INTERIM SANITARY LANDFILL GROUNDWATER MONITORING REPORT (U)

1997 ANNUAL REPORT

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Westinghouse Savannah River Company
Savannah River Site
Aiken, SC 29808

Prepared for the U.S. Department of Energy under Control Contract No. DE-AC09-89SR18035

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Key Words

1,1 dichloroethane
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1,1,1-trichloroethane
trichlorofluoromethane
zinc

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Abstract

Eight wells of the LFW series monitor groundwater quality in the Steed Pond Aquifer (Water Table) beneath the Interim Sanitary Landfill at the Savannah River Site (SRS). These wells are sampled semiannually to comply with the South Carolina Department of Health and Environmental Control Modified Municipal Solid Waste Permit 025500-1120 (formerly DWP-087A) and as part of the SRS Groundwater Monitoring Program.

Barium, copper, zinc, 1,1-dichloroethane, 1,1,1-trichloroethane, and trichlorofluoromethane were elevated in one sidegradient well each during 1997. Copper was detected in the associated blank for the sidegradient well. Beryllium and zinc were elevated in one downgradient well each during 1997.

The groundwater flow direction in the Steed Pond Aquifer (Water Table) beneath the Interim Sanitary Landfill was to the southeast (universal transverse Mercator coordinates). The flow rate in this unit was approximately 170 ft/year during first quarter 1997 and 280 ft/yr during third quarter 1997.

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Executive Summary

The Sanitary Landfill at the Savannah River Site is composed of the original 32-acre landfill, plus expansion areas to the north and south that add 16 and 22 acres, respectively, to the facility. Eight LFW wells surround the area originally set aside for the Northern Expansion, now known as the Interim Sanitary Landfill. These wells monitor the groundwater quality in the Steed Pond Aquifer (Water Table) beneath the Interim Sanitary Landfill. They are sampled semiannually for selected indicator parameters, metals, and organics to comply with the South Carolina Department of Health and Environmental Control (SCDHEC) Modified Municipal Solid Waste Permit 025500-1120 (formerly DWP-087A) (SCDHEC, 1995), as designated in the Interim Sanitary Landfill Groundwater Monitoring Program (WSRC, 1994).

During first quarter 1997, two wells (both sidegradient) of the eight monitoring wells (25 percent) at the Interim Sanitary Landfill contained levels of copper, zinc, or trichlorofluoromethane that exceeded the standards. The value for zinc was estimated, indicated by the *J* modifier, because quantitation in the sample or in associated quality control samples did not meet specifications.

During third quarter 1997, four (two downgradient and two sidegradient) of the monitoring wells (50 percent) at the Interim Sanitary Landfill contained elevated constituents. Barium, copper, and zinc were elevated in well LFW 28; 1,1-dichloroethane, 1,1,1-trichloroethane, and trichlorofluoromethane were elevated in well LFW 32; zinc was elevated in downgradient well LFW 75C, and beryllium was elevated in downgradient well LFW 75D. Copper was detected in the associated blank for well LFW 28 (modifier *V*). The values for zinc and beryllium in wells LFW 28 and LFW 75D, respectively, were estimated because quantitation in the sample or in associated quality control samples did not meet specifications (modifier *J1*).

The groundwater flow direction in the Steed Pond Aquifer (Water Table) beneath the Interim Sanitary Landfill during first and third quarters 1997 was to the southeast (universal transverse Mercator coordinates) toward Upper Three Runs Creek. The estimated flow rate in this aquifer was 170 ft/year during first quarter 1997 and 280 ft/year during third quarter 1997. These directions and flow rates are similar to directions and flow rates during 1996.

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Introduction

The Sanitary Landfill (Figures 1 and 2, Appendix C) is located southwest of Road C, about midway down the slope from the Aiken Plateau to Upper Three Runs Creek. The following description outlines important events in the history of the landfill:

- The original 32-acre Sanitary Landfill began receiving sanitary waste, including paper and paper products, plastics, scrap metal, rubber, food waste, glass, packing material, miscellaneous construction debris, empty paint cans, and other nonradioactive waste materials in 1974 (Heffner and Exploration Resources, 1991).
- On June 12, 1978, the South Carolina Department of Health and Environmental Control (SCDHEC) issued permit DWP-087 to the U.S. Department of Energy (DOE) for the operation of the Sanitary Landfill for inert and domestic solid waste disposal.
- On September 9, 1986, SCDHEC issued permit DWP-087A, which allowed expansion areas to the north and south of the original 32-acre landfill, adding 16 and 22 acres, respectively (WSRC, 1993). These areas were known as the Northern Expansion and the Southern Expansion. Later, the Northern Expansion was renamed the Interim Sanitary Landfill.
- The original landfill was filled to capacity in early 1987 (WSRC, 1990).
- In 1988, the Sanitary Landfill was placed on the Resource Conservation and Recovery Act (RCRA) Facility Investigation (RFI) list because elevated levels of hazardous constituents were detected in the groundwater beneath the facility (WSRC, 1990).
- A groundwater quality assessment plan for the Sanitary Landfill was submitted to SCDHEC in 1990 (WSRC, 1990).
- SCDHEC renewed permit DWP-087A on July 24, 1991 (SCDHEC, 1991).
- As a result of Settlement Agreement 91-51-SW, effective August 24, 1991, the Sanitary Landfill became subject to RCRA requirements because wipes and rags contaminated with RCRA-listed solvents were disposed of there.
- As a result of the RCRA permit investigation, the U.S. Environmental Protection Agency (EPA) removed the Sanitary Landfill from the RFI/Remedial Investigation unit list in August 1991.
- The Interim Sanitary Landfill (Northern Expansion) began operations in mid-1992 when the Southern Expansion was filled (WSRC, 1993).
- The Savannah River Site submitted a closure plan for the Sanitary Landfill to SCDHEC on February 28, 1993.
- A RCRA Part B post-closure care permit application was submitted to SCDHEC on March 31, 1993.
- A modification to the Sanitary Landfill groundwater quality assessment plan was approved by SCDHEC in November 1993. The modified plan included further characterization studies and proposed the installation of additional monitoring wells. Thirty-two new monitoring wells were sampled for the first time during second quarter 1994.
- The Interim Sanitary Landfill Groundwater Monitoring Program was submitted to SCDHEC in July 1994 in support of the renewal application for permit DWP-087A (WSRC, 1994).
- The Interim Sanitary Landfill, the last open portion of the Sanitary Landfill, curtailed operations in November 1994.

- Two new well clusters were installed in the Interim Sanitary Landfill in November 1994 based on recommendations made in the groundwater monitoring program (WSRC, 1994) to provide downgradient wells for the Interim Sanitary Landfill. These wells were sampled for the first time during first quarter 1995.
- The modification to municipal solid waste permit DWP-087A was approved on February 2, 1995, and included information regarding the monitoring of the eight designated Interim Sanitary Landfill wells. The permit, which became effective on February 22, 1995, was re-numbered as 025500-1120 because of SCDHEC's new landfill tracking system.

The SRS Environmental Protection Department/Environmental Monitoring Section (EPD/EMS) samples the eight monitoring wells at the Interim Sanitary Landfill semiannually for selected parameters. The Solid Waste Management Department provides semiannual reports of monitoring results to SCDHEC to meet regulatory requirements.

Discussion

Groundwater Monitoring Data

Groundwater samples were collected from the LFW wells at the Interim Sanitary Landfill during March for first quarter 1997 and during September for third quarter 1997.

The sampling procedure (WSRC, 1992) requires evacuation of a minimum of two well volumes and stabilization of pH, specific conductance, and turbidity prior to sample collection. Stability is established when a minimum of three successive measurements, taken for each stability parameter within a given time period, are within a specified tolerance range. If a well pumps dry before two well volumes are purged or before stabilization is achieved, it must be revisited within 24 hours for the data to be considered from a single sampling event. On the second visit within 24 hours, samples are taken without further purging or stability measurements; thus, these samples may not be representative of groundwater quality.

Samples from LFW wells at the Interim Sanitary Landfill were analyzed for selected indicator parameters, metals, and organics. For simplicity, results that equaled or exceeded standards are described as *exceeding* standards, *above* standards, or as *elevated*. The following standards were used in this report:

- practical quantitation limits (PQLs) as established in the Interim Sanitary Landfill Groundwater Monitoring Program (WSRC, 1994). Bromochloromethane and cis-1,2-dichloroethylene were not assigned PQLs; therefore, no standards were established for these constituents (see Appendix A).
- tolerance limits calculated for copper, lead, pH, specific conductance, and zinc provided in the Interim Sanitary Landfill Groundwater Monitoring Program (WSRC, 1994) (see Appendix A).
- SRS flagging criteria based on Primary Drinking Water Standards, Secondary Drinking Water Standards, or method detection limits (see Appendix B).

Integrity of the Monitoring Well Network

Wells LFW 28, 32, 43C, 43D, 74C, 74D, 75C, and 75D presently monitor groundwater quality in the Steed Pond Aquifer (Water Table) beneath the Interim Sanitary Landfill (Figure 2, Appendix C). The designated background wells at the Interim Sanitary Landfill are wells LFW 43C and 43D.

SRS rehabilitates or replaces wells that do not produce representative groundwater samples. A complete record of well installations, replacements, and abandonments at the Sanitary Landfill is provided in the EPD/EMS well inventory (EPD/EMS, 1996). During 1997, no Interim Sanitary Landfill wells were abandoned, and no new wells were installed.

Table D-3 (Appendix D) lists the number of well volumes purged from each of the LFW wells during first and third quarters 1997 and provides sampling codes (I, P, X, etc. [see Appendix D front matter]) that describe unusual sampling events. Well LFW 28 went dry during purging (sampling code X) during first and third quarters 1997. Because of the absence of water in the well standpipe, water elevations and volumes purged were not calculable for wells LFW 43D and 74D during third quarter 1997.

Analytical Results Exceeding Standards

Results for analytes that exceeded standards (Appendix A) during first or third quarters 1997 are summarized in Table D-1 (Appendix D) and described in the following text:

During first quarter 1997, 2 of the 8 LFW wells at the Interim Sanitary Landfill contained elevated constituents.

- Copper and zinc were elevated in well LFW 28 with values of 31 µg/L and 35 µg/L, respectively.
- Trichlorofluoromethane was elevated in well LFW 32 with a value of 44 µg/L.

During third quarter 1997, 4 of the 8 LFW wells contained elevated constituents.

- Barium, copper, and zinc were elevated in well LFW 28 with values of 22 µg/L, 44 µg/L, and 31 µg/L, respectively. Copper was also detected in the associated laboratory blank.
- 1,1-Dichloroethane, 1,1,1-trichloroethane, and trichlorofluoromethane were elevated in well LFW 32 at 5.2 µg/L, 25 µg/L, and 280 µg/L, respectively.
- Zinc was elevated in well LFW 75C at 70 µg/L.
- Beryllium was elevated in well LFW 75D at 3.7 µg/L.

Results for analytes that exceeded SRS Flag 2 criteria (Appendix B) during first or third quarters 1997 are summarized in Table D-2 (Appendix D).

Table D-3 (Appendix D) shows the results during first and third quarters 1997 for all of the constituents and indicates the analytical laboratories that conducted the analyses, the dilution factors used in the analyses, and the analyses that received modifiers (which help define laboratory accuracy and precision) or that exceeded the EPA-approved holding times. Constituent results in Table D-3 that appear to equal the final standards but are not marked in the *ST* column (exceeded standard) are below the standard in the database. Database results, the results that are compared to the standards, contain more significant digits than the results provided in this report. Apparent discrepancies are due to the rounding of reported results.

In addition to the results tables, Appendix D provides definitions of the abbreviations and modifiers used in the results tables as well as descriptions of holding times, data rounding, and data qualification practices. Appendix E provides a general assessment of the quality and usability of EPD/EMS data.

Water Levels

Average Water Elevations at the Interim Sanitary Landfill

Quarter	1995 Average Water Elevation (ft msl)	1996 Average Water Elevation (ft msl)	1997 Average Water Elevation (ft msl)
First	164.6	163.4	162.5
Third	163.4	167.8	162.3

Groundwater Flow Directions and Rates

Historically, the groundwater flow direction in the Steed Pond Aquifer (Water Table) hydrostratigraphic unit beneath the Sanitary Landfill has been to the southeast (universal transverse Mercator [UTM] coordinates) toward Upper Three Runs Creek (WSRC, 1995). During first and third quarters 1997, the flow direction at the Interim Sanitary Landfill was to the southeast (Figures 3 and 4, Appendix C). Figure 5 presents the regional correlation of hydrostratigraphic and lithostratigraphic nomenclature.

Horizontal flow rate calculations provide estimates of the transport rate of constituents originating from the Interim Sanitary Landfill. Flow rates are estimated using the following equation:

$$\text{Flow (ft/day)} = \frac{\text{Hydraulic Conductivity (ft/day)}}{\text{Porosity (unitless)}} \times \frac{dh \text{ (ft)}}{dl \text{ (ft)}}$$

where the hydraulic conductivity constant is 16 ft/day (WSRC, 1994), the effective porosity value is 20 percent, the change in head is dh , and the horizontal distance along each flow direction arrow is dl .

Flow path length is calculated to the nearest 10 ft. Flow rate per day is calculated to two significant figures, then multiplied by 365 and rounded to two significant figures for the flow rate per year. Flow rate estimates vary depending upon the vertical gradient between wells, the size of the area under consideration, the number of data points, and the length and location of the flow path. Because these are inferred or estimated parameters, flow rate estimates should be considered accurate to an order of magnitude only.

The approximate groundwater flow rate in the Steed Pond Aquifer (Water Table) during first quarter 1997 was estimated as follows (Figure 3, Appendix C):

$$\frac{16}{0.20} \times \frac{6}{1050} \approx 0.46 \text{ ft/day}$$

$$0.46 \text{ ft/day} \times 365 \text{ days} \approx 170 \text{ ft/year}$$

The approximate groundwater flow rate in the Steed Pond Aquifer (Water Table) during third quarter 1997 is estimated as follows (Figure 4, Appendix C):

$$\frac{16}{0.20} \times \frac{9}{930} \approx 0.78 \text{ ft/day}$$

$$0.78 \text{ ft/day} \times 365 \text{ days} \approx 280 \text{ ft/year}$$

Upgradient Versus Downgradient Results

Wells LFW 43C and 43D in the Interim Sanitary Landfill are background wells for the Steed Pond Aquifer (Water Table). Wells LFW 74C, 74D, 75C, and 75D are downgradient, and the remaining wells are sidegradient (Figures 2, 3, and 4, Appendix C).

Background wells LFW 43C and LFW 43D contained no elevated constituents during first or third quarter 1997. Downgradient well LFW 75D contained elevated levels of beryllium during third quarter 1997. Zinc was elevated in downgradient well LFW 75C during third quarter 1997. Thallium exceeded the Flag 2 criterion in downgradient well LFW 74C third quarter 1997.

1997 Summary

During first quarter 1997, two of the eight LFW wells (both sidegradient) at the Interim Sanitary Landfill contained levels of copper, zinc, or trichlorofluoromethane that exceeded the standards. The value for zinc was estimated, indicated by the *J* modifier, because quantitation in the sample or in associated quality control samples did not meet specifications.

During third quarter 1997, four of the LFW wells (two downgradient and two sidegradient) at the Interim Sanitary Landfill contained elevated constituents. Beryllium and zinc were elevated in one downgradient well each. Barium, copper, zinc, 1,1-dichloroethane, 1,1,1-trichloroethane, and trichlorofluoromethane were elevated in one sidegradient well each. Finally, thallium exceeded the flag 2 criterion in one downgradient well. Copper was detected in the associated blank for well LFW 28 (modifier *V*). The value for zinc in well LFW 28 both first and third quarters, the value for beryllium in well LFW 75D third quarter, and the value for thallium in excess of the flag 2 criterion was estimated because quantitation in the sample or in associated quality control samples did not meet specifications (modifier *J*).

The groundwater flow direction in the Steed Pond Aquifer (Water Table) beneath the Interim Sanitary Landfill is to the southeast (UTM coordinates) toward Upper Three Runs Creek. The flow rate in this aquifer was estimated at approximately 170 ft/yr during first quarter 1997 and at approximately 280 ft/year during third quarter 1997. Flow directions and rates during 1997 were similar to 1996 findings.

Appendix A

Standards

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Standards

Analyte	Level	Unit	Method
Acetone	100	µg/L	EPA 8240
Acrylonitrile	5	µg/L	EPA 8240
Antimony	30	µg/L	EPA 7041
Arsenic	10	µg/L	EPA 7060
Barium	20	µg/L	EPA 6010
Benzene	5	µg/L	EPA 8240
Beryllium	3	µg/L	EPA 6010
Bromochloromethane ^a	—	µg/L	—
Bromodichloromethane	5	µg/L	EPA 8240
Bromoform	5	µg/L	EPA 8240
2-Butanone (Methyl ethyl ketone)	100	µg/L	EPA 8240
Cadmium	40	µg/L	EPA 6010
Carbon disulfide	5	µg/L	EPA 8240
Carbon tetrachloride	5	µg/L	EPA 8240
Chlorobenzene	5	µg/L	EPA 8240
Chloroethane	10	µg/L	EPA 8240
Chloroform	5	µg/L	EPA 8240
Chromium	70	µg/L	EPA 6010
Cobalt	70	µg/L	EPA 6010
Copper	29.8 ^b	µg/L	—
Dibromochloromethane	5	µg/L	EPA 8240
1,2-Dibromo-3-chloropropane	5	µg/L	EPA 8240
1,2-Dibromoethane	5	µg/L	EPA 8240
1,2-Dichlorobenzene	10	µg/L	EPA 8270
1,4-Dichlorobenzene	10	µg/L	EPA 8270
trans-1,4-Dichloro-2-butene	5	µg/L	EPA 8240
1,1-Dichloroethane	5	µg/L	EPA 8240
1,2-Dichloroethane	5	µg/L	EPA 8240
1,1-Dichloroethylene	5	µg/L	EPA 8240
cis-1,2-Dichloroethylene ^a	—	µg/L	—
trans-1,2-Dichloroethylene	5	µg/L	EPA 8240
1,2-Dichloropropane	5	µg/L	EPA 8240
cis-1,3-Dichloropropene	5	µg/L	EPA 8240
trans-1,3-Dichloropropene	5	µg/L	EPA 8240
Ethylbenzene	5	µg/L	EPA 8240
2-Hexanone	50	µg/L	EPA 8240
Iodomethane	5	µg/L	EPA 8240
Lead	18 ^b	µg/L	—
Methyl bromide (Bromomethane)	10	µg/L	EPA 8240
Methyl chloride (Chloromethane)	10	µg/L	EPA 8240
Methylene bromide (Dibromomethane)	5	µg/L	EPA 8240
Methylene chloride (Dichloromethane)	10	µg/L	EPA 8240
4-Methyl-2-pentanone (Methyl isobutyl ketone)	50	µg/L	EPA 8240
Nickel	50	µg/L	EPA 6010
pH	4.11–6.15 ^b	pH	—
Selenium	20	µg/L	EPA 7740
Silver	70	µg/L	EPA 6010
Specific conductance	10.6–37.0 ^b	µS/cm	—
Styrene	5	µg/L	EPA 8240
1,1,1,2-Tetrachloroethane	5	µg/L	EPA 8240
1,1,2,2-Tetrachloroethane	5	µg/L	EPA 8240
Tetrachloroethylene	5	µg/L	EPA 8240
Thallium	10	µg/L	EPA 7841
Toluene	5	µg/L	EPA 8240
1,1,1-Trichloroethane	5	µg/L	EPA 8240
1,1,2-Trichloroethane	5	µg/L	EPA 8240
Trichloroethylene	5	µg/L	EPA 8240
Trichlorofluoromethane	5	µg/L	EPA 8240

Analyte	Level	Unit	Method
1,2,3-Trichloropropane	5	µg/L	EPA 8240
Vanadium	80	µg/L	EPA 6010
Vinyl acetate	5	µg/L	EPA 8240
Vinyl chloride (Chloroethene)	10	µg/L	EPA 8240
Xylene	5	µg/L	EPA 8240
Zinc	29.3 ^b	µg/L	

^a No PQL is available for this constituent.

^b Tolerance limits for copper, lead, pH, specific conductance, and zinc are set according to the *Interim Sanitary Landfill Groundwater Monitoring Program*, Table 2-4.

Appendix B

Flagging Criteria

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Flagging Criteria

Beginning first quarter 1992, flagging criteria were established for all constituents analyzed as part of the EPD/EMS Groundwater Monitoring Program. Only the flagging criteria for environmental screening analyses are used to trigger scheduling for designated wells in the environmental screening program, while all flagging criteria in Table B-1 are used to flag constituents in the analytical results tables.

The following rules are used in determining flagging criteria and scheduling sampling:

- **Flag 0:** Analysis for a constituent below Flag 1 is classified as Flag 0. Constituents classified as Flag 0 in each well series will be scheduled for analyses only by custodian request or as part of the triennial environmental screening program for wells designated as environmental screening wells.
- **Flag 1:** The Flag 1 criterion for a constituent equals half of the EPA primary drinking water standard (PDWS), the EPA proposed PDWS, or the EPA secondary drinking water standard (SDWS) for that constituent. If a constituent does not have an EPA drinking water standard, the Flag 1 criterion equals 5 times a recently published 90th percentile detection limit obtained by one of the primary laboratories. If a constituent exceeds Flag 1 in a monitoring well series, environmental screening wells in that series are sampled and analyzed for that constituent once a year. If a constituent falls below Flag 1 for three consecutive sampling episodes, the well's flag is reduced from Flag 1 status to Flag 0 status and follows the rules for Flag 0.
- **Flag 2:** The Flag 2 criterion for a constituent equals the EPA PDWS, the EPA proposed PDWS, or the EPA SDWS for that constituent. If a constituent does not have a drinking water standard, the Flag 2 criterion equals 10 times a recently published 90th percentile detection limit obtained by one of the primary laboratories. If a constituent exceeds Flag 2 in a monitoring well series, environmental screening wells in that series are sampled and analyzed for that constituent once a year. If a constituent falls below Flag 2 for three consecutive sampling episodes, the well's flag is reduced from Flag 2 status to Flag 1 or Flag 0 status and follows the rules for the lower flag.

The following constituents are exceptions to the flagging rules:

- Specific conductance and pH, which are indicator parameters, have flagging criteria but do not trigger the scheduling mechanism. No flags are set for alkalinity, 5-day biochemical oxygen demand, calcium, carbonate, chemical oxygen demand, magnesium, potassium, silica, sodium, total dissolved solids, total phosphates (as P), and total phosphorous because they are indicator parameters or major cations. Analyses for these constituents are conducted as part of the triennial environmental screening program or by special request.
- Aesthetic analyses such as color, odor, corrosivity, Eh, turbidity, and surfactants are not assigned flagging criteria but are analyzed by special request.
- Common laboratory contaminants and cleaners including phthalates, dichloromethane, ketones, and toluene are not assigned flagging criteria unless they have PDWS. These constituents are analyzed by special request.

Table B-1. Flagging Criteria

Analyte	Unit	Flag 1	Flag 2	Source
Acenaphthene	µg/L	5.1	10.2	EPA Method 8270
Acenaphthylene	µg/L	5.1	10.2	EPA Method 8270
Acetone	µg/L	500	1,000	EPA Method 8240 (Set by EPD/EMS)
Acetonitrile (Methyl cyanide)	µg/L	50	100	EPA Method 8240
Acetophenone	µg/L	85	170	EPA Method 8270
2-Acetylaminofluorene	µg/L	81	162	EPA Method 8270
Acrolein	µg/L	166.5	333	EPA Method 8240

Analyte	Unit	Flag 1	Flag 2	Source
Acrylonitrile	µg/L	250	500	EPA Method 8240
Actinium-228	µCi/mL	1.64E-06	3.27E-06	Proposed DWS (EPA, 1991a)
Alachlor	µg/L	1	2	Final DWS (CFR, 1995a)
Aldicarb	µg/L	1.5	3	Final DWS (CFR, 1995a)
Aldicarb sulfone	µg/L	1	2	Final DWS (CFR, 1995a)
Aldicarb sulfoxide	µg/L	2	4	Final DWS (CFR, 1995a)
Aldrin	µg/L	0.4	0.8	EPA Method 8080
Alkalinity (as CaCO ₃)		No flag	No flag	Set by EPD/EMS
Allyl chloride	µg/L	416.5	833	EPA Method 8240
Aluminum	µg/L	25	50	Secondary DWS (CFR, 1995b)
Aluminum, dissolved	µg/L	25	50	Secondary DWS (CFR, 1995b)
Aluminum, total recoverable	µg/L	25	50	Secondary DWS (CFR, 1995b)
Americium-241	µCi/mL	3.17E-09	6.34E-09	Proposed DWS (EPA, 1991a)
Americium-243	µCi/mL	3.19E-09	6.37E-09	Proposed DWS (EPA, 1991a)
4-Aminobiphenyl	µg/L	81	162	EPA Method 8270
Ammonia	µg/L	250	500	APHA Method 417B
Ammonia nitrogen	µg/L	500	1,000	EPA Method 350.1
Aniline	µg/L	81	162	EPA Method 8270
Anthracene	µg/L	5.1	10.2	EPA Method 8270
Antimony	µg/L	3	6	Final DWS (CFR, 1995a)
Antimony, dissolved	µg/L	3	6	Final DWS (CFR, 1995a)
Antimony, total recoverable	µg/L	3	6	Final DWS (CFR, 1995a)
Antimony-124	µCi/mL	3E-08	6E-08	Interim Final DWS (EPA, 1977)
Antimony-125	µCi/mL	1.5E-07	3E-07	Interim Final DWS (EPA, 1977)
Aramite	µg/L	81	162	EPA Method 8270
Arsenic	µg/L	25	50	Final DWS (CFR, 1995a)
Arsenic, dissolved	µg/L	25	50	Final DWS (CFR, 1995a)
Arsenic, total recoverable	µg/L	25	50	Final DWS (CFR, 1995a)
Asbestos	Fibers/L	3,500,000	7,000,000	Final DWS (CFR, 1995a)
Atrazine	µg/L	1.5	3	Final DWS (CFR, 1995a)
Azobenzene	µg/L	50	100	EPA Method 625
Barium	µg/L	1000	2,000	Final DWS (CFR, 1995a)
Barium, dissolved	µg/L	1000	2,000	Final DWS (CFR, 1995a)
Barium, total recoverable	µg/L	1000	2,000	Final DWS (CFR, 1995a)
Barium-133	µCi/mL	7.6E-07	1.52E-06	Proposed DWS (EPA, 1991a)
Barium-140 ^a	µCi/mL	4.5E-08	9E-08	Interim Final DWS (EPA, 1977)
Benzene	µg/L	2.5	5	Final DWS (CFR, 1995a)
alpha-Benzene hexachloride	µg/L	0.15	0.3	EPA Method 8080
beta-Benzene hexachloride	µg/L	0.25	0.5	EPA Method 8080
delta-Benzene hexachloride	µg/L	0.25	0.5	EPA Method 8080
Benzidine	µg/L	83.5	167	EPA Method 8270
Benzo[a]anthracene	µg/L	0.05	0.1	Proposed DWS (EPA, 1990)
Benzo[b]fluoranthene	µg/L	0.1	0.2	Proposed DWS (EPA, 1990)
Benzo[k]fluoranthene	µg/L	0.1	0.2	Proposed DWS (EPA, 1990)
Benzoic acid	µg/L	5	10	EPA Method 8270
Benzo[g,h,i]perylene	µg/L	5.1	10.2	EPA Method 8270
Benzo[a]pyrene	µg/L	0.1	0.2	Final DWS (CFR, 1995a)
1,4-Benzoquinone	µg/L	50	100	EPA Method 8270
Benzyl alcohol	µg/L	5	10	EPA Method 8270
Beryllium	µg/L	2	4	Final DWS (CFR, 1995a)
Beryllium, dissolved	µg/L	2	4	Final DWS (CFR, 1995a)
Beryllium, total recoverable	µg/L	2	4	Final DWS (CFR, 1995a)
Beryllium-7	µCi/mL	3E-06	6E-06	Interim Final DWS (EPA, 1977)

Analyte	Unit	Flag 1	Flag 2	Source
5-day Biochemical oxygen demand		No flag	No flag	Set by EPD/EMS
Bis(2-chloroethoxy) methane	µg/L	5.1	10.2	EPA Method 8270
Bis(2-chloroethyl) ether	µg/L	5.1	10.2	EPA Method 8270
Bis(2-chloroisopropyl) ether	µg/L	100	200	EPA Method 8270
Bis(chloromethyl) ether	µg/L	50	100	EPA Method 8270
Bis(2-ethylhexyl) phthalate	µg/L	3	6	Final DWS (CFR, 1995a)
Bismuth-214	µCi/mL	9.4E-06	1.89E-05	Proposed DWS (EPA, 1991a)
Boron	µg/L	2,500	5,000	EPA Method 6010
Boron, dissolved	µg/L	2,500	5,000	EPA Method 6010
Boron, total recoverable	µg/L	2,500	5,000	EPA Method 6010
Bromide	µg/L	5,000	10,000	EPA Method 300.0
Bromobenzene	µg/L	25	50	EPA Method 8260
Bromochloromethane	µg/L	5	10	EPA Method 8260
Bromodichloromethane	µg/L	50	100	Final DWS (CFR, 1995a)
Bromoform	µg/L	50	100	Final DWS (CFR, 1995a)
Bromomethane (Methyl bromide)	µg/L	10	20	EPA Method 8240
4-Bromophenyl phenyl ether	µg/L	5.1	10.2	EPA Method 8270
n-Butylbenzene	µg/L	5	10	EPA Method 8260
sec-Butylbenzene	µg/L	5	10	EPA Method 8260
tert-Butylbenzene	µg/L	5	10	EPA Method 8260
Butylbenzyl phthalate		No flag	No flag	Set by EPD/EMS
2-sec-Butyl-4,6-dinitrophenol	µg/L	3.5	7	Final DWS (CFR, 1995a)
Cadmium	µg/L	2.5	5	Final DWS (CFR, 1995a)
Cadmium, dissolved	µg/L	2.5	5	Final DWS (CFR, 1995a)
Cadmium, total recoverable	µg/L	2.5	5	Final DWS (CFR, 1995a)
Calcium		No flag	No flag	Set by EPD/EMS
Calcium, dissolved		No flag	No flag	Set by EPD/EMS
Calcium, total recoverable		No flag	No flag	Set by EPD/EMS
Carbofuran	µg/L	20	40	Final DWS (CFR, 1995a)
Carbon disulfide	µg/L	25	50	EPA Method 8240
Carbon tetrachloride	µg/L	2.5	5	Final DWS (CFR, 1995a)
Carbon-14	µCi/mL	1E-06	2E-06	Interim Final DWS (EPA, 1977)
Carbonate		No flag	No flag	Set by EPD/EMS
Cerium-141 ^a	µCi/mL	1.5E-07	3E-07	Interim Final DWS (EPA, 1977)
Cerium-144	µCi/mL	1.31E-07	2.61E-07	Proposed DWS (EPA, 1991a)
Cesium-134 ^b	µCi/mL	4.07E-08	8.13E-08	Proposed DWS (EPA, 1991a)
Cesium-137	µCi/mL	1E-07	2E-07	Interim Final DWS (EPA, 1977)
Chemical oxygen demand		No flag	No flag	Set by EPD/EMS
Chlordane	µg/L	1	2	Final DWS (CFR, 1995a)
alpha-Chlordane	µg/L	0.25	0.5	EPA Method 8080
gamma-Chlordane	µg/L	0.25	0.5	EPA Method 8080
Chloride	µg/L	125,000	250,000	Secondary DWS (CFR, 1995b)
4-Chloroaniline	µg/L	5	10	EPA Method 8270
Chlorobenzene	µg/L	50	100	Final DWS (CFR, 1995a)
Chlorobenzilate	µg/L	81	162	EPA Method 8270
4-Chloro-m-cresol	µg/L	5.1	10.2	EPA Method 8270
Chloroethane	µg/L	10	20	EPA Method 8240
Chloroethene (Vinyl chloride)	µg/L	1	2	Final DWS (CFR, 1995a)
Chloroethyl vinyl ether	µg/L	5	10	EPA Method 8240
2-Chloroethyl vinyl ether	µg/L	50	100	EPA Method 8240
Chloroform	µg/L	50	100	Final DWS (CFR, 1995a)
Chloromethane (Methyl chloride)	µg/L	10	20	EPA Method 8240
2-Chloronaphthalene	µg/L	5.1	10.2	EPA Method 8240
2-Chlorophenol	µg/L	5.1	10.2	EPA Method 8270

Analyte	Unit	Flag 1	Flag 2	Source
4-Chlorophenyl phenyl ether	µg/L	5.1	10.2	EPA Method 8270
Chloroprene	µg/L	1,665	3,330	EPA Method 8240
2-Chlorotoluene	µg/L	25	50	EPA Method 8260
4-Chlorotoluene	µg/L	5	10	EPA Method 8260
Chromium	µg/L	50	100	Final DWS (CFR, 1995a)
Chromium, dissolved	µg/L	50	100	Final DWS (CFR, 1995a)
Chromium, total recoverable	µg/L	50	100	Final DWS (CFR, 1995a)
Chromium-51 ^a	µCi/mL	3E-06	6E-06	Interim Final DWS (EPA, 1977)
Chrysene	µg/L	0.1	0.2	Proposed DWS (EPA, 1990)
Cobalt	µg/L	50	100	EPA Method 6010
Cobalt, dissolved	µg/L	50	100	EPA Method 6010
Cobalt, total recoverable	µg/L	50	100	EPA Method 6010
Cobalt-57	µCi/mL	5E-07	1E-06	Interim Final DWS (EPA, 1977)
Cobalt-58	µCi/mL	4.5E-06	9E-06	Interim Final DWS (EPA, 1977)
Cobalt-60	µCi/mL	5E-08	1E-07	Interim Final DWS (EPA, 1977)
Color		No flag	No flag	Set by EPD/EMS
Copper	µg/L	500	1,000	Primary DWS (SCDHEC, 1981)
Copper, dissolved	µg/L	500	1,000	Primary DWS (SCDHEC, 1981)
Copper, total recoverable	µg/L	500	1,000	Primary DWS (SCDHEC, 1981)
Corrosivity		No flag	No flag	Set by EPD/EMS
m-Cresol (3-Methylphenol)	µg/L	50	100	EPA Method 8270
o-Cresol (2-Methylphenol)	µg/L	5	10	EPA Method 8270
p-Cresol (4-Methylphenol)	µg/L	60	120	EPA Method 8270
Curium-242	µCi/mL	6.65E-08	1.33E-07	Proposed DWS (EPA, 1991a)
Curium-243	µCi/mL	4.15E-09	8.3E-09	Proposed DWS (EPA, 1991a)
Curium-243/244 ^c	µCi/mL	4.15E-09	8.3E-09	Proposed DWS (EPA, 1991a)
Curium-244	µCi/mL	4.92E-09	9.84E-09	Proposed DWS (EPA, 1991a)
Curium-245/246 ^a	µCi/mL	3.12E-09	6.23E-09	Proposed DWS (EPA, 1991a)
Curium-246	µCi/mL	3.14E-09	6.27E-09	Proposed DWS (EPA, 1991a)
Cyanide	µg/L	100	200	Final DWS (CFR, 1995a)
Dalapon	µg/L	100	200	Final DWS (CFR, 1995a)
p,p'-DDD	µg/L	0.55	1.1	EPA Method 8080
p,p'-DDE	µg/L	0.25	0.5	EPA Method 8080
p,p'-DDT	µg/L	0.85	1.7	EPA Method 8080
Diallate	µg/L	81	162	EPA Method 8270
Dibenz[a,h]anthracene	µg/L	0.15	0.3	Proposed DWS (EPA, 1990)
Dibenzofuran	µg/L	5	10	EPA Method 8270
Dibromochloromethane	µg/L	50	100	Final DWS (CFR, 1995a)
1,2-Dibromo-3-chloropropane	µg/L	0.1	0.2	Final DWS (CFR, 1995a)
1,2-Dibromoethane	µg/L	0.025	0.05	Final DWS (CFR, 1995a)
Dibromomethane (Methylene bromide)	µg/L	10	20	EPA Method 8240
Di-n-butyl phthalate		No flag	No flag	Set by EPD/EMS
1,2-Dichlorobenzene	µg/L	300	600	Final DWS (CFR, 1995a)
1,3-Dichlorobenzene	µg/L	81	162	EPA Method 8270
1,4-Dichlorobenzene	µg/L	37.5	75	Final DWS (CFR, 1995a)
3,3'-Dichlorobenzidine	µg/L	5.1	10.2	EPA Method 8270
trans-1,4-Dichloro-2-butene	µg/L	250	500	EPA Method 8240
Dichlorodifluoromethane	µg/L	10	20	EPA Method 8240
1,1-Dichloroethane	µg/L	10	20	EPA Method 8240
1,2-Dichloroethane	µg/L	2.5	5	Final DWS (CFR, 1995a)
cis-1,2-Dichloroethylene	µg/L	35	70	Final DWS (CFR, 1995a)
1,1-Dichloroethylene	µg/L	3.5	7	Final DWS (CFR, 1995a)
1,2-Dichloroethylene	µg/L	25	50	EPA Method 8240

Analyte	Unit	Flag 1	Flag 2	Source
trans-1,2-Dichloroethylene	µg/L	50	100	Final DWS (CFR, 1995a)
Dichloromethane (Methylene chloride)	µg/L	2.5	5	Final DWS (CFR, 1995a)
2,4-Dichlorophenol	µg/L	5.1	10.2	EPA Method 8270
2,6-Dichlorophenol	µg/L	83.5	167	EPA Method 8270
2,4-Dichlorophenoxyacetic acid	µg/L	35	70	Final DWS (CFR, 1995a)
1,2-Dichloropropane	µg/L	2.5	5	Final DWS (CFR, 1995a)
2,2-Dichloropropane	µg/L	5	10	EPA Method 8260
cis-1,3-Dichloropropene	µg/L	10	20	EPA Method 8240
trans-1,3-Dichloropropene	µg/L	10	20	EPA Method 8240
Dieldrin	µg/L	4.15	8.3	EPA Method 8080
Diethyl phthalate		No flag	No flag	Set by EPD/EMS
Di(2-ethylhexyl) adipate	µg/L	200	400	Final DWS (CFR, 1995a)
Dimethoate	µg/L	81	162	EPA Method 8270
2,4-Dimethyl phenol	µg/L	5.1	10.2	EPA Method 8270
Dimethyl phthalate		No flag	No flag	Set by EPD/EMS
p-Dimethylaminoazobenzene	µg/L	81	162	EPA Method 8270
p-(Dimethylamino)ethylbenzene	µg/L	50	100	EPA Method 8270
7,12-Dimethylbenz[a]anthracene	µg/L	81	162	EPA Method 8270
3,3'-Dimethylbenzidine	µg/L	81	162	EPA Method 8270
a,a-Dimethylphenethylamine	µg/L	81	162	EPA Method 8270
1,3-Dinitrobenzene	µg/L	81	162	EPA Method 8270
2,4-Dinitrophenol	µg/L	51	102	EPA Method 8270
2,4-Dinitrotoluene	µg/L	0.5	1	EPA Method 8270
2,6-Dinitrotoluene	µg/L	0.5	1	EPA Method 8270
Di-n-octyl phthalate		No flag	No flag	Set by EPD/EMS
1,4-Dioxane	µg/L	500	1,000	EPA Method 8270
Diphenylamine	µg/L	81	162	EPA Method 8270
1,2-Diphenylhydrazine	µg/L	83.5	167	EPA Method 8270
Diquat dibromide	µg/L	10	20	Final DWS (CFR, 1995a)
Dissolved organic carbon	µg/L	10,500,000	21,000,000	EPA Method 9060
Disulfoton	µg/L	81	162	EPA Method 8270
Eh		No flag	No flag	Set by EPD/EMS
Endosulfan I	µg/L	0.25	0.5	EPA Method 8080
Endosulfan II	µg/L	0.55	1.1	EPA Method 8080
Endosulfan sulfate	µg/L	0.55	1.1	EPA Method 8080
Endothall	µg/L	50	100	Final DWS (CFR, 1995a)
Endrin	µg/L	1	2	Final DWS (CFR, 1995a)
Endrin aldehyde	µg/L	0.85	1.7	EPA Method 8080
Endrin ketone		No flag	No flag	Set by EPD/EMS
Ethyl ether	µg/L	50	100	EPA Method 8260
Ethyl methacrylate	µg/L	2.5	5	EPA Method 8270
Ethyl methanesulfonate	µg/L	81	162	EPA Method 8270
Ethylbenzene	µg/L	350	700	Final DWS (CFR, 1995a)
Europium-152	µCi/mL	3E-08	6E-08	Interim Final DWS (EPA, 1977)
Europium-154	µCi/mL	1E-07	2E-07	Interim Final DWS (EPA, 1977)
Europium-155	µCi/mL	3E-07	6E-07	Interim Final DWS (EPA, 1977)
Famphur	µg/L	81	162	EPA Method 8270
Fluoranthene	µg/L	5.1	10.2	EPA Method 8270
Fluorene	µg/L	5.1	10.2	EPA Method 8270
Fluoride	µg/L	2,000	4,000	Final DWS (CFR, 1995a)
Glyphosate	µg/L	350	700	Final DWS (CFR, 1995a)
Gross alpha	µCi/mL	7.5E-09	1.5E-08	Final DWS (CFR, 1995a)
Heptachlor	µg/L	0.2	0.4	Final DWS (CFR, 1995a)

Analyte	Unit	Flag 1	Flag 2	Source
Heptachlor epoxide	µg/L	0.1	0.2	Final DWS (CFR, 1995a)
Heptachlorodibenzo-p-dioxin isomers	µg/L	0.007	0.014	EPA Method 8280
1,2,3,4,6,7,8-HPCDD	µg/L	0.007	0.014	EPA Method 8280
Heptachlorodibenzo-p-furan isomers	µg/L	0.008	0.016	EPA Method 8280
1,2,3,4,6,7,8-HPCDF	µg/L	0.008	0.016	EPA Method 8280
Hexachlorobenzene	µg/L	0.5	1	Final DWS (CFR, 1995a)
Hexachlorobutadiene	µg/L	5	10	EPA Method 8270
Hexachlorocyclopentadiene	µg/L	25	50	Final DWS (CFR, 1995a)
Hexachlorodibenzo-p-dioxin isomers	µg/L	0.008	0.016	EPA Method 8280
1,2,3,4,7,8-HXCDD	µg/L	0.0105	0.021	EPA Method 8280
Hexachlorodibenzo-p-furan isomers	µg/L	0.006	0.012	EPA Method 8280
1,2,3,4,7,8-HXCDF	µg/L	0.0085	0.017	EPA Method 8280
Hexachloroethane	µg/L	0.5	1	EPA Method 8270
Hexachlorophene	µg/L	83.5	167	EPA Method 8270
Hexachloropropene	µg/L	81	162	EPA Method 8270
2-Hexanone	µg/L	50	100	EPA Method 8240
Indeno[1,2,3-c,d]pyrene	µg/L	0.5	1	EPA Method 8270
Iodine	µg/L	250	500	APHA Method 415A
Iodine-129	µCi/mL	5E-10	1E-09	Interim Final DWS (EPA, 1977)
Iodine-131 ^a	µCi/mL	1.5E-09	3E-09	Interim Final DWS (EPA, 1977)
Iodomethane (Methyl iodide)	µg/L	125	250	EPA Method 8240
Iron	µg/L	150	300	Secondary DWS (CFR, 1995b)
Iron, dissolved	µg/L	150	300	Secondary DWS (CFR, 1995b)
Iron, total recoverable	µg/L	150	300	Secondary DWS (CFR, 1995b)
Iron-55 ^a	µCi/mL	1E-06	2E-06	Interim Final DWS (EPA, 1977)
Iron-59 ^a	µCi/mL	1E-07	2E-07	Interim Final DWS (EPA, 1977)
Isobutyl alcohol	µg/L	834.5	1,669	EPA Method 8240
Isodrin	µg/L	81	162	EPA Method 8270
Isophorone	µg/L	5.1	10.2	EPA Method 8270
Isopropylbenzene	µg/L	5	10	EPA Method 8260
p-Isopropyltoluene	µg/L	5	10	EPA Method 8260
Isosafrole	µg/L	81	162	EPA Method 8270
Kepone	µg/L	81	162	EPA Method 8270
Lanthanum-140 ^a	µCi/mL	3E-08	6E-08	Interim Final DWS (EPA, 1977)
Lead	µg/L	25	50	Final DWS (SCDHEC, 1981)
Lead, dissolved	µg/L	25	50	Final DWS (SCDHEC, 1981)
Lead, total recoverable	µg/L	25	50	Final DWS (SCDHEC, 1981)
Lead-212	µCi/mL	6.2E-08	1.23E-07	Proposed DWS (EPA, 1991a)
Lindane	µg/L	0.1	0.2	Final DWS (CFR, 1995a)
Lithium	µg/L	125	250	EPA Method 6010
Lithium, dissolved	µg/L	125	250	EPA Method 6010
Lithium, total recoverable	µg/L	125	250	EPA Method 6010
Magnesium		No flag	No flag	Set by EPD/EMS
Magnesium, dissolved		No flag	No flag	Set by EPD/EMS
Magnesium, total recoverable		No flag	No flag	Set by EPD/EMS
Manganese	µg/L	25	50	Secondary DWS (CFR, 1995b)
Manganese, dissolved	µg/L	25	50	Secondary DWS (CFR, 1995b)
Manganese, total recoverable	µg/L	25	50	Secondary DWS (CFR, 1995b)
Manganese-54	µCi/mL	1.5E-07	3E-07	Interim Final DWS (EPA, 1977)
Mercury	µg/L	1	2	Final DWS (CFR, 1995a)
Mercury, dissolved	µg/L	1	2	Final DWS (CFR, 1995a)
Mercury, total recoverable	µg/L	1	2	Final DWS (CFR, 1995a)
Methacrylonitrile	µg/L	416.5	833	EPA Method 8240

Analyte	Unit	Flag 1	Flag 2	Source
Methapyrilene	µg/L	81	162	EPA Method 8270
Methoxychlor	µg/L	20	40	Final DWS (CFR, 1995a)
Methyl tert-butyl ether	µg/L	5	10	EPA Method 8260
Methyl ethyl ketone		No flag	No flag	Set by EPD/EMS
Methyl isobutyl ketone		No flag	No flag	Set by EPD/EMS
Methyl methacrylate	µg/L	50	100	EPA Method 8270
Methyl methanesulfonate	µg/L	81	162	EPA Method 8270
3-Methylcholanthrene	µg/L	81	162	EPA Method 8270
2-Methyl-4,6-dinitrophenol	µg/L	51	102	EPA Method 8270
2-Methylnaphthalene	µg/L	5	10	EPA Method 8270
Molybdenum	µg/L	250	500	EPA Method 6010
Molybdenum, dissolved	µg/L	250	500	EPA Method 6010
Molybdenum, total recoverable	µg/L	250	500	EPA Method 6010
Naphthalene	µg/L	83.5	167	EPA Method 8270
1,4-Naphthoquinone	µg/L	81	162	EPA Method 8270
1-Naphthylamine	µg/L	81	162	EPA Method 8270
2-Naphthylamine	µg/L	81	162	EPA Method 8270
Neptunium-237	µCi/mL	3.53E-09	7.06E-09	Proposed DWS (EPA, 1991a)
Neptunium-239	µCi/mL	8.4E-07	1.68E-06	Proposed DWS (EPA, 1991a)
Nickel	µg/L	50	100	Final DWS (CFR, 1995a)
Nickel, dissolved	µg/L	50	100	Final DWS (CFR, 1995a)
Nickel, total recoverable	µg/L	50	100	Final DWS (CFR, 1995a)
Nickel-59	µCi/mL	1.5E-07	3E-07	Interim Final DWS (EPA, 1977)
Nickel-63	µCi/mL	2.5E-08	5E-08	Interim Final DWS (EPA, 1977)
Niobium-95 ^a	µCi/mL	1.5E-07	3E-07	Interim Final DWS (EPA, 1977)
Nitrate as nitrogen	µg/L	5,000	10,000	Final DWS (CFR, 1995a)
Nitrate-nitrite as nitrogen	µg/L	5,000	10,000	Final DWS (CFR, 1995a)
Nitrite as nitrogen	µg/L	500	1,000	Final DWS (CFR, 1995a)
m-Nitroaniline	µg/L	5	10	EPA Method 8270
o-Nitroaniline	µg/L	5	10	EPA Method 8270
p-Nitroaniline	µg/L	5	10	EPA Method 8270
Nitrobenzene	µg/L	5.1	10.2	EPA Method 8270
Nitrogen by Kjeldahl method	µg/L	500	1,000	EPA Method 351.2
2-Nitrophenol	µg/L	5.1	10.2	EPA Method 8270
4-Nitrophenol	µg/L	5.1	10.2	EPA Method 8270
4-Nitroquinoline-1-oxide	µg/L	81	162	EPA Method 8270
N-Nitrosodi-n-butylamine	µg/L	81	162	EPA Method 8270
N-Nitrosodiethylamine	µg/L	81	162	EPA Method 8270
N-Nitrosodimethylamine	µg/L	83.5	167	EPA Method 8270
N-Nitrosodiphenylamine	µg/L	5.1	10.2	EPA Method 8270
N-Nitrosodipropylamine	µg/L	5.1	10.2	EPA Method 8270
N-Nitrosomethylethylamine	µg/L	81	162	EPA Method 8270
N-Nitrosomorpholine	µg/L	81	162	EPA Method 8270
N-Nitrosopiperidine	µg/L	81	162	EPA Method 8270
N-Nitrosopyrrolidine	µg/L	81	162	EPA Method 8270
5-Nitro-o-toluidine	µg/L	81	162	EPA Method 8270
Nonvolatile beta	µCi/mL	2.5E-08	5E-08	Interim Final DWS (EPA, 1977)
Octachlorodibenzo-p-dioxin isomers	µg/L	0.0085	0.017	EPA Method 8280
Octachlorodibenzo-p-furan isomers	µg/L	0.0065	0.013	EPA Method 8280
Odor		No flag	No flag	Set by EPD/EMS
Oil and grease	µg/L	8,350	16,700	EPA Method 413.1
Oxamyl	µg/L	100	200	Final DWS (CFR, 1995a)
Parathion	µg/L	0.4	0.8	EPA Method 8080

Analyte	Unit	Flag 1	Flag 2	Source
Parathion methyl	µg/L	0.4	0.8	EPA Method 8080
PCB 1016	µg/L	0.25	0.5	Final DWS (CFR, 1995a)
PCB 1221	µg/L	0.25	0.5	Final DWS (CFR, 1995a)
PCB 1232	µg/L	0.25	0.5	Final DWS (CFR, 1995a)
PCB 1242	µg/L	0.25	0.5	Final DWS (CFR, 1995a)
PCB 1248	µg/L	0.25	0.5	Final DWS (CFR, 1995a)
PCB 1254	µg/L	0.25	0.5	Final DWS (CFR, 1995a)
PCB 1260	µg/L	0.25	0.5	Final DWS (CFR, 1995a)
PCB 1262	µg/L	0.25	0.5	Final DWS (CFR, 1995a)
Pentachlorobenzene	µg/L	81	162	EPA Method 8270
Pentachlorodibenzo-p-dioxin isomers	µg/L	0.008	0.016	EPA Method 8280
1,2,3,7,8-PCDD	µg/L	0.0075	0.015	EPA Method 8280
Pentachlorodibenzo-p-furan isomers	µg/L	0.0085	0.017	EPA Method 8280
1,2,3,7,8-PCDF	µg/L	0.0085	0.017	EPA Method 8280
Pentachloroethane	µg/L	81	162	EPA Method 8270
Pentachloronitrobenzene	µg/L	81	162	EPA Method 8270
Pentachlorophenol	µg/L	0.5	1	Final DWS (CFR, 1995a)
pH ^d	pH	8	10	Set by EPD/EMS
pH ^d	pH	4	3	Set by EPD/EMS
Phenacetin	µg/L	81	162	EPA Method 8270
Phenanthrene	µg/L	5.1	10.2	EPA Method 8270
Phenol	µg/L	83.5	167	EPA Method 8270
Phenols	µg/L	50	100	EPA Method 420.1
p-Phenylenediamine	µg/L	81	162	EPA Method 8270
Phorate	µg/L	0.85	1.7	EPA Method 8080
Picloram	µg/L	250	500	Final DWS (CFR, 1995a)
2-Picoline	µg/L	81	162	EPA Method 8270
Plutonium-238	µCi/mL	3.51E-09	7.02E-09	Proposed DWS (EPA, 1991a)
Plutonium-239	µCi/mL	3.11E-08	6.21E-08	Proposed DWS (EPA, 1991a)
Plutonium-239/240 ^c	µCi/mL	3.11E-08	6.21E-08	Proposed DWS (EPA, 1991a)
Plutonium-240	µCi/mL	3.11E-08	6.22E-08	Proposed DWS (EPA, 1991a)
Plutonium-241 ^a	µCi/mL	3.13E-08	6.26E-08	Proposed DWS (EPA, 1991a)
Plutonium-242 ^a	µCi/mL	3.27E-08	6.54E-08	Proposed DWS (EPA, 1991a)
Potassium		No flag	No flag	Set by EPD/EMS
Potassium, dissolved		No flag	No flag	Set by EPD/EMS
Potassium, total recoverable		No flag	No flag	Set by EPD/EMS
Potassium-40	µCi/mL	1.5E-07	3E-07	Proposed DWS (EPA, 1986a)
Promethium-144	µCi/mL	5E-08	1E-07	EPA Method 901.1
Promethium-146	µCi/mL	5E-08	1E-07	EPA Method 901.1
Promethium-147	µCi/mL	2.62E-06	5.24E-06	Proposed DWS (EPA, 1991a)
Pronamid	µg/L	81	162	EPA Method 8270
Propionitrile	µg/L	1,665	3,330	EPA Method 8240
n-Propylbenzene	µg/L	5	10	EPA Method 8260
Pyrene	µg/L	5.1	10.2	EPA Method 8270
Pyridine	µg/L	81	162	EPA Method 8270
Radium, total alpha-emitting	µCi/mL	1E-08	2E-08	Proposed DWS (EPA, 1991a)
Radium-226	µCi/mL	1E-08	2E-08	Proposed DWS (EPA, 1991a)
Radium-228	µCi/mL	1E-08	2E-08	Proposed DWS (EPA, 1991a)
Radon-222	µCi/mL	1.5E-07	3E-07	Proposed DWS (EPA, 1991a)
Ruthenium-103 ^a	µCi/mL	1E-07	2E-07	Interim Final DWS (EPA, 1977)
Ruthenium-106	µCi/mL	1.5E-08	3E-08	Interim Final DWS (EPA, 1977)
Safrole	µg/L	81	162	EPA Method 8270
Selenium	µg/L	25	50	Final DWS (CFR, 1995a)

Analyte	Unit	Flag 1	Flag 2	Source
Selenium, dissolved	µg/L	25	50	Final DWS (CFR, 1995a)
Selenium, total recoverable	µg/L	25	50	Final DWS (CFR, 1995a)
Silica		No flag	No flag	Set by EPD/EMS
Silica, dissolved		No flag	No flag	Set by EPD/EMS
Silica, total recoverable		No flag	No flag	Set by EPD/EMS
Silver	µg/L	50	100	Secondary DWS (CFR, 1995b)
Silver, dissolved	µg/L	50	100	Secondary DWS (CFR, 1995b)
Silver, total recoverable	µg/L	50	100	Secondary DWS (CFR, 1995b)
Simazine	µg/L	2	4	Final DWS (CFR, 1995a)
Sodium		No flag	No flag	Set by EPD/EMS
Sodium, dissolved		No flag	No flag	Set by EPD/EMS
Sodium, total recoverable		No flag	No flag	Set by EPD/EMS
Sodium-22	µCi/mL	2.33E-07	4.66E-07	Proposed DWS (EPA, 1991a)
Specific conductance ^d	µS/cm	250	500	Set by EPD/EMS
Strontium-89	µCi/mL	1E-08	2E-08	Interim Final DWS (EPA, 1977)
Strontium-89/90 ^c	µCi/mL	4E-09	8E-09	Final DWS (CFR, 1995a)
Strontium-90	µCi/mL	4E-09	8E-09	Final DWS (CFR, 1995a)
Styrene	µg/L	50	100	Final DWS (CFR, 1995a)
Sulfate	µg/L	200,000	400,000	Proposed DWS (EPA, 1990)
Sulfide	µg/L	8,350	16,700	EPA Method 9030
Sulfotep	µg/L	81	162	EPA Method 8270
Surfactants		No flag	No flag	Set by EPD/EMS
2,3,7,8-TCDD	µg/L	0.007	0.014	Final DWS (CFR, 1995a)
2,3,7,8-TCDF	µg/L	0.00425	0.0085	EPA Method 8280
Technetium-99	µCi/mL	4.5E-07	9E-07	Interim Final DWS (EPA, 1977)
1,2,4,5-Tetrachlorobenzene	µg/L	81	162	EPA Method 8270
Tetrachlorodibenzo-p-dioxin isomers	µg/L	0.007	0.014	EPA Method 8280
Tetrachlorodibenzo-p-furan isomers	µg/L	0.0055	0.011	EPA Method 8280
1,1,1,2-Tetrachloroethane	µg/L	10	20	EPA Method 8240
1,1,2,2-Tetrachloroethane	µg/L	50	100	EPA Method 8240
Tetrachloroethylene	µg/L	2.5	5	Final DWS (CFR, 1995a)
2,3,4,6-Tetrachlorophenol	µg/L	83.5	167	EPA Method 8270
Thallium	µg/L	1	2	Final DWS (CFR, 1995a)
Thallium, dissolved	µg/L	1	2	Final DWS (CFR, 1995a)
Thallium, total recoverable	µg/L	1	2	Final DWS (CFR, 1995a)
Thionazin	µg/L	81	162	EPA Method 8270
Thorium-228	µCi/mL	6.25E-08	1.25E-07	Proposed DWS (EPA, 1991a)
Thorium-230	µCi/mL	3.96E-08	7.92E-08	Proposed DWS (EPA, 1991a)
Thorium-232	µCi/mL	4.4E-08	8.8E-08	Proposed DWS (EPA, 1991a)
Thorium-234 ^a	µCi/mL	2E-07	4.01E-07	Proposed DWS (EPA, 1991a)
Tin	µg/L	250	500	EPA Method 282.2
Tin, dissolved	µg/L	250	500	EPA Method 282.2
Tin, total recoverable	µg/L	250	500	EPA Method 282.2
Tin-113	µCi/mL	1.5E-07	3E-07	Interim Final DWS (EPA, 1977)
Toluene	µg/L	500	1,000	Final DWS (CFR, 1995a)
o-Toluidine	µg/L	81	162	EPA Method 8270
Total carbon	µg/L	5,000	10,000	EPA Method 9060
Total coliform	N/A	0	0	Final DWS (CFR, 1995a)
Total dissolved solids		No flag	No flag	Set by EPD/EMS
Total hydrocarbons	µg/L	5,000	10,000	EPA Method 418.1
Total inorganic carbon	µg/L	8,350	16,700	EPA Method 9060
Total organic carbon	µg/L	500,000	1,000,000	EPA Method 9060
Total organic halogens	µg/L	50	100	EPA Method 9020
Total organic nitrogen	µg/L	500	1,000	APHA Method 420

Analyte	Unit	Flag 1	Flag 2	Source
Total petroleum hydrocarbons	µg/L	8,350	16,700	EPA Method 418.1
Total phosphates (as P)		No flag	No flag	Set by EPD/EMS
Total phosphorus		No flag	No flag	Set by EPD/EMS
Toxaphene	µg/L	1.5	3	Final DWS (CFR, 1995a)
2,4,5-TP (Silvex)	µg/L	25	50	Final DWS (CFR, 1995a)
Tributyl phosphate	µg/L	86	172	EPA Method 8270
1,2,3-Trichlorobenzene	µg/L	5	10	EPA Method 8260
1,2,4-Trichlorobenzene	µg/L	35	70	Final DWS (CFR, 1995a)
1,1,1-Trichloroethane	µg/L	100	200	Final DWS (CFR, 1995a)
1,1,2-Trichloroethane	µg/L	2.5	5	Final DWS (CFR, 1995a)
Trichloroethylene	µg/L	2.5	5	Final DWS (CFR, 1995a)
Trichlorofluoromethane	µg/L	10	20	EPA Method 8240
2,4,5-Trichlorophenol	µg/L	5	10	EPA Method 8270
2,4,6-Trichlorophenol	µg/L	0.5	1	EPA Method 8270
2,4,5-Trichlorophenoxyacetic acid	µg/L	0.25	0.5	EPA Method 8150
1,2,3-Trichloropropane	µg/L	10	20	EPA Method 8240
Trichlorotrifluoroethane	µg/L	50	100	EPA Method 8260
O,O,O-Triethyl phosphorothioate	µg/L	81	162	EPA Method 8270
1,2,4-Trimethylbenzene	µg/L	5	10	EPA Method 8260
1,3,5-Trimethylbenzene	µg/L	5	10	EPA Method 8260
1,3,5-Trinitrobenzene	µg/L	81	162	EPA Method 8270
Tritium	µCi/mL	1E-05	2E-05	Final DWS (CFR, 1995a)
Turbidity ^a		No flag	No flag	Set by EPD/EMS
Uranium	µg/L	10	20	Proposed DWS (EPA, 1991a)
Uranium alpha activity	µCi/mL	1.5E-08	3E-08	Proposed DWS (EPA, 1991a)
Uranium, dissolved	µg/L	10	20	Proposed DWS (EPA, 1991a)
Uranium, total recoverable	µg/L	10	20	Proposed DWS (EPA, 1991a)
Uranium-233/234 ^c	µCi/mL	6.9E-09	1.38E-08	Proposed DWS (EPA, 1991a)
Uranium-234	µCi/mL	6.95E-09	1.39E-08	Proposed DWS (EPA, 1991a)
Uranium-235	µCi/mL	7.25E-09	1.45E-08	Proposed DWS (EPA, 1991a)
Uranium-238	µCi/mL	7.3E-09	1.46E-08	Proposed DWS (EPA, 1991a)
Vanadium	µg/L	66.5	133	EPA Method 6010
Vanadium, dissolved	µg/L	66.5	133	EPA Method 6010
Vanadium, total recoverable	µg/L	66.5	133	EPA Method 6010
Vinyl acetate	µg/L	50	100	EPA Method 8240
m/p-Xylene	µg/L	81	162	EPA Method 8260
o-Xylene	µg/L	5	10	EPA Method 8260
Xylenes	µg/L	5,000	10,000	Final DWS (CFR, 1995a)
Yttrium-88	µCi/mL	5E-08	1E-07	EPA Method 901.1
Zinc	µg/L	2,500	5,000	Secondary DWS (CFR, 1995b)
Zinc, dissolved	µg/L	2,500	5,000	Secondary DWS (CFR, 1995b)
Zinc, total recoverable	µg/L	2,500	5,000	Secondary DWS (CFR, 1995b)
Zinc-65	µCi/mL	1.5E-07	3E-07	Interim Final DWS (EPA, 1977)
Zirconium-95	µCi/mL	1E-07	2E-07	Interim Final DWS (EPA, 1977)
Zirconium/Niobium-95 ^a	µCi/mL	1E-07	2E-07	Interim Final DWS (EPA, 1977)

^a EMS discontinued monitoring this radionuclide because it is inappropriate for the SRS groundwater monitoring program.

^b EPD/EMS set this flagging criterion using the 1991 proposed DWS because the final DWS in 1977 may have been in error.

^c When radionuclide analyses are combined, the lowest DWS of the two isotopes is used for flagging.

^d Will not trigger scheduling.

^e The primary maximum contaminant level range for turbidity is 1-5 NTU, which is inappropriate for the SRS groundwater monitoring program.

Appendix C

Figures

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Figure 1. Location of the Interim Sanitary Landfill at the Savannah River Site

Figure 2. Location of Monitoring Wells at the Interim Sanitary Landfill

Figure 3. Piezometric Surface Map of Steed Pond Aquifer (Water Table) at the Interim Sanitary Landfill, First Quarter 1997

Figure 4. Piezometric Surface Map of Steed Pond Aquifer (Water Table) at the Interim Sanitary Landfill, Third Quarter 1997

Figure 5. Regional Correlation of Hydrostratigraphic and Lithostratigraphic Nomenclature

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Appendix D

Groundwater Monitoring Results Tables

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Key to Reading the Tables

The following abbreviations may appear in the data tables:

Constituents

Sp. conductance specific conductance

Laboratories

CN	Clemson Technical Center, Inc.
EM	Environmental Protection Department/Environmental Monitoring Section (EPD/EMS) Laboratory
GE or GP	General Engineering Laboratories
SC	Savannah River Technology Center
SP	Spencer Testing Services, Inc.
TM	Thermo NUTech
WA or WS	Recra LabNet, Inc.

Sampling Codes

B	blank sample was collected
C	well was pumping continuously
D	well was dry
E	equipment blank was collected
I	well went dry during sampling; insufficient water to collect all samples
L	well went dry before sampling began; only depth to water can be determined
N	well was not stabilized before sampling began
P	inaccessibility or mechanical failure prevented sample collection and field analysis of the water
S	no water in standpipe; for water-level events only
W	purged water must be containerized; only water-level measurements were obtained
X	well went dry during purging; samples collected after well recovered

Sampling Methods

B	sample collected using an open-bucket bailer
O	sample collected by method other than bailer or pump
P	sample collected using a bladder pump
S	sample collected using a single-speed centrifugal downhole pump
V	sample collected using a variable-speed pump

Units

mg/L	milligrams per liter
msl	mean sea level
MSL	million structures per liter
NTU	nephelometric turbidity unit
pCi/L	picocuries per liter
pCi/mL	picocuries per milliliter
pH	pH unit

µg/L	micrograms per liter
µS/cm	microsiemens per centimeter
Other	
CS	carbon steel
DF	<i>dilution factor</i> column in data tables
E	exponential notation (e.g., 1.1E-09 = 1.1×10^{-9} = 0.0000000011)
H	<i>holding time</i> column in data tables
Mod	<i>modifier</i> column in data tables
PDWS	Primary Drinking Water Standard
PVC	polyvinyl chloride
ST	<i>exceeded standard</i> column in data tables
TOC	top of casing

Results below Detection

For radiological analyses, the analytical result field contains the result recorded on the analytical instrument and reported by the laboratory, even if it is negative. For nonradiological analyses, if the analyte is not detected, the sample-specific estimated quantitation limit (EQL) is entered into the result field and is reported with a less than [<] sign. The EQL is defined as the lowest concentration that can be achieved reliably within specified limits of precision and accuracy during routine laboratory operating conditions. The sample-specific EQL is modified for sample concentration or dilution or unusual aliquot size that affects analytical sensitivity.

Holding Times

Standard analytical methods include a limit, called holding time, on the maximum elapsed time between sample collection and extraction or analysis by the laboratory. In the data tables, a large bullet (•) in the *H* (holding time) column indicates that holding time was exceeded. Analyses performed beyond holding times may not yield valid results.

The South Carolina Department of Health and Environmental Control (SCDHEC) allows only 15 minutes to elapse between sampling and analysis for pH. Thus, only field pH measurements can meet the holding time criterion; laboratory pH analyses always will exceed it.

The laboratory procedure used for the determination of specific conductance allows one day to elapse between sampling and analysis. Thus, laboratory specific conductance measurements may exceed the holding time criterion.

Data Rounding

A constituent result in the analytical results tables that is not marked in the *ST* column but appears to equal an Appendix A standard is below the standard in the database. Values stored in the database contain more significant digits than the reported results. Apparent discrepancies in the tables are due to the rounding of reported results.

Data Qualification

The contract laboratories submit sample- or batch-specific quality assurance/quality control information either at the same time as analytical results or in a quarterly summary. Properly defined and used data modifiers (also referred to as qualifiers) can be a key component in assessing data usability. Modifiers designed by EPD/EMS and provided to the primary laboratories are defined below. These modifiers appear in the data tables under the column *Mod*. All lettered modifiers except *E* are based on EPA's STORET codes.

Modifiers

(Blank)	Data are not qualified. Numbers should be interpreted exactly as reported.
E	The detected result is between the sample-specific EQL and the method detection limit.
I	The value in the result field is the instrument reading, not the sample quantitation limit. Always used with the result qualifier <i>U</i> .
J	Value is estimated because quantitation in the sample or in associated quality control samples did not meet specifications.
L	Value is off-scale high. The actual value is not known but is known to be greater than the value shown.
M	Presence of the analyte is verified but not quantified.
R	Result was rejected because performance requirements in the sample analysis or associated quality control analyses were not met.
T	Analyte was not detected; if present, it was below the criteria for detection.
U	Material analyzed for but not detected. Analytical result reported is less than the sample quantitation limit.
V	Analyte was detected in an associated method blank.
Y	Result was obtained from an unpreserved or improperly preserved sample. Data may not be accurate.
1	Result may be an underestimation of the true value due to analytical bias.
2	Result may be an overestimation of the true value due to analytical bias.
3	The associated result may be of poor precision (high variability) due to analytical bias.

Note: These are only some of the qualifiers present in the database. All modifiers associated with the data are published in the result tables of EPD/EMS' quarterly groundwater monitoring reports, the official repository of the data.

Table D-1. Maximum Levels of Constituents Exceeding the Practical Quantitation Limits or Tolerance Limits

<i>Well</i>	<i>Constituent</i>	<i>Unit</i>	<i>1Q97</i>	<i>Mod</i>	<i>3Q97</i>	<i>Mod</i>
Upper Steed Pond						
LFW 28	Barium	µg/L	—		22	
	Copper	µg/L	31		44	V
	Zinc	µg/L	35	J	31	J
LFW 32	1,1-Dichloroethane	µg/L	—		5.2	
	1,1,1-Trichloroethane	µg/L	—		25	
	Trichlorofluoromethane	µg/L	44		280	
LFW 75D	Beryllium	µg/L	—		3.7	J
Middle Steed Pond						
LFW 75C	Zinc	µg/L	—		70	

— = analyzed but not above the standards.

Notes: This table presents the highest value for duplicate/replicate results. The groundwater samples are unfiltered; therefore, the results for metals are for total recoverable metals.

Table D-2. Constituents Exceeding the SRS Flag 2 Criteria

<i>Well</i>	<i>Constituent</i>	<i>Unit</i>	<i>1Q97</i>	<i>Mod</i>	<i>3Q97</i>	<i>Mod</i>
Upper Steed Pond						
LFW 32	Trichlorofluoromethane	µg/L	44		280	
Middle Steed Pond						
LFW 74C	Thallium	µg/L	–		5.6	J

– = analyzed but not above the Flag 2 criterion.

Notes: This table presents the highest value for duplicate/replicate results. The groundwater samples are unfiltered; therefore, the results for metals are for total recoverable metals. Flags are established by EPD/EMS and are based on final PDWS, Secondary Drinking Water Standards, or method detection limits (see Appendix B).

Table D-3. Groundwater Monitoring Results for Individual Wells

WELL LFW 28

SRS Coord.	Lat/Longitude	Screen Zone Elevation	Top of Casing	Casing	Pump	Screen Zone
N86079.6 E45555.3	33.290475 °N 81.714056 °W	162.1-141.1 ft msl	192.4 ft msl	4" PVC	S	Upper Steed Pond

SAMPLE DATE 03/04/97

09/04/97

FIELD DATA

Parameter	1Q97	3Q97	Unit
Water elevation	162.7	162.1	ft msl
pH	5.2	4.8	pH
Sp. conductance	26	32	µS/cm
Water temperature	26.0	21.0	°C
Alkalinity as CaCO ₃	2	2	mg/L
Turbidity	4	4	NTU
Volumes purged	1.4	0.073	well volumes
Sampling code	X	X	

ANALYTICAL DATA

Parameter	1Q97	DF	Mod	ST	H	Flag	Lab	3Q97	DF	Mod	ST	H	Flag	Lab	Unit
Acetone	<7.0	1	V			0	WA	<10	1	V			0	WA	µg/L
Acrylonitrile	<5.0	1				0	WA	<5.0	1				0	WA	µg/L
Antimony, total recoverable	<27	1				0	WA	<27	1				0	WA	µg/L
Arsenic, total recoverable	<40	1				0	WA	<40	1				0	WA	µg/L
Barium, total recoverable	20	1				0	WA	22	1		■		0	WA	µg/L
Benzene	<5.0	1				0	WA	<5.0	1				0	WA	µg/L
beta-Benzene hexachloride								<0.051	1				0	WA	µg/L
Beryllium, total recoverable	<1.6	1				0	WA	<1.6	1	V			0	WA	µg/L
Bromochloromethane	<5.0	1				0	WA	<5.0	1				0	WA	µg/L
Bromodichloromethane	<5.0	1				0	WA	<5.0	1				0	WA	µg/L
Bromoform	<5.0	1				0	WA	<5.0	1				0	WA	µg/L
Bromomethane	<10	1				0	WA	<10	1				0	WA	µg/L
Cadmium, total recoverable	<4.7	1				0	WA	<4.7	1				0	WA	µg/L
Carbon disulfide	<5.0	1				0	WA	<5.0	1				0	WA	µg/L
Carbon tetrachloride	<5.0	1				0	WA	<5.0	1				0	WA	µg/L
Chlorobenzene	<5.0	1				0	WA	<5.0	1				0	WA	µg/L
Chloroethane	<10	1				0	WA	<10	1				0	WA	µg/L
Chloroethane (Vinyl chloride)	<10	1				0	WA	<10	1				0	WA	µg/L
Chloroform	<5.0	1				0	WA	<5.0	1				0	WA	µg/L
Chloromethane	<10	1				0	WA	<10	1				0	WA	µg/L
Chromium, total recoverable	<7.0	1				0	WA	<7.0	1				0	WA	µg/L
Cobalt, total recoverable	0.47	1	J			0	WA	<1.1	1	V			0	WA	µg/L
Copper, total recoverable	31	1		■		0	WA	44	1	V	■		0	WA	µg/L
Dibromochloromethane	<5.0	1				0	WA	<5.0	1				0	WA	µg/L
1,2-Dibromo-3-chloropropane	<5.0	1				0	WA	<5.0	1				0	WA	µg/L
1,2-Dibromoethane	<5.0	1				0	WA	<5.0	1				0	WA	µg/L
Dibromomethane	<5.0	1				0	WA	<5.0	1				0	WA	µg/L
Di-n-butyl phthalate	<1.2	1	V			0	WA	<10	1				0	WA	µg/L
1,2-Dichlorobenzene	<5.0	1				0	WA	<5.0	1				0	WA	µg/L
1,4-Dichlorobenzene	<5.0	1				0	WA	<5.0	1				0	WA	µg/L
trans-1,4-Dichloro-2-butene	<20	1				0	WA	<20	1				0	WA	µg/L
1,1-Dichloroethane	<5.0	1				0	WA	<5.0	1				0	WA	µg/L
1,2-Dichloroethane	<5.0	1				0	WA	<5.0	1				0	WA	µg/L
1,1-Dichloroethylene	<5.0	1				0	WA	<5.0	1				0	WA	µg/L
cis-1,2-Dichloroethylene	<5.0	1				0	WA	<5.0	1				0	WA	µg/L
trans-1,2-Dichloroethylene	<5.0	1				0	WA	<5.0	1				0	WA	µg/L
Dichloromethane	<6.0	1	V			0	WA	<3.3	1	V			0	WA	µg/L
1,2-Dichloropropane	<5.0	1				0	WA	<5.0	1				0	WA	µg/L
cis-1,3-Dichloropropene	<5.0	1				0	WA	<5.0	1				0	WA	µg/L
trans-1,3-Dichloropropene															
Ethylbenzene	<5.0	1				0	WA	<5.0	1				0	WA	µg/L
2-Hexanone	<10	1				0	WA	<10	1				0	WA	µg/L
Iodomethane (Methyl iodide)	<5.0	1				0	WA	<5.0	1				0	WA	µg/L
Lead, total recoverable	10	1	J			0	WA	5.7	1	J			0	WA	µg/L
Methyl ethyl ketone	<10	1				0	WA	<10	1				0	WA	µg/L
Methyl isobutyl ketone	<10	1				0	WA	<10	1				0	WA	µg/L
Nickel, total recoverable	<26	1				0	WA	<26	1				0	WA	µg/L
pH	5.5	1	J		●	0	WA	5.5	1	J		●	0	WA	pH
Selenium, total recoverable	<66	1				0	WA	<66	1				0	WA	µg/L

Notes: See Appendix B for flagging criteria.

● = exceeded holding time.

■ = exceeded standard.

WELL LFW 28 (cont.)

Parameter	1Q97	DF	Mod	ST	H	Flag	Lab	3Q97	DF	Mod	ST	H	Flag	Lab	Unit
Silver, total recoverable	<5.0	1				0	WA	<5.0	1				0	WA	µg/L
Specific conductance	32	1				0	WA	31	1	V			0	WA	µS/cm
Styrene	<5.0	1				0	WA	<5.0	1				0	WA	µg/L
1,1,1,2-Tetrachloroethane	<5.0	1				0	WA	<5.0	1				0	WA	µg/L
1,1,2,2-Tetrachloroethane	<5.0	1				0	WA	<5.0	1				0	WA	µg/L
Tetrachloroethylene	<5.0	1				0	WA	<5.0	1				0	WA	µg/L
Thallium, total recoverable	<55	1				0	WA	<55	1				0	WA	µg/L
Toluene	<5.0	1				0	WA	<5.0	1				0	WA	µg/L
1,1,1-Trichloroethane	<5.0	1				0	WA	<5.0	1				0	WA	µg/L
1,1,2-Trichloroethane	<5.0	1				0	WA	<5.0	1				0	WA	µg/L
Trichloroethylene	<5.0	1				0	WA	<5.0	1				0	WA	µg/L
Trichlorofluoromethane	<5.0	1				0	WA	<5.0	1				0	WA	µg/L
1,2,3-Trichloropropane	<5.0	1				0	WA	<5.0	1				0	WA	µg/L
Vanadium, total recoverable	<6.9	1				0	WA	<6.9	1				0	WA	µg/L
Vinyl acetate	<10	1				0	WA	<10	1				0	WA	µg/L
Xylenes	<5.0	1				0	WA	<5.0	1				0	WA	µg/L
Zinc, total recoverable	35	1	J	■		0	WA	31	1	J	■		0	WA	µg/L

Notes: See Appendix B for flagging criteria.

● = exceeded holding time.

■ = exceeded standard.

WELL LFW 32

<u>SRS Coord.</u>	<u>Lat/Longitude</u>	<u>Screen Zone Elevation</u>	<u>Top of Casing</u>	<u>Casing</u>	<u>Pump</u>	<u>Screen Zone</u>
N85836.8 E44935.9	33.288927 °N 81.715214 °W	165.3-144.3 ft msl	223.7 ft msl	4" PVC	S	Upper Steed Pond

SAMPLE DATE 03/04/97 09/05/97

FIELD DATA

<u>Parameter</u>	<u>1Q97</u>	<u>3Q97</u>	<u>Unit</u>
Water elevation	161.8	160.9	ft msl
pH	4.4	4.6	pH
Sp. conductance	22	32	µS/cm
Water temperature	25.0	19.0	°C
Alkalinity as CaCO ₃	1	0	mg/L
Turbidity	0	1	NTU
Volumes purged	8.4	8.0	well volumes
Sampling code			

ANALYTICAL DATA

<u>Parameter</u>	<u>1Q97</u>	<u>DF</u>	<u>Mod</u>	<u>ST</u>	<u>H</u>	<u>Flag</u>	<u>Lab</u>	<u>3Q97</u>	<u>DF</u>	<u>Mod</u>	<u>ST</u>	<u>H</u>	<u>Flag</u>	<u>Lab</u>	<u>Unit</u>
Acetone	<4.0	1	V			0	WA	<10	1	V			0	WA	µg/L
Acrylonitrile	<5.0	1				0	WA	<5.0	1				0	WA	µg/L
Antimony, total recoverable	<27	1				0	WA	<27	1				0	WA	µg/L
Arsenic, total recoverable	<40	1				0	WA	<40	1				0	WA	µg/L
Barium, total recoverable	6.8	1				0	WA	14	1				0	WA	µg/L
Benzene	<5.0	1				0	WA	<5.0	1				0	WA	µg/L
beta-Benzene hexachloride								<0.051	1				0	WA	µg/L
Beryllium, total recoverable	<1.6	1				0	WA	<1.6	1				0	WA	µg/L
Bromochloromethane	<5.0	1				0	WA	<5.0	1				0	WA	µg/L
Bromodichloromethane	<5.0	1				0	WA	<5.0	1				0	WA	µg/L
Bromoform	<5.0	1				0	WA	<5.0	1				0	WA	µg/L
Bromomethane	<10	1				0	WA	<10	1	V			0	WA	µg/L
Cadmium, total recoverable	<4.7	1				0	WA	0.58	1	J3			0	WA	µg/L
Carbon disulfide	<5.0	1				0	WA	<5.0	1				0	WA	µg/L
Carbon tetrachloride	<5.0	1				0	WA	<5.0	1				0	WA	µg/L
Chlorobenzene	<5.0	1				0	WA	<5.0	1				0	WA	µg/L
Chloroethane	<10	1				0	WA	<10	1				0	WA	µg/L
Chloroethene (Vinyl chloride)	<10	1				0	WA	<10	1				0	WA	µg/L
Chloroform	<5.0	1				0	WA	<5.0	1				0	WA	µg/L
Chloromethane	<10	1				0	WA	<10	1				0	WA	µg/L
Chromium, total recoverable	<7.0	1				0	WA	<7.0	1				0	WA	µg/L
Cobalt, total recoverable	<4.5	1				0	WA	<4.5	1				0	WA	µg/L
Copper, total recoverable	4.7	1	J			0	WA	2.7	1	J			0	WA	µg/L
Dibromochloromethane	<5.0	1				0	WA	<5.0	1				0	WA	µg/L
1,2-Dibromo-3-chloropropane	<5.0	1				0	WA	<5.0	1				0	WA	µg/L
1,2-Dibromoethane	<5.0	1				0	WA	<5.0	1				0	WA	µg/L
Dibromomethane	<5.0	1				0	WA	<5.0	1				0	WA	µg/L
Di-n-butyl phthalate	<1.6	1	V			0	WA	<10	1				0	WA	µg/L
1,2-Dichlorobenzene	<5.0	1				0	WA	<5.0	1				0	WA	µg/L
1,4-Dichlorobenzene	<5.0	1				0	WA	<5.0	1				0	WA	µg/L
trans-1,4-Dichloro-2-butene	<20	1				0	WA	<20	1				0	WA	µg/L
1,1-Dichloroethane	<5.0	1				0	WA	5.2	1		■		0	WA	µg/L
1,2-Dichloroethane	<5.0	1				0	WA	<5.0	1				0	WA	µg/L
1,1-Dichloroethylene	<5.0	1				0	WA	<5.0	1				0	WA	µg/L
cis-1,2-Dichloroethylene	<5.0	1				0	WA	<5.0	1				0	WA	µg/L
trans-1,2-Dichloroethylene	<5.0	1				0	WA	<5.0	1				0	WA	µg/L
Dichloromethane	<2.3	1	V			0	WA	<7.6	1	V			0	WA	µg/L
1,2-Dichloropropane	<5.0	1				0	WA	<5.0	1				0	WA	µg/L
cis-1,3-Dichloropropene	<5.0	1				0	WA	<5.0	1				0	WA	µg/L
trans-1,3-Dichloropropene															
Ethylbenzene	<5.0	1				0	WA	<5.0	1				0	WA	µg/L
2-Hexanone	<10	1				0	WA	<10	1				0	WA	µg/L
Iodomethane (Methyl iodide)	<5.0	1				0	WA	<5.0	1				0	WA	µg/L
Lead, total recoverable	4.9	1	J			0	WA	<47	1				0	WA	µg/L
Methyl ethyl ketone	<10	1				0	WA	<10	1				0	WA	µg/L
Methyl isobutyl ketone	<10	1				0	WA	<10	1				0	WA	µg/L
Nickel, total recoverable	<26	1				0	WA	<26	1				0	WA	µg/L
pH	5.1	1	J		●	0	WA	5.0	1	J		●	0	WA	pH
Selenium, total recoverable	<66	1				0	WA	<66	1				0	WA	µg/L

Notes: See Appendix B for flagging criteria.

● = exceeded holding time.

■ = exceeded standard.

WELL LFW 32 (cont.)

Parameter	1Q97	DF	Mod	ST	H	Flag	Lab	3Q97	DF	Mod	ST	H	Flag	Lab	Unit
Silver, total recoverable	<5.0	1				0	WA	<5.0	1	V			0	WA	µg/L
Specific conductance	22	1				0	WA	31	1	V			0	WA	µS/cm
Styrene	<5.0	1				0	WA	<5.0	1				0	WA	µg/L
1,1,1,2-Tetrachloroethane	<5.0	1				0	WA	<5.0	1				0	WA	µg/L
1,1,2,2-Tetrachloroethane	<5.0	1				0	WA	<5.0	1				0	WA	µg/L
Tetrachloroethylene	<5.0	1				0	WA	<5.0	1				0	WA	µg/L
Thallium, total recoverable	<55	1				0	WA	<55	1				0	WA	µg/L
Toluene	<5.0	1				0	WA	<5.0	1				0	WA	µg/L
1,1,1-Trichloroethane	4.1	1	J			0	WA	25	1		■		0	WA	µg/L
1,1,2-Trichloroethane	<5.0	1				0	WA	<5.0	1				0	WA	µg/L
Trichloroethylene	<5.0	1				0	WA	1.6	1	J			0	WA	µg/L
Trichlorofluoromethane	44	1		■		2	WA	280	2		■		2	WA	µg/L
1,2,3-Trichloropropane	<5.0	1				0	WA	<5.0	1				0	WA	µg/L
Vanadium, total recoverable	<6.9	1				0	WA	<6.9	1				0	WA	µg/L
Vinyl acetate	<10	1				0	WA	<10	1				0	WA	µg/L
Xylenes	<5.0	1				0	WA	<5.0	1				0	WA	µg/L
Zinc, total recoverable	8.8	1	J			0	WA	<53	1				0	WA	µg/L

Notes: See Appendix B for flagging criteria.

● = exceeded holding time.

■ = exceeded standard.

WELL LFW 43C

SRS Coord.	Lat/Longitude	Screen Zone Elevation	Top of Casing	Casing	Pump	Screen Zone
N86480.6 E45234.9	33.290838 °N 81.715679 °W	138.5-128.5 ft msl	202.6 ft msl	4" PVC	S	Middle Steed Pond

SAMPLE DATE 03/05/97

09/03/97

FIELD DATA

Parameter	1Q97	3Q97	Unit
Water elevation	164.4	166.8	ft msl
pH	4.6	5.2	pH
Sp. conductance	120	22	µS/cm
Water temperature	24.0	20.0	°C
Alkalinity as CaCO ₃	1	1	mg/L
Turbidity	0	2	NTU
Volumes purged	2.8	4.0	well volumes
Sampling code			

ANALYTICAL DATA

Parameter	1Q97	DF	Mod	ST	H	Flag	Lab	3Q97	DF	Mod	ST	H	Flag	Lab	Unit
Acetone	<6.8	1	V			0	WA	<5.9	1	V			0	WA	µg/L
Acrylonitrile	<5.0	1				0	WA	<5.0	1				0	WA	µg/L
Antimony, total recoverable	<27	1				0	WA	<27	1				0	WA	µg/L
Arsenic, total recoverable	<40	1				0	WA	<40	1				0	WA	µg/L
Barium, total recoverable								4.2	1				0	WA	µg/L
Benzene	<5.0	1				0	WA	<5.0	1				0	WA	µg/L
beta-Benzene hexachloride								<0.052	1				0	WA	µg/L
Beryllium, total recoverable	<0.22	1	V			0	WA	<1.6	1				0	WA	µg/L
Bromochloromethane	<5.0	1				0	WA	<5.0	1				0	WA	µg/L
Bromodichloromethane	<5.0	1				0	WA	<5.0	1				0	WA	µg/L
Bromoform	<5.0	1				0	WA	<5.0	1				0	WA	µg/L
Bromomethane	<10	1				0	WA	<10	1				0	WA	µg/L
Cadmium, total recoverable	<4.7	1				0	WA	<4.7	1				0	WA	µg/L
Carbon disulfide	<5.0	1				0	WA	<5.0	1				0	WA	µg/L
Carbon tetrachloride	<5.0	1				0	WA	<5.0	1				0	WA	µg/L
Chlorobenzene	<5.0	1				0	WA	<5.0	1				0	WA	µg/L
Chloroethane	<10	1				0	WA	<10	1				0	WA	µg/L
Chloroethene (Vinyl chloride)	<10	1				0	WA	<10	1				0	WA	µg/L
Chloroform	<5.0	1				0	WA	<5.0	1				0	WA	µg/L
Chloromethane	<10	1				0	WA	<10	1				0	WA	µg/L
Chromium, total recoverable	<7.0	1				0	WA	<7.0	1				0	WA	µg/L
Cobalt, total recoverable	<4.5	1				0	WA	<4.5	1				0	WA	µg/L
Copper, total recoverable	<15	1				0	WA	<6.8	1	V			0	WA	µg/L
Dibromochloromethane	<5.0	1				0	WA	<5.0	1				0	WA	µg/L
1,2-Dibromo-3-chloropropane	<5.0	1				0	WA	<5.0	1				0	WA	µg/L
1,2-Dibromoethane	<5.0	1				0	WA	<5.0	1				0	WA	µg/L
Dibromomethane	<5.0	1				0	WA	<5.0	1				0	WA	µg/L
Di-n-butyl phthalate	<1.2	1	V			0	WA	<10	1				0	WA	µg/L
1,2-Dichlorobenzene	<5.0	1				0	WA	<5.0	1				0	WA	µg/L
1,4-Dichlorobenzene	<5.0	1				0	WA	<5.0	1				0	WA	µg/L
trans-1,4-Dichloro-2-butene	<20	1				0	WA	<20	1				0	WA	µg/L
1,1-Dichloroethane	<5.0	1				0	WA	<5.0	1				0	WA	µg/L
1,2-Dichloroethane	<5.0	1				0	WA	<5.0	1				0	WA	µg/L
1,1-Dichloroethylene	<5.0	1				0	WA	<5.0	1				0	WA	µg/L
cis-1,2-Dichloroethylene	<5.0	1				0	WA	<5.0	1				0	WA	µg/L
trans-1,2-Dichloroethylene	<5.0	1				0	WA	<5.0	1				0	WA	µg/L
Dichloromethane	<9.1	1	V			0	WA	<10	1	V			0	WA	µg/L
1,2-Dichloropropane	<5.0	1				0	WA	<5.0	1				0	WA	µg/L
cis-1,3-Dichloropropene	<5.0	1				0	WA	<5.0	1				0	WA	µg/L
trans-1,3-Dichloropropene															
Ethylbenzene	<5.0	1				0	WA	<5.0	1				0	WA	µg/L
2-Hexanone	<10	1				0	WA	<10	1				0	WA	µg/L
Iodomethane (Methyl iodide)	<5.0	1				0	WA	<5.0	1				0	WA	µg/L
Lead, total recoverable	<47	1				0	WA	<47	1				0	WA	µg/L
Methyl ethyl ketone	<10	1				0	WA	<10	1				0	WA	µg/L
Methyl isobutyl ketone	<10	1				0	WA	<10	1				0	WA	µg/L
Nickel, total recoverable	<26	1				0	WA	<26	1				0	WA	µg/L
pH	5.3	1	J		●	0	WA	5.5	1	J		●	0	WA	pH
Selenium, total recoverable	<66	1				0	WA	<66	1				0	WA	µg/L

Notes: See Appendix B for flagging criteria.

● = exceeded holding time.

■ = exceeded standard.

WELL LFW 43C (cont.)

Parameter	1Q97	DF	Mod	ST	H	Flag	Lab	3Q97	DF	Mod	ST	H	Flag	Lab	Unit
Silver, total recoverable	<5.0	1				0	WA	<5.0	1				0	WA	µg/L
Specific conductance	14	1	V			0	WA	17	1	V			0	WA	µS/cm
Styrene	<5.0	1				0	WA	<5.0	1				0	WA	µg/L
1,1,1,2-Tetrachloroethane	<5.0	1				0	WA	<5.0	1				0	WA	µg/L
1,1,2,2-Tetrachloroethane	<5.0	1				0	WA	<5.0	1				0	WA	µg/L
Tetrachloroethylene	<5.0	1				0	WA	<5.0	1				0	WA	µg/L
Thallium, total recoverable	<55	1				0	WA	<55	1				0	WA	µg/L
Toluene	<5.0	1				0	WA	<5.0	1				0	WA	µg/L
1,1,1-Trichloroethane	<5.0	1				0	WA	<5.0	1				0	WA	µg/L
1,1,2-Trichloroethane	<5.0	1				0	WA	<5.0	1				0	WA	µg/L
Trichloroethylene	<5.0	1				0	WA	<5.0	1				0	WA	µg/L
Trichlorofluoromethane	<5.0	1				0	WA	<5.0	1				0	WA	µg/L
1,2,3-Trichloropropane	<5.0	1				0	WA	<5.0	1				0	WA	µg/L
Vanadium, total recoverable	<6.9	1				0	WA	<6.9	1				0	WA	µg/L
Vinyl acetate	<10	1				0	WA	<10	1				0	WA	µg/L
Xylenes	<5.0	1				0	WA	<5.0	1				0	WA	µg/L
Zinc, total recoverable	<53	1				0	WA	<53	1				0	WA	µg/L

Notes: See Appendix B for flagging criteria.

● = exceeded holding time.

■ = exceeded standard.

WELL LFW 43D

SRS Coord.	Lat/Longitude	Screen Zone Elevation	Top of Casing	Casing	Pump	Screen Zone
N86443.2 E45244.5	33.290771 °N 81.715581 °W	170.9-150.9 ft msl	202.9 ft msl	4" PVC	S	Upper Steed Pond

SAMPLE DATE 03/05/97 09/03/97

FIELD DATA

Parameter	1Q97	3Q97	Unit
Water elevation	164.4		ft msl
pH	4.8	4.8	pH
Sp. conductance	10	16	µS/cm
Water temperature	25.0	20.0	°C
Alkalinity as CaCO ₃	2	0	mg/L
Turbidity	0	2	NTU
Volumes purged	4.6		well volumes
Sampling code		S	

ANALYTICAL DATA

Parameter	1Q97	DF	Mod	ST	H	Flag	Lab	3Q97	DF	Mod	ST	H	Flag	Lab	Unit
Acetone	<14	1	V			0	WA	<2.9	1	V			0	WA	µg/L
Acrylonitrile	<5.0	1				0	WA	<5.0	1				0	WA	µg/L
Antimony, total recoverable	<27	1				0	WA	<27	1				0	WA	µg/L
Arsenic, total recoverable	<40	1				0	WA	<40	1				0	WA	µg/L
Barium, total recoverable	6.1	1				0	WA	6.9	1				0	WA	µg/L
Benzene	<5.0	1				0	WA	<5.0	1				0	WA	µg/L
beta-Benzene hexachloride								<0.052	1				0	WA	µg/L
Beryllium, total recoverable	<0.17	1	V			0	WA	<1.6	1				0	WA	µg/L
Bromochloromethane	<5.0	1				0	WA	<5.0	1				0	WA	µg/L
Bromodichloromethane	<5.0	1				0	WA	<5.0	1				0	WA	µg/L
Bromoform	<5.0	1				0	WA	<5.0	1				0	WA	µg/L
Bromomethane	<10	1				0	WA	<10	1				0	WA	µg/L
Cadmium, total recoverable	<4.7	1				0	WA	<4.7	1				0	WA	µg/L
Carbon disulfide	<5.0	1				0	WA	<5.0	1				0	WA	µg/L
Carbon tetrachloride	<5.0	1				0	WA	<5.0	1				0	WA	µg/L
Chlorobenzene	<5.0	1				0	WA	<5.0	1				0	WA	µg/L
Chloroethane	<10	1				0	WA	<10	1				0	WA	µg/L
Chloroethene (Vinyl chloride)	<10	1				0	WA	<10	1				0	WA	µg/L
Chloroform	<5.0	1				0	WA	<5.0	1				0	WA	µg/L
Chloromethane	<10	1				0	WA	<10	1				0	WA	µg/L
Chromium, total recoverable	<7.0	1				0	WA	8.1	1				0	WA	µg/L
Cobalt, total recoverable	<4.5	1				0	WA	<4.5	1				0	WA	µg/L
Copper, total recoverable	6.4	1	J			0	WA	<8.3	1	V			0	WA	µg/L
Dibromochloromethane	<5.0	1				0	WA	<5.0	1				0	WA	µg/L
1,2-Dibromo-3-chloropropane	<5.0	1				0	WA	<5.0	1				0	WA	µg/L
1,2-Dibromoethane	<5.0	1				0	WA	<5.0	1				0	WA	µg/L
Dibromomethane	<5.0	1				0	WA	<5.0	1				0	WA	µg/L
Di-n-butyl phthalate	<10	1				0	WA	<10	1				0	WA	µg/L
1,2-Dichlorobenzene	<5.0	1				0	WA	<5.0	1				0	WA	µg/L
1,4-Dichlorobenzene	<5.0	1				0	WA	<5.0	1				0	WA	µg/L
trans-1,4-Dichloro-2-butene	<20	1				0	WA	<20	1				0	WA	µg/L
1,1-Dichloroethane	<5.0	1				0	WA	<5.0	1				0	WA	µg/L
1,2-Dichloroethane	<5.0	1				0	WA	<5.0	1				0	WA	µg/L
1,1-Dichloroethylene	<5.0	1				0	WA	<5.0	1				0	WA	µg/L
cis-1,2-Dichloroethylene	<5.0	1				0	WA	<5.0	1				0	WA	µg/L
trans-1,2-Dichloroethylene	<5.0	1				0	WA	<5.0	1				0	WA	µg/L
Dichloromethane	<5.9	1	V			0	WA	<3.8	1	V			0	WA	µg/L
1,2-Dichloropropane	<5.0	1				0	WA	<5.0	1				0	WA	µg/L
cis-1,3-Dichloropropene	<5.0	1				0	WA	<5.0	1				0	WA	µg/L
trans-1,3-Dichloropropene															
Ethylbenzene	<5.0	1				0	WA	<5.0	1				0	WA	µg/L
2-Hexanone	<10	1				0	WA	<10	1				0	WA	µg/L
Iodomethane (Methyl iodide)	<5.0	1				0	WA	<5.0	1				0	WA	µg/L
Lead, total recoverable	<47	1				0	WA	<47	1				0	WA	µg/L
Methyl ethyl ketone	<10	1				0	WA	<10	1				0	WA	µg/L
Methyl isobutyl ketone	<10	1				0	WA	<10	1				0	WA	µg/L
Nickel, total recoverable	<26	1				0	WA	12	1	J			0	WA	µg/L
pH	5.3	1	J		●	0	WA	5.5	1	J		●	0	WA	pH
Selenium, total recoverable	<66	1				0	WA	<66	1				0	WA	µg/L

Notes: See Appendix B for flagging criteria.

● = exceeded holding time.

■ = exceeded standard.

WELL LFW 43D (cont.)

Parameter	1Q97	DF	Mod	ST	H	Flag	Lab	3Q97	DF	Mod	ST	H	Flag	Lab	Unit
Silver, total recoverable	<5.0	1				0	WA	<5.0	1				0	WA	µg/L
Specific conductance	12	1	V			0	WA	13	1	V			0	WA	µS/cm
Styrene	<5.0	1				0	WA	<5.0	1				0	WA	µg/L
1,1,1,2-Tetrachloroethane	<5.0	1				0	WA	<5.0	1				0	WA	µg/L
1,1,2,2-Tetrachloroethane	<5.0	1				0	WA	<5.0	1				0	WA	µg/L
Tetrachloroethylene	<5.0	1				0	WA	<5.0	1				0	WA	µg/L
Thallium, total recoverable	<55	1				0	WA	<55	1				0	WA	µg/L
Toluene	<5.0	1				0	WA	<5.0	1				0	WA	µg/L
1,1,1-Trichloroethane	<5.0	1				0	WA	<5.0	1				0	WA	µg/L
1,1,2-Trichloroethane	<5.0	1				0	WA	<5.0	1				0	WA	µg/L
Trichloroethylene	<5.0	1				0	WA	<5.0	1				0	WA	µg/L
Trichlorofluoromethane	<5.0	1				0	WA	<5.0	1				0	WA	µg/L
1,2,3-Trichloropropane	<5.0	1				0	WA	<5.0	1				0	WA	µg/L
Vanadium, total recoverable	<6.9	1				0	WA	<6.9	1				0	WA	µg/L
Vinyl acetate	<10	1				0	WA	<10	1				0	WA	µg/L
Xylenes	<5.0	1				0	WA	<5.0	1				0	WA	µg/L
Zinc, total recoverable	9.7	1	J			0	WA	6.5	1	J			0	WA	µg/L

Notes: See Appendix B for flagging criteria.

● = exceeded holding time.

■ = exceeded standard.

WELL LFW 74C

<u>SRS Coord.</u>	<u>Lat/Longitude</u>	<u>Screen Zone Elevation</u>	<u>Top of Casing</u>	<u>Casing</u>	<u>Pump</u>	<u>Screen Zone</u>
N85813.8 E45097.8	33.289140 °N 81.714743 °W	116.0-101.0 ft msl	213.6 ft msl	4" PVC	S	Middle Steed Pond

SAMPLE DATE 03/07/97 09/04/97

FIELD DATA

<u>Parameter</u>	<u>1Q97</u>	<u>3Q97</u>	<u>Unit</u>
Water elevation	161.5	199.9	ft msl
pH	4.4	4.6	pH
Sp. conductance	34	38	µS/cm
Water temperature	24.0	20.0	°C
Alkalinity as CaCO ₃	3	0	mg/L
Turbidity	1	1	NTU
Volumes purged	2.5	4.0	well volumes
Sampling code			

ANALYTICAL DATA

<u>Parameter</u>	<u>1Q97</u>	<u>DF</u>	<u>Mod</u>	<u>ST</u>	<u>H</u>	<u>Flag</u>	<u>Lab</u>	<u>3Q97</u>	<u>DF</u>	<u>Mod</u>	<u>ST</u>	<u>H</u>	<u>Flag</u>	<u>Lab</u>	<u>Unit</u>
Acetone	<6.5	1	V			0	WA	<10	1	V			0	WA	µg/L
Acrylonitrile	<5.0	1				0	WA	<5.0	1				0	WA	µg/L
Antimony, total recoverable	<5.0	1				0	ES	<27	1				0	WA	µg/L
Arsenic, total recoverable	<8.0	1				0	ES	<40	1				0	WA	µg/L
Barium, total recoverable	5.3	1				0	ES	4.9	1				0	WA	µg/L
Benzene	<2.2	1				0	ES	<5.0	1				0	WA	µg/L
beta-Benzene hexachloride	<0.0060	1				0	ES	<0.051	1				0	WA	µg/L
Beryllium, total recoverable	<0.39	1	V			0	WA	<1.6	1	V			0	WA	µg/L
Bromochloromethane	<5.0	1				0	WA	<5.0	1				0	WA	µg/L
Bromodichloromethane	<2.2	1				0	ES	<5.0	1				0	WA	µg/L
Bromoform	<2.6	1				0	ES	<5.0	1				0	WA	µg/L
Bromomethane	<3.5	1				0	ES	<10	1				0	WA	µg/L
Cadmium, total recoverable	<2.0	1				0	ES	<4.7	1				0	WA	µg/L
Carbon disulfide	<5.0	1				0	WA	<5.0	1				0	WA	µg/L
Carbon tetrachloride	<2.6	1				0	ES	<5.0	1				0	WA	µg/L
Chlorobenzene	<1.4	1				0	ES	<5.0	1				0	WA	µg/L
Chloroethane	<8.2	1				0	ES	<10	1				0	WA	µg/L
Chloroethene (Vinyl chloride)	<4.6	1				0	ES	<10	1				0	WA	µg/L
Chloroform	<2.5	1				0	ES	<5.0	1				0	WA	µg/L
Chloromethane	<4.4	1				0	ES	<10	1				0	WA	µg/L
Chromium, total recoverable	<7.0	1				0	WA	<7.0	1				0	WA	µg/L
Cobalt, total recoverable	1.0	1	J			0	WA	<1.1	1	V			0	WA	µg/L
Copper, total recoverable	5.5	1				0	ES	<4.0	1	V			0	WA	µg/L
Dibromochloromethane	<2.3	1				0	ES	<5.0	1				0	WA	µg/L
1,2-Dibromo-3-chloropropane	<5.0	1				0	WA	<5.0	1				0	WA	µg/L
1,2-Dibromoethane	<5.0	1				0	WA	<5.0	1				0	WA	µg/L
Dibromomethane	<5.0	1				0	WA	<5.0	1				0	WA	µg/L
Di-n-butyl phthalate	<1.0	1				0	ES	1.2	1	J			0	WA	µg/L
1,2-Dichlorobenzene	<4.0	1				0	ES	<5.0	1				0	WA	µg/L
1,4-Dichlorobenzene	<4.0	1				0	ES	<5.0	1				0	WA	µg/L
trans-1,4-Dichloro-2-butene	<5.0	1				0	ES	<20	1				0	WA	µg/L
1,1-Dichloroethane	<2.5	1				0	ES	<5.0	1				0	WA	µg/L
1,2-Dichloroethane	<2.5	1				0	ES	<5.0	1				0	WA	µg/L
1,1-Dichloroethylene	<3.2	1				0	ES	<5.0	1				0	WA	µg/L
cis-1,2-Dichloroethylene	<2.4	1				0	ES	<5.0	1				0	WA	µg/L
trans-1,2-Dichloroethylene	<2.4	1				0	ES	<5.0	1				0	WA	µg/L
Dichloromethane	<2.2	1	V			0	WA	<4.2	1	V			0	WA	µg/L
1,2-Dichloropropane	<2.0	1				0	ES	<5.0	1				0	WA	µg/L
cis-1,3-Dichloropropene	<2.0	1				0	ES	<5.0	1				0	WA	µg/L
trans-1,3-Dichloropropene															
Ethylbenzene	<1.3	1				0	ES	<5.0	1				0	WA	µg/L
2-Hexanone	<10	1				0	WA	<10	1				0	WA	µg/L
Iodomethane (Methyl iodide)	<5.0	1				0	WA	<5.0	1				0	WA	µg/L
Lead, total recoverable	5.5	1				0	ES	<47	1				0	WA	µg/L
Methyl ethyl ketone	3.0	1	J			0	WA	<10	1				0	WA	µg/L
Methyl isobutyl ketone	<10	1				0	WA	<10	1				0	WA	µg/L
Nickel, total recoverable	<5.0	1				0	ES	<26	1				0	WA	µg/L
pH	5.2	1	J		●	0	ES	5.2	1	J		●	0	WA	pH
Selenium, total recoverable	<5.0	1				0	ES	<66	1				0	WA	µg/L

Notes: See Appendix B for flagging criteria.

● = exceeded holding time.

■ = exceeded standard.

WELL LFW 74C (cont.)

Parameter	1Q97	DF	Mod	ST	H	Flag	Lab	3Q97	DF	Mod	ST	H	Flag	Lab	Unit
Silver, total recoverable	0.57	1	J			0	WA	<5.0	1				0	WA	µg/L
Specific conductance	35	1				0	WA	34	1	V			0	WA	µS/cm
Styrene	<0.50	1				0	ES	<5.0	1				0	WA	µg/L
1,1,1,2-Tetrachloroethane	<5.0	1				0	WA	<5.0	1				0	WA	µg/L
1,1,2,2-Tetrachloroethane	<1.5	1				0	ES	<5.0	1				0	WA	µg/L
Tetrachloroethylene	<1.9	1				0	ES	<5.0	1				0	WA	µg/L
Thallium, total recoverable	<5.0	1				0	ES	5.6	1	J			2	WA	µg/L
Toluene	<1.7	1				0	ES	<5.0	1				0	WA	µg/L
1,1,1-Trichloroethane	<2.5	1				0	ES	<5.0	1				0	WA	µg/L
1,1,2-Trichloroethane	<2.8	1				0	ES	<5.0	1				0	WA	µg/L
Trichloroethylene	<3.0	1				0	ES	<5.0	1				0	WA	µg/L
Trichlorofluoromethane	<4.6	1				0	ES	<5.0	1				0	WA	µg/L
1,2,3-Trichloropropane	<5.0	1				0	WA	<5.0	1				0	WA	µg/L
Vanadium, total recoverable	<2.0	1				0	ES	<6.9	1				0	WA	µg/L
Vinyl acetate	<10	1				0	WA	<10	1				0	WA	µg/L
Xylenes	<3.7	1				0	ES	<5.0	1				0	WA	µg/L
Zinc, total recoverable	28	1				0	ES	6.8	1	J			0	WA	µg/L

Notes: See Appendix B for flagging criteria.

● = exceeded holding time.

■ = exceeded standard.

WELL LFW 74D

SRS Coord.	Lat/Longitude	Screen Zone Elevation	Top of Casing	Casing	Pump	Screen Zone
N85828.1 E45098.0	33.289172 °N 81.714771 °W	167.7-152.7 ft msl	213.9 ft msl	4" PVC	S	Upper Steep Pond

SAMPLE DATE 03/05/97

09/04/97

FIELD DATA

Parameter	1Q97	3Q97	Unit
Water elevation	161.6		ft msl
pH	5.0	5.0	pH
Sp. conductance	16	24	µS/cm
Water temperature	26.0	20.0	°C
Alkalinity as CaCO ₃	2	0	mg/L
Turbidity	2	5	NTU
Volumes purged	5.0		well volumes
Sampling code		S	

ANALYTICAL DATA

Parameter	1Q97	DF	Mod	ST	H	Flag	Lab	3Q97	DF	Mod	ST	H	Flag	Lab	Unit
Acetone	<6.8	1	V			0	WA	<10	1	V			0	WA	µg/L
Acrylonitrile	<5.0	1				0	WA	<5.0	1				0	WA	µg/L
Antimony, total recoverable	<27	1				0	WA	<27	1				0	WA	µg/L
Arsenic, total recoverable	<40	1				0	WA	<40	1				0	WA	µg/L
Barium, total recoverable	4.4	1				0	WA	8.5	1				0	WA	µg/L
Benzene	<5.0	1				0	WA	<5.0	1				0	WA	µg/L
beta-Benzene hexachloride								<0.051	1				0	WA	µg/L
Beryllium, total recoverable	<1.6	1				0	WA	<1.6	1	V			0	WA	µg/L
Bromochloromethane	<5.0	1				0	WA	<5.0	1				0	WA	µg/L
Bromodichloromethane	<5.0	1				0	WA	<5.0	1				0	WA	µg/L
Bromoform	<5.0	1				0	WA	<5.0	1				0	WA	µg/L
Bromomethane	<10	1				0	WA	<10	1				0	WA	µg/L
Cadmium, total recoverable	<4.7	1				0	WA	<4.7	1				0	WA	µg/L
Carbon disulfide	2.0	1	J			0	WA	<5.0	1				0	WA	µg/L
Carbon tetrachloride	<5.0	1				0	WA	<5.0	1				0	WA	µg/L
Chlorobenzene	<5.0	1				0	WA	<5.0	1				0	WA	µg/L
Chloroethane	<10	1				0	WA	<10	1				0	WA	µg/L
Chloroethene (Vinyl chloride)	<10	1				0	WA	<10	1				0	WA	µg/L
Chloroform	<5.0	1				0	WA	<5.0	1				0	WA	µg/L
Chloromethane	<10	1				0	WA	<10	1				0	WA	µg/L
Chromium, total recoverable	<7.0	1				0	WA	<7.0	1				0	WA	µg/L
Cobalt, total recoverable	<4.5	1				0	WA	<1.2	1	V			0	WA	µg/L
Copper, total recoverable	<15	1				0	WA	<5.1	1	V			0	WA	µg/L
Dibromochloromethane	<5.0	1				0	WA	<5.0	1				0	WA	µg/L
1,2-Dibromo-3-chloropropane	<5.0	1				0	WA	<5.0	1				0	WA	µg/L
1,2-Dibromoethane	<5.0	1				0	WA	<5.0	1				0	WA	µg/L
Dibromomethane	<5.0	1				0	WA	<5.0	1				0	WA	µg/L
Di-n-butyl phthalate	<1.7	1	V			0	WA	<10	1				0	WA	µg/L
1,2-Dichlorobenzene	<5.0	1				0	WA	<5.0	1				0	WA	µg/L
1,4-Dichlorobenzene	<5.0	1				0	WA	<5.0	1				0	WA	µg/L
trans-1,4-Dichloro-2-butene	<20	1				0	WA	<20	1				0	WA	µg/L
1,1-Dichloroethane	<5.0	1				0	WA	<5.0	1				0	WA	µg/L
1,2-Dichloroethane	<5.0	1				0	WA	<5.0	1				0	WA	µg/L
1,1-Dichloroethylene	<5.0	1				0	WA	<5.0	1				0	WA	µg/L
cis-1,2-Dichloroethylene	<5.0	1				0	WA	<5.0	1				0	WA	µg/L
trans-1,2-Dichloroethylene	<5.0	1				0	WA	<5.0	1				0	WA	µg/L
Dichloromethane	<9.7	1	V			0	WA	<3.7	1	V			0	WA	µg/L
1,2-Dichloropropane	<5.0	1				0	WA	<5.0	1				0	WA	µg/L
cis-1,3-Dichloropropene	<5.0	1				0	WA	<5.0	1				0	WA	µg/L
trans-1,3-Dichloropropene															
Ethylbenzene	<5.0	1				0	WA	<5.0	1				0	WA	µg/L
2-Hexanone	<10	1				0	WA	<10	1				0	WA	µg/L
Iodomethane (Methyl iodide)	<5.0	1				0	WA	<5.0	1				0	WA	µg/L
Lead, total recoverable	<47	1				0	WA	<47	1				0	WA	µg/L
Methyl ethyl ketone	<10	1				0	WA	<10	1				0	WA	µg/L
Methyl isobutyl ketone	<10	1				0	WA	<10	1				0	WA	µg/L
Nickel, total recoverable	<26	1				0	WA	<26	1				0	WA	µg/L
pH	5.4	1	J		●	0	WA	5.6	1	J		●	0	WA	pH
Selenium, total recoverable	<66	1				0	WA	<66	1				0	WA	µg/L

Notes: See Appendix B for flagging criteria.

● = exceeded holding time.

■ = exceeded standard.

WELL LFW 74D (cont.)

Parameter	1Q97	DF	Mod	ST	H	Flag	Lab	3Q97	DF	Mod	ST	H	Flag	Lab	Unit
Silver, total recoverable	1.6	1	J			0	WA	<5.0	1				0	WA	µg/L
Specific conductance	21	1	V			0	WA	20	1	V			0	WA	µS/cm
Styrene	<5.0	1				0	WA	<5.0	1				0	WA	µg/L
1,1,1,2-Tetrachloroethane	<5.0	1				0	WA	<5.0	1				0	WA	µg/L
1,1,2,2-Tetrachloroethane	<5.0	1				0	WA	<5.0	1				0	WA	µg/L
Tetrachloroethylene	<5.0	1				0	WA	<5.0	1				0	WA	µg/L
Thallium, total recoverable	<55	1				0	WA	<55	1				0	WA	µg/L
Toluene	<5.0	1				0	WA	<5.0	1				0	WA	µg/L
1,1,1-Trichloroethane	<5.0	1				0	WA	<5.0	1				0	WA	µg/L
1,1,2-Trichloroethane	<5.0	1				0	WA	<5.0	1				0	WA	µg/L
Trichloroethylene	<5.0	1				0	WA	<5.0	1				0	WA	µg/L
Trichlorofluoromethane	3.9	1	J			0	WA	2.4	1	J			0	WA	µg/L
1,2,3-Trichloropropane	<5.0	1				0	WA	<5.0	1				0	WA	µg/L
Vanadium, total recoverable	<6.9	1				0	WA	<6.9	1				0	WA	µg/L
Vinyl acetate	<10	1				0	WA	<10	1				0	WA	µg/L
Xylenes	<5.0	1				0	WA	<5.0	1				0	WA	µg/L
Zinc, total recoverable	15	1	J			0	WA	22	1	J			0	WA	µg/L

Notes: See Appendix B for flagging criteria.

● = exceeded holding time.

■ = exceeded standard.

WELL LFW 75C

SRS Coord.	Lat/Longitude	Screen Zone Elevation	Top of Casing	Casing	Pump	Screen Zone
N85856.8 E45357.0	33.289658 °N 81.714145 °W	115.6-100.6 ft msl	197.8 ft msl	4" PVC	S	Middle Steed Pond

SAMPLE DATE	03/05/97	09/09/97
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FIELD DATA

Parameter	1Q97	3Q97	Unit
Water elevation	161.7	160.7	ft msl
pH	4.8	5.1	pH
Sp. conductance	28	170	µS/cm
Water temperature	26.0	22.1	°C
Alkalinity as CaCO ₃	2	0	mg/L
Turbidity	1	0	NTU
Volumes purged	2.4	2.2	well volumes
Sampling code			

ANALYTICAL DATA

Parameter	1Q97	DF	Mod	ST	H	Flag	Lab	3Q97	DF	Mod	ST	H	Flag	Lab	Unit
Acetone	<10	1				0	WA	<5.0	1				0	EX	µg/L
Acrylonitrile	<5.0	1				0	WA	<5.0	1				0	WA	µg/L
Antimony, total recoverable	<27	1				0	WA	<27	1				0	WA	µg/L
Arsenic, total recoverable	<40	1				0	WA	<40	1				0	WA	µg/L
Barium, total recoverable	6.5	1				0	WA	7.4	1	J			0	EX	µg/L
Benzene	<5.0	1				0	WA	<5.0	1				0	WA	µg/L
beta-Benzene hexachloride								<0.050	1				0	EX	µg/L
Beryllium, total recoverable	<0.19	1	V			0	WA	<1.6	1				0	WA	µg/L
Bromochloromethane	<5.0	1				0	WA	<5.0	1				0	WA	µg/L
Bromodichloromethane	<5.0	1				0	WA	<5.0	1				0	WA	µg/L
Bromoform	<5.0	1				0	WA	<5.0	1				0	WA	µg/L
Bromomethane	<10	1				0	WA	<5.0	1				0	EX	µg/L
Cadmium, total recoverable	<4.7	1				0	WA	<4.7	1				0	WA	µg/L
Carbon disulfide	<5.0	1				0	WA	<5.0	1				0	WA	µg/L
Carbon tetrachloride	<5.0	1				0	WA	<5.0	1				0	WA	µg/L
Chlorobenzene	<5.0	1				0	WA	<5.0	1				0	WA	µg/L
Chloroethane	<10	1				0	WA	<5.0	1				0	EX	µg/L
Chloroethene (Vinyl chloride)	<10	1				0	WA	<5.0	1				0	EX	µg/L
Chloroform	<5.0	1				0	WA	<5.0	1				0	WA	µg/L
Chloromethane	<10	1				0	WA	<5.0	1				0	EX	µg/L
Chromium, total recoverable	<7.0	1				0	WA	<0.73	1	V			0	WA	µg/L
Cobalt, total recoverable	0.53	1	J			0	WA	<4.5	1				0	WA	µg/L
Copper, total recoverable	<15	1				0	WA	1.8	1	J			0	WA	µg/L
Dibromochloromethane	<5.0	1				0	WA	<5.0	1				0	WA	µg/L
1,2-Dibromo-3-chloropropane	<5.0	1				0	WA	<5.0	1				0	WA	µg/L
1,2-Dibromoethane	<5.0	1				0	WA	<5.0	1				0	WA	µg/L
Dibromomethane	<5.0	1				0	WA	<5.0	1				0	WA	µg/L
Di-n-butyl phthalate	<1.6	1	V			0	WA	3.7	1	J			0	WA	µg/L
1,2-Dichlorobenzene	<5.0	1				0	WA	<5.0	1				0	WA	µg/L
1,4-Dichlorobenzene	<5.0	1				0	WA	<5.0	1				0	WA	µg/L
trans-1,4-Dichloro-2-butene	<20	1				0	WA	<20	1				0	WA	µg/L
1,1-Dichloroethane	<5.0	1				0	WA	<5.0	1				0	WA	µg/L
1,2-Dichloroethane	<5.0	1				0	WA	<5.0	1				0	WA	µg/L
1,1-Dichloroethylene	<5.0	1				0	WA	<5.0	1				0	WA	µg/L
cis-1,2-Dichloroethylene	<5.0	1				0	WA	<5.0	1				0	WA	µg/L
trans-1,2-Dichloroethylene	<5.0	1				0	WA	<5.0	1				0	WA	µg/L
Dichloromethane	<3.3	1	V			0	WA	<5.0	1				0	EX	µg/L
1,2-Dichloropropane	<5.0	1				0	WA	<5.0	1				0	WA	µg/L
cis-1,3-Dichloropropene	<5.0	1				0	WA	<5.0	1				0	WA	µg/L
trans-1,3-Dichloropropene															
Ethylbenzene	<5.0	1				0	WA	<5.0	1				0	WA	µg/L
2-Hexanone	<10	1				0	WA	<5.0	1				0	EX	µg/L
Iodomethane (Methyl iodide)	<5.0	1				0	WA	<5.0	1				0	WA	µg/L
Lead, total recoverable	<47	1				0	WA	<47	1				0	WA	µg/L
Methyl ethyl ketone	<10	1				0	WA	<5.0	1				0	EX	µg/L
Methyl isobutyl ketone	<10	1				0	WA	<5.0	1				0	EX	µg/L
Nickel, total recoverable	<26	1				0	WA	2.8	1	J			0	WA	µg/L
pH	5.1	1	J		●	0	WA	5.2	1			●	0	EX	pH
Selenium, total recoverable	<66	1				0	WA	<66	1				0	WA	µg/L

Notes: See Appendix B for flagging criteria.

● = exceeded holding time.

■ = exceeded standard.

WELL LFW 75C (cont.)

Parameter	1Q97	DF	Mod	ST	H	Flag	Lab	3Q97	DF	Mod	ST	H	Flag	Lab	Unit
Silver, total recoverable	<5.0	1				0	WA	<5.0	1				0	WA	µg/L
Specific conductance	31	1	V			0	WA	34	1	V			0	WA	µS/cm
Styrene	<5.0	1				0	WA	<5.0	1				0	WA	µg/L
1,1,1,2-Tetrachloroethane	<5.0	1				0	WA	<5.0	1				0	WA	µg/L
1,1,2,2-Tetrachloroethane	<5.0	1				0	WA	<5.0	1				0	WA	µg/L
Tetrachloroethylene	<5.0	1				0	WA	<5.0	1				0	WA	µg/L
Thallium, total recoverable	<55	1				0	WA	<55	1				0	WA	µg/L
Toluene	<5.0	1				0	WA	<5.0	1				0	WA	µg/L
1,1,1-Trichloroethane	<5.0	1				0	WA	<5.0	1				0	WA	µg/L
1,1,2-Trichloroethane	<5.0	1				0	WA	<5.0	1				0	WA	µg/L
Trichloroethylene	<5.0	1				0	WA	<5.0	1				0	WA	µg/L
Trichlorofluoromethane	<5.0	1				0	WA	<5.0	1				0	WA	µg/L
1,2,3-Trichloropropane	<5.0	1				0	WA	<5.0	1				0	WA	µg/L
Vanadium, total recoverable	<6.9	1				0	WA	<6.9	1				0	WA	µg/L
Vinyl acetate	<10	1				0	WA	<5.0	1				0	EX	µg/L
Xylenes	<5.0	1				0	WA	<5.0	1				0	WA	µg/L
Zinc, total recoverable	24	1	J			0	WA	70	1		■		0	WA	µg/L

Notes: See Appendix B for flagging criteria.

● = exceeded holding time.

■ = exceeded standard.

WELL LFW 75D

SRS Coord.	Lat/Longitude	Screen Zone Elevation	Top of Casing	Casing	Pump	Screen Zone
N85868.0 E45355.6	33.289681 °N 81.714170 °W	166.0-151.0 ft msl	198.2 ft msl	4" PVC	S	Upper Steed Pond

SAMPLE DATE 03/05/97

09/08/97

FIELD DATA

Parameter	1Q97	3Q97	Unit
Water elevation	161.8	161.1	ft msl
pH	5.2	5.0	pH
Sp. conductance	22	26	µS/cm
Water temperature	27.0	21.0	°C
Alkalinity as CaCO ₃	3	2	mg/L
Turbidity	1	1	NTU
Volumes purged	4.8	4.7	well volumes
Sampling code			

ANALYTICAL DATA

Parameter	1Q97	DF	Mod	ST	H	Flag	Lab	3Q97	DF	Mod	ST	H	Flag	Lab	Unit
Acetone	<4.0	1	V			0	WA	<5.4	1	V			0	WA	µg/L
Acrylonitrile	<5.0	1				0	WA	<5.0	1				0	WA	µg/L
Antimony, total recoverable	<27	1				0	WA	<27	1				0	WA	µg/L
Arsenic, total recoverable	<40	1				0	WA	<40	1				0	WA	µg/L
Barium, total recoverable	9.4	1				0	WA	9.4	1				0	WA	µg/L
Benzene	<5.0	1				0	WA	<5.0	1				0	WA	µg/L
beta-Benzene hexachloride								<0.051	1				0	WA	µg/L
Beryllium, total recoverable	<1.6	1				0	WA	3.7	1	J	■	1	WA	µg/L	
Bromochloromethane	<5.0	1				0	WA	<5.0	1				0	WA	µg/L
Bromodichloromethane	<5.0	1				0	WA	<5.0	1				0	WA	µg/L
Bromoform	<5.0	1				0	WA	<5.0	1				0	WA	µg/L
Bromomethane	<10	1				0	WA	<10	1				0	WA	µg/L
Cadmium, total recoverable	<4.7	1				0	WA	<4.7	1				0	WA	µg/L
Carbon disulfide	<5.0	1				0	WA	<5.0	1				0	WA	µg/L
Carbon tetrachloride	<5.0	1				0	WA	<5.0	1				0	WA	µg/L
Chlorobenzene	<5.0	1				0	WA	<5.0	1				0	WA	µg/L
Chloroethane	<10	1				0	WA	<10	1				0	WA	µg/L
Chloroethene (Vinyl chloride)	<10	1				0	WA	<10	1				0	WA	µg/L
Chloroform	<5.0	1				0	WA	<5.0	1				0	WA	µg/L
Chloromethane	<10	1				0	WA	<10	1				0	WA	µg/L
Chromium, total recoverable	<7.0	1				0	WA	<7.0	1	V			0	WA	µg/L
Cobalt, total recoverable	0.99	1	J			0	WA	<4.5	1				0	WA	µg/L
Copper, total recoverable	<15	1				0	WA	<15	1				0	WA	µg/L
Dibromochloromethane	<5.0	1				0	WA	<5.0	1				0	WA	µg/L
1,2-Dibromo-3-chloropropane	<5.0	1				0	WA	<5.0	1				0	WA	µg/L
1,2-Dibromoethane	<5.0	1				0	WA	<5.0	1				0	WA	µg/L
Dibromomethane	<5.0	1				0	WA	<5.0	1				0	WA	µg/L
Di-n-butyl phthalate	<2.7	1	V			0	WA	<10	1	J	●	0	WA	µg/L	
1,2-Dichlorobenzene	<5.0	1				0	WA	<5.0	1				0	WA	µg/L
1,4-Dichlorobenzene	<5.0	1				0	WA	<5.0	1				0	WA	µg/L
trans-1,4-Dichloro-2-butene	<20	1				0	WA	<20	1				0	WA	µg/L
1,1-Dichloroethane	<5.0	1				0	WA	<5.0	1				0	WA	µg/L
1,2-Dichloroethane	<5.0	1				0	WA	<5.0	1				0	WA	µg/L
1,1-Dichloroethylene	<5.0	1				0	WA	<5.0	1				0	WA	µg/L
cis-1,2-Dichloroethylene	<5.0	1				0	WA	<5.0	1				0	WA	µg/L
trans-1,2-Dichloroethylene	<5.0	1				0	WA	<5.0	1				0	WA	µg/L
Dichloromethane	<2.6	1	V			0	WA	<6.4	1	V			0	WA	µg/L
1,2-Dichloropropane	<5.0	1				0	WA	<5.0	1				0	WA	µg/L
cis-1,3-Dichloropropene	<5.0	1				0	WA	<5.0	1				0	WA	µg/L
trans-1,3-Dichloropropene															
Ethylbenzene	<5.0	1				0	WA	<5.0	1				0	WA	µg/L
2-Hexanone	<10	1				0	WA	<10	1				0	WA	µg/L
Iodomethane (Methyl iodide)	<5.0	1				0	WA	<5.0	1				0	WA	µg/L
Lead, total recoverable	5.6	1	J			0	WA	9.6	1	J			0	WA	µg/L
Methyl ethyl ketone	<10	1				0	WA	<10	1				0	WA	µg/L
Methyl isobutyl ketone	<10	1				0	WA	<10	1				0	WA	µg/L
Nickel, total recoverable	<26	1				0	WA	<26	1				0	WA	µg/L
pH	5.4	1	J	●	0	WA	5.4	1	J	●	0	WA	pH		
Selenium, total recoverable	<66	1				0	WA	<66	1				0	WA	µg/L

Notes: See Appendix B for flagging criteria.

● = exceeded holding time.

■ = exceeded standard.

WELL LFW 75D (cont.)

Parameter	1Q97	DF	Mod	ST	H	Flag	Lab	3Q97	DF	Mod	ST	H	Flag	Lab	Unit
Silver, total recoverable	<5.0	1				0	WA	<5.0	1	V			0	WA	µg/L
Specific conductance	30	1	V			0	WA	27	1	V			0	WA	µS/cm
Styrene	<5.0	1				0	WA	<5.0	1				0	WA	µg/L
1,1,1,2-Tetrachloroethane	<5.0	1				0	WA	<5.0	1				0	WA	µg/L
1,1,2,2-Tetrachloroethane	<5.0	1				0	WA	<5.0	1				0	WA	µg/L
Tetrachloroethylene	<5.0	1				0	WA	<5.0	1				0	WA	µg/L
Thallium, total recoverable	<55	1				0	WA	<55	1				0	WA	µg/L
Toluene	<5.0	1				0	WA	<5.0	1				0	WA	µg/L
1,1,1-Trichloroethane	<5.0	1				0	WA	<5.0	1				0	WA	µg/L
1,1,2-Trichloroethane	<5.0	1				0	WA	<5.0	1				0	WA	µg/L
Trichloroethylene	<5.0	1				0	WA	<5.0	1				0	WA	µg/L
Trichlorofluoromethane	1.4	1	J			0	WA	<5.0	1				0	WA	µg/L
1,2,3-Trichloropropane	<5.0	1				0	WA	<5.0	1				0	WA	µg/L
Vanadium, total recoverable	0.90	1	J			0	WA	<6.9	1				0	WA	µg/L
Vinyl acetate	<10	1				0	WA	<10	1				0	WA	µg/L
Xylenes	<5.0	1				0	WA	<5.0	1				0	WA	µg/L
Zinc, total recoverable	26	1	J			0	WA	17	1	J			0	WA	µg/L

Notes: See Appendix B for flagging criteria.

● = exceeded holding time.

■ = exceeded standard.

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Appendix E

Data Quality/Usability Assessment

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Data Quality/Usability Assessment

Quality assurance/quality control (QA/QC) procedures relating to accuracy and precision of analyses performed on groundwater samples are followed in the field and laboratory, and QC data are reviewed prior to publication of results. The review by the Environmental Protection Department/Environmental Monitoring Section (EPD/EMS) of the volume of analytical data acquired each quarter and presented in various reports is an ongoing process; EPD/EMS' review of the QC data cannot be completed in time to meet the deadlines for the groundwater monitoring reports required by the Resource Conservation and Recovery Act and associated regulations. Beginning first quarter 1996, the *Quality Control Samples* section of EMS' quarterly groundwater monitoring report contains detailed evaluation of the following indicators of data quality: precision, accuracy, representativeness, comparability, and completeness. Site and regulatory personnel can obtain further information on the data quality and usability in a variety of ways, including those described below.

Data Qualification

The contract laboratories continually assess their own accuracy and precision according to U.S. Environmental Protection Agency (EPA) guidelines. They submit sample- or batch-specific QC information either at the same time as analytical results or in quarterly summaries. Properly defined and used modifiers (also referred to as qualifiers) can be a key component in assessing data usability. Modifiers designed by EPA or EPD/EMS and used by the primary laboratories or EMS' data validators are presented in Appendix D.

Assessment of Accuracy of the Data

Accuracy, or the nearness of the reported result to the true concentration of a constituent in a sample, can be assessed in several ways.

A laboratory's general accuracy can be judged by evaluation of results obtained from known samples. The contract laboratories analyze commercial reference samples periodically at EPD/EMS' request. The results of these analyses from the nonradionuclide laboratories are presented in the EPD/EMS groundwater monitoring quarterly reports; the results from the radionuclide laboratories should be available on request from the laboratory subcontract representatives. The primary laboratories also seek or maintain state certification by participating periodically in performance studies. Reference samples and evaluation of results are provided by EPA. Results of these studies also are published in the EPD/EMS quarterly reports.

Analysis of blanks provides a tool for assessing the accuracy of both sampling and laboratory analysis. Results for all field blanks for the quarter can be found in the EPD/EMS quarterly reports. Any field or laboratory blanks that exceed established minimums are identified in the same reports, in tables associating them with groundwater samples analyzed in the same batches. In these regulatory reports, the modifier *V* is assigned to every detected result that is run in the same batch as a laboratory blank with positive results for that analyte. A *U* qualifier (reported as *less than* [*<*]) also is added if the analyte concentration is less than five times the concentration in the blank (or, for common laboratory contaminants, less than ten times).

Surrogates, organic compounds similar in chemical behavior to the compounds of interest but not normally found in environmental samples, are used to monitor the effect of the matrix on the accuracy of analyses for organic parameters. For example, for analyses of volatile organics by EPA Method 8240, three surrogate compounds are added to all samples and blanks in each analytical batch. In analyses of semivolatile organics by EPA Method 8270, three surrogates are required and an additional compound is advised for each fraction (acids and base/neutrals). Two surrogates are used in organochlorine pesticides analyses. Percent recoveries for surrogate analyses are calculated by laboratory personnel, reported to EPD/EMS, reviewed, and entered into the database. Beginning first quarter 1996, statistical summaries are published in the *Quality Control Samples* section of the

EPD/EMS quarterly groundwater monitoring report. If recoveries are not within specified limits, the laboratory is expected to reanalyze the samples or attach qualifiers to the data identifying the anomalous results.

Sample-specific accuracy for both organic and inorganic parameters can be assessed by examination of matrix spike/matrix spike duplicate results. A portion of the sample is analyzed unspiked to determine a baseline set of values. A second portion of the sample is spiked with known concentrations of compounds appropriate to the analyses being performed, typically five volatile organic compounds for volatile organics analyses, eleven semivolatile compounds for semivolatiles, six pesticide compounds for pesticides, all metals for metals analyses by SW-846 methods (EPA, 1986), and a known quantity of cyanide for cyanide analysis. The percentage of the spike compound that is recovered (i.e., measured in excess of the value obtained for the unspiked sample) is a direct measure of analytical accuracy. EPA requires matrix spike/matrix spike duplicates to be run at least once per 20 samples of similar matrices.

Matrix spike/matrix spike duplicate results are reported to EPD/EMS. Beginning first quarter 1996, spike results and a statistical summary are published in the *Quality Control Samples* section of the EPD/EMS quarterly groundwater monitoring report. For organic compounds, according to EPA guidelines, no action is taken on the basis of matrix spike/matrix spike duplicate data alone (i.e., no result modifiers are assigned solely on the basis of matrix spike results); however, the results can indicate if a laboratory is having a systematic problem in the analysis of one or more analytes.

In the case of inorganic compounds, such as metals, the matrix spike sample analysis provides information about the effect of each sample matrix on the digestion and measurement methodology. Data qualifiers assigned by the laboratories on the basis of the percentage of spike recovery are reported in the EPD/EMS results tables.

Assessment of Precision

Precision of the analyses, or agreement of a set of replicate results among themselves, is assessed through the use of duplicates initiated by the laboratory and blind replicates provided by EPD/EMS. The results of duplicate and replicate analyses are presented in results tables that report only one quarter of data. Results tables that include more than one quarter of data present only the highest result for each analyte for each quarter of the year.

The laboratories assess precision by calculating the relative percent difference (RPD) for each pair of laboratory-initiated duplicate results. The EMS data validators apply a data qualifier to the results of entire preparation batches of metals analyses when the RPD for laboratory duplicates is greater than 20 percent and either the difference between the two samples is greater than the contract-required detection limit (CRDL) or both sample results are greater than 5 times the CRDL. This qualifier is published in the EPD/EMS quarterly reports.

Additional statistical comparisons of laboratory duplicate and blind replicate results, both intra- and interlaboratory, are presented in the EPD/EMS quarterly reports. The calculation used for these reports is the mean relative difference (MRD), which is similar to EPA's RPD except that the MRD is the average of all the RPD values from one laboratory for each compound (intralaboratory MRD) or all the RPD values from all laboratories for each compound (interlaboratory MRD) during one quarter. Because detection limits may vary among samples, the MRD requires calculation of a reference detection limit, which is the detection limit at the 90th percentile of the array of limits in the population of all duplicate and replicate analyses for a given analyte during a particular quarter. The MRD is not method-specific.

Method-Specific Accuracy and Precision

The contract laboratories' EPA-approved laboratory procedures include QA/QC requirements as an integral part of the methods. Thus, knowledge of the method used in obtaining data is an important component of determining data usability. EPA has conducted extensive research and development on the methods approved for the analysis of water and wastewater. Information on the accuracy and precision of a method is available from EPA publications, as is full information on required QA/QC

procedures. A listing of the methods used by the primary laboratories during fourth quarter 1995 is given below (Table E-1, Methods Used by the Contract Laboratories), along with the source for the method description. Many, if not all, of these sources include presentations of representative accuracy and precision results. The EPD/EMS quarterly reports provide the methods used by the laboratories each quarter.

Table E-1. Methods Used by the Contract Laboratories

Method	Used to Analyze	Source
EICHROMTC1MOD ^a	Technetium isotopes	EiChrom Industries, Inc.; NA ^b
EMLAM01MOD	Americium, curium isotopes	DOE, 1992
EMLPU02MOD	Neptunium, plutonium isotopes	DOE, 1992
EMLSR02MOD	Strontium isotopes	DOE, 1992
EMLTH01MOD	Thorium isotopes	DOE, 1992
EMLU02MOD	Uranium isotopes	DOE, 1992
ENICMOD	Carbon-14	NA
EPA120.1	Specific conductance	EPA EMSL, 1983
EPA150.1	pH	EPA EMSL, 1983
EPA160.1	Total dissolved solids	EPA EMSL, 1983
EPA160.2	Total dissolved solids, total suspended solids	EPA EMSL, 1983
EPA180.1	Turbidity	EPA EMSL, 1983
EPA200.7	Metals	EPA EMSL, 1983
EPA245.1	Mercury	EPA EMSL, 1983
EPA300.0	Chloride, nitrite, sulfate, fluoride	EPA EMSL, 1983
EPA310.1	Alkalinity (as CaCO ₃)	EPA EMSL, 1983
EPA335.2	Cyanide	EPA EMSL, 1983
EPA335.3	Cyanide	EPA EMSL, 1983
EPA340.2	Fluoride	EPA EMSL, 1983
EPA350.1	Ammonia nitrogen	EPA EMSL, 1983
EPA350.3	Ammonia	EPA EMSL, 1983
EPA353.1	Nitrogen, nitrate-nitrite	EPA EMSL, 1983
EPA353.2	Nitrogen, nitrate, nitrite, or combined	EPA EMSL, 1983
EPA365.2	Phosphorus, all forms (reported as total phosphates)	EPA EMSL, 1983
EPA365.3	Phosphorus, all forms (reported as total phosphates)	EPA EMSL, 1983
EPA365.4	Phosphorus, all forms (reported as total phosphates)	EPA EMSL, 1983
EPA405.1	Five-day biochemical oxygen demand	EPA EMSL, 1983
EPA405.1/SM	Five-day biochemical oxygen demand	EPA EMSL, 1983
EPA410.4	Chemical oxygen demand	EPA EMSL, 1983
EPA415.1	Dissolved organic carbon, total inorganic carbon, total organic carbon	EPA EMSL, 1983

Method	Used to Analyze	Source
EPA418.1	Total petroleum hydrocarbons	EPA EMSL, 1983
EPA420.2	Phenols	EPA EMSL, 1983
EPA450.1	Total organic halogens	NA
EPA900.0MOD	Gross alpha, nonvolatile beta	EPA EMSL, 1980
EPA901.1MOD	Gamma PHA, iodine isotopes	EPA EMSL, 1980
EPA903.0MOD	Total alpha-emitting radium, radium isotopes	EPA EMSL, 1980
EPA904.0MOD	Radium isotopes	EPA EMSL, 1980
EPA906.0MOD	Tritium	EPA EMSL, 1980
EPA6010	Metals	EPA, 1986
EPA6010A	Metals	EPA, 1992
EPA7470	Mercury	EPA, 1986
EPA8080	Organochlorine pesticides and PCBs	EPA, 1986
EPA8150	Chlorinated herbicides	EPA, 1986
EPA8240	GCMS volatiles	EPA, 1986
EPA8260	GCMS volatiles	EPA, 1986
EPA8270	GCMS semivolatiles	EPA, 1986
EPA8280	Dioxins and furans	EPA, 1986
EPA9020A	Total organic halogens	EPA, 1986
EPA9020B	Total organic halogens	EPA, 1994b
EPA9060	Total inorganic carbon	EPA, 1986
EPIA-001 ^c	Gross alpha, nonvolatile beta	EP, 1996
EPIA-002 ^c	Tritium	EP, 1996
EPIA-003 ^c	Carbon-14	EP, 1996
EPIA-004 ^c	Strontium-90	EP, 1996
EPIA-005 ^c	Technetium-99	EP, 1996
EPIA-006 ^c	Iodine-129	EP, 1996
EPIA-008 ^c	Radium-226	EP, 1996
EPIA-009 ^c	Radium-228	EP, 1996
EPIA-010 ^c	Radium, total alpha-emitting	EP, 1996
EPIA-011 ^c	Americium, curium, uranium isotopes	EP, 1996
EPIA-012 ^c	Neptunium, plutonium, thorium isotopes	EP, 1996
EPIA-013 ^c	Gamma PHA	EP, 1996
EPIA-022 ^c	Nickel isotopes	EP, 1996
MMES16009MOD	Technetium-99	NA
3Q1-6-1420	Total activity, tritium	NA

^a MOD indicates modifications of applicable EPA, DOE, or other procedures.

^b NA = not available. Sources for some proprietary methods are not available.

^c The methods and detection limits used by GP are in-house methods based on applicable EPA, DOE, or other procedures. Complete method descriptions are available from GP.

Note: One of the labs reports the method for some metals determinations as CLP or CLP-MOD. This is presumed equivalent to Method 6010 or 6010A.

An example of method-specific QC information is that for EPA Method 8270 (EPA, 1986), which is used by both GE and Recra for analyses of semivolatile organics. The following table gives method-specific accuracy and precision as functions of concentration. Contract laboratories are expected to achieve or at least approach these limits.

Table E-2. Method Accuracy and Precision as Functions of Concentration for EPA Method 8270

Parameter	Accuracy, as recovery, $\bar{x}$ (μg/L)	Single analyst precision, s_r (μg/L)	Overall precision, S (μg/L)
Acenaphthene	0.96C+0.19	0.15X-0.12	0.21X-0.67
Acenaphthylene	0.89C+0.74	0.24X-1.06	0.26X-0.54
Aldrin	0.78C+1.66	0.27X-1.28	0.43X+1.13
Anthracene	0.80C+0.68	0.21X-0.32	0.27X-0.64
Benzo[a]anthracene	0.88C-0.60	0.15X+0.93	0.26X-0.21
Benzo[b]fluoranthene	0.93C-1.80	0.22X+0.43	0.29X+0.96
Benzo[k]fluoranthene	0.87C-1.56	0.19X+1.03	0.35X+0.40
Benzo[g,h,i]perylene	0.98C-0.86	0.29X+2.40	0.51X-0.44
Benzo[a]pyrene	0.90C-0.13	0.22X+0.48	0.32X+1.35
β-BHC	0.87C-0.94	0.20X-0.58	0.30X+1.94
δ-BHC	0.29C-1.09	0.34X+0.86	0.93X+0.17
Bis(2-chloroethoxy) methane	1.12C-5.04	0.16X+1.34	0.26X+2.01
Bis(2-chloroethyl) ether	0.86C-1.54	0.35X-0.99	0.35X+0.10
Bis(2-chloroisopropyl) ether	1.03C-2.31	0.24X+0.28	0.25X+1.04
Bis(2-ethylhexyl) phthalate	0.84C-1.18	0.26X+0.73	0.36X+0.67
4-Bromophenyl phenyl ether	0.91C-1.34	0.13X+0.66	0.16X+0.66
Butylbenzyl phthalate	0.66C-1.68	0.18X+0.94	0.53X+0.92
4-Chloro-m-cresol	0.84C+0.35	0.23X+0.75	0.29X+1.31
Chloroethane	0.99C-1.53	0.14X-0.13	0.17X-0.28
2-Chloronaphthalene	0.89C+0.01	0.07X+0.52	0.13X+0.34
2-Chlorophenol	0.78C+0.29	0.18X+1.46	0.28X+0.97
4-Chlorophenyl phenyl ether	0.91C+0.53	0.20X-0.94	0.30X-0.46
Chrysene	0.93C-1.00	0.28X+0.13	0.33X-0.09
p,p'-DDD	0.56C-0.40	0.29X-0.32	0.66X-0.96
p,p'-DDE	0.70C-0.54	0.26X-1.17	0.39X-1.04
p,p'-DDT	0.79C-3.28	0.42X+0.19	0.65X-0.58
Dibenz[a,h]anthracene	0.88C+4.72	0.30X+8.51	0.59X+0.25

Parameter	Accuracy, as recovery, x^- ($\mu\text{g/L}$)	Single analyst precision, s_r^- ($\mu\text{g/L}$)	Overall precision, S^- ($\mu\text{g/L}$)
Di-n-butyl phthalate	0.59C+0.71	0.13X+1.16	0.39X+0.60
1,2-Dichlorobenzene	0.80C+0.28	0.20X+0.47	0.24X+0.39
1,3-Dichlorobenzene	0.86C-0.70	0.25X+0.68	0.41X+0.11
1,4-Dichlorobenzene	0.73C-1.47	0.24X+0.23	0.29X+0.36
3,3'-Dichlorobenzidine	1.23C-12.65	0.28X+7.33	0.47X+3.45
2,4-Dichlorophenol	0.87C-0.13	0.15X+1.25	0.21X+1.28
Dieldrin	0.82C-0.16	0.20X-0.16	0.26X-0.07
Diethyl phthalate	0.43C+1.00	0.28X+1.44	0.52X+0.22
2,4-Dimethyl phenol	0.71C+4.41	0.16X+1.21	0.22X+1.31
Dimethyl phthalate	0.20C+1.03	0.54X+0.19	1.05X-0.92
2,4-Dinitrophenol	0.81C-18.04	0.38X+2.36	0.42X+26.29
2,4-Dinitrotoluene	0.92C-4.81	0.12X+1.06	0.21X+1.50
2,6-Dinitrotoluene	1.06C-3.60	0.14X+1.26	0.19X+0.35
Di-n-octyl phthalate	0.76C-0.79	0.21X+1.19	0.37X+1.19
Endosulfan sulfate	0.39C+0.41	0.12X+2.47	0.63X-1.03
Endrin aldehyde	0.76C-3.86	0.18X+3.91	0.73X-0.62
Fluoranthene	0.81C+1.10	0.22X-0.73	0.28X-0.60
Fluorene	0.90C-0.00	0.12X+0.26	0.13X+0.61
Heptachlor	0.87C-2.97	0.24X-0.56	0.50X-0.23
Heptachlor epoxide	0.92C-1.87	0.33X-0.46	0.28X+0.64
Hexachlorobenzene	0.74C+0.66	0.18X-0.10	0.43X-0.52
Hexachlorobutadiene	0.71C-1.01	0.19X+0.92	0.26X+0.49
Hexachloroethane	0.73C-0.83	0.17X+0.67	0.17X+0.80
Indeno[1,2,3-c,d]pyrene	0.78C-3.10	0.29X+1.46	0.50X-0.44
Isophorone	1.12C+1.41	0.27X+0.77	0.33X+0.26
2-Methyl-4,6-dinitrophenol	1.04C-28.04	0.10X+42.29	0.26X+23.10
Naphthalene	0.76C+1.58	0.21X-0.41	0.30X-0.68
Nitrobenzene	1.09C-3.05	0.19X+0.92	0.27X+0.21
2-Nitrophenol	0.07C-1.15	0.16X+1.94	0.27X+2.60
4-Nitrophenol	0.61C-1.22	0.38X+2.57	0.44X+3.24
N-Nitrosodi-n-propylamine	1.12C-6.22	0.27X+0.68	0.44X+0.47
PCB 1260	0.81C-10.86	0.35X+3.61	0.43X+1.82
Pentachlorophenol	0.93C+1.99	0.24X+3.03	0.30X+4.33
Phenanthrene	0.87C+0.06	0.12X+0.57	0.15X+0.25
Phenol	0.43C+1.26	0.26X+0.73	0.35X+0.58
Pyrene	0.84C-0.16	0.16X+0.06	0.15X+0.31
1,2,4-Trichlorobenzene	0.94C-0.79	0.15X+0.85	0.21X+0.39

Parameter	Accuracy, as recovery, x' ($\mu\text{g/L}$)	Single analyst precision, s_r' ($\mu\text{g/L}$)	Overall precision, S' ($\mu\text{g/L}$)
2,4,6-Trichlorophenol	$0.91C-0.18$	$0.16X+2.22$	$0.22X+1.81$

x' = Expected recovery for one or more measurements of a sample containing a concentration of C , in $\mu\text{g/L}$.

s_r' = Expected single analyst standard deviation of measurements at an average concentration of X , in $\mu\text{g/L}$.

S' = Expected interlaboratory standard deviation of measurements at an average concentration of X , in $\mu\text{g/L}$.

C = True value for the concentration, in $\mu\text{g/L}$.

X = Average recovery found for measurements of samples containing a concentration of C , in $\mu\text{g/L}$.

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