

# **WATER QUALITY OF CEDAR CREEK RESERVOIR IN NORTHEAST TEXAS, 1977 TO 1984**

**By Norman F. Leibbrand and Willard J. Gibbons**

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## METRIC CONVERSIONS

Factors for converting inch-pound units to metric (International System) units are given in the following table:

Multiply inch-pound unit	By	To obtain metric units
acre	0.4047	hectare
acre-foot (acre-ft)	1,233.0	cubic meter
cubic foot per second (ft <sup>3</sup> /s)	0.02832	cubic meter per second
degree Fahrenheit (°F)	5/9 (°F-32)	degree Celsius (°C)
foot (ft)	0.3048	meter
mile (mi)	1.609	kilometer
square mile (mi <sup>2</sup> )	2.590	square kilometer

Sea level: In this report "sea level" refers to the National Geodetic Vertical Datum of 1929 (NGVD of 1929)--a geodetic datum derived from a general adjustment of the first-order level nets of both the United States and Canada, formerly called "Mean Sea Level of 1929."

# WATER QUALITY OF CEDAR CREEK RESERVOIR

IN NORTHEAST TEXAS, 1977 TO 1984

By

Norman F. Leibbrand and Willard J. Gibbons

## ABSTRACT

Water in Cedar Creek Reservoir in northeast Texas had volume-weighted average concentrations of less than 140 milligrams per liter of dissolved solids, less than 30 milligrams per liter of dissolved sulfate, and less than 25 milligrams per liter of chloride between January 1977 and August 1984. The water was soft to moderately hard; the total hardness concentrations ranged from 55 to 75 milligrams per liter as calcium carbonate.

Thermal stratification in Cedar Creek Reservoir usually begins in late winter or early spring and persists until late fall. Stratification or summer stagnation causes significant seasonal and areal variations in concentrations of dissolved oxygen, iron, manganese, total inorganic nitrogen, and total phosphorus. Oxygen used in the decay of organic matter is not replenished during summer stagnation, and water below depths of 30 feet usually contains less than 2 milligrams per liter of dissolved oxygen. Often, oxygen is nearly depleted near the bottom in the deepest areas of the reservoir, thus causing reducing conditions.

Reducing conditions during summer stagnation result in the dissolution of iron and manganese in bottom sediments. At the deepest site (Ac) near Joe B. Hoggset Dam, dissolved iron concentrations in water near the bottom averaged 1,860 micrograms per liter and manganese concentrations averaged 3,170 micrograms per liter. The concentrations of dissolved iron and dissolved manganese averaged less than 120 micrograms per liter throughout the reservoir during winter and spring circulation and in water near the reservoir's surface during summer stagnation.

Seasonal temperature and dissolved oxygen cycles cause the recycling of dissolved iron and manganese between the water and bottom sediments. However, no substantial accumulation of these constituents within the reservoir was detected during the study.

Of 10 trace elements studied, barium and arsenic were the most commonly found in detectable concentrations. Of 22 water samples collected for trace-element analysis, 15 contained barium in concentrations ranging from 40 to 300 micrograms per liter, and 19 contained arsenic in concentrations ranging from 1 to 26 micrograms per liter. However, these concentrations are below the maximum contaminant limit for barium (1,000 micrograms per liter) and arsenic (50 micrograms per liter) in drinking water.

The concentrations of total inorganic nitrogen, total nitrogen, and total phosphorus were largest during summer stagnation in water near the bottom at

the deepest sites. At site Ac, the largest total phosphorus concentration was 5.3 milligrams per liter for a bottom sample. The maximum total inorganic nitrogen concentration for the same sample was 2.5 milligrams per liter. Water near the surface of Cedar Creek Reservoir during summer stagnation and throughout the reservoir during winter circulation had total phosphorus and total inorganic nitrogen concentrations of less than 0.1 milligram per liter. Total nitrogen concentrations near the surface ranged from 0.3 to 1.1 milligrams per liter from January 1980 to August 1984.

## INTRODUCTION

The U.S. Geological Survey has made comprehensive water-quality surveys of Cedar Creek Reservoir seasonally since January 1977, in cooperation with the Tarrant County Water Control and Improvement District No. 1 and the Texas Department of Water Resources. Data collected during each reservoir survey at ten sites have included onsite measurements of specific conductance, dissolved oxygen, water temperature, and pH. On the basis of results of these onsite measurements, water samples were collected and analyzed for the major dissolved chemical constituents, total nitrogen and phosphorus, and dissolved iron. In January 1978, the data-collection program was expanded to include the collection and analyses of samples for additional dissolved trace elements.

### Purpose and Scope

The purpose of this report is to compile the water-quality data collected during the seasonal surveys and to describe and explain the historical, seasonal, areal, and depth-related variations in the water quality of Cedar Creek Reservoir from January 1977 to August 1984.

### Description of Cedar Creek Reservoir and Its Environment

Cedar Creek Reservoir is located in the Trinity River basin in Henderson County, Texas, about 3 mi northeast of Trinidad on Cedar Creek, a tributary to the Trinity River (fig. 1). The reservoir is owned and operated by the Tarrant County Water Control and Improvement District No. 1 for municipal and industrial water supply and recreational purposes.

Cedar Creek Reservoir was formed by a rolled, earthfill dam, the Joe B. Hoggset Dam, which is 17,539 ft long (Dowell and Petty, 1973). Impoundment began July 2, 1965. The reservoir has a storage capacity of 679,200 acre-ft at the top of the conservation pool at an altitude of 322.0 ft above sea level. The drainage area above the dam is 1,007 mi<sup>2</sup>. Other features of the reservoir are given in the following table:

	Altitude (feet above sea level)	Capacity (acre-feet)
Top of dam	340.0	--
Top of radial gates	325.0	785,100
Top of automatic gates	322.5	696,400
Top of conservation pool	322.0	679,200
Crest of spillway (automatic gates)	314.0	441,000
Crest of spillway (radial gates)	302.0	197,800
Lowest gated outlet (invert)	263.5	430

Water is diverted from the reservoir for municipal and industrial uses by the cities of Arlington, Fort Worth, Mansfield, Kemp, Trinidad, and Mabank.

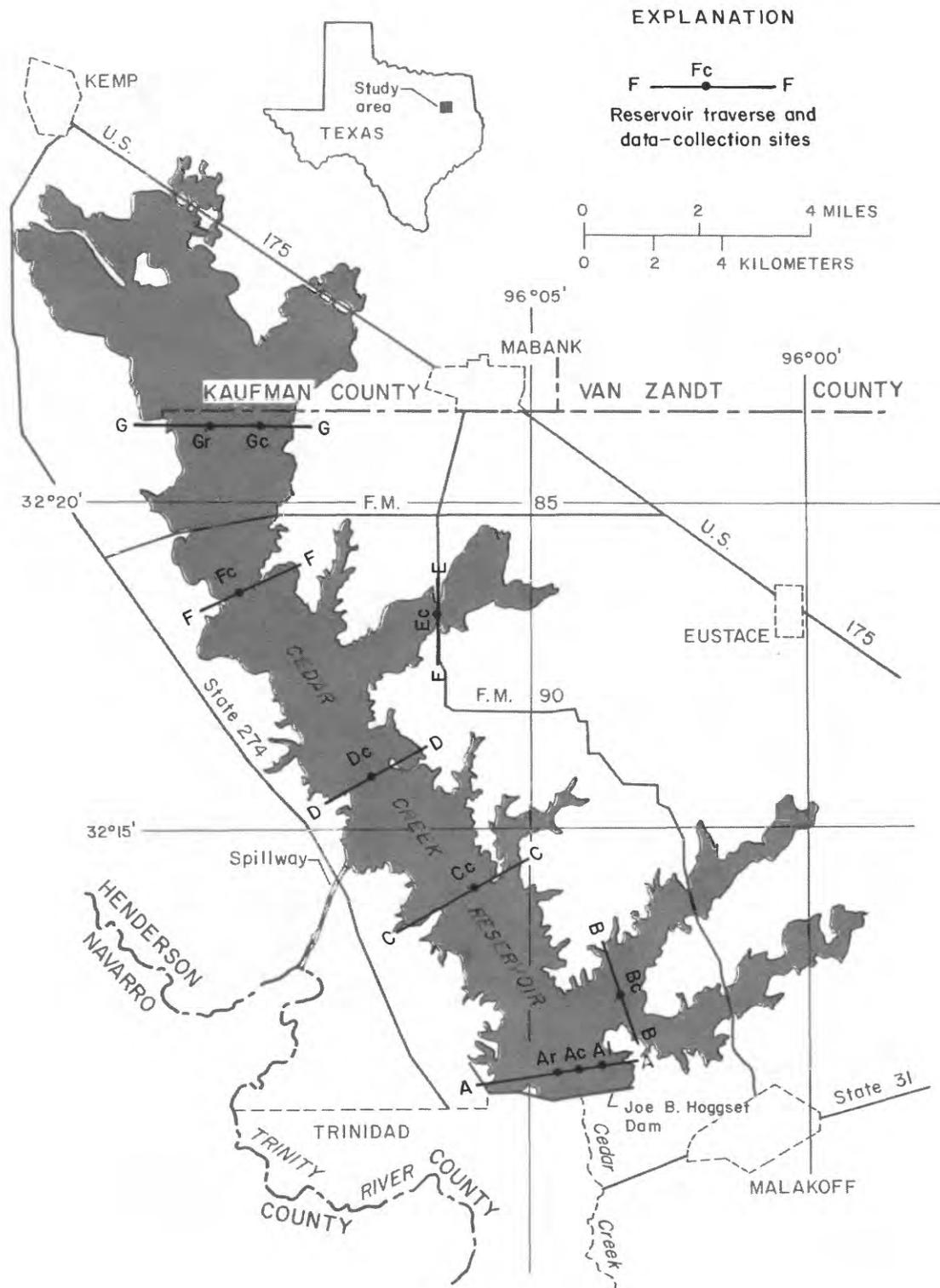


Figure 1.--Location of water-quality data-collection sites on Cedar Creek Reservoir

Total yearly diversions are given in the following table (Ray Minatra, Tarrant County Water Control and Improvement District No. 1, oral commun., 1985):

Year	Total diversion (acre-feet)
1977	28,635
1978	54,426
1979	27,586
1980	98,474
1981	76,854
1982	48,491
1983	64,082
1984	104,618

#### Location of Sampling Sites

Sampling sites were located along 7 traverses (A through G) in an upstream direction from the dam as shown in figure 1. Traverses B and E were located near tributaries. Sites located over the main-stem drowned channel and two tributaries (Bc, Ec) are subscripted "c" (for channels). Sites to the left or right of the channel were subscripted "l" or "r", respectively. Each site was sampled on a seasonal basis during January (winter), May (spring), and August (summer) with the following exceptions: September 29, 1977 (fall); March 9, 1978 (winter); June 22, 1978 (summer); September 8, 1978 (summer); March 10, 1981 (winter); and February 23, 1982 (winter).

At sites Ac, Dc, and Gc, samples were collected for chemical analyses of inorganics, nitrogen and phosphorus, and iron and manganese near the surface and near the bottom. Samples for chemical analyses of nitrogen, phosphorus, iron, and manganese were collected at sites Ac and Dc during the spring and summer surveys just above and just below the thermocline (which occurs near mid-depth). During the winter surveys, these samples were collected only at mid-depth. At site Gc near the headwaters where the reservoir is the shallowest, no mid-depth samples were collected because there is very little thermal stratification in this part of Cedar Creek Reservoir.

At sites Bc and Ec, only samples for chemical analyses of nitrogen, phosphorus, iron, and manganese were collected near the surface and near the bottom of the reservoir. At sites Ar, Al, Cc, Fc, and Gr, only field parameters were measured. Field parameters were measured at about 10-ft increments at all sites. From March 9, 1978, to August 11, 1981, samples were collected at site Ac near the surface and near the bottom for chemical analyses of trace metals. All of these data are presented in tables 1 to 24.

#### WATER QUALITY

Impoundment of water in a lake or reservoir may result in beneficial as well as detrimental changes in the quality of the water. Some of the factors that influence the quality of water in a lake or reservoir include the quality and quantity of inflow, seasonal circulation patterns, chemical reaction between

water and bed material, physical characteristics, and climatic conditions such as precipitation, air temperature, and evaporation. Many of the detrimental changes can be attributed to thermal stratification--layering of the water caused by temperature-induced density differences.

### Thermal Stratification

The density of pure water is greatest at a temperature of about 4 °C, and the difference in density per 1 °C is much greater at warmer temperatures than at cooler temperatures as shown in the following table (Weast, 1975, p. F-5):

Temperature (°C)	Density (grams per milliliter)
0	0.999868
4	1.000000
5	.999992
10	.999728
15	.999129
20	.998234
25	.997075
30	.995678
35	.994063

For example, a change in temperature from 29 to 30 °C results in a change in density of about 0.0003 g/mL (grams per milliliter); a change in temperature from 10 to 11 °C results in a density change of about 0.0001 g/mL. Stable stratification is common in many lakes and reservoirs where the density of the upper and lower strata of water differs by as little as 0.001 to 0.002 g/mL. Thus, temperature differences of 3 to 4 °C resulting from warming of inflows and of water at the reservoir surface during the summer may result in stable stratification. The amount of work required to mix layered water masses between 29 and 30 °C is 40 times, and between 24 and 25 °C is 30 times that required to mix the same masses between 4 and 5 °C (Wetzel, 1983).

Thermal stratification may occur in many patterns, depending upon the geographical location, climatological conditions, depth, surface area, and configuration of the lake or reservoir. During the winter, many deep lakes or reservoirs in the temperate zone characteristically are isothermal--that is, the water has a uniform temperature and density and circulates freely. With the onset of spring, solar heating warms the incoming water and the water at the reservoir surface causing a decrease in density. This warmer water at the surface floats on the colder, more dense water. As the reservoir surface becomes progressively warmer, its density gradient increases and the depth to which wind can mix the water is decreased. Typically, by summer the winds are weakest, density differences are greatest, and the reservoir is separated into three fairly distinct strata:

- (1) The epilimnion--a warm, freely circulating surface stratum;
- (2) the metalimnion--a middle stratum characterized by a rapid decrease in temperature with increases in depth; and
- (3) the hypolimnion--a cold, stagnant lower stratum.

Thermal stratification in deep lakes or reservoirs usually persists until fall, when a decrease in atmospheric temperature cools both the water at the surface of the lake or reservoir and inflow from streams. When the temperatures and densities of the epilimnion and metalimnion approach the temperature of the hypolimnion, resistance to mixing is decreased and mixing or overturn of the water begins.

Cedar Creek Reservoir shows this classical stratification pattern in its deepest areas along the old (drowned) main channel. In the upstream reaches of the reservoir and in areas outside the old channel where depths are much shallower, the stratification pattern is much less pronounced.

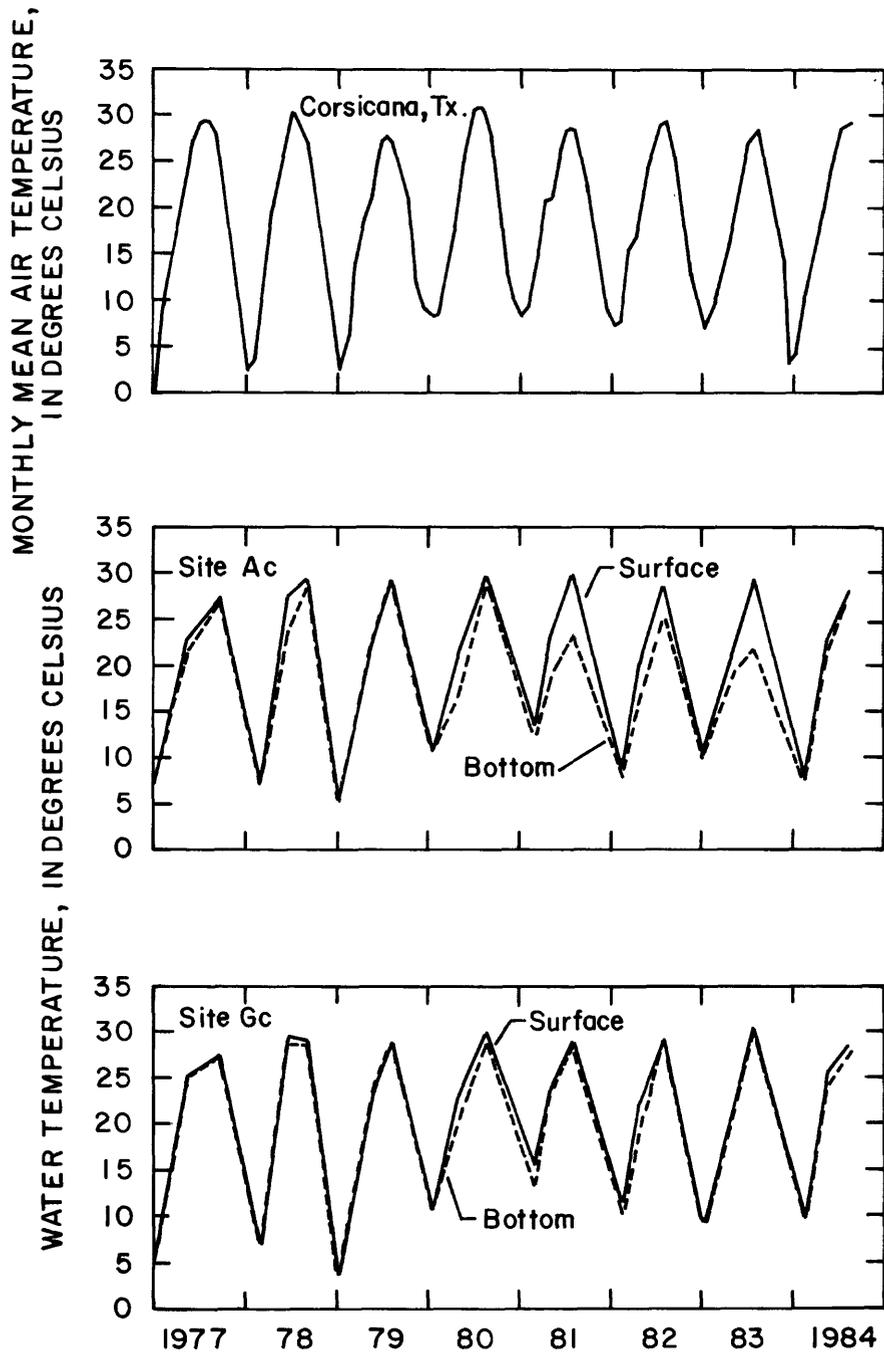
Water-temperature data for Cedar Creek Reservoir collected during water-quality surveys during 1977-84 are shown in tables 1 to 24 (at the end of this report) and in figure 2. Monthly-mean air-temperature data for the town of Corsicana, located about 20 mi south of the reservoir, also is included in figure 2. Water temperature in the reservoir fluctuates with seasonal warming and cooling trends in air temperature. In the summer, the bottom layer at site Ac is distinctly cooler than the top. At site Gc, thermal stratification persists, but it is not as distinct as at site Ac because the reservoir is much shallower at Gc. In general, water in the reservoir begins to overturn in the fall and becomes isothermal by winter. In the spring, when solar radiation begins to increase, the water at the surface of the reservoir begins to warm and thermal stratification begins again.

### Dissolved Oxygen

Dissolved oxygen is important in any aquatic ecosystem. Fish and other aquatic life require adequate concentrations of dissolved oxygen for egg and larvae development and for normal growth and activity. No single dissolved-oxygen concentration is favorable to all aquatic species and ecosystems; however, small dissolved oxygen concentrations are unfavorable to most aquatic organisms. Dissolved oxygen affects concentrations of some of the other chemical constituents dissolved in water and is one of the most important aspects of water quality of a lake or reservoir.

Oxygen dissolves in water at a rate determined primarily by temperature, atmospheric pressure, wind, and salinity. Much of the oxygen in a lake or reservoir enters at the air-water interface by absorption from the atmosphere. A significant quantity of oxygen also may be produced as a product of photosynthesis. However, the rates of supply of dissolved oxygen from the atmosphere and from photosynthetic inputs are counterbalanced by oxygen-consuming metabolic mechanisms. This oxygen demand is exerted primarily by the bacterial decomposition of organic material and to a lesser extent by reaction with other dissolved constituents in the water.

Water entering a lake or reservoir contains organic material from natural sources and from man's activities. Decaying vegetation and other oxidizable material were present when the reservoir was impounded, and decaying algae and other organic material have accumulated in the reservoir since impoundment. Bacterial decomposition of these materials consumes oxygen.



**Figure 2.--Variations in air and water temperature at selected sites, January 1977 to August 1984**

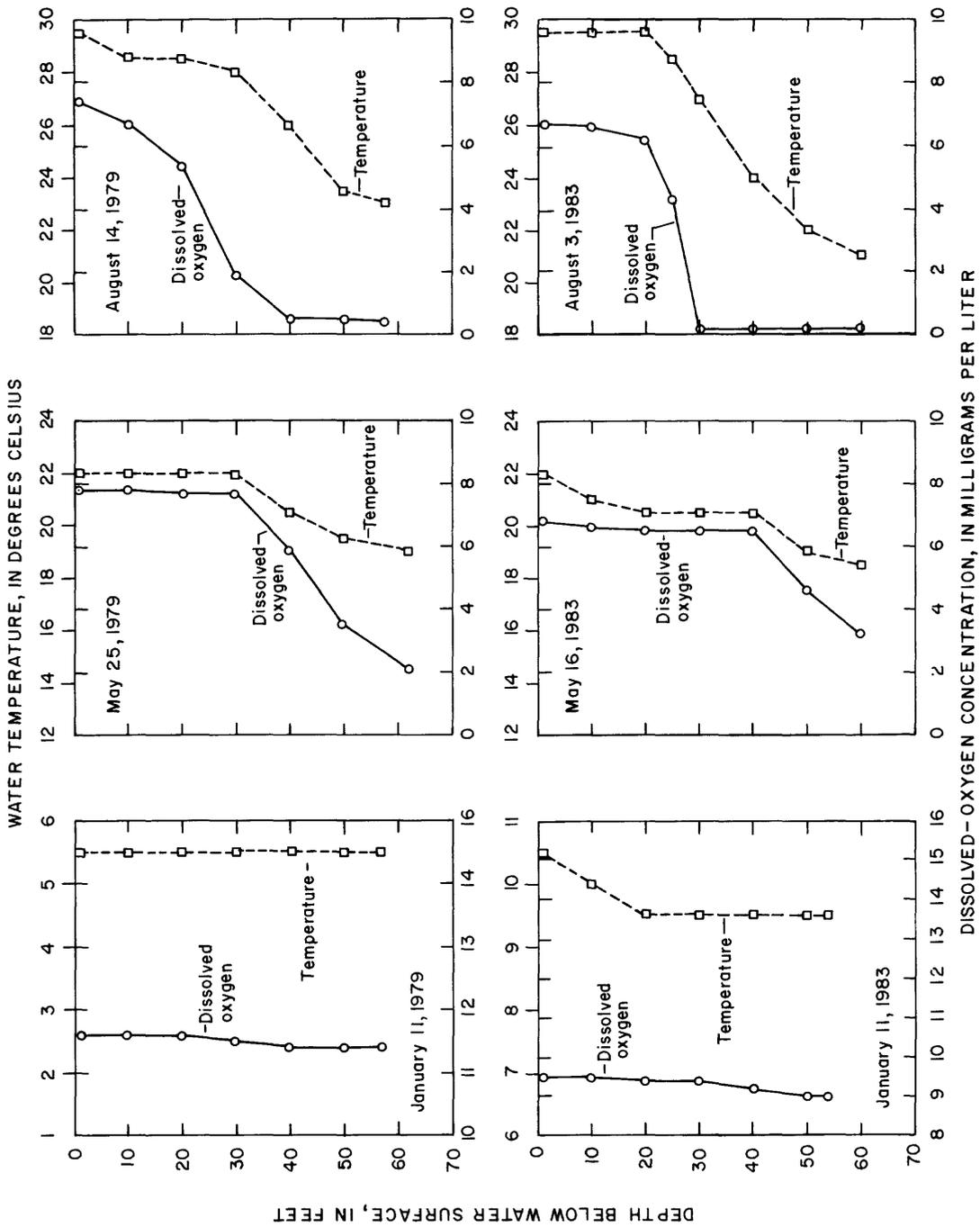
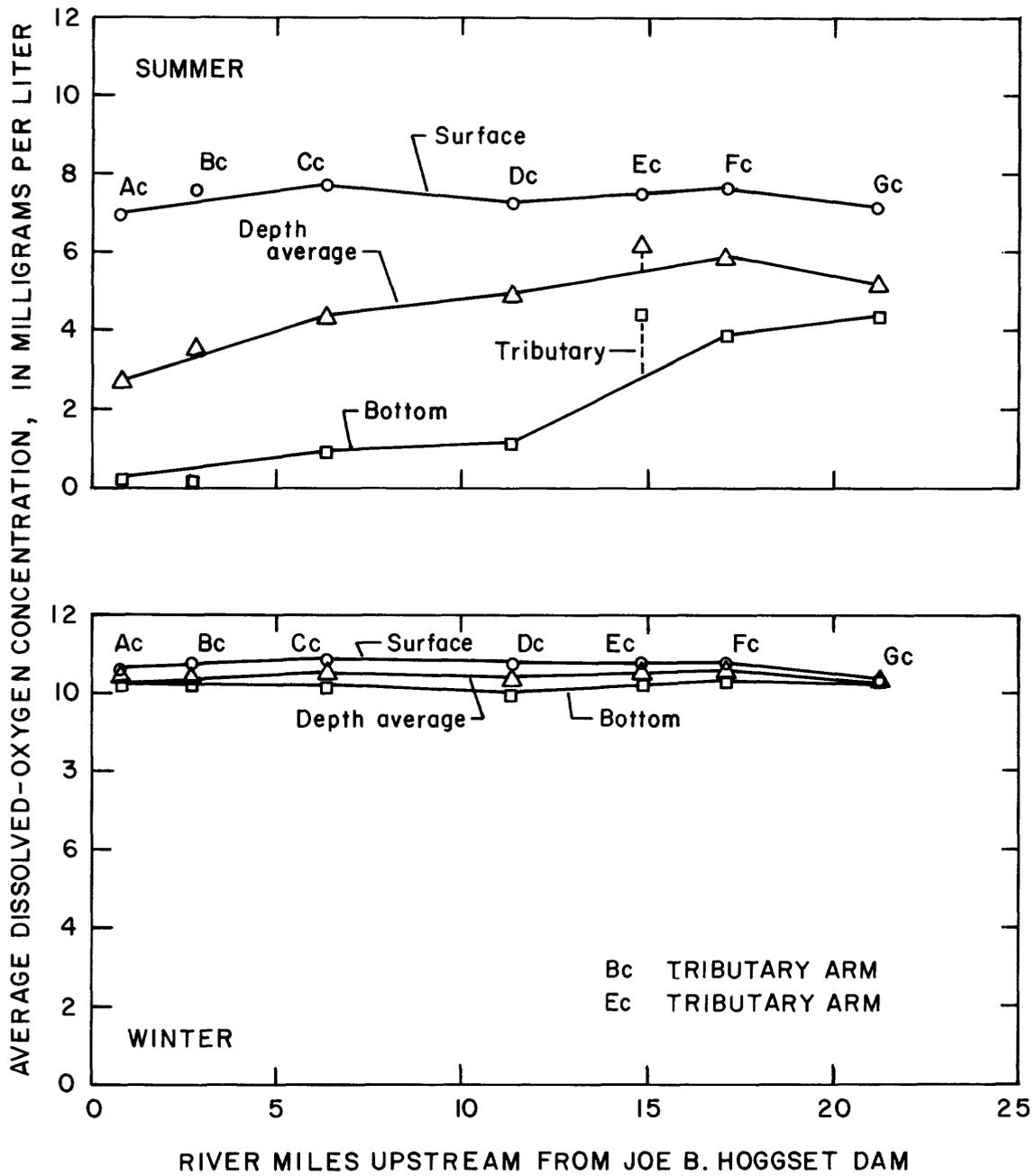


Figure 3.--Seasonal depth profiles of water temperature and dissolved-oxygen concentration at site Ac



**Figure 4.--Variations in average concentration of dissolved oxygen during summer and winter surveys, January 1977 to August 1984**

The vertical distribution of dissolved oxygen in a lake or reservoir is related to the seasonal patterns of thermal stratification and mixing. During winter circulation, water throughout the lake or reservoir is exposed to the atmosphere repeatedly, and dissolved oxygen used in the decomposition of organic matter is replenished. However, during spring and summer, thermal stratification results in a decrease of vertical circulation of the water. Oxygen utilized in the decomposition of organic material is not replaced in the hypolimnion, and a vertical dissolved oxygen gradient develops. Thus, dissolved oxygen concentrations vary seasonally--they are larger during winter when vertical circulation is good; moderate during spring when the water is still relatively cool and biological activity still slow; and smaller during the summer when the water is very warm and stable thermal stratification exists.

Seasonal and areal variations in dissolved oxygen concentrations at depth in Cedar Creek Reservoir are shown in figures 3 and 4 and in tables 1 to 24. During the winter (fig. 3), the temperature and dissolved oxygen concentration of the water was nearly uniform throughout the depth profile of the reservoir. However, during the spring surveys, thermal stratification had already begun, causing formation of moderate dissolved oxygen gradients. During the summer surveys, the reservoir had become well stratified thermally, causing the steep dissolved oxygen gradients at site Ac and other deep sites (see tables 1 to 24).

The depth-averaged concentration of dissolved oxygen at most sites in the downstream one-half of the reservoir was less than 5 mg/L (milligrams per liter) during summer stagnation and more than 10 mg/L during winter circulation. The depth-averaged concentration of dissolved oxygen at sites in the headwaters of the lake was about 5 to 6 mg/L during the summer and more than 10 mg/L during the winter. These uniformly large dissolved oxygen concentrations throughout the reservoir during winter indicates that excessive deoxygenation by oxygen-demanding wastes is slowed considerably, probably caused by both lowered water temperatures and constant replenishment of dissolved oxygen. However, during summer stagnation, oxygen used in the consumption of organic wastes in the hypolimnion is not replaced in the deeper areas of the reservoir; and water below depths of 30 ft usually contains less than 2 mg/L of dissolved oxygen.

### Dissolved Trace Elements

Trace elements are those constituents whose concentrations usually do not exceed 1 mg/L or 1,000 µg/L (micrograms per liter) in natural waters. Commonly, most of these constituents are present in concentrations below limits of detection. When dissolved oxygen is removed from water, reducing conditions are created such as those that sometimes occur at the bottom of reservoirs. Some trace metals may be leached out of bottom sediments in appreciable quantities and thus concentrate in the hypolimnion during thermal stratification. The trace elements considered in this report include arsenic, barium, cadmium, chromium, copper, iron, lead, manganese, mercury, selenium, silver, and zinc.

The occurrence of many of these elements in water is a matter of concern to water users and planners alike because of the potentially harmful effects of excessive concentrations on human and aquatic life. Undesirable concentrations of these elements in water may render it unsuitable for public water supply.

Many of these elements may also be concentrated at successive steps in the aquatic food chain, making fish and other aquatic life undesirable for human consumption.

### Dissolved Iron and Manganese

The occurrence and distribution of dissolved iron and manganese in Cedar Creek Reservoir are related to the dissolved oxygen concentration (fig. 5). Thermal stratification that occurs during spring and summer months inhibits replenishment of dissolved oxygen used in organic decomposition in the hypolimnion and causes reducing conditions. These conditions at the deeper sites in the reservoir result in the dissolution of iron and manganese from sediments at the bottom of the reservoir.

During winter circulation, when the dissolved oxygen concentration is largest (fig. 5), dissolved iron and manganese concentrations in water throughout the reservoir averaged less than 120  $\mu\text{g/L}$ , as shown in figures 6 and 7. The concentrations of both dissolved iron and manganese averaged less than 113  $\mu\text{g/L}$  in water near the reservoir surface throughout the year because continuous mixing action of wind kept the water well aerated.

However, during summer stagnation, the concentrations of both dissolved constituents increased considerably in the hypolimnion because of the diminished dissolved oxygen concentration in the water; dissolved iron concentrations averaged 1,860  $\mu\text{g/L}$  and dissolved manganese concentrations averaged 3,170  $\mu\text{g/L}$  at the deepest site, Ac. Generally, both dissolved iron and manganese in the water near the bottom decreased in an upstream direction as the reservoir became progressively shallower and thermal-stratification effects became less pronounced; at the shallowest site (Gc) dissolved iron concentrations averaged about 12  $\mu\text{g/L}$  and dissolved manganese concentrations averaged about 70  $\mu\text{g/L}$  during the summer surveys.

The seasonal variations of dissolved iron and manganese concentrations are summarized in figure 8 at site Ac for the period of record. Figure 8 shows that near the bottom, yearly-maximum dissolved manganese concentrations are usually much greater than the yearly-maximum dissolved iron concentration except during 1978 and 1979. According to Hutchinson (1957, p. 808), manganese is more easily reduced than iron. Consequently, the dissolved manganese concentration begins to increase substantially with the onset of thermal stratification while the dissolved iron concentration increases later, in the summer, when thermal stratification is more pronounced.

Although seasonal cycles of temperature and dissolved oxygen resulted in the recycling of iron and manganese between the water and bottom sediments, no significant accumulation of these constituents was detected within the reservoir during the study. If there were accumulation of the constituents, the peaks in figure 8 would show an increase with time.

### Other Dissolved Trace Elements

The results of the analyses for other dissolved trace elements in 22 water samples collected near the surface and near the bottom at site Ac from March

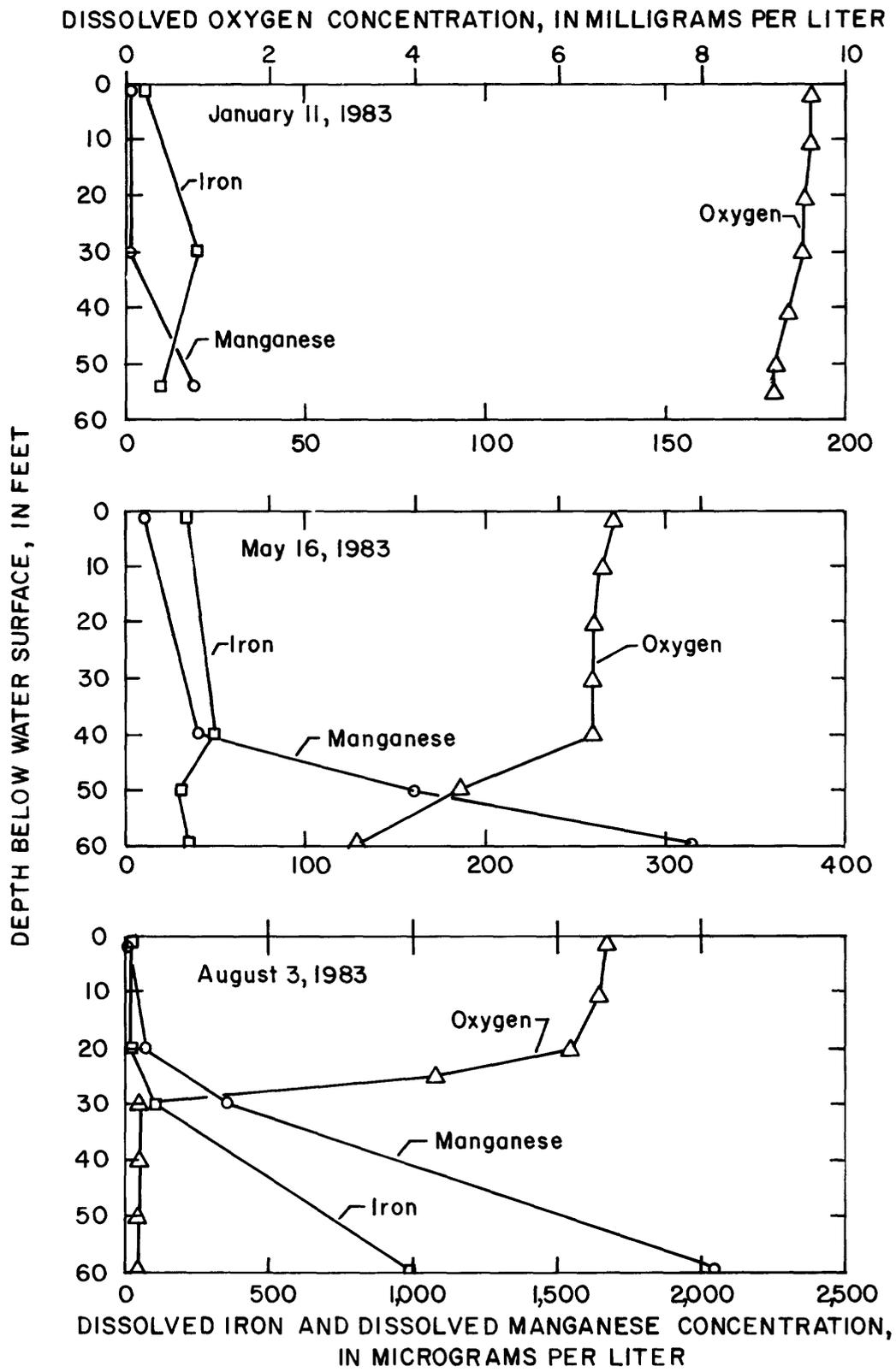


Figure 5.--Seasonal profiles of concentrations of dissolved oxygen, iron, and manganese at site Ac

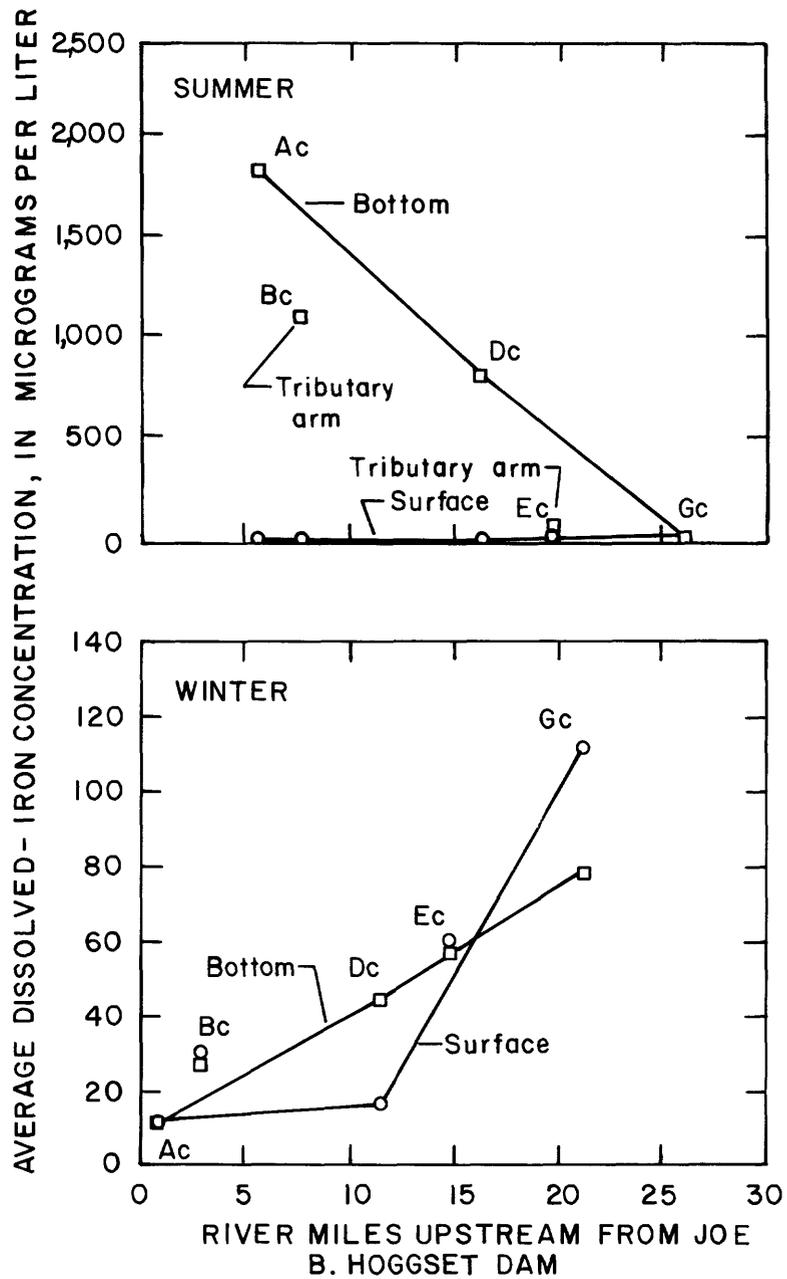


Figure 6.--Variations in average concentration of dissolved iron during summer and winter surveys, January 1977 to August 1984

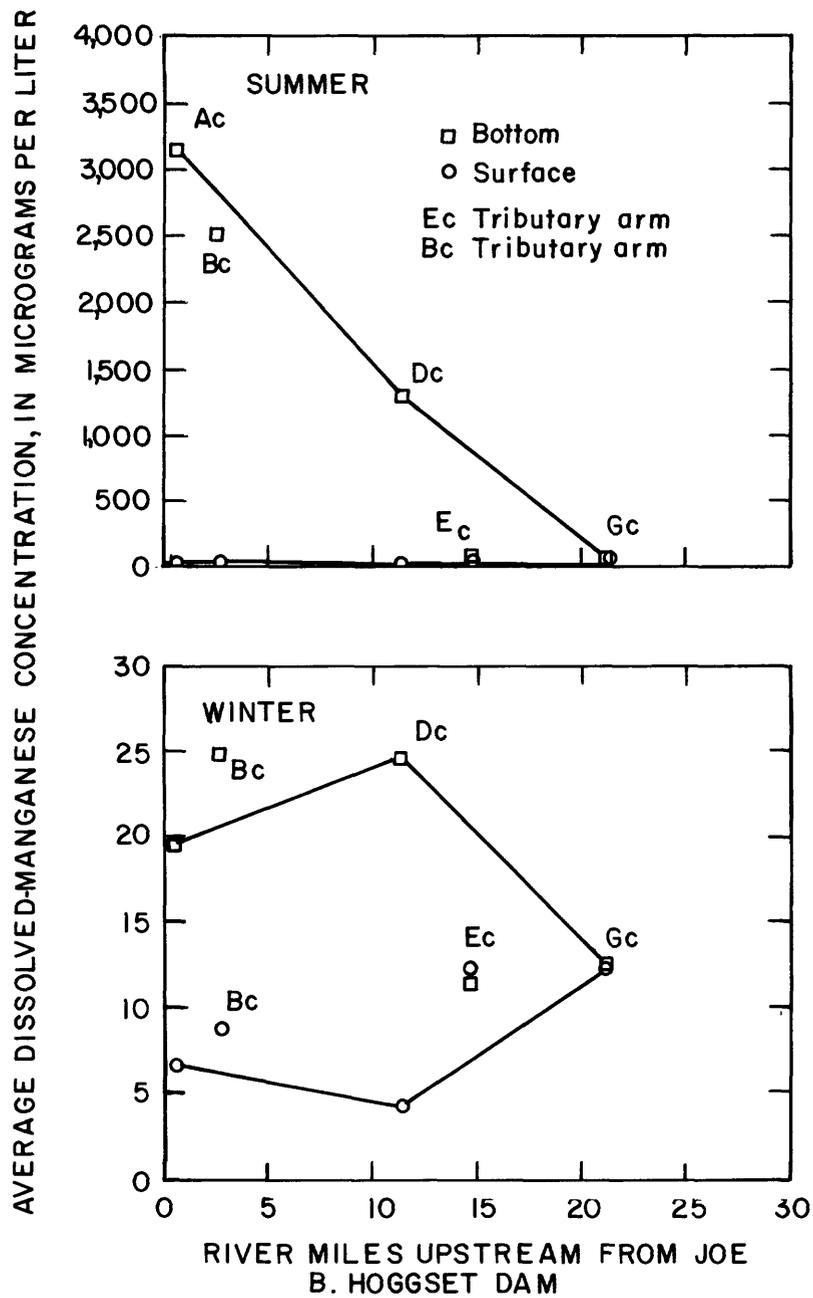


Figure 7.--Variations in average concentration of dissolved manganese during summer and winter surveys, January 1977 to August 1984

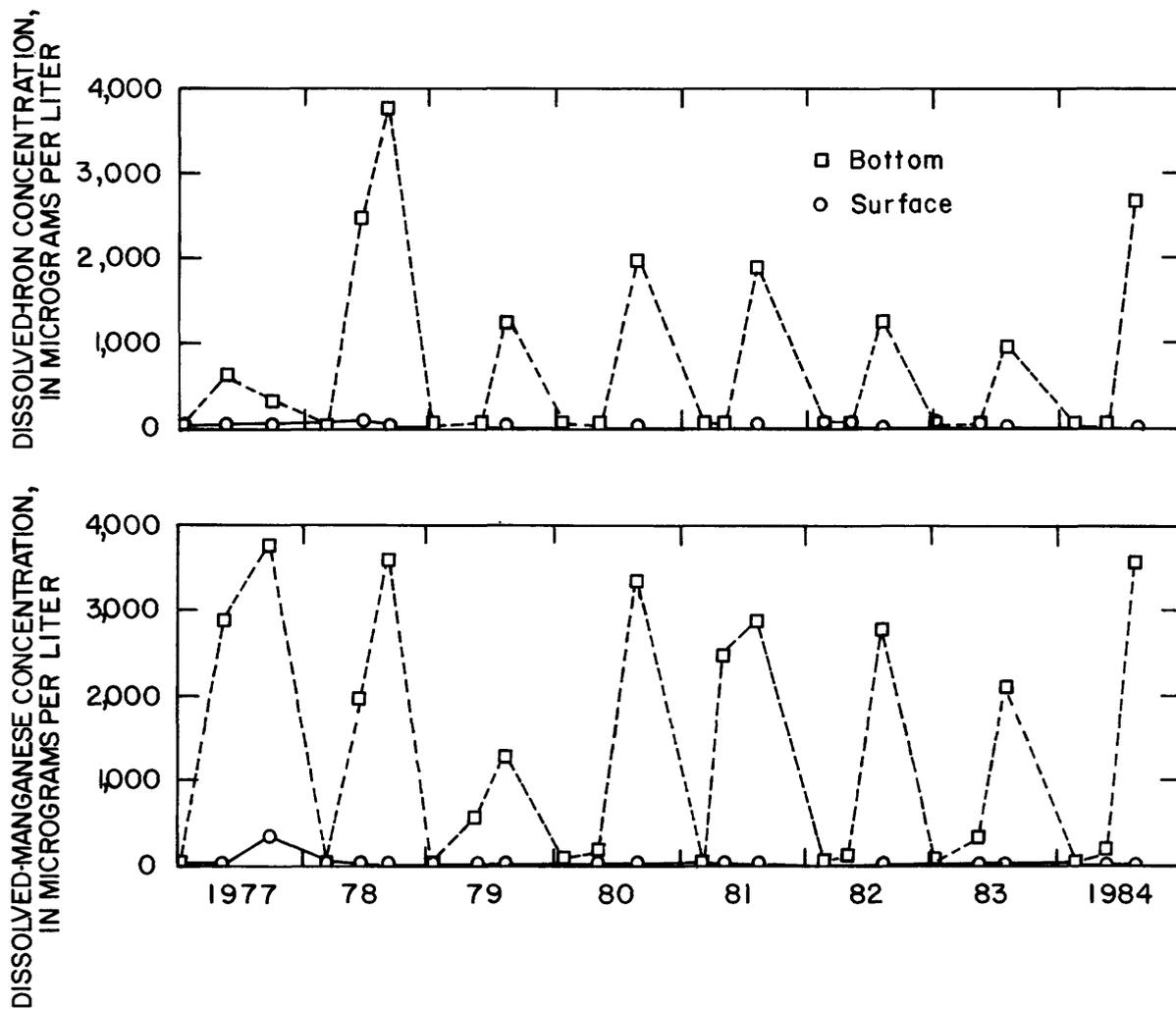


Figure 8.--Variations in concentrations of dissolved iron and manganese at site Ac, January 1977 to August 1984

1978 to August 1981 are given in tables 4 to 15. Minimum and maximum values are summarized in the following table:

Dissolved constituent	Minimum (micrograms per liter)	Maximum (micrograms per liter)
Arsenic (As)	0	26
Barium (Ba)	1/0	300
Cadmium (Cd)	<u>2</u> /ND	.2
Chromium (Cr)	0	0
Copper (Cu)	0	3
Lead (Pb)	0	90
Mercury (Hg)	.0	.4
Selenium (Se)	0	<u>3</u> /0
Silver (Ag)	0	0
Zinc (Zn)	<u>2</u> /ND	100

- 1/ 0 reported as <100.  
2/ ND, not detected.  
3/ 0 reported as <1.

Of the 10 trace elements listed above, barium and arsenic were the elements most commonly found in detectable concentrations. Fifteen of the 22 samples collected for trace-metal analyses contained a detectable concentration of barium. The barium concentration ranged from 40 to 300 µg/L--much less than the 1,000-µg/L Federal drinking-water limit (table 25). The barium concentration near the surface was not substantially different than the barium concentration near the bottom. Nineteen water samples contained detectable arsenic. The arsenic concentration ranged from 1 to 26 µg/L, much less than the 50-µg/L Federal drinking-water limit (table 25). Four of these samples, collected near the bottom of the reservoir, had an arsenic concentration of 11, 15, 19, and 26 µg/L that occurred during summer when thermal stratification was greatest, indicating that arsenic, under anaerobic conditions, was being leached out of the bottom sediments.

The eight other trace elements generally were present in concentrations at or below detection limits of the analytical procedures used. Chromium, selenium, and silver were not detected in any of the samples.

#### Total Nitrogen and Total Phosphorus

At least 21 elements in some chemical combination are essential nutrients in the biological productivity in waters of a lake or reservoir (Greeson, 1971, p. 75). Among these nutrients, nitrogen and phosphorus are the most dominant in controlling productivity in most lakes and reservoirs because their concentrations are most likely to be limited in supply.

Sources that may contribute nitrogen and phosphorus to a reservoir include runoff from urban and agricultural areas, sewage effluent, industrial wastes, precipitation, decomposing plant and animal debris, and bottom sediments. Both

nitrogen and phosphorus in the inflow to a reservoir may consist of four major components; dissolved and particulate inorganic forms, and dissolved and particulate organic forms.

As the water enters a lake or reservoir, most of the particulate nitrogen and phosphorus eventually settle on the bottom, but part of the dissolved nitrogen and phosphorus are used by algae and other aquatic organisms as primary sources of energy. Eventually, these organisms die and settle to the bottom of the reservoir carrying their cellular nitrogen and phosphorus with them.

During summer stagnation, decay of organic material and chemical reduction of bottom sediments decreases the concentrations of dissolved oxygen and releases nitrogen and phosphorus (generally dissolved inorganic) to the hypolimnion. When the fall overturn occurs, a portion may be recirculated.

Analyses of samples collected from Cedar Creek Reservoir during 1977-79 included total nitrite plus nitrate nitrogen and total ammonia nitrogen (tables 1 to 9); thereafter, analyses included total nitrite plus nitrate nitrogen and total ammonia plus organic nitrogen (tables 10 to 24). For purposes of the following discussion, total inorganic nitrogen is defined as the sum of total nitrite plus nitrate nitrogen and total ammonia nitrogen. Total nitrogen is defined as the sum of total nitrite plus nitrate nitrogen plus total ammonia nitrogen plus organic nitrogen.

The concentrations of total inorganic nitrogen, total nitrogen, and total phosphorus in Cedar Creek Reservoir varied seasonally as shown in figures 9 and 10. Total inorganic nitrogen concentration during winter and spring circulation at site Ac was small (less than 0.5 mg/L) and nearly the same from top to bottom. Near the bottom during summer stagnation, total inorganic nitrogen increased to nearly 1.0 mg/L. Total nitrogen increased from less than 1.0 mg/L during winter circulation to more than 2.0 mg/L near the bottom during the thermal stratification of May-August. Total phosphorus concentration varied about the same as the total nitrogen concentration during the 1979 and 1983 surveys (fig. 10); the greatest increases in concentration occurred near the bottom, from less than 0.1 mg/L in winter to nearly 0.5 mg/L in the summer. In general, these increases in total nitrogen and total phosphorus concentrations near the bottom are due to the decomposition of particulate organic matter from sedimentation, dead algae, chemical reduction in the bottom sediments, and other dead vegetation at the bottom of the reservoir. The productivity of algae in the epilimnion may reduce concentrations of dissolved nitrogen and total phosphorus in that stratum.

During winter circulation, the total nitrite plus nitrate nitrogen concentration averaged less than 0.06 mg/L throughout the reservoir and was larger than in summer (fig. 11). In the summer, the total nitrite plus nitrate nitrogen concentration near the surface did not vary much from the headwaters to the dam and averaged less than 0.01 mg/L. Near the bottom, total nitrite plus nitrate nitrogen concentrations were not much greater than near the surface.

The concentration of total ammonia plus organic nitrogen (fig. 12) was much larger than the concentration of total nitrite plus nitrate nitrogen both during winter circulation and summer stagnation (fig. 11). During winter circulation, the average concentration of total ammonia plus organic nitrogen was approximately 0.7 mg/L throughout the reservoir. During summer stagnation,

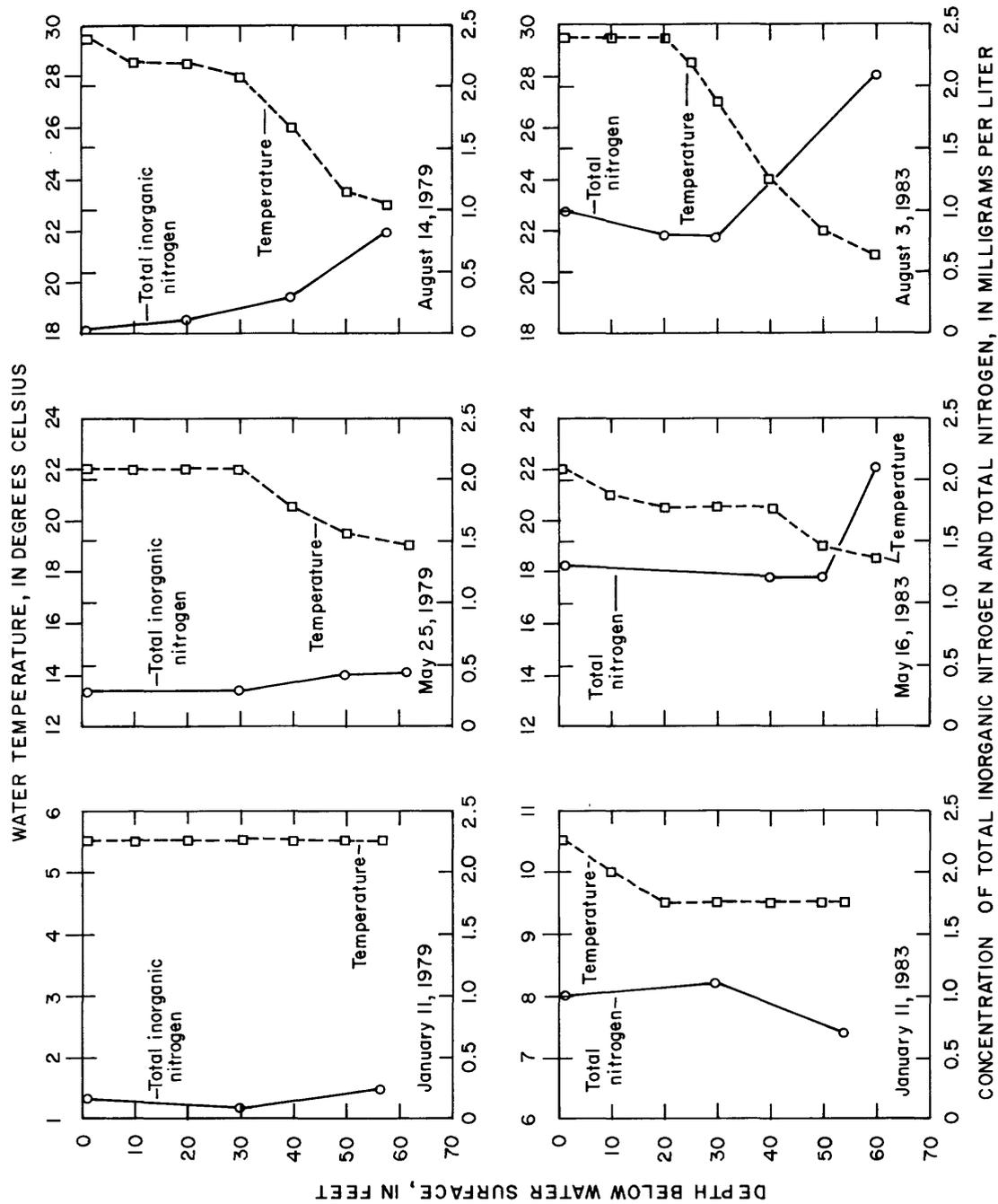


Figure 9.--Seasonal profiles of water temperature and total inorganic nitrogen concentration and water temperature and total nitrogen concentration at site Ac

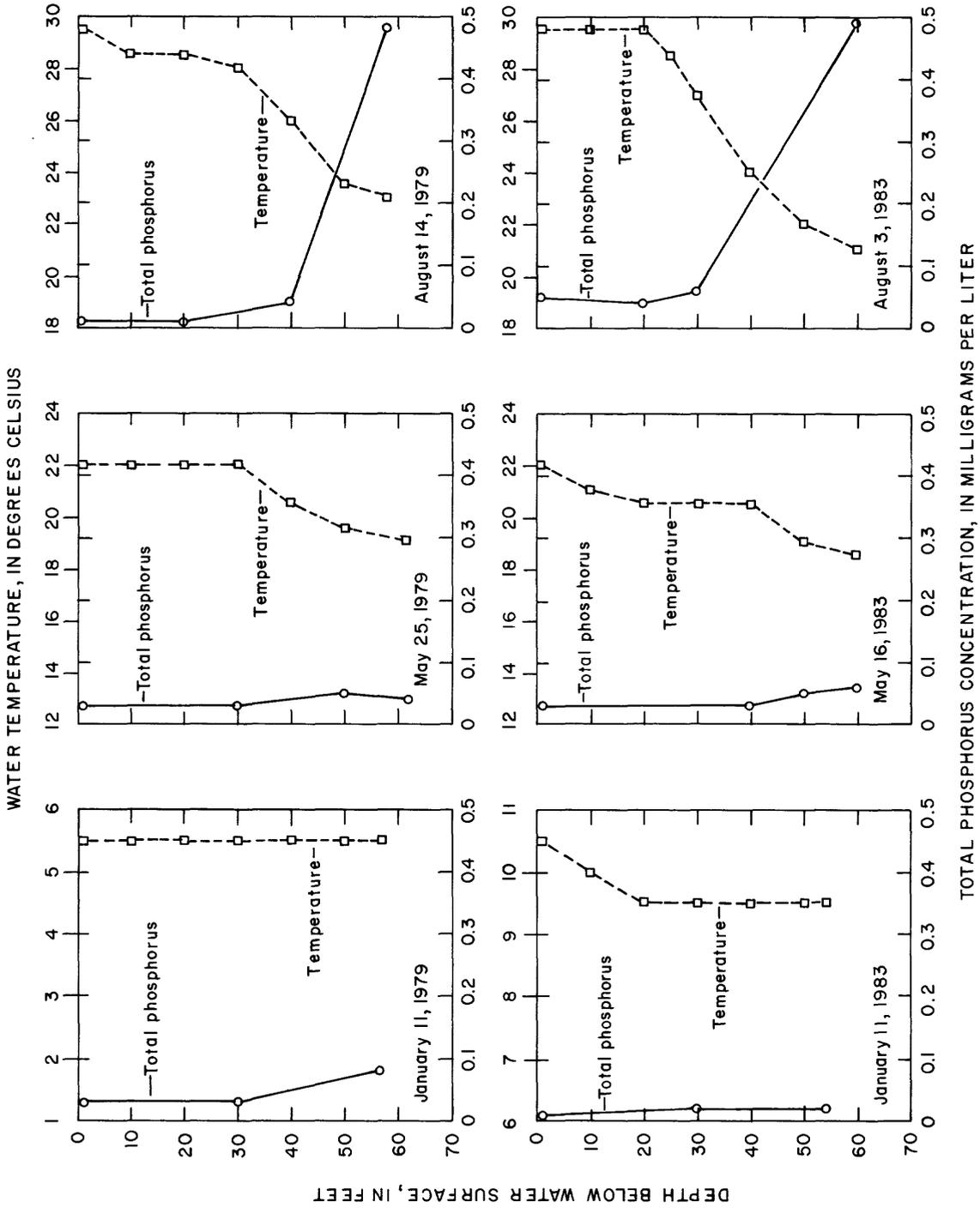


Figure 10.--Seasonal profiles of water temperature and total phosphorus concentration at site Ac

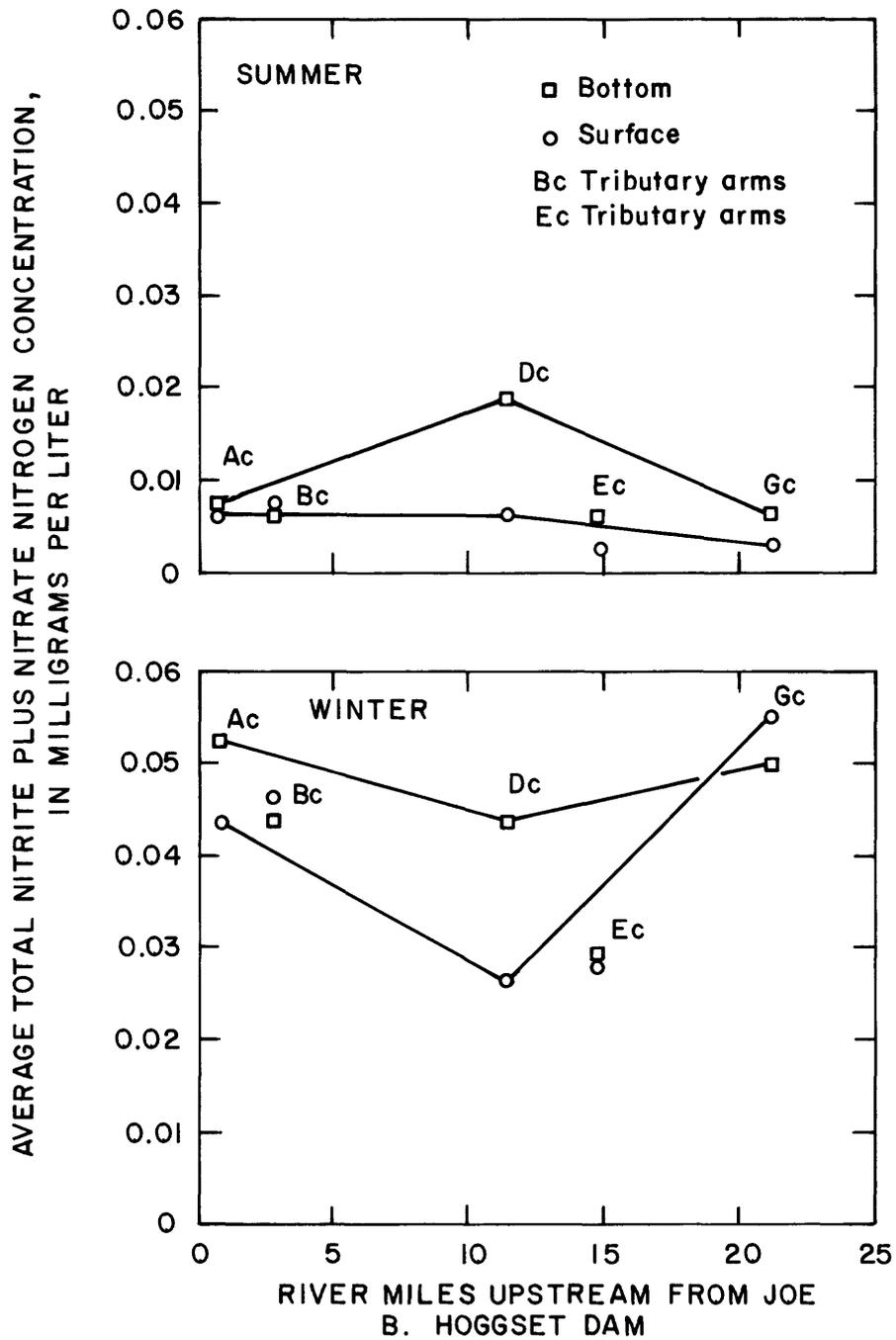


Figure 11.--Variations in average concentration of total nitrite plus nitrate nitrogen during summer and winter surveys, January 1977 to August 1984

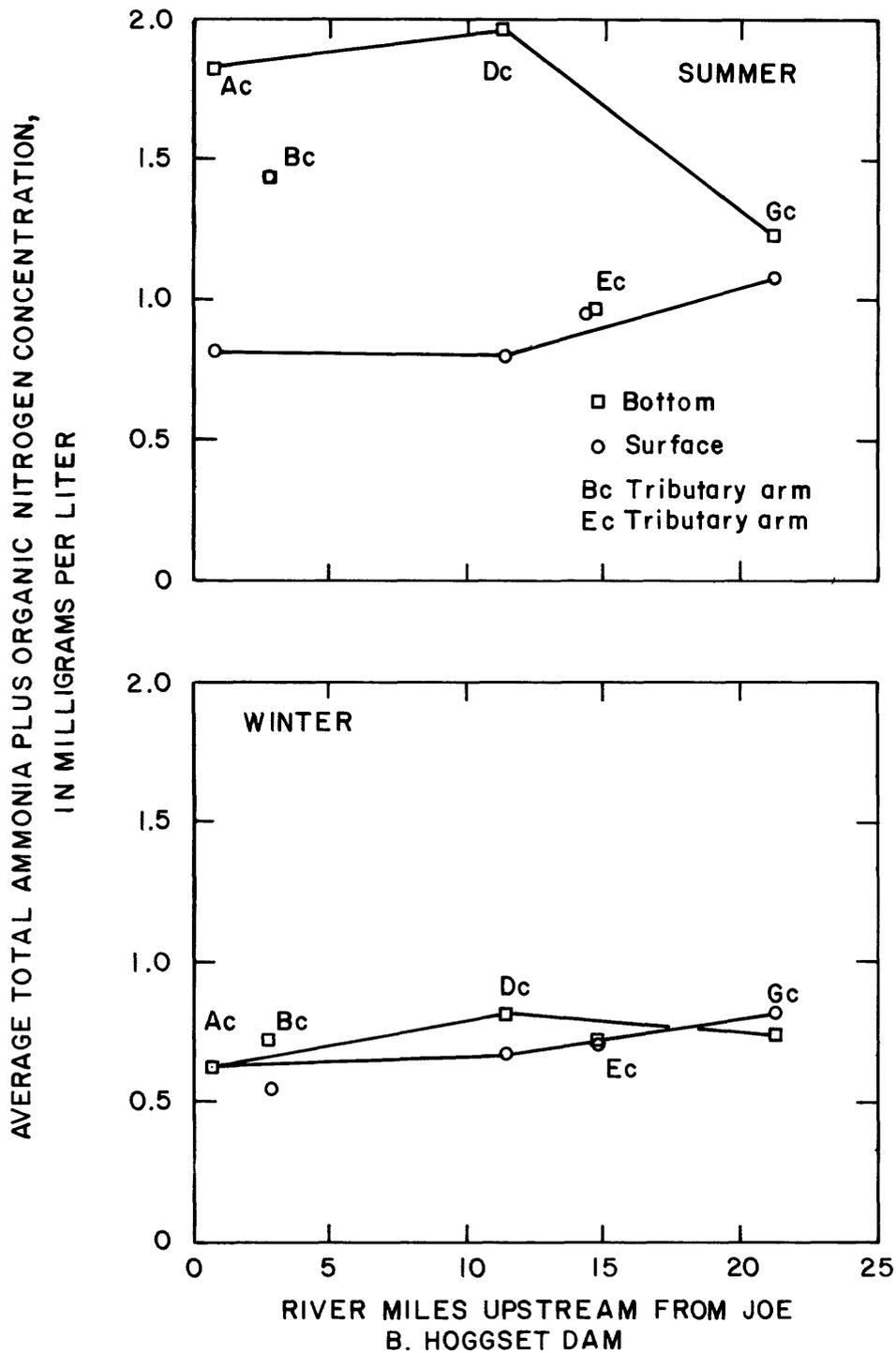


Figure 12.--Variations in average concentration of total ammonia plus organic nitrogen during summer and winter surveys, January 1980 to August 1984

total ammonia plus organic nitrogen concentrations near the surface did not vary much from the headwaters to the dam. Near the bottom, however, total ammonia plus organic nitrogen increased sharply from about 1.2 mg/L at site Gc to nearly 2.0 mg/L at site Dc and then decreased slightly at site Ac. This is probably caused by reduced concentrations of dissolved oxygen and the decay of dead organic matter which releases ammonia and other nitrogen species and phosphorus to the hypolimnion.

The total phosphorus concentration during winter circulation varied only slightly; from less than 0.03 mg/L at site Ac near the surface to more than 0.07 mg/L near the bottom at site Gc (fig. 13).

Figure 14 shows the variations in concentrations of total phosphorus, total inorganic nitrogen, and total nitrogen during this study at the deep site Ac near the dam. The largest total phosphorus concentration, more than 5 mg/L, occurred during the 1977 summer survey (September 29). Subsequent summer surveys were conducted in August and total phosphorus concentration was less than 1.0 mg/L. The much longer period of stagnation in 1977 (more than a month longer compared to later-year summer surveys) may have caused the phosphorus concentration to increase in the hypolimnion. The largest total inorganic nitrogen concentration (2.5 mg/L) was reported for the same (September 29) sample at site Ac.

#### Dissolved Solids, Chloride, Sulfate, and Hardness

Some of the more important chemical constituents and properties that affect the use of a reservoir as a public water supply include dissolved solids, chloride, sulfate, and hardness. Because the concentrations of these constituents or properties are directly related to the electrical conductivity or specific conductance of water, onsite measurements of specific conductance can be used to estimate concentrations of these dissolved constituents or properties. For this purpose, the specific conductance of the water at each data collection-site was determined at depth intervals of 5 to 10 ft. Using the conductance data and the results of the analyses of water samples collected near the surface and bottom at selected sites (tables 1 to 24), estimated concentrations of dissolved solids, chloride, sulfate, and hardness were computed at various sites throughout the reservoir. From these estimated concentrations, volume-weighted-average concentrations (Wells and Schertz, 1984) of dissolved solids, chloride, sulfate, and hardness were computed for Cedar Creek Reservoir (fig. 15).

Data in figure 15 indicate that from calendar years 1977 to 1984 the volume-weighted-average concentration was less than 140 mg/L for dissolved solids (sum of dissolved constituents); less than 25 mg/L for chloride; and less than 40 mg/L for sulfate. Water ranged in hardness (as calcium carbonate) from 55 to 75 mg/L and was soft to moderately hard.

Andrews and Gibbons (1983) reported significantly decreased dissolved solids and other dissolved constituents in Lake Arlington from 1973 to 1981. They related this trend to the cessation of discharges of municipal wastewater into Lake Arlington. Figure 12 does not indicate this trend nor does it indicate an increasing trend in dissolved solids and dissolved constituents for Cedar Creek Reservoir. The observed variations in water quality in Cedar Creek Reservoir are largely seasonal during any given year. Seasonal variations throughout the

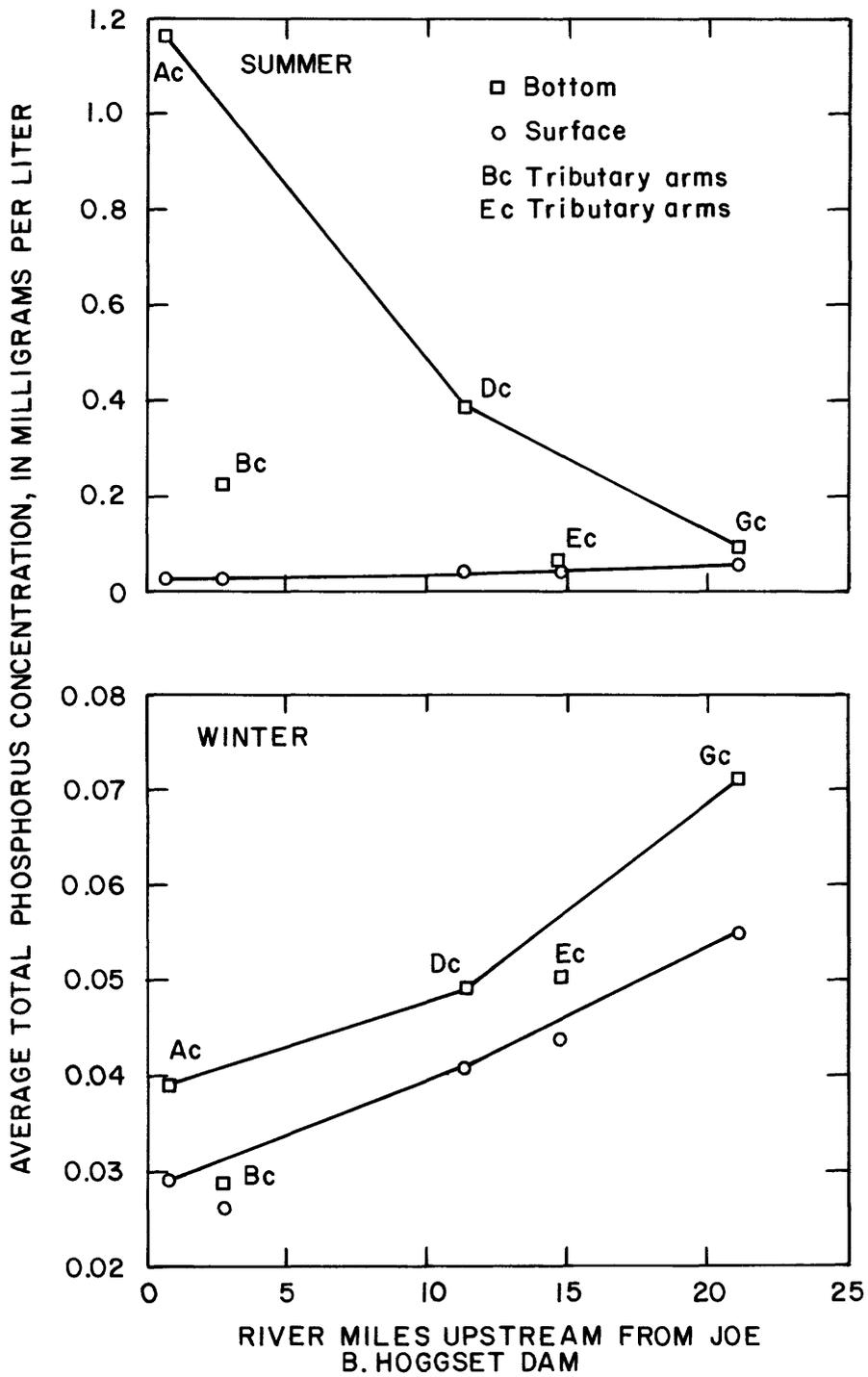


Figure 13.--Variations in average concentration of total phosphorus during summer and winter surveys, January 1977 to August 1984

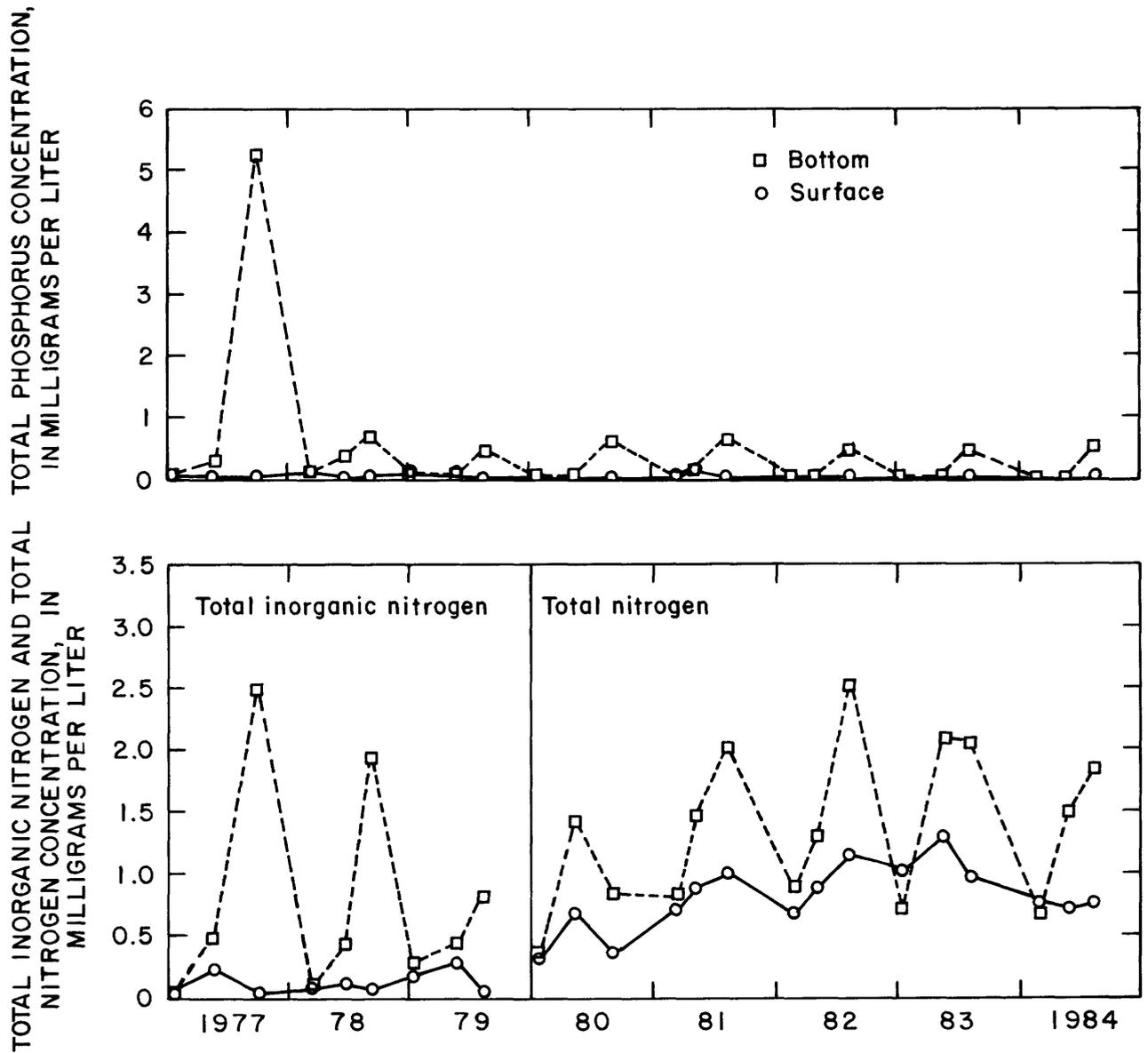


Figure 14.--Variations in concentrations of total phosphorus, total inorganic nitrogen, and total nitrogen at site Ac, January 1977 to August 1984

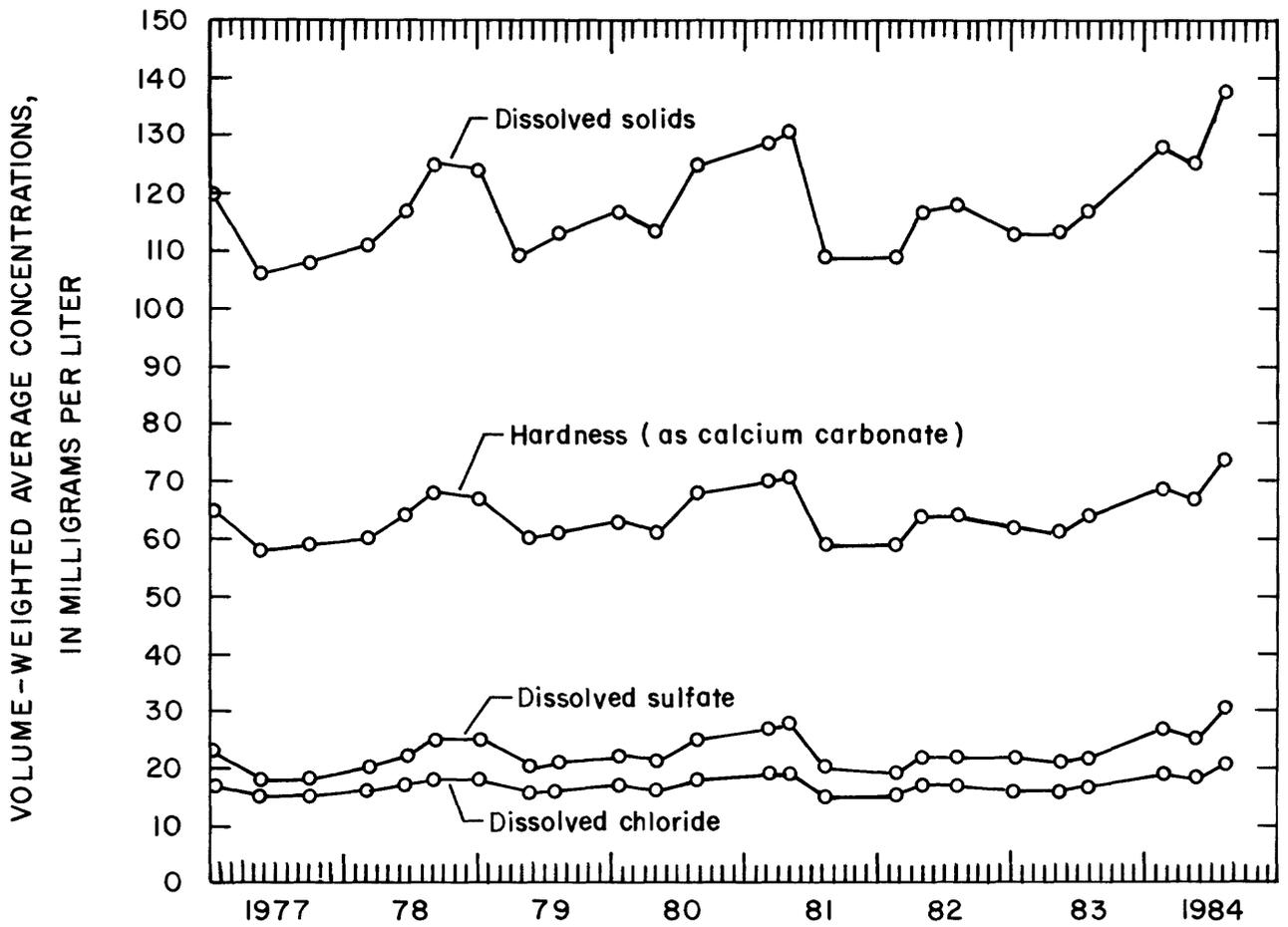


Figure 15.--Variations in computed volume-weighted average concentrations of dissolved solids, chloride, sulfate, and hardness, January 1977 to August 1984

study period probably are related to quantities of rainfall that occur during the winter, spring, and summer months of each year. For example, the volume-weighted-average dissolved-solids concentration during the winter surveys of 1977 and 1979 were larger than during spring and summer for these years. But during the summer months of 1978, 1980, 1982, 1983, and 1984, volume-weighted dissolved-solids concentrations were larger than during winter and spring. In 1981, volume-weighted dissolved-solids concentrations were much larger during the spring than during the summer survey but only slightly larger than the volume-weighted-average concentration in the winter survey.

Generally, the average dissolved-solids concentration varies with depth during the summer thermal stratification periods at the deeper sites (fig. 16). At site Ac, dissolved solids ranged from 118 mg/L near the surface to 141 mg/L near the bottom. In the headwaters at site Gc, where the reservoir is shallowest, the average dissolved-solids concentration near the bottom was nearly equal to the average dissolved-solids concentration at the surface of the reservoir. During winter circulation, the dissolved-solids concentration was nearly equal throughout the reservoir.

Commonly, samples collected near the bottom at the deeper sites in Cedar Creek Reservoir emit the distinct odor of hydrogen sulfide during summer thermal-stratification periods. Dissolved sulfate can be reduced to sulfide because of the anaerobic conditions in the hypolimnion. Certain anaerobic bacteria (sulfur bacteria) derive oxygen from sulfate for oxidation of organic matter (Wetzel, 1983). From the summer of 1977 to the summer of 1984, the sulfate concentration at site Ac in the epilimnion ranged from 15 to 27 mg/L; in the hypolimnion the sulfate concentration ranged from 2 to 20 mg/L. The differences in sulfate concentrations between the epilimnion and hypolimnion ranged from 5 to 20 mg/L.

### Suitability of Water as a Public Supply

The suitability for public supply depends to a large extent on the concentrations of chemical constituents that make a significant impact on the health of the consumer and to a lesser extent on the concentrations of constituents that affect the esthetic qualities and discourage the use of the water by the public. A summary of Federal drinking-water limits for selected constituents is presented in table 25 (at the end of this report). A comparison of these regulations with data in tables 1-24 shows that the concentrations of most chemical constituents in the waters of Cedar Creek Reservoir are less than the primary or secondary maximum contaminant levels set by the U.S. Environmental Protection Agency (1986a, 1986b). The concentrations of dissolved iron and manganese are exceptions. At site Ac, the concentrations of dissolved iron and manganese in the hypolimnion often exceed the secondary maximum contaminant levels of 300 µg/L of iron and 50 µg/L of manganese. However, the concentration of neither constituent poses a significant problem.

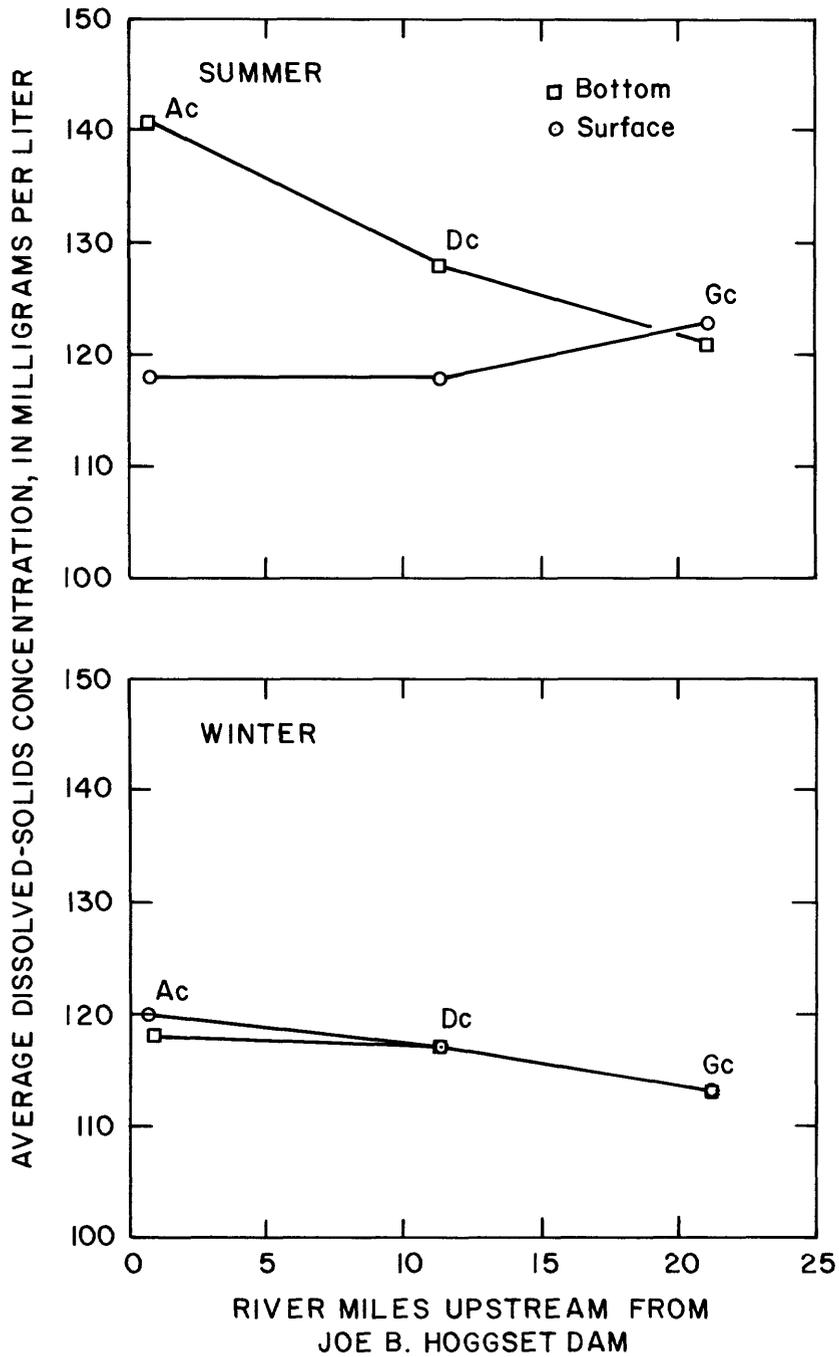


Figure 16.--Variations in average concentration of dissolved solids during summer and winter surveys, January 1977 to August 1984

## SUMMARY AND CONCLUSIONS

Thermal stratification of water in Cedar Creek Reservoir usually begins to develop in late winter or early spring and persists until late fall. Thermal stratification produces three fairly distinct layers during summer months: (1) The epilimnion, a warm, freely circulating surface layer; (2) the metalimnion, a middle layer characterized by a rapid decrease in temperature with depth; and (3) the hypolimnion, a cold, stagnant lower layer. The concentrations of dissolved oxygen, iron, and manganese, total nitrogen and total phosphorus, and other constituents and properties are related to thermal stratification.

The depth-averaged concentration of dissolved oxygen throughout the reservoir was less than 6.0 mg/L during summer stratification and more than 10 mg/L during winter circulation. During the summer months at sites sampled below depths of 30 ft, the average concentration of dissolved oxygen near the bottom ranged from nearly zero to about 2.0 mg/L.

The occurrence and distribution of dissolved iron and manganese are related to dissolved oxygen concentration. During winter circulation when the dissolved oxygen concentration is largest, much of the iron and manganese are oxidized and precipitated. During the months of thermal stratification, however, iron and manganese are chemically reduced and dissolved in appreciable amounts in the hypolimnion of the reservoir; dissolved iron averaged about 1,860  $\mu\text{g/L}$  and dissolved manganese averaged about 3,170  $\mu\text{g/L}$  at the deepest site (Ac) for the period of record.

The concentrations of iron and manganese commonly exceed Federal drinking-water standards during the summer thermal-stratification period in the hypolimnion of Cedar Creek Reservoir. None of the other dissolved constituents in this study exceeded these standards.

The concentrations of other trace elements (cadmium, chromium, copper, lead, mercury, selenium, silver, and zinc) during this study were near or less than the analytical limits of detection. Barium and arsenic were detectable in more than half of the 22 water samples collected for chemical analysis but were in concentrations below Federal drinking-water standards. Arsenic concentrations were much larger in four samples collected near the bottom.

Total nitrogen and total phosphorus concentrations in Cedar Creek Reservoir vary seasonally, areally, and with depth. Concentrations usually are largest in the hypolimnion during summer thermal stratification when the decay of aquatic organisms and organic debris in the bottom sediments release nutrients to the overlying water. The concentrations of these nitrogen and phosphorus compounds do not vary much throughout the reservoir during periods of winter circulation.

During this study, the volume-weighted-average concentration was less than 140 mg/L for dissolved solids, less than 25 mg/L for chloride, less than 40 mg/L for sulfate, and less than 75 mg/L for hardness. Generally, concentration of these dissolved constituents, except sulfate, were a little larger near the bottom than in the upper layers of the reservoir during summer thermal stratification. Appreciable amounts of sulfate are reduced to sulfide in the hypolimnion as a result of the absence of oxygen.

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Table 1.--Chemical-quality survey of Cedar Creek Reservoir, January 6, 1977

[ $\mu\text{S/cm}$ , microsiemens per centimeter at 25° Celsius; °C, degrees Celsius; m, meters; mg/L, milligrams per liter;  $\mu\text{g/L}$ , micrograms per liter; fet-fl'd, fixed end point titration-field]

321111096042901 SITE Ar

Date	Time	Sam- pling depth (feet)	Spe- cific con- duct- ance ( $\mu\text{S/cm}$ )	pH (stand- ard units)	Temper- ature (°C)	Oxygen, dis- solved (mg/L)	Oxygen, dis- solved (per- cent satu- ration)
Jan							
06...	1430	1.00	224	7.7	6.5	11.2	94
06...	1432	10.0	224	7.7	6.5	11.2	94
06...	1434	20.0	224	7.7	6.5	11.2	94
06...	1436	30.0	224	7.7	6.5	11.2	94
06...	1438	38.0	224	7.7	6.5	11.2	94

321113096041201 SITE Ac

Date	Time	Sam- pling depth (feet)	Spe- cific con- duct- ance ( $\mu\text{S/cm}$ )	pH (stand- ard units)	Temper- ature (°C)	Trans- par- ency (secchi disk (m))	Oxygen, dis- solved (mg/L)	Oxygen, dis- solved (per- cent satu- ration)	Hard- ness (mg/L CaCO <sub>3</sub> )
Jan									
06...	1405	1.00	224	7.7	6.5	1.20	11.2	94	54
06...	1407	10.0	224	7.7	6.5	--	11.2	94	--
06...	1409	20.0	224	7.7	6.5	--	11.2	94	--
06...	1411	30.0	224	7.7	6.5	--	11.2	94	--
06...	1413	40.0	224	7.7	6.5	--	11.2	94	--
06...	1415	50.0	224	7.7	6.5	--	11.2	94	--
06...	1418	55.0	224	7.7	6.5	--	11.2	94	54

Date	Hard- ness, noncar- bonate (mg/L CaCO <sub>3</sub> )	Calcium, dis- solved (mg/L)	Magne- sium, dis- solved (mg/L)	Sodium, dis- solved (mg/L)	Sodium ad- sorp- tion ratio	Potas- sium, dis- solved (mg/L)	Bicar- bonate, fet-fl'd (mg/L)	Alka- linity, field (mg/L CaCO <sub>3</sub> )	Sulfate, dis- solved (mg/L)
Jan									
06...	8	16	3.5	13	.8	3.7	56	46	19
06...	--	--	--	--	--	--	--	--	--
06...	--	--	--	--	--	--	--	--	--
06...	--	--	--	--	--	--	--	--	--
06...	--	--	--	--	--	--	--	--	--
06...	8	16	3.5	13	.8	3.7	56	46	20

Date	Chlo- ride, dis- solved (mg/L)	Fluo- ride, dis- solved (mg/L)	Silica, dis- solved (mg/L)	Solids, sum of consti- tuents, dis- solved (mg/L)	Nitro- gen, NO <sub>2</sub> +NO <sub>3</sub> total (mg/L)	Nitro- gen, ammonia total (mg/L)	Phos- phorus, total (mg/L)	Iron, dis- solved ( $\mu\text{g/L}$ )	Manga- nese, dis- solved ( $\mu\text{g/L}$ )
Jan									
06...	16	.20	1.9	100	.020	.020	.010	<10	<10
06...	--	--	--	--	--	--	--	--	--
06...	--	--	--	--	.030	<.010	.020	<10	<10
06...	--	--	--	--	--	--	--	--	--
06...	--	--	--	--	--	--	--	--	--
06...	16	.30	2.0	100	.010	<.010	.030	20	<10

Table 1.--Chemical-quality survey of Cedar Creek Reservoir, January 6, 1977--Continued

321116096035301 SITE A1

Date	Time	Sam- pling depth (feet)	Spe- cific con- duct- ance ( $\mu$ S/cm)	pH (stand- ard units)	Temper- ature ( $^{\circ}$ C)	Oxygen, dis- solved (mg/L)	Oxygen, dis- solved (per- cent satu- ration)
Jan							
06...	1350	1.00	224	7.7	6.5	11.2	94
06...	1352	10.0	224	7.7	6.5	11.2	94
06...	1354	20.0	224	7.7	6.5	11.2	94
06...	1356	30.0	224	7.7	6.5	11.2	94
06...	1358	40.0	224	7.7	6.5	11.2	94
06...	1400	50.0	224	7.7	6.5	11.2	94

321227096032701 SITE Bc

Date	Time	Sam- pling depth (feet)	Spe- cific con- duct- ance ( $\mu$ S/cm)	pH (stand- ard units)	Temper- ature ( $^{\circ}$ C)	Trans- par- ency (secchi disk) (m)	Oxygen, dis- solved (mg/L)
Jan							
06...	1450	1.00	224	7.8	7.0	1.10	10.9
06...	1452	10.0	224	7.8	7.0	--	10.9
06...	1454	20.0	224	7.7	7.0	--	10.9
06...	1456	30.0	224	7.7	7.0	--	10.8
06...	1458	40.0	224	7.7	7.0	--	10.8
06...	1500	47.0	224	7.7	7.0	--	10.8

Date	Oxygen, dis- solved (per- cent satu- ration)	Nitro- gen, total NO <sub>2</sub> +NO <sub>3</sub> (mg/L)	Nitro- gen, total ammonia (mg/L)	Phos- phorus, total (mg/L)	Iron, dis- solved ( $\mu$ g/L)	Manga- nese, dis- solved ( $\mu$ g/L)
Jan						
06...	92	.030	<.010	.020	20	<10
06...	92	--	--	--	--	--
06...	92	--	--	--	--	--
06...	92	--	--	--	--	--
06...	92	--	--	--	--	--
06...	92	.020	.010	.010	20	30

321403096060601 SITE Cc

Date	Time	Sam- pling depth (feet)	Spe- cific con- duct- ance ( $\mu$ S/cm)	pH (stand- ard units)	Temper- ature ( $^{\circ}$ C)	Oxygen, dis- solved (mg/L)	Oxygen, dis- solved (per- cent satu- ration)
Jan							
06...	1535	1.00	224	7.8	7.0	10.9	92
06...	1537	10.0	224	7.8	7.0	10.9	92
06...	1539	20.0	224	7.8	7.0	10.9	92
06...	1541	30.0	224	7.7	7.0	10.8	92
06...	1543	40.0	224	7.7	7.0	10.8	92
06...	1545	53.0	224	7.7	7.0	10.8	92

Table 1.--Chemical-quality survey of Cedar Creek Reservoir, January 6, 1977--Continued

## 321548096082301 SITE Dc

Date	Time	Sam- pling depth (feet)	Spe- cific con- duct- ance ( $\mu$ S/cm)	pH (stand- ard units)	Temper- ature ( $^{\circ}$ C)	Trans- par- ency (secchi disk) (m)	Oxygen, dis- solved (mg/L)	Oxygen, dis- solved (per- cent satu- ration)	Hard- ness (mg/L CaCO <sub>3</sub> )
Jan									
06...	1615	1.00	219	7.8	7.0	.80	11.0	93	57
06...	1617	10.0	219	7.8	7.0	--	11.0	93	--
06...	1619	20.0	219	7.8	7.0	--	11.0	93	--
06...	1621	30.0	219	7.7	7.0	--	11.0	93	--
06...	1625	37.0	219	7.7	7.0	--	11.0	93	56

Date	Hard- ness, noncar- bonate (mg/L CaCO <sub>3</sub> )	Calcium, dis- solved (mg/L)	Magne- sium, dis- solved (mg/L)	Sodium, dis- solved (mg/L)	Sodium ad- sorp- tion ratio	Potas- sium, dis- solved (mg/L)	Bicar- bonate, fet-fld (mg/L)	Alka- linity, field (mg/L CaCO <sub>3</sub> )	Sulfate, dis- solved (mg/L)
Jan									
06...	11	17	3.6	13	.8	3.7	56	46	19
06...	--	--	--	--	--	--	--	--	--
06...	--	--	--	--	--	--	--	--	--
06...	--	--	--	--	--	--	--	--	--
06...	11	17	3.4	13	.8	3.7	56	46	19

Date	Chlo- ride, dis- solved (mg/L)	Silica, dis- solved (mg/L)	Solids, sum of consti- tuents, dis- solved (mg/L)	Nitro- gen, NO <sub>2</sub> +NO <sub>3</sub> total (mg/L)	Nitro- gen, ammonia total (mg/L)	Phos- phorus, total (mg/L)	Iron, dis- solved ( $\mu$ g/L)	Manga- nese, dis- solved ( $\mu$ g/L)
Jan								
06...	15	1.8	100	<.100	<.010	.030	<10	<10
06...	--	--	--	--	--	--	--	--
06...	--	--	--	.010	.020	.030	<10	<10
06...	--	--	--	--	--	--	--	--
06...	15	1.6	100	.010	.010	.040	<10	<10

## 321818096064301 SITE Ec

Date	Time	Sam- pling depth (feet)	Spe- cific con- duct- ance ( $\mu$ S/cm)	pH (stand- ard units)	Temper- ature ( $^{\circ}$ C)	Oxygen, dis- solved (mg/L)	Oxygen, dis- solved (per- cent satu- ration)	Nitro- gen, NO <sub>2</sub> +NO <sub>3</sub> total (mg/L)	Nitro- gen, ammonia total (mg/L)	Phos- phorus, total (mg/L)	Iron, dis- solved ( $\mu$ g/L)	Manga- nese, dis- solved ( $\mu$ g/L)
Jan												
06...	1650	1.00	219	7.8	6.0	11.4	94	<.100	<.010	.030	30	<10
06...	1652	10.0	219	7.8	6.0	11.2	93	--	--	--	--	--
06...	1655	20.0	219	7.8	6.0	11.0	91	<.100	.010	.030	30	<10

Table 1.--Chemical-quality survey of Cedar Creek Reservoir, January 6, 1977--Continued

321843096101701 SITE Fc

Date	Time	Sam- pling depth (feet)	Spe- cific con- duct- ance ( $\mu$ S/cm)	pH (stand- ard units)	Temper- ature ( $^{\circ}$ C)	Oxygen, dis- solved (mg/L)	Oxygen, dis- solved (per- cent satu- ration)
Jan							
06...	1710	1.00	216	7.9	6.0	11.4	94
06...	1712	10.0	216	7.9	5.5	11.4	93
06...	1714	20.0	216	7.8	5.5	11.4	93
06...	1718	34.0	216	7.5	5.5	11.4	93

322119096104901 SITE Gr

Date	Time	Sam- pling depth (feet)	Spe- cific con- duct- ance ( $\mu$ S/cm)	pH (stand- ard units)	Temper- ature ( $^{\circ}$ C)	Oxygen, dis- solved (mg/L)	Oxygen, dis- solved (per- cent satu- ration)
Jan							
07...	1020	1.00	216	7.9	5.5	11.8	97
07...	1022	10.0	216	7.9	5.5	11.8	97
07...	1025	19.0	216	7.9	5.5	11.8	97

322119096095401 SITE Gc

Date	Time	Sam- pling depth (feet)	Spe- cific con- duct- ance ( $\mu$ S/cm)	pH (stand- ard units)	Temper- ature ( $^{\circ}$ C)	Trans- par- ency (secchi disk (m))	Oxygen, dis- solved (mg/L)	Oxygen, dis- solved (per- cent satu- ration)	Hard- ness (mg/L CaCO <sub>3</sub> )
Jan									
07...	1045	1.00	216	7.9	5.5	.60	11.9	98	54
07...	1047	10.0	216	7.9	5.5	--	11.7	96	--
07...	1049	20.0	216	7.9	5.0	--	11.6	94	--
07...	1051	28.0	216	7.9	5.0	--	11.6	94	54

Date	Hard- ness, noncar- bonate (mg/L CaCO <sub>3</sub> )	Calcium, dis- solved (mg/L)	Magne- sium, dis- solved (mg/L)	Sodium, dis- solved (mg/L)	Sodium ad- sorp- tion ratio	Potas- sium, dis- solved (mg/L)	Bicar- bonate, fet-fld (mg/L)	Alka- linity, field (mg/L CaCO <sub>3</sub> )	Sulfate, dis- solved (mg/L)
Jan									
07...	10	16	3.4	13	.8	3.9	54	44	20
07...	--	--	--	--	--	--	--	--	--
07...	--	--	--	--	--	--	--	--	--
07...	9	16	3.3	13	.8	3.9	55	45	20

Date	Chlo- ride, dis- solved (mg/L)	Silica, dis- solved (mg/L)	Solids, sum of consti- tuents, dis- solved (mg/L)	Nitro- gen, NO <sub>2</sub> +NO <sub>3</sub> total (mg/L)	Nitro- gen, ammonia total (mg/L)	Phos- phorus, total (mg/L)	Iron, dis- solved ( $\mu$ g/L)	Manga- nese, dis- solved ( $\mu$ g/L)
Jan								
07...	15	2.5	100	.020	.010	.070	30	<10
07...	--	--	--	--	--	--	--	--
07...	--	--	--	--	--	--	--	--
07...	15	2.7	100	.030	<.010	.070	4	<10

Table 2.--Chemical-quality survey of Cedar Creek Reservoir, May 19, 1977

[ $\mu$ S/, microsiemens per centimeter at 25° Celsius; °C, degrees Celsius; m, meters; mg/L, milligrams per liter;  $\mu$ g/L, micrograms per liter; fet-fl'd, fixed end point titration-field]

321111096042901 SITE Ar

Date	Time	Sam- pling depth (feet)	Spe- cific con- duct- ance ( $\mu$ S/cm)	pH (Stand- ard units)	Temper- ature (°C)	Oxygen, dis- solved (mg/L)	Oxygen, dis- solved (per- cent satu- ration)
May							
19...	1430	1.00	197	7.4	22.5	6.8	80
19...	1432	10.0	197	7.4	22.5	6.6	78
19...	1434	20.0	197	7.2	22.5	6.3	74
19...	1436	32.0	197	7.0	21.0	2.4	28

321113096041201 SITE Ac

Date	Time	Sam- pling depth (feet)	Spe- cific con- duct- ance ( $\mu$ S/cm)	pH (Stand- ard units)	Temper- ature (°C)	Trans- par- ency (secchi disk (m))	Oxygen, dis- solved (mg/L)	Oxygen, dis- solved (Per- cent satu- ration)	Hard- ness, (mg/L CaCO <sub>3</sub> )
May									
19...	1405	1.00	197	7.4	23.0	.70	6.8	81	57
19...	1407	10.0	197	7.4	22.5	--	6.4	75	--
19...	1409	20.0	197	7.2	22.0	--	5.3	62	--
19...	1411	30.0	197	6.9	20.5	--	2.6	30	--
19...	1413	40.0	205	6.9	19.0	--	.5	6	--
19...	1415	50.0	208	6.9	18.0	--	.3	3	--
19...	1417	59.0	212	6.9	18.0	--	.3	3	61

Date	Hard- ness, noncar- bonate (mg/L CaCO <sub>3</sub> )	Calcium, dis- solved (mg/L)	Magne- sium, dis- solved (mg/L)	Sodium, dis- solved (mg/L)	Sodium, ad- sorp- tion ratio	Potas- sium, dis- solved (mg/L)	Bicar- bonate, fet-fl'd (mg/L)	Alfa- linity, field (mg/L CaCO <sub>3</sub> )	Sulfate, dis- solved (mg/L)
May									
19...	15	17	3.6	14	.8	3.6	51	42	24
19...	--	--	--	--	--	--	--	--	--
19...	--	--	--	--	--	--	--	--	--
19...	--	--	--	--	--	--	--	--	--
19...	--	--	--	--	--	--	--	--	--
19...	9	18	3.8	14	.8	3.6	64	52	22

Date	Chlo- ride, dis- solved (mg/L)	Fluo- ride, dis- solved (mg/L)	Silica, dis- solved (mg/L)	SoLids, sum of consti- tuents, dis- solved (mg/L)	Nitro- gen, NO <sub>2</sub> +NO <sub>3</sub> total (mg/L)	Nitro- gen, ammonia total (mg/L)	Phos- phorus, total (mg/L)	Iron, dis- solved ( $\mu$ g/L)	Manga- nese, dis- solved ( $\mu$ g/L)
May									
19...	18	.10	2.1	110	.200	.020	.040	40	5
19...	--	--	--	--	--	--	--	--	--
19...	--	--	--	--	--	--	--	--	--
19...	--	--	--	--	.370	.010	.060	70	60
19...	--	--	--	--	.430	<.010	.070	40	120
19...	--	--	--	--	--	--	--	--	--
19...	18	.10	4.1	120	.120	.370	.270	630	2900

Table 2.--Chemical-quality survey of Cedar Creek Reservoir, May 19, 1977--Continued

321116096035301 SITE A1

Date	Time	Sam- pling depth (feet)	Spe- cific con- duct- ance ( $\mu$ S/cm)	pH (Stand- ard units)	Temper- ature ( $^{\circ}$ C)	Oxygen, dis- solved (mg/L)	Oxygen, dis- solved (per- cent satu- ration)
May							
19...	1330	1.00	197	7.5	23.0	6.8	81
19...	1332	10.0	197	7.4	22.5	6.3	74
19...	1334	20.0	197	7.1	22.0	4.8	56
19...	1336	30.0	197	6.9	21.5	3.2	37
19...	1338	40.0	203	6.8	19.5	.3	3
19...	1340	46.0	205	6.8	19.5	.3	3

321227096032701 SITE Bc

Date	Time	Sam- pling depth (feet)	Spe- cific con- duct- ance ( $\mu$ S/cm)	pH (Stand- ard units)	Temper- ature ( $^{\circ}$ C)	Trans- par- ency (secchi disk) (m)	Oxygen, dis- solved (mg/L)
May							
19...	1450	1.00	197	8.0	24.0	.80	7.9
19...	1452	10.0	197	7.9	23.5	--	7.7
19...	1454	20.0	197	7.1	22.5	--	5.6
19...	1456	30.0	197	6.9	21.0	--	2.6
19...	1458	40.0	205	6.8	19.5	--	.3
19...	1500	46.0	208	6.8	18.0	--	.3

Date	Oxygen, dis- solved (per- cent satu- ration)	Nitro- gen, NO <sub>2</sub> +NO <sub>3</sub> total (mg/L)	Nitro- gen, ammonia total (mg/L)	Phos- phorus, total (mg/L)	Iron, dis- solved ( $\mu$ g/L)	Manga- nese, dis- solved ( $\mu$ g/L)
May						
19...	96	.110	.040	.040	50	40
19...	93	--	--	--	--	--
19...	66	--	--	--	--	--
19...	30	--	--	--	--	--
19...	3	--	--	--	--	--
19...	3	.240	.270	.110	140	2000

321403096060601 SITE Cc

Date	Time	Sam- pling depth (feet)	Spe- cific con- duct- ance ( $\mu$ S/cm)	pH (Stand- ard units)	Temper- ature ( $^{\circ}$ C)	Oxygen, dis- solved (mg/L)	Oxygen, dis- solved (per- cent satu- ration)
May							
19...	1535	1.00	195	7.7	24.0	7.4	90
19...	1537	10.0	195	7.6	23.5	7.1	86
19...	1539	20.0	195	7.4	23.0	6.5	77
19...	1541	30.0	195	7.3	23.0	6.3	75
19...	1543	40.0	205	6.9	19.5	.3	3
19...	1545	50.0	208	6.8	19.5	.3	3

Table 2.--Chemical-quality survey of Cedar Creek Reservoir, May 19, 1977--Continued

321548096082301 SITE Dc

Date	Time	Sam- pling depth (feet)	Spe- cific con- duct- ance ( $\mu$ S/cm)	pH (Stand- ard units)	Temper- ature ( $^{\circ}$ C)	Trans- par- ency (secchi disk) (m)	Oxygen, dis- solved (mg/L)	Oxygen, dis- solved (Per- cent satu- ration)	Hard- ness (mg/L CaCO <sub>3</sub> )
May									
19...	1615	1.00	193	7.5	24.0	.40	6.7	82	56
19...	1617	10.0	193	7.5	24.0	--	6.7	82	--
19...	1619	20.0	193	7.4	24.0	--	6.5	79	--
19...	1621	30.0	193	7.4	24.0	--	6.5	79	--
19...	1623	42.0	193	7.4	23.5	--	6.4	77	56

Date	Hard- ness, noncar- bonate (mg/L CaCO <sub>3</sub> )	Calcium, dis- solved (mg/L)	Magne- sium, dis- solved (mg/L)	Sodium, dis- solved (mg/L)	Sodium ad- sorp- tion ratio	Potas- sium, dis- solved (mg/L)	Bicar- bonate, fet- fld (mg/L)	Alka- linity, field (mg/L CaCO <sub>3</sub> )	Sulfate, dis- solved (mg/L)
May									
19...	13	17	3.3	14	.8	3.6	52	43	23
19...	--	--	--	--	--	--	--	--	--
19...	--	--	--	--	--	--	--	--	--
19...	--	--	--	--	--	--	--	--	--
19...	13	17	3.3	14	.8	3.6	52	43	22

Date	Chlo- ride, dis- solved (mg/L)	Silica, dis- solved (mg/L)	Solids, sum of consti- tuents, dis- solved (mg/L)	Nitro- gen, NO <sub>2</sub> +NO <sub>3</sub> total (mg/L)	Nitro- gen, ammonia total (mg/L)	Phos- phorus, total (mg/L)	Iron, dis- solved ( $\mu$ g/L)	Manga- nese, dis- solved ( $\mu$ g/L)
May								
19...	16	2.7	110	.300	.020	.070	30	<10
19...	--	--	--	--	--	--	--	--
19...	--	--	--	.310	.040	.080	80	<10
19...	--	--	--	.310	.030	.070	60	<10
19...	16	2.8	100	.310	.090	.110	30	40

321818096064301 SITE Ec

Date	Time	Sam- pling depth (feet)	Spe- cific con- duct- ance ( $\mu$ S/cm)	pH (Stand- ard units)	Temper- ature ( $^{\circ}$ C)	Trans- par- ency (secchi disk) (m)	Oxygen, dis- solved (mg/L)
May							
19...	1650	1.00	195	8.1	25.5	.40	7.8
19...	1652	10.0	195	7.9	25.0	--	7.6
19...	1654	19.0	195	7.3	25.0	--	6.2

Table 2.--Chemical-quality survey of Cedar Creek Reservoir, May 19, 1977--Continued

## 321818096064301 SITE Ec--Continued

Date	Oxygen, dissolved (percent saturation)	Nitrogen, NO2+NO3 total (mg/L)	Nitrogen, ammonia total (mg/L)	Phosphorus, total (mg/L)	Iron, dissolved (µg/L)	Manganese, dissolved (µg/L)
May 19...	98	.110	.060	.060	40	4
19...	94	--	--	--	--	--
19...	77	.190	.120	.080	60	5

## 321843096101701 SITE Fc

Date	Time	Sam-pling depth (feet)	Spe-cific con-ductance (µS/cm)	pH (Stand-ard units)	Temper-ature (°C)	Oxygen, dis-solved (mg/L)	Oxygen, dis-solved (per-cent satu-ration)
May 19...	1710	1.00	193	7.7	25.0	7.3	90
19...	1712	10.0	193	7.6	24.5	7.1	87
19...	1714	20.0	193	7.5	24.5	6.8	83
19...	1716	32.0	193	7.3	24.5	6.6	80

## 322119096104901 SITE Gr

Date	Time	Sam-pling depth (feet)	Spe-cific con-ductance (µS/cm)	pH (Stand-ard units)	Temper-ature (°C)	Oxygen, dis-solved (mg/L)	Oxygen, dis-solved (per-cent satu-ration)
May 19...	1740	1.00	190	7.5	25.0	7.2	89
19...	1742	10.0	190	7.5	25.0	7.1	88
19...	1745	18.0	190	7.5	25.0	7.0	86

## 322119096095401 SITE Gc

Date	Time	Sam-pling depth (feet)	Spe-cific con-ductance (µS/cm)	pH (Stand-ard units)	Temper-ature (°C)	Trans-par-ency (secchi disk) (m)	Oxygen, dis-solved (mg/L)	Oxygen, dis-solved (Per-cent satu-ration)	Hard-ness (mg/L CaCO <sub>3</sub> )
May 19...	1800	1.00	190	7.6	25.0	.20	7.2	89	63
19...	1802	10.0	190	7.6	25.0	--	7.2	89	--
19...	1804	20.0	190	7.6	25.0	--	7.2	89	--
19...	1806	28.0	190	7.5	25.0	--	7.0	86	55

Table 2.--Chemical-quality survey of Cedar Creek Reservoir, May 19, 1977--Continued

322119096095401 SITE Gc--Continued

Date	Hardness, noncarbonate (mg/L CaCO <sub>3</sub> )	Calcium, dissolved (mg/L)	Magnesium, dissolved (mg/L)	Sodium, dissolved (mg/L)	Sodium adsorption ratio	Potassium, dissolved (mg/L)	Bicarbonate, field (mg/L)	Alkalinity, field (mg/L CaCO <sub>3</sub> )	Sulfate, dissolved (mg/L)
May									
19...	19	17	4.9	13	.7	3.6	54	44	22
19...	--	--	--	--	--	--	--	--	--
19...	--	--	--	--	--	--	--	--	--
19...	11	17	3.0	12	.7	3.6	54	44	21

Date	Chloride, dissolved (mg/L)	Fluoride, dissolved (mg/L)	Silica, dissolved (mg/L)	Solids, sum of constituents, dissolved (mg/L)	Nitrogen, NO <sub>2</sub> +NO <sub>3</sub> total (mg/L)	Nitrogen, ammonia total (mg/L)	Phosphorus, total (mg/L)	Iron, dissolved (µg/L)	Manganese, dissolved (µg/L)
May									
19...	14	.20	4.7	110	.470	.010	.120	70	<10
19...	--	--	--	--	.470	.020	.120	70	8
19...	--	--	--	--	--	--	--	--	--
19...	13	--	4.7	100	.480	.020	.130	50	<10

Table 3.--Chemical-quality survey of Cedar Creek Reservoir, September 29, 1977

[ $\mu\text{S/cm}$ , microsiemens per centimeter at 25° Celsius; °C, degrees Celsius; m, meters; mg/L, milligrams per liter;  $\mu\text{g/L}$ , micrograms per liter; fet-fl'd, fixed end point titration-field]

321111096042901 SITE Ar

Date	Time	Sam- pling depth (feet)	Spe- cific con- duct- ance ( $\mu\text{S/cm}$ )	pH (stand- ard units)	Temper- ature (°C)	Oxygen, dis- solved (mg/L)	Oxygen, dis- solved (per- cent satu- ration)
Sept							
29...	1120	1.00	195	7.5	27.5	6.8	87
29...	1122	10.0	195	7.4	27.0	6.5	82
29...	1124	20.0	195	7.3	27.0	5.7	72
29...	1128	30.0	195	7.2	27.0	5.2	66

321113096041201 SITE Ac

Date	Time	Sam- pling depth (feet)	Spe- cific con- duct- ance ( $\mu\text{S/cm}$ )	pH (stand- ard units)	Temper- ature (°C)	Trans- par- ency (secchi disk (m)	Oxygen, dis- solved (mg/L)	Oxygen, dis- solved (per- cent satu- ration)	Hard- ness (mg/L $\text{CaCO}_3$ )
Sept									
29...	1155	1.00	195	7.6	27.5	1.80	6.8	87	58
29...	1157	10.0	195	7.5	27.5	--	6.6	85	--
29...	1159	20.0	195	7.3	27.0	--	5.4	68	--
29...	1201	30.0	195	7.2	26.5	--	5.0	63	--
29...	1203	40.0	195	7.0	26.5	--	3.3	42	--
29...	1205	50.0	250	6.9	22.0	--	.2	2	--
29...	1208	60.0	271	6.9	20.5	--	.2	2	75

Date	Hard- ness, noncar- bonate (mg/L $\text{CaCO}_3$ )	Calcium, dis- solved (mg/L)	Magne- sium, dis- solved (mg/L)	Sodium, dis- solved (mg/L)	Sodium ad- sorp- tion ratio	Potas- sium, dis- solved (mg/L)	Bicar- bonate, fet-fl'd (mg/L)	Alka- linity, field (mg/L $\text{CaCO}_3$ )	Sulfate, dis- solved (mg/L)
Sept									
29...	12	17	3.8	14	.8	4.0	56	46	24
29...	--	--	--	--	--	--	--	--	--
29...	--	--	--	--	--	--	--	--	--
29...	--	--	--	--	--	--	--	--	--
29...	--	--	--	--	--	--	--	--	--
29...	0	22	4.9	14	.7	4.3	130	107	3.9

Date	Chlo- ride, dis- solved (mg/L)	Fluo- ride, dis- solved (mg/L)	Silica, dis- solved (mg/L)	Solids, sum of consti- tuents, dis- solved (mg/L)	Nitro- gen, $\text{NO}_2+\text{NO}_3$ total (mg/L)	Nitro- gen, ammonia total (mg/L)	Phos- phorus, total (mg/L)	Iron, dis- solved ( $\mu\text{g/L}$ )	Manga- nese, dis- solved ( $\mu\text{g/L}$ )
Sept									
29...	17	.20	3.1	110	.010	.010	.030	40	340
29...	--	--	--	--	--	--	--	--	--
29...	--	--	--	--	--	--	--	--	--
29...	--	--	--	--	--	--	--	--	--
29...	--	--	--	--	.130	.100	.030	90	280
29...	--	--	--	--	.010	.830	.170	190	7400
29...	16	.20	13	150	.010	2.50	5.30	330	3800

Table 3.--Chemical-quality survey of Cedar Creek Reservoir, September 29, 1977--Continued

## 321116096035301 SITE A1

Date	Time	Sam- pling depth (feet)	Spe- cific con- duct- ance ( $\mu$ S/cm)	pH (stand- ard units)	Temper- ature ( $^{\circ}$ C)	Oxygen, dis- solved (mg/L)	Oxygen, dis- solved (per- cent satu- ration)
Sept							
29...	1140	1.00	195	7.8	27.5	7.4	95
29...	1142	10.0	195	7.7	27.5	7.0	90
29...	1144	20.0	195	7.2	27.0	5.4	68
29...	1146	30.0	195	7.2	27.0	4.9	62
29...	1148	40.0	195	7.0	27.0	3.5	44

## 321227096032701 SITE Bc

Date	Time	Sam- pling depth (feet)	Spe- cific con- duct- ance ( $\mu$ S/cm)	pH (stand- ard units)	Temper- ature ( $^{\circ}$ C)	Trans- par- ency (secchi disk (m))	Oxygen, dis- solved (mg/L)
Sept							
29...	1225	1.00	195	8.1	28.0	1.50	7.7
29...	1227	10.0	195	8.0	27.5	--	7.4
29...	1229	20.0	195	7.7	27.5	--	6.8
29...	1231	30.0	195	7.3	27.0	--	5.0
29...	1234	45.0	195	7.0	25.5	--	.2

Date	Oxygen, dis- solved (per- cent satu- ration)	Nitro- gen, NO <sub>2</sub> +NO <sub>3</sub> total (mg/L)	Nitro- gen, ammonia total (mg/L)	Phos- phorus, total (mg/L)	Iron, dis- solved ( $\mu$ g/L)	Manga- nese, dis- solved ( $\mu$ g/L)
Sept						
29...	99	.010	.010	.030	<10	120
29...	95	--	--	--	--	--
29...	87	--	--	--	--	--
29...	63	--	--	--	--	--
29...	2	.010	.390	.080	130	3300

## 321403096060601 SITE Cc

Date	Time	Sam- pling depth (feet)	Spe- cific con- duct- ance ( $\mu$ S/cm)	pH (stand- ard units)	Temper- ature ( $^{\circ}$ C)	Oxygen, dis- solved (mg/L)	Oxygen, dis- solved (per- cent satu- ration)
Sept							
29...	1055	1.00	195	8.0	27.5	7.7	99
29...	1057	10.0	195	8.0	27.5	7.5	96
29...	1059	20.0	195	7.5	27.0	6.5	82
29...	1101	30.0	195	7.4	27.0	6.1	77
29...	1103	40.0	195	7.4	27.0	6.0	76
29...	1105	48.0	195	7.4	27.0	5.8	73

Table 3.--Chemical-quality survey of Cedar Creek Reservoir, September 29, 1977--Continued

321548096082301 SITE Dc

Date	Time	Sam- pling depth (feet)	Spe- cific con- duct- ance ( $\mu$ S/cm)	pH (stand- ard units)	Temper- ature ( $^{\circ}$ C)	Trans- par- ency (secchi disk (m)	Oxygen, dis- solved (mg/L)	Oxygen, dis- solved (per- cent satu- ration)	Hard- ness (mg/L CaCO <sub>3</sub> )
Sept									
29...	1025	1.00	195	8.1	27.5	1.10	7.7	99	58
29...	1027	10.0	195	8.0	27.5	--	7.5	96	--
29...	1029	20.0	195	7.6	27.5	--	6.5	83	--
29...	1031	30.0	195	7.4	27.5	--	6.0	77	--
29...	1033	40.0	195	7.3	27.5	--	5.6	72	58

Date	Hard- ness, noncar- bonate (mg/L CaCO <sub>3</sub> )	Calcium, dis- solved (mg/L)	Magne- sium, dis- solved (mg/L)	Sodium, dis- solved (mg/L)	Sodium ad- sorp- tion ratio	Potas- sium, dis- solved (mg/L)	Bicar- bonate, fet-fld (mg/L)	Alka- linity, field (mg/L CaCO <sub>3</sub> )	Sulfate, dis- solved (mg/L)
Sept									
29...	13	17	3.7	13	.8	4.0	55	45	17
29...	--	--	--	--	--	--	--	--	--
29...	--	--	--	--	--	--	--	--	--
29...	--	--	--	--	--	--	--	--	--
29...	12	17	3.7	14	.8	4.0	56	46	18

Date	Chlo- ride, dis- solved (mg/L)	Silica, dis- solved (mg/L)	Solids, sum of consti- tuents, dis- solved (mg/L)	Nitro- gen, NO <sub>2</sub> +NO <sub>3</sub> total (mg/L)	Nitro- gen, ammonia total (mg/L)	Phos- phorus, total (mg/L)	Iron, dis- solved ( $\mu$ g/L)	Manga- nese, dis- solved ( $\mu$ g/L)
Sept								
29...	16	2.7	100	.010	.010	.040	<10	90
29...	--	--	--	--	--	--	--	--
29...	--	--	--	.010	.010	.040	<10	<10
29...	--	--	--	--	--	--	--	--
29...	15	2.8	100	.010	.110	.070	20	<10

321818096064301 SITE Ec

Date	Time	Sam- pling depth (feet)	Spe- cific con- duct- ance ( $\mu$ S/cm)	pH (stand- ard units)	Temper- ature ( $^{\circ}$ C)	Trans- par- ency (secchi disk (m)	Oxygen, dis- solved (mg/L)
Sept							
29...	0950	1.00	195	8.2	28.0	.90	7.6
29...	0952	10.0	195	8.1	27.5	--	7.4
29...	0955	19.0	195	7.9	27.5	--	7.0

Date	Oxygen, dis- solved (per- cent satu- ration)	Nitro- gen, NO <sub>2</sub> +NO <sub>3</sub> total (mg/L)	Nitro- gen, ammonia total (mg/L)	Phos- phorus, total (mg/L)	Iron, dis- solved ( $\mu$ g/L)	Manga- nese, dis- solved ( $\mu$ g/L)
Sept						
29...	97	<.100	.010	.040	<10	<10
29...	95	--	--	--	--	--
29...	90	.010	.010	.050	<10	<10

Table 3.--Chemical-quality survey of Cedar Creek Reservoir, September 29, 1977--Continued

321843096101701 SITE Fc

Date	Time	Sam- pling depth (feet)	Spe- cific con- duct- ance ( $\mu$ S/cm)	pH (stand- ard units)	Temper- ature ( $^{\circ}$ C)	Oxygen, dis- solved (mg/L)	Oxygen, dis- solved (per- cent satu- ration)
Sept							
29...	0930	1.00	199	8.2	27.5	7.6	97
29...	0932	10.0	199	7.9	27.5	6.7	86
29...	0934	20.0	199	7.7	27.5	6.4	82
29...	0937	32.0	199	7.7	27.5	6.4	82

322119096104901 SITE Gr

Date	Time	Sam- pling depth (feet)	Spe- cific con- duct- ance ( $\mu$ S/cm)	pH (stand- ard units)	Temper- ature ( $^{\circ}$ C)	Oxygen, dis- solved (mg/L)	Oxygen, dis- solved (per- cent satu- ration)
Sept							
29...	0905	1.00	199	8.0	27.0	7.2	91
29...	0907	10.0	199	7.9	27.0	7.0	89
29...	0910	20.0	199	7.6	27.0	6.3	80

322119096095401 SITE Gc

Date	Time	Sam- pling depth (feet)	Spe- cific con- duct- ance ( $\mu$ S/cm)	pH (stand- ard units)	Temper- ature ( $^{\circ}$ C)	Trans- par- ency (secchi disk m)	Oxygen, dis- solved (mg/L)	Oxygen, dis- solved (per- cent satu- ration)	Hard- ness (mg/L CaCO <sub>3</sub> )
Sept									
29...	0850	1.00	199	7.9	27.5	.60	7.1	91	58
29...	0852	10.0	199	7.9	27.5	--	6.9	88	--
29...	0855	24.0	199	7.7	27.5	--	6.7	86	61

Date	Hard- ness, noncar- bonate (mg/L CaCO <sub>3</sub> )	Calcium, dis- solved (mg/L)	Magne- sium, dis- solved (mg/L)	Sodium, dis- solved (mg/L)	Sodium ad- sorp- tion ratio	Potas- sium, dis- solved (mg/L)	Bicar- bonate, fet-fld (mg/L)	Alka- linity, field (mg/L CaCO <sub>3</sub> )	Sulfate, dis- solved (mg/L)
Sept									
29...	10	17	3.7	14	.8	4.0	58	48	17
29...	--	--	--	--	--	--	--	--	--
29...	13	18	3.8	14	.8	4.1	58	48	22

Date	Chlo- ride, dis- solved (mg/L)	Silica, dis- solved (mg/L)	Solids, sum of consti- tuents, dis- solved (mg/L)	Nitro- gen, NO <sub>2</sub> +NO <sub>3</sub> total (mg/L)	Nitro- gen, ammonia total (mg/L)	Phos- phorus, total (mg/L)	Iron, dis- solved ( $\mu$ g/L)	Manga- nese, dis- solved ( $\mu$ g/L)
Sept								
29...	15	2.1	100	<.100	.010	.070	70	<10
29...	--	--	--	<.100	.010	.070	20	<10
29...	16	2.2	110	<.100	.010	.080	30	20

Table 4.--Chemical-quality survey of Cedar Creek Reservoir, March 9, 1978

[ $\mu$ S/cm, microsiemens per centimeter at 25° Celsius; °C, degrees Celsius; m, meters; mg/L, milligrams per liter;  $\mu$ g/L, micrograms per liter; fet-fl'd, fixed end point titration-field]

321111096042901 SITE Ar

Date	Time	Sam- pling depth (feet)	Spe- cific con- duct- ance ( $\mu$ S/cm)	pH (stand- ard units)	Temper- ature (°C)	Oxygen, dis- solved (mg/L)	Oxygen, dis- solved (per- cent satu- ration)
Mar							
09...	1245	1.00	205	7.8	7.0	11.4	97
09...	1247	10.0	205	7.8	7.0	11.4	97
09...	1250	20.0	205	7.8	7.0	11.4	97
09...	1252	30.0	205	7.7	7.0	11.3	96
09...	1254	40.0	205	7.7	7.0	11.2	95

321113096041201 SITE Ac

Date	Time	Sam- pling depth (feet)	Spe- cific con- duct- ance ( $\mu$ S/cm)	pH (stand- ard units)	Temper- ature (°C)	Trans- par- ency (secchi disk) (m)	Oxygen, dis- solved (mg/L)	Oxygen, dis- solved (per- cent satu- ration)	Hard- ness (mg/L CaCO <sub>3</sub> )	Hard- ness noncar- bonate (mg/L CaCO <sub>3</sub> )
Mar										
09...	1303	1.00	205	7.8	7.5	1.30	11.4	98	61	14
09...	1307	10.0	205	7.8	7.5	--	11.3	97	--	--
09...	1310	20.0	205	7.8	7.0	--	11.2	95	--	--
09...	1314	30.0	205	7.8	7.0	--	11.2	95	--	--
09...	1317	40.0	205	7.8	7.0	--	11.2	95	--	--
09...	1320	50.0	205	7.8	7.0	--	11.2	95	--	--
09...	1325	58.0	205	7.7	7.0	--	11.2	95	61	14

Date	Calcium, dis- solved (mg/L)	Magne- sium, dis- solved (mg/L)	Sodium, dis- solved (mg/L)	Sodium ad- sorp- tion ratio	Potas- ium, dis- solved (mg/L)	Bicar- bonate, fet-fl'd (mg/L)	Alka- linity, field (mg/L CaCO <sub>3</sub> )	Car- bonate, fet-fl'd (mg/L)	Sulfate, dis- solved (mg/L)	Chlo- ride, dis- solved (mg/L)
Mar										
09...	18	4.0	14	.8	3.8	58	48	0	21	19
09...	--	--	--	--	--	--	--	--	--	--
09...	--	--	--	--	--	--	--	--	--	--
09...	--	--	--	--	--	--	--	--	--	--
09...	--	--	--	--	--	--	--	--	--	--
09...	18	4.0	14	.8	3.7	58	48	0	21	19

Table 4.--Chemical-quality survey of Cedar Creek Reservoir, March 9, 1978--Continued

## 321113096041201 SITE Ac--Continued

Date	Fluoride, dissolved (mg/L)	Silica, dissolved (mg/L)	Solids, sum of constituents, dissolved (mg/L)	Nitrogen, NO <sub>2</sub> +NO <sub>3</sub> total (mg/L)	Nitrogen, ammonia total (mg/L)	Phosphorus, total (mg/L)	Arsenic, dissolved (µg/L)	Barium, dissolved (µg/L)	Cadmium, dissolved (µg/L)
Mar									
09...	.10	.5	110	.040	.010	.080	1	<100	ND
09...	--	--	--	--	--	--	--	--	--
09...	--	--	--	--	--	--	--	--	--
09...	--	--	--	.040	.030	.080	--	--	--
09...	--	--	--	--	--	--	--	--	--
09...	--	--	--	--	--	--	--	--	--
09...	.20	.6	110	.050	.020	.080	<1	<100	ND

Date	Chromium, dissolved (µg/L)	Copper, dissolved (µg/L)	Iron, dissolved (µg/L)	Lead, dissolved (µg/L)	Manganese, dissolved (µg/L)	Mercury, dissolved (µg/L)	Selenium, dissolved (µg/L)	Silver, dissolved (µg/L)	Zinc, dissolved (µg/L)
Mar									
09...	ND	2	50	6	40	<.1	<1	ND	<20
09...	--	--	--	--	--	--	--	--	--
09...	--	--	--	--	--	--	--	--	--
09...	--	--	90	--	40	--	--	--	--
09...	--	--	--	--	--	--	--	--	--
09...	--	--	--	--	--	--	--	--	--
09...	ND	<2	<10	5	<10	<.1	<1	ND	ND

## 321116096035301 SITE A1

Date	Time	Sampling depth (feet)	Specific conductance (µS/cm)	pH (standard units)	Temperature (°C)	Oxygen, dissolved (mg/L)	Oxygen, dissolved (percent saturation)
Mar							
09...	1330	1.00	205	7.8	7.5	11.4	98
09...	1332	10.0	205	7.8	7.5	11.3	97
09...	1334	20.0	205	7.8	7.5	11.2	97
09...	1336	30.0	205	7.7	7.5	11.2	97
09...	1338	40.0	205	7.6	7.5	11.2	97
09...	1340	49.0	205	7.5	7.0	11.1	94

## 321227096032701 SITE Bc

Date	Time	Sampling depth (feet)	Specific conductance (µS/cm)	pH (standard units)	Temperature (°C)	Transparency (secchi disk) (m)	Oxygen, dissolved (mg/L)
Mar							
07...	1600	1.00	205	7.9	7.0	1.10	11.8
07...	1610	10.0	205	7.9	7.0	--	11.8
07...	1615	20.0	205	7.9	7.0	--	11.7
07...	1620	30.0	205	7.9	7.0	--	11.7
07...	1625	40.0	205	7.7	7.0	--	11.7
07...	1630	50.0	205	7.7	7.0	--	11.7

Table 4.--Chemical-quality survey of Cedar Creek Reservoir, March 9, 1978--Continued

321227096032701 SITE Bc--Continued

Date	Oxygen, dissolved (percent saturation)	Nitrogen, NO <sub>2</sub> +NO <sub>3</sub> total (mg/L)	Nitrogen, ammonia total (mg/L)	Phosphorus, total (mg/L)	Iron, dissolved (µg/L)	Manganese, dissolved (µg/L)
Mar						
07...	100	.030	.010	.080	50	20
07...	100	--	--	--	--	--
07...	99	--	--	--	--	--
07...	99	--	--	--	--	--
07...	99	--	--	--	--	--
07...	99	.040	.020	.080	20	40

321403096060601 SITE Cc

Date	Time	Sam-pling depth (feet)	Spe-cific con-ductance (µS/cm)	pH (stand-ard units)	Temper-ature (°C)	Oxygen, dis-solved (mg/L)	Oxygen, dis-solved (per-cent saturation)
Mar							
09...	1222	1.00	205	7.9	7.5	11.4	98
09...	1225	10.0	205	7.7	7.5	11.4	98
09...	1228	20.0	205	7.6	7.0	11.4	97
09...	1231	30.0	205	7.6	7.0	11.3	96
09...	1233	40.0	205	7.5	7.0	11.2	95
09...	1235	52.0	205	7.5	7.0	10.8	92

321548096082301 SITE Dc

Date	Time	Sam-pling depth (feet)	Spe-cific con-ductance (µS/cm)	pH (stand-ard units)	Temper-ature (°C)	Trans-par-ency (secchi disk) (m)	Oxygen, dis-solved (mg/L)	Oxygen, dis-solved (per-cent saturation)	Hard-ness (mg/L CaCO <sub>3</sub> )
Mar									
09...	1158	1.00	205	7.8	6.5	.80	11.3	95	59
09...	1202	10.0	205	7.8	6.5	--	11.3	95	--
09...	1205	20.0	205	7.7	6.5	--	11.3	95	--
09...	1209	30.0	205	7.6	6.5	--	11.2	94	--
09...	1212	38.0	205	7.5	6.5	--	11.0	92	59

Date	Hard-ness, noncar-bonate (mg/L CaCO <sub>3</sub> )	Calcium, dis-solved (mg/L)	Magne-sium, dis-solved (mg/L)	Sodium, dis-solved (mg/L)	Sodium ad-sorp-tion ratio	Potas-sium, dis-solved (mg/L)	Bicar-bonate, fet-fl'd (mg/L)	Alka-linity, field (mg/L CaCO <sub>3</sub> )	Car-bonate fet-fl'd (mg/L)
Mar									
09...	11	17	3.9	14	.8	3.7	58	48	0
09...	--	--	--	--	--	--	--	--	--
09...	--	--	--	--	--	--	--	--	--
09...	--	--	--	--	--	--	--	--	--
09...	11	17	4.0	15	.9	3.7	58	48	0

Table 4.--Chemical-quality survey of Cedar Creek Reservoir, March 9, 1978--Continued

321548096082301 SITE Dc--Continued

Date	Sulfate, dissolved (mg/L)	Chloride, dissolved (mg/L)	Silica, dissolved (mg/L)	Solids, sum of constituents, dissolved (mg/L)	Nitrogen, NO <sub>2</sub> +NO <sub>3</sub> total (mg/L)	Nitrogen, ammonia total (mg/L)	Phosphorus, total (mg/L)	Iron, dissolved (µg/L)	Manganese, dissolved (µg/L)
Mar									
09...	22	19	<.1	108	.010	.020	.090	<10	<10
09...	--	--	--	--	--	--	--	--	--
09...	--	--	--	--	.010	.030	.100	120	40
09...	--	--	--	--	--	--	--	--	--
09...	23	18	<.1	109	.010	.010	.090	20	<10

321818096064301 SITE Ec

Date	Time	Sam-pling depth (feet)	Spe-cific con-ductance (µS/cm)	pH (stand-ard units)	Temper-ature (°C)	Trans-par-ency (secchi disk) (m)	Oxygen, dis-solved (mg/L)
Mar							
09...	1130	1.00	225	7.3	8.0	.40	10.4
09...	1137	10.0	225	7.2	8.0	--	10.4
09...	1144	20.0	225	7.2	7.5	--	10.2

Date	Oxygen, dis-solved (per-cent satu-ration)	Nitro-gen, NO <sub>2</sub> +NO <sub>3</sub> total (mg/L)	Nitro-gen, ammonia total (mg/L)	Phos-phorus, total (mg/L)	Iron, dis-solved (µg/L)	Manga-nese, dis-solved (µg/L)
Mar						
09...	90	.010	.010	.120	40	30
09...	90	--	--	--	--	--
09...	88	.010	.010	.120	40	40

321843096101701 SITE Fc

Date	Time	Sam-pling depth (feet)	Spe-cific con-ductance (µS/cm)	pH (stand-ard units)	Temper-ature (°C)	Oxygen, dis-solved (mg/L)	Oxygen, dis-solved (per-cent satu-ration)
Mar							
09...	1103	1.00	196	7.5	7.0	11.2	95
09...	1107	10.0	196	7.5	7.0	11.2	95
09...	1111	20.0	196	7.5	7.0	11.2	95
09...	1115	34.0	196	7.5	7.0	11.2	95

Table 4.--Chemical-quality survey of Cedar Creek Reservoir, March 9, 1978--Continued

322119096104901 SITE Gr

Date	Time	Sam- pling depth (feet)	Spe- cific con- duct- ance ( $\mu$ S/cm)	pH (stand- ard units)	Temper- ature ( $^{\circ}$ C)	Oxygen, dis- solved (mg/L)	Oxygen, dis- solved (per- cent satu- ration)
Mar							
09...	1037	1.00	194	7.6	6.5	11.2	94
09...	1040	10.0	194	7.6	6.5	11.2	94
09...	1044	20.0	194	7.6	6.5	11.2	94

322119096095401 SITE Gc

Date	Time	Sam- pling depth (feet)	Spe- cific con- duct- ance ( $\mu$ S/cm)	pH (stand- ard units)	Temper- ature ( $^{\circ}$ C)	Trans- par- ency (secchi disk) (m)	Oxygen, dis- solved (mg/L)	Oxygen, dis- solved (per- cent satu- ration)	Hard- ness (mg/L CaCO <sub>3</sub> )
Mar									
09...	0938	1.00	198	7.6	6.5	.50	11.3	95	58
09...	0958	10.0	198	7.6	6.5	--	11.3	95	--
09...	1010	20.0	198	7.6	6.5	--	11.2	94	--
09...	1028	28.0	198	7.6	6.5	--	11.2	94	57

Date	Hard- ness, noncar- bonate (mg/L CaCO <sub>3</sub> )	Calcium, dis- solved (mg/L)	Magne- sium, dis- solved (mg/L)	Sodium, dis- solved (mg/L)	Sodium ad- sorp- tion ratio	Potas- sium, dis- solved (mg/L)	Bicar- bonate, fet-fld (mg/L)	Alka- linity, field (mg/L CaCO <sub>3</sub> )	Car- bonate fet-fld (mg/L)
Mar									
09...	10	17	3.8	14	.8	3.5	58	48	0
09...	--	--	--	--	--	--	--	--	--
09...	--	--	--	--	--	--	--	--	--
09...	9	17	3.6	14	.8	3.4	58	48	0

Date	Sulfate, dis- solved (mg/L)	Chlo- ride, dis- solved (mg/L)	Silica, dis- solved (mg/L)	Solids, sum of consti- tuents, dis- solved (mg/L)	Nitro- gen, NO <sub>2</sub> +NO <sub>3</sub> total (mg/L)	Nitro- gen, ammonia total (mg/L)	Phos- phorus, total (mg/L)	Iron, dis- solved ( $\mu$ g/L)	Manga- nese, dis- solved ( $\mu$ g/L)
Mar									
09...	23	18	<.1	108	<.100	.010	.120	210	40
09...	--	--	--	--	--	--	--	--	--
09...	--	--	--	--	--	--	--	--	--
09...	22	18	<.1	107	<.100	.050	.130	20	<10

Table 5.--Chemical-quality survey of Cedar Creek Reservoir, June 22, 1978

[ $\mu\text{S/cm}$ , microsiemens per centimeter at 25° Celsius; °C, degrees Celsius; m, meters; mg/L, milligrams per liter;  $\mu\text{g/L}$ , micrograms per liter; fet-fl'd, fixed end point tritration-field]

321111096042901 SITE Ar

Date	Time	Sam- pling depth (feet)	Spe- cific con- duct- ance ( $\mu\text{S/cm}$ )	pH (stand- ard units)	Temper- ature (°C)	Oxygen, dis- solved (mg/L)	Oxygen, dis- solved (per- cent satu- ration)
Jun							
22...	0950	1.00	214	7.4	27.5	6.7	87
22...	0952	10.0	214	7.4	27.0	6.3	81
22...	0954	20.0	214	7.2	26.6	5.8	74
22...	0956	32.0	214	6.6	23.5	.2	2

321113096041201 SITE Ac

Date	Time	Sam- pling depth (feet)	Spe- cific con- duct- ance ( $\mu\text{S/cm}$ )	pH (stand- ard units)	Temper- ature (°C)	Trans- par- ency (secchi disk (m)	Oxygen, dis- solved (mg/L)	Oxygen, dis- solved (per- cent satu- ration)	Hard- ness (mg/L CaCO <sub>3</sub> )	Hard- ness, noncar- bonate (mg/L CaCO <sub>3</sub> )
Jun										
22...	1015	1.00	214	7.8	28.0	1.70	7.5	97	63	15
22...	1020	10.0	214	7.7	27.5	--	7.3	95	--	--
22...	1025	20.0	214	7.0	26.5	--	4.8	62	--	--
22...	1030	30.0	214	6.6	24.0	--	.7	9	--	--
22...	1035	40.0	214	6.7	22.0	--	.2	2	--	--
22...	1040	50.0	223	6.7	20.5	--	.2	2	--	--
22...	1045	59.0	244	6.8	19.5	--	.2	2	69	0

Date	Calcium, dis- solved (mg/L)	Magne- sium, dis- solved (mg/L)	Sodium, dis- solved (mg/L)	Sodium ad- sorp- tion ratio	Potas- sium, dis- solved (mg/L)	Bicar- bonate, fet-fl'd (mg/L)	Alka- linity, field (mg/L CaCO <sub>3</sub> )	Car- bonate, fet-fl'd (mg/L)	Sulfate, dis- solved (mg/L)	Chlo- ride, dis- solved (mg/L)
Jun										
22...	18	4.3	15	.9	3.9	59	48	0	23	19
22...	--	--	--	--	--	--	--	--	--	--
22...	--	--	--	--	--	--	--	--	--	--
22...	--	--	--	--	--	--	--	--	--	--
22...	--	--	--	--	--	--	--	--	--	--
22...	20	4.5	15	.8	4.0	88	72	0	17	17

Table 5.--Chemical-quality survey of Cedar Creek Reservoir, June 22, 1978--Continued

## 321113096041201 SITE Ac--Continued

Date	Fluoride, dissolved (mg/L)	Silica, dissolved (mg/L)	Solids, sum of constituents, dissolved (mg/L)	Nitrogen, NO <sub>2</sub> +NO <sub>3</sub> total (mg/L)	Nitrogen, ammonia total (mg/L)	Phosphorus, total (mg/L)	Arsenic, dissolved (µg/L)	Barium, dissolved (µg/L)	Cadmium, dissolved (µg/L)
Jun									
22...	0.20	1.8	110	0.100	<0.010	<0.010	2	300	<2
22...	--	--	--	--	--	--	--	--	--
22...	--	--	--	.230	.010	.020	--	--	--
22...	--	--	--	.210	<.010	.010	--	--	--
22...	--	--	--	--	--	--	--	--	--
22...	--	--	--	--	--	--	--	--	--
22...	.20	7.9	130	.010	.430	.350	26	300	<2

Date	Chromium, dissolved (µg/L)	Copper, dissolved (µg/L)	Iron, dissolved (µg/L)	Lead, dissolved (µg/L)	Manganese, dissolved (µg/L)	Mercury, dissolved (µg/L)	Selenium, dissolved (µg/L)	Silver, dissolved (µg/L)	Zinc, dissolved (µg/L)
Jun									
22...	ND	<2	80	<2	20	<0.1	<1	ND	ND
22...	--	--	--	--	--	--	--	--	--
22...	--	--	120	--	40	--	--	--	--
22...	--	--	290	--	190	--	--	--	--
22...	--	--	--	--	--	--	--	--	--
22...	--	--	--	--	--	--	--	--	--
22...	ND	<2	2,500	2	2,000	<.1	<1	ND	100

## 321116096035301 SITE A1

Date	Time	Sampling depth (feet)	Specific conductance (µS/cm)	pH (standard units)	Temperature (°C)	Oxygen, dissolved (mg/L)	Oxygen, dissolved (percent saturation)
Jun							
22...	1100	1.00	214	8.0	28.5	7.6	100
22...	1102	10.0	214	8.0	28.0	7.6	99
22...	1104	20.0	214	7.0	26.5	4.5	58
22...	1106	30.0	214	6.7	24.5	1.4	17
22...	1107	40.0	214	6.7	21.5	.2	2
22...	1113	46.0	214	6.7	21.0	.2	2

## 321227096032701 SITE Bc

Date	Time	Sampling depth (feet)	Specific conductance (µS/cm)	pH (standard units)	Temperature (°C)	Transparency (secchi disk (m))	Oxygen, dissolved (mg/L)
Jun							
22...	1120	1.00	214	8.1	28.5	1.80	7.7
22...	1123	10.0	214	8.0	28.5	--	7.7
22...	1126	20.0	214	7.1	26.5	--	5.2
22...	1129	30.0	214	6.7	25.0	--	1.3
22...	1132	40.0	214	6.6	22.0	--	.2
22...	1135	49.0	226	6.7	20.0	--	.2

Table 5.--Chemical-quality survey of Cedar Creek Reservoir, June 22, 1978--Continued

## 321227096032701 SITE Bc--Continued

Date	Oxygen, dissolved (percent saturation)	Nitrogen, NO <sub>2</sub> +NO <sub>3</sub> total (mg/L)	Nitrogen, ammonia total (mg/L)	Phosphorus, total (mg/L)	Iron, dissolved (µg/L)	Manganese, dissolved (µg/L)
Jun						
22...	101	.070	<.010	.010	30	60
22...	101	--	--	--	--	--
22...	65	--	--	--	--	--
22...	15	--	--	--	--	--
22...	2	--	--	--	--	--
22...	2	.030	.130	.090	40	1700

## 321403096060601 SITE Cc

Date	Time	Sam-pling depth (feet)	Spe-cific con-ductance (µS/cm)	pH (stand-ard units)	Temper-ature (°C)	Oxygen, dis-solved (mg/L)	Oxygen, dis-solved (per-cent saturation)
Jun							
22...	0920	1.00	214	7.8	28.0	7.6	99
22...	0922	10.0	214	7.8	28.0	7.2	94
22...	0924	20.0	214	7.6	27.5	7.1	92
22...	0926	30.0	214	6.7	25.0	3.0	38
22...	0928	40.0	214	6.7	21.5	.2	2
22...	0930	50.0	227	6.7	21.0	.2	2

## 321548096082301 SITE Dc

Date	Time	Sam-pling depth (feet)	Spe-cific con-ductance (µS/cm)	pH (stand-ard units)	Temper-ature (°C)	Oxygen, dis-solved (mg/L)	Oxygen, dis-solved (per-cent saturation)	Hard-ness (mg/L CaCO <sub>3</sub> )	Hard-ness, noncar-bonate (mg/L (CaCO <sub>3</sub> ))
Jun									
22...	0818	1.00	214	7.4	28.0	6.5	84	61	13
22...	0824	10.0	214	7.4	28.0	6.4	83	--	--
22...	0830	20.0	214	7.4	28.0	6.4	83	--	--
22...	0836	30.0	214	6.9	27.0	4.2	54	--	--
22...	0846	42.0	225	6.7	21.5	.2	2	65	8

Date	Calcium, dis-solved (mg/L)	Magne-sium, dis-solved (mg/L)	Sodium, dis-solved (mg/L)	Sodium ad-sorp-tion ratio	Potas-sium, dis-solved (mg/L)	Bicar-bonate, fet-fld (mg/L)	Alka-linity, field (mg/L CaCO <sub>3</sub> )	Car-bonate, fet-fld (mg/L)	Sulfate, dis-solved (mg/L)
Jun									
22...	18	4.0	15	.9	3.9	60	49	0	23
22...	--	--	--	--	--	--	--	--	--
22...	--	--	--	--	--	--	--	--	--
22...	--	--	--	--	--	--	--	--	--
22...	19	4.3	15	.8	3.9	70	57	0	22

Table 5.--Chemical-quality survey of Cedar Creek Reservoir, June 22, 1978--Continued

321548096082301 SITE Dc--Continued

Date	Chloride, dissolved (mg/L)	Silica, dissolved (mg/L)	Solids, sum of constituents, dissolved (mg/L)	Nitrogen, NO <sub>2</sub> +NO <sub>3</sub> total (mg/L)	Nitrogen, ammonia total (mg/L)	Phosphorus, total (mg/L)	Iron, dissolved (µg/L)	Manganese, dissolved (µg/L)
Jun 22...	20	1.3	110	.170	.010	.020	40	<10
22...	--	--	--	--	--	--	--	--
22...	--	--	--	.150	<.010	.030	220	70
22...	--	--	--	.240	.040	.040	310	300
22...	19	5.2	120	.020	.110	.130	550	1400

321818096064301 SITE Ec

Date	Time	Sampling depth (feet)	Specific conductance (µS/cm)	pH (standard units)	Temperature (°C)	Transparency (secchi disk) (m)	Oxygen, dissolved (mg/L)
Jun 22...	1200	1.00	214	8.1	29.5	.90	7.3
22...	1207	10.0	214	8.1	29.5	--	7.3
22...	1215	20.0	214	6.9	28.5	--	2.5

Date	Oxygen, dissolved (percent saturation)	Nitrogen, NO <sub>2</sub> +NO <sub>3</sub> total (mg/L)	Nitrogen, ammonia total (mg/L)	Phosphorus, total (mg/L)	Iron, dissolved (µg/L)	Manganese, dissolved (µg/L)
Jun 22...	97	.030	<.010	.030	20	<10
22...	97	--	--	--	--	--
22...	33	.050	.080	.050	50	220

321843096101701 SITE Fc

Date	Time	Sampling depth (feet)	Specific conductance (µS/cm)	pH (standard units)	Temperature (°C)	Oxygen, dissolved (mg/L)	Oxygen, dissolved (percent saturation)
Jun 22...	0759	1.00	218	7.9	28.5	7.3	96
22...	0801	10.0	218	7.9	28.5	7.3	96
22...	0803	20.0	218	7.6	28.5	6.7	88
22...	0807	32.0	218	7.1	28.0	5.3	69

Table 5.--Chemical-quality survey of Cedar Creek Reservoir, June 22, 1978--Continued

322119096104901 SITE Gr

Date	Time	Sam- pling depth (feet)	Spe- cific con- duct- ance ( $\mu$ S/cm)	pH (stand- ard units)	Temper- ature ( $^{\circ}$ C)	Oxygen, dis- solved (mg/L)	Oxygen, dis- solved (per- cent satu- ration)
Jun							
22...	1340	1.00	218	8.0	29.5	7.5	100
22...	1342	10.0	218	7.7	29.0	6.9	92
22...	1346	19.0	218	7.3	28.5	5.7	75

322119096095401 SITE Gc

Date	Time	Sam- pling depth (feet)	Spe- cific con- duct- ance ( $\mu$ S/cm)	pH (stand- ard units)	Temper- ature ( $^{\circ}$ C)	Trans- par- ency (secchi disk) (m)	Oxygen, dis- solved (mg/L)	Oxygen, dis- solved (per- cent satu- ration)	Hard- ness (mg/L CaCO <sub>3</sub> )
Jun									
22...	1300	1.00	218	8.1	29.5	.50	7.5	100	64
22...	1305	10.0	218	7.8	29.5	--	7.1	95	--
22...	1310	20.0	218	7.5	28.5	--	6.6	87	--
22...	1320	26.0	218	7.2	28.5	--	5.0	66	62

Date	Hard- ness, noncar- bonate (mg/L CaCO <sub>3</sub> )	Calcium, dis- solved (mg/L)	Magne- sium, dis- solved (mg/L)	Sodium, dis- solved (mg/L)	Sodium ad- sorp- tion ratio	Potas- sium, dis- solved (mg/L)	Bicar- bonate, fet-fld (mg/L)	Alka- linity, field (mg/L CaCO <sub>3</sub> )	Sulfate, dis- solved (mg/L)
Jun									
22...	13	19	4.1	16	.9	4.0	62	51	0
22...	--	--	--	--	--	--	--	--	--
22...	--	--	--	--	--	--	--	--	--
22...	11	18	4.1	16	.9	4.0	62	51	0

Date	Sulfate, dis- solved (mg/L)	Chlo- ride, dis- solved (mg/L)	Silica, dis- solved (mg/L)	Solids, sum of consti- tuents, dis- solved (mg/L)	Nitro- gen, NO <sub>2</sub> +NO <sub>3</sub> total (mg/L)	Nitro- gen, ammonia total (mg/L)	Phos- phorus, total (mg/L)	Iron, dis- solved ( $\mu$ g/L)	Manga- nese, dis- solved ( $\mu$ g/L)
Jun									
22...	24	19	.8	120	.080	<.010	.040	430	40
22...	--	--	--	--	--	--	--	--	--
22...	--	--	--	--	.140	<.010	.110	20	<10
22...	23	19	1.9	120	.150	.050	.100	20	100

Table 6.--Chemical-quality survey of Cedar Creek Reservoir, September 8, 1978

[ $\mu$ S/cm, microsiemens per centimeter at 25° Celsius; °C, degrees Celsius;  
m, meters; mg/L, milligrams per liter;  $\mu$ g/L, micrograms per liter;  
fet-fl'd, fixed end point titration-field]

321111096042901 SITE Ar

Date	Time	Sam- pling depth (feet)	Spe- cific con- duct- ance ( $\mu$ S/cm)	pH (stand- ard units)	Temper- ature (°C)	Oxygen, dis- solved (mg/L)	Oxygen, dis- solved (per- cent satu- ration)
Sept							
08...	1420	1.00	224	8.2	29.5	7.9	105
08...	1422	10.0	224	7.7	29.0	6.6	88
08...	1424	20.0	224	7.1	28.5	4.5	59
08...	1426	30.0	224	7.0	28.5	2.9	38

321113096041201 SITE Ac

Date	Time	Sam- pling depth (feet)	Spe- cific con- duct- ance ( $\mu$ S/cm)	pH (stand- ard units)	Temper- ature (°C)	Trans- par- ency (secchi disk) (m)	Oxygen, dis- solved (mg/L)	Oxygen, dis- solved (per- cent satu- ration)	Hard- ness (mg/L as CaCO <sub>3</sub> )	Hard- ness noncar- bonate (mg/L CaCO <sub>3</sub> )
Sept										
08...	1346	1.00	224	7.7	29.0	1.80	6.8	91	64	10
08...	1348	10.0	224	7.4	28.5	--	5.7	75	--	--
08...	1350	20.0	224	7.4	28.5	--	4.5	59	--	--
08...	1352	30.0	224	6.9	27.5	--	1.9	25	--	--
08...	1354	40.0	233	6.9	25.0	--	.2	3	--	--
08...	1356	50.0	240	6.8	23.0	--	.2	2	--	--
08...	1358	59.0	244	6.7	22.5	--	.4	5	85	3

Date	Calcium, dis- solved (mg/L)	Magne- sium, dis- solved (mg/L)	Sodium, dis- solved (mg/L)	Sodium ad- sorp- tion ratio	Potas- sium, dis- solved (mg/L)	Bicar- bonate, fet-fl'd (mg/L)	Alka- linity, field (mg/L CaCO <sub>3</sub> )	Car- bonate, fet-fl'd (mg/L)	Sulfate, dis- solved (mg/L)	Chlo- ride, dis- solved (mg/L)
Sept										
08...	19	4.0	15	.8	4.1	66	54	0	23	18
08...	--	--	--	--	--	--	--	--	--	--
08...	--	--	--	--	--	--	--	--	--	--
08...	--	--	--	--	--	--	--	--	--	--
08...	--	--	--	--	--	--	--	--	--	--
08...	--	--	--	--	--	--	--	--	--	--
08...	27	4.3	15	.7	3.9	100	82	0	10	20

Table 6.--Chemical-quality survey of Cedar Creek Reservoir, September 8, 1978--Continued

## 321113096041201 SITE Ac--Continued

Date	Fluoride, dissolved (mg/L)	Silica, dissolved (mg/L)	Solids, sum of constituents, dissolved (mg/L)	Nitrogen, NO <sub>2</sub> +NO <sub>3</sub> total (mg/L)	Nitrogen, ammonia total (mg/L)	Phosphorus, total (mg/L)	Arsenic, dissolved (µg/L)	Barium, dissolved (µg/L)	Cadmium, dissolved (µg/L)
Sept 08...	.20	2.0	120	.020	.030	.030	2	<100	<2
08...	--	--	--	--	--	--	--	--	--
08...	--	--	--	<.100	.030	.020	--	--	--
08...	--	--	--	--	--	--	--	--	--
08...	--	--	--	<.100	.010	.020	--	--	--
08...	--	--	--	<.100	.460	.040	--	--	--
08...	--	--	--	--	--	--	--	--	--
08...	--	9.0	150	<.100	1.90	.680	15	<100	<20

Date	Chromium, dissolved (µg/L)	Copper, dissolved (µg/L)	Iron, dissolved (µg/L)	Lead, dissolved (µg/L)	Manganese, dissolved (µg/L)	Mercury, dissolved (µg/L)	Selenium, dissolved (µg/L)	Silver, dissolved (µg/L)	Zinc, dissolved (µg/L)
Sept 08...	ND	2	20	ND	<10	<.1	<1	ND	ND
08...	--	--	--	--	--	--	--	--	--
08...	--	--	40	--	140	--	--	--	--
08...	--	--	--	--	--	--	--	--	--
08...	--	--	50	--	550	--	--	--	--
08...	--	--	490	--	3300	--	--	--	--
08...	--	--	--	--	--	--	--	--	--
08...	ND	3	3800	90	3600	<.1	<1	ND	<20

## 321116096035301 SITE A1

Date	Time	Sampling depth (feet)	Specific conductance (µS/cm)	pH (standard units)	Temperature (°C)	Oxygen, dissolved (mg/L)	Oxygen, dissolved (percent saturation)
Sept 08...	1434	1.00	224	7.8	29.0	7.0	93
08...	1436	10.0	224	7.3	28.5	5.7	75
08...	1438	20.0	224	7.2	28.5	5.1	67
08...	1440	30.0	224	7.2	27.5	4.7	61
08...	1442	40.0	236	6.9	25.5	.3	4
08...	1444	49.0	241	6.8	24.5	.3	4

## 321227096032701 SITE Bc

Date	Time	Sampling depth (feet)	Specific conductance (µS/cm)	pH (standard units)	Temperature (°C)	Transparency (secchi disk) (m)	Oxygen, dissolved (mg/L)
Sept 08...	1325	1.00	224	8.5	29.5	1.80	8.1
08...	1327	10.0	224	8.0	29.0	--	7.1
08...	1329	20.0	224	7.0	28.5	--	3.3
08...	1331	30.0	224	6.9	27.5	--	1.9
08...	1333	45.0	236	6.8	25.0	--	.4

Table 6.--Chemical-quality survey of Cedar Creek Reservoir, September 8, 1978--Continued

## 321227096032701 SITE Bc--Continued

Date	Oxygen, dis- solved (per- cent satu- ration)	Nitro- gen, NO <sub>2</sub> +NO <sub>3</sub> total (mg/L)	Nitro- gen, ammonia total (mg/L)	Phos- phorus, total (mg/L)	Iron, dis- solved (µg/L)	Manga- nese, dis- solved (µg/L)
Sept						
08...	108	.020	.030	.020	20	270
08...	95	--	--	--	--	--
08...	43	--	--	--	--	--
08...	25	--	--	--	--	--
08...	5	.020	.870	.100	1100	3500

## 321403096060601 SITE Cc

Date	Time	Sam- pling depth (feet)	Spe- cific con- duct- ance (µS/cm)	pH (stand- ard units)	Temper- ature (°C)	Oxygen, dis- solved (mg/L)	Oxygen, dis- solved (per- cent satu- ration)
Sept							
08...	1256	1.00	224	8.3	30.0	7.8	104
08...	1258	10.0	224	7.4	29.0	5.5	73
08...	1300	20.0	224	7.2	28.5	4.8	63
08...	1302	30.0	224	7.1	28.5	3.9	51
08...	1304	40.0	247	7.0	26.0	.3	4
08...	1306	49.0	256	6.9	25.0	.4	5

## 321548096082301 SITE Dc

Date	Time	Sam- pling depth (feet)	Spe- cific con- duct- ance (µS/cm)	pH (stand- ard units)	Temper- ature (°C)	Oxygen, dis- solved (mg/L)	Oxygen, dis- solved (per- cent satu- ration)	Hard- ness (mg/L CaCO <sub>3</sub> )	Hard- ness, noncar- bonate (mg/L CaCO <sub>3</sub> )
Sept									
08...	1222	1.00	226	8.5	29.5	8.2	109	76	19
08...	1224	10.0	226	8.2	29.0	7.5	100	--	--
08...	1226	20.0	226	7.4	28.5	5.4	71	--	--
08...	1228	30.0	232	6.8	28.5	.8	11	--	--
08...	1230	39.0	237	6.8	28.5	.3	4	67	8

Date	Calcium, dis- solved (mg/L)	Magne- sium, dis- solved (mg/L)	Sodium, dis- solved (mg/L)	Sodium ad- sorp- tion ratio	Potas- sium, dis- solved (mg/L)	Bicar- bonate fet-fld (mg/L)	Alka- linity field (mg/L CaCO <sub>3</sub> )	Car- bonate fet-fld (mg/L)	Sulfate dis- solved (mg/L)
Sept									
08...	24	4.0	15	.8	4.0	63	58	4	23
08...	--	--	--	--	--	--	--	--	--
08...	--	--	--	--	--	--	--	--	--
08...	--	--	--	--	--	--	--	--	--
08...	20	4.2	16	.9	4.0	72	59	0	24

Table 6.--Chemical-quality survey of Cedar Creek Reservoir, September 8, 1978--Continued

321548096082301 SITE Dc--Continued

Date	Chloride, dissolved (mg/L)	Silica, dissolved (mg/L)	Solids, sum of constituents, dissolved (mg/L)	Nitrogen, NO <sub>2</sub> +NO <sub>3</sub> total (mg/L)	Nitrogen, ammonia total (mg/L)	Phosphorus, total (mg/L)	Iron, dissolved (µg/L)	Manganese, dissolved (µg/L)
Sept 08...	20	2.1	130	.020	.020	.030	<10	20
08...	--	--	--	--	--	--	--	--
08...	--	--	--	.020	.040	.030	<10	60
08...	--	--	--	.030	.120	.040	<10	160
08...	20	3.8	130	.010	.210	.060	<10	360

321818096064301 SITE Ec

Date	Time	Sampling depth (feet)	Specific conductance (µS/cm)	pH (standard units)	Temperature (°C)	Transparency (secchi disk (m))	Oxygen, dissolved (mg/L)
Sept 08...	1156	1.00	230	8.7	30.0	.90	8.0
08...	1158	10.0	230	8.5	29.5	--	7.6
08...	1200	18.0	230	7.8	29.5	--	5.9

Date	Oxygen, dissolved (percent saturation)	Nitrogen, NO <sub>2</sub> +NO <sub>3</sub> total (mg/L)	Nitrogen, ammonia total (mg/L)	Phosphorus, total (mg/L)	Iron, dissolved (µg/L)	Manganese, dissolved (µg/L)
Sept 08...	108	.020	.020	.040	30	20
08...	101	--	--	--	--	--
08...	79	.020	.050	.030	<10	<10

321843096101701 SITE Fc

Date	Time	Sampling depth (feet)	Specific conductance (µS/cm)	pH (standard units)	Temperature (°C)	Oxygen, dissolved (mg/L)	Oxygen, dissolved (percent saturation)
Sept 08...	1136	1.00	230	8.7	30.0	8.5	115
08...	1138	10.0	230	8.5	29.5	8.0	106
08...	1140	20.0	238	7.2	28.5	3.6	48
08...	1142	28.0	238	7.2	29.0	3.6	48

Table 6.--Chemical-quality survey of Cedar Creek Reservoir, September 8, 1978--Continued

322119096104901 SITE Gr

Date	Time	Sam- pling depth (feet)	Spe- cific con- duct- ance ( $\mu$ S/cm)	pH (stand- ard units)	Temper- ature ( $^{\circ}$ C)	Oxygen, dis- solved (mg/L)	Oxygen, dis- solved (per- cent satu- ration)
Sept							
08...	1112	1.00	234	8.6	29.5	8.1	108
08...	1114	10.0	234	8.3	29.0	7.2	96
08...	1116	17.0	242	7.9	29.0	6.1	81

322119096095401 SITE Gc

Date	Time	Sam- pling depth (feet)	Spe- cific con- duct- ance ( $\mu$ S/cm)	pH (stand- ard units)	Temper- ature ( $^{\circ}$ C)	Trans- par- ency (secchi disk) (m)	Oxygen, dis- solved (mg/L)	Oxygen, dis- solved (per- cent satu- ration)	Hard- ness (mg/L CaCO <sub>3</sub> )
Sept									
08...	1045	1.00	234	8.5	29.0	.70	7.9	105	67
08...	1047	10.0	234	8.1	28.5	--	6.8	89	--
08...	1049	20.0	242	7.0	28.5	--	1.7	22	--
08...	1051	26.0	242	6.8	28.5	--	.6	8	71

Date	Hard- ness, noncar- bonate (mg/L CaCO <sub>3</sub> )	Calcium, dis- solved (mg/L)	Magne- sium, dis- solved (mg/L)	Sodium, dis- solved (mg/L)	Sodium ad- sorp- tion ratio	Potas- sium, dis- solved (mg/L)	Bicar- bonate, fet-fld (mg/L)	Alka- linity, field (mg/L CaCO <sub>3</sub> )	Car- bonate, fet-fld (mg/L)
Sept									
08...	9	20	4.2	16	.9	4.1	61	58	5
08...	--	--	--	--	--	--	--	--	--
08...	--	--	--	--	--	--	--	--	--
08...	9	21	4.6	17	.9	4.2	75	62	0

Date	Sulfate, dis- solved (mg/L)	Chlo- ride, dis- solved (mg/L)	Silica, dis- solved (mg/L)	Solids, sum of consti- tuents, dis- solved (mg/L)	Nitro- gen, NO <sub>2</sub> +NO <sub>3</sub> total (mg/L)	Nitro- gen, ammonia total (mg/L)	Phos- phorus, total (mg/L)	Iron, dis- solved ( $\mu$ g/L)	Manga- nese, dis- solved ( $\mu$ g/L)
Sept									
08...	24	19	2.6	130	.010	.010	.060	<10	<10
08...	--	--	--	--	.020	.060	.060	40	80
08...	--	--	--	--	--	--	--	--	--
08...	24	21	3.8	130	.020	.210	.080	40	270

Table 7.--Chemical-quality survey of Cedar Creek Reservoir, Jan 11, 1979

[ $\mu$ S/cm, microsiemens per centimeter at 25° Celsius; °C, degrees Celsius; m, meters; mg/L, milligrams per liter;  $\mu$ g/L, micrograms per liter; fet-fl'd, fixed end point titration-field]

321111096042901 SITE Ar

Date	Time	Sam- pling depth (feet)	Spe- cific con- duct- ance ( $\mu$ S/cm)	pH (stand- ard units)	Temper- ature (°C)	Oxygen, dis- solved (mg/L)	Oxygen, dis- solved (per- cent satu- ration)
Jan							
11...	1123	1.00	230	7.5	5.0	11.8	95
11...	1125	10.0	230	7.4	5.0	11.8	95
11...	1128	20.0	230	7.4	5.0	11.8	95
11...	1131	30.0	230	7.4	5.0	11.8	95
11...	1133	41.0	230	7.1	5.0	11.8	95

321113096041201 SITE Ac

Date	Time	Sam- pling depth (feet)	Spe- cific con- duct- ance ( $\mu$ S/cm)	pH (stand- ard units)	Temper- ature (°C)	Trans- par- ency (secchi disk) (m)	Oxygen, dis- solved (mg/L)	Oxygen, dis- solved (per- cent satu- ration)	Hard- ness (mg/L CaCO <sub>3</sub> )	Hard- ness, noncar- bonate (mg/L CaCO <sub>3</sub> )
Jan										
11...	1144	1.00	230	7.5	5.5	1.30	11.6	95	69	14
11...	1154	10.0	230	7.5	5.5	--	11.6	95	--	--
11...	1159	20.0	230	7.5	5.5	--	11.6	95	--	--
11...	1203	30.0	230	7.5	5.5	--	11.5	94	--	--
11...	1208	40.0	230	7.5	5.5	--	11.4	93	--	--
11...	1213	50.0	230	7.5	5.5	--	11.4	93	--	--
11...	1223	57.0	230	7.4	5.5	--	11.4	93	68	13

Date	Calcium, dis- solved (mg/L)	Magne- sium, dis- solved (mg/L)	Sodium, dis- solved (mg/L)	Sodium ad- sor- ption ratio	Potas- sium, dis- solved (mg/L)	Bicar- bonate, fet-fl'd (mg/L)	Alka- linity, field (mg/L CaCO <sub>3</sub> )	Car- bonate, fet-fl'd (mg/L)	Sulfate, dis- solved (mg/L)	Chlo- ride, dis- solved (mg/L)
Jan										
11...	20	4.5	17	.9	4.0	67	55	0	27	22
11...	--	--	--	--	--	--	--	--	--	--
11...	--	--	--	--	--	--	--	--	--	--
11...	--	--	--	--	--	--	--	--	--	--
11...	--	--	--	--	--	--	--	--	--	--
11...	20	4.4	17	.9	4.0	67	55	0	27	21

Date	Fluo- ride, dis- solved (mg/L)	Silica, dis- solved (mg/L)	Solids, sum of consti- tuents, dis- solved	Nitro- gen, NO <sub>2</sub> +NO <sub>3</sub> total (mg/L)	Nitro- gen, ammonia total (mg/L)	Phos- phorus, total (mg/L)	Arsenic, dis- solved ( $\mu$ g/L)	Barium, dis- solved ( $\mu$ g/L)	Cadmium, dis- solved ( $\mu$ g/L)
Jan									
11...	.20	2.2	130	.120	.040	.030	1	60	<2
11...	--	--	--	--	--	--	--	--	--
11...	--	--	--	--	--	--	--	--	--
11...	--	--	--	.060	.020	.030	--	--	--
11...	--	--	--	--	--	--	--	--	--
11...	--	--	--	--	--	--	--	--	--
11...	--	2.1	130	.190	.060	.080	1	50	<2

Table 7.--Chemical-quality survey of Cedar Creek Reservoir, Jan 11, 1979--Continued

321113096041201 SITE Ac--Continued

Date	Chromium, dissolved (µg/L)	Copper, dissolved (µg/L)	Iron, dissolved (µg/L)	Lead, dissolved (µg/L)	Manganese, dissolved (µg/L)	Mercury, dissolved (µg/L)	Selenium, dissolved (µg/L)	Silver, dissolved (µg/L)	Zinc, dissolved (µg/L)
Jan 11...	ND	2	<10	ND	1	<.1	<1	ND	<3
11...	--	--	--	--	--	--	--	--	--
11...	--	--	--	--	--	--	--	--	--
11...	--	--	<10	--	20	--	--	--	--
11...	--	--	--	--	--	--	--	--	--
11...	--	--	--	--	--	--	--	--	--
11...	ND	2	<10	ND	30	<.1	<1	ND	6

321116096035301 SITE A1

Date	Time	Sampling depth (feet)	Specific conductance (µS/cm)	pH (standard units)	Temperature (°C)	Oxygen, dissolved (mg/L)	Oxygen, dissolved (percent saturation)
Jan 11...	1230	1.00	230	7.5	6.0	11.5	95
11...	1232	10.0	230	7.5	6.0	11.5	95
11...	1234	20.0	230	7.5	6.0	11.3	93
11...	1235	30.0	230	7.5	6.0	11.3	93
11...	1245	49.0	230	7.5	6.0	11.3	93

321227096032701 SITE Bc

Date	Time	Sampling depth (feet)	Specific conductance (µS/cm)	pH (standard units)	Temperature (°C)	Transparency (secchi disk) (m)	Oxygen, dissolved (mg/L)
Jan 11...	1251	1.00	230	7.5	6.5	1.40	11.5
11...	1253	10.0	230	7.5	6.0	--	11.4
11...	1255	20.0	230	7.4	6.0	--	11.4
11...	1258	30.0	230	7.4	6.0	--	11.3
11...	1300	40.0	230	7.4	6.0	--	11.3
11...	1302	50.0	230	7.4	6.0	--	11.2

Date	Oxygen, dissolved (percent saturation)	Nitrogen, NO <sub>2</sub> +NO <sub>3</sub> total (mg/L)	Nitrogen, ammonia total (mg/L)	Phosphorus, total (mg/L)	Iron, dissolved (µg/L)	Manganese, dissolved (µg/L)
Jan 11...	97	.130	.040	.030	<10	20
11...	94	--	--	--	--	--
11...	94	--	--	--	--	--
11...	93	--	--	--	--	--
11...	93	--	--	--	--	--
11...	93	.100	.060	.040	<10	20

Table 7.--Chemical-quality survey of Cedar Creek Reservoir, Jan 11, 1979--Continued

## 321403096060601 SITE Cc

Date	Time	Sam- pling depth (feet)	Spe- cific con- duct- ance ( $\mu$ S/cm)	pH (stand- ard units)	Temper- ature ( $^{\circ}$ C)	Oxygen, dis- solved (mg/L)	Oxygen, dis- solved (per- cent satu- ration)
Jan							
11...	1316	1.00	230	7.5	6.0	11.8	98
11...	1317	10.0	230	7.5	6.0	11.7	97
11...	1319	20.0	230	7.5	5.5	11.7	96
11...	1321	30.0	230	7.5	5.5	11.7	96
11...	1323	40.0	230	7.5	5.5	11.7	96
11...	1324	51.0	230	7.5	5.5	11.7	96

## 321548096082301 SITE Dc

Date	Time	Sam- pling depth (feet)	Spe- cific con- duct- ance ( $\mu$ S/cm)	pH (stand- ard units)	Temper- ature ( $^{\circ}$ C)	Trans- par- ency (secchi disk) (m)	Oxygen, dis- solved (mg/L)	Oxygen, dis- solved (per- cent satu- ration)	Hard- ness (mg/L CaCO <sub>3</sub> )
Jan									
11...	1355	1.00	230	7.5	4.5	1.00	12.2	98	65
11...	1358	10.0	230	7.5	4.5	--	12.2	98	--
11...	1401	20.0	230	7.5	4.5	--	12.1	97	--
11...	1404	30.0	230	7.5	4.5	--	12.1	97	--
11...	1407	45.0	230	7.5	4.5	--	11.6	93	68

Date	Hard- ness, noncar- bonate (mg/L CaCO <sub>3</sub> )	Calcium, dis- solved (mg/L)	Magne- sium, dis- solved (mg/L)	Sodium, dis- solved (mg/L)	Sodium ad- sorp- tion ratio	Potas- sium, dis- solved (mg/L)	Bicar- bonate, fet-fld (mg/L)	Alka- linity, field (mg/L CaCO <sub>3</sub> )	Car- bonate, fet-fld (mg/L)
Jan									
11...	9	19	4.2	16	.9	4.1	68	56	0
11...	--	--	--	--	--	--	--	--	--
11...	--	--	--	--	--	--	--	--	--
11...	--	--	--	--	--	--	--	--	--
11...	12	20	4.3	18	1	4.0	68	56	0

Date	Sulfate, dis- solved (mg/L)	Chlo- ride, dis- solved (mg/L)	Silica, dis- solved (mg/L)	Solids, sum of consti- tuents, dis- solved (mg/L)	Nitro- gen, NO <sub>2</sub> +NO <sub>3</sub> total (mg/L)	Nitro- gen, ammonia total (mg/L)	Phos- phorus, total (mg/L)	Iron, dis- solved ( $\mu$ g/L)	Manga- nese, dis- solved ( $\mu$ g/L)
Jan									
11...	24	21	1.8	120	.060	.020	.040	<10	2
11...	--	--	--	--	--	--	--	--	--
11...	--	--	--	--	.070	.020	.040	<10	<10
11...	--	--	--	--	--	--	--	--	--
11...	25	21	1.9	130	.060	.020	.040	<0	9

Table 7.--Chemical-quality survey of Cedar Creek Reservoir, Jan 11, 1979--Continued

## 321818096064301 SITE Ec

Date	Time	Sam- pling depth (feet)	Spe- cific con- duct- ance ( $\mu$ S/cm)	pH (stand- ard units)	Temper- ature ( $^{\circ}$ C)	Trans- par- ency (secchi disk) (m)	Oxygen, dis- solved (mg/L)
Jan							
11...	1425	1.00	230	7.6	3.5	1.00	12.8
11...	1429	10.0	230	7.6	3.5	--	12.6
11...	1433	21.0	230	7.6	4.0	--	12.5

Date	Oxygen, dis- solved (per- cent satu- ration)	Nitro- gen, NO <sub>2</sub> +NO <sub>3</sub> total (mg/L)	Nitro- gen, ammonia total (mg/L)	Phos- phorus, total (mg/L)	Iron, dis- solved ( $\mu$ g/L)	Manga- nese, dis- solved ( $\mu$ g/L)
Jan						
11...	99	.050	.020	.040	<10	20
11...	98	--	--	--	--	--
11...	98	.060	.020	.040	<10	<10

## 321843096101701 SITE Fc

Date	Time	Sam- pling depth (feet)	Spe- cific con- duct- ance ( $\mu$ S/cm)	pH (stand- ard units)	Temper- ature ( $^{\circ}$ C)	Oxygen, dis- solved (mg/L)	Oxygen, dis- solved (per- cent satu- ration)
Jan							
11...	1450	1.00	223	7.5	3.5	12.5	97
11...	1452	10.0	223	7.5	3.5	12.4	96
11...	1454	20.0	223	7.5	3.5	12.3	95
11...	1456	33.0	223	7.5	4.0	11.7	92

## 322119096104901 SITE Gr

Date	Time	Sam- pling depth (feet)	Spe- cific con- duct- ance ( $\mu$ S/cm)	pH (stand- ard units)	Temper- ature ( $^{\circ}$ C)	Oxygen, dis- solved (mg/L)	Oxygen, dis- solved (per- cent satu- ration)
Jan							
11...	1509	1.00	223	7.5	3.0	12.6	97
11...	1510	10.0	223	7.5	3.0	12.4	95
11...	1512	17.0	223	7.5	3.0	12.1	93

Table 7.--Chemical-quality survey of Cedar Creek Reservoir, Jan 11, 1979--Continued

322119096095401 SITE Gc

Date	Time	Sam- pling depth (feet)	Spe- cific con- duct- ance ( $\mu$ S/cm)	pH (stand- ard units)	Temper- ature ( $^{\circ}$ C)	Trans- par- ency (secchi disk (m)	Oxygen, dis- solved (mg/L)	Oxygen, dis- solved (per- cent satu- ration)	Hard- ness (mg/L CaCO <sub>3</sub> )
Jan									
11...	1525	1.00	223	7.5	3.0	.40	12.9	99	64
11...	1533	10.0	223	7.5	3.0	--	12.9	99	--
11...	1540	20.0	223	7.5	3.5	--	12.2	95	64
Date	Hard- ness, noncar- bonate (mg/L CaCO <sub>3</sub> )	Calcium, dis- solved (mg/L)	Magne- sium, dis- solved (mg/L)	Sodium, dis- solved (mg/L)	Sodium ad- sorp- tion ratio	Potas- sium, dis- solved (mg/L)	Bicar- bonate, fet-fl'd (mg/L)	Alka- linity, field (mg/L CaCO <sub>3</sub> )	Car- bonate, fet-fl'd (mg/L)
Jan									
11...	10	19	4.0	16	.9	7.2	66	54	0
11...	--	--	--	--	--	--	--	--	--
11...	10	19	4.0	16	.9	3.8	66	54	0
Date	Sulfate, dis- solved (mg/L)	Chlo- ride, dis- solved (mg/L)	Silica, dis- solved (mg/L)	Solids, sum of consti- tuents, dis- solved (mg/L)	Nitro- gen, NO <sub>2</sub> +NO <sub>3</sub> total (mg/L)	Nitro- gen, ammonia total (mg/L)	Phos- phorus, total (mg/L)	Iron, dis- solved ( $\mu$ g/L)	Manga- nese, dis- solved ( $\mu$ g/L)
Jan									
11...	24	20	2.3	120	.050	.060	.070	<10	3
11...	--	--	--	--	--	--	--	--	--
11...	26	20	2.4	120	.070	.060	.070	<10	5

Table 8.--Chemical-quality survey of Cedar Creek Reservoir, May 25, 1979

[ $\mu\text{S/cm}$ , microsiemens per centimeter at 25° Celsius; °C, degrees Celsius; m, meters; mg/L, milligrams per liter;  $\mu\text{g/L}$ , micrograms per liter; fet-fl'd, fixed end point titration-field]

321111096042901 SITE Ar

Date	Time	Sam- pling depth (feet)	Spe- cific con- duct- ance ( $\mu\text{S/cm}$ )	pH (stand- ard units)	Temper- ature (°C)	Oxygen, dis- solved (mg/L)	Oxygen, dis- solved (per- cent satu- ration)
May							
25...	1015	1.00	220	7.7	22.0	7.7	88
25...	1017	10.0	220	7.7	22.0	7.7	88
25...	1019	20.0	220	7.6	22.0	7.6	86
25...	1021	27.0	220	7.6	22.0	7.5	85

321113096041201 SITE Ac

Date	Time	Sam- pling depth (feet)	Spe- cific con- duct- ance ( $\mu\text{S/cm}$ )	pH (stand- ard units)	Temper- ature (°C)	Trans- par- ency (secchi disk (m))	Oxygen, dis- solved (mg/L)	Oxygen, dis- solved (per- cent satu- ration)	Hard- ness (mg/L $\text{CaCO}_3$ )	Hard- ness, noncar- bonate (mg/L $\text{CaCO}_3$ )
May										
25...	0945	1.00	220	7.7	22.0	.60	7.8	89	64	13
25...	0947	10.0	220	7.7	22.0	--	7.8	88	--	--
25...	0949	20.0	220	7.7	22.0	--	7.7	88	--	--
25...	0951	30.0	220	7.7	22.0	--	7.7	88	--	--
25...	0953	40.0	220	7.2	20.5	--	5.9	66	--	--
25...	0955	50.0	229	6.9	19.5	--	3.5	38	--	--
25...	0957	62.0	231	6.9	19.0	--	2.1	23	68	16

Date	Calcium, dis- solved (mg/L)	Magne- sium, dis- solved (mg/L)	Sodium, dis- solved (mg/L)	Sodium ad- sorp- tion ratio	Potas- sium, dis- solved (mg/L)	Bicar- bonate, fet-fl'd (mg/L)	Alka- linity, field (mg/L $\text{CaCO}_3$ )	Car- bonate, fet-fl'd (mg/L)	Sulfate, dis- solved (mg/L)	Chlo- ride, dis- solved (mg/L)
May										
25...	19	4.1	16	.9	3.9	62	51	0	29	18
25...	--	--	--	--	--	--	--	--	--	--
25...	--	--	--	--	--	--	--	--	--	--
25...	--	--	--	--	--	--	--	--	--	--
25...	--	--	--	--	--	--	--	--	--	--
25...	20	4.3	16	.9	4.0	64	52	0	29	19

Date	Fluo- ride, dis- solved (mg/L)	Silica, dis- solved (mg/L)	Solids, sum of consti- tuents, dis- solved (mg/L)	Nitro- gen, $\text{NO}_2+\text{NO}_3$ total (mg/L)	Nitro- gen, ammonia total (mg/L)	Phos- phorus, total (mg/L)	Arsenic, dis- solved ( $\mu\text{g/L}$ )	Barium, dis- solved ( $\mu\text{g/L}$ )	Cadmium, dis- solved ( $\mu\text{g/L}$ )
May									
25...	.20	2.3	120	.260	.020	.030	1	<100	<2
25...	--	--	--	--	--	--	--	--	--
25...	--	--	--	--	--	--	--	--	--
25...	--	--	--	.260	.030	.030	--	--	--
25...	--	--	--	--	--	--	--	--	--
25...	--	--	--	.400	.020	.050	--	--	--
25...	--	3.4	130	.400	.040	.040	1	<100	<2

Table 8.--Chemical-quality survey of Cedar Creek Reservoir, May 25, 1979--Continued

## 321113096041201 SITE Ac--Continued

Date	Chromium, dissolved (µg/L)	Copper, dissolved (µg/L)	Iron, dissolved (µg/L)	Lead, dissolved (µg/L)	Manganese, dissolved (µg/L)	Mercury, dissolved (µg/L)	Selenium, dissolved (µg/L)	Silver, dissolved (µg/L)	Zinc, dissolved (µg/L)
May 25...	ND	ND	40	2	<10	<.1	<1	ND	<20
25...	--	--	--	--	--	--	--	--	--
25...	--	--	--	--	--	--	--	--	--
25...	--	--	50	--	<10	--	--	--	--
25...	--	--	--	--	--	--	--	--	--
25...	--	--	60	--	200	--	--	--	--
25...	ND	<2	50	2	590	<.1	<1	ND	ND

## 321116096035301 SITE A1

Date	Time	Sampling depth (feet)	Specific conductance (µS/cm)	pH (standard units)	Temperature (°C)	Oxygen, dissolved (mg/L)	Oxygen, dissolved (percent saturation)
May 25...	0925	1.00	220	7.7	22.0	7.8	90
25...	0927	10.0	220	7.7	22.0	7.7	88
25...	0929	20.0	220	7.7	22.0	7.7	88
25...	0931	30.0	220	7.6	22.0	7.6	86
25...	0933	44.0	220	7.1	20.0	5.4	59

## 321227096032701 SITE Bc

Date	Time	Sampling depth (feet)	Specific conductance (µS/cm)	pH (Standard units)	Temperature (°C)	Transparency (secchi disk) (m)	Oxygen, dissolved (mg/L)
May 25...	0903	1.00	220	7.6	21.5	.70	7.5
25...	0905	10.0	220	7.6	21.5	--	7.5
25...	0907	20.0	220	7.6	21.5	--	7.4
25...	0909	30.0	220	7.6	21.5	--	7.4
25...	0911	40.0	220	7.0	20.0	--	3.9
25...	0913	50.0	230	6.9	19.0	--	2.2

Date	Oxygen, dissolved (percent saturation)	Nitrogen, NO <sub>2</sub> +NO <sub>3</sub> total (mg/L)	Nitrogen, ammonia total (mg/L)	Phosphorus, total (mg/L)	Iron, dissolved (µg/L)	Manganese, dissolved (µg/L)
May 25...	84	.260	.030	.030	40	60
25...	84	--	--	--	--	--
25...	83	--	--	--	--	--
25...	83	--	--	--	--	--
25...	43	--	--	--	--	--
25...	24	.350	.060	.040	40	450

Table 8.--Chemical-quality survey of Cedar Creek Reservoir, May 25, 1979--Continued

321403096060601 SITE Cc

Date	Time	Sam- pling depth (feet)	Spe- cific con- duct- ance ( $\mu$ S/cm)	pH (stand- ard units)	Temper- ature ( $^{\circ}$ C)	Oxygen, dis- solved (mg/L)	Oxygen, dis- solved (per- cent satu- ration)
May							
25...	0840	1.00	210	7.4	21.0	6.9	77
25...	0842	10.0	210	7.4	21.0	6.8	76
25...	0844	20.0	210	7.4	21.0	6.8	76
25...	0846	30.0	210	7.4	21.0	6.8	76
25...	0848	40.0	221	7.1	20.0	5.0	55
25...	0850	50.0	221	7.0	20.0	4.3	47

321548096082301 SITE Dc

Date	Time	Sam- pling depth (feet)	Spe- cific con- duct- ance ( $\mu$ S/cm)	pH (stand- ard units)	Temper- ature ( $^{\circ}$ C)	Trans- par- ency (secchi disk (m)	Oxygen, dis- solved (mg/L)	Oxygen, dis- solved (per- cent satu- ration)	Hard- ness (mg/L CaCO <sub>3</sub> )
May									
25...	0806	1.00	208	7.4	21.5	.30	6.8	76	61
25...	0808	10.0	208	7.4	21.5	--	6.8	76	--
25...	0810	20.0	208	7.3	21.5	--	6.6	74	--
25...	0812	30.0	211	7.2	21.0	--	5.9	66	--
25...	0814	39.0	211	7.2	21.0	--	5.6	63	65

Date	Hard- ness, noncar- bonate (mg/L CaCO <sub>3</sub> )	Calcium, dis- solved (mg/L)	Magne- sium, dis- solved (mg/L)	Sodium, dis- solved (mg/L)	Sodium ad- sorp- tion ratio	Potas- sium, dis- solved (mg/L)	Bicar- bonate, fet-fld (mg/L)	Alka- linity, field (mg/L CaCO <sub>3</sub> )	Car- bonate, fet-fld (mg/L)
May									
25...	10	18	3.8	14	.8	3.9	62	51	0
25...	--	--	--	--	--	--	--	--	--
25...	--	--	--	--	--	--	--	--	--
25...	--	--	--	--	--	--	--	--	--
25...	14	19	4.2	15	.8	4.0	62	51	0

Date	Sulfate, dis- solved (mg/L)	Chlo- ride, dis- solved (mg/L)	Silica, dis- solved (mg/L)	Solids, sum of consti- tuents, dis- solved (mg/L)	Nitro- gen, NO <sub>2</sub> +NO <sub>3</sub> total (mg/L)	Nitro- gen, ammonia total (mg/L)	Phos- phorus, total (mg/L)	Iron, dis- solved ( $\mu$ g/L)	Manga- nese, dis- solved ( $\mu$ g/L)
May									
25...	26	15	2.8	110	.460	.030	.060	90	<10
25...	--	--	--	--	--	--	--	--	--
25...	--	--	--	--	.450	.010	.050	90	<10
25...	--	--	--	--	.420	.030	.050	40	<10
25...	26	15	2.8	120	.440	.030	.060	830	100

Table 8.--Chemical-quality survey of Cedar Creek Reservoir, May 25, 1979--Continued

## 321818096064301 SITE Ec

Date	Time	Sam- pling depth (feet)	Spe- cific con- duct- ance ( $\mu$ S/cm)	pH (Stand- ard units)	Temper- ature ( $^{\circ}$ C)	Trans- par- ency (secchi disk) (m)	Oxygen, dis- solved (mg/L)
May							
25...	0727	1.00	208	7.3	22.0	.20	6.5
25...	0729	10.0	208	7.3	22.0	--	6.4
25...	0731	20.0	208	7.2	21.5	--	5.5

Date	Oxygen, dis- solved (per- cent satu- ration)	Nitro- gen, NO <sub>2</sub> +NO <sub>3</sub> total (mg/L)	Nitro- gen, ammonia total (mg/L)	Phos- phorus, total (mg/L)	Iron, dis- solved ( $\mu$ g/L)	Manga- nese, dis- solved ( $\mu$ g/L)
May						
25...	74	.400	.030	.060	960	50
25...	73	--	--	--	--	--
25...	62	.470	.030	.070	740	70

## 321843096101701 SITE Fc

Date	Time	Sam- pling depth (feet)	Spe- cific con- duct- ance ( $\mu$ S/cm)	pH (stand- ard units)	Temper- ature ( $^{\circ}$ C)	Oxygen, dis- solved (mg/L)	Oxygen, dis- solved (per- cent satu- ration)
May							
25...	0705	1.00	178	7.5	22.0	7.2	82
25...	0707	10.0	178	7.5	22.0	7.2	82
25...	0709	20.0	178	7.5	22.0	7.1	81
25...	0711	33.0	200	7.2	21.5	5.8	65

## 322119096104901 SITE Gr

Date	Time	Sam- pling depth (feet)	Spe- cific con- duct- ance ( $\mu$ S/cm)	pH (stand- ard units)	Temper- ature ( $^{\circ}$ C)	Oxygen, dis- solved (mg/L)	Oxygen, dis- solved (per- cent satu- ration)
May							
25...	1128	1.00	168	7.4	23.0	7.1	83
25...	1130	10.0	165	7.3	22.5	7.0	80
25...	1132	20.0	165	7.3	22.5	7.0	80

Table 8.--Chemical-quality survey of Cedar Creek Reservoir, May 25, 1979--Continued

322119096095401 SITE Gc

Date	Time	Sam- pling depth (feet)	Spe- cific con- duct- ance ( $\mu$ S/cm)	pH (stand- ard units)	Temper- ature ( $^{\circ}$ C)	Trans- par- ency (secchi disk) (m)	Oxygen, dis- solved (mg/L)	Oxygen, dis- solved (per- cent satu- ration)	Hard- ness (mg/L CaCO <sub>3</sub> )
May									
25...	1100	1.00	183	7.3	23.0	.20	6.9	80	56
25...	1102	10.0	178	7.3	22.5	--	6.8	78	--
25...	1104	20.0	178	7.3	22.5	--	6.7	77	--
25...	1106	26.0	178	7.3	22.5	--	6.7	77	56
Date	Hard- ness, noncar- bonate (mg/L CaCO <sub>3</sub> )	Calcium, dis- solved (mg/L)	Magne- sium, dis- solved (mg/L)	Sodium, dis- solved (mg/L)	Sodium ad- sorp- tion ratio	Potas- sium, dis- solved (mg/L)	Bicar- bonate fet-fld (mg/L)	Alka- linity field (mg/L CaCO <sub>3</sub> )	Car- bonate fet-fld (mg/L)
May									
25...	10	17	3.4	12	.7	3.8	57	47	0
25...	--	--	--	--	--	--	--	--	--
25...	--	--	--	--	--	--	--	--	--
25...	10	17	3.2	12	.7	3.7	56	46	0
Date	Sulfate, dis- solved (mg/L)	Chlo- ride, dis- solved (mg/L)	Silica, dis- solved (mg/L)	Solids, sum of consti- tuents, dis- solved (mg/L)	Nitro- gen, NO <sub>2</sub> +NO <sub>3</sub> total (mg/L)	Nitro- gen, ammonia total (mg/L)	Phos- phorus, total (mg/L)	Iron, dis- solved ( $\mu$ g/L)	Manga- nese, dis- solved ( $\mu$ g/L)
May									
25...	23	11	3.8	100	.510	.060	.090	90	<10
25...	--	--	--	--	.510	.030	.100	230	<10
25...	--	--	--	--	--	--	--	--	--
25...	23	11	4.2	100	.530	.020	.120	90	<10

Table 9.--Chemical-quality survey of Cedar Creek Reservoir, August 14, 1979

[ $\mu$ S/cm, microsiemens per centimeter at 25° Celsius; °C, degrees Celsius; m, meters; mg/L, milligrams per liter;  $\mu$ g/L, micrograms per liter; fet-fld, fixed end point titration-field]

321111096042901 SITE Ar

Date	Time	Sam- pling depth (feet)	Spe- cific con- duct- ance ( $\mu$ S/cm)	pH (stand- ard units)	Temper- ature (°C)	Oxygen, dis- solved (mg/L)	Oxygen, dis- solved (per- cent satu- ration)
Aug							
14...	1300	1.00	210	7.8	29.5	7.1	92
14...	1302	10.0	210	7.5	28.5	6.7	85
14...	1304	20.0	210	7.1	28.5	4.3	55
14...	1306	32.0	210	7.0	28.5	2.7	34

321113096041201 SITE Ac

Date	Time	Sam- pling depth (feet)	Spe- cific con- duct- ance ( $\mu$ S/cm)	pH (stand- ard units)	Temper- ature (°C)	Trans- par- ency (secchi disk) (m)	Oxygen, dis- solved (mg/L)	Oxygen, dis- solved (per- cent satu- ration)	Hard- ness (mg/L CaCO <sub>3</sub> )	Hard- ness, noncar- bonate (mg/L CaCO <sub>3</sub> )
Aug										
14...	1325	1.00	210	7.8	29.5	1.30	7.4	96	64	12
14...	1327	10.0	210	7.5	28.5	--	6.7	86	--	--
14...	1329	20.0	210	7.2	28.5	--	5.4	69	--	--
14...	1331	30.0	210	6.8	28.0	--	1.9	24	--	--
14...	1333	40.0	232	6.8	26.0	--	.5	6	--	--
14...	1335	50.0	232	6.8	23.5	--	.5	6	--	--
14...	1337	58.0	241	6.8	23.0	--	.4	5	71	0

Date	Calcium, dis- solved (mg/L)	Magne- sium, dis- solved (mg/L)	Sodium, dis- solved (mg/L)	Sodium ad- sorp- tion ratio	Potas- sium, dis- solved (mg/L)	Bicar- bonate, fet-fld (mg/L)	Atka- linity, field (mg/L CaCO <sub>3</sub> )	Car- bonate, fet-fld (mg/L)	Sulfate, dis- solved (mg/L)	Chlo- ride, dis- solved (mg/L)
Aug										
14...	19	3.9	15	.9	3.6	63	52	0	24	16
14...	--	--	--	--	--	--	--	--	--	--
14...	--	--	--	--	--	--	--	--	--	--
14...	--	--	--	--	--	--	--	--	--	--
14...	--	--	--	--	--	--	--	--	--	--
14...	21	4.4	16	.9	3.6	92	75	0	19	18

Date	Fluo- ride, dis- solved (mg/L)	Silica, dis- solved (mg/L)	Solids, sum of consti- tuents, dis- solved	Nitro- gen, NO <sub>2</sub> +NO <sub>3</sub> total (mg/L)	Nitro- gen, ammonia total (mg/L)	Phos- phorus, total (mg/L)	Arsenic, dis- solved ( $\mu$ g/L)	Barium, dis- solved ( $\mu$ g/L)	Cadmium, dis- solved ( $\mu$ g/L)
Aug									
14...	.20	2.3	110	.010	.010	.010	1	<100	ND
14...	--	--	--	--	--	--	--	--	--
14...	--	--	--	.020	.090	.010	--	--	--
14...	--	--	--	--	--	--	--	--	--
14...	--	--	--	<.100	.200	.040	--	--	--
14...	--	--	--	--	--	--	--	--	--
14...	--	8.3	140	.010	.810	.480	--	--	--

Table 9.--Chemical-quality survey of Cedar Creek Reservoir, August 14, 1979--Continued

321113096041201 SITE Ac--Continued

Date	Chromium, dissolved (µg/L)	Copper, dissolved (µg/L)	Iron, dissolved (µg/L)	Lead, dissolved (µg/L)	Manganese, dissolved (µg/L)	Mercury, dissolved (µg/L)	Selenium, dissolved (µg/L)	Silver, dissolved (µg/L)	Zinc, dissolved (µg/L)
Aug 14...	ND	2	<10	ND	<10	.2	<1	ND	6
14...	--	--	--	--	--	--	--	--	--
14...	--	--	<10	--	160	--	--	--	--
14...	--	--	--	--	--	--	--	--	--
14...	--	--	1300	--	1300	--	--	--	--
14...	--	--	--	--	--	--	--	--	--
14...	--	--	--	--	--	--	--	--	--

321116096035301 SITE A1

Date	Time	Sampling depth (feet)	Specific conductance (µS/cm)	pH (standard units)	Temperature (°C)	Oxygen, dissolved (mg/L)	Oxygen, dissolved (percent saturation)
Aug 14...	1420	1.00	210	8.0	29.5	7.8	101
14...	1422	10.0	210	7.8	29.0	7.4	95
14...	1424	20.0	210	7.4	28.5	6.4	82
14...	1426	30.0	210	7.2	28.5	5.4	69
14...	1428	39.0	210	6.8	26.0	.3	4

321227096032701 SITE Bc

Date	Time	Sampling depth (feet)	Specific conductance (µS/cm)	pH (standard units)	Temperature (°C)	Transparency (secchi disk) (m)	Oxygen, dissolved (mg/L)
Aug 14...	1436	1.00	210	8.6	30.5	1.30	8.8
14...	1438	10.0	210	8.3	29.0	--	8.0
14...	1440	20.0	210	7.3	29.0	--	5.1
14...	1442	30.0	210	6.9	28.0	--	.4
14...	1444	40.0	232	6.9	26.0	--	.4
14...	1446	48.0	232	6.9	25.0	--	.4

Date	Oxygen, dissolved (percent saturation)	Nitrogen, NO <sub>2</sub> +NO <sub>3</sub> total (mg/L)	Nitrogen, ammonia total (mg/L)	Phosphorus, total (mg/L)	Iron, dissolved (µg/L)	Manganese, dissolved (µg/L)
Aug 14...	116	.010	.010	.010	<10	20
14...	103	--	--	--	--	--
14...	65	--	--	--	--	--
14...	5	--	--	--	--	--
14...	5	--	--	--	--	--
14...	5	<.100	.400	.150	2100	2100

Table 9.--Chemical-quality survey of Cedar Creek Reservoir, August 14, 1979--Continued

3214030960601 SITE Cc

Date	Time	Sam- pling depth (feet)	Spe- cific con- duct- ance ( $\mu$ S/cm)	pH (stand- ard units)	Temper- ature ( $^{\circ}$ C)	Oxygen, dis- solved (mg/L)	Oxygen, dis- solved (per- cent satu- ration)
Aug							
14...	1505	1.00	210	8.9	30.0	9.8	129
14...	1507	10.0	210	8.7	29.5	9.7	126
14...	1509	20.0	210	8.1	28.5	7.5	96
14...	1511	30.0	210	7.0	27.5	2.4	30
14...	1513	40.0	219	6.8	26.0	.4	5
14...	1515	50.0	219	6.8	24.5	.4	5

321548096082301 SITE Dc

Date	Time	Sam- pling depth (feet)	Spe- cific con- duct- ance ( $\mu$ S/cm)	pH (stand- ard units)	Temper- ature ( $^{\circ}$ C)	Trans- par- ency (secchi disk) (m)	Oxygen, dis- solved (mg/L)	Oxygen, dis- solved (per- cent satu- ration)	Hard- ness (mg/L CaCO <sub>3</sub> )
Aug									
14...	1210	1.00	204	8.7	30.0	1.10	9.0	118	63
14...	1212	10.0	204	8.0	29.0	--	7.2	92	--
14...	1214	20.0	204	7.9	29.0	--	6.9	88	--
14...	1216	30.0	213	7.2	28.5	--	4.4	56	--
14...	1218	38.0	213	6.8	27.5	--	2.0	25	66

Date	Hard- ness, noncar- bonate (mg/L CaCO <sub>3</sub> )	Calcium, dis- solved (mg/L)	Magne- sium, dis- solved (mg/L)	Sodium, dis- solved (mg/L)	Sodium ad- sorp- tion ratio	Potas- sium, dis- solved (mg/L)	Bicar- bonate, fet-fl'd (mg/L)	Alka- linity, field (mg/L CaCO <sub>3</sub> )	Car- bonate, fet-fl'd (mg/L)
Aug									
14...	11	19	3.8	15	.9	3.6	63	52	0
14...	--	--	--	--	--	--	--	--	--
14...	--	--	--	--	--	--	--	--	--
14...	--	--	--	--	--	--	--	--	--
14...	10	20	4.0	15	.8	3.7	70	57	0

Date	Sulfate, dis- solved (mg/L)	Chlo- ride, dis- solved (mg/L)	Silica, dis- solved (mg/L)	Solids, sum of consti- tuents, dis- solved (mg/L)	Nitro- gen, NO <sub>2</sub> +NO <sub>3</sub> total (mg/L)	Nitro- gen, ammonia total (mg/L)	Phos- phorus, total (mg/L)	Iron, dis- solved ( $\mu$ g/L)	Manga- nese, dis- solved ( $\mu$ g/L)
Aug									
14...	23	16	2.0	110	.010	.010	.030	<10	20
14...	--	--	--	--	<.100	.010	.030	50	40
14...	--	--	--	--	--	--	--	--	--
14...	--	--	--	--	.010	.010	.030	150	150
14...	22	17	4.2	120	.010	.130	.100	20	680

Table 9.--Chemical-quality survey of Cedar Creek Reservoir, August 14, 1979--Continued

## 321818096064301 SITE Ec

Date	Time	Sam- pling depth (feet)	Spe- cific con- duct- ance ( $\mu$ S/cm)	pH (stand- ard units)	Temper- ature ( $^{\circ}$ C)	Oxygen, dis- solved (mg/L)	Oxygen, dis- solved (per- cent satu- ration)	Nitro- gen, NO <sub>2</sub> +NO <sub>3</sub> total (mg/L)	Nitro- gen, ammonia total (mg/L)	Phos- phorus, total (mg/L)	Iron, dis- solved ( $\mu$ g/L)	Manga- nese, dis- solved ( $\mu$ g/L)
Aug												
14...	1145	1.00	204	8.6	30.0	8.5	112	<.100	.010	.030	<10	<10
14...	1147	10.0	204	8.5	29.5	8.1	105	--	--	--	--	--
14...	1149	20.0	204	7.4	29.0	6.0	77	.010	.020	.040	30	20

## 321843096101701 SITE Fc

Date	Time	Sam- pling depth (feet)	Spe- cific con- duct- ance ( $\mu$ S/cm)	pH (stand- ard units)	Temper- ature ( $^{\circ}$ C)	Oxygen, dis- solved (mg/L)	Oxygen, dis- solved (per- cent satu- ration)
Aug							
14...	1125	1.00	204	8.2	29.5	7.6	99
14...	1127	10.0	204	8.1	29.0	7.3	94
14...	1129	20.0	204	7.4	28.5	5.5	70
14...	1131	32.0	204	7.1	28.5	3.8	48

## 322119096104901 SITE Gr

Date	Time	Sam- pling depth (feet)	Spe- cific con- duct- ance ( $\mu$ S/cm)	pH (stand- ard units)	Temper- ature ( $^{\circ}$ C)	Oxygen, dis- solved (mg/L)	Oxygen, dis- solved (per- cent satu- ration)
Aug							
14...	1100	1.00	201	8.0	29.0	7.5	96
14...	1102	10.0	201	7.7	29.0	6.6	85
14...	1104	18.0	201	7.5	28.5	6.0	76

## 322119096095401 SITE Gc

Date	Time	Sam- pling depth (feet)	Spe- cific con- duct- ance ( $\mu$ S/cm)	pH (stand- ard units)	Temper- ature ( $^{\circ}$ C)	Trans- par- ency (secchi disk) (m)	Oxygen, dis- solved (mg/L)	Oxygen, dis- solved (per- cent satu- ration)	Hard- ness (mg/L CaCO <sub>3</sub> )
Aug									
14...	1020	1.00	201	8.2	29.0	.64	7.8	100	62
14...	1022	10.0	201	7.9	29.0	--	7.3	94	--
14...	1024	20.0	201	7.1	28.5	--	4.6	59	--
14...	1026	26.0	206	7.0	28.5	--	3.9	50	63

Table 9.--Chemical-quality survey of Cedar Creek Reservoir, August 14, 1979--Continued

322119096095401 SITE Gc--Continued

Date	Hardness, noncarbonate (mg/L CaCO <sub>3</sub> )	Calcium, dissolved (mg/L)	Magnesium, dissolved (mg/L)	Sodium, dissolved (mg/L)	Sodium adsorption ratio	Potassium, dissolved (mg/L)	Bicarbonate, field (mg/L)	Alkalinity, field (mg/L CaCO <sub>3</sub> )	Carbonate, field (mg/L)
Aug									
14...	10	19	3.6	15	.9	3.6	64	52	0
14...	--	--	--	--	--	--	--	--	--
14...	--	--	--	--	--	--	--	--	--
14...	10	19	3.7	14	.8	3.7	65	53	0

Date	Sulfate, dissolved (mg/L)	Chloride, dissolved (mg/L)	Silica, dissolved (mg/L)	Solids, sum of constituents, dissolved (mg/L)	Nitrogen, NO <sub>2</sub> +NO <sub>3</sub> total (mg/L)	Nitrogen, ammonia total (mg/L)	Phosphorus, total (mg/L)	Iron, dissolved (µg/L)	Manganese, dissolved (µg/L)
Aug									
14...	23	14	1.7	110	<.100	.010	.050	60	<10
14...	--	--	--	--	.010	.010	.040	<10	<10
14...	--	--	--	--	--	--	--	--	--
14...	23	15	2.1	110	.010	.080	.070	<10	40

Table 10.--Chemical-quality survey of Cedar Creek Reservoir, January 24, 1980

[ $\mu$ S/cm, microsiemens per centimeter at 25° Celsius; °C, degrees Celsius; m, meters; mg/L, milligrams per liter;  $\mu$ g/L, micrograms per liter; fet-fl'd, fixed end point tritration-field]

321111096042901 SITE Ar

Date	Time	Sam- pling depth (feet)	Spe- cific con- duct- ance ( $\mu$ S/cm)	pH (stand- ard units)	Temper- ature (°C)	Oxygen, dis- solved (mg/L)	Oxygen, dis- solved (per- cent satu- ration)
Jan							
24...	1630	1.00	218	7.7	10.5	10.4	95
24...	1632	10.0	218	7.7	10.5	10.4	95
24...	1634	24.0	218	7.7	10.5	10.3	94

321113096041201 SITE Ac

Date	Time	Sam- pling depth (feet)	Spe- cific con- duct- ance ( $\mu$ S/cm)	pH (stand- ard units)	Temper- ature (°C)	Trans- par- ency (secchi disk) (m)	Oxygen, dis- solved (mg/L)	Oxygen, dis- solved (per- cent satu- ration)	Hard- ness (mg/L CaCO <sub>3</sub> )	Hard- ness, noncar- bonate (mg/L CaCO <sub>3</sub> )
Jan										
24...	1600	1.00	218	7.8	10.5	1.20	10.5	95	64	10
24...	1602	10.0	218	7.8	10.5	--	10.5	95	--	--
24...	1604	20.0	218	7.8	10.5	--	10.4	94	--	--
24...	1606	30.0	218	7.7	10.5	--	10.3	93	--	--
24...	1608	40.0	218	7.7	10.5	--	10.3	93	--	--
24...	1610	50.0	218	7.7	10.5	--	10.2	93	--	--
24...	1612	60.0	218	7.6	10.5	--	10.1	92	64	10

Date	Calcium, dis- solved (mg/L)	Magne- sium, dis- solved (mg/L)	Sodium, dis- solved (mg/L)	Sodium ad- sorp- tion ratio	Potas- sium, dis- solved (mg/L)	Bicar- bonate, fet-fl'd (mg/L)	Alka- linity, field (mg/L CaCO <sub>3</sub> )	Car- bonate, fet-fl'd (mg/L)	Sulfate, dis- solved (mg/L)	Chlo- ride, dis- solved (mg/L)
Jan										
24...	19	4.0	16	.9	4.0	66	54	0	23	17
24...	--	--	--	--	--	--	--	--	--	--
24...	--	--	--	--	--	--	--	--	--	--
24...	--	--	--	--	--	--	--	--	--	--
24...	--	--	--	--	--	--	--	--	--	--
24...	19	4.1	15	.8	3.9	66	54	0	23	17

Date	Fluo- ride, dis- solved (mg/L)	Silica, dis- solved (mg/L)	Solids, sum of consti- tuents, dis- solved (mg/L)	Nitro- gen, NO <sub>2</sub> +NO <sub>3</sub> total (mg/L)	Nitro- gen, ammonia total (mg/L)	Nitro- gen, total (mg/L)	Phos- phorus, total (mg/L)	Arsenic, dis- solved ( $\mu$ g/L)	Barium, dis- solved ( $\mu$ g/L)	Cadmium, dis- solved ( $\mu$ g/L)
Jan										
24...	.20	3.2	120	.030	.27	.30	.030	1	50	<1
24...	--	--	--	--	--	--	--	--	--	--
24...	--	--	--	--	--	--	--	--	--	--
24...	--	--	--	.030	.34	.37	.010	--	--	--
24...	--	--	--	--	--	--	--	--	--	--
24...	--	--	--	--	--	--	--	--	--	--
24...	--	3.1	120	.030	.34	.37	.030	1	50	<1

Table 10.--Chemical-quality survey of Cedar Creek Reservoir, January 24, 1980--Continued

## 321113096041201 SITE Ac--Continued

Date	Chromium, dissolved (µg/L)	Copper, dissolved (µg/L)	Iron, dissolved (µg/L)	Lead, dissolved (µg/L)	Manganese, dissolved (µg/L)	Mercury, dissolved (µg/L)	Selenium, dissolved (µg/L)	Silver, dissolved (µg/L)	Zinc, dissolved (µg/L)
Jan 24...	0	0	<10	0	1	.0	0	0	<3
24...	--	--	--	--	--	--	--	--	--
24...	--	--	--	--	--	--	--	--	--
24...	--	--	50	--	0	--	--	--	--
24...	--	--	--	--	--	--	--	--	--
24...	--	--	--	--	--	--	--	--	--
24...	0	1	40	0	60	.0	0	0	3

## 321116096035301 SITE A1

Date	Time	Sampling depth (feet)	Specific conductance (µS/cm)	pH (standard units)	Temperature (°C)	Oxygen, dissolved (mg/L)	Oxygen, dissolved (percent saturation)
Jan 24...	1545	1.00	218	7.8	10.5	10.7	97
24...	1547	10.0	218	7.8	10.5	10.7	97
24...	1549	20.0	218	7.8	10.5	10.7	97
24...	1551	30.0	218	7.8	10.5	10.7	97
24...	1553	40.0	218	7.8	10.5	10.6	96
24...	1555	45.0	218	7.8	10.5	10.6	96

## 321227096032701 SITE Bc

Date	Time	Sampling depth (feet)	Specific conductance (µS/cm)	pH (standard units)	Temperature (°C)	Transparency (secchi disk (m))	Oxygen, dissolved (mg/L)
Jan 24...	1515	1.00	218	7.7	10.5	1.20	10.5
24...	1518	10.0	218	7.7	10.5	--	10.5
24...	1520	20.0	218	7.7	10.5	--	10.4
24...	1522	30.0	218	7.7	10.5	--	10.4
24...	1524	40.0	218	7.7	10.5	--	10.3
24...	1526	49.0	218	7.6	10.5	--	10.1

Date	Oxygen, dissolved (percent saturation)	Nitrogen, NO <sub>2</sub> +NO <sub>3</sub> total (mg/L)	Nitrogen, ammonia total (mg/L)	Nitrogen, total (mg/L)	Phosphorus, total (mg/L)	Iron, dissolved (µg/L)	Manganese, dissolved (µg/L)
Jan 24...	95	.040	.22	.26	.010	10	0
24...	95	--	--	--	--	--	--
24...	94	--	--	--	--	--	--
24...	94	--	--	--	--	--	--
24...	93	--	--	--	--	--	--
24...	91	.040	.32	.36	.010	20	0

Table 10.--Chemical-quality survey of Cedar Creek Reservoir, January 24, 1980--Continued

3214030960601 SITE Cc

Date	Time	Sam- pling depth (feet)	Spe- cific con- duct- ance ( $\mu$ S/cm)	pH (stand- ard units)	Temper- ature ( $^{\circ}$ C)	Oxygen, dis- solved (mg/L)	Oxygen, dis- solved (per- cent satu- ration)
Jan							
24...	1450	1.00	218	7.8	10.5	10.7	97
24...	1452	10.0	218	7.8	10.5	10.7	97
24...	1454	20.0	218	7.8	10.5	10.7	97
24...	1456	30.0	218	7.8	10.5	10.7	97
24...	1458	40.0	218	7.8	10.5	10.7	97
24...	1500	50.0	218	7.8	10.5	10.6	96

321548096082301 SITE Dc

Date	Time	Sam- pling depth (feet)	Spe- cific con- duct- ance ( $\mu$ S/cm)	pH (stand- ard units)	Temper- ature ( $^{\circ}$ C)	Trans- par- ency (secchi disk) (m)	Oxygen, dis- solved (mg/L)	Oxygen, dis- solved (per- cent satu- ration)	Hard- ness (mg/L CaCO <sub>3</sub> )	Hard- ness, noncar- bonate (mg/L CaCO <sub>3</sub> )
Jan										
24...	1415	1.00	211	7.7	10.5	.80	10.5	95	60	7
24...	1418	10.0	211	7.7	10.5	--	10.5	95	--	--
24...	1420	20.0	211	7.7	10.5	--	10.5	95	--	--
24...	1422	30.0	211	7.7	10.5	--	10.5	95	--	--
24...	1424	41.0	215	7.5	10.0	--	10.1	90	60	6

Date	Calcium, dis- solved (mg/L)	Magne- sium, dis- solved (mg/L)	Sodium, dis- solved (mg/L)	Sodium ad- sorp- tion ratio	Potas- sium, dis- solved (mg/L)	Bicar- bonate, fet-fld (mg/L)	Alka- linity, field (mg/L CaCO <sub>3</sub> )	Car- bonate, fet-fld (mg/L)	Sulfate, dis- solved (mg/L)
Jan									
24...	18	3.6	14	.8	3.9	64	53	0	24
24...	--	--	--	--	--	--	--	--	--
24...	--	--	--	--	--	--	--	--	--
24...	--	--	--	--	--	--	--	--	--
24...	18	3.7	15	.9	3.8	66	54	0	24

Date	Chlo- ride, dis- solved (mg/L)	Silica, dis- solved (mg/L)	Solids, sum of consti- tuents, dis- solved (mg/L)	Nitro- gen, NO <sub>2</sub> +NO <sub>3</sub> total (mg/L)	Nitro- gen, am- monia + organic total (mg/L)	Nitro- gen, total (mg/L)	Phos- phorus, total (mg/L)	Iron, dis- solved ( $\mu$ g/L)	Manga- nese, dis- solved ( $\mu$ g/L)
Jan									
24...	18	3.3	120	.040	.47	.51	.040	20	<1
24...	--	--	--	--	--	--	--	--	--
24...	--	--	--	.040	.47	.51	.040	60	0
24...	--	--	--	--	--	--	--	--	--
24...	17	3.0	120	.040	.43	.47	.030	10	5

Table 10.--Chemical-quality survey of Cedar Creek Reservoir, January 24, 1980--Continued

## 321818096064301 SITE Ec

Date	Time	Sam- pling depth (feet)	Spe- cific con- duct- ance ( $\mu$ S/cm)	pH (stand- ard units)	Temper- ature ( $^{\circ}$ C)	Trans- par- ency (secchi disk) (m)	Oxygen, dis- solved (mg/L)
Jan							
24...	1350	1.00	241	7.4	10.5	.40	10.0
24...	1352	10.0	241	7.4	10.5	--	10.0
24...	1354	20.0	222	7.3	10.5	--	9.8

Date	Oxygen, dis- solved (per- cent satu- ration)	Nitro- gen, NO <sub>2</sub> +NO <sub>3</sub> total (mg/L)	Nitro- gen, ammonia total (mg/L)	Nitro- gen, total (mg/L)	Phos- phorus, total (mg/L)	Iron, dis- solved ( $\mu$ g/L)	Manga- nese, dis- solved ( $\mu$ g/L)
Jan							
24...	90	.060	.44	.50	.060	70	20
24...	90	--	--	--	--	--	--
24...	89	.060	.42	.48	.070	60	10

## 321843096101701 SITE Fc

Date	Time	Sam- pling depth (feet)	Spe- cific con- duct- ance ( $\mu$ S/cm)	pH (stand- ard units)	Temper- ature ( $^{\circ}$ C)	Oxygen, dis- solved (mg/L)	Oxygen, dis- solved (per- cent satu- ration)
Jan							
24...	1330	1.00	206	7.7	10.5	10.7	97
24...	1332	10.0	206	7.6	10.5	10.7	97
24...	1334	20.0	206	7.6	10.5	10.6	96
24...	1336	27.0	206	7.5	10.0	10.3	92

## 322119096104901 SITE Gr

Date	Time	Sam- pling depth (feet)	Spe- cific con- duct- ance ( $\mu$ S/cm)	pH (stand- ard units)	Temper- ature ( $^{\circ}$ C)	Oxygen, dis- solved (mg/L)	Oxygen, dis- solved (per- cent satu- ration)
Jan							
24...	1740	1.00	150	7.3	10.0	9.7	87
24...	1742	10.0	148	7.3	10.0	9.7	87
24...	1744	18.0	145	7.2	10.0	9.6	86

Table 10.--Chemical-quality survey of Cedar Creek Reservoir, January 24, 1980--Continued

322119096095401 SITE Gc

Date	Time	Sam- pling depth (feet)	Spe- cific con- duct- ance ( $\mu$ S/cm)	pH (stand- ard units)	Temper- ature ( $^{\circ}$ C)	Trans- par- ency (secchi disk (m)	Oxygen, dis- solved (mg/L)	Oxygen, dis- solved (per- cent satu- ration)	Hard- ness (mg/L CaCO <sub>3</sub> )	Hard- ness, noncar- bonate (mg/L CaCO <sub>3</sub> )
Jan										
24...	1715	1.00	204	7.6	10.0	.30	10.5	94	57	6
24...	1718	10.0	204	7.6	10.0	--	10.5	94	--	--
24...	1720	24.0	204	7.6	10.0	--	10.4	93	57	7

Date	Calcium, dis- solved (mg/L)	Magne- sium, dis- solved (mg/L)	Sodium, dis- solved (mg/L)	Sodium ad- sorp- tion ratio	Potas- sium, dis- solved (mg/L)	Bicar- bonate, fet- fid (mg/L)	Alka- linity, field (mg/L CaCO <sub>3</sub> )	Car- bonate, fet- fid (mg/L)	Sulfate, dis- solved (mg/L)
Jan									
24...	17	3.6	15	.9	3.9	62	51	0	23
24...	--	--	--	--	--	--	--	--	--
24...	17	3.5	15	.9	3.8	61	50	0	24

Date	Chlo- ride, dis- solved (mg/L)	Silica, dis- solved (mg/L)	Solids, sum of consti- tuents, dis- solved (mg/L)	Nitro- gen, NO <sub>2</sub> +NO <sub>3</sub> total (mg/L)	Nitro- gen, am- monia + organic total (mg/L)	Nitro- gen, total (mg/L)	Phos- phorus, total (mg/L)	Iron, dis- solved ( $\mu$ g/L)	Manga- nese, dis- solved ( $\mu$ g/L)
Jan									
24...	17	4.6	110	.100	.22	.32	.060	80	3
24...	--	--	--	.090	.43	.52	.040	50	0
24...	15	4.4	110	.100	.43	.53	.060	160	20

Table 11.--Chemical-quality survey of Cedar Creek Reservoir, May 7,1980

[ $\mu$ S/cm, microsiemens per centimeter at 25° Celsius; °C, degrees Celsius; m, meters; mg/L, milligrams per liter;  $\mu$ g/L, micrograms per liter; fet-fl'd, fixed end point titration-field]

321111096042901 SITE Ar

Date	Time	Sam- pling depth (feet)	Spe- cific con- duct- ance ( $\mu$ S/cm)	pH (stand- ard units)	Temper- ature (°C)	Oxygen, dis- solved (mg/L)	Oxygen, dis- solved (per- cent satu- ration)
May							
07...	1410	1.00	211	7.8	21.5	8.4	95
07...	1412	10.0	211	7.6	20.0	8.0	89
07...	1414	20.0	211	7.4	19.0	7.4	80
07...	1416	30.0	213	7.0	17.5	5.6	59
07...	1418	40.0	213	6.9	16.5	4.5	46
07...	1420	50.0	215	6.9	16.5	4.3	44
07...	1422	56.0	215	6.9	16.5	3.9	40

321113096041201 SITE Ac

Date	Time	Sam- pling depth (feet)	Spe- cific con- duct- ance ( $\mu$ S/cm)	pH (stand- ard units)	Temper- ature (°C)	Trans- par- ency (secchi disk (m)	Oxygen, dis- solved (mg/L)	Oxygen, dis- solved (per- cent satu- ration)	Hard- ness (mg/L CaCO <sub>3</sub> )	Hard- ness, noncar- bonate (mg/L CaCO <sub>3</sub> )
May										
07...	1426	1.00	211	7.8	22.0	1.22	8.3	95	62	14
07...	1428	10.0	211	7.7	20.5	--	8.1	91	--	--
07...	1430	20.0	211	7.4	19.5	--	7.4	81	--	--
07...	1432	30.0	213	7.0	17.5	--	4.8	51	--	--
07...	1434	40.0	213	6.9	17.0	--	4.4	46	--	--
07...	1436	50.0	215	6.9	17.0	--	4.0	42	--	--
07...	1438	61.0	215	6.8	17.0	--	3.7	39	65	16

Date	Calcium, dis- solved (mg/L)	Magne- sium, dis- solved (mg/L)	Sodium, dis- solved (mg/L)	Sodium ad- sorp- tion ratio	Potas- sium, dis- solved (mg/L)	Bicar- bonate, fet-fl'd (mg/L)	Atka- linity, field (mg/L CaCO <sub>3</sub> )	Car- bonate, fet-fl'd (mg/L)	Sulfate, dis- solved (mg/L)	Chlo- ride, dis- solved (mg/L)
May										
07...	18	4.1	15	.9	5.0	58	48	0	25	16
07...	--	--	--	--	--	--	--	--	--	--
07...	--	--	--	--	--	--	--	--	--	--
07...	--	--	--	--	--	--	--	--	--	--
07...	--	--	--	--	--	--	--	--	--	--
07...	19	4.2	17	1	3.8	60	49	0	25	17

Table 11.--Chemical-quality survey of Cedar Creek Reservoir, May 7,1980--Continued

## 321113096041201 SITE Ac--Continued

Date	Fluoride, dissolved (mg/L)	Silica, dissolved (mg/L)	Solids, sum of constituents, dissolved (mg/L)	Nitrogen, NO <sub>2</sub> +NO <sub>3</sub> total (mg/L)	Nitrogen, ammonia total (mg/L)	Nitrogen, total (mg/L)	Phosphorus, total (mg/L)	Arsenic, dissolved (µg/L)	Barium, dissolved (µg/L)	Cadmium, dissolved (µg/L)
May										
07...	.10	2.7	110	.020	.67	.69	.020	--	--	--
07...	--	--	--	--	--	--	--	--	--	--
07...	--	--	--	.030	.76	.79	.020	--	--	--
07...	--	--	--	.130	1.5	1.6	.030	--	--	--
07...	--	--	--	--	--	--	--	--	--	--
07...	--	--	--	--	--	--	--	--	--	--
07...	--	4.0	120	.140	1.3	1.4	.040	1	50	2

Date	Chromium, dissolved (µg/L)	Copper, dissolved (µg/L)	Iron, dissolved (µg/L)	Lead, dissolved (µg/L)	Manganese, dissolved (µg/L)	Mercury, dissolved (µg/L)	Selenium, dissolved (µg/L)	Silver, dissolved (µg/L)	Zinc, dissolved (µg/L)
May									
07...	--	--	--	--	--	--	--	--	--
07...	--	--	--	--	--	--	--	--	--
07...	--	--	--	--	--	--	--	--	--
07...	--	--	10	--	10	--	--	--	--
07...	--	--	20	--	60	--	--	--	--
07...	--	--	--	--	--	--	--	--	--
07...	--	--	--	--	--	--	--	--	--
07...	0	0	10	0	150	.4	0	0	<3

## 321116096035301 SITE A1

Date	Time	Sam-pling depth (feet)	Spe-cific con-ductance (µS/cm)	pH (stand-ard units)	Temper-ature (°C)	Oxygen, dis-solved (mg/L)	Oxygen, dis-solved (per-cent saturation)
May							
07...	1355	1.00	211	8.2	22.5	9.2	107
07...	1358	10.0	211	8.1	21.0	9.1	102
07...	1400	20.0	211	7.2	18.0	6.7	71
07...	1402	30.0	213	7.0	17.5	5.8	61
07...	1404	39.0	213	6.9	17.0	4.9	51

## 321227096032701 SITE Bc

Date	Time	Sam-pling depth (feet)	Spe-cific con-ductance (µS/cm)	pH (stand-ard units)	Temper-ature (°C)	Trans-par-ency (secchi disk) (m)	Oxygen, dis-solved (mg/L)
May							
07...	1330	1.00	211	8.0	23.0	1.19	8.7
07...	1332	10.0	211	7.9	20.5	--	8.3
07...	1334	20.0	211	7.5	20.0	--	7.6
07...	1336	30.0	213	7.1	18.0	--	5.5
07...	1338	40.0	215	6.9	17.0	--	4.5
07...	1340	52.0	215	6.8	16.5	--	3.8

Table 11.--Chemical-quality survey of Cedar Creek Reservoir, May 7,1980--Continued

## 321227096032701 SITE Bc--Continued

Date	Oxygen, dissolved (percent saturation)	Nitrogen, NO <sub>2</sub> +NO <sub>3</sub> total (mg/L)	Nitrogen, ammonia + organic total (mg/L)	Nitrogen, total (mg/L)	Phosphorus, total (mg/L)	Iron, dissolved (ug/L)	Manganese, dissolved (ug/L)
May							
07...	102	.020	.83	.85	.030	50	20
07...	92	--	--	--	--	--	--
07...	84	--	--	--	--	--	--
07...	59	--	--	--	--	--	--
07...	47	--	--	--	--	--	--
07...	39	.190	.86	1.1	.040	30	160

## 321403096060601 SITE Cc

Date	Time	Sam-pling depth (feet)	Spe-cific con-duct-ance (uS/cm)	pH (stand-ard units)	Temper-ature (°C)	Oxygen, dis-solved (mg/L)	Oxygen, dis-solved (per-cent saturation)
May							
07...	1312	1.00	208	8.1	22.5	9.0	105
07...	1314	10.0	208	7.6	20.5	8.2	92
07...	1316	20.0	208	7.4	20.0	7.9	88
07...	1318	30.0	209	7.1	18.0	6.3	67
07...	1320	42.0	212	6.8	17.0	4.2	44

## 321548096082301 SITE Dc

Date	Time	Sam-pling depth (feet)	Spe-cific con-duct-ance (uS/cm)	pH (stand-ard units)	Temper-ature (°C)	Trans-parency (secchi disk (m))	Oxygen, dis-solved (mg/L)	Oxygen, dis-solved (per-cent saturation)	Hard-ness (mg/L CaCO <sub>3</sub> )	Hard-ness, noncar-bonate (mg/L CaCO <sub>3</sub> )
May										
07...	1247	1.00	208	7.9	21.5	.64	8.7	99	61	14
07...	1250	10.0	208	7.4	20.0	--	7.8	87	--	--
07...	1252	20.0	208	7.1	18.5	--	6.4	69	--	--
07...	1254	30.0	208	7.0	18.0	--	5.8	62	--	--
07...	1256	41.0	208	6.9	18.0	--	5.2	55	61	15

Date	Calcium, dis-solved (mg/L)	Magne-sium, dis-solved (mg/L)	Sodium, dis-solved (mg/L)	Sodium ad-sorp-tion ratio	Potas-sium, dis-solved (mg/L)	Bicar-bonate, fet-fld (mg/L)	Alka-linity, field (mg/L CaCO <sub>3</sub> )	Car-bonate, fet-fld (mg/L)	Sulfate, dis-solved (mg/L)
May									
07...	18	4.0	15	.9	3.8	58	48	0	25
07...	--	--	--	--	--	--	--	--	--
07...	--	--	--	--	--	--	--	--	--
07...	--	--	--	--	--	--	--	--	--
07...	18	4.0	14	.8	3.8	57	47	0	26

Table 11.--Chemical-quality survey of Cedar Creek Reservoir, May 7, 1980--Continued

## 321548096082301 SITE Dc

Date	Chloride, dissolved (mg/L)	Silica, dissolved (mg/L)	Solids, sum of constituents, dissolved (mg/L)	Nitrogen, NO <sub>2</sub> +NO <sub>3</sub> total (mg/L)	Nitrogen, ammonia + organic total (mg/L)	Nitrogen, total (mg/L)	Phosphorus, total (mg/L)	Iron, dissolved (µg/L)	Manganese, dissolved (µg/L)
May									
07...	16	3.3	110	.030	.71	.74	.040	230	20
07...	--	--	--	--	--	--	--	--	--
07...	--	--	--	.100	.68	.78	.040	290	40
07...	--	--	--	--	--	--	--	--	--
07...	17	3.7	110	.070	.76	.83	.050	50	10

## 321818096064301 SITE Ec

Date	Time	Sampling depth (feet)	Specific conductance (µS/cm)	pH (standard units)	Temperature (°C)	Transparency (secchi disk) (m)	Oxygen, dissolved (mg/L)
May							
07...	1226	1.00	218	8.1	24.0	.55	8.7
07...	1228	10.0	218	7.9	22.5	--	8.0
07...	1230	21.0	218	7.2	21.5	--	6.8

Date	Oxygen, dissolved (percent saturation)	Nitrogen, NO <sub>2</sub> +NO <sub>3</sub> total (mg/L)	Nitrogen, ammonia total (mg/L)	Nitrogen, total (mg/L)	Phosphorus, total (mg/L)	Iron, dissolved (µg/L)	Manganese, dissolved (µg/L)
May							
07...	104	.010	.79	.80	.040	20	0
07...	93	--	--	--	--	--	--
07...	77	.030	.77	.80	.050	40	0

## 321843096101701 SITE Fc

Date	Time	Sampling depth (feet)	Specific conductance (µS/cm)	pH (standard units)	Temperature (°C)	Oxygen, dissolved (mg/L)	Oxygen, dissolved (percent saturation)
May							
07...	1205	1.00	206	8.2	24.0	9.1	108
07...	1208	10.0	206	7.1	21.0	7.0	79
07...	1210	20.0	206	6.8	19.0	5.4	59
07...	1212	30.0	206	6.8	18.5	4.7	51
07...	1214	35.0	206	6.7	18.5	4.5	48

Table 11.--Chemical-quality survey of Cedar Creek Reservoir, May 7,1980--Continued

322119096104901 SITE Gr

Date	Time	Sam- pling depth (feet)	Spe- cific con- duct- ance ( $\mu$ S/cm)	pH (stand- ard units)	Temper- ature ( $^{\circ}$ C)	Oxygen, dis- solved (mg/L)	Oxygen, dis- solved (per- cent satu- ration)
May							
07...	1545	1.00	200	7.2	25.5	7.6	93
07...	1548	10.0	200	7.0	21.0	6.6	74
07...	1550	18.0	200	7.0	21.5	6.3	72

322119096095401 SITE Gc

Date	Time	Sam- pling depth (feet)	Spe- cific con- duct- ance ( $\mu$ S/cm)	pH (stand- ard units)	Temper- ature ( $^{\circ}$ C)	Trans- par- ency (secchi disk) (m)	Oxygen, dis- solved (mg/L)	Oxygen, dis- solved (per- cent satu- ration)	Hard- ness (mg/L CaCO <sub>3</sub> )	Hard- ness, noncar- bonate (mg/L CaCO <sub>3</sub> )
May										
07...	1530	1.00	200	7.3	23.0	.30	7.3	86	61	18
07...	1533	10.0	200	7.1	22.0	--	6.7	77	--	--
07...	1536	20.0	200	7.0	21.0	--	6.4	72	--	--
07...	1540	29.0	206	6.7	20.5	--	3.7	41	61	16

Date	Calcium, dis- solved (mg/L)	Magne- sium, dis- solved (mg/L)	Sodium, dis- solved (mg/L)	Sodium ad- sorp- tion ratio	Potas- sium, dis- solved (mg/L)	Bicar- bonate, fet-flid (mg/L)	Alka- linity, field (mg/L CaCO <sub>3</sub> )	Car- bonate, fet-flid (mg/L)	Sulfate, dis- solved (mg/L)
May									
07...	18	3.9	13	.8	3.9	53	43	0	26
07...	--	--	--	--	--	--	--	--	--
07...	--	--	--	--	--	--	--	--	--
07...	18	4.0	13	.7	4.0	56	46	0	26

Date	Chlo- ride, dis- solved (mg/L)	Silica, dis- solved (mg/L)	Solids, sum of consti- tuents, dis- solved	Nitro- gen, NO <sub>2</sub> +NO <sub>3</sub> total (mg/L)	Nitro- gen, am- monia + organic total (mg/L)	Nitro- gen, total (mg/L)	Phos- phorus, total (mg/L)	Iron, dis- solved ( $\mu$ g/L)	Manga- nese, dis- solved ( $\mu$ g/L)
May									
07...	15	6.1	110	.100	.84	.94	.080	640	60
07...	--	--	--	--	--	--	--	--	--
07...	--	--	--	.190	.88	1.1	.090	540	70
07...	15	7.1	120	.080	1.1	1.2	.100	820	140

Table 12.--Chemical-quality survey of Cedar Creek Reservoir, August 27, 1980

[ $\mu\text{S}/\text{cm}$ , microsiemens per centimeter at 25° Celsius; °C, degrees Celsius; m, meters; mg/L, milligrams per liter;  $\mu\text{g}/\text{L}$ , micrograms per liter; fet-fl'd, fixed end point titration-field]

321111096042901 SITE Ar

Date	Time	Sam- pling depth (feet)	Spe- cific con- duct- ance ( $\mu\text{S}/\text{cm}$ )	pH (stand- ard units)	Temper- ature (°C)	Oxygen, dis- solved (mg/L)	Oxygen, dis- solved (per- cent satu- ration)
Aug							
27...	1650	1.00	225	8.0	30.0	8.3	108
27...	1652	10.0	225	8.0	29.0	8.7	112
27...	1654	21.0	225	7.4	28.5	6.7	85

321113096041201 SITE Ac

Date	Time	Sam- pling depth (feet)	Spe- cific con- duct- ance ( $\mu\text{S}/\text{cm}$ )	pH (stand- ard units)	Temper- ature (°C)	Trans- par- ency (secchi disk (m))	Oxygen, dis- solved (mg/L)	Oxygen, dis- solved (per- cent satu- ration)	Hard- ness (mg/L $\text{CaCO}_3$ )	Hard- ness, noncar- bonate (mg/L $\text{CaCO}_3$ )
Aug										
27...	1605	1.00	225	8.0	30.0	1.46	8.0	104	68	14
27...	1607	10.0	225	7.9	29.0	--	7.9	101	--	--
27...	1609	20.0	225	7.5	28.0	--	7.0	88	--	--
27...	1611	30.0	225	6.6	27.5	--	1.6	20	--	--
27...	1613	35.0	225	6.6	27.5	--	.0	0	--	--
27...	1615	40.0	234	6.6	23.5	--	.0	0	--	--
27...	1617	50.0	237	6.6	20.0	--	.0	0	--	--
27...	1619	59.0	242	6.6	19.5	--	.0	0	69	0

Date	Calcium, dis- solved (mg/L)	Magne- sium, dis- solved (mg/L)	Sodium, dis- solved (mg/L)	Sodium ad- sorp- tion ratio	Potas- sium, dis- solved (mg/L)	Bicar- bonate, fet-fl'd (mg/L)	Alka- linity, field (mg/L $\text{CaCO}_3$ )	Car- bonate, fet-fl'd (mg/L)	Sulfate, dis- solved (mg/L)	Chlo- ride, dis- solved
Aug										
27...	20	4.3	16	.9	4.1	66	54	0	25	19
27...	--	--	--	--	--	--	--	--	--	--
27...	--	--	--	--	--	--	--	--	--	--
27...	--	--	--	--	--	--	--	--	--	--
27...	--	--	--	--	--	--	--	--	--	--
27...	--	--	--	--	--	--	--	--	--	--
27...	20	4.5	16	.9	3.9	100	82	0	11	18

Table 12.--Chemical-quality survey of Cedar Creek Reservoir, August 27, 1980--Continued

321113096041201 SITE Ac--Continued

Date	Fluoride, dissolved (mg/L)	Silica, dissolved (mg/L)	Solids, sum of constituents, dissolved (mg/L)	Nitrogen, NO <sub>2</sub> +NO <sub>3</sub> total (mg/L)	Nitrogen, ammonia total (mg/L)	Nitrogen, total (mg/L)	Phosphorus, total (mg/L)	Arsenic, dissolved (µg/L)	Barium, dissolved (µg/L)	Cadmium, dissolved (µg/L)
Aug										
27...	.20	3.6	120	.010	.32	.33	.000	2	40	<1
27...	--	--	--	--	--	--	--	--	--	--
27...	--	--	--	.020	.33	.35	.030	--	--	--
27...	--	--	--	--	--	--	--	--	--	--
27...	--	--	--	.020	.26	.28	.030	--	--	--
27...	--	--	--	--	--	--	--	--	--	--
27...	--	--	--	--	--	--	--	--	--	--
27...	--	9.2	140	.010	.82	.83	.640	11	90	<1

Date	Chromium, dissolved (µg/L)	Copper, dissolved (µg/L)	Iron, dissolved (µg/L)	Lead, dissolved (µg/L)	Manganese, dissolved (µg/L)	Mercury, dissolved (µg/L)	Selenium, dissolved (µg/L)	Silver, dissolved (µg/L)	Zinc, dissolved (µg/L)
Aug									
27...	0	0	<10	0	3	.0	0	0	<3
27...	--	--	--	--	--	--	--	--	--
27...	--	--	30	--	10	--	--	--	--
27...	--	--	--	--	--	--	--	--	--
27...	--	--	30	--	70	--	--	--	--
27...	--	--	--	--	--	--	--	--	--
27...	--	--	--	--	--	--	--	--	--
27...	0	0	2000	5	3400	.0	0	0	<3

321116096035301 SITE A1

Date	Time	Sampling depth (feet)	Specific conductance (µS/cm)	pH (standard units)	Temperature (°C)	Oxygen, dissolved (mg/L)	Oxygen, dissolved (percent saturation)
Aug							
27...	1635	1.00	225	8.0	30.0	8.0	104
27...	1637	10.0	225	8.0	28.5	8.4	106
27...	1639	20.0	225	7.5	28.0	7.0	88
27...	1641	30.0	225	6.5	27.5	.5	6
27...	1643	40.0	234	6.7	23.5	.0	0
27...	1645	41.0	236	6.6	20.5	.0	0

321227096032701 SITE Bc

Date	Time	Sampling depth (feet)	Specific conductance (µS/cm)	pH (standard units)	Temperature (°C)	Transparency (secchi disk) (m)	Oxygen, dissolved (mg/L)
Aug							
27...	1540	1.00	225	8.2	31.0	1.65	8.3
27...	1542	10.0	225	8.1	29.0	--	8.5
27...	1544	20.0	225	7.1	28.5	--	5.3
27...	1546	25.0	225	6.8	28.0	--	3.7
27...	1548	30.0	225	6.5	27.5	--	.2
27...	1550	40.0	236	6.7	24.0	--	.0
27...	1552	47.0	236	6.6	21.0	--	.0

Table 12.--Chemical-quality survey of Cedar Creek Reservoir, August 27, 1980--Continued

## 321227096032701 SITE Bc--Continued

Date	Oxygen, dissolved (percent saturation)	Nitrogen, NO <sub>2</sub> +NO <sub>3</sub> total (mg/L)	Nitrogen, ammonia total (mg/L)	Nitrogen, total (mg/L)	Phosphorus, total (mg/L)	Iron, dissolved (µg/L)	Manganese, dissolved (µg/L)
Aug 27...	109	.010	.29	.30	.020	10	100
27...	109	--	--	--	--	--	--
27...	67	--	--	--	--	--	--
27...	46	--	--	--	--	--	--
27...	2	--	--	--	--	--	--
27...	0	--	--	--	--	--	--
27...	0	.010	.28	.29	.300	1600	2700

## 321403096060601 SITE Cc

Date	Time	Sam-pling depth (feet)	Spe-cific con-ductance (µS/cm)	pH (stand-ard units)	Temper-ature (°C)	Oxygen, dissolved (mg/L)	Oxygen, dissolved (percent saturation)
Aug 27...	1518	1.00	225	8.3	31.0	8.8	116
27...	1520	10.0	225	7.8	29.0	7.2	92
27...	1522	20.0	225	7.3	28.5	6.0	76
27...	1524	30.0	225	6.8	28.0	2.7	34
27...	1526	35.0	225	6.6	27.5	.0	0
27...	1528	40.0	247	6.7	24.0	.0	0
27...	1530	49.0	247	6.7	22.0	.0	0

## 321548096082301 SITE Dc

Date	Time	Sam-pling depth (feet)	Spe-cific con-ductance (µS/cm)	pH (stand-ard units)	Temper-ature (°C)	Trans-parency (secchi disk) (m)	Oxygen, dissolved (mg/L)	Oxygen, dissolved (percent saturation)	Hard-ness (mg/L CaCO <sub>3</sub> )	Hard-ness, noncar-bonate (mg/L CaCO <sub>3</sub> )
Aug 27...	1445	1.00	225	8.4	32.0	1.13	8.9	119	65	10
27...	1447	10.0	225	8.3	29.5	--	8.6	112	--	--
27...	1449	20.0	228	7.6	29.0	--	6.0	77	--	--
27...	1451	30.0	228	7.1	29.0	--	4.8	62	--	--
27...	1453	40.0	249	6.7	26.5	--	.0	0	74	0

Date	Calcium, dissolved (mg/L)	Magne-sium, dis-solved (mg/L)	Sodium, dis-solved (mg/L)	Sodium ad-sorp-tion ratio	Potas-sium, dis-solved (mg/L)	Bicar-bonate, fet-fld (mg/L)	Alka-linity, field (mg/L CaCO <sub>3</sub> )	Car-bonate, fet-fld (mg/L)	Sulfate, dis-solved (mg/L)
Aug 27...	19	4.2	16	.9	4.4	67	55	0	28
27...	--	--	--	--	--	--	--	--	--
27...	--	--	--	--	--	--	--	--	--
27...	--	--	--	--	--	--	--	--	--
27...	22	4.7	16	.8	4.1	95	78	0	18

Table 12.--Chemical-quality survey of Cedar Creek Reservoir, August 27, 1980--Continued

321548096082301 SITE Dc--Continued

Date	Chloride, dissolved (mg/L)	Silica, dissolved (mg/L)	Solids, sum of constituents, dissolved (mg/L)	Nitrogen, NO <sub>2</sub> +NO <sub>3</sub> total (mg/L)	Nitrogen, ammonia + organic total (mg/L)	Nitrogen, total (mg/L)	Phosphorus, total (mg/L)	Iron, dissolved (µg/L)	Manganese, dissolved (µg/L)
Aug 27...	19	3.3	130	.000	.19	.19	.000	40	6
27...	--	--	--	--	--	--	--	--	--
27...	--	--	--	--	--	--	--	--	--
27...	--	--	--	.010	.40	.41	.050	30	120
27...	19	7.8	140	.010	2.0	2.0	.600	0	3

321818096064301 SITE Ec

Date	Time	Sampling depth (feet)	Specific conductance (µS/cm)	pH (standard units)	Temperature (°C)	Transparency (secchi disk (m))	Oxygen, dissolved (mg/L)
Aug 27...	1415	1.00	227	8.5	32.0	1.01	9.7
27...	1417	10.0	227	8.3	30.0	--	8.3
27...	1419	18.0	232	7.7	30.0	--	5.8

Date	Oxygen, dissolved (percent saturation)	Nitrogen, NO <sub>2</sub> +NO <sub>3</sub> total (mg/L)	Nitrogen, ammonia total (mg/L)	Nitrogen, total (mg/L)	Phosphorus, total (mg/L)	Iron, dissolved (µg/L)	Manganese, dissolved (µg/L)
Aug 27...	129	.000	.53	.53	.040	80	30
27...	108	--	--	--	--	--	--
27...	75	.000	.51	.51	.060	110	20

321843096101701 SITE Fc

Date	Time	Sampling depth (feet)	Specific conductance (µS/cm)	pH (standard units)	Temperature (°C)	Oxygen, dissolved (mg/L)	Oxygen, dissolved (percent saturation)
Aug 27...	1400	1.00	227	8.5	31.5	9.3	122
27...	1402	10.0	227	8.0	30.0	7.3	95
27...	1404	20.0	235	6.9	29.5	3.5	45
27...	1406	32.0	235	6.8	29.0	2.8	36

Table 12.--Chemical-quality survey of Cedar Creek Reservoir, August 27, 1980--Continued

322119096095401 SITE Gc

Date	Time	Sam- pling depth (feet)	Spe- cific con- duct- ance ( $\mu$ S/cm)	pH (stand- ard units)	Temper- ature ( $^{\circ}$ C)	Trans- par- ency (secchi disk) (m)	Oxygen, dis- solved (mg/L)	Oxygen, dis- solved (per- cent satu- ration)	Hard- ness (mg/L CaCO <sub>3</sub> )	Hard- ness, noncar- bonate (mg/L CaCO <sub>3</sub> )
Aug										
27...	1745	1.00	233	8.4	30.0	.60	8.7	113	67	11
27...	1747	10.0	233	7.6	29.0	--	6.3	81	--	--
27...	1749	17.0	237	7.0	29.0	--	3.7	47	67	9

Date	Calcium, dis- solved (mg/L)	Magne- sium, dis- solved (mg/L)	Sodium, dis- solved (mg/L)	Sodium ad- sorp- tion ratio	Potas- sium, dis- solved (mg/L)	Bicar- bonate, fet-fl'd (mg/L)	Alka- linity, field (mg/L CaCO <sub>3</sub> )	Car- bonate, fet-fl'd (mg/L)	Sulfate, dis- solved (mg/L)
Aug									
27...	20	4.1	16	.9	4.5	66	56	1	27
27...	--	--	--	--	--	--	--	--	--
27...	20	4.1	17	.9	4.4	71	58	0	27

Date	Chlo- ride, dis- solved (mg/L)	Silica, dis- solved (mg/L)	Solids, sum of consti- tuents, dis- solved (mg/L)	Nitro- gen, NO <sub>2</sub> +NO <sub>3</sub> total (mg/L)	Nitro- gen, am- monia + organic total (mg/L)	Nitro- gen, total (mg/L)	Phos- phorus, total (mg/L)	Iron, dis- solved ( $\mu$ g/L)	Manga- nese, dis- solved ( $\mu$ g/L)
Aug									
27...	20	4.9	130	.010	.60	.61	.040	150	30
27...	--	--	--	.000	.41	.41	.060	10	10
27...	20	4.4	130	.010	.95	.96	.120	<10	100

Table 13.--Chemical-quality survey of Cedar Creek Reservoir, March 10, 1981

[ $\mu$ S/cm, microsiemens per centimeter at 25° Celsius; °C, degrees Celsius; m, meters; mg/L, milligrams per liter;  $\mu$ g/L, micrograms per liter; fet-fld, fixed end point tritration-field]

321111096042901 SITE Ar

Date	Time	Sam- pling depth (feet)	Spe- cific con- duct- ance ( $\mu$ S/cm)	pH (stand- ard units)	Temper- ature (°C)	Oxygen, dis- solved (mg/L)	Oxygen, dis- solved (per- cent satu- ration)
Mar							
10...	1320	1.00	238	7.5	13.5	10.5	100
10...	1322	10.0	238	7.5	12.5	10.3	95
10...	1324	20.0	238	7.4	12.0	10.1	93
10...	1326	30.0	238	7.4	12.0	10.0	92
10...	1328	40.0	238	7.4	12.0	9.9	91

321112096041201 SITE Ac

Date	Time	Sam- pling depth (feet)	Spe- cific con- duct- ance ( $\mu$ S/cm)	pH (stand- ard units)	Temper- ature (°C)	Trans- par- ency (secchi disk) (m)	Oxygen, dis- solved (mg/L)	Oxygen, dis- solved (per- cent satu- ration)	Hard- ness, (mg/L CaCO <sub>3</sub> )	Hard- ness, noncar- bonate (mg/L CaCO <sub>3</sub> )
Mar										
10...	13	1.00	238	7.6	14.0	1.30	10.3	99	73	17
10...	13	5.0	238	7.6	13.0	--	10.3	95	--	--
10...	13	10.0	238	7.5	12.5	--	10.0	93	--	--
10...	13	20.0	238	7.3	12.0	--	9.8	90	--	--
10...	13	30.0	238	7.3	12.0	--	9.8	90	--	--
10...	13	40.0	238	7.3	12.0	--	9.7	89	--	--
10...	13	52.0	238	7.3	12.0	--	9.6	88	68	12

Date	Calcium, dis- solved (mg/L)	Magne- sium, dis- solved (mg/L)	Sodium, dis- solved (mg/L)	Sodium ad- sorp- tion ratio	Potas- sium, dis- solved (mg/L)	Alka- linity, field (mg/L CaCO <sub>3</sub> )	Sulfate, dis- solved (mg/L)	Chlo- ride, dis- solved (mg/L)	Fluo- ride, dis- solved (mg/L)
Mar									
10...	22	4.4	19	1	4.0	56	28	22	.20
10...	--	--	--	--	--	--	--	--	--
10...	--	--	--	--	--	--	--	--	--
10...	--	--	--	--	--	--	--	--	--
10...	--	--	--	--	--	--	--	--	--
10...	20	4.4	19	1	4.0	56	27	19	--

Date	Silica, dis- solved (mg/L)	Solids, sum of consti- tuents, dis- solved (mg/L)	Nitro- gen, NO <sub>2</sub> +NO <sub>3</sub> total (mg/L)	Nitro- gen, am- monia + organic total (mg/L)	Nitro- gen, total (mg/L)	Phos- phorus, total (mg/L)	Arsenic, dis- solved ( $\mu$ g/L)	Barium, dis- solved ( $\mu$ g/L)	Cadmium, dis- solved ( $\mu$ g/L)
Mar									
10...	2.8	140	.040	.67	.71	.030	0	60	<1
10...	--	--	--	--	--	--	--	--	--
10...	--	--	--	--	--	--	--	--	--
10...	--	--	.040	.98	1.0	.040	--	--	--
10...	--	--	--	--	--	--	--	--	--
10...	--	--	--	--	--	--	--	--	--
10...	3.0	130	.040	.77	.81	.040	0	60	<1

Table 13.--Chemical-quality survey of Cedar Creek Reservoir, March 10, 1981--Continued

321112096041201 SITE Ac--Continued

Date	Chromium, dissolved (µg/L)	Copper, dissolved (µg/L)	Iron, dissolved (µg/L)	Lead, dissolved (µg/L)	Manganese, dissolved (µg/L)	Mercury, dissolved (µg/L)	Selenium, dissolved (µg/L)	Silver, dissolved (µg/L)	Zinc, dissolved (µg/L)
Mar									
10...	0	<10	<10	<10	3	.0	0	0	30
10...	--	--	--	--	--	--	--	--	--
10...	--	--	--	--	--	--	--	--	--
10...	--	--	30	--	10	--	--	--	--
10...	--	--	--	--	--	--	--	--	--
10...	--	--	--	--	--	--	--	--	--
10...	0	<10	10	15	10	.0	0	0	<3

321116096035301 SITE A1

Date	Time	Sampling depth (feet)	Specific conductance (µS/cm)	pH (standard units)	Temperature (°C)	Oxygen, dissolved (mg/L)	Oxygen, dissolved (percent saturation)
Mar							
10...	1355	1.00	238	7.7	14.0	10.3	98
10...	1357	10.0	238	7.4	12.5	9.8	91
10...	1359	20.0	238	7.4	12.0	9.7	89
10...	1401	30.0	238	7.3	12.0	9.6	88
10...	1403	45.0	238	7.3	12.0	9.3	85

321227096032701 SITE Bc

Date	Time	Sampling depth (feet)	Specific conductance (µS/cm)	pH (standard units)	Temperature (°C)	Transparency (secchi disk) (m)	Oxygen, dissolved (mg/L)
Mar							
10...	1250	1.00	238	7.4	12.5	1.00	10.1
10...	1252	10.0	238	7.4	12.0	--	10.0
10...	1254	20.0	238	7.3	12.0	--	9.7
10...	1256	30.0	238	7.2	12.0	--	9.6
10...	1258	44.0	238	7.0	11.5	--	8.9

Date	Oxygen, dissolved (percent saturation)	Nitrogen, NO <sub>2</sub> +NO <sub>3</sub> total (mg/L)	Nitrogen, ammonia total (mg/L)	Nitrogen, total (mg/L)	Phosphorus, total (mg/L)	Iron, dissolved (µg/L)	Manganese, dissolved (µg/L)
Mar							
10...	94	.040	.62	.66	.040	20	0
10...	92	--	--	--	--	--	--
10...	89	--	--	--	--	--	--
10...	88	--	--	--	--	--	--
10...	81	.050	1.2	1.3	.040	20	40

Table 13.--Chemical-quality survey of Cedar Creek Reservoir, March 10, 1981--Continued

## 321403096060601 SITE Cc

Date	Time	Sam- pling depth (feet)	Spe- cific con- duct- ance ( $\mu$ S/cm)	pH (stand- ard units)	Temper- ature ( $^{\circ}$ C)	Oxygen, dis- solved (mg/L)	Oxygen, dis- solved (per- cent satu- ration)
Mar							
10...	1425	1.00	235	7.5	14.5	10.1	98
10...	1427	10.0	235	7.3	12.5	9.7	90
10...	1429	20.0	235	7.2	12.0	9.3	85
10...	1431	30.0	235	7.1	12.0	9.2	84
10...	1433	40.0	235	7.1	12.0	9.0	83
10...	1435	46.0	235	7.0	12.0	8.7	80

## 321548096082301 SITE Dc

Date	Time	Sam- pling depth (feet)	Spe- cific con- duct- ance ( $\mu$ S/cm)	pH (stand- ard units)	Temper- ature ( $^{\circ}$ C)	Trans- par- ency (secchi disk) (m)	Oxygen, dis- solved (mg/L)	Oxygen, dis- solved (per- cent satu- ration)	Hard- ness (mg/L CaCO <sub>3</sub> )
Mar									
10...	1150	1.00	235	7.6	13.5	.60	10.1	96	67
10...	1152	10.0	235	7.5	13.5	--	9.9	94	--
10...	1154	20.0	235	7.3	13.0	--	9.4	89	--
10...	1156	30.0	235	7.0	12.5	--	9.1	84	--
10...	1158	41.0	235	7.0	12.5	--	8.9	82	68

Date	Hard- ness, noncar- bonate (mg/L CaCO <sub>3</sub> )	Calcium, dis- solved (mg/L)	Magne- sium, dis- solved (mg/L)	Sodium, dis- solved (mg/L)	Sodium ad- sorp- tion ratio	Potas- sium, dis- solved (mg/L)	Alka- linity, field (mg/L CaCO <sub>3</sub> )	Sulfate, dis- solved (mg/L)	Chlo- ride, dis- solved (mg/L)
Mar									
10...	13	20	4.1	18	1	3.9	54	27	18
10...	--	--	--	--	--	--	--	--	--
10...	--	--	--	--	--	--	--	--	--
10...	--	--	--	--	--	--	--	--	--
10...	12	20	4.3	18	1	4.0	56	27	18

Date	Silica, dis- solved (mg/L)	Solids, sum of consti- tuents, dis- solved (mg/L)	Nitro- gen, NO <sub>2</sub> +NO <sub>3</sub> total (mg/L)	Nitro- gen, am- monia + organic total (mg/L)	Nitro- gen, total (mg/L)	Phos- phorus, total (mg/L)	Iron, dis- solved ( $\mu$ g/L)	Manga- nese, dis- solved ( $\mu$ g/L)
Mar								
10...	2.7	130	.000	.90	.90	.040	<10	<1
10...	--	--	--	--	--	--	--	--
10...	--	--	.000	.87	.87	.050	0	10
10...	--	--	--	--	--	--	--	--
10...	3.2	130	.030	.87	.90	.050	<10	20

Table 13.--Chemical-quality survey of Cedar Creek Reservoir, March 10, 1981--Continued

## 321818096064301 SITE Ec

Date	Time	Sam- pling depth (feet)	Spe- cific con- duct- ance ( $\mu$ S/cm)	pH (stand- ard units)	Temper- ature ( $^{\circ}$ C)	Trans- par- ency (secchi disk (m))	Oxygen, dis- solved (mg/L)
Mar							
10...	1105	1.00	244	7.6	13.5	.50	10.1
10...	1107	5.00	241	7.4	13.0	--	9.8
10...	1109	10.0	241	7.4	12.5	--	9.7
10...	1111	15.0	248	7.3	12.5	--	9.5

Date	Oxygen, dis- solved (per- cent satu- ration)	Nitro- gen, NO <sub>2</sub> +NO <sub>3</sub> total (mg/L)	Nitro- gen, ammonia total (mg/L)	Nitro- gen, total (mg/L)	Phos- phorus, total (mg/L)	Iron, dis- solved ( $\mu$ g/L)	Manga- nese, dis- solved ( $\mu$ g/L)
Mar							
10...	96	.000	.89	.89	.040	20	0
10...	92	--	--	--	--	--	--
10...	90	--	--	--	--	--	--
10...	88	.000	.94	.94	.060	20	10

## 321843096101701 SITE Fc

Date	Time	Sam- pling depth (feet)	Spe- cific con- duct- ance ( $\mu$ S/cm)	pH (stand- ard units)	Temper- ature ( $^{\circ}$ C)	Oxygen, dis- solved (mg/L)	Oxygen, dis- solved (per- cent satu- ration)
Mar							
10...	1455	1.00	237	7.6	15.0	10.2	99
10...	1457	10.0	234	7.5	13.0	9.9	93
10...	1459	20.0	234	7.5	13.0	9.7	92
10...	1501	26.0	234	7.4	13.0	9.6	91

## 322119096104901 SITE Gr

Date	Time	Sam- pling depth (feet)	Spe- cific con- duct- ance ( $\mu$ S/cm)	pH (stand- ard units)	Temper- ature ( $^{\circ}$ C)	Oxygen, dis- solved (mg/L)	Oxygen, dis- solved (per- cent satu- ration)
Mar							
10...	1520	1.00	235	8.0	14.0	10.9	105
10...	1522	10.0	235	7.3	13.0	9.4	89
10...	1524	13.0	235	7.2	13.0	9.3	88

Table 13.--Chemical-quality survey of Cedar Creek Reservoir, March 10, 1981--Continued

322119096095401 SITE Gc

Date	Time	Sam- pling depth (feet)	Spe- cific con- duct- ance ( $\mu$ S/cm)	pH (stand- ard units)	Temper- ature ( $^{\circ}$ C)	Trans- par- ency (secchi disk) (m)	Oxygen, dis- solved (mg/L)	Oxygen, dis- solved (per- cent satu- ration)	Hard- ness (mg/L CaCO <sub>3</sub> )
Mar									
10...	1535	1.00	235	7.7	15.5	.40	10.3	102	68
10...	1537	5.00	235	7.7	13.5	--	10.1	96	--
10...	1539	10.0	235	7.3	13.0	--	9.5	90	--
10...	1541	19.0	235	7.2	13.0	--	9.2	87	68

Date	Hard- ness, noncar- bonate (mg/L CaCO <sub>3</sub> )	Calcium, dis- solved (mg/L)	Magne- sium, dis- solved (mg/L)	Sodium, dis- solved (mg/L)	Sodium ad- sorp- tion ratio	Potas- sium, dis- solved (mg/L)	Alka- linity, field (mg/L CaCO <sub>3</sub> )	Sulfate, dis- solved (mg/L)	Chlo- ride, dis- solved (mg/L)
Mar									
10...	13	20	4.3	19	1	3.8	55	29	18
10...	--	--	--	--	--	--	--	--	--
10...	--	--	--	--	--	--	--	--	--
10...	14	20	4.3	19	1	3.8	54	29	18

Date	Silica, dis- solved (mg/L)	Solids, sum of consti- tuents, dis- solved (mg/L)	Nitro- gen, NO <sub>2</sub> +NO <sub>3</sub> total (mg/L)	Nitro- gen, am- monia + organic total (mg/L)	Nitro- gen, total (mg/L)	Phos- phorus, total (mg/L)	Iron, dis- solved ( $\mu$ g/L)	Manga- nese, dis- solved ( $\mu$ g/L)
Mar								
10...	3.1	130	.000	.81	.81	.050	20	4
10...	--	--	--	--	--	--	--	--
10...	--	--	--	--	--	--	--	--
10...	3.3	130	.000	1.0	1.0	.080	20	20

Table 14.--Chemical-quality survey of Cedar Creek Reservoir, May 6, 1981

[ $\mu$ S/cm, microsiemens per centimeter at 25° Celsius; °C, degrees Celsius;  
m, meters; mg/L, milligrams per liter;  $\mu$ g/L, micrograms per liter;  
fet-flid, fixed end point tritration-field]

321111096042901 SITE Ar

Date	Time	Sam- pling depth (feet)	Spe- cific con- duct- ance ( $\mu$ S/cm)	pH (stand- ard units)	Temper- ature (°C)	Oxygen, dis- solved (mg/L)	Oxygen, dis- solved (per- cent satu- ration)
May							
06...	1215	1.00	237	7.6	23.0	7.8	92
06...	1216	10.0	237	7.6	22.5	7.8	91
06...	1217	20.0	237	7.5	22.5	7.6	88
06...	1218	30.0	237	7.5	22.5	7.1	83
06...	1219	40.0	237	6.6	19.5	1.7	18
06...	1220	45.0	240	6.6	19.0	1.2	13

321113096041201 SITE Ac

Date	Time	Sam- pling depth (feet)	Spe- cific con- duct- ance ( $\mu$ S/cm)	pH (stand- ard units)	Temper- ature (°C)	Trans- par- ency (secchi disk (m))	Oxygen, dis- solved (mg/L)	Oxygen, dis- solved (per- cent satu- ration)	Hard- ness (mg/L CaCO <sub>3</sub> )	Hard- ness, noncar- bonate (mg/L CaCO <sub>3</sub> )
May										
06...	1145	1.00	237	7.5	22.5	1.40	7.8	91	71	7
06...	1148	10.0	237	7.5	22.5	--	7.7	90	--	--
06...	1149	20.0	237	7.5	22.5	--	7.2	84	--	--
06...	1150	30.0	237	7.4	22.5	--	7.1	83	--	--
06...	1151	35.0	239	6.7	19.5	--	2.4	26	--	--
06...	1152	40.0	239	6.7	19.0	--	1.5	16	--	--
06...	1153	50.0	250	6.8	18.0	--	.2	2	--	--
06...	1154	53.0	250	6.8	17.0	--	.2	2	74	8

Date	Calcium, dis- solved (mg/L)	Magne- sium, dis- solved (mg/L)	Sodium, dis- solved (mg/L)	Sodium ad- sorp- tion ratio	Potas- sium, dis- solved (mg/L)	Alka- linity, field (mg/L CaCO <sub>3</sub> )	Sulfate, dis- solved (mg/L)	Chlo- ride, dis- solved (mg/L)	Fluo- ride, dis- solved (mg/L)
May									
06...	21	4.4	19	1	4.0	64	30	18	.20
06...	--	--	--	--	--	--	--	--	--
06...	--	--	--	--	--	--	--	--	--
06...	--	--	--	--	--	--	--	--	--
06...	--	--	--	--	--	--	--	--	--
06...	--	--	--	--	--	--	--	--	--
06...	22	4.6	19	1	4.2	66	29	18	--

Table 14.--Chemical-quality survey of Cedar Creek Reservoir, May 6, 1981--Continued

## 321113096041201 SITE Ac--Continued

Date	Silica, dissolved (mg/L)	Solids, sum of constituents, dissolved (mg/L)	Nitrogen, NO <sub>2</sub> +NO <sub>3</sub> total (mg/L)	Nitrogen, ammonia + organic total (mg/L)	Nitrogen, total (mg/L)	Phosphorus, total (mg/L)	Arsenic, dissolved (µg/L)	Barium, dissolved (µg/L)	Cadmium, dissolved (µg/L)
May									
06...	2.4	140	.030	.85	.88	.150	1	60	<1
06...	--	--	--	--	--	--	--	--	--
06...	--	--	--	--	--	--	--	--	--
06...	--	--	.020	1.2	1.2	.160	--	--	--
06...	--	--	--	--	--	--	--	--	--
06...	--	--	.270	1.0	1.3	.170	--	--	--
06...	--	--	--	--	--	--	--	--	--
06...	5.8	140	.180	1.3	1.5	.190	1	90	<1

Date	Chromium, dissolved (µg/L)	Copper, dissolved (µg/L)	Iron, dissolved (µg/L)	Lead, dissolved (µg/L)	Manganese, dissolved (µg/L)	Mercury, dissolved (µg/L)	Selenium, dissolved (µg/L)	Silver, dissolved (µg/L)	Zinc, dissolved (µg/L)
May									
06...	0	<10	<10	<10	10	.0	0	0	9
06...	--	--	--	--	--	--	--	--	--
06...	--	--	--	--	--	--	--	--	--
06...	--	--	30	--	20	--	--	--	--
06...	--	--	--	--	--	--	--	--	--
06...	--	--	10	--	600	--	--	--	--
06...	--	--	--	--	--	--	--	--	--
06...	0	<10	30	14	2500	.0	0	0	7

## 321116096035301 SITE A1

Date	Time	Sampling depth (feet)	Specific conductance (µS/cm)	pH (standard units)	Temperature (°C)	Oxygen, dissolved (mg/L)	Oxygen, dissolved (percent saturation)
May							
06...	1230	1.00	238	7.6	23.0	8.0	94
06...	1231	10.0	238	7.6	22.5	7.8	91
06...	1232	20.0	238	7.5	22.5	7.6	88
06...	1233	30.0	238	7.5	22.5	7.4	86
06...	1234	42.0	240	6.6	19.0	1.4	15

## 321227096032701 SITE Bc

Date	Time	Sampling depth (feet)	Specific conductance (µS/cm)	pH (standard units)	Temperature (°C)	Transparency (secchi disk) (m)	Oxygen, dissolved (mg/L)
May							
06...	1300	1.00	240	7.5	23.0	1.70	7.7
06...	1301	10.0	240	7.4	22.5	--	7.6
06...	1302	20.0	240	7.4	22.5	--	7.2
06...	1303	30.0	240	7.3	22.0	--	6.7
06...	1304	40.0	240	6.7	19.5	--	1.3
06...	1305	44.0	240	6.7	19.5	--	1.1

Table 14.--Chemical-quality survey of Cedar Creek Reservoir, May 6, 1981--Continued

## 321227096032701 SITE Bc--Continued

Date	Oxygen, dissolved (percent saturation)	Nitrogen, NO <sub>2</sub> +NO <sub>3</sub> total (mg/L)	Nitrogen, ammonia total (mg/L)	Nitrogen, total (mg/L)	Phosphorus, total (mg/L)	Iron, dissolved (µg/L)	Manganese, dissolved (µg/L)
May							
06...	91	.020	.72	.74	.160	10	70
06...	88	--	--	--	--	--	--
06...	84	--	--	--	--	--	--
06...	77	--	--	--	--	--	--
06...	14	--	--	--	--	--	--
06...	12	.210	1.4	1.6	.180	40	1100

## 321403096060601 SITE Cc

Date	Time	Sam-pling depth (feet)	Spe-cific con-ductance (µS/cm)	pH (stand-ard units)	Temper-ature (°C)	Oxygen, dis-solved (mg/L)	Oxygen, dis-solved (per-cent saturation)
May							
06...	1100	1.00	237	7.4	23.0	7.5	88
06...	1101	10.0	237	7.3	22.5	7.4	86
06...	1102	20.0	237	7.3	22.5	7.0	81
06...	1103	30.0	240	6.7	20.5	2.6	29
06...	1104	40.0	240	6.6	20.0	1.8	20
06...	1105	45.0	240	6.6	20.0	1.7	19

## 321548096082301 SITE Dc

Date	Time	Sam-pling depth (feet)	Spe-cific con-ductance (µS/cm)	pH (stand-ard units)	Temper-ature (°C)	Trans-par-ency (secchi disk) (m)	Oxygen, dis-solved (mg/L)	Oxygen, dis-solved (per-cent saturation)	Hard-ness (mg/L CaCO <sub>3</sub> )	Hard-ness, noncar-bonate (mg/L CaCO <sub>3</sub> )
May										
06...	1020	1.00	240	7.4	23.0	.80	7.7	91	73	8
06...	1021	10.0	240	7.3	23.0	--	7.6	89	--	--
06...	1022	20.0	240	7.3	23.0	--	7.6	89	--	--
06...	1023	30.0	240	7.2	23.0	--	7.1	63	--	--
06...	1024	38.0	240	6.9	22.5	--	5.4	63	76	10

Date	Calcium, dis-solved (mg/L)	Magne-sium, dis-solved (mg/L)	Sodium, dis-solved (mg/L)	Sodium ad-sorp-tion ratio	Potas-sium, dis-solved (mg/L)	Alka-linity, field (mg/L CaCO <sub>3</sub> )	Sulfate, dis-solved (mg/L)	Chlo-ride, dis-solved (mg/L)	Silica, dis-solved (mg/L)	Solid, sum of consti-tuents, dis-solved (mg/L)
May										
06...	22	4.4	18	1	3.9	65	30	18	2.7	140
06...	--	--	--	--	--	--	--	--	--	--
06...	--	--	--	--	--	--	--	--	--	--
06...	--	--	--	--	--	--	--	--	--	--
06...	23	4.5	18	.9	3.9	66	30	18	3.5	140

Table 14.--Chemical-quality survey of Cedar Creek Reservoir, May 6, 1981--Continued

321548096082301 SITE Dc--Continued

Date	Nitro- gen, NO <sub>2</sub> +NO <sub>3</sub> total (mg/L)	Nitro- gen, ammonia total (mg/L)	Nitro- gen, organic total (mg/L)	Nitro- gen, am- monia + organic total (mg/L)	Nitro- gen, total (mg/L)	Phos- phorus, ortho, total (mg/L)	Phos- phorus, total (mg/L)	Iron, dis- solved (µg/L)	Manga- nese, dis- solved (µg/L)
May									
06...	0.010	--	--	0.69	0.70	--	0.170	20	6
06...	--	--	--	--	--	--	--	--	--
06...	--	--	--	--	--	--	--	--	--
06...	.110	.160	.94	1.1	1.2	.140	.190	10	100
06...	.070	--	--	1.0	1.1	--	.250	40	340

321818096064301 SITE Ec

Date	Time	Sam- pling depth (feet)	Spe- cific con- duct- ance (µS/cm)	pH (stand- ard units)	Temper- ature (°C)	Trans- par- ency (secchi disk (m)	Oxygen, dis- solved (mg/L)
May							
06...	0945	1.00	245	7.6	22.5	0.60	8.4
06...	0946	10.0	245	7.6	22.5	--	8.3
06...	0947	14.0	245	7.6	22.5	--	8.1

Date	Oxygen, dis- solved (per- cent satu- ration)	Nitro- gen, NO <sub>2</sub> +NO <sub>3</sub> total (mg/L)	Nitro- gen, am- monia + organic total (mg/L)	Nitro- gen, total (mg/L)	Phos- phorus, total (mg/L)	Iron, dis- solved (µg/L)	Manga- nese, dis- solved (µg/L)
May							
06...	98	0.000	1.1	1.1	0.180	0	0
06...	97	--	--	--	--	--	--
06...	94	.000	.93	.93	.190	20	0

321843096101701 SITE Fc

Date	Time	Sam- pling depth (feet)	Spe- cific con- duct- ance (µS/cm)	pH (stand- ard units)	Temper- ature (°C)	Oxygen, dis- solved (mg/L)	Oxygen, dis- solved (per- cent satu- ration)
May							
06...	1345	1.00	244	7.5	23.5	8.0	95
06...	1346	10.0	244	7.4	23.0	7.6	89
06...	1347	20.0	244	7.4	23.0	7.6	89
06...	1348	24.0	244	7.3	23.0	7.4	87

322119096104901 SITE Gr

Date	Time	Sam- pling depth (feet)	Spe- cific con- duct- ance (µS/cm)	pH (stand- ard units)	Temper- ature (°C)	Oxygen, dis- solved (mg/L)	Oxygen, dis- solved (per- cent satu- ration)
May							
06...	1500	1.00	245	7.4	24.0	7.8	93
06...	1501	11.0	245	7.3	23.5	7.3	86

Table 14.--Chemical-quality survey of Cedar Creek Reservoir, May 6, 1981--Continued

322119096095401 SITE Gc

Date	Time	Sam- pling depth (feet)	Spe- cific con- duct- ance ( $\mu$ S/cm)	pH (stand- ard units)	Temper- ature ( $^{\circ}$ C)	Trans- par- ency (secchi disk) (m)	Oxygen, dis- solved (mg/L)	Oxygen, dis- solved (per- cent satu- ration)	Hard- ness (mg/L CaCO <sub>3</sub> )
May									
06...	1430	1.00	245	7.4	23.5	.20	7.8	92	73
06...	1432	10.0	245	7.2	23.0	--	7.0	82	--
06...	1433	18.0	245	7.2	23.0	--	7.0	82	71

Date	Hard- ness, noncar- bonate (mg/L CaCO <sub>3</sub> )	Calcium, dis- solved (mg/L)	Magne- sium, dis- solved (mg/L)	Sodium, dis- solved (mg/L)	Sodium ad- sorp- tion ratio	Potas- sium, dis- solved (mg/L)	Alka- linity, field (mg/L CaCO <sub>3</sub> )	Sulfate, dis- solved (mg/L)	Chlo- ride, dis- solved (mg/L)
May									
06...	8	22	4.4	19	1	4.1	65	32	19
06...	--	--	--	--	--	--	--	--	--
06...	5	21	4.4	22	1	3.9	66	32	19

Date	Silica, dis- solved (mg/L)	Solids, sum of consti- tuents, dis- solved (mg/L)	Nitro- gen, NO <sub>2</sub> +NO <sub>3</sub> total (mg/L)	Nitro- gen, am- monia + organic total (mg/L)	Nitro- gen, total (mg/L)	Phos- phorus, total (mg/L)	Iron, dis- solved ( $\mu$ g/L)	Manga- nese, dis- solved ( $\mu$ g/L)
May								
06...	3.4	140	.020	.72	.74	.220	<10	5
06...	--	--	--	--	--	--	--	--
06...	--	--	.020	.76	.78	.220	20	30

Table 15.--Chemical-quality survey of Cedar Creek Reservoir, August 11, 1981

[ $\mu$ S/cm, microsiemens per centimeter at 25° Celsius; °C, degrees Celsius; m, meters; mg/L, milligrams per liter;  $\mu$ g/L, micrograms per liter; fet-fld, fixed end point tritration-field]

321111096042901 SITE Ar

Date	Time	Sam- pling depth (feet)	Spe- cific con- duct- ance ( $\mu$ S/cm)	pH (stand- ard units)	Temper- ature (°C)	Oxygen, dis- solved (mg/L)	Oxygen, dis- solved (per- cent satu- ration)
Aug							
11...	1300	1.00	207	8.4	30.0	7.6	103
11...	1301	10.0	207	8.1	29.0	6.1	80
11...	1302	20.0	207	7.6	29.0	5.4	71
11...	1303	30.0	208	7.1	27.5	.2	3
11...	1304	40.0	232	7.1	24.5	.2	2
11...	1305	45.0	239	7.1	23.5	.2	2

321113096041201 SITE Ac

Date	Time	Sam- pling depth (feet)	Spe- cific con- duct- ance ( $\mu$ S/cm)	pH (stand- ard units)	Temper- ature (°C)	Trans- par- ency (secchi disk) (m)	Oxygen, dis- solved (mg/L)	Oxygen, dis- solved (per- cent satu- ration)	Hard- ness (mg/L CaCO <sub>3</sub> )	Hard- ness, noncar- bonate (mg/L CaCO <sub>3</sub> )
Aug										
11...	1230	1.00	203	8.4	30.0	1.50	7.3	99	61	9
11...	1232	10.0	203	8.1	29.0	--	6.1	80	--	--
11...	1233	20.0	203	7.6	29.0	--	5.3	70	--	--
11...	1234	25.0	203	7.1	28.5	--	.2	3	--	--
11...	1235	30.0	205	7.1	27.5	--	.2	3	--	--
11...	1236	40.0	228	7.1	24.0	--	.2	2	--	--
11...	1237	50.0	236	7.1	22.5	--	.2	2	--	--
11...	1238	58.0	245	7.1	21.5	--	.2	2	71	0

Date	Calcium, dis- solved (mg/L)	Magne- sium, dis- solved (mg/L)	Sodium, dis- solved (mg/L)	Sodium ad- sorp- tion ratio	Potas- sium, dis- solved (mg/L)	Alka- linity, field (mg/L CaCO <sub>3</sub> )	Sulfate, dis- solved (mg/L)	Chlo- ride, dis- solved (mg/L)	Fluo- ride, dis- solved (mg/L)
Aug									
11...	18	3.8	13	.8	4.3	52	15	19	.20
11...	--	--	--	--	--	--	--	--	--
11...	--	--	--	--	--	--	--	--	--
11...	--	--	--	--	--	--	--	--	--
11...	--	--	--	--	--	--	--	--	--
11...	--	--	--	--	--	--	--	--	--
11...	21	4.4	16	.9	3.7	78	2.0	18	--

Table 15.--Chemical-quality survey of Cedar Creek Reservoir, August 11, 1981--Continued

321113095041201 SITE Ac--Continued

Date	Silica, dissolved (mg/L)	Solids, sum of constituents, dissolved (mg/L)	Nitrogen, NO <sub>2</sub> +NO <sub>3</sub> total (mg/L)	Nitrogen, ammonia + organic total (mg/L)	Nitrogen, total (mg/L)	Phosphorus, total (mg/L)	Arsenic, dissolved (µg/L)	Barium, dissolved (µg/L)	Cadmium, dissolved (µg/L)
Aug 11...	3.0	110	.000	1.0	1.0	.040	1	50	<1
11...	--	--	--	--	--	--	--	--	--
11...	--	--	.010	1.2	1.2	.040	--	--	--
11...	--	--	--	--	--	--	--	--	--
11...	--	--	.010	.97	.98	.050	--	--	--
11...	--	--	--	--	--	--	--	--	--
11...	--	--	--	--	--	--	--	--	--
11...	9.6	130	.030	2.0	2.0	.580	19	80	<1

Date	Chromium, dissolved (µg/L)	Copper, dissolved (µg/L)	Iron, dissolved (µg/L)	Lead, dissolved (µg/L)	Manganese, dissolved (µg/L)	Mercury, dissolved (µg/L)	Selenium, dissolved (µg/L)	Silver, dissolved (µg/L)	Zinc, dissolved (µg/L)
Aug 11...	0	<10	<10	<10	4	.0	0	0	<3
11...	--	--	--	--	--	--	--	--	--
11...	--	--	20	--	70	--	--	--	--
11...	--	--	--	--	--	--	--	--	--
11...	--	--	260	--	530	--	--	--	--
11...	--	--	--	--	--	--	--	--	--
11...	--	--	--	--	--	--	--	--	--
11...	0	<10	1900	<10	2900	.0	0	0	<3

321116096035301 SITE A1

Date	Time	Sampling depth (feet)	Specific conductance (µS/cm)	pH (standard units)	Temperature (°C)	Oxygen, dissolved (mg/L)	Oxygen, dissolved (percent saturation)
Aug 11...	1200	1.00	202	8.3	29.5	7.2	96
11...	1201	10.0	202	7.9	29.0	5.5	72
11...	1202	20.0	202	7.7	29.0	5.2	68
11...	1203	30.0	203	7.1	27.5	.1	1
11...	1204	40.0	227	7.1	24.5	.1	1
11...	1205	48.0	233	7.1	23.0	.1	1

321227096032701 SITE Bc

Date	Time	Sampling depth (feet)	Specific conductance (µS/cm)	pH (standard units)	Temperature (°C)	Transparency (secchi disk) (m)	Oxygen, dissolved (mg/L)
Aug 11...	1400	1.00	205	8.4	31.0	1.50	8.3
11...	1401	10.0	207	8.1	29.5	--	7.1
11...	1402	20.0	207	7.6	29.0	--	5.7
11...	1403	30.0	208	7.2	27.5	--	.2
11...	1404	40.0	233	7.1	24.0	--	.2
11...	1405	49.0	242	7.1	23.0	--	.2

Table 15.--Chemical-quality survey of Cedar Creek Reservoir, August 11, 1981--Continued

## 321227096032701 SITE Bc--Continued

Date	Oxygen, dissolved (percent saturation)	Nitrogen, NO <sub>2</sub> +NO <sub>3</sub> total (mg/L)	Nitrogen, ammonia total (mg/L)	Nitrogen, total (mg/L)	Phosphorus, total (mg/L)	Iron, dissolved (µg/L)	Manganese, dissolved (µg/L)
Aug							
11...	112	.010	.93	.94	.040	20	100
11...	95	--	--	--	--	--	--
11...	75	--	--	--	--	--	--
11...	3	--	--	--	--	--	--
11...	2	--	--	--	--	--	--
11...	2	.010	1.8	1.8	.470	1500	2100

## 321403096060601 SITE Cc

Date	Time	Sam-pling depth (feet)	Spe-cific con-ductance (µS/cm)	pH (stand-ard units)	Temper-ature (°C)	Oxygen, dis-solved (mg/L)	Oxygen, dis-solved (per-cent saturation)
Aug							
11...	1140	1.00	200	8.3	29.5	7.6	101
11...	1145	10.0	200	8.1	29.0	7.2	95
11...	1146	20.0	200	7.8	29.0	6.7	88
11...	1147	30.0	203	7.4	28.0	1.2	16
11...	1148	40.0	231	7.1	24.5	.2	2
11...	1149	49.0	242	7.1	23.5	.2	2

## 321548096082301 SITE Dc

Date	Time	Sam-pling depth (feet)	Spe-cific con-ductance (µS/cm)	pH (stand-ard units)	Temper-ature (°C)	Trans-parency (secchi disk) (m)	Oxygen, dis-solved (mg/L)	Oxygen, dis-solved (per-cent saturation)	Hard-ness (mg/L CaCO <sub>3</sub> )
Aug									
11...	1100	1.00	200	8.6	30.0	1.10	7.7	104	57
11...	1101	10.0	202	8.1	29.5	--	6.7	89	--
11...	1102	20.0	202	7.7	29.0	--	5.3	70	--
11...	1103	30.0	202	7.3	28.5	--	3.1	41	--
11...	1104	35.0	235	7.1	27.5	--	.2	3	--
11...	1105	42.0	242	7.1	25.0	--	.2	2	68

Date	Hard-ness, noncar-bonate (mg/L CaCO <sub>3</sub> )	Calcium, dis-solved (mg/L)	Magne-sium, dis-solved (mg/L)	Sodium, dis-solved (mg/L)	Sodium ad-sorp-tion ratio	Potas-sium, dis-solved (mg/L)	Alka-linity, field (mg/L CaCO <sub>3</sub> )	Sulfate, dis-solved (mg/L)	Chlo-ride, dis-solved (mg/L)
Aug									
11...	5	17	3.6	13	.8	4.4	52	9.0	23
11...	--	--	--	--	--	--	--	--	--
11...	--	--	--	--	--	--	--	--	--
11...	--	--	--	--	--	--	--	--	--
11...	--	--	--	--	--	--	--	--	--
11...	0	20	4.3	15	.8	4.2	71	3.0	17

Table 15.--Chemical-quality survey of Cedar Creek Reservoir, August 11, 1981--Continued

321548096082301 SITE Dc--Continued

Date	Silica, dissolved (mg/L)	Solids, sum of constituents, dissolved (mg/L)	Nitrogen, NO <sub>2</sub> +NO <sub>3</sub> total (mg/L)	Nitrogen, ammonia + organic total (mg/L)	Nitrogen, total (mg/L)	Phosphorus, total (mg/L)	Iron, dissolved (µg/L)	Manganese, dissolved (µg/L)
Aug								
11...	3.2	100	.010	1.1	1.1	.050	<10	2
11...	--	--	--	--	--	--	--	--
11...	--	--	.000	.96	.96	.060	30	20
11...	--	--	.010	1.0	1.0	.070	200	210
11...	--	--	--	--	--	--	--	--
11...	9.3	120	.010	2.1	2.1	.750	2500	2500

321818096064301 SITE Ec

Date	Time	Sampling depth (feet)	Specific conductance (µS/cm)	pH (standard units)	Temperature (°C)	Transparency (secchi disk (m))	Oxygen, dissolved (mg/L)
Aug							
11...	1130	1.00	201	8.6	30.0	.90	8.2
11...	1131	10.0	209	7.9	29.5	--	5.1
11...	1132	20.0	209	7.3	29.0	--	1.9

Date	Oxygen, dissolved (percent saturation)	Nitrogen, NO <sub>2</sub> +NO <sub>3</sub> total (mg/L)	Nitrogen, ammonia total (mg/L)	Nitrogen, total (mg/L)	Phosphorus, total (mg/L)	Iron, dissolved (µg/L)	Manganese, dissolved (µg/L)
Aug							
11...	111	.000	1.3	1.3	.060	20	30
11...	68	--	--	--	--	--	--
11...	25	.010	1.1	1.1	.100	20	90

321843096101701 SITE Fc

Date	Time	Sampling depth (feet)	Specific conductance (µS/cm)	pH (standard units)	Temperature (°C)	Oxygen, dissolved (mg/L)	Oxygen, dissolved (percent saturation)
Aug							
11...	1000	1.00	199	8.0	29.5	7.1	95
11...	1001	10.0	198	7.6	29.0	6.3	83
11...	1002	20.0	196	7.2	29.0	4.4	58
11...	1003	30.0	199	7.1	28.5	3.4	45

Table 15.--Chemical-quality survey of Cedar Creek Reservoir, August 11, 1981--Continued

322119096104901 SITE Gr

Date	Time	Sam- pling depth (feet)	Spe- cific con- duct- ance ( $\mu$ S/cm)	pH (stand- ard units)	Temper- ature ( $^{\circ}$ C)	Oxygen, dis- solved (mg/L)	Oxygen, dis- solved (per- cent satu- ration)
Aug							
11...	0916	1:00	195	8.0	29.0	6.3	83
11...	0917	10.0	195	7.8	29.0	5.8	76
11...	0918	16.0	195	7.6	29.0	5.4	71

322119096095401 SITE Gc

Date	Time	Sam- pling depth (feet)	Spe- cific con- duct- ance ( $\mu$ S/cm)	pH (stand- ard units)	Temper- ature ( $^{\circ}$ C)	Trans- par- ency (secchi disk) (m)	Oxygen, dis- solved (mg/L)	Oxygen, dis- solved (per- cent satu- ration)	Hard- ness (mg/L CaCO <sub>3</sub> )
Aug									
11...	0900	1.00	182	8.0	29.0	.50	6.1	80	62
11...	0902	10.0	182	7.8	29.0	--	6.0	79	--
11...	0903	20.0	184	7.4	29.0	--	4.2	55	--
11...	0904	23.0	185	7.4	28.5	--	3.6	47	60

Date	Hard- ness, noncar- bonate (mg/L CaCO <sub>3</sub> )	Calcium, dis- solved (mg/L)	Magne- sium, dis- solved (mg/L)	Sodium, dis- solved (mg/L)	Sodium ad- sorp- tion ratio	Potas- sium, dis- solved (mg/L)	Alka- linity, field (mg/L CaCO <sub>3</sub> )	Sulfate, dis- solved (mg/L)	Chlo- ride, dis- solved (mg/L)
Aug									
11...	7	19	3.6	13	.7	4.9	55	5.0	20
11...	--	--	--	--	--	--	--	--	--
11...	--	--	--	--	--	--	--	--	--
11...	4	18	3.7	12	.7	4.6	56	6.0	18

Date	Silica, dis- solved (mg/L)	Solids, sum of consti- tuents, dis- solved (mg/L)	Nitro- gen, NO <sub>2</sub> +NO <sub>3</sub> total (mg/L)	Nitro- gen, am- monia + organic total (mg/L)	Nitro- gen, total (mg/L)	Phos- phorus, total (mg/L)	Iron, dis- solved ( $\mu$ g/L)	Manga- nese, dis- solved ( $\mu$ g/L)
Aug								
11...	4.3	100	.010	1.0	1.0	.100	<10	2
11...	--	--	.010	1.5	1.5	.100	30	10
11...	--	--	--	--	--	--	--	--
11...	4.8	100	.010	1.2	1.2	.140	12	65

Table 16.--Chemical-quality survey of Cedar Creek Reservoir, February 23, 1982

[ $\mu$ S/cm, microsiemens per centimeter at 25° Celsius; °C, degrees Celsius; m, meters; mg/L, milligrams per liter;  $\mu$ g/L, micrograms per liter; fet-fld, fixed end point titration-field]

321111096042901 SITE Ar

Date	Time	Sam- pling depth (feet)	Spe- cific con- duct- ance ( $\mu$ S/cm)	pH (stand- ard units)	Temper- ature (°C)	Oxygen, dis- solved (mg/L)	Oxygen, dis- solved (per- cent satu- ration)
Feb							
23...	0930	1.00	197	7.7	8.5	11.2	97
23...	0931	10.0	197	7.7	8.5	11.2	97
23...	0932	20.0	197	7.6	8.0	10.9	93
23...	0933	30.0	197	7.6	8.0	10.6	91
23...	0934	40.0	197	7.6	8.0	10.5	90
23...	0935	53.0	198	7.6	7.5	10.1	85

321113096041201 SITE Ac

Date	Time	Sam- pling depth (feet)	Spe- cific con- duct- ance ( $\mu$ S/cm)	pH (stand- ard units)	Temper- ature (°C)	Trans- par- ency (secchi disk (m))	Oxygen, dis- solved (mg/L)	Oxygen, dis- solved (per- cent satu- ration)	Hard- ness (mg/L CaCO <sub>3</sub> )
Feb									
23...	1020	1.00	199	7.6	9.0	1.20	10.9	95	61
23...	1021	10.0	199	7.6	9.0	--	10.8	94	--
23...	1022	20.0	199	7.5	8.5	--	10.8	93	--
23...	1023	30.0	199	7.4	8.0	--	10.1	86	--
23...	1024	40.0	199	7.4	8.0	--	9.9	85	--
23...	1025	50.0	199	7.4	8.0	--	9.8	84	--
23...	1026	60.0	200	7.4	8.0	--	9.8	84	61

Date	Hard- ness, noncar- bonate (mg/L CaCO <sub>3</sub> )	Calcium, dis- solved (mg/L)	Magne- sium, dis- solved (mg/L)	Sodium, dis- solved (mg/L)	Sodium ad- sorp- tion ratio	Potas- sium, dis- solved (mg/L)	Alka- linity, field (mg/L CaCO <sub>3</sub> )	Sulfate, dis- solved (mg/L)	Chlo- ride, dis- solved (mg/L)
Feb									
23...	6	18	3.8	13	.8	4.2	55	20	14
23...	--	--	--	--	--	--	--	--	--
23...	--	--	--	--	--	--	--	--	--
23...	--	--	--	--	--	--	--	--	--
23...	--	--	--	--	--	--	--	--	--
23...	6	18	3.8	13	.8	4.4	55	21	14

Date	Fluo- ride, dis- solved (mg/L)	Silica, dis- solved (mg/L)	Solids, sum of consti- tuents, dis- solved (mg/L)	Nitro- gen, NO <sub>2</sub> +NO <sub>3</sub> total (mg/L)	Nitro- gen, am- monia + organic total) (mg/L)	Phos- phorus, total (mg/L)	Iron, dis- solved ( $\mu$ g/L)	Manga- nese, dis- solved ( $\mu$ g/L)
Feb								
23...	.20	2.1	110	<.100	.60	.030	<10	<1
23...	--	--	--	--	--	--	--	--
23...	--	--	--	<.100	.64	.030	10	<10
23...	--	--	--	--	--	--	--	--
23...	--	--	--	--	--	--	--	--
23...	--	--	--	--	--	--	--	--
23...	--	2.6	110	<.100	.81	.020	<10	28

Table 16.--Chemical-quality survey of Cedar Creek Reservoir, February 23, 1982--Continued

## 321116096035301 SITE A1

Date	Time	Sam- pling depth (feet)	Spe- cific con- duct- ance ( $\mu$ S/cm)	pH (stand- ard units)	Temper- ature ( $^{\circ}$ C)	Oxygen, dis- solved (mg/L)	Oxygen, dis- solved (per- cent satu- ration)
Feb							
23...	1000	1.00	198	7.7	9.0	11.3	98
23...	1001	10.0	198	7.6	8.5	11.0	95
23...	1002	20.0	198	7.6	8.0	11.0	94
23...	1003	30.0	198	7.6	8.0	10.4	89
23...	1004	40.0	198	7.6	8.0	10.3	88
23...	1005	48.0	198	7.6	7.5	10.1	85

## 321227096032701 SITE Bc

Date	Time	Sam- pling depth (feet)	Spe- cific con- duct- ance ( $\mu$ S/cm)	pH (stand- ard units)	Temper- ature ( $^{\circ}$ C)	Trans- par- ency (secchi disk) (m)	Oxygen, dis- solved (mg/L)
Feb							
23...	1100	1.00	199	8.4	10.0	1.20	12.4
23...	1101	10.0	199	8.2	10.0	--	12.3
23...	1102	20.0	199	8.0	9.5	--	12.1
23...	1103	30.0	199	7.6	8.5	--	11.1
23...	1104	40.0	199	7.6	8.0	--	10.8
23...	1105	50.0	199	7.6	8.0	--	10.1

Date	Oxygen, dis- solved (per- cent satu- ration)	Nitro- gen, NO <sub>2</sub> +NO <sub>3</sub> total (mg/L)	Nitro- gen, ammonia total (mg/L)	Phos- phorus, total (mg/L)	Iron, dis- solved ( $\mu$ g/L)	Manga- nese, dis- solved ( $\mu$ g/L)
Feb						
23...	111	<.100	.62	.010	30	<10
23...	110	--	--	--	--	--
23...	107	--	--	--	--	--
23...	96	--	--	--	--	--
23...	92	--	--	--	--	--
23...	86	<.100	.62	.020	20	<10

## 321403096060601 SITE Cc

Date	Time	Sam- pling depth (feet)	Spe- cific con- duct- ance ( $\mu$ S/cm)	pH (stand- ard units)	Temper- ature ( $^{\circ}$ C)	Oxygen, dis- solved (mg/L)	Oxygen, dis- solved (per- cent satu- ration)
Feb							
23...	0900	1.00	196	8.6	11.0	13.2	121
23...	0901	10.0	196	8.2	10.0	12.7	113
23...	0902	20.0	196	8.0	9.5	12.2	108
23...	0903	30.0	196	7.6	8.0	10.8	92
23...	0904	40.0	196	7.6	8.0	10.5	90
23...	0905	50.0	196	7.6	8.0	10.4	89

Table 16.--Chemical-quality survey of Cedar Creek Reservoir, February 23, 1982--Continued

## 321548096082301 SITE Dc

Date	Time	Sam- pling depth (feet)	Spe- cific con- duct- ance ( $\mu$ S/cm)	pH (stand- ard units)	Temper- ature ( $^{\circ}$ C)	Trans- par- ency (secchi disk) (m)	Oxygen, dis- solved (mg/L)	Oxygen, dis- solved (per- cent satu- ration)
Feb								
23...	0830	1.00	194	8.4	10.0	.90	12.9	115
23...	0831	10.0	194	7.8	9.0	--	12.1	105
23...	0832	20.0	194	7.4	8.0	--	10.6	91
23...	0833	30.0	194	7.4	7.5	--	10.2	86
23...	0834	40.0	194	7.4	7.5	--	9.8	82
23...	0835	45.0	194	7.4	7.5	--	9.8	83

Date	Hard- ness (mg/L CaCO <sub>3</sub> )	Hard- ness, noncar- bonate (mg/L CaCO <sub>3</sub> )	Calcium, dis- solved (mg/L)	Magne- sium, dis- solved (mg/L)	Sodium, dis- solved (mg/L)	Sodium ad- sorp- tion ratio	Potas- sium, dis- solved (mg/L)	Alka- linity, field (mg/L CaCO <sub>3</sub> )	Sulfate, dis- solved (mg/L)
Feb									
23...	60	6	18	3.7	13	.8	4.4	54	21
23...	--	--	--	--	--	--	--	--	--
23...	--	--	--	--	--	--	--	--	--
23...	--	--	--	--	--	--	--	--	--
23...	--	--	--	--	--	--	--	--	--
23...	64	10	19	3.9	14	.8	4.5	54	22

Date	Chlo- ride, dis- solved (mg/L)	Silica, dis- solved (mg/L)	Solids, sum of consti- tuents, dis- solved (mg/L)	Nitro- gen, NO <sub>2</sub> +NO <sub>3</sub> total (mg/L)	Nitro- gen, am- monia + organic total (mg/L)	Phos- phorus, total (mg/L)	Iron, dis- solved ( $\mu$ g/L)	Manga- nese, dis- solved ( $\mu$ g/L)
Feb								
23...	15	1.4	110	<.100	.78	.030	<10	<1
23...	--	--	--	--	--	--	--	--
23...	--	--	--	<.100	.77	.050	10	<10
23...	--	--	--	--	--	--	--	--
23...	--	--	--	--	--	--	--	--
23...	16	2.7	110	<.100	1.0	.030	<10	20

## 321818096064301 SITE Ec

Date	Time	Sam- pling depth (feet)	Spe- cific con- duct- ance ( $\mu$ S/cm)	pH (stand- ard units)	Temper- ature ( $^{\circ}$ C)	Trans- par- ency (secchi disk) (m)	Oxygen, dis- solved (mg/L)
Feb							
23...	0805	1.00	205	8.3	11.5	.90	12.7
23...	0806	10.0	205	8.2	11.0	--	12.7
23...	0807	15.0	210	8.2	10.5	--	12.2
23...	0808	20.0	210	7.2	9.0	--	8.6

Table 16.--Chemical-quality survey of Cedar Creek Reservoir, February 23, 1982--Continued

321818096064301 SITE Ec--Continued

Date	Oxygen, dissolved (percent saturation)	Nitrogen, NO <sub>2</sub> +NO <sub>3</sub> total (mg/L)	Nitrogen, ammonia total (mg/L)	Phosphorus, total (mg/L)	Iron, dissolved (mg/L)	Manganese, dissolved (µg/L)
Feb						
23...	118	<.100	.75	.010	10	<10
23...	117	--	--	--	--	--
23...	110	--	--	--	--	--
23...	75	<.100	.76	.020	20	10

321843096101701 SITE Fc

Date	Time	Sam-pling depth (feet)	Spe-cific con-ductance (µS/cm)	pH (stand-ard units)	Temper-ature (°C)	Oxygen, dis-solved (mg/L)	Oxygen, dis-solved (per-cent saturation)
Feb							
23...	0730	1.00	195	7.9	10.0	12.2	109
23...	0731	10.0	195	7.7	10.0	12.1	108
23...	0732	20.0	195	7.5	8.5	10.7	92
23...	0733	30.0	195	7.3	8.5	10.3	89

322119096095401 SITE Gc

Date	Time	Sam-pling depth (feet)	Spe-cific con-ductance (µS/cm)	pH (stand-ard units)	Temper-ature (°C)	Trans-par-ency (secchi disk) (m)	Oxygen, dis-solved (mg/L)	Oxygen, dis-solved (per-cent saturation)
Feb								
23...	1200	1.00	200	7.8	11.0	.30	11.3	104
23...	1201	10.0	200	7.7	9.5	--	11.3	100
23...	1202	20.0	200	7.6	9.5	--	9.5	83

Date	Hard-ness (mg/L CaCO <sub>3</sub> )	Hard-ness, noncar-bonate (mg/L CaCO <sub>3</sub> )	Calcium, dis-solved (mg/L)	Magne-sium, dis-solved (mg/L)	Sodium, dis-solved (mg/L)	Sodium ad-sorp-tion ratio	Potas-sium, dis-solved (mg/L)	Alka-linity, field (mg/L CaCO <sub>3</sub> )	Sulfate, dis-solved (mg/L)
Feb									
23...	64	10	19	3.9	14	.8	4.4	54	21
23...	--	--	--	--	--	--	--	--	--
23...	64	10	19	3.9	14	.8	4.4	54	22

Date	Chlo-ride, dis-solved (mg/L)	Silica, dis-solved (mg/L)	Solids, sum of consti-tuents, dis-solved (mg/L)	Nitro-gen, NO <sub>2</sub> +NO <sub>3</sub> total (mg/L)	Nitro-gen, am-monia + organic total (mg/L)	Phos-phorus, total (mg/L)	Iron, dis-solved (µg/L)	Manga-nese, dis-solved (µg/L)
Feb								
23...	15	1.9	110	<.100	.75	.040	<10	2
23...	--	--	--	--	--	--	--	--
23...	13	2.3	110	<.100	.76	.020	<10	6

Table 17.--Chemical-quality survey of Cedar Creek Reservoir, May 4, 1982

[ $\mu$ S/cm, microsiemens per centimeter at 25° Celsius; °C, degrees Celsius;  
m, meters; mg/L, milligrams per liter;  $\mu$ g/L, micrograms per liter;  
fet-fld, fixed end point tritration-field]

321111096042901 SITE Ar

Date	Time	Sam- pling depth (feet)	Spe- cific con- duct- ance ( $\mu$ S/cm)	pH (stand- ard units)	Temper- ature (°C)	Oxygen, dis- solved (mg/L)	Oxygen, dis- solved (per- cent satu- ration)
May							
04...	1135	1.00	211	7.9	20.0	8.6	95
04...	1136	5.00	211	7.6	19.0	8.3	89
04...	1137	10.0	211	7.3	18.0	7.4	79
04...	1139	20.0	211	7.3	17.5	6.8	72
04...	1141	30.0	211	7.3	17.5	6.8	72
04...	1143	40.0	211	7.3	17.0	6.5	68
04...	1144	44.0	211	7.3	17.0	6.3	66

321113096041201 SITE Ac

Date	Time	Sam- pling depth (feet)	Spe- cific con- duct- ance ( $\mu$ S/cm)	pH (stand- ard units)	Temper- ature (°C)	Trans- par- ency (secchi disk (m))	Oxygen, dis- solved (mg/L)	Oxygen, dis- solved (per- cent satu- ration)	Hard- ness (mg/L CaCO <sub>3</sub> )
May									
04...	1040	1.00	207	8.0	20.0	1.20	8.8	97	64
04...	1041	5.00	207	8.0	19.5	--	8.8	96	--
04...	1042	10.0	207	7.2	18.0	--	7.4	79	--
04...	1044	20.0	207	7.2	17.5	--	7.1	75	--
04...	1046	30.0	207	7.1	17.5	--	6.9	73	--
04...	1048	40.0	207	7.1	17.0	--	6.7	70	--
04...	1050	50.0	207	7.0	17.0	--	5.8	60	--
04...	1052	57.0	207	6.9	17.0	--	4.9	51	67

Date	Hard- ness, noncar- bonate (mg/L CaCO <sub>3</sub> )	Calcium, dis- solved (mg/L)	Magne- sium, dis- solved (mg/L)	Sodium, dis- solved (mg/L)	Sodium ad- sorp- tion ratio	Potas- sium, dis- solved (mg/L)	Alka- linity, field (mg/L CaCO <sub>3</sub> )	Sulfate, dis- solved (mg/L)	Chlo- ride, dis- solved (mg/L)
May									
04...	10	19	4.0	14	.8	4.4	54	22	15
04...	--	--	--	--	--	--	--	--	--
04...	--	--	--	--	--	--	--	--	--
04...	--	--	--	--	--	--	--	--	--
04...	--	--	--	--	--	--	--	--	--
04...	--	--	--	--	--	--	--	--	--
04...	13	20	4.2	14	.8	4.6	54	20	15

Table 17.--Chemical-quality survey of Cedar Creek Reservoir, May 4, 1982--Continued

## 321113096041201 SITE Ac--Continued

Date	Fluoride, dissolved (mg/L)	Silica, dissolved (mg/L)	Solids, sum of constituents, dissolved (mg/L)	Nitrogen, NO <sub>2</sub> +NO <sub>3</sub> total (mg/L)	Nitrogen, ammonia + organic total (mg/L)	Nitrogen, total (mg/L)	Phosphorus, total (mg/L)	Iron, dissolved (µg/L)	Manganese, dissolved (µg/L)
May									
04...	.20	1.2	110	<.100	.83	--	.040	<9	<3
04...	--	--	--	--	--	--	--	--	--
04...	--	--	--	--	--	--	--	--	--
04...	--	--	--	.100	.79	.89	.030	<10	10
04...	--	--	--	--	--	--	--	--	--
04...	--	--	--	.160	.81	.97	.040	10	20
04...	--	--	--	--	--	--	--	--	--
04...	--	2.7	110	.200	1.1	1.3	.040	<9	120

## 321116096035301 SITE A1

Date	Time	Sampling depth (feet)	Specific conductance (µS/cm)	pH (standard units)	Temperature (°C)	Oxygen, dissolved (mg/L)	Oxygen, dissolved (percent saturation)
May							
04...	1110	1.00	207	8.0	20.0	8.5	93
04...	1111	5.00	207	8.0	19.5	8.5	92
04...	1112	10.0	207	7.4	18.5	7.7	83
04...	1114	20.0	207	7.3	17.5	7.0	74
04...	1116	30.0	207	7.3	17.5	7.2	76
04...	1118	40.0	207	7.3	17.5	6.9	73
04...	1120	44.0	207	7.5	17.0	6.8	71

## 321227096032701 SITE Bc

Date	Time	Sampling depth (feet)	Specific conductance (µS/cm)	pH (standard units)	Temperature (°C)	Transparency (secchi disk) (m)	Oxygen, dissolved (mg/L)
May							
04...	1155	1.00	211	8.7	22.0	1.20	9.7
04...	1157	10.0	211	8.4	20.5	--	9.7
04...	1158	15.0	211	7.9	19.0	--	8.0
04...	1159	20.0	211	7.4	18.5	--	7.8
04...	1201	30.0	211	7.2	17.5	--	7.0
04...	1203	40.0	211	7.2	17.0	--	6.1
04...	1205	48.0	211	7.2	17.0	--	5.9

Date	Oxygen, dissolved (percent saturation)	Nitrogen, NO <sub>2</sub> +NO <sub>3</sub> total (mg/L)	Nitrogen, ammonia total (mg/L)	Nitrogen, total (mg/L)	Phosphorus, total (mg/L)	Iron, dissolved (µg/L)	Manganese, dissolved (µg/L)
May							
04...	111	<.100	.86	--	.030	10	10
04...	108	--	--	--	--	--	--
04...	86	--	--	--	--	--	--
04...	84	--	--	--	--	--	--
04...	74	--	--	--	--	--	--
04...	64	--	--	--	--	--	--
04...	61	.170	.75	.92	.040	60	50

Table 17.--Chemical-quality survey of Cedar Creek Reservoir, May 4, 1982--Continued

3214030960601 SITE Cc

Date	Time	Sam- pling depth (feet)	Spe- cific con- duct- ance ( $\mu$ S/cm)	pH (stand- ard units)	Temper- ature ( $^{\circ}$ C)	Oxygen, dis- solved (mg/L)	Oxygen, dis- solved (per- cent satu- ration)
May							
04...	1225	1.00	217	8.7	23.0	9.6	112
04...	1227	10.0	217	8.4	21.0	9.3	104
04...	1229	20.0	217	7.4	19.0	7.7	83
04...	1231	30.0	217	7.2	17.5	5.5	58
04...	1233	40.0	217	7.2	17.5	4.9	52
04...	1234	46.0	217	7.2	17.5	4.6	48

321548096082301 SITE Dc

Date	Time	Sam- pling depth (feet)	Spe- cific con- duct- ance ( $\mu$ S/cm)	pH (stand- ard units)	Temper- ature ( $^{\circ}$ C)	Trans- par- ency (secchi disk) (m)	Oxygen, dis- solved (mg/L)	Oxygen, dis- solved (per- cent satu- ration)	Hard- ness (mg/L CaCO <sub>3</sub> )
May									
04...	1255	1.00	210	8.6	21.5	.90	9.7	110	64
04...	1257	10.0	210	8.2	20.5	--	9.0	100	--
04...	1259	20.0	214	7.2	18.5	--	6.4	69	--
04...	1301	30.0	214	7.2	18.0	--	6.0	64	--
04...	1303	40.0	216	7.0	17.5	--	4.8	51	--
04...	1304	43.0	216	7.0	17.5	--	4.8	51	67

Date	Hard- ness, noncar- bonate (mg/L CaCO <sub>3</sub> )	Calcium, dis- solved (mg/L)	Magne- sium, dis- solved (mg/L)	Sodium, dis- solved (mg/L)	Sodium ad- sorp- tion ratio	Potas- sium, dis- solved (mg/L)	Alka- linity, field (mg/L CaCO <sub>3</sub> )	Sulfate, dis- solved (mg/L)	Chlo- ride, dis- solved (mg/L)
May									
04...	10	19	3.9	14	.8	4.5	54	21	15
04...	--	--	--	--	--	--	--	--	--
04...	--	--	--	--	--	--	--	--	--
04...	--	--	--	--	--	--	--	--	--
04...	--	--	--	--	--	--	--	--	--
04...	11	20	4.1	15	.8	4.5	56	21	15

Date	Silica, dis- solved (mg/L)	Solids, sum of consti- tuents, dis- solved (mg/L)	Nitro- gen, NO <sub>2</sub> +NO <sub>3</sub> total (mg/L)	Nitro- gen, am- monia + organic total (mg/L)	Nitro- gen, total (mg/L)	Phos- phorus, total (mg/L)	Iron, dis- solved ( $\mu$ g/L)	Manga- nese, dis- solved ( $\mu$ g/L)
May								
04...	1.0	110	<.100	1.3	--	.040	<9	<3
04...	--	--	<.100	.94	--	.040	10	<10
04...	--	--	--	--	--	--	--	--
04...	--	--	.100	.84	.94	.050	50	10
04...	--	--	--	--	--	--	--	--
04...	2.9	120	.130	1.0	1.1	.060	<9	21

Table 17.--Chemical-quality survey of Cedar Creek Reservoir, May 4, 1982--Continued

## 321818096064301 SITE Ec

Date	Time	Sam- pling depth (feet)	Spe- cific con- duct- ance ( $\mu$ S/cm)	pH (stand- ard units)	Temper- ature ( $^{\circ}$ C)	Trans- par- ency (secchi disk) (m)	Oxygen, dis- solved (mg/L)
May							
04...	1330	1.00	215	8.6	23.5	.70	9.7
04...	1332	10.0	215	8.3	22.5	--	9.5
04...	1333	15.0	218	7.8	21.0	--	6.9
04...	1334	20.0	222	7.3	19.5	--	5.4

Date	Oxygen, dis- solved (per- cent satu- ration)	Nitro- gen, NO <sub>2</sub> +NO <sub>3</sub> total (mg/L)	Nitro- gen, ammonia total (mg/L)	Phos- phorus, total (mg/L)	Iron, dis- solved ( $\mu$ g/L)	Manga- nese, dis- solved ( $\mu$ g/L)
May						
04...	114	<.100	1.0	.030	<10	10
04...	110	--	--	--	--	--
04...	78	--	--	--	--	--
04...	59	<.100	1.4	.030	60	10

## 321843096101701 SITE Fc

Date	Time	Sam- pling depth (feet)	Spe- cific con- duct- ance ( $\mu$ S/cm)	pH (stand- ard units)	Temper- ature ( $^{\circ}$ C)	Oxygen, dis- solved (mg/L)	Oxygen, dis- solved (per- cent satu- ration)
May							
04...	1420	1.00	213	8.2	23.0	9.4	109
04...	1422	10.0	215	7.8	21.5	8.4	95
04...	1423	15.0	217	7.4	19.5	5.7	62
04...	1424	20.0	217	7.2	19.0	5.2	56
04...	1426	30.0	217	7.2	19.0	5.1	55

## 322119096104901 SITE Gr

Date	Time	Sam- pling depth (feet)	Spe- cific con- duct- ance ( $\mu$ S/cm)	pH (stand- ard units)	Temper- ature ( $^{\circ}$ C)	Oxygen, dis- solved (mg/L)	Oxygen, dis- solved (per- cent satu- ration)
May							
04...	1540	1.00	222	7.5	21.5	7.7	88
04...	1541	10.0	222	7.5	21.0	7.6	85
04...	1542	18.0	222	7.4	20.0	6.5	71

Table 17.--Chemical-quality survey of Cedar Creek Reservoir, May 04, 1982--Continued

322119096095401 SITE Gc

Date	Time	Sam- pling depth (feet)	Spe- cific con- duct- ance ( $\mu$ S/cm)	pH (stand- ard units)	Temper- ature ( $^{\circ}$ C)	Trans- par- ency (secchi disk) (m)	Oxygen, dis- solved (mg/L)	Oxygen, dis- solved (per- cent satu- ration)	Hard- ness (mg/L CaCO <sub>3</sub> )
May									
04...	1500	1.00	216	8.0	22.0	.40	8.8	101	66
04...	1501	5.00	216	7.9	22.0	--	8.8	101	--
04...	1502	10.0	222	7.4	21.0	--	7.5	84	--
04...	1503	15.0	222	7.0	19.5	--	5.4	59	--
04...	1504	21.0	222	7.0	19.0	--	4.5	48	68

Date	Hard- ness, noncar- bonate (mg/L CaCO <sub>3</sub> )	Calcium, dis- solved (mg/L)	Magne- sium, dis- solved (mg/L)	Sodium, dis- solved (mg/L)	Sodium ad- sorp- tion ratio	Potas- sium, dis- solved (mg/L)	Alka- linity, field (mg/L CaCO <sub>3</sub> )	Sulfate, dis- solved (mg/L)	Chlo- ride, dis- solved (mg/L)
May									
04...	13	20	4.0	15	.8	4.5	54	22	16
04...	--	--	--	--	--	--	--	--	--
04...	--	--	--	--	--	--	--	--	--
04...	--	--	--	--	--	--	--	--	--
04...	12	20	4.3	15	.8	4.5	56	25	16

Date	Silica, dis- solved (mg/L)	Solids, sum of consti- tuents, dis- solved (mg/L)	Nitro- gen, NO <sub>2</sub> +NO <sub>3</sub> total (mg/L)	Nitro- gen, am- monia + organic total (mg/L)	Nitro- gen, total (mg/L)	Phos- phorus, total (mg/L)	Iron, dis- solved ( $\mu$ g/L)	Manga- nese, dis- solved ( $\mu$ g/L)
May								
04...	1.5	120	<.100	1.4	--	.050	<9	<3
04...	--	--	--	--	--	--	--	--
04...	--	--	<.100	1.0	--	.050	10	20
04...	--	--	--	--	--	--	--	--
04...	3.2	120	.100	1.7	1.8	.170	<9	48

Table 18.--Chemical-quality survey of Cedar Creek Reservoir, August 10, 1982

[ $\mu$ S/cm, microsiemens per centimeter at 25° Celsius; °C, degrees Celsius; m, meters; mg/L, milligrams per liter;  $\mu$ g/L, micrograms per liter; fet-fl'd, fixed end point tritration-field]

321111096042901 SITE Ar

Date	Time	Sam- pling depth (feet)	Spe- cific con- duct- ance ( $\mu$ S/cm)	pH (stand- ard units)	Temper- ature (°C)	Oxygen, dis- solved (mg/L)	Oxygen, dis- solved (per- cent satu- ration)
Aug							
10...	1120	1.00	213	7.3	29.0	5.8	75
10...	1122	10.0	213	7.2	28.5	5.2	68
10...	1124	20.0	213	6.9	28.5	3.4	44
10...	1126	30.0	220	6.7	27.5	.2	3
10...	1128	40.0	220	6.6	25.5	.2	2

321113096041201 SITE Ac

Date	Time	Sam- pling depth (feet)	Spe- cific con- duct- ance ( $\mu$ S/cm)	pH (stand- ard units)	Temper- ature (°C)	Trans- par- ency (secchi disk) (m)	Oxygen, dis- solved (mg/L)	Oxygen, dis- solved (per- cent satu- ration)	Hard- ness (mg/L CaCO <sub>3</sub> )
Aug									
10...	1040	1.00	213	7.3	29.0	2.10	5.6	73	67
10...	1042	10.0	213	7.1	28.5	--	4.5	58	--
10...	1044	20.0	213	7.0	28.5	--	3.9	51	--
10...	1046	25.0	213	6.9	28.5	--	3.3	43	--
10...	1048	30.0	218	6.7	27.5	--	.2	3	--
10...	1050	35.0	218	6.6	26.5	--	.2	2	--
10...	1052	40.0	220	6.6	25.0	--	.2	2	--
10...	1054	50.0	224	6.6	22.5	--	.2	2	--
10...	1056	60.0	231	6.6	21.5	--	.2	2	71

Date	Hard- ness, noncar- bonate (mg/L CaCO <sub>3</sub> )	Calcium, dis- solved (mg/L)	Magne- sium, dis- solved (mg/L)	Sodium, dis- solved (mg/L)	Sodium ad- sorp- tion ratio	Potas- sium, dis- solved (mg/L)	Alka- linity, field (mg/L CaCO <sub>3</sub> )	Sulfate, dis- solved (mg/L)	Chlo- ride, dis- solved (mg/L)
Aug									
10...	8	20	4.2	17	.9	4.5	59	23	17
10...	--	--	--	--	--	--	--	--	--
10...	--	--	--	--	--	--	--	--	--
10...	--	--	--	--	--	--	--	--	--
10...	--	--	--	--	--	--	--	--	--
10...	--	--	--	--	--	--	--	--	--
10...	--	--	--	--	--	--	--	--	--
10...	0	21	4.4	16	.9	4.5	82	13	17

Table 18.--Chemical-quality survey of Cedar Creek Reservoir, August 10, 1982--Continued

321113096041201 SITE Ac--Continued

Date	Fluoride, dissolved (mg/L)	Silica, dissolved (mg/L)	Solids, sum of constituents, dissolved (mg/L)	Nitrogen, NO <sub>2</sub> +NO <sub>3</sub> total (mg/L)	Nitrogen, ammonia total (mg/L)	Phosphorus, total (mg/L)	Iron, dissolved (µg/L)	Manganese, dissolved (µg/L)
Aug								
10...	.20	2.5	120	<.100	1.1	.040	<3	8
10...	--	--	--	--	--	--	--	--
10...	--	--	--	<.100	1.2	.060	20	80
10...	--	--	--	--	--	--	--	--
10...	--	--	--	<.100	1.2	.050	60	760
10...	--	--	--	--	--	--	--	--
10...	--	--	--	--	--	--	--	--
10...	--	--	--	--	--	--	--	--
10...	--	8.6	140	<.100	2.5	.500	1300	2800

321116096035301 SITE A1

Date	Time	Sampling depth (feet)	Specific conductance (µS/cm)	pH (standard units)	Temperature (°C)	Oxygen, dissolved (mg/L)	Oxygen, dissolved (percent saturation)
Aug							
10...	1140	1.00	213	7.3	28.5	6.0	78
10...	1142	10.0	213	7.3	28.5	5.6	73
10...	1144	20.0	213	7.1	28.5	4.7	61
10...	1146	30.0	213	6.7	28.0	1.7	22
10...	1148	40.0	220	6.6	26.0	.2	2

321227096032701 SITE Bc

Date	Time	Sampling depth (feet)	Specific conductance (µS/cm)	pH (standard units)	Temperature (°C)	Transparency (secchi disk) (m)	Oxygen, dissolved (mg/L)
Aug							
10...	1205	1.00	213	8.3	29.5	2.10	7.2
10...	1207	10.0	213	8.2	29.5	--	7.0
10...	1209	20.0	213	7.8	29.0	--	6.0
10...	1211	25.0	213	7.2	28.5	--	3.3
10...	1213	30.0	213	7.0	28.0	--	.6
10...	1215	40.0	219	7.0	25.5	--	.2
10...	1217	48.0	226	6.9	23.0	--	.2

Date	Oxygen, dissolved (percent saturation)	Nitrogen, NO <sub>2</sub> +NO <sub>3</sub> total (mg/L)	Nitrogen, ammonia total (mg/L)	Phosphorus, total (mg/L)	Iron, dissolved (µg/L)	Manganese, dissolved (µg/L)
Aug						
10...	95	<.100	3.3	.020	20	<10
10...	92	--	--	--	--	--
10...	78	<.100	.50	.020	10	20
10...	43	--	--	--	--	--
10...	8	<.100	1.0	.040	80	150
10...	2	--	--	--	--	--
10...	2	<.100	2.1	.340	1100	2000

Table 18.--Chemical-quality survey of Cedar Creek Reservoir, August 10, 1982--Continued

321403096060601 SITE Cc

Date	Time	Sam- pling depth (feet)	Spe- cific con- duct- ance ( $\mu$ S/cm)	pH (stand- ard units)	Temper- ature ( $^{\circ}$ C)	Oxygen, dis- solved (mg/L)	Oxygen, dis- solved (per- cent satu- ration)
Aug							
10...	1250	1.00	214	7.9	29.0	6.5	84
10...	1252	10.0	214	7.8	29.0	6.2	81
10...	1254	20.0	214	7.7	29.0	5.9	77
10...	1256	30.0	214	7.6	28.5	5.6	73
10...	1258	40.0	230	6.8	24.5	.2	2
10...	1300	49.0	231	6.8	24.0	.2	2

321548096082301 SITE Dc

Date	Time	Sam- pling depth (feet)	Spe- cific con- duct- ance ( $\mu$ S/cm)	pH (stand- ard units)	Temper- ature ( $^{\circ}$ C)	Trans- par- ency (secchi disk) (m)	Oxygen, dis- solved (mg/L)	Oxygen, dis- solved (per- cent satu- ration)
Aug								
10...	0945	1.00	216	7.5	29.0	.70	4.9	64
10...	0947	10.0	216	7.5	29.0	--	4.5	58
10...	0949	20.0	216	7.5	29.0	--	4.5	58
10...	0951	30.0	216	7.5	29.0	--	4.5	58
10...	0953	35.0	216	7.5	29.0	--	4.3	56
10...	0955	42.0	252	7.1	29.0	--	.2	2

Date	Hard- ness (mg/L CaCO <sub>3</sub> )	Hard- ness, noncar- bonate (mg/L CaCO <sub>3</sub> )	Calcium, dis- solved (mg/L)	Magne- sium, dis- solved (mg/L)	Sodium, dis- solved (mg/L)	Sodium ad- sorp- tion ratio	Potas- sium, dis- solved (mg/L)	Alka- linity, field (mg/L CaCO <sub>3</sub> )	Sulfate, dis- solved (mg/L)
Aug									
10...	68	9	20	4.3	16	.9	4.7	59	24
10...	--	--	--	--	--	--	--	--	--
10...	--	--	--	--	--	--	--	--	--
10...	--	--	--	--	--	--	--	--	--
10...	76	0	23	4.6	16	.8	4.6	90	12

Date	Chlo- ride, dis- solved (mg/L)	Silica, dis- solved (mg/L)	Solids, sum of consti- tuents, dis- solved (mg/L)	Nitro- gen, NO <sub>2</sub> +NO <sub>3</sub> total (mg/L)	Nitro- gen, ammonia total (mg/L)	Phos- phorus, total (mg/L)	Iron, dis- solved ( $\mu$ g/L)	Manga- nese, dis- solved ( $\mu$ g/L)
Aug								
10...	17	3.3	120	<.100	1.2	.060	<3	11
10...	--	--	--	--	--	--	--	--
10...	--	--	--	--	--	--	--	--
10...	--	--	--	<.100	1.3	.070	60	500
10...	--	--	--	--	--	--	--	--
10...	15	8.5	140	<.100	2.8	.700	1700	4100

Table 18.--Chemical-quality survey of Cedar Creek Reservoir, August 10, 1982--Continued

321818096064301 SITE Ec

Date	Time	Sam- pling depth (feet)	Spe- cific con- duct- ance ( $\mu$ S/cm)	pH (stand- ard units)	Temper- ature ( $^{\circ}$ C)	Trans- par- ency (secchi disk (m)	Oxygen, dis- solved (mg/L)
Aug							
10...	1310	1.00	220	8.6	30.0	.80	7.6
10...	1312	10.0	220	8.3	30.0	--	6.6
10...	1314	20.0	223	7.9	29.5	--	4.3

Date	Oxygen, dis- solved (per- cent satu- ration)	Nitro- gen, NO <sub>2</sub> +NO <sub>3</sub> total (mg/L)	Nitro- gen, ammonia total (mg/L)	Phos- phorus, total (mg/L)	Iron, dis- solved ( $\mu$ g/L)	Manga- nese, dis- solved ( $\mu$ g/L)
Aug						
10...	101	<.100	.80	.050	30	<10
10...	88	--	--	--	--	--
10...	57	<.100	1.4	.070	40	100

321843096101701 SITE Fc

Date	Time	Sam- pling depth (feet)	Spe- cific con- duct- ance ( $\mu$ S/cm)	pH (stand- ard units)	Temper- ature ( $^{\circ}$ C)	Oxygen, dis- solved (mg/L)	Oxygen, dis- solved (per- cent satu- ration)
Aug							
10...	1400	1.00	217	8.5	30.0	7.8	104
10...	1402	10.0	217	8.1	29.5	6.4	84
10...	1404	20.0	217	7.6	29.0	5.4	70
10...	1406	33.0	217	7.5	29.0	5.2	68

322119096104901 SITE Gr

Date	Time	Sam- pling depth (feet)	Spe- cific con- duct- ance ( $\mu$ S/cm)	pH (stand- ard units)	Temper- ature ( $^{\circ}$ C)	Oxygen, dis- solved (mg/L)	Oxygen, dis- solved (per- cent satu- ration)
Aug							
10...	1445	1.00	216	8.3	29.5	7.6	100
10...	1447	10.0	216	8.0	29.5	7.0	92
10...	1449	16.0	216	7.4	29.0	5.1	66

322119096095401 SITE Gc

Date	Time	Sam- pling depth (feet)	Spe- cific con- duct- ance ( $\mu$ S/cm)	pH (stand- ard units)	Temper- ature ( $^{\circ}$ C)	Trans- par- ency (secchi disk (m)	Oxygen, dis- solved (mg/L)	Oxygen, dis- solved (per- cent satu- ration)
Aug								
10...	1425	1.00	216	7.7	29.5	.50	6.2	82
10...	1427	10.0	216	7.6	29.0	--	5.9	77
10...	1429	21.0	216	7.3	29.0	--	4.8	62

Table 18.--Chemical-quality survey of Cedar Creek Reservoir, August 10, 1982--Continued

322119096095401 SITE Gc--Continued

Date	Hardness (mg/L CaCO <sub>3</sub> )	Hardness, noncarbonate (mg/L CaCO <sub>3</sub> )	Calcium, dissolved (mg/L)	Magnesium, dissolved (mg/L)	Sodium, dissolved (mg/L)	Sodium adsorption ratio	Potassium, dissolved (mg/L)	Alkalinity, field (mg/L CaCO <sub>3</sub> )	Sulfate, dissolved (mg/L)
Aug									
10...	70	9	21	4.2	17	.9	4.9	61	23
10...	--	--	--	--	--	--	--	--	--
10...	67	6	20	4.2	17	.9	5.0	61	23

Date	Chloride, dissolved (mg/L)	Silica, dissolved (mg/L)	Solids, sum of constituents, dissolved (mg/L)	Nitrogen, NO <sub>2</sub> +NO <sub>3</sub> total (mg/L)	Nitrogen, ammonia total (mg/L)	Phosphorus, total (mg/L)	Iron, dissolved (µg/L)	Manganese, dissolved (µg/L)
Aug								
10...	17	3.5	130	<.100	2.0	.070	<3	2
10...	--	--	--	--	--	--	--	--
10...	17	3.7	130	<.100	2.2	.080	<3	41

Table 19.--Chemical-quality survey of Cedar Creek Reservoir, January 11, 1983

[ $\mu$ S/cm, microsiemens per centimeter at 25° Celsius; °C, degrees Celsius; m, meters; mg/L, milligrams per liter;  $\mu$ g/L, micrograms per liter; fet-fld, fixed end point titration-field]

321111096042901 SITE Ar

Date	Time	Sam- pling depth (feet)	Spe- cific con- duct- ance ( $\mu$ S/cm)	pH (stand- ard units)	Temper- ature (°C)	Oxygen, dis- solved (mg/L)	Oxygen, dis- solved (per- cent satu- ration)
Jan							
11...	1335	1.00	222	7.5	10.5	9.5	86
11...	1336	10.0	222	7.5	10.0	9.5	84
11...	1337	20.0	222	7.5	9.5	9.4	82
11...	1338	30.0	222	7.5	9.5	9.3	82
11...	1339	40.0	222	7.4	9.5	9.1	80
11...	1340	48.0	222	7.4	9.5	9.0	79

321113096041201 SITE Ac

Date	Time	Sam- pling depth (feet)	Spe- cific con- duct- ance ( $\mu$ S/cm)	pH (stand- ard units)	Temper- ature (°C)	Trans- par- ency (secchi disk (m))	Oxygen, dis- solved (mg/L)	Oxygen, dis- solved (per- cent satu- ration)	Hard- ness (mg/L CaCO <sub>3</sub> )
Jan									
11...	1325	1.00	222	7.5	10.5	1.20	9.5	86	67
11...	1326	10.0	222	7.5	10.0	--	9.5	84	--
11...	1327	20.0	222	7.5	9.5	--	9.4	82	--
11...	1328	30.0	222	7.5	9.5	--	9.4	82	--
11...	1329	40.0	222	7.4	9.5	--	9.2	81	--
11...	1330	50.0	222	7.4	9.5	--	9.0	79	--
11...	1331	54.0	222	7.4	9.5	--	9.0	79	67

Date	Hard- ness, noncar- bonate (mg/L CaCO <sub>3</sub> )	Calcium, dis- solved (mg/L)	Magne- sium, dis- solved (mg/L)	Sodium, dis- solved (mg/L)	Sodium ad- sorp- tion ratio	Potas- sium, dis- solved (mg/L)	Alka- linity, field (mg/L CaCO <sub>3</sub> )	Sulfate, dis- solved (mg/L)	Chlo- ride, dis- solved (mg/L)
Jan									
11...	8	20	4.2	15	.8	4.4	59	22	17
11...	--	--	--	--	--	--	--	--	--
11...	--	--	--	--	--	--	--	--	--
11...	--	--	--	--	--	--	--	--	--
11...	--	--	--	--	--	--	--	--	--
11...	10	20	4.1	15	.8	4.4	57	22	17

Table 19.--Chemical-quality survey of Cedar Creek Reservoir, January 11, 1983--Continued

321113096041201 SITE Ac--Continued

Date	Fluoride, dissolved (mg/L)	Silica, dissolved (mg/L)	Solids, sum of constituents, dissolved (mg/L)	Nitrogen, NO <sub>2</sub> +NO <sub>3</sub> total (mg/L)	Nitrogen, ammonia total (mg/L)	Nitrogen, total (mg/L)	Phosphorus, total (mg/L)	Iron, dissolved (µg/L)	Manganese, dissolved (µg/L)
Jan									
11...	.30	2.5	120	0.100	0.90	1.0	0.010	5	<1
11...	--	--	--	--	--	--	--	--	--
11...	--	--	--	--	--	--	--	--	--
11...	--	--	--	.100	1.0	1.1	.020	20	<10
11...	--	--	--	--	--	--	--	--	--
11...	--	--	--	--	--	--	--	--	--
11...	--	2.6	120	.100	.60	.70	.020	10	19

321116096035301 SITE A1

Date	Time	Sam-pling depth (feet)	Spe-cific con-ductance (µS/cm)	pH (stand-ard units)	Temper-ature (°C)	Oxygen, dis-solved (mg/L)	Oxygen, dis-solved (per-cent satu-ration)
Jan							
11...	1400	1.00	222	7.5	10.5	9.5	86
11...	1401	10.0	222	7.5	10.0	9.5	84
11...	1402	20.0	222	7.5	9.5	9.4	82
11...	1403	30.0	222	7.5	9.5	9.2	81
11...	1404	40.0	222	7.4	9.5	9.1	80
11...	1405	47.0	222	7.4	9.5	9.0	79

321227096032701 SITE Bc

Date	Time	Sam-pling depth (feet)	Spe-cific con-ductance (µS/cm)	pH (stand-ard units)	Temper-ature (°C)	Trans-par-ency (secchi disk) (m)	Oxygen, dis-solved (mg/L)
Jan							
11...	1415	1.00	224	7.6	10.5	1.30	9.5
11...	1416	10.0	224	7.5	10.0	--	9.5
11...	1417	20.0	224	7.4	10.0	--	9.2
11...	1418	30.0	224	7.4	10.0	--	9.2
11...	1419	40.0	224	7.4	10.0	--	9.1
11...	1420	49.0	224	7.4	10.0	--	9.1

Date	Oxygen, dis-solved (per-cent satu-ration)	Nitrogen, NO <sub>2</sub> +NO <sub>3</sub> total (mg/L)	Nitrogen, ammonia total (mg/L)	Nitrogen, total (mg/L)	Phos-phorus, total (mg/L)	Iron, dis-solved (µg/L)	Manga-nese, dis-solved (µg/L)
Jan							
11...	86	0.100	0.80	0.90	<0.010	90	30
11...	84	--	--	--	--	--	--
11...	81	--	--	--	--	--	--
11...	81	--	--	--	--	--	--
11...	81	--	--	--	--	--	--
11...	81	.100	.80	.90	.010	120	50

Table 19.--Chemical-quality survey of Cedar Creek Reservoir, January 11, 1983--Continued

321403096060601 SITE Cc

Date	Time	Sam- pling depth (feet)	Spe- cific con- duct- ance ( $\mu$ S/cm)	pH (stand- ard units)	Temper- ature ( $^{\circ}$ C)	Oxygen, dis- solved (mg/L)	Oxygen, dis- solved (per- cent satu- ration)
Jan							
11...	1445	1.00	221	7.6	10.0	9.7	86
11...	1446	10.0	221	7.5	10.0	9.6	85
11...	1447	20.0	221	7.5	9.5	9.4	82
11...	1448	30.0	221	7.5	9.5	9.3	82
11...	1449	40.0	221	7.5	9.5	9.3	82
11...	1450	50.0	221	7.4	9.5	9.2	81

321548096082301 SITE Dc

Date	Time	Sam- pling depth (feet)	Spe- cific con- duct- ance ( $\mu$ S/cm)	pH (stand- ard units)	Temper- ature ( $^{\circ}$ C)	Trans- par- ency (secchi disk) (m)	Oxygen, dis- solved (mg/L)	Oxygen, dis- solved (per- cent satu- ration)	Hard- ness (mg/L CaCO <sub>3</sub> )
Jan									
11...	1225	1.00	209	7.3	10.0	0.70	9.5	84	64
11...	1226	10.0	209	7.2	9.0	--	9.2	80	--
11...	1227	20.0	209	7.2	9.0	--	9.1	79	--
11...	1228	30.0	209	7.2	9.0	--	9.1	79	--
11...	1229	40.0	209	7.1	9.0	--	9.0	78	--
11...	1230	44.0	209	7.1	9.0	--	9.0	78	60

Date	Hard- ness, noncar- bonate (mg/L CaCO <sub>3</sub> )	Calcium, dis- solved (mg/L)	Magne- sium, dis- solved (mg/L)	Sodium, dis- solved (mg/L)	Sodium ad- sorp- tion ratio	Potas- sium, dis- solved (mg/L)	Alka- linity, dis- solved (mg/L CaCO <sub>3</sub> )	Sulfate, dis- solved (mg/L)	Chlo- ride, dis- solved (mg/L)
Jan									
11...	12	19	3.9	14	0.8	4.3	52	24	16
11...	--	--	--	--	--	--	--	--	--
11...	--	--	--	--	--	--	--	--	--
11...	--	--	--	--	--	--	--	--	--
11...	--	--	--	--	--	--	--	--	--
11...	8	18	3.7	14	.8	4.3	52	22	16

Date	Silica, dis- solved (mg/L)	Solids, sum of consti- tuents, dis- solved (mg/L)	Nitro- gen, NO <sub>2</sub> +NO <sub>3</sub> total (mg/L)	Nitro- gen, am- monia + organic total (mg/L)	Nitro- gen, total (mg/L)	Phos- phorus, total (mg/L)	Iron, dis- solved ( $\mu$ g/L)	Manga- nese, dis- solved ( $\mu$ g/L)
Jan								
11...	3.2	120	0.100	0.80	0.90	0.050	99	26
11...	--	--	--	--	--	--	--	--
11...	--	--	.200	.90	1.1	.050	110	20
11...	--	--	--	--	--	--	--	--
11...	--	--	--	--	--	--	--	--
11...	3.3	110	.200	1.0	1.2	.030	99	24

Table 19.--Chemical-quality survey of Cedar Creek Reservoir, January 11, 1983--Continued

## 321818096064301 SITE Ec

Date	Time	Sam- pling depth (feet)	Spe- cific con- duct- ance ( $\mu$ S/cm)	pH (stand- ard units)	Temper- ature ( $^{\circ}$ C)	Trans- par- ency (secchi disk) (m)	Oxygen, dis- solved (mg/L)
Jan							
11...	1545	1.00	217	7.6	9.5	0.70	9.8
11...	1546	10.0	217	7.6	9.5	--	9.8
11...	1547	20.0	217	7.5	9.5	--	9.7

Date	Oxygen, dis- solved (per- cent satu- ration)	Nitro- gen, NO <sub>2</sub> +ND <sub>3</sub> total (mg/L)	Nitro- gen, ammonia total (mg/L)	Nitro- gen, total (mg/L)	Phos- phorus, total (mg/L)	Iron, dis- solved ( $\mu$ g/L)	Manga- nese, dis- solved ( $\mu$ g/L)
Jan							
11...	86	0.100	0.80	0.90	0.030	260	30
11...	86	--	--	--	--	--	--
11...	85	.100	.70	.80	.030	220	20

## 321843096101701 SITE Fc

Date	Time	Sam- pling depth (feet)	Spe- cific con- duct- ance ( $\mu$ S/cm)	pH (stand- ard units)	Temper- ature ( $^{\circ}$ C)	Oxygen, dis- solved (mg/L)	Oxygen, dis- solved (per- cent satu- ration)
Jan							
11...	1615	1.00	195	7.4	9.0	9.6	83
11...	1616	10.0	196	7.4	9.0	9.5	83
11...	1617	20.0	196	7.4	9.0	9.4	82
11...	1618	31.0	197	7.4	9.0	9.4	82

## 322119096095401 SITE Gc

Date	Time	Sam- pling depth (feet)	Spe- cific con- duct- ance ( $\mu$ S/cm)	pH (stand- ard units)	Temper- ature ( $^{\circ}$ C)	Oxygen, dis- solved (mg/L)	Oxygen, dis- solved (per- cent satu- ration)	Hard- ness (mg/L CaCO <sub>3</sub> )
Jan								
11...	1630	1.00	187	7.4	9.0	9.6	83	57
11...	1631	10.0	187	7.4	9.0	9.6	83	--
11...	1632	22.0	187	7.3	8.5	9.4	81	57

Date	Hard- ness, noncar- bonate (mg/L CaCO <sub>3</sub> )	Calcium, dis- solved (mg/L)	Magne- sium, dis- solved (mg/L)	Sodium, dis- solved (mg/L)	Sodium ad- sorp- tion ratio	Potas- sium, dis- solved (mg/L)	Alka- linity, field (mg/L CaCO <sub>3</sub> )	Sulfate, dis- solved (mg/L)	Chlo- ride, dis- solved (mg/L)
Jan									
11...	9	17	3.5	13	0.8	4.2	48	29	14
11...	--	--	--	--	--	--	--	--	--
11...	9	17	3.6	13	.8	4.1	48	28	14

Table 19.--Chemical-quality survey of Cedar Creek Reservoir, January 11, 1983--Continued

322110906095401 SITE Gc--Continued

Date	Silica, dis- solved (mg/L)	Solids, sum of consti- tuents, dis- solved (mg/L)	Nitro- gen, NO <sub>2</sub> +NO <sub>3</sub> total (mg/L)	Nitro- gen, am- monia + organic total (mg/L)	Nitro- gen, total (mg/L)	Phos- phorus, total (mg/L)	Iron, dis- solved (µg/L)	Manga- nese, dis- solved (µg/L)
Jan								
11...	4.7	110	.200	1.1	1.3	.070	370	40
11...	--	--	--	--	--	--	--	--
11...	4.9	110	.200	.90	1.1	.090	400	44

Table 20.--Chemical-quality survey of Cedar Creek Reservoir, May 16, 1983

[ $\mu\text{S/cm}$ , microsiemens per centimeter at 25° Celsius; °C, degrees Celsius; m, meters; mg/L, milligrams per liter;  $\mu\text{g/L}$ , micrograms per liter; fet-fld, fixed end point titration-field]

321111096042901 SITE Ar

Date	Time	Sam- pling depth (feet)	Spe- cific con- duct- ance ( $\mu\text{S/cm}$ )	pH (stand- ard units)	Temper- ature (°C)	Oxygen, dis- solved (mg/L)	Oxygen, dis- solved (per- cent satu- ration)
May							
16...	1430	1.00	218	7.6	22.0	6.7	77
16...	1431	10.0	218	7.6	21.0	6.6	75
16...	1432	20.0	218	7.5	20.5	6.4	72
16...	1433	30.0	218	7.4	20.5	6.4	72
16...	1434	40.0	218	7.4	20.5	6.4	72
16...	1435	50.0	218	7.1	19.0	4.2	46

321113096041201 SITE Ac

Date	Time	Sam- pling depth (feet)	Spe- cific con- duct- ance ( $\mu\text{S/cm}$ )	pH (stand- ard units)	Temper- ature (°C)	Trans- par- ency (Secchi disk) (m)	Oxygen, dis- solved (mg/L)	Oxygen, dis- solved (per- cent satu- ration)	Hard- ness (mg/L $\text{CaCO}_3$ )
May									
16...	1400	1.00	213	7.6	22.0	.90	6.8	79	64
16...	1401	10.0	218	7.6	21.0	--	6.6	75	--
16...	1402	20.0	218	7.5	20.5	--	6.5	73	--
16...	1403	30.0	218	7.5	20.5	--	6.5	73	--
16...	1404	40.0	218	7.4	20.5	--	6.5	73	--
16...	1405	50.0	218	7.1	19.0	--	4.6	50	--
16...	1406	60.0	218	7.0	18.5	--	3.2	34	65

Date	Hard- ness, noncar- bonate (mg/L $\text{CaCO}_3$ )	Calcium, dis- solved (mg/L)	Magne- sium, dis- solved (mg/L)	Sodium, dis- solved (mg/L)	Sodium ad- sorp- tion ratio	Potas- sium, dis- solved (mg/L)	Alka- linity, field (mg/L $\text{CaCO}_3$ )	Sulfate, dis- solved (mg/L)	Chlo- ride, dis- solved (mg/L)
May									
16...	13	19	4.1	15	.8	4.2	51	26	17
16...	--	--	--	--	--	--	--	--	--
16...	--	--	--	--	--	--	--	--	--
16...	--	--	--	--	--	--	--	--	--
16...	--	--	--	--	--	--	--	--	--
16...	13	19	4.2	15	.8	4.3	52	24	17

Table 20.--Chemical-quality survey of Cedar Creek Reservoir, May 16, 1983--Continued

321113096041201 SITE Ac--Continued

Date	Fluoride, dissolved (mg/L)	Silica, dissolved (mg/L)	Solids, sum of constituents, dissolved (mg/L)	Nitrogen, NO <sub>2</sub> +NO <sub>3</sub> total (mg/L)	Nitrogen, ammonia + organic total (mg/L)	Nitrogen, total (mg/L)	Phosphorus, total (mg/L)	Iron, dissolved (µg/L)	Manganese, dissolved (µg/L)
May									
16...	.10	3.9	120	.300	1.0	1.3	.030	34	10
16...	--	--	--	--	--	--	--	--	--
16...	--	--	--	--	--	--	--	--	--
16...	--	--	--	--	--	--	--	--	--
16...	--	--	--	.300	.90	1.2	.030	50	40
16...	--	--	--	.400	.80	1.2	.050	30	160
16...	--	5.4	120	.500	1.6	2.1	.060	36	330

321116096035301 SITE A1

Date	Time	Sam-pling depth (feet)	Spe-cific con-ductance (µS/cm)	pH (stand-ard units)	Temper-ature (°C)	Oxygen, dis-solved (mg/L)	Oxygen, dis-solved (per-cent saturation)
May							
16...	1447	1.00	218	7.6	22.0	6.7	77
16...	1448	10.0	218	7.6	21.0	6.6	75
16...	1449	20.0	218	7.5	20.5	6.5	73
16...	1450	30.0	218	7.5	20.5	6.4	72
16...	1451	40.0	218	7.4	20.5	6.4	72
16...	1452	50.0	218	7.1	19.0	4.2	46

321227096032701 SITE Bc

Date	Time	Sam-pling depth (feet)	Spe-cific con-ductance (µS/cm)	pH (stand-ard units)	Temper-ature (°C)	Trans-par-ency (secchi disk) (m)	Oxygen, dis-solved (mg/L)
May							
16...	1500	1.00	215	7.8	22.5	1.10	6.8
16...	1501	10.0	215	7.6	21.0	--	6.7
16...	1502	20.0	215	7.5	21.0	--	6.5
16...	1503	30.0	215	7.5	20.5	--	6.4
16...	1504	40.0	215	7.1	19.5	--	5.1
16...	1505	50.0	220	7.0	18.5	--	3.0

Date	Oxygen, dis-solved (per-cent saturation)	Nitro-gen, NO <sub>2</sub> +NO <sub>3</sub> total (mg/L)	Nitro-gen, ammonia total (mg/L)	Nitro-gen, total (mg/L)	Phos-phorus, total (mg/L)	Iron, dis-solved (µg/L)	Manga-nese, dis-solved (µg/L)
May							
16...	79	.200	.90	1.1	.020	50	10
16...	76	--	--	--	--	--	--
16...	74	--	--	--	--	--	--
16...	72	.300	1.2	1.5	.030	60	10
16...	56	.300	1.4	1.7	.040	70	40
16...	32	.400	1.4	1.8	.050	50	220

Table 20.--Chemical-quality survey of Cedar Creek Reservoir, May 16, 1983--Continued

321403096060601 SITE Cc

Date	Time	Sam- pling depth (feet)	Spe- cific con- duct- ance ( $\mu$ S/cm)	pH (stand- ard units)	Temper- ature ( $^{\circ}$ C)	Oxygen, dis- solved (mg/L)	Oxygen, dis- solved (per- cent satu- ration)
May							
16...	1520	1.00	214	7.9	22.5	7.0	82
16...	1521	10.0	214	7.5	21.0	6.4	73
16...	1522	20.0	214	7.5	21.0	6.4	73
16...	1523	30.0	214	7.5	21.0	6.4	73
16...	1524	40.0	214	7.5	20.5	6.4	72
16...	1525	50.0	219	7.2	20.5	5.1	57

321548096082301 SITE Dc

Date	Time	Sam- pling depth (feet)	Spe- cific con- duct- ance ( $\mu$ S/cm)	pH (stand- ard units)	Temper- ature ( $^{\circ}$ C)	Trans- par- ency (secchi disk (m)	Oxygen, dis- solved (mg/L)	Oxygen, dis- solved (per- cent satu- ration)	Hard- ness (mg/L CaCO <sub>3</sub> )
May									
16...	1305	1.00	207	7.6	22.0	.50	6.6	76	61
16...	1306	10.0	202	7.5	21.5	--	6.3	72	--
16...	1307	20.0	202	7.5	21.0	--	6.3	71	--
16...	1308	30.0	202	7.5	21.0	--	6.3	71	--
16...	1309	42.0	202	7.4	21.0	--	6.3	71	60

Date	Hard- ness, noncar- bonate (mg/L CaCO <sub>3</sub> )	Calcium, dis- solved (mg/L)	Magne- sium, dis- solved (mg/L)	Sodium, dis- solved (mg/L)	Sodium ad- sorp- tion ratio	Potas- sium, dis- solved (mg/L)	Alka- linity, field (mg/L CaCO <sub>3</sub> )	Sulfate, dis- solved (mg/L)	Chlo- ride, dis- solved (mg/L)
May									
16...	12	18	3.9	14	.8	4.2	49	26	16
16...	--	--	--	--	--	--	--	--	--
16...	--	--	--	--	--	--	--	--	--
16...	--	--	--	--	--	--	--	--	--
16...	11	18	3.7	14	.8	4.1	49	25	15

Date	Silica, dis- solved (mg/L)	Solids, sum of consti- tuents, dis- solved (mg/L)	Nitro- gen, NO <sub>2</sub> +NO <sub>3</sub> total (mg/L)	Nitro- gen, am- monia + organic total (mg/L)	Nitro- gen, total (mg/L)	Phos- phorus, total (mg/L)	Iron, dis- solved ( $\mu$ g/L)	Manga- nese, dis- solved ( $\mu$ g/L)
May								
16...	4.3	120	.300	.90	1.2	.050	29	1
16...	--	--	--	--	--	--	--	--
16...	--	--	.500	.80	1.3	.100	50	10
16...	--	--	--	--	--	--	--	--
16...	4.9	110	.400	1.1	1.5	.090	49	7

Table 20.--Chemical-quality survey of Cedar Creek Reservoir, May 16, 1983--Continued

## 321818096064301 SITE Ec

Date	Time	Sam- pling depth (feet)	Spe- cific con- duct- ance ( $\mu$ S/cm)	pH (stand- ard units)	Temper- ature ( $^{\circ}$ C)	Trans- par- ency (secchi disk) (m)	Oxygen, dis- solved (mg/L)
May							
16...	1540	1.00	220	8.3	23.0	.60	8.1
16...	1541	5.00	220	8.3	23.0	--	8.1
16...	1542	10.0	208	7.6	21.5	--	6.5
16...	1543	19.0	208	7.5	21.5	--	6.2

Date	Oxygen, dis- solved (per- cent satu- ration)	Nitro- gen, NO <sub>2</sub> +NO <sub>3</sub> total (mg/L)	Nitro- gen, ammonia total (mg/L)	Nitro- gen, total (mg/L)	Phos- phorus, total (mg/L)	Iron, dis- solved ( $\mu$ g/L)	Manga- nese, dis- solved ( $\mu$ g/L)
May							
16...	95	<.100	1.4	--	.050	50	<10
16...	95	--	--	--	--	--	--
16...	74	--	--	--	--	--	--
16...	71	.300	1.0	1.3	.080	90	10

## 321843096101701 SITE Fc

Date	Time	Sam- pling depth (feet)	Spe- cific con- duct- ance ( $\mu$ S/cm)	pH (stand- ard units)	Temper- ature ( $^{\circ}$ C)	Oxygen, dis- solved (mg/L)	Oxygen, dis- solved (per- cent satu- ration)
May							
16...	1600	1.00	203	7.7	23.0	6.9	81
16...	1601	5.00	203	7.7	22.0	6.8	79
16...	1602	10.0	195	7.6	21.5	6.6	76
16...	1603	20.0	195	7.6	21.0	6.5	74
16...	1604	32.0	195	7.6	21.0	6.3	71

## 322119096104901 SITE Gr

Date	Time	Sam- pling depth (feet)	Spe- cific con- duct- ance ( $\mu$ S/cm)	pH (stand- ard units)	Temper- ature ( $^{\circ}$ C)	Oxygen, dis- solved (mg/L)	Oxygen, dis- solved (per- cent satu- ration)
May							
16...	1700	1.00	194	7.5	22.5	6.6	77
16...	1701	10.0	194	7.5	21.5	6.5	74
16...	1702	18.0	194	7.5	21.5	6.4	73

Table 20.--Chemical-quality survey of Cedar Creek Reservoir, May 16, 1983--Continued

322119096095401 SITE Gc

Date	Time	Sam- pling depth (feet)	Spe- cific con- duct- ance ( $\mu$ S/cm)	pH (stand- ard units)	Temper- ature ( $^{\circ}$ C)	Trans- par- ency (secchi disk (m)	Oxygen, dis- solved (mg/L)	Oxygen, dis- solved (per- cent satu- ration)	Hard- ness (mg/L CaCO <sub>3</sub> )
May									
16...	1620	1.00	194	7.5	22.5	.20	6.5	76	59
16...	1621	10.0	194	7.5	21.5	--	6.5	74	--
16...	1622	23.0	194	7.5	21.5	--	6.3	72	59
Date	Hard- ness, noncar- bonate (mg/L CaCO <sub>3</sub> )	Calcium, dis- solved (mg/L)	Magne- sium, dis- solved (mg/L)	Sodium, dis- solved (mg/L)	Sodium ad- sorp- tion ratio	Potas- sium, dis- solved (mg/L)	Alka- linity, field (mg/L CaCO <sub>3</sub> )	Sulfate, dis- solved (mg/L)	Chlo- ride, dis- solved (mg/L)
May									
16...	11	18	3.5	13	.8	4.0	48	25	14
16...	--	--	--	--	--	--	--	--	--
16...	11	18	3.4	13	.8	3.9	48	25	14
Date	Silica, dis- solved (mg/L)	Solids, sum of consti- tuents, dis- solved (mg/L)	Nitro- gen, NO <sub>2</sub> +NO <sub>3</sub> total (mg/L)	Nitro- gen, am- monia + organic total (mg/L)	Nitro- gen, total (mg/L)	Phos- phorus, total (mg/L)	Iron, dis- solved ( $\mu$ g/L)	Manga- nese, dis- solved ( $\mu$ g/L)	
May									
16...	6.4	113	.500	1.2	1.7	.120	25	1	
16...	--	--	--	--	--	--	--	--	
16...	6.3	110	.500	1.7	2.2	.120	58	5	

Table 21.--Chemical-quality survey of Cedar Creek Reservoir, August 3, 1983

[ $\mu\text{S}/\text{cm}$ , microsiemens per centimeter at 25° Celsius; °C, degrees Celsius; m, meters; mg/L, milligrams per liter;  $\mu\text{g}/\text{L}$ , micrograms per liter; fet-flt, fixed end point titration-field]

321111096042901 SITE Ar

Date	Time	Sam- pling depth (feet)	Spe- cific con- duct- ance ( $\mu\text{S}/\text{cm}$ )	pH (stand- ard units)	Temper- ature (°C)	Oxygen, dis- solved (mg/L)	Oxygen, dis- solved (per- cent satu- ration)
Aug							
03...	1315	1.00	213	8.6	29.5	6.7	89
03...	1316	10.0	213	8.4	29.0	6.5	85
03...	1317	20.0	214	8.2	28.5	5.8	76
03...	1318	30.0	215	6.8	27.0	.2	3
03...	1319	40.0	221	6.8	22.5	.2	2
03...	1320	50.0	230	6.8	22.0	.2	2

321113096041201 SITE Ac

Date	Time	Sam- pling depth (feet)	Spe- cific con- duct- ance ( $\mu\text{S}/\text{cm}$ )	pH (stand- ard units)	Temper- ature (°C)	Trans- par- ency (secchi disk) (m)	Oxygen, dis- solved (mg/L)	Oxygen, dis- solved (per- cent satu- ration)	Hard- ness (mg/L $\text{CaCO}_3$ )
Aug									
03...	1250	1.00	213	8.6	29.5	1.50	6.7	89	64
03...	1251	10.0	213	8.5	29.5	--	6.6	88	--
03...	1252	20.0	213	8.1	29.5	--	6.2	82	--
03...	1253	25.0	213	7.3	28.5	--	4.3	56	--
03...	1254	30.0	214	6.8	27.0	--	.2	3	--
03...	1255	40.0	221	6.8	24.0	--	.2	2	--
03...	1256	50.0	227	6.8	22.0	--	.2	2	--
03...	1257	60.0	237	6.8	21.0	--	.2	2	70

Date	Hard- ness, noncar- bonate (mg/L $\text{CaCO}_3$ )	Calcium, dis- solved (mg/L)	Magne- sium, dis- solved (mg/L)	Sodium, dis- solved (mg/L)	Sodium ad- sorp- tion ratio	Potas- sium, dis- solved (mg/L)	Alka- linity, field (mg/L $\text{CaCO}_3$ )	Sulfate, dis- solved (mg/L)	Chlo- ride, dis- solved (mg/L)
Aug									
03...	13	19	4.1	15	.8	3.9	51	22	16
03...	--	--	--	--	--	--	--	--	--
03...	--	--	--	--	--	--	--	--	--
03...	--	--	--	--	--	--	--	--	--
03...	--	--	--	--	--	--	--	--	--
03...	--	--	--	--	--	--	--	--	--
03...	0	21	4.2	15	.8	4.3	74	15	16

Table 21.--Chemical-quality survey of Cedar Creek Reservoir, August 3, 1983--Continued

## 321113096041201 SITE Ac--Continued

Date	Fluoride, dissolved (mg/L)	Silica, dissolved (mg/L)	Solids, sum of constituents, dissolved (mg/L)	Nitrogen, NO <sub>2</sub> +NO <sub>3</sub> total (mg/L)	Nitrogen, ammonia total (mg/L)	Phosphorus, total (mg/L)	Iron, dissolved (µg/L)	Manganese, dissolved (µg/L)
Aug 03...	.20	4.2	120	<.100	.90	.050	24	9
03...	--	--	--	--	--	--	--	--
03...	--	--	--	<.100	.70	.040	20	70
03...	--	--	--	--	--	--	--	--
03...	--	--	--	<.100	.80	.060	110	360
03...	--	--	--	--	--	--	--	--
03...	--	--	--	--	--	--	--	--
03...	--	7.7	130	<.100	2.0	.490	1000	2100

## 321116096035301 SITE A1

Date	Time	Sam-pling depth (feet)	Spe-cific con-ductance (µS/cm)	pH (stand-ard units)	Temper-ature (°C)	Oxygen, dis-solved (mg/L)	Oxygen, dis-solved (per-cent saturation)
Aug 03...	1330	1.00	213	8.5	29.5	6.4	85
03...	1331	10.0	213	8.3	29.5	6.4	85
03...	1332	20.0	213	7.7	28.5	5.1	66
03...	1333	30.0	215	6.8	26.5	.2	3
03...	1334	40.0	221	6.8	24.5	.2	2
03...	1335	51.0	230	6.8	22.5	.2	2

## 321227096032701 SITE Bc

Date	Time	Sam-pling depth (feet)	Spe-cific con-ductance (µS/cm)	pH (stand-ard units)	Temper-ature (°C)	Trans-par-ency (secchi disk) (m)	Oxygen, dis-solved (mg/L)
Aug 03...	1350	1.00	213	7.5	28.5	1.50	4.8
03...	1351	10.0	213	7.4	28.5	--	4.7
03...	1352	20.0	213	7.2	28.0	--	3.8
03...	1353	25.0	213	6.8	26.5	--	.2
03...	1354	30.0	214	6.8	25.5	--	.2
03...	1355	40.0	223	6.8	23.0	--	.2
03...	1356	47.0	230	6.8	22.0	--	.2

Date	Oxygen, dis-solved (per-cent saturation)	Nitro-gen, NO <sub>2</sub> +NO <sub>3</sub> total (mg/L)	Nitro-gen, ammonia total (mg/L)	Phos-phorus, total (mg/L)	Iron, dis-solved (µg/L)	Manga-nese, dis-solved (µg/L)
Aug 03...	63	<.100	1.0	.040	20	50
03...	61	--	--	--	--	--
03...	49	<.100	1.2	.050	30	130
03...	3	--	--	--	--	--
03...	2	<.100	1.0	.070	350	560
03...	2	--	--	--	--	--
03...	2	<.100	1.9	.250	910	1700

Table 21.--Chemical-quality survey of Cedar Creek Reservoir, August 3, 1983--Continued

321403096060601 SITE Cc

Date	Time	Sam- pling depth (feet)	Spe- cific con- duct- ance ( $\mu$ S/cm)	pH (stand- ard units)	Temper- ature ( $^{\circ}$ C)	Oxygen, dis- solved (mg/L)	Oxygen, dis- solved (per- cent satu- ration)
Aug							
03...	1420	1.00	213	8.3	29.5	6.4	85
03...	1421	10.0	213	8.2	29.0	6.3	83
03...	1422	20.0	215	6.9	28.5	2.1	27
03...	1423	30.0	216	6.8	26.0	.2	2
03...	1424	40.0	225	6.8	23.5	.2	2
03...	1425	52.0	237	6.8	22.5	.2	2

321548096082301 SITE Dc

Date	Time	Sam- pling depth (feet)	Spe- cific con- duct- ance ( $\mu$ S/cm)	pH (stand- ard units)	Temper- ature ( $^{\circ}$ C)	Trans- par- ency (secchi disk (m)	Oxygen, dis- solved (mg/L)	Oxygen, dis- solved (per- cent satu- ration)
Aug								
03...	1204	1.00	213	8.2	29.5	1.00	5.7	76
03...	1205	10.0	213	8.0	29.5	--	5.6	74
03...	1206	20.0	213	8.0	29.5	--	5.5	73
03...	1207	25.0	219	6.9	29.0	--	1.5	20
03...	1208	30.0	220	6.8	26.0	--	.2	2
03...	1209	40.0	235	6.8	24.0	--	.2	2
03...	1210	46.0	240	6.8	23.5	--	.2	2

Date	Hard- ness (mg/L CaCO <sub>3</sub> )	Hard- ness, noncar- bonate (mg/L CaCO <sub>3</sub> )	Calcium, dis- solved (mg/L)	Magne- sium, dis- solved (mg/L)	Sodium, dis- solved (mg/L)	Sodium ad- sorp- tion ratio	Potas- sium, dis- solved (mg/L)	Alka- linity, field (mg/L CaCO <sub>3</sub> )	Sulfate, dis- solved (mg/L)
Aug									
03...	64	12	19	4.0	15	.8	4.4	52	24
03...	--	--	--	--	--	--	--	--	--
03...	--	--	--	--	--	--	--	--	--
03...	--	--	--	--	--	--	--	--	--
03...	--	--	--	--	--	--	--	--	--
03...	73	0	22	4.5	15	.8	4.1	75	14

Date	Chlo- ride, dis- solved (mg/L)	Silica, dis- solved (mg/L)	Solids, sum of consti- tuents, dis- solved (mg/L)	Nitro- gen, NO <sub>2</sub> +NO <sub>3</sub> total (mg/L)	Nitro- gen, ammonia total (mg/L)	Phos- phorus, total (mg/L)	Iron, dis- solved ( $\mu$ g/L)	Manga- nese, dis- solved ( $\mu$ g/L)
Aug								
03...	16	4.3	120	<.100	.90	.060	12	19
03...	--	--	--	--	--	--	--	--
03...	--	--	--	<.100	.80	.060	30	190
03...	--	--	--	--	--	--	--	--
03...	--	--	--	<.100	1.0	.060	40	300
03...	--	--	--	--	--	--	--	--
03...	16	9.2	130	<.100	2.1	.760	2400	2300

Table 21.--Chemical-quality survey of Cedar Creek Reservoir, August 3, 1983--Continued

## 321818096064301 SITE Ec

Date	Time	Sam- pling depth (feet)	Spe- cific con- duct- ance ( $\mu$ S/cm)	pH (stand- ard units)	Temper- ature ( $^{\circ}$ C)	Trans- par- ency (secchi disk) (m)	Oxygen, dis- solved (mg/L)
Aug							
03...	1500	1.00	213	7.6	29.0	.80	4.8
03...	1501	10.0	213	7.5	29.0	--	4.7
03...	1502	20.0	213	7.1	28.5	--	1.0

Date	Oxygen, dis- solved (per- cent satu- ration)	Nitro- gen, NO <sub>2</sub> +NO <sub>3</sub> total (mg/L)	Nitro- gen, ammonia total (mg/L)	Phos- phorus, total (mg/L)	Iron, dis- solved ( $\mu$ g/L)	Manga- nese, dis- solved ( $\mu$ g/L)
Aug						
03...	63	<.100	1.3	.060	30	50
03...	62	--	--	--	--	--
03...	13	<.100	1.0	.100	60	280

## 321843096101701 SITE Fc

Date	Time	Sam- pling depth (feet)	Spe- cific con- duct- ance ( $\mu$ S/cm)	pH (stand- ard units)	Temper- ature ( $^{\circ}$ C)	Oxygen, dis- solved (mg/L)	Oxygen, dis- solved (per- cent satu- ration)
Aug							
03...	1515	1.00	213	8.6	30.0	6.5	87
03...	1516	20.0	213	8.2	29.5	6.2	82
03...	1517	30.0	220	7.0	28.5	.2	3

## 322119096095401 SITE Gc

Date	Time	Sam- pling depth (feet)	Spe- cific con- duct- ance ( $\mu$ S/cm)	pH (stand- ard units)	Temper- ature ( $^{\circ}$ C)	Trans- par- ency (secchi disk) (m)	Oxygen, dis- solved (mg/L)	Oxygen, dis- solved (per- cent satu- ration)
Aug								
03...	1600	1.00	213	8.7	30.5	.60	5.9	80
03...	1601	10.0	213	8.6	30.5	--	5.9	80
03...	1602	18.0	213	8.3	30.0	--	5.7	76

Table 21.--Chemical-quality survey of Cedar Creek Reservoir, August 3, 1983--Continued

322119096095401 SITE Gc--Continued

Date	Hardness (mg/L CaCO <sub>3</sub> )	Hardness, noncarbonate (mg/L CaCO <sub>3</sub> )	Calcium, dissolved (mg/L)	Magnesium, dissolved (mg/L)	Sodium, dissolved (mg/L)	Sodium adsorption ratio	Potassium, dissolved (mg/L)	Alkalinity, field (mg/L CaCO <sub>3</sub> )	Sulfate, dissolved (mg/L)
Aug 03...	64	10	19	4.0	15	.8	4.6	54	24
03...	--	--	--	--	--	--	--	--	--
03...	64	12	19	3.9	15	.9	3.7	52	25

Date	Chloride, dissolved (mg/L)	Silica, dissolved (mg/L)	Solids, sum of constituents, dissolved (mg/L)	Nitrogen, NO <sub>2</sub> +NO <sub>3</sub> total (mg/L)	Nitrogen, ammonia + organic total (mg/L)	Phosphorus, total (mg/L)	Iron, dissolved (µg/L)	Manganese, dissolved (µg/L)
Aug 03...	16	4.4	120	<.100	1.0	.060	5	6
03...	--	--	--	--	--	--	--	--
03...	17	4.4	120	<.100	1.2	.090	7	19

Table 22.--Chemical-quality survey of Cedar Creek Reservoir, February 23, 1984

[ $\mu\text{S}/\text{cm}$ , microsiemens per centimeter at 25° Celsius; °C, degrees Celsius; m, meters; mg/L, milligrams per liter;  $\mu\text{g}/\text{L}$ , micrograms per liter; fet-fl'd, fixed end point titration-field]

321111096042901 SITE Ar

Date	Time	Sam- pling depth (feet)	Spe- cific con- duct- ance ( $\mu\text{S}/\text{cm}$ )	pH (stand- ard units)	Temper- ature (°C)	Oxygen, dis- solved (mg/L)	Oxygen, dis- solved (per- cent satu- ration)
Feb							
23...	1050	1.00	235	7.5	7.5	9.2	78
23...	1052	10.0	235	7.5	7.5	9.2	78
23...	1054	20.0	235	7.5	7.0	9.1	76
23...	1056	30.0	235	7.5	7.0	9.1	76
23...	1058	40.0	235	7.5	7.0	9.1	76
23...	1100	48.0	235	7.5	7.0	9.1	76

321113096041201 SITE Ac

Date	Time	Sam- pling depth (feet)	Spe- cific con- duct- ance ( $\mu\text{S}/\text{cm}$ )	pH (stand- ard units)	Temper- ature (°C)	Trans- par- ency (secchi disk) (m)	Oxygen, dis- solved (mg/L)	Oxygen, dis- solved (per- cent satu- ration)	Hard- ness (mg/L $\text{CaCO}_3$ )
Feb									
23...	1020	1.00	235	7.6	7.5	1.80	9.4	80	71
23...	1022	10.0	235	7.6	7.5	--	9.4	80	--
23...	1024	20.0	235	7.5	7.5	--	9.3	79	--
23...	1026	30.0	235	7.5	7.5	--	9.3	79	--
23...	1028	40.0	235	7.5	7.5	--	9.2	78	--
23...	1030	50.0	235	7.4	7.0	--	9.2	77	--
23...	1032	60.0	235	7.3	7.0	--	9.0	75	67

Date	Hard- ness, noncar- bonate (mg/L $\text{CaCO}_3$ )	Calcium, dis- solved (mg/L)	Magne- sium, dis- solved (mg/L)	Sodium, dis- solved (mg/L)	Sodium ad- sorp- tion ratio	Potas- sium, dis- solved (mg/L)	Alka- linity, field (mg/L $\text{CaCO}_3$ )	Sulfate, dis- solved (mg/L)	Chlo- ride, dis- solved (mg/L)
Feb									
23...	12	21	4.5	17	.9	4.4	59	24	18
23...	--	--	--	--	--	--	--	--	--
23...	--	--	--	--	--	--	--	--	--
23...	--	--	--	--	--	--	--	--	--
23...	--	--	--	--	--	--	--	--	--
23...	11	20	4.2	16	.9	4.3	56	25	18

Table 22.--Chemical-quality survey of Cedar Creek Reservoir, February 23, 1984--Continued

## 321113096041201 SITE Ac--Continued

Date	Fluoride, dissolved (mg/L)	Silica, dissolved (mg/L)	Solids, sum of constituents, dissolved (mg/L)	Nitrogen, NO <sub>2</sub> +NO <sub>3</sub> total (mg/L)	Nitrogen, ammonia total (mg/L)	Phosphorus, total (mg/L)	Iron, dissolved (µg/L)	Manganese, dissolved (µg/L)
Feb								
23...	.20	3.4	130	<.100	.70	<.010	34	8
23...	--	--	--	--	--	--	--	--
23...	--	--	--	--	--	--	--	--
23...	--	--	--	<.100	.60	.010	30	<10
23...	--	--	--	--	--	--	--	--
23...	--	--	--	--	--	--	--	--
23...	--	3.3	120	<.100	.60	<.010	12	10

## 321116096035301 SITE A1

Date	Time	Sam-pling depth (feet)	Spe-cific con-ductance (µS/cm)	pH (stand-ard units)	Temper-ature (°C)	Oxygen, dis-solved (mg/L)	Oxygen, dis-solved (per-cent saturation)
Feb							
23...	1105	1.00	235	7.6	8.0	9.3	80
23...	1106	10.0	235	7.6	7.5	9.3	79
23...	1107	20.0	235	7.6	7.5	9.2	78
23...	1108	30.0	235	7.5	7.5	9.2	78
23...	1109	40.0	235	7.5	7.5	9.2	78
23...	1110	43.0	235	7.5	7.5	9.2	78

## 321227096032701 SITE Bc

Date	Time	Sam-pling depth (feet)	Spe-cific con-ductance (µS/cm)	pH (stand-ard units)	Temper-ature (°C)	Trans-parency (secchi disk) (m)	Oxygen, dis-solved (mg/L)
Feb							
23...	1120	1.00	235	7.6	8.0	1.50	9.2
23...	1121	10.0	235	7.6	8.0	--	9.2
23...	1122	20.0	235	7.6	7.5	--	9.2
23...	1123	30.0	235	7.5	7.5	--	9.2
23...	1124	40.0	235	7.5	7.5	--	9.2
23...	1125	51.0	235	7.4	7.5	--	9.0

Date	Oxygen, dis-solved (per-cent saturation)	Nitro-gen, NO <sub>2</sub> +NO <sub>3</sub> total (mg/L)	Nitro-gen, ammonia total (mg/L)	Phos-phorus, total (mg/L)	Iron, dis-solved (µg/L)	Manga-nese, dis-solved (µg/L)
Feb						
23...	79	<.100	.50	.010	30	<10
23...	79	--	--	--	--	--
23...	78	--	--	--	--	--
23...	78	--	--	--	--	--
23...	78	--	--	--	--	--
23...	76	<.100	.70	.020	40	20

Table 22.--Chemical-quality survey of Cedar Creek Reservoir, February 23, 1984--Continued

## 321403096060601 SITE Cc

Date	Time	Sam- pling depth (feet)	Spe- cific con- duct- ance ( $\mu$ S/cm)	pH (stand- ard units)	Temper- ature ( $^{\circ}$ C)	Oxygen, dis- solved (mg/L)	Oxygen, dis- solved (per- cent satu- ration)
Feb							
23...	1150	1.00	235	7.5	7.5	9.0	76
23...	1151	10.0	235	7.4	7.5	9.0	76
23...	1152	20.0	235	7.4	7.5	9.0	76
23...	1153	30.0	235	7.4	7.5	9.1	77
23...	1154	40.0	235	7.4	7.5	9.2	78
23...	1155	47.0	235	7.4	7.5	9.2	78

## 321548096082301 SITE Dc

Date	Time	Sam- pling depth (feet)	Spe- cific con- duct- ance ( $\mu$ S/cm)	pH (stand- ard units)	Temper- ature ( $^{\circ}$ C)	Trans- par- ency (secchi disk) (m)	Oxygen, dis- solved (mg/L)	Oxygen, dis- solved (per- cent satu- ration)
Feb								
23...	1215	1.00	235	7.5	8.0	.90	8.8	76
23...	1216	10.0	235	7.4	8.0	--	8.8	76
23...	1217	20.0	235	7.4	7.5	--	8.8	75
23...	1218	30.0	235	7.4	7.5	--	8.8	75
23...	1219	40.0	235	7.3	7.5	--	8.6	73
23...	1220	46.0	235	7.3	7.5	--	8.6	73

Date	Hard- ness (mg/L CaCO <sub>3</sub> )	Hard- ness, noncar- bonate (mg/L CaCO <sub>3</sub> )	Calcium, dis- solved (mg/L)	Magne- sium, dis- solved (mg/L)	Sodium, dis- solved (mg/L)	Sodium ad- sorp- tion ratio	Potas- sium, dis- solved (mg/L)	Alka- linity, field (mg/L CaCO <sub>3</sub> )	Sulfate, dis- solved (mg/L)
Feb									
23...	67	11	20	4.2	17	.9	4.5	56	25
23...	--	--	--	--	--	--	--	--	--
23...	--	--	--	--	--	--	--	--	--
23...	--	--	--	--	--	--	--	--	--
23...	--	--	--	--	--	--	--	--	--
23...	68	12	20	4.3	17	.9	4.5	56	25

Date	Chlo- ride, dis- solved (mg/L)	Silica, dis- solved (mg/L)	Solids, sum of consti- tuents, dis- solved (mg/L)	Nitro- gen, NO <sub>2</sub> +NO <sub>3</sub> total (mg/L)	Nitro- gen, ammonia total (mg/L)	Phos- phorus, total (mg/L)	Iron, dis- solved ( $\mu$ g/L)	Manga- nese, dis- solved ( $\mu$ g/L)
Feb								
23...	18	3.5	130	<.100	.40	.010	14	5
23...	--	--	--	--	--	--	--	--
23...	--	--	--	<.100	.50	.010	150	40
23...	--	--	--	--	--	--	--	--
23...	--	--	--	--	--	--	--	--
23...	19	3.9	130	<.100	.80	.080	230	120

Table 22.--Chemical-quality survey of Cedar Creek Reservoir, February 23, 1984--Continued

## 321818096064301 SITE Ec

Date	Time	Sam- pling depth (feet)	Spe- cific con- duct- ance ( $\mu$ S/cm)	pH (stand- ard units)	Temper- ature ( $^{\circ}$ C)	Trans- par- ency (secchi disk) (m)	Oxygen, dis- solved (mg/L)
Feb							
23...	1255	1.00	235	7.7	9.5	.50	9.0
23...	1256	10.0	235	7.6	9.5	--	9.0
23...	1257	18.0	235	7.6	9.0	--	9.0

Date	Oxygen, dis- solved (per- cent satu- ration)	Nitro- gen, NO <sub>2</sub> +NO <sub>3</sub> total (mg/L)	Nitro- gen, ammonia total (mg/L)	Phos- phorus, total (mg/L)	Iron, dis- solved ( $\mu$ g/L)	Manga- nese, dis- solved ( $\mu$ g/L)
Feb						
23...	80	<.100	.50	.020	60	<10
23...	80	--	--	--	--	--
23...	79	<.100	.70	.030	60	<10

## 321843096101701 SITE Fc

Date	Time	Sam- pling depth (feet)	Spe- cific con- duct- ance ( $\mu$ S/cm)	pH (stand- ard units)	Temper- ature ( $^{\circ}$ C)	Oxygen, dis- solved (mg/L)	Oxygen, dis- solved (per- cent satu- ration)
Feb							
23...	1320	1.00	235	7.5	9.0	8.6	76
23...	1321	10.0	235	7.5	9.0	8.7	76
23...	1322	20.0	235	7.5	9.0	8.7	76
23...	1323	28.0	235	7.4	9.0	8.7	76

## 322119096104901 SITE Gr

Date	Time	Sam- pling depth (feet)	Spe- cific con- duct- ance ( $\mu$ S/cm)	pH (stand- ard units)	Temper- ature ( $^{\circ}$ C)	Oxygen, dis- solved (mg/L)	Oxygen, dis- solved (per- cent satu- ration)
Feb							
23...	1440	1.00	235	7.6	9.5	8.5	76
23...	1441	10.0	235	7.6	9.5	8.7	77
23...	1442	18.0	235	7.6	9.5	8.7	77

Table 22.--Chemical-quality survey of Cedar Creek Reservoir, February 23, 1984--Continued

322119096095401 SITE Gc

Date	Time	Sam- pling depth (feet)	Spe- cific con- duct- ance ( $\mu$ S/cm)	pH (stand- ard units)	Temper- ature ( $^{\circ}$ C)	Trans- par- ency (secchi disk) (m)	Oxygen, dis- solved (mg/L)	Oxygen, dis- solved (per- cent satu- ration)
Feb								
23...	1410	1.00	235	7.5	9.5	.50	8.7	77
23...	1411	10.0	235	7.5	9.5	--	8.7	77
23...	1412	21.0	235	7.5	9.5	--	8.7	77

Date	Hard- ness (mg/L CaCO <sub>3</sub> )	Hard- ness, noncar- bonate (mg/L CaCO <sub>3</sub> )	Calcium, dis- solved (mg/L)	Magne- sium, dis- solved (mg/L)	Sodium, dis- solved (mg/L)	Sodium ad- sorp- tion ratio	Potas- sium, dis- solved (mg/L)	Alka- linity, field (mg/L CaCO <sub>3</sub> )	Sulfate, dis- solved (mg/L)
Feb									
23...	68	14	20	4.3	17	.9	4.4	54	25
23...	--	--	--	--	--	--	--	--	--
23...	67	13	20	4.2	17	.9	4.0	54	24

Date	Chlo- ride, dis- solved (mg/L)	Silica, dis- solved (mg/L)	Solids, sum of consti- tuents, dis- solved (mg/L)	Nitro- gen, NO <sub>2</sub> +NO <sub>3</sub> total (mg/L)	Nitro- gen, ammonia total (mg/L)	Phos- phorus, total (mg/L)	Iron, dis- solved ( $\mu$ g/L)	Manga- nese, dis- solved ( $\mu$ g/L)
Feb								
23...	20	4.1	130	<.100	.60	.040	49	7
23...	--	--	--	--	--	--	--	--
23...	19	3.9	120	<.100	.60	.050	31	5

Table 23.--Chemical-quality survey of Cedar Creek Reservoir, May 23, 1984

[ $\mu$ S/cm, microsiemens per centimeter at 25° Celsius; °C, degrees Celsius; m, meters; mg/L, milligrams per liter;  $\mu$ g/L, micrograms per liter; fet-fl'd, fixed end point titration-field]

321111096042901 SITE Ar

Date	Time	Sam- pling depth (feet)	Spe- cific con- duct- ance ( $\mu$ S/cm)	pH (stand- ard units)	Temper- ature (°C)	Oxygen, dis- solved (mg/L)	Oxygen, dis- solved (per- cent satu- ration)
May							
23...	0926	1.00	226	8.2	23.0	8.3	97
23...	0927	10.0	226	7.9	22.5	7.7	89
23...	0928	20.0	226	7.8	22.5	7.5	87
23...	0929	30.0	226	7.6	22.0	7.3	84
23...	0930	40.0	226	7.3	21.5	5.9	67
23...	0931	48.0	229	7.2	21.0	4.5	51

321113096041201 SITE Ac

Date	Time	Sam- pling depth (feet)	Spe- cific con- duct- ance ( $\mu$ S/cm)	pH (stand- ard units)	Temper- ature (°C)	Trans- par- ency (secchi disk) (m)	Oxygen, dis- solved (mg/L)	Oxygen, dis- solved (per- cent satu- ration)	Hard- ness (mg/L CaCO <sub>3</sub> )
May									
23...	0900	1.00	226	8.2	23.0	.90	8.1	95	68
23...	0901	10.0	226	7.9	22.5	--	7.8	90	--
23...	0902	20.0	226	7.7	22.5	--	7.4	86	--
23...	0903	30.0	226	7.6	22.0	--	7.2	83	--
23...	0904	40.0	226	7.3	21.5	--	6.0	68	--
23...	0905	45.0	229	7.1	21.0	--	4.0	45	--
23...	0906	50.0	229	7.1	21.0	--	3.5	39	--
23...	0907	56.0	229	7.1	20.5	--	3.4	38	68

Date	Hard- ness, noncar- bonate (mg/L CaCO <sub>3</sub> )	Calcium, dis- solved (mg/L)	Magne- sium, dis- solved (mg/L)	Sodium, dis- solved (mg/L)	Sodium ad- sorp- tion ratio	Potas- sium, dis- solved (mg/L)	Alka- linity, field (mg/L CaCO <sub>3</sub> )	Sulfate, dis- solved (mg/L)	Chlo- ride, dis- solved (mg/L)
May									
23...	15	20	4.3	16	.9	4.4	53	26	19
23...	--	--	--	--	--	--	--	--	--
23...	--	--	--	--	--	--	--	--	--
23...	--	--	--	--	--	--	--	--	--
23...	--	--	--	--	--	--	--	--	--
23...	--	--	--	--	--	--	--	--	--
23...	12	20	4.3	16	.9	4.8	56	26	20

Table 23.--Chemical-quality survey of Cedar Creek Reservoir, May 23, 1984--Continued

## 321113096041201 SITE Ac--Continued

Date	Fluoride, dissolved (mg/L)	Silica, dissolved (mg/L)	Solids, sum of constituents, dissolved (mg/L)	Nitrogen, NO <sub>2</sub> +NO <sub>3</sub> total (mg/L)	Nitrogen, ammonia total (mg/L)	Nitrogen, total (mg/L)	Phosphorus, total (mg/L)	Iron, dissolved (µg/L)	Manganese, dissolved (µg/L)
May									
23...	0.20	1.0	120	0.100	0.60	0.70	0.020	<3	3
23...	--	--	--	--	--	--	--	--	--
23...	--	--	--	.200	.60	.80	.030	50	10
23...	--	--	--	--	--	--	--	--	--
23...	--	--	--	.200	.70	.90	.030	<10	30
23...	--	--	--	--	--	--	--	--	--
23...	--	--	--	--	--	--	--	--	--
23...	--	4.4	130	.300	1.2	1.5	.080	40	150

## 321116096035301 SITE A1

Date	Time	Sampling depth (feet)	Specific conductance (µS/cm)	pH (standard units)	Temperature (°C)	Oxygen, dissolved (mg/L)	Oxygen, dissolved (percent saturation)
May							
23...	0943	1.00	226	8.2	23.0	8.2	96
23...	0944	10.0	226	8.0	23.0	7.8	91
23...	0945	20.0	226	8.0	22.5	7.8	90
23...	0946	30.0	226	7.7	22.5	7.2	83
23...	0947	38.0	226	7.6	21.5	6.6	75

## 321227096032701 SITE Bc

Date	Time	Sampling depth (feet)	Specific conductance (µS/cm)	pH (standard units)	Temperature (°C)	Transparency (secchi disk) (m)	Oxygen, dissolved (mg/L)
May							
23...	0958	1.00	225	8.5	24.0	1.20	8.6
23...	0959	10.0	225	8.2	23.5	--	8.3
23...	1000	20.0	225	7.4	22.5	--	6.4
23...	1001	30.0	225	7.2	21.5	--	5.8
23...	1002	40.0	230	7.0	21.0	--	3.7
23...	1003	48.0	232	7.0	20.5	--	2.5

Date	Oxygen, dissolved (percent saturation)	Nitrogen, NO <sub>2</sub> +NO <sub>3</sub> total (mg/L)	Nitrogen, ammonia total (mg/L)	Nitrogen, total (mg/L)	Phosphorus, total (mg/L)	Iron, dissolved (µg/L)	Manganese, dissolved (µg/L)
May							
23...	103	0.100	0.80	0.90	0.020	<10	20
23...	98	--	--	--	--	--	--
23...	74	<.100	.70	--	.030	30	30
23...	66	--	--	--	--	--	--
23...	42	.300	.70	1.0	.050	40	250
23...	28	.300	1.4	1.7	.080	100	590

Table 23.--Chemical-quality survey of Cedar Creek Reservoir, May 23, 1984--Continued

321403096060601 SITE Cc

Date	Time	Sam- pling depth (feet)	Spe- cific con- duct- ance ( $\mu$ S/cm)	pH (stand- ard units)	Temper- ature ( $^{\circ}$ C)	Oxygen, dis- solved (mg/L)	Oxygen, dis- solved (per- cent satu- ration)
May							
23...	1030	1.00	228	8.3	24.0	8.4	100
23...	1031	10.0	228	7.9	23.0	7.5	88
23...	1032	20.0	228	7.7	23.0	7.4	87
23...	1033	30.0	228	7.4	22.5	6.3	73
23...	1034	40.0	228	7.1	22.0	4.0	46
23...	1035	54.0	230	7.2	21.5	3.4	39

321548096082301 SITE Dc

Date	Time	Sam- pling depth (feet)	Spe- cific con- duct- ance ( $\mu$ S/cm)	pH (stand- ard units)	Temper- ature ( $^{\circ}$ C)	Trans- par- ency (secchi disk) (m)	Oxygen, dis- solved (mg/L)	Oxygen, dis- solved (per- cent satu- ration)	Hard- ness (mg/L CaCO <sub>3</sub> )
May									
23...	0815	1.00	228	7.8	23.5	.50	7.0	83	68
23...	0816	10.0	228	7.8	23.5	--	7.0	83	--
23...	0817	20.0	228	7.7	23.5	--	6.7	79	--
23...	0818	30.0	228	7.6	23.5	--	6.6	78	--
23...	0819	40.0	230	7.5	23.5	--	6.0	71	--
23...	0820	45.0	230	7.3	23.0	--	4.8	56	70

Date	Hard- ness, noncar- bonate (mg/L CaCO <sub>3</sub> )	Calcium, dis- solved (mg/L)	Magne- sium, dis- solved (mg/L)	Sodium, dis- solved (mg/L)	Sodium ad- sorp- tion ratio	Potas- sium, dis- solved (mg/L)	Alka- linity, dis- field (mg/L CaCO <sub>3</sub> )	Sulfate, dis- solved (mg/L)	Chlo- ride, dis- solved (mg/L)
May									
23...	13	20	4.3	16	.9	4.6	55	26	19
23...	--	--	--	--	--	--	--	--	--
23...	--	--	--	--	--	--	--	--	--
23...	--	--	--	--	--	--	--	--	--
23...	--	--	--	--	--	--	--	--	--
23...	13	21	4.3	16	.9	4.8	57	26	19

Date	Silica, dis- solved (mg/L)	Solids, sum of consti- tuents, dis- solved (mg/L)	Nitro- gen, NO <sub>2</sub> +NO <sub>3</sub> total (mg/L)	Nitro- gen, am- monia + organic total (mg/L)	Nitro- gen, total (mg/L)	Phos- phorus, total (mg/L)	Iron, dis- solved ( $\mu$ g/L)	Manga- nese, dis- solved ( $\mu$ g/L)
May								
23...	.7	120	.200	.70	.90	.040	18	6
23...	--	--	.200	1.6	1.8	.040	<10	10
23...	--	--	--	--	--	--	--	--
23...	--	--	.200	1.5	1.7	.060	<10	30
23...	--	--	--	--	--	--	--	--
23...	2.3	130	.200	1.1	1.3	.070	7	110

Table 23.--Chemical-quality survey of Cedar Creek Reservoir, May 23, 1984--Continued

## 321818096064301 SITE Ec

Date	Time	Sam- pling depth (feet)	Spe- cific con- duct- ance ( $\mu$ S/cm)	pH (stand- ard units)	Temper- ature ( $^{\circ}$ C)	Trans- par- ency (secchi disk) (m)	Oxygen, dis- solved (mg/L)
May							
23...	1055	1.00	231	7.9	25.0	.70	7.5
23...	1056	10.0	231	7.8	24.5	--	7.1
23...	1057	19.0	231	7.3	23.5	--	5.2

Date	Oxygen, dis- solved (per- cent satu- ration)	Nitro- gen, NO <sub>2</sub> +NO <sub>3</sub> total (mg/L)	Nitro- gen, am- monia + organic total (mg/L)	Nitro- gen, total (mg/L)	Phos- phorus, total (mg/L)	Iron, dis- solved ( $\mu$ g/L)	Manga- nese, dis- solved ( $\mu$ g/L)
May							
23...	91	.100	.60	.70	.030	10	<10
23...	85	--	--	--	--	--	--
23...	61	.100	.60	.70	.050	30	<10

## 321843096101701 SITE Fc

Date	Time	Sam- pling depth (feet)	Spe- cific con- duct- ance ( $\mu$ S/cm)	pH (stand- ard units)	Temper- ature ( $^{\circ}$ C)	Oxygen, dis- solved (mg/L)	Oxygen, dis- solved (per- cent satu- ration)
May							
23...	0750	1.00	229	7.9	24.5	7.3	88
23...	0751	10.0	229	7.7	24.0	7.1	85
23...	0752	20.0	229	7.4	24.0	6.2	74
23...	0753	33.0	229	7.1	24.0	6.2	74

## 322119096104901 SITE Gr

Date	Time	Sam- pling depth (feet)	Spe- cific con- duct- ance ( $\mu$ S/cm)	pH (stand- ard units)	Temper- ature ( $^{\circ}$ C)	Oxygen, dis- solved (mg/L)	Oxygen, dis- solved (per- cent satu- ration)
May							
23...	1200	1.00	229	7.8	25.5	7.2	88
23...	1201	12.0	229	7.6	24.5	6.8	82

Table 23.--Chemical-quality survey of Cedar Creek Reservoir, May 23, 1984--Continued

322119096095401 SITE Gc

Date	Time	Sam- pling depth (feet)	Spe- cific con- duct- ance ( $\mu$ S/cm)	pH (stand- ard units)	Temper- ature ( $^{\circ}$ C)	Trans- par- ency (secchi disk) (m)	Oxygen, dis- solved (mg/L)	Oxygen, dis- solved (per- cent satu- ration)	Hard- ness (mg/L CaCO <sub>3</sub> )
May									
23...	1130	1.00	229	7.8	25.5	.20	7.1	87	69
23...	1131	10.0	229	7.6	24.5	--	6.8	82	--
23...	1132	17.0	229	7.3	24.0	--	5.6	67	69

Date	Hard- ness, noncar- bonate (mg/L CaCO <sub>3</sub> )	Calcium, dis- solved (mg/L)	Magne- sium, dis- solved (mg/L)	Sodium, dis- solved (mg/L)	Sodium ad- sorp- tion ratio	Potas- sium, dis- solved (mg/L)	Alka- linity, field (mg/L CaCO <sub>3</sub> )	Sulfate, dis- solved (mg/L)	Chlo- ride, dis- solved (mg/L)
May									
23...	13	21	4.1	16	.9	4.5	56	26	19
23...	--	--	--	--	--	--	--	--	--
23...	17	21	4.1	16	.9	4.5	52	26	18

Date	Silica, dis- solved (mg/L)	Solids, sum of consti- tuents, dis- solved (mg/L)	Nitro- gen, NO <sub>2</sub> +NO <sub>3</sub> total (mg/L)	Nitro- gen, am- monia + organic total (mg/L)	Nitro- gen, total (mg/L)	Phos- phorus, total (mg/L)	Iron, dis- solved ( $\mu$ g/L)	Manga- nese, dis- solved ( $\mu$ g/L)
May								
23...	2.6	130	.300	.80	1.1	.090	7	3
23...	--	--	--	--	--	--	--	--
23...	4.1	120	.300	1.2	1.5	.100	10	16

Table 24.--Chemical-quality survey of Cedar Creek Reservoir, August 15, 1984

[ $\mu\text{S/cm}$ , microsiemens per centimeter at 25° Celsius; °C, degrees Celsius; m, meters; mg/L, milligrams per liter;  $\mu\text{g/L}$ , micrograms per liter; fet-fld, fixed end point tritration-field]

321111096042901 SITE Ar

Date	Time	Sam- pling depth (feet)	Spe- cific con- duct- ance ( $\mu\text{S/cm}$ )	pH (stand- ard units)	Temper- ature (°C)	Oxygen, dis- solved (mg/L)	Oxygen, dis- solved (per- cent satu- ration)
Aug							
15...	0940	1.00	247	7.9	28.0	6.8	87
15...	0941	10.0	247	7.8	28.0	6.6	84
15...	0942	20.0	247	7.4	27.5	5.0	63
15...	0943	30.0	247	7.0	27.0	1.7	21
15...	0944	37.0	247	6.9	27.0	.2	3

321111096041201 SITE Ac

Date	Time	Sam- pling depth (feet)	Spe- cific con- duct- ance ( $\mu\text{S/cm}$ )	pH (stand- ard units)	Temper- ature (°C)	Trans- par- ency (secchi disk (m)	Oxygen, dis- solved (mg/L)	Oxygen, dis- solved (per- cent satu- ration)	Hard- ness (mg/L $\text{CaCO}_3$ )
Aug									
15...	0920	1.00	247	7.9	28.0	1.70	7.2	98	74
15...	0921	10.0	247	7.8	27.5	--	6.9	87	--
15...	0922	20.0	247	7.2	27.5	--	4.2	53	--
15...	0923	30.0	247	7.0	27.0	--	1.6	20	--
15...	0924	35.0	248	6.9	26.5	--	.1	1	--
15...	0925	40.0	251	7.0	25.5	--	.1	1	--
15...	0926	50.0	259	7.1	23.0	--	.1	1	--
15...	0927	55.0	264	7.1	22.0	--	.1	1	80

Date	Hard- ness, noncar- bonate (mg/L $\text{CaCO}_3$ )	Calcium, dis- solved (mg/L)	Magne- sium, dis- solved (mg/L)	Sodium, dis- solved (mg/L)	Sodium ad- sorp- tion ratio	Potas- sium, dis- solved (mg/L)	Alka- linity, field (mg/L $\text{CaCO}_3$ )	Sulfate, dis- solved (mg/L)	Chlo- ride, dis- solved (mg/L)
Aug									
15...	15	22	4.7	18	.9	4.8	59	27	19
15...	--	--	--	--	--	--	--	--	--
15...	--	--	--	--	--	--	--	--	--
15...	--	--	--	--	--	--	--	--	--
15...	--	--	--	--	--	--	--	--	--
15...	--	--	--	--	--	--	--	--	--
15...	--	24	4.8	17	.9	4.6	80	20	18

Table 24.--Chemical-quality survey of Cedar Creek Reservoir, August 15, 1984--Continued

## 321111096041201 SITE Ac--Continued

Date	Fluoride, dissolved (mg/L)	Silica, dissolved (mg/L)	Solids, sum of constituents, dissolved (mg/L)	Nitrogen, NO <sub>2</sub> +NO <sub>3</sub> total (mg/L)	Nitrogen, ammonia total (mg/L)	Phosphorus, total (mg/L)	Iron, dissolved (µg/L)	Manganese, dissolved (µg/L)
Aug								
15...	.20	1.0	130	<.100	.70	.010	5	3
15...	--	--	--	--	--	--	--	--
15...	--	--	--	--	--	--	--	--
15...	--	--	--	<.100	.60	<.010	30	60
15...	--	--	--	--	--	--	--	--
15...	--	--	--	<.100	1.1	.030	110	1200
15...	--	--	--	--	--	--	--	--
15...	--	7.6	150	<.100	1.8	.570	2700	3600

## 321116096035301 SITE A1

Date	Time	Sampling depth (feet)	Specific conductance (µS/cm)	pH (standard units)	Temperature (°C)	Oxygen, dissolved (mg/L)	Oxygen, dissolved (percent saturation)
Aug							
15...	1000	1.00	247	7.9	28.0	6.8	87
15...	1001	10.0	247	7.8	27.5	6.4	81
15...	1002	20.0	247	7.7	27.5	6.2	78
15...	1003	30.0	247	7.0	27.0	1.6	20
15...	1004	35.0	247	7.0	26.5	.1	1
15...	1005	40.0	253	7.0	25.0	.1	1
15...	1006	45.0	253	7.0	24.0	.1	1

## 321227096032701 SITE Bc

Date	Time	Sampling depth (feet)	Specific conductance (µS/cm)	pH (standard units)	Temperature (°C)	Transparency (secchi disk) (m)	Oxygen, dissolved (mg/L)
Aug							
15...	1015	1.00	246	8.4	28.0	1.5	7.6
15...	1016	10.0	246	8.2	28.0	--	7.2
15...	1017	20.0	246	8.1	28.0	--	7.0
15...	1018	25.0	246	7.3	27.5	--	4.6
15...	1019	30.0	246	7.0	27.0	--	1.4
15...	1020	35.0	246	7.0	26.5	--	.2
15...	1021	40.0	252	7.0	24.5	--	.2
15...	1022	45.0	258	7.0	24.0	--	.2

Table 24.--Chemical-quality survey of Cedar Creek Reservoir, August 15, 1984--Continued

## 321227096032701 SITE Bc--Continued

Date	Oxygen, dissolved (percent saturation)	Nitrogen, NO <sub>2</sub> +NO <sub>3</sub> total (mg/L)	Nitrogen, ammonia total (mg/L)	Phosphorus, total (mg/L)	Iron, dissolved (µg/L)	Manganese, dissolved (µg/L)
Aug						
15...	97	<.100	.70	.010	<10	10
15...	92	--	--	--	--	--
15...	90	<.100	1.1	.010	10	20
15...	58	--	--	--	--	--
15...	18	<.100	1.1	.010	30	60
15...	2	--	--	--	--	--
15...	2	--	--	--	--	--
15...	2	<.100	1.1	.130	590	2800

## 321403096060601 SITE Cc

Date	Time	Sampling depth (feet)	Specific conductance (µS/cm)	pH (standard units)	Temperature (°C)	Oxygen, dissolved (mg/L)	Oxygen, dissolved (percent saturation)
Aug							
15...	1040	1.00	247	8.1	28.5	7.2	93
15...	1041	10.0	247	7.9	28.0	6.6	84
15...	1042	20.0	247	8.0	28.0	6.8	87
15...	1043	30.0	247	7.8	28.0	6.4	82
15...	1044	35.0	249	7.1	27.0	1.0	13
15...	1045	40.0	255	7.1	25.5	.2	2
15...	1046	46.0	258	7.1	24.5	.2	2

## 321548096082301 SITE Dc

Date	Time	Sampling depth (feet)	Specific conductance (µS/cm)	pH (standard units)	Temperature (°C)	Transparency (secchi disk) (m)	Oxygen, dissolved (mg/L)	Oxygen, dissolved (percent saturation)	Hardness (mg/L CaCO <sub>3</sub> )
Aug									
15...	0840	1.00	251	7.6	27.5	1.10	6.2	78	77
15...	0841	10.0	252	7.5	27.5	--	6.2	78	--
15...	0842	20.0	252	7.5	27.5	--	6.2	78	--
15...	0843	30.0	254	7.0	27.5	--	2.8	35	--
15...	0844	35.0	255	7.0	27.5	--	1.6	20	--
15...	0845	40.0	257	6.8	27.0	--	.8	10	77

Date	Hardness, noncarbonate (mg/L CaCO <sub>3</sub> )	Calcium, dissolved (mg/L)	Magnesium, dissolved (mg/L)	Sodium, dissolved (mg/L)	Sodium adsorption ratio	Potassium, dissolved (mg/L)	Alkalinity, field (mg/L CaCO <sub>3</sub> )	Sulfate, dissolved (mg/L)	Chloride, dissolved (mg/L)
Aug									
15...	17	23	4.8	18	.9	5.1	60	28	19
15...	--	--	--	--	--	--	--	--	--
15...	--	--	--	--	--	--	--	--	--
15...	--	--	--	--	--	--	--	--	--
15...	--	--	--	--	--	--	--	--	--
15...	15	23	4.8	18	.9	4.6	62	27	19

Table 24.--Chemical-quality survey of Cedar Creek Reservoir, August 15, 1984--Continued

## 321548096082301 SITE Dc--Continued

Date	Silica, dissolved (mg/L)	Solids, sum of constituents, dissolved (mg/L)	Nitrogen, NO <sub>2</sub> +NO <sub>3</sub> total (mg/L)	Nitrogen, ammonia + organic total (mg/L)	Nitrogen, total (mg/L)	Phosphorus, total (mg/L)	Iron, dissolved (µg/L)	Manganese, dissolved (µg/L)
Aug								
15...	.7	130	<.100	.60	--	.020	8	2
15...	--	--	--	--	--	--	--	--
15...	--	--	<.100	.40	--	.020	30	20
15...	--	--	<.100	.50	--	.040	30	150
15...	--	--	--	--	--	--	--	--
15...	2.5	140	<.100	.80	.90	.060	8	450

## 321818096064301 SITE Ec

Date	Time	Sampling depth (feet)	Specific conductance (µS/cm)	pH (standard units)	Temperature (°C)	Transparency (secchi disk) (m)	Oxygen, dissolved (mg/L)
Aug							
15...	1020	1.00	253	7.8	28.5	.70	6.4
15...	1021	10.0	253	7.5	28.5	--	4.7
15...	1022	16.0	253	7.5	28.0	--	4.5

Date	Oxygen, dissolved (percent saturation)	Nitrogen, NO <sub>2</sub> +NO <sub>3</sub> total (mg/L)	Nitrogen, ammonia total (mg/L)	Phosphorus, total (mg/L)	Iron, dissolved (µg/L)	Manganese, dissolved (µg/L)
Aug						
15...	82	<.100	.70	.030	30	10
15...	60	--	--	--	--	--
15...	57	<.100	.80	.050	30	20

## 321843096101701 SITE Fc

Date	Time	Sampling depth (feet)	Specific conductance (µS/cm)	pH (standard units)	Temperature (°C)	Oxygen, dissolved (mg/L)	Oxygen, dissolved (percent saturation)
Aug							
15...	1140	1.00	249	8.2	29.0	7.3	95
15...	1141	10.0	252	7.8	28.0	6.1	78
15...	1142	20.0	251	7.8	28.0	6.1	78
15...	1143	29.0	252	7.8	28.0	6.0	76

Table 24.--Chemical-quality survey of Cedar Creek Reservoir, August 15, 1984--Continued

## 322119096104901 SITE Gr

Date	Time	Sam- pling depth (feet)	Spe- cific con- duct- ance ( $\mu$ S/cm)	pH (stand- ard units)	Temper- ature ( $^{\circ}$ C)	Oxygen, dis- solved (mg/L)	Oxygen, dis- solved (per- cent satu- ration)
Aug							
15...	1210	1.00	255	8.1	28.5	7.2	93
15...	1211	10.0	255	7.9	28.0	6.7	85
15...	1212	14.0	255	7.9	28.0	6.6	84

## 322119096095401 SITE Gc

Date	Time	Sam- pling depth (feet)	Spe- cific con- duct- ance ( $\mu$ S/cm)	pH (stand- ard units)	Temper- ature ( $^{\circ}$ C)	Trans- par- ency (secchi disk (m))	Oxygen, dis- solved (mg/L)	Oxygen, dis- solved (per- cent satu- ration)
Aug								
15...	1220	1.00	262	7.9	28.5	0.50	6.8	87
15...	1221	5.00	262	7.9	28.5	--	6.8	87
15...	1222	10.0	262	7.8	28.0	--	6.4	82
15...	1223	17.0	262	7.8	27.5	--	6.4	81

Date	Hard- ness (mg/L CaCO <sub>3</sub> )	Hard- ness, noncar- bonate (mg/L CaCO <sub>3</sub> )	Calcium, dis- solved (mg/L)	Magne- sium, dis- solved (mg/L)	Sodium, dis- solved (mg/L)	Sodium ad- sorp- tion ratio	Potas- sium, dis- solved (mg/L)	Alka- linity, field (mg/L CaCO <sub>3</sub> )	Sulfate, dis- solved (mg/L)
Aug									
15...	77	15	23	4.7	19	1	4.8	62	28
15...	--	--	--	--	--	--	--	--	--
15...	--	--	--	--	--	--	--	--	--
15...	80	17	23	4.8	19	1	5.1	63	28

Date	Chlo- ride, dis- solved (mg/L)	Silica, dis- solved (mg/L)	Solids, sum of consti- tuents, dis- solved (mg/L)	Nitro- gen, NO <sub>2</sub> +NO <sub>3</sub> total (mg/L)	Nitro- gen, am- monia + organic total (mg/L)	Phos- phorus, total (mg/L)	Iron, dis- solved ( $\mu$ g/L)	Manga- nese, dis- solved ( $\mu$ g/L)
Aug								
15...	20	1.0	140	<0.100	0.70	0.040	<3	<2
15...	--	--	--	--	--	--	--	--
15...	--	--	--	--	--	--	--	--
15...	20	1.0	140	<.100	.60	.050	6	8

Table 25.--Summary of maximum contaminant levels for selected water-quality constituents and properties for public water systems 1/

[µg/L, micrograms per liter; mg/L, milligrams per liter; °C, degrees Celsius]

Constituents 2/	Maximum contaminant level 3/	Secondary maximum contaminant level 4/
<u>Inorganic chemicals and related properties</u>		
pH (standard units)	--	6.5 to 8.5
Arsenic (As)	50 µg/L	--
Barium (Ba)	1,000 µg/L	--
Cadmium (Cd)	10 µg/L	--
Chloride (Cl)	--	250 mg/L
Chromium (Cr)	50 µg/L	--
Copper (Cu)	--	1,000 µg/L
Iron (Fe)	--	300 µg/L
Lead (Pb)	50 µg/L	--
Manganese (Mn)	--	50 µg/L
Mercury (Hg)	2 µg/L	--
Nitrate (as N)	10 mg/L	--
Selenium (Se)	10 µg/L	--
Silver (Ag)	50 µg/L	--
Sulfate (SO <sub>4</sub> )	--	250 mg/L
Zinc (Zn)	--	5,000 µg/L
Dissolved solids	--	500 mg/L
Fluoride 5/	4 mg/L	2 mg/L

- 1/ Public water system.--A system for the provision of piped water to the public for human consumption if such a system has at least 15 service connections or regularly serves at least 25 individuals daily at least 60 days out of the year.
- 2/ Constituent.--Any physical, chemical, biological, or radiological substance or matter in water.
- 3/ Maximum contaminant level.--The maximum permissible level of a contaminant in water which is delivered to the free-flowing outlet of the ultimate user of a public water system. Maximum contaminant levels are those levels set by the U.S. Environmental Protection Agency (1986a) in the National Primary Drinking Water Regulations. These regulations deal with contaminants that may have a significant direct impact on the health of the consumer and are enforceable by Federal law.
- 4/ Secondary maximum contaminant level.--The maximum permissible level of a contaminant in water which is delivered to the free-flowing outlet of the ultimate user of a public water system. Secondary maximum contaminant levels are those levels proposed by the U.S. Environmental Protection Agency (1986b) in the National Secondary Drinking Water Regulations. These regulations deal with contaminants that may not have a significant direct impact on the health of the consumer, but their presence in excessive quantities may affect the esthetic qualities of the water and may discourage the use of a drinking-water supply by the public.
- 5/ Fluoride.--Revised (U.S. Environmental Protection Agency, 1986 a,b).