.7
Magnesium	35.8	20.3	20.4	20.3	20.8	17.4	16.6	19.7
Potassium	1.38	<	<	<	<	<	<	<
Sodium	12.3	2.16	2.19	3.39	3.72	0.581	0.611	0.569
Alkalinity-HCO3	273	156	.	142	.	134	.	154
Alkalinity-CO3	.	<	.	<	.	<	.	<
Chloride	22.5	1.21	.	1.399	.	1.15	.	1.426
Fluoride	<	<	.	<	.	<	.	<
Nitrate-N	0.74	0.21	.	0.2638	.	0.39	.	0.4174
Sulfate	3.8	1.45	.	1.94	.	1.53	.	0.866
Ion Charge Balance (RPD)	2.9	-1.3	.	1.0	.	1.1	.	0.9
TRACE METALS (mg/L)								
Aluminum	<	<	<	<	<	0.72	<	<
Antimony (PMS)	.	<	<	<	<	<	<	<
Arsenic	<	.	.	.	.	.	.	.
Barium	0.0218	0.00832	0.00862	0.00762	0.00817	0.0092	0.00753	0.00848
Boron	<	<	<	<	<	<	<	<
Chromium	<	<	<	<	<	<	<	<
Cobalt	<	<	<	<	<	<	<	<
Copper	<	<	<	<	<	<	<	<
Iron	0.197	0.103	<	<	<	0.822	<	0.0713
Lead (PMS)	.	<	<	<	<	0.0032	0.0011	<
Lead	<	.	.	.	.	.	.	.
Lithium	<	<	<	<	<	<	<	<
Manganese	0.0136	0.00502	<	<	<	0.0224	<	<
Molybdenum	<	<	<	<	<	<	<	<
Nickel	0.332	<	<	<	<	<	<	<
Strontium	.	0.0105	0.0108	0.00943	0.0097	0.0113	0.0112	0.0125
Thallium (PMS)	.	<	<	<	<	<	<	<
Thallium	<	.	.	.	.	.	.	.
Uranium (PMS)	.	<	0.0008	<	<	<	<	<
Uranium (KPA)	.	.	.	.	.	.	.	.
Uranium	<	.	.	.	.	.	.	.
Vanadium	<	<	<	<	<	<	<	<
Zinc	<	<	<	<	<	<	<	<

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APPENDIX E.1: CHESTNUT RIDGE HYDROGEOLOGIC REGIME, 1999
Field Measurements, Miscellaneous Analytes, Major Ions, and Trace Metals

Sampling Point	GW-522	GW-540						GW-542
Location	LIV	LII						CDLVI
Date Sampled	07/20/99	04/05/99				10/13/99		04/07/99
Monitoring Program	GWPP	GWPP				GWPP		GWPP
Type				DUP				
	DIS	TOT	DIS	TOT	DIS	TOT	DIS	TOT
FIELD MEASUREMENTS								
Measuring Pt. Elev. (ft)	.	1072.32	.	.	.	1072.32	.	1051.77
Depth to Water (ft)	.	81.16	.	.	.	85.21	.	69.94
Water-Level Elev. (ft)	.	991.16	.	.	.	987.11	.	981.83
Water Temp. (degrees C)	.	16.1	.	.	.	16	.	15
pH (standard units)	.	8.18	.	.	.	8.01	.	6.85
Conductivity (umho/cm)	.	313	.	.	.	351	.	239
Dissolved Oxygen (ppm)	.	0.93	.	.	.	0.6	.	3.52
Oxidation/Reduction (mV)	.	167	.	.	.	141	.	166
MISCELLANEOUS ANALYTES								
pH (standard units)	.	8.18	.	8.17	.	8.15	.	7.17
Conductivity (umho/cm)	.	380	.	376	.	385	.	271
Dissolved Solids (mg/L)	.	205	.	208	.	209	.	117
Suspended Solids (mg/L)	.	1	.	1	.	<	.	6
Turbidity (NTU)	.	0.196	.	0.201	.	0.248	.	7.87
MAJOR IONS (mg/L)								
Calcium	31.9	39.9	43	42.4	40.6	35.3	35.5	28.5
Magnesium	19.8	27.7	29.9	29.5	28	27.1	27.2	15.6
Potassium	<	<	<	<	<	<	<	2.3
Sodium	0.577	1.79	1.75	1.91	1.61	7.87	7.95	0.793
Alkalinity-HCO3	.	214	.	214	.	206	.	138
Alkalinity-CO3	.	<	.	<	.	<	.	<
Chloride	.	1.59	.	1.38	.	1.38	.	1.14
Fluoride	.	<	.	<	.	<	.	<
Nitrate-N	.	0.13	.	0.22	.	<	.	0.28
Sulfate	.	3.72	.	3.59	.	6.18	.	3.46
Ion Charge Balance (RPD)	.	-0.7	.	2.4	.	0.6	.	-1.5
TRACE METALS (mg/L)								
Aluminum	<	<	<	<	<	<	<	0.511
Antimony (PMS)	<	<	<	<	<	<	<	<
Arsenic	.	.	.	.	.	.	.	.
Barium	0.00811	0.0102	0.0112	0.0105	0.00989	0.0106	0.0113	0.017
Boron	<	<	<	<	<	<	<	<
Chromium	<	<	<	<	<	<	<	<
Cobalt	<	<	<	<	<	<	<	<
Copper	<	<	<	<	<	<	<	<
Iron	<	<	<	<	<	<	<	0.564
Lead (PMS)	<	<	0.00384	<	<	<	<	0.000551
Lead	.	.	.	.	.	.	.	.
Lithium	<	<	<	<	<	<	<	<
Manganese	<	<	<	<	<	<	0.0162	0.0107
Molybdenum	<	<	<	<	<	<	<	<
Nickel	<	<	<	<	<	<	<	<
Strontium	0.0122	0.0286	0.0304	0.0304	0.0288	0.0261	0.0266	0.0219
Thallium (PMS)	<	<	<	<	0.000593	<	<	<
Thallium	.	.	.	.	.	.	.	.
Uranium (PMS)	<	<	<	<	<	0.000619	<	<
Uranium (KPA)	.	.	.	.	.	.	.	.
Uranium	.	.	.	.	.	.	.	.
Vanadium	<	<	<	<	<	<	<	<
Zinc	<	<	<	<	<	<	<	<

(CONTINUED)

APPENDIX E.1: CHESTNUT RIDGE HYDROGEOLOGIC REGIME, 1999
Field Measurements, Miscellaneous Analytes, Major Ions, and Trace Metals

Sampling Point	GW-542					GW-543		
Location	CDLVI					CDLVI		
Date Sampled	04/07/99	10/18/99				04/08/99		10/19/99
Monitoring Program	GWPP	GWPP				GWPP		GWPP
Type				DUP				
	DIS	TOT	DIS	TOT	DIS	TOT	DIS	TOT
FIELD MEASUREMENTS								
Measuring Pt. Elev. (ft)	.	1051.77	.	.	.	1023.98	.	1023.98
Depth to Water (ft)	.	71.06	.	.	.	64.23	.	65.76
Water-Level Elev. (ft)	.	980.71	.	.	.	959.75	.	958.22
Water Temp. (degrees C)	.	15.4	.	.	.	14.3	.	14.5
pH (standard units)	.	6.67	.	.	.	7.36	.	7.37
Conductivity (umho/cm)	.	158	.	.	.	447	.	430
Dissolved Oxygen (ppm)	.	3.83	.	.	.	4.68	.	6.66
Oxidation/Reduction (mV)	.	115	.	.	.	165	.	181
MISCELLANEOUS ANALYTES								
pH (standard units)	.	6.8	.	6.86	.	7.69	.	7.32
Conductivity (umho/cm)	.	197	.	202	.	444	.	452
Dissolved Solids (mg/L)	.	131	.	133	.	222	.	263
Suspended Solids (mg/L)	.	4	.	4	.	<	.	<
Turbidity (NTU)	.	9.33	.	8.78	.	0.44	.	0.364
MAJOR IONS (mg/L)								
Calcium	29.1	19.7	20.2	19.9	20.2	54.4	51.2	51.1
Magnesium	15.9	11	11.4	11.3	11.3	32.6	31.3	30.8
Potassium	2.35	<	2.01	<	2.04	<	<	<
Sodium	0.811	0.698	0.696	0.681	0.742	1.26	1.17	1.11
Alkalinity-HCO3	.	100	.	106	.	244	.	242
Alkalinity-CO3	.	<	.	<	.	<	.	<
Chloride	.	0.888	.	0.892	.	2.11	.	1.71
Fluoride	.	<	.	<	.	<	.	<
Nitrate-N	.	0.246	.	0.271	.	0.32	.	0.287
Sulfate	.	2.19	.	2.04	.	9.93	.	8.35
Ion Charge Balance (RPD)	.	-4.2	.	-6.1	.	2.7	.	0.5
TRACE METALS (mg/L)								
Aluminum	<	0.402	<	0.4	<	<	<	<
Antimony (PMS)	<	<	<	<	<	<	<	<
Arsenic	.	.	.	.	.	.	.	.
Barium	0.0158	0.0137	0.0132	0.0142	0.0133	0.0102	0.00984	0.0105
Boron	<	<	<	<	<	<	<	<
Chromium	<	<	<	<	<	<	<	<
Cobalt	<	<	<	<	<	<	<	<
Copper	<	<	<	<	<	<	<	<
Iron	<	0.386	<	0.375	<	<	<	<
Lead (PMS)	<	0.000538	<	<	<	<	<	<
Lead	.	.	.	.	.	.	.	.
Lithium	<	<	<	<	<	<	<	<
Manganese	0.0073	0.00621	<	0.00674	0.0177	<	<	<
Molybdenum	<	<	<	<	<	<	<	<
Nickel	<	<	<	<	<	<	<	<
Strontium	0.0219	0.0154	0.0158	0.0156	0.0158	0.0269	0.0256	0.0261
Thallium (PMS)	<	<	<	<	<	<	<	<
Thallium	.	.	.	.	.	.	.	.
Uranium (PMS)	<	<	<	<	<	<	<	<
Uranium (KPA)	.	.	.	.	.	.	.	.
Uranium	.	.	.	.	.	.	.	.
Vanadium	<	<	<	<	<	<	<	<
Zinc	<	<	<	<	<	<	<	<

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APPENDIX E.1: CHESTNUT RIDGE HYDROGEOLOGIC REGIME, 1999
Field Measurements, Miscellaneous Analytes, Major Ions, and Trace Metals

Sampling Point	GW-543	GW-544				GW-557		
Location	CDLVI	CDLVI				LV		
Date Sampled	10/19/99	04/08/99		10/19/99		01/20/99		07/12/99
Monitoring Program	GWPP	GWPP		GWPP		GWPP		GWPP
Type								
	DIS	TOT	DIS	TOT	DIS	TOT	DIS	TOT
FIELD MEASUREMENTS								
Measuring Pt. Elev. (ft)	.	1045.20	.	1045.20	.	1081.36	.	1081.36
Depth to Water (ft)	.	62.29	.	65.08	.	121.15	.	120.55
Water-Level Elev. (ft)	.	982.91	.	980.12	.	960.21	.	960.81
Water Temp. (degrees C)	.	14.5	.	15.3	.	14.6	.	15.1
pH (standard units)	.	7.54	.	7.89	.	7.82	.	7.69
Conductivity (umho/cm)	.	448	.	443	.	366	.	354
Dissolved Oxygen (ppm)	.	2.71	.	0.85	.	5.41	.	6.02
Oxidation/Reduction (mV)	.	132	.	140	.	194	.	187
MISCELLANEOUS ANALYTES								
pH (standard units)	.	7.56	.	7.66	.	7.84	.	7.73
Conductivity (umho/cm)	.	461	.	485	.	334	.	339
Dissolved Solids (mg/L)	.	236	.	280	.	176	.	190
Suspended Solids (mg/L)	.	<	.	<	.	<	.	47
Turbidity (NTU)	.	0.302	.	0.165	.	1.48	.	40.6
MAJOR IONS (mg/L)								
Calcium	51.2	50.8	50.7	52.1	51.6	38	36.5	42.9
Magnesium	31.1	30.8	31.4	31.7	31.2	21.6	20.8	26.1
Potassium	<	<	<	<	<	<	<	<
Sodium	1.1	5.3	5.35	5.11	5.24	0.574	0.567	0.56
Alkalinity-HCO3	.	236	.	228	.	178	.	180
Alkalinity-CO3	.	<	.	<	.	<	.	<
Chloride	.	10.5	.	11.7	.	1.29	.	1.23
Fluoride	.	<	.	<	.	<	.	<
Nitrate-N	.	0.56	.	0.571	.	0.82	.	0.7262
Sulfate	.	12	.	12.3	.	2.17	.	1.641
Ion Charge Balance (RPD)	.	-0.0	.	2.3	.	0.0	.	7.4
TRACE METALS (mg/L)								
Aluminum	<	<	<	<	<	<	<	0.954
Antimony (PMS)	<	<	<	<	<	<	<	<
Arsenic	.	.	.	.	.	.	.	.
Barium	0.0107	0.0108	0.011	0.0133	0.0123	0.011	0.0102	0.0144
Boron	<	<	<	<	<	<	<	<
Chromium	<	<	<	<	<	<	<	0.025
Cobalt	<	<	<	<	<	<	<	<
Copper	<	<	<	<	<	<	<	<
Iron	<	<	<	<	<	0.0585	<	1.85
Lead (PMS)	<	<	<	<	<	<	<	0.000847
Lead	.	.	.	.	.	.	.	.
Lithium	<	<	<	<	<	<	<	<
Manganese	<	<	<	<	0.0124	<	<	0.0385
Molybdenum	<	<	<	<	<	<	<	<
Nickel	<	<	<	<	<	<	<	<
Strontium	0.0263	0.0244	0.025	0.0262	0.0256	0.0176	0.017	0.0204
Thallium (PMS)	<	0.000513	<	<	<	<	<	<
Thallium	.	.	.	.	.	.	.	.
Uranium (PMS)	0.000691	<	<	0.00233	0.0016	<	<	<
Uranium (KPA)	.	.	.	.	.	.	.	.
Uranium	.	.	.	.	.	.	.	.
Vanadium	<	<	<	<	<	<	<	<
Zinc	<	<	<	<	<	<	<	<

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APPENDIX E.1: CHESTNUT RIDGE HYDROGEOLOGIC REGIME, 1999
Field Measurements, Miscellaneous Analytes, Major Ions, and Trace Metals

Sampling Point	GW-557	GW-609		GW-709				
Location	LV	CRSP		LII				
Date Sampled	07/12/99	01/20/99	07/16/99	04/05/99		10/14/99		
Monitoring Program	GWPP	IWQP	IWQP	GWPP		GWPP		
Type								DUP
	DIS	TOT	TOT	TOT	DIS	TOT	DIS	TOT
FIELD MEASUREMENTS								
Measuring Pt. Elev. (ft)	.	1112.31	1112.31	906.78	.	906.78	.	.
Depth to Water (ft)	.	163.91	158.95	28.55	.	29.78	.	.
Water-Level Elev. (ft)	.	948.40	953.36	878.23	.	877.00	.	.
Water Temp. (degrees C)	.	16.1	18	20.2	.	14.8	.	.
pH (standard units)	.	7.62	7.32	9.49	.	8.8	.	.
Conductivity (umho/cm)	.	322	355	237	.	240	.	.
Dissolved Oxygen (ppm)	.	2.45	5.8	0.31	.	0.48	.	.
Oxidation/Reduction (mV)	.	.	110	49	.	159	.	.
MISCELLANEOUS ANALYTES								
pH (standard units)	.	.	7.9	9.24	.	9.65	.	9.63
Conductivity (umho/cm)	.	386	339	236	.	231	.	233
Dissolved Solids (mg/L)	.	190	210	126	.	122	.	124
Suspended Solids (mg/L)	.	<	<	<	.	<	.	<
Turbidity (NTU)	.	0.08	.	0.273	.	0.611	.	0.638
MAJOR IONS (mg/L)								
Calcium	37.4	44.8	41.5	10.3	11.9	9.57	7	8.79
Magnesium	22.7	26.2	25.3	26.8	28	27.4	28.3	27.8
Potassium	<	0.854	0.832	<	<	<	<	<
Sodium	0.761	0.844	1.01	0.884	0.941	1.27	1.49	1.34
Alkalinity-HCO3	.	194	.	96	.	80	.	74
Alkalinity-CO3	.	.	.	40	.	48	.	52
Chloride	.	1.9	.	1.42	.	1.32	.	1.3
Fluoride	.	<	.	<	.	<	.	<
Nitrate-N	.	1.2	.	0.07	.	0.0852	.	0.091
Sulfate	.	2.1	.	2.57	.	2.15	.	2.2
Ion Charge Balance (RPD)	.	4.6	.	-1.6	.	2.5	.	3.2
TRACE METALS (mg/L)								
Aluminum	<	<	<	<	<	<	<	<
Antimony (PMS)	<	.	.	<	<	<	<	<
Arsenic	.	<	<	.	.	.	.	.
Barium	0.0114	0.0125	0.0128	0.252	0.286	0.266	0.189	0.241
Boron	<	<	<	<	<	<	<	<
Chromium	<	<	<	<	<	<	<	<
Cobalt	<	<	<	<	<	<	<	<
Copper	<	<	<	<	<	<	<	<
Iron	<	<	<	<	<	<	<	<
Lead (PMS)	<	.	.	<	<	<	<	<
Lead	.	<	<	.	.	.	.	.
Lithium	<	<	<	<	<	<	<	<
Manganese	<	<	<	<	<	<	<	<
Molybdenum	<	<	<	<	<	<	<	<
Nickel	<	<	<	<	<	<	<	<
Strontium	0.0174	.	.	0.0193	0.0222	0.0189	0.0132	0.0171
Thallium (PMS)	<	.	.	<	<	<	<	<
Thallium	.	<	<	.	.	.	.	.
Uranium (PMS)	<	.	.	<	<	0.000617	<	<
Uranium (KPA)	.	.	.	.	.	.	.	.
Uranium	.	<	<	.	.	.	.	.
Vanadium	<	<	<	<	<	<	<	<
Zinc	<	<	<	<	<	<	<	<

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APPENDIX E.1: CHESTNUT RIDGE HYDROGEOLOGIC REGIME, 1999
Field Measurements, Miscellaneous Analytes, Major Ions, and Trace Metals

Sampling Point	GW-709	GW-731						
Location	LII	CRSDB						
Date Sampled	10/14/99	04/19/99	04/20/99	04/21/99	04/22/99	10/11/99	10/12/99	10/13/99
Monitoring Program	GWPP	IWQP	IWQP	IWQP	IWQP	IWQP	IWQP	IWQP
Type	DUP							
	DIS	TOT	TOT	TOT	TOT	TOT	TOT	TOT
FIELD MEASUREMENTS								
Measuring Pt. Elev. (ft)	.	1049.38	1049.38	1049.38	1049.38	1049.38	1049.38	1049.38
Depth to Water (ft)	.	124.63	124.69	124.64	124.70	125.05	125.26	125.25
Water-Level Elev. (ft)	.	924.75	924.69	924.74	924.68	924.33	924.12	924.13
Water Temp. (degrees C)	.	15.8	15	17.9	15.2	16.8	16.5	16.4
pH (standard units)	.	8.19	8.19	7.83	8.07	9.18	9.04	8.91
Conductivity (umho/cm)	.	158	207	207	221	231	231	230
Dissolved Oxygen (ppm)	.	8.91	8.81	8	7.77	5.25	4.85	4.94
Oxidation/Reduction (mV)	.	244	238	139	219	204	158	189
MISCELLANEOUS ANALYTES								
pH (standard units)	.	.	.	.	.	.	.	.
Conductivity (umho/cm)	.	242	240	229	227	.	.	.
Dissolved Solids (mg/L)	.	150	150	140	130	140	160	160
Suspended Solids (mg/L)	.	<	<	<	<	<	<	<
Turbidity (NTU)	.	0.43	0.11	0.08	0.11	.	.	.
MAJOR IONS (mg/L)								
Calcium	7.18	27.6	28.9	28.7	27.9	18.1	17.1	18.2
Magnesium	27.9	18.9	19.4	18.9	18.9	16.4	16.2	16.7
Potassium	<	1.54	0.953	0.917	0.982	22.5	23.1	21.1
Sodium	1.5	0.707	0.544	0.534	0.545	4.93	5.06	4.62
Alkalinity-HCO3	.	138	142	144	142	.	.	.
Alkalinity-CO3	.	.	.	.	.	.	.	.
Chloride	.	1.1	0.96	0.98	1.1	.	.	.
Fluoride	.	<	<	<	<	.	.	.
Nitrate-N	.	0.19	0.19	0.19	0.2	.	.	.
Sulfate	.	3.7	3.6	3.6	3.6	.	.	.
Ion Charge Balance (RPD)	.	2.1	2.2	0.6	0.6	.	.	.
TRACE METALS (mg/L)								
Aluminum	<	<	<	<	<	<	<	<
Antimony (PMS)	<	.	.	.	.	.	.	.
Arsenic	.	<	<	<	<	<	<	<
Barium	0.191	0.0076	0.0077	0.0077	0.0072	<	<	<
Boron	<	<	<	<	<	<	<	<
Chromium	<	<	<	<	<	0.005	0.005	<
Cobalt	<	<	<	<	<	<	<	<
Copper	<	<	<	<	<	<	<	<
Iron	<	0.0174	<	0.014	<	0.0364	0.0263	<
Lead (PMS)	<	.	.	.	.	.	.	.
Lead	.	<	<	<	<	<	<	<
Lithium	<	<	<	<	<	0.0264	0.0271	0.0243
Manganese	0.019	<	<	<	<	<	<	<
Molybdenum	<	<	<	<	<	.	.	.
Nickel	<	<	<	<	<	<	<	<
Strontium	0.0138	.	.	.	.	0.0075	0.0072	0.0078
Thallium (PMS)	<	.	.	.	.	.	.	.
Thallium	.	<	<	<	<	<	<	<
Uranium (PMS)	<	.	.	.	.	.	.	.
Uranium (KPA)	.	<	<	<	<	<	<	<
Uranium	.	<	<	<	<	.	.	.
Vanadium	<	<	<	<	<	<	<	<
Zinc	<	<	<	<	<	<	<	<

(CONTINUED)

APPENDIX E.1: CHESTNUT RIDGE HYDROGEOLOGIC REGIME, 1999
Field Measurements, Miscellaneous Analytes, Major Ions, and Trace Metals

Sampling Point	GW-731	GW-732						
Location	CRSDB	CRSDB						
Date Sampled	10/14/99	04/19/99	04/20/99	04/21/99	04/22/99		10/11/99	10/12/99
Monitoring Program	IWQP	IWQP	IWQP	IWQP	IWQP		IWQP	IWQP
Type						DUP		
	TOT	TOT	TOT	TOT	TOT	TOT	TOT	TOT
FIELD MEASUREMENTS								
Measuring Pt. Elev. (ft)	1049.38	1064.29	1064.29	1064.29	1064.29	.	1064.29	1064.29
Depth to Water (ft)	125.21	157.75	157.75	157.75	157.74	.	157.84	158.00
Water-Level Elev. (ft)	924.17	906.54	906.54	906.54	906.55	.	906.45	906.29
Water Temp. (degrees C)	16	13	14.4	14.3	15.2	.	14.9	15.6
pH (standard units)	9	8.5	8.01	7.96	7.86	.	9.21	8.3
Conductivity (umho/cm)	246	220	231	253	244	.	191	211
Dissolved Oxygen (ppm)	6.95	7.24	7.48	7.2	7.18	.	6.61	7.78
Oxidation/Reduction (mV)	186	188	140	223	183	.	203	180
MISCELLANEOUS ANALYTES								
pH (standard units)	.	.	.	.	.	.	.	.
Conductivity (umho/cm)	.	266	245	229	232	227	.	.
Dissolved Solids (mg/L)	140	150	130	140	140	130	100	130
Suspended Solids (mg/L)	<	<	<	<	<	<	<	<
Turbidity (NTU)	.	0.38	<	0.09	<	0.12	.	.
MAJOR IONS (mg/L)								
Calcium	18.5	30.9	29.1	29.9	30.2	29.8	27.6	26.5
Magnesium	16.8	18.6	17.7	18.2	18.4	17.9	14.4	16.9
Potassium	20.3	0.947	0.801	0.789	0.786	1.24	9.99	3.85
Sodium	4.45	0.599	0.523	0.528	0.533	0.792	3.04	1.38
Alkalinity-HCO3	.	145	147	147	150	141	.	.
Alkalinity-CO3	.	.	.	.	.	.	.	.
Chloride	.	1	0.97	0.9	0.88	0.94	.	.
Fluoride	.	<	<	<	<	<	.	.
Nitrate-N	.	0.22	0.25	0.22	0.26	0.26	.	.
Sulfate	.	2.5	2.2	2.2	2.1	2.4	.	.
Ion Charge Balance (RPD)	.	2.0	-1.3	0.1	-0.4	1.9	.	.
TRACE METALS (mg/L)								
Aluminum	<	<	<	<	<	<	<	<
Antimony (PMS)	.	.	.	.	.	.	.	.
Arsenic	<	<	<	<	<	<	<	<
Barium	0.0056	0.0089	0.0072	0.0072	0.0074	0.0074	0.0406	0.0165
Boron	<	<	<	<	<	<	<	<
Chromium	<	<	<	<	<	<	<	<
Cobalt	<	<	<	<	<	<	<	<
Copper	<	<	<	<	<	<	<	<
Iron	<	0.0387	0.0133	0.0188	<	0.0251	0.0271	0.0401
Lead (PMS)	.	.	.	.	.	.	.	.
Lead	<	<	<	<	<	0.0041	<	<
Lithium	0.0235	<	<	<	<	<	0.024	<
Manganese	<	<	<	<	<	<	<	<
Molybdenum	.	<	<	<	<	<	.	.
Nickel	<	<	<	<	<	<	<	<
Strontium	0.0079	.	.	.	.	.	0.0639	0.0262
Thallium (PMS)	.	.	.	.	.	.	.	.
Thallium	<	<	<	<	<	<	<	<
Uranium (PMS)	.	.	.	.	.	.	.	.
Uranium (KPA)	<	<	<	<	<	<	<	<
Uranium	.	<	<	<	<	<	.	.
Vanadium	<	<	<	<	<	<	<	<
Zinc	<	<	<	<	<	<	<	<

(CONTINUED)

APPENDIX E.1: CHESTNUT RIDGE HYDROGEOLOGIC REGIME, 1999
Field Measurements, Miscellaneous Analytes, Major Ions, and Trace Metals

Sampling Point	GW-732			GW-757				GW-796
Location	CRSDB			LII				LV
Date Sampled	10/12/99	10/13/99	10/14/99	04/06/99		10/14/99		01/21/99
Monitoring Program	IWQP	IWQP	IWQP	GWPP		GWPP		GWPP
Type	DUP							
	TOT	TOT	TOT	TOT	DIS	TOT	DIS	TOT
FIELD MEASUREMENTS								
Measuring Pt. Elev. (ft)	.	1064.29	1064.29	961.61	.	961.61	.	1052.62
Depth to Water (ft)	.	158.02	158.10	85.48	.	84.62	.	81.38
Water-Level Elev. (ft)	.	906.27	906.19	876.13	.	876.99	.	971.24
Water Temp. (degrees C)	.	14.9	14.6	18	.	16.4	.	14.3
pH (standard units)	.	8.13	8.04	9.39	.	9.94	.	8.23
Conductivity (umho/cm)	.	216	224	275	.	256	.	247
Dissolved Oxygen (ppm)	.	6.83	6.78	5.62	.	1.97	.	6.92
Oxidation/Reduction (mV)	.	206	208	117	.	77	.	185
MISCELLANEOUS ANALYTES								
pH (standard units)	.	.	.	9.02	.	9.5	.	8.19
Conductivity (umho/cm)	.	.	.	276	.	283	.	227
Dissolved Solids (mg/L)	130	140	150	137	.	163	.	115
Suspended Solids (mg/L)	<	<	7	1	.	<	.	<
Turbidity (NTU)	.	.	.	1.17	.	0.205	.	3.2
MAJOR IONS (mg/L)								
Calcium	26.8	27.6	27.5	18.9	16.4	5.39	5.39	24.3
Magnesium	17.2	17.9	17.9	13	11.9	13.9	13.9	15
Potassium	3.88	2.27	2.81	8.28	9.4	14	14.2	<
Sodium	1.4	0.951	1.37	16.7	19.4	26.7	26.6	0.547
Alkalinity-HCO3	.	.	.	108	.	82	.	118
Alkalinity-CO3	.	.	.	20	.	48	.	4
Chloride	.	.	.	1.56	.	1.7	.	1.54
Fluoride	.	.	.	1.95	.	1.5	.	<
Nitrate-N	.	.	.	0.12	.	<	.	0.05
Sulfate	.	.	.	13.6	.	11	.	0.89
Ion Charge Balance (RPD)	.	.	.	-1.2	.	-1.8	.	-0.7
TRACE METALS (mg/L)								
Aluminum	<	<	<	<	<	<	<	<
Antimony (PMS)	.	.	.	<	<	<	<	<
Arsenic	<	<	<	.	.	.	.	.
Barium	0.0163	0.0117	0.0115	0.151	0.137	0.126	0.124	0.00795
Boron	<	<	<	<	<	<	<	<
Chromium	<	<	<	<	<	<	<	<
Cobalt	<	<	<	<	<	<	<	<
Copper	<	<	<	<	<	<	<	<
Iron	0.0215	0.0129	0.0191	<	<	<	<	0.117
Lead (PMS)	.	.	.	<	<	<	<	<
Lead	<	<	<	.	.	.	.	.
Lithium	<	<	<	0.0132	0.0149	0.0258	0.0255	<
Manganese	<	<	<	<	<	<	<	<
Molybdenum	.	.	.	<	<	<	<	<
Nickel	<	<	<	<	<	<	<	<
Strontium	0.0261	0.0172	0.0166	0.625	0.546	0.4	0.398	0.0128
Thallium (PMS)	.	.	.	<	<	<	<	<
Thallium	<	<	<	.	.	.	.	.
Uranium (PMS)	.	.	.	0.00383	0.00393	0.00377	0.00392	<
Uranium (KPA)	<	<	<	.	.	.	.	.
Uranium	.	.	.	.	.	.	.	.
Vanadium	<	<	<	<	<	<	<	<
Zinc	<	<	<	<	<	<	<	<

(CONTINUED)

APPENDIX E.1: CHESTNUT RIDGE HYDROGEOLOGIC REGIME, 1999
Field Measurements, Miscellaneous Analytes, Major Ions, and Trace Metals

Sampling Point	GW-796			GW-797				
Location	LV			LV				
Date Sampled	01/21/99	07/13/99		01/20/99				07/13/99
Monitoring Program	GWPP	GWPP		GWPP				GWPP
Type						DUP		
	DIS	TOT	DIS	TOT	DIS	TOT	DIS	TOT
FIELD MEASUREMENTS								
Measuring Pt. Elev. (ft)	.	1052.62	.	1060.00	.	.	.	1060.00
Depth to Water (ft)	.	75.95	.	71.50	.	.	.	70.20
Water-Level Elev. (ft)	.	976.67	.	988.50	.	.	.	989.80
Water Temp. (degrees C)	.	14.9	.	14.3	.	.	.	15.8
pH (standard units)	.	8.3	.	8.41	.	.	.	8.4
Conductivity (umho/cm)	.	220	.	294	.	.	.	268
Dissolved Oxygen (ppm)	.	9.42	.	0.86	.	.	.	5.04
Oxidation/Reduction (mV)	.	156	.	186	.	.	.	119
MISCELLANEOUS ANALYTES								
pH (standard units)	.	8.21	.	8.34	.	8.37	.	8.14
Conductivity (umho/cm)	.	213	.	314	.	310	.	289
Dissolved Solids (mg/L)	.	124	.	161	.	162	.	185
Suspended Solids (mg/L)	.	<	.	<	.	<	.	<
Turbidity (NTU)	.	0.296	.	0.276	.	0.252	.	0.154
MAJOR IONS (mg/L)								
Calcium	23.3	24.2	24.8	33.8	34.3	34.2	34.3	33.5
Magnesium	14.4	15.5	15.9	19.5	19.9	19.8	19.8	20.8
Potassium	<	<	<	<	<	<	<	<
Sodium	0.527	0.548	0.559	4.77	4.38	4.62	4.47	5.35
Alkalinity-HCO3	.	122	.	132	.	152	.	164
Alkalinity-CO3	.	<	.	28	.	8	.	<
Chloride	.	1.449	.	1.9	.	1.84	.	1.674
Fluoride	.	<	.	<	.	<	.	<
Nitrate-N	.	0.05715	.	0.39	.	0.39	.	0.3214
Sulfate	.	0.882	.	10.4	.	10.3	.	11.4
Ion Charge Balance (RPD)	.	0.1	.	0.0	.	0.6	.	0.4
TRACE METALS (mg/L)								
Aluminum	<	<	<	<	<	<	<	<
Antimony (PMS)	<	<	<	<	<	<	<	<
Arsenic	.	.	.	.	.	.	.	.
Barium	0.00748	0.00856	0.00841	0.00704	0.00693	0.00741	0.0072	0.00783
Boron	<	<	<	<	<	<	<	<
Chromium	<	<	<	<	<	<	<	<
Cobalt	<	<	<	<	<	<	<	<
Copper	<	<	<	<	<	<	<	<
Iron	<	<	<	<	<	<	<	<
Lead (PMS)	<	<	<	0.0015	<	<	0.0009	<
Lead	.	.	.	.	.	.	.	.
Lithium	<	<	<	<	<	<	<	<
Manganese	<	<	<	<	<	<	<	<
Molybdenum	<	<	<	<	<	<	<	<
Nickel	<	<	<	<	<	<	<	<
Strontium	0.0121	0.0129	0.013	0.021	0.0215	0.0215	0.0216	0.0212
Thallium (PMS)	<	<	<	<	<	<	<	<
Thallium	.	.	.	.	.	.	.	.
Uranium (PMS)	<	<	<	<	<	<	<	<
Uranium (KPA)	.	.	.	.	.	.	.	.
Uranium	.	.	.	.	.	.	.	.
Vanadium	<	<	<	<	<	<	<	<
Zinc	<	<	<	<	<	<	<	<

(CONTINUED)

APPENDIX E.1: CHESTNUT RIDGE HYDROGEOLOGIC REGIME, 1999
Field Measurements, Miscellaneous Analytes, Major Ions, and Trace Metals

Sampling Point	GW-797	GW-798		GW-799				GW-801
Location	LV	CDLVII		LV				LV
Date Sampled	07/13/99	01/19/99	07/13/99	01/20/99		07/12/99		01/21/99
Monitoring Program	GWPP	IWQP	IWQP	GWPP		GWPP		GWPP
Type								
	DIS	TOT	TOT	TOT	DIS	TOT	DIS	TOT
FIELD MEASUREMENTS								
Measuring Pt. Elev. (ft)	.	1006.00	1006.00	981.29	.	981.29	.	1097.16
Depth to Water (ft)	.	80.40	77.55	11.46	.	13.04	.	107.34
Water-Level Elev. (ft)	.	925.60	928.45	969.83	.	968.25	.	989.82
Water Temp. (degrees C)	.	15.6	17.9	14.3	.	16.1	.	14.3
pH (standard units)	.	8.22	7.34	8.3	.	7.3	.	8.11
Conductivity (umho/cm)	.	225	225	295	.	286	.	253
Dissolved Oxygen (ppm)	.	7.3	6.92	0.53	.	0.84	.	7.34
Oxidation/Reduction (mV)	.	.	147	167	.	163	.	163
MISCELLANEOUS ANALYTES								
pH (standard units)	.	.	8	8.38	.	8.4	.	7.99
Conductivity (umho/cm)	.	292	266	287	.	292	.	279
Dissolved Solids (mg/L)	.	140	120	150	.	157	.	146
Suspended Solids (mg/L)	.	<	<	1	.	<	.	<
Turbidity (NTU)	.	0.08	.	3.32	.	0.156	.	1.06
MAJOR IONS (mg/L)								
Calcium	33.3	29.4	29.6	33	33.3	32.2	31.5	32.1
Magnesium	20.9	16.9	16.4	18.2	18.2	18.2	17.9	18.8
Potassium	<	1.81	1.33	<	<	<	<	<
Sodium	5.27	0.49	0.439	1.15	1.18	1.04	0.982	0.567
Alkalinity-HCO3	.	131	.	144	.	146	.	150
Alkalinity-CO3	.	.	.	<	.	<	.	<
Chloride	.	0.98	.	0.12	.	2.262	.	1.21
Fluoride	.	<	.	0.11	.	0.13	.	<
Nitrate-N	.	0.78	.	0.15	.	2.885	.	0.07
Sulfate	.	2.4	.	0.5	.	10.14	.	2.79
Ion Charge Balance (RPD)	.	3.0	.	4.7	.	-3.9	.	1.2
TRACE METALS (mg/L)								
Aluminum	<	<	<	<	<	<	<	<
Antimony (PMS)	<	.	.	<	0.0005	<	<	<
Arsenic	.	<	<	.	.	.	.	.
Barium	0.00848	0.0098	0.0101	0.00504	0.00581	0.0054	0.00571	<
Boron	<	<	<	<	<	<	<	<
Chromium	<	<	<	0.0269	0.027	0.0418	0.0416	<
Cobalt	<	<	<	<	<	<	<	<
Copper	<	<	<	<	<	<	<	<
Iron	<	<	<	0.111	<	0.0884	0.0685	<
Lead (PMS)	<	.	.	<	<	<	<	<
Lead	.	<	<	.	.	.	.	.
Lithium	<	<	<	<	<	<	<	<
Manganese	<	<	<	<	<	<	<	<
Molybdenum	<	<	<	<	<	<	<	<
Nickel	<	<	<	<	<	<	<	<
Strontium	0.0214	.	.	0.0227	0.0223	0.022	0.0211	0.0163
Thallium (PMS)	<	.	.	<	<	<	<	<
Thallium	.	<	<	.	.	.	.	.
Uranium (PMS)	<	.	.	0.0017	0.0016	0.00156	0.00137	<
Uranium (KPA)	.	.	.	.	.	.	.	.
Uranium	.	<	<	.	.	.	.	.
Vanadium	<	<	<	<	<	<	<	<
Zinc	<	<	<	<	<	<	<	<

(CONTINUED)

APPENDIX E.1: CHESTNUT RIDGE HYDROGEOLOGIC REGIME, 1999
Field Measurements, Miscellaneous Analytes, Major Ions, and Trace Metals

Sampling Point	GW-801					GW-827		
Location	LV					CDLVI		
Date Sampled	01/21/99	07/14/99				04/07/99		
Monitoring Program	GWPP	GWPP				GWPP		
Type				DUP				DUP
	DIS	TOT	DIS	TOT	DIS	TOT	DIS	TOT
FIELD MEASUREMENTS								
Measuring Pt. Elev. (ft)	.	1097.16	.	.	.	1051.58	.	.
Depth to Water (ft)	.	101.55	.	.	.	41.57	.	.
Water-Level Elev. (ft)	.	995.61	.	.	.	1010.01	.	.
Water Temp. (degrees C)	.	15.5	.	.	.	14	.	.
pH (standard units)	.	7.96	.	.	.	7.9	.	.
Conductivity (umho/cm)	.	281	.	.	.	274	.	.
Dissolved Oxygen (ppm)	.	3.59	.	.	.	1.46	.	.
Oxidation/Reduction (mV)	.	173	.	.	.	157	.	.
MISCELLANEOUS ANALYTES								
pH (standard units)	.	7.9	.	7.95	.	8.06	.	8.01
Conductivity (umho/cm)	.	272	.	274	.	301	.	307
Dissolved Solids (mg/L)	.	145	.	148	.	139	.	141
Suspended Solids (mg/L)	.	<	.	<	.	<	.	<
Turbidity (NTU)	.	3.73	.	2.33	.	0.245	.	0.222
MAJOR IONS (mg/L)								
Calcium	32.2	31.3	29.5	29.1	29.6	31.6	32.3	33.2
Magnesium	19.1	19.1	18.6	18.3	18.8	19.4	20	20.1
Potassium	<	<	<	<	<	<	<	<
Sodium	0.569	0.512	0.507	0.514	0.563	0.71	0.737	0.769
Alkalinity-HCO3	.	146	.	148	.	162	.	164
Alkalinity-CO3	.	<	.	<	.	<	.	<
Chloride	.	1.395	.	1.058	.	0.82	.	0.81
Fluoride	.	<	.	<	.	<	.	<
Nitrate-N	.	0.06822	.	0.07251	.	0.065	.	0.062
Sulfate	.	2.875	.	2.785	.	1.49	.	1.38
Ion Charge Balance (RPD)	.	2.1	.	-1.2	.	-1.4	.	0.1
TRACE METALS (mg/L)								
Aluminum	<	<	<	<	<	<	<	<
Antimony (PMS)	<	<	<	<	<	<	<	<
Arsenic	.	.	.	.	.	.	.	.
Barium	<	<	<	<	<	0.00792	0.00814	0.00848
Boron	<	<	<	<	<	<	<	<
Chromium	<	<	<	<	<	<	<	<
Cobalt	<	<	<	<	<	<	<	<
Copper	<	<	<	<	<	<	<	<
Iron	<	<	<	<	<	<	<	<
Lead (PMS)	<	<	<	<	<	<	<	<
Lead	.	.	.	.	.	.	.	.
Lithium	<	<	<	<	<	<	<	<
Manganese	<	<	<	<	<	<	<	<
Molybdenum	<	<	<	<	<	<	<	<
Nickel	<	<	<	<	<	<	<	<
Strontium	0.0166	0.0158	0.0155	0.0152	0.0155	0.0168	0.0176	0.0178
Thallium (PMS)	<	<	<	<	<	<	<	<
Thallium	.	.	.	.	.	.	.	.
Uranium (PMS)	<	<	<	<	<	0.000629	<	<
Uranium (KPA)	.	.	.	.	.	.	.	.
Uranium	.	.	.	.	.	.	.	.
Vanadium	<	<	<	<	<	<	<	<
Zinc	<	<	<	<	<	<	<	<

(CONTINUED)

APPENDIX E.1: CHESTNUT RIDGE HYDROGEOLOGIC REGIME, 1999
Field Measurements, Miscellaneous Analytes, Major Ions, and Trace Metals

Sampling Point	GW-827			GW-831		MCK 2.0		
Location	CDLVI			FCAP		EXP-SW		
Date Sampled	04/07/99	10/18/99		01/19/99	07/13/99	02/16/99		08/18/99
Monitoring Program	GWPP	GWPP		IWQP	IWQP	IWQP		IWQP
Type	DUP						DUP	
	DIS	TOT	DIS	TOT	TOT	TOT	TOT	TOT
FIELD MEASUREMENTS								
Measuring Pt. Elev. (ft)	.	1051.58	.	1091.29	1091.29	.	.	.
Depth to Water (ft)	.	44.21	.	129.78	126.75	.	.	.
Water-Level Elev. (ft)	.	1007.37	.	961.51	964.54	.	.	.
Water Temp. (degrees C)	.	14.1	.	13.1	15.4	13.4	.	.
pH (standard units)	.	7.79	.	8.44	8.18	7.75	.	.
Conductivity (umho/cm)	.	287	.	327	336	0.214	.	.
Dissolved Oxygen (ppm)	.	1.45	.	1.62	1.31	10.48	.	.
Oxidation/Reduction (mV)	.	176	.	.	104	.	.	.
MISCELLANEOUS ANALYTES								
pH (standard units)	.	7.85	.	.	8.3	.	.	7.6
Conductivity (umho/cm)	.	287	.	378	352	.	.	354
Dissolved Solids (mg/L)	.	171	.	200	180	220	200	230
Suspended Solids (mg/L)	.	<	.	<	<	<	<	<
Turbidity (NTU)	.	0.589	.	0.84	.	3	.	.
MAJOR IONS (mg/L)								
Calcium	33.4	29.8	29.6	43.3	40.2	43	43	43.4
Magnesium	20.3	19.6	19.5	26	24.6	13.9	13.9	14.7
Potassium	<	<	<	1.66	1.44	4.22	4.2	3.86
Sodium	0.782	0.746	0.758	0.589	0.512	2.2	2.2	1.95
Alkalinity-HCO3	.	156	.	208	.	160	160	158
Alkalinity-CO3	.	<	.	.	.	.	.	.
Chloride	.	0.724	.	1.3	.	1.8	1.7	1.7
Fluoride	.	<	.	<	.	0.1	0.1	0.13
Nitrate-N	.	0.0513	.	<	.	0.06	0.06	.
Sulfate	.	1.43	.	3.4	.	23.1	23.2	22.9
Ion Charge Balance (RPD)	.	-0.6	.	1.2	.	-3.4	-3.4	.
TRACE METALS (mg/L)								
Aluminum	<	<	<	<	<	0.0548	0.0607	0.0878
Antimony (PMS)	<	<	<	.	.	.	.	.
Arsenic	.	.	.	<	<	0.0254	0.0264	0.0154
Barium	0.0081	0.00864	0.00906	0.0177	0.0174	0.0691	0.0688	0.0661
Boron	<	<	<	<	<	0.241	0.239	0.212
Chromium	<	<	<	<	<	<	<	<
Cobalt	<	<	<	<	<	<	<	<
Copper	<	<	<	<	<	<	<	<
Iron	<	0.0562	<	0.193	0.133	0.327	0.365	0.153
Lead (PMS)	<	<	<	.	.	.	.	.
Lead	.	.	.	<	<	<	<	<
Lithium	<	<	<	<	<	0.0768	0.0767	0.0705
Manganese	<	<	0.0131	0.13	0.0694	0.439	0.446	0.0985
Molybdenum	<	<	<	<	<	<	<	<
Nickel	<	<	<	<	<	<	<	<
Strontium	0.0179	0.017	0.0171	.	.	.	.	.
Thallium (PMS)	<	<	<	.	.	.	.	.
Thallium	.	.	.	<	<	<	<	<
Uranium (PMS)	<	0.000764	0.000686	.	.	.	.	.
Uranium (KPA)	.	.	.	.	.	.	.	.
Uranium	.	.	.	<	<	<	<	<
Vanadium	<	<	<	<	<	<	<	<
Zinc	<	<	<	<	<	<	<	<

(CONTINUED)

APPENDIX E.1: CHESTNUT RIDGE HYDROGEOLOGIC REGIME, 1999
Field Measurements, Miscellaneous Analytes, Major Ions, and Trace Metals

Sampling Point	MCK 2.05			OF 301			SCR1.25SP	
Location	EXP-SW			KHQ			EXP-SW	
Date Sampled	02/16/99	08/18/99		03/03/99	07/20/99	10/12/99	02/16/99	02/17/99
Monitoring Program	IWQP	IWQP		IWQP	IWQP	IWQP	IWQP	IWQP
Type			DUP					
	TOT	TOT	TOT	TOT	TOT	TOT	TOT	TOT
FIELD MEASUREMENTS								
Measuring Pt. Elev. (ft)	.	.	.	.	.	.	.	.
Depth to Water (ft)	.	.	.	.	.	.	.	.
Water-Level Elev. (ft)	.	.	.	.	.	.	.	.
Water Temp. (degrees C)	13.4	.	.	10.3	24.93	19.2	.	12.1
pH (standard units)	6.96	.	.	7.74	6.54	5.92	.	6.77
Conductivity (umho/cm)	0.228	.	.	0.261	0.332	0.143	.	0.209
Dissolved Oxygen (ppm)	5.02	.	.	8.64	4.75	9.95	.	9.87
Oxidation/Reduction (mV)	.	.	.	.	159	.	.	.
MISCELLANEOUS ANALYTES								
pH (standard units)	.	7	7	.	7.7	.	.	.
Conductivity (umho/cm)	.	338	339	.	272	.	.	.
Dissolved Solids (mg/L)	200	230	210	140	160	150	120	.
Suspended Solids (mg/L)	<	<	<	<	9.4	<	<	.
Turbidity (NTU)	10	.	.	2	6	<	.	1
MAJOR IONS (mg/L)								
Calcium	43	41.8	43	32.9	39.5	34	26.4	.
Magnesium	13.9	15	15.4	15.6	15	17	11	.
Potassium	4.07	4.02	4.06	1.03	1.47	1.16	0.798	.
Sodium	2.1	1.92	1.97	0.829	0.698	0.82	2.58	.
Alkalinity-HCO3	163	158	158	133	143	149	103	.
Alkalinity-CO3	.	.	.	.	.	<	.	.
Chloride	1.7	1.9	1.8	2.1	1.3	1.9	5.1	.
Fluoride	<	0.12	0.12	<	<	<	<	.
Nitrate-N	0.1	.	.	2.5	.	.	0.08	.
Sulfate	23.3	22.5	22.5	3.7	14.8	3.1	8.6	.
Ion Charge Balance (RPD)	-4.3	.	.	0.2	.	.	-0.7	.
TRACE METALS (mg/L)								
Aluminum	<	<	<	0.116	0.0362	0.0143	<	.
Antimony (PMS)	.	.	.	.	.	.	.	.
Arsenic	0.0446	0.0663	0.0611	<	<	<	<	.
Barium	0.0771	0.0841	0.0857	0.0581	0.0594	0.0631	0.0354	.
Boron	0.234	0.206	0.215	<	0.013	0.008	<	.
Chromium	<	<	<	<	<	<	<	.
Cobalt	<	<	<	<	0.00014	<	<	.
Copper	<	<	<	0.0013	0.0038	0.0013	<	.
Iron	0.822	1.45	1.3	0.102	0.0525	0.0145	0.0357	.
Lead (PMS)	.	.	.	.	.	.	.	.
Lead	<	<	<	<	<	<	<	.
Lithium	0.0755	0.0667	0.0692	0.0044	0.0074	0.0029	<	.
Manganese	0.89	1.16	1.19	0.0021	0.0029	0.0022	<	.
Molybdenum	<	<	<	0.00036	0.00041	.	<	.
Nickel	<	<	<	<	<	<	<	.
Strontium	.	.	.	.	.	0.0431	.	.
Thallium (PMS)	.	.	.	.	.	.	.	.
Thallium	<	<	<	<	<	<	<	.
Uranium (PMS)	.	.	.	.	.	.	.	.
Uranium (KPA)	.	.	.	.	.	.	.	.
Uranium	<	<	<	0.026	<	0.000995	<	.
Vanadium	<	<	<	0.00052	0.0004	0.00022	<	.
Zinc	<	<	<	0.005	0.0491	0.0018	0.0388	.

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APPENDIX E.1: CHESTNUT RIDGE HYDROGEOLOGIC REGIME, 1999
Field Measurements, Miscellaneous Analytes, Major Ions, and Trace Metals

Sampling Point	SCR1.25SP	SCR2.1SP						SCR2.2SP
Location	EXP-SW	EXP						EXP
Date Sampled	08/11/99	02/02/99				07/21/99		02/02/99
Monitoring Program	IWQP	GWPP				GWPP		GWPP
Type				DUP				
	TOT	TOT	DIS	TOT	DIS	TOT	DIS	TOT
FIELD MEASUREMENTS								
Measuring Pt. Elev. (ft)	.	.	.	.	.	.	.	.
Depth to Water (ft)	.	.	.	.	.	.	.	.
Water-Level Elev. (ft)	.	.	.	.	.	.	.	.
Water Temp. (degrees C)	16.4	11.6	.	.	.	16.7	.	12.6
pH (standard units)	6.35	7.5	.	.	.	6.96	.	7.28
Conductivity (umho/cm)	0.184	634	.	.	.	241	.	468
Dissolved Oxygen (ppm)	2.47	6.57	.	.	.	4.8	.	5.27
Oxidation/Reduction (mV)	128	152	.	.	.	114	.	140
MISCELLANEOUS ANALYTES								
pH (standard units)	.	7.31	.	7.29	.	7.55	.	7.23
Conductivity (umho/cm)	290	215	.	215	.	229	.	303
Dissolved Solids (mg/L)	160	117	.	120	.	149	.	176
Suspended Solids (mg/L)	<	1	.	1	.	1	.	2
Turbidity (NTU)	200	2.42	.	2.54	.	3.09	.	7.35
MAJOR IONS (mg/L)								
Calcium	38.6	22.5	23.3	24.1	24.1	28.1	28.7	51.5
Magnesium	15.5	8.53	8.79	9.16	9.06	10.6	10.7	6.9
Potassium	1.07	<	3.41	<	4.03	<	<	<
Sodium	2.24	5.11	5.41	5.33	5.63	3.07	3.17	2.59
Alkalinity-HCO3	145	84	.	84	.	110	.	134
Alkalinity-CO3	.	<	.	<	.	<	.	<
Chloride	3.7	11.6	.	11.1	.	4.963	.	5.14
Fluoride	<	<	.	<	.	<	.	<
Nitrate-N	.	0.32	.	0.32	.	0.1556	.	1.88
Sulfate	7.2	9.24	.	8.47	.	7.068	.	11.3
Ion Charge Balance (RPD)	.	-4.1	.	-0.1	.	-1.8	.	0.9
TRACE METALS (mg/L)								
Aluminum	<	<	<	0.205	<	<	<	0.385
Antimony (PMS)	.	<	<	<	<	<	<	<
Arsenic	<	.	.	.	.	.	.	.
Barium	0.0583	0.0231	0.0236	0.0253	0.0245	0.029	0.0295	0.0267
Boron	0.0139	<	<	<	<	<	<	<
Chromium	<	<	<	<	<	<	<	<
Cobalt	<	<	<	<	<	<	<	<
Copper	<	<	<	<	<	<	<	<
Iron	0.0605	0.0657	<	0.182	<	0.1	<	0.288
Lead (PMS)	.	<	0.0006	<	0.0009	<	<	<
Lead	<	.	.	.	.	.	.	.
Lithium	<	<	<	<	<	<	<	<
Manganese	0.011	<	<	0.00885	<	<	<	0.00732
Molybdenum	<	<	<	<	<	<	<	<
Nickel	<	<	<	<	<	<	<	<
Strontium	.	0.0313	0.0324	0.0328	0.0333	0.0382	0.0395	0.0618
Thallium (PMS)	.	<	<	<	<	<	<	<
Thallium	<	.	.	.	.	.	.	.
Uranium (PMS)	.	0.0011	0.0011	0.0017	0.0012	0.00251	0.00234	<
Uranium (KPA)	.	.	.	.	.	.	.	.
Uranium	<	.	.	.	.	.	.	.
Vanadium	<	<	<	<	<	<	<	<
Zinc	<	<	<	<	<	<	<	<

(CONTINUED)

APPENDIX E.1: CHESTNUT RIDGE HYDROGEOLOGIC REGIME, 1999
Field Measurements, Miscellaneous Analytes, Major Ions, and Trace Metals

Sampling Point	SCR2.2SP					SCR3.4SP		
Location	EXP					EXP		
Date Sampled	02/02/99	07/21/99				02/03/99		07/21/99
Monitoring Program	GWPP	GWPP				GWPP		GWPP
Type				DUP				
	DIS	TOT	DIS	TOT	DIS	TOT	DIS	TOT
FIELD MEASUREMENTS								
Measuring Pt. Elev. (ft)	.	.	.	.	.	.	.	.
Depth to Water (ft)	.	.	.	.	.	.	.	.
Water-Level Elev. (ft)	.	.	.	.	.	.	.	.
Water Temp. (degrees C)	.	14.7	.	.	.	11.7	.	16.8
pH (standard units)	.	6.86	.	.	.	7.35	.	6.79
Conductivity (umho/cm)	.	376	.	.	.	508	.	312
Dissolved Oxygen (ppm)	.	3.86	.	.	.	9.03	.	4.18
Oxidation/Reduction (mV)	.	155	.	.	.	175	.	116
MISCELLANEOUS ANALYTES								
pH (standard units)	.	7.24	.	7.26	.	7.67	.	7.32
Conductivity (umho/cm)	.	141.7	.	139	.	248	.	141.7
Dissolved Solids (mg/L)	.	197	.	195	.	132	.	161
Suspended Solids (mg/L)	.	1	.	1	.	9	.	<
Turbidity (NTU)	.	6.76	.	6.81	.	4.29	.	2.49
MAJOR IONS (mg/L)								
Calcium	52	52.6	55	53.4	52.7	32.7	32.5	34.6
Magnesium	6.85	6.61	6.76	6.67	6.45	13.7	13.5	14.7
Potassium	<	<	<	<	<	<	2.79	<
Sodium	2.93	2.02	2.1	2.02	2	0.591	0.67	0.641
Alkalinity-HCO3	.	146	.	148	.	128	.	140
Alkalinity-CO3	.	<	.	<	.	<	.	<
Chloride	.	3.149	.	3.001	.	1.45	.	1.101
Fluoride	.	<	.	<	.	<	.	<
Nitrate-N	.	1.912	.	1.883	.	0.37	.	0.3906
Sulfate	.	9.473	.	9.362	.	7.28	.	6.577
Ion Charge Balance (RPD)	.	-1.3	.	-1.1	.	0.1	.	-0.5
TRACE METALS (mg/L)								
Aluminum	<	0.36	<	0.398	<	0.208	<	<
Antimony (PMS)	<	<	<	<	<	<	<	<
Arsenic	.	.	.	.	.	.	.	.
Barium	0.0256	0.0286	0.0279	0.0289	0.0267	0.0598	0.0561	0.0602
Boron	<	<	<	<	<	<	<	<
Chromium	<	<	<	<	<	<	<	<
Cobalt	<	<	<	<	<	<	<	<
Copper	<	<	<	<	<	<	<	<
Iron	0.0612	0.306	<	0.325	<	0.249	<	0.121
Lead (PMS)	<	<	<	<	<	<	0.0007	<
Lead	.	.	.	.	.	.	.	.
Lithium	<	<	<	<	<	<	<	<
Manganese	<	0.00501	<	0.00721	<	0.0253	<	0.0139
Molybdenum	<	<	<	<	<	<	<	<
Nickel	<	<	<	<	<	<	<	<
Strontium	0.0636	0.0674	0.0692	0.0676	0.0658	0.12	0.117	0.117
Thallium (PMS)	<	<	<	<	<	<	<	<
Thallium	.	.	.	.	.	.	.	.
Uranium (PMS)	<	<	<	<	<	<	<	<
Uranium (KPA)	.	.	.	.	.	.	.	.
Uranium	.	.	.	.	.	.	.	.
Vanadium	<	<	<	<	<	<	<	<
Zinc	<	<	<	<	<	<	<	<

(CONTINUED)

APPENDIX E.1: CHESTNUT RIDGE HYDROGEOLOGIC REGIME, 1999
Field Measurements, Miscellaneous Analytes, Major Ions, and Trace Metals

Sampling Point	SCR3.4SP	SCR3.5SP			SCR4.3SP			
Location	EXP	EXP-SW			LV			
Date Sampled	07/21/99	02/16/99	02/17/99	08/11/99	01/19/99		07/14/99	
Monitoring Program	GWPP	IWQP	IWQP	IWQP	GWPP		GWPP	
Type								
	DIS	TOT	TOT	TOT	TOT	DIS	TOT	DIS
FIELD MEASUREMENTS								
Measuring Pt. Elev. (ft)	.	.	.	.	.	.	.	.
Depth to Water (ft)	.	.	.	.	.	.	.	.
Water-Level Elev. (ft)	.	.	.	.	.	.	.	.
Water Temp. (degrees C)	.	.	13.9	17.5	11.8	.	17.2	.
pH (standard units)	.	.	7.46	6.81	6.65	.	6.7	.
Conductivity (umho/cm)	.	.	0.287	0.219	169	.	184	.
Dissolved Oxygen (ppm)	.	.	8.61	2.84	7.28	.	2.48	.
Oxidation/Reduction (mV)	.	.	.	140	200	.	159	.
MISCELLANEOUS ANALYTES								
pH (standard units)	.	.	.	.	6.8	.	6.6	.
Conductivity (umho/cm)	.	.	.	326	185	.	164.4	.
Dissolved Solids (mg/L)	.	180	.	210	139	.	118	.
Suspended Solids (mg/L)	.	5.1	.	<	1	.	3	.
Turbidity (NTU)	.	.	1	65	17.5	.	7.98	.
MAJOR IONS (mg/L)								
Calcium	36.8	46.4	.	49.9	21.3	20.8	20.8	20.8
Magnesium	15.9	10.3	.	15.8	6.71	6.52	7.58	7.56
Potassium	<	0.843	.	1.88	<	<	<	<
Sodium	0.667	2.18	.	1.46	2.79	2.75	1.3	1.32
Alkalinity-HCO3	.	148	.	173	68	.	74	.
Alkalinity-CO3	.	.	.	.	<	.	<	.
Chloride	.	4.1	.	1.7	6.87	.	2.334	.
Fluoride	.	0.1	.	0.13	<	.	<	.
Nitrate-N	.	0.25	.	.	1.21	.	0.5564	.
Sulfate	.	10.2	.	10.4	10.6	.	7.659	.
Ion Charge Balance (RPD)	.	-0.5	.	.	-3.4	.	-0.7	.
TRACE METALS (mg/L)								
Aluminum	<	0.262	.	0.0984	0.908	<	0.33	<
Antimony (PMS)	<	.	.	.	<	<	<	<
Arsenic	.	<	.	0.0063	.	.	.	.
Barium	0.0614	0.038	.	0.0858	0.0575	0.0544	0.0619	0.0605
Boron	<	0.0198	.	0.0801	<	<	<	<
Chromium	<	<	.	<	<	<	<	<
Cobalt	<	<	.	<	<	<	<	<
Copper	<	<	.	<	<	<	<	<
Iron	0.0508	0.409	.	0.215	0.569	0.0613	0.406	<
Lead (PMS)	<	.	.	.	0.0007	<	<	0.00125
Lead	.	<	.	<	.	.	.	.
Lithium	<	<	.	0.0211	<	<	<	<
Manganese	0.0318	0.0236	.	0.17	0.00847	<	0.00975	<
Molybdenum	<	<	.	<	<	<	<	<
Nickel	<	<	.	<	<	<	<	<
Strontium	0.123	.	.	.	0.0524	0.0509	0.0473	0.0474
Thallium (PMS)	<	.	.	.	<	<	<	<
Thallium	.	<	.	<	.	.	.	.
Uranium (PMS)	<	.	.	.	<	<	<	<
Uranium (KPA)	.	.	.	.	.	.	.	.
Uranium	.	<	.	<	.	.	.	.
Vanadium	<	<	.	<	<	<	<	<
Zinc	0.092	<	.	<	<	<	<	<

(CONTINUED)

APPENDIX E.1: CHESTNUT RIDGE HYDROGEOLOGIC REGIME, 1999
Field Measurements, Miscellaneous Analytes, Major Ions, and Trace Metals

Sampling Point	SCR5.1SP				SCR5.4SP			
Location	EXP				EXP			
Date Sampled	02/03/99		07/21/99		02/03/99		07/21/99	
Monitoring Program	GWPP		GWPP		GWPP		GWPP	
Type								
	TOT	DIS	TOT	DIS	TOT	DIS	TOT	DIS
FIELD MEASUREMENTS								
Measuring Pt. Elev. (ft)	.	.	.	.	.	.	.	.
Depth to Water (ft)	.	.	.	.	.	.	.	.
Water-Level Elev. (ft)	.	.	.	.	.	.	.	.
Water Temp. (degrees C)	11.9	.	15.4	.	13.8	.	15.6	.
pH (standard units)	6.92	.	6.48	.	7.21	.	6.88	.
Conductivity (umho/cm)	275	.	192	.	418	.	546	.
Dissolved Oxygen (ppm)	9.94	.	4.55	.	8.73	.	3.02	.
Oxidation/Reduction (mV)	158	.	125	.	140	.	173	.
MISCELLANEOUS ANALYTES								
pH (standard units)	7.2	.	6.75	.	7.71	.	7.09	.
Conductivity (umho/cm)	131	.	143.3	.	382	.	422	.
Dissolved Solids (mg/L)	67	.	84	.	220	.	242	.
Suspended Solids (mg/L)	3	.	<	.	2	.	<	.
Turbidity (NTU)	4.37	.	4.56	.	8.13	.	9.71	.
MAJOR IONS (mg/L)								
Calcium	14.4	15.3	16.3	16.1	68.2	66.5	72.4	73.6
Magnesium	8.16	8.67	9.28	9.29	5.54	5.47	5.6	5.7
Potassium	<	<	<	<	<	<	<	<
Sodium	0.626	0.63	0.656	0.661	4.88	4.83	3.39	3.48
Alkalinity-HCO3	58	.	66	.	166	.	186	.
Alkalinity-CO3	<	.	<	.	<	.	<	.
Chloride	1.75	.	1.535	.	11.5	.	5.787	.
Fluoride	<	.	<	.	<	.	<	.
Nitrate-N	2.89	.	2.471	.	1.76	.	1.557	.
Sulfate	3.64	.	3.166	.	2.96	.	13.022	.
Ion Charge Balance (RPD)	-2.5	.	0.0	.	3.1	.	-0.5	.
TRACE METALS (mg/L)								
Aluminum	0.202	<	0.268	<	0.398	<	0.544	<
Antimony (PMS)	<	<	<	<	<	<	<	<
Arsenic	.	.	.	.	.	.	.	.
Barium	0.021	0.019	0.0189	0.0179	0.0283	0.0265	0.0294	0.0284
Boron	<	<	<	<	<	<	<	<
Chromium	<	<	<	<	<	<	<	<
Cobalt	<	<	<	<	<	<	<	<
Copper	<	<	<	<	<	<	<	<
Iron	0.157	<	0.179	<	0.31	<	0.415	<
Lead (PMS)	0.0007	<	<	<	<	<	<	<
Lead	.	.	.	.	.	.	.	.
Lithium	<	<	<	<	<	<	<	<
Manganese	0.00685	<	<	<	<	<	0.00666	<
Molybdenum	<	<	<	<	<	<	<	<
Nickel	<	<	<	<	<	<	<	<
Strontium	0.0158	0.0162	0.0159	0.0164	0.112	0.11	0.123	0.125
Thallium (PMS)	<	<	<	<	<	<	<	<
Thallium	.	.	.	.	.	.	.	.
Uranium (PMS)	<	<	<	<	<	<	<	<
Uranium (KPA)	.	.	.	.	.	.	.	.
Uranium	.	.	.	.	.	.	.	.
Vanadium	<	<	<	<	<	<	<	<
Zinc	<	<	<	<	<	<	<	<

APPENDIX E.2

VOLATILE ORGANIC COMPOUNDS

APPENDIX E.2: CHESTNUT RIDGE HYDROGEOLOGIC REGIME, 1999
Volatile Organic Compounds (ug/L)

Sampling Point	GW-141		GW-142						
Location	LIV		KHQ						
Date Sampled	01/12/99	07/15/99	04/12/99	04/13/99	04/14/99		04/15/99	10/04/99	10/05/99
Monitoring Program	GWPP	GWPP	IWQP	IWQP	IWQP		IWQP	IWQP	IWQP
Type						DUP			
Acetone	<	<	<	<	<	<	<	<	<
2-Butanone	<	<	<	<	7	8	<	<	<
Carbon disulfide	<	<	<	<	<	<	<	<	<
Chloromethane	<	<	<	<	<	<	<	<	<
1,1-Dichloroethane	<	<	<	<	<	<	<	<	<
1,1-Dichloroethene	<	<	<	<	<	<	<	<	<
cis-1,2-Dichloroethene	<	<	<	<	<	<	<	<	<
Tetrachloroethene	<	<	<	<	<	<	<	<	<
1,1,1-Trichloroethane	<	<	<	<	<	<	<	<	<

(CONTINUED)

Sampling Point	GW-142		GW-143						
Location	KHQ		KHQ						
Date Sampled	10/06/99	10/07/99	04/12/99	04/13/99	04/14/99	04/15/99	10/04/99		10/05/99
Monitoring Program	IWQP	IWQP	IWQP	IWQP	IWQP	IWQP	IWQP		IWQP
Type								DUP	
Acetone	<	<	<	<	<	<	<	<	<
2-Butanone	<	<	<	<	<	<	<	<	<
Carbon disulfide	<	<	<	<	<	<	<	<	<
Chloromethane	<	<	<	<	<	<	<	<	<
1,1-Dichloroethane	<	<	<	<	<	<	<	<	<
1,1-Dichloroethene	<	<	<	<	<	<	<	<	<
cis-1,2-Dichloroethene	<	<	<	<	<	<	<	<	<
Tetrachloroethene	<	<	<	<	<	<	<	<	<
1,1,1-Trichloroethane	<	<	<	<	<	<	<	<	<

(CONTINUED)

Sampling Point	GW-143		GW-144						
Location	KHQ		KHQ						
Date Sampled	10/06/99	10/07/99	04/12/99		04/13/99	04/14/99	04/15/99	10/04/99	10/05/99
Monitoring Program	IWQP	IWQP	IWQP		IWQP	IWQP	IWQP	IWQP	IWQP
Type				DUP					
Acetone	<	<	<	<	<	<	<	<	<
2-Butanone	<	<	<	<	<	<	<	<	<
Carbon disulfide	<	<	<	<	<	<	<	<	<
Chloromethane	<	<	<	<	<	<	3	<	<
1,1-Dichloroethane	<	<	<	<	<	<	<	<	<
1,1-Dichloroethene	<	<	<	<	<	<	<	<	<
cis-1,2-Dichloroethene	<	<	<	<	<	<	<	<	<
Tetrachloroethene	<	<	<	<	<	<	<	<	<
1,1,1-Trichloroethane	<	<	<	<	<	<	<	<	<

(CONTINUED)

APPENDIX E.2: CHESTNUT RIDGE HYDROGEOLOGIC REGIME, 1999
Volatile Organic Compounds (ug/L)

Sampling Point	GW-144		GW-145						
Location	KHQ		KHQ						
Date Sampled	10/06/99		10/07/99	04/13/99	04/14/99	04/15/99	04/16/99	10/04/99	10/05/99
Monitoring Program	IWQP		IWQP	IWQP	IWQP	IWQP	IWQP	IWQP	IWQP
Type		DUP							
Acetone	<	<	<	<	<	<	<	<	<
2-Butanone	<	<	<	<	<	<	<	<	<
Carbon disulfide	<	<	<	<	<	<	<	<	<
Chloromethane	<	<	<	<	<	3	<	<	<
1,1-Dichloroethane	<	<	<	<	<	<	<	<	<
1,1-Dichloroethene	<	<	<	<	<	<	<	<	<
cis-1,2-Dichloroethene	<	<	<	<	<	<	<	<	<
Tetrachloroethene	<	<	<	<	<	<	<	<	<
1,1,1-Trichloroethane	<	<	<	<	<	<	<	<	<

(CONTINUED)

Sampling Point	GW-145		GW-217			GW-231			
Location	KHQ		LIV			KHQ			
Date Sampled	10/06/99	10/07/99	01/12/99		07/14/99	04/12/99	04/13/99	04/14/99	04/15/99
Monitoring Program	IWQP	IWQP	GWPP		GWPP	IWQP	IWQP	IWQP	IWQP
Type				DUP					
Acetone	<	<	<	<	<	<	<	<	<
2-Butanone	<	<	<	<	<	<	<	<	<
Carbon disulfide	<	<	<	<	<	<	<	<	<
Chloromethane	<	<	<	<	<	<	<	<	<
1,1-Dichloroethane	<	<	<	<	<	<	<	<	<
1,1-Dichloroethene	<	<	<	<	<	<	<	<	<
cis-1,2-Dichloroethene	<	<	<	<	<	<	<	<	<
Tetrachloroethene	<	<	<	<	<	<	<	<	<
1,1,1-Trichloroethane	<	<	<	<	<	<	<	<	<

(CONTINUED)

Sampling Point	GW-231				GW-301		GW-305		
Location	KHQ				CRBAWP		LIV		
Date Sampled	10/04/99	10/05/99	10/06/99	10/07/99	01/20/99	07/14/99	01/14/99	07/20/99	
Monitoring Program	IWQP	IWQP	IWQP	IWQP	IWQP	IWQP	GWPP	GWPP	
Type									DUP
Acetone	<	<	<	<	<	<	<	<	<
2-Butanone	<	<	<	<	<	<	<	<	<
Carbon disulfide	<	<	<	<	<	<	<	2	2
Chloromethane	<	<	<	<	<	<	<	<	<
1,1-Dichloroethane	<	<	<	<	<	<	5	7	8
1,1-Dichloroethene	<	<	<	<	<	<	3	4	4
cis-1,2-Dichloroethene	<	<	<	<	<	<	<	<	<
Tetrachloroethene	<	<	<	<	<	<	<	<	<
1,1,1-Trichloroethane	<	<	<	<	<	<	18	19	20

(CONTINUED)

APPENDIX E.2: CHESTNUT RIDGE HYDROGEOLOGIC REGIME, 1999
Volatile Organic Compounds (ug/L)

Sampling Point	GW-521		GW-522		GW-540			GW-542	
Location	LIV		LIV		LII			CDLVI	
Date Sampled	01/19/99	07/15/99	01/14/99	07/20/99	04/05/99		10/13/99	04/07/99	10/18/99
Monitoring Program	GWPP	GWPP	GWPP	GWPP	GWPP		GWPP	GWPP	GWPP
Type						DUP			
Acetone	<	<	<	<	<	<	<	<	<
2-Butanone	<	<	<	<	<	<	<	<	<
Carbon disulfide	<	<	<	<	<	<	<	<	<
Chloromethane	<	<	<	<	<	<	<	<	<
1,1-Dichloroethane	<	<	<	<	<	<	<	<	<
1,1-Dichloroethene	<	<	<	<	<	<	<	<	<
cis-1,2-Dichloroethene	<	<	<	<	<	<	<	<	<
Tetrachloroethene	<	<	<	<	<	<	<	<	<
1,1,1-Trichloroethane	<	<	<	<	<	<	<	<	<

(CONTINUED)

Sampling Point	GW-542	GW-543		GW-544		GW-557		GW-609	
Location	CDLVI	CDLVI		CDLVI		LV		CRSP	
Date Sampled	10/18/99	04/08/99	10/19/99	04/08/99	10/19/99	01/20/99	07/12/99	01/20/99	07/16/99
Monitoring Program	GWPP	GWPP	GWPP	GWPP	GWPP	GWPP	GWPP	IWQP	IWQP
Type	DUP								
Acetone	<	<	<	<	<	<	<	<	<
2-Butanone	<	<	<	<	<	<	<	<	<
Carbon disulfide	<	<	<	<	<	<	<	<	<
Chloromethane	<	<	<	<	<	<	<	<	<
1,1-Dichloroethane	<	<	<	<	<	<	<	<	<
1,1-Dichloroethene	<	<	<	<	<	<	<	<	<
cis-1,2-Dichloroethene	<	<	<	<	<	<	<	1	1
Tetrachloroethene	<	<	<	<	<	<	<	3	3
1,1,1-Trichloroethane	<	<	<	<	<	<	<	<	<

(CONTINUED)

Sampling Point	GW-709			GW-757		GW-796		GW-797	
Location	LII			LII		LV		LV	
Date Sampled	04/05/99	10/14/99		04/06/99	10/14/99	01/21/99	07/13/99	01/20/99	
Monitoring Program	GWPP	GWPP		GWPP	GWPP	GWPP	GWPP	GWPP	
Type			DUP						DUP
Acetone	6	<	<	<	<	<	<	<	<
2-Butanone	<	<	<	<	<	<	<	<	<
Carbon disulfide	<	<	<	<	<	<	<	<	<
Chloromethane	<	<	<	<	<	<	<	<	<
1,1-Dichloroethane	<	<	<	<	<	<	<	<	<
1,1-Dichloroethene	<	<	<	<	<	<	<	<	<
cis-1,2-Dichloroethene	<	<	<	<	<	<	<	<	<
Tetrachloroethene	<	<	<	<	<	<	<	<	<
1,1,1-Trichloroethane	<	<	<	4	<	<	<	<	<

(CONTINUED)

APPENDIX E.2: CHESTNUT RIDGE HYDROGEOLOGIC REGIME, 1999
Volatile Organic Compounds (ug/L)

Sampling Point	GW-797	GW-798		GW-799		GW-801			GW-827
Location	LV	CDLVII		LV		LV			CDLVI
Date Sampled	07/13/99	01/19/99	07/13/99	01/20/99	07/12/99	01/21/99	07/14/99		04/07/99
Monitoring Program	GWPP	IWQP	IWQP	GWPP	GWPP	GWPP	GWPP		GWPP
Type								DUP	
Acetone	<	<	<	<	<	<	<	<	<
2-Butanone	<	<	<	<	<	<	<	<	<
Carbon disulfide	<	<	<	<	<	<	<	<	<
Chloromethane	<	<	<	<	<	<	<	<	<
1,1-Dichloroethane	<	<	<	<	<	<	<	<	<
1,1-Dichloroethene	<	<	<	<	<	<	<	<	<
cis-1,2-Dichloroethene	<	<	<	<	<	<	<	<	<
Tetrachloroethene	<	<	<	<	<	<	<	<	<
1,1,1-Trichloroethane	<	<	<	<	<	<	<	<	<

(CONTINUED)

Sampling Point	GW-827		GW-831		SCR1.25SP		SCR2.1SP		
Location	CDLVI		FCAP		EXP-SW		EXP		
Date Sampled	04/07/99	10/18/99	01/19/99	07/13/99	02/16/99	08/11/99	02/02/99		07/21/99
Monitoring Program	GWPP	GWPP	IWQP	IWQP	IWQP	IWQP	GWPP		GWPP
Type	DUP							DUP	
Acetone	<	<	<	<	<	<	10	<	<
2-Butanone	<	<	<	<	<	<	<	<	<
Carbon disulfide	<	<	<	<	<	<	<	<	<
Chloromethane	<	<	<	<	<	<	<	<	<
1,1-Dichloroethane	<	<	<	<	<	<	<	<	<
1,1-Dichloroethene	<	<	<	<	<	<	<	<	<
cis-1,2-Dichloroethene	<	<	<	<	<	<	<	<	<
Tetrachloroethene	<	<	<	<	<	<	<	<	<
1,1,1-Trichloroethane	<	<	<	<	<	<	<	<	<

(CONTINUED)

Sampling Point	SCR2.2SP			SCR3.4SP		SCR3.5SP		SCR4.3SP	
Location	EXP			EXP		EXP-SW		LV	
Date Sampled	02/02/99	07/21/99		02/03/99	07/21/99	02/16/99	08/11/99	01/19/99	07/14/99
Monitoring Program	GWPP	GWPP		GWPP	GWPP	IWQP	IWQP	GWPP	GWPP
Type			DUP						
Acetone	<	<	<	<	<	<	<	<	<
2-Butanone	<	<	<	<	<	<	<	<	<
Carbon disulfide	<	<	<	<	<	<	<	<	<
Chloromethane	<	<	<	<	<	<	<	<	<
1,1-Dichloroethane	<	<	<	<	<	<	<	<	<
1,1-Dichloroethene	<	<	<	<	<	<	<	<	<
cis-1,2-Dichloroethene	<	<	<	<	<	<	<	<	<
Tetrachloroethene	<	<	<	<	<	<	<	<	<
1,1,1-Trichloroethane	<	<	<	<	<	<	<	<	<

(CONTINUED)

APPENDIX E.2: CHESTNUT RIDGE HYDROGEOLOGIC REGIME, 1999
Volatile Organic Compounds (ug/L)

Sampling Point	SCR5.1SP		SCR5.4SP	
Location	EXP		EXP	
Date Sampled	02/03/99	07/21/99	02/03/99	07/21/99
Monitoring Program	GWPP	GWPP	GWPP	GWPP
Type				
Acetone	16	<	<	<
2-Butanone	<	<	<	<
Carbon disulfide	<	<	1	<
Chloromethane	<	<	<	<
1,1-Dichloroethane	<	<	<	<
1,1-Dichloroethene	<	<	<	<
cis-1,2-Dichloroethene	<	<	<	<
Tetrachloroethene	<	<	<	<
1,1,1-Trichloroethane	<	<	2	<

APPENDIX E.3

RADIOLOGICAL ANALYTES

APPENDIX E.3: CHESTNUT RIDGE HYDROGEOLOGIC REGIME, 1999
Radiological Analytes: Alpha and Beta Activity (pCi/L)

Sampling Point	1090			GW-141					
Location	UNCS			LIV					
Date Sampled	08/09/99			01/12/99			07/15/99		
Monitoring Program	IWQP			GWPP			GWPP		
Type									
	ACT	ERR	MDA	ACT	ERR	MDA	ACT	ERR	MDA
Gross Alpha	<MDA	.	2.74	<MDA	.	3.8	<MDA	.	3.5
Gross Beta	2.84	1.44	2.27	<MDA	.	7.6	<MDA	.	8.6

(CONTINUED)

Sampling Point	GW-142								
Location	KHQ								
Date Sampled	04/12/99			04/13/99			04/14/99		
Monitoring Program	IWQP			IWQP			IWQP		
Type									
	ACT	ERR	MDA	ACT	ERR	MDA	ACT	ERR	MDA
Gross Alpha	2.36	1.34	1.78	1.78	0.99	1.21	1.68	0.98	1.14
Gross Beta	4.03	1.19	1.69	3.35	1.27	1.9	4.16	1.31	1.92

(CONTINUED)

Sampling Point	GW-142								
Location	KHQ								
Date Sampled	04/14/99			04/15/99			10/04/99		
Monitoring Program	IWQP			IWQP			IWQP		
Type	DUP								
	ACT	ERR	MDA	ACT	ERR	MDA	ACT	ERR	MDA
Gross Alpha	2.79	1.14	1.06	1.94	1.08	1.32	<MDA	.	2.26
Gross Beta	3.03	1.24	1.89	4.37	1.24	1.72	5.01	1.15	1.52

(CONTINUED)

Sampling Point	GW-142								
Location	KHQ								
Date Sampled	10/05/99			10/06/99			10/07/99		
Monitoring Program	IWQP			IWQP			IWQP		
Type									
	ACT	ERR	MDA	ACT	ERR	MDA	ACT	ERR	MDA
Gross Alpha	1.8	1.05	1	2.4	1.39	1.7	<MDA	.	1.12
Gross Beta	3.77	1.09	1.53	5.07	1.21	1.62	3.51	1.09	1.56

(CONTINUED)

APPENDIX E.3: CHESTNUT RIDGE HYDROGEOLOGIC REGIME, 1999
Radiological Analytes: Alpha and Beta Activity (pCi/L)

Sampling Point	GW-143								
Location	KHQ								
Date Sampled	04/12/99			04/13/99			04/14/99		
Monitoring Program	IWQP			IWQP			IWQP		
Type									
	ACT	ERR	MDA	ACT	ERR	MDA	ACT	ERR	MDA
Gross Alpha	4.23	2.16	2.84	3.51	1.58	1.73	2.63	1.53	1.78
Gross Beta	16.36	1.84	1.96	13.87	2.03	2.36	15.86	1.79	1.91

(CONTINUED)

Sampling Point	GW-143								
Location	KHQ								
Date Sampled	04/15/99			10/04/99					
Monitoring Program	IWQP			IWQP					
Type							DUP		
	ACT	ERR	MDA	ACT	ERR	MDA	ACT	ERR	MDA
Gross Alpha	4.23	1.38	1.44	3.26	1.51	1.19	2.06	1.48	1.92
Gross Beta	18.37	1.72	1.81	15.84	1.78	1.72	16.85	1.88	1.81

(CONTINUED)

Sampling Point	GW-143								
Location	KHQ								
Date Sampled	10/05/99			10/06/99			10/07/99		
Monitoring Program	IWQP			IWQP			IWQP		
Type									
	ACT	ERR	MDA	ACT	ERR	MDA	ACT	ERR	MDA
Gross Alpha	5.68	2.51	3.05	<MDA	.	3.1	3.42	1.86	2.34
Gross Beta	19.05	1.76	1.64	17.13	1.77	1.72	18.31	1.74	1.53

(CONTINUED)

Sampling Point	GW-144								
Location	KHQ								
Date Sampled	04/12/99						04/13/99		
Monitoring Program	IWQP						IWQP		
Type				DUP					
	ACT	ERR	MDA	ACT	ERR	MDA	ACT	ERR	MDA
Gross Alpha	2.08	0.89	0.75	2.29	1.09	1.23	1.93	1	1.19
Gross Beta	1.9	0.95	1.46	<MDA	.	1.75	<MDA	.	1.89

(CONTINUED)

Radiogical Analytes: Alpha and Beta Activity (pCi/L)

Sampling Point	GW-144								
Location	KHQ								
Date Sampled	04/14/99			04/15/99			10/04/99		
Monitoring Program	IWQP			IWQP			IWQP		
Type									
	ACT	ERR	MDA	ACT	ERR	MDA	ACT	ERR	MDA
Gross Alpha	1.66	0.84	0.89	1.26	0.83	1.1	<MDA	.	2.24
Gross Beta	5.26	1.31	1.84	2.06	1.07	1.67	2.02	0.97	1.5

(CONTINUED)

Sampling Point	GW-144								
Location	KHQ								
Date Sampled	10/05/99			10/06/99					
Monitoring Program	IWQP			IWQP					
Type							DUP		
	ACT	ERR	MDA	ACT	ERR	MDA	ACT	ERR	MDA
Gross Alpha	2.7	1.29	1.56	<MDA	.	1.13	<MDA	.	2.13
Gross Beta	1.66	0.98	1.56	2.27	0.92	1.38	<MDA	.	1.65

(CONTINUED)

Sampling Point	GW-144			GW-145					
Location	KHQ			KHQ					
Date Sampled	10/07/99			04/13/99			04/14/99		
Monitoring Program	IWQP			IWQP			IWQP		
Type									
	ACT	ERR	MDA	ACT	ERR	MDA	ACT	ERR	MDA
Gross Alpha	<MDA	.	1.73	2.43	0.99	1.16	12.13	2.8	1.63
Gross Beta	<MDA	.	1.45	<MDA	.	2.6	21.67	2.02	1.96

(CONTINUED)

Sampling Point	GW-145								
Location	KHQ								
Date Sampled	04/15/99			04/16/99			10/04/99		
Monitoring Program	IWQP			IWQP			IWQP		
Type									
	ACT	ERR	MDA	ACT	ERR	MDA	ACT	ERR	MDA
Gross Alpha	15.48	2.89	1.81	12.54	2.24	1.54	9.77	2.94	2.76
Gross Beta	18.22	1.93	1.97	20.89	2.01	2.28	20.33	2.07	1.96

(CONTINUED)

Radiogical Analytes: Alpha and Beta Activity (pCi/L)

Sampling Point	GW-145								
Location	KHQ								
Date Sampled	10/05/99			10/06/99			10/07/99		
Monitoring Program	IWQP			IWQP			IWQP		
Type									
	ACT	ERR	MDA	ACT	ERR	MDA	ACT	ERR	MDA
Gross Alpha	11.58	2.06	1.26	13.65	3.26	1.78	10.03	2.77	2.12
Gross Beta	21.5	1.67	1.57	21.28	2.12	1.88	19.02	1.88	1.66

(CONTINUED)

Sampling Point	GW-203						GW-205		
Location	UNCS						UNCS		
Date Sampled	02/04/99			08/09/99			02/04/99		
Monitoring Program	IWQP			IWQP			IWQP		
Type									
	ACT	ERR	MDA	ACT	ERR	MDA	ACT	ERR	MDA
Gross Alpha	<MDA	.	1.96	<MDA	.	1.15	<MDA	.	1.27
Gross Beta	49.58	2.54	1.86	<MDA	.	1.57	<MDA	.	1.66

(CONTINUED)

Sampling Point	GW-205			GW-217					
Location	UNCS			LIV					
Date Sampled	08/10/99			01/12/99					
Monitoring Program	IWQP			GWPP					
Type							DUP		
	ACT	ERR	MDA	ACT	ERR	MDA	ACT	ERR	MDA
Gross Alpha	<MDA	.	2.49	3.2	2.6	3.2	<MDA	.	5.4
Gross Beta	71.88	3.35	2.27	<MDA	.	8.4	<MDA	.	8.2

(CONTINUED)

Sampling Point	GW-217			GW-221					
Location	LIV			UNCS					
Date Sampled	07/14/99			02/05/99			08/10/99		
Monitoring Program	GWPP			IWQP			IWQP		
Type									
	ACT	ERR	MDA	ACT	ERR	MDA	ACT	ERR	MDA
Gross Alpha	<MDA	.	1	<MDA	.	1.38	<MDA	.	1.22
Gross Beta	<MDA	.	7.4	<MDA	.	1.68	<MDA	.	1.5

(CONTINUED)

Radiological Analytes: Alpha and Beta Activity (pCi/L)

Sampling Point	GW-231								
Location	KHQ								
Date Sampled	04/12/99			04/13/99			04/14/99		
Monitoring Program	IWQP			IWQP			IWQP		
Type									
	ACT	ERR	MDA	ACT	ERR	MDA	ACT	ERR	MDA
Gross Alpha	<MDA	.	0.77	<MDA	.	1.03	1.16	0.74	0.9
Gross Beta	4.27	1.09	1.44	2.2	1.17	1.84	2.04	1.2	1.92

(CONTINUED)

Sampling Point	GW-231								
Location	KHQ								
Date Sampled	04/15/99			10/04/99			10/05/99		
Monitoring Program	IWQP			IWQP			IWQP		
Type									
	ACT	ERR	MDA	ACT	ERR	MDA	ACT	ERR	MDA
Gross Alpha	<MDA	.	1.06	<MDA	.	1.61	<MDA	.	1.81
Gross Beta	2.05	1.07	1.66	<MDA	.	1.22	<MDA	.	1.81

(CONTINUED)

Sampling Point	GW-231						GW-301		
Location	KHQ						CRBAWP		
Date Sampled	10/06/99			10/07/99			01/20/99		
Monitoring Program	IWQP			IWQP			IWQP		
Type									
	ACT	ERR	MDA	ACT	ERR	MDA	ACT	ERR	MDA
Gross Alpha	<MDA	.	1.86	2.5	1.65	2.28	<MDA	.	1.08
Gross Beta	2.96	1.05	1.54	4	1.06	1.43	<MDA	.	1.74

(CONTINUED)

Sampling Point	GW-301			GW-302			GW-305		
Location	CRBAWP			UNCS			LIV		
Date Sampled	07/14/99			08/11/99			01/14/99		
Monitoring Program	IWQP			IWQP			GWPP		
Type									
	ACT	ERR	MDA	ACT	ERR	MDA	ACT	ERR	MDA
Gross Alpha	<MDA	.	2.82	5.41	2.16	1.52	<MDA	.	3.7
Gross Beta	<MDA	.	3.91	4.43	1.91	2.95	<MDA	.	7.9

(CONTINUED)

APPENDIX E.3: CHESTNUT RIDGE HYDROGEOLOGIC REGIME, 1999
Radiogical Analytes: Alpha and Beta Activity (pCi/L)

Sampling Point	GW-305						GW-339		
Location	LIV						UNCS		
Date Sampled	07/20/99						02/04/99		
Monitoring Program	GWPP						IWQP		
Type				DUP					
	ACT	ERR	MDA	ACT	ERR	MDA	ACT	ERR	MDA
Gross Alpha	1.7	1.7	1.1	2.5	2.1	1.2	<MDA	.	2.19
Gross Beta	<MDA	.	8.2	<MDA	.	8.4	<MDA	.	1.8

(CONTINUED)

Sampling Point	GW-339						GW-521		
Location	UNCS						LIV		
Date Sampled	08/11/99						01/19/99		
Monitoring Program	IWQP						GWPP		
Type				DUP					
	ACT	ERR	MDA	ACT	ERR	MDA	ACT	ERR	MDA
Gross Alpha	<MDA	.	3.1	3.67	2.25	2.9	<MDA	.	1.1
Gross Beta	2.98	1.58	2.49	4.44	1.81	2.75	<MDA	.	8.4

(CONTINUED)

Sampling Point	GW-521			GW-522					
Location	LIV			LIV					
Date Sampled	07/15/99			01/14/99			07/20/99		
Monitoring Program	GWPP			GWPP			GWPP		
Type									
	ACT	ERR	MDA	ACT	ERR	MDA	ACT	ERR	MDA
Gross Alpha	<MDA	.	4.5	2.9	2.2	1.1	<MDA	.	5.8
Gross Beta	<MDA	.	7.9	<MDA	.	8.7	<MDA	.	8.1

(CONTINUED)

Sampling Point	GW-540								
Location	LII								
Date Sampled	04/05/99						10/13/99		
Monitoring Program	GWPP						GWPP		
Type				DUP					
	ACT	ERR	MDA	ACT	ERR	MDA	ACT	ERR	MDA
Gross Alpha	3.8	2.5	1.2	<MDA	.	4.6	<MDA	.	4.8
Gross Beta	<MDA	.	8.8	<MDA	.	9.2	<MDA	.	8.3

(CONTINUED)

Radiological Analytes: Alpha and Beta Activity (pCi/L)

Sampling Point	GW-542								
Location	CDLVI								
Date Sampled	04/07/99			10/18/99					
Monitoring Program	GWPP			GWPP					
Type							DUP		
	ACT	ERR	MDA	ACT	ERR	MDA	ACT	ERR	MDA
Gross Alpha	<MDA	.	4.3	4.4	3	3.2	<MDA	.	3.4
Gross Beta	<MDA	.	9.5	<MDA	.	6.7	<MDA	.	9.3

(CONTINUED)

Sampling Point	GW-543						GW-544		
Location	CDLVI						CDLVI		
Date Sampled	04/08/99			10/19/99			04/08/99		
Monitoring Program	GWPP			GWPP			GWPP		
Type									
	ACT	ERR	MDA	ACT	ERR	MDA	ACT	ERR	MDA
Gross Alpha	<MDA	.	3.8	<MDA	.	4.8	<MDA	.	3.9
Gross Beta	<MDA	.	8.8	<MDA	.	8.3	<MDA	.	8.8

(CONTINUED)

Sampling Point	GW-544			GW-557					
Location	CDLVI			LV					
Date Sampled	10/19/99			01/20/99			07/12/99		
Monitoring Program	GWPP			GWPP			GWPP		
Type									
	ACT	ERR	MDA	ACT	ERR	MDA	ACT	ERR	MDA
Gross Alpha	<MDA	.	3.8	< CE	1.4	1.1	<MDA	.	3.7
Gross Beta	<MDA	.	8.9	<MDA	.	9.4	<MDA	.	9

(CONTINUED)

Sampling Point	GW-609						GW-709		
Location	CRSP						LII		
Date Sampled	01/20/99			07/16/99			04/05/99		
Monitoring Program	IWQP			IWQP			GWPP		
Type									
	ACT	ERR	MDA	ACT	ERR	MDA	ACT	ERR	MDA
Gross Alpha	<MDA	.	1.27	<MDA	.	1.93	<MDA	.	5.2
Gross Beta	<MDA	.	1.79	<MDA	.	1.91	<MDA	.	10

(CONTINUED)

Radiogical Analytes: Alpha and Beta Activity (pCi/L)

Sampling Point	GW-709						GW-757		
Location	LII						LII		
Date Sampled	10/14/99						04/06/99		
Monitoring Program	GWPP						GWPP		
Type				DUP					
	ACT	ERR	MDA	ACT	ERR	MDA	ACT	ERR	MDA
Gross Alpha	<MDA	.	4.5	<MDA	.	3.2	<MDA	.	6.1
Gross Beta	<MDA	.	8.9	<MDA	.	9.1	9.6	6.2	9.5

(CONTINUED)

Sampling Point	GW-757			GW-796					
Location	LII			LV					
Date Sampled	10/14/99			01/21/99			07/13/99		
Monitoring Program	GWPP			GWPP			GWPP		
Type									
	ACT	ERR	MDA	ACT	ERR	MDA	ACT	ERR	MDA
Gross Alpha	4	3.1	3.9	<MDA	.	3.2	3.2	2.6	3.2
Gross Beta	17	6.2	8.5	<MDA	.	8.3	<MDA	.	8.4

(CONTINUED)

Sampling Point	GW-797								
Location	LV								
Date Sampled	01/20/99						07/13/99		
Monitoring Program	GWPP						GWPP		
Type				DUP					
	ACT	ERR	MDA	ACT	ERR	MDA	ACT	ERR	MDA
Gross Alpha	2.6	2	1	<MDA	.	3.4	<MDA	.	4.4
Gross Beta	<MDA	.	7.6	<MDA	.	7.5	<MDA	.	9.5

(CONTINUED)

Sampling Point	GW-798						GW-799		
Location	CDLVII						LV		
Date Sampled	01/19/99			07/13/99			01/20/99		
Monitoring Program	IWQP			IWQP			GWPP		
Type									
	ACT	ERR	MDA	ACT	ERR	MDA	ACT	ERR	MDA
Gross Alpha	1.42	0.67	0.73	<MDA	.	1.78	<MDA	.	3.2
Gross Beta	3.67	1.51	2.36	<MDA	.	3.79	<MDA	.	7.1

(CONTINUED)

Radiological Analytes: Alpha and Beta Activity (pCi/L)

Sampling Point	GW-799			GW-801					
Location	LV			LV					
Date Sampled	07/12/99			01/21/99			07/14/99		
Monitoring Program	GWPP			GWPP			GWPP		
Type									
	ACT	ERR	MDA	ACT	ERR	MDA	ACT	ERR	MDA
Gross Alpha	3.4	2.4	1.2	<MDA	.	4.4	<MDA	.	3
Gross Beta	<MDA	.	8.4	<MDA	.	6.7	<MDA	.	8.3

(CONTINUED)

Sampling Point	GW-801			GW-827					
Location	LV			CDLVI					
Date Sampled	07/14/99			04/07/99					
Monitoring Program	GWPP			GWPP					
Type	DUP						DUP		
	ACT	ERR	MDA	ACT	ERR	MDA	ACT	ERR	MDA
Gross Alpha	<MDA	.	5.8	<MDA	.	5	<MDA	.	3.7
Gross Beta	<MDA	.	8	<MDA	.	8.6	<MDA	.	8.3

(CONTINUED)

Sampling Point	GW-827			GW-831					
Location	CDLVI			FCAP					
Date Sampled	10/18/99			01/19/99			07/13/99		
Monitoring Program	GWPP			IWQP			IWQP		
Type									
	ACT	ERR	MDA	ACT	ERR	MDA	ACT	ERR	MDA
Gross Alpha	<MDA	.	3.5	1.36	0.71	0.81	<MDA	.	3.11
Gross Beta	<MDA	.	7.6	<MDA	.	2.15	<MDA	.	1.93

(CONTINUED)

Sampling Point	MCK 2.0								
Location	EXP-SW								
Date Sampled	02/16/99						08/18/99		
Monitoring Program	IWQP						IWQP		
Type				DUP					
	ACT	ERR	MDA	ACT	ERR	MDA	ACT	ERR	MDA
Gross Alpha	<MDA	.	2.07	<MDA	.	1.8	<MDA	.	1.52
Gross Beta	3.89	1.22	1.78	4.84	1.24	1.71	5.17	1.3	1.8

(CONTINUED)

APPENDIX E.3: CHESTNUT RIDGE HYDROGEOLOGIC REGIME, 1999
Radiological Analytes: Alpha and Beta Activity (pCi/L)

Sampling Point	MCK 2.05								
Location	EXP-SW								
Date Sampled	02/16/99			08/18/99					
Monitoring Program	IWQP			IWQP					
Type							DUP		
	ACT	ERR	MDA	ACT	ERR	MDA	ACT	ERR	MDA
Gross Alpha	<MDA	.	1.15	<MDA	.	1.48	1.9	1.11	1.46
Gross Beta	4.96	1.19	1.59	4.66	1.27	1.79	5.23	1.29	1.79

(CONTINUED)

Sampling Point	OF 301								
Location	KHQ								
Date Sampled	03/03/99			07/20/99			10/12/99		
Monitoring Program	IWQP			IWQP			IWQP		
Type									
	ACT	ERR	MDA	ACT	ERR	MDA	ACT	ERR	MDA
Gross Alpha	6.2	1.37	0.93	4.59	1.49	1.83	<MDA	.	1.01
Gross Beta	<MDA	.	3.21	<MDA	.	3.93	1.77	0.91	1.41

(CONTINUED)

Sampling Point	SCR1.25SP						SCR2.1SP		
Location	EXP-SW						EXP		
Date Sampled	02/16/99			08/11/99			02/02/99		
Monitoring Program	IWQP			IWQP			GWPP		
Type									
	ACT	ERR	MDA	ACT	ERR	MDA	ACT	ERR	MDA
Gross Alpha	3	1.17	1.25	3.35	1.47	1.45	<MDA	.	4.3
Gross Beta	<MDA	.	1.7	2.79	1.35	2.1	<MDA	.	8.1

(CONTINUED)

Sampling Point	SCR2.1SP						SCR2.2SP		
Location	EXP						EXP		
Date Sampled	02/02/99			07/21/99			02/02/99		
Monitoring Program	GWPP			GWPP			GWPP		
Type	DUP								
	ACT	ERR	MDA	ACT	ERR	MDA	ACT	ERR	MDA
Gross Alpha	<MDA	.	3.2	5.8	3.7	4.5	< CE	1.4	1.1
Gross Beta	<MDA	.	7.4	<MDA	.	9.8	<MDA	.	7.3

(CONTINUED)

Sampling Point	SCR2.2SP						SCR3.4SP		
Location	EXP						EXP		
Date Sampled	07/21/99						02/03/99		
Monitoring Program	GWPP						GWPP		
Type				DUP					
	ACT	ERR	MDA	ACT	ERR	MDA	ACT	ERR	MDA
Gross Alpha	<MDA	.	5	<MDA	.	4.9	<MDA	.	3.7
Gross Beta	<MDA	.	8.9	<MDA	.	7.8	27	6.7	8

(CONTINUED)

Sampling Point	SCR3.4SP			SCR3.5SP					
Location	EXP			EXP-SW					
Date Sampled	07/21/99			02/16/99			08/11/99		
Monitoring Program	GWPP			IWQP			IWQP		
Type									
	ACT	ERR	MDA	ACT	ERR	MDA	ACT	ERR	MDA
Gross Alpha	<MDA	.	5.1	<MDA	.	1.04	<MDA	.	2.11
Gross Beta	<MDA	.	7.7	<MDA	.	1.48	4.5	1.22	1.64

(CONTINUED)

Sampling Point	SCR4.3SP						SCR5.1SP		
Location	LV						EXP		
Date Sampled	01/19/99			07/14/99			02/03/99		
Monitoring Program	GWPP			GWPP			GWPP		
Type									
	ACT	ERR	MDA	ACT	ERR	MDA	ACT	ERR	MDA
Gross Alpha	<MDA	.	3.5	4.4	2.7	1.1	<MDA	.	3.9
Gross Beta	<MDA	.	7.3	<MDA	.	8.2	<MDA	.	7.8

(CONTINUED)

Sampling Point	SCR5.1SP			SCR5.4SP					
Location	EXP			EXP					
Date Sampled	07/21/99			02/03/99			07/21/99		
Monitoring Program	GWPP			GWPP			GWPP		
Type									
	ACT	ERR	MDA	ACT	ERR	MDA	ACT	ERR	MDA
Gross Alpha	<MDA	.	2.8	<MDA	.	3.6	<MDA	.	3.6
Gross Beta	<MDA	.	8	<MDA	.	7.9	<MDA	.	8.6

APPENDIX F

CY 1999 MONITORING DATA FOR THE UPPER EAST FORK POPLAR CREEK HYDROGEOLOGIC REGIME

EXPLANATION

SAMPLING POINT:

GHK	-	Gum Hollow Branch Kilometer (surface water sampling location)
GW	-	Groundwater Monitoring Well; Westbay wells are GW-131 and GW-722
LRSPW	-	Lake Reality Emergency Spillway (surface water sampling location)
NPR	-	North of Pine Ridge near the Scarboro Community (surface water sampling location)
OF	-	Storm drain outfall (surface water sampling location)
SCR	-	Spring sampling location in Union Valley
SP	-	Spring sampling location
STATION	-	Surface water sampling location in Upper East Fork Poplar Creek

LOCATION:

B4	-	Beta-4 Security Pits
B9201-2	-	Building 9201-2
B9201-5	-	Building 9201-5 (sump sampling location)
B9204-2	-	Building 9204-2 (two sump sampling locations)
B9204-2E	-	Building 9204-2E (sump sampling location)
B9204-4	-	Building 9204-4 (sump sampling location)
EXP	-	Exit Pathway monitoring location: • -E, -I, or -J: Maynardville Limestone Picket monitoring well. • -NPR: Surface water station located north of Pine Ridge • -SW: Onsite spring or surface water station • -SR: Along Scarboro Road in the gap through Pine Ridge • -UV: East of the Oak Ridge Reservation boundary in Union Valley
FTF	-	Fire Training Facility
GRID	-	Comprehensive Groundwater Monitoring Plan Grid Location
NHP	-	New Hope Pond
S2	-	S-2 Site
S3	-	S-3 Ponds Site
T0134	-	Tank 0134-U
T2331	-	Tank 2331-U
UOV	-	Uranium Oxide Vault
WC	-	Waste Coolant Processing Area

MONITORING PROGRAM:

GWPP	-	Y-12 Plant Groundwater Protection Program
IWQP	-	Integrated Water Quality Program

TYPE:

DUP	-	Field Duplicate Sample
DIS	-	Dissolved concentration (filtered sample)
TOT	-	Total concentration (unfiltered sample)
ACT	-	Activity
ERR	-	Counting Error (two standard deviations)
MDA	-	Minimum Detectable Activity

EXPLANATION (continued)

UNITS:

ft	-	feet (elevations are above mean sea level and depths are below grade)
ug/L	-	micrograms per liter
mg/L	-	milligrams per liter
mV	-	millivolts
umho/cm	-	micromhos per centimeter
NTU	-	nephelometric turbidity units
pCi/L	-	picoCuries per liter
ppm	-	parts per million

NOTES:

Only the analytes that were detected above the reporting limits for the applicable monitoring program in at least one sample are included in this appendix. Additionally, results that are below the reporting limits are replaced with missing values to emphasize the detected results. The following sections describe the analytes, reporting limits, and data qualifiers for each subappendix. A comprehensive list of the GWPP analytes, analytical methods, and reporting limits is provided in Appendix B, Table B.5.

F.1 Field Measurements, Miscellaneous Analytes, Major Ions, and Trace Metals:

Results for all of the field measurements, miscellaneous analytes, and major ions are included in this appendix. The reporting limits for the major ions are shown in the following summary.

Analyte	Reporting Limit (mg/L)		Analyte	Reporting Limit (mg/L)	
	GWPP	IWQP		GWPP	IWQP
Cations			**Anions**		
Calcium	0.2	0.25	Alkalinity - HCO3	1.0	1.0
Magnesium	0.2	0.05	Alkalinity - CO3	1.0	1.0
Potassium	2.0	0.25	Chloride	0.2	0.1
Sodium	0.2	0.25	Fluoride	0.1	0.05
			Nitrate (as Nitrogen)	0.028	0.1
			Sulfate	0.25	0.1

For IWQP results, total alkalinity is presented as bicarbonate alkalinity (HCO3) and nitrate/nitrite (as nitrogen) is presented as nitrate-N. The major ion results for the following samples are qualitative because the ion charge balance (relative percent difference [RPD]) exceeds 20% (see Section 2.6).

Sampling Point	Date Sampled	Ion Charge Balance RPD	Suspected Source of Error
GW-605	07/20/99	-55.4	High nitrate concentration
GW-605 D	07/20/99	-57.4	High nitrate concentration
GW-620	11/08/99	-32.5	High pH; unknown factors

EXPLANATION (continued)

Results for all trace metals are included in this appendix except for silver, thorium, and vanadium, which were not detected in any sample at a level above the reporting limits shown in the following summary.

Analyte	Reporting Limit (mg/L)		Analyte	Reporting Limit (mg/L)	
	GWPP	IWQP		GWPP	IWQP
Aluminum	0.2	0.05	Manganese	0.005	0.005
Antimony (PMS)	0.0025	0.006	Mercury	0.0002	0.0002
Arsenic (PMS)	0.005	0.005	Molybdenum	0.05	.
Barium	0.004	0.005	Nickel	0.05	0.01
Beryllium	0.001	0.001	Selenium (PMS)	0.01	0.005
Boron	0.1	0.01	Silver	0.02	0.005
Cadmium (PMS)	0.0005	0.001	Strontium	0.005	0.005
Chromium	0.02	0.005	Thallium (PMS)	0.0005	0.002
Cobalt	0.02	0.005	Thorium	0.2	.
Copper	0.02	0.005	Uranium (PMS)	0.0005	0.05
Iron	0.05	0.01	(KPA)	.	0.004
Lead (PMS)	0.0005	0.003	Vanadium	0.01	.
Lithium	0.01	0.01	Zinc	0.01	.

All metals analyses were performed using the inductively coupled plasma (ICP) spectroscopy method (SW846-6010A) unless otherwise noted.

CVAA - Cold Vapor Atomic Absorption (EPA-7470)
KPA - Kinetic Phosphorescent Analysis (ASTM-D5174-M)
PMS - Plasma Mass Spectroscopy (EPA-200.8, GWPP only); the IWQP laboratory did not use this method, so the corresponding reporting limits are for ICP analyses.

The following symbols are used in Appendix F.1:

. - Not analyzed or not applicable
< - Analyzed but not detected at the project reporting level
DIS>TOT - The dissolved concentration in a filtered sample is an order of magnitude or more higher than the the corresponding total concentration in the unfiltered sample. The following results show such differences and do not meet data quality objectives (see Section 2.6).

Trace Metal	Sampling Point	Date Sampled	Concentration (mg/L)	
			Dissolved	Total
Lead (PMS)	GW-722-22	07/22/99	0.0198	<0.0005
Lead (PMS)	GW-722-26	03/18/99	0.00568	<0.0005
Zinc	GHK2.51ESW	09/01/99	0.611	<0.05

ICP Dilution Factor - A factor of 1 indicates that the standard reporting limits (shown above) were replaced with the "<" symbol. Thirteen samples from six sampling locations were diluted before analysis to obtain an optimum matrix, elevating the reporting limits by the associated dilution factor.

EXPLANATION (continued)

F.2 Volatile Organic Compounds:

The following volatile organic compounds were reported for at least one groundwater or surface water sample during CY 1999. Results for the compounds shown in bold typeface were detected in more than one sample and are included in this appendix.

Volatile Organic Compound	Reporting Limit		Volatile Organic Compound	Reporting Limit	
	GWPP	IWQP		GWPP	IWQP
Acetone	10	10	**1,1-Dichloroethene**	5	5
Acrolein	10	.	**cis-1,2-Dichloroethene**	5	5
Acrylonitrile	10	.	**trans-1,2-Dichloroethene**	5	5
Benzene	5	5	1,2-Dichloropropane	5	5
Bromochloromethane	10	.	cis-1,3-Dichloropropene	5	5
Bromodichloromethane	5	5	trans-1,3-Dichloropropene	5	5
Bromoform	5	5	**Dimethylbenzene**	5	5
Bromomethane	10	10	Ethanol	500	.
2-Butanone	10	10	Ethylbenzene	5	5
Carbon disulfide	5	5	Ethyl methacrylate	5	.
Carbon tetrachloride	5	5	2-Hexanone	10	10
Chlorobenzene	5	5	Iodomethane	5	.
Chloroethane	10	10	4-Methyl-2-pentanone	10	10
2-Chloroethyl vinyl ether	10	.	**Methylene chloride**	5	5
Chloroform	5	5	**Styrene**	5	5
Chloromethane	10	10	1,1,1,2-Tetrachloroethane	10	.
Dibromochloromethane	5	5	1,1,2,2-Tetrachloroethane	5	5
1,2-Dibromo-3-chloropropane	10	.	**Tetrachloroethene**	5	5
1,2-Dibromoethane	5	.	**Toluene**	5	5
Dibromomethane	10	.	**1,1,1-Trichloroethane**	5	5
1,2-Dichlorobenzene	5	.	1,1,2-Trichloroethane	5	5
1,4-Dichlorobenzene	5	.	**Trichloroethene**	5	5
1,4-Dichloro-2-butene	5	.	**Trichlorofluoromethane**	5	.
trans-1,4-Dichloro-2-butene	5	.	1,2,3-Trichloropropane	5	.
Dichlorodifluoromethane	5	.	Vinyl acetate	10	.
1,1-Dichloroethane	5	5	**Vinyl chloride**	10	2
1,2-Dichloroethane	5	5			

The other compounds (not shown in bold typeface) were not detected in samples collected during CY 1999 except for one detected result reported for each of the following compounds.

Compound	Sampling Location	Date Sampled	Result (ug/L)
Bromomethane	GW-230	09/01/99	6 J
1,4-Dichlorobenzene	GW-820	09/10/99	4 J
Chlorobenzene	GW-782	05/24/99	2 J
Chloromethane	GW-230	09/01/99	2 J
Ethylbenzene	GW-722-26	07/28/99	3 J
4-Methyl-2-pentanone	GW-193	02/16/99	43

Note: J = estimated value below the reporting limit

EXPLANATION (continued)

The following symbols are used in Appendix F.2.

. - Not analyzed or not applicable
< - Analyzed but not detected at the project reporting level (also the false-positive results for data provided by the IWQP)

Dilution Factor - A factor of 1 indicates that the the standard reporting limits (shown above) were replaced with the "<" symbol. Eight samples from five wells were diluted before analysis to obtain an optimum matrix, elevating the reporting limits by the associated dilution factor. Results for these wells are qualitative because compounds may be present at concentrations below the elevated reporting limits.

The following laboratory qualifiers are **NOT** presented with results in Appendix F.2:

D Twenty seven results from 12 sampling locations were reported with a "D" qualifier, indicating that the analysis for a specific compound was performed at a secondary dilution factor. This qualifier was reported with the results from wells GW-153 (carbon tetrachloride), GW-220 (carbon tetrachloride), GW-251 (tetrachloroethene), GW-337 (cis-1,2-dichloroethene, tetrachloroethene, and trichloroethene), GW-383 (tetrachloroethene), GW-722-14, -17, -20, and -22 (carbon tetrachloride), GW-782 (tetrachloroethene), GW-791 (tetrachloroethene), and GW-820 (cis-1,2-dichloroethene, tetrachloroethene, and trichloroethene).

J A result less than the reporting limit is an estimated value and assigned a "J" qualifier by the laboratory. The standard reporting limits for the organic compounds are 5 ug/L, 10ug/L, and 500 ug/L; therefore, all results less than 5 ug/L are estimated values. The following results are estimated values greater than or equal to 5 ug/L:

Sampling Location	Date Sampled	Compound	Reporting Limit (ug/L)	Result (ug/L)
GW-151	08/16/99	Chloroform	50	40
GW-151	08/16/99	Trichloroethene	50	16
GW-153	11/09/99	Tetrachloroethene	5	5
GW-220	08/16/99	cis-1,2-Dichloroethene	5	5
GW-251	11/02/99	Chloroform	5	5
GW-253	08/24/99	Acetone	10	5
GW-722-06	03/01/99	Acrylonitrile	10	7
LRSPW	11/15/99	Tetrachloroethene	5	5
OF 200 D	07/15/99	Chloroform	5	5

Note: D = field duplicate sample

EXPLANATION (continued)

F.3 Radiological Analytes:

The following summary shows the radiological analytes reported for at least one groundwater or surface water sample collected during CY 1999 in the East Fork Regime.

Analyte	No. of Results	No. Detected	Analyte	No. of Results	No. Detected
Gross Alpha	173	55			
Gross Beta	175	64	Thorium-232	3	0
Americium-241	3	0	Thorium-230	3	0
Iodine-129	3	0	Thorium-234	3	3
Neptunium-237	3	2	Thorium-228	3	0
Plutonium-238	3	0	Tritium	8	1
Plutonium-239	3	1	**Uranium-234**	**37**	**33**
Radium-223/224/226	3	0	**Uranium-235**	**37**	**12**
Strontium-89/90	8	0	**Uranium-236**	**25**	**7**
Technetium-99	**44**	**13**	**Uranium-238**	**38**	**30**

All of the results for gross alpha and gross beta are presented in the first part of Appendix F.3, followed by the results for isotopes that were detected in at least five samples (shown in bold typeface above).

Results for isotopes that were detected less than five times are presented in the following summary:

Isotope	Well No.	Date	MDA	Result (pCi/L)
Neptunium-237	GW-218	12/06/99	0.15	0.27 ± 0.24
Neptunium-237	GW-218 D	12/06/99	0.11	0.21 ± 0.19
Plutonium-239	GW-218	12/06/99	0.19	0.21 ± 0.17
Tritium	9204-4ELSU	02/17/99	810	840 ± 520
Note: D = field duplicate sample				

Note that the results for thorium-234 are not shown in this appendix because the results are identical to the results for uranium-238 for samples from wells GW-218 and GW-219. Thorium-234 is assumed to be in equilibrium with uranium-234.

Results that are not detected or do not meet data quality objectives are replaced with the following:

<MDA - Reported activity is less than the minimum detectable activity (MDA).

< CE - Reported activity is greater than or equal to the minimum detectable activity, but less than the associated counting error do not meet data quality objectives. The two results that were screened are for uranium-236 in the February 1999 sample from GW-832 (0.1 ± 0.11 pCi/L, MDA = 0.09 pCi/L) and for uranium-235 in the February 1999 sample from Outfall 221 (0.24 ± 0.25 pCi/L, MDA = 0.16 pCi/L).

EXPLANATION (continued)

Additional Analytes Not Presented in Appendix F tables:

The samples collected in November 1999 from wells GW-253 and GW-618 also were analyzed for analytes to assess the natural attenuation processes occurring in groundwater near these wells. The following results were reported.

Well Number	GW-253	GW-618
Sample Date	11/08/99	11/09/99
ANALYTES:		
Methane (ug/L)	38	170
Ethane (ug/L)	9	5U
Ethene (ug/L)	5U	5U
Iron $^{(2+)}$ - Field Measurement (mg/L)	0.16	0.36
Manganese $^{(2+)}$ - Field Measurement (mg/L)	8.6	1.7

APPENDIX F.1

FIELD MEASUREMENTS, MISCELLANEOUS ANALYTES, MAJOR IONS, AND TRACE METALS

APPENDIX F.1: UPPER EAST FORK POPLAR CREEK HYDROGEOLOGIC REGIME, 1999
Field Measurements, Miscellaneous Analytes, Major Ions, and Trace Metals

Sampling Point	9201-5N-J4		9204-2-NE		9204-2-NW		9204-2E-NW	
Location	B9201-5		B9204-2		B9204-2		B9204-2	
Date Sampled	02/16/99		02/16/99		02/16/99		02/23/99	
Monitoring Program	GWPP		GWPP		GWPP		GWPP	
Type								
	TOT	DIS	TOT	DIS	TOT	DIS	TOT	DIS
FIELD MEASUREMENTS								
Measuring Pt. Elev. (ft)	.	.	.	.	.	.	.	.
Depth to Water (ft)	.	.	.	.	.	.	.	.
Water-Level Elev. (ft)	.	.	.	.	.	.	.	.
Water Temp. (degrees C)	25	.	25.8	.	10.7	.	13.9	.
pH (standard units)	7.74	.	4.7	.	6.31	.	7.09	.
Conductivity (umho/cm)	665	.	311	.	966	.	754	.
Dissolved Oxygen (ppm)	2.75	.	2.33	.	1.5	.	2.65	.
Oxidation/Reduction (mV)	277	.	307	.	219	.	208	.
MISCELLANEOUS ANALYTES								
pH (standard units)	7.93	.	7.7	.	8.82	.	6.58	.
Conductivity (umho/cm)	586	.	219	.	1153	.	258	.
Dissolved Solids (mg/L)	321	.	109	.	767	.	286	.
Suspended Solids (mg/L)	<	.	1	.	<	.	2	.
Turbidity (NTU)	0.882	.	0.875	.	2.17	.	5.42	.
MAJOR IONS (mg/L)								
Calcium	88.7	91.6	32.2	29.8	112	114	5.49	8.93
Magnesium	10.5	10.9	4.5	4.31	52.2	55.1	1.17	1.66
Potassium	2.42	2.55	2.5	2.68	11.7	12.3	53	50.5
Sodium	16.3	17	6.77	6.95	71.5	72.7	7.87	8.29
Alkalinity-HCO3	206	.	64	.	296	.	20	.
Alkalinity-CO3	<	.	<	.	56	.	<	.
Chloride	38.9	.	14.4	.	86.5	.	2.37	.
Fluoride	0.22	.	0.19	.	5.56	.	0.71	.
Nitrate-N	2	.	0.68	.	3.49	.	0.5	.
Sulfate	41.6	.	18.7	.	179	.	74.1	.
Ion Charge Balance (RPD)	-1.4	.	4.9	.	-1.7	.	-0.4	.
TRACE METALS (mg/L)								
Aluminum	<	<	<	<	<	<	<	<
Antimony (PMS)	<	<	<	<	0.0018	0.0019	0.0202	0.0223
Arsenic (PMS)	<	<	<	<	0.03	0.0288	<	<
Arsenic	.	.	.	.	.	.	.	.
Barium	0.169	0.178	0.101	0.0985	0.113	0.115	0.0128	0.0174
Beryllium	<	<	<	<	<	<	<	<
Boron	<	<	<	<	<	<	<	<
Cadmium (PMS)	<	0.0024	<	<	<	<	0.00238	0.00236
Cadmium	.	.	.	.	.	.	.	.
Chromium	<	<	<	<	<	<	0.0584	<
Cobalt	<	<	<	<	<	<	<	<
Copper	<	<	0.044	<	0.108	0.1	1.71	1.58
Iron	0.27	<	0.3	<	0.349	0.248	1.2	0.207
Lead (PMS)	<	<	0.0015	<	0.003	0.0022	0.0162	0.00331
Lead	.	.	.	.	.	.	.	.
Lithium	0.0122	0.0112	<	<	0.101	0.108	0.0719	0.0714
Manganese	<	<	0.00601	<	0.0381	0.0332	0.0413	0.0547
Mercury (CVAA)	<	<	<	<	<	<	<	<
Molybdenum	<	<	<	<	<	<	0.0547	0.0537
Nickel	<	<	<	<	<	<	0.072	0.0608
Selenium (PMS)	<	<	<	<	<	<	<	<
Selenium	.	.	.	.	.	.	.	.
Strontium	0.211	0.217	0.107	0.106	0.34	0.347	0.0083	0.0199
Thallium (PMS)	<	<	<	<	<	<	<	<
Thallium	.	.	.	.	.	.	.	.
Uranium (PMS)	0.0008	0.0007	0.0006	0.0006	0.0037	0.0038	0.0116	0.00173
Uranium (KPA)	.	.	.	.	.	.	.	.
Uranium	.	.	.	.	.	.	.	.
Zinc	<	<	<	<	0.313	0.278	0.0846	0.0616
ICP Dilution Factor	1	1	1	1	1	1	1	1

(CONTINUED)

Field Measurements, Miscellaneous Analytes, Major Ions, and Trace Metals

Sampling Point	9204-4ELSU		GHK2.51ESW		GHK2.51WSW		GW-108	
Location	B9204-4		EXP-NPR		EXP-NPR		S3	
Date Sampled	02/17/99		09/01/99		09/01/99		02/15/99	07/27/99
Monitoring Program	GWPP		GWPP		GWPP		IWQP	IWQP
Type								
	TOT	DIS	TOT	DIS	TOT	DIS	TOT	TOT
FIELD MEASUREMENTS								
Measuring Pt. Elev. (ft)	.	.	.	.	.	.	999.00	999.00
Depth to Water (ft)	.	.	.	.	.	.	8.00	7.25
Water-Level Elev. (ft)	.	.	.	.	.	.	991.00	991.75
Water Temp. (degrees C)	20	.	17.2	.	17.2	.	17.3	23.8
pH (standard units)	7.77	.	7.79	.	7.79	.	5.64	5.37
Conductivity (umho/cm)	9020	.	255	.	251	.	3000	48.8
Dissolved Oxygen (ppm)	1.68	.	4.59	.	4.94	.	1.14	0.55
Oxidation/Reduction (mV)	241	.	162	.	165	.	.	212
MISCELLANEOUS ANALYTES								
pH (standard units)	7.79	.	7.93	.	7.98	.	.	5.7
Conductivity (umho/cm)	9790	.	295	.	301	.	39600	48.4
Dissolved Solids (mg/L)	7900	.	95	.	120	.	66000	59000
Suspended Solids (mg/L)	11	.	<	.	<	.	110	<
Turbidity (NTU)	2.1	.	1.48	.	1.72	.	0.09	.
MAJOR IONS (mg/L)								
Calcium	1560	1500	36.9	36.4	37	35.5	12200	14500
Magnesium	221	216	12.2	12	12.3	11.8	1130	1210
Potassium	14.3	15.3	2.43	2.4	2.43	2.13	28.4	25.5
Sodium	129	125	2.76	2.67	2.73	2.65	513	538
Alkalinity-HCO3	162	.	110	.	108	.	705	703
Alkalinity-CO3	<	.	<	.	<	.	.	.
Chloride	82.7	.	0.682	.	0.696	.	190	158
Fluoride	<	.	<	.	<	.	<	<
Nitrate-N	1520	.	0.07115	.	0.07612	.	11800	9880
Sulfate	16.3	.	36.72	.	38.51	.	<	5.1
Ion Charge Balance (RPD)	-5.7	.	0.6	.	0.9	.	-8.6	7.8
TRACE METALS (mg/L)								
Aluminum	<	<	<	<	<	<	<	<
Antimony (PMS)	0.0107	0.0107	<	<	<	<	.	.
Arsenic (PMS)	<	<	<	<	<	<	.	.
Arsenic	.	.	.	.	.	.	<	0.0074
Barium	6.28	6.07	0.0662	0.0642	0.0669	0.0639	107	113
Beryllium	<	<	<	<	<	<	<	<
Boron	<	<	<	<	<	<	0.37	0.03
Cadmium (PMS)	0.0064	0.0034	<	<	<	<	.	.
Cadmium	.	.	.	.	.	.	<	<
Chromium	<	<	<	<	<	<	<	<
Cobalt	<	<	<	<	<	<	0.141	0.152
Copper	<	<	<	<	<	<	<	<
Iron	0.728	<	0.189	0.0501	0.106	<	<	0.393
Lead (PMS)	0.0213	0.0031	<	<	<	<	.	.
Lead	.	.	.	.	.	.	<	0.0126
Lithium	0.917	0.885	<	<	<	<	0.295	0.38
Manganese	7.72	7.31	0.0331	0.0315	0.0265	0.0256	136	151
Mercury (CVAA)	0.00245	0.000454	<	<	<	<	<	<
Molybdenum	<	<	<	<	<	<	<	<
Nickel	<	<	<	<	<	<	0.198	0.158
Selenium (PMS)	<	<	<	<	<	<	.	.
Selenium	.	.	.	.	.	.	<	0.0195
Strontium	5.17	5.02	0.139	0.136	0.139	0.134	.	.
Thallium (PMS)	<	<	<	<	<	<	.	.
Thallium	.	.	.	.	.	.	<	<
Uranium (PMS)	0.14	0.135	<	<	<	<	.	.
Uranium (KPA)	.	.	.	.	.	.	.	<
Uranium	.	.	.	.	.	.	<	0.306
Zinc	<	<	DIS>TOT	DIS>TOT	<	<	<	<
ICP Dilution Factor	5	5	1	1	1	1	25	1

(CONTINUED)

Field Measurements, Miscellaneous Analytes, Major Ions, and Trace Metals

Sampling Point	GW-109	GW-131-01		GW-131-04		GW-131-08		GW-131-12
Location	S3	EXP		EXP		EXP		EXP
Date Sampled	09/02/99	06/14/99		06/15/99		06/16/99		06/16/99
Monitoring Program	GWPP	GWPP		GWPP		GWPP		GWPP
Type								
	TOT	TOT	DIS	TOT	DIS	TOT	DIS	TOT
FIELD MEASUREMENTS								
Measuring Pt. Elev. (ft)	998.20	.	.	.	.	.	.	.
Depth to Water (ft)	5.00	.	.	.	.	.	.	.
Water-Level Elev. (ft)	993.20	.	.	.	.	.	.	.
Water Temp. (degrees C)	22.1	.	.	.	.	16.1	.	17.8
pH (standard units)	5.49	.	.	.	.	6.89	.	7.07
Conductivity (umho/cm)	44800	.	.	.	.	965	.	921
Dissolved Oxygen (ppm)	1.87	.	.	.	.	4.26	.	6.36
Oxidation/Reduction (mV)	254	.	.	.	.	-31	.	40
MISCELLANEOUS ANALYTES								
pH (standard units)	6.25	8.05	.	7.88	.	7.35	.	7.76
Conductivity (umho/cm)	49900	1581	.	933	.	975	.	909
Dissolved Solids (mg/L)	52200	1010	.	546	.	541	.	504
Suspended Solids (mg/L)	1	<	.	<	.	2	.	1
Turbidity (NTU)	1.19	4.36	.	2.62	.	23.9	.	26.1
MAJOR IONS (mg/L)								
Calcium	10400	29.1	31.8	38.4	39.7	45.5	45.5	43.9
Magnesium	1290	13.1	14.3	23.4	24	24.4	24.7	26.7
Potassium	94.3	6.85	7.27	4.36	4.62	5.79	5.72	4.54
Sodium	538	329	330	137	142	135	137	106
Alkalinity-HCO3	840	462	.	230	.	386	.	254
Alkalinity-CO3	<	<	.	<	.	<	.	<
Chloride	175.7	56.89	.	120.4	.	81.302	.	98.35
Fluoride	14.3	0.65	.	0.88	.	1.96	.	1.08
Nitrate-N	9180	<	.	<	.	<	.	<
Sulfate	11.89	243.1	.	71.25	.	0.636	.	64.48
Ion Charge Balance (RPD)	-2.1	3.3	.	2.0	.	0.9	.	-0.7
TRACE METALS (mg/L)								
Aluminum	6.01	<	<	<	<	<	<	<
Antimony (PMS)	<	<	<	<	<	<	<	<
Arsenic (PMS)	<	<	<	<	<	<	<	<
Arsenic	.	.	.	.	.	.	.	.
Barium	59.8	0.0154	0.0278	0.0514	0.0548	0.0669	0.0652	0.0602
Beryllium	<	<	<	<	<	<	<	<
Boron	<	0.366	0.394	0.291	0.298	0.522	0.528	0.255
Cadmium (PMS)	1.76	<	<	<	<	<	<	<
Cadmium	.	.	.	.	.	.	.	.
Chromium	<	<	<	<	<	<	<	<
Cobalt	0.584	<	<	<	<	<	<	<
Copper	<	<	<	<	<	<	<	<
Iron	<	0.175	0.0797	0.676	0.173	2.52	1.38	0.516
Lead (PMS)	0.00855	0.000769	<	<	<	<	<	0.000547
Lead	.	.	.	.	.	.	.	.
Lithium	0.552	0.166	0.168	0.0956	0.0991	0.117	0.117	0.0768
Manganese	112	0.0236	0.0231	0.00776	0.00787	0.0671	0.0672	0.0102
Mercury (CVAA)	0.00592	<	<	<	<	<	<	<
Molybdenum	<	<	<	<	<	<	<	<
Nickel	4.36	<	<	<	<	<	<	<
Selenium (PMS)	0.0251	0.0156	0.0147	0.0311	0.0306	0.0186	<	<
Selenium	.	.	.	.	.	.	.	.
Strontium	51.6	0.486	0.563	3.21	3.28	4.07	4.08	3.36
Thallium (PMS)	0.0032	<	<	<	<	<	<	<
Thallium	.	.	.	.	.	.	.	.
Uranium (PMS)	0.0169	<	<	<	<	<	<	<
Uranium (KPA)	.	.	.	.	.	.	.	.
Uranium	.	.	.	.	.	.	.	.
Zinc	<	0.0862	<	<	<	<	<	0.133
ICP Dilution Factor	25	1	1	1	1	1	1	1

(CONTINUED)

APPENDIX F.1: UPPER EAST FORK POPLAR CREEK HYDROGEOLOGIC REGIME, 1999
Field Measurements, Miscellaneous Analytes, Major Ions, and Trace Metals

Sampling Point	GW-131-12	GW-131-15		GW-131-21				GW-131-24
Location	EXP	EXP		EXP				EXP
Date Sampled	06/16/99	06/17/99		06/21/99				06/17/99
Monitoring Program	GWPP	GWPP		GWPP				GWPP
Type						DUP		
	DIS	TOT	DIS	TOT	DIS	TOT	DIS	TOT
FIELD MEASUREMENTS								
Measuring Pt. Elev. (ft)	.	.	.	.	.	.	.	.
Depth to Water (ft)	.	.	.	.	.	.	.	.
Water-Level Elev. (ft)	.	.	.	.	.	.	.	.
Water Temp. (degrees C)	.	18.3	.	17.1	.	.	.	19
pH (standard units)	.	6.67	.	6.61	.	.	.	6.61
Conductivity (umho/cm)	.	764	.	2890	.	.	.	2660
Dissolved Oxygen (ppm)	.	4.93	.	4.71	.	.	.	2.45
Oxidation/Reduction (mV)	.	112	.	-149	.	.	.	-101
MISCELLANEOUS ANALYTES								
pH (standard units)	.	7.79	.	8	.	7.84	.	7.74
Conductivity (umho/cm)	.	733	.	2300	.	2420	.	2680
Dissolved Solids (mg/L)	.	416	.	2640	.	2660	.	2600
Suspended Solids (mg/L)	.	3	.	<	.	<	.	3
Turbidity (NTU)	.	16.1	.	50.4	.	48.3	.	55.8
MAJOR IONS (mg/L)								
Calcium	45.2	45.2	48.3	378	395	378	392	347
Magnesium	28	28.4	28.8	198	208	198	215	229
Potassium	4.75	3.75	3.78	18.6	18.3	18	19	18.3
Sodium	110	66	66.6	12.4	12.5	12	12.9	12.2
Alkalinity-HCO3	.	224	.	174	.	174	.	126
Alkalinity-CO3	.	<	.	<	.	<	.	<
Chloride	.	53.099	.	2.032	.	1.761	.	2.041
Fluoride	.	1.15	.	2.32	.	2.24	.	2.64
Nitrate-N	.	<	.	<	.	<	.	<
Sulfate	.	72.64	.	1608.201	.	1612.523	.	1718
Ion Charge Balance (RPD)	.	0.1	.	-1.4	.	-1.5	.	-1.8
TRACE METALS (mg/L)								
Aluminum	<	<	<	<	<	<	<	<
Antimony (PMS)	<	<	<	<	<	<	<	<
Arsenic (PMS)	<	<	<	<	<	<	<	<
Arsenic	.	.	.	.	.	.	.	.
Barium	0.0628	0.054	0.0542	0.0166	0.0185	0.0184	0.018	0.0106
Beryllium	<	<	<	<	<	<	<	<
Boron	0.265	0.207	0.207	0.293	0.278	0.278	0.267	0.251
Cadmium (PMS)	<	<	<	<	<	<	<	<
Cadmium	.	.	.	.	.	.	.	.
Chromium	<	<	<	<	<	<	<	<
Cobalt	<	<	<	<	<	<	<	<
Copper	<	<	<	<	<	<	<	<
Iron	0.166	0.118	0.321	0.161	<	0.142	<	0.109
Lead (PMS)	<	<	0.00233	0.000564	<	0.000709	<	<
Lead	.	.	.	.	.	.	.	.
Lithium	0.0787	0.0503	0.0511	0.244	0.245	0.24	0.254	0.202
Manganese	0.00904	<	<	<	<	<	<	<
Mercury (CVAA)	<	<	<	<	<	<	<	<
Molybdenum	<	<	<	<	<	<	<	<
Nickel	<	<	<	<	<	<	<	<
Selenium (PMS)	<	<	<	<	<	<	<	<
Selenium	.	.	.	.	.	.	.	.
Strontium	3.51	2.87	2.87	10.2	10.2	9.95	10.2	13.4
Thallium (PMS)	<	<	<	<	<	<	<	<
Thallium	.	.	.	.	.	.	.	.
Uranium (PMS)	<	<	<	<	<	<	<	<
Uranium (KPA)	.	.	.	.	.	.	.	.
Uranium	.	.	.	.	.	.	.	.
Zinc	<	<	<	<	<	<	<	<
ICP Dilution Factor	1	1	1	2	2	2	2	2

(CONTINUED)

APPENDIX F.1: UPPER EAST FORK POPLAR CREEK HYDROGEOLOGIC REGIME, 1999
Field Measurements, Miscellaneous Analytes, Major Ions, and Trace Metals

Sampling Point	GW-131-24	GW-131-28		GW-131-32		GW-131-36		GW-148
Location	EXP	EXP		EXP		EXP		NHP
Date Sampled	06/17/99	06/22/99		06/22/99		06/23/99		06/01/99
Monitoring Program	GWPP	GWPP		GWPP		GWPP		GWPP
Type								
	DIS	TOT	DIS	TOT	DIS	TOT	DIS	TOT
FIELD MEASUREMENTS								
Measuring Pt. Elev. (ft)	.	.	.	.	.	.	.	907.36
Depth to Water (ft)	.	.	.	.	.	.	.	8.64
Water-Level Elev. (ft)	.	.	.	.	.	.	.	898.72
Water Temp. (degrees C)	.	17.6	.	19	.	18.7	.	20.1
pH (standard units)	.	6.76	.	7.22	.	6.98	.	6.85
Conductivity (umho/cm)	.	2130	.	351	.	573	.	899
Dissolved Oxygen (ppm)	.	6.01	.	7.65	.	4.23	.	0.97
Oxidation/Reduction (mV)	.	-106	.	184	.	174	.	86
MISCELLANEOUS ANALYTES								
pH (standard units)	.	7.82	.	7.91	.	7.61	.	6.83
Conductivity (umho/cm)	.	2130	.	321	.	541	.	930
Dissolved Solids (mg/L)	.	2010	.	167	.	303	.	665
Suspended Solids (mg/L)	.	<	.	<	.	1	.	<
Turbidity (NTU)	.	24.5	.	0.844	.	3.18	.	0.172
MAJOR IONS (mg/L)								
Calcium	335	289	307	34.9	35.5	61.2	59.3	163
Magnesium	217	172	188	21.5	22.6	35.4	34.1	10.5
Potassium	19	11.4	12.5	<	<	<	<	2.6
Sodium	12.4	7.88	8.61	1.05	0.737	4.18	4.09	18.1
Alkalinity-HCO3	.	162	.	178	.	270	.	344
Alkalinity-CO3	.	<	.	<	.	<	.	<
Chloride	.	1.838	.	1.108	.	13.67	.	100.47
Fluoride	.	1.56	.	<	.	<	.	<
Nitrate-N	.	<	.	0.34	.	0.22	.	<
Sulfate	.	1190.79	.	1.799	.	6.485	.	34.28
Ion Charge Balance (RPD)	.	1.8	.	-1.3	.	1.8	.	-2.8
TRACE METALS (mg/L)								
Aluminum	<	<	<	<	<	<	<	<
Antimony (PMS)	<	<	<	<	<	<	<	<
Arsenic (PMS)	<	<	<	<	<	<	<	<
Arsenic	.	.	.	.	.	.	.	.
Barium	0.0131	0.00924	0.0153	0.0465	0.0439	0.502	0.481	0.293
Beryllium	<	<	<	<	<	<	<	<
Boron	0.259	<	<	<	<	<	<	<
Cadmium (PMS)	<	<	<	<	<	<	<	<
Cadmium	.	.	.	.	.	.	.	.
Chromium	<	<	<	<	<	<	<	<
Cobalt	<	<	<	<	<	<	<	<
Copper	<	<	<	<	<	<	<	<
Iron	<	<	<	0.105	<	0.409	0.207	<
Lead (PMS)	<	<	<	<	<	<	<	<
Lead	.	.	.	.	.	.	.	.
Lithium	0.201	0.108	0.127	<	<	0.0148	0.043	<
Manganese	<	<	<	<	<	0.0112	0.0109	0.329
Mercury (CVAA)	<	<	<	<	<	<	<	<
Molybdenum	<	<	<	<	<	<	<	<
Nickel	<	<	<	<	<	<	<	<
Selenium (PMS)	<	<	<	<	<	<	<	<
Selenium	.	.	.	.	.	.	.	.
Strontium	13.4	12.7	13.3	0.0264	0.0443	0.044	0.0501	0.565
Thallium (PMS)	<	<	<	<	<	<	<	<
Thallium	.	.	.	.	.	.	.	.
Uranium (PMS)	<	<	<	<	<	0.00426	0.00424	0.000966
Uranium (KPA)	.	.	.	.	.	.	.	.
Uranium	.	.	.	.	.	.	.	.
Zinc	<	<	<	<	<	<	<	<
ICP Dilution Factor	2	2	2	2	2	1	1	1

(CONTINUED)

Field Measurements, Miscellaneous Analytes, Major Ions, and Trace Metals

Sampling Point	GW-148	GW-151		GW-153			GW-154	
Location	NHP	NHP		NHP			NHP	
Date Sampled	11/09/99	02/08/99	08/16/99	06/02/99	11/09/99		02/10/99	08/30/99
Monitoring Program	GWPP	IWQP	IWQP	GWPP	GWPP		IWQP	IWQP
Type						DUP		
	TOT	TOT	TOT	TOT	TOT	TOT	TOT	TOT
FIELD MEASUREMENTS								
Measuring Pt. Elev. (ft)	907.36	916.17	916.17	921.64	921.64	.	911.70	911.70
Depth to Water (ft)	8.93	14.79	15.24	20.33	20.51	.	9.75	9.67
Water-Level Elev. (ft)	898.43	901.38	900.93	901.31	901.13	.	901.95	902.03
Water Temp. (degrees C)	21	16.88	18.2	15.5	15.4	.	13.12	23.7
pH (standard units)	6.95	6.97	7.31	7.87	7.78	.	6.93	5.96
Conductivity (umho/cm)	894	434	439	406	417	.	518	620
Dissolved Oxygen (ppm)	4.24	9.51	0.69	1.41	2.38	.	9.08	3.68
Oxidation/Reduction (mV)	172	.	149	190	192	.	.	222
MISCELLANEOUS ANALYTES								
pH (standard units)	6.87	.	.	7.92	7.8	7.77	.	.
Conductivity (umho/cm)	969	.	463	391	404	403	.	571
Dissolved Solids (mg/L)	579	260	350	255	228	221	370	420
Suspended Solids (mg/L)	<	<	<	<	<	<	<	8.6
Turbidity (NTU)	0.273	.	.	6.74	5.68	5.81	.	.
MAJOR IONS (mg/L)								
Calcium	153	55	58.5	47.4	44.8	43.2	92.4	96.5
Magnesium	10.5	23.3	24.5	20.2	19.2	18.4	15	17.4
Potassium	3.56	2.15	2.43	2.1	2.22	2.11	5.87	7.29
Sodium	21.1	7.87	8.41	9.21	9.19	8.89	9.55	8.48
Alkalinity-HCO3	332	226	217	182	176	172	213	267
Alkalinity-CO3	<	.	.	<	<	<	.	.
Chloride	98.9	13.2	14.2	15.9	15.5	15.9	1.3	2.2
Fluoride	<	<	0.12	0.18	0.151	0.158	0.27	0.38
Nitrate-N	<	1.2	1.5	0.76	0.888	0.861	0.23	0.09
Sulfate	33.5	17.2	18.5	13.64	13.3	13	111	87.7
Ion Charge Balance (RPD)	-3.1	-2.6	1.2	0.5	-0.4	-1.4	-1.7	-3.2
TRACE METALS (mg/L)								
Aluminum	<	<	<	<	<	<	<	<
Antimony (PMS)	<	.	.	<	<	<	.	.
Arsenic (PMS)	<	.	.	0.00572	<	<	.	.
Arsenic	.	<	<	.	.	.	<	<
Barium	0.28	0.212	0.214	0.0459	0.0445	0.0433	0.0649	0.0849
Beryllium	<	<	<	<	<	<	<	<
Boron	<	0.0921	0.0897	<	<	<	0.0932	0.135
Cadmium (PMS)	<	.	.	<	<	<	.	.
Cadmium	.	<	<	.	.	.	<	<
Chromium	<	<	<	<	<	<	<	<
Cobalt	<	<	<	<	<	<	<	<
Copper	<	<	<	<	<	<	<	<
Iron	<	<	<	<	<	<	0.017	<
Lead (PMS)	<	.	.	<	<	<	.	.
Lead	.	<	<	.	.	.	<	<
Lithium	<	<	<	<	<	<	0.0126	0.0131
Manganese	0.0803	<	<	<	<	<	0.006	0.0371
Mercury (CVAA)	<	<	<	<	<	<	<	<
Molybdenum	<	<	<	<	<	<	<	<
Nickel	<	<	<	<	<	<	<	<
Selenium (PMS)	<	.	.	0.0291	0.0341	0.0382	.	.
Selenium	.	<	<	.	.	.	<	<
Strontium	0.569	.	.	0.198	0.188	0.18	.	.
Thallium (PMS)	<	.	.	<	<	<	.	.
Thallium	.	<	<	.	.	.	<	<
Uranium (PMS)	0.0015	.	.	0.00114	0.00101	0.00114	.	.
Uranium (KPA)	.	.	.	.	.	.	.	.
Uranium	.	<	<	.	.	.	0.267	0.286
Zinc	<	<	<	<	<	<	<	<
ICP Dilution Factor	1	1	1	1	1	1	1	1

(CONTINUED)

APPENDIX F.1: UPPER EAST FORK POPLAR CREEK HYDROGEOLOGIC REGIME, 1999
Field Measurements, Miscellaneous Analytes, Major Ions, and Trace Metals

Sampling Point	GW-168	GW-169		GW-170		GW-171		GW-172
Location	EXP	EXP-UV		EXP-UV		EXP-UV		EXP-UV
Date Sampled	09/08/99	02/08/99	09/01/99	02/08/99	08/31/99	02/11/99	08/25/99	02/11/99
Monitoring Program	GWPP	IWQP	IWQP	IWQP	IWQP	IWQP	IWQP	IWQP
Type								
	TOT	TOT	TOT	TOT	TOT	TOT	TOT	TOT
FIELD MEASUREMENTS								
Measuring Pt. Elev. (ft)	932.21	932.12	932.12	932.63	932.63	920.72	920.72	926.57
Depth to Water (ft)	31.81	28.62	33.06	31.90	33.66	10.54	12.99	17.78
Water-Level Elev. (ft)	900.40	903.50	899.06	900.73	898.97	910.18	907.73	908.79
Water Temp. (degrees C)	16.9	12.6	15.9	13.15	16.6	14.57	16.9	14.62
pH (standard units)	7.35	6.85	6.56	7.41	7.23	6.55	6.08	7.13
Conductivity (umho/cm)	533	238	270	401	341	324	388	601
Dissolved Oxygen (ppm)	1.23	8.04	4	1.22	0.47	4.43	0.42	9.49
Oxidation/Reduction (mV)	13	.	96	.	-122	.	7	.
MISCELLANEOUS ANALYTES								
pH (standard units)	7.46	.	.	.	.	.	.	.
Conductivity (umho/cm)	619	.	308	.	403	.	483	.
Dissolved Solids (mg/L)	548	160	210	240	280	210	300	390
Suspended Solids (mg/L)	7	33	6.5	8.8	12	<	20	<
Turbidity (NTU)	19.9	.	.	.	.	.	.	.
MAJOR IONS (mg/L)								
Calcium	86.1	.	.	.	.	.	.	.
Magnesium	23.7	.	.	.	.	.	.	.
Potassium	2.93	.	.	.	.	.	.	.
Sodium	5.42	.	.	.	.	.	.	.
Alkalinity-HCO3	284	.	.	.	.	.	.	.
Alkalinity-CO3	<	.	.	.	.	.	.	.
Chloride	18.31	.	.	.	.	.	.	.
Fluoride	0.12	.	.	.	.	.	.	.
Nitrate-N	0.2733	.	.	.	.	.	.	.
Sulfate	11.53	.	.	.	.	.	.	.
Ion Charge Balance (RPD)	0.8	.	.	.	.	.	.	.
TRACE METALS (mg/L)								
Aluminum	<	.	.	.	.	.	.	.
Antimony (PMS)	<	.	.	.	.	.	.	.
Arsenic (PMS)	<	.	.	.	.	.	.	.
Arsenic	.	.	.	.	.	.	.	.
Barium	0.127	.	.	.	.	.	.	.
Beryllium	<	.	.	.	.	.	.	.
Boron	<	.	.	.	.	.	.	.
Cadmium (PMS)	<	.	.	.	.	.	.	.
Cadmium	.	.	.	.	.	.	.	.
Chromium	<	.	.	.	.	.	.	.
Cobalt	<	.	.	.	.	.	.	.
Copper	<	.	.	.	.	.	.	.
Iron	2.5	.	.	.	.	.	.	.
Lead (PMS)	<	.	.	.	.	.	.	.
Lead	.	.	.	.	.	.	.	.
Lithium	<	.	.	.	.	.	.	.
Manganese	0.0168	.	.	.	.	.	.	.
Mercury (CVAA)	<	.	.	.	.	.	.	.
Molybdenum	<	.	.	.	.	.	.	.
Nickel	<	.	.	.	.	.	.	.
Selenium (PMS)	<	.	.	.	.	.	.	.
Selenium	.	.	.	.	.	.	.	.
Strontium	0.562	.	.	.	.	.	.	.
Thallium (PMS)	<	.	.	.	.	.	.	.
Thallium	.	.	.	.	.	.	.	.
Uranium (PMS)	<	.	.	.	.	.	.	.
Uranium (KPA)	.	.	.	.	.	.	.	.
Uranium	.	.	.	.	.	.	.	.
Zinc	<	.	.	.	.	.	.	.
ICP Dilution Factor	1	1	1	1	1	1	1	1

(CONTINUED)

APPENDIX F.1: UPPER EAST FORK POPLAR CREEK HYDROGEOLOGIC REGIME, 1999
Field Measurements, Miscellaneous Analytes, Major Ions, and Trace Metals

Sampling Point	GW-172	GW-192			GW-193		GW-204	GW-207
Location	EXP-UV	B4			T2331		T0134	EXP-SR
Date Sampled	08/25/99	05/26/99	06/03/99	11/01/99	02/16/99	07/20/99	09/13/99	06/08/99
Monitoring Program	IWQP	GWPP	GWPP	GWPP	IWQP	IWQP	GWPP	GWPP
Type	TOT	TOT	TOT	TOT	TOT	TOT	TOT	TOT
FIELD MEASUREMENTS								
Measuring Pt. Elev. (ft)	926.57	1008.83	1008.83	1008.83	934.17	934.17	958.57	898.36
Depth to Water (ft)	21.32	6.35	6.38	7.55	9.29	9.11	11.46	0.00
Water-Level Elev. (ft)	905.25	1002.48	1002.45	1001.28	924.88	925.06	947.11	898.36
Water Temp. (degrees C)	16.8	16.8	.	19.6	17.3	23.2	22.8	15.8
pH (standard units)	6.62	6.6	.	7.03	7.7	7.2	7.22	7.25
Conductivity (umho/cm)	583	568	.	679	739	7.82	760	584
Dissolved Oxygen (ppm)	0.29	0.25	.	1.25	1.45	0.64	0.67	1.15
Oxidation/Reduction (mV)	-41	5	.	-44	.	-290	114	-46
MISCELLANEOUS ANALYTES								
pH (standard units)	.	6.85	.	6.99	.	7.5	7.45	7.92
Conductivity (umho/cm)	596	619	.	734	920	761	768	573
Dissolved Solids (mg/L)	390	359	.	409	1000	470	525	380
Suspended Solids (mg/L)	<	7	.	10	<	5.8	<	<
Turbidity (NTU)	.	47.1	.	71.5	1	.	0.31	2.55
MAJOR IONS (mg/L)								
Calcium	.	111	.	118	116	121	124	60.7
Magnesium	.	11.7	.	15.4	33.6	25.6	19.8	42.1
Potassium	.	<	.	4.37	13.8	8.63	3.76	3.11
Sodium	.	7.64	.	7.66	10.4	9.37	10.2	11
Alkalinity-HCO3	.	308	.	370	276	357	212	270
Alkalinity-CO3	.	<	.	<	.	.	<	<
Chloride	.	.	17.84	15.7	14.7	10	7.333	1.29
Fluoride	.	0.2	.	0.252	0.54	0.47	0.68	0.21
Nitrate-N	.	.	<	0.0477	1	0.13	<	<
Sulfate	.	.	3.58	4.83	240	82.6	189.5	58.1
Ion Charge Balance (RPD)	.	.	.	-2.3	-8.2	-2.2	-0.4	2.9
TRACE METALS (mg/L)								
Aluminum	.	<	.	<	<	<	<	<
Antimony (PMS)	.	<	.	<	.	.	<	<
Arsenic (PMS)	.	0.00836	.	0.0103	.	.	<	<
Arsenic	.	.	.	.	<	<	.	.
Barium	.	0.168	.	0.175	0.257	0.183	0.153	0.0518
Beryllium	.	<	.	<	<	<	<	<
Boron	.	<	.	<	0.0637	0.0848	<	0.133
Cadmium (PMS)	.	<	.	<	.	.	0.00255	<
Cadmium	.	.	.	.	<	<	.	.
Chromium	.	<	.	<	<	<	<	<
Cobalt	.	<	.	<	<	<	<	<
Copper	.	<	.	<	<	<	<	<
Iron	.	6.61	.	5.85	0.0231	0.0313	<	0.232
Lead (PMS)	.	<	.	<	.	.	0.00133	<
Lead	.	.	.	.	<	<	.	.
Lithium	.	0.0122	.	<	<	<	0.194	0.0337
Manganese	.	1.93	.	1.33	0.302	1.22	0.017	0.0114
Mercury (CVAA)	.	<	.	<	<	<	<	<
Molybdenum	.	<	.	<	<	<	<	<
Nickel	.	<	.	<	<	<	<	<
Selenium (PMS)	.	<	.	<	.	.	<	<
Selenium	.	.	.	.	<	<	.	.
Strontium	.	0.201	.	0.254	.	.	0.303	0.588
Thallium (PMS)	.	<	.	<	.	.	<	<
Thallium	.	.	.	.	<	<	.	.
Uranium (PMS)	.	<	.	<	.	.	0.143	<
Uranium (KPA)	.	.	.	.	.	0.01366	.	.
Uranium	.	.	.	.	0.145	<	.	.
Zinc	.	<	.	<	<	<	<	<
ICP Dilution Factor	1	1	1	1	1	1	1	1

(CONTINUED)

Field Measurements, Miscellaneous Analytes, Major Ions, and Trace Metals

Sampling Point	GW-207			GW-208				GW-218
Location	EXP-SR			EXP-SR				UOV
Date Sampled	06/08/99	12/07/99		06/08/99		11/17/99		12/06/99
Monitoring Program	GWPP	GWPP		GWPP		GWPP		GWPP
Type								
	DIS	TOT	DIS	TOT	DIS	TOT	DIS	TOT
FIELD MEASUREMENTS								
Measuring Pt. Elev. (ft)	.	898.36	.	897.72	.	897.72	.	935.81
Depth to Water (ft)	.	3.59	.	0.00	.	3.01	.	15.05
Water-Level Elev. (ft)	.	894.77	.	897.72	.	894.71	.	920.76
Water Temp. (degrees C)	.	13.7	.	16.2	.	14.5	.	16.9
pH (standard units)	.	7.53	.	7.31	.	7.76	.	7.1
Conductivity (umho/cm)	.	544	.	605	.	585	.	507
Dissolved Oxygen (ppm)	.	0.37	.	1.26	.	0.78	.	0.19
Oxidation/Reduction (mV)	.	-99	.	-88	.	-145	.	143
MISCELLANEOUS ANALYTES								
pH (standard units)	.	7.7	.	7.9	.	7.52	.	7.4
Conductivity (umho/cm)	.	586	.	645	.	687	.	539
Dissolved Solids (mg/L)	.	345	.	498	.	429	.	295
Suspended Solids (mg/L)	.	<	.	<	.	2	.	<
Turbidity (NTU)	.	13.3	.	8.65	.	16.8	.	2.17
MAJOR IONS (mg/L)								
Calcium	59.6	56.9	57.2	81.9	83.5	83.7	82.5	66
Magnesium	41.5	36.4	36.7	28.1	28.7	27.6	27.9	19.6
Potassium	3.11	2.91	2.98	2.93	3.04	3.16	3.3	3.23
Sodium	10.7	10.3	10.3	16.3	16.8	17.1	17.2	13.5
Alkalinity-HCO3	.	266	.	228	.	236	.	248
Alkalinity-CO3	.	<	.	<	.	<	.	<
Chloride	.	1.07	.	1.7	.	1.69	.	17.6
Fluoride	.	0.214	.	0.3	.	0.275	.	0.146
Nitrate-N	.	<	.	<	.	<	.	2.73
Sulfate	.	51.6	.	121.31	.	124	.	19.7
Ion Charge Balance (RPD)	.	-0.6	.	0.2	.	-0.6	.	-4.2
TRACE METALS (mg/L)								
Aluminum	<	<	<	<	<	<	<	<
Antimony (PMS)	<	<	<	<	<	<	<	<
Arsenic (PMS)	<	<	<	<	<	<	<	<
Arsenic	.	.	.	.	.	.	.	.
Barium	0.0492	0.0516	0.0507	0.0425	0.0432	0.0446	0.0449	0.0539
Beryllium	<	<	<	<	<	<	<	<
Boron	0.132	0.103	0.109	0.238	0.243	0.228	0.231	<
Cadmium (PMS)	<	<	<	<	<	0.000628	<	<
Cadmium	.	.	.	.	.	.	.	.
Chromium	<	<	<	<	<	<	<	<
Cobalt	<	<	<	<	<	<	<	<
Copper	<	<	<	<	<	<	<	<
Iron	0.24	0.95	0.651	0.756	0.647	1.46	1.19	0.142
Lead (PMS)	<	0.00152	0.000744	0.00112	0.000612	0.0017	<	0.000969
Lead	.	.	.	.	.	.	.	.
Lithium	0.0335	0.032	0.0313	0.033	0.0328	0.0323	0.033	<
Manganese	0.0116	0.0232	0.0299	0.0168	0.0176	0.0228	0.0249	0.254
Mercury (CVAA)	<	<	<	<	<	<	<	<
Molybdenum	<	<	<	<	<	<	<	<
Nickel	<	<	<	<	<	<	<	<
Selenium (PMS)	<	<	<	<	<	<	<	<
Selenium	.	.	.	.	.	.	.	.
Strontium	0.575	0.534	0.535	1.59	1.63	1.61	1.61	0.0781
Thallium (PMS)	<	<	<	<	<	<	<	0.0009
Thallium	.	.	.	.	.	.	.	.
Uranium (PMS)	<	<	<	<	<	<	<	0.0049
Uranium (KPA)	.	.	.	.	.	.	.	.
Uranium	.	.	.	.	.	.	.	.
Zinc	<	<	<	1.14	0.804	2.71	2.23	<
ICP Dilution Factor	1	1	1	1	1	1	1	1

(CONTINUED)

APPENDIX F.1: UPPER EAST FORK POPLAR CREEK HYDROGEOLOGIC REGIME, 1999
Field Measurements, Miscellaneous Analytes, Major Ions, and Trace Metals

Sampling Point	GW-218			GW-219		GW-220		
Location	UOV			UOV		NHP		
Date Sampled	12/06/99			12/02/99		02/08/99	06/02/99	08/16/99
Monitoring Program	GWPP			GWPP		IWQP	GWPP	IWQP
Type		DUP						
	DIS	TOT	DIS	TOT	DIS	TOT	TOT	TOT
FIELD MEASUREMENTS								
Measuring Pt. Elev. (ft)	.	.	.	935.64	.	915.84	915.84	915.84
Depth to Water (ft)	.	.	.	10.45	.	16.19	16.30	16.38
Water-Level Elev. (ft)	.	.	.	925.19	.	899.65	899.54	899.46
Water Temp. (degrees C)	.	.	.	18.3	.	16.32	16.3	17.6
pH (standard units)	.	.	.	7.35	.	7.28	7.78	7.15
Conductivity (umho/cm)	.	.	.	565	.	421	464	415
Dissolved Oxygen (ppm)	.	.	.	7.13	.	3.6	0.81	0.78
Oxidation/Reduction (mV)	.	.	.	161	.	.	125	141
MISCELLANEOUS ANALYTES								
pH (standard units)	.	7.56	.	7.52	.	.	7.6	.
Conductivity (umho/cm)	.	539	.	604	.	.	467	456
Dissolved Solids (mg/L)	.	296	.	370	.	.	298	300
Suspended Solids (mg/L)	.	<	.	2	.	.	<	<
Turbidity (NTU)	.	2.26	.	2.43	.	.	1.72	.
MAJOR IONS (mg/L)								
Calcium	65.4	67.2	64.7	90.5	93.8	.	58.7	60
Magnesium	19.2	20	19.1	10.8	11.1	.	25.2	26.2
Potassium	3.21	3.19	3.08	4.14	4.39	.	3.36	2.62
Sodium	13.7	13.9	13.5	20.4	21	.	4.79	5.21
Alkalinity-HCO3	.	222	.	286	.	.	232	217
Alkalinity-CO3	.	<	.	<	.	.	<	.
Chloride	.	18	.	3.95	.	.	11.94	12.2
Fluoride	.	0.157	.	0.189	.	.	<	<
Nitrate-N	.	2.87	.	0.216	.	.	0.94	0.93
Sulfate	.	19.6	.	46.7	.	.	14.28	13.4
Ion Charge Balance (RPD)	.	1.1	.	-3.2	.	.	-0.4	4.0
TRACE METALS (mg/L)								
Aluminum	<	<	<	<	<	.	<	0.0634
Antimony (PMS)	<	<	<	<	<	.	<	.
Arsenic (PMS)	<	<	<	<	<	.	<	.
Arsenic	.	.	.	.	.	.	.	<
Barium	0.0547	0.0557	0.054	0.0642	0.0655	.	0.101	0.105
Beryllium	<	<	<	<	<	.	<	<
Boron	<	<	<	<	0.101	.	<	0.0574
Cadmium (PMS)	<	<	<	<	<	.	<	.
Cadmium	.	.	.	.	.	.	.	<
Chromium	<	<	<	<	<	.	<	<
Cobalt	<	<	<	<	<	.	<	<
Copper	<	<	<	<	<	.	<	<
Iron	<	0.102	<	0.108	<	.	<	0.053
Lead (PMS)	<	<	<	<	0.000635	.	<	.
Lead	.	.	.	.	.	.	.	<
Lithium	<	<	<	<	<	.	<	<
Manganese	0.187	0.253	0.177	0.023	0.012	.	<	<
Mercury (CVAA)	<	<	<	<	<	.	<	<
Molybdenum	<	<	<	<	<	.	<	<
Nickel	<	<	<	<	<	.	<	<
Selenium (PMS)	<	<	<	<	<	.	<	.
Selenium	.	.	.	.	.	.	.	<
Strontium	0.0785	0.0796	0.077	0.184	0.189	.	0.423	.
Thallium (PMS)	<	<	<	<	<	.	<	.
Thallium	.	.	.	.	.	.	.	<
Uranium (PMS)	0.00439	0.00418	0.00407	0.599	0.614	.	<	.
Uranium (KPA)	.	.	.	.	.	.	.	.
Uranium	.	.	.	.	.	.	.	<
Zinc	<	<	<	<	<	.	<	0.0117
ICP Dilution Factor	1	1	1	1	1	1	1	1

(CONTINUED)

APPENDIX F.1: UPPER EAST FORK POPLAR CREEK HYDROGEOLOGIC REGIME, 1999
Field Measurements, Miscellaneous Analytes, Major Ions, and Trace Metals

Sampling Point	GW-220	GW-223	GW-230		GW-232		GW-251	
Location	NHP	NHP	EXP-UV		EXP-UV		S2	
Date Sampled	11/10/99	09/07/99	02/11/99	09/01/99	02/08/99	09/01/99	05/27/99	
Monitoring Program	GWPP	GWPP	IWQP	IWQP	IWQP	IWQP	GWPP	
Type								DUP
	TOT	TOT	TOT	TOT	TOT	TOT	TOT	TOT
FIELD MEASUREMENTS								
Measuring Pt. Elev. (ft)	915.84	911.62	923.14	923.14	931.42	931.42	1003.80	.
Depth to Water (ft)	16.35	10.26	15.02	17.58	31.59	32.13	17.71	.
Water-Level Elev. (ft)	899.49	901.36	908.12	905.56	899.83	899.29	986.09	.
Water Temp. (degrees C)	16.6	19.2	16.96	16.3	11.88	21.9	15.8	.
pH (standard units)	7.66	6.98	6.93	6.81	9.4	8.76	6.55	.
Conductivity (umho/cm)	434	620	879	818	783	802	860	.
Dissolved Oxygen (ppm)	0.34	0.66	9.53	0.28	5.16	1.02	0.56	.
Oxidation/Reduction (mV)	101	-25	.	-161	.	-78	251	.
MISCELLANEOUS ANALYTES								
pH (standard units)	7.65	7.07	.	.	.	.	6.54	6.5
Conductivity (umho/cm)	484	679	.	851	.	797	907	934
Dissolved Solids (mg/L)	269	303	530	560	520	540	778	800
Suspended Solids (mg/L)	1	2	27	27	<	<	2	3
Turbidity (NTU)	1.14	4.01	.	.	.	.	1.42	1.45
MAJOR IONS (mg/L)								
Calcium	55.8	117	.	.	.	.	115	118
Magnesium	24.4	14.5	.	.	.	.	15.6	16
Potassium	2.52	2.06	.	.	.	.	4.54	3.16
Sodium	5.01	12.4	.	.	.	.	15.7	16.2
Alkalinity-HCO3	226	288	.	.	.	.	176	178
Alkalinity-CO3	<	<	.	.	.	.	<	<
Chloride	12.5	29.66	.	.	.	.	8.65	7.81
Fluoride	<	0.11	.	.	.	.	1.13	1.14
Nitrate-N	0.885	0.05308	.	.	.	.	73.33	70.73
Sulfate	13.7	29.61	.	.	.	.	19.75	17.86
Ion Charge Balance (RPD)	-1.4	2.7	.	.	.	.	-9.5	-7.4
TRACE METALS (mg/L)								
Aluminum	<	<	.	.	.	.	<	<
Antimony (PMS)	<	<	.	.	.	.	<	<
Arsenic (PMS)	<	<	.	.	.	.	<	<
Arsenic	.	.	.	.	.	.	.	.
Barium	0.103	0.308	.	.	.	.	0.113	0.116
Beryllium	<	<	.	.	.	.	<	<
Boron	<	<	.	.	.	.	<	<
Cadmium (PMS)	<	0.00251	.	.	.	.	0.12	0.127
Cadmium	.	.	.	.	.	.	.	.
Chromium	<	<	.	.	.	.	<	<
Cobalt	<	<	.	.	.	.	<	0.0206
Copper	<	<	.	.	.	.	0.268	0.275
Iron	<	0.507	.	.	.	.	<	<
Lead (PMS)	<	<	.	.	.	.	0.000523	0.000578
Lead	.	.	.	.	.	.	.	.
Lithium	<	<	.	.	.	.	<	<
Manganese	<	0.756	.	.	.	.	4.15	4.27
Mercury (CVAA)	<	<	.	.	.	.	<	<
Molybdenum	<	<	.	.	.	.	<	<
Nickel	<	<	.	.	.	.	<	<
Selenium (PMS)	<	<	.	.	.	.	<	<
Selenium	.	.	.	.	.	.	.	.
Strontium	0.415	0.29	.	.	.	.	0.206	0.212
Thallium (PMS)	<	<	.	.	.	.	0.00226	0.00242
Thallium	.	.	.	.	.	.	.	.
Uranium (PMS)	<	0.0236	.	.	.	.	0.0045	0.00462
Uranium (KPA)	.	.	.	.	.	.	.	.
Uranium	.	.	.	.	.	.	.	.
Zinc	<	<	.	.	.	.	0.0609	0.062
ICP Dilution Factor	1	1	1	1	1	1	1	1

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APPENDIX F.1: UPPER EAST FORK POPLAR CREEK HYDROGEOLOGIC REGIME, 1999
Field Measurements, Miscellaneous Analytes, Major Ions, and Trace Metals

Sampling Point	GW-251	GW-253			GW-337	GW-380		GW-382
Location	S2	S2			WC	NHP		NHP
Date Sampled	11/02/99	02/08/99	08/24/99	11/08/99	09/02/99	06/04/99	11/10/99	09/02/99
Monitoring Program	GWPP	IWQP	IWQP	IWQP	GWPP	GWPP	GWPP	IWQP
Type	TOT	TOT	TOT	TOT	TOT	TOT	TOT	TOT
FIELD MEASUREMENTS								
Measuring Pt. Elev. (ft)	1003.80	1004.00	1004.00	1004.00	987.31	913.75	913.75	913.17
Depth to Water (ft)	23.85	4.49	13.49	25.68	11.63	10.71	11.50	12.40
Water-Level Elev. (ft)	979.95	999.51	990.51	978.32	975.68	903.04	902.25	900.77
Water Temp. (degrees C)	14.4	15.4	19.6	18	19.4	17.1	20.2	19.6
pH (standard units)	6.74	4.82	5.15	5.29	6.61	6.9	6.73	6.87
Conductivity (umho/cm)	641	6192	562	7110	493	559	442	508
Dissolved Oxygen (ppm)	0.24	5.39	0.52	2.17	0.14	0.97	1.07	2.14
Oxidation/Reduction (mV)	248	.	294	306	149	52	-2	163
MISCELLANEOUS ANALYTES								
pH (standard units)	6.87	.	.	.	7.04	6.98	6.9	.
Conductivity (umho/cm)	608	.	6150	.	527	550	474	523
Dissolved Solids (mg/L)	375	4900	4700	4600	210	317	266	380
Suspended Solids (mg/L)	<	<	5.9	11	<	<	3	17
Turbidity (NTU)	0.609	.	.	38	0.236	4.7	10.2	.
MAJOR IONS (mg/L)								
Calcium	80.6	654	507	686	94.7	40.1	34.2	60.9
Magnesium	11.3	163	122	178	9.1	16.7	13.5	23.3
Potassium	<	14.9	12.3	18.3	<	<	<	2.8
Sodium	8.05	162	145	179	4.39	53.7	41.8	12.3
Alkalinity-HCO3	176	70.6	62.4	92.5	232	176	164	246
Alkalinity-CO3	<	.	.	<	<	<	<	.
Chloride	4.91	135	123	137	14.24	56.85	28.3	27.8
Fluoride	1.49	2.3	0.61	2.9	<	0.18	0.185	0.2
Nitrate-N	25.5	952	788	.	<	0.86	1.8	1.8
Sulfate	8.72	94.2	77	87.7	7.636	14.19	28.4	15.2
Ion Charge Balance (RPD)	-3.9	-16.9	-19.8	.	4.3	2.0	-1.8	-5.1
TRACE METALS (mg/L)								
Aluminum	<	5.17	5.28	4.25	<	<	<	<
Antimony (PMS)	<	.	.	.	<	<	<	.
Arsenic (PMS)	<	.	.	.	<	<	<	.
Arsenic	.	0.0066	0.0062	0.0052	.	.	.	<
Barium	0.0565	0.352	0.296	0.355	0.202	0.034	0.0291	0.33
Beryllium	<	0.0091	0.0091	0.0078	<	<	<	<
Boron	<	0.305	0.322	0.305	<	<	<	0.0352
Cadmium (PMS)	0.0498	.	.	.	0.00292	<	<	.
Cadmium	.	3.7	3.27	3.45	.	.	.	<
Chromium	<	0.0057	0.0052	<	<	0.0337	0.0426	<
Cobalt	<	0.259	0.236	0.223	<	<	<	<
Copper	0.092	39.3	38.3	36.2	<	<	<	0.0062
Iron	<	0.0863	0.141	0.681	<	0.46	0.848	15.8
Lead (PMS)	<	.	.	.	<	<	<	.
Lead	.	0.0172	0.0235	0.0192	.	.	.	<
Lithium	<	0.0671	0.0508	0.0701	<	<	<	<
Manganese	1.2	54.3	49.3	52.9	0.0536	0.0636	0.0653	0.0566
Mercury (CVAA)	<	0.0051	0.0036	0.0047	<	<	<	<
Molybdenum	<	<	<	.	<	<	<	<
Nickel	<	2.01	1.78	1.83	<	0.268	0.211	<
Selenium (PMS)	<	.	.	.	<	<	<	.
Selenium	.	0.0163	0.0167	0.0227	.	.	.	<
Strontium	0.112	.	.	1.24	0.233	0.0471	0.0395	.
Thallium (PMS)	0.00116	.	.	.	<	<	<	.
Thallium	.	0.0241	<	<	.	.	.	<
Uranium (PMS)	0.00275	.	.	.	0.00109	0.00132	0.0012	.
Uranium (KPA)	.	.	.	.	.	.	.	.
Uranium	.	0.163	<	<	.	.	.	<
Zinc	<	6.25	4.94	5.26	<	<	<	<
ICP Dilution Factor	1	1	1	1	1	1	1	1

(CONTINUED)

APPENDIX F.1: UPPER EAST FORK POPLAR CREEK HYDROGEOLOGIC REGIME, 1999
Field Measurements, Miscellaneous Analytes, Major Ions, and Trace Metals

Sampling Point	GW-383		GW-605			GW-606		
Location	NHP		EXP-I			EXP-I		
Date Sampled	06/03/99	11/11/99	02/11/99	07/20/99		02/15/99		07/21/99
Monitoring Program	GWPP	GWPP	IWQP	IWQP		IWQP		IWQP
Type					DUP		DUP	
	TOT	TOT	TOT	TOT	TOT	TOT	TOT	TOT
FIELD MEASUREMENTS								
Measuring Pt. Elev. (ft)	908.77	908.77	919.06	919.06	.	919.59	.	919.59
Depth to Water (ft)	9.67	9.82	10.89	10.97	.	13.80	.	12.93
Water-Level Elev. (ft)	899.10	898.95	908.17	908.09	.	905.79	.	906.66
Water Temp. (degrees C)	17.3	19.2	17.7	22.9	.	13	.	20.6
pH (standard units)	7.2	7.24	7.26	6.7	.	8.35	.	6.96
Conductivity (umho/cm)	603	617	380	553	.	320	.	513
Dissolved Oxygen (ppm)	1.76	0.18	1.09	1.01	.	1.82	.	0.49
Oxidation/Reduction (mV)	-77	-71	.	105	.	.	.	195
MISCELLANEOUS ANALYTES								
pH (standard units)	7.28	7.11	.	7.3	7.3	.	.	8.1
Conductivity (umho/cm)	607	609	411	514	510	389	393	470
Dissolved Solids (mg/L)	358	349	300	420	380	290	260	300
Suspended Solids (mg/L)	<	1	80	16	16	<	<	11
Turbidity (NTU)	5.95	9.22	124	.	.	0.36	0.42	.
MAJOR IONS (mg/L)								
Calcium	96.6	96.8	61.7	81.2	80.1	41.6	41.6	44.4
Magnesium	11.8	11.9	13.7	17.6	17.2	28.1	27.6	32.8
Potassium	2.44	2.85	2.09	2.51	2.52	3.19	3.2	3.35
Sodium	12.1	13.5	10.7	11.6	11.2	5.13	5.06	5.66
Alkalinity-HCO3	242	216	201	242	244	127	127	119
Alkalinity-CO3	<	<	.	.	.	.	.	.
Chloride	47.19	44	22.3	20.1	20.7	20.2	21.7	27.5
Fluoride	<	<	0.18	0.16	0.15	0.17	0.15	0.2
Nitrate-N	<	<	0.45	210	222	5.1	4.8	4.6
Sulfate	17.49	18.2	27	34.8	34.5	65.3	66.2	83
Ion Charge Balance (RPD)	-1.2	4.3	-5.3	-55.4	-57.4	-1.6	-2.5	0.2
TRACE METALS (mg/L)								
Aluminum	<	<	3	0.484	0.414	<	<	<
Antimony (PMS)	<	<	.	.	.	.	.	.
Arsenic (PMS)	<	<	.	.	.	.	.	.
Arsenic	.	.	0.0056	<	<	<	<	<
Barium	0.66	0.674	0.0822	0.0541	0.0521	0.104	0.103	0.096
Beryllium	<	<	<	<	<	<	<	<
Boron	<	<	0.0554	0.0997	0.0947	0.0299	0.0278	0.0338
Cadmium (PMS)	<	<	.	.	.	.	.	.
Cadmium	.	.	<	<	<	<	<	<
Chromium	<	<	0.017	0.0134	0.0124	<	<	<
Cobalt	<	<	<	<	<	<	<	<
Copper	<	<	0.0089	<	<	<	<	<
Iron	1.56	0.995	6.69	1.17	1.01	0.0253	0.0211	0.017
Lead (PMS)	<	<	.	.	.	.	.	.
Lead	.	.	0.0087	<	<	<	<	<
Lithium	0.011	0.0158	<	<	<	0.0119	0.0117	0.0126
Manganese	0.169	0.125	2.86	0.41	0.384	<	<	<
Mercury (CVAA)	<	<	<	<	<	<	<	<
Molybdenum	<	<	<	<	<	<	<	<
Nickel	<	<	0.018	0.0193	0.018	<	<	<
Selenium (PMS)	<	<	.	.	.	.	.	.
Selenium	.	.	<	<	<	<	<	<
Strontium	0.45	0.448	.	.	.	.	.	.
Thallium (PMS)	<	<	.	.	.	.	.	.
Thallium	.	.	<	<	<	<	<	<
Uranium (PMS)	0.000666	<	.	.	.	.	.	.
Uranium (KPA)	.	.	.	0.0872	0.08192	.	.	<
Uranium	.	.	<	0.0959	0.0897	<	<	<
Zinc	<	<	0.0251	<	<	<	<	<
ICP Dilution Factor	1	1	1	1	1	1	1	1

(CONTINUED)

APPENDIX F.1: UPPER EAST FORK POPLAR CREEK HYDROGEOLOGIC REGIME, 1999
Field Measurements, Miscellaneous Analytes, Major Ions, and Trace Metals

Sampling Point	GW-618			GW-620		GW-722-06		
Location	EXP-E			FTF		EXP-J		
Date Sampled	05/26/99	11/01/99	11/09/99	05/27/99	11/08/99	02/25/99		03/01/99
Monitoring Program	GWPP	GWPP	IWQP	GWPP	GWPP	GWPP		GWPP
Type								
	TOT	TOT	TOT	TOT	TOT	TOT	DIS	TOT
FIELD MEASUREMENTS								
Measuring Pt. Elev. (ft)	985.14	985.14	985.14	1015.54	1015.54	.	.	.
Depth to Water (ft)	13.78	15.39	15.45	25.92	30.96	.	.	.
Water-Level Elev. (ft)	971.36	969.75	969.69	989.62	984.58	.	.	.
Water Temp. (degrees C)	17	18	18.9	17.5	19	.	.	15
pH (standard units)	7.02	6.77	6.91	11.9	10.97	.	.	6.71
Conductivity (umho/cm)	620	621	622	1459	299	.	.	949
Dissolved Oxygen (ppm)	0.06	0.05	1.08	0.82	3.44	.	.	7.1
Oxidation/Reduction (mV)	-48	-60	-103	-107	42	.	.	-24
MISCELLANEOUS ANALYTES								
pH (standard units)	7.11	6.89	.	11.88	10.77	.	.	8.01
Conductivity (umho/cm)	669	678	.	1230	219	.	.	1009
Dissolved Solids (mg/L)	369	348	290	358	82	.	.	537
Suspended Solids (mg/L)	<	<	<	<	2	.	.	1
Turbidity (NTU)	0.338	3.61	0	0.62	0.573	.	.	9.85
MAJOR IONS (mg/L)								
Calcium	107	106	104	121	10	21	19.3	.
Magnesium	8.67	8.89	9.16	<	0.424	15.8	15.7	.
Potassium	4.3	3.8	4.79	15	15	5.46	5.54	.
Sodium	17.7	17.4	18.7	2.26	2.39	176	176	.
Alkalinity-HCO3	322	326	360	<	<	.	.	248
Alkalinity-CO3	<	<	<	28	40	.	.	<
Chloride	15.88	14.7	15.4	1.94	2.01	.	.	185
Fluoride	0.25	0.241	0.23	0.14	<	.	.	1.06
Nitrate-N	0.28	0.465	.	1.07	1.46	.	.	<
Sulfate	20.33	20.2	19.8	5.67	5.28	.	.	46.5
Ion Charge Balance (RPD)	-2.9	-3.7	.	-14.7	-32.5	.	.	.
TRACE METALS (mg/L)								
Aluminum	<	<	<	1.12	<	<	<	.
Antimony (PMS)	<	<	.	<	<	<	<	.
Arsenic (PMS)	<	<	.	<	<	<	<	.
Arsenic	.	.	<	.	.	.	.	.
Barium	0.0546	0.0582	0.0606	0.0338	0.0421	0.0398	0.0487	.
Beryllium	<	<	<	<	<	<	<	.
Boron	0.11	0.123	0.13	<	<	0.657	0.663	.
Cadmium (PMS)	0.00577	0.00913	.	<	<	<	<	.
Cadmium	.	.	0.005	.	.	.	.	.
Chromium	<	<	<	<	<	<	<	.
Cobalt	<	<	<	<	<	<	<	.
Copper	<	<	<	<	<	<	<	.
Iron	0.533	0.418	0.388	<	<	0.171	0.0796	.
Lead (PMS)	<	<	.	<	<	<	<	.
Lead	.	.	<	.	.	.	.	.
Lithium	<	<	<	0.0187	0.0127	0.122	0.122	.
Manganese	1.51	1.71	1.69	<	<	0.00936	0.00796	.
Mercury (CVAA)	<	<	<	<	<	<	<	.
Molybdenum	<	<	.	<	<	<	<	.
Nickel	<	<	<	<	<	<	<	.
Selenium (PMS)	<	<	.	<	<	0.0129	0.0129	.
Selenium	.	.	<	.	.	.	.	.
Strontium	0.194	0.205	0.21	0.381	0.48	4.39	4.35	.
Thallium (PMS)	<	<	.	<	<	<	<	.
Thallium	.	.	<	.	.	.	.	.
Uranium (PMS)	0.000783	<	.	<	<	<	<	.
Uranium (KPA)	.	.	.	.	.	.	.	.
Uranium	.	.	<	.	.	.	.	.
Zinc	<	<	<	<	<	<	<	.
ICP Dilution Factor	1	1	1	1	1	1	1	1

(CONTINUED)

Sampling Point	GW-722-06		GW-722-10				GW-722-14	
Location	EXP-J		EXP-J				EXP-J	
Date Sampled	07/19/99		03/01/99		07/20/99		03/02/99	
Monitoring Program	GWPP		GWPP		GWPP		GWPP	
Type								
	TOT	DIS	TOT	DIS	TOT	DIS	TOT	DIS
FIELD MEASUREMENTS								
Measuring Pt. Elev. (ft)	.	.	.	.	.	.	.	.
Depth to Water (ft)	.	.	.	.	.	.	.	.
Water-Level Elev. (ft)	.	.	.	.	.	.	.	.
Water Temp. (degrees C)	18.1	.	18.3	.	19	.	14	.
pH (standard units)	6.98	.	7.13	.	7.11	.	6.99	.
Conductivity (umho/cm)	1076	.	961	.	931	.	548	.
Dissolved Oxygen (ppm)	2.43	.	11.98	.	2.56	.	9.42	.
Oxidation/Reduction (mV)	23	.	212	.	-25	.	258	.
MISCELLANEOUS ANALYTES								
pH (standard units)	8.29	.	7.76	.	8.02	.	8.05	.
Conductivity (umho/cm)	921	.	741	.	835	.	535	.
Dissolved Solids (mg/L)	633	.	403	.	478	.	268	.
Suspended Solids (mg/L)	1	.	<	.	1	.	7	.
Turbidity (NTU)	7.94	.	5.12	.	2.42	.	5.86	.
MAJOR IONS (mg/L)								
Calcium	21.3	19.9	41.7	41	38.6	36.8	53.9	51
Magnesium	14.5	15	29.8	29.7	27.3	26.3	30.8	30.3
Potassium	5.36	5.48	3.34	3.46	3.45	3.42	<	<
Sodium	166	172	87.6	92.8	101	96.4	20.1	20.1
Alkalinity-HCO3	238	.	216	.	210	.	220	.
Alkalinity-CO3	<	.	<	.	<	.	<	.
Chloride	149.5	.	104	.	121.4	.	29.9	.
Fluoride	0.94	.	0.71	.	0.71	.	0.38	.
Nitrate-N	<	.	0.168	.	0.09194	.	2.66	.
Sulfate	38.39	.	52.9	.	53.802	.	31	.
Ion Charge Balance (RPD)	-1.1	.	0.2	.	-0.8	.	0.0	.
TRACE METALS (mg/L)								
Aluminum	<	<	<	<	<	<	<	<
Antimony (PMS)	<	<	<	<	<	<	<	<
Arsenic (PMS)	<	<	<	<	<	<	<	<
Arsenic	.	.	.	.	.	.	.	.
Barium	0.0489	0.0483	0.0663	0.0642	0.0692	0.0689	0.0939	0.0888
Beryllium	<	<	<	<	<	<	<	<
Boron	0.604	0.624	0.314	0.334	0.369	0.35	<	<
Cadmium (PMS)	<	<	<	<	<	<	<	<
Cadmium	.	.	.	.	.	.	.	.
Chromium	<	<	<	<	<	<	<	<
Cobalt	<	<	<	<	<	<	<	<
Copper	<	<	<	<	<	<	<	<
Iron	0.263	<	0.234	<	0.185	<	0.0926	<
Lead (PMS)	<	<	0.000596	<	<	<	<	0.00107
Lead	.	.	.	.	.	.	.	.
Lithium	0.122	0.126	0.0617	0.068	0.0784	0.0751	0.0252	0.0369
Manganese	0.0105	0.00688	0.00879	0.00896	0.00823	0.00891	<	<
Mercury (CVAA)	<	<	<	<	<	<	<	<
Molybdenum	<	<	<	<	<	<	<	<
Nickel	<	<	<	<	<	<	<	<
Selenium (PMS)	0.02	0.0227	<	<	0.021	0.0213	<	<
Selenium	.	.	.	.	.	.	.	.
Strontium	4.23	4.43	1.96	2.09	2.14	2.13	0.802	0.809
Thallium (PMS)	<	<	<	<	<	<	<	<
Thallium	.	.	.	.	.	.	.	.
Uranium (PMS)	0.00149	<	<	<	<	<	<	<
Uranium (KPA)	.	.	.	.	.	.	.	.
Uranium	.	.	.	.	.	.	.	.
Zinc	0.0807	<	0.0636	<	<	<	<	<
ICP Dilution Factor	1	1	1	1	1	1	1	1

(CONTINUED)

APPENDIX F.1: UPPER EAST FORK POPLAR CREEK HYDROGEOLOGIC REGIME, 1999
Field Measurements, Miscellaneous Analytes, Major Ions, and Trace Metals

Sampling Point	GW-722-14		GW-722-17				GW-722-20	
Location	EXP-J		EXP-J				EXP-J	
Date Sampled	07/21/99		03/04/99		07/22/99		03/16/99	
Monitoring Program	GWPP		GWPP		GWPP		GWPP	
Type								
	TOT	DIS	TOT	DIS	TOT	DIS	TOT	DIS
FIELD MEASUREMENTS								
Measuring Pt. Elev. (ft)	.	.	.	.	.	.	.	.
Depth to Water (ft)	.	.	.	.	.	.	.	.
Water-Level Elev. (ft)	.	.	.	.	.	.	.	.
Water Temp. (degrees C)	17.8	.	15.1	.	17.1	.	16.1	.
pH (standard units)	6.62	.	7.63	.	6.86	.	8.21	.
Conductivity (umho/cm)	584	.	600	.	546	.	765	.
Dissolved Oxygen (ppm)	1.41	.	6.01	.	1.7	.	6.24	.
Oxidation/Reduction (mV)	184	.	241	.	176	.	210	.
MISCELLANEOUS ANALYTES								
pH (standard units)	7.7	.	7.91	.	7.7	.	8.14	.
Conductivity (umho/cm)	532	.	523	.	507	.	549	.
Dissolved Solids (mg/L)	332	.	297	.	334	.	301	.
Suspended Solids (mg/L)	6	.	7	.	2	.	15	.
Turbidity (NTU)	3.8	.	23.7	.	2.64	.	13.5	.
MAJOR IONS (mg/L)								
Calcium	54	50.9	57.3	53.3	52.9	51.3	58	53.4
Magnesium	29.8	29.9	31.4	31.5	30	29.8	28.4	28.6
Potassium	<	<	<	<	<	<	<	2.36
Sodium	22	22.5	14.2	14	14.5	14.4	18.3	18.8
Alkalinity-HCO3	214	.	216	.	210	.	216	.
Alkalinity-CO3	<	.	<	.	<	.	<	.
Chloride	27.72	.	21.9	.	22.76	.	24.9	.
Fluoride	0.34	.	0.34	.	0.23	.	0.34	.
Nitrate-N	2.084	.	2.53	.	2.1	.	0.97	.
Sulfate	31.22	.	25.8	.	26.705	.	25.8	.
Ion Charge Balance (RPD)	1.9	.	3.3	.	1.6	.	3.3	.
TRACE METALS (mg/L)								
Aluminum	<	<	<	<	<	<	<	<
Antimony (PMS)	<	<	<	<	<	<	0.000711	0.000534
Arsenic (PMS)	<	<	<	<	<	<	<	<
Arsenic	.	.	.	.	.	.	.	.
Barium	0.0989	0.102	0.0862	0.0778	0.0831	0.0836	0.0683	0.0693
Beryllium	<	<	<	<	<	<	<	<
Boron	<	<	<	<	<	<	<	<
Cadmium (PMS)	<	<	<	<	<	<	<	<
Cadmium	.	.	.	.	.	.	.	.
Chromium	<	<	<	<	<	<	<	<
Cobalt	<	<	<	<	<	<	<	<
Copper	<	<	<	<	<	<	<	<
Iron	0.162	<	0.116	<	0.0962	<	0.259	<
Lead (PMS)	0.000547	<	<	0.000713	<	<	0.00161	0.00135
Lead	.	.	.	.	.	.	.	.
Lithium	0.0182	0.0196	0.0114	0.0129	0.0128	0.0128	0.0129	0.0127
Manganese	0.00511	<	<	<	<	<	0.00586	<
Mercury (CVAA)	<	<	<	<	<	<	<	<
Molybdenum	<	<	<	<	<	<	<	<
Nickel	<	<	<	<	<	<	<	<
Selenium (PMS)	<	<	<	<	<	<	<	<
Selenium	.	.	.	.	.	.	.	.
Strontium	0.803	0.795	0.844	0.89	0.938	0.936	0.745	0.76
Thallium (PMS)	<	<	<	<	<	<	<	<
Thallium	.	.	.	.	.	.	.	.
Uranium (PMS)	<	<	<	<	<	<	<	<
Uranium (KPA)	.	.	.	.	.	.	.	.
Uranium	.	.	.	.	.	.	.	.
Zinc	0.156	<	0.0682	<	<	<	0.0755	<
ICP Dilution Factor	1	1	1	1	1	1	1	1

(CONTINUED)

APPENDIX F.1: UPPER EAST FORK POPLAR CREEK HYDROGEOLOGIC REGIME, 1999
Field Measurements, Miscellaneous Analytes, Major Ions, and Trace Metals

Sampling Point	GW-722-20				GW-722-22			
Location	EXP-J				EXP-J			
Date Sampled	07/27/99				03/17/99			
Monitoring Program	GWPP				GWPP			
Type			DUP				DUP	
	TOT	DIS	TOT	DIS	TOT	DIS	TOT	DIS
FIELD MEASUREMENTS								
Measuring Pt. Elev. (ft)	.	.	.	.	.	.	.	.
Depth to Water (ft)	.	.	.	.	.	.	.	.
Water-Level Elev. (ft)	.	.	.	.	.	.	.	.
Water Temp. (degrees C)	19.4	.	.	.	17.3	.	.	.
pH (standard units)	7.11	.	.	.	7.3	.	.	.
Conductivity (umho/cm)	582	.	.	.	558	.	.	.
Dissolved Oxygen (ppm)	1.9	.	.	.	7.2	.	.	.
Oxidation/Reduction (mV)	89	.	.	.	225	.	.	.
MISCELLANEOUS ANALYTES								
pH (standard units)	7.83	.	7.88	.	8.16	.	8.24	.
Conductivity (umho/cm)	518	.	521	.	476	.	455	.
Dissolved Solids (mg/L)	330	.	307	.	291	.	293	.
Suspended Solids (mg/L)	5	.	16	.	3	.	1	.
Turbidity (NTU)	7.34	.	7.33	.	1.46	.	1.38	.
MAJOR IONS (mg/L)								
Calcium	51.6	48.3	51.1	49.5	54.7	54.9	54.7	55.9
Magnesium	29	28.1	28.7	28.7	27.3	27.5	27.2	28.1
Potassium	<	<	<	<	2.29	2.29	<	2.47
Sodium	17.7	17.5	17.4	17.6	17.4	17.6	17.4	18.1
Alkalinity-HCO3	212	.	196	.	212	.	216	.
Alkalinity-CO3	<	.	<	.	<	.	<	.
Chloride	21.03	.	22.42	.	25.3	.	24.3	.
Fluoride	0.49	.	0.49	.	0.3	.	0.32	.
Nitrate-N	0.9453	.	0.9587	.	1.46	.	1.48	.
Sulfate	26.69	.	27.13	.	24.9	.	25	.
Ion Charge Balance (RPD)	2.2	.	4.2	.	1.8	.	0.7	.
TRACE METALS (mg/L)								
Aluminum	<	<	<	<	<	<	<	<
Antimony (PMS)	<	<	<	<	<	<	<	<
Arsenic (PMS)	<	<	<	<	<	<	<	<
Arsenic	.	.	.	.	.	.	.	.
Barium	0.0695	0.0688	0.0685	0.07	0.0918	0.0912	0.0907	0.0928
Beryllium	<	<	<	<	<	<	<	<
Boron	<	<	<	<	<	<	<	<
Cadmium (PMS)	<	0.000549	<	0.000531	<	<	<	<
Cadmium	.	.	.	.	.	.	.	.
Chromium	<	<	<	<	<	<	<	<
Cobalt	<	<	<	<	<	<	<	<
Copper	<	<	<	<	<	<	<	<
Iron	0.179	0.146	0.171	0.147	<	0.05	<	0.0545
Lead (PMS)	<	0.00126	<	0.00124	<	0.000514	<	<
Lead	.	.	.	.	.	.	.	.
Lithium	0.0134	0.0132	0.0135	0.0133	0.0144	0.0157	0.0143	0.0134
Manganese	<	<	<	<	<	<	<	<
Mercury (CVAA)	<	<	<	<	<	<	<	<
Molybdenum	<	<	<	<	<	<	<	<
Nickel	<	<	<	<	<	<	<	<
Selenium (PMS)	<	<	<	<	<	<	<	<
Selenium	.	.	.	.	.	.	.	.
Strontium	0.734	0.72	0.723	0.73	0.696	0.71	0.693	0.728
Thallium (PMS)	<	<	<	<	<	<	<	<
Thallium	.	.	.	.	.	.	.	.
Uranium (PMS)	<	<	<	0.00135	<	<	<	<
Uranium (KPA)	.	.	.	.	.	.	.	.
Uranium	.	.	.	.	.	.	.	.
Zinc	0.107	0.0653	0.147	0.0674	0.065	0.073	0.0636	<
ICP Dilution Factor	1	1	1	1	1	1	1	1

(CONTINUED)

APPENDIX F.1: UPPER EAST FORK POPLAR CREEK HYDROGEOLOGIC REGIME, 1999
Field Measurements, Miscellaneous Analytes, Major Ions, and Trace Metals

Sampling Point	GW-722-22		GW-722-26				GW-722-30	
Location	EXP-J		EXP-J				EXP-J	
Date Sampled	07/22/99		03/18/99		07/28/99		03/23/99	
Monitoring Program	GWPP		GWPP		GWPP		GWPP	
Type								
	TOT	DIS	TOT	DIS	TOT	DIS	TOT	DIS
FIELD MEASUREMENTS								
Measuring Pt. Elev. (ft)	.	.	.	.	.	.	.	.
Depth to Water (ft)	.	.	.	.	.	.	.	.
Water-Level Elev. (ft)	.	.	.	.	.	.	.	.
Water Temp. (degrees C)	18.5	.	16.3	.	19.5	.	15.6	.
pH (standard units)	7.07	.	7.03	.	6.68	.	7.43	.
Conductivity (umho/cm)	529	.	584	.	466	.	332	.
Dissolved Oxygen (ppm)	4.22	.	3.54	.	0.55	.	5.78	.
Oxidation/Reduction (mV)	163	.	-66	.	-113	.	220	.
MISCELLANEOUS ANALYTES								
pH (standard units)	7.86	.	7.79	.	7.65	.	7.82	.
Conductivity (umho/cm)	521	.	445	.	447	.	295	.
Dissolved Solids (mg/L)	341	.	252	.	243	.	155	.
Suspended Solids (mg/L)	2	.	5	.	<	.	3	.
Turbidity (NTU)	1.93	.	12.5	.	10.4	.	6.77	.
MAJOR IONS (mg/L)								
Calcium	53.3	66.6	63	63	60.2	59.6	38.1	37.5
Magnesium	28.7	28.7	22.7	22.9	22.6	22.9	15.1	14.7
Potassium	<	<	3.27	3.99	2.71	2.71	<	<
Sodium	17.5	17.4	3.7	3.82	3.32	3.43	0.542	0.602
Alkalinity-HCO3	212	.	242	.	220	.	154	.
Alkalinity-CO3	<	.	<	.	<	.	<	.
Chloride	22.32	.	6	.	3.657	.	1.92	.
Fluoride	0.33	.	1.15	.	1.12	.	0.17	.
Nitrate-N	1.695	.	<	.	<	.	<	.
Sulfate	26.68	.	<	.	<	.	7.19	.
Ion Charge Balance (RPD)	2.0	.	1.8	.	5.4	.	-1.9	.
TRACE METALS (mg/L)								
Aluminum	<	<	<	<	<	<	0.286	<
Antimony (PMS)	<	<	<	<	<	<	<	<
Arsenic (PMS)	<	<	<	<	<	<	<	<
Arsenic	.	.	.	.	.	.	.	.
Barium	0.0982	0.133	0.277	0.287	0.264	0.265	0.0452	0.0452
Beryllium	<	<	<	<	<	<	<	<
Boron	<	<	<	<	<	<	<	<
Cadmium (PMS)	<	0.00185	<	0.00103	<	<	<	<
Cadmium	.	.	.	.	.	.	.	.
Chromium	<	<	<	<	<	<	<	<
Cobalt	<	<	<	<	<	<	<	<
Copper	<	<	<	<	<	<	<	<
Iron	0.0594	0.279	2.38	2.35	2.46	2.71	0.497	0.19
Lead (PMS)	DIS>TOT	DIS>TOT	DIS>TOT	DIS>TOT	<	<	0.000542	<
Lead	.	.	.	.	.	.	.	.
Lithium	0.0139	0.0146	<	0.0113	<	0.0101	<	<
Manganese	<	0.0138	0.12	0.118	0.126	0.128	0.0122	0.0107
Mercury (CVAA)	<	<	<	<	<	<	<	<
Molybdenum	<	<	<	<	<	<	<	<
Nickel	<	<	<	<	<	<	<	<
Selenium (PMS)	<	<	<	<	<	<	<	<
Selenium	.	.	.	.	.	.	.	.
Strontium	0.707	0.855	2.13	2.24	1.81	1.84	0.0743	0.0848
Thallium (PMS)	<	<	<	<	<	<	<	<
Thallium	.	.	.	.	.	.	.	.
Uranium (PMS)	<	<	<	<	<	<	<	<
Uranium (KPA)	.	.	.	.	.	.	.	.
Uranium	.	.	.	.	.	.	.	.
Zinc	0.163	0.634	0.203	<	0.268	<	<	<
ICP Dilution Factor	1	1	1	1	1	1	1	1

(CONTINUED)

APPENDIX F.1: UPPER EAST FORK POPLAR CREEK HYDROGEOLOGIC REGIME, 1999
Field Measurements, Miscellaneous Analytes, Major Ions, and Trace Metals

Sampling Point	GW-722-30		GW-722-32				GW-722-33	
Location	EXP-J		EXP-J				EXP-J	
Date Sampled	07/28/99		03/30/99		07/28/99		03/30/99	
Monitoring Program	GWPP		GWPP		GWPP		GWPP	
Type								
	TOT	DIS	TOT	DIS	TOT	DIS	TOT	DIS
FIELD MEASUREMENTS								
Measuring Pt. Elev. (ft)	.	.	.	.	.	.	.	.
Depth to Water (ft)	.	.	.	.	.	.	.	.
Water-Level Elev. (ft)	.	.	.	.	.	.	.	.
Water Temp. (degrees C)	19.3	.	15.4	.	19.8	.	16.2	.
pH (standard units)	6.82	.	7.49	.	6.72	.	7.2	.
Conductivity (umho/cm)	291	.	474	.	416	.	398	.
Dissolved Oxygen (ppm)	5.78	.	7.18	.	9.86	.	5.7	.
Oxidation/Reduction (mV)	-55	.	198	.	153	.	209	.
MISCELLANEOUS ANALYTES								
pH (standard units)	7.96	.	7.47	.	7.51	.	7.37	.
Conductivity (umho/cm)	302	.	412	.	433	.	418	.
Dissolved Solids (mg/L)	170	.	246	.	261	.	238	.
Suspended Solids (mg/L)	<	.	4	.	8	.	2	.
Turbidity (NTU)	8.86	.	16	.	23.2	.	1.22	.
MAJOR IONS (mg/L)								
Calcium	39	38.8	71.8	71	71.7	72.5	69.3	71.3
Magnesium	15.2	15.2	10.8	10.6	10.9	11.1	10.2	10.5
Potassium	<	<	2.11	<	<	2.03	<	<
Sodium	0.641	0.68	2.99	2.99	3.15	3.25	2.84	2.96
Alkalinity-HCO3	148	.	210	.	210	.	212	.
Alkalinity-CO3	<	.	<	.	<	.	<	.
Chloride	1.902	.	3.71	.	3.348	.	3.49	.
Fluoride	0.15	.	<	.	<	.	<	.
Nitrate-N	<	.	0.71	.	0.6754	.	0.66	.
Sulfate	7.946	.	11.4	.	10.47	.	11	.
Ion Charge Balance (RPD)	0.6	.	0.7	.	0.6	.	-2.1	.
TRACE METALS (mg/L)								
Aluminum	0.248	<	0.501	<	0.741	<	<	<
Antimony (PMS)	<	<	<	<	<	<	<	<
Arsenic (PMS)	<	<	<	<	<	<	<	<
Arsenic	.	.	.	.	.	.	.	.
Barium	0.0514	0.0496	0.0308	0.0324	0.0365	0.0409	0.028	0.0291
Beryllium	<	<	<	<	<	<	<	<
Boron	<	<	<	<	<	<	<	<
Cadmium (PMS)	<	<	<	<	<	<	<	<
Cadmium	.	.	.	.	.	.	.	.
Chromium	<	<	<	<	<	<	<	<
Cobalt	<	<	<	<	<	<	<	<
Copper	<	<	<	<	<	<	<	<
Iron	0.524	0.196	0.718	<	1.1	0.197	0.121	<
Lead (PMS)	<	<	0.00417	<	0.00435	0.00411	0.000503	<
Lead	.	.	.	.	.	.	.	.
Lithium	<	<	<	<	<	<	<	<
Manganese	0.0134	0.0119	0.0149	<	0.0203	0.00914	<	<
Mercury (CVAA)	<	<	<	<	<	<	<	<
Molybdenum	<	<	<	<	<	<	<	<
Nickel	<	<	<	<	<	<	<	<
Selenium (PMS)	<	<	<	<	<	<	<	<
Selenium	.	.	.	.	.	.	.	.
Strontium	0.0818	0.0823	0.0685	0.0723	0.0699	0.0736	0.0652	0.0683
Thallium (PMS)	<	<	<	<	<	<	<	<
Thallium	.	.	.	.	.	.	.	.
Uranium (PMS)	<	<	<	<	<	<	<	<
Uranium (KPA)	.	.	.	.	.	.	.	.
Uranium	.	.	.	.	.	.	.	.
Zinc	0.0892	<	0.0862	<	0.124	0.199	<	0.055
ICP Dilution Factor	1	1	1	1	1	1	1	1

(CONTINUED)

APPENDIX F.1: UPPER EAST FORK POPLAR CREEK HYDROGEOLOGIC REGIME, 1999
Field Measurements, Miscellaneous Analytes, Major Ions, and Trace Metals

Sampling Point	GW-722-33		GW-733		GW-735			
Location	EXP-J		EXP-J		EXP-J			
Date Sampled	07/28/99		02/11/99	07/20/99	06/15/99		11/29/99	
Monitoring Program	GWPP		IWQP	IWQP	GWPP		GWPP	
Type								
	TOT	DIS	TOT	TOT	TOT	DIS	TOT	DIS
FIELD MEASUREMENTS								
Measuring Pt. Elev. (ft)	.	.	959.84	959.84	924.46	.	924.46	.
Depth to Water (ft)	.	.	57.35	56.00	23.64	.	23.31	.
Water-Level Elev. (ft)	.	.	902.49	903.84	900.82	.	901.15	.
Water Temp. (degrees C)	19.6	.	16	21.1	15.9	.	14	.
pH (standard units)	6.9	.	8	7.48	7.3	.	7.19	.
Conductivity (umho/cm)	394	.	246	294	617	.	580	.
Dissolved Oxygen (ppm)	11.33	.	1.03	1.31	0.78	.	0.14	.
Oxidation/Reduction (mV)	129	.	.	37	-24	.	-27	.
MISCELLANEOUS ANALYTES								
pH (standard units)	7.52	.	.	7.9	7.26	.	6.92	.
Conductivity (umho/cm)	150.4	.	274	305	622	.	638	.
Dissolved Solids (mg/L)	255	.	170	190	396	.	375	.
Suspended Solids (mg/L)	2	.	<	10	10	.	2	.
Turbidity (NTU)	30.6	.	4.3	.	19.2	.	5.36	.
MAJOR IONS (mg/L)								
Calcium	71.8	71.7	37.5	41.8	121	122	117	116
Magnesium	10.8	10.6	16.3	17.2	9.25	9.63	9.34	9.33
Potassium	<	<	3.31	2.15	2.91	2.76	2.56	2.69
Sodium	3.21	3.25	3.28	2.9	3.46	3.58	3.14	3.11
Alkalinity-HCO3	206	.	159	157	308	.	304	.
Alkalinity-CO3	<	.	.	.	<	.	<	.
Chloride	9.554	.	9.1	9.1	12.18	.	12.9	.
Fluoride	<	.	0.26	0.26	<	.	<	.
Nitrate-N	0.2078	.	0.02	0.15	<	.	<	.
Sulfate	3.117	.	7.9	13.2	21.11	.	20	.
Ion Charge Balance (RPD)	1.6	.	-2.5	-0.2	0.6	.	-0.3	.
TRACE METALS (mg/L)								
Aluminum	<	<	<	<	0.775	<	<	<
Antimony (PMS)	<	<	.	.	<	<	<	<
Arsenic (PMS)	<	<	.	.	<	<	<	<
Arsenic	.	.	<	<	.	.	.	.
Barium	0.032	0.0327	0.0255	0.0262	0.425	0.431	0.417	0.412
Beryllium	<	<	<	<	<	<	<	<
Boron	<	<	0.0119	0.012	<	<	<	<
Cadmium (PMS)	<	<	.	.	<	<	<	<
Cadmium	.	.	<	<	.	.	.	.
Chromium	<	<	<	<	<	<	<	<
Cobalt	<	<	<	<	<	<	<	<
Copper	<	<	<	<	<	<	<	<
Iron	0.116	0.0615	0.315	0.61	1.53	0.419	0.595	0.462
Lead (PMS)	<	0.000977	.	.	0.0013	0.000618	<	<
Lead	.	.	<	<	.	.	.	.
Lithium	<	<	<	<	<	<	<	<
Manganese	<	<	0.0558	0.0236	0.638	0.63	0.529	0.526
Mercury (CVAA)	<	<	<	<	<	<	<	<
Molybdenum	<	<	<	<	<	<	<	<
Nickel	<	<	<	<	<	<	<	<
Selenium (PMS)	<	<	.	.	<	<	<	<
Selenium	.	.	<	<	.	.	.	.
Strontium	0.0698	0.0724	.	.	0.311	0.321	0.299	0.297
Thallium (PMS)	<	<	.	.	<	<	<	<
Thallium	.	.	<	<	.	.	.	.
Uranium (PMS)	<	<	.	.	<	<	<	<
Uranium (KPA)	.	.	.	<	.	.	.	.
Uranium	.	.	<	<	.	.	.	.
Zinc	0.132	0.212	<	<	<	<	<	<
ICP Dilution Factor	1	1	1	1	1	1	1	1

(CONTINUED)

APPENDIX F.1: UPPER EAST FORK POPLAR CREEK HYDROGEOLOGIC REGIME, 1999
Field Measurements, Miscellaneous Analytes, Major Ions, and Trace Metals

Sampling Point	GW-744				GW-747			
Location	GRIDK1				GRIDK2			
Date Sampled	06/09/99		11/17/99		06/09/99		11/29/99	
Monitoring Program	GWPP		GWPP		GWPP		GWPP	
Type								
	TOT	DIS	TOT	DIS	TOT	DIS	TOT	DIS
FIELD MEASUREMENTS								
Measuring Pt. Elev. (ft)	907.62	.	907.62	.	921.13	.	921.13	.
Depth to Water (ft)	7.25	.	8.13	.	6.48	.	6.86	.
Water-Level Elev. (ft)	900.37	.	899.49	.	914.65	.	914.27	.
Water Temp. (degrees C)	17.6	.	17.5	.	20.1	.	17.3	.
pH (standard units)	7.98	.	8.1	.	7.22	.	7.94	.
Conductivity (umho/cm)	436	.	400	.	379	.	372	.
Dissolved Oxygen (ppm)	0.5	.	0.26	.	0.31	.	0.28	.
Oxidation/Reduction (mV)	-219	.	-271	.	31	.	51	.
MISCELLANEOUS ANALYTES								
pH (standard units)	8.19	.	7.84	.	8	.	7.53	.
Conductivity (umho/cm)	427	.	459	.	346	.	401	.
Dissolved Solids (mg/L)	274	.	271	.	247	.	256	.
Suspended Solids (mg/L)	<	.	<	.	<	.	<	.
Turbidity (NTU)	1.72	.	0.469	.	0.316	.	0.458	.
MAJOR IONS (mg/L)								
Calcium	45.8	46.6	45.9	46.4	42.2	42.6	32.3	32.4
Magnesium	11.3	11.3	11.5	11.6	9.8	9.62	6.77	6.81
Potassium	3.07	3.16	3.72	3.46	2.12	2.01	<	<
Sodium	35	35.5	35.6	36.2	35.4	36	49.1	49.1
Alkalinity-HCO3	218	.	226	.	206	.	188	.
Alkalinity-CO3	<	.	<	.	<	.	<	.
Chloride	7.317	.	8.36	.	4.82	.	1.53	.
Fluoride	<	.	<	.	0.15	.	0.3	.
Nitrate-N	0.05	.	<	.	<	.	<	.
Sulfate	11.99	.	13.5	.	15.73	.	14.4	.
Ion Charge Balance (RPD)	-0.0	.	-1.6	.	-0.9	.	2.2	.
TRACE METALS (mg/L)								
Aluminum	<	<	<	<	<	<	<	<
Antimony (PMS)	<	<	<	<	<	<	<	<
Arsenic (PMS)	<	<	<	<	<	<	<	<
Arsenic	.	.	.	.	.	.	.	.
Barium	0.242	0.244	0.294	0.296	0.161	0.161	0.148	0.148
Beryllium	<	<	<	<	<	<	<	<
Boron	<	<	<	<	<	<	<	0.1
Cadmium (PMS)	<	<	<	<	<	<	<	<
Cadmium	.	.	.	.	.	.	.	.
Chromium	<	<	<	<	<	<	<	<
Cobalt	<	<	<	<	<	<	<	<
Copper	<	<	<	<	<	<	<	<
Iron	<	<	0.0984	<	<	<	<	<
Lead (PMS)	<	<	<	<	<	<	<	<
Lead	.	.	.	.	.	.	.	.
Lithium	0.0282	0.027	0.0275	0.0284	0.0183	0.0172	0.0219	0.0224
Manganese	0.0519	0.0536	0.0348	0.0528	0.0121	0.0117	0.00922	0.013
Mercury (CVAA)	<	<	<	<	<	<	<	<
Molybdenum	<	<	<	<	<	<	<	<
Nickel	<	<	<	<	<	<	<	<
Selenium (PMS)	<	<	<	<	<	<	<	<
Selenium	.	.	.	.	.	.	.	.
Strontium	1.28	1.29	1.35	1.36	0.593	0.596	0.444	0.444
Thallium (PMS)	<	<	<	<	<	<	<	<
Thallium	.	.	.	.	.	.	.	.
Uranium (PMS)	<	<	<	<	<	<	<	<
Uranium (KPA)	.	.	.	.	.	.	.	.
Uranium	.	.	.	.	.	.	.	.
Zinc	<	<	<	<	<	<	<	<
ICP Dilution Factor	1	1	1	1	1	1	1	1

(CONTINUED)

APPENDIX F.1: UPPER EAST FORK POPLAR CREEK HYDROGEOLOGIC REGIME, 1999
Field Measurements, Miscellaneous Analytes, Major Ions, and Trace Metals

Sampling Point	GW-750						GW-762	
Location	EXP-J						GRIDJ3	
Date Sampled	06/15/99		12/01/99				02/09/99	08/24/99
Monitoring Program	GWPP		GWPP				IWQP	IWQP
Type					DUP			
	TOT	DIS	TOT	DIS	TOT	DIS	TOT	TOT
FIELD MEASUREMENTS								
Measuring Pt. Elev. (ft)	919.03	.	919.03	.	.	.	915.34	915.34
Depth to Water (ft)	14.41	.	14.12	.	.	.	13.54	13.96
Water-Level Elev. (ft)	904.62	.	904.91	.	.	.	901.80	901.38
Water Temp. (degrees C)	15.9	.	13.9	.	.	.	16.26	20.8
pH (standard units)	7.42	.	7.36	.	.	.	7.09	7.06
Conductivity (umho/cm)	455	.	474	.	.	.	508	606
Dissolved Oxygen (ppm)	0.28	.	0.11	.	.	.	3.62	0.37
Oxidation/Reduction (mV)	-52	.	-28	.	.	.	.	101
MISCELLANEOUS ANALYTES								
pH (standard units)	7.52	.	7.31	.	7.32	.	.	.
Conductivity (umho/cm)	496	.	510	.	510	.	.	638
Dissolved Solids (mg/L)	293	.	303	.	287	.	360	380
Suspended Solids (mg/L)	<	.	<	.	<	.	5.9	<
Turbidity (NTU)	2.84	.	1.79	.	1.76	.	.	.
MAJOR IONS (mg/L)								
Calcium	81.8	77.4	82.3	80.8	81.5	82.2	78.6	82.7
Magnesium	12.2	11.5	12.2	12.1	12	12.1	24.1	24.3
Potassium	5.24	5.08	4.88	4.66	4.67	4.93	4.54	3.92
Sodium	6.94	6.57	6.27	6.35	6.26	6.34	9.95	9.15
Alkalinity-HCO3	242	.	238	.	246	.	277	281
Alkalinity-CO3	<	.	<	.	<	.	.	.
Chloride	4.53	.	5.35	.	5.24	.	39.7	45.7
Fluoride	0.1	.	<	.	<	.	<	0.25
Nitrate-N	<	.	<	.	<	.	.	<
Sulfate	15.86	.	18.3	.	17.9	.	15.3	16.1
Ion Charge Balance (RPD)	2.0	.	2.0	.	0.1	.	.	-4.5
TRACE METALS (mg/L)								
Aluminum	<	<	<	<	<	<	0.15	1.11
Antimony (PMS)	<	<	<	<	<	<	.	.
Arsenic (PMS)	<	<	<	<	<	<	.	.
Arsenic	.	.	.	.	.	.	<	<
Barium	0.796	0.751	0.77	0.759	0.762	0.764	0.535	0.554
Beryllium	<	<	<	<	<	<	<	<
Boron	0.109	0.104	<	<	<	<	0.0809	0.078
Cadmium (PMS)	<	<	<	<	<	<	.	.
Cadmium	.	.	.	.	.	.	<	<
Chromium	<	<	<	<	<	<	<	<
Cobalt	<	<	<	<	<	<	<	<
Copper	<	<	<	<	<	<	<	<
Iron	0.266	0.24	0.199	0.141	0.143	0.152	0.18	0.551
Lead (PMS)	<	<	<	<	<	<	.	.
Lead	.	.	.	.	.	.	<	<
Lithium	0.0114	0.0124	0.0116	0.0107	0.01	0.0104	0.0172	0.0162
Manganese	0.0491	0.0492	0.0598	0.0546	0.0546	0.0592	0.0781	0.0692
Mercury (CVAA)	<	<	<	<	<	<	<	<
Molybdenum	<	<	<	<	<	<	<	<
Nickel	<	<	<	<	<	<	<	<
Selenium (PMS)	<	<	<	<	<	<	.	.
Selenium	.	.	.	.	.	.	<	<
Strontium	0.8	0.755	0.707	0.701	0.701	0.704	.	.
Thallium (PMS)	<	<	<	<	<	<	.	.
Thallium	.	.	.	.	.	.	<	<
Uranium (PMS)	<	<	<	0.000675	<	<	.	.
Uranium (KPA)	.	.	.	.	.	.	.	.
Uranium	.	.	.	.	.	.	<	<
Zinc	<	<	<	<	<	<	<	<
ICP Dilution Factor	1	1	1	1	1	1	1	1

(CONTINUED)

Field Measurements, Miscellaneous Analytes, Major Ions, and Trace Metals

Sampling Point	GW-762	GW-763		GW-769		GW-770		GW-775
Location	GRIDJ3	GRIDJ3		GRIDG3		GRIDG3		GRIDH3
Date Sampled	08/24/99	06/01/99	11/08/99	04/20/99	10/21/99	04/20/99	10/21/99	04/22/99
Monitoring Program	IWQP	GWPP	GWPP	GWPP	GWPP	GWPP	GWPP	GWPP
Type	DUP							
	TOT	TOT	TOT	TOT	TOT	TOT	TOT	TOT
FIELD MEASUREMENTS								
Measuring Pt. Elev. (ft)	.	915.05	915.05	944.44	944.44	944.71	944.71	931.35
Depth to Water (ft)	.	9.95	10.19	11.01	10.93	13.51	13.43	15.40
Water-Level Elev. (ft)	.	905.10	904.86	933.43	933.51	931.20	931.28	915.95
Water Temp. (degrees C)	.	18.5	23	19	19.1	17	22.1	18.5
pH (standard units)	.	6.93	6.87	7.41	7.42	7.06	7.07	7.54
Conductivity (umho/cm)	.	719	794	430	413	317	393	491
Dissolved Oxygen (ppm)	.	0.07	0.12	0.22	0.23	4.69	3.83	0.44
Oxidation/Reduction (mV)	.	-125	-124	55	81	163	144	122
MISCELLANEOUS ANALYTES								
pH (standard units)	.	6.81	6.65	7.47	7.48	7.2	7.12	7.59
Conductivity (umho/cm)	631	707	717	473	444	344	392	567
Dissolved Solids (mg/L)	360	385	391	280	265	200	235	340
Suspended Solids (mg/L)	5.4	33	37	<	<	<	<	<
Turbidity (NTU)	.	143	293	0.39	0.275	0.272	1.37	0.311
MAJOR IONS (mg/L)								
Calcium	83.9	107	104	75.9	71.8	55.6	60.9	96.1
Magnesium	24.6	13.8	14.3	10	9.11	4.71	4.76	8.09
Potassium	3.96	<	<	3.05	2.87	2.17	2.2	2.89
Sodium	9.26	13.3	15.8	7.47	7.11	6.22	8.45	5.17
Alkalinity-HCO3	279	296	274	212	210	130	156	192
Alkalinity-CO3	.	<	<	<	<	<	<	<
Chloride	41.3	58.94	65.7	11.5	11.1	9.24	14.2	31.7
Fluoride	0.27	0.26	0.265	<	<	0.21	0.25	<
Nitrate-N	<	<	<	0.14	0.223	0.08	0.0752	0.81
Sulfate	15.9	1.52	1.09	18.7	15.2	25.8	27.2	32.5
Ion Charge Balance (RPD)	-2.7	-3.9	-2.2	0.5	-1.3	1.1	-3.1	2.6
TRACE METALS (mg/L)								
Aluminum	0.641	<	<	<	<	<	<	<
Antimony (PMS)	.	<	<	<	<	<	<	<
Arsenic (PMS)	.	<	<	<	<	<	<	<
Arsenic	<	.	.	.	.	.	.	.
Barium	0.563	0.0499	0.0492	0.416	0.39	0.0607	0.0711	0.212
Beryllium	<	<	<	<	<	<	<	<
Boron	0.0758	<	<	<	<	<	<	<
Cadmium (PMS)	.	<	<	<	<	<	<	<
Cadmium	<	.	.	.	.	.	.	.
Chromium	<	<	<	<	<	<	<	<
Cobalt	<	<	<	<	<	<	<	<
Copper	<	<	<	<	<	<	<	<
Iron	0.483	23.8	21.6	<	<	<	0.112	<
Lead (PMS)	.	<	<	<	<	<	0.000598	<
Lead	<	.	.	.	.	.	.	.
Lithium	0.0158	<	<	0.0154	<	<	<	<
Manganese	0.0705	0.84	0.734	0.0109	0.00815	<	<	<
Mercury (CVAA)	<	<	<	<	<	<	<	<
Molybdenum	<	<	<	<	<	<	<	<
Nickel	<	<	<	<	<	<	<	<
Selenium (PMS)	.	<	<	<	<	<	<	<
Selenium	<	.	.	.	.	.	.	.
Strontium	.	0.209	0.207	0.412	0.393	0.0789	0.0844	0.253
Thallium (PMS)	.	<	<	<	<	<	<	<
Thallium	<	.	.	.	.	.	.	.
Uranium (PMS)	.	<	<	<	<	<	0.00106	<
Uranium (KPA)	.	.	.	.	.	.	.	.
Uranium	<	.	.	.	.	.	.	.
Zinc	<	<	<	<	<	<	<	<
ICP Dilution Factor	1	1	1	1	1	1	1	1

(CONTINUED)

APPENDIX F.1: UPPER EAST FORK POPLAR CREEK HYDROGEOLOGIC REGIME, 1999
Field Measurements, Miscellaneous Analytes, Major Ions, and Trace Metals

Sampling Point	GW-775	GW-776		GW-781		GW-782		
Location	GRIDH3	GRIDH3		GRIDE3		GRIDE3		
Date Sampled	10/27/99	04/22/99	10/27/99	05/25/99	10/26/99	05/24/99		10/25/99
Monitoring Program	GWPP	GWPP	GWPP	GWPP	GWPP	GWPP		GWPP
Type							DUP	
	TOT	TOT	TOT	TOT	TOT	TOT	TOT	TOT
FIELD MEASUREMENTS								
Measuring Pt. Elev. (ft)	931.35	931.25	931.25	947.89	947.89	947.76	.	947.76
Depth to Water (ft)	15.98	15.76	17.30	8.56	9.05	9.61	.	10.10
Water-Level Elev. (ft)	915.37	915.49	913.95	939.33	938.84	938.15	.	937.66
Water Temp. (degrees C)	19.7	18	17.4	18	16.9	17.7	.	18
pH (standard units)	7.49	7.42	7.25	8.14	8.68	7.3	.	7.37
Conductivity (umho/cm)	476	544	549	385	460	510	.	519
Dissolved Oxygen (ppm)	0.63	2.51	0.72	0.96	0.15	0.17	.	0.37
Oxidation/Reduction (mV)	137	57	67	199	160	55	.	-1
MISCELLANEOUS ANALYTES								
pH (standard units)	7.49	7.47	7.24	8.67	8.54	7.43	7.43	7.39
Conductivity (umho/cm)	543	622	595	394	412	560	558	546
Dissolved Solids (mg/L)	283	379	312	247	259	318	316	320
Suspended Solids (mg/L)	<	<	<	<	<	1	1	2
Turbidity (NTU)	0.239	7.37	5.18	0.248	1.06	11.8	12.7	11
MAJOR IONS (mg/L)								
Calcium	93.2	99.2	98.1	10.1	9.53	85.3	86.1	77.8
Magnesium	7.78	6.22	5.35	3.39	3.27	17	17.1	16
Potassium	2.37	3.11	2.84	5.5	5.37	5.82	5.18	5.07
Sodium	4.37	15.9	12.8	77.1	80.5	9.14	9.15	8.8
Alkalinity-HCO3	198	196	198	188	188	268	270	254
Alkalinity-CO3	<	<	<	16	8	<	<	<
Chloride	30.1	41.9	39.7	9.04	8.95	12.45	12.44	14
Fluoride	<	<	<	0.11	<	0.13	<	<
Nitrate-N	0.377	1.52	1.34	0.11	<	<	<	<
Sulfate	30.1	41.7	35.9	8.78	8.33	18.83	18.88	17.5
Ion Charge Balance (RPD)	0.7	1.3	0.4	-2.9	0.4	0.8	0.8	-1.1
TRACE METALS (mg/L)								
Aluminum	<	<	<	<	<	<	<	<
Antimony (PMS)	<	<	<	<	<	<	<	<
Arsenic (PMS)	<	<	<	<	<	<	<	<
Arsenic	.	.	.	.	.	.	.	.
Barium	0.209	0.0926	0.0919	0.28	0.289	0.65	0.652	0.557
Beryllium	<	<	<	<	<	<	<	<
Boron	<	<	<	0.504	0.514	0.124	0.121	0.112
Cadmium (PMS)	<	<	<	<	<	<	<	<
Cadmium	.	.	.	.	.	.	.	.
Chromium	<	0.0694	0.0432	<	<	<	<	<
Cobalt	<	<	<	<	<	<	<	<
Copper	<	<	<	<	<	<	<	<
Iron	<	0.667	0.58	<	<	1.35	1.28	1.14
Lead (PMS)	<	<	<	<	0.00883	<	<	<
Lead	.	.	.	.	.	.	.	.
Lithium	<	<	<	0.0601	0.0531	0.0169	0.0188	0.0128
Manganese	<	0.00934	0.031	<	0.0055	0.116	0.108	0.0439
Mercury (CVAA)	<	<	<	<	<	<	<	<
Molybdenum	<	<	<	<	<	<	<	<
Nickel	<	0.589	0.814	<	<	<	<	<
Selenium (PMS)	<	<	<	<	<	<	<	<
Selenium	.	.	.	.	.	.	.	.
Strontium	0.246	0.184	0.171	0.549	0.543	1.17	1.18	1.13
Thallium (PMS)	<	<	<	<	<	<	<	<
Thallium	.	.	.	.	.	.	.	.
Uranium (PMS)	0.000891	<	<	<	<	0.00154	0.00161	0.00118
Uranium (KPA)	.	.	.	.	.	.	.	.
Uranium	.	.	.	.	.	.	.	.
Zinc	<	<	<	<	<	<	<	<
ICP Dilution Factor	1	1	1	1	1	1	1	1

(CONTINUED)

APPENDIX F.1: UPPER EAST FORK POPLAR CREEK HYDROGEOLOGIC REGIME, 1999
Field Measurements, Miscellaneous Analytes, Major Ions, and Trace Metals

Sampling Point	GW-783		GW-788		GW-789		GW-791	
Location	GRIDE3		GRIDF3		GRIDF3		GRIDD2	
Date Sampled	05/24/99	10/25/99	04/19/99	10/20/99	04/19/99	10/20/99	05/25/99	11/28/99
Monitoring Program	GWPP	GWPP	GWPP	GWPP	GWPP	GWPP	GWPP	GWPP
Type	TOT	TOT	TOT	TOT	TOT	TOT	TOT	TOT
FIELD MEASUREMENTS								
Measuring Pt. Elev. (ft)	948.49	948.49	937.23	937.23	937.48	937.48	992.16	992.16
Depth to Water (ft)	10.61	10.98	0.92	1.02	4.12	3.88	23.55	24.57
Water-Level Elev. (ft)	937.88	937.51	936.31	936.21	933.36	933.60	968.61	967.59
Water Temp. (degrees C)	16.5	20.2	19.1	19.3	16	19.7	22	20.2
pH (standard units)	7.12	7.27	8.31	8.4	7.69	7.5	7.48	7.42
Conductivity (umho/cm)	483	564	549	562	382	422	405	460
Dissolved Oxygen (ppm)	0.71	0.47	0.3	0.4	0.64	0.19	0.73	0.27
Oxidation/Reduction (mV)	42	40	108	89	158	146	86	27
MISCELLANEOUS ANALYTES								
pH (standard units)	7.75	7.32	8.36	8.22	7.76	7.55	7.5	7.42
Conductivity (umho/cm)	542	596	597	604	400	413	448	446
Dissolved Solids (mg/L)	315	333	357	374	230	235	270	237
Suspended Solids (mg/L)	7	<	<	<	<	<	<	<
Turbidity (NTU)	30.3	2.28	0.386	0.165	0.442	0.179	0.297	0.502
MAJOR IONS (mg/L)								
Calcium	85.3	95.9	11	10	62.2	62.2	67.5	62.3
Magnesium	5.03	7.25	3.46	3.35	10.8	11.1	13.9	13.5
Potassium	<	<	5.7	5.32	2.91	3.14	2.12	2.1
Sodium	19	16.7	131	127	6.15	5.98	7.06	7.06
Alkalinity-HCO3	184	246	278	270	182	188	224	216
Alkalinity-CO3	<	<	<	<	<	<	<	<
Chloride	45.05	26.1	8.33	8.33	6.36	8.14	6.53	5.78
Fluoride	0.14	0.11	1.29	1.25	<	0.14	0.13	<
Nitrate-N	2.39	1.53	0.11	<	0.73	0.596	<	<
Sulfate	20.89	22.4	28.1	26.6	18.7	17.9	11.62	10.4
Ion Charge Balance (RPD)	-0.6	-1.0	1.7	1.4	0.9	-0.6	-0.4	-1.3
TRACE METALS (mg/L)								
Aluminum	<	<	<	<	<	<	<	<
Antimony (PMS)	<	<	<	<	<	<	<	<
Arsenic (PMS)	<	<	<	<	<	<	<	<
Arsenic	.	.	.	.	.	.	.	.
Barium	0.105	0.155	0.145	0.138	0.346	0.358	0.255	0.257
Beryllium	<	<	<	<	<	<	<	<
Boron	<	<	1.48	1.42	<	<	<	<
Cadmium (PMS)	<	<	<	<	<	<	<	<
Cadmium	.	.	.	.	.	.	.	.
Chromium	0.598	0.0428	<	<	<	<	<	<
Cobalt	<	<	<	<	<	<	<	<
Copper	0.024	<	<	<	<	<	<	<
Iron	4.18	0.226	<	<	<	<	<	0.0614
Lead (PMS)	<	<	<	<	<	<	<	<
Lead	.	.	.	.	.	.	.	.
Lithium	<	<	0.0836	0.0798	0.0119	0.0127	0.0121	<
Manganese	0.0681	0.0398	0.0161	0.0197	<	<	0.018	0.0156
Mercury (CVAA)	<	<	0.00022	<	<	<	<	<
Molybdenum	<	<	<	<	<	<	<	<
Nickel	0.698	0.287	<	<	<	<	<	<
Selenium (PMS)	<	<	<	<	<	<	<	<
Selenium	.	.	.	.	.	.	.	.
Strontium	0.173	0.258	0.591	0.565	0.312	0.315	0.416	0.403
Thallium (PMS)	<	<	0.0005	<	<	<	<	<
Thallium	.	.	.	.	.	.	.	.
Uranium (PMS)	0.00109	0.00112	0.0012	0.00142	<	<	<	<
Uranium (KPA)	.	.	.	.	.	.	.	.
Uranium	.	.	.	.	.	.	.	.
Zinc	<	<	<	<	<	<	<	<
ICP Dilution Factor	1	1	1	1	1	1	1	1

(CONTINUED)

APPENDIX F.1: UPPER EAST FORK POPLAR CREEK HYDROGEOLOGIC REGIME, 1999
Field Measurements, Miscellaneous Analytes, Major Ions, and Trace Metals

Sampling Point	GW-791	GW-792		GW-816				
Location	GRIDD2	GRIDD2		EXP-SR				
Date Sampled	11/28/99	05/25/99	11/28/99	06/07/99				11/16/99
Monitoring Program	GWPP	GWPP	GWPP	GWPP				GWPP
Type	DUP					DUP		
	TOT	TOT	TOT	TOT	DIS	TOT	DIS	TOT
FIELD MEASUREMENTS								
Measuring Pt. Elev. (ft)	.	992.74	992.74	898.41	.	.	.	898.41
Depth to Water (ft)	.	25.17	25.94	12.99	.	.	.	13.93
Water-Level Elev. (ft)	.	967.57	966.80	885.42	.	.	.	884.48
Water Temp. (degrees C)	.	22	21.3	19.7	.	.	.	17.2
pH (standard units)	.	6.13	6.13	6.61	.	.	.	6.41
Conductivity (umho/cm)	.	337	342	422	.	.	.	443
Dissolved Oxygen (ppm)	.	0.79	0.77	0.88	.	.	.	0.63
Oxidation/Reduction (mV)	.	203	169	-41	.	.	.	35
MISCELLANEOUS ANALYTES								
pH (standard units)	7.39	6.34	6.06	6.71	.	6.71	.	6.58
Conductivity (umho/cm)	448	354	393	412	.	406	.	456
Dissolved Solids (mg/L)	241	270	239	218	.	220	.	261
Suspended Solids (mg/L)	<	<	<	14	.	12	.	<
Turbidity (NTU)	0.502	0.25	0.27	58	.	61.6	.	5.83
MAJOR IONS (mg/L)								
Calcium	65.3	47.5	52.3	50.2	50.6	46.9	48.8	60.7
Magnesium	14	5.18	5.56	16.2	16.4	14.9	15.7	16.5
Potassium	<	<	<	4.57	4.53	4.31	4.27	5.98
Sodium	7.35	10.4	11.4	3.77	3.8	3.54	3.62	4.83
Alkalinity-HCO3	204	64	68	220	.	224	.	200
Alkalinity-CO3	<	<	<	<	.	<	.	<
Chloride	5.77	42.22	47.9	4.97	.	4.98	.	5.11
Fluoride	<	0.17	<	0.12	.	0.11	.	<
Nitrate-N	<	5.2	5.56	<	.	<	.	<
Sulfate	10.5	23.92	24.4	2.19	.	1.9	.	28.7
Ion Charge Balance (RPD)	3.0	-1.5	-0.7	-5.4	.	-9.8	.	0.1
TRACE METALS (mg/L)								
Aluminum	<	<	<	<	<	<	<	<
Antimony (PMS)	<	<	<	<	<	<	<	<
Arsenic (PMS)	<	<	<	<	<	<	<	<
Arsenic	.	.	.	.	.	.	.	.
Barium	0.268	0.112	0.128	0.172	0.169	0.162	0.162	0.298
Beryllium	<	<	<	<	<	<	<	<
Boron	<	<	<	<	<	<	<	<
Cadmium (PMS)	<	<	<	<	<	<	<	<
Cadmium	.	.	.	.	.	.	.	.
Chromium	<	<	<	<	<	<	<	<
Cobalt	<	<	<	<	<	<	<	<
Copper	<	<	<	<	<	<	<	<
Iron	0.0593	0.0935	<	15.1	14.7	13.8	14.1	2.82
Lead (PMS)	<	<	<	<	<	<	<	<
Lead	.	.	.	.	.	.	.	.
Lithium	<	<	<	<	<	<	<	<
Manganese	0.0166	0.0142	0.031	0.816	0.82	0.762	0.785	0.957
Mercury (CVAA)	<	<	<	<	<	<	<	<
Molybdenum	<	<	<	<	<	<	<	<
Nickel	<	0.056	0.147	<	<	<	<	<
Selenium (PMS)	<	<	<	<	<	<	<	<
Selenium	.	.	.	.	.	.	.	.
Strontium	0.421	0.0971	0.108	0.082	0.0824	0.0775	0.0789	0.101
Thallium (PMS)	<	<	<	<	<	<	<	<
Thallium	.	.	.	.	.	.	.	.
Uranium (PMS)	<	<	<	<	0.0011	<	<	<
Uranium (KPA)	.	.	.	.	.	.	.	.
Uranium	.	.	.	.	.	.	.	.
Zinc	<	<	<	<	<	<	<	<
ICP Dilution Factor	1	1	1	1	1	1	1	1

(CONTINUED)

Field Measurements, Miscellaneous Analytes, Major Ions, and Trace Metals

Sampling Point	GW-816	GW-820	GW-832		LRSPW			NPR07.0SW
Location	EXP-SR	B9201-2	NHP		EXP-SW			EXP-NPR
Date Sampled	11/16/99	09/10/99	02/09/99	08/31/99	06/03/99		11/15/99	09/01/99
Monitoring Program	GWPP	GWPP	IWQP	IWQP	GWPP		GWPP	GWPP
Type								
	DIS	TOT	TOT	TOT	TOT	DIS	TOT	TOT
FIELD MEASUREMENTS								
Measuring Pt. Elev. (ft)	.	929.57	906.18	906.18	.	.	.	.
Depth to Water (ft)	.	9.76	7.25	7.30	.	.	.	.
Water-Level Elev. (ft)	.	919.81	898.93	898.88	.	.	.	.
Water Temp. (degrees C)	.	22.6	15.27	19.1	20.6	.	15.8	19.5
pH (standard units)	.	7.26	6.94	6.72	7.44	.	8.2	7.67
Conductivity (umho/cm)	.	519	366	355	410	.	598	398
Dissolved Oxygen (ppm)	.	0.2	5.41	4.66	3.5	.	4.35	4.62
Oxidation/Reduction (mV)	.	-84	.	185	125	.	184	204
MISCELLANEOUS ANALYTES								
pH (standard units)	.	7.45	.	.	7.38	.	7.6	7.99
Conductivity (umho/cm)	.	510	.	359	390	.	371	247
Dissolved Solids (mg/L)	.	234	260	240	241	.	199	100
Suspended Solids (mg/L)	.	1	<	<	3	.	<	32
Turbidity (NTU)	.	1.12	.	.	2.22	.	0.692	1.32
MAJOR IONS (mg/L)								
Calcium	59.5	76.5	67	50.4	52.8	52.1	45.1	20.9
Magnesium	15.9	11.8	11.3	12.1	11.9	11.7	11.8	12.2
Potassium	6.02	2.75	2.2	1.79	2.38	<	2.08	3.55
Sodium	4.85	8.87	9.27	10.9	10.6	10.6	11.8	5.48
Alkalinity-HCO3	.	200	190	156	158	.	136	104
Alkalinity-CO3	.	<	.	.	<	.	<	<
Chloride	.	18.7	13.8	14.3	13.29	.	11.4	1.023
Fluoride	.	0.24	0.17	0.37	0.39	.	0.369	<
Nitrate-N	.	<	1.8	1.6	1.47	.	1.5	0.04789
Sulfate	.	34.46	23.8	24.3	22.81	.	25.9	9.798
Ion Charge Balance (RPD)	.	-0.1	-0.9	-1.6	0.0	.	1.1	1.3
TRACE METALS (mg/L)								
Aluminum	<	<	<	<	0.222	<	<	<
Antimony (PMS)	<	<	.	.	<	<	<	<
Arsenic (PMS)	<	<	.	.	<	<	<	<
Arsenic	.	.	<	<	.	.	.	.
Barium	0.296	0.226	0.0512	0.0471	0.0542	0.0515	0.0441	0.0927
Beryllium	<	<	<	<	<	<	<	<
Boron	<	<	0.0448	0.0422	<	<	<	<
Cadmium (PMS)	<	<	.	.	0.000521	0.000508	<	<
Cadmium	.	.	<	<	.	.	.	.
Chromium	<	<	<	<	<	<	<	<
Cobalt	<	<	<	<	<	<	<	<
Copper	<	<	<	<	<	<	<	<
Iron	3.16	0.456	0.0247	0.0266	0.256	<	0.0544	0.179
Lead (PMS)	<	0.000696	.	.	0.000916	<	<	<
Lead	.	.	<	<	.	.	.	.
Lithium	<	<	0.0116	0.0139	0.0109	0.0106	0.0101	<
Manganese	0.955	0.953	<	0.0054	0.0484	<	0.00924	0.0744
Mercury (CVAA)	<	<	<	<	<	<	<	<
Molybdenum	<	<	<	<	<	<	<	<
Nickel	<	<	<	<	<	<	<	<
Selenium (PMS)	<	0.114	.	.	<	<	<	<
Selenium	.	.	<	<	.	.	.	.
Strontium	0.1	0.277	.	.	0.113	0.113	0.106	0.12
Thallium (PMS)	<	<	.	.	<	<	<	<
Thallium	.	.	<	<	.	.	.	.
Uranium (PMS)	<	<	.	.	0.00538	0.00547	0.00418	<
Uranium (KPA)	.	.	.	.	.	.	.	.
Uranium	.	.	<	<	.	.	.	.
Zinc	<	<	0.0303	<	<	<	<	<
ICP Dilution Factor	1	1	1	1	1	1	1	1

(CONTINUED)

APPENDIX F.1: UPPER EAST FORK POPLAR CREEK HYDROGEOLOGIC REGIME, 1999
Field Measurements, Miscellaneous Analytes, Major Ions, and Trace Metals

Sampling Point	NPR07.0SW	NPR12.0SW		OF 51		OF 195		
Location	EXP-NPR	EXP-NPR		EXP-SW		EXP-SW		
Date Sampled	09/01/99	09/01/99		02/10/99	08/17/99	04/28/99	04/29/99	09/21/99
Monitoring Program	GWPP	GWPP		IWQP	IWQP	IWQP	IWQP	IWQP
Type								
	DIS	TOT	DIS	TOT	TOT	TOT	TOT	TOT
FIELD MEASUREMENTS								
Measuring Pt. Elev. (ft)	.	.	.	.	.	.	.	.
Depth to Water (ft)	.	.	.	.	.	.	.	.
Water-Level Elev. (ft)	.	.	.	.	.	.	.	.
Water Temp. (degrees C)	.	19.2	.	15.1	.	.	18	.
pH (standard units)	.	7.64	.	6.88	.	.	7.74	.
Conductivity (umho/cm)	.	169	.	0.432	.	.	0.562	.
Dissolved Oxygen (ppm)	.	4.6	.	6.55	.	.	10.81	.
Oxidation/Reduction (mV)	.	172	.	.	.	.	.	.
MISCELLANEOUS ANALYTES								
pH (standard units)	.	7.89	.	.	.	.	.	7.4
Conductivity (umho/cm)	.	163.4	.	.	438	.	.	149
Dissolved Solids (mg/L)	.	57	.	.	290	740	.	180
Suspended Solids (mg/L)	.	17	.	.	<	<	.	5.6
Turbidity (NTU)	.	20.7	.	1	.	.	0.5	.
MAJOR IONS (mg/L)								
Calcium	19.9	16	15.5	54.6	56.3	123	.	29.2
Magnesium	11.7	8.32	8.11	23.1	21.5	19.4	.	2.96
Potassium	3.28	3.55	3.31	1.62	1.65	5.14	.	1.43
Sodium	5.19	4.93	4.76	7.11	7	17.7	.	4.1
Alkalinity-HCO3	.	76	.	.	189	215	.	43.9
Alkalinity-CO3	.	<	.	.	.	.	.	.
Chloride	.	0.915	.	.	7.9	46.9	.	5.2
Fluoride	.	<	.	.	0.26	0.72	.	0.15
Nitrate-N	.	0.05602	.	4.3	4.8	40.6	.	.
Sulfate	.	8.783	.	.	20.1	33.2	.	24.1
Ion Charge Balance (RPD)	.	1.6	.	.	1.5	-3.4	.	.
TRACE METALS (mg/L)								
Aluminum	<	<	<	<	<	<	.	0.273
Antimony (PMS)	<	<	<	.	.	.	.	.
Arsenic (PMS)	<	<	<	.	.	.	.	.
Arsenic	.	.	.	<	<	<	.	<
Barium	0.0843	0.0777	0.0702	0.0759	0.0755	0.116	.	0.0289
Beryllium	<	<	<	<	<	<	.	<
Boron	<	<	<	0.0309	0.0667	15.6	.	0.134
Cadmium (PMS)	<	<	<	.	.	.	.	.
Cadmium	.	.	.	<	<	0.0016	.	<
Chromium	<	<	<	<	<	<	.	<
Cobalt	<	<	<	<	<	<	.	<
Copper	<	<	<	0.0191	0.0152	<	.	0.012
Iron	0.0593	0.369	<	0.0448	0.0548	<	.	0.438
Lead (PMS)	<	<	<	.	.	.	.	.
Lead	.	.	.	<	<	<	.	0.003
Lithium	<	<	<	0.0125	0.0195	4.12	.	0.0376
Manganese	0.0292	0.0612	0.0296	0.0112	0.01	0.237	.	0.0638
Mercury (CVAA)	<	<	<	0.00096	0.0018	<	.	<
Molybdenum	<	<	<	<	<	0.0109	.	<
Nickel	<	<	<	<	<	<	.	<
Selenium (PMS)	<	<	<	.	.	.	.	.
Selenium	.	.	.	<	<	<	.	<
Strontium	0.114	0.0763	0.0735	.	.	.	.	.
Thallium (PMS)	<	<	<	.	.	.	.	.
Thallium	.	.	.	<	<	<	.	<
Uranium (PMS)	<	<	<	.	.	.	.	.
Uranium (KPA)	.	.	.	.	.	.	.	.
Uranium	.	.	.	<	<	0.0667	.	<
Zinc	<	<	<	<	<	0.088	.	0.66
ICP Dilution Factor	1	1	1	1	1	1	1	1

(CONTINUED)

APPENDIX F.1: UPPER EAST FORK POPLAR CREEK HYDROGEOLOGIC REGIME, 1999
Field Measurements, Miscellaneous Analytes, Major Ions, and Trace Metals

Sampling Point	OF 200				OF 221		OF 225	
Location	EXP-SW				EXP-SW		EXP-SW	
Date Sampled	07/12/99		07/15/99		04/28/99	09/21/99	04/28/99	09/21/99
Monitoring Program	IWQP		IWQP		IWQP	IWQP	IWQP	IWQP
Type		DUP		DUP				
	TOT	TOT	TOT	TOT	TOT	TOT	TOT	TOT
FIELD MEASUREMENTS								
Measuring Pt. Elev. (ft)	.	.	.	.	.	.	.	.
Depth to Water (ft)	.	.	.	.	.	.	.	.
Water-Level Elev. (ft)	.	.	.	.	.	.	.	.
Water Temp. (degrees C)	21.7	.	24.3	.	17.7	.	16.2	.
pH (standard units)	7.88	.	7.05	.	7.85	.	7.31	.
Conductivity (umho/cm)	0.107	.	0.234	.	0.338	.	1.31	.
Dissolved Oxygen (ppm)	8.53	.	.	.	6.62	.	9.98	.
Oxidation/Reduction (mV)	0	.	84	.	.	.	.	.
MISCELLANEOUS ANALYTES								
pH (standard units)	.	.	.	.	.	7.3	.	7.1
Conductivity (umho/cm)	207	202	349	365	.	144	.	148
Dissolved Solids (mg/L)	120	110	250	270	360	170	1100	170
Suspended Solids (mg/L)	<	<	<	<	<	17	<	44
Turbidity (NTU)	.	.	8	.	0.4	.	2.6	.
MAJOR IONS (mg/L)								
Calcium	33.1	31	54.9	54	93.5	28.7	233	36.8
Magnesium	5.24	4.89	11.1	10.9	12.6	2.84	28.9	3.32
Potassium	2.11	1.94	2.57	2.58	1.59	1.51	2.54	1.58
Sodium	3.88	3.55	8.67	8.62	2.31	3.91	15.8	3.4
Alkalinity-HCO3	73.6	79.3	131	130	228	39.9	208	30.6
Alkalinity-CO3	.	.	.	.	.	.	.	.
Chloride	3.7	4.3	6.8	6.9	1.3	4.9	22.3	4.3
Fluoride	0.2	0.22	0.77	0.84	0.2	0.15	0.36	0.16
Nitrate-N	2.3	2.1	5.7	5.4	9.4	.	112	.
Sulfate	23.2	21	31.7	41.5	27.3	26.4	25.5	39.3
Ion Charge Balance (RPD)	1.6	-3.4	2.2	-0.7	-0.0	.	5.1	.
TRACE METALS (mg/L)								
Aluminum	0.236	0.268	<	<	<	0.276	0.464	0.661
Antimony (PMS)	.	.	.	.	.	.	.	.
Arsenic (PMS)	.	.	.	.	.	.	.	.
Arsenic	<	<	<	<	<	<	<	<
Barium	0.0415	0.0389	0.0593	0.0589	0.127	0.0289	0.197	0.0339
Beryllium	<	<	<	<	<	<	<	<
Boron	0.0391	0.042	0.461	0.456	0.068	0.14	0.0646	0.171
Cadmium (PMS)	.	.	.	.	.	.	.	.
Cadmium	<	<	0.0013	0.0012	<	<	0.0088	0.0017
Chromium	<	<	<	<	<	<	<	<
Cobalt	<	<	<	<	<	<	<	<
Copper	<	<	0.0052	<	0.0052	0.0121	0.0113	0.0208
Iron	0.396	0.434	0.106	0.103	<	0.408	1.09	1.04
Lead (PMS)	.	.	.	.	.	.	.	.
Lead	<	<	<	<	<	<	<	0.0086
Lithium	0.0251	0.0276	0.139	0.137	0.0239	0.0394	0.0233	0.0532
Manganese	0.062	0.0582	0.0929	0.0915	<	0.0632	1.67	0.109
Mercury (CVAA)	0.00065	0.00061	0.0007	0.0007	<	<	0.0002	<
Molybdenum	<	<	<	<	0.0405	<	0.0216	<
Nickel	<	<	<	<	<	<	0.034	<
Selenium (PMS)	.	.	.	.	.	.	.	.
Selenium	<	<	<	<	<	<	<	<
Strontium	.	.	.	.	.	.	.	.
Thallium (PMS)	.	.	.	.	.	.	.	.
Thallium	<	<	<	<	<	<	<	<
Uranium (PMS)	.	.	.	.	.	.	.	.
Uranium (KPA)	.	.	.	.	.	.	.	.
Uranium	0.261	0.243	0.0942	0.0964	0.406	<	0.145	<
Zinc	0.0497	0.0535	0.0504	0.0496	<	0.748	0.14	2.77
ICP Dilution Factor	1	1	1	1	1	1	1	1

(CONTINUED)

APPENDIX F.1: UPPER EAST FORK POPLAR CREEK HYDROGEOLOGIC REGIME, 1999
Field Measurements, Miscellaneous Analytes, Major Ions, and Trace Metals

Sampling Point	SCR7.18SP	SCR7.8SP	SP-17		STATION 17			
Location	EXP-UV	EXP-UV	EXP-SW		EXP-SW			
Date Sampled	02/04/99	02/04/99	02/10/99	08/17/99	02/12/99	04/28/99	04/29/99	07/12/99
Monitoring Program	IWQP	IWQP	IWQP	IWQP	IWQP	IWQP	IWQP	IWQP
Type	TOT	TOT	TOT	TOT	TOT	TOT	TOT	TOT
FIELD MEASUREMENTS								
Measuring Pt. Elev. (ft)	.	.	.	.	.	.	.	.
Depth to Water (ft)	.	.	.	.	.	.	.	.
Water-Level Elev. (ft)	.	.	.	.	.	.	.	.
Water Temp. (degrees C)	10.9	14.4	14.4	.	.	.	.	21.1
pH (standard units)	7.18	7.06	7.14	.	.	.	.	7.81
Conductivity (umho/cm)	0.344	0.309	0.468	.	.	.	.	0.088
Dissolved Oxygen (ppm)	2.53	8.71	5.89	.	.	.	.	8.78
Oxidation/Reduction (mV)	.	.	.	.	.	.	.	0
MISCELLANEOUS ANALYTES								
pH (standard units)	.	.	.	.	.	.	.	.
Conductivity (umho/cm)	.	.	.	510	.	.	.	159
Dissolved Solids (mg/L)	270	170	260	320	380	.	200	93
Suspended Solids (mg/L)	7.1	<	<	<	6.1	.	5	<
Turbidity (NTU)	15	5	0	.	.	.	7.4	.
MAJOR IONS (mg/L)								
Calcium	.	.	51.4	56.9	.	40.1	41.2	25.2
Magnesium	.	.	30.2	33.5	.	10.1	8.94	4.26
Potassium	.	.	0.975	1.06	.	1.82	1.9	1.85
Sodium	.	.	2.23	2.4	.	7.72	7.56	2.82
Alkalinity-HCO3	.	.	226	234	118	.	109	66.9
Alkalinity-CO3	.	.	.	.	.	.	.	.
Chloride	.	.	4.6	4.6	10.7	.	9.5	2.8
Fluoride	.	.	<	<	0.28	.	0.3	0.17
Nitrate-N	.	.	8.6	9.6	2.1	.	3	1.2
Sulfate	.	.	4.5	3.6	33	.	22.8	18.1
Ion Charge Balance (RPD)	.	.	-1.7	1.4	.	.	0.3	-3.0
TRACE METALS (mg/L)								
Aluminum	.	.	<	<	.	0.15	0.236	0.477
Antimony (PMS)	.	.	.	.	.	.	.	.
Arsenic (PMS)	.	.	.	.	.	.	.	.
Arsenic	.	.	<	<	.	<	<	<
Barium	.	.	0.133	0.162	.	0.039	0.0457	0.0365
Beryllium	.	.	<	<	.	<	<	<
Boron	.	.	<	<	.	0.0281	0.029	0.0234
Cadmium (PMS)	.	.	.	.	.	.	.	.
Cadmium	.	.	<	<	.	<	<	<
Chromium	.	.	<	<	.	<	<	<
Cobalt	.	.	<	<	.	<	<	<
Copper	.	.	<	<	.	0.0055	<	0.0053
Iron	.	.	0.0125	<	.	0.229	0.4	0.648
Lead (PMS)	.	.	.	.	.	.	.	.
Lead	.	.	<	<	.	<	<	<
Lithium	.	.	<	<	.	0.0182	0.0158	0.0138
Manganese	.	.	0.0151	0.0157	.	0.0585	0.0673	0.0748
Mercury (CVAA)	.	.	<	<	.	0.00033	0.00069	0.001
Molybdenum	.	.	<	<	.	<	<	<
Nickel	.	.	<	<	.	<	<	<
Selenium (PMS)	.	.	.	.	.	.	.	.
Selenium	.	.	<	<	.	<	<	<
Strontium	.	.	.	.	.	.	.	.
Thallium (PMS)	.	.	.	.	.	.	.	.
Thallium	.	.	<	<	.	<	<	<
Uranium (PMS)	.	.	.	.	.	.	.	.
Uranium (KPA)	.	.	.	.	.	.	.	.
Uranium	.	.	<	<	.	<	<	0.069
Zinc	.	.	<	<	.	0.0255	0.0469	0.0396
ICP Dilution Factor	1	1	1	1	1	1	1	1

(CONTINUED)

APPENDIX F.1: UPPER EAST FORK POPLAR CREEK HYDROGEOLOGIC REGIME, 1999
Field Measurements, Miscellaneous Analytes, Major Ions, and Trace Metals

Sampling Point	STATION 17	STATION 8			
Location	EXP-SW	EXP-SW			
Date Sampled	07/15/99	02/12/99	04/29/99	07/12/99	07/15/99
Monitoring Program	IWQP	IWQP	IWQP	IWQP	IWQP
Type	TOT	TOT	TOT	TOT	TOT
FIELD MEASUREMENTS					
Measuring Pt. Elev. (ft)	.	.	.	.	.
Depth to Water (ft)	.	.	.	.	.
Water-Level Elev. (ft)	.	.	.	.	.
Water Temp. (degrees C)	19.7	.	.	20.8	19.1
pH (standard units)	7.2	.	.	7.66	7.21
Conductivity (umho/cm)	0.194	.	.	0.117	0.174
Dissolved Oxygen (ppm)	.	.	.	9.1	.
Oxidation/Reduction (mV)	69	.	.	0	84
MISCELLANEOUS ANALYTES					
pH (standard units)	.	.	.	.	.
Conductivity (umho/cm)	298	.	.	230	286
Dissolved Solids (mg/L)	220	350	220	150	200
Suspended Solids (mg/L)	<	6.1	<	<	5.1
Turbidity (NTU)	6	.	6.2	.	17
MAJOR IONS (mg/L)					
Calcium	44.6	35.5	43.7	35.1	41.8
Magnesium	11	8.98	9.61	6.41	9.82
Potassium	2	1.85	2.01	2.45	2
Sodium	8.72	8.26	7.49	4.68	6.97
Alkalinity-HCO3	124	101	119	89.2	112
Alkalinity-CO3	.	.	.	.	.
Chloride	5.5	10.1	10.2	4.9	8.6
Fluoride	0.36	0.24	0.36	0.22	0.37
Nitrate-N	2.1	2.4	3.9	1.8	2.1
Sulfate	25.6	29.7	21.4	28.3	34
Ion Charge Balance (RPD)	3.3	-3.1	-0.9	-2.0	-1.7
TRACE METALS (mg/L)					
Aluminum	0.131	0.221	0.303	0.326	0.168
Antimony (PMS)	.	.	.	.	.
Arsenic (PMS)	.	.	.	.	.
Arsenic	<	<	<	<	<
Barium	0.0499	0.037	0.0445	0.0427	0.0447
Beryllium	<	<	<	<	<
Boron	0.0773	0.257	0.0293	0.0584	0.0552
Cadmium (PMS)	.	.	.	.	.
Cadmium	<	<	<	<	<
Chromium	<	<	<	<	<
Cobalt	<	<	<	<	<
Copper	<	0.0075	<	<	<
Iron	0.17	0.378	0.321	0.481	0.219
Lead (PMS)	.	.	.	.	.
Lead	<	<	<	<	<
Lithium	0.0255	0.0691	0.0185	0.0282	0.0218
Manganese	0.0485	0.0618	0.0939	0.0725	0.0938
Mercury (CVAA)	0.00045	0.00026	0.00058	0.00081	0.00045
Molybdenum	<	<	<	<	<
Nickel	<	<	<	<	<
Selenium (PMS)	.	.	.	.	.
Selenium	<	<	<	<	<
Strontium	.	.	.	.	.
Thallium (PMS)	.	.	.	.	.
Thallium	<	<	<	<	<
Uranium (PMS)	.	.	.	.	.
Uranium (KPA)	.	.	.	.	.
Uranium	<	<	<	0.169	<
Zinc	0.0188	0.0607	0.0428	0.0401	0.0242
ICP Dilution Factor	1	1	1	1	1

APPENDIX F.2

VOLATILE ORGANIC COMPOUNDS

APPENDIX F.2: UPPER EAST FORK POPLAR CREEK HYDROGEOLOGIC REGIME, 1999
Volatile Organic Compounds (ug/L)

Sampling Point	9201-5N-J4	9204-2-NE	9204-2-NW	9204-2E-NW	9204-4ELSU	GHK2.51ESW	GHK2.51WSW	GW-108
Location	B9201-5	B9204-2	B9204-2	B9204-2	B9204-4	EXP-NPR	EXP-NPR	S3
Date Sampled	02/16/99	02/16/99	02/16/99	02/23/99	02/17/99	09/01/99	09/01/99	02/15/99
Monitoring Program	GWPP	GWPP	GWPP	GWPP	GWPP	GWPP	GWPP	IWQP
Type								
Acetone	<	4	<	<	<	<	<	18
Acrylonitrile	<	<	<	<	<	<	<	.
Benzene	<	<	<	<	<	<	<	2
Bromodichloromethane	<	<	<	<	<	<	<	<
Bromoform	<	<	<	<	<	<	<	3
2-Butanone	<	<	<	<	<	<	<	<
Carbon disulfide	<	<	<	<	<	<	<	<
Carbon tetrachloride	<	<	<	<	<	2	<	<
Chloroethane	<	<	<	<	<	<	<	<
Chloroform	<	5	<	<	<	<	<	38
Dibromochloromethane	<	<	<	<	<	<	<	<
1,1-Dichloroethane	7	21	<	<	<	<	<	<
1,1-Dichloroethene	<	6	<	<	<	<	<	<
cis-1,2-Dichloroethene	36	6	<	4	<	<	<	<
trans-1,2-Dichloroethene	<	<	<	<	<	<	<	<
Dimethylbenzene	<	<	<	<	<	<	<	<
Methylene chloride	<	<	<	<	<	<	<	54
Styrene	<	<	<	<	<	<	<	<
Tetrachloroethene	180	52	<	17	5	<	<	<
Toluene	<	<	<	<	<	<	<	<
1,1,1-Trichloroethane	3	<	<	<	<	<	<	<
Trichloroethene	16	3	<	<	<	<	<	2
Trichlorofluoromethane	<	<	<	<	<	<	<	.
Vinyl chloride	<	<	<	<	<	<	<	<
DILUTION FACTOR	1	1	1	1	1	1	1	1

(CONTINUED)

Sampling Point	GW-108	GW-109	GW-131-01	GW-131-04	GW-131-08	GW-131-12	GW-131-15	GW-131-21
Location	S3	S3	EXP	EXP	EXP	EXP	EXP	EXP
Date Sampled	07/27/99	09/02/99	06/14/99	06/15/99	06/16/99	06/16/99	06/17/99	06/21/99
Monitoring Program	IWQP	GWPP	GWPP	GWPP	GWPP	GWPP	GWPP	GWPP
Type								
Acetone	<	63	<	<	15	<	<	<
Acrylonitrile	.	<	<	<	<	<	<	<
Benzene	<	<	6	<	<	<	<	<
Bromodichloromethane	<	<	<	<	<	<	<	<
Bromoform	3	4	<	<	<	<	<	<
2-Butanone	<	4	<	<	<	<	<	<
Carbon disulfide	<	2	<	<	2	<	<	<
Carbon tetrachloride	<	<	<	<	<	<	<	<
Chloroethane	<	<	<	<	<	<	<	<
Chloroform	30	14	<	<	<	<	<	<
Dibromochloromethane	<	<	<	<	<	<	<	<
1,1-Dichloroethane	<	<	<	<	<	<	<	<
1,1-Dichloroethene	<	<	<	<	<	<	<	<
cis-1,2-Dichloroethene	<	2	<	<	<	<	<	<
trans-1,2-Dichloroethene	<	<	<	<	<	<	<	<
Dimethylbenzene	<	<	<	<	<	<	<	<
Methylene chloride	45	15	<	<	<	<	<	<
Styrene	<	<	<	<	2	<	<	<
Tetrachloroethene	1	170	<	<	<	<	<	<
Toluene	<	<	<	<	<	<	<	<
1,1,1-Trichloroethane	<	<	<	<	<	<	<	<
Trichloroethene	3	6	<	<	<	<	<	<
Trichlorofluoromethane	.	<	<	<	<	<	<	<
Vinyl chloride	<	<	<	<	<	<	<	<
DILUTION FACTOR	1	1	1	1	1	1	1	1

(CONTINUED)

APPENDIX F.2: UPPER EAST FORK POPLAR CREEK HYDROGEOLOGIC REGIME, 1999
Volatile Organic Compounds (ug/L)

Sampling Point	GW-131-21	GW-131-24	GW-131-28	GW-131-32	GW-131-36	GW-148		GW-151
Location	EXP	EXP	EXP	EXP	EXP	NHP		NHP
Date Sampled	06/21/99	06/17/99	06/22/99	06/22/99	06/23/99	06/01/99	11/09/99	02/08/99
Monitoring Program	GWPP	GWPP	GWPP	GWPP	GWPP	GWPP	GWPP	IWQP
Type	DUP							
Acetone	<	<	<	<	<	<	<	<
Acrylonitrile	<	<	<	<	<	<	<	.
Benzene	<	<	<	<	<	<	<	<
Bromodichloromethane	<	<	<	<	<	<	<	<
Bromoform	<	<	<	<	<	<	<	<
2-Butanone	<	<	<	<	<	<	<	<
Carbon disulfide	<	<	<	<	7	<	<	<
Carbon tetrachloride	<	<	<	<	<	<	<	830
Chloroethane	<	<	<	<	<	<	<	<
Chloroform	<	<	<	<	<	<	<	40
Dibromochloromethane	<	<	<	<	<	<	<	<
1,1-Dichloroethane	<	<	<	<	<	<	<	<
1,1-Dichloroethene	<	<	<	<	<	<	<	<
cis-1,2-Dichloroethene	<	<	<	<	<	20	17	<
trans-1,2-Dichloroethene	<	<	<	<	<	<	<	<
Dimethylbenzene	<	<	<	<	<	<	<	<
Methylene chloride	<	<	<	<	<	<	<	<
Styrene	<	<	<	<	<	<	<	<
Tetrachloroethene	<	<	<	<	<	<	<	78
Toluene	<	<	<	<	<	<	<	<
1,1,1-Trichloroethane	<	<	<	<	<	<	<	<
Trichloroethene	<	<	<	<	<	<	<	25
Trichlorofluoromethane	<	<	<	<	<	<	<	.
Vinyl chloride	<	<	<	<	<	<	<	<
DILUTION FACTOR	1	1	1	1	1	1	1	5

(CONTINUED)

Sampling Point	GW-151	GW-153			GW-154		GW-168	GW-169
Location	NHP	NHP			NHP		EXP	EXP-UV
Date Sampled	08/16/99	06/02/99	11/09/99		02/10/99	08/30/99	09/08/99	02/08/99
Monitoring Program	IWQP	GWPP	GWPP		IWQP	IWQP	GWPP	IWQP
Type				DUP				
Acetone	<	<	<	<	<	<	<	<
Acrylonitrile	.	<	<	<	.	.	<	.
Benzene	<	<	<	<	<	<	<	<
Bromodichloromethane	<	4	4	5	<	<	<	<
Bromoform	<	13	14	16	<	<	<	<
2-Butanone	<	<	<	<	<	<	<	<
Carbon disulfide	<	<	<	<	<	<	<	<
Carbon tetrachloride	1000	280	260	250	<	<	<	<
Chloroethane	<	<	<	<	<	<	<	<
Chloroform	40	15	14	17	<	<	<	<
Dibromochloromethane	<	7	9	11	<	<	<	<
1,1-Dichloroethane	<	<	<	<	<	<	<	<
1,1-Dichloroethene	<	<	<	<	<	<	<	<
cis-1,2-Dichloroethene	<	<	<	<	<	<	<	<
trans-1,2-Dichloroethene	<	<	<	<	<	<	<	<
Dimethylbenzene	<	<	<	<	<	<	<	<
Methylene chloride	90	<	<	<	<	<	<	<
Styrene	<	<	<	<	<	<	<	<
Tetrachloroethene	80	7	5	5	<	<	<	2
Toluene	<	<	<	<	<	<	<	<
1,1,1-Trichloroethane	<	<	<	<	<	<	<	<
Trichloroethene	16	2	<	<	<	<	<	1
Trichlorofluoromethane	.	<	<	<	.	.	<	.
Vinyl chloride	<	<	<	<	<	<	<	<
DILUTION FACTOR	10	1	1	1	1	1	1	1

(CONTINUED)

APPENDIX F.2: UPPER EAST FORK POPLAR CREEK HYDROGEOLOGIC REGIME, 1999
Volatile Organic Compounds (ug/L)

Sampling Point	GW-169	GW-170				GW-171		GW-172
Location	EXP-UV	EXP-UV				EXP-UV		EXP-UV
Date Sampled	09/01/99	02/08/99		08/31/99		02/11/99	08/25/99	02/11/99
Monitoring Program	IWQP	IWQP		IWQP		IWQP	IWQP	IWQP
Type			DUP		DUP			
Acetone	<	<	<	<	<	<	<	<
Acrylonitrile	.	.	.	.	.	.	.	.
Benzene	<	<	<	<	<	<	<	<
Bromodichloromethane	<	<	<	<	<	<	<	<
Bromoform	<	<	<	<	<	<	<	<
2-Butanone	<	<	<	<	<	<	<	<
Carbon disulfide	<	<	<	<	<	<	<	<
Carbon tetrachloride	<	57	59	31	37	<	<	<
Chloroethane	<	<	<	<	<	<	<	<
Chloroform	<	14	15	12	13	<	<	<
Dibromochloromethane	<	<	<	<	<	<	<	<
1,1-Dichloroethane	<	<	<	<	<	<	<	<
1,1-Dichloroethene	<	<	<	<	<	<	<	<
cis-1,2-Dichloroethene	<	<	<	<	<	<	<	<
trans-1,2-Dichloroethene	<	<	<	<	<	<	<	<
Dimethylbenzene	<	<	<	<	<	<	<	<
Methylene chloride	<	<	<	<	<	<	<	<
Styrene	<	<	<	<	<	<	<	<
Tetrachloroethene	1	4	4	2	3	<	<	<
Toluene	<	<	<	<	<	<	<	<
1,1,1-Trichloroethane	<	<	<	<	<	<	<	<
Trichloroethene	<	3	3	2	2	<	<	<
Trichlorofluoromethane	.	.	.	.	.	.	.	.
Vinyl chloride	<	<	<	<	<	<	<	<
DILUTION FACTOR	1	1	1	1	1	1	1	1

(CONTINUED)

Sampling Point	GW-172	GW-192		GW-193		GW-204	GW-207	
Location	EXP-UV	B4		T2331		T0134	EXP-SR	
Date Sampled	08/25/99	05/26/99	11/01/99	02/16/99	07/20/99	09/13/99	06/08/99	12/07/99
Monitoring Program	IWQP	GWPP	GWPP	IWQP	IWQP	GWPP	GWPP	GWPP
Type								
Acetone	<	<	<	<	<	<	<	<
Acrylonitrile	.	<	<	.	.	<	<	<
Benzene	<	<	<	76	48	<	<	<
Bromodichloromethane	<	<	<	<	<	<	<	<
Bromoform	<	<	<	<	<	<	<	<
2-Butanone	<	<	<	16	<	<	<	<
Carbon disulfide	<	<	<	<	<	<	<	<
Carbon tetrachloride	<	<	<	<	<	<	<	<
Chloroethane	<	<	<	<	<	<	<	<
Chloroform	<	<	<	<	<	<	<	<
Dibromochloromethane	<	<	<	<	<	<	<	<
1,1-Dichloroethane	<	2	<	<	<	<	<	<
1,1-Dichloroethene	<	<	<	<	<	<	<	<
cis-1,2-Dichloroethene	<	24	6	<	<	<	<	<
trans-1,2-Dichloroethene	<	<	<	<	<	<	<	<
Dimethylbenzene	<	<	<	6	2	<	<	<
Methylene chloride	<	<	<	<	<	<	<	<
Styrene	<	<	<	<	<	<	<	<
Tetrachloroethene	<	5	<	<	<	16	<	<
Toluene	<	<	<	<	<	<	<	<
1,1,1-Trichloroethane	<	<	<	<	<	<	<	<
Trichloroethene	<	7	<	<	<	2	<	<
Trichlorofluoromethane	.	<	<	.	.	<	<	<
Vinyl chloride	<	<	<	<	<	<	<	<
DILUTION FACTOR	1	1	1	2	1	1	1	1

(CONTINUED)

APPENDIX F.2: UPPER EAST FORK POPLAR CREEK HYDROGEOLOGIC REGIME, 1999
Volatile Organic Compounds (ug/L)

Sampling Point	GW-208		GW-218		GW-219	GW-220		
Location	EXP-SR		UOV		UOV	NHP		
Date Sampled	06/08/99	11/17/99	12/06/99		12/02/99	06/02/99	08/16/99	11/10/99
Monitoring Program	GWPP	GWPP	GWPP		GWPP	GWPP	IWQP	GWPP
Type				DUP				
Acetone	<	<	<	<	<	<	<	<
Acrylonitrile	<	<	<	<	<	<	.	<
Benzene	<	<	<	<	<	<	<	<
Bromodichloromethane	<	<	<	<	<	<	<	<
Bromoform	<	<	<	<	<	<	<	<
2-Butanone	<	<	<	<	<	<	<	<
Carbon disulfide	<	<	<	<	<	<	<	<
Carbon tetrachloride	<	<	<	<	<	610	620	490
Chloroethane	<	<	<	<	<	<	<	<
Chloroform	<	<	<	<	<	33	43	40
Dibromochloromethane	<	<	<	<	<	<	<	<
1,1-Dichloroethane	<	<	<	<	<	<	<	<
1,1-Dichloroethene	<	<	<	<	<	<	<	<
cis-1,2-Dichloroethene	<	<	<	<	<	4	5	4
trans-1,2-Dichloroethene	<	<	<	<	<	<	<	<
Dimethylbenzene	<	<	<	<	<	<	<	<
Methylene chloride	<	<	<	<	<	<	<	<
Styrene	<	<	<	<	<	<	<	<
Tetrachloroethene	<	<	<	<	<	53	70	64
Toluene	<	<	<	<	<	<	<	<
1,1,1-Trichloroethane	<	<	<	<	<	<	<	<
Trichloroethene	<	<	<	<	<	12	13	13
Trichlorofluoromethane	<	<	<	<	<	<	.	<
Vinyl chloride	<	<	<	<	<	<	<	<
DILUTION FACTOR	1	1	1	1	1	1	1	1

(CONTINUED)

Sampling Point	GW-223	GW-230			GW-232		GW-251	
Location	NHP	EXP-UV			EXP-UV		S2	
Date Sampled	09/07/99	02/11/99		09/01/99	02/08/99	09/01/99	05/27/99	
Monitoring Program	GWPP	IWQP		IWQP	IWQP	IWQP	GWPP	
Type			DUP					DUP
Acetone	<	3	<	<	<	<	<	<
Acrylonitrile	<	.	.	.	.	.	<	<
Benzene	<	<	<	<	<	<	<	<
Bromodichloromethane	<	<	<	<	<	<	<	<
Bromoform	<	<	<	<	<	<	<	<
2-Butanone	<	<	<	4	<	<	<	<
Carbon disulfide	<	<	<	<	<	<	<	<
Carbon tetrachloride	<	<	<	<	<	<	8	7
Chloroethane	<	<	<	<	<	<	<	<
Chloroform	<	<	<	<	<	<	13	11
Dibromochloromethane	<	<	<	<	<	<	<	<
1,1-Dichloroethane	<	<	<	<	<	<	<	<
1,1-Dichloroethene	<	<	<	<	<	<	<	<
cis-1,2-Dichloroethene	62	12	12	4	<	<	10	9
trans-1,2-Dichloroethene	<	<	<	<	<	<	<	<
Dimethylbenzene	<	<	<	<	<	<	<	<
Methylene chloride	<	<	<	<	<	<	<	<
Styrene	<	<	<	<	<	<	<	<
Tetrachloroethene	140	<	<	<	<	<	310	260
Toluene	<	1	1	<	<	<	<	<
1,1,1-Trichloroethane	<	<	<	<	<	<	<	<
Trichloroethene	41	<	<	<	<	<	140	120
Trichlorofluoromethane	<	.	.	.	.	.	<	<
Vinyl chloride	<	2	<	1	<	<	<	<
DILUTION FACTOR	1	1	1	1	1	1	1	1

(CONTINUED)

APPENDIX F.2: UPPER EAST FORK POPLAR CREEK HYDROGEOLOGIC REGIME, 1999
Volatile Organic Compounds (ug/L)

Sampling Point	GW-251	GW-253			GW-337	GW-380		GW-382
Location	S2	S2			WC	NHP		NHP
Date Sampled	11/02/99	02/08/99	08/24/99	11/08/99	09/02/99	06/04/99	11/10/99	09/02/99
Monitoring Program	GWPP	IWQP	IWQP	IWQP	GWPP	GWPP	GWPP	IWQP
Type								
Acetone	<	<	5	<	19	<	<	<
Acrylonitrile	<	.	.	.	<	<	<	.
Benzene	<	<	<	<	<	<	<	<
Bromodichloromethane	<	<	<	<	<	<	<	<
Bromoform	<	<	<	<	<	<	<	<
2-Butanone	<	<	<	<	<	<	<	<
Carbon disulfide	<	<	<	<	<	<	<	1
Carbon tetrachloride	<	57	30	37	<	<	<	1900
Chloroethane	<	<	<	<	<	<	<	<
Chloroform	5	66	44	55	<	2	<	920
Dibromochloromethane	<	<	<	<	<	<	<	<
1,1-Dichloroethane	<	<	<	<	130	<	<	<
1,1-Dichloroethene	<	<	2	<	130	<	<	1
cis-1,2-Dichloroethene	<	220	220	250	5600	<	<	6
trans-1,2-Dichloroethene	<	<	<	<	57	<	<	<
Dimethylbenzene	<	<	<	<	<	<	<	<
Methylene chloride	<	<	<	<	<	<	<	<
Styrene	<	<	<	<	<	<	<	<
Tetrachloroethene	60	890	600	760	940	<	<	110
Toluene	<	<	2	<	<	<	<	<
1,1,1-Trichloroethane	<	<	<	<	180	<	<	2
Trichloroethene	23	960	540	710	1000	<	<	17
Trichlorofluoromethane	<	.	.	.	<	<	<	.
Vinyl chloride	<	31	35	53	66	<	<	<
DILUTION FACTOR	1	5	1	5	1	1	1	1

(CONTINUED)

Sampling Point	GW-383		GW-605			GW-606		
Location	NHP		EXP-I			EXP-I		
Date Sampled	06/03/99	11/11/99	02/11/99	07/20/99		02/15/99		07/21/99
Monitoring Program	GWPP	GWPP	IWQP	IWQP		IWQP		IWQP
Type					DUP		DUP	
Acetone	<	<	<	<	<	<	<	<
Acrylonitrile	<	<	.	.	.	.	.	.
Benzene	<	<	<	<	<	3	5	3
Bromodichloromethane	<	<	<	<	<	<	<	<
Bromoform	<	<	<	<	<	<	<	<
2-Butanone	<	<	<	<	<	<	<	<
Carbon disulfide	<	<	<	<	<	<	<	<
Carbon tetrachloride	<	<	10	25	26	92	92	82
Chloroethane	<	<	<	<	<	<	<	<
Chloroform	<	<	12	11	12	220	220	360
Dibromochloromethane	<	<	<	<	<	<	<	<
1,1-Dichloroethane	<	<	<	<	<	<	<	<
1,1-Dichloroethene	3	<	<	<	<	<	<	<
cis-1,2-Dichloroethene	150	140	24	55	55	<	<	<
trans-1,2-Dichloroethene	<	<	<	<	<	<	<	<
Dimethylbenzene	<	<	<	<	<	<	<	<
Methylene chloride	<	<	<	<	<	<	<	<
Styrene	<	<	<	<	<	<	<	<
Tetrachloroethene	360	550	12	27	26	7	8	8
Toluene	<	<	<	<	<	<	<	<
1,1,1-Trichloroethane	<	<	<	<	<	<	<	<
Trichloroethene	150	160	14	30	29	<	<	<
Trichlorofluoromethane	<	<	.	.	.	.	.	.
Vinyl chloride	2	<	<	<	<	<	<	<
DILUTION FACTOR	1	1	1	1	1	2	2	1

(CONTINUED)

APPENDIX F.2: UPPER EAST FORK POPLAR CREEK HYDROGEOLOGIC REGIME, 1999
Volatile Organic Compounds (ug/L)

Sampling Point	GW-618			GW-620		GW-722-06		GW-722-10
Location	EXP-E			FTF		EXP-J		EXP-J
Date Sampled	05/26/99	11/01/99	11/09/99	05/27/99	11/08/99	03/01/99	07/19/99	03/01/99
Monitoring Program	GWPP	GWPP	IWQP	GWPP	GWPP	GWPP	GWPP	GWPP
Type								
Acetone	<	<	<	<	<	4	<	<
Acrylonitrile	<	<	.	<	<	7	15	<
Benzene	<	<	<	<	<	<	<	<
Bromodichloromethane	<	<	<	<	<	<	<	<
Bromoform	<	<	<	<	<	<	<	<
2-Butanone	<	<	<	<	<	<	<	<
Carbon disulfide	<	<	<	<	<	<	<	<
Carbon tetrachloride	<	<	<	<	<	<	<	24
Chloroethane	<	<	<	<	<	<	<	<
Chloroform	<	<	<	<	<	<	<	20
Dibromochloromethane	<	<	<	<	<	<	<	<
1,1-Dichloroethane	<	<	<	<	<	<	<	<
1,1-Dichloroethene	<	<	<	<	<	<	<	<
cis-1,2-Dichloroethene	22	19	25	26	6	<	<	<
trans-1,2-Dichloroethene	<	<	<	<	<	<	<	<
Dimethylbenzene	<	<	<	4	<	<	<	<
Methylene chloride	<	<	<	<	<	<	<	<
Styrene	<	<	<	<	<	<	<	<
Tetrachloroethene	12	13	7	25	11	<	<	6
Toluene	<	<	<	2	<	<	<	<
1,1,1-Trichloroethane	<	<	<	<	<	<	<	<
Trichloroethene	12	12	11	11	2	<	<	2
Trichlorofluoromethane	<	<	.	<	<	<	<	<
Vinyl chloride	<	<	3	<	<	<	<	<
DILUTION FACTOR	1	1	1	1	1	1	1	1

(CONTINUED)

Sampling Point	GW-722-10	GW-722-14		GW-722-17		GW-722-20		
Location	EXP-J	EXP-J		EXP-J		EXP-J		
Date Sampled	07/20/99	03/02/99	07/21/99	03/04/99	07/22/99	03/16/99	07/27/99	
Monitoring Program	GWPP	GWPP	GWPP	GWPP	GWPP	GWPP	GWPP	
Type								DUP
Acetone	<	<	<	<	<	<	<	<
Acrylonitrile	<	<	<	<	<	<	<	<
Benzene	<	<	<	<	<	<	<	<
Bromodichloromethane	<	<	<	<	<	<	<	<
Bromoform	<	<	<	<	<	<	<	<
2-Butanone	<	<	<	<	<	<	<	<
Carbon disulfide	<	<	<	<	<	<	<	<
Carbon tetrachloride	36	530	560	700	680	230	190	130
Chloroethane	<	<	<	<	<	<	<	<
Chloroform	16	37	50	47	51	43	46	42
Dibromochloromethane	<	<	<	<	<	<	<	<
1,1-Dichloroethane	<	<	<	<	<	<	<	<
1,1-Dichloroethene	<	2	<	2	<	<	<	<
cis-1,2-Dichloroethene	<	4	5	5	5	3	3	2
trans-1,2-Dichloroethene	<	<	<	<	<	<	<	<
Dimethylbenzene	<	<	<	<	<	<	<	<
Methylene chloride	<	<	<	<	<	<	<	<
Styrene	<	<	<	<	<	<	<	<
Tetrachloroethene	7	36	29	53	33	41	27	26
Toluene	<	<	<	<	<	<	<	<
1,1,1-Trichloroethane	<	2	2	<	<	<	<	<
Trichloroethene	<	5	6	6	5	5	3	3
Trichlorofluoromethane	<	5	6	7	6	4	3	2
Vinyl chloride	<	<	<	<	<	<	<	<
DILUTION FACTOR	1	1	1	1	1	1	1	1

(CONTINUED)

Volatile Organic Compounds (ug/L)

Sampling Point	GW-722-22			GW-722-26		GW-722-30		GW-722-32
Location	EXP-J			EXP-J		EXP-J		EXP-J
Date Sampled	03/17/99		07/22/99	03/18/99	07/28/99	03/23/99	07/28/99	03/30/99
Monitoring Program	GWPP		GWPP	GWPP	GWPP	GWPP	GWPP	GWPP
Type		DUP						
Acetone	<	<	<	14	12	<	<	<
Acrylonitrile	<	<	<	15	20	2	<	<
Benzene	<	<	<	<	1	<	<	<
Bromodichloromethane	<	<	<	<	<	<	<	<
Bromoform	<	<	<	<	<	<	<	<
2-Butanone	<	<	<	<	<	<	<	<
Carbon disulfide	<	<	<	<	4	<	<	<
Carbon tetrachloride	390	390	470	<	<	<	<	<
Chloroethane	<	<	<	<	<	<	<	<
Chloroform	26	28	36	<	<	<	<	<
Dibromochloromethane	<	<	<	<	<	<	<	<
1,1-Dichloroethane	<	<	<	<	<	<	<	<
1,1-Dichloroethene	<	<	<	<	<	<	<	<
cis-1,2-Dichloroethene	3	3	3	<	<	<	<	<
trans-1,2-Dichloroethene	<	<	<	<	<	<	<	<
Dimethylbenzene	<	<	<	<	<	<	<	<
Methylene chloride	<	<	<	<	<	<	<	<
Styrene	<	<	<	2	3	<	<	<
Tetrachloroethene	30	35	28	<	<	<	<	<
Toluene	<	<	<	2	3	<	<	<
1,1,1-Trichloroethane	<	<	<	<	<	<	<	<
Trichloroethene	4	5	5	<	<	<	<	<
Trichlorofluoromethane	3	4	5	<	<	<	<	<
Vinyl chloride	<	<	<	<	<	<	<	<
DILUTION FACTOR	1	1	1	1	1	1	1	1

(CONTINUED)

Sampling Point	GW-722-32	GW-722-33		GW-733		GW-735		GW-744
Location	EXP-J	EXP-J		EXP-J		EXP-J		GRIDK1
Date Sampled	07/28/99	03/30/99	07/28/99	02/11/99	07/20/99	06/15/99	11/29/99	06/09/99
Monitoring Program	GWPP	GWPP	GWPP	IWQP	IWQP	GWPP	GWPP	GWPP
Type								
Acetone	<	<	<	<	<	<	<	<
Acrylonitrile	<	<	<	.	.	<	<	<
Benzene	<	<	<	1	<	<	<	<
Bromodichloromethane	<	<	<	<	<	<	<	<
Bromoform	<	<	<	<	<	<	<	<
2-Butanone	<	<	<	<	<	<	<	<
Carbon disulfide	<	<	<	<	<	<	<	<
Carbon tetrachloride	<	<	<	3	8	<	<	<
Chloroethane	<	<	<	<	<	<	<	<
Chloroform	1	<	1	6	3	<	<	<
Dibromochloromethane	<	<	<	<	<	<	<	<
1,1-Dichloroethane	<	<	<	<	<	<	<	<
1,1-Dichloroethene	<	<	<	<	<	<	<	<
cis-1,2-Dichloroethene	<	<	<	<	<	<	<	<
trans-1,2-Dichloroethene	<	<	<	<	<	<	<	<
Dimethylbenzene	<	<	<	<	<	<	<	<
Methylene chloride	<	<	<	<	<	<	<	<
Styrene	<	<	<	<	<	<	<	<
Tetrachloroethene	<	<	<	<	<	<	<	<
Toluene	<	<	<	<	<	<	<	<
1,1,1-Trichloroethane	<	<	<	<	<	<	<	<
Trichloroethene	<	<	<	<	<	<	<	<
Trichlorofluoromethane	<	<	<	.	.	<	<	<
Vinyl chloride	<	<	<	<	<	<	<	<
DILUTION FACTOR	1	1	1	1	1	1	1	1

(CONTINUED)

APPENDIX F.2: UPPER EAST FORK POPLAR CREEK HYDROGEOLOGIC REGIME, 1999
Volatile Organic Compounds (ug/L)

Sampling Point	GW-744	GW-747		GW-750			GW-762	
Location	GRIDK1	GRIDK2		EXP-J			GRIDJ3	
Date Sampled	11/17/99	06/09/99	11/29/99	06/15/99	12/01/99		02/09/99	08/24/99
Monitoring Program	GWPP	GWPP	GWPP	GWPP	GWPP		IWQP	IWQP
Type						DUP		
Acetone	<	<	<	<	<	<	<	<
Acrylonitrile	<	<	<	<	<	<	.	.
Benzene	<	<	<	<	<	<	<	<
Bromodichloromethane	<	<	<	<	<	<	<	<
Bromoform	<	<	<	<	<	<	<	<
2-Butanone	<	<	<	<	<	<	<	<
Carbon disulfide	<	<	<	3	<	<	<	<
Carbon tetrachloride	<	<	<	<	<	<	<	<
Chloroethane	<	<	<	<	<	<	<	<
Chloroform	<	<	<	<	<	<	<	<
Dibromochloromethane	<	<	<	<	<	<	<	<
1,1-Dichloroethane	<	<	<	<	<	<	<	8
1,1-Dichloroethene	<	<	<	<	<	<	24	51
cis-1,2-Dichloroethene	<	<	<	<	<	<	47	61
trans-1,2-Dichloroethene	<	<	<	<	<	<	<	3
Dimethylbenzene	<	<	<	<	<	<	<	<
Methylene chloride	<	<	<	<	<	<	<	<
Styrene	<	<	<	<	<	<	<	<
Tetrachloroethene	<	<	<	<	<	<	1300	1600
Toluene	<	<	<	<	<	<	<	<
1,1,1-Trichloroethane	<	<	<	<	<	<	<	6
Trichloroethene	<	<	<	<	<	<	91	130
Trichlorofluoromethane	<	<	<	<	<	<	.	.
Vinyl chloride	<	<	<	<	<	<	<	4
DILUTION FACTOR	1	1	1	1	1	1	10	1

(CONTINUED)

Sampling Point	GW-762	GW-763		GW-769		GW-770		GW-775
Location	GRIDJ3	GRIDJ3		GRIDG3		GRIDG3		GRIDH3
Date Sampled	08/24/99	06/01/99	11/08/99	04/20/99	10/21/99	04/20/99	10/21/99	04/22/99
Monitoring Program	IWQP	GWPP	GWPP	GWPP	GWPP	GWPP	GWPP	GWPP
Type	DUP							
Acetone	<	<	<	<	<	<	<	<
Acrylonitrile	.	<	<	<	<	<	<	<
Benzene	<	<	<	<	<	<	<	<
Bromodichloromethane	<	<	<	<	<	<	<	<
Bromoform	<	<	<	<	<	<	<	<
2-Butanone	<	<	<	<	<	<	<	<
Carbon disulfide	<	<	<	<	<	<	<	<
Carbon tetrachloride	<	<	<	9	7	<	<	<
Chloroethane	<	<	<	<	<	<	<	<
Chloroform	<	<	<	<	<	5	7	<
Dibromochloromethane	<	<	<	<	<	<	<	<
1,1-Dichloroethane	8	<	<	<	<	<	<	<
1,1-Dichloroethene	50	<	<	<	<	<	<	<
cis-1,2-Dichloroethene	62	29	<	<	<	<	<	<
trans-1,2-Dichloroethene	2	<	<	<	<	<	<	<
Dimethylbenzene	<	<	<	<	<	<	<	<
Methylene chloride	<	<	<	<	<	<	<	<
Styrene	<	<	<	<	<	<	<	<
Tetrachloroethene	1600	12	<	5	4	<	<	<
Toluene	<	<	<	<	<	<	<	<
1,1,1-Trichloroethane	6	<	<	<	<	<	<	<
Trichloroethene	130	3	<	<	<	<	<	5
Trichlorofluoromethane	.	<	<	<	<	<	<	<
Vinyl chloride	4.5	4	<	<	<	<	<	<
DILUTION FACTOR	1	1	1	1	1	1	1	1

(CONTINUED)

APPENDIX F.2: UPPER EAST FORK POPLAR CREEK HYDROGEOLOGIC REGIME, 1999
Volatile Organic Compounds (ug/L)

Sampling Point	GW-775	GW-776		GW-781		GW-782		
Location	GRIDH3	GRIDH3		GRIDE3		GRIDE3		
Date Sampled	10/27/99	04/22/99	10/27/99	05/25/99	10/26/99	05/24/99		10/25/99
Monitoring Program	GWPP	GWPP	GWPP	GWPP	GWPP	GWPP		GWPP
Type							DUP	
Acetone	<	<	<	<	<	<	<	<
Acrylonitrile	<	<	<	<	<	<	<	<
Benzene	<	<	<	<	<	2	<	<
Bromodichloromethane	<	<	<	<	<	<	<	<
Bromoform	<	<	<	<	<	<	<	<
2-Butanone	<	<	<	<	<	<	<	<
Carbon disulfide	<	<	<	<	<	<	<	<
Carbon tetrachloride	<	<	<	<	<	<	<	<
Chloroethane	<	<	<	<	<	2	2	8
Chloroform	<	<	<	<	<	<	<	<
Dibromochloromethane	<	<	<	<	<	<	<	<
1,1-Dichloroethane	<	<	<	<	<	110	110	160
1,1-Dichloroethene	<	<	<	<	<	32	27	43
cis-1,2-Dichloroethene	<	<	<	<	<	15	14	12
trans-1,2-Dichloroethene	<	<	<	<	<	5	5	<
Dimethylbenzene	<	<	<	<	<	<	<	<
Methylene chloride	<	<	<	<	<	<	<	<
Styrene	<	<	<	<	<	<	<	<
Tetrachloroethene	<	<	<	7	5	180	200	170
Toluene	<	<	<	<	<	2	<	<
1,1,1-Trichloroethane	<	<	<	<	<	5	4	15
Trichloroethene	3	4	3	<	<	62	56	46
Trichlorofluoromethane	<	<	<	<	<	<	<	<
Vinyl chloride	<	<	<	<	<	2	2	3
DILUTION FACTOR	1	1	1	1	1	1	1	1

(CONTINUED)

Sampling Point	GW-783		GW-788		GW-789		GW-791	
Location	GRIDE3		GRIDF3		GRIDF3		GRIDD2	
Date Sampled	05/24/99	10/25/99	04/19/99	10/20/99	04/19/99	10/20/99	05/25/99	11/28/99
Monitoring Program	GWPP	GWPP	GWPP	GWPP	GWPP	GWPP	GWPP	GWPP
Type								
Acetone	<	<	<	<	<	<	<	<
Acrylonitrile	<	<	<	<	<	<	<	<
Benzene	<	<	<	<	<	<	<	<
Bromodichloromethane	<	<	<	<	<	<	<	<
Bromoform	<	<	<	<	<	<	<	<
2-Butanone	<	<	<	<	<	<	<	<
Carbon disulfide	<	<	<	<	<	<	<	<
Carbon tetrachloride	2	<	<	<	<	<	<	<
Chloroethane	<	<	<	<	<	<	<	<
Chloroform	<	<	<	<	1	<	<	<
Dibromochloromethane	<	<	<	<	<	<	<	<
1,1-Dichloroethane	3	11	<	<	<	<	<	<
1,1-Dichloroethene	<	<	<	<	<	<	<	<
cis-1,2-Dichloroethene	6	17	<	<	<	<	<	<
trans-1,2-Dichloroethene	3	7	<	<	<	<	<	<
Dimethylbenzene	<	<	<	<	<	<	<	<
Methylene chloride	<	<	<	<	<	<	<	<
Styrene	<	<	<	<	<	<	<	<
Tetrachloroethene	10	36	<	<	<	<	220	73
Toluene	<	<	<	<	<	<	<	<
1,1,1-Trichloroethane	<	<	<	<	<	<	<	<
Trichloroethene	5	15	<	<	<	<	2	<
Trichlorofluoromethane	<	<	<	<	<	<	<	<
Vinyl chloride	<	<	<	<	<	<	<	<
DILUTION FACTOR	1	1	1	1	1	1	1	1

(CONTINUED)

APPENDIX F.2: UPPER EAST FORK POPLAR CREEK HYDROGEOLOGIC REGIME, 1999
Volatile Organic Compounds (ug/L)

Sampling Point	GW-791	GW-792		GW-816			GW-820	GW-832
Location	GRIDD2	GRIDD2		EXP-SR			B9201-2	NHP
Date Sampled	11/28/99	05/25/99	11/28/99	06/07/99		11/16/99	09/10/99	02/09/99
Monitoring Program	GWPP	GWPP	GWPP	GWPP		GWPP	GWPP	IWQP
Type	DUP				DUP			
Acetone	<	<	<	<	<	<	<	<
Acrylonitrile	<	<	<	<	<	<	<	.
Benzene	<	<	<	<	<	<	<	<
Bromodichloromethane	<	<	<	<	<	<	<	<
Bromoform	<	<	<	<	<	<	<	<
2-Butanone	<	<	<	<	<	<	<	<
Carbon disulfide	<	<	<	<	<	<	<	<
Carbon tetrachloride	<	<	<	<	<	<	<	44
Chloroethane	<	<	<	<	<	<	<	<
Chloroform	<	<	<	<	<	<	<	5
Dibromochloromethane	<	<	<	<	<	<	<	<
1,1-Dichloroethane	<	<	<	<	<	<	<	<
1,1-Dichloroethene	<	<	<	<	<	<	4	<
cis-1,2-Dichloroethene	<	<	<	<	<	<	940	<
trans-1,2-Dichloroethene	<	<	<	<	<	<	16	<
Dimethylbenzene	<	<	<	<	<	<	<	<
Methylene chloride	<	<	<	<	<	<	<	<
Styrene	<	<	<	<	<	<	<	<
Tetrachloroethene	74	7	5	<	<	<	1500	6
Toluene	<	<	<	<	<	<	<	<
1,1,1-Trichloroethane	<	<	<	<	<	<	<	<
Trichloroethene	<	<	<	<	<	<	250	<
Trichlorofluoromethane	<	<	<	<	<	<	<	.
Vinyl chloride	<	<	<	<	<	<	130	<
DILUTION FACTOR	1	1	1	1	1	1	1	1

(CONTINUED)

Sampling Point	GW-832	LRSPW		NPR07.0SW	NPR12.0SW	OF 51		OF 200
Location	NHP	EXP-SW		EXP-NPR	EXP-NPR	EXP-SW		EXP-SW
Date Sampled	08/31/99	06/03/99	11/15/99	09/01/99	09/01/99	02/10/99	08/17/99	07/12/99
Monitoring Program	IWQP	GWPP	GWPP	GWPP	GWPP	IWQP	IWQP	IWQP
Type								
Acetone	<	<	<	<	<	<	<	<
Acrylonitrile	.	<	<	<	<	.	.	.
Benzene	<	<	<	<	<	<	<	<
Bromodichloromethane	<	<	<	<	<	<	<	<
Bromoform	<	<	<	<	<	<	<	<
2-Butanone	<	<	<	<	<	<	<	<
Carbon disulfide	<	<	<	<	<	<	<	<
Carbon tetrachloride	44	50	31	<	<	<	1	<
Chloroethane	<	<	<	<	<	<	<	<
Chloroform	5	7	3	<	<	2	3	<
Dibromochloromethane	<	<	<	<	<	<	<	<
1,1-Dichloroethane	<	<	<	<	<	<	<	<
1,1-Dichloroethene	<	<	<	<	<	<	<	<
cis-1,2-Dichloroethene	<	<	<	<	<	3	7	<
trans-1,2-Dichloroethene	<	<	<	<	<	<	<	<
Dimethylbenzene	<	<	<	<	<	<	<	<
Methylene chloride	<	<	<	<	<	<	<	<
Styrene	<	<	<	<	<	<	<	<
Tetrachloroethene	6	7	5	<	<	8	16	3
Toluene	<	<	<	<	<	<	<	<
1,1,1-Trichloroethane	<	<	<	<	<	1	1	<
Trichloroethene	<	<	<	<	<	3	6	<
Trichlorofluoromethane	.	<	<	<	<	.	.	.
Vinyl chloride	<	<	<	<	<	<	<	<
DILUTION FACTOR	1	1	1	1	1	1	1	1

(CONTINUED)

Volatile Organic Compounds (ug/L)

Sampling Point	OF 200			SCR7.18SP		SCR7.1SP	SCR7.8SP	
Location	EXP-SW			EXP-UV		EXP-UV	EXP-UV	
Date Sampled	07/12/99	07/15/99		02/04/99	08/30/99	08/30/99	02/04/99	08/30/99
Monitoring Program	IWQP	IWQP		IWQP	IWQP	IWQP	IWQP	IWQP
Type	DUP		DUP					
Acetone	<	<	<	<	<	<	<	<
Acrylonitrile	.	.	.	.	.	.	.	.
Benzene	<	<	<	<	<	<	<	<
Bromodichloromethane	<	<	<	<	<	<	<	<
Bromoform	<	<	<	<	<	<	<	<
2-Butanone	<	<	<	<	<	<	<	<
Carbon disulfide	<	<	<	<	<	<	<	<
Carbon tetrachloride	<	<	<	<	<	3	<	<
Chloroethane	<	<	<	<	<	4	<	<
Chloroform	<	5	5	<	<	<	<	<
Dibromochloromethane	<	<	<	<	<	<	<	<
1,1-Dichloroethane	<	<	<	<	3	<	1	<
1,1-Dichloroethene	<	<	<	<	<	<	<	<
cis-1,2-Dichloroethene	<	<	1	<	<	<	1	<
trans-1,2-Dichloroethene	<	<	<	<	<	<	<	<
Dimethylbenzene	<	<	<	<	<	<	<	<
Methylene chloride	<	<	<	<	<	<	<	<
Styrene	<	<	<	<	<	<	<	<
Tetrachloroethene	3	3	3	<	<	<	1	<
Toluene	<	<	<	<	<	<	<	<
1,1,1-Trichloroethane	<	<	<	1	<	<	1	<
Trichloroethene	1	<	<	<	<	<	<	<
Trichlorofluoromethane	.	.	.	.	.	.	.	.
Vinyl chloride	<	<	<	<	<	<	<	<
DILUTION FACTOR	1	1	1	1	1	1	1	1

(CONTINUED)

Sampling Point	SP-17		STATION 17				STATION 8	
Location	EXP-SW		EXP-SW				EXP-SW	
Date Sampled	02/10/99	08/17/99	02/12/99	04/29/99	07/12/99	07/15/99	02/12/99	04/29/99
Monitoring Program	IWQP	IWQP	IWQP	IWQP	IWQP	IWQP	IWQP	IWQP
Type								
Acetone	<	<	<	<	<	<	<	<
Acrylonitrile	.	.	.	.	.	.	.	.
Benzene	<	<	<	<	<	<	<	<
Bromodichloromethane	<	<	<	<	<	<	<	<
Bromoform	<	<	<	<	<	<	<	<
2-Butanone	<	<	<	<	<	<	<	<
Carbon disulfide	<	<	<	<	<	<	<	<
Carbon tetrachloride	<	<	<	<	<	<	<	<
Chloroethane	<	<	<	<	<	<	<	<
Chloroform	<	<	2	1	<	3	4	2
Dibromochloromethane	<	<	<	<	<	<	<	<
1,1-Dichloroethane	<	<	<	<	<	<	<	<
1,1-Dichloroethene	<	<	<	<	<	<	<	<
cis-1,2-Dichloroethene	<	<	<	<	<	<	<	<
trans-1,2-Dichloroethene	<	<	<	<	<	<	<	<
Dimethylbenzene	<	<	<	<	<	<	<	<
Methylene chloride	<	<	<	<	<	<	<	<
Styrene	<	<	<	<	<	<	<	<
Tetrachloroethene	<	<	<	1	<	<	1	2
Toluene	<	<	<	<	<	<	<	<
1,1,1-Trichloroethane	<	<	<	<	<	<	<	<
Trichloroethene	<	<	<	<	<	<	<	<
Trichlorofluoromethane	.	.	.	.	.	.	.	.
Vinyl chloride	<	<	<	<	<	<	<	<
DILUTION FACTOR	1	1	1	1	1	1	1	1

(CONTINUED)

APPENDIX F.2: UPPER EAST FORK POPLAR CREEK HYDROGEOLOGIC REGIME, 1999
Volatile Organic Compounds (ug/L)

Sampling Point	STATION 8	
Location	EXP-SW	
Date Sampled	07/12/99	07/15/99
Monitoring Program	IWQP	IWQP
Type		
Acetone	<	<
Acrylonitrile	.	.
Benzene	<	<
Bromodichloromethane	<	<
Bromoform	<	<
2-Butanone	<	<
Carbon disulfide	<	<
Carbon tetrachloride	<	<
Chloroethane	<	<
Chloroform	2	5
Dibromochloromethane	<	<
1,1-Dichloroethane	<	<
1,1-Dichloroethene	<	<
cis-1,2-Dichloroethene	<	<
trans-1,2-Dichloroethene	<	<
Dimethylbenzene	<	<
Methylene chloride	<	<
Styrene	<	<
Tetrachloroethene	2	<
Toluene	<	<
1,1,1-Trichloroethane	<	<
Trichloroethene	<	<
Trichlorofluoromethane	.	.
Vinyl chloride	<	<
DILUTION FACTOR	1	1

APPENDIX F.3

RADIOLOGICAL ANALYTES

APPENDIX F.3: UPPER EAST FORK POPLAR CREEK HYDROGEOLOGIC REGIME, 1999
Radiogical Analytes: Alpha and Beta Activity (pCi/L)

Sampling Point	9201-5N-J4			9204-2-NE			9204-2-NW		
Location	B9201-5			B9204-2			B9204-2		
Date Sampled	02/16/99			02/16/99			02/16/99		
Monitoring Program	GWPP			GWPP			GWPP		
Type									
	ACT	ERR	MDA	ACT	ERR	MDA	ACT	ERR	MDA
Gross Alpha	<MDA	.	3.4	<MDA	.	3.3	<MDA	.	6.9
Gross Beta	<MDA	.	8.1	<MDA	.	8.8	9.6	5.4	8.1

(CONTINUED)

Sampling Point	9204-2E-NW			9204-4ELSU			GHK2.51ESW		
Location	B9204-2			B9204-4			EXP-NPR		
Date Sampled	02/23/99			02/17/99			09/01/99		
Monitoring Program	GWPP			GWPP			GWPP		
Type									
	ACT	ERR	MDA	ACT	ERR	MDA	ACT	ERR	MDA
Gross Alpha	14	5.2	4	<MDA	.	34	<MDA	.	3.8
Gross Beta	47	8	8.3	3400	180	86	<MDA	.	9.2

(CONTINUED)

Sampling Point	GHK2.51WSW			GW-108					
Location	EXP-NPR			S3					
Date Sampled	09/01/99			02/15/99			07/27/99		
Monitoring Program	GWPP			IWQP			IWQP		
Type									
	ACT	ERR	MDA	ACT	ERR	MDA	ACT	ERR	MDA
Gross Alpha	<MDA	.	3.3	<MDA	.	173.8	<MDA	.	173.93
Gross Beta	<MDA	.	8.9	7676.32	269.65	208.02	10745.91	311.16	223.56

(CONTINUED)

Sampling Point	GW-109			GW-131-01			GW-131-04		
Location	S3			EXP			EXP		
Date Sampled	09/02/99			06/14/99			06/15/99		
Monitoring Program	GWPP			GWPP			GWPP		
Type									
	ACT	ERR	MDA	ACT	ERR	MDA	ACT	ERR	MDA
Gross Alpha	<MDA	.	320	<MDA	.	9.5	<MDA	.	5.3
Gross Beta	11000	1100	800	<MDA	.	15	<MDA	.	10

(CONTINUED)

Radiogical Analytes: Alpha and Beta Activity (pCi/L)

Sampling Point	GW-131-08			GW-131-12			GW-131-15		
Location	EXP			EXP			EXP		
Date Sampled	06/16/99			06/16/99			06/17/99		
Monitoring Program	GWPP			GWPP			GWPP		
Type									
	ACT	ERR	MDA	ACT	ERR	MDA	ACT	ERR	MDA
Gross Alpha	<MDA	.	6.3	<MDA	.	7.2	3.1	2.6	1.4
Gross Beta	<MDA	.	9	<MDA	.	9.6	<MDA	.	9.1

(CONTINUED)

Sampling Point	GW-131-21						GW-131-24		
Location	EXP						EXP		
Date Sampled	06/21/99						06/17/99		
Monitoring Program	GWPP						GWPP		
Type				DUP					
	ACT	ERR	MDA	ACT	ERR	MDA	ACT	ERR	MDA
Gross Alpha	<MDA	.	29	<MDA	.	22	<MDA	.	34
Gross Beta	36	20	30	<MDA	.	35	<MDA	.	79

(CONTINUED)

Sampling Point	GW-131-28			GW-131-32			GW-131-36		
Location	EXP			EXP			EXP		
Date Sampled	06/22/99			06/22/99			06/23/99		
Monitoring Program	GWPP			GWPP			GWPP		
Type									
	ACT	ERR	MDA	ACT	ERR	MDA	ACT	ERR	MDA
Gross Alpha	<MDA	.	21	<MDA	.	8.8	<MDA	.	3.4
Gross Beta	<MDA	.	17	<MDA	.	16	<MDA	.	9.7

(CONTINUED)

Sampling Point	GW-148						GW-151		
Location	NHP						NHP		
Date Sampled	06/01/99			11/09/99			02/08/99		
Monitoring Program	GWPP			GWPP			IWQP		
Type									
	ACT	ERR	MDA	ACT	ERR	MDA	ACT	ERR	MDA
Gross Alpha	<MDA	.	4.6	<MDA	.	4.3	<MDA	.	1.28
Gross Beta	<MDA	.	9.5	<MDA	.	7.9	1.95	0.68	1.07

(CONTINUED)

Radiogical Analytes: Alpha and Beta Activity (pCi/L)

Sampling Point	GW-151			GW-153					
Location	NHP			NHP					
Date Sampled	08/16/99			06/02/99			11/09/99		
Monitoring Program	IWQP			GWPP			GWPP		
Type									
	ACT	ERR	MDA	ACT	ERR	MDA	ACT	ERR	MDA
Gross Alpha	<MDA	.	2.25	<MDA	.	3.7	4	2.7	3.5
Gross Beta	<MDA	.	2.07	<MDA	.	8.6	<MDA	.	8.6

(CONTINUED)

Sampling Point	GW-153			GW-154					
Location	NHP			NHP					
Date Sampled	11/09/99			02/10/99			08/30/99		
Monitoring Program	GWPP			IWQP			IWQP		
Type	DUP								
	ACT	ERR	MDA	ACT	ERR	MDA	ACT	ERR	MDA
Gross Alpha	4.6	2.4	1.8	460.99	12.56	1.03	432.43	15.34	3.15
Gross Beta	<MDA	.	8.7	77.13	3.31	2.48	55.49	3.24	2.59

(CONTINUED)

Sampling Point	GW-168			GW-169					
Location	EXP			EXP-UV					
Date Sampled	09/08/99			02/08/99			09/01/99		
Monitoring Program	GWPP			IWQP			IWQP		
Type									
	ACT	ERR	MDA	ACT	ERR	MDA	ACT	ERR	MDA
Gross Alpha	<MDA	.	5.8	<MDA	.	0.91	<MDA	.	1.38
Gross Beta	<MDA	.	9.3	3.71	0.61	0.84	3.37	1.24	1.84

(CONTINUED)

Sampling Point	GW-170								
Location	EXP-UV								
Date Sampled	02/08/99						08/31/99		
Monitoring Program	IWQP						IWQP		
Type				DUP					
	ACT	ERR	MDA	ACT	ERR	MDA	ACT	ERR	MDA
Gross Alpha	.	.	.	2.22	0.56	0.1	<MDA	.	2.05
Gross Beta	3.39	0.62	0.89	2.58	0.56	0.81	<MDA	.	1.86

(CONTINUED)

Radiogical Analytes: Alpha and Beta Activity (pCi/L)

Sampling Point	GW-170			GW-171					
Location	EXP-UV			EXP-UV					
Date Sampled	08/31/99			02/11/99			08/25/99		
Monitoring Program	IWQP			IWQP			IWQP		
Type	DUP								
	ACT	ERR	MDA	ACT	ERR	MDA	ACT	ERR	MDA
Gross Alpha	1.74	1.14	1.7	.	.	.	<MDA	.	2.5
Gross Beta	<MDA	.	2.02	4.3	1.18	1.78	5.84	2.13	3.21

(CONTINUED)

Sampling Point	GW-172						GW-192		
Location	EXP-UV						B4		
Date Sampled	02/11/99			08/25/99			05/26/99		
Monitoring Program	IWQP			IWQP			GWPP		
Type									
	ACT	ERR	MDA	ACT	ERR	MDA	ACT	ERR	MDA
Gross Alpha	3.17	1.16	1.06	<MDA	.	2.77	<MDA	.	3.4
Gross Beta	<MDA	.	2.58	<MDA	.	2.58	<MDA	.	8.7

(CONTINUED)

Sampling Point	GW-192			GW-193					
Location	B4			T2331					
Date Sampled	11/01/99			02/16/99			07/20/99		
Monitoring Program	GWPP			IWQP			IWQP		
Type									
	ACT	ERR	MDA	ACT	ERR	MDA	ACT	ERR	MDA
Gross Alpha	<MDA	.	4.8	77.59	5.71	2.4	8.61	2.53	2.66
Gross Beta	9.9	5.2	7.6	29.69	2.18	2.38	8.68	1.66	2.31

(CONTINUED)

Sampling Point	GW-204			GW-207					
Location	T0134			EXP-SR					
Date Sampled	09/13/99			06/08/99			12/07/99		
Monitoring Program	GWPP			GWPP			GWPP		
Type									
	ACT	ERR	MDA	ACT	ERR	MDA	ACT	ERR	MDA
Gross Alpha	95	14	5.5	<MDA	.	3.4	3	2.1	2.4
Gross Beta	30	6.9	7.7	<MDA	.	7.4	<MDA	.	7.5

(CONTINUED)

Radiological Analytes: Alpha and Beta Activity (pCi/L)

Sampling Point	GW-208						GW-218		
Location	EXP-SR						UOV		
Date Sampled	06/08/99			11/17/99			12/06/99		
Monitoring Program	GWPP			GWPP			GWPP		
Type									
	ACT	ERR	MDA	ACT	ERR	MDA	ACT	ERR	MDA
Gross Alpha	9.4	4.6	3.9	<MDA	.	3.7	3.4	2.2	2.2
Gross Beta	<MDA	.	8.2	<MDA	.	8.7	8	3.7	5.3

(CONTINUED)

Sampling Point	GW-218			GW-219			GW-220		
Location	UOV			UOV			NHP		
Date Sampled	12/06/99			12/02/99			06/02/99		
Monitoring Program	GWPP			GWPP			GWPP		
Type	DUP								
	ACT	ERR	MDA	ACT	ERR	MDA	ACT	ERR	MDA
Gross Alpha	3	2.2	2.6	180	15	2.5	<MDA	.	4.6
Gross Beta	<MDA	.	7	140	10	6.4	<MDA	.	10

(CONTINUED)

Sampling Point	GW-220						GW-223		
Location	NHP						NHP		
Date Sampled	08/16/99			11/10/99			09/07/99		
Monitoring Program	IWQP			GWPP			GWPP		
Type									
	ACT	ERR	MDA	ACT	ERR	MDA	ACT	ERR	MDA
Gross Alpha	<MDA	.	2.09	2.9	2.1	2.3	16	5.5	3.4
Gross Beta	<MDA	.	1.83	<MDA	.	6	9.4	5.8	8.9

(CONTINUED)

Sampling Point	GW-230								
Location	EXP-UV								
Date Sampled	02/11/99						09/01/99		
Monitoring Program	IWQP						IWQP		
Type				DUP					
	ACT	ERR	MDA	ACT	ERR	MDA	ACT	ERR	MDA
Gross Alpha	<MDA	.	2.24	<MDA	.	1.91	<MDA	.	2.27
Gross Beta	3.02	1.67	2.69	3.89	1.31	2.01	<MDA	.	2.69

(CONTINUED)

Radiological Analytes: Alpha and Beta Activity (pCi/L)

Sampling Point	GW-232						GW-251		
Location	EXP-UV						S2		
Date Sampled	02/08/99			09/01/99			05/27/99		
Monitoring Program	IWQP			IWQP			GWPP		
Type									
	ACT	ERR	MDA	ACT	ERR	MDA	ACT	ERR	MDA
Gross Alpha	<MDA	.	3.57	<MDA	.	3.05	9.8	4.6	4.1
Gross Beta	2.92	1.55	2.5	<MDA	.	3.43	<MDA	.	9.1

(CONTINUED)

Sampling Point	GW-251						GW-253		
Location	S2						S2		
Date Sampled	05/27/99			11/02/99			02/08/99		
Monitoring Program	GWPP			GWPP			IWQP		
Type	DUP								
	ACT	ERR	MDA	ACT	ERR	MDA	ACT	ERR	MDA
Gross Alpha	7.1	4.7	6.1	<MDA	.	3.2	37.2	11.14	12.88
Gross Beta	13	5.8	8.2	<MDA	.	9.4	22.2	5.94	8.93

(CONTINUED)

Sampling Point	GW-253						GW-337		
Location	S2						WC		
Date Sampled	08/24/99			11/08/99			09/02/99		
Monitoring Program	IWQP			IWQP			GWPP		
Type									
	ACT	ERR	MDA	ACT	ERR	MDA	ACT	ERR	MDA
Gross Alpha	41.92	9.17	9.39	51.75	10.01	11.18	<MDA	.	5.2
Gross Beta	18.7	5.43	8.3	39.07	6.06	8.32	<MDA	.	8.2

(CONTINUED)

Sampling Point	GW-380						GW-382		
Location	NHP						NHP		
Date Sampled	06/04/99			11/10/99			09/02/99		
Monitoring Program	GWPP			GWPP			IWQP		
Type									
	ACT	ERR	MDA	ACT	ERR	MDA	ACT	ERR	MDA
Gross Alpha	<MDA	.	5	<MDA	.	3.9	2.4	1.24	1.7
Gross Beta	<MDA	.	10	<MDA	.	6.9	6.52	1.44	2.03

(CONTINUED)

Radiological Analytes: Alpha and Beta Activity (pCi/L)

Sampling Point	GW-383						GW-605		
Location	NHP						EXP-I		
Date Sampled	06/03/99			11/11/99			02/11/99		
Monitoring Program	GWPP			GWPP			IWQP		
Type									
	ACT	ERR	MDA	ACT	ERR	MDA	ACT	ERR	MDA
Gross Alpha	<MDA	.	1.1	<MDA	.	3.7	39.27	3.56	2.35
Gross Beta	<MDA	.	8.4	7.4	4.1	6	17.73	1.77	2.16

(CONTINUED)

Sampling Point	GW-605						GW-606		
Location	EXP-I						EXP-I		
Date Sampled	07/20/99						02/15/99		
Monitoring Program	IWQP						IWQP		
Type				DUP					
	ACT	ERR	MDA	ACT	ERR	MDA	ACT	ERR	MDA
Gross Alpha	51.18	5.3	1.99	48.85	5.45	2.19	6.74	2.04	2.05
Gross Beta	31.79	2.3	1.91	13.42	1.71	1.91	5.3	1.35	1.94

(CONTINUED)

Sampling Point	GW-606						GW-618		
Location	EXP-I						EXP-E		
Date Sampled	02/15/99			07/21/99			05/26/99		
Monitoring Program	IWQP			IWQP			GWPP		
Type	DUP								
	ACT	ERR	MDA	ACT	ERR	MDA	ACT	ERR	MDA
Gross Alpha	4.32	1.38	1.44	5.74	1.52	1.5	<MDA	.	7
Gross Beta	4.22	1.14	1.67	3.89	1.41	2.18	<MDA	.	8.1

(CONTINUED)

Sampling Point	GW-618						GW-620		
Location	EXP-E						FTF		
Date Sampled	11/01/99			11/09/99			05/27/99		
Monitoring Program	GWPP			IWQP			GWPP		
Type									
	ACT	ERR	MDA	ACT	ERR	MDA	ACT	ERR	MDA
Gross Alpha	<MDA	.	6.6	<MDA	.	2.52	<MDA	.	4.1
Gross Beta	<MDA	.	7.9	4.13	0.57	0.72	10	5.8	8.6

(CONTINUED)

Radiogical Analytes: Alpha and Beta Activity (pCi/L)

Sampling Point	GW-620			GW-722-06					
Location	FTF			EXP-J					
Date Sampled	11/08/99			02/25/99			07/19/99		
Monitoring Program	GWPP			GWPP			GWPP		
Type									
	ACT	ERR	MDA	ACT	ERR	MDA	ACT	ERR	MDA
Gross Alpha	<MDA	.	1.7	<MDA	.	1.6	<MDA	.	4.2
Gross Beta	15	5	6.7	<MDA	.	8.2	<MDA	.	8.6

(CONTINUED)

Sampling Point	GW-722-10						GW-722-14		
Location	EXP-J						EXP-J		
Date Sampled	03/01/99			07/20/99			03/02/99		
Monitoring Program	GWPP			GWPP			GWPP		
Type									
	ACT	ERR	MDA	ACT	ERR	MDA	ACT	ERR	MDA
Gross Alpha	<MDA	.	4.7	<MDA	.	4.4	4.3	3	3.4
Gross Beta	<MDA	.	8.4	<MDA	.	8.6	23	5.7	6.7

(CONTINUED)

Sampling Point	GW-722-14			GW-722-17					
Location	EXP-J			EXP-J					
Date Sampled	07/21/99			03/04/99			07/22/99		
Monitoring Program	GWPP			GWPP			GWPP		
Type									
	ACT	ERR	MDA	ACT	ERR	MDA	ACT	ERR	MDA
Gross Alpha	<MDA	.	4.7	<MDA	.	4	<MDA	.	3.2
Gross Beta	<MDA	.	9.6	<MDA	.	7.7	<MDA	.	7.7

(CONTINUED)

Sampling Point	GW-722-20								
Location	EXP-J								
Date Sampled	03/16/99			07/27/99					
Monitoring Program	GWPP			GWPP					
Type							DUP		
	ACT	ERR	MDA	ACT	ERR	MDA	ACT	ERR	MDA
Gross Alpha	<MDA	.	3.7	<MDA	.	4.8	<MDA	.	5.3
Gross Beta	<MDA	.	8.3	<MDA	.	9.9	<MDA	.	8.9

(CONTINUED)

Radiogical Analytes: Alpha and Beta Activity (pCi/L)

Sampling Point	GW-722-22								
Location	EXP-J								
Date Sampled	03/17/99						07/22/99		
Monitoring Program	GWPP						GWPP		
Type				DUP					
	ACT	ERR	MDA	ACT	ERR	MDA	ACT	ERR	MDA
Gross Alpha	<MDA	.	4	<MDA	.	4.4	<MDA	.	5.4
Gross Beta	<MDA	.	9	<MDA	.	8.9	<MDA	.	10

(CONTINUED)

Sampling Point	GW-722-26						GW-722-30		
Location	EXP-J						EXP-J		
Date Sampled	03/18/99			07/28/99			03/23/99		
Monitoring Program	GWPP			GWPP			GWPP		
Type									
	ACT	ERR	MDA	ACT	ERR	MDA	ACT	ERR	MDA
Gross Alpha	<MDA	.	4.6	<MDA	.	4.8	<MDA	.	2.9
Gross Beta	<MDA	.	8.2	<MDA	.	6.7	<MDA	.	7.8

(CONTINUED)

Sampling Point	GW-722-30			GW-722-32					
Location	EXP-J			EXP-J					
Date Sampled	07/28/99			03/30/99			07/28/99		
Monitoring Program	GWPP			GWPP			GWPP		
Type									
	ACT	ERR	MDA	ACT	ERR	MDA	ACT	ERR	MDA
Gross Alpha	<MDA	.	4.7	<MDA	.	1.1	<MDA	.	5.1
Gross Beta	<MDA	.	9.2	<MDA	.	7.9	<MDA	.	8.2

(CONTINUED)

Sampling Point	GW-722-33						GW-733		
Location	EXP-J						EXP-J		
Date Sampled	03/30/99			07/28/99			02/11/99		
Monitoring Program	GWPP			GWPP			IWQP		
Type									
	ACT	ERR	MDA	ACT	ERR	MDA	ACT	ERR	MDA
Gross Alpha	<MDA	.	4.7	<MDA	.	3.9	<MDA	.	0.81
Gross Beta	<MDA	.	9.2	<MDA	.	8.6	<MDA	.	1.2

(CONTINUED)

Radiogical Analytes: Alpha and Beta Activity (pCi/L)

Sampling Point	GW-733			GW-735					
Location	EXP-J			EXP-J					
Date Sampled	07/20/99			06/15/99			11/29/99		
Monitoring Program	IWQP			GWPP			GWPP		
Type									
	ACT	ERR	MDA	ACT	ERR	MDA	ACT	ERR	MDA
Gross Alpha	<MDA	.	1.57	9.2	4.6	5.2	<MDA	.	2.4
Gross Beta	2.43	1.19	1.86	9	4.9	7.8	<MDA	.	7.8

(CONTINUED)

Sampling Point	GW-744						GW-747		
Location	GRIDK1						GRIDK2		
Date Sampled	06/09/99			11/17/99			06/09/99		
Monitoring Program	GWPP			GWPP			GWPP		
Type									
	ACT	ERR	MDA	ACT	ERR	MDA	ACT	ERR	MDA
Gross Alpha	<MDA	.	4.2	<MDA	.	3.6	<MDA	.	3.9
Gross Beta	<MDA	.	9.4	<MDA	.	7.8	<MDA	.	9.3

(CONTINUED)

Sampling Point	GW-747			GW-750					
Location	GRIDK2			EXP-J					
Date Sampled	11/29/99			06/15/99			12/01/99		
Monitoring Program	GWPP			GWPP			GWPP		
Type									
	ACT	ERR	MDA	ACT	ERR	MDA	ACT	ERR	MDA
Gross Alpha	<MDA	.	2.2	<MDA	.	3.1	<MDA	.	3.2
Gross Beta	<MDA	.	6.9	<MDA	.	7.8	<MDA	.	8.9

(CONTINUED)

Sampling Point	GW-750			GW-762					
Location	EXP-J			GRIDJ3					
Date Sampled	12/01/99			02/09/99			08/24/99		
Monitoring Program	GWPP			IWQP			IWQP		
Type	DUP								
	ACT	ERR	MDA	ACT	ERR	MDA	ACT	ERR	MDA
Gross Alpha	<MDA	.	2.7	1.96	0.88	0.93	<MDA	.	2.61
Gross Beta	7	4	5.9	<MDA	.	2.13	2.56	1.45	2.31

(CONTINUED)

Radiogical Analytes: Alpha and Beta Activity (pCi/L)

Sampling Point	GW-762			GW-763					
Location	GRIDJ3			GRIDJ3					
Date Sampled	08/24/99			06/01/99			11/08/99		
Monitoring Program	IWQP			GWPP			GWPP		
Type	DUP								
	ACT	ERR	MDA	ACT	ERR	MDA	ACT	ERR	MDA
Gross Alpha	<MDA	.	2.82	<MDA	.	3.4	<MDA	.	2
Gross Beta	2.41	1.05	1.61	<MDA	.	8.3	<MDA	.	7.5

(CONTINUED)

Sampling Point	GW-769						GW-770		
Location	GRIDG3						GRIDG3		
Date Sampled	04/20/99			10/21/99			04/20/99		
Monitoring Program	GWPP			GWPP			GWPP		
Type									
	ACT	ERR	MDA	ACT	ERR	MDA	ACT	ERR	MDA
Gross Alpha	<MDA	.	4.2	<MDA	.	3.9	<MDA	.	4.6
Gross Beta	<MDA	.	7.5	10	5.4	8.1	<MDA	.	8.8

(CONTINUED)

Sampling Point	GW-770			GW-775					
Location	GRIDG3			GRIDH3					
Date Sampled	10/21/99			04/22/99			10/27/99		
Monitoring Program	GWPP			GWPP			GWPP		
Type									
	ACT	ERR	MDA	ACT	ERR	MDA	ACT	ERR	MDA
Gross Alpha	<MDA	.	6.4	<MDA	.	3.2	6.4	3.4	3.1
Gross Beta	<MDA	.	9.3	<MDA	.	8.8	<MDA	.	8.8

(CONTINUED)

Sampling Point	GW-776						GW-781		
Location	GRIDH3						GRIDE3		
Date Sampled	04/22/99			10/27/99			05/25/99		
Monitoring Program	GWPP			GWPP			GWPP		
Type									
	ACT	ERR	MDA	ACT	ERR	MDA	ACT	ERR	MDA
Gross Alpha	<MDA	.	5.7	<MDA	.	6.6	<MDA	.	3.4
Gross Beta	<MDA	.	8.7	<MDA	.	9.2	<MDA	.	7.9

(CONTINUED)

Radiogical Analytes: Alpha and Beta Activity (pCi/L)

Sampling Point	GW-781			GW-782					
Location	GRIDE3			GRIDE3					
Date Sampled	10/26/99			05/24/99					
Monitoring Program	GWPP			GWPP					
Type							DUP		
	ACT	ERR	MDA	ACT	ERR	MDA	ACT	ERR	MDA
Gross Alpha	<MDA	.	5.5	59	10	4.7	45	8.9	3.8
Gross Beta	<MDA	.	9.3	16	6.6	9.5	11	5.9	8.8

(CONTINUED)

Sampling Point	GW-782			GW-783					
Location	GRIDE3			GRIDE3					
Date Sampled	10/25/99			05/24/99			10/25/99		
Monitoring Program	GWPP			GWPP			GWPP		
Type									
	ACT	ERR	MDA	ACT	ERR	MDA	ACT	ERR	MDA
Gross Alpha	43	8.9	4	<MDA	.	3.5	<MDA	.	5.4
Gross Beta	11	6.2	9.2	<MDA	.	7.5	<MDA	.	9.5

(CONTINUED)

Sampling Point	GW-788						GW-789		
Location	GRIDF3						GRIDF3		
Date Sampled	04/19/99			10/20/99			04/19/99		
Monitoring Program	GWPP			GWPP			GWPP		
Type									
	ACT	ERR	MDA	ACT	ERR	MDA	ACT	ERR	MDA
Gross Alpha	<MDA	.	4.1	<MDA	.	5.7	20	6.4	5.8
Gross Beta	<MDA	.	8.8	<MDA	.	9	<MDA	.	9.4

(CONTINUED)

Sampling Point	GW-789			GW-791					
Location	GRIDF3			GRIDD2					
Date Sampled	10/20/99			05/25/99			11/28/99		
Monitoring Program	GWPP			GWPP			GWPP		
Type									
	ACT	ERR	MDA	ACT	ERR	MDA	ACT	ERR	MDA
Gross Alpha	<MDA	.	3.8	<MDA	.	4.3	<MDA	.	5.7
Gross Beta	<MDA	.	8.9	<MDA	.	7.9	<MDA	.	9.2

(CONTINUED)

Radiogical Analytes: Alpha and Beta Activity (pCi/L)

Sampling Point	GW-791			GW-792					
Location	GRIDD2			GRIDD2					
Date Sampled	11/28/99			05/25/99			11/28/99		
Monitoring Program	GWPP			GWPP			GWPP		
Type	DUP								
	ACT	ERR	MDA	ACT	ERR	MDA	ACT	ERR	MDA
Gross Alpha	<MDA	.	3.9	<MDA	.	5.1	<MDA	.	3.7
Gross Beta	<MDA	.	8.8	<MDA	.	7.7	<MDA	.	9

(CONTINUED)

Sampling Point	GW-816								
Location	EXP-SR								
Date Sampled	06/07/99						11/16/99		
Monitoring Program	GWPP						GWPP		
Type				DUP					
	ACT	ERR	MDA	ACT	ERR	MDA	ACT	ERR	MDA
Gross Alpha	2	1.8	1.1	<MDA	.	3.4	<MDA	.	3.5
Gross Beta	9.8	5.5	8.3	<MDA	.	8	8.6	4.6	6.8

(CONTINUED)

Sampling Point	GW-820			GW-832					
Location	B9201-2			NHP					
Date Sampled	09/10/99			02/09/99			08/31/99		
Monitoring Program	GWPP			IWQP			IWQP		
Type									
	ACT	ERR	MDA	ACT	ERR	MDA	ACT	ERR	MDA
Gross Alpha	<MDA	.	5.2	6.27	1.43	0.9	1.87	1.15	1.68
Gross Beta	<MDA	.	9.2	<MDA	.	2.61	<MDA	.	2.12

(CONTINUED)

Sampling Point	LRSPW						NPR07.0SW		
Location	EXP-SW						EXP-NPR		
Date Sampled	06/03/99			11/15/99			09/01/99		
Monitoring Program	GWPP			GWPP			GWPP		
Type									
	ACT	ERR	MDA	ACT	ERR	MDA	ACT	ERR	MDA
Gross Alpha	<MDA	.	4.2	3.1	2.3	3	<MDA	.	5
Gross Beta	<MDA	.	7.1	<MDA	.	7.7	<MDA	.	9.4

(CONTINUED)

Radiogical Analytes: Alpha and Beta Activity (pCi/L)

Sampling Point	NPR12.0SW			OF 51					
Location	EXP-NPR			EXP-SW					
Date Sampled	09/01/99			02/10/99			08/17/99		
Monitoring Program	GWPP			IWQP			IWQP		
Type									
	ACT	ERR	MDA	ACT	ERR	MDA	ACT	ERR	MDA
Gross Alpha	<MDA	.	7.8	4.82	1.12	0.72	3.77	1.6	1.99
Gross Beta	<MDA	.	9.9	1.77	1.01	1.64	<MDA	.	1.82

(CONTINUED)

Sampling Point	OF 195						OF 221		
Location	EXP-SW						EXP-SW		
Date Sampled	04/28/99			09/21/99			04/28/99		
Monitoring Program	IWQP			IWQP			IWQP		
Type									
	ACT	ERR	MDA	ACT	ERR	MDA	ACT	ERR	MDA
Gross Alpha	51.73	5.16	3.08	3.72	1.23	1.52	244.44	8.23	1.71
Gross Beta	111	3.54	2	14.02	1.4	1.57	71.6	2.79	1.95

(CONTINUED)

Sampling Point	OF 221			OF 225					
Location	EXP-SW			EXP-SW					
Date Sampled	09/21/99			04/28/99			09/21/99		
Monitoring Program	IWQP			IWQP			IWQP		
Type									
	ACT	ERR	MDA	ACT	ERR	MDA	ACT	ERR	MDA
Gross Alpha	3.35	1.29	1.67	92.13	7.72	3.32	1.77	0.77	1
Gross Beta	11.1	1.45	1.8	296.42	6.61	2.88	4.88	0.9	1.22

(CONTINUED)

Sampling Point	SCR7.18SP						SCR7.1SP		
Location	EXP-UV						EXP-UV		
Date Sampled	02/04/99			08/30/99			08/30/99		
Monitoring Program	IWQP			IWQP			IWQP		
Type									
	ACT	ERR	MDA	ACT	ERR	MDA	ACT	ERR	MDA
Gross Alpha	<MDA	.	1.55	<MDA	.	3.65	<MDA	.	1.84
Gross Beta	<MDA	.	2.01	7.41	1.99	2.89	<MDA	.	1.91

(CONTINUED)

Radiogical Analytes: Alpha and Beta Activity (pCi/L)

Sampling Point	SCR7.8SP						SP-17		
Location	EXP-UV						EXP-SW		
Date Sampled	02/04/99			08/30/99			02/10/99		
Monitoring Program	IWQP			IWQP			IWQP		
Type									
	ACT	ERR	MDA	ACT	ERR	MDA	ACT	ERR	MDA
Gross Alpha	<MDA	.	2.5	<MDA	.	1.59	3	0.97	0.8
Gross Beta	<MDA	.	2.43	<MDA	.	1.79	<MDA	.	2.14

(CONTINUED)

Sampling Point	SP-17			STATION 8					
Location	EXP-SW			EXP-SW					
Date Sampled	08/17/99			02/12/99			07/12/99		
Monitoring Program	IWQP			IWQP			IWQP		
Type									
	ACT	ERR	MDA	ACT	ERR	MDA	ACT	ERR	MDA
Gross Alpha	<MDA	.	2.05	7.89	1.91	0.97	54.97	4.55	1.76
Gross Beta	<MDA	.	1.83	6.41	1.31	1.69	36.22	2.37	1.9

(CONTINUED)

Sampling Point	STATION 8		
Location	EXP-SW		
Date Sampled	07/15/99		
Monitoring Program	IWQP		
Type			
	ACT	ERR	MDA
Gross Alpha	11.07	2.33	1.89
Gross Beta	7.12	1.36	1.71

Radiogical Analytes: Isotope Activity (pCi/L)

Sampling Point	9201-5N-J4			9204-2-NE			9204-2-NW		
Location	B9201-5			B9204-2			B9204-2		
Date Sampled	02/16/99			02/16/99			02/16/99		
Monitoring Program	GWPP			GWPP			GWPP		
Type									
	ACT	ERR	MDA	ACT	ERR	MDA	ACT	ERR	MDA
Gross Alpha	<MDA	.	3.4	<MDA	.	3.3	<MDA	.	6.9
Gross Beta	<MDA	.	8.1	<MDA	.	8.8	9.6	5.4	8.1
Technetium-99	<MDA	.	12	20	7.8	12	25	8	12
Uranium-234	0.26	0.2	0.21	0.32	0.17	0.16	8.1	1.2	0.16
Uranium-235	<MDA	.	0.11	<MDA	.	0.065	0.41	0.24	0.2
Uranium-236	.	.	.	.	.	.	.	.	.
Uranium-238	0.16	0.14	0.085	<MDA	.	0.16	1.1	0.34	0.066

(CONTINUED)

Sampling Point	9204-2E-NW			9204-4ELSU			GHK2.51ESW		
Location	B9204-2			B9204-4			EXP-NPR		
Date Sampled	02/23/99			02/17/99			09/01/99		
Monitoring Program	GWPP			GWPP			GWPP		
Type									
	ACT	ERR	MDA	ACT	ERR	MDA	ACT	ERR	MDA
Gross Alpha	14	5.2	4	<MDA	.	34	<MDA	.	3.8
Gross Beta	47	8	8.3	3400	180	86	<MDA	.	9.2
Technetium-99	<MDA	.	12	6000	44	12	.	.	.
Uranium-234	14	1.7	0.13	12	1.7	0.27	0.47	0.23	0.074
Uranium-235	0.58	0.25	0.16	0.83	0.34	0.086	<MDA	.	0.23
Uranium-236	.	.	.	.	.	.	.	.	.
Uranium-238	4.7	0.76	0.13	41	4.7	0.21	<MDA	.	0.18

(CONTINUED)

Sampling Point	GHK2.51WSW			GW-108					
Location	EXP-NPR			S3					
Date Sampled	09/01/99			02/15/99			07/27/99		
Monitoring Program	GWPP			IWQP			IWQP		
Type									
	ACT	ERR	MDA	ACT	ERR	MDA	ACT	ERR	MDA
Gross Alpha	<MDA	.	3.3	<MDA	.	173.8	<MDA	.	173.93
Gross Beta	<MDA	.	8.9	7676.32	269.65	208.02	10745.91	311.16	223.56
Technetium-99	.	.	.	25100	45	2.8	24151.47	97.19	13.54
Uranium-234	0.42	0.22	0.17	.	.	.	.	.	.
Uranium-235	<MDA	.	0.21	.	.	.	.	.	.
Uranium-236	.	.	.	.	.	.	.	.	.
Uranium-238	<MDA	.	0.21	.	.	.	.	.	.

(CONTINUED)

Radiogical Analytes: Isotope Activity (pCi/L)

Sampling Point	GW-151						GW-154		
Location	NHP						NHP		
Date Sampled	02/08/99			08/16/99			02/10/99		
Monitoring Program	IWQP			IWQP			IWQP		
Type									
	ACT	ERR	MDA	ACT	ERR	MDA	ACT	ERR	MDA
Gross Alpha	<MDA	.	1.28	<MDA	.	2.25	460.99	12.56	1.03
Gross Beta	1.95	0.68	1.07	<MDA	.	2.07	77.13	3.31	2.48
Technetium-99	.	.	.	.	.	.	.	.	.
Uranium-234	<MDA	.	0.3	<MDA	.	0.46	543	132.9	0.75
Uranium-235	<MDA	.	0.15	<MDA	.	0.38	17.98	5.27	0.55
Uranium-236	<MDA	.	0.14	<MDA	.	0.38	12.4	3.8	0.5
Uranium-238	<MDA	.	0.28	<MDA	.	0.3	96.75	24.32	0.63

(CONTINUED)

Sampling Point	GW-154			GW-193					
Location	NHP			T2331					
Date Sampled	08/30/99			02/16/99			07/20/99		
Monitoring Program	IWQP			IWQP			IWQP		
Type									
	ACT	ERR	MDA	ACT	ERR	MDA	ACT	ERR	MDA
Gross Alpha	432.43	15.34	3.15	77.59	5.71	2.4	8.61	2.53	2.66
Gross Beta	55.49	3.24	2.59	29.69	2.18	2.38	8.68	1.66	2.31
Technetium-99	.	.	.	<MDA	.	4.49	<MDA	.	14.69
Uranium-234	535.3	150.7	0.43	.	.	.	.	.	.
Uranium-235	22.53	7.58	0.92	.	.	.	.	.	.
Uranium-236	7.64	3.16	0.48	.	.	.	.	.	.
Uranium-238	139.7	40.15	0.87	.	.	.	.	.	.

(CONTINUED)

Sampling Point	GW-218						GW-219		
Location	UOV						UOV		
Date Sampled	12/06/99						12/02/99		
Monitoring Program	GWPP						GWPP		
Type				DUP					
	ACT	ERR	MDA	ACT	ERR	MDA	ACT	ERR	MDA
Gross Alpha	3.4	2.2	2.2	3	2.2	2.6	180	15	2.5
Gross Beta	8	3.7	5.3	<MDA	.	7	140	10	6.4
Technetium-99	<MDA	.	12	<MDA	.	12	22	7.7	12
Uranium-234	1.3	0.4	0.21	1.1	0.35	0.17	31	4.8	0.43
Uranium-235	<MDA	.	0.087	<MDA	.	0.088	2.1	0.81	0.43
Uranium-236	.	.	.	.	.	.	.	.	.
Uranium-238	1.1	0.36	0.17	1.6	0.44	0.21	220	29	0.14

(CONTINUED)

Radiogical Analytes: Isotope Activity (pCi/L)

Sampling Point	GW-220						GW-253		
Location	NHP						S2		
Date Sampled	02/08/99			08/16/99			02/08/99		
Monitoring Program	IWQP			IWQP			IWQP		
Type									
	ACT	ERR	MDA	ACT	ERR	MDA	ACT	ERR	MDA
Gross Alpha	.	.	.	<MDA	.	2.09	37.2	11.14	12.88
Gross Beta	.	.	.	<MDA	.	1.83	22.2	5.94	8.93
Technetium-99	.	.	.	.	.	.	.	.	.
Uranium-234	<MDA	.	0.19	0.92	0.54	0.42	7.55	1.87	0.36
Uranium-235	<MDA	.	0.28	<MDA	.	0.47	<MDA	.	0.36
Uranium-236	<MDA	.	0.1	<MDA	.	0.36	<MDA	.	0.25
Uranium-238	0.17	0.16	0.16	<MDA	.	0.55	2.11	0.75	0.26

(CONTINUED)

Sampling Point	GW-253						GW-605		
Location	S2						EXP-I		
Date Sampled	08/24/99			11/08/99			02/11/99		
Monitoring Program	IWQP			IWQP			IWQP		
Type									
	ACT	ERR	MDA	ACT	ERR	MDA	ACT	ERR	MDA
Gross Alpha	41.92	9.17	9.39	51.75	10.01	11.18	39.27	3.56	2.35
Gross Beta	18.7	5.43	8.3	39.07	6.06	8.32	17.73	1.77	2.16
Technetium-99	.	.	.	.	.	.	<MDA	.	2.89
Uranium-234	14	3.03	0.44	8.88	2.76	1.1	.	.	.
Uranium-235	<MDA	.	0.49	<MDA	.	0.95	.	.	.
Uranium-236	0.25	0.25	0.17	<MDA	.	0.85	.	.	.
Uranium-238	3.43	1.06	0.42	2.48	1.31	1.14	.	.	.

(CONTINUED)

Sampling Point	GW-605						GW-606		
Location	EXP-I						EXP-I		
Date Sampled	07/20/99						02/15/99		
Monitoring Program	IWQP						IWQP		
Type				DUP					
	ACT	ERR	MDA	ACT	ERR	MDA	ACT	ERR	MDA
Gross Alpha	51.18	5.3	1.99	48.85	5.45	2.19	6.74	2.04	2.05
Gross Beta	31.79	2.3	1.91	13.42	1.71	1.91	5.3	1.35	1.94
Technetium-99	<MDA	.	14.55	<MDA	.	14.65	<MDA	.	2.9
Uranium-234	.	.	.	.	.	.	.	.	.
Uranium-235	.	.	.	.	.	.	.	.	.
Uranium-236	.	.	.	.	.	.	.	.	.
Uranium-238	.	.	.	.	.	.	.	.	.

(CONTINUED)

Radiological Analytes: Isotope Activity (pCi/L)

Sampling Point	GW-606						GW-618		
Location	EXP-I						EXP-E		
Date Sampled	02/15/99			07/21/99			11/09/99		
Monitoring Program	IWQP			IWQP			IWQP		
Type	DUP								
	ACT	ERR	MDA	ACT	ERR	MDA	ACT	ERR	MDA
Gross Alpha	4.32	1.38	1.44	5.74	1.52	1.5	<MDA	.	2.52
Gross Beta	4.22	1.14	1.67	3.89	1.41	2.18	4.13	0.57	0.72
Technetium-99	<MDA	.	2.7	<MDA	.	14.45	.	.	.
Uranium-234	.	.	.	.	.	.	1	0.73	0.82
Uranium-235	.	.	.	.	.	.	<MDA	.	0.37
Uranium-236	.	.	.	.	.	.	<MDA	.	0.57
Uranium-238	.	.	.	.	.	.	<MDA	.	0.67

(CONTINUED)

Sampling Point	GW-733						GW-769		
Location	EXP-J						GRIDG3		
Date Sampled	02/11/99			07/20/99			04/20/99		
Monitoring Program	IWQP			IWQP			GWPP		
Type									
	ACT	ERR	MDA	ACT	ERR	MDA	ACT	ERR	MDA
Gross Alpha	<MDA	.	0.81	<MDA	.	1.57	<MDA	.	4.2
Gross Beta	<MDA	.	1.2	2.43	1.19	1.86	<MDA	.	7.5
Technetium-99	<MDA	.	2.66	<MDA	.	15.84	16	7.8	12
Uranium-234	.	.	.	.	.	.	.	.	.
Uranium-235	.	.	.	.	.	.	.	.	.
Uranium-236	.	.	.	.	.	.	.	.	.
Uranium-238	.	.	.	.	.	.	.	.	.

(CONTINUED)

Sampling Point	GW-769			GW-770					
Location	GRIDG3			GRIDG3					
Date Sampled	10/21/99			04/20/99			10/21/99		
Monitoring Program	GWPP			GWPP			GWPP		
Type									
	ACT	ERR	MDA	ACT	ERR	MDA	ACT	ERR	MDA
Gross Alpha	<MDA	.	3.9	<MDA	.	4.6	<MDA	.	6.4
Gross Beta	10	5.4	8.1	<MDA	.	8.8	<MDA	.	9.3
Technetium-99	<MDA	.	13	12	7.7	12	<MDA	.	13
Uranium-234	.	.	.	.	.	.	.	.	.
Uranium-235	.	.	.	.	.	.	.	.	.
Uranium-236	.	.	.	.	.	.	.	.	.
Uranium-238	.	.	.	.	.	.	.	.	.

(CONTINUED)

Radiogical Analytes: Isotope Activity (pCi/L)

Sampling Point	GW-775						GW-776		
Location	GRIDH3						GRIDH3		
Date Sampled	04/22/99			10/27/99			04/22/99		
Monitoring Program	GWPP			GWPP			GWPP		
Type									
	ACT	ERR	MDA	ACT	ERR	MDA	ACT	ERR	MDA
Gross Alpha	<MDA	.	3.2	6.4	3.4	3.1	<MDA	.	5.7
Gross Beta	<MDA	.	8.8	<MDA	.	8.8	<MDA	.	8.7
Technetium-99	17	7.8	12	<MDA	.	13	16	7.8	12
Uranium-234	.	.	.	.	.	.	.	.	.
Uranium-235	.	.	.	.	.	.	.	.	.
Uranium-236	.	.	.	.	.	.	.	.	.
Uranium-238	.	.	.	.	.	.	.	.	.

(CONTINUED)

Sampling Point	GW-776			GW-781					
Location	GRIDH3			GRIDE3					
Date Sampled	10/27/99			05/25/99			10/26/99		
Monitoring Program	GWPP			GWPP			GWPP		
Type									
	ACT	ERR	MDA	ACT	ERR	MDA	ACT	ERR	MDA
Gross Alpha	<MDA	.	6.6	<MDA	.	3.4	<MDA	.	5.5
Gross Beta	<MDA	.	9.2	<MDA	.	7.9	<MDA	.	9.3
Technetium-99	<MDA	.	13	<MDA	.	13	<MDA	.	13
Uranium-234	.	.	.	.	.	.	.	.	.
Uranium-235	.	.	.	.	.	.	.	.	.
Uranium-236	.	.	.	.	.	.	.	.	.
Uranium-238	.	.	.	.	.	.	.	.	.

(CONTINUED)

Sampling Point	GW-782								
Location	GRIDE3								
Date Sampled	05/24/99						10/25/99		
Monitoring Program	GWPP						GWPP		
Type				DUP					
	ACT	ERR	MDA	ACT	ERR	MDA	ACT	ERR	MDA
Gross Alpha	59	10	4.7	45	8.9	3.8	43	8.9	4
Gross Beta	16	6.6	9.5	11	5.9	8.8	11	6.2	9.2
Technetium-99	13	7.9	13	<MDA	.	13	<MDA	.	13
Uranium-234	.	.	.	.	.	.	.	.	.
Uranium-235	.	.	.	.	.	.	.	.	.
Uranium-236	.	.	.	.	.	.	.	.	.
Uranium-238	.	.	.	.	.	.	.	.	.

(CONTINUED)

Radiogical Analytes: Isotope Activity (pCi/L)

Sampling Point	GW-783						GW-788		
Location	GRIDE3						GRIDF3		
Date Sampled	05/24/99			10/25/99			04/19/99		
Monitoring Program	GWPP			GWPP			GWPP		
Type									
	ACT	ERR	MDA	ACT	ERR	MDA	ACT	ERR	MDA
Gross Alpha	<MDA	.	3.5	<MDA	.	5.4	<MDA	.	4.1
Gross Beta	<MDA	.	7.5	<MDA	.	9.5	<MDA	.	8.8
Technetium-99	<MDA	.	13	<MDA	.	13	13	7.7	12
Uranium-234	.	.	.	.	.	.	.	.	.
Uranium-235	.	.	.	.	.	.	.	.	.
Uranium-236	.	.	.	.	.	.	.	.	.
Uranium-238	.	.	.	.	.	.	.	.	.

(CONTINUED)

Sampling Point	GW-788			GW-789					
Location	GRIDF3			GRIDF3					
Date Sampled	10/20/99			04/19/99			10/20/99		
Monitoring Program	GWPP			GWPP			GWPP		
Type									
	ACT	ERR	MDA	ACT	ERR	MDA	ACT	ERR	MDA
Gross Alpha	<MDA	.	5.7	20	6.4	5.8	<MDA	.	3.8
Gross Beta	<MDA	.	9	<MDA	.	9.4	<MDA	.	8.9
Technetium-99	<MDA	.	13	<MDA	.	12	<MDA	.	13
Uranium-234	.	.	.	.	.	.	.	.	.
Uranium-235	.	.	.	.	.	.	.	.	.
Uranium-236	.	.	.	.	.	.	.	.	.
Uranium-238	.	.	.	.	.	.	.	.	.

(CONTINUED)

Sampling Point	GW-791								
Location	GRIDD2								
Date Sampled	05/25/99			11/28/99					
Monitoring Program	GWPP			GWPP					
Type							DUP		
	ACT	ERR	MDA	ACT	ERR	MDA	ACT	ERR	MDA
Gross Alpha	<MDA	.	4.3	<MDA	.	5.7	<MDA	.	3.9
Gross Beta	<MDA	.	7.9	<MDA	.	9.2	<MDA	.	8.8
Technetium-99	14	7.9	13	<MDA	.	13	<MDA	.	13
Uranium-234	.	.	.	.	.	.	.	.	.
Uranium-235	.	.	.	.	.	.	.	.	.
Uranium-236	.	.	.	.	.	.	.	.	.
Uranium-238	.	.	.	.	.	.	.	.	.

(CONTINUED)

Radiogical Analytes: Isotope Activity (pCi/L)

Sampling Point	GW-792						GW-832		
Location	GRIDD2						NHP		
Date Sampled	05/25/99			11/28/99			02/09/99		
Monitoring Program	GWPP			GWPP			IWQP		
Type									
	ACT	ERR	MDA	ACT	ERR	MDA	ACT	ERR	MDA
Gross Alpha	<MDA	.	5.1	<MDA	.	3.7	6.27	1.43	0.9
Gross Beta	<MDA	.	7.7	<MDA	.	9	<MDA	.	2.61
Technetium-99	<MDA	.	13	<MDA	.	13	.	.	.
Uranium-234	.	.	.	.	.	.	2.14	0.62	0.16
Uranium-235	.	.	.	.	.	.	0.18	0.17	0.1
Uranium-236	.	.	.	.	.	.	< CE	0.11	0.09
Uranium-238	.	.	.	.	.	.	2.68	0.72	0.19

(CONTINUED)

Sampling Point	GW-832			NPR07.0SW			NPR12.0SW		
Location	NHP			EXP-NPR			EXP-NPR		
Date Sampled	08/31/99			09/01/99			09/01/99		
Monitoring Program	IWQP			GWPP			GWPP		
Type									
	ACT	ERR	MDA	ACT	ERR	MDA	ACT	ERR	MDA
Gross Alpha	1.87	1.15	1.68	<MDA	.	5	<MDA	.	7.8
Gross Beta	<MDA	.	2.12	<MDA	.	9.4	<MDA	.	9.9
Technetium-99	.	.	.	.	.	.	.	.	.
Uranium-234	1.2	0.49	0.26	0.76	0.29	0.17	<MDA	.	0.21
Uranium-235	<MDA	.	0.26	<MDA	.	0.085	<MDA	.	0.074
Uranium-236	<MDA	.	0.2	.	.	.	.	.	.
Uranium-238	2.07	0.68	0.24	0.13	0.11	0.068	<MDA	.	0.21

(CONTINUED)

Sampling Point	OF 51						OF 195		
Location	EXP-SW						EXP-SW		
Date Sampled	02/10/99			08/17/99			04/28/99		
Monitoring Program	IWQP			IWQP			IWQP		
Type									
	ACT	ERR	MDA	ACT	ERR	MDA	ACT	ERR	MDA
Gross Alpha	4.82	1.12	0.72	3.77	1.6	1.99	51.73	5.16	3.08
Gross Beta	1.77	1.01	1.64	<MDA	.	1.82	111	3.54	2
Technetium-99	.	.	.	.	.	.	.	.	.
Uranium-234	1.88	0.62	0.23	2.21	1.16	1.22	20.92	4.91	0.35
Uranium-235	0.35	0.26	0.2	<MDA	.	0.97	1.01	0.61	0.36
Uranium-236	<MDA	.	0.24	<MDA	.	0.87	0.71	0.47	0.19
Uranium-238	2.76	0.81	0.23	3.76	1.58	0.78	22.24	5.18	0.29

(CONTINUED)

Radiogical Analytes: Isotope Activity (pCi/L)

Sampling Point	OF 195			OF 221					
Location	EXP-SW			EXP-SW					
Date Sampled	09/21/99			04/28/99			09/21/99		
Monitoring Program	IWQP			IWQP			IWQP		
Type									
	ACT	ERR	MDA	ACT	ERR	MDA	ACT	ERR	MDA
Gross Alpha	3.72	1.23	1.52	244.44	8.23	1.71	3.35	1.29	1.67
Gross Beta	14.02	1.4	1.57	71.6	2.79	1.95	11.1	1.45	1.8
Technetium-99	.	.	.	.	.	.	.	.	.
Uranium-234	3.05	1.02	0.37	84.17	30.9	0.63	2.51	0.86	0.45
Uranium-235	<MDA	.	0.19	3.15	2.2	0.78	< CE	0.25	0.16
Uranium-236	<MDA	.	0.34	2.06	1.62	0.7	<MDA	.	0.15
Uranium-238	3.57	1.13	0.26	106.1	38.61	1.39	2.67	0.88	0.26

(CONTINUED)

Sampling Point	OF 225						SP-17		
Location	EXP-SW						EXP-SW		
Date Sampled	04/28/99			09/21/99			02/10/99		
Monitoring Program	IWQP			IWQP			IWQP		
Type									
	ACT	ERR	MDA	ACT	ERR	MDA	ACT	ERR	MDA
Gross Alpha	92.13	7.72	3.32	1.77	0.77	1	3	0.97	0.8
Gross Beta	296.42	6.61	2.88	4.88	0.9	1.22	<MDA	.	2.14
Technetium-99	.	.	.	.	.	.	.	.	.
Uranium-234	44.75	12.17	0.85	1.72	0.81	0.41	1	0.45	0.19
Uranium-235	2.05	1.15	0.35	<MDA	.	0.25	<MDA	.	0.14
Uranium-236	1.34	0.87	0.62	<MDA	.	0.23	<MDA	.	0.13
Uranium-238	53.11	14.3	0.68	1.47	0.74	0.45	0.88	0.42	0.29

(CONTINUED)

Sampling Point	SP-17			STATION 8					
Location	EXP-SW			EXP-SW					
Date Sampled	08/17/99			02/12/99			07/12/99		
Monitoring Program	IWQP			IWQP			IWQP		
Type									
	ACT	ERR	MDA	ACT	ERR	MDA	ACT	ERR	MDA
Gross Alpha	<MDA	.	2.05	7.89	1.91	0.97	54.97	4.55	1.76
Gross Beta	<MDA	.	1.83	6.41	1.31	1.69	36.22	2.37	1.9
Technetium-99	.	.	.	.	.	.	.	.	.
Uranium-234	1.55	0.75	0.4	2.59	0.79	0.3	11.17	3.08	0.64
Uranium-235	<MDA	.	0.42	<MDA	.	0.28	1.34	0.82	0.64
Uranium-236	<MDA	.	0.44	<MDA	.	0.11	0.56	0.49	0.44
Uranium-238	0.88	0.54	0.4	4.07	1.09	0.28	60.83	13.65	0.56

(CONTINUED)

Radiogical Analytes: Isotope Activity (pCi/L)

Sampling Point	STATION 8		
Location	EXP-SW		
Date Sampled	07/15/99		
Monitoring Program	IWQP		
Type			
	ACT	ERR	MDA
Gross Alpha	11.07	2.33	1.89
Gross Beta	7.12	1.36	1.71
Technetium-99	.	.	.
Uranium-234	2.93	0.93	0.27
Uranium-235	<MDA	.	0.33
Uranium-236	<MDA	.	0.26
Uranium-238	11.59	2.6	0.35

APPENDIX G

CY 1999 QUALITY ASSURANCE/QUALITY CONTROL DATA

EXPLANATION

SAMPLING POINT:

BCK	-	Bear Creek Kilometer
GHK	-	Gum Hollow Branch Kilometer (surface water sampling location)
GW	-	Monitoring Well (also 1090 and DCWELL)
LRSPW	-	Lake Reality Emergency Spillway (surface water station)
NPR	-	North of Pine Ridge near the Scarboro Community (surface water sampling location)
NT	-	Northern Tributary to Bear Creek
SCR	-	South Chestnut Ridge (tributary prefix for spring sampling location)
SS	-	Spring (Bear Creek Regime)
D	-	Field Duplicate Sample

UNITS:

ug/L	-	micrograms per liter (all samples)
umho/cm	-	micromhos per centimeter (equipment rinsates)
mg/L	-	milligrams per liter (equipment rinsates)
NTU	-	nephelometric turbidity units (equipment rinsates)
pCi/L	-	picoCuries per liter (equipment rinsates)

NOTES:

Only analytes that were detected in blank samples are presented in the respective subappendices (see Appendix B, Table 6). Results less than the Y-12 Plant GWPP reporting limits are replaced with missing values to emphasize the detected results.

<	-	analyte not detected at the reporting limit
PMS	-	plasma mass spectroscopy
CE	-	counting error
MDA	-	minimum detectable activity
.	-	replaces the counting error when the activity is less than the MDA

APPENDIX G.1

CORRELATION WITH ASSOCIATED GROUNDWATER AND SURFACE WATER SAMPLES

Appendix G.1: Quality Assurance/Quality Control Data
Correlation with Associated Groundwater and Surface Water Samples
Bear Creek Hydrogeologic Regime, 1999

Sampling Point	Date Sampled	Sample Number	Trip Blank Sample Number	Laboratory Blank Sample Number
BCK-00.63	02/23/99	A990540052	A990540051	Q990600004
BCK-00.63	08/10/99	A992180011	A992180010	Q992370217
BCK-04.55	02/23/99	A990540053	A990540051	Q990610001
BCK-04.55	08/10/99	A992180012	A992180010	Q992370217
BCK-07.87	02/23/99	A990540054	A990540051	Q990610001
BCK-07.87 D	02/23/99	A990540055	A990540051	Q990610001
BCK-07.87	08/10/99	A992180014	A992180010	Q992370217
BCK-09.40	02/24/99	A990540230	A990540229	Q990610001
BCK-09.40	08/11/99	A992180019	A992180017	Q992370217
BCK-10.60	02/24/99	A990540232	A990540229	Q990610001
BCK-11.97	02/25/99	A990540235	A990540234	Q990630070
BCK-11.97	08/10/99	A992180016	A992180010	Q992370217
DCWELL	03/24/99	A990820039	A990810029	Q990880084
GW-053	03/24/99	A990810030	A990810029	Q990880084
GW-053	08/26/99	A992380041	A992380040	Q992440115
GW-056	02/09/99	A990350274	A990350273	Q990460000
GW-056	07/28/99	A992070073	A992070072	Q992300105
GW-082	03/04/99	A990620329	A990620328	Q990690008
GW-085	03/17/99	A990750115	A990750113	Q990830048
GW-085	08/31/99	A992420297	A992420296	Q992500066
GW-087	03/11/99	A990690067	A990690064	Q990740016
GW-126	03/02/99	A990600374	A990600019	Q990690003
GW-132-01	09/23/99	A992670076	A992670075	Q992740135
GW-132-05	09/27/99	A992710010	A992710009	Q992740135
GW-132-09	09/27/99	A992710011	A992710009	Q992740135
GW-132-09 D	09/27/99	A992710012	A992710009	Q992740135
GW-132-13	09/28/99	A992720084	A992720083	Q992740135
GW-132-17	09/28/99	A992720085	A992720083	Q992940171
GW-132-21	09/28/99	A992720086	A992720083	Q992940171
GW-132-25	09/28/99	A992720087	A992720083	Q992940171
GW-133-01	08/16/99	A992290158	A992290157	Q992370125
GW-133-05	08/17/99	A992300181	A992300180	Q992370125
GW-133-08	08/17/99	A992300197	A992300180	Q992370125
GW-133-10	08/18/99	A992310012	A992310011	Q992370125
GW-133-10 D	08/18/99	A992310013	A992310011	Q992390011
GW-133-14	08/18/99	A992310014	A992310011	Q992390011
GW-133-17	08/18/99	A992310015	A992310011	Q992390011
GW-133-21	08/19/99	A992310406	A992310405	Q992390011
GW-133-24	08/19/99	A992310408	A992310405	Q992390011
GW-134-05	08/24/99	A992380001	A992380000	Q992430153
GW-134-11	08/24/99	A992380004	A992380000	Q992430153
GW-134-15	08/24/99	A992380003	A992380000	Q992430153
GW-134-18	08/24/99	A992380002	A992380000	Q992430153
GW-134-21	08/24/99	A992380208	A992380000	Q992440115
GW-134-25	08/10/99	A992180128	A992180127	Q992370122
GW-134-25 D	08/10/99	A992180129	A992180127	Q992370122
GW-134-29	08/11/99	A992180134	A992240228	Q992370122
GW-134-33	08/11/99	A992180136	A992240228	Q992370122
GW-134-35	08/11/99	A992180138	A992240228	Q992370122
GW-134-36	08/11/99	A992180140	A992240228	Q992370122

Appendix G.1: Quality Assurance/Quality Control Data
Correlation with Associated Groundwater and Surface Water Samples
Bear Creek Hydrogeologic Regime, 1999

Sampling Point		Date Sampled	Sample Number	Trip Blank Sample Number	Laboratory Blank Sample Number
GW-135-03		09/08/99	A992520066	A992520065	Q992560022
GW-135-06		09/13/99	A992570065	A992570064	Q992670046
GW-135-11		09/13/99	A992570067	A992570064	Q992670046
GW-135-15		09/14/99	A992570290	A992570289	Q992670046
GW-135-19		09/14/99	A992580169	A992580168	Q992670052
GW-135-23		09/15/99	A992590098	A992590097	Q992740132
GW-135-26		09/15/99	A992590099	A992590097	Q992740132
GW-135-30		09/15/99	A992590100	A992590097	Q992740132
GW-135-30	D	09/15/99	A992590101	A992590097	Q992740132
GW-135-34		09/16/99	A992600056	A992600055	Q992740132
GW-135-39		09/16/99	A992600057	A992600055	Q992740132
GW-226		03/18/99	A990760115	A990760113	Q990830048
GW-226		08/31/99	A992420299	A992420296	Q992500066
GW-226	D	08/31/99	A992420300	A992420296	Q992500066
GW-228		09/09/99	A992520060	A992520059	Q992560022
GW-236		09/08/99	A992510023	A992510022	Q992560022
GW-242		03/08/99	A990620330	A990670051	Q990690008
GW-287		03/23/99	A990810022	A990810021	Q990840026
GW-287		08/19/99	A992310068	A992310067	Q992390011
GW-311		03/16/99	A990710042	A990710040	Q990810000
GW-311		08/30/99	A992420081	A992420079	Q992440115
GW-315		03/16/99	A990710041	A990710040	Q990810000
GW-315		08/30/99	A992420080	A992420079	Q992440115
GW-345		03/09/99	A990680107	A990680106	Q990740016
GW-346		03/09/99	A990680108	A990680106	Q990740016
GW-526		03/11/99	A990690065	A990690064	Q990740016
GW-526	D	03/11/99	A990690066	A990690064	Q990740016
GW-537		03/18/99	A990760114	A990760113	Q990830048
GW-537		08/31/99	A992420298	A992420296	Q992500066
GW-601		03/08/99	A990670052	A990670051	Q990690008
GW-621		02/15/99	A990390387	A990390386	Q990500000
GW-621		08/02/99	A992140007	A992140006	Q992300105
GW-627		03/24/99	A990810031	A990810029	Q990880084
GW-627	D	03/24/99	A990810032	A990810029	Q990880084
GW-627		08/26/99	A992380042	A992380040	Q992440115
GW-653		03/23/99	A990810023	A990810021	Q990840026
GW-653		08/19/99	A992310069	A992310067	Q992390011
GW-683		02/11/99	A990360031	A990410385	Q990460000
GW-683		07/29/99	A992070076	A992070075	Q992300105
GW-684		02/10/99	A990360030	A990360029	Q990460000
GW-684		07/29/99	A992070077	A992070075	Q992300105
GW-685		02/09/99	A990350275	A990350273	Q990460000
GW-685		07/28/99	A992070074	A992070072	Q992300105
GW-695		02/15/99	A990390388	A990390386	Q990500000
GW-695		08/02/99	A992140008	A992140006	Q992300105
GW-703		02/16/99	A990390393	A990390392	Q990500000
GW-703		08/03/99	A992150006	A992150005	Q992300105
GW-704		02/16/99	A990390394	A990390392	Q990500000
GW-704		08/24/99	A992360124	A992360123	Q992430153
GW-706		02/17/99	A990480035	A990480034	Q990540300
GW-706	D	02/17/99	A990480036	A990480034	Q990540300
GW-706		08/24/99	A992360125	A992360123	Q992430153

Appendix G.1: Quality Assurance/Quality Control Data
Correlation with Associated Groundwater and Surface Water Samples
Bear Creek Hydrogeologic Regime, 1999

Sampling Point		Date Sampled	Sample Number	Trip Blank Sample Number	Laboratory Blank Sample Number
GW-724		02/22/99	A990480091	A990480092	Q990600004
GW-724		08/09/99	A992160022	A992160021	Q992370217
GW-725		02/22/99	A990480093	A990480092	Q990600004
GW-725		08/09/99	A992160023	A992160021	Q992370217
GW-725	D	08/09/99	A992160024	A992160021	Q992370217
GW-726-02		06/01/99	A991530035	A991530034	Q991570000
GW-726-04		06/08/99	A991590265	A991590264	Q991670055
GW-726-06		06/08/99	A991600042	A991600041	Q991670045
GW-726-09		06/09/99	A991610014	A991610000	Q991670055
GW-726-09	D	06/09/99	A991610016	A991610000	Q991670055
GW-726-12		06/09/99	A991610018	A991610000	Q991670055
GW-726-16		06/10/99	A991620110	A991620109	Q991740013
GW-726-20		06/10/99	A991620116	A991620109	Q991740013
GW-726-23		06/10/99	A991620108	A991620109	Q991740013
GW-738		02/18/99	A990480090	A990480089	Q990540300
GW-738		08/24/99	A992360127	A992360123	Q992430153
GW-740		02/18/99	A990480037	A990480089	Q990540300
GW-740		08/24/99	A992360126	A992360123	Q992430153
GW-829		03/17/99	A990750114	A990750113	Q990810003
GW-829		08/30/99	A992420082	A992420079	Q992440115
NT-01		02/25/99	A990540237	A990540234	Q990630070
NT-01		08/11/99	A992180023	A992180017	Q992370122
NT-02		03/02/99	A990600023	A990600019	Q990690008
NT-06		03/02/99	A990600022	A990600019	Q990690003
NT-07		03/02/99	A990600021	A990600019	Q990690003
NT-08		03/02/99	A990600020	A990600019	Q990640153
SS-1		02/25/99	A990540236	A990540234	Q990630070
SS-1		08/11/99	A992180022	A992180017	Q992370122
SS-4		02/24/99	A990540231	A990540229	Q990610001
SS-4		08/11/99	A992180020	A992180017	Q992370122
SS-4	D	08/11/99	A992180021	A992180017	Q992370122
SS-5		02/23/99	A990540224	A990540051	Q990610001
SS-5		08/11/99	A992180018	A992180017	Q992370217
SS-6		02/23/99	A990540223	A990540051	Q990610001
SS-6		08/10/99	A992180013	A992180010	Q992370217

Appendix G.1: Quality Assurance/Quality Control Data
Correlation with Associated Groundwater and Surface Water Samples
Chestnut Ridge Hydrogeologic Regime, 1999

Sampling Point	Date Sampled	Sample Number	Trip Blank Sample Number	Laboratory Blank Sample Number
GW-141	01/12/99	A990120164	A990120131	Q990150000
GW-141	07/15/99	A991960280	A991960279	Q992010016
GW-217	01/12/99	A990120162	A990120131	Q990150000
GW-217 D	01/12/99	A990120163	A990120131	Q990150000
GW-217	07/14/99	A991950139	A991950004	Q992010016
GW-305	01/14/99	A990150004	A990150000	Q990210009
GW-305	07/20/99	A992000221	A992000219	Q992070030
GW-305 D	07/20/99	A992000222	A992000219	Q992070030
GW-521	01/19/99	A990190228	A990190207	Q990210009
GW-521	07/15/99	A991960281	A991960279	Q992010016
GW-522	01/14/99	A990150003	A990150000	Q990210009
GW-522	07/20/99	A992000220	A992000219	Q992070030
GW-540	04/05/99	A990900103	A990900102	Q990980161
GW-540 D	04/05/99	A990900104	A990900102	Q990980161
GW-540	10/13/99	A992850160	A992850159	Q993150197
GW-542	04/07/99	A990900115	A990900112	Q991020007
GW-542	10/18/99	A992910008	A992910006	Q993220049
GW-542 D	10/18/99	A992910009	A992910006	Q993230146
GW-543	04/08/99	A990900165	A990900164	Q991040016
GW-543	10/19/99	A992920038	A992920037	Q993220049
GW-544	04/08/99	A990900166	A990900164	Q991040016
GW-544	10/19/99	A992920039	A992920037	Q993220049
GW-557	01/20/99	A990200234	A990200213	Q990270004
GW-557	07/12/99	A991930239	A991930238	Q992000174
GW-709	04/05/99	A990900105	A990900102	Q990980161
GW-709	10/14/99	A992850161	A992870030	Q993150197
GW-709 D	10/14/99	A992850162	A992870030	Q993150197
GW-757	04/06/99	A990900110	A990900109	Q990980161
GW-757	10/14/99	A992870028	A992870030	Q993150197
GW-796	01/21/99	A990210245	A990210242	Q990290004
GW-796	07/13/99	A991940415	A991940414	Q992000174
GW-797	01/20/99	A990200235	A990200213	Q990270004
GW-797 D	01/20/99	A990200236	A990200213	Q990270004
GW-797	07/13/99	A991940416	A991940414	Q992000174
GW-799	01/20/99	A990200237	A990200213	Q990270004
GW-799	07/12/99	A991930240	A991930238	Q992000174
GW-801	01/21/99	A990210246	A990210242	Q990290004
GW-801	07/14/99	A991950005	A991950004	Q992010016
GW-801 D	07/14/99	A991950006	A991950004	Q992010016
GW-827	04/07/99	A990900113	A990900112	Q991020007
GW-827 D	04/07/99	A990900114	A990900112	Q991020007
GW-827	10/18/99	A992910007	A992910006	Q993220049

Appendix G.1: Quality Assurance/Quality Control Data
Correlation with Associated Groundwater and Surface Water Samples
Chestnut Ridge Hydrogeologic Regime, 1999

Sampling Point	Date Sampled	Sample Number	Trip Blank Sample Number	Laboratory Blank Sample Number
SCR2.1SP	02/02/99	A990330071	A990330067	Q990390097
SCR2.1SP D	02/02/99	A990330072	A990330067	Q990390097
SCR2.1SP	07/21/99	A992020001	A992020000	Q992100043
SCR2.2SP	02/02/99	A990330073	A990330067	Q990390097
SCR2.2SP	07/21/99	A992020002	A992020000	Q992100043
SCR2.2SP D	07/21/99	A992020003	A992020000	Q992100043
SCR3.4SP	02/03/99	A990340219	A990340215	Q990390097
SCR3.4SP	07/21/99	A992020004	A992020000	Q992100043
SCR4.3SP	01/19/99	A990190230	A990190207	Q990210009
SCR4.3SP	07/14/99	A991950007	A991950004	Q992010016
SCR5.1SP	02/03/99	A990340220	A990340215	Q990390097
SCR5.1SP	07/21/99	A992020005	A992020000	Q992100043
SCR5.4SP	02/03/99	A990340221	A990340215	Q990390097
SCR5.4SP	07/21/99	A992020006	A992020000	Q992100043

Appendix G.1: Quality Assurance/Quality Control Data
Correlation with Associated Groundwater and Surface Water Samples
Upper East Fork Poplar Creek Hydrogeologic Regime, 1999

Sampling Point	Date Sampled	Sample Number	Trip Blank Sample Number	Laboratory Blank Sample Number
9201-5N-J4	02/16/99	A990460129	A990460124	Q990500000
9204-2-NE	02/16/99	A990460125	A990460124	Q990500000
9204-2-NW	02/16/99	A990460126	A990460124	Q990500000
9204-2E-NW	02/23/99	A990530070	A990530069	Q990600004
9204-4ELSU	02/17/99	A990460128	A990470349	Q990540300
GW-109	09/02/99	A992450061	A992450060	Q992500069
GW-131-01	06/14/99	A990900098	A990900097	Q991740013
GW-131-04	06/15/99	A990900099	A990900097	Q991740013
GW-131-08	06/16/99	A991670281	A991670263	Q991740018
GW-131-12	06/16/99	A991680033	A991680032	Q991740018
GW-131-15	06/17/99	A991680267	A991680263	Q991740018
GW-131-21	06/21/99	A991730064	A991730063	Q991790046
GW-131-21 D	06/21/99	A991730065	A991730063	Q991790046
GW-131-24	06/17/99	A991680269	A991680263	Q991740018
GW-131-28	06/22/99	A991740076	A991740075	Q991790046
GW-131-32	06/22/99	A991740077	A991740075	Q991790046
GW-131-36	06/23/99	A991740199	A991740197	Q991790046
GW-148	06/01/99	A991520158	A991520156	Q991570000
GW-148	11/09/99	A993130008	A993130007	Q993400166
GW-153	06/02/99	A991520164	A991520162	Q991570000
GW-153	11/09/99	A993130009	A993130007	Q993400166
GW-153 D	11/09/99	A993130010	A993130007	Q993400166
GW-168	09/08/99	A992510024	A992510022	Q992560022
GW-192	05/26/99	A991450026	A991450025	Q991520241
GW-192	11/01/99	A993050009	A993050008	Q993330154
GW-204	09/13/99	A992530109	A992560048	Q992670046
GW-207	06/08/99	A991580241	A991580240	Q991610013
GW-207	12/07/99	A993410021	A993410020	Q993440053
GW-208	06/08/99	A991580242	A991580240	Q991610013
GW-208	11/17/99	A993200062	A993200060	Q993420031
GW-218	12/06/99	A993360117	A993360166	Q993440053
GW-218 D	12/06/99	A993360118	A993360166	Q993440053
GW-219	12/02/99	A993350030	A993360116	Q993440053
GW-220	06/02/99	A991520163	A991520162	Q991570000
GW-220	11/10/99	A993140004	A993140003	Q993400175
GW-223	09/07/99	A992500060	A992500059	Q992560022
GW-251	05/27/99	A991450029	A991450028	Q991550010
GW-251 D	05/27/99	A991450030	A991450028	Q991550010
GW-251	11/02/99	A993060007	A993060006	Q993330154
GW-337	09/02/99	A992450062	A992450060	Q992500069
GW-380	06/04/99	A991540191	A991540190	Q991610013
GW-380	11/10/99	A993140005	A993140003	Q993400175

Appendix G.1: Quality Assurance/Quality Control Data
Correlation with Associated Groundwater and Surface Water Samples
Upper East Fork Poplar Creek Hydrogeologic Regime, 1999

Sampling Point	Date Sampled	Sample Number	Trip Blank Sample Number	Laboratory Blank Sample Number
GW-383	06/03/99	A991540172	A991540169	Q991610005
GW-383	11/11/99	A993150031	A993150030	Q993400175
GW-618	05/26/99	A991450027	A991450025	Q991550010
GW-618	11/01/99	A993050010	A993050008	Q993330154
GW-620	05/27/99	A991450031	A991450028	Q991550010
GW-620	11/08/99	A993120029	A993120028	Q993400184
GW-722-06	03/01/99	A990560072	A990560071	Q990630070
GW-722-06	07/19/99	A992010237	A992010236	Q992070030
GW-722-10	03/01/99	A990560073	A990560118	Q990640153
GW-722-10	07/20/99	A992010390	A992010389	Q992070030
GW-722-14	03/02/99	A990560083	A990560082	Q990640153
GW-722-14	07/21/99	A992030090	A992030089	Q992100043
GW-722-17	03/04/99	A990560084	A990560119	Q990690003
GW-722-17	07/22/99	A992030327	A992030326	Q992100053
GW-722-20	03/16/99	A990670056	A990670055	Q990810000
GW-722-20	07/27/99	A992080201	A992080200	Q992300094
GW-722-20 D	07/27/99	A992080203	A992080200	Q992300094
GW-722-22	03/17/99	A990670059	A990670058	Q990810000
GW-722-22 D	03/17/99	A990670060	A990670058	Q990810000
GW-722-22	07/22/99	A992030330	A992030326	Q992100053
GW-722-26	03/18/99	A990770055	A990770060	Q990830048
GW-722-26	07/28/99	A992090310	A992090309	Q992300102
GW-722-30	03/23/99	A990780026	A990780025	Q990840026
GW-722-30	07/28/99	A992090312	A992090309	Q992300102
GW-722-32	03/30/99	A990780029	A990780028	Q990950077
GW-722-32	07/28/99	A992100163	A992100162	Q992300102
GW-722-33	03/30/99	A990780032	A990780031	Q990950077
GW-722-33	07/28/99	A992100174	A992100162	Q992300102
GW-735	06/15/99	A991660021	A991660020	Q991740013
GW-735	11/29/99	A993330003	A993330001	Q993430036
GW-744	06/09/99	A991600276	A991600275	Q991670055
GW-744	11/17/99	A993200061	A993200060	Q993420031
GW-747	06/09/99	A991600277	A991600275	Q991670055
GW-747	11/29/99	A993330002	A993330001	Q993430036
GW-750	06/15/99	A991660023	A991660020	Q991740013
GW-750	12/01/99	A993350028	A993350027	Q993430036
GW-750 D	12/01/99	A993350029	A993350027	Q993430036
GW-763	06/01/99	A991520157	A991520156	Q991570000
GW-763	11/08/99	A993120030	A993120028	Q993400166
GW-769	04/20/99	A991050456	A991050454	Q991160125
GW-769	10/21/99	A992940060	A992940059	Q993230153
GW-770	04/20/99	A991050455	A991050454	Q991160125
GW-770	10/21/99	A992940061	A992940059	Q993230153

Appendix G.1: Quality Assurance/Quality Control Data
Correlation with Associated Groundwater and Surface Water Samples
Upper East Fork Poplar Creek Hydrogeologic Regime, 1999

Sampling Point	Date Sampled	Sample Number	Trip Blank Sample Number	Laboratory Blank Sample Number
GW-775	04/22/99	A991050459	A991050457	Q991170193
GW-775	10/27/99	A993000007	A993000006	Q993230251
GW-776	04/22/99	A991050458	A991050457	Q991170193
GW-776	10/27/99	A993000008	A993000006	Q993230251
GW-781	05/25/99	A991440152	A991440151	Q991520241
GW-781	10/26/99	A992990008	A992990007	Q993230153
GW-782	05/24/99	A991440187	A991440186	Q991520241
GW-782 D	05/24/99	A991440188	A991440186	Q991520241
GW-782	10/25/99	A992980061	A992980060	Q993230153
GW-783	05/24/99	A991440189	A991440186	Q991520241
GW-783	10/25/99	A992980062	A992980060	Q993230153
GW-788	04/19/99	A991050443	A991050441	Q991120082
GW-788	10/20/99	A992930008	A992930007	Q993220049
GW-789	04/19/99	A991050442	A991050441	Q991120082
GW-789	10/20/99	A992930009	A992930007	Q993220049
GW-791	05/25/99	A991440153	A991440151	Q991520241
GW-791	11/28/99	A993010055	A993010054	Q993330049
GW-791 D	11/28/99	A993010056	A993010054	Q993330049
GW-792	05/25/99	A991440154	A991440151	Q991520241
GW-792	11/28/99	A993010057	A993010054	Q993330049
GW-816	06/07/99	A991540192	A991550182	Q991610013
GW-816 D	06/07/99	A991540193	A991550182	Q991610013
GW-816	11/16/99	A993200036	A993200035	Q993420031
GW-820	09/10/99	A992530110	A992530108	Q992670046
LRSPW	06/03/99	A991540170	A991540169	Q991610005
LRSPW	11/15/99	A993190023	A993190022	Q993410043

APPENDIX G.2

TRIP BLANK DATA SUMMARY

Appendix G.2: Quality Assurance/Quality Control Data
Trip Blank Data Summary, 1999

Sample Number	A990120131	A990150000	A990190207	A990200213	A990210242	A990330067	A990340215	A990350273
ORGANICS (ug/L)								
Acetone	<	<	<	<	<	<	<	<
Carbon disulfide	<	<	<	<	<	<	<	<
cis-1,2-Dichloroethene	<	<	<	<	<	<	<	<
Tetrachloroethene	<	<	<	<	<	<	<	<
1,1,1-Trichloroethane	<	<	<	<	<	<	<	<
Trichloroethene	<	<	<	<	<	<	<	<

(CONTINUED)

Sample Number	A990360029	A990390386	A990390392	A990410385	A990460124	A990470349	A990480034	A990480089
ORGANICS (ug/L)								
Acetone	<	<	<	<	<	<	<	<
Carbon disulfide	<	<	<	<	<	<	<	<
cis-1,2-Dichloroethene	<	<	<	<	<	<	<	<
Tetrachloroethene	<	<	<	<	<	<	<	<
1,1,1-Trichloroethane	<	<	<	3	<	<	<	<
Trichloroethene	<	<	<	<	<	<	<	<

(CONTINUED)

Sample Number	A990480092	A990530069	A990540051	A990540229	A990540234	A990560071	A990560082	A990560118
ORGANICS (ug/L)								
Acetone	<	<	<	<	<	<	<	<
Carbon disulfide	<	<	<	<	<	<	<	<
cis-1,2-Dichloroethene	<	<	<	<	<	<	<	<
Tetrachloroethene	<	<	<	<	<	<	<	<
1,1,1-Trichloroethane	<	<	<	<	<	<	<	<
Trichloroethene	<	<	<	<	<	<	<	<

(CONTINUED)

Sample Number	A990560119	A990600019	A990620328	A990670051	A990670055	A990670058	A990680106	A990690064
ORGANICS (ug/L)								
Acetone	<	<	<	<	<	<	<	<
Carbon disulfide	<	<	<	<	<	<	<	<
cis-1,2-Dichloroethene	<	<	<	<	<	<	<	<
Tetrachloroethene	<	<	<	<	<	<	<	<
1,1,1-Trichloroethane	<	<	<	<	<	<	<	<
Trichloroethene	<	<	<	<	<	<	<	<

(CONTINUED)

Sample Number	A990710040	A990750113	A990760113	A990770060	A990780025	A990780028	A990780031	A990810021
ORGANICS (ug/L)								
Acetone	<	<	<	<	12	<	<	<
Carbon disulfide	<	<	<	<	<	<	<	<
cis-1,2-Dichloroethene	<	<	<	<	<	<	<	<
Tetrachloroethene	<	<	<	<	<	<	<	<
1,1,1-Trichloroethane	<	<	<	<	<	<	<	<
Trichloroethene	<	<	<	<	<	<	<	<

(CONTINUED)

Sample Number	A990810029	A990900097	A990900102	A990900109	A990900112	A990900164	A991050441	A991050454
ORGANICS (ug/L)								
Acetone	<	<	<	<	<	<	<	<
Carbon disulfide	<	<	<	<	<	<	<	<
cis-1,2-Dichloroethene	<	<	<	<	<	<	<	<
Tetrachloroethene	<	<	<	<	<	<	<	<
1,1,1-Trichloroethane	<	<	<	<	<	<	<	<
Trichloroethene	<	<	<	<	<	<	<	<

(CONTINUED)

Sample Number	A991050457	A991440151	A991440186	A991450025	A991450028	A991520156	A991520162	A991530034
ORGANICS (ug/L)								
Acetone	<	<	<	<	<	<	<	<
Carbon disulfide	<	<	<	<	<	<	<	<
cis-1,2-Dichloroethene	<	<	<	<	<	<	<	<
Tetrachloroethene	<	<	<	<	<	<	<	<
1,1,1-Trichloroethane	<	<	<	<	<	<	<	<
Trichloroethene	<	<	<	<	<	<	<	<

(CONTINUED)

Sample Number	A991540169	A991540190	A991550182	A991580240	A991590264	A991600041	A991600275	A991610000
ORGANICS (ug/L)								
Acetone	<	<	<	<	<	<	<	<
Carbon disulfide	<	<	<	<	<	<	<	<
cis-1,2-Dichloroethene	<	<	<	<	<	<	<	<
Tetrachloroethene	<	<	<	<	<	<	<	<
1,1,1-Trichloroethane	<	<	<	<	<	<	<	<
Trichloroethene	<	<	<	<	<	<	<	<

(CONTINUED)

Sample Number	A991620109	A991660020	A991670263	A991680032	A991680263	A991730063	A991740075	A991740197
ORGANICS (ug/L)								
Acetone	<	<	<	<	<	<	<	<
Carbon disulfide	<	<	<	<	<	<	<	<
cis-1,2-Dichloroethene	<	<	<	<	<	<	<	<
Tetrachloroethene	<	<	<	<	<	<	<	<
1,1,1-Trichloroethane	<	<	<	<	<	<	<	<
Trichloroethene	<	<	<	<	<	<	<	<

(CONTINUED)

Sample Number	A991930238	A991940414	A991950004	A991960279	A992000219	A992010236	A992010389	A992020000
ORGANICS (ug/L)								
Acetone	<	<	<	<	<	<	<	<
Carbon disulfide	<	<	<	<	<	<	<	<
cis-1,2-Dichloroethene	<	<	<	<	<	<	<	<
Tetrachloroethene	<	<	<	<	<	<	<	<
1,1,1-Trichloroethane	<	<	<	<	<	<	<	<
Trichloroethene	<	<	<	<	<	<	<	<

(CONTINUED)

Sample Number	A992030089	A992030326	A992070072	A992070075	A992080200	A992090309	A992100162	A992140006
ORGANICS (ug/L)								
Acetone	<	<	<	<	<	<	<	<
Carbon disulfide	<	<	<	<	<	<	<	<
cis-1,2-Dichloroethene	<	<	<	<	<	<	<	<
Tetrachloroethene	<	<	<	<	<	<	<	<
1,1,1-Trichloroethane	<	<	<	<	<	<	<	<
Trichloroethene	<	<	<	<	<	<	<	<

(CONTINUED)

Sample Number	A992150005	A992160021	A992180010	A992180017	A992180127	A992240228	A992290157	A992300180
ORGANICS (ug/L)								
Acetone	<	<	<	<	<	<	<	<
Carbon disulfide	<	<	<	<	<	<	1	<
cis-1,2-Dichloroethene	<	<	<	<	<	<	<	<
Tetrachloroethene	<	<	<	<	<	<	<	<
1,1,1-Trichloroethane	<	<	<	<	<	<	<	<
Trichloroethene	<	<	<	<	<	<	<	<

(CONTINUED)

Sample Number	A992310011	A992310067	A992310405	A992360123	A992380000	A992380040	A992420079	A992420296
ORGANICS (ug/L)								
Acetone	<	<	<	<	<	<	<	<
Carbon disulfide	<	<	<	<	<	<	<	<
cis-1,2-Dichloroethene	<	<	<	<	<	<	<	<
Tetrachloroethene	<	<	<	<	<	<	<	<
1,1,1-Trichloroethane	<	<	<	<	<	<	<	<
Trichloroethene	<	<	<	<	<	<	<	<

(CONTINUED)

Sample Number	A992430022	A992450060	A992500059	A992510022	A992520059	A992520065	A992530108	A992560048
ORGANICS (ug/L)								
Acetone	<	<	<	<	<	<	<	<
Carbon disulfide	<	<	<	<	<	<	<	<
cis-1,2-Dichloroethene	<	<	<	4	<	<	8	<
Tetrachloroethene	<	<	<	4	<	<	12	<
1,1,1-Trichloroethane	<	<	<	<	<	<	<	<
Trichloroethene	<	<	<	2	<	<	2	<

(CONTINUED)

Sample Number	A992570064	A992570289	A992580168	A992590097	A992600055	A992670075	A992710009	A992720083
ORGANICS (ug/L)								
Acetone	<	<	<	<	<	<	<	<
Carbon disulfide	<	<	<	<	<	<	<	<
cis-1,2-Dichloroethene	<	<	<	<	<	<	<	<
Tetrachloroethene	<	<	<	<	<	<	<	<
1,1,1-Trichloroethane	<	<	<	<	<	<	<	<
Trichloroethene	<	<	<	<	<	<	<	<

(CONTINUED)

Appendix G.2: Quality Assurance/Quality Control Data
Trip Blank Data Summary, 1999

Sample Number	A992850159	A992870030	A992910006	A992920037	A992930007	A992940059	A992980060	A992990007
ORGANICS (ug/L)								
Acetone	<	<	<	<	<	<	<	<
Carbon disulfide	<	<	<	<	<	<	<	<
cis-1,2-Dichloroethene	<	<	<	<	<	<	<	<
Tetrachloroethene	<	<	<	<	<	<	<	<
1,1,1-Trichloroethane	<	<	<	<	<	<	<	<
Trichloroethene	<	<	<	<	<	<	<	<

(CONTINUED)

Sample Number	A993000006	A993010054	A993050008	A993060006	A993120028	A993130007	A993140003	A993150030
ORGANICS (ug/L)								
Acetone	<	<	<	<	<	<	<	<
Carbon disulfide	<	<	<	<	<	<	<	<
cis-1,2-Dichloroethene	<	<	<	<	<	<	<	<
Tetrachloroethene	<	<	<	<	<	<	<	<
1,1,1-Trichloroethane	<	<	<	<	<	<	<	<
Trichloroethene	<	<	<	<	<	<	<	<

(CONTINUED)

Sample Number	A993190022	A993200035	A993200060	A993330001	A993350027	A993360116	A993360166	A993410020
ORGANICS (ug/L)								
Acetone	<	<	<	<	<	<	<	<
Carbon disulfide	<	<	<	<	<	<	<	<
cis-1,2-Dichloroethene	<	<	<	<	<	<	<	<
Tetrachloroethene	<	<	<	<	<	<	<	<
1,1,1-Trichloroethane	<	<	<	<	<	<	<	<
Trichloroethene	<	<	<	<	<	<	<	<

APPENDIX G.3

LABORATORY BLANK DATA SUMMARY

Appendix G.3: Quality Assurance/Quality Control Data
Laboratory Blank Data Summary, 1999

Sample Number	Q990150000	Q990210009	Q990270004	Q990290004	Q990390097	Q990460000	Q990500000	Q990540300
ORGANICS (ug/L)								
Acetone	<	<	<	<	<	<	<	<

(CONTINUED)

Sample Number	Q990600004	Q990610001	Q990630070	Q990640153	Q990690003	Q990690008	Q990740016	Q990810000
ORGANICS (ug/L)								
Acetone	<	<	<	<	<	<	<	<

(CONTINUED)

Sample Number	Q990810003	Q990830048	Q990840026	Q990880084	Q990950077	Q990980161	Q991020007	Q991040016
ORGANICS (ug/L)								
Acetone	<	<	<	<	<	<	<	<

(CONTINUED)

Sample Number	Q991120082	Q991160125	Q991170193	Q991520241	Q991550010	Q991570000	Q991610005	Q991610013
ORGANICS (ug/L)								
Acetone	7	<	<	<	<	<	<	<

(CONTINUED)

Sample Number	Q991670045	Q991670055	Q991740013	Q991740018	Q991790046	Q992000174	Q992010016	Q992070030
ORGANICS (ug/L)								
Acetone	<	<	<	<	<	<	<	<

(CONTINUED)

Sample Number	Q992100043	Q992100053	Q992300094	Q992300102	Q992300105	Q992370122	Q992370125	Q992370217
ORGANICS (ug/L)								
Acetone	<	<	<	<	<	<	<	<

(CONTINUED)

Sample Number	Q992390011	Q992430153	Q992440115	Q992500066	Q992500069	Q992560022	Q992670046	Q992670052
ORGANICS (ug/L)								
Acetone	<	<	<	<	<	<	<	<

(CONTINUED)

Sample Number	Q992740132	Q992740135	Q992940171	Q993150197	Q993220049	Q993230146	Q993230153	Q993230251
ORGANICS (ug/L)								
Acetone	<	<	<	<	<	<	<	<

(CONTINUED)

Sample Number	Q993330049	Q993330154	Q993400166	Q993400175	Q993400184	Q993410043	Q993420031	Q993430036
ORGANICS (ug/L)								
Acetone	<	<	<	<	<	<	<	<

(CONTINUED)

Sample Number	Q993440053
ORGANICS (ug/L)	
Acetone	<

APPENDIX G.4

EQUIPMENT RINSATE DATA SUMMARY

Appendix G.4: Quality Assurance/Quality Control Data
Equipment Rinsate Data Summary, 1999

Hydrogeologic Regime	Bear Creek						
Associated Well	GW-132-25	GW-133-24	GW-134-36	GW-135-39	GW-228	GW-236	GW-726-09
Date Sampled	09/29/99	08/19/99	08/12/99	09/16/99	09/13/99	09/08/99	06/08/99
ORGANICS (ug/L)							
Carbon disulfide	4	<	<	<	<	<	<
INORGANICS (mg/L)							
Selenium (PMS)	<	<	<	<	<	<	<
Uranium (PMS)	<	<	0.000677	<	<	<	<
Alkalinity-HCO3	8	<	<	<	0	<	0
Alkalinity-CO3	<	<	<	<	<	<	<
Chloride	<	0.116	<	<	<	<	<
Nitrate-N	<	<	<	<	<	0.1245	<
MISCELLANEOUS ANALYTES							
pH (standard units)	5.9	7.6	8.02	6.01	5.78	6.14	7.46
Conductivity (umho/cm)	0.8	0.6	0.9	0.5	0.9	2.7	1.1
Dissolved Solids (mg/L)	<	<	<	<	<	165	<
Suspended Solids (mg/L)	<	<	<	5	<	1	<
Turbidity (NTU)	0.1	0.327	0.307	0.055	<	0.13	0.181
ACTIVITY (pCi/L)							
Gross Alpha	<	<	<	<	7.4	<	<
Gross Alpha CE	.	.	.	.	4.1	.	.
Gross Alpha MDA	4.3	11	2.9	4.7	4.8	4.6	3.1
Gross Beta	<	<	<	<	<	<	<
Gross Beta CE	.	.	.	.	.	.	.
Gross Beta MDA	7.5	17	8.4	8.6	8.3	8.3	9.9

(CONTINUED)

Hydrogeologic Regime	East Fork				
Associated Well	GW-131-36	GW-168	GW-722-22	GW-722-33	GW-820
Date Sampled	06/23/99	09/13/99	03/17/99	07/29/99	09/10/99
ORGANICS (ug/L)					
Carbon disulfide	12	<	<	<	<
INORGANICS (mg/L)					
Selenium (PMS)	<	<	<	<	0.0329
Uranium (PMS)	<	<	<	<	<
Alkalinity-HCO3	4	<	4	<	0
Alkalinity-CO3	<	4	<	<	<
Chloride	<	<	0.56	<	<
Nitrate-N	<	<	<	<	<
MISCELLANEOUS ANALYTES					
pH (standard units)	6.23	6.42	6.22	7.16	6.32
Conductivity (umho/cm)	0.9	26.5	0.9	0.6	<
Dissolved Solids (mg/L)	<	<	8	<	3
Suspended Solids (mg/L)	<	<	<	<	<
Turbidity (NTU)	0.058	<	0.216	0.105	0.069
ACTIVITY (pCi/L)					
Gross Alpha	<	<	<	<	<
Gross Alpha CE	.	.	.	.	.
Gross Alpha MDA	3.5	4.7	3.3	4.2	2.8
Gross Beta	<	<	<	<	<
Gross Beta CE	.	.	.	.	.
Gross Beta MDA	8.3	8.1	8.2	8	7.9

APPENDIX G.5

FIELD BLANK DATA SUMMARY

Appendix G.5: Quality Assurance/Quality Control Data
Field Blank Data Summary, CY 1999

Hydrogeologic Regime	Bear Creek		Chestnut Ridge		East Fork		
Associated Well	GW-132-25	GW-726-09	GW-796	GW-801	GW-131-36	GW-722-22	GW-722-33
Date Sampled	09/28/99	06/08/99	01/21/99	07/14/99	06/23/99	03/17/99	07/29/99
ORGANICS (ug/L)							
Acetone	<	<	<	<	45	<	<
2-Butanone	<	<	<	<	23	<	<
2-Hexanone	<	<	<	<	4	<	<

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