Y/TS-1438
FINAL

Y-12

OAK RIDGE
Y-12
PLANT

LOCKHEED MARTIN

ANNUAL REPORT OF 1995 GROUNDWATER MONITORING DATA FOR THE KERR HOLLOW QUARRY AND CHESTNUT RIDGE SEDIMENT DISPOSAL BASIN, OAK RIDGE Y-12 PLANT, OAK RIDGE, TENNESSEE

February 1996

Prepared by

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

Managed by

LOCKHEED MARTIN ENERGY SYSTEMS, INC.
for the
U.S. DEPARTMENT OF ENERGY
under
Contract DE-AC05-84OR21400

MANAGED BY
LOCKHEED MARTIN ENERGY SYSTEMS, INC.
FOR THE UNITED STATES
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UCN-13672 (26 6-95)

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ACRONYMS AND ABBREVIATIONS

ANOVA	Analysis of Variance
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CRSDB	Chestnut Ridge Sediment Disposal Basin
CY	Calendar Year
DOE	Department of Energy
Energy Systems	Lockheed Martin Energy Systems, Inc. (also Martin Marietta Energy Systems, Inc.)
EPA	U.S. Environmental Protection Agency
GWPP	Groundwater Protection Program
GWQAR	Groundwater Quality Assessment Report
GWQR	Groundwater Quality Report
KHQ	Kerr Hollow Quarry
MDA	Minimum Detectable Activity
mg/L	milligrams per liter
ORR	Oak Ridge Reservation
pCi/L	Picocuries per Liter
PCPA	Post-Closure Permit Application
PERC	tetrachloroethene (perchloroethene)
RCRA	Resource Conservation and Recovery Act
TDEC	Tennessee Department of Environment and Conservation
TOC	Total Organic Carbon
TOX	Total Organic Halides
TSD	Treatment, Storage, or Disposal (facility)
TSS	Total Suspended Solids
ug/L	micrograms per liter
UTL	Upper Tolerance Limit
VOC	Volatile Organic Compound

1.0 INTRODUCTION

The Kerr Hollow Quarry (KHQ) and the Chestnut Ridge Sediment Disposal Basin (CRSDB) are inactive waste management sites located at the Oak Ridge Y-12 Plant (Fig. 1-1). The U.S. Environmental Protection Agency (EPA) identification number for the Oak Ridge Y-12 Plant is TN3 89 009 0001. The Oak Ridge Y-12 Plant is managed by Lockheed Martin Energy Systems, Inc. (Energy Systems [formerly Martin Marietta Energy Systems, Inc.]) for the U.S. Department of Energy (DOE). The KHQ and CRSDB are regulated as treatment, storage, or disposal (TSD) facilities under the Resource Conservation and Recovery Act (RCRA). The facilities were granted interim status in calendar year (CY) 1986 under Tennessee Department of Environment and Conservation (TDEC) Hazardous Waste Management Rule 1200-1-11-.05. Historical environmental monitoring data and baseline characterization under interim status indicated that releases of contaminants to groundwater had not occurred; thus, the detection monitoring was implemented at the sites until either clean closure was completed or post-closure permits were issued.

In November 1989, the Oak Ridge Reservation (ORR) was placed on the National Priority List. In January 1992, the DOE, EPA, and TDEC negotiated a Federal Facilities Agreement regarding environmental restoration on the ORR under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA). Under this agreement, CERCLA became the primary regulatory driver for several RCRA TSD units at the Y-12 Plant. As such, DOE appealed the applicability of RCRA post-closure care, corrective action, and groundwater monitoring requirements to CERCLA operable units. In April 1993, the DOE, TDEC, and Energy Systems signed an Agreed Order pertaining to the RCRA post-closure permit for the S-3 Site, located west of the Y-12 Plant. The Agreed Order resolved the DOE appeal with all parties formally agreeing to apply RCRA as an applicable, or relevant and appropriate requirement of CERCLA. Under the Agreed Order, post-closure maintenance and care of RCRA TSD units will be conducted in compliance with the terms of RCRA post-closure permits. Groundwater monitoring is to be integrated with CERCLA programs with corrective actions deferred to CERCLA. Groundwater monitoring data evaluation and reporting will comply with RCRA post-closure permit conditions as well as any applicable CERCLA requirements. In accordance with the Agreed Order, RCRA post-closure permit applications (PCPAs) were prepared or revised as needed and TDEC began the process of issuing final post-closure permits. Per agreement with TDEC, three RCRA post-closure permits will be issued for the Y-12 Plant encompassing each of three hydrogeologic regimes established for the purposes of groundwater monitoring and data evaluation. Specific requirements for interim status sites within each regime will be incorporated into the permits as separate modifications. The KHQ and CRSDB are located within the Chestnut Ridge Hydrogeologic Regime and are included in the scope of the post-closure permit for this regime.

The CRSDB was closed in CY 1989 under a TDEC-approved RCRA closure plan (Energy Systems 1988a). A revised RCRA PCPA for the CRSDB was submitted by DOE personnel to TDEC staff in September 1994 (Geraghty and Miller, Inc. 1994). A final post-closure permit was issued by the TDEC on September 18, 1995. The post-closure permit specifies semiannual detection monitoring at the facility for specific target compounds and evaluation of data using statistical methods to determine if a release of contaminants to groundwater occurs. The CRSDB, therefore, was under interim status

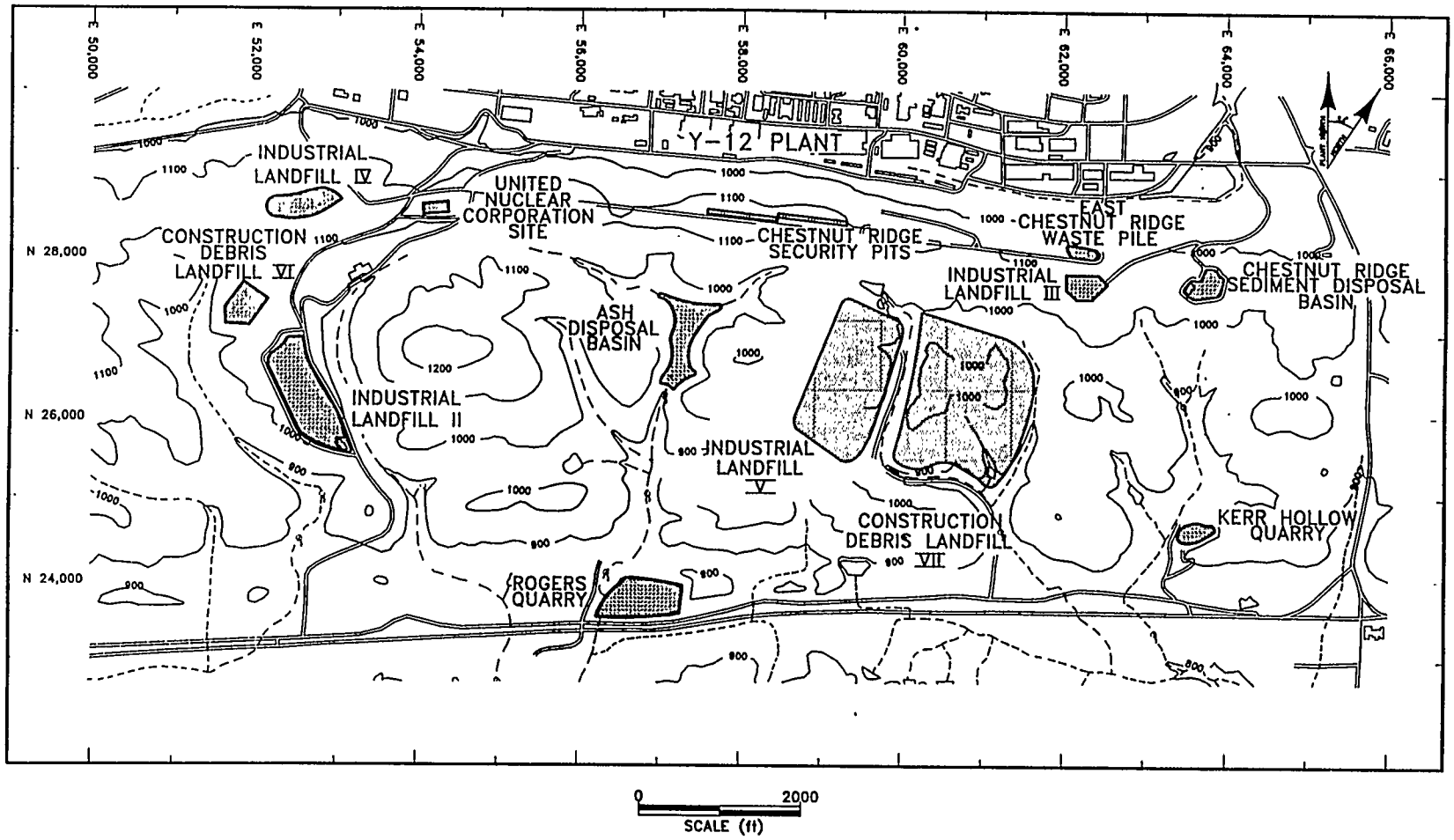


Figure 1-1. Location Map for Kerr Hollow Quarry and the Chestnut Ridge

requirements for the first three calendar quarters of CY 1995. The monitoring program and statistical evaluations were modified during the fourth calendar quarter of CY 1995 to comply with terms of the RCRA post-closure permit.

Closure activities at KHQ under RCRA were completed in October 1993 in accordance with a TDEC-approved closure plan (DOE 1993). Because the site was closed with some of the wastes remaining in place, a RCRA PCPA was prepared and submitted to the TDEC in June 1995 (SAIC, Inc. 1995). A post-closure permit was not issued by TDEC in CY 1995; therefore, the site remained under interim status throughout the year. The post-closure permit application proposed semiannual detection monitoring at the facility for specific target compounds and statistical evaluation of data. A CERCLA Record of Decision was also completed for the KHQ in September 1995, specifing administrative controls for the site and requiring monitoring of a surface water outfall (DOE 1995). The Record of Decision will also incorporate requirements of the RCRA post-closure permit once it is issued by the TDEC.

The information in this document was compiled to meet annual reporting requirements of the TDEC Hazardous Waste Management Regulation 1200-1-11-.05(6)(a) for detection monitoring at facilities accorded interim status. In addition, data are provided to comply with annual post-closure reporting requirements for the CRSDB as specified in Condition IV.H.1 of permit TNHW-088 dated September 18, 1995. The hydrologic and chemical data presented in this report were collected by the Oak Ridge Y-12 Plant Groundwater Protection Program (GWPP) staff as part of the Comprehensive Groundwater Monitoring Program for the Y-12 Plant. The Y-12 Plant GWPP is managed under the Environmental Management Department of the Health, Safety, Environment, and Accountability Organization.

2.0 BACKGROUND AND HYDROGEOLOGIC SETTING

2.1 Kerr Hollow Quarry

The KHQ is located on a low ridge running along the north side of Bethel Valley (Fig. 2-1). The quarry was active in the early and mid-1940s and was abandoned sometime in the late 1940s. The quarry was used from the early 1950s until CY 1988 for the disposal of reactive materials (such as sodium metal), compressed gas cylinders, and other debris from the Y-12 Plant and Oak Ridge National Laboratory. A full description of waste disposal, site characterization, and closure activities may be found in the RCRA PCPA for the site (SAIC, Inc. 1995).

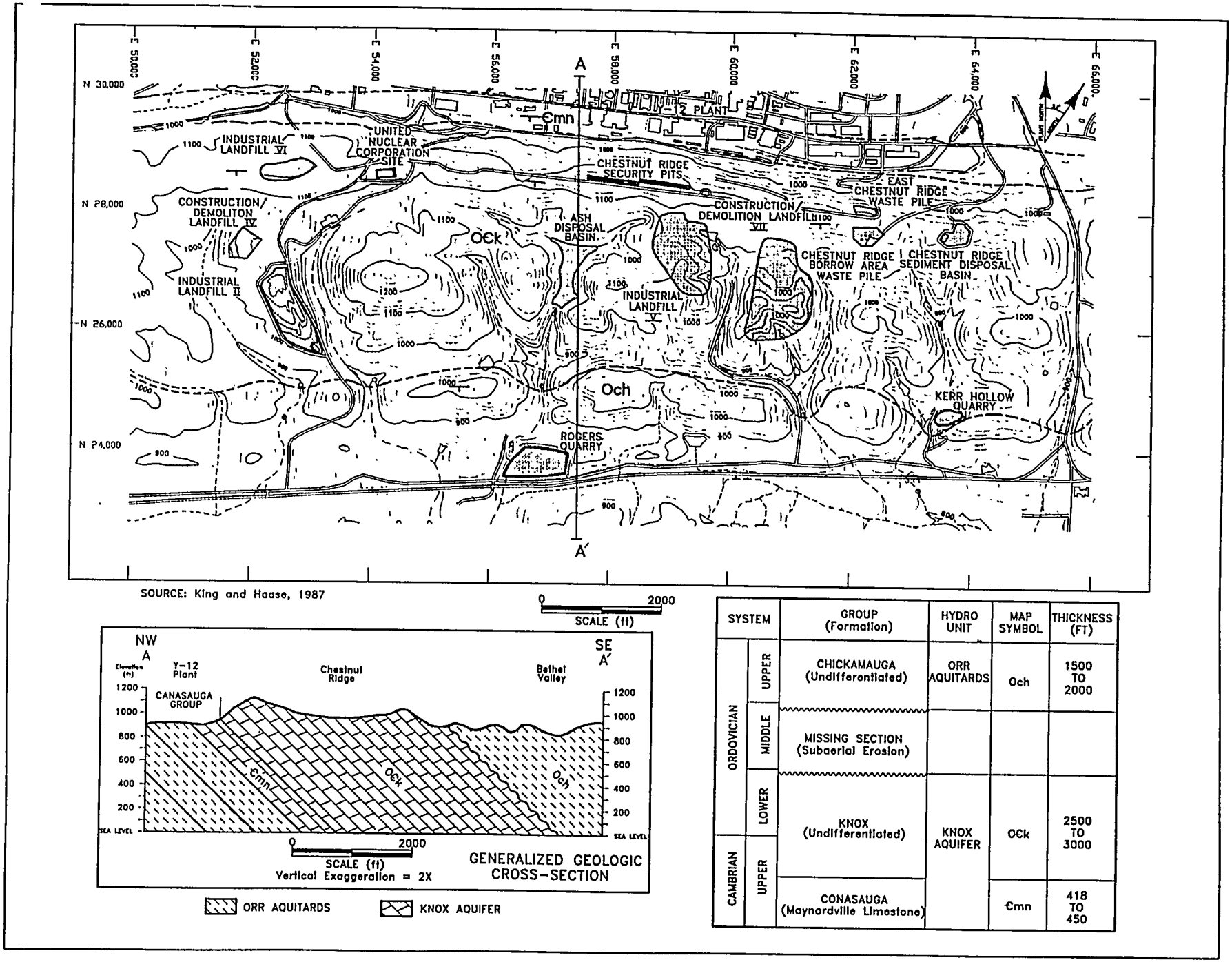
The site is located at the contact between the Mascot Dolomite of the Knox Group and the Lincolnshire Formation of the Chickamauga Group (Fig. 2-1). At KHQ, the contact is an unconformity and exhibits approximately 50 to 100 ft of topographic relief. The uppermost Knox Group at the site consists of medium-bedded to massive dolostone with locally abundant nodular or bedded chert occurring throughout the section. The basal portion of the Chickamauga Group consists of abundant thin- to medium-bedded maroon and gray siltstone, thin-bedded limestone, and minor to rare nodular or bedded chert. Both the upper Knox Group and the basal Chickamauga Group are pervasively jointed. Predominant joint sets are both parallel and perpendicular to geologic strike, which is approximately parallel to the ridge crests. In the vicinity of KHQ, an additional joint set trends approximately north-south (Haase et al. 1987a; Law Engineering, Inc. 1983). Strata dip approximately 40 to 50 degrees to the southeast.

The KHQ lies at the contact between the Knox Aquifer and the ORR Aquitards, which is coincident with the contact between the Knox and Chickamauga Groups (Solomon et al. 1992). Evaluation of geophysical logs and drill core obtained from boreholes at this site suggests that there are thin (<1 to 3 ft), relatively permeable, fractured zones occurring within bedrock to depths of at least 600 ft (King and Haase 1987). Data indicate that groundwater movement within the bedrock occurs principally within fractures and fracture systems and not within any single principal stratigraphic unit. Detailed discussion of the geologic and hydrogeologic setting at KHQ may be found in the CY 1995 Part I Groundwater Quality Report for the Chestnut Ridge Hydrogeologic Regime (Energy Systems 1996).

2.2 Chestnut Ridge Sediment Disposal Basin

The CRSDB is located on Chestnut Ridge, immediately southeast of the eastern end of the Y-12 Plant (Fig. 2-1). In CY 1973, the site received soil and sediment that was periodically dredged from New Hope Pond, a closed surface impoundment located at the east end of the Y-12 Plant. Between CY 1987 and CY 1989, the CRSDB also received mercury-contaminated soils from several other locations in the Y-12 Plant. A full description of waste disposal, site characterization, and closure activities may be found in the RCRA PCPA for the site (Geraghty and Miller, Inc. 1994).

The site is located in soil and thick (approximately 50 to 100 ft) residuum developed over strata of the Copper Ridge Dolomite, the lowermost formation of the Knox Group (Fig. 2-1). The Copper Ridge Dolomite is a massive to thinly bedded dolostone with locally abundant horizons of nodular or bedded chert. Strike and dip of the formation is



SYSTEM		GROUP (Formation)	HYDRO UNIT	MAP SYMBOL	THICKNESS (FT)
ORDOVICIAN	UPPER	CHICKAMAUGA (Undifferentiated)	ORR AQUITARDS	Och	1500 TO 2000
	MIDDLE	MISSING SECTION (Subaerial Erosion)			
	LOWER	KNOX (Undifferentiated)	KNOX AQUIFER	Ock	2500 TO 3000
CAMBRIAN	UPPER	CONASAUGA (Maynardville Limestone)		Cmn	418 TO 450

Figure 2-1. Topographic and Geologic Map of the Kerr Hollow Quarry and Chestnut Ridge Sediment Disposal Basin Sites

similar to that of strata at the KHQ site. As with the Chickamauga Group and lowermost Knox Group at KHQ, the Copper Ridge dolomite is pervasively jointed and fractured. The orientations of these features are principally parallel to geologic strike, although some variability is noted (Law Engineering, Inc. 1983; Ketelle and Huff 1984).

The Copper Ridge Dolomite is part of the Knox Aquifer on the ORR (Solomon et al. 1992). Groundwater flow within the bedrock interval is primarily through permeable fractures or fracture zones. The primary matrix permeability of the Copper Ridge Dolomite is very low, thus matrix flow represents a very small component of total groundwater flux through the system. The Copper Ridge Dolomite also exhibits solutional widening of fractures and other karst features that strongly influence groundwater flow patterns (Ketelle and Huff 1984). Solution features are the primary water-producing features and solute transport pathways on Chestnut Ridge and are supplied by percolation, direct connection to the surface (sinkholes), or matrix seepage (Moore 1989; Ketelle and Huff 1984). Groundwater flow rates within solution features can vary over several orders of magnitude and flow directions may not always be consistent with those derived from water table configurations.

3.0 SUMMARY OF PAST AND PLANNED RELEVANT GROUNDWATER MONITORING REPORTS

Interim status detection monitoring at the subject sites has been ongoing since CY 1986. Baseline data were collected in CY 1986 and presented in Energy Systems (1987).

In November 1986, each of the wells presented in this report, with the exception of two replacement wells installed in September 1991 at the CRSDB (see Sect. 5.4), was certified for groundwater monitoring purposes. At that time, the designation of upgradient and downgradient was based on the topographic relationship of the wells at both sites because no water elevation data had been collected prior to certification. Following a year of data collection, the wells were reevaluated for upgradient and downgradient designations using the hydrostatic head measurements obtained throughout the year. As a result of this investigation, the gradient designations of wells were changed at both of the sites.

During CY 1987, wells at both sites were monitored semiannually for parameters used as indicators of groundwater contamination in TDEC Rule 1200-1-11-.05(6)(c)(2)iii and annually for parameters establishing groundwater quality in TDEC Rule 1200-1-11-.05(6)(c)(2)ii (Energy Systems 1988b).

During CYs 1988 and 1989, the wells at both sites were monitored semiannually for parameters used as indicators of groundwater contamination (Energy Systems 1989 and 1990). In addition, wells at the CRSDB were monitored semiannually for parameters establishing groundwater quality.

During CYs 1990, 1991, 1992, 1993, and 1994, the wells at both sites were monitored semiannually for parameters used as indicators of groundwater contamination (Energy Systems 1991; Shevenell and Switek 1992; McMahon and Mercier 1992; Jago et al. 1993; Jago 1994; and Jago 1995). In addition, in CY 1990, the wells were incorporated into the Y-12 Plant Comprehensive Groundwater Monitoring Program. In CY 1991, the Groundwater Quality Assessment Report (GWQAR) for the Chestnut Ridge Hydrogeologic Regime (HSW, Inc. 1992) was expanded to include monitoring data throughout the regime for purposes of consistency within the Y-12 Plant GWPP and to keep the regulatory community informed of groundwater monitoring actions at the Y-12 Plant. In CY 1993, the titles of the GWQARs were changed to GWQRs to reflect the integration of multiple regulatory, DOE order, and programmatic requirements into the scope of the Y-12 Plant Comprehensive Groundwater Monitoring Program.

For CY 1995, the GWQRs were prepared consistent with RCRA interim status assessment reporting requirements that were applicable for most of the year. The documents, however, included data necessary to comply with RCRA post-closure permit annual reporting requirements. The CY 1995 GWQR for the Chestnut Ridge Hydrologic Regime will be issued in two parts. Part 1 (Energy Systems 1996) will provide results of all monitoring data collected in CY 1995 under the auspices of the Y-12 Plant GWPP. Part 2, to be completed midyear, will present contaminant data interpretations, evaluate laboratory performance, and provide contaminant assessment for the Chestnut Ridge Security Pits, the only confirmed source of contaminant release to groundwater in the hydrologic regime.

Pending issuance of all final RCRA post-closure permits, the CY 1996 GWQRs will focus on compliance with RCRA post-closure annual reporting requirements. Data and statistical evaluations traditionally included in a separate annual detection monitoring report since 1987 will be incorporated into the GWQR.

4.0 HYDROLOGIC DATA

The hydrologic data presented in this section were collected quarterly by the Y-12 Plant GWPP staff as part of the Comprehensive Groundwater Monitoring Program for the Y-12 Plant. Water level measurements in monitoring wells were taken on a quarterly basis and measured prior to purging the well for sampling purposes. Measurements were made with an electronic tape device.

The Y-12 Plant GWPP staff initiated a semiannual program of water level measurements in August 1992, independent of, and spaced as far between, sampling events as possible. This program currently involves approximately 600 wells and allows examination of comprehensive, contemporaneous piezometric data that are not subject to interference due to purging events. The KHQ site was incorporated into this program in January 1993. The CRSDB was incorporated into the program in August 1992. Data from this program, rather than data collected during sampling, were used to generate the water table maps presented in this report.

4.1 Kerr Hollow Quarry

Seven monitoring wells (GW-142, GW-143, GW-144, GW-145, GW-146, GW-147, and GW-231) were installed around KHQ in CY 1985 (Fig. 4-1). An eighth boring at the site (CH-143) is an exploratory core hole used for subsurface characterization. The core hole was not completed as a well and was plugged during drilling operations at the adjacent well sites. Construction details for the wells are presented in Jones et al. (1995). Wells GW-142, GW-144, GW-145, and GW-231 comprise the formal detection monitoring network.

Wells GW-147 and GW-231 form a cluster at the northwestern edge of KHQ that penetrates unconsolidated material and the top of bedrock. The remaining wells monitor various fractures and fracture zones identified in the exploratory core hole. Wells GW-143 and GW-144 form a cluster south of KHQ to investigate several small fracture zones occurring in two 50-ft intervals within shallow bedrock. Wells GW-145 and GW-146 form a cluster to the southwest of the site designed to investigate fracture zones within both shallow and deep bedrock intervals. Well GW-142 also monitors several fracture zones within shallow bedrock.

The water table map in this report (Fig. 4-2) was generated from data obtained during the October 1995 comprehensive semiannual water level monitoring event. Observations and conclusions presented in this report are referenced to Y-12 Plant grid north; however, both true north and grid north are shown on the map. Hydrographs for the water table wells are shown in Fig. 4-3, and those for the three well clusters are shown in Figs. 4-4 through 4-6. These hydrographs are generated using water level data obtained during quarterly groundwater sampling events. Elevations of the water level within KHQ were not obtained in CY 1995.

Throughout most of CY 1995, water levels in all water table wells exhibited similar variations in comparison to each other, with water levels rising and falling in response to seasonal changes (Fig. 4-3). Hydrographs of individual well clusters also show patterns similar to those seen in past years. The hydrographs for the northwestern cluster (Wells GW-147 and GW-231) indicate hydraulic connection between the unconsolidated and shallow bedrock zones (Fig. 4-4). The hydrographs for Wells GW-145 and GW-146

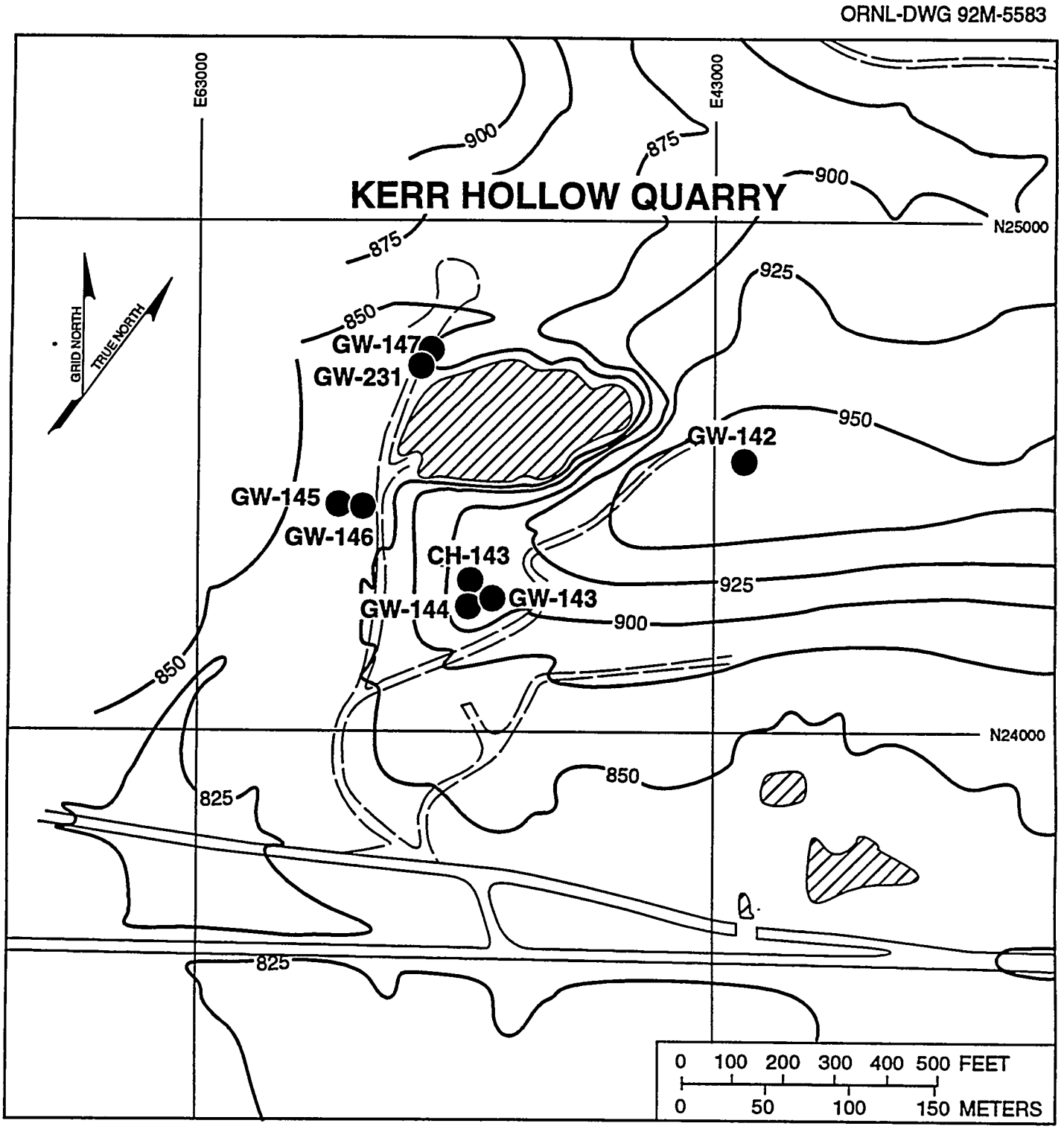
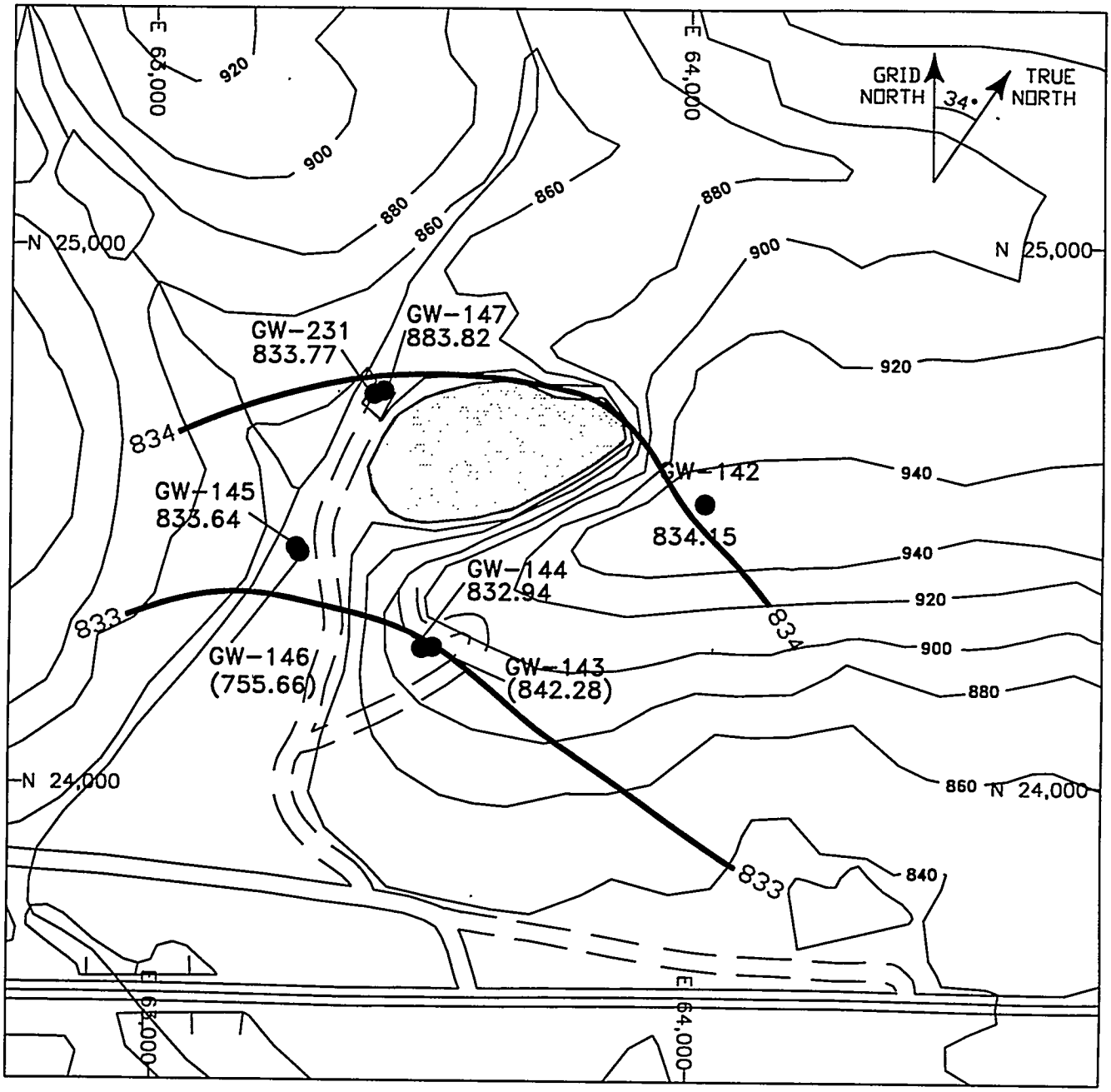


Figure 4-1. Locations of Monitoring Wells at Kerr Hollow Quarry



LOCATION:	Y-12 PLANT OAK RIDGE, TN.
DATE:	02/16/1996
DWG ID.:	C:\ACAD\MAP\KHQ_WL.DWG

Figure 4-2. Water Table Map for Kerr Hollow Quarry for Conditions on October 18, 1995

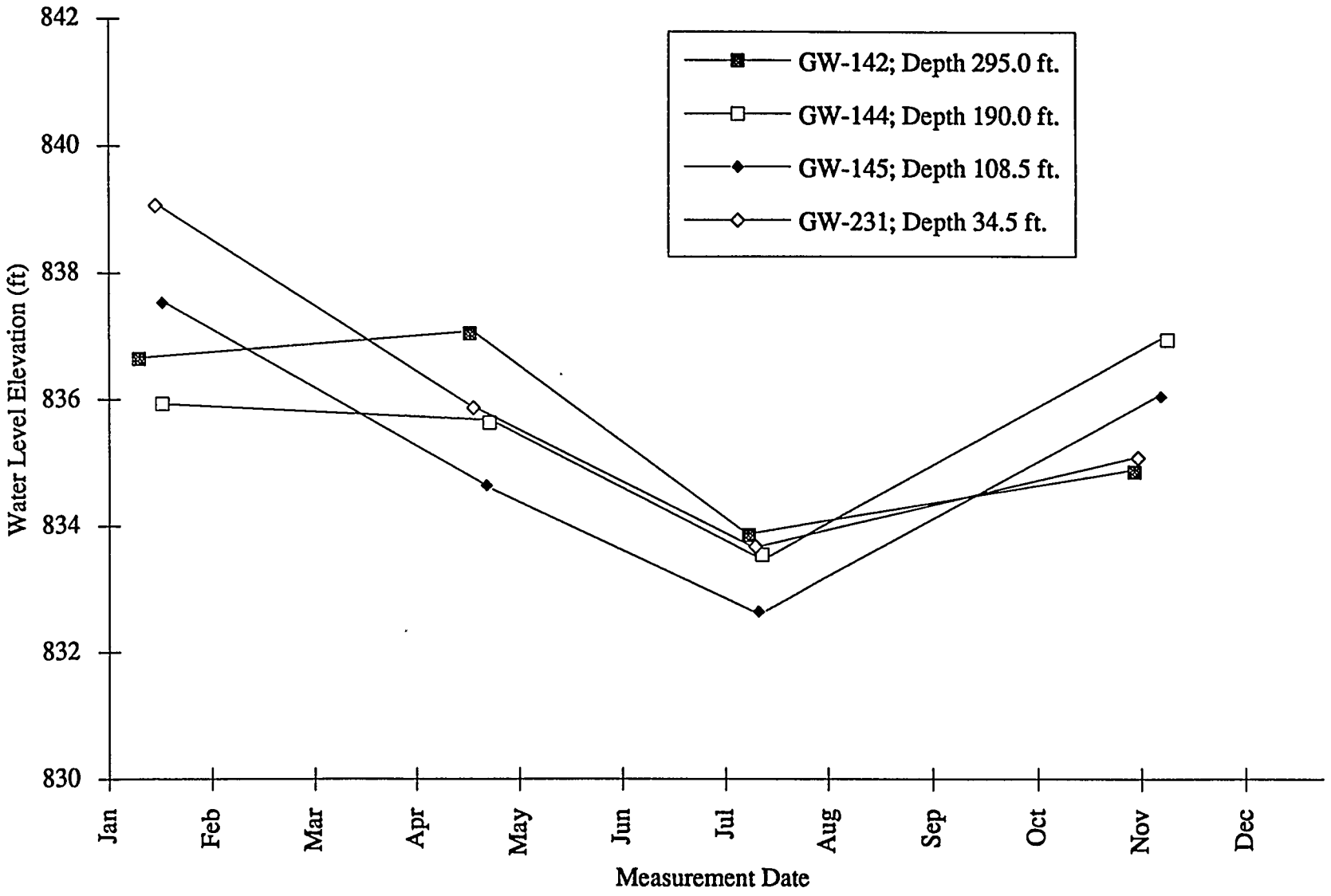


Figure 4-3. Hydrographs for Water Table Wells at Kerr Hollow Quarry, CY 1995

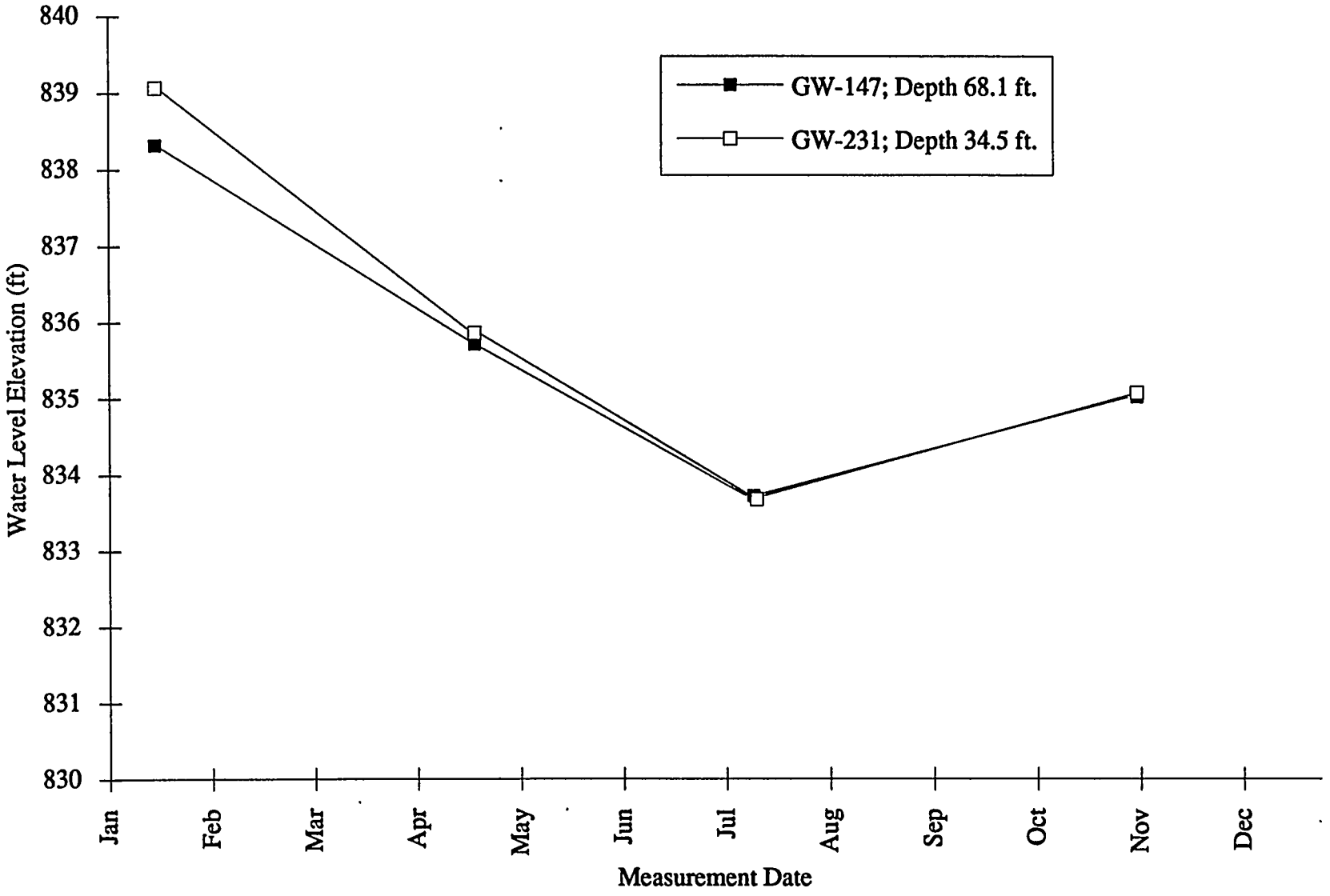


Figure 4-4. Hydrographs for Wells GW-147 and GW-231, Northwestern Well Cluster at Kerr Hollow Quarry, CY 1995

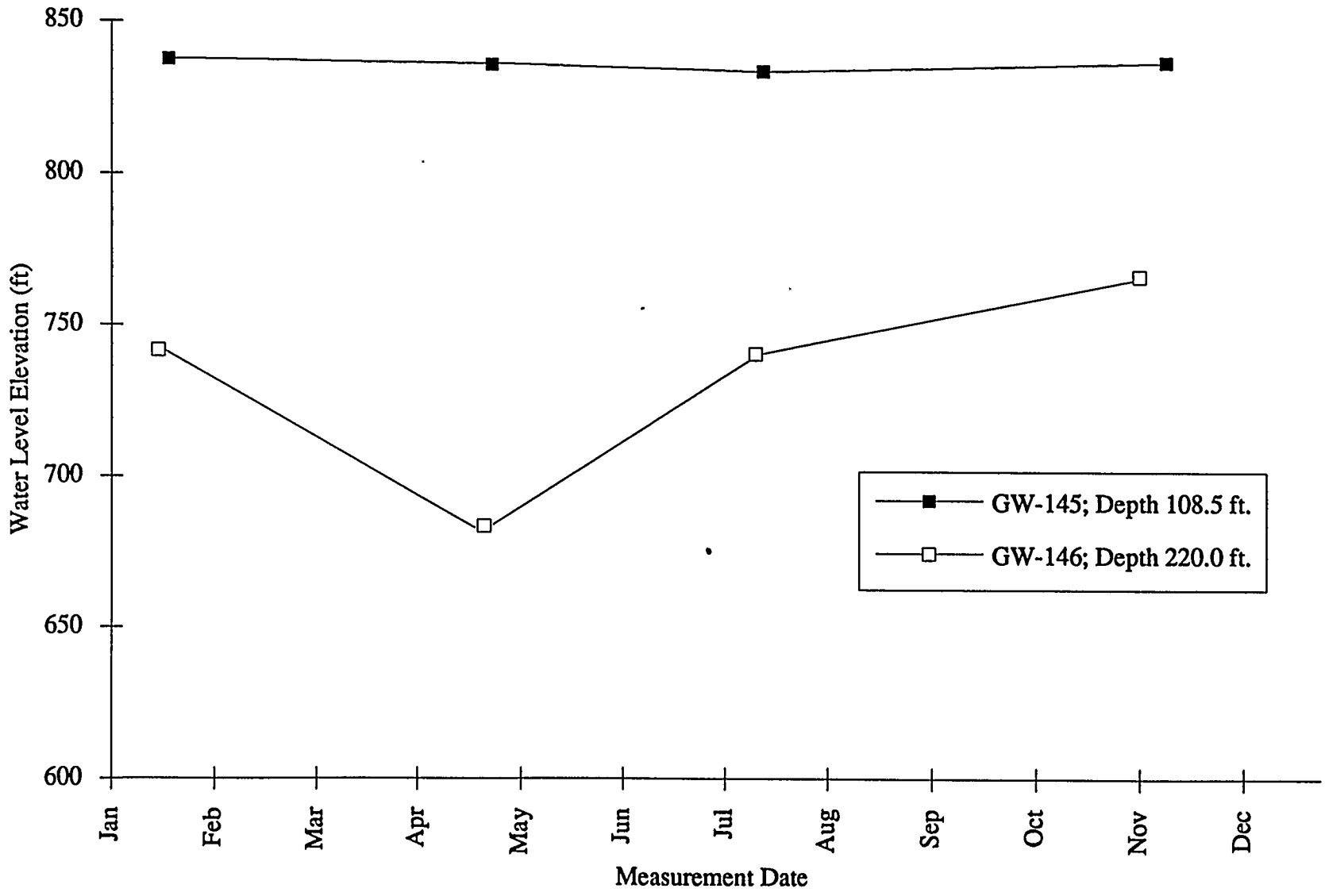


Figure 4-5. Hydrographs for Wells GW-145 and GW-146, Southwestern Well Cluster at Kerr Hollow Quarry, CY 1995

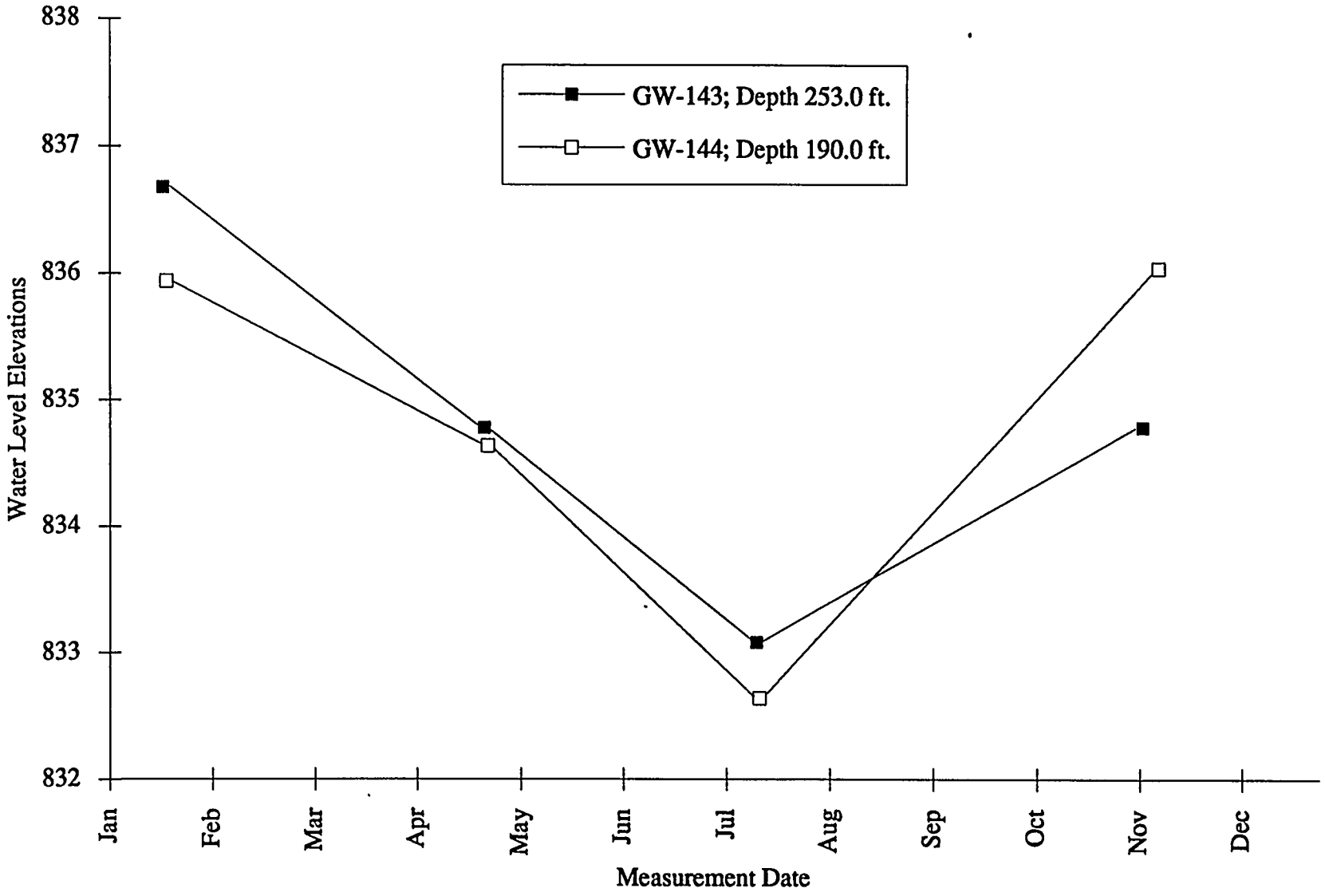


Figure 4-6. Hydrographs for Wells GW-143 and GW-144, Southern Well Cluster at Kerr Hollow Quarry, CY 1995

in the southwestern well cluster (Fig. 4-5) indicate a downward vertical hydraulic gradient and demonstrate that Well GW-145 is not well connected to the shallow groundwater system (further emphasized by the lack of recharge to the well during sampling events). In the southern well cluster (Wells GW-143 and GW-144), hydraulic connection between the monitoring intervals of the two wells appears to exist based on the similar water level response characteristics (Fig. 4-6). Vertical hydraulic gradient at this well cluster was upward during most of the year, but changed to downward during the fall and early winter. Reversals in vertical gradients were observed periodically at the southern well cluster prior to CY 1993, but were not observed in CY 1993 or CY 1994.

The water table elevation map (Fig. 4-2) is presented for conditions that existed on October 18, 1995. Because of the very shallow water table gradient at the site, piezometric contours are generalized and subject to some uncertainty. Wells GW-142, GW-145, GW-147, and GW-231 showed negligible difference in piezometric elevation during this time period when rainfall is lowest (Fig. 4-3). Well GW-145 is considered as the formal upgradient well at the site; however, variability in the true upgradient direction has been evident over time with Wells GW-231 and GW-142, at times, having the highest water table elevations. The overall trend of water table contours is generally consistent with that reported for CYs 1988 through 1994 (Early and Switek 1989, 1990, and 1991; Shevenell and Switek 1992; Jago et al. 1993; Jago 1994; Jago 1995). The water table map (Fig. 4-2) suggests that there is groundwater flow in a southerly, and locally southwesterly, direction predominantly toward Well GW-144, which consistently has the lowest piezometric head. Based on the CY 1995 piezometric data, the general groundwater flow direction has not changed appreciably from that observed over the past several years. Although water level data for the quarry are not available for CY 1995, prior studies suggest that the groundwater table is closely linked to the water level of the quarry and that the quarry reservoir has local control on hydraulic conditions (Haase et al. 1987a; Haase et al. 1988; Early and Switek 1989). In addition, the configuration of the water table in October 1995, as shown in Fig. 4-2, is believed to be representative of conditions throughout CY 1995.

4.2 Chestnut Ridge Sediment Disposal Basin

Ten groundwater monitoring wells have been installed at the CRSDB (Fig. 4-7). Wells 1095 and 1096 were installed in CY 1983, and six additional wells (GW-155, GW-156, GW-157, GW-158, GW-159, and GW-241) were installed in CY 1985. Wells GW-303 and GW-304 were completed in CYs 1987 and 1988, respectively. During routine monitoring well maintenance inspections in CY 1991, Wells GW-155 and GW-157 were found to be deteriorated beyond capabilities to rehabilitate them. These wells were subsequently plugged and abandoned and replaced by two new wells (GW-731 and GW-732) with TDEC staff concurrence (Munkeboe 1991). Wells GW-731 and GW-732 were completed and sampled in September 1991. Construction details of the wells are summarized elsewhere (Jones et al. 1995). An exploratory core hole (CH-157) drilled for subsurface characterization is also located near the site. Wells GW-156, GW-159, GW-731, and GW-732 comprise the formal detection monitoring network for the CRSDB.

All of the groundwater investigation wells except Well 1096, GW-158, and GW-303 are finished within a zone at the top of bedrock that is characterized by weathered dolostone and chert and pervasive, solutionally enlarged fractures and solution cavities (Haase et al. 1987b). Well 1096 is completed within the thick residuum that overlies the Copper Ridge Dolomite and may monitor a perched water zone. Well GW-158 is finished in bedrock

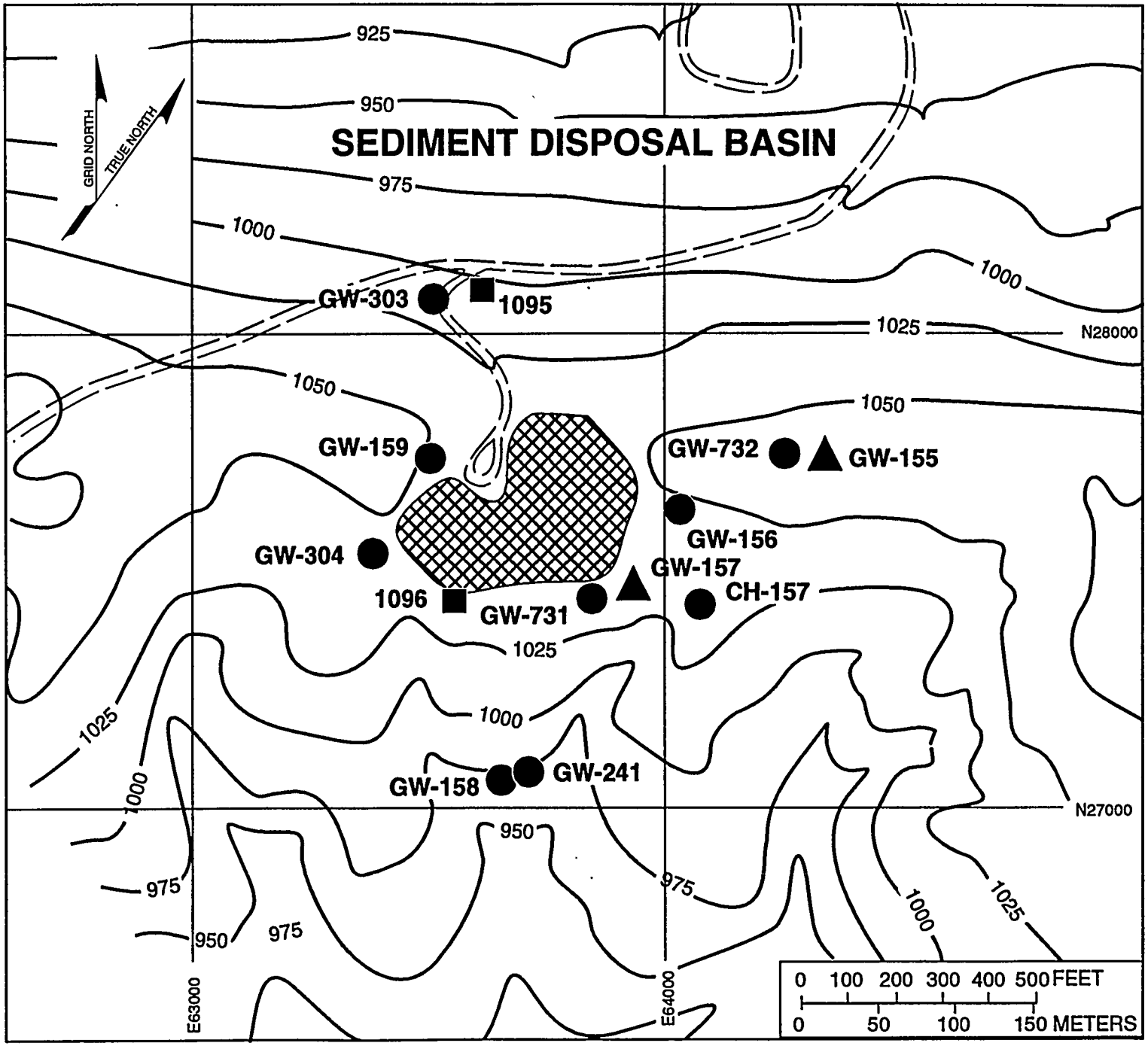


Figure 4-7. Locations of Monitoring Wells at the Chestnut Ridge Sediment Disposal Basin

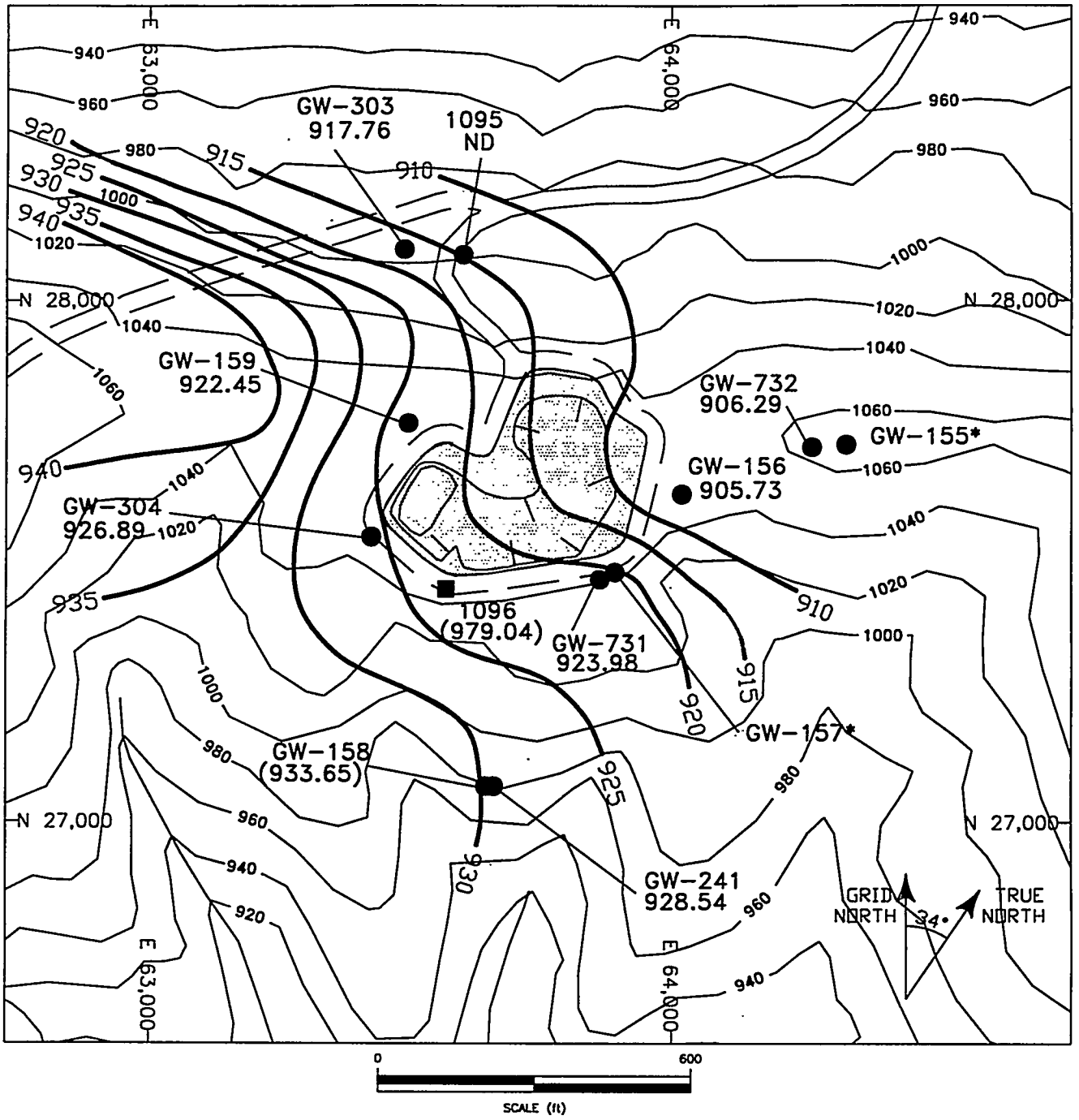
within a fractured interval at a depth of 440 ft and forms a well cluster with Well GW-241 south of the site. Well GW-303 is completed within bedrock over a depth interval from 300 to 321 ft and forms a well cluster with Well 1095 to the north of the site.

The water table map in this report (Fig. 4-8) was generated from data collected during the October 1995, comprehensive semiannual water level monitoring event. Hydrographs for the water table wells, prepared from quarterly groundwater sampling data, are shown in Fig. 4-9. Hydrographs for the actively monitored southern well cluster (Wells GW-158 and GW-241) are shown in Fig. 4-10.

The hydrographs for the water table wells demonstrate that Well GW-241 had the highest piezometric head during the period from January to about June. Readings from the third quarter sampling event showed that Well GW-159 had the highest head. This pattern is consistent with trends observed since CY 1990. In CYs 1989 and 1990, Well GW-241 had the highest piezometric head for the entire year when an unusually high amount of precipitation was also recorded (Early and Switek 1990 and 1991). Data from CYs 1992, 1993, 1994, and 1995 are similar and reflect a slight shift in groundwater flow direction to the north during the driest period of the year.

The hydrographs for the southern well cluster, Wells GW-158 and GW-241 (Fig. 4-10), show a reversal in vertical hydraulic gradient during the first and third quarters. The reversal of vertical gradient at this cluster is consistent with past observations, which indicate that during periods of heavy precipitation a downward vertical hydraulic gradient exists at this cluster. Conversely, during periods of low precipitation, an upward hydraulic gradient exists (Haase et al. 1988; Early and Switek 1990; Shevenell and Switek 1992).

The water table elevation map (Fig. 4-8) is presented for conditions that existed on October 20, 1995. The overall trend of water table contours is generally consistent with that reported for CYs 1988 through 1994 (Early and Switek 1989, 1990, and 1991; Shevenell and Switek 1992; Jago et al. 1993; Jago 1994; Jago 1995). The CY 1995 data indicate that hydraulic head generally decreased to the east and north. Based on the CY 1995 piezometric data, the general groundwater flow direction has not changed appreciably from that observed over the past several years. Groundwater flow is east-northeast, parallel or subparallel to geologic strike, and is likely controlled by strike-parallel fractures and solutionally enlarged flow paths. The water level contours suggest that groundwater flow from the west and south may be directed toward the location of the disposal basin, which was possibly constructed in a sinkhole. In addition, the configuration of the water table in October 1995, as shown in Fig. 4-8, is believed to be representative of conditions throughout CY 1995.



■ UNCONSOLIDATED ZONE MONITOR WELL

* PLUGGED AND ABANDONED

● BEDROCK MONITORING WELL

930.8 GROUNDWATER ELEVATION (ft, msl)

APPROXIMATE WATER LEVEL ISOPLETH (ft, msl)

TOPOGRAPHIC CONTOUR

ND NOT DETERMINED

( ) DATA NOT USED, INFLUENCED BY SAMPLING OR NOT REPRESENTATIVE OF WATER TABLE CONDITIONS

LOCATION:	Y-12 PLANT OAK RIDGE, TN.
DATE:	02/16/1996
DWG ID.:	C:\ACAD\MAP\CRSDB_WL.DWG

Figure 4-8. Water Table Map for the Chestnut Ridge Sediment Disposal Basin for Conditions on October 20, 1995

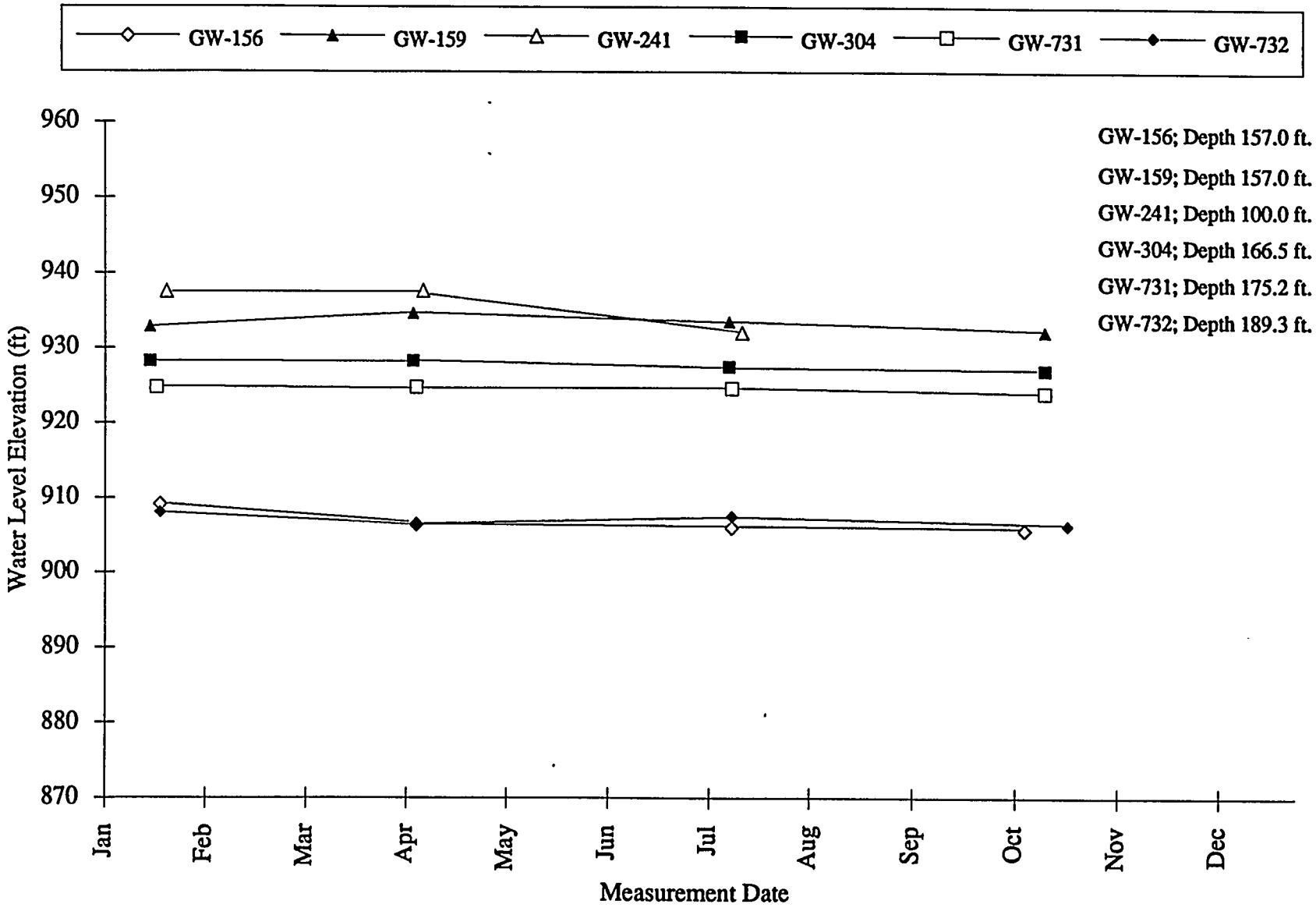


Figure 4-9. Hydrographs for Water Table Wells at the Chestnut Ridge Sediment Disposal Basin, CY 1995

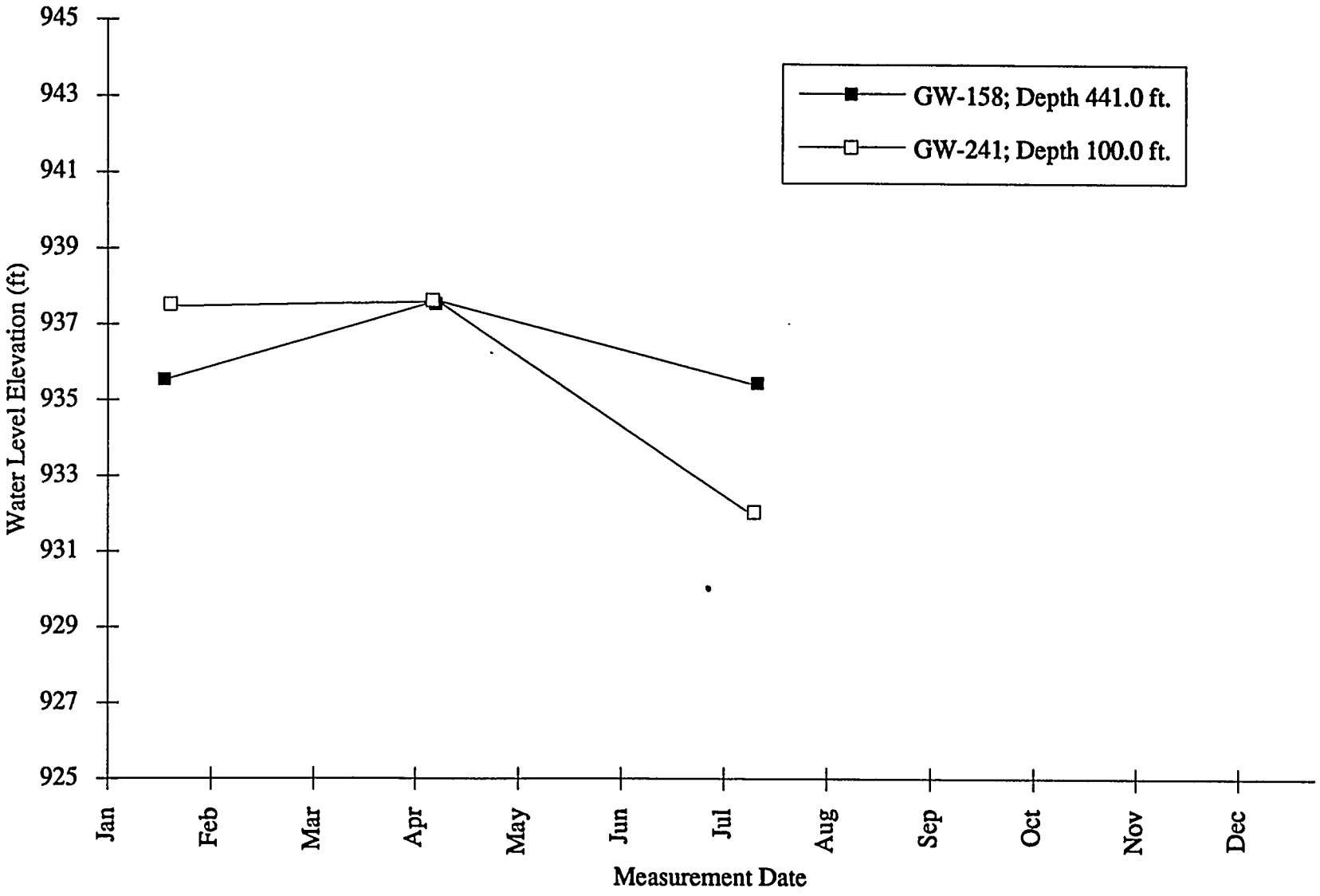


Figure 4-10. Hydrographs for Wells GW-158 and GW-241, Southern Well Cluster at the Chestnut Ridge Sediment Disposal Basin, CY 1995

5.0 CY 1995 INTERIM STATUS DETECTION MONITORING SUMMARY AND STATISTICAL ANALYSIS

This section addresses the annual reporting requirements under interim status detection monitoring as delineated by TDEC Rule 1200-1-11-.05(6)(a). Interim status requirements applied to KHQ during all of CY 1995 and to the CRSDB during the first three quarters of CY 1995. Semiannual sampling and analyses for contamination indicator and groundwater quality parameters were conducted, and results for the first and second 180-day reporting periods of CY 1995 were reported to the TDEC staff on July 25, 1995, and February 16, 1996, respectively (Butz 1995a, 1995b, 1996a, 1996b). The requirements for interim status detection monitoring are as follows:

1. Tabulation of results of CY 1995 sampling and analyses for:

    a. groundwater quality parameters (chloride, iron, manganese, phenols, sodium, and sulfate); and
    b. indicator parameters (pH, specific conductance, total organic carbon [TOC], and total organic halide [TOX]).

2. Identification of any statistically significant increase (or decrease for pH) in indicator parameters from initial baseline year values. Significant increases (or decreases) were identified using the t-test methodology outlined in TDEC Rule 1200-1-11-.05, Appendix .05/C. Statistical comparisons were done as follows:

    a. downgradient wells (CY 1995) versus base year upgradient (background) well (CY 1986); and
    b. well-by-well comparisons, CY 1995 versus CY 1986.

Tabulations of groundwater indicator and groundwater quality parameters are presented in Appendix A. Appendix A also includes analytical data above and beyond RCRA interim status detection monitoring requirements for informational purposes. Appendix B contains the results of the t-test methodology. In all cases where a measurement was reported as less than the minimum detection limit, the detection limit was used in calculating the mean. Therefore, the means are biased conservatively. Specific exceptions to the methodology are presented in Section 5.3.

Statistically significant changes in RCRA contamination indicator parameters have been observed in facility monitoring wells over time. To address concerns over the statistically significant changes, a false positive demonstration was prepared and submitted to the TDEC staff (Bostock 1991a and 1991b) and subsequently approved (Lagan 1992). The false positive demonstration confirmed that, in CY 1991, statistically significant changes in RCRA detection monitoring parameters TOC, TOX, pH, and specific conductance do not represent a release of contaminants to groundwater at the sites. The statistically significant changes resulting from the t-test statistical method in CY 1995 (Sect. 5.1 and Sect. 5.2) are considered false positives based on the premise of the approved false positive demonstration and historical monitoring data, and do not represent a release of contaminants to the groundwater. The variability of groundwater chemistry and t-test results noted during CY 1995 further emphasizes the conclusions of the false positive demonstration.

An alternative statistical method for the CRSDB, based on comparisons of target list compounds to upper tolerance limits derived from historical data, was developed in CY 1991 to augment the traditional statistical methodology. This alternative method is discussed in detail in Section 5.4.

No well replacements occurred during CY 1995 at either KHQ or the CRSDB.

5.1 Kerr Hollow Quarry

In the first quarter CY 1995 sampling event (first, 180-day reporting period), several statistically significant changes of indicator parameters (based on t-test results) occurred as follows (Appendix B):

1. An increase for specific conductance was observed in Well GW-142, based on within-well comparisons.

2. An increase for TOC was observed in Well GW-142, as compared to the formal upgradient well (Well GW-145) baseline value.

3. A decrease was observed for pH in Well GW-231, based on within-well comparisons, and as compared to the formal upgradient well (Well GW-145).

Statistical evaluations were also conducted during the second quarter of CY 1995 to provide additional data on trends of indicator parameters. Results of the evaluations were as follows:

1. An increase for specific conductance was again observed in Well GW-142, based on within-well comparisons; however, the mean result for the second quarter was less than that for the first quarter.

2. The increase for TOC observed in Well GW-142 during the first quarter was not repeated in the second quarter.

3. The decrease observed for pH in Well GW-231, relative to upgradient baseline values, was repeated in the second quarter; however, the mean value for the second quarter was higher than that for the first quarter (7.6 versus 7.5 standard units).

4. The decrease observed for pH in Well GW-231, based on within-well comparisons, was not repeated in the second quarter.

5. An increase for TOC was observed in Well GW-145 (the formal upgradient well), based on within-well comparisons, which was not observed in the first quarter.

In the third quarter CY 1995 sampling event (second, 180-day reporting period), several statistically significant changes of indicator parameters (based on t-test results) occurred as follows (Appendix B):

1. An increase for specific conductance was again observed in Well GW-142, based on within-well comparisons.

2. An increase for TOC was observed in Well GW-145 (upgradient well), based on within-well comparisons.

3. A decrease was observed for pH in Well GW-231, as compared to the baseline values for the upgradient well (Well GW-145).

4. A decrease was observed for pH in Well GW-144, based on within-well comparisons.

Statistical evaluations were also conducted during the fourth quarter of CY 1995 to provide additional data on trends of indicator parameters. Results of the evaluations were as follows:

1. The increase for specific conductance, based on within-well comparisons, observed for Well GW-142 during the first three quarters of CY 1995 was not present in the fourth quarter.

2. An increase for TOC was observed in Well GW-142, as compared to baseline values for the upgradient well (GW-145).

3. The third quarter decrease observed for pH in Well GW-231, as compared to upgradient baseline values, was repeated. In addition, a decrease for pH was observed in the well, based on within-well comparisons.

4. The third quarter decrease observed for pH in Well GW-144, based on within-well comparisons, was not repeated in the second quarter.

Between August and December 1994, an evaluation of all metals data collected at the site from the first quarter of CY 1990 through CY 1993 was conducted, and the results were reported in the CY 1993 Part 2 GWQR for the Chestnut Ridge Hydrogeologic Regime (HSW, Inc. 1994). The evaluation indicated that total strontium and total uranium are consistently elevated (greater than 50% of samples) above Y-12 Plant background screening levels typical for groundwater in uncontaminated areas (Fig. 5.1). Well GW-145 contained both strontium and uranium, Well GW-142 contained total uranium, and Well GW-146 exhibited total strontium concentrations above screening levels (Fig. 5-1). These trends continued during CY 1994 and CY 1995.

Annual average gross alpha and gross beta results have never exceeded primary drinking water standards; the elevated total uranium and strontium observed in these wells may reflect natural levels of these elements in groundwater at this particular site. In addition, two of the three subject wells (Wells GW-142 and GW-145) are predominantly upgradient of the site. Well GW-144, which is documented to be consistently downgradient of the site, has not shown elevated total uranium or strontium concentrations. However, isotopic uranium and strontium analyses were conducted in CY 1995 to investigate the possibility that the constituents are the result of historical waste disposal practices (Appendix A). The results of CY 1995 radiological analyses indicate that the total uranium and strontium constituents are not radiogenic. Analyses for Sr-89/90 during CY 1995 had minimum detectable activities (MDAs) of about 30 picocuries per liter (pCi/L). The U-234 and U-238 MDAs during the first half of CY 1995 were about 55 and 22 pCi/L, respectively. The U-235 MDA was about 14 pCi/L. These analyses, therefore, could not have detected low levels of activity if present. Uranium isotopic analytical methods were adjusted during the latter half of CY 1995 (third and fourth quarters) to achieve an MDA of about 0.2 to 0.3 pCi/L for U-234 and U-238 and about 10 pCi/L for U-235. The third and fourth quarter CY 1995 analyses indicated that U-235 activities remained at or below the MDA. The U-234 and U-238 results sometimes exceeded the MDA, but remained consistent with values observed in uncontaminated wells located in the Knox Group and never exceeded activity levels equal to a 1:10,000 excess cancer risk (EPA primary drinking water

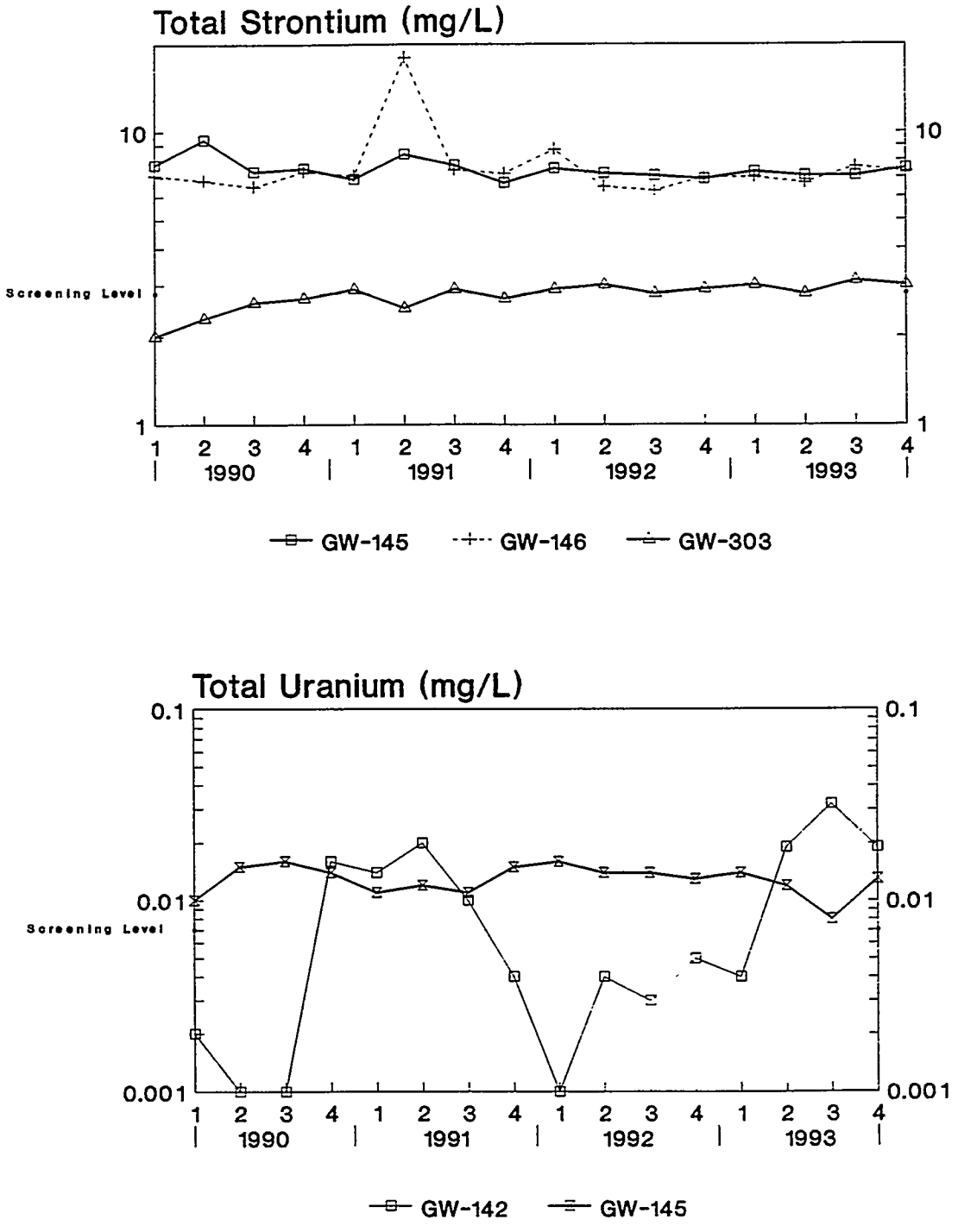


Figure 5-1. Total Uranium and Strontium Trends in Wells at Kerr Hollow Quarry

standards do not exist for U-234 and U-238). Isotopic analyses will be continued in CY 1996 using an improved Sr-89/90 analytical method (MDA = 2.0 pCi/L) and uranium isotopic methods having a blanket MDA of 0.5 pCi/L.

Trending of volatile organic compound (VOC) analytical results indicate that very low levels of three VOCs (tetrachloroethene [PERC], carbon tetrachloride, and chloroform) were sporadically observed in two wells (GW-142 and GW-144) over time. Concentrations of these detected compounds have not exceeded EPA primary drinking water standards and all values have been reported as estimated levels below laboratory method detection limits. The occurrences of these compounds appear to correlate to the period during which underwater shredding, container breaching, and debris removal actions were being conducted at the quarry (September 1990 through October 1993); therefore, they may represent the effects of closure activities at the site. Chloroform is also a common degradation product of carbon tetrachloride. No VOCs were detected in Well GW-142 between the third quarter of CY 1993 and fourth quarter of CY 1995 (Table 5-1). In CY 1994, the only positive VOC result in Well GW-144 occurred in the second quarter (carbon tetrachloride at 2.0 micrograms per liter [ug/L]). In CY 1995, the first quarter sample from Well GW-144 contained low levels of both carbon tetrachloride and PERC. The second and fourth quarter samples contained carbon tetrachloride and chloroform was detected in the second quarter sample (Table 5-1). Data for VOCs were being validated per EPA protocols at the time of this report; thus, some of the values may be screened as false positives. The results of the validation will be be contained in the Part 1 GWQR for the Chestnut Ridge Hydrogeologic Regime (Energy Systems 1996).

5.2 Chestnut Ridge Sediment Disposal Basin

In the first quarter CY 1995 sampling event (first, 180-day reporting period), several statistically significant changes of indicator parameters (based on t-test results) occurred as follows (Appendix B):

1. An increase for TOC was observed for every downgradient well relative to the formal upgradient well (Well GW-159) baseline value. In addition, increases for TOC were observed for Wells GW-159 and GW-156, based on within-well comparisons.

Statistical evaluations were also conducted during the second quarter of CY 1995, to provide additional data on trends of indicator parameters. Results of the evaluations were as follows:

1. The increase for TOC, relative to upgradient (Well GW-159) baseline values, was repeated in all of the downgradient wells. In addition, the increase for TOC observed in Well GW-156, based on within-well comparisons, was also repeated.

2. A decrease for pH was observed for Well GW-156, relative to the upgradient (Well GW-159) baseline values.

In the third quarter CY 1995 sampling event (second, 180-day reporting period), several statistically significant changes of indicator parameters were again observed as follows (Appendix B):

1. An increase for TOC was again observed for every downgradient well relative to the formal upgradient well (Well GW-159) baseline value. In addition, an increase for TOC was observed for Well GW-159 (upgradient well), based on within-well comparisons.

Table 5-1. Detected Volatile Organic Compounds in Wells at KHQ
Since First Quarter CY 1990 (in ug/L)

WELL	GW-142		GW-144		
Quarter/Year	chloroform	PERC	carbon tet.	chloroform	PERC
Q4/95*	U	1.0	2.0	U	U
Q3/95*	U	U	U	U	U
Q2/95*	U	U	3.0	1.0	U
Q1/95*	U	U	3.0	U	1.0
Q4/94	U	U	U	U	U
Q3/94	U	U	U	U	U
Q2/94	U	U	2.0	U	U
Q1/94	U	U	U	U	U
Q4/93	U	U	3.0	U	U
Q3/93	1.0	U	3.0	U	U
Q2/93	4.0	U	U	U	U
Q1/93	U	U	U	U	U
Q4/92	U	U	5.0	0.8	U
Q3/92	U	U	2.0	U	U
Q2/92	U	2.0	2.0	U	U
Q1/92	U	U	U	U	U
Q4/91	U	0.8	1.0	U	1.0
Q3/91	U	0.7	2.0	2.0	2.0
Q2/91	U	U	5.0	1.0	U
Q1/91	U	0.7	U	U	U
Q4/90	U	U	2.0	U	U
Q3/90	U	0.9	6.0	1.0	U
Q2/90	U	U	U	U	U
Q1/90	U	U	U	U	U

* Unvalidated result

2. A decrease for pH was again observed for Well GW-156, relative to the upgradient (Well GW-159) baseline values.

Additional information on statistically significant changes in groundwater chemical data for the CRSDB, based on an alternative statistical methodology, is included in Section 5.4. The results of the alternative method further indicate that a release of contaminants to the groundwater has not occurred at the CRSDB.

5.3 Exceptions to the T-Test Methods

Instances of missing values in the groundwater data set tabulated in this report and the background data set compiled in CY 1986 are reflected in the sample size (N). The background sample size should be N=16 (4 quarterly samples consisting of 4 replicate measurements each). The CY 1995 sample sizes should be N=4, because the statistical calculations are done separately on data from both the first and second, 180-day reporting periods (1 semiannual sample consisting of 4 replicate measurements). The exceptions for this report are as follows:

1. Samples to be analyzed for TOC were not purged prior to analysis through April 4, 1987; thus, CY 1986 background values are not available. Total organic carbon results from CY 1987 are used as the background values in this report.

2. There are 12, not 16, 1987 background TOC results for the CRSDB because the first quarter CY 1987 sampling event occurred prior to April 4, 1987 (See Item 1).

3. There are 8, not 16, CY 1987 background TOC results for KHQ because the CY 1987 sampling program for this unit specified a semiannual sampling frequency.

4. After two years of statistical evaluation, the CY 1986 TOX values at both sites were determined to be abnormally high. Therefore, comparison to CY 1987 data was deemed to be more appropriate for this parameter.

5. There are 4, not 16, CY 1987 background TOX results for the CRSDB because the CY 1987 sampling program for this unit specified only an annual sample for this parameter.

6. There are 8, not 16, 1987 background TOX results for KHQ because the CY 1987 sampling program for this unit specified a semiannual sampling frequency.

7. In CY 1991, two of the downgradient wells at the CRSDB, Wells GW-155 and GW-157, were found unsuitable for monitoring purposes; therefore, these wells were plugged, abandoned, and replaced by Wells GW-731 and GW-732 (see Sect. 5.4). As a result, no within-well comparisons were possible for two of the three formal downgradient detection monitoring wells at the site during CY 1995.

8. T-statistics could not be calculated for the following comparisons because the variances used in the calculations were both equal to zero:

   a. First and second quarter CY 1995 TOX levels for downgradient Well GW-142 at KHQ versus baseline (CY 1987) upgradient TOX levels.

   b. All indicator parameter within-well comparisons of second quarter CY 1995 data to baseline (CY 1987) values for the upgradient well (Well GW-159) at CRSDB.

c. Within-well comparisons of third and fourth quarter CY 1995 TOX data for downgradient Well GW-142 at KHQ to baseline (CY 1987) values.

Anomalous TOC and TOX data collected in CY 1986 are discussed in Haase et al. (1987c). Anomalous TOC data collected in CY 1986 are also addressed in the original post-closure permit application for the CRSDB issued March 18, 1988, and reissued March 10, 1989 (Lee Wan and Associates, Inc. 1989). The use of CY 1987 TOC and TOX data as base year data for statistical evaluations, rather than the anomalous CY 1986 data, is stated in the annual report for CY 1989 (Energy Systems 1990). Formal written concurrence from TDEC staff for use of the CY 1987 TOC and TOX data was requested on August 15, 1991 (Bostock 1991c) and subsequently received.

5.4 Alternative Statistical Analysis for the Chestnut Ridge Sediment Disposal Basin

In March 1991, during a routine well inspection at CRSDB, downgradient monitoring Wells GW-155 and GW-157 were found to be partially filled with mud and sediment. When well redevelopment activities were initiated and found to be unsuccessful, the wells were deemed to have deteriorated to a point beyond rehabilitation. These wells were subsequently plugged and abandoned with TDEC staff approval (Munkeboe 1991; SAIC, Inc. 1991a). The request to install replacement wells was approved with the understanding that the new wells would be available to sample in the second, 180-day reporting period of CY 1991. Installation and development of replacement Wells GW-731 and GW-732 were completed on September 25, 1991 (SAIC, Inc. 1991b), and the wells first sampled on September 27, 1991.

On August 21, 1991, representatives of the Y-12 Plant GWPP and DOE met with representatives from TDEC to obtain guidance, mutual understanding, and agreement with the regulatory community to identify actions necessary to ensure compliance for reporting data and to identify options for performing the statistical analyses based on recent amendments to the TDEC regulations and considering that two detection monitoring wells were being replaced. As a result of this meeting, it was agreed that traditional statistical methodology, as described in TDEC Rule 1200-1-11-.05, Appendix A, was no longer applicable because two detection monitoring wells were being replaced. It was further agreed that "Statistical Analysis of Groundwater Monitoring Data at RCRA Facilities-Interim Final Guidance" (EPA 1989) would be used as the basis for establishing an alternative statistical methodology. The alternative method and upper tolerance limits (UTLs) for alternative indicator parameters (barium, cadmium, chromium, mercury, nickel, silver, and uranium) identified as potential constituents of the wastes deposited at the site were presented in the annual report for CY 1991 (McMahon and Mercier 1992). Formal written concurrence with the alternative method by TDEC staff was requested (Bostock 1992) but not been received.

As a result of the replacement of the two wells at the CRSDB, a complete statistical analysis based on the traditional methodology outlined in TDEC Rule 1200-1-11-.05, Appendix A, has not been conducted since CY 1990. The results of the alternative statistical method with data comparison to UTLs for alternative indicator parameters are presented in Appendix C. Appendix A contains all available data for parameters used in the alternative method, as well as data for groundwater indicator and quality parameters obtained in CY 1995.

Results of the alternative statistical method show that none of the alternative indicator parameters exceeded their respective UTLs with the exception of total uranium in Well GW-732. Total uranium levels were 0.011 milligrams per liter (mg/L) and

0.016 mg/L in the first and second quarter samples, respectively. The UTL for total uranium is 0.009 mg/L. In addition, gross alpha values were elevated over past monitoring results during the first and second quarters (Table 5-2). A strong upward trend in total suspended solids (TSS) content was observed over a 12-month period ending April 1995 (from 39 mg/L to 1,152 mg/L) that impacted sample quality. The TSS trend occurred following anomalously high water levels in February 1994 that may have altered subsurface conditions and produced excess sediment accumulation within the well.

Well redevelopment and resampling actions were proposed to TDEC (Butz 1995b) and conducted in lieu of a formal false positive demonstration. These actions were proposed due to the fact that total uranium is not listed as a hazardous constituent in Appendix VIII to Title 40, Code of Federal Regulations, Part 261, and the proposed primary drinking water standard of 0.020 mg/L was not exceeded.

Redevelopment and rehabilitation of Well GW-732 began on July 20, 1995, to attempt to improve the quality of samples obtained from the well. The redevelopment effort was completed on July 26, 1995. A total of 1,040 gallons of groundwater was purged from the well. Visual estimates turbidity indicated a steady decrease in TSS levels during redevelopment. The well was subsequently sampled on August 13, 1995, and the results reported to TDEC staff (Butz 1995c). Analytical data from the August 13, 1995, sampling event showed that total uranium levels decreased to less than 0.0005 mg/L and TSS levels decreased to less than 1.0 mg/L. Corresponding decreases in gross alpha levels and other metals were also observed (Table 5-2 and Appendix A).

Based on the redevelopment and resampling efforts, the total uranium levels in excess of the UTL appeared to be false positives due to sampling and analysis interferences. Specific items supporting this conclusion include the following:

1. A documented relationship exists between TSS and metals in wells at the Y-12 Plant.

2. High TSS levels are known to interfere with gross alpha analyses of water samples.

3. Redevelopment efforts substantially improved sample quality and produced a corresponding decrease in constituent concentrations.

4. Total uranium in Well GW-732 has not exceeded detection limits since redevelopment efforts were completed.

In addition, indicator parameters other than total uranium did not exceed alternative interim status UTLs at any point during CY 1995, with the exception of chromium in the fourth quarter field duplicate collected on October 25, 1995 (Appendix A). This result appears to be anomalous because out of eight replicate and duplicate samples collected from this well between October 23 and October 26, 1995, only the result from this particular duplicate exceeded the UTL. In addition, this sample contained an inordinately high amount of TSS, and pH values were elevate above normal levels (possibly indicative of a pulse of grout or bentonite contamination). The review of data for all of CY 1995 suggests that a release of contamination to groundwater has not occurred at the site.

Table 5-2. Relationship Between Total Suspended Solids and Selected Analytes in Well GW-732 at the Chestnut Ridge Sediment Disposal Basin

Sample Date	Static Water Level (feet BTOC)	TSS (mg/L)	Conductance (umhos/cm)	Total Uranium (mg/L)	Gross Alpha (pCi/L)
9/27/91	157.63	1	173	0.001	0.323+/-1.2
10/30/91	157.81	5	255	<0.001	2.54+/-1.8
2/14/92	157.45	11	271	<0.001	2.51+/-2.2
5/9/95	157.62	16	249	<0.001	1.92+/-1.5
8/16/92	156.30	754	278	<0.001	0.89+/-1.8
11/12/92	157.67	22	267	<0.001	2.38+/-1.7
2/23/93	150.40	21	260	<0.001	3.49+/-1.8
6/15/93	156.60	228	249	0.002	15.1+/-2700
8/12/93	157.35	323	267	0.002	11.0+/-3.5
11/30/93	157.73	588	267	0.002	19.3+/-4.3
2/12/94	133.60	91	242	0.002	7.38+/-2.6
4/6/94	146.00	39	212	<0.001	2.5+/-2.0
7/9/94	157.50	290	256	0.005	2.67+/-2.5
7/9/94 (dup)	157.50	344	251	0.007	16.7+/-5.2
10/19/94	157.90	421	248	0.0067*	7.1+/-2.4
10/19/94 (dup)	157.90	541	244	0.0068*	18.3+/-4.1
1/18/95	155.95	820	318	0.0110*	34.1+/-6.0
1/18/95 (dup)	155.95	1040	318	0.0096*	29.1+/-5.4
4/7/95	157.45	1152	298	0.0160*	91+/-28
7/13/95	156.55	1065	224	0.0020*	6.48+/-1.8
8/14/95	157.70	<1.0	293	<0.0005*	0.65+/-1.3
10/23/95	157.80	2.5	278	<0.0005*	1.51+/-1.3
10/23/95 (dup)	157.80	1	278	<0.0005*	(0.649+/-1.4)
10/24/95	157.70	30	496	<0.0005*	2.76+/-1.7
10/24/95 (dup)	157.70	14	423	<0.0005*	0.841+/-1.1
10/25/95	157.75	32	363	<0.0005*	(0.517+/-1.5)
10/25/95 (dup)	157.75	701	225	<0.0005*	0.479+/-1.7
10/26/95	157.60	41	214	<0.0005*	(1.03+/-1.7)
10/26/95 (dup)	157.60	34	236	<0.0005*	(0.665+/-1.7)

BTOC - (feet) below top of casing
TSS - total suspended solids
mg/L - milligrams per liter
umhos/cm - micromhos per centimeter
pCi/L - picocuries per liter
* - total uranium result obtained by mass spectroscopy rather than fluorimetry
( ) - indicates a negative result, less than counter background

6.0 CY 1995 POST-CLOSURE DETECTION MONITORING SUMMARY AND STATISTICAL ANALYSIS

6.1 Reporting Requirements

A RCRA post-closure detection monitoring and maintenance program was initiated at the CRSDB in October 1995 in response to issuance of the modified Chestnut Ridge Hydrogeologic Regime post-closure permit (TNHW-088) on September 18, 1995. Semiannual groundwater monitoring and statistical evaluation of target compound analytical results are required. The formal post-closure detection monitoring network for the site includes Wells GW-156, GW-159, GW-731, and GW-732 (Fig. 4-7). These four wells were sampled as part of the interim status detection monitoring network during the first three quarters of CY 1995. Analyte lists and sampling protocols were modified to comply with post-closure requirements during the fourth quarter of CY 1995.

Condition II.C.6 of Permit TNHW-088 requires that specific information be reported in the context of an annual report (this document). The required reporting items are as follows:

1. Installation name, address, and EPA identification number;

2. Calendar year for which this report applies;

3. Certification statement signed by the Permittee or authorized representative; and

4. Presentation of groundwater monitoring results and statistical analyses.

Facility identification and applicable calendar year requirements are addressed in Sect. 1.0. The certification requirement is satisfied in the transmittal letter accompanying this document. Specific requirements for groundwater monitoring results and statistical analyses and the location of these data in this annual report are as follows:

1. Groundwater surface elevations at the time of sampling--Appendix A;

2. Presentation of groundwater quality results--Appendix A;

3. Determination of groundwater flow rates and directions--Sect. 6.2;

4. Documentation that point of compliance wells are located hydraulically downgradient of the waste management unit--Sect. 6.2; and

5. Results of statistical analyses--Sect. 6.3 and Appendix D.

In accordance with Condition II.C.2 of Permit TNHW-088, all supporting training, monitoring, testing, and analytical data are maintained in the administrative record either at the Y-12 Plant or the K-25 Site Analytical Services Organization offices.

6.2 Hydrologic Evaluation

The general direction of groundwater flow at the CRSDB is east-northeast, approximately parallel to geologic strike. A detailed discussion of the water table configuration and flow gradients was presented in Sect. 4.2. As evident from Fig. 4-8, Wells GW-156 and

GW-732 are located directly downgradient of the CRSDB and lie along geologic strike in a line that approximately bisects the center of the unit. Well GW-731 is located approximately 50 ft from the southeast edge of the facility cap and is downdip as well as downgradient of the facility.

Groundwater flow rates are presented only for the shallow bedrock interval of the Knox Group because the water table (uppermost aquifer) at CRSDB occurs within this zone. Calculation of representative groundwater flow rates in the vicinity of the CRSDB has an inherent large degree of uncertainty due to the predominance of fracture flow and influence of karst features. A detailed discussion of groundwater flow rates, solute transport rates, and limitations of standard calculations may be found in the CY 1995 Part 1 GWQR for the Chestnut Ridge Hydrogeologic Regime (Energy Systems 1996). In addition, calculated groundwater flow rates for the unconsolidated zone on Chestnut Ridge may be found in the CY 1995 Part 1 GWQR. A synopsis of method limitations and groundwater flow rate calculations is included in this report to comply with Condition IV.G.3 of Permit TNHW-088.

Two types of groundwater flow are typical of karst systems: diffuse flow and conduit flow. Both of these flow mechanisms are known to exist on Chestnut Ridge in the vicinity of the CRSDB. Rates for diffuse flow in the Knox Group may be determined using the modified Darcy equation $\mathbf{v = Ki/n}$, where **v** is the flow rate, **K** is the hydraulic conductivity, **i** is the horizontal hydraulic gradient, and **n** is the effective porosity. The following assumptions were used in the calculations:

1. A range of hydraulic conductivity results for wells completed in the Knox Group (0.002 to 3.1 ft per day) reported by King and Haase (1988);

2. An effective porosity of 0.01 (Smith et al. 1976); and

3. An average horizontal hydraulic gradient of 0.035 calculated from water level data collected at the CRSDB on October 20, 1995 (Sect. 4.2).

Based on these assumptions, diffuse flow rates range from 0.007 ft/day to 10.8 ft/day. The modified Darcy equation can also be used to estimate flow velocities in fractured rock; however, the assumption must be made that the aquifer is composed of an isotropic, porous medium. This assumption is not valid unless calculations are applied on a regime-wide scale. Actual flow velocities in individual fractures may vary over several orders of magnitude depending on the fracture aperture and wall roughness (Freeze and Cherry 1979). Additionally, the value for effective porosity is approximately representative for fractured limestone, but the actual value may be different by more than an order of magnitude, which results in inversely proportional variation in flow velocity.

Migration rates for conduit flow may be inferred from the results of several dye-tracer tests performed on Chestnut Ridge (Geraghty and Miller, Inc. 1990; Ketelle and Huff 1984; SAIC, Inc. 1993). Results of a CY 1990 dye-tracer test using fluorescein dye indicated transport velocities ranging from 100 to 300 ft/day (Geraghty and Miller, Inc. 1990), although these results were not confirmed by a subsequent test using the same dye injection point and two source dyes (SAIC, Inc. 1993). Ketelle and Huff (1984) determined transport velocities ranging from approximately 490 to 1,250 ft/day in a dye-tracer test conducted on Chestnut Ridge about six miles west of the CRSDB.

6.3 Results and Limitations of Statistical Methods

Condition IV.F of Permit TNHW-088 requires specific sample collection protocols and statistical evaluation of semiannual post-closure detection monitoring data. The required target list compounds are the same as for the alternative interim status evaluation (barium, cadmium, chromium, lead, mercury, nickel, silver, and total uranium). Sampling and statistical requirements are as follows:

1. Collection of four replicate samples at a suitable time interval to account for chemical variability in the groundwater system. Four replicate samples collected over four consecutive days (not more than 24 hrs apart) are specified to comply with this requirement.

2. Statistical comparison of target list compound concentrations at each groundwater monitoring well at the point of compliance to background values derived from an upgradient well (Well GW-159) using analysis of variance (ANOVA) and UTLs.

3. Comparison of target compound concentrations at each groundwater monitoring well to historical data within each well (within-well comparisons).

A two-part test is denoted in the post-closure permit to compare results from downgradient wells to background concentrations, ANOVA and comparison to UTLs. Both methods must show a statistical increase for the test to be considered valid. The ANOVA test compares the mean value of each target list compound concentration (calculated from the four replicate samples) at each downgradient well to the mean result at the upgradient well; the test is limited to data from a single sampling event. The ANOVA test requires a normal (parametric) data distribution. The UTL test compares individual downgradient well results to the maximum expected value (UTL) for a constituent based on historical geochemical variability upgradient of the site. U.S. Environmental Protection Agency guidance (EPA 1989) recommends that UTLs have a 95 percent confidence factor and a coverage of 95 percent, which requires a certain minimum population of analytical results. A statistical confidence of 95 percent cannot be achieved for a UTL if an inadequate number of analyses or a high number of undetected results exists.

A number of inherent limitations of the required statistical methods were discovered upon application to the fourth quarter CY 1995 data. Derivation of UTLs at a 95 percent confident interval could not be achieved for cadmium, chromium, lead, mercury, nickel, and silver due to a low total number of results and a high proportion of nondetected results. In addition, the value for all UTLs decreased over those used in interim status monitoring due to elimination of all but one available upgradient well and a corresponding decrease in sample population variability. A statistical confidence of 95 percent was achieved for barium and total uranium because a sufficient number of detected results was available. However, the UTLs decreased relative to those used in interim status due to limited variability of the upgradient data from a single well. In the case of barium, the UTL decreased by a factor of ten, prompting a review of the feasibility of its elimination as an indicator parameter. A summary of statistical confidence for the post-closure UTLs for fourth quarter CY 1995 post-closure statistical evaluations is provided below. These issues were discussed with TDEC staff on February 5, 1996. Agreement was reached during these discussions to fully describe the limitations and propose a revised statistical procedure for the CRSDB. The revised statistical procedure is to be proposed as part of the comment resolution process for the post-closure permit modification incorporating the Chestnut Ridge Security Pits hazardous waste management unit. In addition, a proposal will be made to remove barium from the target constituent list for the unit.

CRSDB Tolerance Limit Comparisons (in mg/L)

Parameter	Interim Status UTL	Post-Closure UTL	MCL	Confidence
Ba	0.2207	0.030	2.0	95%
Cd	0.0061	<0.002	0.005	64%
Cr	0.038	<0.01	0.1	64%
Pb	0.19	0.047	0.05*	83%
Hg	0.0004	<0.0002	0.002	83%
Ni	0.076	0.018	0.1	83%
Ag	0.045	<0.006	0.1**	83%
U (elemental)	0.009	0.0076	N/A	95%

MCL - U.S. Environmental Protection Agency Drinking Water Standards
* - historical standard
** - secondary standard

Evaluation of fourth quarter CY 1995 post-closure detection monitoring results was attempted using ANOVA (Appendix D). Data distribution was not parametric and could not be normalized due to a preponderance of nondetected results. Thus, a nonparametric variance test was used to compare upgradient and downgradient results (Kruskal-Wallis Test).

Difficulties were also encountered when attempting UTL derivations for each of the downgradient wells to conduct within-well tests. Data population limitations and censorship precluded derivation of UTLs with a statistical confidence of 95 percent. T-tests could not be used due to nonparametric data distribution. Thus, the within-well comparisons were conducted by using a nonparametric rank test (Wilcoxon Rank Sum Test). Fourth quarter CY 1995 data were compared to the population of results obtained between the third quarter CY 1991 and fourth quarter CY 1994 (14 calendar years). This time interval represents all available data that were formally validated at the time of this report for two of the three downgradient wells at the facility (Wells GW-731 and GW-732).

Comparisons of the fourth quarter CY 1995 sampling event data using the nonparametric variance test indicated that no target compound concentrations in the downgradient wells were significantly higher than corresponding concentrations in the upgradient well during the sampling event (Appendix D). Comparisons using the post-closure UTLs showed:

1. Barium in Well GW-732 exceeded its UTL in three of the four replicates.

2. Chromium in Well GW-731 exceeded its UTL in one of the four replicates.

3. Chromium in Well GW-732 exceeded its UTL in three of the four replicates.

4. Nickel in Well GW-156 exceeded its UTL in one of the four replicates.

However, barium, cadmium, chromium, lead, and nickel also exceeded their corresponding UTLs in at least one of the replicate samples collected from the upgradient well. Because both comparison tests of downgradient data to upgradient data did not indicate a significant difference, a release of contaminants to groundwater at the site has not occurred. The within-well comparisons showed that no parameter significantly exceeded historical results for the 14 quarter reference period, with the exception of chromium in Well GW-732. However, as noted previously, levels of this parameter were not significantly different than those in the upgradient well during the fourth quarter.

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APPENDIX A

Tabulation of Groundwater Indicator and Quality Parameters
for Kerr Hollow Quarry and the Chestnut Ridge Sediment Disposal Basin

1995 Groundwater Monitoring Report
Kerr Hollow Quarry
Anderson County, Tennessee

WELL		GW-142 FILTERED	GW-142 FILTERED	GW-142 FILTERED	GW-144 FILTERED	GW-144 FILTERED	GW-144 FILTERED FIELD DUPE
DATE SAMPLED		01/10/95	03/20/95	04/20/95	01/18/95	04/25/95	04/25/95
ALUMINUM	ICAP (MG/L)	<0.02	<0.02	<0.02	0.026	<0.02	<0.02
ANTIMONY	ICAP (MG/L)	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
ARSENIC	ICAP (MG/L)	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
BARIUM	ICAP (MG/L)	0.39	0.38	0.43	0.054	0.046	0.048
BERYLLIUM	ICAP (MG/L)	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003
BORON	ICAP (MG/L)	0.11	0.039	0.041	0.038	0.023	0.023
CADMIUM	ICAP (MG/L)	<0.003	<0.003	0.0032	<0.003	<0.003	<0.003
CALCIUM	ICAP (MG/L)	43	44	44	42	39	40
CHROMIUM	ICAP (MG/L)	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
COBALT	ICAP (MG/L)	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
COPPER	ICAP (MG/L)	0.0054	<0.004	<0.004	<0.004	<0.004	<0.004
IRON	ICAP (MG/L)	0.043	<0.005	0.54	<0.005	0.021	0.0079
LEAD	ICAP (MG/L)	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
MAGNESIUM	ICAP (MG/L)	29	29	31	17	14	15
MANGANESE	ICAP (MG/L)	0.042	0.052	0.054	<0.001	<0.001	<0.001
MERCURY	CVAA (MG/L)	<0.0002	.	<0.0002	<0.0002	<0.0002	<0.0002
MOLYBDENUM	ICAP (MG/L)	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
NICKEL	ICAP (MG/L)	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
POTASSIUM	ICAP (MG/L)	3.3	4.1	4.1	1.5	1.9	2.1
SELENIUM	ICAP (MG/L)	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
SILVER	ICAP (MG/L)	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006
SODIUM	ICAP (MG/L)	0.94	1	1	1.1	1.3	1.3
STRONTIUM	ICAP (MG/L)	0.51	0.51	0.54	0.087	0.093	0.096
THORIUM	ICAP (MG/L)	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
URANIUM	ICP/MS (MG/L)	0.01	.	0.0097	0.0025	0.0019	0.0021
VANADIUM	ICAP (MG/L)	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
ZINC	ICAP (MG/L)	<0.002	<0.002	0.0073	0.0023	0.0057	0.0084

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WELL		GW-145 FILTERED	GW-145 FILTERED	GW-145 FILTERED	GW-231 FILTERED	GW-231 FILTERED
DATE SAMPLED		01/18/95	03/24/95	04/26/95	01/15/95	04/21/95
ALUMINUM	ICAP (MG/L)	0.042	<0.02	0.026	<0.02	<0.02
ANTIMONY	ICAP (MG/L)	<0.05	<0.05	<0.05	<0.05	<0.05
ARSENIC	ICAP (MG/L)	<0.05	<0.05	<0.05	<0.05	<0.05
BARIUM	ICAP (MG/L)	0.096	0.16	0.087	0.079	0.08
BERYLLIUM	ICAP (MG/L)	<0.0003	0.00046	<0.0003	<0.0003	<0.0003
BORON	ICAP (MG/L)	0.31	0.21	0.25	0.071	0.015
CADMIUM	ICAP (MG/L)	<0.003	<0.003	<0.003	<0.003	<0.003
CALCIUM	ICAP (MG/L)	44	43	42	36	38
CHROMIUM	ICAP (MG/L)	<0.01	<0.01	<0.01	<0.01	<0.01
COBALT	ICAP (MG/L)	<0.005	<0.005	<0.005	<0.005	<0.005
COPPER	ICAP (MG/L)	0.0051	<0.004	<0.004	0.0095	<0.004
IRON	ICAP (MG/L)	<0.005	<0.005	0.0071	<0.005	<0.005
LEAD	ICAP (MG/L)	<0.05	<0.05	<0.05	<0.05	<0.05
MAGNESIUM	ICAP (MG/L)	42	33	34	18	20
MANGANESE	ICAP (MG/L)	0.0015	0.021	0.0027	<0.001	<0.001
MERCURY	CVAA (MG/L)	<0.0002	.	<0.0002	<0.0002	<0.0002
MOLYBDENUM	ICAP (MG/L)	0.011	0.011	<0.01	<0.01	<0.01
NICKEL	ICAP (MG/L)	<0.01	<0.01	<0.01	<0.01	<0.01
POTASSIUM	ICAP (MG/L)	12	11	12	0.99	0.9
SELENIUM	ICAP (MG/L)	<0.05	<0.05	<0.05	<0.05	<0.05
SILVER	ICAP (MG/L)	<0.006	<0.006	<0.006	<0.006	<0.006
SODIUM	ICAP (MG/L)	6.4	4	5.9	0.87	0.88
STRONTIUM	ICAP (MG/L)	7.5	6.6	7.4	0.033	0.035
THORIUM	ICAP (MG/L)	<0.2	<0.2	<0.2	<0.2	<0.2
URANIUM	ICP/MS (MG/L)	0.012	.	0.012	<0.0005	<0.0005
VANADIUM	ICAP (MG/L)	<0.005	<0.005	<0.005	<0.005	<0.005
ZINC	ICAP (MG/L)	0.0039	<0.002	0.0033	<0.002	0.0051

1995 Groundwater Monitoring Report
Kerr Hollow Quarry
Anderson County, Tennessee

WELL		GW-142 UNFILTERED	GW-142 UNFILTERED	GW-142 UNFILTERED	GW-144 UNFILTERED	GW-144 UNFILTERED	GW-144 UNFILTERED	GW-144 UNFILTERED FIELD DUPE
DATE SAMPLED		01/10/95	03/20/95	04/20/95	01/18/95	03/22/95	04/25/95	04/25/95
ALUMINUM	ICAP (MG/L)	0.061	<0.02	<0.02	0.4	.	<0.02	<0.02
ANTIMONY	ICAP (MG/L)	<0.05	<0.05	<0.05	<0.05	.	<0.05	<0.05
ARSENIC	ICAP (MG/L)	<0.05	<0.05	<0.05	<0.05	.	<0.05	<0.05
BARIUM	ICAP (MG/L)	0.43	0.4	0.43	0.054	.	0.046	0.047
BERYLLIUM	ICAP (MG/L)	<0.0003	<0.0003	<0.0003	<0.0003	.	<0.0003	<0.0003
BORON	ICAP (MG/L)	0.1	0.052	0.051	0.035	.	0.028	0.037
CADMIUM	ICAP (MG/L)	<0.003	<0.003	<0.003	<0.003	.	<0.003	<0.003
CALCIUM	ICAP (MG/L)	46	43	44	39	.	40	40
CHROMIUM	ICAP (MG/L)	<0.01	<0.01	<0.01	<0.01	.	<0.01	<0.01
COBALT	ICAP (MG/L)	<0.005	<0.005	<0.005	<0.005	.	<0.005	<0.005
COPPER	ICAP (MG/L)	0.0067	<0.004	<0.004	0.019	.	<0.004	<0.004
IRON	ICAP (MG/L)	3.6	5.4	6.9	<0.005	.	0.058	0.017
LEAD	ICAP (MG/L)	<0.05	<0.05	<0.05	<0.05	.	<0.05	<0.05
MAGNESIUM	ICAP (MG/L)	31	28	31	17	.	15	15
MANGANESE	ICAP (MG/L)	0.052	0.068	0.059	0.0018	.	0.0016	<0.001
MERCURY	CVAA (MG/L)	<0.0002	.	<0.0002	<0.0002	.	<0.0002	<0.0002
MOLYBDENUM	ICAP (MG/L)	<0.01	<0.01	<0.01	<0.01	.	<0.01	<0.01
NICKEL	ICAP (MG/L)	<0.01	<0.01	<0.01	<0.01	.	<0.01	<0.01
POTASSIUM	ICAP (MG/L)	3.5	3.9	3.9	1.4	.	1.5	2.2
SELENIUM	ICAP (MG/L)	<0.05	<0.05	<0.05	<0.05	.	<0.05	<0.05
SILVER	ICAP (MG/L)	<0.006	<0.006	<0.006	<0.006	.	<0.006	<0.006
SODIUM	ICAP (MG/L)	1	0.98	0.97	0.98	.	1.2	1.3
STRONTIUM	ICAP (MG/L)	0.54	0.5	0.55	0.086	.	0.09	0.093
THORIUM	ICAP (MG/L)	<0.2	<0.2	<0.2	<0.2	.	<0.2	<0.2
URANIUM	ICP/MS (MG/L)	0.011	.	0.01	0.0025	.	0.002	0.002
VANADIUM	ICAP (MG/L)	<0.005	<0.005	<0.005	<0.005	.	<0.005	<0.005
ZINC	ICAP (MG/L)	<0.002	0.005	0.0053	0.013	.	0.0034	0.006

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WELL		GW-145 UNFILTERED	GW-145 UNFILTERED	GW-145 UNFILTERED	GW-231 UNFILTERED	GW-231 UNFILTERED
DATE SAMPLED		01/18/95	03/24/95	04/26/95	01/15/95	04/21/95
ALUMINUM	ICAP (MG/L)	0.15	0.74	0.066	0.033	<0.02
ANTIMONY	ICAP (MG/L)	<0.05	<0.05	<0.05	<0.05	<0.05
ARSENIC	ICAP (MG/L)	<0.05	<0.05	<0.05	<0.05	<0.05
BARIUM	ICAP (MG/L)	0.11	0.16	0.094	0.08	0.081
BERYLLIUM	ICAP (MG/L)	<0.0003	0.0073	<0.0003	<0.0003	<0.0003
BORON	ICAP (MG/L)	0.3	0.26	0.24	0.055	0.0082
CADMIUM	ICAP (MG/L)	<0.003	0.007	<0.003	<0.003	<0.003
CALCIUM	ICAP (MG/L)	47	46	47	37	38
CHROMIUM	ICAP (MG/L)	<0.01	<0.01	<0.01	<0.01	<0.01
COBALT	ICAP (MG/L)	<0.005	0.009	<0.005	<0.005	<0.005
COPPER	ICAP (MG/L)	0.0042	0.0073	<0.004	<0.004	<0.004
IRON	ICAP (MG/L)	0.16	0.62	0.1	0.016	0.0061
LEAD	ICAP (MG/L)	<0.05	<0.05	<0.05	<0.05	<0.05
MAGNESIUM	ICAP (MG/L)	45	34	35	18	20
MANGANESE	ICAP (MG/L)	0.015	0.075	0.01	0.003	<0.001
MERCURY	CVAA (MG/L)	<0.0002	.	<0.0002	<0.0002	<0.0002
MOLYBDENUM	ICAP (MG/L)	<0.01	0.01	<0.01	<0.01	<0.01
NICKEL	ICAP (MG/L)	<0.01	<0.01	<0.01	<0.01	<0.01
POTASSIUM	ICAP (MG/L)	13	12	13	0.97	0.68
SELENIUM	ICAP (MG/L)	<0.05	<0.05	<0.05	<0.05	<0.05
SILVER	ICAP (MG/L)	<0.006	0.013	<0.006	<0.006	<0.006
SODIUM	ICAP (MG/L)	6.8	4.8	5.8	0.86	0.85
STRONTIUM	ICAP (MG/L)	7.8	7.3	7.8	0.033	0.035
THORIUM	ICAP (MG/L)	<0.2	<0.2	<0.2	<0.2	<0.2
URANIUM	ICP/MS (MG/L)	0.013	.	0.012	<0.0005	<0.0005
VANADIUM	ICAP (MG/L)	<0.005	0.011	<0.005	<0.005	<0.005
ZINC	ICAP (MG/L)	0.0042	0.0095	0.0079	<0.002	0.0024

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WELL		GW-142	GW-142	GW-142	GW-144	GW-144	GW-144	GW-144 FIELD DUPE
DATE SAMPLED		01/10/95	03/20/95	04/20/95	01/18/95	03/22/95	04/25/95	04/25/95
TIME SAMPLED		13:45:00	15:20:00	14:30:00	11:37:00	14:14:00	15:26:00	15:26:00
REQ. NO.		950111-100	950320-173	950421-004	950118-053	950322-085	950426-261	950426-263
CONDUCTIVITY, FIELD MMT	(UMHOS/CM)	325	484	443	266	328	317	310
PH, FIELD MMT.	(PH UNITS)	7.8	8.1	7.8	8	8	7.9	7.9
STATIC WATER LEVEL	(FT. - TOC)	-133.7	-132.72	-133.33	-77.36	-77.78	-78.65	.
WATER TEMP, FIELD MMT	(DEG. CENT.)	13.8	15.6	15.8	14.2	16.1	15.2	15.1
DISSOLVED OXYGEN, FIELD MMT.	(PPM)	0.5	0.8	1.4	10.9	5.5	3.9	3.9
REDOX, FIELD MMT.	(MV)	108	23	-41	122	139	166	167
CONDUCTIVITY	(UMHOS/CM)	446	.	441	318	.	301	301
CONDUCTIVITY, REP. 2	(UMHOS/CM)	447	.	442	318	.	296	299
CONDUCTIVITY, REP. 3	(UMHOS/CM)	446	.	441	319	.	301	301
CONDUCTIVITY, REP. 4	(UMHOS/CM)	446	.	441	319	.	301	301
PH	(PH UNITS)	7.9	.	7.9	8	.	7.9	7.9
PH, REP. 2	(PH UNITS)	7.9	.	7.9	8	.	7.9	7.9
PH, REP. 3	(PH UNITS)	7.9	.	7.9	8	.	7.9	7.9
PH, REP. 4	(PH UNITS)	7.9	.	7.9	8	.	7.9	7.9
TOTAL ORGANIC CARBON	(MG/L)	6	.	1.3	2.8	.	3.9	3.8
TOTAL ORGANIC CARBON, REP 2	(MG/L)	6	.	3.7	1.2	.	<1	4
TOTAL ORGANIC CARBON, REP 3	(MG/L)	6	.	6.7	2.6	.	2.5	2.6
TOTAL ORGANIC CARBON, REP 4	(MG/L)	6	.	4.1	<1	.	3.5	2.3
TOTAL ORGANIC HALIDE	(UG/L)	<10	.	<10	<10	.	<10	<10
TOTAL ORGANIC HALIDE, REP 2	(UG/L)	<10	.	<10	<10	.	<10	<10
TOTAL ORGANIC HALIDE, REP 3	(UG/L)	<10	.	<10	<10	.	<10	<10
TOTAL ORGANIC HALIDE, REP 4	(UG/L)	<10	.	<10	<10	.	<10	<10
ALKALINITY-CO3	(MG/L)	<1	.	<1	<1	.	<1	<1
ALKALINITY-HCO3	(MG/L)	235	.	242	151	.	151	151
TURBIDITY	(NTU)	27	.	34	0.1	.	0.4	0.4
TOTAL SUSPENDED SOLIDS	(MG/L)	8	.	3.8	<1	.	<1	<1
DISSOLVED SOLIDS	(MG/L)	180	.	268	104	.	166	162
FLUORIDE	(MG/L)	0.6	.	0.63	0.2	.	0.1	0.1
CHLORIDE	(MG/L)	2.3	.	2.5	2.3	.	2.8	2.8
SULFATE	(MG/L)	5.4	.	5.7	5.3	.	5.6	5.6
NITRATE NITROGEN	(MG/L)	1.2	.	<0.2	1.6	.	2	2
PHENOLS	(MG/L)	<0.05	.	<0.05	<0.05	.	<0.05	<0.05
GROSS ALPHA	(PCI/L)	6.08	.	6.34	3.23	.	2.29	1.68
COUNTING ERROR	(GROSS ALPHA)	2.5	.	2.4	1.6	.	1.5	1.4
GROSS BETA	(PCI/L)	5.35	.	10.2	5.45	.	4.59	3.07
COUNTING ERROR	(GROSS BETA)	2.9	.	3.1	2.6	.	2.7	2.5
STRONTIUM	(PCI/L)	.	.	-2.86	.	-1.88	7.43	3.49
COUNTING ERROR	(STRONTIUM)	.	.	5.7	.	6.5	6.3	5.9
234-URANIUM	(PCI/L)	.	1.04	4.4	.	1.13	1.01	1.98
COUNTING ERROR	(234-URANIUM)	.	0.52	0.95	.	0.53	0.64	0.96
235-URANIUM	(PCI/L)	.	5.94	5.04	.	96.6	-5.21	0.96
COUNTING ERROR	(235-URANIUM)	.	44	7.3	.	91	13	7.2
238-URANIUM	(PCI/L)	.	0.909	3.05	.	0.252	0.704	0.584
COUNTING ERROR	(238-URANIUM)	.	0.49	0.78	.	0.25	0.53	0.52

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WELL	GW-145	GW-145	GW-145	GW-231	GW-231
DATE SAMPLED	01/18/95	03/24/95	04/26/95	01/15/95	04/21/95
TIME SAMPLED	14:00:00	10:45:00	11:45:00	13:03:00	11:50:00
REQ. NO.	950118-051	950324-048	950426-310	950117-117	950421-054
CONDUCTIVITY, FIELD MMT (UMHOS/CM)	476	512	516	295	280
PH, FIELD MMT. (PH UNITS)	8	8.1	8	7.2	7.7
STATIC WATER LEVEL (FT. - TOC)	-2.47	-3.17	-4.44	-10.35	-13.55
WATER TEMP, FIELD MMT (DEG. CENT.)	14.3	16.4	16	14.5	13.9
DISSOLVED OXYGEN, FIELD MMT. (PPM)	9.5	7.1	4.9	7.8	2.1
REDOX, FIELD MMT. (MV)	170	207	152	114	190
CONDUCTIVITY (UMHOS/CM)	529	.	512	328	329
CONDUCTIVITY, REP. 2 (UMHOS/CM)	532	.	510	329	330
CONDUCTIVITY, REP. 3 (UMHOS/CM)	531	.	512	327	330
CONDUCTIVITY, REP. 4 (UMHOS/CM)	532	.	512	327	331
PH (PH UNITS)	8.1	.	8.1	7.6	7.6
PH, REP. 2 (PH UNITS)	8	.	8	7.5	7.6
PH, REP. 3 (PH UNITS)	8	.	8	7.5	7.6
PH, REP. 4 (PH UNITS)	8.1	.	8	7.5	7.6
TOTAL ORGANIC CARBON (MG/L)	1.1	.	2.7	5.9	1.2
TOTAL ORGANIC CARBON, REP 2 (MG/L)	1.8	.	4.5	3.1	2.9
TOTAL ORGANIC CARBON, REP 3 (MG/L)	3.1	.	7.3	1.6	2.4
TOTAL ORGANIC CARBON, REP 4 (MG/L)	4.1	.	4.1	1	2.9
TOTAL ORGANIC HALIDE (UG/L)	11.4	.	<10	<10	<10
TOTAL ORGANIC HALIDE, REP 2 (UG/L)	<10	.	<10	<10	<10
TOTAL ORGANIC HALIDE, REP 3 (UG/L)	<10	.	<10	<10	<10
TOTAL ORGANIC HALIDE, REP 4 (UG/L)	20.2	.	<10	<10	<10
ALKALINITY-CO3 (MG/L)	<0.1	.	<1	<1	<1
ALKALINITY-HCO3 (MG/L)	229	.	232	161	171
TURBIDITY (NTU)	5.2	.	4.2	1.4	0.1
TOTAL SUSPENDED SOLIDS (MG/L)	6	.	22	1	<1
DISSOLVED SOLIDS (MG/L)	226	.	276	146	322
FLUORIDE (MG/L)	2.9	.	2.4	<0.1	<0.1
CHLORIDE (MG/L)	8.8	.	9.7	2.8	2.6
SULFATE (MG/L)	36	.	37	5.1	4.2
NITRATE NITROGEN (MG/L)	0.47	.	0.35	1	1.1
PHENOLS (MG/L)	<0.05	.	<0.05	<0.05	<0.05
GROSS ALPHA (PCI/L)	14.1	.	9.93	1.13	1.01
COUNTING ERROR (GROSS ALPHA)	3.5	.	3	0.98	1.3
GROSS BETA (PCI/L)	16.7	.	14.7	1.14	3.28
COUNTING ERROR (GROSS BETA)	3.6	.	3.5	2.3	2.5
STRONTIUM (PCI/L)	.	-4.23	0.897	.	0.722
COUNTING ERROR (STRONTIUM)	.	6.2	5.6	.	6.1
234-URANIUM (PCI/L)	.	5.92	8.07	.	0.256
COUNTING ERROR (234-URANIUM)	.	1.2	2	.	0.27
235-URANIUM (PCI/L)	.	8.59	0.116	.	8.94
COUNTING ERROR (235-URANIUM)	.	13	13	.	13
238-URANIUM (PCI/L)	.	1.85	5.7	.	0

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WELL		GW-142	GW-142	GW-142	GW-144	GW-144	GW-144	GW-144 FIELD DUPE
DATE SAMPLED		01/10/95	03/20/95	04/20/95	01/18/95	03/22/95	04/25/95	04/25/95
CHLOROMETHANE	(UG/L)	10U	.	10U	10U	.	10U	10U
BROMOMETHANE	(UG/L)	10U	.	10U	10U	.	10U	10U
VINYL CHLORIDE	(UG/L)	10U	.	10U	10U	.	10U	10U
CHLOROETHANE	(UG/L)	10U	.	10U	10U	.	10U	10U
METHYLENE CHLORIDE	(UG/L)	10U	.	10U	10U	.	10U	10U
ACETONE	(UG/L)	10U	.	10U	8	.	10U	4
CARBON DISULFIDE	(UG/L)	10U	.	10U	10U	.	10U	10U
1,1-DICHLOROETHENE	(UG/L)	10U	.	10U	10U	.	10U	10U
1,1-DICHLOROETHANE	(UG/L)	10U	.	10U	10U	.	10U	10U
1,2-DICHLOROETHENE	(UG/L)	10U	.	10U	10U	.	10U	10U
CHLOROFORM	(UG/L)	10U	.	10U	10U	.	1	1
1,2-DICHLOROETHANE	(UG/L)	10U	.	10U	10U	.	10U	10U
2-BUTANONE	(UG/L)	10U	.	10U	9	.	10U	10U
1,1,1-TRICHLOROETHANE	(UG/L)	10U	.	10U	10U	.	10U	10U
CARBON TETRACHLORIDE	(UG/L)	10U	.	10U	3	.	3	4
VINYL ACETATE	(UG/L)	10U	.	10U	10U	.	10U	10U
BROMODICHLOROMETHANE	(UG/L)	10U	.	10U	10U	.	10U	10U
1,2-DICHLOROPROPANE	(UG/L)	10U	.	10U	10U	.	10U	10U
CIS-1,3-DICHLOROPROPENE	(UG/L)	10U	.	10U	10U	.	10U	10U
TRICHLOROETHENE	(UG/L)	10U	.	10U	10U	.	10U	10U
CHLORODIBROMOMETHANE	(UG/L)	10U	.	10U	10U	.	10U	10U
1,1,2-TRICHLOROETHANE	(UG/L)	10U	.	10U	10U	.	10U	10U
BENZENE	(UG/L)	10U	.	10U	10U	.	10U	10U
TRANS-1,3-DICHLOROPROPENE	(UG/L)	10U	.	10U	10U	.	10U	10U
BROMOFORM	(UG/L)	10U	.	10U	10U	.	10U	10U
4-METHYL-2-PENTANONE	(UG/L)	10U	.	10U	10U	.	10U	10U
2-HEXANONE	(UG/L)	10U	.	10U	10U	.	10U	10U
TETRACHLOROETHENE	(UG/L)	10U	.	10U	1	.	10U	10U
1,1,2,2-TETRACHLOROETHANE	(UG/L)	10U	.	10U	10U	.	10U	10U
TOLUENE	(UG/L)	10U	.	10U	6	.	10U	10U
CHLOROBENZENE	(UG/L)	10U	.	10U	10U	.	10U	10U
ETHYLBENZENE	(UG/L)	10U	.	10U	10U	.	10U	10U
STYRENE	(UG/L)	10U	.	10U	10U	.	10U	10U
XYLENES	(UG/L)	10U	.	10U	10U	.	10U	10U

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WELL		GW-145	GW-145	GW-145	GW-231	GW-231
DATE SAMPLED		01/18/95	03/24/95	04/26/95	01/15/95	04/21/95
CHLOROMETHANE	(UG/L)	10U	.	10U	10U	10U
BROMOMETHANE	(UG/L)	10U	.	10U	10U	10U
VINYL CHLORIDE	(UG/L)	10U	.	10U	10U	10U
CHLOROETHANE	(UG/L)	10U	.	10U	10U	10U
METHYLENE CHLORIDE	(UG/L)	10U	.	10U	10U	10U
ACETONE	(UG/L)	10U	.	10U	10U	10U
CARBON DISULFIDE	(UG/L)	10U	.	10U	10U	10U
1,1-DICHLOROETHENE	(UG/L)	10U	.	10U	10U	10U
1,1-DICHLOROETHANE	(UG/L)	10U	.	10U	10U	10U
1,2-DICHLOROETHENE	(UG/L)	10U	.	10U	10U	10U
CHLOROFORM	(UG/L)	10U	.	10U	10U	10U
1,2-DICHLOROETHANE	(UG/L)	10U	.	10U	10U	10U
2-BUTANONE	(UG/L)	5	.	10U	10U	10U
1,1,1-TRICHLOROETHANE	(UG/L)	10U	.	10U	10U	10U
CARBON TETRACHLORIDE	(UG/L)	10U	.	10U	10U	10U
VINYL ACETATE	(UG/L)	10U	.	10U	10U	10U
BROMODICHLOROMETHANE	(UG/L)	10U	.	10U	10U	10U
1,2-DICHLOROPROPANE	(UG/L)	10U	.	10U	10U	10U
CIS-1,3-DICHLOROPROPENE	(UG/L)	10U	.	10U	10U	10U
TRICHLOROETHENE	(UG/L)	10U	.	10U	10U	10U
CHLORODIBROMOMETHANE	(UG/L)	10U	.	10U	10U	10U
1,1,2-TRICHLOROETHANE	(UG/L)	10U	.	10U	10U	10U
BENZENE	(UG/L)	10U	.	10U	10U	10U
TRANS-1,3-DICHLOROPROPENE	(UG/L)	10U	.	10U	10U	10U
BROMOFORM	(UG/L)	10U	.	10U	10U	10U
4-METHYL-2-PENTANONE	(UG/L)	10U	.	10U	10U	10U
2-HEXANONE	(UG/L)	10U	.	10U	10U	10U
TETRACHLOROETHENE	(UG/L)	10U	.	10U	10U	10U
1,1,2,2-TETRACHLOROETHANE	(UG/L)	10U	.	10U	10U	10U
TOLUENE	(UG/L)	6	.	10U	10U	10U
CHLOROBENZENE	(UG/L)	10U	.	10U	10U	10U
ETHYLBENZENE	(UG/L)	10U	.	10U	10U	10U
STYRENE	(UG/L)	10U	.	10U	10U	10U
XYLENES	(UG/L)	10U	.	10U	10U	10U

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WELL		GW-142 FILTERED	GW-142 FILTERED	GW-144 FILTERED	GW-144 FILTERED FIELD DUPE	GW-144 FILTERED	GW-144 FILTERED FIELD DUPE	GW-145 FILTERED	GW-145 FILTERED	GW-231 FILTERED	GW-231 FILTERED
DATE SAMPLED		07/14/95	11/05/95	07/16/95	07/16/95	11/14/95	11/14/95	07/17/95	11/15/95	07/15/95	11/06/95
ALUMINUM	ICAP (MG/L)	0.028	0.032	<0.02	0.035	0.05	0.025	<0.02	0.035	<0.02	0.03
ANTIMONY	ICAP (MG/L)	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
ARSENIC	ICAP (MG/L)	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
BARIUM	ICAP (MG/L)	0.43	0.4	0.047	0.046	0.048	0.047	0.091	0.079	0.097	0.11
BERYLLIUM	ICAP (MG/L)	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003
BORON	ICAP (MG/L)	0.049	0.045	0.034	0.031	0.022	0.042	0.25	0.29	0.036	0.013
CADMIUM	ICAP (MG/L)	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003
CALCIUM	ICAP (MG/L)	45	40	39	40	41	41	45	42	46	45
CHROMIUM	ICAP (MG/L)	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
COBALT	ICAP (MG/L)	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
COPPER	ICAP (MG/L)	0.012	<0.004	<0.004	0.0044	<0.004	<0.004	0.0051	<0.004	<0.004	<0.004
IRON	ICAP (MG/L)	<0.005	1	<0.005	<0.005	<0.005	0.51	0.0057	<0.005	<0.005	0.0099
LEAD	ICAP (MG/L)	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
LITHIUM	ICAP (MG/L)	.	0.025	.	.	0.034	0.033	.	0.093	.	<0.004
MAGNESIUM	ICAP (MG/L)	31	30	15	15	16	16	36	35	23	24
MANGANESE	ICAP (MG/L)	0.034	0.054	<0.001	<0.001	<0.001	0.0025	0.0019	0.0025	<0.001	0.0025
MERCURY	CVAA (MG/L)	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
MOLYBDENUM	ICAP (MG/L)	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
NICKEL	ICAP (MG/L)	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
POTASSIUM	ICAP (MG/L)	4.4	3.9	1.5	2.1	1.4	1.8	13	11	1.6	0.64
SELENIUM	ICAP (MG/L)	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
SILVER	ICAP (MG/L)	<0.006	<0.006	<0.006	<0.006	0.028	<0.006	<0.006	<0.006	<0.006	<0.006
SODIUM	ICAP (MG/L)	1.1	1	1.3	1.3	1.2	1.2	5.5	5.8	1	1
STRONTIUM	ICAP (MG/L)	0.5	0.49	0.091	0.088	0.087	0.089	7.4	7	0.043	0.043
THORIUM	ICAP (MG/L)	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
URANIUM	ICP/MS (MG/L)	0.0096	0.0044	0.0019	0.002	0.0022	0.0024	0.012	0.013	<0.0005 d	<0.0005 d
VANADIUM	ICAP (MG/L)	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
ZINC	ICAP (MG/L)	<0.002	0.011	<0.002	<0.002	0.0066	0.0086	<0.002	0.012	<0.002	0.0046

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WELL		GW-142 UNFILTERED	GW-142 UNFILTERED	GW-144 UNFILTERED	GW-144 UNFILTERED FIELD DUPE	GW-144 UNFILTERED	GW-144 UNFILTERED FIELD DUPE	GW-145 UNFILTERED	GW-145 UNFILTERED	GW-231 UNFILTERED	GW-231 UNFILTERED
DATE SAMPLED		07/14/95	11/05/95	07/16/95	07/16/95	11/14/95	11/14/95	07/17/95	11/15/95	07/15/95	11/06/95
ALUMINUM	ICAP (MG/L)	<0.02	0.034	0.033	0.025	0.032	0.022	0.064	0.081	<0.02	0.029
ANTIMONY	ICAP (MG/L)	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
ARSENIC	ICAP (MG/L)	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
BARIUM	ICAP (MG/L)	0.44	0.39	0.053	0.048	0.048	0.046	0.095	0.09	0.087	0.11
BERYLLIUM	ICAP (MG/L)	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003
BORON	ICAP (MG/L)	0.045	0.039	0.032	0.022	0.024	0.11	0.26	0.45	0.026	0.019
CADMIUM	ICAP (MG/L)	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003
CALCIUM	ICAP (MG/L)	44	39	46	41	42	40	46	43	41	46
CHROMIUM	ICAP (MG/L)	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
COBALT	ICAP (MG/L)	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
COPPER	ICAP (MG/L)	<0.004	<0.004	0.0067	<0.004	<0.004	<0.004	0.0072	<0.004	0.024	<0.004
IRON	ICAP (MG/L)	2.3	2.7	0.21	0.2	0.025	0.026	0.13	0.055	<0.005	0.018
LEAD	ICAP (MG/L)	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
LITHIUM	ICAP (MG/L)	.	0.025	.	.	0.033	0.032	.	0.1	.	<0.004
MAGNESIUM	ICAP (MG/L)	30	30	17	15	16	15	37	36	21	24
MANGANESE	ICAP (MG/L)	0.033	0.05	0.001	<0.001	<0.001	<0.001	0.0075	0.0065	<0.001	0.0023
MERCURY	CVAA (MG/L)	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
MOLYBDENUM	ICAP (MG/L)	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
NICKEL	ICAP (MG/L)	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
POTASSIUM	ICAP (MG/L)	3.9	3.3	2	2.1	1.2	1.6	14	12	0.73	1
SELENIUM	ICAP (MG/L)	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
SILVER	ICAP (MG/L)	<0.006	<0.006	0.0061	<0.006	<0.006	0.04	<0.006	0.4	<0.006	<0.006
SODIUM	ICAP (MG/L)	1	1	1.5	1.3	1.1	1.4	5.9	6.6	1	1
STRONTIUM	ICAP (MG/L)	0.49	0.49	0.1	0.091	0.088	0.087	7.6	7.6	0.039	0.043
THORIUM	ICAP (MG/L)	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
URANIUM	ICP/MS (MG/L)	0.0095	0.0018	<0.0005 d	0.0021	0.0023	0.0022	<0.0005 d	0.012	<0.0005 d	<0.0005 d
VANADIUM	ICAP (MG/L)	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
ZINC	ICAP (MG/L)	<0.002	0.024	<0.002	<0.002	<0.002	0.0044	<0.002	0.008	0.0047	0.0095

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WELL	GW-142	GW-142	GW-144	GW-144 FIELD DUPE	GW-144	GW-144 FIELD DUPE	GW-145	GW-145	GW-231	GW-231
DATE SAMPLED	07/14/95	11/05/95	07/16/95	07/16/95	11/14/95	11/14/95	07/17/95	11/15/95	07/15/95	11/06/95
TIME SAMPLED	11:40:00	14:40:00	15:38:00	15:38:00	11:54:00	11:54:00	12:15:00	11:30:00	9:23:00	13:20:00
REQ. NO.	950714-054	951106-061	950717-109	950717-111	951114-093	951114-096	950718-004	951115-056	950717-103	951106-093
CONDUCTIVITY, FIELD MMT (UMHOS/CM)	443	448	323	306	407	346	509	514	351	384
PH, FIELD MMT. (PH UNITS)	7.2	8.1	8.1	8	7.8	7.7	7.9	8.1	7.5	7.4
STATIC WATER LEVEL (FT. - TOC)	-136.52	-135.45	-80.68	.	-77.32	77.32	-6.53	-3.1	-15.8	-14.35
WATER TEMP, FIELD MMT (DEG. CENT.)	17.1	11.7	17.2	17	11.4	11.6	18.1	12.8	14.8	14.6
DISSOLVED OXYGEN, FIELD MMT. (PPM)	1.8	2.1	3.2	3.3	4.8	5.1	4.7	8.7	1.1	0.4
REDOX, FIELD MMT. (MV)	127	-60	179	188	173	179	146	187	160	189
CONDUCTIVITY (UMHOS/CM)	437	429	313	313	332	332	523	523	353	399
CONDUCTIVITY, REP. 2 (UMHOS/CM)	440	428	313	312	332	332	525	523	352	401
CONDUCTIVITY, REP. 3 (UMHOS/CM)	438	428	313	313	332	332	525	521	352	400
CONDUCTIVITY, REP. 4 (UMHOS/CM)	441	428	313	313	332	332	522	523	356	400
PH (PH UNITS)	7.9	7.9	7.8	7.8	7.69	7.75	7.8	7.84	7.7	7.34
PH, REP. 2 (PH UNITS)	7.8	7.9	7.8	7.8	7.76	7.76	7.8	7.9	7.5	7.32
PH, REP. 3 (PH UNITS)	7.8	7.92	7.8	7.8	7.79	7.76	7.8	7.9	7.5	7.36
PH, REP. 4 (PH UNITS)	7.7	7.91	7.8	7.8	7.77	7.84	7.8	8.02	7.8	7.38
TOTAL ORGANIC CARBON (MG/L)	5.7	5.3	<1	1.8	<1	<1	5.2	2.4	3.8	1.4
TOTAL ORGANIC CARBON, REP 2 (MG/L)	2.9	<1	<1	<1	<1	<1	4.7	<1	4.1	1.6
TOTAL ORGANIC CARBON, REP 3 (MG/L)	3.5	6.1	<1	1.2	<1	<1	3.5	<1	3.3	1.9
TOTAL ORGANIC CARBON, REP 4 (MG/L)	1.1	5.8	<1	<1	<1	<1	2.7	2.1	1.3	3.5
TOTAL ORGANIC HALIDE (UG/L)	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
TOTAL ORGANIC HALIDE, REP 2 (UG/L)	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
TOTAL ORGANIC HALIDE, REP 3 (UG/L)	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
TOTAL ORGANIC HALIDE, REP 4 (UG/L)	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
ALKALINITY-CO3 (MG/L)	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
ALKALINITY-HCO3 (MG/L)	236	234	155	152	165	164	227	235	185	211
TURBIDITY (NTU)	40	35	0.25	0.3	0.3	0.8	6	20	0.25	0.5
TOTAL SUSPENDED SOLIDS (MG/L)	9	5	<1	<1	<1	<1	2.5	17	<1	1
DISSOLVED SOLIDS (MG/L)	208	226	186	190	186	178	310	164	194	242
FLUORIDE (MG/L)	0.58	0.57	0.11	0.11	<0.1	<0.1	2.2	2.5	<0.1	<0.1
CHLORIDE (MG/L)	2.3	1.91	2.5	2.5	2.47	2.49	9.7	8.36	2.3	2.52
SULFATE (MG/L)	5.7	5.21	5.2	5.2	5.02	5.51	37	38.4	3.5	6.26
NITRATE NITROGEN (MG/L)	0.52	<0.2	2.2	2.3	2.46	2.5	0.95	0.384	1.4	0.76
PHENOLS (MG/L)	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
GROSS ALPHA (PCI/L)	6.62	2	1.78	1.62	2.53	3.52	9.71	13	0.0761	0.822
COUNTING ERROR (GROSS ALPHA)	1.9	1.9	1.2	1.1	1.8	2	2.3	3.2	0.88	1.7
GROSS BETA (PCI/L)	8.44	5.67	2.09	2.53	5.3	1.98	16.3	21.1	0.23	0.697
COUNTING ERROR (GROSS BETA)	2.2	2.9	1.7	1.8	3	2.8	2.8	3.8	1.6	2.5
40-POTASSIUM (PCI/L)	96.4	.	.	.	.	.	.	.	.	.
COUNTING ERROR (40-POTASSIUM)	64	.	.	.	.	.	.	.	.	.
STRONTIUM (PCI/L)	10.3	32.7	7.71	6.97	2.4	5.6	24.2	7.65	24.1	-0.221
COUNTING ERROR (STRONTIUM)	11	9.2	10	10	6.6	6.9	26	7.1	12	6.3
231+234-THORIUM (PCI/L)	95.8 H	.	.	.	.	79.8	.	.	.	.
COUNTING ERROR (231+234-THORIUM)	60	.	.	.	.	52	.	.	.	.
234-URANIUM (PCI/L)	2.35	1.55	1.05	1.34	1.98	2.39	6.31	7.01	0.229	1.01
COUNTING ERROR (234-URANIUM)	0.77	0.8	0.51	0.59	0.65	0.72	1.3	1.2	0.23	0.71
235-URANIUM (PCI/L)	1.86 E	3.44 E	2.01 E	6.83 E	6.48 E	5.31 E	0.54 E	1.64 E	-0.315 F	5.97 E
COUNTING ERROR (235-URANIUM)	7.2	8	7.2	8	8.2	6.5	7.1	8.2	7.2	7.6
238-URANIUM (PCI/L)	1.65	0.361	0.987	0.0639	0.858	0.753	2.75	3.73	0.0573	0
COUNTING ERROR (238-URANIUM)	0.65	0.39	0.49	0.13	0.43	0.4	0.86	0.89	0.11	0.44

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WELL		GW-142	GW-142	GW-144	GW-144 FIELD DUPE	GW-144	GW-144 FIELD DUPE	GW-145	GW-145	GW-231	GW-231
DATE SAMPLED		07/14/95	11/05/95	07/16/95	07/16/95	11/14/95	11/14/95	07/17/95	11/15/95	07/15/95	11/06/95
CHLOROMETHANE	(UG/L)	10U	10U	10U	10U	10U	10U	10U	10U	10U	10U
BROMOMETHANE	(UG/L)	10U	10U	10U	10U	10U	10U	10U	10U	10U	10U
VINYL CHLORIDE	(UG/L)	10U	10U	10U	10U	10U	10U	10U	10U	10U	10U
CHLOROETHANE	(UG/L)	10U	10U	10U	10U	10U	10U	10U	10U	10U	10U
METHYLENE CHLORIDE	(UG/L)	10U	10U	10U	10U	10U	10U	10U	10U	10U	10U
ACETONE	(UG/L)	10U	10U	10U	10U	10U	10U	10U	10U	10U	10U
CARBON DISULFIDE	(UG/L)	10U	10U	10U	10U	10U	10U	10U	10U	10U	10U
1,1-DICHLOROETHENE	(UG/L)	10U	10U	10U	10U	10U	10U	10U	10U	10U	10U
1,1-DICHLOROETHANE	(UG/L)	10U	10U	10U	10U	10U	10U	10U	10U	10U	10U
1,2-DICHLOROETHENE	(UG/L)	10U	10U	10U	10U	10U	10U	10U	10U	10U	10U
CHLOROFORM	(UG/L)	10U	10U	10U	10U	10U	10U	10U	10U	10U	10U
1,2-DICHLOROETHANE	(UG/L)	10U	10U	10U	10U	10U	10U	10U	10U	10U	10U
2-BUTANONE	(UG/L)	10U	10U	10U	10U	10U	10U	10U	10U	10U	10 J
1,1,1-TRICHLOROETHANE	(UG/L)	10U	10U	10U	10U	10U	10U	10U	10U	10U	10U
CARBON TETRACHLORIDE	(UG/L)	10U	10U	10U	10U	2 J	2 J	10U	10U	10U	10U
VINYL ACETATE	(UG/L)	10U	10U	10U	10U	10U	10U	10U	10U	10U	10U
BROMODICHLOROMETHANE	(UG/L)	10U	10U	10U	10U	10U	10U	10U	10U	10U	10U
1,2-DICHLOROPROPANE	(UG/L)	10U	10U	10U	10U	10U	10U	10U	10U	10U	10U
CIS-1,3-DICHLOROPROPENE	(UG/L)	10U	10U	10U	10U	10U	10U	10U	10U	10U	10U
TRICHLOROETHENE	(UG/L)	10U	10U	10U	10U	10U	10U	10U	10U	10U	10U
CHLORODIBROMOMETHANE	(UG/L)	10U	10U	10U	10U	10U	10U	10U	10U	10U	10U
1,1,2-TRICHLOROETHANE	(UG/L)	10U	10U	10U	10U	10U	10U	10U	10U	10U	10U
BENZENE	(UG/L)	10U	10U	10U	10U	10U	10U	10U	10U	10U	10U
TRANS-1,3-DICHLOROPROPENE	(UG/L)	10U	10U	10U	10U	10U	10U	10U	10U	10U	10U
BROMOFORM	(UG/L)	10U	10U	10U	10U	10U	10U	10U	10U	10U	10U
4-METHYL-2-PENTANONE	(UG/L)	10U	10U	10U	10U	10U	10U	10U	10U	10U	10U
2-HEXANONE	(UG/L)	10U	10U	10U	10U	10U	10U	10U	10U	10U	10U
TETRACHLOROETHENE	(UG/L)	10U	1 J	10U	10U	10U	10U	2 J	10U	10U	10U
1,1,2,2-TETRACHLOROETHANE	(UG/L)	10U	10U	10U	10U	10U	10U	10U	10U	10U	10U
TOLUENE	(UG/L)	10U	10U	10U	10U	10U	10U	10U	10U	10U	10U
CHLOROBENZENE	(UG/L)	10U	10U	10U	10U	10U	10U	10U	10U	10U	10U
ETHYLBENZENE	(UG/L)	10U	10U	10U	10U	10U	10U	10U	10U	10U	10U
STYRENE	(UG/L)	10U	10U	10U	10U	10U	10U	10U	10U	10U	10U
XYLENES	(UG/L)	10U	10U	10U	10U	10U	10U	10U	10U	10U	10U

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Chestnut Ridge Sediment Disposal Basin
Anderson County, Tennessee

WELL		GW-156 FILTERED	GW-156 FILTERED	GW-159 FILTERED	GW-159 FILTERED	GW-159 FILTERED FIELD DUPE	GW-731 FILTERED	GW-731 FILTERED	GW-732 FILTERED	GW-732 FILTERED FIELD DUPE	GW-732 FILTERED
DATE SAMPLED		01/18/95	04/07/95	01/15/95	04/06/95	04/06/95	01/17/95	04/07/95	01/18/95	01/18/95	04/07/95
ALUMINUM	ICAP (MG/L)	<0.02	0.047	0.021	0.051	0.19	<0.02	0.024	<0.02	<0.02	0.55
ANTIMONY	ICAP (MG/L)	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
ARSENIC	ICAP (MG/L)	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
BARIUM	ICAP (MG/L)	0.029	0.052	0.011	0.011	0.012	0.0035	0.0058	0.087	0.085	0.085
BERYLLIUM	ICAP (MG/L)	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003
BORON	ICAP (MG/L)	0.016	0.018	0.029	0.0086	0.022	0.013	0.023	0.015	0.015	0.028
CADMIUM	ICAP (MG/L)	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003
CALCIUM	ICAP (MG/L)	73	69	41	37	40	17	17	29	28	25
CHROMIUM	ICAP (MG/L)	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
COBALT	ICAP (MG/L)	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
COPPER	ICAP (MG/L)	0.0056	0.0046	0.019	<0.004	0.005	0.0051	<0.004	0.0085	0.0051	0.0041
IRON	ICAP (MG/L)	<0.005	0.011	0.15	<0.005	0.21	<0.005	<0.005	0.0052	<0.005	0.33
LEAD	ICAP (MG/L)	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
MAGNESIUM	ICAP (MG/L)	42	41	27	22	24	12	13	15	14	13
MANGANESE	ICAP (MG/L)	0.0056	0.0022	0.0029	<0.001	0.0089	<0.001	<0.001	0.0018	0.0026	0.0056
MERCURY	CVAA (MG/L)	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
MOLYBDENUM	ICAP (MG/L)	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
NICKEL	ICAP (MG/L)	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
POTASSIUM	ICAP (MG/L)	4	7.3	0.68	1.5	2	23	11	9.7	9.7	8.8
SELENIUM	ICAP (MG/L)	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
SILVER	ICAP (MG/L)	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006
SODIUM	ICAP (MG/L)	3.3	5.5	0.58	0.58	0.62	6.7	3.7	11	13	12
STRONTIUM	ICAP (MG/L)	0.034	0.05	0.016	0.018	0.02	0.016	0.021	0.26	0.27	0.25
THORIUM	ICAP (MG/L)	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
URANIUM	ICP/MS (MG/L)	0.0029	0.0037	0.0013	0.0011	0.0012	<0.0005	<0.0005	<0.0005	0.00079	0.0014
VANADIUM	ICAP (MG/L)	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
ZINC	ICAP (MG/L)	0.012	0.0034	0.012	0.0051	0.012	<0.002	0.01	0.002	<0.002	0.012

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WELL		GW-156 UNFILTERED	GW-156 UNFILTERED	GW-159 UNFILTERED	GW-159 UNFILTERED	GW-159 UNFILTERED FIELD DUPE	GW-731 UNFILTERED	GW-731 UNFILTERED	GW-732 UNFILTERED	GW-732 UNFILTERED FIELD DUPE	GW-732 UNFILTERED
DATE SAMPLED		01/18/95	04/07/95	01/15/95	04/06/95	04/06/95	01/17/95	04/07/95	01/18/95	01/18/95	04/07/95
ALUMINUM	ICAP (MG/L)	0.071	0.13	0.37	0.061	0.13	0.25	0.08	5.4	4.9	14
ANTIMONY	ICAP (MG/L)	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
ARSENIC	ICAP (MG/L)	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
BARIUM	ICAP (MG/L)	0.027	0.046	0.012	0.011	0.011	0.0061	0.006	0.13	0.12	0.14
BERYLLIUM	ICAP (MG/L)	<0.0003	<0.0003	0.00032	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	0.0014
BORON	ICAP (MG/L)	0.015	0.018	0.014	0.028	0.017	0.024	0.013	0.025	0.025	0.034
CADMIUM	ICAP (MG/L)	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003
CALCIUM	ICAP (MG/L)	74	70	45	38	38	20	17	39	41	33
CHROMIUM	ICAP (MG/L)	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
COBALT	ICAP (MG/L)	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
COPPER	ICAP (MG/L)	0.011	<0.004	<0.004	<0.004	<0.004	0.011	0.009	0.021	0.0046	0.013
IRON	ICAP (MG/L)	0.15	0.21	0.54	<0.005	0.17	0.65	0.18	4.4	4	7.5
LEAD	ICAP (MG/L)	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
MAGNESIUM	ICAP (MG/L)	42	41	29	23	23	15	13	21	22	19
MANGANESE	ICAP (MG/L)	0.016	0.0059	0.025	0.0011	0.0056	0.013	0.0024	0.084	0.076	0.1
MERCURY	CVAA (MG/L)	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
MOLYBDENUM	ICAP (MG/L)	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
NICKEL	ICAP (MG/L)	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
POTASSIUM	ICAP (MG/L)	3.6	6.8	0.86	1.5	1.8	21	12	8	7.8	8.2
SELENIUM	ICAP (MG/L)	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
SILVER	ICAP (MG/L)	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006
SODIUM	ICAP (MG/L)	2.8	5.3	0.54	0.64	0.59	6.1	3.9	8.9	8.1	10
STRONTIUM	ICAP (MG/L)	0.034	0.044	0.017	0.018	0.019	0.023	0.022	0.32	0.3	0.34
THORIUM	ICAP (MG/L)	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
URANIUM	ICP/MS (MG/L)	0.0028	0.0037	0.0014	0.0012	0.0013	<0.0005	<0.0005	0.011	0.0096	0.016
VANADIUM	ICAP (MG/L)	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
ZINC	ICAP (MG/L)	0.012	0.016	0.0041	0.0043	0.013	0.011	0.0085	0.027	0.024	0.074

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WELL	GW-156	GW-156	GW-159	GW-159	GW-159 FIELD DUPE	GW-731	GW-731	GW-732	GW-732 FIELD DUPE	GW-732
DATE SAMPLED	01/18/95	04/07/95	01/15/95	04/06/95	04/06/95	01/17/95	04/07/95	01/18/95	01/18/95	04/07/95
TIME SAMPLED	12:15:00	15:53:00	11:30:00	18:15:00	18:15:00	15:10:00	11:57:00	10:30:00	10:30:00	14:36:00
REQ. NO.	950119-022	950410-044	950117-076	950407-055	950407-058	950118-007	950410-039	950119-015	950119-020	950410-042
CONDUCTIVITY, FIELD MMT (UMHOS/CM)	590	735	379	370	360	261	244	307	306	314
PH, FIELD MMT. (PH UNITS)	7.5	7.4	7.4	7.8	7.8	10.1	9.1	8	8.1	8.4
STATIC WATER LEVEL (FT. - TOC)	-139.89	-142.72	-118.25	-116.52	.	-124.4	-124.37	-155.95	.	-157.45
WATER TEMP, FIELD MMT (DEG. CENT.)	13	17	13	14.9	14.9	13.6	15.8	13.5	13.5	16.3
DISSOLVED OXYGEN, FIELD MMT. (PPM)	8.4	5.3	10.2	3.2	3.3	5.8	3.8	7.4	7.4	5.5
REDOX, FIELD MMT. (MV)	208	205	204	132	128	159	135	180	184	118
CONDUCTIVITY (UMHOS/CM)	643	619	374	369	380	231	230	318	318	298
CONDUCTIVITY, REP. 2 (UMHOS/CM)	643	630	375	370	372	234	233	316	319	298
CONDUCTIVITY, REP. 3 (UMHOS/CM)	643	621	373	372	375	237	234	317	319	299
CONDUCTIVITY, REP. 4 (UMHOS/CM)	644	621	373	378	379	239	230	316	318	299
PH (PH UNITS)	7.7	7.5	8	7.9	8	9	9	8.1	8.1	8.3
PH, REP. 2 (PH UNITS)	7.6	7.4	8	7.9	7.9	9	9	8.1	8.1	8.3
PH, REP. 3 (PH UNITS)	7.7	7.5	8	7.9	8.1	9.1	9	8.1	8.2	8.3
PH, REP. 4 (PH UNITS)	7.6	7.6	8	8	8	9.1	9	8.1	8.1	8.3
TOTAL ORGANIC CARBON (MG/L)	2.7	13	14	<1	2.2	<1	<1	1.6	2.9	3.1
TOTAL ORGANIC CARBON, REP 2 (MG/L)	6.8	16	21	<1	2.2	<1	1.6	1.4	1.5	7.5
TOTAL ORGANIC CARBON, REP 3 (MG/L)	7	19	3	<1	1.2	2.1	1.1	3.3	2.4	1.9
TOTAL ORGANIC CARBON, REP 4 (MG/L)	2	22	1	<1	2.6	2.1	1.5	2.4	1.7	2.4
TOTAL ORGANIC HALIDE (UG/L)	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
TOTAL ORGANIC HALIDE, REP 2 (UG/L)	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
TOTAL ORGANIC HALIDE, REP 3 (UG/L)	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
TOTAL ORGANIC HALIDE, REP 4 (UG/L)	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
ALKALINITY-CO3 (MG/L)	<1	<1	<1	<1	<1	16	18	1	<1	<1
ALKALINITY-HCO3 (MG/L)	342	353	180	195	194	97	101	162	161	157
TURBIDITY (NTU)	5.3	3.8	1.8	7.7	4.6	24	2.7	160	280	300
TOTAL SUSPENDED SOLIDS (MG/L)	10	4	6	3	17	24	<1	820	1040	1152
DISSOLVED SOLIDS (MG/L)	266	380	180	226	222	98	148	166	158	208
FLUORIDE (MG/L)	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.15	<0.1	<0.1	<0.1
CHLORIDE (MG/L)	2.8	3.2	2	1.8	2.2	1.9	1.8	1.4	1.5	1.6
SULFATE (MG/L)	10	9.1	8.6	8.6	9.5	6.1	6	1.9	2	2.9
NITRATE NITROGEN (MG/L)	0.56	0.71	0.72	0.65	0.66	0.67	0.65	0.54	0.56	0.68
PHENOLS (MG/L)	<0.05	<0.05	<0.05	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
GROSS ALPHA (PCI/L)	1.4	2.98	2.35	5.71	0.649	0.97	0.615	34.1	29.1	91
COUNTING ERROR (GROSS ALPHA)	1.4	2.4	1.6	2.5	1.7	1.2	1.6	6	5.4	28
GROSS BETA (PCI/L)	2.27	9.86	1.4	3.79	2.74	19.8	9.47	27.4	29.2	59.8
COUNTING ERROR (GROSS BETA)	2.4	3.4	2.4	3	2.9	3.9	3.3	4.6	4.8	31
STRONTIUM (PCI/L)	.	.	.	.	.	.	.	.	.	.
COUNTING ERROR (STRONTIUM)	.	.	.	.	.	.	.	.	.	.
234-URANIUM (PCI/L)	.	.	.	.	.	.	.	.	.	.
COUNTING ERROR (234-URANIUM)	.	.	.	.	.	.	.	.	.	.
235-URANIUM (PCI/L)	.	.	.	.	.	.	.	.	.	.
COUNTING ERROR (235-URANIUM)	.	.	.	.	.	.	.	.	.	.
238-URANIUM (PCI/L)	.	.	.	.	.	.	.	.	.	.
COUNTING ERROR (238-URANIUM)	.	.	.	.	.	.	.	.	.	.

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WELL		GW-156	GW-156	GW-159	GW-159	GW-159 FIELD DUPE	GW-731	GW-731	GW-732	GW-732 FIELD DUPE	GW-732
DATE SAMPLED		01/18/95	04/07/95	01/15/95	04/06/95	04/06/95	01/17/95	04/07/95	01/18/95	01/18/95	04/07/95
CHLOROMETHANE	(UG/L)	10U	10U	10U	10U	10U	10U	10U	10U	10U	10U
BROMOMETHANE	(UG/L)	10U	10U	10U	10U	10U	10U	10U	10U	10U	10U
VINYL CHLORIDE	(UG/L)	10U	10U	10U	10U	10U	10U	10U	10U	10U	10U
CHLOROETHANE	(UG/L)	10U	10U	10U	10U	10U	10U	10U	10U	10U	10U
METHYLENE CHLORIDE	(UG/L)	10U	10U	10U	10U	10U	10U	10U	10U	10U	10U
ACETONE	(UG/L)	10U	10U	10U	10U	10U	10U	10U	10U	10U	10U
CARBON DISULFIDE	(UG/L)	10U	10U	10U	10U	10U	10U	10U	10U	10U	10U
1,1-DICHLOROETHENE	(UG/L)	10U	10U	10U	10U	10U	10U	10U	10U	10U	10U
1,1-DICHLOROETHANE	(UG/L)	10U	10U	10U	10U	10U	10U	10U	10U	10U	10U
1,2-DICHLOROETHENE	(UG/L)	10U	10U	10U	10U	10U	10U	10U	10U	10U	10U
CHLOROFORM	(UG/L)	10U	10U	10U	10U	10U	10U	10U	10U	10U	10U
1,2-DICHLOROETHANE	(UG/L)	10U	10U	10U	10U	10U	10U	10U	10U	10U	10U
2-BUTANONE	(UG/L)	10U	10U	10U	10U	10U	10U	10U	10U	10U	10U
1,1,1-TRICHLOROETHANE	(UG/L)	10U	10U	10U	10U	10U	10U	10U	10U	10U	10U
CARBON TETRACHLORIDE	(UG/L)	10U	10U	10U	10U	10U	10U	10U	10U	10U	10U
VINYL ACETATE	(UG/L)	10U	10U	10U	10U	10U	10U	10U	10U	10U	10U
BROMODICHLOROMETHANE	(UG/L)	10U	10U	10U	10U	10U	10U	10U	10U	10U	10U
1,2-DICHLOROPROPANE	(UG/L)	10U	10U	10U	10U	10U	10U	10U	10U	10U	10U
CIS-1,3-DICHLOROPROPENE	(UG/L)	10U	10U	10U	10U	10U	10U	10U	10U	10U	10U
TRICHLOROETHENE	(UG/L)	10U	10U	10U	10U	10U	10U	10U	10U	10U	10U
CHLORODIBROMOMETHANE	(UG/L)	10U	10U	10U	10U	10U	10U	10U	10U	10U	10U
1,1,2-TRICHLOROETHANE	(UG/L)	10U	10U	10U	10U	10U	10U	10U	10U	10U	10U
BENZENE	(UG/L)	10U	10U	10U	10U	10U	10U	10U	10U	10U	10U
TRANS-1,3-DICHLOROPROPENE	(UG/L)	10U	10U	10U	10U	10U	10U	10U	10U	10U	10U
BROMOFORM	(UG/L)	10U	10U	10U	10U	10U	10U	10U	10U	10U	10U
4-METHYL-2-PENTANONE	(UG/L)	10U	10U	10U	10U	10U	10U	10U	10U	10U	10U
2-HEXANONE	(UG/L)	10U	10U	10U	10U	10U	10U	10U	10U	10U	10U
TETRACHLOROETHENE	(UG/L)	10U	10U	10U	10U	10U	10U	10U	10U	10U	10U
1,1,2,2-TETRACHLOROETHANE	(UG/L)	10U	10U	10U	10U	10U	10U	10U	10U	10U	10U
TOLUENE	(UG/L)	10U	10U	10U	10U	10U	10U	10U	10U	10U	10U
CHLOROBENZENE	(UG/L)	10U	10U	10U	10U	10U	10U	10U	10U	10U	10U
ETHYLBENZENE	(UG/L)	10U	10U	10U	10U	10U	10U	10U	10U	10U	10U
STYRENE	(UG/L)	10U	10U	10U	10U	10U	10U	10U	10U	10U	10U
XYLENES	(UG/L)	10U	10U	10U	10U	10U	10U	10U	10U	10U	10U

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WELL		GW-156 FILTERED	GW-156 FILTERED	GW-156-1 FILTERED	GW-156-2 FILTERED	GW-156-3 FILTERED	GW-159 FILTERED	GW-159 FILTERED	GW-159-1 FILTERED	GW-159-2 FILTERED	GW-159-3 FILTERED
DATE SAMPLED		07/13/95	10/26/95	10/23/95	10/24/95	10/25/95	07/12/95	10/26/95	10/23/95	10/24/95	10/25/95
ALUMINUM	ICAP (MG/L)	0.026	<0.02	0.3	0.064	0.023	<0.02	<0.02	0.18	0.024	<0.02
ANTIMONY	ICAP (MG/L)	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
ARSENIC	ICAP (MG/L)	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
BARIUM	ICAP (MG/L)	0.039	0.016	0.018	0.016	0.018	0.013	0.011	0.014	0.011	0.0098
BERYLLIUM	ICAP (MG/L)	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003
BORON	ICAP (MG/L)	0.04	0.0093	0.026	0.036	0.033	0.027	0.013	0.041	0.019	0.0044
CADMIUM	ICAP (MG/L)	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003
CADMIUM	AAS (MG/L)	.	<0.002	<0.002	<0.002	<0.002	.	<0.002	<0.002	<0.002	<0.002
CALCIUM	ICAP (MG/L)	72	59	70	69	66	39	37	41	40	38
CHROMIUM	ICAP (MG/L)	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
CHROMIUM	AAS (MG/L)	.	<0.01	<0.01	<0.01	<0.01	.	<0.01	<0.01	<0.01	<0.01
COBALT	ICAP (MG/L)	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
COPPER	ICAP (MG/L)	<0.004	<0.004	<0.004	<0.004	<0.004	0.0053	<0.004	<0.004	<0.004	<0.004
IRON	ICAP (MG/L)	0.006	<0.005	<0.005	<0.005	0.0063	<0.005	<0.005	<0.005	<0.005	<0.005
LEAD	ICAP (MG/L)	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
LEAD	AAS (MG/L)	.	<0.004	<0.004	<0.004	<0.004	.	<0.004	<0.004	<0.004	<0.004
LITHIUM	ICAP (MG/L)	.	<0.004	<0.004	<0.004	<0.004	.	<0.004	<0.004	<0.004	<0.004
MAGNESIUM	ICAP (MG/L)	43	38	43	42	42	23	25	26	25	24
MANGANESE	ICAP (MG/L)	0.0022	<0.001	0.0099	<0.001	<0.001	0.0014	<0.001	0.0039	0.0017	<0.001
MERCURY	CVAA (MG/L)	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
MOLYBDENUM	ICAP (MG/L)	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
NICKEL	ICAP (MG/L)	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
POTASSIUM	ICAP (MG/L)	4.6	5.7	3.6	3.2	4.7	2.6	1.7	1.7	1.8	2
SELENIUM	ICAP (MG/L)	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
SILVER	ICAP (MG/L)	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006
SODIUM	ICAP (MG/L)	3.2	2	2.6	1.8	2.1	0.83	0.7	0.63	0.88	0.76
STRONTIUM	ICAP (MG/L)	0.035	0.026	0.032	0.029	0.027	0.028	0.02	0.029	0.02	0.017
THORIUM	ICAP (MG/L)	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
URANIUM	ICP/MS (MG/L)	0.0019	0.0013	0.0018	0.0015	0.0015	0.0011	0.0011	0.0014	0.0013	0.0011
VANADIUM	ICAP (MG/L)	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
ZINC	ICAP (MG/L)	0.0061	0.0085	0.0068	0.0093	0.014	0.01	<0.002	0.0069	0.021	0.0044

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WELL		GW-731 FILTERED	GW-731 FILTERED	GW-731-1 FILTERED	GW-731-2 FILTERED	GW-731-3 FILTERED	GW-732 FILTERED	GW-732 FILTERED	GW-732 FILTERED	GW-732 FILTERED FIELD DUPE
DATE SAMPLED		07/13/95	10/26/95	10/23/95	10/24/95	10/25/95	07/13/95	08/14/95	10/26/95	10/26/95
ALUMINUM	ICAP (MG/L)	<0.02	<0.02	0.071	0.073	<0.02	0.04	<0.02	0.045	<0.02
ANTIMONY	ICAP (MG/L)	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
ARSENIC	ICAP (MG/L)	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
BARIUM	ICAP (MG/L)	0.0039	0.0041	0.0062	0.0053	0.0048	0.036	0.0073	0.018	0.034
BERYLLIUM	ICAP (MG/L)	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003
BORON	ICAP (MG/L)	0.058	0.017	0.023	0.046	0.012	0.075	0.01	0.015	0.011
CADMIUM	ICAP (MG/L)	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003
CADMIUM	AAS (MG/L)	.	<0.002	<0.002	<0.002	<0.002	.	.	<0.002	<0.002
CALCIUM	ICAP (MG/L)	15	9.4	21	14	12	21	29	7	8.2
CHROMIUM	ICAP (MG/L)	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.018	0.023
CHROMIUM	AAS (MG/L)	.	<0.01	<0.01	<0.01	<0.01	.	.	0.015	0.021
COBALT	ICAP (MG/L)	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
COPPER	ICAP (MG/L)	<0.004	0.016	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004
IRON	ICAP (MG/L)	<0.005	<0.005	0.011	<0.005	<0.005	0.007	<0.005	<0.005	0.0079
LEAD	ICAP (MG/L)	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
LEAD	AAS (MG/L)	.	<0.004	<0.004	<0.004	<0.004	.	.	<0.004	<0.004
LITHIUM	ICAP (MG/L)	.	0.016	<0.004	0.0084	0.01	.	.	0.038	0.05
MAGNESIUM	ICAP (MG/L)	19	13	15	13	13	14	18	11	4.8
MANGANESE	ICAP (MG/L)	<0.001	<0.001	0.0022	<0.001	<0.001	0.0058	<0.001	<0.001	<0.001
MERCURY	CVAA (MG/L)	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
MOLYBDENUM	ICAP (MG/L)	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
NICKEL	ICAP (MG/L)	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
POTASSIUM	ICAP (MG/L)	23	16	5.5	12	14	11	1.8	22	28
SELENIUM	ICAP (MG/L)	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
SILVER	ICAP (MG/L)	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006
SODIUM	ICAP (MG/L)	5.1	4.5	2.7	4	4.4	7.9	0.93	5.9	7.4
STRONTIUM	ICAP (MG/L)	0.011	0.013	0.027	0.022	0.016	0.14	0.014	0.083	0.13
THORIUM	ICAP (MG/L)	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
URANIUM	ICP/MS (MG/L)	<0.0005 d	<0.0005 d	<0.0005 d	<0.0005 d	<0.0005 d	<0.0005 d	<0.0005 d	<0.0005 d	<0.0005 d
VANADIUM	ICAP (MG/L)	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
ZINC	ICAP (MG/L)	0.0065	0.22	0.0059	0.0082	0.0064	0.0065	0.0086	0.011	0.0062

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WELL		GW-732-1 FILTERED	GW-732-1 FILTERED FIELD DUPE	GW-732-2 FILTERED	GW-732-2 FILTERED FIELD DUPE	GW-732-3 FILTERED	GW-732-3 FILTERED FIELD DUPE
DATE SAMPLED		10/23/95	10/23/95	10/24/95	10/24/95	10/25/95	10/25/95
ALUMINUM	ICAP (MG/L)	<0.02	<0.02	0.048	0.042	0.037	<0.02
ANTIMONY	ICAP (MG/L)	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
ARSENIC	ICAP (MG/L)	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
BARIUM	ICAP (MG/L)	0.011	0.011	0.052	0.056	0.026	0.065
BERYLLIUM	ICAP (MG/L)	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003
BORON	ICAP (MG/L)	0.024	0.011	0.021	0.014	0.054	0.02
CADMIUM	ICAP (MG/L)	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003
CADMIUM	AAS (MG/L)	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
CALCIUM	ICAP (MG/L)	31	32	7.5	8	8.3	9.6
CHROMIUM	ICAP (MG/L)	<0.01	<0.01	0.017	0.017	0.021	0.03
CHROMIUM	AAS (MG/L)	<0.01	<0.01	0.015	0.016	0.015	0.024
COBALT	ICAP (MG/L)	<0.005	<0.005	<0.005	<0.005	<0.005	0.0051
COPPER	ICAP (MG/L)	<0.004	<0.004	0.0045	<0.004	<0.004	0.0062
IRON	ICAP (MG/L)	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
LEAD	ICAP (MG/L)	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
LEAD	AAS (MG/L)	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004
LITHIUM	ICAP (MG/L)	<0.004	<0.004	0.062	0.062	0.044	0.059
MAGNESIUM	ICAP (MG/L)	19	19	1.2	1.2	9.1	1.7
MANGANESE	ICAP (MG/L)	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
MERCURY	CVAA (MG/L)	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
MOLYBDENUM	ICAP (MG/L)	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
NICKEL	ICAP (MG/L)	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
POTASSIUM	ICAP (MG/L)	1.6	1.2	33	33	24	34
SELENIUM	ICAP (MG/L)	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
SILVER	ICAP (MG/L)	<0.006	<0.006	<0.006	<0.006	0.0069	<0.006
SODIUM	ICAP (MG/L)	0.99	0.93	8.6	8.7	6.9	9.4
STRONTIUM	ICAP (MG/L)	0.021	0.019	0.18	0.19	0.12	0.22
THORIUM	ICAP (MG/L)	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
URANIUM	ICP/MS (MG/L)	<0.0005 d	<0.0005 d	<0.0005 d	<0.0005 d	<0.0005 d	<0.0005 d
VANADIUM	ICAP (MG/L)	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
ZINC	ICAP (MG/L)	0.0038	0.0042	0.0021	0.0074	0.0069	0.015

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WELL		GW-156 UNFILTERED	GW-156 UNFILTERED	GW-156-1 UNFILTERED	GW-156-2 UNFILTERED	GW-156-3 UNFILTERED	GW-159 UNFILTERED	GW-159 UNFILTERED	GW-159-1 UNFILTERED	GW-159-2 UNFILTERED	GW-159-3 UNFILTERED
DATE SAMPLED		07/13/95	10/26/95	10/23/95	10/24/95	10/25/95	07/12/95	10/26/95	10/23/95	10/24/95	10/25/95
ALUMINUM	ICAP (MG/L)	0.061	0.055	0.5	0.065	0.22	0.025	0.039	0.032	1.1	8.6
ANTIMONY	ICAP (MG/L)	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
ARSENIC	ICAP (MG/L)	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
BARIUM	ICAP (MG/L)	0.037	0.02	0.02	0.017	0.02	0.012	0.013	0.011	0.012	0.05
BERYLLIUM	ICAP (MG/L)	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003
BORON	ICAP (MG/L)	0.043	0.023	0.03	0.065	0.015	0.012	0.0049	0.021	0.09	<0.004
CADMIUM	ICAP (MG/L)	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003
CADMIUM	AAS (MG/L)	.	<0.002	<0.002	<0.002	<0.002	.	<0.002	<0.002	<0.002	<0.002
CALCIUM	ICAP (MG/L)	72	65	80	68	68	40	37	42	50	330
CHROMIUM	ICAP (MG/L)	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.031
CHROMIUM	AAS (MG/L)	.	<0.01	<0.01	<0.01	<0.01	.	<0.01	<0.01	<0.01	0.05
COBALT	ICAP (MG/L)	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.012
COPPER	ICAP (MG/L)	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	0.0044	0.099
IRON	ICAP (MG/L)	0.45	0.18	0.59	<0.005	0.55	0.083	0.092	0.072	0.48	23
LEAD	ICAP (MG/L)	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.16
LEAD	AAS (MG/L)	.	<0.004	<0.004	<0.004	<0.004	.	<0.004	<0.004	<0.004	0.12
LITHIUM	ICAP (MG/L)	.	<0.004	<0.004	<0.004	<0.004	.	<0.004	<0.004	<0.004	0.013
MAGNESIUM	ICAP (MG/L)	43	42	49	42	43	24	25	25	29	180
MANGANESE	ICAP (MG/L)	0.0039	0.0037	0.029	0.0029	0.013	0.0019	0.0034	0.0067	0.023	0.87
MERCURY	CVAA (MG/L)	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	0.00021
MOLYBDENUM	ICAP (MG/L)	<0.01	<0.01	0.012	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
NICKEL	ICAP (MG/L)	<0.01	<0.01	0.021	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.021
POTASSIUM	ICAP (MG/L)	4.7	5.2	4.6	3.4	5.1	2.3	2.1	1.1	1	5.9
SELENIUM	ICAP (MG/L)	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
SILVER	ICAP (MG/L)	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006
SODIUM	ICAP (MG/L)	3.3	2.1	3.9	1.8	2.1	0.69	0.72	0.54	0.71	0.97
STRONTIUM	ICAP (MG/L)	0.034	0.032	0.034	0.029	0.033	0.023	0.02	0.019	0.029	0.14
THORIUM	ICAP (MG/L)	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
URANIUM	ICP/MS (MG/L)	0.0019	0.0014	0.0027	0.0014	0.0014	0.0011	0.0011	0.0012	0.0012	0.0051
VANADIUM	ICAP (MG/L)	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.036
ZINC	ICAP (MG/L)	0.031	0.015	0.025	0.018	0.058	0.013	0.017	0.0069	0.01	0.16

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WELL		GW-731 UNFILTERED	GW-731 UNFILTERED	GW-731-1 UNFILTERED	GW-731-2 UNFILTERED	GW-731-3 UNFILTERED	GW-732 UNFILTERED	GW-732 UNFILTERED	GW-732 UNFILTERED	GW-732 UNFILTERED FIELD DUPE
DATE SAMPLED		07/13/95	10/26/95	10/23/95	10/24/95	10/25/95	07/13/95	08/14/95	10/26/95	10/26/95
ALUMINUM	ICAP (MG/L)	<0.02	0.11	0.36	0.15	0.35	1.8	<0.02	0.083	0.051
ANTIMONY	ICAP (MG/L)	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
ARSENIC	ICAP (MG/L)	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
BARIUM	ICAP (MG/L)	0.0026	0.008	0.0074	0.0084	0.012	0.072	0.0087	0.05	0.026
BERYLLIUM	ICAP (MG/L)	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	0.00037	<0.0003	<0.0003	<0.0003
BORON	ICAP (MG/L)	0.071	0.0073	0.023	0.043	0.011	0.027	0.012	0.017	<0.004
CADMIUM	ICAP (MG/L)	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003
CADMIUM	AAS (MG/L)	.	<0.002	<0.002	<0.002	<0.002	.	.	<0.002	<0.002
CALCIUM	ICAP (MG/L)	16	17	22	17	15	39	30	15	14
CHROMIUM	ICAP (MG/L)	<0.01	<0.01	0.013	<0.01	0.019	<0.01	<0.01	0.022	<0.01
CHROMIUM	AAS (MG/L)	.	<0.01	<0.01	<0.01	0.019	.	.	0.022	0.014
COBALT	ICAP (MG/L)	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
COPPER	ICAP (MG/L)	<0.004	0.0068	<0.004	0.0066	0.024	<0.004	<0.004	0.021	0.0053
IRON	ICAP (MG/L)	0.058	0.71	0.65	0.46	2	2.3	0.13	2.8	0.98
LEAD	ICAP (MG/L)	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
LEAD	AAS (MG/L)	.	<0.004	<0.004	<0.004	0.0051	.	.	0.0062	<0.004
LITHIUM	ICAP (MG/L)	.	0.014	<0.004	0.009	0.02	.	.	0.03	0.014
MAGNESIUM	ICAP (MG/L)	19	14	15	14	15	17	19	15	22
MANGANESE	ICAP (MG/L)	<0.001	0.015	0.019	0.0099	0.039	0.0086	0.0018	0.033	0.012
MERCURY	CVAA (MG/L)	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
MOLYBDENUM	ICAP (MG/L)	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
NICKEL	ICAP (MG/L)	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
POTASSIUM	ICAP (MG/L)	22	14	5.5	11	18	11	0.9	18	8.4
SELENIUM	ICAP (MG/L)	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
SILVER	ICAP (MG/L)	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006
SODIUM	ICAP (MG/L)	4.9	4.1	2.6	3.9	4.9	8.2	0.79	5.1	2.9
STRONTIUM	ICAP (MG/L)	0.012	0.021	0.029	0.029	0.027	0.24	0.016	0.13	0.052
THORIUM	ICAP (MG/L)	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
URANIUM	ICP/MS (MG/L)	<0.0005 d	<0.0005 d	<0.0005 d	<0.0005 d	<0.0005 d	0.002	<0.0005 d	<0.0005 d	<0.0005 d
VANADIUM	ICAP (MG/L)	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
ZINC	ICAP (MG/L)	0.0067	0.014	0.017	0.012	0.025	0.022	0.16	0.021	0.0072

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WELL		GW-732-1 UNFILTERED	GW-732-1 UNFILTERED FIELD DUPE	GW-732-2 UNFILTERED	GW-732-2 UNFILTERED FIELD DUPE	GW-732-3 UNFILTERED	GW-732-3 UNFILTERED FIELD DUPE
DATE SAMPLED		10/23/95	10/23/95	10/24/95	10/24/95	10/25/95	10/25/95
ALUMINUM	ICAP (MG/L)	0.027	0.035	0.15	0.15	0.26	0.19
ANTIMONY	ICAP (MG/L)	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
ARSENIC	ICAP (MG/L)	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
BARIUM	ICAP (MG/L)	0.015	0.015	0.11	0.1	0.079	0.097
BERYLLIUM	ICAP (MG/L)	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003
BORON	ICAP (MG/L)	0.02	0.012	0.031	0.011	0.0093	0.024
CADMIUM	ICAP (MG/L)	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003
CADMIUM	AAS (MG/L)	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
CALCIUM	ICAP (MG/L)	32	34	19	18	20	20
CHROMIUM	ICAP (MG/L)	<0.01	<0.01	0.024	0.024	0.034	0.071
CHROMIUM	AAS (MG/L)	<0.01	<0.01	0.02	0.02	0.038	0.047
COBALT	ICAP (MG/L)	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
COPPER	ICAP (MG/L)	<0.004	<0.004	0.028	0.011	0.041	0.053
IRON	ICAP (MG/L)	<0.005	<0.005	0.8	0.94	5	6.3
LEAD	ICAP (MG/L)	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
LEAD	AAS (MG/L)	<0.004	<0.004	<0.004	<0.004	0.013	0.013
LITHIUM	ICAP (MG/L)	<0.004	<0.004	0.062	0.064	0.04	0.05
MAGNESIUM	ICAP (MG/L)	19	20	3	2.6	9.4	8.2
MANGANESE	ICAP (MG/L)	0.004	<0.001	0.011	0.013	0.057	0.073
MERCURY	CVAA (MG/L)	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
MOLYBDENUM	ICAP (MG/L)	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
NICKEL	ICAP (MG/L)	<0.01	<0.01	<0.01	<0.01	<0.01	0.026
POTASSIUM	ICAP (MG/L)	1.7	1.6	32	34	23	28
SELENIUM	ICAP (MG/L)	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
SILVER	ICAP (MG/L)	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006
SODIUM	ICAP (MG/L)	0.98	0.97	9.3	9.4	6.4	7.8
STRONTIUM	ICAP (MG/L)	0.03	0.029	0.32	0.31	0.21	0.26
THORIUM	ICAP (MG/L)	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
URANIUM	ICP/MS (MG/L)	<0.0005 d	<0.0005 d	<0.0005 d	<0.0005 d	<0.0005 d	<0.0005 d
VANADIUM	ICAP (MG/L)	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
ZINC	ICAP (MG/L)	0.0032	0.0078	0.01	0.012	0.036	0.042

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WELL	GW-156	GW-156	GW-156-1	GW-156-2	GW-156-3	GW-159	GW-159	GW-159-1	GW-159-2	GW-159-3
DATE SAMPLED	07/13/95	10/26/95	10/23/95	10/24/95	10/25/95	07/12/95	10/26/95	10/23/95	10/24/95	10/25/95
TIME SAMPLED	15:00:00	13:45:00	13:30:00	13:15:00	10:30:00	14:40:00	10:25:00	11:30:00	10:15:00	9:15:00
REQ. NO.	950713-120	951027-071	951024-046	951025-001	951025-110	950713-068	951027-073	951025-011	951025-003	951025-112
CONDUCTIVITY, FIELD MMT (UMHOS/CM)	578	560	606	559	550	343	492	340	342	744
PH, FIELD MMT. (PH UNITS)	7.3	7.3	7.5	7.3	7.4	7.5	7.8	8	7.8	8
STATIC WATER LEVEL (FT. - TOC)	-143.14	-143.45	-143.42	-143.6	-143.45	-117.66	-134.75	-123.55	-143.8	-138.95
WATER TEMP, FIELD MMT (DEG. CENT.)	18.8	15	15	14.4	14	18.1	13.9	14.4	14.5	13.5
DISSOLVED OXYGEN, FIELD MMT. (PPM)	9.2	5.2	6.3	5.2	5.5	5.3	6.6	5.9	6.8	7.4
REDOX, FIELD MMT. (MV)	210	198	186	158	158	140	119	148	112	163
CONDUCTIVITY (UMHOS/CM)	616	603	623	595	599	366	362	354	351	359
CONDUCTIVITY, REP. 2 (UMHOS/CM)	619	.	.	.	.	369	.	.	.	.
CONDUCTIVITY, REP. 3 (UMHOS/CM)	619	.	.	.	.	371	.	.	.	.
CONDUCTIVITY, REP. 4 (UMHOS/CM)	618	.	.	.	.	371	.	.	.	.
PH (PH UNITS)	7.4	7.4	7.4	7.4	7.56	7.8	7.87	7.9	7.8	7.8
PH, REP. 2 (PH UNITS)	7.5	.	.	.	.	7.8	.	.	.	.
PH, REP. 3 (PH UNITS)	7.6	.	.	.	.	7.9	.	.	.	.
PH, REP. 4 (PH UNITS)	7.4	.	.	.	.	7.8	.	.	.	.
TOTAL ORGANIC CARBON (MG/L)	5	.	.	.	.	<1	.	.	.	.
TOTAL ORGANIC CARBON, REP 2 (MG/L)	4.3	.	.	.	.	3.1	.	.	.	.
TOTAL ORGANIC CARBON, REP 3 (MG/L)	4.2	.	.	.	.	2.9	.	.	.	.
TOTAL ORGANIC CARBON, REP 4 (MG/L)	1	.	.	.	.	1.2	.	.	.	.
TOTAL ORGANIC HALIDE (UG/L)	<10	.	.	.	.	<10	.	.	.	.
TOTAL ORGANIC HALIDE, REP 2 (UG/L)	<10	.	.	.	.	<10	.	.	.	.
TOTAL ORGANIC HALIDE, REP 3 (UG/L)	<10	.	.	.	.	<10	.	.	.	.
TOTAL ORGANIC HALIDE, REP 4 (UG/L)	<10	.	.	.	.	<10	.	.	.	.
ALKALINITY-CO3 (MG/L)	<1	1	<1	<1	<1	<1	<1	<1	<1	1
ALKALINITY-HCO3 (MG/L)	342	339	342	334	336	188	190	184	189	192
TURBIDITY (NTU)	1.5	3.1	21	2.2	0.95	0.45	3	19	41	2.9
TOTAL SUSPENDED SOLIDS (MG/L)	1.5	5	16	<1	4	1	1	13	1696	2.5
DISSOLVED SOLIDS (MG/L)	358	350	384	366	336	222	186	176	224	216
FLUORIDE (MG/L)	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
CHLORIDE (MG/L)	2.8	2.25	2.66	2.24	2.32	1.9	1.54	1.36	2.16	1.53
SULFATE (MG/L)	6.8	4.11	7.33	3.69	4.19	7.8	8.6	6.66	8.5	8.3
NITRATE NITROGEN (MG/L)	0.62	0.446	0.4	0.4	0.455	0.49	0.435	0.42	0.36	0.402
PHENOLS (MG/L)	<0.05	.	.	.	.	<0.05	.	.	.	.
GROSS ALPHA (PCI/L)	3.13	1.62	2.27	2.8	0.522	0.942	-1.18	1.88	1.78	1.14
COUNTING ERROR (GROSS ALPHA)	1.4	2.3	1.6	1.7	1.8	0.93	1.6	1.4	1.4	1.8
GROSS BETA (PCI/L)	4.85	6.52	4.32	3.13	5.88	0.201	13.1	2.29	2.83	1.17
COUNTING ERROR (GROSS BETA)	2.1	3	2.7	2.6	2.7	1.9	3.6	2.5	2.6	2.4

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WELL		GW-731	GW-731	GW-731-1	GW-731-2	GW-731-3	GW-732	GW-732	GW-732	GW-732 FIELD DUPE
DATE SAMPLED		07/13/95	10/26/95	10/23/95	10/24/95	10/25/95	07/13/95	08/14/95	10/26/95	10/26/95
TIME SAMPLED		12:00:00	14:20:00	11:14:00	14:05:00	11:05:00	13:34:00	10:58:00	10:55:00	10:55:00
REQ. NO.		950713-124	951027-075	951024-044	951025-005	951025-104	950713-122	950815-079	951027-077	951027-079
CONDUCTIVITY, FIELD MMT	(UMHOS/CM)	246	215	222	228	219	224	293	274	276
PH, FIELD MMT.	(PH UNITS)	9.4	9.4	8.7	9.6	9.3	9.6	7.9	11.2	11.2
STATIC WATER LEVEL	(FT. - TOC)	-124.56	-125.15	-125.21	-124.15	-123.3	-156.55	-157.7	-157.6	157.6
WATER TEMP, FIELD MMT	(DEG. CENT.)	18	15	14.1	14.5	13.9	16.6	16	14	14
DISSOLVED OXYGEN, FIELD MMT.	(PPM)	4	4.4	4.9	4.4	4.7	5.6	6.8	6.1	5.5
REDOX, FIELD MMT.	(MV)	124	155	166	178	149	109	168	124	99
CONDUCTIVITY	(UMHOS/CM)	280	205	220	208	212	232	279	214	236
CONDUCTIVITY, REP. 2	(UMHOS/CM)	271	.	.	.	.	232	280	.	.
CONDUCTIVITY, REP. 3	(UMHOS/CM)	265	.	.	.	.	235	277	.	.
CONDUCTIVITY, REP. 4	(UMHOS/CM)	268	.	.	.	.	231	279	.	.
PH	(PH UNITS)	9.4	9.2	8.7	9	9	10	8.2	10.2	10.8
PH, REP. 2	(PH UNITS)	9.3	.	.	.	.	10	8.2	.	.
PH, REP. 3	(PH UNITS)	9.2	.	.	.	.	10	8	.	.
PH, REP. 4	(PH UNITS)	9.3	.	.	.	.	10	8	.	.
TOTAL ORGANIC CARBON	(MG/L)	1.2	.	.	.	.	1.8	.	.	.
TOTAL ORGANIC CARBON, REP 2	(MG/L)	1.3	.	.	.	.	1.5	.	.	.
TOTAL ORGANIC CARBON, REP 3	(MG/L)	1.2	.	.	.	.	2.2	.	.	.
TOTAL ORGANIC CARBON, REP 4	(MG/L)	1.1	.	.	.	.	2.4	.	.	.
TOTAL ORGANIC HALIDE	(UG/L)	<10	.	.	.	.	<10	.	.	.
TOTAL ORGANIC HALIDE, REP 2	(UG/L)	<10	.	.	.	.	<10	.	.	.
TOTAL ORGANIC HALIDE, REP 3	(UG/L)	<10	.	.	.	.	<10	.	.	.
TOTAL ORGANIC HALIDE, REP 4	(UG/L)	<10	.	.	.	.	<10	.	.	.
ALKALINITY-CO3	(MG/L)	38	16	<1	10	20	76	<1	120	102
ALKALINITY-HCO3	(MG/L)	102	84	112	92	81	29	156	<1	<1
TURBIDITY	(NTU)	0.35	5.2	13	7	33	280	2.8	38	48
TOTAL SUSPENDED SOLIDS	(MG/L)	2	11	4.5	3	9	1065	<1	41	34
DISSOLVED SOLIDS	(MG/L)	182	136	150	146	142	330	154	138	128
FLUORIDE	(MG/L)	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
CHLORIDE	(MG/L)	1.9	1.48	1.26	1.21	1.56	1.8	1.5	1.43	1.47
SULFATE	(MG/L)	4.9	5.68	4.88	5.28	5.45	4.8	1.8	3.36	3.86
NITRATE NITROGEN	(MG/L)	0.57	0.418	0.36	0.37	0.376	0.69	1	0.485	0.524
PHENOLS	(MG/L)	<0.05	.	.	.	.	<0.05	.	.	.
GROSS ALPHA	(PCI/L)	0.0847	-0.174	0.321	2.65	-0.343	6.48	0.65	-1.03	-0.665
COUNTING ERROR	(GROSS ALPHA)	0.75	1.8	0.93	1.6	1.5	1.8	1.3	1.7	1.7
GROSS BETA	(PCI/L)	14.6	2.39	3.65	11.4	12.5	11.7	2.83	17.5	7.45
COUNTING ERROR	(GROSS BETA)	2.8	2.7	2.7	3.3	3.3	2.6	2.6	3.9	3.1

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WELL	GW-732-1	GW-732-1 FIELD DUPE	GW-732-2	GW-732-2 FIELD DUPE	GW-732-3	GW-732-3 FIELD DUPE
DATE SAMPLED	10/23/95	10/23/95	10/24/95	10/24/95	10/25/95	10/25/95
TIME SAMPLED	13:32:00	13:32:00	11:05:00	11:05:00	9:45:00	9:45:00
REQ. NO.	951025-013	951025-015	951025-007	951025-009	951025-106	951025-108
CONDUCTIVITY, FIELD MNT (UMHOS/CM)	261	262	327	336	250	243
PH, FIELD MNT. (PH UNITS)	8.1	7.9	11.4	11.5	10.6	11
STATIC WATER LEVEL (FT. - TOC)	-157.8	157.8	-157.7	157.7	-157.75	157.75
WATER TEMP, FIELD MNT (DEG. CENT.)	14.2	14.2	14.3	14.3	13.5	13.6
DISSOLVED OXYGEN, FIELD MNT. (PPM)	5.7	5.8	5.2	5.3	6	6.8
REDOX, FIELD MNT. (MV)	143	144	307	312	127	114
CONDUCTIVITY (UMHOS/CM)	278	278	496	423	363	225
CONDUCTIVITY, REP. 2 (UMHOS/CM)	.	.	.	.	.	.
CONDUCTIVITY, REP. 3 (UMHOS/CM)	.	.	.	.	.	.
CONDUCTIVITY, REP. 4 (UMHOS/CM)	.	.	.	.	.	.
PH (PH UNITS)	8.1	8	11.5	11.3	11.2	10.4
PH, REP. 2 (PH UNITS)	.	.	.	.	.	.
PH, REP. 3 (PH UNITS)	.	.	.	.	.	.
PH, REP. 4 (PH UNITS)	.	.	.	.	.	.
TOTAL ORGANIC CARBON (MG/L)	.	.	.	.	.	.
TOTAL ORGANIC CARBON, REP 2 (MG/L)	.	.	.	.	.	.
TOTAL ORGANIC CARBON, REP 3 (MG/L)	.	.	.	.	.	.
TOTAL ORGANIC CARBON, REP 4 (MG/L)	.	.	.	.	.	.
TOTAL ORGANIC HALIDE (UG/L)	.	.	.	.	.	.
TOTAL ORGANIC HALIDE, REP 2 (UG/L)	.	.	.	.	.	.
TOTAL ORGANIC HALIDE, REP 3 (UG/L)	.	.	.	.	.	.
TOTAL ORGANIC HALIDE, REP 4 (UG/L)	.	.	.	.	.	.
ALKALINITY-CO3 (MG/L)	<1	<1	146	146	148	32
ALKALINITY-HCO3 (MG/L)	149	152	<1	<1	<1	95
TURBIDITY (NTU)	1.4	1.1	19	16	28	39
TOTAL SUSPENDED SOLIDS (MG/L)	2.5	1	30	14	32	701
DISSOLVED SOLIDS (MG/L)	164	178	160	74	130	74
FLUORIDE (MG/L)	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
CHLORIDE (MG/L)	1.14	1.09	1.19	1.22	1.57	1.39
SULFATE (MG/L)	1.65	1.68	3.46	3.35	4.03	2.68
NITRATE NITROGEN (MG/L)	0.34	0.34	0.43	0.44	0.512	0.413
PHENOLS (MG/L)	.	.	.	.	.	.
GROSS ALPHA (PCI/L)	1.51	-0.649	2.76	0.841	-0.517	0.479
COUNTING ERROR (GROSS ALPHA)	1.3	1.4	1.7	1.1	1.5	1.7
GROSS BETA (PCI/L)	2.31	2.86	28.4	27.2	25.1	23.5
COUNTING ERROR (GROSS BETA)	2.6	2.5	4.8	4.7	4.4	4.3

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WELL		GW-156	GW-156	GW-156-1	GW-156-2	GW-156-3	GW-159	GW-159	GW-159-1	GW-159-2	GW-159-3
DATE SAMPLED		07/13/95	10/26/95	10/23/95	10/24/95	10/25/95	07/12/95	10/26/95	10/23/95	10/24/95	10/25/95
CHLOROMETHANE	(UG/L)	10U	.	.	.	.	10U	.	.	.	.
BROMOMETHANE	(UG/L)	10U	.	.	.	.	10U	.	.	.	.
VINYL CHLORIDE	(UG/L)	10U	.	.	.	.	10U	.	.	.	.
CHLOROETHANE	(UG/L)	10U	.	.	.	.	10U	.	.	.	.
METHYLENE CHLORIDE	(UG/L)	10U	.	.	.	.	10U	.	.	.	.
ACETONE	(UG/L)	10U	.	.	.	.	10U	.	.	.	.
CARBON DISULFIDE	(UG/L)	10U	.	.	.	.	10U	.	.	.	.
1,1-DICHLOROETHENE	(UG/L)	10U	.	.	.	.	10U	.	.	.	.
1,1-DICHLOROETHANE	(UG/L)	10U	.	.	.	.	10U	.	.	.	.
1,2-DICHLOROETHENE	(UG/L)	10U	.	.	.	.	10U	.	.	.	.
CHLOROFORM	(UG/L)	10U	.	.	.	.	10U	.	.	.	.
1,2-DICHLOROETHANE	(UG/L)	10U	.	.	.	.	10U	.	.	.	.
2-BUTANONE	(UG/L)	10U	.	.	.	.	10U	.	.	.	.
1,1,1-TRICHLOROETHANE	(UG/L)	10U	.	.	.	.	10U	.	.	.	.
CARBON TETRACHLORIDE	(UG/L)	10U	.	.	.	.	10U	.	.	.	.
VINYL ACETATE	(UG/L)	10U	.	.	.	.	10U	.	.	.	.
BROMODICHLOROMETHANE	(UG/L)	10U	.	.	.	.	10U	.	.	.	.
1,2-DICHLOROPROPANE	(UG/L)	10U	.	.	.	.	10U	.	.	.	.
CIS-1,3-DICHLOROPROPENE	(UG/L)	10U	.	.	.	.	10U	.	.	.	.
TRICHLOROETHENE	(UG/L)	10U	.	.	.	.	10U	.	.	.	.
CHLORODIBROMOMETHANE	(UG/L)	10U	.	.	.	.	10U	.	.	.	.
1,1,2-TRICHLOROETHANE	(UG/L)	10U	.	.	.	.	10U	.	.	.	.
BENZENE	(UG/L)	10U	.	.	.	.	10U	.	.	.	.
TRANS-1,3-DICHLOROPROPENE	(UG/L)	10U	.	.	.	.	10U	.	.	.	.
BROMOFORM	(UG/L)	10U	.	.	.	.	10U	.	.	.	.
4-METHYL-2-PENTANONE	(UG/L)	10U	.	.	.	.	10U	.	.	.	.
2-HEXANONE	(UG/L)	10U	.	.	.	.	10U	.	.	.	.
TETRACHLOROETHENE	(UG/L)	10U	.	.	.	.	10U	.	.	.	.
1,1,2,2-TETRACHLOROETHANE	(UG/L)	10U	.	.	.	.	10U	.	.	.	.
TOLUENE	(UG/L)	10U	.	.	.	.	10U	.	.	.	.
CHLOROBENZENE	(UG/L)	10U	.	.	.	.	10U	.	.	.	.
ETHYLBENZENE	(UG/L)	10U	.	.	.	.	10U	.	.	.	.
STYRENE	(UG/L)	10U	.	.	.	.	10U	.	.	.	.
XYLENES	(UG/L)	10U	.	.	.	.	10U	.	.	.	.

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WELL		GW-731	GW-731	GW-731-1	GW-731-2	GW-731-3	GW-732	GW-732	GW-732	GW-732 FIELD DUPE
DATE SAMPLED		07/13/95	10/26/95	10/23/95	10/24/95	10/25/95	07/13/95	08/14/95	10/26/95	10/26/95
CHLOROMETHANE	(UG/L)	10U	.	.	.	.	10U	.	.	.
BROMOMETHANE	(UG/L)	10U	.	.	.	.	10U	.	.	.
VINYL CHLORIDE	(UG/L)	10U	.	.	.	.	10U	.	.	.
CHLOROETHANE	(UG/L)	10U	.	.	.	.	10U	.	.	.
METHYLENE CHLORIDE	(UG/L)	10U	.	.	.	.	10U	.	.	.
ACETONE	(UG/L)	10U	.	.	.	.	10U	.	.	.
CARBON DISULFIDE	(UG/L)	10U	.	.	.	.	10U	.	.	.
1,1-DICHLOROETHENE	(UG/L)	10U	.	.	.	.	10U	.	.	.
1,1-DICHLOROETHANE	(UG/L)	10U	.	.	.	.	10U	.	.	.
1,2-DICHLOROETHENE	(UG/L)	10U	.	.	.	.	10U	.	.	.
CHLOROFORM	(UG/L)	10U	.	.	.	.	10U	.	.	.
1,2-DICHLOROETHANE	(UG/L)	10U	.	.	.	.	10U	.	.	.
2-BUTANONE	(UG/L)	10U	.	.	.	.	10U	.	.	.
1,1,1-TRICHLOROETHANE	(UG/L)	10U	.	.	.	.	10U	.	.	.
CARBON TETRACHLORIDE	(UG/L)	10U	.	.	.	.	10U	.	.	.
VINYL ACETATE	(UG/L)	10U	.	.	.	.	10U	.	.	.
BROMODICHLOROMETHANE	(UG/L)	10U	.	.	.	.	10U	.	.	.
1,2-DICHLOROPROPANE	(UG/L)	10U	.	.	.	.	10U	.	.	.
CIS-1,3-DICHLOROPROPENE	(UG/L)	10U	.	.	.	.	10U	.	.	.
TRICHLOROETHENE	(UG/L)	10U	.	.	.	.	10U	.	.	.
CHLORODIBROMOMETHANE	(UG/L)	10U	.	.	.	.	10U	.	.	.
1,1,2-TRICHLOROETHANE	(UG/L)	10U	.	.	.	.	10U	.	.	.
BENZENE	(UG/L)	10U	.	.	.	.	10U	.	.	.
TRANS-1,3-DICHLOROPROPENE	(UG/L)	10U	.	.	.	.	10U	.	.	.
BROMOFORM	(UG/L)	10U	.	.	.	.	10U	.	.	.
4-METHYL-2-PENTANONE	(UG/L)	10U	.	.	.	.	10U	.	.	.
2-HEXANONE	(UG/L)	10U	.	.	.	.	10U	.	.	.
TETRACHLOROETHENE	(UG/L)	10U	.	.	.	.	10U	.	.	.
1,1,2,2-TETRACHLOROETHANE	(UG/L)	10U	.	.	.	.	10U	.	.	.
TOLUENE	(UG/L)	10U	.	.	.	.	10U	.	.	.
CHLOROBENZENE	(UG/L)	10U	.	.	.	.	10U	.	.	.
ETHYLBENZENE	(UG/L)	10U	.	.	.	.	10U	.	.	.
STYRENE	(UG/L)	10U	.	.	.	.	10U	.	.	.
XYLENES	(UG/L)	10U	.	.	.	.	10U	.	.	.

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WELL		GW-732-1	GW-732-1 FIELD DUPE	GW-732-2	GW-732-2 FIELD DUPE	GW-732-3	GW-732-3 FIELD DUPE
DATE SAMPLED		10/23/95	10/23/95	10/24/95	10/24/95	10/25/95	10/25/95
CHLOROMETHANE	(UG/L)	.	.	.	.	.	.
BROMOMETHANE	(UG/L)	.	.	.	.	.	.
VINYL CHLORIDE	(UG/L)	.	.	.	.	.	.
CHLOROETHANE	(UG/L)	.	.	.	.	.	.
METHYLENE CHLORIDE	(UG/L)	.	.	.	.	.	.
ACETONE	(UG/L)	.	.	.	.	.	.
CARBON DISULFIDE	(UG/L)	.	.	.	.	.	.
1,1-DICHLOROETHENE	(UG/L)	.	.	.	.	.	.
1,1-DICHLOROETHANE	(UG/L)	.	.	.	.	.	.
1,2-DICHLOROETHENE	(UG/L)	.	.	.	.	.	.
CHLOROFORM	(UG/L)	.	.	.	.	.	.
1,2-DICHLOROETHANE	(UG/L)	.	.	.	.	.	.
2-BUTANONE	(UG/L)	.	.	.	.	.	.
1,1,1-TRICHLOROETHANE	(UG/L)	.	.	.	.	.	.
CARBON TETRACHLORIDE	(UG/L)	.	.	.	.	.	.
VINYL ACETATE	(UG/L)	.	.	.	.	.	.
BROMODICHLOROMETHANE	(UG/L)	.	.	.	.	.	.
1,2-DICHLOROPROPANE	(UG/L)	.	.	.	.	.	.
CIS-1,3-DICHLOROPROPENE	(UG/L)	.	.	.	.	.	.
TRICHLOROETHENE	(UG/L)	.	.	.	.	.	.
CHLORODIBROMOMETHANE	(UG/L)	.	.	.	.	.	.
1,1,2-TRICHLOROETHANE	(UG/L)	.	.	.	.	.	.
BENZENE	(UG/L)	.	.	.	.	.	.
TRANS-1,3-DICHLOROPROPENE	(UG/L)	.	.	.	.	.	.
BROMOFORM	(UG/L)	.	.	.	.	.	.
4-METHYL-2-PENTANONE	(UG/L)	.	.	.	.	.	.
2-HEXANONE	(UG/L)	.	.	.	.	.	.
TETRACHLOROETHENE	(UG/L)	.	.	.	.	.	.
1,1,2,2-TETRACHLOROETHANE	(UG/L)	.	.	.	.	.	.
TOLUENE	(UG/L)	.	.	.	.	.	.
CHLOROBENZENE	(UG/L)	.	.	.	.	.	.
ETHYLBENZENE	(UG/L)	.	.	.	.	.	.
STYRENE	(UG/L)	.	.	.	.	.	.
XYLENES	(UG/L)	.	.	.	.	.	.

APPENDIX B

CY 1995 Interim Status Statistical Results for Kerr Hollow Quarry and the Chestnut Ridge Sediment Disposal Basin

SUMMARY OF STATISTICALLY SIGNIFICANT T-TEST RESULTS AT THE KERR HOLLOW QUARRY

PARAMETER	WELL	RESULT	COMPARISON	
			MEAN (1st quarter 1995)	MEAN (Base year)
Conductivity (μmhos/cm)	GW-142	Significantly greater than 1986	446.250	351.375
Total organic carbon (mg/L)	GW-142	Significantly greater than 1987 upgradient	6.000	1.425
Total organic halide (μg/L)		No significant increases		
pH (pH unit)	GW-231	Significantly less than 1986	7.525	7.856
	GW-231	Significantly less than 1986 upgradient	7.525	8.263

SEMIANNUAL Y-12 RCRA REPORT
ONE-TAILED T-TEST TO TEST FOR SIGNIFICANT INCREASE IN MEAN
CONDUCTIVITY (UMHOS/CM)
BY WELL - 1986 VS 1ST QUARTER 1995
KERR HOLLOW QUARRY

U_D=DOWNGRADIENT

WELL IDENTITY	N, 1986	N, 1995	MEAN, 1986	MEAN, 1995	VARIANCE, 1986	VARIANCE, 1995	T-STATISTIC	T-CRITICAL	T-TEST RESULT
GW-142	16	4	351.375	446.250	4430.783	0.250	2.793	2.552	**SIGNIF. INC.**
GW-144	16	4	367.938	318.500	1578.729	0.333	-2.438	2.552	NO SIGNIF. INC.
GW-231	16	4	332.938	327.750	3460.729	0.917	-0.173	2.552	NO SIGNIF. INC.

U_D=UPGRADIENT

WELL IDENTITY	N, 1986	N, 1995	MEAN, 1986	MEAN, 1995	VARIANCE, 1986	VARIANCE, 1995	T-STATISTIC	T-CRITICAL	T-TEST RESULT
GW-145	16	4	601.500	531.000	1547.600	2.000	-3.511	2.552	NO SIGNIF. INC.

SEMIANNUAL Y-12 RCRA REPORT
ONE-TAILED T-TEST TO TEST FOR SIGNIFICANT INCREASE IN MEAN
CONDUCTIVITY (UMHOS/CM)
DOWNGRADIENT, 1ST QUARTER 1995 VS UPGRADIENT, 1986
KERR HOLLOW QUARRY

WELL IDENTITY	N 'UP' 1986	N, 1995	MEAN, 'UP' 1986	MEAN, 1995	VARIANCE, 'UP' 1986	VARIANCE, 1995	T-STATISTIC	T-CRITICAL	T-TEST RESULT
GW-142	16	4	601.500	446.250	1547.600	0.250	-7.733	2.552	NO SIGNIF. INC.
GW-144	16	4	601.500	318.500	1547.600	0.333	-14.097	2.552	NO SIGNIF. INC.
GW-231	16	4	601.500	327.750	1547.600	0.917	-13.635	2.552	NO SIGNIF. INC.

SEMIANNUAL Y-12 RCRA REPORT
ONE-TAILED T-TEST TO TEST FOR SIGNIFICANT INCREASE IN MEAN
TOTAL ORGANIC CARBON (MG/L)
BY WELL - 1987 VS 1ST QUARTER 1995
KERR HOLLOW QUARRY

U_D=DOWNGRADIENT

WELL IDENTITY	N, 1987	N, 1995	MEAN, 1987	MEAN, 1995	VARIANCE, 1987	VARIANCE, 1995	T-STATISTIC	T-CRITICAL	T-TEST RESULT
GW-142	8	4	3.625	6.000	7.982	0.000	1.641	2.764	NO SIGNIF. INC.
GW-144	8	4	2.513	1.900	2.430	0.867	-0.714	2.764	NO SIGNIF. INC.
GW-231	8	4	3.300	2.900	5.677	4.780	-0.281	2.764	NO SIGNIF. INC.

U_D=UPGRADIENT

WELL IDENTITY	N, 1987	N, 1995	MEAN, 1987	MEAN, 1995	VARIANCE, 1987	VARIANCE, 1995	T-STATISTIC	T-CRITICAL	T-TEST RESULT
GW-145	8	4	1.425	2.525	1.094	1.789	1.574	2.764	NO SIGNIF. INC.

SEMIANNUAL Y-12 RCRA REPORT
ONE-TAILED T-TEST TO TEST FOR SIGNIFICANT INCREASE IN MEAN
TOTAL ORGANIC CARBON (MG/L)
DOWNGRADIENT, 1ST QUARTER 1995 VS UPGRADIENT, 1987
KERR HOLLOW QUARRY

WELL IDENTITY	N 'UP' 1987	N, 1995	MEAN, 'UP' 1987	MEAN, 1995	VARIANCE, 'UP' 1987	VARIANCE, 1995	T-STATISTIC	T-CRITICAL	T-TEST RESULT
GW-142	8	4	1.425	6.000	1.094	0.000	8.539	2.764	**SIGNIF. INC.**
GW-144	8	4	1.425	1.900	1.094	0.867	0.766	2.764	NO SIGNIF. INC.
GW-231	8	4	1.425	2.900	1.094	4.780	1.624	2.764	NO SIGNIF. INC.

SEMIANNUAL Y-12 RCRA REPORT
ONE-TAILED T-TEST TO TEST FOR SIGNIFICANT INCREASE IN MEAN
TOTAL ORGANIC HALIDE (UG/L)
BY WELL - 1987 VS 1ST QUARTER 1995
KERR HOLLOW QUARRY

U_D=DOWNGRADIENT

WELL IDENTITY	N, 1987	N, 1995	MEAN, 1987	MEAN, 1995	VARIANCE, 1987	VARIANCE, 1995	T-STATISTIC	T-CRITICAL	T-TEST RESULT
GW-142	8	4	10.000	10.000	0.000	0.000	.	2.764	
GW-144	8	4	13.125	10.000	40.411	0.000	-0.959	2.764	NO SIGNIF. INC.
GW-231	8	4	17.375	10.000	257.982	0.000	-0.896	2.764	NO SIGNIF. INC.

U_D=UPGRADIENT

WELL IDENTITY	N, 1987	N, 1995	MEAN, 1987	MEAN, 1995	VARIANCE, 1987	VARIANCE, 1995	T-STATISTIC	T-CRITICAL	T-TEST RESULT
GW-145	8	4	11.125	12.900	10.125	24.120	0.766	2.764	NO SIGNIF. INC.

SEMIANNUAL Y-12 RCRA REPORT
ONE-TAILED T-TEST TO TEST FOR SIGNIFICANT INCREASE IN MEAN
TOTAL ORGANIC HALIDE (UG/L)
DOWNGRADIENT, 1ST QUARTER 1995 VS UPGRADIENT, 1987
KERR HOLLOW QUARRY

WELL IDENTITY	N 'UP' 1987	N, 1995	MEAN, 'UP' 1987	MEAN, 1995	VARIANCE, 'UP' 1987	VARIANCE, 1995	T-STATISTIC	T-CRITICAL	T-TEST RESULT
GW-142	8	4	11.125	10.000	10.125	0.000	-0.690	2.764	NO SIGNIF. INC.
GW-144	8	4	11.125	10.000	10.125	0.000	-0.690	2.764	NO SIGNIF. INC.
GW-231	8	4	11.125	10.000	10.125	0.000	-0.690	2.764	NO SIGNIF. INC.

SEMIANNUAL Y-12 RCRA REPORT
TWO-TAILED T-TEST TO TEST FOR SIGNIFICANT DIFFERENCE IN
MEAN PH
BY WELL - 1986 VS 1ST QUARTER 1995
KERR HOLLOW QUARRY

U_D=DOWNGRADIENT

WELL IDENTITY	N, 1986	N, 1995	MEAN, 1986	MEAN, 1995	VARIANCE, 1986	VARIANCE, 1995	T-STATISTIC	T-CRITICAL	T-TEST RESULT
GW-142	16	4	8.175	7.900	0.231	0.000	-1.120	2.878	NO SIGNIF. DIFF.
GW-144	16	4	7.956	8.000	0.007	0.000	1.053	2.878	NO SIGNIF. DIFF.
GW-231	16	4	7.856	7.525	0.032	0.002	-3.603	2.878	**SIGNIF. DEC.**

U_D=UPGRADIENT

WELL IDENTITY	N, 1986	N, 1995	MEAN, 1986	MEAN, 1995	VARIANCE, 1986	VARIANCE, 1995	T-STATISTIC	T-CRITICAL	T-TEST RESULT
GW-145	16	4	8.263	8.050	0.132	0.003	-1.144	2.878	NO SIGNIF. DIFF.

SEMIANNUAL Y-12 RCRA REPORT
TWO-TAILED T-TEST TO TEST FOR SIGNIFICANT DIFFERENCE IN
MEAN PH
DOWNGRADIENT, 1ST QUARTER 1995 VS UPGRADIENT, 1986
KERR HOLLOW QUARRY

WELL IDENTITY	N 'UP' 1986	N, 1995	MEAN, 'UP' 1986	MEAN, 1995	VARIANCE, 'UP' 1986	VARIANCE, 1995	T-STATISTIC	T-CRITICAL	T-TEST RESULT
GW-142	16	4	8.263	7.900	0.132	0.000	-1.956	2.878	NO SIGNIF. DIFF.
GW-144	16	4	8.263	8.000	0.132	0.000	-1.417	2.878	NO SIGNIF. DIFF.
GW-231	16	4	8.263	7.525	0.132	0.002	-3.973	2.878	**SIGNIF. DEC.**

SUMMARY OF STATISTICALLY SIGNIFICANT T-TEST RESULTS AT THE KERR HOLLOW QUARRY

PARAMETER	WELL	RESULT	COMPARISON	
			MEAN (2nd quarter 1995)	**MEAN (Base year)**
Conductivity (μmhos/cm)	GW-142	Significantly greater than 1986	441.250	351.375
Total organic carbon (mg/L)	GW-145	Significantly greater than 1987	4.650	1.425
Total organic halide (μg/L)		No significant increases		
pH (pH unit)	GW-231	Significantly less than 1986 upgradient	7.600	8.263

SEMIANNUAL Y-12 RCRA REPORT
ONE-TAILED T-TEST TO TEST FOR SIGNIFICANT INCREASE IN MEAN
CONDUCTIVITY (UMHOS/CM)
BY WELL - 1986 VS 2ND QUARTER 1995
KERR HOLLOW QUARRY

U_D=DOWNGRADIENT

WELL IDENTITY	N, 1986	N, 1995	MEAN, 1986	MEAN, 1995	VARIANCE, 1986	VARIANCE, 1995	T-STATISTIC	T-CRITICAL	T-TEST RESULT
GW-142	16	4	351.375	441.250	4430.783	0.250	2.646	2.552	**SIGNIF. INC.**
GW-144	16	4	367.938	299.750	1578.729	6.250	-3.362	2.552	NO SIGNIF. INC.
GW-231	16	4	332.938	330.000	3460.729	0.667	-0.098	2.552	NO SIGNIF. INC.

U_D=UPGRADIENT

WELL IDENTITY	N, 1986	N, 1995	MEAN, 1986	MEAN, 1995	VARIANCE, 1986	VARIANCE, 1995	T-STATISTIC	T-CRITICAL	T-TEST RESULT
GW-145	16	4	601.500	511.500	1547.600	1.000	-4.483	2.552	NO SIGNIF. INC.

SEMIANNUAL Y-12 RCRA REPORT
ONE-TAILED T-TEST TO TEST FOR SIGNIFICANT INCREASE IN MEAN
CONDUCTIVITY (UMHOS/CM)
DOWNGRADIENT, 2ND QUARTER 1995 VS UPGRADIENT, 1986
KERR HOLLOW QUARRY

WELL IDENTITY	N 'UP' 1986	N, 1995	MEAN, 'UP' 1986	MEAN, 1995	VARIANCE, 'UP' 1986	VARIANCE, 1995	T-STATISTIC	T-CRITICAL	T-TEST RESULT
GW-142	16	4	601.500	441.250	1547.600	0.250	-7.982	2.552	NO SIGNIF. INC.
GW-144	16	4	601.500	299.750	1547.600	6.250	-15.025	2.552	NO SIGNIF. INC.
GW-231	16	4	601.500	330.000	1547.600	0.667	-13.523	2.552	NO SIGNIF. INC.

SEMIANNUAL Y-12 RCRA REPORT
ONE-TAILED T-TEST TO TEST FOR SIGNIFICANT INCREASE IN MEAN
TOTAL ORGANIC CARBON (MG/L)
BY WELL - 1987 VS 2ND QUARTER 1995
KERR HOLLOW QUARRY

U_D=DOWNGRADIENT

WELL IDENTITY	N, 1987	N, 1995	MEAN, 1987	MEAN, 1995	VARIANCE, 1987	VARIANCE, 1995	T-STATISTIC	T-CRITICAL	T-TEST RESULT
GW-142	8	4	3.625	3.950	7.982	4.890	0.200	2.764	NO SIGNIF. INC.
GW-144	8	4	2.513	2.725	2.430	1.669	0.234	2.764	NO SIGNIF. INC.
GW-231	8	4	3.300	2.350	5.677	0.643	-0.760	2.764	NO SIGNIF. INC.

U_D=UPGRADIENT

WELL IDENTITY	N, 1987	N, 1995	MEAN, 1987	MEAN, 1995	VARIANCE, 1987	VARIANCE, 1995	T-STATISTIC	T-CRITICAL	T-TEST RESULT
GW-145	8	4	1.425	4.650	1.094	3.717	3.840	2.764	**SIGNIF. INC.**

SEMIANNUAL Y-12 RCRA REPORT
ONE-TAILED T-TEST TO TEST FOR SIGNIFICANT INCREASE IN MEAN
TOTAL ORGANIC CARBON (MG/L)
DOWNGRADIENT, 2ND QUARTER 1995 VS UPGRADIENT, 1987
KERR HOLLOW QUARRY

WELL IDENTITY	N 'UP' 1987	N, 1995	MEAN, 'UP' 1987	MEAN, 1995	VARIANCE, 'UP' 1987	VARIANCE, 1995	T-STATISTIC	T-CRITICAL	T-TEST RESULT
GW-142	8	4	1.425	3.950	1.094	4.890	2.760	2.764	NO SIGNIF. INC.
GW-144	8	4	1.425	2.725	1.094	1.669	1.887	2.764	NO SIGNIF. INC.
GW-231	8	4	1.425	2.350	1.094	0.643	1.543	2.764	NO SIGNIF. INC.

SEMIANNUAL Y-12 RCRA REPORT
ONE-TAILED T-TEST TO TEST FOR SIGNIFICANT INCREASE IN MEAN
TOTAL ORGANIC HALIDE (UG/L)
BY WELL - 1987 VS 2ND QUARTER 1995
KERR HOLLOW QUARRY

U_D=DOWNGRADIENT

WELL IDENTITY	N, 1987	N, 1995	MEAN, 1987	MEAN, 1995	VARIANCE, 1987	VARIANCE, 1995	T-STATISTIC	T-CRITICAL	T-TEST RESULT
GW-142	8	4	10.000	10.000	0.000	0.000	.	2.764	
GW-144	8	4	13.125	10.000	40.411	0.000	-0.959	2.764	NO SIGNIF. INC.
GW-231	8	4	17.375	10.000	257.982	0.000	-0.896	2.764	NO SIGNIF. INC.

U_D=UPGRADIENT

WELL IDENTITY	N, 1987	N, 1995	MEAN, 1987	MEAN, 1995	VARIANCE, 1987	VARIANCE, 1995	T-STATISTIC	T-CRITICAL	T-TEST RESULT
GW-145	8	4	11.125	10.000	10.125	0.000	-0.690	2.764	NO SIGNIF. INC.

SEMIANNUAL Y-12 RCRA REPORT
ONE-TAILED T-TEST TO TEST FOR SIGNIFICANT INCREASE IN MEAN
TOTAL ORGANIC HALIDE (UG/L)
DOWNGRADIENT, 2ND QUARTER 1995 VS UPGRADIENT, 1987
KERR HOLLOW QUARRY

WELL IDENTITY	N 'UP' 1987	N, 1995	MEAN, 'UP' 1987	MEAN, 1995	VARIANCE, 'UP' 1987	VARIANCE, 1995	T-STATISTIC	T-CRITICAL	T-TEST RESULT
GW-142	8	4	11.125	10.000	10.125	0.000	-0.690	2.764	NO SIGNIF. INC.
GW-144	8	4	11.125	10.000	10.125	0.000	-0.690	2.764	NO SIGNIF. INC.
GW-231	8	4	11.125	10.000	10.125	0.000	-0.690	2.764	NO SIGNIF. INC.

SEMIANNUAL Y-12 RCRA REPORT
TWO-TAILED T-TEST TO TEST FOR SIGNIFICANT DIFFERENCE IN
MEAN PH
BY WELL - 1986 VS 2ND QUARTER 1995
KERR HOLLOW QUARRY

U_D=DOWNGRADIENT

WELL IDENTITY	N, 1986	N, 1995	MEAN, 1986	MEAN, 1995	VARIANCE, 1986	VARIANCE, 1995	T-STATISTIC	T-CRITICAL	T-TEST RESULT
GW-142	16	4	8.175	7.900	0.231	0.000	-1.120	2.878	NO SIGNIF. DIFF.
GW-144	16	4	7.956	7.900	0.007	0.000	-1.354	2.878	NO SIGNIF. DIFF.
GW-231	16	4	7.856	7.600	0.032	0.000	-2.809	2.878	NO SIGNIF. DIFF.

U_D=UPGRADIENT

WELL IDENTITY	N, 1986	N, 1995	MEAN, 1986	MEAN, 1995	VARIANCE, 1986	VARIANCE, 1995	T-STATISTIC	T-CRITICAL	T-TEST RESULT
GW-145	16	4	8.263	8.025	0.132	0.002	-1.279	2.878	NO SIGNIF. DIFF.

SEMIANNUAL Y-12 RCRA REPORT
TWO-TAILED T-TEST TO TEST FOR SIGNIFICANT DIFFERENCE IN
MEAN PH
DOWNGRADIENT, 2ND QUARTER 1995 VS UPGRADIENT, 1986
KERR HOLLOW QUARRY

WELL IDENTITY	N 'UP' 1986	N, 1995	MEAN, 'UP' 1986	MEAN, 1995	VARIANCE, 'UP' 1986	VARIANCE, 1995	T-STATISTIC	T-CRITICAL	T-TEST RESULT
GW-142	16	4	8.263	7.900	0.132	0.000	-1.956	2.878	NO SIGNIF. DIFF.
GW-144	16	4	8.263	7.900	0.132	0.000	-1.956	2.878	NO SIGNIF. DIFF.
GW-231	16	4	8.263	7.600	0.132	0.000	-3.576	2.878	**SIGNIF. DEC.**

SUMMARY OF STATISTICALLY SIGNIFICANT T-TEST RESULTS AT THE KERR HOLLOW QUARRY

PARAMETER	WELL	RESULT	COMPARISON	
			MEAN (3rd quarter 1995)	MEAN (Base year)
Conductivity (μmhos/cm)	GW-142	Significantly greater than 1986	439.000	351.375
Total organic carbon (mg/L)	GW-145	Significantly greater than 1987	4.025	1.425
Total organic halide (μg/L)		No significant increases		
pH (pH unit)	GW-144	Significantly less than 1986	7.800	7.956
	GW-231	Significantly less than 1986 upgradient	7.625	8.263

SEMIANNUAL Y-12 RCRA REPORT
ONE-TAILED T-TEST TO TEST FOR SIGNIFICANT INCREASE IN MEAN
CONDUCTIVITY (UMHOS/CM)
BY WELL - 1986 VS 3RD QUARTER 1995
KERR HOLLOW QUARRY

U_D=DOWNGRADIENT

WELL IDENTITY	N, 1986	N, 1995	MEAN, 1986	MEAN, 1995	VARIANCE, 1986	VARIANCE, 1995	T-STATISTIC	T-CRITICAL	T-TEST RESULT
GW-142	16	4	351.375	439.000	4430.783	3.333	2.579	2.552	**SIGNIF. INC.**
GW-144	16	4	367.938	313.000	1578.729	0.000	-2.709	2.552	NO SIGNIF. INC.
GW-231	16	4	332.938	353.250	3460.729	3.583	0.677	2.552	NO SIGNIF. INC.

U_D=UPGRADIENT

WELL IDENTITY	N, 1986	N, 1995	MEAN, 1986	MEAN, 1995	VARIANCE, 1986	VARIANCE, 1995	T-STATISTIC	T-CRITICAL	T-TEST RESULT
GW-145	16	4	601.500	523.750	1547.600	2.250	-3.872	2.552	NO SIGNIF. INC.

SEMIANNUAL Y-12 RCRA REPORT
ONE-TAILED T-TEST TO TEST FOR SIGNIFICANT INCREASE IN MEAN
CONDUCTIVITY (UMHOS/CM)
DOWNGRADIENT, 3RD QUARTER 1995 VS UPGRADIENT, 1986
KERR HOLLOW QUARRY

WELL IDENTITY	N 'UP' 1986	N, 1995	MEAN, 'UP' 1986	MEAN, 1995	VARIANCE, 'UP' 1986	VARIANCE, 1995	T-STATISTIC	T-CRITICAL	T-TEST RESULT
GW-142	16	4	601.500	439.000	1547.600	3.333	-8.093	2.552	NO SIGNIF. INC.
GW-144	16	4	601.500	313.000	1547.600	0.000	-14.371	2.552	NO SIGNIF. INC.
GW-231	16	4	601.500	353.250	1547.600	3.583	-12.363	2.552	NO SIGNIF. INC.

SEMIANNUAL Y-12 RCRA REPORT
ONE-TAILED T-TEST TO TEST FOR SIGNIFICANT INCREASE IN MEAN
TOTAL ORGANIC CARBON (MG/L)
BY WELL - 1987 VS 3RD QUARTER 1995
KERR HOLLOW QUARRY

U_D=DOWNGRADIENT

WELL IDENTITY	N, 1987	N, 1995	MEAN, 1987	MEAN, 1995	VARIANCE, 1987	VARIANCE, 1995	T-STATISTIC	T-CRITICAL	T-TEST RESULT
GW-142	8	4	3.625	3.300	7.982	3.600	-0.206	2.764	NO SIGNIF. INC.
GW-144	8	4	2.513	1.000	2.430	0.000	-1.894	2.764	NO SIGNIF. INC.
GW-231	8	4	3.300	3.125	5.677	1.589	-0.135	2.764	NO SIGNIF. INC.

U_D=UPGRADIENT

WELL IDENTITY	N, 1987	N, 1995	MEAN, 1987	MEAN, 1995	VARIANCE, 1987	VARIANCE, 1995	T-STATISTIC	T-CRITICAL	T-TEST RESULT
GW-145	8	4	1.425	4.025	1.094	1.289	3.955	2.764	**SIGNIF. INC.**

SEMIANNUAL Y-12 RCRA REPORT
ONE-TAILED T-TEST TO TEST FOR SIGNIFICANT INCREASE IN MEAN
TOTAL ORGANIC CARBON (MG/L)
DOWNGRADIENT, 3RD QUARTER 1995 VS UPGRADIENT, 1987
KERR HOLLOW QUARRY

WELL IDENTITY	N 'UP' 1987	N, 1995	MEAN, 'UP' 1987	MEAN, 1995	VARIANCE, 'UP' 1987	VARIANCE, 1995	T-STATISTIC	T-CRITICAL	T-TEST RESULT
GW-142	8	4	1.425	3.300	1.094	3.600	2.254	2.764	NO SIGNIF. INC.
GW-144	8	4	1.425	1.000	1.094	0.000	-0.793	2.764	NO SIGNIF. INC.
GW-231	8	4	1.425	3.125	1.094	1.589	2.491	2.764	NO SIGNIF. INC.

SEMIANNUAL Y-12 RCRA REPORT
ONE-TAILED T-TEST TO TEST FOR SIGNIFICANT INCREASE IN MEAN
TOTAL ORGANIC HALIDE (UG/L)
BY WELL - 1987 VS 3RD QUARTER 1995
KERR HOLLOW QUARRY

U_D=DOWNGRADIENT

WELL IDENTITY	N, 1987	N, 1995	MEAN, 1987	MEAN, 1995	VARIANCE, 1987	VARIANCE, 1995	T-STATISTIC	T-CRITICAL	T-TEST RESULT
GW-142	8	4	10.000	10.000	0.000	0.000	.	2.764	
GW-144	8	4	13.125	10.000	40.411	0.000	-0.959	2.764	NO SIGNIF. INC.
GW-231	8	4	17.375	10.000	257.982	0.000	-0.896	2.764	NO SIGNIF. INC.

U_D=UPGRADIENT

WELL IDENTITY	N, 1987	N, 1995	MEAN, 1987	MEAN, 1995	VARIANCE, 1987	VARIANCE, 1995	T-STATISTIC	T-CRITICAL	T-TEST RESULT
GW-145	8	4	11.125	10.000	10.125	0.000	-0.690	2.764	NO SIGNIF. INC.

SEMIANNUAL Y-12 RCRA REPORT
ONE-TAILED T-TEST TO TEST FOR SIGNIFICANT INCREASE IN MEAN
TOTAL ORGANIC HALIDE (UG/L)
DOWNGRADIENT, 3RD QUARTER 1995 VS UPGRADIENT, 1987
KERR HOLLOW QUARRY

WELL IDENTITY	N 'UP' 1987	N, 1995	MEAN, 'UP' 1987	MEAN, 1995	VARIANCE, 'UP' 1987	VARIANCE, 1995	T-STATISTIC	T-CRITICAL	T-TEST RESULT
GW-142	8	4	11.125	10.000	10.125	0.000	-0.690	2.764	NO SIGNIF. INC.
GW-144	8	4	11.125	10.000	10.125	0.000	-0.690	2.764	NO SIGNIF. INC.
GW-231	8	4	11.125	10.000	10.125	0.000	-0.690	2.764	NO SIGNIF. INC.

SEMIANNUAL Y-12 RCRA REPORT
TWO-TAILED T-TEST TO TEST FOR SIGNIFICANT DIFFERENCE IN
MEAN PH
BY WELL - 1986 VS 3RD QUARTER 1995
KERR HOLLOW QUARRY

U_D=DOWNGRADIENT

WELL IDENTITY	N, 1986	N, 1995	MEAN, 1986	MEAN, 1995	VARIANCE, 1986	VARIANCE, 1995	T-STATISTIC	T-CRITICAL	T-TEST RESULT
GW-142	16	4	8.175	7.800	0.231	0.007	-1.523	2.878	NO SIGNIF. DIFF.
GW-144	16	4	7.956	7.800	0.007	0.000	-3.762	2.878	**SIGNIF. DEC.**
GW-231	16	4	7.856	7.625	0.032	0.022	-2.373	2.878	NO SIGNIF. DIFF.

U_D=UPGRADIENT

WELL IDENTITY	N, 1986	N, 1995	MEAN, 1986	MEAN, 1995	VARIANCE, 1986	VARIANCE, 1995	T-STATISTIC	T-CRITICAL	T-TEST RESULT
GW-145	16	4	8.263	7.800	0.132	0.000	-2.496	2.878	NO SIGNIF. DIFF.

SEMIANNUAL Y-12 RCRA REPORT
TWO-TAILED T-TEST TO TEST FOR SIGNIFICANT DIFFERENCE IN
MEAN PH
DOWNGRADIENT, 3RD QUARTER 1995 VS UPGRADIENT, 1986
KERR HOLLOW QUARRY

WELL IDENTITY	N 'UP' 1986	N, 1995	MEAN, 'UP' 1986	MEAN, 1995	VARIANCE, 'UP' 1986	VARIANCE, 1995	T-STATISTIC	T-CRITICAL	T-TEST RESULT
GW-142	16	4	8.263	7.800	0.132	0.007	-2.484	2.878	NO SIGNIF. DIFF.
GW-144	16	4	8.263	7.800	0.132	0.000	-2.496	2.878	NO SIGNIF. DIFF.
GW-231	16	4	8.263	7.625	0.132	0.022	-3.383	2.878	**SIGNIF. DEC.**

SUMMARY OF STATISTICALLY SIGNIFICANT T-TEST RESULTS AT THE KERR HOLLOW QUARRY

PARAMETER	WELL	RESULT	COMPARISON	
			MEAN (4th quarter 1995)	MEAN (Base year)
Conductivity (μmhos/cm)		No significant increases		
Total organic carbon (mg/L)	GW-142	Significantly greater than 1987 upgradient	4.550	1.425
Total organic halide (μg/L)		No significant increases		
pH (pH unit)	GW-144	Significantly less than 1986	7.753	7.956
	GW-231	Significantly less than 1986	7.350	7.856
	GW-231	Significantly less than 1986 upgradient	7.350	8.263

SEMIANNUAL Y-12 RCRA REPORT
ONE-TAILED T-TEST TO TEST FOR SIGNIFICANT INCREASE IN MEAN
CONDUCTIVITY (UMHOS/CM)
BY WELL - 1986 VS 4TH QUARTER 1995
KERR HOLLOW QUARRY

U_D=DOWNGRADIENT

WELL IDENTITY	N, 1986	N, 1995	MEAN, 1986	MEAN, 1995	VARIANCE, 1986	VARIANCE, 1995	T-STATISTIC	T-CRITICAL	T-TEST RESULT
GW-142	16	4	351.375	428.250	4430.783	0.250	2.263	2.552	NO SIGNIF. INC.
GW-144	16	4	367.938	332.000	1578.729	0.000	-1.772	2.552	NO SIGNIF. INC.
GW-231	16	4	332.938	400.000	3460.729	0.667	2.234	2.552	NO SIGNIF. INC.

U_D=UPGRADIENT

WELL IDENTITY	N, 1986	N, 1995	MEAN, 1986	MEAN, 1995	VARIANCE, 1986	VARIANCE, 1995	T-STATISTIC	T-CRITICAL	T-TEST RESULT
GW-145	16	4	601.500	522.500	1547.600	1.000	-3.935	2.552	NO SIGNIF. INC.

SEMIANNUAL Y-12 RCRA REPORT
ONE-TAILED T-TEST TO TEST FOR SIGNIFICANT INCREASE IN MEAN
CONDUCTIVITY (UMHOS/CM)
DOWNGRADIENT, 4TH QUARTER 1995 VS UPGRADIENT, 1986
KERR HOLLOW QUARRY

WELL IDENTITY	N 'UP' 1986	N, 1995	MEAN, 'UP' 1986	MEAN, 1995	VARIANCE, 'UP' 1986	VARIANCE, 1995	T-STATISTIC	T-CRITICAL	T-TEST RESULT
GW-142	16	4	601.500	428.250	1547.600	0.250	-8.630	2.552	NO SIGNIF. INC.
GW-144	16	4	601.500	332.000	1547.600	0.000	-13.424	2.552	NO SIGNIF. INC.
GW-231	16	4	601.500	400.000	1547.600	0.667	-10.037	2.552	NO SIGNIF. INC.

SEMIANNUAL Y-12 RCRA REPORT
ONE-TAILED T-TEST TO TEST FOR SIGNIFICANT INCREASE IN MEAN
TOTAL ORGANIC CARBON (MG/L)
BY WELL - 1987 VS 4TH QUARTER 1995
KERR HOLLOW QUARRY

U_D=DOWNGRADIENT

WELL IDENTITY	N, 1987	N, 1995	MEAN, 1987	MEAN, 1995	VARIANCE, 1987	VARIANCE, 1995	T-STATISTIC	T-CRITICAL	T-TEST RESULT
GW-142	8	4	3.625	4.550	7.982	5.710	0.559	2.764	NO SIGNIF. INC.
GW-144	8	4	2.513	1.000	2.430	0.000	-1.894	2.764	NO SIGNIF. INC.
GW-231	8	4	3.300	2.100	5.677	0.913	-0.951	2.764	NO SIGNIF. INC.

U_D=UPGRADIENT

WELL IDENTITY	N, 1987	N, 1995	MEAN, 1987	MEAN, 1995	VARIANCE, 1987	VARIANCE, 1995	T-STATISTIC	T-CRITICAL	T-TEST RESULT
GW-145	8	4	1.425	1.625	1.094	0.536	0.339	2.764	NO SIGNIF. INC.

SEMIANNUAL Y-12 RCRA REPORT
ONE-TAILED T-TEST TO TEST FOR SIGNIFICANT INCREASE IN MEAN
TOTAL ORGANIC CARBON (MG/L)
DOWNGRADIENT, 4TH QUARTER 1995 VS UPGRADIENT, 1987
KERR HOLLOW QUARRY

WELL IDENTITY	N 'UP' 1987	N, 1995	MEAN, 'UP' 1987	MEAN, 1995	VARIANCE, 'UP' 1987	VARIANCE, 1995	T-STATISTIC	T-CRITICAL	T-TEST RESULT
GW-142	8	4	1.425	4.550	1.094	5.710	3.241	2.764	**SIGNIF. INC.**
GW-144	8	4	1.425	1.000	1.094	0.000	-0.793	2.764	NO SIGNIF. INC.
GW-231	8	4	1.425	2.100	1.094	0.913	1.081	2.764	NO SIGNIF. INC.

SEMIANNUAL Y-12 RCRA REPORT
ONE-TAILED T-TEST TO TEST FOR SIGNIFICANT INCREASE IN MEAN
TOTAL ORGANIC HALIDE (UG/L)
BY WELL - 1987 VS 4TH QUARTER 1995
KERR HOLLOW QUARRY

U_D=DOWNGRADIENT

WELL IDENTITY	N, 1987	N, 1995	MEAN, 1987	MEAN, 1995	VARIANCE, 1987	VARIANCE, 1995	T-STATISTIC	T-CRITICAL	T-TEST RESULT
GW-142	8	4	10.000	10.000	0.000	0.000	.	2.764	
GW-144	8	4	13.125	10.000	40.411	0.000	-0.959	2.764	NO SIGNIF. INC.
GW-231	8	4	17.375	10.000	257.982	0.000	-0.896	2.764	NO SIGNIF. INC.

U_D=UPGRADIENT

WELL IDENTITY	N, 1987	N, 1995	MEAN, 1987	MEAN, 1995	VARIANCE, 1987	VARIANCE, 1995	T-STATISTIC	T-CRITICAL	T-TEST RESULT
GW-145	8	4	11.125	10.000	10.125	0.000	-0.690	2.764	NO SIGNIF. INC.

SEMIANNUAL Y-12 RCRA REPORT
ONE-TAILED T-TEST TO TEST FOR SIGNIFICANT INCREASE IN MEAN
TOTAL ORGANIC HALIDE (UG/L)
DOWNGRADIENT, 4TH QUARTER 1995 VS UPGRADIENT, 1987
KERR HOLLOW QUARRY

WELL IDENTITY	N 'UP' 1987	N, 1995	MEAN, 'UP' 1987	MEAN, 1995	VARIANCE, 'UP' 1987	VARIANCE, 1995	T-STATISTIC	T-CRITICAL	T-TEST RESULT
GW-142	8	4	11.125	10.000	10.125	0.000	-0.690	2.764	NO SIGNIF. INC.
GW-144	8	4	11.125	10.000	10.125	0.000	-0.690	2.764	NO SIGNIF. INC.
GW-231	8	4	11.125	10.000	10.125	0.000	-0.690	2.764	NO SIGNIF. INC.

SEMIANNUAL Y-12 RCRA REPORT
TWO-TAILED T-TEST TO TEST FOR SIGNIFICANT DIFFERENCE IN
MEAN PH
BY WELL - 1986 VS 4TH QUARTER 1995
KERR HOLLOW QUARRY

U_D=DOWNGRADIENT

WELL IDENTITY	N, 1986	N, 1995	MEAN, 1986	MEAN, 1995	VARIANCE, 1986	VARIANCE, 1995	T-STATISTIC	T-CRITICAL	T-TEST RESULT
GW-142	16	4	8.175	7.908	0.231	0.000	-1.090	2.878	NO SIGNIF. DIFF.
GW-144	16	4	7.956	7.753	0.007	0.002	-4.771	2.878	**SIGNIF. DEC.**
GW-231	16	4	7.856	7.350	0.032	0.001	-5.538	2.878	**SIGNIF. DEC.**

U_D=UPGRADIENT

WELL IDENTITY	N, 1986	N, 1995	MEAN, 1986	MEAN, 1995	VARIANCE, 1986	VARIANCE, 1995	T-STATISTIC	T-CRITICAL	T-TEST RESULT
GW-145	16	4	8.263	7.915	0.132	0.006	-1.867	2.878	NO SIGNIF. DIFF.

SEMIANNUAL Y-12 RCRA REPORT
TWO-TAILED T-TEST TO TEST FOR SIGNIFICANT DIFFERENCE IN
MEAN PH
DOWNGRADIENT, 4TH QUARTER 1995 VS UPGRADIENT, 1986
KERR HOLLOW QUARRY

WELL IDENTITY	N 'UP' 1986	N, 1995	MEAN, 'UP' 1986	MEAN, 1995	VARIANCE, 'UP' 1986	VARIANCE, 1995	T-STATISTIC	T-CRITICAL	T-TEST RESULT
GW-142	16	4	8.263	7.908	0.132	0.000	-1.916	2.878	NO SIGNIF. DIFF.
GW-144	16	4	8.263	7.753	0.132	0.002	-2.749	2.878	NO SIGNIF. DIFF.
GW-231	16	4	8.263	7.350	0.132	0.001	-4.922	2.878	**SIGNIF. DEC.**

SUMMARY OF STATISTICALLY SIGNIFICANT T-TEST RESULTS AT THE CHESTNUT RIDGE SEDIMENT DISPOSAL BASIN

PARAMETER	WELL	RESULT	COMPARISON	
			MEAN (1st quarter 1995)	MEAN (Base year)
Conductivity (μmhos/cm)		No significant increases		
Total organic carbon (mg/L)	GW-156	Significant greater than 1987	4.625	2.083
	GW-159	Significant greater than 1987	9.750	1.000
	GW-156	Significantly greater than 1987 upgradient	4.625	1.000
	GW-731	Significantly greater than 1987 upgradient	1.550	1.000
	GW-732	Significantly greater than 1987 upgradient	2.175	1.000
Total organic halide (μg/L)		No significant increases		
pH (pH unit)		No significant differences		

SEMIANNUAL Y-12 RCRA REPORT
ONE-TAILED T-TEST TO TEST FOR SIGNIFICANT INCREASE IN MEAN
CONDUCTIVITY (UMHOS/CM)
BY WELL - 1986 VS 1ST QUARTER 1995
C.R. SEDIMENT DISP.

U_D=DOWNGRADIENT

WELL IDENTITY	N, 1986	N, 1995	MEAN, 1986	MEAN, 1995	VARIANCE, 1986	VARIANCE, 1995	T-STATISTIC	T-CRITICAL	T-TEST RESULT
GW-155	16	0	251.813	.	142.429	.	.	.	
GW-156	16	4	809.188	643.250	56848.563	0.250	-1.364	2.552	NO SIGNIF. INC.
GW-157	16	0	448.250	.	2680.600	.	.	.	
GW-731	0	4	.	235.250	.	12.250	.	.	
GW-732	0	4	.	316.750	.	0.917	.	.	

U_D=UPGRADIENT

WELL IDENTITY	N, 1986	N, 1995	MEAN, 1986	MEAN, 1995	VARIANCE, 1986	VARIANCE, 1995	T-STATISTIC	T-CRITICAL	T-TEST RESULT
GW-159	16	4	929.938	373.750	1021079.66	0.917	-1.079	2.552	NO SIGNIF. INC.

SEMIANNUAL Y-12 RCRA REPORT
ONE-TAILED T-TEST TO TEST FOR SIGNIFICANT INCREASE IN MEAN
CONDUCTIVITY (UMHOS/CM)
DOWNGRADIENT, 1ST QUARTER 1995 VS UPGRADIENT, 1986
C.R. SEDIMENT DISP.

WELL IDENTITY	N 'UP' 1986	N, 1995	MEAN, 'UP' 1986	MEAN, 1995	VARIANCE, 'UP' 1986	VARIANCE, 1995	T-STATISTIC	T-CRITICAL	T-TEST RESULT
GW-156	16	4	929.938	643.250	1021079.66	0.250	-0.556	2.552	NO SIGNIF. INC.
GW-731	16	4	929.938	235.250	1021079.66	12.250	-1.347	2.552	NO SIGNIF. INC.
GW-732	16	4	929.938	316.750	1021079.66	0.917	-1.189	2.552	NO SIGNIF. INC.

SEMIANNUAL Y-12 RCRA REPORT
ONE-TAILED T-TEST TO TEST FOR SIGNIFICANT INCREASE IN MEAN
TOTAL ORGANIC CARBON (MG/L)
BY WELL - 1987 VS 1ST QUARTER 1995
C.R. SEDIMENT DISP.

U_D=DOWNGRADIENT

WELL IDENTITY	N, 1987	N, 1995	MEAN, 1987	MEAN, 1995	VARIANCE, 1987	VARIANCE, 1995	T-STATISTIC	T-CRITICAL	T-TEST RESULT
GW-155	12	0	1.217	.	0.362	.	.	.	
GW-156	12	4	2.083	4.625	1.587	6.989	2.657	2.624	**SIGNIF. INC.**
GW-157	12	0	3.425	.	2.646	.	.	.	
GW-731	0	4	.	1.550	.	0.403	.	.	
GW-732	0	4	.	2.175	.	0.749	.	.	

U_D=UPGRADIENT

WELL IDENTITY	N, 1987	N, 1995	MEAN, 1987	MEAN, 1995	VARIANCE, 1987	VARIANCE, 1995	T-STATISTIC	T-CRITICAL	T-TEST RESULT
GW-159	12	4	1.000	9.750	0.000	88.917	3.472	2.624	**SIGNIF. INC.**

SEMIANNUAL Y-12 RCRA REPORT
ONE-TAILED T-TEST TO TEST FOR SIGNIFICANT INCREASE IN MEAN
TOTAL ORGANIC CARBON (MG/L)
DOWNGRADIENT, 1ST QUARTER 1995 VS UPGRADIENT, 1987
C.R. SEDIMENT DISP.

WELL IDENTITY	N 'UP' 1987	N, 1995	MEAN, 'UP' 1987	MEAN, 1995	VARIANCE, 'UP' 1987	VARIANCE, 1995	T-STATISTIC	T-CRITICAL	T-TEST RESULT
GW-156	12	4	1.000	4.625	0.000	6.989	5.130	2.624	**SIGNIF. INC.**
GW-731	12	4	1.000	1.550	0.000	0.403	3.240	2.624	**SIGNIF. INC.**
GW-732	12	4	1.000	2.175	0.000	0.749	5.079	2.624	**SIGNIF. INC.**

SEMIANNUAL Y-12 RCRA REPORT
ONE-TAILED T-TEST TO TEST FOR SIGNIFICANT INCREASE IN MEAN
TOTAL ORGANIC HALIDE (UG/L)
BY WELL - 1987 VS 1ST QUARTER 1995
C.R. SEDIMENT DISP.

U_D=DOWNGRADIENT

WELL IDENTITY	N, 1987	N, 1995	MEAN, 1987	MEAN, 1995	VARIANCE, 1987	VARIANCE, 1995	T-STATISTIC	T-CRITICAL	T-TEST RESULT
GW-155	4	0	17.500	.	91.667	.	.	.	
GW-156	4	4	25.000	10.000	900.000	0.000	-1.000	3.143	NO SIGNIF. INC.
GW-157	4	0	18.250	.	92.250	.	.	.	
GW-731	0	4	.	10.000	.	0.000	.	.	
GW-732	0	4	.	10.000	.	0.000	.	.	

U_D=UPGRADIENT

WELL IDENTITY	N, 1987	N, 1995	MEAN, 1987	MEAN, 1995	VARIANCE, 1987	VARIANCE, 1995	T-STATISTIC	T-CRITICAL	T-TEST RESULT
GW-159	4	4	22.750	10.000	584.917	0.000	-1.054	3.143	NO SIGNIF. INC.

SEMIANNUAL Y-12 RCRA REPORT
ONE-TAILED T-TEST TO TEST FOR SIGNIFICANT INCREASE IN MEAN
TOTAL ORGANIC HALIDE (UG/L)
DOWNGRADIENT, 1ST QUARTER 1995 VS UPGRADIENT, 1987
C.R. SEDIMENT DISP.

WELL IDENTITY	N 'UP' 1987	N, 1995	MEAN, 'UP' 1987	MEAN, 1995	VARIANCE, 'UP' 1987	VARIANCE, 1995	T-STATISTIC	T-CRITICAL	T-TEST RESULT
GW-156	4	4	22.750	10.000	584.917	0.000	-1.054	3.143	NO SIGNIF. INC.
GW-731	4	4	22.750	10.000	584.917	0.000	-1.054	3.143	NO SIGNIF. INC.
GW-732	4	4	22.750	10.000	584.917	0.000	-1.054	3.143	NO SIGNIF. INC.

SEMIANNUAL Y-12 RCRA REPORT
TWO-TAILED T-TEST TO TEST FOR SIGNIFICANT DIFFERENCE IN
MEAN PH
BY WELL - 1986 VS 1ST QUARTER 1995
C.R. SEDIMENT DISP.

U_D=DOWNGRADIENT

WELL IDENTITY	N, 1986	N, 1995	MEAN, 1986	MEAN, 1995	VARIANCE, 1986	VARIANCE, 1995	T-STATISTIC	T-CRITICAL	T-TEST RESULT
GW-155	16	0	7.825	.	0.059	.	.	.	
GW-156	16	4	8.125	7.650	0.377	0.003	-1.515	2.878	NO SIGNIF. DIFF.
GW-157	16	0	7.725	.	0.046	.	.	.	
GW-731	0	4	.	9.050	.	0.003	.	.	
GW-732	0	4	.	8.100	.	0.000	.	.	

U_D=UPGRADIENT

WELL IDENTITY	N, 1986	N, 1995	MEAN, 1986	MEAN, 1995	VARIANCE, 1986	VARIANCE, 1995	T-STATISTIC	T-CRITICAL	T-TEST RESULT
GW-159	16	4	9.206	8.000	1.171	0.000	-2.184	2.878	NO SIGNIF. DIFF.

SEMIANNUAL Y-12 RCRA REPORT
TWO-TAILED T-TEST TO TEST FOR SIGNIFICANT DIFFERENCE IN
MEAN PH
DOWNGRADIENT, 1ST QUARTER 1995 VS UPGRADIENT, 1986
C.R. SEDIMENT DISP.

WELL IDENTITY	N 'UP' 1986	N, 1995	MEAN, 'UP' 1986	MEAN, 1995	VARIANCE, 'UP' 1986	VARIANCE, 1995	T-STATISTIC	T-CRITICAL	T-TEST RESULT
GW-156	16	4	9.206	7.650	1.171	0.003	-2.817	2.878	NO SIGNIF. DIFF.
GW-731	16	4	9.206	9.050	1.171	0.003	-0.283	2.878	NO SIGNIF. DIFF.
GW-732	16	4	9.206	8.100	1.171	0.000	-2.003	2.878	NO SIGNIF. DIFF.

SUMMARY OF STATISTICALLY SIGNIFICANT T-TEST RESULTS AT THE CHESTNUT RIDGE SEDIMENT DISPOSAL BASIN

PARAMETER	WELL	RESULT	COMPARISON	
			MEAN (2nd quarter 1995)	MEAN (Base year)
Conductivity (μmhos/cm)		No significant increases		
Total organic carbon (mg/L)	GW-156	Significantly greater than 1987	17.500	2.083
	GW-156	Significantly greater than 1987 upgradient	17.500	1.000
	GW-731	Significantly greater than 1987 upgradient	1.300	1.000
	GW-732	Significantly greater than 1987 upgradient	3.725	1.000
Total organic halide (μg/L)		No significant increases		
pH (pH unit)	GW-156	Significantly less than 1986 upgradient	7.500	9.206

SEMIANNUAL Y-12 RCRA REPORT
ONE-TAILED T-TEST TO TEST FOR SIGNIFICANT INCREASE IN MEAN
CONDUCTIVITY (UMHOS/CM)
BY WELL - 1986 VS 2ND QUARTER 1995
C.R. SEDIMENT DISP.

U_D=DOWNGRADIENT

WELL IDENTITY	N, 1986	N, 1995	MEAN, 1986	MEAN, 1995	VARIANCE, 1986	VARIANCE, 1995	T-STATISTIC	T-CRITICAL	T-TEST RESULT
GW-155	16	0	251.813	.	142.429	.	.	.	
GW-156	16	4	809.188	622.750	56848.563	24.250	-1.532	2.552	NO SIGNIF. INC.
GW-157	16	0	448.250	.	2680.600	.	.	.	
GW-731	0	4	.	231.750	.	4.250	.	.	
GW-732	0	4	.	298.500	.	0.333	.	.	

U_D=UPGRADIENT

WELL IDENTITY	N, 1986	N, 1995	MEAN, 1986	MEAN, 1995	VARIANCE, 1986	VARIANCE, 1995	T-STATISTIC	T-CRITICAL	T-TEST RESULT
GW-159	16	4	929.938	372.250	1021079.66	16.250	-1.081	2.552	NO SIGNIF. INC.

SEMIANNUAL Y-12 RCRA REPORT
ONE-TAILED T-TEST TO TEST FOR SIGNIFICANT INCREASE IN MEAN
CONDUCTIVITY (UMHOS/CM)
DOWNGRADIENT, 2ND QUARTER 1995 VS UPGRADIENT, 1986
C.R. SEDIMENT DISP.

WELL IDENTITY	N 'UP' 1986	N, 1995	MEAN, 'UP' 1986	MEAN, 1995	VARIANCE, 'UP' 1986	VARIANCE, 1995	T-STATISTIC	T-CRITICAL	T-TEST RESULT
GW-156	16	4	929.938	622.750	1021079.66	24.250	-0.596	2.552	NO SIGNIF. INC.
GW-731	16	4	929.938	231.750	1021079.66	4.250	-1.354	2.552	NO SIGNIF. INC.
GW-732	16	4	929.938	298.500	1021079.66	0.333	-1.225	2.552	NO SIGNIF. INC.

SEMIANNUAL Y-12 RCRA REPORT
ONE-TAILED T-TEST TO TEST FOR SIGNIFICANT INCREASE IN MEAN
TOTAL ORGANIC CARBON (MG/L)
BY WELL - 1987 VS 2ND QUARTER 1995
C.R. SEDIMENT DISP.

U_D=DOWNGRADIENT

WELL IDENTITY	N, 1987	N, 1995	MEAN, 1987	MEAN, 1995	VARIANCE, 1987	VARIANCE, 1995	T-STATISTIC	T-CRITICAL	T-TEST RESULT
GW-155	12	0	1.217	.	0.362	.	.	.	
GW-156	12	4	2.083	17.500	1.587	15.000	12.642	2.624	**SIGNIF. INC.**
GW-157	12	0	3.425	.	2.646	.	.	.	
GW-731	0	4	.	1.300	.	0.087	.	.	
GW-732	0	4	.	3.725	.	6.576	.	.	

U_D=UPGRADIENT

WELL IDENTITY	N, 1987	N, 1995	MEAN, 1987	MEAN, 1995	VARIANCE, 1987	VARIANCE, 1995	T-STATISTIC	T-CRITICAL	T-TEST RESULT
GW-159	12	4	1.000	1.000	0.000	0.000	.	2.624	

SEMIANNUAL Y-12 RCRA REPORT
ONE-TAILED T-TEST TO TEST FOR SIGNIFICANT INCREASE IN MEAN
TOTAL ORGANIC CARBON (MG/L)
DOWNGRADIENT, 2ND QUARTER 1995 VS UPGRADIENT, 1987
C.R. SEDIMENT DISP.

WELL IDENTITY	N 'UP' 1987	N, 1995	MEAN, 'UP' 1987	MEAN, 1995	VARIANCE, 'UP' 1987	VARIANCE, 1995	T-STATISTIC	T-CRITICAL	T-TEST RESULT
GW-156	12	4	1.000	17.500	0.000	15.000	15.941	2.624	**SIGNIF. INC.**
GW-731	12	4	1.000	1.300	0.000	0.087	3.813	2.624	**SIGNIF. INC.**
GW-732	12	4	1.000	3.725	0.000	6.576	3.976	2.624	**SIGNIF. INC.**

SEMIANNUAL Y-12 RCRA REPORT
ONE-TAILED T-TEST TO TEST FOR SIGNIFICANT INCREASE IN MEAN
TOTAL ORGANIC HALIDE (UG/L)
BY WELL - 1987 VS 2ND QUARTER 1995
C.R. SEDIMENT DISP.

U_D=DOWNGRADIENT

WELL IDENTITY	N, 1987	N, 1995	MEAN, 1987	MEAN, 1995	VARIANCE, 1987	VARIANCE, 1995	T-STATISTIC	T-CRITICAL	T-TEST RESULT
GW-155	4	0	17.500	.	91.667	.	.	.	
GW-156	4	4	25.000	10.000	900.000	0.000	-1.000	3.143	NO SIGNIF. INC.
GW-157	4	0	18.250	.	92.250	.	.	.	
GW-731	0	4	.	10.000	.	0.000	.	.	
GW-732	0	4	.	10.000	.	0.000	.	.	

U_D=UPGRADIENT

WELL IDENTITY	N, 1987	N, 1995	MEAN, 1987	MEAN, 1995	VARIANCE, 1987	VARIANCE, 1995	T-STATISTIC	T-CRITICAL	T-TEST RESULT
GW-159	4	4	22.750	10.000	584.917	0.000	-1.054	3.143	NO SIGNIF. INC.

SEMIANNUAL Y-12 RCRA REPORT
ONE-TAILED T-TEST TO TEST FOR SIGNIFICANT INCREASE IN MEAN
TOTAL ORGANIC HALIDE (UG/L)
DOWNGRADIENT, 2ND QUARTER 1995 VS UPGRADIENT, 1987
C.R. SEDIMENT DISP.

WELL IDENTITY	N 'UP' 1987	N, 1995	MEAN, 'UP' 1987	MEAN, 1995	VARIANCE, 'UP' 1987	VARIANCE, 1995	T-STATISTIC	T-CRITICAL	T-TEST RESULT
GW-156	4	4	22.750	10.000	584.917	0.000	-1.054	3.143	NO SIGNIF. INC.
GW-731	4	4	22.750	10.000	584.917	0.000	-1.054	3.143	NO SIGNIF. INC.
GW-732	4	4	22.750	10.000	584.917	0.000	-1.054	3.143	NO SIGNIF. INC.

SEMIANNUAL Y-12 RCRA REPORT
TWO-TAILED T-TEST TO TEST FOR SIGNIFICANT DIFFERENCE IN
MEAN PH
BY WELL - 1986 VS 2ND QUARTER 1995
C.R. SEDIMENT DISP.

U_D=DOWNGRADIENT

WELL IDENTITY	N, 1986	N, 1995	MEAN, 1986	MEAN, 1995	VARIANCE, 1986	VARIANCE, 1995	T-STATISTIC	T-CRITICAL	T-TEST RESULT
GW-155	16	0	7.825	.	0.059	.	.	.	
GW-156	16	4	8.125	7.500	0.377	0.007	-1.992	2.878	NO SIGNIF. DIFF.
GW-157	16	0	7.725	.	0.046	.	.	.	
GW-731	0	4	.	9.000	.	0.000	.	.	
GW-732	0	4	.	8.300	.	0.000	.	.	

U_D=UPGRADIENT

WELL IDENTITY	N, 1986	N, 1995	MEAN, 1986	MEAN, 1995	VARIANCE, 1986	VARIANCE, 1995	T-STATISTIC	T-CRITICAL	T-TEST RESULT
GW-159	16	4	9.206	7.925	1.171	0.003	-2.319	2.878	NO SIGNIF. DIFF.

SEMIANNUAL Y-12 RCRA REPORT
TWO-TAILED T-TEST TO TEST FOR SIGNIFICANT DIFFERENCE IN
MEAN PH
DOWNGRADIENT, 2ND QUARTER 1995 VS UPGRADIENT, 1986
C.R. SEDIMENT DISP.

WELL IDENTITY	N 'UP' 1986	N, 1995	MEAN, 'UP' 1986	MEAN, 1995	VARIANCE, 'UP' 1986	VARIANCE, 1995	T-STATISTIC	T-CRITICAL	T-TEST RESULT
GW-156	16	4	9.206	7.500	1.171	0.007	-3.088	2.878	**SIGNIF. DEC.**
GW-731	16	4	9.206	9.000	1.171	0.000	-0.373	2.878	NO SIGNIF. DIFF.
GW-732	16	4	9.206	8.300	1.171	0.000	-1.641	2.878	NO SIGNIF. DIFF.

SUMMARY OF STATISTICALLY SIGNIFICANT T-TEST RESULTS AT THE CHESTNUT RIDGE SEDIMENT DISPOSAL BASIN

PARAMETER	WELL	RESULT	COMPARISON	
			MEAN (3rd quarter 1995)	MEAN (Base year)
Conductivity (μmhos/cm)		No significant increases		
Total organic carbon (mg/L)	GW-159	Significant greater than 1987	2.050	1.000
	GW-156	Significantly greater than 1987 upgradient	3.625	1.000
	GW-731	Significantly greater than 1987 upgradient	1.200	1.000
	GW-732	Significantly greater than 1987 upgradient	1.975	1.000
Total organic halide (μg/L)		No significant increases		
pH (pH unit)	GW-156	Significantly less than 1986 upgradient	7.475	9.206

SEMIANNUAL Y-12 RCRA REPORT
ONE-TAILED T-TEST TO TEST FOR SIGNIFICANT INCREASE IN MEAN
CONDUCTIVITY (UMHOS/CM)
BY WELL - 1986 VS 3RD QUARTER 1995
C.R. SEDIMENT DISP.

U_D=DOWNGRADIENT

WELL IDENTITY	N, 1986	N, 1995	MEAN, 1986	MEAN, 1995	VARIANCE, 1986	VARIANCE, 1995	T-STATISTIC	T-CRITICAL	T-TEST RESULT
GW-155	16	0	251.813	.	142.429	.	.	.	
GW-156	16	4	809.188	618.000	56848.563	2.000	-1.571	2.552	NO SIGNIF. INC.
GW-157	16	0	448.250	.	2680.600	.	.	.	
GW-731	0	4	.	271.000	.	42.000	.	.	
GW-732	0	4	.	232.500	.	3.000	.	.	

U_D=UPGRADIENT

WELL IDENTITY	N, 1986	N, 1995	MEAN, 1986	MEAN, 1995	VARIANCE, 1986	VARIANCE, 1995	T-STATISTIC	T-CRITICAL	T-TEST RESULT
GW-159	16	4	929.938	369.250	1021079.66	5.583	-1.087	2.552	NO SIGNIF. INC.

SEMIANNUAL Y-12 RCRA REPORT
ONE-TAILED T-TEST TO TEST FOR SIGNIFICANT INCREASE IN MEAN
CONDUCTIVITY (UMHOS/CM)
DOWNGRADIENT, 3RD QUARTER 1995 VS UPGRADIENT, 1986
C.R. SEDIMENT DISP.

WELL IDENTITY	N 'UP' 1986	N, 1995	MEAN, 'UP' 1986	MEAN, 1995	VARIANCE, 'UP' 1986	VARIANCE, 1995	T-STATISTIC	T-CRITICAL	T-TEST RESULT
GW-156	16	4	929.938	618.000	1021079.66	2.000	-0.605	2.552	NO SIGNIF. INC.
GW-731	16	4	929.938	271.000	1021079.66	42.000	-1.278	2.552	NO SIGNIF. INC.
GW-732	16	4	929.938	232.500	1021079.66	3.000	-1.353	2.552	NO SIGNIF. INC.

SEMIANNUAL Y-12 RCRA REPORT
ONE-TAILED T-TEST TO TEST FOR SIGNIFICANT INCREASE IN MEAN
TOTAL ORGANIC CARBON (MG/L)
BY WELL - 1987 VS 3RD QUARTER 1995
C.R. SEDIMENT DISP.

U_D=DOWNGRADIENT

WELL IDENTITY	N, 1987	N, 1995	MEAN, 1987	MEAN, 1995	VARIANCE, 1987	VARIANCE, 1995	T-STATISTIC	T-CRITICAL	T-TEST RESULT
GW-155	12	0	1.217	.	0.362	.	.	.	
GW-156	12	4	2.083	3.625	1.587	3.189	1.922	2.624	NO SIGNIF. INC.
GW-157	12	0	3.425	.	2.646	.	.	.	
GW-731	0	4	.	1.200	.	0.007	.	.	
GW-732	0	4	.	1.975	.	0.162	.	.	

U_D=UPGRADIENT

WELL IDENTITY	N, 1987	N, 1995	MEAN, 1987	MEAN, 1995	VARIANCE, 1987	VARIANCE, 1995	T-STATISTIC	T-CRITICAL	T-TEST RESULT
GW-159	12	4	1.000	2.050	0.000	1.217	3.562	2.624	**SIGNIF. INC.**

SEMIANNUAL Y-12 RCRA REPORT
ONE-TAILED T-TEST TO TEST FOR SIGNIFICANT INCREASE IN MEAN
TOTAL ORGANIC CARBON (MG/L)
DOWNGRADIENT, 3RD QUARTER 1995 VS UPGRADIENT, 1987
C.R. SEDIMENT DISP.

WELL IDENTITY	N 'UP' 1987	N, 1995	MEAN, 'UP' 1987	MEAN, 1995	VARIANCE, 'UP' 1987	VARIANCE, 1995	T-STATISTIC	T-CRITICAL	T-TEST RESULT
GW-156	12	4	1.000	3.625	0.000	3.189	5.500	2.624	**SIGNIF. INC.**
GW-731	12	4	1.000	1.200	0.000	0.007	9.165	2.624	**SIGNIF. INC.**
GW-732	12	4	1.000	1.975	0.000	0.162	9.050	2.624	**SIGNIF. INC.**

SEMIANNUAL Y-12 RCRA REPORT
ONE-TAILED T-TEST TO TEST FOR SIGNIFICANT INCREASE IN MEAN
TOTAL ORGANIC HALIDE (UG/L)
BY WELL - 1987 VS 3RD QUARTER 1995
C.R. SEDIMENT DISP.

U_D=DOWNGRADIENT

WELL IDENTITY	N, 1987	N, 1995	MEAN, 1987	MEAN, 1995	VARIANCE, 1987	VARIANCE, 1995	T-STATISTIC	T-CRITICAL	T-TEST RESULT
GW-155	4	0	17.500	.	91.667	.	.	.	
GW-156	4	4	25.000	10.000	900.000	0.000	-1.000	3.143	NO SIGNIF. INC.
GW-157	4	0	18.250	.	92.250	.	.	.	
GW-731	0	4	.	10.000	.	0.000	.	.	
GW-732	0	4	.	10.000	.	0.000	.	.	

U_D=UPGRADIENT

WELL IDENTITY	N, 1987	N, 1995	MEAN, 1987	MEAN, 1995	VARIANCE, 1987	VARIANCE, 1995	T-STATISTIC	T-CRITICAL	T-TEST RESULT
GW-159	4	4	22.750	10.000	584.917	0.000	-1.054	3.143	NO SIGNIF. INC.

SEMIANNUAL Y-12 RCRA REPORT
ONE-TAILED T-TEST TO TEST FOR SIGNIFICANT INCREASE IN MEAN
TOTAL ORGANIC HALIDE (UG/L)
DOWNGRADIENT, 3RD QUARTER 1995 VS UPGRADIENT, 1987
C.R. SEDIMENT DISP.

WELL IDENTITY	N 'UP' 1987	N, 1995	MEAN, 'UP' 1987	MEAN, 1995	VARIANCE, 'UP' 1987	VARIANCE, 1995	T-STATISTIC	T-CRITICAL	T-TEST RESULT
GW-156	4	4	22.750	10.000	584.917	0.000	-1.054	3.143	NO SIGNIF. INC.
GW-731	4	4	22.750	10.000	584.917	0.000	-1.054	3.143	NO SIGNIF. INC.
GW-732	4	4	22.750	10.000	584.917	0.000	-1.054	3.143	NO SIGNIF. INC.

SEMIANNUAL Y-12 RCRA REPORT
TWO-TAILED T-TEST TO TEST FOR SIGNIFICANT DIFFERENCE IN
MEAN PH
BY WELL - 1986 VS 3RD QUARTER 1995
C.R. SEDIMENT DISP.

U_D=DOWNGRADIENT

WELL IDENTITY	N, 1986	N, 1995	MEAN, 1986	MEAN, 1995	VARIANCE, 1986	VARIANCE, 1995	T-STATISTIC	T-CRITICAL	T-TEST RESULT
GW-155	16	0	7.825	.	0.059	.	.	.	
GW-156	16	4	8.125	7.475	0.377	0.009	-2.070	2.878	NO SIGNIF. DIFF.
GW-157	16	0	7.725	.	0.046	.	.	.	
GW-731	0	4	.	9.300	.	0.007	.	.	
GW-732	0	4	.	10.000	.	0.000	.	.	

U_D=UPGRADIENT

WELL IDENTITY	N, 1986	N, 1995	MEAN, 1986	MEAN, 1995	VARIANCE, 1986	VARIANCE, 1995	T-STATISTIC	T-CRITICAL	T-TEST RESULT
GW-159	16	4	9.206	7.825	1.171	0.002	-2.500	2.878	NO SIGNIF. DIFF.

SEMIANNUAL Y-12 RCRA REPORT
TWO-TAILED T-TEST TO TEST FOR SIGNIFICANT DIFFERENCE IN
MEAN PH
DOWNGRADIENT, 3RD QUARTER 1995 VS UPGRADIENT, 1986
C.R. SEDIMENT DISP.

WELL IDENTITY	N 'UP' 1986	N, 1995	MEAN, 'UP' 1986	MEAN, 1995	VARIANCE, 'UP' 1986	VARIANCE, 1995	T-STATISTIC	T-CRITICAL	T-TEST RESULT
GW-156	16	4	9.206	7.475	1.171	0.009	-3.132	2.878	**SIGNIF. DEC.**
GW-731	16	4	9.206	9.300	1.171	0.007	0.170	2.878	NO SIGNIF. DIFF.
GW-732	16	4	9.206	10.000	1.171	0.000	1.437	2.878	NO SIGNIF. DIFF.

APPENDIX C

CY 1995 Alternative Interim Status Statistical Results for the Chestnut Ridge Sediment Disposal Basin

SUMMARY OF COMPARISONS TO TOLERANCE LIMITS AT THE CHESTNUT RIDGE SEDIMENT DISPOSAL BASIN, FIRST 180-DAY PERIOD, CY 1995

PARAMETER	WELL	RESULT	COMPARISON RESULT	TOLERANCE LIMIT
Barium (mg/L)		No result exceeds tolerance limit		0.2207
Uranium (mg/L)	GW-732	1st quarter	0.011 mg/L	0.009
	GW-732	2nd quarter	0.016 mg/L	
Chromium (mg/L)		No result exceeds tolerance limit		0.038
Mercury (mg/L)		No result exceeds tolerance limit		0.0004
Nickel (mg/L)		No result exceeds tolerance limit		0.076
Silver (mg/L)		No result exceeds tolerance limit		0.045
Cadmium (mg/L)		No result exceeds tolerance limit		0.0061
Lead (mg/L)		No result exceeds tolerance limit		0.19

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WELL IDENTITY	BARIUM ICAP (MG/L)	DATE SAMPLED	COMMENT
GW-156	0.027	01/18/95	DOESN'T EXCEED TOLERANCE LIMIT (0.2207 MG/
GW-731	0.0061	01/17/95	DOESN'T EXCEED TOLERANCE LIMIT (0.2207 MG/
GW-732	0.13	01/18/95	DOESN'T EXCEED TOLERANCE LIMIT (0.2207 MG/
GW-159	0.012	01/15/95	DOESN'T EXCEED TOLERANCE LIMIT (0.2207 MG/
GW-156	0.046	04/07/95	DOESN'T EXCEED TOLERANCE LIMIT (0.2207 MG/
GW-731	0.006	04/07/95	DOESN'T EXCEED TOLERANCE LIMIT (0.2207 MG/
GW-732	0.14	04/07/95	DOESN'T EXCEED TOLERANCE LIMIT (0.2207 MG/
GW-159	0.011	04/06/95	DOESN'T EXCEED TOLERANCE LIMIT (0.2207 MG/

WELL IDENTITY	URANIUM ICP/MS (MG/L)	DATE SAMPLED	COMMENT
GW-156	0.0028	01/18/95	DOESN'T EXCEED TOLERANCE LIMIT (0.009 MG/
GW-731	<0.0005	01/17/95	DOESN'T EXCEED TOLERANCE LIMIT (0.009 MG/
GW-732	0.011	01/18/95	****** EXCEEDS TOLERANCE LIMIT (0.009 MG/
GW-159	0.0014	01/15/95	DOESN'T EXCEED TOLERANCE LIMIT (0.009 MG/
GW-156	0.0037	04/07/95	DOESN'T EXCEED TOLERANCE LIMIT (0.009 MG/
GW-731	<0.0005	04/07/95	DOESN'T EXCEED TOLERANCE LIMIT (0.009 MG/
GW-732	0.016	04/07/95	****** EXCEEDS TOLERANCE LIMIT (0.009 MG/
GW-159	0.0012	04/06/95	DOESN'T EXCEED TOLERANCE LIMIT (0.009 MG/

WELL IDENTITY	CHROMIUM ICAP (MG/L)	DATE SAMPLED	COMMENT
GW-156	<0.01	01/18/95	DOESN'T EXCEED TOLERANCE LIMIT (0.038 MG/
GW-731	<0.01	01/17/95	DOESN'T EXCEED TOLERANCE LIMIT (0.038 MG/
GW-732	<0.01	01/18/95	DOESN'T EXCEED TOLERANCE LIMIT (0.038 MG/
GW-159	<0.01	01/15/95	DOESN'T EXCEED TOLERANCE LIMIT (0.038 MG/
GW-156	<0.01	04/07/95	DOESN'T EXCEED TOLERANCE LIMIT (0.038 MG/
GW-731	<0.01	04/07/95	DOESN'T EXCEED TOLERANCE LIMIT (0.038 MG/
GW-732	<0.01	04/07/95	DOESN'T EXCEED TOLERANCE LIMIT (0.038 MG/
GW-159	<0.01	04/06/95	DOESN'T EXCEED TOLERANCE LIMIT (0.038 MG/

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WELL IDENTITY	MERCURY CVAA (MG/L)	DATE SAMPLED	COMMENT
GW-156	<0.0002	01/18/95	DOESN'T EXCEED TOLERANCE LIMIT (0.0004 MG/L)
GW-731	<0.0002	01/17/95	DOESN'T EXCEED TOLERANCE LIMIT (0.0004 MG/L)
GW-732	<0.0002	01/18/95	DOESN'T EXCEED TOLERANCE LIMIT (0.0004 MG/L)
GW-159	<0.0002	01/15/95	DOESN'T EXCEED TOLERANCE LIMIT (0.0004 MG/L)
GW-156	<0.0002	04/07/95	DOESN'T EXCEED TOLERANCE LIMIT (0.0004 MG/L)
GW-731	<0.0002	04/07/95	DOESN'T EXCEED TOLERANCE LIMIT (0.0004 MG/L)
GW-732	<0.0002	04/07/95	DOESN'T EXCEED TOLERANCE LIMIT (0.0004 MG/L)
GW-159	<0.0002	04/06/95	DOESN'T EXCEED TOLERANCE LIMIT (0.0004 MG/L)

WELL IDENTITY	NICKEL ICAP (MG/L)	DATE SAMPLED	COMMENT
GW-156	<0.01	01/18/95	DOESN'T EXCEED TOLERANCE LIMIT (0.076 MG/L)
GW-731	<0.01	01/17/95	DOESN'T EXCEED TOLERANCE LIMIT (0.076 MG/L)
GW-732	<0.01	01/18/95	DOESN'T EXCEED TOLERANCE LIMIT (0.076 MG/L)
GW-159	<0.01	01/15/95	DOESN'T EXCEED TOLERANCE LIMIT (0.076 MG/L)
GW-156	<0.01	04/07/95	DOESN'T EXCEED TOLERANCE LIMIT (0.076 MG/L)
GW-731	<0.01	04/07/95	DOESN'T EXCEED TOLERANCE LIMIT (0.076 MG/L)
GW-732	<0.01	04/07/95	DOESN'T EXCEED TOLERANCE LIMIT (0.076 MG/L)
GW-159	<0.01	04/06/95	DOESN'T EXCEED TOLERANCE LIMIT (0.076 MG/L)

WELL IDENTITY	SILVER ICAP (MG/L)	DATE SAMPLED	COMMENT
GW-156	<0.006	01/18/95	DOESN'T EXCEED TOLERANCE LIMIT (0.045 MG/L)
GW-731	<0.006	01/17/95	DOESN'T EXCEED TOLERANCE LIMIT (0.045 MG/L)
GW-732	<0.006	01/18/95	DOESN'T EXCEED TOLERANCE LIMIT (0.045 MG/L)
GW-159	<0.006	01/15/95	DOESN'T EXCEED TOLERANCE LIMIT (0.045 MG/L)
GW-156	<0.006	04/07/95	DOESN'T EXCEED TOLERANCE LIMIT (0.045 MG/L)
GW-731	<0.006	04/07/95	DOESN'T EXCEED TOLERANCE LIMIT (0.045 MG/L)
GW-732	<0.006	04/07/95	DOESN'T EXCEED TOLERANCE LIMIT (0.045 MG/L)
GW-159	<0.006	04/06/95	DOESN'T EXCEED TOLERANCE LIMIT (0.045 MG/L)

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WELL IDENTITY	CADMIUM ICAP (MG/L)	DATE SAMPLED	COMMENT
GW-156	<0.003	01/18/95	DOESN'T EXCEED TOLERANCE LIMIT (0.0061 MG/
GW-731	<0.003	01/17/95	DOESN'T EXCEED TOLERANCE LIMIT (0.0061 MG/
GW-732	<0.003	01/18/95	DOESN'T EXCEED TOLERANCE LIMIT (0.0061 MG/
GW-159	<0.003	01/15/95	DOESN'T EXCEED TOLERANCE LIMIT (0.0061 MG/
GW-156	<0.003	04/07/95	DOESN'T EXCEED TOLERANCE LIMIT (0.0061 MG/
GW-731	<0.003	04/07/95	DOESN'T EXCEED TOLERANCE LIMIT (0.0061 MG/
GW-732	<0.003	04/07/95	DOESN'T EXCEED TOLERANCE LIMIT (0.0061 MG/
GW-159	<0.003	04/06/95	DOESN'T EXCEED TOLERANCE LIMIT (0.0061 MG/

WELL IDENTITY	LEAD ICAP (MG/L)	DATE SAMPLED	COMMENT
GW-156	<0.05	01/18/95	DOESN'T EXCEED TOLERANCE LIMIT (0.19 MG
GW-731	<0.05	01/17/95	DOESN'T EXCEED TOLERANCE LIMIT (0.19 MG
GW-732	<0.05	01/18/95	DOESN'T EXCEED TOLERANCE LIMIT (0.19 MG
GW-159	<0.05	01/15/95	DOESN'T EXCEED TOLERANCE LIMIT (0.19 MG
GW-156	<0.05	04/07/95	DOESN'T EXCEED TOLERANCE LIMIT (0.19 MG
GW-731	<0.05	04/07/95	DOESN'T EXCEED TOLERANCE LIMIT (0.19 MG
GW-732	<0.05	04/07/95	DOESN'T EXCEED TOLERANCE LIMIT (0.19 MG
GW-159	<0.05	04/06/95	DOESN'T EXCEED TOLERANCE LIMIT (0.19 MG

SUMMARY OF COMPARISONS TO TOLERANCE LIMITS AT THE CHESTNUT RIDGE SEDIMENT DISPOSAL BASIN, SECOND 180-DAY PERIOD FOR CY 1995

PARAMETER	WELL	RESULT	COMPARISON	
			RESULT	TOLERANCE LIMIT
Barium (mg/L)		No result exceeds tolerance limit		0.2207
Uranium (mg/L)		No result exceeds tolerance limit		0.009
Chromium (mg/L)		No result exceeds tolerance limit		0.038
Mercury (mg/L)		No result exceeds tolerance limit		0.0004
Nickel (mg/L)		No result exceeds tolerance limit		0.076
Silver (mg/L)		No result exceeds tolerance limit		0.045
Cadmium (mg/L)		No result exceeds tolerance limit		0.0061
Lead (mg/L)		No result exceeds tolerance limit		0.19

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WELL IDENTITY	BARIUM ICAP (MG/L)	DATE SAMPLED	COMMENT
GW-156	0.037	07/13/95	DOESN'T EXCEED TOLERANCE LIMIT (0.2207 MG/L
GW-731	0.0026	07/13/95	DOESN'T EXCEED TOLERANCE LIMIT (0.2207 MG/L
GW-732	0.072	07/13/95	DOESN'T EXCEED TOLERANCE LIMIT (0.2207 MG/L
GW-159	0.012	07/12/95	DOESN'T EXCEED TOLERANCE LIMIT (0.2207 MG/L

WELL IDENTITY	URANIUM ICP/MS (MG/L)	DATE SAMPLED	COMMENT
GW-156	0.0019	07/13/95	DOESN'T EXCEED TOLERANCE LIMIT (0.009 MG/
GW-731	<0.0005	07/13/95	DOESN'T EXCEED TOLERANCE LIMIT (0.009 MG/
GW-732	0.002	07/13/95	DOESN'T EXCEED TOLERANCE LIMIT (0.009 MG/
GW-159	0.0011	07/12/95	DOESN'T EXCEED TOLERANCE LIMIT (0.009 MG/

WELL IDENTITY	CHROMIUM ICAP (MG/L)	DATE SAMPLED	COMMENT
GW-156	<0.01	07/13/95	DOESN'T EXCEED TOLERANCE LIMIT (0.038 MG/L
GW-731	<0.01	07/13/95	DOESN'T EXCEED TOLERANCE LIMIT (0.038 MG/L
GW-732	<0.01	07/13/95	DOESN'T EXCEED TOLERANCE LIMIT (0.038 MG/L
GW-159	<0.01	07/12/95	DOESN'T EXCEED TOLERANCE LIMIT (0.038 MG/L

WELL IDENTITY	MERCURY CVAA (MG/L)	DATE SAMPLED	COMMENT
GW-156	<0.0002	07/13/95	DOESN'T EXCEED TOLERANCE LIMIT (0.0004 MG/L
GW-731	<0.0002	07/13/95	DOESN'T EXCEED TOLERANCE LIMIT (0.0004 MG/L
GW-732	<0.0002	07/13/95	DOESN'T EXCEED TOLERANCE LIMIT (0.0004 MG/L
GW-159	<0.0002	07/12/95	DOESN'T EXCEED TOLERANCE LIMIT (0.0004 MG/L

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WELL IDENTITY	NICKEL ICAP (MG/L)	DATE SAMPLED	COMMENT
GW-156	<0.01	07/13/95	DOESN'T EXCEED TOLERANCE LIMIT (0.076 MG/L)
GW-731	<0.01	07/13/95	DOESN'T EXCEED TOLERANCE LIMIT (0.076 MG/L)
GW-732	<0.01	07/13/95	DOESN'T EXCEED TOLERANCE LIMIT (0.076 MG/L)
GW-159	<0.01	07/12/95	DOESN'T EXCEED TOLERANCE LIMIT (0.076 MG/L)

WELL IDENTITY	SILVER ICAP (MG/L)	DATE SAMPLED	COMMENT
GW-156	<0.006	07/13/95	DOESN'T EXCEED TOLERANCE LIMIT (0.045 MG/L)
GW-731	<0.006	07/13/95	DOESN'T EXCEED TOLERANCE LIMIT (0.045 MG/L)
GW-732	<0.006	07/13/95	DOESN'T EXCEED TOLERANCE LIMIT (0.045 MG/L)
GW-159	<0.006	07/12/95	DOESN'T EXCEED TOLERANCE LIMIT (0.045 MG/L)

WELL IDENTITY	CADMIUM ICAP (MG/L)	DATE SAMPLED	COMMENT
GW-156	<0.003	07/13/95	DOESN'T EXCEED TOLERANCE LIMIT (0.0061 MG/L)
GW-731	<0.003	07/13/95	DOESN'T EXCEED TOLERANCE LIMIT (0.0061 MG/L)
GW-732	<0.003	07/13/95	DOESN'T EXCEED TOLERANCE LIMIT (0.0061 MG/L)
GW-159	<0.003	07/12/95	DOESN'T EXCEED TOLERANCE LIMIT (0.0061 MG/L)

WELL IDENTITY	LEAD ICAP (MG/L)	DATE SAMPLED	COMMENT
GW-156	<0.05	07/13/95	DOESN'T EXCEED TOLERANCE LIMIT (0.19 MG/L)
GW-731	<0.05	07/13/95	DOESN'T EXCEED TOLERANCE LIMIT (0.19 MG/L)
GW-732	<0.05	07/13/95	DOESN'T EXCEED TOLERANCE LIMIT (0.19 MG/L)
GW-159	<0.05	07/12/95	DOESN'T EXCEED TOLERANCE LIMIT (0.19 MG/L)

APPENDIX D

Post-Closure Statistical Results for the Chestnut Ridge Sediment Disposal Basin, Fourth Quarter CY 1995

COMPARISONS OF DOWNGRADIENT WELL MEASUREMENTS TO UPPER TOLERANCE LIMITS (CALCULATED FROM UPGRADIENT WELL MEASUREMENTS)

SUMMARY OF COMPARISONS TO UPPER TOLERANCE LIMITS AT THE CHESTNUT RIDGE SEDIMENT DISPOSAL BASIN

PARAMETER	WELL	RESULT	COMPARISON	
			RESULT	TOLERANCE LIMIT
Barium (mg/L)	GW-732	2nd of 4 replicates	0.11	0.03
	GW-732	3rd of 4 replicates	0.079	0.03
	GW-732	4th of 4 replicates	0.05	0.03
Cadmium (mg/L)		No result exceeds UTL		0.002
Chromium (mg/L)	GW-731	3rd of 4 replicates	0.019	0.01
	GW-732	2nd of 4 replicates	0.02	0.01
		3rd of 4 replicates	0.038	0.01
		4th of 4 replicates	0.022	0.01
Lead (mg/L)		No result exceeds UTL		0.047
Mercury (mg/L)		No result exceeds UTL		0.0002
Nickel (mg/L)	GW-156	1st of 4 replicates	0.021	0.018
Silver (mg/L)		No result exceeds UTL		0.006
Uranium (mg/L)		No result exceeds UTL		0.0076

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Chestnut Ridge Sediment Disposal Basin
Anderson County, Tennessee
Parametric Upper Tolerance Limit=0.03 mg/L
Coverage=95%, Confidence Coefficient=95%

WELL IDENTITY	BARIUM ICAP (MG/L)	DATE SAMPLED	COMMENT
GW-156-1	0.02	10/23/95	Doesn't Exceed UTL
GW-156-2	0.017	10/24/95	Doesn't Exceed UTL
GW-156-3	0.02	10/25/95	Doesn't Exceed UTL
GW-156	0.02	10/26/95	Doesn't Exceed UTL
GW-731-1	0.0074	10/23/95	Doesn't Exceed UTL
GW-731-2	0.0084	10/24/95	Doesn't Exceed UTL
GW-731-3	0.012	10/25/95	Doesn't Exceed UTL
GW-731	0.008	10/26/95	Doesn't Exceed UTL
GW-732-1	0.015	10/23/95	Doesn't Exceed UTL
GW-732-2	0.11	10/24/95	****** Exceeds UTL
GW-732-3	0.079	10/25/95	****** Exceeds UTL
GW-732	0.05	10/26/95	****** Exceeds UTL

1995 Groundwater Monitoring Report
Chestnut Ridge Sediment Disposal Basin
Anderson County, Tennessee
Non-Parametric Upper Tolerance Limit=0.002 mg/L
Coverage=95%, Confidence Coefficient=64%

WELL IDENTITY	CADMIUM AAS (MG/L)	DATE SAMPLED	COMMENT
GW-156-1	<0.002	10/23/95	Doesn't Exceed UTL
GW-156-2	<0.002	10/24/95	Doesn't Exceed UTL
GW-156-3	<0.002	10/25/95	Doesn't Exceed UTL
GW-156	<0.002	10/26/95	Doesn't Exceed UTL
GW-731-1	<0.002	10/23/95	Doesn't Exceed UTL
GW-731-2	<0.002	10/24/95	Doesn't Exceed UTL
GW-731-3	<0.002	10/25/95	Doesn't Exceed UTL
GW-731	<0.002	10/26/95	Doesn't Exceed UTL
GW-732-1	<0.002	10/23/95	Doesn't Exceed UTL
GW-732-2	<0.002	10/24/95	Doesn't Exceed UTL
GW-732-3	<0.002	10/25/95	Doesn't Exceed UTL
GW-732	<0.002	10/26/95	Doesn't Exceed UTL

1995 Groundwater Monitoring Report
Chestnut Ridge Sediment Disposal Basin
Anderson County, Tennessee
Non-Parametric Upper Tolerance Limit=0.01 mg/L
Coverage=95%, Confidence Coefficient=64%

WELL IDENTITY	CHROMIUM AAS (MG/L)	DATE SAMPLED	COMMENT
GW-156-1	<0.01	10/23/95	Doesn't Exceed UTL
GW-156-2	<0.01	10/24/95	Doesn't Exceed UTL
GW-156-3	<0.01	10/25/95	Doesn't Exceed UTL
GW-156	<0.01	10/26/95	Doesn't Exceed UTL
GW-731-1	<0.01	10/23/95	Doesn't Exceed UTL
GW-731-2	<0.01	10/24/95	Doesn't Exceed UTL
GW-731-3	0.019	10/25/95	****** Exceeds UTL
GW-731	<0.01	10/26/95	Doesn't Exceed UTL
GW-732-1	<0.01	10/23/95	Doesn't Exceed UTL
GW-732-2	0.02	10/24/95	****** Exceeds UTL
GW-732-3	0.038	10/25/95	****** Exceeds UTL
GW-732	0.022	10/26/95	****** Exceeds UTL

1995 Groundwater Monitoring Report
Chestnut Ridge Sediment Disposal Basin
Anderson County, Tennessee
Non-Parametric Upper Tolerance Limit=0.047 mg/L
Coverage=95%, Confidence Coefficient=83%

WELL IDENTITY	LEAD AAS (MG/L)	DATE SAMPLED	COMMENT
GW-156-1	<0.004	10/23/95	Doesn't Exceed UTL
GW-156-2	<0.004	10/24/95	Doesn't Exceed UTL
GW-156-3	<0.004	10/25/95	Doesn't Exceed UTL
GW-156	<0.004	10/26/95	Doesn't Exceed UTL
GW-731-1	<0.004	10/23/95	Doesn't Exceed UTL
GW-731-2	<0.004	10/24/95	Doesn't Exceed UTL
GW-731-3	0.0051	10/25/95	Doesn't Exceed UTL
GW-731	<0.004	10/26/95	Doesn't Exceed UTL
GW-732-1	<0.004	10/23/95	Doesn't Exceed UTL
GW-732-2	<0.004	10/24/95	Doesn't Exceed UTL
GW-732-3	0.013	10/25/95	Doesn't Exceed UTL
GW-732	0.0062	10/26/95	Doesn't Exceed UTL

1995 Groundwater Monitoring Report
Chestnut Ridge Sediment Disposal Basin
Anderson County, Tennessee
Non-Parametric Upper Tolerance Limit=0.0002 mg/L
Coverage=95%, Confidence Coefficient=83%

WELL IDENTITY	MERCURY CVAA (MG/L)	DATE SAMPLED	COMMENT
GW-156-1	<0.0002	10/23/95	Doesn't Exceed UTL
GW-156-2	<0.0002	10/24/95	Doesn't Exceed UTL
GW-156-3	<0.0002	10/25/95	Doesn't Exceed UTL
GW-156	<0.0002	10/26/95	Doesn't Exceed UTL
GW-731-1	<0.0002	10/23/95	Doesn't Exceed UTL
GW-731-2	<0.0002	10/24/95	Doesn't Exceed UTL
GW-731-3	<0.0002	10/25/95	Doesn't Exceed UTL
GW-731	<0.0002	10/26/95	Doesn't Exceed UTL
GW-732-1	<0.0002	10/23/95	Doesn't Exceed UTL
GW-732-2	<0.0002	10/24/95	Doesn't Exceed UTL
GW-732-3	<0.0002	10/25/95	Doesn't Exceed UTL
GW-732	<0.0002	10/26/95	Doesn't Exceed UTL

1995 Groundwater Monitoring Report
Chestnut Ridge Sediment Disposal Basin
Anderson County, Tennessee
Non-Parametric Upper Tolerance Limit=0.018 mg/L
Coverage=95%, Confidence Coefficient=83%

WELL IDENTITY	NICKEL ICAP (MG/L)	DATE SAMPLED	COMMENT
GW-156-1	0.021	10/23/95	****** Exceeds UTL
GW-156-2	<0.01	10/24/95	Doesn't Exceed UTL
GW-156-3	<0.01	10/25/95	Doesn't Exceed UTL
GW-156	<0.01	10/26/95	Doesn't Exceed UTL
GW-731-1	<0.01	10/23/95	Doesn't Exceed UTL
GW-731-2	<0.01	10/24/95	Doesn't Exceed UTL
GW-731-3	<0.01	10/25/95	Doesn't Exceed UTL
GW-731	<0.01	10/26/95	Doesn't Exceed UTL
GW-732-1	<0.01	10/23/95	Doesn't Exceed UTL
GW-732-2	<0.01	10/24/95	Doesn't Exceed UTL
GW-732-3	<0.01	10/25/95	Doesn't Exceed UTL
GW-732	<0.01	10/26/95	Doesn't Exceed UTL

1995 Groundwater Monitoring Report
Chestnut Ridge Sediment Disposal Basin
Anderson County, Tennessee
Non-Parametric Upper Tolerance Limit=0.006 mg/L
Coverage=95%, Confidence Coefficient=83%

WELL IDENTITY	SILVER ICAP (MG/L)	DATE SAMPLED	COMMENT
GW-156-1	<0.006	10/23/95	Doesn't Exceed UTL
GW-156-2	<0.006	10/24/95	Doesn't Exceed UTL
GW-156-3	<0.006	10/25/95	Doesn't Exceed UTL
GW-156	<0.006	10/26/95	Doesn't Exceed UTL
GW-731-1	<0.006	10/23/95	Doesn't Exceed UTL
GW-731-2	<0.006	10/24/95	Doesn't Exceed UTL
GW-731-3	<0.006	10/25/95	Doesn't Exceed UTL
GW-731	<0.006	10/26/95	Doesn't Exceed UTL
GW-732-1	<0.006	10/23/95	Doesn't Exceed UTL
GW-732-2	<0.006	10/24/95	Doesn't Exceed UTL
GW-732-3	<0.006	10/25/95	Doesn't Exceed UTL
GW-732	<0.006	10/26/95	Doesn't Exceed UTL

1995 Groundwater Monitoring Report
Chestnut Ridge Sediment Disposal Basin
Anderson County, Tennessee
Parametric Upper Tolerance Limit=0.0076 mg/L
Coverage=95%, Confidence Coefficient=95%

WELL IDENTITY	URANIUM ICP/MS (MG/L)	DATE SAMPLED	COMMENT
GW-156-1	0.0027	10/23/95	Doesn't Exceed UTL
GW-156-2	0.0014	10/24/95	Doesn't Exceed UTL
GW-156-3	0.0014	10/25/95	Doesn't Exceed UTL
GW-156	0.0014	10/26/95	Doesn't Exceed UTL
GW-731-1	<0.0005	10/23/95	Doesn't Exceed UTL
GW-731-2	<0.0005	10/24/95	Doesn't Exceed UTL
GW-731-3	<0.0005	10/25/95	Doesn't Exceed UTL
GW-731	<0.0005	10/26/95	Doesn't Exceed UTL
GW-732-1	<0.0005	10/23/95	Doesn't Exceed UTL
GW-732-2	<0.0005	10/24/95	Doesn't Exceed UTL
GW-732-3	<0.0005	10/25/95	Doesn't Exceed UTL
GW-732	<0.0005	10/26/95	Doesn't Exceed UTL

KRUSKAL-WALLIS TEST RESULTS
(NONPARAMETRIC PROCEDURE USED INSTEAD OF 1-WAY ANOVA)
AND FOLLOW UP MULTIPLE COMPARISON TESTS,
IF INDICATED BY KRUSKAL WALLIS TEST RESULT

4 replicate measurements collected
at 1 upgradient and 3 downgradient wells during 4th Quarter 1995

COMPARISON OF DOWNGRADIENT WELLS TO UPGRADIENT WELL

MEASURMENTS REPORTED AS <#, CONVERTED TO # FOR CALCULATIONS

SUMMARY OF KRUSKAL-WALLIS TEST RESULTS
AND MULTIPLE COMPARISON TESTS
CHESTNUT RIDGE SEDIMENT DISPOSAL BASIN

PARAMETER	KRUSKAL-WALLIS TEST RESULT	MULTIPLE COMPARISON TEST RESULTS	
		(Iso-lines indicate "no difference")	Conclusion
Barium (mg/L)	There are statistical differences in the location parameter across 4 monitoring wells	GW-731 GW-159 GW-156 GW-732 ---------- ---------- ----------	GW-731 < GW-156 GW-731 < GW-732
Cadmium (mg/L)	There are no statistical differences in the location parameter across 4 monitoring wells		
Chromium (mg/L)	There are no statistical differences in the location parameter across 4 monitoring wells		
Lead (mg/L)	There are no statistical differences in the location parameter across 4 monitoring wells		
Mercury (mg/L)	There are no statistical differences in the location parameter across 4 monitoring wells		
Nickel (mg/L)	There are no statistical differences in the location parameter across 4 monitoring wells		
Silver (mg/L)	There are no statistical differences in the location parameter across 4 monitoring wells		
Uranium (mg/L)	There are statistical differences in the location parameter across 4 monitoring wells	GW-731 GW-732 GW-159 GW-156 ---------- ---------- ----------	GW-731 & GW-732 < GW-159 & GW-156

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MEAN RANK	WELL	DATE SAMPLED	BARIUM ICAP (MG/L)	RANK
1	GW-731	10/23/95	0.0074	1
		10/26/95	0.008	2
		10/24/95	0.0084	3
		10/25/95	0.012	6
2	GW-159	10/23/95	0.011	4
		10/24/95	0.012	5
		10/26/95	0.013	7
		10/25/95	0.05	13
3	GW-156	10/24/95	0.017	9
		10/23/95	0.02	10
		10/25/95	0.02	11
		10/26/95	0.02	12
4	GW-732	10/23/95	0.015	8
		10/26/95	0.05	14
		10/25/95	0.079	15
		10/24/95	0.11	16

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N P A R 1 W A Y P R O C E D U R E

Wilcoxon Scores (Rank Sums) for Variable Barium
Classified by Variable WELL

WELL	N	Sum of Scores	Expected Under H0	Std Dev Under H0	Mean Score
GW-731	4	11.5000000	34.0	8.20975030	2.8750000
GW-156	4	42.0000000	34.0	8.20975030	10.5000000
GW-159	4	30.0000000	34.0	8.20975030	7.5000000
GW-732	4	52.5000000	34.0	8.20975030	13.1250000

Average Scores were used for Ties

Kruskal-Wallis Test (Chi-Square Approximation)
CHISQ= 10.332 DF= 3 Prob > CHISQ= 0.0159

1995 Groundwater Monitoring Report
Chestnut Ridge Sediment Disposal Basin
Anderson County, Tennessee

Wells 731, 159, and 156

N P A R 1 W A Y P R O C E D U R E

Wilcoxon Scores (Rank Sums) for Variable Barium
Classified by Variable WELL

WELL	N	Sum of Scores	Expected Under H0	Std Dev Under H0	Mean Score
GW-731	4	11.5000000	26.0	5.83614651	2.87500000
GW-156	4	38.0000000	26.0	5.83614651	9.50000000
GW-159	4	28.5000000	26.0	5.83614651	7.12500000

Average Scores were used for Ties

Kruskal-Wallis Test (Chi-Square Approximation)
CHISQ= 7.0560 DF= 2 Prob > CHISQ= 0.0294

1995 Groundwater Monitoring Report
Chestnut Ridge Sediment Disposal Basin
Anderson County, Tennessee

Wells 159, 156, and 732

N P A R 1 W A Y P R O C E D U R E

Wilcoxon Scores (Rank Sums) for Variable Barium
Classified by Variable WELL

WELL	N	Sum of Scores	Expected Under H0	Std Dev Under H0	Mean Score
GW-156	4	26.0000000	26.0	5.83614651	6.50000000
GW-159	4	15.5000000	26.0	5.83614651	3.87500000
GW-732	4	36.5000000	26.0	5.83614651	9.12500000

Average Scores were used for Ties

Kruskal-Wallis Test (Chi-Square Approximation)
CHISQ= 4.3158 DF= 2 Prob > CHISQ= 0.1156

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Chestnut Ridge Sediment Disposal Basin
Anderson County, Tennessee

Wells 731, and 159

N P A R 1 W A Y P R O C E D U R E

Wilcoxon Scores (Rank Sums) for Variable Barium
Classified by Variable WELL

WELL	N	Sum of Scores	Expected Under H0	Std Dev Under H0	Mean Score
GW-731	4	11.5000000	18.0	3.44342023	2.87500000
GW-159	4	24.5000000	18.0	3.44342023	6.12500000

Average Scores were used for Ties

Wilcoxon 2-Sample Test (Normal Approximation)
(with Continuity Correction of .5)

S= 11.5000 Z= -1.74245 Prob > |Z| = 0.0814

T-Test approx. Significance = 0.1250

Kruskal-Wallis Test (Chi-Square Approximation)
CHISQ= 3.5633 DF= 1 Prob > CHISQ= 0.0591

1995 Groundwater Monitoring Report
Chestnut Ridge Sediment Disposal Basin
Anderson County, Tennessee

Wells 159, and 156

N P A R 1 W A Y P R O C E D U R E

Wilcoxon Scores (Rank Sums) for Variable Barium
Classified by Variable WELL

WELL	N	Sum of Scores	Expected Under H0	Std Dev Under H0	Mean Score
GW-156	4	22.0	18.0	3.38061702	5.50000000
GW-159	4	14.0	18.0	3.38061702	3.50000000

Average Scores were used for Ties

Wilcoxon 2-Sample Test (Normal Approximation)
(with Continuity Correction of .5)

S= 22.0000 Z= 1.03531 Prob > |Z| = 0.3005

T-Test approx. Significance = 0.3350

Kruskal-Wallis Test (Chi-Square Approximation)
CHISQ= 1.4000 DF= 1 Prob > CHISQ= 0.2367

1995 Groundwater Monitoring Report
Chestnut Ridge Sediment Disposal Basin
Anderson County, Tennessee

Wells 156, and 732

N P A R 1 W A Y P R O C E D U R E

Wilcoxon Scores (Rank Sums) for Variable Barium
Classified by Variable WELL

WELL	N	Sum of Scores	Expected Under H0	Std Dev Under H0	Mean Score
GW-156	4	14.0	18.0	3.38061702	3.50000000
GW-732	4	22.0	18.0	3.38061702	5.50000000

Average Scores were used for Ties

Wilcoxon 2-Sample Test (Normal Approximation)
(with Continuity Correction of .5)

S= 14.0000 Z= -1.03531 Prob > |Z| = 0.3005

T-Test approx. Significance = 0.3350

Kruskal-Wallis Test (Chi-Square Approximation)
CHISQ= 1.4000 DF= 1 Prob > CHISQ= 0.2367

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Chestnut Ridge Sediment Disposal Basin
Anderson County, Tennessee

MEAN RANK	WELL	DATE SAMPLED	CADMIUM AAS (MG/L)	RANK
1	GW-156	10/23/95	0.002	2
		10/24/95	0.002	3
		10/25/95	0.002	11
		10/26/95	0.002	13
2	GW-159	10/24/95	0.002	4
		10/23/95	0.002	7
		10/25/95	0.002	12
		10/26/95	0.002	14
3	GW-731	10/23/95	0.002	1
		10/24/95	0.002	5
		10/25/95	0.002	9
		10/26/95	0.002	15
4	GW-732	10/24/95	0.002	6
		10/23/95	0.002	8
		10/25/95	0.002	10
		10/26/95	0.002	16

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N P A R 1 W A Y P R O C E D U R E

Wilcoxon Scores (Rank Sums) for Variable Cadmium
Classified by Variable WELL

WELL	N	Sum of Scores	Expected Under H0	Std Dev Under H0	Mean Score
GW-731	4	34.0	34.0	0.0	8.50000000
GW-156	4	34.0	34.0	0.0	8.50000000
GW-159	4	34.0	34.0	0.0	8.50000000
GW-732	4	34.0	34.0	0.0	8.50000000

Average Scores were used for Ties

Kruskal-Wallis Test (Chi-Square Approximation)
CHISQ= 0 DF= 3 Prob > CHISQ= 0.9999

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MEAN RANK	WELL	DATE SAMPLED	CHROMIUM AAS (MG/L)	RANK
1	GW-156	10/23/95	0.01	2
		10/24/95	0.01	3
		10/25/95	0.01	8
		10/26/95	0.01	9
2	GW-731	10/23/95	0.01	1
		10/24/95	0.01	5
		10/26/95	0.01	11
		10/25/95	0.019	12
3	GW-159	10/24/95	0.01	4
		10/23/95	0.01	6
		10/26/95	0.01	10
		10/25/95	0.05	16
4	GW-732	10/23/95	0.01	7
		10/24/95	0.02	13
		10/26/95	0.022	14
		10/25/95	0.038	15

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Anderson County, Tennessee

N P A R 1 W A Y P R O C E D U R E

Wilcoxon Scores (Rank Sums) for Variable Chromium
Classified by Variable WELL

WELL	N	Sum of Scores	Expected Under H0	Std Dev Under H0	Mean Score
GW-731	4	30.0	34.0	6.78232998	7.5000000
GW-156	4	24.0	34.0	6.78232998	6.0000000
GW-159	4	34.0	34.0	6.78232998	8.5000000
GW-732	4	48.0	34.0	6.78232998	12.0000000

Average Scores were used for Ties

Kruskal-Wallis Test (Chi-Square Approximation)
CHISQ= 5.0870 DF= 3 Prob > CHISQ= 0.1655

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MEAN RANK	WELL	DATE SAMPLED	LEAD AAS (MG/L)	RANK
1	GW-156	10/23/95	0.004	2
		10/24/95	0.004	3
		10/25/95	0.004	9
		10/26/95	0.004	10
2	GW-731	10/23/95	0.004	1
		10/24/95	0.004	5
		10/26/95	0.004	12
		10/25/95	0.0051	13
3	GW-159	10/24/95	0.004	4
		10/23/95	0.004	7
		10/26/95	0.004	11
		10/25/95	0.12	16
4	GW-732	10/24/95	0.004	6
		10/23/95	0.004	8
		10/26/95	0.0062	14
		10/25/95	0.013	15

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N P A R 1 W A Y P R O C E D U R E

Wilcoxon Scores (Rank Sums) for Variable Lead
Classified by Variable WELL

WELL	N	Sum of Scores	Expected Under H0	Std Dev Under H0	Mean Score
GW-731	4	32.5000000	34.0	6.27694193	8.1250000
GW-156	4	26.0000000	34.0	6.27694193	6.5000000
GW-159	4	35.5000000	34.0	6.27694193	8.8750000
GW-732	4	42.0000000	34.0	6.27694193	10.5000000

Average Scores were used for Ties

Kruskal-Wallis Test (Chi-Square Approximation)
CHISQ= 2.5222 DF= 3 Prob > CHISQ= 0.4713

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MEAN RANK	WELL	DATE SAMPLED	MERCURY CVAA (MG/L)	RANK
1	GW-156	10/23/95	0.0002	2
		10/24/95	0.0002	3
		10/25/95	0.0002	11
		10/26/95	0.0002	12
2	GW-731	10/23/95	0.0002	1
		10/24/95	0.0002	5
		10/25/95	0.0002	9
		10/26/95	0.0002	14
3	GW-732	10/24/95	0.0002	6
		10/23/95	0.0002	8
		10/25/95	0.0002	10
		10/26/95	0.0002	15
4	GW-159	10/24/95	0.0002	4
		10/23/95	0.0002	7
		10/26/95	0.0002	13
		10/25/95	0.00021	16

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N P A R 1 W A Y P R O C E D U R E

Wilcoxon Scores (Rank Sums) for Variable Mercury
Classified by Variable WELL

WELL	N	Sum of Scores	Expected Under H0	Std Dev Under H0	Mean Score
GW-731	4	32.0	34.0	3.46410162	8.0
GW-156	4	32.0	34.0	3.46410162	8.0
GW-159	4	40.0	34.0	3.46410162	10.0
GW-732	4	32.0	34.0	3.46410162	8.0

Average Scores were used for Ties

Kruskal-Wallis Test (Chi-Square Approximation)
CHISQ= 3.0000 DF= 3 Prob > CHISQ= 0.3916

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MEAN RANK	WELL	DATE SAMPLED	NICKEL ICAP (MG/L)	RANK
1	GW-731	10/23/95	0.01	1
		10/24/95	0.01	4
		10/25/95	0.01	8
		10/26/95	0.01	13
2	GW-732	10/24/95	0.01	5
		10/23/95	0.01	7
		10/25/95	0.01	9
		10/26/95	0.01	14
3	GW-156	10/24/95	0.01	2
		10/25/95	0.01	10
		10/26/95	0.01	11
		10/23/95	0.021	15
4	GW-159	10/24/95	0.01	3
		10/23/95	0.01	6
		10/26/95	0.01	12
		10/25/95	0.021	16

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N P A R 1 W A Y P R O C E D U R E

Wilcoxon Scores (Rank Sums) for Variable Nickel
Classified by Variable WELL

WELL	N	Sum of Scores	Expected Under H0	Std Dev Under H0	Mean Score
GW-731	4	30.0	34.0	4.73286383	7.50000000
GW-156	4	38.0	34.0	4.73286383	9.50000000
GW-159	4	38.0	34.0	4.73286383	9.50000000
GW-732	4	30.0	34.0	4.73286383	7.50000000

Average Scores were used for Ties

Kruskal-Wallis Test (Chi-Square Approximation)
CHISQ= 2.1429 DF= 3 Prob > CHISQ= 0.5433

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MEAN RANK	WELL	DATE SAMPLED	SILVER ICAP (MG/L)	RANK
1	GW-156	10/23/95	0.006	2
		10/24/95	0.006	3
		10/25/95	0.006	11
		10/26/95	0.006	13
2	GW-159	10/24/95	0.006	4
		10/23/95	0.006	7
		10/25/95	0.006	12
		10/26/95	0.006	14
3	GW-731	10/23/95	0.006	1
		10/24/95	0.006	5
		10/25/95	0.006	9
		10/26/95	0.006	15
4	GW-732	10/24/95	0.006	6
		10/23/95	0.006	8
		10/25/95	0.006	10
		10/26/95	0.006	16

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N P A R 1 W A Y P R O C E D U R E

Wilcoxon Scores (Rank Sums) for Variable Silver
Classified by Variable WELL

WELL	N	Sum of Scores	Expected Under H0	Std Dev Under H0	Mean Score
GW-731	4	34.0	34.0	0.0	8.50000000
GW-156	4	34.0	34.0	0.0	8.50000000
GW-159	4	34.0	34.0	0.0	8.50000000
GW-732	4	34.0	34.0	0.0	8.50000000

Average Scores were used for Ties

Kruskal-Wallis Test (Chi-Square Approximation)
CHISQ= 0 DF= 3 Prob > CHISQ= 0.9999

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MEAN RANK	WELL	DATE SAMPLED	URANIUM ICP/MS (MG/L)	RANK
1	GW-731	10/23/95	0.0005	1
		10/24/95	0.0005	2
		10/25/95	0.0005	5
		10/26/95	0.0005	7
2	GW-732	10/24/95	0.0005	3
		10/23/95	0.0005	4
		10/25/95	0.0005	6
		10/26/95	0.0005	8
3	GW-159	10/26/95	0.0011	9
		10/24/95	0.0012	10
		10/23/95	0.0012	11
		10/25/95	0.0051	16
4	GW-156	10/24/95	0.0014	12
		10/25/95	0.0014	13
		10/26/95	0.0014	14
		10/23/95	0.0027	15

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N P A R 1 W A Y P R O C E D U R E

Wilcoxon Scores (Rank Sums) for Variable Uranium
Classified by Variable WELL

WELL	N	Sum of Scores	Expected Under H0	Std Dev Under H0	Mean Score
GW-731	4	18.0	34.0	7.68765244	4.5000000
GW-156	4	54.0	34.0	7.68765244	13.5000000
GW-159	4	46.0	34.0	7.68765244	11.5000000
GW-732	4	18.0	34.0	7.68765244	4.5000000

Average Scores were used for Ties

Kruskal-Wallis Test (Chi-Square Approximation)
CHISQ= 13.401 DF= 3 Prob > CHISQ= 0.0038

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Wells 731, 732, and 159

N P A R 1 W A Y P R O C E D U R E

Wilcoxon Scores (Rank Sums) for Variable Uranium
Classified by Variable WELL

WELL	N	Sum of Scores	Expected Under H0	Std Dev Under H0	Mean Score
GW-731	4	18.0	26.0	4.93595344	4.5000000
GW-159	4	42.0	26.0	4.93595344	10.5000000
GW-732	4	18.0	26.0	4.93595344	4.5000000

Average Scores were used for Ties

Kruskal-Wallis Test (Chi-Square Approximation)
CHISQ= 10.507 DF= 2 Prob > CHISQ= 0.0052

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Wells 732, 159, and 156

N P A R 1 W A Y P R O C E D U R E

Wilcoxon Scores (Rank Sums) for Variable Uranium
Classified by Variable WELL

WELL	N	Sum of Scores	Expected Under H0	Std Dev Under H0	Mean Score
GW-156	4	38.0	26.0	5.73135977	9.50000000
GW-159	4	30.0	26.0	5.73135977	7.50000000
GW-732	4	10.0	26.0	5.73135977	2.50000000

Average Scores were used for Ties

Kruskal-Wallis Test (Chi-Square Approximation)
CHISQ= 8.4428 DF= 2 Prob > CHISQ= 0.0147

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Wells 731, and 732

N P A R 1 W A Y P R O C E D U R E

Wilcoxon Scores (Rank Sums) for Variable Uranium
Classified by Variable WELL

WELL	N	Sum of Scores	Expected Under H0	Std Dev Under H0	Mean Score
GW-731	4	18.0	18.0	0.0	4.50000000
GW-732	4	18.0	18.0	0.0	4.50000000

Average Scores were used for Ties

Wilcoxon 2-Sample Test (Normal Approximation)
(with Continuity Correction of .5)

S= 18.0000 Z= 0 Prob > |Z| = 0.9999

T-Test approx. Significance = 0.9999

Kruskal-Wallis Test (Chi-Square Approximation)
CHISQ= 0 DF= 1 Prob > CHISQ= 0.9999

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Wells 732, and 159

N P A R 1 W A Y P R O C E D U R E

Wilcoxon Scores (Rank Sums) for Variable Uranium
Classified by Variable WELL

WELL	N	Sum of Scores	Expected Under H0	Std Dev Under H0	Mean Score
GW-159	4	26.0	18.0	3.22932987	6.50000000
GW-732	4	10.0	18.0	3.22932987	2.50000000

Average Scores were used for Ties

Wilcoxon 2-Sample Test (Normal Approximation)
(with Continuity Correction of .5)

S= 26.0000 Z= 2.32246 Prob > |Z| = 0.0202

T-Test approx. Significance = 0.0532

Kruskal-Wallis Test (Chi-Square Approximation)
CHISQ= 6.1370 DF= 1 Prob > CHISQ= 0.0132

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Wells 159, and 156

N P A R 1 W A Y P R O C E D U R E

Wilcoxon Scores (Rank Sums) for Variable Uranium
Classified by Variable WELL

WELL	N	Sum of Scores	Expected Under H0	Std Dev Under H0	Mean Score
GW-156	4	22.0	18.0	3.35942172	5.50000000
GW-159	4	14.0	18.0	3.35942172	3.50000000

Average Scores were used for Ties

Wilcoxon 2-Sample Test (Normal Approximation)
(with Continuity Correction of .5)

S= 22.0000 Z= 1.04185 Prob > |Z| = 0.2975

T-Test approx. Significance = 0.3321

Kruskal-Wallis Test (Chi-Square Approximation)
CHISQ= 1.4177 DF= 1 Prob > CHISQ= 0.2338

WILCOXON RANK-SUM TEST
(NONPARAMETRIC PROCEDURE USED INSTEAD OF T-TEST)

INTRAWELL COMPARISONS OF 4TH QUARTER 1995 WELL MEASUREMENTS TO HISTORIC MEASUREMENTS

MEASUREMENTS REPORTED AS <#
WERE CONVERTED TO # FOR CALCULATIONS

MEASUREMENTS REPORTED AT ELEVATED DETECTION LIMITS
WERE DELETED

MEASUREMENTS FOR ANALYTES REPORTED
AT MULTIPLE DETECTION LIMITS
WERE CONVERTED TO THE HIGHER DETECTION LIMIT

SUMMARY OF WILCOXON RANK-SUM TEST RESULTS
CHESTNUT RIDGE SEDIMENT DISPOSAL BASIN

PARAMETER	WILCOXON RANK-SUM TEST	WELL	CONCLUSION
Barium (mg/L)	There are no statistical differences in the location parameter within wells		
Cadmium (mg/L)	There are no statistical differences in the location parameter within wells		
Chromium (mg/L)	There are statistical differences in the location parameter within wells	GW-732	1995 Q4 > Historic
Lead (mg/L)	There are no statistical differences in the location parameter within wells		
Mercury (mg/L)	There are no statistical differences in the location parameter within wells		
Nickel (mg/L)	There are no statistical differences in the location parameter within wells		
Silver (mg/L)	There are no statistical differences in the location parameter within wells		
Uranium (mg/L)	There are statistical differences in the location parameter within wells	GW-156	1995 Q4 < Historic

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WELL	PERIOD	DATE SAMPLED	BARIUM ICAP (MG/L)
GW-156	1995 Q4	10/24/95	0.017
		10/23/95	0.02
		10/25/95	0.02
		10/26/95	0.02
GW-156	Historic	08/20/92	.
		02/24/93	0.017
		10/30/91	0.018
		11/13/92	0.018
		08/12/93	0.02
		11/30/93	0.02
		02/12/94	0.02
		06/15/93	0.021
		08/23/91	0.022
		02/14/92	0.022
		10/20/94	0.024
		08/17/92	0.028
		07/09/94	0.03
		04/07/94	0.032
		05/09/92	0.038
GW-159	1995 Q4	10/23/95	0.011
		10/24/95	0.012
		10/26/95	0.013
		10/25/95	0.05
GW-159	Historic	08/20/92	.
		04/05/94	.
		11/09/92	0.011
		02/22/93	0.011
		06/14/93	0.011
		08/10/93	0.011
		11/29/93	0.011
		10/17/94	0.011
		04/04/94	0.012
		07/08/94	0.012
		10/29/91	0.013
		02/10/94	0.013
		02/13/92	0.015
		08/23/91	0.016
		05/09/92	0.018
		08/15/92	0.02
GW-731	1995 Q4	10/23/95	0.0074
		10/26/95	0.008

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WELL	PERIOD	DATE SAMPLED	BARIUM ICAP (MG/L)
GW-731	1995 Q4	10/24/95	0.0084
		10/25/95	0.012
GW-731	Historic	08/20/92	.
		07/09/94	0.0035
		04/04/94	0.0042
		10/31/91	0.0061
		02/11/94	0.0064
		10/18/94	0.0066
		11/29/93	0.0076
		02/15/92	0.0082
		09/27/91	0.011
		11/11/92	0.012
		08/11/93	0.015
		05/09/92	0.025
		02/23/93	0.036
		06/15/93	0.038
		08/16/92	0.049
GW-732	1995 Q4	10/23/95	0.015
		10/26/95	0.05
		10/25/95	0.079
		10/24/95	0.11
GW-732	Historic	08/20/92	.
		09/27/91	0.0073
		10/30/91	0.012
		11/12/92	0.012
		02/23/93	0.013
		05/09/92	0.014
		02/12/94	0.019
		04/06/94	0.021
		02/14/92	0.023
		08/16/92	0.028
		08/12/93	0.036
		06/15/93	0.038
		07/09/94	0.061
		11/30/93	0.066
		10/19/94	0.08

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WELL	PERIOD	DATE SAMPLED	CADMIUM AAS (MG/L)
GW-156	1995 Q4	10/23/95	0.002
		10/24/95	0.002
		10/25/95	0.002
		10/26/95	0.002
GW-156	Historic	08/20/92	.
		08/23/91	0.002
		10/30/91	0.002
		02/14/92	0.002
		05/09/92	0.002
		08/17/92	0.002
		11/13/92	0.002
		02/24/93	0.002
		06/15/93	0.002
		08/12/93	0.002
		11/30/93	0.002
		02/12/94	0.002
		04/07/94	0.002
		07/09/94	0.002
		10/20/94	0.002
GW-159	1995 Q4	10/23/95	0.002
		10/24/95	0.002
		10/25/95	0.002
		10/26/95	0.002
GW-159	Historic	08/20/92	.
		04/05/94	.
		08/23/91	0.002
		10/29/91	0.002
		02/13/92	0.002
		05/09/92	0.002
		08/15/92	0.002
		11/09/92	0.002
		02/22/93	0.002
		06/14/93	0.002
		08/10/93	0.002
		11/29/93	0.002
		02/10/94	0.002
		04/04/94	0.002
		07/08/94	0.002
		10/17/94	0.002
GW-731	1995 Q4	10/23/95	0.002
		10/24/95	0.002

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WELL	PERIOD	DATE SAMPLED	CADMIUM AAS (MG/L)
GW-731	1995 Q4	10/25/95	0.002
		10/26/95	0.002
GW-731	Historic	08/20/92	.
		09/27/91	0.002
		10/31/91	0.002
		02/15/92	0.002
		05/09/92	0.002
		08/16/92	0.002
		11/11/92	0.002
		02/23/93	0.002
		06/15/93	0.002
		08/11/93	0.002
		11/29/93	0.002
		02/11/94	0.002
		04/04/94	0.002
		07/09/94	0.002
		10/18/94	0.002
GW-732	1995 Q4	10/23/95	0.002
		10/24/95	0.002
		10/25/95	0.002
		10/26/95	0.002
GW-732	Historic	08/20/92	.
		09/27/91	0.002
		10/30/91	0.002
		02/14/92	0.002
		05/09/92	0.002
		08/16/92	0.002
		11/12/92	0.002
		02/23/93	0.002
		06/15/93	0.002
		08/12/93	0.002
		11/30/93	0.002
		02/12/94	0.002
		04/06/94	0.002
		07/09/94	0.002
		10/19/94	0.002

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WELL	PERIOD	DATE SAMPLED	CHROMIUM AAS (MG/L)
GW-156	1995 Q4	10/23/95	0.01
		10/24/95	0.01
		10/25/95	0.01
		10/26/95	0.01
GW-156	Historic	08/20/92	.
		08/23/91	0.01
		10/30/91	0.01
		02/14/92	0.01
		05/09/92	0.01
		08/17/92	0.01
		11/13/92	0.01
		02/24/93	0.01
		06/15/93	0.01
		08/12/93	0.01
		11/30/93	0.01
		02/12/94	0.01
		04/07/94	0.01
		07/09/94	0.01
		10/20/94	0.01
GW-159	1995 Q4	10/23/95	0.01
		10/24/95	0.01
		10/26/95	0.01
		10/25/95	0.05
GW-159	Historic	08/20/92	.
		04/05/94	.
		08/23/91	0.01
		10/29/91	0.01
		02/13/92	0.01
		05/09/92	0.01
		08/15/92	0.01
		11/09/92	0.01
		02/22/93	0.01
		06/14/93	0.01
		08/10/93	0.01
		11/29/93	0.01
		02/10/94	0.01
		04/04/94	0.01
		07/08/94	0.01
		10/17/94	0.01
GW-731	1995 Q4	10/23/95	0.01
		10/24/95	0.01

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WELL	PERIOD	DATE SAMPLED	CHROMIUM AAS (MG/L)
GW-731	1995 Q4	10/26/95	0.01
		10/25/95	0.019
GW-731	Historic	08/20/92	.
		09/27/91	0.01
		10/31/91	0.01
		02/15/92	0.01
		02/23/93	0.01
		08/11/93	0.01
		11/29/93	0.01
		02/11/94	0.01
		04/04/94	0.01
		07/09/94	0.01
		10/18/94	0.01
		11/11/92	0.012
		06/15/93	0.013
		05/09/92	0.016
		08/16/92	0.022
GW-732	1995 Q4	10/23/95	0.01
		10/24/95	0.02
		10/26/95	0.022
		10/25/95	0.038
GW-732	Historic	08/20/92	.
		09/27/91	0.01
		10/30/91	0.01
		02/14/92	0.01
		05/09/92	0.01
		08/16/92	0.01
		11/12/92	0.01
		02/23/93	0.01
		06/15/93	0.01
		08/12/93	0.01
		11/30/93	0.01
		02/12/94	0.01
		04/06/94	0.01
		07/09/94	0.01
		10/19/94	0.01

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WELL	PERIOD	DATE SAMPLED	LEAD AAS (MG/L)
GW-156	1995 Q4	10/23/95	0.004
		10/24/95	0.004
		10/25/95	0.004
		10/26/95	0.004
GW-156	Historic	08/20/92	.
		08/23/91	0.004
		10/30/91	0.004
		02/14/92	0.004
		02/24/93	0.004
		06/15/93	0.004
		11/30/93	0.004
		02/12/94	0.004
		04/07/94	0.004
		07/09/94	0.004
		10/20/94	0.004
		11/13/92	0.005
		08/12/93	0.0054
		08/17/92	0.0099
		05/09/92	0.027
GW-159	1995 Q4	10/23/95	0.004
		10/24/95	0.004
		10/26/95	0.004
		10/25/95	0.12
GW-159	Historic	08/20/92	.
		04/05/94	.
		08/23/91	0.004
		10/29/91	0.004
		02/13/92	0.004
		05/09/92	0.004
		11/09/92	0.004
		02/22/93	0.004
		06/14/93	0.004
		08/10/93	0.004
		11/29/93	0.004
		02/10/94	0.004
		04/04/94	0.004
		07/08/94	0.004
		10/17/94	0.004
		08/15/92	0.0058
GW-731	1995 Q4	10/23/95	0.004
		10/24/95	0.004

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WELL	PERIOD	DATE SAMPLED	LEAD AAS (MG/L)
GW-731	1995 Q4	10/26/95	0.004
		10/25/95	0.0051
GW-731	Historic	08/20/92	.
		09/27/91	0.004
		10/31/91	0.004
		02/15/92	0.004
		11/29/93	0.004
		02/11/94	0.004
		04/04/94	0.004
		07/09/94	0.004
		10/18/94	0.004
		08/11/93	0.0078
		11/11/92	0.021
		06/15/93	0.032
		02/23/93	0.036
		05/09/92	0.066
		08/16/92	0.068
GW-732	1995 Q4	10/23/95	0.004
		10/24/95	0.004
		10/26/95	0.0062
		10/25/95	0.013
GW-732	Historic	08/20/92	:
		09/27/91	0.004
		10/30/91	0.004
		02/14/92	0.004
		05/09/92	0.004
		08/16/92	0.004
		11/12/92	0.004
		02/23/93	0.004
		08/12/93	0.004
		02/12/94	0.004
		04/06/94	0.004
		06/15/93	0.012
		07/09/94	0.013
		10/19/94	0.019
		11/30/93	0.022

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WELL	PERIOD	DATE SAMPLED	MERCURY CVAA (MG/L)
GW-156	1995 Q4	10/23/95	0.0002
		10/24/95	0.0002
		10/25/95	0.0002
		10/26/95	0.0002
GW-156	Historic	08/20/92	.
		08/23/91	0.0002
		10/30/91	0.0002
		02/14/92	0.0002
		05/09/92	0.0002
		08/17/92	0.0002
		11/13/92	0.0002
		02/24/93	0.0002
		06/15/93	0.0002
		08/12/93	0.0002
		11/30/93	0.0002
		02/12/94	0.0002
		04/07/94	0.0002
		07/09/94	0.0002
		10/20/94	0.0002
GW-159	1995 Q4	10/23/95	0.0002
		10/24/95	0.0002
		10/26/95	0.0002
		10/25/95	0.00021
GW-159	Historic	08/20/92	.
		04/05/94	.
		10/29/91	0.0002
		02/13/92	0.0002
		05/09/92	0.0002
		08/15/92	0.0002
		11/09/92	0.0002
		02/22/93	0.0002
		06/14/93	0.0002
		08/10/93	0.0002
		11/29/93	0.0002
		02/10/94	0.0002
		04/04/94	0.0002
		07/08/94	0.0002
		10/17/94	0.0002
		08/23/91	0.00037
GW-731	1995 Q4	10/23/95	0.0002
		10/24/95	0.0002

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WELL	PERIOD	DATE SAMPLED	MERCURY CVAA (MG/L)
GW-731	1995 Q4	10/25/95	0.0002
		10/26/95	0.0002
GW-731	Historic	08/20/92	.
		09/27/91	0.0002
		10/31/91	0.0002
		02/15/92	0.0002
		05/09/92	0.0002
		08/16/92	0.0002
		11/11/92	0.0002
		06/15/93	0.0002
		08/11/93	0.0002
		11/29/93	0.0002
		02/11/94	0.0002
		04/04/94	0.0002
		07/09/94	0.0002
		10/18/94	0.0002
		02/23/93	0.00023
GW-732	1995 Q4	10/23/95	0.0002
		10/24/95	0.0002
		10/25/95	0.0002
		10/26/95	0.0002
GW-732	Historic	08/20/92	.
		09/27/91	0.0002
		10/30/91	0.0002
		02/14/92	0.0002
		05/09/92	0.0002
		08/16/92	0.0002
		11/12/92	0.0002
		02/23/93	0.0002
		06/15/93	0.0002
		08/12/93	0.0002
		11/30/93	0.0002
		02/12/94	0.0002
		04/06/94	0.0002
		07/09/94	0.0002
		10/19/94	0.0002

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WELL	PERIOD	DATE SAMPLED	NICKEL ICAP (MG/L)
GW-156	1995 Q4	10/24/95	0.01
		10/25/95	0.01
		10/26/95	0.01
		10/23/95	0.021
GW-156	Historic	08/20/92	.
		10/30/91	0.01
		02/14/92	0.01
		05/09/92	0.01
		08/17/92	0.01
		06/15/93	0.01
		11/30/93	0.01
		02/12/94	0.01
		04/07/94	0.01
		07/09/94	0.01
		10/20/94	0.01
		11/13/92	0.013
		08/23/91	0.016
		02/24/93	0.018
		08/12/93	0.018
GW-159	1995 Q4	10/23/95	0.01
		10/24/95	0.01
		10/26/95	0.01
		10/25/95	0.021
GW-159	Historic	08/20/92	.
		04/05/94	.
		08/23/91	0.01
		10/29/91	0.01
		02/13/92	0.01
		05/09/92	0.01
		08/15/92	0.01
		11/09/92	0.01
		02/22/93	0.01
		06/14/93	0.01
		08/10/93	0.01
		11/29/93	0.01
		02/10/94	0.01
		04/04/94	0.01
		07/08/94	0.01
		10/17/94	0.01
GW-731	1995 Q4	10/23/95	0.01
		10/24/95	0.01

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WELL	PERIOD	DATE SAMPLED	NICKEL ICAP (MG/L)
GW-731	1995 Q4	10/25/95	0.01
		10/26/95	0.01
GW-731	Historic	08/20/92	.
		09/27/91	0.01
		10/31/91	0.01
		02/15/92	0.01
		11/29/93	0.01
		02/11/94	0.01
		04/04/94	0.01
		07/09/94	0.01
		10/18/94	0.01
		11/11/92	0.013
		05/09/92	0.015
		08/11/93	0.023
		02/23/93	0.029
		06/15/93	0.029
		08/16/92	0.058
GW-732	1995 Q4	10/23/95	0.01
		10/24/95	0.01
		10/25/95	0.01
		10/26/95	0.01
GW-732	Historic	08/20/92	.
		09/27/91	0.01
		10/30/91	0.01
		02/14/92	0.01
		05/09/92	0.01
		08/16/92	0.01
		02/23/93	0.01
		06/15/93	0.01
		08/12/93	0.01
		11/30/93	0.01
		02/12/94	0.01
		04/06/94	0.01
		07/09/94	0.01
		10/19/94	0.01
		11/12/92	0.024

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WELL	PERIOD	DATE SAMPLED	SILVER ICAP (MG/L)
GW-156	1995 Q4	10/23/95	0.006
		10/24/95	0.006
		10/25/95	0.006
		10/26/95	0.006
GW-156	Historic	08/20/92	.
		08/23/91	0.006
		10/30/91	0.006
		02/14/92	0.006
		05/09/92	0.006
		08/17/92	0.006
		11/13/92	0.006
		02/24/93	0.006
		06/15/93	0.006
		08/12/93	0.006
		11/30/93	0.006
		02/12/94	0.006
		04/07/94	0.006
		07/09/94	0.006
		10/20/94	0.006
GW-159	1995 Q4	10/23/95	0.006
		10/24/95	0.006
		10/25/95	0.006
		10/26/95	0.006
GW-159	Historic	08/20/92	.
		04/05/94	.
		08/23/91	0.006
		10/29/91	0.006
		02/13/92	0.006
		05/09/92	0.006
		08/15/92	0.006
		11/09/92	0.006
		02/22/93	0.006
		06/14/93	0.006
		08/10/93	0.006
		11/29/93	0.006
		02/10/94	0.006
		04/04/94	0.006
		07/08/94	0.006
		10/17/94	0.0064
GW-731	1995 Q4	10/23/95	0.006
		10/24/95	0.006

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WELL	PERIOD	DATE SAMPLED	SILVER ICAP (MG/L)
GW-731	1995 Q4	10/25/95	0.006
		10/26/95	0.006
GW-731	Historic	08/20/92	.
		09/27/91	0.006
		10/31/91	0.006
		02/15/92	0.006
		05/09/92	0.006
		08/16/92	0.006
		11/11/92	0.006
		02/23/93	0.006
		06/15/93	0.006
		08/11/93	0.006
		11/29/93	0.006
		02/11/94	0.006
		04/04/94	0.006
		07/09/94	0.006
		10/18/94	0.006
GW-732	1995 Q4	10/23/95	0.006
		10/24/95	0.006
		10/25/95	0.006
		10/26/95	0.006
GW-732	Historic	08/20/92	.
		09/27/91	0.006
		10/30/91	0.006
		02/14/92	0.006
		05/09/92	0.006
		08/16/92	0.006
		11/12/92	0.006
		02/23/93	0.006
		06/15/93	0.006
		08/12/93	0.006
		11/30/93	0.006
		02/12/94	0.006
		04/06/94	0.006
		07/09/94	0.006
		10/19/94	0.006

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WELL	PERIOD	DATE SAMPLED	URANIUM (MG/L)
GW-156	1995 Q4	10/24/95	0.0014
		10/25/95	0.0014
		10/26/95	0.0014
		10/23/95	0.0027
GW-156	Historic	08/20/92	.
		10/20/94	.
		08/12/93	0.0020
		11/30/93	0.0020
		02/12/94	0.0020
		08/23/91	0.0030
		10/30/91	0.0030
		05/09/92	0.0030
		08/17/92	0.0030
		11/13/92	0.0030
		06/15/93	0.0030
		02/24/93	0.0040
		02/14/92	0.0050
		04/07/94	0.0050
		07/09/94	0.0070
GW-159	1995 Q4	10/26/95	0.0011
		10/23/95	0.0012
		10/24/95	0.0012
		10/25/95	0.0051
GW-159	Historic	08/20/92	.
		04/05/94	.
		10/17/94	.
		10/29/91	0.0010
		02/13/92	0.0010
		02/22/93	0.0010
		08/10/93	0.0010
		11/29/93	0.0010
		02/10/94	0.0010
		04/04/94	0.0010
		07/08/94	0.0010
		08/23/91	0.0020
		05/09/92	0.0020
		08/15/92	0.0020
		11/09/92	0.0020
		06/14/93	0.0020
GW-731	1995 Q4	10/23/95	0.0010
		10/24/95	0.0010

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WELL	PERIOD	DATE SAMPLED	URANIUM (MG/L)
GW-731	1995 Q4	10/25/95	0.0010
		10/26/95	0.0010
GW-731	Historic	08/20/92	.
		10/18/94	.
		09/27/91	0.0010
		10/31/91	0.0010
		11/11/92	0.0010
		02/23/93	0.0010
		06/15/93	0.0010
		08/11/93	0.0010
		11/29/93	0.0010
		02/11/94	0.0010
		04/04/94	0.0010
		05/09/92	0.0020
		08/16/92	0.0020
		07/09/94	0.0040
		02/15/92	0.0100
GW-732	1995 Q4	10/23/95	0.0010
		10/24/95	0.0010
		10/25/95	0.0010
		10/26/95	0.0010
GW-732	Historic	08/20/92	.
		10/19/94	.
		09/27/91	0.0010
		10/30/91	0.0010
		02/14/92	0.0010
		05/09/92	0.0010
		08/16/92	0.0010
		11/12/92	0.0010
		02/23/93	0.0010
		04/06/94	0.0010
		06/15/93	0.0020
		08/12/93	0.0020
		11/30/93	0.0020
		02/12/94	0.0020
		07/09/94	0.0050

---------- WELL=GW-156 ----------

N P A R 1 W A Y P R O C E D U R E

Wilcoxon Scores (Rank Sums) for Variable Barium
Classified by Variable PERIOD

PERIOD	N	Sum of Scores	Expected Under H0	Std Dev Under H0	Mean Score
1995 Q4	4	24.0	38.0	9.22981812	6.0000000
Historic	14	147.0	133.0	9.22981812	10.5000000

Average Scores were used for Ties

Wilcoxon 2-Sample Test (Normal Approximation)
(with Continuity Correction of .5)

S= 24.0000 Z= -1.46265 Prob >.|Z| = 0.1436

T-Test approx. Significance = 0.1618

Kruskal-Wallis Test (Chi-Square Approximation)
CHISQ= 2.3008 DF= 1 Prob > CHISQ= 0.1293

---------- WELL=GW-156 ----------

N P A R 1 W A Y P R O C E D U R E

Wilcoxon Scores (Rank Sums) for Variable Cadmium
Classified by Variable PERIOD

PERIOD	N	Sum of Scores	Expected Under H0	Std Dev Under H0	Mean Score
1995 Q4	4	38.0	38.0	0.0	9.50000000
Historic	14	133.0	133.0	0.0	9.50000000

Average Scores were used for Ties

Wilcoxon 2-Sample Test (Normal Approximation)
(with Continuity Correction of .5)

S= 38.0000 Z= 0 Prob > |Z| = 0.9999

T-Test approx. Significance = 0.9999

Kruskal-Wallis Test (Chi-Square Approximation)
CHISQ= 0 DF= 1 Prob > CHISQ= 0.9999

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---------- WELL=GW-156 ----------

N P A R 1 W A Y P R O C E D U R E

Wilcoxon Scores (Rank Sums) for Variable Chromium
Classified by Variable PERIOD

PERIOD	N	Sum of Scores	Expected Under H0	Std Dev Under H0	Mean Score
1995 Q4	4	38.0	38.0	0.0	9.50000000
Historic	14	133.0	133.0	0.0	9.50000000

Average Scores were used for Ties

Wilcoxon 2-Sample Test (Normal Approximation)
(with Continuity Correction of .5)

S= 38.0000 Z= 0 Prob > |Z| = 0.9999

T-Test approx. Significance = 0.9999

Kruskal-Wallis Test (Chi-Square Approximation)
CHISQ= 0 DF= 1 Prob > CHISQ= 0.9999

---------- WELL=GW-156 ----------

N P A R 1 W A Y P R O C E D U R E

Wilcoxon Scores (Rank Sums) for Variable Lead
Classified by Variable PERIOD

PERIOD	N	Sum of Scores	Expected Under H0	Std Dev Under H0	Mean Score
1995 Q4	4	30.0	38.0	6.85803760	7.5000000
Historic	14	141.0	133.0	6.85803760	10.0714286

Average Scores were used for Ties

Wilcoxon 2-Sample Test (Normal Approximation)
(with Continuity Correction of .5)

S= 30.0000 Z= -1.09361 Prob > |Z| = 0.2741

T-Test approx. Significance = 0.2894

Kruskal-Wallis Test (Chi-Square Approximation)
CHISQ= 1.3608 DF= 1 Prob > CHISQ= 0.2434

---------- WELL=GW-156 ----------

N P A R 1 W A Y P R O C E D U R E

Wilcoxon Scores (Rank Sums) for Variable Mercury
Classified by Variable PERIOD

PERIOD	N	Sum of Scores	Expected Under H0	Std Dev Under H0	Mean Score
1995 Q4	4	38.0	38.0	0.0	9.50000000
Historic	14	133.0	133.0	0.0	9.50000000

Average Scores were used for Ties

Wilcoxon 2-Sample Test (Normal Approximation)
(with Continuity Correction of .5)

S= 38.0000 Z= 0 Prob > |Z| = 0.9999

T-Test approx. Significance = 0.9999

Kruskal-Wallis Test (Chi-Square Approximation)
CHISQ= 0 DF= 1 Prob > CHISQ= 0.9999

---------- WELL=GW-156 ----------

N P A R 1 W A Y P R O C E D U R E

Wilcoxon Scores (Rank Sums) for Variable Nickel
Classified by Variable PERIOD

PERIOD	N	Sum of Scores	Expected Under H0	Std Dev Under H0	Mean Score
1995 Q4	4	39.0	38.0	7.43424333	9.75000000
Historic	14	132.0	133.0	7.43424333	9.42857143

Average Scores were used for Ties

Wilcoxon 2-Sample Test (Normal Approximation)
(with Continuity Correction of .5)

S= 39.0000 Z= 0.067256 Prob > |Z| = 0.9464

T-Test approx. Significance = 0.9472

Kruskal-Wallis Test (Chi-Square Approximation)
CHISQ= 0.01809 DF= 1 Prob > CHISQ= 0.8930

---------- WELL=GW-156 ----------

N P A R 1 W A Y P R O C E D U R E

Wilcoxon Scores (Rank Sums) for Variable Silver
Classified by Variable PERIOD

PERIOD	N	Sum of Scores	Expected Under H0	Std Dev Under H0	Mean Score
1995 Q4	4	38.0	38.0	0.0	9.50000000
Historic	14	133.0	133.0	0.0	9.50000000

Average Scores were used for Ties

Wilcoxon 2-Sample Test (Normal Approximation)
(with Continuity Correction of .5)

S= 38.0000 Z= 0 Prob > |Z| = 0.9999

T-Test approx. Significance = 0.9999

Kruskal-Wallis Test (Chi-Square Approximation)
CHISQ= 0 DF= 1 Prob > CHISQ= 0.9999

---------- WELL=GW-156 ----------

N P A R 1 W A Y P R O C E D U R E

Wilcoxon Scores (Rank Sums) for Variable Uranium
Classified by Variable PERIOD

PERIOD	N	Sum of Scores	Expected Under H0	Std Dev Under H0	Mean Score
1995 Q4	4	13.0	36.0	8.59035026	3.2500000
Historic	13	140.0	117.0	8.59035026	10.7692308

Average Scores were used for Ties

Wilcoxon 2-Sample Test (Normal Approximation)
(with Continuity Correction of .5)

S= 13.0000 Z= -2.61922 Prob > |Z| = 0.0088

T-Test approx. Significance = 0.0186

Kruskal-Wallis Test (Chi-Square Approximation)
CHISQ= 7.1686 DF= 1 Prob > CHISQ= 0.0074

---------- WELL=GW-159 ----------

N P A R 1 W A Y P R O C E D U R E

Wilcoxon Scores (Rank Sums) for Variable Barium
Classified by Variable PERIOD

PERIOD	N	Sum of Scores	Expected Under H0	Std Dev Under H0	Mean Score
1995 Q4	4	43.0	38.0	9.10002514	10.7500000
Historic	14	128.0	133.0	9.10002514	9.1428571

Average Scores were used for Ties

Wilcoxon 2-Sample Test (Normal Approximation)
(with Continuity Correction of .5)

S= 43.0000 Z= 0.494504 Prob > |Z| = 0.6210

T-Test approx. Significance = 0.6273

Kruskal-Wallis Test (Chi-Square Approximation)
CHISQ= 0.30189 DF= 1 Prob > CHISQ= 0.5827

---------- WELL=GW-159 ----------

N P A R 1 W A Y P R O C E D U R E

Wilcoxon Scores (Rank Sums) for Variable Cadmium
Classified by Variable PERIOD

PERIOD	N	Sum of Scores	Expected Under H0	Std Dev Under H0	Mean Score
1995 Q4	4	38.0	38.0	0.0	9.50000000
Historic	14	133.0	133.0	0.0	9.50000000

Average Scores were used for Ties

Wilcoxon 2-Sample Test (Normal Approximation)
(with Continuity Correction of .5)

S= 38.0000 Z= 0 Prob > |Z| = 0.9999

T-Test approx. Significance = 0.9999

Kruskal-Wallis Test (Chi-Square Approximation)
CHISQ= 0 DF= 1 Prob > CHISQ= 0.9999

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---------- WELL=GW-159 ----------

N P A R 1 W A Y P R O C E D U R E

Wilcoxon Scores (Rank Sums) for Variable Chromium
Classified by Variable PERIOD

PERIOD	N	Sum of Scores	Expected Under H0	Std Dev Under H0	Mean Score
1995 Q4	4	45.0	38.0	3.74165739	11.2500000
Historic	14	126.0	133.0	3.74165739	9.0000000

Average Scores were used for Ties

Wilcoxon 2-Sample Test (Normal Approximation)
(with Continuity Correction of .5)

S= 45.0000 Z= 1.73720 Prob > |Z| = 0.0824

T-Test approx. Significance = 0.1004

Kruskal-Wallis Test (Chi-Square Approximation)
CHISQ= 3.5000 DF= 1 Prob > CHISQ= 0.0614

---------- WELL=GW-159 ----------

N P A R 1 W A Y P R O C E D U R E

Wilcoxon Scores (Rank Sums) for Variable Lead
Classified by Variable PERIOD

PERIOD	N	Sum of Scores	Expected Under H0	Std Dev Under H0	Mean Score
1995 Q4	4	43.500000	38.0	5.14241621	10.8750000
Historic	14	127.500000	133.0	5.14241621	9.1071429

Average Scores were used for Ties

Wilcoxon 2-Sample Test (Normal Approximation)
(with Continuity Correction of .5)

S= 43.5000 Z= 0.972306 Prob > |Z| = 0.3309

T-Test approx. Significance = 0.3445

Kruskal-Wallis Test (Chi-Square Approximation)
CHISQ= 1.1439 DF= 1 Prob > CHISQ= 0.2848

---------- WELL=GW-159 ----------

N P A R 1 W A Y P R O C E D U R E

Wilcoxon Scores (Rank Sums) for Variable Mercury
Classified by Variable PERIOD

PERIOD	N	Sum of Scores	Expected Under H0	Std Dev Under H0	Mean Score
1995 Q4	4	42.500000	38.0	5.14241621	10.6250000
Historic	14	128.500000	133.0	5.14241621	9.1785714

Average Scores were used for Ties

Wilcoxon 2-Sample Test (Normal Approximation)
(with Continuity Correction of .5)

S= 42.5000 Z= 0.777844 Prob > |Z| = 0.4367

T-Test approx. Significance = 0.4474

Kruskal-Wallis Test (Chi-Square Approximation)
CHISQ= 0.76576 DF= 1 Prob > CHISQ= 0.3815

---------- WELL=GW-159 ----------

N P A R 1 W A Y P R O C E D U R E

Wilcoxon Scores (Rank Sums) for Variable Nickel
Classified by Variable PERIOD

PERIOD	N	Sum of Scores	Expected Under H0	Std Dev Under H0	Mean Score
1995 Q4	4	45.0	38.0	3.74165739	11.2500000
Historic	14	126.0	133.0	3.74165739	9.0000000

Average Scores were used for Ties

Wilcoxon 2-Sample Test (Normal Approximation)
(with Continuity Correction of .5)

S= 45.0000 Z= 1.73720 Prob > |Z| = 0.0824

T-Test approx. Significance = 0.1004

Kruskal-Wallis Test (Chi-Square Approximation)
CHISQ= 3.5000 DF= 1 Prob > CHISQ= 0.0614

---------- WELL=GW-159 ----------

N P A R 1 W A Y P R O C E D U R E

Wilcoxon Scores (Rank Sums) for Variable Silver
Classified by Variable PERIOD

PERIOD	N	Sum of Scores	Expected Under H0	Std Dev Under H0	Mean Score
1995 Q4	4	36.0	38.0	3.74165739	9.00000000
Historic	14	135.0	133.0	3.74165739	9.64285714

Average Scores were used for Ties

Wilcoxon 2-Sample Test (Normal Approximation)
(with Continuity Correction of .5)

S= 36.0000 Z= -.400892 Prob > |Z| = 0.6885

T-Test approx. Significance = 0.6935

Kruskal-Wallis Test (Chi-Square Approximation)
CHISQ= 0.28571 DF= 1 Prob > CHISQ= 0.5930

---------- WELL=GW-159 ----------

N P A R 1 W A Y P R O C E D U R E

Wilcoxon Scores (Rank Sums) for Variable Uranium
Classified by Variable PERIOD

PERIOD	N	Sum of Scores	Expected Under H0	Std Dev Under H0	Mean Score
1995 Q4	4	47.0	36.0	8.24398176	11.7500000
Historic	13	106.0	117.0	8.24398176	8.1538462

Average Scores were used for Ties

Wilcoxon 2-Sample Test (Normal Approximation)
(with Continuity Correction of .5)

S= 47.0000 Z= 1.27366 Prob > |Z| = 0.2028

T-Test approx. Significance = 0.2210

Kruskal-Wallis Test (Chi-Square Approximation)
CHISQ= 1.7804 DF= 1 Prob > CHISQ= 0.1821

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Anderson County, Tennessee

---------- WELL=GW-731 ----------

N P A R 1 W A Y P R O C E D U R E

Wilcoxon Scores (Rank Sums) for Variable Barium
Classified by Variable PERIOD

PERIOD	N	Sum of Scores	Expected Under H0	Std Dev Under H0	Mean Score
1995 Q4	4	36.500000	38.0	9.41143790	9.12500000
Historic	14	134.500000	133.0	9.41143790	9.60714286

Average Scores were used for Ties

Wilcoxon 2-Sample Test (Normal Approximation)
(with Continuity Correction of .5)

S= 36.5000 Z= -.106254 Prob > |Z| = 0.9154

T-Test approx. Significance = 0.9166

Kruskal-Wallis Test (Chi-Square Approximation)
CHISQ= 0.02540 DF= 1 Prob > CHISQ= 0.8734

---------- WELL=GW-731 ----------

N P A R 1 W A Y P R O C E D U R E

Wilcoxon Scores (Rank Sums) for Variable Cadmium
Classified by Variable PERIOD

PERIOD	N	Sum of Scores	Expected Under H0	Std Dev Under H0	Mean Score
1995 Q4	4	38.0	38.0	0.0	9.50000000
Historic	14	133.0	133.0	0.0	9.50000000

Average Scores were used for Ties

Wilcoxon 2-Sample Test (Normal Approximation)
(with Continuity Correction of .5)

S= 38.0000 Z= 0 Prob > |Z| = 0.9999

T-Test approx. Significance = 0.9999

Kruskal-Wallis Test (Chi-Square Approximation)
CHISQ= 0 DF= 1 Prob > CHISQ= 0.9999

---------- WELL=GW-731 ----------

N P A R 1 W A Y P R O C E D U R E

Wilcoxon Scores (Rank Sums) for Variable Chromium
Classified by Variable PERIOD

PERIOD	N	Sum of Scores	Expected Under H0	Std Dev Under H0	Mean Score
1995 Q4	4	38.0	38.0	7.44039496	9.50000000
Historic	14	133.0	133.0	7.44039496	9.50000000

Average Scores were used for Ties

Wilcoxon 2-Sample Test (Normal Approximation)
(with Continuity Correction of .5)

S= 38.0000 Z= 0 Prob > |Z| = 0.9999

T-Test approx. Significance = 0.9999

Kruskal-Wallis Test (Chi-Square Approximation)
CHISQ= 0 DF= 1 Prob > CHISQ= 0.9999

---------- WELL=GW-731 ----------

N P A R 1 W A Y P R O C E D U R E

Wilcoxon Scores (Rank Sums) for Variable Lead
Classified by Variable PERIOD

PERIOD	N	Sum of Scores	Expected Under H0	Std Dev Under H0	Mean Score
1995 Q4	4	30.0	38.0	8.27864407	7.5000000
Historic	14	141.0	133.0	8.27864407	10.0714286

Average Scores were used for Ties

Wilcoxon 2-Sample Test (Normal Approximation)
(with Continuity Correction of .5)

S= 30.0000 Z= -.905945 Prob > |Z| = 0.3650

T-Test approx. Significance = 0.3776

Kruskal-Wallis Test (Chi-Square Approximation)
CHISQ= 0.93382 DF= 1 Prob > CHISQ= 0.3339

---------- WELL=GW-731 ----------

N P A R 1 W A Y P R O C E D U R E

Wilcoxon Scores (Rank Sums) for Variable Mercury
Classified by Variable PERIOD

PERIOD	N	Sum of Scores	Expected Under H0	Std Dev Under H0	Mean Score
1995 Q4	4	36.0	38.0	3.74165739	9.00000000
Historic	14	135.0	133.0	3.74165739	9.64285714

Average Scores were used for Ties

Wilcoxon 2-Sample Test (Normal Approximation)
(with Continuity Correction of .5)

S= 36.0000 Z= -.400892 Prob > |Z| = 0.6885

T-Test approx. Significance = 0.6935

Kruskal-Wallis Test (Chi-Square Approximation)
CHISQ= 0.28571 DF= 1 Prob > CHISQ= 0.5930

---------- WELL=GW-731 ----------

N P A R 1 W A Y P R O C E D U R E

Wilcoxon Scores (Rank Sums) for Variable Nickel
Classified by Variable PERIOD

PERIOD	N	Sum of Scores	Expected Under H0	Std Dev Under H0	Mean Score
1995 Q4	4	26.0	38.0	7.89969802	6.5000000
Historic	14	145.0	133.0	7.89969802	10.3571429

Average Scores were used for Ties

Wilcoxon 2-Sample Test (Normal Approximation)
(with Continuity Correction of .5)

S= 26.0000 Z= -1.45575 Prob > |Z| = 0.1455

T-Test approx. Significance = 0.1637

Kruskal-Wallis Test (Chi-Square Approximation)
CHISQ= 2.3075 DF= 1 Prob > CHISQ= 0.1288

---------- WELL=GW-731 ----------

N P A R 1 W A Y P R O C E D U R E

Wilcoxon Scores (Rank Sums) for Variable Silver
Classified by Variable PERIOD

PERIOD	N	Sum of Scores	Expected Under H0	Std Dev Under H0	Mean Score
1995 Q4	4	38.0	38.0	0.0	9.50000000
Historic	14	133.0	133.0	0.0	9.50000000

Average Scores were used for Ties

Wilcoxon 2-Sample Test (Normal Approximation)
(with Continuity Correction of .5)

S= 38.0000 Z= 0 Prob > |Z| = 0.9999

T-Test approx. Significance = 0.9999

Kruskal-Wallis Test (Chi-Square Approximation)
CHISQ= 0 DF= 1 Prob > CHISQ= 0.9999

---------- WELL=GW-731 ----------

N P A R 1 W A Y P R O C E D U R E

Wilcoxon Scores (Rank Sums) for Variable Uranium
Classified by Variable PERIOD

PERIOD	N	Sum of Scores	Expected Under H0	Std Dev Under H0	Mean Score
1995 Q4	4	28.0	36.0	6.56584299	7.00000000
Historic	13	125.0	117.0	6.56584299	9.61538462

Average Scores were used for Ties

Wilcoxon 2-Sample Test (Normal Approximation)
(with Continuity Correction of .5)

S= 28.0000 Z= -1.14228 Prob > |Z| = 0.2533

T-Test approx. Significance = 0.2701

Kruskal-Wallis Test (Chi-Square Approximation)
CHISQ= 1.4846 DF= 1 Prob > CHISQ= 0.2231

---------- WELL=GW-732 ----------

N P A R 1 W A Y P R O C E D U R E

Wilcoxon Scores (Rank Sums) for Variable Barium
Classified by Variable PERIOD

PERIOD	N	Sum of Scores	Expected Under H0	Std Dev Under H0	Mean Score
1995 Q4	4	53.0	38.0	9.41143790	13.2500000
Historic	14	118.0	133.0	9.41143790	8.4285714

Average Scores were used for Ties

Wilcoxon 2-Sample Test (Normal Approximation)
(with Continuity Correction of .5)

S= 53.0000 Z= 1.54068 Prob > |Z| = 0.1234

T-Test approx. Significance = 0.1418

Kruskal-Wallis Test (Chi-Square Approximation)
CHISQ= 2.5402 DF= 1 Prob > CHISQ= 0.1110

---------- WELL=GW-732 ----------

N P A R 1 W A Y P R O C E D U R E

Wilcoxon Scores (Rank Sums) for Variable Cadmium
Classified by Variable PERIOD

PERIOD	N	Sum of Scores	Expected Under H0	Std Dev Under H0	Mean Score
1995 Q4	4	38.0	38.0	0.0	9.50000000
Historic	14	133.0	133.0	0.0	9.50000000

Average Scores were used for Ties

Wilcoxon 2-Sample Test (Normal Approximation)
(with Continuity Correction of .5)

S= 38.0000 Z= 0 Prob > |Z| = 0.9999

T-Test approx. Significance = 0.9999

Kruskal-Wallis Test (Chi-Square Approximation)
CHISQ= 0 DF= 1 Prob > CHISQ= 0.9999

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Chestnut Ridge Sediment Disposal Basin
Anderson County, Tennessee

---------- WELL=GW-732 ----------

N P A R 1 W A Y P R O C E D U R E

Wilcoxon Scores (Rank Sums) for Variable Chromium
Classified by Variable PERIOD

PERIOD	N	Sum of Scores	Expected Under H0	Std Dev Under H0	Mean Score
1995 Q4	4	59.0	38.0	6.11758421	14.7500000
Historic	14	112.0	133.0	6.11758421	8.0000000

Average Scores were used for Ties

Wilcoxon 2-Sample Test (Normal Approximation)
(with Continuity Correction of .5)

S= 59.0000 Z= 3.35100 Prob > |Z| = 0.0008

T-Test approx. Significance = 0.0038

Kruskal-Wallis Test (Chi-Square Approximation)
CHISQ= 11.784 DF= 1 Prob > CHISQ= 0.0006

---------- WELL=GW-732 ----------

N P A R 1 W A Y P R O C E D U R E

Wilcoxon Scores (Rank Sums) for Variable Lead
Classified by Variable PERIOD

PERIOD	N	Sum of Scores	Expected Under H0	Std Dev Under H0	Mean Score
1995 Q4	4	41.500000	38.0	7.89969802	10.3750000
Historic	14	129.500000	133.0	7.89969802	9.2500000

Average Scores were used for Ties

Wilcoxon 2-Sample Test (Normal Approximation)
(with Continuity Correction of .5)

S= 41.5000 Z= 0.379761 Prob > |Z| = 0.7041

T-Test approx. Significance = 0.7088

Kruskal-Wallis Test (Chi-Square Approximation)
CHISQ= 0.19630 DF= 1 Prob > CHISQ= 0.6577

---------- WELL=GW-732 ----------

N P A R 1 W A Y P R O C E D U R E

Wilcoxon Scores (Rank Sums) for Variable Mercury
Classified by Variable PERIOD

PERIOD	N	Sum of Scores	Expected Under H0	Std Dev Under H0	Mean Score
1995 Q4	4	38.0	38.0	0.0	9.50000000
Historic	14	133.0	133.0	0.0	9.50000000

Average Scores were used for Ties

Wilcoxon 2-Sample Test (Normal Approximation)
(with Continuity Correction of .5)

S= 38.0000 Z= 0 Prob > |Z| = 0.9999

T-Test approx. Significance = 0.9999

Kruskal-Wallis Test (Chi-Square Approximation)
CHISQ= 0 DF= 1 Prob > CHISQ= 0.9999

---------- WELL=GW-732 ----------

N P A R 1 W A Y P R O C E D U R E

Wilcoxon Scores (Rank Sums) for Variable Nickel
Classified by Variable PERIOD

PERIOD	N	Sum of Scores	Expected Under H0	Std Dev Under H0	Mean Score
1995 Q4	4	36.0	38.0	3.74165739	9.00000000
Historic	14	135.0	133.0	3.74165739	9.64285714

Average Scores were used for Ties

Wilcoxon 2-Sample Test (Normal Approximation)
(with Continuity Correction of .5)

S= 36.0000 Z= -.400892 Prob > |Z| = 0.6885

T-Test approx. Significance = 0.6935

Kruskal-Wallis Test (Chi-Square Approximation)
CHISQ= 0.28571 DF= 1 Prob > CHISQ= 0.5930

---------- WELL=GW-732 ----------

N P A R 1 W A Y P R O C E D U R E

Wilcoxon Scores (Rank Sums) for Variable Silver
Classified by Variable PERIOD

PERIOD	N	Sum of Scores	Expected Under H0	Std Dev Under H0	Mean Score
1995 Q4	4	38.0	38.0	0.0	9.50000000
Historic	14	133.0	133.0	0.0	9.50000000

Average Scores were used for Ties

Wilcoxon 2-Sample Test (Normal Approximation)
(with Continuity Correction of .5)

S= 38.0000 Z= 0 Prob > |Z| = 0.9999

T-Test approx. Significance = 0.9999

Kruskal-Wallis Test (Chi-Square Approximation)
CHISQ= 0 DF= 1 Prob > CHISQ= 0.9999

---------- WELL=GW-732 ----------

N P A R 1 W A Y P R O C E D U R E

Wilcoxon Scores (Rank Sums) for Variable Uranium
Classified by Variable PERIOD

PERIOD	N	Sum of Scores	Expected Under H0	Std Dev Under H0	Mean Score
1995 Q4	4	26.0	36.0	7.05023988	6.50000000
Historic	13	127.0	117.0	7.05023988	9.76923077

Average Scores were used for Ties

Wilcoxon 2-Sample Test (Normal Approximation)
(with Continuity Correction of .5)

S= 26.0000 Z= -1.34747 Prob > |Z| = 0.1778

T-Test approx. Significance = 0.1966

Kruskal-Wallis Test (Chi-Square Approximation)
CHISQ= 2.0118 DF= 1 Prob > CHISQ= 0.1561

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