ASSESSMENT OF WATER QUALITY IN STREAMS DRAINING COAL-PRODUCING AREAS IN OHIO

U.S. GEOLOGICAL SURVEY

WATER-RESOURCES INVESTIGATIONS
Open-file report 81-409







Prepared in cooperation with the U.S. ENVIRONMENTAL PROTECTION AGENCY

UNITED STATES DEPARTMENT OF THE INTERIOR GEOLOGICAL SURVEY

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by Christine L. Pfaff, Dennis R. Helsel, Dorothy P.Johnson, and Clifford G. Angelo

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UNITED STATES DEPARTMENT OF THE INTERIOR JAMES G. WATT, Secretary

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CONTENTS

	rage
Abstract	1
Introduction	
History of mining and the acid-drainage	
problem in Ohio	2
Environmental setting	- - 3
Geology	5
Chemistry of acid mine drainage	5
Reconnaissance phase, May-December 1975	10
Purpose and scope	10
Method of sampling	10
Sampling results	10
pH and acidity	12
Bicarbonate	
Dissolved sulfate	12
Phenol	
Total organic carbon	13 13
Arsenic	13 13
Chromium	
Copper	
Iron	14
Manganese	14
Mercury	14
Zinc	14
Sulfide	
Aluminum	
Statistical analysis of selected	
water-quality parameters	15
Conclusions reconnaissance phase	 27
Detailed study, May-August 1975	28
Purpose and scope	28
Method of sampling	28
Snow Fork - a basin containing abandoned	
drift mines	30
Huff Run - a basin containing abandoned	
strip mines	34
South Fork Short Creek - a basin containing	7.4
reclaimed strip mines	34
Spencer Creek - a basin containing active	7.0
strip mines	39
Conclusions - detailed study	43 45
Selected references	
Appendix	48
1. Water-quality data from the reconnaissance	48
nnase, May-December 19/5	40

ILLUSTRATIONS

		- 490
Figure 1.	Map of Ohio, showing boundary of study area, approximate boundary of Appalachian physiographic province location of the Wayne National Forest, and location of principal rivers and cities in the study area	4
2.	Geologic map of Ohio, showing location of formation outcrops and glacial boundary; geologic section, showing the Cincinnati arch	6
3.	Geologic map showing approximate boundaries of the Pottsville, Allegheny, Conemaugh, and Monongahela Formations and the Dunkard Group (modified from Bownocker, 1965)	7
4.	Generalized stratigraphic sections of Pennsylvanian and Permian Formations in Ohio (from descriptions by Stout, 1930)	8
5.	Map showing locations of stream sampling sites from the reconnaissance phase, May-December 1975	11
6-12.	Relationship between specific conductance and dissolved-sulfate concentration for: 6. the Allegheny Formation, Monongahela Formation, and for both formations	
	undivided	20
	in the Monongahela Formation 9. unmined areas in the	22
	Monongahela Formation 10. abandoned mined areas in the	23
	Allegheny Formation ll. reclaimed strip-mined areas in the Allegheny Formation	24
	12. unmined areas in the Allegheny Formation	26

ILLUSTRATIONS--Continued Page Map showing location of basins studied Figure 13. in detailed phase, May-August 1976 ---29 14-17. Map showing location of sampling sites in the: 14. Snow Fork basin, Ohio, June 8-17, 1976 -----31 Huff Run basin, Ohio, August 25-31, 1976 -----35 16. South Fork Short Creek basin, Ohio, June 1-7, 1976 -----38 Spencer Creek basin, Ohio 17. June 21-25, 1976 -----42 TABLES Page Table 1. Results of analysis of variance test on water-quality parameters from the reconnaissance phase -----16 2. Duncan's multiple range test on waterquality parameters from the reconnaissance phase -----18 3. Regression results of specific 19 conductance versus sulfate -----Chemical quality at stream sampling sites in the Snow Fork basin, Ohio, June 8-17, 1976 -----33 5. Chemical quality of stream sampling sites in the Huff Run basin, Ohio, August 25-31, 1976 -----36

Chemical quality at stream sampling sites in the South Fork Short Creek basin,

Chemical quality of stream sampling sites in the Spencer Creek basin, Ohio, June 21-25, 1976 ------

Ohio, June 1-7, 1976 -----

40

44

CONVERSION FACTORS

The inch-pound units used in this report may be converted to (SI) metric units by the following conversion factors:

To convert from	То	Multiply by
inch (in)	millimeter (mm)	25.4
foot (ft)	meter (m)	0.3048
mile (mi)	kilometer (km)	1.609
acre	hectare (ha)	0.4047
gallon (gal)	liter (L)	3.785
mile ² (mi ²)	kilometer ² (km ²)	2.590
foot ³ per second (ft ³ /s)	meter ³ per second (m ³ /s)	0.02832
micromho (µmho)	microsiemens (µS)	1.000
micromho per centimeter at 25 degrees Celsius [(µmho/cm) at	microsiemens per meter at 25 degrees Celsus [(µS/cm) at 25°C]	100
25°C]	50.00	

ASSESSMENT OF WATER QUALITY OF STREAMS DRAINING COAL-PRODUCING AREAS IN OHIO

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ABSTRACT

Quality of water in 150 sites in the coal-producing areas of eastern Ohio was studied in a two-phase investigation between May 1975 and August 1976. Results of phase one, a reconnaissance to determine the occurrence of certain inorganic and organic constituents and to relate their occurrence to coal mining, that acid mine drainage generally occurred where abandoned drift or abandoned strip mines were located. affected by such mines contained concentrations of dissolved sulfate and iron greater than 250 milligrams per liter and 5,000 micrograms per liter, respectively, and exhibited pH values less than 4.5. Areas characterized by reclaimed or active strip mines showed few instances of acid drainage (pH values were generally 7.0). Iron concentrations in these regions than liter, generally were less than 500 micrograms per dissolved-sulfate concentrations ranging from 22 to 7,100 milligrams per liter.

Phase two was a detailed study of four small basins sampled during the first phase and found to represent different types of mining. The objective was to determine whether water-quality degradation within the basins was due to coal mining. Flows from basins, one containing abandoned drift mines and the other abandoned strip mines, became increasingly acidic (pH values less than 4.5) downstream, and had high iron and dissolved sulfate concentrations (above 5,000 micrograms per liter and milligrams per liter, respectively). Sources of acidity were tributaries that drained directly from the mines. The other two basins, one containing reclaimed strip mines and the other active strip mines, exhibited no acidic drainage; streams in both basins had pH values greater than 7.0 and iron concentrations below 500 micrograms per liter. Presence of active surface mining seemed to have little effect on dissolved sulfate concentrations, only streams in the reclaimed basin had high concentrations (usually over 2,000 milligrams per liter).

INTRODUCTION

The eastern third of Ohio contains extensive bituminous coal deposits which have been mined since the early 1800's. Mining has ranged from small, hand-dug workings to underground and surface operations encompassing several square miles and utilizing mammoth equipment.

In 1975, with support of the U.S. Environmental Protection Agency, a project was begun to provide information on several aspects of coal hydrology in Ohio. The first phase was a reconnaissance of water-quality conditions in coal-mining regions. Phase one had two primary objectives; to document the occurrence of certain inorganic and organic constituents in waters of the coal-mining regions and to determine if the concentrations of those constituents were related to coal mining. The second phase of the project was a more detailed study of four basins sampled during the first phase.

History of Mining and the Acid-Drainage Problem in Ohio

Coal has been mined in Ohio since 1804. The first mines were small hand operations in which exposed coal was removed by pick and shovel (Eavenson, 1942). Drift mines, tunneled into the essentially horizontal coal seams, were next developed. As demand for coal increased, seams too deep for drift mining were reached by vertical shafts. As drift and deep mines were located below the water table, water accumulated which had to be removed. Water could drain from drift mines, but pumping was necessary in deep mines. Most underground mines in Ohio were drift mines (Ohio Geological Survey, 1967 to 1975).

Strip mining in Ohio began on a small scale in 1913. As the supply of easily obtainable coal in the older deep coal fields dwindled and deep mining became less economical, surface mining attracted more interest. Equipment and techniques for extensive strip mining were developed, enabling mining companies to recover more coal quickly and efficiently. As of 1979, 68 percent of all coal produced in Ohio was strip mined (Ohio Division of Mines Annual Report, 1979).

The problem of acid drainage from coal mines received little official attention until the 1930's, when the Federal government formulated a program for sealing abandoned drift mines in the Ohio River basin (Federal Water Pollution Control Administration, 1968). In 1943, the U.S. Public Health Service reported an overall 28 percent acid load reduction in the basin (U.S. Public Health Service, 1943). Energy demands created by World War II caused abandonment of the sealing program, and reopening of many sealed mines. Since then, little has been done to alleviate drainage from drift mines in Ohio.

After World War II, surface mining became increasingly popular. Until 1948, no laws requiring reclamation existed, and drainage from surface mines added to acid mine-drainage problems (Ohio Board on Unreclaimed Strip Mined Land, 1974). The first surface mine law, passed in 1948, required mine operators to post reclamation bonds before permits were issued. Bonds were forfeited if the operators failed to reclaim mined land. The 1948 law proved inadequate, as some operators found bond forfeiture less expensive than reclamation. In 1972, a second law (Section 1513.16 of Revised Code, Ohio Strip Mine Law) was passed which established more stringent reclamation requirements, more expensive reclamation bonds, and penalties for failure to reclaim.

Numerous studies have been made of the effectiveness of various methods of strip-mine reclamation; this report will not attempt to describe or evaluate those methods. Nearly every method includes the following basic elements: (1) Immediate reclamation to reduce the time spoil is exposed; (2) burial of highly pyritic spoil to reduce sulfide oxidation; (3) stabilization of slopes through contouring and revegetation to reduce erosion; and (4) construction of drainage structures and channels, also to reduce erosion (Grim and Hill, 1974).

Environmental Setting

The area studied includes most of the coal-producing part of Ohio, the eastern third of the State. This area lies within the Appalachian physiographic province (fig. 1), which is a well dissected plateau (Peattie, 1923). Relief ranges between 200 to 300 feet in the upper Muskingum River valley and 300 to 600 feet in the lower Muskingum and Hocking River basins and lesser Ohio River tributaries. Slopes in the upper Muskingum River basin are generally 10° to 20°, those in the lower Muskingum River, Hocking River, and tributary basins range from 10° to 35°. The northern counties and western fringe of the study area have been glaciated (fig. 2).

The climate in eastern Ohio is characterized by moderate extremes of humidity and temperature. Mean daily temperatures to the north range between -6.7°C in January and 26.7°C in July, temperatures to the south between -2.2°C and 32.2°C (Pierce, 1959). Annual precipitation averages 40 inches and is generally greatest in early spring and least in autumn. The entire coal-producing region drains toward the Ohio River, contributing average annual runoff of 14 inches (Ohio Department Natural Resources, 1962).

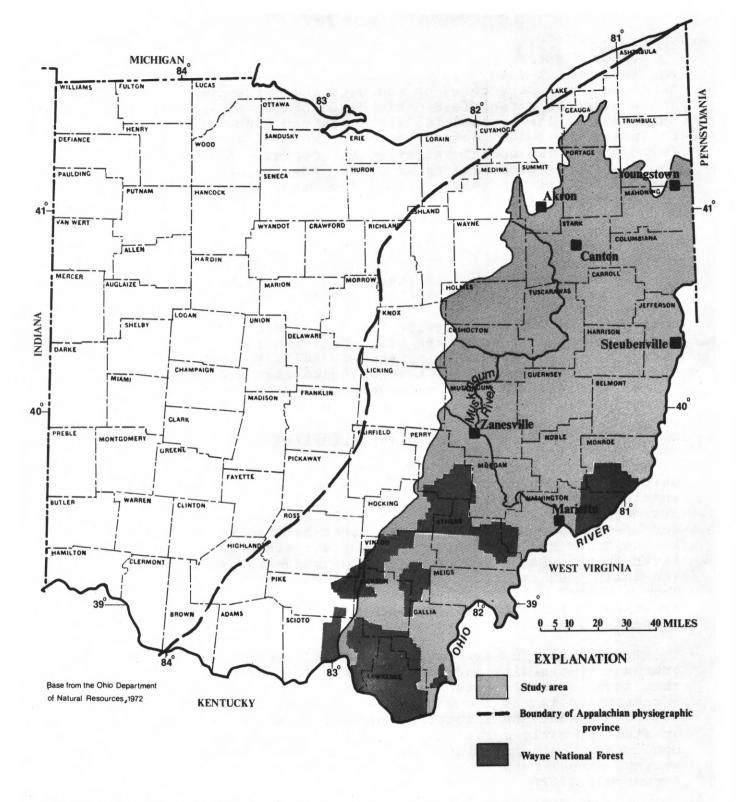


Figure 1.--Boundary of study area, approximate boundary of Appalachian physiographic province, location of the Wayne National Forest, and location of principal rivers and cities in the study area.

The population of eastern Ohio is concentrated in the large industrial cities of the north (Youngstown, Canton, and Akron) and along the Ohio and Muskingum Rivers (Steubenville, Zanesville, and Marietta) (fig. 1). The remainder of the area is rural and sparsely populated; farming and coal mining constitute the principal types of land use. The Wayne National Forest, in the southeastern counties, occupies about one-fourth of the State's coal-producing area (fig. 1).

Geology

The Ohio coals are found in strata of Pennsylvanian and Permian age. These strata represent a fluvial-deltaic (riverand-delta) depositional environment and are characterized by alternating sandstone, shale, mudstone, coal, and marine, brackish, and freshwater limestone. The Pennsylvanian, Pottsville, Allegheny, Conemaugh, and Monongahela Formations and the Pennsylvanian / Permian Dunkard Group crop out in Ohio (figs. 2 and 3).

The Cincinnati arch (fig. 2) causes the Pennsylvanian and Permian formations to crop out in northeast-southwest-trending bands (fig. 2) and to dip 25 to 40 feet per mile southeast (Bownocker and Dean, 1930).

Fifty-two coal beds are recognized and named in the State (Bownocker, 1929; Bownocker and Dean, 1930); most are thin, discontinuous, or of poor quality. Mining has traditionally concentrated on the "numbered" coals (Sharon No. 1 through Waynesburg No. 11, fig. 4), which still supply most coal mined in Ohio. The coals of the Allegheny and Monongahela Formations are especially productive because of their fairly uniform thickness and distribution; consequently, most coal mines in Ohio are distributed in parallel bands following the outcrop of the two formations.

Chemistry of Acid Mine Drainage

Acid mine drainage is produced by oxidation of the iron sulfide minerals pyrite and marcasite (hereafter referred to as "pyrites"). These minerals are disseminated in varying amounts throughout the coal-bearing formations, especially in sandstones associated with and overlying the coals (Wiram, 1974). Coal mining exposes rocks containing pyrites to air and water and, especially in strip mining, increases the surface area available for reaction.

The oxidation of pyrite involves several reactions (Stumm and Morgan, 1970):

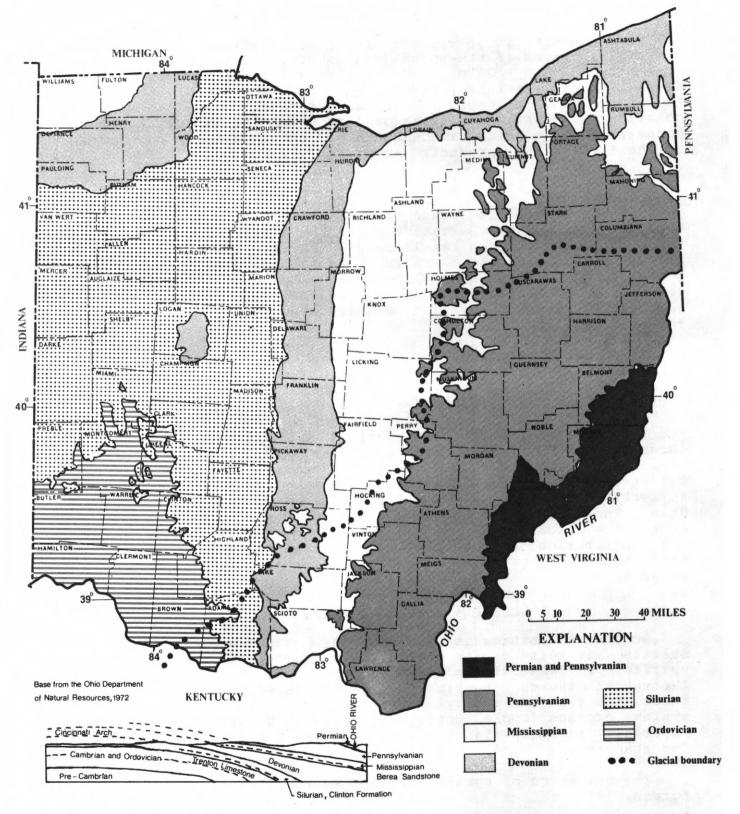


Figure 2.--Geologic map of Ohio, showing location of formation outcrops and glacial boundary; geologic section, showing the Cincinnati arch, (modified from Ohio Department of Natural Resources, Division of Geological Survey).

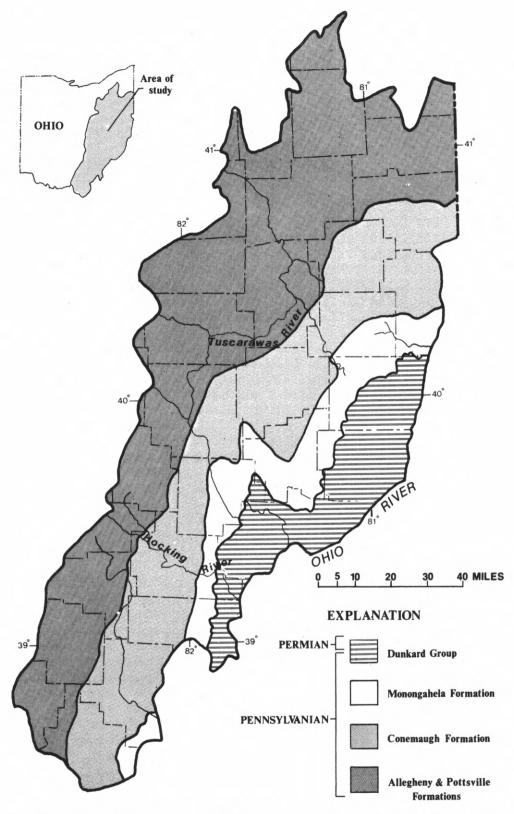


Figure 3.--Geologic map showing approximate boundaries of the Pottsville, Allegheny, Conemaugh, and Monongahela Formations and the Dunkard Group (from Bownocker, 1965).

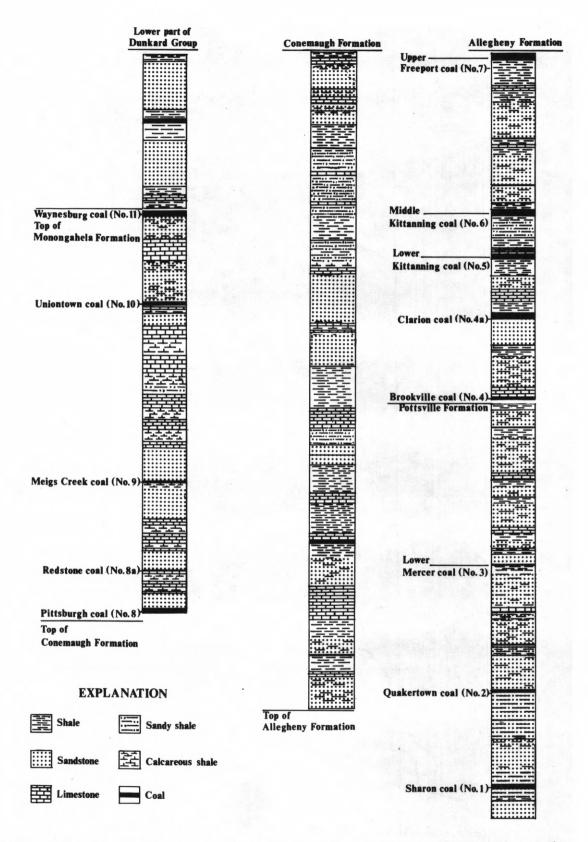


Figure 4.--Generalized stratigraphic sections of the Pennsylvanian and Permian Formations in Ohio (from description by Stout, 1930).

- (1) FeS_2 (s) +7/20, +H₂ 0 \rightleftharpoons Fe+2+2S0₄-2+2H+
- (2) $Fe^{+2}+1/40_2+H+\rightleftharpoons Fe^{+3}+1/2H_2O$
- (3) $\text{Fe}^{+3} + 3\text{H}_2 \text{ O} \rightleftharpoons \text{Fe} (\text{OH})_3 \text{ (s)} + 3\text{H}^+$
- (4) $FeS_2(s) + 14Fe^{+3} + 8H_20 \rightleftharpoons 15Fe^{+2} + 2SO_4^{-2} + 16H^+$

In reaction 1, the sulfide in pyrite is oxidized to sulfate, releasing ferrous iron and acidity (as H+) into the water. In reaction 2, ferrous iron is oxidized to ferric iron. Reaction 3 is the hydrolysis of ferric iron to ferric hydroxide, an insoluble substance commonly referred to as "yellow-boy." Reaction 3 also produces more acidity. Reaction 4 is another means by which sulfide can be oxidized, with subsequent production of sulfate, acidity, and ferrous iron.

As soon as Fe⁺³ has been produced by reactions 1 to 3, pyrite can continue to be oxidized (reaction 4) without the direct involvement of oxygen. However, oxygen is necessary for the oxidation of Fe⁺² to Fe⁺³, so that exclusion of oxygen from a mine inhibits the production of acid mine drainage.

In mining situations from which oxygen is not excluded the rate of acid drainage production is limited by the rate of Fe+2 oxidation. This rate is related directly to pH; the higher the pH, the greater the rate of oxidation (Wiram, 1974). Below pH 4.5, the rate of oxidation would be extremely slow without microbial catalysis by the iron bacteria Thiobacillus and Ferrobacillus ferrooxidans, which thrive in low-pH water (Stumm and Morgan, 1970).

Other factors are also important in determining acid-drainage Rock texture (size, shape, and arrangement production. constituent particles), porosity, and permeability determine the amount of oxidizing agents able to reach pyrites, particularly in drift mines and strip-mine highwalls. The mineralogy of the exposed rock is important; a high calcareous content can provide enough carbonate to neutralize any acidity produced, while a small calcareous content (3 percent or less) may actually acidity production by temporarily increasing pH (Wiram, 1974). The most important additional factor is the mineralogy of the pyrite itself. Caruccio (1968) has demonstrated "framboidal," or fine-grained (<0.25 microns) "raspberrytextured" pyrite is more reactive than coarse-grained (>50 microns) euhedral pyrite or marcasite. Rocks containing as little as 0.5 percent framboidal pyrite have been found to produce acidity (Wiram, 1974).

RECONNAISSANCE PHASE, MAY-DECEMBER, 1975

Purpose and Scope

The purpose of the reconnaissance phase was to document the occurrence of certain inorganic and organic constituents in waters in the coal-producing region of Ohio, and to determine if the concentrations of those constituents were related to coal mining.

The number of sampling sites for the reconnaissance was limited to 150, each of which was to be sampled twice. Sites were chosen to represent both unmined and mined basins, including active and abandoned strip mines, and abandoned drift and underground mines. To limit the number of mining-activity types influencing water quality within one basin, most basins chosen were less than 100 square miles in area. Locations of the 150 sampling sites are shown in figure 5.

Samples were analysed for the following parameters: Specific conductance, dissolved oxygen, pH, acidity (as H^+) or alkalinity (as HCO_3^-), sulfide, dissolved sulfate, chloride, phenols, organic carbon (total), aluminum (total), arsenic (total), chromium (total), copper (total), iron (total), manganese (total), mercury (total), and zinc (total).

Method of Sampling

On-site measurements of water temperature, specific conductance, dissolved oxygen, and pH were made at each sampling site, by techniques described in Brown, Skougstad, and Fishman (1970). The Ohio district lab analyzed samples for sulfide, dissolved sulfate, and chloride, and the Regional lab in Albany, New York, analyzed samples for phenols, total organic carbon, total arsenic, chromium, copper, iron, manganese, mercury, and zinc. Discharge estimates, based on 5 to 10 velocity-and-depth measurements, were made at each sampling site.

Samples were collected during late spring and autumn. Those time periods generally represent low-flow regimes; however, sampling was not suspended when precipitation occurred. Samples collected during runoff from recent rainfall are indicated in appendix 1 by an asterisk (*).

Sampling Results

Results of sample analyses are given in appendix 1. Water quality varies considerably in the study area. Some constituents showed distinct relationships to coal mining; others seemed to be related to such factors as type of bedrock, or oil-well brine pits. Several showed such random occurrences that possible sources could not be determined.

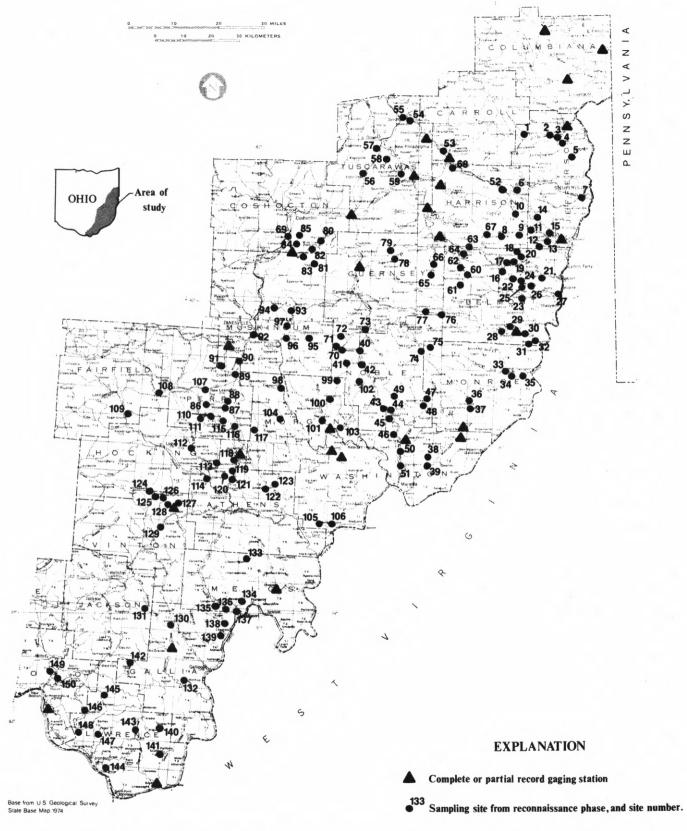


Figure 5.--Location of stream sampling sites from the reconnaissance phase, May-December, 1975.

pH and Acidity

pH ranged from 1.9 at site 3 to 8.9 at site 138 (appendix 1). Acidity was found where pH was less than than 4.5 and ranged in concentration from 292 milligrams per liter (mg/L) at site 3 to 0.2 mg/L at site 114. The low pH and accompanying acidity occurred in basins where abandoned coal mines were predominant. Site 3 data describes drainage issuing directly from an abandoned drift mine.

Bicarbonate

Bicarbonate (HCO₃-) concentrations throughout the study area ranged from 1 mg/L at site 92 to 525 mg/L at site 8 (appendix 1). Bicarbonate was present at all unmined areas. Concentrations averaged 144 mg/L in the unmined basins underlain by the highly calcareous Monongahela Formation and 100 mg/L in unmined basins underlain by the Allegheny Formation (figs. 3 and 4). difference between the bicarbonate concentrations of water from the two formations was more pronounced in areas where reclaimed mines were predominant; bicarbonate concentrations averaged 100 mg/L in the Allegheny basins and 215 mg/L in the Monongahela basins. Streams receiving acid-mine drainage exhibited the greatest variation in bicarbonate concentrations (ranging from 0 to 394 mg/L) due to varying amounts of acid drainage received. Bicarbonate correlated inversely with pH, resulting in a -0.90 Spearman correlation coefficient (explained in Sokal and Rohlf, 1969).

Dissolved Sulfate

Dissolved-sulfate concentrations ranged from 22 mg/L at site 78 and site 117 to 7,100 mg/L at site 3 (appendix 1). High dissolved sulfate served as the most reliable indication of coal mining in a basin; concentrations averaged 75 mg/L in samples from unmined basins and 629 mg/L in samples from mined basins. In general, any dissolved sulfate concentrations greater than the Ohio Environmental Protection Agency (Ohio EPA) public water supply limit of 250 mg/L (Ohio EPA, 1978) were found in mined areas. Sulfate strongly correlated with specific conductance (Spearman coefficient=0.96), and varied linearly with iron (Pearson coefficient=0.69) and aluminum concentrations (Pearson coefficient=0.75) (Sokal and Rohlf, 1969).

Phenol

Phenol concentrations ranged from 0 (undetected) at 73 sites to 32 micrograms per liter (μ g/L) at site 46 (appendix 1). Most concentrations were less than 10 μ g/L; however the Ohio EPA (1978) limit for phenol concentration is 1 μ g/L. Phenol was found throughout the study area but its occurrence seems unrelated to mining, geology, other chemical parameters, or flow regime; it was seldom detected twice at any site.

12 -

Total Organic Carbon

Total organic carbon concentrations ranged from undetected to 35 mg/L at site 3 (appendix 1); most concentrations were less than 10 mg/L. Organic carbon occurred with no apparent pattern throughout the study area. However, all samples having concentrations greater than 10 mg/L were collected in mined basins.

Arsenic

Arsenic was undetected at 59 sites, was found in concentrations less than 10 μ g/L at 79 sites, and exceeded the Ohio EPA (1978) limit of 50 μ g/L at only three sites (sites 3, 120, and 138) (appendix 1). Site 138 represents a basin containing abandoned strip mines. Site 3 is drainage from an abandoned drift mine, and site 120 is an artesian well supplied by a flooded deep mine. Arsenic concentrations at site 3 (2,100 and 1,600 μ g/L) were more than twenty times higher than the nexthighest concentrations, at site 138 (95 and 75 μ g/L).

Chloride

Chloride was found at all sites, in concentrations ranging from 2 mg/L at site 128 to 340 mg/L at site 29 (appendix 1). Concentrations were less than 50 mg/L at most sites and exceeded the Ohio EPA (1978) limit of 250 mg/L at only four sites. Chloride concentrations showed no relation to mining; higher concentrations might be attributed to oil wells and accompanying brine pits, which are found throughout eastern Ohio.

Chromium

Chromium was undetected at 12 sites (appendix 1); at the remaining sites, concentrations generally were less than the Ohio EPA (1978) limit of 50 µg/L. Most sites showed higher concentrations during late spring sampling than during autumn. Site 24, site 86, site 88, site 118, and site 120 had the highest concentrations (respectively 230, 140, 290, 440, and 600 µg/L) occurring in late spring. No consistent explanation for such concentrations was discovered. Concentrations were uniformly high at three sites—drainage from two abandoned drift mines (sites 3 and 19) and one abandoned tailings pile (site 26).

Copper

Copper concentrations ranged from undetected at 14 sites to 1,200 μ g/L at site 3 (appendix 1). Only two sites (3 and 114) exhibited concentrations greater than the Ohio EPA (1978) limit of 1,000 μ g/L; most concentrations were less than 50 μ g/L. Most concentrations had decreased at the autumn sampling, including those at site 3 and site 114.

Iron

Iron occurred at all sites, in concentrations ranging from 40 mg/L at sites 33 and 35 to 4,400,000 mg/L at site 3 (appendix 1). Iron concentrations were inversely correlated with pH (Spearman coefficient=-0.70) and directly correlated with aluminum, and conductivity. Concentrations in unmined basins were variable, commonly exceeding the Ohio EPA (1978) limit of 300 µg/L but seldom exceeding 1,000 µg/L. Concentrations in mined basins were more variable, had greater range, and generally exceeded 1,000 ag/L. The highest concentrations were found in streams having pH values less than 4.5. This relation was anticipated since reactions maintaining low pH produce ferrous and ferric iron (p. 9), and since iron is very soluble at low pH (Hem, 1970, p. 120).

Manganese

Manganese concentrations ranged from 10 μ g/L at several sites to 160,000 μ g/L at site 128 (appendix 1), and commonly exceeded the Ohio EPA (1978) limit of 50 μ g/L. Concentrations followed those of iron with respect to pH. Manganese, like iron, occurs as the dissolved cation in waters of low pH (Hem, 1970, p. 128).

Mercury

All but five sites (sites 2, 3, 55, 69, and 83) exhibited mercury concentrations less than the Ohio EPA limit of 2 μ g/L (appendix 1). The highest concentration, 20 μ g/L, was found at site 3. These large concentrations were found only during the spring sampling: no source was determined.

Zinc

Zinc was found at all sites in concentrations ranging from 10 µg/L at several sites to 11,000 µg/L at site 3 (appendix 1). Zinc concentrations exhibited a strong relationship to pH; concentrations were generally less than 50 µg/L, when pH was greater than 7.0, and were greater than 200 µg/L, when pH was less than 4.5. This is consistent with the solubility of zinc (Stumm and Morgan, 1970, p. 173, p. 202). Zinc concentration exceeded the Ohio EPA (1978) limit of 5,000 µg/L only at site 3.

Sulfide

According to Stumm and Morgan (1970, p. 310), sulfide cannot exist in the presence of dissolved oxygen; however, sulfide concentrations ranging from 0.1 to 2.0 mg/L were determined in many samples that also contained dissolved oxygen. All but five of these were of low enough concentration (0.5 mg/L or less) to be attributed to interference from reducing substances such as Fe+2 (Dennis A. Wentz, written communication, 1978). Of the remaining five, three (at sites 33, 119, and 149, table 1) could

not be reasonably explained. The sulfide found at site 114 may result from the slow oxidation of S- at low pH, while that at site 128, a drift mine, might result from nonequilibrium at the mine mouth. The highest sulfide concentrations (17 and 26 mg/L) found during this study were found at site 3, which contained no dissolved oxygen.

Aluminum

Aluminum concentrations ranged from undetected at sites 28 and 150 to 490,000 µg/L at site 3 (appendix 1). No limit for aluminum in public water supplies has been established. Aluminum concentrations rose with falling pH (Spearman correlation coefficient=-0.71), and correlated to other pH-dependent parameters (sulfate, iron, and bicarbonate). Linear correlation with specific conductance was tentative (Pearson coefficient=0.64).

Statistical Analysis of Selected Water-Quality Parameters

Statistical analyses were made using data for several waterquality parameters to determine what relationships might exist quality, mining categories, and between water formations. Interrelations between parameters were mentioned in the previous section. Water-quality parameters tested were specific conductance, pH, iron, aluminum, bicarbonate alkalinity, and dissolved sulfate: mining categories included unmined areas, reclaimed strip mines and abandoned strip and drift mines; the Allegheny and Monongahela geologic categories were Formations. To determine whether mining and geologic influences could be discerned, factorial analysis of variance (ANOVA) tests were performed. Sample sizes were unequal, and significance level was chosen. Linear regression analysis also was used to show the relationship between specific conductance and dissolved sulfate. Additional information concerning these types of analyses may be found in Li(1964).

Table 1 shows the results obtained from the ANOVA test. For each water-quality parameter, the influences of mining operation and geologic formation were evaluated. A significance level of 0.05 or less indicates a significant difference exists in water quality between categories, due to the appropriate influence. For example, table 1 shows that dissolved sulfate concentrations differ between mining categories at the 0.05 level. Therefore, at least certain mining influenced dissolved sulfate. The two underlying rock types had sulfate concentrations that did not significantly differ; there was no effect, therefore, due to geologic formation. From table 1, it can be seen that mining was a factor in the concentrations of pH, specific conductance, sulfate, aluminum, and bicarbonate alkalinity. Alkalinity and pH were shown to be influenced by rock type.

Table 1.--Results of analysis of variance test on water quality parameters from the reconnaissance phase.

		Significant			
Chemical analysis	Factor	Degree of freedom	F ratio	Significance level	at 0.05 level (*)
рН	Mining	237	71.26	0.0001	*
	Geology	237	15.23	.0001	*
Specific	Mining	237	9.79	.0001	*
conductance	Geology	237	.70	.4044	
Sulfate	Mining	237	9.92	.0001	*
	Geology	237	.54	.4632	
Iron	Mining	237	.97	.3812	
	Geology	237	.54	.4635	
Aluminum	Mining	237	3.58	.0294	*
	Geology	237	.25	.6202	aparetti a re <u>terior</u> an e e e e e e e e e e e e e e e e e e e
Alkalinity	Mining	236	35.79	.0001	*
	Geology	236	57.12	.0001	*

Where the ANOVA tests indicated that differences existed, a Duncan's multiple range test (Sokal and Rohlf, 1969) was performed to show which mining or geologic categories did differ. In table 2, the results are given.

Referring to table 2, water from abandoned mines has significantly lower pH values, lower alkalinity, and higher aluminum concentrations than that from reclaimed or unmined sites. Reclamation restores the pH and aluminum concentrations to levels not distinguishable from unmined conditions. Alkalinities in reclaimed regions become greater than those in unmined basins. Perhaps this is due to a greater infiltration capacity and surface area exposure of underlying rocks and soil after reclamation.

Reclamation does not decrease the specific conductance and dissolved sulfate concentrations, as compared to abandoned mining sites. Both abandoned and reclaimed basins produce significantly higher conductivities and dissolved sulfate than unmined areas.

Total iron concentrations did not show clear differences between mining categories. Although 88 percent of all large (greater than 10,000 ug/L) iron concentrations occurred in abandoned mine basins, enough lower concentrations also occurred in these basins to preclude significant differences between mining categories based on total iron.

The more calcareous Monongahela Formation produced waters of higher pH and alkalinity than the Allegheny Formation. This is consistent with the differences in mineralogy.

Results of the regression analysis are shown in table 3 and figures 6 to 12. Analyses 1 to 3 (table 3) and figure 6 show the relationship between dissolved sulfate and specific conductance for the Allegheny Formation, Monongahela Formation, and for both formations. The standard errors of estimate are 40 percent, percent and 40 percent, respectively. Analyses 4 to 9 and figures 7 to 12 show the relationship between specific conductance and dissolved sulfate for the combinations of mining The standard category and geologic formation. errors estimates vary from 23 percent for reclaimed areas in the Monongahela and abandoned areas in the Allegheny to 53 percent unmined areas in the Allegheny. The results indicate that variations in dissolved sulfate concentrations can be predicted by variations in specific conductance. However, the prediction of dissolved sulfate by specific conductance is more reliable after mining, because the resulting larger sulfate concentrations become a larger percentage of the total ions causing conductance. This is indicated by the lower standard errors of estimate for the mined basins.

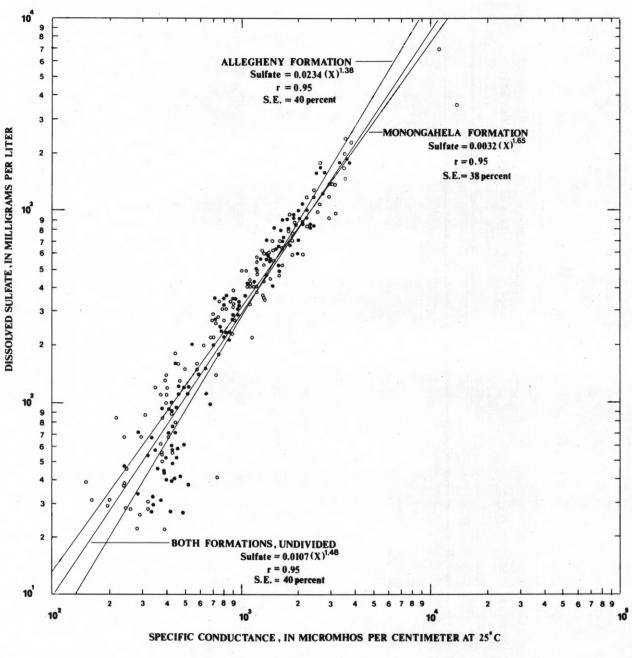
Table 2.--Duncan's multiple range test on water-quality parameters from the reconnaissance phase.

(Categories connected by lines are not significantly different)

Parameter	meter Category		Mean
рН	Reclaimed Unmined Abandoned	62 53 128	7.43 T 7.36 <u>1</u> 4.85 <u>T</u>
Specific conductance	Abandoned Reclaimed Unmined	128 62 53	1,512.2 T 1,405.5 I 426.2 I
Sulfate	Abandoned Reclaimed Unmined	128 62 53	653.7 T 578.6 I 75.2 I
Aluminum	Abandoned Reclaimed Unmined	128 62 53	15,738.6 I 991.9 542.3]
Alkalinity	Reclaimed Unmined Abandoned	62 53 127	189.4 I 131.4 I 41.5 I
рН	Monongahela Formation Allegheny Formation	120 123	7.0 I 5.1 I
Alkalinity	Mongahela	119	160.7 I
	Formation Allegheny Formation	123	39.5 I

Table 3.--Regression results of specific conductance versus sultate

Anal;	•	Formation	Mining category	r	Equation $Y=a(x)^b$	Standard error of estimate	Mean Y	Standard deviation Y	Standard error in percent
	1	Allegheny and Monongahela Formations, undivided	A11	0.95	SO ₄ =0.0107(Sp Cond) ^{1.48}	0.17	2.41	0.54	40
	2	Monongahe1a	A11	0.95	SO ₄ =0.0032(Sp Cond) ^{1.65}	0.16	2.38	0.53	38
	3	Allegheny	A11	0.95	SO ₄ =0.0234(Sp Cond) ^{1.38}	0.17	2.43	0.55	40
19	4	Monongahe1a	Abandoned	0.93	SO ₄ =0.0263(Sp Cond) ^{1.37}	0.15	2.56	0.40	35
	5	Monongahe1a	Reclaimed	0.96	SO ₄ =0.0056(Sp Cond) ^{1.58}	0.10	2.70	0.37	23
	6	Monongahela	Unmined	0.76	$S0_4 = 0.0015 (Sp Cond)^{1.75}$	0.20	1.81	0.30	48
	7	Allegheny	Abandoned	0.96	SO ₄ =0.0813(Sp Cond) ^{1.21}	0.10	2.59	0.47	23
	8	Allegheny	Reclaimed	0.98	SO ₄ =0.0016(Sp Cond) ^{1.77}	0.11	2.23	0.52	26
9	9	Allegheny	Unmined	0.52	SO ₄ =0.3236(Sp Cond) ^{0.84}	0.22	1.62	0.25	53



X = specific conductance

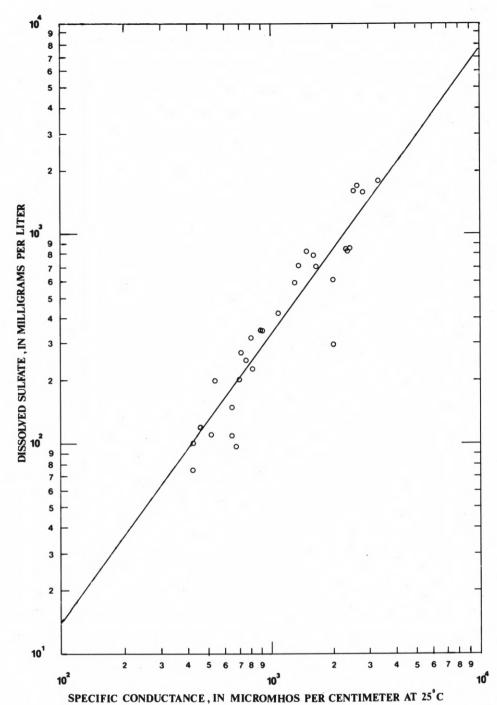
r = regression coefficient

S.E. = standard error

• = Monongahela Formation

o = Allegheny Formation

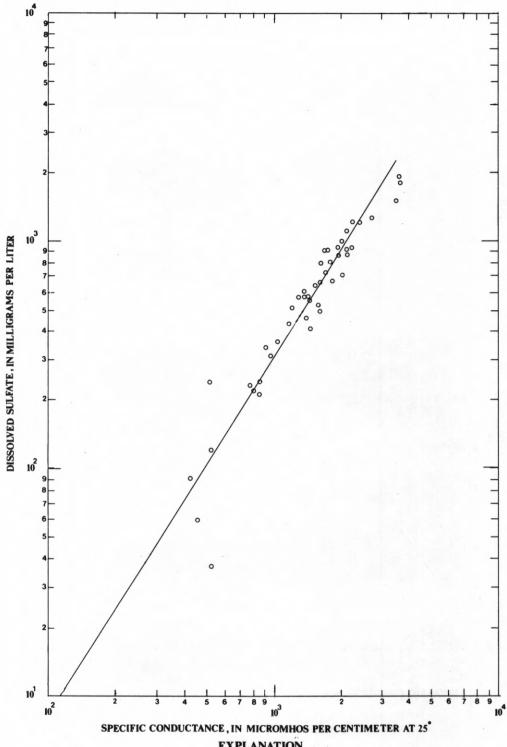
Figure 6.--Relationship between specific conductance and dissolvedsulfate concentration for the Allegheny Formation, Monongahela Formation, and for both formations undivided.



Sulfate = $0.0263 (X)^{1.37}$ X = specific conductance

(Regression coefficient) r = 0.93 (Standard error) S.E. = 35 percent

Figure 7.--Relationship between specific conductance and dissolved-sulfate concentration for the abandoned mined areas in the Monongahela Formation.

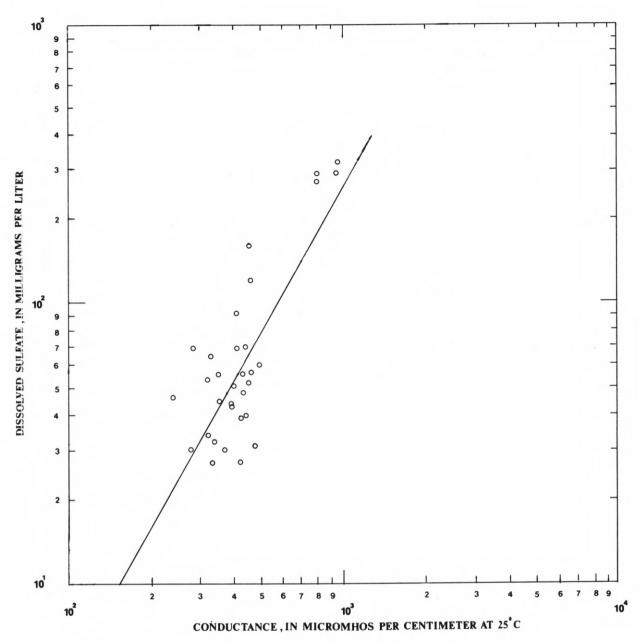


EXPLANATION
Sulfate = 0.0056(X)¹⁵⁸

X = specific conductance

(Regression coefficient) r = 0.96 (Standard error) S.E.= 23 'percent

Figure 8.--Relationship between specific conductance and dissolved-sulfate concentration for reclaimed strip-mined areas in the Monongahela Formation.



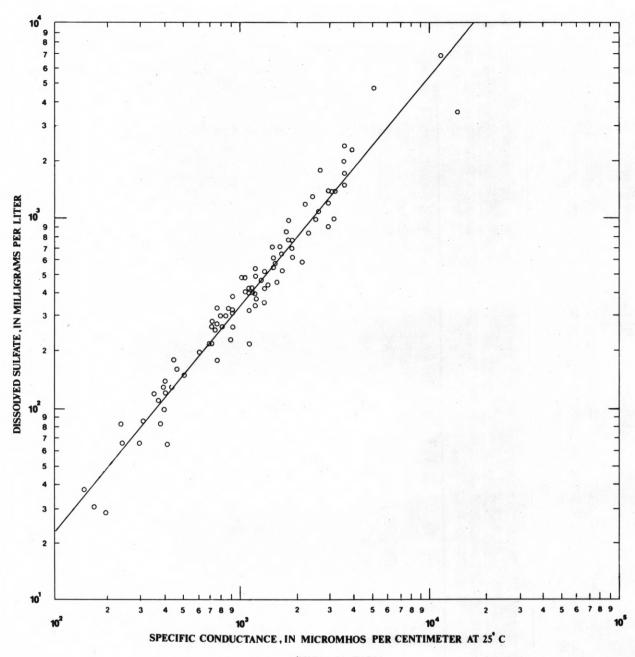
Sulfate = $0.0015 (X)^{1.75}$

X = specific conductance

(Regression coefficient) r = 0.76

(Standard error) S.E. = 48 percent

Figure 9.--Relationship between specific conductance and dissolved-sulfate concentration for unmined areas in the Monongahela Formation.



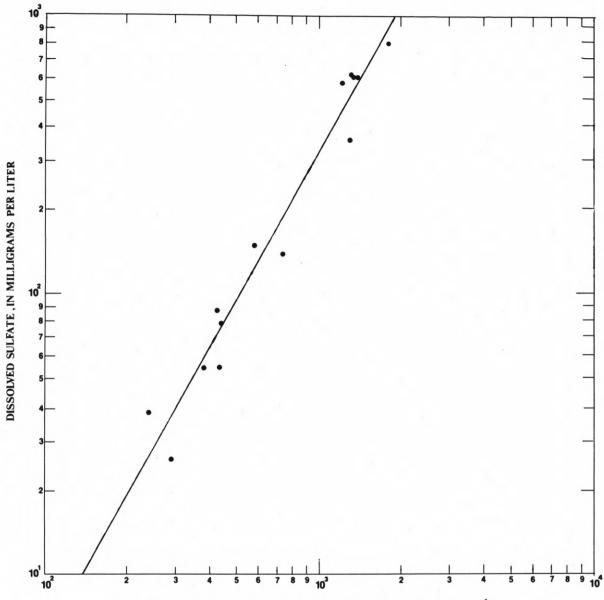
Sulfate = $0.0813(X)^{1.21}$

X = specific conductance

(Regression coefficient) r = 0.96

(Standard error) S.E.= 23 percent

Figure 10.--Relationship between specific conductance and dissolved-sulfate concentration for abandoned mined areas in the Allegheny Formation.



SPECIFIC CONDUCTANCE, IN MICROMHOS PER CENTIMETER AT 25°C

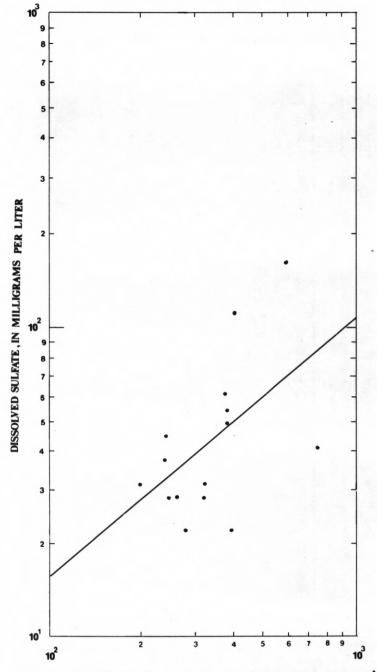
Sulfate = $0.0016(X)^{1.77}$

X = specific conductance

(Regression coefficient) r = 0.98

(Standard error) S.E. = 26 percent

Figure 11.--Relationship between specific conductance and dissolved-sulfate concentration for reclaimed strip-mined areas in the Allegheny Formation.



SPECIFIC CONDUCTANCE, IN MICROMHOS PER CENTIMETER AT 25°C

Sulfate = 0.3236(X)

X = specific conductance
(Regression coefficient) r = 0.52
(Standard error) S.E. = 53 percent

Figure 12.--Relationship between specificconductance and dissolved-sulfate concentration for unmined areas in the Allegheny Formation.

Conclusions -- Reconnaissance Phase

The data obtained during the reconnaissance phase show that pH, alkalinity, aluminum, specific conductance, and dissolved sulfate are affected by coal mining in Ohio. Dissolved sulfate and specific conductance are the best indicators of coal mining, both before and after reclamation. Sulfate concentrations greater than 250 mg/L and specific conductances greater than 800 µmhc/cm were usually attributable to mining disturbances. Reclamation returned the pH and aluminum to levels near those of unmined basins, while increasing alkalinity above unmined conditions.

High iron, manganese, and zinc concentrations were found when pH was low (typically in basins draining abandoned mines). Approximately 88 percent of all iron concentrations greater than 10,000 µg/L and manganese concentrations exceeding 1,000 µg/L were found in abandoned mine basins. All zinc concentrations greater than 1,000 µg/L were found in basins influenced by abandoned mines.

Bicarbonate alkalinity and pH values were found to vary not only with mining operations but also with geologic formation. The highly calcareous Monongahela Formation supplies more bicarbonate to streams than does the relatively noncalcareous Allegheny Formation.

Regression analysis showed that dissolved sulfate could be reliably predicted by specific conductance in basins that have been mined. Larger standard errors of estimate for unmined basins show that prediction in these basins is less reliable because sulfate is a smaller percentage of the total ions in those waters.

DETAILED STUDY, MAY-AUGUST 1976

Purpose and Scope

In the second phase of the investigation, four mined basins sampled during the reconnaissance phase were selected for more detailed study. The objective was to determine whether waterquality degradation within the basins was definitely related to coal mining.

Basins sampled in the second phase included Snow Fork (site 113 in the reconnaissance phase, containing abandoned drift mines), Huff Run (site 55, containing abandoned strip mines), South Fork Short Creek (sites 8 and 9, containing reclaimed strip mines), and Spencer Creek (site 61, containing active strip mines) (fig. 13).

Method of Sampling

The more intensive nature of the second phase study required that each basin be accessible and relatively small (less than 30 square miles) so that tributaries and several reaches of the main stem could be sampled readily. As much as possible, each basin selected contained only one type of mining activity to reduce the number of potential variables affecting stream quality.

An attempt was made to confine sampling in each basin to the shortest possible time, so that climate and flow conditions would be relatively constant during sampling. A working definition of "degradation" was established according to Ohio Environmental Protection Agency (1978) standards, which limit dissolved-solids concentrations at 500 mg/L (as a monthly average) and 750 mg/L (at any one time). These concentrations correspond approximately to specific conductances of 800 and 1,200 µmho (Ohio EPA, 1978), respectively, so specific conductances greater than 800 µmho were considered evidence of "degradation". A pH of 4.5 is used by the U.S. Geological Survey as the end point in alkalinity titrations; below pH 4.5, dissociated bicarbonate does not exist (Rainwater and Thatcher, 1960). Water having a pH of less than 4.5 was thus considered "degraded" or "acidic".

Each basin was sampled in a downstream direction along the main stem. Tributaries were sampled at their confluence with the main stem, while the main stem itself was sampled at intervals intended to represent a doubling of discharge.

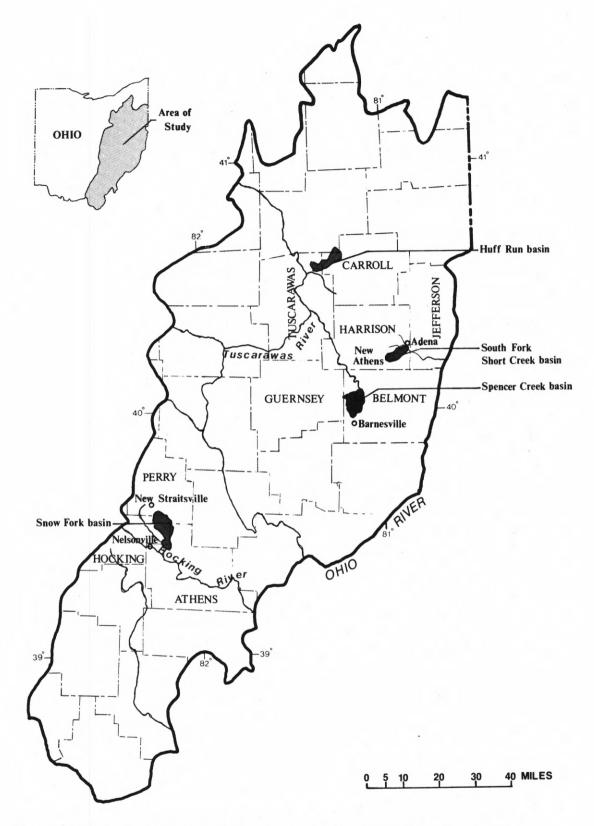


Figure 13.--Location of basins studied in detailed phase, May-August 1976.

At each main-stem sampling site, complete discharge measurements and measurements of specific conductance, pH, acidity or bicarbonate alkalinity and temperature were made. Water samples were analyzed in the Ohio district lab for sulfate and total iron. Samples collected at the most downstream sites were analyzed in the U.S. Geological Survey, Water Resources Division regional lab in Albany, N.Y., for phenol, organic carbon, and trace elements.

Tributary sampling was done somewhat differently from mainstem sampling. The specific conductance and pH of each tributary were measured; if these parameters did not meet the above criteria for "degradation", the tributary was not sampled further. If, however, either parameter did indicate "degradation", the tributary was measured for discharge and acidity or alkalinity and sampled for dissolved sulfate and total iron. The source of the tributary also was determined.

Figures 14 through 17 and tables 4 through 7 show water-quality data obtained during this investigation. Sampling points on the main stems are designated by the prefix "Sta" followed by a number. Tributaries designated "T---", exhibited "degradation" at time of sampling, whereas undesignated tributaries exhibited no "degradation". Numbers following the "T" designation represent miles upstream from the basin mouth.

Snow Fork - A Basin Containing Abandoned Drift Mines

Snow Fork (fig. 14), a stream in the Hocking River basin, originates in southern Perry County near New Straitsville and flows south through eastern Hocking County, then abruptly west to its confluence with Monday Creek in northern Athens County near Nelsonville. The topography is rugged. Valleys are typically less than 0.1 mile wide, and slopes are steep, ranging from 30° to 35°. The drainage area is 27 square miles and is entirely within the Wayne National Forest.

Strata of the Allegheny and Conemaugh Formations (figs. 3 and constitute the bedrock. Abandoned drift mines underlie about 4) 60 percent of the basin; most are in the southern half. Most of northern half has never been mined because of the interruption of the Middle Kittanning (No. 6) coal by stratigraphic phenomenon known to miners as the "Jumbo Fault" (fig. 14). Not a fault in the structural sense, the Jumbo consists of coarse-grained sandstone and is probably a channel deposit (Flint, 1951, p. 49-51). A small part of the basin, about 1 percent, has been mined by stripping but not reclaimed. Most of the abandoned drift mines are in the Middle Kittanning coal; several also are in the Upper Freeport (No. 7) coal, exposed near the southeast edge of the basin.

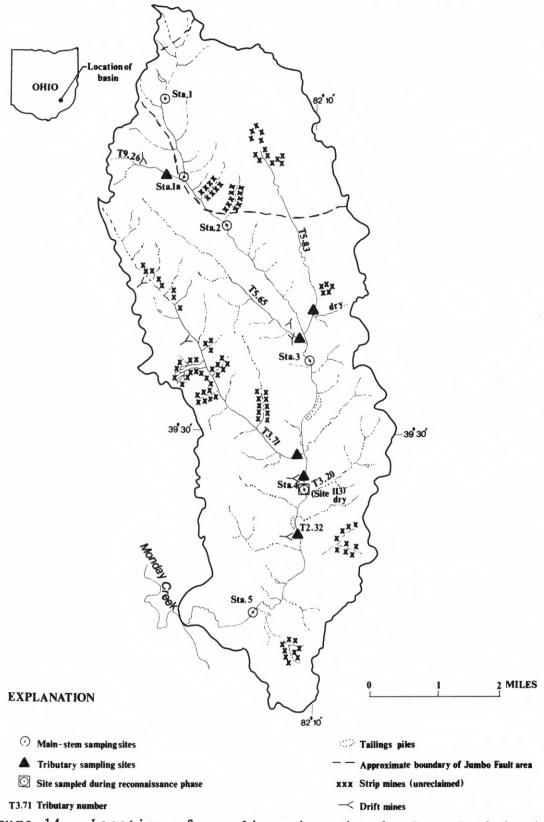


Figure 14.--Location of sampling sites in the Snow Fork basin, Ohio, June 8-17, 1976.

The Snow Fork basin was sampled during June 8-17, 1976. The data are listed in table 4.

In the 2.5 mile reach from headwaters to the confluence with tributary T9.26, the chemical quality of Snow Fork was similar to that of unmined basins underlain by the Allegheny Formation which were sampled during the reconnaissance phase (appendix 1). At Sta. 1, specific conductance measured 340 µmho, and pH measured 7.6; bicarbonate and dissolved sulfate concentrations were 116 and 52 mg/L, respectively. Specific conductance, pH, and discharge were checked at Sta. 1a, just upstream from the confluence with T9.26, and measured 260 µmho, 7.3 and 0.45 ft³/s, respectively.

At the time of investigation, four tributaries were contributing significantly to the degradation of Snow Fork. The first of these, T9.26, with a pH of 4.1 and dissolved sulfate concentration of 570 mg/L, changed the chemical quality of Snow Fork so much that, at Sta. 2, the pH of Snow Fork was 3.3, and the sulfate concentration was 530 mg/L. Tributary T9.26 had such great impact because, when sampled, its discharge was nearly four times that of Snow Fork at Sta. 1a. The tributary received most of its flow from an abandoned drift mine midway up the tributary basin.

Tributary T5.83 (pH 6.4, specific conductance 775 µmho) contributed 320 mg/L dissolved sulfate to Snow Fork. The sources of this tributary were several abandoned strip mines.

Tributary T3.71, the tributary having the largest drainage area, received acid drainage from several abandoned drift mines and abandoned strip mines. At the time of sampling, T3.71 had a pH of 2.6, specific conductance of 1950 µmho, sulfate concentration of 1,040 mg/L, and discharge of 1.4 ft³/s.

Tributary T2.32, with pH 2.8, specific conductance 1,850 μ mho, and discharge 0.42 ft³/s, issued directly from a drift mine.

Two other tributaries of lesser discharges (T5.65 and T3.20) also contained water of poor quality; drift mines were the sources of degradation. Additional sources may have been seepage from old tailings piles and pyrites in coal refuse that littered the streambed at various points along Snow Fork.

Tributaries having low acidity and sulfate were small, intermittent streams, with discharges of less than 0.1 ft³/s; many were dry. By contrast, "degraded" tributaries flowed even during dry periods. The bedrock, composed primarily of sandstones and shales, is a poor source of dissolved bicarbonate. Such small discharges from the tributaries having higher pH and low bicarbonate concentrations were insufficient to neutralize the pH of Snow Fork.

Table 4.--Chemical quality at stream sampling sites in the Snow Fork basin, Ohio, $$\operatorname{June}\ 8\text{-}17$, 1976$

Station and tributary number	Date	Time	Dis- charge (ft ³ /s)	Water tem- pera- ture (°C)	Specific conduct- ance (µmho/cm at 25°C)	pH (units)	Dis- solved oxygen (mg/L)	Total acidity as H ⁺ (mg/L)	Bicar- bonate (mg/L)
Sta. 1 6-	-08-76	1115	0.11	17.5	340	7.6	8.2		116
T9.26 6-	-08-76	1205	1.7	11.5	1,125	4.1		2.8	
Sta. 2 6-	-09-76	1210	1.9	16.5	1,100	3.3	7.4	2.8	
T5.83 6-	-10-76	1130	0.59	20.0	775	6.4			8
T5.65 6-	-15-76	1220	0.16	22.0	900	3.0		3.5	
Sta. 3 6-	-15-76	1100	2.6	21.0	1,300	3.0	7.4	3.7	
T3.71 6-	-16-76	1130	1.4	20.0	1,950	2.6		9.6	
T3.20 6-	-16-76	1240	0.008	22.5	2,500	2.3		21	
Sta. 4 6-	-16-76	1345	5.1	21.5	1,700	2.7	6.9	6.8	
T2.32 6-	-17-76	1230	0.42	14.0	1,850	2.8		7.4	
Sta. 5 6-	-17-76	1420	9.2	19.5	1,475	2.9	6.8	4.9	
C:+ a 117 F	21 75	1210	27	20.0	1 100	7 0	0.1	0.0	
Site 113 5-		1210	27	20.0	1,190	3.9	9.1	0.8	
(reconnais- 9- sance phase)	-16-/5	1220	13	16.0	1,850	2.9	8.4	6.6	
Same as Sta. 4 above									
Sta. 1a 6-	-08-76			not recorded	260	7.3			

Sulfate (mg/L)	Chlo- ride (mg/L)	Total iron (µg/L)	Total alu- minum (µg/L)	Total arsenic (µg/L)	Total organic carton (µg/L)	Total chromium (µg/L)	Total manga- nese (µg/L)	Total mercury (µg/L)	Total zinc (µg/L)	Phenol
52	10	70			4.9					0
570	12	17,000								
530	18	4,500			1.3					0
320	14									
880	14	7,600								
600	50	9,700			3.6					2
1,040	8	21,000								
780	24	11,000			5.3					0
820	24	19,000								
640	36	14,000	20,000	0	8.9	10	4,600	< 0.5	390	0
410	11	19,000	17,000	0	1.6	30	430	< 0.5	340	0
710	30	25,000	42,000	O	1.9	10	8,300	< 0.5	550	2

Huff Run - A Basin Containing Abandoned Strip Mines

Huff Run (fig. 15), a tributary to Conotton Creek in the Tuscarawas River basin, originates in northwestern Carroll County and flows southwest to its confluence with Conotton Creek in Tuscarawas County. The basin has an area of 14 square miles and relief of 150 to 200 feet.

Strata of the Allegheny Formation (fig. 4) constitute the bedrock. The upstream third of the basin is unmined, but the downstream two-thirds contain both underground mines, developed in the Lower Kittanning (No. 5) coal during the early 1900's, and strip mines, developed in the Middle Kittanning (No. 6) coal during the 1950's. None of the mines have been reclaimed. The brine pits of numerous oil wells in the basin also probably contribute to the degradation of Huff Run.

Huff Run basin was sampled during August 25-31, 1976. The undisturbed part of the basin (above Sta. 2) had no "degraded" tributaries (table 5). The disturbed part of the basin had approximately three times as many tributaries as the undisturbed part; most exhibited degradation in both pH and specific conductance. Most tributary discharges averaged around 0.1 ft³/s at the time of sampling. All but three of the degraded tributaries were traced to abandoned strip mines, where they originated from holding ponds or as seepage flow from tailings piles. The three others (T3.80, T2.38, and T0.68) issued from drift mines, which, according to local information, had been dynamited shut in the 1930's as a safety measure by the U.S. Army Corps of Engineers. However, closing the mine entrances failed to prevent the discharge of acid mine drainage.

Because the degraded tributaries had small discharges, Huff Run exhibited gradual changes in chemical quality as it flowed through the disturbed part of the basin. With few carbonates in the bedrock to contribute bicarbonate alkalinity (68 mg/L at Sta. 1), Huff Run had little buffer capacity. At Sta. 4, the buffer capacity was exceeded, the pH dropping to 3.3.

South Fork Short Creek - A Basin Containing Reclaimed Strip Mines

South Fork Short Creek (fig. 16), a minor Ohio River tributary, originates in Harrison County near New Athens, flows eastward, and joins the Middle Fork Short Creek at Adena. The basin has a drainage area of about 14 square miles. Most of this area consists of strip mines reclaimed before 1972; the southern half of the basin has been reforested, the northern half planted with grasses and legumes.

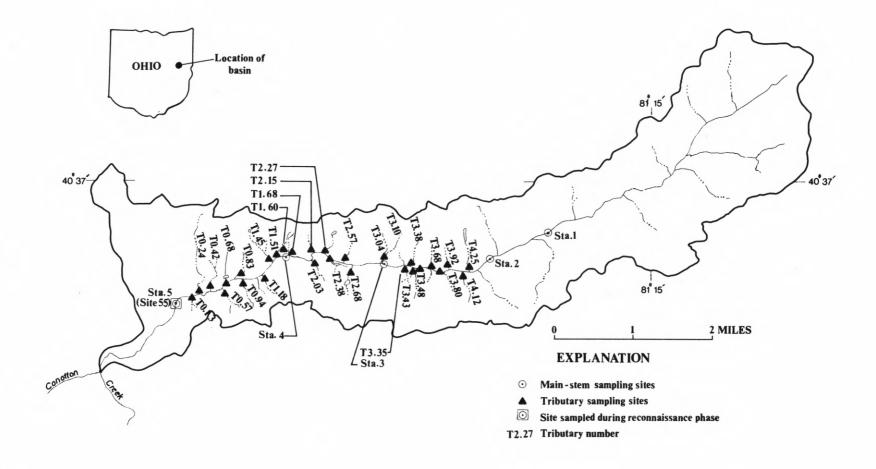


Figure 15.--Location of sampling sites in the Huff Run basin, Ohio, August 25-31, 1976.

Table 5.--Chemical quality of stream sampling sites in the Huff Run basin, Ohio, August 25-31, 1976

Station and tributary number	Date	Time	Dis- charge (ft ³ /s)	Water tem- pera- ture (°C)	Specific conduct- ance (µmho/cm at 25°C)	pH (units)	Dis- solved oxygen (mg/L)	Total acidity as H ⁺ (mg/L)	Bicar- bonate (mg/L)
Sta. 1 8	2-25-76	0830	1.4	18.5	475	7.1	6.9		68
Sta. 2 8		0930	1.8	19.0	560	7.2	7.5		64
T4.25 8		1520	0.007	24.5	1,030	5.8			16
T3.48 8		1605	0.05	23.0	3,000	2.8		6.4	
T3.43 8		1615	0.02	24.0	2,900	6.5			68
T3.38 8		1550	0.24	23.5	2,700	2.9		4.6	
T3.35 8		1625	0.035	24.0	2,800	6.8			116
T3.10 8		1100	0.01	23.5	2,400	6.5			32
Sta. 3 8		1045	2.6	20.0	1,000	6.6	7.9		36
T3.04 8		1115	0.13	23.5	3,000	3.2		3.4	
T2.68 8		1420	0.15	22.0	4,400	3.0		9.5	
T2.57 8		1145	0.04	21.0	2,600	3.1		3.9	
T2.38 8		1400	0.04	23.0	3,400	2.9		10.0	
T2.27 8		1215	0.03	20.0	2,400	3.4		2.3	
T2.15 8		1235	0.12	23.0	2,600	3.0		4.5	
T2.03 8		1415	0.12	22.0	3,500	3.0		5.4	
T1.68 8		1250	0.15	18.0	2,200	4.2		4.9	
Sta. 4 8		1200	3.3	19.0	1,550	3.8	7.5	1.5	
				26.0	1,600	3.2	7.5	2.0	
T1.60 8		1315 1350	$0.01 \\ 0.10$	22.0	1,800	3.4		4.8	
T1.51 8			0.10	21.0		2.9		4.0	
T1.45 8		1420			2,000 5,000	2.9		11.0	
T1.18 8		1330	0.01	23.5		3.0		8.6	
T0.94 8		1315	0.24		2,500	2.9		6.8	
T0.83 8		1440	0.07	26.0	2,600			4.1	
T0.68 8		1500	0.02	30.5	2,200	2.9		6.4	
TO.57 8		1710	0.35	27.0	2,600			1.3	
T0.42 8		1520	0.06	18.0	850	3.5	4 11	7.8	
T0.13 8		1750	0.008	25.0	2,400	2.9	7.8	2.4	
Sta. 5 8	8-26-76	1315	4.0	20.0	1,600	3.4	7.0	2.4	
Site 55	7-09-75	1530	5.3	23.0	1,640	3.4	7.0	2.1	
(reconnais- 10	0-23-75	1220	8.4	12.5	1,100	4.1	9.7	1.0	
sance phase)									

Table 5.--Continued.

Sulfate (mg/L)	Chlo- ride (mg/L)	Total iron (µg/L)	Total alu- minum (µg/L)	Total arsenic (µg/L)	Total organic carton (µg/L)	Total chromium (µg/L)	Total manga- nese (µg/L)	Total mercury (µg/L)	Total zinc (µg/L)	Pheno
48	94									
130	72									
600	30									
1,600	150									
2,100	16									
1,900	40									
2,000	15									
1,900	25									
480	78									
2,400	140									
2,900	130									
1,800	10									
240	20									
1,100	200									
240	10									
240	65									
1,600	25									
840	34									
850	25									
1,100	6									
1,100	4									
3,500	210									
1,600	25									
1,600	8									
1,200	6									
1,400	70									
400	10									
1,500	45									
880	Sample lost	21,000	4,200	0	5.6	<10	22,000	< 0.5	230	0
650	75	25,000	5,200	0	4.6	10	23,000	3.2	370	3
430	70	13,000	3,500	Ö	7.2	0	12,000	< 0.5	160	0

Figure 16.--Location of sampling sites in the South Fork Short Creek basin, Ohio, June 1-7, 1976.

The topography was disrupted by extensive strip mining. Relief ranges from 200 to 250 feet. The basin exhibits the characteristic asymmetrical drainage development of the area, with long southward-flowing and short northward-flowing tributaries, due to the southeast dip of the bedrock (Lamborn, 1930).

The highly calcareous Monongahela Formation forms the bedrock (fig. 3). The Meigs Creek (No. 9) coal crops out at a level suitable for strip mining and thus has been the primary coal mined (Smith and others, 1952).

South Fork Short Creek was sampled during June 1-7, 1976. The data obtained are listed in table 6.

The South Fork basin owes most of its hydrologic character to strip mining. Most tributaries are perennial, supplied by water stored in strip ponds and reclaimed overburden. Tributary discharges averaged 0.5 ft³/s when sampled. South Fork near its mouth (Sta. 6) had a discharge nearly equal to that of Snow Fork, a stream having double the drainage area.

Although all tributaries in the basin had a pH greater than 7.0, all were considered degraded because of their specific conductance, which ranged from 1,850 to 5,000 µmho. Analyses of tributary samples revealed high bicarbonate and dissolved sulfate concentrations (averaging 360 and 2,000 mg/L, respectively) low iron concentrations (averaging 90 µg/L). The high dissolved sulfate concentrations indicated pyrite oxidation in reclaimed overburden, even though no acid drainage resulted. These conditions may be attributed to the predominantly calcareous (limestone) overburden. Any H+ ions produced by reactions 1 and 3 (p. 9) would react with limestone as follows: H++CaCO3 = HCO3 Ca+2. Such reactions maintain neutral pH (around 7.0) and increase bicarbonate concentrations. At the same time, Fe+3 produced is converted to insoluble Fe(OH), (reaction 3) remains in the reclaimed overburden. so T concentrations in the streams were low.

Reclamation of South Fork basin seemed to be relatively successful. Vegetation and wildlife seemed to be thriving. The water quality, except for high dissolved sulfate concentrations, was within the Ohio EPA standards for dissolved constituents.

Spencer Creek - A Basin Containing Active Strip Mines

Spencer Creek (fig. 17), a tributary to the Piedmont Reservoir (Stillwater Creek) in the Tuscarawas River basin, rises in western Belmont County near Barnesville and flows north to the reservoir. The stream is divided into north and south forks, which drain approximately equal areas and join near the midpoint of the basin. The 24-square-mile basin is underlain by the Monongahela Formation and is being mined for Pittsburgh (No. 8)

39

Table 6.--Chemical quality at stream sampling sites in the South Fork Short Creek basin, Ohio, June 1-7, 1976

Station and tributary number	Date	Time	Dis- charge (ft ³ /s)	Water tem- pera- ture (°C)	Specific conduct- ance (µmho/cm at 25°C)	pH (units)	Dis- solved oxygen (mg/L)	Total acidity as H ⁺ (mg/L)	Bicar- bonate (mg/L)
Sta. 1	6-01-76	1220	1.7	20.0	3,000	7.9	7.4		432
T5.60		1340	0.61	20.0	4,200	7.7			432
T5.27		1520	2.0	22.5	3,700	7.8			364
Sta. 2		0845	3.7	19.0	3,500	7.9	7.5		424
T5.10		1445	0.55	20.0	5,000	7.9			536
T5.02		1450	0.02	24.5	3,400	7.4			124
T4.90		0920	0.01	20.5	2,500	7.6			296
T4.60		1100	0.24	21.5	3,200	7.6			396
T4.16		1305	1.2	21.0	3,500	7.9	1 L		360
T3.95		1430	0.05	22.0	4,500	7.7			394
Sta. 3		1625	6.5	20.0	3,600	7.8	8.3		484
T3.75		1130	0.44	22.0	5,000	7.8			452
T3.71		1045	0.32	17.5	2,500	7.7			252
T3.16		1330	0.004	13.0	3,000	7.7			220
Sta. 4		0910	7.3	16.0	3,500	7.9	8.4		376
T2.80		1340	0.42	22.5	3,900	7.8	0.4		448
T2.28		1655	0.42	20.5	3,500	7.7			320
Sta. 5		1615	8.8	18.0	3,500	8.0	7.7		368
T1.60		1000	0.61	20.5	2,500	7.8			284
T1.30		0820	0.28	13.5	1,850	7.8			280
Sta. 6		1245	8.2	21.5	3,500	7.9	8.8		336
Site 8	6-30-75	1230	1.2	27.0	4,290	8.1	8.6		490
(reconnais- 1 sance phase)		1200	0.87	16.5	4,500	7.4	8.2		525
Site 9	6-30-75	1420	5.9	24.5	3,670	8.1	8.3		420
	1-04-75	1340	3.7	15.5	3,600	7.8	8.1		464

Table 6.--Continued.

Sulfate (mg/L)	Chlo- ride (mg/L)	Total iron (µg/L)	Total alu- minum (µg/L)	Total arsenic (µg/L)	Total organic carton (µg/L)	Total chromium (µg/L)	Total manga- nese (µg/L)	Total mercury (µg/L)	Total zinc (µg/L)	Phenol
2,010	18	80								0
2,330	6									
2,050	12	240								
2,030	18	260								0
2,630	8	20								
2,110	8									
1,270	6									
1,680	14	1,300								
2,000	10	390								
2,510	8									
2,030	16	50								0
2,530	18	20								
1,380	12	60								
820	8									
2,030	14	210								0
2,130	20	40								
2,070	6	70								
2,010	14	100								0
1,200	26									
860	14									
1,910	16	180	160	0		40	240	1.5	20	0
2,500	16	300	30	0	4.8	30	110	<0.5	10	1
2,400	20	380	10	1	1.9	20	960	<0.5	20	6
1,800	12	150	310	0	4.2	20	260	<0.5	10	0
1,900	10	580	500	1	4.1	10	520	<0.5	30	1

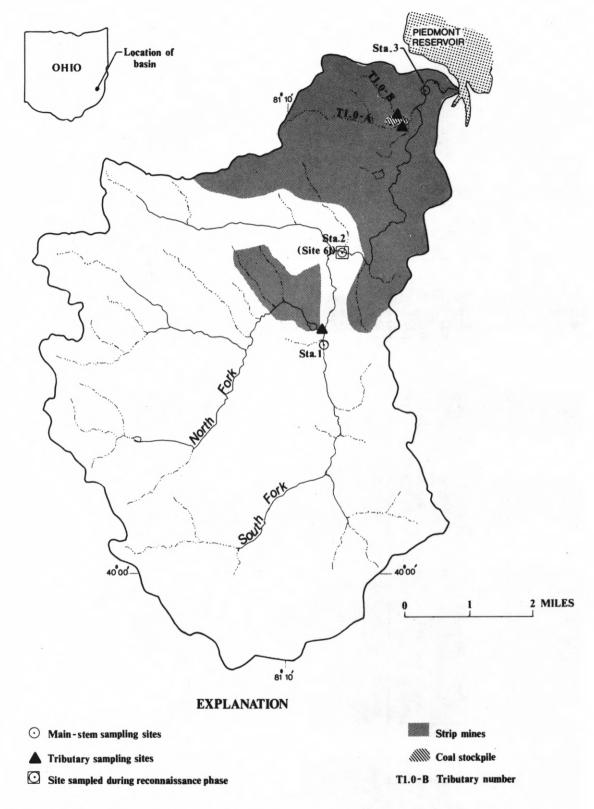


Figure 17.--Location of sampling sites in the Spencer Creek basin, Ohio, June 21-25, 1976.

(fig. 4) and Meigs Creek (No. 9) coals, (Ohio Division of Mines, 1975).

Mining activity has centered in the downstream part of the basin. Approximately one-fourth of the basin was currently being strip mined, or had been reclaimed within a year, at the time of sampling (June 21-25, 1976). Spencer Creek upstream from Sta. 2 was sampled by June 24, during dry weather. Downstream from Sta. 2, samples were taken after a night of heavy rain. Higher flows at these stations made it difficult to compare upstream and downstream data.

Tributaries upstream from Sta. 2 exhibited no "degradation" as defined (table 7). Yet specific conductance of the north and south forks near their confluence was 710 and 750 µmho, respectively, near the limit of 800 µmho defined as "degraded". The north fork was sampled just downstream and close to its impoundment as a strip pond. The reactions that produced high bicarbonate and sulfate concentrations in Short Creek basin (p. 39) were probably identical to those here. The resulting concentrations (e.g. dissolved sulfate concentration in the north fork of 250 mg/L) were lower than those in Short Creek basin. Perhaps the reactants had been exposed for shorter times. No specific source was determined for the specific conductance in the south fork.

Few tributaries entered Spencer Creek downstream from Sta. 2. The main tributary, T1.0, which partly formed the boundaries of a coal stockpile, contained high dissolved sulfate and iron concentrations (1,300 mg/L and 20,000 μ g/L, respectively). These concentrations were attributed to seepage from the base of the stockpile.

Conclusions-Detailed Study

Data obtained in the detailed study indicated that water quality in each of the four basins was significantly affected by coal mining. The substances entering the streams differed, depending on the type of mining predominant in the basin.

Drainage from abandoned drift and strip mines contributed acidity and high concentrations of sulfate to Snow Fork and Huff Run. Specific conductance rose and alkalinity fell as a result of mine drainage. The relative discharges of streams and minedrainage and the buffer capacity of the streams determined the rate and extent of change in stream quality.

Table 7.--Chemical quality at stream sampling sites in the Spencer Creek basin, Ohio, June 21-25, 1976

Station and tributary Date number	Time	Dis- charge (ft ³ /s)	Water tem- pera- ture (OC)	Specific conduct- ance (µmho/cm at 25°C)	pH (units)	Dis- solved oxygen (mg/L)	Total acidity as H ⁺ (mg/L)	Bicar- bonate (mg/L)
Sta. 1								
(South Fork) - 6-24-7	76 1220	2.0	19.0	750	7.9	9.8		172
(North Fork) - 6-24-	76 1300	2.5	21.5	710	7.7			136
Sta. 2 6-25-7	76 1200	14	21.5	900	7.8	10.3		166
T1.0-A 6-25-7	76 1325	0.32	25.5	2,000	7.8			144
T1.0-B 6-25-7	76 1510	0.05	23.5	2,200	7.4			196
Sta. 3 6-25-7	76 1440	19	22.5	1,000	7.6	9.4		164
Site 61 10-15-7 (reconnais- sance phase)	75 1115	6.3	16.5	1,180	7.7	8.8		248

ulfate (mg/L)	Chlo- ride (mg/L)	Total iron (µg/L)	Total alu- minum (µg/L)	Total arsenic (µg/L)	Total organic carton (µg/L)	Total chromium (µg/L)	Total manga- nese (µg/L)	Total mercury (µg/L)	Total zinc (µg/L)	Phenol (µg/L)
230	26	230								
250	12	1,100							. 77 / a	
320	22	2,000								
1,300					'					
150	8	20,000								
370	24	2,600			8.5					0
410	20	300	180	1	2.4	20	310	<0.5	170	0

reclaimed strip mines contributed high Drainage from concentrations of bicarbonate and sulfate to South Fork Short high sulfate concentrations indicated pyrite The oxidation in the reclaimed overburden; the high bicarbonate and neutral pH indicated that acidity (H+) produced during pyrite oxidation had been neutralized. Sulfate and bicarbonate concentrations in the Spencer Creek tributaries were much lower. This is consistent with lower sulfate concentrations in drainage from active surface mines, as compared to that from reclaimed mines, as indicated in the reconnaissance phase (appendix Some surface mines within the Spencer Creek basin had been recently reclaimed. Perhaps oxidation of pyrites in reclaimed overburden will increase with time, and Spencer Creek waters will then resemble those of South Fork Short Creek.

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 - Appendix 1. Water-quality data from the reconnaissance phase, May-December, 1975

Mining category symbols: AD, abandoned drift or deep mines; AS, abandoned strip mines; CN, combination (always includes some type of abandoned mine); RS, reclaimed strip mines; UN, unmined; WD, active deep mines; WS, active strip mines.

Geologic formation symbols: A, Allegheny; M, Monongahela.

Note: Mining category and geologic formation symbols are combined in the data table. Mining category symbols are listed first; thus, RSM, reclaimed strip mine Monongahela; UNA, unmined Allegheny.

Precipitation symbols: *, precipitation occurring during first sampling at site; **, precipitation occurring during second sampling; ***, precipitation occurring during both samplings.

Discharge symbols: E, discharge measured using 10 or fewer sections.

Appendix 1.--Water quality data from the reconnaissance phase, May-December, 1976.--Continued

1 UNA ** YELLOW CREEK AT BERGHOLZ

					ATER QUAL	ITY DATA					
DATE	TIME	INSTAN- TANEOUS DIS- CHARGE (CFS)	TEMPER- ATURE (DEG C)	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS)	PH (UNITS)	DIS- SOLVED OXYGEN (MG/L)	TOTAL ACIDITY AS H+ (MG/L)	BICAR- BONATE (HCO3) (MG/L)	CARBON DIOXIDE (CO2) (MG/L)	DIS- SOLVED SULFATE (SO4) (MG/L)	DIS- SOLVED CHLO- RIDE (CL) (MG/L)
JUL , 1	975 1145	E0.0	23.5	585	6.5	7.9		54	27	160	30
28	1600	E22	12.5	400	6.9	10.0		64	13	110	22
DATE	TOTAL ALUM- INUM (AL) (UG/L)	TOTAL ARSENIC (AS) (UG/L)	TOTAL CHRO- MIUM (CR) (UG/L)	TOTAL COPPER (CU) (UG/L)	TOTAL IRON (FE) (UG/L)	TOTAL MAN- GANESE (MN) (UG/L)	TOTAL MERCURY (HG) (UG/L)	TOTAL ZINC (ZN) (UG/L)	TOTAL ORGANIC CARBON (C) (MG/L)	PHENOLS	HYDRO- GEN SULFIDE (MG/L)
JUL • 19	975 800	0	10	10	600		. 5	100	2.4	4	0
08 0CT		0	10	10	600	840	<.5	100	2.6	6	.0
28	1800	1	0	10	3200	320	<.5	30	2.7	0	•2
		3	ADA	** 00.46		2500001.7					
		2	ADA		HUN NEAR		ОН				
					ATER QUALI	LIY DATA					
DATE	TIME	INSTAN- TANEOUS DIS- CHARGE (CFS)	TEMPER- ATURE (DEG C)	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS)	PH (UNITS)	DIS- SOLVED OXYGEN (MG/L)	TOTAL ACIDITY AS H+ (MG/L)	BICAR- BONATE (HCO3) (MG/L)	CARBON DIOXIDE (CO2) (MG/L)	DIS- SOLVED SULFATE (SO4) (MG/L)	DIS- SOLVED CHLO- RIDE (CL) (MG/L)
JUL , 19	975 1030	E.20	19.0	2210	2.7	6.2	20	0	• 0	1200	20
OCT 28	1500	£1.2	15.0	900	2.7	8.6	4.0	0	.0	320	6.0
DATE	TOTAL ALUM- INUM (AL) (UG/L)	TOTAL ARSENIC (AS) (UG/L)	TOTAL CHRO- MIUM (CR) (UG/L)	TOTAL COPPER (CU) (UG/L)	TOTAL IRON (FE) (UG/L)	TOTAL MAN- GANESE (MN) (UG/L)	TOTAL MERCURY (HG) (UG/L)	TOTAL ZINC (ZN) (UG/L)	TOTAL ORGANIC CARBON (C) (MG/L)	PHENOLS (UG/L)	HYDRO- GEN SULFIDE (MG/L)
JUL • 19											
08	46000	3	50	30	260000	5000	4.5	550	7.5	6	• 0
28	990	4	0	1.0	60000	1700	<.5	140	3.6	0	• 0
		٤	ADA	MINE	SHAFT NEAF	R NEW SOM	ERSET OH				
				w	ATER QUALI	ATAG YT					
UATE	TIME	INSTAN- TANEOUS DIS- CHARGE (CFS)	TEMPER- ATURE (DEG C)	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS)	PH (UNITS)	DIS- SULVEU OXYGEN (MG/L)	TOTAL ACIDITY AS H+ (MG/L)	BICAR- BONATE (HCO3) (MG/L)	CARBON DIOXIDE (CO2) (MG/L)	DIS- SOLVED SULFATE (SO4) (MG/L)	DIS- SOLVED CHLO- HIDE (CL) (MG/L)
JUL + 19		F 10	16.0	12700	1 0		292	0	• 0	3600	200
0d	0930	E.10	16.0	13700	1.9		238	0	.0	7100	50
DATE	TOTAL ALUM- INUM (AL) (UG/L)	TOTAL ARSENIC (AS) (UG/L)	TOTAL CHRO- MIUM (CR) (UG/L)	TOTAL COPPER (CU) (UG/L)	TOTAL IRON (FE) (UG/L)	TOTAL MAN- GANESE (MN) (UG/L)	TOTAL MERCURY (HG) (UG/L)	TOTAL ZINC (ZN) (UG/L)	TOTAL ORGANIC CARBON (C) (MG/L)	PHENOLS	HYDRO- GEN SULFIDE (MG/L)
JUL • 19							2.	11000	36.		17
08	62000	2100	330	1200	4400000	20000	20	11000	35	5	17
28	490000	1600	290	690	3700000	15000	<.5	8000	5.3	5	26

4 CNA ** YELLOW CREEK NEAR NEW SOMERSET OH

DATE	TIME	INSTAN- TANEOUS DIS- CHARGE (CFS)	TEMPER- ATURE (DEG C)	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS)	PH (UNITS)	DIS- SOLVED OXYGEN (MG/L)	TOTAL ACIDITY AS H+ (MG/L)	BICAR- BONATE (HCO3) (MG/L)	CARBON DIOXIDE (CO2) (MG/L)	DIS- SOLVED SULFATE (SO4) (MG/L)	DIS- SOLVED CHLO- RIDE (CL) (MG/L)
JUL , 19	75										
07	1445	ESO	22.5	589	0.6	7.0		28	11	520	26
28	1300	E37	12.5	500	6.8	9.6		54	14	150	20
DATE	TOTAL ALUM- INUM (AL) (UG/L)	TOTAL ARSENIC (AS) (UG/L)	TOTAL CHRO- MIUM (CR) (UG/L)	TOTAL COPPER (CU) (UG/L)	TUTAL IRON (FE) (UG/L)	TOTAL MAN- GANESE (MN) (UG/L)	TOTAL MERCURY (HG) (UG/L)	TUTAL ZINC (ZN) (UG/L)	TOTAL ORGANIC CARBON (C) (MG/L)	PHENOLS	HYDRO- GEN SULFIDE (MG/L)
JUL , 19	75 350	0	0	10	3900	360	1.3	50	1.4	7	.0
0CT	950	0	0	U	3400	540	<.5	20	1.9	0	.0
		. 5	WSM	ISLAN	D CREEK N	EAR PEKIN	ОН				
					ATER WUAL	ITY DATA					
				SPE-							
DATE	TIME	INSTAN- TANEOUS DIS- CHARGE (CFS)	TEMPER- ATURE (DEG C)	CIFIC CON- DUCT- ANCE (MICRO- MHOS)	PH (UNITS)	UIS- SOLVEU OXYGEN (MG/L)	TOTAL ACIDITY AS H+ (MG/L)	BICAR- BONATE (HCU3) (MG/L)	CARBON DIOXIDE (CO2) (MG/L)	DIS- SOLVED SULFATE (SO4) (MG/L)	DIS- SULVED CHLO- RIDE (CL) (MG/L)
JUL • 1	975 1310	£2.0	24.0	1280	5.8	4.6		172	44	500	35
07									2.6	310	16
28	1200	£6.8	13.0	960	8.0	15.3		164	2.0	310	10
DATE	TOTAL ALUM- INUM (AL) (UG/L)	TOTAL ARSENIC (AS) (UG/L)	TOTAL CHRO- MIUM (CR) (UG/L)	TOTAL COPPER (CU) (UG/L)	TOTAL IRON (FE) (UG/L)	TOTAL MAN- GANESE (MN) (UG/L)	TOTAL MERCURY (HG) (UG/L)	TOTAL ZINC (ZN) (UG/L)	TOTAL DRGANIC CARBON (C) (MG/L)	PHENOLS	HYDRO- GEN SULFIDE (MG/L)
JUL + 1					90	10	<.5	20	6.0	10	.0
07 OCT	50	0	10	10							
28	630	0	0	10	1300	60	<.5	20	2.6	0	.0
			b wDM	CROSS	CREEK NE	AR HUPEDA	ALE OH				
					VATER QUAL						
		INSTAN-		SPE- CIFIC CON- DUCT-		-210	TOTAL	BICAP-	CARBON	DIS- SOLVED	DIS-
	TIME	DIS-	TEMPER-	ANCE (MICRO-	PH	SOLVED	AS H+	HCU3)	010×10€	SULFATE (SO4)	(CL)
DATE		(CF5)	(DEG C)	MHUS)	(UNITS)	(MG/L)		(MG/L)	(46/L)	(MG/L)	(MG/L)
JUL • 1											
02	0945	£4.0	21.0	EEB	7.2	7.6		154	16	250	16
29	1000	5.62	12.0	625	7.2	9.7		112	11	190	14
DATE	TOTAL ALUM- INUM (AL) (UG/L)	TOTAL ARSENIC (AS) (UG/L)	TOTAL CHRO- MIUM (CR) (UG/L)	TOTAL COPPER (CU) (UG/L)	TOTAL IRON (FE) (UG/L)	TOTAL MAN- GANESE (MN) (UG/L)	TOTAL MERCURY (HG) (UG/L)	TOTAL ZINC (ZN) (UG/L)	TOTAL ORGANIC CARBON (C) (MG/L)	PHENOLS	HYDRO- GEN SULFIDE (MG/L)
JUL • 1									1.0		2
02	200	0	10	Ü	650	470	<.5	10	10	4	•2
29	50	1	10	U	330	340	<.5	10	3.4	4	.3

10 WDM NORTH FORK SHORT CREEK NEAR UNIONVALE OH

				CDE-							
				SPE- CIFIC			TOTAL			DIS-	DIS- SOLVED
		INSTAN-		CON-		DIS-	ACIDITY	BICAR-	CARBON	SOLVED	CHLO-
		015-	TEMPER-	ANCE	PH	SOLVED	AS H+	(HCO3)	(COS)	SULFATE (SO4)	(CL)
DATE	TIME	(CFS)	(DEG C)	(MICRO- MHOS)	(UNITS)	(MG/L)	(MG/L)	(MG/L)	(MG/L)	(MG/L)	(MG/L)
	7-										
JUL • 19	1520	E10	26.5	2880	7.0	7.4		160	26	930	300
NOV 04	1600	£4.6	15.0	2400	6.8	7.7		156	40	870	170
						TOTAL			TOTAL .		
	TOTAL ALUM-	TOTAL	TOTAL CHRO-	TOTAL	TOTAL	MAN-	TOTAL	TOTAL	ORGANIC		HYDRO-
	INUM	ARSENIC	MIUM	COPPER	IKON	GANESE (MN)	MERCURY (HG)	ZINC (ZN)	CARBON (C)	PHENOLS	GEN SULFIDE
DATE	(AL) (UG/L)	(AS) (JG/L)	(CR) (UG/L)	(CU) (UG/L)	(FE) (UG/L)	(UG/L)	(UG/L)	(UG/L)	(MG/L)	(UG/L)	(MG/L)
JUL , 19	75										2
01	2000	0	30	20	5300	1400	.8	70	3.8	7	•2
NOV 04	630	0	<10	10	6300	1100	<.5	70	1.2	1	•5
		11	CNM	64051		ADENIA OI					
		11	CNM		CREEK AT		1				
				•	ATER QUAL	ITY DATA					
				SPE- CIFIC							DIS-
		INSTAN-		COV-			TOTAL			DIS-	SOLVED
		TANEOUS DIS-	TEMPER-	DUCT-	РН	SOLVED	ACIDITY	BICAR- BONATE	DIOXIDE	SOLVED	CHLO- RIDE
	TIME	CHARGE	ATURE	(MICRO-	rn.	OXYGEN	H+	(HCO3)	(CO2)	(504)	(CL)
DATE		(CFS)	(DEG C)	MHOS)	(UNITS)	(MG/L)	(MG/L)	(MG/L)	(MG/L)	(MG/L)	(MG/L)
JUN • 19	975 1545	5.40	27.0	2		2.4		226	2 6	1400	24
30	1545	E20	27.0	2890	8.3	8.8		325	2.6		
04	1445	E15	15.5	3000	7.9	9.2		316	6.4	1000	30
	TOTAL		TOTAL			TOTAL			TOTAL		
	ALUM- INUM	TOTAL	CHRU-	COPPER	TOTAL IRON	MAN- GANESE	MERCURY	ZINC	ORGANIC	PHENOLS	HYDRO- GEN
	(AL)	(AS)	(CR)	(CJ)	(FE)	(MN)	(HG)	(ZN)	(C)		SULFIDE
DATE	(UG/L)	(UG/L)	(UG/L)	(UG/L)	(UG/L)	(UG/L)	(UG/L)	(UG/L)	(MG/L)	(UG/L)	(MG/L)
JUN , 19	975 140	0	30	20	220	110	<.5	10	4.4	1	.0
NOV											
04	170	0	10	10	90	220	<.5	20	3.9	2	•2
		17	2 ASM	*** ()(()	FARM HUN N	EAD DILL	ONVALE OH				
		•	- 45.1				ONVALL ON				
					WATER QUAL	ATAG YTT.					
				SPE- CIFIC							DIS-
		INSTAN-		CON-			TOTAL			DIS-	SOLVED
		TANEOUS DIS-	T : 404 0 -	DUCT-	0	DIS-	ACIDITY	BICAR-		SOLVED	CHLO-
	TIME	CHARGE	TEMPER- ATURE	ANCE (MICRO-	Рн	OXYGEN	AS H+	BONATE (HCO3)	(CO5)	SULFATE (SO4)	(CL)
DATE		(CFS)	(DEG C)	MHOS)	(UNITS)	(MG/L)	(MG/L)	(MG/L)	(MG/L)	(MG/L)	(MG/L)
AUG • 1	975 1200	10		200		_					
SEP		E.20	21.0	2000	8.0	7.5		272	4.4	610	14
20	1630	£4.0	14.5	2400	7.9	9.2		394	7.9	850	50
	TOTAL		TOTAL			TOTAL			TOTAL		
	ALUM-	TOTAL	CHRO-	TOTAL	TOTAL	MAN-	TOTAL	TOTAL	ORGANIC		HYDRO-
	INUM (AL)	ARSENIC (AS)	MIUM (CK)	(CU)	IRON (FE)	GANESE (MN)	MERCURY (HG)	ZINC (ZN)	(C)	PHENOLS	GEN SULFIDE
DATE	(UG/L)	(JG/L)	(UG/L)	(UG/L)	(UG/L)	(JG/L)	(UG/L)	(UG/L)	(MG/L)	(UG/L)	(MG/L)
AUG , 1	975										
SEP	150	0	10	10	520	150	<.5	10	13	0	.0
26	160	1	30	U	9900	200	<.5	20	14	0	.0

7 CNM CROSS CREEK NEAR MINGO JUNCTION OH

				,	TATER QUAL	ITY DATA					
				SPE-							
				CIFIC							2*6
		INSTAN-		CON-			TOTAL			DIS-	DIS-
		TANEOUS		DUCT-		015-	ACIDITY	BICAR-	CARRON	SOLVED	SOLVED CHLO-
		DIS-	TEMPER-	ANCE	PH	SOLVED	AS	BONATE	DIOXIDE	SULFATE	RIDE
	TIME	CHARGE	ATURE	(MICRO-		OXYGEN	H+	(HC03)	(502)	(504)	(CL)
DATE		(CFS)	(DEG C)	MHOS)	(UNITS)	(MG/L)	(MG/L)	(MG/L)	(MG/L)	(MG/L)	(MG/L)
							-				
NOV . 1											
05	0930	E14	13.5	1430	7.2	8.2		162	16	580	20
	TOTAL		TOTAL			TOTAL			TOTAL		
	ALUM-	TOTAL	CHRO-	TOTAL	TOTAL	MAN-	TOTAL	TOTAL	ORGANIC		HYDRO-
	INUM	ARSENIC	MIUM	COPPER	IRON	GANESE	MERCURY	ZINC	CARRON	PHENOLS	GEN
DATE	(AL) (UG/L)	(AS) (UG/L)	(CR)	(CU)	(FE)	(MN)	(HG)	(ZN)	(C)		SULFIDE
DATE	(30/2/	(00)/ [/	(UG/L)	(UG/L)	(UG/L)	(UG/L)	(UG/L)	(UG/L)	(MG/L)	(UG/L)	(MG/L)
NOV , I	975										
U5	1100	0	0	10	1400	630	<.5	40	2.6	1	.3
				• •		030		40	2.0		• 3
		8	WSM	SOUTH	FORK SHOP	RT CREEK	NEAR NEW	ATHENS OH			
				W	ATER QUAL	ITY DATA					
				SPE-							
				CIFIC							DIS-
		INSTAN-		CON-		1000	TOTAL			DIS-	SOLVED
		TANEOUS	TENOCH	DUCT-	f	DIS-	ACIDITY	BICAR-	CARRON	SOLVED	CHLO-
	TIME	DIS-	TEMPER-	(MICHO-	РН	SOLVED	AS H+	HUNATE	OIOXIDE	SULFATE (SO4)	RIDE (CL)
DATE	LIME	(CFS)	(DEG C)	MH05)	(UNITS)	(MG/L)	(MG/L)	(HCO3)	(MG/L)	(MG/L)	(MG/L)
DATE		(0) 37	1020 07	1911037	TONTIST	(40/6/	(MO/L)	(MO/L)	(40/1	(MO/L)	(40/1/
JUN . 1	975										
30	1230	E1.0	27.0	4290	8.1	8.6		490	6.2	2500	16
NOV											
04	1200	E.87	16.5	4500	7.4	8.2		525	33	2400	20.
	TOTAL		TOTAL			TUTAL			TOTAL		
	ALUM-	TOTAL	CHRU-	TOTAL	TOTAL	MAN-	TOTAL	TOTAL	ORGANIC		HYDRO-
	INUM	ARSENIC	MIUM	COPPER	IRUN	GANESE	MERCURY	ZINC	CARBON	PHENOLS	GEN
	(AL)	(AS)	(CH)	(CU)	(FL)	(MN)	(HG)	(ZN)	(C)		SULFIDE
DATE	(UG/L)	(UG/L)	(UG/L)	(UG/L)	(UG/L)	(UG/L)	(UG/L)	(UG/L)	(MG/L)	(UG/L)	(MG/L)
JUN • 1											
30	30	0	30	20	300	110	<.5	10	4.8	1	.0
NOV 04	10	1	20	20	300	950		20	1.9	6	.0
04			20	20	300	9.50	<.5	20	1.7	0	• 0
		. 9	RSM	SOUTH	FORK SHOP	T CAFEK	AT GEORGE	TOWN OH			
		. ,	4311	300111	1 041 3.10	VI CALL	A1 000.00				
				w	ATER QUAL	LTY DATA					
				SPE-							
				CIFIC							DIS-
		INSTAN-		COM-			TOTAL			DIS-	SOLVED
		TANEOUS		DUCT-		UIS-	ACIDITY	SICAR-	CARBON	SOLVED	CHLO-
		015-	TEMPER-	ANCE	PH	SULVED	AS	HONATE	DIOXIDE	SULFATE	HIDE
	TIME	CHARGE	ATURE.	(WICHO-		OXYGEN	H+	(HC03)	(COS)	(504)	(CL) (MG/L)
DATE		(CFS)	(DEG C)	MHOS)	(UNITS)	(MG/L)	(MG/L)	(MG/L)	(MG/L)	(MG/L)	(40/1/
tital - 1	075										
JUN • 1	1420	£6.0	24.5	3670	8.1	8.3		420	5.3	1800	12
NOV	1+20	20.0	24.3	3010	0.1	3					
04	1340	£3.7	15.5	3600	7.8	8.1		464	12	1900	10
	-5.0										
	Form		TOTAL			TOTAL			TOTAL		
	TOTAL ALUM-	TOTAL	TOTAL CHRO-	TOTAL	TOTAL	MAN-	TOTAL	TOTAL	ORGANIC		HYDRO-
	INUM	ARSENIC	MIUM	COPPER	INON	GANESE	MERCURY	ZINC	CARBON	PHENOLS	GEN
	(AL)	(AS)	(CR)	(CU)	(FE)	(MN)	(HG)	(ZN)	(C)		SULFIDE
DATE	(UG/L)	(UG/L)	(UG/L)	(UG/L)	(UG/L)	(UG/L)	(UG/L)	(UG/L)	(MG/L)	(UG/L)	(MG/L)
JUN • 1	975							10	4 3	0	.0
30	975 310	0	20	20	150	260	<.5	10	4.2	0	.0
	975 310 500	0	20 10	20 20	150	260 520	<.5	10 30	4.2	0	.0

13 ASM OLD FARM SPRING NEAR DILLONVALE OH

WATER QUALITY DATA

				W	ATER QUAL	TY DATA						
DATE	TIME	INSTAN- TANEOUS DIS- CHARGE (CFS)	TEMPER- ATURE (DEG C)	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS)	PH (UNITS)	DIS- SOLVED OXYGEN (MG/L)	TOTAL ACIDITY AS H+ (MG/L)	BICAR- BONATE (HCO3) (MG/L)	CARBON DIOXIDE (CO2) (MG/L)	DIS- SOLVED SULFATE (SO4) (MG/L)	DIS- SOLVED CHLO- RIDE (CL) (MG/L)	
AUG , 19	1230	E.01	19.0	2320	7.6			380	15	830	24	
26	1645	E.02	12.0	2300	7.1			388	49	850	15	
DATE	TOTAL ALUM- INUM (AL) (UG/L)	TOTAL ARSENIC (AS) (UG/L)	TOTAL CHRO- MIUM (CR) (UG/L)	TOTAL COPPER (CU) (UG/L)	TOTAL IRON (FE) (UG/L)	TOTAL MAN- GANESE (MN) (UG/L)	TOTAL MERCURY (HG) (UG/L)	TOTAL ZINC (ZN) (UG/L)	TOTAL ORGANIC CARBON (C) (MG/L)	PHENOLS (UG/L)	HYDRO- GEN SULFIDE (MG/L)	
AUG + 19	975 5800	16	<10	20	23000	780	<.5	50	6.8	5	• 0	
SEP 26	50	0	10	10	100	20	<.5	10	3.2	0	• 0	
		14	RSM	** PINEY	FORK AT F	PINEY FOR	к он					
				w	ATER QUAL	ITY DATA						
DATE	TIME	INSTAN- TANEOUS UIS- CHARGE (CFS)	TEMPER- ATURE (DEG C)	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS)	PH (UNITS)	DIS- SOLVED OXYGEN (MG/L)	TOTAL ACIDITY AS H+ (MG/L)	BICAR- BONATE (HCO3) (MG/L)	CARBON DIOXIDE (CO2) (MG/L)	DIS- SOLVED SULFATE (SO4) (MG/L)	DIS- SOLVED CHLO- RIDE (CL) (MG/L)	
JUL • 19	975 1145	£2.0	23.5	1800	7.6	8.7		300	12	670	12	
SEP 26	1445	Elu	15.5	1200	7.4	8.8		184	12	490	25	
DATE	TOTAL ALUM- INUM (AL) (UG/L)	TOTAL ARSENIC (AS) (UG/L)	TOTAL CHRO- MIUM (CR) (UG/L)	TOTAL COPPER (CU) (UG/L)	TOTAL IRON (FE) (UG/L)	TOTAL MAN- GANESE (MN) (UG/L)	TOTAL MERCURY (HG) (UG/L)	TOTAL ZINC (ZN) (UG/L)	TOTAL ORGANIC CARBON (C) (MG/L)	PHENOLS	HYDRO- GEN SULFIDE (MG/L)	
JUL , 19	490	1	10	20	600	450	<.5	10	1.0	0	.0	
SEP 26	530	5	50	U	3200	270	<.5	20		0	.0	
					3200	2.0						
		15	CNM	## PINEY	FORK AT I	LAVIAO LITO	E 0H					
		13	CNM		ATER QUAL		_ 01					
DATE	TIME	INSTAN- TANEOUS DIS- CHARGE (CFS)	TEMPER- ATURE (DEG C)	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS)	PH (UNITS)	DIS- SOLVED OXYGEN (MG/L)	TOTAL ACIDITY AS H+ (MG/L)	BICAR- BONATE (HCO3) (MG/L)	CARBON DIOXIDE (CO2) (MG/L)	DIS- SOLVED SULFATE (SO4) (MG/L)	DIS- SOLVED CHLO- RIDE (CL)	
JUL , 19			20. 0	2020	7 7	, ,		300	20	790	14	
SEP	1315	E7.0	25.5	2020	7.2	7.1		200		540	15	
26	1330	E20	15.5	1300	7.4	8.6		184	12	340	15	
DATE	TOTAL ALUM- INUM (AL) (UG/L)	TOTAL ARSENIC (AS) (JG/L)	TOTAL CHRO- MIUM (CR) (UG/L)	TOTAL COPPER (CU) (UG/L)	TOTAL IRON (FE) (UG/L)	TOTAL MAN- GANESE (MN) (UG/L)	TOTAL MERCURY (HG) (UG/L)	TOTAL ZINC (ZN) (UG/L)	TOTAL ORGANIC CARBON (C) (MG/L)	PHENOLS	HYDRO- GEN SULFIDE (MG/L)	
JUL • 19			4.0	36	25.000	070		120	3.4	6	.0	
Ol	7300	1	40	20	25000	870	<.5	120				
26	2800	5	30	10	8800	640	<.5	40		1	• 0	

16 WSM ** WHEELING CREEK ATBANNOCK OH

WATER QUALITY DATA

DATE	TIME	INSTAN- TANEOUS DIS- CHARGE (CFS)	TEMPER- ATURE (DEG C)	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS)	PH (UNITS)	DIS- SOLVED OXYGEN (MG/L)	TOTAL ACIDITY AS H+ (MG/L)	BICAR- BONATE (HCU3) (MG/L)	CARBON DIOX1DE (CO2) (MG/L)	DIS- SOLVED SULFATE (SO4) (MG/L)	DIS- SOLVED CHLO- RIDE (CL) (MG/L)
JUN , 19	75										
25	1130	Elo	24.5	1690	8.2	9.3		356	3.6	510	38
SEP 23	1130	E20	14.5	1300	7.7	10.4		248	7.9	430	50
DATE	TOTAL ALUM- INUM (AL) (UG/L)	TOTAL ARSENIC (AS) (UG/L)	TOTAL CHRO- MIUM (CR) (UG/L)	TOTAL COPPER (CJ) (UG/L)	TUTAL IRON (FE) (UG/L)	TOTAL MAN- GANESE (MN) (UG/L)	TOTAL MERCURY (HG) (UG/L)	TOTAL ZINC (ZN) (UG/L)	TOTAL ORGANIC CARBON (C) (MG/L)	PHENOLS	HYDRO- GEN SULFIDE (MG/L)
JUN + 19	75 220	0	10	U	260	380	<.5	40	5.2	1	.2
23	360	υ	<10	10	930	1100	<.5	30	7.1	0	•5

17 RSM ** CRABAPPLE CREEK NEAR FAIRPOINT UM

WATER QUALITY DATA

DATE	TIME	INSTAN- TANEOUS DIS- CHARGE (CFS)	TEMPER- ATURE (DEG C)	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS)	H4 (clinn)	DIS- SOLVED OXYGEN (MG/L)	TOTAL ACIDITY AS H+ (MG/L)	BICAR- BONATE (HCO3) (MG/L)	CARBON DIOXIDE (CO2) (MG/L)	OIS- SOLVED SULFATE (SO4) (MG/L)	DIS- SOLVED CHLO- RIDE (CL) (MG/L)
JUN • 19	775										
26 SEP	1430	E0.0	23.5	3520	7.2	5.5		588	29	1500	14
24	1145	EZU	14.0	2000	1.5	8.8		234	12	710	15
UATE	FOTAL ALUM- INUM (AL) (UG/L)	TUTAL ARSENIC (AS) (UG/L)	TOTAL CHRO- MIUM (CR) (UG/L)	TOTAL COPPER (CU) (UG/L)	TOTAL IRON (FE) (UG/L)	TOTAL MAN- GANESE (MN) (UG/L)	TOTAL MERCURY (HG) (UG/L)	TOTAL ZINC (ZN) (UG/L)	TOTAL ORGANIC CARBON (C) (MG/L)	PHENOLS	HYDRO- GEN SULFIDE (MG/L)
JUN • 19	975										
26 SEP	5700	1	60	20	33000	810	•7	130	3.2	0	•2
24	5800	8	80	10	28000	1400	<.5	80	7.0	0	• 0

18 RSM ** MCCHACKEN HUN ABOVE FAIRPOINT OH

DATE	TIME	INSTAN- TANEOUS UIS- CHARGE (CFS)	TEMPER- ATURE (DEG C)	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS)	PH (UNITS)	DIS- SOLVED OXYGEN (MG/L)	TOTAL ACIDITY AS H+ (-4G/L)	BICAR- BONATE (HCU3) (MG/L)	CARBON DIOXIDE (CO2) (MG/L)	DIS- SOLVED SULFATE (SO4) (MG/L)	DIS- SOLVED CHLO- RIDE (CL) (MG/L)
JUN , 19	975										
26 SEP	1230	E.20	23.0	5500	7.5	6.2		256	13	930	4.0
23	1530	£1.0	10.0	1900	1.3	7.5		226	18	930	6.0
	TOTAL		TOTAL			TOTAL			TOTAL		
	ALUM-	TOTAL	CHRO-	TOTAL	TOTAL	MAN-	TOTAL	TOTAL	ORGANIC		HYDRO-
	INUM	ARSENIC	MIUM	COPPER	IHON	GANESE	WERCURY	ZINC	CARRON	PHENOLS	GEN
	(AL)	(AS)	(CY)	(Cu)	(FL)	(MN)	(HG)	(ZN)	(C)		SULFIDE
DATE	(UG/L)	(JG/L)	(UG/L)	(UG/L)	(UG/L)	(UG/L)	(UG/L)	(UG/L)	(MG/L)	(UG/L)	(MG/L)
JUN , 19	475										
26 SEP	70	U	<10	10	440	290	•5	60	2.4	3	• 1
23	190	1	20	10	1200	750	<.5	40	4.1	U	.5

19 CNM ** MCCRACKEN RUN AT FAIRPOINT OH

				"	AIER GUAL	III DALA					
				SPE-							
DATE	TIME	INSTAN- TANEOUS DIS- CHARGE (CFS)	TEMPER- ATURE (DEG C)	CIFIC CON- DUCT- ANCE (MICRO- MHOS)	PH (UNITS)	DIS- SOLVED OXYGEN (MG/L)	TOTAL ACIDITY AS H+ (MG/L)	BICAR- BONATE (HCO3) (MG/L)	CARBON DIOXIDE (CO2) (MG/L)	DIS- SOLVED SULFATE (SO4) (MG/L)	DIS- SOLVED CHLO- RIDE (CL) (MG/L)
			1020 07	1.1037	(0,41.3)	(1107)	(-10) [)	(1107)	(10) [(1107)	(40/2)
JUN • 19 26 SEP	975 0945	E1.0	21.0	2910	0.8	6.5		178	45	1300	12
24	0930	£6.0	14.0	1900	7.2	8.5		240	24	470	15
DATE	TOTAL ALUM- INUM (AL) (UG/L)	TOTAL ARSENIC (AS) (UG/L)	TOTAL CHRO- MIUM (CR) (UG/L)	TOTAL COPPER (CU) (UG/L)	TOTAL IRON (FE) (UG/L)	TOTAL MAN- GANESE (MN) (UG/L)	TOTAL MERCURY (HG) (UG/L)	TOTAL ZINC (ZN) (UG/L)	TOTAL ORGANIC CARBON (C) (MG/L)	PHENOLS	HYDRO- GEN SULFIDE (MG/L)
							70				
JUN , 19 26	9500	3	110	20	66000	530	.6	250	6.7	0	٠. ٠2
24	2000	4	60	10	20000	300	<.5	60	12	0	•2
			.5.4	** 00*		TO. I. W. O.					
		20	⊬S M	** COX H	UN NEAR M	IDWAY OH					
				W	ATER QUAL	ITY DATA					
	TIME	INSTAN- TANEOUS DIS- CHARGE	TEMPER- ATURE	SPE- CIFIC CON- DUCT- ANCE (MICRO-	РН	DIS- SOLVED OXYGEN	TOTAL ACIDITY AS H+	BICAR- BONATE (HCOJ)	CARBON DIOXIDE (CO2)	DIS- SOLVED SULFATE (SO4)	DIS- SOLVED CHLO- RIDE (CL)
DATE		(CFS)	(DEG C)	MHOS)	(UNITS)	(MG/L)	(MG/L)	(MG/L)	(MG/L)	(MG/L)	(MG/L)
JUN . 1	975										
26 SEP	1130	E.50	20.5	1560	6.1	8.4		278	3.5	520	8.0
26	1100	E5.0	15.0	1400	7.8	8.9		252	6.4	570	15
DATE	TOTAL ALUM- INUM (AL) (UG/L)	TUTAL ARSENIC (AS) (UG/L)	TOTAL CHRO- MIUM (CR) (UG/L)	TOTAL COPPER (CU) (UG/L)	TOTAL IRON (FE) (UG/L)	TOTAL MAN- GANESE (MN) (UG/L)	TOTAL MERCURY (HG) (UG/L)	TOTAL ZINC (ZN) (UG/L)	TOTAL ORGANIC CARBON (C) (MG/L)	PHENOLS	HYDRO- GEN SULFIDE (MG/L)
JUN • 1	975 260	0	10	10	380	280	<.5	60	4.0	4	•5
26	330	0	20	U	650	170	<.5	10		0	• 0
		21	CNM		ING CREEK		IE OH				
				W	ATER QUAL	ITY DATA					
DATE	TIME	INSTAN- TANEOUS DIS- CHARGE (CFS)	TEMPER- ATURE (DEG C)	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS)	PH (UNITS)	DIS- SOLVED OXYGEN (MG/L)	TOTAL ACIDITY AS H+ (MG/L)	BICAR- BONATE (HCO3) (MG/L)	CARBON DIOXIDE (CO2) (MG/L)	DIS- SOLVED SULFATE (SO4) (MG/L)	DIS- SOLVED CHLO- RIDE (CL) (MG/L)
SEP . 19		E30	15.0	3				220	10	300	26
23	1300	E30	15.0	2000	7.5	9.4		228	12	300	25
	TOTAL ALUM- INUM (AL)	TUTAL ARSENIC (AS)	TOTAL CHRO- MIUM (CR)	TOTAL COPPER (CJ)	TOTAL IRON (FE)	TOTAL MAN- GANESE (MN)	TOTAL MERCURY (HG)	TOTAL ZINC (ZN)	TOTAL ORGANIC CARBON (C)	PHENOLS	HYDRO- GEN SULFIDE
DATE	(UG/L)	(UG/L)	(UG/L)	(UG/L)	(UG/L)	(UG/L)	(UG/L)	(UG/L)	(MG/L)	(UG/L)	(MG/L)
SEP • 19	4400	2	40	10	13000	670	<.5	80	3.2	0	• 0

22 WSM ** BRUSH RUN NEAR ST CLAIRSVILLE OH

WATER QUALITY DATA

					ATER WOAL	111 0414					
				SPE-							
				CIFIC							015-
		INSTAN-		CON-		-	TOTAL			DIS-	SOLVED
		TANEOUS	TITUDES	DUCT-	211	DIS-	ACIDITY	BICAR-	CARBON	SOLVED	CHLO- RIDE
	TIME	DIS- CHARGE	TEMPER-	MICRO-	РН	OXYGEN	AS H+	HCO3)	OLOXIDE	(504)	(CL)
DATE.	1146	(CFS)	(DEG C)	MHOS)	(UNITS)	(MG/L)	(MG/L)	(MG/L)	(MG/L)	(MG/L)	(MG/L)
DATE		(0, 3)	1000 07	11037	(0.1113)	((0, 2,				
JUL • 1	975										
02	1315	E.10	23.5	1140	7.2	8.4		320	32	270	80
SEP	1600	E2.0	13.5	290	7.1	8.2		48	6.1	52	9.0
24	1000	. 22.0	13.5	290	,	0.2		40	•••		
	TOTAL		TOTAL			TOTAL			TOTAL		
	ALUM-	TOTAL	CHRO-	TOTAL	TOTAL	MAN-	TOTAL	TOTAL	ORGANIC		HYDRO-
	MUNI	ARSENIC	MIUM	COPPER	INON	GANESE	MERCURY	ZINC	CARBON	PHENOLS	GEN
	(AL)	(AS)	(CR)	(CU)	(FE)	(MN)	(HG)	(ZN)	(C)	(110.41.)	SULFIDE
DATE	(UG/L)	(JG/L)	(UG/L)	(UG/L)	(UG/L)	(UG/L)	(UG/L)	(UG/L)	(MG/L)	(UG/L)	(MG/L)
JUL + 1	975										
02	180	1	0	Ü	450	4200	<.5	10	7.6	0	.1
SEP											2
24	970	1	< 10	10	1300	710	<.5	40	5.7	0	.3
		23	UNM	## MCMAH	ON CHEEK	NEAR WAR	NOCK OH				
				٧	ATER QUAL	ITY DATA					
				SPE-							
				CIFIC							DIS-
		INSTAN-		CON-			TOTAL			DIS-	SOLVED
		TANEOUS		DUCT-		DIS-	ACIDITY	BICAR-	CARBON	SOLVED	CHLO-
		DIS-	TEMPER-	ANCE	PH	SOLVED	AS	BONATE	DIOXIDE	SULFATE	RIDE
O . TI	TIME	CHARGE	ATURE	(MICRO-		OXYGEN	H+	(HC03)	(COS)	(504)	(CL)
DATE		(CFS)	(DEG C)	MHOS)	(UNITS)	(MG/L)	(MG/L)	(MG/L)	(MG/L)	(MG/L)	(MG/L)
JUN + 1	975										
25	1320	£9.0	27.0	459	8.1	ಕ.ಕ		182	2.3	57	22
SEP					-						
23	1410	EZU	14.5	430	7.6	10.8		168	6.8	48	16
	TOTAL		TOTAL	2.2		TOTAL			TOTAL		
	ALUM-	LATOT	CHRO-	TOTAL	TOTAL	MAN-	TOTAL	TOTAL	ORGANIC	DAENOLC	HYDRO-
	INUM (AL)	ARSENIC (AS)	MIUM (CR)	(CU)	IRON (FE)	GANESE (MN)	MERCURY (HG)	ZINC (ZN)	CARBON (C)	PHENOLS	GEN SULFIDE
DATE	(UG/L)	(UG/L)	(UG/L)	(UG/L)	(UG/L)	(UG/L)	(UG/L)	(UG/L)	(MG/L)	(UG/L)	(MG/L)
									-		
JUN , 1											
25 SEP	320	0	<10	10	4/0	50	<.5	50	4.4	4	.5
23	120	U	<10	0	230	20	<.5	20	2.5	1	.2
	•					-			-		
		24	WDM	** LITTL	E MCMAHON	CREEK NE	EAR ST CLA	IRSVILLE	ОН		
					ATER QUAL	TTV 1)ATA					
				•	MIER GOAL	III DAIA					
				SPE-							
				CIFIC							DIS-
		INSTAN-		CON-			TOTAL		100	DIS-	SOLVED
		TANEOUS	******	DUCT-		DIS-	ACIDITY		CARBON	SOLVED	CHLU-
	TIME	DIS- CHARGE	TEMPEK-	ANCE (MICRO-	PH	SOLVED	AS	BONATE	DIOXIDE	SULFATE	RIDE
DATE	THE	(CFS)	(DEG C)	MHOS)	(UNITS)	OXYGEN (MG/L)	H+ (MG/L)	(MG/L)	(CO2)	(SO4) (MG/L)	(CL) (MG/L)
			1000 07		10 12 137	1.10, 2,	(1.10. 27		
JUN + 1											
24 SEP	1320	E.30	27.5	3210	• 2.7	6.4	21	0	.0	340	40
23	1230	£1.0	15.5	1150	4.3	9.2	5.6	0	.0	330	40
	. 250	_1.0	13.3	1130	4.3	7.6	5.5		•0	330	***
	TOTAL		TOTAL			TOTAL			TOTAL		
	ALUM-	TOTAL	CHRO-	TOTAL	TOTAL	MAN-	TOTAL	TOTAL	ORGANIC		HYDRO-
	INUM	ARSENIC	MIUM	COPPER	IRON	GANESE	MERCURY	ZINC	CARBON	PHENOLS	GEN
	(AL)	(AS)	(CR)	(CU)	(FE)	(MN)	(HG)	(ZN)	(C)		SULFIDE
DATE	(UG/L)	(UG/L)	(UG/L)	(UG/L)	(U6/L)	(UG/L)	(UG/L)	(UG/L)	(MG/L)	(UG/L)	(MG/L)
JUN • 1	975										
24	55000	15	230	40	290000	10000	1.9	580	4.6	2	.0
SEP											
23	21000	24	10	20	130000	3100	<.5	180	3.6	1	.0

25 CNM ** LITTLE MCMAHON CREEK BELOW AULTS RUN NEAR ST CLAIRSVILLE OH
WATER QUALITY DATA

DATE	TIME	INSTAN- TANEOUS DIS- CHARGE (CFS)	TEMPER- ATURE (DEG C)	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS)	PH (UNITS)	DIS- SOLVED OXYGEN (MG/L)	TOTAL ACIDITY AS H+ (MG/L)	BICAR- BONATE (HCO3) (MG/L)	CARBON DIOXIDE (CO2) (MG/L)	DIS- SOLVED SULFATE (SO4) (MG/L)	DIS- SOLVED CHLO- RIDE (CL) (MG/L)
JUN , 1	975 1525	E3.0	26.5	1120	8.4	7.5		176	1.1	1500	60
SEP 23	1100	Ed.0	13.5	960	7.4	9.9		188	12	230	38
DATE	TOTAL ALUM- INUM (AL) (UG/L)	TOTAL ARSENIC (AS) (UG/L)	TOTAL CHRO- MIUM (CR) (UG/L)	TOTAL COPPER (CU) (UG/L)	TOTAL IRON (FE) (UG/L)	TOTAL MAN- GANESE (MN) (UG/L)	TOTAL MERCURY (HG) (UG/L)	TOTAL ZINC (ZN) (UG/L)	TOTAL ORGANIC CARBON (C) (MG/L)	PHENOLS	HYDRO- GEN SULFIDE (MG/L)
JUN , 19	975 1100	1	10	16	2100	870	.7	70	2.6	7	.3
SEP 23	3200	4	0	10	20000	880	<.5	50	4.0	0	.0
		26	ASM		RUN AT W		VE OH				
					ATER QUAL	ITY DATA					
DATE	TIME	INSTAN- TANEOUS DIS- CHARGE (CFS)	TEMPER- ATURE (DEG C)	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS)	H9 (¿TINU)	DIS- SOLVED OXYGEN (MG/L)	TOTAL ACIDITY AS H+ (MG/L)	BICAR- BONATE (HCO3) (MG/L)	CARBON DIOXIDE (CO2) (MG/L)	DIS- SOLVED SULFATE (SO4) (MG/L)	DIS- SOLVED CHLO- RIDE (CL) (MG/L)
JUN , 1	975										
25 SEP	1615	E.10	24.5	3300	3.0	6.6	23	0	• 0	1800	45
24	1400	E2.0	14.5	800	6.0	8.0		30	48	320	10
DATE	TOTAL ALUM- INUM (AL) (UG/L)	TOTAL ARSENIC (AS) (JG/L)	TOTAL CHRO- MIUM (CR) (UG/L)	TOTAL COPPER (CU) (UG/L)	TOTAL IRON (FE) (UG/L)	TOTAL MAN- GANESE (MN) (UG/L)	TOTAL MERCURY (HG) (UG/L)	TOTAL ZINC (ZN) (UG/L)	TOTAL ORGANIC CARBON (C) (MG/L)	PHENOLS	HYDRO- GEN SULFIDE (MG/L)
JUN , 1	975 95000	4	210	20	310000	4000	1.2	1400	12	3	•3
SEP 24	25000	43	180	80	85000	1900	<.5	420	2.1	0	.0
		27	' ADM		ION CREEK		RE OH				
DATE	TIME	INSTAN- TANEOUS DIS- CHARGE (CFS)	TEMPER- ATURE (DEG C)	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS)	PH (UNITS)	DIS- SULVED OXYGEN (MG/L)	TOTAL ACIDITY AS H+ (MG/L)		CARBON DIOXIDE (CO2) (MG/L)	DIS- SOLVED SULFATE (SO4) (MG/L)	DIS- SOLVED CHLO- RIDE (CL) (MG/L)
NOV . 1											
05	1100	E19	14.5	820	7.4	7.8		200	13	230	20
DATE	TOTAL ALUM- INUM (AL) (UG/L)	TOTAL ARSENIC (AS) (UG/L)	TOTAL CHRO- MIUM (CR)	TOTAL COPPER (CU)	TOTAL INON (FE)	TOTAL MAN- GANESE (MN)	TOTAL MERCURY (HG)	TOTAL ZINC (ZN)	TOTAL ORGANIC CARBON (C)	PHENOLS	HYDRO- GEN SULFIDE
		(00/L)	(UG/L)	(UG/L)	(UG/L)	(UG/L)	(UG/L)	(UG/L)	(MG/L)	(UG/L)	(MG/L)
NOV , 1	975 530	υ	<10	10	1400	210	<.5	20	2.1	0	•5

28 UNM CAPTINA CREEK ABOVE ALLEDONIA OH

				*	ATER QUAL	LIY DATA					
DATE	TIME	INSTAN- TANEOUS DIS- CHARGE (CFS)	TEMPER- ATURE (DEG C)	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS)	PH (UNITS)	DIS- SOLVED OXYGEN (MG/L)	TOTAL ACIDITY AS H+ (MG/L)	BICAR- BONATE (HCO3) (MG/L)	CARBON DIOXIDE (CO2) (MG/L)	DIS- SOLVED SULFATE (SO4) (MG/L)	DIS- SOLVED CHLO- RIDE (CL) (MG/L)
JUL , 19		50 H	20.6			10.1		200	2.4	4.0	1.0
21 NOV	1215	E6.0	29.5	440	8.1	10.1		208	2.6	40	18
05	1620	£7.3	15.5	390	8.1	10.6		176	2.2	43	14
DATE	TOTAL ALUM- INUM (AL) (UG/L)	TOTAL ARSENIC (AS) (UG/L)	TOTAL CHRO- MIUM (CR) (UG/L)	TOTAL COPPER (CU) (UG/L)	TOTAL IRON (FE) (UG/L)	TOTAL MAN- GANESE (MN) (UG/L)	TOTAL MERCURY (HG) (UG/L)	TOTAL ZINC (ZN) (UG/L)	TOTAL ORGANIC CARBON (C) (MG/L)	PHENOLS (UG/L)	HYDRO- GEN SULFIDE (MG/L)
JUL , 19 21	190	1	<10	U	290	50	<.5	10	1.8	0	.0
05	0	0	0	10	80	20	<.5	20	4.2	1	.5
		29	WDM	HUNTE	K RUN NEA	R ALLENDO	NIA OH				
				w	ATER QUAL	ATA YTE					
DATE	TIME	INSTAN- TANEOUS DIS- CHARGE (CFS)	TEMPER- ATURE (DEG C)	SPE- CIF1C CON- DUCT- ANCE (MICKO- MHOS)	PH (UNITS)	DIS- SOLVED OXYGEN (MG/L)	TOTAL ACIDITY AS H+ (MG/L)	BICAR- BONATE (HCO3) (MG/L)	CARBON DIOXIDE (CO2)	DIS- SOLVED SULFATE (SU4) (MG/L)	DIS- SOLVED CHLO- RIDE (CL) (MG/L)
JUL , 19	975 1435	E.30	29.5	2800	7.8	7.1		168	4.3	820	165
NOV U5	1515	£.15	18.0	3500	7.7	7.6		212	6.8	1000	340
	TOTAL		TOTAL			TOTAL			TOTAL		
DATE	ALUM- INUM (AL) (UG/L)	TUTAL ARSENIC (AS) (UG/L)	CHRO- MIUM (CR) (UG/L)	TOTAL COPPER (CU) (UG/L)	TOTAL INON (FE) (UG/L)	MAN- GANESE (MN) (UG/L)	TOTAL MERCURY (HG) (UG/L)	TOTAL ZINC (ZN) (UG/L)	ORGANIC CARBON (C) (MG/L)	PHENOLS (UG/L)	GEN SULFIDE (MG/L)
JUL , 19	975 830	3	10	10	2300	470	<.5	40	1.8	5	.0
05	320	1	<10	ú	1500	830	<.5	40	13	0	•5
		30) wDM		INA CHEEK		INA OH				
				SPE- CIFIC	ATER GUAL	III DAIA					DIS-
DATE	TIME	INSTAN- TANEOUS DIS- CHARGE (CFS)	TEMPER- ATURE (DEG C)	CON- DUCT- ANCE (MICHO- MHOS)	PH (UNITS)	DIS- SULVED OXYGEN (MG/L)	TOTAL ACIDITY AS H+ (MG/L)	BICAR- BONATE (HCO3) (MG/L)	CARBON DIOXIDE (CO2) (MG/L)	SOLVED SULFATE (SO4) (MG/L)	SOLVED CHLO- RIDE (CL) (MG/L)
JUL • 19											
NOV	1605	Elo	30.5	625	7.5	8.2		180	9.1	120	24
05	1400	E15	14.5	610	7.3	8.6		176	14	130	24
DATE	TOTAL ALUM- INUM (AL) (UG/L)	TOTAL ARSENIC (AS) (JG/L)	TOTAL CHRO- MIUM (CR) (UG/L)	TOTAL COPPER (CU) (UG/L)	TOTAL IRON (FE) (UG/L)	TOTAL MAN- GANESE (MN) (UG/L)	TOTAL MERCURY (HG) (UG/L)	TOTAL ZINC (ZN) (UG/L)	TOTAL ORGANIC CARBON (C) (MG/L)	PHENOLS	HYDRO- GEN SULFIDE (MG/L)
JUL , 19											
21 NOV	330 180	0	0	0	77u	100	<.5	10	1.6	0	.0
03	100	0	0	U	110	100	<.5	20	2.6	0	.3

31 UNM CAT RUN ABOVE MINE NEAR STEINERSVILLE OH WATER QUALITY DATA

				. "	AILK WONL	III DAIA					
	TIME	INSTAN- TANEOUS DIS- CHARGE	TEMPER- ATURE	SPE- CIFIC CON- DUCT- ANCE (MICRO-	РН	DIS- SOLVED OXYGEN	TOTAL ACIDITY AS H+	BICAR- BONATE (HCO3)	CARBON DIOXIDE (CO2)	DIS- SOLVED SULFATE (SO4)	DIS- SOLVED CHLO- RIDE (CL)
DATE	11.12	(CFS)	(DEG C)	MH05)	(UNITS)	(MG/L)	(MG/L)	(MG/L)	(MG/L)	(MG/L)	(MG/L)
JUL , 19	75 1730	Ë1.0	28.5	400	7.9	7.6		176	3.5	51	6.0
NOV	1215	E.98	15.5	430	8.0	8.8		196	3.1	56	6.0
05	1215	E • 90	13.3	430							
DATE	TOTAL ALUM- INUM (AL) (UG/L)	TOTAL ARSENIC (AS) (UG/L)	TOTAL CHRO- MIUM (CR) (UG/L)	TOTAL COPPER (CU) (UG/L)	TUTAL IMON (FE) (UG/L)	TOTAL MAN- GANESE (MN) (UG/L)	TOTAL MERCURY (HG) (UG/L)	TOTAL ZINC (ZN) (UG/L)	TOTAL ORGANIC CARBON (C) (MG/L)	PHENOLS (UG/L)	HYDRO- GEN SULFIDE (MG/L)
JUL • 19		5	1.0	50	36000	910	.5	250	1.0	0	.0
21 NOV	0068		10							0	•0
05	80	1	0	Ü	50	10	<.5	20	3.5	U	• 0
		32	WDM 2	CAT H	IN RELOW	MINE NEAR	STEINERS	VILLE OH			
					ATER QUAL	ITY DATA					
				SPE-							
DATE	TIME	INSTAN- TANEOUS D15- CHARGE (CFS)	TEMPER- ATURE (DEG C)	CIFIC CON- DUCT- ANCE (MICRO- MHOS)	PH (UNITS)	DIS- SOLVED OXYGEN (MG/L)	TOTAL ACIDITY AS H+ (MG/L)	BICAR- BONATE (HCO3) (MG/L)	CARBON DIOXIDE (CO2) (MG/L)	DIS- SOLVED SULFATE (SO4) (MG/L)	DIS- SOLVED CHLO- RIDE (CL) (MG/L)
		(0) 37	1020 07		(0)41137	(110) [(,,)				
21	1855	£2.0	27.0	1000	4.7	5.8		2	64	370	25
05	1245	21.2	16.0	800	6.3	ಕಿ.ಕ		56	45	320	18
DATE	TOTAL ALUM- INUM (AL) (UG/L)	TOTAL ARSENIC (AS) (UG/L)	TOTAL CHRO- MIUM (CR) (UG/L)	TOTAL COPPER (CU) (UG/L)	TUTAL IRON (FE) (UG/L)	TOTAL MAN- GANESE (MN) (UG/L)	TOTAL MERCURY (HG) (UG/L)	TOTAL ZINC (ZN) (UG/L)	TOTAL ORGANIC CARBON (C) (MG/L)	PHENOLS (UG/L)	HYDRO- GEN SULFIDE (MG/L)
JUL , 1	975	0	<10	U	110	10	<.5	10	1.4	0	.0
21 NOV	9000	13	10	40	39000	530	<.5	160	1.6	0	.0
03	,,,,,			,,,	3,000	300					
		3.	3 UNM	SUNF	SH CREEK	NEAR CAME	ERON OH				
				,	NATER QUAL	ITY DATA					
UATE	TIME	INSTAN- TANEOUS DIS- CHARGE (CFS)	TEMPER- ATURE (DEG C)	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS)	PH (UNITS)	DIS- SOLVED OXYGEN (MG/L)	TOTAL ACIDITY AS H+ (MG/L)	BICAR- BONATE (HCO3) (MG/L)	CARBON DIOXIDE (CO2) (MG/L)	DIS- SOLVED SULFATE (SU4) (MG/L)	DIS- SOLVED CHLO- RIDE (CL) (MG/L)
JUL • 19	975										
ZZ	1330	E31	27.0	420	7.7	6.3		176	5.6	27	32
06	1430	Els	15.5	340	7.5	9.0		144	7.3	32	24
DATE	TOTAL ALUM- INUM (AL) (UG/L)	TOTAL ARSENIC (AS) (UG/L)	TOTAL CHRU- MIUM (CR) (UG/L)	TOTAL COPPER (CU) (UG/L)	TOTAL IRON (FE) (UG/L)	TOTAL MAN- GANESE (MN) (UG/L)	TOTAL MERCURY (HG) (UG/L)	TOTAL ZINC (ZN) (UG/L)	TOTAL ORGANIC CARBON (C) (MG/L)	PHENOLS	HYDRO- GEN SULFIDE (MG/L)
JUL , 19											
NOV 06	120	0	0	0	200	40 20	.5	10	2.0	0	.0
	100	U	U	10	40	20	<.5	20	5.9	U	1.0

34 UNM FLATROCK CREEK NEAR CAMERON OH

				•	AILN GOAL	IT DATA					
				SPE-							
				CIFIC							DIS-
		INSTAN-		CON-			TOTAL			DIS-	SULVED
		TANEOUS		DUCT-		DIS-	ACIDITY	BICAR-	CARBON	SOLVED	CHLO-
		DIS-	TEMPER-	ANCE	- PH	SOLVED	AS	BONATE	DIOXIDE	SULFATE	HIDE
	TIME	CHARDE	ATURE	(MICRO-		OXYGEN	H+	(HC03)	(CO2)	(504)	(CL)
DATE		(CFS)	(DEG C)	MH05)	(UNITS)	(MG/L)	(MG/L)	(MG/L)	(MG/L)	(MG/L)	(MG/L)
JUL , 19		10:			7 3			160	1.2	69	6.0
21	1245	F.10	22.5	410	7.3	6.4		158	13	09	6.0
NOV	1360	- 03	1	410	7.2	8.4		140	14	92	8.0
06	1240	E.03	15.5	410	1.2	0.4		140		,,	3.0
	TOTAL		TOTAL			TOTAL			TOTAL		
	ALUM-	TOTAL	CHRO-	TOTAL	TOTAL		TOTAL	TOTAL			HYDRO-
				TOTAL	TOTAL	MAN-	TOTAL	TOTAL	ORGANIC	Duran C	
	INUM (AL)	ARSENIC (AS)	MIUM	(CU)	(FE)	GANESE (MN)	MERCURY	ZINC (ZN)	CARBON	PHENOLS	GEN
DATE	(UG/L)	(UG/L)	(CR) (UG/L)	(UG/L)	(UG/L)	(UG/L)	(HG) (UG/L)	(UG/L)	(C) (MG/L)	(UG/L)	SULFIDE (MG/L)
04.6	1.707 47	100/2/	100121	(00/)	100/2/	(00/ L/	1007 27	100727	(10, 2,	(00/)	(10/6/
JUL , 15	75										
<1	440	0	<10	U	680	20	<.5	10	2.0	0	.0
NOV											
U6	50	U	<10	U	60	10	<.5	10	2.7	0	• 2
		36									
		35	UNM	NIGGE	R RUN NEAL	R CLARING	TON OH				
					ATER QUAL	ATAG VT					
					AILK GOAL	LII DAIA					
				SPE-							
				CIFIC							DIS-
		INSTAN-		CON-			TOTAL			DIS-	SOLVED
		TANEOUS		DUCT-		DIS-	ACIDITY	BICAR-	CARBON	SOLVED	CHLO-
		-216	TEMPER-	ANCE	PH	SOLVED	AS	BONATE	DIOXIDE	SULFATE	HIDE.
	TIME	CHARGE	ATURE	(MICRO-		OXYGEN	H+	(HCU3)	(CO2)	(504)	(CL)
DATE		(CFS)	(DEG C)	MHOS)	(UNITS)	(MG/L)	(MG/L)	(MG/L)	(MG/L)	(MG/L)	(MG/L)
10	7.										
JUL • 19	1045	- 1 0	12 6	*** -	7 .					4.5	
NOV	1045	C 2 . 0	23.5	350	7.4	7.1		152	9.7	45	6.0
06	1030	E.32	16.0	350	8.1	9.2		132	1.7	56	8.0
03	1030	L • 32	. 10.0	350	0.1	7.2		132		30	0.0
									5-12-2		
	TOTAL		TOTAL			TOTAL			TATAL		
					TUTAL	MAN-	TOTAL	TOTAL	ORGANIC		HYDRO-
	ALUM-	TOTAL	CHRO-	TOTAL				77410	CADDON	DUENOLE	
	ALUM-	ARSENIC	MIUM	COPPER	IRON	GANESE	MERCURY	ZINC	CARBON	PHENOLS	GEN
DATE	ALUM- INUM (AL)	ARSENIC (AS)	MIUM (CR)	(CU)	(FE)	(MN)	(HG)	(ZN)	(C)		GEN SULFIDE
DATE	ALUM-	ARSENIC	MIUM	COPPER	IRON					(UG/L)	GEN
	ALUM- INUM (AL) (UG/L)	ARSENIC (AS)	MIUM (CR)	(CU)	(FE)	(MN)	(HG)	(ZN)	(C)		GEN SULFIDE
DATE JUL , 19	ALUM- INUM (AL) (UG/L)	ARSENIC (AS)	MIUM (CR)	(CU)	(FE)	(MN)	(HG)	(ZN)	(C)		GEN SULFIDE
JUL , 19	ALUM- INUM (AL) (UG/L)	(AS) (UG/L)	(UG/L)	(CU) (UG/L)	(FE) (UG/L)	(MN) (UG/L)	(HG) (UG/L)	(ZN) (UG/L)	(C) (MG/L)	(UG/L)	GEN SULFIDE (MG/L)
JUL , 19	ALUM- INUM (AL) (UG/L)	ARSENIC (AS) (UG/L)	(UG/L)	(CU) (UG/L)	(FE) (UG/L)	(MN) (UG/L)	(HG) (UG/L)	(ZN) (UG/L)	(C) (MG/L)	(UG/L)	GEN SULFIDE (MG/L)
JUL , 19 22	ALUM- INUM (AL) (UG/L)	ARSENIC (AS) (UG/L)	MIUM (CR) (UG/L)	COPPER (CU) (UG/L)	IRON (FE) (UG/L)	(MN) (UG/L)	(HG) (UG/L)	(ZN) (UG/L)	(C) (MG/L)	(UG/L)	GEN SULFIDE (MG/L)
JUL , 19 22	ALUM- INUM (AL) (UG/L)	ARSENIC (AS) (UG/L)	MIUM (CR) (UG/L)	COPPER (CU) (UG/L)	IRON (FE) (UG/L)	(MN) (UG/L)	(HG) (UG/L)	(ZN) (UG/L)	(C) (MG/L)	(UG/L)	GEN SULFIDE (MG/L)
JUL , 19 22	ALUM- INUM (AL) (UG/L)	ARSENIC (AS) (UG/L)	MIUM (CR) (UG/L). <10	COPPER (CU) (UG/L)	180N (FE) (UG/L) 1200 40	(MN) (UG/L) 50	(HG) (UG/L) <.5	(ZN) (UG/L) 10 20	(C) (MG/L)	(UG/L)	GEN SULFIDE (MG/L)
JUL , 19 22	ALUM- INUM (AL) (UG/L)	ARSENIC (AS) (UG/L)	MIUM (CR) (UG/L). <10	COPPER (CU) (UG/L)	180N (FE) (UG/L) 1200 40	(MN) (UG/L) 50	(HG) (UG/L)	(ZN) (UG/L) 10 20	(C) (MG/L)	(UG/L)	GEN SULFIDE (MG/L)
JUL , 19 22	ALUM- INUM (AL) (UG/L)	ARSENIC (AS) (UG/L)	MIUM (CR) (UG/L). <10	COPPER (CU) (UG/L) U	IRON (FE) (UG/L) 1200 40 NEST FORK	(MN) (UG/L) 50 10 NEAR WOO	(HG) (UG/L) <.5	(ZN) (UG/L) 10 20	(C) (MG/L)	(UG/L)	GEN SULFIDE (MG/L)
JUL , 19 22	ALUM- INUM (AL) (UG/L)	ARSENIC (AS) (UG/L)	MIUM (CR) (UG/L). <10	COPPER (CU) (UG/L) U	180N (FE) (UG/L) 1200 40	(MN) (UG/L) 50 10 NEAR WOO	(HG) (UG/L) <.5	(ZN) (UG/L) 10 20	(C) (MG/L)	(UG/L)	GEN SULFIDE (MG/L)
JUL , 19 22	ALUM- INUM (AL) (UG/L)	ARSENIC (AS) (UG/L)	MIUM (CR) (UG/L). <10	COPPER (CU) (UG/L) U	IRON (FE) (UG/L) 1200 40 NEST FORK	(MN) (UG/L) 50 10 NEAR WOO	(HG) (UG/L) <.5	(ZN) (UG/L) 10 20	(C) (MG/L)	(UG/L)	GEN SULFIDE (MG/L)
JUL , 19 22	ALUM- INUM (AL) (UG/L)	ARSENIC (AS) (UG/L) 0 0	MIUM (CR) (UG/L). <10	COPPER (CU) (UG/L) U U CRANE	IRON (FE) (UG/L) 1200 40 NEST FORK	(MN) (UG/L) 50 10 NEAR WOO	(HG) (UG/L) <.5 <.5	(ZN) (UG/L) 10 20	(C) (MG/L)	(UG/L) U	GEN SULFIDE (MG/L) .0 .3
JUL , 19 22	ALUM- INUM (AL) (UG/L)	ARSENIC (AS) (UG/L) 0 0 36	MIUM (CR) (UG/L). <10	COPPER (CU) (UG/L) U CHANE SPE- CIFIC CON-	IRON (FE) (UG/L) 1200 40 NEST FORK	(MN) (UG/L) 50 10 NEAR WOO	(HG) (UG/L) <.5 <.5 ODSFIELD OF	(ZN) (UG/L) 10 20	(C) (MG/L) 1.0 2.3	(UG/L) 0 0	GEN SULFIDE (MG/L) .0 .3
JUL , 19 22	ALUM- INUM (AL) (UG/L)	ARSENIC (AS) (UG/L) 0 0 0 36	MIUM (CR) (UG/L) <10 0	CRANE SPE- CIFIC CONT-	IRON (FE) (UG/L) 1200 40 NEST FORK	(MN) (UG/L) 50 10 NEAR WOO ITY DATA	(HG) (UG/L) <.5 <.5 OSFIELD OF	(ZN) (UG/L) 10 20	(C) (MG/L) 1.0 2.3	(UG/L) 0 0 OIS- SOLVED	GEN SULFIDE (MG/L) .0 .3 DIS- SOLVED CHLO-
JUL , 19 22	ALUM- INUM (AL) (UG/L) 775 800	ARSENIC (AS) (UG/L) 0 0 1 36 INSTAN- TANEOUS UIS-	MIUM (CR) (UG/L) <10 0	COPPER (CU) (UG/L) U CRANE SPE- CIFIC CON- DUCT- ANCE	IRON (FE) (UG/L) 1200 40 NEST FORK	(MN) (UG/L) 50 10 NEAR WOO ITY DATA DIS- SOLVED	(HG) (UG/L) <.5 <.5 OSFIELD OF	(ZN) (UG/L) 10 20 H BICAR-BONATE	(C) (MG/L) 1.0 2.3 CARBON DIOXIDE	OIS- SOLVED	GEN SULFIDE (MG/L) .0 .3 DIS- SOLVED CHLO- RIDE
JUL + 19 22 NUV 06	ALUM- INUM (AL) (UG/L)	ARSENIC (AS) (UG/L) 0 0 INSTAN- TANEOUS UIS- CHARGE	MIUM (CR) (UG/L). <10 0 UNM	CRANE SPE- CIFIC CON- DUCT- ANCE (MICRO-	IRON (FE) (UG/L) 1200 40 NEST FORK PH	(MN) (UG/L) 50 10 NEAR WOO ITY DATA DIS- SOLVED OXYGEN	(HG) (UG/L) <.5 <.5 ODSFIELD OF	UG/L) 10 20 H BICAR-BONATE (HCO3)	(C) (MG/L) 1.0 2.3 CARBON DIOXIDE (CO2)	OIS- SOLVED SULFATE (SO+)	GEN SULFIDE (MG/L) .0 .3 DIS- SOLVED CHLO- RIDE (CL)
JUL , 19 22	ALUM- INUM (AL) (UG/L) 775 800	ARSENIC (AS) (UG/L) 0 0 1 36 INSTAN- TANEOUS UIS-	MIUM (CR) (UG/L) <10 0	COPPER (CU) (UG/L) U CRANE SPE- CIFIC CON- DUCT- ANCE	IRON (FE) (UG/L) 1200 40 NEST FORK	(MN) (UG/L) 50 10 NEAR WOO ITY DATA DIS- SOLVED	(HG) (UG/L) <.5 <.5 OSFIELD OF	(ZN) (UG/L) 10 20 H BICAR-BONATE	(C) (MG/L) 1.0 2.3 CARBON DIOXIDE	OIS- SOLVED	GEN SULFIDE (MG/L) .0 .3 DIS- SOLVED CHLO- RIDE
JUL + 19 22 NUV U6	ALUM- INUM (AL) (UG/L) 775 800 20	ARSENIC (AS) (UG/L) 0 0 INSTAN- TANEOUS UIS- CHARGE	MIUM (CR) (UG/L). <10 0 UNM	CRANE SPE- CIFIC CON- DUCT- ANCE (MICRO-	IRON (FE) (UG/L) 1200 40 NEST FORK PH	(MN) (UG/L) 50 10 NEAR WOO ITY DATA DIS- SOLVED OXYGEN	(HG) (UG/L) <.5 <.5 ODSFIELD OF	UG/L) 10 20 H BICAR-BONATE (HCO3)	(C) (MG/L) 1.0 2.3 CARBON DIOXIDE (CO2)	OIS- SOLVED SULFATE (SO+)	GEN SULFIDE (MG/L) .0 .3 DIS- SOLVED CHLO- RIDE (CL)
JUL , 19 22 NOV 06 DATE JUN , 19	ALUM- INUM (AL) (UG/L) 075 800 20	INSTAN- TANEOUS CIEFS)	MIUM (CR) (UG/L). <10 0 UNM TEMPER-ATURE (DEG C)	COPPER (CU) (UG/L) U CRANE SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS)	IRON (FE) (UG/L) 1200 40 NEST FORK PATER QUAL	(MN) (UG/L) 50 10 NEAR WOO ITY DATA JIS- SOLVED OXYGEN (MG/L)	(HG) (UG/L) <.5 <.5 ODSFIELD OF	UG/L) 10 20 H BICAR- BONATE (HCO3) (MG/L)	(C) (MG/L) 1.0 2.3 CARBON DIOXIDE (CO2) (MG/L)	OIS- SOLVED SULFATE (SO4)	GEN SULFIDE (MG/L) .0 .3 DIS- SOLVED CHLO- RIDE (CL) (MG/L)
UL , 19 22 NUV 06 DATE JUN , 19 13	ALUM- INUM (AL) (UG/L) 775 800 20	ARSENIC (AS) (UG/L) 0 0 INSTAN- TANEOUS UIS- CHARGE	MIUM (CR) (UG/L). <10 0 UNM	CRANE SPE- CIFIC CON- DUCT- ANCE (MICRO-	IRON (FE) (UG/L) 1200 40 NEST FORK PH	(MN) (UG/L) 50 10 NEAR WOO ITY DATA DIS- SOLVED OXYGEN	(HG) (UG/L) <.5 ODSFIELD OF TOTAL ACIDITY AS H+ (MG/L)	UG/L) 10 20 H BICAR-BONATE (HCO3)	(C) (MG/L) 1.0 2.3 CARBON DIOXIDE (CO2)	OIS- SOLVED SULFATE (SO+)	GEN SULFIDE (MG/L) .0 .3 DIS- SOLVED CHLO- RIDE (CL)
JUL , 19 22 NOV 06 DATE JUN , 19	ALUM- INUM (AL) (UG/L) 075 800 20	ARSENIC (AS) (UG/L) 0 0 1 36 INSTAN- TA VEOUS UIS- CHARGE (CFS)	MIUM (CR) (UG/L). <10 0 UNM TEMPER-ATURE (DEG C)	COPPER (CU) (UG/L) U CRANE SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS)	IRON (FE) (UG/L) 1200 40 NEST FORK PATER QUAL	(MN) (UG/L) 50 10 NEAR WOO ITY DATA JIS- SOLVED OXYGEN (MG/L)	(HG) (UG/L) <.5 ODSFIELD OF TOTAL ACIDITY AS H+ (MG/L)	UG/L) 10 20 H BICAR- BONATE (HCO3) (MG/L)	(C) (MG/L) 1.0 2.3 CARBON DIOXIDE (CO2) (MG/L)	OIS- SOLVED SULFATE (SO4)	GEN SULFIDE (MG/L) .0 .3 DIS- SOLVED CHLO- RIDE (CL) (MG/L)
JUL , 19 22 NUV 06 DATE JUN , 19 13 NOV	ALUM- INUM (AL) (UG/L) 775 800 20 TIME	INSTAN- TAYEOUS CHARGE (CFS)	MIUM (CR) (UG/L). <10 0 UNM TEMPER- ATURE (DEG C) 19.5	COPPER (CU) (UG/L) U CRANE SPE- CIFIC CON- DUCT- ANCE (MICHO- MHOS)	IRON (FE) (UG/L) 1200 40 NEST FURK IATER QUAL PH (UNITS) 7.4	(MN) (UG/L) 50 10 NEAR WOO ITY DATA DIS- SOLVED OXYGEN (MG/L) 7.4	(HG) (UG/L) <.5 <.5 DOSFIELD OF	UG/L) 10 20 H BICAR-BONATE (HCO3) (MG/L)	(C) (MG/L) 1.0 2.3 CARBON ()IOXINE (CO2) (MG/L)	OIS-SOLVED SULFATE (SO4) (MG/L)	GEN SULFIDE (MG/L) .0 .3 DIS- SOLVED CHLO- RIDE (CL) (MG/L)
JUL , 19 22 NUV 06 DATE JUN , 19 13 NOV	TIME 975 1315 1500	INSTAN- TAYEOUS CHARGE (CFS)	MIUM (CR) (UG/L). <10 0 UNM TEMPER-ATURE (DEG C) 19.5	COPPER (CU) (UG/L) U CRANE SPE- CIFIC CON- DUCT- ANCE (MICHO- MHOS)	IRON (FE) (UG/L) 1200 40 NEST FURK IATER QUAL PH (UNITS) 7.4	(MN) (UG/L) 50 10 NEAR WOO ITY DATA DIS- SOLVED OXYGEN (MG/L) 7.4 11.4	(HG) (UG/L) <.5 <.5 DOSFIELD OF	UG/L) 10 20 H BICAR-BONATE (HCO3) (MG/L)	(C) (MG/L) 1.0 2.3 CARBON DIOXIDE (CO2) (MG/L) 6.5	OIS-SOLVED SULFATE (SO4) (MG/L)	GEN SULFIDE (MG/L) .0 .3 DIS- SOLVED CHLO- RIDE (CL) (MG/L)
JUL , 19 22 NUV 06 DATE JUN , 19 13 NOV	TIME 275 1315 1500 TOTAL	INSTAN- TAVEOUS CHARGE (CFS)	MIUM (CR) (UG/L) <10 0 UNM TEMPER-ATURE (DEG C) 19.5 8.0 TOTAL	CRANE SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS) 370 280	IRON (FE) (UG/L) 1200 40 NEST FURK ATER QUAL PH (UNITS) 7.4 7.6	(MN) (UG/L) 50 10 NEAR WOO ITY DATA DIS- SOLVED OXYGEN (MG/L) 7.4 11.4 TOTAL	(HG) (UG/L) <.5 ODSFIELD OF TOTAL ACTUITY AS H+ (MG/L)	# SICAR- BONATE (HCO3) (MG/L)	(C) (MG/L) 1.0 2.3 CARBON DIOXIDE (CO2) (MG/L) 6.5 4.0	OIS-SOLVED SULFATE (SO4) (MG/L)	GEN SULFIDE (MG/L) .0 .3 DIS- SOLVED CHLO- RIDE (CL) (MG/L) 32 22
JUL , 19 22 NUV 06 DATE JUN , 19 13 NOV	TIME 275 1315 1500 TOTAL ALUM- 1NUM (AL) (UG/L) 20	INSTAN- TAYEOUS CHARGE (CFS)	TEMPER-ATURE (DEG C) 19.5 8.0 TOTAL CHRO-	COPPER (CU) (UG/L) U CHANE SPE- CIFIC CON- DUCT- ANCE (MICHO- MHOS) 370 280	IRON (FE) (UG/L) 1200 40 NEST FURK ATER QUAL PH (UNITS) 7.4 7.6	(MN) (UG/L) 50 10 NEAR WOO ITY DATA DIS- SOLVED OXYGEN (MG/L) 7.4 11.4	(HG) (UG/L) <.5 <.5 DOSFIELD OF TOTAL ACIDITY AS H+ (MG/L) TOTAL	UG/L) 10 20 H BICAR- BONATE (HCO3) (MG/L) 102 100 TOTAL	CARBON DIOXIDE (CO2) (MG/L) 6.5 4.0 TOTAL ORGANIC	OIS- SOLVED SULFATE (SO4) (AG/L)	GEN SULFIDE (MG/L) .0 .3 DIS- SOLVED CHLO- RIDE (CL) (MG/L) 32 22 HYDRO-
JUL , 19 22 NUV 06 DATE JUN , 19 13 NOV	TIME 75 1315 1500 TOTAL ALUM- INUM	INSTAN- TAVEOUS CHARGE (CFS)	TEMPER-ATURE (DEG C) 19.5 **OTAL CHRO-MIUM	COPPER (CU) (UG/L) U CRANE SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS) 370 280 TOTAL COPPER	IRON (FE) (UG/L) 1200 40 NEST FORK PATER QUAL PM (UNITS) 7.4 7.5	(MN) (UG/L) 50 10 NEAR WOO ITY DATA DIS- SOLVED OXYGEN (MG/L) 7.4 11.4 TOTAL MAN- GANESE	(HG) (UG/L) <.5 ODSFIELD OF TOTAL ACIDITY AS H+ (MG/L) TOTAL MERCURY	H BICAR- BONATE (HCO3) (MG/L) 102 100 TOTAL ZINC	CARBON DIOXIDE (COZ) (MG/L) 4.0 TOTAL ORGANIC CARBON	OIS-SOLVED SULFATE (SO4) (MG/L)	GEN SULFIDE (MG/L) .0 .3 DIS- SOLVED CHLO- RIDE (CL) (MG/L) 32 22 HYDRO- GEN
JUL , 19 22 NUV 06 DATE JUN , 19 13 NOV	TIME 275 1315 1500 TOTAL ALUM- 1NUM (AL) (UG/L) 20	INSTAN- TANEOUS UIS- CHARGE (CFS)	TEMPER-ATURE (DEG C) 19.5 8.0 TOTAL CHRO-	COPPER (CU) (UG/L) U CHANE SPE- CIFIC CON- DUCT- ANCE (MICHO- MHOS) 370 280	IRON (FE) (UG/L) 1200 40 NEST FURK ATER QUAL PH (UNITS) 7.4 7.6	(MN) (UG/L) 50 10 NEAR WOO ITY DATA DIS- SOLVED OXYGEN (MG/L) 7.4 11.4	(HG) (UG/L) <.5 <.5 DOSFIELD OF TOTAL ACIDITY AS H+ (MG/L) TOTAL	UG/L) 10 20 H BICAR- BONATE (HCO3) (MG/L) 102 100 TOTAL	CARBON DIOXIDE (CO2) (MG/L) 6.5 4.0 TOTAL ORGANIC	OIS- SOLVED SULFATE (SO4) (AG/L)	GEN SULFIDE (MG/L) .0 .3 DIS- SOLVED CHLO- RIDE (CL) (MG/L) 32 22 HYDRO-
UL , 19 22 NOV 06 DATE JUN , 19 13 NOV 20	TIME 75 1315 1500 TOTAL ALUM (AL) (UG/L)	INSTAN- TANEOUS UIS- CHARGE (CFS)	TEMPER-ATURE (DEG C) 19.5 8.0 TOTAL CHRO-MIUM (CH)	COPPER (CU) (UG/L) U CHANE SPE- CIFIC CON- DUCT- ANCE (MICHO- MHOS) 370 280 TOTAL COPPER (CU)	IRON (FE) (UG/L) 1200 40 NEST FORK ATER QUAL PH (UNITS) 7.4 7.6 TOTAL IRON (FE)	(MN) (UG/L) 50 10 NEAR WOO ITY DATA DIS- SOLVED OXYGEN (MG/L) 7.4 11.4 TOTAL MAN- GANESE (MN)	(HG) (UG/L) <.5 C.5 ODSFIELD OF TOTAL ACTUITY AS H+ (MG/L) TOTAL MERCURY (HG)	UG/L) 10 20 H BICAR- BONATE (HCO3) (MG/L) 102 100 TOTAL ZINC (ZN)	CARBON DIOXIDE (COZ) (MG/L) 6.5 4.0 TOTAL DRGANIC CARBON (C)	OIS- SOLVED SULFATE (SO4) (MG/L) 31 33	GEN SULFIDE (MG/L) .0 .3 DIS- SOLVED CHLO- RIDE (CL) (MG/L) 32 22 HYDRO- GEN SULFIDE
DATE JUN , 19 13 NOV 20	TIME 775 1315 1500 TOTAL ALUM- INUM (AL) (UG/L)	ARSENIC (AS) (UG/L) 0 0 0 36 INSTAN- TAVEOUS UIS- CHARGE (CFS) E10 E15 TOTAL ARSENIC (AS) (UG/L)	TEMPER-ATURE (DEG C) 19.5 8.0 TOTAL CHRO-MIUM (CR) (UG/L)	COPPER (CU) (UG/L) U CRANE SPE- CIFIC CON- DUCT- ANCE (MICKO- MHOS) 370 280 TOTAL COPPER (CU) (UG/L)	IRON (FE) (UG/L) 1200 40 NEST FURK INTER QUAL PH (UNITS) 7.4 7.6 TOTAL IRON (FE) (UG/L)	(MN) (UG/L) 50 10 NEAR WOO ITY DATA DIS- SOLVED OXYGEN (MG/L) 7.4 11.4 TOTAL MAN- GANESE (MN) (UG/L)	(HG) (UG/L) <.5 C.5 DOSFIELD OF TOTAL ACTOITY AS H+ (MG/L) TOTAL MERCURY (HG) (UG/L)	BICAR-BONATE (HCO3) (MG/L) 102 100 TOTAL ZINC (ZN) (UG/L)	CARBON DIOXIDE (CO2) (MG/L) TOTAL ORGANIC CARBON (C) (MG/L)	OIS-SOLVED SULFATE (SO4) (MG/L) 31 33 PHENOLS (UG/L)	OEN SULFIDE (MG/L) .0 .3 DIS- SOLVED CHLO- RIDE (CL) (MG/L) 32 22 HYDRO- GEN SULFIDE (MG/L)
DATE JUN 19 13 DATE JUN 19 13	TIME 75 1315 1500 TOTAL ALUM (AL) (UG/L)	INSTAN- TANEOUS UIS- CHARGE (CFS)	TEMPER-ATURE (DEG C) 19.5 8.0 TOTAL CHRO-MIUM (CH)	COPPER (CU) (UG/L) U CHANE SPE- CIFIC CON- DUCT- ANCE (MICHO- MHOS) 370 280 TOTAL COPPER (CU)	IRON (FE) (UG/L) 1200 40 NEST FORK ATER QUAL PH (UNITS) 7.4 7.6 TOTAL IRON (FE)	(MN) (UG/L) 50 10 NEAR WOO ITY DATA DIS- SOLVED OXYGEN (MG/L) 7.4 11.4 TOTAL MAN- GANESE (MN)	(HG) (UG/L) <.5 C.5 ODSFIELD OF TOTAL ACTUITY AS H+ (MG/L) TOTAL MERCURY (HG)	UG/L) 10 20 H BICAR- BONATE (HCO3) (MG/L) 102 100 TOTAL ZINC (ZN)	CARBON DIOXIDE (CO2) (MG/L) TOTAL ORGANIC CARBON (C) (MG/L)	OIS- SOLVED SULFATE (SO4) (MG/L) 31 33	GEN SULFIDE (MG/L) .0 .3 DIS- SOLVED CHLO- RIDE (CL) (MG/L) 32 22 HYDRO- GEN SULFIDE
DATE JUN , 19 13 NOV 20	TIME 775 1315 1500 TOTAL ALUM- INUM (AL) (UG/L)	ARSENIC (AS) (UG/L) 0 0 0 36 INSTAN- TAVEOUS UIS- CHARGE (CFS) E10 E15 TOTAL ARSENIC (AS) (UG/L)	TEMPER-ATURE (DEG C) 19.5 8.0 TOTAL CHRO-MIUM (CR) (UG/L)	COPPER (CU) (UG/L) U CRANE SPE- CIFIC CON- DUCT- ANCE (MICKO- MHOS) 370 280 TOTAL COPPER (CU) (UG/L)	IRON (FE) (UG/L) 1200 40 NEST FURK INTER QUAL PH (UNITS) 7.4 7.6 TOTAL IRON (FE) (UG/L)	(MN) (UG/L) 50 10 NEAR WOO ITY DATA DIS- SOLVED OXYGEN (MG/L) 7.4 11.4 TOTAL MAN- GANESE (MN) (UG/L)	(HG) (UG/L) <.5 C.5 DOSFIELD OF TOTAL ACTOITY AS H+ (MG/L) TOTAL MERCURY (HG) (UG/L)	BICAR-BONATE (HCO3) (MG/L) 102 100 TOTAL ZINC (ZN) (UG/L)	CARBON DIOXIDE (CO2) (MG/L) TOTAL ORGANIC CARBON (C) (MG/L)	OIS-SOLVED SULFATE (SO4) (MG/L) 31 33 PHENOLS (UG/L)	OEN SULFIDE (MG/L) .0 .3 DIS- SOLVED CHLO- RIDE (CL) (MG/L) 32 22 HYDRO- GEN SULFIDE (MG/L)

37 UNM RICH FORK NEAR WOODSFIELD OH

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DATE	TIME	INSTAN- TANEOUS DIS- CHARGE (CFS)	TEMPER- ATURE (DEG C)	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS)	PH'	DIS- SOLVED OXYGEN (MG/L)	TOTAL ACIDITY AS H+ (MG/L)	BICAR- BONATE (HCO3) (MG/L)	CARBON DIOXIDE (CO2) (MG/L)	DIS- SOLVED SULFATE (SO4) (MG/L)	DIS- SOLVED CHLO- RIDE (CL) (MG/L)
JUN , 1	975 1445	E20	20.5	340	7.7	7.7		142	4.5	28	12
NOV											
20	1630	E17	8.0	335	8.0	11.8		160	2.6	27	14
DATE	TOTAL ALUM- INUM (AL) (UG/L)	TOTAL ARSENIC (AS) (UG/L)	TOTAL CHRO- MIUM (CR) (UG/L)	TOTAL COPPER (CU) (UG/L)	TOTAL IRON (FE) (UG/L)	TOTAL MAN- GANESE (MN) (UG/L)	TOTAL MERCURY (HG) (UG/L)	TOTAL ZINC (ZN) (UG/L)	TOTAL ORGANIC CARBON (C) (MG/L)	PHENOLS	HYDRO- GEN SULFIDE (MG/L)
JUN , 1											
13	100	1	30	20	350	30	<.5	20	2.1	1	.0
20	30	0	<10	0	60	20	<.5	20	2.5	3	•5
		38	UNM	MOSS	RUN NEAR	MOSS RUN	ОН				
					ATER QUAL	ITY DATA					
DATE	TIME	INSTAN- TANEOUS DIS- CHARGE (CFS)	TEMPER- ATURE (DEG C)	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS)	PH (UNITS)	DIS- SOLVED OXYGEN (MG/L)	TOTAL ACIDITY AS H+ (MG/L)	BICAR- BONATE (HCO3) (MG/L)	CARBON DIOXIDE (CO2) (MG/L)	DIS- SOLVED SULFATE (SO4) (MG/L)	DIS- SOLVED CHLO- RIDE (CL) (MG/L)
JUN , 1	975 1330	E.30	22.0	460	7.0	7.8		100	16	120	6.0
NOV											
19	0930	E•45	5.0	455	6.7	10.5		55	18	160	8.0
DATE	TOTAL ALUM- INUM (AL) (UG/L)	TOTAL ARSENIC (AS) (UG/L)	TOTAL CHRO- MIUM (CR) (UG/L)	TOTAL COPPER (CU) (UG/L)	TOTAL IRON (FE) (UG/L)	TOTAL MAN- GANESE (MN) (UG/L)	TOTAL MERCURY (HG) (UG/L)	TOTAL ZINC (ZN) (UG/L)	TOTAL ORGANIC CARBON (C) (MG/L)	PHENOLS	HYDRO- GEN SULFIDE (MG/L)
JUN , 1	975 3800	1	30	20	4500	2400	<.5	50	6.5	0	.0
19	1300	0	0	0	1200	380	<.5	40	3.2	0	.0
		39	UNM	MOSS	RUN TRIBU	TARY AT M	10SS RUN 0	н			
					ATER QUAL						
		INSTAN- TANEOUS DIS-	TEMPER-	SPE- CIFIC CON- DUCT- ANCE	Рн	DIS- SOLVED	TOTAL ACIDITY AS	BICAR- BONATE	CARBON BULVOID	DIS- SOLVED SULFATE	DIS- SOLVED CHLO- RIDE
DATE	TIME	CHARGE	ATURE	(MICRO-		OXYGEN	H+	(HC03)	(CO2) (MG/L)	(SO4) (MG/L)	(CL) (MG/L)
	0.75	(CFS)	(DEG C)	MHOS)	(UNITS)	(MG/L)	(MG/L)	(MG/L)	(40/1)	(110/1)	1-10/1
12 12	975 1445	E.20	21.0	330	7.2	6.9		86	8.7	65	10
19	1030	t.40	6.0	285	6.9	10.6		70	14	69	6.0
DATE	TOTAL ALUM- INUM (AL) (UG/L)	TOTAL ARSENIC (AS) (UG/L)	TOTAL CHRO- MIUM (CR) (UG/L)	TOTAL COPPER (CU) (UG/L)	TOTAL IRON (FE) (UG/L)	TOTAL MAN- GANESE (MN) (UG/L)	TOTAL MERCURY (HG) (UG/L)	TOTAL ZINC (ZN) (UG/L)	TOTAL ORGANIC CARBON (C) (MG/L)	PHENOLS	HYDRO- GEN SULFIDE (MG/L)
JUN • 1							-	0-			
12	950	0	10	10	520	270	<.5	20	4.1	1	.0
19	1000	0	0	0	380	280	<.5	50	1.8	0	. 0

40 UNM WEST FORK DUCK CREEK NEAR AVA OH

				SPE-							
				CIFIC			TOTA:			015-	DIS- SOLVED
		INSTAN- TANEOUS		CON- DUCT-		DIS-	ACIDITY	BICAR-	CARBON	DIS- SOLVED	CHLO-
		DIS-	TEMPER-	ANCE	РН	SOLVED	AS	BONATE	DIOXIDE	SULFATE	RIDE
DATE	TIME	(CFS)	(DEG C)	(MICRO- MHOS)	(UNITS)	OXYGEN (MG/L)	(MG/L)	(MG/L)	(CO2) (MG/L)	(SO4) (MG/L)	(CL) (MG/L)
DATE		(073)	(DEG C)	MHUSI	(04113)	(40/6/	(110/6/	(1107)	(1107)		
MAY . 19			21.0		7 4			155	6.2	52	22
SEP	1200	E.50	21.0	455	7.6	8.3		155	0.2	32	
23	1530	£2.0	14.0	390	7.5	9.4		140	7.1	44	17
			TOTAL			TOTAL			TOTAL		
	TOTAL ALUM-	TOTAL	TOTAL CHRO-	TOTAL	TOTAL	MAN-	TOTAL	TOTAL	ORGANIC		HYDRO-
	MUNI	ARSENIC	MIUM	COPPER	IRON	GANESE	MERCURY	ZINC	CARBON	PHENOLS	GEN
2475	(AL)	(AS)	(CR)	(CU)	(FE)	(MN) (UG/L)	(HG)	(ZN) (UG/L)	(C) (MG/L)	(UG/L)	SULFIDE (MG/L)
DATE	(UG/L)	(UG/L)	(UG/L)	(UG/L)	(UG/L)	(00/L)	(00/1	100/2/	(10/ 2/	(00/)	
MAY . 19				1	490	90		20	9.7	0	.0
22 SEP	360	1	0	10	490	90	<.5	20	7.1		••
23	30	0	<10	U	200	70	<.5	20		1	.5
			20	0041			0.1				
		41	RSM	COAL	RUN AT HI	RAMSBURG	ОН				
				w	ATER QUAL	ATAU YTI					
				SPE-							
				CIFIC							DIS-
		INSTAN-		CON-			TOTAL			DIS-	SOLVED
		TANEOUS DIS-	TEMPER-	DUCT- ANCE	РН	SOLVED	ACIDITY	BONATE	DIUXIDE	SOLVED	RIDE
	TIME	CHARGE	ATURE	(MICRO-	FII	OXYGEN	H+	(HCO3)	(COS)	(504)	(CL)
DATE		(CFS)	(DEG C)	MH05)	(UNITS)	(MG/L)	(MG/L)	(MG/L)	(MG/L)	(4G/L)	(MG/L)
MAY , 19	75										
22	1700	£4.0	22.0	1580	7.8	7.8		163	4.1	660	10
NO.A.	1230	£2.7	9.0	1560	7.6	11.4		194	7.8	910	15
10	1230	22.	7.0	1500	7.0	11.4		174	,,0	710	
	TOTAL		TOTAL			TOTAL			TOTAL		
	ALUM-	TOTAL	CHRO-	TOTAL	TOTAL	MAN-	TOTAL	TOTAL	ORGANIC	0.151101.5	HYDRO-
	INUM (AL)	ARSENIC (AS)	MIUM (CR)	(CU)	IRON (FE)	GANESE (MN)	MERCURY (HG)	(ZN)	(C)	PHENOLS	GEN SULFIDE
DATE	(UG/L)	(UG/L)	(UG/L)	(UG/L)	(Ub/L)	(UG/L)	(UG/L)	(UG/L)	(46/L)	(UG/L)	(MG/L)
MAY , 19	75										
22	940	0	10	10	430	1500	<.5	20	8.0	4	.0
NOV	1:200		0	1	4.10	1000		60		0	
18	1200	0	U	10	490	2000	<.5	50	2.3	0	• 0
		42	RSM	WEST	FORK DUCK	CREEK AT	BELLE VAL	LEY OH			
							OLLLE VA				
				W	ATER GUAL	ITY DATA					
				SPE-							
		Tall Tabl		CIFIC							DIS-
		INSTAN-		CON-		DIS-	ACIDITY	BICAR-	CADDON	DIS-	SOLVED
		DIS-	TEMPER-	ANCE	РН	SOLVED	ACIDITY	BONATE	DIOXIDE	SOLVED	CHLO- RIDE
	TIME		ATURE			OXYGEN	H+	(HC03)	(502)	(504)	(CL)
DATE		(CFS)	(DEG C)	MHOS)	(UNITS)	(MG/L)	(MG/L)	(MG/L)	(MG/L)	(MG/L)	(MG/L)
MAY , 19		-									
NOV	1400	E20	25.0	800	7.6	7.6		199	8.0	220	16
18	1400	E12	6.5	770	7.5	11.2		202	10	230	18
	TOTAL										
	TOTAL ALUM-	TOTAL	CHRO-	TOTAL	TOTAL	TOTAL	TOTAL		TOTAL		
	INUM	ARSENIC	MIUM	COPPER	IRON	MAN- GANESE	MERCURY	ZINC	ORGANIC	DHENG	HYDRO-
0.470	(AL)	(AS)	(CR)	(CU)	(FE)	(MN)	(HG)	(ZN)	(C)	PHENOLS	GEN SULFIDE
DATE	(UG/L)	(UG/L)	(UG/L)	(UG/L)	(UG/L)	(UG/L)	(UG/L)	(UG/L)	(MG/L)	(UG/L)	(46/L)
MAY . 19											
NOV	640	1	<10	10	750	240	<.5	20	12	0	.0
18	120	U	0	U	190	150	<.5	10	3.5	0	0
				3		155		10	3.3	J	.0

43 RSM W F DUCK C AT DEXTER CITY OH

					WATER GU	ALITY DAT	A				
	TIME	STREAM- FLOW. INSTAN- TANEOUS	TEMPER- ATURE • WATER	SPE- CIFIC CON- DUCT- ANCE (M1CRO	PH - FIELD	OXYGEN DIS- SOLVE	MG/L D AS	CARBO DIOXID DIS- SOLVE (MG/L	E SULFAT DIS- D SOLVE (MG/L	DIS- D SOLVEI (MG/L	(UG/L
DATE		(CFS)	(DEG C)	MH()5)	(UNITS) (MG/L	.) HC03)	AS COZ	AS 504) AS CL) AS AL)
JUN ,		E70	19.5	58	0 7.0	4 7.	7. 179	, 11	110	18	2600
20	0930	E40		. .0	0 1	1 10	6	33	160	38	410
20	0930	E40	5.0	69	0 /.	10.	.5 251	. 33	100	30	. 410
	DATE	RSENIC TOTAL T (US/L (AS AS) A	OTAL TO	JTAL JG/L	IRUN• TUTAL (UG/L	ANGA- NESE • N TOTAL (UG/L AS MN)	TOTAL (UG/L	ZINC. 0	(MG/L	HENOLS (HYDRO- GEN ULFIDE DISS. (MG/L S H2S)
	JUN • 197' 13	, 1	30	20	3200	430	<.5	40	4.5	0	.0
1	IOA				0400	.50					
	50	1	NO	<20	280	370	<.5	30	2.9	0	• 0
		44	ASM		ALO RUN NE		R CITY OH				
				SPE-							
DATE	TIME	INSTAN- TANEOUS DIS- CHARGE (CFS)	TEMPER- ATURE (DEG C)	CIFIC CON- DUCT- ANCE (MICRO- MHOS)	PH (UNITS)	DIS- SOLVED OXYGEN (MG/L)		BICAR- BONATE (HCO3) (MG/L)		DIS- SOLVED SULFATE (SO4) (MG/L)	DIS- SOLVED CHLO- RIDE (CL) (MG/L)
MAY , 1	975										
28 VUV	1400	E2.0	26.0	1600	3.2	7.3		0		800	6.0
18	1730	E3.3	9.0	1480	4.5	10.1	3.7	0	.0	830	15
DATE	TOTAL ALUM- INUM (AL) (UG/L)	TOTAL ARSENIC (AS) (UG/L)	TOTAL CHRO- MIUM (CR) (UG/L)	TOTAL COPPER (CU) (UG/L)	TOTAL IRON (FE) (UG/L)	TOTAL MAN- GANESE (MN) (UG/L)	TOTAL MERCURY (HG) (UG/L)	TOTAL ZINC (ZN) (UG/L)	TOTAL ORGANIC CARBON (C) (MG/L)	PHENOLS	HYDRO- GEN SULFIDE (MG/L)
MAY , 1	975										
28	17000	0	30	30	2500	9000	.5	420	.9	0	.0
18	14000	1	10	10	2700	7100	<.5	320	.9	1	.0
15	14000	•	10	10	2100	7100	(,5	320	• • •		• 0
		45	ASM	G0056	HOLLOWRU	IN NEÁR M	ACKSBURG 0	н			
					ATER QUAL	ITY DATA					
		INSTAN-		SPE- CIFIC CON- DUCT-	THE WORL		TOTAL	BICAD-	CADRON	DIS-	DIS- SOLVED CHLO-
		DIS-	TEMPER-	ANCE	PH	DIS- SOLVED	ACIDITY	BICAR- BUNATE	DIOXIDE	SOLVED	RIDE
DATE	TIME	CHARGE	ATURE	(MICRO-	/IIIITTC:	OXYGEN	H+	(HC03)	(C02)	(504)	(CL)
DATE		(CFS)	(DEG C)	MHOS)	(UNITS)	(MG/L)	(MG/L)	(MG/L)	(MG/L)	(MG/L)	(MG/L)
MAY . 1 28	975 1630	E.70	25.0	1640	3.1	7.6	4.3	0	•0	700	38
19	1730	E1.5	8.0	1350	4.1	9.0	2.1	0	.0	710	35
	TOTAL ALUM- INUM (AL)	TOTAL ARSENIC (AS)	TOTAL CHRO- MIUM (CR)	TOTAL COPPER (CU)	TOTAL IRON (FE)	TOTAL MAN- GANESE (MN)	TOTAL MERCURY (HG)	TOTAL ZINC (ZN)	TOTAL ORGANIC CARBON (C)	PHENOLS	HYDRO- GEN SULFIDE
DATE	(UG/L)	(UG/L)	(UG/L)	(UG/L)	(UG/L)	(UG/L)	(UG/L)	(UG/L)	(MG/L)	(UG/L)	(MG/L)
MAY , 1	(UG/L)							(UG/L)	(MG/L)	(UG/L)	

6 CMM WEST FORK DUCK CREEK NEAR WARNER OH

				•	AIER GOAL	III DAIA					
				SPE-							
				CIFIC							DIS-
		INSTAN-		CON-			TOTAL			DIS-	SOLVED
		TANEOUS	* E 4050	DUCT-		DIS-	ACIDITY	BICAR-	CARBON	SOLVED	CHLO-
	TIME	DIS-	TEMPER-	MICHO-	PH	SOLVED	AS H+	BONATE (HCO3)	(COS)	SULFATE (SO4)	(CL)
DATE		(CFS)	(DEG C)	MHOS)	(UNITS)	(MG/L)	(MG/L)	(MG/L)	(MG/L)	(MG/L)	(4G/L)
MAY .											
29	1130	E60	21.0	690	7.1	7.4		143	18	180	16
19	1630	E54	8.0	800	7.0	10.4		137	22	290	22
17	1030	534	0.0	500	7.0	10.4		137	22	270	22
	TOTAL		TOTAL			TOTAL			TOTAL		
	ALUM-	TOTAL	CHRO-	TOTAL	TOTAL	MAN-	TOTAL	TOTAL	ORGANIC		HYDRO-
	INUM	ARSENIC	MIUM	COPPER	IRON	GANESE	MERCURY	ZINC	CARBON	PHENOLS	GEN
	(AL)	(AS)	(CR)	(CU)	(FE)	(MN)	(HG)	(ZN)	(C)		SULF IDE
DATE	(UG/L)	(UG/L)	(UG/L)	(UG/L)	(UG/L)	(UG/L)	(UG/L)	(UG/L)	(MG/L)	(UG/L)	(MG/L)
MAY . 1	1075										
29	1200	1	10	10	460	1100	<.5	20	9.4	32	.0
NOV		•								-	•
19	1900	. 0	0	U	670	2000	.5	60	3.5	0	. 0
		47	7	F: A/	(N.AL ALE AD	EL AC 0:4					
		47	UNM	FLAG	RUN NEAR	FLAG OH					
	•				ATER QUAL	ITY DATA					
				SPE-							
		INSTAN-		CIFIC			TOTAL			016-	DIS-
		TANEOUS		CON-		DIS-	TOTAL	BICAR-	CARHON	DIS- SOLVED	SOLVED CHLO-
		DIS-	TEMPER-	ANCE	РН	SOLVED	AS	BONATE	DIOXIDE	SULFATE	RIDE
	TIME	CHARGE	ATURE	(MICRO-		OXYGEN	H+	(HC03)	(CO2)	(504)	(CL)
DATE		(CFS)	(DEG C)	MHOS)	(UNITS)	(MG/L)	(MG/L)	(MG/L)	(MG/L)	(MG/L)	(MG/L)
MAY +		E 40	24.0		7.4	0.1		110		1.10	2.0
29	1630	E.80	24.0	495	7.6	8.1		110	4.4	120	3.0
20	1300	£2.8	10.0	385	7.5	10.4		122	6.2	93	6.0
											-
	TOTAL		TOTAL			TOTAL			TOTAL		
	ALUM-	TOTAL	CHRO-	TOTAL	TOTAL	MAN-	TOTAL	TOTAL	ORGANIC		HYDRO-
	INUM	ARSENIC	MIUM	COPPER	IRON	GANESE	MERCURY	ZINC	CARBON	PHENOLS	GEN
DATE	(AL) (UG/L)	(AS) (UG/L)	(CR)	(CU)	(FE) (UG/L)	(MN)	(HG)	(ZN)	(C)	auc a s	SULFIDE
DATE	100/2/	(30/2/	100/2/	(00/2/	(00/1)	(UG/L)	(UG/L)	(UG/L)	(MG/L)	(UG/L)	(4G/L)
MAY .											
29	190	0	10	10	160	290	<.5	0	9.3	0	.0
NOV	200				200						
20	300	0	0	0	200	430	<.5	10	2.1	0	.0
		48	UNM	ROAD	FORK AT R	DAD FORK	0н				
		48	UNM				0н				
		48	UNM		FORK AT RI		Он				
		48	UNM	W			Он				
		48	UNM	SPE-			ОН				015-
		48	UNM	SPE- CIFIC			OH			DIS-	DIS- SOLVED
				SPE-				BICAR-	CARBON	DIS- SOLVED	DIS- SOLVED CHLO-
		INSTAN- TANEOUS DIS-	TEMPER-	SPE- CIFIC CON- DUCT- ANCE		UIS- SOLVED	TOTAL ACIDITY AS	RONATE	DIOXIDE	SOLVED	SOLVED
DATE	TIME	INSTAN- TANEOUS DIS- CHARGE	TEMPER- ATURE	SPE- CIFIC CON- DUCT- ANCE (MICRO-	AFER QUAL	DIS- SOLVED OXYGEN	TOTAL ACIDITY AS H+	(HCO3)	(COS) DIOXIDE	SOLVED SULFATE (SO4)	SOLVED CHLO- RIDE (CL)
DATE	TIME	INSTAN- TANEOUS DIS-	TEMPER-	SPE- CIFIC CON- DUCT- ANCE	AFER QUAL	UIS- SOLVED	TOTAL ACIDITY AS	RONATE	DIOXIDE	SOLVED	SOLVED CHLO- RIDE
DATE MAY , 1		INSTAN- TANEOUS DIS- CHARGE	TEMPER- ATURE	SPE- CIFIC CON- DUCT- ANCE (MICRO-	AFER QUAL	DIS- SOLVED OXYGEN	TOTAL ACIDITY AS H+	(HCO3)	(COS) DIOXIDE	SOLVED SULFATE (SO4)	SOLVED CHLO- RIDE (CL)
MAY + 1		INSTAN- TANEOUS DIS- CHARGE	TEMPER- ATURE	SPE- CIFIC CON- DUCT- ANCE (MICRO-	AFER QUAL	DIS- SOLVED OXYGEN	TOTAL ACIDITY AS H+	(HCO3)	(COS) DIOXIDE	SOLVED SULFATE (SO4)	SOLVED CHLO- RIDE (CL)
MAY , 1 29	1975 1730	INSTAIN- TANEOUS DIS- CHARGE (CFS)	TEMPER- ATURE (DEG C)	SPE- CIFIC CONCT- DUCT- ANCE (MICRO- MHOS)	PH (UNITS)	UIS- SOLVED OXYGEN (MG/L)	TOTAL ACIDITY AS H+ (MG/L)	BONATE (HCO3) (MG/L)	010XIDE (CO2) (MG/L)	SOLVED SULFATE (SO4) (MG/L)	SOLVED CHLO- RIDE (CL) (MG/L)
MAY + 1	1975	INSTAN- TANEOUS DIS- CHARGE (CFS)	TEMPER- ATURE (DEG C)	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS)	AFER QUAL: PH (UNITS)	DIS- SOLVED OXYGEN (MG/L)	TOTAL ACIDITY AS H+ (MG/L)	(MG/L)	(MG/L)	SOLVED SULFATE (SO4) (MG/L)	SOLVED CHLO- RIDE (CL) (MG/L)
MAY , 1 29	1975 1730 1200	INSTAIN- TANEOUS DIS- CHARGE (CFS)	TEMPER-ATURE (DEG C)	SPE- CIFIC CONCT- DUCT- ANCE (MICRO- MHOS)	PH (UNITS)	DIS- SOLVED OXYGEN (MG/L)	TOTAL ACIDITY AS H+ (MG/L)	BONATE (HCO3) (MG/L)	010XIDE (CO2) (MG/L) 6.1	SOLVED SULFATE (SO4) (MG/L)	SOLVED CHLO- RIDE (CL) (MG/L)
MAY , 1 29	1975 1730 1200 TOTAL	INSTAN- TANEOUS DIS- CHARGE (CFS) E3.0 E6.4	TEMPER-ATURE (DEG C) 24.0 8.0	SPE- CIFIC CIFIC OUCT- ANCE (MICRO- MHOS)	PH (UNITS) 7.5	DIS- SOLVED OXYGEN (MG/L) 7.7 10.8	TOTAL ACIDITY AS H+ (MG/L)	BONATE (HC03) (MG/L) 121	010XIDE (CO2) (MG/L) 6.1 9.4	SOLVED SULFATE (SO4) (MG/L)	SOLVED CHLO- RIDE (CL) (MG/L)
MAY , 1 29	1975 1730 1200 TOTAL ALUM-	INSTAN- TANEOUS DIS- CHARGE (CFS) E3.0 E6.4	TEMPER-ATURE (DEG C) 24.0 8.0 TOTAL CHRO-	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS)	PH (UNITS) 7.5 7.4	DIS- SOLVED OXYGEN (MG/L) 7.7 10.8	TOTAL ACIDITY AS H+ (MG/L)	HONATE (HCO3) (MG/L) 121 147	DIOXIDE (CO2) (MG/L) 6.1 9.4 TOTAL ORGANIC	SOLVED SULFATE (SO4) (MG/L) 140 93	SOLVED CHLO- RIDE (CL) (MG/L)
MAY , 1 29	1975 1730 1200 TOTAL ALUM- INUM	INSTAN- TANEOUS DIS- CHARGE (CFS) E3.0 E6.4	TEMPER-ATURE (DEG C) 24.0 8.0 TOTAL CHRO-MIUM	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS) 590 450	PH (UNITS) 7.5 7.4 TOTAL IKON	DIS- SOLVED OXYGEN (MG/L) 7.7 10.8 TOTAL MAN- GANESE	TOTAL ACIDITY AS H+ (MG/L) 10TAL MERCURY	BONATE (HCO3) (MG/L) 121 147 TOTAL ZINC	OIOXIDE (CO2) (MG/L) 6.1 9.4 TOTAL ORGANIC CARBON	SOLVED SULFATE (SO4) (MG/L)	SOLVED CHLO- KIDE (CL) (46/L)
MAY , 1 29	1975 1730 1200 TOTAL ALUM-	INSTAN- TANEOUS DIS- CHARGE (CFS) E3.0 E6.4	TEMPER-ATURE (DEG C) 24.0 8.0 TOTAL CHRO-MIUM (CR)	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS) 590 450	PH (UNITS) 7.5 7.4 TOTAL IRON (FE)	DIS- SOLVED OXYGEN (MG/L) 7.7 10.8 TOTAL MAN- GANESE (MN)	TOTAL ACIDITY AS H+ (MG/L) TOTAL MERCURY (MG)	HONATE (HCO3) (MG/L) 121 147	OTOXIDE (CO2) (MG/L) 6.1 9.4 TOTAL ORGANIC CARBON (C)	SOLVED SULFATE (SO4) (MG/L) 1+0 93	SOLVED CHLO- RIDE (CL) (4G/L) 12 10 HYDRO- GEN SULFIDE
MAY • 1 29 NOV 20	1975 1730 1200 TOTAL ALUM- INUM (AL) (UG/L)	INSTAN- TANEOUS DIS- CHARGE (CFS) E3.0 E6.4 TOTAL ARSENIC (AS)	TEMPER-ATURE (DEG C) 24.0 8.0 TOTAL CHRO-MIUM	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS) 590 450	PH (UNITS) 7.5 7.4 TOTAL IKON	DIS- SOLVED OXYGEN (MG/L) 7.7 10.8 TOTAL MAN- GANESE	TOTAL ACIDITY AS H+ (MG/L) 10TAL MERCURY	BONATE (HCO3) (MG/L) 121 147 TOTAL ZINC (ZN)	OIOXIDE (CO2) (MG/L) 6.1 9.4 TOTAL ORGANIC CARBON	SOLVED SULFATE (SO4) (MG/L) 140 93	SOLVED CHLO- KIDE (CL) (46/L)
MAY , 1 29 NOV 20	1975 1730 1200 TOTAL ALUM- INUM (AL) (UG/L)	INSTAN- TANEOUS DIS- CHARGE (CFS) E3.0 E6.4 TOTAL ARSENIC (AS)	TEMPER-ATURE (DEG C) 24.0 8.0 TOTAL CHRO-MIUM (CR) (UG/L)	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS) 590 450 TOTAL COPPEK (CU)	PH (UNITS) 7.5 7.4 TOTAL IRON (FE) (UG/L)	DIS- SOLVED OXYGEN (MG/L) 7.7 10.8 TOTAL MAN- GANESE (MN) (UG/L)	TOTAL ACIDITY AS H+ (MG/L) TOTAL MERCURY (HG) (UG/L)	BONATE (HCO3) (MG/L) 121 147 TOTAL ZINC (ZN) (UG/L)	OLOXIDE (CD2) (MG/L) 6.1 9.4 TOTAL ORGANIC CARBON (C) (MG/L)	SOLVED SULFATE (SO4) (MG/L) 1+0 93 PHENOLS (UG/L)	SOLVED CHLO- RIDE (CL) (4G/L) 12 10 HYDRO- GEN SULFIDE (4G/L)
MAY • 1 29 NOV 20	1975 1730 1200 TOTAL ALUM- INUM (AL) (UG/L)	INSTAN- TANEOUS DIS- CHARGE (CFS) E3.0 E6.4 TOTAL ARSENIC (AS)	TEMPER-ATURE (DEG C) 24.0 8.0 TOTAL CHRO-MIUM (CR)	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS) 590 450	PH (UNITS) 7.5 7.4 TOTAL IRON (FE)	DIS- SOLVED OXYGEN (MG/L) 7.7 10.8 TOTAL MAN- GANESE (MN)	TOTAL ACIDITY AS H+ (MG/L) TOTAL MERCURY (MG)	BONATE (HCO3) (MG/L) 121 147 TOTAL ZINC (ZN)	OTOXIDE (CO2) (MG/L) 6.1 9.4 TOTAL ORGANIC CARBON (C)	SOLVED SULFATE (SO4) (MG/L) 1+0 93	SOLVED CHLO- RIDE (CL) (4G/L) 12 10 HYDRO- GEN SULFIDE

49 ASM MIDDLE FORK DUCK CREEK NEAR MIDDLEBURG OH

	TIME	INSTAN- TANEOUS DIS- CHARGE	TEMPER-	SPE- CIFIC CON- DUCT- ANCE (MICRO-	РН	DIS- SOLVED OXYGEN	TOTAL ACIDITY AS H+	BICAR- BONATE (HCO3)	CARBON DIOXIDE (CO2)	DIS- SOLVED SULFATE (SO4)	DIS- SOLVED CHLO- RIDE (CL)
DATE		(CFS)	(DEG C)	MH05)	(UNITS)	(MG/L)	(MG/L)	(MG/L)	(MG/L)	(MG/L)	(MG/L)
MAY , 19 28	1300	E6.0	27.5	900	6.1	7.1		47	60	350	9.0
18	1600	E8.4	10.0	910	6.6	10.1		76	31	350	12
				,,,	•••				•		•
DATE	TOTAL ALUM- INUM (AL) (UG/L)	TOTAL ARSENIC (AS) (UG/L)	TOTAL CHRO- MIUM (CR) (UG/L)	TOTAL COPPER (CU) (UG/L)	TOTAL IRON (FE) (UG/L)	TOTAL MAN- GANESE (MN) (UG/L)	TOTAL MERCURY (HG) (UG/L)	TOTAL ZINC (ZN) (UG/L)	TOTAL ORGANIC CARBON (C) (MG/L)	PHENOLS	HYDRO- GEN SULFIDE (MG/L)
MAY , 19											
28	7200	1	40	20	5600	5000	1.6	180	14	8	•5
18	6800	1	10	10	3700	5200	<.5	160	2.5	2	.0
		50	UNM	WHIPP	LE RUN NE	AR WHIPPL	E OH				
				w	ATER QUAL	ITY DATA					
				SPE- CIFIC							DIS-
		INSTAN-		CON-			TOTAL		CADDON	DIS-	SOLVED
		TANEOUS DIS-	TEMPER-	DUCT-	РН	DIS- SOLVED	ACIDITY	BICAR- BONATE	DIOXIDE	SOLVED	RIDE
	TIME	CHARGE	ATURE	(MICRO-		OXYGEN	H+	(HC03)	(CO2)	(504)	(CL)
DATE		(CFS)	(DEG C)	MHOS)	(UNITS)	(MG/L)	(MG/L)	(MG/L)	(MG/L)	(MG/L)	(MG/L)
MAY . 19									7.0		
29	0900	E1.0	18.0	495	7.7	7.3		218	7.0	60	11
19	1500	£3.8	8.0	440	7.8	12.0		186	4.7	71	12
									T0.T41		
	TOTAL ALUM-	TOTAL	TOTAL CHRO-	TOTAL	TOTAL	TOTAL MAN-	TOTAL	TOTAL	ORGANIC		HYDRO-
	INUM	ARSENIC	MIUM	COPPER	IRON	GANESE	MERCURY	ZINC	CARBON	PHENOLS	GEN SULFIDE
DATE	(AL) (UG/L)	(AS) (UG/L)	(CR) (UG/L)	(CU) (UG/L)	(FE) (UG/L)	(MN) (UG/L)	(HG)	(ZN) (UG/L)	(C) (MG/L)	(UG/L)	(MG/L)
MAY • 19	90	32	10	20	160	70	<.5	10	4.1	0	.0
NOA					4.0			20			
19	90	0	0	0	60	40	<.5	20	1.5	0	• 0
		51	CNM	DUCK	CREEK AT	STANLEYVI	LLE OH				
					TED OULL						
				W	ATER QUAL	ITY DATA					
				SPE-							DIS-
		INSTAN-		CIFIC CON-			TOTAL			DIS-	SOLVED
		TANEOUS		DUCT-		DIS-	ACIDITY	BICAR-	CARBON	SOLVED	CHLO-
	TIME	CHARGE	TEMPER-	ANCE (MICRO-	РН	SOLVED	AS H+	(HCO3)	(COS)	SULFATE (SO4)	(CL)
DATE		(CFS)	(DEG C)	MHOS)	(UNITS)	(MG/L)	(MG/L)	(MG/L)	(MG/L)	(MG/L)	(MG/L)
JUN + 19	975										
12	1600	E338	20.5	750	7.1	7.1		98	12	230	14
	TOTAL		TOTAL			TOTAL			TOTAL		
	ALUM- INUM	TOTAL	CHRO-	TOTAL COPPER	TOTAL	MAN- GANESE	TOTAL MERCURY	ZINC	ORGANIC	PHENOLS	HYDRO- GEN
	(AL)	(AS)	(CR)	(CU)	(FE)	(MN)	(HG)	(ZN)	(C)		SULFIDE
DATE	(UG/L)	(UG/L)	(UG/L)	(UG/L)	(UG/L)	(UG/L)	(UG/L)	(UG/L)	(MG/L)	(UG/L)	(MG/L)
JUN , 1	975	2	20	20	490	220	<.5	40	6.0	0	• 0

52 UNM CONOTTON CREEK NEAR CADIZ JUNCTION OH

				W	ATER QUALI	ITY DATA					
DATE	TIME	INSTAN- TANEOUS DIS- CHARGE (CFS)	TEMPER- ATURE (DEG C)	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS)	PH (UNITS)	DIS- SOLVED OXYGEN (MG/L)	TOTAL ACIDITY AS H+	BICAR- BONATE (HCO3) (MG/L)	CARBON DIOXIDE (CO2) (MG/L)	DIS- SOLVED SULFATE (SO4) (MG/L)	DIS- SOLVED CHLO- RIDE (CL) (MG/L)
JUL , 19	75		,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,								
02 0CT	1100	E.40	19.0	938	7.7	8.8		180	5.7	290	18
29	1120	E.75	12.5	800	7.5	9.5		136	6.9	270	16
DATE	TOTAL ALUM- INUM (AL) (UG/L)	TOTAL ARSENIC (AS) (UG/L)	TOTAL CHRO- MIUM (CR) (UG/L)	TOTAL COPPER (CU) (UG/L)	TOTAL IRON (FE) (UG/L)	TOTAL MAN- GANESE (MN) (UG/L)	TOTAL MERCURY (HG) (UG/L)	TOTAL ZINC (ZN) (UG/L)	TOTAL ORGANIC CARBON (C) (MG/L)	PHENOLS	HYDRO- GEN SULFIDE (MG/L)
JUL + 19			-110	10	410	120		10	u A	Q.	
02 0CT	100	0	<10	10	410	130	<.5	10	8.8	8	• 0
29	40	0	0	U	210	160	<.5	10	3.0	0	.0
		53	RSA	THOMP	SON RUN A	T SHERROD	SVILLE OH				
				W	ATER QUAL	ITY DATA					
DATE	TIME	INSTAN- TANEOUS DIS- CHARGE (CFS)	TEMPER- ATURE (DEG C)	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS)	PH (UNITS)	DIS- SOLVED OXYGEN (MG/L)	TOTAL ACIDITY AS H+ (MG/L)	BICAR- BONATE (HCO3) (MG/L)	CARBON DIOXIDE (CO2) (MG/L)	DIS- SOLVED SULFATE (SO4) (MG/L)	DIS- SOLVED CHLO- RIDE (CL) (MG/L)
JUL , 19		51 n	2) 5	722	4.4	9.1		96	34	140	70
0CT	1405	£1.0	21.5	732	6.6	8.1					
22	1600	E3.6	16.0	425	7.0	9.2		52	8.3	88	40
DATE	TOTAL ALUM- INUM (AL) (UG/L)	TOTAL ARSENIC (AS) (UG/L)	TOTAL CHRO- MIUM (CR) (UG/L)	TOTAL COPPER (CU) (UG/L)	TGTAL IRON (FE) (UG/L)	TOTAL MAN- GANESE (MN) (UG/L)	TOTAL MERCURY (HG) (UG/L)	TOTAL ZINC (ZN) (UG/L)	TOTAL ORGANIC CARBON (C) (MG/L)	PHENOLS	HYDRO- GEN SULFIDE (MG/L)
JUL + 19	975 140	3	0	10	810	1800	<.5	20	8.0	0	.1
22	330	0	0	0	980	760		20	7.1	U	.0
22	330		U	v	900	750	<.5	20		U	•0
		54	ASA	X Run	NEAR MIN	ERAL CITY	7 04				
					ATER QUAL	ITY DATA					
UATE	TIME	INSTAN- TANEOUS DIS- CHARGE (CFS)	TEMPER- ATURE (DEG C)	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS)	PH (UNITS)	DIS- SOLVED OXYGEN (MG/L)	TOTAL ACIDITY AS H+ (MG/L)	BICAR- BONATE (HCO3) (MG/L)	CARBON DIOXIDE (CO2) (MG/L)	DIS- SOLVED SULFATE (SO4) (MG/L)	DIS- SOLVED CHLO- RIDE (CL) (MG/L)
JUL + 1	975										
09	1315	t.40	25.5	3500	3.8	7.1	1.2	0	.0	2000	40
23	1045	E1.6	12.5	1800	6.4	9.8		55	14	970	55
DATE	TOTAL ALUM- INUM (AL) (UG/L)	TOTAL ARSENIC (AS) (UG/L)	TOTAL CHRO- MIUM (CR) (UG/L)	TOTAL COPPER (CU) (UG/L)	TOTAL IRON (FE) (UG/L)	TOTAL MAN- GANESE (MN) (UG/L)	TOTAL MERCURY (HG) (UG/L)	TOTAL ZINC (ZN) (UG/L)	TOTAL ORGANIC CARBON (C) (MG/L)	PHENOLS	HYDRO- GEN SULFIDE (MG/L)
JUL , 19		_	2-					2			3.1
09	3600	0	30	20	4800	46000	1.5	300	3.6	13	.0
23	2100	1	10	U	5200	16000	<.5	110	8.0	1	.0

55 CNA HUFF RUN AT MINERAL CITY OH

				w	ATER QUAL	ITY DATA		,			
				SPE-							
		INSTAN- TANEOUS DIS-	TEMPER-	CIFIC CON- DUCT- ANCE	РН	DIS-	TOTAL	BICAR-	CARBON	DIS- SOLVED	DIS- SOLVED CHLO-
	TIME	CHARGE	ATURE	(MICRO-	Fn	SOLVED	AS H+	BONATE (HCO3)	(COS)	SULFATE (SO4)	(CL)
DATE		(CFS)	(DEG C)	MHOS)	(UNITS)	(MG/L)	(MG/L)	(MG/L)	(MG/L)	(MG/L)	(MG/L)
JUL , 1	975										
09	1530	£5.0	23.0	1640	3.4	7.0	2.1	0	.0	650	75
OCT	1000										
23	1220	E8.4	12.5	1100	4.1	9.7	1.1	0	• 0	430	70
	TOTAL		TOTAL			TOTAL			TOTAL		
	TOTAL ALUM-	TOTAL	TOTAL CHRO-	TOTAL	TOTAL	MAN-	TOTAL	TOTAL	TOTAL		HYDRO-
	INUM	ARSENIC	MIUM	COPPER	IRON	GANESE	MERCURY	ZINC	CARBON	PHENOLS	GEN
	(AL) (UG/L)	(AS)	(CR)	(CU)	(FE)	(MN)	(HG)	(ZN)	(C)		SULFIDE
DATE	(UG/L)	(UG/L)	(UG/L)	(UG/L)	(UG/L)	(UG/L)	(UG/L)	(UG/L)	(MG/L)	(UG/L)	(MG/L)
JUL • 1											
09	5200	U	10	10	25000	23000	3.2	370	4.6	3	• 1
23	3500	0	0	U	13000	12000	<.5	160	7.2	0	•2
		56	UNA	STONE	CREEK NE	AR STONE	CREEK OH				
				W	ATER GUAL	IIY DATA					
				SPE-							
		TAIS TAN-		CIFIC			TOTAL			015-	DIS- SOLVED
		INSTAN- TANEOUS		CON- DUCT-		DIS-	TOTAL ACIDITY	BICAR-	CARBON	DIS- SOLVED	CHLO-
		DIS-	TEMPER-	ANCE	PH	SOLVED	AS	BONATE	DIOXIDE	SULFATE	RIDE
DATE	TIME	CHARGE (CF5)	ATURE	(MICRO-	/LINITTE)	OXYGEN	H+	(HCO3) (MG/L)	(CO2) (MG/L)	(SO4) (MG/L)	(CL) (MG/L)
DATE		(((5)	(DEG C)	MHOS)	(UNITS)	(MG/L)	(MG/L)	(MG/L)	(MO/L)	(MO/L)	(MO/L)
JUL . 19											24
15 OCT	1150	£2.0	23.0	380	7.5	7.6		96	4.9	54	24
22	1145	£5.2	14.0	240	0.5	9.7		52	26	45	12
	TOTAL		TOTAL			TOTAL			TOTAL		
	ALUM-	TOTAL	CHRO- MIUM	COPPER	TOTAL IRON	MAN- GANESE	TOTAL MERCURY	ZINC	CARBON	PHENOLS	HYDRO- GEN
	(AL)	(AS)	(CR)	(CU)	(FE)	(MN)	(HG)	(ZN)	(C)		SULFIDE
DATE	(UG/L)	(UG/L)	(UG/L)	(UG/L)	(UG/L)	(UG/L)	(UG/L)	(UG/L)	(MG/L)	(UG/L)	(MG/L)
JUL • 19	975										
15	200	0	0	0	660	200	<.5	10	5.0	0	.1
22	160	1	0	0	710	190	<.5	20	4.5	0	.0
	100	•		•		170			***	•	••
		57	CNA	COUCK	FD DUN NE	AD NEW PH	ILADELPHI	A OH			
		3.	CITA	CAOON	LD KON NE	- NEW	TEADLE 11				
				w	ATER QUAL	ITY DATA					
				SPE-							
				CIFIC							DIS-
		INSTAN-		CON-		DIS-	TOTAL	BICAR-	CARBON	DIS- SOLVED	SOLVED CHLO-
		TANEOUS	TEMPER-	ANCE	PH	SOLVED	ACIDITY	BONATE	DIOXIDE	SULFATE	RIDE
	TIME	CHARGE	ATURE	(MICRO-		OXYGEN	H+	(HC03)	(CO2)	(504)	(CL)
DATE		(CFS)	(DEG C)	MHOS)	(UNITS)	(MG/L)	(MG/L)	(MG/L)	(MG/L)	(MG/L)	(MG/L)
JUL • 1											
15	1400	E.40	25.5	1850	3.0	6.9	4.9	0	.0	630	86
22	1310	£2.1-	16.5	700	4.3	9.3	1.0	0	.0	270	28
						,,,,					
	TOTAL		TOTAL			TOTAL			TOTAL		
	ALUM-	TOTAL	CHRO-	TOTAL	TOTAL	MAN-	TOTAL	TOTAL	ORGANIC	D	HYDRO- GEN
		ADC			TUIN	GANESE	MERCURY	ZINC	CARBON	PHENOLS	lak N
	INUM	ARSENIC (AS)	MIUM (CR)	COPPER	IRON (FE)			(7N)	(C)		
DATE		ARSENIC (AS) (UG/L)	MIUM (CR) (UG/L)	(CU) (UG/L)	(FE) (UG/L)	(MN) (UG/L)	(HG)	(ZN) (UG/L)	(C) (MG/L)	(UG/L)	SULFIDE (MG/L)
	INUM (AL) (UG/L)	(AS)	(CR)	(CU)	(FE)	(MN)	(HG)			(UG/L)	SULFIDE
DATE JUL , 10	INUM (AL) (UG/L)	(AS)	(CR)	(CU)	(FE)	(MN)	(HG)			(UG/L)	SULFIDE
JUL , 1	INUM (AL) (UG/L) 975	(AS) (UG/L)	(CR) (UG/L)	(CU) (UG/L)	(FE) (UG/L)	(MN) (UG/L)	(HG) (UG/L)	(UG/L)	(MG/L)		SULFIDE (MG/L)

58 CNA OLDTOWN CREEK NEAR NEW PHILADELPHIA OH

					ATER GUAL	IIT DATA					
		INSTAN-		SPE- CIFIC			TOTA:			0.15	DIS-
	TIME	TANEOUS DIS- CHARGE	TEMPER-	CON- DUCT- ANCE (MICRO-	. РН	DIS- SOLVED OXYGEN	TOTAL ACIDITY AS H+	BICAR- BONATE (HCO3)	CARBON DIOXIDE (CO2)	SOLVED SULFATE (SO4)	SOLVED CHLO- RIDE (CL)
DATE		(CFS)	(DEG C)	MHOS)	(UNITS)	(MG/L)	(MG/L)	(MG/L)	(MG/L)	(MG/L)	(MG/L)
JUL • 19 15	1545	£3.0	19.5	1370	6.6	6.7		18	1.2	430	16
23	0850	£7.7	11.5	785	6.6	9.6		36	14	310	20
	TOTAL		TOTAL			TOTAL			TOTAL		
	ALUM- INUM (AL)	TOTAL ARSENIC (AS)	CHRO- MIUM (CR)	TOTAL COPPER (CU)	TOTAL IRON (FE)	MAN- GANESE (MN)	TOTAL MERCURY (HG)	TOTAL ZINC (ZN)	ORGANIC CARBON (C)	PHENOLS	HYDRO- GEN SULFIDE
DATE	(UG/L)	(UG/L)	(UG/L)	(UG/L)	(UG/L)	(UG/L)	(UG/L)	(UG/L)	(MG/L)	(UG/L)	(MG/L)
JUL , 19											
15	1800	0	<10	10	1100	5200	<.5	100	7.8	3	.0
23	1500	1	0	10	4600	2700	<.5	60	1.7	0	.0
		59	CNA	MUD R	UN NEAR TH	JSCARAWAS	ОН				
				W	ATER QUAL	ATAU YTI					
				SPE-							016-
		INSTAN-		CIFIC CON-			TOTAL			DIS-	DIS- SOLVED
		TANEOUS DIS-	TEMPER-	DUCT-	РН	DIS- SOLVED	ACIDITY	BONATE	DIOXIDE	SOLVED	CHLO- RIDE
	TIME	CHARGE	ATURE	(MICRO-		OXYGEN	H+	(HC03)	(COS)	(504)	(CL)
DATE		(CFS)	(DEG C)	MHOS)	(UNITS)	(MG/L)	(MG/L)	(MG/L)	(MG/L)	(MG/L)	(MG/L)
JUL + 19 16	0945	E.60	20.5	2920	2.8	5.5	15	O	.0	1400	14
22	1720	£2.3	16.5	1200	3.2	8.7	4.0	0	.0	550	15
	TOTAL		TOTAL			TOTAL			TOTAL		
	ALUM-	TOTAL	CHRO-	TOTAL	TOTAL	MAN-	TOTAL	TUTAL	ORGANIC	DUCANA C	HYURO-
	INUM (AL)	ARSENIC (AS)	MIUM (CR)	(CU)	(FE)	GANESE (MN)	MERCURY (HG)	ZINC (ZN)	(C)	PHENULS	GEN SULFIDE
DATE	(UG/L)	(JG/L)	(UG/L)	(UG/L)	(UG/L)	(UG/L)	(UG/L)	(UG/L)	(MG/L)	(UG/L)	(MG/L)
JUL • 19 16	32000	4	20	30	300000	15000	1.1	660	15	. 0	• 0
22	990	3	10	10	72000	3800	<.5	160	3.5	0	.0
		60	WSM	STILL	WATER CREI	FK NEAR M	INPRISTOWN	ОН			
					ATER QUAL	III DAIA					
				SPE- CIFIC							DIS-
		INSTAN-		CON-		216-	TOTAL	21040	CANGON	DIS-	SOLVED
		DIS-	TEMPER-	DUCT-	РН	DIS- SOLVED	ACIDITY	BICAR- BONATE	DIOXIDE	SOLVED	HIDE
DATE	TIME	(CFS)	(DEG C)	(MICRO- MHOS)	(UNITS)	OXYGEN (MG/L)	(MG/L)	(HCO3)	(CO2) (MG/L)	(SO4) (MG/L)	(CL) (MG/L)
		(0/3/		MU.221	(0/11/3)	(40/1/	(MO/L)	(HO)L)	(40/1/	(11072)	(40/2)
JUL , 19	1430	E3.0	27.0	1500	7.5	7.8		215	11	. 560	11
SEP 23	1550	E7.0	17.5							490	15
23	1950	E / • U	11.5	1350	7.4	9.6		192	12	770	15
	TOTAL		TOTAL	TOT::	****	TOTAL	****	TOT	TOTAL		
	ALUM- INUM	ARSENIC	CHRO-	COPPER	TOTAL	MAN- GANESE	MERCURY	ZINC	CARBON	PHENOLS	GEN
DATE	(AL)	(AS)	(CR)	(CU)	(FE)	(MN)	(HG)	(ZN)	(C) (MG/L)	alc a s	SULFIDE
	(UG/L)	(OG/L)	(UG/L)	(UG/L)	(UG/L)	(JG/L)	(UG/L)	(UG/L)	(MG/L)	(UG/L)	(MG/L)
JUL , 19	230	3	20	10	670	550	<.5	20	3.6	0	.1
SEP 23	200	1	20	10	290	630	<.5	20	6.8	3	.2
						000				-	•

61 WSM SPENCER CHEEK NEAR HENDRYSBURG

				W	ATER QUAL	ITY DATA					
DATE OCT • 1	TIME 975 1115	INSTAN- TANEOUS DIS- CHARGE (CFS)	TEMPER- ATURE (DEG C)	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS)	PH (UNITS)	DIS- SOLVED OXYGEN (MG/L)	TOTAL ACIDITY AS H+ (MG/L)	BICAR- BONATE (HCO3) (MG/L)	CARBON DIOXIDE (CO2) (MG/L)	DIS- SOLVED SULFATE (SO4) (MG/L)	DIS- SOLVED CHLO- RIDE (CL) (MG/L)
13	1113	20.5	10.5	1100		0.0		240	1.5	410	20
DATE	TOTAL ALUM- INUM (AL) (UG/L)	TOTAL ARSENIC (AS) (UG/L)	TOTAL CHRO- MIUM (CR) (UG/L)	TOTAL COPPER (CU) (UG/L)	TOTAL IRON (FE) (UG/L)	TOTAL MAN- GANESE (MN) (UG/L)	TOTAL MERCURY (HG) (UG/L)	TOTAL ZINC (ZN) (UG/L)	TOTAL ORGANIC CARBON (C) (MG/L)	PHENOLS (UG/L)	HYDRO- GEN SULFIDE (MG/L)
15	180	1	20	10	300	310	<.5	170	2.4	0	.0
		62	RSM		EN VALLEY		AR HENDRYS	SBURG OH			
				6.25							
DATE	TIME	INSTAN- TANEOUS DIS- CHARGE (CFS)	TEMPER- ATURE (DEG C)	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS)	PH (UNITS)	DIS- SOLVED OXYGEN (MG/L)	TOTAL ACIDITY AS H+ (MG/L)	BICAR- BONATE (HCO3) (MG/L)	CARBON DIOXIDE (CO2) (MG/L)	DIS- SOLVED SULFATE (SO4) (MG/L)	DIS- SOLVED CHLO- RIDE (CL) (MG/L)
OCT , 1	975										
15	1400	El.8	19.5	2100	7.1	8.7		132	17	1100	15
DATE	TOTAL ALUM- INUM (AL) (UG/L)	TOTAL ARSENIC (AS) (JG/L)	TOTAL CHRO- MIUM (CR) (UG/L)	TOTAL COPPER (CU) (UG/L)	TOTAL IRON (FE) (UG/L)	TOTAL MAN- GANESE (MN) (UG/L)	TOTAL MERCURY (HG) (UG/L)	TOTAL ZINC (ZN) (UG/L)	TOTAL ORGANIC CARBON (C) (MG/L)	PHENOLS (UG/L)	HYDRO- GEN SULFIDE (MG/L)
OCT , 1											
15	220	0	10	10	240	370	<.5	20	1.8	0	.0
		63	RSM		FORK NEAR		ү он				
				SPE-							
DATE	TIME	INSTAN- TANEOUS DIS- CHARGE (CFS)	TEMPER- ATURE (DEG C)	CIFIC CON- DUCT- ANCE (MICRO- MHOS)	PH (UNITS)	DIS- SOLVED OXYGEN (MG/L)	TOTAL ACIDITY AS H+ (MG/L)	BICAR- BONATE (HCO3) (MG/L)	CARBON DIOXIDE (CO2) (MG/L)	DIS- SOLVED SULFATE (SO4) (MG/L)	DIS- SOLVED CHLO- RIDE (CL) (MG/L)
JUL , 1	975										
28	1400	£3.0	25.0	2100	8.2	8.5		240	2.4	880	25
03	1250	E3.3	13.5	1740	6.9	9.9		294	59	910	20
DATE	TOTAL ALUM- INUM (AL) (UG/L)	TOTAL ARSENIC (AS) (UG/L)	TOTAL CHRO- MIUM (CR) (UG/L)	TOTAL COPPER (CU) (UG/L)	TOTAL IRON (FE) (UG/L)	TOTAL MAN- GANESE (MN) (UG/L)	TOTÁL MERCURY (HG) (UG/L)	TOTAL ZINC (ZN) (UG/L)	TOTAL ORGANIC CARBON (C) (MG/L)	PHENOLS (UG/L)	HYDRO- GEN SULFIDE (MG/L)
JUL , 1	975	0	1.0	10	250	350	, 5	20	1.8	7	- 0
NOV	120	U	10	. 10	250	350	<.5	20	1.0	,	.0
03	30	0	< 10	10	230	380	<.5	20	2.6	10	.0

64 RSM TRAIL RUN AT HOLLOWAY OH

				/ "							
DATE	TIME	INSTAN- TANEOUS DIS- CHARGE (CFS)	TEMPER- ATURE (DEG C)	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS)	PH (UNITS)	DIS- SOLVED OXYGEN (MG/L)	TOTAL ACIDITY AS H+ (MG/L)	BICAR- BONATE (HCO3) (MG/L)	CARBON DIOXIDE (CO2) (MG/L)	DIS- SOLVED SULFATE (SO4) (MG/L)	DIS- SOLVED CHLO- HIDE (CL)
10	7.										
JUL , 19 28	1130	E.90	24.0	2100	8.1	7.8		266	3.4	870	16
03	1120	£2.5	13.5	1680	7.3	12.4		226	18	730	20
DATE	TOTAL ALUM- INUM (AL) (UG/L)	TOTAL ARSENIC (AS) (JG/L)	TOTAL CHRO- MIUM (CR) (UG/L)	TOTAL COPPER (CU) (UG/L)	TOTAL IRON (FE) (UG/L)	TOTAL MAN- GANESE (MN) (UG/L)	TOTAL MERCURY (HG) (UG/L)	ZINC (ZN) (UG/L)	TOTAL ORGANIC CARBON (C) (MG/L)	PHENOLS	HYDRO- GEN SULFIDE (MG/L)
		100/2/	(00/2/	(00/L)	(00/2/	(00/L/	(00/2/	(00/1	(MO/L)	(00/L)	(40/1)
JUL • 19	140	,	10	10	260	420					
28	140	1	10	10	360	620	<.5	20	2.2	4	• 0
03	40	0	0	10	210	520	<.5	20	2.1	2	• 0
		65	RSM	SKULL	FORK NEAR	R LUNDOND	ERRY OH				
				W	ATER QUALI	TY DATA					
		INSTAN-		SPE- CIFIC CON- DUCT-		υIS-	TOTAL	BICAR-	CARBON	DIS-	DIS- SOLVED CHLO-
		015-	TEMPER-	ANCE	PH	SOLVED	AS	BONATE	DIOXIDE	SULFATE	HIDE
	TIME	CHARGE	ATURE	(MICRO-		OXYGEN	H+	(HC03)	(502)	(504)	(CL)
DATE		(CFS)	(DEG C)	MHOS)	(UNITS)	(MG/L)	(MG/L)	(MG/L)	(MG/L)	(MG/L)	(MG/L)
JUL • 19	75										
28	1510	£1.0	25.5	2230	7.6	7.9		88	3.5	1020	18
0CT	1620	E1.2	18.5	2000	7.2	9.0		116	12	1000	20
	TOTAL		TOTAL			TOTAL			TOTAL		
	ALUM-	TOTAL	CHHO-	TOTAL	TOTAL	MAN-	TOTAL	TOTAL	ORGANIC		HYDRO-
	INUM	ARSENIC	MIUM	COPPER	IKON	GANESE	MERCURY	ZINC (ZN)	(C)	PHENOLS	GEN SULFIDE
DATE	(AL) (UG/L)	(AS) (UG/L)	(CR)	(CU) (UG/L)	(FE) (UG/L)	(MN) (UG/L)	(HG) (UG/L)	(JG/L)	(MG/L)	(UG/L)	(MG/L)
		(00/2/	100/2/	130727	100.2.						
JUL • 19	760	0	10	290	290	9300	<.5	230	1.8	4	• 0
15	9200	55	30	30	3900	10000	<.5	150	4.6	0	.0
		66	5 RSM	cones	יטאוטבב אווא	אבעט ו טו	NDONDERRY	Он			
		00	D KOM	CRUSS	ONDES RON	NEAR LOI	NO ON DENA				
					ATER QUAL	ATAC YTE					
				SPE-							
				CIFIC							DIS-
		INSTAN-		CO-4-			TOTAL	HICAR-	CARBON	SOLVED	SOLVED CHLO-
		TANEOUS DIS-	TEMPER-	DUCT-	РН	DIS-	ACIDITY		DIOXIDE		HIDE
	TIME	CHARGE		(MICRO-	F.11	OXYGEN		(HC03)	(502)	(504)	(CL)
DATE		(CFS)	(DEG C)	MH05)	(UNITS)	(MG/L)	(MG/L)	(MG/L)	(MG/L)	(MG/L)	(MG/L)
OCT • 1	975								•		
	1515	E.80	18.0	425	7.1	8.2		136	17	90	12
	TOTAL		TOTAL			TOTAL			TOTAL		HYDDO
	ALUM-	LATET	CHRO-	TOTAL	TOTAL	MAN-	TOTAL	TOTAL	CARBON		HYDRO- GEN
	INUM	ARSENIC (AS)	MIUM (CR)	(CU)	(FE)	GANE'SE	MERCURY (HG)	ZINC (ZN)	(C)	1023	SULFIDE
DATE	(AL) (UG/L)	(UG/L)		(UG/L)	(UU/L)	(UG/L)		(UG/L)		(UG/L)	(MG/L)
15	230	0	10	U	290	3400	<.5	60	1.4	0	.0

67 RSM ** SOUTH FORK NEAR FLUSHING OH

					AILK GOAL	III DAIA					
UATE	TIME	INSTAN- TANEOUS DIS- CHARGE (CFS)	TEMPER- ATURE (DEG C)	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS)	PH (UNITS)	DIS- SOLVED OXYGEN (MG/L)	TOTAL ACIDITY AS H+ (MG/L)	BICAR- BONATE (HCO3) (MG/L)	CARBON ()IOXIDE (CO2) (MG/L)	DIS- SOLVED SULFATE (SO4) (MG/L)	DIS- SOLVED CHLO- RIDE (CL) (MG/L)
JUL • 1 28	975 1245	£3.0	23.0	2700	8.0	7.3		268	4.3	1250	8.0
29	1240	£7.3	12.5	2400	7.8	9.8		284	7.2	1200	20
DATE	TOTAL ALUM- INUM (AL) (UG/L)	TOTAL ARSENIC (AS) (UG/L)	TOTAL CHRO- MIUM (CR) (UG/L)	TOTAL COPPER (CU) (UG/L)	TOTAL IRON (FE) (UG/L)	TOTAL MAN- GANESE (MN) (UG/L)	TOTAL MERCURY (HG) (UG/L)	TOTAL ZINC (ZN) (UG/L)	TOTAL ORGANIC CARBON (C) (MG/L)	PHENOLS (UG/L)	HYDRO- GEN SULFIDE (MG/L)
JUL , 1	975 100	0	10	10	210	500	<.5	30	11	5	.0
29	180	0	10	10	280	420	<.5	10	6.4	0	.0
		68	CNA	PLUM	RUN NEAR	BOWERSTON	ОН				
					ATER QUAL	III DATA					
DATE	TIME	INSTAN- TANEOUS DIS- CHARGE (CFS)	TEMPER- ATURE (DEG C)	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS)	PH (UNITS)	DIS- SOLVED OXYGEN (MG/L)	TOTAL ACIDITY AS H+ (MG/L)	BICAR- BONATE (HCO3) (MG/L)	CARBON DIOXIDE (CO2) (MG/L)	DIS- SOLVED SULFATE (SO4) (MG/L)	DIS- SOLVED CHLO- RIDE (CL) (MG/L)
JUL , 19											
0CT	1130	E • 40	25.0	1150	5.2	7.8		4	40	410	12
55	1440	E1.7	15.5	460	6.6	8.9		42	17	160	10
DATE	TOTAL ALUM- INUM (AL) (UG/L)	TOTAL ARSENIC (AS) (UG/L)	TOTAL CHRO- MIUM (CR) (UG/L)	TOTAL COPPER (CU) (UG/L)	TOTAL IRON (FE) (UG/L)	TOTAL MAN- GANESE (MN) (UG/L)	TOTAL MERCURY (HG) (UG/L)	TOTAL ZINC (ZN) (UG/L)	TOTAL ORGANIC CARBON (C) (MG/L)	PHENOLS	HYDRO- GEN SULFIDE (MG/L)
JUL • 19	975 840	0	10	10	640	9000	<.5	100	5.0	0	.0
22	360	1	0	0	1900	1100	<.5	30	4.4	0	• 0
		69	CNA	ROBIN	SON RUN N	EAR COSHO	CTON OH				
					ATER QUAL						
DATE	TIME	INSTAN- TANEOUS DIS- CHARGE (CFS)	TEMPER- ATURE (DEG C)	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS)	PH (UNITS)	DIS- SOLVED OXYGEN (MG/L)	TOTAL ACIDITY AS H+ (MG/L)	BICAR- BONATE (HCO3) (MG/L)	CARBON DIOXIDE (CO2) (MG/L)	DIS- SOLVED SULFATE (SO4) (MG/L)	DIS- SOLVED CHLO- RIDE (CL) (MG/L)
JUL , 1											
SEP	1130	E3.0	18.0	1500	3.7	8.3	1.7	0	• 0	500	12
29	1045	E6.0	12.0	1050	4.4	10.4	1.7	0	.0	490	25
UATE	TOTAL ALUM- INUM (AL) (UG/L)	TOTAL ARSENIC (AS) (UG/L)	TOTAL CHRO- MIUM (CR) (UG/L)	TOTAL COPPER (CU) (UG/L)	TOTAL IRON (FE) (UG/L)	TOTAL MAN- GANESE (MN) (UG/L)	TOTAL MERCURY (HG) (UG/L)	TOTAL ZINC (ZN) (UG/L)	TOTAL ORGANIC CARBON (C) (MG/L)	PHENOLS (UG/L)	HYDRO- GEN SULFIDE (MG/L)
JUL , 1			26	10	21000	E000	3.1	170	9.4	0	.0
SEP	4200	0	20	10	21000	5900	2.1			1	.0
29	4800	0	10	20	26000	6700	<.5	100	2.2	1	. 0

70 RSM MILLER CREEK NEAR CUMBERLAND OH

					ATER WOAL	LII DAIA					
				SPE-							
		****		CIFIC							DIS-
		INSTAN- TANEOUS		DUCT-		DIS-	ACIDITY	BICAR-	CARBON	DIS- SOLVED	SOLVED CHLO-
		DIS-	TEMPER-	ANCE	PH	SOLVED	AS	BONATE	DIOXIDE	SULFATE	RIDE
2475	TIME	CHARGE	ATURE	(MICRO-		OXYGEN	H+	(HC03)	(COS)	(504)	(CL)
DATE		(CFS)	(DEG C)	MHOS)	(UNITS)	(MG/L)	(MG/L)	(MG/L)	(MG/L)	(MG/L)	(MG/L)
MAY , 1	975										
21	1700	E10	24.0	2010	7,8	8.6		142	3.6	920	12
SEP 23	1130	E10	14.5	1920	7.5	7.4		182	35	860	25
23	1150	210	14.5	1920	7.5	1.4		102	33	860	23
	TOTAL		TOTAL			TOTAL			TOTAL		
	ALUM-	TOTAL	CHRO-	TOTAL	TUTAL	MAN-	TOTAL	TOTAL	ORGANIC		HYDRO-
	INUM	ARSENIC	MIUM	COPPER	IRON	GANESE	MERCURY	ZINC	CARBON	PHENOLS	GEN
DATE	(AL) (UG/L)	(AS) (UG/L)	(CR) (UG/L)	(CU) (UG/L)	(FE) (UG/L)	(MN) (UG/L)	(HG)	(ZN) (UG/L)	(C) (MG/L)	(UG/L)	SULFIDE (MG/L)
		100/2/	100/2/	100/2/	100727	100/6/	100727	100/2/	(1007 27	
MAY . 1		0		10	- 10	2700		4.4	3.0		•
21 SEP	1600	0	1.0	10	560	2700	<.5	40	9.0	0	• 0
23	2100	1	20	10	1300	3200	<.5	40	3.9	0	.3
		71	RSM	RANNE	LS CREEK I	NEAR CUMB	ERLAND OH				
				W	ATER QUAL	TY DATA					
				SPE-							
				CIFIC							DIS-
		INSTAN-		CON-		0.1.0-	TOTAL	21000-	CARRON	DIS-	SOLVED CHLO-
		TANEOUS DIS-	TEMPER-	DUCT-	PH	DIS- SOLVED	ACIDITY	BICAR-	DIOXIDE	SOLVED	RIDE
	TIME	CHARGE	ATURE	(MICRO-		OXYGEN	H+	(HC03)	(COS)	(504)	(CL)
DATE		(CFS)	(DEG C)	MHOS)	(UNITS)	(MG/L)	(MG/L)	(MG/L)	(MG/L)	(MG/L)	(MG/L)
MAY , 1	975										
22	1000	£6.0	19.0	1580	7.7	7.9		208	6.6	490	8.0
SEP										. 10	16
23	1400	£5.0	14.5	1440	7.6	9.2		229	9.2	410	. 15
	TOTAL		TOTAL			TOTAL			TOTAL		
	ALUM-	TOTAL	CHRO-	TOTAL	TOTAL	MAN-	TOTAL	TOTAL	ORGANIC		HYDRO-
	INUM	ARSENIC	MIUM	COPPER	IRON	GANESE	MERCURY	ZINC	CARBON	PHENOLS	GEN
DATE	(AL) (UG/L)	(AS) (UG/L)	(CR)	(CU)	(FE) (UG/L)	(MN) (UG/L)	(HG) (UG/L)	(ZN) (UG/L)	(C) (MG/L)	(UG/L)	SULFIDE (MG/L)
DATE	(00/L/	(00/2)	100/2/	100/27	(00/L)	(00/L)	(00/L)	100/2/	(40/2/	(00/L)	(10/2/
MAY . 1		,		20		1200			1.0		
22	2900	6	10	20	8400	1200	<.5	40	18	0	.5
23	290	1	20	0	330	1000	<.5	10	14	0	.0
		12	RSM	YOKER	CREEK NE	AR CUMBER	LAND OH				
				W	ATER QUAL	LIT DATA					
				SPE-							
		INSTAN-		CIFIC			TOTAL			DIS-	DIS- SOLVED
		TANEOUS		CON- DUCT-		DIS-	TOTAL	BICAR-	CARBON	SOLVED	CHLO-
		DIS-	TEMPER-	ANCE	PH	SOLVED	AS	BONATE	DIOXIDE	SULFATE	RIDE
CATE	TIME	CHARGE	ATURE	(MICRO-	/IIIIITEA	OXYGEN	H+	(HC03)	(CO2)	(\$04)	(CL)
DATE		(CFS)	(DEG C)	MH05)	(UNITS)	(MG/L)	(MG/L)	(MG/L)	(MG/L)	(MG/L)	(MG/L)
JUL . 1					_						
17	1050	E2.0	25.0	1770	7.4	7.3		150	9.6	810	12
18	1100	E5.7	10.5	1180	7.6	10.8		214	8.6	510	20
	TOTAL		TOTAL			TOTAL			TOTAL		
	ALUM- INUM	TOTAL ARSENIC	CHRO- MIUM	COPPER	TOTAL	MAN-	TOTAL	TOTAL	ORGANIC	DHE HOLC	HYDRO-
	(AL)	(AS)	(CR)	(CU)	(FL)	GANESE (MN)	MERCURY (HG)	ZINC (ZN)	(C)	PHENOLS	SULFIDE
DATE	(UG/L)	(UG/L)	(UG/L)	(UG/L)	(UG/L)	(UG/L)	(UG/L)	(UG/L)	(MG/L)	(UG/L)	(MG/L)
JUL • 1	975										
17	270	0	10	10	250	3100	<.5	20	11	0	.2
NOV											•
18	420	0	0	U	200	3500	<.5	30	4.5	0	.0

73 RSM BUFFALO FORK AT PLEASANT CITY OH

WATER QUALITY DATA

				W	ATER QUALI	TY DATA						
DATE	TIME	INSTAN- TANEOUS DIS- CHARGE (CFS)	TEMPER- ATURE (DEG C)	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS)	PH (UN1TS)	DIS- SOLVED OXYGEN (MG/L)	TOTAL ACIDITY AS H+ (MG/L)	BICAR- BONATE (HCO3) (MG/L)	CARBON DIOXIDE (CO2) (MG/L)	DIS- SOLVED SULFATE (SO4) (MG/L)	DIS- SOLVED CHLO- RIDE (CL) (MG/L)	
AUG , 19	75 1400	E22	21.0	1430	7.3	6.7		130	10	550	16	
NOV 03	1500	E27	13.5	1270	6.8	9.0		180	46	570	30	
DATE	TOTAL ALUM- INUM (AL) (UG/L)	TOTAL ARSENIC (AS) (UG/L)	TOTAL CHRO- MIUM (CR) (UG/L)	TOTAL COPPER (CU) (UG/L)	TOTAL IRON (FE) (UG/L)	TOTAL MAN- GANESE (MN) (UG/L)	TOTAL MERCURY (HG) (UG/L)	TOTAL ZINC (ZN) (UG/L)	TOTAL ORGANIC CARBON (C) (MG/L)	PHENOLS	HYDRO- GEN SULFIDE (MG/L)	
AUG + 19	1900	2	0	10	2800	1300	<.5	30	3.8	7	.0	
03	80	0	0	10	560	770	<.5	20	3.2	0	• 0	
		74	UNM	SOUTH	FORK WIL	LS CREEK	NEAR SUMM	ERFIELD (ЭН			
				W	ATER QUAL	ITY DATA						
DATE	TIME	INSTAN- TANEOUS DIS- CHARGE (CFS)	TEMPER- ATURE (DEG C)	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS)	PH (UNITS)	DIS- SOLVED OXYGEN (MG/L)	TOTAL ACIDITY AS H+ (MG/L)	BICAR- BONATE (HCO3) (MG/L)	CARBON DIOXIDE (CO2) (MG/L)	DIS- SOLVED SULFATE (SO4) (MG/L)	DIS- SOLVED CHLO- RIDE (CL) (MG/L)	
OCT + 1	975 1520	£7.2	18.0	425	7.6	11.8		216	8.7	39	14	
DATE	TOTAL ALUM- INUM (AL) (UG/L)	TOTAL ARSENIC (AS) (UG/L)	TOTAL CHRO- MIUM (CR) (UG/L)	TOTAL COPPER (CU) (UG/L)	TOTAL IRON (FE) (UG/L)	TOTAL MAN- GANESE (MN) (UG/L)	TOTAL MERCURY (HG) (UG/L)	TOTAL ZINC (ZN) (UG/L)	TOTAL ORGANIC CARBON (C) (MG/L)	PHENOLS	HYDRO- GEN SULFIDE (MG/L)	
14	150	0	0	10	50	O	<.5	30	1.6	0	• 0	
		75	UNM	PAYNE	S FORK WI	LLS CREEK	AT CALAI	S OH				
				w	ATER QUAL	ITY DATA						
UATE	TIME	INSTAN- TANEOUS DIS- CHARGE (CFS)	TEMPER- ATURE (DEG C)	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS)	PH (UN1TS)	DIS- SOLVED OXYGEN (MG/L)	TOTAL ACIDITY AS . H+ (MG/L)	BICAR- BONATE (HCO3) (MG/L)	CARBON DIOXIDE (CO2) (MG/L)	DIS- SOLVED SULFATE (SO4) (MG/L)	DIS- SOLVED CHLO- RIDE (CL) (MG/L)	
OCT • 1	975 1330	٤7.6	18.5	475	7.3	10.6		252	20	41	8.0	
DATE	TOTAL ALUM- INUM (AL) (UG/L)	TUTAL ARSENIC (AS) (UG/L)	TOTAL CHRO- MIUM (CR) (UG/L)	TOTAL COPPER (CU) (UG/L)	TUTAL IRON (FE) (UG/L)	TOTAL MAN- GANESE (MN) (UG/L)	TOTAL MERCURY (HG) (UG/L)	TOTAL ZINC (ZN) (UG/L)	TOTAL ORGANIC CARBON (C) (MG/L)	PHENOLS	HYDRO- GEN SULFIDE (MG/L)	
OCT • 1		. 0	0	U	320	70	<.5	10	1.6	0	.0	

76 UNM LEATHERWOOD CREEK AT BAILEYS MILLS OH

				-	AILK WOAL	בוו טאוא					
	TIMÉ	INSTAN- TANEOUS DIS- CHARGE	TEMPER-	SPE- CIFIC CON- DUCT- ANCE (MICRO-	РН	DIS- SOLVED OXYGEN	TOTAL ACIDITY AS H+	BICAR- BONATE (HCO3)	CARBON DIOXIDE (CO2)	DIS- SOLVED SULFATE (SO4)	DIS- SOLVED CHLO- RIDE (CL)
DATE		(CFS)	(DEG C)	MHOS)	(UNITS)	(MG/L)	(MG/L)	(MG/L)	(MG/L)	(MG/L)	(MG/L)
JUL , 19 22	75 1535	E1.0	27.0	960	7.2	8.0		112	11	320	8.0
15	1240	E.95	17.0	800	7.1	8.7		148	19	290	10
	TOTAL ALUM- INUM (AL)	TOTAL ARSENIC (AS)	TOTAL CHRO- MIUM (CR)	TOTAL COPPER (CU)	TOTAL IRUN (FE)	TOTAL MAN- GANESE (MN)	TOTAL MERCURY (HG)	TOTAL ZINC (ZN)	TOTAL ORGANIC CARBON (C)	PHENOLS	HYDRO- GEN SULFIDE
DATE	(UG/L)	(UG/L)	(UG/L)	(UG/L)	(UG/L)	(UG/L)	(UG/L)	(UG/L)	(MG/L)	(UG/L)	(MG/L)
JUL • 19	75 220	1	<10	10	430	1200	<.5	20	1.4	U	.0
15	130	0	U	20	510	890	<.5	20	2.8	0	.0
		77	RSM	LEATH	ERWOOD CR	EEK AT QU	AKER CITY	0н			
					ATER QUAL	TTY DATA					
					AIL4 WOAL	111 0414					
DATE	TIME	INSTAN- TANEOUS DIS- CHARGE (CFS)	TEMPER- ATURE (DEG C)	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS)	PH (UNITS)	DIS- SOLVED OXYGEN (MG/L)	TOTAL ACIDITY AS H+ (MG/L)	BICAR- BONATE (HCO3) (MG/L)	CARBON DIOXIDE (CO2) (MG/L)	DIS- SOLVED SULFATE (SO4) (MG/L)	DIS- SOLVED CHLU- RIDE (CL) (MG/L)
JUL • 19	75										
17 OCT	1345	E0.0	23.0	1030	7.1	7.3		108	14	360	8.0
14	1100	£5.8	17.0	900	7.1	9.6		132	17	340	10
DATE	TOTAL ALUM- INUM (AL) (UG/L)	TOTAL ARSENIC (AS) (UG/L)	TOTAL CHRO- MIUM (CR) (UG/L)	TOTAL COPPER (CU) (UG/L)	TOTAL IRON (FE) (UG/L)	TOTAL MAN- GANESE (MN) (UG/L)	TOTAL MERCURY (HG) (UG/L)	TOTAL ZINC (ZN) (UG/L)	TOTAL ORGANIC CARBON (C) (MG/L)	PHENOLS	HYDRO- GEN SULFIDE (MG/L)
JUL . 19											
17	290	U	<10	10	280	1800	<.5	30	8.8	0	.0
14	240	0	0	0	340	1700	<.5	30	1.8	0	.0
		7 8	JNA	SUGAR	RTREE FORK	NEAR AIN	TERSET OH				
					ATER QUAL	ATAU YTI					
		INSTAN- TANEOUS DIS-	TEMPER-	SPE- CIFIC CON- DUCT- ANCE	нч	DIS- SOLVED	TOTAL ACIDITY AS	BICAR-	CARBON	DIS- SOLVED SULFATE	DIS- SOLVED CHLO- RIDE
	TIME	CHARGE	ATURE	(MICHO-		OXYGEN	H+	(HCU3)	(COS)	(504)	(CL)
DATE		(CFS)	(DEG C)	MHUS)	(UN115)	(MG/L)	(MG/L)	(MG/L)	(MG/L)	(MG/L)	(MG/L)
AUG , 19	1055	£3.0	19.0	390	7.5	7.6		152	7.7	22	34
OCT 30	1130	£0.5	9.5	245	7.4	11.5		105	0.7	28	9.0
				2.5							
UATE	TOTAL ALUM- INUM (AL) (UG/L)	TOTAL ARSENIC (AS) (UG/L)	TOTAL CHRO- MIUM (CR) (UG/L)	TOTAL COPPER (CU) (UG/L)	TOTAL IRUN (FE) (UG/L)	TOTAL MAN- GANESE (MN) (UG/L)	TOTAL MERCURY (HG) (UG/L)	TOTAL ZINC (ZN) (UG/L)	TOTAL ORGANIC CARBON (C) (MG/L)	PHENOLS	HYDRO- GEN SULFIDE (MG/L)
AUG . 19											
07 0CT 30	250 50	0	<10 0	10	800	180 70	<.5	10	3.0	0	.0
	50	0	U	10	370	, 0		10	3.0	U	• 0

79 UNA CLEAR FORK NEAR BIRMINGHAM OH

			W	ATER GUALI	IT DATA					
TIMÉ	INSTAN- TANEOUS DIS- CHARGE	TEMPER-	SPE- CIFIC CON- DUCT- ANCE (MICRO-	PH	DIS- SOLVED OXYGEN	TOTAL ACIDITY AS H+	BICAR- BONATE (HCO3)	CARBON DIOXIDE (CO2)	DIS- SOLVED SULFATE (SO4)	DIS- SOLVED CHLO- RIDE (CL) (MG/L)
	(CF 5)	(DEG C)	MH037	(04113)	(40/6/	(0) 2)	(10, 2,	,		
175									4.1	130
1510	=2.0	20.0	740	7.4	8.2		138	0.0	41	130
1310	F.3.6	9.5	260	7.0	10.6		. 89	14	28	16
,										
TOTAL ALUM- INUM (AL)	TOTAL ARSENIC (AS)	TOTAL CHRO- MIUM (CR)	TOTAL COPPER (CU)	TOTAL IRUN (FE) (UG/L)	TOTAL MAN- GANESE (MN) (UG/L)	TOTAL MERCURY (HG) (UG/L)	TOTAL ZINC (ZN) (UG/L)	TOTAL ORGANIC CARBON (C) (MG/L)	PHENOLS	GEN SULFIDE (MG/L)
100/6/	100/2/	(
	0	<10	10	1100	340	4.5	10	5.8	5	.0
290	U	(10	10	1100	3.0					
20	0	0	U	530	130	<.5	10	2.7	1	• 0
	80) RSA	RECLA	IM RUN NE	AR PLAINE	TELD OH				
				ATED OUTAL	TTV ()ATA					
			*	TATER GUAL	III DAIA					
			SPE-							015
	The Thirt					TOTAL			DIS-	SOLVED
					DIS-		BICAR-	CARBON	SOLVED	CHLO-
	JI5-	TEMPER-	ANCE	PH	SOLVED	AS	STAPOE	DIOXIDE	SULFATE	RIDE
TIME	CHARGE	ATURE.	(MICRO-		OXYGEN	H+				(CL) (MG/L)
	(CFS)	(DEG C)	MH05)	(UNITS)	(MG/L)	(MG/L)	(MG/L)	(MO/L)	(MG/L)	(40/6/
975										
1710	E.30	24.5	1770	6.7	7.4		68	22	800	6.0
1620	÷1 (i	17.6	1300	5 8	ни		76	19	620	8.0
1530	21.0	17.5	1300	0.0	9.4			•		
TOTAL		ΤΩΤΔΙ			TOTAL			TOTAL		
ALUM-	TOTAL	CHRO-	TOTAL	TOTAL	MAN-	TOTAL	TOTAL	ORGANIC	0.150.5	HYDRO-
INUM	ARSENIC								PHENOLS	GEN SULFIDE
								(MG/L)	(UG/L)	(MG/L)
100727	100/2/	(30/2/	100727	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,						
		. 10	1.0	6.00	34.00	7	40	9.4	0	.0
50	U	10	10	300	2000	• '	40			
490	0	10	20	1800	2800	<.5	30	2.6	0	.0
	8	1 ADA	LITTL	E WHITE E	YES RUN N	NEAR OTSEG	0 OH			
				ATED OUAL	TTY DATA					
				AILA GOAL	111 0414					
			SPE-							0.55
	TAISTAN					TOTAL			DIS-	DIS-
					DIS-		BICAR-	CARBON	SOLVED	CHLO-
	DIS-	TEMPER-	ANCE	PH	SOLVED	AS	BONATE	DIOXIDE	SULFATE	RIDE
TIME				(INTERN						(CL) (MG/L)
	(6737	(DEG C)	MH037	(00113)	(MO/L)	(40/2/	(1107)	(,,0,),	((107 27
									1400	10
1430	E.10	26.0	3100	2.4	7.1	18	0	• 0	1400	15
1230	E.30	19.0	1800	2.7	8.4	10	.0	.0	870	6.0
	TOTAL		TOTAL	T/: T 41	TOTAL	TOTAL	TOTAL	TOTAL		HADDO
									PHENOI S	HYDRO- GEN
(AL)	(AS)	(CR)	(CU)	(FE)	(MN)	(HG)	(ZN)	(C)		SULFIDE
(UG/L)	(UG/L)	(UG/L)	(UG/L)	(UG/L)	(UG/L)	(UG/L)	(UG/L)	(MG/L)	(UG/L)	(4G/L)
100/2/										
975										
	0	30	50	220000	10000	< . 5	1000	1.0	0	.0
	75 1210 1310 1310 1310 1310 1310 1310 1014 ALUM- 100M (AL) (UG/L) 975 290 20 TIME 975 1710 1530 TOTAL ALUM- 1NUM (AL) (UG/L) 975 30 490 TIME	TANEOUS DIS- TIME CHARGE (CFS) 75 1210	TIME	INSTAN- CHARGE ATURE CIFIC CON-	INSTAN-	INSTAN- TANEOUS OLS- TIME CHARGE ATURE A	TOTAL	INSTAN-	TINSTAN-	Tanglan

82 UNA ELUSIVE RUN NEAR PLAINFIELD OH

				w	ATER QUAL	ITY DATA					
				SPE-							
				CIFIC							015-
		INSTAN-		CON-			TOTAL			DIS-	SOLVED
		TANEOUS		DUCT-		015-	ACIDITY	BICAR-	CARBON	SOLVED	CHLO-
	22.5	DIS-	TEMPER-	ANCE	PH	SOLVED	AS	BONATE	DIOXIDE	SULFATE	RIDE
	TIME	CHARGE	ATURE	(MICRO-	CIMITES	OXYGEN	H+ (MG/L)	(MG/L)	(MG/L)	(SO4) (MG/L)	(CL) (MG/L)
DATE		(CFS)	(DEG C)	MHOSI	(UNITS)	(MG/L)	(MO/L)	(MO/L)	(40/6/	(1107)	(10/)
SEP , 1	975										
30	1100	E./0	15.5	200	7.2	9.0		68	6.9	31	3.0
	TOTAL		TOTAL			TOTAL			TOTAL		
	ALUM-	TOTAL	CHRU-	JATOT	TOTAL	MAN-	TOTAL	TOTAL	ORGANIC		HYDRO-
	INUM	ARSENIC	MIUM	COPPER	IRON	GANESE	MERCURY	ZINC	CARRON	PHENOLS	GEN
DATE	(AL) (UG/L)	(AS) (UG/L)	(UG/L)	(CU) (UG/L)	(FE) (UG/L)	(MN) (UG/L)	(HG)	(ZN) (UG/L)	(MG/L)	(UG/L)	SULFIDE (MG/L)
DATE	1007 67	(00, 2,	100/2/	100727	100/ 2/	(00, 5,	1007 27			1007 67	
SEP . 1	975										
30	1500	5	10	20	2800	900	<.5	30	2.0	2	• 0
				,							
		83	CNA	DUMP	HUN NEAR	WILLS CRE	EK OH				
		-	0.1.	00.11	NON NEAR	-1125	LK OII				
				**	ATER QUAL	ATAU YTI					
				SPE-							
		INSTAN-		CIFIC CON-			TOTAL			DIS-	SOLVED
		TANEOUS		DUCT-		DIS-	ACIDITY	BICAR-	CARBON	SOLVED	CHLO-
		015-	TEMPER-	AVCE	РН	SULVED	AS	BONATE	DIOXIDE	SULFATE	HIDE
	TIME	CHARGE	ATURE	(MICRO-		OXYGEN	H+	(HC03)	(502)	(504)	(CL)
DATE		(CFS)	(DEG C)	MHOS)	(UNITS)	(MG/L)	(MG/L)	(MG/L)	(MG/L)	(MG/L)	(MG/L)
JUL • 1	675										
10	1555	E.10	19.0	1480	2.9		7.4	υ		560	0
SEP	. , , ,		.,.,	1400	2.,,			U	.0	300	5.0
29	1420	E.10	16.0	1000	3.8	9.2	4.4	U	. 0	490	3.0
	TOTAL		TOTAL			TUTAL			TOTAL		
	ALUM-	TOTAL	CHRO-	TOTAL	TOTAL	MAN-	TOTAL	TOTAL	ORGANIC		HYDRO-
	INUM	ARSENIC	MIUM	COPPER	IRON	GANESE	MERCURY	ZINC	CARBON	PHENOLS	GEN
	(AL)	(AS)	(CR)	(CU)	(FE)	(MN)	(HG)	(NS)	(C)		SULFIDE
DATE	(UG/L)	(DG/L)	(UG/L)	(UG/L)	(UG/L)	(UG/L)	(UG/L)	(US/L)	(MG/L)	(UG/L)	(MG/L)
JUL . 1	975										
10	1300	2	30	10	20000	4000	2.5	310	5.4	0	.0
SEP											
24	28000	0	20	20	63000	3000	<.5	210	14	0	.0
		84	RSA	Z RUN	NEAR WILL	S CREEK	ОН				
				W	ATER QUAL!	TY DATA					
				SPE-							
				CIFIC							DIS-
		INSTAN-		COM-			TOTAL			DIS-	SOLVED
		TANEOUS		DUCT-		015-	ACIDITY	BICAR-	CARBON	SOLVED	CHLO-
	TIME	DIS- CHARGE	TEMPER-	ANCE	PH	SOLVED	AS	HONATE (HCO3)	DIOXIDE	SULFATE	RIDE
DATE	1146	(CFS)	(DEG C)	MHUS)	(UNITS)	(MG/L)	H+ (MG/L)	(MG/L)	(CO2) (MG/L)	(SO4) (MG/L)	(CL) (MG/L)
			1000 07		1011137	(-0, -1,	((,	(0/ 1/	(107)
JUL • 1											
10	1430	£2.0	25.0	1370	0.1	7.7		38	48	610	8.0
SEP	1310		1 6	1						500	
24	1310	25.0	14.5	1200	6.3	9.5		38	30	580	15
	TOTAL	T/1.T-1	TOTAL	TOT :	* *	TOTAL	TOTAL	TOTAL	TOTAL		HV1110-
	ALUM- INUM	ARSENIC	MIUM	COPPER	INON	GANESE	MERCURY	ZINC	JRGANIC	PHENOLS	GEN
	(AL)	(AS)	(CR)	(CO)	(FE)	(MN)	(HG)	(ZN)	(C)		SULFIDE
DATE	(UG/L)	(UG/L)	(UG/L)	(UG/L)	(UG/L)	(UG/L)	(UG/L)	(UG/L)	(MG/L)	(UG/L)	(MG/L)
JUL • 1								100			
10	975 580	0	10	10	19000	4100	1.6	120	4.0	0	.0
		0	10	10	19000	4100 3700	1.6	120	4.0	0	.0

85 CNA Y RUN NEAR WILLS CREEK OH

DATE	TIME	INSTAN- TANEOUS DIS- CHARGE (CFS)	TEMPER- ATURE (DEG C)	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS)	PH (UNITS)	DIS- SOLVED OXYGEN (MG/L)	TOTAL ACIDITY AS H+ (MG/L)	BICAR- BONATE (HCO3) (MG/L)	CARBON DIOXIDE (CO2) (MG/L)	DIS- SOLVED SULFATE (SO4) (MG/L)	DIS- SOLVED CHLO- RIDE (CL) (MG/L)
JUL • 19 10 SEP	1305	E.30	21.0	1470	3.3	7.5	2.2	0	.0	630	16
29	1215	E.60	14.0	1450	3.4	9.4	1.9	0	.0	710	20
DATE	TOTAL ALUM- INUM (AL) (UG/L)	TOTAL ARSENIC (AS) (UG/L)	TOTAL CHRO- MIUM (CR) (UG/L)	TOTAL COPPER (CU) (UG/L)	TOTAL IRON (FE) (UG/L)	TOTAL MAN- GANESE (MN) (UG/L)	TOTAL MERCURY (HG) (UG/L)	TOTAL ZINC (ZN) (UG/L)	TOTAL ORGANIC CARBON (C) (MG/L)	PHENOLS	HYDRO- GEN SULFIDE (MG/L)
JUL , 19	2300	. 0	10	U	20000	6900	1.7	80	7.0	5	.0
SEP 29	2400	0	10	20	23000	8400	<.5	100	19	0	.0
27	2400	· ·	10	20	23000	3400		100	.,	•	••
		86	Chia			NE-8 00*	STOL S.				
		86	CNA		ALA CREEK		STOL OH				
				W	ATER QUAL	ITY DATA					
DATE	TIME	INSTAN- TANEOUS DIS- CHARGE (CFS)	TEMPER- ATURE (DEG C)	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS)	PH (UNITS)	DIS- SOLVED OXYGEN (MG/L)	TOTAL ACIDITY AS H+ (MG/L)	BICAR- BONATE (HCO3) (MG/L)	CARBON DIOXIDE (CO2) (MG/L)	DIS- SOLVED SULFATE (SO4)	DIS- SOLVED CHLO- RIDE (CL) (MG/L)
MAY , 19	75										
07 SEP	1435	£1.0	19.0	1560	3.0	9.8	7.0	0	.0	470	74
U8	1415	E.50	23.0	2900	2.5	6.9	14	0	.0	930	500
DATE	TOTAL ALUM- INUM (AL) (UG/L)	TOTAL ARSENIC (AS) (UG/L)	TOTAL CHRO- MIUM (CR) (UG/L)	TOTAL COPPER (CU) (UG/L)	TOTAL IRON (FE) (UG/L)	TOTAL MAN- GANESE (MN) (UG/L)	TOTAL MERCURY (HG) (UG/L)	TOTAL ZINC (ZN) (UG/L)	TOTAL ORGANIC CARBON (C) (MG/L)	PHENOLS	HYDRO- GEN SULFIDE (MG/L)
MAY . 19	75 20000	9	140	120	9 - 0 0 0	3300		200	. 3.1	0	
SEP					82000	3200	<.5	280	2.1		.0
08	42000	0	30	60	140000	14000	<.5	700	2.8	U	.0
		87	CNA		ALA CHEÉK		ALA OH				
					ATER QUAL	LTY DATA					
DATE	TIME	INSTAN- TANEOUS DIS- CHARGE (CFS)	TEMPER- ATURE (DEG C)	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS)	PH (UNITS)	DIS- SOLVED OXYGEN (MG/L)	TOTAL ACIDITY AS H+ (MG/L)	BICAR- BONATE (HCO3) (MG/L)	CARBON DIOXIDE (CO2) (MG/L)	DIS- SOLVED SULFATE (SO4) (MG/L)	DIS- SOLVED CHLO- RIDE (CL) (MG/L)
MAY • 19	75										
U8	1130	EIO	17.5	1120	3.8	9.8	1.3	0	.0	430	22
08	1505	£5.0	23.5	2500	2.7	8.4	5.0	0	. 0	1000	200
UATÉ	TOTAL ALUM- INUM (AL) (UG/L)	TOTAL ARSENIC (AS) (UG/L)	TOTAL CHRO-MIUM (CR) (UG/L)	TOTAL COPPER (CU) (UG/L)	TOTAL IRON (FE) (UG/L)	TOTAL MAN- GANESE (MN) (UG/L)	TOTAL MERCURY (HG) (UG/L)	TOTAL ZINC (ZN) (UG/L)	TOTAL ORGANIC CARBON (C) (MG/L)	PHENOLS	HYDRO- GEN SULFIDE (MG/L)
MAY . 19	75 8000	0	10	3.5	0.1.00	10000					
SEP	22000	. 0	10	20	4100	10000	<.5	240	.6	4	.0
08	22000	0	10	10	11000	19000	<.5	550	3.0	U	. 0

WDA UNNAMED TRIBUTARY TO MOXAHALA CREEK NEAR MOXAHALA OH

UATE	TIME	INSTAN- TANEOUS DIS- CHARGE (CFS)	TEMPER- ATURE (DEG C)	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS)	PH (UNITS)	DIS- SOLVED OXYGEN (MG/L)	TOTAL ACIDITY AS H+ (MG/L)	BICAR- BONATE (HCO3) (MG/L)	CARBON DIOXIDE (CO2) (MG/L)	DIS- SOLVED SULFATE (SO4) (MG/L)	DIS- SOLVED CHLO- RIDE (CL) (MG/L)
MAY , 19	975 1330	£6.0	24.0	3700	3.0	7.7	16	0	.0	1900	48
SEP 15	1310	£7.0	21.0	3800	2.9	7.6	15	0	.0	1800	35
				3300							
	TOTAL ALUM- INUM (AL)	TOTAL ARSENIC (AS)	TOTAL CHRO- MIUM (CR)	TOTAL COPPER (CU)	TOTAL IRON (FE)	TOTAL MAN- GANESE (MN)	TOTAL MERCURY (HG)	TOTAL ZINC (ZN)	TOTAL ORGANIC CARBON (C)	PHENOLS	HYDRO- GEN SULFIDE
DATE	(UG/L)	(UG/L)	(UG/L)	(UG/L)	(UG/L)	(UG/L)	(UG/L)	(UG/L)	(MG/L)	(UG/L)	(MG/L)
MAY , 19	975 55000	2	290	30	25000	61000	<.5	1700	1.9	. 0	.0
SEP 15	49000	5	10	30	240000	55000	<.5	1400	3.7	1	.0
.5	4,000	,	10	30	240000	33000					
		89	CNA	. MOXAF	ALA CREEK	AT CROOK	SVILLE OH				
				. ,	ATER QUAL	ATAG YTI					
				SPE-							
		INSTAN- TANEOUS -21C	TEMPER-	CIFIC CON- DUCT- ANCE	РН	DIS- SULVED	TOTAL ACIDITY AS	BICAR- BONATE	CARBON DIOXIDE	DIS- SOLVED SULFATE	CHLO- SOLVED RIDE
DATE	TIME	(CFS)	(DEG C)	(MICRO- MHOS)	(UNITS)	(MG/L)	(MG/L)	(HCO3)	(CO2) (MG/L)	(SO4) (MG/L)	(CL) (MG/L)
MAY , 1	975										
13 SEP	1200	E50	15.0	1850	3.3	8.2	4.8	0	.0	770	55
09	1205	Eou	20.0	5900	2.6	7.4	9.6	. 0	.0	1200	35
	TOTAL		TOTAL			TOTAL			TOTAL		
	ALUM-	ARSENIC	MIUM	COPPER	TOTAL	MAN- GANESE	MERCURY	ZINC	CARBON	PHENOLS	GEN
	(AL)	(AS)	(CR)	(CU)	(FL)	(MN)	(HG)	(ZN)	(C)		SULFIDE
DATE	(UG/L)	(JG/L)	(UG/L)	(UG/L)	(UG/L)	(JG/L)	(UG/L)	(UG/L)	(MG/L)	(UG/L)	(MG/L)
MAY . 1	975 21000	o	80	. 30	37000	19000	<.5	420	1.3	4	.1
SEP	38000	10	20	30	81000	20000	<.5	780	6.2	0	.0
		90	CNA	HAKOF	ALA CHEEK	AT ROSEV	ILLE OH				
				w	ATER WUAL	ITY DATA					
				SPE-							
		INSTAIN-		CIFIC CON-			TOTAL			DIS-	SOLVED
		TANEUUS		DUCT-		DIS-	ACIDITY	HICAR-	CARBON	SOLVED	CHLO-
	TIME	CHARGE	ATURE	ANCE	PH	SOLVED	AS		DIOXIDE		HIDE
DATE	TIME	(CFS)	(DEG C)	(MICHO- MHOS)	(UNITS)	OXYGEN (MG/L)	H+ (MG/L)	(MG/L)	(MG/L)	(SO4) (MG/L)	(CL) (MG/L)
MAY . 19											
SEP	1350	E58	18.0	1790	3.7	8.4	4.6	0	.0	770	20
09	1445	E54	23.0	2600	5.6	7.8	7.7	0	.0	1100	30
	TOTAL	TOTAL	TOTAL			TOTAL			TOTAL		
	ALUM- INUM	TOTAL ARSENIC	CHRO-	COPPER	INON	MAN- GANESE	MERCURY	TOTAL	ORGANIC	DAEHOLC	-CHUYH
	(AL)	(AS)	(CR)	(CO)	(FE)	(MN)	(HG)	ZINC (ZN)	(C)	PHENOLS	GEN SULF IDE
DATE	(1)6/L)	(UG/L)	(UG/L)	(UG/L)	(UG/L)	(UG/L)	(UG/L)	(UG/L)	(4G/L)	(UG/L)	(MG/L)
MAY • 19	22000	2			1. 0.00	1					
SEP			80	30	36000	16000	<.5	400	6.6	. 9	.0
09	30000	0	10	20	32000	18000	<.5	560	1.6	0	.0

91 CNA BUCKEYE FURK AT SALTILLO OH

				w	ATER QUAL	ITY DATA					
				SPE-							
				CIFIC							DIS-
		INSTAN-		CON-			TOTAL			DIS-	SOLVED
		TANEOUS		DUCT-		DIS-	ACIDITY	BICAR-	CARBON	SOLVED	CHLO-
		DIS-	TEMPER-	ANCE	PH	SOLVED	AS	BONATE	DIOXIDE	SULFATE	RIDE
	TIME	CHARGE	ATURE	(MICRO-		OXYGEN	H+	(HC03)	(502)	(504)	(CL)
DATE		(CFS)	(DEG C)	MHOS)	(UNITS)	(MG/L)	(MG/L)	(MG/L)	(MG/L)	(MG/L)	(MG/L)
1	0.75										
MAY , 1	1135	E 4 ()	14.0	2200	3.0	0 0	F 0		0	240	22
SEP	1133	E8.0	14.0	2280	3.9	8.9	5.0	0	.0	840	32
09	1030	£7.0	18.0	3000	2.7	8.6	7.8	0	.0	1400	20
									• •		
	TOTAL		TOTAL			TOTAL			TOTAL		
	ALUM-	TOTAL	CHRO-	TOTAL	TOTAL	MAN-	TOTAL	TOTAL	ORGANIC		HYDRO-
	INUM	ARSENIC	MIUM	COPPER	IRON	GANESE	MERCURY	ZINC	CARBON	PHENOLS	GEN
	(AL)	(AS)	(CR)	(CU)	(FE)	(MN)	(HG)	(ZN)	(C)		SULFIDE
DATE	(UG/L)	(U6/L)	(UG/L)	(UG/L)	(Ú6/L)	(UG/L)	(UG/L)	(UG/L)	(MG/L)	(UG/L)	(MG/L)
40 V 1	0.7-										
MAY . 1	31000	0	50	30	18000	3200		900	1.0	8	.0
SEP	31000	0	50	30	18000	3200	<.5	900	1.0	0	• 0
09	45000	1	10	30	21000	45000	<.5	1100	2.1	0	.0
			-	-							
		92	CNA	HAXOM	ALA CREEK	NEAR ZAN	ESVILLE OF	4			
					ATCD OHAL						
				*	ATER QUAL	ITY DATA					
				SPE-							
				CIFIC							015-
		INSTAN-		CON-			TOTAL			DIS-	SOLVED
		TANEOUS		DUCT-		DIS-	ACIDITY	BICAR-	CARBON	SOLVED	CHLO-
		DIS-	TEMPER-	ANCE	PH	SOLVED	AS	BONATE	DIOXIDE	SULFATE	RIDE
Date	TIME	CHARGE.	ATURE	(MICRO-		OXYGEN	H+	(HC03)	(CO2)	(504)	(CL)
DATE		(CFS)	(DEG C)	MHOS)	(UNITS)	(MG/L)	(MG/L)	(MG/L)	(MG/L)	(MG/L)	(MG/L)
MAY . 19	975										
14	1615	EZUI	19.0	1060	4.1	9.3	3.5	0	.0	410	28
SEP									•		
15	1530	E138	16.0	1100.	4.7	9.2		1	32	330	32
	TOTAL		TOTAL			TOTAL			TOTAL		
	ALUM-	- TOTAL	CHRO-	TOTAL	TOTAL	MAN-	TOTAL	TOTAL	ORGANIC		HYDRO-
	MUNI	ARSENIC	MIUM	COPPER	IRON	GANESE	MERCURY	ZINC	CARBON	PHENOLS	GEN
	(AL)	(AS)	(CR)	(CU)	(FE)	(MN)	(HG)	(ZN)	(C)		SULFIDE
DATE	(UG/L)	(JG/L)	(UG/L)	(UG/L)	(UG/L)	(UG/L)	(UG/L)	(UG/L)	(MG/L)	(UG/L)	(MG/L)
MAY , 19	975										
14	6700	1	20	800	10000	8200	<.5	2500	1.6	12	.0
SEP				000		0200					
15	5000	0	< 10	10	7500	8900	<.5	170	11	0	.0
		93	UNA	CALT	COSEK NEAR		1115 04				
		93	UNA	SALI	CREEK NEAR	4. BKIDGE	ILLE UN				
				w	ATER QUAL	ITY DATA					
				SPE-							
				SPE- CIFIC							DIS-
		INSTAN-		CIFIC CON-			TOTAL		0.105.00	DIS-	SOLVED
		TANLOUS		CIFIC CON-		DIS-	ACIDITY	BICAR-	CARBON	SOLVED	SOLVED CHLO-
	*****	TANEOUS DIS-	TEMPER-	CIFIC CON- DUCT- ANCE	Рн	SOLVED	ACIDITY AS	BONATE	DIOXIDE	SOLVED SULFATE	SOLVED CHLO- RIDE
DATE	TIME	TANEOUS DIS- CHARGE	ATURE	CIFIC CON- DUCT- ANCE (MICRO-		SOLVED	ACIDITY AS H+	BONATE (HCO3)	DIOXIDE (CO2)	SOLVED SULFATE (SO4)	SOLVED CHLO- RIDE (CL)
DATE	TIME	TANEOUS DIS-		CIFIC CON- DUCT- ANCE	PH (UNITS)	SOLVED	ACIDITY AS	BONATE	DIOXIDE	SOLVED SULFATE	SOLVED CHLO- RIDE
		TANEOUS DIS- CHARGE	ATURE	CIFIC CON- DUCT- ANCE (MICRO-		SOLVED	ACIDITY AS H+	BONATE (HCO3)	DIOXIDE (CO2)	SOLVED SULFATE (SO4)	SOLVED CHLO- RIDE (CL) (MG/L)
DATE MAY • 19		TANEOUS DIS- CHARGE	ATURE	CIFIC CON- DUCT- ANCE (MICRO-		SOLVED	ACIDITY AS H+	BONATE (HCO3)	DIOXIDE (CO2)	SOLVED SULFATE (SO4)	SOLVED CHLO- RIDE (CL)
MAY • 19 28	975 1345	TANEOUS DIS- CHARGE (CFS)	ATURE (DEG C)	CIFIC CON- DUCT- ANCE (MICRO- MHOS)	(UNITS) 7.1	SOLVED OXYGEN (MG/L)	ACIDITY AS H+ (MG/L)	BONATE (HCO3) (MG/L)	DIOXIDE (CO2) (MG/L)	SOLVED SULFATE (SO4) (MG/L)	SOLVED CHLO- RIDE (CL) (MG/L)
MAY , 19	975	TANEOUS DIS- CHARGE (CFS)	ATURE (DEG C)	CIFIC CON- DUCT- ANCE (MICRO- MHOS)	(UNITS)	SOLVED OXYGEN (MG/L)	ACIDITY AS H+ (MG/L)	HONATE (HCO3) (MG/L)	(CO2) (MG/L)	SOLVED SULFATE (SO4) (MG/L)	SOLVED CHLO- RIDE (CL) (MG/L)
MAY • 19 28	975 1345 1230	TANEOUS DIS- CHARGE (CFS)	ATURE (DEG C) 22.0 11.5	CIFIC CON- DUCT- ANCE (MICRO- MHOS)	(UNITS) 7.1	SOLVED OXYGEN (MG/L) 8.6	ACIDITY AS H+ (MG/L)	BONATE (HCO3) (MG/L)	DIOXIDE (CO2) (MG/L) 14	SOLVED SULFATE (SO4) (MG/L)	SOLVED CHLO- RIDE (CL) (MG/L)
MAY • 19 28	975 1345 1230 TOTAL	TANEOUS DIS- CHARGE (CFS) E10	ATURE (DEG C) 22.0 11.5	CIFIC CON- DUCT- ANCE (MICRO- MHOS)	7.1 7.0	SOLVED OXYGEN (MG/L) 8.6 11.0	ACIDITY AS H+ (MG/L)	HONATE (HCO3) (MG/L) 114	DIOXIDE (CO2) (MG/L) 14 18	SOLVED SULFATE (SO4) (MG/L)	SOLVED CHLO- RIDE (CL) (MG/L) 28
MAY • 19 28	975 1345 1230 TOTAL ALUM-	TANEOUS DIS- CHARGE (CFS) Elu El2	ATURE (DEG C) 22.0 11.5 TOTAL CHRO-	CIFIC CON- DUCT- ANCE (MICRO- MHOS) 320 320	7.1 7.0 TOTAL	SOLVED OXYGEN (MG/L) 3.6 11.0 TOTAL MAN-	ACIDITY AS H+ (MG/L) TOTAL	BONATE (HCO3) (MG/L) 114 110	DIOXIDE (CO2) (MG/L) 14 18 TOTAL ORGANIC	SOLVED SULFATE (SO4) (MG/L) 28	SOLVED CHLO- RIDE (CL) (MG/L) 28 22
MAY • 19 28	975 1345 1230 TOTAL ALUM- INUM	TAYEOUS DIS- CHARGE (CFS) E1U E12 TOTAL ARSENIC	ATURE (DEG C) 22.0 11.5 TOTAL CHRO-MIUM	CIFIC CON- DUCT- ANCE (MICRO- MHOS) 320 320 TOTAL COPPER	(UNITS) 7.1 7.0 TOTAL IHON	SOLVED OXYGEN (MG/L) 3.6 11.0 TOTAL MAN- GANESE	ACIDITY AS H+ (MG/L) TOTAL MERCURY	BONATE (HCO3) (MG/L) 114 110 TOTAL ZINC	DIOXIDE (CO2) (MG/L) 14 18 TOTAL ORGANIC CARBON	SOLVED SULFATE (SO4) (MG/L)	SOLVED CHLO- RIDE (CL) (MG/L) 28 22 HYDRO- GEN
MAY • 19 28 OCT U3	975 1345 1230 TOTAL ALUM- INUM (AL)	TAYLOUS DIS- CHARGE (CFS) EIU EI2 TOTAL ARSENIC (AS)	ATURE (DEG C) 22.0 11.5 TOTAL CHROMIUM (CR)	CIFIC CON- DUCT- ANCE (MICRO- MHOS) 320 320 TOTAL COPPER (CU)	(UNITS) 7.1 7.0 TOTAL IHON (FE)	SOLVED OXYGEN (MG/L) 3.6 11.0 TOTAL MAN- GANESE (MN)	ACIDITY AS H+ (MG/L) TOTAL MERCURY (MG)	HONATE (HCO3) (MG/L) 114 110 TOTAL ZINC (ZN)	DIOXIDE (CO2) (MG/L) 14 18 TOTAL ORGANIC CARBON (C)	SOLVED SULFATE (SO4) (MG/L) 28 31	SOLVED CHLO- RIDE (CL) (MG/L) 28 22 HYDRO- GEN SULFIDE
MAY • 19 28	975 1345 1230 TOTAL ALUM- INUM	TAYEOUS DIS- CHARGE (CFS) E1U E12 TOTAL ARSENIC	ATURE (DEG C) 22.0 11.5 TOTAL CHRO-MIUM	CIFIC CON- DUCT- ANCE (MICRO- MHOS) 320 320 TOTAL COPPER	(UNITS) 7.1 7.0 TOTAL IHON	SOLVED OXYGEN (MG/L) 3.6 11.0 TOTAL MAN- GANESE	ACIDITY AS H+ (MG/L) TOTAL MERCURY	BONATE (HCO3) (MG/L) 114 110 TOTAL ZINC	DIOXIDE (CO2) (MG/L) 14 18 TOTAL ORGANIC CARBON	SOLVED SULFATE (SO4) (MG/L) 28	SOLVED CHLO- RIDE (CL) (MG/L) 28 22 HYDRO- GEN
MAY , 19 28 OCT U3	975 1345 1230 TOTAL ALUM- INUM (AL) (UG/L)	TAYLOUS DIS- CHARGE (CFS) EIU EI2 TOTAL ARSENIC (AS) (UG/L)	ATURE (DEG C) 22.0 11.5 TOTAL CHROMIUM (CR)	CIFIC CON- DUCT- ANCE (MICRO- MHOS) 320 320 TOTAL COPPER (CU)	(UNITS) 7.1 7.0 TOTAL IHON (FE)	SOLVED OXYGEN (MG/L) 3.6 11.0 TOTAL MAN- GANESE (MN)	ACIDITY AS H+ (MG/L) TOTAL MERCURY (MG)	HONATE (HCO3) (MG/L) 114 110 TOTAL ZINC (ZN) (UG/L)	DIOXIDE (CO2) (MG/L) 14 18 TOTAL ORGANIC CARBON (C) (MG/L)	SOLVED SULFATE (SO4) (MG/L) 28 31 PHENOLS (UG/L)	SOLVED CHLO- RIDE (CL) (MG/L) 28 22 HYDRO- GEN SULFIDE (MG/L)
MAY . 19 28 OCT U3 DATE	975 1345 1230 TOTAL ALUM- INUM (AL) (UG/L)	TAYLOUS DIS- CHARGE (CFS) EIU EI2 TOTAL ARSENIC (AS)	ATURE (DEG C) 22.0 11.5 TOTAL CHROMIUM (CR)	CIFIC CON- DUCT- ANCE (MICRO- MHOS) 320 320 TOTAL COPPER (CU)	(UNITS) 7.1 7.0 TOTAL IHON (FE)	SOLVED OXYGEN (MG/L) 3.6 11.0 TOTAL MAN- GANESE (MN)	ACIDITY AS H+ (MG/L) TOTAL MERCURY (MG)	HONATE (HCO3) (MG/L) 114 110 TOTAL ZINC (ZN)	DIOXIDE (CO2) (MG/L) 14 18 TOTAL ORGANIC CARBON (C)	SOLVED SULFATE (SO4) (MG/L) 28 31	SOLVED CHLO- RIDE (CL) (MG/L) 28 22 HYDRO- GEN SULFIDE
MAY , 19 28 OCT U3	975 1345 1230 TOTAL ALUM- INUM (AL) (UG/L)	TAYLOUS DIS- CHARGE (CFS) EIU EI2 TOTAL ARSENIC (AS) (UG/L)	ATURE (DEG C) 22.0 11.5 TOTAL CHRO-MIUM (CR) (UG/L)	CIFIC CON- DUCT- ANCE (MICRO- MHOS) 320 320 TOTAL COPPER (CU) (UG/L)	(UNITS) 7.1 7.0 TOTAL IHON (FE) (UG/L)	SOLVED OXYGEN (MG/L) 3.6 11.0 TOTAL MAN- GANESE (MN) (UG/L)	ACIDITY AS H+ (MG/L) TOTAL MERCURY (HG) (UG/L)	HONATE (HCO3) (MG/L) 114 110 TOTAL ZINC (ZN) (UG/L)	DIOXIDE (CO2) (MG/L) 14 18 TOTAL ORGANIC CARBON (C) (MG/L)	SOLVED SULFATE (SO4) (MG/L) 28 31 PHENOLS (UG/L)	SOLVED CHLO- RIDE (CL) (MG/L) 28 22 HYDRO- GEN SULFIDE (MG/L)

94 HSA ** LITTLE SALT CHEEK NEAR ZANESVILLE OH

				SPE-							
		THETAN		CIFIC			TOTAL			0.15	DIS-
		INSTAN-		CON-		DIS-	ACIDITY	HICAR-	CARBON	DIS-	SOLVED CHLO-
		-21G	TEMPER-	ANCE	РН	SOLVED	AS	BONATE	DIOXIDE	SULFATE	RIDE
	TIME	CHARGE	ATURE	(MICRO-		OXYGEN	H+	(HC03)	(CO2)	(504)	(CL)
DATE		(CFS)	(DEG C)	MH05)	(UNITS)	(MG/L)	(MG/L)	(MG/L)	(MG/L)	(MG/L)	(MG/L)
MAY • 19	75										
28	1200	E2.0	21.0	446	7.0	8.5		108	17	79	30
SEP	1045	F20	17.5	290	7.2	7.0			6.7	26	24
18	1045	520	17.5	290	1.2	7.0		66	0.1	20	24
	TOTAL		TOTAL			TOTAL			TOTAL		
	ALUM-	TOTAL	CHRO-	TOTAL	TUTAL	MAN-	TOTAL	TOTAL	ORGANIC		HYDRO-
	INUM	ARSENIC	MIUM	COPPER	IKON	GANESE	MERCURY	ZINC	CARBON	PHENOLS	GEN
	(AL)	(AS)	(CR)	(CU)	(FE)	(MN)	(HG) (UG/L)	(ZN)	(C) (MG/L)	(UG/L)	SULFIDE (MG/L)
DATE	(UG/L)	(UG/L)	(UG/L)	(UG/L)	(UG/L)	(UG/L)	(06/1	(00/1)	(40/2/	(00/2/	(10/ 2/
MAY , 19											
28	470	1	20	10	1300	470	. 9	20	4.5	0	.0
18	6100	12	10	10	12000	1700	<.5	70	18	4	.0
		-		•	• • • • • • • • • • • • • • • • • • • •						
		95	RSM	FREEL	AND FORK	NEAR CHAN	DLERSVILL	E OH			
					ATER QUAL	ITY DATA					
				SPE-							
				CIFIC						2.50	DIS-
		INSTAN-		CON-		DIS-	ACIDITY	BICAR-	CARBON	SOLVED	SOLVED
		DIS-	TEMPER-	DUCT-	РН	SOLVED	ACTOTT	BUNATE	DIOXIDE	SULFATE	RIDE
	TIME	CHARGE	ATURE	(MICRO-		OXYGEN	H+	(HC03)	(502)	(504)	(CL)
DATE		(CFS)	(DEG C)	MHOS)	(UNITS)	(MG/L)	(:4G/L)	(MG/L)	(MG/L)	(MG/L)	(MG/L)
MAY , 1	075										
29	1130	E.30	21.0	950	7.0	8.2		208	5.3	310	19
SEP						10.2		214	6.8	239	20
30	1430	E.70	18.5	850	7.7	10.2		214	0.0	237	
	TOTAL		TOTAL			TOTAL			TOTAL		
	ALUM-	TOTAL	CHRO-	TOTAL	TOTAL	MAN-	TOTAL	TOTAL	ORGANIC		HYDRO-
	MUNI	ARSENIC	MIUM	COPPER	IRON	GANESE	MERCURY	ZINC	CARBON	PHENOLS	GEN SULFIDE
DATE	(AL) (UG/L)	(UG/L)	(UG/L)	(CU)	(FE) (UG/L)	(MN) (UG/L)	(HG) (UG/L)	(ZN) (UG/L)	(C) (MG/L)	(UG/L)	(MG/L)
DATE	100/2/	(00/2/	100/2/	(00) [100, 2,	100.0					
MAY + 1		. 0	410	0	. 80	20	<.5	10	4.0	16	.0
29	70	0	<10	. 0	. 00	20		10	7.0		
30	30	0	10	20	. 90	10	<.5	20	4.2	U	0
		90	6 PSA	SALT	CHEEK NEA	AR DUNCAN	FALLS OH				
					MATES OUAL	7TV ATA					
					WATER QUAL	LIT UATA					
				SPE-							
		INSTAN-		CIFIC			TOT.			0.10	015-
		TANEOUS		DUCT-		015-	ACIDITY	BICAR-	CARBON	DIS-	SOLVED CHLO-
	_	015-	TEMPER-	ANCL	PH .	SOLVED	AS	HONATE	DIOXIDE	SULFATE	HIDE
DATE	TIME	(CFS)	(DEG C)	-0801W)	/UNITES	OXYGEN		(MG/L)	(CO2)	(504)	(CL)
		10131	1020 07	MH05)	(UNITS)	(MG/L)	(MG/L)	(MG/L)	(MG/L)	(MG/L)	(4G/L)
MAY , 1		F			_						
29	1430	E20	21.0	430	1.2	7.8		150	15	55	24
03	1045	E42	10.0	380	7.1	9.8		142	18	55	26
	TOTAL		TOTAL			TOTAL			TOTAL		
	ALUM-	ARSENIC	MIUM	COPPER	INON	GANESE	MERCURY	ZINC	CARBON	PHENOLS	HYDRO- GEN
	(AL)	(AS)	(CH)	(CJ)	(FE)	(MN)	(HG)	(ZN)	(C)	- HENOES	SULFIDE
DATE	(UG/L)	(UG/L)	(UG/L)	(UG/L)	(UG/L)	(UG/L)	(UG/L)	(UG/L)	(MG/L)	(UG/L)	(MG/L)
MAY . 1	975										
49	260	2	0	10	940	300	.5	20	3.0	0	.0
OCT	140					100					
03	190	0	<10	10	930	190	<.5	20	4.2	11	.0

97 RSA ** BOGGS CREEK NEAR GRIFFIN OH

				•	AILK WOAL	III DAIA					
				SPE-							
				CIFIC						016-	DIS-
		INSTAN-		DUCT-		DIS-	TOTAL	BICAR-	CARBON	DIS- SOLVED	SOLVED CHLO-
		DIS-		ANCE	РН	SOLVED	AS	BONATE	DIOXIDE	SULFATE	RIDE
	TIM			(MICRO-		OXYGEN	H+	(HC03)	(CO2)	(504)	(CL)
DAT	E	(CFS)	(DEG C)	MHOS)	(UNITS)	(MG/L)	(MG/L)	(MG/L)	(MG/L)	(MG/L)	(MG/L)
** 4 4	1075										
29.	• 1975 •• 100	0 E.6	0 18.0	580	7.1	6.8		108	14	150	26
SEP	••			-		-					
18.	122	0 E7.0	18.0	240	7.3	7.6		64	5.1	38	7.0
	TOTA		TOTAL	TOT.1	TOTAL	TOTAL	TOTAL	TOTAL	TOTAL		HYDRO-
	ALUM INUM			TOTAL	TOTAL IRON	MAN- GANESE	TOTAL MERCURY	ZINC	ORGANIC	PHENOLS	GEN
	(AL			(CO)	(FE)	(MN)	(HG)	(ZN)	(C)		SULFIDE
DAT	E (UG/	L) (UG/L) (UG/L)	(UG/L)	(UG/L)	(UG/L)	(UG/L)	(UG/L)	(MG/L)	(UG/L)	(MG/L)
** A V	, 1975										
29.		70	1 20	U	1500	1400	.6	20	3.7	29	.0
SEP			-			-					
18.	• • 48	00	8 10	10	10000	860	<.5	60	8.0	. 2	.0
			98 UNA	ISLAN	D RUN AT	EAGLEPORT	ОН				
					ATER QUAL	TTY DATA					
					AILK WOAL	III OAIA					
				SPE-							
		INSTAN	_	CIFIC CON-			TOTAL.			DIS-	DIS- SOLVED
		TANEOU		DUCT-		015-	ACIDITY	BICAR-	CARBON	SOLVED	CHLO-
		DIS-		ANCE	PH	SOLVED	AS	BONATE	DIOXIDE	SULFATE	RIDE
	TIM			(MICRO-		OXYGEN	H+	(HC03)	(02)	(504)	(CL)
DATI	E	(CFS)	(DEG C)	MHOS)	(UNITS)	(MG/L)	(MG/L)	(MG/L)	(MG/L)	(MG/L)	(MG/L)
MAY	, 1975										
30.		E 10	19.5	380	6.9	8.8		117	24	49	30
NOV						_					
11.	140	0 E11	12.0	375	7.2	7.9		162	16	61	6.0
	TOTAL		TOTAL			TOTAL			TOTAL		
	ALUM-		CHRO-	TOTAL	TOTAL	TOTAL MAN-	TOTAL	TOTAL	TOTAL		HYDRO-
	INUM	ARSENI		COPPER	IRUN	GANESE	MERCURY	ZINC	CARBON	PHENOLS	GEN
	(AL		(CR)	(CJ)	(FE)	(MN)	(HG)	(ZN)	(C)		SULFIDE
DATE	(1)6/1	_) (JG/L)	(UG/L)	(UG/L)	(UG/L)	(UG/L)	(UG/L)	(UG/L)	(MG/L)	(UG/L)	(MG/L)
MAY	, 1975										
30.	18	00 2	2 20	10	3000	70	.5	20	4.5	13	.0
NOV											
11.	••	20	0	10	50	10	<.5	20	2.6	0	.0
			99 RSM	.3() 6 41	ione cons	NEAD OF TA	IF DOUTLIE	0.1			
			99 RSM	BRANI	IONS FORK	NEAR REIN	IEKZAILTE	UH			
					ATER QUAL	ITY DATA					
				SPE-							
				CIFIC							DIS-
		INSTAN		CUN-			TOTAL			DIS-	SOLVED
		TANEOU		DUCT-		DIS-	ACIDITY	BICAR-	CARBON	SOLVED	CHLO-
	TIM	L CHARG		ANCE (MICEO-	РН	OXYGEN	AS	RONATE	DIOXIDE	(SO4)	(CL)
DAT		(CFS)		(MICRO- MHOS)	(UNITS)	(MG/L)	H+ (MG/L)	(MG/L)	(CO2) (MG/L)	(MG/L)	(MG/L)
			1020 07		10.112.737	(110) [1				
	, 1975	0 5.34	23.0	1010	7				4 3	640	1
NOV	133	0 E50	22.0	1510	7.8	7.4		166	4.2	640	10
10.	131	5 - E9.2	14.5	1600	7.6	7.6		224	9.0	800	15
	TOTA		TOTAL			TOTAL			TOTAL		
	ALUM			TOTAL	TOTAL	MAN-	TOTAL	TOTAL	ORGANIC		HYDRO-
	INUM			COPPER	IRON	GANESE	MERCURY	ZINC	CARBON	PHENOLS	GEN
DAT	(AL E (1)6/			(CU) (UG/L)	(FE) (UG/L)	(MN) (UG/L)	(HG) (UG/L)	(ZN) (UG/L)	(C) (MG/L)	(UG/L)	SULFIDE (MG/L)
					, 50, 6,	,00,0	100/ [/			.50, 27	
	, 1975	00	1 10	10	110	120	, 4		3 4	2	
NOV	1		1 10	10	110	130	<.5	30	2.8	5	.0
10.	••	20	1 10	10	90	200	<.5	20	3.5	0	.0

100 RSM HORSE RUN NEAR REINERSVILLE OH

DATE	TIME	INSTAN- TANEOUS DIS- CHARGE (CFS)	TEMPER- ATURE (DEG C)	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS)	PH (UNITS)	DIS- SOLVED OXYGEN (MG/L)	TOTAL ACIDITY AS H+	BICAR- BONATE (HCO3) (MG/L)	CARBON DIOXIDE (CO2) (MG/L)	DIS- SOLVED SULFATE (SO4) (MG/L)	DIS- SOLVED CHLO- RIDE (CL) (MG/L)
DATE		(CFS)	(DEG C)	MUSI	(UNITS)	(MO/L)	(MO/L)	140727	(MOZE)	(,,
JUN , 19 06	75 1230	E50	20.5	1370	1.7	7.2		188	6.0	460	10
10	1100	E16	12.0	1350	7.5	7.9		232	12	570	15
DATE	TOTAL ALUM- INUM (AL) (UG/L)	TOTAL ARSENIC (AS) (UG/L)	TOTAL CHRO- MIUM (CR) (UG/L)	TOTAL COPPER (CU) (UG/L)	TOTAL IRUN (FE) (UG/L)	TOTAL MAN- GANESE (MN) (UG/L)	TOTAL MERCURY (HG) (UG/L)	TOTAL ZINC (ZN) (UG/L)	TOTAL ORGANIC CARBON (C) (MG/L)	PHENOLS	HYDRO- GEN SULFIDE (MG/L)
JUN , 19	75										
NOV	180	0	10	10	220	210	<.5	50	2.4	0	. 0
10	160	0	<10	10	330	310	<.5	10	3.5	U	•0
		101	RSM	DYES	CREEK NEA	R UNIONVI	LLE OH				
					ATER QUAL	ITY DATA					
				SPE-							
DATE	TIME	INSTAN- TANEOUS DIS- CHARGE (CFS)	TEMPER- ATURE (DEG C)	CIFIC CON- DUCT- ANCE (MICRO- MHOS)	H4 (STINU)	DIS- SOLVED OXYGEN (MG/L)	TOTAL ACIDITY AS H+ (MG/L)	BICAR- BONATE (MCO3) (MG/L)	CARBON DIOXIDE (CO2) (MG/L)	DIS- SOLVED SULFATE (SO4) (MG/L)	DIS- SOLVED CHLO- RIDE (CL) (MG/L)
JUN , 19		c 10	22.0								
NOV	1115	E 70	20.0	1150	7.5	7.0	-	172	8.7	430	13
10	1530	E46	13.5	1350	1.7	8.4		232	7.4	600	15
UATE	TOTAL ALUM- INUM (AL) (UG/L)	TOTAL ARSENIC (AS) (UG/L)	TOTAL CHRO- MIUM (CR) (UG/L)	TOTAL COPPER (CU) (UG/L)	TUTAL IRON (FE) (UG/L)	TOTAL MAN- GANESE (MN) (UG/L)	TOTAL MERCURY (HG) (UG/L)	TOTAL ZINC (ZN) (UG/L)	TOTAL ORGANIC CARBON (C) (MG/L)	PHENOLS	HYDRO- GEN SULFIDE (MG/L)
JUN , 19	75										
NOV	1800	2	20	50	4500	500	<.5	30	4.0	0	.0
10	280	1	0	o	920	340	<.5	50	4.9	0	.0
		102	к5м	SHARO	N FORK NE	AR SHARUM	N OH				
					ATER QUAL	ITY DATA					
UATE	TIME	INSTAN- TANEOUS DIS- CHARGE (CFS)	TEMPER- ATURE (DEG C)	SPE- CIFIC COM- DUCT- ANCE (MICRO- MHOS)	PH (211NU)	DIS- SOLVED OXYGEN (MG/L)	TOTAL ACIDITY AS H+ (MG/L)	BICAR- BONATE (HCU3) (MG/L)	CARSON DIOXIDE (CO2) (MG/L)	UIS- SOLVED SULFATE (SO4) (MG/L)	DIS- SOLVED CHLO- RIDE (CL)
		(CF3)	TOES CI.	MH031	(014113)	(40/2/	(1107)	11107 27	1-10/ 1	(,,
MAY , 19	975 1100	E1.0	16.0	850	7.8	8.4		258	6.5	210	12
24	0930	EZU	14.0	520	7.3	9.1		125	10	120	6.0
DATE	TOTAL ALUM- INUM (AL) (UG/L)	TUTAL ARSENIC (A5)	TOTAL CHRO- MIUM (CR) (UG/L)	TOTAL COPPER (CU) (UG/L)	TOTAL IRON (FE) (UG/L)	TOTAL MAN- GANESE (MN) (UG/L)	TOTAL MERCURY (HG) (UG/L)	TOTAL ZINC (ZN) (UG/L)	TOTAL ORGANIC CARBON (C) (MG/L)	PHENOLS	HYDRO- GEN SULFIDE (MG/L)
MAY . 1											
28 Stp 24	900	2	<10	10	1700	200	<.5 <.5	0 30		0	.0
		_						-0			

103 RSM OLIVE GREEN CREEK NEAR BEVERLY OH

				w	ATER GUAL	ITY DATA					
				SPE- CIFIC							DIS-
		INSTAN- TANEOUS -	TEMPER-	CON- DUCT- ANCE	РН	DIS- SOLVED	TOTAL ACIDITY AS	BICAR- BONATE	CARBON	DIS- SOLVED SULFATE	SOLVED CHLO- RIDE
DATE	TIME	(CFS)	(DEG C)	(MICRO- MH05)	(UNITS)	(MG/L)	(MG/L)	(MG/L)	(CO2) (MG/L)	(504) (MG/L)	(CL) (MG/L)
UN , 19	75										
U5	1245	130	19.0	428	7.9	6.7		190	3.8	59	10
11	0945	E103	12.0	520	7.7	8.5		308	9.8	37	12
	TOTAL ALUM- INUM	TOTAL ARSENIC	TOTAL CHRO- MIUM	TOTAL COPPER	TOTAL IRON	TOTAL MAN- GANESE	TOTAL MERCURY	TOTAL	TOTAL ORGANIC CARBON	PHENOLS	HYDRO- GEN
DATE	(AL) (UG/L)	(AS) (JG/L)	(CR) (UG/L)	(CU) (UG/L)	(FE) (UG/L)	(MN) (UG/L)	(HG) (UG/L)	(ZN) (UG/L)	(C) (MG/L)	(UG/L)	SULFIDE (MG/L)
JN , 19	75										
)5)V	1100	0	10	10	1500	100	<.5	30	3.1	0	.0
11	80	1	<10	10	70	10	<.5	10	2.0	0	•5
		104	UNM	WEST	BRANCH WO	LF CREEK	NEAR MALT	а он			
					ATER QUAL						
					_						
		Tail Tabl		SPE- CIFIC			TOTA:			0.15	DIS-
		INSTAN- TANEOUS DIS-	TEMPER-	DUCT- ANCE	PH	DIS- SOLVED	TOTAL ACIDITY AS	BICAR- BONATE	CARBON	DIS- SOLVED SULFATE	SOLVED CHLO- RIDE
DATE	TIME	CHARGE (CFS)	ATURE (DEG C)	(MICRO- MHOS)	(UNITS)	OXYGEN (MG/L)	H+ (MG/L)	(HCO3) (MG/L)	(CO2) (MG/L)	(SO4) (MG/L)	(CL) (MG/L)
AY , 19 30 DV	1230	E3.0	20.0	490	7.0	8.0		84	13	27	98
11	1200	Ē6.5	11.0	400	7.2	8.1		112	11	39	50
	TOTAL	TOTAL	TOTAL	TOT.	TOTA:	TOTAL	TOT-1	TOTAL	TOTAL		HYDRO-
	INUM	TOTAL ARSENIC	CHRO- MIUM	COPPER	TOTAL	MAN- GANESE	MERCURY	ZINC	ORGANIC	PHENOLS	GEN
	(AL)	(AS)	(CR)	(CU)	(FE)	(MN)	(HG)	(ZN)	(C)		SULFIDE
DATE	(UG/L)	(UG/L)	(UG/L)	(UG/L)	(UG/L)	(UG/L)	(UG/L)	(UG/L)	(MG/L)	(UG/L)	(MG/L)
AY , 19 30 DV	340 340	1	<10	0	560	40	<.5	20	7.0	0	.0
11	130	. 0	0	10	110	20	<.5	20	5.8	0	•2
		105	UNM	WEST	BRANCH LI	TTLE HOCK	ING RIVER	NEAR LII	TLE HOCK	ING OH	
					ATER QUAL						
				SPE-							
		INSTAN-		CIFIC CON- DUCT-		0.7.0	TOTAL	01645	64000:	DIS-	SOLVED
		DIS-	TEMPER-	ANCE	РН	DIS- SOLVED	ACIDITY	BICAR- BONATE	DIOXIDE	SOLVED	RIDE
DATE	TIME	CHARGE (CFS)	ATURE (DEG C)	(MICRO- MHOS)	(UNITS)	OXYGEN (MG/L)	H+ (MG/L)	(HCO3) (MG/L)	(CO2) (MG/L)	(SO4) (MG/L)	(CL) (MG/L)
	176						_				-
C , 19	1330	E 25	4.0	240	6.7	10.2		82	26	46	12
	TOTAL	TOTAL	TOTAL CHRO-	TOTAL	TOTAL	TOTAL	TOT::	TOT::	TOTAL		
	INUM	ARSENIC	MIUM	TOTAL COPPER	TOTAL IRON	MAN- GANESE	MERCURY	ZINC	ORGANIC CARBON	PHENOLS	HYDRO-
	(AL)	(AS)	(CR)	(CU)	(FE)	(MN)	(HG)	(ZN)	(C)	FHENULS	GEN SULFIDE
DATE	(UG/L)	(UG/L)	(UG/L)	(UG/L)	(UG/L)	(UG/L)	(UG/L)	(UG/L)	(MG/L)	(UG/L)	(MG/L)
C , 19	220	0	10	0	480	60	<.5	10	4.7	0	.0

106 UNM EAST BRANCH LITTLE HOCKING RIVER NEAR PORTERFIELD OH

				W	ATER QUAL	ITY DATA					
				ent-							
				SPE- CIFIC							DIS-
		INSTAN-		CON-			TOTAL			DIS-	SOLVED
		TANEOUS		DUCT-		DIS-	ACIDITY	BICAR-	CARBON	SOLVED	CHLO-
		DIS-	TEMPER-	ANCE	PH	SOLVED	AS	BONATE	DIOXIDE	SULFATE	RIDE
	TIME	CHARGE	ATURE	(MICRO-		OXYGEN	H+	(HC03)	(02)	(504)	(CL)
DATE		(CFS)	(DEG C)	MHOS).	(UNITS)	(MG/L)	(MG/L)	(MG/L)	(MG/L)	(MG/L)	(MG/L)
DEC . I				2.00							
04	1230	E20	5.0	320	6.9	10.6		114	23	53	14
	TOTAL		TOTAL			TOTAL			TOTAL		
	ALUM-	TOTAL	CHRO-	TOTAL	TOTAL	MAN-	TOTAL	TOTAL	ORGANIC		HYDRO-
	INUM	ARSENIC	MUIM	COPPER	IRON	GANESE	MERCURY	ZINC	CARBON	PHENOLS	GEN
DATE	(AL) (UG/L)	(AS) (UG/L)	(CR)	(CU) (UG/L)	(FE) (UG/L)	(MN)	(HG) (UG/L)	(ZN) (UG/L)	(C) (MG/L)	(UG/L)	SULFIDE (MG/L)
DATE	100/2/	(00/2)	100/1	(03/1/	(00/2/	(00/L)	(00/L/	10071	(40/6/	(00/L)	(-10/ L)
DEC , 19	975										
04	100	0	. 0	10	400	130	<.5	10	6.0	0	.0
		107	ASA	DIISH	CREEK AT	WEW LEXIN	GTON OH				
			434	40311	CKEEK AT	ACM CCAIN	10104 011				
				W	ATER QUAL	ATAG YTI					
				SPE-							
		THE TAN-		CIFIC			TOTAL			0.1.0	DIS-
		INSTAN- TANEOUS		CON-		216-	ACIDITY	BICAR-	CARBON	SOLVED	SOLVED CHLU-
		015-	TEMPER-	DUCT-	PH	SOLVED	ACIDITY	BONATE	BOIXOIG	SULFATE	RIDE
	TIME	CHARGE	ATURE	(MICHO-		OXYGEN	H+	(HC03)	(605)	(504)	(CL)
DATE		(CFS)	(DEG C)	MHOS)	(UNITS)	(MG/L)	(MG/L)	(MG/L)	(MG/L)	(MG/L)	(MG/L)
			1000 07		10.11.57	(10/ 2/	(1.107 27	, 10, 2,	1	
JUL . 19	975										
29	1420	£1.0	24.0	3850	2.8	6.6	13	0	.0	2300	46
OCT											
16	1330	£1.8	14.5	2600	2.6	6.4	14	0	• 0	1800	35
	TOTAL		TOTAL			TOTAL			TOTAL		
	ALUM-	TOTAL	CHRO-	TOTAL	TOTAL	MAN-	TOTAL	TOTAL	ORGANIC		HYDRO-
	INUM	ARSENIC	MIUM	COPPER	IRON	GANESE	MERCURY	ZINC	CARRON	PHENOLS	GEN
	(AL)	(AS)	(CR)	(CU)	(FE)	(MN)	(HG)	(ZN)	(C)		SULFIDE
DATE	(UG/L)	(JG/L)	(UG/L)	(UG/L)	(UG/L)	(UG/L)	(UG/L)	(UG/L)	(MG/L)	(UG/L)	(MG/L)
JUL • 19	975										
29	49000	2	40	30	210000	79000	<.5	1200	.8	6	.0
OCT											
16	80000	2	30	30	130000	50000	<.5	730	3.0	0	.0
		108	ASA	RUSH	CREEK NEAL	REMEN	ОН				
				W	ATER QUAL	ITY DATA					
				SPE-							0.0
		INSTAN-		CIFIC			TOTAL			0.10	DIS-
		TANEOUS		OUCT-		DIS-	ACIDITY	BICAR-	CARBON	SOLVED	SOLVED CHLU-
		DIS-	TEMPER-	ANCE	Рн	SOLVED	AS	BONATE	DIOXIDE	SULFATE	RIDE
	TIME	CHARGE	ATURE	(MICRO-		OXYGEN	H+	(HC03)	(CO2)	(504)	(CL)
DATE		(CFS)	(DEG C)	MH05)	(UNITS)	(MG/L)	(MG/L)	(MG/L)	(MG/L)	(MG/L)	(4G/L)
	_										
JUL , 19		-16					6				
29	1315	E10	21.5	1600	3.3	6.6	5.0	0	.0	710	82
OCT	1200	= 0	14 5	1100	3 4						100
16	1200	E9.0	14.5	1100	3.9	7.3	1.9	0	.0	410	100
	TOTAL		T. T						1111		
	TOTAL	TOTAL	TOTAL	TOT	*****	TOTAL	****	TOT .	TOTAL		
	ALUM-	TOTAL	CHRO-	TOTAL	TOTAL	MAN-	TOTAL	TOTAL	ORGANIC	DUENOL C	HYDRO-
	INUM (AL)	ARSENIC (AS)	(CR)	(CU)	(FE)	GANESE (MN)	MERCURY	ZINC (ZN)	(C)	PHENOLS	GEN SULFIDE
DATE	(UG/L)	(JG/L)	(UG/L)	(UG/L)	(UG/L)	(UG/L)	(HG)	(UG/L)	(MG/L)	(UG/L)	(MG/L)
	,	.55/ 2/	100/ [/	100/11	(00/)	100/6/	100/1	(00/L)	(10/1)	100/1	(10/11
JUL • 19											
29	15000	0	20	10	13000	23000	.5	440	1.6	6	.0
0CT 16	9700	1	10	10	4800	11000	<.5	200	3.1	0	.0

109 ASA RUSH CREEK NEAR SUGAR GROVE OH

DATE	TIME	INSTAN- TANEOUS DIS- CHARGE (CFS)	TEMPER- ATURE (DEG C)	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS)	PH (UNITS)	DIS- SOLVED OXYGEN (MG/L)	TOTAL ACIDITY AS H+ (MG/L)	BICAR- BONATE (HCO3) (MG/L)	CARBON DIOXIDE (CO2) (MG/L)	DIS- SOLVED SULFATE (SO4) (MG/L)	DIS- SOLVED CHLO- RIDE (CL) (MG/L)
JUL , 19	75									220	4.3
29 OCT	1100	E46	23.0	885	6.5	5.8		74	37	230	62
16	1000	E35	15.5	750	6.7	6.1		116	37	180	64
DATE	TOTAL ALUM- INUM (AL) (UG/L)	TOTAL ARSENIC (AS) (UG/L)	TOTAL CHRO- MIUM (CR) (UG/L)	TOTAL COPPER (CU) (UG/L)	TOTAL IRON (FE) (UG/L)	TOTAL MAN- GANESE (MN) (UG/L)	TOTAL MERCURY (HG) (UG/L)	TOTAL ZINC (ZN) (UG/L)	TOTAL ORGANIC CARBON (C) (MG/L)	PHENOLS	HYDRO- GEN SULFIDE (MG/L)
JUL • 19			10	7.0	960	6600	<.5	170	2.8	5	.0
0CT	500	0	10	-70	4700	4600	<.5	80	3.0	0	.0
16	3400	3	10	10	4700	4000		00	•		
		110	CNA	MONDA	Y CREEK A	T MC CUNE	VILLE OH				
					ATER QUAL	ITY DATA					
DATE.	TIME	INSTAN- TANEOUS JIS- CHARGE (CFS)	TEMPER- ATURE (DEG C)	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS)	PH (UNITS)	DIS- SOLVED OXYGEN (MG/L)	TOTAL ACIDITY AS H+ (MG/L)	BICAR- BONATE (HCO3) (MG/L)	CARBON DIOXIDE (CO2) (MG/L)	DIS- SOLVED SULFATE (SO4) (MG/L)	DIS- SOLVED CHLO- RIDE (CL) (MG/L)
MAY . 1	975									200	36
07 SEP	1225	E4.0	15.0	1200	3.3	11.2	2.8	0	.0	380	
V8	1530	£2.0	21.0	2100	2.6	8.8	5.3	0	• 0	600	200
DATE	TOTAL ALUM- INUM (AL) (UG/L)	TUTAL ARSENIC (AS) (UG/L)	TOTAL CHRO- MIUM (CR) (UG/L)	TOTAL COPPER (CU) (UG/L)	TOTAL IRON (FE) (UG/L)	TOTAL MAN- GANESE (MN) (UG/L)	TOTAL MERCURY (HG) (UG/L)	TOTAL ZINC (ZN) (UG/L)	TOTAL ORGANIC CARBON (C) (MG/L)	PHENOLS	HYDRO- GEN SULFIDE (MG/L)
MAY , 1	975 11000	. 0	20	20	13000	5000	<.5	260	.8	8	.0
SEP 08	21000	0	10	20	11000	10000		420	1.6	1	.0
00	21000	·	10		11000	10000					
		11	l CNA	LITT	LE MONDAY	CREEK NE	AR MAXVILI	E OH			
					WATER QUAL	LITY DATA					
				SPE-							
DATE	[]ME	INSTAN- TANEOUS DIS- CHARGE (CFS)	TEMPER- ATURE (DEG C)	CIFIC CON- DUCT- ANCE (MICRO- MHOS)	PH (UNITS)	DIS- SOLVED OXYGEN (MG/L)		BICAR- BONATE (HCO3) (MG/L)	DIOXIDE		DIS- SOLVED CHLO- RIDE (CL) (MG/L)
MAY , 1	1975										
06 SEP	1330	£6.0	19.0	1330	4.1	10.4	1.0	0	.0	360	160
08	1045	£3.0	12.5	1950	4.1	9.1	1.5	0	.0	400	300
UATE	TOTAL ALUM- INUM (AL) (UG/L)	TOTAL ARSENIC (AS) (UG/L)	TOTAL CHRO- MIUM (CR) (UG/L)	TOTAL COPPER (CU) (UG/L)	TOTAL IRON (FE) (UG/L)	TOTAL MAN- GANESE (MN) (UG/L)	(HG)	TOTAL ZINC (ZN) (UG/L)	TOTAL ORGANIC CARBON (C) (MG/L)		HYDRO- GEN SULFIDE (MG/L)
MAY + 1								25-			
SEP	8700	0	<10	U	1000	9000		280			•2
08	6000	1	10	10	550	12000	<.5	560	1.7		• 0

112 CNA MONDAY CREEK NEAR GREENDALE OH

Time												
MAY : 1975 190 1015 101 1015 101 1015 101 1015 101 1015 101 1015 101 1015 101 1015 101 1015 101 1015 101 1015 101 1015 101 1015 101 1015 101 1015 101 1015 101 1015 101 1015 101 1015 101 1015 101 1015 101 1015 101 1015 101 1015 101 1015 101 1015 101 1015 101 1015 101 1015 101 1015 101 1015 101 1015 101 1015 101 1015 101 1015 101 1015 101 1015 101 1015 101 1015 101 1015 101 1015 101 1015 101 1015 101 1015 101 1015 101 1015 101 1015 101 1015 101 1015 101 1015 101 1015 101 1015 101 1015 101 1015 101 1015 101 1015 101 1015 101 1015 101 1015 101 1015 101 1015 101 1015 101 1015 101 1015 101 1015 101 1015 101 1015 101 1015 101 1015 101 1015 101 1015 101 1015 101 1015 101 1015 101 1015 101 1015 101 1015 101 1015 101 1015 101 1015 101 1015 101 1015 101 1015 101 1015 101 1015 101 1015 101 1015 101 1015 101 1015 101 1015 101 1015 101 1015 101 1015 101 1015 101 1015 101 1015 101 1015 101 1015 101 1015 101 1015 101 1015 101 1015 101 1015 101 1015 101 1015 101 1015 101 1015 101 1015 101 1015 101 1015 101 1015 101 1015 101 1015 101 1015 101 1015 101 1015 101 1015 101 1015 101 1015 101 1015 101 1015 101 1015 101 1015 101 1015 101 1015 101 1015 101 1015 101 1015 101 1015 101 1015 101 1015 101 1015 101 1015 101 1015 101 1015 101 1015 101 1015 101 1015 101 1015 101 1015 101 1015 101 1015 101 1015 101 1015 101 1015 101 1015 101 1015 101 1015 101 1015 101 1015 101 1015 101 1015 101 1015 101 1015 101 1015 101 1015 101	DATE	TIME	TANEOUS DIS- CHARGE	ATURE	CIFIC CON- DUCT- ANCE (MICRO-		SOLVED	ACIDITY AS H+	(HCO3)	(COS)	SOLVED SULFATE (SO4)	SOLVED CHLO- RIDE (CL)
1015 E00 19.0 910 3.8 10.6 1.0 0 0 0 270 69	DATE		(Cr3)	(DEG C)	MHUSI	(0/11/3)	(MO/L)	(40/6/	(10/6/	(10/)	(1072)	
10 10 10 10 10 10 10 10	06		E50	19.0	910	3.8	10.6	1.0	0	.0	270	68
ALUM- TOTAL CHAP- TOTAL TOTA		1045	EDO	15.5	1125	5.4	8.1		7	45	220	270
ALUM- TOTAL CHAP- TOTAL TOTA		T										
MAY - 1975	DATE	ALUM- INUM (AL)	ARSENIC (AS)	CHRO- MIUM (CR)	(CU)	(FE)	MAN- GANESE (MN)	MERCURY (HG)	ZINC (ZN)	ORGANIC CARBON (C)		GEN SULFIDE
0000 1 20 10 1900 3400 4.5 170 1.7 0 0.0	DATE	130727	(00/)	(00/L)	(00/2)	(00/L)	(00/1/	(00/L)	(00/L)	(40/1/	(00/[/	(40/ [/
SEP 113 ADA SNOW FURK NEAR MURRAY CITY OH WATER QUALITY DATA												
113 ADA SNOW FUHK NEAR MURRAY CITY OH WATER QUALITY DATA WATER QUALITY DATA WATER QUALITY DATA SPECIFIC CONTINUAL CITY OH WATER QUALITY DATA SPECIFIC CONTINUAL CITY OH WATER QUALITY DATA SPECIFIC CITY OH WATER QUALITY DATA SPECIFIC CITY OH WATER QUALITY DATA WATER QUALITY	SEP											
NATER QUALITY DATA	10	3700	0	<10	· U	2000	4000	<.5	100	6.2	6	.0
TIME			113	ADA	SNOW F	ORK NEAR	MURRAY C	ITY OH				
TIME					w	TED QUALT	TY DATA					
TIME					•	TER GOALI	II DAIA					
TOTAL ACT A												
Tangle Tangle Duct			INSTAN-					TOTAL			DIS-	
DATE TIME CAMBO ATTICE MICRO MICR							DIS-		BICAR-	CARBON		
## 1975 CFS (DEG C) MH95 CUNITS (MG/L) (MG/L)				TEMPER-	ANCE	PH			HONATE	DIOXIDE	SULFATE	
MAY . 1975 21 1210	DATE	TIME										
21 1210 E30 20.0 1190 3.9 9.1 .8 0 .0 410 11 SEP 10 1220 E10 16.0 1850 2.9 8.4 5.6 0 .0 .0 710 30 TOTAL ALUM- TOTAL ALUM- TOTAL ALUM- TOTAL ALUM- TOTAL ALUM- TOTAL ACUM- TOTAL CHOP- MID- MATER ACUM- TOTAL CHOP- MID- MID- MID- MID- MID- MID- MID- MID	DATE		(CFS)	(DEG C)	MH05)	(UNITS)	(MG/L)	(MG/L)	(MG/L)	(MG/L)	(MG/L)	(MG/L)
SEP 10 1220 E10		75										
TOTAL ALWA- TOTAL TOTA	21	1210	E30	20.0	1190	3.9	9.1	• 8	0	.0	410	11
TOTAL TOTA		1220	E10	16.0	1850	6.9	8.4	5.6	0	.0	710	30
ALUM- TUTAL CHRO- TOTAL TOTAL TOTAL MAN- TOTAL TOTAL CARBON CA												
INUM		TOTAL		TOTAL			TOTAL			TOTAL		
MATER QUALITY DATA												
DATE (UG/L) (UG/											PHENOLS	
MAY . 1975 21 17000 0 30 30 19000 530 <.5 340 1.6 0 .0 SEP 16 42000 0 10 20 25000 8300 <.5 550 1.9 2 .0 114 CNA MONDAY C AT DOANVILLE OH WATER QUALITY DATA SPE- CIFIC CON- FLOW. TEMPER DUCT- INSTAN- FLOW. MAYER ANGE PH DIS- INSTAN- INSTAN- INSTAN- FLOW MAYER MIGHT MIGHT MIGHT MAGE OATE UATE TIME TANEOUS WATER (MIGHT) FIELD SOLVED (MG/L AS (MG/L) AS (MG/L) AS CO2) AS 504) AS CL) SEP . 1975 17 1115 E+0 17.0 1200 3.0 7.9 2.0 0 .0 340 140 ALUMI- HUW. ASSNIC MIUM. CUPPER, IRUN. NESS, MERCURY ZINC, UGAMIC OFFILD SOLVED (MG/L) AS MANDAY AS CO2) AS CO2) AS MERCURY JUBBLE MARKER OFFILD SOLVED (MG/L) AS MANDAY AS CO2) AS SOLVED SOLVED (MG/L) AS MANDAY AS CO2) AS SOLVED SOLVED (MG/L) AS CO2) AS SOLVED SOL	DATE										(UG/L)	
21 17000 0 30 30 19000 530 <.5 340 1.6 0 .0 SEP 10 42000 0 10 20 25000 8300 <.5 550 1.9 2 .0 114 CNA MONDAY C AT DOANVILLE OH WATER QUALITY DATA SPECIFIC CIFIC CON- FLUM- 16MPEN- DUCI- INSTAN- AFUNCE PH DIS- DATE TANEOUS WATER (AICRO- FIELD SOLVED (MG/L AS (MG/L (MG/L (MG/L SE)))) DATE (CFS) (DEG C) MHDS) (UNITS) (MG/L) AS A) HCO3) AS CO2) AS SO4) AS CL) ALUMI- RUM. ARSENIC MIUM. COPPER IRUN. NESE. MERCURY ZINC. URGANIC TOTAL TO				,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	100.27	100121	100/ 4/	100721				
SEP 10 42000 0 10 20 25000 8300 <.5 550 1.9 2 .0				20	2	1	630	. 6	340	1.	0	0
TIME TANEOUS WATER	SEP											
### Arsenic Minh Copper Iron Nese Mercury Zinc Organic Sulfide	10	42000	U	10	20	25000	8300	۲.5	550	1.9	2	.0
SPE- CLFIC STHEAM- FLOW IEMPEH DUCT- INSTAN- ATURE, ANDE DATE ATURE TANEOUS WATER (MICRO- FIELD SOLVED (MG/L SOLVED (MG/L AS (4G/L (MG/L (MG/L (MG/L MG/L AS (4G/L (MG/L MG/L MG/L MG/L MG/L MG/L MG/L MG/L				114	CNA	MONUAY (AT DOAN	VILLE OH				
SPE- CLFIC STHEAM- FLOW IEMPEH DUCT- INSTAN- ATURE, ANDE DATE ATURE TANEOUS WATER (MICRO- FIELD SOLVED (MG/L SOLVED (MG/L AS (4G/L (MG/L (MG/L (MG/L MG/L AS (4G/L (MG/L MG/L MG/L MG/L MG/L MG/L MG/L MG/L						JATEO MINI	TTV DATA					
CFFIC CAMBON CHLO- CAMBON CAMBON CHLO- CAMBON CAMB						MATER QUAL	LIT DATA					
STREAM—										CARBON		CHLO-
TIME TANEOUS WATER (MICRO- FIELD SOLVED (MG/L AS (MG/L										DIOXIDE	SULFATE	RIDE,
TIME TANEOUS WATER (MICRO- FIELD SOLVED (MG/L AS (MG/L (MG/L (MG/L MG/L MG/L MG/L MG/L MG/L MG/L MG/L												
DATE (CFS) (DEG C) MHOS) (UNITS) (MG/L) AS A) HCO3) AS CO2) AS SO4) AS CL) SEP • 1975 17 1115 E40 17.0 1200 3.0 7.9 2.0 0 .0 340 140 ALUMI- CHRO- MANGA- CARBON, GEN RUM. ARSENIC MIUM. COPPER, IRUN. NESE, MERCURY ZINC. URGANIC SULFIDE TOTAL		TiME										
ALUMI- CHRO- MANGA- CARBON, GEN SULFIDE TOTAL TO	DATE	1146										
ALUMI- CHRO- MANGA- CARBON, GEN SULFIDE TOTAL TO	SEP . 1	475										
ALUMI- HUM. ARSENIC MIUM. CUPPER, IRUN. NESE, MERCURY ZINC. URGANIC SULFIDE TOTAL PHENOLS DISS. (US/L (US			E 40	17.0	1200	3.5	7.9	2.0	0	.0	340	140
ALUMI- HUM. ARSENIC MIUM. CUPPER, IRUN. NESE, MERCURY ZINC. URGANIC SULFIDE TOTAL PHENOLS DISS. (US/L (US												HYDRO-
HUM. ARSENIC MIUM, CUPPER, IRUN, NESE, MERCURY ZINC, URGANIC SULFIDE TOTAL PHENOLS DISS. (US/L (US/L) AS AS ZN) AS C) (US/L) AS HZS) SEP • 1975		ALUMI-		CHRO-						CARBON,		GEN
USZL (USZL (USZC) (USZL (USZL) (USZL (USZL (USZL (USZL (USZL (USZL (USZL (USZL (USZC) (USZL (USZC) (USZ		NUM.		MIUM .			NESE .					
DATE AS AL) AS AS) AS CR) AS CU) AS FE) AS MN) AS HG) AS ZN) AS C) (UG/L) AS HZS)											PHENOLS	
SEP , 1975 17 /900 <1 <20 20 5900 4500 <.5 190 1.1 0 2.0	DATE										(UG/L)	
	5EP , 1	.975 /900	<1	<20	20	5900	4500	<.5	190	1.1	0	2.0

115 CNA * PINE FORK NEAR HEMLOCK OH

WATER QUALITY DATA

				W	ATER QUAL	ITY DATA					
				SPE-							
		INSTAN- TANEOUS		CIFIC CON- DUCT-		DIS-	TOTAL	BICAR-	CARBON	DIS- SOLVED	DIS- SOLVED CHLO-
	TIME	DIS- CHARGE	TEMPER- ATURE	ANCE (MICRO-	РН	SOLVED	AS H+	BONATE (HCO3)	DIOXIDE	SULFATE (SO4)	RIDE (CL)
MAY . 1	476	(CFS)	(DEG C)	MHOS)	(UNITS)	(MG/L)	(MG/L)	(MG/L)	(MG/L)	(MG/L)	(MG/L)
15	1000	E.90	12.5	1270	4.2	5.2	2.6	0	• 0	480	6.0
15	1030	E.70	13.5	1500	3.8	7.9	3.8	0	• 0	580	5.0
DATE	TOTAL ALUM- INUM (AL) (UG/L)	TOTAL ARSENIC (AS) (UG/L)	TOTAL CHRO- MIUM (CR) (UG/L)	TOTAL COPPER (CU) (UG/L)	TOTAL IRON (FE) (UG/L)	TOTAL MAN- GANESE (MN) (UG/L)	TOTAL MERCURY (HG) (UG/L)	TOTAL ZINC (ZN) (UG/L)	TOTAL- ORGANIC CARBON (C) (MG/L)	PHENOLS	HYDRO- GEN SULFIDE (MG/L)
MAY . 19											
SEP	10000	0	50	10	31000	2200	<.5	290	.6	0	.0
15	8600	0	<10	U	30000	2600	<.5	300	4.1	0	.0
		116	CNA	* WEST	BRANCH SUI	NDAY CREE	K AT DRAKE	ES OH			
				W	ATER QUAL	ITY DATA					
		INSTAN-		SPE- CIFIC CON-			TOTAL			DIS-	DIS- SOLVED
		TANEOUS DIS-	TEMPER-	DUCT-	РН	DIS- SULVED	ACIDITY AS	BUNATE	DIOXIDE	SOLVED SULFATE	RIDE
DATE	TIME	(CFS)	(DEG C)	(MICRO- MHOS)	(UNITS)	OXYGEN (MG/L)	(MG/L)	(MG/L)	(CO2) (MG/L)	(SO4) (MG/L)	(CL) (MG/L)
MAY , 19 15 SEP	1135	£8.0	13.5	828	4.6	8.9		14	563	310	22
15	1145	£5.0	15.5	900	4.3	8.6	.9	U	• 0	330	26
	TOTAL		TOTAL		N20200	TOTAL			TOTAL		14000
DATE	INUM (AL) (UG/L)	TOTAL ARSENIC (AS) (UG/L)	MIUM (CR) (UG/L)	TOTAL COPPER (CU) (UG/L)	TOTAL IRON (FE) (UG/L)	MAN- GANESE (MN) (UG/L)	TOTAL MERCURY (HG) (UG/L)	ZINC (ZN) (UG/L)	ORGANIC CARBON (C) (MG/L)	PHENOLS (UG/L)	GEN SULFIDE (MG/L)
MAY , 19	5900	0	20	10	5000	2300	<.5	140	1.4	0	.1
SEP 15	4100	0	0	0	4400	4200	<.5	130	.8	1	•0
		117	UNA	EAST	BRANCH SU	NDAY CREE	K ABOVE BU	JRR OAK L	AKE OH		
				w	ATER QUAL	ITY DATA					
				SPE-							216
		INSTAN- TANEOUS DIS-	TEMPER-	CIFIC CON- DUCT- ANCE	РН	DIS- SOLVED	TOTAL ACIDITY AS	BICAR- BONATE	CARBON DIOXIDE	DIS- SOLVED SULFATE	DIS- SOLVED CHLO- RIDE
DATE	TIME	(CFS)	ATURE (DEG C)	(MICRO- MHOS)	(UNITS)	OXYGEN (MG/L)	H+ (MG/L)	(HC03) (MG/L)	(CO2) (MG/L)	(SO4) (MG/L)	(CL) (MG/L)
MAY + 19	1400	E10	21.0	238	6.7	8.5		88	28	37	8.0
SEP 16	1340	£7.0	17.0	280	6.9	7.9		98		22	12
	TOTAL		TOTAL			TOTAL		, 3	TOTAL		
	ALUM- INUM (AL)	TOTAL ARSENIC (AS)	CHRO- MIUM (CR)	TOTAL COPPER (CU)	TOTAL IRON (FE)	MAN- GANESE (MN)	TOTAL MERCURY (HG)	TOTAL ZINC (ZN)	ORGANIC CARBON (C)	PHENOLS	HYDRO- GEN SULFIDE
DATE	(UG/L)	(JG/L)	(UG/L)	(UG/L)	(UG/L)	(UG/L)	(UG/L)	(UG/L)	(MG/L)	(UG/L)	(MG/L)
MAY • 19 21 SEP	370 370	1	<10	10	710	110	<.5	20	2.0	4	• 0
16	110	0	<10	0	490	110	<.5	10	2.2	2	• 0

118 CNA *** MUD FORK AT GLOUSTER OH

				SPE- CIFIC							DIS-
		INSTAN-		CON-			TOTAL			DIS-	SOLVED
		TANEOUS		DUCT-		DIS-	ACIDITY	BICAR-	CARBON	SOLVED	CHLO-
		DIS-	TEMPER-	ANCE	PH	SOLVED	AS	BONATE	DIOXIDE	SULFATE	RIDE
	TIME	CHARGE	ATURE	(MICRO-	TES	OXYGEN	H+	(MG/L)	(CO2) (MG/L)	(SO4) (MG/L)	(CL) (MG/L)
DATE		(CFS)	(DEG C)	MH05)	(UNITS)	(MG/L)	(MG/L)	(MG/L)	(40/1)	(40/1/	(40/1/
MAY , 19	75										
15	1440	25.0	14.5	3070	5.5	8.1		30	76	990	6.0
SEP	1 -11- 11		16 6	-000	4.7	7.7		4	128	4700	20
16	1350	=4.0	16.5	5000	4.7		-		120	4100	
	TOTAL		TOTAL			TOTAL			TOTAL		
	ALUM-	TOTAL	CHRO-	TOTAL	TOTAL	MAN-	TOTAL	TOTAL	ORGANIC		HYDRO-
	INUM	ARSENIC	MIUM	COPPER	IRON	GANESE	MERCURY	ZINC	CARDON	PHENOLS	GEN
	(AL)	(A5)	(CR)	(CU)	(FE)	(MN)	(HG)	(ZN)	(C)	(UG/L)	SULFIDE (MG/L)
DATE	(UG/L)	(UG/L)	(UG/L)	(UG/L)	(UG/L)	(UG/L)	(UG/L)	(UG/L)	(MG/L)	(00/2/	(40/1/
MAY . 19								. 20	1 7	0	
15	13000	20	440	20	430000	10000	<.5	520	1.7	0	.0
16	23000	29	10	10	700000	15000	<.5	810	6.7	0	.0
		119	CNA	CARR	RAILEY RU	N NEAR MO	DRRISTOWN	ОН			
					NATER QUAL	ITY DATA					
				SPE-							
				CIFIC							DIS-
		INSTAN-		CON-			TOTAL			DIS-	SOLVED
		TANEOUS		DUCT-		015-	ACIDITY	BICAR-	DIOXIDE	SOLVED	KIDE
		DIS-	TEMPER-	ANCE	PH	SOLVED	AS H+	(HCO3)	(COS)	(SO4)	(CL)
DATE	TIME	(CFS)	(DEG C)	(MICRO- MHOS)	(UNITS)	(MG/L)	(MG/L)	(MG/L)	(MG/L)	(MG/L)	(46/L)
MAY , 19	1415	£1.0	19.0	402	6.5	9.1		58	29	120	6.0
SEP	1415	£1.0	17.0	402	0.5						
17	1240	E.30	18.5	750	5.2	6.9		14	141	280	10
	TOTAL		TOTAL			TOTAL			TOTAL		
	ALUM-	TOTAL	CHRO-	TOTAL	TOTAL	MAN-	TOTAL	TOTAL	ORGANIC		HYDRO-
	INUM	ARSENIC	MIUM	COPPER	IRON	GANESE	MERCURY	ZINC	CARRON	PHENOLS	GEN
	(AL)	(AS)	(CR)	(CU)	(FE)	(MN)	(HG)	(ZN)	(C)		SULFIDE
DATE	(UG/L)	(JG/L)	(UG/L)	(UG/L)	(UG/L)	(UG/L)	(UG/L)	(UG/L)	(MG/L)	(UG/L)	(MG/L)
MAY . 19											
22	1700	0	<10	. 10	310	1100	<.5	30	2.3	0	.9
17	2000	0	0	U	480	3100	<.5	50	1.5	2	.0
		120	0 ADA	V V0	TTVAN DOT	1ATE 4611	NEAR MILL	e1510 04			
		•	707				MCAN MILL	TELD ON			
					WATER QUAL	LITY DATA					
				SPE-							
				CIFIC							DIS-
		INSTAN- TANEOUS		CON-		DIS-	ACIUITY	BICAR-	CARHON	SOLVED	SOLVED CHLO-
			TEMPER-	ANCE	PH	SOLVED		HONATE	DIOXIDE		RIDE
	TIME	CHARGE	ATURE	(MICRO-		OXYGEN		(HC03)	(COS)	(504)	(CL)
DATE		(CFS)	(DEG C)	MH05)	(UNITS)	(MG/L)	(MG/L)	(MG/L)	(MG/L)	(MG/L)	(4G/L)
MAY . 1	975										
22	1015	£1.0	15.5	3500	4.7			10	319	1700	4.0
SEP 17	1550	E.60	15.0	3500	3.9	1.4	17	U	.0	1500	3.0
		2.00		5500			• •				
	TOTAL		TOTAL			TOTAL			TOTAL		
	ALUM-	TOTAL	CHRO-	TOTAL	TOTAL	MAN-	TOTAL	TOTAL	ORGANIC		HYDRO-
	INUM	ARSENIC	MIUM	COPPER	IRON	GANESE	MERCURY	ZINC	CARBON	PHENOLS	GEN
DATE	(AL) (UG/L)	(AS) (UG/L)	(CR) (UG/L)	(CU) (UG/L)	(FE) (UG/L)	(MN) (UG/L)	(HG)	(UG/L)	(C) (MG/L)	(UG/L)	SULFIDE (MG/L)
MAY , 19					-		-				
MAY , 19	17000	79	600	20	460000	1000	<.5	690	8.6	0	.1
SEP 17	40000	40									
17	+0000	60	20	10	460000	10000	<.5	940	5.2	0	.0

121 CNA SUNDAY CREEK AT MILLFIELD OH

DATE	TIME	INSTAN- TANEOUS DIS- CHARGE (CFS)	TEMPER- ATURE (DEG C)	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS)	PH (UNITS)	DIS- SOLVED OXYGEN (MG/L)	TOTAL ACIDITY AS H+ (MG/L)	BICAR- BONATE (HCO3) (MG/L)	CARBON DIOXIDE (CO2) (MG/L)	DIS- SOLVED SULFATE (SO4) (MG/L)	DIS- SOLVED CHLO- RIDE (CL) (MG/L)
MAY , 19	75									260	20
22	1000	EBO	18.0	736	5.2	7.8		8	81	260	20
17	1415	E40	17.0	1330	4.8	7.1		4	101	530	25
DATE	TOTAL ALUM- INUM (AL) (UG/L)	TOTAL ARSENIC (AS) (UG/L)	TOTAL CHRO- MIUM (CR) (UG/L)	TOTAL COPPER (CU) (UG/L)	TOTAL IRON (FE) (UG/L)	TOTAL MAN- GANESE (MN) (UG/L)	TOTAL MERCURY (HG) (UG/L)	TOTAL ZINC (ZN) (UG/L)	TOTAL ORGANIC CARBON (C) (MG/L)	PHENOLS	HYDRO- GEN SULFIDE (MG/L)
MAY , 19					2.000	1000	. =	270	7.8	0	.0
22 SEP	560	1	40	200	34000	1800	<.5				
17	2000	3	0	30	87000	4200	<.5	170	2.2	6	• 0
		122	ASM	FEDER	AL CREEK	AT AMESVI	LLE OH				
					ATER QUAL	ITY DATA					
DATE	TIME	INSTAN- TANEOUS DIS- CHARGE (CFS)	TEMPER- ATURE (DEG C)	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS)	PH (UN1TS)	DIS- SOLVED OXYGEN (MG/L)	TOTAL ACIDITY AS H+ (MG/L)	BICAR- BONATE (HCO3) (MG/L)	CARBON DIOXIDE (CO2) (4G/L)	DIS- SOLVED SULFATE (SO4) (MG/L)	DIS- SOLVED CHLO- RIDE (CL) (MG/L)
AUG , 19					. 7	7.1		110	35	75	20
06 DEC	1045	E10	21.0	425	6.7	7.1					14
04	1100	E9.0	4.0	520	6.9	10.6		192	39	110	14
DATE	TOTAL ALUM- INUM (AL) (UG/L)	TOTAL ARSENIC (AS) (UG/L)	TOTAL CHRO- MIUM (CR) (UG/L)	TOTAL COPPER (CU) (UG/L)	TOTAL IRON (FE) (UG/L)	TOTAL MAN- GANESE (MN) (UG/L)	TOTAL MERCURY (HG) (UG/L)	TOTAL ZINC (ZN) (UG/L)	TOTAL ORGANIC CARBON (C) (MG/L)	PHENOLS	HYDRO- GEN SULFIDE (MG/L)
AUG , 19		,	20		. 200	25.0		30	5.8	7	. 0
DEC DEC	3900	3	20	10	6300	250	<.5				
04	180	0	20	10	360	120	<.5	20	2.3	0	• 0
		12:	3 ASM	SHAR	PS FORK NE	EAR AMESV	ILLE OH				
					WATER QUAL	ITY DATA		•			
UATE	TIME	INSTAN- TANEOUS DIS- CHARGE (CFS)	TEMPER- ATURE (DEG C)	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS)	PH (UNITS)	DIS- SOLVED OXYGEN (MG/L)		BICAR- BONATE (HCO3) (MG/L)	CARBON DIOXIDE (CO2) (MG/L)		DIS- SOLVED CHLO- RIDE (CL) (MG/L)
AUG , 19	975										
06 DEC	1145	E9.0	20.5	428	7.0	7.2		106	17	100	14
04	1145	£7.0	4.0	650	7.1	10.4		208	26	150	24
DATE	TOTAL ALUM- INUM (AL) (UG/L)	TOTAL ARSENIC (AS) (UG/L)	TOTAL CHRO- MIUM (CR) (UG/L)	TOTAL COPPER (CU) (UG/L)	TOTAL IRON (FE) (UG/L)	TOTAL MAN- GANESE (MN) (UG/L)	TOTAL MERCURY (HG) (UG/L)	TOTAL ZINC (ZN) (UG/L)	TOTAL ORGANIC CARBON (C) (MG/L)	PHENOLS	HYDRO- GEN SULFIDE (MG/L)
AUG + 19											
06 DEC	4400	3	20	10	6000	420	<.5	30	16	9	.0
04	780	0	20	10	1700	840	<.5	20	4.8	0	.0

124 CNA ** BRUSHY FORK NEAR MT PLEASANT OH WATER QUALITY DATA

				W	ATER QUAL	ITY DATA					
DATE	TIME	INSTAN- TANEOUS DIS- CHARGE (CFS)	TEMPER- ATURE (DEG C)	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS)	PH (UNITS)	DIS- SOLVED OXYGEN (MG/L)	TOTAL ACIDITY AS H+ (MG/L)	BICAR- BONATE (HCO3) (MG/L)	CARBON DIOXIDE (CO2) (MG/L)	DIS- SOLVED SULFATE (SO4) (MG/L)	DIS- SOLVED CHLO- RIDE (CL) (MG/L)
JUL • 19	975										
23	1050	E.20	27.5	401	4.7	7.1		1	32	120	16
20	1115	E1.7	12.0	235	5.0	9.9		5	32	83	6.0
DATE	TOTAL ALUM- INUM (AL) (UG/L)	TOTAL ARSENIC (AS) (UG/L)	TOTAL CHRO- MIUM (CR) (UG/L)	TOTAL COPPER (CU) (UG/L)	TOTAL IRON (FE) (UG/L)	TOTAL MAN- GANESE (MN) (UG/L)	TOTAL MERCURY (HG) (UG/L)	TOTAL ZINC (ZN) (UG/L)	TOTAL ORGANIC CARBON (C) (MG/L)	PHENOLS	HYDRO- GEN SULFIDE (MG/L)
JUL , 19	975 1500	0	<10	30	3100	4800	<.5	150	2.0	0	.0
OCT 20	4200	1	0	20	900	2300	<.5	140	3.2	0	.0
2000		•			,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	2000					
		125	CNA	** RED	RUN NEAR	ORLAND O	н				
				w	ATER QUAL	ATAG YT					
				SPE-							
DATE	TIME	INSTAN- TANEOUS DIS- CHARGE (CFS)	TEMPER- ATURE (DEG C)	CIFIC CON- DUCT- ANCE (MICRO- MHOS)	PH (UNITS)	DIS- SOLVED OXYGEN (MG/L)	TOTAL ACIDITY AS H+ (MG/L)	BICAR- BONATE (HCO3) (MG/L)	CARSON DIOXIDE (CO2) (MG/L)	DIS- SOLVED SULFATE (SO4) (MG/L)	DIS- SOLVED CHLO- RIDE (CL) (MG/L)
JUL , 19	1215	E.05	27.5	1650	2.8	5.8	10	0	.0	530	20
OCT 20	1245	E.43	12.0	390	3.3	9.6	1.8	0	.0	130	8.0
20	1245	E•43	12.0	390	3.3	9.0	1.0		••	130	0.0
DATE	TOTAL ALUM- INUM (AL) (UG/L)	TOTAL ARSENIC (AS) (UG/L)	TOTAL CHRO- MIUM (CR) (UG/L)	TOTAL COPPER (CU) (UG/L)	TOTAL IRON (FE) (UG/L)	TOTAL MAN- GANESE (MN) (UG/L)	TOTAL MERCURY (HG) (UG/L)	TOTAL ZINC (ZN) (UG/L)	TOTAL ORGANIC CARBON (C) (MG/L)	PHENOLS	HYDRO- GEN SULFIDE (MG/L)
JUL • 19 23	35000	0	10	30	58000	7300	<.5	310	1.8	0	.0
OCT										0	
20	5300	1	<10	10	12000	2400	<.5	110	2.0	0	•2
		126	CNA		ON CHEEK !		PLYMOUTH (он			
				SPE-							
DATE	TIME	INSTAN- TANEOUS DIS- CHARGE (CFS)	TEMPER- ATURE (DEG C)	CIFIC CON- DUCT- ANCE (MICRO- MHOS)	PH (UNITS)	DIS- SOLVED OXYGEN (MG/L)	TOTAL ACIDITY AS H+ (MG/L)	BICAR- BONATE (HCO3) (MG/L)	CARBON DIOXIDE (CO2) (MG/L)	DIS- SOLVED SULFATE (SO4) (MG/L)	DIS- SOLVED CHLO- RIDE (CL) (MG/L)
JUL , 19		E20	١ ، د د	40.4	3 -	7)			0	270	22
23 OCT	1335	E20	23.5	803	3.5	7.1	.5	0	.0	270	
20	1400	E56	11.5	445	3.9	9.4	1.4	0	.0	180	16
DATE	TOTAL ALUM- INUM (AL) (UG/L)	TOTAL ARSENIC (AS) (JG/L)	TOTAL CHRO- MIUM (CR) (UG/L)	TOTAL COPPER (CU) (UG/L)	TUTAL IHON (FE) (UG/L)	TOTAL MAN- GANESE (MN) (UG/L)	TOTAL MERCURY (HG) (UG/L)	TOTAL ZINC (ZN) (UG/L)	TOTAL ORGANIC CARBON (C) (MG/L)	PHENOLS (UG/L)	HYDRO- GEN SULFIDE (MG/L)
JUL • 19	10000	0	<10	10	2300	9700	<.5	300	.4	0	.0
OCT 20	7800	0	0	20	2900	4500	<.5	170	2.2	0	.0
							•				

127 ADA ** SANDY RUN ABOVE LAKE HOPE OH

WATER QUALITY DATA

				W	ATER QUAL	ITY DATA					
				SPE-							
		INSTAN-		CIFIC			TOTAL			DIS-	DIS- SOLVED
		TANEOUS		DUCT-		DIS-	ACIDITY	BICAR-	CARBON	SOLVED	CHLO-
		DIS-	TEMPER-	ANCE	PH	SOLVED	AS	BONATE	DIOXIDE	SULFATE	RIDE
DATE	TIME	CHARGE	ATURE	(MICRO-	/ T. T.C. S	OXYGEN	H+	(HC03)	(CO2)	(504)	(CL)
DATE		(CFS)	(DEG C)	MH05)	(UNITS)	(MG/L)	(MG/L)	(MG/L)	(MG/L)	(MG/L)	(4G/L)
JUL • 19											
23	1420	E. U5	28.0	516	5.3	6.3		3	24	200	55
21	1050	E.64	11.0	310	6.2	9.7		26	26	86	14
	1030	2.01	11.0	310	0.2	7.1		20	20	80	14
	TOTAL		TOTAL			TOTAL			TOTAL		
	ALUM-	TOTAL	CHRO-	TOTAL	TOTAL	MAN-	TOTAL	TOTAL	ORGANIC		HYDRO-
	INUM	ARSENIC	MIUM	COPPER	IRON	GANESE	MERCURY	ZINC	CARBON	PHENOLS	GEN
DATE	(AL) (UG/L)	(AS) (UG/L)	(CR) (UG/L)	(CU) (UG/L)	(FE) (UG/L)	(MN) (UG/L)	(HG) (UG/L)	(ZN) (UG/L)	(C) (MG/L)	(UG/L)	SULFIDE (MG/L)
			100/2/	100/2/	100/2/	(00/ 2/	(00/2/	(00) [(10, 2,	100, 2,	,
JUL • 19		0	-10		2:10:10	24.00	. =	1.20			
23	3000	0	<10	10	32000	2600	<.5	130	.8	0	.1
21	1800	0	10	10	7800	560	<.5	60	10	0	.2
		128	ADA	** MINE	BIG FOUR	HOLLOW AB	OVE LAKE	HOPE OH			
							OTE EMILE				
					ATER QUAL	ITY DATA					
				SPE-							DIS-
		INSTAN-		CIFIC CON-			TOTAL			DIS-	SOLVED
		TANEOUS		DUCT-		DIS-	ACIDITY	BICAR-	CARBON	SOLVED	CHLO-
		DIS-	TEMPER-	ANCE	PH	SOLVED	AS	BONATE	DIOXIDE	SULFATE	RIDE
	TIME	CHARGE	ATURE	(MICRO-		OXYGEN	H+	(HC03)	(C02)	(504)	(CL)
DATE		(CFS)	(DEG C)	MHOS)	(UNITS)	(MG/L)	(MG/L)	(MG/L)	(MG/L)	(MG/L)	(4G/L)
JUL , 19	975										
23	1530	E • 01	22.5	3540	2.7	5.2	27	0	.0	2400	5.0
OCT 21	1220	E.01	13.0	2400	2.7	9.2	17	0	.0	1300	2.0
21	1220	L.01	15.0	2400		7.2		o o	• •		
	TOTAL		TOTAL			TOTAL			TOTAL		
	ALUM-	TOTAL	CHRU-	TOTAL	TOTAL	MAN-	TOTAL	TOTAL	ORGANIC		HYDRO-
	INUM	ARSENIC	MIUM	COPPER	IRON	GANESE	MERCURY	ZINC	CARBON	PHENOLS	GEN
DATE	(AL) (UG/L)	(AS) (JG/L)	(CR) (UG/L)	(CU) (UG/L)	(FE) (UG/L)	(MN) (UG/L)	(HG) (UG/L)	(ZN) (UG/L)	(C) (MG/L)	(UG/L)	SULFIDE (MG/L)
DATE	(00/L)	(00/2)	(00/L/	(00/L)	(00/L)	(00/L)	(00/L/	(00/L)	(40/1)	(00/L)	(40/2)
JUL • 19							-	2000	1.0		
23	78000	5	50	150	500000	160000	<.5	2200	10	0	1.7
21	37000	2	30	60	180000	6900	<.5	990	3.4	0	.2
		129	CNA	** RACCO	ON CREEK	NEAR ZALE	SKI OH				
					ATEO OHAL	ITY DATA					
					ATER QUAL	IIT DATA					
				SPE-							
		INSTAN-		CIFIC							DIS-
		TANEOUS		DUCT-		DIS-	TOTAL	BICAR-	CARBON	DIS- SOLVED	SOLVED CHLO-
		DIS-	TEMPER-	ANCE	PH	SOLVED	ACTOTT	BONATE	DIOXIDE	SULFATE	RIDE
	TIME	CHARGE	ATURE	(MICRO-		OXYGEN	H+	(HC03)	(C02)	(504)	(CL)
DATE		(CFS)	(DEG C)	MHOS)	(UNITS)	(MG/L)	(MG/L)	(MG/L)	(MG/L)	(MG/L)	(MG/L)
JUL + 19	975										
23	1635	E40	25.5	700	4.0	7.2	1.6	0	.0	220	34
21	1416	543	12.0								
21	1415	ER5	12.0	400	4.5	9.3	.8	0	.0	140	16
	TOTAL		TOTAL			TOTAL			TOTAL		
	ALUM-	TOTAL	CHRO-	TOTAL	TOTAL	MAN-	TOTAL	TOTAL	ORGANIC		HYDRO-
	INUM	ARSENIC	MIUM	COPPER	IRON	GANESE	MERCURY	ZINC	CARBON	PHENOLS	GEN
DATE	(AL)	(AS)	(CR)	(CU)	(FE)	(MN)	(HG)	(ZN)	(C)	(110 ft s	SULFIDE
DATE	(UG/L)	(UG/L)	(UG/L)	(UG/L)	(UG/L)	(JG/L)	(UG/L)	(UG/L)	(MG/L)	(UG/L)	(MG/L)
JUL , 19											
23	5900	0	<10	10	1300	. 7600	.5	250	.4	0	.0
OCT 21	4100	. 0	<10	10	2200	3700	<.5	140	1.4	0	.0
		,	0			3,00		2.0		•	• •

RACCOON CREEK AT VINTON OH WATER QUALITY DATA

					ATER QUAL	III DAIA					
				SPE-							216
		INSTAN-		CIFIC			TOTAL			016-	DIS-
		TANEOUS		CON- DUCT-		UIS-	ACIDITY	BICAR-	CARBON	DIS- SOLVED	SOLVED CHLO-
		DIS-	TEMPER-	ANCE	PH	SOLVED	ACIDITY	BUNATE	DIOXIDE	SULFATE	RIDE
	TIME	CHARGE	ATURE	(MICRO-	PH	OXYGEN	H+	(HCO3)	(COS)	(S04)	(CL)
DATE	ITME	(CFS)	(DEG C)	MHOS)	(UNITS)	(MG/L)	(MG/L)	(MG/L)	(MG/L)	(MG/L)	(MG/L)
DAIL		(013)	TUES CI	MHU31	TONTIST	(MO/L)	(40/1	(MO/L)	(.40/L)	(40/1/	(40/1)
NOV + 1	975										
13	1145	E146	11.0	350	6.5	7./		18	9.1	120	18
	TOTAL		TOTAL			TOTAL			TOTAL		
	TOTAL ALUM-	TOTAL	TOTAL CHRO-	TOTAL	TOTAL	MAN-	TOTAL	TOTAL	ORGANIC		HYDRO-
	INUM	TOTAL	MIUM	COPPER	IRON	GANESE	MERCURY	ZINC	CARBON	PHENOLS	GEN
	(AL)	(AS)	(CR)	(CU)	(FL)	(MN)	(HG)	(ZN)	(C)	FILL NOL 3	SULFIDE
DATE	(UG/L)	(UG/L)	(UG/L)	(UG/L)	(UG/L)	(UG/L)	(UG/L)	(UG/L)	(4G/L)	(UG/L)	(MG/L)
DATE	(OG/L)	(OG/L)	(UG/L)	(UG/L)	(06/2)	(UG/L)	(00/L)	(OG/L)	(40/L)	TOUTE	(40/1/
NOV . 1	975										
13	160	0	0	10	330	2300	<.5	50	2.2	0	.0
		131	C1.4		F 3400000	CDUEN NE					
		131	CNA	LITTL	E RACCOON	CHEEK NE	AR WELLSTO	N UH			
				te:	ATER QUAL	TTY DATA					
					ATER GOME	III DAIA					
				SPE-							
				CIFIC							DIS-
		INSTAN-		CON-			TOTAL			DIS-	SOLVED
		TANEOUS		DUCT-		DIS-	ACIDITY	BICAR-	CARBON	SOLVED	CHLO-
		DIS-	TEMPER-	ANCE	PH	SOLVED	AS	BUNATE	DIOXIDE	SULFATE	RIDE
	TIME	CHARGE	ATURE	(MICRO-		OXYGEN	H+	(HC03)	(02)	(504)	(CL)
DATE		(CFS)	(DEG C)	MHOS)	(UNITS)	(MG/L)	(MG/L)	(MG/L)	(MG/L)	(MG/L)	(MG/L)
NOV . 1											
13	1015	E57	10.5	700	3.7	7.1	1.9	0	.0	290	12
	TOTAL		TOTAL			TOTAL			TOTAL		
	ALUM-	TOTAL	CHHO-	TOTAL	TUTAL	MAN-	TOTAL	TOTAL	ORGANIC		HYDRO-
	MUNI	ARSENIC	MIUM	COPPER	INON	GANESE	MERCURY	ZINC	CARRON	PHENOLS	GEN
	(AL)	(AS)	(CR)	(CU)	(FE)	(MN)	(HG)	(ZN) (UG/L)	(C) (MG/L)		SULFIDE
DATE	(UG/L)	(UG/L)					(UG/L)			(UG/L)	(MG/L)
		100/ 2/	(UG/L)	(UG/L)	(UG/L)	(UG/L)		(OG/L)	(40/)	1001 61	
	0.75	100/2/	(00/L)	(UG/L)	(UG/L)	(UG/L)		(00/1	(40/2/	100727	
NOV • 1	975										
13	975 8800	0	0	(UG/L)	1000	5000	<.5	200	3.6	0	.3
13	975 8800 ·										.3
13	975 8800 ·										.3
13	975 8800 ·		0	10		5000	٠, ٥				.3
13	975 8800 ·	0	0	10 RACCO	1000	5000 AT NORTHU	٠, ٥				. 3
13	975 8800 ·	0	0	10 RACCO	1000	5000 AT NORTHU	٠, ٥				.3
13	975 8800 ·	0	0	10 RACCO	1000	5000 AT NORTHU	٠, ٥				.3
13	975 8800 ·	0	0	lu RACCO W SPE-	1000	5000 AT NORTHU	٠, ٥				
13	975 8800 ·	132	0	RACCO W SPE- CIFIC	1000	5000 AT NORTHU	<.5 HO P			0	015-
13	975 8800 ·	0 132 INSTAN-	0	RACCO W SPE- CIFIC CON-	1000	o000 AT NORTHU ATA YTI	V.5 P OH TOTAL	200	3.6	ODIS-	DIS- SOLVED
13	975 8800°	0 L32 INSTAN- TAUCUS	CNA	RACCO W SPE- CIFIC CON- DUCT-	1000 ON CHEEK	DOOG AT WORTHU ATAG YTI	P OH TOTAL ACIDITY	200	3.6 CARdON	DIS- SOLVED	DIS- SOLVED CHLO-
13	8800	0 132 INSTAN- TANEOUS DIS-	CNA	RACCO W SPE- CIFIC CON- DUCT- ANCE	1000	SOLVED	P OH TOTAL ACIDITY AS	ZOO	CARBON UIOXIDE	DIS- SOLVEU SULFATE	DIS- SOLVED CHLO- RIDE
13	975 8800°	INSTAN- TAVEOUS DIS- CHARGE	CNA TEMPEH- ATURE	RACCO W SPE- CIFIC CON- DUCT- AUCT- (MICRO-	1000 ON CHEEK ATER- QUAL	SOLVED OXYGEN	TOTAL ACIDITY AS	SICAR- BONATE	CARdON DIOXIDE (CO2)	DIS- SOLVEU SULFATE (SO4)	DIS- SOLVED CHLO- RIDE (CL)
DATE	8800	0 132 INSTAN- TANEOUS DIS-	CNA	RACCO W SPE- CIFIC CON- DUCT- ANCE	1000 ON CHEEK	SOLVED	P OH TOTAL ACIDITY AS	ZOO	CARBON UIOXIDE	DIS- SOLVEU SULFATE	DIS- SOLVED CHLO- RIDE
13	TIME.	INSTAN- TAVEOUS DIS- CHARGE	CNA TEMPEH- ATURE	RACCO W SPE- CIFIC CON- DUCT- AUCT- (MICRO-	1000 ON CHEEK ATER- QUAL	SOLVED OXYGEN	TOTAL ACIDITY AS	SICAR- BONATE	CARdON DIOXIDE (CO2)	DIS- SOLVEU SULFATE (SO4)	DIS- SOLVED CHLO- RIDE (CL)
DATE	TIME.	INSTAN- TAVEOUS DIS- CHARGE	CNA TEMPEH- ATURE	RACCO W SPE- CIFIC CON- DUCT- AUCT- (MICRO-	1000 ON CHEEK ATER- QUAL	SOLVED OXYGEN	TOTAL ACIDITY AS	SICAR- BONATE	CARdON DIOXIDE (CO2)	DIS- SOLVEU SULFATE (SO4)	DIS- SOLVED CHLO- RIDE (CL)
DATE NOV + 1	8800°	INSTAN- TAVEOUS DIS- CHARGE (CFS)	CNA TEMPEP- ATURE (DEG C)	RACCO W SPE- CIFIC CON- DUCT- DUCT- (MICRO- MHOS)	1000 ON CHEEK ATER- QUAL PH (UNITS)	DIS- SOLVED OXYGEN (MG/L)	TOTAL ACIDITY AS	SICAR- BONATE (HCO3) (MG/L)	CARdON DIOXIDE (CO2) (MG/L)	DIS- SOLVEU SULFATE (SO4) (MG/L)	DIS- SOLVED CHLO- RIDE (CL) (MG/L)
DATE NOV + 1	8800°	INSTAN- TAVEOUS DIS- CHARGE (CFS)	CNA TEMPEP- ATURE (DEG C)	RACCO W SPE- CIFIC CON- DUCT- DUCT- (MICRO- MHOS)	1000 ON CHEEK ATER- QUAL PH (UNITS)	SOLVED OXYGEN (MG/L)	TOTAL ACIDITY AS	SICAR- BONATE (HCO3) (MG/L)	CARBON DIOXIDE (CO2) (MG/L)	DIS- SOLVEU SULFATE (SO4) (MG/L)	DIS- SOLVED CHLO- RIDE (CL) (MG/L)
DATE NOV + 1	TIME 975 1230	INSTAN- TAVEOUS DIS- CHARGE (CFS)	CNA TEMPEP- ATURE (DEG C) 11.5	RACCO W SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS)	1000 ON CHEEK ATER- QUAL PH (UNITS)	DIS- SOLVED OXYGEN (MG/L)	TOTAL ACIDITY AS H+ (MG/L)	SICAR-BONATE (HCO3) (MG/L)	CARBON DIOXIDE (CO2) (MG/L)	DIS- SOLVEU SULFATE (SO4) (MG/L)	DIS- SOLVED CHLO- RIDE (CL) (MG/L)
DATE NOV + 1	TIME 975 1230 TOTAL	INSTAN- TAYEOUS DIS- CHARGE (CFS)	TEMPEP- ATURE (DEG C)	RACCO W SPE- CIFIC CON- DUCT- DUCT- (MICRO- MHOS)	1000 ON CHEEK ATER- QUAL PH (UNITS) b.5	SOUVED OXYGEN (MG/L) TOTAL MAN-	TOTAL ACIDITY AS H+ (MG/L)	SICAR-SONATE (HCO3) (MG/L)	CARDON DIOXIDE (CO2) (MG/L) 13 TOTAL ORGANIC	DIS- SOLVED SULFATE (SO4) (MG/L)	DIS- SOLVED CHLO- RIDE (CL) (MG/L)
DATE NOV + 1	TIME 975 1230 TOTAL ALUM-	INSTAN- TANEOUS DIS- CHARGE (CFS)	TEMPEP- ATURE (DEG C)	RACCO W SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS) 400	1000 ON CHEEK ATER GUAL PH (UNITS) 6.5	DIS-SOLVED OXYGEN (MG/L)	TOTAL ACIDITY AS H+ (MG/L)	SICAR-BONATE (HCO3) (MG/L)	CARBON DIOXIDE (CO2) (MG/L)	DIS- SOLVEU SULFATE (SO4) (MG/L)	DIS- SOLVED CHLO- RIDE (CL) (MG/L)
DATE NOV + 1	TIME 975 1230 TOTAL ALUM- INUM	INSTAN- TAYEOUS DIS- CHARGE (CFS) E225 TOTAL ARSENIC	TEMPEP- ATURE (DEG C) 11.5 TOTAL CHRO- MIUM	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS)	1000 ON CHEEK ATER- QUAL PH (UNITS) b.5	DIS-SOLVED OXYGEN (MG/L) TOTAL MAN-GANESE	TOTAL ACIDITY AS H+ (MG/L)	FICAR-BONATE (HCO3) (MG/L)	CARBON DIOXIDE (CO2) (MG/L) 13 TOTAL ORGANIC CARBON	DIS- SOLVED SULFATE (SO4) (MG/L)	DIS- SOLVED CHLO- RIDE (CL) (MG/L)
DATE NOV , 1: 13	TIME 975 1230 TOTAL ALUM- INUM (AL) (UG/L)	INSTAN- TAYEOUS DIS- CHARGE (CFS) E225 TOTAL ARSENIC (AS)	TEMPEP- ATURE (DEG C) 11.5 TOTAL CHRO- MIUM (CR)	RACCO W SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS) 400 TOTAL COPPER (CU)	1000 ON CHEEK ATER QUAL PH (UNITS) 0.5 TOTAL INON (FE)	DIS- SOLVED OXYGEN (MG/L) TOTAL MAN- GANESE (MN)	TOTAL ACIDITY AS H+ (MG/L) TOTAL MERCURY (HG)	ZOO SICAR- BONATE (MCO3) (MG/L) ZOO TOTAL ZINC (ZN)	CARBON DIOXIDE (CO2) (MG/L) 13 TOTAL ORGANIC CARBON (C)	DIS- SOLVED SULFATE (SO4) (MG/L)	DIS- SOLVED CHLO- RIDE (CL) (MG/L)
DATE NOV - 11	TIME 975 1230 TOTAL ALUM- INUM (AL) (UG/L)	INSTAN- TAYEOUS DIS- CHARGE (CFS) E225 TOTAL ARSENIC (AS)	TEMPEP- ATURE (DEG C) 11.5 TOTAL CHRO- MIUM (CR)	RACCO W SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS) 400 TOTAL COPPER (CU)	1000 ON CHEEK ATER QUAL PH (UNITS) 0.5 TOTAL INON (FE)	DIS- SOLVED OXYGEN (MG/L) TOTAL MAN- GANESE (MN)	TOTAL ACIDITY AS H+ (MG/L) TOTAL MERCURY (HG)	ZOO SICAR- BONATE (MCO3) (MG/L) ZOO TOTAL ZINC (ZN)	CARBON DIOXIDE (CO2) (MG/L) 13 TOTAL ORGANIC CARBON (C)	DIS- SOLVED SULFATE (SO4) (MG/L)	DIS- SOLVED CHLO- RIDE (CL) (MG/L)

133 CNM WEST BRANCH SHADE RIVER NEAR BURLINGHAM OH

DATE	TIME	INSTAN- TANEOUS DIS- CHARGE (CFS)	TEMPER- ATURE (DEG C)	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS)	PH (UNITS)	DIS- SOLVED OXYGEN (MG/L)	TOTAL ACIDITY AS H+ (MG/L)	BICAR- BONATE (HCO3) (MG/L)	CARBON DIOXIDE (CO2) (MG/L)	DIS- SOLVED SULFATE (SO4) (MG/L)	DIS- SOLVED CHLO- RIDE (CL) (MG/L)
JUL • 19	975 1115	E.30	22.5	760	3.7	8.0	.6	0	•0	250	8.0
NOV 17	1100	£5.0	7.5	540	6.3	11.2		48	38	200	10
DATE	TOTAL ALUM- INUM (AL) (UG/L)	TOTAL ARSENIC (AS) (UG/L)	TOTAL CHRO- MIUM (CR) (UG/L)	TOTAL COPPER (CU) (UG/L)	TOTAL IRON (FE) (UG/L)	TOTAL MAN- GANESE (MN) (UG/L)	TOTAL MERCURY (HG) (UG/L)	TOTAL ZINC (ZN) (UG/L)	TOTAL ORGANIC CARBON (C) (MG/L)	PHENOLS	HYDRO- GEN SULFIDE (MG/L)
JUL , 19	75										
NOV 02	1200	0	10	10	1800	6600	.5	100	2.6	0	•0
17	1900	0	0	10	2300	4400	<.5	70	6.0	1	•0
		134	CNM	KERR	RUN AT PO	MEROY OH					
				W	ATER QUAL	ITY DATA					
	TIME	INSTAN- TANEOUS DIS- CHARGE	TEMPER-	SPE- CIFIC CON- DUCT- ANCE	РН	DIS- SOLVED	TOTAL ACIDITY AS H+	BICAR- BONATE	CARBON DIOXIDE (CO2)	DIS- SOLVED SULFATE (SO4)	DIS- SOLVED CHLO- RIDE (CL)
DATE	ITME	(CFS)	(DEG C)	(MICRO- MHOS)	(UNITS)	OXYGEN (MG/L)	(MG/L)	(HCO3) (MG/L)	(MG/L)	(MG/L)	(MG/L)
JUL • 15	75 1000	E.10	19.5	721	4.7	8.6		4	128	270	10
17	1230	E • 45	6.1	700	6.1	9.8		24	31	200	18
DATE	TOTAL ALUM- INUM (AL) (UG/L)	TOTAL ARSENIC (AS) (UG/L)	TOTAL CHRO- MIUM (CR) (UG/L)	TOTAL COPPER (CU) (UG/L)	TOTAL IRON (FE) (UG/L)	TOTAL MAN- GANESE (MN) (UG/L)	TOTAL MERCURY (HG) (UG/L)	TOTAL ZINC (ZN) (UG/L)	TOTAL ORGANIC CARBON (C) (MG/L)	PHENOLS	HYDRO- GEN SULFIDE (MG/L)
JUL • 19	3600	0	10	10	2100	1600	.5	110	1.6	0	.1
NOV 17	3400	1	<10	10	6600	1700	<.5	100	2.2	0	.0
		135	CNM	LFADI	NG CREEK	NEAR RUTL	AND OH				
					ATER QUAL						
					ATER GUAL	III DATA					
DATE	TIME	INSTAN- TANEOUS DIS- CHARGE (CFS)	TEMPER- ATURE (DEG C)	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS)	H4 (STINU)	DIS- SOLVED OXYGEN (MG/L)	TOTAL ACIDITY AS H+ (MG/L)	BICAR- BONATE (HCO3) (MG/L)	CARBON DIOXIDE (CO2) (MG/L)	DIS- SOLVED SULFATE (SO4) (MG/L)	DIS- SOLVED CHLO- RIDE (CL) (MG/L)
JUL , 19	75										
03 NOV	1200	£4.0	24.0	682	7.1	8.1		144	18	97	72
17	1550	E15	8.5	460	6.6	10.8		92	37	110	20
DATE	TOTAL ALUM- INUM (AL) (UG/L)	TOTAL ARSENIC (AS) (UG/L)	TOTAL CHRO- MIUM (CR) (UG/L)	TOTAL COPPER (CU) (UG/L)	TOTAL IRON (FE) (UG/L)	TOTAL MAN- GANESE (MN) (UG/L)	TOTAL MERCURY (HG) (UG/L)	TOTAL ZINC (ZN) (UG/L)	TOTAL ORGANIC CARBON (C) (MG/L)	PHENOLS	HYDRO- GEN SULFIDE (MG/L)
JUL • 19											
03 NOV 17	390	2	10 0	20	1300	620 560	<.5 <.5	20	3.6 2.4	0	.0
	3,0	J		J	010	500		20		•	• •

136 CMM LEADING CREEK NEAR MIDDLEPORT OH

				•	ALEK GOVET	III DAIA					
DATE	TIME	INSTAN- TANEOUS DIS- CHARGE (CFS)	TEMPER- ATURE (DEG C)	SPE+ CIFIC CON- DUCT- ANCE (MICRO- MHOS)	PH (UNITS)	DIS- SOLVED OXYGEN (MG/L)	TOTAL ACIDITY AS H+ (MG/L)	BICAR- BONATE (HCO3) (MG/L)	CARBON DIOXIDE (CO2) (MG/L)	DIS- SOLVED SULFATE (SO4) (MG/L)	DIS- SOLVED CHLO- RIDE (CL) (MG/L)
JUL , 19	75 1545	£3.0	32.0	645	7.0	8.2		142	23	110	62
NOV 17	1500	E14	8.5	460	6.6	10.6		92	37	120	18
DATE	TOTAL ALUM- INUM (AL) (UG/L)	TOTAL ARSENIC (AS) (UG/L)	TOTAL CHRU- MIUM (CR) (UG/L)	TOTAL COPPER (CU) (UG/L)	TOTAL IRON (FL) (UG/L)	TOTAL MAN- GANESE (MN) (UG/L)	TOTAL MERCURY (HG) (UG/L)	TOTAL ZINC (ZN) (UG/L)	TOTAL ORGANIC CARBON (C) (MG/L)	PHENOLS (UG/L)	HYDRO- GEN SULFIDE (MG/L)
JUL , 19	975 300	0	10	o	610	550	<.5	10	3.6	0	.0
NOV 17	360	0	0	0	570	610	.5	20	2.8	0	•0
		137	CNM		S FORK NE		PORT OH				
				W	ATER QUAL	ITY DATA					
DATE	TIME	INSTAN- TANEOUS DIS- CHARGE (CFS)	TEMPER- ATURE (DEG C)	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS)	PH (UNITS)	DIS- SOLVED OXYGEN (MG/L)	TOTAL ACIDITY AS H+ (MG/L)	BICAR- BONATE (HCO3) (MG/L)	(MG/L)	DIS- SOLVED SULFATE (SO4) (MG/L)	DIS- SOLVED CHLO- RIDE (CL) (MG/L)
JUL , 19	975 1430	E3.0	31.5	1380	3.5	7.3	.8	0	.0	590	35
NOV 17	1345	E9.7	11.0	820	4.1	10.2	1.4	U	.0	360	18
DATE	TOTAL ALUM- INUM (AL) (UG/L)	TOTAL ARSENIC (A5) (JG/L)	TOTAL CHRO- MIUM (CR) (UG/L)	TOTAL COPPER (CU) (UG/L)	TOTAL IRON (FE) (UG/L)	TOTAL MAN- GANESE (MN) (UG/L)	TOTAL MERCURY (HG) (UG/L)	TOTAL ZINC (ZN) (UG/L)	TOTAL ORGANIC CARBON (C) (MG/L)	PHENOLS	HYDRO- GEN SULFIDE (MG/L)
JUL + 1											
NOV	15000	0	50	30	1600	6800	<.5	430	4.0	0	•0
17	1100	. 0	10	10	6600	4000	<.5	190	2.0	U	•0
		138	ASM	KYGEH	CHEEK NE	AR CHESH	IRE OH				
					ATER QUAL	ITY DATA					
DATE	TIME	INSTAN- TANEOUS DIS- CHARGE (CFS)	TEMPER- ATURE (DEG C)	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS)	PH (UNITS)	DIS- SOLVED OXYGEN (MG/L)	TOTAL ACIDITY AS H+ (MG/L)	BICAR- BONATE (HCO3) (MG/L)	CARBON DIOXIDE (CO2) (MG/L)	DIS- SOLVED SULFATE (SO4) (MG/L)	DIS- SOLVED CHLO- RIDE (CL) (MG/L)
JUL , 1	975										
24 NOV	1230	£7.0	29.0	1070	8.9	6.7		68	•1	420	44
17	1700	E0.2	14.0	2500	7.3	4.6		76	6.1	1600	50
UATE	TOTAL ALUM- INUM (AL) (UG/L)	TOTAL ARSENIC (AS) (UG/L)	TOTAL CHRO- MIUM (CR) (UG/L)	TOTAL COPPER (CU) (UG/L)	TOTAL IRON (FE) (UG/L)	TOTAL MAN- GANESE (MN) (UG/L)	TOTAL MERCURY (HG) (UG/L)	TOTAL ZINC (ZN) (UG/L)	TOTAL ORGANIC CARBON (C) (MG/L)	PHENOLS	HYDRO- GEN SULFIDE (MG/L)
JUL • 19	975 2000	95	90	10	320	110	<.5	20	2.6	U	.0
NOV 17	1400	75	60	10	480	1800	4.5	40	3.0	0	.0

139 ASM LITTLE KYGER CREEK NEAR CHESHIRE OH

				W	ATER QUALI	ITY DATA						
				SPE-								
	TIME	INSTAN- TANEOUS DIS- CHARGE	TEMPER-	CIFIC CON- DUCT- ANCE (MICRO-	РН	DIS- SOLVED OXYGEN	TOTAL ACIDITY AS H+	BICAR- BONATE (HCO3)	CARBON DIOXIDE (CO2)	DIS- SOLVED SULFATE (SO4)	DIS- SOLVED CHLO- RIDE (CL)	
DATE		(CFS)	(DEG C)	MHOS)	(UNITS)	(MG/L)	(MG/L)	(MG/L)	(MG/L)	(MG/L)	(MG/L)	
JUL • 197												
24 NOV	1415	€.10	30.5	2770	3.3	7.1	1.6	0	• 0	1600	10	
17	1745	E.17	12.5	2600	3.3	9.6	6.4	0	• 0	1700	20	
	TOTAL ALUM- INUM (AL)	TOTAL ARSENIC (AS)	TOTAL CHRO- MIUM (CR)	TOTAL COPPER (CU)	TOTAL IRON (FE)	TOTAL MAN- GANESE (MN)	TOTAL MERCURY (HG)	TOTAL ZINC (ZN)	TOTAL ORGANIC CARBON (C)	PHENOLS	HYDRO- GEN SULFIDE	
DATE	(UG/L)	(UG/L)	(UG/L)	(UG/L)	(UG/L)	(J@\L)	(UG/L)	(UG/L)	(MG/L)	(UG/L)	(MG/L)	
JUL • 197	37000	0	20	30	2500	52000	.6	1100	1.4	0	•0	
NOV 17	40000	0	10	20	3200	47000	<.5	970	۷.3	0	• 0	
.,	+0000	U	10	20	3200	47000		910	2.5	· ·	• 0	
		140	ASM	LITTL	E INDIAN (GUYAN CRE	EK NEAR RA	APPSHURG	ОН			
				W	ATER QUAL	ITY DATA						
				SPE-								
		INSTAN- TANEOUS DIS-	TEMPER-	CIFIC CON- DUCT- ANCE	РН	DIS- SOLVED	TOTAL ACIDITY AS	BICAR- BONATE	CARBON DIOXIDE	DIS- SOLVED SULFATE	DIS- SOLVED CHLO- RIDE	
DATE	TIME	(CFS)	(DEG C)	(MICRO- MHOS)	(UNITS)	OXYGEN (MG/L)	H+ (MG/L)	(HCO3) (MG/L)	(CO2) (MG/L)	(SO4) (MG/L)	(CL) (MG/L)	
1.111 1.07												
JUN , 197 19	1400	E.10	27.0	800	3.8	7.5	1.7			350	8.0	
21	1830	E1.4	14.0	710	4.0	8.6	1.6	0	.0	350	6.0	
	TOTAL		TOTAL			TOTAL			TOTAL			
	ALUM-	TOTAL	CHRO-	TOTAL	TOTAL	MAN-	TOTAL	TOTAL	ORGANIC		HYDRO-	
	INUM	ARSENIC	MIUM	COPPER	IRON	GANESE	MERCURY	ZINC	(C)	PHENOLS	GEN SULFIDE	
DATE	(AL) (UG/L)	(AS) (UG/L)	(CR) (UG/L)	(CU)	(FE) (UG/L)	(MN) (UG/L)	(HG) (UG/L)	(ZN) (UG/L)	(MG/L)	(UG/L)	(MG/L)	
JUN , 197	5											
19 OCT	11000	1	20	10	320	7700	<.5	290	9.9	0	.0	
21	1200	0	0	0	550	5900	<.5	220	4.2	0	.3	
		141	CNA	INDIA	N GUYAN CE	REEK NEAR	SCOTTOWN	ОН				
				w	ATER QUAL	ITY DATA						
				SPE-								
		INSTAN-		CIFIC CON-			TOTAL			DIS-	DIS- SOLVED	
		TANEOUS		DUCT-		DIS-	ACIDITY	BICAR-	CARBON	SOLVED	CHLO-	
		DIS-	TEMPER-	ANCE	РН	SOLVED	AS	BONATE	DIOXIDE	SULFATE	RIDE	
DATE	TIME	CHARGE	ATURE	(MICRO-	/III.TTC1	OXYGEN	H+	(HC03)	(CO2)	(504)	(CL)	
DATE		(CFS)	(DEG C)	MHOS)	(UNITS)	(MG/L)	(MG/L)	(MG/L)	(MG/L)	(MG/L)	(MG/L)	
JUN • 197		26 ··	27.6	. 00	7 7	7 .		7/	4 1	100	1.0	
19	1600	£5.0	27.0	400	7.3	7.4		76	6.1	100	10	
21	1700	E17	14.5	400	7.1	8.7		66	8.4	120	8.0	
	TOTAL		TOTAL			TOTAL			TOTAL			
	ALUM-	TOTAL	CHRO-	TOTAL	TOTAL	MAN-	TOTAL	TOTAL	ORGANIC		HYDRO-	
	INUM (AL)	ARSENIC (AS)	MIUM (CR)	(CU)	(FE)	GANESE (MN)	MERCURY (HG)	ZINC (ZN)	(C)	PHENOLS	GEN SULFIDE	
DATE	(UG/L)	(UG/L)	(UG/L)	(UG/L)	(UG/L)	(UG/L)	(UG/L)	(UG/L)	(MG/L)	(UG/L)	(MG/L)	
JUN • 197												
19	170	0	10	U	400	360	<.5	10	7.9	2	• 0	
21	350	1	0	o	480	580	<.5	20	3.1	0	.3	

BLACK FORK NEAR GALLIA OH 142 CNA

				w	ATER QUAL	ATAG YTI					
		INSTAN-		SPE- CIFIC CON- DUCT-		015-	TOTAL	BICAR-	CARBON	DIS- SOLVED	DIS- SOLVED CHLO-
	TIME	DIS-	TEMPER-	ANCE	PH	SOLVED	AS	BONATE	DIOXIDE	SULFATE (SO4)	RIDE
DATE	IIMC	(CFS)	(DEG C)	(MICRO- MHOS)	(UNITS)	(MG/L)	(MG/L)	(MG/L)	(CO2)	(MG/L)	(CL) (MG/L)
NOV , 19	975 1345	E13	9.5	240	6.6	7.5		38	15	66	7.0
			,,,		•••						
	TOTAL ALUM-	TOTAL	TOTAL CHRO-	TOTAL	TOTAL	MAN-	TOTAL	TOTAL	ORGANIC		HYDRO-
	INUM	ARSENIC	MIUM	COPPER	IHON	GANESE	MERCURY	ZINC	CARBON	PHENULS	GEN
DATE	(AL) (UG/L)	(AS) (UG/L)	(CR) (UG/L)	(CU) (UG/L)	(FE) (UG/L)	(MN) (UG/L)	(HG) (UG/L)	(ZN) (UG/L)	(C) (MG/L)	(UG/L)	SULFIDE (MG/L)
		100727	100727	100727	100727	100/2/	100/2/	100, 4,			
13	200	0	0	10	1100	700	<.5	30	5.6	0	.0
		143	CNA	SYMES	CHEEK AT	AID OH					
					ATER QUAL	ITY DATA					
				SPE- CIFIC							DIS-
		INSTAN-		CON-			TOTAL			015-	SOLVED
		TANEOUS DIS-	TEMPER-	DUCT-	РН	DIS-	ACIDITY	BONATE	DIOXIDE	SOLVED	RIDE
	TIME	CHARGE	ATURE	(MICRO-		OXYGEN	H+	(HC03)	(502)	(504)	(CL)
DATE		(CFS)	(DEG C)	MHOS)	(UNITS)	(MG/L)	(MG/L)	(MG/L)	(MG/L)	(MG/L)	(MG/L)
JUN • 1	975 1130	E40	23.0	295	6.8	6.1		66	17	66	10
OCT											
21	1500	E1790	11.5	150	6.1	8.0		20	25	38	4.0
	TOTAL ALUM- INUM	TOTAL	TOTAL CHRO- MIUM	TOTAL COPPER	TOTAL IRON	TOTAL MAN- GANESE	TOTAL	TOTAL	TOTAL ORGANIC CARBON	PHENOLS	HYDRO- GEN
	(AL)	(AS)	(CR)	(CU)	(FE)	(MN)	(HG)	(ZN)	(C)		SULFIDE
DATE	(UG/L)	(UG/L)	(UG/L)	(UG/L)	(UG/L)	(UG/L)	(UG/L)	(UG/L)	(MG/L)	(UG/L)	(MG/L)
JUN , 19	975 400	0	20	0	1200	780	<.5	10	11	2	.0
OCT		1									
21	600	1	0	0	1500	290	<,5	10	8.8	0	.0
		144	CNA	LITT	E ICE CRE	EK NEAR (COAL GROVE	04			
					ATER QUAL	ITY DATA					
				SPE-							
		INSTAN-		CIFIC CON-			TOTAL			015-	DIS- SOLVED
		TANEOUS		DUCT-		DIS-	ACIDITY	BICAR-	CARBON	SOLVED	CHLO-
	TIME	DIS- CHARGE	ATURE	ANCE (MICHO-	РН	OXYGEN	AS H+	(HCO3)	DIOXIDE	SULFATE (SO4)	(CL)
DATE		(CFS)	(DEG C)	MH05)	(UNITS)	(MG/L)	(MG/L)	(MG/L)	(MG/L)	(MG/L)	(4G/L)
JUN . 1											
19	0830	F.80	19.0	410	7.2	5.4		118	12	66	16
21	1300	£4.4	13.0	380	7.2	9.2		114	12	83	12
	TOTAL		TOTAL			TOTAL			TOTAL		
	ALUM-	TOTAL	CHRU-	TOTAL	TOTAL	MAN-	TOTAL	TOTAL	ORGANIC	DAENO! C	HYDRO-
	(AL)	ARSENIC (AS)	MIUM (CR)	(CU)	(FE)	GANESE (MN)	MERCURY (HG)	ZINC (ZN)	(C)	PHENOLS	GEN SULFIDE
DATE	(UG/L)	(UG/L)	(UG/L)	(UG/L)	(UGZL)	(UG/L)	(UG/L)	(UG/L)	(MG/L)	(UG/L)	(MG/L)
JUN • 1											
19	130	1	10	U	370	210	<.5	10	15	1	.5
21	7.0	1	0	t)	240	1.30	1.5	0	2.5	0	- 0

145 ASA PINE CREEK NEAR BUCKHORN OH

				W	ATER QUAL	ITY DATA					
DATÉ	TIME	INSTAN- TANEOUS JIS- CHARGE (CFS)	TEMPER- ATURE (DEG C)	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS)	PH (UNITS)	DIS- SOLVED OXYGEN (MG/L)	TOTAL ACIDITY AS H+ (MG/L)	BICAR- BONATE (HCO3) (MG/L)	CARBON DIOXIDE (CO2) (MG/L)	DIS- SOLVED SULFATE (SO4) (MG/L)	DIS- SOLVED CHLO- RIDE (CL) (MG/L)
JUN , 19 18	1700	£2.0	26.0	435	6.5	7.1		36	18	130	13
22	1200	E4.9	14.0	37u	6.7	8.7		70	55	110	12
DATE	TOTAL ALUM- INUM (AL) (UG/L)	TOTAL ARSENIC (AS) (UG/L)	TOTAL CHRO- MIUM (CR) (UG/L)	TOTAL COPPER (CU) (UG/L)	TOTAL IRON (FE) (UG/L)	TOTAL MAN- GANESE (MN) (UG/L)	TOTAL MERCURY (HG) (UG/L)	TOTAL ZINC (ZN) (UG/L)	TOTAL ORGANIC CARBON (C) (MG/L)	PHENOLS	HYDRO- GEN SULFIDE (MG/L)
JUN , 15											
18 OCT	820	0	20	10	2500	990	<.5	30	5.2	5	•1
22	760	0	0	U	1300	710	<.5	20	3.1	0	.0
		146	RSA	BEAR.	RUN AT SU	PERIOR OH					
				w	ATER QUAL	ITY DATA					
		INSTAN- TANEOUS		SPE- CIFIC CON- DUCT-		DIS-	TOTAL ACIDITY	BICAR-	CARBON	DIS- SOLVED	DIS- SOLVED CHLO-
	TIME	DIS- CHARGE	TEMPER-	ANCE (MICRO-	PH	SOLVED	AS H+	BONATE (HCO3)	OIOXIDE	SULFATE (SO4)	RIDE (CL)
DATE		(CFS)	(DEG C)	MHUS)	(UN1TS)	(MG/L)	(MG/L)	(MG/L)	(MG/L)	(MG/L)	(MG/L)
JUN , 19	75 1200	£2.0	23.0	1270	7.9	8.1		193	3.9	366	8.0
22	1030	£3.5	13.0	1330	7.6	8.6		200	8.0	610	10
DATE	TOTAL ALUM- INUM (AL) (UG/L)	TOTAL ARSENIC (AS) (JG/L)	TOTAL CHRO- MIUM (CR) (UG/L)	TOTAL COPPER (CU) (UG/L)	TOTAL IRON (FE) (UG/L)	TOTAL MAN- GANESE (MN) (UG/L)	TOTAL MERCURY (HG) (UG/L)	TOTAL ZINC (ZN) (UG/L)	TOTAL ORGANIC CARBON (C) (MG/L)	PHENOLS	HYDRO- GEN SULFIDE (MG/L)
JUN , 19	75										
18 OCT	٥v	5	30	U	8700	3400	<.5	30	12	0	• 0
22	250	1	0	10	870	510	<.5	10	4.4	0	•5
		147	ASA	ELLIS	ONVILLE C	REEK NEAR	R ETNA OH				
				W	ATER QUAL	ITY DATA					
UATE	TIME	INSTAN- TANEOUS DIS- CHARGE (CFS)	TEMPER- ATURE (DEG C)	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS)	PH (UNITS)	DIS- SOLVED OXYGEN (MG/L)	TOTAL ACIDITY AS H+ (MG/L)	BICAR- BONATE (HCO3) (MG/L)	CARBON DIOXIDE (CO2) (MG/L)	DIS- SOLVED SULFATE (SO4) (MG/L)	DIS- SOLVED CHLO- RIDE (CL) (MG/L)
JUN , 19	975										
18	1400	£1.0	23.0	900	3.4	7.2	1.8			340	14
55	0900	2.4	10.5	875	3.7	8.8	1.6	0	.0	340	18
DATE	TOTAL ALUM- INUM (AL) (UG/L)	TOTAL ARSENIC (AS) (JG/L)	TOTAL CHRO- MIUM (CR) (UG/L)	TOTAL COPPER (CU) (UG/L)	TOTAL IRON (FE) (UG/L)	TOTAL MAN- GANESE (MN) (UG/L)	TOTAL MERCURY (HG) (UG/L)	TOTAL ZINC (ZN) (UG/L)	TOTAL ORGANIC CARBON (C) (MG/L)	PHENOLS	HYDRO- GEN SULFIDE (MG/L)
JUN , 19											
18 OCT 22	9100 950	0	20	20	2000 3100	5000	<.5	300 260	18 2.6	2	.0
	930	0	U	0	3100	4800	<.5	200	2.0	U	•3

DATE	TIME	INSTAN- TANEOUS DIS- CHARGE (CFS)	TEMPER- ATURE (DEG C)	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS)	PH (UNITS)	DIS- SOLVED OXYGEN (MG/L)	TOTAL ACIDITY AS H+ (MG/L)	BICAR- BONATE (HCO3) (MG/L)	CARBON DIOXIDE (CO2) (MG/L)	DIS- SOLVED SULFATE (SO4) (MG/L)	DIS- SOLVED CHLO- RIDE (CL) (MG/L)
JUN , 19	975										
18 OCT	1000	£1.0	20.0	900	7.1	7.5		64	8.1	390	3.0
22	1500	E1.9	15.0	760	0.7	8.8		47	15	340	10
DATE	TOTAL ALUM- INUM (AL) (UG/L)	TOTAL ARSENIC (AS) (UG/L)	TOTAL CHRO- MIUM (CR) (UG/L)	TOTAL COPPER (CU) (UG/L)	TUTAL IRON (FE) (UG/L)	TOTAL MAN- GANESE (MN) (UG/L)	TOTAL MERCURY (HG) (UG/L)	TOTAL ZINC (ZN) (UG/L)	TOTAL ORGANIC CARBON (C) (MG/L)	PHENOLS (UG/L)	HYDRO- GEN SULFIDE (MG/L)
JUN , 19		,	20		700	1100		20	5.2	0	.0
18	170	1	20	0		710	<.5	20	3.4	0	.0
22	30	1	0	U	550	710	<.5	20	3.4	U	•0
		149	CNA	LITTL	E SCIOTO	RIVER NEA	AP FAIR OA	KS 0H			
					ATER QUAL						
				SPE-							
DATE	TIME	INSTAN- TANEOUS DIS- CHARGE (CFS)	TEMPER- ATURE (DEG C)	CIFIC CON- DUCT- ANCE (MICRO- MHOS)	PH (UNITS)	DIS- SOLVED OXYGEN (MG/L)	TOTAL ACIDITY AS H+ (MG/L)	BICAR- BONATE (HCO3) (MG/L)	CARBON DIOXIDE (CO2) (MG/L)	DIS- SOLVED SULFATE (SO4) (MG/L)	SOLVED CHLO- RIDE (CL) (MG/L)
JUN • 1		_									
17	1300	E40	21.0	195	7.1	8.5		38	4.5	29	12
05	1600	E43	16.0	170	6.5	4.2		34	17	31	13
DATE	TOTAL ALUM- INUM (AL) (UG/L)	TOTAL ARSENIC (AS) (UG/L)	TOTAL CHRO- M1UM (CR) (UG/L)	TOTAL COPPER (CU) (UG/L)	TOTAL IRON (FE) (UG/L)	TOTAL MAN- GANESE (MN) (UG/L)	TOTAL MERCURY (HG) (UG/L)	TOTAL ZINC (ZN) (UG/L)	TOTAL ORGANIC CARBON (C) (MG/L)	PHENOLS	HYDRO- GEN SULFIDE (MG/L)
JUN , 19	975 320	0	10	o	810	220	<.5	10	3.1	0	.1
NOV	30	0	0	U	580	100	<.5	10	2.6	2	.7
		v	· ·	v	300	100		10	2.0	_	• 1
		150	ADA	TURNE	R MINE DR	AIN AT GE	PHART OH				
					ATER QUAL	ITY DATA					
DATE	TIME	INSTAN- TANEOUS DIS- CHARGE (CFS)	TEMPER- ATURE (DEG C)	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS)	PH (UNITS)	DIS- SOLVED OXYGEN (MG/L)	TOTAL ACIDITY AS H+ (MG/L)	BICAR- BONATE (HCO3) (MG/L)	CARBON DIOXIDE (CO2) (MG/L)	DIS- SOLVED SULFATE (SO4) (MG/L)	DIS- SOLVED CHLO- RIDE (CL) (MG/L)
JUN • 1	975										
17 OCT	1430	E.02	13.0	1220	6.2	3.4		255	257	350	8.0
22	1700	€.02	13.0	1400	6.2	3.6		286	289	450	10
DATE	TOTAL ALUM- INUM (AL) (UG/L)	TOTAL ARSENIC (AS) (UG/L)	TOTAL CHRO- MIUM (CR) (UG/L)	TOTAL COPPER (CU) (UG/L)	TOTAL IKON (FE) (UG/L)	TOTAL MAN- GANESE (MN) (UG/L)	TOTAL MERCURY (HG) (UG/L)	TOTAL ZINC (ZN) (UG/L)	TOTAL ORGANIC CARBON (C) (MG/L)	PHENOLS	HYDRO- GEN SULFIDE (MG/L)
JUN , 1								1.0	21		
17 OCT	160	. 6	10	10	500	460	<.5	10	21	0	.1
22	0	4	0	U	7300	3700	<.5	20	2.9	0	.2