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INTRODUCTION

This report describes existing water quality and evaluates the status of Ohio's surface waters with regard to attainment of the goals established by the Clean Water Act of 1977. Additional information in this volume includes, wherever available: (a), projections of water quality conditions after implementation of pollution control programs; (b), an assessment of nonpoint source pollution problems; and (c), an evaluation of the effectiveness of existing pollution control programs.

The goal of the Act, commonly expressed as "fishable/swimmable waters" was defined in the Act as "... water quality which provides for the protection and propagation of fish, shellfish, and wildlife and provides for recreation in and on the water..."(Section 101(a)(2) of PL 95-217). The Act further stated that this goal be achieved, wherever attainable, by July 1, 1983. "Fishable/swimmable" waters are difficult to define in precise and practical terms. Therefore, water quality standards (WQS) commonly serve as surrogates for the fishable/swimmable goal and are the enforceable components of the Act upon which many pollution abatement programs rest. States set water quality standards based on the criteria necessary to protect aquatic life and human health. Thus, compliance with water quality standards is one method of assessing progress towards attaining "fishable/swimmable" waters. However, it should not be the only measure of the condition of a water resource; a comprehensive evaluation encompassing physical, chemical and biological data is a better determination of whether or not the "fishable/swimmable" goal of the Act is being achieved.

Evaluations of the attainment of the 1983 goals in this report were made with information regarding compliance with physical/chemical water quality standards as well as information about the biological integrity of the stream. For the purpose of this report, data were compared to Warmwater Habitat(WWH) water quality standards (Chapter 3745-1 of the Ohio Administrative Code) and violations were noted. Ohio EPA water quality information predating October 1978 was frequently considered in the evaluation of the attainment of 1983 goals for stream segments where more recent information was inadequate. On occasion, published and unpublished information from outside of the Agency was also considered. The subbasin reports contain narrative descriptions of water quality, with reference to published and unpublished data made as accurately as possible. All reference material is available from the Ohio EPA upon request.

Many of the evaluations contained in this volume are tentative classifications because they are based only on physical/chemical data. Ohio EPA water quality evaluations are based on biological (fish and macroinvertebrate) community structure and health along with physical/chemical information. Biological and intensive water quality surveys are complex and detailed and therefore are presented as separate documents. A list of surveys conducted from 1977 to 1983 with reports now available or soon to be available is located in the Executive Summary (Volume I) under the Monitoring Program discussion.

A large number of streams could not be evaluated because of insufficent data. Approximately eleven percent of the 43,900[1] permanent stream miles in Ohio have been evaluated in this report; however, 50 percent of the "principal" rivers and streams in Ohio[2] were evaluated. The quantity of data needed to make an evaluation was not standardized, but consisted in most cases, of at least four samples per year at one or more stations. Segment delineation was usually based upon the location of sampling stations in relation to major point source dischargers and major tributary streams. Data were not extrapolated beyond significant point sources or major tributaries.

The subbasin reports were assembled by District Surveillance personnel of the Ohio EPA. Guidelines were provided for evaluating water quality and classifying streams with respect to the 1983 goals. However, a degree of subjectivity is inherent in the evaluations contained in this report. For example, if data revealed no WQS violations in a stream segment the evaluation indicated that the segment currently meets 1983 goals. But when occasional[3] standards violations for parameters such as total iron, total lead, and fecal coliforms occurred, the segment may or may not have been classified as meeting 1983 goals. This decision depended upon the interpretation of the District Surveillance groups as to the severity of the problem and whether or not actual fishable/swimmable uses were being impaired. Wherever frequent[4] standard violations occurred for any parameter, the stream was classified in a category other than currently meeting 1983 goals.

Evaluations of water quality in this report were made with information regarding compliance with chemical/physical water quality standards as well as information about the biological integrity of the stream. For the purpose of this report, chemical/physical data were compared to Warmwater Habitat(WWH) water quality standards (Chapter 3745-1 of the Ohio Administrative Code) and violations were noted. The biological criteria used to evaluate streams are presented in Table II-1 and II-2). The most accurate assessment of conditions in the aquatic environment are made when information concerning both the chemical/physical conditions and the biological communities can be integrated

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1 Number of stream miles (excluding intermitent streams) listed in Gazetteer of Ohio Streams, (Division of Water, Ohio Department of Natural Resources).

2 Principal streams are all subbasin mainstems plus streams draining at least 100 square miles.

3 Occasionally - WWH standard(s) exceeded twice/year based upon a monthly sampling frequency; one/year based upon a quarterly sampling frequency; or 10% and 25% exceedence based upon some other sampling frequency (example - intensive survey sampling).

4 Frequently - WWH standard(s) exceeded three or more times/year based upon a monthly sampling frequency; twice or more/year based upon a quarterly sampling frequency; or 25% exceedence based upon some other sampling frequency (example - intensive survey sampling).

into an overall rating. However, numerous streams and stream segments have not been biologically evaluated, therefore many segments have been rated based upon chemical/physical data alone. All stream segments with sufficient information were rated according to the following system[a]:

Excellent (Class I, meets CWA aquatic life goals)
- Biological characteristics (see Tables II-1 and 2)
  - Pollution sensitive species abundant
  - High species richness and diversity
- Chemical/Physical Characteristics
  - Violations of WQS rare or confined to parameters of minor consquence to aquatic biota (i.e., iron, fecal coliforms)

Good (Class II, meets CWA aquatic life goals)
- Biological characteristics (see Tables II-1 and 2)
  - Pollution sensitive species present
  - Moderately high to average species richness and diversity
- Chemical/Physical Characteristics
  - Violations of WQS infrequent and generally not severe in magnitude

Fair (Class III, when based upon biological data - does not meet CWA aquatic life goals, when based upon chemical data - may or may not meet CWA aquatic life goals)
- Biological characteristics (see Tables II-1 and 2)
  - Pollution sensitive species rare
  - Average to low species richness and diversity
- Chemical/Physical Characteristics
  - Violations of WQS common with some episodes of severe magnitude

Poor (Class IV, does not meet CWQ aquatic life goals)
- Biological characteristics (see Tables II-1 and 2)
  - Pollution sensitive species absent, tolerant forms abundant
  - Low species richness and diversity
- Chemical/Physical Characteristics
  - Violations of WQS very common with frequent episodes of severe magnitude

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a Previous 305(b) reports did not fully integrate biological data in the rating scheme and were categorized with respect to the attainment of 1983 clean water goals as follows:

1) NONE: Streams and stream segments that currently meet 1983 goals,

2) MINOR: Streams and stream segments that are expected to meet 1983 goals after implementation of pollution controls (improvements completed prior to 1983), and

3) MAJOR: Streams and stream segments that are not expected to meet 1983 goals.

Table II-1. Criteria used to formulate stream class based on the benthic biota collected from five multiple-plate artificial substrate samplers exposed to a six week colonization period between June 15 and September 15.

Class I (Excellent)	Class II (Good)	Class III (Fair)	Class IV (Poor)
Pollution sensitive species abundant	Pollution sensitive species present in moderate numbers	Pollution sensitive species present in low numbers	Pollution sensitive species absent
Intermediate species present in low numbers	Intermediate species present in moderate numbers	Intermediate species abundant	Intermediate species present in low numbers or absent
Tolerant species present in low numbers	Tolerant species present in low numbers	Tolerant species present in moderate numbers	Tolerant species abundant (all types may be absent if extreme toxic conditions exist)
Number of taxa 30	Number of taxa 25-30	Number of taxa 20-25	Number of taxa 20
Exceptional diversity Shannon index 3.5	High diversity Shannon index 2.9-3.5	Moderate diversity Shannon index 2.3-2.9	Low diversity Shannon index 2.3

Table II-2. Ohio EPA biological criteria (fish) for determining water quality use designations and attainment of Clean Water Act (CWA) goals (November 1980).

Category	- - - MEETS CWA GOALS - - -		- DOES NOT MEET CWA GOALS -	
	"Exceptional" Class I (EWH)	"Good" Class II (WWH)	"Fair" Class III	"Poor" Class IV
1.[a]	Exceptional, or unusual assemblage of species	Usual association of expected species	Some expected species absent, or in very low abundance	Most expected species absent
2.	Sensitive species abundant	Sensitive species present	Sensitive species absent, or in very low abundance	Sensitive species absent
3.	Exceptionally high diversity	High diversity	Declining diversity	Low diversity
4.[b]	Composite index Greater than 9.0 - 9.5	Composite index Greater than 7.0 - 7.5, Less than 9.0 - 9.5	Composite index Greater than 4.5 - 5.0, Less than 7.0 - 7.5	Composite index Less than 4.5 - 5.0
5.	Outstanding recreational fishery		Tolerant species increasing, beginning to dominate	Tolerant species dominate
6.	Rare, endangered, or threatened species present			

a Conditions: Categories 1, 2, 3 and 4 (if data is available) must be met and 5 or 6 must also be met in order to be designated in that particular class.

b Based primarily on boat electrofishing samples, ranges may vary for other sampling methods.

Stream segment evaluations based upon biological information are denoted with an asterisk (*) throughout the text of the report. Biological information was available for approximately 36% (1788 miles) of the streams rated in this years Water Quality Report.

For more detailed information regarding biological (fish and macroinvertebrate sampling and evaluation as well as benthic data summary and evaluation from water quality monitoring network stations the reader is referred to Appendix A.

Summary

The evaluations with respect to the attainment of the "fishable/swimmable" goals in Ohio surface waters are summarized in Table II-3. Many of the stream segments have been evaluated using physical/chemical data only. To date, only 36 percent of the stream miles evaluated in this report are based upon biological data. Stream miles with biological evaluations are classified as follows: Class I (Exceptional) 271 miles; Class II (Good) 896 miles; Class III (Fair) 376 miles; and Class IV (Poor) 346 miles. Data were not available for many streams, thus limiting the stream miles evaluated to 4949, or only 11 percent of the 43,900 permanent stream miles in Ohio. Over 3,080 stream miles (62 percent of the stream miles evaluated) were found to currently meet the "fishable/swimmable" goals, or are expected to achieve that goal prior to 1983. The small percentage of the total stream mileage actually evaluated and the non-representative method of selecting streams for evaluation (i.e., a bias towards selecting stream segments in problem areas) precludes any projection of the percentage of total stream miles in Ohio that will meet the 1983 clean water goals. Considerably more is known about the principal streams (52 percent of the 7086 miles of principal streams representing a 20 percent increase since the 1982 305(b) report), reflecting the emphasis these areas receive in the Ohio Water Quality and Pollutant Source Monitoring Strategy (Monitoring Strategy). Of the principal streams evaluated, 2326 miles (representing 63 percent of the principal stream miles evaluated), were found to currently meet the "fishable/swimmable" goals, or are expected to achieve that goal prior to 1983. The substantial percentage of principal stream miles actually evaluated, and the fact that the Monitoring Strategy primarily addresses known point source water quality problem areas, suggests that 60-70 percent is a good estimate of the principal stream miles in Ohio that will meet the 1983 "fishable/swimmable" goal. The reader is referred to the Executive Summary (Volume I) for highlights of selected major streams in Ohio. Evaluations of the attainment of the 1983 goals are summarized for individual subbasins in Tables II-4 to II-19.

Table II-3. Summary of Ohio Basins: 1973 - 1983.

Total Stream Miles: 43,919[a]
Total Principal Stream Miles: 7086[b]

Fishable/Swimmable Evaluation	Status	All Streams[a] Miles	All Streams[a] % Total	Principal Streams[b] Miles	Principal Streams[b] % Total
Currently meets 1983 goals	Exceptional	337	1	316	5
	Good	2744	6	2010	28
Does not meet 1983 goals	Fair	975	2	710	10
	Poor	893	2	631	9
Total evaluated		4949	11	3667	52
Total not evaluated		38951	89	3419	49

a Number of stream miles (excluding intermittent streams) listed in Gazetteer of Ohio Streams (Division of Water, Ohio DNR).

b Principal streams are all subbasin mainstems plus streams draining more than 100 square miles.

Table II-4. Maumee River Basin (A)

Total Stream Miles: 2579
Total Principal Stream Miles: 854

Fishable/Swimmable Evaluation	Status	All Streams Miles	All Streams % Total	Principal Streams Miles	Principal Streams % Total
Currently meets 1983 goals	Excellent	0	0	0	0
	Good	569	22	419	49
Does not meet 1983 goals	Fair	105	4	69	8
	Poor	131	5	79	9
Total evaluated		805	31	567	66
Total not evaluated		1774	69	287	34

Table II-5. Portage River Basin (B)

Total Stream Miles: 268
Total Principal Stream Miles: 116

Fishable/Swimmable Evaluation	Status	All Streams Miles	All Streams % Total	Principal Streams Miles	Principal Streams % Total
Currently meets 1983 goals	Excellent	0	0	0	0
	Good	74	28	25	22
Does not meet 1983 goals	Fair	37	14	5	4
	Poor	11	4	15	13
Total evaluated		122	46	45	39
Total not evaluated		146	54	71	61

Table II-6. Sandusky River Basin (C)

Total Stream Miles: 812
Total Principal Stream Miles: 248

Fishable/Swimmable Evaluation	Status	All Streams Miles	All Streams % Total	Principal Streams Miles	Principal Streams % Total
Currently meets 1983 goals	Excellent	0	0	0	0
	Good	300	37	219	88
Does not meet 1983 goals	Fair	25	3	15	6
	Poor	5	1	9	4
Total evaluated		330	41	243	98
Total not evaluated		482	59	5	2

Table II-7. Huron, Vermilion, Black, and Rocky River Basins (D)

Total Stream Miles: 790
Total Principal Stream Miles: 274

Fishable/Swimmable Evaluation	Status	All Streams Miles	All Streams % Total	Principal Streams Miles	Principal Streams % Total
Currently meets 1983 goals	Excellent	0	0	0	0
	Good	276	35	213	78
Does not meet 1983 goals	Fair	20	3	0	0
	Poor	45	6	28	10
Total evaluated		341	43	241	88
Total not evaluated		449	57	33	12

Table II-8. Cuyahoga and Chagrin River Basins (E)

Total Stream Miles: 495
Total Principal Stream Miles: 148

Fishable/Swimmable Evaluation	Status	All Streams Miles	All Streams % Total	Principal Streams Miles	Principal Streams % Total
Currently meets 1983 goals	Excellent	0	0	0	0
	Good	14	3	14	10
Does not meet 1983 goals	Fair	63	13	51	34
	Poor	61	12	21	14
Total evaluated		138	28	86	58
Total not evaluated		357	72	62	42

Table II-9. Grand River Basin (F)

Total Stream Miles: 585
Total Principal Stream Miles: 189

Fishable/Swimmable Evaluation	Status	All Streams Miles	All Streams % Total	Principal Streams Miles	Principal Streams % Total
Currently meets 1983 goals	Excellent	0	0	0	0
	Good	0	0	0	0
Does not meet 1983 goals	Fair	31	5	30	16
	Poor	16	3	8	4
Total evaluated		47	8	38	20
Total not evaluated		538	92	151	80

Table II-10. Minor Lake Erie Tributary Basins (D, E and F)

Total Stream Miles: 124[a]
Total Principal Stream Miles: 0

Fishable/Swimmable Evaluation	Status	All Streams Miles	All Streams % Total	Principal Streams Miles	Principal Streams % Total
Currently meets 1983 goals	Excellent	0	0	0	0
	Good	0	0	0	0
Does not meet 1983 goals	Fair	5	4	0	0
	Poor	4	3	0	0
Total evaluated		9	7	0	0
Total not evaluated		115	93	0	0

a Total Stream Miles = total miles of streams in the minor Lake Erie Tributary basins from Lorain County to the Pennsylvania state line.

Table II-11. Wabash River Basin (G)

Total Stream Miles: 148
Total Principal Stream Miles: 42

Fishable/Swimmable Evaluation	Status	All Streams Miles	All Streams % Total	Principal Streams Miles	Principal Streams % Total
Currently meets 1983 goals	Excellent	0	0	0	0
	Good	64	44	33	78
Does not meet 1983 goals	Fair	6	4	6	15
	Poor	29	20	3	7
Total evaluated		99	68	42	100
Total not evaluated		49	32	0	0

Table II-12. Great Miami River Basin (H)

Total Stream Miles: 1555
Total Principal Stream Miles: 539

Fishable/Swimmable Evaluation	Status	All Streams Miles	All Streams % Total	Principal Streams Miles	Principal Streams % Total
Currently meets 1983 goals	Excellent	65	4	29	5
	Good	283	18	244	45
Does not meet 1983 goals	Fair	109	7	49	9
	Poor	80	5	56	10
Total evaluated		536	34	377	69
Total not evaluated		1084	66	162	31

Table II-13. Mill Creek Basin (J)

Total Stream Miles: 66
Total Principal Stream Miles: 28

Fishable/Swimmable Evaluation	Status	All Streams Miles	All Streams % Total	Principal Streams Miles	Principal Streams % Total
Currently meets 1983 goals	Excellent	0	0	0	0
	Good	0	0	0	0
Does not meet 1983 goals	Fair	11	17	11	40
	Poor	17	26	17	60
Total evaluated		28	43	28	100
Total not evaluated		38	57	0	0

Table II-14. Little Miami River Basin (K)

Total Stream Miles: 802
Total Principal Stream Miles: 256

Fishable/Swimmable Evaluation	Status	All Streams Miles	All Streams % Total	Principal Streams Miles	Principal Streams % Total
Currently meets 1983 goals	Excellent	80	10	80	31
	Good	73	9	69	27
Does not meet 1983 goals	Fair	45	6	39	15
	Poor	31	4	26	10
Total evaluated		229	29	214	81
Total not evaluated		573	71	42	16

Table II-15. Scioto River Basin (M)

Total Stream Miles: 3031
Total Principal Stream Miles: 1192

Fishable/Swimmable Evaluation	Status	All Streams Miles	All Streams % Total	Principal Streams Miles	Principal Streams % Total
Currently meets 1983 goals	Excellent	155	5	155	13
	Good	633	22	531	45
Does not meet 1983 goals	Fair	193	6	163	14
	Poor	53	2	59	5
Total evaluated		1064	35	908	76
Total not evaluated		1967	65	284	24

Table II-16. Hock River, Shade River and Leading Creek Basins (O)

Total Stream Miles: 974
Total Principal Stream Miles: 269

Fishable/Swimmable Evaluation	Status	All Streams Miles	All Streams % Total	Principal Streams Miles	Principal Streams % Total
Currently meets 1983 goals	Excellent	0	0	0	0
	Good	52	5	11	4
Does not meet 1983 goals	Fair	28	3	28	10
	Poor	141	15	141	53
Total evaluated		221	23	180	67
Total not evaluated		753	77	89	33

Table II-17. Muskingum River Basin (P)

Total Stream Miles: 4257
Total Principal Stream Miles: 1273

Fishable/Swimmable Evaluation	Status	All Streams Miles	All Streams % Total	Principal Streams Miles	Principal Streams % Total
Currently meets 1983 goals	Excellent	3	0	3	0
	Good	274	6	266	21
Does not meet 1983 goals	Fair	261	6	289	23
	Poor	63	2	23	2
Total evaluated		601	14	581	46
Total not evaluated		3656	86	698	54

Table II-18. Ohio River Tributary Basins (L, N, R, and S)

Total Stream Miles: 3283
Total Principal Stream Miles: 972

Fishable/Swimmable Evaluation	Status	All Streams Miles	All Streams % Total	Principal Streams Miles	Principal Streams % Total
Currently meets 1983 goals	Excellent	0	0	0	0
	Good	8	1	0	0
Does not meet 1983 goals	Fair	11	1	0	0
	Poor	144	4	119	12
Total evaluated		157	6	119	12
Total not evaluated		3126	94	853	88

Table II-19. Mahoning River, Pymatuning and Yankee Creek Basins (T)

Total Stream Miles: 419
Total Principal Stream Miles: 182

Fishable/Swimmable Evaluation	Status	All Streams Miles	All Streams % Total	Principal Streams Miles	Principal Streams % Total
Currently meets 1983 goals	Excellent	0	0	0	0
	Good	47	11	40	22
Does not meet 1983 goals	Fair	18	4	18	10
	Poor	27	7	27	15
Total evaluated		92	22	85	47
Total not evaluated		327	78	97	53

MAUMEE RIVER BASIN

ST. MARYS RIVER SUBBASIN (A-1)

SUBBASIN SUMMARY

The physical/chemical water quality of the St. Marys River Subbasin was generally good, with the exception of Wierth Ditch and Kopp Creek below the village of New Bremen (RM 2.5), and the St. Marys River below the village of Rockford (RM 55.7). An estimated 15.7 stream miles in this subbasin had major physical/chemical problems. Major and minor water quality problems exist due to inadequate sewage treatment at the two villages (i.e., sewage bypasses during storm runoff events). Otherwise, there were no known serious problems in the subbasin. Hopefully, new facilities will be constructed at New Bremen by 1983 and possibly at Rockford by 1984-85.

SEGMENT REPORTS

CENTER BRANCH
ST. MARYS RIVER TRIBUTARY
CONFLUENCE AT RM 101.2

Segment Problem	Name Description	Use Designation Mile Points
N/A GOOD	Center Branch from the headwaters to Clear Creek (East Branch)	WWH 6.4-0.0

KOPP CREEK
ST. MARYS RIVER TRIBUTARY
CONFLUENCE AT RM 100.2

Segment Problem	Name Description	Use Designation Mile Points
N/A FAIR*	Kopp Creek from the headwater to Wierth Ditch	WWH 11.4-7.3
N/A FAIR*	Kopp Creek from the Wierth Ditch confluence to the St. Marys River	WWH 7.2-0.0

WIERTH DITCH
KOPP CREEK TRIBUTARY
CONFLUENCE AT RM 8.0

Segment Problem	Name Description	Use Designation Mile Points
N/A POOR*	Wierth Ditch from New Bremen to the confluence with Kopp Creek	WWH 2.5-0.0

Summary - Biological and Water Quality Survey

Results of chemical/physical and biological sampling conducted from July 27-August 3, 1981, in Kopp Creek and Wierth Ditch revealed a wide range of degradation apparently in response to a variety of influences. Depauperate fish and macroinvertebrate faunas, as well as concentrations of ammonia compounds and phosphorus demonstrated the negative impact of the New Bremen WWTP and Beatrice Foods on Wierth Ditch. Macroinvertebrate and fish faunas at the two stations in Kopp Creek upstream from the confluence with Wierth Ditch demonstrated the localized impact of drainage from a nearby livestock operation and accidental chemical spills. Despite the influences of nonpoint and accidental runoff into Kopp Creek, there was a marked degradation of biota immediately downstream from the confluence with Wierth Ditch. Nutrient concentrations were indicative of organic enrichment, and the aquatic biota was characterized by minimum diversity and predominance of tolerant organisms. Biotic communities at stations further downstream and in the unnamed tributary appeared healthier; however, chemical parameters indicated continued nutrient enrichment in downstream areas of Kopp Creek. The entirety of the Kopp Creek watershed is affected to some degree by channelization and runoff as a result of the intensive agricultural land use; however, these effects were more localized and less severe than those attributed ~~to~~ by the New Bremen WWTP and Beatrice Foods. Wierth Ditch (?)

Macroinvertebrate and fish communities in the unnamed tributary were typical of communities expected in small streams in agricultural regions of northwest Ohio. Reductions in BOD, ammonia-nitrogen, and phosphorus loading from Wierth Ditch would likely result in improved conditions for aquatic life in Kopp Creek immediately downstream from the confluence, and conditions further downstream would be improved through reductions in nutrient loading. Elimination of potential intermittent toxic conditions resulting from chemical spills in upstream areas may further enhance conditions for aquatic life in Kopp Creek. Reductions in loading from Wierth Ditch may aid in mitigation of past chemical spills through elimination of a potential pollutional barrier to upstream migration and repopulation by fish species. These improved conditions may also aid in recovery of past success rates in recreational fishing and bait collecting in Kopp Creek. Although reduced loadings would potentially contribute to improved conditions in Wierth Ditch, the short length of stream and the apparent absence of water sources other than WWTP effluent during dry weather periods make the situation appear less optimistic (OEPA, 1982).

ST. MARYS RIVER MAINSTEM

Segment Problem	Name Description	Use Designation Mile Points
04100004-007 GOOD	St. Marys River from the confluence of Kopp Creek to the village of St. Marys	WWH 47.7-45.2

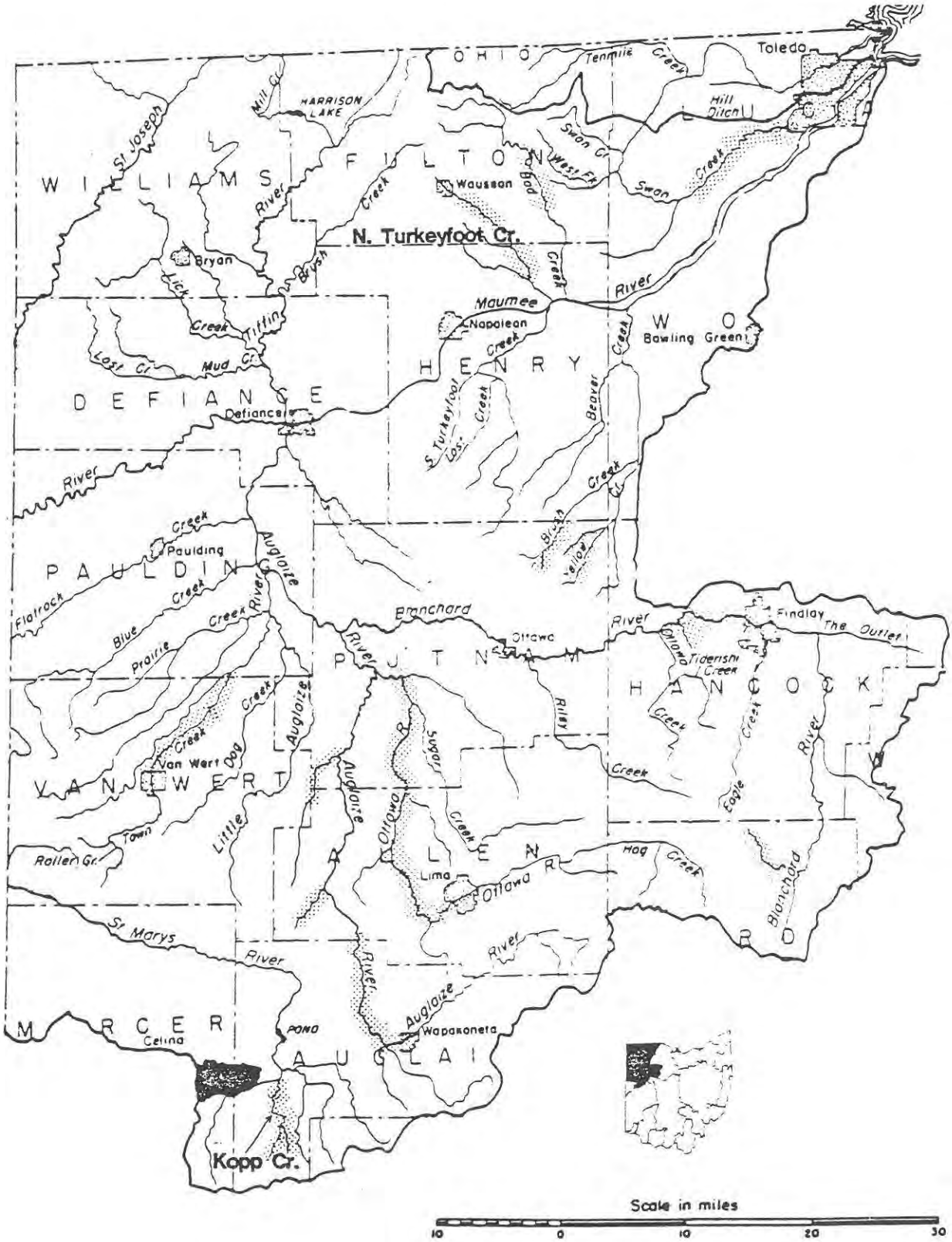

Figure II-1. Map of the Maumee River basin (Ohio portion). Stream segments that were judged not to support aquatic life in accordance with the goals of the Clean Water Act are highlighted with stippled shading.

The St. Mary's River from the Kopp Creek confluence the Village of St. Mary's was subject to fecal coliform and dissolved oxygen violations as a result of discharge of inadequately treated wastes from the New Bremen WWTP via Wierth Ditch (OEPA, NWDO data, 1978-1980). The community has applied for and received funds for construction of a new facility (Step III construction grant). The old plant will be abandoned when construction of the new facility is completed.

Segment Problem	Name Description	Use Designation Mile Points
04100004-007,-003 GOOD	St. Marys River from St. Marys to Rockford	WWH 45.2-15.7

Water quality standards violations for fecal coliform bacteria, total iron and ammonia occured in this segment (OEPA, NWDO data, 1978-1979). The coliform contamination was attributed to both the St. Marys and New Bremen WWTP's, the total iron violations appeared to originate from nonpoint sources.

Segment Problem	Name Description	Use Designation Mile Points
04100004-003, FAIR	St. Marys River from Rockford to the Indiana-Ohio State Line	WWH 15.7-0.0

update

An ineffective WWTP serves the village of Rockford (population 1100). In September and October, 1979, a lift station breakdown caused raw sewage from the village to be discharged into the river.

The 1983 goals will probably not be met for this segment because of inadequate and unreliable sewage treatment at the Rockford WWTP (RM 55.7). The village of Rockford has not been certified for Step I planning, and it is unlikely that any improvements in the WWTP will be completed by 1983.

REFERENCES

Ohio Environmental Protection Agency. 1978-1980 (unpublished). Data available from Northwest District Office, Ohio EPA, Bowling Green, Ohio.

Ohio Environmental Protection Agency. 1982. Comprehensive Water Quality Report for Kopp Creek and Wierth Ditch, Maumee River Basin, St. Mary's River subbasin, Auglaize County, Ohio (Draft) Ohio EPA, Columbus, Ohio.

MAUMEE RIVER BASIN

LITTLE AUGLAIZE RIVER SUBBASIN (A-2)

SUBBASIN SUMMARY

The physical/chemical water quality of the Little Auglaize River was good. Only one grab sample was collected in 1978; no follow up samples were collected. A number of samples were collected in 1976 and in 1977 with no water quality standards violations being detected (OEPA, NWDO data, 1976-1978). The Little Auglaize River had slightly lower background total nitrogen concentrations than surrounding river basins.

The absence of recent information for Town Creek prohibits an evaluation of water quality. Past observations indicated that the upper portions of Town Creek were adversely effected by the Van Wert WWTP. An estimated 5.1 of the 26.3 stream miles evaluated in the Town Creek drainage had major physical/chemical problems. Additional sampling is necessary to adequately evaluate this segment.

A biological and water quality survey was conducted on the entire Little Auglaize subbasin in 1983. A draft report should be available in late 1984.

Biological Evaluations

No recent Ohio EPA macrobenthic data are available for the subbasin. Previous monitoring in the subbasin consisted of two fixed station benthic samples collected in September, 1977 and August, 1974 from Town Creek below Van Wert (RM 3.7). In 1974, eleven taxa were collected with a diversity index of 1.73 (Ohio EPA, 1980, RD 3-98). In 1977, sixteen benthic taxa were collected with a diversity index of 2.19 (Ohio EPA, 1980, RD 3-97). Each station was dominated by midges, both in number of taxa (9 in 1977; 5 in 1974) and numbers of individuals (89 percent in 1977; 90 percent in 1974). Only three mayfly taxa, in very low densities, were present during both years. No caddisfly taxa were found. Evaluations of Class IV (Poor) water quality were indicated for each year.

SEGMENT REPORTS

LITTLE AUGLAIZE RIVER MAINSTEM

Segment Problem	Name Description	Use Designation Mile Points
04100007-013, 011, 007 GOOD	Little Auglaize River from Prairie Ditch to the Auglaize River	WWH 37.0-0.0

Discrep.

MIDDLE CREEK
LITTLE AUGLAIZE RIVER TRIBUTARY
CONFLUENCE AT RM 7.1

Segment Problem	Name Description	Use Designation Mile Points
N/A GOOD	Middle Creek from Town Creek-Maddox Creek confluence to the Little Auglaize River	WWH 6.9-0.0

TOWN CREEK
MIDDLE CREEK TRIBUTARY
CONFLUENCE AT RM 6.9

Segment Problem	Name Description	Use Designation Mile Points
N/A POOR*	Town Creek from Van Wert to Middle Creek	WWH 5.1-0.0

The Van Wert WWTP (RM 5.1) has tertiary treatment and phosphorus removal. The plant had major infiltration/inflow problems during storm events. The high wastewater flow during these periods drastically reduced treatment efficiency at the plant resulting in improperly treated or untreated wastewater being discharged. Discharge of municipal effluent was much greater than stream flow and caused dissolved oxygen (D.O.) problems and a degraded aquatic community in this stream segment (OEPA, NWDO data, 1977-1978). The community of Van Wert is currently in Step I of the construction grant process. A facility is being planned which will eliminate the present sanitary sewer system and existing septic tanks in the surrounding areas. The community is also developing a pretreatment program to comply with federal guidelines.

Previous improvements in the Van Wert WWTP (i.e., tertiary treatment and phosphorous removal) have substantially improved water quality in the downstream reaches of Middle Creek and the Little Auglaize River during normal flow conditions. However, the segment of Town Creek downstream from Van Wert is expected to continue to experience major water quality problems through 1983.

REFERENCES

Ohio Environmental Protection Agency. 1976-1978 (unpublished). Data available from Northwest District Office, Ohio EPA, Bowling Green, Ohio.

Ohio Environmental Protection Agency. 1980 (unpublished). Ohio Biennial Water Quality Report. Reference Document 3. Biological Tables.

EXAMPLE 1 : DISTRICT INPUT IS NEEDED ON THIS PAGE.

MAUMEE RIVER BASIN

UPPER AUGLAIZE RIVER SUBBASIN (A-3)
AND
LOWER AUGLAIZE RIVER SUBBASIN (A-7)

SUBBASIN SUMMARY

Update

Based upon physical/chemical data collected by the Ohio EPA in 1978-79, the mainstem of the Auglaize River generally met Ohio water quality standards. Exceptions included: an eleven mile segment which includes the city of Wapakoneta (RM 84.5); Six Mile Creek below Spencerville (RM 4.1); and Jennings Creek below Delphos (RM 4.5). Construction of WWTP improvements for Wapakoneta will not be completed prior to 1983. The construction of the Delphos WWTP is expected to be completed prior to 1983.

Status

Nonpoint source runoff from agricultural land was an equally important water quality problem in the Auglaize River Subbasin. Stream channelization, drainage and runoff from cultivated fields, and intensive cropping and loss of riparian vegetation result in increased sediment and nutrient loading throughout the subbasin.

SEGMENT REPORTS

AUGLIZE RIVER MAINSTEM

Segment Problem	Name Description	Use Designation Mile Points
04100007-016,-015 GOOD	Auglaize River from the headwaters to Hengstler Road	WWH 101.9-85.2
04100007-016,-015 POOR	Auglaize River from Hengstler Rd. to Fisher Road	WWH 85.2-73.8

The most severe water quality problems in the upper Auglaize River resulted from combined sewer overflows and the municipal wastewater discharger in the city of Wapakoneta. The Wapakoneta WWTP (RM 84.5) significantly degraded water quality for several miles downstream. Ohio water quality standards violations in this segment included: dissolved oxygen (D.O.), high nutrient concentrations and elevated concentrations of total cadmium, total chromium and total nickel. Fecal coliform violations occurred at all five sampling sites (OEPA, NWDO data, 1977). Wapakoneta is currently upgrading (to include phosphorous removal) and expanding the existing treatment facility. The city is also establishing a pretreatment program and has received funds for Phase I (planning) work. Status

PUSHETA CREEK
AUGLAIZE RIVER TRIBUTARY
CONFLUENCE AT RM 77.9

Segment Problem	Name Description	Use Designation Mile Points
N/A GOOD	Pusheta Creek from the headwaters to the Auglaize River	WWH 13.7-0.0

AUGLAIZE RIVER MAINSTEM

Segment Problem	Name Description	Use Designation Mile Points
04100007-016,-015 GOOD	Auglaize River from Fisher Road to the Ottawa River confluence	WWH 73.8-32.0

SIX MILE CREEK
AUGLAIZE RIVER TRIBUTARY
CONFLUENCE AT RM 59.0

Segment Problem	Name Description	Use Designation Mile Points
N/A POOR	Six Mile Creek from Spencerville to the Auglaize River	WWH 4.1-0.0

A water quality survey of Six Mile Creek was conducted in 1976-1977. Ohio water quality standards violations were noted for dissolved oxygen, nitrogen ammonia, oil and grease, phenolics, total cyanide, total iron, total nickel, total copper, total chromium and MBAS. Very high concentrations of phosphorus, total aluminum and total dissolves solids (TDS) were also observed (OEPA, NWDO data, 1976). The source was presumed to be storm water runoff and intermittent discharge from a fertilizer supply plant in the area.

JENNINGS CREEK
AUGLAIZE RIVER TRIBUTARY
CONFLUENCE AT RM 45.0

Segment Problem	Name Description	Use Designation Mile Points
N/A POOR	Jennings Creek from the Delphos WWTP to the Auglaize River	WWH 4.8-0.0

Ohio water quality standards violations for fecal coliforms, ammonia and dissolved oxygen were noted in this segment (OEPA, 1974). The source of the problem was thought to be inadequate sewage treatment at the city of Delphos WWTP (RM 4.8). A new facility is currently under construction and is expected to be completed prior to 1983.

AUGLAIZE RIVER MAINSTEM

Segment Problem	Name Description	Use Designation Mile Points
04100007-022 GOOD	Auglaize River from the Ottawa River confluence to the Blanchard River confluence	WWH 32.0-26.0
04100007-001, -002,-004, -006,-014 GOOD	Auglaize River from the Blanchard River confluence to the Maumee River	WWH 26.0-0.0

The above segments meet 1983 goals based upon Ohio EPA sampling during 1978-1980 (OEPA, NWDO data, 1978-1980).

REFERENCES

Ohio Environmental Protection Agency. 1974. Auglaize River (draft) wasteload allocation report for the 303(e) continuing planning process for water quality management. Ohio EPA, Northwest District Office, Bowling Green, Ohio.

Ohio Environmental Protection Agency. 1976-1980 (unpublished). Data available from Northwest District Office, Ohio EPA, Bowling Green, Ohio.

Ohio Environmental Protection Agency. 1977 (unpublished). A Biological Assessment of the Water Quality in the Auglaize River Upstream and Downstream of Wapakoneta, Auglaize County, Ohio. Ohio EPA, Northwest District Office, Bowling Green, Ohio.

MAUMEE RIVER BASIN

OTTAWA RIVER SUBBASIN (A-4)

SUBBASIN SUMMARY

A biological and water quality survey of the Ottawa River was conducted by the Ohio EPA between 1974 and 1977 (Martin et al., 1979). The biological and chemical quality of the Ottawa River was evaluated in order to assess the impact of improvements in wastewater treatment from the city of Lima, and industrial dischargers located in Lima. The study area included a 45 mile segment of the Ottawa River from upstream from Lima to the mouth, as well as a segment of the Auglaize River upstream and downstream from the mouth of the Ottawa.

An estimated 39.5 stream miles in this subbasin had major physical/chemical problems. The evaluations showed that the Ottawa River was biologically healthy and that water quality was good upstream from Lima at river mile 46.0. Fish and macroinvertebrate communities were degraded from just upstream from the Lima WWTP (RM 37.7) to river mile 7.9. The river recovered to a near healthy biological condition near the mouth (RM 1.0). The water quality of the Auglaize River upstream and downstream from the Ottawa River confluence was good, as indicated by healthy and well-balanced, benthic macroinvertebrate communities (Martin et. al., 1979).

The most severe water quality problems found during the study were: low dissolved oxygen (D.O.) concentrations above the Lima WWTP (RM 37.7) due to combined sewer overflows and a series of dams in Lima; chlorine toxicity problems immediately downstream from the Lima WWTP; and high ammonia and total chromium concentrations coupled with low dissolved oxygen concentrations downstream from the Sohio Oil Refinery (RM 37.4) and the Vistron petro-chemical plant (RM 36.9) in Lima (Martin et. al., 1979). The most severely polluted stretch of the Ottawa River was from river mile 36.8 to the Allentown Dam (RM 28.8). Fish populations were essentially devoid from this segment of the river; only two pollution tolerant species were collected by the Ohio EPA during the survey.

Despite the severe water quality problems mentioned above, a dramatic improvement in the chemical and biological quality of the Ottawa River below Lima has occurred since 1960. In 1960, fish were absent from the entire Ottawa River downstream from Lima, as well as in a portion of the Auglaize River downstream from its confluence with the Ottawa. Improvements were observed between 1974 and 1977, as a result of large scale expansion in the Lima WWTP, and the Sohio and Vistron facilities. Further improvements in water quality will be largely dependent on a reduction of the ammonia load entering the Ottawa River from the Standard Oil Refinery and the Vistron Corporation.

The Standard Oil Company published the Ottawa River Study in 1981 which contains useful background information (chemical, physical and biological) on water quality in the Ottawa River.

HOG CREEK
OTTAWA RIVER TRIBUTARY
CONFLUENCE AT RM 47.5

Segment Problem	Name Description	Use designation Mile Points
N/A GOOD	Hog Creek from the headwaters to the Ottawa River	WWH 14.2-0.0

The village of Ada recently completed construction of a new WWTP that discharges to Grass Run Creek (RM 2.1), a tributary of Hog Creek. Subsequent evaluations have not been conducted.

OTTAWA RIVER MAINSTEM

Segment Problem	Name Description	Use Designation Mile Points
04100007-019 GOOD*	Ottawa River from the Hog Creek confluence to just above Lima	WWH 47.5- 40.5
04100007-019 POOR*	Ottawa River from just above Lima to the Vistron Corp.	WWH 40.5-36.8

Ohio water quality standards violations for dissolved oxygen (D.O.) occured in this segment of the Ottawa River (Martin et al., 1979). Large diurnal fluctuations in D.O. probably resulted from high nutrient and organic matter loadings from combined sewer overflows (CSO) coupled with primary production by planktonic algae. A series of low head dams along this stream segment create pooling and favorable conditions for planktonic algal blooms, especially during low-flow periods. A program providing for the controlled release of combined sewer overflow has been completed in Lima and should reduce the severity of CSO impacts.

Segment Problem	Name Description	Use Designation Mile Points
04100007-018,-017 POOR*	Ottawa River from the Vistron Corp. to Putnam County Road 19	WWH 36.8-0.9

This segment had Ohio water quality standards violations for ammonia, D.O., MBAS, total chromium and phenolics. These pollutants were primarily attributable to the Standard Oil Company (RM 37.04) and the Vistron Corporation discharges (RM 36.9) (Martin et al., 1979). The city of Lima WWTP (RM 37.2) also discharges into this segment. The Standard Oil Company recently received approval of plans to construct a new activated sludge wastewater treatment plant, but construction is not expected to be completed prior to 1983.

The village of Kalida (RM 3.3) has a new lagoon-type WWTP. New sewers are being constructed and the entire system is expected to be operational by the end of 1982. The village of Elida (RM 24.4) recently submitted initial plans for a new WWTP. This facility will not be constructed prior to 1983.

Segment Problem	Name Description	Use Designation Mile Points
04100007-017 GOOD*	Ottawa River from Putnam County Road 19 to the Auglaize River	WWH 0.9-0.0

LITTLE OTTAWA RIVER
OTTAWA RIVER TRIBUTARY
CONFLUENCE AT RM 33.0

Segment Problem	Name Description	Use Designation Mile Points
N/A FAIR	Little Ottawa River from the Cridersville WWTP to the Ottawa River	WWH 4.2-0.0

This segment was degraded by effluent from the inadequate WWTP at the village of Cridersville (RM 0.9). Review of monthly operating reports from the Cridersville WWTP indicated frequent water quality standards violations for dissolved oxygen (D.O.) and fecal coliform bacteria (OEPA, NWDO data, 1977-1979). Construction of new facilities should begin in 1982 and may be completed as early as 1983.

SUGAR CREEK
OTTAWA RIVER TRIBUTARY
CONFLUENCE AT RM 6.0

Segment Problem	Name Description	Use Designation Mile Points
04100007-020 GOOD	Sugar Creek from the Ford Motor Corp. to the Ottawa River	WWH 18.7-0.0

PLUM CREEK
OTTAWA RIVER TRIBUTARY
CONFLUENCE AT RM 2.7

Segment Problem	Name Description	Use Designation Mile Points
N/A FAIR	Plum Creek from the Columbus Grove WWTP to the Ottawa River	WWH 10.7-0.0

Plum Creek was degraded by overflows from Columbus Grove (RM 12.4), even though the WWTP produced excellent effluent (OEPA, NWDO monthly operating reports). It is possible that planned expansion of the facility will be completed prior to 1983.

REFERENCES

Martin, G.L., T.J. Balduf, D.O. McIntyre, and J.P. Abrams. 1979. Water Quality Study of the Ottawa River, Allen and Putnam counties, Ohio. Ohio Environmental Protection Agency, Office of Wastewater Pollution Control, Division of Surveillance. 35 pp.

Ohio Environmental Protection Agency. 1976 (unpublished). Draft 305(b) report available from Northwest District Office, Ohio EPA, Bowling Green, Ohio.

Ohio Environmental Protection Agency. 1977-1980 (unpublished). Data available from Northwest District Office, Ohio EPA, Bowling Green, Ohio.

Ohio Environmental Protection Agency. 1980. Ohio Biennial Water Quality Report 305(b). Volume III-B. Intensive Survey: Water Quality study of the Ottawa River, Allen and Putnam Counties, Ohio. Ohio Columbus, Ohio 32pp.

Ohio Environmental Protection Agency. 1980. Ohio Biennial Water Quality Report-305(b). Volume II-B. Intensive Survey: Water Quality Study of the Ottawa River, Allen and Putnam Counties, Ohio. Ohio EPA, Columbus, Ohio. 35pp.

The Standard Oil Company. 1981. Ottawa River Study. Lima, Ohio.

MAUMEE RIVER BASIN

BLANCHARD RIVER SUBBASIN (A-5 and A-6)

SUBBASIN SUMMARY

Land use in the Blanchard River Subbasin is predominantly agricultural and physical/chemical water quality was generally good (OEPA, 1974). An estimated 23.4 stream miles in this subbasin had major physical/chemical problems. A 14 mile segment of the Blanchard River failed to meet water quality standards for dissolved oxygen and ammonia due to sewage bypasses and insufficient treatment at the Findlay WWTP (RM 54.6). Oil Ditch, a small stream traversing an industrial area in Findlay, was seriously affected by various industrial discharges. Shallow Run, a small stream draining the village of Dunkirk (RM 5.2), was affected by septic tank effluent which caused dissolved oxygen problems. These three segments are not expected to meet 1983 goals.

A biological and water quality survey of the Blanchard River and selected tributaries was conducted in 1983. A draft report should be available in late 1984.

SEGMENT REPORTS

SHALLOW RUN
BLANCHARD RIVER TRIBUTARY
CONFLUENCE AT RM 93.7

Segment Problem	Name Description	Use Designation Mile Points
N/A POOR*	Shallow Run From Dunkirk to the Blanchard River	WWH 5.2-0.0

A biological investigation of Shallow Run, a small tributary to the Blanchard River, was conducted in 1976 (Martin, 1976). The stream was found to be grossly polluted between U.S. Route 68 (RM 5.2) and S.R. 81 (RM 3.7). Septic tank wastes from the village of Dunkirk (RM 5.2) caused the degradation. Bacteriological measurements (Fecal coliform counts) averaged greater than 10,000/100ml, and were frequently much higher. The average BOD_5 was found to be greater than 42 mg/l, and the average dissolved oxygen concentration was 3.3 mg/l. The stream bottom at U.S. Route 68 (RM 5.2) was covered with blue-green algae and sewage fungus (probably Sphaerotilus natans). A layer of black sludge several inches deep was found beneath this growth. The stream recovered somewhat by S.R. 81 (RM. 3.7). Pollution tolerant macroinvertebrates and profuse growths of algae occured from this point on. The impact of organic pollution on the Blanchard River appeared to be minimal.

A central WWTP is needed in Dunkirk, but it is unlikely that this goal will be accomplished prior to 1983.

BLANCHARD RIVER MAINSTEM

Segment Problem	Name Description	Use Designation Mile Points
04100008-004,-003 GOOD	Blanchard River From the headwaters to the Eagle Creek confluence	WWH 91.0-56.5
04100008-003 POOR*	Blanchard River From the Eagle Creek confluence to the Ottawa Creek confluence	WWH 56.5-42.2

This segment was subject to dissolved oxygen, fecal coliform bacteria and ammonia violations from combined sewer overflows and bypasses of the Findlay WWTP (RM 54.6) (Balduf and Martin, 1978). A facility plan has been developed and is currently being reviewed by Ohio EPA. It is unlikely that improvements will occur before 1983.

OIL DITCH
BLANCHARD RIVER TRIBUTARY
CONFLUENCE AT RM 48.5

Segment Problem	Name Description	Use Designation Mile Points
N/A POOR	Oil Ditch From the source to the Blanchard River	WWH 4.0-0.0

Oil Ditch originates at a catch basin which has six storm and sanitary sewer outfalls. Samples taken in 1976 from two of these outfalls indicated extremely high levels of total copper, total zinc, total lead, total iron, total cadmium, total aluminum, MBAS, phenolics, oil/grease, COD and BOD_5 (OEPA, NWDO data, 1976). The ditch was extremely polluted by several industrial dischargers downstream from this catch basin. The only aquatic life observed was sewage fungus.

Samples taken during a 1975 water quality survey of the Blanchard River indicated dissolved oxygen and fecal coliform bacterial violations at the mouth of Oil Ditch (OEPA, NWDO data, 1975). This survey also indicated that the discharge from Oil Ditch exerts a mildly toxic effect upon the macroinvertebrates in the Blanchard River. No significant improvements in the industrial discharges to Oil Ditch are expected to occur prior to 1983.

BLANCHARD RIVER MAINSTEM

Segment Problem	Name Description	Use Designation Mile Points
04100008-003,-001 GOOD	Blanchard River From the Ottawa Creek confluence to the Auglaize River	WWH 42.2-0.0

The village of Ottawa discharges to the mainstem of the Blanchard River at RM 21.2. Proposed upgrading of the Ottawa WWTP is being considered in a facility plan for the Ottawa Regional Planning area. This planning includes the village of Glandorf (RM 1.4 on Cranberry Creek). Water quality samples collected at RM 1.6 on Cranberry Creek indicated that degradation occurs below the village of Glandorf. Ohio water quality standards violations for dissolved oxygen and fecal coliforms occurred (Ohio EPA, NWDO data, 1975). Improvements in wastewater treatment and collection systems at Glandorf are not expected to occur prior to 1983.

RILEY CREEK
BLANCHARD RIVER TRIBUTARY
CONFLUENCE AT RM 28.0

Segment Problem	Name Description	Use Designation Mile Points
04100008-002 GOOD	Riley Creek From the headwaters to Bluffton	WWH 22.2-14.0
04100008-002 FAIR	Riley Creek From Bluffton to Felt Road	WWH 14.0-11.4

This section was affected by the Bluffton WWTP (RM 14.9) and collection system. Low dissolved oxygen concentrations below the Bluffton WWTP have been noted during field surveys (Ohio EPA, NWDO data, 1978). A facility plan for Blufton is in the review process, but it is unlikely that proposed improvements to the Bluffton system will occur before 1983.

Segment Problem	Name Description	Use Designation Mile Points
04100008-002 GOOD	Riley Creek From Felt Road to the Blanchard River	WWH 11.4-0.0

The Pandora WWTP (RM 3.5) had a minimal effect on the water quality of Riley Creek (Ohio EPA, NWDO field survey, 1975).

REFERENCES

Balduf, T., and G. Martin. 1978 (unpublished). An assessment of the water quality in the Blanchard River with emphasis on the effects of the Findlay Sewage Treatment Plant, Hancock County, Ohio. Ohio Environmental Protection Agency, Northwest District Office, Bowling Green, Ohio. mimeo. 48 pp.

Martin, G.L. 1976 (unpublished). Biological investigation of Shallow Run, Dunkirk (Hardin County). Ohio Environmental Protection Agency, Northwest District Office, Bowling Green, Ohio. mimeo. 2 pp.

Ohio Environmental Protection Agency. 1974 (unpublished). Draft 305(b) report. Available from Northwest District Office, Ohio EPA, Bowling Green, Ohio.

Ohio Environmental Protection Agency. 1975-1980 (unpublished). Data available from Northwest District Office, Ohio EPA, Bowling Green, Ohio.

MAUMEE RIVER BASIN

UPPER MAUMEE RIVER SUBBASIN (A-7)

SUBBASIN SUMMARY

The Maumee River from the Indiana State Line (RM 107.0) to just upstream from Napoleon, Ohio (RM 45.0), generally met physical/chemical Warmwater Habitat (WWH) standards. This subbasin had relatively high BOD_5, nutrients, and total dissolved solids (TDS) concentrations. Fecal coliform levels have improved in recent years and are now usually below 1000/100 ml. The somewhat higher BOD_5 and nutrient levels, and occasional violations of Ohio water quality standards for total copper, total lead, total mercury and total zinc at the Antwerp sampling station (RM 100.3; STORET station No. 500140) reflected the impact of the Fort Wayne, Indiana WWTP and metropolitan area. Total iron violations resulting from nonpoint sources were somewhat more common. All evaluations were based on current data (OEPA, NWDO data, 1977-1980).

A biological and water quality survey of the upper Maumee River and selected tributaries is planned for 1984. A draft report should be available in late 1985.

SEGMENT REPORTS

MAUMEE RIVER MAINSTEM

Segment Problem	Name Description	Use Designation Mile Points
04100005-003,-001 GOOD	Upper Maumee River Indiana State Line to Defiance	WWH 107.0-60.4

REFERENCES

Ohio Environmental Protection Agency. 1977-1980 (unpublished). Data available from Northwest District Office, Ohio EPA, Bowling Green, Ohio.

MAUMEE RIVER BASIN

TIFFIN RIVER SUBBASIN (A-8)

SUBBASIN SUMMARY

Physical/chemical water quality in the Tiffin River Subbasin was generally good and should meet the 1983 goals. In previous years, routine samples were collected at four sampling stations (STORET station No's. 500160, 500300, 500330, 500340) on the Tiffin River and in Bean Creek (OEPA, NWDO data, 1974-1978). These stations have not been sampled by the Ohio EPA since mid-1978, but present water quality conditions are probably similar to those reported previously. Results from previous sampling were characterized by a high dissolved oxygen (D.O.) and a low biochemical oxygen demand (BOD_5) in 20 per cent of the samples (mainly during high water conditions). The nutrient level was slightly lower than in most of the other Maumee River Subbasins. Also, the water quality appeared to be somewhat degraded in the immediate area of Defiance (RM 61.6 on the Maumee River), although not to an extent that would impair attainment of the 1983 goals. The most significant water pollution problem in the Tiffin River Subbasin is nonpoint source runoff ← check from agricultural lands. Stream channelization projects, drainage of agricultural land, intensive row cropping and loss of riparian vegetation significantly impacted water quality throughout the subbasin. No analytical data were available for the tributaries to the Tiffin River, other than Bean Creek, however, observations indicated that the quality was satisfactory in most tributaries.

A biological and water quality survey of the Tiffin River and selected tributaries ~~is planned for 1984. A draft report should be available in late 1985.~~ was conducted in 1984.

SEGMENT REPORTS

BEAN CREEK
TIFFIN RIVER TRIBUTARY
CONFLUENCE AT RM 49.9

Segment Problem	Name Description	Use Designaton Mile Points
04100006-007 GOOD	Bean Creek from the Michigan State line to the Tiffin River	WWH 9.4-0.0

TIFFIN RIVER MAINSTEM

Segment Problem	Name Description	Use Designation Mile Points
04100006-006,-005, -003,-002,-001 GOOD	Tiffin River from the Bean Creek confluence to the Maumee River	WWH 49.9-0.0

REFERENCES

Ohio Environmental Protection Agency. 1974-1978 (unpublished). Data available from Northwest District Office, Ohio EPA, Bowling Green, Ohio.

ST. JOSEPH RIVER SUBBASIN (A-9)

SUBBASIN SUMMARY

The St. Joseph River met the 1983 goals, although fecal coliform bacteria and total iron concentrations were near the upper limits of the Ohio water quality standards for Warmwater Habitats (WWH) (OEPA, 1975a). A field survey in 1975 revealed a high diversity of macroinvertebrates and good water quality at three locations upstream and downstream from the city of Edgerton WWTP (RM 51.1)(OEPA, 1975b).

Biological Evaluations

No recent Ohio EPA, macrobenthic data are available for the subbasin. Previous biological monitoring was conducted in July, 1975, at benthic stations on the St. Joseph River from Edgerton in Williams County (RM 51.3) to river mile 42.3 in Defiance County.

Three stations were established to monitor the effect of the Edgerton Metal Products discharge. These stations were located at river miles 51.3, 49.8 and 42.3. The Edgerton Metal Products discharge enters the St. Joseph River at river mile 50.92. A summary of the data can be found in Table II-20. The tabulated data can be found in Ohio EPA 1980 Biennial Water Quality Report, RD 3-88 (OEPA, 1980).

The data from all three stations demonstrated Class II (Good) water quality. Stations 51.3 and 49.8 had moderately high numbers of taxa (26 and 27, respectively) and an abundance of pollution sensitive taxa. Mayflies, stoneflies, and caddisflies comprised approximately 40 percent of the taxa from each station. The furthest downstream station (RM 42.3) displayed similar good water quality with a high number of taxa (32) and a high diversity index (3.19).

The results of this survey showed that the Edgerton Metal Products discharge did not have any detectable impact on the St. Joseph River.

SEGMENT REPORTS

ST. JOSEPH RIVER MAINSTEM

Segment Problem	Name Description	Use Designation Mile Points
04100003-003 GOOD*	St. Joseph River from the confluence with the West Branch to below Egerton	WWH 70.3-41.6
04100003-003 GOOD	St. Joseph River from below Edgerton to the Ohio-Indiana Line	WWH 41.6-33.6

Table II-20: Summary of Benthic Data Collected from the St. Joseph River Relative to the Edgerton Metal Products Discharge, August, 1975[a]

	Station (RM)		
	51.3	49.8	42.3
Number of Samplers	5	5	5
Quantitative Taxa	26	27	32
Qualitative Taxa	15	10	12
Organisms/Ft^2	190	168	154
Index ($\overline{d}$)	3.14	3.54	3.19
Evaluation (Class)	II	II	II

(a) The Edgerton Metal Products discharge is located at RM 50.9.

MAUMEE RIVER BASIN

MIDDLE AND LOWER MAUMEE RIVER SUBBASINS (A-10 and A-11)

SUBBASIN SUMMARY

An estimated 14.1 stream miles in the Lower Maumee River Subbasin had major physical/chemical problems. The segment between Napoleon, Ohio (RM 45.0), and the Interstate 75 Bridge (RM 14.1) generally met Ohio water quality standards for Warmwater Habitat (WWH). This segment had slightly lower BOD_5 and nutrient concentrations when compared to upstream segments. Fecal coliform bacteria violations may have occurred as a result of combined sewer overflows during storm events. No Ohio water quality standards violations were detected during periods of low flow. The Maumee River Estuary, below the Interstate 75 Bridge, has had frequent dissolved oxygen and fecal coliform bacteria violations in previous years. Minor water quality standards violations for total lead, total cadmium, total zinc and total mercury have been recorded at the U.S.G.S. monitoring station at Waterville (RM 20.8).

Biological Evaluations

Recent Ohio EPA, macrobenthic monitoring in the basin consisted of two sets of benthic samples (NASQAN) collected in September, 1979, from the Maumee River at Waterville in Lucas County (RM 21.0). Macroinvertebrates were sampled at both east bank and west bank stations (RD 3). Both stations were given a Class III (Fair) evaluation based on the benthic composition and number of taxa present (East Bank, 24; West Bank, 26). The benthic communities at each site were dominated by abnormally large numbers of organisms, especially caddisflies of the family Hydropsychidae. Eight genera of this family made up nearly 70 percent of the total numbers by individuals collected. Such large numbers of these net spinning caddisflies are often indicative of large amounts of suspended organic material. In this case, the large numbers and subsequent unbalanced communities did not warrant an evaluation better than Class III (Fair) at either station.

Previous sampling at this location was conducted at a west bank station in August, 1976, and east bank and west bank stations in September, 1977, and July, 1978 (Ohio EPA, 1980, RD 3-92, 3-93, 3-94, 3-95 and 3-96). On all occasions, the benthic community consisted of a large number of organisms, especially hydropsychid caddisflies. Benthic composition, number of taxa, and diversity index were quite similar each year. Evaluations of Class III (Fair) water quality were assigned to each data set.

The 1979 data tended to show some improvement in the benthic community, especially in the number of taxa. However, the same general pattern of large numbers of organisms of certain groups continued to be observed. The slight changes observed were not considered significant enough to justify a higher (Class II) evaluation in 1979.

SEGMENT REPORTS

MAUMEE RIVER MAINSTEM

Segment Problem	Name Description	Use Designation Mile Points
04100009-010,009 GOOD	Middle Maumee River From Defiance to Napoleon	WWH 60.4-45.0
04100009-009,-008, -006,-005 GOOD	Lower Maumee River from Napoleon to the Maumee-Perrysburg Bridge	WWH 45.0-14.1
04100009-001,-005 FAIR	Lower Maumee River Estuary reach	WWH 14.1-0.0

Ohio water quality standards violations for D.O. and fecal coliforms occured in the Maumee River Estuary (Toledo-Lucas County Port Authority, 1974). Due to the nature of the estuary, extended periods with no outflow occurred. Organic materials accumulate near and on the river bottom during these periods because of poor water column mixing. Water quality problems (e.g., D.O. violations) in the estuary were most severe in the lower 2 feet of the water column. A number of WWTP's discharge into this estuary including: the Lucas Co. WWTP (RM 18.3), the Perrysburg WWTP (via Grassy Creek @ RM 9.5), and the Toledo WWTP (RM 0.5). Combined sewer overflows from Toledo, via Swan Creek (RM 5.0), also discharge into this segment.

YELLOW CREEK

Segment Problem	Name Description	Use Designation Mile Points
04100009-018 POOR*	Yellow Creek from County Line Road bridge to downstream at Round head-bridge	WWH 6.0-3.0

LITTLE YELLOW CREEK
TRIBUTARY TO YELLOW CREEK
CONFLUENCE AT RM 7.4

Segment Problem	Name Description	Use Designation Mile Points
N/A POOR*	Little Yellow Creek from Leipsic WWTP to confluence with Yellow Creek	LWH 5.5-0.9

BRUSH CREEK

Segment Problem	Name Description	Use Designation Mile Points
04100009-017 POOR*	Brush Creek from CR C bridge below Hickory ditch downstream of SR 65 bridge near Deshler	WWH 11.5-7.3

HICKORY DITCH
TRIBUTARY TO BRUSH CREEK
CONFLUENCE AT RM 12.2

Segment Problem	Name Description	Use Designation Mile Points
N/A POOR*	Hickory Ditch from Leipsic WWTP to confluence with Brush Creek	LWH 1.5-0.5

Summary - Biological and Water Quality Survey

The results of water quality and biological sampling during August, September and October 1981 showed the impacts of the Leipsic WWTP on Little Yellow and Yellow Creek, and the impacts of combined sewer overflows on Hickey Ditch and Brush Creek.

Combined sewer overflows had a severe impact on Hickey Ditch and Brush Creek, and organic waste effects were evident over the entire sampling area. Similarly, organic waste effects were evident for the entire length of Little Yellow Creek; chemical/physical parameters and biota indicated only minimal recovery from the effluent at the most downstream station.

Channelization and associated alterations of instream habitat and riparian vegetation complicated the evaluations of water quality at most stations on Yellow Creek; channelization appeared to be the primary influence on the aquatic biota. The influence of channelization appeared relatively more important in Yellow Creek (as compared to Little Yellow and Brush Creek) as a result of the relative decrease in magnitude of impact from organic waste effluent; however, increased nutrient concentrations in Yellow Creek downstream from the confluence were indicative of enrichment from the Leipsic WWTP and Little Yellow Creek. Four miles downstream from the confluence of Little Yellow and Yellow Creek, the effects of channelization were less evident and there was evidence (in chemical/physical parameters as well as the fish fauna) of recovery from nutrient enrichment.

Upgrading the Leipsic WWTP should result in improved conditions for biotic communities of Little Yellow Creek (at least in downstream areas), and in areas of Yellow Creek where favorable habitat conditions exist. Recovery of Brush Creek and Hickey Ditch appears to be directly dependent on cessation of combined sewer overflows. Recovery of natural sinuosity and some riparian vegetation (during the years following channelization) should be expected to result in improved biotic communities in Yellow Creek in the absence of organic waste effluent.

Faunas in those areas not impacted by channelization nor organic waste effluent indicate that Yellow Creek, and Brush Creek and Little Yellow Creek as well, are capable of supporting reproducing populations of warmwater fish and invertebrates on an annual basis. In the judgement of the Ohio EPA, the establishment of a warmwater fauna in Hickey Ditch and Stelhorst Ditch is precluded by the short length of stream involved, a lack of sufficient dilution water sources, and the adverse habitat features (shallow depth, lack of canopy and instream cover) of these channelized drainage ways; however, a reduction of combined sewer overflows and improved on-lot sewage disposal would allow more effective use of the natural assimilative capacity of Hickey Ditch and Stelhorst Ditch to the benefit of the downstream receiving waters.

NORTH TURKEYFOOT CREEK
TRIBUTARY TO MAUMEE RIVER
CONFLUENCE AT RM 37.9

Segment Problem	Name Description	Use Designation Mile Points
N/A GOOD*	North Turkeyfoot from headwaters to downstream of the Conrail RR bridge	WWH 22.7-18.7
N/A POOR*	North Turkeyfoot from Conrail RR bridge to downstream Wauseon WWTP	WWH 18.6-10.9
N/A POOR*	North Turkeyfoot from downstream of Wauseon WWTP to below Konzen Ditch confluence	WWH 10.8-3.4

KONZEN DITCH
TRIBUTARY TO NORTH TURKEYFOOT CREEK
CONFLUENCE AT RM 4.7

Segment Problem	Name Description	Use Designation Mile Points
N/A GOOD*	Konzen Ditch from headwaters to unname tributary confluence	WWH 7.5-0.0

Summary - Biological and Water Quality Survey

Biological communities at the most downstream site in North Turkeyfoot Creek and in Konzen Ditch represent the highest potential documented in this study. Indications of continued impact from organic loading in Wauseon may have influenced the collections downstream in North Turkeyfoot Creek, and naturally occurring low flow conditions in Konzen Ditch undoubtedly had some influence on biological communities. Potential communities in North Turkeyfoot Creek may be more diverse than evidenced by the downstream collection site.

Proximity of the Maumee River (the downstream receiving stream) also had a potential positive influence, particularly on fish species diversity in downstream regions of North Turkeyfoot Creek (as evidenced by some characteristic large river species at RM 3.4).

The number of taxa collected RM 18.7 was relatively high, particularly in July (45 taxa); however, the predominance of tolerant taxa (particularly in October) was indicative of a stressed environment. Within sampling months, the total number of taxa was equal to or greater than the numbers found at the next three downstream (mainstem) stations. This station was rather pond-like, with the benthic assemblage predominated by damselfly and dragonfly larvae, beetles, and Callibaetis sp. mayfly larvae. The community appeared to reflect the decline in water quality during the latter collecting peiod through a decline in total number and less tolerant taxa.

The total number of benthic taxa at RM 17.8 was much lower than that at RM 18.7, in both July and October. The community at this site is exposed to a constant discharge from the overloaded WWTP as well as CSO discharges; both sources are characterized by high concentrations of heavy metals, nutrients and solids which clearly exceed the assimilative capacity of the stream (Chapter 3). A septic smell was obvious during sampling and the stream bottom was predominantly sludge deposits with abundant bacteial slimes. No organisms were collected or observed in high enough numbers at RM 17.8 to be called abundant and some types (e.g. mayflies and caddisflies) were entirely absent from the assemblage. The organisms present were all of types tolerant to organic pollutants, particulary several non-dryopoid beetle (Coleoptera) species and dipteran larvae (particularly rattail maggots, mosquitoes and sewage flies, Psychodidae). The reduction, rather than elimination, of benthos at this station suggests that the dissolved heavy metals may not have been acutely toxic, but were probably responsible for the elimination of some types through chronic impacts. Regardless of the particular mechanism of degradation (which will vary according to stream flow regime), the stream in the area was not supporting a well-balanced macroinvertebrate assemblage as a result of upstream perturbations.

The unnamed tributary (RM 17.3) was sampled at RM 1.6. The site was obviously enriched, and had a very abundant growth of filamentous green algae, pond weed (Potamogeton sp.) and duckweed (Lemna sp.). The macrobenthos was predominated by amphipods in July and by isopods in Octover. The total number of taxa in July (42) was one of the highest collected during this survey but dropped to 22 taxa in Octover under reduced flow conditions.

The station at RM 13.8 remained heavily enriched apparently as a result of the discharge from the Wauseon WWTP. The stream in this area had a very abundant growth of planktonic algae which would be expected to contribute to a diel dissolved oxygen depression (a D.O. minimum of 0.05 mg/l was measured here on October 7, Chapter 3). Nevertheless, the total number of macroinvertebrates increased in both July and October to levels much higher than those found at RM 17.8. RM 13.8, while still degraded, was apparently located in a zone of recovery and assimilation. The station was predominated during both collection periods by red-pigmented midge larvae with an abundant population of oligochaete worms, beetle, damselflies and dragonflies. Numbers of midge taxa increased and Callibaetis mayflies reappeared.

The station at RM 10.9 showed very little improvement over that at RM 13.8. It was clearly enriched with a green coloration derived from plantonic algae. The total number of macroinvertebrate taxa either remained the same or increased very slightly at 10.9. Although the diversity of mayflies and caddisflies began to show improvement, tolerant-type organisms remained predominant.

The station on Konzen Ditch (RM 4.7, 2.3) was unique in this study, due to the total lack of surface flow during much of the collection period. A slight flow between pools was noted on July 30, but only unconnected pools remained on October 12. There were relatively small numbers of total taxa, evidently a function of flow conditions rather than adverse water quality or unsuitable habitat. Mayflies were relatively diverse and numerous (particularly in July), and numbers of individuals were much lower in October. Mayflies appeared to predominate during both macroinvertebrate collections.

The final downstream sampling station was located at RM 3.4 on the mainstem of North Turkeyfoot Creek. Filamentous green algae was very abundant, both in floating water and attached to bottom materials, probably due to the high levels of available nutrients. The total number of benthic taxa increased at this station with the highest totals of all the stations for each respective month. There was an increase in number of species of intolerant types, particularly mayflies.

The relatively diverse biological communities in Konzen Ditch and similarity in size of this tributary with upstream regions of North Turkeyfoot Creek suggests that marked improvements might be expected in the latter stream with reductions in organic loading from Wauseon. The inclusion of several more sensitive fish species (including several sport fishes) only in downstream collections (both mainstem and Konzen Ditch) further suggests potential for improved biological communities in North Turkeyfoot Creek. Potential chemical water quality impacts of nonpoint source agricultural runoff were clearly minor in biological influence as compared to the impact of Wauseon. The influence of natural background conditions (e.g. agricultural runoff, low flow regimes) will continue to exert an influence on potential biological communities following any improvement in water quality. However, improved chemical water quality in North Turkeyfoot Creek would be expected to result in improvement in biological communities particularly through more extensive use by large river species from the Maumee River.

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MAUMEE RIVER BASIN

LOWER MAUMEE RIVER SUBBASIN AND

TEN MILE CREEK SUBBASIN (A-12)

SUBBASIN SUMMARY

The upstream reach of the Ottawa River above Secor Road (RM 11.3) has greatly improved since the Sylvania WWTP was abandoned, and sewage flow was diverted to the Maumee River WWTP. Similar improvements have been observed in Ten Mile Creek. Although no sampling has been performed since 1975, the segment above Secor Road is assumed to meet 1983 goals. The lower section of the Ottawa River is expected to meet 1983 goals upon completion of the various phases of the Ten Mile Creek Relief Sewer Project.

An estimated 14.0 stream miles in this subbasin had major physical/chemical problems. The upper reaches of Swan Creek should meet 1983 goals, while the lower section, particularly the segment through Toledo, is not expected to attain 1983 goals.

See Subbasins A-10 and A-11 for a dicussion of condition in the lower Maumee River.

SEGMENT REPORTS

TEN MILE CREEK (OTTAWA RIVER) MAINSTEM

Segment Problem	Name Description	Use Designation Mile Points
N/A GOOD	Ten Mile Creek Secor Road to the Fulton Co. Line	WWH 34.6-11.9
N/A FAIR	Ten Mile Creek (Ottawa River) From Fulton Co. Line to North Maumee Bay	WWH 11.9-0.0

The lower part of Tenmile Creek is known as the Ottawa River. Ohio water quality standards violations for this segment included dissolved oxygen and fecal coliforms. These problems should be eliminated upon completion of the Ten Mile Creek Relief Sewer Project.

SWAN CREEK
MAUMEE RIVER TRIBUTARY
CONFLUENCE AT RM 5.0

Segment Problem	Name Description	Use Designation Mile Points
04100009-004,-002 FAIR	Swan Creek From the headwaters to Interstate-475	WWH 41.2-14.0

Fecal coliform violations occured in this segment, particularly during storm events. Nonpoint sources have may accounted for many of the bacterial violations, but discharge from WWTP upstream (e.g., Swanton, RM 31.0) may also have been responsible (Ohio EPA, NWDO data, 1981)

Segment Problem	Name Description	Use Designation Mile Points
04100009-002 POOR	Swan Creek From Interstate-475 to the Maumee River	WWH 14.0-0.0

Ohio water quality standards violations for dissolved oxygen and fecal coliform bacteria occured in Swan Creek upstream from Reynolds Road (RM 10.5), due to septic tank discharges and small public or commercial WWTP's (Jones and Henry, 1977). Swan Creek downstream from Reynolds Road was subject to periodic combined sewer overflows which contributed to the D.O. and fecal coliform bacterial violations. In addition, high phosphorus levels were also common in this segment. Improvements will not be made on this segment prior to 1983.

BAD CREEK
MAUMEE RIVER TRIBUTARY

Segment Problem	Name Description	Use Designation Mile Points
04100009-007 GOOD*	Bad Creek from headwaters to upstream of Green Lawn Cemetary	WWH 27.1-15.1
04100009-007 POOR*	Bad Creek from Greenlawn Cemetary to downstream from County Road D bridge	WWH 15.0-10.0
04100009-007 GOOD*	Bad Creek from below County Road D bridge to confluence with Maumee River	WWH 9.9-0.0

Summary - Biological and Water Quality Survey

The results of the water quality and biological sampling in 1982 demonstrated substantial water quality and biological degradation originating from several sources in the Delta area. The most obvious perturbations were observed in a five (5) mile segment of Bad Creek in a immediately downstream from the Village of Delta.

Elevated TSS and iron concentrations and substrate siltation were noted 1.8 miles downstream from the Delta WTP; however, no adverse biological impacts were measured at this location (RM 15.0). Monthly operating report data revealed such excessive loadings of solids from the Delta WTP that it is very likely that sludge deposits immediately downstream from the outfall do adversely influence benthic and fish communities on a more localized scale.

Impacts on chemical water quality and biological conditions were detected at RM 13.4 and were attributed to combined sewer overflows (CSO) and two small package WWTP located within the Village of Delta. The chemical water quality impact was greatest following a rainfall event which apparently caused a flush of organic matter from the sewage collection system and CSO's. Biological degradation at this site was detected during the lower flow period of late summer and was best demonstrated by the reduction in number of mayfly taxa and the occurrence of a fish kill in September.

Marked increases in parameters associated with sewage inputs were observed one (1) mile downstream from the Delta WWTP. Two ammonia-N values (3.95 and 18.40 mg/l) exceeded the WQS, and dissolved oxygen concentrations were depressed (range 2.4-4.3 mg/l). Samples of the Delta WWTP effluent revealed poor quality effluent and an obvious disparity with self monitoring MOR data. In late summer, the benthic macroinvertebrate community downstream from the Delta WWTP evidenced adverse impacts including a reduction in mayfly taxa and the predominance of dipteran larvae. The number of fish species and fish community composition also showed degradation at this site. A fish kill was noted downstream from the Delta WWTP in August. Chemical and biological conditions in Bad Creek evidenced partial recovery 3.8 miles downstream from the Delta WWTP. The predominant influence of the point source on water chemistrey was shown in the conductivity levels measured throughout the study. Poorest water quality was associated with the flush of organic matter during the rainfall event discussed above. Biological indications of continued impact from the Delta area were predominance of dipteran taxa, reduced numbers of mayfly taxa, and low relative abundance of johnny darters. The station located 11.5 miles downstream from the Delta WWTP displayed elevated conductivity levels as a result of the pollutant loadings. There was no substantial biological degradation measured at this site.

Reductions in pollutant loadings from the Delta area are expected to result in considerable improvements in chemical and biological conditions in a five mile segment of Bad Creek. The likelihood of continued frequent fish kills should be substantially lessened. Potential chemical water quality impacts of nonpoint source agricultural runoff were considered minor in biological influence as compared to impact of Delta. The influence of other existing background conditions (e.g. stream channel modifications, low flow regimes) will continue to exert an influence on potential biological communities following any improvement in water quality. However, reduced point source pollutant loadings are expected to improve chemical water quality in Bad Creek and are expected to result in improved biological communities.

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PORTAGE RIVER BASIN

UPPER PORTAGE RIVER SUBBASIN (B-1) AND LOWER PORTAGE RIVER SUBBASIN (B-2)

SUBBASIN SUMMARY

Physical/chemical water quality in the Portage River Subbasin was fair, being degraded in the upper reaches by point source discharges from the cities of Bowling Green (RM 8.5 on the North Branch) and Fostoria (RM 11.8 on the East Branch). Sediment loading from nonpoint sources was substantial during storm runoff events. An estimated 13.6 of the 104.7 stream miles evaluated in this basin had major physical/chemical problems. The two segments involved were low-flow streams which were degraded by WWTP discharges, resulting in Ohio water quality standards violations for dissolved oxygen (D.O.), ammonia, and fecal coliform bacteria.

SEGMENT REPORTS

NORTH BRANCH OF THE PORTAGE RIVER
PORTAGE RIVER TRIBUTARY
CONFLUENCE AT RM 33.2

Segment Problem	Name Description	Use Designation Mile Points
04100010-006 GOOD	North Branch from the source to the Poe Ditch confluence	WWH 20.0-8.5
04100010-006 FAIR	North Branch from Poe Ditch to the Portage River	WWH 8.5-0.0

During dry weather, flow in this segment originates at the Bowling Green WWTP (RM 8.5). Ohio water quality standards violations for D.O., fecal coliforms and ammonia, were attributable to the Bowling Green WWTP (OEPA, 1975). Construction of new facilities at Bowling Green, including nitrification and filtration, is expected to be completed in early 1982. This segment is expected to meet the 1983 goals when construction is completed.

EAST BRANCH OF THE PORTAGE RIVER
PORTAGE RIVER TRIBUTARY
CONFLUENCE AT RM 45.9

Segment Problem	Name Description	Use Designation Mile Points
04100010-009 POOR	Portage East Branch from to the Fostoria WWTP to the South Branch of the Portage River	WWH 11.4-0.0

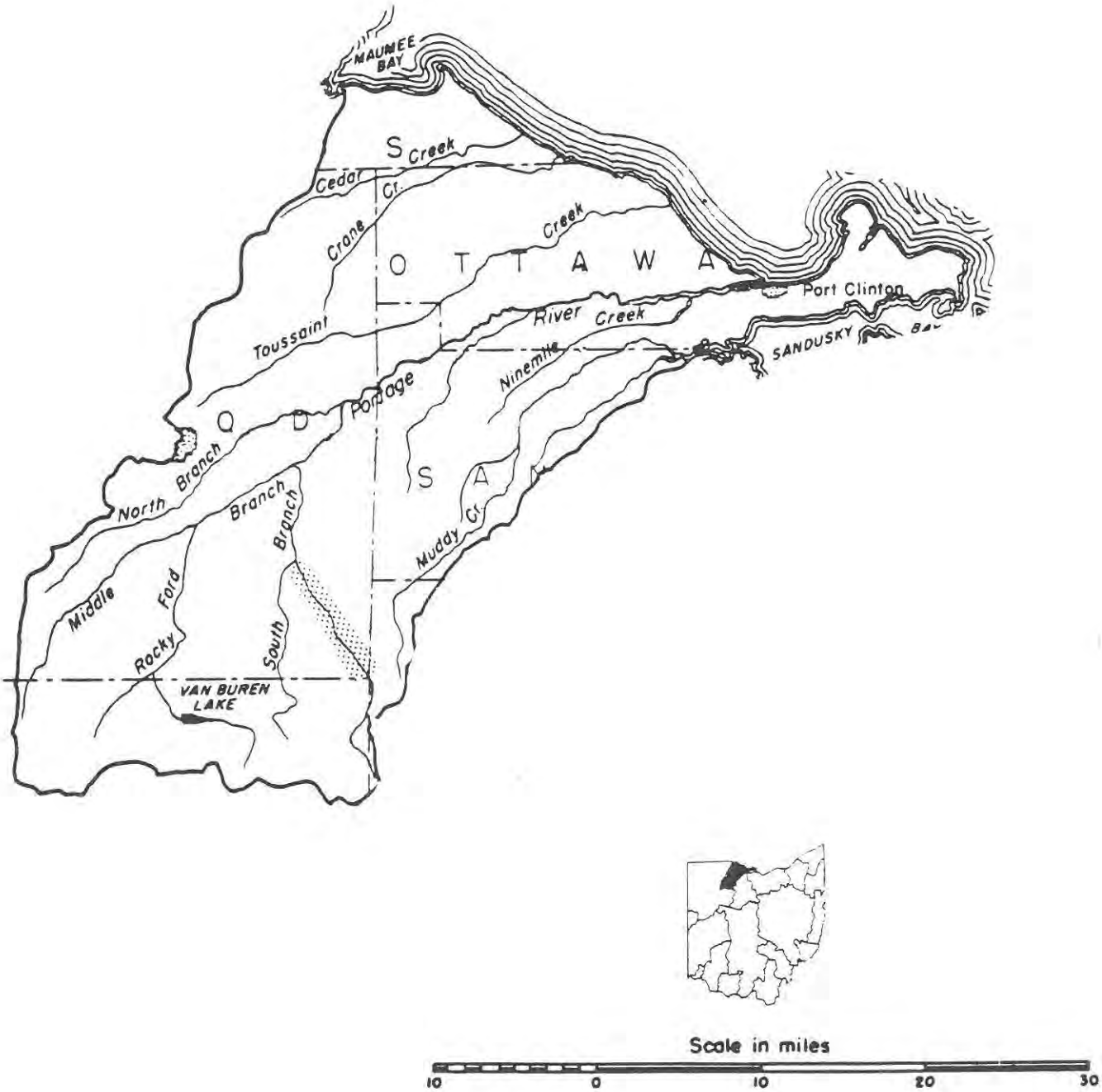

Figure II-2. Map of the Portage River basin (Ohio). Stream segments that were judged not to support aquatic life in accordance with the goals of the Clean Water Act are highlighted with stippled shading.

The entire length of the East Branch was severly degraded by the discharge from the Fostoria WWTP (RM 11.4). Ohio water quality standards violations for dissolved oxygen (D.O.), ammonia, fecal coliforms, total copper and total lead were common. (Balduf and Martin, 1977). The D.O. sag reached its minimum at the Brandeberry Road area (RM 8.0) and showed nearly complete recovery at the Cygnet Road area (RM 3.7). Total copper, total lead and total aluminum are discharged from the Fostoria WWTP in relatively large amounts, with total copper and total lead at times in excess of Ohio water quality standards. Metals violations occurred as far downstream as Bays Road (RM 1.8). Ammonia violations were recorded as far downstream as Cygent Road.

The diversity of fish and aquatic macroinvertebrates was greatly decreased because of the D.O. sag caused by Fostoria. The population of aquatic animals did not improve significantly until the Cygnet Road area, where dissolved oxygen levels recovered and sludge deposits disappeared.

Due to adequate assimilation capacity of the East Branch, the Fostoria WWTP discharge probably has only minimal effects on the South Branch of the Portage River.

ROCKY FORD CREEK
PORTAGE RIVER MIDDLE BRANCH TRIBUTARY
CONFLUENCE AT RM 8.2

Segment Problem	Name Description	Use Designation Mile Points
N/A FAIR	Rocky Ford Creek from the Source to the Middle Branch	WWH 9.6-0.0

The flow in this section was low during dry weather and water quality was severely degraded by residential systems in the village of Cygnet and relatively poor quality WWTP effluent in the village of North Baltimore. Frequent dissolved oxygen, ammonia, and fecal coliform bacterial violations occurred (OEPA, 1975). It is unlikely that any WWTP improvements that would improve water quality will be completed prior to 1983.

BULL CREEK
PORTAGE RIVER MIDDLE BRANCH TRIBUTRARY
CONFLUENCE AT RM 6.0

Segment Problem	Name Description	Use Designation Mile Points
N/A GOOD	Bull Creek from Jerry City to Mermill Road	WWH 5.4-1.9

This zero flow stream appeared to have relatively good (physical/chemical) water quality from the headwaters (RM 14.3) to Jerry City (RM 5.4). Water quality downstream from Jerry City was degraded by discharges from residential systems, but substantial recovery occurred before the confluence with the Middle Branch.

MIDDLE BRANCH OF THE PORTAGE RIVER
PORTAGE RIVER TRIBUTARY
CONFLUENCE AT RM 38.4

Segment Problem	Name Description	Use Designation Mile Points
N/A GOOD	Middle Branch from the Rader Creek confluence to the South Branch	WWH 15.7-0.0

Insufficient data exists to adequately evaluate water quality in this segment.

SOUTH BRANCH OF THE PORTAGE RIVER
PORTAGE RIVER TRIBUTARY
CONFLUENCE AT RM 33.2

Segment Problem	Name Description	Use Designation Mile Points
04100010-008 GOOD	South Branch from the East Branch confluence to the Portage River	WWH 45.9-33.2

PORTAGE RIVER MAINSTEM

Segment Problem	Name Description	Use Designation Mile Points
04100010-005 GOOD*	Portage River from Woodville to the beginning of the estuary	WWH 28.2-15.7

This segment of the Portage River violated Ohio water quality standards (WWH) standards for fecal coliforms, dissolved oxygen, and total iron (RM 28.2; STORET station No. 500510) (OEPA, NWDO data, 1978-1980). The fecal coliform and D.O. violations were caused by the discharge from the city of Bowling Green's WWTP. The new Bowling Green WWTP is expected to be in operation during 1982. After the facility becomes operational, this section is expected meet WWH standards for all water quality parameters with the exception of total iron. Total iron will continue to exceed WWH standards due to background conditions and/or coal pile leachate from cement and lime plants in the Woodville area. A policy, currently being development by Ohio EPA, Industrial Wastewater Division, may lead to the elimination of total iron violations from coal pile leachate by 1983.

Biological Evaluations

Current Ohio EPA, macrobenthic monitoring in the subbasin consisted of one fixed station benthic sample (NASQAN) collected in September, 1979, from the Portage River near Woodville in Sandusky County (RM 27.8). The sample consisted of 31 taxa with a diversity index of 3.91 (RD 3). The diverse sample was composed of a well balanced community of 9 taxa of mayflies and caddisflies and 14 taxa of midges, with no taxon dominating the community by numbers. An evaluation of Class II (Good) water quality was indicated by all biological criteria.

Previous sampling at this location was conducted in July, 1978, and September, 1977 (OEPA, 1980, RD 3-100 and 3-101). Twenty-five taxa were collected in 1978 (diversity index 3.08) and 30 taxa were collected in 1977 (diversity index 2.92). Water quality was Class II (Good) on both occasions based on the benthic composition, the number of taxa, and diversity index. The samples from both years were quite similar to the current data, indicating that little or no change in water quality had occurred.

PORTAGE RIVER MAINSTEM

Segment Problem	Name Description	Use Designation Mile Points
04100010-007,-005 FAIR	Portage River from the North Branch confluence to Woodville	WWH 33.2-28.2

This section was affected even more severely by the Bowling Green WWTP than the segment below Woodville (RM 28.2-15.7) (OEPA, 1975). In addition to Ohio water quality standards violations for dissolved oxygen and fecal coliforms, there were several ammonia violations. All violations are expected to be eliminated by the construction of the Bowling Green WWTP. Occasional total iron violations slightly in excess of 1000 ug/l occurred, but these violations should be eliminated by 1983 through industrial control measures. A natural background iron concentration of approximately 0.5 mg/l exists throughout the Portage River Basin (Ohio EPA, NWDO data, 1977-1980).

SUGAR CREEK
PORTAGE RIVER TRIBUTARY
CONFLUENCE AT RM 6.3

Segment Problem	Name Description	Use designation Mile Points
N/A GOOD	Sugar Creek from the source to the Portage River	WWH 17.8-0.0

Although little information was available to make a determination of attainablity of the 1983 goals in this segment, it is likely that degradation is only minor. The segment drains a rural area except for the small community of Risingsun. Residential sewage from septic systems may slightly degrade water quality in this segment, but what impact this has on the attainability of 1983 goals is unknown.

WOLF CREEK
PORTAGE RIVER TRIBUTARY
CONFLUENCE AT RM 12.9

Segment Problem	Name Description	Use Designation Mile Points
N/A FAIR	Wolf Creek from the source to the Portage River	WWH 14.0-0.0

Field surveys were conducted on Wolf Creek on 30 July and 9 October 1980. The purpose of this monitoring was to assess the effects of wastewater discharge from residential systems on water quality in this stream. Stream degradation was evident to at least RM 6.5. The benthic macroinvertebrate population appeared to have improved at RM 2.1, being dominated by mayfly larvae. Upstream stations were dominated by more pollution-tolerant organisms (Ohio EPA, NWDO data, 1977-1980). The village has received Federal funds to construct a WWTP and to survey its sewer system for needed changes. Improvements are expected to be completed prior to 1983.

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SANDUSKY RIVER BASIN

TYMOCHTEE CREEK (C-1) AND SANDUSKY RIVER - (UPPER (C-2), MIDDLE (C-3) AND LOWER (C-4) PORTIONS) SUBBASINS

BASIN SUMMARY

The overall physical/chemical water quality of the Sandusky River Basin was fair to good. The major water quality problems were: high nutrient concentrations, high suspended solids load, high turbidity, excessive diurnal dissolved oxygen fluctuations associated with occasional, nuisance algal blooms, and high fecal coliform bacterial levels in many portions of the basin.

An estimated 73.8 stream miles in this basin had major physical/chemical problems. The water quality problems were primarily the result of nonpoint source pollution and the inadequate treatment of municipal wastes. Combined sewer overflows and agricultural runoff were the major nonpoint source problems within the basin.

There was strong evidence that the Sandusky River from RM 112 to 109 was severely degraded due to combined sewer overflows and the Bucyrus WWTP. A subtantial reduction in the pollutant loading from these sources would be expected to improve the water quality in this zone of the Sandusky River, as well as in the recovery zone. Biological communities would be expected to recover rapidly in both zones once physical/chemical water quality improves because stream habitat conditions are favorable. The likelihood of biological recovery is further enhanced by the existence of healthy aquatic communities in adjacent non-polluted zones.

Many areas of the Sandusky River Basin were unsuitable for primary contact recreation at certain times because of high levels of fecal coliform bacteria. However, most areas sampled in the Sandusky River Basin appeared to have water quality capable of supporting a diverse community of warmwater fish. The Sandusky River from S.R. 30 N in Upper Sandusky (RM 82.7), to Roger Young Memorial Park in Tremont (RM 16.7) is designated as State and Natural Resource Waters. The river is used extensively for canoeing.

Biological Evaluations

No recent Ohio EPA, macrobenthic data are available for the subbasin. Previous sampling was conducted in September, 1977, at a NASQAN site on the Sandusky River near Fremont in Sandusky County (RM 23.4). Thirty-nine taxa were collected with a diversity index of 3.35 (OEPA, 1980, RD 3-102). Included were nine taxa of mayflies, one stonefly taxon, seven taxa of caddisflies, and ten taxa of midges. The predominant organisms at the site were the mayflies Stenacron and Stenonema and the caddisfly Cheumatopsyche. However, no single taxon was overwhelmingly abundant. The overall benthic community appeared healthy and diverse, indicative of Class I (Excellent) water quality.

An intensive physical, chemical and biological survey was conducted on this segment during 1979. Physical, chemical, fish, and benthic sampling revealed five zones of differing water quality characteristics along the upper Sandusky River.

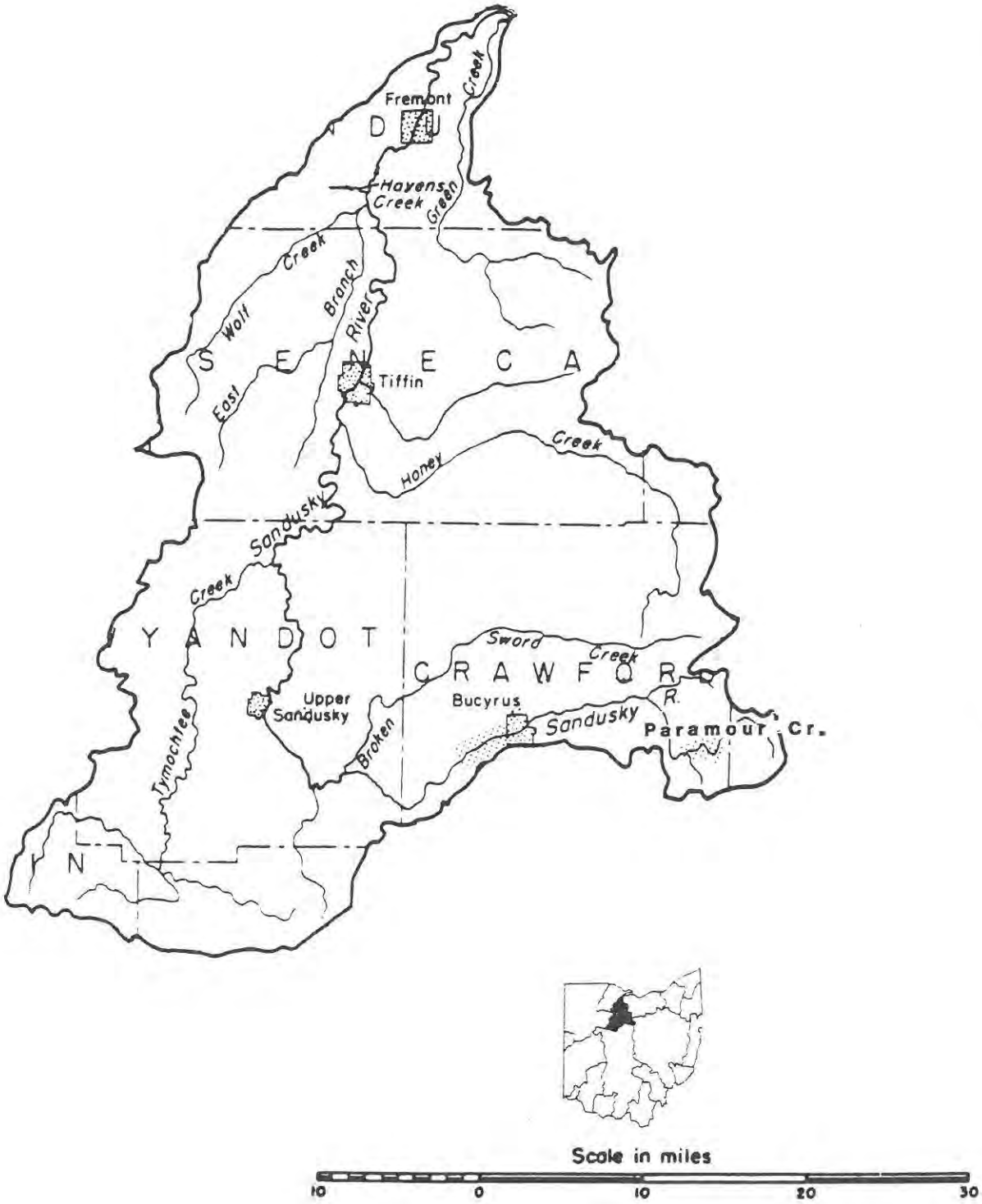

Figure II-3. Map of the Sandusky River basin (Ohio). Stream segments that were judged not to support aquatic life in accordance with the goals of the Clean Water Act are highlighted with stippled shading.

PARAMOUR CREEK
SANDUSKY RIVER TRIBUTARY
CONFLUENCE AT RM 130.2

Segment Problem	Name Description	Use Designation Mile Points
N/A POOR	Paramour Creek from the Crestline WWTP to the Sandusky River	WWH 1.9-0.0

Water quality samples were taken in Paramour Creek in 1974 as part of the 303(e) report published in 1975 (OEPA). The major problem appeared to be inadequate sewage treatment at Crestline. Water Quality violations were recorded (Station at RM 1.5) for dissolved oxygen, ammonia, MBAS, phenolics, and fecal coliform bacteria. The dissolved oxygen concentration was measured at 0.3 mg/l or lower on several occasions, ammonia-nitrogen was measured at values greater than 6 mg/l on several occasions and fecal coliform bacterial levels were consistently greater than 15,000/100 ml. The problem of combined sewer overflows in Crestline has not been corrected. Some minor in-plant improvements have been made, but it is unlikely that the water quality of Paramour Creek will be improved before 1983.

UPPER SANDUSKY RIVER MAINSTEM

Segment Problem	Name Description	Use Designation Mile Points
04100011-013 GOOD*	Sandusky River from the headwaters to the city of Bucyrus	WWH 130.2-114.0

Summary - Biological and Water Quality Survey

Chemical/physical results showed that six parameters were in violation of Ohio water quality standards (WQS). Iron was the parameter most frequently (62% of the samples) in exceedence of the WQS criterion (1 mg/l total iron). This observation was attributed to groundwater inflows and nonpoint source runoff. Further investigation is needed to assess the relative contributions from rural vs. urban nonpoint runoff, and, to determine the dissolved iron concentrations and the potential for damage to aquatic communities.

The results of the fish survey revealed shifts in community composition and decreases in community diversity downstream from Bucyrus. There was an abrupt decline in community diversity in and below Bucyrus and community composition indicated a stressed environment.

At least partial, if not full recovery, occurred at RM 86.5. The results of a linear correlation analysis strongly suggested that organic pollution from the Bucyrus area adversely impacted the fish community in the Sandusky River.

There was some evidence of community stress immediately downstream of Leesville (RM 129.8 - 127.3), probably due to discharges in the vicinity of Crestline and/or septic tank leachate observed at Leesville. Community abundance, diversity, and composition were also affected in and downstream of Upper Sandusky, but to a much lesser extent than downstream from Bucyrus.

The benthos survey of the upper Sandusky River revealed only one severely degraded site: RM 110.5, 0.5 miles downstream from the Bucyrus WWTP. Only 18 taxa were collected at this site and most were tolerant varieties. The benthic community appeared to recover from the effects of the WWTP, and/or the combined sewer overflows at approximately RM 99. The Sandusky River headwaters immediately downstream from Paramour Creek also appeared stressed, probably due to the effluent of the Crestline WWTP. There was also a slight shift towards a more pollution tolerant benthic community downstream from Upper Sandusky.

The upper Sandusky River was divided into five zones of differing water quality characteristics based upon the combined results of this survey: the headwaters (RM 130 to 114), the Bucyrus urban area (RM 114 to 112), the zone of severe degradation (RM 112 to 109), the recovery zone (RM 109 to 100), and the post-recovery zone (RM 100 to 65). Pollution abatement programs designed to alleviate the CSO problem in Bucyrus and improve the quality of the Bucyrus WWTP effluent are expected to substantially improve the quality of Sandusky River between RM 112 and 100 (OEPA, 1981).

The first zone, the headwaters, extended from RM 130.2 to approximately RM 114. This segment had good physical/chemical water quality: one violation of the ammonia water quality standards was observed at RM 129.8 and single violations for dissolved oxygen and fecal coliform bacteria were noted at RM 115.4. Total iron concentrations in excess of 100 ug/l (Ohio Water Quality Standard) were common in the headwater zone and all downstream zones. The fish community structure of the headwater zone showed the expected pattern of increasing number of species and higher composite index with increasing distance downstream. There was, however, some evidence of community stress immediately downstream of Leesville (RM 129.8 to 127.3), probably due to discharges in the vicinity of Crestline and/or septic tank leachate observed at Leesville. The benthos sampling also suggested that the Sandusky River immediately downstream from Paramour Creek (RM 129.9 to 125.4) was stressed, probably due to pollution from the Crestline area.

Segment Problem	Name Description	Use Designation Mile Points
04100011-013 GOOD*	Sandusky River Bucyrus urban area	WWH 114.0-112.0

The second zone of the Sandusky River is the Bucyrus urban area (RM 114 to 112). At the times of sampling during this survey, physical/chemical water quality was not substantially degraded. Except for the chronic iron problem, the only water quality standards violation observed was for fecal coliform bacteria. Fish collections at two sites within the Bucyrus urban zone indicated a generally healthy community (i.e., high composite index and number

of species). The number of benthos taxa collected in this zone was high and the collections included 8 to 12 species that are sensitive to pollution. Thus, despite the presence of numerous combined sewer overflow locations between RM 114 and 112, overall water quality in this zone was not substanitally degraded.

Segment Problem	Name Description	Use Designation Mile Points
04100011-013 POOR*	Sandusky River From Aumiller Park to downstream from Shupp Road	LWH 112.0-109.0

A zone of severe degradation in the Sandusky River exists from approximately RM 112 to 109. Results of chemical analyses revealed substantial organic pollution from combined sewer overflows and the Bucyrus WWTP. Within this zone, fecal coliform contamination was excessive (counts greater than 100,000 per 100 ml), BOD_5 concentrations averaged 11.1 mg/l, dissolved oxygen concentrations were typically below 3 mg/l during hours of darkness, and the ammonia water quality standards was violated. The fish community in this zone was very unhealthy as indicated by the composite index and the number of species. There were fewer adult fish captured in this zone. Pollution tolerant species (white sucker, creek chub, and redfin shiner) dominated the catch, while the more sensitive species (smallmouth bass and crappie) were rare. Benthos collections made at RM 110.5 showed a low number of taxa and a predominance of pollution tolerant forms.

Segment Problem	Name Description	Use Designation Mile Points
04100011-013 GOOD*	Sandusky River Downstream from Shupp Rd. to upstream from Broken Sword Creek	WWH 109.0-100.0

The Sandusky River downstream from Bucyrus (approximately RM 109.0 to 100.0) exhibits water quality characteristics of a pollution recovery zone. Chemical water quality in this zone met Warmwater Habitat criteria and steadily improved with increasing distance downstream as pollutants were degraded and became more dilute. Water quality standards violations for dissolved oxygen, ammonia, fecal coliform bacteria, and total iron were observed. The biological monitoring results were fairly typical of a recovery zone, that is, there tended to be a gradual increase in diversity and/or number of taxa with increasing distance downstream from the pollution source. There were some minor irregularities in this trend for both the fish and benthos data, possibly due to habitat differences among stations. The results of this survey showed that chemical and biological recovery of the Sandusky River downstream from Bucyrus was nearly complete at RM 100.

Segment Problem	Name Description	Use Designation Mile Points
04100011-012 GOOD*	Sandusky River Upstream from Broken Sword Creek to Tymochtee Creek	WWH 100.0-65.8

The Sandusky River downstream from RM 100 to the end of the study area (RM 65.8) was characterized by fairly uniform water quality conditions and is termed the post-recovery zone. Chemical sampling was not as intense in this zone but the available data suggest that point source pollution and combined sewer overflows in the city of Upper Sandusky had only minor impacts on water quality. Fish and benthos results indicated a healthy aquatic community throughout the post-recovery zone with a slight shift towards a more pollution tolerant community downstream from Upper Sandusky.

BROKEN SWORD CREEK
SANDUSKY RIVER TRIBUTARY
CONFLUENCE AT RM 95.2

Segment Problem	Name Description	Use Designation Mile Points
04100011-014 GOOD	Broken Sword Creek from the Red Run confluence to the Sandusky River	WWH 27.8-0.0

SANDUSKY RIVER MAINSTEM

Segment Problem	Name Description	Use Designation Mile Points
04100011-010,-009, -008,-006 GOOD*	Sandusky River from below Upper Sandusky (Crane Twp. Rd. 121) Fremont (State Street Bridge)	WWH 78.7-15.4

Summary - Biological and Water Quality Survey

Eleven locations in a 27.5 mile segment of the Sandusky River were sampled for chemical/physical parameters once every two weeks during June 29 - October 16, 1981. Of these eleven locations, eight were located in the Sandusky River and the other three were located in Indian Creek, Wolf Creek and Honey Creek.

The Sandusky River study area (RM 47.8 - RM 19.0) was generally characterized by good water quality and healthy aquatic communities. Water Quality Standards violations were limited to total iron concentrations (throughout the study area) and fecal coliform bacterial counts (within and downstream from the City of Tiffin), and these parameters did not appear to have an adverse effect on biological communities.

Physical characteristics (particularly impoundment) appeared to be the primary influence on biological communities in the Sandusky River. The lowest mean dissolved oxygen concentrations were measured in three impounded areas, however no measurements were indicative of any acute impacts. A decline in macroinvertebrate diversity in the vicinity of Tiffin was attributed largely to increased density of organisms (in response to impoundment and some enrichment), and the large numbers of relatively sensitive taxa throughout the study area indicated no major water quality perturbations. The composite index showed a decline in fish community condition upstream from Tiffin and in the 10 mile segment immediately downstream from the city. The relatively low composite index upstream from Tiffin may have resulted from impoundment effects, agricultural runoff, residual impacts from water quality perturbations farther upstream, or perhaps most likely a combination of these factors. The steady decline in the index at the two stations 8.6 and 12.2 miles downstream from Tiffin may have been a result of slower flow and consequent settling of suspended solids in these areas. The biological communities in general revealed no acute impacts from point or nonpoint sources within the study area and diversity indices were generally indicative of healthy macroinvertebrate and fish communities (OEPA, 1982).

Several water quality standards violations occurred at the sampling station at RM 20.3. Total iron, total lead, total zinc, total mercury and fecal coliform bacterial and dissolved oxygen standards were violated on numerous occasions (Ohio EPA, NWDO, 1977-1980). The dissolved oxygen violations downstream from Upper Sandusky probably arise both from diurnal fluctuations due to algal "blooms", and from combined sewer overflows in Crestline, Bucyrus and Upper Sandusky. High algal populations result from a combination of nonpoint source and municipal nutrient input. The fecal coliform bacterial violations were primarily caused by combined sewer overflows. There are no programs in the three municipalities which will lead to the construction of sewers, or sewage treatment improvements, prior to 1983. An investigation into the source of the pollutants is currently being completed. The complete results will appear in the final intensive survey report.

SPRING RUN
TYMOCHTEE CREEK TRIBUTARY
CONFLUENCE AT RM 4.3

Segment Problem	Name Description	Use Designation Mile Points
N/A FAIR	Spring Run from Carey WWTP discharge to the Sandusky River	WWH 3.9-0.0

Water quality samples were collected in Spring Run in 1974 as part of the 303(e) report published in 1975 (Ohio EPA). Ohio water quality standards for ammonia, MBAS, and fecal coliform bacteria were violated in Spring Run (Mott Road RM 1.5) downstream from Carey. Although no dissolved oxygen violations were recorded during the afternoon sampling sessions, it is assumed that violations probably occured at night and early morning. Inadequate sewage treatment at Carey appeared to be the main problem. No upgrading of wastewater treatment in Carey is expected before 1983.

TYMOCHTEE CREEK
SANDUSKY RIVER TRIBUTARY
CONFLUENCE AT RM 66.1

Segment Problem	Name Description	Use Designation Mile Points
04100011-011 GOOD	Tymochtee Creek from the headwaters to the Sandusky River	WWH 52.5-0.0

Two stations on the Tymochtee Creek were sampled as part of the 1979 Upper Sandusky River Basin intensive survey. No water quality standards violations were reported.

HONEY CREEK
SANDUSKY RIVER TRIBUTARY
CONFLUENCE AT RM 43.9

Segment Problem	Name Description	Use Designation Mile Points
04100011-016 GOOD	Honey Creek from the headwaters to the Sandusky River	WWH 27.0-0.0

Water quality monitoring at a single station on Honey Creek (RM 1.1) was collected as part of the Sandusky River intensive survey in 1981. The results from this monitoring program will be available in early 1982.

A preliminary water quality assessment of Upper Honey Creek was conducted in 1979 and 1980 (just upstream from the village of Tiro to the U.S.G.S gaging station 3.4 miles east of New Washington) by the Water Quality Laboratory of Heidelburg College, Tiffin, Ohio. Results from this study indicate "(1) large spatial and temporal variability of stream substrates and biological communities, (2) in general, "good" stream quality at all stations, as reflected by the biological components, (3) fecal contamination at all stations, (4) an observable effect of septic tank effluents on the nutrient and bacteriological quality of the stream draining Tiro." (From abstract of W.Q.L. report, 1980).

The Ohio EPA also took part in a major nonpoint source pollution control project in the Honey Creek Watershed. The summary from this project is included in the nonpoint source volume of this 305(b) report.

EAST BRANCH OF WOLF CREEK
WOLF CREEK TRIBUTARY
CONFLUENCE AT RM 0.9

Segment Problem	Name Description	Use Designation Mile Points
N/A GOOD	East Branch of Wolf Creek from the headwaters to Wolf Creek	WWH 19.5-0.0

WOLF CREEK
SANDUSKY RIVER TRIBUTARY
CONFLUENCE AT RM 22.9

Segment Problem	Name Description	Use Designation Mile Points
04100011-007 GOOD	Wolf Creek from the headwaters to Bettsville	WWH 20.5-5.5
04100011-007 FAIR	Wolf Creek from Bettsville to the Sandusky River	WWH 5.5-0.0

This segment was subject to dissolved oxygen and fecal coliform bacteria water quality standards violations resulting from septic tank discharges in the village of Bettsville (RM 5.5 to 0.0). Bettsville has no central treatment facilities (OEPA, 1974a). It is unlikely that Bettsville will be sewered prior to 1983.

SANDUSKY RIVER MAINSTEM

Segment Problem	Name Description	Use Designation Mile Points
04100011-006 FAIR	Sandusky River from the State Street Bridge in Fremont to Lake Erie	WWH 15.4-0.0

This estuary region of the Sandusky River was subject to dissolved oxygen (D.O.) violations which generally occurred between June and mid-November. Water quality standards violations for fecal coliform bacteria and total iron also occurred (OEPA, NWDO, 1977-1979). The probable sources for both the D.O. and fecal coliform bacterial violations were the Fremont WWTP (RM 14.1) and combined sewer overflows from the city of Fremont. Although some improvement may be realized through operational modifications at the WWTP and some separation of sewers in Fremont, it is doubtful that significant improvements will occur before 1983. Also, nutrient enrichment from upstream sources will continue to be sufficient to create algal "blooms" and subsequent diurnal D.O. fluctuations in the often sluggish estuary region. The total iron violations were only slightly above the 1000 ug/l WWH limit and, due to the relatively high pH, are not considered toxic to aquatic life. Relatively high iron levels occurred throughout the basin.

MUSKELLUNGE CREEK
SANDUSKY RIVER TRIBUTARY
CONFLUENCE AT RM 9.2

Segment Problem	Name Description	Use Designation Mile Points
N/A GOOD	Muskellunge Creek from the headwaters to the Sandusky River	WWH 18.3-0.0

GREEN CREEK
SANDUSKY RIVER TRIBUTARY
CONFLUENCE AT RM 0.5

Segment Problem	Name Description	Use Designation Mile Points
04100011-017 GOOD	Green Creek from the headwaters to the Sandusky River	WWH 15.0-0.0

REFERENCES

Ohio Environmental Protection Agency. 1974 (unpublished). Draft 305(b) report available from Northwest District Office, Ohio EPA, Bowling Green, Ohio.

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Krieger, Kenneth A., R. Peter Richards, Phillip A. Kling, David A Baker. 1980. Environmental Quality of Upper Honey Creek: A Preliminary Assessment. Water Quality Laboratory, Heidelburg College. Tiffin, Ohio.

HURON RIVER SUBBASIN (D-2)

SUBBASIN SUMMARY

The Huron River is one of the highest quality streams in Northwest Ohio. Overall physical/chemical water quality was good, although high nutrient concentrations and violations of the Ohio WQS for fecal coliform bacteria are common throughout the subbasin. An estimated 17.7 stream miles in this basin are known to have major physical/chemical problems. Several areas of localized degradation were evident in the basin; an unnamed tributary to the west branch, Jacob Creek, Holiday Lake and Rattlesnake Cr. The fecal contamination and nutrient loading occurred during storm runoff events because of widespread nonpoint source pollution. Combined sewer overflows, agricultural runoff, construction area erosion, and rural septic system leachates were among the nonpoint sources problems in the Huron watershed.

Biological Evaluations

Recent Ohio EPA macrobenthic monitoring in the basin consisted of one fixed station benthic sample (NASQAN) collected in August, 1979, from the Huron River below Milan in Erie County (RM 12.2). The sample consisted of 36 taxa with a diversity index of 3.17 (RD 3). Twelve taxa of mayflies and caddisflies along with 13 taxa of midges made up the well balanced, diverse community. An evaluation of Class II (Good) water quality was based on all criteria.

Fish collections were made in the lower 10 miles of the Huron River in 1982. Results will be included in a biological and water quality report for the Black River scheduled to be completed in 1984. A biological and water quality survey of the Norwalk area is planned for 1984.

SEGMENT REPORTS

EAST BRANCH
HURON RIVER TRIBUTARY
CONFLUENCE AT RM 14.3

Segment Problem	Name Description	Use Designation Mile Points
04100012-006 GOOD	East Branch from the headwaters to the Norwalk Creek confluence	WWH 26.3-6.3

NORWALK CREEK
EAST BRANCH HURON RIVER TRIBUTARY
CONFLUENCE AT RM 6.3

Segment Problem	Name Description	Use Designation Mile Points
N/A FAIR	Norwalk Creek from Old State Road to the East Branch	WWH 4.2-0.0

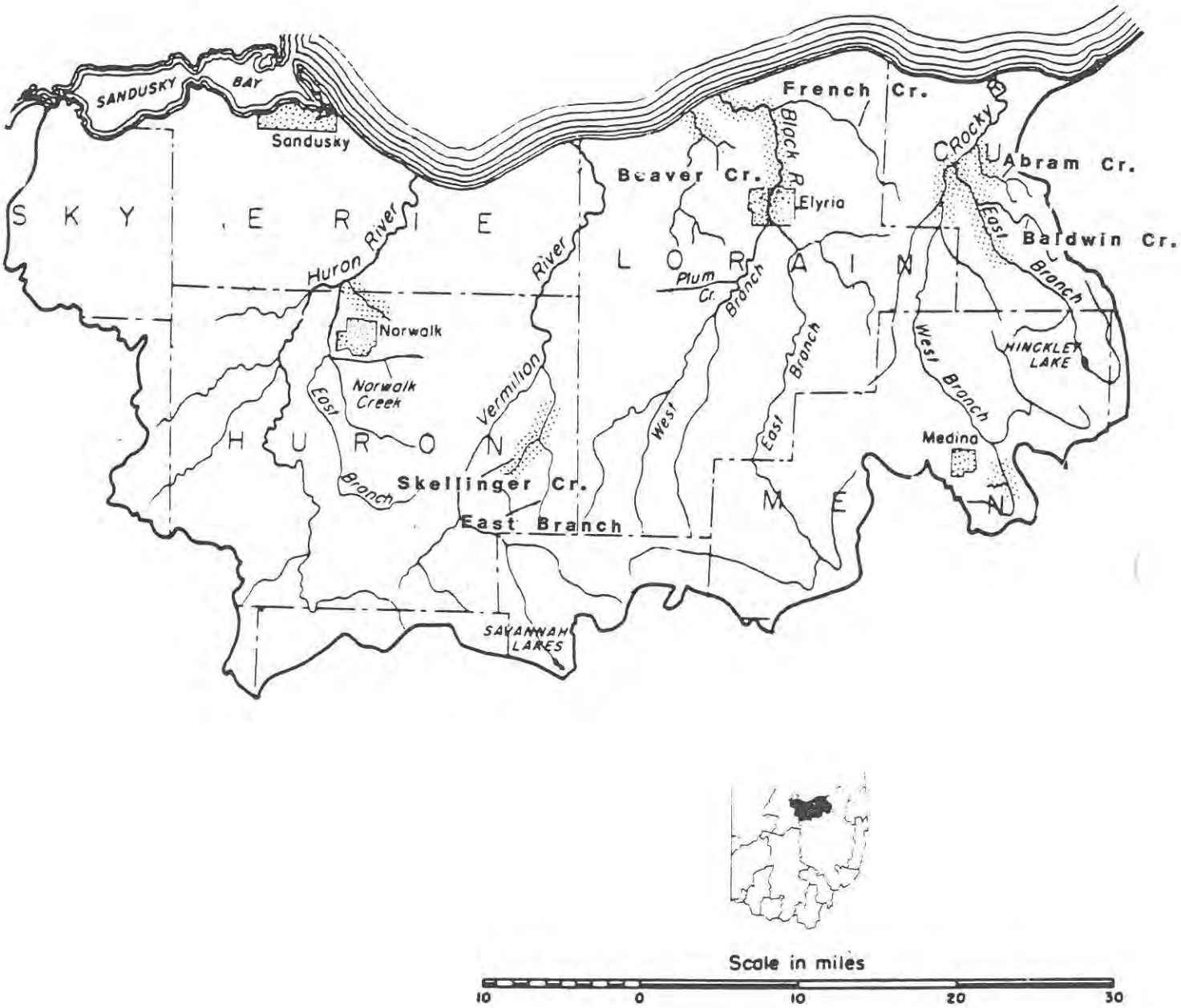

Figure II-4. Map of the Huron, Vermilion, Black, and Rocky River basins (Ohio). Stream segments that were judged not to support aquatic life in accordance with the goals of the Clean Water Act are highlighted with stippled shading.

The heavy growth of periphytic algae in Norwalk Creek during the most recent sampling period suggested an abundant supply of nutrients in this stream (OEPA, NWDO data, 1974). These nutrients were thought to originate from storm water runoff from the city of Norwalk, combined sewer overflows, and septic tanks. The stream also received the backwash water from the Norwalk Water Treatment Plant (RM 2.4), and is the outflow stream from the Norwalk Reservoir east of the city.

UNNAMED STREAM
WEST BRANCH HURON RIVER TRIBUTARY
CONFLUENCE AT RM 61.0

Segment Problem	Name Description	Use Designation Mile Points
N/A FAIR	unnamed stream from the Shiloh WWTP to the West Branch	WWH 3.2-0.0

The small tributary which receives Shiloh's wastewater had very poor physical/chemical water quality. WQS violations for dissolved oxygen and fecal coliforms occurred frequently (OEPA, NWDO data, 1974-1980). The stream flow often consisted entirely of wastewater and has had a deleterious impact on the West Branch during low-flow conditions. No improvements in water quality are expected to be made in the near future.

JACOB CREEK
WEST BRANCH HURON RIVER TRIBUTARY
CONFLUENCE AT RM 37.5

Segment Problem	Name Description	Use Designation Mile Points
N/A FAIR	Jacob Creek headwaters and including Holiday Lake to the confluence with the West Branch	WWH 7.7-0.0

A report by the National Eutrophication Survey indicated that Holiday Lake was eutrophic, with phosphorus limitations being indicated by the N:P ratios (U.S. EPA, 1975). Most of the lake's nutrient influx was from the Willard WWTP (RM 5.9 on Jacob Creek). The Willard WWTP was recently upgraded and improvements are expected to result in Jacob Creek and Holiday Lake prior to 1983. The bottom sediment of the lake may be extensively contaminated by oil and other wastewater transported substances. Further study of the sediments would be required to determine the extent of contamination and the potential for downstream impacts. The outflow of Holiday Lake had WQS violations for ammonia, fecal coliforms, MBAS and phenolics (OEPA, 1976).

WEST BRANCH
HURON RIVER TRIBUTARY
CONFLUENCE AT RM 14.3

Segment Problem	Name Description	Use Designation Mile Points
04100012-005 GOOD	West Branch from the headwaters to the confluence with the East Branch	WWH 65.6-0

RATTLESNAKE CREEK
HURON RIVER TRIBUTARY
CONFLUENCE AT RM 12.6

Segment Problem	Name Description	Use Designation Mile Points
N/A POOR	Rattlesnake Creek from the Norwalk WWTP to the Huron River	WWH 2.6-0.0

Rattlesnake Creek had WQS violations for ammonia, MBAS, total zinc, total copper, total lead, total cyanide, fecal coliforms, phenolics and total mercury (OEPA, NWDO data, 1977-1980). It also had high total phosphorus levels and occasional high nitrate levels. These violations were directly attributed to insufficient treatment at the Norwalk WWTP (RM 2.6) and inadequate industrial pretreatment in Norwalk. The problems were exaggerated during low-flow periods.

A facilities plan is being prepared for the city of Norwalk to evaluate and make recomendations to replace the existing sanitary sewer system, combined sewers and septic tanks. No new facilities are expected prior to 1983.

HURON RIVER MAINSTEM

Segment Problem	Name Description	Use Designation Mile Points
04100012-004 GOOD*	Huron River from the confluence of the East and West Branches to to U.S. Route 6	WWH 14.3-0.6

Occasional WQS violations for phenolics, total mercury, total copper, total zinc and total lead were recorded in this segment. The source of these pollutants is thought to be Rattlesnake Creek. Fish collections made in this segment and the segment described below were characteristic of good water quality conditions.

Segment Problem	Name Description	Use Designation Mile Points
04100012-004 GOOD*	Huron River Estuary from U.S. Rt. 6 to Lake Erie	WWH 0.6-0.0

The city of Huron (RM 0.8) discharges poor quality effluent into the lower Huron River. Low dissolved oxygen concentrations were common in the deeper waters of the Huron River Estuary, along with violations of the fecal coliform WQS (OEPA, 1976). The construction of improved secondary treatment facilities, and the elimination of combined sewer overflows, will substantially improve water quality in the Huron River Estuary and along the adjacent Lake Erie shoreline. WWTP improvements, including phosphorus removal and chlorination, are not expected to occur before 1983.

REFERENCES

Ohio Environmental Protection Agency. 1976 (unpublished). Draft State of Ohio Biennial Water Quality Report 305(b). Available from Northwest District Office, Ohio EPA, Bowling Green, Ohio.

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United States Environmental Protection Agency. 1974. Report on Holiday Lake, Huron County, Ohio, National Eutrophication Survey working paper No. 402. U.S. EPA, Pacific Northwest Environmental Research Laboratory, Corvallis, Oregon.

HURON, VERMILION, BLACK, AND ROCKY RIVER BASIN

VERMILION RIVER SUBBASIN (D-3)

SUBBASIN SUMMARY

The physical/chemical water quality in the Vermilion River Subbasin was generally good and has remained relatively unchanged for the last 10 years. There are few point source dischargers in the subbasin and none with a potential to create more than a localized problem. One segment (an estimated 5.6 miles) is not expected to meet 1983 goals due to inadequate treatment of municipal wastewater from the village of New London (RM 3.3).

SOUTHWEST BRANCH
VERMILION RIVER TRIBUTARY
CONFLUENCE AT RM 49.5

Segment Problem	Name Description	Use Designation Mile Points
N/A GOOD	Southwest Branch from the headwaters to the Vermilion River	WWH 10.4-0.0

EAST FORK
VERMILION RIVER TRIBUTARY
CONFLUENCE AT RM 16.6

Segment Problem	Name Description	Use Designation Mile Points
N/A GOOD	East Fork from the headwaters to the Vermilion River	WWH 9.3-0.0

SKELLINGER CREEK
EAST BRANCH VERMILION RIVER TRIBUTARY
CONFLUENCE AT RM 11.2

Segment Problem	Name Description	Mile Points
N/A GOOD*	Skellinger Creek from the headwaters to the confluence with the East Branch	WWH 5.6-3.3
N/A POOR*	Skellinger Creek from West Fir Street to confluence with East Branch Vermilion River	WWH 3.2-0.0

Dissolved oxygen, ammonia, and fecal coliform WQS violations occurred frequently in Skellinger Creek and in the upper reaches of the East Branch (OEPA, NWDO data, 1977). Skellinger Creek received the discharge from the New London WWTP (RM 3.3). The East Branch was also degraded by this discharge. A physical, chemical and biological survey was conducted on this segment to determine what impacts the discharge has on water quality.

The village of New London is in the initial stages (Step I Facilities Planning) of the Construction Grants Program. It is unlikely that the construction of WWTP improvements will begin prior to 1983.

EAST BRANCH
VERMILION RIVER TRIBUTARY

Segment Problem	Name Description	Mile Points
N/A GOOD*	East Branch Vermilion from headwaters to just upstream of Skellinger Creek	WWH 15.6-11.0
N/A FAIR*	East Branch Vermilion River from Skellinger Creek confluence to downstream of Jerry Rd. Bridge	WWH 10.9-6.1
N/A GOOD*	Unnamed Tributary to East Branch Vermilion from headwaters to confluence with East Branch Vermilion River	WWH unknown

EAST BRANCH VERMILION RIVER

The New London WWTP was identified as the only significant source of degradation to water quality or biological communities in the water quality and biological study conducted in 1982. Further, the extent of the influence of the WWTP was largely confined to the immediate receiving stream, Skellinger Creek.

Skellinger Creek, upstream from the WWTP is largely intermittent; the impoundment immediately upstream from the effluent discharge is the only permanent water. Chemical parameters were indicative of no significant impacts on water quality, and biological communities were indicative of the pooled habitat.

The severe impact of the New London WWTP effluent on water quality was evident through increases in concentrations of ammonia-N, TSS, BOD_5, TKN and total phosphorus, and increased fecal coliform bacteria counts at stations 0.7 to 2.2 miles downstream in Skellinger Creek. Biological communities at the station 2.2 miles downstream from the WWTP were characterized by relatively low numbers of species and the predominance of pollution tolerant fish and macroinvertebrates. The fish community 3.1 miles downstream from the WWTP evidenced an increased number of species but relatively tolerant species remained predominant.

Water quality from Skellinger Creek had a detectable but relatively minor impact on water quality in the East Branch Vermilion River. Biological communities upstream from the confluence reflected the influence of recent channel modifications and extensive siltation of the substrate. This influence was more apparent on invertebrate communities, which were characterized by relatively low densities of predominantly tolerant taxa, with only a few relatively sensitive taxa. The relatively high number of fish species indicated only a minor influence from physical modifications on the fish communities. Biological communities (particularly the macroinvertebrates) were relatively less influenced by physical modifications at the station downstream from the confluence of Skellinger Creek, and only a minor influence on water quality was detected.

The existing communities in the East Branch Vermilion River, the unnamed tributary and the downstream site in Skellinger Creek demonstrated the potential to support warmwater communities; therefore, these segments should be designated Warmwater Habitat. Based on the results of biological collections from the downstream site in Skellinger Creek and in the unnamed tributary, Skellinger Creek is capable of supporting warmwater communities downstream from the New London WWTP, assuming improved wastewater treatment and consequent improved water quality in the stream. Skellinger Creek upstream from the WWTP and the dam at RM 3.3 may be inherently limited due to the pooled conditions and low stream flow upstream; however, this segment should also support warmwater communities under prevailing conditions (OEPA, 1983).

VERMILION RIVER MAINSTEM

Segment Problem	Name Description	Use Designation Mile Points
04100012-007 GOOD	Vermilion River from the headwaters to the confluence with the Southwest Branch	WWH 58.7-49.5
04100012-007 GOOD	Vermilion River from the Southwest Branch confluence to the East Branch confluence	WWH 49.5-33.0
04100012-007 GOOD	Vermilion River from the East Branch confluence to the East Fork confluence	WWH 33.0-16.6
04100012-007 GOOD	Vermilion River from the East Fork confluence to Lake Erie	EWH 16.6-0.0

REFERENCES

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HURON, VERMILION, BLACK, AND ROCKY RIVER BASIN

BLACK RIVER SUBBASIN (D-4)

SUBBASIN SUMMARY

The East and West Branches of the Black River drain primarily rural land, and land use conditions have changed little in recent years. An estimated 19.3 stream miles in this basin are known to have major physical/chemical problems. Analysis of water quality samples collected in Plum Creek by Ohio EPA at the U.S. Rt. 20 bridge (RM 1.0) indicated that water quality problems exist downstream from Oberlin (Ohio EPA, NEDO data, 1975-1977)

The Oberlin WWTP (RM 1.9) was upgraded in 1976 to include tertiary treatment. Limited sampling indicated that improvements occurred in dissolved oxygen levels and reduced levels of nitrogen ammonia. Oberlin's facility operated efficiently most of the time. However, the sewer system had a severe infiltration and stormwater inflow problem which overloaded the WWTP during heavy rains. The inadequate treatment of sewage following storm events caused ammonia and fecal coliform bacterial violations in Plum Creek. Ohio EPA records indicated that similar situations may occur in Charlemont Creek downstream of Wellington (RM 26.6) and, downstream from in the East Branch and Grafton (RM 11.2) (OEPA, NEDO data, 1975).

Water quality degradation of the mainstem of the Black River began in Elyria (RM 10.4). In general, the industries that discharged into this river segment met their NPDES Permit limitations. However, there were discharges into Elyria's storm sewer system that were not under NPDES Permit. One storm sewer that empties into the river at East Bridge Street (RM 1.1) contained high concentrations of solids and a high chemical oxygen demand when sampled in 1978 (Ohio EPA, NEDO data, 1978). Besides urban runoff, other problems included combined sewer overflows and broken sewer siphons. The Elyria Health Department and the Ohio EPA have worked together to correct some of these problems.

The Black River was severely degraded by the Elyria WWTP discharge (RM 10.4). The impact of this discharge was indicated by numerous WQS violations at the Ohio EPA/USGS sampling station at Ford Road (RM 9.9; STORET station No. 501510). Problems at this site included occasional WQS violations for; total iron, total copper, total lead, total mercury, total nickel, total zinc, total cyanide and PCB's. In addition, more frequent WQS violations for fecal coliform bacteria and ammonia have occurred.

Elyria has completed the Step 1 construction grant planning process. Although the plant portion of the plan has been certified, the sewer portion has not. The city has applied for Step 2 funding (detailed plans) for the plant portion of the project.

The lower 6.5 miles of the Black River form an estuary prior to discharging into Lake Erie. Water quality was degraded in this segment by several pollution sources. French Creek enters the Black River in the estuary zone at RM 5.1. This creek receives pollution from numerous schools, light industry,

and commercial establishments in and around the city of Avon (RM 7.1-5.7). Limited sampling indicated that the problems associated with the upper portion of French Creek are not detectable in the creek near its mouth (OEPA, NEDO data, 1975-1980). The Ohio EPA is currently in litigation with the city of Avon to construct sewers and to tie them into the under-loaded French Creek WWTP (RM 3.5). Detailed plans for the collection system have been submitted and approved. Installation is tied to the construction grants program, but Avon is not currently on the priority list.

Effluents from the U.S. Steel-Lorain Works (RM 5.0-2.5) and the Lorain WWTP (RM 3.5) discharge into the Black River Estuary. U.S. EPA chemical and biological sampling of the estuary documented the impacts of these discharges within this segment (U.S. EPA, 1980).

Biological Evaluations

Recent Ohio EPA, macrobenthic monitoring in the basin consisted of one fixed station benthic sample (NASQAN) collected in August, 1979, from the Black River at Elyria in Lorain County (RM 14.9). The sample consisted of 17 taxa with a diversity index of 3.04 (RD 3-). The benthic community was dominated by 12 taxa of midges. Only one taxon of mayflies and no caddisflies were present at this station. The pulmonate snail Physa, capable of thriving under very poor conditions, was also present in large numbers. The unhealthy, stressed aspects of the community indicated a Class IV (Poor) water quality classification.

Previous sampling at this location was conducted in August, 1978, and July, 1977 (OEPA, 1980, RD 3-103 and 3-104). Water quality was Class IV (Poor) on both occasions based on the benthic composition and the number of taxa. The samples from both years were quite similar to the samples collected in 1979 indicating that little or no improvement in water quality had occurred.

Another site on the Black River below the Elyria WWTP (RM 9.4) was sampled in July, 1977 (OEPA, 1980, RD 3-105). With only ten taxa collected and a diversity index of 2.26, this station was considered to have Class IV (Poor) water quality. This sample was quite similar to those collected at RM 14.9 indicating the possibility of a long segment with degraded water quality in the Black River.

An assessment of the fish community in the Black River basin was conducted in 1976 (White, 1978). The objective of this study was to establish the extent of degradation based on the comparison of the present fish community with the potential fauna that would exist in the absence of degradation. The summary of this assessment is available from NOACA.

Biological and Water Quality Survey

The results of chemical/physical and biological sampling during 1982 documented severely degraded environmental conditions in a five (5) mile segment of the Black River downstream from Elyria to the embayment. Average ammonia-N concentrations at four stations between the Elyria WWTP and the embayment (RM 5.4) ranged from 5 to 10 mg/l and three stations had maximums above 15 mg/l. In stream BOD_5 concentrations were also distinctly elevated (average above 10 mg/l) downstream from the WWTP to near the ship channel (RM

3.4). Dissolved oxygen concentrations were corresponding by low in this river segment. The initial D.O. sag appeared to be near RM 8.3; average D.O. conditions were seen to improve in the embayment zone (downstream RM 5.4), but minimum values below 3 mg/l persisted throughout much of the ship channel (RM 3.1).

Biological results showed a clear impact downstream from the Elyria WWTP. The most pronounced degradation of the fish community was observed at the upstream end of the embayment zone (RM 5.8). Two stations located further upstream (RM 6.6 and 9.3) were moderately degraded; however, the fish collections at RM 9.3 were influenced by the proximity of small tributaries which apparently provided refugia from the adverse water quality in the Black River. The macroinvertebrate collections revealed very poor water quality conditions at RM 9.8 and 8.3, with some recovery towards a cleaner water benthic fauna at RM 6.7. Biological condition (as measured by the fish community) in the remainder of the embayment zone were in the fair to good range, and were quite similar to conditions documented in the Huron River embayment. Pollutant loadings from the U.S. Steel-Lorain works during the course of this study were substantially less than in previous years.

Combined sewer overflows in Elyria discharged during dry and wet weather conditions resulting in elevated fecal coliform counts, increased conductivity, and depressed dissolved oxygen in the lower East and West Branches and the uppermost segment of the Black River. Fish and benthic macroinvertebrate communities were moderately degraded in these areas because of the effects of CSO and poor physical habitat caused by dam pools. Approximately five stream miles appeared degraded due to the CSO influence; recovery of chemical conditions and fish and macroinvertebrate communities in the Black River was observed prior to the Elyria WWTP discharge.

Chemical/physical and biological results for French Creek indicated no appreciable degradation caused by the French Creek WWTP. The primary influence was nutrient enrichment and associated changes in biological faunas. It appeared that French Creek had a positive influence on the Black River, especially noteworthy in providing a refugia of higher quality water for resident and migratory fish species (OEPA, 1983).

SEGMENT REPORTS

BLACK RIVER MAINSTEM

Segment Problem	Name Description	Use Designation Mile Points
04110001-004 POOR*	Black River from the Elyria City Limits to the Elyria WWTP	WWH 19.7-10.4

This segment of the Black River is expected to continue to violate Ohio WQS for fecal coliforms, total iron, total lead and phenolics (OEPA, NEDO data, 1977-1980). These violations were probably due to urban runoff, sanitary sewer overflows and industrial wastewater discharges. The industries in this segment under NPDES Permits were meeting their effluent limits. Permitted

dischargers in this area include: Stanadyne-Western Division, Bendix Westinghouse, and GMC-Fisher Body Division. Elyria plans to eliminate these discharges and renovate portions of the sanitary sewers as funds become available.

FRENCH CREEK
TRIBUTARY TO BLACK RIVER

Segment Problem	Name Description	Use Designation Mile Points
N/A GOOD*	French Creek from headwater to confluence with Black River	WWH 15.8-0.0
04110001-004 POOR*	Black River from the Elyria WWTP to the Estuary	WWH 10.4-6.5

This segment is expected to continue to violate WQS for fecal coliforms, total copper, total iron, total mercury, total nickel, total zinc, total cyanide, MBAS, dissolved oxygen, ammonia and phenolics (OEPA, NEDO data, 1977-1980). The Elyria WWTP effluent was the principle cause of these violations. Although the treatment plant is not expected to be upgraded by 1983, a facilities plan for improving the entire system has been prepared by Havens & Emerson (1979). Construction will begin pending final Ohio EPA approval and grant confirmations.

Segment Problem	Name Description	Use Designation Mile Points
04110001-004 POOR*	Black River Estuary	WWH 6.5-0.0

This segment is not expected to meet 1983 goals due to continuing WQS violations for total copper, total iron, total zinc, dissolved oxygen, ammonia, and total cyanide (based upon U.S. EPA sampling for the Black River Wasteload Allocation Report, 1980). The estuary receives discharges from the U.S. Steel-Lorain Works and the Lorain WWTP. Upstream discharges, lake water intrusion and the French Creek tributary complicate water quality evaluations in this segment.

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HURON, VERMILION, BLACK, AND ROCKY RIVER BASIN

ROCKY RIVER SUBBASIN (D-5)

SUBBASIN SUMMARY

The Rocky River drains approximately 290 square miles of Northeastern Ohio before flowing into Lake Erie. Land use within the subbasin is primarily rural, suburban and urban residential. An estimated 22.0 of the 70 stream miles evaluated in this subbasin had major physical/chemical problems. Municipal point sources were the major sources of pollution in the subbasin.

The East Branch of the Rocky River generally met Ohio WQS upstream from the city of Berea (RM 5.1). The river is impounded at Berea and used for the city's drinking water supply. Water supply demands consume the majority of the river's flow during the summer months. Combined sewer overflows and the Berea WWTP (RM 3.2) discharge below the water supply dam creating water quality problems, odors and nuisance algal growth.

Leachates from the Montville Landfill (RM 32.5) degrade a small tributary to the West Branch of the Rocky River. Frequent WQS violations for many heavy metals and phenolics have been reported. Nuisance growths of fungus (Sphaerotillus) have been found. The Medina "500" WWTP (RM 26.5) and Strongsville "A" WWTP (RM 4.6) discharge to the West Branch of the Rocky River further downstream.

The Rocky River mainstem from the confluence of the East and West Branch is entirely within the boundaries of the Cleveland Metropolitan Park System. Upstream pollutant loadings from the East Branch, the West Branch and Abram Creek degraded the water quality of the Rocky River mainstem. Frequent fecal coliform violations within this highly used recreational area are of particular concern.

The water quality of the Rocky River Estuary is unknown due to insufficient sampling and the complex mixing of Lake Erie waters. Recreational uses of the river are heavy and include several boat launching ramps and marinas. The lower Rocky River is also used extensively for fishing, especially during the salmonid spawning runs.

Biological Evaluations

An assessment of the fish community in the Rocky River Basin was conducted by White in 1976 (White, 1978). The objective of this study was to establish the extent of degradation based on the comparison of the present fish community with the potential fauna that would exist in the absence of degradation. The summary of this assessment is available from NOACA.

Biological and Water Quality Survey

Elevated stream flow during the survey period (1981) was undoubtedly a predominant influence on the relative magnitude of point and nonpoint source impacts. The relatively high rainfall and stream flows were expected to minimize impacts from point source effluents and potentially reveal nonpoint

influences on chemical and biological parameters. In general, chemical parameters (particularly total iron and fecal coliform bacteria) were indicative of nonpoint source runoff at many sites; however, with the exception of the segment downstream from the Montville landfill, nopoint source runoff did not have a significant impact on biological communities in the East Branch, West Branch, or Mainstem Rocky River.

Considering the six major dischargers to the Rocky River (on the basis of loading rates), only three had a significant impact on water quality and biological communities in the East Branch, West Branch or Mainstem. The Medina Co. 500 WWTP had a significant impact on the West Branch, the Berea WWTP impacted the East Branch, and the Strongsville A WWTP had a significant impact on the immediate receiving stream and the West Branch downstream from the confluence. The remaining major dischargers, the North Olmsted WWTP, the Middleburg Heights WWTP and the Brookpark WWTP did not have a significant impact on Mainstem water quality or biological condition; however, the latter two treatment plants did significantly impact water quality and biological communities in Abram Creek. Several relatively smaller dischargers had significant impacts on immediate receiving stream water quality (i.e. North Royalton A WWTP on unnamed tributary and Brentwood WWTP on Plum Creek) but no detectable impact on the East or West Branch. The North Royalton B and Strongsville C WWTPs had a severe impact on water quality and biological communities in Baldwin Creek, and in combination with combined sewer overflows upstream from Berea had an impact particularly on the fish community in the East Branch.

The Montville landfill had a relatively severe impact (in magnitude and extent) on water quality and biological communities in the West Branch downstream from the tributary receiving the runoff from the landfill. Rainfall during the study period may be served to exacerbate the impact of the landfill on the West Branch, however the magnitude of impact on chemical water quality indicated the potential to influence water quality even during relatively drier periods.

Urban nonpoint source runoff was identified as a potential influence on biological communities in two tributaries (Abram Creek and the tributary receiving the Strongsville A WWTP effluent) upstream from point source effluents. Both streams were relatively small, and the potential impact of nonpoint source runoff in downstream areas was difficult to assess because of the predominant influence of WWTP effluents.

Biological sampling demonstrated potential or realized warmwater communities in North Branch (and Plum Creek), Baldwin Creek, Plum Creek (West Branch RM 3.1), Healey Creek, the tributary receiving the North Royalton A effluent (East Branch RM 12.9), as well as the East Branch, West Branch, and Mainstem of the Rocky River. Full recovery and attainment of the Warmwater Habitat (WWH) use in all areas is directly contingent on controlling point source loading from these WWTPs and controlling runoff into the West branch from the Montville landfill. Abram Creek and the tributary receiving the Strongsville A WWTP effluent were the only segments where potential WWH was not verified. The failure to document potential WWH was a result of urban runoff in headwater areas and point source influences through the remainder of the stream lengths (OEPA, 1983).

MONTVILLE TRIBUTARY
WEST BRANCH ROCKY RIVER TRIBUTARY
CONFLUENCE AT RM 32.5

Segment Problem	Name Description	Use Designation Mile Points
N/A POOR*	Montville Tributary from the Montville Landfill to the West Branch (RM 32.5)	WWH 1.0-0.0

This tributary to the West Branch drains the Montville Landfill (RM 1.0) in Medina County. Leachate from this landfill created water quality violations for dissolved solids, total iron, total zinc, total copper, total nickel, total chromium, total manganese, phenolics and ammonia. The Director of Environmental Protection (Ohio EPA) is currently writing findings and orders for more effective control of the leachate and resulting water quality problems.

WEST BRANCH ROCKY RIVER
ROCKY RIVER TRIBUTARY
CONFLUENCE AT RM 12.5

Segment Problem	Name Description	Use Designation Mile Points
04110001-008 GOOD*	West Branch of Rocky River from near Weymouth Road to S.R. 303 upstream from Montville Tributary	WWH 40.4-33.4
04110001-008 POOR*	West Branch from upstream of Montville Tributary to downstream of Montville Tributary	WWH 33.4-29.8
04110001-008 GOOD*	West Branch from below Montville Tributary to above confluence of Strongsville A Tributary	WWH 29.7-5.5
04110001-008 POOR*	West Branch from confluence of Strongsville A Tributary to confluence with Rocky River	WWH 5.4-0.0

WQS violations for dissolved oxygen, fecal coliforms, ammonia, phenolics, MBAS, total cyanide, total iron, total zinc, total copper, total lead and total cadmium were recorded in this segment (RM 28; STORET station No. 501820)(OEPA, 1977-1980). A basin model prepared by Havens and Emerson (1975) predicated that some of these violations could extend downstream as far as river mile 25. The Medina No. 200 WWTP (RM 40.4) and Medina No. 100 WWTP (RM

36.0) were the sources of these violations. Sewage from both of these facilities has been diverted to the Medina No. 500 WWTP (RM 26.5). Water quality in this segment of the West Branch is expected to be substantially improved, thereby allowing the attainment of 1983 goals.

EAST BRANCH ROCKY RIVER
ROCKY RIVER TRIBUTARY
CONFLUENCE AT RM 12.5

Segment Problem	Name Description	Use Designation Mile Points
04110001-009 GOOD*	East Branch from headwaters to the Baldwin Lake Dam	WWH 26.7-5.2
04110001-009 POOR*	East Branch from the Baldwin Lake Dam to the Rocky River	WWH 5.1-0.0
N/A GOOD*	Baldwin Creek from downstream of two WWTP's to the confluence with East Branch	WWH 7.0-0.0

The East Branch was severely degraded below the Berea water supply reservoir (RM 5.7). During the summer months, the flow in this stream segment was composed primarily of effluent from the Berea WWTP (RM 3.2) and back wash from the Berea Water Treatment Plant (RM 3.1). Instream sampling by Berea WWTP personnel revealed WQS violations for fecal coliforms, dissolved oxygen and ammonia. This plant will be upgraded or tied into Cleveland's southwest sewer interceptor, depending upon recommendations made in the facilities plan currently being prepared.

ABRAM CREEK
ROCKY RIVER TRIBUTARY
CONFLUENCE AT RM 10.4

Segment Problem	Name Description	Use designation Mile Points
N/A POOR*	Abram Creek from Sheldon Road to the Rocky River	WWH 4.0-0.0

Ohio WQS for ammonia, total iron, total lead, and phenolics were violated in Abram Creek during the reporting period (Ohio EPA, 1977 - 1980). The violations were caused by discharge from the Middleburg Heights WWTP (RM 4.0) and the Brookpark WWTP (RM 3.7). Runoff from foundry sand which was used as fill material near Grayton Road in the vicinity of Cleveland Hopkins International Airport also contributed to pollution problems. Due to the other pollution sources on this zero/low flow stream, 1983 water quality goals are not expected to be met.

ROCKY RIVER MAINSTEM

Segment Problem	Name Description	Use Designation Mile Points
04110001-007 GOOD*	Rocky River from the source to the estuary	WWH 12.4-0.5

According to Ohio EPA and USGS data, WQS in this segment were violated for fecal coliforms bacteria, phenolics, total iron and total lead (OEPA, NEDO data, 1977-1980; USGS, 1977-1978). The segment received pollution loadings from the East Branch of the Rocky River (RM 12.5), the North Olmstead WWTP (RM 11.4), Abram Creek (RM 10.4), and the Lakewood WWTP (RM 1.8). Pollution abatement programs will not be completed prior to 1983.

REFERENCES

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CUYAHOGA AND CHAGRIN RIVER BASIN

UPPER CUYAHOGA RIVER SUBBASIN (E-1) AND LOWER CUYAHOGA RIVER SUBBASIN (E-2)

SUBBASIN SUMMARY

The Cuyahoga River Basin contains areas with excellent physical/chemical water quality, and areas where there are significant water quality problems. An estimated 96.9 stream miles in this basin have major physical/chemical problems. The headwaters and upper reaches flow through farmland and sparsely populated areas. Limited data indicated that there were occasional dissolved oxygen violations, but the overall water quality in these reaches was very good. The upper Cuyahoga River above Lake Rockwell (RM 61.0) has the capacity to assimilate wastes from the small, widely dispersed sources of pollution.

The middle and lower portions of the Cuyahoga River Basin are considerably more populated and industrialized than the upper portion. Cleveland and Akron, the two major metropolitan areas in the basin, greatly influence water quality of the Cuyahoga River. Numerous other smaller cities including Ravenna, Kent, Stow, Cuyahoga Falls, Hudson, Macedonia, Twinsburg, Solon, Bedford, Bedford Heights, Maple Heights, Walton Hills, Garfield Heights, Brookpark and Parma also influence stream quality. Water quality conditions begin to deteriorate at the Lake Rockwell Dam (RM 58.0) where the city of Akron diverts a substantial portion of the river for the city's drinking water supply. During dry weather periods, diversion leaves very little water in the river for dilution of point and nonpoint sources of pollution. Five dams between Kent (RM 54.9) and Cuyahoga Falls (RM 44.6) create long pools of very slow moving water. Increased BOD_5 loadings from the Ravenna, Franklin Hills, Kent, and Fish Creek WWTP's, coupled with the slow moving water in the dam pools caused low dissolved oxygen levels during the early moring hours of the summer months (OEPA data, 1975).

The city of Akron, located in the middle portion of the Cuyahoga River Subbasin, has a major impact upon the river. Numerous industrial dischargers and the Akron WWTP (RM 37.4) effluent make up approximately 75% of the Cuyahoga River flow during critical low-flow conditions. Urban runoff and combined sewer overflows are also a major problem in Akron.

The water quality showed some signs of recovery downstream from Akron as a result of dilution and organic assimilation, but there were some areas with low dissolved oxygen concentrations during low-flow periods. Further downstream, Tinkers Creek (RM 16.4), delivers additional pollutants to the Cuyahoga River. This loading comes from urban runoff, combined sewer overflows and several suburban municipal WWTP's. Due to the good reaeration capabilities of lower Tinkers Creek, most of the organic wastes are assimilated prior to reaching the Cuyahoga River. However, considerable amounts of nutrients, heavy metals and fecal coliform bacteria are carried downstream.

The water quality continued to worsen as the Cuyahoga River flows through Cleveland. Two urban tributaries, Mill Creek (RM 11.5) and Big Creek (RM 7.2), have severe water quality problems. Industrial dischargers, urban runoff, and combined sewer overflows are the major sources of pollutants carried to the Cuyahoga River by these tributaries.

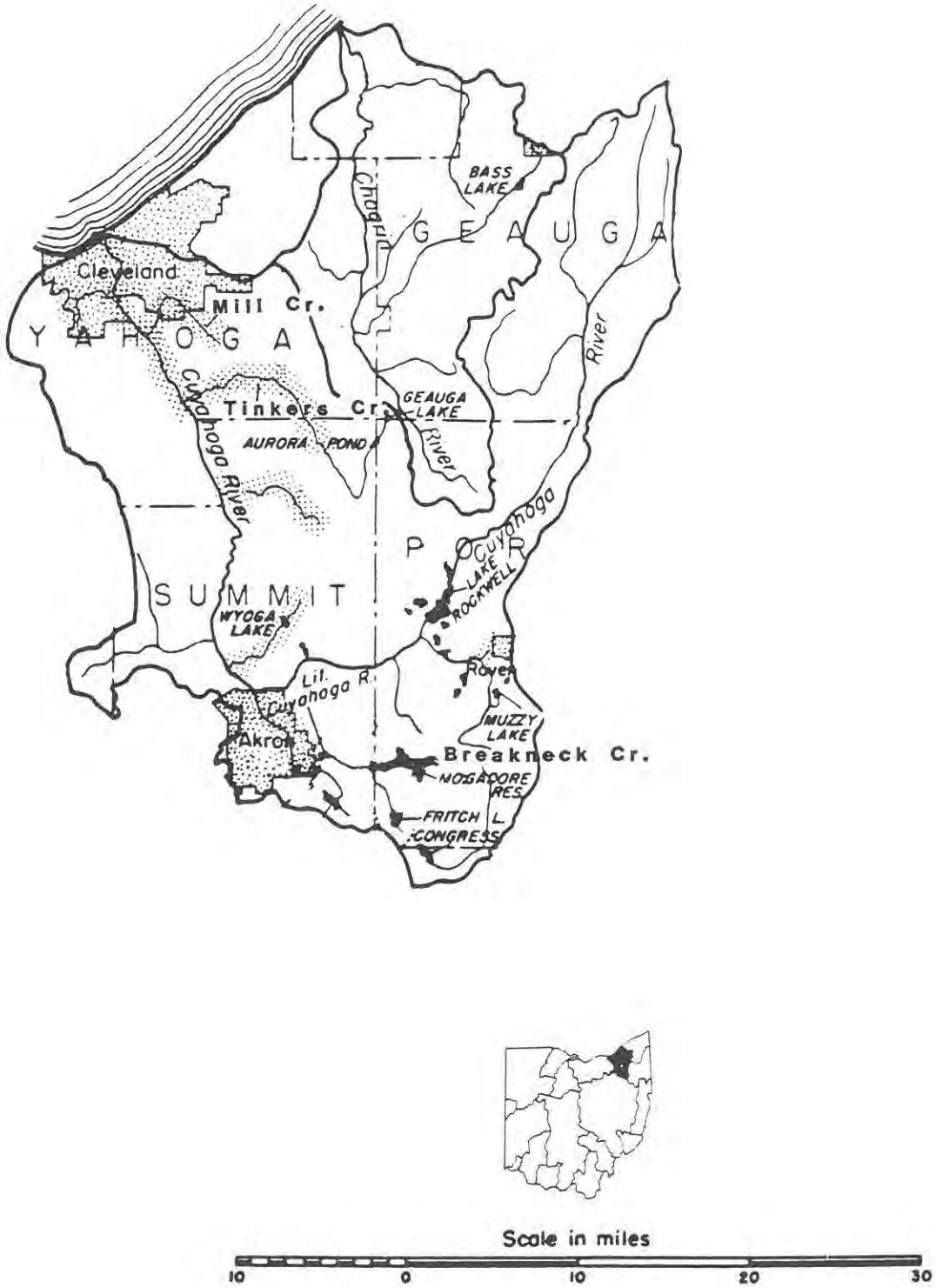

Figure II-5. Map of Cuyahoga and Chagrin River basins (Ohio). Stream segments that were judged not to support aquatic life in accordance with the goals of the Clean Water Act are highlighted with stippled shading.

The lower portion of the Cuyahoga River (RM 8.4 to RM 3.6), receives major discharges from three steel mills (Jones and Laughlin Steel, Republic Steel, and United States Steel) and two chemical companies (DuPont and Harshaw). The 100 MGD Cleveland Southerly WWTP discharges just upstream from this area (RM 10.7).

Significant improvements in the water quality of the Cuyahoga River have occurred. Data collected downstream from the urban Akron area has shown an overall improvement since 1969, with a reduction of pollutants and an increase in dissolved oxygen levels. However, this improving trend appears to be leveling off. Further downstream, at Independence (RM 13.1), increasing dissolved oxygen concentrations were also evident during the 1970's. Aesthetic (i.e. visual, appearence, odors, etc.) improvements near the mouth of the Cuyahoga River have been noted. The oil and debris problems, the cause of the infamous fire in 1969, have been greatly minimized, if not eliminated.

Many major pollution abatement projects are currently under construction and many more are in the design stages throughout the subbasin. Water quality improvements are expected to occur during the 1980's as a result of these pollution control programs.

Biological Evaluations

Current Ohio EPA macrobenthic monitoring in the subbasin consisted of one fixed station benthic sample (NASQAN) collected in August, 1979, from the Cuyahoga River at Independence in Cuyahoga County (RM 14.2). The benthic community that was collected consisted of 26 taxa with a diversity index of 3.05 (RD 3). Six taxa of mayflies and caddisflies were collected, but numbers of individuals collected were not indicative of a thriving, diverse community of either group. The predominant organisms in the benthic community were dominated in numbers by nine taxa of midges, the blackfly *Simulium*, and the pulmonate snail *Physa*. These three groups of organisms accounted for 75 percent of all orgamisms collected. An evaluation of Class III (Fair) water quality was indicated by the number of taxa, the diversity index, and the benthic composition.

Previous sampling at this location was conducted in August of both 1978 and 1977 (OEPA, 1980, RD 3-106 and 3-107). Water quality was Class IV (Poor) on both occasions based on the benthic composition and the diversity index. Water quality seemed to have improved at the site in 1979 when compared to the previous two years of sampling. Caution must be used when making this statement, however, since high rates of flow may have had a decided ameliorating effect on water quality and, subsequently, the type of benthic community that flourished in 1979.

Additional biological assessments have been made by numerous investigations throughout the basin. A biological and water quality survey of the Cuyahoga River, Tinkers Creek and other selected tributaries is planned for 1984 and a draft report should be availalbe in 1985.

CUYAHOGA RIVER MAINSTEM

Segment Problem	Name Description	Use Designation Mile Points
04110002-011,-010 FAIR	Cuyahoga River from the East Branch Reservoir Dam to Hiram Rapids	WWH 88.0-75.0

Occasional WQS violations for dissolved oxygen have been reported in this portion of the Cuyahoga River (OEPA, NEDO data, 1973, 1974, 1976). These violations occurred during low-flow, warm weather periods (OEPA, NEDO data, 1973, 1976, 1977). Low dissolved oxygen concentrations may be a natural phenomenon in the upper Cuyahoga River due to the low stream gradient and the high organic matter loading from the extensive marsh areas within the drainage basin. The possibility requires further investigation.

Point source dischargers within this segment include the Middlefield WWTP (RM 87.1), Sperry Pond WWTP (RM 1.8), the Burton WWTP (RM 85.3), and the Middlefield Swiss Cheese Company (RM 87.6, Tar Creek RM 1.4). Wastewater treatment improvements at the Burton WWTP and Middlefield Swiss Cheese Company during the late 1970's greatly reduced the organic loadings to this segment. Facility plans for upgrading the Middlefield WWTP should be certified by mid 1982. Even with these improvements, the 1983 clean water goals may not be totally achieved. Occasional dissolved oxygen violations during the low flow summer months may continue to occur due to natural conditions, but the frequency and severity of these violations should be greatly reduced.

Segment Problem	Name Description	Use Designation Mile Points
04110002-007,-010 GOOD	Cuyahoga River from Hiram Rapids to Lake Rockwell	WWH 75-61

Compliance with 1983 water quality goals is uncertain for the mainstem of the Cuyahoga River from Hiram Rapids (RM 75.3) to Lake Rockwell (RM 61.0). Based on limited data, it appears that many of these areas are meeting Warmwater Habitat (WWH) standards except for rare violations of total iron and fecal coliform bacteria standards (OEPA, 1974; OEPA, NEDO data, 1975-1977).

WAHOO DITCH
BREAKNECK CREEK TRIBUTARY
CONFLUENCE AT RM 4.6

Segment Problem	Name Description	Use Designation Mile Points
N/A POOR	Wahoo Ditch from the Ravenna WWTP to Breakneck Creek	WWH 1.5-0.0

Wahoo Ditch, a tributary of Breakneck Creek, receives the discharge from the Ravenna WWTP (RM 1.4). This intermittent stream experienced dissolved oxygen violations and high ammonia concentrations (OEPA, NEDO data, 1973, 1975, 1977). The Ravenna WWTP was upgraded in 1975; but the improvements did not include nitrification. Facilities plans currently being prepared for the city will address ammonia removal and improved sludge handling capabilities.

BREAKNECK CREEK
CUYAHOGA RIVER TRIBUTARY
CONFLUENCE AT RM 56.8

Segment Problem	Name Description	Use Designation Mile Points
04110002-005 FAIR	Breakneck Creek from the Wahoo Ditch confluence to the Cuyahoga River	WWH 4.0-0.0

Water quality in this segment of Breakneck Creek was degraded by Wahoo Ditch and the Franklin Hills WWTP (RM 2.1). WQS violations for dissolved oxygen and fecal coliforms occurred near the mouth of Breakneck Creek (OEPA, NEDO data, 1973, 1975). The Franklin Hills WWTP is presently at BAT treatment levels. Attainment of 1983 clean water goals is not expected prior to the upgrading of the Ravenna facility.

CUYAHOGA RIVER MAINSTEM

Segment Problem	Name Description	Use Designation Mile Points
04110002-006,-004, -002 FAIR	Cuyahoga River from Kent to the Little Cuyahoga River confluence	WWH 54.0-42.2

The Cuyahoga River below Lake Rockwell has been greatly altered by man's activities. The city of Akron removes an average of 50 million gallons of water per day from Lake Rockwell for its drinking water supply. This rate of removal exceeded the total discharge of the Cuyahoga River during dry weather conditions. Thus, the flow of the Cuyahoga River below Kent often consisted entirely of treated wastewater with minor dilution from small tributaries. Water quality problems were further complicated by the presence of five dams within this river segment. Dissolved oxygen (D.O.) violations likely occurred in all of these dam pools. Field surveys during July 1975, revealed D.O. violations at the Kent Main Street Dam (RM 54.9) and the Munroe Falls Dam (RM 50.0) (OEPA, NEDO data, 1975). A dissolved oxygen stream model predicted that D.O. violations occur at all five dams during the warmer summer months (OEPA, 1974). This same model also suggested that a minimum D.O. concentration of 5 mg/l is not attainable, even with advanced waste treatment levels (10 BOD_5, 2 mg/l NH_3-N) at the 3 MGD Kent WWTP (RM 53.8) and at the 2.5 MGD Fish Creek WWTP (RM 51.8).

The eighty feet high Ohio Edison Dam is located in the downstream reach of this river segment (RM 44.4). The reservoir pool is used by the Ohio Edison Company, Gorge Electric Generating Station (EGS) Plant, for cooling water. Temperature violations have occurred in the Cuyahoga River as a result of cooling water discharged by the Gorge Plant. A final decision on remedial measures for this thermal discharge has not been made. Attainment of water quality standards is not expected in the foreseeable future.

LITTLE CUYAHOGA RIVER
CUYAHOGA RIVER TRIBUTARY
CONFLUENCE AT RM 42.2

Segment Problem	Name Description	Use Designation Mile Points
04110002-002 POOR	Little Cuyahoga River from Akron to the Cuyahoga River	WWH 6.0-0.0

The Little Cuyahoga River flows through the densely populated urban and industrial area of Akron. Combined sewer overflows, urban nonpoint sources, and old sewers in need of repair create significant water quality problems. Ohio EPA data, collected at the Otto Street gage (RM 1.8), revealed WQS violations for phenolics, total iron, total lead, and fecal coliform bacteria during the past reporting period.

A Combined Sewer Overflow Study (CSOS) and several interim Sewer System Evaluation Studies (SSES) which address Akron's sewer problems have been completed. As a result, overflow retention basins have been constructed at Memorial Parkway and Martha Avenue. These two systems have greatly reduced the combined sewer overflows from these areas. Plans to construct a third retention basin at Kelly Avenue have been postponded due to financial constraints.

MUD BROOK
CUYAHOGA RIVER TRIBUTARY
CONFLUENCE AT RM 39.8

Segment Problem	Name Description	Use Designation Mile Points
N/A POOR	Mud Brook from the Summit County No. 6 WWTP to the Cuyahoga River	WWH 6.0-0.0

WQS violations for ammonia, dissolved oxygen, and fecal coliform bacteria occurred in the upper reaches of Mud Brook and near the mouth of Powers Brook (OEPA, NEDO data, 1975). These violations were caused by the 1.5 MGD Summit County No. 6 WWTP (RM 9.1, 6.0). This facility sustains plant upsets due to occasional discharges from industrial sources. The county has completed an industrial user survey and is initiating a pretreatment program as required by a Consent Decree. Further legal action is pending to force compliance with interim permit conditions. The Akron Facilities Plan recommends phasing out this wastewater treatment facility and pumping to the Fish Creek WWTP or the Akron WWTP. This will probably not occur prior to 1985.

Segment Problem	Name Description	Use Designation Mile Points
04110002-001 FAIR	Cuyahoga River from the Little Cuyahoga River confluence to the Akron WWTP	WWH 42.2-37.4

Data collected by the Akron Water Quality Management Section (1979-1980) upstream from the Akron WWTP revealed WQS violations for dissolved oxygen, fecal coliform bacteria, total zinc, and total lead during the past reporting period. The U.S. Geological Survey continuous water quality monitor at Old Portage (RM 40.2) indicated violations for temperature and dissolved oxygen (USGS 1979-1980). Combined sewer overflows to the Little Cuyahoga River and the thermal discharge from the Ohio Edison Gorge EGS were the major causes of degraded water quality in this segment of the Cuyahoga River.

Segment Problem	Name Description	Use Designation Mile Points
04110002-001 FAIR	Cuyahoga River from the Akron WWTP to the Tinkers Creek confluence	WWH 37.4-16.3

This segment of the Cuyahoga River is degraded by the combined sewer overflows in Akron and the Akron WWTP (RM 37.4). Water quality violations include dissolved oxygen, fecal coliform bacteria, ammonia, and total lead (Akron Wastewater Quality Management Section, 1979-1980).

The Akron WWTP discharged an average of 75 million gallons of treated wastewater each day. This discharge accounted for more than sixty percent of the total flow of the Cuyahoga River during seven-day, once-in-ten-year low flows. Extensive by-passing of raw sewage occurred during the reporting period. This was partially due to construction of interim improvements at the plant, hydraulic overloads during daily peak flow, and infiltration/inflow during wet wether periods.

Several of the interim improvements which are now complete include chemical addition for improved solids settling and partial phosphorus removal, more efficient aeration, and stand-by power. Flow equalization to lessen primary by-passing is completed, but the plant is still experiencing operational problems. Bids for construction of Phase 1 final improvements are currently being received. These improvements will include expansion of primary and secondary treatment facilities and improvements in the sludge treatment and handling facilities. These improvements will not be completed prior to 1985.

This segment of the Cuyahoga River flows though the center of the Cuyahoga Valley National Recreational Area. The increased recreational use of the area should help to justify the expenditure of additional funds for advanced wastewater treatment in the area.

BRANDYWINE CREEK
CUYAHOGA RIVER TRIBUTARY
CONFLUENCE AT RM 22.8

Segment Problem	Name Description	Use Designation Mile Points
N/A POOR	Brandywine Creek from Hudson to the Cuyahoga River	WWH 8.1-0.0

Water quality violations for fecal coliforms, phenolics, and dissolved oxygen occurred in Brandywine Creek (OEPA, NEDO data, 1973, 1975). Three significant point sources, the Hudson Village WWTP (RM 8.1) and the Macedonia No. 15 WWTP (RM 3.9), and Tecumseh Corregated Box (RM 0.3) degrade this relatively small stream. Wastewater treatment facilities at the Macedonia No. 15 WWTP were upgraded during the summer of 1979. The plant now provides adequate treatment for BOD_5, phosphorus, and suspended solids removal, but does not provide nitrification. The Hudson Village WWTP is currently under construction to upgraded to secondary treatment by 1983. The facility plan for this area recommended that all of these facilities be phased out and tied into the Cuyahoga Valley Interceptor when it becomes available, possibly in 1990.

TINKERS CREEK
CUYAHOGA RIVER TRIBUTARY
CONFLUENCE AT RM 16.4

Segment Problem	Name Description	Use Designation Mile Points
N/A POOR	Tinkers Creek from Twinsburg to the Cuyahoga River	WWH 12.0-0.0

With a drainage area of 96 square miles Tinkers Creek is the largest tributary to the Cuyahoga River. Water quality is heavily influenced by suburban and industrial land uses and numerous point source discharges. The larger WWTP's include Twinsburg, Solon, Bedford Heights, Bedford, and Walton Hills.

Water quality is monitored at three sites on Tinkers Creek; Bedford (OEPA, STORET station No. 502220), Twinsburg (USGS station No. 04207100) and Independence (USGS station No. 04207300 RM 13.1). WQS violations for total iron, total lead, phenolics, total copper, dissolved oxygen, oil and grease, and fecal coliform bacteria have been reported (OEPA, NEDO data, 1979-1980; USGS, 1980).

The Twinsburg and Bedford WWTPs are still in the facilities planning stages. This work should be completed during 1982. Bedford Heights has received funding for the addition of nitrification facilities. Construction should begin during 1982. Complete renovation of the Solon WWTP, including nitrification, phosphorus removal, and rapid sand filters, was completed during 1981. Although some start up problems were experienced, this plant now provides tertiary treatment. The Cuyahoga Valley Interceptor will eliminate

discharges from the Walton Hills WWTP and numerous smaller sources in the lower Tinkers Creek Watershed. Construction problems on the main valley trunk line have postponed these tie-ins, but this work should be commpleted during 1982.

Numerous small county and private sewage treatment plants discharge to the upper portions of Tinkers Creek. Although stream water quality data from these areas are very limited, visual observations and complaints from local residents indicate localized problems. Regional WWTPs are planned for Aurora and Streetsboro. Aurora is expected to complete detailed plans by mid 1982 and has applied for Step III construction grant monies. Streetsboro has finished detailed plans and should receive Step III construction grant funds during 1982.

MILL CREEK
CUYAHOGA RIVER TRIBUTARY
CONFLUENCE AT RM 11.8

Segment Problem	Name Description	Use Designation Mile Points
N/A POOR	Mill Creek from Maple Heights to the Cuyahoga River	WWH 7.0-0.0

Mill Creek is a relatively small tributary, but it carries substantial quantities of pollutants to the Cuyahoga River. Combined sewer overflows, industrial discharges, and leachate from several landfills along the banks of Mill Creek contribute to the pollution problems. WQS violations included ammonia, dissolved solids, phenolics, fecal coliforms, MBAS, total copper, total iron, and total lead (OEPA, NEDO data, 1979-1980).

The Mill Creek Segmental Facilities Plan evaluated infiltration/inflow and combined sewer overflows for the Mill Creek Interceptor area. The plan recommended construction of the Southeast Interceptor, parallel relief sewers, off-line storage reservoirs, in-line combined sewer control regulators, and rehabilitation of existing sewers. The availability of funds for these much needed improvements is uncertain.

CUYAHOGA RIVER MAINSTEM

Segment Problem	Name Description	Use Designation Mile Points
04110002-001 POOR	Cuyahoga River from the Tinkers Creek confluence to the Cleveland Southerly WWTP	WWH 16.4-10.7

Data collected at Independence (STORET station No. 502020, RM 13.1) indicated WQS violations for temperature, ammonia, phenolics, fecal coliforms, total cyanide, total copper, total cadmium, total iron, total zinc and total lead during the past year (OEPA, NEDO data, 1979-1980). Dissolved oxygen violations also were recorded at this site by the USGS continuous water

quality monitor (USGS Station No. 04208000, 1979-1980). Based upon this very limited information, it appears that the degree of heavy metal contamination in this segment of the Cuyahoga River is greater than previous data indicated.

The concentration of metals and other conservative parameters in this river segment probably reflect the upstream point and non point loadings primarily from Akron and the Tinkers Creek watershed. Pollution abatement measures previously discussed should lessen the impact of numerous upstream point source dischargers on this segment of the Cuyahoga River. However, further study is needed to determine if the 1983 goals are attainable.

BIG CREEK
CUYAHOGA RIVER TRIBUTARY
CONFLUENCE AT RM 7.0

Segment Problem	Name Description	Use Designation Mile Points
N/A POOR	Big Creek from Brook Park to the Cuyahoga River	WWH 4.0-0.0

Urban non point pollution, sewer overflows and several industrial discharges cause water quality problems in Big Creek. WQS violations were reported for phenolics, oil and grease, fecal coliforms, MBAS, total cadmium, total copper, total iron, total zinc and total lead (OEPA, NEDO data, 1979-1980).

Industrial dischargers during the reporting period included Ford Motor Company, General Motors Corporation, Harshaw Chemical, Ohio Drum and Cuyahoga Meat. By late 1980, Cuyahoga Meat and Ohio Drum ceased discharging and the Ford Motor Company tied its process water into sanitary sewers. Ford Motor Company and General Motors Corporation now discharge only treated storm water runoff. The continuous sanitary sewer overflow at Jennings Avenue has been repaired and a flow equalization tank has been installed to handle peak flows. Significant water quality improvements are anticipated as a result of these abatement activities.

CUYAHOGA RIVER MAINSTEM

Segment Problem	Name Description	Use Designation Mile Points
04110002-001 POOR	Cuyahoga River from the Cleveland Southerly WWTP to Lake Erie	LCRS 10.7-0.0

The lower Cuyahoga River exhibited very poor water quality, especially during the low flow summer months. WQS violations for dissolved oxygen, ammonia, fecal coliforms, phenolics, total cyanide, total lead, total iron, total cadmium, total copper and total zinc were reported at one or both monitoring sites (lower Harvard Ave., STORET station No. 502130, RM 7.3; West Third St. Bridge, STORET station No. 502140) (OEPA, NEDO data, 1979-1980). Major discharges to this segment (RM 10.7-0.0) include United States Steel, Republic Steel, Jones and Laughlin Steel, Harshaw Chemical, DuPont Chemical and the

Cleveland Southerly WWTP. All of the industries are presently meeting "Best Practical Treatment" (BPT) as described by the Federal Effluent Guidelines. "Best Available Treatment" (BAT) levels, which are to be met by 1983, have not been established by the U.S. EPA for these types of industries. Until these limits are established, design and construction of advanced treatment facilities will be further delayed.

The Cleveland Southerly WWTP (RM 10.7) is still experiencing operational problems, and is occasionally not meeting interim permit conditions for BOD_5 and suspended solids. However, the frequency and severity of these violations are decreasing. Legal action against this entity is pending. However, extensive construction is underway for an advanced wastewater treatment plant and expansion from a 100 MGD plant to a 400 MGD plant. Phosphorus removal, nitrification and rapid sand filters should significantly improve the water quality of the lower Cuyahoga River. Completion of this project is scheduled for 1983 but may be delayed until 1984 due to construction problems.

HISTORICAL

Data used to assess water quality trends in the Cuyahoga River were furnished by the Arkon Wastewater Quality Management Field Group (1969-1980, unpublished data), the U.S. Geological Survey (USGS, 1968-1980) and the Ohio EPA (1974-1980). The Akron Wastewater Quality Management Field Group sampled the Cuyahoga River upstream and downstream of the Akron WWTP on a daily basis; USGS gages (four parameters, continuous monitor) recorded water quality at Old Portage, Independence and West Third Street; and Ohio EPA data was collected monthly at Independence.

Documented water quality problems in the Cuyahoga River at Old Portage (RM 40.2) included dissolved oxygen and temperature. The number of temperature violations fluctuates from year to year probably due to weather conditions, flow, and thermal loading does not indicate a significant trend. The situation is not likely to change until the Ohio Edison Gorge Electricity Generative facility implements some type of thermal control on their cooling water discharge. Dissolved oxygen concentrations do show improvement. In 1971, there were 41 days when dissolved oxygen levels fell below 4.0 mg/l, a violation of State Water Quality Standards. In 1980, there were only 2 days with dissolved oxygen violations (Table II-21).

Table II-21: Dissolved Oxygen Data for the Cuyahoga River at Old Portage, RM 40.2 (from USGS continuous monitor, 1971-1980)

Year	No. of days with min. values below 4.0 mg/l	No. of days with min. values below 5.0 mg/l	No. of days missing data*	Avg. daily min. conc. mg/l **	Mean Flow (cfs)
1971	41	65	89	3.8	
1972	34	85	2	4.6	
1973	25	63	16	4.1	
1974	12	39	27	5.4	
1975	29	68	5	5.1	
1976	15	35	3	5.8	
1977	88	116	13	2.0	
1978	11	26	0	5.7	
1979	23	41	5	5.4	
1980	2	23	41	5.25	

* - June through October data only
** - July through September data only

The numbers of violations fluctuate from year to year but shows a definite improving trend. These fluctuations may be due to weather conditions (wetter/dryer or hotter/colder years) or due to BOD load fluctuations discharges. During the work year, 1977, the dissolved oxygen standard were violated 88 times. This can be attributed to the Akron sewer explosion which caused 14 million gallons of raw sewage to be discharged into the Little Cuyahoga River throughout the summer of 1977. Sewer System Evaluation Studies (SSES) and Combined Sewer Overflow Studies (CSOS) have resulted in improved maintainence and the elimination of some problems. Two storm flow equalization tanks have been constructed in Akron to lessen the frequency and magnitude of overflows. Additional sewer improvements are still needed in the Akron area.

The water quality of the Cuyahoga River further downstream near the Akron WWTP (RM 37.4) has improved since 1969. Table II-22 shows annual averages for several key parameters and compares the upstream sampling site with the site located downstream from the Akron WWTP discharge.

Generally, the data presented here indicates that significant improvements have occurred in ammonia and phosphorus level. Figure II-6 illustrates the improving trend downstream from the Akron WWTP since 1969. Graphs A and B show reductions in annual concentrations for ammonia and phosphorus. The reduction of phosphorus since 1972 can be attributed to the phosphate, resprectively detergent ban enacted in the Akron area. Graph C indicates that significant improvements have occurred percent saturation of dissolved oxygen since 1969.

The site located immediately downstream from the Akron WWTP is too close to the discharge to measure the full impact of the increased BOD load from the Akron WWTP discharge. During 1975, most parameters reached their highest (or lowest) level. Higher than normal river flows (more dilution) and more efficient operation at the Akron facility resulted in lower ammonia, total phosphorus, nitrates and BOD, and higher dissolved oxygen. Unfortunatly, the Akron WWTP has experienced numerous operational problems during the past few years. Frequent bypassing of raw or partially treated sewage and plant upsets have lowered water quality, as indicated by the data in Table II-22. Some of these operational problems can be attributed to construction activity at the plant. Completion of interim improvements at the plant during 1981 should result in improved water quality.

The Cuyahoga River at Independence (RM 13.1) has also shown significant improvements in dissolved oxygen levels over the past decade. The frequency and severity of dissolved oxygen violations (values less than 4.0 mg/l) has greatly diminished since 1970 (Table II-23). The daily average and minimum concentrations show an increase of almost 2 mg/l since the early seventies. BOD_5 reductions upstream from the Akron area, and also in Tinkers Creek, are probably responsible for these improvements. Although very limited in frequency of collection, Ohio EPA monthly data suggested that phosphorus loads from point sources have been declining since 1974 (Table II-24). Ammonia loads seem to be fluctuating. Only data collected at or below the mean flow, (789 cfs) was used to evaluate nonpoint source impacts and the effectiveness of point source controls.

Table II-22. Cuyahoga River Water Quality Upstream (U) and Downstream (D) of the Akron Wastewater Treatment Plant.

	Dissolved Oxygen mg/l		Dissolved Oxygen % Saturation		Ammonia mg/l		Nitrates mg/l		BOD mg/l		Total Phosphorus mg/l		COD mg/l	
	U*	D**	U	D	U	D	U	D	U	D	U	D	U	D
1969	8.1	7.4	72.3	67.4	1.00	5.66	0.79	9.57	3.3	13.7	0.28	1.73	28	72
1970	8.3	7.7	73.9	69.8	1.01	4.02	0.90	0.76	3.6	9.5	0.22	1.46	32	64
1971	9.2	8.4	78.8	75.9	1.13	3.22	0.75	0.72	2.9	5.8	0.22	1.00	29	59
1972	8.9	8.6	78.8	77.8	0.56	2.35	0.67	0.98	3.2	7.9	0.59	1.55	43	62
1973	-	8.8	-	82.6	-	1.75	-	1.11	-	10.1	-	0.69	-	34
1974	9.2	9.1	91.5	85.8	0.25	2.02	0.77	0.94	2.9	8.5	0.34	0.63	24	34
1975	10.4	9.8	95.3	89.4	0.21	1.07	0.77	1.22	3.0	6.0	0.13	0.39	24	32
1976	9.8	9.5	87.8	85.7	0.29	0.88	0.90	1.56	3.0	6.0	0.15	0.43	21	25
1977	8.6	8.5	76.4	76.1	0.59	1.61	0.94	1.62	4.0	7.0	0.19	0.44	26	32
1978	10.1	9.3	89.9	83.4	0.39	2.09	0.93	1.04	2.0	5.0	0.11	0.32	22	31
1979	10.1	9.4	86.8	81.0	0.33	1.77	1.02	1.10	3.0	7.0	0.12	0.39	25	36
1980	9.1	8.5	82.6	77.7	0.32	1.65	.84	.93	4.0	9.0	0.14	0.40	23	34

Data furnished by the Akron Wastewater Quality Management Field Group
* U - Upstream at Trunkline Bridge
** U - Downstream at Ira Road

Table II-23. Dissolved oxygen data for the Cuyahoga River and Independence, RM 13.1 (from USGS continuous monitor, 1970-1980).

Year	Number of days with min. values below 4.0 mg/l	Number of days with min. values below 5.0 mg/l	Number of days missing data*	Average daily min. concentration mg/l**
1970	60	93	20	3.8
1971	82	110	23	3.0
1972	42	104	11	4.6
1973	28	80	0	4.2
1974	54	91	9	4.2
1975	3	33	14	5.8
1976	3	7	0	6.5
1977	17	49	0	5.7
1978	1	28	48	5.4
1979	11	50	10	5.0
1980	5	29	28	5.2

* - June through October data only
** - July through September data only

Table II-24. Average annual pollutant loadings for the Cuyahoga River at Independence, 1974-1980 (Ohio EPA data collected at or below mean flows; 789 cfs)

Year	1974	1975	1976	1977	1978	1979	1980
average lbs. phosphorus	1712	1701	1435	1195	1019	859	1478
average lbs. ammonia	3116	2697	1800	3232	2484	2583	3000

Dissolved oxygen problems are severe in the lower Cuyahoga River through Cleveland. The deep slow moving waters of the navigation channel combined with the numerous discharges of cooling water and oxygen demanding substances create near anoxic conditions on many days. However since 1968, a slow but steadily improving trend has been detected at the West Third Street site (RM 3.3) (Table II-23). The number of days per year where the minimum dissolved oxygen level fell below 4.0 mg/l has decreased from 237 in 1968 to 142 in 1980. When construction at Cleveland Southerly, the largest source of BOD_5 to this segment, is completed in 1983, significant improvements from the 1980 levels are anticipated. Table II-25 also indicates that the pH problems that occurred during the late sixties have nearly been eliminated.

Table II-25. Dissolved oxygen and pH data for the Cuyahoga River at West Third Street, RM 3.3 (from USGS continuous monitor 1968-1980)

Year	No. of days with min. values less than 4.0 mg/l	No. of months with values less than 4.0 mg/l	No. of days missing data (D.O.)	pH No. of days with values less than 6.5	No. of days missing data (pH)
1968	235 (237)	12	13	78	95
1969	164 (205)	9	134	20	21
1970	215 (240)	10	100	28	85
1971	204 (206)	8	2	3	2
1972	188 (189)	8	4	0	3
1973	174 (174)	8	2	3	3
1974	188 (189)	8	1	0	6
1975	154 (154)	8	7	0	1
1976	172 (174)	9	2	0	43
1977	136 (174)	7	45	0	26
1978	170 (175)	7	31	3	52
1979	137 (154)	7 (8)	61	4	35
1980	110 (142) Probable	7	75	0	16

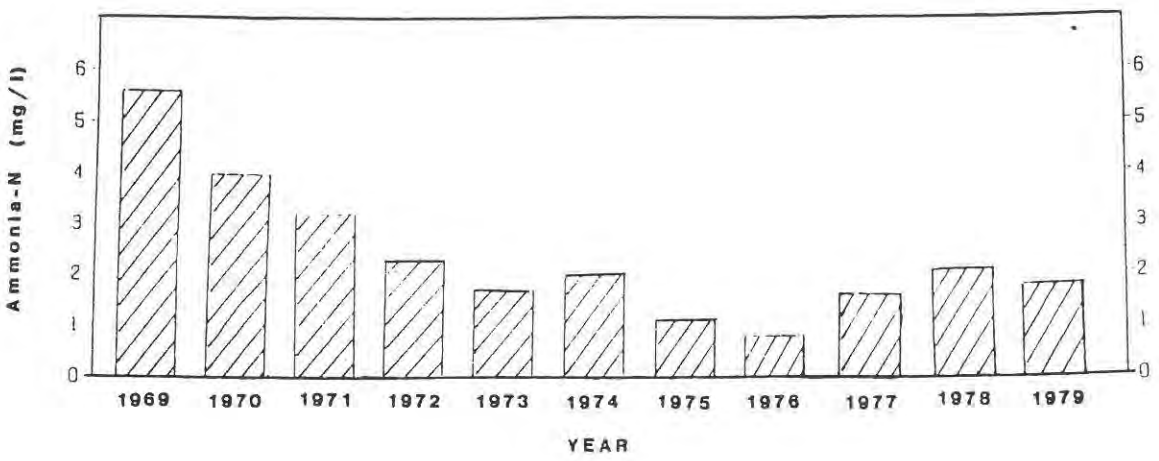

Figure II-6A. Average yearly concentration of ammonia downstream of Akron STP.

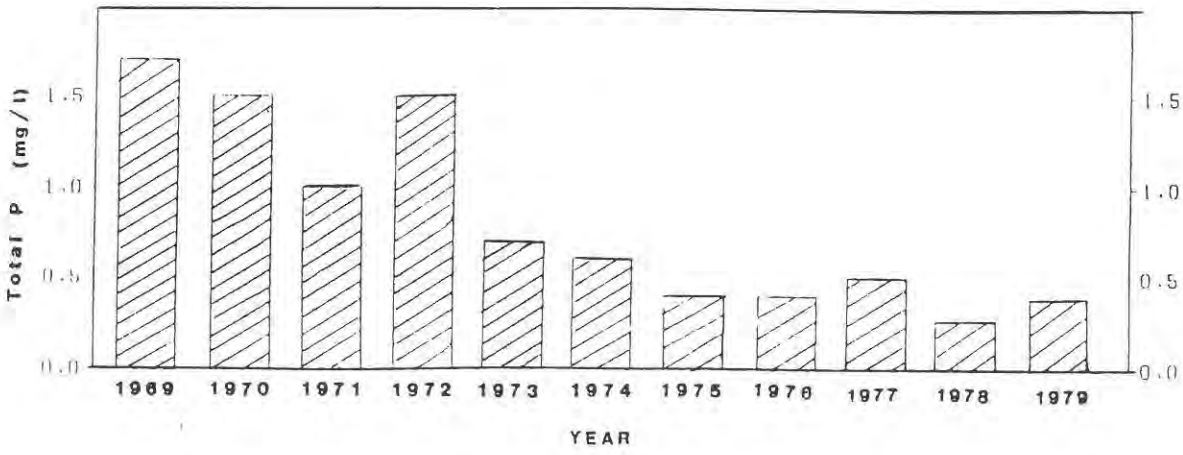

Figure II-6B. Average yearly concentration of total phosphorus downstream of Akron STP.

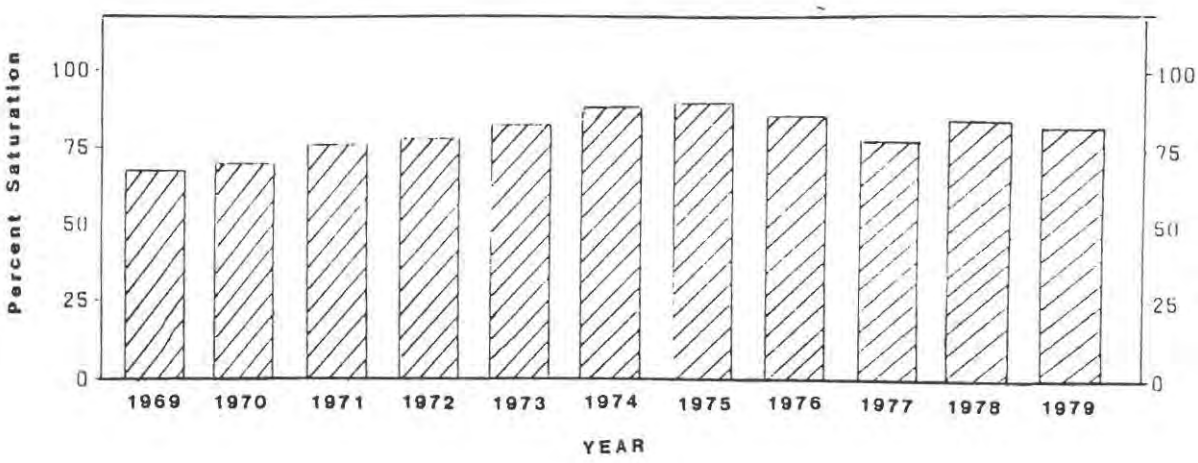

Figure II-6C. Average yearly percent saturation of dissolved oxygen downstream of Akron STP.

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CUYAHOGA AND CHAGRIN RIVER BASIN

CHAGRIN RIVER SUBBASIN (E-3)

SUBBASIN SUMMARY

The Chagrin River, which is 48 miles long and drains 264 square miles, is one of the most scenic rivers in Northeast Ohio. Land use is primarily rural and low density residential housing. Chagrin Falls and several of Cleveland's eastern suburbs are the only major urban centers. As estimated 4.1 stream miles in this basin are known to have major physical/chemical problems.

The Aurora Branch had good physical/chemical water quality (Ohio EPA, NEDO data, 1975). The recently constructed McFahrland Creek WWTP (RM 3.7) should insure the maintenance of existing water quality by eliminating failing septic systems and package plants. This advanced secondary and tertiary treatment plant is operational and doing well. A good biological community, including game and pan fish, is also found within this segment (White, 1978).

The Chagrin River from the Aurora Branch confluence to the East Branch confluence flows primarily through residential and park lands. Samples analyzed for nutrients show that this stream reach had levels of nitrogen and phosphorus below Ohio WQS (Ohio EPA, NEDO data, 1975). The 1975 samples are assumed to reflect current nutrient conditions, because there have been no major changes within the subbasin since that time.

The nutrient status of the East Branch of the Chagrin River was also acceptable in 1975. The basin is comprised of parks, open land and low density residential housing. Only a few small point source dischargers occur within the watershed. Endangered species, Iowa Darter and game and pan fish, bluegill (game), crappie (game) and perch etc. inhabit the segment (White, 1978).

The river from the East Branch confluence to the estuary does not currently meet 1983 goals. Warmwater Habitat standards violations for fecal coliforms, total iron, total lead, total cadmium and phenolics were recorded at S.R. 84 (RM 5.0; STORET station No. 502400). Nutrient parameters were well within acceptable limits. Public water supply standards and exceptional warmwater habitat standards for phenolics and total nickel were also violated. The source of these pollutants is unknown but thought to be from nonpoint sources. Despite these violations, the river supports the most popular salmonid fishery in Ohio. Fishermen report taking brown trout, rainbow trout (steelhead), coho salmon and chinook salmon in the waters just below the Willoughby Water Treatment Plant Dam near S.R. 84 (RM 4.0).

The Ohio EPA does not have sufficient data to make an accurate water quality assessment of the Chagrin River Estuary. The estuary receives pollutant loading from upstream sources as well as industrial effluent via an unnamed tributary (confluence at RM 0.3). The industrial effluent may cause water quality violations in this low-flow tributary during dry weather conditions.

SEGMENT REPORTS
WILLEY CREEK
CHAGRIN RIVER TRIBUTARY
CONFLUENCE AT RM 4.5

Segment Problem	Name Description	Use Designation Mile Points
N/A FAIR	Willey Creek from the Woodmere WWTP to the Chagrin River	WWH 4.5-0.0

Willey Creek currently violates WWH standards for fecal coliforms, dissolved oxygen and nitrogen ammonia due to the Woodmere WWTP discharge (RM 4.5). Plans for a tertiary treatment facility have been completed, and construction of the improvements at this plant is expected to be completed by 1983. According to the Ohio EPA wasteload allocation modeling, these improvements will insure the attainment of 1983 water quality goals.

CHAGRIN RIVER MAINSTEM

Segment Problem	Name Description	Use Designation Mile Points
04110003-005 FAIR	Chagrin River from S.R. 84 to the estuary	WWH 5.0-0.9

This segment of the Chagrin River is not expected to meet the water quality standards for fecal coliforms, total iron, total lead, total cadmium and phenolics (OEPA, NEDO data, 1977-1980). The bacterial violations are probably due to upstream point sources and nonpoint source runoff. There are no point source discharges of heavy metals or phenolics, therefore, the problem is assumed to arise from nonpoint sources.

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GRAND RIVER BASIN

GRAND RIVER SUBBASIN (F-1 and F-2)

SUBBASIN SUMMARY

An estimated 15.2 stream miles in this subbasin had major physical/chemical problems. The Grand River flows for 98.5 miles through mostly wooded and agricultural lands before emptying into Lake Erie. The only major population center within the entire subbasin is Painesville (RM 4.0 to 2.2) near the river's mouth. The Grand River's natural and scenic qualities are reflected by the numerous parks located within the subbasin and by the Ohio Department of Natural Resources Wild and Scenic River designation for large segments of the mainstem (33 miles of the mainstem are classified as scenic; 23 miles are classified as wild). The river also provides suitable habitat for game and pan fish and for several Ohio endangered plant and animal species including the four-toed salamander, and the Dryopteris intermedia fern (Ohio Department of Natural Resources, 1979). The endangered river red horse and silver chub have also been reported in the lower river segments (White, 1978).

The majority of the water quality problems that exist in the upper Grand River Subbasin are associated with sanitary sewer discharges to zero or low flow streams which include: Mill Creek (near Jefferson at RM 42.3); Cemetery Creek a tributary to Mill Creek (RM 8.3); Rock Creek (RM 51.8); and an unnamed tributary near Orwell (RM 62.4). The headwaters of the Grand River near Parkman were sampled by the Ohio EPA in 1978. The few grab samples analyzed showed excellent physical/chemical water quality, despite poor wastewater treatment systems located in the village of Parkman. Ohio EPA grab samples collected in 1978 and 1979 from Swine Creek, Big Creek, Phelps Creek, Paine Creek, Coffee Creek and Red Creek showed very low nutrient levels in these creeks (OEPA, NEDO data, 1978-1979).

Nutrient levels in the Grand River near Harpersfield (RM 32.3 to 31.7) were also very low (Ohio EPA, NEDO data, 1979). The Ohio Water Service Company (RM 31.9) withdraws a substantial portion of the rivers flow for drinking water supplies at Harpersfield. This leaves very little water for the dilution of any nutrients that might enter the waterway. Therefore, any future development in this segment should be carefully planned. There have been no water samples collected from the Grand River from Parkman to Harpersfield. The nutrient level in this reach is probably very low due to the absence of significant dischargers.

The lower Grand River from S.R. 2 (RM 5.4) to Lake Erie flows through an industrialized, urban area which causes degraded water quality. Point sources within this segment, which may contribute to WQS violations include: the Painesville WWTP (RM 2.9), Fairport Harbor WWTP (RM 2.5), Painesville Municipal Electric (RM 2.4), Republic Steel (RM 0.6) and Morton Salt (RM 0.4). The abandoned Diamond Shamrock properties are significant areas of nonpoint source pollution. Runoff samples from these areas contained concentrations of total chromium as high as 34,500 ug/l and dissolved solids as high as 108,000 mg/l. (OEPA, NEDO data, 1979). High concentrations of total chromium were evident at the monitoring site at S.R. 535 (RM 2.3) but no warmwater habitat standards violations have been recorded. The elimination of

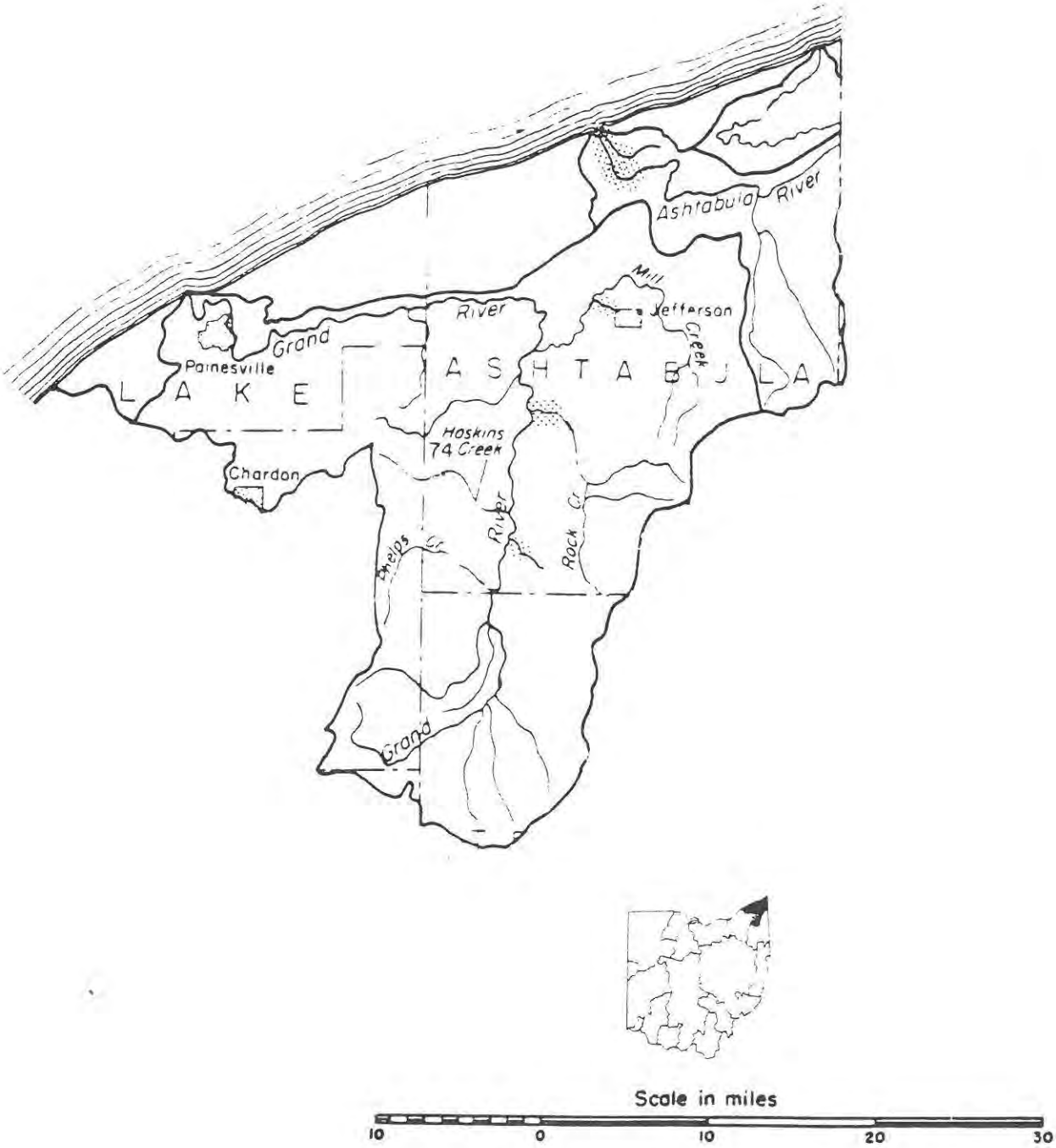

Figure II-7. Map of the Grand River basin (Ohio). Stream segments that were judged not to support aquatic life in accordance with the goals of the Clean Water Act are highlighted with stippled shading.

several discharges and reduced loading from others within this segment in the last several years has resulted in improved water quality. These changes have been verified through chemical analyses, and reports from area residents and Ohio EPA officials.

Biological Evaluations

Recent Ohio EPA, macrobenthic monitoring in the subbasin consisted of one fixed station benthic sample (NASQAN) collected in August, 1979, from the Grand River near Painesville in Lake County (RM 8.3). Forty-two benthic taxa were collected with a diversity index of 3.66 (RD 3-). The well-balanced, diverse community was composed of 12 taxa of mayflies, 2 taxa of stoneflies, 9 taxa of caddisflies, and 16 taxa of midges. No taxon totally dominated the community. The above conditions reflected Class I (Excellent) water quality.

No previous benthic data are available for the subbasin.

Additional biological monitoring within this basin included an assessment of the fish community conducted by White in 1976 (White, 1978). The objective of this study was to establish the extent of degradation based on comparison of the present fish community with the potential fauna that would be present in the absence of degradation. The summary of this work is available from NOACA.

SEGMENT REPORTS

UNNAMED TRIBUTARY
GRAND RIVER TRIBUTARY
CONFLUENCE AT RM 62.4

Segment Problem	Name Description	Use Designation Mile Points
N/A POOR	Unnamed tributary near Orwell from the source to the Grand River	WWH 2.0-0.0

CEMETARY CREEK
MILL CREEK TRIBUTARY
CONFLUENCE AT RM 8.3

Segment Problem	Name Description	Use Designation Mile Points
N/A POOR	Cemetary Creek Tributary to Mill Creek from the Jefferson WWTP to the Grand River confluence	WWH 1.7-0.0

Cemetery Creek, a zero or low-flow stream, currently violates Ohio WQS for ammonia, dissolved oxygen and phenolics (OEPA, NEDO data, 1975-1979). The primary source of these violations was the Jefferson WWTP discharge (RM 1.7). This plant is not expected to be upgraded prior to 1983. A small but

concentrated discharge from the Poplar Oil Company (also known as Laskin) (RM 1.4) also occurs in this stream segment. The company processed and burned waste oils prior to 1980. It has since ceased operation and monies from the hazardous waste uncontrolled site containment fund (Superfund) totalling more than $500,000 have been spent to correct immediate environmental threats. Seepage from storage lagoons and site runoff have been found to contain high levels of phenolics and occasionally high levels of PCB's (OEPA, NEDO data, 1977-1981). Additional clean up work is proceeding.

GRAND RIVER MAINSTEM

Segment Problem	Name Description	Use Designation Mile Points
04110004-001 FAIR	Grand River from Big Creek confluence to near Red Creek confluence	WWH 8.9-5.3

This segment of the Grand River violated WQS for fecal coliform bacteria, total iron, total lead and total mercury (OEPA, NEDO data, 1975-1980). The fecal coliform violations were probably due to the Heatherstone WWTP discharge just upstream from the sampling station (RM 8.9 on the mainstem) and the Chardon WWTP (RM 7.0 on Big Creek). The phenolics and metals sources are unknown; there are no industrial dischargers upstream from the sampling site.

ROCK CREEK
GRAND RIVER TRIBUTARY
CONFLUENCE AT RM 2.6

Segment Problem	Name Description	Use Designation Mile Points
N/A POOR	Rock Creek from the Roaming Rock WWTP to the Grand River	WWH 2.6-0.0

GRAND RIVER MAINSTEM

Segment Problem	Name Description	Use Designation Mile Points
04110004-001 FAIR	Grand River from Near Red Creek confluence to Lake Erie	WWH 5.3-0.0

This segment violated WQS for fecal coliform bacteria, dissolved oxygen, total iron, phenolics, and total dissolved solids (TDS). The Painesville and Fairport Harbor WWTPs contribute to the bacterial, dissolved oxygen and TDS violations. The Painesville WWTP was upgraded to provide tertiary treatment beginning in the fall of 1979. Plans are being considered to convert the Fairport Harbor WWTP to a lift station for the Lake County Regional Plant in Mentor (facility currently in planning stages). The application for Step 3 planning has been approved.

A major source of dissolved solids in the lower Grand River is an abandoned 350 acre waste lagoon formerly owned by the Diamond Shamrock Chemical Company. The lagoon and surrounding area is also a known source of iron and chromium (OEPA, NEDO data, 1979). Water quality is improving in this area. Surface runoff from chromium waste storage lagoons has been eliminated by the Diamond Shamrock Company. Work to isolate groundwater from 100 acres of chromium waste is expected to be complete by the fall of 1982. The lagoons are being filled with fly ash, capped with clay, covered with top soil and seeded with shallow rooting perennial grasses. Groundwater monitoring wells have been installed and Diamond Shamrock is expected to begin a surface water monitoring program in the near future.

HISTORICAL

The lower Grand River is one of the few systems in Northeastern Ohio which has had sufficient data collected to determine the effects of major dischargers on water quality. The Diamond Shamrock Painesville works produced soda ash from 1912 to 1976. Wastewater from this process contained high amounts of dissolved solids which were discharged to the Grand River. The USGS gaging station downstream at S.R. 535 (RM 2.3) has recorded the dissolved solids concentrations through conductivity measurements since 1966 (USGS, 1966-1978).

There have been substantial improvements in the physical/chemical water quality of the lower Grand River. The frequency and magnitude of violations of WQS for dissolved solids, dissolved oxygen, pH, MBAS and total copper have shown steady improvements over the past several years. The Painesville WWTP was upgraded to advanced secondary and tertiary levels in 1979. Process water from Glyco Corperation and Uniroyal that contained high levels of oxygen demanding substances, oil and grease, and phenolics was previoulsy discharged to the Grand River. This process water is now sent to the Lake County Regional WWTP in Mentor via a new intercepter sewer. Diamond Shamrock closed its chromium plant in 1971, and their soda ash plant in 1977. Improvements in water quality can be directly attributed to the upgrading of sewage treatment facilities and the elimination of these industrial point sources. Table II-26 shows the dramatic decrease in the frequency of violations of the dissolved oxygen standard over the past ten years. Similarly dramatic decreases occurred in the frequency of pH (Figure II-8).

Total iron violations in the 2000 to 4000 ug/l range continue. One unimproved source of the iron violations is coal-pile runoff at the Painsville Municipal Electric Company. There are no immediate plans to correct this sutuation. Chlorides continue to leach from a 350 acre soda ash process waste storage lagoon used by Diamond Shamrock until 1977. Specific conductance levels in the adjacent Grand River remain high but have decreased substantially since operation at the soda ash plant were discontinued. Ohio WQS violations for dissolved solids occured frequently when the flow of the Grand River fell below 150 cfs (based on specific conductance recordings at the USGS continuous monitoring station at S.R. 535) as illustrated in Figure II-9.

Table II-26. Frequency of dissolved oxygen violations on the Grand River between 1970 and 1980 (June through October data only)[a]

YEAR	# days below 4 ug/l	# days below 5 ug/l	# days missing data	mean daily min. conc.
1970	68	85	26	1.2
1971	20	35	52	3.2
1972	34	46	12	1.8
1973	40	54	20	2.3
1974	76	100	18	1.6
1975	30	42	54	3.3
1976	45	67	2	2.3
1977	49	66	2	1.0
1978	77	99	3	1.7
1979	0	1	29	5.5
1980	0	2	8	7.0

a (U.S.G.S. continuous monitoring data.
From: Water Resources for Ohio 1970 to 1980)

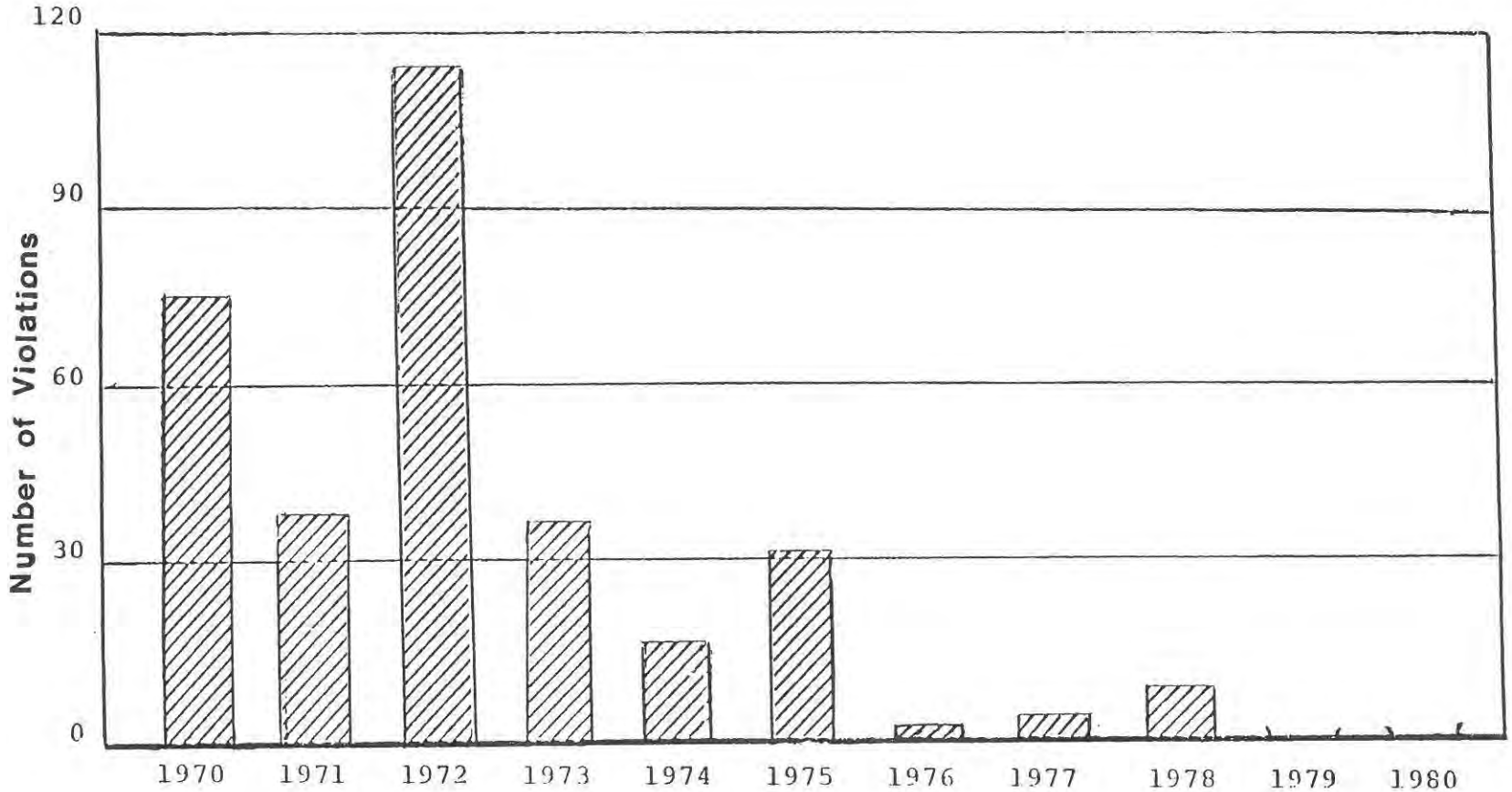

Figure II-8. Frequence of pH violations on the Grand River.

USGS DATA

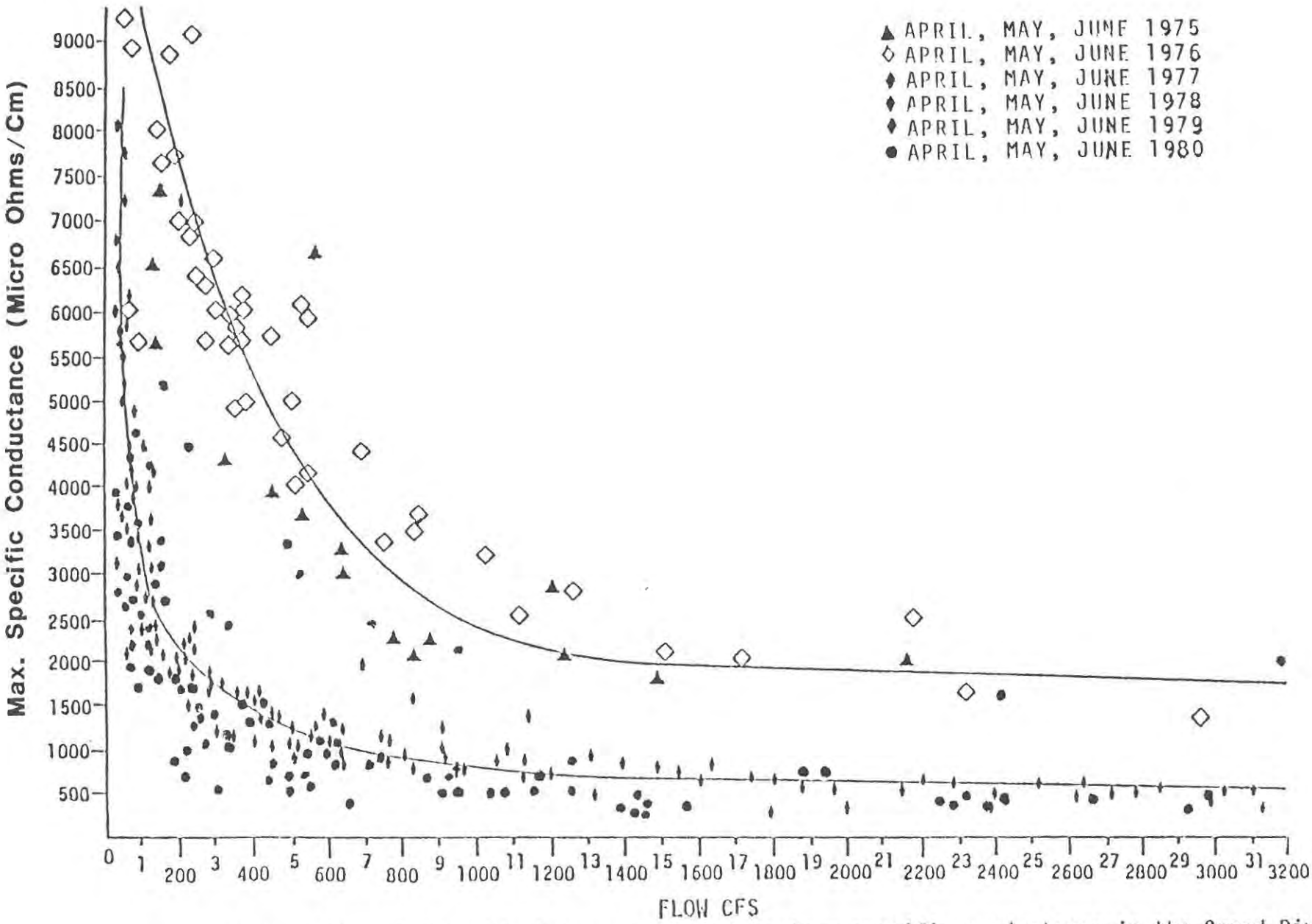

Figure II-9. The relationship between flow and maximum specific conductance in the Grand River near Painesville, Ohio, 1975 - 1979.

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GRAND RIVER BASIN

CONNEAUT CREEK SUBBASIN (F-3)

SUBBASIN SUMMARY

An estimated 21.1 of the 22.3 total stream miles evaluated in this subbasin are known to have minor physical/chemical problems. The lands within the Conneaut Creek Subbasin are rural, except for the lakeshore area which contains the city of Conneaut and some suburban development. Physical/chemical water quality of Conneaut Creek above the city was generally good (Ohio EPA, NEDO data, 1977-1980). Occasional total iron and total lead violations occured from nonpoint sources in Ohio, or from dischargers and/or nonpoint sources in Pennsylvania. Samples from the monthly monitoring site at Keefus Road (RM 6.4; STORET station No. 502870) revealed Coldwater Habitat (CWH) violations for phenolics. These violations also occasionally exceeded Warmwater Habitat (WWH) standards.

Because of the complex nature of estuaries and the lack of data, no water quality determinations could be made for the Conneaut Creek Estuary. However, the estuary receives runoff from 438 acres of coal and ore storage. Discharge from these areas has low pH and high total iron concentration (500-1000 ug/l). This runoff often discolored the Conneaut Harbor. The Pittsburgh and Conneaut Dock Company, which owns the storage area (RM 0.5 to 0.0), is currently working on a treatment system to control the quality of this runoff. The treatment system, including collection, settling, and neutralization facilities, is expected to become fully operational in January of 1982. Five outfalls were combined into one, as a first step in implementing this plan.

Despite what appears to be adverse conditions in the estuary, Conneaut Creek supports a popular sport fishery, especially during the spring and fall salmonid migrations.

Biological Evaluations

Recent Ohio EPA, macrobenthic monitoring in the basin consisted of one fixed station benthic sample (NASQAN) collected in August, 1979, from Conneaut Creek near Conneaut in Ashtabula County (RM 6.7). A total of 36 benthic taxa were collected with a diversity index of 3.18 (RD 3-). The benthic community consisted of 13 taxa of mayflies, 9 taxa of caddisflies, 1 stonefly taxon, and 13 taxa of midges. The midge taxa dominated the community by numbers (88 percent), but no one taxon was overwhelmingly abundant. The overall benthic community appeared healthy and diverse and indicated Class II (Good) water quality.

No previous benthic data are available for the basin.

SEGMENT REPORTS

CONNEAUT CREEK MAINSTEM

Segment Problem	Name Description	Use Designation Mile Points
04120101-012 FAIR	Conneaut Creek from the Ohio - Pa. Line to the Estuary	CWH 22.3-1.2

Conneaut Creek is not expected to meet 1983 water quality goals due to high, total iron concentrations. Frequent violations of the Ohio Cold Water Habitat (CWH) standard for phenolics occured. The Warm Water Habitat Standard (WWH) for phenolics was occasionally violated. Single WWH violations for total lead, total mercury, and nitrogen ammonia have also been recorded. Since there are no known dischargers in Ohio upstream from the Ohio EPA sampling location (RM 6.4), the violations are assumed to be from nonpoint sources, or from point and/or nonpoint sources in Pennsylvania.

REFERENCES

Ohio Environmental Protection Agency. 1977-1980 (unpublished). Data available from Northeast District Office, Ohio EPA, Twinsburg, Ohio.

GRAND RIVER BASIN

ASHTABULA RIVER SUBBASIN (F-3)

SUBBASIN SUMMARY

Land use in the Ashtabula River Subbasin is primarily rural. The only significant population center is the city of Ashtabula located near the river's mouth. An estimated 10.8 stream miles in this subbasin had major physical/chemical problems. Major water quality problems were confined to the river mainstem (RM 6.0 to 0.0). The upper reaches of the Ashtabula River were relatively pollution free (OEPA, NEDO data, 1977-1980; USGS 1978, 1980), except for infrequent total iron, total lead and phenolics violations. The source of this contamination was undocumented, but nonpoint sources were suspected.

The physical/chemical water quality of Hubbard Run (tributary to the Ashtabula River at RM 5.1), Red Brook, and Indian Creek (tributaries to Lake Erie), which are near the city of Ashtabula, have been degraded by individual septic systems (OEPA, NEDO data, 1975, and Ashtabula Health Department sampling). Effluent from these septic systems will be diverted from these streams to a new facility recently approved, though not yet constructed. This is expected to eliminate the bacteria, ammonia, and dissolved oxygen problems in these segments.

Samples collected by the Ohio EPA, U.S. EPA, and the USGS indicated degraded physical/chemical water quality in the Ashtabula River Estuary. Discharges which contributed to water quality problems in this river segment include combined sewer overflows and industrial discharges to Fields Brook and Strong Brook. Sediments analyzed by the U.S. EPA in 1979 confirm water quality problems involving high concentrations of total zinc, total lead, total mercury, oil and grease, various organic contaminants and PCB's. Despite these water quality problems, the estuary of the Ashtabula River is an important spawning area for many important Lake Erie fishes. Local sport fishermen and the U.S. Coast Guard report salmonid migrations and large numbers of white bass in this segment.

SEGMENT REPORTS

ASHTABULA RIVER MAINSTEM

Segment Problem	Name Description	Use Designation Mile Points
04110003-008 POOR	Ashtabula River between the Ashtabula City Limits	WWH 6.0-1.7

This segment of the Ashtabula River violated WQS for total lead, total iron, total mercury and phenolics (OEPA, NEDO data, 1977-1980). The only known point sources affecting this segment were small package plants which discharge treated sanitary wastes. These wastes are not thought to contain any of the compounds listed, therefore, the source of these violations was presummed to be nonpoint.

STRONG BROOK
ASHTABULA RIVER TRIBUTARY
CONFLUENCE AT RM 1.8

Segment Problem	Name Description	Use Designation Mile Points
N/A FAIR	Strong Brook from the headwaters to the Ashtabula River	WWH 1.4-0.0

Samples collected from Strong Brook revealed water quality violations for phenolics, total iron, total zinc and fecal coliform bacteria (OEPA, NEDO data, 1977, 1979). There were occasional reports of oil and organic odors as well, but these reports were not documented. Investigation by the Ohio EPA concluded that the sources of these violations probably were accidental spills and/or unauthorized discharges through floor drains into Ashtabula's storm sewers in the area of Benefit Avenue. Roller Reinforced Plastics Company was found to be one source of organic contamination in this area. Conrail and Rockwell International were determined to be contributing to the oil problem. The discharge from all of these facilities has since been eliminated. Although no data have been collected to document the findings, visual inspections by Ohio EPA personnel indicated ongoing sewage pollution problems.

FIELD'S BROOK
ASHTABULA RIVER TRIBUTARY
CONFLUENCE AT RM 1.7

Segment Problem	Name Description	Use designation Mile Points
N/A POOR	Fields Brook from Cook Road to the Ashtabula River	WWH 3.4-0.0

Field's Brook will not meet 1983 water quality goals. However, significant progress has been made by the individual dischargers to Fields Brook since the early seventies. All of the major industries in this area have at least Best Practical Technology (BPT) treatment facilities for conventional pollutants. These facilities include: SCM Corp., Olin Corp., General Tire and Rubber CO., G & W Natural Resources, R.M.I. Co., Diamond Shamrock and IMC. IMC no longer discharges to Fields Brook and Olin Corp. has recently ceased operation due to economic conditions. General observations by Ohio EPA, NEDO staff and area industrial personnel indicate that pollution tollerent fish may have returned to parts of Fields Brook where they were previously absent.

During summer months, the combined discharge of the previously mentioned facilities comprise almost the entire flow of Fields Brook. This situation makes the task of meeting water quality standards economically impossible. The Fields Brook Subcommittee, formed from the 208 Public Advisory Committee, submitted a proposal with justifications to Ohio EPA requesting an increase in the total dissolved solids (TDS) stream standard. Based upon economic analysis of treatment alternatives and an assessment of aquatic communities, a

revision of the stream water quality standard for TDS has been granted. The stream beneficial use designation will remain warm water habitat. The current standard for TDS of 1500 ug/l has been increased to 3500 ug/l downstream of S.R. 11 (RM 1.4).

Other parameters occasionally exceeding water quality standards included total lead, total mercury, total iron, phenolics and water temperature. Work is continuing to locate and control the sources of these pollutants. Total mercury violations have decreased in frequency and severity from previous reporting periods (Ohio EPA, NEDO data, 1975-1980). In addition, no violations of the standard for total residual chlorine were detected during the current reporting period. This indicates a significant improvement in the chlorine problems detected during previous compliance monitoring surveys.

A new emphasis on toxics and hazardous materials, and improved laboratory capabilities have increased the concerns regarding chlorinated organics and other "priority" pollutants in this area. Chlorinated organics and several metals (mercury, cadmium, copper, lead and zinc) were found in relatively high concentrations in sediment samples collected from Fields Brook in 1979 (U.S. EPA, Great Lakes National Program Office, 1981). High concentrations of bioaccumulative organic compounds were identified in fish collected from the Ashtabula River near Fields Brook. These fish samples contained the greatest variety of chlorinated organic chemicals compared to fish collected in sixty other watersheds in the United States. The most abundant chemicals detected were hexachlorobutadiene, hexachlorobenzene and octachlorostylene. Polychlorinated biphenols (PCB's) were also detected, but were not found to be present in appreciable concentrations.

Ohio EPA monthly water quality monitoring in Fields Brook at 15th Street (RM 0.3) revealed occasional low levels of many of the previously mentioned organic compounds (carbon tetrachloride, chlorinated ethanes, chlorinated ethylenes and chloroform). Frequently, the concentratins reported were near laboratory minimum detection limits. (Water quality standards have not been established for many of these compounds.) Effluent samples indicated that these contaminants were not from current discharge but were probably the result of release from sediments and leaching from contaminated soils in the area.

The Fields Brook area is currently under study to determine the specific sources of these problem contaminants. "Superfund" monies are available for further study. Abatement measures being considered include dredging and disposal of contaminated sediments, relocation of the stream from contaminated areas, and securing suspected contaminants in chemical disposal facilities.

ASHTABULA RIVER MAINSTEM

Segment Problem	Name Description	Use Designation Mile Points
04110003-008 POOR	Ashtabula River Ashtabula River Estuary	WWH 1.7-0.0

The Ashtabula River Estuary has had water quality violations for total dissolved solids and dissolved oxygen since 1970 (USGS 1970-1979). Since the Ashtabula River has periods of zero flow during most years, any waste water generated within the subbasin comprises the total flow of the river and collects in the estuary. Combined sewer overflows in Ashtabula (RM 6.0 to 0.0) will be eliminated with improvements to the city's sewer system, and should help to improve the dissolved oxygen levels within the estuary. Sediment samples taken from the Ashtabula River below Fields Brook were found to contain high concentrations of oil and grease, total lead and total zinc (USEPA data, 1981). Fish collected in the Ashtabula River were found to contain high concentrations of the known carcinogens polychlorinated styrenes and hexachlorobutadiene.

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LAKE ERIE MINOR TRIBUTARIES

(PORTIONS OF BASINS D-3; E-2; F-3)

SUMMARY

Data for the Lake Erie minor tributaries was limited to several grab samples and pollution complaint investigations. A few segments can be identified as water quality problem areas, but an accurate evaluation of many small Lake Erie tributaries is not possible due to insufficient data.

SEGMENT REPORTS

BEAVER CREEK (D-3)

Segment Problem	Name Description	Use Designation Mile Points
N/A POOR	Beaver Creek from the Amherst WWTP to the Estuary	WWH 2.2-0.8

Major physical/chemical problems in this segment of Beaver Creek included fecal coliform bacteria, ammonia, MBAS and phenolics (OEPA, NEDO data, 1977). The bacterial, ammonia and MBAS violations were caused by the Amherst WWTP (RM 2.2). The source of the phenolics is unknown. The city of Amherst is under a consent decree to upgrade its facility. The consent decree establishes a compliance schedule for meeting permit limitations. Construction grants monies are not involved with this upgrading

COWLES CREEK (F-3)

Segment Problem	Name Description	Use designation Mile Points
N/A FAIR*	Cowles Creek from the Geneva WWTP to the Estuary	CWH 4.2-0.7

Biological and Water Quality Survey

Water quality and biological sampling from five locations in a seven mile segment of Colwes Creek during August and September 1981 clearly illustrated a measurable impact on the Geneva WWTP. Chemical/physical and fish data indicated the well defined zonation of Cowles Creek, with a clean water zone upstream from the WWTP, a zone of degradation extending approximately three miles downstream, and a zone of recovery further downstream. Macro-invertebrate sampling was inconclusive for indicating pollutional impacts because high water during July scoured the substrates and benthic communites failed to recolonize in sufficient numbers to allow satisfactory data interpretation.

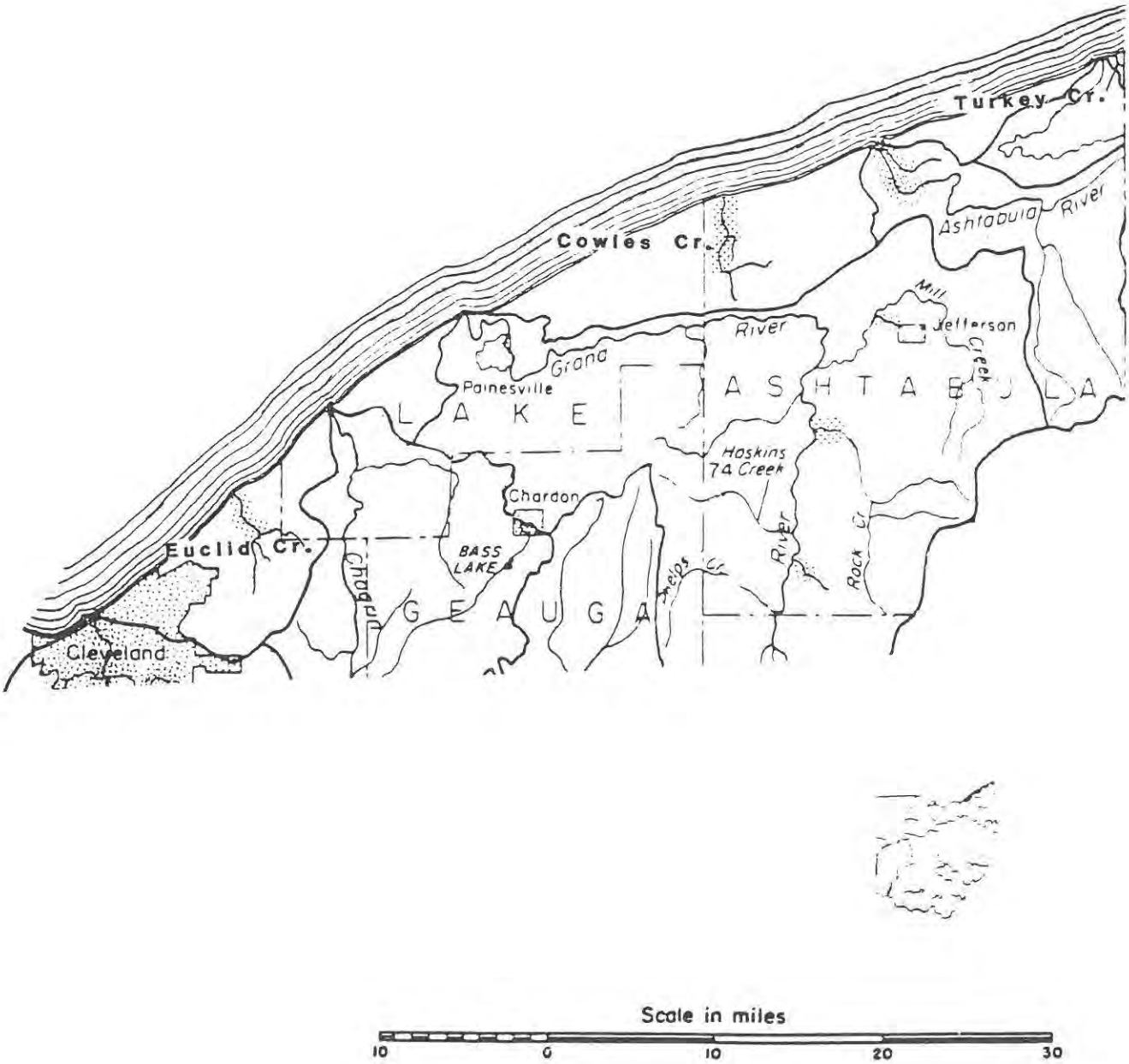

Figure II-10. Map of the Lake Erie tributary basins (Ohio). Stream segments that were judged not to support aquatic life in accordance with the goals of the Clean Water Act are highlighted with stippled shading.

Reduced loadings of suspended solids and ammonia from an upgraded facility at Geneva should result in improved conditions for aquatic life immediately downstream. Improvements in water quality may benefit populations of certain Lake Erie fish species that utilize high gradient streams for spawning. Existing treatment at the Geneva WWTP may be subject to periodic upset that could substantially impact the biological condition of the estuary zone. An industrial waste survey is needed to assess the possibility of incompatible wastes entering the Geneva WWTP.

Chlorination of the Geneva WWTP effluent should be carefully monitored to minimize the total residual chlorine concentrations being discharged, or else alternative disinfection methods should be employed. Previous data indicate chlorine concentrations toxic to aquatic life in Cowles Creek. Mitigation of this problem must be considered to be as important to the biological recovery of Cowles Creek as reducing the loadings of solids and ammonia-N.

The diversity of the invertebrate and fish fauna both upstream and downstream from the area impacted by the Geneva WWTP indicates that Cowles Creek is capable of recovery from the impacts of the WWTP.

EUCLID CREEK (E-2)

Segment Problem	Name Description	Use Designation Mile Points
N/A	Euclid Creek	WWH
POOR	from the West Tributary to the Estuary	3.1-0.5

Major physical/chemical problems in Euclid Creek included fecal coliform bacteria, phenolics, total lead and total iron (OEPA, NEDO data, 1977-1980). The bacterial violations were probably the result of combined sewer overflows, individual septic systems and/or the Scottish Highlands WWTP (RM 1.4) in Richmond Heights. The remaining violations were probably the result of seepage from a covered waste disposal site at Cleveland Metal Cleaning (RM 2.0). The city of Cleveland's Nottingham Water Filtration Plant (RM 1.8) occasionally released chlorinated backwash water into Euclid Creek. The elevated chlorine levels have caused numerous fish kills. The discharge has been the subject of several complaints as well. The facility is now under orders from the Director of Environmental Protection to eliminate all discharge into Euclid Creek. The city must submit general plans (by September of 1984) for tying into the Cleveland Easterly Sewage Treatment Plant or the Euclid Sanitary Sewer District by May of 1987.

TURKEY CREEK (F-3)

Segment Problem	Name Description	Use Designation Mile Points
N/A	Turkey Creek	CWH
FAIR	from the Pennsylvania State Line to Lake Erie	1.3-0.0

Major physical/chemical problems in Turkey Creek included violation of Ohio WQS (CWH) for total iron, total cadmium, total zinc, total lead and phenolics (OEPA, NEDO data, 1977-1980). Only the total iron and total lead concentrations were high enough to violate Ohio's Warmwater Habitat (WWH) WQS. Since there are no point source discharges within this creek, the violations must orginate from nonpoint sources. Turkey Creek supports a successful salmonid stocking program run by The Ohio Department of Natural Resources.

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WABASH RIVER BASIN (G)

BASIN SUMMARY

Physical/chemical water quality in the Ohio portion of the Wabash River Basin, with the exception of Beaver Creek, was generally good. Most areas had water quality capable of supporting diverse aquatic communities. The major water quality problem in the Wabash Basin were high nutrient concentrations. Violations of WQS (WWH) for fecal coliforms and total iron were also common. A biological and water quality survey of Beaver Creek is planned for 1984 and a draft report should be available in 1985.

Nonpoint source pollution was a major contributor to the enrichment of the Wabash River and to the eutrophication of Grand Lake St. Marys. Approximately 96% of the land within the basin is agricultural. This high percentage suggests that agricultural runoff is a significant nonpoint source of pollution. Periodically, large areas of Grand Lake St. Marys have had dense algal growths resulting in high turbidity, discoloration and a decreased, aesthetic value. Algal blooms also reduce water quality for public, industrial and agricultural water supplies. The diurnal fluctuations of dissolved oxygen associated with algal blooms in the lake were detrimental to other forms of aquatic life. The environmental and water quality problems contributing to the rapid eutrophication and degradation of Grand Lake St. Marys can be attributed to: (1) agricultural runoff, (2) shallowness of the lake, (3) periods of low water levels caused by lack of rainfall, (4) poorly constructed and/or maintained private and semi-public sewage systems, (5) large numbers of wild geese and ducks inhabitating the lake and (6) algal blooms.

HERDEN CREEK
BEAVER CREEK TRIBUTARY
CONFLUENCE AT RM 11.4

Segment Problem	Name Description	Use Designation Mile Points
N/A POOR	Herden Creek from the Coldwater WWTP to Beaver Creek	WWH 4.6-0.0

Herden Creek was characterized as a low-flow, intermittent stream. During periods of lowest flow, it consists entirely of the effluent from the Coldwater WWTP (RM 4.4) and the cooling water from Pet Inc. (RM 4.6). Data from a previous report (OEPA, 1974) indicated ammonia and dissolved oxygen violations, along with high levels of BOD_5, phosphorous, total kjeldahl nitrogen and nitrates. The village of Coldwater (RM 4.4) is presently working on facility plans which would correct their sewer infiltration problems. It is unlikely that wastewater treatment improvements will be completed before 1983.

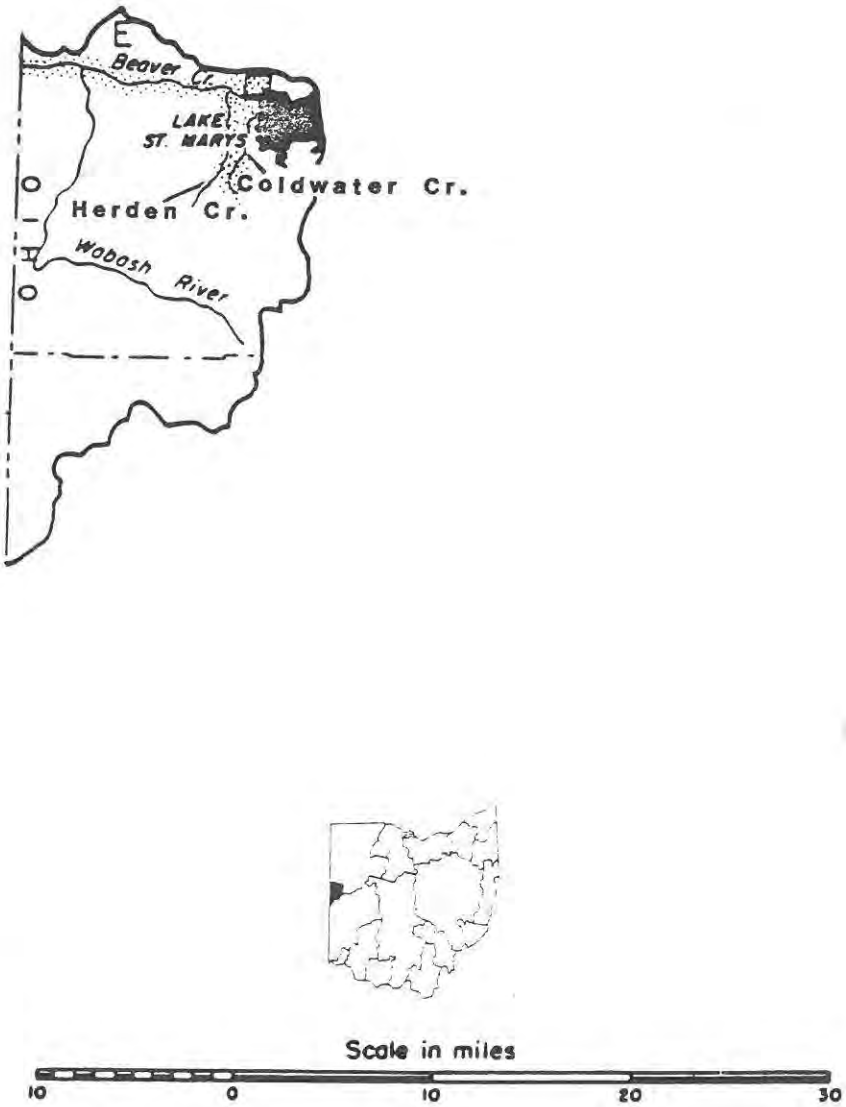

Figure II-11. Map of the Wabash River basin (Ohio). Stream segments that were judged not to support aquatic life in accordance with the goals of the Clean Water Act are highlighted with stippled shading.

BEAVER CREEK
WABASH RIVER TRIBUTARY
CONFLUENCE AT RM 2.7

Segment Problem	Name Description	Use Designation Mile Points
05120101-012 POOR	Beaver Creek from the Grand Lake St. Marys' Reservoir to the Wabash River	WWH 13.0-0.0

Beaver Creek had severe water quality problems. It was a low gradient, channelized stream with poor macroinvertebrate habitat diversity (OEPA, 1974). The substrate was mucky due to the sedimentation of solids discharged by the Celina WWTP (RM 12.7). These factors resulted in an extremely low assimilative capacity in Beaver Creek. Both Grand Lake St. Marys and Hardin Creek discharge to Beaver Creek at RM 13.0 and RM 11.4, respectively. There was rarely a flow contribution from the lake during dry periods of the summer.

There was no dilution of the Celina WWTP effluent during dry weather conditions. Beaver Creek experienced very high levels of nutrients and low levels of dissolved oxygen throughout its entire length during these periods. Ohio EPA wasteload allocation (WLAR) studies have indicated that the present permit for the Celina WWTP was not stringent enough to enable water quality standards to be met in Beaver Creek. Ammonia standard violations occurred downstream from the Celina WWTP to the confluence with the Wabash River. Dissolved oxygen WQS violations also occurred with a minimum D.O. concentration of less than 0.1 mg/l at the sag point (OEPA, 1978).

WABASH RIVER MAINSTEM

Segment Problem	Name Description	Use Designation Mile Points
05120101-011 GOOD	Wabash River from the headwaters to four stream miles above Fort Recovery	WWH 41.7-20.0

Land use adjacent to the Wabash River from the headwaters to Fort Recovery, and the Mississinewa River were entirely agricultural. There were no significant point sources of pollution within these segments, indicating that any water quality degradation was due to nonpoint sources (OEPA, 1974). There is little water quality information available for these segments.

Segment Problem	Name Description	Use Designation Mile Points
05120101-011 FAIR	Wabash River from 4 miles above Fort Recovery to the confluence with Toti Creek	WWH 20.0-13.7

Hartwig Poultry Farm (RM 20.0) discharges effluent with very high ammonia BOD_5 and suspended solids levels. Fort Recovery Industries (RM 16.0) has frequent permit violations for free cyanide, hexavalent chromium, total zinc, BOD_5, suspended solids, and oil and grease. The Schmitt Fur Farms (RM 18.0) presently discharges essentially untreated waste to the Wabash River. The farm plans to treat this waste by using spray irrigation techniques by 1983.

Segment Problem	Name Description	Use Designation Mile Points
05120101-011 GOOD	Wabash River from the confluence with Toti Creek to the Beaver Creek confluence	WWH 13.7-2.7
05120101-010 POOR	Wabash River from the Beaver Creek confluence to the Ohio-Indiana Border	WWH 2.7-0.0

Water quality in the Wabash River declines downstream from Beaver Creek (RM 2.7) because of increased nutrient and suspended solids loading (OEPA, NWDO data, 1976b). The appearance of the river changes dramatically as it becomes more turbid, more sluggish and wider. The river bottom material becomes softer, and there are very few riffles. Water quality standard violations for dissolved oxygen occur at the Ohio State Line (OEPA, NWDO data, 1974-1977).

MISSISSINEWA RIVER
WABASH RIVER TRIBUTARY
CONFLUENCE IN INDIANA

Segment Problem	Name Description	Use Designation Mile Points
05120103-008,-006,004, -002 GOOD	Mississinewa River from the headwaters to the Ohio State Line	WWH 31.4-0.0

COLDWATER CREEK
TO GRAND LAKE ST. MARY'S

Segment Problem	Name Description	Use Designation Mile Points
N/A POOR	Coldwater Creek from the headwaters to Grand Lake St. Marys	WWH 8.7-0.0

Coldwater Creek is characterized as a low-flow stream. During periods of lowest flow, it consists almost entirely of the wastewater from St. Henry's WWTP (located at the headwaters of Coldwater Creek at RM 8.7) and the cooling water from Avco New Idea (RM 4.8). Data from a previous report (OEPA, 1974) indicated ammonia and dissolved oxygen WQS violations, along with high levels of suspended solids, BOD_5, phosphorus and nitrates. Ohio EPA wasteload

allocation studies indicate that the present permit for the St. Henry WWTP is not stringent enough to enable Ohio WQS to be met in Coldwater Creek (OEPA, NWDO, 1978). Consequently, the village of St. Henry is planning to upgrade its facilities by changing its operation from contact stabilization to extended aeration, doubling the flow capacity, adding flow equalization at the head of the plant, and adding intermittent filtration at the end of the plant. With the high degree of treatment that is proposed, the St. Henry's WWTP effluent could meet the 1983 goals.

REFERENCES

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GREAT MIAMI RIVER BASIN

UPPER GREAT MIAMI RIVER SUBBASIN (H-1)
AND
LORAMIE CREEK SUBBASIN (H-2)

SUBBASIN SUMMARY

A water quality and biological survey of the Upper Great Miami River was conducted in 1982. Prior to February 1980, a single monitoring station was located at U.S. 33 (RM 156.5). In February, the station was moved to S.R. 274 (RM 153.5; STORET Station No. 610100) so that monitoring would include the effects of the combined sewer overflow from two seperate outlets from Indian Lake and the discharge from the Russells Point WWTP. The physical/chemical water quality at the S.R. 33 station was generally good except for several Warmwater Habitat WQS violations standards for fecal coliform bacteria and total iron. In contrast, physical/chemical water quality at the S.R. 274 station was relatively poor with WQS violations for dissolved oxygen, total iron, fecal coliforms and ammonia nitrogen.

Physical/chemical water quality in the Loramie Creek Subbasin was generally good. Some metals violations (total iron and total lead) and elevated nutrient concentrations were detected.

Bokengehalas Creek contributed high concentrations of total copper, total lead, total zinc, total nickel, total cadmium, and total chromium to the Great Miami River at RM 143.3. The most significant source of this pollution is the Bellefontaine WWTP which discharges to Possum Run (RM 0.5). Water quality standards violations for total lead and total nickel occurred in July, 1979, immediately downstream from the plant.

The Upper Great Miami River is receiving relatively high concentrations of ammonia nitrogen and total phosphorous from the Sidney WWTP (RM 126.3). Over the past several years water quality standards violations for ammonia nitrogen and fecal coliform have occurred immediately downstream from this plant (OEPA, SWDO Monthly Operating Report Data).

Biological Evaluations

Previous biological monitoring in the subbasin was conducted in October, 1974, at benthic stations on the Great Miami River at Sidney in Shelby County. Four stations were established at river miles 130.4, 130.0, 127.7 and 126.2, to determine what impacts the Sidney WWTP (RM 128.7) and Water Treatment Plants (RM 130.2) had on water quality. A summary of the data can be found in Table II-27. The tabulated data can be found in RD 3.

The upstream station (RM 130.4) was found to have a diverse benthic community, as evidenced by the presence of 28 taxa and a diversity index of 3.89. The river at this station was considered to have Class II (Good) water quality. The station located immediately downstream from the water treatment plant at river mile 130.0 also exhibited Class II (Good) water quality, which indicated that this discharge had no measurable deleterious effect. The classification of the stream at river mile 127.7, located about one mile downstream from the WWTP, declined to a Class III (Fair) condition. This deterioriation was noted

by a reduction in the number of mayfly and caddisfly taxa and by a slight decrease in the diversity index (3.20) and number of taxa (26) colonizing the artificial substrate samplers. The substrate was apparently degraded in this segment because no organisms were collected in the qualitative sample. The station located at river mile 126.2 reflected Class II (Good) water quality as demonstrated by the increase in pollution sensitive forms (mayflies, caddisflies and stoneflies) and a rise in the diversity index (3.33).

The Sidney WWTP had a deleterious effect on the water quality of the Great Miami River, as determined by the benthic biota. The stream apparently recovered from this effect less than 2.5 miles downstream.

Table II-27. Summary of Benthic Data Collected from the Great Miami River Relative to the Sidney Wastewater Treatment Plant (WWTP) and Water Treatment Plant (WTP) Discharges, October 1977[a]

	Station (RM)			
	130.4	130.0	127.7	126.2
Number of Samplers	5	5	5	5
Quantitative Taxa	28	32	26	26
Qualitative Taxa	13	12	0	10
Organisms/Ft^2	302	117	228	435
Index ($\overline{d}$)	3.89	3.97	3.20	3.33
Evaluation (Class)	II	II	III	II

(a) The Sidney WWTP discharge is located at RM 128.7. The Sidney WTP is located at RM 130.2.

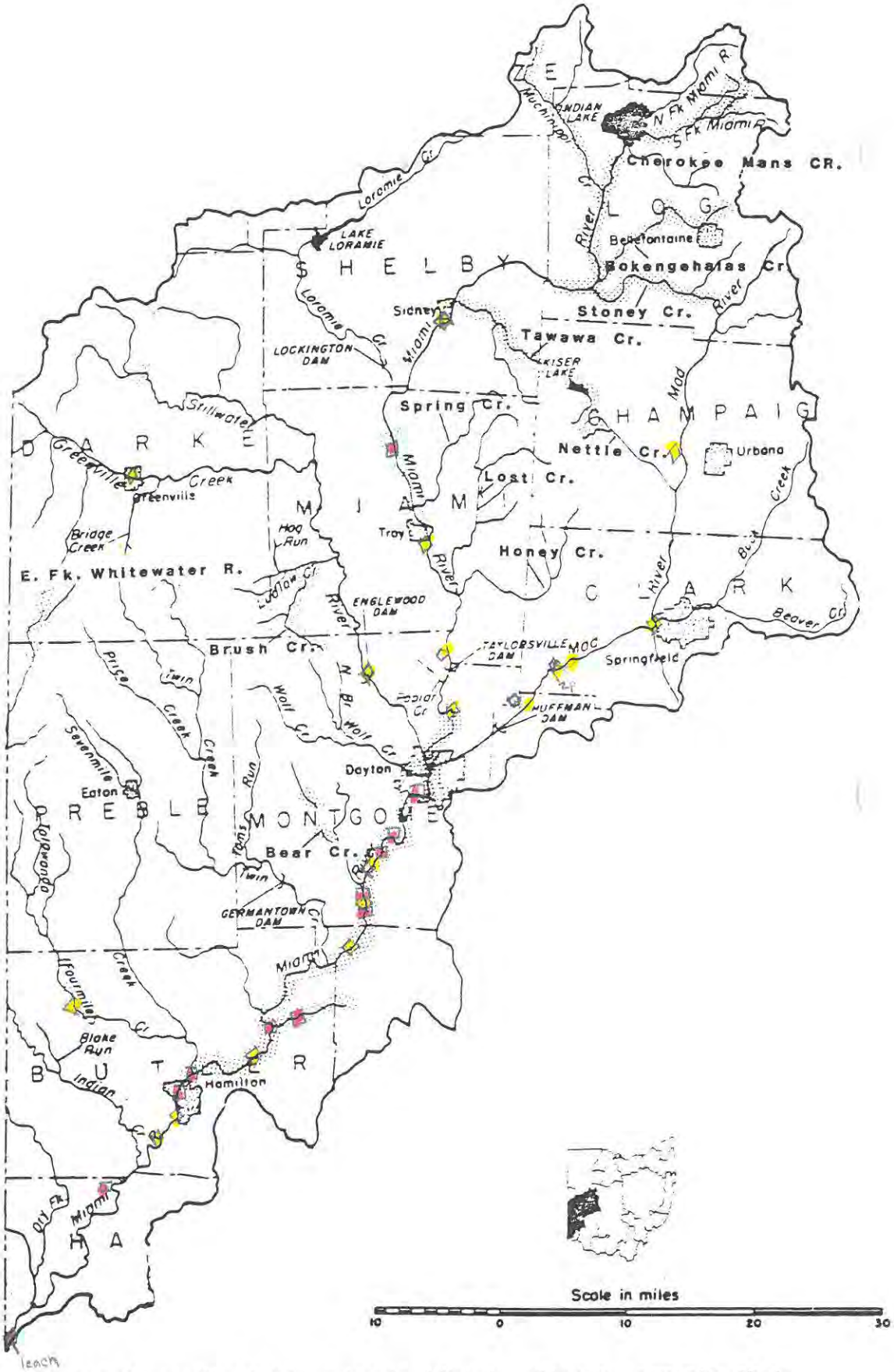

Figure II-10. Map of the Great Miami River basin (Ohio). Stream segments that were judged not to support aquatic life in accordance with the goals of the Clean Water Act are highlighted with stippled shading.

GREAT MIAMI RIVER MAINSTEM

The majority of the upper Great Miami River study area was characterized by good water quality and healthy, diverse biological communities. The principle exceptions to this generalization were documented downstream from the Russells Point WWTP and the point source discharges in Piqua. The sampling during 1982 was conducted during a relatively low flow period, thus the documented impacts from point source inputs were probably maximized in terms of biological impacts. The impacts documented were relatively minor to insignificant through a majority of the study area.

Segment Problem	Name Description	Use Designation Mile Points
05080001-033 GOOD* yes	Great Miami River from Indian Lake to upstream from Russells Point WWTP	WWH 159.5-158.1

This segment is generally characterized as having good water quality although occasional iron WQS violation were obtained at RM 159.2, apparently a result of nonpoint source runoff. Biological communities remained healthy and diverse throughout this segment (Ohio EPA 1984).

What is nature

Segment Problem	Name Description	Use Designation Mile Points
05080001-033,-032 POOR* NO	Great Miami River from Russells Point WWTP to downstream S.R. 47	WWH 158.0-148.6

This segment was characterized by fair to poor water quality and biological condition. The source of degradation is apparently Russells Point WWTP (Ohio EPA 1984).

reference missing in citation

Segment Problem	Name Description	Use Designation Mile Points
05080001-032 FAIR* NO	Great Miami River from downstream S.R. 47 near Logansville to upstream Quincy WWTP	WWH 148.5-143.4

This segment had fair to good water quality, with some continued influence from the Russells Point WWTP on chemical water quality and biological conditions, however nearly completed recovery was observed within this segment (Ohio EPA 1984).

Segment Problem	Name Description	Use Designation Mile Points
05080001-028 GOOD* yes	Great Miami River from downstream Quincy WWTP to upstream from Piqua WWTP	WWH 143.3-114.3

This page is a repeat of p. 130

GREAT MIAMI RIVER MAINSTEM

The majority of the upper Great Miami River study area was characterized by good water quality and healthy, diverse biological communities. The principle exceptions to this generalization were documented downstream from the Russells Point WWTP and the point source discharges in Piqua. The sampling during 1982 was conducted during a relatively low flow period, thus the documented impacts from point source inputs were probably maximized in terms of biological impacts. The impacts documented were relatively minor to insignificant through a majority of the study area.

Segment Problem	Name Description	Use Designation Mile Points
05080001-033 GOOD*	Great Miami River from Indian Lake to upstream from Russells Point WWTP	WWH 159.5-158.1

This segment is generally characterized as having good water quality although occasional iron WQS violation were obtained at RM 159.2, apparently a result of nonpoint source runoff. Biological communities remained healthy and diverse throughout this segment (Ohio EPA 1984).

Segment Problem	Name Description	Use Designation Mile Points
05080001-033,-032 POOR*	Great Miami River from Russells Point WWTP to downstream S.R. 47	WWH 158.0-148.6

This segment was characterized by fair to poor water quality and biological condition. The source of degradation is apparently Russells Point WWTP (Ohio EPA 1984).

Segment Problem	Name Description	Use Designation Mile Points
05080001-032 FAIR*	Great Miami River from downstream S.R. 47 near Logansville to upstream Quincy WWTP	WWH 148.5-143.4

This segment had fair to good water quality, with some continued influence from the Russells Point WWTP on chemical water quality and biological conditions, however nearly completed recovery was observed within this segment (Ohio EPA 1984).

Segment Problem	Name Description	Use Designation Mile Points
05080001-028 GOOD* Yes	Great Miami River from downstream Quincy WWTP to upstream from Piqua WWTP	WWH 143.3-114.3

The upper portion of this segment generally had good water quality and healthy, diverse aquatic communities. Some compositional changes in biological communities were observed, probably attributable to river morphology with no impact from point source discharges. The lower portion of this segment (RM 128.7-114.3) also had good water quality. Although there was a detectable impact from Sidney WWTP on chemical water quality, no adverse impact on biological communities was observed (Ohio EPA 1984).

Segment Problem	Name Description	Use Designation Mile Points
05080001-027 FAIR* NO	Great Miami River from Piqua WWTP to Troy	WWH 114.2-105.8

This segment was characterized by fair to good water quality. Both chemical water quality and fish communities demonstrated a detectable impact from point source discharges in Piqua. Failure of the fish community to recovery to upstream levels of diversity was noted, but no apparent impact on macroinvertebrate communities was documented.

Segment Problem	Name Description	Use Designation Mile Points
05080001-027,-025 GOOD* yes	Great Miami River from downstream Troy to the Taylorsville Dam	WWH 105.7-92.6

This segment generally demonstrated good water quality and no apparent significant impacts of point source discharges on water quality or biological communities (Ohio EPA 1984).

UPPER GREAT MIAMI TRIBUTARIES

Segment Problem	Name Description	Use Designation Mile Points
N/A GOOD* Yes	Cherokee Mans Run from headwaters to confluence with Great Miami River	WWH + 10.8-0.0
05080001-035 FAIR* NO	Muchnippi Creek from headwaters to confluence with Great Miami River	WWH + 13.7-0.0
N/A POOR* NO	Bokengehalas Creek from head-waters to confluence with Great Miami River	WWH + 15.4-0.0
N/A FAIR* NO	Stoney Creek from headwaters to confluence with Great Miami River	WWH + 9.0-0.0

Segment Problem	Name Description	Use Designation Mile Points
N/A GOOD*	McKees Creek from headwaters to confluence with Stoney Creek	WWH 10.2-0.0
N/A FAIR*	Tawawa Creek from headwaters to confluence with Great Miami River	WWH 15.7-0.0
05080001-026 GOOD*	Spring Creek from headwaters to confluence with Great Miami River	WWH 12.4-0.0
05080001-024 EXCELLENT*	Lost Creek from headwaters to confluence with Great Miami River	EWH 17.4-0.0
05080001-021,-020 EXCELLENT*	Honey Creek from headwaters to confluence with Great Miami River	EWH 18.6-0.0

Biological and Water Quality Survey

Water quality and biological communities upstream from the Russells Point WWTP clearly demonstrated the potential for recovery with decreased loading from the WWTP. Similarly, good water quality and healthy communities in the vicinity of Piqua (outside of the area of point source impact) demonstrated the potential for recovery in this segment. The declines in fish community diversity in the immediate areas influenced by impoundments of the Great Miami River are natural changes associated with physical alteration of the flow regime, and should not influence recovery from point source inputs. In addition, nonpoint source runoff did not have any apparent impact on chemical water quality nor biological condition within the study area. The low flow nature of the stream during the study period suggest that biological recovery following any improvements in point source loading regimes should be expected and the abundance of tributaries with healthy biological communities supports this expectation.

LORAMIE CREEK
GREAT MIAMI RIVER TRIBUTARY
CONFLUENCE AT RM 117.0

Segment Problem	Name Description	Use Designation Mile Points
05080001-036 FAIR	Loramie Creek From Hardin Road to the Great Miami River	WWH 1.7-0.0

In approximately 80% of all samples taken in this segment, the water quality standard for total iron has been violated. Natural background levels and nonpoint source pollution cause the elevated iron concentrations. One total lead violation was recorded in October of 1978 (Ohio EPA, SWDO data, 1977-1980).

Water quality is expected to improve in the distant future when wastewater treatment facilities currently planned (step 2 of the construction grant process) for the Indian Lake area and Russells Point are completed. Completion of these facilities will greatly improve water quality in the area and should be given high priority.

SOUTH FORK GREAT MIAMI RIVER
TRIBUTARY TO INDIAN LAKE

Segment Problem	Name Description	Use Designation Mile Points
N/A GOOD*	South Fork Great Miami from headwater to downstream from SR 38 bridge	WWH 10.2-7.7
N/A FAIR*	Unnamed tributary to South Fork Great Miami from headwaters to confluence with South Fork	WWH unknown
N/A FAIR*	South Fork Great Miami from SR 38 bridge to downstream of CR 96 bridge	WWH 7.6-3.7
N/A GOOD*	South Fork Great Miami from downstream of County Road 96 bridge to confluence with Great Miami River	WWH 3.6-0.0
N/A FAIR*	Liggitt Ditch from headwaters to confluence with South Fork	WWH unknown

Biological communities were generally indicative of healthy, diverse faunas characteristic of similarly sized streams in the region. Macroinvertebrate communities were characterized by diverse species with numerous relatively intolerant taxa. Lower numbers of invertebrate taxa immediately downstream from Belle Center and in one tributary reflected some potential influence of water quality, but the presence of several sensitive taxa at each station suggested that physical habitat changes were the predominant influence. Similarly, the fish community evidenced a decline in number of species in the tributaries and in the vicinity downstream from Belle Center. Although minor impacts of water quality perturbations could not be ruled out, again physical habitat differences appeared to be the predominant influence. Overall, there was a detectable biological response to inputs from Belle Center (particularly in fish community diversity), but there was no evidence of severe impact, and physical habitat characteristics appeared to exert the predominant influence on biological communities. (OEPA 1983)

Belle Center population ~ 1000

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Ohio Environmental Protection Agency. 1983. Comprehensive Water Quality Report for South Fork Great Miami River, Great Miami River basin, Logan County, Ohio. Ohio EPA, Division of Wastewater Pollution Control, Columbus, Ohio.

SUBBASIN SUMMARY

There is one monthly monitoring station (RM 28.7; STORET Station No. 610040) in this subbasin and water quality at this point is generally excellent. The Ohio Department of Natural Resources has successfully stocked the Upper Mad River with fingerling rainbow and brown trout since the 1930's, thus supporting the Use Designation classification of this segment as Coldwater Habitat. Suspended solids are usually very low, with only minimal increases occurring during elevated flow periods.

Biological Evaluations

Recent biological monitoring in the subbasin consisted of one fixed station (NASQAN) sample collected in October, 1979, from the Mad River at Eagle City in Clark County (RM 30.6). The sample consisted of 41 taxa with a diversity index of 3.65 (RD 3). The benthic composition was represented by diverse, numerically well balanced taxa including 6 taxa of mayflies, 1 stonefly taxon, 6 taxa of caddisflies and 15 taxa of midges. No one taxon dominated, but oligochaetes and the midge taxa comprised 81 percent of all organims collected. An evaluation of Class I (Excellent) water quality was indicated by all macrobenthos criteria.

Previous sampling in the subbasin was conducted on the Mad River in August, 1976, at a station located near West Liberty in Logan County (RM 54.9). Forty taxa with a diversity index of 2.92 were collected (Ohio EPA, 1980, RD 3-12). The benthic community was represented by 6 taxa of mayflies, 7 taxa of caddisflies, and 12 taxa of midges. The overall community appeared healthy and diverse and indicated Class II (Good) water quality.

A biological and water quality survey of the Mad River is planned for 1984 and a draft report should be available in 1985.

SEGMENT REPORTS

MAD RIVER MAINSTEM

Segment Problem	Name Description	Use Designation Mile Points
05080001-011,-009, -008,-007,-006 GOOD*	Mad River from the headwaters to the confluence of Buck Creek	CWH 60.2-25.5

Data from this segment indicated one WQS violation for total lead and total iron, and a small number of fecal coliform bacterial violations (OEPA, SWDO data). The total lead violation exceeded the water quality standard by only 1 ug/l. Nutrient levels in this segment are generally low, with phosphorus removal by the Urbana WWTP (RM 38.3) possibly contributing the the low levels. Monthly operating reports submitted to the OEPA by the Urbana WWTP

have indicated that relatively high concentrations of metals (total cadmium, total chromium, total copper, total lead, total nickel and total zinc) have been present in the effluent discharged into the Mad River. The Mad River is a cold water habitat stream in this segment and it is not known what effect the effluent has on water quality.

Past heavy metals problems (total cadmium, total chromium, total copper, total lead, total nickel and total zinc) in Dugan's Run at RM 0.4 were relieved by the recent connection of the ITE Imperial Company (Gould Inc.) to the Urbana WWTP in Janurary of 1979.

The city of West Liberty's WWTP (RM 55.1) continued to discharge lime sludge to the Mad River. This discharge has resulted in several citizen complaints regarding the deposition of lime sludge in the stream bed. Although the discharge and presence of this sludge in the stream is aesthetically unpleasing and is a violation of the facilities permit and water quality standards, it seems to have no readily apparent toxic effects. The stream bed is severely affected for a distance of about 15-100 meters and slight lime deposits are noticeable as far as one mile downstream from the outfall at RM 50.3.

NETTLE CREEK
TRIBUTARY TO MAD RIVER
CONFLUENCE AT RM 37.1

Segment Problem	Name Description	Use Desingation Mile Points
05080001-015 GOOD*	Nettle Creek from headwaters to just downstream of St. Paris tributary confluence	WWH 11.5-8.2
N/A FAIR*	St. Paris tributary from St. Paris WWTP to Heck Hill Road near confluence with Nettle Creek.	WWH 3.0-0.4

Biological and Water Quality Survey

The results of chemical/physical and biological sampling (July 28 to Oct. 6, 1981) indicated an impact from the St. Paris WWTP particularly in the St. Paris Tributary, with some effect on Nettle Creek. Increases in conductivity, BOD_5, COD, nitrate-N, ammonia-N, and phosphorus, along with decreased dissolved oxygen concentrations in the St. Paris Tributary were indicative of organic loading from the WWTP. Slightly elevated levels of nitrate-N and phosphorus were indicative of enrichment in Nettle Creek. Concentrations of ammonia-N and nitrate-N sampled on October 6 indicated a significantly greater loading from the St. Paris WWTP during this period of elevated flow.

Benthic macroinvertebrates indicated severe degradation one mile downstream from the WWTP in the St. Paris Tributary, with substantial but incomplete recovery 2.2 miles downstream. Macroinvertebrate populations in Nettle Creek 3.2 miles downstream from the WWTP were characterized by a larger number of taxa than upstream with a large number of sensitive, coldwater caddisflies;

however, some effects from organic enrichment were still evident. In Nettle Creek 3.1 miles downstream from the confluence of the St. Paris Tributary, the invertebrates evidenced the highest diversity of any station in the study area and reflected good water quality. At the station 3.2 miles further downstream, there was a slight decline in water quality as evidenced by a small reduction in the number of taxa, apparently in response to localized agricultural runoff.

In contrast to the severe degradation evidenced in the macroinvertebrate faunas immediately downstream from the St. Paris WWTP, the fish faunas evidenced only minimal degradation in the St. Paris Tributary. The fish faunas at the two stations in this tributary were typical headwater assocations showing no apparent acute impacts from the WWTP. The difference from the inability of macroinvertebrates to recover as quickly from heavier loadings during periods of bypassing at the St. paris WWTP. The fish faunas in Nettle Creek showed little evidence of impact from the WWTP, and were characterized by a number of species requiring a permanent supply of cool, clear water.

Some effects from agricultural runoff were evident at various stations in the survey, however these influences had little apparent impact on the biological communities in Nettle Creek, and appeared minor in comparison to the WWTP impact in the St. Paris Tributary. Thus, decreased loadings from the St. Paris WWTP (particularly through elimination of apparent heavy loading in response to periods of rainfall) should have a major positive impact on macroinvertebrates and fish in the St. Paris Tributary, and some improvements should be realized in Nettle Creek through reductions in nutrient (nitrogen compounds and phosphorus) loadings. Further, reduced loadings should eliminate potential problems associated with algal growths and consequent diurnal fluctuations in dissolved oxygen concentrations.

BUCK CREEK
MAD RIVER TRIBUTARY
CONFLUENCE AT RM 25.5

Segment Problem	Name Description	Use Desingation Mile Points
05080001-003 FAIR	Buck Creek from the Beaver Creek confluence to the Mad River	WWH 6.0-0.0

During the 1979 and 1980 water years, seven WQS violations occurred in this segment . Four violations were for excessive levels of fecal coliforms, two for total iron, and one for a slightly high total lead concentration (OEPA, SWDO data, 1978-1980). The high fecal coliform levels were probably caused by nonpoint sources and by combined sewer overflows in this area. The total iron standard violations probably resulted from natural background (i.e., groundwater infiltration) and nonpoint sources. The single total lead violation was only 1 ug/l higher than the WWH standard.

Since existing data are not sufficient to adequately assess the impact of the Urbana WWTP effluent on this segment of the Mad River, this would be a important location to perform a biological and water quality survey in the near future.

REFERENCES

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Ohio Environmental Protection Agency. 1982. Comprehensive Water Quality Report for Nettle Creek, Mad River basin, Champaign County, Ohio (Draft). Ohio EPA, Columbus, Ohio.

GREAT MIAMI RIVER BASIN

MIDDLE GREAT MIAMI RIVER SUBBASIN
AND LOWER MAD RIVER SUBBASIN (H-4, H-5)

SUBBASIN SUMMARY

There was one monthly ambient monitoring station on the Great Miami River in this segment located just below Taylorsville Dam (STORET Station No. 610050; RM 90.7).

Water quality in the Mad River below Springfield (RM 25.4 to 0.0) began to deteriorate due to numerous industrial and municipal point sources, combined sewer overflows, and urban runoff. Monthly monitoring reports from the Springfield WWTP (RM 24.7) showed frequent WQS violations for fecal coliform bacteria at the confluence of the Mad River and Buck Creek (RM 25.4) and downstream from the Springfield WWTP at Old Mill Road (RM 23.1). The reports also showed several ammonia violations at the same monitoring locations on the Mad River. Combined sewer overflows and municipal point source discharges were the most likely causes of the WQS violations. Pollution loadings in some of the lower Mad River tributaries will be reduced by the Southwest Regional Clark County WWTP (RM 12.9) which is expected to begin operation in Janurary of 1982. This project will eliminate many smaller plants (Park Layne, Green Meadows No. 1 and No. 2) which are currently overloaded.

Biological Evaluations

Previous fixed station monitoring in the subbasin consisted of three sets of benthic samples collected from two locations. The samples were collected between August, 1974, and August, 1977, from the Mad River and a tributary, Mud Creek.

The Mad River was sampled in August, 1977, and October, 1976, at a station located near Dayton in Greene County (RM 9.9). Thirty-one taxa were collected in 1977 with a diversity index of 3.48, and 20 taxa were collected in 1976 with a diversity index of 2.95 (Ohio EPA, 1980, RD 3-12 and RD 3-13). In 1977, the benthic community was composed of seven taxa of mayflies and caddisflies and ten taxa of midges. An evaluation of Class II (Good) water quality was made based on all macrobenthos criteria. In 1976, the benthic community was composed of six taxa of mayflies and caddisflies and eight taxa of midges. An evaluation of Class III (Fair) water quality was based primarily on the low number of taxa. The increase in the number of taxa collected and the overall healthy and diverse appearance of the community in 1977 seemed to indicate that an improvement in water quality had occurred.

Mud Creek was sampled in August, 1974, at a station located near I-70 in Montgomery County (RM 1.4). The sample consisted of 23 taxa with a diversity index of 2.49 (Ohio EPA, 1980, RD 3-14). Five taxa of mayflies and caddisflies were collected, but oligochaetes and 12 taxa of midges dominated the sample numerically, accounting for 96 percent of the individuals collected. An evaluatin of Class III (Fair) water quality was indicated based on all macrobenthic criteria.

GREAT MIAMI RIVER MAINSTEM

Segment Problem	Name Description	Use Designation Mile Points
05080001-025,-023,-019 GOOD*	Great Miami River from Taylorsville Dam to the Ohio Suburban WWTP	WWH 92.5-86.0

Results from monthly ambient water quality monitoring data (OEPA, SWDO data 1978-1980) and the Great Miami River Intensive Survey (OEPA, data 1980) showed total iron concentrations frequently exceed Warmwater Habitat (WWH) standards in this segment. The source of this metal is probably natural background and nonpoint source pollution. Fecal coliform standard violations will continue to occur in this segment due to the proximity of the Vandalia WWTP (RM 92.4). Plans are currently being developed to abandon this plant by tying into the proposed Miami Conservency District North Regional WWTP (RM 85.3). This project will also include diversion of the sewage from Huber Heights and Tipp City. Completion will not occur before 1983.

MAD RIVER
GREAT MIAMI RIVER TRIBUTARY
CONFLUENCE AT RM 80.6

Segment Problem	Name Description	Use Designation Mile Points
05080001-001 FAIR	Mad River from the Fairborn WWTP to Eastwood Park	WWH 9.0-0.0

The area drained by this segment consists of agricultural, residential and military land usage. A large portion of the the watershed of the Mad River is occupied by the Wright Patterson Air Force Base. Nonpoint source pollution such as urban runoff, natural background levels, and the point source of the Fairborn WWTP (RM 9.2) were the main contributing factors in numerous violations of the warmwater habitat standards for total iron and fecal coliform bacteria. Monitoring station on this segment was just downstream from the Huffman Dam (RM 5.8) at S.R. 444 (Storet Station No. 600190). No improvements in water quality were expected prior to 1983.

A biological and water quality survey is planned for 1984 and a draft report should be available in 1985.

BEAR CREEK
TRIBUTARY TO GREAT MIAMI
CONFLUENCE AT RM 67.6

Segment Problem	Name Description	Use Designation Mile Points
05080002-014 FAIR*	Bear Creek from downstream of New Lebanon WWTP to upstream of confluence with Little Bear Creek	WWH 10.8-5.5

Biological and Water Quality Survey

The results of water quality and biological sampling from July-October 1981 showed a measurable impact of the New Lebanon WWTP on Bear Creek. Water chemistry parameters and biota upstream from the WWTP effluent were indicative of good water quality. Significant degradation was evident in the macroinvertebrate fauna, the fish fauna, and the chemical water quality at stations located 0.6 and 1.9 miles downstream from WWTP. Frequent violations of water quality standards for dissolved oxygen, ammonia-N, and fecal coliform bacteria were noted at these two stations. At stations located 3.3 miles and further downstream from the WWTP, recovery from the impacts appeared complete; good chemical water quality and diverse biotic communities were again evident. Although recovery from the organic waste load was apparent a relatively short distance downstream, phosphorus and nitrogen compound concentrations, abundance of the herbivorous central stoneroller, and particularly the dense algal growths indicated continued nutrient enrichment at stations further downstream. Violations of WQS for iron and fecal coliforms on August 6 (immediately following a significant rainfall) at stations both upstream and downstream from the WWTP were indicative of non-point source runoff. However, the presence of healthly invertebrate and fish faunas in these areas suggests the occurrence of such violations has minimal impact of the aquatic biota. Thus, the New Lebanon WWTP is apparently the only significant cause of biological degradation in Bear Creek.

Reduced loadings of BOD and ammonia from an upgraded facility at New Lebanon should result in improved condition for aquatic life immediately downstream, and improvements further downstream may be realized through corresponding reductions in nutrient loadings. Improvements in water quality are likely to benefit sport fish populations (particularly smallmouth bass) as well as enhance the value of Bear Creek as a reservoir of species for the recovery of a degraded section of the Great Miami River.

REFERENCES

Ohio Environmental Protection Agency. 1978-1980 (unpublished). Data available from Southwest District Office, Ohio EPA, Dayton, Ohio.

Ohio Environmental Protection Agency. 1980 (unpublished). Ohio Biennial Water Quality Report - 305(b). Reference Document 3. Biological Tables.

Ohio Environmental Protection Agency. 1982. Comprehensive Water Quality Report for Bear Creek, middle portion of the Miami River Basin, Montgomery County, Ohio. Ohio EPA, Columbus, Ohio.

GREAT MIAMI RIVER BASIN

STILLWATER RIVER SUBBASIN (H-6, H-7)

SUBBASIN SUMMARY

The Stillwater River Subbasin was monitored at two sampling stations. One station was a quarterly site on Greenville Creek near Covington (RM 1.5; STORET Station No. 600060), and the other, a monthly ambient monitoring site located on the Stillwater River at Englewood Dam (RM 8.9; STORET Station No. 600110) (sampling began in October, 1978). Overall physical/chemical water quality in the Stillwater River upstream from Dayton was relatively good with a few water quality violations resulting from natural background, nonpoint sources and municipal wastewater discharges.

Biological Evaluations

Previous fixed station monitoring in the subbasin consisted of two sets of benthic samples collected in July, 1977, and September, 1976, from one station on the Stillwater River at Dayton in Montgomery County (RM 1.9). Twenty-three taxa with a diversity index of 3.27 were collected in 1977, and 29 taxa with a diversity index of 3.33 were collected in 1976 (RD 3-15 and 3-16). Both samples consisted of thriving communities of mayflies, caddisflies, and midges with no one predominant group. Evaluations of Class II (Good) water quality were given to each sample based on the benthic composition and diversity index. However, the low number of taxa collected in 1977 made a Class II evaluation marginal and indicated the possibility of some degradation occurring.

SEGMENT REPORTS

STILLWATER RIVER
GREAT MIAMI RIVER TRIBUTARY
CONFLUENCE AT RM

Segment Problem	Name Description	Use Designation Mile Points
05080001-048 FAIR*	Stillwater River from Ansonia WWTP to downstream Ansonia WWTP	WWH 58.0-57.0

This segment exhibited elevated concentrations of ammonia-N and declines in dissolved oxygen indicating impacts on water quality attributed to CSO's downstream from Ansonia. However little biological degradation was documented.

Segment Problem	Name Description	Use Designation Mile Points
05080001-046,-045, -043,-042,-041, -040,-039 GOOD*	Stillwater River from downstream of Ansonia WWTP to Great Miami River	WWH 56.9-0.0

In general, this segment had good to borderline excellent water quality and biological conditions, although a few declines in water quality and biological diversity from organic enrichment were noted. Areas of organic enrichment included downstream of the Versailles WWTP and the West Milton WWTP.

Biological and Water Quality Survey

Overall the Stillwater River was characterized by good water quality throughout the majority of the mainstem. The most severely degraded water quality was evidenced downstream from Ansonia, apparently in response to CSOs between RM 57.0 and 58.0. Elevated concentrations of ammonia-N and particularly declines in D.O. concentrations were indicative of impacts on water quality; however, little biological degradation was documented. Indications of organic enrichment were documented on several areas, particularly downstream from the Versailles WWTP (as evidenced by total phosphorus concentrations) and the West Milton WWTP; but the D.O. regime was not severely impacted by this enrichment.

Macroinvertebrate populations were also generally indicative of good water quality throughout the mainstem. The impacts of organic enrichment were identified in several segments (particularly through increased density of organisms). Further, BOD_5 concentrations (both mean and maximum) were positively correlated with invertebrate density; this relationship was a potential indicator of increased population density as a result of increased food supply. The increase in phytoplanktonic algal abundance (as inferred from increased density of macroinvertebrates) may have been partially responsible for the higher BOD_5 measurements. The overall results were indicative of minor enrichment, sufficient to increase food supply but not of necessary magnitude to result in acute impacts (particularly through negative influence on the D.O. regime in the stream).

The fish community exhibited moderate declines in diversity at several locations in the stream, however most of the obvious declines were in response to factors other than adverse water quality in response to known point source inputs. The decline at RM 53.7 was largely attributed to inefficiency in field equipment (due to increased stream depth), and the prominent declines at RM 31.5 and 20.2 were in response to decreased habitat diversity and suitability in dam pools. The decline documented at RM 43.4 was in an area subjected to frequent fish kills, apparently in response to runoff from a landfill (to a tributary immediately upstream). The decline at RM 12.1 (and surrounding stations) was the only major decline attributed to influence from a point source discharger (the West Milton WWTP). The overall condition of the fish community in the Stillwater River (excepting the declines discussed above) was good to exceptional.

GREENVILLE CREEK
STILLWATER RIVER TRIBUTARY
CONFLUENCE AT RM 32.2

Segment Problem	Name Description	Use Designation Mile Points
05080001-051 GOOD	Greenville Creek from Gettysburg to the Stillwater River	WWH 10.0-0.0

The area drained by this segment is primarily agricultural and physical/chemical water quality was generally good. Water quality data from the quarterly monitoring site, on Greenville Creek near Covington, showed one WQS violation for total lead. The violation was only 2 ug/l over the warmwater habitat standard and, therefore, was not considered to be a significant problem. WQS violations for total iron and fecal coliform bacteria were also recorded in this stream segment during the reporting period. The source of the pollutants is not known, but is thought to be the result of natural background levels or nonpoint sources. This segment is not expected to meet the 1983 goals due to the nonpoint source problems.

BRUSH CREEK
LUDLOW CREEK TRIBUTARY
CONFLUENCE AT RM 2.5

Segment Problem	Name Description	Use designation Mile Points
N/A FAIR	Brush Creek from the headwaters to Ludlow Creek	WWH 8.0-0.0

Water quality in Brush Creek has been severely degraded as a result of the discharge from the K&S Circuits Plant (RM 7.3, S.R. 49) in Phillipsburg. Total copper concentrations as high as 125,000 ug/l (monthly operation reports) have been discharged to Brush Creek via a storm sewer. A low level survey conducted by the Ohio EPA in the spring and summer of 1979 indicated obvious signs of biological damage and sediment contamination for at least 5.0 miles downstream (OEPA, SWDO data, 1979). Litigation against K&S Circuits is still in progress. Occasional discharges from the plant are still being detected, and little improvement has occurred. Significant improvements in water quality are not expected until this discharge is completely eliminated.

Biological and Water Quality Survey

A special study of Brush Creek was conducted from May-July 1979, to determine the impact of K&S Circuits, the only industrial discharger to the brush Creek subbasin. Thirteen species were collected at all sampling locations combined. The fish community was observed to change longitudinally (upstream and downstream). Community diversity in terms of number of species showed a general overall increase from station 1 (SR 49 upstream of K&S Circuits storm sewer discharge) to station 4 (Shiloh Road 5.0 miles downstream from storm sewer). However, a slight reduction in diversity was observed between stations 1 and 2 (storm sewer at SR 49). Relative numbers tended to show a similar pattern of reduction. Species composition changes were predominantly through species additions rather than species replacements.

The benthic data generated from Brush Creek clearly demonstrate that the discharge of K&S Circuits has a marked deleterious effect on the benthic biota (Ohio EPA, 1982).

In addition to the problems caused by the K&S Circuits discharge, septic tank discharge and other nonpoint source pollution problems degrade water quality in this segment significantly enough to prevent attainment of the 1983 goals.

REFERENCES

Ohio Environmental Protection Agency. 1978-1980 (unpublished). Data available from Southwest District Office, Ohio EPA, Dayton, Ohio.

Ohio Environmenmtal Portection Agency. 1979. Water Quality Survey Report: An Evaluation of K&S Circuits Effluent and its Impact on Brush Creek. Ohio EPA, Division of Wastewater Pollution Control, Surveillance and Water Quality Standards Group.

GREAT MIAMI RIVER BASIN

TWIN CREEK SUBBASIN (H-8)

SUBBASIN SUMMARY

Physical/chemical water quality in the Twin Creek Subbasin was generally good, and the 1983 goals are expected to be met. However, heavy metal (total zinc and iron) pollution of undetermined origin will keep this stream from attaining Exceptional Warmwater Habitat (EWH) standards. Fecal coliform bacteria and phenolics violations were also noted in this subbasin. This subbasin is still largely rural, with agricultural runoff being a major source of nutrients. Point sources consist of small, secondary sewage treatment, plants such as Lewisburg WWTP (RM 32.4), West Alexandria WWTP (RM 24.6), and and Gratis WWTP (RM 17.7). There are no known point source dischargers of heavy metals.

SEGMENT REPORTS

TWIN CREEK
GREAT MIAMI RIVER TRIBUTARY
CONFLUENCE AT RM 56.5

Segment Problem	Name Description	Use Designation Mile Points
05080002-019,-017, -015 GOOD	Twin Creek from the Bantas Fork confluence to the Great Miami River	EWH 22.3-0.0

In August, 1977, the Germantown WWTP (RM 6.2) was abandoned and sewage was diverted to the Franklin WWTP (Great Miami River; RM 58.5). The water quality for Twin Creek at Dayton-Oxford Road (RM 0.8) improved after this date. However, there have been EWH standards violations for metals (total iron and total zinc) and for phenolics (OEPA, SWDO data, 1978-1980). Fecal coliform bacteria and total iron WQS violations most likely result from nonpoint sources.

Twin Creek, from Bantas Fork (RM 22.3) to the mouth, is not expected meet EWH standards because of continued total zinc violations. However, Twin Creek should meet the 1983 goals.

Biological and Water Quality Survey

A biological and water quality survey was conducted from July to September, 1983 on a 16.3 mile segment of Twin Creek. The survey was conducted to access the relative impact of the Lewisburg WWTP (RM 35.2) on Twin Creek.

Water quality was good both upstream and downstream of the Lewisburg WWTP with no water quality standards violations reported. There were no appreciable differences in water quality between sites immediately upstream and downstream of the WWTP.

There was no biological evidence of a severe water quality problem downstream from the WWTP. Mild enrichment was indicated by filamentous algal grows on instream rocks and in dense mats along the stream margins. The macroinvertebrate community was representative of good water quality and the fish communities indicated exceptional water quality throughout (Ohio EPA 1983).

REFERENCES

Ohio Environmental Protection Agency. 1977-1980 (unpublished). Data available from Southwest District Office, Ohio EPA, Dayton, Ohio.

Ohio Environmental Protection Agency. 1983. Comprehensive water quality report for Twin Creek, Great Miami River basin, Preble County, Ohio. Ohio EPA, Columbus, Ohio.

GREAT MIAMI RIVER BASIN (LOWER PART OF MIDDLE PORTION) (H-9)

SUBBASIN SUMMARY

An intensive physical, chemical, and biological survey of the Great Miami River from the Taylorsville Dam (RM 92.6) to the mouth (RM 0.0) was conducted during June - October, 1980. A comprehensive water quailty report (CWQR), which includes the results of the 1980 survey, wasteload allocation, and recommendations for water quality standards and NPDES permits was completed in 1982. Overall chemical/physical water quality in this part of the Great Miami River ranges from fair to poor. Water quality is fair upstream from the Dayton WWTP (RM 75.2), with occasional WQS violations resulting from the Ohio Suburban WWTP (RM 86.2) and urban runoff via the Dayton storm sewer system (RM 76.0 to RM 84.0). There are numerous municipal and industrial (paper, steel, manfacturing, RTC) discharges downstream from the Dayton WWTP. These discharges result in the most severe water quality degradation of any segment in the entire Great Miami Basin. Most of the degradation can be attributed to the Dayton WWTP (RM 75.2) which accounts for the majority of BOD_5 and ammonia loadings in the basin. The Dicks Creek (RM 47.6) is severely degraded as a result of persistent (zinc and cadmium) and non-persistent (ammonia, phenolics, cyanide) toxic substances discharged from the Armco-Middletown Steel Works (RM 3.0 to RM 5.0).

Biological Evaluations

Recent biological monitoring in the subbasin consisted of one fixed station benthic sample (NASQAN) collected in November, 1979, from the Great Miami River at Dayton in Montgomery County (RM 87.1). The sample consisted of 22 taxa with a diversity index of 1.97 (RD 3). Six taxa of mayflies, one stonefly taxon, and three taxa of caddisflies were collected. The sample was dominated by ten taxa of midges comprising 75 percent of the sample by numbers. Oligochaetes were also present in moderately high numbers at the site indicating that some organic enrichment was occurring. An evaluation of Class III (Fair) water quality was given based on the number of taxa, the diversity index, and, to some extent, the benthic composition. The November collection of the sample may have accounted for the presence of the more pollution sensitive taxa not expected to be found at a site dominated by midges and oligochaetes. Not enough is known about the potential effect of seasonal variation on the benthic community and, subsequently, the validity of the values of the criteria used to make the evaluation.

Previous sampling at this location was conducted in October, 1978; July, 1977; and September, 1976 (Ohio EPA, 1980, RD 3-4, 3-5, and 3-6). Evaluations of Class III (Fair) water quality were indicated for all years by the benthic composition, the number of taxa, and the diversity index. The station continued to be influenced by inflows of organic matter as reflected by the large numbers of midges and oligochaetes and occasional large numbers of hydropsychid caddisflies (particularly in 1976). Data from all three years were quite similar to the current 1979 data indicating little or no improvement in water quality.

A fixed station located on the Great Miami River at Miamisburg in Montgomery County (RM 67.7) was also sampled previously in the subbasin. Three sets of benthic data were collected, including a west bank station in July, 1977, and an east bank and west bank station in September, 1976 (Ohio EPA, 1980, RD 3-7 and 3-8). Evaluations of Class IV (Poor) water quality were indicated by each set of data. The benthic communities were characterized by low numbers of taxa, low diversity indices, and poor compositions, being dominated by midges and oligochaetes.

Dick's Creek, a tributary to the Great Miami River, was sampled at three stations near Middletown in August, 1975 and 1974, to determine the impact of five Armco Steel Corporation discharges. In 1974, these stations were located at river miles 5.0, 3.9, and 2.4. In 1975, the station at river mile 2.4 was replaced by a station at river mile 0.9. The five Armco Steel discharges were located at river miles 4.8, 3.9, 3.5, 2.7, and 2.5. A summary of the data can be found in Tables II-28 and II-29. The tabulated data can be found in RD 3-2 and RD 3-3 (Ohio EPA, 1980).

In 1974, sampling at the station at river mile 5.0 produced only 17 taxa and a low diversity index (1.94). The sample was devoid of pollution sensitive organisms which demonstrated that the water quality was Class IV (Poor). In 1975, this same station exhibited Class III (Fair) water quality, as determined by the presence of six taxa of mayflies and caddisflies, a diversity index of 3.21, and a total of 21 taxa. In both 1974 and 1975, the water quality at river mile 3.9 was found to be severely degraded. The numbers of taxa for 1974 and 1975 were six and two, respectively, and the diversity index for 1975 was 0.009, one of the lowest ever encountered by this work unit. In 1974, there was an inadequate number of individuals to calculate the diversity index. The 1974 station at river mile 2.4 and the 1975 station at river mile 0.9 showed similar results in diversity (0.37 and 0.36) and number of taxa (7 and 4). Both stations reflected Class IV (Poor) water quality.

The water quality of Dick's Creek, as determined by the benthic biota, was fair to poor above Armco Steel Corporation. However, the water quality underwent further degradation below the Armco discharges.

Water quality improvements should result from the addition of a clarifier and filtration unit on the 001 outfall of Armco-Middletown Works (RM 50.6) and the addition of a trickling filter to Crystal Tissue's wastewater treatment system (RM 47.0). However, the Miller Brewing Company is constructing a brewery which will discharge at river mile 42.6. The additional organic loading from this discharge may result in more frequent dissolved oxygen violations.

Parameters that will continue to violate WQS include dissolved oxygen, fecal coliforms, phenolics, total iron and total lead.

Table II-28. Summary of Benthic Data Collected from Dick's Creek Relative to the Armco Steel Corporation Discharges, August, 1975[a].

	Station (RM) 5.0	3.9	0.9
Number of Samplers	5	5	5
Quantitative Taxa	21	2	4
Qualitative Taxa	9	2	3
Organisms/Ft^2	111	34	68
Index ($\overline{d}$)	3.21	0.009	0.36
Evaluation (Class)	III	IV	IV

(a) The Armco Steel discharges are located at RM's 4.8, 3.9, 3.5, 2.7, and 2.5.

Table II-29. Summary of Benthic Data Collected from Dick's Creek Relative to the Armco Steel Corporation Discharges, August, 1974[a].

	Station (RM) 5.0	3.9	2.4
Number of Samplers	5	4	5
Quantitative Taxa	17	6	7
Qualitative Taxa	6	0	0
Organisms/Ft^2	65	3	59
Index ($\overline{d}$)	1.94	(b)	0.37
Evaluation (Class)	IV	IV	IV

(a) The Armco Steel discharges are located at RM's 4.8, 3.9, 3.5, 2.7, and 2.5.
(b) Inadequate number of individuals to calculate d.

GREAT MIAMI RIVER MAINSTEM

Segment Problem	Name Description	Mile Points
05080001-019,-018 FAIR*	Great Miami River from the Ohio Suburban WWTP to the Dayton WWTP	WWH 85.9 - 76.0

The areas drained by this segment are both rural and urban. The physical/chemical water quality in this segment was fair, with the main water quality problem resulting from the Ohio Suburban WWTP (RM 86.2). Urban runoff from the Dayton storm sewer network may also have been a substantial problem. WQS violations were noted for ammonia-N, fecal coliforms, and phenolics, iron, copper, lead, and zinc (OEPA, SWDO data, 1979-1980). Data from the U.S. Geological Survey (USGS continuous monitor in Dayton at RM 78.0) indicated that daily minimum dissolved oxygen concentrations were below the 5.0 mg/l 10% of the days the third quarter 1979 and 0% of the days during the same period of 1980 (USGS, 1979, 1980).

The Miami Conservancy District's North Regional WWTP (RM 86.2) is planned to replace the Ohio Suburban WWTP (RM 86.2) as well as the Vandalia (RM 92.4) and Tipp City WWTP's (RM 96.5)) which should result in reduced organic loadings. This project is entering Step II in the construcion grant process and is not expected to be completed until after 1982. Therefore, this segment will not meet 1983 goals.

Segment Problem	Name Description	Miles Points
0508001-010,-009 POOR*	Great Miami River from the Dayton WWTP to Franklin	76.0 - 60.0

Land-use within this segment is predominately urban. Water quality was severely degraded as a result of numerous municipal and industrial dischargers. Major municipal dischargers include the Dayton WWTP (RM 75.2) Montgomery County Western Regional WWTP (RM 71.0), Moraine WWTP, West Carrollton WWTP (RM 67.7), and Miamisburg WWTP (RM 65.1). Major industrial dischargers include the Glatfelter Paper Company (RM 71.4), Miami Paper Company (RM 68.7), Dayton Power and Light - Tait Station (RM 76.6), and Dayton Power and Light - Hutchings Station (RM 63.5). The high density of dischargers in this segment resulted in the poorest water quality of any segment in the Great Miami Basin. The majority of this degradation can be attributed to the Dayton WWTP which discharges 66% of the BOD_5 and 73% of the ammonia loading between Dayton and the mouth (RM 91.0 to 0.0)(Dayton WWTP, monthly operating reports - third quarter, 1980) WQS violations were noted for ammonia, fecal coliforms, phenolics, total iron, total lead, and total copper (OEPA, SWDO data, 1979-1980). Data from the USGS continuous monitor at Miamisburg (STORET Station No. 03271510; RM 66.4) indicated a severe dissolved oxygen problem in the past. During summer months, the daily maximum recorded

D.O. value was frequently below 5.0 mg/l (USGS, 1977-1978). However, higher than normal flows during 1979-1980 reduced the number of violations to 5% of the days during the third quarter 1979, and 11% of the days for the same period in 1980.

Water quality improvements were expected to occur in this segment in September, 1979, with the opening of the Montgomery County Western Regional WWTP (RM 71.0). The Montgomery County Plant, which provides tertiary treatment, replaced the Moraine WWTP (RM 72.8) which was severely overloaded and in deteriorated condition. The Dayton WWTP (RM 75.2) has applied for a Step III Grant to upgrade their treatment works to improve the existing secondary facilities. These planned improvements will not be completed prior to 1983. The abandonment of the Moraine WWTP may have resulted in a slight improvement in physical/chemical water quality with fewer dissolved oxygen, ammonia, and fecal coliform bacteria violations.

However, the wastewater treatment improvements cited above are insufficient, with respect to meeting 1983 goals. Until the Dayton WWTP is upgraded, water qualty in this segment will remain severely degraded. Parameters that will continue to violate water quality standards as a result of point sources include; ammonia, dissolved oxygen, temperature, fecal coliforms, and phenolics. Total iron and total lead WQS violations will continue to occur as a result of nonpoint sources.

GREAT MIAMI RIVER MAINSTEM

Segment Problem	Name Description	Use Designation Mile Points
05080002-008,-007, -006,-005,-004 FAIR*	Great Miami River from Franklin to Hamilton	WWH 60.0-36.0

The area drained by this segment is both urban and rural. Major municipal dischargers include the Franklin Regional (RM 58.5), Middletown (RM 47.4), and LeSourdsville Regional (44.3) WWTP's. Major industrial dischargers include the Armco-Middletown Works (RM 50.6) and Crystal Tissue (RM 47.1). The Middletown WWTP contributes the majority of the loading of BOD_5, ammonia, and suspended solids. This discharge accounted for 12% of the BOD_5 loading for the entire survey area (Dayton to the mouth) during the third quarter in 1980. Data from the USGS continuous water quality monitor at Rockdale (RM 43.7) indicated that no dissolved oxygen violations (5mg/l) were noted during the third quarter of 1979 or 1980. This may be due to both improved water quality, and the above normal flows that occurred during the past two years.

DICKS CREEK
GREAT MIAMMI RIVER TRIBUTARY
CONFLUENCE AT RM 46.7

Segment Problem	Name Description	Use Designation Mile Points
N/A POOR*	Dicks Creek from the Armco Steel outfalls to the Great Miami River	WWH 6.0-0.0

This stream drains urban and rural areas surrounding the communities of Middletown and Monroe. Although the Monroe WWTP (RM 0.9 on Millers Creek) discharge results in localized degradation of Millers Creek (confluence at RM 4.1), the main water quality problem in Dicks Creek is due to the four outfalls from the Armco-Middletown Works (RM 5.0 to 3.0). These discharges resulted in WQS violations for total cyanide, phenolics, ammonia, total iron, total cadmium and total zinc (OEPA, SWDO data, 1977-1980).

Partial flow from the Monroe WWTP has been diverted to the LeSourdville Regional WWTP (RM 44.5), Final construction, eliminating all of the flow from the Monroe Plant should be completed in January, 1982. This is expected to eliminate localized degradation and reduce the number of point source related fecal coliform bacterial violations. Armco steel has upgrading wastewater treatment systems, as required in their compliance schedule. This should result in an overall improvement in water quality. However, spills in the coking area of the plant result in high levels of ammonia, phenolics and cyanide discharged at outfall 002 (cooling water outfall; RM 2.8). The combined effects of these point source discharges, nonpoint sources, and little natural dilution will prevent Dicks Creek from meeting 1983 goals. Ohio WQS for total cyanide, phenolics, ammonia, fecal coliforms, total iron and total zinc will continue to be exceeded.

Four MCD-USGS and one ORSANCO four-parameter (D.O., Temp, pH, Cond.) continuous water quality monitors are located within the biological and water quality survey study area. From upstream to downstream, these monitors are located: near Stewart Street in Dayton (RM 77.6); near Linden Avenue in Miamisburg (RM 67.0); near Rockdale north of Hamilton (RM 44.7); at New Baltimore south of Hamilton (RM 21.4), and at Lost Bridge near Elizabethtown (RM 5.6). Third quarter (July-September) dissolved oxygen, temperature, and flow data were analyzed for the past ten years to determine if water quality had changed. An attempt was made to determine if the improvements noted were due to actual improvements in wastewater treatment or to annual variations in the flow regime. The percentage of days that dissolved oxygen and temperature violations occurred (4.0 mg/l for dissolved oxygen and 31°C for temperature) was noted and recorded in Table II-30. These values are also displayed graphicaly with the mean third quarter flow for each station and year in figure 4. The results of the analyses from each monitoring station are summarized below.

Stewart Street in Dayton (RM 77.6) - This station is located upstream from the Dayton WWTP in a segment with few point source discharges. The graph comparing the number of temperature and dissolved oxygen violations to the mean third quarter flow (Fig. II-13) indicates that the number of violations are inversely related to the flow. The lowest mean flows in 1971 and 1977 coincide with the highest percent dissolved oxygen violations. The occurence of D.O. concentrations less than 4 mng/l in this segment are likely due to diel fluctuations caused by algal respriatin and photosynthesis. Algal densities would be expected to be highest during low flow years. This effect is present at all stations, but should be emphasized here because it is more attributable to background nonpoint enrichment rather than depletion by point source BOD loads. It appears that water quality has not changed in the past ten years.

Table II-30. Percent of days during July 1-September 30, 1971-1980, in which at least one hourly dissolved oxygen value was less than 4 mg/l at five continous monitors located along the lower mainstem Great Miami River.

	Stewart Str. (Dayton) - RM 78.1[a]		Linden Ave. (Miamisburg) - RM 67.0[a]		Rockdale - RM 44.7[b]		New Baltimore - RM 21.4[b]		Lost Bridge (Elizabethtown) - RM 5.6[c]	
	% Days D.O. 4 mg/l	Mean Flow (cfs)	% Days D.O. 4 mg/l	Mean Flow (cfs)	% Days D.O. 4 mg/l	Mean Flow (cfs)	% Days D.O. 4 mg/l	Mean Flow (cfs)	% Days D.O. 4 mg/l	Mean Flow (cfs)
1971	46	513	83	661	86	820	93	820	1	-
1972	16	1016	74	1159	86	1205	86	1205	9	-
1973	0	2623	9	2877	2	3611	34	3611	0	-
1974	3	872	48	1089	8	1626	34	1626	0	-
1975	0	1328	10	1549	23	1763	29	1763	0	-
1976	26	531	60	691	25	890	20	890	11	-
1977	74	322	80	485	29	644	67	644	8	-
1978	1	891	60	1092	8	1613	1	1613	0	--
1979	10	3533	5	4161	0	5128	2	5128	0	-
1980	0	1853	11	2291	0	3201	0	3201	2	-
	Mean flow vs % Days D.O. 4 mg/l, r = 0.525		Mean flow vs % Days D.O. 4 mg/l, r = 0.830**		Mean flow vs % Days D.O. 4 mg/l, r = 0.590*		Mean flow vs % Days D.O. 4 mg/l, r = 0.580*			

a - Monitor operated by Miami Conservancy District through June 30, 1977, and thereafter by the United States Geological Survey.
b - monitor operated by United States Geological Survey, 1971-1980.
c - monitor operated by Ohio River Valley Sanitation Commission.
d - flow data from gaging station located at RM 35.7 in Hamilton
* - P 0.10 (90% confidence), r 0.10(8) = 0.549
** - P 0.05 (95% confidence), r 0.05(8) = 0.632

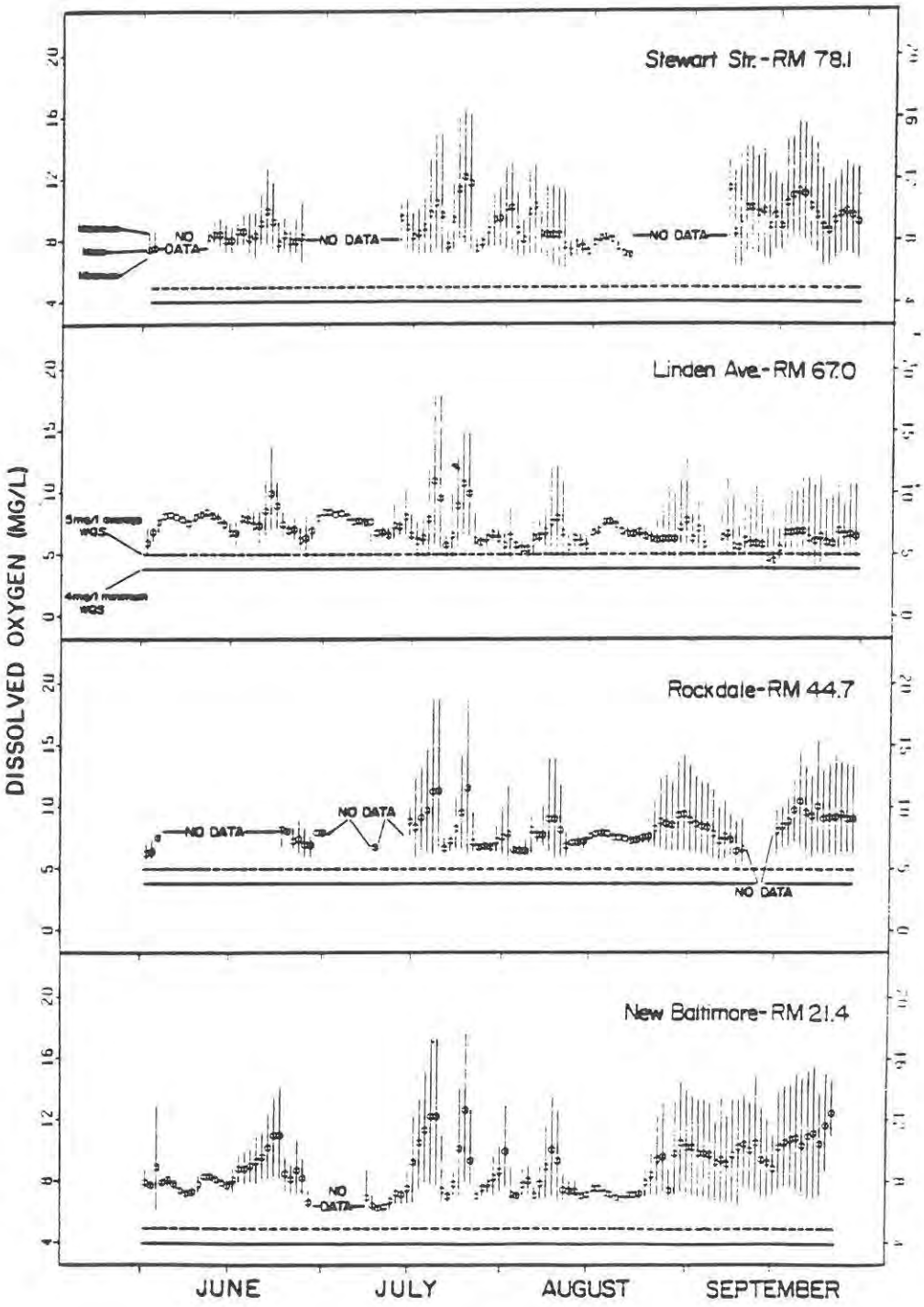

Figure II-13. Daily mean maximum, and minimum dissolved oxygen (mg/l) measured continuously at four locations in the lower mainstem Great Miami River during June 1 - September 30, 1980.

Linden Avenue in Miamisburg (RM 67.0) - This station is located downstream from Dayton where the the largest BOD_5 and ammonia loading of any segment in the study area occurred. Historically, this has been the most severely degraded area of the river. The number of dissolved oxygen violations (Fig. II-13) once again appears to be inversely related to the flow. These data, in addition to increases in pollutant loading from upstream, indicate that water quality in this part of the river has not changed in the past 10 years. Apparent improvements noted in 1979-80 were probably only due to increased flow, since total BOD load to river has actually increased during this period. When flows return to the low levels measured in 1971 and 1977, the frequency of violations is likely to reach 80-90%.

Rockdale Upstream from Hamilton (RM 44.7) - This station is located downstream fom the Middletown area. This segment receives the second largest BOD_5 load in the study area. The number of dissolved oxygen violations (Fig. II-13) again appears to be inversely related to the flow, although the 1977 low flow period resulted in only 27% violations, as compared to 86% in 1971-72. The BOD loading to this segment will be increasing in late 1981 with the opening of the Miller Brewery Plant at RM 43.5.

New Baltimore Downstream from Hamilton (RM 21.4) - This station is located downstream from the Hamilton area. The dissolved oxygen violations (Fig. II-13) appear to be inversely related to the mean third quarter flow. Although some data from this station appear to indicate water quality improvement, most of the improvement can be attributed to increases in flow. Because of reduced loading in this area, it will be an important area to study in future low flow years to determine if water quality has improved.

Lost Bridge (RM 5.6) - This station is located near the mouth of the Great Miami River, and is operated by the Ohio River Sanitation Commission (ORSANCO). Data from this monitor was limited in the number of days values were recorded. Few violations were noted.

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GREAT MIAMI RIVER BASIN

FOUR MILE CREEK SUBBASIN (H-10)

SUBBASIN SUMMARY

Physical/chemical water quality in this subbasin ranges from excellent to poor. An estimated 15.0 of the 21.4 stream miles evaluated in this subbasin are known to have major physical/chemical problems. Municipal wastewater treatment plants (WWTPs), package plants and agricultural runoff have major effects on water quality.

Biological Evaluations

Previous fixed station monitoring in the subbasin consisted of two sets of benthic samples collected in July, 1977, and August, 1975, from one station on Sevenmile Creek below Eaton in Preble County (RM 23.2). Eighteen taxa with a diversity index of 2.88 were collected in 1977, and 21 taxa with a diversity index of 3.48 were collected in 1975 (Ohio EPA, 1980 RD 3-17 and 3-18). Both samples were dominated by midge taxa with few or no taxa of mayflies and caddisflies present. Evaluations of Class III (Fair) water quality were given to each sample based on all macronvertebrate criteria. In 1977, the low number of taxa collected along with the lack of caddisfly taxa and poor representation of mayfly taxa indicated that the Class III evaluation was marginal.

SEGMENT REPORTS

FOUR MILE CREEK
GREAT MIAMI RIVER TRIBUTARY
CONFLUENCE AT RM 37.5

Segment Problem	Name Description	Use Designation Mile Points
05080002-031 GOOD*	Four Mile Creek from the Acton Lake Dam to the Oxford WWTP	WWH 19.8-15.0

The Ohio EPA does not routinely monitor water quality in the main stem of this segment. However, a stream survey was conducted during the summer of 1981.

The Square "D" company discharge (RM 1.8) containing chromium, copper, zinc and cyanide plating waste resulted in localized degradation of Elams Run, which is a tributary to Four Mile Creek at RM 18.8. Improved treatment of this waste has improved the water quality in Elams Run. This discharge does not appear to affect Four Mile Creek (OEPA, SWDO data, 1980).

Agricultural runoff contributes to moderate nutrient levels in this segment. Water quality may be degraded during low flow periods, because the Acton Lake Dam (RM 21.4) retains flow that would provide natural dilution.

FOUR MILE CREEK
GREAT MIAMI RIVER TRIBUTARY
CONFLUENCE AT RM 37.5

Segment Problem	Name Description	Use Designation Mile Points
05080002-031 FAIR*	Four Mile Creek the Oxford WWTP to downstream from the Oxford WWTP	WWH 15.0-13.0
05080002-031 GOOD*	Four Mile Creek downstream from Oxford to the Great Miami River	WWH 13.0-0.0

Physical/chemical water quality in this segment is generally good, however, localized problems in Oxford (RM 16.3) and New Miami (RM 0.5-0.0) will keep this segment from attaining 1983 goals. Water quality data for Four Mile Creek at Jacksonburg Road (RM 0.4; STORET Station NO. 600260) indicated WQS violations for fecal coliforms, total iron, and total lead (OEPA, SWDO data, 1977-1980). The Cherokee Park WWTP (RM 0.5) in New Miami was the probable source of the fecal coliform bacterial violations. Upgrading of this plant will not occur before 1983.

The metals violations (total iron and total lead) were thoughht to be the result of nonpoint sources, as there are no known industrial dischargers of these parameters in this subbasin.

Water quality data for the upper portion of this segment are lacking, but problems occur as a result of the Oxford WWTP. During low flow periods, the WWTP discharge can result in depressed levels of dissolved oxygen and high concentrations of ammonia in Four Mile Creek. Upgrading of this plant will not occur before 1983.

This segment is not expected to meet the 1983 goals because of fecal coliform total lead, total iron and ammonia violations.

Biological and Water Quality Survey

The results of chemical/physical and biological sampling in Four Mile Creek from June-October 1981 clearly illustrated the impact of the Oxford wastewater treatment plant (WWTP). A distinct zonation was evident in Four Mile Creek with a clean water zone upstream from Oxford, a zone of degradation extending approximately 2-3 miles downstream from the WWTP, and zones of recovery and clean water further downstream.

Although the macroinvertebrate fauna at several upstream stations was indicative of slight enrichment from the Acton Lake outfall, the high proportion of facultative species and overall diversity of macroinvertebrates and fish indicated to acute impact of Acton Lake on Four Mile Creek. In addition, there was no apparent impact of the Square "D" Company effluent, which enters Four Mile Creek via Elams Run.

The apparent impact of the Oxford WWTP on Four Mile Creek differed markedly between early periods and those later in the sampling schedule. Almost no decline in water quality and only a negligible decline in fish community diversity and abundance was evident downstream from the WWTP during the period from June through early August. In contrast, during the late August through October there was a district decline in water quality, with corresponding sharp declines in diversity of fish and macroinvertebrate faunas. The increased severity of the impact of the Oxford WWTP coincided with the return of students (in late August) to Miami University, and the corresponding increased load to the WWTP. During this latter period, increases in COD, BOD_5, suspended and dissolved solids, nitrogen compounds, and phosphorus were indicative of the impact of the Oxford WWTP on Four Mile Creek. Some recovery was evident in fish and macroinvertebrate fuanas at the sampling location 2.7 miles downstream; however, there were continued indications (in biota as well as chemical parameters) of nutrient enrichment, and the concentration of ammonia-nitrogen remained relatively high. Fish and macroinvertebrate faunas indicated substantial to complete recovery at sampling locations 5.3 miles and further downstream, and with the exception of slightly elevated nutrient (i.e. nitrogen and phosphorus) levels, chemical/physical parameters were also indicative of recovery from the WWTP effluent.

Currently biological degradation in Four Mile Creek exists for a relatively short distance and for only a few months of the year. However, at a 60% higher design flow, the pollutant loadings would be greater and biological degradation would extend farther downstream unless Advanced Treatment is installed. The continued presence of smallmouth bass as an important component of the Four Mile Creek fish community, and the continued role of Four Mile Mile Creek as an important refugia and repopulation epicenter for the Great Miami mainstem could be seriously threatened by any greater degree of degradation.

The diversity of the fish and macroinvertebrate faunas outside of the area impacted by the Oxford WWTP illustrated the potential of Four Mile Creek to support reproducing populations of warmwater fish and macroinvertebrates on an annual basis. The resiliency of the faunas in response to low water conditions upstream from Oxford, and the relatively rapid recovery of faunas with downstream distance from the WWTP effluent clearly indicated the potential for recovery in the absence of organic waste inputs. Expansion and upgrading of the Oxford WWTP should benefit the aquatic communities of Four Mile Creek by mitigating the existing degradation and preventing more extensive degradation in the future through reductions in loading of BOD_5, ammonia-nitrogen, suspended solids, other nitrogen compounds, and phosphorus. Further, improvements in downstream areas should be realized through reductions in nutrient concentrations (OEPA, 1982).

SEVEN MILE CREEK
FOUR MILE CREEK TRIBUTARY
CONFLUENCE AT RM 3.7

Segment Problem	Name Description	Use Designation Mile Points
05080002-027,-026 FAIR	Seven Mile Creek from the Eaton WWTP to the Beasley Run confluence	WWH 24.6-15.5

Physical/chemical water quality in this segment is poor due to ineffective sewage treatment at the Eaton WWTP (RM 24.0). A 1975 survey of Seven Mile Creek indicated that significant degradation occurred downstream from the Eaton WWTP discharge to S.R. 127 (RM 23.0) (OEPA, SWDO data, 1975). The survey results indicated WQS violations for fecal coliforms and ammonia. The city of Eaton (RM 25.4-24.4) has received a Step III Construction Grant for upgrading its WWTP to tertiary treatment (rapid sand filters and nitrification). This plant expansion and upgrading should be completed by early 1982. The improved wastewater treatment should result in the attainment of 1983 goals in this segment of Seven Mile Creek.

SEVEN MILE CREEK
FOUR MILE CREEK TRIBUTARY
CONFLUENCE AT RM 3.7

Segment Problem	Name Description	Use Designation Mile Points
05080002-025 GOOD*	Seven Mile Creek from the Big Cave Run confluence to Four Mile Creek	EWH 8.3-0.0

Physical/chemical water quality in this segment is generally good. Several isolated WQS violations of EWH for total cadmium, total lead, total cyanide, phenolics and fecal coliform bacteria have been recorded at Taylor School Road (RM 1.3; STORET Station No. 600340)(OEPA, SWDO data, 1978-1980). The total cadmium violation was 8 ug/l, a violation of EWH but not WWH standards. Most of this segment drains agricultural and rural areas, and these violations are most likely the result of nonpoint source pollution.

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Ohio Environmental Protection Agency. 1982. Comprehensive Water Quality Report for Four Mile Creek, Four Mile Creek basin, Butler County, Ohio (Draft). Ohio EPA, Columbus, Ohio.

GREAT MIAMI RIVER BASIN

LOWER GREAT MIAMI RIVER SUBBASIN (H-11)

SUBBASIN SUMMARY

A chemical/physical and biological survey of the Great Miami River from Dayton to the mouth (RM 92.0 to 0.0) was conducted during June - October 1980. A draft comprehensive water quality report (CWQR), which includes the results of the 1980 survey, waste load allocation, and recommendations for water quality standards and NPDES Permits was completed in 1982. Overall physical/chemical water quality in this portion of the Great Miami River Basin ranges from exceptional to poor. The water quality in the Great Miami River from Hamilton to the mouth is poor due to industrial, municipal and nonpoint source discharges. However, improvements in wastewater treatment at both industrial and municipal sources are resulting in an overall improvement in water quality. This improvement should continue with time. Physical/chemical water quality in the Indian Creek Subbasin and the Whitewater River is exceptional.

Biological Evaluations

Previous sampling in the subbasin consisted of two sets of benthic data collected from one NASQAN fixed station. The samples were collected in July, 1977, and September, 1976, from the Great Miami River at New Baltimore in Hamilton County (RM 22.1). Twenty taxa with a diversity index of 2.47 were collected in 1977, and 15 taxa with a diversity index of 2.51 were collected in 1976 (Ohio EPA, 1980 RD 3-9 and 3-10). Evaluations of Class III (Fair) water quality were made for each data set. The benthic community in 1976 consisted of abnormally large numbers of caddisflies and midges with three mayfly taxa present. The low number of taxa made the Class III evaluation marginal at best. In 1977, the community improved to some degree with a definite reduction in the density of the organisms and an increase in the number of taxa. However, since no mayfly taxa were present, the Class III evaluation was retained.

SEGMENT REPORT

GREAT MIAMI RIVER TRIBUTARY
CONFLUENCE AT RM 27.0

Segment Problem	Name Description	Use Designation Mile Points
05080002-034 EXCELLENT	Indian Creek from the Indiana/Ohio State Border to the Great Miami River	EWH 22.9-0.0

The area drained by this segment is mainly rural. Physical/chemical water quality in this subbasin over the past two years has been exceptional. Standards applied to this subbasin are more stringent than 1983 goals. During the past four years, the only violations of Exceptional Warmwater Habitat (EWH) water quality standards were for fecal coliform bacteria and phenolics (OEPA, SWDO data, 1977-1980). The source of these violations has not been determined. These minor violations do not interfere with 1983 goals.

A small number of minor, point sources discharge into Indian Creek. No improvements or changes are expected to occur before 1983.

WHITEWATER RIVER
GREAT MIAMI RIVER TRIBUTARY
CONFLUENCE AT RM 6.0

Segment Problem	Name Description	Use Designation Mile Points
05080003-003,-001 EXCELLENT	Whitewater River from the Indiana/Ohio state line to the Great Miami River	WWH 6.0-0.0

Physical/chemical water quality in this segment has been exceptional, with only three violation of water quality standards noted during the past two years (OEPA, SWDO data, 1978-1980). The violations were for fecal coliform bacteria (2) and total iron. The fecal coliform bacterial violations could be from the Harrison WWTP (8.0) or from nonpoint sources. The total iron violation is most likely the result of nonpoint source runoff.

EASTFORK WHITEWATER RIVER
TRIBUTARY TO WHITEWATER RIVER

Segment Problem	Name Description	Use Designation Mile Points
05080003-015 POOR*	East Fork Whitewater River from headwaters to upstream SR 121	WWH 52.8-43.9
05080003-014 GOOD*	East Fork Whitewater River from upstream SR 121 to downstream of New Paris WWTP	WWH 43.8-39.5

Biological and Water Quality Survey

Chemical/physical water quality and biological conditions in a twelve mile segment of the East Fork and the Welker Lateral were studied between July 6, 1982 and October 7, 1982. The primary objectives of the study were to evaluate the impact of septic tank discharges from the village of New Madison and the wastewater treatment plant at New Paris. Secondary objectives included assessing the impact of nonpoint pollution sources on biological conditions and chemical/physical water quality and evaluating the existing aquatic life stream uses of the East Fork.

Increased concentrations of BOD_5, ammonia-N and total phosphorus, and increased conductivity were indicative of the influence of storm sewer runoff from New Madison on chemical water quality in the East Fork Whitewater River. Diurnal dissolved oxygen measurements indicated a potential impact from nonpoint source runoff in Welker Lateral (upstream from New Madison); however, the low morning concentration may be primarily a function of natural instream

algal activity in this relatively small, low flow headwater segment. The dissolved oxygen regime indicated a continued influence of the runoff from New Madison along with the physical changes associated with channelization of the stream through RM 46.9. The East Fork has been channelized at various times in the past from RM 50.5 to RM 44.2. Elevated concentrations of total iron, TSS, and fecal coliform counts along with a decline in conductivity at all stations were indicative of the influence of nonpoint source runoff in response to a rainfall event on August 25. Complete recovery from wate quality perturbations associated with New Madison was apparent at RM 46.9, and the New Paris WWTP (RM 40.4) had not detectable impact on chemical water quality in the East Fork.

Biological communities in the East Fork were indicative of the combined impact of organic loading from New Madison and physical conditions associated with past channelization of the stream. The relative influences of the organic loading and habitat conditions on the fish community were difficult to separate; however, the apparent impact of the wastewater was to delay the expected trend of increased number of speciess with increased downstream distance. The fish community in Welker Lateral (upstream from New Madison) appeared to be a typical headwaters assemblage of species. Both fish and macroinvertebrate communities were indicative of organic inputs and poor physical conditions at the station immediately downstream from New Madison. The fish community evidenced some recovery at the station 1.1 miles downstream, but poor habitat conditions appeared to preclude a more substantial recovery. The invertebrate community at this station reflected very poor water quality. The invertebrate were sampled on August 27-28 (compared to July collection dates for fish), following a rainfall event and increased flow on August 25. This rainfall apparently resulted in storm sewer drainage (from New Madison) into an unnamed tributary immediately upstream from the sampling site. In addition, the stream had been channelized in recent years, resulting in relatively poor substrate conditions for invertebrate communities.

Macroinvertebrate communities evidenced substantial recovery 3.6 miles downstream from New Madison, with the community characterized by relatively sensitive organisms and only a minor influence of the upstream organic loading. At the station 6.7 miles downstream from New Madison (and further downstream), both fish and macroinvertebrate communities were indicative of recovery from physical conditions and from water quality impacts associated with New Madison. Further, the biological communities indicated no significant impact from the New Paris WWTP.

Reduced organic inputs may result in some localized improvements in fish and macroinvertebrate faunas; however, the existing communities appear to be primarily limited by physical conditions and the channelized nature of the stream.

Segment Problem	Name Description	Use Designation Mile Points
05080002-005,-004,-002 -001 GOOD*	Great Miami River from downstream from the Hamilton Dam to the Ohio River	WWH 36.0-0.0

Downstream from the Hamilton Dam (RM 37.1) both the fish and macroinvertebrate communities exhibited patterns of diversity and abundance generally consistent with large, organically enriched warmwater rivers. Some minor areas of stress were noted but water quality and biological conditions were good. This evaluation of the lower portion of the Great Miami River differs from previous segment evaluations based only on physical/chemical data.

Nonpoint runoff and/or natural background conditions are the most likely source of the total iron violations. A large number of total lead violations, one as high as 66 ug/l, have been noted by USGS at the New Baltimore station (USGS, 1979, 1980). However, OEPA detected no total lead violations in the 18 samples collected at the same site during the 1980 Great Miami River Survey. There is no known source of lead within this segment.

The Hamilton WWTP has undergone expansion in order to provide secondary treatment of the Champion Paper Company's 10 mgd industrial wastewater discharge, as well as to upgrade the treatment of municipal waste. This improvement has resulted in a significant reduction in the BOD_5 and suspended solids loading to the Great Miami River.

Biological and Water Quality Survey

A biological and water quality survey of the lower 91.6 miles of the mainstem of the Great Miami River was conducted during June 5-October 9, 1980. The purpose of the survey was to: 1) establish baseline data on biological condition and chemical/physical water quality; 2) determine where the goals of the Clean Water Act are or are not being achieved; 3) determine the appropriate water quality use designations for the lower mainstem; and, 4) to identify major sources of water pollution that affect biological condition and water quality.

Chemical/physical water quality conditions in the lower mainstem Great Miami River during 1980 were typical of those observed in large rivers during higher than normal flow years. Water quality standards violations of parameters characteristic of nonpoint source runoff (total Fe, fecal coliforms) were much more frequent and widespread than for those parameters more sensitive to point source impacts (e.g., D.O., NH_3-N, temperature, cyanide, phenolics). Dividing the study area into segments of good, fair, and poor chemical/physical water quality was difficult because those parameters sensitive to point source impacts did not show distinct longitudinal differences as they have during years with lower flows. Past data indicated that exceedences of WQS for D.O., temperature, and possibly, ammonia, cyanide, and phenolics have been much more frequent during low flow years. The most severe water quality problem in the lower mainstem continues to be depressed D.O. levels which is the result of excessive loadings of oxygen demanding wastewater downstream from Dayton. Less severe problems exist downstream from Middletown and Hamilton. Unless BOD loadings are reduced in these areas, depressed D.O. levels will be a recurring problem in the lower mainstem, especially during low flow years.

The most relied upon criteria for evaluating the condition of the lower Great Miami River mainstem were the abundance, diversity, and distribution of the fish and macroinvertebrate communities. The most severe biological degradation occurred downstream from the Dayton WWTP (RM 76.1), as reflected by both the fish and macroinvertebrate communities. Another area of degradation was observed downstream from the Ohio Surburban WWTP (RM 87.4) although the extent and severity was much less than that observed downstream from Dayton. The fish community showed evidence of degradation between RM 74.9 and 38.2, a distance of 36.7 miles. The overall pattern of continual interruptions in recovery resulted in a net overall decline in most fish community parameters. The macroinvertebrate community in the lower half of this section did not reflect any substantial degree of degradation and was consistent with communities found in large, organically enriched warmwater rivers. The condition of the community was not, however, comparable to that found upstream from Dayton.

REFERENCES

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MILL CREEK BASIN (J)
BASIN SUMMARY

Overall physical/chemical water quality in the Mill Creek Basin ranged from fair to poor. Water quality in the upper segment was fair with WQS violations for dissolved oxygen, fecal coliform bacteria, various metals and phenolics. These violations were believed to have been the result of discharge from package sewage treatment plants and nonpoint sources. Water quality in the lower segment was severely degraded, primarily as a result of the combined sewer overflows of municipal and industrial wastes. Additional sources of pollutants includes urban runoff, and industrial and municipal dischargers.

Biological Evaluations

No recent Ohio EPA, macrobenthic data are available for the basin. Previous sampling was conducted in Mill Creek at Cincinnati in Hamilton County (RM 0.6) in July, 1977. The sample consisted of only three benthic taxa with a diversity index of 0.07 (Ohio EPA, 1980, RD 3-23). Extreme toxic conditions existed at this site. An evaluation of Class IV (Poor) water quality was indicated by all macroinvertebrate criteria.

SEGMENT REPORTS

MILL CREEK MAINSTEM

OHIO RIVER TRIBUTARY
CONFLUENCE AT RM 472.6

Segment Problem	Name Description	Use Designation Mile Points
05090203-014 FAIR	Mill Creek from the headwaters to Sharon Rd.	WWH 28.1-16.8

The area drained by this segment is primarily agricultural and residential. Land-use was rapidly being converted to residential housing during 1977-1978, however the recent slowdown in the housing market has reduced this trend. Nonpoint sources of pollution, such as urban and agricultural runoff, were probably contributing factors to the Warmwater Habitat (WWH) violations for total iron and fecal coliforms. Most of the package sewage treatment plants in this area were abandoned in the fall of 1980 with the opening of the Butler County Upper Mill Creek Regional WWTP (RM 1.1; East Fork-Mill Creek). This plant is expected to eliminate localized degradation and reduce the number of fecal coliform bacteria and phenolics violations of Ohio WQS.

Two dissolved oxygen violations were noted at the Sharon Road monitoring station (RM 16.8). The most likely source of these violations was the Glendale WWTP which discharged into an unnamed tributary about one mile from its confluence with Mill Creek (RM 17.0).

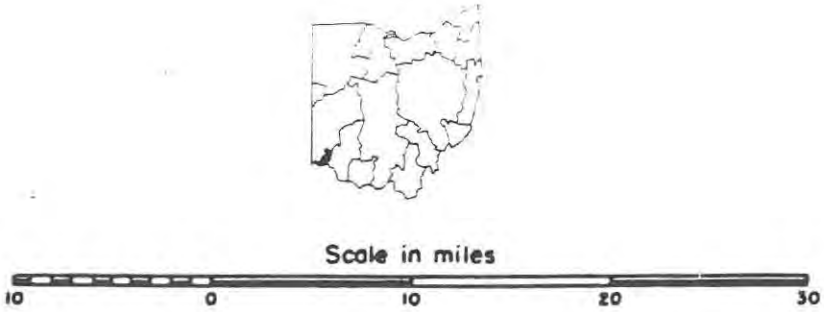

Figure II-14. Map of the Mill Creek basin (Ohio). Stream segments that were judged not to support aquatic life in accordance with the goals of the Clean Water Act are highlighted with stippled shading.

Although the overall water quality in this segment is expected to improve, pollutants from nonpoint sources and the natural low flow of the stream will result in this segment not meeting 1983 goals. Ohio WQS that will continue to be violated include total iron, dissolved oxygen and fecal coliforms.

Segment Problem	Name Description	Use Designation Mile Points
05090203-014 POOR*	Mill Creek from Sharon Road to the Ohio River	WWH 16.8-0.0

The lower Mill Creek watershed is entirely urban, consisting of both residential and industrial developments. The stream was severely degraded as a result of combined sewer overflows, urban runoff, and minor industrial discharges (mostly cooling water).

Most of the lower Mill Creek drainage area is served by combined sewers which divert domestic and industrial wastewater to the Ohio River via the Mill Creek WWTP (Ohio River; RM 472.6). However, during storm events, these sewers become overloaded and discharge into Mill Creek. Combined sewer overflow occurrences contributed to WQS violations for dissolved oxygen, fecal coliforms, MBAS, ammonia, total cyanide, phenolics, total chromium, total copper, total iron, and total lead. In accordance with U.S. EPA program requirements, combined sewer overflow studies have been initiated by the Metropolitan Sewer District to determine the most cost effective method of treating the overflows. No overall change in physical/chemical water quality from combined sewers is expected before 1983, despite minor sewer improvements currently under construction.

Urban runoff from the Cincinnati area is the most likely cause of total lead, and oil and grease WQS violations. WQS violations from this source are expected to continue. Discharges from municipal and industrial sources contribute to WQS violations of phenolics, ammonia, oil and grease, and some metals. Proposed actions that are expected to result in improved physical/chemical water quality include:

1. The Formica Corporation (RM 15.3) is evaluating the type of phenolics in their effluent in order to determine appropriate NPDES Permit limitations.
2. Legal action against the Pristine Incineration Facility (RM 14.3) is resulting in a clean up of this hazardous waste storage/treatment site. A complete clean-up will eliminate a significant source of metals and organic compounds.
3. Discharge of ammonia and trichlorobenzene from the Phthalchem Facility (RM 5.8) will be eliminated, but may continue to leach into Mill Creek from fill material.

The overall physical/chemical water quality in the lower Mill Creek segment is not expected to change significantly due to the severity of the combined sewer overflow problem. This segment will not meet 1983 goals. Furthermore, because of the extremely high economic impact of seperating the combined sewers, it is unlikely that this segment will ever meet the 1983 goals.

As recommended in the 1980 305(b) Report to Congress, the monthly monitoring station located at Tylersville Road (STORET Station No. 600440; RM 24.5) was moved downstream to Sharon Road (RM 16.8). This move was made to better assess a larger portion of the headwaters of Mill Creek. The new station is located downstream from the Butler County Upper Mill Creek Regional WWTP which began discharging in the fall of 1980.

REFERENCES

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LITTLE MIAMI RIVER BASIN

UPPER LITTLE MIAMI RIVER SUBBASIN (K-1)

BASIN SUMMARY

Overall physical/chemical water quality in the Upper Little Miami River Subbassin ranges from good to excellent. Occasional Warmwater Habitat violations occurred as a result of agricultural runoff. Very few point source dischargers exist within this segment.

Biological Evaluations

Recent Ohio EPA, macrobentic monitoring in the subbasin consisted of one fixed station benthic sample (NASQAN) collected in November, 1979, from the Little Miami River near Oldtown in Green County (RM 80.0). Thirty-two benthic taxa with a diversity index of 3.54 were collected at the station (RD 3).

A well balanced, diverse community existed comprised of 8 taxa of mayflies, 2 taxa of stoneflies, 4 taxa of caddisflies, and 15 taxa of midges. An evaluation of Class II (Good) water quality was indicated by the benthic community, although caution must be used because of the November collection of the sample. Not enough is known about the potential effect of seasonal variation on the benthic community and, subsequently, the validity of the values of the criteria used to make the evaluation.

Previous sampling at this location was conducted in August, 1978, and July, 1977 (Ohio EPA, 1980, RD 3-19 and 3-20). Thirty-two taxa with a diversity index of 3.46 were collected in 1978 and 28 taxa with a diversity index of 3.45 were collected in 1977. Both sites were evaluated as having Class II (Good) water quality and were quite similar in benthic composition to the 1979 sample. No apparent change in water quality had occurred over the three year period.

Another site on the Little Miami River at Spring Valley in Greene County (RM 63.4) was sampled in July, 1977 (Ohio EPA, 1980, RD 3-21). Thirty taxa (diversity index 3.87) were collected including 17 taxa of midges that comprised 81 percent of the sample by numbers. There were only two taxa of mayflies and no caddisflies. In spite of the high number of taxa and high diversity index, the benthic composition was degraded to a moderate degree and indicated Class III (Fair) water quality.

A biological and water quality survey was conducted in 1983 and a draft report should be completed in 1984.

SEGMENT REPORTS

LITTLE MIAMI RIVER MAINSTEM

Segment Problem	Name Description	Use Designation Mile Points
05090202-048,-047, -046,-045,-044,-037, -036 GOOD*	Little Miami River from the headwaters to Fairgrounds Road	EWH 105.5-75.4

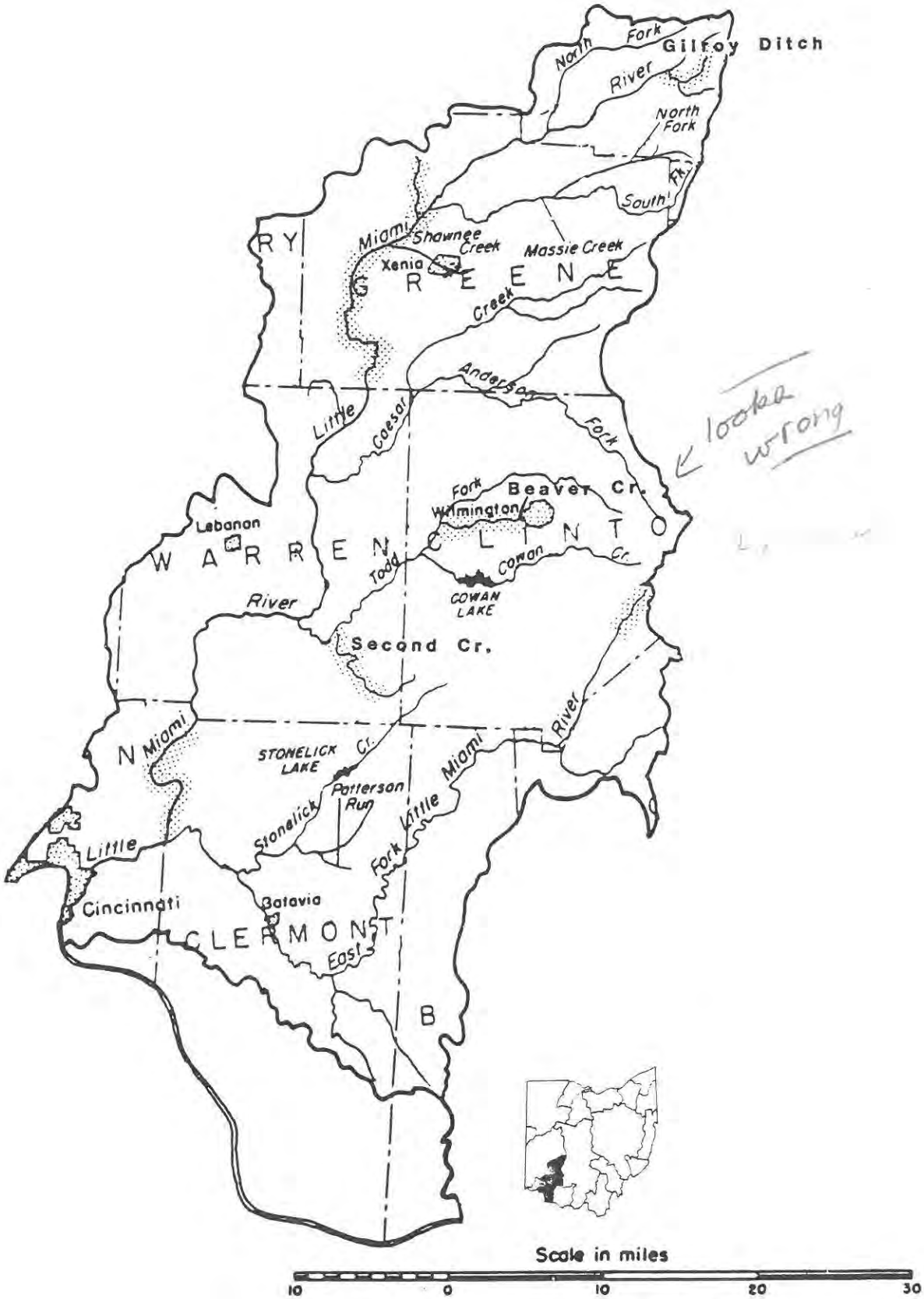

Figure II-15. Map of the Little Miami River basin (Ohio). Stream segments that were judged not to support aquatic life in accordance with the goals of the Clean Water Act are highlighted with stippled shading.

The Upper Little Miami River has been classified as an Exceptional Warmwater Habitat in the Ohio Water Quality Standards. The predominant land use in this subbasin is agricultural. There are a few point source dischargers within the basin, but these dischargers have little effect on water quality (OEPA, SWDO data, 1978-1980).

The physical/chemical water quality of the Little Miami River at U.S. RT 68 (RM 78.2; STORET Station No. 600570) has not changed significantly in the last two years. Fecal coliform bacteria and total iron violations persisted due to nonpoint source runoff. In addition to these violations, occasional violations of the water quality standards for total mercury, total lead and phenolics occurred. The source of the mercury violation has not been determined.

The South Charleston WWTP (RM 1.4) discharges into Gilroy Ditch, a tributary to the Upper Little Miami River. Water quality monitoring has revealed no WWH standards violations in Gilroy Ditch (OEPA, SWDO data, 1979), even though initial wasteload modeling indicated potential, dissolved oxygen (D.O.) and ammonia problems. Preliminary testing revealed high total residual chlorine concentrations in Gilroy Ditch below the WWTP; further study is needed to assess the degree of the problem.

Another area in this segment that should be investigated is Yellow Springs Creek. The Yellow Springs Creek WWTP (RM 0.5) discharges approximately 0.41 million gallons of treated sewage into Yellow Springs Creek each day. Monthly operating reports showed elevated levels of suspended solids, BOD_5, and ammonia during 1979-1980. The plant is currently in step I of the construction grant process. Based upon available data, it appears that this segment presently meets 1983 goals.

GILROY DITCH
TRIBUTARY TO LITTLE MIAMI RIVER
CONFLUENCE AT RM 100.5

Segment Problem	Name Description	Use Designation Mile Points
05090202-049 POOR*	Gilroy Ditch from S. Charleston WWTP to confluence with Little Miami River	WWH 1.5-0.1

Biological and Water Quality Survey

Chemical/physical and biological water quality was studied in a five mile segment of Gilroy Ditch during May 29, 1979 and May 12, 1980. The primary objectives of this study were to determine if the South Charleston WWTP was adversely impacting the water quality in Gilroy Ditch, and to gather data for evaluation of stream use designations for Gilroy Ditch.

The results of the studies conducted on May 29, 1979 and May 12, 1980 indicate that there is a measurable effect on the water quality and aquatic communities present in Gilroy Ditch downstream from the South Charleston WWTP. Limited water quality sampling did not indicate a severe degradation of water quality in Gilroy Ditch and WQS for all parameters measured, except total residual chlorine and total iron, were met at all sampling locations. This should not be construed to mean that WQS are being met all of the time.

While the water quality above the S. Charleston WWTP (RM 1.5) was not judged as particularly high, degradation below the plant was evident due to the large numbers of oligochaetes and low diversity found at RM 1.3. Some recovery was noted at RM 0.1, but the low number of taxa and the chironomid dominated benthic community indicate a stressed environment. Biological sampling indicates that there is significant degradation for a short distance downstream from the South Charleston WWTP, after which at least partial recovery occurs. This pattern is frequently indicative of a toxic effect in the immediate vicinity of the point source that gradually dissipates downstream. The high chlorine value measured on May 29, 1979 and correspondingly degraded aquatic communities downstream from the South Charleston WWTP certainly fit this pattern. Although ammonia-nitrogen concentrations measured downstream from the WWTP during the two surveys did not exceed WQS the effluent values themselves were sufficiently high to cause concern.

It appears that Gilroy Ditch does not completely recover from the deleterious effects of the South Charleston WWTP before it reaches the Little Miami River.

A total of 492 fish representing 18 species were collected at the five locations in Gilroy Ditch on May 29, 1979. Four-hundred nine fish respresented by 13 species were collected on May 12, 1980 at two locations (Table 3).

The normal or expected pattern of community diversity in streams is one of the increasing values downstream via species addition. Community diversity in terms of number of species showed a general overall trend of increasing values with increasing distance downstream where pollutional effects were not a factor. This pattern was interrupted at RM 1.3 (immediately downstream of the South Charleston WWTP), where a large reduction in both species diversity and community abundance was observed on May 29, 1979. Degradation of the fish community in Gilroy Ditch became less evident with distance downstream from RM 1.3, with at least partial recovery taking place at RM 0.1. The principle cause of these reduction was water quality degradation resulting from discharges of wastewater from the South Charleston WWTP (Ohio EPA, 1981).

MASSIES CREEK
LITTLE MIAMI RIVER TRIBUTARY
CONFLUENCE AT RM 77.1

Segment Problem	Name Description	Use Designation Mile Points
05090202-041,-040,-038 GOOD	Massies Creek from the Central State University WWTP to the Little Miami River	WWH 4.5-0.0

Infrequent fecal coliform bacteria violations occurred in Massies Creek at RM 0.2 (STORET Station No. 600560) due to discharge from Central State University's overloaded WWTP (OEPA, SWDO data, 1976-1977). There are sludge deposits on the substrate from the plant's outfall (RM 0.3) to Wilberforce Clifton Road (RM 0.2). The plant was originally designed for an average daily flow of 250,000 gallons and currently receives an estimated 350,000 gpd. The city of Xenia and Greene County have received a Step III Construction Grant

for the construction of the Oldtown Creek and Wilberforce Community Interceptor, which will go to the Xenia Ford Road WWTP. The completion of this project will eliminate the Central State University WWTP and most of the individual on-lot disposal systems in this area. The project should improve the water quality of Massies Creek from RM 4.5 to 0.0, as well as the Little Miami River. As of September 30, 1980, the interceptor project had not been completed.

LITTLE MIAMI RIVER MAINSTEM

Segment Problem	Name Description	Use Designation Mile Points
05090202-035 FAIR*	Little Miami River from Fairgrounds Road to S.R. 725	WWH 75.4-64.1

This segment is affected by pollutant loading from three major municipal WWTPs, two of which discharge to tributaries. The Xenia Ford Road WWTP is located in the upper reach (RM 74.8) of this segment. Monthly operating reports for 1978-1980 showed that this plant has met interim NPDES Permit limits for total suspended solids and BOD_5.

In 1978, the Ohio EPA discontinued monitoring at the station on Little Beaver Creek at Factory Road (RM 0.1). This station was located below the Montgomery County Eastern Regional WWTP (RM 4.2). Warmwater habitat violations for dissolved oxygen, ammonia, total lead, pH, and phenolics occurred at this station in 1977. A compliance sampling inspection at the Eastern Regional Plant in 1979 showed substantial increases in nutrients and COD in Little Beaver Creek at Grange Hall Road (RM 3.2). The Ohio EPA has also investigated citizen complaints about the presence of sewage sludge in Little Beaver Creek. The Eastern Regional Plan is currently in the Step 1 phase of the Construction Grant Program.

During 1978-1980, Ohio WQS violations for total iron, fecal coliforms, ammonia nitrogen and total lead occurred at the Ohio EPA sampling station on Beaver Creek (RM 0.1; STORET Station No. 600510) (OEPA, SWDO, 1978-1980). The Greene County-Beaver Creek WWTP (RM 0.3) located upstream from this station, probably accounts for most of these violations. The plant has tertiary treatment capability (micro-strainers), but because of maintenance problems, it usually accomplishes only secondary treatment. The plant had a severe infiltration/inflow problem which necessitates frequent bypassing during storm events. The bypassed wastewater significantly degraded physical/chemical water quality in Beaver Creek. They are currently in the Step 1 phase of the Construction Grant Program.

Upstream municipal loading and nonpoint source runoff resulted in WQS violations for fecal coliforms, total lead and total iron at Upper Bellbrook Road (RM 68.2; STORET station No. 610550 (OEPA, SWDO, 1978-80).

LITTLE BEAVER CREEK
TRIBUTARY TO BEAVER CREEK
CONFLUENCE AT RM

Segment Problem	Name Description	Use Designation Mile Points
05090202-058 GOOD*	Little Beaver Creek from headwaters to Montgomery County Eastern Regional WWTP	WWH 9.0-5.2
05090202-058 FAIR*	Little Beaver Creek from Montgomery County Eastern Regional WWTP to Beaver Creek	WWH 5.1-0.0

Biological and Water Quality Survey

A comprehensive water quality study was conducted on Little Beaver Creek in Montgomery and Greene Counties, Ohio from June to September, 1982 with physical data (used for modeling) being collected in October, 1980. Physical, chemical and biological data were gathered to determine the nature and sources of water quality degradation and to evaluate stream use designations.

Although RM 6.2 on Little Beaver Creek had only 17 taxa, the predominant organisms collected were baetid mayflies and nonhemoglobin type midges. The low number of taxa was attributed to the relatively small flow valume at this site. Station RM 5.0, downstream from the unnamed tributary (RM 6.1), had much greater flow and a greater number of taxa (27) than RM 6.2. Chemical data indicated a similarity in water quality between RM 6.2 and 5.0, with no significant violations, and the macrovertebrates at these sites indicated fair water quality.

The Montgomery County Eastern Regional WWTP discharges to Little Beaver Creek at RM 4.6. The effluent contains high levels of BOD, COD, ammonia-N and metals (particularly copper, chromium and zinc). These levels decreased with increased distance downstream from the WWTP, but remained higher than the control sites.

Macroinvertebrates at all three sites on Little Beaver Creek downstream from the Montgomery County Eastern Regional WWTP (RM 3.5, 2.0 and 0.1) were indicative of poor water quality. In addition, a septic odor was noted at all three sites and the sewage bacteria Sphaerotilus was noted at RM 3.5 and 2.0. At RM 3.5, oligochaetes were the predominant organisms and only 15 taxa were collected, the poorest benthic community sampled in this survey. Blackflies (Simulium sp.) were the predominant organisms at RM 2.0 and 0.1. These organisms are known to become abundant in moderately polluted streams (Hilsenhoff 1975). Previous experience with blackflies of the genus Simulium has indicated that they very often represent a successional stage of recovery, followed by facultative members of the mayfly (Baetis sp.) and caddisfly (Cheumatopsyche sp.) taxa. This latter stage of recovery was observed on Beaver Creek RM 0.5 (0.6 miles below the Little Beaver Creek confluence).

Little Beaver Creek enters Beaver Creek at RM 1.1. Chemical data at Beaver Creek RM 0.5 revealed slightly higher levels of BOD, COD and ammmonia than upstream from the confluence (Beaver Creek RM 1.2). Correspondingly, the benthic community sampled at Beaver Creek RM 0.5 was indicative of slightly lower water quality than the control site upstream from the confluence (Beaver Creek RM 1.5). Although both sites had similar kinds and number of taxa (31 and 30), RM 0.5 was predominated by blackflies whereas RM 1.6 was predominated by caddisflies and mayflies.

In summary, the Montgomery County Eastern Regional WWTP impacted Little Beaver Creek from the point of discharge (RM 4.6) to the confluence with Beaver Creek. Benthic communities in this segment were predominated by oligochaetes and/or blackflies (Simulium sp.), pollution tolerant organisms. Control sites upstream from the WWTP on Little Beaver Creek RM 6.2 and 5.0 predominated by less tolerant organisms, mayflies and/or nonhemoglobin-type midges.

A total of 2178 fish belonging to five families and 11 species was collected during this survey (Table 4-3). Sixty-seven percent of all fish were collected upstream from the Montgomery County Eastern Regional WWTP at RM 6.2 and 5.0. Creek chub (Semotilus atromaculatus) was the predominant species collected in this survey comprising greater than 50% by number. Differences in relative abundance and species distribution were associated with the WWTP discharge at RM 4.6.

Little Beaver Creek at RM 6.2 is a first order urban stream and receives considerable storm runoff. First order stream such as Little Beaver Creek typically have limited fish communities, with variable numbers reflecting adaptation to local conditions. The stream in this area is not intermittent, as evidenced by the presence of southern redbelly dace (Phoxinus erythrogaster), a fish that dwells in permanently flowing waters (Trautman 1981). At RM 5.0, downstream from the tributary receiving the Delco discharge (RM 6.1, 0.6), Little Beaver Creek had the healthiest fish community as evidenced by number of species (seven) and number of individuals (678 fish). Creek chub (Semotilus atromaculatus) and central stoneroller (Campostoma anomalum) were the predominant fish species. At RM 3.5 and further downstream the variation in water quality interrupted the expected pattern of longitudinal zonation. Where streams undergo pollutional stress, species diversity may remain at (or below) levels similar to headwaters (Tramer and Rogers 1973. Perturbations to water quality apparently cancelled out the diversity enhancing characteristics of Little Beaver Creek.

Stations at RM 3.5 and RM 2.0 (both downstream from the WWTP) showed a reduction in total number of fish and mean number of species. Creek chub was the predominant species (84% at RM 3.5 and 79% at RM 2.0), and 3 of the 6 species (in composite collections for each site) were represented by only one or two specimens. Pollution can affect fish populations in three ways; first by reducing number of species, second by reducing the total weight and third by reducing total numbers (Larimore and Smith 1963). This somewhat lower diversity of fishes coupled with an association of predominantly stress tolerant species was indicative of a stressful environment downstream from the Montgomery County Eastern Region WWTP.

Segment Problem	Name Description	Use Designation Mile Points
05090202-025,-035 FAIR	Little Miami River from S.R. 725 to confluence of Caesar Creek	WWH 64.1-50.2

Water quality in this segment is degraded from upstream loading, as well as from discharges from the Greene County Sugarcreek Regional WWTP (RM 63.1), the Xenia Glady Run WWTP (RM 4.8), and the Waynesville WWTP (RM 52.9). The Greene County Sugarcreek Regional WWTP, which went on-line in October, 1977, eliminated the Montgomery County Sugar Creek Regional WWTP (RM 5.3), the Winterhaven WWTP (RM 2.7), the Bellbrook WWTP (RM 0.25), and the Academy Heights WWTP (RM 0.3). The Greene County Sugarcreek WWTP has tertiary treatment (Chemical addition; microstrainers, on-line June, 1979) but infiltration and inflow problems during periods of excessive flow caused non-compliance with their NPDES Permit. The U.S. EPA has funded a sewer system evaluation survey for Greene County to correct this problem.

The Xenia Glady Run WWTP was in compliance with its NPDES Permit for the period 1978-1980 for conventional parameters (BOD_5O, suspended solids and fecal coliforms) but frequent problems with total mercury and total lead occurred. In 1979, the city of Xenia initiated a sampling program to identify the sources of the mercury. The results of this study were inconclusive. This problem, fortunately, has subsided to only one permit violation for total mercury in 1980. Monthly operating reports indicated that total lead concentrations are at levels that warrant permit limitations.

Water quality data for the Little Miami River at Roxanna-New Burlington Road (RM 59.4; STORET Station No. 600600) showed Ohio WQS violations for total iron, fecal coliforms and total mercury (Ohio EPA, SWDO data, 1978-1980). The total mercury violation can possibly be attributed to sample or lab contamination. In addition to the Ohio EPA data, the U.S. Geological Survey (USGS) has a four parameter continuous water quality monitoring station at this location. USGS data showed that numerous dissolved oxygen violations occurred here during 1977 and 1978, however, no dissolved oxygen violations were recorded for 1979 and 1980. The absence of dissolved oxygen violations for these two years appeared to be due to increased flows rather than improved water quality (USGS, 1977-1980).

The village of Waynesville WWTP is in the Step 3 phase of the Construction Grant Program for expanding (0.4-0.71 MGD) and upgrading the present facility. Expansion is to include sewering Corwin, Harveysburg, and the Caesar Creek Reservoir Area, and construction of a relief sewer in Waynesville. This should improve overall physical/chemical water quality in this segment by eliminating many faulty on-lot disposal systems. Monthly Operating Reports indicated that the Waynesville WWTP consistently met its permit limitations (Ohio EPA, SWDO 1978-1980).

REFERENCES

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Ohio Environmental Protection Agency. 1980 (unpublished). Ohio Biennial Water Quality Report. Reference Document 3. Biological Tables.

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LITTLE MIAMI RIVER BASIN

CAESAR CREEK SUBBASIN (K-2)

SEGMENT REPORTS

CAESAR CREEK
LITTLE MIAMI RIVER TRIBUTARY
CONFLUENCE AT RM 50.1

Segment Problem	Name Description	Use Designation Mile Points
05090202-026 GOOD	Caesar Creek Reservoir Dam to the Little Miami River	WWH 3.0-0.0

Physical/chemical water quality in this segment was good, based on data collected at Corwin Road (RM 0.2; STORET Station No. 600550) (OEPA, SWDO data, 1978-1980). Occasional WWH violations for total lead and total mercury occurred at this site. The source of the mercury violation is unknown. The most significant change in the Caesar Creek Subbasin was the completion of the Caesar Creek Reservoir (RM 3.1) in January, 1978. This project has not affected downstream physical/chemical water quality. In 1980, the Army Corps of Engineers installed a 10,000 gpd package plant south of S.R. 73 on the north shore of Caesar Creek Reservoir. This plant received wastewater from ODNR park headquarters and a bathhouse. The plant currently discharges to Caesar Creek Lake, tied into the expanded Waynesville WWTP prior to 1983. The Ohio EPA has not sampled the upper Caesar Creek Basin. The absence of any major point source discharges suggests the headwaters of the Caesar Creek Subbasin may meet 1983 goals.

REFERENCES

Ohio Environmental Protection Agency. 1978-1980 (unpublished). Data available from Southwest District Office, Ohio EPA, Dayton, Ohio.

LITTLE MIAMI RIVER BASIN

TODD FORK SUBBASIN (K-3)

SUBBASIN SUMMARY

Physical/chemical water quality in the Todd Fork Subbasin remained good. However, localized degradation due to poor wastewater treatment occurred below the Wilmington WWTP on Lytle Creek and below the Blanchester WWTP on Second Creek. Industrial compliance with Wilmington's pretreatment ordinance should improve water quality in Lytle Creek.

SEGMENT REPORTS

TODD FORK
LITTLE MIAMI RIVER TRIBUTARY
CONFLUENCE AT RM 38.2

Segment Problem	Name Description	Use Designation Mile Points
05090202-022,-020, -018,-016 GOOD	Todd Fork from the confluence of Lytle Creek to the Little Miami River	WWH 18.6-0.0

Physical/chemical water quality in Todd Fork ranged from good to excellent, and the 1983 goals were being met. However, pollutant loading from Lytle Creek prevented this segment of Todd Fork from attaining the more stringent, Exceptional Warmwater Habitat (EWH) standards. Total zinc, and perhaps other heavy metals, occurred at slightly elevated concentrations due to the discharge from the Wilmington WWTP. Wastewater treatment improvements in the city of Wilmington are expected prior to 1983. This improvement should result in EWH Standards being maintained in Todd Fork.

LYTLE CREEK
TODD FORK TRIBUTARY
CONFLUENCE AT RM 38.2

Segment Problem	Name Description	Use Designation Mile Points
05090202-023 POOR*	Lytle Creek From the Wilmington WWTP to Todd Fork	WWH 7.3-0.0

Water quality problems occurred in this segment because of discharge from the Wilmington WWTP and the concentration of industry in this area. Lytle Creek is severely degraded below the Wilmington WWTP, both chemically and biologically. A special study noted Ohio WQS violations for ammonia, total lead and total zinc below the WWTP discharge (OEPA, SWDO data, 1978). A total zinc violation of the Exceptional Warmwater Habitat standards also occurred at RM 0.2 of Todd Fork during this study. Quantitative benthic samples taken below the WWTP contained low numbers of taxa and low diversity indices.

Industrial users, such as the Randall Company, the Irwin Auger and Bit Company, and the Crysteco Company, are the major contributing sources of the metals. On August 20, 1978, the city of Wilmington implemented an industrial pretreatment ordinance to curb the high levels of metals entering the WWTP and, subsequently, into Lytle Creek. However, frequent permit violations for total lead and total zinc indicated that this program still has problems.

Wilmington also has an infiltration/inflow problem which results in frequent bypassing. U.S. EPA has funded a Sewer System Evaluation Survey for Wilmington. Wilmington is in the Step 1 phase of the Construction Grant Program. Water quality in this segment should meet 1983 goals when all of the industries in the Wilmington area are in compliance with their pretreatment requirements.

A biological and water quality survey of Lytle Creek is planned for 1984 and a draft report should be completed in 1985.

SECOND CREEK
TODD FORK TRIBUTARY
CONFLUENCE AT RM 2.8

Segment Problem	Name Description	Use Designation Mile Points
05090202-017 POOR*	Second Creek from the Blanchester WWTP to Todd Fork	WWH 9.6-0.0

Local water quality problems occurred in Second Creek below the Blanchester WWTP (RM 9.6). A special study showed that the plant effluent resulted in standards violations for dissolved oxygen, fecal coliforms and total copper at RM 9.4 (OEPA, SWDO data, 1978). Benthic samples taken at this location were dominated by oligochates and chironomids, indicating biological degradation. The Blanchester WWTP will not be incorporating any changes in their treatment processes before 1983.

REFERENCES

Ohio Environmental Protection Agency. 1978 (unpublished). Data available from Southwest District Office, Ohio EPA, Dayton, Ohio.

LITTLE MIAMI RIVER BASIN

EAST FORK OF LITTLE MIAMI RIVER SUBBASIN (K-4)

SEGMENT REPORTS

EAST FORK OF THE LITTLE MIAMI RIVER
LITTLE MIAMI RIVER TRIBUTARY
CONFLUENCE AT RM 11.7

Segment Problem	Name Description	Use Designation Mile Points
05090202-008 FAIR*	East Fork Little Miami River from headwaters to downstream of the Village of New Vienna	WWH 84.5-80.5

Physical/chemical and biological sampling indicates that minor degradation of organic inputs from septic discharges and farmland runoff result in an unbalanced fish community with low diversity. Complete recovery was evidenced at the next downstream station (approximately four miles). Even in the absence of organic loading from New Vienna, the size of the stream in this headwaters region would not be expected to support the diversity of organisms found in downstream segments.

Segment Problem	Name Description	Use Designation Mile Points
05090202-008,-006,-004 -003,-002 EXCELLENT*	East Fork Little Miami River from downstream of New Vienna to the Little Miami River	WWH 80.4-0.0

Healthy well-balanced fish community exists throughout most of this segment. Slight decreases in fish community diversity from RM 71.0 to RM 54.8 were largely unexplained; however the decline WQS apparently a result of the lower density of fishes, potentially in response to silt runoff from agricultural land or downstream impacts from Lynchburg. At RM 34.7 minor decreases in diversity resulted from pollutants from the Williamsburg WWTP and the influences of William Harsha Lake.

Biological and Water Quality Survey

In an intensive survey conducted in 1982, the East Fork of the Little Miami River was generally characterized by good to excellent water quality and healthy, diverse fish and macroinvertebrate communities. Some areas of minor impacts, particularly associated with organic waste inputs, were identified and are detailed below; however, the overall influence of these impacts on biological communities and chemical water quality parameters was clearly minimal.

Identified (i.e. detectable) impacts included:

1) Within New Vienna, chemical parameters were indicative of organic inputs attributed to this unsewered community. Changes in numerical and weight composition of the fish community as well as minor impacts on the macroinvertebrate community were documented; however, complete recovery was evidenced at the next downstream station (approximately 4 miles downstream);

2) Diurnal oxygen measurements indicated potential disturbances of the dissolved oxygen regime in Dodson Creek but no apparent influence was evidenced by fish and macroinvertebrate communities;

3) Fish community density (and consequently the composite index) showed a moderate decline in the segment downstream from Lynchburg to approximately the confluence of Fivemile Creek (RM 64.6 - 44.1), but the invertebrate community did not show an analogous decline;

4) Chemical water quality showed some decline in Solomon Run, attributed to the St. Martin WWTP effluent, but habitat characteristics and low flow were the predominant influences on biological communities, resulting in little significant degradation;

5) Chemical parameters and visual observations were indicative of organic inputs from the Williamsburg WWTP, and the fish community showed a change in weight composition, a change toward more pollution tolerant species and a moderate decline in diversity. A slight decline in water quality was also indicated by macroinvertebrate communities;

6) Localized increases in density and decreases in macroinvertebrate community diversity downstream from William Harsha Lake were attributed to influence of the lake outfall;

7) Organic inputs from the Amelia-Batavia WWTP and the Lower East Fork Regional WWTP were indicated by slight increases in macroinvertebrate community density and several chemical parameters indicative of organic loading. However, the stream was apparently capable of assimilating the organic input, and no significant impact was evidenced by fish community parameters;

8) There was a slight impact from the Milford WWTP on chemical parameters indicative of organic loading and minor to no influence was indicated by macroinvertebrate and fish communities. Because of the proximity of the Milford WWTP to the mouth of the East Fork, these assessments were limited to 0.3 - 0.7 miles downstream from the plant.

Nonpoint source runoff (as evidenced by frequent water quality standards violations for total iron and occasional violations of copper and zinc standards) had no acute impact on fish or macroinvertebrate communities in the East Fork Little Miami River. In addition, the water quality standards for total iron and other heavy metals (particularly for Exceptional Warmwater Habitat) are currently undergoing a critical examination by Ohio EPA (Ohio EPA, 1983).

REFERENCES

Ohio Environmental Protection Agency. 1978-1980 (unpublished). Data available from Southwest District Office, Ohio EPA, Dayton, Ohio.

Ohio Environmental Protection Agency. 1983. Comprehensive Water Quality Report for East Fork Little Miami River, Little Miami River Basin, Clinton, Highland, Brown, and Clermont Counties, Ohio. Ohio EPA, Division of Wastewater Pollution Control. Columbus, Ohio.

LITTLE MIAMI RIVER BASIN

LOWER LITTLE MIAMI RIVER SUBBASIN (K-5)

SUBBASIN SUMMARY

Physical/chemical water quality in the Lower Little Miami River Subbasin was generally fair. Upstream organic loadings from numerous WWTPs substantially affected water quality in the lower segments. The completion of several pollution abatement projects such as the Lower Little Miami River WWTP, the Obannon WWTP, and the Newtown Interceptor should improve water quality in the Lower Little Miami River.

Biological Evaluations

No recent Ohio EPA, macrobenthic data are available for the subbasin. A biological and water quality survey was conducted in 1983 and a draft report should be completed in 1984. Previously, a NASQAN site on the Little Miami River at Milford in Clermont County (RM 13.3) was sampled in September, 1976 (Ohio EPA, 1980, RD 3-22). Twenty-seven taxa were collected with a diversity index of 2.00. The sample consisted of 5 taxa of mayflies, 6 taxa of caddisflies, and 11 taxa of midges. The predominant organisms at the site were the mayfly Baetis and the caddisfly Symphitopsyche. These two taxa comprised 84 percent of the community by numbers. The unbalanced benthic composition and low diversity index seemed to indicate moderate organic enrichment, and thus, a Class III (Fair) evaluation of water quality.

SEGMENT REPORTS

LITTLE MIAMI RIVER MAINSTEM

Segment Problem	Name Description	Use Designation Mile Points
05090202-025,-015 GOOD	Little Miami River from the Caesar Creek confluence to the Todd Fork confluence	WWH 50.2-38.3
05090202-015,-014 GOOD	Little Miami River from the Todd Fork confluence to the Muddy Creek confluence	WWH 38.3-33.0

Physical/chemical Segment (05090202-025,-015) of the Little Miami River received pollutant loading from upstream, but recovers by this point. Water quality was generally good (OEPA, SWDO data, 1973, 1974). Additional physical/chemical water quality data should be collected in this segment.

Frequent WQS violations for fecal coliforms and total iron have occurred at Stubbs Mills Road (RM 35.7; STORET Station No. 610520) (OEPA, SWDO data, 1978-1980). Fecal coliform violations were most likely due to inadequate sewage treatment (on-lot disposal systems) in Morrow. Also noted at this station were occasional total lead and total mercury violations. These violations were only slightly higher than WQS and probably did not impair the attainment of 1983 goals.

Also included in this segment is Turtle Creek (confluence RM 33.0). Turtle Creek had several water quality problems. There was severe degradation of Turtle Creek below Lebanon due to the discharge from the Lebanon WWTP (RM 6.0). The substrate of Turtle Creek was covered with sludge for over a mile downstream of the discharge. There have been numerous permit violations for BOD_5 and suspended solids (Monthly Operating Reports, 1978-1980). The plant experienced operation and maintenance problems throughout the reporting period. It is also hydraulically overloaded. This plant was supposed to be abandoned and tied into the proposed Southwest Warren County Regional WWTP upon its completion, but construction now seems unlikely. In addition, Cincinnati Milacron, Inc., discharged process water containing high concentrations of suspended solids, copper and widely fluctuating pH values (Monthly Operating Reports, 1979-1980). Turtle Creek is not expected to meet 1983 goals.

Segment Problem	Name Description	Use Designation Mile Points
05090202-013 FAIR	Little Miami River from the Muddy Creek confluence to the O'Bannon Creek confluence	WWH 33.0-24.1

Physical/chemical water quality in the upper part of this segment is influenced by Muddy Creek. Muddy Creek was severely degraded by the Mason WWTP (RM 3.2). The plant was hydraulically overloaded and frequently bypasses untreated wastewater. The city of Mason has planned on upgrading this facility but it will probably not take place before 1983. The Ohio EPA conducted a survey of Muddy Creek during the summer of 1981 to assess the degradation. The report from this survey will be available during 1982.

The Ohio EPA discontinued its monitoring station at Foster (RM 28.1; STORET Station No. 610510) in 1977. Limited sampling at this station during 1977 revealed no WQs violations (Ohio EPA, SWDO data, 1977). A short distance below this station (RM 28.0) Simpson Creek, a severely degraded creek, joins the Little Miami River. Simpson Creek receives poorly treated wastewater from the Landen Farms WWTP (RM 0.5). Landen Farms WWTP will tie into the new Lower Little Miami WWTP upon its completion. The Lower Little Miami WWTP will have secondary treatment (rotating biological contractors) and discharge approximately 1.5 MGD of wastewater to Simpson Creek (RM 0.1). The plant should be completed in the Spring of 1981.

Segment Problem	Name Description	Use Designation Mile Points
05090202-013,-001 POOR	Little Miami River from the O'Bannon Creek confluence to the East Fork confluence	WWH 24.1-11.7

Physical/chemical water quality in this segment was affected by package plants, municipal and industrial dischargers. In November 1979, the Loveland Harper Ave. WWTP (RM 24.2) was eliminated and converted into a pumping station to convey sewage to the Loveland Kemper Rd. WWTP (RM 21.9). The Harper Ave. plant was overloaded and bypassed untreated wastewater frequently, while the

Kemper Rd. plant received flows slightly more than half its design capacity. The city of Loveland has completed a Sewer System Evaluation Survey and has applied for Step 1 grant funding for upgrading the Kemper Road plant. One industry, Totes, Inc. (RM 22.4) occasionally bypasseed raw sewage to the Little Miami River due to operation and maintenance problems.

The Obannon Creek Subbasin is affected by package plant discharges and faulty on-lot disposal systems. The proposed Obannon Creek WWTP is in Step 3 of the Construction Grant Program and should be completed by 1983. The plant has a design capacity of 2 MGD. It will have secondary treatment (2 stage activated sludge) and will eliminate many package plants (Paxton Woods, RM 1.0 on unnamed tributary; Honeybrook, RM 5.2 on unnamed tributary; Green Acres, RM 4.7 on unnamed tributary, Vista Woods, RM 0.6 on unnamed tributary; Woodville Gardens, RM 4.3 on unnamed tributary; Gaslight Village, RM 0.1 on unnamed tributary; Goshen Schools, RM 0.4 on unnamed tributary).

The Ohio EPA discontinued its monitoring station at Milford (RM 12.7; STORET Station No. 600520) in 1977. USGS still maintains a monitoring station at this location. USGS data showed frequent WQS violations for fecal coliforms and occasional WQS violations for total lead, total iron and total mercury (USGS, 1978-1980). The fecal coliform bacteria violations were most likely due to increased flows. Water quality in this segment should continue to improve with the upgrading of the Loveland Kemper Road WWTP and the construction of the Obannon Creek WWTP.

Segment Problem	Name Description	Use Designation Mile Points
05090202-001 FAIR	Little Miami River from the East Fork confluence to the Ohio River	WWH 11.7-0.0

The Ohio EPA no longer has a monitoring station in the lower segment of the Little Miami River, however, the Ohio River Valley Water Sanitation Commission (ORSANCO) has maintained monitoring stations near Beechmont Levy (RM 3.4) (ORSANCO Data, 1978-1979) and near Mariemont (RM 7.5) (ORSANCO data 1980). ORSANCO data for these stations showed WQS violations for fecal coliforms, total iron, total lead, total zinc, pH and phenolics. Violations at RM 3.4 are most likely the result of sewage bypasses and combined sewer overflows by the Metropolitan Sewer District's Little Miami WWTP. The planned Newtown Interceptor will eliminate this problem and will also eliminate a large number of septic tank systesm. This project should be completed prior to 1983. These improvements should enable water quality goals to be met in this segment.

HISTORICAL

Physical/chemial water quality in the Little Miami River Basin is generally good and has not changed significantly over the past several years. Stream degradation occurs near large urban areas (Dayton and Cincinnati), primarily resulting from the discharge of treated municipal sewage. The upper segment of the Little Miami River has continued to demonstrate good to excellent physical/chemial water quality, as exemplified by physical/chemical data collected at U.S. 68 near Oldtown (RM 79.2). A few WQS violations have occurred over the past seven years for phenolics, total copper, total iron,

and fecal coliforms. The total copper violations and phenolics levels violated Exceptional Warmwater Habitat (EWH) standards but not Warmwater Habitat (WWH) standards. Total copper violations have not occurred since water year 1978 at U.S. 68. The total iron and fecal coliform bacterial violations were probably the result of nonpoint source runoff, especially during high flow years.

Below Massie Creek (RM 77.2), physical/chemical water quality declines due to municipal wastewater loading from nearby Xenia, Montgomery County Eastern Regional WWTP, Greene County Beaver Creek WWTP, and Southeastern Dayton (Sugarcreek WWTP). Improvements in water quality have been demonstrated over the past five years at Roxanna-New Burlington Road near Spring Valley (RM 59.4), with a significant reduction in temperature, dissolved oxygen, and phenolics WQS violations. These improvements primarily reflect changes in flow conditions over the past seven years, but also can be attributed to wastewater treatment plant upgrading programs implemented under the Clean Water Act.

Table II-31 through II-34 illustrate the percent D.O. violations noted at Roxanna-New Burlington Road during the third quarter (July-September), 1973-1980, compared to third quarter mean flow. Nonpoint sources continue to contribute to fecal coliform bacteria and total iron violations and nutrient concentrations on tributaries as well as the mainstem of the Little Miami River.

Water quality data collected at U.S. 50 near Milford (RM 12.7) indicated that no significant changes have occurred in the middle and lower sections of the Little Miami River. Physical/chemical water quality was generally good as the stream recovered from discharges upstream. Temperature and dissolved oxygen violations have decreased since 1977, although these changes were probably related to increased stream flows. A few total lead violations occurred in 1978-1980, probably being attributed to local urban runoff during periods of heavy rainfall. Total iron and fecal coliform bacterial violations continued to occur as a result of nonpoint sources of pollution.

Table II-31. Number of dissolved oxygen violations noted in the Little Miami River at Roxanna-New Burlington Road (RM 59.4) continuous monitor station during the third quarter (July-September), 1973-1980, compared to third quarter mean flow.

Year	Percent DO Violations	Flow, cfs
1973	4.3	574*
1974	2.6	-
1975	13.0	299
1976	7.6	152
1977	69.6	107
1978	15.2	150
1979	0	717
1980	0	681

* Calculated from instantaneous data

Table II-32. Number of violations per total number of samples Little Miami River at U.S. 68, near Oldtown RM 79.2, STORET #600570, EWH

Parameter	1975	1976	1977	1978	1979	1980	1981
Mean Flow, cfs	200	104	49	117	192	228	133
D.O.	0/10	0/11	1/12	0/6	0/12	0/12	0/11
Phenolics	-	0/9	4/7	2/3	0/4	1/4	3/4
Total Copper	0/2	4/6	1/6	1/3	0/4	0/4	0/4
Total Iron	0/3	1/3	0/1	0/2	1/2	2/4	1/4
Fecal Coliform	-	1/4	0/9	1/9	0/12	2/11	2/10

Table II-33. Little Miami River at Roxanna-New Burlington Road, near Spring Valley RM 59.4, STORET #600600, WWH

Parameter	1975	1976	1977	1978	1979	1980	1981
Mean Flow, cfs	575	301	165	367	556	626	760
Temperature	0/367	4/378	8/303	0/368	0/377	0/366	1/11
D.O.	12/367	17/378	85/303	25/366	2/377	1/353	0/11
Phenolics	-	0/9	2/8	1/4	0/4	0/4	0/4
Total Iron	0/5	0/4	-	2/2	1/2	2/4	2/4
Fecal Coliform	-	-	1/9	3/9	3/12	6/10	5/11

Table II-34. Little Miami River at Milford, U.S. 50 RM 12.7, STORET #600520, WWH

Parameter	1975	1976	1977	1978	1979	1980	1981
Mean Flow, cfs	1940	942	477	1349	2187	1685	-
Temperature	34/164	12/353	33/366	14/378	0/359	3/362	-
D.O.		0/164	0/325	16/337	1/365	0/353	0/340
Total Iron	1/5	2/8	2/8	1/4	2/4	1/4	-
Total Lead	0/5	0/9	0/8	1/4	1/4	1/4	-
Total Mercury	1/6	0/9	1/8	1/4	1/4	0/4	-
Fecal Coliform	2/9	1/12	4/22	4/13	4/12	5/12	-

RECOMMENDATIONS

1. An updated certified wasteload allocation is needed for this segment. A major concern is nitrification justification for AST review.

2. The OEPA sampling station at Beechmont Levy (RM 3.4) should be reactivated to better determine water quality near the mouth of the Little Miami River.

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SCIOTO RIVER BASIN

UPPER SCIOTO RIVER SUBBASIN (UPPER PORTION) (M-1)

SUBBASIN SUMMARY

The upper Scioto River Subbasin above the confluence with the Little Scioto River at Greencamp (RM 173.7) supported a well-balanced, aquatic community (Martin and Balduf, 1977). Sediment from nonpoint sources, along with channelization and siltation of substrates, has decreased the quality of the stream habitat. Cottonwood Ditch, a stream segment of approximately 5.5 miles, is not expected to meet the 1983 goals due to wastewater discharges from the villages of McGuffey (RM 1.2) and Alger (RM 5.5). A biological and water quality survey of the upper Scioto River is planned for 1984 and a draft report should be completed in 1985.

An estimated 16.4 of the 105.5 stream miles evaluated in this subbasin are not expected to meet 1983 water quality goals.

SEGMENT REPORTS

SCIOTO RIVER MAINSTEM
OHIO RIVER TRIBUTARY
CONFLUENCE AT RM 351

Segment Problem	Name Description	Use Designations Mile Points
05060001-035 GOOD	Scioto River From the headwaters to Kenton	WWH 231.5-207.5
05060001-035,-034, -032 GOOD*	Scioto River From Kenton to two river miles downstream of Prospect	WWH 207.5-165.5

COTTONWOOD DITCH
SCIOTO RIVER TRIBUTARY
CONFLUENCE AT RM 216.1

Segment Problem	Name Description	Use Designations Mile Points
N/A POOR	Cotton Ditch From Alger to the Scioto River	WWH 5.5-0.0

This segment had dissolved oxygen violations due to the inadequate and poorly operated primary WWTP serving the village of McGuffey (RM 1.2) (OEPA, NWDO data, 1974, 1978). The village is uncooperative in efforts to remedy the situation, and significant efforts to improve the plant are not being made. It is unlikely that improvements will occur before 1983. The Director of Ohio EPA issued Findings and Orders to McGuffy on June 19, 1981, and a standard connection ban was applied.

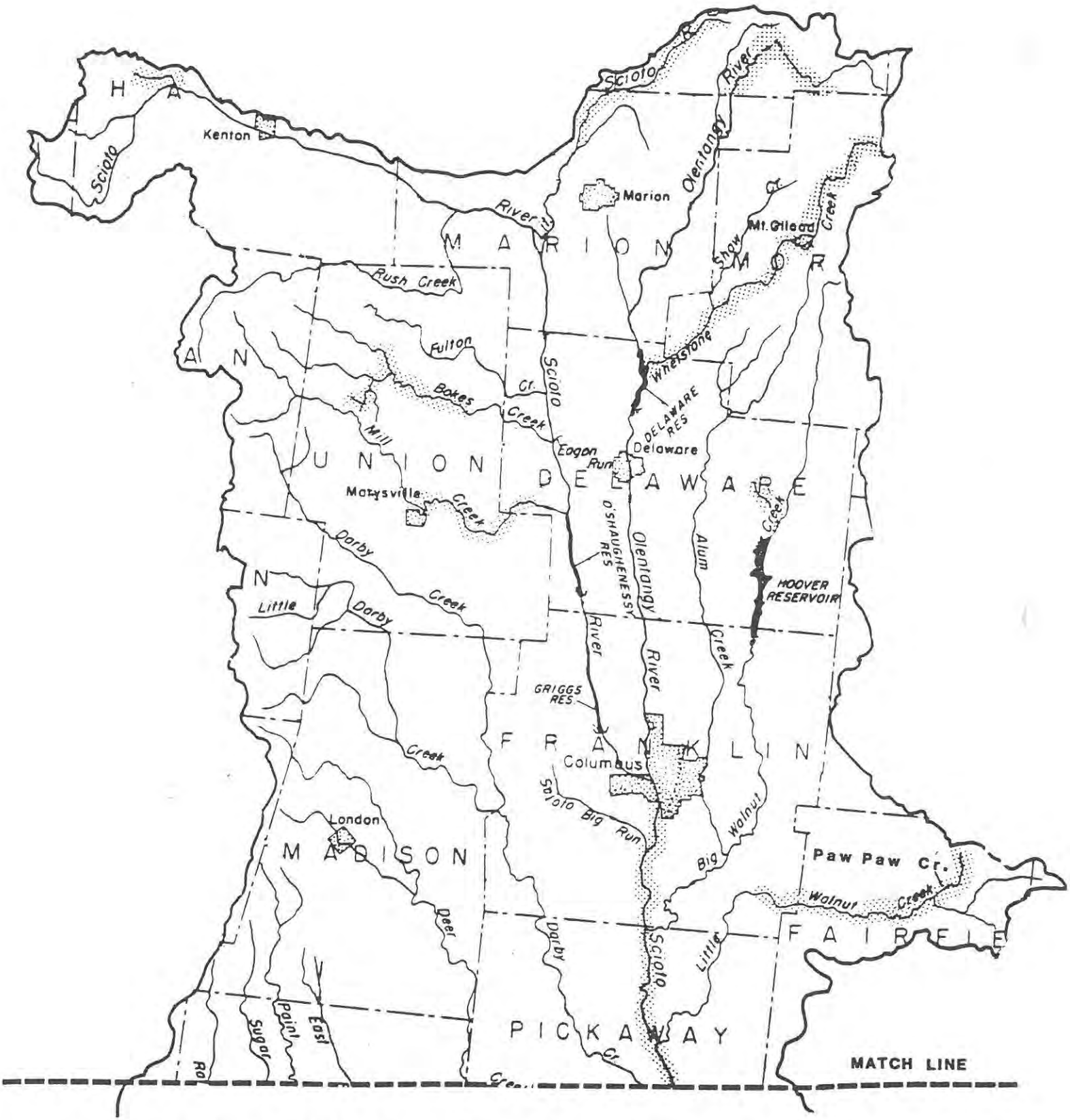

Figure II-16. Map of the Scioto River basin (Ohio). Stream segments that were judged not to support aquatic life in accordance with the goals of the Clean Water Act are highlighted with stippled shading.

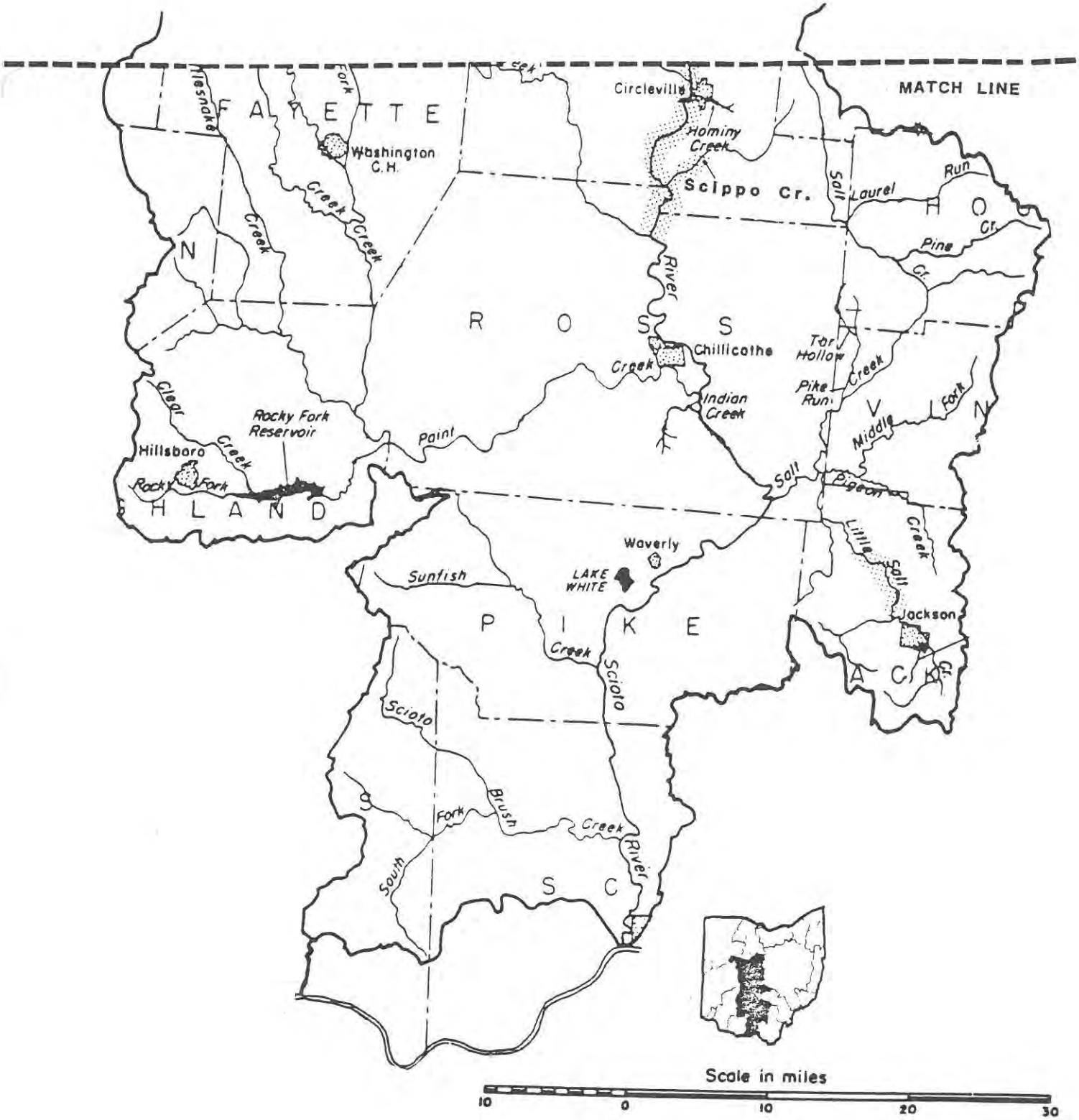

Figure II-16. (continued).

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SCIOTO RIVER BASIN

UPPER SCIOTO RIVER SUBBASIN (LOWER PORTION) (M-2)

SUBBASIN SUMMARY

Land-use in the Upper Scioto River Subbasin is predominantly agricultural, with Marion being the only major urban center within the subbasin. Current water quality data for the streams in this subbasin are limited. Much of the present evaluation was based on previous 303(e) and 305(b) water quality reports (Ohio EPA 1974, 1976, 1978, 1979, 1980).

Physical/chemical water quality in the Upper Scioto River Subbasin is generally good, with the exception of a portion of the Little Scioto River below Marion which is only fair. The Little Scioto River generally had good physical/chemical water quality above the confluence with Rock Swale Ditch (RM 2.9). Water quality deteriorated below the confluence with Rock Swale Ditch due to low dissolved oxygen levels (OEPA, NWDO data, 1977). A biological and water quality survey to assess the impact of nonpoint source agricultural runoff on receiving stream quality in the Upper Scioto River Subbasin is needed to determine attainability of the 1983 clean water goals.

Biological Evaluations

No recent Ohio EPA, macrobenthic data is available for this subbasin. Previous fixed station monitoring in the subbasin was conducted in September, 1977, and August, 1976, on the Scioto River at Prospect in Delaware County (RM 169.2).

The benthic sample collected in 1977 consisted of 25 taxa with a diversity index of 3.06 (Ohio EPA, 1980, RD 3-34). Diverse communities of mayflies, caddisflies, and midges were present at the site. No single taxon was numerically dominant. An evaluation of Class II (Good) water quality was assigned. The benthic sample collected in 1976 consisted of 19 taxa with a diversity index of 2.02 (Ohio EPA, 1980, RD 3-35). The major taxa at the site were similar to those present in 1977. The lower number of taxa collected and the low diversity index indicated conditions less favorable than in 1977 and, thus, an assignment of Class III (Fair) water quality. Not enough data were available to determine if the favorable changes in the benthic community in 1977 were caused by improved water quality or other environmental factors.

Three stations on the Little Scioto River were sampled during the years 1977, 1976 and 1974. The purpose of this monitoring was to determine what effects the Marion WWTP (RM 6.4) had on this stream. During this period, the Marion WWTP underwent treatment improvements, therefore, special attention was given to any possible change in the stream during the three year sampling period. Monitoring stations were located at river miles 9.3, 4.4, and 2.1. A summary of the data can be found in Tables II-35, II-36, and II-37. The tabulated data can be found in Ohio EPA (1980) RD 3-25, 3-26, and 3-27.

The condition of the stream at river mile 9.3 ranged from Class IV (Poor) in 1974 to Class III (Fair) in 1976 and 1977. The poor water quality in 1974 was reflected by the lack of pollution sensitive forms, a diversity index of 2.17, and a low number of taxa (12). In 1976 and 1977, the number of taxa (22 and

23, respectively) were similar, while the diversity indices (2.57 and 3.17, respectively) were different; both years data reflected Class III (fair) water quality. The reason for the change in water quality at this upstream station is not known. The station located immediately downstream from the Marion WWTP (RM 4.4) was considered to have Class IV (Poor) water quality for all three sampling periods. However, some improvements were noted in the 1976 and 1977 samples at this site. The 1974 sample reflected very poor water quality as evidenced by the extremely low number of taxa (2) and diversity index (0.08). In 1976 and 1977, there were marked increases in both number of taxa (16 and 11, respectively) and diversity indices (1.19 and 2.27, respectively) indicating a definite improvement at this station. The furthest downstream station (RM 2.1) was also found to have Class IV (Poor) water quality throughout the three year sampling period, but again, improvement was noted. The 1974 data revealed very poor water quality, as evidenced by the low number of taxa (4) and low diversity index (0.35). Increases in the number of taxa (10 and 18, respectively) and diversity indices (2.76 and 3.12, respectively) were found in 1976 and 1977, respectively.

The Little Scioto River was considered to have Class III (Fair) water quality above the Marion WWTP but underwent notable stress below the plant, and did not appear to recover before reaching the confluence with the Scioto River. There were significant improvements in the two downstream stations in 1976 and 1977 as reflected by the benthic biota. It may be of interest to note that in 1976 and 1977, there was a curious reduction in the number of oligochaetes at the two downstream stations. In 1974, there were 356 oligochaetes collected at river mile 4.4 and 5052 at river mile 2.1. In 1976, the oligochaetes were completely absent at both stations, while in 1977, they were present in only limited numbers (23 at RM 4.4 and 37 at RM 2.1).

Table II-35. Summary of Benthic Data Collected from the Little Scioto River Relative to the Marion Wastewater Treatment Plant (WWTP), October, 1977[a]

	Station (RM)		
	9.3	4.4	2.1
Number of Samplers	5	5	5
Quantitative Taxa	23	11	18
Qualitative Taxa	11	5	12
Organisms/Ft^2	277	210	165
Index ($\bar{d}$)	3.17	2.27	3.12
Evaluation (Class)	III	IV	IV

(a) The Marion WWTP discharge is located at RM 6.4.

Table II-36. Summary of Benthic Data Collected from the Little Scioto River Relative to the Marion Wastewater Treatment Plant (WWTP), November, 1976[a]

	Station (RM) 9.3	4.4	2.1
Number of Samplers	5	5	5
Quantitative Taxa	22	16	10
Qualitative Taxa	9	5	4
Organisms/Ft^2	223	593	104
Index ($\bar{d}$)	2.57	1.19	2.76
Evaluation (Class)	III	IV	IV

(a) The Marion WWTP discharge is located at RM 6.4.

Table II-37. Summary of Benthic Data Collected from the Little Scioto River Relative to the Marion Wastewater Treatment Plant (WWTP), August, 1974[a]

	Station (RM) 9.3	4.4	2.1
Number of Samplers	5	5	5
Quantitative Taxa	12	2	4
Qualitative Taxa	15	3	7
Organisms/Ft^2	229	76	1069
Index ($\bar{d}$)	2.17	0.08	0.35
Evaluation (Class)	IV	IV	IV

(a) The Marion WWTP discharge is located at RM 6.4.

SEGMENT REPORTS

LITTLE SCIOTO RIVER
SCIOTO RIVER TRIBUTARY
CONFLUENCE AT RM 171.6

Segment Problem	Name Description	Use Designations Mile Points
05060001-033 FAIR*	Little Scioto River From headwaters to confluence with Marion WWTP	29.6-6.5

The physical/chemical water quality of the Little Scioto River was characterized by fair water quality in 1977 representing an improvement from 1979. The reason for the impairment in the headwaters is unknown.

Segment Problem	Name Description	Use Designation Mile Points
05060001-033 POOR*	Little Scioto River From the Marion WWTP to the Scioto River	WWH 6.4-0.0

The Little Scioto River receives effluent from the Marion WWTP (RM 6.4), as well as industrial effluent from the Whirlpool Corporation via Rockswale Ditch (RM 2.7). Previous surveys noted significant violations of water quality standards for dissolved oxygen, ammonia and fecal coliforms in this segment (OEPA, 1976). Recent reports have cited improvements in the water quality of the Little Scioto River. These improvements are attributed to a new tertiary wastewater treatment facility at Marion which came on line in 1977 (OEPA, 1979). However, a definitive statement concerning the water quality of this segment cannot be made without an intensive survey.

ROCK SWALE DITCH
LITTLE SCIOTO RIVER TRIBUTARY
CONFLUENCE AT RM 2.9

Segment Problem	Name Description	Use Designations Mile Points
N/A FAIR	Rock Swale Ditch From S.R. 65 to confluence with Little Scioto River	2.2-0

Rock Swale Ditch upstream from the confluence with Columbia Ditch (RM 1.7) originates as a common industrial sewer for several industries, some of which remain unknown. This effluent contained high concentrations of suspended solids, total zinc, total nickel, oil and grease, nutrients, and BOD_5. The quality of the ditch sediments and water was very poor with evidence of a deep, oily sludge and a very low diversity of aquatic life. Periodic discharges of highly toxic materials occured occasionally.

Rock Swale Ditch downstream from the confluence with Columbia Ditch (RM 1.7) showed slight recovery. A heavy growth of emergent vegetation seemed to function as a mechanism for removal of nutrients; the suspended materials were evidently stabilized in the muddy sediments.

Columbia Ditch originates in Sawyer Lake (RM 2.2), which was extremely eutrophic due to the addition of nutrients from unknown industrial sources (OEPA, NWDO data, 1976).

SCIOTO RIVER MAINSTEM

Segment Problem	Name Description	Use Designation Mile Points
05060001-032,-031 GOOD	Scioto River From Prospect to the Mill Creek confluence	WWH 165.5-150.7

Physical/chemical water quality sampling conducted below the city of Prospect (RM 165.5) from 1975-1977 showed no standards violations (OEPA, CDO data, 1975-1977). Water quality is believed to meet Warmwater Habitat (WWH) standards from Prospect to the Mill Creek confluence since no significant discharges exist in this segment. The Scioto River is a primary drinking water supply for the city of Columbus (RM 150.7) below its confluence with Mill Creek.

BOKES CREEK
TRIBUTARY OF SCIOTO RIVER

Segment Problem	Name Description	Use Designation Mile Points
N/A GOOD*	Bokes Creek from headwaters to West Mansfield Tributary	WWH 39.5-30.7
N/A FAIR*	Bokes Creek from West Mansfield Tributary to Union CR 294 bridge	WWH 30.6-23.2

Increase concentrations of COD, BOD, TKN, and phosphorus and large algal mats in Bokes Creek downstream from the West Mansfield Tributary reflected the impact of poor water quality from the tributary. A marked degradation in the macroinvertebrate fauna and fish fauna was observed below the confluence.

WEST MANSFIELD TRIBUTARY
TRIBUTARY TO BOKES CREEK
CONFLUENCE AT RM 30.6

Segment Problem	Name Description	Use Designation Mile Points
N/A FAIR*	West Mansfield Tributary from West Fork to confluence with Bokes Creek	WWH 0.7-0.0

WEST FORK WEST MANSFIELD TRIBUTARY
TRIBUTARY TO CONFLUENCE AT RM 0.7

Segment Problem	Name Description	Use Designation Mile Points
N/A POOR*	West Fork from headwaters to upstream of mouth	WWH 3.3-0.8

MAYOR PAINTER DITCH
WEST FORK TRIBUTARY
CONFLUENCE AT RM 2.3

Segment Problem	Name Description	Use Designation Mile Points
N/A POOR*	Mayor Painter Ditch from West Mansfield to unnamed tributary	WWH 1.1-0.0

The localized impact of the West Mansfield WWTP plant on Mayor Painter Ditch to West Fork (RM 2.3) has been documented (OEPA, 1974, 1976, 1982). The situation has not changed, and Ohio WQS violations for dissolved oxygen, ammonia and fecal coliforms continue to occur. This plant was included in a biological and water quality survey of Bokes Creek by the Ohio EPA during the summer of 1981.

Biological and Water Quality Survey

The results of water quality and biological sampling from July-September 1981 illustrated a measurable impact of the West Mansfield septic tank contaminated storm sewer system on Mayor Painter Ditch, the West Mansfield Tributary, and Bokes Creek. Water chemistry parameters and the fish fauna in Mayor Painter Ditch were indicative of severe organic pollution. Frequent violations of water quality standards for dissolved oxygen, ammonia-nitrogen and fecal coliform bacteria, as well as elevated nutrient concentrations and biochemical oxygen demand were noted at both stations. Improvement in water quality and the fish fauna in the West Fork (2.5 miles downstream from the storm sewer inflow) was indicative of some recovery from the organic waste load; however, the fish and water chemistry parameters as well as the macroinvertebrate fauna evidenced some residual influence from organic enrichment. Chemical parameters in Bokes Creek upstream from the confluence of the West Mansfield Tributary reflected good water quality, and the fish and macroinvertebrate faunas were indicative of good to fair water quality and environmental conditions. Increased concentrations of COD, BOD, TKN, and phosphorus, large algal mats, and a marked degradation of the fish and invertebrate faunas in Bokes Creek downstream from the confluence reflected the impact of poor water quality from the West Manfield Tributary. The biotic faunas and water chemistry parameters at stations 3.1 miles (and further) downstream showed partial to complete recovery.

Localized impacts from channelization, agricultural runoff, minimum flow (on some sampling dates), livestock grazing practices, and marginal habitat conditions were identified at several stations. The potential impact of livestock grazing adjacent to and in the stream at stations in the West Mansfield Tributary and in Bokes Creek was particularly difficult to separate from the potential influence of the sewer effluent. Despite the number and magnitude of other potential perturbations in the Bokes Creek watershed, the combination of biological and chemical sampling results support the conclusion that West Mansfield was the primary influence on degraded biota and water quality in Mayor Painter Ditch, and further was a contributing factor (particularly through nutrient enrichment) to degradation in the West Fork and in Bokes Creek downstream from the confluence of the West Mansfield Tributary.

The diversity of the invertebrate and fish faunas outside the area impacted by West Mansfield indicate that Bokes Creek and the West Mansfield Tributary can recover from the organic waste input and are capable of supporting reproducing populations of warmwater fish and invertebrates on an annual basis. Controlling the organic waste loading from the Village of West Mansfield should significantly improve water quality in the West Fork of the West Mansfield Tributary, and result in reduced nutrient loadings to Bokes Creek. The short length of stream, a lack of sufficient dilution water sources, and adverse habitat features (shallow depth, lack of canopy and instream cover) precludes establishment of a year round warmwater fauna in Mayor Painter Ditch; however, improved treatment would allow more effective use of the natural assimilative capacity to the benefit of the downstream receiving waters. Implementation of better grazing practices (e.g. livestock exclusion from streams) to protect stream banks and improve localized water quality is a prerequisite to complete stream community recovery within the Bokes Creek watershed (Ohio EPA, 1982).

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SCIOTO RIVER BASIN

OLENTANGY RIVER SUBBASIN (M-3)

SUBBASIN SUMMARY

Physical/chemical water quality in the Olentangy River Subbasin ranged from good to poor. An estimated 25 of the 124 stream miles evaluated in this basin had major physical/chemical problems. The upper reach near Galion was severely degraded by the variable effluent quality of the WWTP (RM 84.4). Water quality in the lower reach was degraded by combined sewer overflows and urban runoff from the Columbus metropolitan area (RM 9.8 to 0.0). The middle reach of the Olentangy River generally had good water quality, except for an occasional problem downstream from the Delaware WWTP (RM 24.8).

Water quality in Whetstone Creek, a major tributary to the Olentangy River, was affected by municipal discharges from Mt. Gilead (RM 22-0) and Cardington (RM 13.8), as well as nonpoint source pollution. Water quality was generally good, except during extreme low flow conditions. A biological and water quality survey of Whetstone creek is planned in 1984 and a draft report should be completed in 1985.

Biological Evaluations

Recent Ohio EPA, macrobenthic monitoring in the subbasin consisted of one fixed station benthic sample (NASQAN) collected in November, 1979, from the Olentangy River near Worthington in Franklin County (RM 12.3). The sample consisted of 37 taxa with a diversity index of 3.16 (RD 3). The benthic community was represented by 7 taxa of mayflies, 3 taxa of stoneflies, 5 taxa of caddisflies, and 14 taxa of midges. No taxon was numerically dominant. The overall benthic community appeared healthy and diverse and indicated Class II (Good) water quality.

Previous sampling at this location in August, 1977, resulted in only 17 taxa with a diversity index of 2.86 (Ohio EPA, 1980, RD 3-52). There were no stoneflies present and the numbers of mayfly and caddisfly taxa collected were reduced from the 1979 total. An evaluation of Class III (Fair) water quality was assigned. Improvements in water quality may have been responsible for the change in the benthic community in 1979. However, the November collecting date may have been more responsible for the changes in the benthic fauna than changes caused by water quality.

Another fixed station previously sampled in the subbasin was located on the Olentangy River at Columbus in Franklin County (RM 0.4). The sample was collected in August, 1974, and included an east bank and west bank station (Ohio EPA, 1980, RD 3-53). Thirteen taxa (diversity index 0.79) were collected at the east bank station, while eight taxa (diversity index 0.28) were collected at the west bank station. Oligochaetes accounted for at least 90 percent of the total numbers of organisms collected at both sites. There were no mayfly or caddisfly taxa present. An evaluation of Class IV (Poor) water quality was assigned to each data set.

Two benthic surveys have also been conducted in the subbasin, one each on the Olentangy River at Delaware and on Whetstone Creek at Mt. Gilead.

In July 1977, three biological sampling stations were established on the Olentangy River to determine the impact of the Delaware WWTP (RM 24.85). These stations were located at river miles 28.3, 22.5, and 18.2. A summary of the data can be found in Table II-38. The tabulated data is listed in RD 3-30 (Ohio EPA, 1980).

The data from the upstream station at river mile 28.3 showed a relatively high diversity index (3.23) and a low number of taxa (21). The water quality at this site was considered Class III (Fair) due primarily to the number of taxa. The next station (RM 22.5) revealed a decline in the diversity index (2.46) and an increase in number of taxa (24). This data indicated a slight organic enrichment, but no significant change in water quality (Class III). The most downstream station (RM 18.3) displayed increases in both numbers of taxa (26) and diversity (3.44). These improvements indicated that the river had probably recovered from the slight enrichment it had received, but it was still considered to have only Class III (Fair) water quality at this point.

Based on this survey, the Delaware WWTP discharge had a negligible impact on the Olentangy River.

In September 1973, three stations were established on Whetstone Creek in an effort to determine the impact of the Mt. Gilead WWTP (RM 21.7) and Koering Corporation (RM 21.4) discharges. The stations were located at river miles 25.8, 21.2, and 16.2. A summary of the data can be found in Table II-39. The tabulated data can be found in RD 3-29 (Ohio EPA, 1980).

A high diversity index (3.71) was found at the station at river mile 25.8, but a marginal number of taxa (25) and low number of pollution sensitive organisms indicated Class III (Fair) water quality. The data from river mile 21.2, below the dischargers, suggested organic enrichment as reflected by the low diversity index (0.74). The cause of the low index was a marked increase in the number of oligochaetes, which skewed the balance of the community. Despite the large number of taxa (27), water quality was considered Class IV (Poor) due to the poor benthic composition, the presence of few pollution sensitive organisms, and the low diversity index. The sample from the downstream station (RM 16.2) contained 32 taxa with a diversity index of 2.67. This station was apparently recovering from the enrichment encountered at the previous site and was assigned a Class III (Fair) water quality evaluation.

Based on the benthic community sampled, Whetstone Creek did receive an enrichment effect from either the Mt. Gilead WWTP discharge, the Koering Corporation discharge, or both.

Table II-38. Summary of Benthic Data Collected from the Olentangy River Relative to the Delaware Wastewater Treatment Plant (WWTP) Discharge, August, 1977[a]

	Station (RM) 28.3	22.5	18.3
Number of Samplers	5	5	5
Quantitative Taxa	21	24	26
Qualitative Taxa	13	15	13
Organisms/Ft^2	250	561	365
Index ($\bar{d}$)	3.23	2.46	3.44
Evaluation (Class)	III	III	III

(a) The Delaware WWTP discharge is located at RM 24.85.

Table II-39. Summary of Benthic Data Collected from Whetstone Creek Relative to the Mt. Gilead Wastewater Treatment Plant (WWTP) and Koering Corporation Discharges, October, 1973[a]

	Station (RM) 25.8	21.2	16.2
Number of Samplers	5	5	5
Quantitative Taxa	25	27	32
Organisms/Ft^2	102	723	226
Index ($\bar{d}$)	3.71	0.74	2.67
Evaluation (Class)	III	IV	III

(a) The Mt. Gilead WWTP discharge is located at RM 21.7. The Koering Corporation discharge is located at RM 21.4.

OLENTANGY RIVER MAINSTEM
SCIOTO RIVER TRIBUTARY
CONFLUENCE AT RM 127.8

Segment Problem	Name Description	Use Designation Mile Points
05060001-030 POOR	Olentangy River From Galion to approximately RM 76.2	WWH 86.2-76.2

Physical/chemical water quality in the upper reach near Galion was generally poor. A study conducted during the summer and fall of 1979 revealed dissolved oxygen, fecal coliform bacteria, total iron and total lead violations upstream and downstream of the Galion WWTP (RM 84.4)(OEPA, CDO data, 1979a). Total cadmium and total mercury violations also occurred downstream from the WWTP. This segment of the Olentangy River lacked adequate assimilative capacity to handle the organic loading from Galion. Dissolved oxygen violations extended for at least 1.9 miles downstream from the Galion WWTP outfall, but the point at which the river fully recovered is unknown. For this reason, the ending mile point of this segment was estimated. This segment is not expected to meet 1983 clean water goals because Adjusted Wasteload Limits will most likely be applied to the Galion WWTP.

Segment Problem	Name Description	Use Designation Mile Points
05060001-030,-028 GOOD	Olentangy River Below Galion to near Delaware	WWH 76.2-32.1

Limited water quality data and the absence of any significant point source dischargers suggest that this segment did not have physical/chemical problems. Caledonia (population 700) (RM 60.8) is the only urban area located on this river segment. Wastewater treatment in the community consists of septic tank systems and home aeration systems. Limited data collected five miles below Caledonia (U.S. Geological Survey, Station No. 03223000) did not indicate degradation of water quality (USGS, 1975-1977).

Physical/chemical water quality in the Delaware Reservoir (RM 31.5) was good except for relatively high nutrient levels (U.S. EPA, 1975). Water leaving the reservoir also appeared to be of good quality; ammonia and total phosphorus concentrations were generally lower in the outflow than in the incoming water, suggesting that the reservoir acts as a nutrient trap. The BOD_5 concentrations usually ranged between 2 and 3 mg/l, but values as high as 4 mg/l have been recorded (OEPA, CDO data, 1977).

WHETSTONE CREEK
DELAWARE RESERVOIR - OLENTANGY RIVER TRIBUTARY
CONFLUENCE AT RM 35.5

Segment Problem	Name Description	Use Designation Mile Points
05060001-029 FAIR*	Whetstone Creek From the headwaters to Mt. Gilead	WWH 35.0-21.7

A review of the Mt. Gilead WWTP (RM 22.0) monthly operating reports indicated fair water quality (physical/chemical) in Whetstone Creek above Mt. Gilead. This conclusion was substantiated by field observations made in June 1978 (OEPA, NWDO data, 1978).

Segment Problem	Name Description	Use Designation Mile Points
05060001-029 FAIR*	Whetstone creek From Mt. Gilead to the Delaware Reservoir	WWH 21.7-0.0

Ohio WQS violations for ammonia, dissolved oxygen, and fecal coliforms occurred in this stream segment during periods of low flow (OEPA, NWDO data, 1976). Municipal wastewater discharges at Mt. Gilead and Cardington were the major pollution sources during critical low flow periods. Timely implementation of the Construction Grants Program and the attainment of the 1979 Wasteload Allocation Limitations should eliminate these problems prior to 1983.

Segment Problem	Name Description	Use Designation Mile Points
05060001-028 GOOD*	Olentangy River From near Delaware to near Worthington	SNRW-WWH 32.1-11.4

Physical/chemical water quality in the Olentangy River below Delaware ranged from good to fair. Violations of the Ohio WQS for dissolved oxygen occurred at least 1.9 miles downstream of the Delaware WWTP in May 1977 (OEPA, CDO data, 1977). A review of the WWTP's monthly operating reports revealed occasional downstream violations for fecal coliforms. Monitoring at three sites further downstream revealed no Ohio WQS violations (OEPA, CDO data, 1977).

Wasteload modeling of the Olentangy River determined that BOD_5 and ammonia concentrations of 9 mg/l and 2 mg/l, respectively, would be required in the Delaware WWTP effluent to assure compliance with Ohio WQS (OEPA, 1979b). Because Adjusted Wasteload Limits are applicable for this discharger, BOD_5 and ammonia limits of 10 mg/l and 1.7 mg/l, respectively, were given to the Delaware WWTP. This means that if and when the Adjusted Wasteload Limits are attained, dissolved oxygen violations will still occur, only with less

frequency. It is believed that future violations in the will not impair attainment of the 1983 clean water goals. The attainment of this level of wastewater treatment is contingent upon the completion of improvements at the Delaware WWTP, currently in Step 1 of the Construction Grants Program.

Segment Problem	Name Description	Use Designation Mile Points
05060001-028 FAIR	Olentangy River From near Worthington to the Scioto River	WWH 11.4-0.0

Physical/chemical water quality in the lower Olentangy River was quite variable. Infrequent violations of the Ohio WQS for fecal coliforms (3 out of 22 samples), total iron (3/7) and total lead (1/8) occurred at the fixed monitoring station located near Worthington (RM 11.4; STORET Station No. 601290) (OEPA, CDO data, 1978-1980). The Worthington Hills service area was tied into Columbus Sewage Collection System in April, 1979, and the WWTP was taken off line. Since that time, fecal coliform bacterial concentrations at the monitoring site mentioned above have generally not exceeded the Ohio WQS.

However, there were numerous combined sewer overflows in the remainder of this segment. Combined sewer overflows and urban runoff periodically degraded water quality. A Field survey conducted during 1978 and 1979 documented several violations of the fecal coliform standard (OEPA, CDO data, 1978-1979). It is very likely that the elevated fecal coliform levels were due to the combined sewer overflow and not an upstream discharger.

HISTORICAL REVIEW

The Delaware WWTP is a secondary stabilization facility, last upgraded in 1973. The plant discharges to the Olentangy River at mile point 24.8. An analysis of the data collected between 1974 and 1980 at RM. 21.2 by cooperative samplers at the Delaware WWTP revealed no improvements in ambient river quality for dissolved oxygen and BOD_5.

There was a noticeable decline in ambient ammonia-nitrogen levels in the river between 1974 and 1978. This coincides with a substanital reduction in effluent ammonia-nitrogen at the Delaware WWTP. Between 1976 and 1978, the mean effluent ammonia was reduced 58% (Table II-40). The magnitude of the maximum stream ammonia concentration declined from a peak of 21 mg/l in 1974 to less than 1 mg/l in 1980.

Current instream water quality data is insufficient for further analysis.

Table II-40. Mean Effluent Ammonia-N 1976-1980 Delaware POTW

Year	Conc. (mg/l)
1976	14.2
1977	8.4
1978	6.0
1979	5.0
1980	5.8

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SCIOTO RIVER BASIN

BIG WALNUT CREEK SUBBASIN (M-4)

SUBBASIN SUMMARY

Physical/chemical water quality in the Big Walnut Creek Subbasin was good in the headwaters and upper portions area above the metropolitan Columbus area (RM 37.4 to 10.4). Two reservoirs, Alum Creek and Hoover, are located in this portion of the subbasin supplies drinking water for the cities of Columbus and Westerville. The central and lower portions of the subbasin were impacted by both urban point and nonpoint pollution. Further study is needed to accurately ascertain the extent of degradation of Alum and Big Walnut Creeks in the metropolitan Columbus area.

Blacklick Creek was seriously degraded below the Reynoldsburg and Blacklick Estates WWTP's. Numerous WQS violations for dissolved oxygen, ammonia and fecal coliforms occured in Blacklick Creek during low flow conditions.

SEGMENT REPORTS

ALUM CREEK
BIG WALNUT CREEK TRIBUTARY
CONFLUENCE AT RM 14.5

Segment Problem	Name Description	Use Designation Mile Points
05060001-026 GOOD	Alum Creek From the headwaters to the Noble Run confluence	WWH 55.8-18.6

BIG WALNUT CREEK MAINSTEM
SCIOTO RIVER TRIBUTARY
CONFLUENCE AT RM 113.1

05060001-025,-024, -018,-017,-015 GOOD*	Big Walnut Creek From the headwaters to the Columbus Morse Road Water Treatment Plant	WWH 74.2-33.5

Physical/chemical quality of the Big Walnut Creek Subbasin headwaters was very good (OEPA, 1979). There are two water supply reservoirs for the city of Columbus (Alum Creek Reservoir and Hoover Reservoir) located within the upper subbasin. Downstream of these reservoirs, the water quality of Alum Creek and Big Walnut Creek is degraded by both urban point source and nonpoint source pollution from the greater Columbus metropolitan area (OEPA, 1979). The attainment of 1983 goals cannot be ascertained for the lower segments of Alum Creek and Big Walnut Creek because of insufficient data. Previous sampling of lower Alum Creek revealed sporadic violations for dissolved oxygen and total iron (OEPA, CDO data, 1975-1980). A major stormwater overflow for the city of Columbus Combined Sewer System is located on Alum Creek at river mile 6.3.

Physical/chemical water quality data for lower Big Walnut Creek near the Scioto River indicated high nutrient levels and elevated levels of MBAS (OEPA, CDO data, 1977-1980). Although no WQS violations occurred, the data clearly reflected the impact of urban runoff from both point and nonpoint sources.

SUGAR CREEK
TRIBUTARY TO BIG WALNUT CREEK
CONFLUENCE AT RM 56.2

Segment Problem	Name Description	Use Designation Mile Points
N/A GOOD*	Sugar Creek from headwaters to Fredricks Road	WWH 8.0-2.0

PRAIRIE RUN
TRIBUTARY TO BIG WALNUT CREEK
CONFLUENCE AT RM 49.5

Segment Problem	Name Description	Use Designation Mile Points
N/A POOR*	Prairie run from headwaters to confluence with Big Walnut Creek	WWH 3.6-0.0

Biological and Water Quality Survey

Commencing August 3, 1982, water quality samples were collected bi-weekly at eight sites in the study area. A total of five sampling runs were made between August 3 and September 29, 1982, to evaluate conditions in the study area.

The major impacts on water quality and biological condition in the upper Big Walnut Creek study area during the 1982 study period were confined to Prairie Run. Water quality parameters (particularly ammonia-N) were indicative of the influence of the Sunbury WWTP discharge. Fish and macroinvertebrate communities were severely degraded in Prairie Run downstream from the WWTP outfall; the macroinvertebrate community was also degraded immediately upstream from the WWTP, an observation attibuted to urban and livestock grazing influences and possibly the discharge of non-contact cooling water from the Nestle Company. Chemical/physical and biological data revealed no substantial degradation in Big Walnut Creek 0.5 miles downstream from the Prairie Run confluence. The impact appeared to be limited to nutrient enrichment and associated increased biological production. The impact of this added nutrient load on the eutrophic condition of Hoover Reservoir was not assessed as part of this survey.

Mild organic matter and nutrient enrichment was detected in a short segment of Big Walnut Creek downstream from the unsewered community of Marengo. An apparent impact on dissolved oxygen was detected during two sampling runs; however, dissolved oxygen concentrations near 2 mg/l were recorded upstream and downstream from Marengo, apparently reflecting general background

conditions in the stream. The presence of a typical assemblage of stream fishes, including darters, and the predominance of sensitive macroinvertebrate groups (70% mayflies) 0.7 miles downstream from Marengo were indicative of good water quality and the absence of any significant biological degradation in the vicinity of Marengo (Ohio EPA, 1983).

BLACKLICK CREEK
BIG WALNUT CREEK TRIBUTARY
CONFLUENCE AT RM 14.5

Segment Problem	Name Description	Use Designation Mile Points
05060001-012 FAIR	Blacklick Creek from the Reynoldsburg WWTP to Big Walnut Creek	WWH 10.8-0.0

Serious WQS violations for dissolved oxygen, ammonia and fecal coliforms, occured in this segment of Blacklick Creek (Ohio EPA 1974, 1976, 1978). Degradation resulted from the combined effluents of the Reynoldsburg WWTP (RM 13.3) and the Blacklick Estates WWTP (RM 4.9). The diversion of this sewerage to the Columbus Wastewater Collection System prior to 1983 should improve the chemical water quality of Blacklick Creek, thereby allowing attainment of 1983 clean water goals.

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SCIOTO RIVER BASIN

MILL CREEK SUBBASIN
AND
A PORTION OF THE MIDDLE SCIOTO RIVER SUBBASIN (M-5)

SUBBASIN SUMMARY

Physical/chemical water quality and biological condition was monitored in a 30 mile section of Mill Creek (Union County) during June, July, and September, 1978 (Yoder et al., 1980). Based on the results of physical/chemical sampling, Mill Creek can be divided into four segments; 1) upstream from Marysville (RM 30.8 to 24.8) where no WQS violations were observed; 2) in Marysville upstream from the Marysville WWTP outfall (MP 19.4 to 18.4) where violations for total iron, total lead, total nickel, total cadmium and total zinc occurred; 3) downstream from the Marysville WWTP (RM 18.4) and Ray Lewis (RM 18.3) outfalls (RM 18.4 to 12.2) where values for dissolved oxygen, ammonia-nitrogen, total iron, and occasionally total cadmium and total lead, were found in violation of WQS; and 4) downstream from RM 11.8 where occasional violations of WQS for total iron, total cadmium, and total lead were detected. The observed violations for dissolved oxygen and ammonia-nitrogen were attributed to wastewater discharged by the Marysville WWTP, whereas violations for total iron, total lead, total nickel, and total zinc were attributed to urban nonpoint source runoff and possibly atmospheric transport and deposition. The bypassing of untreated and partially treated wastewater into Mill Creek during September, 1978, resulted in comparatively high ammonia-nitrogen (4.0-8.9 mg/l) and BOD_5 and a subsequent fish kill below the Marysville WWTP.

Water quality degradation was found to be limiting for aquatic life downstream from the Marysville WWTP and Ray Lewis outfalls. Recovery of the aquatic communities gradually took place with increasing distance downstream from the Marysville area. A reduction in the loadings of ammonia-nitrogen, oxygen demanding wastes, and toxic substances, should result in improved water quality conditions in Mill Creek. A facility plan to fund and build an advanced wastewater treatment plant at Marysville was approved in 1981. This facility will replace the outdated and undersized secondary treatment facility currently operating. Ray Lewis and Sons continue to batch dump electroplating wastes containing high concentrations of cyanide, nickel, zinc and cadmium. General plans to upgrade facilities at Ray Lewis and Sons have been discussed with the Industrial Wastewater Group (OEPA, CDO) but no construction has been planned to date.

Water quality of the Scioto River between Mill Creek and the Olentangy River was good and supported abundant fish populations in two impoundments. Nutrient levels are high in the Scioto River but the high flushing rates of the reservoirs reduces the severity of algal blooms.

Biological Evaluations

No other recent Ohio EPA macrobenthic data are available for the subbasin. Previous fixed station monitoring in the subbasin consisted of two sets of benthic data collected from two sampling sites. The benthic community was sampled in August, 1977, from the Scioto River near Dublin in Franklin County (RM 147.8) and in August, 1974, from the Scioto River above Columbus Southerly WWTP in Franklin County (RM 119.2).

The community at the Dublin station consisted of 14 taxa with a diversity index of 2.57 (Ohio EPA, 1980,RD 3-36). Seven taxa of midges along with oligochaetes and unidentified Turbellarians accounted for 99 percent of the number of organisms collected. An evaluation of Class IV (Poor) water quality was assigned based on all macroinvertebrate criteria.

The community at the station above Columbus Southerly consisted of seven taxa with a diversity index of 2.06 (Ohio EPA, 1980, RD 3-37). All taxa collected were organisms considered pollution tolerant. An evaluation of Class IV (Poor) water quality was assigned based on all criteria.

Six other stations were established in this subbasin on Mill Creek at Marysville in Union County in June, 1978. The purpose of the survey was to determine the impact of the Marysville WWTP and Ray Lewis and Sons, Inc. discharges. The six monitoring stations were located at river miles 24.8, 16.8, 12.2, 11.6, 7.1 and 1.7. The Marysville WWTP and Ray Lewis and Sons both discharge to Mill Creek at river mile 18.3. A summary of the data can be found in Table II-41. The tabulated data can be found in RD 3-28 (Ohio EPA, 1980).

The control station (RM 24.8) was considered to have Class II (Good) water quality based on a high number of taxa (34) and a high diversity index (3.90). The next two stations, river miles 16.8 and 12.2, were located below the two discharges and exhibited similar results with regard to numbers of taxa (21 and 20, respectively) and diversity indices (2.87 and 2.82, respectively). There was a marked difference in community composition between the two sites. The station at river mile 16.8 was almost completely dominated by chironomids, while the sample from river mile 12.2 contained large numbers of the intermediate mayflies Stenacron interpunctatum and Caenis sp. The predominance of tolerant taxa at river mile 16.8 was the primary reason for assigning this site an evaluation of Class IV (Poor) water quality. An evaluation of Class III (Fair) water quality was assigned to the station at river mile 12.2. The next two stations (RM 11.6 and RM 7.1) were also given a Class III (Fair) evaluation due primarily to the lack of pollution sensitive forms and the moderate number of taxa (25 and 20). The most downstream station (RM 1.7) had an increase in number of taxa (28) but a marked decrease in the diversity index (1.78). The poor diversity was caused by the presence of the intermediate mayfly Stenacron interpunctatum which accounted for 77% of the sample. This station was still regarded as having Class III (Fair) water quality.

This survey indicated that discharges from either the Marysville WWTP, Ray Lewis and Sons, Inc., or both had a definite impact on Mill Creek, as determined by the benthic biota. The river showed gradual improvement downstream, but at no point did it reach the water quality of the station sampled above Marysville. A more detailed account of this study can be found in Yoder, et al. (1980).

Table II-41: Summary of Benthic Data Collected from Mill Creek Relative to the Marysville Wastewater Treatment Plant (WWTP) Ray Lewis and Sons, Inc. Discharges, July 1978[a]

	Station (RM)					
	24.8	16.8	12.2	11.6	7.1	1.7
Number of Samplers	5	5	5	4	5	5
Quantitative Taxa	34	21	20	25	20	28
Qualitative Taxa	18	8	16	19	10	18
Organisms/Ft^2	187	350	110	278	47	212
Index ($\overline{d}$)	3.90	2.87	2.82	3.51	3.26	1.78
Evaluation (Class)	II	IV	III	III	III	III

(a) The Marysville WWTP and Ray Lewis and Sons, Inc. discharges are located at RM 18.3.

SEGEMENT REPORTS

MILL CREEK MAINSTEM
SCIOTO RIVER CONFLUENCE AT RM 150.7

Segment Problem	Name Description	Use Designation Mile Points
05060001-037 GOOD*	Mill Creek From the headwaters to the Town Run confluence	SNRW-WWH 37.8-18.9

The physical/chemical water quality of Mill Creek, sampled at two locations (RM 30.8 and 24.8) upstream from Marysville, was good. Physical/chemical data revealed no WQS violations and concentrations of all substances were well within accepted limits compatible with healthy communities of aquatic life. Biological sampling revealed that the aquatic communities were healthy and balanced. None of the downstream locations exhibited water quality equal to that found at these two locations. Physical/chemical sampling in the lower mile of this segment revealed violations for total iron, total lead and total cadmium. Further investigations are warranted to determine the source and significance of this low level contamination in the Mill Creek Subbasin and adjacent rural areas (Darby Creek Subbasin and other areas in Southwest Ohio).

Biological and Water Quality Survey

Based on the 1978 survey of Mill Creek macroinvertebrate and fish data indicated the best water quality conditions existed upstream from Marysville. In spite of evidence of urban non-point source impacts the fish community just upstream from the Marysville WWTP was diverse. Both the macroinvertebrate and fish communities were very degraded immediately downstream from the Marysville WWTP and Ray Lewis outfalls. Degradation of both communities became less evident with distance downstream apparently because of the detoxification of substances present in the Marysville WWTP and Ray Lewis effluents. At least partial recovery occurred in the lower reaches of Mill Creek.

Mill Creek was found to be capable of supporting permanent and healthy communities of aquatic life provided that water quality was not a limiting factor. Water quality degradation was found to be limiting for aquatic life downstream from the Marysville WWTP and Ray Lewis outfalls. Recovery of the aquatic communities gradually took place with increasing distance downstream from the Marysville area. A reduction in the loadings of ammonia-nitrogen, oxygen demanding wastes, and toxic substances, primarily from the Marysville WWTP and Ray Lewis facility, should result in improved water quality conditions in Mill Creek (Ohio EPA, 1980).

Segment Problem	Name Description	Use Designation Mile Points
05060001-037 GOOD*	Mill Creek From Town Run confluence to the Marysville WWTP	WWH 18.9-18.3

Physical/chemical water quality in this segment ranged from good to fair. Nutrient levels were significantly increased below the confluence with Town Run during critical flow conditions (OEPA, CDO data, 1977-1979) due to loadings from the urban/industrial watershed of Town Run. Total iron and total lead violations from nonpoint sources were found in this segment with increasing frequency (Yoder et al., 1980).

Segment Problem	Name Description	Use Designation Mile Points
05060001-037 FAIR*	Mill Creek From the Marysville WWTP to Hinton Mill Road	WWH 18.3-3.9

Ray Lewis and Sons, a plumbing part and fixture manufacturer, discharged a moderately toxic effluent containing nickel, cadmium, zinc and copper at RM 18.3 (Yoder et al., 1980). The company is currently planning to install a total water recycle system. Once these improvements are completed, water quality in this reach should improve. No construction has begun at this time . The Marysville WWTP (RM 18.3) caused frequent and severe WQS violations for dissolved oxygen and ammonia in this segment of Mill Creek (Yoder et al., 1980). The 1979 preliminary Wasteload Allocation indicated that attainment of the Adjusted Wasteload Limits by the Marysville WWTP will not eliminate WQS violations for dissolved oxygen and ammonia-nitrogen, but will reduce their frequency and severity (OEPA, 1979).

Segment Problem	Name Description	Use Designation Mile Points
05060001-037 GOOD*	Mill Creek From the Blue Creek confluence to the Scioto River	WWH 3.9-0.0

Nearly complete recovery from the organic pollution from the Marysville WWTP was observed in this segment of Mill Creek (Yoder et al., 1980). However, infrequent WQS violations for total iron, total cadmium, total lead, and phenolics did occur. Water quality may be expected to improve in this segment, and possibly upstream, upon completion of wastewater treatment improvements at Ray Lewis and Sons and the Marysville WWTP.

SCIOTO RIVER MAINSTEM

Segment Problem	Name Description	Use Designation Mile Points
05060001-031,-027 GOOD*	Scioto River From the O'Shaugnessy Reservoir to the Olentangy River confluence	WWH 150.7-130.0

O'Shaugnessy Reservoir was rated the most eutrophic of 20 Ohio lakes sampled by the U.S. EPA in 1973 (U.S. EPA, 1975). Low levels of algal density were found despite relatively high nutrient loads, a condition that reflects the high flushing rate of O'Shaugnessy Reservoir. Physical/chemical water quality below O'Shaugnessy Reservoir, including Griggs Reservoir, appeared to be good with the exception of relatively high nutrient levels (OEPA, CDO data, 1978). The Scioto River in Columbus was affected by urban stormwater runoff, but physical/chemical water quality remains generally good (OEPA, CDO data, 1979). See the discussion of biological and water quality survey results under the Middle Scioto River (M-8) section.

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SCIOTO RIVER BASIN

UPPER BIG DARBY CREEK SUBBASIN (M-6)

SUBBASIN SUMMARY

The Big Darby Creek Subbasin was characterized by good physical/chemical water quality and areas of excellent stream habitat. The entire Big Darby Creek drainage area has been classified as Exceptional Warmwater Habitat (EWH) in the Ohio Water Quality Standards. Numerous endangered species are known to inhabit Big Darby Creek.

Land use in the subbasin is predominately row crop agriculture and the few point sources of pollution have only a minor impact on water quality. Concentrations of total lead, total cadmium and total iron violated EWH standards in 10%-15% of the samples collected during the intensive survey of 1979, but the degree of the problem will not prevent attainment of 1983 clean water goals.

Biological Evaluations

Previous benthic sampling in the subbasin was conducted in August, 1975, at three stations located on Big Darby Creek at Plain City in Madison County. The purpose of the survey was to determine the impact of the Ranco Corporation discharge. The three monitoring stations were located at river miles 54.2, 53.2 and 52.4. The Ranco discharge is located at river mile 54.1. A summary of the data can be found in Table II-42. The tabulated data can be found in RD 3-31 (Ohio EPA, 1980).

The benthic samples at the upstream station (RM 54.2) and the station immediately below the Ranco discharge (RM 53.2) were quite similar in number of taxa collected (27 and 28, respectively) and diversity indices (3.37 and 3.72, respectively). These stations were evaluated as having Class III (Fair) water quality because of the sparsity of pollution sensitive organisms. The benthic community at river mile 52.4 decreased in both number of taxa (20) and diversity index (2.68). This seemed to indicate some degradation in water quality at the site, but an evaluation of Class III (Fair) was retained.

The Ranco Corporation discharge apparently had little or no impact on Big Darby Creek, as reflected by the benthic biota.

Table II-42. Summary of Benthic Data Collected from Big Darby Creek Relative to the Ranco Corporation Discharge, August, 1975[a]

	Station (RM) 54.2	53.2	52.4
Number of Samplers	5	5	5
Quantitative Taxa	27	28	20
Qualitative Taxa	17	15	8
Organisms/Ft^2	105	113	61
Index ($\bar{d}$)	3.37	3.72	2.68
Evaluation (Class)	III	III	III

(a) The Ranco Corporation discharge is located at RM 54.1.

SEGMENT REPORTS

LITTLE DARBY CREEK
BIG DARBY CREEK TRIBUTARY
CONFLUENCE AT RM 34.1

Segment Problem	Name Description	Use Designation Mile Points
05060001-051,-047, -046 EXCELLENT*	Little Darby Creek From the headwaters to Big Darby Creek	SNWR-EWH 38.0-0.0

Total iron, total lead, and total cadmium Exceptional Warmwater Habitat standards violations were noted in this stream segment (OEPA, CDO data, 1979a). These heavy metals were present at elevated concentrations in a substantial portion of the Big Darby Creek, drainage as well as adjacent watersheds (see the Mill Creek Subbasin Report). There is no known point source within the basin for these metals. Atmospheric transportation and pesticide runoff are suspected sources.

Little Darby Creek receives some point source pollution loading, but sampling in 1979 revealed minimal impact during higher than normal discharge conditions (OEPA, CDO data, 1979a). Wasteload modeling has indicated potential water quality problems below the Mechanicsburg WWTP (RM 39.2) and the West Jefferson WWTP (RM 5.3) during low flow conditions (OEPA, 1979b). Advanced Waste

Treatment was recommended for both these facilities, but no action has yet been taken. Isolated water quality problems existed in several drainage ditches in the Scenic Hills (RM 11.9) and Darby Crest (RM 8.3) subdivisions where numerous failing septic tank systems were found by Burgess and Niple (1978).

The city of West Jefferson is still in Step 1 of the Construction Grants Program. Water quality improvements in Little Darby Creek are expected upon completion of wastewater treatment improvements. The Scenic Hills and Darby Crest subdivisions may be connected to the West Jefferson WWTP. Until a final facilities plan is completed and approved by all interested parties, no improvements can be anticipated.

BIG DARBY CREEK
SCIOTO RIVER TRIBUTARY
CONFLUENCE AT RM 97.0

Segment Problem	Name Description	Use designation Mile Points
05060001-045,-043, -041 EXCELLENT*	Big Darby Creek From the headwaters to the Little Darby Creek confluence	SNRW-EWH 81.0-34.1

An intensive physical, chemical and biological survey of Big Darby Creek was conducted in 1979 (OEPA, CDO data, 1979a). Preliminary findings suggested that agricultural land use had the greatest influence on physical/chemical water quality. Average nitrate concentrations increased from the headwaters to mile point 58.8. This stream segment drains an intensive agricultural area and tile drainage from such land use is characteristically high in nitrates (Omernik, 1976). In addition, a strong correlation of stream discharge with suspended sediment indicated that heavy rainfall and subsequent agricultural runoff were of primary importance in determining the concentrations of sediment and associated nutrients in Big Darby Creek (OEPA, 1979b). Fecal coliform bacterial concentrations were also elevated after rainfall events suggesting nonpoint sources of contamination.

Water quality impacts from urban areas were minimal within this stream segment. Ineffective septic tank systems in the village of Milford Center caused slightly higher concentrations of fecal coliforms, total Kjeldahl nitrogen, phosphorus, and chemical oxygen demand. The sewage effluent had no substantial influence on the biological communities in Big Darby Creek.

Exceptional Warmwater Habitat violations for total lead, total cadmium and total iron were recorded during the 1979 survey (OEPA, CDO data, 1979a). The cause of these heavy metal problems is unknown; further investigation is needed to assess the relative contributions from natural background sources, nonpoint pollution, and atmospheric transport.

Biological and Water Quality Survey

Big Darby Creek was generally characterized by good water quality during 1979 and 1981. In general, the measured concentrations of nitrogen compounds, phosphorus, and BOD_5 were relatively low and not indicative of any acute problems. Heavy metals concentrations were indicative of both point source and nonpoint source inputs; however, the overall concentrations were still not indicative of severe problems (partially a function of relatively low concentrations and extremely hard water in Big Darby Creek). Although dissolved oxygen concentrations were generally fairly high, some problems might be anticipated downstream from Plain City during lower flow periods.

Water quality, as evidenced by the periphyton community, was good to exceptional at all sites on Big Darby Creek in 1979. There were no apparent effects from major dischargers between North Lewisburg (Spain Creek) and Darbyville. A high Autotrophic Index value at an upstream headwater station (RM 76.6) was judged to be inconclusive and not indicative of adverse water quality. Insufficient data were available for a general water quality evaluation of Little Darby Creek; however, one station upstream from the West Jefferson WWTP had an Autotrophic Index value indicative of excellent water quality.

Benthic macroinvertebrate communities were indicative of excellent water quality at all stations in Big Darby Creek and Little Darby Creek in 1979. Major dischargers had little or no apparent impact on the macroinvertebrates in either stream. Fish communities in both 1979 and 1981 were also indicative of good water quality in Big Darby and Little Darby Creek although localized minor depressions were observed. The only appreciable decline in fish community abundance and diversity (as evidenced by the composite index) and in the macroinvertebrate community occurred at the sampling station located immediately downstream from the confluence of Little Darby Creek. It was difficult to attribute this decline to any one factor, but the combination of a change in stream size, effects from upstream point sources, and unusually heavy recreational use for canoeing are potential causes.

The fish and macroinvertebrate communities in Big Darby Creek were characterized by exceptional diversity and abundance as well as a number of unique species as compared to similar sized streams in Ohio. Further, the fish community was characterized by relatively large populations of rare species, i.e. species that are rare throughout the remainder of the State (including populations of four Ohio endangered species) and contained sizable populations of a number of important sport fishes (Ohio EPA, 1982)

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SCIOTO RIVER BASIN

DEER CREEK SUBBASIN (M-7)

SUBBASIN SUMMARY

The Deer Creek Subbasin is predominantly a rural area, with approximately 96% of the total land classified as vacant or agricultural (MORPC, 1979). The principal population centers are London (RM 7.0 on Oak Run), Mt. Sterling (RM 34.5 on Deer Creek) and Williamsport (RM 14.2 on Deer Creek). Physical/chemical water quality problems are documented only for Oak Run below the London Correctional Institute.

In general, physical/chemical water quality is judged to be good, although an extensive data base was lacking. Sediment runoff with corresponding nutrient transport were the principal nonpoint source pollution problems. The impact of agricultural runoff on biological communties is uncertain, and further biological sampling is needed to fully assess the impact of this pollution source in relation to attainment of 1983 clean water goals. Limited field studies on sediment loads have already been conducted by the U.S. Geological Survey as part of the Deer Creek Reservoir Project. Based on available data, the entire subbasin is expected to meet the 1983 water quality goals on schedule.

Biological Evaluations

No recent Ohio EPA, macrobenthic data are available for the subbasin. Previous fixed station monitoring in the subbasin consisted of one sample collected in August, 1974, from Deer Creek near its confluence with the Scioto River in Ross County (RM 1.1). Twenty-nine taxa were collected with a diversity index of 2.76 (Ohio EPA, 1980, RD 3-57). The sample consisted of nine taxa of mayflies, seven taxa of caddisflies, and nine taxa of midges. The overall benthic community appeared healthy and diverse and indicated Class II (Good) water quality.

SEGMENT REPORTS

OAK RUN
DEER CREEK TRIBUTARY
CONFLUENCE AT RM 51.0

Segment Problem	Name Description	Use Designation Mile Points
05060001-103,-102 FAIR	Oak Run From the London Correctional Institute WWTP to Deer Creek	WWH 12.0-0.0

Significant point source degradation of water quality occured in the headwaters of Oak Creek below the London Correctional Institute (LCI) WWTP (RM 11.9) and the city of London WWTP (RM 7.8) (Ohio EPA 1974, 1976, 1978a). Recent low flow water quality monitoring of Oak Run near LCI revealed

substantial water quality degradation for nutrients, suspended solids and dissolved oxygen (Ohio EPA, CDO data, 1978b). The 201 Facility Plan for the area recommends that LCI connect to the existing London Sanitary System. The degraded segment of Oak Run may meet 1983 water quality goals if the recommendation is implemented.

DEER CREEK MAINSTEM
SCIOTO RIVER TRIBUTARY
CONFLUENCE AT RM 81.8

Segment Problem	Name Description	Use Designation Mile Points
05060002-101,-097,096, -094,-092,-090,-089, -088 GOOD	Deer Creek From the Madison Lake outlet to the Scioto River	WWH 62.3-0.0

Recent physical/chemical water quality data for the majority of the Deer Creek Subbasin is not available. Monthly water quality sampling conducted between 1973-1977, near the confluence of Deer Creek with the Scioto River, revealed no significant WQS violations (OEPA, CDO data, 1973-1977). Conditions have not substantially changed in the reach below Deer Creek Reservoir and further investigation is not warranted.

Deer Creek, between the village of Mt. Sterling (RM 34.5) and the Deer Creek Reservoir, was recently sampled by the Army Corps of Engineers. The data indicated infrequent ammonia violations in this segment of Deer Creek (OEPA, 1979). The Mt. Sterling WWTP was the probable source of these violations. This municipality is currently completing facility plans for upgrading existing treatment facilities, but it is unlikely that any improvements will be completed prior to 1983. The discharge does not seriously impact stream quality, and the minor standards violations will not impair attainment of 1983 goals.

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SCIOTO RIVER BASIN

MIDDLE SCIOTO RIVER SUBBASIN (M-8)

SUBBASIN SUMMARY

Physical/chemical water quality in the 50 mile segment of the Scioto River below Columbus remains poor. Pollutant loading from the metropolitan Columbus area (RM 125 to 114) and the city of Circleville (RM 96 to 91.8) exceeded the assimilative capacity of the Scioto River, despite wastewater treatment improvements at several facilities. Municipal and industrial point sources and urban nonpoint sources were significant in degrading this river segment. However, the diversion of upstream flow for public water supplies may be the single most important factor preventing the attainment of 1983 clean water goals in portions of the Scioto River.

Lower Big Darby Creek has excellent physical/chemical water quality and stretches of exceptional stream habitat. A biological and water quality survey of the Big Darby Creek drainage in 1979 (OEPA, CDO data) revealed that agricultural land use influenced water quality and that there were only minor point source pollution impacts (see the Big Darby Creek Subbasin report).

Biological Evaluations

Previous fixed station monitoring in the subbasin consisted of 14 sets of benthic data collected from five locations. Included were data from a station on the Scioto River below Columbus Southerly WWTP in Franklin County (RM 117.3), a station on the Scioto River below Big Walnut Creek in Pickaway County (RM 116.8), a NASQAN station on the Scioto River at Circleville in Pickaway County (RM 100.8), a station on the Scioto River above Deer Creek in Ross County (RM 85.4), and a NASQAN station on Big Darby Creek at Darbyville in Pickaway County (RM 13.2).

The Scioto River below Columbus Southerly WWTP was sampled at east bank and west bank stations in August, 1977, and August, 1974 (Ohio EPA, 1980, RD 3-38 and RD 3-39). The 1977 samples consisted of 14 taxa with a diversity index of 2.78 at the east bank and 14 taxa with a diversity index of 2.78 at the east bank and 14 taxa with a diversity index of 2.63 at the west bank. Four taxa of midges and the pulmonate snail Physa accounted for greater than 75 percent of the total numbers of organisms collected at each station. The 1974 samples consisted of five taxa with a diversity index of 0.11 at the east bank and ten taxa with a diversity index of 0.13 at the west bank. Oligochaetes overwhelmingly dominated the samples with extremely high densities found at the west bank. All four samples were assigned evaluations of Class IV (Poor) water quality. Some improvements in the benthic community were noted in 1977, but it was not known whether these changes reflected improved water quality.

The Scioto River below Big Walnut Creek was sampled at an east bank and west bank station in August, 1974 (Ohio EPA, 1980, RD 3-40). Seven taxa with a diversity index of 0.10 were collected at each bank. Again, oligochaetes overwhelmingly dominated the samples, reflecting very poor water quality. Evaluations of Class IV (Poor) were assigned.

The Scioto River at Circleville was sampled at an east bank and west bank station in August, 1977, a west bank station in August, 1976, and an east bank and west bank station in August, 1974 (Ohio EPA, 1980, RD 3-41, RD 3-42, RD 3-43, and RD 3-44). The number of taxa ranged from 9 at the east bank in 1974 to 20 at the west bank in 1977. Diversity indices ranged from 1.30 at the east bank in 1977 to 3.11 at the west bank in 1974. All samples were dominated by large numbers of midges, oligochaetes and flatworms. Increased numbers and kinds of mayflies and caddisflies collected in 1977 seemed to indicate improving water quality, although all sites were assigned evaluations of Class IV (Poor) water quality. The Scioto River above Deer Creek was sampled at an east and west bank station in August, 1974 (Ohio EPA, 1980, RD 3-45). Fourteen taxa with a diversity index of 2.61 were collected at the east bank and 13 taxa with a diversity index of 2.37 were collected at the west bank. Both samples were composed of large numbers of midges, oligochaetes and flatworms. Evaluations of Class IV (Poor) water quality were assigned.

Big Darby Creek at Darbyville was sampled in August, 1977 (Ohio EPA, 1980, RD 3-55). Twenty-six benthic taxa were collected (diversity index 3.54). The sample was composed of nine taxa of mayflies, three taxa of caddisflies, and nine taxa of midges. No one taxon dominated numerically. An evaluation of Class II (Good) water quality was assigned.

Other benthic monitoring previously conducted in the subbasin included data from three stations sampled in July, 1977, on Scippo Creek south of Circleville in Pickaway County. The purpose of the survey was to determine the impact of the PPG Industries discharge. Stations were established at river miles 4.9, 4.4, and 2.25. The PPG discharge enters Scippo Creek at river mile 4.7. The benthic data collected at the three stations can be found in RD 3-32 (Ohio EPA, 1980). A summary of the data can be found in Table II-43.

The number of taxa (27) and diversity index (3.48) found at river mile 4.9 located above the discharge indicated Class II (Good) water quality. The water quality at station 4.4, located below the discharge, was Class IV (Poor). The number of taxa was reduced to 12 and the diversity index was 2.50. There was also a reduction in both numbers and types of mayflies at this station. At river mile 2.25, the species composition was similar to that found at the station above the outfall, with 26 taxa present and a divesity index of 3.81. Class II (Good) water quality was again indicated.

The PPG Industries effluent had a major deleterious effect on the water quality of Scippo Creek, but the stream recovered approximately 2.4 miles below the discharge.

Table II-43. Summary of Benthic Data Collected from Scippo Creek Relative to the PPG Discharge, July 1977[a]

	Station (RM) 4.9	4.4	2.2
Number of Samplers	5	5	5
Quantitative Taxa	27	12	26
Qualitative Taxa	14	6	19
Organisms/Ft^2	294	64	364
Index ($\overline{d}$)	3.48	2.50	3.81
Evaluation (Class)	II	IV	II

(a) The PPG Industries discharge is located at RM 4.7.

HISTORICAL

Data from four sampling stations on the Scioto River, below Columbus were reviewed to determine if any improvements in water quality had occurred since the stations were established. The information, tabularized in Table II-43 indicated that no patterns of improvement nor degradation exist (i.e., no increase or decrease in the frequency or magnitude of Ohio WQS violations).

A closer look at water quality patterns in the Scioto River below Columbus was made to determine if any substantial improvements could be noted.

The Scioto mainstem below Columbus is one area of the basin which has been continuously monitored for many years, not only by state and federal pollution control agencies but also local industrial and municipal water pollution control co-operators.

The Columbus metropolitan area accounted for some 70% of the total population in the Scioto River basin. It was the dominant pollution source in the Middle Scioto Basin. Wastewater from the Columbus Jackson-Pike and Southerly WWTPs accounts for a majority of the discharge of the Scioto River below Columbus during low flow. As a result, the quality of this effluent has a major impact upon ambient water quality in this stream segment.

An attempt was made to develop correlations between mean annual discharge for the U.S. Geological Gaging Site at Columbus, (RM 127), the U.S. Geological continuous dissolved oxygen recorder near Shadeville (RM 116.7), and the combined effluent total C-BOD_5 load for Jackson-Pike (RM 127.1) and Southerly WWTPs (RM 118.4). Even though various statistical analyses were used to review the data, no significance could be established (Tables II-44 through II-47).

Table II-48 is a summary from the entities self monitoring data of total C-BOD effluent loading per day for the individual Columbus WWTPs. The information is incomplete since no exact measure of raw or settled bypass discharge is available for Jackson Pike, and measurement of raw bypass at Southerly is only available from 1977 to the present. Estimates for Southerly bypass loadings were calculated using a percentage of the average hourly flow rate for the plant for the years 1972-1976. The data indicate an apparent significant decline in total C-BOD_5 loading from these facilities. The magnitude is on the order of 55% when the 1972-1976 mean combined loading is compared to the 1977-1980 mean combined loading.

These load reductions coincided with a substantial decline in the number of days per water year when the maximum daily dissolved oxygen at the continuous recorder near Shadeville (RM 116.7) was below 5 mg/l Table II-44. The percentage of days has declined from 27.4% for the period 1972-1975 to 4.4% for the period 1976-1980.

NPDES Permits for these facilities were initially issued in March, 1975. However, because of legal appeals, an effective permit was not in force for Jackson Pike until 1976, while the Southerly permit was not effective until 1977.

Incremental improvement in mean dissolved oxygen and ammonia-nitrogen for the Scioto River near South Bloomfield (RM 105.4) is further indication of improving chemical water quality for the period 1974-1980 the results indicate a general increase in mean dissolved oxygen. Coupled with a general decrease in mean ammonia-nitrogen. This apparent improvement in river quality is likely the direct result of the continuing improvements of the effluent quality at both of the Columbus WWTPs. Continued monitoring is needed to verify these apparent environmental improvements.

Table II-44. Mill Creek Below Marysville (RM 17.8)
Warmwater Habitat Water Quality Standard Violations/Total Number Samples

Parameter	1976	1977	1978	1979	1980	1981
Dissolved O_2 (5.0 mg/l)			3/9	1/12	1/12	4/11
Fecal Coliform			2/9	4/12	4/12	5/11
Phenolics			0/5	1/12	3/11	0/10
Cyanide			0/9	1/11	1/10	1/8
T. Iron			0/6	1/4	3/4	2/4
T. Lead			1/6	1/4	1/4	0/4
T. Zinc			0/6	0/4	0/4	0/4
T. Copper			0/6	0/4	0/4	0/4
T. Cadmium			0/6	0/4	0/4	0/4
T. Chromium			0/6	0/4	0/4	0/4
Ammonia-N			3/9	0/12	1/12	4/11
(Cal. Year) Q (Mean Annual) (Discharge)	89.9	129	167	242	-	-

Stream Classification: Warmwater Habitat

Table II-45. Big Darby Creek at Darbyville (RM 13.2)

Exceptional Warmwater Habitat Water Quality Standards
Violations/Total Number Samples

Parameter	1976	1977	1978	1979	1980	1981
Dissolved O_2	0/10	0/11	0/11	0/11	0/12	0/12
Fecal Coliform	0/10	0/11	0/11	2/10	2/11	1/12
Ammonia-N	0/10	0/11	0/11	0/2	0/12	0/12
Phenolics	1/8	0/3	0/3	0/4	0/4	0/4
T. Iron	1/4	0/4	-	2/4	2/4	-
T. Lead	0/4	1/4	0/4	0/4	0/4	0/4
T. Copper 5 mg/l max	1/4	0/4	0/4	0/4	0/4	0/4
T. Zinc	0/4	2/4	0/4	0/4	1/4	1/4
T. Cadmium 1.2 ug/l	0/4	0/4	0/4	0/4	0/4	0/4
T. Chromium 50 ug/l	0/4	0/4	0/4	0/4	0/4	0/4
(Cal. Year) Q (Mean Annual) (Discharge)	341	413	509	818	-	-

Stream Classification: Exceptional Warmwater Habitat
State - National Resource Waters

Table II-46. Scioto River at Florence-Chapel Bridge (RM 101.8)

Warmwater Habitat Water Quality Standards Violations/Total Number Samples

Parameter	1976	1977	1978	1979	1980	1981
Dissolved O_2 (5.0 mg/l)		0/3	3/11	4/12	2/12	1/11
Fecal Coliform		0/3	3/12	6/12	8/9	6/12
Ammonia-N		0/3	1/12	0/12	0/12	0/11
Phenolics		1/2	1/12	3/11	0/12	0/10
T. Iron		-	-	2/3	2/4	2/4
T. Lead		0/1	0/4	0/4	1/4	0/4
T. Copper		0/1	0/4	0/4	0/4	1/3
T. Zinc		0/1	0/4	0/4	0/4	0/3
T. Cadmium		0/1	0/4	0/4	0/4	0/3
T. Chromium		0/1	0/4	0/4	0/4	0/3
(Cal. Year) Q (Mean Annual) (Discharge)	1969	1919	2637	Gage Site Discontinued		

Stream Classification: Limited Warmwater Habitat

Table II-47. Olentangy River Near Worthington (RM 11.5)

Warmwater Habitat Water Quality Standards Violations/Total Number Samples

Parameter	1976	1977	1978	1979	1980	1981
Dissolved O_2	0/10	0/11	0/12	0/12	0/12	0/12
Fecal Coliform	3/9	3/10	5/11	2/.11	0/11	2/11
Ammonia-N	0/10	0/11	0/12	0/12	0/12	0/12
Phenolics	0/11	1/7	0/3	0/4	0/4	0/5
T. Iron	2/4	0/3	-	2/3	1/4	1/4
T. Lead	0/4	0/4	1/4	0/4	0/4	0/4
T. Copper	0/4	0/4	02/	0/4	0/4	0/4
T. Zinc	0/4	0/4	0/4	0/4	0/4	0/4
T. Cadmium	0/4	0/4	0/4	0/4	0/4	0/4
T. Chromium	0/4	0/4	0/4	0/4	0/4	0/4
Q (Cal. Year) (Mean Annual) (Discharge)	364	409	490	723	-	-

Stream Classification: Warmwater Habitat
State - National Resource Waters

Table II-48. City of Columbus: Final Effluent C-BOD_5 Loading to the Scioto River (lbs/day)

Calendar Year	Jackson Pike WWTP			Southerly WWTP			
	Bypass	Final	Total	Bypass	Final	Total	Combined
1972	NO	26286	26286	5064 (est.)	14784	19848	46134
1973	DATA	22175	22175	12957 (est.)	25515	38472	60647
1974	FOR	14175	14174	6187 (est.)	30540	36727	50902
1975	WHITTIER	13058	13058	17751 (est.)	7964	25715	38773
1976	STREET	8710	8710	10526 (est.)	11058	21584	30294
1977	STORM	7302	7302	2412	8229	10641	17943
1978	TANK	7910	7910	7200	5559	12759	20669
1979	DISCHARGE	8472	8472	11558	4642	16200	24672
1980		7292	7292	6575	3900	10475	17767

SEGMENT REPORTS

BIG DARBY CREEK
SCIOTO RIVER TRIBUTARY
CONFLUENCE AT RM 97.0

Segment Problem	Name Description	Use Designation Mile Points
05060001-041,-040, -038 EXCELLENT*	Big Darby Creek from the Little Darby Creek confluence to the Scioto River	SNRW-EWH 34.1-0.0

Physical/chemical water quality is much the same as in Upper Big Darby Creek (see separate subbasin report). A single WQS violation of the Exceptional Warmwater Habitat dissolved oxygen standard was observed in 61 samples (OEPA, CDO data, 1979a).

CENTRAL SCIOTO RIVER

Segment Problem	Name Description	Use Designation Mile Points
05060001-027,010, -002,-001, 05060002-085,-084, -083,-081 FAIR*	Scioto River from the Olentangy River confluence to the Deer Creek confluence	WWH 130.0-81.1

SCIPPO CREEK
SCIOTO RIVER TRIBUTARY

Segment Problem	Name Description	Use Designation Mile Points
05060002-082 GOOD*	Scippo Creek from headwaters to upstream of PPG	WWH 17.5-4.8
05060002-082 POOR*	Scippo Creek from PPG tp 2.1 miles downstream from PPG	WWH 4.7-2.6
05060002-082 GOOD*	Scippo Creek from RM 2.5 to Scioto River	WWH 2.5-0.0

Biological and Water Quality Survey

Instream chemical/physical water quality data from a 1981 survey in the central Scioto River mainstem clearly revealed the impact of major point sources of wastewater and, to a lesser extent, nonpoint sources. No less than 11 parameters exhibited patterns reflective of inputs from point sources. The most noticeable increases occurred downstream from the Jackson Pike WWTP (RM 127.1) for BOD_5, ammonia-nitrogen (NH_3-N), total Kjeldahl nitrogen (TKN), total phosphorus (P-T), nitrate-nitrogen (NO_3-N) and total zinc (Zn-T). Conductivity, total dissolved solids (TDS), chemical oxygen demand (COD), and fecal coliform bacteria levels increased downstream from the Columbus urban area in general. This included inputs from both urban nonpoint and major point sources. Dissolved oxygen (D.O.) concentrations exhibited the classic decline and recovery downstream from both the Jackson Pike and Columbus Southerly (RM 118.4) WWTPs. Concentrations of most of these parameters (except D.O. which was lower) were higher in 1981 as compared to 1980, the result of lower river flows in 1981.

The condition of the fish and macroinvertebrate communities outside the areas of degradation coupled with the lack of serious biological impacts resulting from habitat modification illustrate the potential of the central Scioto River mainstem to support a normal and healthy aquatic community typical of that found in large warmwater rivers. The observed recovery of the aquatic fauna with correspondings reductions in point source loadings of pollutants, even with decreasing river flow, indicated the potential for full recovery with a corresponding reduction in these loadings.

The central Scioto River mainstem currently supports a significant sport and recreational fishery between O'Shaughnessy dam (RM 148.8) and the Olentangy River confluence (RM 132.3). Plans are being developed by the city of Columbus to improve access to the mainstem in the downtown area between the Dublin Rd. WTP dam (RM 133.4) and Town Street dam (RM 131.1) for boating and sport fishing. Part of this 2.3 mile segment is currently used as a park area and supports small watercraft uses. Based on the observations of the Ohio EPA field crews during 1979-1981 sport fishing takes place along the entire length of the remaining mainstem. The opportunity for catching game species (i.e. bass, crappie, walleye, etc.) declines downstream from Columbus. Some catches of walleye (*Stizostedion vitreum*) and other game species have been reported in the mainstem near Circleville and immediately upstream and downstream from the Greenlawn dam (RM 129.6). These opportunities should increase as pollutant loadings decrease. The sport fishery between the Jackson Pike WWTP (RM 127.1) and just upstream from Circleville consists mainly of common carp, buffalo (*Ictiobus sp.*), freshwater drum (*Aplodinotus grunniens*), and occasionally channel catfish (*Ictalurus punctatus*), species that are tolerant of the existing loadings. The opportunity for catching desirable game and sport species should substantially increase with improved water quality.

Ohio WQS violations for dissolved oxygen, ammonia, phenolics, and fecal coliforms were reported in this segment (OEPA, CDO data, 1977-1979). Combined sewer overflows, urban storm runoff, and point source pollution caused this degradation of water quality (OEPA, 1979b). Major dischargers include the Columbus Jackson Pike WWTP (RM 123), the Columbus Southerly WWTP (RM 114), the Circleville WWTP (RM 95.3), the Container Corporation of America (RM 95.2),

the DuPont Company (RM 91.8) and Pittsburgh Plate Glass Company (RM 86.1). Solids handling problems at both Columbus facilities limit treatment efficiencies resulting in sewage bypasses during periods of high incoming flow. To alleviate these sludge problems, a new incinerator has been introduced on line at the Jackson WWTP, and newly installed centrifuges were operational at the Southerly WWTP. In addition, the city has initiated a sludge composting operation at the Southwesterly site in cooperation with the Ohio Farm Bureau. The digested sludge is to be applied to farm land as a soil conditioner.

These and other pollution abatement programs can be expected to improve the quality of the middle Scioto River. However, the diversion of upstream flows for public water supplies combined with the sheer volume of wastes generated in the metropolitan Columbus-Circleville area will probably continue to prevent the scheduled attainment of 1983 clean water goals.

Studies of the water quality problems of the Middle Scioto River Basin have been conducted in recent years by Burgess and Niple and the U.S.G.S. The results have not yet been made public, but should provide additional information on the problems in this area (Ohio EPA, 1983).

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SCIOTO RIVER BASIN

WALNUT CREEK SUBBASIN (M-9)

SUBBASIN SUMMARY

Recent water quality monitoring detected WQS violations for dissolved oxygen below the village of Baltimore on Walnut Creek. These violations were the result of the combined discharges of the Crown Zellarbach Corporation (RM 41.6) and the city of Baltimore WWTP (RM 40.0). Surburban residential development has been extensive in the basin's northwestern quadrant. Many moderate sized (0.08-0.15 MGD) package WWTPs discharge to the low flow tributaries of Sycamore and Georges Creeks. The localized water quality impact of these facilities has not been extensively studied. Areas of the subbasin which are not expected to meet 1983 goals include Sycamore Creek below Pickerington and Walnut Creek below Baltimore.

Biological Evaluations

Previous fixed station monitoring in the subbasin consisted of two benthic samples collected in August, 1974, from Little Walnut Creek near its confluence with the Scioto River in Pickaway County (RM 0.7) and from PawPaw Creek below Crown Zellerback at Baltimore in Fairfield County (RM 0.6).

The benthic sample from Little Walnut Creek consisted of 27 taxa with a diversity index of 2.93 (RD 3-54). An evaluation of Class III (Fair) water quality was assigned based primarily on the unfavorable benthic composition.

The benthic sample from PawPaw Creek consisted of 19 taxa with a diversity index of 2.04 (RD 3-56). Oligochaetes and six taxa of midges accounted for 70 percent of the total number of organisms collected. An evaluation of Class IV (Poor) water quality was assigned.

SEGMENT REPORTS

SYCAMORE CREEK
WALNUT CREEK TRIBUTARY
CONFLUENCE AT RM 29.2

Segment Problem	Name Description	Use Designation Mile Points
05070001-008 FAIR	Sycamore Creek from the Pickerington WWTP to Walnut Creek	WWH 4.3-0.0

Dissolved oxygen, suspended solids and ammonia problems in the Pickerington reach of Sycamore Creek were the result of periodic overloads at the Pickerington WWTP (RM 4.5). These overloads resulted from excessive inflow and infiltration problems, an increase in service area, and the addition of industrial dairy processing wastes from the Dri-Milk Company (Mike Fox, pers. com. 1979). Alternatives to the present situation, which are being developed

on a regional 201 planning basis for the municipalities of Pickerington, Canal Winchester and Lithopolis, have not been satisfactory, due to allegedly inadequate plans prepared by the consultant. No plan has been adopted to date. The completion of pollution control projects necessary to meet 1983 goals is remote in light of the extensive political problems of regional development projects.

WALNUT CREEK
SCIOTO RIVER TRIBUTARY
CONFLUENCE AT RM 102.3

Segment Problem	Name Description	Use Designation Mile Points
05060001-007,-006, GOOD*	Walnut Creek from headwaters to Pawpaw Creek	WWH 49.8-41.4
N/A FAIR*	Pawpaw Creek from headwaters to confluence with Walnut Creek	WWH 4.7-0.0
05060001-006 POOR*	Walnut Creek from the Paw Paw Creek confluence to the Sycamore Creek confluence	WWH 39.0-27.0
N/A FAIR*	Carroll Tributary from headwaters to confluence with Walnut Creek	WWH unknown

Walnut Creek below the village of Baltimore receives a substantial loading of treated pulp mill waste from the Crown Zellarbach Corporation (a cardboard manufacturing company), as well as secondary effluent from the Baltimore WWTP.

The most recent water quality sampling below the village of Baltimore was conducted in September, 1979, as part of the low flow sampling program in the Scioto River Basin. Results indicated WQS violations for dissolved oxygen (OEPA, CDO data, 1979(b)). Wasteload modeling of this reach by the Ohio EPA has indicated that the Baltimore WWTP must meet a final effluent BOD_5 of less than 4.0 mg/l to achieve compliance with WWH Standards. Modeling has projected dissolved oxygen violations for approximately 12 miles before recovery (OEPA, 1979(a)).

The Crown Zellarbach Corporation at Baltimore discharges to Paw Paw Creek. Wells that will augment stream flow in Paw Paw Creek during critical low flow conditions have recently been constructed. The village of Baltimore has submitted a Step II, Detailed Facility Plan to upgrade its sewer and waste treatment systems. Continued levels of funding and completion of planned improvements will determine 1983 compliance for this entity.

Biological and Water Quality Survey

A comprehensive water quality report was prepared for Walnut Creek from its confluence with the Scioto River to river mile (RM) 47 upstream of Baltimore. Physical, chemical and biological data were collected to determine the nature and sources of water quality degradation and to evaluate stream use designations.

Chemical and biological sampling showed Walnut Creek to have fairly good water quality, and faunas indicative of healthy warmwater communities. Therefore, it is recommended that the creek and tributaries maintain the Warmwater Habitat (WWH) use designation with one exception. WQS are periodically violated in segments of Pawpaw Creek and Walnut Creek downstream of Crown Zellerbach and the Baltimore WWTP. It is recommended that these segments be designated Limited Warmwater Habitat. The only park area identified in the basin is on Slate Run (tributary to Mud Run). Thus, it is recommended that Slate Run be designated as State and National Resource waters (SNR) and that this use designation no longer be applied to Walnut Creek and tributaries. There are no public water supply intakes within the Walnut Creek basin, therefore, the public water supply designation should not be applied to Walnut Creek.

Crown Zellerbach and the Baltimore WWTP were two entities having the most obvious impacts on Walnut Creek. Chemical and biological sampling showed a decrease in D.O. and an increase in BOD_5 downstream from Crown Zellerbach and the Baltimore WWTP along with changes in macroinvertebrate and fish populations reflecting degraded water quality. Modeling showed that, to meet WQS at critical low flow, the Baltimore WWTP would have to meet effluent limits of 23.0 mg/l $CBOD_{20}$ (10 mg/l $CBOD_5$), 1.5 mg/l NH_3-N and 5.0 mg/l D.O. and Crown Zellerbach would have to meet limits of 97.2 mg/l $CBOD_u$ (32 mg/l $CBOD_5$), 1.7 mg/l NH_3-N and 5.0 mg/l D.O. This would require the installation of filters at both facilities. Economic analyses determined that additional treatment at the Baltimore WWTP and at Crown Zellerbach is affordable but would not be cost/beneficial. The BCT limit for BOD_5 applicable to Crown Zellerbach is 384 mg/l. The BOD_5 permit limit for Crown Zellerbach is 91 mg/l. Thus, Crown Zellerbach is achieving BOD_5 effluent levels well below Federal guidelines. It is recommended that Pawpaw Creek downstream from Crown Zellerbach and Walnut Creek from the confluence of Pawpaw Creek to RM 37.2 be designated Limited Warmwater Habitat (LWH) and that the Baltimore WWTP and Crown Zellerbach be allowed to continue discharging under current permit limitations.

According to modeling, the Canal Winchester WWTP will meet in-stream WQS with secondary treatment. The proposed operation to include Lithopolis, however, increases wastewater flows and the WWTP would have to meet more stringent effluent limits to achieve WQS.

Groveport is operating under an interim permit setting effluent limits of 147 mg/l BOD_5, 80 mg/l TSS and 4.0 mg/l D.O. No final effluent limits have been issued. All WWTP's are required to meet secondary effluent limits by July 1, 1988. It is recommended that Findings and Orders issued to Groveport be revised to require that the plant be decommissioned within a reasonable period of time, or that the plant be upgraded to provide secondary treatment of wastewater.

The current permit for the Ashville WWTP establishes secondary effluent limits. Modeling has shown that to meet WQS, the Ashville WWTP must meet more stringent effluent limits. The WWTP is already achieving these limits except during occasional periods of plant overloading. It is recommended that the effluent limits for the Ashville WWTP be modified.

Reynolds Metals does not violate WQS at current effluent limits. Thus, no modifications are recommended.

Rickenbacker Air National Guard Base is scheduled to connect with the Columbus sanitary system in 1983. No recommendations concerning this entity are required (Ohio EPA, 1983).

Segment Problem	Name Description	Use Designation Mile Points
05060001-006,-005, -003 GOOD*	Walnut Creek from the Georges Creek confluence to the Scioto River	WWH 21.3-0.0

A water quality sampling station near the mouth of Walnut Creek was maintained from 1973 to 1977. The data showed no substantial WQS violations (OEPA, 1976, 1978(b)).

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SCIOTO RIVER BASIN

SALT CREEK SUBBASIN (M-10)

SUBBASIN SUMMARY

The Salt Creek Subbasin is a forrested drainage basin with only two small urban areas (Tarlton and Laurelville). Wastewater treatment in these communities consists of individual septic tank systems. Some minor problems have been noted in the immediate vicinity of the septic tank outfalls, but there was no significant impact on Salt Creek. All streams in this subbasin meet 1983 goals based upon limited chemical/physical information. A single set of samples collected from each of the six segments listed below revealed no water quality standards violations (Ohio EPA, SEDO data, 1979).

The mainstem and all tributaries except Little Salt Creek and Pigeon Creek are designated Exceptional Warmwater Habitat. This use designation can not be substantiated due to lack of information.

Biological Evaluations

No recent Ohio EPA, macrobenthic information is available for this subbasin. Previous fixed station monitoring in the subbasin was conducted in August, 1974, on Salt Creek near its confluence with the Scioto River in Ross County (RM 0.1). The benthic sample consisted of 18 taxa with a diversity index of 0.49 (RD 3-60). Five taxa of mayflies and five taxa of caddisflies were present in the sample which was totally overwhelmed in numbers by the midge taxon Calopsectra. An evaluation of Class III (Fair) water quality was assigned based on the presence of the diverse assemblage of mayflies and caddisflies. The evaluation was considered marginal because of the low number of taxa and the dominance of the one midge taxon.

SEGMENT REPORTS

PIKE RUN
SALT CREEK TRIBUTARY
CONFLUENCE AT RM

Segment Problem	Name Description	Use Designation Mile Points
05060001-068 GOOD	Pike Run from the headwaters to Salt Creek	SNRW-EWH 9.2-0.0

PRETTY RUN
SALT CREEK TRIBUTARY
CONFLUENCE AT RM

Segment Problem	Name Description	Use Designation Mile Points
05060001-049 GOOD	Pretty Run from the headwaters to Salt Creek	SNRW-EWH 5.9-0.0

QUEER CREEK
SALT CREEK TRIBUTARY
CONFLUENCE AT RM

Segment Problem	Name Description	Use Designation Mile Points
05060002-053,-051 GOOD	Queer Creek from the headwaters to Salt Creek	SNRW-EWH 9.0-0.0

PINE CREEK
SALT CREEK TRIBUTARY
CONFLUENCE AT RM

Segment Problem	Name Description	Use Designation Mile Points
N/A GOOD	Pine Creek from the headwaters to Salt Creek	SNRW-EWH 11.8-0.0

LAUREL RUN
SALT CREEK TRIBUTARY
CONFLUENCE AT RM

Segment Problem	Name Description	Use Designation Mile Points
05060002-059,-058, -057 GOOD	Laurel Run from the headwaters to Salt Creek	SNRW-EWH 12.9-0.0

SALT CREEK MAINSTEM
SCIOTO RIVER TRIBUTARY
CONFLUENCE AT RM

Segment Problem	Name Description	Use Designation Mile Points
05060002-063,-062, -045,-056,-054,-050, -048,-047,-046,-023 GOOD	Salt Creek from the headwaters to the Scioto River	SNRW-EWH 45.4-0.0

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SCIOTO RIVER BASIN

LOWER SCIOTO RIVER SUBBASIN (M-11, M-15)

SUBBASIN SUMMARY

Forestry, agriculture, and urban development are the major land-uses in the lower Scioto River Basin. Population centers located along this portion of the Scioto River include Chillicothe, Waverly, Piketon and Lucasville. Wastewater treatment plants serving these municipalities, the Mead Paper Corporation, and two other industries were the major point source dishcargers affecting water quality. In addition, pollutant loading from upstream sources (i.e., Circleville) continues to influence water quality in the lower Scioto River.

Physical/chemical water quality in the basin has been described as fair to poor (OEPA, 1974). Prior to 1978, the data indicated serious degradation in the Scioto River between Paint Creek and Salt Creek. WQS violations for dissolved oxygen, fecal coliforms, and phenolics were common at monitoring sites at Chillicothe (RM 70.8; STORET Station No. 601240) and at Higby (RM 56.3; STORET Station No. 600770) (USGS, 1973-1977). However, recent improvements in wastewater treatment at the Mead Paper Corporation have substantially reduced organic pollution in the lower Scioto River. No dissolved oxygen violations were noted at the above stations during 1978-1979 (USGS, 1980), but it is uncertain as to whether the improved wastewater treatment at Mead Paper will be sufficient to protect water quality standards during low flows. For this reason, the segment of the Scioto River between Paint Creek and Salt Creek cannot be classified with respect to the attainability of the 1983 clean water goals.

Biological Evaluations

Recent Ohio EPA, macrobenthic monitoring in the subbasin consisted of one fixed station benthic sample (NASQAN) collected in November, 1979, from the Scioto River near Richmondale in Ross County (RM 56.2). Thirty-four taxa with a diversity index of 3.75 were collected from a west bank station (RD). The sample included 10 taxa of mayflies, 3 taxa of stoneflies, 6 taxa of caddisflies, and 12 taxa of midges. The overall benthic community appeared healthy and diverse and indicated Class II (Good) water quality.

Previous sampling at this location was conducted at an east bank site in September, 1978, east and west bank sites in July, 1977, and an east bank site in August, 1976 (RD 3-47, 3-48, and 3-49). The number of taxa ranged from 20 collected from the east bank in 1976 to 28 collected from the east bank in 1978. Diversity indices ranged from 2.40 at the east bank in 1978 to 3.31 at the east bank in 1977. An evaluation of Class III (Fair) water quality was assigned to each set of data. Except for lower numbers of taxa and diversity indices, these samples were quite similar to that of 1979, especially the benthic composition of the major groups (mayflies, caddisflies, midges). The gradual increase in number of taxa and diversity index over the four years may have been a reflection of improving water quality. However, the late collection in November of 1979 may have had a more pronounced effect on the

kinds and numbers of benthic organisms collected than the actual water quality. Two other fixed stations were previously sampled in the subbasin. Benthic samples were collected in August, 1974, from a west bank station located on the Scioto River above Chillicothe in Ross County (RM 78.3) and from an east bank station located on the Scioto River above Salt Creek in Ross County (RM 52.1).

The sample from the Scioto River above Chillicothe consisted of 31 taxa with a diversity index of 3.41 (RD 3-46). Included were four taxa of mayflies, six taxa of caddisflies, and nine taxa of midges. No one taxon dominated the sample numerically. An evaluation of Class II (Good) water quality was assigned based on the good benthic composition, the large number of taxa, and the high diversity index.

The sample from the Scioto River above Salt Creek consisted of 34 taxa with a diversity index of 3.56 (RD 3-50). Included were 6 taxa of mayflies, 6 taxa of caddisflies, and 13 taxa of midges. An evaluation of Class II (Good) water quality was assigned based on all criteria.

SEGMENT REPORTS

SCIOTO RIVER MAINSTEM
OHIO RIVER TRIBUTARY
CONFLUENCE AT RM 351.0

Segment Problem	Name Description	Use Designation Mile Points
05060002-022,-020, -016,-015,-014,-013, -011 05060001-010,-009 GOOD	Scioto River from the Salt Creek confluence to the Ohio River	WWH 51.2-0.0

LOWER SCIOTO RIVER

Chemical/physical water quality sampling revealed water quality standards violations for certain parameters. The greatest number of violations occurred for total iron (72%), fecal coliform bacteria (50%), and total lead (22%). The frequency and magnitude of these violations increased during periods of high runoff. Although frequent violations of both the dissolved oxygen and ammonia standards have been reported downstream from Columbus in previous years, few violations were observed for dissolved oxygen (5%) and none for ammonia. This was attributed to dilution caused by increased river discharge rather than improvements in municipal wastewater treatment. Despite the lack of violations, longitudinal trends for instream ammonia-nitrogen and BOD_5 indicated a substantial influence from major point sources. Nutrient levels (nitrate-nitrogen, total phosphorus) in the study area were affected by major municipal wastewater discharges downstream from Columbus and a distinct positive relationship with agricultural land use.

A total of 11,427 individual fish representing 70 species and 5 hybrids were encountered at the 60 electrofishing locations. Gizzard shad (Dorosoma cepedianum) and common carp (Cyprinus carpio) were the two most abundant species accounting for more than 30% of the total catch by number. During the course of this study pronounced, negative effects on the fish community resulting from changes in water quality attributable to point sources of wastewater were observed. Of the 46 point sources located along the 170.8 mile study area, which included the lower sections of major tributaries, only 5 were determined to have an appreciable impact on fish community structure. A consistent relationship between the magnitude of point source loadings and the condition of the fish community was demonstrated. Expected patterns in community diversity, abundance, and composition were interrupted for varying distance downstream from these point sources. Water quality standards violations for certain parameters affected by these point sources (e.g., D.O., NH_3-N) were rare or non-existent. This was, however, more a reflection of higher than normal river discharge rather than a genuine improvement in water quality. The most severe impact observed in the study area was in a 25 mile segment of the mainstem downstream from the Columbus Jackson Pike and Southerly wastewater treatment plants (WWTP), despite the potential mitigative effects of above normal river discharge. These two facilities contributed 85-98% of the total loadings of 5-day biochemical oxygen demand (BOD_5), ammonia-nitrogen (NH_3-N), nutrients, and toxic substances (metals, cyanide, phenolics, chlorine) attributable to point sources in the study area. The decline of the fish community in a 9.6 mile segment of the mainstem downstream from the Container Corporation of America and Circleville WWTP outfalls was pronounced, but of short duration with sustained recovery occurring very quickly. The total pollutional loading from these two sources was much less than those observed for the two Columbus facilities and was reflected in a quicker, more substantial recovery of the fish community. A large depression in the fish community occurred in a 18.4 mile segment of the mainstem beginning approximately 20 miles downstream from the Mead Corporation - Chillicothe Mills outfall. The effect, although detectable, was not judged to be particularly severe.

The impact of point sources on instream water quality was the principle reason for the degradation of the fish community in the mainstem Scioto River. Three major problem segments were identified by this study based on Ohio EPA biological (fish) criteria for determining the attainment of Clean Water Act goals:

1. The mainstem Scioto River downstream from the Columbus Jackson Pike and Southerly WWTPs to just upstream from Big Darby Creek (RM 127.1-102.0), a distance of 25.1 miles; rated "fair" (Class III).

2. The mainstem Scioto River downstream from the Circleville WWTP and Container Corporation of America (RM 99.6-90.0), a distance of 9.6 miles; rated "fair" (Class III).

3. The mainstem Scioto River beginning at a point approximately 20 miles downstream from the Mead Corporation - Chillciothe Mills (RM 45.1-26.7), a total distance of 18.4 miles; rated "fair" (Class III).

Minor problem segments were also identified and included less than 3-5 miles of river each. Some of these short segments were rated "good" (Class II), but were singled out because community diversity and abundance was lower than immediate flanking areas. One of these minor problem segments was attributed to effects from a nonpoint source. Community diversity, abundance, and composition in the mainstem adjacent to downtown Columbus was within acceptable limits (i.e., Class II or better), but the incidence of external lesions, tumors, and eroded fins among individual fish was by far the highest in the study area. Sublethal stresses apparently caused by inputs from the Columbus combined sanitary/storm sewer system were blamed in this case.

Water quality information was limited to data collected at the USGS-ORSANCO sampling station located at Lucasville (RM 14.2; STORET Station No. 600800). Violations for fecal coliforms and lead have been noted (OEPA, SEDO data, 1978). Data from a previous report (OEPA, 1974) indicated no major water quality problems in this river segment. The lower Scioto River was assumed to meet 1983 clean water goals based upon this previous evaluation and knowledge that pollutant loading from upstream sources has declined.

The potential for the full recovery of the Scioto River fish community is quite good, primarily because of the existence of several relatively undamaged tributaries and the apparent lack of residual effects. Recovery of the mainstem fish community is, however, dependent on the success of programs aimed at reducing point source loadings of BOD_5 and ammonia and the consistent attainment of water quality based effluent limits.

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SCIOTO RIVER BASIN

LOWER PAINT CREEK SUBBASIN (M-12)

SUBBASIN SUMMARY

Physical/chemical water quality was good in a 30 mile segment of Paint Creek between the Paint Creek Reservoir and the North Fork confluence. The quality of the North Fork is unknown. The Mead Paper Company discharges pulp mill wastes into Paint Creek at mile point 3.3 which degraded the lower 3 miles of Paint Creek and a segment of the Scioto River. The installation of advanced wastewater treatment facilities at Mead Paper has substantially reduced loadings of BOD_5 and total suspended solids (84 percent reduction based upon monthly operating reports). A chemical, physical and biological water quality survey was conducted in this subbasin in 1979 as part of the Scioto River survey. The results are presented under the Scioto River summary.

Biological Evaluations

Previous fixed station monitoring in the subbasin consisted of two sets of benthic data collected in July, 1977, from Paint Creek at Bourneville in Ross County (RM 21.6) and in August, 1974, from Paint Creek below Mead Paper at Chillicothe in Ross County (RM 1.9).

The benthic sample from Paint Creek at Bourneville consisted of 29 taxa with a diversity index of 3.36 (RD 3-58). Included were 6 taxa of mayflies, 1 stonefly taxon, 6 taxa of caddisflies, and 12 taxa of midges. The overall benthic community appeared healthy and diverse and reflected Class II (Good) water quality.

The benthic sample from Paint Creek below Mead Paper consisted of 11 taxa with a diversity index of 0.53 (RD 3-59). The sample was totally dominated by oligochaetes which accounted for 93 percent of the total number of organisms collected. There were no mayfly or caddisfly taxa. An evaluation of Class IV (Poor) water quality was indicated by all benthic criteria.

Four benthic stations on Paint Creek and one on the East Fork of Paint Creek were sampled in July, 1975 at Washington Court House in Fayette County. The purpose of the survey was to determine the impact of the Washington Court House WWTP and Armco Steel Corporation discharges.

The four stations in Paint Creek were located at river miles 81.7, 67.8, 63.5, and 59.8. The station in the East Fork was located at river mile 2.8. The Washington Court House WWTP and Armco Steel discharges enter Paint Creek at river miles 69.4 and 67.7, respectively. A summary of the benthic data can be found in Table II-49. The tabulated data can be found in RD 3-33.

There were two control stations: the upstream station in Paint Creek (RM 81.7) and the East Fork station (RM 2.8). The water quality at these stations was considered to be Class IV (Poor) based on the number of taxa collected (13 and 16) and the overall poor composition of the benthic community. The sample from the station at river mile 67.8, located below both discharges, consisted of only two taxa and a diversity index of 0.34. This reflected very poor water quality (Class IV). The next downstream station (RM 63.5) showed signs

of improvement as reflected by increases in both the number of taxa (15) and the diversity index (2.54). The lack of pollution sensitive organisms and abundance of oligochaetes, however, were the basis for the retention of a Class IV (Poor) water quality evaluation. In spite of the high diversity index (3.77), the station at river mile 59.8 exhibited only Class III (Fair) water quality due to the low number of taxa (22).

Based on the benthic community, Paint Creek underwent severe water quality degradation at river mile 67.8. This is attributable to discharges from either the Washington Court House WWTP, Armco Steel Corporation, or both. The river showed signs of recovery approximately eight miles below this point.

Table II-49: Summary of Benthic Data Collected from Paint Creek and East Fork Relative to the Washington Court House Wastewater Treatment Plant (WWTP) and Armco Steel Corporation Discharges August, 1975[a]

	Station (RM)				
	East Fork	Paint Creek			
	2.8	81.7	67.8	63.5	59.8
Number of Samplers	5	4	5	4	5
Quantitative Taxa	16	13	2	15	22
Qualitative Taxa	12	10	7	9	12
Organisms/Ft^2	53	48	975	999	101
Index ($\bar{d}$)	3.14	2.34	0.34	2.54	3.77
Evaluation (Class)	IV	IV	IV	IV	III

(a) The Washington Court House WWTP discharge is located at RM 69.4. The Armco Steel Corporation discharge is located at RM 67.7.

SEGMENT REPORTS

PAINT CREEK MAINSTEM
SCIOTO RIVER TRIBUTARY
CONFLUENCE AT RM 618

Segment Problem	Name Description	Use Designation Mile Points
05060003-024,-023, -021,-019,-017,-016, -015,-014,-013 GOOD	Paint Creek from the Paint Creek Reservoir to the North Fork confluence	EWH 37.9-7.9

Based on chemical/physical water quality, this segment currently meets 1983 goals. Chemical data from the monitoring station within this segment (STORET Station No. 601320; RM 22.1) indicated generally good physical/chemical water quality. Minor WQS violations of both the Warmwater Habitat and Exceptional Warmwater Habitat standards for pH, total copper, total lead, and total iron occurred (OEPA, SEDO data, 1977-79). All occurred during elevated flow conditions; the total iron violations were probably the result of nonpoint runoff, while the total copper and total lead violations may have come from industrial dischargers located on the upper reaches of Paint Creek or Rocky Fork Creek.

The minor standards violations noted above probably do not prevent the attainment of 1983 clean water goals.

REFERENCES

Ohio Environmental Protection Agency. 1977-1980 (Unpublished). Data available from Southeast District Office, Ohio EPA, Logan, Ohio.

SCIOTO RIVER BASIN

UPPER PAINT CREEK SUBBASIN (M-13)

SUBBASIN SUMMARY

Upper Paint Creek is predominantly an agricultural land use area. Nonpoint source sediment runoff and associated nutrient transport had the greatest effect on stream quality. The Washington Court House (C.H.) WWTP (RM 65.9) is the major point source discharger in the Upper Paint Creek Subbasin. Physical/chemical water quality downstream from Washington C.H. was degraded by the outfall from this source. This entity is currently upgrading both the sewer system and the wastewater treatment plant. All areas within this subbasin should meet 1983 goals.

SEGMENT REPORTS

PAINT CREEK MAINSTEM
SCIOTO RIVER TRIBUTARY
CONFLUENCE AT RM 61.8

Segment Problem	Name Description	Use Designation Mile Points
05060003-028,-026 FAIR	Paint Creek from the Washington C.H. WWTP to the Sugar Run confluence	WWH 65.9-58.3

Recent chemical/physical data collected below Washington C.H. revealed WQS violations for dissolved oxygen and total iron (OEPA, CDO data, 1977-1980). Previous studies by Ohio EPA noted these problems as well as violations for fecal coliforms and ammonia (OEPA, 1974, 1976).

Construction of a new sanitary sewer collection system for the city of Washington C.H. is 80 percent completed. A new tertiary wastewater facility is at Step III in the construction grant process. This facility, when completed, will replace an overloaded secondary wastewater plant. Construction of the new facility is expected to begin in early spring 1982.

Recent wasteload modeling by the Ohio EPA, found that even with tertiary treatment, WQS for dissolved oxygen and ammonia could not be maintained in Paint Creek below Washington C.H.

Further evaluation of the problem is not warranted until the new treatment facility is on line, at which time intensive physical, chemical and biological surveys should determine the water quality status. Until these suggested studies are completed, it is assumed that 1983 goals can be attained in this segment of Paint Creek.

An intensive survey to assess the impact of nonpoint agricultural runoff on receiving stream quality in the Upper Paint Creek Subbasin has not been done. Limited field surveys on sediment loads have been made by the U.S. Geological Survey as part of the Paint Creek Reservoir Project. However, further biological evaluation is needed to fully assess this pollution source as it relates to attainment of the 1983 clean water goals.

Segment Problem	Name Description	Use Designation Mile Points
05060003-026,-025, -024 GOOD	Paint Creek from the Sugar Run confluence to the Rocky Fork confluence	WWH 58.3-36.1

Paint Creek at the Sugar Run confluence has recovered from the point source degradation below Washington C.H. Chemical/physical water quality in this stream segment was considered good based on limited data from the U.S. Geological Survey Greenfield station (USGS, 1977-1978).

REFERENCES

Ohio Environmental Protection Agency. 1974. Scioto River basin 303(e) wasteload allocation report. Ohio EPA, Division of Surveillance, Southeast District Office, Logan, Ohio.

Ohio Environmental Protection Agency. 1976. Scioto River basin 305(b) annual water quality summary. Ohio EPA, Office of Wastewater, Division of Surveillance, Central District Office, Columbus, Ohio.

Ohio Environmental Protection Agency. 1977-1980 (unpublished). Data available from Central District Office, Ohio EPA, Columbus, Ohio.

United States Geological Survey. 1977-1978. Water resources data for Ohio, Volume I, Ohio River Basin. U.S. Geological Survey water-data reports OH-77-1 and OH-78-1. U.S. Geological Survey, Columbus, Ohio.

SCIOTO RIVER BASIN

ROCKY FORK AND RATTLESNAKE CREEK SUBBASIN (M-14)

SUBBASIN SUMMARY

Chemical/physical water quality in this subbasin ranged from excellent to poor. Portions of the drainage are classified as Exceptional Warmwater Habitat. Limited physical/ chemical data substantiated this designation in the lower 7.5 miles of the Rocky Fork. Two reservoirs in this subbasin (Rocky Fork and Paint Creek) were sampled and were found to have good water quality (Tobin and Youger, 1975). The reservoirs support game fish populations and are heavily used for recreational activities.

The Hillsboro WWTP discharges to Clear Creek, a tributary to the Rocky Fork Reservoir. Water quality degradation was suspected during low-flow conditions because of relatively high wastewater loading rates (565,000 gpd, average BOD 18.4 mg/l, average ammonia 6.5 mg/l). Further investigation is needed to assess the impact of the Hillsboro WWTP on water quality in Clear Creek and the Rocky Fork Reservoir.

A special study of Rattlesnake Creek was recently completed by the United States Geological Survey (Evans and Tobin, 1979), but the results were not evaluated for this report. Water quality may be influenced by the Sabina WWTP and the Rattlesnake Sewer District WWTP. Critical evaluation of available information is essential in light of the Exceptional Warmwater Habitat use designation of Rattlesnake Creek.

SEGMENT REPORTS

ROCKY FORK
SOUTH FORK TRIBUTARY
CONFLUENCE AT RM

Segment Problem	Name Description	Use Designation Mile Points
05060009-042,-036, -035 GOOD	Rocky Fork from the Rocky Fork Reservoir to Paint Creek	WWH 7.5-0.0

Occasional minor WQS violations for total iron and total copper occurred in Rocky Fork (RM 2.8; STORET Station No. 610800) during the past two years (OEPA, SEDO data, 1977-1979). These violations did not substantially impair attainment the 1983 clean water goals.

REFERENCES

Evans, K.F. and R.L. Tobin. 1979. Water quality assessment of Rattlesnake Creek watershed, Ohio. Water Resources Investigations 79-17. Open-File Report. United States Geological Survey, Columbus, Ohio. 28 pp.

Ohio Environmental Protection Agency. 1977-1980 (unpublished). Data available from Southest District Offices, Ohio EPA, Logan, Ohio.

Tobin, R.L., and J.D. Youger. 1977. Limnology of selected lakes in Ohio - 1975. Water Resources Investigations 77-105. United States Geological Survey, Columbus, Ohio. 205 pp.

SCIOTO RIVER BASIN

LITTLE SALT CREEK SUBBASIN (M-16)

SUBBASIN SUMMARY

Little Salt Creek is 28.6 miles long and drains 246.7 square miles in Jackson, Pike and Ross Counties. The city of Jackson is the only urban area in this otherwise forrested watershed. The overloaded Jackson WWTP (RM 22.1) frequently bypassed primary treated sewage and severely degraded an eleven mile stretch of Little Salt Creek. Wastewater treatment facilities are not expected to be upgraded prior to 1983. Total lead and total zinc contamination from nonpoint sources have been noted in Little Salt Creek above the Jackson WWTP. Data has shown that a reclassification of the upstream segment should be made (Exceptional Warmwater to Warmwater Habitat). The lower mainstem of Little Salt Creek and its tributaries appear to meet 1983 goals based upon limited physical/chemical information.

Parts of the Little Salt Creek watershed have been mined for coal. Large abandoned underground mines, and small surface mines occur throughout much of the watershed, but acid mine drainage does not appear to be a significant problem in the watershed.

SEGMENT REPORTS

LITTLE SALT CREEK
SALT CREEK TRIBUTARY
CONFLUENCE AT RM 4.5

Segment Problem	Name Description	Use Designation Mile Points
05060002-036,-034 FAIR	Little Salt Creek from the headwaters to downstream Jackson WWTP	EWH 28.6-23.5

Total lead and total zinc contamination from unknown sources had been reported in the 1980 305(b) report (OEPA, 1980) in Little Salt Creek above the Jackson WWTP. The Intensive Survey conducted June through October 1980 (OEPA, 1980.) indicated elevated total zinc and iron concentrations at the upstream control station RM 26.7. The Goodyear Aerospace plant 001 discharge had elevated levels of total zinc, total copper and total nickel. The Goodyear 002 discharge had elevated levels of total copper in its effluent.

Other stations above the Jackson WWTP and below the Goodyear outfalls have shown elevated levels of total zinc and total iron. (OEPA, 1980). Based upon this sampling program, it appeared the levels of metals, which are not severe, can be attributed to Goodyear Aerospace outfalls.

According to the present WQS, the upstream portion of Little Salt Creek to the Jackson City limits is classified exceptional warmwater habitat. Recent data showed that to be incorrect. WQS violations and borderline violations occurred for metals. Dissolved oxygen violations occurred during the sampling for the intensive survey also. This segment should be reclassifed as WWH.

LITTLE SALT CREEK
SALT CREEK TRIBUTARY
CONFLUENCE AT RM 4.5

Segment Problem	Name Description	Use Designation Mile Points
05060002-032,-031 POOR	Little Salt Creek From the Jackson WWTP to S.R. 35	WWH 23.5-13.9

The Jackson WWTP had a major impact upon Little Salt Creek (OEPA 1974, 1980) which was characterized by a septic zone below the outfall and large sludge deposits as far as one mile below the plant. WQS violations included severe dissolved oxygen, fecal coliform, total iron and total zinc. Elevated levels of ammonia occurred for 10 miles downstream of the discharge. (OEPA, SEDO data 1979, 1980)

Since the closing of the R.J. Reynolds Foods plant in July 1981, the flow at the Jackson WWTP has been reduced approximately 300,000 gallons per day. Hydraulic and stream loading has been substantially reduced.

Other problem areas defined from the 1980 intensive survey report of Little Salt Creek were stations immediately above the Jackson WWTP outfall. WQS violations included dissolved oxygen at the station at RM 23.0. Elevated levels of ammonia, total zinc, total iron, and total lead were found. Sugar Run which enters Little Salt Creek (RM 23.4) just above these stations has been found to be the source of the high ammonia levels. One sample has shown ammonia concentrations of 2.75 mg/l at the mouth of Sugar Run. During the shutdown and clean-up operations at R.J. Reynolds Foods, it was determined that a floor drain went straight to Sugar Run. During this clean-up operation an ammonia spill from cooling units was flushed down the floor drain and a fish kill in Sugar Run occurred. This drain was the most likely source of previous elevated levels of pollutants which were detected in Sugar Run.

The city of Jackson has had their Step III Construction Grant approved. Detailed plans have also been approved and construction should begin during 1982. The 1983 goals may be met sometime during 1982 if all construction is completed and proper operation is accomplished.

Segment Problem	Name Description	Use Designation Mile Points
05060002-031,-027, -025,-024 GOOD	Little Salt Creek from S.R. 35 to Salt Creek	WWH 13.9-0.0

PIGEON CREEK
MIDDLE FORK TRIBUTARY
CONFLUENCE AT RM 1.6

Segment Problem	Name Description	Use Designation Mile Points
05060002-042,-041, GOOD	Pigeon Creek from the headwaters to Middle Fork	WWH 14.0-0.0

MIDDLE FORK
LITTLE SALT CREEK TRIBUTARY
CONFLUENCE AT RM

Segment Problem	Name Description	Use Designation Mile Points
05060002-044 GOOD	Middle Fork from the headwaters to Little Salt Creek	WWH 21.2-0.0

BIG RUN
LITTLE SALT CREEK TRIBUTARY
CONFLUENCE AT RM

Segment Problem	Name Description	Use Designation Mile Points
N/A GOOD	Big Run From headwaters to Little Salt Creek	WWH 11.0-0.0

REFERENCES

Ohio Environmental Protection Agency. 1974. Scioto River Basin 303(e) Wasteload Allocation Report. Ohio EPA, Division of Surveillance, Southeast District Office, Logan, Ohio.

Ohio Environmental Protection Agency. 1979 (unpublished). Data available from Southeast District Office, Ohio EPA, Logan, Ohio.

Ohio Environmental Portection Agency 1980(unpublished). Water quality study of Little Salt Creek. Larry E. Pennington.

SCIOTO RIVER BASIN

SCIOTO BRUSH CREEK SUBBASIN (M-17)

SUBBASIN SUMMARY

The Scioto Brush Creek Subbasin is an area of low population density with a predominantly forested, unglaciated terrain. Only two industrial point source dischargers (Davon, Inc., Cedar Fork and Laboratory Furniture Inc., RM 3.4) are located in the subbasin. Water quality problems may develop in the subbasin if timber harvesting and the associated sawmill enterprises continue to expand at the current rate. Physical/chemical water quality problems are beginning to arise from the indiscriminant disposal of sawdust. Minor fish kills have reportedly occurred following sawdust discharge into the stream. Other water quality problems associated with timbering operations include increase sediment loading from clear cut areas. More sound environmental planning is needed to prevent further degradation.

Biological Evaluations

No recent Ohio EPA, macrobenthic biological data is available for the subbasin. Previous fixed station monitoring in the subbasin consisted of one benthic sample collected in August, 1974, from Scioto Brush Creek near its confluence with the Scioto River in Scioto County (RM 0.2). Thirty-two taxa were collected with a diversity index of 3.79 (RD 3-61). Included were eight taxa of mayflies, one stonefly taxon, seven taxa of caddisflies, and nine taxa of midges. No one taxon was overwhelmingly abundant. The overall benthic community appeared healthy and diverse and reflected Class I (Excellent) water quality.

SEGMENT REPORTS

SOUTH FORK
SCIOTO BRUSH CREEK TRIBUTARY
CONFLUENCE AT RM 10.0

Segment Problem	Name Description	Use Designation Mile Points
05060002-153,-151,-149 -148 GOOD	South Fork from the headwaters to Scioto Brush Creek	WWH 18.2-0.0

SCIOTO BRUSH CREEK
SCIOTO RIVER TRIBUTARY
CONFLUENCE AT RM 100

Segment Problem	Name Description	Use Designation Mile Points
05060002-145,-143, -142,-141,-137,-135 EXCELLENT*	Scioto Brush Creek from the headwaters to the Scioto River	36.0-0.0

Physical/chemical water quality sampling has been conducted by the U.S. Geological Survey (USGS 1973-1977) and the Ohio EPA (OEPA, 1979) on a limited basis in these two stream segments. No WQS violations were noted and very low concentrations of ammonia, nitrates, and phosphorus were found. Physical/chemical water quality appeared to be excellent but more extensive sampling of fish and benthic macroinvertebrate communities must be performed to justify the Exceptional Warmwater Habitat use designation.

REFERENCES

Ohio Environmental Protection Agency. 1979 (unpublished). Data available from Southeast District Office, Ohio EPA, Logan, Ohio.

United States Geological Survey. 1973-1980. Water resources data for Ohio, Volume 1. Ohio River Basin. U.S. Geological Survey reports OH-73-1 through OH-77-1. U.S. Geological Survey, Columbus, Ohio.

HOCKING RIVER, SHADE RIVER, AND LEADING CREEK BASIN

UPPER HOCKING RIVER SUBBASIN (O-1)

SUBBASIN SUMMARY

Water quality in the Hocking River above Lancaster (Headwaters to RM 93.0), Clear Creek and in Little Rush Creek is good and meets 1983 water quality goals. An estimated 37.2 stream miles in this subbasin are not expected to meet 1983 goals. Urban point and nonpoint source pollution degrades water quality in the Hocking River in and below Lancaster. Frequent standards violations for ammonia, dissolved oxygen and fecal coliforms have been reported during low flow conditions. Less frequent violations of the standards for total iron, total lead and total cyanide have also been recorded. The Lancaster Wastewater Treatment Plant (WWTP) (RM 88.2) currently receives a considerable load of unpretreated industrial wastewater which inhibits proper wastewater treatment. Rush Creek is degraded throughout its length by acid mine drainage. Brine pit pollution from oil well drilling and operation also contributes to degraded water quality in both Rush Creek and the Hocking River below Lancaster.

Biological Evaluations

Previous fixed station monitoring in the basin consisted of five sets of benthic samples collected from four data points. The samples were collected between August, 1974, and October, 1977, from the Hocking River and a tributary, Clear Creek. Hocking River sites were located at Lancaster in Fairfield County (RM 73.4), Enterprise in Hocking County (RM 47.0), and Athens in Athens county (RM 33.1). Clear Creek was sampled at RM 2.1 in Hocking County. The site at Athens was a NASQAN station.

The station at Lancaster was sampled in August, 1974, and consisted of a benthic sample composed of 13 taxa with a diversity index of 0.73 (RD 3-63). Oligochaetes dominated the sample numerically accounting for 90 percent of the organisms collected. There were no taxa of mayflies or caddisflies present. An evaluation of Class IV (Poor) water quality was indicated by all criteria.

The station at Enterprise was sampled in September, 1977, and consisted of a benthic sample composed of 17 taxa with a diversity index of 3.10 (RD 3-62). Six taxa of mayflies and two taxa of caddisflies were present with six taxa of midges dominating the sample numerically (70 percent). The low number of organisms collected at this site along with the elevated diversity index seemed to indicate the possibility of a toxicity problem. An evaluation of Class III (Fair) water quality was made based on the benthic composition and the diversity index, but this evaluation was considered marginal because of the low number of taxa.

The station at Athens was sampled in September, 1977, and consisted of a benthic sample composed of 22 taxa with a diversity index of 3.30 (RD 3-64). Included were five taxa of mayflies, three taxa of caddisflies, and six taxa of midges. No one group dominated the sample numerically. An evaluation of Class III (Fair) water quality was indicated by the benthic composition and the number of taxa.

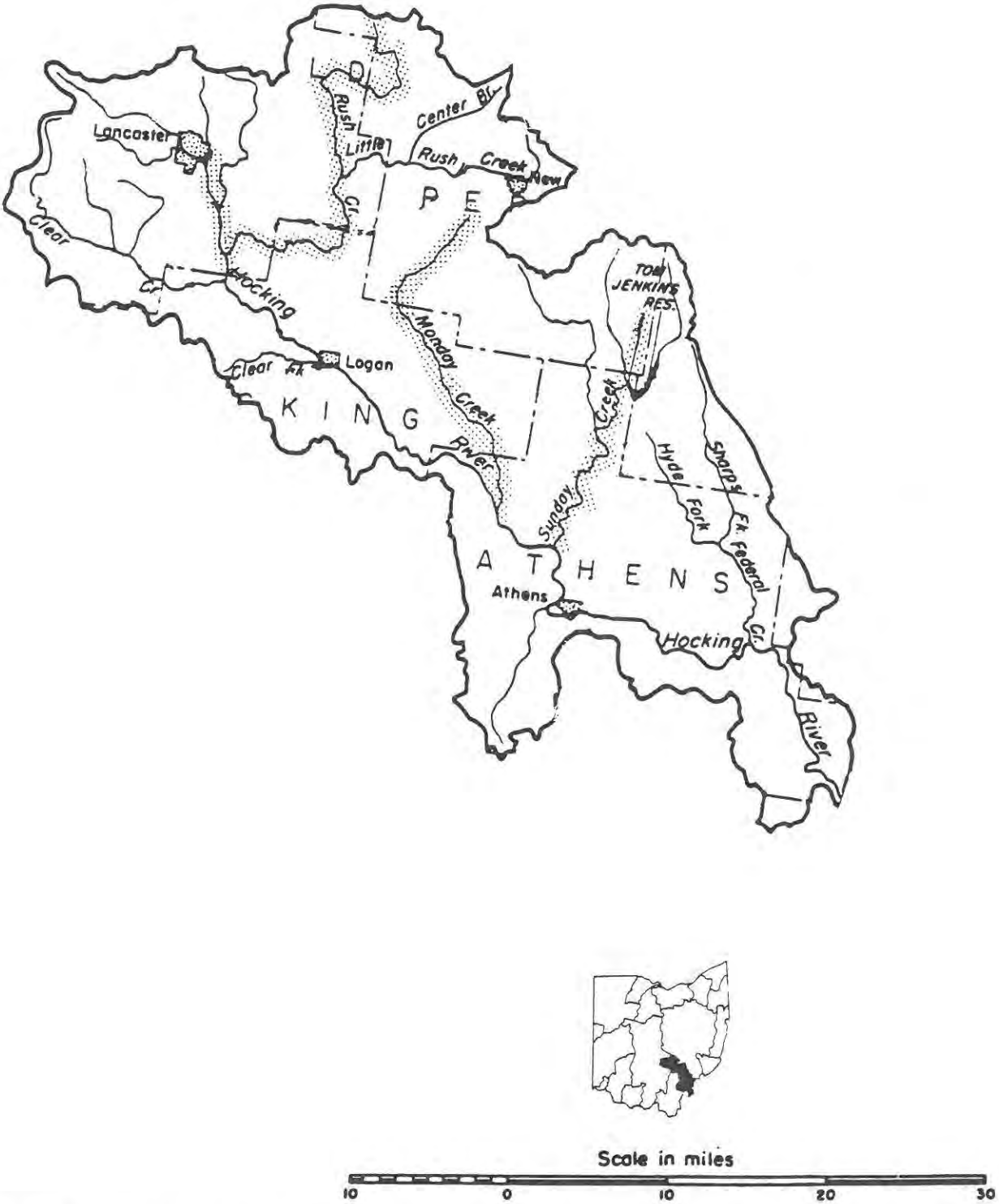

Figure II-17. Map of the Hocking River, Shade River and Leading Creek basins (Ohio). Stream segments that were judged not to support aquatic life in accordance with the goals of the Clean Water Act are highlighted with stippled shading.

Clear Creek was sampled in October, 1977, and also, in October, 1976. Twenty-eight taxa with a diversity index of 3.21 were collected in 1977, while 36 taxa with a diversity index of 3.55 were collected in 1976 (RD 3-65 and 3-66). Each sample consisted of well balanced, diverse communities with mayflies, caddisflies, and midges present. In addition, stoneflies were present at the site in 1976. Evaluations of Class II (Good) water quality were indicated at each station based on all criteria.

SEGMENT REPORTS

HOCKING RIVER MAINSTEM
OHIO RIVER TRIBUTARY
CONFLUENCE AT RM 199.0

Segment Problem	Name Description	Use Designation Mile Points
05030204-041,-039, -038 GOOD*	Hocking River from the headwaters to the Hunter's Run confluence	WWH 94.9-84.4
05030204-027,-025 05030202-038 POOR*	Hocking River from the Hunters Run confluence to the Clear Creek confluence	WWH 84.4-78.7

This segment was the major water quality problem area in the Upper Hocking River Subbasin. Degradation results from urban point and nonpoint source pollution from the city of Lancaster. Water quality data from the Ohio EPA monthly monitoring site below Lancaster (RM 86.7; STORET Station No. 601550) showed WQS violations for fecal coliforms, dissolved oxygen and total iron (OEPA, CDO data, 1977-1980). Diurnal sampling conducted during low flow conditions in July 1978, resulted in WQS violations for fecal coliforms, dissolved oxygen and ammonia (OEPA, SEDO data, 1978b). Ambient water quality system monitoring revealed a substantial dissolved oxygen sag extending downstream of the Lancaster WWTP for approximately 7.0 miles. These results concur with previous conclusions about the same segment (Ohio EPA 1975, 1976). More recent sampling during the period of low flow revealed continued degradation of water quality and violations of dissolved oxygen and fecal coliform standards.

The Lancaster WWTP is periodically overloaded which results in the bypassing of untreated sewage to the river. The city has submitted a grant application for industrial pretreatment and is continuing with the development of plans for upgrading the existing facility (currently at Step II in the Construction Grant process). Significant improvements in existing water quality conditions are expected, if and when the Construction Grant process is completed. A second problem at the Lancaster WWTP is unpretreated industrial waste from some twenty industrial sources within the city including Anchor Hocking, Alten Foundry and Lancaster Glass. This waste, principally oils and heavy metals, substantially inhibits wastewater treatment efficiencies. A 1977 study conducted by the city of lancaster indicated that approximately 35% of the total wastewater flow was from these twenty dischargers.

Segment Problem	Name Description	Use Designation Mile Points
05030204-027,-025, GOOD*	Hocking River From Clear Creek to Enterprise	WWH 78.7-72.5

LITTLE RUSH CREEK
RUSH CREEK TRIBUTARY
CONFLUENCE AT RM 15.8

Segment Problem	Name Description	Use Designation Mile Points
05030204-034 GOOD*	Little Rush Creek from the headwaters to Rush Creek	WWH 18.0-0.0
05030204-033,-032, -030,-029,-028 POOR*	Rush Creek from the headwaters to Hocking River	WWH 37.2-0.0

The headwaters of Rush Creek are severely degraded by mine drainage as a result of strip mining activity prior to the Strip Mine Reclamation Act of 1977. Water quality samples collected between 1975-1977 on Rush Creek below Junction City typically had a pH of 3.4 S.U. (OEPA, 1976; OEPA, CDO data, 1975-1977). The neutralizing effect of the alkaline tributaries (Center Branch Creek, Little Rush Creek and Raccoon Run) downstream, near Bremen caused an increase in pH to a neutral or slightly acidic range. The mix of acid water with these tributaries caused extensive metallic hydroxide precipitates on the streambed throughout the entire length of the mainstem. A recent water quality survey near Bremen (RM)(OEPA, CDO 1981) indicated extensive degradation below the confluence of Rush and Little Rush Creeks.

Existing conditions in this stream (i.e., extensive nonpoint mine drainage) will not allow the 1983 goals to be achieved. Degradation is likely to continue well into the future.

CLEAR CREEK
HOCKING RIVER TRIBUTARY
CONFLUENCE AT RM 78.7

Segment Problem	Name Description	Use Designation Mile Points
05030204-045,-043 GOOD*	Clear Creek from the headwaters to the Hocking River	WWH 23.0-0.0

Data from previous water quality reports (Ohio EPA 1975, 1976, 1978a) have shown Clear Creek, Little Rush Creek, and the Upper Hocking River to be of high quality. Little if any changes have occurred in these watersheds to warrant further survey work at this time.

Oil and gas well brine pit seepage has, at times, degraded surface waters in the Upper Hocking River Subbasin. Previous studies of Harper Run (Ohio EPA 1975, 1976) have shown high chloride levels due to brine pit seepage. The problem also arises from occasional operational and maintenance difficulties; it is a sporadic, rather than continuous, nonpoint pollution problem. Energy exploration activity in the Upper Hocking River Valley is expected to increase and, as a result, background chloride concentrations are expected to rise.

Biological and Water Quality Survey

The results of chemical/physical and biological sampling during 1982 documented severely degraded environmental conditions in the upper Hocking River and Rush Creek. Approximately ten (10) miles of the Hocking River from the Lancaster area to the Rush Creek confluence (RM 92-82.6) were judged to be grossly polluted as a result of combined sewer overflows (CSO) and the Lancaster WWTP effluent. An examination of monthly operating report (MOR) data revealed that the Lancaster WWTP was responsible for over 90% of the recorded pollutant loadings to the upper Hocking River mainstem. Sampling of the Lancaster WWTP effluent during this survey and the MOR data showed that levels of secondary wastewater treatment were not consistently maintained (Section 3.3). High concentrations and excessive loadings of BOD_5, ammonia-N, cyanide, and heavy metals were observed.

Combined sewer overflows were observed to discharge during dry and wet weather conditions resulting in elevated fecal coliform counts, increased conductivity, and depressed disolved oxygen. Fish and benthic macroinvertebrate communities were moderately degraded in approximately two (2) miles of the Hocking River because of the effects of CSO and poor physical habitat caused by channelization and flood control measures. Baldwin Run had chemical water quality indicative of combined sewer overflows. Biological conditions in this stream were poor. Hunters Run, another small urban tributary in Lancaster, was not subject to major CSO impacts and chemical/physical and biological quality was less degraded than Baldwin Run.

Water quality problems documented downstream from the Lancaster WWTP outfall included dissolved oxygen, ammonia-N, heavy metals and cyanide. Cyanide was reduced to less than detectable levels within five (5) miles of the outfall, however, assimilation of the organic waste was incomplete prior to the Rush Creek confluence where dilutional effects mitigated adverse chemical/physical conditions. Severe biological degradation was detected downstream from the Lancaster WWTP; the very abrupt decline in species diversity and numbers of organisms (both fish and macroinvertebrates) immediately downstream from the outfall indicated the presence of toxic conditions. Chemical sampling confirmed the presence of cyanide, heavy metal (copper, lead, zinc, cadmium) and ammonia-N at concentrations above water quality standards. Synergistic interactions between ammonia and cyanide can greatly accentuate the toxic effects of these pollutants (Doudoroff 1976). These pollutants combined with depressed dissolved oxygen concentrations created a very stressful aquatic environment.

A gradual recovery downstream from Lancaster was apparent in both the fish and benthic macroinvertebrate data. The dilutional effects of Rush and Clear Creeks aided in restoring the health of the biological communities but the number of species (fish and benthos), species composition (fish and benthos), and reduced numers of fish were indicative of some residual impact at the downstream end of the study area (RM 74).

The overwhelming perturbation in the Rush Creek stream system was acid mine drainage (AMD). A relatively small portion of the total watershed has been subjected to the strip mining of coal. However, the location of this disturbance in the headwaters, and the release of large volumes of acidity and dissolved metals establishes the AMD influence throughout the entire mainstem of Rush Creek (30 stream miles). pH values in the upper half of Rush Creek ranged between 3-4 units; alkaline water from tributaries raised the pH to neutral (7.2) levels near the mouth of Rush Creek. Acidity, conductivity, sulfate and heavy metal concentrations followed similar trends. These changes in water chemistry were accomplished by the precipatation of metal hydroxides as a floc covering the stream bed.

No fish were captured in Rush Creek upstream from the Little Rush Creek confluence, and AMD conditions likewise greatly limited the benthic macroinvertebrate populations. These findings are in agreement with published literature on the effects of AMD (Sections 4.2, 4.3). Gradual changes in the biological communities ensued downstream from the Little Rush Creek confluence, but both fish and macroinvertebrate data indicated that poor environmental conditions presisted to near the mouth of Rush Creek. Conditions in lower Rush Creek were aggrevated by recent stream modification work and siltation of substrates with silt and metal floc.

Point source pollution impacts on the Rush Creek mainstem were difficult to detect because of the background degradation caused by AMD. Based upon loading rates reports in LEAPS, the New Lexington WWTP and the Bremen WWTP discharges are of sufficient magnitude to potentially impact a healthy aquatic community, if one were to become re-established in Rush Creek following AMD reclamation efforts. The Bremen facility plan (Engineering Associates, Ltd. 1983) also indicated substantial pollutant loading from combined sewer overflows, field observations by Ohio EPA biologists during a heavy rainfall confirmed that large volumes of raw sewage flushed from the Bremen collection system can "slug" Rush Creek.

Chemical/physical and biological results for Clear Creek indicated very minimal changes if water chemistry and biological conditions caused by drainage from the unsewered community of Amanda. Chemical data from two small tributaries (first order streams) draining Amanda did indicate sewage inputs, fish and macroinvertebrate data reflected mild organic enrichment, however the fish communities in both tributaries were representative of typical first order stream fish faunas in Ohio.

Recovery of biological communities in the upper Hocking River downstream from Lancaster is dependent upon improved wastewater treatment at the WWTP. Both decreased loadings of organic material (BOD_5 and ammonia-N) and the elimination of toxic shock loads (cyanide and heavy metals) are critical. Healthy warmwater communities (fish and benthos) upstream from Lancaster, and the proximity of Clear Creek fish populations to the degraded segment should allow rapid recovery of biological communities in the upper Hocking River following pollution abatement at the Lancaster WWTP. Physical habitat conditions in the upper Hocking River downstream from Lancaster are adequate to support the potential stream faunas. Stream size and gradient are such that sport fishing would be primarily limited to pan fish (rock bass, sunfish, bullheads).

Recovery of biological communities in the mainstem of Rush Creek is dependent upon effective control of acid mine drainage in the New Lexington area. If corrected, the potential for recovery would be good because of healthy warmwater faunas exist in all but one of the major tributaries of Rush Creek. Stream modification work now being conducted by the Rush Creek Conservency District along the lower half of Rush Creek will become a more important influence on the biological communities if mine reclamation is undertaken. The stream modification work being conducted was designed with mitigating measured aimed at lessening adverse effects on habitat and biological communities; thus, if mitigation measures are successful, the stream modification work should not preclude recovery to a warmwater fauna.

Because of the overwhelming AMD impacts, there are minimal benefits to existing aquatic communities from any point source pollution abatement programs at Bremen and New Lexington. Any further benefits are directly tied to effective AMD reclamation projects and the re-establishment of healthy aquatic faunas in the Rush Creek mainstem.

REFERENCES

Ohio Environmental Protection Agency. 1975. Hocking River Basin 303(e) report. Ohio EPA, Division of Surveillance, Central District Office. Columbus, Ohio.

Ohio Environmental Protection Agency. 1975-1981 (unpublished). Data available from Central District Office, Ohio EPA, Columbus, Ohio.

Ohio Environmental Protection Agency. 1976. Hocking River Basin 305(b) report water quality summary. Ohio EPA, Division of Surveillance, Central District Office. Columbus, Ohio.

Ohio Environmental Protection Agency. 1978a. State of Ohio 305(b) water quality summary. Ohio EPA, Office of Wastewater, Division of Surveillance and Lab Services. Columbus, Ohio.

Ohio Environmental Protection Agency. 1978b. (unpublished). Data available from Southeast District Office, Ohio EPA, Logan, Ohio.

HOCKING RIVER, SHADE RIVER, AND LEADING CREEK BASIN

MIDDLE HOCKING RIVER SUBBASIN (O-2)

SUBBASIN SUMMARY

Nonpoint source pollution contributed to water quality degradation in portions of the Middle Hocking River Subbasin. Sunday Creek and Monday Creek were severely degraded by mine drainage (OEPA, 1979). Oldtown Creek has been contaminated by brine from oil and gas well drilling within the watershed (OEPA, SEDO data, 1975-1976). Seepage and spillage of brine elevates in-stream concentrations of dissolved solids and chlorides.

The Hocking River above Monday Creek generally had fair physical/chemical water quality. However, occasional WQS violations for total iron, total cadimum, and particularly total mercury, suggest that further study is warranted. Industrial sources in Lancaster and/or acid mine drainage in the Rush Creek watershed should be more thoroughly investigated. Point sources located within this subbasin (Logan WWTP (RM 63.) and Nelsonville WWTP (RM 52.3)) probably do not substantially impact water quality (OEPA, 1974).

Margaret Creek, a tributary to the Hocking River, is classified as Exceptional Warmwater Habitat. Limited data supported this classification (OEPA, SEDO data, 1973-1976), but further monitoring is necessary to accurately assess water quality in Margaret Creek.

SEGMENT REPORTS

HOCKING RIVER MAINSTEM
OHIO RIVER TRIBUTARY
CONFLUENCE AT RM 199.0

Segment Problem	Name Description	Use Designation Mile Points
05030204-027,-025, -024,-022,-016 FAIR	Hocking River from Enterprise to the Monday Creek confluence	WWH 72.4-51.1

Data from the monthly monitoring site at Enterprise (RM 72.5; STORET Station No. 601530) indicated infrequent WQS violations for total iron, total copper, total zinc, and total mercury. Pollutant loading from upstream sources (i.e., Lancaster, Rush Creek watershed) may have been responsible. The Logan WWTP (RM 63.2) and the Nelsonville WWTP (RM 52.3) discharge to this segment of the Hocking River, but only minor water quality impacts are thought to occur (OEPA, 1974).

A more extensive study of the heavy metal contamination in this river segment is needed to insure that 1983 goals are not being impaired.

Segment Problem	Name Description	Use Designation Mile Points
05030204-025,-024, -022,-016 FAIR	Hocking River from the Monday Creek confluence to RM 5.4	WWH 51.5-5.4

Physical/chemical water quality was degraded in this stream segment by mine drainage pollution from Monday Creek and Sunday Creek. WQS violations for total iron and total lead were noted from 1977 to 1978 at the U.S. Rt. 33 station located at Athens (RM 39.6; STORET Station No. 601650) (OEPA, SEDO data, 1977-1978). At the U.S. Geological Survey Station located below Athens, WQS violations for total iron, total lead, pH, and dissolved oxygen were recorded (USGS, 1977-1979). Organic loading from the city of Athens WWTP and the channelized morphology of the Hocking River through Athens created depressed dissolved oxygen levels. Chemical data for downstream reaches of the Hocking River was very limited; the point at which the river recovers from the pollutions effects cannot be determined with available data.

SUNDAY CREEK
HOCKING RIVER TRIBUTARY
CONFLUENCE AT RM 42.0

Segment Problem	Name Description	Use Designation Mile Points
05030204-014,-012, -011 POOR	Sunday Creek from the headwaters to the Hocking River	WWH 27.0-0.0

Sunday Creek is 27.2 miles long and drains an area of 139 square miles in Athens, perry, and Morgan Counties. Abandoned underground mines underlie most of the lower Sunday Creek watershed south of Glouster, but there are only a few surface mines. The northwestern portion of the basin, drained by the west branch of Sunday Creek, has been extensively mined by both surface and underground methods.

The mainstem of Sunday Creek was sampled over 80 times during the period of 1964 to 1980. Data sources include; the FWPCA (1968), Skelly and Loy (1973), USGS (1964-1978), Ohio EPA (1973-1977 and 1979-1980), U.S. Forest Service (1977-1978) and Army Corps of Engineers (1974-1975).

Sunday Creek and all of its tributaries except the East Branch are mine drainage affected. Sunday Creek had severe acid mine drainage problems, especially during periods of low flow. Seventy percent of the samples collected from Sunday Creek exceeded WQS for pH. Low pH values occurred consistently during the low flow months of June-Sepetember, while pH values in the range of 6.0 to 7.3 S.U. occur during the remainder of the year. Sulfate concentrations were relatively high while values for total iron and total manganese consistently exceeded WQS standards.

The East Branch of Sunday Creek and its tributaries, along with Burr Oak Reservoir have relatively good physical/chemical water quality. There are only a few abandoned mines present in the East Branch watershed. Burr Oak Reservoir is a source of public water supply for many surrounding communities. The only parameter detected in violation of WQS was total manganese.

The benthic macroinvertebrate fauna of Sunday Creek was sampled once in 1966. At all stations sampled, only one taxon was found. This limited aquatic community was thought to be due to the effects of acid mine drainage.

Fish kills in the Hocking River has been attributed to slugs of acid water entering the Hocking from Monday and Sunday Creeks (1957-1979).

Communities located within the basin are Glouster, Corning, Jacksonville, Shawnee, and Chauncey. Only the village of Chauncey had a centralized sewage system. The remaining entities are in the facility planning stage.

MONDAY CREEK
HOCKING RIVER TRIBUTARY
CONFLUENCE AT RM 47.9

Segment Problem	Name Description	Use Designation Mile Points
05030204-020,-019, -017 POOR	Monday Creek from the headwaters to the Hocking River	WWH 25.0-0.0

Mine drainage, and possibly organic pollution from the small urban areas within the watersheds, severely degrade this segment (Ohio EPA, 1973-1980).

REFERENCES

Ohio Environmental Protection Agency. 1974. Hocking River Basin 303(e) wasteload allocation report. Division of Surveillance, Central District Office, Ohio EPA, Columbus, Ohio.

Ohio Environmental Protection Agency. 1979. Hocking River Basin water quality management plan; Part III, preliminary report. Ohio EPA, Columbus, Ohio.

Ohio Environmental Protection Agency. 1973-1980 (unpublished). Data available from Southeast District Office, Logan, Ohio.

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HOCKING RIVER, SHADE RIVER, AND LEADING CREEK BASIN

LOWER HOCKING RIVER SUBBASIN (O-3)

Recent physical/chemical water quality data for the lower Hocking River Subbasin is very limited, thus preventing an accurate assessment of conditions. The Hocking River below Athens was degraded and is not expected to meet 1983 goals (see discussion in the Middle Hocking River Subbasin report). There were no major point sources of pollution downstream from Athens, but mine drainage from the Federal Creek watershed may have influenced water quality in the lower Hocking River.

Federal Creek appears to be only moderately affected by mine drainage as no pH violations were detected during sampling by Ohio EPA in 1977 (OEPA, SEDO data, 1977). Observations during that survey suggested that Sulfur Run, Marietta Run and Opposum Run were more significantly influenced by mine drainage than other tributaries to Federal Creek. A dairy operation west of Amesville substantially degraded McDougall Run, a tributary to Federal Creek, by inappropriate management of feedlot runoff. Additional study of the Federal Creek watershed is needed to accurately establish use designations. The majority of Federal Creek was classified as Mine Drainage but the headwaters to the confluence of Sharps Fork were classified as Exceptional Warmwater Habitat. The Federal Creek watershed area is currently being considered for abandoned mine reclamation.

REFERENCES

Ohio Environmental Protection Agency. 1977-1980 (unpublished). Data available from Southeast District Office, Ohio EPA, Logan, Ohio.

HOCKING RIVER, SHADE RIVER, AND LEADING CREEK BASIN

SHADE RIVER AND LEADING CREEK SUBBASIN (O-4)

SUBBASIN SUMMARY

The Shade River mainstem, the Middle Branch, and the East Branch are classified Exceptional Warmwater Habitat, although supporting chemical/physical water quality data is very limited. A sample was collected a the low-flow monitoring site on the Shade River (RM 5.9; STORET Station No. 609170) in 1978; there were no Exceptional Warmwater Habitat WQS violations (OEPA, SEDO data, 1978).

U.S. Geological Survey monitoring at Chester, Ohio from 1975 to 1977 revealed WQS violations for dissolved oxygen, total copper, total zinc and total mercury (USGS, 1975-1978). The village of Chester is the only population center along the Shade River and there are no point source dischargers. A more thorough water quality investigation is needed to substantiate the Exceptional Warmwater Habitat use designation in the Shade River Subbasin.

The West Branch of the Shade River was affected by acid mine drainage (OEPA, 1979). Low pH values, high manganese loadings, and moderate sulfate loadings have been noted. The same report noted severe sedimentation problems in the upper reaches of the West Branch. The Ohio Department of Natural Resources has completed an 87 acre demonstration project in the area which was aimed at controlling the sedimentation problem. To our knowledge no data is presently available to verify water quality improvements.

Several portions of the Leading Creek watershed also showed indications of mine drainage degradation. The State Water Quality Management Plan listed Thomas Fork, Little Leading Creek, Parker Run, and Ogden Run as being affected by area coal mines (OEPA, 1979). Data from July 1978 revealed a pH of 3.7 in Thomas Fork, strongly suggesting acid mine drainage; data directly indicating mine drainage impacts in the other three streams is lacking. Samples taken near the mouth of Leading Creek by the U.S. Geological Survey revealed no Ohio WQS violations (USGS, 1976-1977). A sample from the low flow monitoring site (RM 1.4; STORET Station No. 609160) in 1978 indicated one violation of the total iron standard (OEPA, SEDO data, 1978).

The attainability of the 1983 goals in the Shade River and Leading Creek Subbasin is unknown becuse of insufficient data.

REFERENCES

Ohio Environmental Protection Agency. 1977-1980 (Unpublished). Data available from Southeast District Office, Ohio EPA, Logan, Ohio.

Ohio Environmental Protection Agency. (1979). Southeast Ohio tributaries water quality management plan, Part III, preliminary report. Ohio EPA, Columbus, Ohio.

MUSKINGUM RIVER BASIN

BLACK AND CLEAR FORK SUBBASIN (P-1)
AND
LOWER MOHICAN RIVER SUBBASIN (P-2)

SUBBASIN SUMMARY

The Mohican River Subbasin is located in a scenic area of the state with rolling hills and swift flowing streams. The stream bed is sand or gravel, in most instances, resulting in an aesthetically pleasing appearance. Many of the stream segments are designated as State and National Resource Waters and are used extensively for canoeing.

An estimated 16.9 stream miles in these subbasins have major chemical/physical problems. The major water quality problem in the Mohican River Subbasin was persistent toxicants, primarily industrially generated heavy metals, which were present in the rivers below Mansfield, Ashland, and Shelby. Rocky Fork below Mansfield, is the most severely polluted stream segment. It is believed that stringent pretreatment requirements at these three cities, plus municipal WWTP improvements, will result in significant progress towards compliance with the 1983 goals. However, the Rocky Fork in and below Mansfield will continue to experience occasional WQS violations that will prevent attainment of 1983 goals.

Biological Evaluations

Previous fixed station monitoring in the subbasin consisted of two sets of benthic data collected from two data points. The samples were collected in August, 1974, from Rocky Fork at Mansfield downstream from Empire Detroit Steel (RM 14.4) and from Black Fork at Shelby downstream from Ohio Steel Tube (RM 53.0).

The benthic community at the station on Rocky Fork consisted of seven taxa with a diversity index of 2.21 (RD 3-83). Oligochaetes accounted for 93 percent of the total number of organisms collected. There were no mayfly or caddisfly taxa. The severe degradation in the benthic community at the site indicated Class IV (Poor) water quality.

The benthic community at the station on Black Fork consisted of 14 taxa with a diversity index of 2.52 (RD 3-82). Eight taxa of midges along with oligochaetes and the pulmonate snail Physa accounted for 95 percent of the total number of organisms collected. Severe degradation was apparent in the benthic community, possibly the result of a toxicity problem since the number of organisms collected was quite low. An evaluation of Class IV (Poor) water quality was assigned to this station.

No recent biological data was available for the Lower Mohican River Subbasin. Previous fixed station monitoring in the subbasin consisted of three sets of benthic data collected from a NASQAN station located on the Mohican River at Greer in Knox County (RM 16.7). The benthic community was sampled at an east bank and west bank station in September, 1978, and a west bank station in September, 1977 (RD 3-79, 3-80, and 3-81). All three samples indicated that

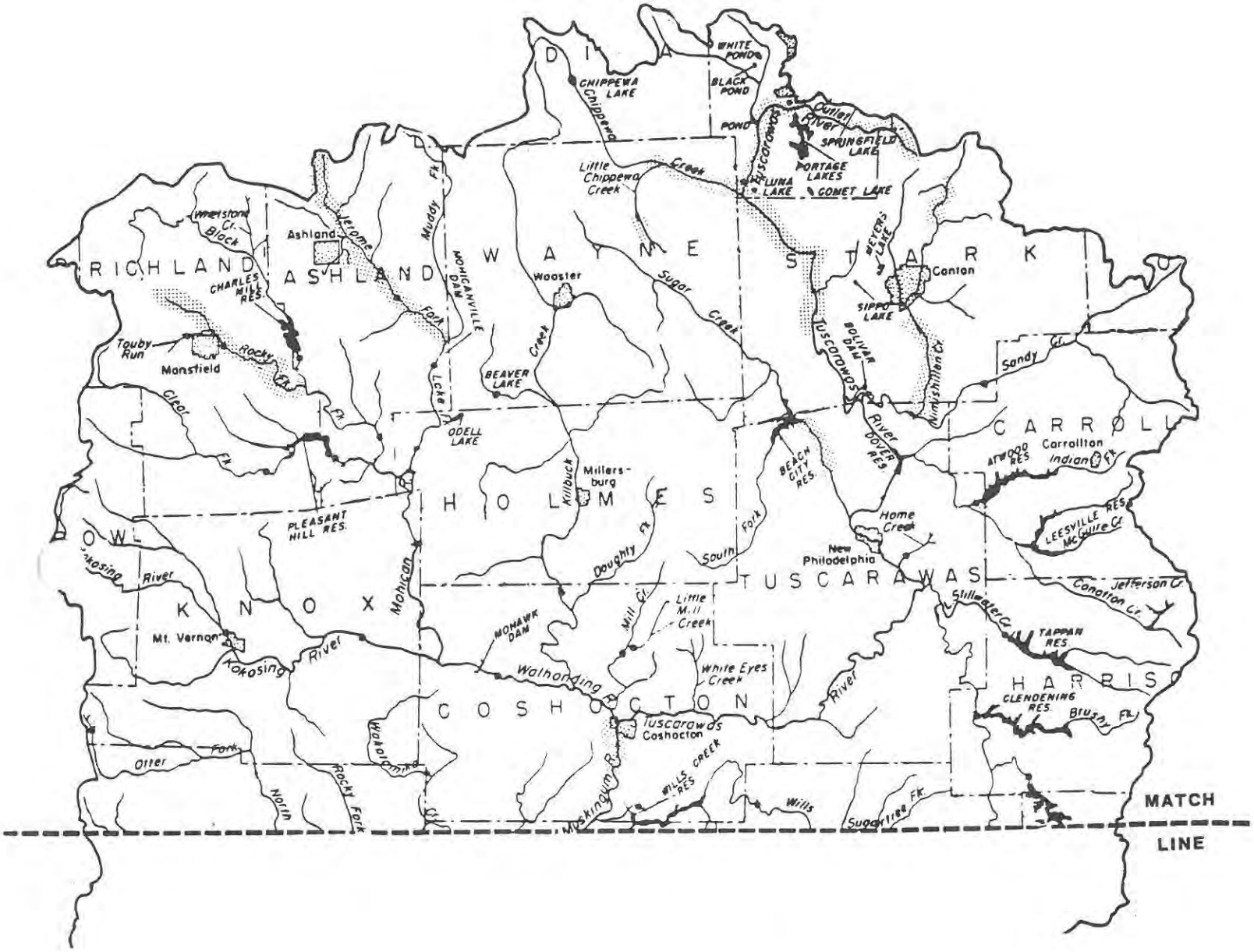

Figure II-18. Map of the Muskingum River basin (Ohio). Stream segments that were judged not to support aquatic life in accordance with the goals of the Clean Water Act are highlighted with stippled shading.

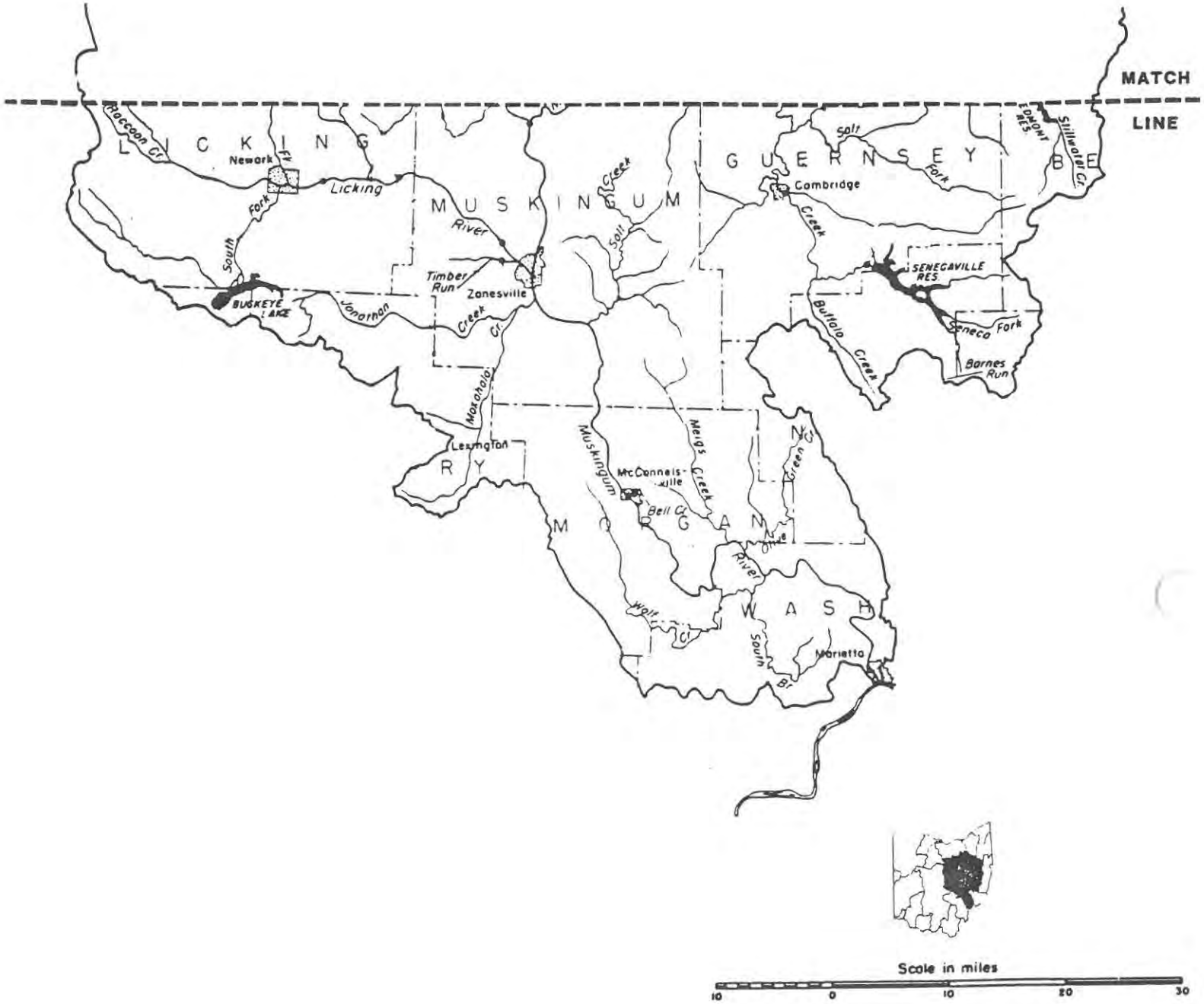

Figure II-18. (continued).

thriving, diverse benthic communities existed. Mayflies, stoneflies, caddisflies, and midges were all present and well represented by taxa. Total number of taxa ranged between 24 and 31. Slight organic enrichment seemed to be indicated by the high density of organisms and the slightly depressed diversity indices. All three samples consisted of benthic communities indicative of Class II (Good) water quality.

Samples were also previously collected in the subbasin from Jerome Fork at Ashland in Ashland County. Sampling was conducted at three stations in August, 1977, to monitor the impact of the Ashland WWTP and other industrial dischargers in the Ashland area.

The three stations were located at river miles 14.0, 9.1 and 0.9. The Ashland WWTP and other industrial sources discharge to Lang Creek which enters Jerome Fork at river mile 12.3. A summary of the data can be found in Table II-50. The tabulated data can be found in RD 3-67.

The upstream station (RM 14.0) was found to have a high diversity index (3.67) but the benthic composition and marginal number of taxa (25) indicated Class III (Fair) water quality. The station at river mile 9.1, located below Lang Creek, exhibited a decrease in number of taxa (20), diversity (2.72), and number of pollution sensitive organisms. A moderate increase in the number of oligochaetes was noted while the number of mayflies decreased substantially. The water quality at this point was considered Class IV (Poor) with the data indicating a moderate degree of degradation. The station at river mile 0.9 had increases in both the number of taxa (30) and the diversity index (3.50) which indicated some apparent recovery. The mayfly population, however, remained depressed to some extent. An evaluation of Class III (Fair) water quality was indicated.

Lang Creek had a moderate deleterious impact on Jerome Fork with recovery apparently not occurring completely before the confluence with Mohicanville Reservoir.

Table II-50 Summary of Benthic Data Collected from Jerome Fork Relative to the Ashland Wastewater Treatment Plant (WWTP) and Numerous Industrial Discharges, September, 1977[a]

	Station (RM) 14.0	9.1	0.9
Number of Samplers	5	5	5
Quantitative Taxa	25	20	30
Qualitative Taxa	5	9	5
Organisms/Ft^2	274	107	210
Index ($\overline{d}$)	3.67	2.72	3.50
Evaluation (Class)	III	IV	III

(a) The Ashland WWTP discharge is located near the mouth of Lang Creek which enters Jerome Fork at RM 12.3. Other industrial dischargers are located along Lang Creek above the Ashland WWTP.

ROCKY FORK
BLACK FORK TRIBUTARY
CONFLUENCE AT RM 13.6

Segment Problem	Name Description	Use Designation Mile Points
N/A POOR*	Rocky Fork from Bowman Street to the Mansfield WWTP	WWH 16.2-11.2

This segment traverses the industrial section of Mansfield. Most of the industries were in compliance with their NPDES limitations, but problems still existed. Violations of WQS for total iron, total zinc, total lead, total chromium, total nickel, and fecal coliforms were recorded in this segment. The drainage area of Rocky Fork above this segment is small and delivers inadequate amounts of dilution water during low flow periods. The regulated discharges, plus occasional accidental discharges and storm runoff, will prevent this segment from meeting the 1983 goals (OEPA, NWDO data, 1978).

Segment Problem	Name Description	Use Designation Mile Points
N/A POOR*	Rocky Fork from the Mansfield WWTP to the Black Fork	WWH 11.2-0

Inadequate treatment by the Mansfield WWTP (RM 12.4) resulted in WQS violations for dissolved oxygen, fecal coliforms, phenolics, and ammonia (OEPA, NWDO data 1977-1980). Also, numerous metals violations can be traced to the Mansfield WWTP including; total chromium, total copper, total mercury, and total nickel. The metals violations were the result of inadequate industrial pretreatment prior to discharge into the municipal collection system. A new pretreatment ordinance will require compliance with federal guidelines by 1983, thus reducing the severity of metals contamination. However, dissolved oxygen and ammonia violations will persist until the Mansfield WWTP is upgraded. Eventually, this segment of the Rocky Fork may meet 1983 water quality goals, but WWTP improvements at Mansfield are not likely until 1985.

Biological and Water Quality Survey

Water quality and biological condition in Rocky Fork were generally characterized by decreasing quality with downstream distance. These declines were divided into four segments (for descriptive purposes) based roughly on location of major point source impacts.

Rocky Fork upstream from the City of Mansfield and any point source impacts (RM 19.1-16.4), was characterized by good water quality. One unexplained high concentration of total zinc was documented; however, the macroinvertebrate community contained a relatively large number of taxa including several sensitive species.

The segment of Rocky Fork from RM 16.4 to RM 15.0 reflected only fair water quality. The decline in water quality from upstream was attributed largely to nonpoint source runoff frosm the Luntz Corporation scrapyards in the vicinity of RM 15.9. Elevated concentration of total iron and total zinc were documented in the stream, and the invertebrate communities were indicative of poor water quality downstream from the scrap yards. The combination of nonpoint source runoff and channelization of the stream through the scrapyards was apparently responsible for the decline in invertebrate community health.

Rocky Fork downstream from the Empire Detroit Steel Company but upstream from the Mansfield WWTP (RM 15.0-11.2) was characterized by poor water quality and biological condition. Potential point source impacts included: Empire Detroit Steel (RM 15.0-14.5), Ohio Brass (RM 13.8 and RM 13.7, 0.2 on Touby Run), Artesian Industries (RM 12.7, 4.7) the White Westinghouse Corporation (RM 13.1), Globe Steel Abrasives (RM 13.0), Ideal Electric (RM 12.4), and Stone Containers Corporation (RM 11.7). Chemical/physical sampling in this segment revealed marked increases in concentration of heavy metals, particularly total iron as well as total concentrations of copper, cadmium, chromium, nickel, zinc and lead. The marked increases in total iron were noted immediately downstream from Empire Detroit Steel, where a physical impact from iron flocculant was noted as the primary influence on aquatic macroinvertebrates. Although the measured concentrations of iron may have been sufficient magnitude to cause some toxic effects, the observed production of iron flocculent (or precipitate) is the expected result at normal stream pH and dissolved oxygen concentration. The White Westinghouse outfall (001) was also noted as a primary source of contamination for several heavy metals. Elevated fecal coliform bacteria counts and some decline in dissolved oxygen concentration were presumably a result of sanitary sewer inputs into the stream within this segment. The aquatic communities were generally characterized by low diversity and predominance of pollution tolerant species. Zinc, iron, and potentially lead appeared to be the problematic heavy metals in this segment of the Rocky Fork. Thus, the poor water quality and biological and biological condition can be attributed to a variety of factos including; potential toxic influences of heavy metals, the physical impact of iron flocculant, the channelization of the stream in some areas, and the potential influences of urban runoff from Mansfield.

Rocky Fork downstream from the Mansfield WWTP (RM 11.2-0.0) was characterized by very poor water quality. The most severe problem, evident in chemical/physical sampling, was a massive influx of total chromium, nickel and copper. There was also a moderate decline in dissolved oxygen and a marked increase in ammonia-N concentrations. Fish and macroinvertebrate communities were characterized by low diversity; pollution tolerant species predominated throughout this segment of the stream. Any potential influences due to point sources downstream from the WWTP or from nonpoint source runoff were masked by the heavy metal and ammonia-N loading attributed to the Mansfield WWTP. The measured levels of copper, cadmium, nickel and ammonia-N downstream from the Mansfield WWTP were found in concentrations acutely toxic to aquatic life and were clearly responsible for the limited biological communities.

Water quality from Rocky Fork was also found to have a negative impact on Black Fork, the downstream receiving stream. Black Fork upstream from the confluence of Rocky Fork (RM 17.8-14.0) was characterized by good water quality and a diverse and abundant community of fishes. Downstream from the

confluence (RM 14.0-12.2) there was a marked decline in water quality and in fish community abundance and diversity. Increases in total concentrations of chromium, copper, lead, and nickel were apparently responsible for this decline in water quality and biological condition.

The potential for biological recovery of Rocky Fork with reductions in point source inputs (particularly from the Mansfield WWTP) was most clearly demonstrated through the examination of biological communities present in adjacent watersheds (Black Fork and Cedar Fork). The apparently healthy aquatic communities in these two watersheds illustrated the potential for warmwater communities in Rocky Fork as well as illustrating a potential source of species for repopulation in Rocky Fork following pollution abatement. The lack of complete biological information on areas upstream from Mansfield and tributaries to Rocky Fork precludes any direct assessment of their potential as species pools for repopulation. However, the upstream invertebrate samples, the previous fish surveys in upstream regions and the lack of documented point sources on most tributaries suggest their potential as repopulation centers.

BLACK FORK
MOHICAN RIVER TRIBUTARY
CONFLUENCE AT RM 26.6

Segment Problem	Name Description	Use Designation Mile Points
05040002-004 GOOD	Black Fork from the source to the Charles Mill Reservoir	WWH 58.4-20.2

The physical/chemical water quality of this segment was generally good, but was subject to occasional, minor metals violations and low D.O. as a result of discharges from the Shelby WWTP (RM 56.7)(OEPA, NWDO data, 1978). Improvements to the WWTP plant and more stringent pretreatment standards should result in this segment meeting the 1983 goals.

Segment Problem	Name Description	Use Designation Mile Points
05040002-003 GOOD	Black Fork from the Charles Mill Reservoir Dam to the Rocky Fork confluence	WWH 20.2-13.6
05040002-003 FAIR	Black Fork from the Rocky Fork confluence to the Mohican River	WWH 13.6-0

During 1978-1979, WQS for total lead and total zinc were violated. These problems were probably the result of industrial discharges in Mansfield (OEPA, CDO and NWDO data, 1978, 1979). Improved treatment and pretreatment is expected from the industrial dischargers in the Rocky Fork watershed prior to 1983, and should result in the Black Fork meeting 1983 goals.

CLEAR FORK
MOHICAN RIVER TRIBUTARY
CONFLUENCE AT RM 26.6

Segment Problem	Name Description	Use Designation Mile Points
05040002-005 GOOD	Clear Fork from Clear Fork Reservoir Dam to the Pleasant Hill Reservoir	WWH 28.6-9.2
05040002-005 GOOD	Clear Fork from the Pleasant Hill Reservoir Dam to the Mohican River	WWH 9.1-0.0

JEROME FORK
LAKE FORK TRIBUTARY
CONFLUENCE AT RM 14.7

Segment Problem	Name Description	Use Designation Mile Points
N/A FAIR*	Jerome Fork from near the source to Lang Creek	WWH 17.4-12.0

NO-NAME CREEK
JAMISON CREEK TRIBUTARY
CONFLUENCE AT RM 0.10

Segment Problem	Name Description	Use Designation Mile Points
N/A POOR	No-Name Creek from Cleveland Avenue to Jamison Creek	WWH 0.70-0.0

Heavy metals violations occurred in this segment, particularly for total copper, lead and zinc (OEPA data, 1976, 1977). The stream bottom was essentially devoid of periphytic growth indicating a toxicity problem. The metals violation were mainly from the Philway Company discharge. This industry has a hydraulically overloaded WWTP. New treatment facilities for the Philway Company, with final discharge to the Ashland collection system, are to be financed by Ohio Water Development Authority Revenue Bonds. The new facilities are expected to provide for attainment of 1983 goals.

Stream sections immediately downstream from the No-Name Creek discharge were subject to high concentrations of heavy metals. These sections consisted of parts of Jamison Creek (RM 0.10 - RM 0.0, confluence with Lang Creek at RM 0.4) and Lang Creek (RM 0.4 - 0.0, confluence with Jerome Fork at RM 12.0). The Ashland WWTP discharges to Lang Creek at RM 0.4. A field survey was conducted in these streams on April 28, 1979 by Ohio EPA personnel (NWDO).

The substrate in Jamison Creek at the Lang Creek confluence was nearly devoid of attached algae, suggesting an upstream source of toxicity (e.g., No-Name Creek discharge). The WWTP discharge turned the Lang Creek water to a turbid grey color and aquatic invertebrates appeared to be absent in Lang Creek below the discharge.

Segment Problem	Name Description	Use Designation Mile Points
N/A FAIR*	Jerome Fork from the Lang Creek confluence to the Lake Fork	WWH 12.0-0.0

Numerous WQS violations occurred downstream from the Lang Creek confluence, as a result of overflows and bypassing at the Ashland Municipal WWTP. The WQS violations included dissolved oxygen, ammonia, total copper, total zinc, total mercury and fecal coliforms (OEPA, NWDO data, 1977-1980). A facility plan is nearing completion for the city of Ashland, and it is possible that improvements at the WWTP may be completed by 1983. In addition, the city has acquired a federal grant to develop a pretreament program.

LAKE FORK
MOHICAN RIVER TRIBUTARY
CONFLUENCE AT RM 22.6

Segment Problem	Name Description	Use Designation Mile Points
05040002-002 GOOD	Lake Fork from the confluence of Jerome Fork and Muddy Fork to the Mohican River	WWH 14.7-0.0

MOHICAN RIVER MAINSTEM
WALHONDING RIVER TRIBUTARY
CONFLUENCE AT RM 22.1

Segment Problem	Name Description	Use Designation Mile Points
05040002-001 GOOD	Mohican River from the source to the Walhonding River	WWH 27.6-0

In 1977-1978, WQS violations were noted for total copper, total lead, total zinc and total iron (OEPA, NWDO data, 1977-1979). However, total iron was the only metal violation recorded in the 1978-79 sampling period. This improvement may be related to the initiation of industrial waste pretreatment requirements in the cities of Mansfield and Ashland. Additional wastewater treatment improvements by the various industries are anticipated by 1983. Dissolved oxygen concentrations in the Mohican River were generally excellent (above 7 mg/l), although a single value of 4.3 mg/l was recorded. Sporadic occurrences of dissolved oxygen concentrations below 5 mg/l are not expected to prevent attainment of 1983 goals.

MUDDY FORK
LAKE FORK - TRIBUTARY
CONFLUENCE AT RM 14.7

Segment Problem	Name Description	Use Designation Mile Points
N/A GOOD	Muddy Fork from the headwaters to the Lake Fork	WWH 25.0-0.0

The Upper Jerome Fork, above Lang Creek, and the Muddy Fork drain predominately agricultural land. No major WQS violations were noted in these segments (OEPA, NWDO data, 1977-1979). One violation of the total zinc standard was recorded in Jerome Fork above Lang Creek in 1980. The Lake Fork, Clear Fork, and Black Fork segments were also free of violations (OEPA, NWDO data, 1974-1980).

REFERENCES

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MUSKINGUM RIVER BASIN

UPPER KILLBUCK CREEK SUBBASIN (P-3)
AND
A PORTION OF THE WALHONDING RIVER SUBBASIN (P-4)

SUBBASIN SUMMARY

Land use in these subbasins is predominately agricultural. Moderate-sized population centers that contribute point source pollution include Creston, Westfield Center, Wooster, Shreve, Apple Creek, Millersburg and Killbuck. The discharge of the Wooster WWTP caused substantial degradation of Killbuck Creek (Havens and Emerson, 1975). Less severe degradation may occur downstream from the other WWTPs in the Killbuck Creek Subbasin, but additional monitoring is needed to assess the impacts. Additional monitoring of Apple Creek is especially needed in light of its Coldwater Habitat use designation.

Physical/chemical water quality in the Walhonding River was generally good and currently meets 1983 goals. Mill Creek, a tributary to the Walhonding River was classified as a Mine Drainage stream. Although no WQS violations have been reported (USGS, 1974-1977), but there is insufficient data to accurately assess water quality in Mill Creek.

SEGMENT REPORTS

KILLBUCK CREEK
WALHONDING RIVER TRIBUTARY
CONFLUENCE AT RM 6.5

Segment Problem	Name Description	Use Designation Mile Points
05040003-002 FAIR	Killbuck Creek Wooster WWTP to Walhonding River	WWH 47.0-0.0

Total iron, dissolved oxygen and total copper WQS violations have been noted in this stream segment at the low-flow monitoring site (RM 44.8; STORET Station No. 601880)(OEPA, NEDO data, 1977-1979). Killbuck Creek is expected to meet 1983 goals after the improvements to the Wooster WWTP are completed.

A biological and water quality survey of Killbuck Creek and its major tributaries from Wooster to its confluence with the Walhonding River was conducted in 1983 to augment and extend a 1981 survey. The final report of this survey is expected to be available in 1984.

WALHONDING RIVER
MUSKINGUM RIVER TRIBUTARY
CONFLUENCE AT RM 110.2

Segment Problem	Name Description	Use Designation Mile Points
05040003-003,-001 GOOD	Walhonding River from the source to the Killbuck Creek confluence	WWH 23.5-6.5

Infrequent WQS violations for total iron and total copper were reported at the monitoring sites at Nellie, Ohio (RM 14.7; STORET Station No. 601910)(OEPA, SEDO data, 1977-1980). These minor violations do not appear to interfere with the attainability of the 1983 clean water goals. Water quality conditions in the lower 6.5 miles of the Walhonding River cannot be assessed due to a lack of data.

REFERENCES

Havens and Emerson, Ltd. Environmental Consulting Engineers. 1975 (final document dated April 1976). Muskingum watershed water quality assessment and low flow analysis. Report prepared for Ohio EPA. n.p.

Ohio Environmental Protection Agency. 1977-1980 (unpublished). Data available from Southeast District Office, Ohio EPA, Logan, Ohio.

MUSKINGUM BASIN

MIDDLE TUSCARAWAS RIVER AND
SUGAR CREEK SUBBASIN (P-5),
UPPER TUSCARAWAS RIVER SUBBASIN (P-6),
AND
SANDY CREEK SUBBASIN (P-7)

SUBBASIN SUMMARY

Physical/chemical water quality of the upper Tuscarawas River and its tributaries ranged from good to fair. Streams in the Sandy Creek Subbasin were degraded by point and nonpoint source pollution. Nimishillen Creek, a tributary to Sandy Creek, drains approximately 187 square miles of one of the most industrialized areas of Ohio. There are three municipal WWTP (Canton, East Canton and Louisville), eleven package plants operated by Stark County, and 58 private package plants under 25,000 GPD. Many headwater streams in the Nimishillen watershed had stream flows that were too low to assimilate this large volume of organic loading. Serious degradation of local water quality existed in the Nimishillen Creek watershed (NEFCO 1979).

Nonpoint source mine drainage pollution was another major water quality problem in the Sandy Creek Subbasin (NEFCO 1979). Approximately 20 percent of the watershed has experienced intensive strip mining activity (Havens and Emerson, 1975). Streams degraded by acid mine drainage include Little Sandy Creek, Muddy Fork, and Bear Run. Point source pollution impacts, other than those on Nimishillen Creek, were relatively minor (Havens and Emerson, 1975). Limited sampling of Sandy Creek above Waynesburg revealed only one WQS violation for total iron and one for fecal coliform (OEPA, NEDO data 1977-1980).

There were numerous water quality problems within the Chippewa Creek watershed (drainage area 188 sq. miles). Repeated channelization has created a stream morphology that severely limits the organic waste assimilative capacity of Chippewa Creek. Five municipal WWTP and two industrial discharges are located within the drainage basin. Agricultural land use and failing septic tank systems may also contribute to significant nonpoint source pollution. A detailed wasteload study (Havens and Emerson, 1975) determined that the Medina No. 1 WWTP was the most significant discharger in the subbasin, with respect to impact on dissolved oxygen. Other major discharges include: Rittman WWTP, Wadsworth WWTP, Orrville WWTP, Doylestown WWTP, Kopper's Corporation and the Packaging Corporation of America. The Kopper's Corporation discharges pentachlorophenol and was responsible for Warmwater Habitat (WWH) WQS violations for total chromium, total iron, oil and grease and phenolics in Little Chippewa Creek (OEPA, NEDO data, 1977-1979). In 1980, the Koppers Corporation phased out the pentachlorophenol process and put final cover material on their industrial landfill site. The results of these changes should be improved water quality.

Physical/chemical water quality in the Sugar Creek watershed was generally good. WWTPs at the villages of Smithville and Brewster were overloaded during wet weather periods because of infiltration problems. Only minor WQS violations occurred and no serious degradation of water quality exists. Every effort should be taken to maintain this good water quality because Sugar Creek recharges the aquifer supplying Canton's well field at Beach City.

The upper Tuscarawas River from the headwaters to the Sandy Creek confluence is a very complex system. Over 290 point sources discharge to the river or its tributaries. Previous reports have outlined the major stream segments impacted by point source discharges (Havens and Emerson, 1975; NEFCO, 1979). The primary water quality problems in the Tuscarawas River mainstem were dissolved oxygen, ammonia, phenolics, and total dissolved solids. Improvements in water quality are expected in the Tuscarawas River above Barberton upon completions of several pollution control projects. However, the river below Barberton is not expected to meet 1983 goals in the foreseeable future.

An intensive water quality and biological survey was conducted in June-August 1983 on the Tuscarawas River mainstem including its major tributaries affected by priority municipal or industrial discharges. A draft report of this survey is expected to be available in 1984.

Biological Evaluations

No recent Ohio EPA, macrobenthic data are available for the subbasin. Previous fixed station monitoring in the subbasin consisted of two sets of benthic data collected from two data points. The samples were collected in September, 1977, from the Tuscarawas River at a NASQAN station located below the Massillon WWTP in Stark County (RM 87.4) and in October, 1976, from Sugar Creek near Dover in Tuscarawas County (RM 0.6).

The benthic community at the station in the Tuscarawas River consisted of 17 taxa with a diversity index of 1.20 (RD 3-77). Oligochaetes accounted for 82 percent of the total number of organisms collected. Only one taxon of mayflies and no caddisflies were present. The severe degradation in the benthic community at the site indicated Class IV (Poor) water quality.

The benthic community at the station in Sugar Creek consisted of 18 taxa with a diversity index of 2.92 (RD 3-78). Eight taxa of mayflies and caddisflies and six taxa of midges were present in the sample. The benthic composition and the diversity index indicated Class III (Fair) water quality. This evaluation was considered marginal because of the low number of taxa present.

SEGMENT REPORTS

TUSCARAWAS RIVER MAINSTEM
MUSKINGUM RIVER TRIBUTARY
CONFLUENCE AT RM 110.2

Segment Problem	Name Description	Use Designation Mile Points
05040001-030 FAIR*	Tuscarawas River from the headwaters to Barberton WWTP	WWH 130-106
05040001-030,-029, -025 POOR*	Tuscarawas River From the Barberton WWTP to the city of Navarre	WWH 106-80

Low flows combined with a large number of point source dischargers created severe WQS violations for dissolved oxygen, total iron, total lead, fecal coliforms, and phenolics in the upper Tuscarawas River (OEPA, NEDO data, 1977-1979). NEFCO (1979) reported that most tributary streams to the upper Tuscarawas River violated the fecal coliform standard because of failing septic tank systems. Numerous small WWTPs and four major industrial dischargers are located on the river upstream from the Wolf Creek confluence. The city of Barberton has made application for phase I funding for a sanitary sewer evaluation survey. Barberton has completed the first phase of this evaluation process. Construction of the Springfield Township WWTP has eliminated four county plants and several package plants; however, as of February, 1982, only 200,000 gpd of the 4 mgd plant capacity was being used. As a result of public insistence, the Summit County Council of Governments has placed a three year moratorium on all new construction related to the Springfield Township phase II sewer collection system. It is unlikely that this project will ever be federally funded.

Major point source dischargers that degrade this segment of the Tuscarawas River include: Barberton WWTP, Canal Fulton WWTP, Massillon WWTP, the Pittsburgh Plate Glass Company (PPG) and the Republic Steel Company. Chippewa Creek and the abandoned PPG lagoons at Clinton also contribute pollutants. The Ohio EPA has monitored water quality upstream and downstream from the Barberton WWTP and PPG - 001 discharger. The following parameter were found in higher concentrations at the downstream site: hardness, nutrients, BOD_5, COD, TOC, MBAS, TDS, phenolics and fecal coliform. Further downstream, at Clinton, TDS increases due to the leaching of chlorides from the inactive PPG lime waste lagoons that are located adjacent to the river (OEPA, NEDO data, 1978-1980). Although water quality should improve due to wastewater treatment improvements, this segment of the Tuscarawas River is not expected to meet 1983 goals.

SEGMENT REPORTS

CHIPPEWA CREEK
TUSCARAWAS RIVER TRIBUTARY
CONFLUENCE AT RM 98.9

Segment Problem	Name Description	Use Designation Mile Points
N/A	Chippewa Creek	WWH
POOR	from confluence of River Styx to the Tuscarawas River	8.1- 0.0

This segment of Chippewa Creek will continue to experience dissolved oxygen (D.O.) violations during low-flow conditions. Even after the application of stringent effluent criteria, minimal reaeration rates and natural organic loads in this segment will prevent the attainment of 1983 goals (Havens and Emerson, 1975). Limited sampling of Chippewa Creek near Easton has revealed D.O. fecal coliform, total iron, phenolics and ammonia violations during low-flow conditions (OEPA, NEDO data, 1978).

An intensive survey was conducted in 1983 for the Chippewa Creek subbasin excluding Little Chippewa Creek. A draft of this report is expected to be available in Spring, 1984.

LITTLE CHIPPEWA CREEK
TRIBUTARY TO CHIPPEWA CREEK

Segment Problem	Name Description	Use Designation Mile Points
N/A POOR*	Little Chippewa Creek from Dalessandro Ditch to downstream of Fox Lake Road	WWH 11.0-6.7

Biological and Water Quality Survey

The results of chemical/physical and biological sampling in Little Chippewa Creek from July - October 1981 showed the impact of the numerous point source effluents in the Orrville area. Chemical parameters as well as fish and macroinvertebrate faunas indicated no severe impacts on water quality in a very short stream section upstream from Orrville. In contrast to the upstream segment, the portion of Little Chippewa Creek from Dalessandro Ditch (RM 11.0) to at least RM 6.3 was severely degraded by the combination of domestic and industrial wastes. Both fish and macroinvertebrate faunas in this 4.7 mile segment were indicative of a grossly polluted environment. Approximately six miles and further downstream from Orville, the chemical and biological parameters indicated some recovery from upstream perturbations; however, fish and macroinvertebrates were still indicative of environmental stress, and nitrogen compounds, phosphorus, and phenolic compound concentrations remained elevated as far downstream as RM 0.2.

Reductions in suspended solids, BOD, ammonia-nitrogen, and nutrients (nitrogen and phosphorus) from the point sources in Orrville should significantly improve conditions for aquatic life in Little Chippewa Creek. An effective treatment facility for municipal and industrial wastewater (with appropriate pretreatment of industrial wastes), through reductions in organic waste loads and toxic substances should have a major positive impact on the biota despite the channelized condition of Little Chippewa Creek.

Fish and macroinvertebrate faunas upstream and downstream from the areas of major point source impacts, as well as the fish fauna in the unnamed tributary (during periods of sufficient water flow) illustrated the potential for biological recovery in Little Chippewa Creek. Significant reductions in loading to Little Chippewa Creek in the Orrville area should result in significant improvement in fish and macroinvertebrate faunas in at least the 4.7 mile segment downstream, and improvements would be realized in areas further downstream particularly through reductions in nutrient loading.

Segment Problem	Name Description	Use Designation Mile Points
05040001-029,-024 FAIR	Tuscarawas River from Navarre at Riverland Avenue to the confluence of Sandy Creek	WWH 80-73

Limited sampling in this segment has revealed WQS violations for phenolics, total iron, dissolved oxygen, fecal coliform, total dissolved solids, and high phosphorus concentrations (OEPA, NEDO data, 1977). The upgrading of the primary WWTP at Navarre, and reduced pollutant loading from the upper Tuscarawas River and Chippewa Creek, is expected to improve water quality in this river segment.

EAST BRANCH NIMISHILLEN CREEK
NIMISHILLEN CREEK TRIBUTARY
CONFLUENCE AT RM

Segment Problem	Name Description	Use Designation Mile Points
N/A FAIR	East Branch Nimishillen Creek from the J & L discharge to Middle Branch Nimishillen Creek	WWH 5.8-0.0

Violations of WQS for MBAS, fecal coliforms, total chromium, total nickle, and total iron are common in the East Branch of Nimishillen Creek (OEPA, NEDO data, 1977-1979). Two WWTPs operated by the city of Lousiville, the Jones and Laughlin Steel Plant, the Republic Steel Company, and the Ford Motor Company are the major discharges to this stream. WWTP improvements by all dischargers in this watershed should eliminate the above WQS violations by 1983.

NIMISHILLEN CREEK
SANDY CREEK TRIBUTARY
CONFLUENCE AT RM

Segment Problem	Name Description	Use Designation Mile Points
05040001-028 POOR	Nimishillen Creek from Canton WWTP to Sandy Creek	WWH 10.1-0.0

The Canton WWTP and the pollutant loading delivered by tributary streams (i.e., Middle Branch, East Branch, Sherrick Run, and Hurford Run) severely degraded Nimishillen Creek. Municipal and industrial discharges made up 82 percent of the stream flow in this segment during low-flow conditions. WQS violations for fecal coliforms, dissolved oxygen, total cyanide, total mercury, nitrogen ammonia, total iron, total lead, phenolics, oil and grease, and pH have been reported for Nimishillen Creek below Canton at the North Industry USGS gaging station (RM 8.2; STORET Station No. 601940) (OEPA, NEDO data, 1977-1979). Dissolved oxygen (D.O.) problems occurred farther downstream within this segment of Nimishillen Creek. A D.O. concentration of 3.7 mg/l was recorded in September 1979. This stream segment is not expected to meet 1983 goals in the foreseeable future.

Segment Problem	Name Description	Use Designation Mile Points
N/A POOR	Hurford Run From the source to Nimishillen Creek	2.0-0.0

This small tributary receives discharges and runoff from a highly industrialized area. Warmwater Habitat standards violations for ammonia, total chromium, total iron, total lead, total mercury and phenolics occur (OEPA, NEDO data, 1977-1980). Although improvements have recently been made in the treatment of industrial wastewater (i.e., at the Timken Company), it is unlikely that the 1983 goals will be met in the foreseeable future.

SUGAR CREEK
TUSCARAWAS RIVER TRIBUTARY
CONFLUENCE AT RM 69.5

Segment Problem	Name Description	Use Designation Mile Points
05040001-033,-032 GOOD	Sugar Creek From the headwaters to the Beach City Reservoir	WWH 45-12.0

Only minor WQS violations for total iron and fecal coliforms have been reported at monitoring sites upstream and downstream of the village of Brewster (OEPA, NEDO data, 1977-1979). The Brewster WWTP experienced difficulties during wet weather when infiltration overloads the plant causing inadequate treatment of the effluent (NEFCO, 1979). The minor WQS violations and the WWTP difficulties do not substantially impair the 1983 clean water goals.

Segment Problem	Name Description	Use Designation Mile Points
05040001-032 FAIR*	Sugar Creek from the Beach City Reservoir to the Broad Run Confluence	WWH 12.0-6.1

A monitoring station below Strasburg (RM 7.3; STORET Station No. 611700) was sampled until 1977; only minor WQS violations for total iron and fecal coliforms were observed (OEPA, SEDO data, 1976-1977). These violations were not believed to impair the 1973 clean water goals.

Broad Run appeared to be degraded by mine drainage as total iron and pH violations were detected (OEPA, SEDO data, 1979). Further study is needed to assess the impact of Broad Run on Sugar Creek; the study should also investigate the source of chlorobenzenes that have been detected in the lower 6 miles of Sugar Creek (OEPA, SEDO data, 1978).

WOLF CREEK
TUSCARAWAS RIVER TRIBUTARY
CONFLUENCE AT RM

Segment Problem	Name Description	Use Designation Mile Points
N/A FAIR	Wolf Creek from Norton Ave. to the Tuscarawas River	WWH 1.8-0.0

Wolf Creek receives industrial and municipal effluents, along with runoff from a highly industrialized area of Barberton. WQS violations for dissolved oxygen, nitrogen ammona, phenolics, total mercury, total dissolved solids, total iron, and total lead have occurred at the mouth of Wolf Creek (OEPA, NEDO data, 1977-1980). Bacterial contamination and elevated temperatures may cause problems in upstream segments (NEFCO 1979). It is assumed that pollution abatement activities completed prior to 1983 will alleviate the water quality violations in Wolf Creek.

SWARTZ DITCH
TUSCARAWAS RIVER TRIBUTARY
CONFLUENCE AT RM

Segment Problem	Name Description	Use Designation Mile Points
05040001-025,-023 POOR	Swartz Ditch from the Hartville WWTP to mouth	WWH 6.9-0.0

This is an extremely low-flow stream segment. NEFCO (1979) reported that the dissolved oxygen standard is probably not attainable with the current level of wastewater treatment at Hartville. Upgrading of the Hartville WWTP is not likely prior to 1983.

TUSCARAWAS RIVER
MUSKINGUM RIVER TRIBUTARY
CONFLUENCE AT RM 110.2

Segment Problem	Name Description	Use Designation Mile Points
N/A FAIR	Tuscarawas River from the confluence of Sandy Creek to Conotton Creek confluence	73-62.9

The added pollutant loading from Canton (via Nimishillen Creek and Sandy Creek) contributes to the already degraded quality of the Tuscarawas River in this segment. WQS violations for dissolved oxygen, iron, phenolics, fecal coliforms, and total dissolved solids have been recorded (OEPA, NEDO data, 1977-1979). Further study is needed to more accurately delineate this degraded zone.

REFERENCES

Havens and Emerson, Ltd., Environmental Consulting Engineers. 1975 (final report dated April 1976). Muskingum watershed water quality assessment and low flow analysis. Report prepared for Ohio EPA. Havens and Emerson, Ltd., Cleveland, Ohio. n.p.

Northeast Ohio Four County Regional Planning and Development Organization (NEFCO). 1979. Clean water plant revisions Part I and II. Report prepared for Ohio EPA.

Ohio Environmental Protection Agency. 1977-1979 (unpublished). Data available from Northeast District Office, Ohio EPA, Twinsburg, Ohio.

Ohio Environmental Protection Agency. 1982. Comprehensive Water Quality Report for Little Chippewa Creek. Upper Tuscarawas River Basin, Wayne County, Ohio. Ohio EPA, Columbus, Ohio.

MUSKINGUM RIVER BASIN

TUSCARAWAS RIVER SUBBASIN

CONOTTON CREEK SUBBASIN (P-8)

Conotton Creek, a major tributary to the Tuscarawas River at RM 62.9, is located in Tuscarawas, Carroll and Harrison counties. The upper several miles of this creek, from the source to the city of Jewett is classified as mine drainage affected. Little stream data is available to confirm this classification, but considerable mining has taken place in the basin. The mid-portion of the mainstem of Conotton Creek from just above Scio to Sherrodsville was sampled once in 1981 at six different sites. All sites were found to have good water quality. The site furthest upstream, between Jewett and Scio at the SR 151 bridge, had higher than normal sulfate concentrations. This was thought to be the result of mine drainage upstream from Jewett.

The site furthest downstream (Sherrodsville) had one total iron violation (1040 mg/l). Since no other metals were significantly high, the iron violation was probably not indicative of mine drainage or metal-related discharges. Information received from USGS and the Ohio DNR, Abandoned Mine Lands program indicates that Huff Run, a tributary to the mainstem of Conotton Creek at RM 1.4 was slightly degraded (low pH) around Lindentree and occasionally had high conductivities.

Other tributaries in the basin were also slightly acidic at times. These included; an unnamed tributary near Summerdale, and McGuire Creek. Mining of the Lower and Middle Kittanning coals in this watershed are responsible for the acid mine drainage problems. The coal seams is mined using both surface and underground mining techniques.

Leesville Reservoir on McGuire Creek, and Atwood Reservior on Indian Fork are both popular fishing and recreational lakes which are apparently affected to a minor degree by acid mine drainage (1980 305(b) Vol. 5).

In addition to the affects of acid mine drainage on these stream segments several WWTP's contribute to water quality degradation. The Mineral City WWTP discharges approximately 25,000 gpd of sewage to Huff Run near its mouth; the city of Scio WWTP discharges approximately 180,000 gpd of sewage to the mainstem of Conotton Creek. In addition, the city of Jewett does not have a complete sewer system. This was probably responsible for part of the water quality problems in the area. The extent of stream degradation resulting from these two entities was not determined. U.S. Geological Survey stream data at various sites on the mainstem indicated occasionally high sulfate concentrations but no WQS violations (USGS, 1971-1977). Streams in this subbasin cannot be evaluated with respect to meeting 1983 goals because of insufficient data.

REFERENCES

Ohio Environmental Protection Agency 1980. Biennial Water Quality Report 305(b) Report Vol. V. Mine Drainage. Ohio EPA, Columbus, Ohio.

United States Geological Survey. 1971-1977. Water resources data for Ohio, Volume 1. Ohio River Basin. U.S. Geological Survey water data reports OH 71-1 through OH 77-1. U.S. Geological Survey, Columbus, Ohio.

MUSKINGUM RIVER BASIN

TUSCARAWAS RIVER SUBBASIN

STILLWATER CREEK SUBBASIN (P-9)

Extensive coal mining operations are located throughout the southern and southeastern sections of the Stillwater Creek Subbasin. Significant point source discharges in the subbasin include the Consolidation Coal Company (RM 14.9 on Skull Fork), the Uhrichsville-Dennison Wastewater Treatment Plant (RM 3.1), and the Chessie System (RM 1.5 on Trail Run).

Ohio EPA collected water quality data on Stillwater Creek (RM 1.3; STORET station No. 611720) in 1976 and 1977 (OEPA, SEDO data, 1976-1977). Standards violations were noted for dissolved oxygen, fecal coliform, and total iron. Concentrations of ammonia, sulfate, and total manganese were observed to be relatively high, but not above standards. Dissolved oxygen and fecal coliform violations were attributable to the Uhrichsville-Dennison WWTP; total iron, sulfate and manganese concentrations reflected the influence of mine drainage in the watershed. The monitoring station was dropped from the ambient fixed station network in 1978.

Streams in this basin have not been adequately evaluated with respect to attainment of 1983 clean water goals.

The Stillwater Creek subbasin, located in Harrison and Tuscarawas Counties, drains an area of 485 square miles and contains five streams or stream segments believed to be mine drainage affected: Boggs Fork, Little Stillwater Creek, Piedmont Reservoir Tributaries, Skull Fork and Stillwater Creek.

Boggs Fork drains 36.6 square miles roughly 40% of which has been strip mined. Approximately 5% has been mined using underground techniques. Very little data is available for Boggs Creek, however, the available data shows values for iron ranging from 200 to 3500 ug/l and sulfates from 240 to 830 mg/l. No pH violations were noted but the high iron and sulfate concentrations definitely indicate the presence of mine drainage.

Little Stillwater Creek drains an area of 32 square miles containing 1.5 square miles of inactive surface mines and about 1 square mile of sub-surface mines. Most of the existing chemical data is from a U.S.G.S. monitoring station which recorded conductivity values from 640 to 760 u-mhos, pH values from 6.9 to 7.7 S.U., sulfates from 200 to 260 mg/l, total iron from 100 to 1700 ug/l, and manganese from 1100 to 2600 ug/l. From the aforementioned information, there seems to be only minor affects of acid mine drainage present, however, a more complete monitoring network would need to be established before a final judgement can be made.

Piedmont Reservoir's tributaries all exhibit high sulfate and elevated suspended solids concentrations. Ohio EPA stated in 1974, that the reservoir was unsuitable as a drinking water supply becuase of the abnormally high sulfate levels (Ohio EPA, SEDO unpublished data).

Skull Fork drains 46.4 square miles and contains 3 square miles of inactive surface mines. Limited water quality data notes sulfates from 800 to 1000 mg/l, total iron from 300 to 3900 ug/l, and total manganese from 900 to 1000 ug/l. These concentrations indicated that Skull Fork was affected by acid mine drainage.

The mainstem of Stillwater Creek has had water quality standards violations for total iron and sulfates according to the limited data available. These violations were believed to be the result of Boggs Fork, Piedmont Reservoir's overflow, and Skull Fork since no mining activity is located on the mainstem portion of Stillwater Creek.

REFERENCES

Ohio Environmental Protection Agency. 1976-1980 (unpublished). Data available from Southeast District Office, Ohio EPA, Logan, Ohio.

United States Geological Survey. 1971-1980. Water Resources Data for Ohio. Vol. 1 Ohio River Basin. U.S. Geological Survey, Columbus, Ohio.

MUSKINGUM RIVER BASIN

TUSCARAWAS RIVER SUBBASIN
LOWER TUSCARAWAS RIVER SUBBASIN (P-10)

SUBBASIN SUMMARY

The physical/chemical water quality of the lower 45 miles of the Tuscarawas River ranges from good to fair. Pollutant loadings from the Newcomerstown, New Philadelphia-Dover, and Coshocton areas, along with contributions from upstream sources, resulted in WQS violations for dissolved oxygen, fecal coliforms, phenolics, and heavy metals. Recent water quality data is rather scant and the evaluations given below need to be substantiated by further investigations.

SEGMENT REPORTS

TUSCARAWAS RIVER MAINSTEM
MUSKINGUM RIVER TRIBUTARY
CONFLUENCE AT RM 110.3

Segment Problem	Name Description	Use Designation Mile Points
05040001-022 FAIR	Tuscarawas River from the Sugar Creek confluence to the Stillwater Creek confluence	WWH 55.2-44.8

Data collected in 1976 and 1977 at New Philadelphia (RM 49; STORET Station No. 611710) revealed standards violations for dissolved oxygen, fecal coliforms, phenolics, and total iron (OEPA, SEDO data, 1976-1977). Industrial and municipal wasteloads from the Dover-New Philadelphia area were the primary cause of water quality problems in this segment.

Recent water quality improvements at the New Philadelphia WWTP and the Union Camp Corporation are expected to substantially improve water quality in this segment of the Tuscarawas River. Additional monitoring is needed to verify that 1983 clean water goals are being attained.

Segment Problem	Name Description	Use Designation Mile Points
05040001-003,-001 GOOD	Tuscarawas River from the Stillwater Creek confluence to the Newcomerstown WWTP	WWH 44.8-19.9

Monitoring at Newcomerstown (RM 21.3; STORET station No. 611790) revealed generally good water quality. Occasional iron violations, along with single violations for total copper, total lead, and total zinc, were noted during the past two years (OEPA, SEDO data, 1977-1980). These minor violations are not believed to interfere with the attainment of 1983 goals.

Segment Problem	Name Description	Use Designation Mile Points
05040001-001 FAIR	Tuscarawas River from the Newcomerstown WWTP to the Muskingum River	WWH 19.9-0.0

Data collected at the mouth of the Tuscarawas River (RM 0.0; STORET station No. 611730) revealed numerous standards violations for total iron, fecal coliforms, and phenolics (OEPA, SEDO data, 1976-1977). Concentrations of sulfates, chlorides, ammonia, suspended solids, and total zinc were also elevated. The Stone Container Corporation is a major discharger to the lower mile of the Tuscarawas River; pollutant loadings from the Newcomerstown WWTP and other upstream sources also influenced water quality in this river segment. Wastewater treatment improvements planned or under construction at Stone Container and the Newcomerstown WWTP may eliminate the WQS violations. Further study will be needed to ascertain the status of this segment with regard to 1983 clean water goals.

REFERENCES

Ohio Environmental Protection Agency. 1976-1980 (unpublished). Data available from Southeast District Office, Ohio EPA, Logan, Ohio.

MUSKINGUM RIVER BASIN

UPPER MUSKINGUM RIVER SUBBASIN (P-11)

SUBBASIN SUMMARY

Historical information indicated that water quality in the upper Muskingum River was seriously degraded (OEPA, SEDO data, 1976-1977). Degradation appears to be the result of inadequate treatment of waste from the Stone Container's paper mill on the Tuscarawas River (Coshocton Plant RM 0.42-0.35). This facility manufactures the corrugated portion of cardboard (a brown craft process). The other significant dischargers to the Upper Muskingun River are the General Electric Company (RM 108.6) and the Coshocton WWTP (RM 107.6).

Water quality standards violations in the upper Muskingum River from its source (the confluence of the Walhonding and Tuscarawas Rivers) to Zanesville were substantially reduced between 1977-1980 (OEPA, SEDO data). It is presumed that the improvements were the result of improvements in wastewater treatment facilities within the subbasin. The Ohio EPA, SEDO conducted a chemical/physical water quality survey on the Upper Muskingum during the fall of 1979. Results from this study indicated that additional water quality problems existed but that the 1983 clean water goals are achievable in this stream segment.

Biological Evaluations

No recent biological data are available for the subbasin. Previous fixed station monitoring in the subbasin consisted of four sets of benthic data collected from two data points. One sample was collected in November, 1977, from the Muskingum River at a NASQAN station (RM 107.6) located below the Coshocton WWTP in Coshocton County. The other three samples were collected from the Muskingum River at Dresden in Muskingum County (RM 91.1). Samples were collected at an east bank and west bank station in September, 1977, and an east bank station in September, 1976.

The benthic community at the station in the Muskingum River at Coshocton consisted of 15 taxa with a diversity index of 1.74 (RD 3-69). Oligochaetes and six taxa of midges accounted for 96 percent of the total number of organisms collected. Five taxa of mayflies were present but in very low numbers. An evaluation of Class IV (Poor) water quality was indicated by the benthic community.

The three sets of benthic samples collected from the Muskingum River at Dresden contained very high numbers of mayflies, caddisflies, and midges (RD 3-70 and 3-71). The number of taxa ranged from 18 to 22 while diversity indices ranged from 2.00 to 3.30. High density communities such as these are characteristically found in large, warmwater rivers with high levels of suspended organic matter. Based on the benthic communities, evaluations of Class III (Fair) water quality were assigned to each data set.

In addition to these Ohio EPA studies, other fish and macroinvertebrate studies have been conducted to determine the impact of cooling water discharge from the Conesville Electric Generating Plant (Columbus and Southern Ohio Electric Company, 1978), and general surveys of the mainstem fish communities (Gammon 1978, unpublished).

Segment Problem	Name Description	Use Designation Mile Points
05040004-071 POOR	Muskingum River from the source to RM 107.0	WWH 111.9-107.0
05040004-071,-036,-035 -031 FAIR	Muskingum River from RM 107.0 to the Ellis Dam	WWH 107.0-84.4

Chemical/physical data from monitoring stations at Coshocton (RM 107.3; STORET station No. 611740) and at Dresden (RM 91.3; STORET station No. 611750) indicated fair water quality during the past three years. Standards violations were noted for total iron, phenolics and fecal coliform (OEPA, SEDO data, 1977-1980).

Point source dischargers to this river segment include Stone Container via the Tuscarawas at RM .42-.35; Coshocton Water Treatment Plant via the Tuscarawas at RM .30; General Electric Corporation (RM 108.6); Coshocton WWTP (RM 107.6); St. Regis Paper Company (RM 107.1); Universal Cyclops Steel Company (RM 105.1); Columbus and Southern Ohio Electric Company, Conesville Plant (RM 102.0 via Wills Creek); and Dresden WWTP (91.0).

Previous to the OEPA, SEDO study in 1979, the chief sources of phenolic wastes and associated problems were thought to be from the General Electric Company's process discharge in Coshocton and some other minor upstream sources on the Tuscarawas River. Significant reductions in phenolics were expected since General Electric had phased out the process that generated phenolic waste, and the General Tire Company in Newcomerstown had eliminated a process that had also contributed phenolics. In contrast, the study indicated that the frequency of water quality standards violations remained the same. The study revealed that the Stone Container outfall contained phenolics in excess of 3,150 ug/l, and that the General Tire discharge still contained phenolics.

High concentrations of total iron and dissolved solids were also determined to be present in the effluent from the Coshocton Water Treatment Plant.

The Stone Container Company is developing plans to eliminate the phenolics waste. Improvements in water quality are expected to continue as construction of secondary treatment facilities currently underway at the Dresden WWTP, and the General Electric Company's phasing out of the operations that generated phenolic wastes are completed. These improvements, plus reduced pollutant loading via the Tuscarawas River (particularily the Stone Container Company) should result in the attainment of 1983 clean water goals.

Because of the high concentration of dischargers in this portion of the Upper Muskingum River Basin and the complexity of the situation, this segment has been recommended for further study by OEPA, SEDO.

REFERENCES

Ohio Environmental Protection Agency. 1976-1980 (unpublished). Data available from Southeast District Office, Ohio EPA, Logan, Ohio.

MUSKINGUM RIVER BASIN

KOKOSING RIVER SUBBASIN (P-12)

SUBBASIN SUMMARY

Physical/chemical water quality in the Kokosing River Subbasin was good, although there were a few short sections (one mile or less) that showed limited degradation. Relatively steep stream gradients provide ample reaeration, thus reducing the zone of impact below pollution sources. New secondary treatment facilities at the village of Fredericktown (RM 5.5) have been completed, replacing the existing plant. Total chromium and copper discharged to the Mt. Vernon WWTP (RM 24.9) by the Hoover Universal Co. have been reduced. The electroplating division responsible for the heavy metal discharge has been relocated, leaving behind the molding industry. The division remains in compliance with NPDES permit limitations. These improvements should result in elimination of the several water quality violations that were previously noted (OEPA, NWDO data, 1976-1980).

Biological Evaluations

No recent Ohio EPA, macrobenthic data are available for the subbasin. Previous biological monitoring in the subbasin was conducted in August, 1977, at four stations located on the Kokosing River at Mt. Vernon in Knox County. The purpose of the survey was to determine the impact of the Mt. Vernon WWTP on the Kokosing River.

Monitoring stations were located at river miles 29.6, 23.3, 20.6, and 11.6. The Mt. Vernon WWTP effluent enters the Kokosing River at river mile 24.9. A summary of the data can be found in Table II-51. The tabulated data can be found in RD 3-68.

The upstream station (RM 29.6) displayed Class I (Excellent) water quality illustrated by an abundance of pollution sensitive organisms, a large number of taxa (33), and a diversity index of 3.18. Below the Mt. Vernon WWTP the station at river mile 23.3 exhibited an increase in diversity (3.97) along with the same number of taxa (33) as the previous station. A reduction in the number of pollution sensitive taxa, however, was the basis for lowering the evaluation at this site to Class II (Good). A Class II (Good) water quality evaluation was retained at the next downstream station (RM 20.6) even though the benthic community was beginning to return to a composition similar to that at river mile 29.6. By river mile 11.6, the benthic composition, the number of taxa (34), and the diversity index (3.20) again reflected a healthy, diverse community indicative of Class I (Excellent) water quality.

The Mt. Vernon WWTP discharge had only a minor impact on the Kokosing River with good to excellent water quality occurring throughout the survey segment.

Table II-51. Summary of Benthic Data Collected from the Kokosing River Relative to the Mt. Vernon Wastewater Treatment Plant (WWTP) Discharge, September, 1977[a]

	Station (RM) 29.6	23.3	20.6	11.6
Number of Samplers	5	5	5	5
Quantitative Taxa	33	33	26	34
Qualitative Taxa	9	6	12	13
Organisms/Ft^2	857	188	558	1056
Index ($\overline{d}$)	3.18	3.97	3.34	3.20
Evaluation (Class)	I	II	II	I

(a) The Mt. Vernon WWTP discharge is located at RM 24.9.

SEGMENT REPORTS

KOKOSING RIVER MAINSTEM
WALDHONDING RIVER TRIBUTARY
CONFLUENCE AT RM 22.1

Segment Problem	Name Description	Use Designation Mile Points
05040003-004 EXCELLENT	Kokosing River from the headwaters to the North Branch confluence	WWH 50.2-29.1
05040003-004 GOOD	Kokosing River from the North Branch confluence to Gambier	WWH 29.1-17.8
05040003-004 EXCELLENT	Kokosing River from Gambier to the confluence with the Mohican River	WWH 17.8-0.0

NPDES permit limitations for fecal coliform and suspended solids were frequently exceeded in the Mt. Vernon WWTP effluent. As a result, WQS violations for fecal coliforms occurred occasionally in this segment. These problems are minor and should not impair attainment of the 1983 clean water goals.

JELLOWAY CREEK
KOKOSING RIVER TRIBUTARY
CONFLUENCE AT RM 6.6

Segment Problem	Name Description	Use Designation Mile Points
N/A GOOD	Jelloway Creek from the headwaters to the Kokosing River	WWH 8.9-0

LITTLE JELLOWAY CREEK
JELLOWAY CREEK TRIBUTARY
CONFLUENCE AT RM 0.65

Segment Problem	Name Description	Use Designation Mile Points
N/A GOOD	Little Jelloway Creek from the headwaters to Jelloway Creek	WWH 9.3-0

REFERENCES

Ohio Environmental Protection Agency. 1976-80 (unpublished). Data available from Northwest District Office, Ohio EPA, Bowling Green, Ohio.

Ohio Environmental Protection Agency. 1979 (unpublished). Monthly operating reports - Howard Sewer district. Data available from Northwest District Office, Ohio EPA, Bowling Green, Ohio.

LICKING RIVER SUBBASIN (P-13)

SUBBASIN SUMMARY

Physical/chemical water quality in the Licking River Subbasin ranged from good to poor. The upper portion of the North Fork of the Licking River bad good quality. The discharge from the city of Utica WWTP (RM 17.2) degraded water quality to some degree, but the stream recovered by the time it reached the Newark Water Treatment Plant intake at RM 28.6.

Severe degradation occured below the city of Newark's WWTP. According to monthly operating reports from the WWTP, the fecal coliform standard was continually violated in this segment of the Licking River. The stream appeared to recover prior to entering Dillon Reservoir at RM 12.2.

Water quality in the lower segment remained good until the final 2.1 miles, where several industries discharge to the Licking River. Their impact on the mainstem is variable depending on flow conditions.

Biological Evaluations

Recent Ohio EPA, macrobenthic monitoring in the subbasin consisted of one fixed station benthic sample (NASQAN) collected in November, 1979, from the Licking River at Newark in Licking County (RM 25.6). Forty-two taxa with a diversity index of 3.82 were collected at the station (RD 3-). The benthic community was composed of six taxa of mayflies, six taxa of caddisflies, and 24 taxa of midges. These taxa of midges along with oligochaetes accounted for 93 percent of the total number of individuals collected. No one taxon dominated the community. An evaluation of Class II (Good) water quality was indicated primarily based on the number of taxa and the diversity index. This evaluation was considered marginal because of the predominance of the midge taxa and because of the November sample collection. Not enough is known about the potential effect of seasonal variation on the benthic community, and subsequently, the validity of the values of the criteria used to make the evaluation may be in question.

No previous biological data are available for the subbasin.

SEGMENT REPORTS

NORTH FORK
LICKING RIVER TRIBUTARY
CONFLUENCE AT RM 28.5

Segment Problem	Name Description	Use Designation Mile Points
05040006-010,-009 GOOD*	North Fork from the headwaters to Knox County Road	WWH 38.4-20.3

Chemical/physical the water quality of the upper North Fork was good based on limited stream data in the Utica WWTP's monthly operating reports.

Segment Problem	Name Description	Use Designation Mile Points
05040006-009 GOOD*	North Fork Licking River from Knox County Road to Upstream SR 13 bridge in Utica	WWH 20.2-17.5
05040006-009 POOR*	North Fork Licking River from SR 13 bridge in Utica to downstream of Utica WWTP	WWH 17.4-16.8
05040006-009 FAIR*	North Fork Licking River from downstream of Utica WWTP to downstream of Velvet Ice Cream	WWH 16.7-13.0
05040006-009,-008, -007,-006 GOOD*	North Fork Licking River from downstream of Velvet Ice Cream to the Licking River	WWH 13.0-0.0
05040006-012 GOOD*	Lake Fork from headwaters to confluence with North Fork Licking River.	WWH 12.2-0.0

Point source discharges from the Utica WWTP and the Prescott Estates WWTP degraded this river segment. The Utica facility was overloaded and discharged poor quality effluent. Several WQS violations for suspended solids and BOD_5 were recorded in this segment. In addition, the WQS for dissolved oxygen is not maintained in portions of this segment during low flow conditions (OEPA, CDO data, 1977-1980).

The city of Utica is currently at Step 1 of the Construction Grants Program, and completion of new wastewater treatment facilities should dramatically improve water quality. The Prescott Estates WWTP previously discharged to the North Fork at RM 7.7. This discharge resulted in frequent violations of the fecal coliform standard. Chemical/physical water quality in this reach improved after the Newark trunk sewer was completed and sewage diverted to the Newark North Fork Interceptor in February 1981. The city of Newark has since established industrial pretreatment regulations and continues to maintain its extensive industrial discharge monitoring program. These programs should aid in the attainment of 1983 clean water goals.

The city of Newark withdraws water from the North Fork at mile point 2.9. During dry weather there is virtually no flow downstream from this point due to the water demand. The lack of flow formerly posed a problem because Owens Corning had two outfalls located on the North Fork below the water treatment plant. The discharge from these outfalls is now diverted to the Newark WWTP. A third Owens Corning's outfall located on Log Pond Run, a small tributary that intersects the mainstem at mile point 0.86, has been permanently closed.

LICKING RIVER MAINSTEM
MUSKINGUM RIVER TRIBUTARY
CONFLUENCE AT RM 73.7

Segment Problem	Name Description	Use Designation Mile Points
05040006-005 GOOD*	Licking River from the confluence of the North and South Forks to the Newark WWTP	WWH 29.1-28.6

Physical/chemical water quality in this segment was somewhat variable due to flow conditions and the effects of upstream dischargers. However, physical/chemical data indicate that this segment is generally of good quality (USGS, 1969-1976).

Segment Problem	Name Description	Use Designation Mile Points
05040006-005,-003 FAIR*	Licking River from the Newark WWTP to Toboso	WWH 28.6-18.6

The Newark WWTP received large volumes of complex wastes from several industries. These wastes reduce wastewater treatment efficiencies and have an adverse effect on effluent quality. WQS violations for total mercury, total iron, fecal coliform, nitrogen ammonia and phenolics have been recorded downstream from the Newark WWTP (RM 26.8; STORET station No. 601770) (OEPA, CDO data, 1977-1980).

Segment Problem	Name Description	Use designation Mile Points
05040006-003,-001 FAIR*	Licking River from Toboso to Zanesville	WWH 18.6-2.1

The mile point delineation of this segment is somewhat arbitrary because the zone of impact from the Newark WWTP is variable. The Dillon Reservoir, located in this river segment, was ranked the second most eutrophic lake of the 20 Ohio lakes sampled in 1973 (U.S. EPA, 1975). Dillon Reservoir experiences very high phosphorus loading from point and nonpoint sources. Further studies should be conducted to determine what benefits might be expected to result from the implementation of a phosphorus control programs.

Limited sampling below the reservoir outlet revealed no substantial WQS problems in the Licking River (USGS, 1965-1977).

Biological and Water Quality Survey

The results of chemical/physical and biological sampling by the Ohio EPA during 1981 documented impacts from the Newark WWTP, although above normal stream flows appeared to substantially lessen the degree of water quality impairment. Ammonia-N concentrations were noticeable elevated from RM 26.8 to 18.9 and several WQS violations were noted; no dissolved oxygen violations

were recorded during the study period. Historical records of dissolved oxygen measurements downstream from the Newark WWTP clearing slow depressed dissolved oxygen concentrations and violations of the 4 mg/l minimum during the summer months. Biological sampling in 1981 did document a moderate decline in fish and macroinvertebrate species richness and diversity downstream from the Newark WWTP. The benthos data indicated a high degree of organic and nutrient enrichment but no serious dissolved oxygen depletion. Fish community health was judged to be in the good to fair range, a minimumally acceptable condition in the evaluation of Clean Water Act goals. Considering the above normal flows during the study and the historical records of more serious dissolved oxygen depletion during lower flow years, the potential for degradation of biological communities in the Licking River downstream from Newark would appear real.

Warmwater habitat is the aquatic life use designation applicable to all the study area. The North Fork consistently displayed a composite index rating in the exceptional to good range, but was never clearly in the exceptional range. The macroinvertebrate data indicated numerous taxa and high diversity, but there was not a predominance of sensitive taxa. Rocky Fork, currently classified EWH, was not biologically evaluated by the Ohio EPA. However, the data of Jezerinac was examined and compared to the conditions found on the North Fork where both the Ohio EPA and Jezerinac evaluated the fish communities present. Based upon the examination of these data bases it was concluded that both the North Fork and the Rocky Fork are high quality warmwater streams but fall short of displaying truly exceptional fish faunas. It is recommended that the Rocky Fork be reclassified as a Warmwater Habitat. To ensure continued protection of the valuable warmwater fisheries in the North Fork and the Rocky Fork,, it is recommended that they be designated State Resource Waters and that the anti-degradation policy be strictly adhered to.

HISTORICAL

A review of data collected from various sources over the past ten years revealed slow, but significant improvement in the water quality of the Locking River Subbasin. This trend was probably due to several factors: including WWTP improvements, and the gradual decline in the population of the City of Newark.

A dramatic decline in dissolved oxygen violations from 1970 to 1980 is illustrated in Table II-52. This information is compiled from data collected at the Ohio EPA ambient water quality monitoring station and the USGS Gaging Station at RM 26.8, which is downstream of the Newark WWTP. The frequency of WQS violations decreased from 66.7% (1971) to virtually zero (1978-1980). Violations of WQS for dissolved oxygen decreased from a maximum of 66.7% in 1971 to virtually zero in 1978-80.

Improvement in water quality may also be attributed to sewer system alterations. Prescott Estates WWTP, which previously discharged poor quality effluent to the North Fork Licking River, has been terminated. The Newark trunk sewer was recently completed, and the City of Newark has established industrial pretreatment regulations to ensure better wastewater processing. Tables II-52 illustrates evidence of this improved sewage treatment. The amount of dissolved oxygen in the Newark WWTP effluent has radically increased

from 2.3 mg/l in 1970 to 8.6 mg/l in 1980. BOD_5 loadings have decreased from 38,187 lbs/day in 1970 to 10,968 lbs/day in 1980. The percentage of fecal coliform violations shows a slight decline; in 1975 the WQS of 2000/100 ml was exceeded 66.7% of the time, as compared to a violation percentage of 50% measured in 1980.

Several WWTP's in the Licking Subbasin have not demonstrated significant improvement. The Utica WWTP continues to degrade the North Fork Licking River, primarily due to overloading at the plant. The Johnstown WWTP discharges poor-quality effluent to Raccoon Creek, which results in a continually high number of WQS violations for fecal coliform and dissolved oxygen in Raccoon Creek (Table II-53). The Granville WWTP also contributes to the degradation of Raccoon Creek. However, all of these plants are presently involved in various stages of the Construction Grants program, and thus, future improvements are expected.

Several additional, unexplained water quality problems are still apparent in certain areas of this subbasin (Table I). A high level of mercury has been continuously detected in the Licking River since 1976, without significant imrpovement. Ammonia and total iron violations also persist. Occasional WQS violations of phenolics, MBAS, cyanide, and total phosphorus were noted during 1977. It is extremely difficult to pinpoint the actual source of these pollutants, therefore, precluding a quick solution to the problem. It is possible that the exceptionally high percentage of WQS violations in 1977 is due to the low flow water year.

Improvements in industrial discharges have contributed to better physical/chemical water quality in the Licking River. Kaiser Aluminum and Chemical Corporation connected its processed discharge wastewater to the Newark Sanitary system in 1980; Georgia Pacific Corporation has solved its problem of re-occuring phenol-formaldehyde reaction product spills, by connecting this contact discharge to the Newark WWTP; a specific containment area has been constructed to prevent future accidents. Owens-Corning Fiberglas Corporation, previously responsible for numerous formaldephye spills, now sends wastewater to the Newark WWTP for treatment.

Two stormwater overflow discharges in the North Fork Licking. A special containment area has recently been completed to prevent additional spills of formaldehyde.

TABLE II-52. Violations/Total Number of Samples For Licking River at Newark

	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980
Iron	0/0	0/0	0/0	0/0	0/0	0/0	1/4	1/2	1/1	0/4	1/4
Fecal Coliform	0/0	0/0	0/0	0/0	0/0	8/12	6/8	9/12	5/12	3/11	6/12
NH_3	0/0	0/0	0/0	0/0	1/1	0/12	2/11	1/10	/12	0/12	2/12
Hg	0/0	2/2	0/2	0/2	0/0	0/0	4/4	2/2	1/1	4/4	0/2
Phenols	0/0	0/0	0/0	0/0	0/0	0/0	0/11	1/10	0/3	1/12	0/8
D.O.	5/8	8/12	7/12	6/12	6/11	6/12	5/12	5/12	0/12	0/12	0/12
Total P	0/0	0/0	0/0	0/0	0/0	0/0	0/9	1/10	0/3	0/11	0/7
Cyanide	0/0	0/0	0/0	0/0	0/0	0/0	0/11	1/9	0/0	0/0	0/1
MBAS	0/0	0/0	0/0	0/0	0/0	0/0	0/11	1/9	0/0	0/0	0/0
Avg. Q	1658.3	640.1	1079.1	1253.3	1341.1	491.5	483	539	765	1156	818
% Fecal Coliform Violations	-	-	-	-	-	66.7%	75%	75%	41.7%	27.3%	50%
% D.O. Violations	62.5%	66.7%	58.3%	50%	54.5%	50%	41.7%	41.7	0	0	0
BOD_5 Loadings	38,186	24,490	11,923	7,752	11,943	8,385	6,611	10,441	10,094	12,912	10,968

TABLE II-53. Violations/Total Number of Samples for Raccoon Creek at Johnstown

	1972	1973	1974	1975	1976	1977	1978	1979
Fecal Coliform	0/0	0/0	0/0	0/0	10/10	10/12	12/12	1/11
D.O.	2/5	4/12	6/12	8/12	4/11	2/12	2/12	2/11
% D.O. Violations	40%	33.3%	50%	66.7%	36.4%	16.7%	16.7%	18.2%
% Fecal Violations	0/0	0/0	0/0	0/0	100%	83.3%	100%	100%

REFERENCES

Ohio Environmental Protection Agency. 1977-1980 (unpublished). Data available from Central District Office, Ohio EPA, Columbus, Ohio.

Ohio Environmental Protection Agency. 1983. Comprehensive Water Quality Report for Licking River, Muskingum River Basin, Licking Perry, Fairfield, Muskingum, and Knox Counties, Ohio. Ohio EPA, Division of Wastewater Pollution Control, Columbus, Ohio.

United States Environmental Protection Agency. 1975. Report on Dillon Reservoir, Muskingum County, Ohio, National Eutrophication Survey Working Paper No. 400. U.S. EPA, Pacific Northwest Environmental Research Laboratory, Corvallis, Oregon.

United States Geological Survey. 1969-1977. Water resources data for Ohio, Volume 1. Ohio River basin. U.S. Geological Survey water-data reports OH-65-1 through OH-77-1. U.S. Geological Survey, Columbus, Ohio.

MUSKINGUM RIVER BASIN

SOUTH FORK LICKING RIVER SUBBASIN (P-14)

SUBBASIN SUMMARY

Physical/chemical water quality in the larger streams of this subbasin (South Fork and Raccoon Creek) ranges from good to fair. Segments impacted by point source dischargers included the lower 13 miles of the South Fork, and Raccoon Creek below Johnstown. Localized degradation caused by point source discharges may occur in some of the small tributaries in the subbasin because of insufficient dilution water.

SEGMENT REPORTS

SOUTH FORK LICKING RIVER
LICKING RIVER TRIBUTARY
CONFLUENCE AT RM 28.5

Segment Problem	Name Description	Use Designation Mile Points
05040006-022,-021, -019,-015 GOOD	South Fork from the headwaters to the Licking River	WWH 33.9-0.0

The village of Pataskala is located near the headwaters of the South Fork. The Pataskala WWTP, discharged a relatively high quality effluent (i.e., exceeds secondary treatment levels). Wasteload modeling conducted by Ohio EPA, indicated that secondary treatment levels are adequate to insure compliance with Warmwater Habitat WQS (OEPA, 1979b). Data from 1974 (OEPA, CDO data, 1974) and the monthly operating reports of the Pataskala WWTP revealed no substantial physical/chemical water quality problems.

Numerous small dischargers are located along the lower 13 miles of the South Fork. Water quality was slightly degraded (compared to upstream quality) but 1983 clean water goals were not contravened. Water quality in this segment should improve if the point source dischargers are upgraded through the Construction Grants Program, as planned.

RACCOON CREEK
SOUTH FORK LICKING RIVER TRIBUTARY
CONFLUENCE AT RM

Segment Problem	Name Description	Use Designation Mile Points
05040006-018 GOOD	Raccoon Creek from the headwaters to the Johnstown WWTP	WWH 27.5-23.8
05040006-018 FAIR	Raccoon Creek Johnstown WWTP to near Hazelton Corners	WWH 23.8-18.8

The Johnstown WWTP (RM 23.8) degraded water quailty in Raccoon Creek for five to ten miles, depending upon flow and operating conditions. A review of pertinent data from monthly operating reports indicated that WQS violations of the standard for fecal coliform have been continuous in this segment since 1978. In addition, there were several incidents of concentrated pollutants discharged to Raccoon Creek from the WWTP during 1976; less frequent incidents occurred in 1977, 1978, and 1979. A fish kill occurred below the WWTP in December 1974 when approximately 10,000 gallons of digested sludge was discharged. A study conducted during the summer of 1979 did not show any standards WQS violations below the Johnstown WWTP (OEPA, 1979a); however, it should be noted that flows were above average and only a limited number of parameters were sampled.

The Johnstown WWTP effluent violated the NPDES permit limitation, dissolved oxygen for 21% of the time during the two year monitoring period. The permit limit for dissolved solids was also exceeded. The Johnstown WWTP is currently in step 4 of the construction grant program. Hopefully the improvements will correct the problem this year.

Segment Problem	Name Description	Use Designation Mile Points
05040006-018,-016 GOOD	Raccoon Creek from near Hazelton Corners to the South Fork Licking River	WWH 18.8-0.0

Physical/chemical water quality was these segments is generally good based upon stream data obtained from the Johnstown and Granville WWTPs monthly operating reports and Ohio EPA, 1979a. There was one violation of the NPDES permit limit for suspended solids at Granville; and high nutrient concentrations were recorded in this segment. A regular schedule of sampling on Raccoon Creek below Granville should be established to assess the impact of the Johnstown and Granville WWTP on the mainstem. These minor problems do not impair attainment of the 1983 clean water goals.

REFERENCES

Ohio Environmental Protection Agency. 1974 (unpublished). South Fork water quality survey. Data available from Central District Office, Ohio EPA, Columbus, Ohio.

Ohio Environmental Protection Agency. 1979a (unpublished). Survey of Raccoon Creek. Data available from Central District Office, Ohio EPA, Columbus, Ohio.

Ohio Environmental Protection Agency. 1979b. Muskingum River basin - Initial proposal for wasteload allocation. Ohio EPA, Office of Wastewater Pollution Control, Division of Water Quality Planning and Assessment, Columbus, Ohio.

MUSKINGUM RIVER BASIN

MOXAHALA CREEK SUBBASIN (P-15)

SUBBASIN SUMMARY

Portions of the Moxahala Creek Subbasin have been characterized as some of the most severely impacted mine drainage streams segments in Ohio (OEPA, 1979). Upper Jonathan Creek is the only stream segment not seriously affected by mine drainage. The urban areas of Roseville (RM 10.6) and Crooksville (RM 16.78) may contribute point and nonpoint source pollution, but no data is available to assess the impact on water quality in Moxahala Creek.

Moxahala Creek has a drainage area of 301 square miles. It is affected by approximately 30 square miles of inactive surface mines, 5 square miles of inactive subsurface mines and 0.4 square miles of gob piles (Ohio EPA 1980 305(b) Vol V.; Ohio E.P.A. 1981).

It has been estimated that and 200 significant point (undergroupd mine portals) sources affect 90 miles of stream length the basin (USDA-FWPCA 1968).

Surface runoff from gob piles pose problems throughout the basin. Streams affected by gob piles include the mainstem, many small unnamed tributaries, Bear Creek, Riders Run, Dry Run, Black Fork and Jonathan Creek.

It should be noted that the headwaters of Jonathan Creek to the confluence of Turkey Run is classified as exceptional warmwater habitat. There has been no recent chemical, physical or biological monitoring to verify this classification nor any investigation to determine any mine drainage affects in upper Jonathan Creek. Very limited field data collected by Ohio EPA, SEDO (1979) indicated that there may be some small tributaries to the mainstem that are not mine drainage affected.

Biological Evaluations

Moxahala Creek was sampled once for macroinvertebrates at two stations in 1966-67 by the FWPCA. At that time no benthic organisms were observed either at the confluence of Moxahala and Jonathan Creek or above the mouth of Moxahala Creek. The absence of benthic organisms in 1966-67 strongly supports chemical data which characterize Moxahala Creek as being severely degraded mine drainage.

In 1976, Moxahala Creek was sampled using Hester-Dendy multiple plate samplers by the Ohio EPA, Title X staff. Ninety-six percent of the taxa collected were pollution tolerant forms. Compared to 1966-67 FWPCA results, there were more taxa and a higher density of organisms. This difference between samples over the ten year period is probably the result of differences in sampling procedures. Data from 1976 supports the contention that Moxahala Creek is seriously affected by acid mine drainage.

SEGMENT REPORTS

MOXAHALA CREEK
MUSKINGUM RIVER TRIBUTARY
CONFLUENCE AT RM

Segment Problem	Name Description	Use Designation Mile Points
05040004-058 POOR	Moxahala Creek from the headwaters to the Muskingum River	29.2-0.0

Previous data revealed numerous WQS violations for pH, total iron, and total zinc in this stream segment (OEPA, 1979). Data collected by Ohio EPA, Southeast District Office in 1979, revealed WQS violations for the same three parameters (OEPA, SEDO data, 1979). Extremely high levels of total aluminum and total manganese were also noted. Field data indicated WQS violations for pH in Burley Run and Riders Run. Data collected in 1981 (OEPA, SEDO data 1981) showed WQS violations of these same parameters along with violations of dissolved solids standards. The pH standards was again violated in Riders Run and Burely Run. WQS violations in McClurey included pH, dossolved solids, total iron, and total zinc.

The severity of mine drainage pollution coupled with little or no reclamation effort will prevent attainment of 1983 clean water goals in the foreseeable future.

HISTORICAL

Moxahala Creek has been monitored sproadically since 1963. In 1963, the USDA (1968) study calculated a loading of 16,400 pounds per day of acid being discharged to the Muskingum River from Moxahala Creek. Low pH's were frequently noted.

Other mine drainage water quality data for Moxahala Creek consisted of one USGS continuous monitoring station at Roseville (1965-1975), eighteen Ohio EPA samples at 14 different locations, and 38 grab samples collected by Skelly and Lay during 1973.

The data substantiates the severe degradation of Moxahala Creek from mine drainage. Total iron, pH, total zinc, and total dissolved solids WQS violations were very frequent. Levels of total sulfate, specific conductance, total managanese, and total aluminum did not exceed WQS, but were higher than should be expected.

In addition to the aforementioned tributaries, the following have been degraded in some manner by mine drainage as measured by chemical analysis: Ogg Run, Bennett Run, Burley Run, Porter Run, Elk Run, McLundy Creek, Morrison Creek, Possum Hollow, and the reservoir north of Moxahala, Ohio.

Johnathan Creek is affected by approximately ten square miles of inactive strip mines, haul roads, sediment ponds, and sediment deposition. Subsurface

mines comprise about 0.5 square miles in this subbasin. All of these affected areas are contained in the downstream reach of Jonathan Creek below the confluence of Turkey Run.

Data indicates the tributaries of Buckeye Fork, Butcher Knife Creek and Turkey Run as being mine drainage affected. Very little data is available on the mainstem of Jonathan Creek and these tributaries affect on the mainstem. Samples collected near the mouth of Jonathan Creek have shown no violations of standards.

REFERENCES

Ohio Environmental Protection Agency. 1979 (unpublished). Data available from the Southeast District Office, Ohio EPA, Logan, Ohio.

Ohio Environmental Protection Agency. (1979). Muskingum River Basin water quality management plan. Part III, preliminary report. Ohio EPA, Columbus, Ohio.

Ohio Environmental Protection Agency. 1981 (unpublished). Data available from the Southeast District Office, Ohio EPA, Logan, Ohio.

MUSKINGUM RIVER BASIN

MIDDLE MUSKINGUM RIVER SUBBASIN (P-16) AND LOWER MUSKINGUM RIVER SUBBASIN (P-19)

These two subbasins include the Muskingum River mainstem from Zanesville (RM 73.8) to the Ohio River. An appraisal of water quality with regard to 1983 clean water goals was difficult because of the scarcity of data. Ohio EPA collected water quality data at only two locations during 1977-1980: McConnelsville (RM 48.2; STORET station No. 601860) and Beverly (RM 23.7; STORET station No. 611780). Frequent WQS violations for total iron were noted at both stations reflecting background conditions and nonpoint source pollution. Minor WQS violations for fecal coliforms and phenolics were recorded at Beverly. Occasional total lead, total cadmium, total mercury, and total zinc violations were observed at McConnelsville and may be attributable to the discharge of Gould Inc., Engine Parts Division (OEPA, SEDO data, 1976-1980).

In 1979, monitoring at the Beverly Station was discontinued and the McConnelsville Station was transferred to USGS. Review of the USGS data indicated that violations of the total iron standard continued throughout 1980.

Further data collection is necessary prior to assessing the attainability of the 1983 goals in the middle and lower Muskingum River. Major point source dischargers in the cities of Zanesville, Philo, McConnelsville, and Beverly may have substantial detrimental impacts on water quality. Agricultural and mining, nonpoint source pollution, may also substantially degrade water quality. The limited information available to Ohio EPA precludes evaluation these potential problem areas.

Biological Evaluations

No recent Ohio EPA, macrobenthic data are available for the subbasin. Previous fixed station monitoring in the subbasin consisted of four sets of benthic data collected from a NASQAN station located on the Muskingum River at McConnelsville in Morgan County (RM 47.7). The benthic community was sampled at east bank and west bank stations in September, 1977 and October, 1978 (RD 3-72, 3-73, 3-74, and 3-75). All four sets of samples, especially the east bank stations, were characterized by benthic communities consisting of large numbers of caddisflies and to a lesser extent mayflies and midges. The number of taxa ranged from 21 to 25 while diversity indices ranged from 1.66 to 2.60. High density communities such as these are characteristically found in large, warmwater rivers with high levels of suspended organic matter. Based on the benthic communities, evaluations of Class III (Fair) water quality were assigned to each location.

Additional biological data are available for the mainstem upstream and downstream from the Muskingum River Electric Generating Station at McConnelsville (Ohio Power). Thermal discharge studies which included fish population and macroinvertebrates were conducted during 1974-1978. In addition an assessment of the mainstem fish community was conducted during July-August 1977 and 1978.

REFERENCES

Ohio Environmental Protection Agency, 1976-1980 (unpublished). Data available from Southeast District Office, Ohio EPA, Logan, Ohio

MUSKINGUM RIVER BASIN

WILLS CREEK SUBBASIN (P-17, P-18)

SUBBASIN SUMMARY

Wills Creek joins the Muskingum River near the Coshocton-Muskingum County line. The headwaters are located in northern Noble and southern Guernsey Counties. Wills Creek tributaries converge in Guernsey County south of the village of Byesville.

The Wills Creek Subbasin drains an area of 8532 square miles and has 3 mine drainage stream segments; lower Wills Creek, Buffalo Fork, and Buffalo Creek. In addition, it has two potential mine drainage tributaries: Crooked Creek and Leatherwood Creek.

Degraded water quality results from abandoned surface and underground mines in these tributaries. Total iron concentrations exceeded WQS occasionally.

The city of Cambridge uses Wills Creek as its drinking water supply. In the Cambridge area of Wills Creek, conductivity, total sulfate, total managanese and total dissolved solids exceed PWS Standards.

Wills Creek Reservoir is located in Coshocton County on the mainstem of Wills Creek, a proposed mine drainage affected stream. The reservoir also has numerous tributaries which are either proposed as mine drainage affected, or are potential mine drainage streams (lack of information). In spite of this, physical/chemical water quality in the reservoir relatively good. Total iron was the only mine drainage parameter which violates EWH standards and only managnese concentrations exceed PWS standards, however, periodic discharge of acid mine water is a definite consideration in classifying this reservoir.

Salt Fork Reservoir, is a public water supply and recreational reservoir. PWS standards are exceeded by total manganese concentrations most of the time and EWH standards are exceeded by total zinc concentrations all of the time. Some Salt Fork tributaries have no abandoned mines and still exceed PWS Standards. Salt Fork headwater tributaries on occasion have concentrations in excess of WQS for total iron and pH WWH. The region has many surface mines. Salt Fork, dwosntream from the reservoir does not appear to be severely affected by acid mine drainage.

Senecaville Reservoir is located on Seneca Fork of Wills Creek in Guernsey County. There are many abandoned surface mines in the watershed, particularly on Beaver Creek. Seneca Fork pH values violated WQS part of the time (EWH). In the South Fork of Seneca Fork total iron WQS were violated. There are no abandoned coal mines on South Fork. Total manganese concentrations exceeded PWS Standards in 16 out of 17 samples from the Seneca Fork and South Fork. More data is needed to determine if Senecaville Reservoir is affected by abandoned mine drainage.

Buffalo Creek drains 49.7 square miles and contains less than 2 square miles of strip mines and a few very small underground mines. Coal beds designated as having high pollution potential in the area are the Upper Freeport and Meigs Creek coals. Both types are mined using both surface and underground

techniques. Degraded water quality resulted from drainage from abandoned coal mines. WQS violations for pH and total iron occurred frequently. More information is needed to determine the extent, degree and source of mine drainage.

Seneca Fork, a tributary to Wills Creek, is approximately 30.3 miles in length. The latest physical/chemical data was collected in June and July of 1978 at the confluence with Buffalo Creek and reflected mine drainage impacts on this stream. Total iron concentrations were 2340 and 2470 ug/l. Total aluminum concentrations at the same site yielded concentrations as high as 1480 ug/l. The headwaters of Seneca Fork were sampled on June 15, 1978 yielding total aluminum concentrations of 2400, to 8500 ug/l, and total manganeses concentrations 830 ug/l. Field values for pH at both sites were within WQS.

Leatherwood Creek, a tributary of Wills Creek, is approximately 28.6 miles. Sampling was conducted in October, 1978, at three (3) sites on Leatherwood Creek, plus one tributary to Leatherwood Creek (Shannon Run). WQS violations for total iron occurred in this segment. Moderate sulfate concentrations, alkalinity concentrations near 100 mg/l and moderate TDS and conductivity levels, were also detected. The Quaker City public water supply intake is located on Leatherwood Creek. The sulfate and total manganese concentrations were in excess of PWS standards. TDS values have been as high as 754 mg/l, but it is not known if the monthly average value remains above 500 mg/l, which would violate PWS standards.

Samples taken from Leatherwood Creek west of Barnesville exceeded WQS for sulfate only. Samples taken at Quaker City (Route 513 bridge) resulted in violations of sulfate and zinc standards. The final sample on Leatherwood Creek was taken at Kiger mine, Guernsey County and WQS violations were detected for sulfate, total rion and total zinc.

Water quality data for Crooked Creek, a tributary to Wills Creek, consists of 5 Skelly and Loy, (1973) grab samples, one of which slightly violated the total iron WWH standards. Most of the abandoned mines are surface mines northeast of New Concord in the Peter's Creek drainage, but there are small abandoned coal mines and limestone quarries as far west as New Concord. There are no abandoned mines on the South Branch of Crooked Creek, although there are active strip mines in the Pittsburgh coal seam along the western divide of this watershed. The construction of I-70 between Cambridge and New Concord exposed the crop line of the Upper Freeport coal seam in many places, and resulted in the relocation of Crooked Creek.

In 1978, several sites were monitored in the Muskingum (New Concord) and Guernsey (Cambridge) County segments of Wills Creek. Sampling efforts resulted in only one WQS violation (total iron) at four sites.

Biological Evaluations

No recent Ohio EPA, macrobenthic data are available for the subbasin. Previous fixed station monitoring consisted of three sets of benthic data collected from three locations. One sample each was collected from Wills Creek at Cambridge (RM 58.5) in Guernsey County in October, 1977, from Wills Creek below Wills Creek Dam (RM 5.9) in Coshocton County in September, 1976, and from Crooked Creek, a tributary of Wills Creek, at Cambridge (RM 2.6) in Guernsey County in August, 1975.

The benthic community at the station on Wills Creek at Cambridge consisted of 15 taxa with a diversity index of 1.94 (RD 3-84). An evaluation of Class IV (Poor) water quality was indicated based on the poor benthic community.

The benthic community at the station on Wills Creek below Wills Creek Dam consisted of 13 taxa with a diversity index of 2.07 (RD 3-85). An evaluation of Class IV (Poor) water quality was assigned based on all criteria.

The benthic community at the station on Crooked Creek at Cambridge consisted of 14 taxa with a diversity index of 2.94 (RD 3-86). An evaluation of Class IV (Poor) water quality was indicated based on the low number of taxa and poor benthic composition.

A biological and water quality survey of Wills Creek is planned for 1984 and a draft report should be completed in 1985.

REFERENCES

Ohio Environmental Protection Agency. 1974-1980 (unpublished). Data available from Southeast District Office, Ohio EPA, Logan, Ohio.

OHIO RIVER TRIBUTARIES

BASINS L, N, R AND S
(See subbasin list below)

SUMMARY

An accurate assessment of water quality in the minor Ohio River Tributaries (Basins L, N, R, and S) was not possible because of insufficient data. A subjective evaluation of water quality conditions in the Ohio River tributaries was made based upon scant data and knowledge of pollution sources within the watershed. Subbasins not included in this report were not evaluated at all because of a complete lack of information.

General indications are that many Ohio River tributaries may currently meet 1983 goals, but insufficient data exists to fully substaniate this. Some streams are known to be impacted by mine drainage but the degree of degradation is uncertain. Further investigation may reveal stream segments that will not meet 1983 goals due to the mine drainage problems. For a more comprehensive evaluation of the mine drainage issue, the reader is referred to a document compiled by the Industrial Coal Operations Group of the Ohio EPA (Volume V of the 1980 305(b) report).

Ohio River Tributary Subbasins

Basin L

L-1	Whiteoak Creek Subbasin
L-2	Ohio Brush Creek Subbasin
L-3	Eagle Creek and Straight Creek Subbasin

Basin N

N-1	Upper Raccoon Creek Subbasin
N-2	Lower Raccoon Creek Subbasin
N-3	Symmes Creek Subbasin
N-4	Little Scioto River and Pine Creek Subbasin
N-5	Ice Creek and Indian Guyan Creek Subbasin

Basin R

R-1	Duck Creek Subbasin
R-2	Little Muskingum River Subbasin

Basin S

S-1	Little Beaver Creek Subbasin
S-2	Yellow Creek, Cross Creek, and McIntyre Creek Subbasin
S-3	Short Creek and Wheeling Creek Subbasin
S-4	McMahon Creek, Captina Creek, and Sunfish Creek Subbasin

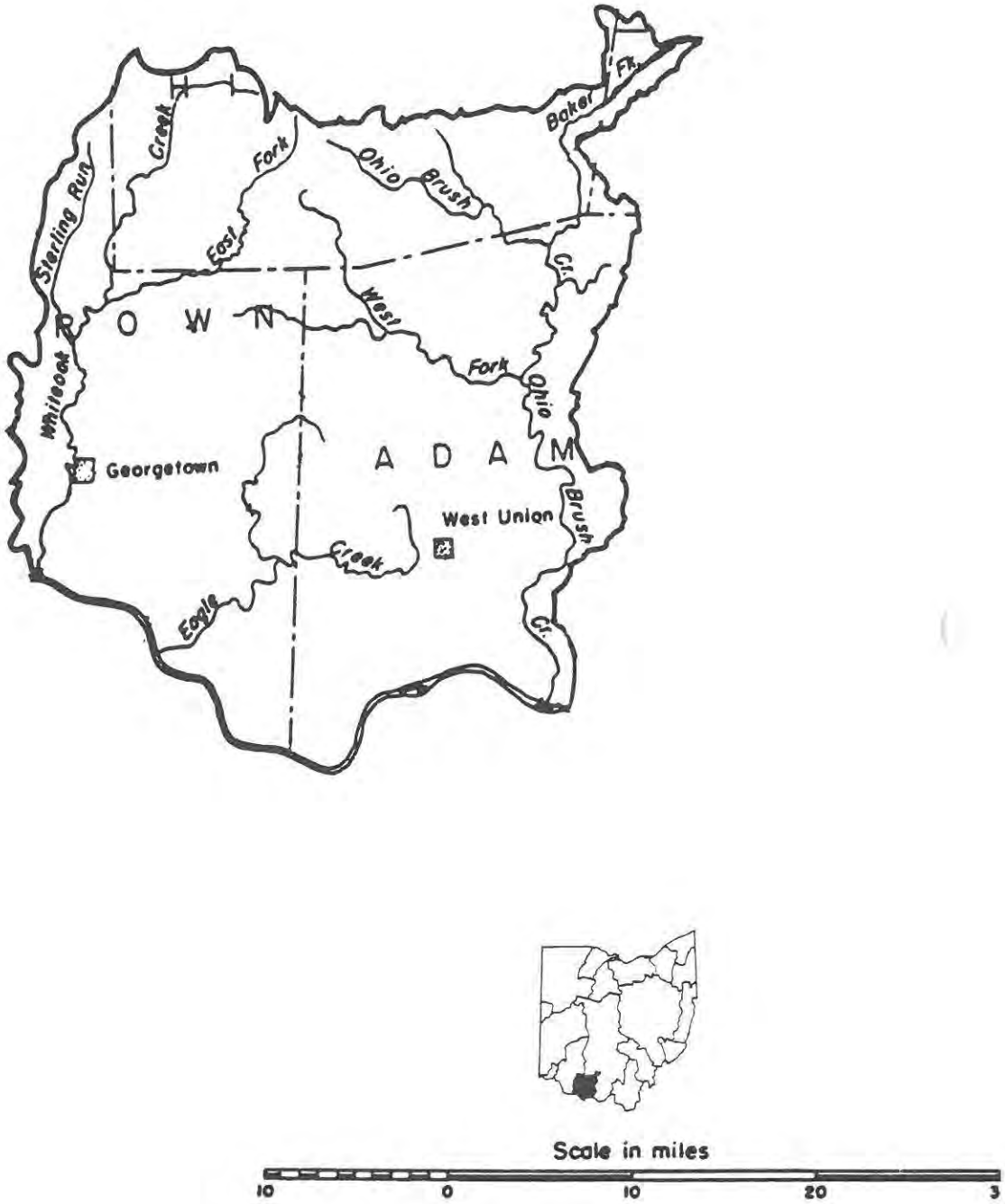


Figure II-19. Map of the Ohio River tributary basins (Ohio). Stream segments that were judged not to support aquatic life in accordance with the goals of the Clean Water Act are highlighted with stippled shading.

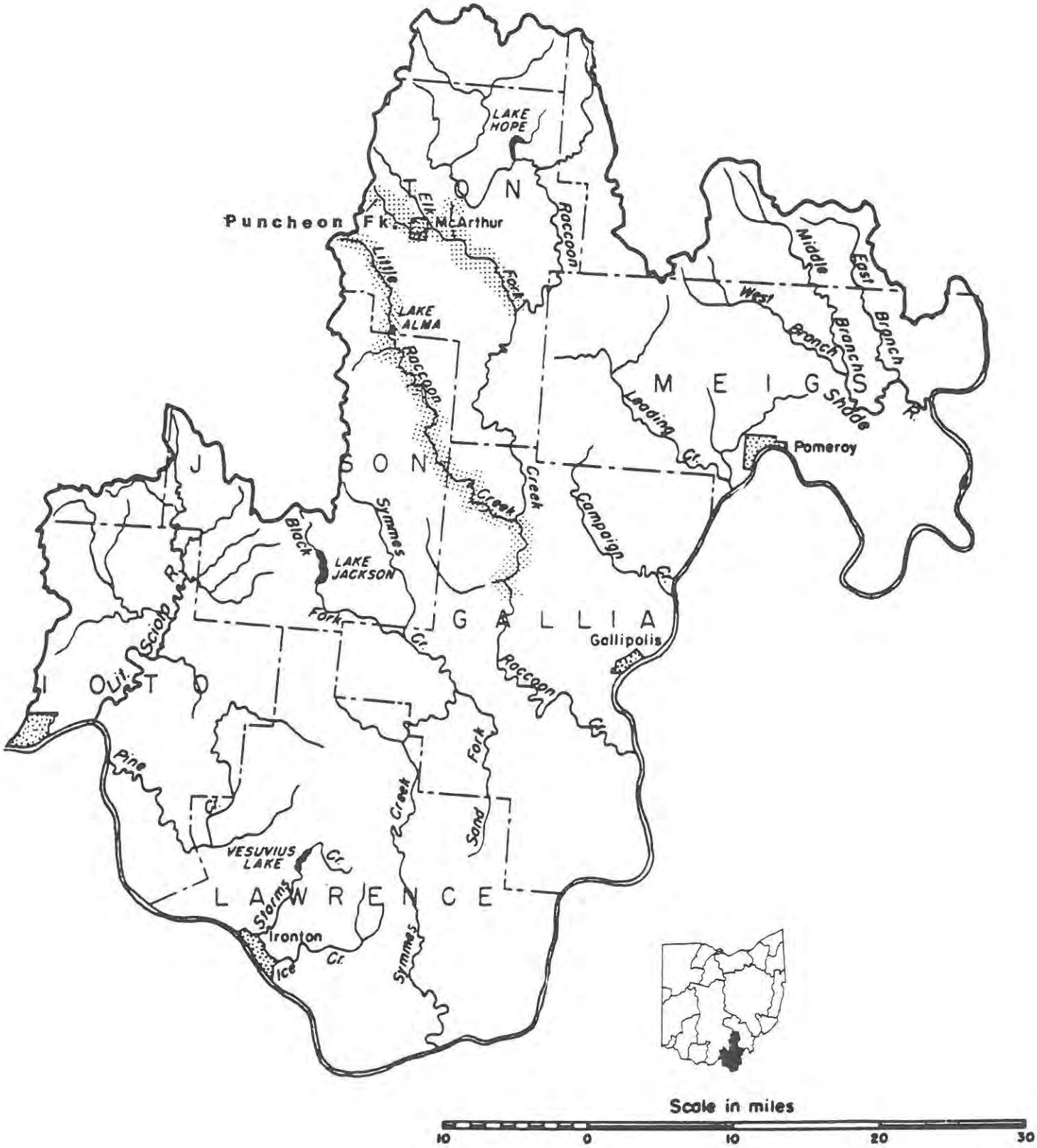
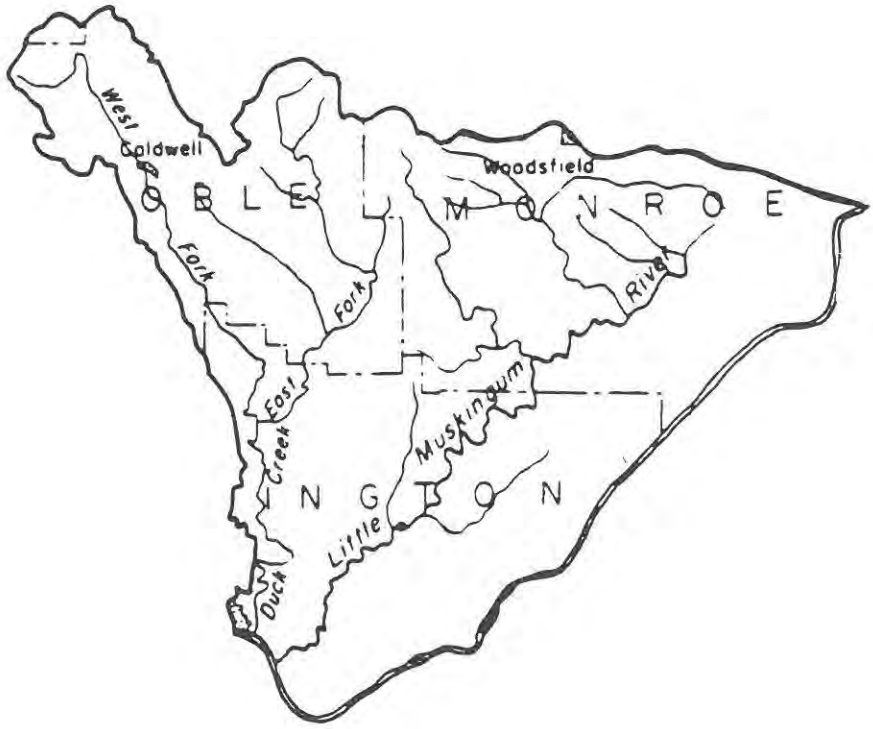


Figure II-20. Map of the Ohio River tributary basins (Ohio). Stream segments that were judged not to support aquatic life in accordance with the goals of the Clean Water Act are highlighted with stippled shading.



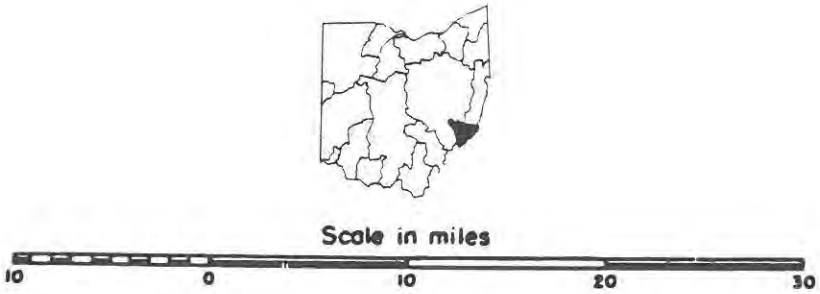


Figure II-21. Map of the Ohio River tributary basins (Ohio). Stream segments that were judged not to support aquatic life in accordance with the goals of the Clean Water Act are highlighted with stippled shading.

Figure II-22. Map of the Ohio River tributary basins (Ohio). Stream segments that were judged not to support aquatic life in accordance with the goals of the Clean Water Act are highlighted with stippled shading.

WHITEOAK CREEK SUBBASIN (L-1)

Available physical/chemical water quality data was previously summarized in the State Water Quality Management Plan (OEPA, 1979a). Fecal coliforms and heavy metals (total copper, total zinc, total cadmium, total lead, total iron, total mercury, and total nickel) were cited as possible water quality problems. The available information is insufficient to assess the magnitude and sources of the fecal coliform and heavy metal contamination. There is no mine drainage in this subbasin. The status of Whiteoak Creek with respect to the 1983 clean water goals is unknown.

OHIO BRUSH CREEK SUBBASIN (L-2)

Overall physical/chemical water quality in the Ohio Brush Creek Subbasin appears to be excellent except for isolated stream segments degraded by municipal WWTP's at Seaman, Peebles, West Union and Winchester. The Seaman WWTP at RM 7.2 on the West Fork of Ohio Brush Creek and the Peebles WWTP on Shimmer Run, a tributary to Ohio Brush Creek at RM 30.9, both caused significant stream degradation due to inadequate wastewater treatment. The West Union WWTP (RM 6.1 on Beasley Fork) was recently upgraded to tertiary treatment. This has resulted in improved ammonia, phosphorous, BOD_5 and total suspended solids removal (TSS) (when sand filters at the plant have been operational).

In addition to degradation by WWTP discharge Beasley Fork is also degraded by leachate from the Adams County Landfill (RM 4.9). Leachate from the landfill results in high levels of total iron, total aluminum and slightly elevated levels of ammonia. Both of these entities (West Union WWTP and the Adams Co. Landfill) discharge to the headwaters of this tributary, resulting in further water quality problems due to the limited volume of water available for dillution. Sampling at the fixed monitoring site (RM 13.1; STORET station No. 600660) revealed WQS violations for ammonia, fecal coliforms and total iron prior to 1980. In 1980, sampling results revealed two violations for total iron, one violation for total nickel and one violation of the total zinc standard. Only the two total iron violations were exceeding high (7,600 and 36000 ug/l) (OEPA, SEDO data, 1974-1980). For the majority of the basin, the severity of the violations probably do not interfere with 1983 clean water goals. Additional physical, chemical and biological monitoring of Ohio Brush Creek is needed to determine if Exceptional Warmwater Habitat standards can be maintained in this basin.

Biological Evaluations

No recent Ohio EPA, macrobenthic data are available for the basin. Previous sampling in the basin consisted of one fixed station benthic sample (NASQAN) collected in September, 1978, from Ohio Brush Creek near West Union in Adams County (RM 16.5). A total of 41 benthic taxa with a diversity index of 3.95 were collected (RD 3-24). The benthic community consisted of 10 taxa of mayflies, 2 taxa of stoneflies, 4 taxa of caddisflies, and 16 taxa of midges. No one taxon or group was overwhelmingly abundant. The overall benthic community appeared healthy and diverse and reflected Class I (Excellent) water quality.

EAGLE CREEK AND STRAIGHT CREEK SUBBASIN (L-3)

Recent data for Eagle Creek was limited to a single sample collected in August 1978 at the low-flow monitoring site (RM 3.7; STORET station No. 609120). There were no violations of the Exceptional Warmwater Habitat standards (OEPA, SEDO data, 1978). Data from 1972-1973 (OEPA, 1979a) showed WQS violations for total iron and total chromium in the vicinity of the Copeland Refrigeration Corporation; recent sampling detected total zinc violations below the Copeland discharge (OEPA, SEDO data, 1979). The Copeland Corporation used to operate a small package wastewater treatment plant, however, the facility now discharges to the West Union WWTP.

Physical/chemical Water quality data was collected in late 1979 in the Straight Creek drainage basin. This single set of samples revealed excellent water quality and no violations of the Exceptional Warmwater Habitat Standards (OEPA, SEDO data, 1979). No water quality problems are believed to exist because of the rural land use and the absence of any significant point source pollution. Additional physical, chemical and biological monitoring is needed to determine if 1983 goals are being met in these subbasins.

UPPER RACCOON CREEK SUBBASIN (N-1)
SUBBASIN SUMMARY

Mine drainage problems were prevalent in this subbasin. WQS violations for pH, total zinc, total iron, along with high total manganese and sulfate concentrations, were reported (USGS, 1976-1977; OEPA, SEDO data, 1974-1978). Severely degraded streams include Raccoon Creek from the East and West Branch confluence to the Little Raccoon Creek confluence, East Branch, Hewett Fork, Brushy Fork, Sandy Run, and Twomile Run. Streams affected by mine drainage to a lesser degree included the West Branch, Rockcamp Creek, Flatlick Run, Siverly Creek, Honey Fork, and Elk Fork.

The Lake Hope Mine Drainage Demonstration Project is located in the Sandy Run watershed. Underground mines are being sealed in an effort to reduce mine drainage pollution. At the present time, there is no information available to assess the effectiveness of this project.

A physical, chemical and biological survey was conducted on Elk Fork during 1981. The final report is expected to be available during 1982.

SEGMENT REPORTS

ELK FORK
TRIBUTARY TO RACCOON CREEK

Segment Problem	Name Description	Use Designation Mile Points
N/A GOOD*	Elk Fork from headwaters to just upstream of the McArthur WWTP	WWH 21.0 -16.2

Segment Problem	Name Description	Use Designation Mile Points
N/A POOR*	Elk Fork from McArthur WWTP to 150 feet below McArthur WWTP	WWH 16.1-16.0
N/A GOOD*	Elk Fork from below McArthur WWTP to Puncheon Fork	WWH 16.0-13.3
N/A FAIR*	Elk Fork from Puncheon Fork to just above the confluence of Austin Powder tributary	WWH 13.2-11.3
N/A FAIR*	Elk Fork from Austin Powder Tributary to confluence with Raccoon Creek	WWH 11.2-0.0

PUNCHEON FORK
ELK FORK TRIBUTARY
CONFLUENCE AT RM 13.8

Segment Problem	Name Description	Use Designation Mile Points
N/A POOR*	Puncheon Fork From headwaters to Elk Fork	WWH 5.6-0.0

AUSTIN POWDER TRIBUTARY
TO ELK FORK
CONFLUENCE AT RM 11.2

Segment Problem	Name Description	Use Designation Mile Points
N/A POOR*	Austin Powder tributary from headwaters to confluence with Elk Fork	WWH 1.8-0.1

Biological and Water Quality Survey

The results of chemical water quality and biological sampling conducted in 1981 in the Elk Fork watershed clearly illustrated measurable impacts from three pollution sources: the McArthur WWTP, the Austin Powder Company Red Diamond Plant, and diffuse mine drainage runoff. Water chemistry parameters and biota at the stations upstream from the WWTP were indicative of good water quality. Degradation caused by the McArthur WWTP effluent was most apparent in the chemical/physical parameters measured by stations 0.1 mile and 1.3 miles downstream. Low dissolved oxygen concentrations and high ammonia-N concentrations were the factors of most concern. These chemical conditions were indicative of a stressful environment for aquatic life and were accentuated by the near "worst case flow conditions" that occurred during the survey. Benthic sampling also indicated severe water quality degradation 0.1

miles downstream from the WWTP outfall, but the benthic community at this station was also limited by poor substrate conditions. The fish community 0.5 miles downstream was predominantly bluegill sunfish and yellow bullheads, two species tolerant of low dissolved oxygen concentrations. However, despite the implications of the chemical data, overall fish diversity and abundance was not substantially different than at adjacent stations. In summary the impact of the McArthur WWTP effluent on Elk Fork can be characterized as acute in terms of chemical quality at low flow, but very limited in severity and extent of biological degradation.

The Austin Powder Red Diamond Plant had a substantial impact on the chemical water quality of the Austin Powder Tributary and Elk Fork as far as 2.7 miles downstream. Concentrations of nitrate-N and nitrite-N approached or exceeded generally accepted safe threshold values for both aquatic life protection and livestock water supply protection. Chemical water quality problems associated with the Austin Powder Companay were not detected at the mouth of Elk Fork. Any biological degradation resulting from the Austin Powder effluent was obscured by the prevailing mine drainage impacts. However, results of bioassays on the Austin Powder effluent revealed acute toxicity to the fathead minnow, possibly due to ammonia-N or nitrite-N.

The diversity of the invertebrate and fish faunas in the headwaters of Elk Fork indicates that Elk Fork upstream from Puncheon Fork is capable of supporting reproducing populations of warmwater fish and invertebrates on an annual basis. Based upon the faunas present in the Elk Fork headwaters it is apparent that the remainder of Elk Fork and its major tributaries have the potential to support diverse invertebrate and fish communities. However, it is also apparent from the findings that the presence of diverse aquatic communities in Elk Fork downstream from Puncheon Fork is prevented by diffuse mine drainage impacts, largely from abandoned and unreclaimed areas. As of June 1982 only 68 acres or 3% of the abandoned strip mined land was undergoing reclamation, and no firm plans for additional reclamation exist. The Warmwater Habitat use is thus precluded in Elk Fork and its tributaries from the Puncheon Fork confluence to the mouth of Elk Fork because of irretrievable man-induced conditions. This decision should be reevaluated at such time when additional reclamation of abandoned mines is undertaken (Ohio EPA, 1983).

LOWER RACCOON CREEK SUBBASIN (N-2)

SUBBASIN SUMMARY

Severe mine drainage pollution in the Little Raccoon Creek watershed has been documented (FWPCA, 1967; Skelly and Loy, 1974). Frequent violations of the pH standard have occurred, thus impairing the attainment of the 1983 clean water goals. Municipal point source pollution was also a problem in segments of the subbasin.

A biological and water quality survey of Little Raccoon Creek is planned for 1984 and a draft report should be completed in 1985.

SEGMENT REPORTS

MEADOW RUN
LITTLE RACCOON CREEK TRIBUTARY
CONFLUENCE AT RM

Segment Problem	Name Description	Use Designation Mile Points
N/A POOR	Meadow Run from the Wellston WWTP to Little Raccoon Creek	WWH 2.9-0.0

The low gradient segment of Meadow Run experiences severe dissolved oxygen problems due to the organic loading from the Wellston WWTP (OEPA, SEDO data, 1977). The city of Wellston recently sold the WWTP to Jeno's Pizza Co. Operation of the plant is to be transfered to Jeno's Pizza when production begins at their new facility. The city of Wellston is in the Construction Grants Program. A facilities plan has been received by the Ohio EPA. Review has not yet been completed but it appears that Wellston will receive funding. No wastewater treatment improvements are anticipated prior to 1983.

LITTLE RACCOON CREEK
RACCOON CREEK TRIBUTARY
CONFLUENCE AT RM

Segment Problem	Name Description	Use Designation Mile Points
05090101-034,-033 POOR	Little Raccoon Creek from the headwaters to Raccoon Creek	WWH 36.5-0.0

Previous reports from the Federal Water Pollution Control Administration (1967) and Skelly and Loy (1974) listed WQS violations for pH, total iron and total zinc in Little Raccoon Creek.

These reports identified widespread mine drainage pollution in the following tributaries of Raccoon Creek: Sand Run, Meadow Run, Mulga Run, Flint Run, Buffer Run, Tarcamp Run, Goose Run, Dickason Run, Spring Run and Keetor Run. Urban point and nonpoint source pollution from the Wellston-Hamden area may also impact Little Raccoon Creek.

Recent sampling by Ohio EPA, SEDO staff indicated that the Little Raccoon Creek is adversely affected by mine drainage (Ohio EPA, SEDO data 1974-1979).

RACCOON CREEK
OHIO RIVER TRIBUTARY
CONFLUENCE AT RM

Segment Problem	Name Description	Use Designation Mile Points
05090101-021,-020 POOR	Raccoon Creek from the Little Raccoon Creek confluence to U.S. Rt. 35	WWH 37-29.6

This segment was affected by mine drainage from upstream areas. Monthly physical/chemical water quality samples were collected at the lower end of this stream segment (RM 29.6; STORET station No. 601400). Frequent WQS violations for pH and total iron occurred as well as one violation each for total copper, total lead and total zinc (OEPA, SEDO data, 1977-1980).

Indian Creek, a major tributary to this segment, was degraded downstream from the city of Rio Grande WWTP. Nutrients and low dissolved oxygen were identified as the major problems (OEPA, SEDO data, 1979). The city of Rio Grande is preparing a facilities plan which should be submitted to Ohio EPA in 1982.

SYMMES CREEK SUBBASIN (N-3)

Very little data exists for the Symmes Creek mainstem or its tributaries, and therefore no determination can be made regarding attainability of 1983 water quality goals. Many segments in this basin are affected by mine drainage from both active and abandoned mines (Ohio EPA, SEDO data). The mainstem of Symmes Creek was sampled 20 times between 1968 and 1978 (Ohio EPA, SEDO; Skelly and Loy; FWPCA). Most observations were taken in the months of January, June, July and October representing both high and low flow conditions. Little or no information was collected on manganese, zinc, aluminum or TDS.

The buffering capacity of Symmes Creek is limited (mean alkalinity of 29.6 mg/l $CaCO_3$) but no net acidities were noted on the mainstem of Symmes Creek. Only one sample out of 16 exceeded the WQS standard for pH on the Symmes Creek mainstem.

Minor pH problems occurred on several tributaries to Symmes Creek including streams with no abandoned mines. Several tributaries which contain abandoned strip and underground mines, exhibited the most severe pH and net acidity problems in the basin. Most of the Symmes Creek tributaries for which data exists do not contain more than four abandoned strip mines. Physical/chemical water quality in most of these tributaries can be described as having no detectable or only minor effects from acid mine drainage. Pigeon Creek and Cackley Swamp are probably the main sources of acid mine drainage to Symmes Creek mainstem. This observation is based on one sample for each stream (Ohio EPA, SEDO data, 1973). Black Fork has suprisingly physical/chemical good water quality considering the number of abandoned mines in the drainage area, but degradation from "slugging" (i.e., periodic discharge of toxic materials) may occur during storm runoff events. Evidence for this are the fish kills attributed to acid mine drainage reported on 28 June 1976 and 8 September 1972 by the Ohio DNR, Division of Wildlife. Several of the tributaries to Symmes Creek have no abandoned mines within their drainage areas. A more complete discussion of mine drainage related problems on Symmes Creek appeared in the 1980 305(b) report.

In addition to the mine drainage related problems, several other water quality problems exist in this basin. The Oak Hill WWTP discharges to Huntingcamp Creek, a tributary to Symmes Creek. Occasional water quality monitoring both upstream and downstream the plant revealed water quality degradation. No WQS violations occurred upstream from the plant but TKN and ammonia levels downstream were ten to thirty times higher than ambient levels. An oxidation-ditch type plant is in the planning stages for Oak Hill. When completed this facility should significantly improve water quality in Symmes Creek.

LITTLE SCIOTO RIVER AND PINE CREEK SUBBASIN (N-4)

Preliminary observations and the results from one sample (OEPA, SEDO data, 1978) taken at mile point 2.2 on the Little Scioto River indicated good physical/chemical water quality. Two small WWTP's serving Purtee Acres (RM 6.2 on Wards Run) and the Tanglewood Subdivision (RM 1.7 on an unnamed tributary to the Little Scioto) may affect water quality in the Little Scioto River. The impact of these discharges, agricultural runoff, and failing septic tank systems on the water quality of the Little Scioto River is unknown.

Physical/chemical water quality was probably affected to a minor degree by mine drainage in the Little Scioto River and its tributaries. Most of the abandoned mines are small, subsurface and sparsely distributed throughout the eastern portion of the main watershed. Minor WQS violations for pH occurred in the mainstem, Munn Run, Rocky Fork, Sugarcamp Creek and Brushy Fork. Buffering capacities for all reported streams were adequate. No net acidities were found in any segment.

As in the adjacent Little Salt Creek watershed, sulfate concentrations were lower than expected and appeared to be independent of the presence of abandoned mines. However, more data is required to establish if this is a true pattern.

Conductivity and alkalinity appeared to increase in downstream tributaries, but was not associated with any similar trend in other mine drainage constitutents. Total iron exceeded WQS on streams with and without abandoned mines (OEPA, SEDO, 1980a). A recent evaluation listed nine tributaries to Pine Creek as being influenced by mine drainage (OEPA, 1979b). A single grab sample collected by Ohio EPA revealed no physical/chemical problems (OEPA, SEDO data, 1978); however, monitoring by the U.S. Geological Survey revealed total iron and pH standards violations (USGS, 1972-1978).

No recent data is available for the Storm Creek watershed. Previous reports have indicated good water quality (physical/chemical) (OEPA, 1976; OEPA, 1979b).

Additional physical, chemical and biological monitoring to determine the impact of mine drainage will be required before an accurate evaluation of water quality, with respect to attainment of 1983 goals, can be made.

ICE CREEK AND INDIAN GUYAN CREEK SUBBASINS (N-5)

No determinations can be made concerning water quality in Ice Creek because of insufficient data.

A substantial portion of Indian Guyan Creek flows through the Wayne National Forest. There were no point source discharges in the subbasin but water quality may have been influenced by strip mining activity in the upper watershed and by a small amount of agricultural land use. Water quality appeared to be good; one of two Ohio EPA samples collected near the village of Bradrick showed a total iron violation (OEPA, SEDO data, 1978); additional sampling by the U.S. Geological Survey revealed no violations (USGS, 1974-1977).

DUCK CREEK SUBBASIN (R-1)

Portions of the Duck Creek Subbasin were degraded by mine drainage pollution. Severely impacted areas included the Middle Fork, the East Fork below the Middle Fork, the West Fork, and lower Duck Creek. Based upon limited physical/chemical data, the upper East Fork and several smaller tributaries in the subbasin have acceptable water quality (OEPA, SEDO data, 1976). The Caldwell WWTP may have a substantial impact on water quality, but data is lacking.

LITTLE MUSKINGUM RIVER SUBBASIN (R-2)

The Little Muskingum River is classified as a State and National Resource Water and is considered one of the higher quality streams in Ohio. There were no point source discharges in the basin; two abandoned underground mines have a negligible impact on water quality. Two minor WQS violations were detected: a total iron violation on Rich Fork and a total lead violation on the mainstem above Mill Run (OEPA, SEDO data, 1978-1979).

This basin was sampled extensively in 1981. Fifteen permanent monitoring stations were developed and 45 water quality samples were taken throughout the watershed. Five total copper violations occured (2 violations on Fifteen Mile Creek; 1 violation on Archers Fork; 1 violation on Written Fork; 1 violation on the mainstem at Co. Rd. 9 bridge). These violations were all slightly above the detection limit for this metal except for the violation that occurred at Fifteen Mile Creek (50 ug/l). Additional WQS violations for total iron and total nickel also occurred.

The results of this extensive monitoring program indicated that the basin was in excellent physical/chemical condition. Other than infrequent sampling, no additional monitoring is planned for this basin.

LITTLE BEAVER CREEK SUBBASIN (S-1)

SUBBASIN SUMMARY

Physical/chemical water quality in the Little Beaver Creek Subbasin ranged from good to fair. The headwaters of the Middle Fork and segments of the East Branch and North Fork were degraded by municipal and industrial point source pollution. The urban areas of Salem, Leetonia, Washingtonville, Lisbon, East Palestine and New Waterford were responsible for localized water quality problems. Organic enrichment and fecal coliform contamination were the most widespread problems below these municipalities (OEPA, NEDO data, 1977-1979).

Stateline Creek and Chemline Run, tributaries to the North Fork and West Fork respectively, were impacted by industrial waste disposal operations. Ammonia, total iron, total lead, total cyanide, MBAS, pH, total dissolved solids, and phenolics WQS violations were among the problems resulting from discharges and leachates from the disposal facilities. Segments of the North Fork and West Fork were degraded below the disposal sites during low-flow conditions. Numerous coal mining activities within the Little Beaver Creek Subbasin may also influence water quality.

Little Beaver Creek and the lower portions of the West Fork, Middle Fork and North Fork were relatively free from degradation and near-stream development. Thirty-three miles in the lower watershed are designated as a National Scenic River. Under the State classification system, 20 miles of the Little Beaver Creek system is designated as a Wild River and 16 miles are designated as a Scenic River (Ohio DNR, 1979).

SEGMENT REPORTS

MIDDLE FORK LITTLE BEAVER CREEK
BEAVER CREEK TRIBUTARY

Segment Problem	Name Description	Use Designation Mile Points
05030101-017 POOR	Middle Fork from the Salem WWTP to Beaver Creek	WWH 53.9-0.0

Dissolved oxygen, fecal coliform, total iron, total lead and phenolic WQS violations occurred at the Allen Road sampling site (OEPA, NEDO data, 1977-1979). These violations can be attributed to the effluent of the Salem WWTP, which is expected to be upgraded prior to 1983. Farther downstream, discharge from the Stone Mill Run causes WQS violations of for total iron, and elevated levels of total lead, total zinc, and total nickel in the Middle Fork (OEPA, NWDO data, 1980).

LITTLE BEAVER CREEK MAINSTEM

Segment Problem	Name Description	Use Designation Mile Points
05030101-015 POOR	Little Beaver Creek from the Source to the Ohio-Pennsylvania state line	WWH 14.8-1.5

WQS violations for total iron, total lead, total mercury, phenolics and fecal coliforms were reported at the monthly monitoring site near East Liverpool (RM 4.6; STORET station No. 602000; OEPA, NEDO data, 1978-1980). Elevated fecal coliform concentrations can be attributed to upstream municipal WWTPs (Salem, Leetonia, Washingtonville, Lisbon, East Palestine, and New Waterford) along with nonpoint sources. The other violations may have been partially attributable to the industrial waste disposal sites locted within the subbasin. The extent of degradation in Little Beaver Creek appeared to be minimal, but further investigation is advisable. Attainment of 1983 clean water goals is dependent upon municipal WWTP improvements and pollution abatement programs at the industrial waste disposal site. The cities of Leetonia and Washingtonville jointly submitted Step I, facility planning application during 1981. No final action has been taken by Ohio EPA.

CHEMLIME RUN
WEST FORK TRIBUTARY
CONFLUENCE AT RM

Segment Problem	Name Description	Use Designation Mile Points
N/A POOR	Chemlime Run from the Chemline Corp. Outfall to the West Fork	WWH 0.4-0.0

Industrial effluent will continue to cause violations for total dissolved solids, pH, ammonia, MBAS, total iron, phenolics and total cyanide. The Chemlime Corporation stopped accepting waste for disposal in the working pit in December, 1980. Only sludge generated on-site (leachate collection and water treatment sludge) is disposed of. Closure plans have been prepared and are being implemented at the present time. No improvement in water quality is expected to occur in the foreseeable future.

WEST FORK
LITTLE BEAVER CREEK TRIBUTARY
CONFLUENCE AT RM

Segment Problem	Name Description	Use Designation Mile Points
N/A POOR	West Fork immediately below the Chemlime Run confluence	WWH 12.8-11.8

Ammonia, total iron, total lead, and phenolic WQS violations were recorded in this stream segment (OEPA, NEDO data, 1977-1980). Concentrations of these parameters in the West Fork increased slightly below the Chemlime Run confluence, especially during cold weather and during low flow periods. Additional monitoring is needed to fully assess the impact of Chemlime Corporation's waste disposal on the West Fork.

EAST BRANCH
MIDDLE FORK TRIBUTARY
CONFLUENCE AT RM

Segment Problem	Name Description	Use Designation Mile Points
N/A POOR	East Branch from headwaters to the Middle Fork	WWH 9.5-0.0

This low gradient stream experienced dissolved oxygen problems (OEPA, NEDO data, 1977-1979) because of organic loading from the Leetonia WWTP and the Washingtonville WWTP. Additional monitoring is needed to better evaluate the problem area.

STATELINE CREEK
NORTH FORK TRIBUTARY
CONFLUENCE AT RM

Segment Problem	Name Description	Use Designation Mile Points
N/A POOR	Stateline Creek from the Cenco Corp. Outfall to the North Fork	WWH 1.5-0.0

WQS violations for total dissolved solids, ammonia, MBAS, total iron and phenolics occurred in this stream segment due to the discharges of the Cenco Corporation and Brownings-Ferris Industries (OEPA, NEDO data, 1977-1980). , Browning-Ferris Industries stopped accepting waste at this facility as of January 1979. In addition, wastewater treatment improvements have resulted in reduced phenolic concentrations in the discharge. Improvements in water quality are expected to result from these changes.

NORTH FORK
LITTLE BEAVER CREEK TRIBUTARY
CONFLUENCE AT RM

Segment Problem	Name Description	Use Designation Mile Points
05030101-016 POOR	North Fork from the Stateline Creek confluence to Little Beaver Creek	WWH 7.3-0.0

Industrial dischargers in the Stateline Creek drainage impact this segment of the North Fork. Sampling at two sites revealed WQS violations for nitrogen ammonia, total dissolved solids, total lead, phenolics, and total iron (OEPA, NEDO data, 1977-1980). These water quality problems were most evident during low-flow conditions. Industrial pollutant abatement measures may allow attainment of 1983 water quality goals by 1983.

YELLOW CREEK AND CROSS CREEK SUBBASIN (S-2)

A water quality and biological survey was conducted for the Yellow and Cross Creek subbasins. A draft report of the results should be available in 1984.

YELLOW CREEK SUBBASIN

Yellow Creek Subbasin drains 240 square miles in Jefferson, Carroll and Columbiana counties and empties into the Ohio River just south of Wellsville. There is extensive mining activity in the Yellow Creek watershed. The mainstem is classified as Mine Drainage Affected from RM 24.6 at the confluence with the Upper North Fork, to its confluence with the Ohio River. Ohio EPA, SEDO, established a low-flow sample site on the mainstem at RM 2.5. Only one WQS violation was detected before the monitoring station was discontinued in 1978.

Elkhorn Creek, a tributary to Yellow Creek at RM 26.3, is classified as Exceptional Warmwater Habitat. Although extensive physical, chemical and biological water quality data is not available, general observations, USGS benthic data and USGS chemical data on the mainstem of Elkhorn Creek and its tributaries, Strawcamp Run and Center Fork indicated that this subbasin has excellent water quality. Additional sampling is needed to validate this classification. According to USGS data (Coal Areas, Vol. 3. 1979-1980) all sites sampled in the watershed, except Wolf Run, had good to excellent water quality and benthic life.

An abandoned gob pile just northwest of East Springfield caused severe degradation of water quality throughout Wolf Run. The mainstem of Yellow Creek is significantly impacted by Wolf Run immediately below the confluence and probably extending down to Elkhorn Creek. Ohio EPA data from Yellow Creek above and below Wolf Run are drastically different. After mixing with Wolf Run, pH dropped from 7.38 S.U. to 4.45 S.U. in the Yellow Creek mainstem. Total acidity, total iron, total manganese, total aluminum, total zinc, dissolved solids and sulfates were much higher below this tributary than above it. Numerous sources of acid mine drainage also occurred throughout the Yellow Creek watershed, but the gob pile on Wolf Run was the largest single source.

Wolf Run is definitely impacted by acid mine drainage, but the rest of the Yellow Creek basin appears to be in good condition. Further sampling is needed to substantiate these observations.

CROSS CREEK SUBBASIN

Although sufficient stream data is lacking throughout this basin, the upper segment of Cross Creek, from the headwaters to its confluence with McIntyre Creek, is classified as Cold Water Habitat (CWH). There is considerable mining activity in the lower portion of this basin; high sulfates, total suspended solids, and conductivity, have been reported (USGS, 1974-1978). Two municipal wastewater treatment plants located in Winterville, discharge to Dry Fork, a small intermittent stream near the mouth of Cross Creek. The combined discharge from these facilities exceeds 110,000 gpd and frequently violated NPDES permit limits for biochemical oxygen demand (BOD_5) and total suspended solids.

SHORT CREEK AND WHEELING CREEK SUBBASIN (S-3)

Short Creek is 29.4 miles in length and drains 125 square miles in Jefferson and Harrison Counties. Approximately 80-95% of this subbasin has been affected by mine drainage and historical data revealed high concentrations of sulfate, dissolved solids, total iron, total manganese, and total aluminum (OEPA, 1979c).

The Short Creek watershed is affected by alkaline mine drainage. There were only 3 observations in 83 total samples for the area which had pH values below 6.5 S.U. Another characteristic of mine drainage affected stream quality in the Short Creek watershed were the high sulfate concentrations often in excess of 1100 mg/l. Total iron was problematic in approximately 10 of 16 mine drainage affected streams, but the degree of the problem appeared to be independent of pH or sulfate levels. Manganese was a minor problem at most stations.

The Short Creek mainstem contains alkaline conditions and excellent buffering capacities. Stream concentrations of total alkalinity are among the highest reported in the coal region of Ohio. Noncarbonate hardness, although not presented, comprised from 80 to 90% of total hardness. Sulfate is probably the main constituent of non-carbonate hardness in these waters. Short Creek tributaries contain water quality similar to the mainstem. pH fell below the WWH standard once in Piney Fork and Sally Buffalo Creek, at all other times, pH values range between 6.5 and 8.5 S.U. Buffering capacities are excellent in all tributaries. (OEPA, 1980a).

Wheeling Creek is 30.2 miles long and drains an area of 108 square miles in Belmont, Harrison, and Jefferson counties. The entire watershed has been extensively mineral using both surface and underground techniques.

Wheeling Creek empties into the Ohio River near Martins Ferry. Its headwaters are located near the small village of Flushing in northern Belmont County. The Flushing WWTP discharges Wheeling Creek via an unnamed tributary. from Flushing, Wheeling Creek continues east, through steeply sloping terrain, toward the Village of Bridgeport (population 29,130). Bridgeport is located south of Martins Ferry, on the flatlands along the Ohio River. The Belmont County Plum Street WWTP discharges directly into Wheeling Creek.

The general topography of the watershed has been significantly altered by widespread strip mining. As a result, nonpoint source pollution in the forms of acid mine drainage and surface runoff present problems in most of the watershed's streams. Wheeling Creek and all its tributaries are currently classified WWH.

Wheeling Creek has an excellent buffering capacity and very little to no acidity. Sulfate concentrations, however, are a severe problem, and total dissolved solids, iron, and manganese concentrations are minor problems. Aluminum concentrations are occasionally quite high.

Most of the tributaries to Wheeling Creek have the same general characteristics. They have excellent buffering capacities, zero acidities, and pH values above 6.5 S.U. However, they often have moderate to severe sulfate problems and minor to severe iron problems (OEPA, 1980a).

A low-flow sample collected by Ohio EPA showed standards violations for total iron and dissolved solids on Wheeling Creek (RM 1.5) (OEPA, SEDO data, 1978). Violations for total iron, total lead, and dissolved solids were observed at the low-flow monitoring site on Short Creek (RM 3.9)(OEPA, SEDO data, 1978).

MCMAHON CREEK, CAPTINA CREEK, AND SUNFISH CREEK SUBBASIN (S-4)

McMahon Creek is 28.1 miles long and drains 91.2 square miles in Belmont County. Approximately 50 strip mines, both active and abandoned, and 1 underground mine impact the water quality of McMahon Creek. The St. Clairesville WWTP discharges to Aults Run, a tributary to McMahon Creek at RM 0.0. This facility is overloaded, but plans are being prepared to convert it into a pump station for the new secondary treatment plant being planned in the Wheeling Creek Watershed.

Leachate from Buckeye Reclamation Company, a landfill in an abandoned strip mine on Kings Run (tributary to Little MaMahon Creek at RM 1.7) was sampled in December 1980. High concentrations of SO_4, ammonia nitrogen, total iron, total zinc, and low pH conditions were found in this tributary. Except for headwater areas, McMahon Creek and Little McMahon Creek are not expected to meet 1983 goals.

Captina Creek is significantly impacted by mine drainage for 22 miles from below the North American Coal Company #6 mine to the Ohio River. Coal refuse runoff, underground mine portal drainage, and active and inactive strip mines in the basin all combine to adversely affect water quality. The watershed contains 3 active underground mines, 6 active surface mines, 2 active deep mine portals and a coal preparation plant. An old gob pile, owned by Cravat Coal Company, is in the final stages of reclamation. The estimated completion date is late 1982. This gob pile has been a significant cause of mine drainage problems for many years. A good cover of clay, top soil, and plant growth should greatly reduce surface and sub-surface drainage problems. Current gob pile reclamation projects are expected to eliminate approximately 75% of the mine drainage problems in this basin. The Youghiogheny & Ohio Coal Company, located on Piney Creek, has little or no effect upon Piney Creek or the Captina Creek mainstem. The North American Coal Company should be in complete compliance with its discharge permit by 1983. The mainstem of Captina Creek is not expected to meet 1983 goals due to drainage from abandoned mines.

The Bethesda and Barnesville WWTP's also discharge to Captina Creek. The Barnesville WWTP (RM 10.5), located on the headwaters of the North Fork of Captina Creek, discharges an average of 1.0 MGD of secondary treated sewage. This plant is presently receiving almost twice the load it was designed to handle and, subsequently, has poor BOD and total suspended solids removal. Although stream data is not available, severe degradation during the summer months is likely. The Bethesda WWTP (RM 12.2), located in the headwaters of Bend Fork of Captina Creek, discharges an average of 179,000 gpd of secondary treated sewage. Storm water infiltration is a significant problem within this system. Physical/chemical data below the discharge is lacking, but general observations suggest a major impact; field inspections have revealed a septic zone and fish kills have been reported. Both of these facilities are currently at Step I in the construction grants process and are not expected to be upgraded prior to 1983 (OEPA, SEDO data, 1977-1981).

Sunfish Creek is 31.4 miles long and drains 113.8 square miles in Monroe County and Sunfish Creek generally has excellent water quality. There is no degradation due to mining activities within the watershed. Agricultural and logging activities result in minor degradation but the extent to which this occurs is not known. A total lead violation occurred at the ambient monitoring station (RM 6.8; STORET Station No. 609200) but was only 1 ug/l over the standard of 30 ug/l (OEPA, SEDO data, 1978). Standingstone Run receives effluent from Woodsfield WWTP (RM 3.2) and localized water quality problems may result from high organic loading to this low-flow stream. The Beallsville WWTP (RM 4.4) may cause similar degradation of the East Fork of Piney Fork, but water quality data sufficient to verify this is lacking.

A water quality and biological survey was conducted on the McMahon, Sunfish, and Captina Creek subbasins in 1983. A draft report should be available in 1984.

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MAHONING RIVER, PYMATUNING CREEK, AND YANKEE CREEK BASIN

UPPER, MIDDLE, AND LOWER MAHONING RIVER SUBBASINS (T-1, T-2, T-3)

SUBBASIN SUMMARY

The water quality of the Mahoning River ranges from good to grossly polluted. The upper and middle subbasins appear to be in generally good condition, although water quality data is scant. Point source pollution from the cities of Alliance and Sebring degrade portions of the upper Mahoning River and the Berlin Reservoir. Further study is needed to accurately assess the degree of degradation, especially with regard to eutrophication problems in the reservoir. In addition to Berlin Reservoir, five other reservoirs (Mosquito Creek, Milton, Deer Creek, Meander Creek, and West Branch) in the Mahoning River drainage provide for stream flow augmentation, recreational uses, and/or public drinking water supplies. Eagle Creek, a tributary to the middle Mahoning River, receives effluent from municipal WWTP's in Hiram, Garrettsville, and Windham. Limited sampling of Eagle Creek (OEPA, NEDO data, 1977-1980) revealed no WQS violations; however, the data was insufficient to evaluate Eagle Creek with respect to the 1983 goals.

Urban and industrial land-use has a substantial impact on the water quality of the Mahoning River below the city of Warren. The sheer volume of wastewater generated, combined with generally outdated wastewater treatment at municipal and industrial facilities, creates a grossly polluted aquatic environment. Water quality improvements are anticipated following the termination of steel making operations at several plants in the Mahoning Valley, but the 1983 clean water goals are not expected to be attainable within the foreseeable future.

Biological Evaluations

Recent Ohio EPA, macrobenthic monitoring in the basin consisted of two fixed station benthic samples (NASQAN) collected in September, 1979, from the Mahoning River at Lowellville in Mahoning County (RM 11.6). Macroinvertebrates were sampled at both an east bank and west bank station (RD 3- and 3-). Eight taxa were collected at the east bank station (diversity index 1.24) while seven taxa were collected at the west bank station (diversity index 0.78). Oligochaetes and the pulmonate snail *Physa* dominated the community of each side, together comprising over 90 percent of the populations by numbers. Large numbers of these two organisms are indicative of severe organic pollution. An evalation of Class IV (Poor) water quality was given to both east and west bank stations.

An extensive survey of the mainstem Mahoning River fish community from the confluence with Eagle Creek to the Beaver River downstream from New Castle, Pa. was conducted during July - October 1980. The results of this survey should be available in late 1984.

Included in this report will be studies of Mosquito, Meander, and Mill Creeks conducted in 1981 through 1983.

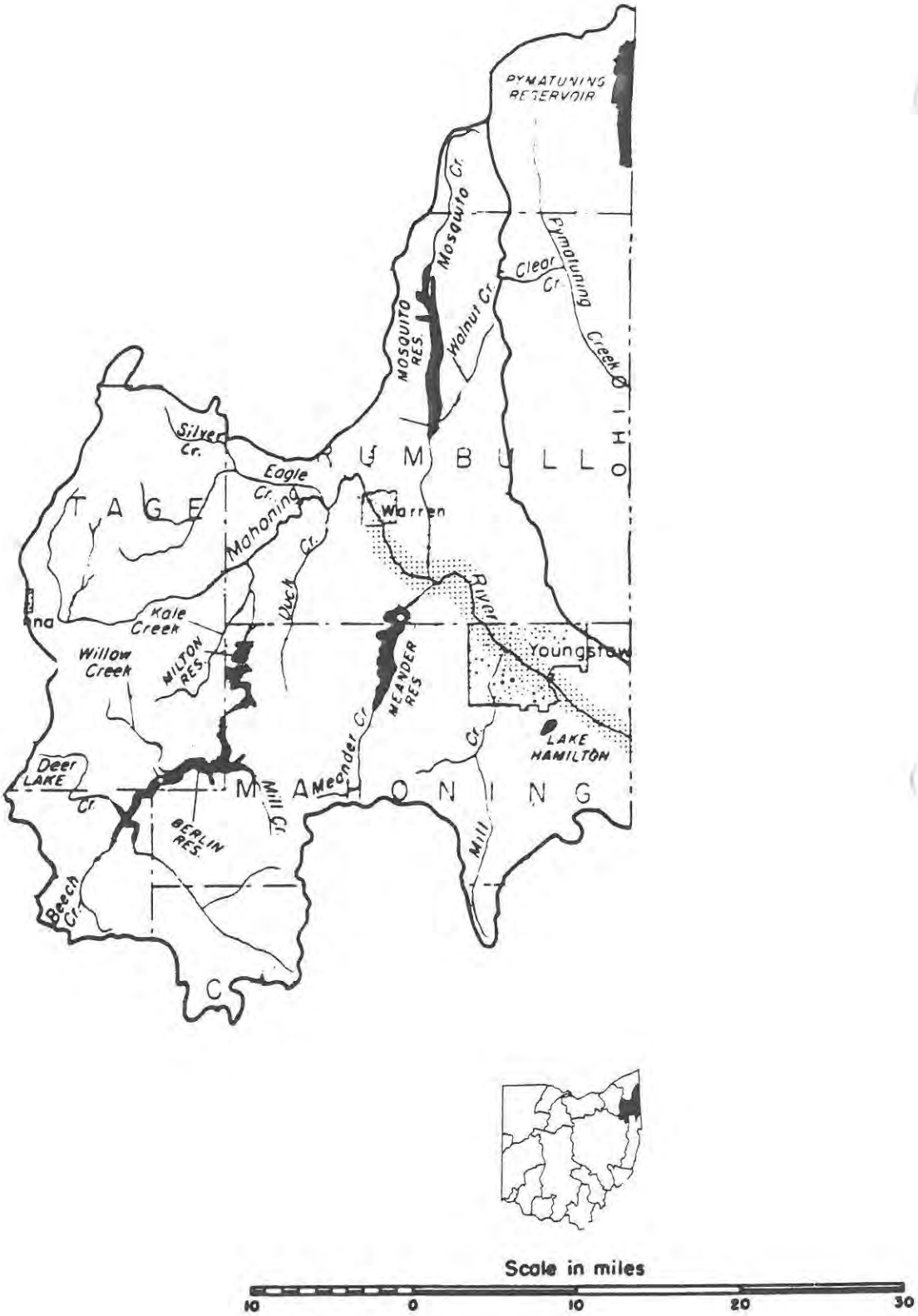

Figure II-23. Map of the Mahoning River basin (Ohio portion). Stream segments that were judged not to support aquatic life in accordance with the goals of the Clean Water Act are highlighted with stippled shading.

WEST BRANCH
MAHONING RIVER TRIBUTARY
CONFLUENCE AT RM 56.3

Segment Problem	Name Description	Use Designation Mile Points
05030103-010 GOOD	West Branch from the headwaters to the Mahoning River	WWH 29.2-0.0

Limited data collected in 1977 (NEFCO, 1979) indicated no substantial water quality degradation in the West Branch. Fecal coliform concentrations were elevated at some locations, reflecting the increased housing development in the southeastern portion of the watershed. A single sample collected by Ohio EPA revealed no water quality standards violations (OEPA, NEDO data, 1979).

MAHONING RIVER MAINSTEM
BEAVER RIVER (Pa.) TRIBUTARY
CONFLUENCE AT RM

Segment Problem	Name Description	Use Designation Mile Points
05030103-009,-007, -013 FAIR	Mahoning River from Newton Falls to Main Street in Warren	Special Mahoning River Standards 56-38
05030103-013,-001 POOR	Mahoning River from Warren to the Ohio/Pennsylvania state line	Special Mahoning River Standards 38-11.2

This segment of the Mahoning River is degraded by the Newton Falls WWTP and combined sewer overflows in the Newton Falls area. Sampling at Leavittsburg (RM 45.0; STORET station No. 602280) revealed standards violations for fecal coliforms, total iron, total lead, total cyanide, and phenolics (OEPA, NEDO data, 1977-1980). Pollution abatement programs in Newton Falls are expected to improve wastewater treatment and reduce the severity of the combined sewer overflow problem by 1983.

The urban and industrial centers of the Mahoning Valley generate a wastewater volume three to five times the normal Mahoning River discharge. Many of the industrial and muncipal wastewater treatment facilities in the Mahoning Valley are old or inadequate and produce poor quality effluent. The result is one of the most severely degraded stream segments in Ohio. Data from three monitoring sites (RM 37.4; STORET station No. 602400, RM 33.1; STORET station No. 602290, and RM 11.6; STORET station No. 602300) showed Warmwater Habitat standards violations for total iron, total lead, total mercury, total copper,

total zinc, phenolics, pH, cyanide, MBAS, fecal coliforms, total dissolved solids, nitrogen ammonia and dissolved oxygen (OEPA, NEDO data, 1977-1980). Eight municipal wastewater treatment plants, six steel plants, and a power plant were among the major point sources of pollution causing the degradation. The termination of production at several steel plant facilities will reduce the total pollutant loading to the Mahoning River. However, improved wastewater treatment by the remaining dischargers must occur before 1983 clean water goals can be realized.

EAGLE CREEK
TRIBUTARY TO MAHONING RIVER

Segment Problem	Name Description	Use Designation Mile Points
05030103-008 GOOD*	Eagle Creek from headwaters to downstream of Parkman Road Bridge	WWH 21.5-10.5

SILVER CREEK
TRIBUTARY OF EAGLE CREEK

Segment Problem	Name Description	Use Designation Mile Points
N/A GOOD*	Silver Creek from headwaters to confluence with Eagle Creek	CWH 7.2-0.0

Biological and Water Quality Survey

The results of chemical/physical and biological sampling during August, September, and October 1981 indicated good water quality in Silver and Eagle Creeks. Elevated concentrations of total iron and fecal coliform bacteria, attributed to natural geological and soil conditions and nonpoint source runoff, were observed but did not impact the biological condition of the streams. Bacterial contamination was observed only during periods of surface runoff and did not interfere with recreational uses of the waters.

The progressive decline in stream gradient with downstream distance in the study area, along with changes in substrate and depth appeared to be the primary factors controlling fish and macroinvertebrate community composition in Silver and Eagle Creeks.

Silver and Eagle Creeks are generally characterized by very good chemical water quality supporting sensitive and diverse faunas of both fish and macroinvertebrates, and the entire study area is presnetly designated as a State and National Resource water. The biotic communities within the study area (particularly in upstream portions of Eagle Creek and in Silver Creek) may be significantly affected by any reduction in chemical water quality. Therefore, it is recommended that the antidegradation policy (Rule 3745-1-05 of the Ohio Administrative Code) be strictly adhered to in order to protect the relatively unique and diverse biota present in Silver and Eagle Creeks (Ohio EPA, 1982).

HISTORICAL

The basic steel industry, and to a lesser extent muncipal wastewater treatment plants, have had a mjor influence on the water quality of the lower Mahoning River. Point source loadings from major industrial facilities were documented in the early 1950's (Ohio Department of Health, 1954). Pollution control in the Mahoning Valley during this time period was essentially non-existent, with the steel industry directly discharging untreated coke plant wastes, rudimentary solids removal for blast furnace gas wash water; scale pits with and without oil skimming for hot forming wastes; no treatment for emulsified cold rolling oils; direct discharge of spenk pickling acids; and no treatment for coating wastes (Amendola et al. 1977). Municipal wastewater treatment plants were not in operation until the late 1950's and early 1960's. The Youngstown Wastewater Treatment Plant (WWTP) which is the largest municipal treatment discharger to the Mahoning River, did not begin operations until 1965. Prior to this time, no treatment of Youngstown's municipal waste was provided.

Since the 1950's, significant loading reductions of wastewater volume, total suspended solids, oil and grease, total iron, and phenolics have occurred (Table 7). These reductions became possible with pollution control improvements at several steel mills and the partial to total shutdown since 1978 of five major steel producing facilities. During 1974, eight major steel mills were discharging directly into the Mahoning River with a combined wastewater volume of 627 MGD (91.4% of the total wastewater volume to the Mahoning River). This is an extremely large wastewater volume for a river the size of the Mahoning. It was estimated that for 1975 the major steel facilities may use the entire flow of the Mahoning River 5.6 times during winter critical flow and nearly 2.6 times during summer critical flow (Amendola et al. 1977). From 1974-1980, significant loadings of suspended solids, oil and grease, and toxic substances (metals, cyanide,, phenolics, chlorine) have been recorded for (RM 37.8 - 13.5), a 24 mile reach of the Mahoning River. Of these three segments, segment 5 (RM 25.7 - 13.5) has received a larger amount of wastewater volume, BOD_5, oil and grease, ammonia-nitrogen, and nutrients than all other segments combined. This Segment has received substantial loadings of total suspended solids from 1974 to 1980. In weight, total suspended solids has been the most significant pollutant into the Mahoning River. The lower portion of the segment, although receiving the greatest amount of pollutant loadings of any other segment during 1980, has achieved a significant reduction since 1974. Between 1974 and 1980, the lower portion of the segment received 73.3% less total suspended solids, 91.6% less oil and grease, 93.6% less toxic substances (metals, cyanide, phenolics, chlorine) and 60.5% less wastewater flow. This reduction is mainly attributable to a partial to total shutdown of the Youngstown Sheet and Tube Company's Brier Hill Works, Campbell Works, and Struthers Division and to the total shutdown of United States Steel Corporation's - Ohio Works. These major steel plants between 1974 and 1977 represented 75% of the effluent flow into the lower portion of this segment.

The segment extending from RM 42.5 - 38.0, which receives a majority of its pollutant loadings from Copperweld Steel Company, has shown a substantial reduction in wastewater volume and toxic substances (metals, cyanide) loadings. Although fluctuations in suspended solids and oil and grease loadings occurred in this segment between 1974 and 1980, and overall reduction

in both has been achieved. Wastewater flow, suspended solids and toxic substances (metals, cyanide, phenolics, chlorine) loadings have been greatly reduced in segment 4 (RM 31.1 - 26.2) since 1974. These reductions were mainly influenced by the shutdown of the United States Steel Corp. - McDonald Mills during mid-1980. The difference in third quarter loadings (kg/day) and annual loadings (kg/day) during 1980 for segment 4 is largely attributable to the McDonald Mill shutdown. Segment 3 (RM 37.8 - 31.2) receives most of its pollutant loadings from the Republic Steel Corporation - Warren Plant and the Warren WWTP. Notable reductions in total suspended solids and oil and grease were observed in segment 3, where wastewater flows (69-72 MGD) have remained fairly constant between 1974 and 1980. Segment 1 (RM 48. 5 - 42.6) does not receive any point source pollutant loadings and segment 6 (RM 12.8 - 0.8) receives only and insignificant amount from the Lowellville WWTP.

Municipal wastewater treatment within the Mahoning River study area was non-existent during the mid-1950's. This resulted in raw sewage being directly discharged into the Mahoning River and adjacent tributaries. Biochemical oxygen demand (5-day) loadings from 1952 to 1954 averaged 20,769 kg/day. Currently, the Mahoning Valley Municipal Wastewater Treatment Plants provide primary treatment, with the exception of the Meander Creek WWTP, which is a secondary treatment facility with phosphorus removal capability. Small reductions in BOD_5 loadings between the early 1950's and 1974 was noted, and was attributed to the installation of primary wastewater treatment facilities. Little change in BOD_5 loadings has occurred for the Mahoning River with regard to municipal inputs between 1974 and 1980.

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Lake Erie Beaches

Summary

The majority of Lake Erie beaches had good to excellent bathing water quality between 1980 and 1983. Twenty-nine Lake Erie beaches were surveyed by the Ohio Department of Health in 1982 and 1983, although data was obtained for only 17 of these beaches. Eleven of the 17 beaches had good water quality, four of the beaches having improved from poor water quality classification in 1980/1981. Beaches exhibiting chronic fecal coliform bathing water violations are located in the Cleveland Lorain area (Beaches L-R). It appears that the occurrence of bathing water standard violations is related to the occurrence and intensity of rainfall events.

No information regarding beach closings was obtained for this report. The only reported pollution related beach closings were at Port Clinton during 1979, 1980 and 1981; Vermilion in 1980; Lakeview in 1980 and 1981; and Lakeside in 1981. Six of the twenty-five beaches surveyed by the Ohio Department of Health in 1978 and 1979 were classified as having poor water quality, while four were reported to have excellent water quality. During 1980 and 1981, twelve of the twenty-eight beaches surveyed were classified as having poor water quality. Five had excellent water quality. This apparent deterioration over 1978/79 may be attributed to numerous causes including weather conditions and differences in monitoring programs.

Insufficient monitoring may have been one reason that so few beach closings occurred prior to 1980. Many local Boards of Health relied entirely upon the monitoring programs of the Ohio Department of Health for bathing water quality information. The beaches that were reported closed for a portion of the 1978-1980 seasons all had additional monitoring. Some of these extra monitoring programs were implemented in response to previously detected problems. Local communities along the Lake Erie shoreline should be encouraged to expand their Health Department programs to include more extensive water quality monitoring at Lake Erie beaches.

Introduction

In Ohio, the local Board of Health has primary responsibility for protecting public health at bathing beaches. However, the Ohio Department of Health conducts the water quality monitoring program at bathing beaches along the Lake Erie shore. In the event of a water quality standard violation, the Ohio Department of Health contacts the local Board of Health and informs them of the conditions. The final decision to take remedial action or close a beach is the responsibility of the local Board of Health.

Bacteriological data for this report was obtained from the Ohio Department of Health (ODH), Bureau of Environmental Health (1978, 1979, 1980, 1981, 1982 and 1983). Information concerning beach closings was obtained through a survey of local county and city Boards of Health having authority over Lake Erie beaches. The Ohio Department of Natural Resources (ODNR), Division of Parks and Recreation was contacted regarding the status of State Park beaches (Table II-54).

Bathing waters are defined in Rule 3745-1-08(E) of the Ohio Administrative Code (OAC) as "... all water segments directly related to existing swimming areas where bathhouses and/or lifeguards are provided." Bathing waters receive a special use designation in the Ohio Water Quality Standards. Lake Erie, outside of specifically excepted areas listed in OAC 3745-1-11(c), is designated bathing water. The fecal coliform standard for bathing water is:

> "Geometric mean fecal coliform content (either MPN or MF), based on not less than five samples within a 30 day period shall not exceed 200 Fecal coliforms per 100 ml sample; and shall not exceed 400 Fecal coliforms per 100 ml sample in more than ten percent of the samples taken during any 30 day period." (OAC 3745-1-07).

The Ohio Department of Health bathing water quality standard is slightly different from the Ohio EPA standard. The Ohio Department of Health states that the geometric mean, based on at least five samples, shall not exceed 200 fecal coliforms per 100 ml sample; nor shall more than ten percent of all samples in a month exceed 400 fecal coliforms per 100 ml sample. However, high counts which were predicted due to unusual weather conditions (heavy rainfall, high water) shall not be judged in the ten percent over 400 portion of the standard provided that the beach was closed for 24 hours after such conditions prevailed.

The Ohio Department of Health monitored water quality at Lake Erie Beaches once a week from mid-May through the first week of September. Additional samples were collected only in response to unusual conditions (e.g., complaints, heavy rain). Several communities along the Lake Erie Shore augment this water quality monitoring with additional samples collected by the city water department (Lorain) or the county Board of Health (Ottawa and Erie).

Several popular Lake Erie beaches are adjacent to or contained within areas specifically excepted from the bathing water quality standards (OAC 3745-1-11). In these areas the water quality standards for primary contact recreation are applicable. The fecal coliform standard for primary contact recreation is worded as above with limits of 1000/100 ml and 4000/100 ml replacing the 100/100 ml and 400/100 ml standards respectively. For the purposes of this report bacteriological data was compared to the OEPA bathing water quality standard only.

As noted in the Ohio EPA 1980 305(b) report, many beaches along the Lake Erie shore have lost popularity as bathing beaches due to extensive erosion. Erosion problems continued to threaten Lake Erie beaches all along the Ohio shoreline. Remedial action is being undertaken at one Lake Erie bathing beach (construction of a breakwall at Cleveland Lakefront State Park).

Beach Closings

Several beaches included in this survey were reportedly closed as a result of pollution incidents. The Beach at Port Clinton was closed for a portion of the 1978 and 1979 recreational seasons. The beaches at Port Clinton, Vermilion and Lakeview Park were closed for several days during 1980 (telephone survey). Port Clinton Beach, Lakeview Park and Lakeside Beach were closed for 24 hours following pollution incidents on numerous occasions during 1981. White City Beach, Avon Lake Park, Century Park and Sheffield Lake Park were permanently posted as closed in 1981 due to pollution incidents (ODH 1981) (Table II-55).

The criteria for closing beaches employed by local boards of health has not been standardized. The fact that one beach was closed numerous times during the recreational season while another stayed open does not necessarily indicate poorer water quality, but rather that the local authorities dedicated more time and effort to health protection. In some areas, close proximity to sewage treatment plants or combined sewer overflows increases the potential for violations of the water quality standard during specific conditions (e.g., White City Beach).

Many communities depend on Lake Erie for a variety of uses. Several communities combine a bathing water quality monitoring program with their drinking water quality monitoring program. Both Ottawa and Erie County Boards of Health conducted extensive bathing water quality testing programs (samples collected weekly). The City of Lorain collected water quality samples several times each week (local beaches are in close proximity to the Lorain Wastewater Treatment Plant and Combined Sewer Overflow). These more extensive monitoring programs may have been responsible for more frequent detection of violations of the water quality standards, and subsequently, more frequent beach closings. Some agencies indicated that beaches would not be closed for any pollution incidents and, therefore, further monitoring would be useless. The lack of consistency in beach closing criteria and local monitoring programs has existed since water quality evaluations began.

Violations

Twenty-nine Lake Erie beaches were surveyed by the Ohio Department of Health in 1982 and 1983, although data was obtained for only 17 of these beaches. The majority (60%) of the 17 beaches had good water quality. Four of these beaches improved from "poor" to "good" water quality classification (Table II-56).

Table II-58 presents the number of fecal coliform concentrations exceeding bathing water standards and Primary Contact Recreation Standards for Lake Erie beaches (L-BB) from 1978 to 1983. Decreases in the total number of violations of the Bathing Water Standards (400/100 ml fecal coliform) were apparent since 1981. The total number of beaches reporting violations of the 400/100 ml fecal coliform standard increased from 1981 to 1982 and then decreased substantially in 1983. This may be explained in part by differences in precipitation from year to year.

Twenty-five Lake Erie beaches were surveyed by the Ohio Department of Health in 1978 and 1979. Twenty-eight beaches were surveyed in 1980 and 1981. The majority of beaches had good to excellent water quality during the sampling period (Tables II-56 and II-57).

During 1978 a total of 42 violations of the Ohio EPA water quality standard occurred at Lake Erie beaches. Cleveland Lakefront State Park recorded the highest number of violations with 12. Considerable improvement occurred during 1979 with a reduction in the total number of violations to 34. Violations in 1980 and 1981 increased to 66 and 88 respectively. Beaches reporting frequent violations were Port Clinton, Avon Lake and White City Beach. (White City Beach is located just west of the Cleveland Easterly

Sewage Treatment Plant of the Northeast Regional Sewer District. This facility provides primary treatment of excess combined sewage and stormwash. Violations of the bathing water standard would be expected to be more frequent during periods of inclement weather.)

During 1978-79, four of the Lake Erie beaches surveyed had excellent water quality. (No violations of the 200/100 ml or 400/100 ml standard over two years). Six beaches had poor water quality (three or more violations of the 200/100 ml standard and four or more violations of the 400/100 ml standard over two years). Based on the same criteria, five of the beaches surveyed in 1980 had excellent water quality (Table II-56).

All beaches classified as having poor water quality are located near urban centers (Table II-56 and Fig. II-24). The impact of high population densities are reflected by degraded water quality and frequent violations of the Ohio bathing water quality standard. Moderate fecal contamination at Lake Erie beaches is still geographically widespread but generally coincides with urban development.

Bathing water quality cannot be adequately assessed by the current monitoring program carried out by the Ohio Department of Health. In many of the violation situations, improvements in water quality would depend on reducing the impact of combined sewer overflow during periods of heavy rain. Local Boards of Health cannot assure safe bathing conditions based on five samples momthly, but need to adapt water quality monitoring programs in such a way as to meet their specific needs. Several communities have recognized the current inadequacy and have initiated programs to deal with this problem.

The Erie, Lorain and Ottawa County Health Departments carry out a more frequent sampling program (which accounts for more frequent beach closings). The other Lake Erie shore communities should be encouraged to undertake similar monitoring programs.

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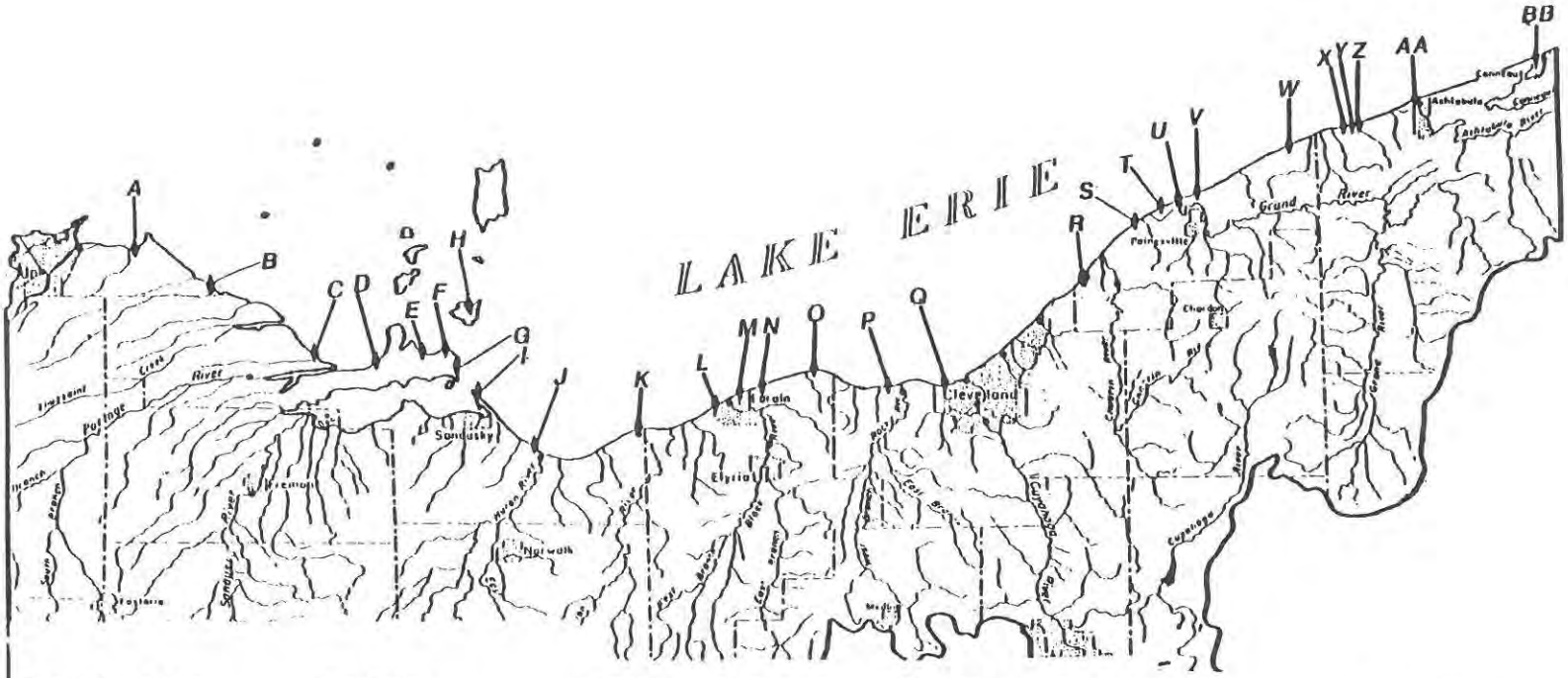

Beach Location	Map Code
Maumee Bay St. Park	A
Crane Creek	B
Camp Perry	C
Port Clinton	D
East Harbor	E
Lakeside	F
Bay Point	G
Kelly's Island	H
Cedar Point	I

Beach Location	Map Code
Nickle Plate	J
Vermilion	K
Lakeview Park	L
Century Park	M
Sheffield	N
Avon Lake	O
Huntington	P
Cleveland Lakefront St. Park	Q
White City Beach	R
Mentor-on-the-Lake	S

Beach Location	Map Code
Headlands State Park	T
Fairport Harbor	U
Tuttle	V
Madison Township	W
Geneva St. Park	X
Geneva Township	Y
Saybrook	Z
Walnut	AA
Conneaut Township	BB

Figure II-24. Lake Erie Beaches surveyed by the Ohio Department of Health, 1978-1983.

Table II-54. Agencies Responsible for Operation of Lake Erie Beaches.

County/Beach	Map Key	Operating Agency
Lucas County		
Maumee Bay State Park	A	Ohio Dept. of Natural Resources, Division of Parks and Recreation
Crane Creek State Park	B	Ohio Dept. of Natural Resources, Division of Parks and Recreation
Ottawa County		
Camp Perry	C	Ohio National Guard
Port Clinton	D	City of Port Clinton
East Harbor State Park	E	Ohio Dept. of Natural Resources, Division of Parks and Recreation
Lakeside Beach	F	United Methodist Church
Bay Point Beach	G	Bay Point Association
Erie County		
Kelly's Island	H	Ohio Dept. of Natural Resources, Division of Parks and Recreation
Cedar Point Causway	I	Cedar Point Amusement Park
Nickle Plate Beach	J	City of Huron
Vermilion	K	City of Vermilion
Lorain County		
Lakeview Park	L	City of Lorain
Century Park	M	City of Lorain
Sheffield Lake Community Park	N	Village of Sheffield Lake
Avon Lake Park	O	Village of Avon Lake

Table II-54. (Continued).

County/Beach	Map Key	Operating Agency
Cuyahoga County		
Huntington Park	P	Cleveland Metropolitan Parks District
Cleveland Lakefront	Q	Ohio Dept. of Natural Resources, Division of Parks and Recreation
White City Beach	R	City of Cleveland, Division of Parks and Recreation
Lake County		
Mentor Park	S	City of Mentor
Headlands Beach St. Park	T	Ohio Dept. of Natural Resources, Division of Parks and Recreation
Fairport Harbor	U	City of Fairport Harbor
Tuttle Park	V	Madison Township
Madison Township Park	W	Madison Township
Ashtabula County		
Geneva State Park	X	Ohio Dept. of Natural Resources, Division of Parks and Recreation
Geneva Township Park	Y	Board of Commissioners Geneva Township Park
Saybrook Township Park	Z	Board of Commissioners Saybrook Township Park
Walnut Beach Park	AA	City of Ashtabula Recreation Dept.
Conneaut Township Park	BB	Conneaut Twp. Park Board of Trustees

Table II-55. Reported Beach Closings in 1980-1981.

Beach	Map Key	1980 Closings	1981 Closings	Additional Monitoring
Maumee Bay St. Park	A	0	0	No
Crane Creek	B	0	0	No
Camp Perry	C	0	0	Yes
Port Clinton	D	2	5	Yes
East Harbor	E	0	0	Yes
Lakeside	F	0	4	Yes
Bay Point	G	0	0	Yes
Kelly's Island	H	0	0	Yes
Cedar Point	I	0	0	No
Nickle Plate	J	0	0	Yes
Vermilion	K	4	0	Yes
Lakeview Park	L	4	1	Yes
Century Park	M	0	**	No
Sheffield	N	0	**	No
Avon Lake	O	0	**	No
Huntington	P	0	0	No
Cleveland Lakefront St. Park	Q	0	0*	No
White City Beach	R	0	**	No
Mentor-on-the-Lake	S	0	0	No
Headlands State Park	T	0	0	No
Fairport Harbor	U	0	0	No
Tuttle	V	0	0	No
Madison Township	W	0	0	No
Geneva St. Park	X	0	0	No
Geneva Township	Y	0	0	No
Saybrook	Z	0	0	No
Walnut	AA	0	0	No
Conneaut Township	BB	0	0	No

* "Poor Water Quality - Swim at Own Risk" signs posted on bad water quality days, but lifeguards remain on duty because people are always there to swim.

** Beaches permanently posted as closed due to high bacterial counts (ODH, 1981).

Table II-56. Water Quality Classifications at Lake Erie Beaches.

Beach	Map Key	1950/51[a]	1978/79[b]	1980/81[b]	1982/83[b]
Maumee Bay St. Park	A	-	-	G	-
Crane Creek	B	-	G	E	-
Camp Perry	C	-	G	G	-
Port Clinton	D	-	P	P	-
East Harbor	E	A	E	G	-
Lakeside	F	A	G	P	-
Bay Point	G	-	E	E	-
Kelly's Island	H	-	-	E	-
Cedar Point	I	A	G	E	-
Nickle Plate	J	-	G	G	-
Vermilion	K	D	P	G	-
Lakeview Park	L	D	G	G	G
Century Park	M	U	P	P	P
Sheffield	N	-	P	P	P
Avon Lake	O	-	P	P	P
Huntington	P	U	G	G	G
Cleveland Lakefront St. Park	Q	U	P	P	P
White City Beach	R	-	-	P	P
Mentor-on-the-Lake	S	D	G	G	G
Headlands State Park	T	A	G	E	G
Fairport Harbor	U	A	E	G	G
Tuttle	V	A	G	G	G
Madison Township	W	A	G	G	G
Geneva St. Park	X	D	G	P	G
Geneva Township	Y	-	E	P	G
Saybrook	Z	A	G	P	P
Walnut	AA	D	G	P	G
Conneaut Township	BB	A	G	P	G

a Based on summary and evaluation by ODNR (1953)
Criteria: A - Acceptable; Monthly average total coliforms less than 1000/100ml
D - Doubtful; Seasonal average total coliforms less than 1000/100ml
U - Unacceptable; Seasonal average total coliforms greater than 1000/100ml

b Based on the ODH survey and evaluation by Ohio EPA

Criteria: E - Excellent; No violations of the 400/100ml standard over two years.
G - Good; No more than two violations of the 200/100ml standard and no more than four violations of the 400/100ml standard over two years.
P - Poor; three or more violations of the 200/100ml standard and four or more violations of the 400/100ml standard over two years.

Table II-57. Number of State Bathing Water Quality Standard violations at Lake Erie beaches 1978, 1979, 1980, 1981, 1982 and 1983 based on fecal coliform, geometric means, exceeding 200/100ml; or greater than 10% over 400/100 ml sample.

Beach	Map Key	1978	1979	1980[a]	1981	1982[b]	1983[b]
Maumee Bay St. Park	A	0	-	0	4	*	*
Crane Creek	B	0	0	0	0	*	*
Camp Perry	C	0	0	0	1	*	*
Port Clinton	D	6	6	12	12	*	*
East Harbor	E	0	0	0	1	*	*
Lakeside	F	0	0	6	6	*	*
Bay Point	G	0	0	0	0	*	*
Kelly's Island	H	-	-	0	0	*	*
Cedar Point	I	0	0	0	0	*	*
Nickle Plate	J	0	2	1	1	*	*
Vermilion	K	4	4	2	3	*	*
Lakeview Park	L	0	1	0	2	0	0
Century Park	M	4	2	0	5	6	2
Sheffield	N	8	1	0	6	1	4
Avon Lake	O	6	7	3	9	6	4
Huntington	P	0	2	0	4	0	1
Cleveland Lakefront St. Park	Q	12	3	5	10	9	5
White City Beach	R	-	6	5	10	10	4
Mentor-on-the-Lake	S	0	0	1	4	0	0
Headlands State Park	T	0	0	0	0	0	0
Fairport Harbor	U	0	0	2	0	0	0
Tuttle	V	0	0	1	0	0	0
Madison Township	W	0	0	3	0	0	0
Geneva St. Park	X	0	0	6	3	1	0
Geneva Township	Y	0	0	2	4	0	0
Saybrook	Z	2	0	10	7	0	0
Walnut	AA	0	0	2	5	0	0
Conneaut Township	BB	0	0	5	1	0	0

a Based on 2-5 samples collected between 5/12/80 and 7/12/80.
b Based on 3-5 sample geometric means between May and August.
* Data not available

Table II-58. The number of fecal coliform concentrations exceeding 400/100 ml (bathing water standard violation), and 200/100 ml (primary contact recreation standard violation) at Lake Erie Beaches, 1978 through 1983.

Key to Map	Beach	400/100 ML 78	79	80	81	82	83	2000/100 ML 78	79	80	81	82	83
L	Lakeview Park	0	3	0	1	4	1	0	0	0	0	0	0
M	Century Park	4	2	0	4	5	3	1	1	0	0	2	2
N	Sheffield	5	3	0	4	3	4	2	1	0	0	0	1
O	Avon Lake	5	8	3	8	5	4	1	5	0	2	1	2
P	Huntington	2	3	1	4	2	3	0	2	1	1	1	1
Q	Edgewater-East	4	5	3	9	6	5	8	5	1	4	1	3
	Edgewater-West	8	11	4	7	6	4	2	6	0	5	1	1
R	White City	-	-	4	6	6	4	-	-	0	1	0	1
S	Mentor-on-the-Lake	1	2	0	3	1	0	0	0	0	0	0	0
T	Mentor-Headland-East	2	1	0	2	1	1	0	0	0	0	0	0
	Mentor-Headland-West	1	1	0	2	1	0	0	0	0	0	0	0
U	Fairport Harbor	0	0	0	0	3	0	0	0	0	0	0	0
V	Tuttle	1	2	1	0	1	0	0	0	0	0	0	0
W	Madison Township	2	0	0	0	2	0	0	0	0	0	0	0
X	Geneva-East	1	2	0	2	2	0	0	0	0	0	0	0
	Geneva-West	-	1	1	2	1	-	-	0	0	0	0	-
Y	Geneva Township	0	0	1	2	1	0	0	0	0	0	0	0
Z	Saybrook	7	3	4	6	2	3	2	0	0	0	0	1
AA	Walnut	1	3	-	-	0	3	0	0	-	-	0	1
BB	Conneaut Beach	0	3	0	1	0	1	0	0	0	0	0	0
*	Total Number of Violations	44	53	22	63	52	36	16	20	2	13	6	13
*	Total Number of Beaches Reporting Violations	14	16	9	16	18	12	6	6	2	5	5	9

APPENDIX

SUMMARY OF BIOLOGICAL METHOD AND SAMPLING

Benthic Macroinvertebrate Sampling

Benthic macroinvertebrates have been widely used to evaluate the quality of flowing water. These organisms have a number of qualities that make their use in pollution studies particularly advantageous. The species composition and community structure of benthic communities in a given stream are determined by environmental factors which have existed during the life span of the organisms. They are sensitive to most types of pollution and even a short term exposure to unfavorable conditions may alter the community structure.

The benthic community, therefore, is a reflection of past environmental conditions, as well as an indication of what is occurring at the moment the sample is taken. In addition, these organisms form permanent or semi-permanent stream communities, are less transient than fish, are less sporadic in occurrence than micro-organisms, and, regardless of stream size, usually occur in large enough numbers for statistical analysis.

Benthic macroinvertebrates can be defined by location, i.e., those organisms living on or interacting with a specific substrate, or by size, i.e., those organisms retained in a screen of a certain size. They cannot be defined by position in the trophic structure since they occupy virtually all levels. They may be omnivores, carnivores, or herbivores, and in a well balanced system, all types will likely be present. They include detritus feeders, parasites, scavengers, grazers, and predators. In streams exhibiting high water quality, a stable and diverse benthic community consisting of a great many species usually exists, but due to competition, no single species occurs in great numbers. When the water quality is adversely affected, the more pollution sensitive forms decline in number or are eliminated. The remaining pollution tolerant species increase, resulting in a population imbalance where fewer types exist but with some occurring in great numbers. The nature and magnitude of the community alteration depend upon the nature and severity of the environmental change.

I. Methods

A. Field

The primary sampling equipment used for the collection of benthos was the modified Hester-Dendy multiple-plate artificial substrate sampler. The sampler was constructed of 1/8 inch tempered hardboard cut into three inch square plates and one inch square spacers. A total of eight plates and twelve spacers were used for each sampler. The plates and spacers were placed on a 1/4 inch eyebolt so that there were three single spaces, three double spaces, and one triple space between the plates. The total surface area of the sampler, excluding the eyebolt, was 145.65 square inches.

When the samplers were established in streams they were tied to a concrete construction block which anchored them in place and also prevented the multiple-plates from coming into contact with the natural substrate. In water deeper than four feet, a float (1 qt. cubitainer) was attached to the samplers

to keep them within the upper four feet of the water column. The samplers were placed in runs rather than pools or riffles and an attempt was made to establish stations in as similar an ecological situation as possible. The samplers were exposed for a six week period. In streams greater than 60 feet in width, one set of multiple-plates was established approximately 20 feet from each bank. At National Ambient Monitoring Stations, a set of samplers consisted of three multiple-plates (three square feet). At major discharger stations, a set of samplers consisted of five multiple-plates. Most biological field sampling was conducted from June 15 to September 15. Composite samples, i.e., subsamples from five multiple-plates, were used in station evaluations for routine monitoring. Replicate samples from three multiple-plates were analyzed for National Ambient Monitoring Network Stations.

When the samplers were retrieved, each was placed in a one quart plastic container while still submerged. The line was then cut and the plates removed from the stream. Formalin was added to each container to approximately equal a 10% solution. Qualitative samples were collected from the natural substrate at the time of retrieval of the multiple-plates. In shallow water, dip net samples were taken in a segment approximately 20 yards long in the area where the samplers were exposed. In deep water, samples were collected using Ekman or Peterson grab samplers. Qualitative sampling continued until, by gross examination, no new taxa were being taken.

B. Laboratory

The multiple-plates were dismantled in the laboratory and the material washed through a U.S. Standard Testing Sieve number 40 (0.425 mm openings). Larger organisms were hand picked from the screens; smaller material was washed into a jar containing 70% alcohol. Where the number of organisms collected was so large that identification of each individual was impractical, a Folsom sample splitter was used to obtain a subsample. Identifications and counts were made using dissecting and compound microscopes. Dipterans of the family Chironomidae were prepared following the methods described by Mason (1973). Identifications were made using the following taxonomic keys: Beck and Beck (1966), Brown (1972), Burch (1972), Burks (1953), Edmunds, et al (1976), Frison (1935), Harman and Berg (1971), Hilsenhoff (1970), Hobbs (1972), Holsinger (1972), Klemm (1972), Lewis (1974), Merrit and Cummins (1978), Pennak (1953), Roback (1957), Ross (1944), Schuster and Etnier (1978), Usinger (1956), Walker (1958), Walker and Corbett (1975), Ward and Whipple (1959), Wiggins (1977), and Williams (1972). After the benthic organisms had been identified and counted, the Shannon diversity index ($\bar{d}$) was calculated using the formula:

$$\bar{d} = - \frac{ni}{n} \log_2 \frac{ni}{n}$$

In those cases where replicate analyses were conducted, coefficients of variation (CV) were determined following the procedures outlined by Li (1974) using the formula:

$$CV = \frac{\text{standard deviation}}{\text{mean}} \times 100$$

II. Water Quality Evaluation

The biological criteria used to evaluate water quality were: (1) the types of organisms present, (2) the number of taxa colonizing the artificial substrate samplers, and (3) the Shannon information theory derived diversity index ($\bar{d}$).

Certain types of organisms have been historically associated with good water quality areas. Examples of more pollution sensitive groups would include stoneflies, mayflies, and caddisflies. Organisms usually predominant in polluted stream segments include oligochaetes, pulmonate snails, and many types of diptera. Organisms are usually divided into three categories based on their sensitivity to pollution: tolerant, intermediate (facultative), or sensitive. These terms may be defined as follows:

Tolerant - organisms usually associated with gross contamination and may be capable of thriving under very low dissolved oxygen concentrations.

Intermediate - organisms having a wide range of tolerance and are frequently associated with moderate levels of contamination.

Sensitive - organisms usually not found associated with even moderate levels of contamination and are generally intolerant of even moderate reductions in dissolved oxygen.

There are inherent problems in using aquatic organisms in this manner. Some species may be very tolerant to one type of stress and sensitive to another. For example, oligochaetes are tolerant of low levels of dissolved oxygen but are relatively sensitive to heavy metals. The environmental requirements of many species are not known and contrary opinions exist as to the pollution sensitivity of many others. In addition, many organisms must be identified to the species level and this is not always possible. Though no attempt was made to use the "indicator species" concept as such, the presence, or perhaps more importantly, the absence of some major taxonomic groups from particular stations was considered significant. While there are exceptions, an association of mayflies, stoneflies, and caddisflies in a stream is indicative of good water quality conditions, and their absence denotes the presence of contaminants, low dissolved oxygen concentrations, or both. Usually the presence or absence of other gill breathing organisms has similar indicator significance.

From numerous stream water quality investigations, we have found that the number of different taxa colonizing multiple-plate samplers ranges from three in grossly polluted areas, to over 40 in very high water quality stream segments. The analysis of many hundreds of multiple-plate samplers has shown that it is a rare occurrence that more than 20 taxa will be collected on samplers established in streams known to be grossly polluted. Likewise, in streams known to be pollution free, usually more than 30 taxa colonize the multiple-plates. These observations were based on the analysis of samples collected throughout the State of Ohio from streams greater than first order. All samples had an exposure period of six weeks, usually between mid-June and mid-September.

The Shannon index $\bar{d}$ is a function of the number of taxa, total number of individuals, and most importantly, the distribution of the individuals among the taxa. Unlike some diversity indices, $\bar{d}$ incorporates the distribution of individuals among the species. This index is a strong reflection of a population imbalance that, in some cases, may not be readily apparent in tabulated data. When a pollution stress such as organic enrichment is placed on an aquatic system, the macrobenthic community structure is usually disrupted resulting in a decreased number of taxa and an increased density. The diversity index decreases under these conditions. On occasion, however, a pollution stress causes decreases in both the number of taxa and the density. In this situation, the diversity index often remains the same or increases. Under these conditions the index can be seriously misleading and must be used with caution if an accurate evaluation of water quality is to be made. An example of this abnormality has been found in certain Ohio streams suspected of being contaminated with nonspecific toxicants. Under these circumstances, much less emphasis is placed on the diversity index in making a water quality evaluation. Previous investigations of Ohio's streams have revealed a range of index values from a low of 0.009, in a grossly polluted area, to 4.120 in a stream exhibiting very high water quality. Usually, the indices derived from data collected on multiple-plate samplers were greater than 3.5 in streams exhibiting high water quality and less than 2.3 in those areas known to be severely degraded.

For the purposes of this report, we have integrated the indicator concept and Shannon index with our observations upon the relationship between the number and type of taxa and degree of pollution. This enabled us to categorize stream water quality based on an analysis of the benthic data which was both qualitative and quantitative. The four categories are Class I (Excellent), Class II (Good), Class III (Fair), and Class IV (Poor). Table A-1 summarizes the criteria used in formulating these classifications. This table was modified from the original table of criteria presented in the 1980 305(b) document (Ohio EPA, 1980, Volume VI, Table VI-1). The modifications made were a result of a reevaluation of past and current data.

Class I streams have an abundance of sensitive species. Intermediate and tolerant species are present in low numbers. The number of taxa exceeds 30 and the Shannon index exceeds 3.5.

Class II streams have sensitive and intermediate species present in moderate numbers. Tolerant species may be present in low numbers. Usually, the number of taxa ranges from 25 to 30 and the Shannon index 2.9 to 3.5. Many Class II streams have mild organic pollution.

Class III streams have intermediate species present in abundance with tolerant species present in moderate numbers. Sensitive species may be present in low numbers. The number of taxa usually ranges from 20 to 25 and the Shannon index 2.3 to 2.9.

Class IV streams have tolerant species in abundance, intermediate species in low numbers or absent, and no sensitive species present. All types of organisms may be absent if extreme toxic conditions exist. The number of taxa will be less than 20 and the Shannon index less than 2.3.

Table A-1. Criteria used to formulate stream class based on the benthic biota collected from five multiple-plate artificial substrate samplers exposed to a six week colonization period between June 15 and September 15.

Class I (Excellent)	Class II (Good)	Class III (Fair)	Class IV (Poor)
Pollution sensitive species abundant	Pollution sensitive species present in moderate numbers	Pollution sensitive species present in low numbers	Pollution sensitive species absent
Intermediate species present in low numbers	Intermediate species present in moderate numbers	Intermediate species abundant	Intermediate species present in low numbers or absent
Tolerant species present in low numbers	Tolerant species present in low numbers	Tolerant species present in moderate numbers	Tolerant species abundant (all types may be absent if extreme toxic conditions exist)
Number of taxa 30	Number of taxa 25-30	Number of taxa 20-25	Number of taxa 20
Exceptional diversity Shannon index 3.5	High diversity Shannon index 2.9-3.5	Moderate diversity Shannon index 2.3-2.9	Low diversity Shannon index 2.3

The class assigned will usually be that in which all criteria are met. In some instances, a stream will meet some but not all criteria for a given classification. In these cases the evaluation will be made based on the experience and best professional judgment of the investigator.

There are inherent weaknesses in the above scheme. Interpretation for purposes other than an overview should be made with caution. The terms abundant, moderate, and low are relative and, due to intersite variations, past attempts to determine absolute values for these terms met with failure. The difference between stations assigned to successive classes, in some cases, may be slight. In addition, considerable variation in water quality may exist in segments assigned to the same class. This can be particularly misleading in stream segments where some degree of recovery has taken place, but the degree of recovery is not sufficient to justify a higher classification.

III. Results and Discussion

The benthic data presented and discussed in this section were collected from 1974 to 1983. One program element was designed to assess the impact of specific major dischargers on water quality determined by the benthic community. Stations were located upstream and downstream from entities selected from the Ohio Major Dischargers List by Ohio EPA District Surveillance personnel. The entities were chosen on the basis of a recognized pollution problem, and where, through the NPDES Permit system, improvement in waste treatment had been requested. Data generated from the stations measure the effectiveness of the Agency's water pollution control programs and the recovery of biological communities as degraded segments of streams are improved. A summary of the benthic data can be found after the discussion of each discharger. Tabulated data collected relative to these entities can be found in Reference Document (RD) 3 of the 1980 305(b) Report.

Fixed single station monitoring was also conducted at various locations throughout the State of Ohio during this time. Some of these stations coincided with the National Stream Quality Accounting Network (NASQAN) and, therefore, were located at USGS gaging stations. Twenty of the sites are part of the National Water Quality Surveillance System (NWQSS) and are monitored for various biological parameters once each year. The analysis of data generated from these sites will contribute to long-term trend analysis and will provide a long-term measure of the effectiveness of State water quality standards in developing physical/chemical conditions satisfactory to support balanced indigenous aquatic communities. In most cases, the present biological data base from these stations is insufficient to warrant a detailed discussion. A summary of the benthic data can be found in Table A-2. Tabulated data collected from stations during the 1979-1980 biennium can be found in RD 3 of this document. Tabulated data collected from stations sampled prior to 1979 can be found in RD 3 of the 1980 305(b) document.

Other data collected during the reporting period but not yet available include sampling from 12 NASQAN stations in 1980 and intensive surveys from Big Darby Creek in 1979 and the Great Miami River in 1980. These data will be reported in a future 305(b) document.

TABLE A-2. Benthic Data Summary and Evaluation, Water Quality Monitoring Network Stations.

Stream (Basin Code)	Location (RM)	Sampling Date	Number of Samplers	Quantitative Taxa	Qualitative Taxa	Index	Average Organisms/Ft.^{2}	Class
			Great Miami River Basin					
Great Miami (H-9)	Dayton (87.1)[a]	11/79	3	22	20	1.97	1682	III
		10/78	3	28	19	3.02	706	III
		7/77	3	22	8	2.16	798	III
		9/76	5	17	16	2.22	5803	III
Great Miami (H-9)	Miamisburg (67.7)							
	West Bank	7/77	3	12	9	2.86	35	IV
	East Bank	9/76	5	7	9	1.22	929	IV
	West Bank	9/76	5	11	9	1.33	2264	IV
Great Miami (H-11)	New Baltimore (22.1)[a]							
		7/77	3	20	2	2.47	339	III
		9/76	5	15	11	2.51	1531	III
Mad (H-3)	West Liberty (54.9)	8/76	5	40	25	2.92	374	II
Mad (H-3)	Eagle City (30.6)[a]							
		10/79	3	41	20	3.65	651	II
Mad (H-4)	Dayton (9.9)	8/77	3	31	12	3.48	403	II
		10/76	5	20	9	2.95	450	III
Mud (H-4)	I-70 (1.4)	8/74	5	23	15	2.49	850	III
Stillwater (H-6)	Dayton (1.9)	7/77	5	23	12	3.27	353	II
		9/76	5	29	14	3.33	472	II
Sevenmile (H-10)	Eaton (23.2)	7/77	5	18	11	2.88	193	III
		8/75	5	21	12	3.48	137	III

TABLE A-2. Continued

Stream (Basin Code)	Location (RM)	Sampling Date	Number of Samplers	Quantitative Taxa	Qualitative Taxa	Index	Average Organisms/Ft.^{2}	Class
			Mill Creek Basin					
Mill (J)	Cincinnati (0.6)	7/77	5	3	1	0.07	52	IV
			Little Miami River Basin					
Little Miami (K-1)	Oldtown (80.0)[a]	11/79	3	32	28	3.54	330	II
		8/78	3	32	9	3.46	239	II
		7/77	5	28	13	3.45	161	II
Little Miami (K-1)	Spring Valley (63.4)	7/77	3	30	11	3.87	325	III
Little Miami (K-5)	Milford (13.3)[a]	9/76	5	27	10	2.00	915	III
			Ohio Brush Creek Basin					
Ohio Brush Creek (L-2)	West Union (16.5)[a]	9/78	3	41	33	3.95	337	I
			Scioto River Basin					
Scioto (M-2)	Prospect (169.2)	9/77	3	25	11	3.06	436	II
		8/76	5	19	11	2.02	293	III
Scioto (M-5)	Dublin (147.8)	8/77	5	14	6	2.57	1547	IV
Scioto (M-5)	Above Southerly (119.2) East Bank	8/74	4	7	9	2.06	2110	IV

TABLE A-2. Continued

Stream (Basin Code)	Location (RM)	Sampling Date	Number of Samplers	Quantitative Taxa	Qualitative Taxa	Index	Average Organisms/Ft.^{2}	Class
Scioto (M-8)	Below Southerly (117.3)							
	East Bank	8/77	5	14	-	2.78	164	IV
	West Bank	8/77	5	14	-	2.63	162	IV
	East Bank	8/74	4	5	6	0.11	986	IV
	West Bank	8/74	4	9	10	0.13	33101	IV
Scioto (M-8)	Below Walnut (116.8)							
	East Bank	8/74	5	7	6	0.10	4589	IV
	West Bank	8/74	5	7	8	0.10	42769	IV
Scioto (M-8)	Circleville (100.8)[a]							
	East Bank	8/77	3	17	-	1.30	1046	IV
	West Bank	8/77	3	20	-	2.21	475	IV
	West Bank	8/76	5	19	-	3.10	309	IV
	East Bank	8/74	5	9	14	2.29	870	IV
	West Bank	8/74	5	19	5	3.11	360	IV
Scioto (M-8)	Above Deer (85.4)							
	East Bank	8/74	5	14	12	2.61	227	IV
	West Bank	8/74	5	13	12	2.37	212	IV
Scioto (M-11)	Chillicothe (78.3)							
	West Bank	8/74	5	31	18	3.41	192	II
Scioto (M-11)	Richmondale (56.2)[a]							
	West Bank	11/79	3	34	15	3.75	365	II
	East Bank	9/78	3	28	12	2.40	1368	III
	East Bank	7/77	5	23	6	3.31	655	III
	West Bank	7/77	5	22	6	3.11	1344	III
	East Bank	8/76	5	20	13	2.55	464	III
Scioto (M-11)	Above Salt (52.1)							
	East Bank	8/74	5	34	14	3.56	189	II

TABLE A-2. Continued

Stream (Basin Code)	Location (RM)	Sampling Date	Number of Samplers	Quantitative Taxa	Qualitative Taxa	Index	Average Organisms/Ft.^{2}	Class
Olentangy (M-3)	Worthington (12.3)[a]	11/79	3	37	24	3.16	741	II
		8/77	4	17	5	2.86	283	III
Olentangy (M-3)	Columbus (0.4)							
	East Bank	8/74	5	13	8	0.79	139	IV
	West Bank	8/74	5	8	10	0.28	144	IV
Little Walnut (M-9)	Mouth (0.7)	8/74	5	27	10	2.93	193	III
Paw Paw (M-9)	Baltimore (0.6)	8/74	5	19	8	2.04	416	IV
Big Darby (M-8)	Darbyville (13.2)[a]	7/79	5	34	28	3.38	872	II
		8/77	5	26	14	3.54	247	II
Deer (M-7)	Mouth (1.1)	8/74	5	29	17	2.76	436	II
Paint (M-12)	Bourneville (21.6)	7/77	5	29	20	3.36	500	II
Paint (M-12)	Chillicothe (1.9)	8/74	5	11	7	0.53	2403	IV
Salt (M-10)	Mouth (0.1)	8/74	5	18	11	0.49	1413	III
Scioto Brush (M-17)	Mouth (0.2)	8/74	4	32	16	3.79	151	I

TABLE A-2. Continued

Stream (Basin Code)	Location (RM)	Sampling Date	Number of Samplers	Quantitative Taxa	Qualitative Taxa	Index	Average Organisms/Ft.^{2}	Class
			Hocking River Basin					
Hocking River (0-1)	Lancaster (73.4)	8/74	5	13	12	0.73	1178	IV
Hocking (0-1)	Enterprise (47.0)	9/77	5	17	13	3.10	74	III
Hocking (0-1)	Athens (33.1)[a]	9/77	5	22	9	3.30	184	III
Clear Creek (0-1)	USGS Gage (2.1)	10/77	5	28	13	3.21	298	II
		10/76	5	36	15	3.55	707	II
			Muskingum River Basin					
Muskingum (P-11)	Coshocton (108.1)[a]	11/77	5	15	7	1.74	703	IV
Muskingum (P-11)	Dresden (91.1)							
	East Bank	9/77	5	20	11	2.50	2983	III
	West Bank	9/77	5	18	11	2.00	2830	III
	East Bank	9/76	5	22	15	3.30	708	III
Muskingum (P-16)	McConnelsville (47.7)[a]							
	East Bank	10/78	3	25	10	1.66	2708	III
	West Bank	10/78	2	22	11	2.44	346	III
	East Bank	9/77	3	23	13	2.51	3005	III
	West Bank	9/77	3	21	13	2.60	465	III
Muskingum (P-19)	Beverly (24.0)	9/76	10	14	15	2.17	613	III

TABLE A 2. Continued

Stream (Basin Code)	Location (RM)	Sampling Date	Number of Samplers	Quantitative Taxa	Qualitative Taxa	Index	Average Organisms/Ft.^{2}	Class
Tuscarawas (P-5)	Massilon (87.4)[a]	9/77	3	17	7	1.20	451	IV
Sugar (P-5)	Dover (0.6)	10/76	5	18	19	2.92	353	III
Mohican (P-2)	Greer (16.7)[a]							
	East Bank	9/78	3	24	12	2.41	1828	II
	West Bank	9/78	3	31	12	2.70	1280	II
	West Bank	9/77	3	30	7	2.05	2002	II
Rocky Fork (P-1)	Mansfield (14.4)	8/74	5	7	3	2.21	814	IV
Black Fork (P-1)	Shelby (53.0)	8/74	5	14	10	2.52	87	IV
Wills (P-17)	Cambridge (58.5)	10/77	5	15	7	1.94	402	IV
Wills (P-17)	Wills Creek Dam (5.9)	9/76	4	13	16	2.07	603	IV
Crooked (P-17)	Cambridge (2.6)	8/75	5	14	10	2.94	93	IV
Licking (P-13)	Newark (25.6)[a]	11/79	3	42	10	3.82	552	II

TABLE A-2. Continued

Stream (Basin Code)	Location (RM)	Sampling Date	Number of Samplers	Quantitative Taxa	Qualitative Taxa	Index	Average Organisms/Ft.^{2}	Class
			Maumee River Basin					
Maumee (A-11)	Waterville (21.0)[a]							
	East Bank	9/79	3	24	26	3.40	2164	III
	West Bank	9/79	3	26	21	3.02	1696	III
	East Bank	7/78	3	20	22	2.80	859	III
	West Bank	7/78	3	18	22	2.47	2340	III
	East Bank	9/77	3	22	12	2.13	1813	III
	West Bank	9/77	3	20	11	2.32	1642	III
	West Bank	8/76	5	19	10	2.79	3094	III
Town (A-2)	Van Wert (3.7)	9/77	5	16	10	2.19	121	IV
		8/74	5	11	15	1.73	381	IV
			Portage River Basin					
Portage (B-2)	Woodville (27.8)[a]	9/79	3	31	20	3.91	222	II
		7/78	2	25	20	3.08	270	II
		9/77	3	30	9	2.92	521	II
			Sandusky River Basin					
Sandusky (C-4)	Fremont (23.4)[a]	8/82	5	28	24	3.03	1591	II
		9/77	3	39	11	3.35	722	I
			Huron River Basin					
Huron (D-2)	Milan (12.2)[a]	8/79	3	36	16	3.17	977	II

TABLE A-2. Continued

Stream (Basin Code)	Location (RM)	Sampling Date	Number of Samplers	Quantitative Taxa	Qualitative Taxa	Index	Average Organisms/Ft.^{2}	Class
			Black River Basin					
Black (D-4)	Elyria (14.9)[a]	8/79	3	17	6	3.04	259	IV
		8/78	3	18	9	2.71	291	IV
		7/77	5	14	6	2.54	77	IV
Black (D-4)	Below Elyria (9.4)	7/77	3	10	8	2.26	91	IV
			Cuyahoga River Basin					
Cuyahoga (E-2)	Independence (14.2)[a]							
		8/78	3	20	12	1.23	706	IV
		8/77	3	28	9	2.08	510	IV
			Grand River Basin					
Grand (F-2)	Painesville (8.3)[a]	8/79	3	42	21	3.66	504	I
			Conneaut Creek Basin					
Conneaut Creek (F-3)	Conneaut (6.7)[a]	8/79	3	36	32	3.18	644	II
			Mahoning River Basin					
Mahoning (T-3-1)	Lowellville (11.6)[a]							
	East Bank	9/79	3	8	5	1.24	1427	IV
	West Bank	9/79	3	7	6	0.78	6022	IV

(a) National Water Quality Monitoring Network Station.

Fish Sampling

The evaluation of fish sampling data was also used in determining water quality in this report. Fish are use indicators of surface water quality. As the end product of most aquatic food webs, fish are integrators of community response and their biomass is highly dependent on the primary and secondary productivity of the aquatic community. Fish also constitute a conspicuous part of the aquatic biota, generally reproduce only once per year, are sensitive to a wide range of substances and conditions, and there is an abundance of information dealing with their life history, environmental requirements and geographical distribution.

I. Methods

Fish sampling equipment consisted of two types of electrofishing units and two nets. The first of the electrofishing usnits consisted of a Coffelt BP-2 battery powered (12 VDC) backpack electroshocker which delivered between 125 and 200 VDC (pulsed). The second unit consisted of a 14' Johnboat outfitted with a Smith-Root Type VI-A electrofisher which coverted 240 VAC from a 3,500 watt generator into pulsed, DC current. The current was fed into four aircraft cable anodes which extended from a boom six feet in front of the bow, and four flexible galvanized steel conduit cathodes which hung from the bow. Sampling sites were fished using between 504 and 672 VDC at 6-8 amps. The nets used consisted of a 30 X 6 foot (9.1 X 1.8 meter) 0.125 inch (0.3 centimeter) ace mesh bag seine and a 12 X 6 ft. (3.6 X 1.8 m) 0.125 inch ace mesh straight seine.

Each fish collection site was sampled quantitatively using either the boat electrofishing unit or the backpack electrofishing - seine combination. All available habitats at each station were sampled to insure the capture of species with different habitat preferences. The procedure used with boat electrofishing was to fish in a downstream direction by slowly and steadily maneuvering the boat as close to shore and submerged objects as possible. Netted fish were placed in a live well for later processing. Sampling zones vvaried in distance from 150 m to 1450 m.

The procedure used with the backpack electrofishing-seine combination was to sample all available habitats in a 100 m to 150 m section of stream. This was accomplished by sampling in an upstream direction and pulling the bag seine behind the electrofishing unit in pool habitats. Due to the physical conditions of the stream at several sampling locations (i.e. boulders, swift flowing water), the bag seine was replaced by the 12 X 6 ft. straight seine. The electrofishing unit net ring (anode) was used to probe along the shoreline around submerged objects and beneath undercut banks. Riffle and run habitats were sampled by blocking off sections with the straight seine and dislodging fishes by a combination of rock kicking and electrofishing. An effort was made to cover the entire section of stream with the sampling gear; as much time was taken as was needed to thoroughly sample a location. Captured fish were placed in a floating live well for later processing. The processing of captured fish involved identification, counting, weighing, and measuring for both sampling methods. Fish were identified using keys available in Trautman (1957) and then weighed to the nearest gram and measured (total length) to the nearest millimeter. Most minnow and shiner species were counted and weighed, but no lengths were taken. In situations where more than 15 individual fish

of a given species were collected, a subsample of 15 fish were weighed and measured. Most of the fish collected were field identified and released. Fish kept as voucher specimens were preserved in a 10% formalin solution buffered with borax. Common names and scientific nomenclature follow the recommendations of Bailey et al. 1970.

Relative abundance data used in diversity indices were based on numbers/km or 0.1 km (depending on the sampler type; one km for boat electrofishing and 0.1 km for the electrofishing-seine combination) and weight (kg) per km or 0.1 km. Community diversity was expressed by number of species per sample, the Shannon index ($\overline{H}$) based on both numbers and weights, and the composite index of community well-being (I_{WB}) (Gammon 1976). Computational formulae for the mathematical indices are presented in Table A-3.

Table A-3. Computational formulae for two community diversity indices.

Shannon Index ($\overline{H}$)

$$\overline{H} = - \frac{n_i}{n} \log_e \frac{n_i}{n}$$

n_i = numbers or weight of the ith species
n = total number or weight of the sample

Composite Index (I_{WB})

$$I_{WB} = 0.5 \log_e N + 0.5 \log_e B + \overline{H}(No.) + \overline{H}(wt.)$$

N = Total numbers/km or 0.1 km of sample
B = Total weight(kg)/km or 0.1 km of sample
$\overline{H}$(No.) = Shannon index based on numbers
$\overline{H}$(Wt.) = Shannon index based on weight

II. Water Quality Analysis

Longitudinal trends in the composite index evaluated the overall condition of the fish community. The composite index is one of the measures that is factored into the determination of stream quality (Table A-4). Stream segments with a composite index greater than 9.0 are considered exceptional; values 8.0 to 9.0 are considered good; 4.5 to 7.0 are fair, and less than 4.5 are poor.

Each subbasin report contains a summary which assesses overall water quality and water quality problems. Delineated streams or stream segments that are expected to meet 1983 goals after the implementation of pollution controls prior to 1983, or that are not expected to meet 1983 goals by 1983, include the following information, wherever available: problem type, location, source (by point or nonpoint source category), severity, extent, corrective measures being taken, and conditions expected after the implementation of pollution controls. An evaluation of water quality trends were presented, wherever possible, along with recommendations.

Table A-4. Ohio EPA biological criteria (fish) for determining water quality use designations and attainment of Clean Water Act (CWA) goals (November 1980).

Category	- - - MEETS CWA GOALS - - -		- DOES NOT MEET CWA GOALS -	
	"Exceptional" Class I (EWH)	"Good" Class II (WWH)	"Fair" Class III	"Poor" Class IV
1.[a]	Exceptional, or unusual assemblage of species	Usual association of expected species	Some expected species absent, or in very low abundance	Most expected species absent
2.	Sensitive species abundant	Sensitive species present	Sensitive species absent, or in very low abundance	Sensitive species absent
3.	Exceptionally high diversity	High diversity	Declining diversity	Low diversity
4.[b]	Composite index Greater than 9.0 - 9.5	Composite index Greater than 7.0 - 7.5, Less than 9.0 - 9.5	Composite index Greater than 4.5 - 5.0, Less than 7.0 - 7.5	Composite index Less than 4.5 - 5.0
5.	Outstanding recreational fishery		Tolerant species increasing, beginning to predominate	Tolerant species predominate
6.	Rare, endangered, or threatened species present			

a Conditions: Categories 1, 2, 3 and 4 (if data is available) must be met and 5 or 6 must also be met in order to be designated in that particular class.

b Based primarily on boat electrofishing samples, ranges may vary for other sampling methods.

REFERENCE DOCUMENT 1

ANNUAL SUMMARY STATISTICS

Prepared by

D. Mishne

Ohio Environmental Protection Agency
Division of Water Quality Monitoring and Assessment
Evaluation and Standards Section
Columbus, Ohio 43216
May 1984

Introduction for Annual Summary Statistics Tables

REFERENCE DOCUMENT 1 (RD1) - Yearly Summary Statistics

This document contains yearly summary statistics for chemical/physical parameters monitored in Ohio's ambient monitoring network, i.e., at monthly, quarterly and low-flow stations. Station information includes: STORET station number, latitude and longitude, a narrative description of the station's location, major drainage basin, State river basin and station river mile index (RMI) or river mile location.

STATION NUMBER 610000	STORET PRIMARY STATION CODE
40 33 50.0 084 48 10.0 2	LATITUDE LONGITUDE
WABASH R AT STATE LINE	STATION DESCRIPTION
OHIO RIVER (WABASH RIVER)	MAJOR DRAINAGE BASIN (STATE RIVER BASIN)
MILES 0953.80 0133.10 465.60	RIVER MILE INDEX (RMI) OR RIVER MILE

Statistical data for each parameter includes: parameter units; a remark column which may contain the remark codes K (less than), L (greater than), M (negative value), J (estimated) and T (all sample values including those designated K and L, values preceded by remarks are considered actual values); number of samples for the reporting period; mean; standard deviation; minimum and maximum values; and the year and month for the beginning and end of the reporting period.

REFERENCE DOCUMENT 1 ORGANIZATION

Mainstem monitoring stations are arranged by State river basin/subbasin in alphabetical order, and within each river basin/subbasin by decreasing river mile. Mainstem stations are followed by stations located on tributaries, arranged in alphabetical order, and by decreasing river mile. (Table of Contents).

STATISTICAL REPORTING PROCEDURES

The lowest detectable concentrations routinely analyzed by the Ohio Department of Health Laboratories (ODHL) and the Ohio EPA Chemistry Laboratory are listed in Tables 1 and 2. Parameter concentrations reported by the laboratories that are below detectable limits are preceded by a less than notation, and those above reported limits by a greater than notation on the original data sheets. The data are entered into the STORET System by the Ohio EPA with the proper letter code in place of the notation.

Statistical summary data for each parameter may include data calculated three ways: 1. With remark code T - all values are treated as actual values; 2. With remark code K - all values are treated as actual values; and 3. With remark code L - all values are treated as actual values.

Table 1: Detectable limits for parameters routinely monitored by the Ohio Department of Health Laboratories

PHYSICAL/CHEMICAL PARAMETERS

VALUE

Year (Month)	1975	1976	1977 (Feb)	1978	1979 (Jul)	1980	1981
Parameter (Units)							
Turbidity (J.U.)	1	1	1 (Feb)	1	0.5 (Jul)	0.5	0.5
Conductivity at 25°C(Micromhos)	1	1	1	1	1	2 (Mar)	0.4
pH (± SU)	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Alkalinity Total, $CaCO_3$(mg/l)	1	1	1	1	1	10 (Feb)	10
Alkalinity Phth, $CaCo_3$(mg/l)	0	0	0	0	0	10 (Feb)	-
Alkalinity, $CaCo_3$ Stabl(mg/l)	0	0	0	0	10	10 (Feb)	10
Acidity Total, $CaCo_3$(mg/l)	1	1	1	1	1	10 (Feb)	10
Acidity M.O., $CaCo_3$(mg/l)	0	0	0	0	0	10 (Feb)	-
Hardness Total, $CaCo_3$(mg/l)	2	2	2	2	2	2	4
Residue, Total (mg/l)	10	10	10	20 (Oct)	20	20	20
Residue, Total Volatile (mg/l)	10	10	10	10	20	20	20
Residue, Total Nflt(Sus)(mg/l)	10	10	10	10	10	10	10
Residue, Vol Nflt (mg/l)	10	10	10	10	10	10	20
Residue, Total Flt(Diss)(mg/l)	10	10	10	20 (Oct)	20	20	20
Residue, Vol Flt (mg/l)	10	10	10	10	20	20	20
Residue, Settable (mg/l)	0.1	0.1	0.1	-	-	-	-
Nitrogen Ammonia, N (mg/l)	0.05	0.05	0.05	0.05	0.05	0.05	0.05
Nitrite, N (mg/l)	0.05	0.05	0.05	0.05	0.01 (Feb)	0.01	0.01
Nitrate, N(mg/l)	0.1	0.05 (Jan)	0.05	0.05	0.05	0.05	0.05
TKN(mg/l)	0.3	0.05 (Sept)	0.05	0.05	0.05	0.05	0.05
Phosphorus, Total, P(mg/l)	0.1	0.05 (Sept)	0.05	0.05	0.05	0.05	0.02
Phorphorus, Soluble, P(mg/l)	0.05	0.05	0.05	0.05	0.05	0.05	0.02
Phosphate Total, Low Level (mg/l)	-	-	-	-	0.010	0.010	0.002
Phosphate Ortho, Low Level (mg/l)	-	-	-	-	0.002	0.002	0.002
Sulfate, SO_4(mg/l)	10	10	10	10	10	10	10
Sulfide, S(mg/l)	-	-	-	-	1 (May)	1	1
Chloride, Cl(mg/l)	5	5	5	5	5	5	5
Fluoride Diss, F(mg/l)	0.02	0.02	0.02	0.05(Aug)	0.05	0.05	0.05
Calcium Total, Ca(mg/l) Flame AAS	2	2	2	2	2	2	2
Magnesium Total, Mg(mg/l) Flm AAS	2	2	2	2	2	2	2
Potassium Total, K(mg/l)	1	1	1	1	1	1	1
Sodium Total, Na(mg/l)	5	5	5	5	5	5	5

Table 1: continued

PHYSICAL/CHEMICAL PARAMETERS

VALUE

Year (Month)	1975	1976	1977 (Feb)	1978	1979 (Jul)	1980	1981
Parameter (Units)							
Aluminum Total, Al(ug/l)	200	200	200	200	200	200	200
Antimony Total, Sb (ug/l)	10	10	10	10	10	10	10
Arsenic Total, As (ug/l) HGA	10	10	10	10	10	10	10
Barium Total, Ba (ug/l)	200 (Mar)*	200	200	200	200	200	200
Beryllium Total, Be (ug/l)	10	10	10	10	10	10	10
Cadmium Total, Cd (ug/l)	10	5 (Jul)	5	5	5	5	5
Chromium Total, Cr (ug/l)	30	30	30	30	30	30	30
Chromium Hex, Cr (ug/l)	30	30	30	30	30	30	30
Cobalt Total, Co (ug/l)	30	30	30	30	30	30	30
Copper Total, Cu (ug/l)	30	30	30	30	30	30	30
Iron Total, Fe (ug/l)	30	30	30	30	30	30	30
Iron Diss, Fe (ug/l)	30	30	30	30	30	30	30
Lead Total, Pb (ug/l)	10	10	5 (Feb)	5	5	5	5
Lithium Total, Li (ug/l)	100	100	100	100	100	100	100
Manganese Total, Mn (ug/l)	30	30	30	30	30	30	30
Manganese Diss, Mn (ug/l)		-	-	-	30	30	30
Mercury Total, Hg (ug/l)	1.0	0.5 (Jul)	0.5	0.5	0.5	0.5	0.5
Molybdenum Total, Mo (ug/l)	100	100	100	100	100	100	100
Nickel Total, Ni (ug/l)	100	100	100	100	100	100	100
Selenium Total, Se (ug/l)	10	5 (Jul)	5	5	5	5	5
Silica Diss, Si (mg/l)	-	-	-	-	0.05 (Jul)	0.05	0.05
Silver Total, Ag (ug/l)	30	30	30	30	30	30	30
Strontium Total, Sr (ug/l)	200	200	200	200	200	200	200
Thallium Total, Tl (ug/l)	10	-	-	-	-	-	-
Tin Total, Sm (ug/l)	10	10	10	10	10	10	10
Titanium Total, Ti (ug/l)	500	500	500	500	500	500	500
Vanadium total, V (ug/l)	10	10	10	10	10	10	10
Zinc Total, Zn (ug/l)	30	30	30	30	30	30	30
BOD, 5-Day (mg/l)	1	1	1	1	1	1	1
COD (mg/l)	4	4	4	4	4	4	4
Carbon Total Org, C (mg/l)	1	1	1	1	1	1	1
Cyanide, CN (mg/l)	0.01	0.01	0.01	0.01	0.01	0.01	0.01
MBAS (mg/l)	0.05	0.05	0.05	0.05	0.05	0.05	0.05
Oil-Grease, Total (mg/l)	0.50	5 (Feb)	5	5	5	5	5
Phenolics (ug/l)	2	2	2	2	2	2	2

Table 1: continued

RADIOLOGICAL PARAMETERS

VALUE

Year (Month)	1975	1976	1977 (Feb)	1978	1979 (Jul)	1980	1981
Parameter (Units)							
Beta, Total (pc/l)**	1	1	1	1	3	3	4 Jun
Beta, Diss (pc/l)	1	1	1	1	3	3	4
Beta, Suspd (pc/l)	1	1	1	1	3	3	4
Alpha, Total (pc/l)	1	1	1	1	3	3	3
Alpha, Diss (pc/l)	1	1	1	1	3	3	3
Alpha, Suspd (pc/l)	1	1	1	1	3	3	3
Radium 226, Total (pc/l)	1	1	1	1	1	1	1
Strontium 89, Total (pc/l)	5	5	5	5	5	5	5
Strontium 90, Total (pc/l)	1	1	1	1	1	1	1

BIOLOGICAL PARAMETERS

Coliform Total, MF (#/100 ml)	1	1	1	1	1	1	1
Coliform Total, MPN (#/100 ml)	1	1	1	1	1	1	1
Fecal Coli Total, MF (#/100 ml)	1	1	1	1	1	1	1
Fecal Strep Total, MF (#/100 ml)	1	1	1	1	1	1	1
Plate Count, Total (#/ml)	1	1	1	1	1	1	1
Algae, Total (#/ml)	1	1	1	1	1	1	1

PESTICIDE, PCB AND PHTHALATE PARAMETERS 1979-1982***

Parameter	WATER MATRIX (ug/l)	OIL MATRIX (mg/l)
Aldrin, Whl Smpl	0.03	0.2
BHC, Whl Smpl	0.01	0.2
DDD, Whl Smpl	0.10	0.4
DDE, Whl Smpl	0.05	0.4
DDT, Whl Smpl	0.10	0.4
Diazinon, Whl Smpl	0.1	0.3
Dieldrin, Whl Smpl	0.05	0.4

Table 1: continued

PESTICIDE, PCB AND PHTHALATE PARAMETERS 1979-1982***

Parameter	WATER MATRIX (ug/l)	OIL MATRIX (mg/l)
Chlordane, Whl Smpl	0.4	4.0
Endrin, Whl Smpl	0.03	0.4
Heptachlor, Whl Smpl	0.03	0.3
Heptachlor Epexide, Whl Smpl	0.03	0.3
Lindane, Whl Smpl	0.01	0.2
Malathion, Whl Smpl	0.1	-
Methoxychlor, Whl Smpl	0.15	2.4
Methyl Parathion, Whl Smpl	0.1	0.4
Mirex, Whl Smpl	0.25	0.5
Parathion, Whl Smpl	0.15	0.4
PCB, Whl Smpl	0.5	5.0
Phthalates, Whl Smpl	100	-
Silvex, Whl Smpl	1	-
Toxaphene, Whl Smpl	0.5	5.0
2,4-D, Whl Smpl	10	-

NONPESTICIDE ORGANICS (ug/l) (GC/MS; PURGE AND TRAP METHODOLOGY) 1979-1982****

Parameter		Parameter	
Benzene	0.5	1,2 dichloroethane	0.5
Bromodichloromethane	0.5	Ethylbenzene	0.5
Bromoform	1.5	Methylene chloride	1.5
Carbon tetrachloride	0.5	Tetrachloroethane	0.5
Chlorobenzene	0.5	Tetrachloroethylene	0.5
Chloroform	0.5	Trichloroethylene	0.5
Dibromochloromethane	0.5	Toluene	0.5
Dichlorobenzenes	0.5	Xylenes	0.5

Table 1: continued

NONPESTICIDE ORGANICS (mg/l) (FID - DETECTOR; SOLVENT/SOLVENT EXTRATION) 1979-1982*****

Parameter	WATER MATRIX (ug/l)	OIL MATRIX (mg/l)	
Benzene	0.1	Ethylbenzene	0.1
Bromoform	0.2	Methylene chloride	0.1
Carbon tetrachloride	0.2	Tetrachloroethane	0.1
Chlorobenzene	0.1	Tetrachloroethylene	0.1
Chlorodibromomethane	0.1	Trichloroethanes	0.1
Chloroform	0.1	Trichloroethylene	0.1
Cis 1,2-dichloroethylene	0.1	Toluene	0.1
Dichlorobromomethane	0.1	Vinyl chloride	0.1
1,2-Dichloroethane	0.1	Xylene	0.1

* The detectable limit before March 1975 was 100 ug/l.
** The detectable limit changed from 3 to 2 between 1980 and 1981, and than changed to 4 in June of 1981.
*** Water Matrix - 1 liter extracted and concentrated to 5 mls. Oil Matrix - 1 gm diluted to 100 mls with hexane (oil values are based on the response of standards).
**** 5 ml sample - normal operation.
***** 1 liter sample - concentration ratio 100 to 1.

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Table 2: Ohio EPA Chemistry Laboratory Detection Limits 1981 -1982[a]

PARAMETER (Units)	1981	1982
Biochemical Oxygen Demand (mg/l) (BOD_5, BOD_{20}, $cBOD_5$, $cBOD_{20}$)	1	1
Chemical Oxygen Demand		
Automated (mg/l)	10	10
Manual (mg/l)	4	10
Total Residue (mg/l)	10	10
Total Filterable Residue (mg/l)	10	10
Total Nonfilterable Residue (mg/l)	5	5
Nitrate-Nitrite (mg/l)	0.05-0.09	0.05
Nitrite (mg/l)	0.02-0.03	0.02
Ammonia (mg/l)	0.05-0.09	0.05
Total Kjeldahl Nitrogen (mg/l)	0.1-0.3	0.1
Total Phosphorus		
High Level (mg/l)	0.05	0.05
Low Level (mg/l)	--	0.005
Dissolved Phosphorus		
High Level (mg/l)	0.05	0.05
Low Level (mg/l)	--	0.005
T. Cadmium (ug/l)	0.5-1.0	0.5
T. Calcium (mg/l)	1 - 2	1
T. Chromium (ug/l)	30-40	30
T. Copper (ug/l)	10-20	10
T. Iron (ug/l)	50-70	50
D. Iron (ug/l)	50-70	50
T. Lead (ug/l)	5-10	2
T. Magnesium (mg/l)	1-10	1
T. Manganese (ug/l)	--	100
T. Nickel (ug/l)	30-40	30
T. Zinc (ug/l)	10-15	10

a. Detection limit is statistically defined as twice the standard deviation of the concentration difference of a series of duplicate measurements of a solution near the blank absorbance measurement.

Key for Table of Contents

COLUMN CODES

RM - River mile, miles from mouth

(MAP) - Map codes refer to underground water maps of Ohio ("Publications, Division of Water", 1975. Ohio Department of Natural Resources, p. 6).

Station #

Top number - STORET (OEPA)
Lower number ( ) - USGS

District

CDO - Central District Office, Columbus
NEDO - Northeast District Office, Twinsburg
NWDO - Northwest District Office, Bowling Green
SEDO - Southeast District Office, Logan
SWDO - Southwest District Office, Dayton

Purpose

IJC - International Joint Commission
NASQAN - National Stream Quality Accounting Network (USGS)
NAWQMN - National Ambient Water Quality Monitoring Network. The number following NAWQMN refers to the location of the station shown on Figure 1.
OEPA - Ohio EPA

Sampling Frequency

(M) - Monthly sampling frequency
(Q) - Quarterly sampling frequency
(LF) - Sampled once per year during the low flow period
(A) - Annual

Use Designation

CRS - Cuyahoga River Standards
CWH - Coldwater Habitat
EWH - Exceptional Warmwater Habitat
LE - Lake Erie Standards
MRS - Mahoning River Standards
PWS - Public Drinking Water Source
WWH - Warmwater Habitat

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STATION DESCRIPTION	RM (MAP)	STATION #	DISTRICT	PURPOSE	USE DESIGNATION	TABLES RD 1-	PAGES RD 1-
ASHTABULA RIVER							
Ashtabula River near Ashtabula (State Rd)	5.5 (F-3)	502760 (04212500)	NEDO	NAWQMN, IJC (M)	WWH	1-2	1-4
Fields Brook near Ashtabula (15th St)	0.3 (F-3)	502780	NEDO	OEPA (M)	WWH	3-4	5-8
BLACK RIVER							
Black River at Elyria (Cascade Pk)	15.6 (D-4)	501520 (04200500)	NEDO	NAWQMN (M)	WWH	5-6	9-11
Black River below Elyria (Ford Rd)	10.4 (D-4)	501510 (04200550)	NEDO	IJC (M)	WWH	7-8	12-15
CHAGRIN RIVER							
Chagrin River at Willoughby (Rt 84)	5.0 (E-3)	502400 (04209000)	NEDO	NAWQMN, IJC (M)	EWH	9-10	16-19
CONNEAUT CREEK							
Conneaut Creek at Conneaut (Keefus Rd)	6.4 (F-3)	502870 (04213000)	NEDO	NAQMN, IJC (M)	CWH	11-12	20-23
CUYAHOGA RIVER							
Cuyahoga River at Independence (Old Rockside Rd.)	13.5 (E-2)	502020 (04208000)	NEDO	NAWQMN, NASQAN (M)	WWH	13-14	24-27

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STATION DESCRIPTION	RM (MAP)	STATION #	DISTRICT	PURPOSE	USE DESIGNATION	TABLES RD 1-	PAGES RD 1-
CUYAHOGA RIVER (CONTINUED)							
Cuyahoga River at Cleveland (Lower Harvard Ave.)	7.3 (E-2)	502130 (04208503)	NEDO	IJC (M)	WWH	15-16	28-31
Big Creek at Cleveland (Jennings Ave)	0.3 (E-2)	502120	NEDO	OEPA (Q)	WWH	17-18	32-33
Little Cuyahoga River near Akron (Otto St. gage)	2.0 (E-1)	502080 (04205700)	NEDO	OEPA (Q)	WWH	19-20	34-35
Mill Creek at Garfield Heights (Canal Road)	0.1 (E-2)	502110	NEDO	OEPA (Q)	WWH	21-22	36-37
Tinkers Creek at Bedford (USGS gage at SR 14)	5.5 (E-2)	502220 (04207200)	NEDO	OEPA (LF)	WWH	23-24	38-39
EUCLID CREEK							
Euclid Creek at Euclid (St. Clair Ave.)	1.7 (E-2)	504250 (04208690)	NEDO	OEPA (M)	WWH	25-26	40-42
GRAND RIVER							
Grand River near Painesville (Rt 84)	8.7 (F-2)	502530 (04212100)	NEDO	NAWQMN, NASQAN (M)	WWH	27-28	43-46
Grand River at Painesville (Rt 535)	2.3 (F-2)	502520 (04212200)	NEDO	IJC (M)	WWH	29-30	47-50

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STATION DESCRIPTION	RM (MAP)	STATION #	DISTRICT	PURPOSE	USE DESIGNATION	TABLES RD 1-	PAGES RD 1-
GREAT MIAMI RIVER							
Great Miami River near Taylorsville (SR 440)	90.7 (H-_)	610050 (03263000)	SWDO	OEPA (M)	WWH	31-32	51-52
Great Miami River at Dayton (Main St. Bridge)	80.0 (H-9)	610060 (03270500)	SWDO	NAWQMN (M)	WWH	33-34	53-54
Great Miami River at Miamisburg (SR 725)	66.4 (H-9)	600150 (03271500)	SWDO	OEPA (M)	WWH	35-36	55-56
Great Miami River at Hamilton (Columbia Bridge)	34.9 (H-11)	600270 (03274000)	SWDO	OEPA (M)	WWH	37-38	57-58
Buck Creek near Springfield (U.S. 40 and SR 4)	0.2 (H-3)	600350	SWDO	OEPA (Q)	WWH	39-40	59-60
Dicks Creek near Excello (Yankee Rd)	2.5 (H-9)	600250	SWDO	OEPA (M)	WWH	41-42	61-62
Four Mile Creek at New Miami (Jacksonburg Rd)	0.3 (H-10)	600260	SWDO	OEPA (Q)	WWH	43-44	63-64
Greenville Creek near Covington (Rangeline Rd)	3.4 (H-6,7$_2$	600060	SWDO	OEPA (Q)	WWH	45-46	65-66
Indian Creek near Ross (SR 128)	0.5 (H-1)	600280	SWDO	OEPA (Q)	EWH	47-48	67-68

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STATION DESCRIPTION	RM (MAP)	STATION #	DISTRICT	PURPOSE	USE DESIGNATION	TABLES RD 1-	PAGES RD 1-
GREAT MIAMI RIVER (CONTINUED)							
Loramie Creek near Lockington (Harding-Wapak Rd)	0.4 (H-2)	600320	SWDO	OEPA (Q)	WWH	49-50	69-70
Mad River at Eagle City (St. Paris Pike)	28.7 (H-3)	610040	SWDO	NAWQMN (M)	CWH	51-52	71-73
Mad River above Dayton (Rt 444)	5.9 (H-4)	600190	SWDO	OEPA (M)	WWH	53-54	74-75
Stillwater River near Englewood (U.S. 40)	8.9 (H-6,7$_1$)	600110 (03266000)	SWDO	OEPA (M)	WWH	55-56	76-77
Twin Creek near Franklin (Dayton-Oxford Rd)	0.6 (H-8,11a)	600180	SWDO	OEPA (Q)	EWH	57-58	78-79
Whitewater River near Hoover (Suspension Bridge Rd)	0.5 (H-11)	600290	SWDO	OEPA (Q)	WWH	59-60	80-81
HOCKING RIVER							
Hocking River below Lancaster (U.S. 33)	86.7 (O-1)	601550	CDO	OEPA (M)	WWH	61-62	82-83
Hocking River at Enterprise (CR 31 Bridge)	72.5 (O-1)	601530 (03157500)	SEDO	OEPA (M)	WWH	63-64	84-85

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STATION DESCRIPTION	RM (MAP)	STATION #	DISTRICT	PURPOSE	USE DESIGNATION	TABLES RD 1-	PAGES RD 1-
HURON RIVER							
Huron River below Milan (Mud Brook Rd)	1.6 (D-2)	501050	NWDO	NAWQMN, IJC (M)	EWH	65-66	86-89
LAKE ERIE							
Turkey Creek near Conneaut (Lake Rd)	0.1 (F-3)	504260	NEDO	OEPA (Q)	CWH	67-68	90-91
LITTLE BEAVER CREEK							
Little Beaver Creek near East Liverpool (Grimms Bridge Road)	4.6 (S-1)	602000 (03109500)	NEDO	NAWQMN (M)	WWH	69-70	92-94
North Fork at Fredericktown (Fredericktown Rd)	0.2 (S-1)	612010	NEDO	OEPA (Q)	CWH	71-72	95-96
West Fork near Guilford (SR 30)	6.6 (S-1)	612000	NEDO	OEPA (Q)	WWH	73-74	97-98
Chemline Tributary near Lisbon (SR 518)	0.1 (S-1)	602090	NEDO	OEPA (M)	WWH	75-76	99-100
Stateline Creek East Branch near Negley (Twp. Rd 1024)	0.1 (S-1)	602060	NEDO	OEPA (M)	WWH	77-78	101-102
Stateline Creek West Branch near Negley (Twp. Rd 1024)	0.1 (S-1)	602050 (03109320)	NEDO	OEPA (M)	WWH	79-80	103-105

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LITTLE MIAMI RIVER							
Little Miami River at Oldtown (U.S. 68)	79.5 (K-1)	600570	SWDO	NAWQMN (M)	EWH	81-82	106-107
Little Miami River near Xenia (Bellbrook Rd)	68.2 (K-1)	610550	SWDO	OEPA (Q)	WWH	83-84	108-109
Little Miami River at Spring Valley (Roxanna-New Burlington Rd)	59.3 (K-1)	600600	SWDO	OEPA (M)	WWH	85-86	110-111
Little Miami River near Morrow (Stubbs Mill Rd)	35.7 (K-5)	610520	SWDO	OEPA (M)	WWH	87-88	112-113
East Fork Little Miami River at South Milford (near Terrace Park Country Club)	0.8 (K-5)	610530	SWDO	OEPA (M)	WWH	89-90	114-115
Beaver Creek near Xenia (Factory Rd)	0.1 (K-1)	600510	SWDO	OEPA (Q)	WWH	91-92	116-117
Caesar's Creek near Oregonia (Corwin Rd)	0.2 (K-2)	600550	SWDO	OEPA (M)	EWH	93-94	118-119
MAHONING RIVER							
Mahoning River at Leavittsburg (Leavitt Rd)	45.0 (T-2)	602280 (03094000)	NEDO	NAWQMN (M)	MRS	95-96	120-123

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MAHONING RIVER (CONTINUED)							
Mahoning River at Warren (South St. gage)	37.4 (T-2)	602400	NEDO	OEPA (Q)	MRS	97-98	124-125
Mahoning River at Niles (W. Park Ave)	33.1 (T-2)	602290	NEDO	OEPA (Q)	MRS	99-100	126-127
Mahoning River at Lowellville (First St)	11.6 ($T-3_1$)	602300 (03099500)	NEDO	NAWQMN (M)	MRS	101-102	128-130
MAUMEE RIVER							
Maumee River at Antwerp (SR 49)	100.3 (A-7)	500140 (04183500)	NWDO	NAWQMN (M)	WWH	103-104	131-134
Maumee River at Waterville (Rt 64)	20.8 (A-11)	500080 (04193500)	NWDO	NAWQMN, NASQAN IJC (M)	WWH	105-106	135-136
Auglaize River above Defiance (Power Dam, Harding Road)	4.1 (A-7)	500290 (04191500)	NWDO	NAWQMN (M)	WWH	107-108	137-140
Blanchard River below Findlay (County Rd)	53.0 (A-6)	500040 (04189000)	NWDO	OEPA (M)	WWH	109-110	141-143
Ottawa River at Allentown (SR 81)	28.4 (A-4)	500050 (04187500)	NWDO	OEPA (M)	WWH	111-112	144-147
MILL CREEK							
Mill Creek at Carthage (Anthony Wayne Avenue)	11.0 (J)	600410 (03259000)	SWDO	OEPA (M)	WWH	113-114	148-149
Mill Creek at Cincinnati (Gest Rd)	0.5 (J)	600430	SWDO	OEPA (M)	WWH	115-116	150-151

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STATION DESCRIPTION	RM (MAP)	STATION #	DISTRICT	PURPOSE	USE DESIGNATION	TABLES RD 1-	PAGES RD 1-
MUSKINGUM RIVER							
Muskingum River below Coshocton (SR 83)	107.3 (P-11)	611740 (03140500)	SEDO	NAWQMN (M)	WWH	117-118	152-155
Muskingum River at Dresden (SR 208)	91.3 (P-11)	611750 (03144500)	SEDO	OEPA (M)	WWH	119-120	156-158
Hurford Run at Canton (Church St)	0.2 (P-7)	611850	NEDO	OEPA (Q)	WWH	121-122	159-160
Killbuck Creek near Wooster (Willow Rd)	44.8 (P-3)	601880	NEDO	OEPA (LF)	WWH	123-124	161-162
Licking River below Newark (Stadden Bridge)	25.6 (P-13)	601770 (031416500)	CDO	NAWQMN (M)	WWH	125-126	163-166
Mohican River at Greer (Rt 514)	16.6 (P-4)	601870 (03136000)	SEDO	NAWQMN (M)	WWH	127-128	167-170
Nimishillen Creek at North Industry (Cheyenne St)	8.2 (P-7)	601940 (03118500)	NEDO	NAWQMN (M)	WWH	129-130	171-174
Tuscarawas River at Canal Fulton (Market St)	95.9 (P-5)	611830	NEDO	OEPA (LF)	WWH	131-132	175-176
Tuscarawas River at Massillon (Walnut St)	88.4 (P-5)	611840	NEDO	OEPA (Q)	WWH	133-134	177-178
Tuscarawas River near Massillon (Warmington St.)	85.3 (P-5)	601930 (03117000)	NEDO	NAWQMN (M)	WWH	135-136	179-180

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MUSKINGUM RIVER (CONTINUED)							
Tuscarawas River at Newcomerstown (SR 83)	21.3 (P-10)	611790 (031129000)	SEDO	NAWQMN (M)	WWH	137-138	181-184
Walhounding River at Nellie (U.S. 36)	14.7 (P-4)	601910 (03138500)	SEDO	NAWQMN (M)	WWH	139-140	185-188
Wolf Creek at Barberton (Snyder Ave)	0.2 (P-6)	611820	NEDO	OEPA (Q)	WWH	141-142	189-190
OHIO BRUSH CREEK							
Ohio Brush Creek near West Union (SR 348)	13.1 (L-2)	600660 (03237500)	SEDO	NAWQMN (M)	EWH	143-144	191-194
PORTAGE RIVER							
Portage River at Woodville (U.S. 20)	28.2 (B-2)	500510 (04195500)	NWDO	NAWQMN, IJC (M)	WWH	145-146	195-198
RACCOON CREEK							
Raccoon Creek at Adamsville (U.S. Rt 35)	29.6 (N-2)	601400 (03202000)	SEDO	NAWQMN (M)	WWH	147-148	199-202
ROCKY RIVER							
Rocky River near Berea (Cedar Pt Rd)	12.0 (D-5)	501800 (04201500)	NEDO	NAWQMN, IJC (M)	WWH	149-150	203-206
Rocky River at Lakewood (Park Blvd.)	3.0 (D-5)	501790	NEDO	IJC (M)	WWH	151-152	207-210

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SANDUSKY RIVER							
Sandusky River above Fremont (Rice Rd)	20.3 (C-4)	500820 (04198000)	NWDO	NAWQMN, NASQAN IJC (M)	WWH	153-154	211-213
SCIOTO RIVER							
Scioto River near Circleville (Florence Chapel Rd)	101.8 (M-8)	601340	CDO	NAWQMN (M)	WWH	155-156	214-216
Big Darby Creek at Darbyville (SR 316)	13.2 (M-8)	601300 (03230500)	CDO	NAWQMN (M)	EWH	157-158	217-219
Mill Creek below Marysville (Radnor Rd)	17.2 (M-5)	601350	CDO	OEPA (M)	WWH	159-160	220-221
Olentangy River near Worthington (I-270)	11.5 (M-3)	601290 (03226800)	CDO	NAWQMN (M)	WWH	161-162	222-223
Paint Creek near Bournesville (Jones-Levee Rd)	22.1 (M-12,13)	601320 (03234000)	SEDO	OEPA (M)	EWH	163-164	224-225
VERMILION RIVER							
Vermilion River at Vermilion (N. Ridge Rd)	4.5 (D-3)	501260 (04199500)	NWDO	NAWQMN, IJC (M)	EWH	165-166	226-229

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STATION DESCRIPTION	RM (MAP)	STATION #	DISTRICT	PURPOSE	USE DESIGNATION	TABLES RD 1-	PAGES RD 1-
LAKE ERIE							
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Conneaut Water Intake	- -	504170	NEDO	OEPA (M)	EWH (LE), PWS	169-170	232-233
Cleveland Crown Water Intake	- -	504090	NEDO	IJC (M)	EWH (LE), PWS	171-172	234-238
Mentor Water Intake	- -	504130	NEDO	NAWQMN, IJC (M)	EWH (LE), PWS	173-174	239-241
Oregon Water Intake	- -	504240	NWDO	NAWQMN, IJC (M)	EWH (LE), PWS	175-176	242-245
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TABLE RD 1-1

STATION NUMBER 502760
41 51 20.0 080 45 44.0 2
ASHTABULA RIVER ABOVE ASHTABULA - STATE RD
LAKE ERIE 060691 (ASHTABULA RIVER)
MILES 0005.50

PARAMETER			R	NO	MEAN	STAN DEV	MAXIMUM	MINIMUM	BEG	END
WATER	TEMP	CENT		12	8.79167	8.38955	22.5000	.000000	80/10	81/09
STREAM	FLOW,	INST-CFS		1	64.2000		64.2000	64.2000	81/09	81/09
STREAM	STAGE	FEET		2	.485000	.615183	.920000	.050000	80/10	81/09
TURB	TRBIDMTR	HACH FTU		12	19.7917	27.7443	77.0000	1.50000	80/10	81/09
CNDUCTVY	FIELD	MICROMHO		11	155.909	64.2191	310.000	70.0000	80/10	81/09
CNDUCTVY	AT 25C	MICROMHO		7	218.286	87.7131	330.000	125.000	81/01	81/09
DO		MG/L		12	11.6000	2.44504	14.6000	6.80000	80/10	81/09
COD	LOWLEVEL	MG/L		12	18.9916	8.80504	32.0000	10.0000	80/10	81/09
PH		SU		2	8.14999	.072028	8.20000	8.10000	81/08	81/09
LAB	PH	SU		11	7.20909	.639462	7.90000	5.80000	80/10	81/09
T ALK	CACO3	MG/L		11	42.3636	14.5484	63.0000	15.0000	80/11	81/09
PHEN-PH-	LFIN ALK	MG/L		1	42.0000		42.0000	42.0000	80/10	80/10
RESIDUE	TOT NFLT	MG/L		7	75.7143	96.6225	235.000	11.0000	80/11	81/07
			K	5	10.0000	.000000	10.0000	10.0000	80/10	81/09
			T	12	48.3333	78.9768	235.000	10.0000	80/10	81/09
NH3+NH4-	N TOTAL	MG/L		7	.100000	.067330	.240000	.050000	80/12	81/06
			K	5	.050000	.000061	.050000	.050000	80/10	81/09
			T	12	.079167	.055996	.240000	.050000	80/10	81/09
NO2-N	TOTAL	MG/L		5	.022000	.021679	.060000	.010000	80/10	81/08
			K	5	.010000-	.000000	.010000	.010000	80/11	81/05
			T	10	.016000	.015776	.060000	.010000	80/10	81/08
NO3-N	TOTAL	MG/L		10	.402000	.219231	.790000	.130000	80/10	81/08
			K	2	.050000	.000061	.050000	.050000	81/05	81/09
			T	12	.343333	.241033	.790000	.050000	80/10	81/09
TOT KJEL	N	MG/L		12	.733333	.312856	1.31000	.330000	80/10	81/09
PHOS-TOT		MG/L P		12	.068417	.053183	.169000	.020000	80/10	81/09
PHOS-DIS		MG/L P		11	.031273	.013305	.049000	.014000	80/11	81/09
T ORG C	C	MG/L		4	11.0000	2.70801	13.0000	7.00000	81/01	81/09
D ORG C	C	MG/L		6	9.00000	2.09762	12.0000	7.00000	81/01	81/09
TOT HARD	CACO3	MG/L		12	83.1667	24.1430	136.000	40.0000	80/10	81/09
CALCIUM	CA-TOT	MG/L		11	23.7273	7.49794	37.0000	9.00000	80/11	81/09
SODIUM	NA,TOT	MG/L		11	11.0000	3.57771	19.0000	6.00000	80/11	81/09
CHLORIDE	TOTAL	MG/L		12	20.8333	6.83355	39.0000	12.0000	80/10	81/09
SULFATE	SO4-TOT	MG/L		12	35.5000	17.7892	86.0000	17.0000	80/10	81/09
SILICA	DISOLVED	MG/L		12	3.33999	1.46081	5.28000	.350000	80/10	81/09
ARSENIC	AS,TOT	UG/L	K	1	10.0000		10.0000	10.0000	81/07	81/07
CADMIUM	CD,TOT	UG/L	K	7	5.00000	.000000	5.00000	5.00000	80/10	81/09
CHROMIUM	CR,TOT	UG/L		1	40.0000		40.0000	40.0000	81/01	81/01
			K	6	30.0000	.000000	30.0000	30.0000	80/10	81/09
			T	7	31.4286	3.77983	40.0000	30.0000	80/10	81/09
COPPER	CU,TOT	UG/L	K	11	30.0000	.000000	30.0000	30.0000	80/10	81/09

TABLE RD 1-1 (Continued)

STATION NUMBER 502760
41 51 20.0 080 45 44.0 2
ASHTABULA RIVER ABOVE ASHTABULA - STATE RD
LAKE ERIE 060691 (ASHTABULA RIVER)
MILES 0005.50

PARAMETER			R	NO	MEAN	STAN DEV	MAXIMUM	MINIMUM	BEG	END
IRON	FE,TOT	UG/L		6	3555.00	4299.91	9100.00	440.000	80/11	81/09
LEAD	PB,TOT	UG/L		3	12.3333	7.09461	20.0000	6.00000	80/10	81/02
			K	8	7.50000	7.07107	25.0000	5.00000	80/11	81/09
			T	11	8.81818	7.08263	25.0000	5.00000	80/10	81/09
MANGNESE	MN	UG/L		1	60.0000		60.0000	60.0000	81/07	81/07
NICKEL	NI,TOTAL	UG/L		1	100.000		100.000	100.000	80/10	80/10
			K	6	100.000	.000000	100.000	100.000	80/11	81/09
			T	7	100.000	.000000	100.000	100.000	80/10	81/09
VANADIUM	V,TOT	UG/L	K	1	200.000		200.000	200.000	81/07	81/07
ZINC	ZN,TOT	UG/L		3	40.0000	10.0000	50.0000	30.0000	81/01	81/06
			K	8	30.0000	.000000	30.0000	30.0000	80/10	81/09
			T	11	32.7273	6.46680	50.0000	30.0000	80/10	81/09
ALUMINUM	AL,TOT	UG/L		1	400.000		400.000	400.000	81/07	81/07
SELENIUM	SE,TOT	UG/L	K	1	5.00000		5.00000	5.00000	81/07	81/07
FEC COLI	MFM-FCBR	/100ML		10	688.300	1128.58	3800.00	5.00000	80/10	81/09
FECSTREP	MF M-ENT	/100ML		8	2413.12	4011.09	11000.0	15.0000	80/10	81/09
PHENOLS	TOTAL	UG/L		12	7.00000	2.82843	11.0000	2.00000	80/10	81/09
PCBS	WHL SMPL	UG/L		1	.000000		.000000	.000000	80/12	80/12
			K	8	.500000	.000000	.500000	.500000	80/11	81/09
			T	9	.444444	.166667	.500000	.000000	80/11	81/09
RESIDUE	DISS-180 C	MG/L		12	147.000	39.0757	220.000	78.0000	80/10	81/09
MERCURY	HG,TOTAL	UG/L	K	6	.500000	.000000	.500000	.500000	80/10	81/09

TABLE RD 1-2

STATION NUMBER 502760
41 51 20.0 080 45 44.0 2
ASHTABULA RIVER ABOVE ASHTABULA - STATE RD
LAKE ERIE 060691 (ASHTABULA RIVER)
MILES 0005.50

PARAMETER			R	NO	MEAN	STAN DEV	MAXIMUM	MINIMUM	BEG	END
WATER	TEMP	CENT		11	9.95454	9.22349	24.5000	.000000	81/10	82/09
STREAM	FLOW,	INST-CFS		1	22.6000		22.6000	22.6000	81/11	81/11
STREAM	STAGE	FEET		2	1.06500	.728321	1.58000	.550000	81/10	81/11
TURB	TRBIDMTR	HACH FTU		2	2.98500	2.17082	4.52000	1.45000	81/10	81/11
CNDUCTVY	FIELD	MICROMHO		9	206.667	128.744	440.000	90.0000	81/11	82/09
CNDUCTVY	AT 25C	MICROMHO		10	269.700	120.130	570.000	150.000	81/10	82/09
DO	PROBE	MG/L		9	11.0111	2.13510	14.8000	8.40000	81/12	82/09
DO		MG/L		2	11.6000	1.97988	13.0000	10.2000	81/10	81/11
BOD	5 DAY	MG/L		1	1.80000		1.80000	1.80000	82/05	82/05
			K	1	1.00000		1.00000	1.00000	82/04	82/04
			T	2	1.40000	.565685	1.80000	1.00000	82/04	82/05
COD	LOWLEVEL	MG/L		10	16.7000	7.51370	34.0000	8.00000	81/11	82/09
			K	1	4.00000		4.00000	4.00000	81/10	81/10
			T	11	15.5455	8.09152	34.0000	4.00000	81/10	82/09
PH		SU		11	7.88181	.598093	8.70000	6.80000	81/10	82/09
T ALK	CACO3	MG/L		2	48.5000	9.19239	55.0000	42.0000	81/10	81/11
RESIDUE	TOT NFLT	MG/L		4	7.00000	1.82574	9.00000	5.00000	82/02	82/09
			K	6	6.66667	2.58199	10.0000	5.00000	81/10	82/06
			T	10	6.80000	2.20102	10.0000	5.00000	81/10	82/09
OIL-GRSE	FREON-GR	MG/L	K	1	5.00000		5.00000	5.00000	81/11	81/11
NH3+NH4-	N TOTAL	MG/L		1	.090000		.090000	.090000	82/01	82/01
			K	10	.050000	.000054	.050000	.050000	81/10	82/09
			T	11	.053636	.012061	.090000	.050000	81/10	82/09
NO2-N	TOTAL	MG/L	K	9	.020000	.000024	.020000	.020000	81/12	82/09
NO3-N	TOTAL	MG/L		9	.215555	.123503	.360000	.050000	81/10	82/09
			K	2	.050000	.000061	.050000	.050000	81/11	82/05
			T	11	.185454	.129180	.360000	.050000	81/10	82/09
KJELDL N	DISS	MG/L		1	.550000		.550000	.550000	81/12	81/12
TOT KJEL	N	MG/L		11	.422727	.145815	.700000	.230000	81/10	82/09
PHOS-TOT		MG/L P		3	.032333	.015503	.050000	.021000	81/10	82/09
			K	8	.050000	.000052	.050000	.050000	81/12	82/08
			T	11	.045182	.010778	.050000	.021000	81/10	82/09

TABLE RD 1-2 (Continued)

STATION NUMBER 502760
41 51 20.0 080 45 44.0 2
ASHTABULA RIVER ABOVE ASHTABULA - STATE RD
LAKE ERIE 060691 (ASHTABULA RIVER)
MILES 0005.50

PARAMETER			R	NO	MEAN	STAN DEV	MAXIMUM	MINIMUM	BEG	END
PHOS-DIS		MG/L P	K	6	.040000	.015492	.050000	.020000	81/10	82/05
T ORG C	C	MG/L		2	11.0000	4.24264	14.0000	8.00000	81/10	81/11
D ORG C	C	MG/L		2	8.50000	.707107	9.00000	8.00000	81/10	81/11
TOT HARD	CACO3	MG/L		9	112.000	46.9201	185.000	56.0000	81/10	82/09
CALCIUM	CA-TOT	MG/L		11	31.9454	15.2320	60.5000	15.5000	81/10	82/09
MGNSIUM	MG,TOT	MG/L		8	6.51249	2.07190	10.4000	4.20000	81/12	82/09
SODIUM	NA,TOT	MG/L		3	16.8000	10.0956	28.4000	10.0000	81/10	82/09
CHLORIDE	TOTAL	MG/L		2	21.0000	.000000	21.0000	21.0000	81/10	81/11
SULFATE	SO4-TOT	MG/L		2	33.0000	5.65685	37.0000	29.0000	81/10	81/11
SILICA	DISOLVED	MG/L		2	2.80500	3.37290	5.19000	.420000	81/10	81/11
CADMIUM	CD,TOT	UG/L	K	7	.500000	.000000	.500000	.500000	81/12	82/09
CHROMIUM	CR,TOT	UG/L	K	7	30.0000	.000000	30.0000	30.0000	81/12	82/09
COPPER	CU,TOT	UG/L	K	10	14.0000	8.43274	30.0000	10.0000	81/10	82/09
IRON	FE,TOT	UG/L		7	470.000	150.665	630.000	190.000	81/12	82/09
LEAD	PB,TOT	UG/L		1	3.00000		3.00000	3.00000	82/09	82/09
			K	10	3.80000	1.54920	5.00000	2.00000	81/10	82/08
			T	11	3.72727	1.48936	5.00000	2.00000	81/10	82/09
MANGNESE	MN	UG/L		2	55.0000	49.4975	90.0000	20.0000	82/03	82/09
NICKEL	NI,TOTAL	UG/L	K	6	48.3333	25.6256	100.000	30.0000	81/12	82/09
ZINC	ZN,TOT	UG/L		3	18.3333	10.4083	30.0000	10.0000	82/03	82/08
			K	8	15.0000	9.25820	30.0000	10.0000	81/10	82/09
			T	11	15.9091	9.17011	30.0000	10.0000	81/10	82/09
FEC COLI	MFM-FCBR	/100ML		11	52.6363	66.7402	220.000	4.00000	81/10	82/09
FECSTREP	MF M-ENT	/100ML		11	282.182	613.549	2100.00	10.0000	81/10	82/09
PHENOLS	TOTAL	UG/L		2	4.00000	2.82843	6.00000	2.00000	81/10	81/11
			K	2	10.0000	.000000	10.0000	10.0000	82/08	82/09
			T	4	7.00000	3.82971	10.0000	2.00000	81/10	82/09
PCBS	WHL SMPL	UG/L	K	11	.500000	.000000	.500000	.500000	81/10	82/09
RESIDUE	DISS-180	C MG/L		10	192.200	89.3717	408.000	110.000	81/10	82/09

TABLE RD 1-3

STATION NUMBER 502780
41 53 36.0 080 47 34.0 2
FIELDS BROOK AT ASHTABULA - 15TH ST
LAKE ERIE (ASHTABULA RIVER)
MILES 0001.50 0000.30

PARAMETER			R	NO	MEAN	STAN DEV	MAXIMUM	MINIMUM	BEG	END
WATER	TEMP	CENT		10	16.8000	8.38387	29.0000	6.00000	80/10	81/08
STREAM	FLOW,	INST-CFS		1	26.6000		26.6000	26.6000	80/11	80/11
CNDUCTVY	FIELD	MICROMHO		10	2168.50	1167.54	4900.00	900.000	80/10	81/08
CNDUCTVY	AT 25C	MICROMHO		1	1206.00		1206.00	1206.00	81/02	81/02
DO		MG/L		10	9.14000	1.61810	11.2000	6.50000	80/10	81/08
COD	LOWLEVEL	MG/L		10	27.0900	9.34490	42.0000	8.00000	80/10	81/08
PH		SU		1	8.00000		8.00000	8.00000	81/08	81/08
LAB	PH	SU		9	7.21111	.662291	7.70000	5.70000	80/10	81/07
RESIDUE	TOT NFLT	MG/L		10	45.2000	41.4482	146.000	12.0000	80/10	81/08
NH3+NH4-	N TOTAL	MG/L		10	.194000	.113745	.460000	.070000	80/11	81/08
NO2-N	TOTAL	MG/L		10	.024000	.016465	.060000	.010000	80/11	81/08
NO3-N	TOTAL	MG/L		10	.482000	.153391	.770000	.320000	80/11	81/08
TOT KJEL	N	MG/L		10	.834000	.237309	1.44000	.610000	80/11	81/08
PHOS-TOT		MG/L P		10	.115800	.036905	.159000	.061000	80/11	81/08
TOT HARD	CACO3	MG/L		11	648.454	167.046	815.000	321.000	80/10	81/08
SULFATE	SO4-TOT	MG/L		1	163.000		163.000	163.000	81/07	81/07
CADMIUM	CD,TOT	UG/L		1	8.00000		8.00000	8.00000	81/07	81/07
			K	3	5.00000	.000000	5.00000	5.00000	81/01	81/04
			T	4	5.75000	1.50000	8.00000	5.00000	81/01	81/07
CHROMIUM	CR,TOT	UG/L		2	35.0000	7.07107	40.0000	30.0000	81/04	81/07
			K	3	30.0000	.000000	30.0000	30.0000	80/11	81/02
			T	5	32.0000	4.47214	40.0000	30.0000	80/11	81/07
COPPER	CU,TOT	UG/L		2	75.0000	63.6396	120.000	30.0000	80/11	81/07
			K	9	30.0000	.000000	30.0000	30.0000	80/10	81/08
			T	11	38.1818	27.1360	120.000	30.0000	80/10	81/08
IRON	FE,TOT	UG/L		6	2968.33	2533.36	7900.00	1170.00	80/10	81/07
LEAD	PB,TOT	UG/L		3	10.0000	5.19615	16.0000	7.00000	81/01	81/07
			K	3	5.00000	.000000	5.00000	5.00000	80/10	81/04
			T	6	7.50000	4.27785	16.0000	5.00000	80/10	81/07
NICKEL	NI,TOTAL	UG/L	K	4	100.000	.000000	100.000	100.000	81/01	81/07
ZINC	ZN,TOT	UG/L		6	46.6667	19.6639	80.0000	30.0000	80/10	81/07
FEC COLI	MFM-FCBR	/100ML		9	611.666	917.579	3000.00	85.0000	80/10	81/08
FECSTREP	MF M-ENT	/100ML		7	752.286	1026.39	2900.00	19.0000	80/10	81/08

TABLE RD 1-3 (Continued)

STATION NUMBER 502780
41 53 36.0 080 47 34.0 2
FIELDS BROOK AT ASHTABULA - 15TH ST
LAKE ERIE (ASHTABULA RIVER)
MILES 0001.50 0000.30

PARAMETER			R	NO	MEAN	STAN DEV	MAXIMUM	MINIMUM	BEG	END
DICLBRMT		TOTUG/L		2	2.96500	3.14662	5.19000	.740000	80/10	80/11
			K	4	.500000	.000000	.500000	.500000	80/12	81/06
			T	6	1.32167	1.89752	5.19000	.500000	80/10	81/06
CARBNTET		TOTUG/L		6	2.63167	2.37054	6.80000	.540000	80/10	81/06
12DICLET		TOTUG/L		3	1.20000	.540280	1.73000	.650000	80/12	81/02
			K	3	.500000	.000000	.500000	.500000	80/10	81/06
			T	6	.850000	.513575	1.73000	.500000	80/10	81/06
BROMOFRM	WHL-WTR	UG/L		1	2.21000		2.21000	2.21000	80/11	80/11
BROMOFRM	WHL-WTR	UG/L	K	5	1.50000	.000000	1.50000	1.50000	80/10	81/06
			T	6	1.61833	.289857	2.21000	1.50000	80/10	81/06
CLDIBRMT		TOTUG/L		2	2.76000	2.98399	4.87000	.650000	80/10	80/11
			K	4	.500000	.000000	.500000	.500000	80/12	81/06
			T	6	1.25333	1.77281	4.87000	.500000	80/10	81/06
CHLRFORM		TOTUG/L		6	2.41833	2.95274	8.30000	.610000	80/10	81/06
PHENOLS	TOTAL	UG/L		11	12.0000	4.26615	18.0000	5.00000	80/10	81/08
METHYLEN	ECHLORID	TOTWUG/L	K	6	1.50000	.000000	1.50000	1.50000	80/10	81/06
TETRACHL	OROETHYL	TOTWUG/L		6	28.6266	14.3140	48.0800	16.3600	80/10	81/06
TRICHLOR	ETHYLENE	TOT UG/L		6	33.7833	6.14302	40.9800	25.3200	80/10	81/06
PCBS	WHL SMPL	UG/L		1	.000000		.000000	.000000	80/12	80/12
			K	5	.500000	.000000	.500000	.500000	81/01	81/07
			T	6	.416667	.204124	.500000	.000000	80/12	81/07
CHLORINE	TOT RESD	MG/L		1	.580000		.580000	.580000	80/11	80/11
			K	6	.021667	.007528	.030000	.010000	80/10	81/07
			T	7	.101428	.211142	.580000	.010000	80/10	81/07
RESIDUE	DISS-180	C MG/L		10	1558.00	455.245	2444.00	704.000	80/10	81/08
MERCURY	HG,TOTAL	UG/L		1	1.40000		1.40000	1.40000	80/11	80/11
			K	8	.500000	.000000	.500000	.500000	80/10	81/08
			T	9	.600000	.300000	1.40000	.500000	80/10	81/08
TETRACL	ETHANE	TOT UG/L		6	39.5133	8.53778	50.5300	30.9500	80/10	81/06
TRICLETH	WHL WAT	UG/L	K	3	.500000	.000000	.500000	.500000	81/01	81/06

TABLE RD 1-4

STATION NUMBER 502780
41 53 36.0 080 47 34.0 2
FIELDS BROOK AT ASHTABULA - 15TH ST
LAKE ERIE (ASHTABULA RIVER)
MILES 0001.50 0000.30

PARAMETER			R	NO	MEAN	STAN DEV	MAXIMUM	MINIMUM	BEG	END
WATER	TEMP	CENT		11	17.0000	7.26292	28.5000	7.00000	81/10	82/09
CNDUCTVY	FIELD	MICROMHO		9	2322.22	511.195	3000.00	1200.00	81/11	82/09
CNDUCTVY	AT 25C	MICROMHO		9	2601.00	419.311	3000.00	1800.00	81/12	82/09
DO	PROBE	MG/L		9	9.27777	1.67691	11.8000	6.80000	81/12	82/09
DO		MG/L		2	8.64999	.353834	8.90000	8.40000	81/10	81/11
BOD	5 DAY	MG/L		5	3.40000	1.91964	6.50000	1.80000	82/04	82/09
COD	LOWLEVEL	MG/L		10	35.3000	22.1763	95.0000	18.0000	81/11	82/09
			K	1	4.00000		4.00000	4.00000	81/10	81/10
			T	11	32.4545	23.0581	95.0000	4.00000	81/10	82/09
PH		SU		11	7.78181	.407000	8.40000	7.00000	81/10	82/09
T ALK	CACO3	MG/L		1	76.0000		76.0000	76.0000	81/11	81/11
RESIDUE	TOT NFLT	MG/L		11	16.6363	6.66745	28.0000	8.00000	81/10	82/09
NH3+NH4-	N TOTAL	MG/L		10	.149000	.125384	.490000	.050000	81/10	82/09
NO2-N	TOTAL	MG/L		5	.024000	.005477	.030000	.020000	81/10	82/09
			K	5	.026000	.013416	.050000	.020000	81/12	82/08
			T	10	.025000	.009718	.050000	.020000	81/10	82/09
NO3-N	TOTAL	MG/L		9	.387777	.096538	.580000	.250000	81/10	82/09
TOT KJEL	N	MG/L		10	.545000	.202004	.950000	.300000	81/10	82/09
PHOS-TOT		MG/L P		6	.559999	1.04238	2.67000	.050000	81/10	82/09
			K	4	.050000	.000050	.050000	.050000	82/01	82/06
			T	10	.356000	.820368	2.67000	.050000	81/10	82/09
CYANIDE	CN-TOT	MG/L	K	1	.010000		.010000	.010000	82/09	82/09
TOT HARD	CACO3	MG/L		10	702.180	363.509	1040.00	34.8000	81/10	82/09
CALCIUM	CA-TOT	MG/L		9	253.756	140.299	395.000	28.0000	81/12	82/09
MGNSIUM	MG,TOT	MG/L		9	11.6222	1.77541	14.6000	8.70000	81/12	82/09
CADMIUM	CD,TOT	UG/L		4	6.39999	10.4115	22.0000	.600000	82/01	82/06
			K	6	1.41667	1.77248	5.00000	.500000	81/10	82/09
			T	10	3.41000	6.67091	22.0000	.500000	81/10	82/09
CHROMIUM	CR,TOT	UG/L		1	30.0000		30.0000	30.0000	82/01	82/01
			K	9	30.0000	.000000	30.0000	30.0000	81/10	82/09
			T	10	30.0000	.000000	30.0000	30.0000	81/10	82/09
COPPER	CU,TOT	UG/L		9	22.0000	9.60469	45.0000	13.0000	81/12	82/09
			K	2	30.0000	.000000	30.0000	30.0000	81/10	81/11
			T	11	23.4545	9.18006	45.0000	13.0000	81/10	82/09
IRON	FE,TOT	UG/L		10	1061.00	396.189	1840.00	530.000	81/10	82/09
LEAD	PB,TOT	UG/L		1	20.0000		20.0000	20.0000	82/01	82/01
			K	9	3.33333	1.58114	5.00000	2.00000	81/10	82/09
			T	10	5.00000	5.47723	20.0000	2.00000	81/10	82/09

TABLE RD 1-4 (Continued)

STATION NUMBER 502780
41 53 36.0 080 47 34.0 2
FIELDS BROOK AT ASHTABULA - 15TH ST
LAKE ERIE (ASHTABULA RIVER)
MILES 0001.50 0000.30

PARAMETER			R	NO	MEAN	STAN DEV	MAXIMUM	MINIMUM	BEG	END
NICKEL	NI,TOTAL	UG/L	K	9	52.2222	27.2845	100.000	30.0000	81/10	82/09
ZINC	ZN,TOT	UG/L		9	16.6667	8.66028	35.0000	10.0000	81/12	82/09
			K	1	30.0000		30.0000	30.0000	81/10	81/10
ZINC	ZN,TOT	UG/L	T	10	18.0000	9.18937	35.0000	10.0000	81/10	82/09
FEC COLI	MFM-FCBR	/100ML		11	163.636	119.388	360.000	36.0000	81/10	82/09
FECSTREP	MF M-ENT	/100ML		11	599.545	1304.31	4500.00	12.0000	81/10	82/09
DICLBRMT		TOTUG/L	K	7	.500000	.000000	.500000	.500000	82/02	82/09
CARBNTET		TOTUG/L		4	1.50000	.658282	2.20000	.800000	82/02	82/06
			K	3	.500000	.000000	.500000	.500000	82/05	82/09
			T	7	1.07143	.708788	2.20000	.500000	82/02	82/09
12DICLET		TOTUG/L		1	.800000		.800000	.800000	82/02	82/02
			K	6	.500000	.000000	.500000	.500000	82/03	82/09
			T	7	.542857	.113391	.800000	.500000	82/02	82/09
BROMOFRM	WHL-WTR	UG/L		1	2.00000		2.00000	2.00000	82/06	82/06
			K	6	1.50000	.000000	1.50000	1.50000	82/02	82/09
			T	7	1.57143	.188986	2.00000	1.50000	82/02	82/09
CLDIBRMT		TOTUG/L	K	7	.500000	.000000	.500000	.500000	82/02	82/09
CHLRFORM		TOTUG/L		4	.950000	.443471	1.50000	.500000	82/02	82/06
			K	3	.500000	.000000	.500000	.500000	82/03	82/09
			T	7	.757143	.395209	1.50000	.500000	82/02	82/09
PHENOLS	TOTAL	UG/L		2	7.50000	.707107	8.00000	7.00000	81/10	81/11
			K	2	10.0000	.000000	10.0000	10.0000	82/08	82/09
			T	4	8.75000	1.50000	10.0000	7.00000	81/10	82/09
METHYLEN	ECHLORID	TOTWUG/L	K	7	1.50000	.000000	1.50000	1.50000	82/02	82/09
TETRACHL	OROETHYL	TOTWUG/L		7	23.4857	10.0305	33.2000	9.10000	82/02	82/09
TRICHLOR	ETHYLENE	TOT UG/L		7	30.5428	14.6409	48.7000	9.00000	82/02	82/09
PCBS	WHL SMPL	UG/L	K	10	.500000	.000000	.500000	.500000	81/10	82/09
HCB		TOT UG/L	K	1	.030000		.030000	.030000	82/09	82/09
CHLORINE	TOT RESD	MG/L		7	.028571	.048795	.100000	.000000	82/01	82/09
RESIDUE	DISS-180	C MG/L		11	2165.36	450.770	2810.00	1391.00	81/10	82/09
MERCURY	HG,TOTAL	UG/L	K	2	.500000	.000000	.500000	.500000	81/10	81/11
C-1,2DCE	TOTAL	UG/L		4	3.87500	1.68003	5.70000	2.00000	82/04	82/09
TETRACL	ETHANE	TOT UG/L		6	27.1000	12.4788	43.2000	10.9000	82/02	82/09
DICHLORO	ETHYLENE	TOT UG/L		3	9.86666	4.69187	15.0000	5.80000	82/02	82/06
TETRACLP	WHL WAT	UG/L		1	33.8000		33.8000	33.8000	82/03	82/03
TRICLETH	WHL WAT	UG/L		4	1.87500	.478715	2.40000	1.30000	82/04	82/08
			K	1	.500000		.500000	.500000	82/09	82/09
			T	5	1.60000	.741620	2.40000	.500000	82/04	82/09

TABLE RD 1-5

STATION NUMBER 501520
41 22 50.0 082 06 17.0 2
BLACK RIVER AT ELYRIA - CASCADE PARK
LAKE ERIE 060591 (BLACK RIVER)
MILES 0015.60

PARAMETER			R	NO	MEAN	STAN DEV	MAXIMUM	MINIMUM	BEG	END
WATER	TEMP	CENT		11	10.0455	8.45711	24.0000	.000000	80/10	81/09
STREAM	FLOW,	INST-CFS		7	719.870	1364.90	3784.00	45.8000	81/01	81/09
STREAM	STAGE	FEET		8	2.72750	2.89509	9.58000	.670000	81/01	81/09
CNDUCTVY	FIELD	MICROMHO		9	450.000	128.695	600.000	220.000	80/10	81/07
DO		MG/L		10	10.9900	2.44016	14.0000	7.60000	80/11	81/09
BOD	5 DAY	MG/L		1	10.0000		10.0000	10.0000	81/02	81/02
COD	LOWLEVEL	MG/L		12	28.3917	14.0572	63.7000	12.0000	80/10	81/09
PH		SU		2	7.95000	.070745	8.00000	7.90000	81/07	81/09
LAB	PH	SU		9	7.66666	.403196	8.10000	6.90000	80/10	81/08
RESIDUE	TOT NFLT	MG/L		8	96.1250	161.540	494.000	16.0000	80/12	81/09
			K	4	10.0000	.000000	10.0000	10.0000	80/10	81/03
			T	12	67.4167	135.662	494.000	10.0000	80/10	81/09
NH3+NH4-	N TOTAL	MG/L		12	.323333	.276252	1.09000	.080000	80/10	81/09
NO2-N	TOTAL	MG/L		12	.060000	.027634	.120000	.020000	80/10	81/09
NO3-N	TOTAL	MG/L		12	1.85166	1.36000	4.34000	.500000	80/10	81/09
TOT KJEL	N	MG/L		12	1.40417	.531761	2.85000	.810000	80/10	81/09
PHOS-TOT		MG/L P		12	.256166	.124036	.599000	.140000	80/10	81/09
TOT HARD	CACO3	MG/L		6	249.500	90.8091	380.000	139.000	80/11	81/09
CADMIUM	CD,TOT	UG/L	K	6	5.00000	.000000	5.00000	5.00000	80/11	81/09
CHROMIUM	CR,TOT	UG/L	K	5	30.0000	.000000	30.0000	30.0000	80/11	81/09
COPPER	CU,TOT	UG/L		2	130.000	141.421	230.000	30.0000	80/11	81/02
			K	4	30.0000	.000000	30.0000	30.0000	81/01	81/09
			T	6	63.3333	81.6497	230.000	30.0000	80/11	81/09
IRON	FE,TOT	UG/L		6	4360.00	7198.42	19000.0	650.000	80/11	81/09
LEAD	PB,TOT	UG/L		5	9.40000	8.26438	24.0000	5.00000	80/11	81/09
			K	1	5.00000		5.00000	5.00000	81/04	81/04
			T	6	8.66667	7.60702	24.0000	5.00000	80/11	81/09
NICKEL	NI,TOTAL	UG/L		1	200.000		200.000	200.000	80/11	80/11
			K	5	100.000	.000000	100.000	100.000	81/01	81/09
			T	6	116.667	40.8249	200.000	100.000	80/11	81/09
ZINC	ZN,TOT	UG/L		3	60.0000	26.4575	80.0000	30.0000	80/11	81/04
			K	3	30.0000	.000000	30.0000	30.0000	81/01	81/09
			T	6	45.0000	23.4521	80.0000	30.0000	80/11	81/09
FEC COLI	MFM-FCBR	/100ML		11	3036.36	2027.94	8200.00	1100.00	80/10	81/09
FECSTREP	MF M-ENT	/100ML		8	7896.25	14387.0	42000.0	300.000	80/10	81/07
PHENOLS	TOTAL	UG/L		6	8.00000	3.22490	12.0000	4.00000	80/11	81/09
MBAS		MG/L		1	.110000		.110000	.110000	81/09	81/09
RESIDUE	DISS-180	C MG/L		12	394.250	153.269	696.000	150.000	80/10	81/09
MERCURY	HG,TOTAL	UG/L	K	6	.500000	.000000	.500000	.500000	80/11	81/09

TABLE RD 1-6

STATION NUMBER 501520
41 22 50.0 082 06 17.0 2
BLACK RIVER AT ELYRIA - CASCADE PARK
LAKE ERIE 060591 (BLACK RIVER)
MILES 0015.60

PARAMETER			R	NO	MEAN	STAN DEV	MAXIMUM	MINIMUM	BEG	END
WATER	TEMP	CENT		11	10.6818	8.06620	22.5000	1.00000	81/10	82/09
STREAM	FLOW	CFS		8	1058.07	1557.32	3607.00	9.46000	82/01	82/09
STREAM	FLOW,	INST-CFS		2	29.7500	1.20241	30.6000	28.9000	81/10	81/11
STREAM	STAGE	FEET		9	2.36444	2.71140	8.78000	.550000	81/10	82/09
TURB	TRBIDMTR	HACH FTU		2	5.50000	1.41421	6.50000	4.50000	81/10	81/11
CNDUCTVY	FIELD	MICROMHO		10	508.500	200.334	750.000	140.000	81/10	82/09
CNDUCTVY	AT 25C	MICROMHO		7	586.428	197.546	817.000	270.000	81/10	82/08
DO	PROBE	MG/L		9	10.8578	3.19399	14.8000	5.50000	81/12	82/09
DO		MG/L		2	10.5500	1.48499	11.6000	9.50000	81/10	81/11
BOD	5 DAY	MG/L		2	6.00000	.848529	6.60000	5.40000	82/04	82/05
COD	LOWLEVEL	MG/L		11	36.2727	13.3574	70.0000	25.0000	81/10	82/09
PH		SU		8	8.13749	.254699	8.35000	7.70000	81/11	82/09
LAB	PH	SU		3	7.67000	.168286	7.80000	7.48000	81/10	82/01
T ALK	CACO3	MG/L		2	182.500	31.8198	205.000	160.000	81/10	81/11
RESIDUE	TOT NFLT	MG/L		8	132.250	269.374	792.000	7.00000	82/01	82/09
			K	2	10.0000	.000000	10.0000	10.0000	81/10	81/11
			T	10	107.800	243.093	792.000	7.00000	81/10	82/09
OIL-GRSE	FREON-GR	MG/L	K	1	5.00000		5.00000	5.00000	81/11	81/11
NH3+NH4-	N TOTAL	MG/L		10	.191000	.092310	.400000	.090000	81/10	82/09
			K	1	.050000		.050000	.050000	82/04	82/04
			T	11	.178181	.097347	.400000	.050000	81/10	82/09
NO2-N	TOTAL	MG/L		8	.056250	.026152	.100000	.030000	81/12	82/09
NO3-N	TOTAL	MG/L		11	1.21545	1.06864	3.07000	.110000	81/10	82/09
TOT KJEL	N	MG/L		11	1.37273	.675427	2.90000	.700000	81/10	82/09
PHOS-TOT		MG/L P		11	.297000	.177671	.800000	.150000	81/10	82/09
PHOS-DIS		MG/L P		3	.189333	.018475	.200000	.168000	81/10	81/12
T ORG C	C	MG/L		2	10.5000	.707107	11.0000	10.0000	81/10	81/11
D ORG C	C	MG/L		2	12.0000	.000000	12.0000	12.0000	81/10	81/11

TABLE RD 1-6 (Continued)

STATION NUMBER 501520
41 22 50.0 082 06 17.0 2
BLACK RIVER AT ELYRIA - CASCADE PARK
LAKE ERIE 060591 (BLACK RIVER)
MILES 0015.60

PARAMETER			R	NO	MEAN	STAN DEV	MAXIMUM	MINIMUM	BEG	END
TOT HARD	CACO3	MG/L		6	271.666	58.0377	334.000	166.000	81/10	82/09
CALCIUM	CA-TOT	MG/L		6	75.4250	19.7124	96.0000	40.5000	81/10	82/09
MGNSIUM	MG,TOT	MG/L		4	19.9000	3.06597	23.2000	15.8000	81/12	82/09
SODIUM	NA,TOT	MG/L		2	50.5000	2.12132	52.0000	49.0000	81/10	81/11
CHLORIDE	TOTAL	MG/L		2	59.0000	1.41421	60.0000	58.0000	81/10	81/11
SULFATE	SO4-TOT	MG/L		2	145.000	21.2132	160.000	130.000	81/10	81/11
SILICA	DISOLVED	MG/L		2	2.18000	1.00409	2.89000	1.47000	81/10	81/11
CADMIUM	CD,TOT	UG/L		1	1.30000		1.30000	1.30000	82/03	82/03
			K	5	2.36000	2.41309	5.00000	.500000	81/10	82/09
			T	6	2.18333	2.20129	5.00000	.500000	81/10	82/09
CHROMIUM	CR,TOT	UG/L	K	6	30.0000	.000000	30.0000	30.0000	81/10	82/09
COPPER	CU,TOT	UG/L		5	22.0000	10.3682	35.0000	10.0000	81/10	82/09
			K	1	30.0000		30.0000	30.0000	81/11	81/11
COPPER	CU,TOT	UG/L	T	6	23.3333	9.83194	35.0000	10.0000	81/10	82/09
IRON	FE,TOT	UG/L		4	9087.50	16312.1	33550.0	480.000	81/12	82/09
LEAD	PB,TOT	UG/L		3	8.33333	9.29158	19.0000	2.00000	82/03	82/09
			K	2	5.00000	.000000	5.00000	5.00000	81/11	81/12
			T	5	7.00000	6.81909	19.0000	2.00000	81/11	82/09
NICKEL	NI,TOTAL	UG/L	K	4	35.0000	5.77350	40.0000	30.0000	81/12	82/09
ZINC	ZN,TOT	UG/L		4	52.5000	50.0833	125.000	10.0000	81/12	82/09
			K	2	30.0000	.000000	30.0000	30.0000	81/10	81/11
			T	6	45.0000	40.4969	125.000	10.0000	81/10	82/09
FEC COLI	MFM-FCBR	/100ML		11	8018.18	14819.3	52000.0	900.000	81/10	82/09
FECSTREP	MF M-ENT	/100ML		11	11320.9	17867.9	48000.0	320.000	81/10	82/09
PHENOLS	TOTAL	UG/L		2	5.50000	2.12132	7.00000	4.00000	81/10	81/11
			K	1	10.0000		10.0000	10.0000	82/09	82/09
			T	3	7.00000	3.00000	10.0000	4.00000	81/10	82/09
RESIDUE	DISS-180 C	MG/L		9	419.222	116.772	568.000	189.000	81/10	82/09

TABLE RD 1-7

STATION NUMBER 501510
41 24 42.0 082 05 45.0 2
BLACK RIVER BELOW ELYRIA - FORD RD
LAKE ERIE 060591 (BLACK RIVER)
MILES 0010.40

PARAMETER			R	NO	MEAN	STAN DEV	MAXIMUM	MINIMUM	BEG	END
WATER	TEMP	CENT		12	11.4167	8.20707	23.0000	1.00000	80/10	81/09
TURB	TRBIDMTR	HACH FTU		12	40.0500	75.2610	275.000	4.40000	80/10	81/09
CNDUCTVY	FIELD	MICROMHO		8	554.375	211.954	850.000	230.000	80/10	81/07
CNDUCTVY	AT 25C	MICROMHO		8	622.000	400.660	1544.00	263.000	80/12	81/08
DO		MG/L		11	9.54545	2.84408	14.1000	5.70000	80/10	81/09
COD	LOWLEVEL	MG/L		12	35.1333	14.6954	69.7000	16.0000	80/10	81/09
PH		SU		2	7.75000	.070745	7.80000	7.70000	81/07	81/09
LAB	PH	SU		9	7.59999	.444489	8.10000	6.80000	80/10	81/08
T ALK	CACO3	MG/L		12	145.583	39.5026	203.000	62.0000	80/10	81/09
RESIDUE	TOT NFLT	MG/L		9	82.8889	147.049	473.000	14.0000	80/11	81/09
			K	3	10.0000	.000000	10.0000	10.0000	80/10	81/08
			T	12	64.6667	129.664	473.000	10.0000	80/10	81/09
NH3+NH4-	N TOTAL	MG/L		12	2.98166	2.31959	7.38000	.450000	80/10	81/09
NO2-N	TOTAL	MG/L		12	.107500	.056428	.230000	.040000	80/10	81/09
NO3-N	TOTAL	MG/L		12	1.81416	1.36988	4.25000	.350000	80/10	81/09
TOT KJEL	N	MG/L		12	4.48666	2.36193	8.74000	1.61000	80/10	81/09
PHOS-TOT		MG/L P		12	.738750	.461196	1.61000	.261000	80/10	81/09
PHOS-DIS		MG/L P		12	.542000	.443868	1.49000	.129000	80/10	81/09
T ORG C	C	MG/L		4	19.2500	4.57347	26.0000	16.0000	81/01	81/07
D ORG C	C	MG/L		4	11.7500	1.70782	14.0000	10.0000	81/01	81/07
TOT HARD	CACO3	MG/L		11	249.091	55.8865	365.000	145.000	80/10	81/09
CALCIUM	CA-TOT	MG/L		9	70.7778	18.7136	106.000	39.0000	80/11	81/08
SODIUM	NA,TOT	MG/L		9	62.4444	48.7625	165.000	20.0000	80/11	81/08
CHLORIDE	TOTAL	MG/L		11	80.6363	54.1079	223.000	35.0000	80/10	81/09
SULFATE	SO4-TOT	MG/L		12	133.667	39.9098	203.000	64.0000	80/10	81/09
SILICA	DISOLVED	MG/L		12	6.59166	1.63317	9.90000	4.35000	80/10	81/09
ARSENIC	AS,TOT	UG/L	K	3	10.0000	.000000	10.0000	10.0000	81/04	81/09
CADMIUM	CD,TOT	UG/L		1	6.00000		6.00000	6.00000	80/11	80/11
			K	10	5.00000	.000000	5.00000	5.00000	80/10	81/09
			T	11	5.09091	.301526	6.00000	5.00000	80/10	81/09
CHROMIUM	CR,TOT	UG/L		1	50.0000		50.0000	50.0000	81/01	81/01
			K	9	30.0000	.000000	30.0000	30.0000	80/11	81/09
			T	10	32.0000	6.32456	50.0000	30.0000	80/11	81/09

TABLE RD 1-7 (Continued)

STATION NUMBER 501510
41 24 42.0 082 05 45.0 2
BLACK RIVER BELOW ELYRIA - FORD RD
LAKE ERIE 060591 (BLACK RIVER)
MILES 0010.40

PARAMETER			R	NO	MEAN	STAN DEV	MAXIMUM	MINIMUM	BEG	END
COPPER	CU,TOT	UG/L		6	55.0000	46.7974	150.000	30.0000	80/10	81/09
			K	5	30.0000	.000000	30.0000	30.0000	81/03	81/07
			T	11	43.6363	35.5732	150.000	30.0000	80/10	81/09
IRON	FE,TOT	UG/L		7	4262.85	6982.82	20000.0	740.000	80/11	81/09
LEAD	PB,TOT	UG/L		5	14.6000	13.3154	38.0000	5.00000	80/11	81/09
			K	1	5.00000		5.00000	5.00000	81/04	81/04
			T	6	13.0000	12.5379	38.0000	5.00000	80/11	81/09
MANGNESE	MN	UG/L		2	115.000	7.07107	120.000	110.000	81/07	81/09
NICKEL	NI,TOTAL	UG/L		4	100.000	.000000	100.000	100.000	80/11	81/07
			K	2	100.000	.000000	100.000	100.000	81/04	81/09
			T	6	100.000	.000000	100.000	100.000	80/11	81/09
VANADIUM	V,TOT	UG/L	K	3	80.0000	103.923	200.000	20.0000	81/04	81/09
ZINC	ZN,TOT	UG/L		10	60.0000	29.0593	120.000	30.0000	80/10	81/09
			K	2	30.0000	.000000	30.0000	30.0000	81/03	81/05
			T	12	55.0000	28.7623	120.000	30.0000	80/10	81/09
ALUMINUM	AL,TOT	UG/L		3	800.000	346.410	1200.00	600.000	81/04	81/09
SELENIUM	SE,TOT	UG/L	K	3	68.3333	54.8483	100.000	5.00000	81/04	81/09
FEC COLI	MFM-FCBR	/100ML		9	3544.44	4239.73	14000.0	300.000	80/10	81/09
FECSTREP	MF M-ENT	/100ML		9	11066.7	17792.1	55000.0	200.000	80/10	81/07
PHENOLS	TOTAL	UG/L		12	8.41667	4.10008	17.0000	3.00000	80/10	81/09
DIETHYLP	HTHALATE	TOTWUG/L	K	8	100.000	.000000	100.000	100.000	80/11	81/08
DIMETHYL	PHTHALAT	TOTWUG/L	K	8	100.000	.000000	100.000	100.000	80/11	81/08
MBAS		MG/L		3	.163333	.051316	.220000	.120000	80/11	81/09
PCBS	WHL SMPL	UG/L	K	8	.500000	.000000	.500000	.500000	80/11	81/08
RESIDUE	DISS-180	C MG/L		12	472.666	164.480	862.000	240.000	80/10	81/09
MERCURY	HG,TOTAL	UG/L		1	1.20000		1.20000	1.20000	81/09	81/09
			K	5	.500000	.000000	.500000	.500000	80/11	81/07
			T	6	.616667	.285774	1.20000	.500000	80/11	81/09

TABLE RD 1-8

STATION NUMBER 501510
41 24 42.0 082 05 45.0 2
BLACK RIVER BELOW ELYRIA - FORD RD
LAKE ERIE 060591 (BLACK RIVER)
MILES 0010.40

PARAMETER			R	NO	MEAN	STAN DEV	MAXIMUM	MINIMUM	BEG	END
WATER	TEMP	CENT		11	10.6364	7.81374	23.0000	1.00000	81/10	82/09
STREAM	STAGE	FEET		9	32.0255	13.8723	52.2000	20.4800	81/11	82/08
TURB	TRBIDMTR	HACH FTU		2	4.65000	.494985	5.00000	4.30000	81/10	81/11
CNDUCTVY	FIELD	MICROMHO		10	628.500	308.519	1200.00	155.000	81/10	82/09
CNDUCTVY	AT 25C	MICROMHO		9	707.889	291.455	1110.00	300.000	81/10	82/09
DO	PROBE	MG/L		9	9.89999	4.10793	14.6000	3.20000	81/12	82/09
DO		MG/L		2	8.55000	.353726	8.80000	8.30000	81/10	81/11
BOD	5 DAY	MG/L		2	9.64999	4.73764	13.0000	6.30000	82/04	82/05
COD	LOWLEVEL	MG/L		11	41.0909	19.8165	88.0000	22.0000	81/10	82/09
PH		SU		8	7.88749	.235784	8.10000	7.50000	81/11	82/09
LAB	PH	SU		3	7.59666	.273967	7.84000	7.30000	81/10	82/01
T ALK	CACO3	MG/L		2	189.000	18.3848	202.000	176.000	81/10	81/11
RESIDUE	TOT NFLT	MG/L		9	116.778	221.327	691.000	7.00000	81/12	82/09
			K	2	10.0000	.000000	10.0000	10.0000	81/10	81/11
			T	11	97.3636	202.618	691.000	7.00000	81/10	82/09
NH3+NH4-	N TOTAL	MG/L		11	3.02818	2.84522	7.65000	.210000	81/10	82/09
NO2-N	TOTAL	MG/L		8	.087500	.065629	.190000	.020000	81/12	82/09
NO3-N	TOTAL	MG/L		11	1.44545	1.09389	3.03000	.050000	81/10	82/09
KJELDL N	DISS	MG/L		1	2.20000		2.20000	2.20000	81/12	81/12
TOT KJEL	N	MG/L		10	4.18800	3.43602	12.0000	1.45000	81/10	82/09
PHOS-TOT		MG/L P		11	1.02727	.961812	3.55000	.310000	81/10	82/09
PHOS-DIS		MG/L P		8	.496249	.551464	1.44000	.070000	81/10	82/06
T ORG C	C	MG/L		2	12.5000	.707107	13.0000	12.0000	81/10	81/11
D ORG C	C	MG/L		2	12.5000	2.12132	14.0000	11.0000	81/10	81/11
TOT HARD	CACO3	MG/L		9	226.902	70.1758	310.000	96.0000	81/10	82/09
CALCIUM	CA-TOT	MG/L		11	63.8635	20.5903	94.0000	25.4000	81/10	82/09
MGNSIUM	MG,TOT	MG/L		8	18.5125	5.43391	25.2000	8.00000	81/12	82/09

TABLE RD 1-8 (Continued)

STATION NUMBER 501510
41 24 42.0 082 05 45.0 2
BLACK RIVER BELOW ELYRIA - FORD RD
LAKE ERIE 060591 (BLACK RIVER)
MILES 0010.40

PARAMETER			R	NO	MEAN	STAN DEV	MAXIMUM	MINIMUM	BEG	END
SODIUM	NA,TOT	MG/L		3	107.100	16.7530	119.300	88.0000	81/10	82/09
CHLORIDE	TOTAL	MG/L		2	110.500	6.36396	115.000	106.000	81/10	81/11
SULFATE	SO4-TOT	MG/L		2	168.500	17.6777	181.000	156.000	81/10	81/11
SILICA	DISOLVED	MG/L		2	5.09000	1.56978	6.20000	3.98000	81/10	81/11
CADMIUM	CD,TOT	UG/L		10	2.29000	1.85500	6.00000	1.00000	81/10	82/09
			K	1	5.00000		5.00000	5.00000	81/11	81/11
			T	11	2.53636	1.94024	6.00000	1.00000	81/10	82/09
CHROMIUM	CR,TOT	UG/L	K	11	28.1818	6.03033	30.0000	10.0000	81/10	82/09
COPPER	CU,TOT	UG/L		11	28.6363	17.3337	70.0000	15.0000	81/10	82/09
IRON	FE,TOT	UG/L		8	4880.00	10638.8	31120.0	430.000	81/12	82/09
LEAD	PB,TOT	UG/L		8	7.35000	5.77754	20.0000	2.00000	82/01	82/09
			K	2	5.00000	.000000	5.00000	5.00000	81/11	81/12
			T	10	6.88000	5.19076	20.0000	2.00000	81/11	82/09
MANGNESE	MN	UG/L		2	265.000	240.416	435.000	95.0000	82/03	82/09
NICKEL	NI,TOTAL	UG/L		2	40.0000	14.1421	50.0000	30.0000	82/03	82/09
			K	4	40.0000	.000000	40.0000	40.0000	81/12	82/06
			T	6	40.0000	6.32456	50.0000	30.0000	81/12	82/09
ZINC	ZN,TOT	UG/L		11	42.2727	30.8516	115.000	20.0000	81/10	82/09
FEC COLI	MFM-FCBR	/100ML		11	7575.45	9245.73	30000.0	210.000	81/10	82/09
FECSTREP	MF M-ENT	/100ML		11	10043.7	15434.2	44000.0	91.0000	81/10	82/09
PHENOLS	TOTAL	UG/L		3	10.0000	7.81025	19.0000	5.00000	81/10	82/09
			K	1	10.0000		10.0000	10.0000	82/08	82/08
			T	4	10.0000	6.37704	19.0000	5.00000	81/10	82/09
DIETHYLP	HTHALATE	TOTWUG/L	K	2	100.000	.000000	100.000	100.000	82/03	82/05
DIMETHYL	PHTHALAT	TOTWUG/L	K	2	100.000	.000000	100.000	100.000	82/03	82/05
PCBS	WHL SMPL	UG/L	K	8	.500000	.000000	.500000	.500000	81/11	82/09
RESIDUE	DISS-180 C	MG/L		11	445.727	151.688	664.000	198.000	81/10	82/09

TABLE RD 1-9

STATION NUMBER 502400
41 37 51.0 081 24 13.0 2
CHAGRIN RIVER AT WILLOUGHBY - RIDGE RD (SR 84)
LAKE ERIE 060691 (CHAGRIN RIVER)
MILES 0005.00

PARAMETER			R	NO	MEAN	STAN DEV	MAXIMUM	MINIMUM	BEG	END
WATER	TEMP	CENT		12	10.0833	8.64143	24.0000	.000000	80/10	81/09
STREAM	FLOW,	INST-CFS		8	467.762	311.788	1016.00	123.700	80/12	81/07
STREAM	STAGE	FEET		12	2.97916	1.62540	7.68000	1.05000	80/10	81/09
TURB	TRBIDMTR	HACH FTU		12	15.2875	20.8078	69.0000	1.20000	80/10	81/09
CNDUCTVY	FIELD	MICROMHO		10	332.900	73.6191	460.000	210.000	80/10	81/09
CNDUCTVY	AT 25C	MICROMHO		7	499.286	178.874	894.000	364.000	81/02	81/09
DO		MG/L		11	10.5454	2.31490	14.4000	7.20000	80/10	81/09
COD	LOWLEVEL	MG/L		9	14.4333	9.59114	33.4000	4.00000	80/10	81/06
			K	2	6.00000	.000000	6.00000	6.00000	81/07	81/08
			T	11	12.9000	9.23201	33.4000	4.00000	80/10	81/08
PH		SU		2	8.20000	.283008	8.40000	8.00000	81/07	81/09
LAB	PH	SU		11	7.67272	.534982	8.20000	6.40000	80/10	81/08
T ALK	CACO3	MG/L		11	134.636	47.9381	260.000	71.0000	80/10	81/09
RESIDUE	TOT NFLT	MG/L		7	48.4286	44.7656	136.000	10.0000	81/01	81/09
			K	5	10.0000	.000000	10.0000	10.0000	80/10	81/08
			T	12	32.4167	38.5309	136.000	10.0000	80/10	81/09
NH3+NH4-	N TOTAL	MG/L		7	.117143	.095867	.330000	.050000	80/12	81/09
			K	5	.050000	.000061	.050000	.050000	80/10	81/08
			T	12	.089166	.078793	.330000	.050000	80/10	81/09
NO2-N	TOTAL	MG/L		7	.028571	.029681	.090000	.010000	81/01	81/08
			K	4	.010000	.000000	.010000	.010000	80/10	81/05
			T	11	.021818	.024827	.090000	.010000	80/10	81/08
NO3-N	TOTAL	MG/L		9	.592222	.441808	1.20000	.060000	80/11	81/09
			K	3	.050000	.000075	.050000	.050000	80/10	81/08
			T	12	.456666	.449552	1.20000	.050000	80/10	81/09
TOT KJEL	N	MG/L		12	.460833	.197137	.910000	.210000	80/10	81/09
PHOS-TOT		MG/L P		12	.096083	.058109	.224000	.026000	80/10	81/09
PHOS-DIS		MG/L P		12	.057250	.040915	.132000	.010000	80/10	81/09
T ORG C	C	MG/L		5	10.0000	2.12132	13.0000	7.00000	81/01	81/09
D ORG C	C	MG/L		6	8.16667	1.16906	10.0000	7.00000	81/01	81/09
TOT HARD	CACO3	MG/L		8	187.125	56.9547	304.000	121.000	80/11	81/09
CALCIUM	CA-TOT	MG/L		10	56.9000	16.2444	91.0000	35.0000	80/11	81/09
SODIUM	NA,TOT	MG/L		10	57.2000	77.3302	275.000	24.0000	80/11	81/09
CHLORIDE	TOTAL	MG/L		12	90.8333	119.158	447.000	35.0000	80/10	81/09

TABLE RD 1-9 (Continued)

STATION NUMBER 502400
41 37 51.0 081 24 13.0 2
CHAGRIN RIVER AT WILLOUGHBY - RIDGE RD (SR 84)
LAKE ERIE 060691 (CHAGRIN RIVER)
MILES 0005.00

PARAMETER			R	NO	MEAN	STAN DEV	MAXIMUM	MINIMUM	BEG	END
SULFATE	SO4-TOT	MG/L		12	58.7500	16.6576	99.0000	40.0000	80/10	81/09
SILICA	DISOLVED	MG/L		12	4.40916	2.11806	7.10000	.520000	80/10	81/09
ARSENIC	AS,TOT	UG/L	K	1	10.0000		10.0000	10.0000	81/04	81/04
CADMIUM	CD,TOT	UG/L	K	6	5.83333	2.04125	10.0000	5.00000	80/11	81/09
CHROMIUM	CR,TOT	UG/L		1	30.0000		30.0000	30.0000	81/01	81/01
			K	5	30.0000	.000000	30.0000	30.0000	80/11	81/09
			T	6	30.0000	.000000	30.0000	30.0000	80/11	81/09
COPPER	CU,TOT	UG/L		1	30.0000		30.0000	30.0000	81/07	81/07
			K	5	30.0000	.000000	30.0000	30.0000	80/11	81/09
			T	6	30.0000	.000000	30.0000	30.0000	80/11	81/09
IRON	FE,TOT	UG/L		6	2223.33	2515.86	6600.00	180.000	80/11	81/09
LEAD	PB,TOT	UG/L		1	7.00000		7.00000	7.00000	81/01	81/01
			K	5	5.00000	.000000	5.00000	5.00000	80/11	81/09
			T	6	5.33333	.816509	7.00000	5.00000	80/11	81/09
MANGNESE	MN	UG/L		1	70.0000		70.0000	70.0000	81/04	81/04
NICKEL	NI,TOTAL	UG/L	K	6	100.000	.000000	100.000	100.000	80/11	81/09
VANADIUM	V,TOT	UG/L	K	1	100.000		100.000	100.000	81/04	81/04
ZINC	ZN,TOT	UG/L		1	50.0000		50.0000	50.0000	81/01	81/01
			K	5	30.0000	.000000	30.0000	30.0000	80/11	81/09
			T	6	33.3333	8.16500	50.0000	30.0000	80/11	81/09
ALUMINUM	AL,TOT	UG/L		1	400.000		400.000	400.000	81/04	81/04
SELENIUM	SE,TOT	UG/L	K	1	25.0000		25.0000	25.0000	81/04	81/04
FEC COLI	MFM-FCBR	/100ML		10	1274.10	2626.20	8700.00	140.000	80/11	81/09
FECSTREP	MF M-ENT	/100ML		10	676.000	847.810	2200.00	20.0000	80/11	81/09
PHENOLS	TOTAL	UG/L		10	4.90000	1.85293	8.00000	2.00000	80/10	81/09
			K	2	2.00000	.000000	2.00000	2.00000	81/07	81/08
			T	12	4.41667	2.02073	8.00000	2.00000	80/10	81/09
MBAS		MG/L		1	.080000		.080000	.080000	80/10	80/10
PCBS	WHL SMPL	UG/L	K	10	.500000	.000000	.500000	.500000	80/12	81/09
RESIDUE	DISS-180	C MG/L		11	383.000	251.585	1096.00	230.000	80/10	81/09
MERCURY	HG,TOTAL	UG/L	K	6	.500000	.000000	.500000	.500000	80/11	81/09

TABLE RD 1-10

STATION NUMBER 502400
41 37 51.0 081 24 13.0 2
CHAGRIN RIVER AT WILLOUGHBY - RIDGE RD (SR 84)
LAKE ERIE 060691 (CHAGRIN RIVER)
MILES 0005.00

PARAMETER			R	NO	MEAN	STAN DEV	MAXIMUM	MINIMUM	BEG	END
WATER	TEMP	CENT		11	8.31818	7.81432	22.0000	.000000	81/10	82/09
STREAM	FLOW	CFS		6	2072.38	3006.62	6491.00	70.8000	81/12	82/08
STREAM	FLOW,	INST-CFS		3	3343.00	2835.54	5083.00	71.0000	81/10	82/09
STREAM	STAGE	FEET		9	4.90444	3.06976	8.98000	2.18000	81/10	82/09
TURB	TRBIDMTR	HACH FTU		2	2.90000	.707107	3.40000	2.40000	81/10	81/11
CNDUCTVY	FIELD	MICROMHO		11	359.545	95.7987	530.000	250.000	81/10	82/09
CNDUCTVY	AT 25C	MICROMHO		9	560.778	155.203	950.000	420.000	81/10	82/09
DO	PROBE	MG/L		9	10.5889	2.51171	13.3000	6.40000	81/12	82/09
DO		MG/L		2	12.3000	1.13149	13.1000	11.5000	81/10	81/11
BOD	5 DAY	MG/L		2	1.50000	.707107	2.00000	1.00000	82/03	82/05
			K	1	1.00000		1.00000	1.00000	82/04	82/04
			T	3	1.33333	.577352	2.00000	1.00000	82/03	82/05
COD	LOWLEVEL	MG/L		9	14.5556	5.50253	21.0000	7.00000	81/10	82/09
			K	2	4.00000	.000000	4.00000	4.00000	81/12	82/01
			T	11	12.6364	6.51572	21.0000	4.00000	81/10	82/09
PH		SU		11	8.38181	.312539	8.80000	7.90000	81/10	82/09
T ALK	CACO3	MG/L		2	143.000	9.89949	150.000	136.000	81/10	81/11
RESIDUE	TOT NFLT	MG/L		7	19.8571	14.4618	47.0000	6.00000	82/02	82/09
			K	4	7.50000	2.88675	10.0000	5.00000	81/10	82/01
			T	11	15.3636	12.9172	47.0000	5.00000	81/10	82/09
NH3+NH4-	N TOTAL	MG/L		4	.137500	.107199	.240000	.040000	81/12	82/06
			K	7	.050000	.000056	.050000	.050000	81/10	82/09
			T	11	.081818	.073460	.240000	.040000	81/10	82/09
NO2-N	TOTAL	MG/L		3	.033333	.015275	.050000	.020000	82/02	82/09
			K	5	.020000	.000020	.020000	.020000	81/12	82/08
			T	8	.025000	.010690	.050000	.020000	81/12	82/09
NO3-N	TOTAL	MG/L		8	.538750	.295366	.870000	.070000	81/10	82/09
			K	3	.050000	.000075	.050000	.050000	81/11	82/08
			T	11	.405454	.336433	.870000	.050000	81/10	82/09
TOT KJEL	N	MG/L		11	.405454	.118606	.600000	.200000	81/10	82/09
PHOS-TOT		MG/L P		7	.090143	.048071	.160000	.044000	81/10	82/09
			K	3	.050000	.000075	.050000	.050000	81/12	82/05
			T	10	.078100	.043778	.160000	.044000	81/10	82/09
PHOS-DIS		MG/L P		5	.053000	.019313	.070000	.029000	81/10	82/06
			K	1	.050000		.050000	.050000	81/12	81/12
			T	6	.052500	.017318	.070000	.029000	81/10	82/06

TABLE RD 1-10 (Continued)

STATION NUMBER 502400
41 37 51.0 081 24 13.0 2
CHAGRIN RIVER AT WILLOUGHBY - RIDGE RD (SR 84)
LAKE ERIE 060691 (CHAGRIN RIVER)
MILES 0005.00

PARAMETER			R	NO	MEAN	STAN DEV	MAXIMUM	MINIMUM	BEG	END
T ORG C	C	MG/L		2	11.5000	7.77817	17.0000	6.00000	81/10	81/11
D ORG C	C	MG/L		2	6.00000	.000000	6.00000	6.00000	81/10	81/11
TOT HARD	CACO3	MG/L		7	175.571	24.4261	216.000	145.000	81/12	82/09
CALCIUM	CA-TOT	MG/L		11	53.7908	7.90834	67.0000	41.5000	81/10	82/09
MGNSIUM	MG,TOT	MG/L		9	13.0556	2.16744	16.6000	10.0000	81/12	82/09
SODIUM	NA,TOT	MG/L		3	33.1667	8.80820	42.5000	25.0000	81/10	82/09
CHLORIDE	TOTAL	MG/L		2	42.0000	5.65685	46.0000	38.0000	81/10	81/11
SULFATE	SO4-TOT	MG/L		2	52.5000	2.12132	54.0000	51.0000	81/10	81/11
SILICA	DISOLVED	MG/L		2	2.58500	2.17082	4.12000	1.05000	81/10	81/11
CADMIUM	CD,TOT	UG/L	K	7	.500000	.000000	.500000	.500000	81/12	82/09
CHROMIUM	CR,TOT	UG/L	K	6	30.0000	.000000	30.0000	30.0000	81/12	82/09
COPPER	CU,TOT	UG/L		2	10.0000	.000000	10.0000	10.0000	82/02	82/03
			K	4	10.0000	.000000	10.0000	10.0000	81/12	82/09
			T	6	10.0000	.000000	10.0000	10.0000	81/12	82/09
IRON	FE,TOT	UG/L		7	970.000	603.876	2060.00	200.000	81/12	82/09
LEAD	PB,TOT	UG/L		2	2.50000	.707107	3.00000	2.00000	82/06	82/09
			K	9	4.00000	1.50000	5.00000	2.00000	81/10	82/08
			T	11	3.72727	1.48936	5.00000	2.00000	81/10	82/09
MANGNESE	MN	UG/L		1	65.0000		65.0000	65.0000	82/03	82/03
NICKEL	NI,TOTAL	UG/L	K	6	36.6667	5.16410	40.0000	30.0000	81/12	82/09
ZINC	ZN,TOT	UG/L		3	30.0000	18.0278	45.0000	10.0000	82/02	82/09
			K	3	10.0000	.000000	10.0000	10.0000	81/12	82/06
			T	6	20.0000	15.8114	45.0000	10.0000	81/12	82/09
FEC COLI	MFM-FCBR	/100ML		10	372.700	652.876	2200.00	20.0000	81/10	82/09
			K	1	23.0000		23.0000	23.0000	82/03	82/03
			T	11	340.909	628.283	2200.00	20.0000	81/10	82/09
FECSTREP	MF M-ENT	/100ML		11	796.454	1503.76	4300.00	15.0000	81/10	82/09
PHENOLS	TOTAL	UG/L		1	2.00000		2.00000	2.00000	81/10	81/10
			K	3	7.33333	4.61881	10.0000	2.00000	81/11	82/09
			T	4	6.00000	4.61880	10.0000	2.00000	81/10	82/09
PCBS	WHL SMPL	UG/L		1	.730000		.730000	.730000	82/08	82/08
			K	9	.500000	.000000	.500000	.500000	81/11	82/09
			T	10	.523000	.072733	.730000	.500000	81/11	82/09
RESIDUE	DISS-180	C MG/L		10	341.300	74.1245	515.000	259.000	81/10	82/09

TABLE RD 1-11

STATION NUMBER 502870
41 55 37.0 080 36 15.0 2
CONNEAUT CREEK AT CONNEAUT - KEEFUS RD
LAKE ERIE 060691 (CONNEAUT CREEK)
MILES 0006.40

PARAMETER			R	NO	MEAN	STAN DEV	MAXIMUM	MINIMUM	BEG	END
WATER	TEMP	CENT		12	8.98333	7.99168	22.0000	.000000	80/10	81/09
STREAM	FLOW,	INST-CFS		8	350.387	303.434	876.700	98.4000	80/11	81/09
STREAM	STAGE	FEET		11	2.49272	1.05084	4.10000	1.12000	80/10	81/09
TURB	TRBIDMTR	HACH FTU		12	27.4625	25.6413	78.0000	1.95000	80/10	81/09
CNDUCTVY	FIELD	MICROMHO		12	168.333	88.8649	400.000	70.0000	80/10	81/09
CNDUCTVY	AT 25C	MICROMHO		7	236.429	82.6718	312.000	138.000	81/01	81/09
DO		MG/L		12	11.4042	2.45473	15.8000	7.30000	80/10	81/09
COD	LOWLEVEL	MG/L		9	14.6556	6.16180	28.0000	8.00000	80/11	81/08
			K	1	4.00000		4.00000	4.00000	81/06	81/06
			T	10	13.5900	6.71590	28.0000	4.00000	80/11	81/08
PH		SU		2	8.20000	.283008	8.40000	8.00000	81/08	81/09
LAB	PH	SU		11	7.37272	.665008	7.90000	5.90000	80/10	81/09
T ALK	CACO3	MG/L		12	50.3333	21.3726	86.0000	21.0000	80/10	81/09
RESIDUE	TOT NFLT	MG/L		9	71.1111	41.6127	142.000	15.0000	80/10	81/08
			K	3	10.0000	.000000	10.0000	10.0000	80/12	81/09
			T	12	55.8333	44.9805	142.000	10.0000	80/10	81/09
NH3+NH4-	N TOTAL	MG/L		9	.115555	.112262	.390000	.050000	80/10	81/09
			K	3	.050000	.000075	.050000	.050000	80/12	81/04
			T	12	.099166	.100223	.390000	.050000	80/10	81/09
NO2-N	TOTAL	MG/L		5	.026000	.011402	.040000	.010000	80/11	81/08
			K	4	.010000	.000000	.010000	.010000	80/12	81/05
			T	9	.018889	.011667	.040000	.010000	80/11	81/08
NO3-N	TOTAL	MG/L		10	.438000	.209592	.830000	.210000	80/10	81/08
			K	2	.050000	.000061	.050000	.050000	81/05	81/09
			T	12	.373333	.242387	.830000	.050000	80/10	81/09
TOT KJEL	N	MG/L		12	.593333	.174686	.810000	.350000	80/10	81/09
PHOS-TOT		MG/L P		12	.076167	.040734	.148000	.018000	80/10	81/09
PHOS-DIS		MG/L P		11	.026091	.010895	.048000	.009000	80/11	81/09
T ORG C	C	MG/L		5	10.2000	1.64319	13.0000	9.00000	80/10	81/09
D ORG C	C	MG/L		6	8.00000	1.09544	10.0000	7.00000	81/01	81/09
TOT HARD	CACO3	MG/L		8	99.6250	34.6573	160.000	57.0000	80/10	81/09
CALCIUM	CA-TOT	MG/L		9	27.6667	10.2348	48.0000	11.0000	80/11	81/09

TABLE RD 1-11 (Continued)

STATION NUMBER 502870
41 55 37.0 080 36 15.0 2
CONNEAUT CREEK AT CONNEAUT - KEEFUS RD
LAKE ERIE 060691 (CONNEAUT CREEK)
MILES 0006.40

PARAMETER			R	NO	MEAN	STAN DEV	MAXIMUM	MINIMUM	BEG	END
SODIUM	NA,TOT	MG/L		9	10.3333	5.26783	23.0000	6.00000	80/11	81/09
CHLORIDE	TOTAL	MG/L		12	20.5833	8.86731	40.0000	12.0000	80/10	81/09
SULFATE	SO4-TOT	MG/L		12	32.6667	15.2276	71.0000	17.0000	80/10	81/09
SILICA	DISOLVED	MG/L		11	3.62363	1.45685	5.41000	.640000	80/11	81/09
ARSENIC	AS,TOT	UG/L	K	1	10.0000		10.0000	10.0000	81/07	81/07
CADMIUM	CD,TOT	UG/L	K	7	5.00000	.000000	5.00000	5.00000	80/10	81/09
CHROMIUM	CR,TOT	UG/L	K	7	30.0000	.000000	30.0000	30.0000	80/10	81/09
COPPER	CU,TOT	UG/L	K	7	30.0000	.000000	30.0000	30.0000	80/10	81/09
IRON	FE,TOT	UG/L		7	3335.71	2197.57	6900.00	550.000	80/10	81/09
LEAD	PB,TOT	UG/L		4	6.25000	1.89297	9.00000	5.00000	80/10	81/07
			K	3	5.00000	.000000	5.00000	5.00000	81/01	81/09
			T	7	5.71428	1.49603	9.00000	5.00000	80/10	81/09
MANGNESE	MN	UG/L		1	180.000		180.000	180.000	81/07	81/07
NICKEL	NI,TOTAL	UG/L	K	7	100.000	.000000	100.000	100.000	80/10	81/09
VANADIUM	V,TOT	UG/L	K	1	200.000		200.000	200.000	81/07	81/07
ZINC	ZN,TOT	UG/L		2	30.0000	.000000	30.0000	30.0000	81/01	81/02
			K	4	30.0000	.000000	30.0000	30.0000	80/10	81/07
			T	6	30.0000	.000000	30.0000	30.0000	80/10	81/07
ALUMINUM	AL,TOT	UG/L		1	1800.00		1800.00	1800.00	81/07	81/07
SELENIUM	SE,TOT	UG/L	K	1	10.0000		10.0000	10.0000	81/07	81/07
FEC COLI	MFM-FCBR	/100ML		9	771.111	983.702	3100.00	37.0000	80/12	81/09
FECSTREP	MF M-ENT	/100ML		7	1814.86	3002.45	7800.00	23.0000	80/12	81/09
PHENOLS	TOTAL	UG/L		11	5.81818	2.63888	11.0000	2.00000	80/10	81/08
			K	1	2.00000		2.00000	2.00000	81/09	81/09
			T	12	5.50000	2.74690	11.0000	2.00000	80/10	81/09
PCBS	WHL SMPL	UG/L		1	.000000		.000000	.000000	80/12	80/12
			K	8	.500000	.000000	.500000	.500000	80/11	81/09
			T	9	.444444	.166667	.500000	.000000	80/11	81/09
RESIDUE	DISS-180	C MG/L		12	146.167	47.0394	250.000	78.0000	80/10	81/09
PHOS-T	ORTHO	MG/L P		1	.022000		.022000	.022000	81/04	81/04
MERCURY	HG,TOTAL	UG/L	K	6	.500000	.000000	.500000	.500000	80/10	81/09

TABLE RD 1-12

STATION NUMBER 502870
41 55 37.0 080 36 15.0 2
CONNEAUT CREEK AT CONNEAUT - KEEFUS RD
LAKE ERIE 060691 (CONNEAUT CREEK)
MILES 0006.40

PARAMETER			R	NO	MEAN	STAN DEV	MAXIMUM	MINIMUM	BEG	END
WATER	TEMP	CENT		10	9.85000	8.08651	23.0000	.500000	81/10	82/09
STREAM	FLOW	CFS		5	86.7399	86.5225	211.000	15.4000	81/12	82/09
STREAM	FLOW,	INST-CFS		1	84.3000		84.3000	84.3000	81/11	81/11
STREAM	STAGE	FEET		8	1.87125	.982915	3.46000	.830000	81/10	82/09
TURB	TRBIDMTR	HACH FTU		2	7.30000	7.35391	12.5000	2.10000	81/10	81/11
CNDUCTVY	FIELD	MICROMHO		8	205.000	101.136	350.000	90.0000	81/11	82/09
CNDUCTVY	AT 25C	MICROMHO		8	254.625	92.0045	420.000	150.000	81/10	82/09
DO	PROBE	MG/L		8	11.0000	2.43546	15.0000	7.90000	81/12	82/09
DO		MG/L		2	11.3500	1.48495	12.4000	10.3000	81/10	81/11
BOD	5 DAY	MG/L		1	1.80000		1.80000	1.80000	82/05	82/05
			K	1	1.00000		1.00000	1.00000	82/04	82/04
			T	2	1.40000	.565685	1.80000	1.00000	82/04	82/05
COD	LOWLEVEL	MG/L		9	14.5556	4.21638	24.0000	10.0000	81/11	82/09
			K	1	4.00000		4.00000	4.00000	81/10	81/10
			T	10	13.5000	5.19080	24.0000	4.00000	81/10	82/09
PH		SU		10	8.31999	.319157	8.70000	7.60000	81/10	82/09
T ALK	CACO3	MG/L		2	64.5000	20.5061	79.0000	50.0000	81/10	81/11
RESIDUE	TOT NFLT	MG/L		6	8.33333	4.45721	15.0000	5.00000	82/02	82/09
			K	3	8.33333	2.88676	10.0000	5.00000	81/10	81/12
			T	9	8.33333	3.80789	15.0000	5.00000	81/10	82/09
NH3+NH4-	N TOTAL	MG/L		1	.050000		.050000	.050000	82/06	82/06
			K	9	.050000	.000057	.050000	.050000	81/10	82/09
			T	10	.050000	.000054	.050000	.050000	81/10	82/09
NO2-N	TOTAL	MG/L	K	8	.020000	.000017	.020000	.020000	81/12	82/09
NO3-N	TOTAL	MG/L		9	.277777	.175270	.510000	.070000	81/10	82/09
			K	1	.050000		.050000	.050000	82/05	82/05
			T	10	.254999	.180263	.510000	.050000	81/10	82/09
KJELDL N	DISS	MG/L		1	.200000		.200000	.200000	81/12	81/12
TOT KJEL	N	MG/L		9	.327777	.143856	.600000	.200000	81/10	82/09
			K	1	.060000		.060000	.060000	81/11	81/11
			T	10	.301000	.159892	.600000	.060000	81/10	82/09
PHOS-TOT		MG/L P		3	.063000	.032512	.100000	.039000	81/10	82/09
			K	7	.045714	.011339	.050000	.020000	81/11	82/08
			T	10	.050900	.019757	.100000	.020000	81/10	82/09

TABLE RD 1-12 (Continued)

STATION NUMBER 502870
41 55 37.0 080 36 15.0 2
CONNEAUT CREEK AT CONNEAUT - KEEFUS RD
LAKE ERIE 060691 (CONNEAUT CREEK)
MILES 0006.40

PARAMETER			R	NO	MEAN	STAN DEV	MAXIMUM	MINIMUM	BEG	END
PHOS-DIS		MG/L P		1	.037000		.037000	.037000	81/11	81/11
			K	5	.044000	.013416	.050000	.020000	81/10	82/05
			T	6	.042833	.012336	.050000	.020000	81/10	82/05
T ORG C	C	MG/L		2	6.50000	.707107	7.00000	6.00000	81/10	81/11
D ORG C	C	MG/L		2	7.00000	.000000	7.00000	7.00000	81/10	81/11
TOT HARD	CACO3	MG/L		6	113.000	37.2827	157.000	63.0000	81/12	82/09
CALCIUM	CA-TOT	MG/L		10	30.3200	10.3987	45.5000	17.6000	81/10	82/09
MGNSIUM	MG,TOT	MG/L		7	6.95713	2.35292	10.6000	4.60000	81/12	82/09
SODIUM	NA,TOT	MG/L		3	12.7000	3.84318	17.1000	10.0000	81/10	82/09
CHLORIDE	TOTAL	MG/L		2	20.0000	.000000	20.0000	20.0000	81/10	81/11
SULFATE	SO4-TOT	MG/L		2	30.0000	5.65685	34.0000	26.0000	81/10	81/11
SILICA	DISOLVED	MG/L		2	3.17500	2.99106	5.29000	1.06000	81/10	81/11
CADMIUM	CD,TOT	UG/L	K	7	.500000	.000000	.500000	.500000	81/12	82/09
CHROMIUM	CR,TOT	UG/L	K	7	30.0000	.000000	30.0000	30.0000	81/12	82/09
COPPER	CU,TOT	UG/L		1	10.0000		10.0000	10.0000	82/09	82/09
			K	5	10.0000	.000000	10.0000	10.0000	81/12	82/06
			T	6	10.0000	.000000	10.0000	10.0000	81/12	82/09
IRON	FE,TOT	UG/L		7	622.857	349.559	1320.00	330.000	81/12	82/09
LEAD	PB,TOT	UG/L		2	10.0000	11.3137	18.0000	2.00000	82/03	82/09
			K	8	3.50000	1.60357	5.00000	2.00000	81/10	82/08
			T	10	4.80000	4.87169	18.0000	2.00000	81/10	82/09
MANGNESE	MN	UG/L		1	20.0000		20.0000	20.0000	82/03	82/03
NICKEL	NI,TOTAL	UG/L	K	6	48.3333	25.6256	100.000	30.0000	81/12	82/09
ZINC	ZN,TOT	UG/L		1	25.0000		25.0000	25.0000	82/04	82/04
			K	5	10.0000	.000000	10.0000	10.0000	81/12	82/09
			T	6	12.5000	6.12372	25.0000	10.0000	81/12	82/09
FEC COLI	MFM-FCBR	/100ML		10	87.1000	63.5706	210.000	10.0000	81/10	82/09
FECSTREP	MF M-ENT	/100ML		10	447.000	628.265	2100.00	25.0000	81/10	82/09
PHENOLS	TOTAL	UG/L		1	6.00000		6.00000	6.00000	81/10	81/10
			K	3	7.33333	4.61881	10.0000	2.00000	81/11	82/09
			T	4	7.00000	3.82971	10.0000	2.00000	81/10	82/09
PCBS	WHL SMPL	UG/L	K	9	.500000	.000000	.500000	.500000	81/11	82/09
RESIDUE	DISS-180 C	MG/L		8	184.875	64.2482	286.000	112.000	81/10	82/09

TABLE RD 1-13

STATION NUMBER 502020
41 23 43.0 081 37 48.0 2
CUYAHOGA RIVER AT INDEPENDENCE - OLD ROCKSIDE RD
LAKE ERIE 060391 (CUYAHOGA RIVER)
MILES 0013.50

PARAMETER			R	NO	MEAN	STAN DEV	MAXIMUM	MINIMUM	BEG	END
WATER	TEMP	CENT		9	12.8222	9.36533	24.4000	.500000	80/12	81/08
STREAM	FLOW,	INST-CFS		8	1347.84	1032.06	2896.00	406.600	80/12	81/08
STREAM	STAGE	FEET		9	4.62777	1.84615	7.48000	2.72000	80/12	81/08
TURB	TRBIDMTR	HACH FTU		9	68.7500	130.842	405.000	1.60000	80/10	81/08
CNDUCTVY	FIELD	MICROMHO		6	664.333	133.053	880.000	484.000	80/12	81/08
DO		MG/L		9	8.59999	2.67582	12.3000	5.70000	80/12	81/08
COD	LOWLEVEL	MG/L		10	40.7700	27.7220	91.0000	20.0000	80/10	81/08
PH		SU		3	7.43333	.153168	7.60000	7.30000	81/06	81/08
LAB	PH	SU		8	7.51249	.352318	7.90000	6.80000	80/12	81/08
T ALK	CACO3	MG/L		10	126.300	27.7572	178.000	88.0000	80/10	81/08
RESIDUE	TOT NFLT	MG/L		9	170.333	257.901	790.000	13.0000	80/12	81/08
NH3+NH4-	N TOTAL	MG/L		10	1.11400	1.14096	3.94000	.050000	80/10	81/08
NO2-N	TOTAL	MG/L		9	.202222	.232313	.750000	.010000	80/10	81/08
NO3-N	TOTAL	MG/L		10	1.60500	.779423	2.90000	.760000	80/10	81/08
TOT KJEL	N	MG/L		10	2.75299	1.55658	5.91000	1.09000	80/10	81/08
PHOS-TOT		MG/L P		10	.601299	.339114	1.36000	.262000	80/10	81/08
PHOS-DIS		MG/L P		9	.254666	.176716	.535000	.070000	80/10	81/08
T ORG C	C	MG/L		7	20.0000	5.59762	30.0000	13.0000	80/10	81/07
D ORG C	C	MG/L		4	12.7500	4.42531	17.0000	8.00000	80/10	81/08
CYANIDE	CN-TOT	MG/L	K	10	.010000	.000007	.010000	.010000	80/10	81/08
TOT HARD	CACO3	MG/L		10	213.000	38.4881	272.000	165.000	80/10	81/08
CALCIUM	CA-TOT	MG/L		6	63.3333	12.3398	81.0000	47.0000	80/12	81/07
SODIUM	NA,TOT	MG/L		6	83.0000	28.7889	114.000	54.0000	80/12	81/07
CHLORIDE	TOTAL	MG/L		10	129.700	47.6051	212.000	69.0000	80/10	81/08
SULFATE	SO4-TOT	MG/L		9	86.4444	15.4929	116.000	66.0000	80/10	81/08
FLUORIDE	F,TOTAL	MG/L		9	.358888	.107755	.540000	.210000	80/10	81/08
SILICA	DISOLVED	MG/L		8	7.22999	1.35565	8.96000	4.50000	80/10	81/08
ARSENIC	AS,TOT	UG/L	K	3	10.0000	.000000	10.0000	10.0000	80/10	81/06
CADMIUM	CD,TOT	UG/L		2	9.50000	3.53553	12.0000	7.00000	81/04	81/07
			K	8	5.00000	.000000	5.00000	5.00000	80/10	81/08
			T	10	5.90000	2.23359	12.0000	5.00000	80/10	81/08

TABLE RD 1-13 (Continued)

STATION NUMBER 502020
41 23 43.0 081 37 48.0 2
CUYAHOGA RIVER AT INDEPENDENCE - OLD ROCKSIDE RD
LAKE ERIE 060391 (CUYAHOGA RIVER)
MILES 0013.50

PARAMETER			R	NO	MEAN	STAN DEV	MAXIMUM	MINIMUM	BEG	END
CHROMIUM	HEX-VAL	UG/L	K	1	30.0000		30.0000	30.0000	81/01	81/01
CHROMIUM	CR,TOT	UG/L		1	50.0000		50.0000	50.0000	81/07	81/07
			K	8	30.0000	.000000	30.0000	30.0000	80/10	81/08
			T	9	32.2222	6.66677	50.0000	30.0000	80/10	81/08
COPPER	CU,TOT	UG/L		4	105.000	85.8293	210.000	30.0000	81/02	81/07
			K	6	30.0000	.000000	30.0000	30.0000	80/10	81/08
			T	10	60.0000	62.8932	210.000	30.0000	80/10	81/08
IRON	FE,TOT	UG/L		10	6877.00	10501.0	33500.0	390.000	80/10	81/08
LEAD	PB,TOT	UG/L		6	74.1667	84.5965	225.000	6.00000	81/01	81/07
			K	4	5.00000	.000000	5.00000	5.00000	80/10	81/08
LEAD	PB,TOT	UG/L	T	10	46.5000	72.4680	225.000	5.00000	80/10	81/08
MANGNESE	MN	UG/L		3	178.333	52.9941	235.000	130.000	80/10	81/06
NICKEL	NI,TOTAL	UG/L		1	100.000		100.000	100.000	80/12	80/12
			K	9	100.000	.000000	100.000	100.000	80/10	81/08
			T	10	100.000	.000000	100.000	100.000	80/10	81/08
VANADIUM	V,TOT	UG/L	K	2	15.0000	7.07107	20.0000	10.0000	81/01	81/06
ZINC	ZN,TOT	UG/L		9	172.778	228.324	640.000	30.0000	80/10	81/07
			K	1	30.0000		30.0000	30.0000	81/08	81/08
			T	10	158.500	219.950	640.000	30.0000	80/10	81/08
ALUMINUM	AL,TOT	UG/L		2	250.000	70.7107	300.000	200.000	81/01	81/06
			K	1	200.000		200.000	200.000	80/10	80/10
			T	3	233.333	57.7354	300.000	200.000	80/10	81/06
SELENIUM	SE,TOT	UG/L	K	3	6.66667	2.88676	10.0000	5.00000	80/10	81/06
FEC COLI	MFM-FCBR	/100ML		9	22700.0	22567.2	66000.0	4200.00	80/12	81/08
FECSTREP	MF M-ENT	/100ML		7	9135.71	10370.5	26000.0	850.000	80/12	81/06
PHENOLS	TOTAL	UG/L		10	11.4000	4.24788	18.0000	7.00000	80/10	81/08
DIETHYLP	HTHALATE	TOTWUG/L	K	6	100.000	.000000	100.000	100.000	81/01	81/08
DIMETHYL	PHTHALAT	TOTWUG/L	K	6	100.000	.000000	100.000	100.000	81/01	81/08
MBAS		MG/L		9	.170000	.069822	.300000	.110000	80/10	81/08
PCBS	WHL SMPL	UG/L	K	6	.500000	.000000	.500000	.500000	81/01	81/08
RESIDUE	DISS-180	C MG/L		8	435.625	115.536	608.000	300.000	80/12	81/07
MERCURY	HG,TOTAL	UG/L		1	4.00000		4.00000	4.00000	81/06	81/06
			K	8	.500000	.000000	.500000	.500000	80/10	81/07
			T	9	.888889	1.16667	4.00000	.500000	80/10	81/07
DEHP	ISOMER	TOT UG/L	K	1	100.000		100.000	100.000	81/02	81/02
DIBUTYL	NONANDOA	TOT UG/L	K	2	100.000	.000000	100.000	100.000	81/01	81/02

TABLE RD 1-14

STATION NUMBER 502020
41 23 43.0 081 37 48.0 2
CUYAHOGA RIVER AT INDEPENDENCE - OLD ROCKSIDE RD
LAKE ERIE 060391 (CUYAHOGA RIVER)
MILES 0013.50

PARAMETER			R	NO	MEAN	STAN DEV	MAXIMUM	MINIMUM	BEG	END
WATER	TEMP	CENT		11	10.5909	7.60861	22.5000	.500000	81/10	82/09
STREAM	FLOW	CFS		5	913.159	419.099	1478.00	431.000	81/12	82/05
STREAM	FLOW,	INST-CFS		3	447.166	122.915	555.900	313.800	81/10	82/08
STREAM	STAGE	FEET		10	3.93299	1.14010	5.90000	2.57000	81/10	82/09
TURB	TRBIDMTR	HACH FTU		1	5.50000		5.50000	5.50000	81/10	81/10
CNDUCTVY	FIELD	MICROMHO		1	500.000		500.000	500.000	82/09	82/09
CNDUCTVY	AT 25C	MICROMHO		5	664.000	112.605	860.000	600.000	82/02	82/09
DO	PROBE	MG/L		9	10.1222	2.44274	13.4000	6.50000	81/12	82/09
DO		MG/L		2	9.20000	.283035	9.40000	9.00000	81/10	81/11
COD	LOWLEVEL	MG/L		14	32.3571	29.6819	114.000	10.0000	81/10	82/09
PH		SU		10	7.84000	.195573	8.20000	7.60000	81/10	82/09
LAB	PH	SU		2	7.80000	.282873	8.00000	7.60000	81/11	82/05
T ALK	CACO3	MG/L		2	135.000	5.65685	139.000	131.000	81/10	81/11
RESIDUE	TOTAL	MG/L		1	372.000		372.000	372.000	81/12	81/12
RESIDUE	TOT NFLT	MG/L		9	73.2222	128.924	410.000	8.00000	81/12	82/09
			K	2	10.0000	.000000	10.0000	10.0000	81/10	81/11
			T	11	61.7273	118.115	410.000	8.00000	81/10	82/09
NH3+NH4-	N TOTAL	MG/L		11	.845454	.767611	2.56000	.140000	81/10	82/09
NO2-N	TOTAL	MG/L		10	.132000	.078853	.310000	.050000	81/10	82/09
NO3-N	TOTAL	MG/L		10	1.65600	.763403	3.11000	.760000	81/10	82/09
TOT KJEL	N	MG/L		11	1.63727	.808024	3.00000	.700000	81/10	82/09
PHOS-TOT		MG/L P		11	.364181	.311687	1.25000	.140000	81/10	82/09
PHOS-DIS		MG/L P		6	.139833	.067173	.234000	.050000	81/10	82/03
T ORG C	C	MG/L		2	9.50000	2.12132	11.0000	8.00000	81/10	81/11
CYANIDE	CN-TOT	MG/L	K	2	.010000	.000000	.010000	.010000	81/10	81/11
TOT HARD	CACO3	MG/L		11	200.064	50.3294	266.000	80.7000	81/10	82/09
CALCIUM	CA-TOT	MG/L		8	58.9124	9.86906	75.0000	47.1000	81/12	82/09
			K	1	.100000		.100000	.100000	82/08	82/08
			T	9	52.3777	21.6691	75.0000	.100000	81/12	82/09

TABLE RD 1-14 (Continued)

STATION NUMBER 502020
41 23 43.0 081 37 48.0 2
CUYAHOGA RIVER AT INDEPENDENCE - OLD ROCKSIDE RD
LAKE ERIE 060391 (CUYAHOGA RIVER)
MILES 0013.50

PARAMETER			R	NO	MEAN	STAN DEV	MAXIMUM	MINIMUM	BEG	END
MGNSIUM	MG,TOT	MG/L		9	15.6444	3.02287	19.6000	11.6000	81/12	82/09
CHLORIDE	TOTAL	MG/L		2	93.0000	21.2132	108.000	78.0000	81/10	81/11
SULFATE	SO4-TOT	MG/L		2	82.0000	8.48528	88.0000	76.0000	81/10	81/11
FLUORIDE	F,TOTAL	MG/L		1	.420000		.420000	.420000	81/10	81/10
SILICA	DISOLVED	MG/L		2	7.22500	.105974	7.30000	7.15000	81/10	81/11
ARSENIC	AS,TOT	UG/L	K	1	10.0000		10.0000	10.0000	81/11	81/11
CADMIUM	CD,TOT	UG/L		1	2.60000		2.60000	2.60000	82/09	82/09
			K	8	1.62500	2.08309	5.00000	.500000	81/10	82/08
			T	9	1.73333	1.97548	5.00000	.500000	81/10	82/09
CHROMIUM	CR,TOT	UG/L	K	9	30.0000	.000000	30.0000	30.0000	81/10	82/09
COPPER	CU,TOT	UG/L		4	22.5000	21.7945	55.0000	10.0000	82/02	82/09
			K	7	15.7143	9.75900	30.0000	10.0000	81/10	82/08
COPPER	CU,TOT	UG/L	T	11	18.1818	14.5384	55.0000	10.0000	81/10	82/09
IRON	FE,TOT	UG/L		11	2644.55	4558.44	16200.0	390.000	81/10	82/09
LEAD	PB,TOT	UG/L		7	11.4286	18.3563	53.0000	3.00000	81/12	82/09
			K	4	4.25000	1.50000	5.00000	2.00000	81/10	82/05
			T	11	8.81818	14.6957	53.0000	2.00000	81/10	82/09
MANGNESE	MN	UG/L		7	188.571	163.215	555.000	100.000	82/02	82/09
NICKEL	NI,TOTAL	UG/L	K	9	58.8889	31.0018	100.000	30.0000	81/10	82/09
ZINC	ZN,TOT	UG/L		10	40.0000	46.6667	170.000	15.0000	81/10	82/09
			K	1	30.0000		30.0000	30.0000	81/11	81/11
			T	11	39.0909	44.3745	170.000	15.0000	81/10	82/09
ALUMINUM	AL,TOT	UG/L		1	200.000		200.000	200.000	81/11	81/11
FEC COLI	MFM-FCBR	/100ML		11	8639.09	10385.6	32000.0	460.000	81/10	82/09
FECSTREP	MF M-ENT	/100ML		10	4906.80	6870.03	23000.0	18.0000	81/10	82/09
PHENOLS	TOTAL	UG/L		3	6.66667	3.05506	10.0000	4.00000	81/10	82/09
MBAS		MG/L		2	.185000	.063640	.230000	.140000	81/10	81/11
RESIDUE	DISS-180	C MG/L		11	446.454	91.6526	605.000	342.000	81/10	82/09
MERCURY	HG,TOTAL	UG/L	K	1	.500000		.500000	.500000	81/11	81/11

TABLE RD 1-15

STATION NUMBER 502130
41 26 52.0 081 41 06.0 2
CUYAHOGA R AT CLEVELAND - LOWER HARVARD AVE
LAKE ERIE 060391 (CUYAHOGA RIVER)
MILES 0007.30

PARAMETER			R	NO	MEAN	STAN DEV	MAXIMUM	MINIMUM	BEG	END
WATER	TEMP	CENT		11	13.0909	8.11732	25.0000	1.50000	80/10	81/08
TURB	TRBIDMTR	HACH FTU		9	76.3277	138.453	425.000	5.90000	80/11	81/08
CNDUCTVY	FIELD	MICROMHO		5	772.000	89.9639	897.000	660.000	80/10	81/03
DO		MG/L		11	7.77272	2.19777	11.6000	5.10000	80/10	81/08
COD	LOWLEVEL	MG/L		11	46.2454	24.4639	97.0000	16.0000	80/10	81/08
PH		SU		1	7.30000		7.30000	7.30000	81/07	81/07
LAB	PH	SU		11	7.38181	.248285	7.80000	7.00000	80/10	81/08
T ALK	CACO3	MG/L		10	129.400	27.6094	178.000	94.0000	80/11	81/08
RESIDUE	TOT NFLT	MG/L		11	151.818	267.931	905.000	15.0000	80/10	81/08
NH3+NH4-	N TOTAL	MG/L		11	2.66908	1.47570	5.67000	1.20000	80/10	81/08
NO2-N	TOTAL	MG/L		10	.254000	.188397	.560000	.010000	80/10	81/08
NO3-N	TOTAL	MG/L		11	1.58727	.587044	2.38000	.780000	80/10	81/08
TOT KJEL	N	MG/L		11	4.73454	1.67956	8.14000	2.81000	80/10	81/08
PHOS-TOT		MG/L P		11	.656000	.279367	1.28000	.306000	80/10	81/08
PHOS-DIS		MG/L P		9	.237666	.110825	.377000	.121000	80/11	81/08
T ORG C	C	MG/L		7	21.2857	6.99323	33.0000	14.0000	80/12	81/07
D ORG C	C	MG/L		3	13.3333	4.93290	19.0000	10.0000	81/01	81/08
CYANIDE	CN-TOT	MG/L		4	.012000	.004000	.018000	.010000	80/10	81/03
			K	7	.010000	.000009	.010000	.010000	80/12	81/08
			T	11	.010727	.002412	.018000	.010000	80/10	81/08
TOT HARD	CACO3	MG/L		11	213.909	30.7197	264.000	175.000	80/10	81/08
CALCIUM	CA-TOT	MG/L		7	64.7143	10.0287	78.0000	51.0000	80/11	81/07
SODIUM	NA,TOT	MG/L		7	91.8571	31.7093	139.000	59.0000	80/11	81/07
CHLORIDE	TOTAL	MG/L		10	127.000	41.1231	197.000	76.0000	80/11	81/08
SULFATE	SO4-TOT	MG/L		9	87.2222	11.4544	106.000	72.0000	80/11	81/08
FLUORIDE	F,TOTAL	MG/L		10	.592999	.206401	.920000	.310000	80/10	81/08
SILICA	DISOLVED	MG/L		8	6.67999	1.97165	8.26000	2.58000	80/11	81/08
ARSENIC	AS,TOT	UG/L	K	2	10.0000	.000000	10.0000	10.0000	81/01	81/06
CADMIUM	CD,TOT	UG/L	K	11	5.00000	.000000	5.00000	5.00000	80/10	81/08

TABLE RD 1-15 (Continued)

STATION NUMBER 502130
41 26 52.0 081 41 06.0 2
CUYAHOGA R AT CLEVELAND - LOWER HARVARD AVE
LAKE ERIE 060391 (CUYAHOGA RIVER)
MILES 0007.30

PARAMETER			R	NO	MEAN	STAN DEV	MAXIMUM	MINIMUM	BEG	END
CHROMIUM	CR,TOT	UG/L		3	50.0000	10.0000	60.0000	40.0000	81/02	81/07
			K	8	30.0000	.000000	30.0000	30.0000	80/10	81/08
			T	11	35.4545	10.3573	60.0000	30.0000	80/10	81/08
COPPER	CU,TOT	UG/L		4	40.0000	14.1421	60.0000	30.0000	80/10	81/07
			K	7	30.0000	.000000	30.0000	30.0000	80/11	81/08
			T	11	33.6363	9.24423	60.0000	30.0000	80/10	81/08
IRON	FE,TOT	UG/L		11	7503.63	12255.3	41500.0	1040.00	80/10	81/08
LEAD	PB,TOT	UG/L		11	34.2727	49.6711	175.000	6.00000	80/10	81/08
MANGNESE	MN	UG/L		2	205.000	77.7817	260.000	150.000	81/01	81/06
NICKEL	NI,TOTAL	UG/L		4	100.000	.000000	100.000	100.000	80/12	81/08
			K	5	100.000	.000000	100.000	100.000	81/02	81/07
			T	9	100.000	.000000	100.000	100.000	80/12	81/08
VANADIUM	V,TOT	UG/L	K	2	15.0000	7.07107	20.0000	10.0000	81/01	81/06
ZINC	ZN,TOT	UG/L		10	115.000	77.0642	290.000	50.0000	80/11	81/08
			K	1	30.0000		30.0000	30.0000	80/10	80/10
			T	11	107.273	77.4714	290.000	30.0000	80/10	81/08
ALUMINUM	AL,TOT	UG/L		2	300.000	.000000	300.000	300.000	81/01	81/06
SELENIUM	SE,TOT	UG/L	K	2	7.50000	3.53553	10.0000	5.00000	81/01	81/06
FEC COLI	MFM-FCBR	/100ML		9	22033.3	25401.3	69000.0	1200.00	80/11	81/08
FECSTREP	MF M-ENT	/100ML		8	12123.7	13848.4	36000.0	590.000	80/11	81/06
PHENOLS	TOTAL	UG/L		11	19.3636	19.8760	78.0000	9.00000	80/10	81/08
DIETHYLP	HTHALATE	TOTWUG/L	K	7	100.000	.000000	100.000	100.000	80/11	81/08
DIMETHYL	PHTHALAT	TOTWUG/L	K	7	100.000	.000000	100.000	100.000	80/11	81/08
MBAS		MG/L		10	.199000	.076370	.350000	.120000	80/10	81/08
PCBS	WHL SMPL	UG/L	K	7	.500000	.000000	.500000	.500000	80/11	81/08
RESIDUE	DISS-180	C MG/L		10	459.400	110.676	678.000	320.000	80/10	81/07
MERCURY	HG,TOTAL	UG/L		1	1.00000		1.00000	1.00000	80/11	80/11
			K	10	.500000	.000000	.500000	.500000	80/10	81/08
			T	11	.545454	.150756	1.00000	.500000	80/10	81/08
DEHP	ISOMER	TOT UG/L	K	1	100.000		100.000	100.000	81/02	81/02
DIBUTYL	NONANDOA	TOT UG/L	K	2	100.000	.000000	100.000	100.000	81/01	81/02

TABLE RD 1-16

STATION NUMBER 502130
41 26 52.0 081 41 06.0 2
CUYAHOGA R AT CLEVELAND - LOWER HARVARD AVE
LAKE ERIE 060391 (CUYAHOGA RIVER)
MILES 0007.30

PARAMETER			R	NO	MEAN	STAN DEV	MAXIMUM	MINIMUM	BEG	END
WATER	TEMP	CENT		11	11.0000	7.25603	22.5000	.500000	81/10	82/09
TURB	TRBIDMTR	HACH FTU		1	7.80000		7.80000	7.80000	81/10	81/10
CNDUCTVY	FIELD	MICROMHO		1	415.000		415.000	415.000	82/09	82/09
CNDUCTVY	AT 25C	MICROMHO		5	718.000	174.270	960.000	470.000	82/02	82/09
DO	PROBE	MG/L		9	9.52222	2.62097	12.8000	5.70000	81/12	82/09
DO		MG/L		2	8.30000	.565800	8.70000	7.90000	81/10	81/11
COD	LOWLEVEL	MG/L		11	29.6363	13.8151	62.0000	12.0000	81/10	82/09
PH		SU		11	7.71817	.282203	8.40000	7.30000	81/10	82/09
LAB	PH	SU		3	7.48666	.167855	7.68000	7.38000	81/11	82/09
T ALK	CACO3	MG/L		2	137.500	9.19239	144.000	131.000	81/10	81/11
RESIDUE	TOTAL	MG/L		1	398.000		398.000	398.000	81/12	81/12
RESIDUE	TOT NFLT	MG/L		11	53.5454	91.2375	323.000	10.0000	81/10	82/09
NH3+NH4-	N TOTAL	MG/L		11	1.93818	1.04612	4.44000	.850000	81/10	82/09
NO2-N	TOTAL	MG/L		10	.174000	.104796	.350000	.050000	81/10	82/09
NO3-N	TOTAL	MG/L		11	2.02545	.943148	3.56000	.700000	81/10	82/09
TOT KJEL	N	MG/L		11	3.01000	1.11087	5.45000	1.90000	81/10	82/09
PHOS-TOT		MG/L P		11	.443090	.244327	.960000	.190000	81/10	82/09
PHOS-DIS		MG/L P		6	.192833	.090422	.300000	.070000	81/10	82/03
T ORG C	C	MG/L		2	11.5000	2.12132	13.0000	10.0000	81/10	81/11
CYANIDE	CN-TOT	MG/L	K	2	.010000	.000000	.010000	.010000	81/10	81/11
TOT HARD	CACO3	MG/L		10	211.700	29.1665	264.000	174.000	81/10	82/09
CALCIUM	CA-TOT	MG/L		9	59.6666	8.90197	74.5000	48.1000	81/12	82/09
MGNSIUM	MG,TOT	MG/L		9	15.2778	2.33013	19.0000	12.5000	81/12	82/09
CHLORIDE	TOTAL	MG/L		2	97.5000	17.6777	110.000	85.0000	81/10	81/11
SULFATE	SO4-TOT	MG/L		2	89.5000	12.0208	98.0000	81.0000	81/10	81/11
FLUORIDE	F,TOTAL	MG/L		1	.800000		.800000	.800000	81/10	81/10
SILICA	DISOLVED	MG/L		2	7.87000	.763669	8.41000	7.33000	81/10	81/11

TABLE RD 1-16 (Continued)

STATION NUMBER 502130
41 26 52.0 081 41 06.0 2
CUYAHOGA R AT CLEVELAND - LOWER HARVARD AVE
LAKE ERIE 060391 (CUYAHOGA RIVER)
MILES 0007.30

PARAMETER			R	NO	MEAN	STAN DEV	MAXIMUM	MINIMUM	BEG	END
ARSENIC	AS,TOT	UG/L	K	1	10.0000		10.0000	10.0000	81/11	81/11
CADMIUM	CD,TOT	UG/L		7	2.08571	1.59523	5.20000	.800000	82/02	82/09
			K	2	7.50000	3.53553	10.0000	5.00000	81/10	81/11
			T	9	3.28889	3.02839	10.0000	.800000	81/10	82/09
CHROMIUM	CR,TOT	UG/L	K	9	30.0000	.000000	30.0000	30.0000	81/10	82/09
COPPER	CU,TOT	UG/L		8	19.3750	14.9851	55.0000	10.0000	82/01	82/09
			K	3	23.3333	11.5470	30.0000	10.0000	81/10	81/12
			T	11	20.4545	13.6848	55.0000	10.0000	81/10	82/09
IRON	FE,TOT	UG/L		11	2588.18	3483.19	12900.0	630.000	81/10	82/09
LEAD	PB,TOT	UG/L		8	11.0000	14.6969	47.0000	3.00000	82/01	82/09
			K	3	5.00000	.000000	5.00000	5.00000	81/10	81/12
			T	11	9.36364	12.6117	47.0000	3.00000	81/10	82/09
MANGNESE	MN	UG/L		6	200.000	87.9773	375.000	135.000	82/02	82/09
NICKEL	NI,TOTAL	UG/L		1	100.000		100.000	100.000	81/10	81/10
NICKEL	NI,TOTAL	UG/L	K	7	55.7143	30.4725	100.000	30.0000	81/11	82/09
			T	8	61.2500	32.2656	100.000	30.0000	81/10	82/09
ZINC	ZN,TOT	UG/L		11	69.5454	51.0125	220.000	40.0000	81/10	82/09
ALUMINUM	AL,TOT	UG/L		1	300.000		300.000	300.000	81/11	81/11
FEC COLI	MFM-FCBR	/100ML		11	14536.4	27791.8	97000.0	1400.00	81/10	82/09
FECSTREP	MF M-ENT	/100ML		10	6611.00	7761.14	26000.0	360.000	81/10	82/09
PHENOLS	TOTAL	UG/L		3	17.3333	18.0093	38.0000	5.00000	81/10	82/09
DIETHYLP	HTHALATE	TOTWUG/L	K	2	100.000	.000000	100.000	100.000	82/02	82/04
DIMETHYL	PHTHALAT	TOTWUG/L	K	2	100.000	.000000	100.000	100.000	82/02	82/04
MBAS		MG/L		2	.195000	.049497	.230000	.160000	81/10	81/11
PCBS	WHL SMPL	UG/L	K	2	.500000	.000000	.500000	.500000	82/02	82/04
RESIDUE	DISS-180	C MG/L		11	474.909	98.3656	676.000	374.000	81/10	82/09
MERCURY	HG,TOTAL	UG/L	K	1	.500000		.500000	.500000	81/11	81/11

TABLE RD 1-17

STATION NUMBER 502120
41 26 48.0 081 41 18.0 2
BIG CREEK AT CLEVELAND - JENNINGS AVE
LAKE ERIE 060391 (CUYAHOGA RIVER)
MILES 0007.20 0000.30

PARAMETER			R	NO	MEAN	STAN DEV	MAXIMUM	MINIMUM	BEG	END
WATER	TEMP	CENT		3	9.50000	8.76071	18.0000	.500000	80/12	81/06
CNDUCTVY	FIELD	MICROMHO		2	958.500	44.5533	990.000	927.000	80/12	81/03
DO		MG/L		3	9.60000	1.96726	11.4000	7.50000	80/12	81/06
COD	LOWLEVEL	MG/L		3	24.0000	21.0713	46.0000	4.00000	80/12	81/06
LAB	PH	SU		3	7.76666	.152993	7.90000	7.60000	80/12	81/06
RESIDUE	TOT NFLT	MG/L		1	10.0000		10.0000	10.0000	80/12	80/12
			K	2	10.0000	.000000	10.0000	10.0000	81/03	81/06
			T	3	10.0000	.000000	10.0000	10.0000	80/12	81/06
NH3+NH4-	N TOTAL	MG/L		3	1.28000	.719238	2.11000	.840000	80/12	81/06
NO2-N	TOTAL	MG/L		3	.140000	.062450	.190000	.070000	80/12	81/06
NO3-N	TOTAL	MG/L		3	.793333	.135770	.950000	.710000	80/12	81/06
TOT KJEL	N	MG/L		3	2.56333	1.42135	4.18000	1.51000	80/12	81/06
PHOS-TOT		MG/L P		3	.468333	.216317	.718000	.337000	80/12	81/06
TOT HARD	CACO3	MG/L		3	268.000	30.0000	298.000	238.000	80/12	81/06
CHLORIDE	TOTAL	MG/L		2	174.500	65.7609	221.000	128.000	81/03	81/06
FLUORIDE	F,TOTAL	MG/L		2	.695000	.049505	.730000	.660000	81/03	81/06
CADMIUM	CD,TOT	UG/L	K	3	5.00000	.000000	5.00000	5.00000	80/12	81/06
CHROMIUM	CR,TOT	UG/L		1	30.0000		30.0000	30.0000	81/06	81/06
			K	2	30.0000	.000000	30.0000	30.0000	80/12	81/03
			T	3	30.0000	.000000	30.0000	30.0000	80/12	81/06
COPPER	CU,TOT	UG/L		1	40.0000		40.0000	40.0000	80/12	80/12
			K	2	30.0000	.000000	30.0000	30.0000	81/03	81/06
			T	3	33.3333	5.77355	40.0000	30.0000	80/12	81/06
IRON	FE,TOT	UG/L		3	923.333	310.699	1270.00	670.000	80/12	81/06
LEAD	PB,TOT	UG/L		2	9.00000	4.24264	12.0000	6.00000	80/12	81/03
			K	1	5.00000		5.00000	5.00000	81/06	81/06
			T	3	7.66667	3.78595	12.0000	5.00000	80/12	81/06
NICKEL	NI,TOTAL	UG/L		1	100.000		100.000	100.000	80/12	80/12
			K	2	100.000	.000000	100.000	100.000	81/03	81/06
			T	3	100.000	.000000	100.000	100.000	80/12	81/06
ZINC	ZN,TOT	UG/L		2	70.0000	42.4264	100.000	40.0000	80/12	81/03
			K	1	30.0000		30.0000	30.0000	81/06	81/06
			T	3	56.6667	37.8594	100.000	30.0000	80/12	81/06
FEC COLI	MFM-FCBR	/100ML		3	14766.7	11758.5	23000.0	1300.00	80/12	81/06
FECSTREP	MF M-ENT	/100ML		3	7133.33	6850.06	14000.0	300.000	80/12	81/06
PHENOLS	TOTAL	UG/L		3	13.0000	6.00000	19.0000	7.00000	80/12	81/06
MBAS		MG/L		3	.210000	.000000	.210000	.210000	80/12	81/06
RESIDUE	DISS-180	C MG/L		3	617.333	287.961	862.000	300.000	80/12	81/06
MERCURY	HG,TOTAL	UG/L	K	2	.500000	.000000	.500000	.500000	80/12	81/03

TABLE RD 1-18

STATION NUMBER 502120
41 26 48.0 081 41 18.0 2
BIG CREEK AT CLEVELAND - JENNINGS AVE
LAKE ERIE 060391 (CUYAHOGA RIVER)
MILES 0007.20 0000.30

No data were collected from 10/81 - 9/82.

TABLE RD 1-19

STATION NUMBER 502080
41 05 39.0 081 31 44.0 2
L CUYAHOGA R BL CANAL (AKRON) - OTTO ST GAGE
LAKE ERIE 050492 (CUYAHOGA RIVER)
MILES 0044.20 0002.00

PARAMETER			R	NO	MEAN	STAN DEV	MAXIMUM	MINIMUM	BEG	END
WATER	TEMP	CENT		2	14.5000	12.7279	23.5000	5.50000	80/12	81/06
CNDUCTVY	FIELD	MICROMHO		2	694.000	107.480	770.000	618.000	80/12	81/03
DO		MG/L		2	9.25000	1.76777	10.5000	8.00000	80/12	81/06
COD	LOWLEVEL	MG/L		3	26.0000	17.7764	46.0000	12.0000	80/12	81/06
LAB	PH	SU		3	7.83333	.305687	8.10000	7.50000	80/12	81/06
RESIDUE	TOT NFLT	MG/L		3	11.6667	1.52758	13.0000	10.0000	80/12	81/06
NH3+NH4-	N TOTAL	MG/L		3	.580000	.395096	.980000	.190000	80/12	81/06
NO2-N	TOTAL	MG/L		3	.146667	.176163	.350000	.040000	80/12	81/06
NO3-N	TOTAL	MG/L		3	.636667	.238608	.830000	.370000	80/12	81/06
TOT KJEL	N	MG/L		3	2.09667	.955737	3.03000	1.12000	80/12	81/06
PHOS-TOT		MG/L P		3	.282667	.130385	.425000	.169000	80/12	81/06
TOT HARD	CACO3	MG/L		3	221.333	8.32917	228.000	212.000	80/12	81/06
CHLORIDE	TOTAL	MG/L		2	101.500	14.8492	112.000	91.0000	81/03	81/06
FLUORIDE	F,TOTAL	MG/L		2	.320000	.000000	.320000	.320000	81/03	81/06
CADMIUM	CD,TOT	UG/L	K	3	5.00000	.000000	5.00000	5.00000	80/12	81/06
CHROMIUM	CR,TOT	UG/L		1	40.0000		40.0000	40.0000	81/06	81/06
			K	2	30.0000	.000000	30.0000	30.0000	80/12	81/03
			T	3	33.3333	5.77355	40.0000	30.0000	80/12	81/06
COPPER	CU,TOT	UG/L		1	40.0000		40.0000	40.0000	81/03	81/03
			K	2	30.0000	.000000	30.0000	30.0000	80/12	81/06
			T	3	33.3333	5.77355	40.0000	30.0000	80/12	81/06
IRON	FE,TOT	UG/L		3	626.666	130.131	760.000	500.000	80/12	81/06
LEAD	PB,TOT	UG/L		2	6.00000	.000000	6.00000	6.00000	80/12	81/06
			K	1	5.00000		5.00000	5.00000	81/03	81/03
			T	3	5.66667	.577399	6.00000	5.00000	80/12	81/06
NICKEL	NI,TOTAL	UG/L		1	100.000		100.000	100.000	80/12	80/12
			K	2	100.000	.000000	100.000	100.000	81/03	81/06
			T	3	100.000	.000000	100.000	100.000	80/12	81/06
ZINC	ZN,TOT	UG/L		2	100.000	42.4264	130.000	70.0000	80/12	81/03
FEC COLI	MFM-FCBR	/100ML		3	15000.0	5567.77	20000.0	9000.00	80/12	81/06
FECSTREP	MF M-ENT	/100ML		3	9500.00	5894.91	16000.0	4500.00	80/12	81/06
PHENOLS	TOTAL	UG/L		3	14.3333	4.50927	19.0000	10.0000	80/12	81/06
MBAS		MG/L		3	.250000	.233880	.520000	.110000	80/12	81/06
RESIDUE	DISS-180	C MG/L		3	302.666	177.001	480.000	126.000	80/12	81/06
MERCURY	HG,TOTAL	UG/L		1	.600000		.600000	.600000	80/12	80/12
			K	2	.500000	.000000	.500000	.500000	81/03	81/06
			T	3	.533333	.057740	.600000	.500000	80/12	81/06

TABLE RD 1-20

STATION NUMBER 502080
41 05 39.0 081 31 44.0 2
L CUYAHOGA R BL CANAL (AKRON) - OTTO ST GAGE
LAKE ERIE 050492 (CUYAHOGA RIVER)
MILES 0044.20 0002.00

No data were collected from 10/81 - 9/92.

TABLE RD 1-21

STATION NUMBER 502110
41 25 04.0 081 38 18.0 2
MILL CREEK AT GARFIELD HEIGHTS - CANAL RD
LAKE ERIE 060391 (CUYAHOGA RIVER)
MILES 0011.70 0000.10

PARAMETER			R	NO	MEAN	STAN DEV	MAXIMUM	MINIMUM	BEG	END
WATER	TEMP	CENT		3	9.00000	8.50000	17.5000	.500000	80/12	81/06
CNDUCTVY	FIELD	MICROMHO		2	1175.00	205.061	1320.00	1030.00	80/12	81/03
DO		MG/L		3	9.13333	2.00332	11.2000	7.20000	80/12	81/06
COD	LOWLEVEL	MG/L		3	38.6667	16.1659	56.0000	24.0000	80/12	81/06
LAB	PH	SU		3	7.30000	.100429	7.40000	7.20000	80/12	81/06
RESIDUE	TOT NFLT	MG/L		3	38.0000	22.6053	64.0000	23.0000	80/12	81/06
NH3+NH4-	N TOTAL	MG/L		3	4.87000	1.78429	6.90000	3.55000	80/12	81/06
NO2-N	TOTAL	MG/L		3	.233333	.181475	.440000	.100000	80/12	81/06
NO3-N	TOTAL	MG/L		3	.760000	.384317	1.20000	.490000	80/12	81/06
TOT KJEL	N	MG/L		3	6.30333	2.37255	8.91000	4.27000	80/12	81/06
PHOS-TOT		MG/L P		3	.657666	.397601	1.05000	.255000	80/12	81/06
TOT HARD	CACO3	MG/L		3	342.000	10.5830	350.000	330.000	80/12	81/06
CHLORIDE	TOTAL	MG/L		2	244.500	70.0036	294.000	195.000	81/03	81/06
FLUORIDE	F,TOTAL	MG/L		2	.730000	.084860	.790000	.670000	81/03	81/06
CADMIUM	CD,TOT	UG/L	K	3	5.00000	.000000	5.00000	5.00000	80/12	81/06
CHROMIUM	CR,TOT	UG/L		2	40.0000	.000000	40.0000	40.0000	81/03	81/06
			K	1	30.0000		30.0000	30.0000	80/12	80/12
			T	3	36.6667	5.77360	40.0000	30.0000	80/12	81/06
COPPER	CU,TOT	UG/L		3	53.3333	5.77373	60.0000	50.0000	80/12	81/06
IRON	FE,TOT	UG/L		3	3686.67	773.656	4500.00	2960.00	80/12	81/06
LEAD	PB,TOT	UG/L		2	6.00000	.000000	6.00000	6.00000	80/12	81/06
			K	1	25.0000		25.0000	25.0000	81/03	81/03
			T	3	12.3333	10.9697	25.0000	6.00000	80/12	81/06
NICKEL	NI,TOTAL	UG/L		1	100.000		100.000	100.000	80/12	80/12
			K	2	100.000	.000000	100.000	100.000	81/03	81/06
			T	3	100.000	.000000	100.000	100.000	80/12	81/06
ZINC	ZN,TOT	UG/L		3	190.000	10.0000	200.000	180.000	80/12	81/06
FEC COLI	MFM-FCBR	/100ML		3	11966.7	7057.15	17000.0	3900.00	80/12	81/06
FECSTREP	MF M-ENT	/100ML		3	12623.3	12077.1	25000.0	870.000	80/12	81/06
PHENOLS	TOTAL	UG/L		3	14.3333	4.50927	19.0000	10.0000	80/12	81/06
MBAS		MG/L		3	.703333	.510131	1.22000	.200000	80/12	81/06
RESIDUE	DISS-180	C MG/L		3	770.666	324.878	1006.00	400.000	80/12	81/06
MERCURY	HG,TOTAL	UG/L	K	2	.500000	.000000	.500000	.500000	80/12	81/03

TABLE RD 1-22

STATION NUMBER 502110
41 25 04.0 081 38 18.0 2
MILL CREEK AT GARFIELD HEIGHTS - CANAL RD
LAKE ERIE 060391 (CUYAHOGA RIVER)
MILES 0011.70 0000.10

No data were collected from 10/81 - 9/82.

TABLE RD 1-23

STATION NUMBER 502220
41 23 04.0 081 31 39.0 2
TINKERS CREEK AT BEDFORD - SR 14
LAKE ERIE (CUYAHOGA RIVER)
MILES 0017.80 0006.30

PARAMETER			R	NO	MEAN	STAN DEV	MAXIMUM	MINIMUM	BEG	END
WATER	TEMP	CENT		2	9.75000	13.0815	19.0000	.500000	80/12	81/06
STREAM	FLOW,	INST-CFS		2	53.7000	5.09135	57.3000	50.1000	80/12	81/06
STREAM	STAGE	FEET		2	3.14000	.042433	3.17000	3.11000	80/12	81/06
CNDUCTVY	FIELD	MICROMHO		1	484.000		484.000	484.000	80/12	80/12
DO		MG/L		2	10.4000	3.11131	12.6000	8.20000	80/12	81/06
COD	LOWLEVEL	MG/L		2	25.5000	.707107	26.0000	25.0000	80/12	81/06
LAB	PH	SU		2	7.60000	.282819	7.80000	7.40000	80/12	81/06
RESIDUE	TOT NFLT	MG/L		1	70.0000		70.0000	70.0000	81/06	81/06
			K	1	10.0000		10.0000	10.0000	80/12	80/12
			T	2	40.0000	42.4264	70.0000	10.0000	80/12	81/06
NH3+NH4-	N TOTAL	MG/L		2	.520000	.282843	.720000	.320000	80/12	81/06
NO2-N	TOTAL	MG/L		2	.115000	.035355	.140000	.090000	80/12	81/06
NO3-N	TOTAL	MG/L		2	1.35500	.445476	1.67000	1.04000	80/12	81/06
TOT KJEL	N	MG/L		2	1.37500	.106077	1.45000	1.30000	80/12	81/06
PHOS-TOT		MG/L P		2	1.05750	.540939	1.44000	.675000	80/12	81/06
TOT HARD	CACO3	MG/L		2	209.000	43.8406	240.000	178.000	80/12	81/06
CHLORIDE	TOTAL	MG/L		1	74.0000		74.0000	74.0000	81/06	81/06
FLUORIDE	F,TOTAL	MG/L		1	.520000		.520000	.520000	81/06	81/06
CADMIUM	CD,TOT	UG/L	K	2	5.00000	.000000	5.00000	5.00000	80/12	81/06
CHROMIUM	CR,TOT	UG/L	K	2	30.0000	.000000	30.0000	30.0000	80/12	81/06
COPPER	CU,TOT	UG/L	K	2	30.0000	.000000	30.0000	30.0000	80/12	81/06
IRON	FE,TOT	UG/L		2	1860.00	1329.36	2800.00	920.000	80/12	81/06
LEAD	PB,TOT	UG/L		1	5.00000		5.00000	5.00000	81/06	81/06
			K	1	5.00000		5.00000	5.00000	80/12	80/12
			T	2	5.00000	.000000	5.00000	5.00000	80/12	81/06
NICKEL	NI,TOTAL	UG/L		1	100.000		100.000	100.000	80/12	80/12
			K	1	100.000		100.000	100.000	81/06	81/06
			T	2	100.000	.000000	100.000	100.000	80/12	81/06
ZINC	ZN,TOT	UG/L		1	30.0000		30.0000	30.0000	80/12	80/12
FEC COLI	MFM-FCBR	/100ML		2	1900.00	282.843	2100.00	1700.00	80/12	81/06
FECSTREP	MF M-ENT	/100ML		2	683.500	871.863	1300.00	67.0000	80/12	81/06
PHENOLS	TOTAL	UG/L		2	7.50000	.707107	8.00000	7.00000	80/12	81/06
MBAS		MG/L		2	.135000	.021214	.150000	.120000	80/12	81/06
RESIDUE	DISS-180	C MG/L		2	440.500	92.6310	506.000	375.000	80/12	81/06
MERCURY	HG,TOTAL	UG/L	K	1	.500000		.500000	.500000	80/12	80/12

TABLE RD 1-24

STATION NUMBER 502220
41 23 04.0 081 31 39.0 2
TINKERS CREEK AT BEDFORD - SR 14
LAKE ERIE (CUYAHOGA RIVER)
MILES 0017.80 0006.30

No data were collected from 10/81 - 9/82.

TABLE RD 1-25

STATION NUMBER 504250
41 34 27.0 081 34 10.0 2
EUCLID CREEK AT EUCLID - ST. CLAIR AVE
LAKE ERIE (EUCLID CREEK)
MILES 0001.70

PARAMETER			R	NO	MEAN	STAN DEV	MAXIMUM	MINIMUM	BEG	END
WATER	TEMP	CENT		11	9.45454	7.95442	22.5000	.000000	80/10	81/08
STREAM	STAGE	FEET		2	2.51000	.113138	2.59000	2.43000	80/10	80/11
CNDUCTVY	FIELD	MICROMHO		9	659.889	308.382	1339.00	310.000	80/11	81/08
CNDUCTVY	AT 25C	MICROMHO		1	557.000		557.000	557.000	80/10	80/10
DO		MG/L		10	11.4100	2.17383	13.8000	6.30000	80/10	81/07
COD	LOWLEVEL	MG/L		10	24.9200	16.3479	64.7000	12.0000	80/10	81/07
			K	1	6.00000		6.00000	6.00000	81/08	81/08
			T	11	23.2000	16.5248	64.7000	6.00000	80/10	81/08
PH		SU		1	6.80000		6.80000	6.80000	81/07	81/07
LAB	PH	SU		11	7.38181	.296051	7.80000	6.70000	80/10	81/08
RESIDUE	TOT NFLT	MG/L		6	78.6667	89.6385	251.000	20.0000	80/10	81/07
			K	5	10.0000	.000000	10.0000	10.0000	80/11	81/08
			T	11	47.4545	72.8249	251.000	10.0000	80/10	81/08
NH3+NH4-	N TOTAL	MG/L		10	.463000	.447364	1.60000	.140000	80/10	81/08
			K	1	.050000		.050000	.050000	81/07	81/07
			T	11	.425454	.442298	1.60000	.050000	80/10	81/08
NO2-N	TOTAL	MG/L		10	.065000	.143236	.470000	.010000	80/10	81/08
			K	1	.010000		.010000	.010000	81/03	81/03
			T	11	.060000	.136894	.470000	.010000	80/10	81/08
NO3-N	TOTAL	MG/L		11	.920909	.421958	1.72000	.390000	80/10	81/08
TOT KJEL	N	MG/L		11	1.25636	1.06813	3.49000	.490000	80/10	81/08
PHOS-TOT		MG/L P		11	.294000	.264108	.836000	.067000	80/10	81/08
TOT HARD	CACO3	MG/L		10	197.000	41.6893	268.000	136.000	80/10	81/08
CHLORIDE	TOTAL	MG/L		4	89.2500	37.0799	117.000	35.0000	81/05	81/08

TABLE RD 1-25 (Continued)

STATION NUMBER 504250
41 34 27.0 081 34 10.0 2
EUCLID CREEK AT EUCLID - ST. CLAIR AVE
LAKE ERIE (EUCLID CREEK)
MILES 0001.70

PARAMETER			R	NO	MEAN	STAN DEV	MAXIMUM	MINIMUM	BEG	END
SULFATE	SO4-TOT	MG/L		2	67.0000	46.6690	100.000	34.0000	81/06	81/07
CADMIUM	CD,TOT	UG/L	K	4	10.0000	10.0000	25.0000	5.00000	80/11	81/04
CHROMIUM	CR,TOT	UG/L		1	40.0000		40.0000	40.0000	81/01	81/01
			K	3	30.0000	.000000	30.0000	30.0000	80/11	81/04
			T	4	32.5000	5.00000	40.0000	30.0000	80/11	81/04
COPPER	CU,TOT	UG/L		1	30.0000		30.0000	30.0000	81/01	81/01
			K	10	30.0000	.000000	30.0000	30.0000	80/10	81/08
			T	11	30.0000	.000000	30.0000	30.0000	80/10	81/08
IRON	FE,TOT	UG/L		11	3044.55	3640.99	10600.0	810.000	80/10	81/08
LEAD	PB,TOT	UG/L		2	26.0000	4.24264	29.0000	23.0000	81/01	81/02
			K	9	5.55556	1.66667	10.0000	5.00000	80/10	81/08
			T	11	9.27273	8.50989	29.0000	5.00000	80/10	81/08
NICKEL	NI,TOTAL	UG/L	K	4	100.000	.000000	100.000	100.000	80/11	81/04
ZINC	ZN,TOT	UG/L		4	62.5000	33.0404	100.000	30.0000	80/11	81/06
			K	7	30.0000	.000000	30.0000	30.0000	80/10	81/08
			T	11	41.8182	24.4206	100.000	30.0000	80/10	81/08
FEC COLI	MFM-FCBR	/100ML		10	13687.5	16456.6	50000.0	55.0000	80/10	81/08
FECSTREP	MF M-ENT	/100ML		10	8950.00	10308.2	29000.0	40.0000	80/10	81/08
PHENOLS	TOTAL	UG/L		10	7.00000	5.01110	20.0000	2.00000	80/10	81/07
CHLORINE	TOT RESD	MG/L		1	.050000		.050000	.050000	81/05	81/05
			K	1	.020000		.020000	.020000	81/03	81/03
			T	2	.035000	.021213	.050000	.020000	81/03	81/05
RESIDUE	DISS-180	C MG/L		11	673.273	455.273	1816.00	300.000	80/10	81/08
MERCURY	HG,TOTAL	UG/L	K	4	.500000	.000000	.500000	.500000	80/11	81/04

TABLE RD 1-26

STATION NUMBER 504250
41 34 27.0 081 34 10.0 2
EUCLID CREEK AT EUCLID - ST. CLAIR AVE
LAKE ERIE (EUCLID CREEK)
MILES 0001.70

No data were collected from 10/81 - 9/82.

TABLE RD 1-27

STATION NUMBER 502530
41 43 09.0 081 13 41.0 2
GRAND RIVER AT PAINESVILLE - SR 84
LAKE ERIE (GRAND RIVER)
MILES 0008.70

PARAMETER			R	NO	MEAN	STAN DEV	MAXIMUM	MINIMUM	BEG	END
WATER	TEMP	CENT		12	10.0000	9.47005	24.0000	.000000	80/10	81/09
STREAM	FLOW,	INST-CFS		6	1544.95	2210.82	5977.00	31.4000	80/12	81/07
STREAM	STAGE	FEET		11	3.33181	1.59346	7.41000	1.38000	80/10	81/08
CNDUCTVY	FIELD	MICROMHO		11	235.909	78.2886	360.000	90.0000	80/10	81/09
DO		MG/L		11	10.7636	2.60321	14.0000	6.30000	80/10	81/09
COD	LOWLEVEL	MG/L		11	19.3818	7.56970	31.4000	8.00000	80/10	81/09
			K	1	6.00000		6.00000	6.00000	81/07	81/07
			T	12	18.2667	8.18617	31.4000	6.00000	80/10	81/09
PH		SU		2	7.85000	.353532	8.10000	7.60000	81/07	81/09
LAB	PH	SU		11	7.19999	.469036	7.70000	6.10000	80/10	81/08
RESIDUE	TOT NFLT	MG/L		6	33.0000	29.0310	80.0000	10.0000	80/10	81/09
			K	6	10.0000	.000000	10.0000	10.0000	80/11	81/08
			T	12	21.5000	22.9644	80.0000	10.0000	80/10	81/09
OIL-GRSE	FREON-GR	MG/L	K	1	5.00000		5.00000	5.00000	81/09	81/09
NH3+NH4-	N TOTAL	MG/L		7	.125714	.081005	.290000	.060000	80/11	81/09
			K	5	.050000	.000061	.050000	.050000	80/10	81/08
			T	12	.094167	.071409	.290000	.050000	80/10	81/09
NO2-N	TOTAL	MG/L		7	.020000	.015275	.050000	.010000	80/10	81/08
			K	4	.010000	.000000	.010000	.010000	80/11	81/05
			T	11	.016364	.012863	.050000	.010000	80/10	81/08
NO3-N	TOTAL	MG/L		11	.421818	.321708	1.12000	.080000	80/10	81/09
			K	1	.050000		.050000	.050000	81/08	81/08
			T	12	.390833	.324974	1.12000	.050000	80/10	81/09
TOT KJEL	N	MG/L		12	.537500	.192502	.830000	.200000	80/10	81/09
PHOS-TOT		MG/L P		12	.058833	.031342	.123000	.027000	80/10	81/09
TOT HARD	CACO3	MG/L		7	130.143	28.1689	163.000	92.0000	80/10	81/07

TABLE RD 1-27 (Continued)

STATION NUMBER 502530
41 43 09.0 081 13 41.0 2
GRAND RIVER AT PAINESVILLE - SR 84
LAKE ERIE (GRAND RIVER)
MILES 0008.70

PARAMETER			R	NO	MEAN	STAN DEV	MAXIMUM	MINIMUM	BEG	END
CHLORIDE	TOTAL	MG/L		1	23.0000		23.0000	23.0000	81/06	81/06
SULFATE	SO4-TOT	MG/L		3	45.3333	14.2245	55.0000	29.0000	80/11	81/07
ARSENIC	AS,TOT	UG/L	K	2	10.0000	.000000	10.0000	10.0000	80/12	81/06
CADMIUM	CD,TOT	UG/L	K	6	5.00000	.000000	5.00000	5.00000	80/10	81/07
CHROMIUM	HEX-VAL	UG/L	K	6	50.0000	48.9898	150.000	30.0000	80/10	81/08
CHROMIUM	CR,TOT	UG/L		2	35.0000	7.07107	40.0000	30.0000	81/01	81/06
			K	10	30.0000	.000000	30.0000	30.0000	80/10	81/09
			T	12	30.8333	2.88696	40.0000	30.0000	80/10	81/09
COPPER	CU,TOT	UG/L	K	7	30.0000	.000000	30.0000	30.0000	80/10	81/05
IRON	FE,TOT	UG/L		12	1311.67	1163.47	4200.00	360.000	80/10	81/09
LEAD	PB,TOT	UG/L		3	13.0000	12.1655	27.0000	5.00000	80/10	81/04
			K	6	5.00000	.000000	5.00000	5.00000	80/11	81/09
			T	9	7.66667	7.28011	27.0000	5.00000	80/10	81/09
NICKEL	NI,TOTAL	UG/L	K	4	100.000	.000000	100.000	100.000	80/11	81/04
ZINC	ZN,TOT	UG/L		1	30.0000		30.0000	30.0000	81/01	81/01
ZINC	ZN,TOT	UG/L	K	11	30.0000	.000000	30.0000	30.0000	80/10	81/09
			T	12	30.0000	.000000	30.0000	30.0000	80/10	81/09
FEC COLI	MFM-FCBR	/100ML		11	304.091	267.477	730.000	30.0000	80/10	81/09
			K	1	7.00000		7.00000	7.00000	80/11	80/11
			T	12	279.333	269.064	730.000	7.00000	80/10	81/09
FECSTREP	MF M-ENT	/100ML		11	832.364	1191.17	3000.00	20.0000	80/10	81/09
PHENOLS	TOTAL	UG/L		9	5.44444	2.69774	10.0000	2.00000	80/11	81/09
			K	1	2.00000		2.00000	2.00000	81/07	81/07
			T	10	5.10000	2.76687	10.0000	2.00000	80/11	81/09
RESIDUE	DISS-180	C MG/L		12	278.916	182.296	786.000	94.0000	80/10	81/09
MERCURY	HG,TOTAL	UG/L	K	6	.500000	.000000	.500000	.500000	80/10	81/04

TABLE RD 1-28

STATION NUMBER 502530
41 43 09.0 081 13 41.0 2
GRAND RIVER AT PAINESVILLE - SR 84
LAKE ERIE (GRAND RIVER)
MILES 0008.70

PARAMETER			R	NO	MEAN	STAN DEV	MAXIMUM	MINIMUM	BEG	END
WATER	TEMP	CENT		11	9.31818	8.55358	23.5000	.000000	81/10	82/09
STREAM	FLOW,	INST-CFS		10	1028.53	1164.95	3208.00	29.0000	81/10	82/09
STREAM	STAGE	FEET		10	3.12799	1.32375	5.23000	1.27000	81/10	82/09
TURB	TRBIDMTR	HACH FTU		1	7.30000		7.30000	7.30000	81/10	81/10
CNDUCTVY	FIELD	MICROMHO		11	239.091	111.194	440.000	110.000	81/10	82/09
CNDUCTVY	AT 25C	MICROMHO		8	341.750	107.445	520.000	230.000	81/10	82/09
DO	PROBE	MG/L		9	10.9222	2.09033	13.2000	7.00000	81/12	82/09
DO		MG/L		2	12.5000	1.83858	13.8000	11.2000	81/10	81/11
BOD	5 DAY	MG/L		2	1.95000	1.34350	2.90000	1.00000	82/03	82/05
			K	1	1.00000		1.00000	1.00000	82/04	82/04
			T	3	1.63333	1.09697	2.90000	1.00000	82/03	82/05
COD	LOWLEVEL	MG/L		10	16.8000	8.29728	32.0000	7.00000	81/10	82/08
			K	1	10.0000		10.0000	10.0000	82/09	82/09
			T	11	16.1818	8.13412	32.0000	7.00000	81/10	82/09
PH		SU		11	8.09090	.291522	8.40000	7.40000	81/10	82/09
T ALK	CACO3	MG/L		1	68.0000		68.0000	68.0000	81/10	81/10
RESIDUE	TOT NFLT	MG/L		7	22.9714	16.4562	50.0000	5.80000	81/10	82/06
			K	4	6.25000	2.50000	10.0000	5.00000	81/11	82/09
			T	11	16.8909	15.3470	50.0000	5.00000	81/10	82/09
OIL-GRSE	FREON-GR	MG/L	K	1	5.00000		5.00000	5.00000	81/11	81/11
NH3+NH4-	N TOTAL	MG/L		4	.072500	.040311	.130000	.040000	82/01	82/08
			K	7	.050000	.000056	.050000	.050000	81/10	82/09
			T	11	.058182	.024827	.130000	.040000	81/10	82/09
NO2-N	TOTAL	MG/L		2	.025000	.007071	.030000	.020000	82/02	82/06
			K	6	.020000	.000023	.020000	.020000	81/12	82/09
			T	8	.021250	.003536	.030000	.020000	81/12	82/09
NO3-N	TOTAL	MG/L		8	.308750	.170415	.580000	.070000	81/10	82/09
			K	3	.050000	.000075	.050000	.050000	81/11	82/08
			T	11	.238182	.186913	.580000	.050000	81/10	82/09
TOT KJEL	N	MG/L		11	.429091	.115192	.700000	.300000	81/10	82/09
PHOS-TOT		MG/L P		4	.062750	.021685	.080000	.031000	81/10	82/06
			K	7	.050000	.000056	.050000	.050000	81/12	82/09
			T	11	.054636	.013508	.080000	.031000	81/10	82/09
PHOS-DIS		MG/L P		2	.052000	.002829	.054000	.050000	81/10	82/02
			K	2	.050000	.000061	.050000	.050000	82/01	82/03
			T	4	.051000	.002001	.054000	.050000	81/10	82/03

TABLE RD 1-28 (Continued)

STATION NUMBER 502530
41 43 09.0 081 13 41.0 2
GRAND RIVER AT PAINESVILLE - SR 84
LAKE ERIE (GRAND RIVER)
MILES 0008.70

PARAMETER			R	NO	MEAN	STAN DEV	MAXIMUM	MINIMUM	BEG	END
T ORG C	C	MG/L		1	9.00000		9.00000	9.00000	81/10	81/10
D ORG C	C	MG/L		1	17.0000		17.0000	17.0000	81/10	81/10
TOT HARD	CACO3	MG/L		7	104.286	49.9458	198.000	32.0000	81/10	82/09
CALCIUM	CA-TOT	MG/L		6	31.8166	11.2995	52.7000	20.1000	81/10	82/09
			K	1	100.000		100.000	100.000	82/01	82/01
CALCIUM	CA-TOT	MG/L	T	7	41.5571	27.7585	100.000	20.1000	81/10	82/09
MGNSIUM	MG,TOT	MG/L		6	9.23333	3.53706	16.2000	6.30000	81/12	82/09
SODIUM	NA,TOT	MG/L		1	19.0000		19.0000	19.0000	81/10	81/10
CHLORIDE	TOTAL	MG/L		1	37.0000		37.0000	37.0000	81/10	81/10
SULFATE	SO4-TOT	MG/L		1	35.0000		35.0000	35.0000	81/10	81/10
SILICA	DISOLVED	MG/L		1	5.19000		5.19000	5.19000	81/10	81/10
CADMIUM	CD,TOT	UG/L		1	3.20000		3.20000	3.20000	82/02	82/02
			K	4	.500000	.000000	.500000	.500000	81/12	82/09
			T	5	1.04000	1.20748	3.20000	.500000	81/12	82/09
CHROMIUM	CR,TOT	UG/L	K	5	30.0000	.000000	30.0000	30.0000	81/12	82/09
COPPER	CU,TOT	UG/L		2	10.0000	.000000	10.0000	10.0000	82/02	82/09
			K	5	14.0000	8.94427	30.0000	10.0000	81/10	82/06
			T	7	12.8571	7.55929	30.0000	10.0000	81/10	82/09
IRON	FE,TOT	UG/L		5	1192.00	678.727	1800.00	250.000	81/12	82/09
LEAD	PB,TOT	UG/L		1	2.00000		2.00000	2.00000	82/09	82/09
			K	6	4.50000	1.22474	5.00000	2.00000	81/10	82/06
			T	7	4.14286	1.46385	5.00000	2.00000	81/10	82/09
MANGNESE	MN	UG/L		1	40.0000		40.0000	40.0000	82/03	82/03
NICKEL	NI,TOTAL	UG/L	K	5	36.0000	5.47723	40.0000	30.0000	81/12	82/09
ZINC	ZN,TOT	UG/L		3	31.6667	12.5831	45.0000	20.0000	82/02	82/09
			K	4	15.0000	10.0000	30.0000	10.0000	81/10	82/06
			T	7	22.1428	13.4960	45.0000	10.0000	81/10	82/09
FEC COLI	MFM-FCBR	/100ML		11	102.364	110.587	380.000	15.0000	81/10	82/09
FECSTREP	MF M-ENT	/100ML		11	461.727	793.302	2200.00	20.0000	81/10	82/09
PHENOLS	TOTAL	UG/L		1	5.00000		5.00000	5.00000	81/10	81/10
			K	1	10.0000		10.0000	10.0000	82/09	82/09
			T	2	7.50000	3.53553	10.0000	5.00000	81/10	82/09
MBAS		MG/L		1	.070000		.070000	.070000	81/10	81/10
PCBS	WHL SMPL	UG/L	K	4	.500000	.000000	.500000	.500000	82/01	82/04
RESIDUE	DISS-180	C MG/L		10	232.700	80.8566	364.000	141.000	81/10	82/09

TABLE RD 1-29

STATION NUMBER 502520
41 44 09.0 081 15 59.0 2
GRAND RIVER AT PAINESVILLE - SR 535
LAKE ERIE 060691 (GRAND RIVER)
MILES 0002.30

PARAMETER			R	NO	MEAN	STAN DEV	MAXIMUM	MINIMUM	BEG	END
WATER	TEMP	CENT		11	11.4545	9.67330	24.5000	.500000	80/10	81/09
STREAM	STAGE	FEET		1	45.0900		45.0900	45.0900	81/09	81/09
TURB	TRBIDMTR	HACH FTU		12	14.3667	16.7452	62.0000	3.20000	80/10	81/09
CNDUCTVY	FIELD	MICROMHO		9	995.111	979.391	2750.00	120.000	80/10	81/09
CNDUCTVY	AT 25C	MICROMHO		7	806.286	575.496	1976.00	240.000	81/02	81/09
DO		MG/L		10	10.3450	2.28625	13.2000	6.95000	80/10	81/09
COD	LOWLEVEL	MG/L		12	22.1000	4.86012	30.0000	14.0000	80/10	81/09
PH		SU		2	8.00000	.000000	8.00000	8.00000	81/07	81/09
LAB	PH	SU		11	7.28182	.365572	7.70000	6.50000	80/10	81/08
T ALK	CACO3	MG/L		9	86.6667	75.2397	282.000	25.0000	80/10	81/09
			K	1	10.0000		10.0000	10.0000	80/12	80/12
			T	10	79.0000	74.9652	282.000	10.0000	80/10	81/09
RESIDUE	TOT NFLT	MG/L		7	31.8571	31.3870	96.0000	10.0000	80/10	81/09
			K	5	10.0000	.000000	10.0000	10.0000	80/11	81/05
			T	12	22.7500	25.7686	96.0000	10.0000	80/10	81/09
NH3+NH4-	N TOTAL	MG/L		12	.150833	.062153	.260000	.070000	80/10	81/09
NO2-N	TOTAL	MG/L		10	.029000	.028067	.100000	.010000	80/10	81/08
			K	1	.010000		.010000	.010000	81/03	81/03
			T	11	.027273	.027236	.100000	.010000	80/10	81/08
NO3-N	TOTAL	MG/L		12	.504166	.213306	.800000	.190000	80/10	81/09
TOT KJEL	N	MG/L		12	.715000	.175163	1.07000	.390000	80/10	81/09
PHOS-TOT		MG/L P		12	.075000	.026202	.134000	.037000	80/10	81/09
PHOS-DIS		MG/L P		11	.033091	.013262	.054000	.014000	80/11	81/09
T ORG C	C	MG/L		5	11.0000	2.73861	15.0000	8.00000	81/01	81/09
D ORG C	C	MG/L		6	10.0000	3.03315	15.0000	6.00000	81/01	81/09
TOT HARD	CACO3	MG/L		11	314.364	228.569	741.000	65.0000	80/10	81/09
CALCIUM	CA-TOT	MG/L		9	132.889	97.2027	300.000	17.0000	80/11	81/08
SODIUM	NA,TOT	MG/L		9	115.222	87.3968	275.000	15.0000	80/11	81/08
CHLORIDE	TOTAL	MG/L		12	289.000	277.983	865.000	34.0000	80/10	81/09

TABLE RD 1-29 (Continued)

STATION NUMBER 502520
41 44 09.0 081 15 59.0 2
GRAND RIVER AT PAINESVILLE - SR 535
LAKE ERIE 060691 (GRAND RIVER)
MILES 0002.30

PARAMETER			R	NO	MEAN	STAN DEV	MAXIMUM	MINIMUM	BEG	END
SULFATE	SO4-TOT	MG/L		12	44.0833	12.0790	61.0000	25.0000	80/10	81/09
SILICA	DISOLVED	MG/L		12	4.05333	1.63619	6.13000	1.11000	80/10	81/09
ARSENIC	AS,TOT	UG/L	K	3	10.0000	.000000	10.0000	10.0000	80/12	81/06
CADMIUM	CD,TOT	UG/L	K	7	5.71428	1.88983	10.0000	5.00000	80/10	81/09
CHROMIUM	HEX-VAL	UG/L		1	60.0000		60.0000	60.0000	81/08	81/08
			K	5	36.0000	13.4164	60.0000	30.0000	80/11	81/09
			T	6	40.0000	15.4919	60.0000	30.0000	80/11	81/09
CHROMIUM	CR,TOT	UG/L		6	38.3333	16.0208	70.0000	30.0000	80/12	81/08
			K	6	30.0000	.000000	30.0000	30.0000	80/10	81/09
			T	12	34.1667	11.6451	70.0000	30.0000	80/10	81/09
COPPER	CU,TOT	UG/L	K	10	30.0000	.000000	30.0000	30.0000	80/10	81/09
IRON	FE,TOT	UG/L		12	1315.00	1145.71	4500.00	290.000	80/10	81/09
LEAD	PB,TOT	UG/L		2	5.50000	.707107	6.00000	5.00000	80/10	81/02
			K	7	5.00000	.000000	5.00000	5.00000	80/11	81/09
			T	9	5.11111	.333353	6.00000	5.00000	80/10	81/09
MANGNESE	MN	UG/L		1	60.0000		60.0000	60.0000	81/04	81/04
NICKEL	NI,TOTAL	UG/L	K	7	100.000	.000000	100.000	100.000	80/10	81/09
VANADIUM	V,TOT	UG/L	K	1	100.000		100.000	100.000	81/04	81/04
ZINC	ZN,TOT	UG/L		1	30.0000		30.0000	30.0000	81/01	81/01
			K	11	30.0000	.000000	30.0000	30.0000	80/10	81/09
			T	12	30.0000	.000000	30.0000	30.0000	80/10	81/09
ALUMINUM	AL,TOT	UG/L		1	400.000		400.000	400.000	81/04	81/04
SELENIUM	SE,TOT	UG/L	K	1	50.0000		50.0000	50.0000	81/04	81/04
FEC COLI	MFM-FCBR	/100ML		11	617.273	505.254	2000.00	150.000	80/10	81/09
FECSTREP	MF M-ENT	/100ML		11	1346.45	2724.53	9400.00	57.0000	80/10	81/09
PHENOLS	TOTAL	UG/L		12	8.50000	3.28910	17.0000	4.00000	80/10	81/09
MBAS		MG/L		6	1.50333	3.32999	8.30000	.090000	80/10	81/09
PCBS	WHL SMPL	UG/L	K	10	.500000	.000000	.500000	.500000	80/12	81/09
RESIDUE	DISS-180	C MG/L		12	730.000	567.824	1908.00	118.000	80/10	81/09
MERCURY	HG,TOTAL	UG/L	K	7	.500000	.000000	.500000	.500000	80/10	81/07

TABLE RD 1-30

STATION NUMBER 502520
41 44 09.0 081 15 59.0 2
GRAND RIVER AT PAINESVILLE - SR 535
LAKE ERIE 060691 (GRAND RIVER)
MILES 0002.30

PARAMETER			R	NO	MEAN	STAN DEV	MAXIMUM	MINIMUM	BEG	END
WATER	TEMP	CENT		11	9.95454	9.25596	25.5000	.000000	81/10	82/09
STREAM	STAGE	FEET		5	51.2019	13.7137	75.7300	44.9100	81/10	82/03
TURB	TRBIDMTR	HACH FTU		2	5.10000	2.82843	7.10000	3.10000	81/10	81/11
CNDUCTVY	FIELD	MICROMHO		11	993.182	1346.67	4850.00	260.000	81/10	82/09
CNDUCTVY	AT 25C	MICROMHO		9	1206.78	1299.84	4500.00	440.000	81/10	82/09
DO	PROBE	MG/L		9	10.5667	2.14595	12.8000	7.00000	81/12	82/09
DO		MG/L		2	11.6500	1.62643	12.8000	10.5000	81/10	81/11
BOD	5 DAY	MG/L		3	1.30000	.519617	1.90000	1.00000	82/02	82/05
			K	1	1.00000		1.00000	1.00000	82/04	82/04
			T	4	1.22500	.450001	1.90000	1.00000	82/02	82/05
COD	LOWLEVEL	MG/L		14	25.1428	9.27247	40.0000	11.0000	81/10	82/09
PH		SU		11	7.94545	.304587	8.40000	7.30000	81/10	82/09
T ALK	CACO3	MG/L		2	76.5000	3.53553	79.0000	74.0000	81/10	81/11
RESIDUE	TOT NFLT	MG/L		8	16.5000	11.8683	42.0000	6.00000	81/12	82/09
			K	3	8.33333	2.88676	10.0000	5.00000	81/10	82/01
			T	11	14.2727	10.7153	42.0000	5.00000	81/10	82/09
NH3+NH4-	N TOTAL	MG/L		10	.135000	.085927	.350000	.060000	81/10	82/09
			K	1	.050000		.050000	.050000	82/04	82/04
			T	11	.127272	.085451	.350000	.050000	81/10	82/09
NO2-N	TOTAL	MG/L		5	.026000	.008944	.040000	.020000	82/02	82/09
			K	3	.020000	.000000	.020000	.020000	81/12	82/04
			T	8	.023750	.007440	.040000	.020000	81/12	82/09
NO3-N	TOTAL	MG/L		11	.383636	.217590	.860000	.130000	81/10	82/09
TOT KJEL	N	MG/L		11	.609090	.180912	.800000	.350000	81/10	82/09
PHOS-TOT		MG/L P		7	.070571	.026658	.120000	.049000	81/10	82/09
			K	4	.050000	.000050	.050000	.050000	81/12	82/05
			T	11	.063091	.023110	.120000	.049000	81/10	82/09
PHOS-DIS		MG/L P		2	.068000	.025456	.086000	.050000	81/10	82/02
			K	4	.050000	.000050	.050000	.050000	81/12	82/06
			T	6	.056000	.014697	.086000	.050000	81/10	82/06
T ORG C	C	MG/L		2	10.5000	2.12132	12.0000	9.00000	81/10	81/11
D ORG C	C	MG/L	K	1	6.00000		6.00000	6.00000	81/10	81/10

TABLE RD 1-30 (Continued)

STATION NUMBER 502520
41 44 09.0 081 15 59.0 2
GRAND RIVER AT PAINESVILLE - SR 535
LAKE ERIE 060691 (GRAND RIVER)
MILES 0002.30

PARAMETER			R	NO	MEAN	STAN DEV	MAXIMUM	MINIMUM	BEG	END
TOT HARD	CACO3	MG/L		11	219.609	124.777	479.000	32.7000	81/10	82/09
CALCIUM	CA-TOT	MG/L		11	79.9090	43.8773	174.200	44.6000	81/10	82/09
MGNSIUM	MG,TOT	MG/L		9	9.24444	2.18926	13.1000	6.70000	81/12	82/09
SODIUM	NA,TOT	MG/L		3	99.1667	48.2763	146.500	50.0000	81/10	82/09
CHLORIDE	TOTAL	MG/L		2	220.500	109.602	298.000	143.000	81/10	81/11
SULFATE	SO4-TOT	MG/L		2	44.0000	9.89949	51.0000	37.0000	81/10	81/11
SILICA	DISOLVED	MG/L		2	3.77500	2.04354	5.22000	2.33000	81/10	81/11
CADMIUM	CD,TOT	UG/L	K	6	.500000	.000000	.500000	.500000	81/12	82/08
CHROMIUM	CR,TOT	UG/L		2	35.0000	7.07107	40.0000	30.0000	82/02	82/08
CHROMIUM	CR,TOT	UG/L	K	4	30.0000	.000000	30.0000	30.0000	81/12	82/06
			T	6	31.6667	4.08264	40.0000	30.0000	81/12	82/08
COPPER	CU,TOT	UG/L		4	12.5000	2.88675	15.0000	10.0000	82/04	82/09
			K	7	15.7143	9.75900	30.0000	10.0000	81/10	82/06
			T	11	14.5455	7.89131	30.0000	10.0000	81/10	82/09
IRON	FE,TOT	UG/L		6	1081.67	467.395	1680.00	450.000	81/12	82/06
LEAD	PB,TOT	UG/L		2	5.00000	2.82843	7.00000	3.00000	81/10	82/06
			K	8	3.87500	1.55265	5.00000	2.00000	81/11	82/08
			T	10	4.10000	1.72884	7.00000	2.00000	81/10	82/08
MANGNESE	MN	UG/L		1	50.0000		50.0000	50.0000	82/03	82/03
NICKEL	NI,TOTAL	UG/L	K	5	36.0000	5.47723	40.0000	30.0000	81/12	82/06
ZINC	ZN,TOT	UG/L		4	23.7500	15.4785	45.0000	10.0000	82/02	82/09
			K	7	15.7143	9.75900	30.0000	10.0000	81/10	82/06
			T	11	18.6363	12.0605	45.0000	10.0000	81/10	82/09
FEC COLI	MFM-FCBR	/100ML		11	285.182	287.321	770.000	63.0000	81/10	82/09
FECSTREP	MF M-ENT	/100ML		11	426.091	593.915	1900.00	15.0000	81/10	82/09
PHENOLS	TOTAL	UG/L		2	4.50000	.707107	5.00000	4.00000	81/10	81/11
			K	2	10.0000	.000000	10.0000	10.0000	82/08	82/09
			T	4	7.25000	3.20156	10.0000	4.00000	81/10	82/09
MBAS		MG/L		2	.110000	.014142	.120000	.100000	81/10	81/11
PCBS	WHL SMPL	UG/L	K	10	.500000	.000000	.500000	.500000	81/11	82/09
RESIDUE	DISS-180	C MG/L		9	594.444	337.308	1350.00	318.000	81/10	82/09

TABLE RD 1-31

STATION NUMBER 610050
39 52 20.5 084 09 48.0 2
GREAT MIAMI R NR VANDALIA - SR 440
OHIO RIVER (GREAT MIAMI RIVER)
MILES 0953.80 0490.43 092.46

PARAMETER			R	NO	MEAN	STAN DEV	MAXIMUM	MINIMUM	BEG	END
WATER	TEMP	CENT		14	11.8143	7.64489	23.2000	.000000	80/10	81/09
CNDUCTVY	AT 25C	MICROMHO		13	648.231	171.472	833.000	136.000	80/10	81/09
INTNSVE	SURVEY	IDENT		2	803901	.000000	803901	803901	80/10	80/10
DO	PROBE	MG/L		2	8.55000	.495124	8.90000	8.20000	80/10	80/10
DO		MG/L		12	9.75833	2.10432	13.2000	6.40000	80/10	81/09
BOD	5 DAY	MG/L		1	4.30000		4.30000	4.30000	80/10	80/10
COD	LOWLEVEL	MG/L		14	22.0143	12.1685	53.0000	8.00000	80/10	81/09
PH		SU		3	7.96666	.351324	8.30000	7.60000	81/06	81/09
LAB	PH	SU		10	7.94999	.151042	8.10000	7.60000	80/10	81/08
RESIDUE	TOT NFLT	MG/L		9	58.2111	36.3047	136.000	23.0000	80/10	81/09
			K	5	10.0000	.000000	10.0000	10.0000	80/10	81/03
			T	14	40.9928	37.2262	136.000	10.0000	80/10	81/09
NH3+NH4-	N TOTAL	MG/L		12	.282500	.235762	.790000	.060000	80/10	81/09
			K	2	.050000	.000061	.050000	.050000	81/04	81/06
			T	14	.249285	.232724	.790000	.050000	80/10	81/09
NO2-N	TOTAL	MG/L		2	.020000	.000000	.020000	.020000	80/10	80/10
NO3-N	TOTAL	MG/L		14	3.52571	1.46546	6.60000	2.02000	80/10	81/09
TOT KJEL	N	MG/L		14	1.12357	.507629	2.65000	.630000	80/10	81/09
PHOS-TOT		MG/L P		14	.433142	.160424	.663000	.198000	80/10	81/09
CYANIDE	CN-TOT	MG/L	K	7	.010000	.000009	.010000	.010000	80/10	81/09
TOT HARD	CACO3	MG/L		7	350.000	20.9125	392.000	326.000	80/10	81/09
MGNSIUM	MG,TOT	MG/L		2	40.0000	.000000	40.0000	40.0000	80/10	80/10
CADMIUM	CD,TOT	UG/L	K	7	3.85714	1.95180	5.00000	1.00000	80/10	81/09
CHROMIUM	CR,TOT	UG/L		1	30.0000		30.0000	30.0000	81/06	81/06
			K	6	33.3333	5.16403	40.0000	30.0000	80/10	81/09
			T	7	32.8571	4.87961	40.0000	30.0000	80/10	81/09
COPPER	CU,TOT	UG/L	K	7	22.8571	12.1988	30.0000	5.00000	80/10	81/09
IRON	FE,TOT	UG/L		7	758.571	509.720	1490.00	230.000	80/10	81/09
LEAD	PB,TOT	UG/L		2	7.00000	2.82843	9.00000	5.00000	80/10	81/03
			K	5	5.00000	.000000	5.00000	5.00000	80/10	81/09
			T	7	5.57143	1.51186	9.00000	5.00000	80/10	81/09
NICKEL	NI,TOTAL	UG/L		3	100.000	.000000	100.000	100.000	80/12	81/09
			K	4	70.0000	34.6410	100.000	40.0000	80/10	81/06
			T	7	82.8571	29.2771	100.000	40.0000	80/10	81/09
ZINC	ZN,TOT	UG/L		2	12.5000	3.53553	15.0000	10.0000	80/10	80/10
			K	5	30.0000	.000000	30.0000	30.0000	80/10	81/09
			T	7	25.0000	8.66025	30.0000	10.0000	80/10	81/09
FEC COLI	MFM-FCBR	/100ML		12	2955.00	2450.00	8000.00	260.000	80/10	81/09
			L	1	100000		100000	100000	80/11	80/11
			T	13	10420.0	27017.5	100000	260.000	80/10	81/09
PHENOLS	TOTAL	UG/L		6	3.66667	1.75119	7.00000	2.00000	80/10	81/06
PHENOLS	TOTAL	UG/L	K	1	2.00000		2.00000	2.00000	81/09	81/09
			T	7	3.42857	1.71825	7.00000	2.00000	80/10	81/09
MERCURY	HG,TOTAL	UG/L	K	5	.500000	.000000	.500000	.500000	80/10	81/09

TABLE RD 1-32

STATION NUMBER 610050
39 52 20.5 084 09 48.0 2
GREAT MIAMI R NR VANDALIA - SR 440
OHIO RIVER (GREAT MIAMI RIVER)
MILES 0953.80 0490.43 092.46

No data were collected from 10/81 - 9/82.

TABLE RD 1-33

STATION NUMBER 610060
39 45 55.0 084 11 51.0 2
GREAT MIAMI RIVER AT DAYTON - MAIN ST
OHIO RIVER (GREAT MIAMI RIVER)
MILES 0953.80 0490.10 080.00

PARAMETER			R	NO	MEAN	STAN DEV	MAXIMUM	MINIMUM	BEG	END
WATER	TEMP	CENT		12	11.5333	7.22865	23.1000	1.00000	80/10	81/09
CNDUCTVY	AT 25C	MICROMHO		12	679.833	110.414	879.000	508.000	80/10	81/09
INTNSVE	SURVEY	IDENT		2	803901	.000000	803901	803901	80/10	80/10
DO	PROBE	MG/L		2	8.64999	.072028	8.70000	8.60000	80/10	80/10
DO		MG/L		10	10.6500	2.00403	13.6000	7.60000	80/11	81/09
BOD	5 DAY	MG/L		2	3.20000	1.55563	4.30000	2.10000	80/10	80/10
COD	LOWLEVEL	MG/L		13	19.6769	12.3760	44.0000	9.00000	80/10	81/09
PH		SU		3	8.13333	.153516	8.30000	8.00000	81/06	81/09
LAB	PH	SU		8	8.02499	.175390	8.30000	7.70000	80/10	81/05
RESIDUE	TOT NFLT	MG/L		9	85.7111	103.780	325.000	13.0000	80/10	81/09
			K	3	10.0000	.000000	10.0000	10.0000	80/12	81/03
			T	12	66.7833	94.8971	325.000	10.0000	80/10	81/09
NH3+NH4-	N TOTAL	MG/L		11	.289091	.338185	1.09000	.050000	80/10	81/09
			K	2	.050000	.000061	.050000	.050000	81/04	81/06
			T	13	.252307	.321510	1.09000	.050000	80/10	81/09
NO2-N	TOTAL	MG/L		2	.050000	.014142	.060000	.040000	80/10	80/10
NO3-N	TOTAL	MG/L		13	3.60307	1.83021	7.70000	2.14000	80/10	81/09
TOT KJEL	N	MG/L		13	1.13077	.783817	3.48000	.600000	80/10	81/09
PHOS-TOT		MG/L P		13	.361384	.125573	.598000	.212000	80/10	81/09
CYANIDE	CN-TOT	MG/L	K	6	.010000	.000000	.010000	.010000	80/10	81/09
TOT HARD	CACO3	MG/L		6	364.000	20.5134	388.000	340.000	80/10	81/09
MGNSIUM	MG,TOT	MG/L		2	41.5000	2.12132	43.0000	40.0000	80/10	80/10
CADMIUM	CD,TOT	UG/L	K	6	3.66667	2.06559	5.00000	1.00000	80/10	81/09
CHROMIUM	CR,TOT	UG/L		1	30.0000		30.0000	30.0000	81/06	81/06
			K	5	34.0000	5.47723	40.0000	30.0000	80/10	81/09
			T	6	33.3333	5.16403	40.0000	30.0000	80/10	81/09
COPPER	CU,TOT	UG/L		1	5.00000		5.00000	5.00000	80/10	80/10
			K	5	25.0000	11.1803	30.0000	5.00000	80/10	81/09
			T	6	21.6667	12.9100	30.0000	5.00000	80/10	81/09
IRON	FE,TOT	UG/L		6	681.666	433.978	1380.00	300.000	80/10	81/09
LEAD	PB,TOT	UG/L		1	6.00000		6.00000	6.00000	81/06	81/06
			K	5	5.00000	.000000	5.00000	5.00000	80/10	81/09
			T	6	5.16667	.408273	6.00000	5.00000	80/10	81/09
NICKEL	NI,TOTAL	UG/L		3	100.000	.000000	100.000	100.000	80/12	81/09
			K	3	60.0000	34.6410	100.000	40.0000	80/10	81/06
			T	6	80.0000	30.9839	100.000	40.0000	80/10	81/09
ZINC	ZN,TOT	UG/L		3	15.0000	13.2288	30.0000	5.00000	80/10	80/12
			K	3	30.0000	.000000	30.0000	30.0000	81/03	81/09
			T	6	22.5000	11.7260	30.0000	5.00000	80/10	81/09
FEC COLI	MFM-FCBR	/100ML		11	1382.27	966.062	3200.00	85.0000	80/10	81/09
			L	1	100000		100000	100000	81/08	81/08
FEC COLI	MFM-FCBR	/100ML	T	12	9600.41	28483.4	100000	85.0000	80/10	81/09
PHENOLS	TOTAL	UG/L		5	3.60000	1.34165	5.00000	2.00000	80/10	81/06
			K	1	2.00000		2.00000	2.00000	81/09	81/09
			T	6	3.33333	1.36627	5.00000	2.00000	80/10	81/09
MERCURY	HG,TOTAL	UG/L	K	4	.500000	.000000	.500000	.500000	80/12	81/09

TABLE RD 1-34

STATION NUMBER 610060
39 45 55.0 084 11 51.0 2
GREAT MIAMI RIVER AT DAYTON - MAIN ST
OHIO RIVER (GREAT MIAMI RIVER)
MILES 0953.80 0490.10 080.00

PARAMETER			R	NO	MEAN	STAN DEV	MAXIMUM	MINIMUM	BEG	END
WATER	TEMP	CENT		12	12.0333	8.02636	23.5000	.000000	81/10	82/09
STREAM	FLOW	CFS		7	3360.71	3065.15	10230.0	1389.00	81/12	82/06
STREAM	STAGE	FEET		6	26.4283	.975080	28.3200	25.5300	81/11	82/06
CNDUCTVY	AT 25C	MICROMHO		11	622.091	121.327	783.000	410.000	81/10	82/09
DO	PROBE	MG/L		10	10.4500	2.77219	14.8000	7.10000	81/12	82/09
DO		MG/L		2	10.7000	.424417	11.0000	10.4000	81/10	81/11
COD	LOWLEVEL	MG/L		12	23.5000	14.2287	66.0000	12.0000	81/10	82/09
PH		SU		1	8.40000		8.40000	8.40000	81/10	81/10
LAB	PH	SU		10	8.09899	.229876	8.46000	7.74000	81/11	82/09
RESIDUE	TOT NFLT	MG/L		10	54.6000	66.8750	215.000	8.00000	81/10	82/09
			K	1	10.0000		10.0000	10.0000	81/11	81/11
			T	11	50.5454	64.8527	215.000	8.00000	81/10	82/09
NH3+NH4-	N TOTAL	MG/L		10	.248000	.147634	.500000	.090000	81/10	82/09
			K	2	.050000	.000061	.050000	.050000	82/05	82/07
			T	12	.215000	.154185	.500000	.050000	81/10	82/09
NO2-N	TOTAL	MG/L		2	.105000	.021213	.120000	.090000	82/03	82/06
NO3-N	TOTAL	MG/L		11	3.06545	1.30057	5.45000	1.14000	81/10	82/08
TOT KJEL	N	MG/L		12	.971666	.219994	1.50000	.640000	81/10	82/09
PHOS-TOT		MG/L P		12	.318416	.093688	.480000	.170000	81/10	82/09
CYANIDE	CN-TOT	MG/L	K	1	.010000		.010000	.010000	81/12	81/12
TOT HARD	CACO3	MG/L		4	310.500	58.8189	366.000	252.000	81/12	82/09
CALCIUM	CA-TOT	MG/L		4	72.9250	11.8409	86.2000	62.3000	81/12	82/09
MGNSIUM	MG,TOT	MG/L		4	31.1750	7.81300	40.7000	23.4000	81/12	82/09
CADMIUM	CD,TOT	UG/L	K	3	.500000	.000000	.500000	.500000	81/12	82/06
CHROMIUM	CR,TOT	UG/L	K	4	30.0000	.000000	30.0000	30.0000	81/12	82/09
COPPER	CU,TOT	UG/L		1	10.0000		10.0000	10.0000	82/06	82/06
			K	3	10.0000	.000000	10.0000	10.0000	81/12	82/09
			T	4	10.0000	.000000	10.0000	10.0000	81/12	82/09
IRON	FE,TOT	UG/L		4	3957.50	3837.21	8580.00	780.000	81/12	82/09
LEAD	PB,TOT	UG/L		3	7.06667	2.72275	9.20000	4.00000	82/03	82/09
			K	1	5.00000		5.00000	5.00000	81/12	81/12
			T	4	6.55000	2.45153	9.20000	4.00000	81/12	82/09
NICKEL	NI,TOTAL	UG/L	K	4	37.5000	5.00000	40.0000	30.0000	81/12	82/09
ZINC	ZN,TOT	UG/L		4	27.5000	10.4083	40.0000	15.0000	81/12	82/09
FEC COLI	MFM-FCBR	/100ML		11	2097.00	1532.09	4500.00	67.0000	81/10	82/09
PHENOLS	TOTAL	UG/L		1	2.00000		2.00000	2.00000	81/12	81/12

TABLE RD 1-35

STATION NUMBER 600150
39 38 40.0 084 17 23.0 2
GREAT MIAMI R. AT MIAMISBURG - SR 725
OHIO RIVER 051391 (GREAT MIAMI RIVER)
MILES 0953.80 0490.10 066.40

PARAMETER			R	NO	MEAN	STAN DEV	MAXIMUM	MINIMUM	BEG	END
WATER	TEMP	CENT		13	14.1462	7.44207	23.5000	4.50000	80/10	81/09
STREAM	FLOW,	INST-CFS		11	2891.69	2207.14	6691.00	405.000	80/11	81/09
STREAM	STAGE	FEET		9	4.36222	1.64708	6.62000	2.40000	80/11	81/09
CNDUCTVY	AT 25C	MICROMHO		12	688.333	187.622	983.000	271.000	80/10	81/09
INTNSVE	SURVEY	IDENT		2	803901	.000000	803901	803901	80/10	80/10
DO	PROBE	MG/L		2	6.45000	.919248	7.10000	5.80000	80/10	80/10
DO		MG/L		7	8.29999	1.63710	10.5000	6.30000	80/11	81/09
BOD	5 DAY	MG/L		2	9.85000	3.04057	12.0000	7.70000	80/10	80/10
COD	LOWLEVEL	MG/L		13	27.2000	10.8684	49.0000	15.0000	80/10	81/09
PH		SU		2	8.24999	.072345	8.30000	8.20000	81/08	81/09
LAB	PH	SU		10	7.83999	.183995	8.20000	7.60000	80/10	81/07
RESIDUE	TOT NFLT	MG/L		10	87.7100	89.7676	280.000	15.0000	80/10	81/09
			K	3	10.0000	.000000	10.0000	10.0000	80/11	81/03
			T	13	69.7769	84.8821	280.000	10.0000	80/10	81/09
NH3+NH4-	N TOTAL	MG/L		13	1.20769	1.05624	3.34000	.160000	80/10	81/09
NO2-N	TOTAL	MG/L		2	.420000	.056568	.460000	.380000	80/10	80/10
NO3-N	TOTAL	MG/L		13	3.81923	1.51499	6.33000	1.92000	80/10	81/09
TOT KJEL	N	MG/L		13	2.31923	.981668	4.74000	1.35000	80/10	81/09
PHOS-TOT		MG/L P		13	.621153	.267230	1.00000	.275000	80/10	81/09
CYANIDE	CN-TOT	MG/L		2	.024000	.005657	.028000	.020000	80/10	81/03
			K	4	.010000	.000000	.010000	.010000	80/10	81/09
			T	6	.014667	.007659	.028000	.010000	80/10	81/09
TOT HARD	CACO3	MG/L		6	345.000	45.6070	387.000	261.000	80/10	81/09
MGNSIUM	MG,TOT	MG/L		2	42.5000	3.53553	45.0000	40.0000	80/10	80/10
CADMIUM	CD,TOT	UG/L	K	6	3.66667	2.06559	5.00000	1.00000	80/10	81/09
CHROMIUM	CR,TOT	UG/L		1	30.0000		30.0000	30.0000	81/06	81/06
			K	5	34.0000	5.47723	40.0000	30.0000	80/10	81/09
			T	6	33.3333	5.16403	40.0000	30.0000	80/10	81/09
COPPER	CU,TOT	UG/L		2	12.5000	3.53553	15.0000	10.0000	80/10	80/10
			K	4	30.0000	.000000	30.0000	30.0000	80/12	81/09
			T	6	24.1667	9.17427	30.0000	10.0000	80/10	81/09
IRON	FE,TOT	UG/L		6	1851.67	2868.19	7600.00	230.000	80/10	81/09
LEAD	PB,TOT	UG/L		5	10.4000	9.28978	27.0000	6.00000	80/10	81/09
			K	1	5.00000		5.00000	5.00000	81/03	81/03
			T	6	9.50000	8.59651	27.0000	5.00000	80/10	81/09
NICKEL	NI,TOTAL	UG/L		2	100.000	.000000	100.000	100.000	80/12	81/03
			K	4	70.0000	34.6410	100.000	40.0000	80/10	81/09
			T	6	80.0000	30.9839	100.000	40.0000	80/10	81/09
ZINC	ZN,TOT	UG/L		6	54.1667	31.0511	105.000	30.0000	80/10	81/09
FEC COLI	MFM-FCBR	/100ML		8	18007.5	11296.9	39000.0	7200.00	80/10	81/09
			L	3	100000	.000000	100000	100000	80/11	81/01
FEC COLI	MFM-FCBR	/100ML	T	11	40369.1	39447.7	100000	7200.00	80/10	81/09
PHENOLS	TOTAL	UG/L		6	6.66667	1.96639	9.00000	4.00000	80/10	81/09
MERCURY	HG,TOTAL	UG/L	K	4	.500000	.000000	.500000	.500000	80/12	81/09

TABLE RD 1-36

STATION NUMBER 600150
39 38 40.0 084 17 23.0 2
GREAT MIAMI R. AT MIAMISBURG - SR 725
OHIO RIVER 051391 (GREAT MIAMI RIVER)
MILES 0953.80 0490.10 066.40

No data were collected from 10/81 - 9/82.

TABLE RD 1-37

STATION NUMBER 600270
39 23 28.0 084 34 20.0 2
GREAT MIAMI RIVER AT HAMILTON - COLUMBIA RD
OHIO RIVER 051391 (GREAT MIAMI RIVER)
MILES 0953.80 0490.10 034.90

PARAMETER			R	NO	MEAN	STAN DEV	MAXIMUM	MINIMUM	BEG	END
WATER	TEMP	CENT		13	15.1462	7.69758	25.5000	5.00000	80/10	81/09
STREAM	FLOW,	INST-CFS		11	3519.35	3147.13	11510.0	951.900	80/10	81/09
STREAM	STAGE	FEET		9	59.1543	1.70320	62.6100	57.3500	80/11	81/09
CNDUCTVY	AT 25C	MICROMHO		12	734.250	143.027	971.000	509.000	80/10	81/09
INTNSVE	SURVEY	IDENT		2	803901	.000000	803901	803901	80/10	80/10
DO	PROBE	MG/L		2	10.7000	1.41425	11.7000	9.70000	80/10	80/10
DO		MG/L		7	9.77142	1.73082	11.8000	7.40000	80/11	81/09
BOD	5 DAY	MG/L		2	5.20000	1.83848	6.50000	3.90000	80/10	80/10
COD	LOWLEVEL	MG/L		13	23.7769	9.70901	46.0000	14.5000	80/10	81/09
PH		SU		2	8.39999	.142136	8.50000	8.30000	81/08	81/09
LAB	PH	SU		10	7.92999	.141873	8.20000	7.70000	80/10	81/07
RESIDUE	TOT NFLT	MG/L		11	87.8636	94.7793	290.000	10.0000	80/10	81/09
			K	1	10.0000		10.0000	10.0000	80/11	80/11
			T	12	81.3750	93.1219	290.000	10.0000	80/10	81/09
NH3+NH4-	N TOTAL	MG/L		12	.556666	.605585	2.02000	.100000	80/10	81/09
			K	1	.050000		.050000	.050000	81/08	81/08
			T	13	.517692	.596590	2.02000	.050000	80/10	81/09
NO2-N	TOTAL	MG/L		2	.135000	.021214	.150000	.120000	80/10	80/10
NO3-N	TOTAL	MG/L		13	3.95153	1.27731	6.27000	2.63000	80/10	81/09
TOT KJEL	N	MG/L		13	1.50923	.488017	2.51000	.770000	80/10	81/09
PHOS-TOT		MG/L P		13	.502923	.180531	.770000	.248000	80/10	81/09
CYANIDE	CN-TOT	MG/L	K	6	.010000	.000000	.010000	.010000	80/10	81/09
TOT HARD	CACO3	MG/L		6	349.666	37.1431	397.000	293.000	80/10	81/09
MGNSIUM	MG,TOT	MG/L		2	42.5000	3.53553	45.0000	40.0000	80/10	80/10
CADMIUM	CD,TOT	UG/L	K	6	3.66667	2.06559	5.00000	1.00000	80/10	81/09
CHROMIUM	CR,TOT	UG/L		1	40.0000		40.0000	40.0000	81/06	81/06
			K	5	34.0000	5.47723	40.0000	30.0000	80/10	81/09
			T	6	35.0000	5.47723	40.0000	30.0000	80/10	81/09
COPPER	CU,TOT	UG/L		2	10.0000	.000000	10.0000	10.0000	80/10	80/10
			K	4	30.0000	.000000	30.0000	30.0000	80/12	81/09
			T	6	23.3333	10.3280	30.0000	10.0000	80/10	81/09
IRON	FE,TOT	UG/L		6	2580.00	3800.44	10300.0	670.000	80/10	81/09
LEAD	PB,TOT	UG/L		3	10.6667	8.08291	20.0000	6.00000	80/12	81/09
			K	3	5.00000	.000000	5.00000	5.00000	80/10	81/03
			T	6	7.83333	5.98053	20.0000	5.00000	80/10	81/09
NICKEL	NI,TOTAL	UG/L		2	100.000	.000000	100.000	100.000	80/12	81/03
			K	4	70.0000	34.6410	100.000	40.0000	80/10	81/09
			T	6	80.0000	30.9839	100.000	40.0000	80/10	81/09
ZINC	ZN,TOT	UG/L		6	73.3333	68.6052	200.000	20.0000	80/10	81/09
FEC COLI	MFM-FCBR	/100ML		8	22050.0	27918.4	72000.0	1700.00	81/01	81/09
			L	2	100000	.000000	100000	100000	80/12	81/07
FEC COLI	MFM-FCBR	/100ML	T	10	37640.0	41066.3	100000	1700.00	80/12	81/09
PHENOLS	TOTAL	UG/L		6	5.66667	1.96639	9.00000	4.00000	80/10	81/09
MERCURY	HG,TOTAL	UG/L		1	1.00000		1.00000	1.00000	81/09	81/09
			K	3	.500000	.000000	.500000	.500000	80/12	81/06
			T	4	.625000	.250000	1.00000	.500000	80/12	81/09

TABLE RD 1-38

STATION NUMBER 600270
39 23 28.0 084 34 20.0 2
GREAT MIAMI RIVER AT HAMILTON - COLUMBIA RD
OHIO RIVER 051391 (GREAT MIAMI RIVER)
MILES 0953.80 0490.10 034.90

No data were collected from 10/81 - 9/82.

TABLE RD 1-39

STATION NUMBER 600350
39 55 32.0 083 50 53.0 2
BUCK CREEK AT SPRINGFIELD - U.S. RT. 40
OHIO RIVER (GREAT MIAMI RIVER)
MILES 0953.80 0490.10 080.70 026.50 000.20

PARAMETER			R	NO	MEAN	STAN DEV	MAXIMUM	MINIMUM	BEG	END
WATER	TEMP	CENT		3	11.2333	9.35219	21.5000	3.20000	80/10	81/07
CNDUCTVY	AT 25C	MICROMHO		4	579.750	77.3757	671.000	496.000	80/10	81/07
DO		MG/L		3	10.6667	2.48464	12.2000	7.80000	80/10	81/07
COD	LOWLEVEL	MG/L		4	13.5000	6.85565	19.0000	4.00000	80/10	81/07
PH		SU		1	8.10000		8.10000	8.10000	81/07	81/07
LAB	PH	SU		2	8.05000	.071709	8.10000	8.00000	80/10	81/02
RESIDUE	TOT NFLT	MG/L		3	26.0000	12.7671	37.0000	12.0000	81/02	81/07
			K	1	10.0000		10.0000	10.0000	80/10	80/10
			T	4	22.0000	13.1403	37.0000	10.0000	80/10	81/07
NH3+NH4-	N TOTAL	MG/L		3	.223333	.030551	.250000	.190000	80/10	81/07
			K	1	.050000		.050000	.050000	81/02	81/02
			T	4	.180000	.090185	.250000	.050000	80/10	81/07
NO3-N	TOTAL	MG/L		4	2.41000	.696803	3.17000	1.59000	80/10	81/07
TOT KJEL	N	MG/L		4	.769999	.199668	.960000	.560000	80/10	81/07
PHOS-TOT		MG/L P		4	.075500	.028572	.117000	.052000	80/10	81/07
CYANIDE	CN-TOT	MG/L	K	4	.010000	.000000	.010000	.010000	80/10	81/07
TOT HARD	CACO3	MG/L		3	304.000	12.0000	316.000	292.000	80/10	81/06
CADMIUM	CD,TOT	UG/L	K	4	5.00000	.000000	5.00000	5.00000	80/10	81/07
CHROMIUM	CR,TOT	UG/L		1	40.0000		40.0000	40.0000	80/10	80/10
			K	3	30.0000	.000000	30.0000	30.0000	81/02	81/07
			T	4	32.5000	5.00000	40.0000	30.0000	80/10	81/07
COPPER	CU,TOT	UG/L	K	4	30.0000	.000000	30.0000	30.0000	80/10	81/07
IRON	FE,TOT	UG/L		4	970.000	723.003	1830.00	230.000	80/10	81/07
LEAD	PB,TOT	UG/L		2	5.50000	.707107	6.00000	5.00000	81/06	81/07
			K	2	5.00000	.000000	5.00000	5.00000	80/10	81/02
			T	4	5.25000	.500000	6.00000	5.00000	80/10	81/07
NICKEL	NI,TOTAL	UG/L	K	4	100.000	.000000	100.000	100.000	80/10	81/07
ZINC	ZN,TOT	UG/L		2	50.0000	28.2843	70.0000	30.0000	80/10	81/06
			K	2	30.0000	.000000	30.0000	30.0000	81/02	81/07
			T	4	40.0000	20.0000	70.0000	30.0000	80/10	81/07
FEC COLI	MFM-FCBR	/100ML		2	635.000	417.193	930.000	340.000	81/02	81/06
			L	2	100000	.000000	100000	100000	80/10	81/07
			T	4	50317.5	57368.9	100000	340.000	80/10	81/07
PHENOLS	TOTAL	UG/L		2	4.00000	2.82843	6.00000	2.00000	80/10	81/07
			K	2	2.00000	.000000	2.00000	2.00000	81/02	81/06
			T	4	3.00000	2.00000	6.00000	2.00000	80/10	81/07
MERCURY	HG,TOTAL	UG/L		1	.500000		.500000	.500000	81/06	81/06
			K	3	.500000	.000000	.500000	.500000	80/10	81/07
			T	4	.500000	.000000	.500000	.500000	80/10	81/07

TABLE RD 1-40

STATION NUMBER 600350
39 55 32.0 083 50 53.0 2
BUCK CREEK AT SPRINGFIELD - U.S. RT. 40
OHIO RIVER (GREAT MIAMI RIVER)
MILES 0953.80 0490.10 080.70 026.50 000.20

No data were collected from 10/81 - 9/82.

TABLE RD 1-41

STATION NUMBER 600250
39 28 26.0 084 23 51.0 2
DICKS CREEK NEAR EXCELLO - YANKEE RD
OHIO RIVER 051392 (GREAT MIAMI RIVER)
MILES 0953.80 0490.10 046.80 002.50

PARAMETER			R	NO	MEAN	STAN DEV	MAXIMUM	MINIMUM	BEG	END
WATER	TEMP	CENT		3	11.1667	6.20671	17.8000	5.50000	80/12	81/05
CNDUCTVY	AT 25C	MICROMHO		3	1009.00	327.602	1320.00	667.000	80/12	81/05
DO		MG/L		2	8.80000	.283089	9.00000	8.60000	80/12	81/05
COD	LOWLEVEL	MG/L		3	16.6667	8.96292	27.0000	11.0000	80/12	81/05
PH		SU		1	8.00000		8.00000	8.00000	81/05	81/05
LAB	PH	SU		2	7.90000	.282846	8.10000	7.70000	80/12	81/02
RESIDUE	TOT NFLT	MG/L		2	54.0000	62.2254	98.0000	10.0000	80/12	81/05
			K	1	10.0000		10.0000	10.0000	81/02	81/02
			T	3	39.3333	50.8068	98.0000	10.0000	80/12	81/05
NH3+NH4-	N TOTAL	MG/L		3	1.45000	1.19486	2.76000	.420000	80/12	81/05
NO3-N	TOTAL	MG/L		3	3.44667	.966250	4.44000	2.51000	80/12	81/05
TOT KJEL	N	MG/L		3	2.38333	1.34031	3.91000	1.40000	80/12	81/05
PHOS-TOT		MG/L P		3	.316000	.104096	.382000	.196000	80/12	81/05
CYANIDE	CN-TOT	MG/L		2	.021500	.012021	.030000	.013000	80/12	81/02
			K	1	.010000		.010000	.010000	81/05	81/05
			T	3	.017667	.010786	.030000	.010000	80/12	81/05
TOT HARD	CACO3	MG/L		3	386.000	80.6722	460.000	300.000	80/12	81/05
CHLORIDE	TOTAL	MG/L		1	58.0000		58.0000	58.0000	81/05	81/05
FLUORIDE	F,TOTAL	MG/L		1	.930000		.930000	.930000	81/05	81/05
CADMIUM	CD,TOT	UG/L		2	5.50000	.707107	6.00000	5.00000	81/02	81/05
			K	1	5.00000		5.00000	5.00000	80/12	80/12
			T	3	5.33333	.577359	6.00000	5.00000	80/12	81/05
CHROMIUM	CR,TOT	UG/L	K	3	30.0000	.000000	30.0000	30.0000	80/12	81/05
COPPER	CU,TOT	UG/L	K	3	30.0000	.000000	30.0000	30.0000	80/12	81/05
IRON	FE,TOT	UG/L		3	2176.67	1839.68	4300.00	1060.00	80/12	81/05
LEAD	PB,TOT	UG/L		2	16.0000	4.24264	19.0000	13.0000	81/02	81/05
			K	1	5.00000		5.00000	5.00000	80/12	80/12
			T	3	12.3333	7.02378	19.0000	5.00000	80/12	81/05
NICKEL	NI,TOTAL	UG/L	K	3	100.000	.000000	100.000	100.000	80/12	81/05
ZINC	ZN,TOT	UG/L		3	2300.00	1425.66	3750.00	900.000	80/12	81/05
FEC COLI	MFM-FCBR	/100ML		3	7866.66	1006.68	8800.00	6800.00	80/12	81/05
PHENOLS	TOTAL	UG/L		3	8.66667	1.52755	10.0000	7.00000	80/12	81/05
MERCURY	HG,TOTAL	UG/L		1	.500000		.500000	.500000	81/05	81/05
			K	2	.500000	.000000	.500000	.500000	80/12	81/02
			T	3	.500000	.000000	.500000	.500000	80/12	81/05

TABLE RD 1-42

STATION NUMBER 600250
39 28 26.0 084 23 51.0 2
DICKS CREEK NEAR EXCELLO - YANKEE RD
OHIO RIVER 051392 (GREAT MIAMI RIVER)
MILES 0953.80 0490.10 046.80 002.50

No data were collected from 10/81 - 9/82.

TABLE RD 1-43

STATION NUMBER 600260
39 26 36.0 084 32 50.0 2
FOUR MILE CREEK AT NEW MIAMI - JACKSONBURG RD
OHIO RIVER 051391 (GREAT MIAMI RIVER)
MILES 0953.80 0490.10 037.50 000.30

PARAMETER			R	NO	MEAN	STAN DEV	MAXIMUM	MINIMUM	BEG	END
WATER	TEMP	CENT		3	8.13333	8.57341	18.0000	2.50000	80/12	81/05
CNDUCTVY	AT 25C	MICROMHO		3	628.666	75.0866	710.000	562.000	80/12	81/05
DO		MG/L		1	12.8000		12.8000	12.8000	80/12	80/12
COD	LOWLEVEL	MG/L		3	10.6667	3.05508	14.0000	8.00000	80/12	81/05
LAB	PH	SU		3	7.90000	.008735	7.90000	7.90000	80/12	81/05
RESIDUE	TOT NFLT	MG/L		1	26.0000		26.0000	26.0000	81/05	81/05
			K	2	10.0000	.000000	10.0000	10.0000	80/12	81/02
			T	3	15.3333	9.23761	26.0000	10.0000	80/12	81/05
NH3+NH4-	N TOTAL	MG/L		2	.205000	.106066	.280000	.130000	81/02	81/05
			K	1	.050000		.050000	.050000	80/12	80/12
			T	3	.153333	.116762	.280000	.050000	80/12	81/05
NO3-N	TOTAL	MG/L		3	3.84333	1.20604	4.73000	2.47000	80/12	81/05
TOT KJEL	N	MG/L		3	.686666	.331714	1.05000	.400000	80/12	81/05
PHOS-TOT		MG/L P		3	.155667	.008738	.163000	.146000	80/12	81/05
CYANIDE	CN-TOT	MG/L	K	3	.010000	.000000	.010000	.010000	80/12	81/05
TOT HARD	CACO3	MG/L		3	297.333	27.2288	328.000	276.000	80/12	81/05
CADMIUM	CD,TOT	UG/L	K	3	5.00000	.000000	5.00000	5.00000	80/12	81/05
CHROMIUM	CR,TOT	UG/L	K	3	30.0000	.000000	30.0000	30.0000	80/12	81/05
COPPER	CU,TOT	UG/L	K	3	30.0000	.000000	30.0000	30.0000	80/12	81/05
IRON	FE,TOT	UG/L		3	516.666	418.848	860.000	50.0000	80/12	81/05
LEAD	PB,TOT	UG/L	K	3	5.00000	.000000	5.00000	5.00000	80/12	81/05
NICKEL	NI,TOTAL	UG/L		1	100.000		100.000	100.000	80/12	80/12
			K	2	100.000	.000000	100.000	100.000	81/02	81/05
			T	3	100.000	.000000	100.000	100.000	80/12	81/05
ZINC	ZN,TOT	UG/L	K	3	30.0000	.000000	30.0000	30.0000	80/12	81/05
FEC COLI	MFM-FCBR	/100ML		2	275.000	120.208	360.000	190.000	80/12	81/02
			L	1	100000		100000	100000	81/05	81/05
			T	3	33516.7	57576.3	100000	190.000	80/12	81/05
PHENOLS	TOTAL	UG/L		2	3.50000	.707107	4.00000	3.00000	81/02	81/05
			K	1	2.00000		2.00000	2.00000	80/12	80/12
			T	3	3.00000	1.00000	4.00000	2.00000	80/12	81/05
MERCURY	HG,TOTAL	UG/L	K	3	.500000	.000000	.500000	.500000	80/12	81/05

TABLE RD 1-44

STATION NUMBER 600260
39 26 36.0 084 32 50.0 2
FOUR MILE CREEK AT NEW MIAMI - JACKSONBURG RD
OHIO RIVER 051391 (GREAT MIAMI RIVER)
MILES 0953.80 0490.10 037.50 000.30

No data were collected from 10/81 - 9/82.

TABLE RD 1-45

STATION NUMBER 600060
40 06 32.0 084 22 22.0 2
GREENVILLE CREEK NR COVINGTON - RANGELINE RD
OHIO RIVER 051391 (GREAT MIAMI RIVER)
MILES 0953.80 0490.10 081.70 032.60 003.40

PARAMETER			R	NO	MEAN	STAN DEV	MAXIMUM	MINIMUM	BEG	END
WATER	TEMP	CENT		3	10.1667	9.92892	21.5000	3.00000	80/10	81/07
CNDUCTVY	AT 25C	MICROMHO		4	606.000	122.229	717.000	435.000	80/10	81/07
DO		MG/L		3	11.6000	2.98666	13.8000	8.20000	80/10	81/07
COD	LOWLEVEL	MG/L		4	16.5000	2.08167	19.0000	14.0000	80/10	81/07
PH		SU		1	8.40000		8.40000	8.40000	81/07	81/07
LAB	PH	SU		2	7.95000	.212164	8.10000	7.80000	80/10	81/02
RESIDUE	TOT NFLT	MG/L		2	157.500	99.7021	228.000	87.0000	81/06	81/07
			K	2	10.0000	.000000	10.0000	10.0000	80/10	81/02
			T	4	83.7500	102.789	228.000	10.0000	80/10	81/07
NH3+NH4-	N TOTAL	MG/L		2	.155000	.063640	.200000	.110000	81/02	81/07
			K	2	.050000	.000061	.050000	.050000	80/10	81/06
			T	4	.102500	.070887	.200000	.050000	80/10	81/07
NO3-N	TOTAL	MG/L		4	4.25500	2.29063	6.10000	.930000	80/10	81/07
TOT KJEL	N	MG/L		4	1.01250	.512471	1.67000	.440000	80/10	81/07
PHOS-TOT		MG/L P		4	.290000	.137751	.427000	.127000	80/10	81/07
CYANIDE	CN-TOT	MG/L	K	4	.010000	.000000	.010000	.010000	80/10	81/07
TOT HARD	CACO3	MG/L		4	310.000	47.2723	356.000	252.000	80/10	81/07
CADMIUM	CD,TOT	UG/L	K	4	5.00000	.000000	5.00000	5.00000	80/10	81/07
CHROMIUM	CR,TOT	UG/L		1	30.0000		30.0000	30.0000	81/07	81/07
			K	3	30.0000	.000000	30.0000	30.0000	80/10	81/06
			T	4	30.0000	.000000	30.0000	30.0000	80/10	81/07
COPPER	CU,TOT	UG/L	K	4	30.0000	.000000	30.0000	30.0000	80/10	81/07
IRON	FE,TOT	UG/L		4	3187.50	3722.75	8300.00	370.000	80/10	81/07
LEAD	PB,TOT	UG/L		2	7.00000	1.41421	8.00000	6.00000	81/06	81/07
			K	2	5.00000	.000000	5.00000	5.00000	80/10	81/02
			T	4	6.00000	1.41421	8.00000	5.00000	80/10	81/07
NICKEL	NI,TOTAL	UG/L	K	4	100.000	.000000	100.000	100.000	80/10	81/07
ZINC	ZN,TOT	UG/L		1	40.0000		40.0000	40.0000	81/06	81/06
			K	3	30.0000	.000000	30.0000	30.0000	80/10	81/07
			T	4	32.5000	5.00000	40.0000	30.0000	80/10	81/07
FEC COLI	MFM-FCBR	/100ML		4	2372.50	2813.74	6500.00	410.000	80/10	81/07
PHENOLS	TOTAL	UG/L		3	5.00000	2.64575	8.00000	3.00000	80/10	81/07
			K	1	2.00000		2.00000	2.00000	81/06	81/06
			T	4	4.25000	2.62996	8.00000	2.00000	80/10	81/07
MERCURY	HG,TOTAL	UG/L		1	.800000		.800000	.800000	81/06	81/06
			K	3	.500000	.000000	.500000	.500000	80/10	81/07
			T	4	.575000	.150001	.800000	.500000	80/10	81/07

TABLE RD 1-46

STATION NUMBER 600060
40 06 32.0 084 22 22.0 2
GREENVILLE CREEK NR COVINGTON - RANGELINE RD
OHIO RIVER 051391 (GREAT MIAMI RIVER)
MILES 0953.80 0490.10 081.70 032.60 003.40

No data were collected from 10/81 - 9/82.

TABLE RD 1-47

STATION NUMBER 600280
39 20 28.0 084 37 46.0 2
INDIAN CREEK NEAR ROSS - SR 128
OHIO RIVER 051391 (MIAMI RIVER)
MILES 0953.80 0490.10 027.70 001.00

PARAMETER			R	NO	MEAN	STAN DEV	MAXIMUM	MINIMUM	BEG	END
WATER	TEMP	CENT		3	8.33333	9.23761	19.0000	3.00000	80/12	81/06
STREAM	FLOW,	INST-CFS		1	4277.00		4277.00	4277.00	81/06	81/06
STREAM	STAGE	FEET		1	59.5700		59.5700	59.5700	81/06	81/06
CNDUCTVY	AT 25C	MICROMHO		3	677.333	29.4873	700.000	644.000	80/12	81/06
DO		MG/L		1	13.6000		13.6000	13.6000	80/12	80/12
COD	LOWLEVEL	MG/L		3	11.3333	1.15477	12.0000	10.0000	80/12	81/06
LAB	PH	SU		3	7.99999	.100884	8.10000	7.90000	80/12	81/06
RESIDUE	TOT NFLT	MG/L	K	3	10.0000	.000000	10.0000	10.0000	80/12	81/06
NH3+NH4-	N TOTAL	MG/L	K	3	.050000	.000075	.050000	.050000	80/12	81/06
NO3-N	TOTAL	MG/L		3	4.75000	2.20218	6.75000	2.39000	80/12	81/06
TOT KJEL	N	MG/L		3	.300000	.164621	.490000	.200000	80/12	81/06
PHOS-TOT		MG/L P		3	.052667	.021008	.074000	.032000	80/12	81/06
CYANIDE	CN-TOT	MG/L	K	3	.010000	.000000	.010000	.010000	80/12	81/06
TOT HARD	CACO3	MG/L		3	334.000	8.71780	344.000	328.000	80/12	81/06
CADMIUM	CD,TOT	UG/L	K	3	5.00000	.000000	5.00000	5.00000	80/12	81/06
CHROMIUM	CR,TOT	UG/L		1	30.0000		30.0000	30.0000	81/06	81/06
			K	2	30.0000	.000000	30.0000	30.0000	80/12	81/02
			T	3	30.0000	.000000	30.0000	30.0000	80/12	81/06
COPPER	CU,TOT	UG/L	K	3	30.0000	.000000	30.0000	30.0000	80/12	81/06
IRON	FE,TOT	UG/L		3	290.000	266.270	570.000	40.0000	80/12	81/06
LEAD	PB,TOT	UG/L	K	3	5.00000	.000000	5.00000	5.00000	80/12	81/06
NICKEL	NI,TOTAL	UG/L		1	100.000		100.000	100.000	80/12	80/12
			K	2	100.000	.000000	100.000	100.000	81/02	81/06
			T	3	100.000	.000000	100.000	100.000	80/12	81/06
ZINC	ZN,TOT	UG/L	K	3	30.0000	.000000	30.0000	30.0000	80/12	81/06
FEC COLI	MFM-FCBR	/100ML		3	273.333	160.416	440.000	120.000	80/12	81/06
PHENOLS	TOTAL	UG/L		1	2.00000		2.00000	2.00000	81/06	81/06
			K	2	2.00000	.000000	2.00000	2.00000	80/12	81/02
			T	3	2.00000	.000000	2.00000	2.00000	80/12	81/06
MERCURY	HG,TOTAL	UG/L	K	3	.500000	.000000	.500000	.500000	80/12	81/06

TABLE RD 1-48

STATION NUMBER 600280
39 20 28.0 084 37 46.0 2
INDIAN CREEK NEAR ROSS - SR 128
OHIO RIVER 051391 (MIAMI RIVER)
MILES 0953.80 0490.10 027.70 001.00

No data were collected from 10/81 - 9/82.

TABLE RD 1-49

STATION NUMBER 600320
40 11 39.0 084 14 29.0 2
LORAMIE CRK NR LOCKINGTON - HARDIN-WAPAKONETA RD
OHIO RIVER 051391 (GREAT MIAMI RIVER)
MILES 0953.80 0490.10 118.80 000.40

PARAMETER			R	NO	MEAN	STAN DEV	MAXIMUM	MINIMUM	BEG	END
WATER	TEMP	CENT		4	12.6250	9.44964	21.6000	2.90000	80/10	81/07
STREAM	FLOW,	INST-CFS		4	446.600	654.574	1421.00	17.3000	80/10	81/07
STREAM	STAGE	FEET		4	78.6550	.998045	79.9900	77.5900	80/10	81/07
CNDUCTVY	AT 25C	MICROMHO		4	670.750	170.524	892.000	476.000	80/10	81/07
DO		MG/L		4	9.97500	2.78374	12.6000	6.50000	80/10	81/07
COD	LOWLEVEL	MG/L		4	27.5000	12.3423	45.0000	16.0000	80/10	81/07
PH		SU		2	8.00000	.141436	8.10000	7.90000	81/06	81/07
LAB	PH	SU		2	7.85000	.070637	7.90000	7.80000	80/10	81/02
RESIDUE	TOT NFLT	MG/L		3	89.3333	116.899	224.000	14.0000	81/02	81/07
			K	1	10.0000		10.0000	10.0000	80/10	80/10
			T	4	69.5000	103.362	224.000	10.0000	80/10	81/07
NH3+NH4-	N TOTAL	MG/L		2	.365000	.021214	.380000	.350000	81/02	81/07
			K	2	.050000	.000061	.050000	.050000	80/10	81/06
			T	4	.207500	.182277	.380000	.050000	80/10	81/07
NO3-N	TOTAL	MG/L		4	5.74500	4.07680	10.8000	1.16000	80/10	81/07
TOT KJEL	N	MG/L		4	1.44250	.998445	2.67000	.350000	80/10	81/07
PHOS-TOT		MG/L P		4	.252000	.195912	.520000	.056000	80/10	81/07
CYANIDE	CN-TOT	MG/L	K	4	.010000	.000000	.010000	.010000	80/10	81/07
TOT HARD	CACO3	MG/L		4	310.000	73.9369	404.000	232.000	80/10	81/07
CADMIUM	CD,TOT	UG/L	K	4	5.00000	.000000	5.00000	5.00000	80/10	81/07
CHROMIUM	CR,TOT	UG/L		1	40.0000		40.0000	40.0000	81/06	81/06
			K	3	30.0000	.000000	30.0000	30.0000	80/10	81/07
			T	4	32.5000	5.00000	40.0000	30.0000	80/10	81/07
COPPER	CU,TOT	UG/L	K	4	30.0000	.000000	30.0000	30.0000	80/10	81/07
IRON	FE,TOT	UG/L		4	2872.50	4111.60	9000.00	170.000	80/10	81/07
LEAD	PB,TOT	UG/L	K	4	5.00000	.000000	5.00000	5.00000	80/10	81/07
NICKEL	NI,TOTAL	UG/L	K	4	100.000	.000000	100.000	100.000	80/10	81/07
ZINC	ZN,TOT	UG/L		2	35.0000	7.07107	40.0000	30.0000	81/06	81/07
			K	2	30.0000	.000000	30.0000	30.0000	80/10	81/02
			T	4	32.5000	5.00000	40.0000	30.0000	80/10	81/07
FEC COLI	MFM-FCBR	/100ML		2	145.000	7.07107	150.000	140.000	80/10	81/02
			L	1	100000		100000	100000	81/07	81/07
			T	3	33430.0	57651.3	100000	140.000	80/10	81/07
PHENOLS	TOTAL	UG/L		4	6.50000	1.73205	8.00000	4.00000	80/10	81/07
MERCURY	HG,TOTAL	UG/L	K	4	.500000	.000000	.500000	.500000	80/10	81/07

TABLE RD 1-50

STATION NUMBER 600320
40 11 39.0 084 14 29.0 2
LORAMIE CRK NR LOCKINGTON - HARDIN-WAPAKONETA RD
OHIO RIVER 051391 (GREAT MIAMI RIVER)
MILES 0953.80 0490.10 118.80 000.40

No data were collected from 10/81 - 9/82.

TABLE RD 1-51

STATION NUMBER 610040
39 57 51.0 083 49 54.0 2
MAD RIVER AT EAGLE CITY - ST PARIS PIKE
OHIO RIVER (GREAT MIAMI RIVER)
MILES 0953.80 0490.10 080.70 028.70

PARAMETER			R	NO	MEAN	STAN DEV	MAXIMUM	MINIMUM	BEG	END
WATER	TEMP	CENT		12	10.5000	5.30917	19.5000	4.20000	80/10	81/09
STREAM	FLOW,	INST-CFS		12	338.633	191.691	743.400	167.200	80/10	81/09
STREAM	STAGE	FEET		12	5.26749	.564587	6.40000	4.67000	80/10	81/09
CNDUCTVY	AT 25C	MICROMHO		12	694.833	50.4110	758.000	600.000	80/10	81/09
DO		MG/L		12	11.7167	2.49868	16.2000	8.60000	80/10	81/09
COD	LOWLEVEL	MG/L		8	8.62500	3.73927	14.0000	4.00000	80/10	81/06
			K	4	5.50000	1.00000	6.00000	4.00000	81/03	81/09
			T	12	7.58333	3.39675	14.0000	4.00000	80/10	81/09
PH		SU		3	8.03333	.602867	8.60000	7.40000	81/06	81/09
LAB	PH	SU		9	8.04444	.101562	8.20000	7.90000	80/10	81/08
RESIDUE	TOT NFLT	MG/L		5	24.6000	17.9527	55.0000	13.0000	81/02	81/08
			K	7	10.0000	.000000	10.0000	10.0000	80/10	81/09
			T	12	16.0833	13.1803	55.0000	10.0000	80/10	81/09
NH3+NH4-	N TOTAL	MG/L		3	.123333	.087369	.220000	.050000	80/11	81/02
			K	9	.050000	.000057	.050000	.050000	80/10	81/09
			T	12	.068333	.049879	.220000	.050000	80/10	81/09
NO3-N	TOTAL	MG/L		12	3.69916	.626289	5.09000	3.10000	80/10	81/09
TOT KJEL	N	MG/L		12	.347500	.244210	1.05000	.060000	80/10	81/09
PHOS-TOT		MG/L P		12	.062250	.031537	.142000	.031000	80/10	81/09
CYANIDE	CN-TOT	MG/L	K	5	.010000	.000000	.010000	.010000	80/10	81/09
TOT HARD	CACO3	MG/L		5	394.400	10.0452	408.000	380.000	80/10	81/09
CADMIUM	CD,TOT	UG/L	K	5	2.30000	2.46475	5.00000	.500000	80/10	81/09
CHROMIUM	CR,TOT	UG/L		1	30.0000		30.0000	30.0000	81/06	81/06
			K	4	30.0000	.000000	30.0000	30.0000	80/10	81/09
			T	5	30.0000	.000000	30.0000	30.0000	80/10	81/09
COPPER	CU,TOT	UG/L	K	5	30.0000	.000000	30.0000	30.0000	80/10	81/09
IRON	FE,TOT	UG/L		5	252.000	217.876	630.000	80.0000	80/10	81/09
LEAD	PB,TOT	UG/L	K	5	6.00000	2.23607	10.0000	5.00000	80/10	81/09
NICKEL	NI,TOTAL	UG/L		1	100.000		100.000	100.000	81/09	81/09
			K	4	100.000	.000000	100.000	100.000	80/10	81/06
			T	5	100.000	.000000	100.000	100.000	80/10	81/09
ZINC	ZN,TOT	UG/L	K	5	30.0000	.000000	30.0000	30.0000	80/10	81/09
FEC COLI	MFM-FCBR	/100ML		10	448.500	427.896	1300.00	25.0000	80/10	81/07
			L	1	100000		100000	100000	81/08	81/08
			T	11	9498.63	30018.6	100000	25.0000	80/10	81/08
PHENOLS	TOTAL	UG/L		1	5.00000		5.00000	5.00000	80/10	80/10
			K	4	2.00000	.000000	2.00000	2.00000	80/12	81/09
			T	5	2.60000	1.34164	5.00000	2.00000	80/10	81/09
MERCURY	HG,TOTAL	UG/L	K	5	.500000	.000000	.500000	.500000	80/10	81/09

TABLE RD 1-52

STATION NUMBER 610040
39 57 51.0 083 49 54.0 2
MAD RIVER AT EAGLE CITY - ST PARIS PIKE
OHIO RIVER (GREAT MIAMI RIVER)
MILES 0953.80 0490.10 080.70 028.70

PARAMETER			R	NO	MEAN	STAN DEV	MAXIMUM	MINIMUM	BEG	END
WATER	TEMP	CENT		12	10.1083	5.10356	17.5000	3.00000	81/10	82/09
STREAM	FLOW,	INST-CFS		12	408.191	460.774	1854.00	178.000	81/10	82/09
STREAM	STAGE	FEET		12	5.38833	1.01501	8.50000	4.72000	81/10	82/09
CNDUCTVY	AT 25C	MICROMHO		11	694.182	81.8181	790.000	500.000	81/10	82/09
DO	PROBE	MG/L		10	10.9100	2.41544	14.6000	7.70000	81/12	82/09
DO		MG/L		2	11.2500	2.47487	13.0000	9.50000	81/10	81/11
COD	LOWLEVEL	MG/L		7	21.8571	22.8796	66.0000	2.00000	81/12	82/08
			K	5	7.20000	2.68330	10.0000	4.00000	81/10	82/09
			T	12	15.7500	18.5772	66.0000	2.00000	81/10	82/09
PH		SU		1	7.90000		7.90000	7.90000	81/10	81/10
LAB	PH	SU		10	8.02599	.229817	8.43000	7.67000	81/11	82/09
RESIDUE	TOT NFLT	MG/L		6	840.333	1921.52	4758.00	5.00000	82/01	82/08
			K	5	7.00000	2.73861	10.0000	5.00000	81/10	82/09
			T	11	461.545	1426.72	4758.00	5.00000	81/10	82/09
NH3+NH4-	N TOTAL	MG/L		2	.110000	.084853	.170000	.050000	82/01	82/03
			K	10	.050000	.000054	.050000	.050000	81/10	82/09
			T	12	.060000	.034641	.170000	.050000	81/10	82/09
NO2-N	TOTAL	MG/L		2	.040000	.014142	.050000	.030000	82/03	82/06
NO3-N	TOTAL	MG/L		12	3.49749	.540441	4.52000	2.42000	81/10	82/09
TOT KJEL	N	MG/L		12	1.14417	2.76644	9.90000	.100000	81/10	82/09
PHOS-TOT		MG/L P		9	.576888	1.23953	3.83000	.043000	81/10	82/09
			K	3	.050000	.000075	.050000	.050000	81/12	82/02
			T	12	.445166	1.08360	3.83000	.043000	81/10	82/09
CYANIDE	CN-TOT	MG/L	K	1	.010000		.010000	.010000	81/12	81/12

TABLE RD 1-52 (Continued)

STATION NUMBER 610040
39 57 51.0 083 49 54.0 2
MAD RIVER AT EAGLE CITY - ST PARIS PIKE
OHIO RIVER (GREAT MIAMI RIVER)
MILES 0953.80 0490.10 080.70 028.70

PARAMETER			R	NO	MEAN	STAN DEV	MAXIMUM	MINIMUM	BEG	END
TOT HARD	CACO3	MG/L		4	667.500	526.461	1457.00	388.000	81/12	82/09
CALCIUM	CA-TOT	MG/L		4	155.675	118.605	333.500	91.6000	81/12	82/09
MGNSIUM	MG,TOT	MG/L		4	67.6750	55.8992	151.500	38.6000	81/12	82/09
CADMIUM	CD,TOT	UG/L		1	1.60000		1.60000	1.60000	82/03	82/03
			K	3	.500000	.000000	.500000	.500000	81/12	82/09
			T	4	.775000	.550000	1.60000	.500000	81/12	82/09
CHROMIUM	CR,TOT	UG/L		1	110.000		110.000	110.000	82/03	82/03
			K	3	30.0000	.000000	30.0000	30.0000	81/12	82/09
			T	4	50.0000	40.0000	110.000	30.0000	81/12	82/09
COPPER	CU,TOT	UG/L		3	70.0000	62.4500	140.000	20.0000	82/03	82/09
			K	1	10.0000		10.0000	10.0000	81/12	81/12
			T	4	55.0000	59.1608	140.000	10.0000	81/12	82/09
IRON	FE,TOT	UG/L		4	34175.0	61912.1	126800	30.0000	81/12	82/09
LEAD	PB,TOT	UG/L		3	69.0000	109.160	195.000	3.00000	82/03	82/09
			K	1	5.00000		5.00000	5.00000	81/12	81/12
			T	4	53.0000	94.6995	195.000	3.00000	81/12	82/09
NICKEL	NI,TOTAL	UG/L		1	120.000		120.000	120.000	82/03	82/03
NICKEL	NI,TOTAL	UG/L	K	3	36.6667	5.77360	40.0000	30.0000	81/12	82/09
			T	4	57.5000	41.9325	120.000	30.0000	81/12	82/09
ZINC	ZN,TOT	UG/L		2	272.500	321.734	500.000	45.0000	82/03	82/06
			K	2	10.0000	.000000	10.0000	10.0000	81/12	82/09
			T	4	141.250	239.735	500.000	10.0000	81/12	82/09
FEC COLI	MFM-FCBR	/100ML		12	1487.75	2898.53	8800.00	63.0000	81/10	82/09
PHENOLS	TOTAL	UG/L	K	1	2.00000		2.00000	2.00000	81/12	81/12

TABLE RD 1-53

STATION NUMBER 600190
39 47 50.0 084 05 19.0 2
MAD RIVER NEAR DAYTON - SR 444
OHIO RIVER 051392 (GREAT MIAMI RIVER)
MILES 0953.80 0490.10 080.70 005.90

PARAMETER			R	NO	MEAN	STAN DEV	MAXIMUM	MINIMUM	BEG	END
WATER	TEMP	CENT		12	12.0250	6.29244	21.5000	4.80000	80/10	81/09
STREAM	FLOW,	INST-CFS		12	716.266	444.950	1646.00	289.500	80/10	81/09
STREAM	STAGE	FEET		12	3.50666	.899680	5.34000	2.60000	80/10	81/09
CNDUCTVY	AT 25C	MICROMHO		12	684.666	82.9540	834.000	498.000	80/10	81/09
DO		MG/L		12	10.7333	2.51769	16.6000	7.10000	80/10	81/09
COD	LOWLEVEL	MG/L		12	16.6667	9.07880	40.0000	6.00000	80/10	81/09
PH		SU		3	8.06667	.550767	8.60000	7.50000	81/06	81/09
LAB	PH	SU		9	7.93333	.141490	8.10000	7.70000	80/10	81/08
RESIDUE	TOT NFLT	MG/L		6	93.8333	132.801	363.000	12.0000	81/02	81/08
			K	6	10.0000	.000000	10.0000	10.0000	80/10	81/09
			T	12	51.9167	99.6653	363.000	10.0000	80/10	81/09
NH3+NH4-	N TOTAL	MG/L		12	.190833	.145756	.590000	.070000	80/10	81/09
NO3-N	TOTAL	MG/L		12	3.30083	.591417	4.49000	2.62000	80/10	81/09
TOT KJEL	N	MG/L		12	.777500	.541566	2.33000	.320000	80/10	81/09
PHOS-TOT		MG/L P		12	.265250	.095979	.532000	.178000	80/10	81/09
CYANIDE	CN-TOT	MG/L	K	5	.010000	.000000	.010000	.010000	80/10	81/09
TOT HARD	CACO3	MG/L		5	363.200	5.93717	372.000	356.000	80/10	81/09
CADMIUM	CD,TOT	UG/L	K	5	5.00000	.000000	5.00000	5.00000	80/10	81/09
CHROMIUM	CR,TOT	UG/L		2	40.0000	.000000	40.0000	40.0000	80/12	81/06
			K	3	30.0000	.000000	30.0000	30.0000	80/10	81/09
			T	5	34.0000	5.47723	40.0000	30.0000	80/10	81/09
COPPER	CU,TOT	UG/L	K	5	30.0000	.000000	30.0000	30.0000	80/10	81/09
IRON	FE,TOT	UG/L		5	578.000	712.159	1840.00	190.000	80/10	81/09
LEAD	PB,TOT	UG/L		1	7.00000		7.00000	7.00000	81/06	81/06
			K	4	6.25000	2.50000	10.0000	5.00000	80/10	81/09
			T	5	6.40000	2.19090	10.0000	5.00000	80/10	81/09
NICKEL	NI,TOTAL	UG/L		3	100.000	.000000	100.000	100.000	80/12	81/09
			K	2	100.000	.000000	100.000	100.000	80/10	81/06
			T	5	100.000	.000000	100.000	100.000	80/10	81/09
ZINC	ZN,TOT	UG/L		2	30.0000	.000000	30.0000	30.0000	80/12	81/06
			K	3	30.0000	.000000	30.0000	30.0000	80/10	81/09
			T	5	30.0000	.000000	30.0000	30.0000	80/10	81/09
FEC COLI	MFM-FCBR	/100ML		11	2890.00	3342.17	9600.00	170.000	80/10	81/09
			L	1	100000		100000	100000	81/08	81/08
			T	12	10982.5	28213.8	100000	170.000	80/10	81/09
PHENOLS	TOTAL	UG/L		4	3.00000	1.15470	4.00000	2.00000	80/10	81/06
			K	1	2.00000		2.00000	2.00000	81/09	81/09
			T	5	2.80000	1.09545	4.00000	2.00000	80/10	81/09
MERCURY	HG,TOTAL	UG/L	K	5	.500000	.000000	.500000	.500000	80/10	81/09

TABLE RD 1-54

STATION NUMBER 600190
39 47 50.0 084 05 19.0 2
MAD RIVER NEAR DAYTON - SR 444
OHIO RIVER 051392 (GREAT MIAMI RIVER)
MILES 0953.80 0490.10 080.70 005.90

No data were collected from 10/81 - 9/82.

TABLE RD 1-55

STATION NUMBER 600110
39 52 10.0 084 16 57.0 2
STILLWATER R AT ENGLEWOOD- US 40
OHIO RIVER 051391 (GREAT MIAMI RIVER)
MILES 0953.80 0490.10 081.70 008.90

PARAMETER			R	NO	MEAN	STAN DEV	MAXIMUM	MINIMUM	BEG	END
WATER	TEMP	CENT		10	11.7900	8.87536	24.0000	.000000	80/12	81/09
CNDUCTVY	AT 25C	MICROMHO		10	652.500	110.684	858.000	490.000	80/12	81/09
DO		MG/L		10	10.5600	2.36794	14.4000	7.30000	80/12	81/09
COD	LOWLEVEL	MG/L		10	17.1000	7.86627	35.0000	8.00000	80/12	81/09
PH		SU		3	8.20000	.360625	8.60000	7.90000	81/06	81/09
LAB	PH	SU		6	7.98333	.213897	8.20000	7.60000	80/12	81/05
RESIDUE	TOT NFLT	MG/L		7	78.8571	39.8223	155.000	34.0000	81/02	81/09
			K	3	10.0000	.000000	10.0000	10.0000	80/12	81/03
			T	10	58.2000	46.5136	155.000	10.0000	80/12	81/09
NH3+NH4-	N TOTAL	MG/L		4	.340000	.384968	.890000	.050000	80/12	81/07
			K	6	.050000	.000061	.050000	.050000	81/03	81/09
			T	10	.166000	.268005	.890000	.050000	80/12	81/09
NO3-N	TOTAL	MG/L		10	4.38400	2.75631	9.98000	1.42000	80/12	81/09
TOT KJEL	N	MG/L		10	1.16500	.690414	2.45000	.480000	80/12	81/09
PHOS-TOT		MG/L P		10	.254100	.096190	.436000	.120000	80/12	81/09
CYANIDE	CN-TOT	MG/L	K	4	.010000	.000000	.010000	.010000	80/12	81/09
TOT HARD	CACO3	MG/L		4	354.750	16.2763	372.000	336.000	80/12	81/09
CADMIUM	CD,TOT	UG/L	K	4	5.00000	.000000	5.00000	5.00000	80/12	81/09
CHROMIUM	CR,TOT	UG/L		1	40.0000		40.0000	40.0000	81/06	81/06
			K	3	30.0000	.000000	30.0000	30.0000	80/12	81/09
			T	4	32.5000	5.00000	40.0000	30.0000	80/12	81/09
COPPER	CU,TOT	UG/L		1	730.000		730.000	730.000	81/09	81/09
			K	3	30.0000	.000000	30.0000	30.0000	80/12	81/06
			T	4	205.000	350.000	730.000	30.0000	80/12	81/09
IRON	FE,TOT	UG/L		4	1115.00	942.426	2360.00	350.000	80/12	81/09
LEAD	PB,TOT	UG/L	K	4	5.00000	.000000	5.00000	5.00000	80/12	81/09
NICKEL	NI,TOTAL	UG/L		1	100.000		100.000	100.000	81/09	81/09
			K	3	100.000	.000000	100.000	100.000	80/12	81/06
			T	4	100.000	.000000	100.000	100.000	80/12	81/09
ZINC	ZN,TOT	UG/L	K	4	30.0000	.000000	30.0000	30.0000	80/12	81/09
FEC COLI	MFM-FCBR	/100ML		10	4168.00	5751.53	20000.0	270.000	80/10	81/08
PHENOLS	TOTAL	UG/L		1	3.00000		3.00000	3.00000	80/12	80/12
			K	3	2.00000	.000000	2.00000	2.00000	81/03	81/09
			T	4	2.25000	.500000	3.00000	2.00000	80/12	81/09
MERCURY	HG,TOTAL	UG/L	K	4	.500000	.000000	.500000	.500000	80/12	81/09

TABLE RD 1-56

STATION NUMBER 600110
39 52 10.0 084 16 57.0 2
STILLWATER R AT ENGLEWOOD- US 40
OHIO RIVER 051391 (GREAT MIAMI RIVER)
MILES 0953.80 0490.10 081.70 008.90

No data were collected from 10/81 - 9/82.

TABLE RD 1-57

STATION NUMBER 600180
39 33 22.0 084 21 00.0 2
TWIN CREEK NR FRANKLIN - DAYTON-OXFORD RD
OHIO RIVER 051391 (GREAT MIAMI RIVER)
MILES 0953.80 0490.10 056.60 000.60

PARAMETER			R	NO	MEAN	STAN DEV	MAXIMUM	MINIMUM	BEG	END
WATER	TEMP	CENT		2	13.1500	12.6572	22.1000	4.20000	81/02	81/07
CNDUCTVY	AT 25C	MICROMHO		3	600.000	134.570	715.000	452.000	81/02	81/07
DO		MG/L		2	10.0500	3.60627	12.6000	7.50000	81/02	81/07
COD	LOWLEVEL	MG/L		3	21.3333	17.0392	41.0000	11.0000	81/02	81/07
PH		SU		1	8.20000		8.20000	8.20000	81/07	81/07
LAB	PH	SU		2	8.14999	.072028	8.20000	8.10000	81/02	81/05
RESIDUE	TOT NFLT	MG/L		1	460.000		460.000	460.000	81/07	81/07
			K	2	10.0000	.000000	10.0000	10.0000	81/02	81/05
			T	3	160.000	259.808	460.000	10.0000	81/02	81/07
NH3+NH4-	N TOTAL	MG/L		2	.115000	.049498	.150000	.080000	81/05	81/07
			K	1	.050000		.050000	.050000	81/02	81/02
			T	3	.093333	.051316	.150000	.050000	81/02	81/07
NO3-N	TOTAL	MG/L		3	7.81667	4.23396	12.5000	4.26000	81/02	81/07
TOT KJEL	N	MG/L		3	1.20333	1.24949	2.64000	.370000	81/02	81/07
PHOS-TOT		MG/L P		3	.219000	.294104	.558000	.032000	81/02	81/07
CYANIDE	CN-TOT	MG/L	K	3	.010000	.000000	.010000	.010000	81/02	81/07
TOT HARD	CACO3	MG/L		3	304.333	58.4503	342.000	237.000	81/02	81/07
CADMIUM	CD,TOT	UG/L	K	3	5.00000	.000000	5.00000	5.00000	81/02	81/07
CHROMIUM	CR,TOT	UG/L		1	30.0000		30.0000	30.0000	81/07	81/07
			K	2	30.0000	.000000	30.0000	30.0000	81/02	81/05
			T	3	30.0000	.000000	30.0000	30.0000	81/02	81/07
COPPER	CU,TOT	UG/L	K	3	30.0000	.000000	30.0000	30.0000	81/02	81/07
IRON	FE,TOT	UG/L		3	3403.33	5280.40	9500.00	280.000	81/02	81/07
LEAD	PB,TOT	UG/L		2	8.00000	4.24264	11.0000	5.00000	81/02	81/07
			K	1	5.00000		5.00000	5.00000	81/05	81/05
			T	3	7.00000	3.46410	11.0000	5.00000	81/02	81/07
NICKEL	NI,TOTAL	UG/L	K	3	100.000	.000000	100.000	100.000	81/02	81/07
ZINC	ZN,TOT	UG/L		2	35.0000	7.07107	40.0000	30.0000	81/05	81/07
			K	1	30.0000		30.0000	30.0000	81/02	81/02
			T	3	33.3333	5.77355	40.0000	30.0000	81/02	81/07
FEC COLI	MFM-FCBR	/100ML		2	495.000	516.188	860.000	130.000	81/02	81/05
			L	1	100000		100000	100000	81/07	81/07
			T	3	33663.3	57450.4	100000	130.000	81/02	81/07
PHENOLS	TOTAL	UG/L		3	3.00000	1.00000	4.00000	2.00000	81/02	81/07
MERCURY	HG,TOTAL	UG/L	K	3	.500000	.000000	.500000	.500000	81/02	81/07

TABLE RD 1-58

STATION NUMBER 600180
39 33 22.0 084 21 00.0 2
TWIN CREEK NR FRANKLIN - DAYTON-OXFORD RD
OHIO RIVER 051391 (GREAT MIAMI RIVER)
MILES 0953.80 0490.10 056.60 000.60

No data were collected from 10/81 - 9/82.

TABLE RD 1-59

STATION NUMBER 600290
39 09 54.0 084 47 18.0 2
WHITEWATER RIVER NR HOOVEN - U.S. RT. 50
OHIO RIVER 051391 (GREAT MIAMI RIVER)
MILES 0953.80 0490.10 005.60 000.50

PARAMETER			R	NO	MEAN	STAN DEV	MAXIMUM	MINIMUM	BEG	END
WATER	TEMP	CENT		3	8.00000	7.79423	17.0000	3.50000	80/12	81/06
CNDUCTVY	AT 25C	MICROMHO		3	591.333	29.0086	620.000	562.000	80/12	81/06
DO		MG/L		1	13.0000		13.0000	13.0000	80/12	80/12
COD	LOWLEVEL	MG/L		2	8.00000	2.82843	10.0000	6.00000	81/02	81/06
			K	1	4.00000		4.00000	4.00000	80/12	80/12
			T	3	6.66667	3.05506	10.0000	4.00000	80/12	81/06
LAB	PH	SU		3	8.06667	.057873	8.10000	8.00000	80/12	81/06
RESIDUE	TOT NFLT	MG/L		2	31.0000	22.6274	47.0000	15.0000	81/02	81/06
			K	1	10.0000		10.0000	10.0000	80/12	80/12
			T	3	24.0000	20.0749	47.0000	10.0000	80/12	81/06
NH3+NH4-	N TOTAL	MG/L		2	.125000	.049498	.160000	.090000	80/12	81/02
			K	1	.050000		.050000	.050000	81/06	81/06
			T	3	.100000	.055678	.160000	.050000	80/12	81/06
NO3-N	TOTAL	MG/L		3	2.83000	.720208	3.29000	2.00000	80/12	81/06
TOT KJEL	N	MG/L		3	.333333	.118462	.470000	.260000	80/12	81/06
PHOS-TOT		MG/L P		3	.058333	.033171	.087000	.022000	80/12	81/06
CYANIDE	CN-TOT	MG/L	K	3	.010000	.000000	.010000	.010000	80/12	81/06
TOT HARD	CACO3	MG/L		2	300.500	4.94975	304.000	297.000	80/12	81/06
CADMIUM	CD,TOT	UG/L	K	3	5.00000	.000000	5.00000	5.00000	80/12	81/06
CHROMIUM	CR,TOT	UG/L		1	30.0000		30.0000	30.0000	81/06	81/06
			K	2	30.0000	.000000	30.0000	30.0000	80/12	81/02
			T	3	30.0000	.000000	30.0000	30.0000	80/12	81/06
COPPER	CU,TOT	UG/L		1	30.0000		30.0000	30.0000	81/02	81/02
			K	2	30.0000	.000000	30.0000	30.0000	80/12	81/06
			T	3	30.0000	.000000	30.0000	30.0000	80/12	81/06
IRON	FE,TOT	UG/L		3	730.000	731.232	1510.00	60.0000	80/12	81/06
LEAD	PB,TOT	UG/L		1	7.00000		7.00000	7.00000	81/06	81/06
			K	2	5.00000	.000000	5.00000	5.00000	80/12	81/02
			T	3	5.66667	1.15472	7.00000	5.00000	80/12	81/06
NICKEL	NI,TOTAL	UG/L		1	100.000		100.000	100.000	80/12	80/12
			K	2	100.000	.000000	100.000	100.000	81/02	81/06
			T	3	100.000	.000000	100.000	100.000	80/12	81/06
ZINC	ZN,TOT	UG/L		1	30.0000		30.0000	30.0000	80/12	80/12
			K	2	30.0000	.000000	30.0000	30.0000	81/02	81/06
			T	3	30.0000	.000000	30.0000	30.0000	80/12	81/06
FEC COLI	MFM-FCBR	/100ML		3	180.000	65.5744	250.000	120.000	80/12	81/06
PHENOLS	TOTAL	UG/L		2	2.50000	.707107	3.00000	2.00000	81/02	81/06
			K	1	2.00000		2.00000	2.00000	80/12	80/12
			T	3	2.33333	.577352	3.00000	2.00000	80/12	81/06
MERCURY	HG,TOTAL	UG/L	K	3	.500000	.000000	.500000	.500000	80/12	81/06

TABLE RD 1-60

STATION NUMBER 600290
39 09 54.0 084 47 18.0 2
WHITEWATER RIVER NR HOOVEN - U.S. RT. 50
OHIO RIVER 051391 (GREAT MIAMI RIVER)
MILES 0953.80 0490.10 005.60 000.50

No data were collected from 10/81 - 9/82.

TABLE RD 1-61

STATION NUMBER 601550
39 40 00.0 082 33 04.0 2
HOCKING RIVER NR LANCASTER
OHIO RIVER 050691 (HOCKING RIVER)
MILES 0953.80 0781.80 086.70

PARAMETER			R	NO	MEAN	STAN DEV	MAXIMUM	MINIMUM	BEG	END
WATER	TEMP	CENT		10	10.00000	6.36781	18.0000	1.80000	80/12	81/09
STREAM	FLOW,	INST-CFS		5	79.8000	29.4059	120.000	47.0000	81/04	81/08
STREAM	STAGE	FEET		10	2.79100	.334800	3.39000	2.31000	80/12	81/09
CNDUCTVY	FIELD	MICROMHO		10	699.000	324.558	1450.00	350.000	80/12	81/09
DO		MG/L		10	7.75999	3.73429	12.1000	2.30000	80/12	81/09
BOD	5 DAY	MG/L		2	5.00000	.000000	5.00000	5.00000	81/04	81/09
COD	LOWLEVEL	MG/L		9	21.2222	6.13961	29.0000	12.0000	80/12	81/09
PH		SU		9	7.53444	.230038	7.90000	7.20000	80/12	81/09
RESIDUE	TOT NFLT	MG/L		5	42.4000	33.8275	87.0000	14.0000	81/01	81/08
			K	5	10.0000	.000000	10.0000	10.0000	80/12	81/09
			T	10	26.2000	28.2874	87.0000	10.0000	80/12	81/09
NH3+NH4-	N TOTAL	MG/L		10	1.31900	.771758	3.13000	.520000	80/12	81/09
NO2-N	TOTAL	MG/L		10	.135000	.104270	.360000	.040000	80/12	81/09
NO3-N	TOTAL	MG/L		10	1.76600	.896279	3.23000	.250000	80/12	81/09
TOT KJEL	N	MG/L		10	2.14600	.788650	4.07000	1.36000	80/12	81/09
PHOS-TOT		MG/L P		10	.489000	.381230	1.26000	.163000	80/12	81/09
CYANIDE	CN-TOT	MG/L		5	.020800	.011541	.040000	.010000	80/12	81/09
			K	2	.010000	.000000	.010000	.010000	81/05	81/06
			T	7	.017714	.010797	.040000	.010000	80/12	81/09
TOT HARD	CACO3	MG/L		4	366.500	88.8800	490.000	284.000	80/12	81/09
CHLORIDE	TOTAL	MG/L		8	124.125	82.2217	292.000	42.0000	80/12	81/09
SULFATE	SO4-TOT	MG/L		7	64.8571	15.4212	90.0000	49.0000	80/12	81/09
CADMIUM	CD,TOT	UG/L	K	4	5.00000	.000000	5.00000	5.00000	80/12	81/09
CHROMIUM	CR,TOT	UG/L		3	36.6667	5.77360	40.0000	30.0000	80/12	81/09
			K	1	30.0000		30.0000	30.0000	81/03	81/03
			T	4	35.0000	5.77350	40.0000	30.0000	80/12	81/09
COPPER	CU,TOT	UG/L		1	40.0000		40.0000	40.0000	81/09	81/09
			K	3	30.0000	.000000	30.0000	30.0000	80/12	81/06
			T	4	32.5000	5.00000	40.0000	30.0000	80/12	81/09
IRON	FE,TOT	UG/L		4	1542.50	1240.39	3400.00	850.000	80/12	81/09
LEAD	PB,TOT	UG/L		4	12.2500	4.57347	18.0000	7.00000	80/12	81/09
NICKEL	NI,TOTAL	UG/L		3	100.000	.000000	100.000	100.000	80/12	81/09
			K	1	100.000		100.000	100.000	81/06	81/06
			T	4	100.000	.000000	100.000	100.000	80/12	81/09
ZINC	ZN,TOT	UG/L		4	60.0000	11.5470	70.0000	50.0000	80/12	81/09
PHENOLS	TOTAL	UG/L		9	5.44444	2.12786	8.00000	2.00000	80/12	81/09
			K	1	2.00000		2.00000	2.00000	81/03	81/03
			T	10	5.10000	2.28279	8.00000	2.00000	80/12	81/09
MERCURY	HG,TOTAL	UG/L	K	4	.500000	.000000	.500000	.500000	80/12	81/09

TABLE RD 1-62

STATION NUMBER 601550
39 40 00.0 082 33 04.0 2
HOCKING RIVER NR LANCASTER
OHIO RIVER 050691 (HOCKING RIVER)
MILES 0953.80 0781.80 086.70

PARAMETER			R	NO	MEAN	STAN DEV	MAXIMUM	MINIMUM	BEG	END
WATER	TEMP	CENT		12	11.6250	6.46869	22.0000	2.00000	81/10	82/09
STREAM	FLOW	CFS		8	53.5037	49.6176	168.000	2.53000	81/12	82/08
STREAM	FLOW,	INST-CFS		3	31.0000	8.42561	40.0000	23.3000	81/10	82/09
STREAM	STAGE	FEET		7	2.40000	.195820	2.69000	2.20000	81/10	82/09
TURB	TRBIDMTR	HACH FTU		1	3.89000		3.89000	3.89000	82/02	82/02
CNDUCTVY	FIELD	MICROMHO		12	1060.00	430.687	1780.00	270.000	81/10	82/09
DO	PROBE	MG/L		10	7.28999	3.96917	12.4000	1.50000	81/12	82/09
DO		MG/L		2	4.60000	.000000	4.60000	4.60000	81/10	81/11
BOD	5 DAY	MG/L		12	9.94166	4.48907	18.0000	4.50000	81/10	82/09
COD	LOWLEVEL	MG/L		5	29.4000	9.12693	40.0000	19.0000	81/10	82/03
PH		SU		11	7.70909	.254740	8.20000	7.30000	81/10	82/08
LAB	PH	SU		2	7.76500	.021395	7.78000	7.75000	82/07	82/09
RESIDUE	TOT VOL	MG/L		1	266.000		266.000	266.000	81/11	81/11
RESIDUE	TOT NFLT	MG/L		11	25.2727	28.3093	106.000	6.00000	81/10	82/09
NH3+NH4-	N TOTAL	MG/L		12	2.84083	1.76670	6.05000	.670000	81/10	82/09
NO2-N	TOTAL	MG/L		11	.099091	.039612	.180000	.040000	81/10	82/09
NO3-N	TOTAL	MG/L		12	.985833	.801820	2.60000	.090000	81/10	82/09
TOT KJEL	N	MG/L		12	4.04416	1.95238	7.20000	1.80000	81/10	82/09
PHOS-TOT		MG/L P		12	.761833	.389807	1.67000	.220000	81/10	82/09
CYANIDE	CN-TOT	MG/L		1	.029000		.029000	.029000	82/09	82/09
TOT HARD	CACO3	MG/L		5	443.400	144.279	647.000	286.000	81/11	82/09
CALCIUM	CA-TOT	MG/L		4	102.925	26.9089	139.600	77.3000	81/12	82/09
MGNSIUM	MG,TOT	MG/L		4	32.8500	8.71496	43.3000	22.5000	81/12	82/09
CHLORIDE	TOTAL	MG/L		2	441.500	132.229	535.000	348.000	81/10	81/11
SULFATE	SO4-TOT	MG/L		1	87.0000		87.0000	87.0000	81/11	81/11
CADMIUM	CD,TOT	UG/L		3	1.56667	.288679	1.90000	1.40000	82/03	82/09
CHROMIUM	CR,TOT	UG/L		2	40.0000	14.1421	50.0000	30.0000	81/12	82/09
			K	2	30.0000	.000000	30.0000	30.0000	82/03	82/06
			T	4	35.0000	10.0000	50.0000	30.0000	81/12	82/09
COPPER	CU,TOT	UG/L		3	11.6667	2.88678	15.0000	10.0000	81/12	82/09
			K	1	10.0000		10.0000	10.0000	82/06	82/06
			T	4	11.2500	2.50000	15.0000	10.0000	81/12	82/09
IRON	FE,TOT	UG/L		4	890.000	299.444	1170.00	530.000	81/12	82/09
LEAD	PB,TOT	UG/L		3	7.00000	2.64575	10.0000	5.00000	81/12	82/09
			K	1	5.00000		5.00000	5.00000	82/03	82/03
			T	4	6.50000	2.38048	10.0000	5.00000	81/12	82/09
NICKEL	NI,TOTAL	UG/L		2	160.000	155.563	270.000	50.0000	81/12	82/09
			K	2	40.0000	.000000	40.0000	40.0000	82/03	82/06
			T	4	100.000	113.431	270.000	40.0000	81/12	82/09
ZINC	ZN,TOT	UG/L		4	60.0000	34.6410	90.0000	30.0000	81/12	82/09
FEC COLI	MFM-FCBR	/100ML		6	46805.2	80328.5	209000	520.000	81/12	82/06
FEC COLI	MFM-FCBR	/100ML	L	1	400000		400000	400000	82/07	82/07
			T	7	97261.5	152309	400000	520.000	81/12	82/07
PHENOLS	TOTAL	UG/L		2	6.50000	2.12132	8.00000	5.00000	81/10	81/11
			K	2	10.0000	.000000	10.0000	10.0000	82/08	82/09
			T	4	8.25000	2.36291	10.0000	5.00000	81/10	82/09

TABLE RD 1-63

STATION NUMBER 601530
39 33 54.0 082 28 30.0 2
HOCKING RIVER NEAR ENTERPRISE
OHIO RIVER 050691 (HOCKING RIVER)
MILES 0953.80 0781.80 072.80

PARAMETER			R	NO	MEAN	STAN DEV	MAXIMUM	MINIMUM	BEG	END
WATER	TEMP	CENT		7	13.6429	8.79732	23.0000	.500000	80/10	81/09
STREAM	FLOW,	INST-CFS		6	383.683	296.622	897.000	168.000	80/10	81/07
STREAM	STAGE	FEET		7	2.01857	.974564	3.70000	.760000	80/10	81/09
CNDUCTVY	AT 25C	MICROMHO		5	733.800	148.362	930.000	549.000	80/10	81/09
DO		MG/L		8	9.76875	2.03452	13.1000	7.35000	80/10	81/09
COD	LOWLEVEL	MG/L		6	9.33333	3.72380	16.0000	6.00000	80/10	81/09
			K	2	6.00000	.000000	6.00000	6.00000	81/06	81/07
			T	8	8.50000	3.50510	16.0000	6.00000	80/10	81/09
PH		SU		6	7.50833	.735206	8.35000	6.20000	80/12	81/09
LAB	PH	SU		4	7.34999	.506715	7.70000	6.60000	80/10	81/06
RESIDUE	TOT NFLT	MG/L		5	31.2000	19.0184	60.0000	12.0000	80/12	81/07
			K	3	10.0000	.000000	10.0000	10.0000	80/10	81/09
			T	8	23.2500	18.0851	60.0000	10.0000	80/10	81/09
NH3+NH4-	N TOTAL	MG/L		7	.364285	.283482	.790000	.120000	80/10	81/09
			K	1	.050000		.050000	.050000	81/07	81/07
			T	8	.325000	.285006	.790000	.050000	80/10	81/09
NO2-N	TOTAL	MG/L		8	.078750	.058661	.170000	.010000	80/10	81/09
NO3-N	TOTAL	MG/L		8	1.28250	.312718	1.83000	.910000	80/10	81/09
TOT KJEL	N	MG/L		8	.848749	.474776	1.47000	.250000	80/10	81/09
PHOS-TOT		MG/L P		8	.170375	.081913	.339000	.061000	80/10	81/09
TOT HARD	CACO3	MG/L		2	183.500	164.756	300.000	67.0000	81/02	81/07
CHLORIDE	TOTAL	MG/L		1	29.0000		29.0000	29.0000	81/04	81/04
SULFATE	SO4-TOT	MG/L		1	107.000		107.000	107.000	81/07	81/07
CADMIUM	CD,TOT	UG/L	K	2	5.00000	.000000	5.00000	5.00000	81/02	81/07
CHROMIUM	CR,TOT	UG/L	K	2	30.0000	.000000	30.0000	30.0000	81/02	81/07
COPPER	CU,TOT	UG/L	K	2	30.0000	.000000	30.0000	30.0000	81/02	81/07
IRON	FE,TOT	UG/L		2	1790.00	1739.48	3020.00	560.000	81/02	81/07
LEAD	PB,TOT	UG/L	K	2	5.00000	.000000	5.00000	5.00000	81/02	81/07
MANGNESE	MN	UG/L		1	1170.00		1170.00	1170.00	81/07	81/07
NICKEL	NI,TOTAL	UG/L	K	2	100.000	.000000	100.000	100.000	81/02	81/07
ZINC	ZN,TOT	UG/L		1	50.0000		50.0000	50.0000	81/02	81/02
			K	1	30.0000		30.0000	30.0000	81/07	81/07
			T	2	40.0000	14.1421	50.0000	30.0000	81/02	81/07
FEC COLI	MFM-FCBR	/100ML		9	3936.67	2956.41	9600.00	330.000	80/10	81/09
PHENOLS	TOTAL	UG/L		1	3.00000		3.00000	3.00000	81/06	81/06
			K	1	2.00000		2.00000	2.00000	81/07	81/07
			T	2	2.50000	.707107	3.00000	2.00000	81/06	81/07
RESIDUE	DISS-180	C MG/L		5	338.000	141.924	470.000	117.000	80/10	81/07
MERCURY	HG,TOTAL	UG/L	K	1	.500000		.500000	.500000	81/07	81/07

TABLE RD 1-64

STATION NUMBER 601530
39 33 54.0 082 28 30.0 2
HOCKING RIVER NEAR ENTERPRISE
OHIO RIVER 050691 (HOCKING RIVER)
MILES 0953.80 0781.80 072.80

PARAMETER			R	NO	MEAN	STAN DEV	MAXIMUM	MINIMUM	BEG	END
WATER	TEMP	CENT		7	18.3286	4.77554	23.3000	10.0000	81/10	82/09
STREAM	FLOW,	INST-CFS		5	92.6199	14.8523	118.000	80.1000	82/08	82/09
STREAM	STAGE	FEET		6	1.08667	.205003	1.35000	.720000	81/10	82/09
CNDUCTVY	AT 25C	MICROMHO		5	751.400	63.1664	837.000	680.000	81/10	82/09
INTNSVE	SURVEY	IDENT		6	823912	.000000	823912	823912	82/05	82/09
DO	PROBE	MG/L		6	6.83333	.625078	7.70000	6.10000	82/05	82/09
DO		MG/L		1	9.20000		9.20000	9.20000	81/10	81/10
BOD	5 DAY	MG/L		5	3.54000	1.00649	4.50000	2.00000	82/08	82/09
COD	LOWLEVEL	MG/L		3	16.0000	2.00000	18.0000	14.0000	82/08	82/09
			K	3	12.0000	7.21110	20.0000	6.00000	81/10	82/08
			T	6	14.0000	5.21536	20.0000	6.00000	81/10	82/09
PH		SU		5	7.68000	.164620	7.80000	7.50000	82/05	82/09
LAB	PH	SU		3	7.63666	.110347	7.70000	7.51000	81/10	82/09
RESIDUE	TOT NFLT	MG/L		7	29.0000	18.1292	60.0000	9.00000	81/10	82/09
NH3+NH4-	N TOTAL	MG/L		6	.598333	.300095	1.00000	.170000	81/10	82/09
NO2-N	TOTAL	MG/L		5	.132000	.038340	.180000	.080000	81/10	82/09
NO3-N	TOTAL	MG/L		7	1.16857	.735129	2.80000	.630000	81/10	82/09
TOT KJEL	N	MG/L		6	.981666	.316886	1.29000	.400000	81/10	82/09
PHOS-TOT		MG/L P		7	.152857	.038173	.210000	.120000	81/10	82/09
CYANIDE	CN-TOT	MG/L	K	4	.010000	.000000	.010000	.010000	82/08	82/09
TOT HARD	CACO3	MG/L		6	285.166	21.9428	317.000	255.000	82/05	82/09
CALCIUM	CA-TOT	MG/L		6	67.7666	3.95324	72.9000	62.3000	82/05	82/09
MGNSIUM	MG,TOT	MG/L		6	28.1333	2.95011	32.7000	24.2000	82/05	82/09
CHLORIDE	TOTAL	MG/L		1	79.2000		79.2000	79.2000	82/09	82/09
SULFATE	SO4-TOT	MG/L		1	97.0000		97.0000	97.0000	82/09	82/09
CADMIUM	CD,TOT	UG/L	K	6	.500000	.000000	.500000	.500000	82/05	82/09
CHROMIUM	CR,TOT	UG/L	K	5	30.0000	.000000	30.0000	30.0000	82/08	82/09
COPPER	CU,TOT	UG/L		1	10.0000		10.0000	10.0000	82/09	82/09
			K	5	10.0000	.000000	10.0000	10.0000	82/05	82/09
			T	6	10.0000	.000000	10.0000	10.0000	82/05	82/09
IRON	FE,TOT	UG/L		6	1900.00	872.444	3020.00	530.000	82/05	82/09
LEAD	PB,TOT	UG/L		6	4.83333	1.60209	7.00000	3.00000	82/05	82/09
MANGNESE	MN	UG/L		1	1640.00		1640.00	1640.00	82/08	82/08
NICKEL	NI,TOTAL	UG/L	K	5	40.0000	.000000	40.0000	40.0000	82/08	82/09
ZINC	ZN,TOT	UG/L		4	30.0000	13.5401	50.0000	20.0000	82/05	82/09
			K	2	10.0000	.000000	10.0000	10.0000	82/08	82/09
			T	6	23.3333	14.7196	50.0000	10.0000	82/05	82/09
FEC COLI	MFM-FCBR	/100ML		4	1664.25	1907.88	4300.00	40.0000	81/10	82/08
PHENOLS	TOTAL	UG/L	K	4	10.0000	.000000	10.0000	10.0000	82/08	82/09
RESIDUE	DISS-180	C MG/L		7	523.000	12.4633	539.000	499.000	81/10	82/09
COD	LOWLEVEL	MG/L		3	14.3333	3.05508	17.0000	11.0000	82/05	82/08

TABLE RD 1-65

STATION NUMBER 501050
41 18 24.0 082 36 21.0 2
HURON RIVER BELOW MILAN - MUD BROOK RD
LAKE ERIE (HURON RIVER)
MILES 0011.60

PARAMETER			R	NO	MEAN	STAN DEV	MAXIMUM	MINIMUM	BEG	END
WATER	TEMP	CENT		10	8.41999	8.81750	23.6000	-.399E+00	80/10	81/07
TURB	TRBIDMTR	HACH FTU		1	144.000		144.000	144.000	81/04	81/04
CNDUCTVY	AT 25C	MICROMHO		8	655.125	74.1225	743.000	513.000	81/02	81/09
DO		MG/L		10	11.0600	2.62901	14.8000	6.90000	80/10	81/07
BOD	5 DAY	MG/L		11	3.07272	1.57423	6.50000	1.30000	80/10	81/09
COD	LOWLEVEL	MG/L		8	24.4000	11.6150	37.9000	7.70000	80/10	81/08
			K	3	4.00000	.000000	4.00000	4.00000	80/12	81/05
			T	11	18.8363	13.6101	37.9000	4.00000	80/10	81/08
LAB	PH	SU		12	8.15832	.308425	8.62000	7.40000	80/10	81/09
T ALK	CACO3	MG/L		2	137.500	28.9914	158.000	117.000	81/02	81/05
RESIDUE	TOT NFLT	MG/L		8	72.8750	133.541	402.000	14.0000	80/11	81/09
			K	4	10.0000	.000000	10.0000	10.0000	80/10	81/05
			T	12	51.9167	110.936	402.000	10.0000	80/10	81/09
NH3+NH4-	N TOTAL	MG/L		5	.601999	.689725	1.80000	.100000	80/10	81/09
			K	4	.387500	.225000	.500000	.050000	80/12	81/03
			T	9	.506666	.519254	1.80000	.050000	80/10	81/09
NO2-N	TOTAL	MG/L		12	.075833	.066121	.220000	.010000	80/10	81/09
NO3-N	TOTAL	MG/L		12	3.27833	3.09742	10.6000	.430000	80/10	81/09
TOT KJEL	N	MG/L		12	1.36083	.770000	3.15000	.700000	80/10	81/09
PHOS-TOT		MG/L P		12	.473166	.327471	1.19000	.159000	80/10	81/09
T ORG C	C	MG/L		6	16.5000	5.89067	28.0000	12.0000	80/10	81/01
TOT HARD	CACO3	MG/L		12	323.500	56.9777	412.000	224.000	80/10	81/09
CALCIUM	CA-TOT	MG/L		10	90.8000	14.6200	118.000	66.0000	80/12	81/09
MGNSIUM	MG,TOT	MG/L		10	25.0000	4.00000	30.0000	16.0000	80/12	81/09
SODIUM	NA,TOT	MG/L		10	26.1000	9.91581	44.0000	11.0000	80/12	81/09
PTSSIUM	K,TOT	MG/L		9	4.71111	.908933	5.90000	3.30000	81/01	81/09
CHLORIDE	TOTAL	MG/L		12	44.4167	8.39336	60.0000	31.0000	80/10	81/09
SULFATE	SO4-TOT	MG/L		12	136.750	28.5056	174.000	84.0000	80/10	81/09
SILICA	DISOLVED	MG/L		9	4.88444	2.08162	7.23000	1.47000	80/12	81/09
ARSENIC	AS,TOT	UG/L	K	12	10.8333	2.88676	20.0000	10.0000	80/10	81/09
CADMIUM	CD,TOT	UG/L	K	12	5.00000	.000000	5.00000	5.00000	80/10	81/09
CHROMIUM	CR,TOT	UG/L		3	30.0000	.000000	30.0000	30.0000	80/10	81/08
			K	9	30.0000	.000000	30.0000	30.0000	80/11	81/09
			T	12	30.0000	.000000	30.0000	30.0000	80/10	81/09

TABLE RD 1-65 (Continued)

STATION NUMBER 501050
41 18 24.0 082 36 21.0 2
HURON RIVER BELOW MILAN - MUD BROOK RD
LAKE ERIE (HURON RIVER)
MILES 0011.60

PARAMETER			R	NO	MEAN	STAN DEV	MAXIMUM	MINIMUM	BEG	END
COPPER	CU,TOT	UG/L		1	30.0000		30.0000	30.0000	81/06	81/06
			K	11	30.0000	.000000	30.0000	30.0000	80/10	81/09
			T	12	30.0000	.000000	30.0000	30.0000	80/10	81/09
IRON	FE,TOT	UG/L		12	2110.00	3581.05	10000.0	100.000	80/10	81/09
LEAD	PB,TOT	UG/L		2	19.0000	14.1421	29.0000	9.00000	81/04	81/06
			K	10	5.00000	.000000	5.00000	5.00000	80/10	81/09
			T	12	7.33333	6.91945	29.0000	5.00000	80/10	81/09
MANGNESE	MN	UG/L		10	115.000	151.236	520.000	30.0000	80/10	81/09
			K	2	30.0000	.000000	30.0000	30.0000	80/11	81/07
			T	12	100.833	140.742	520.000	30.0000	80/10	81/09
NICKEL	NI,TOTAL	UG/L		2	100.000	.000000	100.000	100.000	81/06	81/09
			K	7	100.000	.000000	100.000	100.000	81/01	81/08
			T	9	100.000	.000000	100.000	100.000	81/01	81/09
ZINC	ZN,TOT	UG/L		2	70.0000	28.2843	90.0000	50.0000	81/04	81/06
			K	10	30.0000	.000000	30.0000	30.0000	80/10	81/09
			T	12	36.6667	17.7525	90.0000	30.0000	80/10	81/09
ALUMINUM	AL,TOT	UG/L		9	1455.56	2015.63	6000.00	200.000	80/10	81/09
			K	3	200.000	.000000	200.000	200.000	80/11	81/01
			T	12	1141.67	1810.30	6000.00	200.000	80/10	81/09
FEC COLI	MFM-FCBR	/100ML		9	1627.78	1354.71	3900.00	100.000	80/10	81/09
			L	3	73333.3	46188.1	100000	20000.0	81/01	81/06
			T	12	19554.2	37959.5	100000	100.000	80/10	81/09
PHENOLS	TOTAL	UG/L		8	5.87500	2.94897	12.0000	3.00000	80/10	81/09
			K	2	11.0000	12.7279	20.0000	2.00000	81/02	81/03
			T	10	6.90000	5.42525	20.0000	2.00000	80/10	81/09
MBAS		MG/L		12	.110833	.033428	.170000	.070000	80/10	81/09
PCBS	WHL SMPL	UG/L	K	7	.500000	.000000	.500000	.500000	81/02	81/09
RESIDUE	DISS-180	C MG/L		12	436.083	113.378	672.000	294.000	80/10	81/09
MERCURY	HG,TOTAL	UG/L		1	.800000		.800000	.800000	81/04	81/04
			K	10	.500000	.000000	.500000	.500000	80/10	81/08
			T	11	.527273	.090454	.800000	.500000	80/10	81/08

TABLE RD 1-66

STATION NUMBER 501050
41 18 24.0 082 36 21.0 2
HURON RIVER BELOW MILAN - MUD BROOK RD
LAKE ERIE (HURON RIVER)
MILES 0011.60

PARAMETER			R	NO	MEAN	STAN DEV	MAXIMUM	MINIMUM	BEG	END
WATER	TEMP	CENT		6	12.5667	8.56053	22.1000	2.20000	81/10	82/09
CNDUCTVY	AT 25C	MICROMHO		6	749.333	117.965	863.000	553.000	81/10	82/09
DO	PROBE	MG/L		3	6.78333	1.14496	7.70000	5.50000	82/07	82/09
DO		MG/L		3	10.8000	3.05124	12.9000	7.30000	81/10	81/12
BOD	5 DAY	MG/L		5	4.24000	1.12606	5.60000	3.00000	81/10	82/09
COD	LOWLEVEL	MG/L		3	27.8333	3.01394	31.0000	25.0000	81/12	82/09
			K	3	6.00000	3.46410	10.0000	4.00000	81/10	82/07
			T	6	16.9167	12.3062	31.0000	4.00000	81/10	82/09
LAB	PH	SU		6	7.95333	.413694	8.30000	7.20000	81/10	82/09
T ALK	CACO3	MG/L		1	215.000		215.000	215.000	81/10	81/10
RESIDUE	TOT NFLT	MG/L		2	16.0000	2.82843	18.0000	14.0000	81/12	82/09
			K	3	8.33333	2.88676	10.0000	5.00000	81/10	82/08
			T	5	11.4000	4.87854	18.0000	5.00000	81/10	82/09
NH3+NH4-	N TOTAL	MG/L		6	.346666	.204907	.660000	.130000	81/10	82/09
NO2-N	TOTAL	MG/L		6	.086667	.033267	.150000	.060000	81/10	82/09
NO3-N	TOTAL	MG/L		6	1.95500	1.69925	5.22000	.630000	81/10	82/09
TOT KJEL	N	MG/L		6	1.26000	.361499	1.79000	.800000	81/10	82/09
PHOS-TOT		MG/L P		6	.763666	.495998	1.39000	.115000	81/10	82/09
T ORG C	C	MG/L		3	11.6667	5.03324	17.0000	7.00000	81/10	81/12
TOT HARD	CACO3	MG/L		5	326.420	50.3945	380.000	246.000	81/10	82/08
CALCIUM	CA-TOT	MG/L		6	91.6999	15.4332	119.000	71.0000	81/10	82/09
MGNSIUM	MG,TOT	MG/L		6	28.4833	5.03208	33.0000	19.0000	81/10	82/09
SODIUM	NA,TOT	MG/L		5	37.2800	13.6475	51.8000	19.0000	81/10	82/09
PTSSIUM	K,TOT	MG/L		5	6.70000	.827669	7.40000	5.30000	81/10	82/09
CHLORIDE	TOTAL	MG/L		3	46.0000	7.54983	54.0000	39.0000	81/10	81/12

TABLE RD 1-66 (Continued)

STATION NUMBER 501050
41 18 24.0 082 36 21.0 2
HURON RIVER BELOW MILAN - MUD BROOK RD
LAKE ERIE (HURON RIVER)
MILES 0011.60

PARAMETER			R	NO	MEAN	STAN DEV	MAXIMUM	MINIMUM	BEG	END
SULFATE	SO4-TOT	MG/L		3	130.000	35.5106	166.000	95.0000	81/10	81/12
SILICA	DISOLVED	MG/L		3	4.17667	2.41334	6.76000	1.98000	81/10	81/12
ARSENIC	AS,TOT	UG/L	K	3	10.0000	.000000	10.0000	10.0000	81/10	81/12
CADMIUM	CD,TOT	UG/L	K	6	2.75000	2.46475	5.00000	.500000	81/10	82/09
CHROMIUM	CR,TOT	UG/L	K	6	30.0000	.000000	30.0000	30.0000	81/10	82/09
COPPER	CU,TOT	UG/L	K	6	20.0000	10.9545	30.0000	10.0000	81/10	82/09
IRON	FE,TOT	UG/L		6	928.333	1000.11	2680.00	230.000	81/10	82/09
LEAD	PB,TOT	UG/L		1	8.00000		8.00000	8.00000	81/12	81/12
			K	5	3.20000	1.64317	5.00000	2.00000	81/10	82/09
			T	6	4.00000	2.44949	8.00000	2.00000	81/10	82/09
MANGNESE	MN	UG/L		6	53.3333	15.3841	80.0000	40.0000	81/10	82/09
NICKEL	NI,TOTAL	UG/L	K	5	76.0000	32.8634	100.000	40.0000	81/10	82/09
ZINC	ZN,TOT	UG/L		2	35.0000	7.07107	40.0000	30.0000	81/12	82/09
			K	4	20.0000	11.5470	30.0000	10.0000	81/10	82/08
			T	6	25.0000	12.2474	40.0000	10.0000	81/10	82/09
ALUMINUM	AL,TOT	UG/L		3	666.666	416.334	1000.00	200.000	81/10	81/12
FEC COLI	MFM-FCBR	/100ML		2	13255.0	18024.2	26000.0	510.000	81/10	82/09
			L	2	100000	.000000	100000	100000	81/12	82/08
			T	4	56627.5	51151.9	100000	510.000	81/10	82/09
PHENOLS	TOTAL	UG/L		2	5.50000	.707107	6.00000	5.00000	81/10	81/12
			K	1	10.0000		10.0000	10.0000	82/07	82/07
			T	3	7.00000	2.64575	10.0000	5.00000	81/10	82/07
MBAS		MG/L		3	.116667	.015275	.130000	.100000	81/10	81/12
RESIDUE	DISS-180	C MG/L		4	544.000	387.997	1058.00	240.000	81/10	82/09
MERCURY	HG,TOTAL	UG/L	K	1	.500000		.500000	.500000	81/12	81/12

TABLE RD 1-67

STATION NUMBER 504260
41 58 24.0 080 31 52.0 2
TURKEY CREEK NR CONNEAUT AT MOUTH - LAKE RD
LAKE ERIE (TURKEY CREEK)
MILES 0000.10

PARAMETER			R	NO	MEAN	STAN DEV	MAXIMUM	MINIMUM	BEG	END
WATER	TEMP	CENT		2	12.7500	13.7886	22.5000	3.00000	80/11	81/07
CNDUCTVY	FIELD	MICROMHO		3	275.000	282.356	600.000	90.0000	80/11	81/07
DO		MG/L		3	10.8000	4.85698	14.5000	5.30000	80/11	81/07
COD	LOWLEVEL	MG/L		3	15.3000	4.17974	20.0000	12.0000	80/11	81/07
LAB	PH	SU		3	6.86666	.776823	7.50000	6.00000	80/11	81/07
RESIDUE	TOT NFLT	MG/L		1	24.0000		24.0000	24.0000	81/02	81/02
			K	2	10.0000	.000000	10.0000	10.0000	80/11	81/07
			T	3	14.6667	8.08291	24.0000	10.0000	80/11	81/07
NH3+NH4-	N TOTAL	MG/L		2	.065000	.007072	.070000	.060000	81/02	81/07
			K	1	.050000		.050000	.050000	80/11	80/11
			T	3	.060000	.010000	.070000	.050000	80/11	81/07
NO2-N	TOTAL	MG/L		2	.010000	.000000	.010000	.010000	81/02	81/07
			K	1	.010000		.010000	.010000	80/11	80/11
			T	3	.010000	.000000	.010000	.010000	80/11	81/07
NO3-N	TOTAL	MG/L		3	.280000	.176918	.470000	.120000	80/11	81/07
TOT KJEL	N	MG/L		3	.493333	.130514	.640000	.390000	80/11	81/07
PHOS-TOT		MG/L P		3	.029000	.007937	.038000	.023000	80/11	81/07
CYANIDE	CN-TOT	MG/L	K	2	.010000	.000000	.010000	.010000	80/11	81/02
TOT HARD	CACO3	MG/L		3	107.000	60.2578	172.000	53.0000	80/11	81/07
SULFATE	SO4-TOT	MG/L		1	50.0000		50.0000	50.0000	81/07	81/07
FLUORIDE	F,TOTAL	MG/L		2	.085000	.021213	.100000	.070000	80/11	81/02
CADMIUM	CD,TOT	UG/L	K	3	5.00000	.000000	5.00000	5.00000	80/11	81/07
CHROMIUM	CR,TOT	UG/L	K	3	30.0000	.000000	30.0000	30.0000	80/11	81/07
COPPER	CU,TOT	UG/L	K	3	30.0000	.000000	30.0000	30.0000	80/11	81/07
IRON	FE,TOT	UG/L		3	996.666	763.763	1830.00	330.000	80/11	81/07
LEAD	PB,TOT	UG/L	K	3	5.00000	.000000	5.00000	5.00000	80/11	81/07
NICKEL	NI,TOTAL	UG/L	K	3	100.000	.000000	100.000	100.000	80/11	81/07
ZINC	ZN,TOT	UG/L	K	3	30.0000	.000000	30.0000	30.0000	80/11	81/07
FEC COLI	MFM-FCBR	/100ML		2	213.500	221.324	370.000	57.0000	81/02	81/07
FECSTREP	MF M-ENT	/100ML		1	840.000		840.000	840.000	81/02	81/02
PHENOLS	TOTAL	UG/L		3	5.66667	2.51662	8.00000	3.00000	80/11	81/07
MBAS		MG/L		2	.090000	.000000	.090000	.090000	80/11	81/02
RESIDUE	DISS-180	C MG/L		3	210.333	132.802	356.000	96.0000	80/11	81/07
MERCURY	HG,TOTAL	UG/L	K	2	.500000	.000000	.500000	.500000	80/11	81/02

TABLE RD 1-68

STATION NUMBER 504260
41 58 24.0 080 31 52.0 2
TURKEY CREEK NR CONNEAUT AT MOUTH - LAKE RD
LAKE ERIE (TURKEY CREEK)
MILES 0000.10

No data were collected from 10/81 - 9/82.

TABLE RD 1-69

STATION NUMBER 602000
40 40 33.0 080 32 27.0 2
L BEAVER CRK NR E LIVERPOOL - GRIMMS BRIDGE RD
OHIO RIVER (L BEAVER CREEK)
MILES 0953.80 0941.50 004.60

PARAMETER			R	NO	MEAN	STAN DEV	MAXIMUM	MINIMUM	BEG	END
WATER	TEMP	CENT		11	7.45454	8.54826	22.0000	-.300E+01	80/10	81/08
STREAM	FLOW,	INST-CFS		11	1010.00	1531.73	5232.00	95.0000	80/10	81/08
STREAM	STAGE	FEET		11	4.29272	1.87721	8.88000	2.51000	80/10	81/08
CNDUCTVY	FIELD	MICROMHO		6	446.500	219.980	824.000	202.000	80/10	81/07
CNDUCTVY	AT 25C	MICROMHO		4	602.000	154.603	781.000	406.000	81/01	81/08
DO		MG/L		10	11.2100	2.42693	13.6000	7.20000	80/10	81/08
COD	LOWLEVEL	MG/L		10	11.0000	6.16441	26.0000	4.00000	80/10	81/08
			K	1	6.00000		6.00000	6.00000	81/07	81/07
			T	11	10.5455	6.03927	26.0000	4.00000	80/10	81/08
PH		SU		1	8.20000		8.20000	8.20000	81/08	81/08
LAB	PH	SU		9	7.67777	.156445	7.90000	7.40000	80/10	81/06
RESIDUE	TOT NFLT	MG/L		4	75.5000	53.8795	141.000	27.0000	81/01	81/06
			K	7	9.28571	1.88984	10.0000	5.00000	80/10	81/08
			T	11	33.3636	44.5988	141.000	5.00000	80/10	81/08
NH3+NH4-	N TOTAL	MG/L		7	.145714	.048256	.240000	.100000	80/11	81/07
			K	4	.050000	.000050	.050000	.050000	80/10	81/08
			T	11	.110909	.061066	.240000	.050000	80/10	81/08
NO2-N	TOTAL	MG/L		6	.013333	.005164	.020000	.010000	80/10	81/07
			K	1	.010000		.010000	.010000	80/11	80/11
			T	7	.012857	.004879	.020000	.010000	80/10	81/07
NO3-N	TOTAL	MG/L		9	1.56222	.615439	2.58000	.520000	80/10	81/08
TOT KJEL	N	MG/L		11	.473636	.267891	.900000	.130000	80/10	81/08
PHOS-TOT		MG/L P		9	.098333	.080284	.220000	.026000	80/10	81/08
			K	2	.020000	.000000	.020000	.020000	81/03	81/05
			T	11	.084091	.078489	.220000	.020000	80/10	81/08
TOT HARD	CACO3	MG/L		1	260.000		260.000	260.000	81/05	81/05
CADMIUM	CD,TOT	UG/L	K	3	5.00000	.000000	5.00000	5.00000	80/11	81/05
CHROMIUM	CR,TOT	UG/L	K	3	30.0000	.000000	30.0000	30.0000	80/11	81/05
COPPER	CU,TOT	UG/L	K	3	30.0000	.000000	30.0000	30.0000	80/11	81/05
IRON	FE,TOT	UG/L		3	856.666	1159.02	2190.00	90.0000	80/11	81/05
LEAD	PB,TOT	UG/L	K	3	5.00000	.000000	5.00000	5.00000	80/11	81/05
MANGNESE	MN	UG/L		2	70.0000	42.4264	100.000	40.0000	80/11	81/05
NICKEL	NI,TOTAL	UG/L	K	3	100.000	.000000	100.000	100.000	80/11	81/05
ZINC	ZN,TOT	UG/L		1	30.0000		30.0000	30.0000	81/02	81/02
			K	2	30.0000	.000000	30.0000	30.0000	80/11	81/05
			T	3	30.0000	.000000	30.0000	30.0000	80/11	81/05
ALUMINUM	AL,TOT	UG/L		1	600.000		600.000	600.000	81/02	81/02
FEC COLI	MFM-FCBR	/100ML		1	110.000		110.000	110.000	81/08	81/08
FECSTREP	MF M-ENT	/100ML		1	120.000		120.000	120.000	81/08	81/08
PHENOLS	TOTAL	UG/L		2	4.00000	.000000	4.00000	4.00000	81/02	81/05
RESIDUE	DISS-180	C MG/L		11	391.454	112.637	537.000	193.000	80/10	81/08
MERCURY	HG,TOTAL	UG/L	K	3	.500000	.000000	.500000	.500000	80/11	81/05

TABLE RD 1-70

STATION NUMBER 602000
40 40 33.0 080 32 27.0 2
L BEAVER CRK NR E LIVERPOOL - GRIMMS BRIDGE RD
OHIO RIVER (L BEAVER CREEK)
MILES 0953.80 0941.50 004.60

PARAMETER			R	NO	MEAN	STAN DEV	MAXIMUM	MINIMUM	BEG	END
WATER	TEMP	CENT		8	11.3750	7.80453	22.0000	.500000	81/10	82/09
STREAM	FLOW,	INST-CFS		7	283.428	240.639	803.000	97.0000	81/10	82/09
STREAM	STAGE	FEET		8	2.94125	.958078	4.55000	1.15000	81/10	82/09
CNDUCTVY	FIELD	MICROMHO		6	555.000	172.685	770.000	297.000	82/03	82/09
CNDUCTVY	AT 25C	MICROMHO		1	600.000		600.000	600.000	82/04	82/04
DO	PROBE	MG/L		6	10.9833	2.20311	14.2000	8.10000	81/12	82/09
DO		MG/L		2	9.39999	2.26279	11.0000	7.80000	81/10	82/08
BOD	5 DAY	MG/L		3	1.33333	.230938	1.60000	1.20000	82/05	82/09
COD	LOWLEVEL	MG/L		6	23.0000	32.6497	89.0000	4.00000	81/10	82/06
			K	1	10.0000		10.0000	10.0000	82/09	82/09
			T	7	21.1428	30.2072	89.0000	4.00000	81/10	82/09
PH		SU		6	8.38333	.256555	8.70000	8.10000	81/10	82/09
LAB	PH	SU		4	7.98500	.180027	8.15000	7.81000	81/12	82/06
RESIDUE	TOT NFLT	MG/L		2	11.5000	7.77817	17.0000	6.00000	82/06	82/08
			K	6	5.83333	2.04125	10.0000	5.00000	81/10	82/09
			T	8	7.25000	4.30116	17.0000	5.00000	81/10	82/09
NH3+NH4-	N TOTAL	MG/L		3	.126667	.124231	.270000	.050000	81/12	82/06
			K	5	.050000	.000061	.050000	.050000	81/10	82/09
			T	8	.078750	.077356	.270000	.050000	81/10	82/09
NO2-N	TOTAL	MG/L		3	.020000	.000000	.020000	.020000	82/03	82/08
			K	4	.017500	.005000	.020000	.010000	81/10	82/09
			T	7	.018571	.003780	.020000	.010000	81/10	82/09
NO3-N	TOTAL	MG/L		8	1.12125	1.02442	3.51000	.360000	81/10	82/09
TOT KJEL	N	MG/L		6	.350000	.187083	.700000	.200000	81/12	82/09
PHOS-TOT		MG/L P		2	.075000	.007071	.080000	.070000	82/06	82/09
			K	6	.045000	.012248	.050000	.020000	81/10	82/08
			T	8	.052500	.017526	.080000	.020000	81/10	82/09

TABLE RD 1-70 (Continued)

STATION NUMBER 602000
40 40 33.0 080 32 27.0 2
L BEAVER CRK NR E LIVERPOOL - GRIMMS BRIDGE RD
OHIO RIVER (L BEAVER CREEK)
MILES 0953.80 0941.50 004.60

PARAMETER			R	NO	MEAN	STAN DEV	MAXIMUM	MINIMUM	BEG	END
CYANIDE	CN-TOT	MG/L	K	1	.010000		.010000	.010000	82/09	82/09
TOT HARD	CACO3	MG/L		6	309.333	57.0363	360.000	209.000	81/10	82/09
CALCIUM	CA-TOT	MG/L		4	77.7750	16.5707	93.6000	55.3000	81/12	82/09
MGNSIUM	MG,TOT	MG/L		5	24.4000	5.00799	28.9000	17.3000	81/12	82/09
CHLORIDE	TOTAL	MG/L		1	52.0000		52.0000	52.0000	81/10	81/10
CADMIUM	CD,TOT	UG/L	K	5	1.40000	2.01246	5.00000	.500000	81/10	82/09
CHROMIUM	CR,TOT	UG/L	K	6	30.0000	.000000	30.0000	30.0000	81/10	82/09
COPPER	CU,TOT	UG/L		3	11.6667	2.88678	15.0000	10.0000	82/03	82/08
			K	2	20.0000	14.1421	30.0000	10.0000	81/10	81/12
			T	5	15.0000	8.66025	30.0000	10.0000	81/10	82/08
IRON	FE,TOT	UG/L		6	215.000	76.6159	340.000	120.000	81/10	82/09
LEAD	PB,TOT	UG/L		4	5.75000	2.21736	9.00000	4.00000	82/03	82/09
			K	2	5.00000	.000000	5.00000	5.00000	81/10	81/12
			T	6	5.50000	1.76068	9.00000	4.00000	81/10	82/09
MANGNESE	MN	UG/L		1	80.0000		80.0000	80.0000	82/08	82/08
NICKEL	NI,TOTAL	UG/L	K	6	46.6667	26.5832	100.000	30.0000	81/10	82/09
ZINC	ZN,TOT	UG/L		2	12.5000	3.53553	15.0000	10.0000	82/03	82/09
			K	4	15.0000	10.0000	30.0000	10.0000	81/10	82/08
			T	6	14.1667	8.01041	30.0000	10.0000	81/10	82/09
FEC COLI	MFM-FCBR	/100ML		3	66.6667	81.4453	160.000	10.0000	81/10	82/04
FECSTREP	MF M-ENT	/100ML		3	16.5667	20.3780	40.0000	3.00000	81/10	82/04
PHENOLS	TOTAL	UG/L		1	6.00000		6.00000	6.00000	82/08	82/08
			K	2	6.00000	5.65685	10.0000	2.00000	81/10	82/09
			T	3	6.00000	4.00000	10.0000	2.00000	81/10	82/09
MBAS		MG/L		1	.070000		.070000	.070000	81/10	81/10
RESIDUE	DISS-180	C MG/L		8	477.750	93.0422	608.000	328.000	81/10	82/09
MERCURY	HG,TOTAL	UG/L	K	1	.500000		.500000	.500000	81/10	81/10

TABLE RD 1-71

STATION NUMBER 612010
40 42 53.0 080 32 41.0 2
N FK L BEAVER CK AT FREDERICKTOWN - FRED. RD
OHIO RIVER (LITTLE BEAVER CREEK)
MILES 0953.80 0941.50 010.80 000.20

PARAMETER			R	NO	MEAN	STAN DEV	MAXIMUM	MINIMUM	BEG	END
WATER	TEMP	CENT		3	2.33333	4.93288	8.00000	-.100E+01	80/11	81/05
CNDUCTVY	FIELD	MICROMHO		2	513.000	74.9533	566.000	460.000	80/11	81/05
CNDUCTVY	AT 25C	MICROMHO		1	463.000		463.000	463.000	81/02	81/02
DO		MG/L		3	13.4333	.462194	13.7000	12.9000	80/11	81/05
COD	LOWLEVEL	MG/L		3	11.6667	3.51191	15.0000	8.00000	80/11	81/05
LAB	PH	SU		3	7.93333	.305762	8.20000	7.60000	80/11	81/05
RESIDUE	TOT NFLT	MG/L		1	35.0000		35.0000	35.0000	81/02	81/02
			K	2	10.0000	.000000	10.0000	10.0000	80/11	81/05
			T	3	18.3333	14.4338	35.0000	10.0000	80/11	81/05
NH3+NH4-	N TOTAL	MG/L		1	.100000		.100000	.100000	81/02	81/02
			K	2	.050000	.000061	.050000	.050000	80/11	81/05
			T	3	.066667	.028868	.100000	.050000	80/11	81/05
NO2-N	TOTAL	MG/L		1	.010000		.010000	.010000	81/05	81/05
NO3-N	TOTAL	MG/L		3	1.21333	1.04940	2.41000	.450000	80/11	81/05
TOT KJEL	N	MG/L		3	.443333	.464794	.980000	.170000	80/11	81/05
PHOS-TOT		MG/L P		3	.053333	.028746	.076000	.021000	80/11	81/05
TOT HARD	CACO3	MG/L		3	304.000	112.641	400.000	180.000	80/11	81/05
CADMIUM	CD,TOT	UG/L	K	3	5.00000	.000000	5.00000	5.00000	80/11	81/05
CHROMIUM	CR,TOT	UG/L	K	3	30.0000	.000000	30.0000	30.0000	80/11	81/05
COPPER	CU,TOT	UG/L	K	3	30.0000	.000000	30.0000	30.0000	80/11	81/05
IRON	FE,TOT	UG/L		3	813.333	1071.09	2050.00	180.000	80/11	81/05
LEAD	PB,TOT	UG/L		1	12.0000		12.0000	12.0000	81/05	81/05
			K	2	7.50000	3.53553	10.0000	5.00000	80/11	81/02
			T	3	9.00000	3.60555	12.0000	5.00000	80/11	81/05
MANGNESE	MN	UG/L		2	120.000	42.4264	150.000	90.0000	80/11	81/05
NICKEL	NI,TOTAL	UG/L	K	3	100.000	.000000	100.000	100.000	80/11	81/05
ZINC	ZN,TOT	UG/L		3	30.0000	.000000	30.0000	30.0000	80/11	81/05
ALUMINUM	AL,TOT	UG/L		1	600.000		600.000	600.000	81/02	81/02
PHENOLS	TOTAL	UG/L		1	2.00000		2.00000	2.00000	81/02	81/02
			K	1	2.00000		2.00000	2.00000	81/05	81/05
			T	2	2.00000	.000000	2.00000	2.00000	81/02	81/05
RESIDUE	DISS-180	C MG/L		3	439.333	158.248	563.000	261.000	80/11	81/05
MERCURY	HG,TOTAL	UG/L	K	3	.350000	.259809	.500000	.050000	80/11	81/05

TABLE RD 1-72

STATION NUMBER 612010
40 42 53.0 080 32 41.0 2
N FK L BEAVER CK AT FREDERICKTOWN - FRED. RD
OHIO RIVER (LITTLE BEAVER CREEK)
MILES 0953.80 0941.50 010.80 000.20

No data were collected from 10/81 - 9/82.

TABLE RD 1-73

STATION NUMBER 612000
40 42 38.0 080 41 49.0 2
W FK L BEAVER CREEK NR GUILFORD - SR 30
OHIO RIVER (LITTLE BEAVER CREEK)
MILES 0953.80 0941.50 018.80 006.60

PARAMETER			R	NO	MEAN	STAN DEV	MAXIMUM	MINIMUM	BEG	END
WATER	TEMP	CENT		3	2.00000	4.35890	7.00000	-.100E+01	80/11	81/05
CNDUCTVY	FIELD	MICROMHO		1	460.000		460.000	460.000	80/11	80/11
CNDUCTVY	AT 25C	MICROMHO		1	374.000		374.000	374.000	81/02	81/02
DO		MG/L		3	12.4333	.814601	13.0000	11.5000	80/11	81/05
COD	LOWLEVEL	MG/L		3	7.66667	1.52755	9.00000	6.00000	80/11	81/05
LAB	PH	SU		3	7.66666	.251991	7.90000	7.40000	80/11	81/05
RESIDUE	TOT NFLT	MG/L		1	27.0000		27.0000	27.0000	81/02	81/02
			K	2	10.0000	.000000	10.0000	10.0000	80/11	81/05
			T	3	15.6667	9.81496	27.0000	10.0000	80/11	81/05
NH3+NH4-	N TOTAL	MG/L		3	.873333	.891871	1.90000	.290000	80/11	81/05
NO2-N	TOTAL	MG/L		1	.050000		.050000	.050000	81/05	81/05
NO3-N	TOTAL	MG/L		3	5.48999	3.48987	9.50000	3.14000	80/11	81/05
TOT KJEL	N	MG/L		3	1.22667	.957096	2.33000	.620000	80/11	81/05
PHOS-TOT		MG/L P		2	.041000	.024042	.058000	.024000	80/11	81/02
			K	1	.020000		.020000	.020000	81/05	81/05
			T	3	.034000	.020881	.058000	.020000	80/11	81/05
TOT HARD	CACO3	MG/L		3	238.000	101.134	342.000	140.000	80/11	81/05
CHLORIDE	TOTAL	MG/L		1	41.0000		41.0000	41.0000	81/05	81/05
CADMIUM	CD,TOT	UG/L	K	3	5.00000	.000000	5.00000	5.00000	80/11	81/05
CHROMIUM	CR,TOT	UG/L	K	3	30.0000	.000000	30.0000	30.0000	80/11	81/05
COPPER	CU,TOT	UG/L	K	3	30.0000	.000000	30.0000	30.0000	80/11	81/05
IRON	FE,TOT	UG/L		3	690.000	701.926	1500.00	260.000	80/11	81/05
LEAD	PB,TOT	UG/L		1	10.0000		10.0000	10.0000	81/05	81/05
			K	2	5.00000	.000000	5.00000	5.00000	80/11	81/02
			T	3	6.66667	2.88676	10.0000	5.00000	80/11	81/05
MANGNESE	MN	UG/L		2	255.000	162.635	370.000	140.000	80/11	81/05
NICKEL	NI,TOTAL	UG/L	K	3	100.000	.000000	100.000	100.000	80/11	81/05
ZINC	ZN,TOT	UG/L		1	80.0000		80.0000	80.0000	81/02	81/02
			K	2	30.0000	.000000	30.0000	30.0000	80/11	81/05
			T	3	46.6667	28.8675	80.0000	30.0000	80/11	81/05
ALUMINUM	AL,TOT	UG/L		1	500.000		500.000	500.000	81/02	81/02
PHENOLS	TOTAL	UG/L		2	2.00000	.000000	2.00000	2.00000	81/02	81/05
RESIDUE	DISS-180	C MG/L		3	368.666	165.005	533.000	203.000	80/11	81/05
MERCURY	HG,TOTAL	UG/L	K	3	.500000	.000000	.500000	.500000	80/11	81/05

TABLE RD 1-74

STATION NUMBER 612000
40 42 38.0 080 41 49.0 2
W FK L BEAVER CREEK NR GUILFORD - SR 30
OHIO RIVER (LITTLE BEAVER CREEK)
MILES 0953.80 0941.50 018.80 006.60

No data were collected from 10/81 - 9/82.

TABLE RD 1-75

STATION NUMBER 602090
40 42 17.0 080 45 57.0 2
CHEMLINE TRIB. NR LISBON - SR 518
OHIO RIVER (LITTLE BEAVER CREEK)
MILES 0953.80 0941.50 018.80 013.50 000.03

PARAMETER			R	NO	MEAN	STAN DEV	MAXIMUM	MINIMUM	BEG	END
WATER	TEMP	CENT		12	5.66667	9.04869	21.0000	-.300E+01	80/10	81/08
CNDUCTVY	FIELD	MICROMHO		6	5300.83	2963.15	9000.00	950.000	80/10	81/07
CNDUCTVY	AT 25C	MICROMHO		6	9266.50	5143.26	15800.0	2729.00	81/01	81/08
DO		MG/L		11	10.9909	2.65763	13.9000	7.20000	80/10	81/08
COD	LOWLEVEL	MG/L		9	44.1111	29.9685	95.0000	10.0000	80/10	81/08
			K	2	6.00000	.000000	6.00000	6.00000	81/06	81/07
			T	11	37.1818	30.9219	95.0000	6.00000	80/10	81/08
PH		SU		4	7.97500	.694635	8.70000	7.20000	80/10	81/08
LAB	PH	SU		9	8.29999	.500092	9.00000	7.50000	80/10	81/06
RESIDUE	TOT NFLT	MG/L		8	27.6250	15.0327	50.0000	11.0000	80/10	81/08
			K	3	10.0000	.000000	10.0000	10.0000	80/11	81/07
			T	11	22.8182	15.0321	50.0000	10.0000	80/10	81/08
NH3+NH4-	N TOTAL	MG/L		12	57.2308	35.9739	107.000	4.57000	80/10	81/08
NO2-N	TOTAL	MG/L		6	.221666	.240784	.700000	.030000	80/10	81/07
TOT KJEL	N	MG/L		9	61.2077	39.9170	120.000	5.27000	80/10	81/07
PHOS-TOT		MG/L P		2	.033500	.009192	.040000	.027000	80/10	81/01
			K	7	.020000	.000022	.020000	.020000	80/11	81/07
			T	9	.023000	.006782	.040000	.020000	80/10	81/07
TOT HARD	CACO3	MG/L		1	2730.00		2730.00	2730.00	81/05	81/05
CALCIUM	CA-TOT	MG/L		1	510.000		510.000	510.000	81/02	81/02
CHLORIDE	TOTAL	MG/L		9	2876.67	1500.83	4850.00	620.000	80/10	81/08
FLUORIDE	F,TOTAL	MG/L		2	2.11000	.155562	2.22000	2.00000	80/10	81/01
CHROMIUM	CR,TOT	UG/L		1	30.0000		30.0000	30.0000	81/01	81/01
COPPER	CU,TOT	UG/L		4	40.0000	8.16497	50.0000	30.0000	80/10	81/05
			K	1	30.0000		30.0000	30.0000	81/02	81/02
			T	5	38.0000	8.36660	50.0000	30.0000	80/10	81/05
IRON	FE,TOT	UG/L		10	1187.00	1229.58	3850.00	300.000	80/10	81/08
LEAD	PB,TOT	UG/L		1	6.00000		6.00000	6.00000	81/05	81/05
			K	1	25.0000		25.0000	25.0000	80/11	80/11
			T	2	15.5000	13.4350	25.0000	6.00000	80/11	81/05
MANGNESE	MN	UG/L		5	8204.00	7429.72	20050.0	2170.00	80/11	81/06
NICKEL	NI,TOTAL	UG/L		6	383.333	240.139	800.000	200.000	80/10	81/06
ZINC	ZN,TOT	UG/L		3	93.3333	30.5507	120.000	60.0000	81/01	81/06
ALUMINUM	AL,TOT	UG/L		1	400.000		400.000	400.000	81/05	81/05
PHENOLS	TOTAL	UG/L		10	8.80000	4.75629	17.0000	3.00000	80/12	81/08
MBAS		MG/L		11	2.83454	1.73920	5.30000	.810000	80/10	81/08
RESIDUE	DISS-180	C MG/L		11	6340.91	3631.93	11600.0	1880.00	80/10	81/08

TABLE RD 1-76

STATION NUMBER 602090
40 42 17.0 080 45 57.0 2
CHEMLINE TRIB. NR LISBON - SR 518
OHIO RIVER (LITTLE BEAVER CREEK)
MILES 0953.80 0941.50 018.80 013.50 000.03

PARAMETER			R	NO	MEAN	STAN DEV	MAXIMUM	MINIMUM	BEG	END
WATER	TEMP	CENT		1	19.0000		19.0000	19.0000	82/08	82/08
CNDUCTVY	FIELD	MICROMHO		1	6050.00		6050.00	6050.00	82/08	82/08
DO		MG/L		1	9.20000		9.20000	9.20000	82/08	82/08
BOD	5 DAY	MG/L		1	3.40000		3.40000	3.40000	82/08	82/08
PH		SU		1	6.70000		6.70000	6.70000	82/08	82/08
RESIDUE	TOT NFLT	MG/L		1	12.0000		12.0000	12.0000	82/08	82/08
NH3+NH4-	N TOTAL	MG/L		1	17.2000		17.2000	17.2000	82/08	82/08
NO2-N	TOTAL	MG/L		1	1.64000		1.64000	1.64000	82/08	82/08
TOT KJEL	N	MG/L		1	11.0000		11.0000	11.0000	82/08	82/08
PHOS-TOT		MG/L P	K	1	.050000		.050000	.050000	82/08	82/08
RESIDUE	DISS-180	C MG/L		1	8016.00		8016.00	8016.00	82/08	82/08

TABLE RD 1-77

STATION NUMBER 602060
40 47 35.0 080 31 20.0 2
E BR STATELINE CRK NR NEGLEY - TWP RD 1024
OHIO RIVER (L. BEAVER CREEK)
MILES 0953.80 0941.50 010.80 007.70 000.30 000.10

PARAMETER			R	NO	MEAN	STAN DEV	MAXIMUM	MINIMUM	BEG	END
WATER	TEMP	CENT		11	7.18182	8.26823	21.0000	-.300E+01	80/10	81/08
CNDUCTVY	FIELD	MICROMHO		4	1473.50	548.947	1900.00	750.000	80/10	81/04
CNDUCTVY	AT 25C	MICROMHO		4	2927.50	688.492	3780.00	2130.00	81/01	81/08
DO		MG/L		10	10.7300	1.95453	12.9000	7.50000	80/10	81/08
COD	LOWLEVEL	MG/L		8	19.8750	12.7328	40.0000	4.00000	80/10	81/08
PH		SU		2	7.70000	.000000	7.70000	7.70000	81/07	81/08
LAB	PH	SU		9	7.51110	.105541	7.60000	7.30000	80/10	81/06
T ALK	CACO3	MG/L		1	7.60000		7.60000	7.60000	80/10	80/10
RESIDUE	TOT NFLT	MG/L		3	23.6667	18.5023	45.0000	12.0000	81/02	81/07
			K	8	10.0000	.000000	10.0000	10.0000	80/10	81/08
			T	11	13.7273	10.4508	45.0000	10.0000	80/10	81/08
NH3+NH4-	N TOTAL	MG/L		11	4.43090	.853741	5.93000	2.84000	80/10	81/08
NO2-N	TOTAL	MG/L		4	.207500	.184820	.480000	.070000	81/03	81/07
NO3-N	TOTAL	MG/L		8	6.56000	4.07811	14.6000	2.22000	80/11	81/08
TOT KJEL	N	MG/L		9	5.09222	.839534	6.31000	3.79000	80/11	81/08
PHOS-TOT		MG/L P		3	.051333	.024987	.073000	.024000	81/04	81/07
			K	5	.020000	.000020	.020000	.020000	80/11	81/08
			T	8	.031750	.021008	.073000	.020000	80/11	81/08
TOT HARD	CACO3	MG/L		3	1099.33	298.299	1310.00	758.000	80/11	81/05
CHLORIDE	TOTAL	MG/L		2	672.500	10.6066	680.000	665.000	80/10	81/01
SULFATE	SO4-TOT	MG/L		2	515.000	77.7817	570.000	460.000	80/10	81/01
ARSENIC	AS,TOT	UG/L	K	1	10.0000		10.0000	10.0000	80/12	80/12
BARIUM	BA,TOT	UG/L	K	1	200.000		200.000	200.000	80/12	80/12
CADMIUM	CD,TOT	UG/L	K	3	11.6667	11.5470	25.0000	5.00000	80/11	81/05
CHROMIUM	CR,TOT	UG/L	K	3	30.0000	.000000	30.0000	30.0000	80/11	81/05
COPPER	CU,TOT	UG/L	K	3	30.0000	.000000	30.0000	30.0000	80/11	81/05
IRON	FE,TOT	UG/L		11	1382.73	1181.88	3810.00	400.000	80/10	81/08
LEAD	PB,TOT	UG/L	K	3	6.66667	2.88676	10.0000	5.00000	80/11	81/05
MANGNESE	MN	UG/L		2	2205.00	49.4975	2240.00	2170.00	80/11	81/05
NICKEL	NI,TOTAL	UG/L		3	133.333	57.7352	200.000	100.000	80/11	81/05
ZINC	ZN,TOT	UG/L		2	35.0000	7.07107	40.0000	30.0000	81/02	81/05
			K	1	30.0000		30.0000	30.0000	80/11	80/11
			T	3	33.3333	5.77355	40.0000	30.0000	80/11	81/05
ALUMINUM	AL,TOT	UG/L		1	200.000		200.000	200.000	81/02	81/02
PHENOLS	TOTAL	UG/L		11	7.45454	2.46430	12.0000	4.00000	80/10	81/08
MBAS		MG/L		1	.460000		.460000	.460000	81/08	81/08
RESIDUE	DISS-180	C MG/L		11	2030.00	484.107	3040.00	1240.00	80/10	81/08
MERCURY	HG,TOTAL	UG/L		1	.500000		.500000	.500000	81/05	81/05
			K	2	.500000	.000000	.500000	.500000	80/11	81/02
			T	3	.500000	.000000	.500000	.500000	80/11	81/05

TABLE RD 1-78

STATION NUMBER 602060
40 47 35.0 080 31 20.0 2
E BR STATELINE CRK NR NEGLEY - TWP RD 1024
OHIO RIVER (L. BEAVER CREEK)
MILES 0953.80 0941.50 010.80 007.70 000.30 000.10

No data were collected from 10/81 - 9/82.

TABLE RD 1-79

STATION NUMBER 602050
40 47 36.0 080 31 21.0 2
W BR STATELINE CRK NR NEGLEY - TWP RD 1024
OHIO RIVER (LITTLE BEAVER CRK.)
MILES 0953.80 0941.50 010.80 007.70 000.30 000.10

PARAMETER			R	NO	MEAN	STAN DEV	MAXIMUM	MINIMUM	BEG	END
WATER	TEMP	CENT		11	7.81818	7.88439	22.0000	.000000	80/10	81/08
STREAM	STAGE	FEET		8	1.43750	.145680	1.77000	1.31000	80/10	81/06
CNDUCTVY	FIELD	MICROMHO		4	1736.00	829.279	2550.00	864.000	80/10	81/04
CNDUCTVY	AT 25C	MICROMHO		4	1955.00	639.818	2740.00	1310.00	81/01	81/08
DO		MG/L		10	10.8600	1.98283	13.1000	7.30000	80/10	81/08
COD	LOWLEVEL	MG/L		7	28.7143	17.3466	57.0000	12.0000	80/10	81/08
			K	1	6.00000		6.00000	6.00000	81/06	81/06
			T	8	25.8750	17.9558	57.0000	6.00000	80/10	81/08
PH		SU		2	7.80000	.282873	8.00000	7.60000	81/07	81/08
LAB	PH	SU		9	7.61111	.116796	7.80000	7.50000	80/10	81/06
RESIDUE	TOT NFLT	MG/L		2	66.5000	77.0746	121.000	12.0000	81/02	81/07
			K	9	9.44444	1.66668	10.0000	5.00000	80/10	81/08
			T	11	19.8182	33.6000	121.000	5.00000	80/10	81/08
NH3+NH4-	N TOTAL	MG/L		11	.854545	.850698	2.60000	.140000	80/10	81/08
NO2-N	TOTAL	MG/L		3	.010000	.000000	.010000	.010000	81/04	81/07
			K	1	.010000		.010000	.010000	81/03	81/03
			T	4	.010000	.000000	.010000	.010000	81/03	81/07
NO3-N	TOTAL	MG/L		8	.411250	.368798	1.05000	.080000	80/11	81/08
TOT KJEL	N	MG/L		9	1.09333	.899348	3.13000	.470000	80/11	81/08
PHOS-TOT		MG/L P		4	.048250	.047458	.119000	.020000	81/02	81/07
			K	4	.020000	.000000	.020000	.020000	80/11	81/08
			T	8	.034125	.034544	.119000	.020000	80/11	81/08
TOT HARD	CACO3	MG/L		3	1154.67	746.891	2000.00	584.000	80/11	81/05
CHLORIDE	TOTAL	MG/L		2	727.500	385.374	1000.00	455.000	80/10	81/01

TABLE RD 1-79 (Continued)

STATION NUMBER 602050
40 47 36.0 080 31 21.0 2
W BR STATELINE CRK NR NEGLEY - TWP RD 1024
OHIO RIVER (LITTLE BEAVER CRK.)
MILES 0953.80 0941.50 010.80 007.70 000.30 000.10

PARAMETER			R	NO	MEAN	STAN DEV	MAXIMUM	MINIMUM	BEG	END
SULFATE	SO4-TOT	MG/L		2	415.000	77.7817	470.000	360.000	80/10	81/01
ARSENIC	AS,TOT	UG/L	K	1	10.0000		10.0000	10.0000	80/12	80/12
BARIUM	BA,TOT	UG/L		1	300.000		300.000	300.000	80/12	80/12
CADMIUM	CD,TOT	UG/L	K	3	11.6667	11.5470	25.0000	5.00000	80/11	81/05
CHROMIUM	CR,TOT	UG/L	K	3	30.0000	.000000	30.0000	30.0000	80/11	81/05
COPPER	CU,TOT	UG/L		1	30.0000		30.0000	30.0000	80/11	80/11
			K	2	30.0000	.000000	30.0000	30.0000	81/02	81/05
			T	3	30.0000	.000000	30.0000	30.0000	80/11	81/05
IRON	FE,TOT	UG/L		11	1457.27	1673.29	6400.00	520.000	80/10	81/08
LEAD	PB,TOT	UG/L		1	7.00000		7.00000	7.00000	81/05	81/05
			K	2	7.50000	3.53553	10.0000	5.00000	80/11	81/02
			T	3	7.33333	2.51662	10.0000	5.00000	80/11	81/05
MANGNESE	MN	UG/L		2	1090.00	113.137	1170.00	1010.00	80/11	81/05
NICKEL	NI,TOTAL	UG/L		2	100.000	.000000	100.000	100.000	80/11	81/02
			K	1	100.000		100.000	100.000	81/05	81/05
			T	3	100.000	.000000	100.000	100.000	80/11	81/05
ZINC	ZN,TOT	UG/L		1	60.0000		60.0000	60.0000	80/11	80/11
ZINC	ZN,TOT	UG/L	K	2	30.0000	.000000	30.0000	30.0000	81/02	81/05
			T	3	40.0000	17.3205	60.0000	30.0000	80/11	81/05
ALUMINUM	AL,TOT	UG/L		1	200.000		200.000	200.000	81/02	81/02
PHENOLS	TOTAL	UG/L		11	12.6364	11.2896	38.0000	2.00000	80/10	81/08
MBAS		MG/L		1	.170000		.170000	.170000	81/08	81/08
RESIDUE	DISS-180 C	MG/L		11	1565.45	766.045	3070.00	779.000	80/10	81/08
MERCURY	HG,TOTAL	UG/L	K	3	.500000	.000000	.500000	.500000	80/11	81/05

TABLE RD 1-80

STATION NUMBER 602050
40 47 36.0 080 31 21.0 2
W BR STATELINE CRK NR NEGLEY - TWP RD 1024
OHIO RIVER (LITTLE BEAVER CRK.)
MILES 0953.80 0941.50 010.80 007.70 000.30 000.10

No data were collected from 10/81 - 9/82.

TABLE RD 1-81

STATION NUMBER 600570
39 44 54.0 083 55 53.0 2
L. MIAMI RIVER NEAR OLDTOWN - U.S. RT. 68
OHIO RIVER 051191 (LITTLE MIAMI RIVER)
MILES 0953.80 0517.50 079.50

PARAMETER			R	NO	MEAN	STAN DEV	MAXIMUM	MINIMUM	BEG	END
WATER	TEMP	CENT		11	10.5091	7.62147	20.0000	.000000	80/10	81/09
STREAM	FLOW,	INST-CFS		12	132.700	126.776	402.900	37.9000	80/10	81/09
STREAM	STAGE	FEET		12	2.01000	.578737	3.16000	1.46000	80/10	81/09
CNDUCTVY	AT 25C	MICROMHO		12	685.166	57.3633	797.000	577.000	80/10	81/09
DO		MG/L		11	10.2818	2.39869	14.6000	7.40000	80/10	81/09
COD	LOWLEVEL	MG/L		8	11.5000	3.33809	16.0000	6.00000	80/11	81/08
			K	4	5.00000	1.15470	6.00000	4.00000	80/10	81/09
			T	12	9.33333	4.20678	16.0000	4.00000	80/10	81/09
PH		SU		4	8.00000	.355962	8.30000	7.50000	81/06	81/09
LAB	PH	SU		8	8.05000	.119727	8.20000	7.90000	80/10	81/05
RESIDUE	TOT NFLT	MG/L		6	54.6667	26.9494	90.0000	20.0000	81/02	81/09
			K	6	10.0000	.000000	10.0000	10.0000	80/10	81/04
			T	12	32.3333	29.5676	90.0000	10.0000	80/10	81/09
NH3+NH4-	N TOTAL	MG/L		9	.347777	.677675	2.15000	.050000	80/11	81/09
			K	3	.050000	.000075	.050000	.050000	80/10	81/08
			T	12	.273333	.593408	2.15000	.050000	80/10	81/09
NO3-N	TOTAL	MG/L		12	4.47249	1.55824	8.36000	3.07000	80/10	81/09
TOT KJEL	N	MG/L		12	.724166	.605647	2.36000	.230000	80/10	81/09
PHOS-TOT		MG/L P		12	.113583	.053900	.232000	.057000	80/10	81/09
CYANIDE	CN-TOT	MG/L	K	4	.010000	.000000	.010000	.010000	80/12	81/09
TOT HARD	CACO3	MG/L		4	370.750	16.1116	384.000	348.000	80/12	81/09
CADMIUM	CD,TOT	UG/L	K	4	5.00000	.000000	5.00000	5.00000	80/12	81/09
CHROMIUM	CR,TOT	UG/L	K	4	30.0000	.000000	30.0000	30.0000	80/12	81/09
COPPER	CU,TOT	UG/L	K	4	30.0000	.000000	30.0000	30.0000	80/12	81/09
IRON	FE,TOT	UG/L		4	1090.00	1169.47	2780.00	300.000	80/12	81/09
LEAD	PB,TOT	UG/L	K	4	6.25000	2.50000	10.0000	5.00000	80/12	81/09
NICKEL	NI,TOTAL	UG/L	K	4	100.000	.000000	100.000	100.000	80/12	81/09
ZINC	ZN,TOT	UG/L		2	35.0000	7.07107	40.0000	30.0000	80/12	81/06
			K	2	30.0000	.000000	30.0000	30.0000	81/03	81/09
			T	4	32.5000	5.00000	40.0000	30.0000	80/12	81/09
FEC COLI	MFM-FCBR	/100ML		9	867.922	1555.50	4900.00	8.30000	80/10	81/09
			L	1	100000		100000	100000	81/05	81/05
			T	10	10781.1	31382.6	100000	8.30000	80/10	81/09
PHENOLS	TOTAL	UG/L		3	2.66667	.577359	3.00000	2.00000	80/12	81/09
			K	1	2.00000		2.00000	2.00000	81/06	81/06
			T	4	2.50000	.577350	3.00000	2.00000	80/12	81/09
MERCURY	HG,TOTAL	UG/L		2	.650000	.212134	.800000	.500000	80/12	81/06
			K	2	.500000	.000000	.500000	.500000	81/03	81/09
			T	4	.575000	.150001	.800000	.500000	80/12	81/09

TABLE RD 1-82

STATION NUMBER 600570
39 44 54.0 083 55 53.0 2
L. MIAMI RIVER NEAR OLDTOWN - U.S. RT. 68
OHIO RIVER 051191 (LITTLE MIAMI RIVER)
MILES 0953.80 0517.50 079.50

PARAMETER			R	NO	MEAN	STAN DEV	MAXIMUM	MINIMUM	BEG	END
WATER	TEMP	CENT		12	10.2083	7.38185	20.5000	.000000	81/10	82/09
STREAM	FLOW,	INST-CFS		12	143.400	218.764	817.000	17.3000	81/10	82/09
STREAM	STAGE	FEET		11	1.94636	.869650	4.34000	1.20000	81/10	82/09
CNDUCTVY	AT 25C	MICROMHO		11	650.727	113.666	770.000	410.000	81/10	82/09
DO	PROBE	MG/L		10	10.8500	2.85785	16.4000	7.70000	81/12	82/09
DO		MG/L		2	10.6000	1.69707	11.8000	9.40000	81/10	81/11
COD	LOWLEVEL	MG/L		8	29.0000	15.6570	55.0000	12.0000	81/10	82/08
			K	4	7.00000	3.46410	10.0000	4.00000	82/01	82/09
			T	12	21.6667	16.6315	55.0000	4.00000	81/10	82/09
PH		SU		1	8.20000		8.20000	8.20000	81/10	81/10
LAB	PH	SU		10	8.10399	.162714	8.31000	7.82000	81/11	82/09
RESIDUE	TOT NFLT	MG/L		9	142.444	314.376	968.000	5.00000	81/12	82/09
			K	2	10.0000	.000000	10.0000	10.0000	81/10	81/11
			T	11	118.364	286.245	968.000	5.00000	81/10	82/09
NH3+NH4-	N TOTAL	MG/L		7	.124286	.105492	.350000	.050000	82/01	82/08
			K	5	.050000	.000061	.050000	.050000	81/10	82/09
			T	12	.093333	.086795	.350000	.050000	81/10	82/09
NO2-N	TOTAL	MG/L		2	.060000	.056569	.100000	.020000	82/03	82/06
NO3-N	TOTAL	MG/L		12	3.80416	1.43443	7.60000	2.25000	81/10	82/09
TOT KJEL	N	MG/L		12	.666666	.777529	2.60000	.110000	81/10	82/09
PHOS-TOT		MG/L P		11	.211727	.240256	.780000	.050000	81/10	82/09
			K	1	.050000		.050000	.050000	82/04	82/04
			T	12	.198250	.233784	.780000	.050000	81/10	82/09
CYANIDE	CN-TOT	MG/L	K	1	.010000		.010000	.010000	81/12	81/12
TOT HARD	CACO3	MG/L		4	360.000	56.8448	392.000	275.000	81/12	82/09
CALCIUM	CA-TOT	MG/L		4	83.7499	12.9355	93.4000	64.8000	81/12	82/09
MGNSIUM	MG,TOT	MG/L		4	36.6250	6.37214	42.6000	27.6000	81/12	82/09
CADMIUM	CD,TOT	UG/L	K	4	.500000	.000000	.500000	.500000	81/12	82/09
CHROMIUM	CR,TOT	UG/L		1	30.0000		30.0000	30.0000	82/03	82/03
			K	3	30.0000	.000000	30.0000	30.0000	81/12	82/09
			T	4	30.0000	.000000	30.0000	30.0000	81/12	82/09
COPPER	CU,TOT	UG/L		2	17.5000	3.53553	20.0000	15.0000	82/03	82/06
			K	2	10.0000	.000000	10.0000	10.0000	81/12	82/09
			T	4	13.7500	4.78713	20.0000	10.0000	81/12	82/09
IRON	FE,TOT	UG/L		4	8700.00	9925.89	20120.0	360.000	81/12	82/09
LEAD	PB,TOT	UG/L		3	14.8333	9.51438	25.7000	8.00000	82/03	82/09
			K	1	5.00000		5.00000	5.00000	81/12	81/12
			T	4	12.3750	9.19361	25.7000	5.00000	81/12	82/09
NICKEL	NI,TOTAL	UG/L	K	4	37.5000	5.00000	40.0000	30.0000	81/12	82/09
ZINC	ZN,TOT	UG/L		2	67.5000	17.6777	80.0000	55.0000	82/03	82/06
			K	2	10.0000	.000000	10.0000	10.0000	81/12	82/09
ZINC	ZN,TOT	UG/L	T	4	38.7500	34.7311	80.0000	10.0000	81/12	82/09
FEC COLI	MFM-FCBR	/100ML		10	1835.30	3112.50	10000.0	25.0000	81/10	82/09
			K	1	14.3000		14.3000	14.3000	82/02	82/02
			L	1	100000		100000	100000	82/08	82/08
			T	12	9863.94	28529.6	100000	14.3000	81/10	82/09
PHENOLS	TOTAL	UG/L	K	1	2.00000		2.00000	2.00000	81/12	81/12

TABLE RD 1-83

STATION NUMBER 610550
39 39 30.0 084 02 30.0 2
L MIAMI R NR BELLBROOK - UPPER BELLBROOK RD
OHIO RIVER (LITTLE MIAMI RIVER)
MILES 0953.80 0517.50 068.20

PARAMETER			R	NO	MEAN	STAN DEV	MAXIMUM	MINIMUM	BEG	END
WATER	TEMP	CENT		4	12.7250	7.05283	18.7000	4.00000	80/12	81/09
CNDUCTVY	AT 25C	MICROMHO		4	751.750	38.8887	800.000	706.000	80/12	81/09
DO		MG/L		4	8.62499	2.49586	12.2000	6.60000	80/12	81/09
COD	LOWLEVEL	MG/L		4	12.2500	5.43906	20.0000	8.00000	80/12	81/09
PH		SU		2	7.50000	.282846	7.70000	7.30000	81/06	81/09
LAB	PH	SU		2	8.00000	.141436	8.10000	7.90000	80/12	81/03
RESIDUE	TOT NFLT	MG/L		3	52.0000	32.0000	84.0000	20.0000	80/12	81/09
			K	1	10.0000		10.0000	10.0000	81/03	81/03
			T	4	41.5000	33.5211	84.0000	10.0000	80/12	81/09
NH3+NH4-	N TOTAL	MG/L		4	.605000	.179351	.790000	.360000	80/12	81/09
NO3-N	TOTAL	MG/L		4	3.63500	1.05794	4.90000	2.67000	80/12	81/09
TOT KJEL	N	MG/L		4	1.13250	.127646	1.30000	.990000	80/12	81/09
PHOS-TOT		MG/L P		4	.587000	.091897	.717000	.515000	80/12	81/09
CYANIDE	CN-TOT	MG/L	K	4	.010000	.000000	.010000	.010000	80/12	81/09
TOT HARD	CACO3	MG/L		4	369.000	18.5831	392.000	352.000	80/12	81/09
CADMIUM	CD,TOT	UG/L	K	4	5.00000	.000000	5.00000	5.00000	80/12	81/09
CHROMIUM	CR,TOT	UG/L	K	4	30.0000	.000000	30.0000	30.0000	80/12	81/09
COPPER	CU,TOT	UG/L	K	4	30.0000	.000000	30.0000	30.0000	80/12	81/09
IRON	FE,TOT	UG/L		4	1637.50	1371.97	3500.00	400.000	80/12	81/09
LEAD	PB,TOT	UG/L		2	6.50000	.707107	7.00000	6.00000	80/12	81/06
			K	2	7.50000	3.53553	10.0000	5.00000	81/03	81/09
			T	4	7.00000	2.16025	10.0000	5.00000	80/12	81/09
NICKEL	NI,TOTAL	UG/L	K	4	100.000	.000000	100.000	100.000	80/12	81/09
ZINC	ZN,TOT	UG/L		2	35.0000	7.07107	40.0000	30.0000	81/03	81/06
			K	2	30.0000	.000000	30.0000	30.0000	80/12	81/09
			T	4	32.5000	5.00000	40.0000	30.0000	80/12	81/09
FEC COLI	MFM-FCBR	/100ML		4	5550.00	6306.87	15000.0	2100.00	80/12	81/09
PHENOLS	TOTAL	UG/L		3	3.66667	2.88675	7.00000	2.00000	80/12	81/09
			K	1	2.00000		2.00000	2.00000	81/03	81/03
			T	4	3.25000	2.50000	7.00000	2.00000	80/12	81/09
MERCURY	HG,TOTAL	UG/L		2	.600000	.000423	.600000	.600000	80/12	81/06
			K	2	.500000	.000000	.500000	.500000	81/03	81/09
			T	4	.550000	.057736	.600000	.500000	80/12	81/09

TABLE RD 1-84

STATION NUMBER 610550
39 39 30.0 084 02 30.0 2
L MIAMI R NR BELLBROOK - UPPER BELLBROOK RD
OHIO RIVER (LITTLE MIAMI RIVER)
MILES 0953.80 0517.50 068.20

No data were collected from 10/81 - 9/82.

TABLE RD 1-85

STATION NUMBER 600600
39 35 00.0 084 01 49.0 2
L MIAMI R NR SPRING VALLEY - ROXANNA-N. BURL. RD
OHIO RIVER 051191 (LITTLE MIAMI RIVER)
MILES 0953.80 0517.50 059.30

PARAMETER			R	NO	MEAN	STAN DEV	MAXIMUM	MINIMUM	BEG	END
WATER	TEMP	CENT		11	11.3091	7.52548	21.0000	.000000	80/10	81/09
STREAM	FLOW,	INST-CFS		12	760.441	1092.93	4102.00	187.000	80/10	81/09
STREAM	STAGE	FEET		12	4.63583	1.93362	10.0900	3.18000	80/10	81/09
CNDUCTVY	AT 25C	MICROMHO		12	757.500	171.581	945.000	264.000	80/10	81/09
DO		MG/L		11	9.23636	2.34789	13.2000	6.10000	80/10	81/09
COD	LOWLEVEL	MG/L		11	17.8182	18.9885	73.0000	6.00000	80/10	81/09
			K	1	6.00000		6.00000	6.00000	81/06	81/06
			T	12	16.8333	18.4235	73.0000	6.00000	80/10	81/09
PH		SU		4	7.97500	.590921	8.40000	7.10000	81/06	81/09
LAB	PH	SU		8	7.97500	.116628	8.20000	7.80000	80/10	81/05
RESIDUE	TOT NFLT	MG/L		8	212.250	436.866	1290.00	13.0000	80/12	81/09
			K	4	10.0000	.000000	10.0000	10.0000	80/10	81/03
			T	12	144.833	362.447	1290.00	10.0000	80/10	81/09
NH3+NH4-	N TOTAL	MG/L		12	.477500	.228915	1.01000	.160000	80/10	81/09
NO3-N	TOTAL	MG/L		12	3.66583	.731909	4.75000	2.26000	80/10	81/09
TOT KJEL	N	MG/L		12	1.30917	.942013	4.22000	.760000	80/10	81/09
PHOS-TOT		MG/L P		12	.544583	.378947	1.70000	.276000	80/10	81/09
CYANIDE	CN-TOT	MG/L	K	4	.010000	.000000	.010000	.010000	80/12	81/09
TOT HARD	CACO3	MG/L		4	372.000	7.48331	380.000	362.000	80/12	81/09
CADMIUM	CD,TOT	UG/L	K	4	5.00000	.000000	5.00000	5.00000	80/12	81/09
CHROMIUM	CR,TOT	UG/L	K	4	30.0000	.000000	30.0000	30.0000	80/12	81/09
COPPER	CU,TOT	UG/L	K	4	30.0000	.000000	30.0000	30.0000	80/12	81/09
IRON	FE,TOT	UG/L		4	1430.00	989.074	2380.00	380.000	80/12	81/09
LEAD	PB,TOT	UG/L		1	5.00000		5.00000	5.00000	81/06	81/06
			K	3	5.00000	.000000	5.00000	5.00000	80/12	81/09
			T	4	5.00000	.000000	5.00000	5.00000	80/12	81/09
NICKEL	NI,TOTAL	UG/L	K	4	100.000	.000000	100.000	100.000	80/12	81/09
ZINC	ZN,TOT	UG/L		1	40.0000		40.0000	40.0000	81/06	81/06
			K	3	30.0000	.000000	30.0000	30.0000	80/12	81/09
			T	4	32.5000	5.00000	40.0000	30.0000	80/12	81/09
FEC COLI	MFM-FCBR	/100ML		6	1226.67	1611.53	4400.00	110.000	80/10	81/08
			L	2	100000	.000000	100000	100000	81/05	81/07
			T	8	25920.0	45743.4	100000	110.000	80/10	81/08
PHENOLS	TOTAL	UG/L		3	2.66667	.577359	3.00000	2.00000	80/12	81/09
			K	1	2.00000		2.00000	2.00000	81/03	81/03
			T	4	2.50000	.577350	3.00000	2.00000	80/12	81/09
MERCURY	HG,TOTAL	UG/L	K	4	.500000	.000000	.500000	.500000	80/12	81/09

TABLE RD 1-86

STATION NUMBER 600600
39 35 00.0 084 01 49.0 2
L MIAMI R NR SPRING VALLEY - ROXANNA-N. BURL. RD
OHIO RIVER 051191 (LITTLE MIAMI RIVER)
MILES 0953.80 0517.50 059.30

No data were collected from 10/81 - 9/82.

TABLE RD 1-87

STATION NUMBER 610520
39 20 48.0 084 10 26.0 2
L MIAMI R NR MORROW - STUBBS MILL RD
OHIO RIVER (L. MIAMI RIVER)
MILES 0953.80 0517.50 035.70

PARAMETER			R	NO	MEAN	STAN DEV	MAXIMUM	MINIMUM	BEG	END
WATER	TEMP	CENT		10	13.2700	8.15135	23.2000	3.00000	80/10	81/09
CNDUCTVY	AT 25C	MICROMHO		11	649.727	75.6181	795.000	494.000	80/10	81/09
DO		MG/L		10	10.5600	2.25055	13.4000	7.60000	80/10	81/09
COD	LOWLEVEL	MG/L		9	16.1111	9.98056	39.0000	6.00000	80/10	81/09
			K	1	6.00000		6.00000	6.00000	81/08	81/08
			T	10	15.1000	9.93814	39.0000	6.00000	80/10	81/09
PH		SU		4	8.12500	.550065	8.40000	7.30000	81/06	81/09
LAB	PH	SU		7	8.01428	.157547	8.20000	7.70000	80/10	81/05
RESIDUE	TOT NFLT	MG/L		8	111.125	129.310	339.000	10.0000	80/12	81/09
			K	3	10.0000	.000000	10.0000	10.0000	80/10	81/03
			T	11	83.5454	118.050	339.000	10.0000	80/10	81/09
NH3+NH4-	N TOTAL	MG/L		6	.186666	.102111	.370000	.090000	80/11	81/05
			K	5	.050000	.000061	.050000	.050000	80/10	81/09
			T	11	.124545	.101525	.370000	.050000	80/10	81/09
NO3-N	TOTAL	MG/L		11	3.32181	.662871	4.42000	2.13000	80/10	81/09
TOT KJEL	N	MG/L		11	.763636	.442499	1.91000	.380000	80/10	81/09
PHOS-TOT		MG/L P		11	.327181	.130257	.542000	.164000	80/10	81/09
CYANIDE	CN-TOT	MG/L	K	4	.010000	.000000	.010000	.010000	80/12	81/09
TOT HARD	CACO3	MG/L		4	321.000	7.74597	332.000	314.000	80/12	81/09
CADMIUM	CD,TOT	UG/L	K	4	5.00000	.000000	5.00000	5.00000	80/12	81/09
CHROMIUM	CR,TOT	UG/L	K	4	30.0000	.000000	30.0000	30.0000	80/12	81/09
COPPER	CU,TOT	UG/L	K	4	30.0000	.000000	30.0000	30.0000	80/12	81/09
IRON	FE,TOT	UG/L		4	1202.50	959.596	2260.00	360.000	80/12	81/09
LEAD	PB,TOT	UG/L	K	4	10.0000	10.0000	25.0000	5.00000	80/12	81/09
NICKEL	NI,TOTAL	UG/L	K	4	100.000	.000000	100.000	100.000	80/12	81/09
ZINC	ZN,TOT	UG/L		1	40.0000		40.0000	40.0000	81/06	81/06
			K	3	30.0000	.000000	30.0000	30.0000	80/12	81/09
			T	4	32.5000	5.00000	40.0000	30.0000	80/12	81/09
FEC COLI	MFM-FCBR	/100ML		9	742.333	776.755	2200.00	48.0000	80/10	81/09
PHENOLS	TOTAL	UG/L		4	2.75000	.957427	4.00000	2.00000	80/12	81/09
MERCURY	HG,TOTAL	UG/L		1	.600000		.600000	.600000	81/09	81/09
			K	3	.500000	.000000	.500000	.500000	80/12	81/06
			T	4	.525000	.050002	.600000	.500000	80/12	81/09

TABLE RD 1-88

STATION NUMBER 610520
39 20 48.0 084 10 26.0 2
L MIAMI R NR MORROW - STUBBS MILL RD
OHIO RIVER (L. MIAMI RIVER)
MILES 0953.80 0517.50 035.70

No data were collected from 10/81 - 9/82.

TABLE RD 1-89

STATION NUMBER 610530
39 09 20.0 084 17 30.0 2
E FK L MIAMI R NR MILFORD - NR TERRACE PARK C.C.
OHIO RIVER (LITTLE MIAMI RIVER)
MILES 0953.80 0517.50 011.10 000.80

PARAMETER			R	NO	MEAN	STAN DEV	MAXIMUM	MINIMUM	BEG	END
WATER	TEMP	CENT		11	13.1727	9.33725	25.0000	.500000	80/10	81/09
CNDUCTVY	AT 25C	MICROMHO		12	467.333	127.220	747.000	327.000	80/10	81/09
DO		MG/L		11	9.60000	2.81319	13.5000	5.40000	80/10	81/09
COD	LOWLEVEL	MG/L		12	19.4167	10.9167	49.0000	8.00000	80/10	81/09
PH		SU		4	8.00000	.571613	8.50000	7.20000	81/06	81/09
LAB	PH	SU		8	7.69999	.075630	7.80000	7.60000	80/10	81/05
RESIDUE	TOT NFLT	MG/L		7	119.429	238.670	660.000	12.0000	80/12	81/09
			K	5	10.0000	.000000	10.0000	10.0000	80/10	81/06
			T	12	73.8333	185.057	660.000	10.0000	80/10	81/09
NH3+NH4-	N TOTAL	MG/L		11	.224545	.175292	.580000	.070000	80/10	81/09
			K	1	.050000		.050000	.050000	81/07	81/07
			T	12	.210000	.174565	.580000	.050000	80/10	81/09
NO3-N	TOTAL	MG/L		12	1.60750	.448646	2.61000	.970000	80/10	81/09
TOT KJEL	N	MG/L		12	1.01500	.399853	2.15000	.680000	80/10	81/09
PHOS-TOT		MG/L P		12	.442333	.304949	1.15000	.124000	80/10	81/09
CYANIDE	CN-TOT	MG/L	K	4	.010000	.000000	.010000	.010000	80/12	81/09
TOT HARD	CACO3	MG/L		4	174.500	43.3090	236.000	138.000	80/12	81/09
CADMIUM	CD,TOT	UG/L	K	4	5.00000	.000000	5.00000	5.00000	80/12	81/09
CHROMIUM	CR,TOT	UG/L	K	4	30.0000	.000000	30.0000	30.0000	80/12	81/09
COPPER	CU,TOT	UG/L	K	4	30.0000	.000000	30.0000	30.0000	80/12	81/09
IRON	FE,TOT	UG/L		4	1160.00	513.615	1770.00	630.000	80/12	81/09
LEAD	PB,TOT	UG/L	K	4	5.00000	.000000	5.00000	5.00000	80/12	81/09
NICKEL	NI,TOTAL	UG/L	K	4	100.000	.000000	100.000	100.000	80/12	81/09
ZINC	ZN,TOT	UG/L		2	30.0000	.000000	30.0000	30.0000	80/12	81/06
			K	2	30.0000	.000000	30.0000	30.0000	81/03	81/09
			T	4	30.0000	.000000	30.0000	30.0000	80/12	81/09
FEC COLI	MFM-FCBR	/100ML		12	3741.67	3985.24	14000.0	150.000	80/10	81/09
PHENOLS	TOTAL	UG/L		4	4.50000	1.73205	7.00000	3.00000	80/12	81/09
MERCURY	HG,TOTAL	UG/L		2	.550000	.070715	.600000	.500000	81/06	81/09
			K	2	.500000	.000000	.500000	.500000	80/12	81/03
			T	4	.525000	.050002	.600000	.500000	80/12	81/09

TABLE RD 1-90

STATION NUMBER 610530
39 09 20.0 084 17 30.0 2
E FK L MIAMI R NR MILFORD - NR TERRACE PARK C.C.
OHIO RIVER (LITTLE MIAMI RIVER)
MILES 0953.80 0517.50 011.10 000.80

No data were collected from 10/81 - 9/82.

TABLE RD 1-91

STATION NUMBER 600510
39 41 54.0 084 01 10.0 2
BEAVER CREEK NEAR ALPHA - BELOW STP
OHIO RIVER 051192 (LITTLE MIAMI RIVER)
MILES 0953.80 0517.50 072.60 001.50

PARAMETER			R	NO	MEAN	STAN DEV	MAXIMUM	MINIMUM	BEG	END
WATER	TEMP	CENT		4	12.6750	6.65501	18.2000	4.50000	80/12	81/09
CNDUCTVY	AT 25C	MICROMHO		4	908.500	98.5140	979.000	763.000	80/12	81/09
DO		MG/L		4	8.27500	2.23812	11.6000	6.90000	80/12	81/09
COD	LOWLEVEL	MG/L		4	23.0000	6.63325	32.0000	18.0000	80/12	81/09
PH		SU		2	7.30000	.424273	7.60000	7.00000	81/06	81/09
LAB	PH	SU		2	7.80000	.282873	8.00000	7.60000	80/12	81/03
RESIDUE	TOT NFLT	MG/L		3	32.0000	19.0526	54.0000	21.0000	80/12	81/09
			K	1	10.0000		10.0000	10.0000	81/03	81/03
			T	4	26.5000	19.0526	54.0000	10.0000	80/12	81/09
NH3+NH4-	N TOTAL	MG/L		4	2.49500	.485838	2.92000	1.93000	80/12	81/09
NO3-N	TOTAL	MG/L		4	1.89500	.364647	2.29000	1.58000	80/12	81/09
TOT KJEL	N	MG/L		4	3.47250	.458143	4.08000	3.03000	80/12	81/09
PHOS-TOT		MG/L P		4	1.65750	.390246	2.08000	1.14000	80/12	81/09
CYANIDE	CN-TOT	MG/L	K	4	.010000	.000000	.010000	.010000	80/12	81/09
TOT HARD	CACO3	MG/L		4	358.000	52.3068	392.000	280.000	80/12	81/09
CADMIUM	CD,TOT	UG/L	K	4	5.00000	.000000	5.00000	5.00000	80/12	81/09
CHROMIUM	CR,TOT	UG/L		1	30.0000		30.0000	30.0000	80/12	80/12
			K	3	30.0000	.000000	30.0000	30.0000	81/03	81/09
			T	4	30.0000	.000000	30.0000	30.0000	80/12	81/09
COPPER	CU,TOT	UG/L	K	4	30.0000	.000000	30.0000	30.0000	80/12	81/09
IRON	FE,TOT	UG/L		4	955.000	552.901	1710.00	390.000	80/12	81/09
LEAD	PB,TOT	UG/L		2	9.50000	.707107	10.0000	9.00000	80/12	81/09
			K	2	5.00000	.000000	5.00000	5.00000	81/03	81/06
			T	4	7.25000	2.62996	10.0000	5.00000	80/12	81/09
NICKEL	NI,TOTAL	UG/L	K	4	100.000	.000000	100.000	100.000	80/12	81/09
ZINC	ZN,TOT	UG/L		3	40.0000	10.0000	50.0000	30.0000	80/12	81/09
			K	1	30.0000		30.0000	30.0000	81/03	81/03
			T	4	37.5000	9.57427	50.0000	30.0000	80/12	81/09
FEC COLI	MFM-FCBR	/100ML		4	26525.0	23263.0	53000.0	5000.00	80/12	81/09
PHENOLS	TOTAL	UG/L		4	10.0000	7.83156	20.0000	2.00000	80/12	81/09
MERCURY	HG,TOTAL	UG/L	K	4	.500000	.000000	.500000	.500000	80/12	81/09

TABLE RD 1-92

STATION NUMBER 600510
39 41 54.0 084 01 10.0 2
BEAVER CREEK NEAR ALPHA - BELOW STP
OHIO RIVER 051192 (LITTLE MIAMI RIVER)
MILES 0953.80 0517.50 072.60 001.50

No data were collected from 10/81 - 9/82.

TABLE RD 1-93

STATION NUMBER 600550
39 29 34.0 084 06 06.0 2
CAESAR CREEK NR OREGONIA - CORWIN RD
OHIO RIVER 051191 (LITTLE MIAMI RIVER)
MILES 0953.80 0517.50 051.00 000.10

PARAMETER			R	NO	MEAN	STAN DEV	MAXIMUM	MINIMUM	BEG	END
WATER	TEMP	CENT		11	12.9818	9.05735	24.3000	.000000	80/10	81/09
CNDUCTVY	AT 25C	MICROMHO		12	459.166	35.5208	515.000	384.000	80/10	81/09
DO		MG/L		11	10.6818	2.89477	15.0000	5.40000	80/10	81/09
COD	LOWLEVEL	MG/L		10	10.6000	2.63313	16.0000	6.00000	80/10	81/09
			K	2	6.00000	.000000	6.00000	6.00000	81/04	81/05
			T	12	9.83333	2.97973	16.0000	6.00000	80/10	81/09
PH		SU		4	8.17500	.457415	8.50000	7.50000	81/06	81/09
LAB	PH	SU		8	8.03750	.118850	8.20000	7.90000	80/10	81/05
RESIDUE	TOT NFLT	MG/L		3	11.6667	5.13162	16.0000	6.00000	81/02	81/09
			K	9	10.0000	.000000	10.0000	10.0000	80/10	81/07
			T	12	10.4167	2.31432	16.0000	6.00000	80/10	81/09
NH3+NH4-	N TOTAL	MG/L		5	.106000	.042778	.150000	.060000	80/11	81/04
			K	7	.050000	.000056	.050000	.050000	80/10	81/09
			T	12	.073333	.038691	.150000	.050000	80/10	81/09
NO3-N	TOTAL	MG/L		12	2.62583	.773520	4.23000	1.86000	80/10	81/09
TOT KJEL	N	MG/L		12	.501666	.107857	.700000	.320000	80/10	81/09
PHOS-TOT		MG/L P		10	.029800	.008942	.047000	.020000	80/12	81/09
			K	2	.020000	.000000	.020000	.020000	80/10	80/11
			T	12	.028167	.008943	.047000	.020000	80/10	81/09
CYANIDE	CN-TOT	MG/L	K	4	.010000	.000000	.010000	.010000	80/12	81/09
TOT HARD	CACO3	MG/L		4	231.250	13.1498	248.000	216.000	80/12	81/09
CADMIUM	CD,TOT	UG/L	K	4	5.00000	.000000	5.00000	5.00000	80/12	81/09
CHROMIUM	CR,TOT	UG/L	K	4	30.0000	.000000	30.0000	30.0000	80/12	81/09
COPPER	CU,TOT	UG/L	K	4	30.0000	.000000	30.0000	30.0000	80/12	81/09
IRON	FE,TOT	UG/L		4	370.000	184.029	610.000	190.000	80/12	81/09
LEAD	PB,TOT	UG/L	K	4	5.00000	.000000	5.00000	5.00000	80/12	81/09
NICKEL	NI,TOTAL	UG/L	K	4	100.000	.000000	100.000	100.000	80/12	81/09
ZINC	ZN,TOT	UG/L		1	30.0000		30.0000	30.0000	81/06	81/06
			K	3	30.0000	.000000	30.0000	30.0000	80/12	81/09
			T	4	30.0000	.000000	30.0000	30.0000	80/12	81/09
FEC COLI	MFM-FCBR	/100ML		10	165.700	366.669	1200.00	3.00000	80/10	81/09
			K	1	1.80000		1.80000	1.80000	81/01	81/01
			T	11	150.800	351.346	1200.00	1.80000	80/10	81/09
PHENOLS	TOTAL	UG/L		3	3.00000	1.00000	4.00000	2.00000	80/12	81/06
			K	1	2.00000		2.00000	2.00000	81/09	81/09
			T	4	2.75000	.957427	4.00000	2.00000	80/12	81/09
MERCURY	HG,TOTAL	UG/L		1	.800000		.800000	.800000	81/06	81/06
			K	3	.500000	.000000	.500000	.500000	80/12	81/09
			T	4	.575000	.150001	.800000	.500000	80/12	81/09

TABLE RD 1-94

STATION NUMBER 600550
39 29 34.0 084 06 06.0 2
CAESAR CREEK NR OREGONIA - CORWIN RD
OHIO RIVER 051191 (LITTLE MIAMI RIVER)
MILES 0953.80 0517.50 051.00 000.10

No data were collected from 10/81 - 9/82.

TABLE RD 1-95

STATION NUMBER 602280
41 14 22.0 080 52 52.0 2
MAHONING R AT LEAVITTSBURG - LEAVITT RD
OHIO RIVER 052191 (MAHONING RIVER BASIN)
MILES 0953.80 0955.50 021.80 045.00

PARAMETER			R	NO	MEAN	STAN DEV	MAXIMUM	MINIMUM	BEG	END
WATER	TEMP	CENT		11	7.45454	8.32303	21.0000	-.300E+01	80/10	81/08
STREAM	FLOW,	INST-CFS		10	770.900	442.573	1585.00	196.000	80/11	81/08
STREAM	STAGE	FEET		11	4.44545	.963588	6.17000	3.17000	80/10	81/08
CNDUCTVY	FIELD	MICROMHO		5	311.800	52.6295	375.000	260.000	80/10	81/08
CNDUCTVY	AT 25C	MICROMHO		5	500.400	85.5424	577.000	366.000	80/11	81/04
INTNSVE	SURVEY	IDENT		1	803905		803905	803905	80/10	80/10
DO	PROBE	MG/L		1	10.1000		10.1000	10.1000	80/10	80/10
DO		MG/L		10	10.9600	2.42360	14.6000	8.00000	80/11	81/08
BOD	5 DAY	MG/L		2	1.15000	1.20208	2.00000	.300000	80/10	81/07
COD	LOWLEVEL	MG/L		10	13.7400	5.34254	26.0000	7.00000	80/10	81/07
PH		SU		2	7.80000	.000000	7.80000	7.80000	81/07	81/08
LAB	PH	SU		8	7.42500	.474371	8.10000	6.70000	80/10	81/05
RESIDUE	TOT NFLT	MG/L		7	17.8857	10.1205	40.0000	12.0000	80/10	81/08
			K	4	10.0000	.000000	10.0000	10.0000	80/11	81/03
			T	11	15.0182	8.79111	40.0000	10.0000	80/10	81/08
NH3+NH4-	N TOTAL	MG/L		9	.240000	.185944	.590000	.050000	80/10	81/07
			K	2	.050000	.000061	.050000	.050000	81/04	81/08
			T	11	.205454	.183214	.590000	.050000	80/10	81/08
NO2-N	TOTAL	MG/L		6	.028333	.027142	.080000	.000000	80/10	81/08
			K	1	.010000		.010000	.010000	80/11	80/11
			T	7	.025714	.025728	.080000	.000000	80/10	81/08
NO3-N	TOTAL	MG/L		10	.767000	.313725	1.10000	.290000	80/10	81/07
TOT KJEL	N	MG/L		10	.722000	.194068	1.05000	.500000	80/10	81/07
PHOS-TOT		MG/L P		11	.082273	.033735	.157000	.048000	80/10	81/08
CYANIDE	CN-TOT	MG/L	K	11	.010000	.000007	.010000	.010000	80/10	81/08
TOT HARD	CACO3	MG/L		5	164.000	13.6382	184.000	148.000	80/10	81/08

TABLE RD 1-95 (Continued)

STATION NUMBER 602280
41 14 22.0 080 52 52.0 2
MAHONING R AT LEAVITTSBURG - LEAVITT RD
OHIO RIVER 052191 (MAHONING RIVER BASIN)
MILES 0953.80 0955.50 021.80 045.00

PARAMETER			R	NO	MEAN	STAN DEV	MAXIMUM	MINIMUM	BEG	END
CALCIUM	CA-TOT	MG/L		1	42.0000		42.0000	42.0000	80/10	80/10
MGNSIUM	MG,TOT	MG/L		1	13.0000		13.0000	13.0000	80/10	80/10
FLUORIDE	F,TOTAL	MG/L		5	.244000	.026079	.280000	.220000	80/11	81/08
BARIUM	BA,TOT	UG/L		1	200.000		200.000	200.000	81/07	81/07
CADMIUM	CD,TOT	UG/L	K	5	4.20000	1.78886	5.00000	1.00000	80/10	81/08
CHROMIUM	CR,TOT	UG/L	K	5	32.0000	4.47214	40.0000	30.0000	80/10	81/08
COPPER	CU,TOT	UG/L	K	5	25.0000	11.1803	30.0000	5.00000	80/10	81/08
IRON	FE,TOT	UG/L		11	852.727	596.927	2400.00	210.000	80/10	81/08
LEAD	PB,TOT	UG/L		1	6.00000		6.00000	6.00000	81/08	81/08
			K	4	6.25000	2.50000	10.0000	5.00000	80/10	81/05
			T	5	6.20000	2.16795	10.0000	5.00000	80/10	81/08
MANGNESE	MN	UG/L		2	345.000	21.2132	360.000	330.000	81/07	81/08
NICKEL	NI,TOTAL	UG/L	K	5	88.0000	26.8328	100.000	40.0000	80/10	81/08
ZINC	ZN,TOT	UG/L		1	10.0000		10.0000	10.0000	80/10	80/10
			K	4	30.0000	.000000	30.0000	30.0000	80/11	81/08
ZINC	ZN,TOT	UG/L	T	5	26.0000	8.94427	30.0000	10.0000	80/10	81/08
FEC COLI	MFM-FCBR	/100ML		8	2471.25	1566.08	4600.00	570.000	80/12	81/08
FECSTREP	MF M-ENT	/100ML		7	6997.14	13892.9	38000.0	250.000	80/12	81/06
PHENOLS	TOTAL	UG/L		10	6.70000	3.74315	14.0000	3.00000	80/10	81/07
			K	1	2.00000		2.00000	2.00000	81/08	81/08
			T	11	6.27273	3.82338	14.0000	2.00000	80/10	81/08
MBAS		MG/L		2	.090000	.028284	.110000	.070000	80/11	81/02
RESIDUE	DISS-180 C	MG/L		11	270.854	41.0928	336.000	202.000	80/10	81/08
PH	CACO3	STABL		1	7.60000		7.60000	7.60000	81/06	81/06
MERCURY	HG,TOTAL	UG/L	K	4	.500000	.000000	.500000	.500000	80/11	81/08

TABLE RD 1-96

STATION NUMBER 602280
41 14 22.0 080 52 52.0 2
MAHONING R AT LEAVITTSBURG - LEAVITT RD
OHIO RIVER 052191 (MAHONING RIVER BASIN)
MILES 0953.80 0955.50 021.80 045.00

PARAMETER			R	NO	MEAN	STAN DEV	MAXIMUM	MINIMUM	BEG	END
WATER	TEMP	CENT		9	9.94444	7.62580	19.0000	-.100E+01	81/10	82/09
STREAM	FLOW,	INST-CFS		9	592.967	631.872	2047.00	212.000	81/10	82/09
STREAM	STAGE	FEET		6	3.87499	.857204	5.45000	3.31000	81/10	82/09
CNDUCTVY	FIELD	MICROMHO		6	308.166	80.9388	396.000	209.000	82/03	82/09
CNDUCTVY	AT 25C	MICROMHO		1	370.000		370.000	370.000	82/04	82/04
DO	PROBE	MG/L		9	10.9111	2.24247	14.2000	7.90000	81/10	82/09
BOD	5 DAY	MG/L		4	3.20000	1.16619	4.80000	2.00000	82/03	82/09
COD	LOWLEVEL	MG/L		8	18.5000	9.57676	34.0000	6.00000	81/10	82/08
PH		SU		8	8.04999	.267392	8.50000	7.80000	81/10	82/09
LAB	PH	SU		3	7.65333	.062010	7.72000	7.60000	82/04	82/06
RESIDUE	TOT NFLT	MG/L		6	13.6667	2.80477	17.0000	9.00000	82/03	82/09
			K	3	6.66667	2.88676	10.0000	5.00000	81/10	82/01
			T	9	11.3333	4.38749	17.0000	5.00000	81/10	82/09
NH3+NH4-	N TOTAL	MG/L		6	.156667	.081158	.310000	.100000	81/12	82/09
			K	3	.200000	.259808	.500000	.050000	81/10	82/05
			T	9	.171111	.146496	.500000	.050000	81/10	82/09
NO2-N	TOTAL	MG/L		6	.050000	.073756	.200000	.010000	81/10	82/09
			K	3	.020000	.000000	.020000	.020000	81/12	82/04
			T	9	.040000	.060208	.200000	.010000	81/10	82/09
NO3-N	TOTAL	MG/L		9	.541111	.219058	.850000	.260000	81/10	82/09
TOT KJEL	N	MG/L		9	.701111	.138786	.900000	.450000	81/10	82/09
PHOS-TOT		MG/L P		8	.196875	.289987	.900000	.045000	81/10	82/09
			K	1	.050000		.050000	.050000	82/01	82/01
			T	9	.180555	.275641	.900000	.045000	81/10	82/09
CYANIDE	CN-TOT	MG/L	K	3	.010000	.000000	.010000	.010000	81/10	82/09
TOT HARD	CACO3	MG/L		6	167.833	28.5760	211.000	124.000	81/10	82/09
CALCIUM	CA-TOT	MG/L		5	44.5300	8.41043	55.4000	32.5000	81/12	82/09

TABLE RD 1-96 (Continued)

STATION NUMBER 602280
41 14 22.0 080 52 52.0 2
MAHONING R AT LEAVITTSBURG - LEAVITT RD
OHIO RIVER 052191 (MAHONING RIVER BASIN)
MILES 0953.80 0955.50 021.80 045.00

PARAMETER			R	NO	MEAN	STAN DEV	MAXIMUM	MINIMUM	BEG	END
MGNSIUM	MG,TOT	MG/L		5	14.0400	2.67826	17.7000	10.3000	81/12	82/09
CHLORIDE	TOTAL	MG/L		1	32.0000		32.0000	32.0000	81/10	81/10
FLUORIDE	F,TOTAL	MG/L		1	.300000		.300000	.300000	81/10	81/10
CADMIUM	CD,TOT	UG/L	K	6	1.25000	1.83712	5.00000	.500000	81/10	82/09
CHROMIUM	CR,TOT	UG/L	K	7	30.0000	.000000	30.0000	30.0000	81/10	82/09
COPPER	CU,TOT	UG/L		2	10.0000	.000000	10.0000	10.0000	82/03	82/09
			K	5	14.0000	8.94427	30.0000	10.0000	81/10	82/08
			T	7	12.8571	7.55929	30.0000	10.0000	81/10	82/09
IRON	FE,TOT	UG/L		7	800.000	332.516	1470.00	430.000	81/10	82/09
IRON	FE,DISS	UG/L		1	40.0000		40.0000	40.0000	82/01	82/01
LEAD	PB,TOT	UG/L		3	6.00000	1.73205	7.00000	4.00000	82/03	82/09
			K	3	5.00000	.000000	5.00000	5.00000	81/10	82/01
			T	6	5.50000	1.22474	7.00000	4.00000	81/10	82/09
NICKEL	NI,TOTAL	UG/L	K	7	47.1428	23.6039	100.000	30.0000	81/10	82/09
ZINC	ZN,TOT	UG/L		3	20.0000	10.0000	30.0000	10.0000	82/03	82/09
			K	4	15.0000	10.0000	30.0000	10.0000	81/10	82/05
			T	7	17.1428	9.51191	30.0000	10.0000	81/10	82/09
FEC COLI	MFM-FCBR	/100ML		9	981.111	676.950	2300.00	220.000	81/10	82/09
FECSTREP	MF M-ENT	/100ML		8	1553.75	2298.25	7200.00	350.000	81/10	82/09
			K	1	33.0000		33.0000	33.0000	82/04	82/04
			T	9	1384.78	2208.78	7200.00	33.0000	81/10	82/09
PHENOLS	TOTAL	UG/L		1	7.00000		7.00000	7.00000	81/10	81/10
			K	3	10.0000	.000000	10.0000	10.0000	82/05	82/09
			T	4	9.25000	1.50000	10.0000	7.00000	81/10	82/09
MBAS		MG/L		1	.070000		.070000	.070000	81/10	81/10
RESIDUE	DISS-180	C MG/L		9	289.000	40.4475	345.000	230.000	81/10	82/09
MERCURY	HG,TOTAL	UG/L	K	1	.500000		.500000	.500000	81/10	81/10

TABLE RD 1-97

STATION NUMBER 602400
41 14 02.0 080 49 23.0 2
MAHONING RIVER AT WARREN - SOUTH ST
OHIO RIVER (MAHONING RIVER)
MILES 0953.80 0955.50 021.80 037.40

PARAMETER			R	NO	MEAN	STAN DEV	MAXIMUM	MINIMUM	BEG	END
WATER	TEMP	CENT		4	5.50000	6.55744	11.0000	-.200E+01	80/10	81/05
STREAM	STAGE	FEET		4	3.03500	.789452	4.21000	2.52000	80/10	81/05
CNDUCTVY	FIELD	MICROMHO		1	295.000		295.000	295.000	80/10	80/10
CNDUCTVY	AT 25C	MICROMHO		2	530.000	79.1959	586.000	474.000	80/11	81/02
INTNSVE	SURVEY	IDENT		1	803905		803905	803905	80/10	80/10
DO	PROBE	MG/L		1	9.60000		9.60000	9.60000	80/10	80/10
DO		MG/L		3	11.6000	2.16568	13.9000	9.60000	80/11	81/05
BOD	5 DAY	MG/L		1	.400000		.400000	.400000	80/10	80/10
COD	LOWLEVEL	MG/L		4	20.5750	9.98745	32.0000	12.0000	80/10	81/05
LAB	PH	SU		4	7.40000	.707128	7.90000	6.40000	80/10	81/05
RESIDUE	TOT NFLT	MG/L		3	15.2000	6.70225	22.0000	8.60000	80/10	81/05
			K	1	10.0000		10.0000	10.0000	80/11	80/11
			T	4	13.9000	6.05861	22.0000	8.60000	80/10	81/05
NH3+NH4-	N TOTAL	MG/L		4	.192500	.251975	.570000	.050000	80/10	81/05
NO2-N	TOTAL	MG/L		1	.010000		.010000	.010000	80/10	80/10
			K	1	.010000		.010000	.010000	80/11	80/11
			T	2	.010000	.000000	.010000	.010000	80/10	80/11
NO3-N	TOTAL	MG/L		4	.647500	.407543	1.08000	.280000	80/10	81/05
TOT KJEL	N	MG/L		4	.757500	.339840	1.24000	.500000	80/10	81/05
PHOS-TOT		MG/L P		4	.086000	.057451	.171000	.047000	80/10	81/05
CYANIDE	CN-TOT	MG/L		1	.010000		.010000	.010000	80/11	80/11
			K	3	.010000	.000000	.010000	.010000	80/10	81/05
			T	4	.010000	.000000	.010000	.010000	80/10	81/05
TOT HARD	CACO3	MG/L		3	168.333	17.1574	184.000	150.000	80/11	81/05
CALCIUM	CA-TOT	MG/L		1	44.0000		44.0000	44.0000	80/10	80/10
MGNSIUM	MG,TOT	MG/L		1	13.0000		13.0000	13.0000	80/10	80/10
FLUORIDE	F,TOTAL	MG/L		3	.250000	.026457	.280000	.230000	80/11	81/05
CADMIUM	CD,TOT	UG/L	K	4	4.00000	2.00000	5.00000	1.00000	80/10	81/05
CHROMIUM	CR,TOT	UG/L	K	4	32.5000	5.00000	40.0000	30.0000	80/10	81/05
COPPER	CU,TOT	UG/L	K	4	23.7500	12.5000	30.0000	5.00000	80/10	81/05
IRON	FE,TOT	UG/L		4	910.000	643.635	1840.00	360.000	80/10	81/05
LEAD	PB,TOT	UG/L		2	36.0000	19.7990	50.0000	22.0000	80/10	81/02
			K	2	5.00000	.000000	5.00000	5.00000	80/11	81/05
			T	4	20.5000	21.2368	50.0000	5.00000	80/10	81/05
NICKEL	NI,TOTAL	UG/L	K	4	85.0000	30.0000	100.000	40.0000	80/10	81/05
ZINC	ZN,TOT	UG/L		3	130.000	173.205	330.000	30.0000	80/10	81/05
			K	1	30.0000		30.0000	30.0000	80/11	80/11
			T	4	105.000	150.000	330.000	30.0000	80/10	81/05
FEC COLI	MFM-FCBR	/100ML		2	3250.00	2192.03	4800.00	1700.00	81/02	81/05
FECSTREP	MF M-ENT	/100ML		2	7900.00	8626.70	14000.0	1800.00	81/02	81/05
PHENOLS	TOTAL	UG/L		4	9.00000	5.35412	16.0000	3.00000	80/10	81/05
MBAS		MG/L		2	.080000	.014142	.090000	.070000	80/11	81/02
RESIDUE	DISS-180	C MG/L		4	291.700	45.8689	346.000	236.000	80/10	81/05
MERCURY	HG,TOTAL	UG/L	K	3	.500000	.000000	.500000	.500000	80/11	81/05

TABLE RD 1-98

STATION NUMBER 602400
41 14 02.0 080 49 23.0 2
MAHONING RIVER AT WARREN - SOUTH ST
OHIO RIVER (MAHONING RIVER)
MILES 0953.80 0955.50 021.80 037.40

No data were collected from 10/81 - 9/82.

TABLE RD 1-99

STATION NUMBER 602290
41 10 52.0 080 47 21.0 2
MAHONING R. AT NILES
OHIO RIVER 052191 (MAHONING RIVER)

PARAMETER			R	NO	MEAN	STAN DEV	MAXIMUM	MINIMUM	BEG	END
WATER	TEMP	CENT		4	6.75000	5.73730	12.0000	.000000	80/10	81/05
CNDUCTVY	FIELD	MICROMHO		2	483.000	230.517	646.000	320.000	80/10	81/02
CNDUCTVY	AT 25C	MICROMHO		3	619.000	117.843	721.000	490.000	80/11	81/02
INTNSVE	SURVEY	IDENT		1	803905		803905	803905	80/10	80/10
DO	PROBE	MG/L		1	8.70000		8.70000	8.70000	80/10	80/10
DO		MG/L		4	11.1250	2.05491	13.6000	8.80000	80/11	81/05
BOD	5 DAY	MG/L		1	2.20000		2.20000	2.20000	80/10	80/10
COD	LOWLEVEL	MG/L		6	26.0666	8.13335	35.9000	18.0000	80/10	81/05
LAB	PH	SU		6	6.95000	.692101	7.80000	6.20000	80/10	81/05
RESIDUE	TOT NFLT	MG/L		5	28.6200	17.9895	44.0000	5.10000	80/10	81/05
			K	1	10.0000		10.0000	10.0000	80/11	80/11
			T	6	25.5167	17.7955	44.0000	5.10000	80/10	81/05
NH3+NH4-	N TOTAL	MG/L		4	.622500	.272320	1.03000	.460000	80/10	81/05
NO2-N	TOTAL	MG/L		2	.135000	.162634	.250000	.020000	80/10	80/11
NO3-N	TOTAL	MG/L		4	.682500	.436147	1.07000	.290000	80/10	81/05
TOT KJEL	N	MG/L		4	1.28750	.352455	1.80000	1.02000	80/10	81/05
PHOS-TOT		MG/L P		4	.190750	.070962	.272000	.099000	80/10	81/05
CYANIDE	CN-TOT	MG/L		3	.014333	.005132	.020000	.010000	80/11	81/05
			K	1	.010000		.010000	.010000	80/10	80/10
			T	4	.013250	.004717	.020000	.010000	80/10	81/05
TOT HARD	CACO3	MG/L		3	172.333	16.0117	188.000	156.000	80/11	81/05
CALCIUM	CA-TOT	MG/L		1	46.0000		46.0000	46.0000	80/10	80/10
MGNSIUM	MG,TOT	MG/L		1	13.0000		13.0000	13.0000	80/10	80/10
FLUORIDE	F,TOTAL	MG/L		3	.313333	.050332	.360000	.260000	80/11	81/05
CADMIUM	CD,TOT	UG/L	K	4	4.00000	2.00000	5.00000	1.00000	80/10	81/05
CHROMIUM	CR,TOT	UG/L		2	35.0000	7.07107	40.0000	30.0000	80/10	81/02
			K	2	30.0000	.000000	30.0000	30.0000	80/11	81/05
			T	4	32.5000	5.00000	40.0000	30.0000	80/10	81/05
COPPER	CU,TOT	UG/L		1	30.0000		30.0000	30.0000	81/02	81/02
			K	3	21.6667	14.4338	30.0000	5.00000	80/10	81/05
			T	4	23.7500	12.5000	30.0000	5.00000	80/10	81/05
IRON	FE,TOT	UG/L		4	1807.50	1142.00	3500.00	1090.00	80/10	81/05
LEAD	PB,TOT	UG/L		3	20.6667	23.6925	48.0000	6.00000	80/11	81/05
			K	1	5.00000		5.00000	5.00000	80/10	80/10
			T	4	16.7500	20.8706	48.0000	5.00000	80/10	81/05
NICKEL	NI,TOTAL	UG/L	K	4	85.0000	30.0000	100.000	40.0000	80/10	81/05
ZINC	ZN,TOT	UG/L		3	241.667	362.296	660.000	30.0000	80/10	81/05
			K	1	30.0000		30.0000	30.0000	80/11	80/11
			T	4	188.750	314.176	660.000	30.0000	80/10	81/05
FEC COLI	MFM-FCBR	/100ML		4	19000.0	17323.6	34000.0	3600.00	81/01	81/05
FECSTREP	MF M-ENT	/100ML		4	19025.0	17879.3	39000.0	1600.00	81/01	81/05
PHENOLS	TOTAL	UG/L		4	16.0000	13.4412	35.0000	6.00000	80/10	81/05
MBAS		MG/L		2	.115000	.007071	.120000	.110000	80/11	81/02
RESIDUE	DISS-180	C MG/L		6	331.533	71.1401	440.000	232.000	80/10	81/05
MERCURY	HG,TOTAL	UG/L	K	3	.500000	.000000	.500000	.500000	80/11	81/05

TABLE RD 1-100

STATION NUMBER 602290
41 10 52.0 080 47 21.0 2
MAHONING R. AT NILES
OHIO RIVER 052191 (MAHONING RIVER)

No data were collected from 10/81 - 9/82.

TABLE RD 1-101

STATION NUMBER 602300
41 02 10.0 080 32 10.0 2
MAHONING R. AT LOWELLVILLE
OHIO RIVER 050392 (MAHONING RIVER)
MILES 0953.80 0955.50 021.80 011.60

PARAMETER			R	NO	MEAN	STAN DEV	MAXIMUM	MINIMUM	BEG	END
WATER	TEMP	CENT		11	12.0909	8.28800	26.0000	1.00000	80/10	81/08
STREAM	FLOW,	INST-CFS		11	1847.82	1119.17	3565.00	539.000	80/10	81/08
STREAM	STAGE	FEET		11	4.17636	.859197	5.38000	3.00000	80/10	81/08
CNDUCTVY	FIELD	MICROMHO		5	507.000	95.3520	618.000	417.000	80/10	81/08
CNDUCTVY	AT 25C	MICROMHO		5	694.200	125.324	886.000	583.000	80/11	81/04
INTNSVE	SURVEY	IDENT		1	803905		803905	803905	80/10	80/10
DO	PROBE	MG/L		1	6.10000		6.10000	6.10000	80/10	80/10
DO		MG/L		10	8.36999	2.69859	13.2000	4.00000	80/11	81/08
BOD	5 DAY	MG/L		2	5.30000	2.40417	7.00000	3.60000	80/10	81/07
COD	LOWLEVEL	MG/L		10	33.7600	14.9620	70.7000	20.0000	80/10	81/07
PH		SU		1	7.30000		7.30000	7.30000	81/07	81/07
LAB	PH	SU		9	7.37777	.408647	7.90000	6.70000	80/10	81/06
RESIDUE	TOT NFLT	MG/L		9	29.6333	31.4183	91.0000	4.70000	80/10	81/07
			K	2	10.0000	.000000	10.0000	10.0000	80/11	81/08
			T	11	26.0636	29.2021	91.0000	4.70000	80/10	81/08
NH3+NH4-	N TOTAL	MG/L		11	2.17090	1.48585	5.92000	.540000	80/10	81/08
NO2-N	TOTAL	MG/L		6	.153333	.086410	.250000	.020000	80/10	81/08
NO3-N	TOTAL	MG/L		10	.928999	.231347	1.27000	.520000	80/10	81/07
TOT KJEL	N	MG/L		10	3.47099	1.78449	7.93000	1.52000	80/10	81/07
PHOS-TOT		MG/L P		11	.833636	.483757	1.91000	.281000	80/10	81/08
CYANIDE	CN-TOT	MG/L		11	.050727	.025946	.100000	.020000	80/10	81/08
TOT HARD	CACO3	MG/L		4	180.000	16.4114	200.000	160.000	80/11	81/08
CALCIUM	CA-TOT	MG/L		1	55.0000		55.0000	55.0000	80/10	80/10
MGNSIUM	MG,TOT	MG/L		1	15.0000		15.0000	15.0000	80/10	80/10
FLUORIDE	F,TOTAL	MG/L		5	.556000	.185688	.770000	.360000	80/11	81/08
BARIUM	BA,TOT	UG/L		1	200.000		200.000	200.000	81/07	81/07

TABLE RD 1-101 (Continued)

STATION NUMBER 602300
41 02 10.0 080 32 10.0 2
MAHONING R. AT LOWELLVILLE
OHIO RIVER 050392 (MAHONING RIVER)
MILES 0953.80 0955.50 021.80 011.60

PARAMETER			R	NO	MEAN	STAN DEV	MAXIMUM	MINIMUM	BEG	END
CADMIUM	CD,TOT	UG/L	K	5	9.20000	11.7559	30.0000	1.00000	80/10	81/08
CHROMIUM	CR,TOT	UG/L		1	30.0000		30.0000	30.0000	81/02	81/02
			K	4	32.5000	5.00000	40.0000	30.0000	80/10	81/08
			T	5	32.0000	4.47214	40.0000	30.0000	80/10	81/08
COPPER	CU,TOT	UG/L		1	30.0000		30.0000	30.0000	81/02	81/02
			K	4	23.7500	12.5000	30.0000	5.00000	80/10	81/08
			T	5	25.0000	11.1803	30.0000	5.00000	80/10	81/08
IRON	FE,TOT	UG/L		11	2852.73	3053.17	11400.0	770.000	80/10	81/08
LEAD	PB,TOT	UG/L		4	25.5000	16.3809	47.0000	10.0000	80/11	81/08
			K	1	5.00000		5.00000	5.00000	80/10	80/10
			T	5	21.4000	16.8908	47.0000	5.00000	80/10	81/08
MANGNESE	MN	UG/L		2	265.000	77.7817	320.000	210.000	81/07	81/08
NICKEL	NI,TOTAL	UG/L	K	5	88.0000	26.8328	100.000	40.0000	80/10	81/08
ZINC	ZN,TOT	UG/L		5	142.000	99.8499	270.000	50.0000	80/10	81/08
FEC COLI	MFM-FCBR	/100ML		8	17000.0	23083.5	73000.0	1600.00	80/12	81/08
FEC COLI	MFM-FCBR	/100ML	L	1	100000		100000	100000	81/03	81/03
			T	9	26222.2	35095.4	100000	1600.00	80/12	81/08
FECSTREP	MF M-ENT	/100ML		6	17916.7	22997.3	64000.0	4300.00	80/12	81/06
			L	1	100000		100000	100000	81/03	81/03
			T	7	29642.9	37460.0	100000	4300.00	80/12	81/06
PHENOLS	TOTAL	UG/L		11	65.4545	83.9218	285.000	6.00000	80/10	81/08
MBAS		MG/L		2	.265000	.233345	.430000	.100000	80/11	81/02
RESIDUE	DISS-180	C MG/L		11	353.200	57.2608	458.000	266.000	80/10	81/08
MERCURY	HG,TOTAL	UG/L		1	3.50000		3.50000	3.50000	81/08	81/08
			K	3	.500000	.000000	.500000	.500000	80/11	81/05
			T	4	1.25000	1.50000	3.50000	.500000	80/11	81/08

TABLE RD 1-102

STATION NUMBER 602300
41 02 10.0 080 32 10.0 2
MAHONING R. AT LOWELLVILLE
OHIO RIVER 050392 (MAHONING RIVER)
MILES 0953.80 0955.50 021.80 011.60

PARAMETER			R	NO	MEAN	STAN DEV	MAXIMUM	MINIMUM	BEG	END
WATER	TEMP	CENT		9	14.3889	9.41335	26.0000	.000000	81/10	82/09
STREAM	FLOW	CFS		1	1334.00		1334.00	1334.00	82/01	82/01
STREAM	FLOW,	INST-CFS		7	826.857	486.640	1820.00	500.000	81/10	82/09
STREAM	STAGE	FEET		8	3.18375	.657579	4.20000	2.09000	81/10	82/09
CNDUCTVY	FIELD	MICROMHO		5	520.800	38.2099	583.000	485.000	82/04	82/09
CNDUCTVY	AT 25C	MICROMHO		1	660.000		660.000	660.000	82/04	82/04
DO	PROBE	MG/L		8	7.65000	4.05392	14.0000	3.90000	81/12	82/09
DO		MG/L		1	7.60000		7.60000	7.60000	81/10	81/10
BOD	5 DAY	MG/L		3	15.8333	15.7615	34.0000	5.80000	82/05	82/09
COD	LOWLEVEL	MG/L		9	27.5555	6.24730	36.0000	17.0000	81/10	82/09
PH		SU		6	7.70000	.357877	8.40000	7.40000	81/10	82/09
LAB	PH	SU		5	7.46199	.166280	7.74000	7.30000	82/01	82/08
RESIDUE	TOT NFLT	MG/L		9	11.0000	2.78388	15.0000	7.00000	81/10	82/09
NH3+NH4-	N TOTAL	MG/L		8	2.38625	.976452	4.16000	1.15000	81/10	82/08
NO2-N	TOTAL	MG/L		7	.121428	.075151	.230000	.040000	81/10	82/08
NO3-N	TOTAL	MG/L		8	.723749	.142925	.890000	.530000	81/10	82/08
TOT KJEL	N	MG/L		8	3.40750	1.01131	5.30000	2.10000	81/10	82/08
PHOS-TOT		MG/L P		8	.711375	.341427	1.40000	.250000	81/10	82/08
CYANIDE	CN-TOT	MG/L		2	.044500	.036062	.070000	.019000	81/10	82/09
TOT HARD	CACO3	MG/L		6	183.900	35.5832	232.000	142.000	81/10	82/08
CALCIUM	CA-TOT	MG/L		6	51.5833	10.2225	66.2000	38.5000	81/12	82/09
MGNSIUM	MG,TOT	MG/L		6	13.8167	2.27722	16.4000	11.1000	81/12	82/09
FLUORIDE	F,TOTAL	MG/L		1	.560000		.560000	.560000	81/10	81/10
CADMIUM	CD,TOT	UG/L	K	6	1.33333	1.80739	5.00000	.500000	81/10	82/09
CHROMIUM	CR,TOT	UG/L		1	20.0000		20.0000	20.0000	82/08	82/08
			K	6	30.0000	.000000	30.0000	30.0000	81/10	82/09
			T	7	28.5714	3.77974	30.0000	20.0000	81/10	82/09
COPPER	CU,TOT	UG/L		6	15.0000	3.16228	20.0000	10.0000	81/12	82/09
			K	1	30.0000		30.0000	30.0000	81/10	81/10
			T	7	17.1428	6.36211	30.0000	10.0000	81/10	82/09
IRON	FE,TOT	UG/L		7	1030.00	365.787	1500.00	570.000	81/10	82/09
IRON	FE,DISS	UG/L		2	85.0000	7.07107	90.0000	80.0000	81/12	82/01
LEAD	PB,TOT	UG/L		6	11.1667	6.30609	23.0000	5.00000	81/10	82/09
			K	1	5.00000		5.00000	5.00000	82/01	82/01
			T	7	10.2857	6.21059	23.0000	5.00000	81/10	82/09
NICKEL	NI,TOTAL	UG/L	K	7	47.1428	23.6039	100.000	30.0000	81/10	82/09
ZINC	ZN,TOT	UG/L		6	134.167	77.6799	255.000	40.0000	81/12	82/09
			K	1	30.0000		30.0000	30.0000	81/10	81/10
			T	7	119.286	81.1085	255.000	30.0000	81/10	82/09
FEC COLI	MFM-FCBR	/100ML		8	18437.5	11837.0	34000.0	4000.00	81/10	82/09
FECSTREP	MF M-ENT	/100ML		8	9300.00	8399.32	21000.0	1500.00	81/10	82/09
PHENOLS	TOTAL	UG/L		1	19.0000		19.0000	19.0000	81/10	81/10
			K	2	10.0000	.000000	10.0000	10.0000	82/08	82/09
			T	3	13.0000	5.19615	19.0000	10.0000	81/10	82/09
MBAS		MG/L		1	.230000		.230000	.230000	81/10	81/10
RESIDUE	DISS-180	C MG/L		9	349.000	51.3128	432.000	270.000	81/10	82/09
MERCURY	HG,TOTAL	UG/L	K	1	.500000		.500000	.500000	81/10	81/10

TABLE RD 1-103

STATION NUMBER 500140
41 11 56.0 084 44 40.0 2
MAUMEE R. AT ANTWERP
LAKE ERIE 060190 (MAUMEE RIVER BASIN)
MILES 0100.30

PARAMETER			R	NO	MEAN	STAN DEV	MAXIMUM	MINIMUM	BEG	END
WATER	TEMP	CENT		5	5.19999	5.53941	14.6000	.900000	80/10	81/03
TURB	TRBIDMTR	HACH FTU		2	54.0000	26.8701	73.0000	35.0000	81/02	81/04
CNDUCTVY	AT 25C	MICROMHO		8	518.625	114.885	667.000	388.000	81/02	81/09
DO		MG/L		6	12.3667	1.32166	14.0000	10.5000	80/10	81/03
BOD	5 DAY	MG/L		11	3.60909	2.02013	7.00000	1.50000	80/10	81/09
			K	1	1.00000		1.00000	1.00000	80/12	80/12
			T	12	3.39166	2.06814	7.00000	1.00000	80/10	81/09
COD	LOWLEVEL	MG/L		10	28.3300	7.66542	39.7000	14.3000	80/10	81/09
			K	3	4.00000	.000000	4.00000	4.00000	81/05	81/08
			T	13	22.7154	12.5660	39.7000	4.00000	80/10	81/09
LAB	PH	SU		13	8.20846	.240290	8.64000	7.90000	80/10	81/09
T ALK	CACO3	MG/L		6	181.500	54.3093	246.000	101.000	80/10	81/09
RESIDUE	TOT NFLT	MG/L		10	76.8000	73.7907	242.000	13.0000	80/11	81/09
			K	3	10.0000	.000000	10.0000	10.0000	80/10	81/05
			T	13	61.3846	70.2988	242.000	10.0000	80/10	81/09
NH3+NH4-	N TOTAL	MG/L		4	.612500	.826009	1.80000	.050000	80/10	81/04
			K	4	.275000	.259808	.500000	.050000	80/11	81/09
			T	8	.443750	.594881	1.80000	.050000	80/10	81/09
NO2-N	TOTAL	MG/L		13	.073077	.092230	.360000	.010000	80/10	81/09
NO3-N	TOTAL	MG/L		13	3.63845	2.02313	8.36000	1.05000	80/10	81/09
TOT KJEL	N	MG/L		13	1.51615	.513629	2.87000	.790000	80/10	81/09
PHOS-TOT		MG/L P		13	.327846	.243196	.954000	.121000	80/10	81/09
T ORG C	C	MG/L		7	18.2857	5.61888	30.0000	12.0000	80/10	81/08
TOT HARD	CACO3	MG/L		13	278.308	63.2386	376.000	176.000	80/10	81/09
CALCIUM	CA-TOT	MG/L		11	79.0909	17.5357	101.000	48.0000	80/12	81/09
MGNSIUM	MG,TOT	MG/L		11	21.5454	4.56874	31.0000	14.0000	80/12	81/09
SODIUM	NA,TOT	MG/L		11	20.4545	12.0861	50.0000	7.00000	80/12	81/09
PTSSIUM	K,TOT	MG/L		9	4.19999	.877517	5.80000	3.20000	81/01	81/09
CHLORIDE	TOTAL	MG/L		13	38.2308	14.9675	66.0000	17.0000	80/10	81/09
SULFATE	SO4-TOT	MG/L		13	74.4615	24.4971	108.000	33.0000	80/10	81/09
SILICA	DISOLVED	MG/L		7	6.07142	1.11355	8.49000	5.30000	81/01	81/08
ARSENIC	AS,TOT	UG/L	K	13	10.7692	2.77351	20.0000	10.0000	80/10	81/09

TABLE RD 1-103 (Continued)

STATION NUMBER 500140
41 11 56.0 084 44 40.0 2
MAUMEE R. AT ANTWERP
LAKE ERIE 060190 (MAUMEE RIVER BASIN)
MILES 0100.30

PARAMETER			R	NO	MEAN	STAN DEV	MAXIMUM	MINIMUM	BEG	END
CADMIUM	CD,TOT	UG/L	K	13	5.00000	.000000	5.00000	5.00000	80/10	81/09
CHROMIUM	CR,TOT	UG/L		2	40.0000	14.1421	50.0000	30.0000	81/06	81/08
			K	11	30.0000	.000000	30.0000	30.0000	80/10	81/09
			T	13	31.5384	5.54712	50.0000	30.0000	80/10	81/09
COPPER	CU,TOT	UG/L		1	40.0000		40.0000	40.0000	81/06	81/06
			K	12	30.0000	.000000	30.0000	30.0000	80/10	81/09
			T	13	30.7692	2.77369	40.0000	30.0000	80/10	81/09
IRON	FE,TOT	UG/L		13	4669.23	7667.12	29000.0	350.000	80/10	81/09
LEAD	PB,TOT	UG/L		6	10.6667	5.88785	19.0000	5.00000	81/02	81/09
LEAD	PB,TOT	UG/L	K	7	5.00000	.000000	5.00000	5.00000	80/10	81/08
			T	13	7.61538	4.80518	19.0000	5.00000	80/10	81/09
MANGNESE	MN	UG/L		13	114.615	87.5229	360.000	40.0000	80/10	81/09
NICKEL	NI,TOTAL	UG/L		4	100.000	.000000	100.000	100.000	80/12	81/08
			K	8	100.000	.000000	100.000	100.000	80/10	81/09
			T	12	100.000	.000000	100.000	100.000	80/10	81/09
ZINC	ZN,TOT	UG/L		8	46.8750	27.3780	110.000	30.0000	80/10	81/09
			K	5	30.0000	.000000	30.0000	30.0000	80/11	81/08
			T	13	40.3846	22.5889	110.000	30.0000	80/10	81/09
ALUMINUM	AL,TOT	UG/L		12	2450.00	3937.58	14500.0	200.000	80/10	81/09
			K	1	200.000		200.000	200.000	81/01	81/01
			T	13	2276.92	3821.25	14500.0	200.000	80/10	81/09
FEC COLI	MFM-FCBR	/100ML		12	2636.00	3835.95	12000.0	33.0000	80/10	81/09
			K	1	10.0000		10.0000	10.0000	81/07	81/07
			T	13	2434.00	3744.16	12000.0	10.0000	80/10	81/09
PHENOLS	TOTAL	UG/L		2	8.50000	2.12132	10.0000	7.00000	80/10	81/02
MBAS		MG/L		13	.113077	.022131	.160000	.090000	80/10	81/09
PCBS	WHL SMPL	UG/L	K	1	.500000		.500000	.500000	81/02	81/02
RESIDUE	DISS-180	C MG/L		13	359.231	122.215	582.000	208.000	80/10	81/09
MERCURY	HG,TOTAL	UG/L		2	1.75000	1.48493	2.80000	.700000	80/12	81/08
			K	10	.500000	.000000	.500000	.500000	80/10	81/07
			T	12	.708333	.661209	2.80000	.500000	80/10	81/08

TABLE RD 1-104

STATION NUMBER 500140
41 11 56.0 084 44 40.0 2
MAUMEE R. AT ANTWERP
LAKE ERIE 060190 (MAUMEE RIVER BASIN)
MILES 0100.30

PARAMETER			R	NO	MEAN	STAN DEV	MAXIMUM	MINIMUM	BEG	END
WATER	TEMP	CENT		5	13.2800	8.67047	25.8000	3.90000	81/10	82/09
CNDUCTVY	AT 25C	MICROMHO		5	677.600	89.5865	765.000	540.000	81/10	82/09
DO	PROBE	MG/L		2	8.07500	4.49014	11.2500	4.90000	82/08	82/09
DO		MG/L		3	11.2667	1.85839	12.8000	9.20000	81/10	81/12
BOD	5 DAY	MG/L		3	3.70000	2.82135	6.30000	.700000	81/12	82/09
COD	LOWLEVEL	MG/L		4	12.7750	10.2860	24.0000	3.60000	81/10	82/09
			K	1	4.00000		4.00000	4.00000	81/11	81/11
			T	5	11.0200	9.73407	24.0000	3.60000	81/10	82/09
LAB	PH	SU		5	8.03600	.252913	8.46000	7.80000	81/10	82/09
RESIDUE	TOT NFLT	MG/L		3	35.6667	16.2584	54.0000	23.0000	81/10	82/09
			K	2	10.0000	.000000	10.0000	10.0000	81/11	81/12
			T	5	25.4000	18.1604	54.0000	10.0000	81/10	82/09
NH3+NH4-	N TOTAL	MG/L		3	.326667	.255016	.580000	.070000	81/11	82/08
			K	2	.050000	.000061	.050000	.050000	81/10	82/09
			T	5	.216000	.235542	.580000	.050000	81/10	82/09
NO2-N	TOTAL	MG/L		5	.030000	.015811	.050000	.010000	81/10	82/09
NO3-N	TOTAL	MG/L		5	2.28600	1.27117	4.41000	1.12000	81/10	82/09
TOT KJEL	N	MG/L		5	1.57200	.679316	2.61000	.740000	81/10	82/09
PHOS-TOT		MG/L P		5	.196000	.048985	.250000	.140000	81/10	82/09
T ORG C	C	MG/L		3	13.0000	3.00000	16.0000	10.0000	81/10	81/12
TOT HARD	CACO3	MG/L		4	302.750	45.5732	358.000	249.000	81/10	82/08
CALCIUM	CA-TOT	MG/L		5	89.0799	15.1785	107.000	66.1000	81/10	82/09
MGNSIUM	MG,TOT	MG/L		5	25.9200	4.31715	31.3000	20.3000	81/10	82/09
SODIUM	NA,TOT	MG/L		4	32.0750	13.5827	51.3000	20.0000	81/10	82/09
PTSSIUM	K,TOT	MG/L		4	5.17500	.684958	6.00000	4.40000	81/10	82/09
CHLORIDE	TOTAL	MG/L		4	46.4000	10.3396	61.6000	39.0000	81/10	82/09

TABLE RD 1-104 (Continued)

STATION NUMBER 500140
41 11 56.0 084 44 40.0 2
MAUMEE R. AT ANTWERP
LAKE ERIE 060190 (MAUMEE RIVER BASIN)
MILES 0100.30

PARAMETER			R	NO	MEAN	STAN DEV	MAXIMUM	MINIMUM	BEG	END
SULFATE	SO4-TOT	MG/L		4	97.7500	26.5754	137.000	80.0000	81/10	82/09
ARSENIC	AS,TOT	UG/L	K	3	10.0000	.000000	10.0000	10.0000	81/10	81/12
CADMIUM	CD,TOT	UG/L	K	5	3.20000	2.46475	5.00000	.500000	81/10	82/09
CHROMIUM	CR,TOT	UG/L		1	90.0000		90.0000	90.0000	82/09	82/09
			K	4	30.0000	.000000	30.0000	30.0000	81/10	82/08
			T	5	42.0000	26.8328	90.0000	30.0000	81/10	82/09
COPPER	CU,TOT	UG/L		2	15.0000	7.07107	20.0000	10.0000	82/08	82/09
			K	3	30.0000	.000000	30.0000	30.0000	81/10	81/12
			T	5	24.0000	8.94427	30.0000	10.0000	81/10	82/09
IRON	FE,TOT	UG/L		5	1806.00	854.065	2900.00	620.000	81/10	82/09
LEAD	PB,TOT	UG/L		2	3.00000	1.41421	4.00000	2.00000	82/08	82/09
			K	3	5.00000	.000000	5.00000	5.00000	81/10	81/12
			T	5	4.20000	1.30385	5.00000	2.00000	81/10	82/09
MANGNESE	MN	UG/L		4	76.2500	25.6174	100.000	40.0000	81/10	82/08
NICKEL	NI,TOTAL	UG/L		1	100.000		100.000	100.000	81/10	81/10
NICKEL	NI,TOTAL	UG/L	K	4	70.0000	34.6410	100.000	40.0000	81/11	82/09
			T	5	76.0000	32.8634	100.000	40.0000	81/10	82/09
ZINC	ZN,TOT	UG/L		3	36.6667	20.8167	60.0000	20.0000	81/10	82/09
			K	2	30.0000	.000000	30.0000	30.0000	81/11	81/12
			T	5	34.0000	15.1658	60.0000	20.0000	81/10	82/09
ALUMINUM	AL,TOT	UG/L		3	933.333	650.641	1600.00	300.000	81/10	81/12
FEC COLI	MFM-FCBR	/100ML		5	440.600	254.326	730.000	100.000	81/10	82/09
MBAS		MG/L		3	.126667	.020817	.150000	.110000	81/10	81/12
RESIDUE	DISS-180	C MG/L		4	420.500	77.0000	530.000	354.000	81/10	82/09
MERCURY	HG,TOTAL	UG/L	K	3	.500000	.000000	.500000	.500000	81/10	81/12

TABLE RD 1-105

STATION NUMBER 500080
41 30 00.0 083 42 46.0 2
MAUMEE RIVER AT WATERVILLE - SR 64
LAKE ERIE 060491 (MAUMEE RIVER BASIN)
MILES 0020.80

No data were collected from 10/80 - 9/81.

TABLE RD 1-106

STATION NUMBER 500080
41 30 00.0 083 42 46.0 2
MAUMEE RIVER AT WATERVILLE - SR 64
LAKE ERIE 060491 (MAUMEE RIVER BASIN)
MILES 0020.80

PARAMETER			R	NO	MEAN	STAN DEV	MAXIMUM	MINIMUM	BEG	END
WATER	TEMP	CENT		1	16.2000		16.2000	16.2000	82/09	82/09
CNDUCTVY	AT 25C	MICROMHO		1	620.000		620.000	620.000	82/09	82/09
DO	PROBE	MG/L		1	9.60000		9.60000	9.60000	82/09	82/09
BOD	5 DAY	MG/L		1	3.30000		3.30000	3.30000	82/09	82/09
COD	LOWLEVEL	MG/L		4	27.5000	7.14143	37.0000	20.0000	82/05	82/09
LAB	PH	SU		1	8.59000		8.59000	8.59000	82/09	82/09
RESIDUE	TOT NFLT	MG/L		1	40.0000		40.0000	40.0000	82/09	82/09
NH3+NH4-	N TOTAL	MG/L	K	1	.050000		.050000	.050000	82/09	82/09
NO2-N	TOTAL	MG/L	K	1	.020000		.020000	.020000	82/09	82/09
NO3-N	TOTAL	MG/L		1	.050000		.050000	.050000	82/09	82/09
TOT KJEL	N	MG/L		1	1.10000		1.10000	1.10000	82/09	82/09
PHOS-TOT		MG/L P		1	.240000		.240000	.240000	82/09	82/09
CALCIUM	CA-TOT	MG/L		1	60.8000		60.8000	60.8000	82/09	82/09
MGNSIUM	MG,TOT	MG/L		1	29.9000		29.9000	29.9000	82/09	82/09
SODIUM	NA,TOT	MG/L		1	47.8000		47.8000	47.8000	82/09	82/09
PTSSIUM	K,TOT	MG/L		1	6.10000		6.10000	6.10000	82/09	82/09
CHLORIDE	TOTAL	MG/L		1	63.3000		63.3000	63.3000	82/09	82/09
SULFATE	SO4-TOT	MG/L		1	126.000		126.000	126.000	82/09	82/09
CADMIUM	CD,TOT	UG/L	K	1	.500000		.500000	.500000	82/09	82/09
CHROMIUM	CR,TOT	UG/L	K	1	30.0000		30.0000	30.0000	82/09	82/09
COPPER	CU,TOT	UG/L		1	15.0000		15.0000	15.0000	82/09	82/09
IRON	FE,TOT	UG/L		1	1300.00		1300.00	1300.00	82/09	82/09
LEAD	PB,TOT	UG/L		1	3.00000		3.00000	3.00000	82/09	82/09
MANGNESE	MN	UG/L		1	155.000		155.000	155.000	82/09	82/09
NICKEL	NI,TOTAL	UG/L	K	1	40.0000		40.0000	40.0000	82/09	82/09
ZINC	ZN,TOT	UG/L		1	40.0000		40.0000	40.0000	82/09	82/09
FEC COLI	MFM-FCBR	/100ML		1	105.000		105.000	105.000	82/09	82/09
RESIDUE	DISS-180	C MG/L		1	466.000		466.000	466.000	82/09	82/09

TABLE RD 107

STATION NUMBER 500290
41 15 13.0 084 23 33.0 2
AUGLAIZE R AB DEFIANCE - POWER DAM AT HARDING RD
LAKE ERIE 060191 (MAUMEE RIVER BASIN)
MILES 0063.80 0004.10

PARAMETER			R	NO	MEAN	STAN DEV	MAXIMUM	MINIMUM	BEG	END
WATER	TEMP	CENT		11	11.3727	8.63274	23.7000	.300000	80/10	81/08
TURB	TRBIDMTR	HACH FTU		2	60.5000	27.5772	80.0000	41.0000	81/02	81/04
CNDUCTVY	AT 25C	MICROMHO		8	606.875	148.570	763.000	393.000	81/02	81/09
DO		MG/L		11	10.9182	2.18989	13.4000	6.90000	80/10	81/08
BOD	5 DAY	MG/L		11	4.63636	1.70839	7.60000	2.00000	80/10	81/09
COD	LOWLEVEL	MG/L		9	22.4222	5.31411	29.8000	12.6000	80/11	81/09
			K	2	4.00000	.000000	4.00000	4.00000	81/05	81/06
			T	11	19.0727	8.83892	29.8000	4.00000	80/11	81/09
LAB	PH	SU		12	8.18333	.185057	8.50000	7.90000	80/10	81/09
T ALK	CACO3	MG/L		5	151.800	37.2320	186.000	108.000	80/10	81/09
RESIDUE	TOT NFLT	MG/L		11	49.8182	56.1726	201.000	10.0000	80/10	81/09
			K	1	10.0000		10.0000	10.0000	81/05	81/05
			T	12	46.5000	54.7781	201.000	10.0000	80/10	81/09
NH3+NH4-	N TOTAL	MG/L		2	.305000	.275772	.500000	.110000	80/10	81/09
			K	5	.320000	.246475	.500000	.050000	80/11	81/04
			T	7	.315714	.230713	.500000	.050000	80/10	81/09
NO2-N	TOTAL	MG/L		12	.061667	.048021	.200000	.020000	80/10	81/09
NO3-N	TOTAL	MG/L		12	5.12166	4.05913	13.1000	.930000	80/10	81/09
TOT KJEL	N	MG/L		12	1.62166	.724471	3.06000	.970000	80/10	81/09
PHOS-TOT		MG/L P		12	.344083	.217350	.840000	.118000	80/10	81/09
T ORG C	C	MG/L		7	17.8571	6.41431	26.0000	8.00000	80/10	81/08
CYANIDE	CN-TOT	MG/L		1	.010000		.010000	.010000	81/02	81/02
			K	3	.010000	.000000	.010000	.010000	80/10	81/06
			T	4	.010000	.000000	.010000	.010000	80/10	81/06
TOT HARD	CACO3	MG/L		12	324.583	80.4815	452.000	178.000	80/10	81/09
CALCIUM	CA-TOT	MG/L		9	81.3333	20.4879	114.000	50.0000	81/01	81/09
MGNSIUM	MG,TOT	MG/L		9	26.5555	7.90752	41.0000	15.0000	81/01	81/09
SODIUM	NA,TOT	MG/L		9	27.8889	23.6719	83.0000	8.00000	81/01	81/09
PTSSIUM	K,TOT	MG/L		9	4.35555	1.61100	7.90000	2.80000	81/01	81/09
CHLORIDE	TOTAL	MG/L		12	63.8333	36.5683	116.000	19.0000	80/10	81/09
SULFATE	SO4-TOT	MG/L		12	132.833	66.8171	229.000	44.0000	80/10	81/09
SILICA	DISOLVED	MG/L		7	4.20000	2.31162	7.09000	.960000	81/01	81/08
ARSENIC	AS,TOT	UG/L	K	12	10.0000	.000000	10.0000	10.0000	80/10	81/09
CADMIUM	CD,TOT	UG/L	K	12	5.00000	.000000	5.00000	5.00000	80/10	81/09
CHROMIUM	CR,TOT	UG/L		2	40.0000	14.1421	50.0000	30.0000	80/11	81/06
			K	10	30.0000	.000000	30.0000	30.0000	80/10	81/09
			T	12	31.6667	5.77360	50.0000	30.0000	80/10	81/09
COPPER	CU,TOT	UG/L		1	30.0000		30.0000	30.0000	81/06	81/06
			K	11	30.0000	.000000	30.0000	30.0000	80/10	81/09
			T	12	30.0000	.000000	30.0000	30.0000	80/10	81/09
IRON	FE,TOT	UG/L		12	3325.83	6426.58	23500.0	170.000	80/10	81/09

TABLE RD 1-107 (Continued)

STATION NUMBER 500290
41 15 13.0 084 23 33.0 2
AUGLAIZE R AB DEFIANCE - POWER DAM AT HARDING RD
LAKE ERIE 060191 (MAUMEE RIVER BASIN)
MILES 0063.80 0004.10

PARAMETER			R	NO	MEAN	STAN DEV	MAXIMUM	MINIMUM	BEG	END
LEAD	PB,TOT	UG/L		5	9.00000	4.30116	15.0000	5.00000	81/01	81/09
			K	7	5.00000	.000000	5.00000	5.00000	80/10	81/08
			T	12	6.66667	3.31206	15.0000	5.00000	80/10	81/09
MANGNESE	MN	UG/L		12	90.0000	73.6083	290.000	30.0000	80/10	81/09
NICKEL	NI,TOTAL	UG/L		3	100.000	.000000	100.000	100.000	80/10	81/01
			K	8	100.000	.000000	100.000	100.000	81/02	81/09
			T	11	100.000	.000000	100.000	100.000	80/10	81/09
ZINC	ZN,TOT	UG/L		5	56.0000	27.0185	90.0000	30.0000	81/02	81/09
			K	7	30.0000	.000000	30.0000	30.0000	80/10	81/07
			T	12	40.8333	21.0879	90.0000	30.0000	80/10	81/09
ALUMINUM	AL,TOT	UG/L		11	2272.73	4415.90	15500.0	200.000	80/10	81/09
			K	1	200.000		200.000	200.000	81/01	81/01
			T	12	2100.00	4252.70	15500.0	200.000	80/10	81/09
FEC COLI	MFM-FCBR	/100ML		10	432.900	1045.85	3400.00	20.0000	80/10	81/09
			K	2	10.0000	.000000	10.0000	10.0000	81/01	81/03
			T	12	362.416	960.223	3400.00	10.0000	80/10	81/09
PHENOLS	TOTAL	UG/L		3	7.66667	1.52755	9.00000	6.00000	80/10	81/04
MBAS		MG/L		12	.140833	.036547	.210000	.100000	80/10	81/09
RESIDUE	DISS-180 C	MG/L		12	475.416	220.989	846.000	184.000	80/10	81/09
MERCURY	HG,TOTAL	UG/L		2	.550000	.070715	.600000	.500000	80/12	81/07
			K	8	.500000	.000000	.500000	.500000	80/10	81/06
			T	10	.510000	.031626	.600000	.500000	80/10	81/07

TABLE RD 1-108

STATION NUMBER 500290
41 15 13.0 084 23 33.0 2
AUGLAIZE R AB DEFIANCE - POWER DAM AT HARDING RD
LAKE ERIE 060191 (MAUMEE RIVER BASIN)
MILES 0063.80 0004.10

PARAMETER			R	NO	MEAN	STAN DEV	MAXIMUM	MINIMUM	BEG	END
WATER	TEMP	CENT		5	13.2800	8.83046	26.7000	4.00000	81/10	82/09
CNDUCTVY	AT 25C	MICROMHO		5	775.600	99.7133	900.000	670.000	81/10	82/09
DO	PROBE	MG/L		2	6.85000	1.62635	8.00000	5.70000	82/08	82/09
DO		MG/L		3	11.3333	1.51446	12.4000	9.60000	81/10	81/12
BOD	5 DAY	MG/L		3	2.96667	1.09696	4.20000	2.10000	81/12	82/09
COD	LOWLEVEL	MG/L		3	17.8666	3.38435	21.6000	15.0000	81/10	82/09
			K	1	4.00000		4.00000	4.00000	81/11	81/11
			T	4	14.4000	7.46369	21.6000	4.00000	81/10	82/09
LAB	PH	SU		5	8.07999	.156640	8.26000	7.86000	81/10	82/09
RESIDUE	TOT NFLT	MG/L		4	27.0000	9.05539	40.0000	19.0000	81/10	82/09
			K	1	10.0000		10.0000	10.0000	81/11	81/11
			T	5	23.6000	10.9225	40.0000	10.0000	81/10	82/09
NH3+NH4-	N TOTAL	MG/L		4	.167500	.129711	.350000	.070000	81/10	82/09
			K	1	.050000		.050000	.050000	81/11	81/11
			T	5	.144000	.124016	.350000	.050000	81/10	82/09
NO2-N	TOTAL	MG/L		5	.046000	.020736	.070000	.020000	81/10	82/09
NO3-N	TOTAL	MG/L		5	2.57200	2.40042	6.17000	.270000	81/10	82/09
TOT KJEL	N	MG/L		5	1.13200	.134799	1.24000	.910000	81/10	82/09
PHOS-TOT		MG/L P		5	.193800	.057273	.282000	.130000	81/10	82/09
T ORG C	C	MG/L		3	8.66667	.577419	9.00000	8.00000	81/10	81/12
TOT HARD	CACO3	MG/L		4	328.500	32.6241	373.000	296.000	81/10	82/08
CALCIUM	CA-TOT	MG/L		5	85.4199	10.7181	99.0000	69.8000	81/10	82/09
MGNSIUM	MG,TOT	MG/L		5	31.8600	3.16999	36.8000	29.0000	81/10	82/09
SODIUM	NA,TOT	MG/L		4	38.9500	25.1875	75.8000	19.0000	81/10	82/09
PTSSIUM	K,TOT	MG/L		4	5.27500	1.29712	6.90000	4.00000	81/10	82/09
CHLORIDE	TOTAL	MG/L		4	67.0000	27.5802	107.000	46.0000	81/10	82/09
SULFATE	SO4-TOT	MG/L		4	140.500	42.1466	195.000	98.0000	81/10	82/09
ARSENIC	AS,TOT	UG/L	K	3	10.0000	.000000	10.0000	10.0000	81/10	81/12
CADMIUM	CD,TOT	UG/L	K	5	3.20000	2.46475	5.00000	.500000	81/10	82/09
CHROMIUM	CR,TOT	UG/L	K	5	30.0000	.000000	30.0000	30.0000	81/10	82/09

TABLE RD 1-108 (Continued)

STATION NUMBER 500290
41 15 13.0 084 23 33.0 2
AUGLAIZE R AB DEFIANCE - POWER DAM AT HARDING RD
LAKE ERIE 060191 (MAUMEE RIVER BASIN)
MILES 0063.80 0004.10

PARAMETER			R	NO	MEAN	STAN DEV	MAXIMUM	MINIMUM	BEG	END
COPPER	CU,TOT	UG/L		1	10.0000		10.0000	10.0000	82/08	82/08
			K	4	25.0000	10.0000	30.0000	10.0000	81/10	82/09
			T	5	22.0000	10.9545	30.0000	10.0000	81/10	82/09
IRON	FE,TOT	UG/L		4	1457.50	436.377	1940.00	890.000	81/10	82/09
LEAD	PB,TOT	UG/L		2	2.00000	.000000	2.00000	2.00000	82/08	82/09
			K	3	5.00000	.000000	5.00000	5.00000	81/10	81/12
			T	5	3.80000	1.64317	5.00000	2.00000	81/10	82/09
MANGNESE	MN	UG/L		5	81.0000	31.3049	115.000	30.0000	81/10	82/09
NICKEL	NI,TOTAL	UG/L	K	5	76.0000	32.8634	100.000	40.0000	81/10	82/09
ZINC	ZN,TOT	UG/L	K	5	22.0000	10.9545	30.0000	10.0000	81/10	82/09
ALUMINUM	AL,TOT	UG/L		3	900.000	360.555	1200.00	500.000	81/10	81/12
FEC COLI	MFM-FCBR	/100ML		4	139.000	130.836	330.000	33.0000	81/11	82/09
			K	1	10.0000		10.0000	10.0000	81/10	81/10
			T	5	113.200	127.148	330.000	10.0000	81/10	82/09
MBAS		MG/L		3	.140000	.020000	.160000	.120000	81/10	81/12
RESIDUE	DISS-180	C MG/L		3	579.333	225.800	840.000	444.000	81/10	82/09
MERCURY	HG,TOTAL	UG/L	K	3	.500000	.000000	.500000	.500000	81/10	81/12

TABLE RD 1-109

STATION NUMBER 500040
41 03 21.0 083 41 17.0 2
BLANCHARD RIVER BELOW FINDLAY - COUNTY RD 140
LAKE ERIE 060191 (MAUMEE RIVER BASIN)
MILES 0064.04 0026.20 055.26

PARAMETER			R	NO	MEAN	STAN DEV	MAXIMUM	MINIMUM	BEG	END
WATER	TEMP	CENT		12	11.7917	7.88086	22.3000	.000000	80/10	81/09
STREAM	STAGE	FEET		5	1.70600	.845947	3.06000	.940000	81/02	81/06
TURB	TRBIDMTR	HACH FTU		1	99.0000		99.0000	99.0000	81/09	81/09
CNDUCTVY	AT 25C	MICROMHO		8	650.125	219.347	898.000	298.000	81/02	81/09
DO		MG/L		12	9.10833	2.76783	13.3000	5.30000	80/10	81/09
BOD	5 DAY	MG/L		9	7.77777	6.23795	24.0000	4.00000	80/10	81/08
			K	1	1.00000		1.00000	1.00000	81/09	81/09
			T	10	7.10000	6.25957	24.0000	1.00000	80/10	81/09
COD	LOWLEVEL	MG/L		10	28.8400	19.6181	66.0000	7.60000	80/10	81/09
			K	1	4.00000		4.00000	4.00000	81/05	81/05
			T	11	26.5818	20.0618	66.0000	4.00000	80/10	81/09
LAB	PH	SU		12	8.01000	.445692	8.60000	7.20000	80/10	81/09
T ALK	CACO3	MG/L		5	145.200	61.9655	213.000	68.0000	80/12	81/09
RESIDUE	TOT NFLT	MG/L		10	79.3000	80.6447	264.000	18.0000	80/10	81/09
			K	1	10.0000		10.0000	10.0000	81/01	81/01
			T	11	73.0000	79.3082	264.000	10.0000	80/10	81/09
OIL-GRSE	FREON-GR	MG/L	K	1	.500000		.500000	.500000	81/09	81/09
NH3+NH4-	N TOTAL	MG/L		5	2.20000	1.76318	4.00000	.240000	80/10	81/09
			K	3	.350000	.259809	.500000	.050000	80/11	81/04
			T	8	1.50625	1.64696	4.00000	.050000	80/10	81/09
NO2-N	TOTAL	MG/L		11	.185454	.145215	.580000	.030000	80/10	81/09
			K	1	.010000		.010000	.010000	80/11	80/11
			T	12	.170833	.147430	.580000	.010000	80/10	81/09
NO3-N	TOTAL	MG/L		12	2.87166	3.14883	9.50000	.280000	80/10	81/09
TOT KJEL	N	MG/L		12	4.06166	2.86945	9.20000	1.59000	80/10	81/09
PHOS-TOT		MG/L P		12	.551416	.355418	1.34000	.146000	80/10	81/09
T ORG C	C	MG/L		6	16.2833	5.65349	24.0000	8.70000	80/10	81/07
TOT HARD	CACO3	MG/L		12	315.583	93.0259	412.000	123.000	80/10	81/09
CALCIUM	CA-TOT	MG/L		10	80.2000	25.6290	104.000	33.0000	80/12	81/09
MGNSIUM	MG,TOT	MG/L		10	28.9000	9.67764	39.0000	11.0000	80/12	81/09
SODIUM	NA,TOT	MG/L		10	30.7000	18.8565	68.0000	7.00000	80/12	81/09
PTSSIUM	K,TOT	MG/L		9	4.78888	1.53090	8.10000	3.10000	81/01	81/09
CHLORIDE	TOTAL	MG/L		12	48.8333	18.2649	77.0000	18.0000	80/10	81/09
SULFATE	SO4-TOT	MG/L		12	137.500	54.8709	204.000	36.0000	80/10	81/09

TABLE RD 1-109 (Continued)

STATION NUMBER 500040
41 03 21.0 083 41 17.0 2
BLANCHARD RIVER BELOW FINDLAY - COUNTY RD 140
LAKE ERIE 060191 (MAUMEE RIVER BASIN)
MILES 0064.04 0026.20 055.26

PARAMETER			R	NO	MEAN	STAN DEV	MAXIMUM	MINIMUM	BEG	END
SILICA	DISOLVED	MG/L		9	4.06555	1.50887	6.78000	2.13000	80/12	81/08
ARSENIC	AS,TOT	UG/L	K	12	13.3333	11.5470	50.0000	10.0000	80/10	81/09
CADMIUM	CD,TOT	UG/L	K	12	5.00000	.000000	5.00000	5.00000	80/10	81/09
CHROMIUM	CR,TOT	UG/L		3	30.0000	.000000	30.0000	30.0000	80/11	81/08
			K	9	30.0000	.000000	30.0000	30.0000	80/10	81/09
			T	12	30.0000	.000000	30.0000	30.0000	80/10	81/09
COPPER	CU,TOT	UG/L	K	12	30.0000	.000000	30.0000	30.0000	80/10	81/09
IRON	FE,TOT	UG/L		12	2453.33	3448.79	12500.0	240.000	80/10	81/09
LEAD	PB,TOT	UG/L		8	7.12500	2.23207	11.0000	5.00000	80/10	81/08
			K	4	5.00000	.000000	5.00000	5.00000	80/11	81/09
			T	12	6.41667	2.06523	11.0000	5.00000	80/10	81/09
MANGNESE	MN	UG/L		12	97.5000	41.1483	180.000	50.0000	80/10	81/09
NICKEL	NI,TOTAL	UG/L		1	100.000		100.000	100.000	81/01	81/01
			K	8	100.000	.000000	100.000	100.000	81/02	81/09
			T	9	100.000	.000000	100.000	100.000	81/01	81/09
ZINC	ZN,TOT	UG/L		5	36.0000	8.94427	50.0000	30.0000	80/10	81/09
			K	7	30.0000	.000000	30.0000	30.0000	80/11	81/08
			T	12	32.5000	6.21581	50.0000	30.0000	80/10	81/09
ALUMINUM	AL,TOT	UG/L		10	1540.00	2015.05	6900.00	200.000	80/10	81/09
			K	2	200.000	.000000	200.000	200.000	80/11	81/01
			T	12	1316.67	1895.85	6900.00	200.000	80/10	81/09
FEC COLI	MFM-FCBR	/100ML		8	4613.75	5685.18	15000.0	380.000	80/10	81/09
			L	3	100000	.000000	100000	100000	80/11	81/04
			T	11	30628.2	44808.0	100000	380.000	80/10	81/09
PHENOLS	TOTAL	UG/L		10	7.80000	4.15799	16.0000	2.00000	80/10	81/09
MBAS		MG/L		12	.150000	.071732	.310000	.070000	80/10	81/09
PCBS	WHL SMPL	UG/L		1	1.30000		1.30000	1.30000	81/03	81/03
			K	6	.500000	.000000	.500000	.500000	81/02	81/09
			T	7	.614286	.302372	1.30000	.500000	81/02	81/09
RESIDUE	DISS-180	C MG/L		11	463.091	203.860	732.000	144.000	80/10	81/09
MERCURY	HG,TOTAL	UG/L		1	.600000		.600000	.600000	80/12	80/12
			K	9	.500000	.000000	.500000	.500000	80/10	81/07
			T	10	.510000	.031626	.600000	.500000	80/10	81/07

TABLE RD 1-110

STATION NUMBER 500040
41 03 21.0 083 41 17.0 2
BLANCHARD RIVER BELOW FINDLAY - COUNTY RD 140
LAKE ERIE 060191 (MAUMEE RIVER BASIN)
MILES 0064.04 0026.20 055.26

PARAMETER			R	NO	MEAN	STAN DEV	MAXIMUM	MINIMUM	BEG	END
WATER	TEMP	CENT		2	6.85000	4.45477	10.0000	3.70000	81/10	81/12
STREAM	FLOW	CFS		1	104.000		104.000	104.000	81/12	81/12
TURB	TRBIDMTR	HACH FTU		1	94.0000		94.0000	94.0000	81/10	81/10
CNDUCTVY	AT 25C	MICROMHO		3	750.333	268.591	980.000	455.000	81/10	81/12
DO	PROBE	MG/L		1	12.3000		12.3000	12.3000	81/12	81/12
DO		MG/L		1	8.20000		8.20000	8.20000	81/10	81/10
BOD	5 DAY	MG/L		2	3.80000	3.11127	6.00000	1.60000	81/11	81/12
COD	LOWLEVEL	MG/L		2	20.6500	18.8798	34.0000	7.30000	81/11	81/12
LAB	PH	SU		3	7.94666	.051155	8.00000	7.90000	81/10	81/12
RESIDUE	TOT NFLT	MG/L	K	2	7.50000	3.53553	10.0000	5.00000	81/11	81/12
NH3+NH4-	N TOTAL	MG/L		3	1.15667	.893663	1.76000	.130000	81/10	81/12
NO2-N	TOTAL	MG/L		3	.103333	.030551	.130000	.070000	81/10	81/12
NO3-N	TOTAL	MG/L		3	3.86333	2.10623	6.01000	1.80000	81/10	81/12
TOT KJEL	N	MG/L		3	2.28667	.342104	2.55000	1.90000	81/10	81/12
PHOS-TOT		MG/L P		3	.537000	.145339	.663000	.378000	81/10	81/12
T ORG C	C	MG/L		2	13.0000	7.07107	18.0000	8.00000	81/10	81/11
TOT HARD	CACO3	MG/L		3	326.000	109.284	395.000	200.000	81/10	81/12
CALCIUM	CA-TOT	MG/L		3	85.8000	25.8174	101.400	56.0000	81/10	81/12
MGNSIUM	MG,TOT	MG/L		3	29.1667	9.67389	35.0000	18.0000	81/10	81/12
SODIUM	NA,TOT	MG/L		2	19.5000	16.2635	31.0000	8.00000	81/10	81/11
PTSSIUM	K,TOT	MG/L		2	5.65000	2.05061	7.10000	4.20000	81/10	81/11
CHLORIDE	TOTAL	MG/L		2	34.5000	6.36396	39.0000	30.0000	81/10	81/11
SULFATE	SO4-TOT	MG/L		2	96.0000	56.5685	136.000	56.0000	81/10	81/11
ARSENIC	AS,TOT	UG/L	K	2	10.0000	.000000	10.0000	10.0000	81/10	81/11
CADMIUM	CD,TOT	UG/L	K	3	3.50000	2.59808	5.00000	.500000	81/10	81/12
CHROMIUM	CR,TOT	UG/L	K	3	30.0000	.000000	30.0000	30.0000	81/10	81/12
COPPER	CU,TOT	UG/L	K	3	23.3333	11.5470	30.0000	10.0000	81/10	81/12
IRON	FE,TOT	UG/L		3	2106.67	3198.77	5800.00	220.000	81/10	81/12
LEAD	PB,TOT	UG/L		1	6.00000		6.00000	6.00000	81/10	81/10
			K	2	5.00000	.000000	5.00000	5.00000	81/11	81/12
			T	3	5.33333	.577359	6.00000	5.00000	81/10	81/12
MANGNESE	MN	UG/L		2	91.0000	69.2965	140.000	42.0000	81/10	81/12
			K	1	100.000		100.000	100.000	81/11	81/11
			T	3	94.0000	49.2747	140.000	42.0000	81/10	81/12
NICKEL	NI,TOTAL	UG/L	K	3	53.3333	40.4145	100.000	30.0000	81/10	81/12
ZINC	ZN,TOT	UG/L		1	30.0000		30.0000	30.0000	81/10	81/10
			K	2	20.0000	14.1421	30.0000	10.0000	81/11	81/12
			T	3	23.3333	11.5470	30.0000	10.0000	81/10	81/12
ALUMINUM	AL,TOT	UG/L		2	2050.00	2474.87	3800.00	300.000	81/10	81/11
FEC COLI	MFM-FCBR	/100ML		3	9000.00	5291.49	13000.0	3000.00	81/10	81/12
MBAS		MG/L		2	.120000	.014143	.130000	.110000	81/10	81/11
RESIDUE	DISS-180	C MG/L		2	497.000	46.6690	530.000	464.000	81/11	81/12
MERCURY	HG,TOTAL	UG/L	K	1	.500000		.500000	.500000	81/11	81/11

TABLE RD 1-111

STATION NUMBER 500050
40 45 18.0 084 11 41.0 2
OTTAWA R AT ALLENTOWN - SR 81
LAKE ERIE 060191 (MAUMEE RIVER BASIN)
MILES 0063.80 0033.20 028.40

PARAMETER			R	NO	MEAN	STAN DEV	MAXIMUM	MINIMUM	BEG	END
WATER	TEMP	CENT		12	11.4667	7.30795	25.0000	1.60000	80/10	81/09
STREAM	STAGE	FEET		8	3.29125	.482876	4.20000	2.76000	81/02	81/09
CNDUCTVY	AT 25C	MICROMHO		8	1042.00	317.649	1540.00	541.000	81/02	81/09
DO		MG/L		12	9.63333	2.41825	12.4000	4.20000	80/10	81/09
BOD	5 DAY	MG/L		11	8.46363	4.31932	16.8000	1.00000	80/10	81/09
COD	LOWLEVEL	MG/L		12	23.3166	19.2504	62.9000	7.00000	80/10	81/09
LAB	PH	SU		12	7.96499	.367014	8.60000	7.42000	80/10	81/09
T ALK	CACO3	MG/L		3	125.667	36.2953	159.000	87.0000	80/10	81/02
RESIDUE	TOT NFLT	MG/L		9	50.5555	59.0426	201.000	13.0000	80/12	81/09
			K	3	10.0000	.000000	10.0000	10.0000	80/10	81/08
			T	12	40.4167	53.5884	201.000	10.0000	80/10	81/09
NH3+NH4-	N TOTAL	MG/L		8	2.51125	2.00167	5.70000	.090000	80/10	81/09
			K	2	.275000	.318198	.500000	.050000	80/11	81/05
			T	10	2.06400	2.00415	5.70000	.050000	80/10	81/09
NO2-N	TOTAL	MG/L		12	.357500	.312471	1.15000	.010000	80/10	81/09
NO3-N	TOTAL	MG/L		12	7.19499	2.62748	12.6000	3.20000	80/10	81/09
TOT KJEL	N	MG/L		12	4.48416	2.37411	9.35000	1.36000	80/10	81/09
PHOS-TOT		MG/L P		12	.780499	.372872	1.49000	.310000	80/10	81/09
T ORG C	C	MG/L		6	20.6667	4.84429	28.0000	13.0000	80/10	81/09
CYANIDE	CN-TOT	MG/L		5	.027600	.014639	.050000	.013000	80/10	81/04
			K	3	.010000	.000000	.010000	.010000	81/06	81/08
			T	8	.021000	.014333	.050000	.010000	80/10	81/08
TOT HARD	CACO3	MG/L		12	384.250	84.1778	488.000	176.000	80/10	81/09
CALCIUM	CA-TOT	MG/L		9	99.6667	20.8688	121.000	54.0000	81/01	81/09
MGNSIUM	MG,TOT	MG/L		9	35.4444	10.8180	48.0000	15.0000	81/01	81/09
SODIUM	NA,TOT	MG/L		9	98.8889	62.9036	210.000	28.0000	81/01	81/09
PTSSIUM	K,TOT	MG/L		9	6.97777	1.99737	10.5000	4.20000	81/01	81/09
CHLORIDE	TOTAL	MG/L		12	141.750	68.4771	280.000	58.0000	80/10	81/09
SULFATE	SO4-TOT	MG/L		12	243.417	100.565	385.000	80.0000	80/10	81/09
SILICA	DISOLVED	MG/L		7	6.08428	2.63166	9.20000	2.56000	81/01	81/08
ARSENIC	AS,TOT	UG/L	K	13	13.0769	11.0940	50.0000	10.0000	80/10	81/09

TABLE RD 1-111 (Continued)

STATION NUMBER 500050
40 45 18.0 084 11 41.0 2
OTTAWA R AT ALLENTOWN - SR 81
LAKE ERIE 060191 (MAUMEE RIVER BASIN)
MILES 0063.80 0033.20 028.40

PARAMETER			R	NO	MEAN	STAN DEV	MAXIMUM	MINIMUM	BEG	END
CADMIUM	CD,TOT	UG/L	K	13	5.76923	1.87767	10.0000	5.00000	80/10	81/09
CHROMIUM	CR,TOT	UG/L		2	35.0000	7.07107	40.0000	30.0000	80/11	80/12
			K	11	30.0000	.000000	30.0000	30.0000	80/10	81/09
			T	13	30.7692	2.77369	40.0000	30.0000	80/10	81/09
COPPER	CU,TOT	UG/L		2	30.0000	.000000	30.0000	30.0000	81/07	81/09
			K	11	30.0000	.000000	30.0000	30.0000	80/10	81/08
			T	13	30.0000	.000000	30.0000	30.0000	80/10	81/09
IRON	FE,TOT	UG/L		13	1650.77	3663.59	13600.0	150.000	80/10	81/09
LEAD	PB,TOT	UG/L		4	9.00000	4.24264	15.0000	6.00000	80/10	81/05
			K	9	5.55556	1.66667	10.0000	5.00000	80/11	81/09
LEAD	PB,TOT	UG/L	T	13	6.61538	3.01492	15.0000	5.00000	80/10	81/09
MANGNESE	MN	UG/L		13	83.8461	44.4482	210.000	30.0000	80/10	81/09
NICKEL	NI,TOTAL	UG/L		11	100.909	3.01558	110.000	100.000	80/10	81/09
			K	1	100.000		100.000	100.000	81/04	81/04
			T	12	100.833	2.88806	110.000	100.000	80/10	81/09
ZINC	ZN,TOT	UG/L		8	41.2500	16.4208	80.0000	30.0000	80/10	81/06
			K	5	30.0000	.000000	30.0000	30.0000	81/03	81/09
			T	13	36.9231	13.7748	80.0000	30.0000	80/10	81/09
ANTIMONY	SB,TOT	UG/L	K	1	10.0000		10.0000	10.0000	81/09	81/09
ALUMINUM	AL,TOT	UG/L		7	1400.00	2354.43	6700.00	200.000	80/10	81/09
			K	6	200.000	.000000	200.000	200.000	80/11	81/08
			T	13	846.154	1777.46	6700.00	200.000	80/10	81/09
FEC COLI	MFM-FCBR	/100ML		9	3868.89	4966.64	16000.0	20.0000	80/10	81/06
PHENOLS	TOTAL	UG/L		10	14.9000	3.90015	21.0000	9.00000	80/10	81/09
MBAS		MG/L		12	.319166	.101127	.460000	.160000	80/10	81/09
PCBS	WHL SMPL	UG/L		1	.900000		.900000	.900000	81/03	81/03
			K	1	.500000		.500000	.500000	81/08	81/08
			T	2	.700000	.282843	.900000	.500000	81/03	81/08
RESIDUE	DISS-180 C	MG/L		11	773.636	279.742	1136.00	362.000	80/10	81/09
MERCURY	HG,TOTAL	UG/L		4	.925000	.386220	1.30000	.500000	81/01	81/07
			K	7	.500000	.000000	.500000	.500000	80/10	81/06
			T	11	.654545	.301209	1.30000	.500000	80/10	81/07

TABLE RD 1-112

STATION NUMBER 500050
40 45 18.0 084 11 41.0 2
OTTAWA R AT ALLENTOWN - SR 81
LAKE ERIE 060191 (MAUMEE RIVER BASIN)
MILES 0063.80 0033.20 028.40

PARAMETER			R	NO	MEAN	STAN DEV	MAXIMUM	MINIMUM	BEG	END
WATER	TEMP	CENT		3	6.06667	4.14286	10.8000	3.10000	81/10	81/12
STREAM	STAGE	FEET		2	3.33500	.487906	3.68000	2.99000	81/11	81/12
TURB	TRBIDMTR	HACH FTU		1	85.0000		85.0000	85.0000	81/10	81/10
CNDUCTVY	AT 25C	MICROMHO		4	871.750	350.227	1350.00	512.000	81/10	82/03
DO	PROBE	MG/L		2	11.4000	.015625	11.4000	11.4000	81/11	81/12
DO		MG/L		1	9.20000		9.20000	9.20000	81/10	81/10
BOD	5 DAY	MG/L		2	4.55000	3.74767	7.20000	1.90000	81/12	82/03
			K	1	1.00000		1.00000	1.00000	81/11	81/11
			T	3	3.36667	3.35012	7.20000	1.00000	81/11	82/03
COD	LOWLEVEL	MG/L		2	25.0000	1.41421	26.0000	24.0000	81/12	82/03
			K	1	4.00000		4.00000	4.00000	81/11	81/11
			T	3	18.0000	12.1655	26.0000	4.00000	81/11	82/03
LAB	PH	SU		4	7.97499	.140245	8.16000	7.84000	81/10	82/03
T ALK	CACO3	MG/L		1	144.000		144.000	144.000	81/11	81/11
RESIDUE	TOT NFLT	MG/L		3	40.6667	33.1713	77.0000	12.0000	81/10	82/03
			K	1	5.00000		5.00000	5.00000	81/12	81/12
			T	4	31.7500	32.4281	77.0000	5.00000	81/10	82/03
NH3+NH4-	N TOTAL	MG/L		4	1.15750	1.07760	2.77000	.540000	81/10	82/03
NO2-N	TOTAL	MG/L		4	.222500	.094295	.310000	.090000	81/10	82/03
NO3-N	TOTAL	MG/L		4	6.09999	2.02531	8.36000	4.22000	81/10	82/03
TOT KJEL	N	MG/L		4	2.44500	.523734	3.16000	1.90000	81/10	82/03
PHOS-TOT		MG/L P		4	.477500	.046575	.540000	.440000	81/10	82/03
T ORG C	C	MG/L		2	12.5000	2.12132	14.0000	11.0000	81/10	81/11
CYANIDE	CN-TOT	MG/L	K	2	.010000	.000000	.010000	.010000	81/10	81/11
TOT HARD	CACO3	MG/L		4	276.000	73.6342	364.000	208.000	81/10	82/03

TABLE RD 1-112 (Continued)

STATION NUMBER 500050
40 45 18.0 084 11 41.0 2
OTTAWA R AT ALLENTOWN - SR 81
LAKE ERIE 060191 (MAUMEE RIVER BASIN)
MILES 0063.80 0033.20 028.40

PARAMETER			R	NO	MEAN	STAN DEV	MAXIMUM	MINIMUM	BEG	END
CALCIUM	CA-TOT	MG/L		4	68.8500	26.9611	92.7000	33.7000	81/10	82/03
MGNSIUM	MG,TOT	MG/L		4	28.2250	6.60628	33.7000	19.0000	81/10	82/03
SODIUM	NA,TOT	MG/L		2	30.0000	19.7990	44.0000	16.0000	81/10	81/11
PTSSIUM	K,TOT	MG/L		2	6.40000	2.40416	8.10000	4.70000	81/10	81/11
CHLORIDE	TOTAL	MG/L		2	53.5000	17.6777	66.0000	41.0000	81/10	81/11
SULFATE	SO4-TOT	MG/L		2	101.000	49.4975	136.000	66.0000	81/10	81/11
ARSENIC	AS,TOT	UG/L	K	2	10.0000	.000000	10.0000	10.0000	81/10	81/11
CADMIUM	CD,TOT	UG/L	K	4	2.75000	2.59808	5.00000	.500000	81/10	82/03
CHROMIUM	CR,TOT	UG/L		1	60.0000		60.0000	60.0000	82/03	82/03
			K	3	30.0000	.000000	30.0000	30.0000	81/10	81/12
			T	4	37.5000	15.0000	60.0000	30.0000	81/10	82/03
COPPER	CU,TOT	UG/L	K	4	20.0000	11.5470	30.0000	10.0000	81/10	82/03
IRON	FE,TOT	UG/L		4	2172.50	2372.47	5600.00	130.000	81/10	82/03
LEAD	PB,TOT	UG/L		3	8.66667	2.51663	11.0000	6.00000	81/10	82/03
			K	1	5.00000		5.00000	5.00000	81/12	81/12
			T	4	7.75000	2.75378	11.0000	5.00000	81/10	82/03
MANGNESE	MN	UG/L		4	72.0000	30.5941	110.000	38.0000	81/10	82/03
NICKEL	NI,TOTAL	UG/L		4	80.0000	28.2843	100.000	40.0000	81/10	82/03
ZINC	ZN,TOT	UG/L		4	36.2500	14.9304	50.0000	15.0000	81/10	82/03
ALUMINUM	AL,TOT	UG/L		2	1750.00	1343.50	2700.00	800.000	81/10	81/11
FEC COLI	MFM-FCBR	/100ML		2	3500.00	3111.27	5700.00	1300.00	81/10	81/12
PHENOLS	TOTAL	UG/L		2	9.50000	2.12132	11.0000	8.00000	81/10	81/11
MBAS		MG/L		2	.175000	.007071	.180000	.170000	81/10	81/11
RESIDUE	DISS-180	C MG/L		3	568.333	282.207	828.000	268.000	81/10	82/03
MERCURY	HG,TOTAL	UG/L	K	2	.500000	.000000	.500000	.500000	81/10	81/11

TABLE RD 1-113

STATION NUMBER 600410
39 12 07.0 084 26 16.0 2
MILL CREEK AT CARTHAGE - ANTHONY WAYNE AVE.
OHIO RIVER 051191 (MILL CREEK)
MILES 0953.80 0508.50 011.00

PARAMETER			R	NO	MEAN	STAN DEV	MAXIMUM	MINIMUM	BEG	END
WATER	TEMP	CENT		12	13.3083	7.83204	23.0000	1.00000	80/10	81/09
STREAM	FLOW,	INST-CFS		12	111.475	123.823	407.000	22.0000	80/10	81/09
STREAM	STAGE	FEET		12	5.75749	.590414	7.04000	5.18000	80/10	81/09
CNDUCTVY	AT 25C	MICROMHO		12	705.416	217.161	1290.00	466.000	80/10	81/09
DO		MG/L		8	7.75000	3.97851	12.6000	.200000	80/10	81/09
COD	LOWLEVEL	MG/L		12	34.3333	14.6805	59.0000	16.0000	80/10	81/09
PH		SU		2	8.00000	.282846	8.20000	7.80000	81/08	81/09
LAB	PH	SU		10	7.60999	.179215	7.90000	7.40000	80/10	81/07
RESIDUE	TOT NFLT	MG/L		8	39.6250	40.0462	132.000	11.0000	80/11	81/08
			K	4	10.0000	.000000	10.0000	10.0000	80/10	81/09
			T	12	29.7500	35.1183	132.000	10.0000	80/10	81/09
NH3+NH4-	N TOTAL	MG/L		12	1.08250	1.46002	4.98000	.110000	80/10	81/09
NO3-N	TOTAL	MG/L		11	1.10091	.461812	1.96000	.510000	80/10	81/09
			K	1	.050000		.050000	.050000	81/07	81/07
			T	12	1.01333	.534711	1.96000	.050000	80/10	81/09
TOT KJEL	N	MG/L		12	2.19583	1.91557	6.38000	.630000	80/10	81/09
PHOS-TOT		MG/L P		12	.637916	.515941	2.10000	.199000	80/10	81/09
CYANIDE	CN-TOT	MG/L		2	.025000	.021213	.040000	.010000	81/03	81/06
			K	2	.010000	.000000	.010000	.010000	80/12	81/09
			T	4	.017500	.015000	.040000	.010000	80/12	81/09
TOT HARD	CACO3	MG/L		3	253.667	58.4498	300.000	188.000	80/12	81/09
CADMIUM	CD,TOT	UG/L	K	4	5.00000	.000000	5.00000	5.00000	80/12	81/09
CHROMIUM	CR,TOT	UG/L		1	30.0000		30.0000	30.0000	81/06	81/06
			K	3	30.0000	.000000	30.0000	30.0000	80/12	81/09
			T	4	30.0000	.000000	30.0000	30.0000	80/12	81/09
COPPER	CU,TOT	UG/L	K	4	30.0000	.000000	30.0000	30.0000	80/12	81/09
IRON	FE,TOT	UG/L		4	812.500	868.500	2110.00	280.000	80/12	81/09
LEAD	PB,TOT	UG/L		1	16.0000		16.0000	16.0000	80/12	80/12
			K	3	5.00000	.000000	5.00000	5.00000	81/03	81/09
			T	4	7.75000	5.50000	16.0000	5.00000	80/12	81/09
NICKEL	NI,TOTAL	UG/L		1	100.000		100.000	100.000	81/09	81/09
			K	3	100.000	.000000	100.000	100.000	80/12	81/06
			T	4	100.000	.000000	100.000	100.000	80/12	81/09
ZINC	ZN,TOT	UG/L		3	66.6667	20.8167	90.0000	50.0000	80/12	81/06
			K	1	30.0000		30.0000	30.0000	81/09	81/09
			T	4	57.5000	25.0000	90.0000	30.0000	80/12	81/09
FEC COLI	MFM-FCBR	/100ML		11	61609.1	100605	320000	1100.00	80/10	81/09
			L	1	100000		100000	100000	81/07	81/07
			T	12	64808.3	96561.2	320000	1100.00	80/10	81/09
PHENOLS	TOTAL	UG/L		4	22.7500	13.3010	40.0000	10.0000	80/12	81/09
MERCURY	HG,TOTAL	UG/L		2	.800000	.000977	.800000	.800000	80/12	81/09
MERCURY	HG,TOTAL	UG/L	K	2	.500000	.000000	.500000	.500000	81/03	81/06
			T	4	.650000	.173206	.800000	.500000	80/12	81/09

TABLE RD 1-114

STATION NUMBER 600410
39 12 07.0 084 26 16.0 2
MILL CREEK AT CARTHAGE - ANTHONY WAYNE AVE.
OHIO RIVER 051191 (MILL CREEK)
MILES 0953.80 0508.50 011.00

No data were collected 10/81 - 9/82.

TABLE RD 1-115

STATION NUMBER 600430
39 06 10.0 084 32 00.0 2
MILL CREEK AT CINCINNATI - NR GEST ST
OHIO RIVER 051191 (MILL CREEK)
MILES 0953.80 0508.50 000.30

PARAMETER			R	NO	MEAN	STAN DEV	MAXIMUM	MINIMUM	BEG	END
WATER	TEMP	CENT		10	13.2500	7.61610	24.0000	3.50000	80/10	81/09
CNDUCTVY	AT 25C	MICROMHO		11	822.182	208.534	1330.00	552.000	80/10	81/09
DO		MG/L		8	3.27500	3.78899	8.60000	.000000	80/10	81/09
COD	LOWLEVEL	MG/L		11	46.0000	24.3352	86.0000	14.0000	80/10	81/09
PH		SU		2	7.65000	.070637	7.70000	7.60000	81/08	81/09
LAB	PH	SU		9	7.37777	.198643	7.60000	7.00000	80/10	81/07
RESIDUE	TOT NFLT	MG/L		8	21.7500	11.2345	43.0000	11.0000	80/10	81/09
			K	3	10.0000	.000000	10.0000	10.0000	81/03	81/07
			T	11	18.5454	10.8845	43.0000	10.0000	80/10	81/09
NH3+NH4-	N TOTAL	MG/L		11	3.27818	1.59038	5.84000	1.07000	80/10	81/09
NO3-N	TOTAL	MG/L		9	.976666	.337713	1.57000	.610000	80/10	81/08
			K	2	.050000	.000061	.050000	.050000	81/07	81/09
			T	11	.808181	.481411	1.57000	.050000	80/10	81/09
TOT KJEL	N	MG/L		11	5.22636	2.14549	9.02000	2.20000	80/10	81/09
PHOS-TOT		MG/L P		11	.868090	.350075	1.67000	.499000	80/10	81/09
CYANIDE	CN-TOT	MG/L		2	.015000	.007071	.020000	.010000	81/03	81/09
			K	1	.010000		.010000	.010000	80/12	80/12
			T	3	.013333	.005773	.020000	.010000	80/12	81/09
TOT HARD	CACO3	MG/L		2	287.000	41.0122	316.000	258.000	80/12	81/09
CADMIUM	CD,TOT	UG/L	K	3	5.00000	.000000	5.00000	5.00000	80/12	81/09
CHROMIUM	CR,TOT	UG/L	K	3	30.0000	.000000	30.0000	30.0000	80/12	81/09
COPPER	CU,TOT	UG/L		2	30.0000	.000000	30.0000	30.0000	81/03	81/09
			K	1	30.0000		30.0000	30.0000	80/12	80/12
			T	3	30.0000	.000000	30.0000	30.0000	80/12	81/09
IRON	FE,TOT	UG/L		3	1033.33	106.930	1100.00	910.000	80/12	81/09
LEAD	PB,TOT	UG/L		3	38.6667	43.1432	88.0000	8.00000	80/12	81/09
NICKEL	NI,TOTAL	UG/L		3	100.000	.000000	100.000	100.000	80/12	81/09
ZINC	ZN,TOT	UG/L		1	50.0000		50.0000	50.0000	81/03	81/03
			K	1	30.0000		30.0000	30.0000	80/12	80/12
			T	2	40.0000	14.1421	50.0000	30.0000	80/12	81/03
FEC COLI	MFM-FCBR	/100ML		10	266310	397919	1100100	35000.0	80/10	81/09
PHENOLS	TOTAL	UG/L		3	18.0000	4.00000	22.0000	14.0000	80/12	81/09
MERCURY	HG,TOTAL	UG/L		1	.600000		.600000	.600000	81/09	81/09
			K	2	.500000	.000000	.500000	.500000	80/12	81/03
			T	3	.533333	.057740	.600000	.500000	80/12	81/09

TABLE RD 1-116

STATION NUMBER 600430
39 06 10.0 084 32 00.0 2
MILL CREEK AT CINCINNATI - NR GEST ST
OHIO RIVER 051191 (MILL CREEK)
MILES 0953.80 0508.50 000.30

No data were collected from 10/81 - 9/82.

TABLE RD 1-117

STATION NUMBER 611740
40 14 02.0 081 52 16.0 2
MUSKINGUM RIVER BELOW COSHOCTON - SR 83
OHIO RIVER (MUSKINGUM RIVER)
MILES 0953.80 0808.80 107.30

PARAMETER			R	NO	MEAN	STAN DEV	MAXIMUM	MINIMUM	BEG	END
WATER	TEMP	CENT		11	11.6364	9.10794	25.0000	.000000	80/10	81/09
STREAM	FLOW,	INST-CFS		12	6643.75	4184.22	13930.0	1523.00	80/10	81/09
STREAM	STAGE	FEET		12	9.27499	2.17923	12.7400	6.22000	80/10	81/09
CNDUCTVY	FIELD	MICROMHO		1	700.000		700.000	700.000	81/08	81/08
CNDUCTVY	AT 25C	MICROMHO		10	625.200	158.394	882.000	449.000	80/10	81/09
DO		MG/L		9	8.97777	1.04737	10.5000	7.80000	80/10	81/09
COD	LOWLEVEL	MG/L		12	16.2500	5.97152	26.0000	6.00000	80/10	81/09
PH		SU		7	7.50000	.544750	8.10000	6.90000	81/03	81/09
LAB	PH	SU		5	7.73999	.260989	7.90000	7.30000	80/10	81/02
T ALK	CACO3	MG/L		4	124.750	65.3420	215.000	68.0000	80/11	81/03
RESIDUE	TOTAL	MG/L		3	515.333	109.112	610.000	396.000	81/02	81/08
RESIDUE	TOT NFLT	MG/L		8	69.5000	39.0018	157.000	37.0000	80/12	81/09
			K	3	10.0000	.000000	10.0000	10.0000	80/10	81/01
			T	11	53.2727	42.8628	157.000	10.0000	80/10	81/09
NH3+NH4-	N TOTAL	MG/L		7	.275714	.298432	.920000	.050000	80/10	81/04
			K	5	.050000	.000061	.050000	.050000	81/05	81/09
			T	12	.181666	.249174	.920000	.050000	80/10	81/09
NO2-N	TOTAL	MG/L		7	.021429	.008997	.040000	.010000	80/10	81/08
NO3-N	TOTAL	MG/L		12	1.67166	.451043	2.72000	1.04000	80/10	81/09
TOT KJEL	N	MG/L		11	.872727	.289693	1.27000	.460000	80/10	81/09
PHOS-TOT		MG/L P		12	.176916	.055457	.317000	.118000	80/10	81/09
CYANIDE	CN-TOT	MG/L	K	1	.010000		.010000	.010000	81/02	81/02
TOT HARD	CACO3	MG/L		3	247.000	83.6242	316.000	154.000	80/11	81/08
CALCIUM	CA-TOT	MG/L		1	56.0000		56.0000	56.0000	81/05	81/05
MGNSIUM	MG,TOT	MG/L		1	18.0000		18.0000	18.0000	81/05	81/05

TABLE RD 1-117 (Continued)

STATION NUMBER 611740
40 14 02.0 081 52 16.0 2
MUSKINGUM RIVER BELOW COSHOCTON - SR 83
OHIO RIVER (MUSKINGUM RIVER)
MILES 0953.80 0808.80 107.30

PARAMETER			R	NO	MEAN	STAN DEV	MAXIMUM	MINIMUM	BEG	END
CHLORIDE	TOTAL	MG/L		9	50.6667	19.6406	95.0000	32.0000	80/10	81/07
CADMIUM	CD,TOT	UG/L	K	4	5.00000	.000000	5.00000	5.00000	80/11	81/08
CHROMIUM	CR,TOT	UG/L	K	4	30.0000	.000000	30.0000	30.0000	80/11	81/08
COPPER	CU,TOT	UG/L		2	80.0000	70.7107	130.000	30.0000	81/02	81/05
			K	2	30.0000	.000000	30.0000	30.0000	80/11	81/08
			T	4	55.0000	50.0000	130.000	30.0000	80/11	81/08
IRON	FE,TOT	UG/L		4	2940.00	2563.86	6600.00	610.000	80/11	81/08
LEAD	PB,TOT	UG/L		3	7.66667	2.88676	11.0000	6.00000	80/11	81/08
			K	1	5.00000		5.00000	5.00000	81/05	81/05
			T	4	7.00000	2.70801	11.0000	5.00000	80/11	81/08
MANGNESE	MN	UG/L		2	425.000	176.777	550.000	300.000	80/11	81/08
NICKEL	NI,TOTAL	UG/L	K	4	100.000	.000000	100.000	100.000	80/11	81/08
ZINC	ZN,TOT	UG/L		4	42.5000	15.0000	60.0000	30.0000	80/11	81/08
ALUMINUM	AL,TOT	UG/L		3	1033.33	1040.83	2200.00	200.000	80/11	81/08
FEC COLI	MFM-FCBR	/100ML		12	1520.67	1004.40	3100.00	28.0000	80/10	81/09
PHENOLS	TOTAL	UG/L		11	8.81818	4.16697	18.0000	4.00000	80/10	81/09
PHENOLS	TOTAL	UG/L	K	1	20.0000		20.0000	20.0000	81/02	81/02
			T	12	9.75000	5.11904	20.0000	4.00000	80/10	81/09
MBAS		MG/L		2	.080000	.014142	.090000	.070000	80/11	81/08
RESIDUE	DISS-180	C MG/L		7	419.286	79.1581	531.000	321.000	80/10	81/09
PHOS-T	ORTHO	MG/L P		1	.037000		.037000	.037000	81/08	81/08
T ACDITY	HOT-MG/L	CACO3	K	2	10.0000	.000000	10.0000	10.0000	81/02	81/03
MERCURY	HG,TOTAL	UG/L		1	.600000		.600000	.600000	81/08	81/08
			K	3	.500000	.000000	.500000	.500000	80/11	81/05
			T	4	.525000	.050002	.600000	.500000	80/11	81/08

TABLE RD 1-118

STATION NUMBER 611740
40 14 02.0 081 52 16.0 2
MUSKINGUM RIVER BELOW COSHOCTON - SR 83
OHIO RIVER (MUSKINGUM RIVER)
MILES 0953.80 0808.80 107.30

PARAMETER			R	NO	MEAN	STAN DEV	MAXIMUM	MINIMUM	BEG	END
WATER	TEMP	CENT		11	10.7636	8.46490	25.0000	.000000	81/10	82/09
STREAM	FLOW	CFS		5	7273.40	6548.09	18450.0	2477.00	81/12	82/06
STREAM	FLOW,	INST-CFS		4	4411.40	7154.42	15140.0	641.600	81/10	82/09
STREAM	STAGE	FEET		10	8.36599	3.17161	14.4000	5.30000	81/10	82/09
CNDUCTVY	AT 25C	MICROMHO		10	743.900	200.843	953.000	380.000	81/10	82/09
DO	PROBE	MG/L		9	9.65555	2.50855	13.4000	6.40000	81/12	82/09
DO		MG/L		1	9.60000		9.60000	9.60000	81/10	81/10
COD	LOWLEVEL	MG/L		6	24.6667	6.59297	35.0000	17.0000	81/10	82/07
PH		SU		11	8.30454	.369854	9.00000	7.90000	81/10	82/09
LAB	PH	SU		6	7.99166	.229533	8.30000	7.67000	81/10	82/08
T ALK	CACO3	MG/L		1	151.000		151.000	151.000	82/09	82/09
RESIDUE	TOTAL	MG/L		1	351.000		351.000	351.000	82/01	82/01
RESIDUE	TOT NFLT	MG/L		10	38.7000	14.0084	60.0000	18.0000	81/11	82/09
			K	2	7.50000	3.53553	10.0000	5.00000	81/10	81/12
			T	12	33.5000	17.5836	60.0000	5.00000	81/10	82/09
NH3+NH4-	N TOTAL	MG/L		6	.216666	.130333	.380000	.080000	81/11	82/04
			K	6	.050000	.000061	.050000	.050000	81/10	82/09
			T	12	.133333	.123681	.380000	.050000	81/10	82/09
NO2-N	TOTAL	MG/L		7	.027143	.007559	.040000	.020000	82/01	82/09
			K	2	.020000	.000000	.020000	.020000	81/12	82/08
			T	9	.025556	.007265	.040000	.020000	81/12	82/09
NO3-N	TOTAL	MG/L		11	1.56727	.422708	2.01000	.550000	81/10	82/09
			K	1	.050000		.050000	.050000	82/07	82/07
			T	12	1.44083	.595216	2.01000	.050000	81/10	82/09
TOT KJEL	N	MG/L		12	1.02333	.337218	1.80000	.700000	81/10	82/09

TABLE RD 1-118 (Continued)

STATION NUMBER 611740
40 14 02.0 081 52 16.0 2
MUSKINGUM RIVER BELOW COSHOCTON - SR 83
OHIO RIVER (MUSKINGUM RIVER)
MILES 0953.80 0808.80 107.30

PARAMETER			R	NO	MEAN	STAN DEV	MAXIMUM	MINIMUM	BEG	END
PHOS-TOT		MG/L P		12	.146666	.034318	.200000	.090000	81/10	82/09
TOT HARD	CACO3	MG/L		4	261.975	85.3133	360.000	156.000	81/11	82/08
CALCIUM	CA-TOT	MG/L		3	59.4000	17.3554	75.9000	41.3000	82/02	82/08
MGNSIUM	MG,TOT	MG/L		3	19.6667	6.00027	23.9000	12.8000	82/02	82/08
CHLORIDE	TOTAL	MG/L		3	106.667	13.5775	115.000	91.0000	81/10	82/08
CADMIUM	CD,TOT	UG/L	K	5	1.40000	2.01246	5.00000	.500000	81/11	82/08
CHROMIUM	CR,TOT	UG/L	K	5	30.0000	.000000	30.0000	30.0000	81/11	82/08
COPPER	CU,TOT	UG/L		2	10.0000	.000000	10.0000	10.0000	82/05	82/08
			K	3	16.6667	11.5470	30.0000	10.0000	81/11	82/07
			T	5	14.0000	8.94427	30.0000	10.0000	81/11	82/08
IRON	FE,TOT	UG/L		5	1186.00	945.267	2830.00	470.000	81/11	82/08
LEAD	PB,TOT	UG/L		2	3.00000	1.41421	4.00000	2.00000	82/07	82/08
			K	3	4.00000	1.73205	5.00000	2.00000	81/11	82/05
			T	5	3.60000	1.51658	5.00000	2.00000	81/11	82/08
MANGNESE	MN	UG/L		5	424.000	124.368	590.000	275.000	81/11	82/08
NICKEL	NI,TOTAL	UG/L	K	5	64.0000	32.8634	100.000	40.0000	81/11	82/08
ZINC	ZN,TOT	UG/L		4	21.2500	9.46485	35.0000	15.0000	82/02	82/08
			K	1	30.0000		30.0000	30.0000	81/11	81/11
			T	5	23.0000	9.08295	35.0000	15.0000	81/11	82/08
ALUMINUM	AL,TOT	UG/L		1	500.000		500.000	500.000	81/11	81/11
FEC COLI	MFM-FCBR	/100ML		9	1519.78	1095.80	3100.00	173.000	81/10	82/07
PHENOLS	TOTAL	UG/L		4	23.5000	8.69866	36.0000	16.0000	81/10	82/09
RESIDUE	DISS-180	C MG/L		10	466.200	134.471	612.000	257.000	81/10	82/09
MERCURY	HG,TOTAL	UG/L	K	1	.500000		.500000	.500000	81/11	81/11

TABLE RD 1-119

STATION NUMBER 611750
40 07 14.0 082 00 00.0 2
MUSKINGUM R IN DRESDEN - SR 208
OHIO RIVER (MUSKINGUM RIVER)
MILES 0953.80 0808.80 091.30

PARAMETER			R	NO	MEAN	STAN DEV	MAXIMUM	MINIMUM	BEG	END
WATER	TEMP	CENT		11	12.9091	9.20820	26.0000	.000000	80/10	81/09
STREAM	FLOW,	INST-CFS		12	9686.58	6917.30	21980.0	2252.00	80/10	81/09
STREAM	STAGE	FEET		12	10.0800	3.12306	15.2200	6.41000	80/10	81/09
CNDUCTVY	FIELD	MICROMHO		1	750.000		750.000	750.000	81/08	81/08
CNDUCTVY	AT 25C	MICROMHO		9	656.111	166.652	898.000	418.000	80/10	81/09
DO		MG/L		10	9.33999	1.46684	12.5000	8.10000	80/10	81/09
COD	LOWLEVEL	MG/L		12	18.4167	7.20430	34.0000	10.0000	80/10	81/09
PH		SU		8	7.60625	.504617	8.20000	6.85000	80/11	81/09
LAB	PH	SU		6	7.80000	.253009	8.10000	7.40000	80/10	81/09
T ALK	CACO3	MG/L		3	136.667	61.4602	202.000	80.0000	80/11	81/03
RESIDUE	TOTAL	MG/L		2	607.000	147.078	711.000	503.000	81/07	81/08
RESIDUE	TOT NFLT	MG/L		8	79.0000	65.8895	228.000	24.0000	80/12	81/09
			K	3	10.0000	.000000	10.0000	10.0000	80/10	81/01
			T	11	60.1818	63.8574	228.000	10.0000	80/10	81/09
NH3+NH4-	N TOTAL	MG/L		7	.299999	.271661	.870000	.120000	80/11	81/07
			K	5	.050000	.000061	.050000	.050000	80/10	81/09
			T	12	.195833	.238383	.870000	.050000	80/10	81/09
NO2-N	TOTAL	MG/L		7	.024286	.007868	.040000	.020000	80/10	81/08
NO3-N	TOTAL	MG/L		12	1.56333	.463924	2.51000	.980000	80/10	81/09
TOT KJEL	N	MG/L		11	.807272	.283518	1.45000	.460000	80/10	81/09
PHOS-TOT		MG/L P		12	.167416	.060673	.270000	.077000	80/10	81/09
TOT HARD	CACO3	MG/L		3	268.666	51.9372	314.000	212.000	80/11	81/08
MGNSIUM	MG,TOT	MG/L		1	25.0000		25.0000	25.0000	80/11	80/11
CHLORIDE	TOTAL	MG/L		8	42.7500	23.8971	85.0000	5.00000	80/10	81/07
CADMIUM	CD,TOT	UG/L	K	4	5.00000	.000000	5.00000	5.00000	80/11	81/08

TABLE RD 1-119 (Continued)

STATION NUMBER 611750
40 07 14.0 082 00 00.0 2
MUSKINGUM R IN DRESDEN - SR 208
OHIO RIVER (MUSKINGUM RIVER)
MILES 0953.80 0808.80 091.30

PARAMETER			R	NO	MEAN	STAN DEV	MAXIMUM	MINIMUM	BEG	END
CHROMIUM	CR,TOT	UG/L		1	30.0000		30.0000	30.0000	81/05	81/05
			K	3	30.0000	.000000	30.0000	30.0000	80/11	81/08
			T	4	30.0000	.000000	30.0000	30.0000	80/11	81/08
COPPER	CU,TOT	UG/L	K	4	30.0000	.000000	30.0000	30.0000	80/11	81/08
IRON	FE,TOT	UG/L		4	4530.00	3729.83	9600.00	720.000	80/11	81/08
LEAD	PB,TOT	UG/L		2	7.00000	.000000	7.00000	7.00000	81/02	81/08
			K	1	5.00000		5.00000	5.00000	80/11	80/11
			T	3	6.33333	1.15472	7.00000	5.00000	80/11	81/08
MANGNESE	MN	UG/L		3	440.000	95.3939	500.000	330.000	80/11	81/08
NICKEL	NI,TOTAL	UG/L		1	100.000		100.000	100.000	81/02	81/02
			K	3	100.000	.000000	100.000	100.000	80/11	81/08
			T	4	100.000	.000000	100.000	100.000	80/11	81/08
ZINC	ZN,TOT	UG/L		3	40.0000	10.0000	50.0000	30.0000	81/02	81/08
			K	1	30.0000		30.0000	30.0000	80/11	80/11
			T	4	37.5000	9.57427	50.0000	30.0000	80/11	81/08
ALUMINUM	AL,TOT	UG/L		4	1475.00	1201.04	3100.00	200.000	80/11	81/08
FEC COLI	MFM-FCBR	/100ML		12	1466.75	1462.59	4600.00	28.0000	80/10	81/09
PHENOLS	TOTAL	UG/L		10	6.70000	2.21360	10.0000	4.00000	80/10	81/08
			K	2	11.0000	12.7279	20.0000	2.00000	81/02	81/09
			T	12	7.41667	4.64089	20.0000	2.00000	80/10	81/09
MBAS		MG/L		2	.080000	.000000	.080000	.080000	80/11	81/08
RESIDUE	DISS-180	C MG/L		8	430.625	91.4315	551.000	299.000	80/10	81/09
PHOS-T	ORTHO	MG/L P		1	.053000		.053000	.053000	81/08	81/08
T ACDITY	HOT-MG/L	CACO3	K	2	10.0000	.000000	10.0000	10.0000	81/02	81/03
MERCURY	HG,TOTAL	UG/L	K	3	.500000	.000000	.500000	.500000	80/11	81/08

TABLE RD 1-120

STATION NUMBER 611750
40 07 14.0 082 00 00.0 2
MUSKINGUM R IN DRESDEN - SR 208
OHIO RIVER (MUSKINGUM RIVER)
MILES 0953.80 0808.80 091.30

No data were collected from 10/81 - 9/82.

TABLED RD 1-121

STATION NUMBER 611850
40 46 27.0 081 23 26.0 2
HURFORD RUN AT CANTON - CHURCH ST
OHIO RIVER (MUSKINGUM RIVER)
MILES 0953.80 0808.80 110.20 070.50 007.90 012.00 00.20

PARAMETER			R	NO	MEAN	STAN DEV	MAXIMUM	MINIMUM	BEG	END
WATER	TEMP	CENT		3	8.00000	1.73205	9.00000	6.00000	80/11	81/05
CNDUCTVY	FIELD	MICROMHO		2	1049.00	383.252	1320.00	778.000	80/11	81/05
CNDUCTVY	AT 25C	MICROMHO		2	1263.00	250.316	1440.00	1086.00	81/02	81/05
DO		MG/L		3	9.66666	.862282	10.6000	8.90000	80/11	81/05
COD	LOWLEVEL	MG/L		3	11.3333	3.05508	14.0000	8.00000	80/11	81/05
LAB	PH	SU		3	7.40000	.400081	7.80000	7.00000	80/11	81/05
RESIDUE	TOT NFLT	MG/L		2	11.5000	.707107	12.0000	11.0000	81/02	81/05
			K	1	10.0000		10.0000	10.0000	80/11	80/11
			T	3	11.0000	1.00000	12.0000	10.0000	80/11	81/05
NH3+NH4-	N TOTAL	MG/L		3	3.53333	3.87531	7.73000	.090000	80/11	81/05
NO2-N	TOTAL	MG/L		2	.160000	.084853	.220000	.100000	80/11	81/02
NO3-N	TOTAL	MG/L		3	1.21667	.323470	1.59000	1.02000	80/11	81/05
TOT KJEL	N	MG/L		3	4.13000	4.11530	8.65000	.600000	80/11	81/05
PHOS-TOT		MG/L P		3	.078000	.010536	.088000	.067000	80/11	81/05
CYANIDE	CN-TOT	MG/L	K	3	.010000	.000000	.010000	.010000	80/11	81/05
TOT HARD	CACO3	MG/L		2	386.000	42.4264	416.000	356.000	81/02	81/05
CALCIUM	CA-TOT	MG/L		1	142.000		142.000	142.000	80/11	80/11
SODIUM	NA,TOT	MG/L		1	119.000		119.000	119.000	81/02	81/02
CHLORIDE	TOTAL	MG/L		3	199.667	60.3355	256.000	136.000	80/11	81/05
FLUORIDE	F,TOTAL	MG/L		3	1.78333	1.64056	3.60000	.410000	80/11	81/05
CADMIUM	CD,TOT	UG/L	K	3	5.00000	.000000	5.00000	5.00000	80/11	81/05
CHROMIUM	CR,TOT	UG/L		2	85.0000	21.2132	100.000	70.0000	80/11	81/02
			K	1	30.0000		30.0000	30.0000	81/05	81/05
			T	3	66.6667	35.1189	100.000	30.0000	80/11	81/05
COPPER	CU,TOT	UG/L		2	40.0000	14.1421	50.0000	30.0000	81/02	81/05
			K	1	30.0000		30.0000	30.0000	80/11	80/11
			T	3	36.6667	11.5471	50.0000	30.0000	80/11	81/05
IRON	FE,TOT	UG/L		3	1770.00	820.549	2530.00	900.000	80/11	81/05
LEAD	PB,TOT	UG/L		2	21.5000	6.36396	26.0000	17.0000	81/02	81/05
			K	1	5.00000		5.00000	5.00000	80/11	80/11
			T	3	16.0000	10.5357	26.0000	5.00000	80/11	81/05
MANGNESE	MN	UG/L		1	630.000		630.000	630.000	81/02	81/02
NICKEL	NI,TOTAL	UG/L		3	200.000	.000000	200.000	200.000	80/11	81/05
ZINC	ZN,TOT	UG/L		3	66.6667	15.2753	80.0000	50.0000	80/11	81/05
FEC COLI	MFM-FCBR	/100ML		2	320.000	311.127	540.000	100.000	80/11	81/05
FECSTREP	MF M-ENT	/100ML		2	700.000	565.686	1100.00	300.000	80/11	81/05
PHENOLS	TOTAL	UG/L		3	11.0000	3.46410	15.0000	9.00000	80/11	81/05
MBAS		MG/L		1	.170000		.170000	.170000	81/05	81/05
RESIDUE	DISS-180	C MG/L		3	872.666	218.197	1096.00	660.000	80/11	81/05
MERCURY	HG,TOTAL	UG/L	K	2	.500000	.000000	.500000	.500000	80/11	81/05

TABLED RD 1-122

STATION NUMBER 611850
40 46 27.0 081 23 26.0 2
HURFORD RUN AT CANTON - CHURCH ST
OHIO RIVER (MUSKINGUM RIVER)
MILES 0953.80 0808.80 110.20 070.50 007.90 012.00 00.20

No data were collected from 10/81 - 9/82.

TABLE RD 1-123

STATION NUMBER 601880
40 45 19.0 081 57 26.0 2
KILLBUCK CREEK BELOW WOOSTER - WILLOW RD
OHIO RIVER (MUSKINGUM RIVER)
MILES 0953.80 0808.80 110.20 007.30 044.76

PARAMETER			R	NO	MEAN	STAN DEV	MAXIMUM	MINIMUM	BEG	END
WATER	TEMP	CENT		4	11.5000	9.74679	21.0000	.000000	80/12	81/08
CNDUCTVY	AT 25C	MICROMHO		2	610.000	141.421	710.000	510.000	81/07	81/08
INTNSVE	SURVEY	IDENT		2	813915	.000000	813915	813915	81/07	81/08
DO	PROBE	MG/L		2	4.90000	.282819	5.10000	4.70000	81/07	81/08
DO		MG/L		2	10.5500	1.34357	11.5000	9.60000	80/12	81/04
BOD	5 DAY	MG/L		2	6.45000	3.88909	9.20000	3.70000	81/07	81/08
COD	LOWLEVEL	MG/L		4	17.5000	6.13732	25.0000	12.0000	80/12	81/08
PH		SU		1	7.60000		7.60000	7.60000	81/08	81/08
LAB	PH	SU		2	7.64000	.056472	7.68000	7.60000	81/04	81/07
RESIDUE	TOT NFLT	MG/L		3	48.3333	35.4869	86.3000	16.0000	81/04	81/08
NH3+NH4-	N TOTAL	MG/L		3	1.04000	.596576	1.66000	.470000	80/12	81/08
NO2-N	TOTAL	MG/L		2	.140000	.070711	.190000	.090000	81/07	81/08
NO3-N	TOTAL	MG/L		2	1.31000	.339410	1.55000	1.07000	81/07	81/08
TOT KJEL	N	MG/L		2	1.75000	.777818	2.30000	1.20000	81/07	81/08
PHOS-TOT		MG/L P		2	.770000	.678823	1.25000	.290000	81/07	81/08
TOT HARD	CACO3	MG/L		2	260.000	32.5269	283.000	237.000	81/07	81/08
CALCIUM	CA-TOT	MG/L		2	69.3000	9.47530	76.0000	62.6000	81/07	81/08
MGNSIUM	MG,TOT	MG/L		2	21.1500	2.05063	22.6000	19.7000	81/07	81/08
CADMIUM	CD,TOT	UG/L	K	2	.500000	.000000	.500000	.500000	81/07	81/08
CHROMIUM	CR,TOT	UG/L	K	2	30.0000	.000000	30.0000	30.0000	81/07	81/08
COPPER	CU,TOT	UG/L	K	2	10.0000	.000000	10.0000	10.0000	81/07	81/08
IRON	FE,TOT	UG/L		3	2486.67	1641.63	4260.00	1020.00	80/12	81/08
LEAD	PB,TOT	UG/L		1	7.00000		7.00000	7.00000	81/07	81/07
			K	1	5.00000		5.00000	5.00000	81/08	81/08
			T	2	6.00000	1.41421	7.00000	5.00000	81/07	81/08
NICKEL	NI,TOTAL	UG/L	K	2	40.0000	.000000	40.0000	40.0000	81/07	81/08
ZINC	ZN,TOT	UG/L		1	15.0000		15.0000	15.0000	81/07	81/07
			K	1	10.0000		10.0000	10.0000	81/08	81/08
			T	2	12.5000	3.53553	15.0000	10.0000	81/07	81/08
FEC COLI	MFM-FCBR	/100ML		3	2706.67	3982.48	7300.00	220.000	81/04	81/08
FECSTREP	MF M-ENT	/100ML		3	3513.33	4844.65	9100.00	470.000	81/04	81/08
PHENOLS	TOTAL	UG/L		1	17.0000		17.0000	17.0000	80/12	80/12
RESIDUE	DISS-180	C MG/L		3	371.900	74.4142	453.600	308.000	81/04	81/08

TABLE RD 1-124

STATION NUMBER 601880
40 45 19.0 081 57 26.0 2
KILLBUCK CREEK BELOW WOOSTER - WILLOW RD
OHIO RIVER (MUSKINGUM RIVER)
MILES 0953.80 0808.80 110.20 007.30 044.76

No data were collected from 10/81 - 9/82.

TABLE RD 1-125

STATION NUMBER 601770
40 03 33.0 082 20 23.0 2
LICKING R NR NEWARK - SR 16 (STADDEN BRIDGE)
OHIO RIVER 050491 (MUSKINGUM RIVER)
MILES 0953.80 0808.80 078.30 025.60

PARAMETER			R	NO	MEAN	STAN DEV	MAXIMUM	MINIMUM	BEG	END
WATER	TEMP	CENT		15	11.5400	7.73922	23.5000	.000000	80/10	81/09
STREAM	FLOW,	INST-CFS		11	872.709	662.736	2044.00	208.200	80/10	81/09
STREAM	STAGE	FEET		11	4.20545	.930527	5.83000	3.22000	80/10	81/09
CNDUCTVY	FIELD	MICROMHO		12	441.833	177.348	800.000	250.000	80/10	81/09
CNDUCTVY	AT 25C	MICROMHO		5	755.000	128.695	880.000	545.000	81/07	81/08
INTNSVE	SURVEY	IDENT		6	813903	.000000	813903	813903	81/07	81/08
DO	PROBE	MG/L		6	6.76666	.918000	7.80000	5.50000	81/07	81/08
DO		MG/L		12	10.4333	2.72909	14.6000	7.00000	80/10	81/09
BOD	5 DAY	MG/L		8	5.29375	2.37790	9.47000	3.00000	81/04	81/09
COD	LOWLEVEL	MG/L		18	20.6111	10.9660	47.0000	6.00000	80/10	81/09
PH		SU		11	7.89999	.228093	8.30000	7.40000	80/10	81/09
LAB	PH	SU		5	7.78800	.195936	7.97000	7.47000	81/07	81/08
RESIDUE	TOTAL	MG/L		1	526.800		526.800	526.800	81/08	81/08
RESIDUE	TOT NFLT	MG/L		14	53.8071	56.0010	201.000	16.0000	80/10	81/09
			K	3	10.0000	.000000	10.0000	10.0000	80/12	81/03
			T	17	46.0764	53.3331	201.000	10.0000	80/10	81/09
NH3+NH4-	N TOTAL	MG/L		18	1.24778	.943501	3.24000	.180000	80/10	81/09
NO2-N	TOTAL	MG/L		17	.124706	.121456	.500000	.010000	80/10	81/09
NO3-N	TOTAL	MG/L		18	1.95166	.923622	3.41000	.570000	80/10	81/09
TOT KJEL	N	MG/L		18	2.31389	1.17448	5.16000	1.07000	80/10	81/09
PHOS-TOT		MG/L P		18	.263611	.239229	1.09500	.077000	80/10	81/09
CYANIDE	CN-TOT	MG/L	K	4	.010000	.000000	.010000	.010000	80/12	81/09
TOT HARD	CACO3	MG/L		10	288.680	42.6801	340.000	202.000	80/12	81/09
CALCIUM	CA-TOT	MG/L		6	78.0333	8.92919	87.7000	66.5000	81/07	81/08
MGNSIUM	MG,TOT	MG/L		6	25.3000	3.63706	29.3000	19.9000	81/07	81/08
CHLORIDE	TOTAL	MG/L		13	44.1692	18.0039	74.2000	21.0000	80/10	81/09
SULFATE	SO4-TOT	MG/L		17	62.0764	18.9146	88.0000	24.3000	80/10	81/09
CADMIUM	CD,TOT	UG/L	K	10	2.35000	2.28583	5.00000	.500000	80/12	81/09

TABLE RD 1-125 (Continued)

STATION NUMBER 601770
40 03 33.0 082 20 23.0 2
LICKING R NR NEWARK - SR 16 (STADDEN BRIDGE)
OHIO RIVER 050491 (MUSKINGUM RIVER)
MILES 0953.80 0808.80 078.30 025.60

PARAMETER			R	NO	MEAN	STAN DEV	MAXIMUM	MINIMUM	BEG	END
CHROMIUM	CR,TOT	UG/L		1	20.0000		20.0000	20.0000	81/08	81/08
			K	9	30.0000	.000000	30.0000	30.0000	80/12	81/09
			T	10	29.0000	3.16228	30.0000	20.0000	80/12	81/09
COPPER	CU,TOT	UG/L		6	16.6667	6.83133	30.0000	10.0000	81/07	81/09
			K	4	25.0000	10.0000	30.0000	10.0000	80/12	81/07
			T	10	20.0000	8.81917	30.0000	10.0000	80/12	81/09
IRON	FE,TOT	UG/L		10	2636.00	2739.30	8300.00	290.000	80/12	81/09
LEAD	PB,TOT	UG/L		3	14.6667	14.1539	31.0000	6.00000	81/06	81/08
			K	7	5.00000	.000000	5.00000	5.00000	80/12	81/09
			T	10	7.90000	8.14385	31.0000	5.00000	80/12	81/09
MANGNESE	MN	UG/L		4	127.500	12.5831	140.000	110.000	81/07	81/08
NICKEL	NI,TOTAL	UG/L		3	83.3333	28.8675	100.000	50.0000	80/12	81/09
			K	7	55.7143	30.4725	100.000	30.0000	81/03	81/08
NICKEL	NI,TOTAL	UG/L	T	10	64.0000	31.3404	100.000	30.0000	80/12	81/09
ZINC	ZN,TOT	UG/L		9	31.6667	16.2019	60.0000	15.0000	80/12	81/09
			K	1	30.0000		30.0000	30.0000	81/03	81/03
			T	10	31.5000	15.2843	60.0000	15.0000	80/12	81/09
ALUMINUM	AL,TOT	UG/L		4	1150.00	723.418	2000.00	500.000	81/07	81/08
FEC COLI	MFM-FCBR	/100ML		14	3672.71	3871.82	13000.0	36.0000	80/10	81/09
			L	1	48000.0		48000.0	48000.0	80/12	80/12
			T	15	6627.86	12038.0	48000.0	36.0000	80/10	81/09
PHENOLS	TOTAL	UG/L		11	9.09091	11.1665	39.0000	2.00000	80/10	81/08
			K	6	2.00000	.000000	2.00000	2.00000	81/02	81/09
			T	17	6.58823	9.49381	39.0000	2.00000	80/10	81/09
RESIDUE	DISS-180	C MG/L		5	471.080	91.6133	564.200	327.800	81/07	81/08
MERCURY	HG,TOTAL	UG/L		1	.600000		.600000	.600000	81/06	81/06
			K	3	.500000	.000000	.500000	.500000	80/12	81/09
			T	4	.525000	.050002	.600000	.500000	80/12	81/09

TABLE RD 1-126

STATION NUMBER 601770
40 03 33.0 082 20 23.0 2
LICKING R NR NEWARK - SR 16 (STADDEN BRIDGE)
OHIO RIVER 050491 (MUSKINGUM RIVER)
MILES 0953.80 0808.80 078.30 025.60

PARAMETER			R	NO	MEAN	STAN DEV	MAXIMUM	MINIMUM	BEG	END
WATER	TEMP	CENT		24	16.3271	6.26372	24.0000	.000000	81/10	82/09
STREAM	FLOW	CFS		5	616.060	543.030	1481.00	77.2000	81/12	82/08
STREAM	FLOW,	INST-CFS		23	176.130	158.908	715.900	63.0000	81/11	82/09
STREAM	STAGE	FEET		9	3.68111	.583424	4.87000	3.00000	81/11	82/09
CNDUCTVY	FIELD	MICROMHO		12	547.916	222.655	950.000	300.000	81/10	82/09
INTNSVE	SURVEY	IDENT		1	813903		813903	813903	81/10	81/10
DO	PROBE	MG/L		23	8.64999	2.79399	16.8000	3.90000	81/10	82/09
DO		MG/L		1	12.4000		12.4000	12.4000	81/11	81/11
BOD	5 DAY	MG/L		17	7.28235	3.44134	16.5000	3.00000	81/10	82/09
			K	1	1.00000		1.00000	1.00000	82/04	82/04
			T	18	6.93333	3.65224	16.5000	1.00000	81/10	82/09
BOD	20 DAY	MG/L		6	21.2167	9.43068	33.9000	11.9000	82/06	82/09
COD	LOWLEVEL	MG/L		7	21.0000	8.36660	32.0000	6.00000	81/10	82/03
PH		SU		23	7.98478	.229107	8.50000	7.30000	81/10	82/09
LAB	PH	SU		4	7.94750	.181392	8.14000	7.76000	81/10	82/09
RESIDUE	TOT NFLT	MG/L		11	21.2818	18.1089	65.0000	5.00000	81/10	82/09
			K	1	10.0000		10.0000	10.0000	81/10	81/10
			T	12	20.3417	17.5707	65.0000	5.00000	81/10	82/09
NH3+NH4-	N TOTAL	MG/L		18	2.11722	1.32482	4.60000	.280000	81/10	82/09
NO2-N	TOTAL	MG/L		17	.141176	.111124	.360000	.020000	81/10	82/09
			K	1	.020000		.020000	.020000	82/04	82/04
			T	18	.134444	.111526	.360000	.020000	81/10	82/09
NO3-N	TOTAL	MG/L		19	1.57210	1.62466	7.90000	.210000	81/10	82/09
TOT KJEL	N	MG/L		18	3.22500	1.70986	6.50000	.900000	81/10	82/09
PHOS-TOT		MG/L P		18	.370611	.297127	1.23000	.050000	81/10	82/09
CYANIDE	CN-TOT	MG/L		2	.006500	.002121	.008000	.005000	82/06	82/06
TOT HARD	CACO3	MG/L		8	293.875	55.2253	354.000	208.000	81/10	82/09

TABLE RD 1-126 (Continued)

STATION NUMBER 601770
40 03 33.0 082 20 23.0 2
LICKING R NR NEWARK - SR 16 (STADDEN BRIDGE)
OHIO RIVER 050491 (MUSKINGUM RIVER)
MILES 0953.80 0808.80 078.30 025.60

PARAMETER			R	NO	MEAN	STAN DEV	MAXIMUM	MINIMUM	BEG	END
CALCIUM	CA-TOT	MG/L		7	78.9285	11.5238	91.8000	55.5000	81/10	82/09
MGNSIUM	MG,TOT	MG/L		7	26.4714	4.31220	30.3000	17.7000	81/10	82/09
CHLORIDE	TOTAL	MG/L		3	55.6667	21.3854	69.0000	31.0000	81/10	81/11
SULFATE	SO4-TOT	MG/L		4	74.1750	24.7842	95.0000	46.0000	81/10	82/09
CADMIUM	CD,TOT	UG/L		1	.500000		.500000	.500000	82/03	82/03
			K	6	.500000	.000000	.500000	.500000	81/10	82/09
			T	7	.500000	.000000	.500000	.500000	81/10	82/09
CHROMIUM	CR,TOT	UG/L	K	7	30.0000	.000000	30.0000	30.0000	81/10	82/09
COPPER	CU,TOT	UG/L		4	16.2500	2.50000	20.0000	15.0000	81/12	82/06
			K	3	10.0000	.000000	10.0000	10.0000	81/10	82/09
			T	7	13.5714	3.77965	20.0000	10.0000	81/10	82/09
IRON	FE,TOT	UG/L		7	1184.29	901.016	3100.00	380.000	81/10	82/09
LEAD	PB,TOT	UG/L		3	3.33333	.577359	4.00000	3.00000	82/06	82/09
			K	4	4.25000	1.50000	5.00000	2.00000	81/10	82/06
LEAD	PB,TOT	UG/L	T	7	3.85714	1.21499	5.00000	2.00000	81/10	82/09
MANGNESE	MN	UG/L		1	90.0000		90.0000	90.0000	81/10	81/10
NICKEL	NI,TOTAL	UG/L	K	7	37.1428	4.87974	40.0000	30.0000	81/10	82/09
ZINC	ZN,TOT	UG/L		7	26.4286	8.99743	40.0000	15.0000	81/10	82/09
ALUMINUM	AL,TOT	UG/L		1	300.000		300.000	300.000	81/10	81/10
FEC COLI	MFM-FCBR	/100ML		5	402.400	491.448	1275.00	117.000	81/10	82/07
PHENOLS	TOTAL	UG/L		2	5.50000	3.53553	8.00000	3.00000	81/10	82/06
			K	5	5.80000	4.02493	10.0000	2.00000	81/10	82/09
			T	7	5.71428	3.59232	10.0000	2.00000	81/10	82/09
RESIDUE	DISS-180	C MG/L		3	517.000	28.6182	547.000	490.000	81/10	82/06
BOD 20C	5DAY CAR	MG/L		6	2.60000	.501998	3.20000	2.00000	82/06	82/09
BOD 20C	20DAYCAR	MG/L		6	7.13333	1.70139	9.10000	5.20000	82/06	82/09

TABLE RD 1-127

STATION NUMBER 601870
40 31 20.0 082 11 45.0 2
MOHICAN RIVER AT GREER - SR 514
OHIO RIVER (MUSKINGUM RIVER)
MILES 0953.80 0808.80 110.20 023.30 016.60

PARAMETER			R	NO	MEAN	STAN DEV	MAXIMUM	MINIMUM	BEG	END
WATER	TEMP	CENT		11	12.6364	8.78946	25.0000	1.00000	80/10	81/09
STREAM	FLOW,	INST-CFS		10	1043.21	891.900	2831.00	200.000	80/10	81/08
STREAM	STAGE	FEET		10	2.31500	.777304	3.78000	1.36000	80/10	81/09
CNDUCTVY	FIELD	MICROMHO		1	390.000		390.000	390.000	81/07	81/07
CNDUCTVY	AT 25C	MICROMHO		9	462.889	77.2545	600.000	370.000	80/10	81/09
DO		MG/L		11	9.59999	1.61557	12.0000	6.90000	80/10	81/09
COD	LOWLEVEL	MG/L		11	20.1818	17.5660	67.0000	4.00000	80/11	81/09
			K	1	4.00000		4.00000	4.00000	80/10	80/10
			T	12	18.8333	17.3877	67.0000	4.00000	80/10	81/09
PH		SU		8	7.97499	.337039	8.40000	7.40000	80/10	81/09
LAB	PH	SU		5	7.79999	.187500	8.10000	7.60000	81/01	81/06
RESIDUE	TOTAL	MG/L		1	334.000		334.000	334.000	81/08	81/08
RESIDUE	TOT NFLT	MG/L		10	39.6000	26.0862	99.0000	12.0000	80/10	81/09
			K	2	10.0000	.000000	10.0000	10.0000	80/11	81/01
			T	12	34.6667	26.2586	99.0000	10.0000	80/10	81/09
NH3+NH4-	N TOTAL	MG/L		9	.188889	.160035	.560000	.050000	80/11	81/09
			K	3	.050000	.000075	.050000	.050000	80/10	81/08
			T	12	.154166	.150240	.560000	.050000	80/10	81/09
NO2-N	TOTAL	MG/L		11	.030000	.022361	.070000	.010000	80/10	81/08
NO3-N	TOTAL	MG/L		12	1.95916	.809202	3.77000	.870000	80/10	81/09
TOT KJEL	N	MG/L		12	.817500	.222348	1.05000	.370000	80/10	81/09
PHOS-TOT		MG/L P		12	.206083	.072282	.360000	.102000	80/10	81/09
CYANIDE	CN-TOT	MG/L	K	1	.010000		.010000	.010000	81/02	81/02
TOT HARD	CACO3	MG/L		5	208.400	27.3647	240.000	174.000	80/11	81/08
CHLORIDE	TOTAL	MG/L		2	27.5000	9.19239	34.0000	21.0000	81/06	81/07
SULFATE	SO4-TOT	MG/L		1	44.0000		44.0000	44.0000	81/02	81/02
CADMIUM	CD,TOT	UG/L	K	5	5.00000	.000000	5.00000	5.00000	80/11	81/08

TABLE RD 1-127 (Continued)

STATION NUMBER 601870
40 31 20.0 082 11 45.0 2
MOHICAN RIVER AT GREER - SR 514
OHIO RIVER (MUSKINGUM RIVER)
MILES 0953.80 0808.80 110.20 023.30 016.60

PARAMETER			R	NO	MEAN	STAN DEV	MAXIMUM	MINIMUM	BEG	END
CHROMIUM	CR,TOT	UG/L		1	30.0000		30.0000	30.0000	80/11	80/11
			K	4	30.0000	.000000	30.0000	30.0000	81/02	81/08
			T	5	30.0000	.000000	30.0000	30.0000	80/11	81/08
COPPER	CU,TOT	UG/L		1	30.0000		30.0000	30.0000	80/11	80/11
			K	4	30.0000	.000000	30.0000	30.0000	81/02	81/08
			T	5	30.0000	.000000	30.0000	30.0000	80/11	81/08
IRON	FE,TOT	UG/L		5	1690.00	1098.66	3300.00	310.000	80/11	81/08
LEAD	PB,TOT	UG/L		2	7.00000	1.41421	8.00000	6.00000	80/11	81/06
			K	2	5.00000	.000000	5.00000	5.00000	81/02	81/08
			T	4	6.00000	1.41421	8.00000	5.00000	80/11	81/08
MANGNESE	MN	UG/L		2	185.000	162.635	300.000	70.0000	80/11	81/06
NICKEL	NI,TOTAL	UG/L		3	100.000	.000000	100.000	100.000	80/11	81/08
			K	2	100.000	.000000	100.000	100.000	81/02	81/05
			T	5	100.000	.000000	100.000	100.000	80/11	81/08
ZINC	ZN,TOT	UG/L		4	62.5000	37.7492	100.000	30.0000	80/11	81/08
			K	1	30.0000		30.0000	30.0000	81/02	81/02
			T	5	56.0000	35.7771	100.000	30.0000	80/11	81/08
ALUMINUM	AL,TOT	UG/L		2	1000.00	565.686	1400.00	600.000	81/05	81/06
FEC COLI	MFM-FCBR	/100ML		10	1741.00	2575.39	8600.00	270.000	80/10	81/08
			K	1	57.0000		57.0000	57.0000	81/04	81/04
			T	11	1587.91	2495.43	8600.00	57.0000	80/10	81/08
PHENOLS	TOTAL	UG/L		2	6.00000	.000000	6.00000	6.00000	80/11	81/05
			K	3	8.00000	10.3923	20.0000	2.00000	81/02	81/09
			T	5	7.20000	7.42967	20.0000	2.00000	80/11	81/09
RESIDUE	DISS-180	C MG/L		11	278.636	40.6367	362.000	222.000	80/10	81/09
MERCURY	HG,TOTAL	UG/L	K	3	.500000	.000000	.500000	.500000	80/11	81/08

TABLE RD 1-128

STATION NUMBER 601870
40 31 20.0 082 11 45.0 2
MOHICAN RIVER AT GREER - SR 514
OHIO RIVER (MUSKINGUM RIVER)
MILES 0953.80 0808.80 110.20 023.30 016.60

PARAMETER			R	NO	MEAN	STAN DEV	MAXIMUM	MINIMUM	BEG	END
WATER	TEMP	CENT		11	12.3364	7.88940	24.2000	.000000	81/10	82/09
STREAM	FLOW,	INST-CFS		9	1068.33	1310.43	3821.00	112.500	81/10	82/09
STREAM	STAGE	FEET		9	2.27666	1.11955	4.55000	1.24000	81/10	82/09
CNDUCTVY	FIELD	MICROMHO		9	346.889	102.601	490.000	210.000	82/01	82/09
CNDUCTVY	AT 25C	MICROMHO		2	531.500	21.9203	547.000	516.000	81/10	81/11
DO	PROBE	MG/L		9	9.85555	1.94752	13.5000	8.10000	82/01	82/09
DO		MG/L		1	9.90000		9.90000	9.90000	81/10	81/10
BOD	5 DAY	MG/L		6	4.24999	4.31452	13.0000	1.90000	82/01	82/08
			K	1	1.00000		1.00000	1.00000	82/04	82/04
			T	7	3.78571	4.12571	13.0000	1.00000	82/01	82/08
COD	LOWLEVEL	MG/L		5	25.4800	15.7814	49.4000	10.0000	81/10	82/03
PH		SU		10	7.96000	.313410	8.50000	7.50000	81/10	82/09
LAB	PH	SU		3	8.05999	.055174	8.10000	8.00000	81/10	82/07
T ALK	CACO3	MG/L		1	164.000		164.000	164.000	82/09	82/09
RESIDUE	TOT NFLT	MG/L		7	47.8571	70.0629	204.000	5.00000	82/03	82/09
			K	2	10.0000	.000000	10.0000	10.0000	81/10	81/11
			T	9	39.4444	62.9308	204.000	5.00000	81/10	82/09
NH3+NH4-	N TOTAL	MG/L		6	.241666	.210088	.530000	.060000	81/10	82/09
			K	5	.050000	.000061	.050000	.050000	81/11	82/08
			T	11	.154545	.179129	.530000	.050000	81/10	82/09
NO2-N	TOTAL	MG/L		6	.040000	.036332	.100000	.010000	81/10	82/06
			K	2	.020000	.000000	.020000	.020000	82/08	82/09
			T	8	.035000	.032071	.100000	.010000	81/10	82/09
NO3-N	TOTAL	MG/L		11	1.27636	.624712	2.44000	.240000	81/10	82/09
TOT KJEL	N	MG/L		11	.751818	.494910	2.10000	.300000	81/10	82/09
PHOS-TOT		MG/L P		11	.206727	.136899	.600000	.100000	81/10	82/09
TOT HARD	CACO3	MG/L		4	214.250	51.7325	246.000	137.000	81/11	82/09

TABLE RD 1-128 (Continued)

STATION NUMBER 601870
40 31 20.0 082 11 45.0 2
MOHICAN RIVER AT GREER - SR 514
OHIO RIVER (MUSKINGUM RIVER)
MILES 0953.80 0808.80 110.20 023.30 016.60

PARAMETER			R	NO	MEAN	STAN DEV	MAXIMUM	MINIMUM	BEG	END
CALCIUM	CA-TOT	MG/L		3	54.7000	15.4182	63.9000	36.9000	82/03	82/09
MGNSIUM	MG,TOT	MG/L		3	17.2666	5.55191	21.1000	10.9000	82/03	82/09
CHLORIDE	TOTAL	MG/L		2	33.0000	5.65685	37.0000	29.0000	81/11	82/09
CADMIUM	CD,TOT	UG/L		1	2.70000		2.70000	2.70000	82/03	82/03
			K	3	2.00000	2.59808	5.00000	.500000	81/11	82/09
			T	4	2.17500	2.15000	5.00000	.500000	81/11	82/09
CHROMIUM	CR,TOT	UG/L	K	4	30.0000	.000000	30.0000	30.0000	81/11	82/09
COPPER	CU,TOT	UG/L		2	12.5000	3.53553	15.0000	10.0000	82/03	82/09
			K	2	20.0000	14.1421	30.0000	10.0000	81/11	82/06
			T	4	16.2500	9.46485	30.0000	10.0000	81/11	82/09
IRON	FE,TOT	UG/L		4	2337.50	2857.66	6470.00	350.000	81/11	82/09
LEAD	PB,TOT	UG/L		3	5.33333	.577359	6.00000	5.00000	82/03	82/09
			K	1	5.00000		5.00000	5.00000	81/11	81/11
			T	4	5.25000	.500000	6.00000	5.00000	81/11	82/09
MANGNESE	MN	UG/L		1	110.000		110.000	110.000	81/11	81/11
NICKEL	NI,TOTAL	UG/L	K	4	52.5000	32.0156	100.000	30.0000	81/11	82/09
ZINC	ZN,TOT	UG/L		3	35.0000	10.0000	45.0000	25.0000	82/03	82/09
			K	1	30.0000		30.0000	30.0000	81/11	81/11
			T	4	33.7500	8.53913	45.0000	25.0000	81/11	82/09
ALUMINUM	AL,TOT	UG/L		1	300.000		300.000	300.000	81/11	81/11
FEC COLI	MFM-FCBR	/100ML		6	4608.83	10243.4	25500.0	80.0000	81/10	82/07
PHENOLS	TOTAL	UG/L		1	3.00000		3.00000	3.00000	81/10	81/10
			K	2	6.00000	5.65685	10.0000	2.00000	81/11	82/08
			T	3	5.00000	4.35890	10.0000	2.00000	81/10	82/08
RESIDUE	DISS-180	C MG/L		2	271.000	38.1838	298.000	244.000	81/11	82/03
MERCURY	HG,TOTAL	UG/L	K	1	.500000		.500000	.500000	81/11	81/11
EXCESS	ALKALNTY	MG/L		1	164.000		164.000	164.000	82/09	82/09

TABLE RD 1-129

STATION NUMBER 601940
40 44 03.0 081 21 08.0 2
NIMISHILLEN CREEK AT N. INDUSTRY - CHEYENNE ST
OHIO RIVER (MUSKINGUM RIVER)
MILES 0953.80 0808.80 110.20 070.50 007.90 008.20

PARAMETER			R	NO	MEAN	STAN DEV	MAXIMUM	MINIMUM	BEG	END
WATER	TEMP	CENT		11	8.31818	8.34947	22.0000	-.300E+01	80/10	81/08
STREAM	FLOW,	INST-CFS		10	235.500	83.4908	377.000	123.000	80/10	81/08
STREAM	STAGE	FEET		10	1.77200	.291559	2.25000	1.35000	80/10	81/08
CNDUCTVY	FIELD	MICROMHO		6	827.000	185.799	1100.00	648.000	80/10	81/07
CNDUCTVY	AT 25C	MICROMHO		5	1007.20	270.809	1410.00	700.000	81/01	81/08
DO		MG/L		11	9.29999	2.94450	14.2000	5.50000	80/10	81/08
COD	LOWLEVEL	MG/L		10	36.2000	22.0495	83.0000	14.0000	80/10	81/07
			K	1	6.00000		6.00000	6.00000	81/08	81/08
			T	11	33.4545	22.8139	83.0000	6.00000	80/10	81/08
PH		SU		1	7.80000		7.80000	7.80000	81/08	81/08
LAB	PH	SU		9	7.57777	.248960	7.90000	7.10000	80/11	81/07
RESIDUE	TOT NFLT	MG/L		10	44.7000	49.5402	129.000	10.0000	80/10	81/08
			K	1	10.0000		10.0000	10.0000	81/01	81/01
			T	11	41.5454	48.1485	129.000	10.0000	80/10	81/08
NH3+NH4-	N TOTAL	MG/L		11	2.52181	1.74768	6.04000	.480000	80/10	81/08
NO2-N	TOTAL	MG/L		9	.224444	.108411	.420000	.070000	80/10	81/08
NO3-N	TOTAL	MG/L		11	3.42181	1.36586	6.88000	1.74000	80/10	81/08
TOT KJEL	N	MG/L		11	3.81545	1.89626	7.80000	1.88000	80/10	81/08
PHOS-TOT		MG/L P		11	.682909	.302921	1.31000	.189000	80/10	81/08
CYANIDE	CN-TOT	MG/L		1	.020000		.020000	.020000	81/04	81/04
			K	9	.010000	.000008	.010000	.010000	80/10	81/08
			T	10	.011000	.003162	.020000	.010000	80/10	81/08
TOT HARD	CACO3	MG/L		4	345.250	28.8603	372.000	316.000	80/12	81/08
CALCIUM	CA-TOT	MG/L		1	144.000		144.000	144.000	80/11	80/11
SODIUM	NA,TOT	MG/L		1	71.0000		71.0000	71.0000	81/02	81/02
CHLORIDE	TOTAL	MG/L		8	119.500	32.3154	171.000	75.0000	80/11	81/07

TABLE RD 1-129 (Continued)

STATION NUMBER 601940
40 44 03.0 081 21 08.0 2
NIMISHILLEN CREEK AT N. INDUSTRY - CHEYENNE ST
OHIO RIVER (MUSKINGUM RIVER)
MILES 0953.80 0808.80 110.20 070.50 007.90 008.20

PARAMETER			R	NO	MEAN	STAN DEV	MAXIMUM	MINIMUM	BEG	END
SULFATE	SO4-TOT	MG/L		1	110.000		110.000	110.000	81/07	81/07
FLUORIDE	F,TOTAL	MG/L		6	.761666	.184003	1.05000	.510000	80/10	81/07
ARSENIC	AS,TOT	UG/L	K	1	20.0000		20.0000	20.0000	80/12	80/12
BARIUM	BA,TOT	UG/L		1	300.000		300.000	300.000	81/07	81/07
CADMIUM	CD,TOT	UG/L	K	5	5.00000	.000000	5.00000	5.00000	80/11	81/08
CHROMIUM	HEX-VAL	UG/L		1	272.000		272.000	272.000	81/06	81/06
			K	1	30.0000		30.0000	30.0000	80/12	80/12
			T	2	151.000	171.120	272.000	30.0000	80/12	81/06
CHROMIUM	CR,TOT	UG/L		6	35.0000	8.36660	50.0000	30.0000	80/11	81/08
COPPER	CU,TOT	UG/L	K	5	30.0000	.000000	30.0000	30.0000	80/11	81/08
IRON	FE,TOT	UG/L		11	2862.73	2424.00	6500.00	770.000	80/10	81/08
LEAD	PB,TOT	UG/L		4	10.0000	6.78233	20.0000	5.00000	80/12	81/08
			K	1	5.00000		5.00000	5.00000	80/11	80/11
			T	5	9.00000	6.28490	20.0000	5.00000	80/11	81/08
MANGNESE	MN	UG/L		2	575.000	63.6396	620.000	530.000	80/12	81/08
NICKEL	NI,TOTAL	UG/L		4	150.000	100.000	300.000	100.000	80/11	81/05
			K	1	100.000		100.000	100.000	81/08	81/08
			T	5	140.000	89.4427	300.000	100.000	80/11	81/08
ZINC	ZN,TOT	UG/L		5	154.000	50.2991	230.000	100.000	80/11	81/08
ALUMINUM	AL,TOT	UG/L		1	800.000		800.000	800.000	80/12	80/12
FEC COLI	MFM-FCBR	/100ML		6	7616.66	6922.55	19000.0	1000.00	80/11	81/08
FECSTREP	MF M-ENT	/100ML		5	7880.00	4387.71	13000.0	3000.00	80/11	81/06
PHENOLS	TOTAL	UG/L		11	7.18182	1.66243	9.00000	4.00000	80/10	81/08
MBAS		MG/L		4	.157500	.044253	.200000	.110000	81/03	81/07
RESIDUE	DISS-180	C MG/L		11	654.091	128.751	848.000	432.000	80/10	81/08
MERCURY	HG,TOTAL	UG/L	K	4	.500000	.000000	.500000	.500000	80/11	81/05

TABLE RD 1-130

STATION NUMBER 601940
40 44 03.0 081 21 08.0 2
NIMISHILLEN CREEK AT N. INDUSTRY - CHEYENNE ST
OHIO RIVER (MUSKINGUM RIVER)
MILES 0953.80 0808.80 110.20 070.50 007.90 008.20

PARAMETER			R	NO	MEAN	STAN DEV	MAXIMUM	MINIMUM	BEG	END
WATER	TEMP	CENT		11	9.81818	5.67571	18.0000	4.00000	81/10	82/09
STREAM	FLOW,	INST-CFS		9	175.333	95.8854	352.000	79.0000	81/11	82/09
STREAM	STAGE	FEET		8	1.53750	.273011	1.99000	1.23000	81/11	82/09
CNDUCTVY	FIELD	MICROMHO		11	892.545	260.149	1375.00	525.000	81/10	82/09
CNDUCTVY	AT 25C	MICROMHO		6	1070.00	228.386	1470.00	850.000	81/12	82/06
DO	PROBE	MG/L		9	9.69999	2.61534	12.6000	6.40000	81/12	82/09
DO		MG/L		2	8.75000	3.18198	11.0000	6.50000	81/10	81/11
BOD	5 DAY	MG/L		4	5.40000	4.17373	9.90000	1.70000	82/05	82/09
COD	LOWLEVEL	MG/L		11	26.6363	13.2611	55.0000	10.0000	81/10	82/09
PH		SU		9	7.92777	.115218	8.10000	7.80000	81/10	82/09
LAB	PH	SU		8	7.83250	.160761	8.09000	7.62000	81/12	82/09
RESIDUE	TOT NFLT	MG/L		10	18.1200	11.1500	42.0000	7.00000	81/10	82/09
			K	1	10.0000		10.0000	10.0000	81/11	81/11
			T	11	17.3818	10.8574	42.0000	7.00000	81/10	82/09
OIL-GRSE	FREON-GR	MG/L	K	1	5.00000		5.00000	5.00000	81/11	81/11
NH3+NH4-	N TOTAL	MG/L		11	3.33454	2.55593	7.85000	.400000	81/10	82/09
NO2-N	TOTAL	MG/L		11	.162727	.170534	.500000	.030000	81/10	82/09
NO3-N	TOTAL	MG/L		11	2.86636	1.31201	5.80000	1.60000	81/10	82/09
TOT KJEL	N	MG/L		11	4.14363	2.38045	8.55000	1.50000	81/10	82/09
PHOS-TOT		MG/L P		11	.982909	.627099	2.02000	.250000	81/10	82/09
CYANIDE	CN-TOT	MG/L		1	.020000		.020000	.020000	81/11	81/11
			K	3	.010000	.000000	.010000	.010000	81/10	82/09
			T	4	.012500	.005000	.020000	.010000	81/10	82/09
TOT HARD	CACO3	MG/L		4	412.625	51.7806	458.000	349.000	82/03	82/09
CALCIUM	CA-TOT	MG/L		4	84.2750	50.3078	130.800	13.1000	82/03	82/09

TABLE RD 1-130 (Continued)

STATION NUMBER 601940
40 44 03.0 081 21 08.0 2
NIMISHILLEN CREEK AT N. INDUSTRY - CHEYENNE ST
OHIO RIVER (MUSKINGUM RIVER)
MILES 0953.80 0808.80 110.20 070.50 007.90 008.20

PARAMETER			R	NO	MEAN	STAN DEV	MAXIMUM	MINIMUM	BEG	END
MGNSIUM	MG,TOT	MG/L		4	31.2000	7.01765	39.9000	22.8000	82/03	82/09
FLUORIDE	F,TOTAL	MG/L		2	.675000	.275773	.870000	.480000	81/10	81/11
BARIUM	BA,TOT	UG/L		1	120.000		120.000	120.000	82/03	82/03
CADMIUM	CD,TOT	UG/L	K	2	.500000	.000000	.500000	.500000	82/03	82/09
CHROMIUM	CR,TOT	UG/L		1	40.0000		40.0000	40.0000	82/08	82/08
			K	3	30.0000	.000000	30.0000	30.0000	82/03	82/09
			T	4	32.5000	5.00000	40.0000	30.0000	82/03	82/09
COPPER	CU,TOT	UG/L		2	15.0000	.000000	15.0000	15.0000	82/03	82/09
			K	1	10.0000		10.0000	10.0000	82/08	82/08
			T	3	13.3333	2.88678	15.0000	10.0000	82/03	82/09
IRON	FE,TOT	UG/L		6	1150.00	555.518	2080.00	660.000	81/10	82/09
LEAD	PB,TOT	UG/L		3	5.66667	1.15472	7.00000	5.00000	82/05	82/09
NICKEL	NI,TOTAL	UG/L		4	85.0000	52.5991	160.000	40.0000	82/03	82/09
ZINC	ZN,TOT	UG/L		4	183.750	95.9492	315.000	105.000	82/03	82/09
FEC COLI	MFM-FCBR	/100ML		10	6493.30	11733.4	39000.0	33.0000	81/10	82/09
			L	1	100000		100000	100000	81/12	81/12
FEC COLI	MFM-FCBR	/100ML	T	11	14993.9	30311.2	100000	33.0000	81/10	82/09
FECSTREP	MF M-ENT	/100ML		9	7047.78	7532.51	21000.0	670.000	81/10	82/08
			K	1	71.0000		71.0000	71.0000	82/09	82/09
			L	1	100000		100000	100000	81/12	81/12
			T	11	14863.7	29104.5	100000	71.0000	81/10	82/09
PHENOLS	TOTAL	UG/L		3	7.00000	4.58258	12.0000	3.00000	81/10	82/08
			K	1	10.0000		10.0000	10.0000	82/09	82/09
			T	4	7.75000	4.03113	12.0000	3.00000	81/10	82/09
RESIDUE	DISS-180	C MG/L		10	738.600	170.121	998.000	500.000	81/11	82/09

TABLE RD 1-131

STATION NUMBER 611830
40 53 22.0 081 36 00.0 2
TUSCARAWAS RIVER AT CANAL FULTON - MARKET AVE.
OHIO RIVER (MUSKINGUM RIVER)
MILES 0953.80 0808.80 110.20 095.90

PARAMETER			R	NO	MEAN	STAN DEV	MAXIMUM	MINIMUM	BEG	END
WATER	TEMP	CENT		2	17.0000	5.65685	21.0000	13.0000	80/10	81/08
CNDUCTVY	FIELD	MICROMHO		1	1980.00		1980.00	1980.00	80/10	80/10
CNDUCTVY	AT 25C	MICROMHO		1	1469.00		1469.00	1469.00	81/08	81/08
DO		MG/L		2	5.15000	.353553	5.40000	4.90000	80/10	81/08
COD	LOWLEVEL	MG/L		2	30.5000	3.53553	33.0000	28.0000	80/10	81/08
PH		SU		1	7.90000		7.90000	7.90000	81/08	81/08
LAB	PH	SU		1	2.90000		2.90000	2.90000	80/10	80/10
RESIDUE	TOT NFLT	MG/L		2	52.0000	31.1127	74.0000	30.0000	80/10	81/08
NH3+NH4-	N TOTAL	MG/L		2	10.6450	13.2300	20.0000	1.29000	80/10	81/08
NO2-N	TOTAL	MG/L		1	.150000		.150000	.150000	80/10	80/10
NO3-N	TOTAL	MG/L		1	.830000		.830000	.830000	80/10	80/10
TOT KJEL	N	MG/L		1	2.20000		2.20000	2.20000	80/10	80/10
PHOS-TOT		MG/L P		1	.545000		.545000	.545000	80/10	80/10
CHLORIDE	TOTAL	MG/L		1	620.000		620.000	620.000	80/10	80/10
IRON	FE,TOT	UG/L		1	1510.00		1510.00	1510.00	80/10	80/10
LEAD	PB,TOT	UG/L		1	13.0000		13.0000	13.0000	80/10	80/10
FEC COLI	MFM-FCBR	/100ML		1	31000.0		31000.0	31000.0	80/10	80/10
FECSTREP	MF M-ENT	/100ML		1	3800.00		3800.00	3800.00	80/10	80/10
PHENOLS	TOTAL	UG/L		1	13.0000		13.0000	13.0000	80/10	80/10
RESIDUE	DISS-180	C MG/L		2	1508.50	226.982	1669.00	1348.00	80/10	81/08

TABLE RD 1-132

STATION NUMBER 611830
40 53 22.0 081 36 00.0 2
TUSCARAWAS RIVER AT CANAL FULTON - MARKET AVE.
OHIO RIVER (MUSKINGUM RIVER)
MILES 0953.80 0808.80 110.20 095.90

No data were collected from 10/81 - 9/82.

TABLE RD 1-133

STATION NUMBER 611840
40 47 16.0 081 31 23.0 2
TUSCARAWAS RIVER AT MASSILLON - WALNUT ST
OHIO RIVER (MUSKINGUM RIVER)
MILES 0953.80 0808.80 110.20 088.40

PARAMETER			R	NO	MEAN	STAN DEV	MAXIMUM	MINIMUM	BEG	END
WATER	TEMP	CENT		3	4.00000	6.55744	10.0000	-.300E+01	80/11	81/05
CNDUCTVY	FIELD	MICROMHO		2	1274.50	64.3506	1320.00	1229.00	80/11	81/05
CNDUCTVY	AT 25C	MICROMHO		1	1580.00		1580.00	1580.00	81/02	81/02
DO		MG/L		3	9.56666	3.14699	13.2000	7.70000	80/11	81/05
COD	LOWLEVEL	MG/L		3	23.3333	3.51194	27.0000	20.0000	80/11	81/05
LAB	PH	SU		3	7.73333	.115746	7.80000	7.60000	80/11	81/05
RESIDUE	TOT NFLT	MG/L		2	42.5000	12.0208	51.0000	34.0000	81/02	81/05
			K	1	10.0000		10.0000	10.0000	80/11	80/11
			T	3	31.6667	20.5994	51.0000	10.0000	80/11	81/05
NH3+NH4-	N TOTAL	MG/L		3	.560000	.207847	.680000	.320000	80/11	81/05
NO2-N	TOTAL	MG/L		2	.055000	.021213	.070000	.040000	80/11	81/02
NO3-N	TOTAL	MG/L		3	1.72667	1.05983	2.84000	.730000	80/11	81/05
TOT KJEL	N	MG/L		3	1.52000	.235158	1.76000	1.29000	80/11	81/05
PHOS-TOT		MG/L P		3	.321667	.025423	.351000	.306000	80/11	81/05
CYANIDE	CN-TOT	MG/L	K	3	.010000	.000000	.010000	.010000	80/11	81/05
TOT HARD	CACO3	MG/L		2	259.500	10.6066	267.000	252.000	81/02	81/05
CALCIUM	CA-TOT	MG/L		1	175.000		175.000	175.000	80/11	80/11
SODIUM	NA,TOT	MG/L		1	211.000		211.000	211.000	81/02	81/02
CHLORIDE	TOTAL	MG/L		3	352.000	53.8145	412.000	308.000	80/11	81/05
FLUORIDE	F,TOTAL	MG/L		3	.203333	.015275	.220000	.190000	80/11	81/05
CADMIUM	CD,TOT	UG/L	K	3	5.00000	.000000	5.00000	5.00000	80/11	81/05
CHROMIUM	CR,TOT	UG/L	K	3	30.0000	.000000	30.0000	30.0000	80/11	81/05
COPPER	CU,TOT	UG/L	K	3	30.0000	.000000	30.0000	30.0000	80/11	81/05
IRON	FE,TOT	UG/L		3	1723.33	1013.72	2570.00	600.000	80/11	81/05
LEAD	PB,TOT	UG/L		3	8.33333	3.05506	11.0000	5.00000	80/11	81/05
NICKEL	NI,TOTAL	UG/L	K	3	100.000	.000000	100.000	100.000	80/11	81/05
ZINC	ZN,TOT	UG/L		2	35.0000	7.07107	40.0000	30.0000	81/02	81/05
			K	1	30.0000		30.0000	30.0000	80/11	80/11
			T	3	33.3333	5.77355	40.0000	30.0000	80/11	81/05
FEC COLI	MFM-FCBR	/100ML		2	5650.00	353.565	5900.00	5400.00	80/11	81/05
FECSTREP	MF M-ENT	/100ML		2	8400.00	7919.60	14000.0	2800.00	80/11	81/05
PHENOLS	TOTAL	UG/L		3	13.6667	3.05508	17.0000	11.0000	80/11	81/05
MBAS		MG/L		1	.220000		.220000	.220000	81/05	81/05
RESIDUE	DISS-180	C MG/L		3	985.333	184.735	1196.00	851.000	80/11	81/05
MERCURY	HG,TOTAL	UG/L	K	3	.500000	.000000	.500000	.500000	80/11	81/05

TABLE RD 1-134

STATION NUMBER 611840
40 47 16.0 081 31 23.0 2
TUSCARAWAS RIVER AT MASSILLON - WALNUT ST
OHIO RIVER (MUSKINGUM RIVER)
MILES 0953.80 0808.80 110.20 088.40

No data were collected from 10/81 - 9/82.

TABLE RD 1-135

STATION NUMBER 601930
40 45 08.0 081 31 45.0 2
TUSCARAWAS R AT MASSILLON - WARMINGTON ST
OHIO RIVER (MUSKINGUM RIVER)
MILES 0953.80 0808.80 110.20 085.30

PARAMETER			R	NO	MEAN	STAN DEV	MAXIMUM	MINIMUM	BEG	END
WATER	TEMP	CENT		11	9.09091	9.52318	24.0000	-.300E+01	80/10	81/08
STREAM	FLOW,	INST-CFS		10	638.900	663.897	2424.00	199.000	80/10	81/08
STREAM	STAGE	FEET		10	2.39650	1.79618	6.95000	.950000	80/10	81/08
CNDUCTVY	FIELD	MICROMHO		6	1039.83	454.266	1625.00	484.000	80/10	81/07
CNDUCTVY	AT 25C	MICROMHO		5	1444.80	582.043	2400.00	1030.00	81/01	81/08
DO		MG/L		11	8.56363	3.02962	12.9000	4.40000	80/10	81/08
COD	LOWLEVEL	MG/L		11	31.0000	24.5805	97.0000	12.0000	80/10	81/08
PH		SU		1	7.90000		7.90000	7.90000	81/08	81/08
LAB	PH	SU		9	7.66666	.206256	8.10000	7.50000	80/11	81/07
RESIDUE	TOT NFLT	MG/L		11	51.6363	84.5651	302.000	10.0000	80/10	81/08
NH3+NH4-	N TOTAL	MG/L		11	1.23636	.508983	2.17000	.470000	80/10	81/08
NO2-N	TOTAL	MG/L		9	.162222	.154821	.550000	.050000	80/10	81/08
NO3-N	TOTAL	MG/L		11	1.98454	.518008	3.02000	1.45000	80/10	81/08
TOT KJEL	N	MG/L		11	2.32181	.434086	3.13000	1.88000	80/10	81/08
PHOS-TOT		MG/L P		11	.542636	.122601	.753000	.391000	80/10	81/08
CYANIDE	CN-TOT	MG/L	K	10	.010000	.000007	.010000	.010000	80/10	81/08
TOT HARD	CACO3	MG/L		3	311.666	87.4100	412.000	252.000	81/02	81/08
CALCIUM	CA-TOT	MG/L		1	160.000		160.000	160.000	80/11	80/11
SODIUM	NA,TOT	MG/L		1	209.000		209.000	209.000	81/02	81/02
CHLORIDE	TOTAL	MG/L		8	285.500	114.319	465.000	78.0000	80/11	81/07
FLUORIDE	F,TOTAL	MG/L		6	.428333	.137902	.660000	.280000	80/10	81/07
BARIUM	BA,TOT	UG/L		1	400.000		400.000	400.000	81/07	81/07
CADMIUM	CD,TOT	UG/L	K	4	5.00000	.000000	5.00000	5.00000	80/11	81/08
CHROMIUM	HEX-VAL	UG/L		1	856.000		856.000	856.000	81/06	81/06
CHROMIUM	CR,TOT	UG/L		2	40.0000	.000000	40.0000	40.0000	81/02	81/03
			K	3	30.0000	.000000	30.0000	30.0000	80/11	81/08
			T	5	34.0000	5.47723	40.0000	30.0000	80/11	81/08
COPPER	CU,TOT	UG/L	K	4	30.0000	.000000	30.0000	30.0000	80/11	81/08
IRON	FE,TOT	UG/L		11	2877.27	4154.20	15200.0	670.000	80/10	81/08
LEAD	PB,TOT	UG/L		4	8.50000	2.08167	11.0000	6.00000	80/11	81/08
MANGNESE	MN	UG/L		2	270.000	70.7107	320.000	220.000	80/12	81/08
NICKEL	NI,TOTAL	UG/L		1	100.000		100.000	100.000	81/02	81/02
			K	3	100.000	.000000	100.000	100.000	80/11	81/08
			T	4	100.000	.000000	100.000	100.000	80/11	81/08
ZINC	ZN,TOT	UG/L		3	33.3333	5.77355	40.0000	30.0000	80/11	81/05
			K	1	30.0000		30.0000	30.0000	81/08	81/08
			T	4	32.5000	5.00000	40.0000	30.0000	80/11	81/08
FEC COLI	MFM-FCBR	/100ML		7	6228.57	3326.52	10000.0	1300.00	80/11	81/08
FECSTREP	MF M-ENT	/100ML		6	9406.66	7259.11	21000.0	840.000	80/11	81/06
PHENOLS	TOTAL	UG/L		11	14.0909	8.83691	38.0000	7.00000	80/10	81/08
MBAS		MG/L		4	.162500	.012583	.180000	.150000	81/03	81/07
RESIDUE	DISS-180	C MG/L		10	886.700	300.316	1330.00	278.000	80/10	81/08
MERCURY	HG,TOTAL	UG/L		1	.500000		.500000	.500000	80/11	80/11
			K	2	.500000	.000000	.500000	.500000	81/02	81/05
			T	3	.500000	.000000	.500000	.500000	80/11	81/05

TABLE RD 1-136

STATION NUMBER 601930
40 45 08.0 081 31 45.0 2
TUSCARAWAS R AT MASSILLON - WARMINGTON ST
OHIO RIVER (MUSKINGUM RIVER)
MILES 0953.80 0808.80 110.20 085.30

PARAMETER			R	NO	MEAN	STAN DEV	MAXIMUM	MINIMUM	BEG	END
WATER	TEMP	CENT		11	9.22727	7.00487	19.0000	1.00000	81/10	82/09
STREAM	FLOW,	INST-CFS		5	348.200	241.819	704.000	121.000	82/03	82/09
STREAM	STAGE	FEET		5	1.52800	.944072	2.86000	.600000	82/03	82/09
CNDUCTVY	FIELD	MICROMHO		11	1226.73	579.988	2180.00	460.000	81/10	82/09
CNDUCTVY	AT 25C	MICROMHO		6	1305.00	423.450	1900.00	850.000	81/12	82/06
DO	PROBE	MG/L		11	8.50000	2.97389	11.6000	4.30000	81/10	82/09
BOD	5 DAY	MG/L		3	16.8000	12.2992	31.0000	9.50000	82/05	82/09
COD	LOWLEVEL	MG/L		11	28.5454	8.80194	43.0000	10.0000	81/10	82/09
PH		SU		9	8.13889	.271365	8.50000	7.90000	81/10	82/09
LAB	PH	SU		8	7.80374	.191731	8.04000	7.49000	81/12	82/09
RESIDUE	TOT NFLT	MG/L		11	29.6636	33.3050	127.000	9.30000	81/10	82/09
OIL-GRSE	FREON-GR	MG/L	K	1	5.00000		5.00000	5.00000	81/11	81/11
NH3+NH4-	N TOTAL	MG/L		11	1.56000	.844916	3.43000	.530000	81/10	82/09
NO2-N	TOTAL	MG/L		11	.158182	.144625	.400000	.030000	81/10	82/09
NO3-N	TOTAL	MG/L		11	3.04454	1.90097	7.20000	1.14000	81/10	82/09
TOT KJEL	N	MG/L		11	2.32000	.770390	3.70000	1.20000	81/10	82/09
PHOS-TOT		MG/L P		11	.642909	.313877	1.21000	.180000	81/10	82/09
CYANIDE	CN-TOT	MG/L	K	4	.010000	.000000	.010000	.010000	81/10	82/09
TOT HARD	CACO3	MG/L		4	370.100	129.492	488.400	231.000	82/03	82/09
CALCIUM	CA-TOT	MG/L		4	80.7499	56.9767	153.000	15.8000	82/03	82/09
MGNSIUM	MG,TOT	MG/L		4	19.3500	3.48376	22.8000	16.3000	82/03	82/09
CHLORIDE	TOTAL	MG/L		1	461.000		461.000	461.000	82/08	82/08
FLUORIDE	F,TOTAL	MG/L		2	.295000	.120208	.380000	.210000	81/10	81/11
BARIUM	BA,TOT	UG/L		1	230.000		230.000	230.000	82/03	82/03
CADMIUM	CD,TOT	UG/L	K	4	.500000	.000000	.500000	.500000	82/03	82/09
CHROMIUM	CR,TOT	UG/L	K	4	30.0000	.000000	30.0000	30.0000	82/03	82/09
COPPER	CU,TOT	UG/L		3	21.6667	7.63768	30.0000	15.0000	82/03	82/09
			K	1	10.0000		10.0000	10.0000	82/08	82/08
			T	4	18.7500	8.53913	30.0000	10.0000	82/03	82/09
IRON	FE,TOT	UG/L		6	1013.33	466.420	1580.00	520.000	81/10	82/09
LEAD	PB,TOT	UG/L		2	6.00000	1.41421	7.00000	5.00000	82/05	82/08
NICKEL	NI,TOTAL	UG/L	K	4	37.5000	5.00000	40.0000	30.0000	82/03	82/09
ZINC	ZN,TOT	UG/L		3	28.3333	14.4338	45.0000	20.0000	82/03	82/09
FEC COLI	MFM-FCBR	/100ML		10	5794.00	7890.15	27000.0	500.000	81/10	82/09
FECSTREP	MF M-ENT	/100ML		11	13475.5	22839.0	78000.0	430.000	81/10	82/09
PHENOLS	TOTAL	UG/L		4	10.5000	1.00000	12.0000	10.0000	81/10	82/09
RESIDUE	DISS-180	C MG/L		10	1037.30	368.021	1640.00	556.000	81/11	82/09

TABLE RD 1-137

STATION NUMBER 611790
40 15 41.0 081 36 33.0 2
TUSCARAWAS RIVER AT NEWCOMERSTOWN - SR 83
OHIO RIVER (MUSKINGUM RIVER)
MILES 0953.80 0808.80 110.20 021.30

PARAMETER			R	NO	MEAN	STAN DEV	MAXIMUM	MINIMUM	BEG	END
WATER	TEMP	CENT		12	10.7500	9.33590	25.0000	.000000	80/10	81/09
STREAM	FLOW,	INST-CFS		12	3355.08	2154.72	8134.00	957.000	80/10	81/09
STREAM	STAGE	FEET		12	3.68749	1.55214	6.86000	1.75000	80/10	81/09
CNDUCTVY	FIELD	MICROMHO		1	900.000		900.000	900.000	81/08	81/08
CNDUCTVY	AT 25C	MICROMHO		11	824.454	253.506	1190.00	506.000	80/10	81/09
DO		MG/L		10	9.45999	1.27211	12.0000	7.60000	80/10	81/09
COD	LOWLEVEL	MG/L		12	16.0000	7.23627	30.0000	4.00000	80/10	81/09
PH		SU		7	7.65714	.457860	8.30000	7.10000	81/03	81/09
LAB	PH	SU		5	7.64000	.321074	8.10000	7.20000	80/10	81/02
T ALK	CACO3	MG/L		4	88.2500	22.0662	119.000	68.0000	80/11	81/03
RESIDUE	TOTAL	MG/L		3	594.666	172.444	742.000	405.000	81/02	81/08
RESIDUE	TOT NFLT	MG/L		8	61.1250	51.5071	143.000	10.0000	80/11	81/09
			K	2	10.0000	.000000	10.0000	10.0000	80/10	81/01
			T	10	50.9000	50.2802	143.000	10.0000	80/10	81/09
NH3+NH4-	N TOTAL	MG/L		9	.347777	.428858	1.45000	.060000	80/11	81/08
			K	3	.050000	.000075	.050000	.050000	80/10	81/09
			T	12	.273333	.389739	1.45000	.050000	80/10	81/09
NO2-N	TOTAL	MG/L		7	.035714	.022254	.080000	.010000	80/10	81/08
NO3-N	TOTAL	MG/L		12	1.55417	.305419	2.15000	1.03000	80/10	81/09
TOT KJEL	N	MG/L		11	.870000	.345832	1.53000	.460000	80/10	81/09
PHOS-TOT		MG/L P		12	.187250	.067876	.332000	.084000	80/10	81/09
TOT HARD	CACO3	MG/L		3	376.000	48.8672	410.000	320.000	80/11	81/09
CALCIUM	CA-TOT	MG/L		1	69.0000		69.0000	69.0000	81/05	81/05
MGNSIUM	MG,TOT	MG/L		1	24.0000		24.0000	24.0000	81/05	81/05
CHLORIDE	TOTAL	MG/L		9	65.0000	40.9329	149.000	5.00000	80/10	81/07
CADMIUM	CD,TOT	UG/L	K	5	5.00000	.000000	5.00000	5.00000	80/11	81/09
CHROMIUM	CR,TOT	UG/L		2	30.0000	.000000	30.0000	30.0000	80/11	81/05
			K	3	30.0000	.000000	30.0000	30.0000	81/02	81/09
			T	5	30.0000	.000000	30.0000	30.0000	80/11	81/09

TABLE RD 1-137 (Continued)

STATION NUMBER 611790
40 15 41.0 081 36 33.0 2
TUSCARAWAS RIVER AT NEWCOMERSTOWN - SR 83
OHIO RIVER (MUSKINGUM RIVER)
MILES 0953.80 0808.80 110.20 021.30

PARAMETER			R	NO	MEAN	STAN DEV	MAXIMUM	MINIMUM	BEG	END
COPPER	CU,TOT	UG/L		1	30.0000		30.0000	30.0000	81/05	81/05
			K	4	30.0000	.000000	30.0000	30.0000	80/11	81/09
			T	5	30.0000	.000000	30.0000	30.0000	80/11	81/09
IRON	FE,TOT	UG/L		5	2678.00	2296.66	6600.00	970.000	80/11	81/09
LEAD	PB,TOT	UG/L		2	7.00000	1.41421	8.00000	6.00000	81/02	81/08
			K	3	5.00000	.000000	5.00000	5.00000	80/11	81/09
			T	5	5.80000	1.30385	8.00000	5.00000	80/11	81/09
MANGNESE	MN	UG/L		4	607.500	99.7914	700.000	490.000	80/11	81/09
NICKEL	NI,TOTAL	UG/L		1	100.000		100.000	100.000	81/08	81/08
			K	4	100.000	.000000	100.000	100.000	80/11	81/09
			T	5	100.000	.000000	100.000	100.000	80/11	81/09
ZINC	ZN,TOT	UG/L		4	50.0000	24.4949	80.0000	30.0000	80/11	81/08
ZINC	ZN,TOT	UG/L	K	1	30.0000		30.0000	30.0000	81/09	81/09
			T	5	46.0000	23.0217	80.0000	30.0000	80/11	81/09
ALUMINUM	AL,TOT	UG/L		4	1125.00	861.684	2400.00	600.000	81/02	81/09
			K	1	200.000		200.000	200.000	80/11	80/11
			T	5	940.000	853.229	2400.00	200.000	80/11	81/09
FEC COLI	MFM-FCBR	/100ML		12	2485.83	1682.56	5600.00	510.000	80/10	81/09
PHENOLS	TOTAL	UG/L		11	5.00000	3.03315	13.0000	3.00000	80/10	81/09
			K	1	20.0000		20.0000	20.0000	81/02	81/02
			T	12	6.25000	5.20707	20.0000	3.00000	80/10	81/09
MBAS		MG/L		2	.090000	.028284	.110000	.070000	80/11	81/08
RESIDUE	DISS-180	C MG/L		7	558.000	165.621	805.000	348.000	80/10	81/09
PHOS-T	ORTHO	MG/L P		1	.070000		.070000	.070000	81/08	81/08
T ACDITY	HOT-MG/L	CACO3	K	2	10.0000	.000000	10.0000	10.0000	81/02	81/03
MERCURY	HG,TOTAL	UG/L		2	.600000	.000423	.600000	.600000	81/08	81/09
			K	3	.500000	.000000	.500000	.500000	80/11	81/05
			T	5	.540000	.054772	.600000	.500000	80/11	81/09

TABLE RD 1-138

STATION NUMBER 611790
40 15 41.0 081 36 33.0 2
TUSCARAWAS RIVER AT NEWCOMERSTOWN - SR 83
OHIO RIVER (MUSKINGUM RIVER)
MILES 0953.80 0808.80 110.20 021.30

PARAMETER			R	NO	MEAN	STAN DEV	MAXIMUM	MINIMUM	BEG	END
WATER	TEMP	CENT		12	11.3750	8.23552	24.5000	-.100E+01	81/10	82/09
STREAM	FLOW	CFS		4	3645.75	3307.54	8479.00	1444.00	82/03	82/06
STREAM	FLOW,	INST-CFS		6	2791.33	2498.40	6849.00	533.000	81/10	82/07
			K	2	505.000	.000000	505.000	505.000	82/08	82/09
			T	8	2219.75	2361.93	6849.00	505.000	81/10	82/09
STREAM	STAGE	FEET		12	2.99999	1.97544	7.00000	1.05000	81/10	82/09
CNDUCTVY	AT 25C	MICROMHO		10	1007.70	276.180	1330.00	550.000	81/10	82/09
DO	PROBE	MG/L		8	10.4125	2.29125	14.2000	7.30000	81/12	82/09
DO		MG/L		1	9.70000		9.70000	9.70000	81/10	81/10
COD	LOWLEVEL	MG/L		6	19.6667	10.3473	34.0000	9.00000	81/10	82/07
PH		SU		11	8.25909	.305707	8.70000	7.90000	81/10	82/09
LAB	PH	SU		6	7.93499	.299413	8.32000	7.60000	81/10	82/08
T ALK	CACO3	MG/L		1	127.000		127.000	127.000	82/09	82/09
RESIDUE	TOTAL	MG/L		1	356.000		356.000	356.000	82/01	82/01
RESIDUE	TOT NFLT	MG/L		11	31.4545	12.1850	56.0000	13.0000	81/11	82/09
			K	1	10.0000		10.0000	10.0000	81/10	81/10
			T	12	29.6667	13.1657	56.0000	10.0000	81/10	82/09
NH3+NH4-	N TOTAL	MG/L		8	.242500	.143403	.440000	.050000	81/11	82/06
			K	4	.050000	.000050	.050000	.050000	81/10	82/09
			T	12	.178333	.148559	.440000	.050000	81/10	82/09
NO2-N	TOTAL	MG/L		6	.041667	.029269	.100000	.020000	82/01	82/07
			K	3	.020000	.000000	.020000	.020000	81/12	82/09
			T	9	.034444	.025550	.100000	.020000	81/12	82/09
NO3-N	TOTAL	MG/L		12	1.46333	.678829	2.93000	.470000	81/10	82/09
TOT KJEL	N	MG/L		12	1.00917	.406929	1.90000	.600000	81/10	82/09
PHOS-TOT		MG/L P		12	.175916	.064169	.313000	.110000	81/10	82/09
TOT HARD	CACO3	MG/L		4	321.575	95.8749	427.000	198.000	81/11	82/08

TABLE RD 1-138 (Continued)

STATION NUMBER 611790
40 15 41.0 081 36 33.0 2
TUSCARAWAS RIVER AT NEWCOMERSTOWN - SR 83
OHIO RIVER (MUSKINGUM RIVER)
MILES 0953.80 0808.80 110.20 021.30

PARAMETER			R	NO	MEAN	STAN DEV	MAXIMUM	MINIMUM	BEG	END
CALCIUM	CA-TOT	MG/L		3	75.2000	21.6363	95.3000	52.3000	82/02	82/08
MGNSIUM	MG,TOT	MG/L		3	23.9333	6.53101	28.0000	16.4000	82/02	82/08
CHLORIDE	TOTAL	MG/L		3	175.333	52.2912	218.000	117.000	81/10	82/08
CADMIUM	CD,TOT	UG/L		2	.949999	.494975	1.30000	.600000	82/02	82/05
			K	3	2.00000	2.59808	5.00000	.500000	81/11	82/08
			T	5	1.58000	1.94088	5.00000	.500000	81/11	82/08
CHROMIUM	CR,TOT	UG/L		1	30.0000		30.0000	30.0000	82/02	82/02
			K	4	30.0000	.000000	30.0000	30.0000	81/11	82/08
			T	5	30.0000	.000000	30.0000	30.0000	81/11	82/08
COPPER	CU,TOT	UG/L		2	10.0000	.000000	10.0000	10.0000	82/05	82/08
			K	3	16.6667	11.5470	30.0000	10.0000	81/11	82/07
			T	5	14.0000	8.94427	30.0000	10.0000	81/11	82/08
IRON	FE,TOT	UG/L		5	1100.00	924.067	2370.00	270.000	81/11	82/08
LEAD	PB,TOT	UG/L		2	8.50000	3.53553	11.0000	6.00000	82/05	82/07
LEAD	PB,TOT	UG/L	K	3	4.00000	1.73205	5.00000	2.00000	81/11	82/08
			T	5	5.80000	3.27109	11.0000	2.00000	81/11	82/08
MANGNESE	MN	UG/L		5	627.000	256.310	970.000	255.000	81/11	82/08
NICKEL	NI,TOTAL	UG/L	K	5	64.0000	32.8634	100.000	40.0000	81/11	82/08
ZINC	ZN,TOT	UG/L		4	26.2500	11.0868	40.0000	15.0000	81/11	82/08
			K	1	10.0000		10.0000	10.0000	82/07	82/07
			T	5	23.0000	12.0416	40.0000	10.0000	81/11	82/08
ALUMINUM	AL,TOT	UG/L		1	600.000		600.000	600.000	81/11	81/11
FEC COLI	MFM-FCBR	/100ML		8	2448.37	2008.14	6000.00	87.0000	81/10	82/07
PHENOLS	TOTAL	UG/L		3	5.33333	4.16333	10.0000	2.00000	81/10	82/08
RESIDUE	DISS-180	C MG/L		10	628.500	194.693	920.000	353.000	81/10	82/09
MERCURY	HG,TOTAL	UG/L	K	1	.500000		.500000	.500000	81/11	81/11

TABLE RD 1-139

STATION NUMBER 601910
40 20 29.0 082 03 56.0 2
WALHONDING R AT NELLIE BELOW DAM - U.S. RT. 36
OHIO RIVER (MUSKINGUM RIVER)
MILES 0953.80 0808.80 110.20 014.70

PARAMETER			R	NO	MEAN	STAN DEV	MAXIMUM	MINIMUM	BEG	END
WATER	TEMP	CENT		11	12.6364	8.55012	24.5000	3.00000	80/10	81/09
STREAM	FLOW,	INST-CFS		9	2341.77	2365.79	7462.00	650.000	80/11	81/08
STREAM	STAGE	FEET		11	7.46090	1.71188	11.3900	5.78000	80/10	81/09
CNDUCTVY	FIELD	MICROMHO		1	390.000		390.000	390.000	81/07	81/07
CNDUCTVY	AT 25C	MICROMHO		9	458.000	92.7874	622.000	340.000	80/10	81/09
DO		MG/L		11	9.97272	2.21274	14.5000	7.50000	80/10	81/09
COD	LOWLEVEL	MG/L		12	16.2500	8.90480	39.0000	6.00000	80/10	81/09
PH		SU		10	7.87999	.312022	8.40000	7.40000	80/10	81/09
LAB	PH	SU		5	7.86000	.151892	8.00000	7.70000	81/01	81/06
RESIDUE	TOTAL	MG/L		1	344.000		344.000	344.000	81/08	81/08
RESIDUE	TOT NFLT	MG/L		7	60.5714	74.4644	224.000	13.0000	80/12	81/09
			K	4	10.0000	.000000	10.0000	10.0000	80/10	81/06
			T	11	42.1818	63.0711	224.000	10.0000	80/10	81/09
NH3+NH4-	N TOTAL	MG/L		7	.194285	.148083	.460000	.060000	80/12	81/09
			K	5	.050000	.000061	.050000	.050000	80/10	81/08
			T	12	.134166	.132216	.460000	.050000	80/10	81/09
NO2-N	TOTAL	MG/L		10	.027000	.021108	.070000	.010000	80/10	81/08
			K	1	.010000		.010000	.010000	81/07	81/07
			T	11	.025455	.020671	.070000	.010000	80/10	81/08
NO3-N	TOTAL	MG/L		12	1.95416	.886361	3.62000	.910000	80/10	81/09
TOT KJEL	N	MG/L		12	.709166	.371250	1.56000	.260000	80/10	81/09
PHOS-TOT		MG/L P		12	.143833	.080557	.367000	.058000	80/10	81/09
CYANIDE	CN-TOT	MG/L	K	1	.010000		.010000	.010000	81/02	81/02
TOT HARD	CACO3	MG/L		4	191.250	38.9647	224.000	140.000	80/11	81/08
CHLORIDE	TOTAL	MG/L		2	23.5000	3.53553	26.0000	21.0000	81/06	81/07

TABLE RD 1-139 (Continued)

STATION NUMBER 601910
40 20 29.0 082 03 56.0 2
WALHONDING R AT NELLIE BELOW DAM - U.S. RT. 36
OHIO RIVER (MUSKINGUM RIVER)
MILES 0953.80 0808.80 110.20 014.70

PARAMETER			R	NO	MEAN	STAN DEV	MAXIMUM	MINIMUM	BEG	END
SULFATE	SO4-TOT	MG/L		1	57.0000		57.0000	57.0000	81/02	81/02
CADMIUM	CD,TOT	UG/L	K	4	5.00000	.000000	5.00000	5.00000	80/11	81/08
CHROMIUM	CR,TOT	UG/L		1	30.0000		30.0000	30.0000	80/11	80/11
			K	3	30.0000	.000000	30.0000	30.0000	81/02	81/08
			T	4	30.0000	.000000	30.0000	30.0000	80/11	81/08
COPPER	CU,TOT	UG/L	K	4	30.0000	.000000	30.0000	30.0000	80/11	81/08
IRON	FE,TOT	UG/L		4	1120.00	638.488	1890.00	400.000	80/11	81/08
LEAD	PB,TOT	UG/L	K	3	6.66667	2.88676	10.0000	5.00000	80/11	81/08
MANGNESE	MN	UG/L		1	50.0000		50.0000	50.0000	80/11	80/11
NICKEL	NI,TOTAL	UG/L		1	100.000		100.000	100.000	81/08	81/08
			K	3	100.000	.000000	100.000	100.000	80/11	81/05
			T	4	100.000	.000000	100.000	100.000	80/11	81/08
ZINC	ZN,TOT	UG/L		2	55.0000	35.3553	80.0000	30.0000	80/11	81/02
			K	2	30.0000	.000000	30.0000	30.0000	81/05	81/08
			T	4	42.5000	25.0000	80.0000	30.0000	80/11	81/08
ALUMINUM	AL,TOT	UG/L		1	700.000		700.000	700.000	81/05	81/05
FEC COLI	MFM-FCBR	/100ML		11	767.545	931.215	2600.00	33.0000	80/10	81/09
			K	1	29.0000		29.0000	29.0000	80/11	80/11
			T	12	706.000	913.116	2600.00	29.0000	80/10	81/09
PHENOLS	TOTAL	UG/L		1	6.00000		6.00000	6.00000	81/05	81/05
			K	4	6.50000	9.00000	20.0000	2.00000	80/11	81/09
			T	5	6.40000	7.79744	20.0000	2.00000	80/11	81/09
RESIDUE	DISS-180	C MG/L		10	259.500	45.7803	346.000	205.000	80/10	81/09
MERCURY	HG,TOTAL	UG/L	K	3	.500000	.000000	.500000	.500000	80/11	81/08

TABLE RD 1-140

STATION NUMBER 601910
40 20 29.0 082 03 56.0 2
WALHONDING R AT NELLIE BELOW DAM - U.S. RT. 36
OHIO RIVER (MUSKINGUM RIVER)
MILES 0953.80 0808.80 110.20 014.70

PARAMETER			R	NO	MEAN	STAN DEV	MAXIMUM	MINIMUM	BEG	END
WATER	TEMP	CENT		12	10.5250	7.81539	22.5000	.000000	81/10	82/09
STREAM	FLOW	CFS		6	3250.38	2889.12	8443.00	884.300	81/12	82/06
STREAM	FLOW,	INST-CFS		5	1563.52	2266.11	5546.00	252.800	81/10	82/09
STREAM	STAGE	FEET		12	7.55333	2.03889	11.9500	5.52000	81/10	82/09
CNDUCTVY	AT 25C	MICROMHO		10	425.600	96.4336	540.000	280.000	81/10	82/09
DO	PROBE	MG/L		9	10.0444	2.48754	13.2000	6.60000	81/12	82/09
DO		MG/L		1	9.80000		9.80000	9.80000	81/10	81/10
COD	LOWLEVEL	MG/L		5	25.0000	27.6677	74.0000	9.00000	81/10	82/07
PH		SU		11	8.31818	.277844	8.90000	7.90000	81/10	82/09
LAB	PH	SU		6	8.05666	.272341	8.45000	7.77000	81/10	82/08
T ALK	CACO3	MG/L		1	161.000		161.000	161.000	82/09	82/09
RESIDUE	TOT NFLT	MG/L		10	53.6000	75.0810	263.000	13.0000	81/12	82/09
			K	2	10.0000	.000000	10.0000	10.0000	81/10	81/11
			T	12	46.3333	70.0017	263.000	10.0000	81/10	82/09
NH3+NH4-	N TOTAL	MG/L		6	.148333	.077309	.230000	.040000	81/12	82/07
			K	6	.050000	.000061	.050000	.050000	81/10	82/09
			T	12	.099167	.073170	.230000	.040000	81/10	82/09
NO2-N	TOTAL	MG/L		7	.034286	.019024	.060000	.010000	81/10	82/08
			K	2	.020000	.000000	.020000	.020000	81/12	82/09
			T	9	.031111	.017638	.060000	.010000	81/10	82/09
NO3-N	TOTAL	MG/L		12	1.48500	.666110	2.39000	.710000	81/10	82/09
TOT KJEL	N	MG/L		12	.680000	.297902	1.50000	.390000	81/10	82/09
PHOS-TOT		MG/L P		11	.113273	.039802	.200000	.060000	81/10	82/09
			K	1	.050000		.050000	.050000	82/07	82/07
			T	12	.108000	.042117	.200000	.050000	81/10	82/09

TABLE RD 1-140 (Continued)

STATION NUMBER 601910
40 20 29.0 082 03 56.0 2
WALHONDING R AT NELLIE BELOW DAM - U.S. RT. 36
OHIO RIVER (MUSKINGUM RIVER)
MILES 0953.80 0808.80 110.20 014.70

PARAMETER			R	NO	MEAN	STAN DEV	MAXIMUM	MINIMUM	BEG	END
TOT HARD	CACO3	MG/L		4	166.425	47.1628	219.700	121.000	81/11	82/08
CALCIUM	CA-TOT	MG/L		3	40.9333	13.5080	56.5000	32.3000	82/02	82/08
MGNSIUM	MG,TOT	MG/L		3	13.4667	4.97025	19.1000	9.70000	82/02	82/08
CHLORIDE	TOTAL	MG/L		2	28.2500	7.42462	33.5000	23.0000	81/11	82/08
CADMIUM	CD,TOT	UG/L	K	5	1.40000	2.01246	5.00000	.500000	81/11	82/08
CHROMIUM	CR,TOT	UG/L	K	5	30.0000	.000000	30.0000	30.0000	81/11	82/08
COPPER	CU,TOT	UG/L		1	10.0000		10.0000	10.0000	82/08	82/08
			K	4	15.0000	10.0000	30.0000	10.0000	81/11	82/07
			T	5	14.0000	8.94427	30.0000	10.0000	81/11	82/08
IRON	FE,TOT	UG/L		5	3186.00	4678.37	11400.0	380.000	81/11	82/08
LEAD	PB,TOT	UG/L		3	6.33333	3.51189	10.0000	3.00000	82/05	82/08
			K	2	5.00000	.000000	5.00000	5.00000	81/11	82/02
			T	5	5.80000	2.58844	10.0000	3.00000	81/11	82/08
MANGNESE	MN	UG/L		5	114.200	72.1506	241.000	65.0000	81/11	82/08
NICKEL	NI,TOTAL	UG/L	K	5	64.0000	32.8634	100.000	40.0000	81/11	82/08
ZINC	ZN,TOT	UG/L		4	23.7500	13.7689	40.0000	10.0000	82/02	82/08
ZINC	ZN,TOT	UG/L	K	1	30.0000		30.0000	30.0000	81/11	81/11
			T	5	25.0000	12.2474	40.0000	10.0000	81/11	82/08
ALUMINUM	AL,TOT	UG/L		1	300.000		300.000	300.000	81/11	81/11
FEC COLI	MFM-FCBR	/100ML		8	1768.12	3538.03	10450.0	40.0000	81/10	82/07
PHENOLS	TOTAL	UG/L		1	4.00000		4.00000	4.00000	81/11	81/11
			K	2	6.00000	5.65685	10.0000	2.00000	81/10	82/08
			T	3	5.33333	4.16333	10.0000	2.00000	81/10	82/08
RESIDUE	DISS-180	C MG/L		9	262.778	54.0653	342.000	198.000	81/11	82/09
MERCURY	HG,TOTAL	UG/L	K	1	.500000		.500000	.500000	81/11	81/11

TABLE RD 1-141

STATION NUMBER 611820
41 00 11.0 081 36 33.0 2
WOLF CREEK AT BARBERTON - SNYDER AVE.
OHIO RIVER (MUSKINGUM RIVER)
MILES 0953.80 0808.80 110.20 111.10 000.20

PARAMETER			R	NO	MEAN	STAN DEV	MAXIMUM	MINIMUM	BEG	END
WATER	TEMP	CENT		4	8.50000	5.06623	13.0000	2.00000	80/11	81/05
CNDUCTVY	FIELD	MICROMHO		2	733.000	222.032	890.000	576.000	80/11	81/05
CNDUCTVY	AT 25C	MICROMHO		1	1110.00		1110.00	1110.00	81/02	81/02
DO		MG/L		4	8.09999	.648202	8.80000	7.50000	80/11	81/05
COD	LOWLEVEL	MG/L		3	18.6667	3.05516	22.0000	16.0000	80/11	81/05
LAB	PH	SU		3	7.50000	.000000	7.50000	7.50000	80/11	81/05
RESIDUE	TOT NFLT	MG/L		3	17.6667	6.35090	25.0000	14.0000	80/11	81/05
NH3+NH4-	N TOTAL	MG/L		4	1.47250	2.16765	4.71000	.200000	80/11	81/05
NO2-N	TOTAL	MG/L		2	.015000	.007071	.020000	.010000	80/11	81/02
NO3-N	TOTAL	MG/L		3	.760000	.633167	1.48000	.290000	80/11	81/05
TOT KJEL	N	MG/L		3	2.41667	2.52500	5.33000	.860000	80/11	81/05
PHOS-TOT		MG/L P		3	.099000	.018028	.119000	.084000	80/11	81/05
CYANIDE	CN-TOT	MG/L	K	3	.010000	.000000	.010000	.010000	80/11	81/05
TOT HARD	CACO3	MG/L		2	217.000	38.1838	244.000	190.000	81/02	81/05
CALCIUM	CA-TOT	MG/L		1	70.0000		70.0000	70.0000	80/11	80/11
SODIUM	NA,TOT	MG/L		1	122.000		122.000	122.000	81/02	81/02
CHLORIDE	TOTAL	MG/L		3	137.333	45.3249	164.000	85.0000	80/11	81/05
FLUORIDE	F,TOTAL	MG/L		3	.213333	.015275	.230000	.200000	80/11	81/05
CADMIUM	CD,TOT	UG/L	K	3	5.00000	.000000	5.00000	5.00000	80/11	81/05
CHROMIUM	CR,TOT	UG/L	K	3	30.0000	.000000	30.0000	30.0000	80/11	81/05
COPPER	CU,TOT	UG/L		1	30.0000		30.0000	30.0000	81/05	81/05
			K	2	30.0000	.000000	30.0000	30.0000	80/11	81/02
			T	3	30.0000	.000000	30.0000	30.0000	80/11	81/05
IRON	FE,TOT	UG/L		4	1120.00	411.177	1660.00	780.000	80/11	81/05
LEAD	PB,TOT	UG/L		3	21.3333	20.7926	45.0000	6.00000	80/11	81/05
NICKEL	NI,TOTAL	UG/L	K	3	100.000	.000000	100.000	100.000	80/11	81/05
ZINC	ZN,TOT	UG/L		2	30.0000	.000000	30.0000	30.0000	81/02	81/05
			K	1	30.0000		30.0000	30.0000	80/11	80/11
			T	3	30.0000	.000000	30.0000	30.0000	80/11	81/05
FEC COLI	MFM-FCBR	/100ML		2	1365.00	756.604	1900.00	830.000	80/11	81/05
FECSTREP	MF M-ENT	/100ML		2	1295.00	1421.28	2300.00	290.000	80/11	81/05
PHENOLS	TOTAL	UG/L		4	7.75000	.500000	8.00000	7.00000	80/11	81/05
MBAS		MG/L		1	.080000		.080000	.080000	81/05	81/05
RESIDUE	DISS-180	C MG/L		3	549.000	125.861	630.000	404.000	80/11	81/05
MERCURY	HG,TOTAL	UG/L	K	3	.500000	.000000	.500000	.500000	80/11	81/05

TABLE RD 1-142

STATION NUMBER 611820
41 00 11.0 081 36 33.0 2
WOLF CREEK AT BARBERTON - SNYDER AVE.
OHIO RIVER (MUSKINGUM RIVER)
MILES 0953.80 0808.80 110.20 111.10 000.20

No data were collected from 10/81 - 9/82.

TABLE RD 1-143

STATION NUMBER 600660
38 48 13.0 083 25 16.0 2
OHIO BRUSH CREEK NR WEST UNION - SR 348
OHIO RIVER (OHIO BRUSH CREEK)
MILES 0953.80 0592.80 013.10

PARAMETER			R	NO	MEAN	STAN DEV	MAXIMUM	MINIMUM	BEG	END
WATER	TEMP	CENT		11	11.0455	9.44313	25.0000	.000000	80/10	81/09
STREAM	FLOW,	INST-CFS		12	328.892	616.227	2146.00	11.1000	80/10	81/09
STREAM	STAGE	FEET		12	3.10666	1.15180	6.10000	2.09000	80/10	81/09
CNDUCTVY	AT 25C	MICROMHO		8	469.250	94.8593	640.000	343.000	80/10	81/09
DO		MG/L		11	10.4182	2.75059	14.2000	6.00000	80/10	81/09
COD	LOWLEVEL	MG/L		11	12.4545	6.25082	27.0000	5.00000	80/10	81/09
			K	1	6.00000		6.00000	6.00000	81/05	81/05
			T	12	11.9167	6.24439	27.0000	5.00000	80/10	81/09
PH		SU		11	7.58181	.442328	8.20000	6.90000	80/10	81/09
LAB	PH	SU		2	8.24999	.072345	8.30000	8.20000	81/01	81/04
RESIDUE	TOT NFLT	MG/L		7	42.0000	64.9949	188.000	10.0000	80/10	81/09
			K	4	10.0000	.000000	10.0000	10.0000	80/11	81/03
			T	11	30.3636	52.8702	188.000	10.0000	80/10	81/09
NH3+NH4-	N TOTAL	MG/L		4	.137500	.083815	.260000	.070000	81/02	81/07
			K	8	.050000	.000052	.050000	.050000	80/10	81/09
			T	12	.079167	.061416	.260000	.050000	80/10	81/09
NO2-N	TOTAL	MG/L		9	.027778	.035629	.100000	.010000	80/11	81/09
			K	2	.010000	.000000	.010000	.010000	80/10	81/04
			T	11	.024545	.032669	.100000	.010000	80/10	81/09
NO3-N	TOTAL	MG/L		12	.849999	.614329	1.76000	.050000	80/10	81/09
TOT KJEL	N	MG/L		12	.530000	.431172	1.56000	.200000	80/10	81/09
PHOS-TOT		MG/L P		11	.057636	.085008	.310000	.019000	80/10	81/09
			K	1	.020000		.020000	.020000	81/01	81/01
			T	12	.054500	.081777	.310000	.019000	80/10	81/09
TOT HARD	CACO3	MG/L		7	240.000	29.6873	276.000	190.000	80/10	81/08
CHLORIDE	TOTAL	MG/L		2	10.0000	2.82843	12.0000	8.00000	81/02	81/05
SULFATE	SO4-TOT	MG/L		2	36.0000	.000000	36.0000	36.0000	80/10	81/05

TABLE RD 1-143 (Continued)

STATION NUMBER 600660
38 48 13.0 083 25 16.0 2
OHIO BRUSH CREEK NR WEST UNION - SR 348
OHIO RIVER (OHIO BRUSH CREEK)
MILES 0953.80 0592.80 013.10

PARAMETER			R	NO	MEAN	STAN DEV	MAXIMUM	MINIMUM	BEG	END
CADMIUM	CD,TOT	UG/L	K	7	5.71428	1.88983	10.0000	5.00000	80/10	81/08
CHROMIUM	CR,TOT	UG/L	K	7	30.0000	.000000	30.0000	30.0000	80/10	81/08
COPPER	CU,TOT	UG/L	K	7	30.0000	.000000	30.0000	30.0000	80/10	81/08
IRON	FE,TOT	UG/L		7	2195.71	3599.86	10300.0	470.000	80/10	81/08
LEAD	PB,TOT	UG/L		2	24.0000	16.9706	36.0000	12.0000	81/02	81/08
			K	5	6.00000	2.23607	10.0000	5.00000	80/10	81/07
			T	7	11.1429	11.3347	36.0000	5.00000	80/10	81/08
MANGNESE	MN	UG/L		2	70.0000	.000000	70.0000	70.0000	81/05	81/08
			K	1	30.0000		30.0000	30.0000	80/11	80/11
			T	3	56.6667	23.0941	70.0000	30.0000	80/11	81/08
NICKEL	NI,TOTAL	UG/L		1	100.000		100.000	100.000	80/10	80/10
			K	5	100.000	.000000	100.000	100.000	80/11	81/08
			T	6	100.000	.000000	100.000	100.000	80/10	81/08
ZINC	ZN,TOT	UG/L		1	40.0000		40.0000	40.0000	81/02	81/02
ZINC	ZN,TOT	UG/L	K	6	30.0000	.000000	30.0000	30.0000	80/10	81/08
			T	7	31.4286	3.77983	40.0000	30.0000	80/10	81/08
ALUMINUM	AL,TOT	UG/L		4	1950.00	2836.08	6200.00	400.000	81/02	81/08
FEC COLI	MFM-FCBR	/100ML		10	629.060	909.617	2400.00	16.6000	80/10	81/09
			K	2	5.15000	2.19203	6.70000	3.60000	80/12	81/01
			T	12	525.074	857.873	2400.00	3.60000	80/10	81/09
PHENOLS	TOTAL	UG/L		2	4.50000	.707107	5.00000	4.00000	80/11	81/03
			K	2	2.00000	.000000	2.00000	2.00000	81/07	81/08
			T	4	3.25000	1.50000	5.00000	2.00000	80/11	81/08
RESIDUE	DISS-180 C	MG/L		9	270.555	29.9394	304.000	216.000	80/10	81/08
MERCURY	HG,TOTAL	UG/L		1	1.00000		1.00000	1.00000	81/08	81/08
			K	3	.500000	.000000	.500000	.500000	80/10	81/07
			T	4	.625000	.250000	1.00000	.500000	80/10	81/08

TABLE RD 1-144

STATION NUMBER 600660
38 48 13.0 083 25 16.0 2
OHIO BRUSH CREEK NR WEST UNION - SR 348
OHIO RIVER (OHIO BRUSH CREEK)
MILES 0953.80 0592.80 013.10

PARAMETER			R	NO	MEAN	STAN DEV	MAXIMUM	MINIMUM	BEG	END
WATER	TEMP	CENT		12	12.9583	9.03392	26.0000	.000000	81/10	82/09
STREAM	FLOW	CFS		7	569.428	716.634	1943.00	38.0000	81/12	82/06
STREAM	FLOW,	INST-CFS		4	10.4125	4.99639	14.6000	3.95000	81/10	82/09
STREAM	STAGE	FEET		9	3.23777	1.37058	5.86000	1.94000	81/10	82/09
CNDUCTVY	AT 25C	MICROMHO		3	397.666	76.5280	473.000	320.000	81/10	82/03
DO	PROBE	MG/L		10	10.4700	3.79095	17.0000	6.30000	81/12	82/09
DO		MG/L		2	10.7500	2.61635	12.6000	8.90000	81/10	81/11
COD	LOWLEVEL	MG/L		7	13.0000	1.00000	15.0000	12.0000	81/11	82/09
			K	1	20.0000		20.0000	20.0000	82/08	82/08
			T	8	13.8750	2.64237	20.0000	12.0000	81/11	82/09
PH		SU		10	8.16000	.316939	8.80000	7.70000	81/10	82/09
LAB	PH	SU		2	7.95000	.353553	8.20000	7.70000	81/10	81/11
RESIDUE	TOTAL	MG/L		1	369.000		369.000	369.000	81/12	81/12
RESIDUE	TOT NFLT	MG/L		8	48.0000	96.5105	286.000	6.00000	81/10	82/09
			K	1	10.0000		10.0000	10.0000	81/11	81/11
			T	9	43.7778	91.1616	286.000	6.00000	81/10	82/09
NH3+NH4-	N TOTAL	MG/L		4	.062500	.015000	.080000	.050000	82/01	82/08
			K	8	.050000	.000052	.050000	.050000	81/10	82/09
			T	12	.054167	.009962	.080000	.050000	81/10	82/09
NO2-N	TOTAL	MG/L		1	.080000		.080000	.080000	82/03	82/03
			K	4	.017500	.005000	.020000	.010000	81/11	82/09
			T	5	.030000	.028284	.080000	.010000	81/11	82/09
NO3-N	TOTAL	MG/L		10	1.23800	1.36560	4.21000	.080000	81/12	82/09
			K	2	.050000	.000061	.050000	.050000	81/10	81/11
			T	12	1.04000	1.31895	4.21000	.050000	81/10	82/09
TOT KJEL	N	MG/L		12	.473333	.284520	1.30000	.300000	81/10	82/09
PHOS-TOT		MG/L P		3	.026333	.015177	.040000	.010000	81/10	82/08
			K	7	.045714	.011339	.050000	.020000	81/11	82/09
			T	10	.039900	.014985	.050000	.010000	81/10	82/09
PHOS-DIS		MG/L P	K	1	.050000		.050000	.050000	82/01	82/01
TOT HARD	CACO3	MG/L		4	244.250	32.3148	290.000	220.000	81/11	82/08
CALCIUM	CA-TOT	MG/L		4	53.7750	3.20238	57.4000	49.6000	82/02	82/08
MGNSIUM	MG,TOT	MG/L		4	25.3750	3.84056	30.2000	21.4000	82/02	82/08
CADMIUM	CD,TOT	UG/L	K	3	2.00000	2.59808	5.00000	.500000	81/11	82/08
CHROMIUM	CR,TOT	UG/L	K	5	30.0000	.000000	30.0000	30.0000	81/11	82/08
COPPER	CU,TOT	UG/L	K	5	14.0000	8.94427	30.0000	10.0000	81/11	82/08
IRON	FE,TOT	UG/L		5	688.000	439.340	1320.00	250.000	81/11	82/08
LEAD	PB,TOT	UG/L		1	80.0000		80.0000	80.0000	82/08	82/08
			K	3	4.00000	1.73205	5.00000	2.00000	81/11	82/04
			T	4	23.0000	38.0263	80.0000	2.00000	81/11	82/08
MANGNESE	MN	UG/L		4	65.0000	27.3861	85.0000	25.0000	81/11	82/08

TABLE RD 1-144 (Continued)

STATION NUMBER 600660
38 48 13.0 083 25 16.0 2
OHIO BRUSH CREEK NR WEST UNION - SR 348
OHIO RIVER (OHIO BRUSH CREEK)
MILES 0953.80 0592.80 013.10

PARAMETER			R	NO	MEAN	STAN DEV	MAXIMUM	MINIMUM	BEG	END
NICKEL	NI,TOTAL	UG/L	K	5	64.0000	32.8634	100.000	40.0000	81/11	82/08
ZINC	ZN,TOT	UG/L	K	5	14.0000	8.94427	30.0000	10.0000	81/11	82/08
ALUMINUM	AL,TOT	UG/L		1	300.000		300.000	300.000	81/11	81/11
FEC COLI	MFM-FCBR	/100ML		9	326.222	502.348	1600.00	13.0000	81/11	82/07
			K	1	17.0000		17.0000	17.0000	81/10	81/10
			T	10	295.300	483.608	1600.00	13.0000	81/10	82/07
PHENOLS	TOTAL	UG/L	K	1	10.0000		10.0000	10.0000	82/08	82/08
RESIDUE	DISS-180	C MG/L		7	266.571	33.3623	327.000	212.000	81/10	82/09
MERCURY	HG,TOTAL	UG/L	K	1	.500000		.500000	.500000	81/11	81/11

TABLE RD 1-145

STATION NUMBER 500510
41 26 58.0 083 21 29.0 2
PORTAGE RIVER AT WOODVILLE - U.S. 20
LAKE ERIE 060492 (PORTAGE RIVER BASIN)
MILES 0028.20

PARAMETER			R	NO	MEAN	STAN DEV	MAXIMUM	MINIMUM	BEG	END
WATER	TEMP	CENT		12	10.8417	8.37718	21.6000	-.299E+00	80/10	81/09
WIND	VELOCITY	MPH	K	1	4.00000		4.00000	4.00000	81/09	81/09
STREAM	STAGE	FEET		5	3.74200	2.42157	7.97000	2.18000	81/03	81/09
TURB	TRBIDMTR	HACH FTU		1	154.000		154.000	154.000	81/09	81/09
CNDUCTVY	AT 25C	MICROMHO		8	729.000	208.784	927.000	333.000	81/02	81/09
DO		MG/L		12	8.83333	2.68982	12.6000	4.20000	80/10	81/09
BOD	5 DAY	MG/L		11	4.47272	3.99627	15.0000	1.00000	80/10	81/09
COD	LOWLEVEL	MG/L		8	21.6500	9.62986	39.6000	11.0000	80/10	81/07
			K	4	4.00000	.000000	4.00000	4.00000	80/11	81/09
			T	12	15.7667	11.5988	39.6000	4.00000	80/10	81/09
LAB	PH	SU		12	8.07666	.278035	8.64000	7.60000	80/10	81/09
T ALK	CACO3	MG/L		5	165.200	121.469	375.000	88.0000	80/10	81/09
RESIDUE	TOT NFLT	MG/L		6	61.3333	58.7935	176.000	22.0000	80/11	81/09
			K	6	10.0000	.000000	10.0000	10.0000	80/10	81/08
			T	12	35.6667	47.8527	176.000	10.0000	80/10	81/09
NH3+NH4-	N TOTAL	MG/L		5	.674000	.797421	2.00000	.070000	80/10	81/09
			K	3	.500000	.000000	.500000	.500000	81/02	81/04
			T	8	.608750	.609483	2.00000	.070000	80/10	81/09
NO2-N	TOTAL	MG/L		12	.079167	.084902	.280000	.010000	80/10	81/09
NO3-N	TOTAL	MG/L		12	4.62333	3.27307	11.4000	.080000	80/10	81/09
TOT KJEL	N	MG/L		12	1.77500	1.01449	3.91000	.830000	80/10	81/09
PHOS-TOT		MG/L P		12	.231249	.176009	.609000	.057000	80/10	81/09
T ORG C	C	MG/L		5	15.2000	2.77490	18.0000	12.0000	80/10	81/07
TOT HARD	CACO3	MG/L		12	320.250	92.4873	456.000	156.000	80/10	81/09
CALCIUM	CA-TOT	MG/L		10	86.9000	28.8655	123.000	42.0000	80/12	81/09
MGNSIUM	MG,TOT	MG/L		10	26.0000	8.24621	38.0000	12.0000	80/12	81/09
SODIUM	NA,TOT	MG/L		10	50.0000	38.1401	139.000	7.00000	80/12	81/09
PTSSIUM	K,TOT	MG/L		9	5.76666	2.70787	11.0000	3.00000	81/01	81/09
CHLORIDE	TOTAL	MG/L		12	88.5000	48.2107	199.000	20.0000	80/10	81/09
SULFATE	SO4-TOT	MG/L		12	121.000	43.8738	198.000	38.0000	80/10	81/09
SILICA	DISOLVED	MG/L		8	3.52749	2.27045	5.99000	.130000	80/12	81/07
			K	1	.100000		.100000	.100000	81/08	81/08
			T	9	3.14666	2.41162	5.99000	.100000	80/12	81/08

TABLE RD 1-145 (Continued)

STATION NUMBER 500510
41 26 58.0 083 21 29.0 2
PORTAGE RIVER AT WOODVILLE - U.S. 20
LAKE ERIE 060492 (PORTAGE RIVER BASIN)
MILES 0028.20

PARAMETER			R	NO	MEAN	STAN DEV	MAXIMUM	MINIMUM	BEG	END
ARSENIC	AS,TOT	UG/L	K	12	50.8333	141.451	500.000	10.0000	80/10	81/09
CADMIUM	CD,TOT	UG/L	K	12	5.00000	.000000	5.00000	5.00000	80/10	81/09
CHROMIUM	CR,TOT	UG/L		1	30.0000		30.0000	30.0000	80/12	80/12
			K	11	30.0000	.000000	30.0000	30.0000	80/10	81/09
			T	12	30.0000	.000000	30.0000	30.0000	80/10	81/09
COPPER	CU,TOT	UG/L		1	30.0000		30.0000	30.0000	81/09	81/09
			K	11	30.0000	.000000	30.0000	30.0000	80/10	81/08
			T	12	30.0000	.000000	30.0000	30.0000	80/10	81/09
IRON	FE,TOT	UG/L		12	2007.50	3521.87	10000.0	140.000	80/10	81/09
LEAD	PB,TOT	UG/L		2	10.0000	2.82843	12.0000	8.00000	81/02	81/09
			K	10	5.00000	.000000	5.00000	5.00000	80/10	81/08
			T	12	5.83333	2.12489	12.0000	5.00000	80/10	81/09
MANGNESE	MN	UG/L		9	72.2222	47.9004	150.000	30.0000	80/10	81/09
			K	3	30.0000	.000000	30.0000	30.0000	80/11	81/04
			T	12	61.6667	45.0925	150.000	30.0000	80/10	81/09
NICKEL	NI,TOTAL	UG/L		1	100.000		100.000	100.000	81/08	81/08
			K	8	100.000	.000000	100.000	100.000	81/01	81/09
			T	9	100.000	.000000	100.000	100.000	81/01	81/09
ZINC	ZN,TOT	UG/L		3	46.6667	15.2753	60.0000	30.0000	80/12	81/09
			K	9	30.0000	.000000	30.0000	30.0000	80/10	81/08
			T	12	34.1667	9.96211	60.0000	30.0000	80/10	81/09
ALUMINUM	AL,TOT	UG/L		9	1311.11	1837.42	5100.00	200.000	80/10	81/09
			K	3	200.000	.000000	200.000	200.000	80/11	81/04
			T	12	1033.33	1645.56	5100.00	200.000	80/10	81/09
FEC COLI	MFM-FCBR	/100ML		11	1717.09	2953.79	9900.00	8.00000	80/10	81/09
MBAS		MG/L		12	.159166	.060523	.300000	.100000	80/10	81/09
PCBS	WHL SMPL	UG/L	K	7	.500000	.000000	.500000	.500000	81/02	81/09
RESIDUE	DISS-180	C MG/L		12	491.000	217.626	884.000	214.000	80/10	81/09
MERCURY	HG,TOTAL	UG/L		1	.600000		.600000	.600000	80/12	80/12
			K	9	.500000	.000000	.500000	.500000	80/10	81/07
			T	10	.510000	.031626	.600000	.500000	80/10	81/07

TABLE RD 1-146

STATION NUMBER 500510
41 26 58.0 083 21 29.0 2
PORTAGE RIVER AT WOODVILLE - U.S. 20
LAKE ERIE 060492 (PORTAGE RIVER BASIN)
MILES 0028.20

PARAMETER			R	NO	MEAN	STAN DEV	MAXIMUM	MINIMUM	BEG	END
WATER	TEMP	CENT		4	12.8000	8.00916	22.1000	3.30000	81/10	82/09
STREAM	STAGE	FEET		4	3.84250	4.13615	9.86000	.660000	81/10	82/09
TURB	TRBIDMTR	HACH FTU		1	176.000		176.000	176.000	81/10	81/10
CNDUCTVY	AT 25C	MICROMHO		5	813.800	281.156	1100.00	370.000	81/10	82/09
DO	PROBE	MG/L		2	9.55000	4.73763	12.9000	6.20000	82/08	82/09
DO		MG/L		2	9.89999	3.95983	12.7000	7.10000	81/10	81/12
BOD	5 DAY	MG/L		4	4.90000	2.58586	8.50000	2.40000	81/11	82/09
COD	LOWLEVEL	MG/L		3	26.4333	16.6902	38.0000	7.30000	81/11	82/09
			K	1	4.00000		4.00000	4.00000	81/12	81/12
			T	4	20.8250	17.6500	38.0000	4.00000	81/11	82/09
LAB	PH	SU		5	8.35400	.490822	9.04000	7.86000	81/10	82/09
RESIDUE	TOT NFLT	MG/L		3	67.3333	71.7658	150.000	21.0000	81/10	82/09
			K	2	10.0000	.000000	10.0000	10.0000	81/11	81/12
			T	5	44.4000	59.6766	150.000	10.0000	81/10	82/09
NH3+NH4-	N TOTAL	MG/L		3	.060000	.017321	.080000	.050000	81/10	82/08
			K	2	.050000	.000061	.050000	.050000	81/11	82/09
			T	5	.056000	.013417	.080000	.050000	81/10	82/09
NO2-N	TOTAL	MG/L		5	.046000	.036469	.110000	.020000	81/10	82/09
NO3-N	TOTAL	MG/L		5	3.19200	1.25889	4.64000	1.83000	81/10	82/09
TOT KJEL	N	MG/L		5	1.24200	.703612	2.41000	.650000	81/10	82/09
PHOS-TOT		MG/L P		5	.197600	.160699	.461000	.049000	81/10	82/09
T ORG C	C	MG/L		3	10.6667	5.50759	17.0000	7.00000	81/10	81/12
TOT HARD	CACO3	MG/L		4	314.000	100.648	386.000	168.000	81/10	82/08
CALCIUM	CA-TOT	MG/L		5	86.9200	26.1267	114.000	52.0000	81/10	82/09
MGNSIUM	MG,TOT	MG/L		5	27.1800	7.54734	32.0000	14.0000	81/10	82/09
SODIUM	NA,TOT	MG/L		5	50.3800	43.3605	101.600	6.00000	81/10	82/09
PTSSIUM	K,TOT	MG/L		5	8.50000	5.32729	15.8000	3.40000	81/10	82/09
CHLORIDE	TOTAL	MG/L		3	43.0000	16.7033	58.0000	25.0000	81/10	81/12

TABLE RD 1-146 (Continued)

STATION NUMBER 500510
41 26 58.0 083 21 29.0 2
PORTAGE RIVER AT WOODVILLE - U.S. 20
LAKE ERIE 060492 (PORTAGE RIVER BASIN)
MILES 0028.20

PARAMETER			R	NO	MEAN	STAN DEV	MAXIMUM	MINIMUM	BEG	END
SULFATE	SO4-TOT	MG/L		3	86.6667	43.9812	115.000	36.0000	81/10	81/12
SILICA	DISOLVED	MG/L		3	5.20000	3.10527	7.51000	1.67000	81/10	81/12
ARSENIC	AS,TOT	UG/L	K	3	10.0000	.000000	10.0000	10.0000	81/10	81/12
CADMIUM	CD,TOT	UG/L		1	.600000		.600000	.600000	82/08	82/08
			K	4	3.87500	2.25000	5.00000	.500000	81/10	82/09
			T	5	3.22000	2.43763	5.00000	.500000	81/10	82/09
CHROMIUM	CR,TOT	UG/L	K	5	30.0000	.000000	30.0000	30.0000	81/10	82/09
COPPER	CU,TOT	UG/L		1	15.0000		15.0000	15.0000	82/09	82/09
			K	4	25.0000	10.0000	30.0000	10.0000	81/10	82/08
			T	5	23.0000	9.74679	30.0000	10.0000	81/10	82/09
IRON	FE,TOT	UG/L		5	2772.00	4666.42	11100.0	240.000	81/10	82/09
LEAD	PB,TOT	UG/L		1	7.00000		7.00000	7.00000	81/10	81/10
			K	4	3.50000	1.73205	5.00000	2.00000	81/11	82/09
LEAD	PB,TOT	UG/L	T	5	4.20000	2.16795	7.00000	2.00000	81/10	82/09
MANGNESE	MN	UG/L		4	76.2500	38.5951	130.000	40.0000	81/10	82/09
			K	1	30.0000		30.0000	30.0000	81/12	81/12
			T	5	67.0000	39.3065	130.000	30.0000	81/10	82/09
NICKEL	NI,TOTAL	UG/L	K	4	70.0000	34.6410	100.000	40.0000	81/10	82/09
ZINC	ZN,TOT	UG/L		3	30.0000	13.2288	40.0000	15.0000	81/10	82/09
			K	2	30.0000	.000000	30.0000	30.0000	81/11	81/12
			T	5	30.0000	9.35414	40.0000	15.0000	81/10	82/09
ALUMINUM	AL,TOT	UG/L		3	2700.00	4158.12	7500.00	200.000	81/10	81/12
FEC COLI	MFM-FCBR	/100ML		4	1703.25	2486.68	5400.00	93.0000	81/10	82/09
MBAS		MG/L		3	.113333	.005773	.120000	.110000	81/10	81/12
RESIDUE	DISS-180	C MG/L		4	534.000	259.451	752.000	192.000	81/10	82/09
MERCURY	HG,TOTAL	UG/L	K	2	.500000	.000000	.500000	.500000	81/11	81/12

TABLE RD 1-147

STATION NUMBER 601400
38 52 25.0 082 21 22.0 2
RACCOON CREEK AT ADAMSVILLE - U.S. RT. 35
OHIO RIVER (RACCOON CREEK)
MILES 0953.80 0704.90 029.60

PARAMETER			R	NO	MEAN	STAN DEV	MAXIMUM	MINIMUM	BEG	END
WATER	TEMP	CENT		10	12.3500	8.49853	23.0000	.500000	80/12	81/09
STREAM	FLOW,	INST-CFS		10	658.479	885.688	2986.00	12.3000	80/12	81/09
STREAM	STAGE	FEET		10	5.30700	3.40040	13.6100	1.95000	80/12	81/09
CNDUCTVY	AT 25C	MICROMHO		4	379.250	134.445	576.000	288.000	80/12	81/09
DO		MG/L		10	9.52999	2.34191	13.0000	6.80000	80/12	81/09
COD	LOWLEVEL	MG/L		6	8.66667	3.98331	14.0000	4.00000	80/12	81/08
			K	4	6.00000	.000000	6.00000	6.00000	81/05	81/09
			T	10	7.60000	3.27279	14.0000	4.00000	80/12	81/09
PH		SU		10	6.19999	.684792	7.40000	4.90000	80/12	81/09
LAB	PH	SU		3	6.96666	.550823	7.60000	6.60000	81/02	81/06
ACIDITY	MINERAL	MG/L		1	7.00000		7.00000	7.00000	81/07	81/07
RESIDUE	TOT NFLT	MG/L		3	17.6667	1.52774	19.0000	16.0000	81/02	81/06
			K	5	9.00000	2.23607	10.0000	5.00000	80/12	81/09
			T	8	12.2500	4.86239	19.0000	5.00000	80/12	81/09
NH3+NH4-	N TOTAL	MG/L		10	.282000	.171970	.600000	.080000	80/12	81/09
NO2-N	TOTAL	MG/L		6	.010000	.000000	.010000	.010000	80/12	81/09
			K	3	.010000	.000000	.010000	.010000	81/04	81/08
			T	9	.010000	.000008	.010000	.010000	80/12	81/09
NO3-N	TOTAL	MG/L		10	.667999	.530425	2.14000	.340000	80/12	81/09
TOT KJEL	N	MG/L		10	.465000	.218442	.820000	.270000	80/12	81/09
PHOS-TOT		MG/L P		5	.042800	.031452	.097000	.021000	81/01	81/09
			K	5	.020000	.000020	.020000	.020000	80/12	81/06
			T	10	.031400	.024167	.097000	.020000	80/12	81/09
TOT HARD	CACO3	MG/L		9	134.111	27.4612	184.000	102.000	80/12	81/08
CHLORIDE	TOTAL	MG/L		1	17.0000		17.0000	17.0000	81/05	81/05
SULFATE	SO4-TOT	MG/L		6	110.833	41.6434	173.000	51.0000	81/02	81/08
CADMIUM	CD,TOT	UG/L	K	4	5.00000	.000000	5.00000	5.00000	81/02	81/08

TABLE RD 1-147 (Continued)

STATION NUMBER 601400
38 52 25.0 082 21 22.0 2
RACCOON CREEK AT ADAMSVILLE - U.S. RT. 35
OHIO RIVER (RACCOON CREEK)
MILES 0953.80 0704.90 029.60

PARAMETER			R	NO	MEAN	STAN DEV	MAXIMUM	MINIMUM	BEG	END
CHROMIUM	CR,TOT	UG/L	K	4	30.0000	.000000	30.0000	30.0000	81/02	81/08
COPPER	CU,TOT	UG/L	K	5	30.0000	.000000	30.0000	30.0000	81/01	81/08
IRON	FE,TOT	UG/L		10	1072.00	577.289	2100.00	110.000	80/12	81/09
LEAD	PB,TOT	UG/L	K	4	5.00000	.000000	5.00000	5.00000	81/02	81/08
MANGNESE	MN	UG/L		9	2012.22	617.166	2940.00	1240.00	80/12	81/09
NICKEL	NI,TOTAL	UG/L		1	100.000		100.000	100.000	81/05	81/05
			K	3	100.000	.000000	100.000	100.000	81/02	81/08
			T	4	100.000	.000000	100.000	100.000	81/02	81/08
ZINC	ZN,TOT	UG/L		7	35.7143	11.3390	60.0000	30.0000	81/01	81/08
			K	1	30.0000		30.0000	30.0000	81/05	81/05
			T	8	35.0000	10.6904	60.0000	30.0000	81/01	81/08
ALUMINUM	AL,TOT	UG/L		6	383.333	98.3196	500.000	200.000	81/01	81/08
FEC COLI	MFM-FCBR	/100ML		10	121.800	82.5198	280.000	11.0000	80/12	81/09
PHENOLS	TOTAL	UG/L		2	6.50000	.707107	7.00000	6.00000	81/03	81/05
PHENOLS	TOTAL	UG/L	K	1	2.00000		2.00000	2.00000	81/08	81/08
			T	3	5.00000	2.64575	7.00000	2.00000	81/03	81/08
RESIDUE	DISS-180 C	MG/L		7	229.714	50.8060	308.000	168.000	81/01	81/07
T ACDITY	HOT-MG/L	CACO3		1	13.0000		13.0000	13.0000	81/09	81/09
			K	3	10.0000	.000000	10.0000	10.0000	80/12	81/04
			T	4	10.7500	1.50000	13.0000	10.0000	80/12	81/09
MERCURY	HG,TOTAL	UG/L	K	2	.500000	.000000	.500000	.500000	81/05	81/08

TABLE RD 1-148

STATION NUMBER 601400
38 52 25.0 082 21 22.0 2
RACCOON CREEK AT ADAMSVILLE - U.S. RT. 35
OHIO RIVER (RACCOON CREEK)
MILES 0953.80 0704.90 029.60

PARAMETER			R	NO	MEAN	STAN DEV	MAXIMUM	MINIMUM	BEG	END
WATER	TEMP	CENT		13	11.1923	8.37292	25.0000	-.100E+01	81/10	82/09
STREAM	FLOW	CFS		7	781.500	920.465	2621.00	55.0000	81/12	82/06
STREAM	FLOW,	INST-CFS		6	20.9833	7.80706	31.0000	13.3000	81/10	82/09
STREAM	STAGE	FEET		10	3.65599	2.19551	7.67000	1.97000	81/10	82/09
CNDUCTVY	AT 25C	MICROMHO		4	457.500	200.728	690.000	280.000	81/10	82/03
DO	PROBE	MG/L		11	10.1364	3.22096	17.4000	6.80000	81/10	82/09
DO		MG/L		2	10.2500	3.60628	12.8000	7.70000	81/10	81/11
COD	LOWLEVEL	MG/L		3	10.0000	3.00000	13.0000	7.00000	82/04	82/06
			K	3	12.0000	7.21110	20.0000	6.00000	81/11	82/09
			T	6	11.0000	5.05964	20.0000	6.00000	81/11	82/09
PH		SU		13	6.27692	.605775	7.20000	5.40000	81/10	82/09
T ALK	CACO3	MG/L		1	9.50000		9.50000	9.50000	81/10	81/10
RESIDUE	TOTAL	MG/L		1	635.000		635.000	635.000	81/12	81/12
RESIDUE	TOT NFLT	MG/L		6	24.8333	35.6169	96.0000	5.00000	81/10	82/09
			K	3	6.66667	2.88676	10.0000	5.00000	81/11	82/05
			T	9	18.7778	29.6217	96.0000	5.00000	81/10	82/09
NH3+NH4-	N TOTAL	MG/L		12	.293333	.277925	.900000	.050000	81/10	82/09
NO2-N	TOTAL	MG/L		1	.020000		.020000	.020000	82/03	82/03
			K	4	.020000	.000000	.020000	.020000	81/10	82/09
			T	5	.020000	.000020	.020000	.020000	81/10	82/09
NO3-N	TOTAL	MG/L		12	.495000	.141068	.760000	.200000	81/10	82/09
TOT KJEL	N	MG/L		12	.515833	.254503	1.05000	.200000	81/10	82/09
PHOS-TOT		MG/L P		5	.037400	.011653	.050000	.026000	81/10	82/08
			K	6	.050000	.000061	.050000	.050000	81/10	82/09
			T	11	.044273	.009880	.050000	.026000	81/10	82/09
TOT HARD	CACO3	MG/L		10	166.300	61.1775	273.000	84.0000	81/10	82/08

TABLE RD 1-148 (Continued)

STATION NUMBER 601400
38 52 25.0 082 21 22.0 2
RACCOON CREEK AT ADAMSVILLE - U.S. RT. 35
OHIO RIVER (RACCOON CREEK)
MILES 0953.80 0704.90 029.60

PARAMETER			R	NO	MEAN	STAN DEV	MAXIMUM	MINIMUM	BEG	END
CALCIUM	CA-TOT	MG/L		9	40.0777	15.5237	64.2000	20.5000	81/10	82/09
MGNSIUM	MG,TOT	MG/L		10	15.7400	5.86177	27.4000	8.00000	81/10	82/09
SULFATE	SO4-TOT	MG/L		3	164.667	27.3016	196.000	146.000	81/10	81/11
CADMIUM	CD,TOT	UG/L	K	4	1.62500	2.25000	5.00000	.500000	81/11	82/08
CHROMIUM	CR,TOT	UG/L	K	7	30.0000	.000000	30.0000	30.0000	81/11	82/08
COPPER	CU,TOT	UG/L		1	20.0000		20.0000	20.0000	82/08	82/08
			K	8	12.5000	7.07107	30.0000	10.0000	81/10	82/06
			T	9	13.3333	7.07107	30.0000	10.0000	81/10	82/08
IRON	FE,TOT	UG/L		12	1265.83	1287.73	4610.00	420.000	81/10	82/09
LEAD	PB,TOT	UG/L		2	7.00000	1.41421	8.00000	6.00000	81/11	82/04
			K	4	4.25000	1.50000	5.00000	2.00000	81/12	82/08
			T	6	5.16667	1.94079	8.00000	2.00000	81/11	82/08
MANGNESE	MN	UG/L		11	2701.82	1345.48	5910.00	870.000	81/10	82/09
NICKEL	NI,TOTAL	UG/L		4	75.0000	51.9615	150.000	40.0000	81/11	82/08
			K	6	48.3333	25.6256	100.000	30.0000	81/10	82/06
NICKEL	NI,TOTAL	UG/L	T	10	59.0000	38.1372	150.000	30.0000	81/10	82/08
ZINC	ZN,TOT	UG/L		11	43.6363	25.9895	110.000	10.0000	81/10	82/09
			K	1	30.0000		30.0000	30.0000	81/10	81/10
			T	12	42.5000	25.0907	110.000	10.0000	81/10	82/09
ALUMINUM	AL,TOT	UG/L		2	300.000	.000000	300.000	300.000	81/10	81/11
FEC COLI	MFM-FCBR	/100ML		11	92.1818	111.405	320.000	3.00000	81/10	82/07
PHENOLS	TOTAL	UG/L	K	1	10.0000		10.0000	10.0000	82/08	82/08
RESIDUE	DISS-180 C	MG/L		8	376.250	157.913	617.000	180.000	81/10	82/09
T ACDITY	HOT-MG/L	CACO3	K	2	7.50000	3.53553	10.0000	5.00000	81/10	81/11
MERCURY	HG,TOTAL	UG/L	K	1	.500000		.500000	.500000	81/11	81/11

TABLE RD 1-149

STATION NUMBER 501800
41 24 24.0 081 53 14.0 2
ROCKY RIVER NR BEREA - CEDAR POINT RD
LAKE ERIE 060591 (ROCKY RIVER)
MILES 0012.00

PARAMETER			R	NO	MEAN	STAN DEV	MAXIMUM	MINIMUM	BEG	END
WATER	TEMP	CENT		26	16.1538	8.65655	30.0000	.000000	80/10	81/09
STREAM	FLOW	CFS		14	169.529	224.181	846.000	36.7000	81/06	81/09
STREAM	FLOW,	INST-CFS		10	526.789	1103.34	3652.00	43.9000	80/10	81/09
STREAM	STAGE	FEET		13	1.61384	.972231	4.65000	.910000	80/10	81/09
TURB	TRBIDMTR	HACH FTU		10	82.2000	204.332	660.000	2.50000	80/10	81/07
CNDUCTVY	FIELD	MICROMHO		9	485.000	153.256	800.000	300.000	80/10	81/07
CNDUCTVY	AT 25C	MICROMHO		22	715.591	260.355	1507.00	231.000	80/12	81/09
INTNSVE	SURVEY	IDENT		14	813901	.000000	813901	813901	81/06	81/09
DO	PROBE	MG/L		14	8.72142	1.51108	12.9000	6.00000	81/06	81/09
DO		MG/L		13	10.4692	2.38097	14.4000	7.30000	80/10	81/09
BOD	5 DAY	MG/L		14	9.18214	9.53050	41.7000	3.50000	81/06	81/09
COD	LOWLEVEL	MG/L		24	31.0917	22.4681	104.000	12.0000	80/10	81/09
PH		SU		15	8.07666	.294575	8.90000	7.75000	81/07	81/09
LAB	PH	SU		22	7.73999	.448366	8.60000	6.40000	80/10	81/09
T ALK	CACO3	MG/L		11	142.455	46.1809	253.000	80.0000	80/10	81/09
RESIDUE	TOT NFLT	MG/L		22	92.7008	224.009	1027.00	5.10000	80/12	81/09
			K	4	10.0000	.000000	10.0000	10.0000	80/10	81/08
			T	26	79.9776	207.551	1027.00	5.10000	80/10	81/09
NH3+NH4-	N TOTAL	MG/L		24	1.01375	.933019	3.62000	.190000	80/10	81/09
NO2-N	TOTAL	MG/L		23	.309130	.205955	.760000	.070000	80/10	81/09
			K	1	.030000		.030000	.030000	81/09	81/09
			T	24	.297500	.209331	.760000	.030000	80/10	81/09
NO3-N	TOTAL	MG/L		24	2.24166	.841704	4.07000	.720000	80/10	81/09
TOT KJEL	N	MG/L		24	2.44291	1.55340	6.94000	1.00000	80/10	81/09
PHOS-TOT		MG/L P		24	1.02046	.474749	2.00000	.303000	80/10	81/09
PHOS-DIS		MG/L P		11	.717090	.447957	1.82000	.198000	80/10	81/09
T ORG C	C	MG/L		4	15.2500	2.50000	19.0000	14.0000	80/10	81/07
D ORG C	C	MG/L		4	11.2500	3.09570	14.0000	7.00000	81/01	81/07
TOT HARD	CACO3	MG/L		19	227.537	30.8184	304.000	162.000	80/11	81/09
CALCIUM	CA-TOT	MG/L		22	62.9636	8.36571	87.0000	50.0000	80/11	81/09
MGNSIUM	MG,TOT	MG/L		13	17.9692	1.69779	20.9000	15.7000	81/07	81/09
SODIUM	NA,TOT	MG/L		10	74.0000	44.9197	193.000	36.0000	80/11	81/09
CHLORIDE	TOTAL	MG/L		11	113.545	68.3965	298.000	51.0000	80/10	81/09
SULFATE	SO4-TOT	MG/L		11	95.5454	17.3862	118.000	63.0000	80/10	81/09
SILICA	DISOLVED	MG/L		12	5.20083	2.04190	8.47000	1.13000	80/10	81/09
ARSENIC	AS,TOT	UG/L	K	3	10.0000	.000000	10.0000	10.0000	81/04	81/07
CADMIUM	CD,TOT	UG/L		1	.600000		.600000	.600000	81/09	81/09
			K	17	2.08823	2.21667	5.00000	.500000	80/11	81/09
			T	18	2.00555	2.17890	5.00000	.500000	80/11	81/09
CHROMIUM	CR,TOT	UG/L		2	50.0000	28.2843	70.0000	30.0000	81/07	81/09
			K	17	30.0000	.000000	30.0000	30.0000	80/11	81/09
CHROMIUM	CR,TOT	UG/L	T	19	32.1053	9.17667	70.0000	30.0000	80/11	81/09

TABLE RD 1-149 (Continued)

STATION NUMBER 501800
41 24 24.0 081 53 14.0 2
ROCKY RIVER NR BEREA - CEDAR POINT RD
LAKE ERIE 060591 (ROCKY RIVER)
MILES 0012.00

PARAMETER			R	NO	MEAN	STAN DEV	MAXIMUM	MINIMUM	BEG	END
COPPER	CU,TOT	UG/L		6	24.1667	12.4164	40.0000	10.0000	81/02	81/09
			K	13	16.1538	9.60770	30.0000	10.0000	80/11	81/09
			T	19	18.6842	10.9090	40.0000	10.0000	80/11	81/09
IRON	FE,TOT	UG/L		19	4187.89	9097.62	38500.0	220.000	80/11	81/09
LEAD	PB,TOT	UG/L		6	19.5000	23.2530	65.0000	5.00000	81/01	81/09
			K	13	5.00000	.000000	5.00000	5.00000	80/11	81/09
			T	19	9.57895	14.0764	65.0000	5.00000	80/11	81/09
MANGNESE	MN	UG/L		3	133.333	86.2169	210.000	40.0000	81/04	81/07
NICKEL	NI,TOTAL	UG/L		1	100.000		100.000	100.000	81/02	81/02
			K	18	55.0000	28.9523	100.000	30.0000	80/11	81/09
			T	19	57.3684	29.9708	100.000	30.0000	80/11	81/09
VANADIUM	V,TOT	UG/L	K	3	140.000	103.923	200.000	20.0000	81/04	81/07
ZINC	ZN,TOT	UG/L		12	50.0000	53.7249	170.000	10.0000	81/01	81/09
			K	7	15.7143	9.75900	30.0000	10.0000	80/11	81/09
			T	19	37.3684	45.6548	170.000	10.0000	80/11	81/09
ALUMINUM	AL,TOT	UG/L		3	1000.00	953.939	2100.00	400.000	81/04	81/07
SELENIUM	SE,TOT	UG/L	K	2	100.000	.000000	100.000	100.000	81/04	81/07
FEC COLI	MFM-FCBR	/100ML		9	4866.66	8537.53	27000.0	830.000	80/10	81/09
FECSTREP	MF M-ENT	/100ML		8	4502.50	6346.36	19000.0	200.000	80/10	81/07
PHENOLS	TOTAL	UG/L		13	7.84615	2.03496	11.0000	4.00000	80/10	81/09
ALDRIN		TOT UG/L		1	.000000		.000000	.000000	81/07	81/07
GAMMABHC	LINDANE	TOT.UG/L		1	.000000		.000000	.000000	81/07	81/07
CHLRDANE	TECH&MET	TOT UG/L		1	.000000		.000000	.000000	81/07	81/07
DDD	WHL SMPL	UG/L		1	.000000		.000000	.000000	81/07	81/07
DDE	WHL SMPL	UG/L		1	.000000		.000000	.000000	81/07	81/07
DDT	WHL SMPL	UG/L		1	.000000		.000000	.000000	81/07	81/07
DIELDRIN		TOTUG/L		1	.000000		.000000	.000000	81/07	81/07
ENDRIN		TOT UG/L		1	.000000		.000000	.000000	81/07	81/07
TOXAPHEN		TOTUG/L		1	.000000		.000000	.000000	81/07	81/07
HEPTCHLR		TOTUG/L		1	.000000		.000000	.000000	81/07	81/07
HPCHLREP		TOTUG/L		1	.000000		.000000	.000000	81/07	81/07
MTHXYCLR	WHL SMPL	UG/L		1	.000000		.000000	.000000	81/07	81/07
PCBS	WHL SMPL	UG/L		2	.000000	.000000	.000000	.000000	80/12	81/07
			K	8	.500000	.000000	.500000	.500000	81/01	81/09
			T	10	.400000	.210819	.500000	.000000	80/12	81/09
MALATHN	WHL SMPL	UG/L		1	.000000		.000000	.000000	81/07	81/07
PARATHN	WHL SMPL	UG/L		1	.000000		.000000	.000000	81/07	81/07
DIAZINON	WHL SMPL	UG/L		1	.000000		.000000	.000000	81/07	81/07
MPARATHN	WHL SMPL	UG/L		1	.000000		.000000	.000000	81/07	81/07
MIREX	WHL SMPL	UG/L		1	.000000		.000000	.000000	81/07	81/07
LINDANE	WHL SMPL	UG/L		1	.000000		.000000	.000000	81/07	81/07
RESIDUE	DISS-180	C MG/L		26	451.611	136.248	848.000	120.000	80/10	81/09
MERCURY	HG,TOTAL	UG/L	K	6	.500000	.000000	.500000	.500000	80/11	81/07

TABLE RD 1-150

STATION NUMBER 501800
41 24 24.0 081 53 14.0 2
ROCKY RIVER NR BEREA - CEDAR POINT RD
LAKE ERIE 060591 (ROCKY RIVER)
MILES 0012.00

PARAMETER			R	NO	MEAN	STAN DEV	MAXIMUM	MINIMUM	BEG	END
STREAM	WIDTH	FEET		5	108.816	11.5196	119.380	94.0000	82/04	82/09
WATER	TEMP	CENT		13	10.9846	7.81983	21.5000	1.00000	81/10	82/09
STREAM	VELOCITY	FT/SEC		4	1.34525	.848381	1.96000	.121000	82/04	82/09
STREAM	FLOW	CFS		9	607.721	776.288	2132.00	27.9000	81/12	82/09
STREAM	FLOW,	INST-CFS		5	59.7599	43.2385	135.700	31.4000	81/10	82/09
DEPTH OF	STREAM	MEAN(FT)		5	1.24400	.246333	1.49000	.960000	82/04	82/09
STREAM	STAGE	FEET		10	1.81400	1.01095	3.69000	.790000	81/10	82/09
TURB	TRBIDMTR	HACH FTU		2	3.65000	.494970	4.00000	3.30000	81/10	81/11
CNDUCTVY	FIELD	MICROMHO		10	551.000	177.839	840.000	270.000	81/10	82/09
CNDUCTVY	AT 25C	MICROMHO		9	717.111	131.308	900.000	535.000	81/10	82/09
TIME OF	TRAVEL	HOURS		3	.655666	.274220	.967000	.450000	82/07	82/09
UPSTREAM	REACH	MILES		3	8.01666	6.89934	12.0000	.050000	82/07	82/09
DNSTREAM	REACH	MILES		3	11.5800	.401717	12.0400	11.3000	82/07	82/09
DO	PROBE	MG/L		11	11.0545	2.58471	13.8000	6.20000	81/12	82/09
DO		MG/L		2	10.4000	3.39415	12.8000	8.00000	81/10	81/11
BOD	5 DAY	MG/L		4	4.70000	1.42830	6.60000	3.60000	82/04	82/09
BOD	20 DAY	MG/L		2	19.5000	.848799	20.1000	18.9000	82/09	82/09
COD	LOWLEVEL	MG/L		10	25.9000	6.98339	37.0000	15.0000	81/11	82/09
PH		SU		8	8.11874	.267196	8.40000	7.60000	81/11	82/09
LAB	PH	SU		5	8.10200	.448862	8.65000	7.60000	81/10	82/09
T ALK	CACO3	MG/L		2	152.000	.000000	152.000	152.000	81/10	81/11
RESIDUE	TOT NFLT	MG/L		9	54.8889	73.9061	238.000	7.00000	81/12	82/09
			K	2	10.0000	.000000	10.0000	10.0000	81/10	81/11
			T	11	46.7273	68.5523	238.000	7.00000	81/10	82/09
OIL-GRSE	FREON-GR	MG/L	K	1	5.00000		5.00000	5.00000	81/11	81/11
NH3+NH4-	N TOTAL	MG/L		13	1.15231	1.41248	5.65000	.170000	81/10	82/09
NO2-N	TOTAL	MG/L		10	.270000	.299593	.850000	.020000	81/12	82/09
NO3-N	TOTAL	MG/L		13	3.38923	3.27022	10.1000	.670000	81/10	82/09
KJELDL N	DISS	MG/L		1	.900000		.900000	.900000	81/12	81/12
TOT KJEL	N	MG/L		12	2.01583	1.49220	6.50000	.900000	81/10	82/09
PHOS-TOT		MG/L P		12	1.05250	1.02026	3.25000	.240000	81/10	82/09
PHOS-DIS		MG/L P		7	.187143	.108738	.370000	.050000	81/11	82/06
T ORG C	C	MG/L		2	10.0000	.000000	10.0000	10.0000	81/10	81/11
D ORG C	C	MG/L		1	11.0000		11.0000	11.0000	81/11	81/11

TABLE RD 1-150 (Continued)

STATION NUMBER 501800
41 24 24.0 081 53 14.0 2
ROCKY RIVER NR BEREA - CEDAR POINT RD
LAKE ERIE 060591 (ROCKY RIVER)
MILES 0012.00

PARAMETER			R	NO	MEAN	STAN DEV	MAXIMUM	MINIMUM	BEG	END
TOT HARD	CACO3	MG/L		8	196.450	48.4393	245.000	136.000	81/12	82/09
CALCIUM	CA-TOT	MG/L		10	57.9899	11.9669	75.0000	37.0000	81/10	82/09
MGNSIUM	MG,TOT	MG/L		8	16.3875	3.84618	20.8000	10.3000	81/12	82/09
SODIUM	NA,TOT	MG/L		3	78.9333	5.46026	84.8000	74.0000	81/10	82/09
CHLORIDE	TOTAL	MG/L		2	100.000	.000000	100.000	100.000	81/10	81/11
SULFATE	SO4-TOT	MG/L		3	84.6333	40.5081	116.000	38.9000	81/10	82/09
SILICA	DISOLVED	MG/L		2	3.98500	2.15667	5.51000	2.46000	81/10	81/11
CADMIUM	CD,TOT	UG/L		2	.550000	.070715	.600000	.500000	82/02	82/09
			K	5	.500000	.000000	.500000	.500000	81/12	82/08
			T	7	.514286	.037799	.600000	.500000	81/12	82/09
CHROMIUM	CR,TOT	UG/L	K	6	30.0000	.000000	30.0000	30.0000	81/12	82/09
COPPER	CU,TOT	UG/L		4	12.5000	2.88675	15.0000	10.0000	82/02	82/09
			K	3	10.0000	.000000	10.0000	10.0000	81/12	82/08
			T	7	11.4286	2.43976	15.0000	10.0000	81/12	82/09
IRON	FE,TOT	UG/L		9	2447.78	3751.94	11990.0	240.000	81/10	82/09
LEAD	PB,TOT	UG/L		5	5.40000	2.88098	9.00000	3.00000	82/02	82/09
			K	4	3.50000	1.73205	5.00000	2.00000	81/11	82/06
			T	9	4.55556	2.50555	9.00000	2.00000	81/11	82/09
MANGNESE	MN	UG/L		1	215.000		215.000	215.000	82/03	82/0[illegible]
NICKEL	NI,TOTAL	UG/L	K	6	36.6667	5.16410	40.0000	30.0000	81/12	82/09
ZINC	ZN,TOT	UG/L		6	30.8333	13.9344	50.0000	15.0000	81/12	82/09
			K	1	10.0000		10.0000	10.0000	82/08	82/08
			T	7	27.8571	14.9603	50.0000	10.0000	81/12	82/09
FEC COLI	MFM-FCBR	/100ML		11	4178.18	4561.92	14000.0	540.000	81/10	82/09
FECSTREP	MF M-ENT	/100ML		11	4348.18	6246.37	22000.0	430.000	81/10	82/09
PHENOLS	TOTAL	UG/L		2	4.50000	.707107	5.00000	4.00000	81/10	81/11
			K	2	10.0000	.000000	10.0000	10.0000	82/08	82/09
			T	4	7.25000	3.20156	10.0000	4.00000	81/10	82/09
PCBS	WHL SMPL	UG/L	K	10	.500000	.000000	.500000	.500000	81/11	82/09
RESIDUE	DISS-180	C MG/L		11	426.364	87.1625	534.000	274.000	81/10	82/09
BOD 20C	5DAY CAR	MG/L		2	2.10000	.424263	2.40000	1.80000	82/09	82/09
BOD 20C	20DAYCAR	MG/L		2	6.75000	.212128	6.90000	6.60000	82/09	82/09

TABLE RD 1-151

STATION NUMBER 501790
41 28 10.0 081 49 54.0 2
ROCKY RIVER AT LAKEWOOD - PARK BLVD
LAKE ERIE 060500 (ROCKY RIVER)
MILES 0003.00

PARAMETER			R	NO	MEAN	STAN DEV	MAXIMUM	MINIMUM	BEG	END
WATER	TEMP	CENT		25	16.3800	8.62446	27.0000	.000000	80/11	81/09
STREAM	FLOW	CFS		5	91.4000	44.7583	165.000	53.0000	81/06	81/08
STREAM	FLOW,	INST-CFS		6	207.833	151.195	500.000	111.000	81/03	81/09
STREAM	STAGE	FEET		8	11.5325	1.12726	14.2500	10.6800	81/02	81/09
TURB	TRBIDMTR	HACH FTU		9	67.1110	152.341	470.000	3.90000	80/11	81/07
CNDUCTVY	FIELD	MICROMHO		9	523.333	228.624	1050.00	310.000	80/11	81/07
CNDUCTVY	AT 25C	MICROMHO		23	743.217	326.523	1995.00	242.000	80/12	81/09
INTNSVE	SURVEY	IDENT		14	813901	.000000	813901	813901	81/06	81/09
DO	PROBE	MG/L		14	6.83571	.904373	8.80000	5.60000	81/06	81/09
DO		MG/L		12	8.94999	2.72213	13.8000	5.60000	80/11	81/09
BOD	5 DAY	MG/L		14	4.87285	1.96408	10.1000	2.27000	81/06	81/09
COD	LOWLEVEL	MG/L		23	31.8087	18.5959	103.600	16.0000	80/11	81/09
PH		SU		16	8.17812	.384303	8.90000	7.70000	81/07	81/09
LAB	PH	SU		20	7.83149	.466455	8.88000	6.70000	81/01	81/09
T ALK	CACO3	MG/L		10	128.100	28.8617	178.000	78.0000	80/11	81/09
RESIDUE	TOT NFLT	MG/L		23	79.9478	196.976	973.000	5.00000	80/12	81/09
			K	2	10.0000	.000000	10.0000	10.0000	80/11	81/03
			T	25	74.3519	189.582	973.000	5.00000	80/11	81/09
NH3+NH4-	N TOTAL	MG/L		22	.811816	1.29329	5.87000	.000000	80/11	81/09
			K	1	.020000		.020000	.020000	81/08	81/08
			T	23	.777389	1.27430	5.87000	.000000	80/11	81/09
NO2-N	TOTAL	MG/L		23	.207826	.113296	.410000	.050000	80/11	81/09
NO3-N	TOTAL	MG/L		23	2.97434	.941421	4.59000	1.07000	80/11	81/09
TOT KJEL	N	MG/L		23	2.19521	2.27174	11.8000	.800000	80/11	81/09
PHOS-TOT		MG/L P		23	.831259	.359743	1.70000	.303000	80/11	81/09
PHOS-DIS		MG/L P		11	.585727	.432879	1.53000	.105000	80/11	81/09
T ORG C	C	MG/L		3	17.0000	4.58258	22.0000	13.0000	81/01	81/07
D ORG C	C	MG/L		4	12.2500	2.75378	15.0000	9.00000	81/01	81/07
TOT HARD	CACO3	MG/L		19	224.216	32.2892	312.000	164.000	80/11	81/09
CALCIUM	CA-TOT	MG/L		21	62.5571	10.3549	93.0000	47.0000	80/12	81/09
MGNSIUM	MG,TOT	MG/L		13	16.1231	1.70360	18.2000	12.6000	81/07	81/09
SODIUM	NA,TOT	MG/L		7	93.4286	84.2217	280.000	39.0000	80/12	81/08
CHLORIDE	TOTAL	MG/L		9	134.556	102.690	393.000	57.0000	80/11	81/07
SULFATE	SO4-TOT	MG/L		9	96.8889	18.1071	126.000	67.0000	80/11	81/07
SILICA	DISOLVED	MG/L		10	4.75899	2.28396	7.06000	.570000	80/11	81/08
ARSENIC	AS,TOT	UG/L	K	4	10.0000	.000000	10.0000	10.0000	80/11	81/07
CADMIUM	CD,TOT	UG/L	K	18	2.27778	2.81395	10.0000	.500000	80/11	81/09
CHROMIUM	CR,TOT	UG/L	K	19	30.0000	.000000	30.0000	30.0000	80/11	81/09
COPPER	CU,TOT	UG/L		6	18.3333	12.1106	40.0000	10.0000	81/02	81/09
			K	13	17.6923	10.1274	30.0000	10.0000	80/11	81/09
			T	19	17.8947	10.4504	40.0000	10.0000	80/11	81/09
IRON	FE,TOT	UG/L		19	3252.11	7676.37	34500.0	370.000	80/11	81/09

TABLE RD 1-151 (Continued)

STATION NUMBER 501790
41 28 10.0 081 49 54.0 2
ROCKY RIVER AT LAKEWOOD - PARK BLVD
LAKE ERIE 060500 (ROCKY RIVER)
MILES 0003.00

PARAMETER			R	NO	MEAN	STAN DEV	MAXIMUM	MINIMUM	BEG	END
LEAD	PB,TOT	UG/L		4	21.7500	25.6694	60.0000	5.00000	81/02	81/09
			K	15	5.33333	1.29100	10.0000	5.00000	80/11	81/09
			T	19	8.78947	12.5856	60.0000	5.00000	80/11	81/09
MANGNESE	MN	UG/L		2	60.0000	28.2843	80.0000	40.0000	81/04	81/07
			K	1	30.0000		30.0000	30.0000	81/07	81/07
			T	3	50.0000	26.4575	80.0000	30.0000	81/04	81/07
NICKEL	NI,TOTAL	UG/L		1	100.000		100.000	100.000	81/02	81/02
			K	18	54.4444	29.3503	100.000	30.0000	80/11	81/09
			T	19	56.8421	30.3778	100.000	30.0000	80/11	81/09
VANADIUM	V,TOT	UG/L	K	3	90.0000	96.4365	200.000	20.0000	81/04	81/07
ZINC	ZN,TOT	UG/L		13	32.3077	42.4566	170.000	10.0000	81/02	81/09
			K	6	23.3333	10.3280	30.0000	10.0000	80/11	81/08
			T	19	29.4737	35.3512	170.000	10.0000	80/11	81/09
ALUMINUM	AL,TOT	UG/L		4	825.000	809.835	2000.00	200.000	80/11	81/07
SELENIUM	SE,TOT	UG/L	K	1	100.000		100.000	100.000	81/04	81/04
FEC COLI	MFM-FCBR	/100ML		8	6062.50	4393.47	16000.0	1900.00	80/11	81/07
FECSTREP	MF M-ENT	/100ML		8	4676.25	8340.55	25000.0	850.000	80/11	81/07
PHENOLS	TOTAL	UG/L		21	6.95238	3.57038	19.0000	3.00000	80/11	81/09
ALDRIN		TOT UG/L		1	.000000		.000000	.000000	81/07	81/07
GAMMABHC	LINDANE	TOT.UG/L		1	.000000		.000000	.000000	81/07	81/07
CHLRDANE	TECH&MET	TOT UG/L		1	.000000		.000000	.000000	81/07	81/07
DDD	WHL SMPL	UG/L		1	.000000		.000000	.000000	81/07	81/07
DDE	WHL SMPL	UG/L		1	.000000		.000000	.000000	81/07	81/07
DDT	WHL SMPL	UG/L		1	.000000		.000000	.000000	81/07	81/07
DIELDRIN		TOTUG/L		1	.000000		.000000	.000000	81/07	81/07
ENDRIN		TOT UG/L		1	.000000		.000000	.000000	81/07	81/07
TOXAPHEN		TOTUG/L		1	.000000		.000000	.000000	81/07	81/07
HEPTCHLR		TOTUG/L		1	.000000		.000000	.000000	81/07	81/07
HPCHLREP		TOTUG/L		1	.000000		.000000	.000000	81/07	81/07
MTHXYCLR	WHL SMPL	UG/L		1	.000000		.000000	.000000	81/07	81/07
PCBS	WHL SMPL	UG/L		1	.000000		.000000	.000000	81/07	81/07
			K	9	.450000	.150000	.500000	.050000	80/12	81/09
			T	10	.405000	.200624	.500000	.000000	80/12	81/09
MALATHN	WHL SMPL	UG/L		1	.000000		.000000	.000000	81/07	81/07
PARATHN	WHL SMPL	UG/L		1	.000000		.000000	.000000	81/07	81/07
DIAZINON	WHL SMPL	UG/L		1	.000000		.000000	.000000	81/07	81/07
MPARATHN	WHL SMPL	UG/L		1	.000000		.000000	.000000	81/07	81/07
2,4-D	WHL SMPL	UG/L	K	1	10.0000		10.0000	10.0000	81/07	81/07
MIREX	WHL SMPL	UG/L		1	.000000		.000000	.000000	81/07	81/07
SILVEX	WHL SMPL	UG/L	K	1	1.00000		1.00000	1.00000	81/07	81/07
LINDANE	WHL SMPL	UG/L		1	.000000		.000000	.000000	81/07	81/07
RESIDUE	DISS-180	C MG/L		25	476.379	142.415	1080.00	326.000	80/11	81/09
MERCURY	HG,TOTAL	UG/L	K	6	.500000	.000000	.500000	.500000	80/11	81/07

TABLE RD 1-152

STATION NUMBER 501790
41 28 10.0 081 49 54.0 2
ROCKY RIVER AT LAKEWOOD - PARK BLVD
LAKE ERIE 060500 (ROCKY RIVER)
MILES 0003.00

PARAMETER			R	NO	MEAN	STAN DEV	MAXIMUM	MINIMUM	BEG	END
STREAM	WIDTH	FEET		4	99.2499	5.51973	107.000	93.9900	82/06	82/09
WATER	TEMP	CENT		25	15.0900	7.08689	25.5000	1.00000	81/10	82/09
STREAM	VELOCITY	FT/SEC		3	.409333	.223003	.664000	.249000	82/06	82/09
STREAM	FLOW,	INST-CFS		2	72.7750	40.5950	101.480	44.0700	82/06	82/09
DEPTH OF	STREAM	MEAN(FT)		4	1.11250	.369268	1.64000	.780000	82/06	82/09
TURB	TRBIDMTR	HACH FTU		2	4.57500	.954597	5.25000	3.90000	81/10	81/11
CNDUCTVY	FIELD	MICROMHO		10	535.000	167.465	750.000	255.000	81/10	82/09
CNDUCTVY	AT 25C	MICROMHO		9	705.111	113.822	826.000	530.000	81/10	82/09
TIME OF	TRAVEL	HOURS		3	2.64333	.310061	2.95000	2.33000	82/06	82/09
UPSTREAM	REACH	MILES		3	3.73333	.404151	4.20000	3.50000	82/06	82/09
DNSTREAM	REACH	MILES		3	3.00000	.000000	3.00000	3.00000	82/06	82/09
DO	PROBE	MG/L		23	8.62173	2.73512	13.4000	5.00000	81/12	82/09
DO		MG/L		2	10.2000	.848583	10.8000	9.60000	81/10	81/11
BOD	5 DAY	MG/L		7	4.59999	1.23965	6.50000	3.30000	82/04	82/09
BOD	20 DAY	MG/L		4	13.4500	1.93653	15.4000	10.8000	82/08	82/09
COD	LOWLEVEL	MG/L		10	30.3000	11.8515	55.0000	19.0000	81/11	82/09
PH		SU		21	8.37618	.455181	9.60000	7.75000	81/11	82/09
LAB	PH	SU		7	7.94428	.297833	8.35000	7.50000	81/10	82/09
T ALK	CACO3	MG/L		2	140.000	5.65685	144.000	136.000	81/10	81/11
RESIDUE	TOT NFLT	MG/L		11	79.0909	138.089	479.000	7.00000	81/12	82/09
			K	2	10.0000	.000000	10.0000	10.0000	81/10	81/11
			T	13	68.4615	128.700	479.000	7.00000	81/10	82/09
NH3+NH4-	N TOTAL	MG/L		15	.512000	.466785	1.58000	.060000	81/10	82/09
			K	1	.050000		.050000	.050000	82/08	82/08
			T	16	.483125	.465513	1.58000	.050000	81/10	82/09
NO2-N	TOTAL	MG/L		13	.223077	.151074	.580000	.050000	81/12	82/09
NO3-N	TOTAL	MG/L		15	4.03533	2.50737	7.85000	.680000	81/10	82/09
KJELDL N	DISS	MG/L		1	2.20000		2.20000	2.20000	81/12	81/12
TOT KJEL	N	MG/L		16	1.92250	1.27292	6.37000	.800000	81/10	82/09
PHOS-TOT		MG/L P		16	.931249	.527899	1.64000	.200000	81/10	82/09
PHOS-DIS		MG/L P		7	.249428	.271580	.856000	.080000	81/11	82/06
T ORG C	C	MG/L		2	11.0000	2.82843	13.0000	9.00000	81/10	81/11
D ORG C	C	MG/L		2	14.0000	1.41421	15.0000	13.0000	81/10	81/11

TABLE RD 1-152 (Continued) .

STATION NUMBER 501790
41 28 10.0 081 49 54.0 2
ROCKY RIVER AT LAKEWOOD - PARK BLVD
LAKE ERIE 060500 (ROCKY RIVER)
MILES 0003.00

PARAMETER			R	NO	MEAN	STAN DEV	MAXIMUM	MINIMUM	BEG	END
TOT HARD	CACO3	MG/L		9	191.599	46.0344	240.000	113.000	82/02	82/09
CALCIUM	CA-TOT	MG/L		13	56.6153	12.3666	74.0000	30.7000	81/10	82/09
MGNSIUM	MG,TOT	MG/L		10	15.8700	3.00297	18.4000	8.80000	81/12	82/09
SODIUM	NA,TOT	MG/L		3	76.8000	1.05974	78.0000	76.0000	81/10	82/09
CHLORIDE	TOTAL	MG/L		2	103.000	1.41421	104.000	102.000	81/10	81/11
SULFATE	SO4-TOT	MG/L		2	106.000	4.24264	109.000	103.000	81/10	81/11
SILICA	DISOLVED	MG/L		2	2.78000	2.47487	4.53000	1.03000	81/10	81/11
CADMIUM	CD,TOT	UG/L		3	1.000000	.700000	1.80000	.500000	82/02	82/09
CADMIUM	CD,TOT	UG/L	K	5	.500000	.000000	.500000	.500000	81/12	82/09
			T	8	.687500	.454933	1.80000	.500000	81/12	82/09
CHROMIUM	CR,TOT	UG/L	K	8	30.0000	.000000	30.0000	30.0000	81/12	82/09
COPPER	CU,TOT	UG/L		5	15.0000	5.00000	20.0000	10.0000	81/12	82/09
			K	4	10.0000	.000000	10.0000	10.0000	82/04	82/09
			T	9	12.7778	4.40959	20.0000	10.0000	81/12	82/09
IRON	FE,TOT	UG/L		11	3252.73	5930.08	20560.0	520.000	81/10	82/09
LEAD	PB,TOT	UG/L		8	8.12500	4.67325	14.0000	3.00000	81/12	82/09
			K	4	3.50000	1.73205	5.00000	2.00000	81/11	82/08
			T	12	6.58333	4.46111	14.0000	2.00000	81/11	82/09
NICKEL	NI,TOTAL	UG/L	K	8	37.5000	4.62910	40.0000	30.0000	81/12	82/09
ZINC	ZN,TOT	UG/L		8	33.7500	21.5058	80.0000	10.0000	81/12	82/09
			K	1	40.0000		40.0000	40.0000	82/09	82/09
			T	9	34.4444	20.2245	80.0000	10.0000	81/12	82/09
FEC COLI	MFM-FCBR	/100ML		11	3505.45	3846.28	11000.0	170.000	81/10	82/09
FECSTREP	MF M-ENT	/100ML		11	6498.18	11517.9	38000.0	140.000	81/10	82/09
CHLRPHYL	A	UG/L		2	15.8460	.226966	16.0060	15.6860	82/09	82/09
PHENOLS	TOTAL	UG/L		2	3.50000	.707107	4.00000	3.00000	81/10	81/11
			K	2	10.0000	.000000	10.0000	10.0000	82/08	82/09
			T	4	6.75000	3.77492	10.0000	3.00000	81/10	82/09
PCBS	WHL SMPL	UG/L	K	9	.500000	.000000	.500000	.500000	81/11	82/08
RESIDUE	DISS-180	C MG/L		11	409.182	96.8643	504.000	244.000	81/10	82/09
BOD 20C	5DAY CAR	MG/L		4	3.80000	1.58745	5.90000	2.10000	82/08	82/09
BOD 20C	20DAYCAR	MG/L		4	7.77499	2.66882	11.6000	5.40000	82/08	82/09

TABLE RD 1-153

STATION NUMBER 500820
41 18 28.0 083 09 32.0 2
SANDUSKY RIVER ABOVE FREMONT - RICE RD
LAKE ERIE 060191 (SANDUSKY RIVER BASIN)
MILES 0020.30

No data were collected from 10/80 - 9/81.

TABLE RD 1-154

STATION NUMBER 500820
41 18 28.0 083 09 32.0 2
SANDUSKY RIVER ABOVE FREMONT - RICE RD
LAKE ERIE 060191 (SANDUSKY RIVER BASIN)
MILES 0020.30

PARAMETER			R	NO	MEAN	STAN DEV	MAXIMUM	MINIMUM	BEG	END
WATER	TEMP	CENT		5	7.93999	7.12341	16.3000	.000000	81/10	82/09
STREAM	STAGE	FEET		5	2.68200	2.38393	6.82000	.940000	81/10	82/09
CNDUCTVY	AT 25C	MICROMHO		5	754.200	141.847	1000.00	656.000	81/10	82/09
INTNSVE	SURVEY	IDENT		1	813905		813905	813905	81/10	81/10
DO	PROBE	MG/L		4	11.6000	2.20458	14.1000	9.60000	81/10	82/09
DO		MG/L		1	8.90000		8.90000	8.90000	81/10	81/10
BOD	5 DAY	MG/L		3	2.86667	1.50444	4.60000	1.90000	81/10	82/09
			K	2	1.00000	.000000	1.00000	1.00000	81/12	82/01
			T	5	2.12000	1.47547	4.60000	1.00000	81/10	82/09
COD	LOWLEVEL	MG/L		8	15.4750	8.53426	29.0000	6.00000	81/10	82/09
LAB	PH	SU		5	8.07599	.216224	8.39000	7.90000	81/10	82/09
T ALK	CACO3	MG/L		1	220.000		220.000	220.000	81/10	81/10
RESIDUE	TOT NFLT	MG/L		2	24.8500	.214239	25.0000	24.7000	81/10	82/09
			K	3	6.66667	2.88676	10.0000	5.00000	81/10	82/01
			T	5	13.9400	10.1670	25.0000	5.00000	81/10	82/09
NH3+NH4-	N TOTAL	MG/L		3	.090000	.052915	.130000	.030000	81/10	82/01
			K	2	.050000	.000061	.050000	.050000	81/10	82/09
			T	5	.074000	.043359	.130000	.030000	81/10	82/09
NO2-N	TOTAL	MG/L		3	.016667	.005773	.020000	.010000	81/10	82/01
			K	2	.020000	.000000	.020000	.020000	81/10	82/09
			T	5	.018000	.004472	.020000	.010000	81/10	82/09
NO3-N	TOTAL	MG/L		5	2.48200	1.95981	4.79000	.050000	81/10	82/09
TOT KJEL	N	MG/L		5	.803999	.207559	1.10000	.600000	81/10	82/09
PHOS-TOT		MG/L P		4	.069500	.022234	.100000	.048000	81/10	82/09
			K	1	.050000		.050000	.050000	81/12	81/12
			T	5	.065600	.021138	.100000	.048000	81/10	82/09
T ORG C	C	MG/L		1	7.00000		7.00000	7.00000	81/10	81/10
TOT HARD	CACO3	MG/L		4	378.000	8.28653	385.000	366.000	81/10	82/01
CALCIUM	CA-TOT	MG/L		5	99.0999	8.53600	110.000	86.4000	81/10	82/09

TABLE RD 1-154 (Continued)

STATION NUMBER 500820
41 18 28.0 083 09 32.0 2
SANDUSKY RIVER ABOVE FREMONT - RICE RD
LAKE ERIE 060191 (SANDUSKY RIVER BASIN)
MILES 0020.30

PARAMETER			R	NO	MEAN	STAN DEV	MAXIMUM	MINIMUM	BEG	END
MGNSIUM	MG,TOT	MG/L		5	34.7000	7.02215	47.1000	30.0000	81/10	82/09
SODIUM	NA,TOT	MG/L		2	47.0000	39.5980	75.0000	19.0000	81/10	82/09
PTSSIUM	K,TOT	MG/L		2	4.90000	1.13136	5.70000	4.10000	81/10	82/09
CHLORIDE	TOTAL	MG/L		2	32.5000	3.53553	35.0000	30.0000	81/10	81/10
SULFATE	SO4-TOT	MG/L		2	124.500	7.77817	130.000	119.000	81/10	81/10
SILICA	DISOLVED	MG/L		1	2.78000		2.78000	2.78000	81/10	81/10
ARSENIC	AS,TOT	UG/L	K	1	10.0000		10.0000	10.0000	81/10	81/10
CADMIUM	CD,TOT	UG/L		1	1.00000		1.00000	1.00000	81/10	81/10
			K	4	1.62500	2.25000	5.00000	.500000	81/10	82/09
			T	5	1.50000	1.96850	5.00000	.500000	81/10	82/09
CHROMIUM	CR,TOT	UG/L	K	5	30.0000	.000000	30.0000	30.0000	81/10	82/09
COPPER	CU,TOT	UG/L		1	10.0000		10.0000	10.0000	82/09	82/09
COPPER	CU,TOT	UG/L	K	4	15.0000	10.0000	30.0000	10.0000	81/10	82/01
			T	5	14.0000	8.94427	30.0000	10.0000	81/10	82/09
IRON	FE,TOT	UG/L		5	686.000	317.931	1130.00	240.000	81/10	82/09
LEAD	PB,TOT	UG/L	K	5	4.40000	1.34165	5.00000	2.00000	81/10	82/09
MANGNESE	MN	UG/L		2	82.5000	74.2462	135.000	30.0000	82/01	82/09
			K	2	30.0000	.000000	30.0000	30.0000	81/10	81/12
			T	4	56.2500	52.5000	135.000	30.0000	81/10	82/09
NICKEL	NI,TOTAL	UG/L	K	5	48.0000	29.4958	100.000	30.0000	81/10	82/09
ZINC	ZN,TOT	UG/L		1	30.0000		30.0000	30.0000	82/09	82/09
			K	4	15.0000	10.0000	30.0000	10.0000	81/10	82/01
			T	5	18.0000	10.9545	30.0000	10.0000	81/10	82/09
ALUMINUM	AL,TOT	UG/L		1	200.000		200.000	200.000	81/10	81/10
FEC COLI	MFM-FCBR	/100ML		5	3731.40	5282.37	13000.0	77.0000	81/10	82/09
PHENOLS	TOTAL	UG/L		1	4.00000		4.00000	4.00000	81/10	81/10
MBAS		MG/L		1	.100000		.100000	.100000	81/10	81/10
PCBS	WHL SMPL	UG/L	K	1	.500000		.500000	.500000	81/10	81/10
RESIDUE	DISS-180	C MG/L		5	537.280	104.373	696.000	428.000	81/10	82/09

TABLE RD 1-155

STATION NUMBER 601340
39 37 58.0 082 57 45.0 2
SCIOTO R NR CIRCLEVILLE - FLORENCE CHAPEL RD
OHIO RIVER (SCIOTO RIVER)
MILES 0953.80 0624.60 102.10

PARAMETER			R	NO	MEAN	STAN DEV	MAXIMUM	MINIMUM	BEG	END
WATER	TEMP	CENT		18	14.6222	8.45526	24.8000	2.00000	80/10	81/09
STREAM	FLOW,	INST-CFS		11	4201.63	4334.35	12820.0	873.000	80/10	81/09
STREAM	STAGE	FEET		12	5.46000	3.27357	12.0300	2.65000	80/10	81/09
CNDUCTVY	FIELD	MICROMHO		16	593.750	190.425	950.000	290.000	80/12	81/09
CNDUCTVY	AT 25C	MICROMHO		3	707.666	142.503	850.000	565.000	80/10	81/09
INTNSVE	SURVEY	IDENT		8	812654	3440.05	813904	803902	80/10	81/09
DO	PROBE	MG/L		5	5.78000	1.41139	7.20000	3.50000	80/10	81/08
DO		MG/L		12	9.02916	2.71432	12.8000	4.70000	80/10	81/09
BOD	5 DAY	MG/L		12	3.65166	1.42295	6.30000	2.00000	80/10	81/09
COD	LOWLEVEL	MG/L		20	22.8350	6.03916	39.0000	14.0000	80/10	81/09
PH		SU		12	7.68333	.158646	7.90000	7.40000	80/10	81/09
LAB	PH	SU		7	7.70571	.106357	7.82000	7.54000	80/10	81/08
RESIDUE	TOT NFLT	MG/L		18	56.1333	61.5075	281.000	10.6000	80/10	81/09
			K	2	10.0000	.000000	10.0000	10.0000	80/12	80/12
			T	20	51.5200	59.8880	281.000	10.0000	80/10	81/09
NH3+NH4-	N TOTAL	MG/L		19	.336315	.216544	1.03000	.100000	80/10	81/09
			K	1	.050000		.050000	.050000	81/07	81/07
			T	20	.322000	.220277	1.03000	.050000	80/10	81/09
NO2-N	TOTAL	MG/L		20	.126500	.049127	.240000	.040000	80/10	81/09
NO3-N	TOTAL	MG/L		20	4.29799	1.42186	6.99000	1.46000	80/10	81/09
TOT KJEL	N	MG/L		20	1.40350	.366057	2.42000	.900000	80/10	81/09
PHOS-TOT		MG/L P		20	.853548	.522033	2.25000	.217000	80/10	81/09
CYANIDE	CN-TOT	MG/L	K	4	.012500	.005000	.020000	.010000	80/12	81/09
TOT HARD	CACO3	MG/L		11	281.254	54.3825	334.000	175.000	80/12	81/09
CALCIUM	CA-TOT	MG/L		8	74.1499	12.1823	83.8000	45.4000	80/10	81/09

TABLE RD 1-155 (Continued)

STATION NUMBER 601340
39 37 58.0 082 57 45.0 2
SCIOTO R NR CIRCLEVILLE - FLORENCE CHAPEL RD
OHIO RIVER (SCIOTO RIVER)
MILES 0953.80 0624.60 102.10

PARAMETER			R	NO	MEAN	STAN DEV	MAXIMUM	MINIMUM	BEG	END
MGNSIUM	MG,TOT	MG/L		8	25.1875	5.31586	31.0000	15.0000	80/10	81/09
CADMIUM	CD,TOT	UG/L	K	12	2.04167	2.18942	5.00000	.500000	80/10	81/09
CHROMIUM	CR,TOT	UG/L		1	40.0000		40.0000	40.0000	81/06	81/06
			K	11	30.9091	3.01526	40.0000	30.0000	80/10	81/09
			T	12	31.6667	3.89265	40.0000	30.0000	80/10	81/09
COPPER	CU,TOT	UG/L		7	18.5714	10.6905	30.0000	10.0000	81/06	81/09
			K	5	17.0000	12.0416	30.0000	5.00000	80/10	81/08
			T	12	17.9167	10.7573	30.0000	5.00000	80/10	81/09
IRON	FE,TOT	UG/L		12	2330.83	3378.26	12400.0	400.000	80/10	81/09
IRON	FE,DISS	UG/L		1	90.0000		90.0000	90.0000	80/10	80/10
LEAD	PB,TOT	UG/L		9	15.7778	9.16212	38.0000	9.00000	80/12	81/09
			K	2	5.00000	.000000	5.00000	5.00000	80/10	81/03
			T	11	13.8182	9.28244	38.0000	5.00000	80/10	81/09
NICKEL	NI,TOTAL	UG/L		3	100.000	.000000	100.000	100.000	80/12	81/09
			K	9	45.5555	20.6828	100.000	30.0000	80/10	81/09
			T	12	59.1667	30.2890	100.000	30.0000	80/10	81/09
ZINC	ZN,TOT	UG/L		12	53.3333	35.5050	155.000	25.0000	80/10	81/09
FEC COLI	MFM-FCBR	/100ML		16	17300.3	38504.3	157000	150.000	80/10	81/09
PHENOLS	TOTAL	UG/L		19	5.05263	1.89952	8.00000	2.00000	80/10	81/09
			K	1	2.00000		2.00000	2.00000	81/08	81/08
			T	20	4.90000	1.97084	8.00000	2.00000	80/10	81/09
RESIDUE	DISS-180 C	MG/L		8	465.562	77.2232	582.200	325.000	80/10	81/09
MERCURY	HG,TOTAL	UG/L		1	.500000		.500000	.500000	80/12	80/12
			K	3	.500000	.000000	.500000	.500000	81/03	81/09
			T	4	.500000	.000000	.500000	.500000	80/12	81/09

TABLE RD 1-156

STATION NUMBER 601340
39 37 58.0 082 57 45.0 2
SCIOTO R NR CIRCLEVILLE - FLORENCE CHAPEL RD
OHIO RIVER (SCIOTO RIVER)
MILES 0953.80 0624.60 102.10

PARAMETER			R	NO	MEAN	STAN DEV	MAXIMUM	MINIMUM	BEG	END
WATER	TEMP	CENT		12	12.1250	8.62050	23.0000	.500000	81/10	82/09
STREAM	FLOW,	INST-CFS		10	2030.02	1891.47	5359.00	220.000	81/11	82/09
STREAM	STAGE	FEET		11	3.55818	2.01773	7.05000	1.46000	81/11	82/09
CNDUCTVY	FIELD	MICROMHO		12	559.250	207.305	830.000	262.000	81/10	82/09
CNDUCTVY	AT 25C	MICROMHO		1	820.000		820.000	820.000	81/10	81/10
DO	PROBE	MG/L		10	9.40999	3.19008	13.1000	3.50000	81/12	82/09
DO		MG/L		2	7.10000	2.54558	8.90000	5.30000	81/10	81/11
BOD	5 DAY	MG/L		13	4.22307	2.06404	8.50000	2.00000	81/10	82/09
BOD	20 DAY	MG/L		1	6.40000		6.40000	6.40000	81/10	81/10
COD	LOWLEVEL	MG/L		5	21.2000	5.54078	30.0000	15.0000	81/10	82/03
PH		SU		11	7.83636	.211140	8.20000	7.50000	81/10	82/08
LAB	PH	SU		2	7.84000	.254566	8.02000	7.66000	82/07	82/09
RESIDUE	TOT NFLT	MG/L		11	33.3454	17.9799	71.0000	11.0000	81/10	82/09
			K	1	5.00000		5.00000	5.00000	81/12	81/12
			T	12	30.9833	18.9958	71.0000	5.00000	81/10	82/09
NH3+NH4-	N TOTAL	MG/L		13	.336153	.272230	.920000	.050000	81/10	82/09
NO2-N	TOTAL	MG/L		12	.144167	.050894	.230000	.060000	81/10	82/09
NO3-N	TOTAL	MG/L		13	4.19230	.898117	5.60000	2.10000	81/10	82/09
TOT KJEL	N	MG/L		12	1.35333	.528073	2.80000	.800000	81/10	82/09
			K	1	.060000		.060000	.060000	81/11	81/11
			T	13	1.25384	.619913	2.80000	.060000	81/10	82/09
PHOS-TOT		MG/L P		13	1.03308	.588237	1.91000	.280000	81/10	82/09
CYANIDE	CN-TOT	MG/L	K	1	.010000		.010000	.010000	82/09	82/09
TOT HARD	CACO3	MG/L		7	283.143	38.5811	337.000	220.000	81/10	82/09
CALCIUM	CA-TOT	MG/L		6	73.6833	10.4059	87.4000	57.8000	81/10	82/09
MGNSIUM	MG,TOT	MG/L		6	24.8333	3.83136	28.9000	18.4000	81/10	82/09
SULFATE	SO4-TOT	MG/L		1	93.0000		93.0000	93.0000	81/11	81/11
CADMIUM	CD,TOT	UG/L	K	6	.500000	.000000	.500000	.500000	81/10	82/09
CHROMIUM	CR,TOT	UG/L	K	5	30.0000	.000000	30.0000	30.0000	81/10	82/09
COPPER	CU,TOT	UG/L		1	10.0000		10.0000	10.0000	82/03	82/03
			K	4	10.0000	.000000	10.0000	10.0000	81/10	82/09
			T	5	10.0000	.000000	10.0000	10.0000	81/10	82/09
IRON	FE,TOT	UG/L		5	1596.00	1753.96	4610.00	260.000	81/10	82/09
LEAD	PB,TOT	UG/L		3	16.6667	13.3167	32.0000	8.00000	81/10	82/09
			K	2	5.00000	.000000	5.00000	5.00000	81/12	82/03
			T	5	12.0000	11.3798	32.0000	5.00000	81/10	82/09
NICKEL	NI,TOTAL	UG/L	K	5	36.0000	5.47723	40.0000	30.0000	81/10	82/09
ZINC	ZN,TOT	UG/L		5	37.0000	11.5109	55.0000	25.0000	81/10	82/09
FEC COLI	MFM-FCBR	/100ML		10	1247.40	692.830	2369.00	145.000	81/10	82/07
PHENOLS	TOTAL	UG/L		2	3.50000	.707107	4.00000	3.00000	81/10	81/11
			K	2	10.0000	.000000	10.0000	10.0000	82/08	82/09
PHENOLS	TOTAL	UG/L	T	4	6.75000	3.77492	10.0000	3.00000	81/10	82/09
RESIDUE	DISS-180	C MG/L		3	422.133	101.200	523.400	321.000	81/10	82/02
BOD 20C	5DAY CAR	MG/L		1	1.40000		1.40000	1.40000	81/10	81/10
BOD 20C	20DAYCAR	MG/L		1	3.80000		3.80000	3.80000	81/10	81/10

TABLE RD 1-157

STATION NUMBER 601300
39 42 03.0 083 06 35.0 2
BIG DARBY CREEK AT DARBYVILLE - SR 316
OHIO RIVER (SCIOTO RIVER)
MILES 0953.80 0624.60 101.00 013.20

PARAMETER			R	NO	MEAN	STAN DEV	MAXIMUM	MINIMUM	BEG	END
WATER	TEMP	CENT		12	9.98333	8.73226	24.0000	.000000	80/10	81/09
STREAM	FLOW,	INST-CFS		10	763.130	906.252	2678.00	107.000	80/12	81/09
STREAM	STAGE	FEET		11	2.81272	1.93320	6.64000	1.10000	80/12	81/09
CNDUCTVY	FIELD	MICROMHO		12	518.750	183.565	900.000	260.000	80/10	81/09
DO		MG/L		12	11.3583	2.50036	15.2000	8.20000	80/10	81/09
BOD	5 DAY	MG/L		5	2.18000	1.66193	5.00000	.900000	80/10	81/09
COD	LOWLEVEL	MG/L		11	18.6818	9.32277	37.0000	4.00000	80/10	81/09
			K	1	4.00000		4.00000	4.00000	81/03	81/03
			T	12	17.4583	9.84762	37.0000	4.00000	80/10	81/09
PH		SU		12	8.05416	.238877	8.40000	7.70000	80/10	81/09
RESIDUE	TOT NFLT	MG/L		8	54.8000	88.1215	272.000	5.40000	80/10	81/09
			K	4	10.0000	.000000	10.0000	10.0000	80/12	81/03
			T	12	39.8666	73.6761	272.000	5.40000	80/10	81/09
NH3+NH4-	N TOTAL	MG/L		5	.122000	.064962	.200000	.050000	80/10	81/06
			K	7	.050000	.000056	.050000	.050000	80/12	81/09
			T	12	.080000	.053936	.200000	.050000	80/10	81/09
NO2-N	TOTAL	MG/L		11	.022727	.014206	.050000	.000000	80/10	81/09
			K	1	.010000		.010000	.010000	81/07	81/07
			T	12	.021667	.014035	.050000	.000000	80/10	81/09
NO3-N	TOTAL	MG/L		12	4.53999	2.60092	8.46000	1.35000	80/10	81/09
TOT KJEL	N	MG/L		12	.731666	.512105	1.89000	.300000	80/10	81/09
PHOS-TOT		MG/L P		12	.140333	.089136	.380000	.050000	80/10	81/09
CYANIDE	CN-TOT	MG/L	K	1	.010000		.010000	.010000	81/09	81/09
TOT HARD	CACO3	MG/L		4	329.750	57.8295	388.000	253.000	80/12	81/09
CADMIUM	CD,TOT	UG/L	K	4	5.00000	.000000	5.00000	5.00000	80/12	81/09
CHROMIUM	CR,TOT	UG/L		1	30.0000		30.0000	30.0000	81/06	81/06
			K	3	30.0000	.000000	30.0000	30.0000	80/12	81/09
			T	4	30.0000	.000000	30.0000	30.0000	80/12	81/09
COPPER	CU,TOT	UG/L		2	40.0000	14.1421	50.0000	30.0000	81/06	81/09
			K	2	30.0000	.000000	30.0000	30.0000	80/12	81/03
			T	4	35.0000	10.0000	50.0000	30.0000	80/12	81/09
IRON	FE,TOT	UG/L		4	3287.50	5680.99	11800.0	200.000	80/12	81/09
LEAD	PB,TOT	UG/L	K	4	10.0000	10.0000	25.0000	5.00000	80/12	81/09
NICKEL	NI,TOTAL	UG/L		2	100.000	.000000	100.000	100.000	80/12	81/09
			K	2	100.000	.000000	100.000	100.000	81/03	81/06
			T	4	100.000	.000000	100.000	100.000	80/12	81/09
ZINC	ZN,TOT	UG/L		1	40.0000		40.0000	40.0000	81/06	81/06
			K	3	30.0000	.000000	30.0000	30.0000	80/12	81/09
			T	4	32.5000	5.00000	40.0000	30.0000	80/12	81/09
FEC COLI	MFM-FCBR	/100ML		12	397.750	791.972	2800.00	1.00000	80/10	81/09
PHENOLS	TOTAL	UG/L		2	4.00000	.000000	4.00000	4.00000	80/12	81/05
PHENOLS	TOTAL	UG/L	K	2	2.00000	.000000	2.00000	2.00000	81/03	81/09
			T	4	3.00000	1.15470	4.00000	2.00000	80/12	81/09
MERCURY	HG,TOTAL	UG/L	K	4	.500000	.000000	.500000	.500000	80/12	81/09

TABLE RD 1-158 (Continued)

STATION NUMBER 601300
39 42 03.0 083 06 35.0 2
BIG DARBY CREEK AT DARBYVILLE - SR 316
OHIO RIVER (SCIOTO RIVER)
MILES 0953.80 0624.60 101.00 013.20

PARAMETER			R	NO	MEAN	STAN DEV	MAXIMUM	MINIMUM	BEG	END
PHOS-TOT		MG/L P		10	.110100	.043647	.190000	.050000	81/10	82/09
			K	2	.050000	.000061	.050000	.050000	82/05	82/07
			T	12	.100083	.045890	.190000	.050000	81/10	82/09
TOT HARD	CACO3	MG/L		5	356.600	23.3010	384.000	326.000	81/11	82/09
CALCIUM	CA-TOT	MG/L		5	79.9600	7.97047	88.8000	69.9000	81/12	82/09
MGNSIUM	MG,TOT	MG/L		5	38.1200	3.63549	41.8000	32.6000	81/12	82/09
SULFATE	SO4-TOT	MG/L		1	90.0000		90.0000	90.0000	81/11	81/11
CADMIUM	CD,TOT	UG/L	K	5	.500000	.000000	.500000	.500000	81/12	82/09
CHROMIUM	CR,TOT	UG/L	K	4	30.0000	.000000	30.0000	30.0000	81/12	82/09
COPPER	CU,TOT	UG/L		2	12.5000	3.53553	15.0000	10.0000	81/12	82/03
			K	2	10.0000	.000000	10.0000	10.0000	82/06	82/09
			T	4	11.2500	2.50000	15.0000	10.0000	81/12	82/09
IRON	FE,TOT	UG/L		4	1010.00	857.321	2270.00	380.000	81/12	82/09
LEAD	PB,TOT	UG/L		3	5.33333	1.15470	6.00000	4.00000	81/12	82/09
			K	1	5.00000		5.00000	5.00000	82/03	82/03
			T	4	5.25000	.957427	6.00000	4.00000	81/12	82/09
NICKEL	NI,TOTAL	UG/L	K	4	37.5000	5.00000	40.0000	30.0000	81/12	82/09
ZINC	ZN,TOT	UG/L		2	22.5000	3.53553	25.0000	20.0000	82/06	82/09
			K	2	10.0000	.000000	10.0000	10.0000	81/12	82/03
			T	4	16.2500	7.50000	25.0000	10.0000	81/12	82/09
FEC COLI	MFM-FCBR	/100ML		10	290.700	418.907	1344.00	1.00000	81/10	82/07
PHENOLS	TOTAL	UG/L		1	2.00000		2.00000	2.00000	81/11	81/11
			K	1	10.0000		10.0000	10.0000	82/08	82/08
			T	2	6.00000	5.65685	10.0000	2.00000	81/11	82/08

TABLE RD 1-158

STATION NUMBER 601300
39 42 03.0 083 06 35.0 2
BIG DARBY CREEK AT DARBYVILLE - SR 316
OHIO RIVER (SCIOTO RIVER)
MILES 0953.80 0624.60 101.00 013.20

PARAMETER			R	NO	MEAN	STAN DEV	MAXIMUM	MINIMUM	BEG	END
WATER	TEMP	CENT		12	11.4667	9.07838	27.0000	.000000	81/10	82/09
STREAM	FLOW,	INST-CFS		11	391.345	615.897	2106.00	21.6000	81/11	82/09
STREAM	STAGE	FEET		10	1.85500	1.69875	5.98000	.570000	81/11	82/09
CNDUCTVY	FIELD	MICROMHO		12	563.916	172.971	800.000	275.000	81/10	82/09
DO	PROBE	MG/L		10	11.5750	1.48648	14.2000	9.00000	81/12	82/09
DO		MG/L		2	13.1500	6.57608	17.8000	8.50000	81/10	81/11
BOD	5 DAY	MG/L		10	3.69999	1.90030	7.60000	1.20000	81/10	82/09
			K	2	1.00000	.000000	1.00000	1.00000	81/12	82/03
			T	12	3.25000	2.01472	7.60000	1.00000	81/10	82/09
COD	LOWLEVEL	MG/L		3	10.0000	1.00000	11.0000	9.00000	81/10	82/03
			K	1	4.00000		4.00000	4.00000	81/12	81/12
			T	4	8.50000	3.10913	11.0000	4.00000	81/10	82/03
PH		SU		10	8.26999	.200436	8.60000	8.00000	81/10	82/08
LAB	PH	SU		1	8.28000		8.28000	8.28000	82/07	82/07
RESIDUE	TOT NFLT	MG/L		10	47.1600	40.7496	124.000	5.60000	81/12	82/09
			K	2	10.0000	.000000	10.0000	10.0000	81/10	81/11
			T	12	40.9666	39.5959	124.000	5.60000	81/10	82/09
NH3+NH4-	N TOTAL	MG/L		2	.055000	.007071	.060000	.050000	81/10	82/02
			K	10	.050000	.000054	.050000	.050000	81/11	82/09
			T	12	.050833	.002887	.060000	.050000	81/10	82/09
NO2-N	TOTAL	MG/L		6	.016667	.005164	.020000	.010000	81/10	82/04
			K	5	.020000	.000020	.020000	.020000	82/02	82/09
			T	11	.018182	.004045	.020000	.010000	81/10	82/09
NO3-N	TOTAL	MG/L		12	2.88416	2.62078	6.25000	.070000	81/10	82/09
TOT KJEL	N	MG/L		12	.685000	.187884	1.00000	.400000	81/10	82/09

TABLE RD 1-159

STATION NUMBER 601350
40 15 21.0 083 20 43.0 2
MILL CREEK BELOW MARYSVILLE - RADNOR RD
OHIO RIVER (SCIOTO RIVER)
MILES 0953.80 0624.60 157.20 017.20

PARAMETER			R	NO	MEAN	STAN DEV	MAXIMUM	MINIMUM	BEG	END
WATER	TEMP	CENT		12	9.98333	7.87053	23.0000	.000000	80/10	81/09
STREAM	FLOW,	INST-CFS		11	84.5081	92.3443	254.400	6.29000	80/10	81/09
STREAM	STAGE	FEET		12	1.64166	.609397	2.63000	1.00000	80/10	81/09
CNDUCTVY	FIELD	MICROMHO		12	700.000	229.495	950.000	335.000	80/10	81/09
DO		MG/L		11	9.05454	3.79352	14.0000	3.50000	80/10	81/09
BOD	5 DAY	MG/L		5	8.20000	3.56372	14.0000	5.00000	80/10	81/09
COD	LOWLEVEL	MG/L		12	25.5000	7.82188	42.0000	18.0000	80/10	81/09
PH		SU		12	7.68749	.144824	8.00000	7.50000	80/10	81/09
T ALK	CACO3	MG/L		1	234.000		234.000	234.000	80/11	80/11
RESIDUE	TOTAL	MG/L		1	798.000		798.000	798.000	80/11	80/11
RESIDUE	TOT NFLT	MG/L		10	38.7000	48.3989	172.000	13.0000	80/10	81/09
			K	2	10.0000	.000000	10.0000	10.0000	80/12	81/03
			T	12	33.9167	45.1814	172.000	10.0000	80/10	81/09
NH3+NH4-	N TOTAL	MG/L		12	1.78750	1.44862	5.17000	.170000	80/10	81/09
NO2-N	TOTAL	MG/L		12	.245000	.315119	1.02000	.030000	80/10	81/09
NO3-N	TOTAL	MG/L		12	2.30083	2.05893	5.74000	.370000	80/10	81/09
TOT KJEL	N	MG/L		12	2.89333	1.80058	7.32000	1.19000	80/10	81/09
PHOS-TOT		MG/L P		12	1.05225	.915792	3.17000	.166000	80/10	81/09
CYANIDE	CN-TOT	MG/L		5	.089600	.157249	.370000	.010000	80/10	81/08
			K	6	.010000	.000000	.010000	.010000	81/01	81/09
			T	11	.046182	.107791	.370000	.010000	80/10	81/09
TOT HARD	CACO3	MG/L		4	364.000	87.8787	476.000	276.000	80/12	81/09
CADMIUM	CD,TOT	UG/L	K	4	5.00000	.000000	5.00000	5.00000	80/12	81/09
CHROMIUM	CR,TOT	UG/L		2	35.0000	7.07107	40.0000	30.0000	81/06	81/09
			K	2	30.0000	.000000	30.0000	30.0000	80/12	81/03
			T	4	32.5000	5.00000	40.0000	30.0000	80/12	81/09
COPPER	CU,TOT	UG/L		2	35.0000	7.07107	40.0000	30.0000	80/12	81/09
			K	2	30.0000	.000000	30.0000	30.0000	81/03	81/06
			T	4	32.5000	5.00000	40.0000	30.0000	80/12	81/09
IRON	FE,TOT	UG/L		4	2512.50	3271.93	7400.00	620.000	80/12	81/09
LEAD	PB,TOT	UG/L		3	14.3333	11.1505	27.0000	6.00000	80/12	81/09
			K	1	5.00000		5.00000	5.00000	81/03	81/03
			T	4	12.0000	10.2307	27.0000	5.00000	80/12	81/09
NICKEL	NI,TOTAL	UG/L		3	100.000	.000000	100.000	100.000	80/12	81/09
			K	1	100.000		100.000	100.000	81/06	81/06
			T	4	100.000	.000000	100.000	100.000	80/12	81/09
ZINC	ZN,TOT	UG/L		4	50.0000	20.0000	80.0000	40.0000	80/12	81/09
FEC COLI	MFM-FCBR	/100ML		10	1246.00	898.531	3000.00	20.0000	80/10	81/09
			L	1	100000		100000	100000	81/04	81/04
			T	11	10223.6	29787.6	100000	20.0000	80/10	81/09
PHENOLS	TOTAL	UG/L		12	7.83333	3.18615	14.0000	4.00000	80/10	81/09
MERCURY	HG,TOTAL	UG/L		1	.500000		.500000	.500000	81/06	81/06
			K	3	.500000	.000000	.500000	.500000	80/12	81/09
			T	4	.500000	.000000	.500000	.500000	80/12	81/09

TABLE RD 1-160

STATION NUMBER 601350
40 15 21.0 083 20 43.0 2
MILL CREEK BELOW MARYSVILLE - RADNOR RD
OHIO RIVER (SCIOTO RIVER)
MILES 0953.80 0624.60 157.20 017.20

PARAMETER			R	NO	MEAN	STAN DEV	MAXIMUM	MINIMUM	BEG	END
WATER	TEMP	CENT		12	11.5167	8.67293	23.0000	.000000	81/10	82/09
STREAM	FLOW,	INST-CFS		12	89.4766	158.502	556.000	4.24000	81/10	82/09
STREAM	STAGE	FEET		12	1.57916	.779509	3.53000	.920000	81/10	82/09
CNDUCTVY	FIELD	MICROMHO		12	849.500	385.759	1310.00	286.000	81/10	82/09
DO	PROBE	MG/L		10	8.47999	5.04244	18.2000	1.20000	81/12	82/09
DO		MG/L		2	5.55000	2.75772	7.50000	3.60000	81/10	81/11
BOD	5 DAY	MG/L		9	7.78889	5.80548	18.6000	2.10000	81/10	82/09
			L	1	48.0000		48.0000	48.0000	82/08	82/08
			T	10	11.8100	13.8438	48.0000	2.10000	81/10	82/09
COD	LOWLEVEL	MG/L		7	36.7143	22.7722	81.0000	17.0000	81/10	82/04
PH		SU		10	7.59999	.312673	8.00000	7.00000	81/12	82/09
LAB	PH	SU		3	7.62333	.157248	7.80000	7.50000	81/10	82/07
RESIDUE	TOT NFLT	MG/L		9	37.3333	46.3007	156.000	6.00000	81/12	82/09
			K	2	10.0000	.000000	10.0000	10.0000	81/10	81/11
			T	11	32.3636	42.8632	156.000	6.00000	81/10	82/09
NH3+NH4-	N TOTAL	MG/L		12	3.75583	3.81390	13.6000	.160000	81/10	82/09
NO2-N	TOTAL	MG/L		11	.228181	.279063	.900000	.020000	81/10	82/09
NO3-N	TOTAL	MG/L		12	2.80000	1.86819	6.65000	.340000	81/10	82/09
TOT KJEL	N	MG/L		10	4.26000	2.90842	9.28000	1.20000	81/10	82/07
PHOS-TOT		MG/L P		11	1.67091	1.37868	4.30000	.150000	81/10	82/09
CYANIDE	CN-TOT	MG/L		2	.015000	.007071	.020000	.010000	81/11	82/09
TOT HARD	CACO3	MG/L		6	379.166	86.3523	447.000	214.000	81/11	82/09
CALCIUM	CA-TOT	MG/L		5	87.1999	19.3381	99.7000	53.6000	81/12	82/09
MGNSIUM	MG,TOT	MG/L		5	35.9600	10.1673	45.5000	19.4000	81/12	82/09
SULFATE	SO4-TOT	MG/L		1	292.000		292.000	292.000	81/11	81/11
CADMIUM	CD,TOT	UG/L	K	5	.500000	.000000	.500000	.500000	81/12	82/09
CHROMIUM	CR,TOT	UG/L		1	90.0000		90.0000	90.0000	82/09	82/09
			K	3	30.0000	.000000	30.0000	30.0000	81/12	82/06
			T	4	45.0000	30.0000	90.0000	30.0000	81/12	82/09
COPPER	CU,TOT	UG/L		4	27.5000	19.3649	55.0000	10.0000	81/12	82/09
IRON	FE,TOT	UG/L		4	3175.00	4434.43	9820.00	680.000	81/12	82/09
LEAD	PB,TOT	UG/L		3	5.33333	1.52753	7.00000	4.00000	82/03	82/09
			K	1	5.00000		5.00000	5.00000	81/12	81/12
			T	4	5.25000	1.25831	7.00000	4.00000	81/12	82/09
NICKEL	NI,TOTAL	UG/L		1	60.0000		60.0000	60.0000	82/09	82/09
			K	3	33.3333	5.77355	40.0000	30.0000	81/12	82/06
			T	4	40.0000	14.1421	60.0000	30.0000	81/12	82/09
ZINC	ZN,TOT	UG/L		4	52.5000	43.3013	115.000	15.0000	81/12	82/09
FEC COLI	MFM-FCBR	/100ML		7	11069.1	8857.21	26091.0	860.000	81/10	82/06
PHENOLS	TOTAL	UG/L		1	5.00000		5.00000	5.00000	81/11	81/11
			K	2	10.0000	.000000	10.0000	10.0000	82/08	82/09
PHENOLS	TOTAL	UG/L	T	3	8.33333	2.88676	10.0000	5.00000	81/11	82/09

TABLE RD 1-161

STATION NUMBER 601290
40 06 37.0 083 01 55.0 2
OLENTANGY RIVER NR WORTHINGTON - I 270 N.
OHIO RIVER (SCIOTO RIVER)
MILES 0953.80 0624.60 133.30 011.50

PARAMETER			R	NO	MEAN	STAN DEV	MAXIMUM	MINIMUM	BEG	END
WATER	TEMP	CENT		12	10.2333	8.11635	25.0000	.000000	80/10	81/09
STREAM	FLOW,	INST-CFS		11	539.990	834.737	2663.00	28.6000	80/10	81/09
STREAM	STAGE	FEET		12	2.56000	1.19920	5.43000	1.57000	80/10	81/09
CNDUCTVY	FIELD	MICROMHO		12	449.583	130.950	700.000	280.000	80/10	81/09
DO		MG/L		12	11.1667	3.10728	17.5000	7.00000	80/10	81/09
BOD	5 DAY	MG/L		4	4.00000	1.82574	6.00000	2.00000	80/10	81/06
			K	1	1.00000		1.00000	1.00000	81/09	81/09
			T	5	3.40000	2.07365	6.00000	1.00000	80/10	81/09
COD	LOWLEVEL	MG/L		12	19.1667	4.26051	27.0000	12.0000	80/10	81/09
PH		SU		11	7.68181	.411949	8.20000	6.90000	80/10	81/09
RESIDUE	TOT NFLT	MG/L		9	59.8889	86.1444	267.000	10.0000	80/11	81/09
			K	3	10.0000	.000000	10.0000	10.0000	80/10	81/03
			T	12	47.4167	76.8510	267.000	10.0000	80/10	81/09
NH3+NH4-	N TOTAL	MG/L		7	.177143	.088641	.290000	.070000	80/11	81/07
			K	5	.050000	.000061	.050000	.050000	80/10	81/09
			T	12	.124166	.092585	.290000	.050000	80/10	81/09
NO2-N	TOTAL	MG/L		11	.136363	.242952	.840000	.010000	80/10	81/09
			K	1	.010000		.010000	.010000	81/07	81/07
			T	12	.125833	.234500	.840000	.010000	80/10	81/09
NO3-N	TOTAL	MG/L		12	3.54750	2.29710	7.24000	.010000	80/10	81/09
TOT KJEL	N	MG/L		12	.865000	.359077	1.73000	.440000	80/10	81/09
PHOS-TOT		MG/L P		12	.165000	.090833	.376000	.067000	80/10	81/09
CYANIDE	CN-TOT	MG/L	K	1	.010000		.010000	.010000	81/09	81/09
TOT HARD	CACO3	MG/L		4	255.500	89.5377	340.000	146.000	80/12	81/09
CADMIUM	CD,TOT	UG/L	K	4	5.00000	.000000	5.00000	5.00000	80/12	81/09
CHROMIUM	CR,TOT	UG/L		1	40.0000		40.0000	40.0000	81/06	81/06
			K	3	30.0000	.000000	30.0000	30.0000	80/12	81/09
			T	4	32.5000	5.00000	40.0000	30.0000	80/12	81/09
COPPER	CU,TOT	UG/L	K	4	30.0000	.000000	30.0000	30.0000	80/12	81/09
IRON	FE,TOT	UG/L		4	3537.50	6051.02	12600.0	240.000	80/12	81/09
LEAD	PB,TOT	UG/L		1	9.00000		9.00000	9.00000	81/06	81/06
			K	3	5.00000	.000000	5.00000	5.00000	80/12	81/09
			T	4	6.00000	2.00000	9.00000	5.00000	80/12	81/09
NICKEL	NI,TOTAL	UG/L		2	100.000	.000000	100.000	100.000	80/12	81/03
			K	2	100.000	.000000	100.000	100.000	81/06	81/09
			T	4	100.000	.000000	100.000	100.000	80/12	81/09
ZINC	ZN,TOT	UG/L		1	50.0000		50.0000	50.0000	81/06	81/06
			K	3	30.0000	.000000	30.0000	30.0000	80/12	81/09
			T	4	35.0000	10.0000	50.0000	30.0000	80/12	81/09
FEC COLI	MFM-FCBR	/100ML		10	827.600	1252.02	3500.00	1.00000	80/10	81/09
PHENOLS	TOTAL	UG/L		5	4.40000	2.60768	8.00000	2.00000	80/12	81/09
RESIDUE	DISS-180	C MG/L		1	421.000		421.000	421.000	81/08	81/08
MERCURY	HG,TOTAL	UG/L		1	.500000		.500000	.500000	80/12	80/12
			K	3	.500000	.000000	.500000	.500000	81/03	81/09
			T	4	.500000	.000000	.500000	.500000	80/12	81/09

TABLE RD 1-162

STATION NUMBER 601290
40 06 37.0 083 01 55.0 2
OLENTANGY RIVER NR WORTHINGTON - I 270 N.
OHIO RIVER (SCIOTO RIVER)
MILES 0953.80 0624.60 133.30 011.50

PARAMETER			R	NO	MEAN	STAN DEV	MAXIMUM	MINIMUM	BEG	END
WATER	TEMP	CENT		12	11.6583	9.49962	26.0000	-.199E+00	81/10	82/09
STREAM	FLOW,	INST-CFS		12	242.517	291.737	905.000	21.0000	81/10	82/09
STREAM	STAGE	FEET		12	2.18666	.635571	3.37000	1.50000	81/10	82/09
CNDUCTVY	FIELD	MICROMHO		12	447.333	167.116	680.000	141.000	81/10	82/09
DO	PROBE	MG/L		10	10.4900	2.41682	13.6000	6.70000	81/12	82/09
DO		MG/L		2	9.80000	1.69710	11.0000	8.60000	81/10	81/11
BOD	5 DAY	MG/L		10	1.96000	.961716	4.10000	.900000	81/10	82/09
COD	LOWLEVEL	MG/L		7	23.1428	15.2034	57.0000	12.0000	81/10	82/04
PH		SU		10	8.03999	.392219	8.70000	7.30000	81/12	82/09
LAB	PH	SU		3	8.10666	.091150	8.20000	8.02000	81/10	82/07
RESIDUE	TOT NFLT	MG/L		8	26.7500	23.2118	82.0000	11.0000	82/02	82/09
			K	4	7.50000	2.88675	10.0000	5.00000	81/10	82/01
			T	12	20.3333	20.8559	82.0000	5.00000	81/10	82/09
NH3+NH4-	N TOTAL	MG/L		5	.190000	.101735	.350000	.100000	82/01	82/07
			K	7	.050000	.000056	.050000	.050000	81/10	82/09
			T	12	.108333	.094661	.350000	.050000	81/10	82/09
NO2-N	TOTAL	MG/L		7	.035714	.025728	.080000	.010000	81/10	82/05
			K	4	.020000	.000000	.020000	.020000	82/01	82/09
			T	11	.030000	.021448	.080000	.010000	81/10	82/09
NO3-N	TOTAL	MG/L		12	2.25833	1.18914	4.19000	.870000	81/10	82/09
TOT KJEL	N	MG/L		12	.720000	.273729	1.40000	.400000	81/10	82/09
PHOS-TOT		MG/L P		10	.125000	.053592	.240000	.057000	81/10	82/09
			K	2	.050000	.000061	.050000	.050000	81/12	82/05
			T	12	.112500	.056587	.240000	.050000	81/10	82/09
TOT HARD	CACO3	MG/L		6	266.833	44.8311	312.000	194.000	81/11	82/09
CALCIUM	CA-TOT	MG/L		5	69.1399	11.7399	81.7000	51.3000	81/12	82/09
MGNSIUM	MG,TOT	MG/L		5	23.7800	5.03266	28.1000	15.9000	81/12	82/09
SULFATE	SO4-TOT	MG/L		1	85.0000		85.0000	85.0000	81/11	81/11
CADMIUM	CD,TOT	UG/L	K	5	.500000	.000000	.500000	.500000	81/12	82/09
CHROMIUM	CR,TOT	UG/L	K	4	30.0000	.000000	30.0000	30.0000	81/12	82/09
COPPER	CU,TOT	UG/L		2	15.0000	.000000	15.0000	15.0000	82/03	82/09
			K	2	10.0000	.000000	10.0000	10.0000	81/12	82/06
			T	4	12.5000	2.88675	15.0000	10.0000	81/12	82/09
IRON	FE,TOT	UG/L		4	2617.50	4011.89	8610.00	180.000	81/12	82/09
LEAD	PB,TOT	UG/L		2	4.00000	2.82843	6.00000	2.00000	82/03	82/09
			K	2	3.50000	2.12132	5.00000	2.00000	81/12	82/06
			T	4	3.75000	2.06155	6.00000	2.00000	81/12	82/09
NICKEL	NI,TOTAL	UG/L	K	4	35.0000	5.77350	40.0000	30.0000	81/12	82/09
ZINC	ZN,TOT	UG/L		2	37.5000	3.53553	40.0000	35.0000	82/03	82/09
			K	2	10.0000	.000000	10.0000	10.0000	81/12	82/06
			T	4	23.7500	16.0078	40.0000	10.0000	81/12	82/09
FEC COLI	MFM-FCBR	/100ML		10	2809.60	7805.16	25000.0	10.0000	81/10	82/07
PHENOLS	TOTAL	UG/L		1	2.00000		2.00000	2.00000	81/11	81/11
			K	2	10.0000	.000000	10.0000	10.0000	82/08	82/09
			T	3	7.33333	4.61881	10.0000	2.00000	81/11	82/09
RESIDUE	DISS-180	C MG/L		1	267.000		267.000	267.000	82/02	82/02

TABLE RD 1-163

STATION NUMBER 601320
39 15 49.0 083 10 01.0 2
PAINT CREEK NR BOURNEVILLE - JONES LEVEE RD
OHIO RIVER (SCIOTO RIVER)
MILES 0953.80 0624.60 063.80 021.80

PARAMETER			R	NO	MEAN	STAN DEV	MAXIMUM	MINIMUM	BEG	END
WATER	TEMP	CENT		12	12.0000	8.98484	26.5000	1.00000	80/10	81/09
STREAM	FLOW,	INST-CFS		12	416.183	327.830	1001.00	80.7000	80/10	81/09
STREAM	STAGE	FEET		12	2.32750	.847488	3.60000	1.29000	80/10	81/09
CNDUCTVY	AT 25C	MICROMHO		8	535.375	56.3915	656.000	477.000	80/10	81/09
DO		MG/L		12	10.5667	2.31019	14.2000	7.40000	80/10	81/09
COD	LOWLEVEL	MG/L		12	12.0833	5.21289	21.0000	4.00000	80/10	81/09
PH		SU		11	7.68636	.489988	8.30000	6.90000	80/10	81/09
LAB	PH	SU		2	8.10000	.141598	8.20000	8.00000	81/01	81/04
RESIDUE	TOT NFLT	MG/L		5	38.6000	37.8788	104.000	14.0000	81/02	81/08
			K	5	10.0000	.000000	10.0000	10.0000	80/10	81/09
			T	10	24.3000	29.4092	104.000	10.0000	80/10	81/09
NH3+NH4-	N TOTAL	MG/L		6	.138333	.103037	.320000	.050000	80/12	81/05
			K	6	.050000	.000061	.050000	.050000	80/10	81/09
			T	12	.094167	.083389	.320000	.050000	80/10	81/09
NO2-N	TOTAL	MG/L		11	.153636	.365629	1.24000	.010000	80/10	81/09
NO3-N	TOTAL	MG/L		12	2.74083	1.56380	5.26000	.010000	80/10	81/09
TOT KJEL	N	MG/L		12	.623333	.293454	1.40000	.230000	80/10	81/09
PHOS-TOT		MG/L P		12	.086000	.066759	.276000	.027000	80/10	81/09
TOT HARD	CACO3	MG/L		6	272.666	25.5729	300.000	230.000	80/10	81/08
CHLORIDE	TOTAL	MG/L		2	21.5000	.707107	22.0000	21.0000	81/02	81/05
SULFATE	SO4-TOT	MG/L		2	37.5000	7.77817	43.0000	32.0000	80/10	81/05
ARSENIC	AS,TOT	UG/L	K	1	10.0000		10.0000	10.0000	81/03	81/03
CADMIUM	CD,TOT	UG/L	K	6	5.00000	.000000	5.00000	5.00000	80/10	81/08
CHROMIUM	CR,TOT	UG/L	K	6	30.0000	.000000	30.0000	30.0000	80/10	81/08
COPPER	CU,TOT	UG/L	K	6	30.0000	.000000	30.0000	30.0000	80/10	81/08
IRON	FE,TOT	UG/L		6	1278.33	1567.87	4400.00	210.000	80/10	81/08
LEAD	PB,TOT	UG/L		3	7.00000	1.00000	8.00000	6.00000	80/11	81/08
			K	3	5.00000	.000000	5.00000	5.00000	80/10	81/05
			T	6	6.00000	1.26491	8.00000	5.00000	80/10	81/08
MANGNESE	MN	UG/L		3	63.3333	25.1662	90.0000	40.0000	80/11	81/08
NICKEL	NI,TOTAL	UG/L		1	100.000		100.000	100.000	80/10	80/10
			K	4	100.000	.000000	100.000	100.000	80/11	81/08
			T	5	100.000	.000000	100.000	100.000	80/10	81/08
ZINC	ZN,TOT	UG/L		2	35.0000	7.07107	40.0000	30.0000	80/11	81/02
			K	4	30.0000	.000000	30.0000	30.0000	80/10	81/08
			T	6	31.6667	4.08264	40.0000	30.0000	80/10	81/08
ALUMINUM	AL,TOT	UG/L		4	900.000	812.404	2100.00	400.000	81/02	81/08
FEC COLI	MFM-FCBR	/100ML		11	176.209	237.106	790.000	29.0000	80/10	81/09
			K	1	3.60000		3.60000	3.60000	81/01	81/01
			T	12	161.825	231.498	790.000	3.60000	80/10	81/09
PHENOLS	TOTAL	UG/L		3	4.00000	1.00000	5.00000	3.00000	80/11	81/05
PHENOLS	TOTAL	UG/L	K	1	2.00000		2.00000	2.00000	81/08	81/08
			T	4	3.50000	1.29099	5.00000	2.00000	80/11	81/08
RESIDUE	DISS-180	C MG/L		10	370.100	202.081	943.000	269.000	80/10	81/08
MERCURY	HG,TOTAL	UG/L	K	3	.500000	.000000	.500000	.500000	80/10	81/08

TABLE RD 1-164

STATION NUMBER 601320
39 15 49.0 083 10 01.0 2
PAINT CREEK NR BOURNEVILLE - JONES LEVEE RD
OHIO RIVER (SCIOTO RIVER)
MILES 0953.80 0624.60 063.80 021.80

PARAMETER			R	NO	MEAN	STAN DEV	MAXIMUM	MINIMUM	BEG	END
WATER	TEMP	CENT		1	12.0000		12.0000	12.0000	81/10	81/10
STREAM	FLOW,	INST-CFS		1	32.0000		32.0000	32.0000	81/10	81/10
STREAM	STAGE	FEET		1	.830000		.830000	.830000	81/10	81/10
CNDUCTVY	AT 25C	MICROMHO		1	547.000		547.000	547.000	81/10	81/10
DO		MG/L		1	11.2000		11.2000	11.2000	81/10	81/10
PH		SU		1	8.30000		8.30000	8.30000	81/10	81/10
LAB	PH	SU		1	7.90000		7.90000	7.90000	81/10	81/10
RESIDUE	TOT NFLT	MG/L	K	1	10.0000		10.0000	10.0000	81/10	81/10
NH3+NH4-	N TOTAL	MG/L	K	1	.050000		.050000	.050000	81/10	81/10
NO3-N	TOTAL	MG/L		1	1.00000		1.00000	1.00000	81/10	81/10
TOT KJEL	N	MG/L		1	.300000		.300000	.300000	81/10	81/10
PHOS-TOT		MG/L P	K	1	.020000		.020000	.020000	81/10	81/10
FEC COLI	MFM-FCBR	/100ML	K	1	13.0000		13.0000	13.0000	81/10	81/10
RESIDUE	DISS-180	C MG/L		1	314.000		314.000	314.000	81/10	81/10

TABLE RD 1-165

STATION NUMBER 501260
41 22 55.0 082 19 01.0 2
VERMILION RIVER NR VERMILION - NORTH RIDGE RD
LAKE ERIE 060591 (VERMILION RIVER)
MILES 0004.50

PARAMETER			R	NO	MEAN	STAN DEV	MAXIMUM	MINIMUM	BEG	END
WATER	TEMP	CENT		10	9.94999	10.2047	26.6000	-.500E+00	80/10	81/07
TURB	TRBIDMTR	HACH FTU		1	255.000		255.000	255.000	81/04	81/04
CNDUCTVY	AT 25C	MICROMHO		8	524.750	87.1239	662.000	351.000	81/02	81/09
DO		MG/L		10	12.4900	1.78729	15.0000	10.2000	80/10	81/07
BOD	5 DAY	MG/L		10	8.47000	20.5754	67.0000	1.00000	80/10	81/09
			K	1	1.00000		1.00000	1.00000	80/12	80/12
			T	11	7.79091	19.6491	67.0000	1.00000	80/10	81/09
COD	LOWLEVEL	MG/L		10	18.9000	10.7357	43.8000	7.70000	80/10	81/09
			K	2	4.00000	.000000	4.00000	4.00000	80/11	81/06
			T	12	16.4167	11.3110	43.8000	4.00000	80/10	81/09
LAB	PH	SU		12	8.21258	.173546	8.40000	7.90000	80/10	81/09
T ALK	CACO3	MG/L		2	116.000	41.0122	145.000	87.0000	81/02	81/05
RESIDUE	TOT NFLT	MG/L		6	85.1667	129.037	346.000	16.0000	80/11	81/06
			K	6	10.0000	.000000	10.0000	10.0000	80/10	81/09
			T	12	47.5833	95.4429	346.000	10.0000	80/10	81/09
NH3+NH4-	N TOTAL	MG/L		4	.263000	.425859	.900000	.012000	80/10	81/09
			K	4	.275000	.259808	.500000	.050000	80/11	81/03
			T	8	.269000	.326640	.900000	.012000	80/10	81/09
NO2-N	TOTAL	MG/L		9	.023333	.026926	.090000	.010000	80/12	81/09
			K	3	.010000	.000000	.010000	.010000	80/10	81/07
			T	12	.020000	.023741	.090000	.010000	80/10	81/09
NO3-N	TOTAL	MG/L		10	2.25100	2.18269	6.23000	.280000	80/12	81/09
			K	2	.050000	.000061	.050000	.050000	80/10	80/11
			T	12	1.88416	2.15219	6.23000	.050000	80/10	81/09
TOT KJEL	N	MG/L		12	.801666	.661827	2.79000	.390000	80/10	81/09
PHOS-TOT		MG/L P		12	.084500	.110145	.409000	.021000	80/10	81/09
T ORG C	C	MG/L		6	14.3333	1.63302	17.0000	12.0000	80/10	81/07
TOT HARD	CACO3	MG/L		12	264.166	67.7567	392.000	152.000	80/10	81/09
CALCIUM	CA-TOT	MG/L		10	72.2000	19.6062	109.000	47.0000	80/12	81/09
MGNSIUM	MG,TOT	MG/L		10	20.7000	5.79369	31.0000	12.0000	80/12	81/09
SODIUM	NA,TOT	MG/L		10	22.1000	10.4611	39.0000	7.00000	80/12	81/09
PTSSIUM	K,TOT	MG/L		9	4.07777	.822779	5.40000	2.80000	81/01	81/09
CHLORIDE	TOTAL	MG/L		12	37.9167	12.0640	57.0000	20.0000	80/10	81/09
SULFATE	SO4-TOT	MG/L		12	100.000	26.2297	158.000	55.0000	80/10	81/09
SILICA	DISOLVED	MG/L		9	3.98222	2.65027	6.90000	.280000	80/12	81/09

TABLE RD 1-165 (Continued)

STATION NUMBER 501260
41 22 55.0 082 19 01.0 2
VERMILION RIVER NR VERMILION - NORTH RIDGE RD
LAKE ERIE 060591 (VERMILION RIVER)
MILES 0004.50

PARAMETER			R	NO	MEAN	STAN DEV	MAXIMUM	MINIMUM	BEG	END
ARSENIC	AS,TOT	UG/L	K	12	10.8333	2.88676	20.0000	10.0000	80/10	81/09
CADMIUM	CD,TOT	UG/L	K	12	5.00000	.000000	5.00000	5.00000	80/10	81/09
CHROMIUM	CR,TOT	UG/L		2	30.0000	.000000	30.0000	30.0000	80/12	81/02
			K	10	30.0000	.000000	30.0000	30.0000	80/10	81/09
			T	12	30.0000	.000000	30.0000	30.0000	80/10	81/09
COPPER	CU,TOT	UG/L	K	12	30.0000	.000000	30.0000	30.0000	80/10	81/09
IRON	FE,TOT	UG/L		12	1500.00	3467.50	12400.0	130.000	80/10	81/09
LEAD	PB,TOT	UG/L		1	11.0000		11.0000	11.0000	81/04	81/04
			K	11	5.00000	.000000	5.00000	5.00000	80/10	81/09
			T	12	5.50000	1.73205	11.0000	5.00000	80/10	81/09
MANGNESE	MN	UG/L		6	68.3333	79.3515	230.000	30.0000	80/10	81/09
			K	6	30.0000	.000000	30.0000	30.0000	80/11	81/08
			T	12	49.1667	57.1216	230.000	30.0000	80/10	81/09
NICKEL	NI,TOTAL	UG/L		2	100.000	.000000	100.000	100.000	81/08	81/09
			K	7	100.000	.000000	100.000	100.000	81/01	81/07
			T	9	100.000	.000000	100.000	100.000	81/01	81/09
ZINC	ZN,TOT	UG/L		2	50.0000	14.1421	60.0000	40.0000	81/02	81/04
			K	10	30.0000	.000000	30.0000	30.0000	80/10	81/09
			T	12	33.3333	8.87632	60.0000	30.0000	80/10	81/09
ALUMINUM	AL,TOT	UG/L		7	1371.43	2493.13	7000.00	200.000	80/10	81/09
			K	5	200.000	.000000	200.000	200.000	80/11	81/06
			T	12	883.333	1937.59	7000.00	200.000	80/10	81/09
FEC COLI	MFM-FCBR	/100ML		12	418.333	750.416	2600.00	33.0000	80/10	81/09
PHENOLS	TOTAL	UG/L	K	1	2.00000		2.00000	2.00000	81/03	81/03
MBAS		MG/L		12	.083333	.037979	.180000	.050000	80/10	81/09
PCBS	WHL SMPL	UG/L	K	5	.500000	.000000	.500000	.500000	81/03	81/08
RESIDUE	DISS-180	C MG/L		12	356.250	94.4751	520.000	256.000	80/10	81/09
MERCURY	HG,TOTAL	UG/L	K	9	.500000	.000000	.500000	.500000	80/10	81/07

TABLE RD 1-166

STATION NUMBER 501260
41 22 55.0 082 19 01.0 2
VERMILION RIVER NR VERMILION - NORTH RIDGE RD
LAKE ERIE 060591 (VERMILION RIVER)
MILES 0004.50

PARAMETER			R	NO	MEAN	STAN DEV	MAXIMUM	MINIMUM	BEG	END
WATER	TEMP	CENT		7	11.2000	10.3742	24.6000	.000000	81/10	82/09
STREAM	STAGE	FEET		2	2.40500	.346482	2.65000	2.16000	81/10	81/12
CNDUCTVY	AT 25C	MICROMHO		7	618.571	43.2993	680.000	568.000	81/10	82/09
DO	PROBE	MG/L		5	11.3200	2.14874	14.6000	9.10000	81/12	82/09
DO		MG/L		2	11.7000	1.97994	13.1000	10.3000	81/10	81/11
BOD	5 DAY	MG/L		5	2.06000	1.71551	5.10000	1.10000	81/10	82/09
			K	1	1.00000		1.00000	1.00000	81/12	81/12
			T	6	1.88333	1.59426	5.10000	1.00000	81/10	82/09
COD	LOWLEVEL	MG/L		6	15.9000	8.21584	30.0000	7.00000	81/10	82/09
			K	1	4.00000		4.00000	4.00000	81/11	81/11
			T	7	14.2000	8.74529	30.0000	4.00000	81/10	82/09
LAB	PH	SU		7	8.09856	.252591	8.41000	7.87000	81/10	82/09
T ALK	CACO3	MG/L		1	165.000		165.000	165.000	81/10	81/10
RESIDUE	TOT NFLT	MG/L		3	8.33333	4.93289	14.0000	5.00000	81/11	82/09
			K	3	6.66667	2.88676	10.0000	5.00000	81/10	82/01
			T	6	7.50000	3.72827	14.0000	5.00000	81/10	82/09
NH3+NH4-	N TOTAL	MG/L		2	.145000	.021213	.160000	.130000	81/11	82/01
			K	4	.050000	.000050	.050000	.050000	81/10	82/09
			T	6	.081667	.049967	.160000	.050000	81/10	82/09
NO2-N	TOTAL	MG/L		3	.036667	.020817	.060000	.020000	81/11	82/07
			K	4	.017500	.005000	.020000	.010000	81/10	82/09
			T	7	.025714	.016183	.060000	.010000	81/10	82/09
NO3-N	TOTAL	MG/L		5	2.29200	2.07591	4.39000	.050000	81/11	82/09
			K	1	.050000		.050000	.050000	81/10	81/10
			T	6	1.91833	2.07009	4.39000	.050000	81/10	82/09
TOT KJEL	N	MG/L		7	.594285	.334258	1.10000	.300000	81/10	82/09
PHOS-TOT		MG/L P		2	.121000	.100409	.192000	.050000	81/11	82/08
			K	5	.044000	.013416	.050000	.020000	81/10	82/09
			T	7	.066000	.056675	.192000	.020000	81/10	82/09

TABLE RD 1-166 (Continued)

STATION NUMBER 501260
41 22 55.0 082 19 01.0 2
VERMILION RIVER NR VERMILION - NORTH RIDGE RD
LAKE ERIE 060591 (VERMILION RIVER)
MILES 0004.50

PARAMETER			R	NO	MEAN	STAN DEV	MAXIMUM	MINIMUM	BEG	END
T ORG C	C	MG/L		2	11.5000	6.36396	16.0000	7.00000	81/10	81/11
TOT HARD	CACO3	MG/L		5	287.200	24.0780	315.000	254.000	81/10	82/08
CALCIUM	CA-TOT	MG/L		7	87.1857	35.4583	163.500	57.0000	81/10	82/09
MGNSIUM	MG,TOT	MG/L		7	22.6857	3.64169	26.6000	15.0000	81/10	82/09
SODIUM	NA,TOT	MG/L		4	26.2250	5.04143	33.1000	21.0000	81/10	82/09
PTSSIUM	K,TOT	MG/L		4	5.42500	1.45459	6.50000	3.30000	81/10	82/09
CHLORIDE	TOTAL	MG/L		2	38.5000	3.53553	41.0000	36.0000	81/10	81/11
SULFATE	SO4-TOT	MG/L		2	113.000	1.41421	114.000	112.000	81/10	81/11
SILICA	DISOLVED	MG/L		2	3.39000	4.55377	6.61000	.170000	81/10	81/11
ARSENIC	AS,TOT	UG/L	K	2	10.0000	.000000	10.0000	10.0000	81/10	81/11
CADMIUM	CD,TOT	UG/L	K	7	1.78571	2.19578	5.00000	.500000	81/10	82/09
CHROMIUM	CR,TOT	UG/L	K	7	30.0000	.000000	30.0000	30.0000	81/10	82/09
COPPER	CU,TOT	UG/L		1	10.0000		10.0000	10.0000	82/09	82/09
			K	6	16.6667	10.3280	30.0000	10.0000	81/10	82/08
			T	7	15.7143	9.75900	30.0000	10.0000	81/10	82/09
IRON	FE,TOT	UG/L		7	438.571	319.449	1110.00	120.000	81/10	82/09
LEAD	PB,TOT	UG/L	K	7	3.71428	1.60357	5.00000	2.00000	81/10	82/09
MANGNESE	MN	UG/L		5	27.0000	8.36660	40.0000	20.0000	81/10	82/09
			K	2	17.5000	17.6777	30.0000	5.00000	81/12	82/07
			T	7	24.2857	10.9654	40.0000	5.00000	81/10	82/09
NICKEL	NI,TOTAL	UG/L	K	7	55.7143	30.4725	100.000	30.0000	81/10	82/09
ZINC	ZN,TOT	UG/L		1	25.0000		25.0000	25.0000	82/09	82/09
			K	6	16.6667	10.3280	30.0000	10.0000	81/10	82/08
			T	7	17.8571	9.94032	30.0000	10.0000	81/10	82/09
ALUMINUM	AL,TOT	UG/L		2	400.000	282.843	600.000	200.000	81/10	81/11
FEC COLI	MFM-FCBR	/100ML		5	1806.60	3798.41	8600.00	33.0000	81/10	82/09
MBAS		MG/L		2	.095000	.035355	.120000	.070000	81/10	81/11
RESIDUE	DISS-180 C	MG/L		6	405.333	75.2991	464.000	266.000	81/10	82/09
MERCURY	HG,TOTAL	UG/L	K	2	.500000	.000000	.500000	.500000	81/10	81/11

TABLE RD 1-167

STATION NUMBER 504160
41 54 30.0 080 48 38.0 2
ASHTABULA WATER SUPPLY INTAKE
LAKE ERIE 060691 (CENTRAL BASIN ASHTABULA ARE
MILES 0000.00

PARAMETER			R	NO	MEAN	STAN DEV	MAXIMUM	MINIMUM	BEG	END
WATER	TEMP	CENT		8	10.1875	8.81937	21.0000	.000000	80/10	81/09
TURB	TRBIDMTR	HACH FTU		11	9.98182	13.3236	45.0000	2.50000	80/10	81/09
CNDUCTVY	FIELD	MICROMHO		6	205.833	53.8905	270.000	150.000	81/02	81/09
CNDUCTVY	AT 25C	MICROMHO		9	291.555	25.0971	320.000	229.000	80/10	81/09
DO		MG/L		4	9.67500	2.70848	12.7000	7.10000	81/03	81/09
PH		SU		2	8.55000	.071709	8.60000	8.50000	81/08	81/09
LAB	PH	SU		7	7.64285	.475601	8.10000	6.70000	80/12	81/09
T ALK	CACO3	MG/L		11	95.5454	3.38840	101.000	92.0000	80/10	81/09
RESIDUE	TOT NFLT	MG/L	K	2	10.0000	.000000	10.0000	10.0000	81/03	81/04
NH3+NH4-	N TOTAL	MG/L		6	.100000	.075631	.250000	.050000	80/12	81/09
			K	5	.050000	.000061	.050000	.050000	80/10	81/08
			T	11	.077273	.059513	.250000	.050000	80/10	81/09
NO2-N	TOTAL	MG/L		7	.010000	.000009	.010000	.010000	80/10	81/08
			K	3	.010000	.000000	.010000	.010000	80/12	81/03
			T	10	.010000	.000009	.010000	.010000	80/10	81/08
NO3-N	TOTAL	MG/L		11	.252727	.165233	.640000	.110000	80/10	81/09
TOT KJEL	N	MG/L		11	.320909	.070350	.460000	.220000	80/10	81/09
PHOS-TOT		MG/L P		10	.036600	.032925	.119000	.011000	80/10	81/09
			K	1	.020000		.020000	.020000	81/01	81/01
			T	11	.035091	.031634	.119000	.011000	80/10	81/09
CHLORIDE	TOTAL	MG/L		11	20.6363	2.57974	25.0000	17.0000	80/10	81/09
SULFATE	SO4-TOT	MG/L		10	22.7000	1.63644	25.0000	20.0000	80/10	81/09
SILICA	DISOLVED	MG/L		11	.244545	.136262	.450000	.060000	80/10	81/09
FEC COLI	MFM-FCBR	/100ML		4	63.7500	42.4136	93.0000	2.00000	80/10	81/04
			K	5	2.40000	.547725	3.00000	2.00000	80/11	81/09
			T	9	29.6667	41.4759	93.0000	2.00000	80/10	81/09
FECSTREP	MF M-ENT	/100ML		5	64.0000	95.1315	230.000	4.00000	80/10	81/03
			K	3	2.66667	.577359	3.00000	2.00000	81/04	81/09
			T	8	41.0000	78.6075	230.000	2.00000	80/10	81/09
DICLBRMT		TOTUG/L	K	2	.500000	.000000	.500000	.500000	80/12	81/01
CARBNTET		TOTUG/L	K	2	.500000	.000000	.500000	.500000	80/12	81/01
12DICLET		TOTUG/L	K	2	.500000	.000000	.500000	.500000	80/12	81/01
BROMOFRM	WHL-WTR	UG/L	K	2	1.50000	.000000	1.50000	1.50000	80/12	81/01
CLDIBRMT		TOTUG/L	K	2	.500000	.000000	.500000	.500000	80/12	81/01
CHLRFORM		TOTUG/L	K	2	.500000	.000000	.500000	.500000	80/12	81/01
METHYLEN	ECHLORID	TOTWUG/L	K	2	1.50000	.000000	1.50000	1.50000	80/12	81/01
TETRACHL	OROETHYL	TOTWUG/L	K	2	.500000	.000000	.500000	.500000	80/12	81/01
TRICHLOR	ETHYLENE	TOT UG/L	K	2	.500000	.000000	.500000	.500000	80/12	81/01
RESIDUE	DISS-180	C MG/L		5	171.200	7.29512	180.000	164.000	81/01	81/06
TETRACL	ETHANE	TOT UG/L	K	2	.500000	.000000	.500000	.500000	80/12	81/01
TRICLETH	WHL WAT	UG/L	K	2	.500000	.000000	.500000	.500000	80/12	81/01

TABLE RD 1-168

STATION NUMBER 504160
41 54 30.0 080 48 38.0 2
ASHTABULA WATER SUPPLY INTAKE
LAKE ERIE 060691 (CENTRAL BASIN ASHTABULA ARE/
MILES 0000.00

PARAMETER			R	NO	MEAN	STAN DEV	MAXIMUM	MINIMUM	BEG	END
WATER	TEMP	CENT		10	8.55000	8.36145	23.5000	.000000	81/11	82/09
TURB	TRBIDMTR	HACH FTU		2	13.3500	8.69741	19.5000	7.20000	81/10	81/11
CNDUCTVY	FIELD	MICROMHO		9	201.667	49.2444	275.000	150.000	81/11	82/09
CNDUCTVY	AT 25C	MICROMHO		9	287.111	21.4915	326.000	255.000	81/10	82/09
DO	PROBE	MG/L		9	10.5444	2.37494	13.4000	6.90000	81/12	82/09
DO		MG/L		1	11.2000		11.2000	11.2000	81/11	81/11
COD	LOWLEVEL	MG/L		6	11.6667	4.36655	17.0000	4.00000	81/11	82/09
PH		SU		10	8.18999	.433263	8.90000	7.30000	81/11	82/09
LAB	PH	SU		1	7.61000		7.61000	7.61000	81/12	81/12
T ALK	CACO3	MG/L		2	95.5000	2.12132	97.0000	94.0000	81/10	81/11
RESIDUE	TOTAL	MG/L		1	200.000		200.000	200.000	82/09	82/09
RESIDUE	TOT NFLT	MG/L		3	43.3333	49.3289	100.000	10.0000	81/11	82/04
NH3+NH4-	N TOTAL	MG/L		3	.070000	.043589	.120000	.040000	82/01	82/04
			K	8	.050000	.000052	.050000	.050000	81/10	82/09
			T	11	.055455	.021617	.120000	.040000	81/10	82/09
NO2-N	TOTAL	MG/L		2	.035000	.007071	.040000	.030000	82/03	82/04
			K	7	.020000	.000022	.020000	.020000	81/12	82/09
			T	9	.023333	.007071	.040000	.020000	81/12	82/09
NO3-N	TOTAL	MG/L		11	.349091	.162509	.670000	.150000	81/10	82/09
TOT KJEL	N	MG/L		11	.312727	.111364	.520000	.200000	81/10	82/09
PHOS-TOT		MG/L P		4	.054000	.019114	.080000	.034000	81/10	82/09
			K	7	.050000	.000056	.050000	.050000	81/12	82/08
			T	11	.051455	.010662	.080000	.034000	81/10	82/09
CHLORIDE	TOTAL	MG/L		2	17.0000	1.41421	18.0000	16.0000	81/10	81/11
SULFATE	SO4-TOT	MG/L		2	22.5000	2.12132	24.0000	21.0000	81/10	81/11
SILICA	DISOLVED	MG/L		2	.215000	.091924	.280000	.150000	81/10	81/11
FEC COLI	MFM-FCBR	/100ML		8	57.1250	44.8025	130.000	10.0000	81/10	82/06
			K	3	2.16667	.288683	2.50000	2.00000	82/05	82/09
			T	11	42.1363	45.4324	130.000	2.00000	81/10	82/09
FECSTREP	MF M-ENT	/100ML		6	114.000	162.755	440.000	23.0000	81/10	82/06
			K	5	2.46000	.531982	3.30000	2.00000	81/11	82/09
			T	11	63.3000	128.987	440.000	2.00000	81/10	82/09
RESIDUE	DISS-180	C MG/L		4	182.250	20.3859	209.000	164.000	81/11	82/09

TABLE RD 1-169

STATION NUMBER 504170
41 42 00.0 083 15 32.0 2
CONNEAUT WATER SUPPLY INTAKE
LAKE ERIE 060691 (CENTRAL BASIN CONNEAUT AREA
MILES 0000.00

PARAMETER			R	NO	MEAN	STAN DEV	MAXIMUM	MINIMUM	BEG	END
WATER	TEMP	CENT		5	10.5000	8.87412	21.0000	.000000	81/02	81/08
TURB	TRBIDMTR	HACH FTU		3	6.16666	7.65790	15.0000	1.40000	80/11	81/08
CNDUCTVY	FIELD	MICROMHO		5	189.000	40.2182	235.000	155.000	81/02	81/08
DO		MG/L		5	11.0800	2.15106	13.5000	8.40000	81/02	81/08
COD	LOWLEVEL	MG/L		6	9.96666	2.06076	12.0000	7.00000	80/10	81/08
			K	1	4.00000		4.00000	4.00000	81/06	81/06
			T	7	9.11428	2.93680	12.0000	4.00000	80/10	81/08
PH		SU		1	8.40000		8.40000	8.40000	81/08	81/08
LAB	PH	SU		5	7.68000	.277536	8.00000	7.40000	80/11	81/06
T ALK	CACO3	MG/L		1	98.0000		98.0000	98.0000	80/11	80/11
RESIDUE	TOT NFLT	MG/L		3	28.3333	16.0728	40.0000	10.0000	80/10	81/06
			K	4	10.0000	.000000	10.0000	10.0000	81/02	81/08
			T	7	17.8571	13.4960	40.0000	10.0000	80/10	81/08
NH3+NH4-	N TOTAL	MG/L		2	.125000	.021213	.140000	.110000	81/01	81/03
			K	7	.050000	.000056	.050000	.050000	80/11	81/08
			T	9	.066667	.033912	.140000	.050000	80/11	81/08
NO2-N	TOTAL	MG/L		5	.010000	.000000	.010000	.010000	81/02	81/08
			K	4	.010000	.000000	.010000	.010000	80/11	81/03
			T	9	.010000	.000008	.010000	.010000	80/11	81/08
NO3-N	TOTAL	MG/L		9	.266666	.172989	.640000	.070000	80/11	81/08
TOT KJEL	N	MG/L		9	.317777	.072936	.450000	.170000	80/11	81/08
PHOS-TOT		MG/L P		6	.030000	.008319	.046000	.024000	80/11	81/06
			K	3	.020000	.000000	.020000	.020000	81/03	81/08
			T	9	.026667	.008261	.046000	.020000	80/11	81/08
PHOS-DIS		MG/L P		3	.018333	.007638	.025000	.010000	80/10	81/04
			K	6	.020000	.000023	.020000	.020000	80/12	81/08
			T	9	.019444	.003909	.025000	.010000	80/10	81/08
T ORG C	C	MG/L		4	8.00000	2.94392	12.0000	5.00000	81/01	81/07
CYANIDE	CN-TOT	MG/L	K	9	.010000	.000008	.010000	.010000	80/10	81/08
TOT HARD	CACO3	MG/L		4	124.500	4.12311	130.000	120.000	81/01	81/07
CHLORIDE	TOTAL	MG/L		2	18.5000	2.12132	20.0000	17.0000	80/11	81/03
SULFATE	SO4-TOT	MG/L		3	25.3333	2.51669	28.0000	23.0000	81/04	81/07
SILICA	DISOLVED	MG/L		10	.316000	.201616	.610000	.060000	80/10	81/08
CADMIUM	CD,TOT	UG/L	K	10	5.00000	.000000	5.00000	5.00000	80/10	81/08
CHROMIUM	CR,TOT	UG/L		1	30.0000		30.0000	30.0000	81/06	81/06
			K	3	30.0000	.000000	30.0000	30.0000	81/01	81/07
			T	4	30.0000	.000000	30.0000	30.0000	81/01	81/07
COPPER	CU,TOT	UG/L	K	4	30.0000	.000000	30.0000	30.0000	81/01	81/07
IRON	FE,TOT	UG/L		10	549.000	614.952	1790.00	110.000	80/10	81/08
LEAD	PB,TOT	UG/L	K	4	5.00000	.000000	5.00000	5.00000	81/01	81/07
NICKEL	NI,TOTAL	UG/L	K	4	100.000	.000000	100.000	100.000	81/01	81/07

TABLE RD 1-170

STATION NUMBER 504170
41 42 00.0 083 15 32.0 2
CONNEAUT WATER SUPPLY INTAKE
LAKE ERIE 060691 (CENTRAL BASIN CONNEAUT AREA
MILES 0000.00

No data were collected from 10/81 - 9/82.

TABLE RD 1-171

STATION NUMBER 504090
41 31 08.0 081 52 46.0 2
CROWN WATER SUPPLY INTAKE
LAKE ERIE (CENTRAL BASIN CLEVELAND AREA)
MILES 0000.00

PARAMETER			R	NO	MEAN	STAN DEV	MAXIMUM	MINIMUM	BEG	END
WATER	TEMP	CENT		7	12.5000	8.02081	23.5000	.500000	80/10	81/09
TURB	TRBIDMTR	HACH FTU		11	8.08181	4.75197	17.0000	2.20000	80/10	81/09
CNDUCTVY	FIELD	MICROMHO		8	217.750	29.3245	280.000	188.000	80/12	81/09
CNDUCTVY	AT 25C	MICROMHO		8	288.000	36.2688	340.000	213.000	80/11	81/08
DO		MG/L		9	10.9111	2.72418	14.5000	7.80000	80/10	81/09
PH		SU		4	8.15000	.310934	8.50000	7.80000	80/12	81/09
LAB	PH	SU		8	7.31249	.318141	7.60000	6.80000	80/10	81/06
T ALK	CACO3	MG/L		11	95.5454	3.07916	102.000	92.0000	80/10	81/09
RESIDUE	TOT NFLT	MG/L	K	2	10.0000	.000000	10.0000	10.0000	81/03	81/04
NH3+NH4-	N TOTAL	MG/L		6	.108333	.051153	.170000	.050000	80/10	81/09
			K	5	.050000	.000061	.050000	.050000	80/12	81/08
			T	11	.081818	.047290	.170000	.050000	80/10	81/09
NO2-N	TOTAL	MG/L		5	.010000	.000000	.010000	.010000	80/11	81/06
			K	5	.010000	.000000	.010000	.010000	80/10	81/08
			T	10	.010000	.000007	.010000	.010000	80/10	81/08
NO3-N	TOTAL	MG/L		11	.353636	.309815	1.22000	.150000	80/10	81/09
TOT KJEL	N	MG/L		11	.330000	.126333	.560000	.160000	80/10	81/09
PHOS-TOT		MG/L P		11	.035636	.013611	.057000	.020000	80/10	81/09
PHOS-DIS		MG/L P		9	.035778	.054113	.179000	.009000	80/10	81/09
CYANIDE	CN-TOT	MG/L	K	4	.010000	.000000	.010000	.010000	80/11	81/07
TOT HARD	CACO3	MG/L		4	120.250	4.78713	127.000	116.000	80/11	81/07
CHLORIDE	TOTAL	MG/L		11	17.7273	3.37913	24.0000	13.0000	80/10	81/09
SULFATE	SO4-TOT	MG/L		11	21.8182	1.40145	24.0000	19.0000	80/10	81/09
FLUORIDE	F,TOTAL	MG/L		4	.145000	.030000	.180000	.120000	80/11	81/07
SILICA	DISOLVED	MG/L		11	.378181	.325939	1.19000	.100000	80/10	81/09
ARSENIC	AS,TOT	UG/L	K	4	10.0000	.000000	10.0000	10.0000	80/11	81/07
CADMIUM	CD,TOT	UG/L	K	4	5.00000	.000000	5.00000	5.00000	80/11	81/07
CHROMIUM	CR,TOT	UG/L		1	30.0000		30.0000	30.0000	81/06	81/06
			K	3	30.0000	.000000	30.0000	30.0000	80/11	81/07
			T	4	30.0000	.000000	30.0000	30.0000	80/11	81/07
COPPER	CU,TOT	UG/L		4	60.0000	18.2574	80.0000	40.0000	80/11	81/07
IRON	FE,TOT	UG/L		4	525.000	297.602	950.000	300.000	80/11	81/07
LEAD	PB,TOT	UG/L	K	4	5.00000	.000000	5.00000	5.00000	80/11	81/07
NICKEL	NI,TOTAL	UG/L	K	4	100.000	.000000	100.000	100.000	80/11	81/07
VANADIUM	V,TOT	UG/L	K	3	86.6667	100.167	200.000	10.0000	80/11	81/07

TABLE RD 1-171 (Continued)

STATION NUMBER 504090
41 31 08.0 081 52 46.0 2
CROWN WATER SUPPLY INTAKE
LAKE ERIE (CENTRAL BASIN CLEVELAND AREA)
MILES 0000.00

PARAMETER			R	NO	MEAN	STAN DEV	MAXIMUM	MINIMUM	BEG	END
ZINC	ZN,TOT	UG/L		1	30.0000		30.0000	30.0000	81/06	81/06
			K	3	30.0000	.000000	30.0000	30.0000	80/11	81/07
			T	4	30.0000	.000000	30.0000	30.0000	80/11	81/07
ALUMINUM	AL,TOT	UG/L		3	333.333	152.753	500.000	200.000	80/11	81/07
			K	1	200.000		200.000	200.000	81/04	81/04
			T	4	300.000	141.421	500.000	200.000	80/11	81/07
SELENIUM	SE,TOT	UG/L	K	2	5.00000	.000000	5.00000	5.00000	80/11	81/07
FEC COLI	MFM-FCBR	/100ML		4	8.50000	6.80686	18.0000	2.00000	80/10	81/03
			K	6	2.58333	.801042	4.00000	2.00000	80/12	81/09
			T	10	4.95000	5.01359	18.0000	2.00000	80/10	81/09
FECSTREP	MF M-ENT	/100ML		5	7.60000	5.89916	16.0000	2.00000	81/01	81/06
			K	4	2.50000	.577350	3.00000	2.00000	80/10	81/09
			T	9	5.33333	4.97494	16.0000	2.00000	80/10	81/09
PHENOLS	TOTAL	UG/L		2	4.00000	2.82843	6.00000	2.00000	80/11	81/04
			K	2	2.00000	.000000	2.00000	2.00000	81/06	81/07
			T	4	3.00000	2.00000	6.00000	2.00000	80/11	81/07
DIETHYLP	HTHALATE	TOTWUG/L	K	3	100.000	.000000	100.000	100.000	80/11	81/07
DIMETHYL	PHTHALAT	TOTWUG/L	K	3	100.000	.000000	100.000	100.000	80/11	81/07
ALDRIN		TOT UG/L		3	.000000	.000000	.000000	.000000	81/04	81/07
GAMMABHC	LINDANE	TOT.UG/L		3	.000000	.000000	.000000	.000000	81/04	81/07
CHLRDANE	TECH&MET	TOT UG/L		3	.000000	.000000	.000000	.000000	81/04	81/07
DDD	WHL SMPL	UG/L		3	.000000	.000000	.000000	.000000	81/04	81/07
DDE	WHL SMPL	UG/L		3	.000000	.000000	.000000	.000000	81/04	81/07
DDT	WHL SMPL	UG/L		3	.000000	.000000	.000000	.000000	81/04	81/07
			K	1	.100000		.100000	.100000	80/11	80/11
			T	4	.025000	.050000	.100000	.000000	80/11	81/07
DIELDRIN		TOTUG/L		3	.000000	.000000	.000000	.000000	81/04	81/07
			K	1	.050000		.050000	.050000	80/11	80/11
			T	4	.012500	.025000	.050000	.000000	80/11	81/07
ENDRIN		TOT UG/L		3	.000000	.000000	.000000	.000000	81/04	81/07
			K	1	.030000		.030000	.030000	80/11	80/11
			T	4	.007500	.015000	.030000	.000000	80/11	81/07
TOXAPHEN		TOTUG/L		3	.000000	.000000	.000000	.000000	81/04	81/07
			K	1	.500000		.500000	.500000	80/11	80/11
			T	4	.125000	.250000	.500000	.000000	80/11	81/07

TABLE RD 1-171 (Continued)

STATION NUMBER 504090
41 31 08.0 081 52 46.0 2
CROWN WATER SUPPLY INTAKE
LAKE ERIE (CENTRAL BASIN CLEVELAND AREA)
MILES 0000.00

PARAMETER			R	NO	MEAN	STAN DEV	MAXIMUM	MINIMUM	BEG	END
HEPTCHLR		TOTUG/L		3	.000000	.000000	.000000	.000000	81/04	81/07
			K	1	.030000		.030000	.030000	80/11	80/11
			T	4	.007500	.015000	.030000	.000000	80/11	81/07
HPCHLREP		TOTUG/L		3	.000000	.000000	.000000	.000000	81/04	81/07
			K	1	.030000		.030000	.030000	80/11	80/11
			T	4	.007500	.015000	.030000	.000000	80/11	81/07
MTHXYCLR	WHL SMPL	UG/L		3	.000000	.000000	.000000	.000000	81/04	81/07
			K	1	.150000		.150000	.150000	80/11	80/11
			T	4	.037500	.075000	.150000	.000000	80/11	81/07
PCBS	WHL SMPL	UG/L		1	.000000		.000000	.000000	81/06	81/06
			K	3	.500000	.000000	.500000	.500000	80/11	81/07
			T	4	.375000	.250000	.500000	.000000	80/11	81/07
MALATHN	WHL SMPL	UG/L		3	.000000	.000000	.000000	.000000	81/04	81/07
			K	1	.100000		.100000	.100000	80/11	80/11
			T	4	.025000	.050000	.100000	.000000	80/11	81/07
PARATHN	WHL SMPL	UG/L		3	.000000	.000000	.000000	.000000	81/04	81/07
			K	1	.150000		.150000	.150000	80/11	80/11
			T	4	.037500	.075000	.150000	.000000	80/11	81/07
DIAZINON	WHL SMPL	UG/L		3	.000000	.000000	.000000	.000000	81/04	81/07
MPARATHN	WHL SMPL	UG/L		3	.000000	.000000	.000000	.000000	81/04	81/07
			K	1	.100000		.100000	.100000	80/11	80/11
			T	4	.025000	.050000	.100000	.000000	80/11	81/07
2,4-D	WHL SMPL	UG/L	K	1	10.0000		10.0000	10.0000	80/11	80/11
MIREX	WHL SMPL	UG/L		3	.000000	.000000	.000000	.000000	81/04	81/07
			K	1	.250000		.250000	.250000	80/11	80/11
			T	4	.062500	.125000	.250000	.000000	80/11	81/07
SILVEX	WHL SMPL	UG/L	K	1	1.00000		1.00000	1.00000	80/11	80/11
LINDANE	WHL SMPL	UG/L		3	.000000	.000000	.000000	.000000	81/04	81/07
			K	1	.010000		.010000	.010000	80/11	80/11
			T	4	.002500	.005000	.010000	.000000	80/11	81/07
RESIDUE	DISS-180	C MG/L		5	165.800	14.9070	188.000	150.000	81/01	81/06
MERCURY	HG,TOTAL	UG/L	K	2	.500000	.000000	.500000	.500000	80/11	81/04

TABLE RD 1-172

STATION NUMBER 504090
41 31 08.0 081 52 46.0 2
CROWN WATER SUPPLY INTAKE
LAKE ERIE (CENTRAL BASIN CLEVELAND AREA)
MILES 0000.00

PARAMETER			R	NO	MEAN	STAN DEV	MAXIMUM	MINIMUM	BEG	END
WATER	TEMP	CENT		11	12.2273	6.68343	23.0000	3.00000	81/10	82/09
TURB	TRBIDMTR	HACH FTU		2	4.35000	1.48492	5.40000	3.30000	81/10	81/11
CNDUCTVY	FIELD	MICROMHO		10	217.000	40.4283	275.000	150.000	81/10	82/09
CNDUCTVY	AT 25C	MICROMHO		8	293.375	49.9970	375.000	230.000	81/10	82/09
DO	PROBE	MG/L		9	10.6111	2.31002	13.2000	6.60000	81/12	82/09
DO		MG/L		2	11.4500	.495093	11.8000	11.1000	81/10	81/11
BOD	5 DAY	MG/L	K	2	1.00000	.000000	1.00000	1.00000	82/04	82/05
COD	LOWLEVEL	MG/L		9	9.33333	3.39117	14.0000	4.00000	81/11	82/09
			K	1	4.00000		4.00000	4.00000	82/05	82/05
			T	10	8.80000	3.61479	14.0000	4.00000	81/11	82/09
PH		SU		9	8.14444	.371238	8.50000	7.30000	81/10	82/09
LAB	PH	SU		1	7.47000		7.47000	7.47000	82/01	82/01
T ALK	CACO3	MG/L		2	94.5000	3.53553	97.0000	92.0000	81/10	81/11
RESIDUE	TOT NFLT	MG/L		2	8.50000	3.53553	11.0000	6.00000	82/05	82/06
			K	4	6.25000	2.50000	10.0000	5.00000	81/11	82/09
			T	6	7.00000	2.75681	11.0000	5.00000	81/11	82/09
NH3+NH4-	N TOTAL	MG/L		1	.060000		.060000	.060000	82/05	82/05
			K	10	.050000	.000054	.050000	.050000	81/10	82/09
			T	11	.050909	.003016	.060000	.050000	81/10	82/09
NO2-N	TOTAL	MG/L	K	7	.020000	.000022	.020000	.020000	82/01	82/09
NO3-N	TOTAL	MG/L		11	.378181	.169754	.680000	.150000	81/10	82/09
TOT KJEL	N	MG/L		10	.288000	.101523	.450000	.100000	81/10	82/09
			K	1	1.00000		1.00000	1.00000	82/08	82/08
			T	11	.352727	.235291	1.00000	.100000	81/10	82/09
PHOS-TOT		MG/L P		4	.038000	.014236	.050000	.022000	81/10	82/09
			K	6	.050000	.000061	.050000	.050000	81/12	82/06
			T	10	.045200	.010294	.050000	.022000	81/10	82/09
PHOS-DIS		MG/L P		1	.050000		.050000	.050000	82/09	82/09
			K	6	.050000	.000061	.050000	.050000	82/02	82/08
			T	7	.050000	.000056	.050000	.050000	82/02	82/09
CYANIDE	CN-TOT	MG/L	K	1	.010000		.010000	.010000	82/09	82/09
TOT HARD	CACO3	MG/L		3	125.333	6.65955	131.000	118.000	82/03	82/09
CALCIUM	CA-TOT	MG/L		3	35.3000	1.80274	36.8000	33.3000	82/03	82/09
MGNSIUM	MG,TOT	MG/L		3	9.13333	.451210	9.60000	8.70000	82/03	82/09
CHLORIDE	TOTAL	MG/L		2	15.0000	1.41421	16.0000	14.0000	81/10	81/11
SULFATE	SO4-TOT	MG/L		2	20.0000	2.82843	22.0000	18.0000	81/10	81/11
SILICA	DISOLVED	MG/L		2	.395000	.219203	.550000	.240000	81/10	81/11
CADMIUM	CD,TOT	UG/L		1	.600000		.600000	.600000	82/03	82/03
			K	2	.500000	.000000	.500000	.500000	82/06	82/09
			T	3	.533333	.057740	.600000	.500000	82/03	82/09

TABLE RD 1-172 (Continued)

STATION NUMBER 504090
41 31 08.0 081 52 46.0 2
CROWN WATER SUPPLY INTAKE
LAKE ERIE (CENTRAL BASIN CLEVELAND AREA)
MILES 0000.00

PARAMETER			R	NO	MEAN	STAN DEV	MAXIMUM	MINIMUM	BEG	END
CHROMIUM	CR,TOT	UG/L	K	3	30.0000	.000000	30.0000	30.0000	82/03	82/09
COPPER	CU,TOT	UG/L		3	56.6667	15.2753	70.0000	40.0000	82/03	82/09
IRON	FE,TOT	UG/L		3	363.333	414.287	840.000	90.0000	82/03	82/09
LEAD	PB,TOT	UG/L		1	2.00000		2.00000	2.00000	82/09	82/09
			K	2	3.50000	2.12132	5.00000	2.00000	82/03	82/06
			T	3	3.00000	1.73205	5.00000	2.00000	82/03	82/09
NICKEL	NI,TOTAL	UG/L	K	3	36.6667	5.77360	40.0000	30.0000	82/03	82/09
ZINC	ZN,TOT	UG/L		2	35.0000	14.1421	45.0000	25.0000	82/06	82/09
			K	1	10.0000		10.0000	10.0000	82/03	82/03
			T	3	26.6667	17.5594	45.0000	10.0000	82/03	82/09
FEC COLI	MFM-FCBR	/100ML		1	160.000		160.000	160.000	82/01	82/01
			K	10	2.55000	.365925	3.30000	2.00000	81/10	82/09
			T	11	16.8636	47.4742	160.000	2.00000	81/10	82/09
FECSTREP	MF M-ENT	/100ML		5	38.4600	79.1257	180.000	2.50000	82/01	82/06
			K	6	2.53333	.258209	3.00000	2.20000	81/10	82/09
			T	11	18.8636	53.4453	180.000	2.20000	81/10	82/09
PHENOLS	TOTAL	UG/L	K	1	10.0000		10.0000	10.0000	82/09	82/09
DIETHYLP	HTHALATE	TOTWUG/L	K	2	100.000	.000000	100.000	100.000	82/03	82/06
DIMETHYL	PHTHALAT	TOTWUG/L	K	2	100.000	.000000	100.000	100.000	82/03	82/06
ALDRIN		TOT UG/L	K	3	.030000	.000036	.030000	.030000	82/03	82/09
CHLRDANE	TECH&MET	TOT UG/L	K	3	.400000	.000488	.400000	.400000	82/03	82/09
DDT	WHL SMPL	UG/L	K	3	.100000	.000000	.100000	.100000	82/03	82/09
DIELDRIN		TOTUG/L	K	3	.050000	.000075	.050000	.050000	82/03	82/09
ENDRIN		TOT UG/L	K	3	.030000	.000036	.030000	.030000	82/03	82/09
TOXAPHEN		TOTUG/L	K	3	.500000	.000000	.500000	.500000	82/03	82/09
HEPTCHLR		TOTUG/L	K	3	.030000	.000036	.030000	.030000	82/03	82/09
MTHXYCLR	WHL SMPL	UG/L	K	3	.516666	.635085	1.25000	.150000	82/03	82/09
PCBS	WHL SMPL	UG/L	K	3	.500000	.000000	.500000	.500000	82/03	82/09
MALATHN	WHL SMPL	UG/L	K	2	.100000	.000000	.100000	.100000	82/03	82/06
PARATHN	WHL SMPL	UG/L	K	3	.150000	.000000	.150000	.150000	82/03	82/09
DIAZINON	WHL SMPL	UG/L	K	3	.100000	.000000	.100000	.100000	82/03	82/09
2,4-D	WHL SMPL	UG/L	K	1	10.0000		10.0000	10.0000	82/06	82/06
MIREX	WHL SMPL	UG/L	K	3	.333333	.144338	.500000	.250000	82/03	82/09
SILVEX	WHL SMPL	UG/L	K	1	1.00000		1.00000	1.00000	82/06	82/06
LINDANE	WHL SMPL	UG/L	K	3	.010000	.000000	.010000	.010000	82/03	82/09
RESIDUE	DISS-180	C MG/L		5	162.200	13.9003	178.000	140.000	81/11	82/09

TABLE RD 1-173

STATION NUMBER 504130
41 43 34.0 081 22 05.0 2
MENTOR ON L. WATER SUPPLY INTAKE
LAKE ERIE 060691 (CENTRAL BASIN)
MILES 0000.00

PARAMETER			R	NO	MEAN	STAN DEV	MAXIMUM	MINIMUM	BEG	END
WATER	TEMP	CENT		8	9.93750	8.44494	22.0000	.000000	80/10	81/09
TURB	TRBIDMTR	HACH FTU		11	11.8591	10.0669	30.0000	3.90000	80/10	81/09
CNDUCTVY	FIELD	MICROMHO		6	211.667	57.3296	275.000	110.000	81/02	81/09
CNDUCTVY	AT 25C	MICROMHO		9	313.222	30.0580	361.000	260.000	80/10	81/09
DO		MG/L		4	10.00000	1.92355	12.6000	8.40000	81/03	81/09
PH		SU		2	8.55000	.071709	8.60000	8.50000	81/08	81/09
LAB	PH	SU		8	7.62500	.506411	8.20000	6.80000	80/11	81/09
T ALK	CACO3	MG/L		11	88.3636	26.5191	101.000	9.00000	80/10	81/09
RESIDUE	TOT NFLT	MG/L	K	3	10.0000	.000000	10.0000	10.0000	81/03	81/06
NH3+NH4-	N TOTAL	MG/L		8	.112500	.062735	.240000	.050000	80/10	81/09
			K	3	.050000	.000075	.050000	.050000	81/06	81/08
			T	11	.095454	.060061	.240000	.050000	80/10	81/09
NO2-N	TOTAL	MG/L		9	.011111	.003333	.020000	.010000	80/10	81/07
			K	1	.010000		.010000	.010000	81/08	81/08
			T	10	.011000	.003162	.020000	.010000	80/10	81/08
NO3-N	TOTAL	MG/L		11	.303636	.205050	.770000	.140000	80/10	81/09
TOT KJEL	N	MG/L		11	.396363	.110116	.580000	.220000	80/10	81/09
PHOS-TOT		MG/L P		11	.048636	.032346	.129000	.021000	80/10	81/09
CHLORIDE	TOTAL	MG/L		11	24.7273	6.23050	36.0000	15.0000	80/10	81/09
SULFATE	SO4-TOT	MG/L		10	24.5000	2.06828	28.0000	22.0000	80/10	81/09
SILICA	DISOLVED	MG/L		11	.307272	.140293	.590000	.060000	80/10	81/09
FEC COLI	MFM-FCBR	/100ML		9	55.3333	50.6039	160.000	8.00000	80/10	81/09
			K	1	2.00000		2.00000	2.00000	81/03	81/03
			T	10	50.0000	50.6030	160.000	2.00000	80/10	81/09
FECSTREP	MF M-ENT	/100ML		6	47.6667	48.6361	140.000	8.00000	80/10	81/06
			K	3	3.00000	1.00000	4.00000	2.00000	81/03	81/09
			T	9	32.7778	44.4685	140.000	2.00000	80/10	81/09
RESIDUE	DISS-180	C MG/L		5	318.800	269.231	800.000	180.000	81/01	81/06

TABLE RD 1-174

STATION NUMBER 504130
41 43 34.0 081 22 05.0 2
MENTOR ON L. WATER SUPPLY INTAKE
LAKE ERIE 060691 (CENTRAL BASIN)
MILES 0000.00

PARAMETER			R	NO	MEAN	STAN DEV	MAXIMUM	MINIMUM	BEG	END
WATER	TEMP	CENT		11	10.1818	7.68854	23.0000	1.00000	81/10	82/09
TURB	TRBIDMTR	HACH FTU		2	8.10000	.707118	8.60000	7.60000	81/10	81/11
CNDUCTVY	FIELD	MICROMHO		10	213.000	40.2216	285.000	170.000	81/10	82/09
CNDUCTVY	AT 25C	MICROMHO		8	301.375	31.3457	350.000	270.000	81/10	82/09
DO	PROBE	MG/L		9	10.8555	1.67640	12.4000	8.30000	81/12	82/09
DO		MG/L		2	10.9000	.707279	11.4000	10.4000	81/10	81/11
BOD	5 DAY	MG/L		3	1.66667	.513160	2.10000	1.10000	82/04	82/06
COD	LOWLEVEL	MG/L		7	10.8571	5.66947	19.0000	4.00000	81/11	82/09
			K	3	4.00000	.000000	4.00000	4.00000	81/10	82/08
			T	10	8.80000	5.69210	19.0000	4.00000	81/10	82/09
PH		SU		11	8.37727	.302859	8.70000	8.00000	81/10	82/09
T ALK	CACO3	MG/L		2	94.5000	3.53553	97.0000	92.0000	81/10	81/11
RESIDUE	TOT NFLT	MG/L		6	14.3333	11.4134	36.0000	5.00000	81/12	82/09
			K	4	7.50000	2.88675	10.0000	5.00000	81/10	82/08
			T	10	11.6000	9.35949	36.0000	5.00000	81/10	82/09
OIL-GRSE	FREON-GR	MG/L	K	1	5.00000		5.00000	5.00000	81/11	81/11
NH3+NH4-	N TOTAL	MG/L		6	.113333	.050067	.190000	.050000	81/10	82/09
			K	5	.050000	.000061	.050000	.050000	81/11	82/08
			T	11	.084545	.048449	.190000	.050000	81/10	82/09
NO2-N	TOTAL	MG/L		1	.020000		.020000	.020000	81/10	81/10
			K	8	.020000	.000017	.020000	.020000	81/12	82/09
			T	9	.020000	.000024	.020000	.020000	81/10	82/09
NO3-N	TOTAL	MG/L		11	.376363	.187151	.720000	.090000	81/10	82/09
TOT KJEL	N	MG/L		11	.437272	.149071	.800000	.300000	81/10	82/09
PHOS-TOT		MG/L P		2	.035000	.005657	.039000	.031000	81/10	81/11
			K	9	.050000	.000057	.050000	.050000	81/12	82/09
			T	11	.047273	.006326	.050000	.031000	81/10	82/09

TABLE RD 1-174 (Continued)

STATION NUMBER 504130
41 43 34.0 081 22 05.0 2
MENTOR ON L. WATER SUPPLY INTAKE
LAKE ERIE 060691 (CENTRAL BASIN)
MILES 0000.00

PARAMETER			R	NO	MEAN	STAN DEV	MAXIMUM	MINIMUM	BEG	END
TOT HARD	CACO3	MG/L		2	132.500	3.53553	135.000	130.000	82/03	82/09
CALCIUM	CA-TOT	MG/L		2	37.3000	.849086	37.9000	36.7000	82/03	82/09
MGNSIUM	MG,TOT	MG/L		2	9.55000	.212487	9.70000	9.40000	82/03	82/09
SODIUM	NA,TOT	MG/L		1	11.7000		11.7000	11.7000	82/09	82/09
CHLORIDE	TOTAL	MG/L		2	18.0000	2.82843	20.0000	16.0000	81/10	81/11
SULFATE	SO4-TOT	MG/L		2	23.0000	1.41421	24.0000	22.0000	81/10	81/11
SILICA	DISOLVED	MG/L		2	.320000	.169705	.440000	.200000	81/10	81/11
CADMIUM	CD,TOT	UG/L	K	2	.500000	.000000	.500000	.500000	82/03	82/09
CHROMIUM	CR,TOT	UG/L	K	2	30.0000	.000000	30.0000	30.0000	82/03	82/09
COPPER	CU,TOT	UG/L		2	15.0000	.000000	15.0000	15.0000	82/03	82/09
IRON	FE,TOT	UG/L		2	520.000	70.7107	570.000	470.000	82/03	82/09
LEAD	PB,TOT	UG/L		1	3.00000		3.00000	3.00000	82/09	82/09
			K	1	5.00000		5.00000	5.00000	82/03	82/03
			T	2	4.00000	1.41421	5.00000	3.00000	82/03	82/09
MANGNESE	MN	UG/L		1	15.0000		15.0000	15.0000	82/03	82/03
NICKEL	NI,TOTAL	UG/L	K	2	35.0000	7.07107	40.0000	30.0000	82/03	82/09
ZINC	ZN,TOT	UG/L		2	22.5000	17.6777	35.0000	10.0000	82/03	82/09
FEC COLI	MFM-FCBR	/100ML		10	50.2500	53.4806	130.000	2.50000	81/10	82/09
			K	1	2.50000		2.50000	2.50000	82/08	82/08
			T	11	45.9091	52.7394	130.000	2.50000	81/10	82/09
FECSTREP	MF M-ENT	/100ML		10	27.4000	44.7349	150.000	2.00000	81/10	82/09
			K	1	2.50000		2.50000	2.50000	82/08	82/08
			T	11	25.1363	43.0982	150.000	2.00000	81/10	82/09
PHENOLS	TOTAL	UG/L	K	1	10.0000		10.0000	10.0000	82/09	82/09
RESIDUE	DISS-180	C MG/L		7	174.286	15.8193	195.000	152.000	81/10	82/09

TABLE RD 1-175

STATION NUMBER 504240
41 41 33.0 083 15 33.0 2
OREGON WATER SUPPLY INTAKE
LAKE ERIE 060491 (WESTERN BASIN-TOLEDO AREA)
MILES 0000.00

PARAMETER			R	NO	MEAN	STAN DEV	MAXIMUM	MINIMUM	BEG	END
WATER	TEMP	CENT		4	13.7500	5.90903	22.0000	8.00000	80/10	81/08
CNDUCTVY	AT 25C	MICROMHO		9	335.666	72.3231	483.000	246.000	81/02	81/09
BOD	5 DAY	MG/L		12	3.10000	1.30872	5.90000	1.20000	80/10	81/09
COD	LOWLEVEL	MG/L		6	21.1500	8.70834	31.0000	7.70000	80/10	81/07
			K	7	4.00000	.000000	4.00000	4.00000	80/11	81/09
			T	13	11.9154	10.5254	31.0000	4.00000	80/10	81/09
LAB	PH	SU		13	8.15846	.163752	8.50000	7.90000	80/10	81/09
T ALK	CACO3	MG/L		3	99.6667	9.29234	106.000	89.0000	81/02	81/09
RESIDUE	TOT NFLT	MG/L		11	43.8182	38.2696	143.000	10.0000	80/10	81/09
			K	2	10.0000	.000000	10.0000	10.0000	81/01	81/02
			T	13	38.6154	37.1720	143.000	10.0000	80/10	81/09
NH3+NH4-	N TOTAL	MG/L		3	.293333	.280416	.600000	.050000	80/10	81/09
			K	6	.350000	.232379	.500000	.050000	80/11	81/05
			T	9	.331111	.232833	.600000	.050000	80/10	81/09
NO2-N	TOTAL	MG/L		11	.028182	.026389	.090000	.010000	80/10	81/09
			K	2	.010000	.000000	.010000	.010000	80/11	81/04
			T	13	.025385	.025038	.090000	.010000	80/10	81/09
NO3-N	TOTAL	MG/L		13	1.38769	1.49125	4.72000	.170000	80/10	81/09
TOT KJEL	N	MG/L		13	.685384	.351511	1.45000	.310000	80/10	81/09
PHOS-TOT		MG/L P		13	.086384	.070594	.224000	.022000	80/10	81/09
T ORG C	C	MG/L		7	9.14286	1.77282	11.0000	7.00000	80/10	81/09
TOT HARD	CACO3	MG/L		13	138.385	31.1864	220.000	108.000	80/10	81/09
CALCIUM	CA-TOT	MG/L		11	42.9091	9.62768	64.0000	32.0000	80/12	81/09
MGNSIUM	MG,TOT	MG/L		10	11.1000	3.07138	17.0000	8.00000	81/01	81/09
SODIUM	NA,TOT	MG/L		11	9.90909	3.53425	19.0000	7.00000	80/12	81/09
PTSSIUM	K,TOT	MG/L		10	1.86000	.643262	3.10000	1.20000	81/01	81/09
CHLORIDE	TOTAL	MG/L		13	17.3077	7.04022	34.0000	10.0000	80/10	81/09
SULFATE	SO4-TOT	MG/L		13	28.8461	11.8029	56.0000	17.0000	80/10	81/09
SILICA	DISOLVED	MG/L		11	.884545	1.06823	3.11000	.130000	80/12	81/09
ARSENIC	AS,TOT	UG/L	K	13	10.0000	.000000	10.0000	10.0000	80/10	81/09

TABLE RD 1-175 (Continued)

STATION NUMBER 504240
41 41 33.0 083 15 33.0 2
OREGON WATER SUPPLY INTAKE
LAKE ERIE 060491 (WESTERN BASIN-TOLEDO AREA)
MILES 0000.00

PARAMETER			R	NO	MEAN	STAN DEV	MAXIMUM	MINIMUM	BEG	END
CADMIUM	CD,TOT	UG/L	K	13	5.00000	.000000	5.00000	5.00000	80/10	81/09
CHROMIUM	CR,TOT	UG/L		2	30.0000	.000000	30.0000	30.0000	80/12	81/06
			K	11	30.0000	.000000	30.0000	30.0000	80/10	81/09
			T	13	30.0000	.000000	30.0000	30.0000	80/10	81/09
COPPER	CU,TOT	UG/L		1	30.0000		30.0000	30.0000	80/10	80/10
			K	12	30.0000	.000000	30.0000	30.0000	80/11	81/09
			T	13	30.0000	.000000	30.0000	30.0000	80/10	81/09
IRON	FE,TOT	UG/L		13	1370.00	1418.10	4900.00	110.000	80/10	81/09
LEAD	PB,TOT	UG/L		2	8.50000	2.12132	10.0000	7.00000	80/10	81/05
			K	11	5.90909	2.02261	10.0000	5.00000	80/11	81/09
			T	13	6.30769	2.17504	10.0000	5.00000	80/10	81/09
MANGNESE	MN	UG/L		8	52.5000	27.6457	110.000	30.0000	80/10	81/09
			K	4	30.0000	.000000	30.0000	30.0000	80/11	81/04
			T	12	45.0000	24.6798	110.000	30.0000	80/10	81/09
NICKEL	NI,TOTAL	UG/L	K	10	100.000	.000000	100.000	100.000	81/01	81/09
ZINC	ZN,TOT	UG/L		4	40.0000	14.1421	60.0000	30.0000	80/10	81/07
			K	9	30.0000	.000000	30.0000	30.0000	80/11	81/09
			T	13	33.0769	8.54855	60.0000	30.0000	80/10	81/09
ALUMINUM	AL,TOT	UG/L		11	909.091	699.221	2300.00	200.000	80/10	81/09
			K	2	200.000	.000000	200.000	200.000	81/01	81/02
			T	13	800.000	691.616	2300.00	200.000	80/10	81/09
FEC COLI	MFM-FCBR	/100ML		3	7.66667	4.93289	11.0000	2.00000	81/03	81/08
			K	10	7.40000	4.19524	10.0000	1.00000	80/10	81/09
			T	13	7.46154	4.15563	11.0000	1.00000	80/10	81/09
MBAS		MG/L		8	.076250	.027223	.130000	.050000	81/02	81/09
			K	4	.050000	.000050	.050000	.050000	80/11	81/09
			T	12	.067500	.025271	.130000	.050000	80/11	81/09
PCBS	WHL SMPL	UG/L	K	1	.500000		.500000	.500000	81/08	81/08
RESIDUE	DISS-180 C	MG/L		13	177.077	55.6814	314.000	108.000	80/10	81/09
MERCURY	HG,TOTAL	UG/L	K	10	.500000	.000000	.500000	.500000	80/10	81/07

TABLE RD 1-176

STATION NUMBER 504240
41 41 33.0 083 15 33.0 2
OREGON WATER SUPPLY INTAKE
LAKE ERIE 060491 (WESTERN BASIN-TOLEDO AREA)
MILES 0000.00

PARAMETER			R	NO	MEAN	STAN DEV	MAXIMUM	MINIMUM	BEG	END
WATER	TEMP	CENT		2	12.4500	16.1927	23.9000	1.00000	82/01	82/08
TURB	TRBIDMTR	HACH FTU		1	9.80000		9.80000	9.80000	81/12	81/12
CNDUCTVY	AT 25C	MICROMHO		6	314.833	106.419	493.000	236.000	81/11	82/09
BOD	5 DAY	MG/L		5	2.78000	1.46356	4.80000	1.40000	81/11	82/09
			K	1	1.00000		1.00000	1.00000	82/08	82/08
			T	6	2.48333	1.49722	4.80000	1.00000	81/11	82/09
COD	LOWLEVEL	MG/L		4	13.8750	4.55293	20.0000	9.00000	81/11	82/08
			K	2	7.00000	4.24264	10.0000	4.00000	81/12	82/09
			T	6	11.5833	5.35180	20.0000	4.00000	81/11	82/09
LAB	PH	SU		6	8.11333	.269729	8.53000	7.77000	81/11	82/09
T ALK	CACO3	MG/L		3	94.6667	25.1067	121.000	71.0000	81/11	82/08
RESIDUE	TOT NFLT	MG/L		5	31.4000	23.4691	70.0000	8.00000	81/11	82/09
			K	1	5.00000		5.00000	5.00000	82/07	82/07
			T	6	27.0000	23.5966	70.0000	5.00000	81/11	82/09
NH3+NH4-	N TOTAL	MG/L		4	.120000	.060553	.200000	.060000	81/11	82/08
			K	2	.050000	.000061	.050000	.050000	81/12	82/09
			T	6	.096667	.059217	.200000	.050000	81/11	82/09
NO2-N	TOTAL	MG/L		4	.022500	.012583	.040000	.010000	81/11	82/08
			K	2	.020000	.000000	.020000	.020000	82/01	82/09
			T	6	.021667	.009832	.040000	.010000	81/11	82/09
NO3-N	TOTAL	MG/L		6	.830000	.896817	2.28000	.060000	81/11	82/09
TOT KJEL	N	MG/L		6	.619999	.320562	1.01000	.260000	81/11	82/09
PHOS-TOT		MG/L P		3	.086667	.040415	.130000	.050000	81/11	82/09
			K	3	.040000	.017321	.050000	.020000	81/12	82/07
			T	6	.063333	.037771	.130000	.020000	81/11	82/09
T ORG C	C	MG/L		1	9.00000		9.00000	9.00000	81/11	81/11
			K	1	6.00000		6.00000	6.00000	81/12	81/12
			T	2	7.50000	2.12132	9.00000	6.00000	81/11	81/12
TOT HARD	CACO3	MG/L		5	139.240	32.1060	180.000	110.200	81/11	82/08
CALCIUM	CA-TOT	MG/L		6	38.0167	8.94436	52.0000	26.8000	81/11	82/09
MGNSIUM	MG,TOT	MG/L		6	11.6333	2.42213	16.0000	10.0000	81/11	82/09

TABLE RD 1-176 (Continued)

STATION NUMBER 504240
41 41 33.0 083 15 33.0 2
OREGON WATER SUPPLY INTAKE
LAKE ERIE 060491 (WESTERN BASIN-TOLEDO AREA)
MILES 0000.00

PARAMETER			R	NO	MEAN	STAN DEV	MAXIMUM	MINIMUM	BEG	END
SODIUM	NA,TOT	MG/L		3	8.86666	3.55717	12.0000	5.00000	81/11	82/09
PTSSIUM	K,TOT	MG/L		3	2.26667	1.34288	3.80000	1.30000	81/11	82/09
CHLORIDE	TOTAL	MG/L		2	17.5000	10.6066	25.0000	10.0000	81/11	81/12
SULFATE	SO4-TOT	MG/L		2	28.0000	14.1421	38.0000	18.0000	81/11	81/12
SILICA	DISOLVED	MG/L		2	2.39000	1.69706	3.59000	1.19000	81/11	81/12
ARSENIC	AS,TOT	UG/L	K	2	10.0000	.000000	10.0000	10.0000	81/11	81/12
CADMIUM	CD,TOT	UG/L	K	6	2.00000	2.32379	5.00000	.500000	81/11	82/09
CHROMIUM	CR,TOT	UG/L		1	230.000		230.000	230.000	81/11	81/11
			K	5	30.0000	.000000	30.0000	30.0000	81/12	82/09
			T	6	63.3333	81.6497	230.000	30.0000	81/11	82/09
COPPER	CU,TOT	UG/L	K	6	16.6667	10.3280	30.0000	10.0000	81/11	82/09
IRON	FE,TOT	UG/L		6	905.000	842.253	2580.00	260.000	81/11	82/09
LEAD	PB,TOT	UG/L		3	5.66667	5.50758	12.0000	2.00000	82/07	82/09
			K	3	5.00000	.000000	5.00000	5.00000	81/11	82/01
			T	6	5.33333	3.50238	12.0000	2.00000	81/11	82/09
MANGNESE	MN	UG/L		5	25.0000	12.2474	40.0000	10.0000	81/11	82/09
			K	1	30.0000		30.0000	30.0000	81/12	81/12
			T	6	25.8333	11.1430	40.0000	10.0000	81/11	82/09
NICKEL	NI,TOTAL	UG/L	K	6	60.0000	30.9839	100.000	40.0000	81/11	82/09
ZINC	ZN,TOT	UG/L		1	25.0000		25.0000	25.0000	82/08	82/08
			K	5	18.0000	10.9545	30.0000	10.0000	81/11	82/09
			T	6	19.1667	10.2062	30.0000	10.0000	81/11	82/09
ALUMINUM	AL,TOT	UG/L		2	900.000	707.107	1400.00	400.000	81/11	81/12
FEC COLI	MFM-FCBR	/100ML	K	4	3.75000	4.27200	10.0000	1.00000	81/12	82/09
MBAS		MG/L		1	.080000		.080000	.080000	81/11	81/11
			K	1	.050000		.050000	.050000	81/12	81/12
			T	2	.065000	.021213	.080000	.050000	81/11	81/12
RESIDUE	DISS-180 C	MG/L		6	187.333	21.5566	220.000	163.000	81/11	82/09
T ACDITY	HOT-MG/L	CACO3		1	-.800E+02		-.800E+02	-.800E+02	82/08	82/08
			K	1	10.0000		10.0000	10.0000	81/11	81/11
			T	2	-.350E+02	63.6396	10.0000	-.800E+02	81/11	82/08
MERCURY	HG,TOTAL	UG/L	K	1	.500000		.500000	.500000	81/12	81/12

TABLE RD 1-177

STATION NUMBER 504030
41 27 51.0 082 38 50.0 2
SANDUSKY WATER SUPPLY INTAKE
LAKE ERIE 060292 (CENTRAL BASIN SANDUSKY AREA
MILES 0000.00

PARAMETER			R	NO	MEAN	STAN DEV	MAXIMUM	MINIMUM	BEG	END
WATER	TEMP	CENT		9	14.8444	8.64987	24.5000	1.40000	80/10	81/09
CNDUCTVY	AT 25C	MICROMHO		8	284.875	14.2772	311.000	268.000	81/02	81/09
BOD	5 DAY	MG/L		11	3.00909	1.75810	7.00000	1.00000	80/10	81/09
			K	1	1.00000		1.00000	1.00000	81/08	81/08
			T	12	2.84166	1.77378	7.00000	1.00000	80/10	81/09
COD	LOWLEVEL	MG/L		6	17.3000	10.8235	34.7000	5.80000	80/10	81/09
			K	7	4.72857	1.92762	9.10000	4.00000	80/11	81/09
			T	13	10.5308	9.65499	34.7000	4.00000	80/10	81/09
LAB	PH	SU		13	8.13384	.184822	8.40000	7.80000	80/10	81/09
T ALK	CACO3	MG/L		3	102.333	4.04322	107.000	100.000	81/02	81/09
RESIDUE	TOT NFLT	MG/L		7	18.5714	6.67976	32.0000	12.0000	80/12	81/09
			K	6	10.0000	.000000	10.0000	10.0000	80/10	81/09
			T	13	14.6154	6.48766	32.0000	10.0000	80/10	81/09
NH3+NH4-	N TOTAL	MG/L		2	.250000	.212132	.400000	.100000	80/10	81/09
			K	8	.331250	.232897	.500000	.050000	80/11	81/09
			T	10	.315000	.219911	.500000	.050000	80/10	81/09
NO2-N	TOTAL	MG/L		7	.015714	.011339	.040000	.010000	81/01	81/09
			K	6	.010000	.000000	.010000	.010000	80/10	81/05
			T	13	.013077	.008549	.040000	.010000	80/10	81/09
NO3-N	TOTAL	MG/L		12	.489166	.317074	1.10000	.060000	80/11	81/09
			K	1	.050000		.050000	.050000	80/10	80/10
			T	13	.455384	.327099	1.10000	.050000	80/10	81/09
TOT KJEL	N	MG/L		13	.443077	.100531	.690000	.310000	80/10	81/09
PHOS-TOT		MG/L P		13	.058231	.064595	.270000	.022000	80/10	81/09
T ORG C	C	MG/L		7	8.14286	1.86447	12.0000	6.00000	80/10	81/09
TOT HARD	CACO3	MG/L		13	127.231	5.06931	140.000	120.000	80/10	81/09
CALCIUM	CA-TOT	MG/L		11	37.9091	3.04831	44.0000	35.0000	80/12	81/09
MGNSIUM	MG,TOT	MG/L		10	9.00000	.942809	11.0000	8.00000	81/01	81/09
SODIUM	NA,TOT	MG/L		11	8.81818	1.07874	10.0000	7.00000	80/12	81/09
PTSSIUM	K,TOT	MG/L		10	1.37000	.286937	1.90000	1.00000	81/01	81/09
CHLORIDE	TOTAL	MG/L		13	16.3846	2.84426	24.0000	13.0000	80/10	81/09
SULFATE	SO4-TOT	MG/L		13	24.4615	2.96145	31.0000	21.0000	80/10	81/09
SILICA	DISOLVED	MG/L		11	.477272	.438955	1.59000	.110000	80/12	81/09
ARSENIC	AS,TOT	UG/L	K	13	10.0000	.000000	10.0000	10.0000	80/10	81/09

TABLE RD 1-177 (Continued)

STATION NUMBER 504030
41 27 51.0 082 38 50.0 2
SANDUSKY WATER SUPPLY INTAKE
LAKE ERIE 060292 (CENTRAL BASIN SANDUSKY AREA
MILES 0000.00

PARAMETER			R	NO	MEAN	STAN DEV	MAXIMUM	MINIMUM	BEG	END
CADMIUM	CD,TOT	UG/L	K	13	5.38461	1.38676	10.0000	5.00000	80/10	81/09
CHROMIUM	CR,TOT	UG/L		4	32.5000	5.00000	40.0000	30.0000	80/11	81/06
			K	9	30.0000	.000000	30.0000	30.0000	80/10	81/09
			T	13	30.7692	2.77369	40.0000	30.0000	80/10	81/09
COPPER	CU,TOT	UG/L		9	44.4444	12.3604	60.0000	30.0000	80/10	81/09
			K	4	30.0000	.000000	30.0000	30.0000	80/12	81/03
			T	13	40.0000	12.2474	60.0000	30.0000	80/10	81/09
IRON	FE,TOT	UG/L		13	436.154	240.262	1120.00	120.000	80/10	81/09
LEAD	PB,TOT	UG/L		1	9.00000		9.00000	9.00000	80/10	80/10
			K	12	5.41667	1.44339	10.0000	5.00000	80/11	81/09
			T	13	5.69231	1.70219	10.0000	5.00000	80/10	81/09
MANGNESE	MN	UG/L		9	55.5555	18.1047	80.0000	30.0000	80/10	81/09
			K	3	30.0000	.000000	30.0000	30.0000	81/01	81/04
			T	12	49.1667	19.2866	80.0000	30.0000	80/10	81/09
NICKEL	NI,TOTAL	UG/L		1	100.000		100.000	100.000	81/08	81/08
			K	9	100.000	.000000	100.000	100.000	81/01	81/09
			T	10	100.000	.000000	100.000	100.000	81/01	81/09
ZINC	ZN,TOT	UG/L		1	50.0000		50.0000	50.0000	80/10	80/10
			K	12	30.0000	.000000	30.0000	30.0000	80/11	81/09
			T	13	31.5384	5.54712	50.0000	30.0000	80/10	81/09
ALUMINUM	AL,TOT	UG/L		12	400.000	221.565	1000.00	200.000	80/10	81/09
			K	1	200.000		200.000	200.000	81/01	81/01
			T	13	384.615	219.265	1000.00	200.000	80/10	81/09
FEC COLI	MFM-FCBR	/100ML		8	16.0000	13.8667	33.0000	1.00000	80/10	81/09
			K	5	10.0000	.000000	10.0000	10.0000	80/11	81/03
			T	13	13.6923	11.0181	33.0000	1.00000	80/10	81/09
MBAS		MG/L		6	.060000	.016733	.090000	.050000	81/02	81/09
			K	6	.050000	.000061	.050000	.050000	80/11	81/09
			T	12	.055000	.012432	.090000	.050000	80/11	81/09
PCBS	WHL SMPL	UG/L	K	2	.500000	.000000	.500000	.500000	81/08	81/09
RESIDUE	DISS-180	C MG/L		13	166.769	45.5745	256.000	70.0000	80/10	81/09
MERCURY	HG,TOTAL	UG/L	K	10	.500000	.000000	.500000	.500000	80/10	81/07

TABLE RD 1-178

STATION NUMBER 504030
41 27 51.0 082 38 50.0 2
SANDUSKY WATER SUPPLY INTAKE
LAKE ERIE 060292 (CENTRAL BASIN SANDUSKY AREA
MILES 0000.00

PARAMETER			R	NO	MEAN	STAN DEV	MAXIMUM	MINIMUM	BEG	END
WATER	TEMP	CENT		4	9.70000	7.80897	20.0000	1.60000	81/11	82/09
TURB	TRBIDMTR	HACH FTU		2	7.05000	.919248	7.70000	6.40000	81/12	82/09
CNDUCTVY	AT 25C	MICROMHO		6	296.500	67.1170	428.000	240.000	81/11	82/09
BOD	5 DAY	MG/L		5	3.10000	2.44131	7.20000	1.20000	81/11	82/09
			K	1	1.00000		1.00000	1.00000	82/01	82/01
			T	6	2.75000	2.34585	7.20000	1.00000	81/11	82/09
COD	LOWLEVEL	MG/L		4	17.3750	5.46771	25.0000	12.0000	81/11	82/07
			K	2	10.0000	.000000	10.0000	10.0000	82/08	82/09
			T	6	14.9167	5.69577	25.0000	10.0000	81/11	82/09
PH		SU		1	8.27000		8.27000	8.27000	82/09	82/09
LAB	PH	SU		6	8.23666	.202040	8.41000	7.90000	81/11	82/09
T ALK	CACO3	MG/L		3	100.000	7.21110	106.000	92.0000	81/11	82/08
RESIDUE	TOT NFLT	MG/L		6	14.1667	7.90991	24.0000	5.00000	81/11	82/09
NH3+NH4-	N TOTAL	MG/L		2	.050000	.000061	.050000	.050000	82/07	82/08
			K	4	.050000	.000050	.050000	.050000	81/11	82/09
			T	6	.050000	.000055	.050000	.050000	81/11	82/09
NO2-N	TOTAL	MG/L		4	.015000	.005774	.020000	.010000	81/11	82/08
			K	2	.020000	.000000	.020000	.020000	82/01	82/09
			T	6	.016667	.005164	.020000	.010000	81/11	82/09
NO3-N	TOTAL	MG/L		6	.346666	.206075	.670000	.100000	81/11	82/09
TOT KJEL	N	MG/L		6	.436666	.100930	.600000	.300000	81/11	82/09
PHOS-TOT		MG/L P		3	.058667	.024090	.075000	.031000	81/11	82/07
			K	3	.050000	.000075	.050000	.050000	82/01	82/09
			T	6	.054333	.015958	.075000	.031000	81/11	82/09
T ORG C	C	MG/L		1	8.00000		8.00000	8.00000	81/12	81/12
			K	1	6.00000		6.00000	6.00000	81/11	81/11
			T	2	7.00000	1.41421	8.00000	6.00000	81/11	81/12
TOT HARD	CACO3	MG/L		6	128.883	8.26892	139.000	115.000	81/11	82/09
CALCIUM	CA-TOT	MG/L		6	36.1333	2.81125	40.0000	33.0000	81/11	82/09
MGNSIUM	MG,TOT	MG/L		6	9.96666	.711856	11.0000	9.00000	81/11	82/09

TABLE RD 1-178. (Continued)

STATION NUMBER 504030
41 27 51.0 082 38 50.0 2
SANDUSKY WATER SUPPLY INTAKE
LAKE ERIE 060292 (CENTRAL BASIN SANDUSKY AREA)
MILES 0000.00

PARAMETER			R	NO	MEAN	STAN DEV	MAXIMUM	MINIMUM	BEG	END
SODIUM	NA,TOT	MG/L		3	8.13333	1.20556	9.40000	7.00000	81/11	82/09
PTSSIUM	K,TOT	MG/L		3	1.63333	.208172	1.80000	1.40000	81/11	82/09
CHLORIDE	TOTAL	MG/L		2	14.5000	.707107	15.0000	14.0000	81/11	81/12
SULFATE	SO4-TOT	MG/L		2	22.5000	4.94975	26.0000	19.0000	81/11	81/12
SILICA	DISOLVED	MG/L		2	.230000	.070711	.280000	.180000	81/11	81/12
ARSENIC	AS,TOT	UG/L	K	2	10.0000	.000000	10.0000	10.0000	81/11	81/12
CADMIUM	CD,TOT	UG/L	K	6	2.00000	2.32379	5.00000	.500000	81/11	82/09
CHROMIUM	CR,TOT	UG/L	K	6	30.0000	.000000	30.0000	30.0000	81/11	82/09
COPPER	CU,TOT	UG/L		5	24.0000	6.51920	30.0000	15.0000	81/11	82/09
			K	1	30.0000		30.0000	30.0000	81/12	81/12
			T	6	25.0000	6.32456	30.0000	15.0000	81/11	82/09
IRON	FE,TOT	UG/L		6	696.666	871.956	2470.00	290.000	81/11	82/09
LEAD	PB,TOT	UG/L		2	2.50000	.707107	3.00000	2.00000	82/07	82/09
			K	4	4.25000	1.50000	5.00000	2.00000	81/11	82/08
			T	6	3.66667	1.50555	5.00000	2.00000	81/11	82/09
MANGNESE	MN	UG/L		5	42.2000	19.2146	66.0000	20.0000	81/11	82/09
			K	1	30.0000		30.0000	30.0000	81/12	81/12
			T	6	40.1667	17.8932	66.0000	20.0000	81/11	82/09
NICKEL	NI,TOTAL	UG/L	K	6	60.0000	30.9839	100.000	40.0000	81/11	82/09
ZINC	ZN,TOT	UG/L		1	20.0000		20.0000	20.0000	82/08	82/08
			K	5	18.0000	10.9545	30.0000	10.0000	81/11	82/09
			T	6	18.3333	9.83193	30.0000	10.0000	81/11	82/09
ALUMINUM	AL,TOT	UG/L		2	600.000	282.843	800.000	400.000	81/11	81/12
FEC COLI	MFM-FCBR	/100ML		4	16.2500	12.0934	33.0000	6.00000	81/12	82/09
MBAS		MG/L		1	.070000		.070000	.070000	81/12	81/12
			K	1	.050000		.050000	.050000	81/11	81/11
			T	2	.060000	.014142	.070000	.050000	81/11	81/12
RESIDUE	DISS-180 C	MG/L		6	166.833	33.3555	195.000	102.000	81/11	82/09
T ACDITY	HOT-MG/L	CACO3	K	1	10.0000		10.0000	10.0000	81/11	81/11
MERCURY	HG,TOTAL	UG/L	K	2	.500000	.000000	.500000	.500000	81/11	81/12

TABLE RD 1-179

STATIONS RECORDED IN PAST 305(b) REPORTS;
NOT SAMPLED DURING THIS REPORTING PERIOD

STATION DESCRIPTION	RM (MAP)	STATION #	DISTRICT	PURPOSE	USE DESIGNATION
BLACK RIVER					
French Creek near Lorain (Rt 301)	0.7 (D-4)	501530	NEDO	OEPA (LF)	WWH
CUYAHOGA RIVER					
Cuyahoga River at Cleveland (W. Third St)	3.0 (E-2)	502140 (04208506)	NEDO	OEPA (LF)	WWH
Cuyahoga River near Akron (USGS gage, Old Portage Trail)	40.3 (E-2)	502160 (04206000)	NEDO	OEPA (LF)	WWH
GREAT MIAMI RIVER					
Great Miami River Below Lakeview (Rt 33)	156.2 (H-1)	600000	SWDO	OEPA (M)	WWH
Great Miami River below Piqua (Peterson Rd)	108.8 (H-2)	600090	SWDO	OEPA (LF)	WWH
Great Miami River at New Baltimore (Blue Rock Road)	20.8 (H-11)	600030 (03274600)	SWDO	NAWQMN, NASQAN (M)	WWH
Great Miami River near Lawrenceburg (Lost Bridge)	5.2 (H-11)	600300	SWDO	OEPA (M)	WWH
Mad River near Urbana (SR 36)	39.0 (H-3)	600130	SWDO	OEPA (LF)	CWH
Mad River below Springfield (lower Valley Pike)	23.5 (H-4)	610010	SWDO	OEPA (LF)	WWH
Seven Mile Creek near Seven Mile (Taylor School Rd)	1.3 (H-10)	600340	SWDO	OEPA (Q)	WWH

TABLE RD 1-179 (Continued)

STATION DESCRIPTION	RM (MAP)	STATION #	DISTRICT	PURPOSE	USE DESIGNATION
HOCKING RIVER					
Hocking River at Athens (U.S. 33)	39.6 (O-2)	601650 (03159510)	SEDO	NAMWQN, NASQAN (M)	WWH
HURON RIVER					
East Branch Huron River below Norwalk (Schaeffer Rd)	2.0 (D-2)	501070	NWDO	OEPA (LF)	WWH
Rattlesnake Creek at Norwalk (Lais Rd)	1.7 (D-2)	501080	NWDO	OEPA (Q)	WWH
LITTLE BEAVER CREEK					
Middle Fork near Salem (Beachwood Rd)	52.8 (S-1)	602120	NEDO	OEPA (LF)	WWH
LITTLE MIAMI RIVER					
Little Miami River at Milford (U.S. 50)	12.7 (K-5)	600520 (03245500)	SWDO	NAWQMN, NASQAN (M)	WWH
MAUMEE RIVER					
Maumee River at Defiance (WTP)	65.6 (A-7)	500180 (04184100)	NWDO	OEPA (LF)	WWH
Maumee River near Florida (CR 18)	54.6 (A-10)	510210	NWDO	OEPA (LF)	WWH
Auglaize River at Wapakoneta (Water St)	74.5 (A-3)	510240	NWDO	OEPA (Q)	WWH
Auglaize River at Wapakoneta (Fox Ranch Rd)	70.8 (A-3)	510250	NWDO	OEPA (Q)	WWH
Auglaize River near Fort Jennings (SR 224)	39.5 (A-3)	500070	NWDO	OEPA (LF)	WWH
Auglaize River near Cloverdale (SR 114)	28.5 (A-3)	500110	NWDO	OEPA (LF)	WWH
Auglaize River near Oakwood (SR 613)	19.3 (A-3)	500130	NWDO	OEPA (LF)	WWH

TABLE RD 1-179 (Continued)

STATION DESCRIPTION	RM (MAP)	STATION #	DISTRICT	PURPOSE	USE DESIGNATION
BLANCHARD RIVER (CONTINUED)					
Blanchard River near Dupont (CR 21)	2.5 (A-5)	500090	NWDO	OEPA (LF)	WWH
Little Auglaize River below Melrose (SR 613)	2.0 (A-2)	510200	NWDO	OEPA (LF)	WWH
Ottawa River above Lima (Thayer Rd)	45.4 (A-4)	500270	NWDO	OEPA (LF)	WWH
Ottawa River near Kalida (CR 19)	0.7 (A-4)	500150	NWDO	OEPA (LF)	WWH
St. Joseph River below Edgerton (SR 49)	8.9 (A-9)	510180	NWDO	OEPA (LF)	WWH
St. Marys River at St. Marys (Aqueduct Rd)	47.2 (A-1)	510010	NWDO	OEPA (Q)	WWH
St. Marys River at St. Marys (Glynwood Rd)	43.0 (A-1)	510020	NWDO	OEPA (Q)	WWH
St. Marys River near Willshire (SR 81)	1.3 (A-1)	510170	NWDO	OEPA (LF)	WWH
Tiffin River at Defiance (W. High St)	0.8 (A-8)	500160	NWDO	OEPA (LF)	WWH
MILL CREEK					
Mill Creek near Hamilton (Tylersville Rd)	24.5 (J)	600440	SWDO	OEPA (M)	WWH
MUSKINGUM RIVER					
Muskingum River at McConnelsville (SR 37)	48.2 (P-16)	601860 (03150000)	SEDO	NAWQMN, NASQAN (M)	WWH
Chippewa Creek at Easton (USGS gage at SR 585)	6.8 (P-6)	611810 (03116200)	NEDO	OEPA (LF)	WWH
Jerome Fork near Ashland (Rt 42)	13.0 (P-2)	611860	NWDO	OEPA (Q)	WWH
Jerome Fork near Ashland (CR 1032)	10.5 (P-2)	611870	NWDO	OEPA (Q)	WWH

TABLE RD 1-179 (Continued)

STATION DESCRIPTION	RM (MAP)	STATION #	DISTRICT	PURPOSE	USE DESIGNATION
MUSKINGUM RIVER (CONTINUED)					
Kokosing River near Mt. Vernon (SR 661)	23.6 (P-12)	611880	NWDO	OEPA (Q)	WWH
Kokosing River near Mt. Vernon (Twp Rd 257)	21.6 (P-12)	611890	NWDO	OEPA (Q)	WWH
Rocky Fork near Mansfield (SR 39)	12.5 (P-1)	611900	NWDO	OEPA (Q)	WWH
Rocky Fork near Mansfield (Illinois Ave)	10.1 (P-1)	611910	NWDO	OEPA (Q)	WWH
Sandy Creek at Waynesburg (USGS gage)	17.4 (P-7)	611800 (03117500)	NEDO	OEPA (LF)	WWH
Wills Creek at Cambridge (Twp Rd 452)	54.9 (P-17)	611760	SEDO	OEPA (LF)	WWH
Wills Creek below Dam (Twp Rd 274)	6.2 (P-17)	611770 (03143500)	SEDO	OEPA (LF)	WWH
PORTAGE RIVER					
North Branch Portage River at Pemberville (N. River Rd)	0.1 (B-1)	500520	NWDO	OEPA (LF)	WWH
ROCKY RIVER					
West Branch Rocky River near Medina (Fenn Rd)	28.0 (D-5)	501820	NEDO	OEPA (Q)	WWH
Abrams Creek near Berea (Cedar Point Rd)	0.9 (D-5)	501830	NEDO	OEPA (LF)	WWH
SANDUSKY RIVER					
Sandusky River below Upper Sandusky (CR 121)	78.7 (C-2)	500860	NWDO	OEPA (LF)	WWH
Sandusky River below Mexico (Scott Bridge Rd)	48.0 (C-2)	500830	NWDO	OEPA (LF)	WWH
Sandusky River at Fremont (Twp Rd 549)	13.0 (C-4)	500890	NWDO	OEPA (Q)	WWH

TABLE RD 1-179 (Continued)

STATION DESCRIPTION	RM (MAP)	STATION #	DISTRICT	PURPOSE	USE DESIGNATION
SCIOTO RIVER					
Scioto River near Kenton (CR 175)	206.8 (M-1)	610760	NWDO	OEPA (Q)	WWH
Scioto River near Kenton (CR 106)	201.0 (M-1)	610770	NWDO	OEPA (Q)	WWH
Scioto River near Richmondale (Higby Rd)	56.0 (M-11)	600770 (03234500)	SEDO	NAWQMN, NASQAN (M)	WWH
Big Darby Creek below Plain City (Cemetary Pike Rd)	50.3 (M-6)	600790	CDO	OEPA (LF)	EWH
Little Scioto River near Marion (SR 309)	8.9 (M-2)	610750	NWDO	OEPA (Q)	WWH
Little Scioto River near Marion (SR 739)	2.6 (M-5)	610740	NWDO	OEPA (Q)	WWH
Paint Creek below Washington C.H. (SR 35)	64.3 (M-13)	600740	CDO	OEPA (LF)	WWH
Rocky Fork of Paint Creek near Barrett's Mills (Browning Rd)	2.8 (M-14)	610800 (03232500)	SEDO	OEPA (Q)	EWH
Walnut Creek below Baltimore (Leonard Rd)	36.6 (M-9)	600750	CDO	OEPA (LF)	WWH
Whetstone Creek near Mt. Gilead (SR 61)	21.5 (M-3)	610780	NWDO	OEPA (Q)	WWH
Whetstone Creek near Mt. Gilead (Cardington Rd)	19.9 (M-3)	610790	NWDO	OEPA (Q)	WWH
WABASH RIVER					
Wabash River near New Corydon, Ind (State Line)	465.6 (G)	610000	NWDO	OEPA (LF)	WWH
Beaver Creek at Celina - (SR 703)	10.7 (G)	605010	NWDO	OEPA (Q)	WWH
Beaver Creek at Celina-Meyer Rd.	9.6 (G)	605020	NWDO	OEPQ (Q)	WWH

TABLE RD 1-179 (Continued)

STATION DESCRIPTION	RM (MAP)	STATION #	DISTRICT	PURPOSE	USE DESIGNATION
MINOR OHIO TRIBUTARIES					
Bullskin Creek near Cedron (Cedron Rd)	3.1 (K-6)	609100	SWDO	OEPA (LF)	WWH
Captina Creek near Powhatan Point (SR 148)	3.2 (S-4)	609210	SEDO	OEPA (LF)	WWH
Cross Creek near Mingo Junction (Twp Rd 167)	1.7 (S-2)	609250	SEDO	OEPA (LF)	WWH
Duck Creek near Marietta (SR 26)	1.8 (R-1,2)	609180	SEDO	OEPA (LF)	WWH
Eagle Creek near Ripley (CR 49)	3.7 (L-3)	609120	SEDO	OEPA (LF)	EWH
Indian Guyan Creek near Bradrick (SR 243)	2.5 (N-5)	609150	SEDO	OEPA (LF)	WWH
Leading Creek near Middleport (SR 7)	1.4 (O-4)	609160	SEDO	OEPA (LF)	WWH
Little Muskingum River near Reno (CR 9)	2.3 (R-2)	609190	SEDO	OEPA (LF)	WWH
Little Scioto River near Sciotoville (Twp Rd 248)	2.1 (N-4)	609130	SEDO	OEPA (LF)	EWH
McMahon Creek near Bellaire (SR 147)	1.3 (S-4)	609220	SEDO	OEPA (LF)	WWH
Pine Creek near Garden City (SR 52)	4.1 (N-4)	609140	SEDO	OEPA (LF)	WWH
Shade River near Keno (Twp Rd 114)	5.9 (O-4)	609170	SEDO	OEPA (LF)	EWH
Short Creek near Rayland (SR 150)	3.9 (S-3)	609240	SEDO	OEPA (LF)	WWH
Sunfish Creek near Cameron (SR 78)	6.8 (S-4)	609200	SEDO	OEPA (LF)	WWH
Symmes Creek near Chesapeake (SR 7)	0.4 (N-3)	609270	SEDO	OEPA (LF)	
Ten Mile Creek near New Palestine (SR 749)	1.1 (K-6)	609050	SWDO	OEPA (LF)	WWH

TABLE RD 1-179 (Continued)

STATION DESCRIPTION	RM (MAP)	STATION #	DISTRICT	PURPOSE	USE DESIGNATION
MINOR OHIO TRIBUTARIES (CONTINUED)					
Wheeling Creek near Bridgeport (CR 24)	1.5 (S-3)	609230	SEDO	OEPA (LF)	WWH
White Oak Creek below Georgetown (Rt. 221)	5.7 (L-1)	609110	SEDO	OEPA (LF)	WWH
Yellow Creek near Hammondsville (SR 213)	2.5 (S-2)	609260	SEDO	OEPA (LF)	WWH

This copy is for small requests just remove the requested section and send it out (if it is still there). — We have so many of these no need to copy any more. — remove from here.

REFERENCE DOCUMENT 1

ANNUAL SUMMARY STATISTICS

Prepared by

D. Mishne

Ohio Environmental Protection Agency
Division of Water Quality Monitoring and Assessment
Evaluation and Standards Section
Columbus, Ohio 43216
May 1984

Introduction for Annual Summary Statistics Tables

REFERENCE DOCUMENT 1 (RD1) - Yearly Summary Statistics

This document contains yearly summary statistics for chemical/physical parameters monitored in Ohio's ambient monitoring network, i.e., at monthly, quarterly and low-flow stations. Station information includes: STORET station number, latitude and longitude, a narrative description of the station's location, major drainage basin, State river basin and station river mile index (RMI) or river mile location.

STATION NUMBER 610000	STORET PRIMARY STATION CODE
40 33 50.0 084 48 10.0 2	LATITUDE LONGITUDE
WABASH R AT STATE LINE	STATION DESCRIPTION
OHIO RIVER (WABASH RIVER)	MAJOR DRAINAGE BASIN (STATE RIVER BASIN)
MILES 0953.80 0133.10 465.60	RIVER MILE INDEX (RMI) OR RIVER MILE

Statistical data for each parameter includes: parameter units; a remark column which may contain the remark codes K (less than), L (greater than), M (negative value), J (estimated) and T (all sample values including those designated K and L, values preceded by remarks are considered actual values); number of samples for the reporting period; mean; standard deviation; minimum and maximum values; and the year and month for the beginning and end of the reporting period.

REFERENCE DOCUMENT 1 ORGANIZATION

Mainstem monitoring stations are arranged by State river basin/subbasin in alphabetical order, and within each river basin/subbasin by decreasing river mile. Mainstem stations are followed by stations located on tributaries, arranged in alphabetical order, and by decreasing river mile. (Table of Contents).

STATISTICAL REPORTING PROCEDURES

The lowest detectable concentrations routinely analyzed by the Ohio Department of Health Laboratories (ODHL) and the Ohio EPA Chemistry Laboratory are listed in Tables 1 and 2. Parameter concentrations reported by the laboratories that are below detectable limits are preceded by a less than notation, and those above reported limits by a greater than notation on the original data sheets. The data are entered into the STORET System by the Ohio EPA with the proper letter code in place of the notation.

Statistical summary data for each parameter may include data calculated three ways: 1. With remark code T - all values are treated as actual values; 2. With remark code K - all values are treated as actual values; and 3. With remark code L - all values are treated as actual values.

Table 1: Detectable limits for parameters routinely monitored by the Ohio Department of Health Laboratories

PHYSICAL/CHEMICAL PARAMETERS

VALUE

Year (Month)	1975	1976	1977 (Feb)	1978	1979 (Jul)	1980	1981
Parameter (Units)							
Turbidity (J.U.)	1	1	1 (Feb)	1	0.5 (Jul)	0.5	0.5
Conductivity at 25°C(Micromhos)	1	1	1	1	1	2 (Mar)	0.4
pH (± SU)	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Alkalinity Total, $CaCO_3$(mg/l)	1	1	1	1	1	10 (Feb)	10
Alkalinity Phth, $CaCo_3$(mg/l)	0	0	0	0	0	10 (Feb)	-
Alkalinity, $CaCo_3$ Stabl(mg/l)	0	0	0	0	10	10 (Feb)	10
Acidity Total, $CaCo_3$(mg/l)	1	1	1	1	1	10 (Feb)	10
Acidity M.O., $CaCo_3$(mg/l)	0	0	0	0	0	10 (Feb)	-
Hardness Total, $CaCo_3$(mg/l)	2	2	2	2	2	2	4
Residue, Total (mg/l)	10	10	10	20 (Oct)	20	20	20
Residue, Total Volatile (mg/l)	10	10	10	10	20	20	20
Residue, Total Nflt(Sus)(mg/l)	10	10	10	10	10	10	10
Residue, Vol Nflt (mg/l)	10	10	10	10	10	10	20
Residue, Total Flt(Diss)(mg/l)	10	10	10	20 (Oct)	20	20	20
Residue, Vol Flt (mg/l)	10	10	10	10	20	20	20
Residue, Settable (mg/l)	0.1	0.1	0.1	-	-	-	-
Nitrogen Ammonia, N (mg/l)	0.05	0.05	0.05	0.05	0.05	0.05	0.05
Nitrite, N (mg/l)	0.05	0.05	0.05	0.05	0.01 (Feb)	0.01	0.01
Nitrate, N(mg/l)	0.1	0.05 (Jan)	0.05	0.05	0.05	0.05	0.05
TKN(mg/l)	0.3	0.05 (Sept)	0.05	0.05	0.05	0.05	0.05
Phosphorus, Total, P(mg/l)	0.1	0.05 (Sept)	0.05	0.05	0.05	0.05	0.02
Phorphorus, Soluble, P(mg/l)	0.05	0.05	0.05	0.05	0.05	0.05	0.02
Phosphate Total, Low Level (mg/l)	-	-	-	-	0.010	0.010	0.002
Phosphate Ortho, Low Level (mg/l)	-	-	-	-	0.002	0.002	0.002
Sulfate, SO_4(mg/l)	10	10	10	10	10	10	10
Sulfide, S(mg/l)	-	-	-	-	1 (May)	1	1
Chloride, Cl(mg/l)	5	5	5	5	5	5	5
Fluoride Diss, F(mg/l)	0.02	0.02	0.02	0.05(Aug)	0.05	0.05	0.05
Calcium Total, Ca(mg/l) Flame AAS	2	2	2	2	2	2	2
Magnesium Total, Mg(mg/l) Flm AAS	2	2	2	2	2	2	2
Potassium Total, K(mg/l)	1	1	1	1	1	1	1
Sodium Total, Na(mg/l)	5	5	5	5	5	5	5

Table 1: continued

PHYSICAL/CHEMICAL PARAMETERS

VALUE

Year (Month)	1975	1976	1977 (Feb)	1978	1979 (Jul)	1980	1981
Parameter (Units)							
Aluminum Total, Al(ug/l)	200	200	200	200	200	200	200
Antimony Total, Sb (ug/l)	10	10	10	10	10	10	10
Arsenic Total, As (ug/l) HGA	10	10	10	10	10	10	10
Barium Total, Ba (ug/l)	200 (Mar)*	200	200	200	200	200	200
Beryllium Total, Be (ug/l)	10	10	10	10	10	10	10
Cadmium Total, Cd (ug/l)	10	5 (Jul)	5	5	5	5	5
Chromium Total, Cr (ug/l)	30	30	30	30	30	30	30
Chromium Hex, Cr (ug/l)	30	30	30	30	30	30	30
Cobalt Total, Co (ug/l)	30	30	30	30	30	30	30
Copper Total, Cu (ug/l)	30	30	30	30	30	30	30
Iron Total, Fe (ug/l)	30	30	30	30	30	30	30
Iron Diss, Fe (ug/l)	30	30	30	30	30	30	30
Lead Total, Pb (ug/l)	10	10	5 (Feb)	5	5	5	5
Lithium Total, Li (ug/l)	100	100	100	100	100	100	100
Manganese Total, Mn (ug/l)	30	30	30	30	30	30	30
Manganese Diss, Mn (ug/l)		-	-	-	30	30	30
Mercury Total, Hg (ug/l)	1.0	0.5 (Jul)	0.5	0.5	0.5	0.5	0.5
Molybdenum Total, Mo (ug/l)	100	100	100	100	100	100	100
Nickel Total, Ni (ug/l)	100	100	100	100	100	100	100
Selenium Total, Se (ug/l)	10	5 (Jul)	5	5	5	5	5
Silica Diss, Si (mg/l)	-	-	-	-	0.05 (Jul)	0.05	0.05
Silver Total, Ag (ug/l)	30	30	30	30	30	30	30
Strontium Total, Sr (ug/l)	200	200	200	200	200	200	200
Thallium Total, Tl (ug/l)	10	-	-	-	-	-	-
Tin Total, Sm (ug/l)	10	10	10	10	10	10	10
Titanium Total, Ti (ug/l)	500	500	500	500	500	500	500
Vanadium total, V (ug/l)	10	10	10	10	10	10	10
Zinc Total, Zn (ug/l)	30	30	30	30	30	30	30
BOD, 5-Day (mg/l)	1	1	1	1	1	1	1
COD (mg/l)	4	4	4	4	4	4	4
Carbon Total Org, C (mg/l)	1	1	1	1	1	1	1
Cyanide, CN (mg/l)	0.01	0.01	0.01	0.01	0.01	0.01	0.01
MBAS (mg/l)	0.05	0.05	0.05	0.05	0.05	0.05	0.05
Oil-Grease, Total (mg/l)	0.50	5 (Feb)	5	5	5	5	5
Phenolics (ug/l)	2	2	2	2	2	2	2

Table 1: continued

RADIOLOGICAL PARAMETERS

VALUE

Year (Month)	1975	1976	1977 (Feb)	1978	1979 (Jul)	1980	1981
Parameter (Units)							
Beta, Total (pc/l)**	1	1	1	1	3	3	4 Jun
Beta, Diss (pc/l)	1	1	1	1	3	3	4
Beta, Suspd (pc/l)	1	1	1	1	3	3	4
Alpha, Total (pc/l)	1	1	1	1	3	3	3
Alpha, Diss (pc/l)	1	1	1	1	3	3	3
Alpha, Suspd (pc/l)	1	1	1	1	3	3	3
Radium 226, Total (pc/l)	1	1	1	1	1	1	1
Strontium 89, Total (pc/l)	5	5	5	5	5	5	5
Strontium 90, Total (pc/l)	1	1	1	1	1	1	1

BIOLOGICAL PARAMETERS

Coliform Total, MF (#/100 ml)	1	1	1	1	1	1	1
Coliform Total, MPN (#/100 ml)	1	1	1	1	1	1	1
Fecal Coli Total, MF (#/100 ml)	1	1	1	1	1	1	1
Fecal Strep Total, MF (#/100 ml)	1	1	1	1	1	1	1
Plate Count, Total (#/ml)	1	1	1	1	1	1	1
Algae, Total (#/ml)	1	1	1	1	1	1	1

PESTICIDE, PCB AND PHTHALATE PARAMETERS 1979-1982***

Parameter	WATER MATRIX (ug/l)	OIL MATRIX (mg/l)
Aldrin, Whl Smpl	0.03	0.2
BHC, Whl Smpl	0.01	0.2
DDD, Whl Smpl	0.10	0.4
DDE, Whl Smpl	0.05	0.4
DDT, Whl Smpl	0.10	0.4
Diazinon, Whl Smpl	0.1	0.3
Dieldrin, Whl Smpl	0.05	0.4

Table 1: continued

PESTICIDE, PCB AND PHTHALATE PARAMETERS 1979-1982***

Parameter	WATER MATRIX (ug/l)	OIL MATRIX (mg/l)
Chlordane, Whl Smpl	0.4	4.0
Endrin, Whl Smpl	0.03	0.4
Heptachlor, Whl Smpl	0.03	0.3
Heptachlor Epexide, Whl Smpl	0.03	0.3
Lindane, Whl Smpl	0.01	0.2
Malathion, Whl Smpl	0.1	-
Methoxychlor, Whl Smpl	0.15	2.4
Methyl Parathion, Whl Smpl	0.1	0.4
Mirex, Whl Smpl	0.25	0.5
Parathion, Whl Smpl	0.15	0.4
PCB, Whl Smpl	0.5	5.0
Phthalates, Whl Smpl	100	-
Silvex, Whl Smpl	1	-
Toxaphene, Whl Smpl	0.5	5.0
2,4-D, Whl Smpl	10	-

NONPESTICIDE ORGANICS (ug/l) (GC/MS; PURGE AND TRAP METHODOLOGY) 1979-1982****

Parameter		Parameter	
Benzene	0.5	1,2 dichloroethane	0.5
Bromodichloromethane	0.5	Ethylbenzene	0.5
Bromoform	1.5	Methylene chloride	1.5
Carbon tetrachloride	0.5	Tetrachloroethane	0.5
Chlorobenzene	0.5	Tetrachloroethylene	0.5
Chloroform	0.5	Trichloroethylene	0.5
Dibromochloromethane	0.5	Toluene	0.5
Dichlorobenzenes	0.5	Xylenes	0.5

Table 1: continued

NONPESTICIDE ORGANICS (mg/l) (FID - DETECTOR; SOLVENT/SOLVENT EXTRATION) 1979-1982*****

Parameter	WATER MATRIX (ug/l)	OIL MATRIX (mg/l)	
Benzene	0.1	Ethylbenzene	0.1
Bromoform	0.2	Methylene chloride	0.1
Carbon tetrachloride	0.2	Tetrachloroethane	0.1
Chlorobenzene	0.1	Tetrachloroethylene	0.1
Chlorodibromomethane	0.1	Trichloroethanes	0.1
Chloroform	0.1	Trichloroethylene	0.1
Cis 1,2-dichloroethylene	0.1	Toluene	0.1
Dichlorobromomethane	0.1	Vinyl chloride	0.1
1,2-Dichloroethane	0.1	Xylene	0.1

* The detectable limit before March 1975 was 100 ug/l.
** The detectable limit changed from 3 to 2 between 1980 and 1981, and than changed to 4 in June of 1981.
*** Water Matrix - 1 liter extracted and concentrated to 5 mls. Oil Matrix - 1 gm diluted to 100 mls with hexane (oil values are based on the response of standards).
**** 5 ml sample - normal operation.
***** 1 liter sample - concentration ratio 100 to 1.

Table 2: Ohio EPA Chemistry Laboratory Detection Limits 1981 -1982[a]

PARAMETER (Units)	1981	1982
Biochemical Oxygen Demand (mg/l) (BOD_5, BOD_{20}, $cBOD_5$, $cBOD_{20}$)	1	1
Chemical Oxygen Demand		
Automated (mg/l)	10	10
Manual (mg/l)	4	10
Total Residue (mg/l)	10	10
Total Filterable Residue (mg/l)	10	10
Total Nonfilterable Residue (mg/l)	5	5
Nitrate-Nitrite (mg/l)	0.05-0.09	0.05
Nitrite (mg/l)	0.02-0.03	0.02
Ammonia (mg/l)	0.05-0.09	0.05
Total Kjeldahl Nitrogen (mg/l)	0.1-0.3	0.1
Total Phosphorus		
High Level (mg/l)	0.05	0.05
Low Level (mg/l)	--	0.005
Dissolved Phosphorus		
High Level (mg/l)	0.05	0.05
Low Level (mg/l)	--	0.005
T. Cadmium (ug/l)	0.5-1.0	0.5
T. Calcium (mg/l)	1 - 2	1
T. Chromium (ug/l)	30-40	30
T. Copper (ug/l)	10-20	10
T. Iron (ug/l)	50-70	50
D. Iron (ug/l)	50-70	50
T. Lead (ug/l)	5-10	2
T. Magnesium (mg/l)	1-10	1
T. Manganese (ug/l)	--	100
T. Nickel (ug/l)	30-40	30
T. Zinc (ug/l)	10-15	10

a. Detection limit is statistically defined as twice the standard deviation of the concentration difference of a series of duplicate measurements of a solution near the blank absorbance measurement.

Key for Table of Contents

COLUMN CODES

RM - River mile, miles from mouth

(MAP) - Map codes refer to underground water maps of Ohio ("Publications, Division of Water", 1975. Ohio Department of Natural Resources, p. 6).

Station #

Top number - STORET (OEPA)
Lower number ( ) - USGS

District

CDO - Central District Office, Columbus
NEDO - Northeast District Office, Twinsburg
NWDO - Northwest District Office, Bowling Green
SEDO - Southeast District Office, Logan
SWDO - Southwest District Office, Dayton

Purpose

IJC - International Joint Commission
NASQAN - National Stream Quality Accounting Network (USGS)
NAWQMN - National Ambient Water Quality Monitoring Network. The number following NAWQMN refers to the location of the station shown on Figure 1.
OEPA - Ohio EPA

Sampling Frequency

(M) - Monthly sampling frequency
(Q) - Quarterly sampling frequency
(LF) - Sampled once per year during the low flow period
(A) - Annual

Use Designation

CRS - Cuyahoga River Standards
CWH - Coldwater Habitat
EWH - Exceptional Warmwater Habitat
LE - Lake Erie Standards
MRS - Mahoning River Standards
PWS - Public Drinking Water Source
WWH - Warmwater Habitat

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STATION DESCRIPTION	RM (MAP)	STATION #	DISTRICT	PURPOSE	USE DESIGNATION	TABLES RD 1-	PAGES RD 1-
ASHTABULA RIVER							
Ashtabula River near Ashtabula (State Rd)	5.5 (F-3)	502760 (04212500)	NEDO	NAWQMN, IJC (M)	WWH	1-2	1-4
Fields Brook near Ashtabula (15th St)	0.3 (F-3)	502780	NEDO	OEPA (M)	WWH	3-4	5-8
BLACK RIVER							
Black River at Elyria (Cascade Pk)	15.6 (D-4)	501520 (04200500)	NEDO	NAWQMN (M)	WWH	5-6	9-11
Black River below Elyria (Ford Rd)	10.4 (D-4)	501510 (04200550)	NEDO	IJC (M)	WWH	7-8	12-15
CHAGRIN RIVER							
Chagrin River at Willoughby (Rt 84)	5.0 (E-3)	502400 (04209000)	NEDO	NAWQMN, IJC (M)	EWH	9-10	16-19
CONNEAUT CREEK							
Conneaut Creek at Conneaut (Keefus Rd)	6.4 (F-3)	502870 (04213000)	NEDO	NAQMN, IJC (M)	CWH	11-12	20-23
CUYAHOGA RIVER							
Cuyahoga River at Independence (Old Rockside Rd.)	13.5 (E-2)	502020 (04208000)	NEDO	NAWQMN, NASQAN (M)	WWH	13-14	24-27

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STATION DESCRIPTION	RM (MAP)	STATION #	DISTRICT	PURPOSE	USE DESIGNATION	TABLES RD 1-	PAGES RD 1-
CUYAHOGA RIVER (CONTINUED)							
Cuyahoga River at Cleveland (Lower Harvard Ave.)	7.3 (E-2)	502130 (04208503)	NEDO	IJC (M)	WWH	15-16	28-31
Big Creek at Cleveland (Jennings Ave)	0.3 (E-2)	502120	NEDO	OEPA (Q)	WWH	17-18	32-33
Little Cuyahoga River near Akron (Otto St. gage)	2.0 (E-1)	502080 (04205700)	NEDO	OEPA (Q)	WWH	19-20	34-35
Mill Creek at Garfield Heights (Canal Road)	0.1 (E-2)	502110	NEDO	OEPA (Q)	WWH	21-22	36-37
Tinkers Creek at Bedford (USGS gage at SR 14)	5.5 (E-2)	502220 (04207200)	NEDO	OEPA (LF)	WWH	23-24	38-39
EUCLID CREEK							
Euclid Creek at Euclid (St. Clair Ave.)	1.7 (E-2)	504250 (04208690)	NEDO	OEPA (M)	WWH	25-26	40-42
GRAND RIVER							
Grand River near Painesville (Rt 84)	8.7 (F-2)	502530 (04212100)	NEDO	NAWQMN, NASQAN (M)	WWH	27-28	43-46
Grand River at Painesville (Rt 535)	2.3 (F-2)	502520 (04212200)	NEDO	IJC (M)	WWH	29-30	47-50

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STATION DESCRIPTION	RM (MAP)	STATION #	DISTRICT	PURPOSE	USE DESIGNATION	TABLES RD 1-	PAGES RD 1-
GREAT MIAMI RIVER							
Great Miami River near Taylorsville (SR 440)	90.7 (H-_)	610050 (03263000)	SWDO	OEPA (M)	WWH	31-32	51-52
Great Miami River at Dayton (Main St. Bridge)	80.0 (H-9)	610060 (03270500)	SWDO	NAWQMN (M)	WWH	33-34	53-54
Great Miami River at Miamisburg (SR 725)	66.4 (H-9)	600150 (03271500)	SWDO	OEPA (M)	WWH	35-36	55-56
Great Miami River at Hamilton (Columbia Bridge)	34.9 (H-11)	600270 (03274000)	SWDO	OEPA (M)	WWH	37-38	57-58
Buck Creek near Springfield (U.S. 40 and SR 4)	0.2 (H-3)	600350	SWDO	OEPA (Q)	WWH	39-40	59-60
Dicks Creek near Excello (Yankee Rd)	2.5 (H-9)	600250	SWDO	OEPA (M)	WWH	41-42	61-62
Four Mile Creek at New Miami (Jacksonburg Rd)	0.3 (H-10)	600260	SWDO	OEPA (Q)	WWH	43-44	63-64
Greenville Creek near Covington (Rangeline Rd)	3.4 (H-6,7$_2$	600060	SWDO	OEPA (Q)	WWH	45-46	65-66
Indian Creek near Ross (SR 128)	0.5 (H-1)	600280	SWDO	OEPA (Q)	EWH	47-48	67-68

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GREAT MIAMI RIVER (CONTINUED)							
Loramie Creek near Lockington (Harding-Wapak Rd)	0.4 (H-2)	600320	SWDO	OEPA (Q)	WWH	49-50	69-70
Mad River at Eagle City (St. Paris Pike)	28.7 (H-3)	610040	SWDO	NAWQMN (M)	CWH	51-52	71-73
Mad River above Dayton (Rt 444)	5.9 (H-4)	600190	SWDO	OEPA (M)	WWH	53-54	74-75
Stillwater River near Englewood (U.S. 40)	8.9 (H-6,7₁)	600110 (03266000)	SWDO	OEPA (M)	WWH	55-56	76-77
Twin Creek near Franklin (Dayton-Oxford Rd)	0.6 (H-8,11a)	600180	SWDO	OEPA (Q)	EWH	57-58	78-79
Whitewater River near Hoover (Suspension Bridge Rd)	0.5 (H-11)	600290	SWDO	OEPA (Q)	WWH	59-60	80-81
HOCKING RIVER							
Hocking River below Lancaster (U.S. 33)	86.7 (O-1)	601550	CDO	OEPA (M)	WWH	61-62	82-83
Hocking River at Enterprise (CR 31 Bridge)	72.5 (O-1)	601530 (03157500)	SEDO	OEPA (M)	WWH	63-64	84-85

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STATION DESCRIPTION	RM (MAP)	STATION #	DISTRICT	PURPOSE	USE DESIGNATION	TABLES RD 1-	PAGES RD 1-
HURON RIVER							
Huron River below Milan (Mud Brook Rd)	1.6 (D-2)	501050	NWDO	NAWQMN, IJC (M)	EWH	65-66	86-89
LAKE ERIE							
Turkey Creek near Conneaut (Lake Rd)	0.1 (F-3)	504260	NEDO	OEPA (Q)	CWH	67-68	90-91
LITTLE BEAVER CREEK							
Little Beaver Creek near East Liverpool (Grimms Bridge Road)	4.6 (S-1)	602000 (03109500)	NEDO	NAWQMN (M)	WWH	69-70	92-94
North Fork at Fredericktown (Fredericktown Rd)	0.2 (S-1)	612010	NEDO	OEPA (Q)	CWH	71-72	95-96
West Fork near Guilford (SR 30)	6.6 (S-1)	612000	NEDO	OEPA (Q)	WWH	73-74	97-98
Chemline Tributary near Lisbon (SR 518)	0.1 (S-1)	602090	NEDO	OEPA (M)	WWH	75-76	99-100
Stateline Creek East Branch near Negley (Twp. Rd 1024)	0.1 (S-1)	602060	NEDO	OEPA (M)	WWH	77-78	101-102
Stateline Creek West Branch near Negley (Twp. Rd 1024)	0.1 (S-1)	602050 (03109320)	NEDO	OEPA (M)	WWH	79-80	103-105

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LITTLE MIAMI RIVER							
Little Miami River at Oldtown (U.S. 68)	79.5 (K-1)	600570	SWDO	NAWQMN (M)	EWH	81-82	106-107
Little Miami River near Xenia (Bellbrook Rd)	68.2 (K-1)	610550	SWDO	OEPA (Q)	WWH	83-84	108-109
Little Miami River at Spring Valley (Roxanna-New Burlington Rd)	59.3 (K-1)	600600	SWDO	OEPA (M)	WWH	85-86	110-111
Little Miami River near Morrow (Stubbs Mill Rd)	35.7 (K-5)	610520	SWDO	OEPA (M)	WWH	87-88	112-113
East Fork Little Miami River at South Milford (near Terrace Park Country Club)	0.8 (K-5)	610530	SWDO	OEPA (M)	WWH	89-90	114-115
Beaver Creek near Xenia (Factory Rd)	0.1 (K-1)	600510	SWDO	OEPA (Q)	WWH	91-92	116-117
Caesar's Creek near Oregonia (Corwin Rd)	0.2 (K-2)	600550	SWDO	OEPA (M)	EWH	93-94	118-119
MAHONING RIVER							
Mahoning River at Leavittsburg (Leavitt Rd)	45.0 (T-2)	602280 (03094000)	NEDO	NAWQMN (M)	MRS	95-96	120-123

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MAHONING RIVER (CONTINUED)							
Mahoning River at Warren (South St. gage)	37.4 (T-2)	602400	NEDO	OEPA (Q)	MRS	97-98	124-125
Mahoning River at Niles (W. Park Ave)	33.1 (T-2)	602290	NEDO	OEPA (Q)	MRS	99-100	126-127
Mahoning River at Lowellville (First St)	11.6 (T-3$_1$)	602300 (03099500)	NEDO	NAWQMN (M)	MRS	101-102	128-130
MAUMEE RIVER							
Maumee River at Antwerp (SR 49)	100.3 (A-7)	500140 (04183500)	NWDO	NAWQMN (M)	WWH	103-104	131-134
Maumee River at Waterville (Rt 64)	20.8 (A-11)	500080 (04193500)	NWDO	NAWQMN, NASQAN IJC (M)	WWH	105-106	135-136
Auglaize River above Defiance (Power Dam, Harding Road)	4.1 (A-7)	500290 (04191500)	NWDO	NAWQMN (M)	WWH	107-108	137-140
Blanchard River below Findlay (County Rd)	53.0 (A-6)	500040 (04189000)	NWDO	OEPA (M)	WWH	109-110	141-143
Ottawa River at Allentown (SR 81)	28.4 (A-4)	500050 (04187500)	NWDO	OEPA (M)	WWH	111-112	144-147
MILL CREEK							
Mill Creek at Carthage (Anthony Wayne Avenue)	11.0 (J)	600410 (03259000)	SWDO	OEPA (M)	WWH	113-114	148-149
Mill Creek at Cincinnati (Gest Rd)	0.5 (J)	600430	SWDO	OEPA (M)	WWH	115-116	150-151

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STATION DESCRIPTION	RM (MAP)	STATION #	DISTRICT	PURPOSE	USE DESIGNATION	TABLES RD 1-	PAGES RD 1-
MUSKINGUM RIVER							
Muskingum River below Coshocton (SR 83)	107.3 (P-11)	611740 (03140500)	SEDO	NAWQMN (M)	WWH	117-118	152-155
Muskingum River at Dresden (SR 208)	91.3 (P-11)	611750 (03144500)	SEDO	OEPA (M)	WWH	119-120	156-158
Hurford Run at Canton (Church St)	0.2 (P-7)	611850	NEDO	OEPA (Q)	WWH	121-122	159-160
Killbuck Creek near Wooster (Willow Rd)	44.8 (P-3)	601880	NEDO	OEPA (LF)	WWH	123-124	161-162
Licking River below Newark (Stadden Bridge)	25.6 (P-13)	601770 (031416500)	CDO	NAWQMN (M)	WWH	125-126	163-166
Mohican River at Greer (Rt 514)	16.6 (P-4)	601870 (03136000)	SEDO	NAWQMN (M)	WWH	127-128	167-170
Nimishillen Creek at North Industry (Cheyenne St)	8.2 (P-7)	601940 (03118500)	NEDO	NAWQMN (M)	WWH	129-130	171-174
Tuscarawas River at Canal Fulton (Market St)	95.9 (P-5)	611830	NEDO	OEPA (LF)	WWH	131-132	175-176
Tuscarawas River at Massillon (Walnut St)	88.4 (P-5)	611840	NEDO	OEPA (Q)	WWH	133-134	177-178
Tuscarawas River near Massillon (Warmington St.)	85.3 (P-5)	601930 (03117000)	NEDO	NAWQMN (M)	WWH	135-136	179-180

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MUSKINGUM RIVER (CONTINUED)							
Tuscarawas River at Newcomerstown (SR 83)	21.3 (P-10)	611790 (031129000)	SEDO	NAWQMN (M)	WWH	137-138	181-184
Walhounding River at Nellie (U.S. 36)	14.7 (P-4)	601910 (03138500)	SEDO	NAWQMN (M)	WWH	139-140	185-188
Wolf Creek at Barberton (Snyder Ave)	0.2 (P-6)	611820	NEDO	OEPA (Q)	WWH	141-142	189-190
OHIO BRUSH CREEK							
Ohio Brush Creek near West Union (SR 348)	13.1 (L-2)	600660 (03237500)	SEDO	NAWQMN (M)	EWH	143-144	191-194
PORTAGE RIVER							
Portage River at Woodville (U.S. 20)	28.2 (B-2)	500510 (04195500)	NWDO	NAWQMN, IJC (M)	WWH	145-146	195-198
RACCOON CREEK							
Raccoon Creek at Adamsville (U.S. Rt 35)	29.6 (N-2)	601400 (03202000)	SEDO	NAWQMN (M)	WWH	147-148	199-202
ROCKY RIVER							
Rocky River near Berea (Cedar Pt Rd)	12.0 (D-5)	501800 (04201500)	NEDO	NAWQMN, IJC (M)	WWH	149-150	203-206
Rocky River at Lakewood (Park Blvd.)	3.0 (D-5)	501790	NEDO	IJC (M)	WWH	151-152	207-210

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STATION DESCRIPTION	RM (MAP)	STATION #	DISTRICT	PURPOSE	USE DESIGNATION	TABLES RD 1-	PAGES RD 1-
SANDUSKY RIVER							
Sandusky River above Fremont (Rice Rd)	20.3 (C-4)	500820 (04198000)	NWDO	NAWQMN, NASQAN IJC (M)	WWH	153-154	211-213
SCIOTO RIVER							
Scioto River near Circleville (Florence Chapel Rd)	101.8 (M-8)	601340	CDO	NAWQMN (M)	WWH	155-156	214-216
Big Darby Creek at Darbyville (SR 316)	13.2 (M-8)	601300 (03230500)	CDO	NAWQMN (M)	EWH	157-158	217-219
Mill Creek below Marysville (Radnor Rd)	17.2 (M-5)	601350	CDO	OEPA (M)	WWH	159-160	220-221
Olentangy River near Worthington (I-270)	11.5 (M-3)	601290 (03226800)	CDO	NAWQMN (M)	WWH	161-162	222-223
Paint Creek near Bournesville (Jones-Levee Rd)	22.1 (M-12,13)	601320 (03234000)	SEDO	OEPA (M)	EWH	163-164	224-225
VERMILION RIVER							
Vermilion River at Vermilion (N. Ridge Rd)	4.5 (D-3)	501260 (04199500)	NWDO	NAWQMN, IJC (M)	EWH	165-166	226-229

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STATION DESCRIPTION	RM (MAP)	STATION #	DISTRICT	PURPOSE	USE DESIGNATION	TABLES RD 1-	PAGES RD 1-
LAKE ERIE							
Ashtabula Water Intake	- -	504160	NEDO	IJC (M)	EWH (LE), PWS	167-168	230-231
Conneaut Water Intake	- -	504170	NEDO	OEPA (M)	EWH (LE), PWS	169-170	232-233
Cleveland Crown Water Intake	- -	504090	NEDO	IJC (M)	EWH (LE), PWS	171-172	234-238
Mentor Water Intake	- -	504130	NEDO	NAWQMN, IJC (M)	EWH (LE), PWS	173-174	239-241
Oregon Water Intake	- -	504240	NWDO	NAWQMN, IJC (M)	EWH (LE), PWS	175-176	242-245
Sandusky Water Intake	- -	504030	NWDO	IJC (M)	EWH (LE), PWS	177-178	246-249
Stations Reported in Previous 305(b) Reports; Not Sampled During this Reporting Period	-	-	-	-	-	179	250-256

TABLE RD 1-1

STATION NUMBER 502760
41 51 20.0 080 45 44.0 2
ASHTABULA RIVER ABOVE ASHTABULA - STATE RD
LAKE ERIE 060691 (ASHTABULA RIVER)
MILES 0005.50

PARAMETER			R	NO	MEAN	STAN DEV	MAXIMUM	MINIMUM	BEG	END
WATER	TEMP	CENT		12	8.79167	8.38955	22.5000	.000000	80/10	81/09
STREAM	FLOW,	INST-CFS		1	64.2000		64.2000	64.2000	81/09	81/09
STREAM	STAGE	FEET		2	.485000	.615183	.920000	.050000	80/10	81/09
TURB	TRBIDMTR	HACH FTU		12	19.7917	27.7443	77.0000	1.50000	80/10	81/09
CNDUCTVY	FIELD	MICROMHO		11	155.909	64.2191	310.000	70.0000	80/10	81/09
CNDUCTVY	AT 25C	MICROMHO		7	218.286	87.7131	330.000	125.000	81/01	81/09
DO		MG/L		12	11.6000	2.44504	14.6000	6.80000	80/10	81/09
COD	LOWLEVEL	MG/L		12	18.9916	8.80504	32.0000	10.0000	80/10	81/09
PH		SU		2	8.14999	.072028	8.20000	8.10000	81/08	81/09
LAB	PH	SU		11	7.20909	.639462	7.90000	5.80000	80/10	81/09
T ALK	CACO3	MG/L		11	42.3636	14.5484	63.0000	15.0000	80/11	81/09
PHEN-PH-	LFIN ALK	MG/L		1	42.0000		42.0000	42.0000	80/10	80/10
RESIDUE	TOT NFLT	MG/L		7	75.7143	96.6225	235.000	11.0000	80/11	81/07
			K	5	10.0000	.000000	10.0000	10.0000	80/10	81/09
			T	12	48.3333	78.9768	235.000	10.0000	80/10	81/09
NH3+NH4-	N TOTAL	MG/L		7	.100000	.067330	.240000	.050000	80/12	81/06
			K	5	.050000	.000061	.050000	.050000	80/10	81/09
			T	12	.079167	.055996	.240000	.050000	80/10	81/09
NO2-N	TOTAL	MG/L		5	.022000	.021679	.060000	.010000	80/10	81/08
			K	5	.010000-	.000000	.010000	.010000	80/11	81/05
			T	10	.016000	.015776	.060000	.010000	80/10	81/08
NO3-N	TOTAL	MG/L		10	.402000	.219231	.790000	.130000	80/10	81/08
			K	2	.050000	.000061	.050000	.050000	81/05	81/09
			T	12	.343333	.241033	.790000	.050000	80/10	81/09
TOT KJEL	N	MG/L		12	.733333	.312856	1.31000	.330000	80/10	81/09
PHOS-TOT		MG/L P		12	.068417	.053183	.169000	.020000	80/10	81/09
PHOS-DIS		MG/L P		11	.031273	.013305	.049000	.014000	80/11	81/09
T ORG C	C	MG/L		4	11.0000	2.70801	13.0000	7.00000	81/01	81/09
D ORG C	C	MG/L		6	9.00000	2.09762	12.0000	7.00000	81/01	81/09
TOT HARD	CACO3	MG/L		12	83.1667	24.1430	136.000	40.0000	80/10	81/09
CALCIUM	CA-TOT	MG/L		11	23.7273	7.49794	37.0000	9.00000	80/11	81/09
SODIUM	NA,TOT	MG/L		11	11.0000	3.57771	19.0000	6.00000	80/11	81/09
CHLORIDE	TOTAL	MG/L		12	20.8333	6.83355	39.0000	12.0000	80/10	81/09
SULFATE	SO4-TOT	MG/L		12	35.5000	17.7892	86.0000	17.0000	80/10	81/09
SILICA	DISOLVED	MG/L		12	3.33999	1.46081	5.28000	.350000	80/10	81/09
ARSENIC	AS,TOT	UG/L	K	1	10.0000		10.0000	10.0000	81/07	81/07
CADMIUM	CD,TOT	UG/L	K	7	5.00000	.000000	5.00000	5.00000	80/10	81/09
CHROMIUM	CR,TOT	UG/L		1	40.0000		40.0000	40.0000	81/01	81/01
			K	6	30.0000	.000000	30.0000	30.0000	80/10	81/09
			T	7	31.4286	3.77983	40.0000	30.0000	80/10	81/09
COPPER	CU,TOT	UG/L	K	11	30.0000	.000000	30.0000	30.0000	80/10	81/09

TABLE RD 1-1 (Continued)

STATION NUMBER 502760
41 51 20.0 080 45 44.0 2
ASHTABULA RIVER ABOVE ASHTABULA - STATE RD
LAKE ERIE 060691 (ASHTABULA RIVER)
MILES 0005.50

PARAMETER			R	NO	MEAN	STAN DEV	MAXIMUM	MINIMUM	BEG	END
IRON	FE,TOT	UG/L		6	3555.00	4299.91	9100.00	440.000	80/11	81/09
LEAD	PB,TOT	UG/L		3	12.3333	7.09461	20.0000	6.00000	80/10	81/02
			K	8	7.50000	7.07107	25.0000	5.00000	80/11	81/09
			T	11	8.81818	7.08263	25.0000	5.00000	80/10	81/09
MANGNESE	MN	UG/L		1	60.0000		60.0000	60.0000	81/07	81/07
NICKEL	NI,TOTAL	UG/L		1	100.000		100.000	100.000	80/10	80/10
			K	6	100.000	.000000	100.000	100.000	80/11	81/09
			T	7	100.000	.000000	100.000	100.000	80/10	81/09
VANADIUM	V,TOT	UG/L	K	1	200.000		200.000	200.000	81/07	81/07
ZINC	ZN,TOT	UG/L		3	40.0000	10.0000	50.0000	30.0000	81/01	81/06
			K	8	30.0000	.000000	30.0000	30.0000	80/10	81/09
			T	11	32.7273	6.46680	50.0000	30.0000	80/10	81/09
ALUMINUM	AL,TOT	UG/L		1	400.000		400.000	400.000	81/07	81/07
SELENIUM	SE,TOT	UG/L	K	1	5.00000		5.00000	5.00000	81/07	81/07
FEC COLI	MFM-FCBR	/100ML		10	688.300	1128.58	3800.00	5.00000	80/10	81/09
FECSTREP	MF M-ENT	/100ML		8	2413.12	4011.09	11000.0	15.0000	80/10	81/09
PHENOLS	TOTAL	UG/L		12	7.00000	2.82843	11.0000	2.00000	80/10	81/09
PCBS	WHL SMPL	UG/L		1	.000000		.000000	.000000	80/12	80/12
			K	8	.500000	.000000	.500000	.500000	80/11	81/09
			T	9	.444444	.166667	.500000	.000000	80/11	81/09
RESIDUE	DISS-180	C MG/L		12	147.000	39.0757	220.000	78.0000	80/10	81/09
MERCURY	HG,TOTAL	UG/L	K	6	.500000	.000000	.500000	.500000	80/10	81/09

TABLE RD 1-2

STATION NUMBER 502760
41 51 20.0 080 45 44.0 2
ASHTABULA RIVER ABOVE ASHTABULA - STATE RD
LAKE ERIE 060691 (ASHTABULA RIVER)
MILES 0005.50

PARAMETER			R	NO	MEAN	STAN DEV	MAXIMUM	MINIMUM	BEG	END
WATER	TEMP	CENT		11	9.95454	9.22349	24.5000	.000000	81/10	82/09
STREAM	FLOW,	INST-CFS		1	22.6000		22.6000	22.6000	81/11	81/11
STREAM	STAGE	FEET		2	1.06500	.728321	1.58000	.550000	81/10	81/11
TURB	TRBIDMTR	HACH FTU		2	2.98500	2.17082	4.52000	1.45000	81/10	81/11
CNDUCTVY	FIELD	MICROMHO		9	206.667	128.744	440.000	90.0000	81/11	82/09
CNDUCTVY	AT 25C	MICROMHO		10	269.700	120.130	570.000	150.000	81/10	82/09
DO	PROBE	MG/L		9	11.0111	2.13510	14.8000	8.40000	81/12	82/09
DO		MG/L		2	11.6000	1.97988	13.0000	10.2000	81/10	81/11
BOD	5 DAY	MG/L		1	1.80000		1.80000	1.80000	82/05	82/05
			K	1	1.00000		1.00000	1.00000	82/04	82/04
			T	2	1.40000	.565685	1.80000	1.00000	82/04	82/05
COD	LOWLEVEL	MG/L		10	16.7000	7.51370	34.0000	8.00000	81/11	82/09
			K	1	4.00000		4.00000	4.00000	81/10	81/10
			T	11	15.5455	8.09152	34.0000	4.00000	81/10	82/09
PH		SU		11	7.88181	.598093	8.70000	6.80000	81/10	82/09
T ALK	CACO3	MG/L		2	48.5000	9.19239	55.0000	42.0000	81/10	81/11
RESIDUE	TOT NFLT	MG/L		4	7.00000	1.82574	9.00000	5.00000	82/02	82/09
			K	6	6.66667	2.58199	10.0000	5.00000	81/10	82/06
			T	10	6.80000	2.20102	10.0000	5.00000	81/10	82/09
OIL-GRSE	FREON-GR	MG/L	K	1	5.00000		5.00000	5.00000	81/11	81/11
NH3+NH4-	N TOTAL	MG/L		1	.090000		.090000	.090000	82/01	82/01
			K	10	.050000	.000054	.050000	.050000	81/10	82/09
			T	11	.053636	.012061	.090000	.050000	81/10	82/09
NO2-N	TOTAL	MG/L	K	9	.020000	.000024	.020000	.020000	81/12	82/09
NO3-N	TOTAL	MG/L		9	.215555	.123503	.360000	.050000	81/10	82/09
			K	2	.050000	.000061	.050000	.050000	81/11	82/05
			T	11	.185454	.129180	.360000	.050000	81/10	82/09
KJELDL N	DISS	MG/L		1	.550000		.550000	.550000	81/12	81/12
TOT KJEL	N	MG/L		11	.422727	.145815	.700000	.230000	81/10	82/09
PHOS-TOT		MG/L P		3	.032333	.015503	.050000	.021000	81/10	82/09
			K	8	.050000	.000052	.050000	.050000	81/12	82/08
			T	11	.045182	.010778	.050000	.021000	81/10	82/09

TABLE RD 1-2 (Continued)

STATION NUMBER 502760
41 51 20.0 080 45 44.0 2
ASHTABULA RIVER ABOVE ASHTABULA - STATE RD
LAKE ERIE 060691 (ASHTABULA RIVER)
MILES 0005.50

PARAMETER			R	NO	MEAN	STAN DEV	MAXIMUM	MINIMUM	BEG	END
PHOS-DIS		MG/L P	K	6	.040000	.015492	.050000	.020000	81/10	82/05
T ORG C	C	MG/L		2	11.0000	4.24264	14.0000	8.00000	81/10	81/11
D ORG C	C	MG/L		2	8.50000	.707107	9.00000	8.00000	81/10	81/11
TOT HARD	CACO3	MG/L		9	112.000	46.9201	185.000	56.0000	81/10	82/09
CALCIUM	CA-TOT	MG/L		11	31.9454	15.2320	60.5000	15.5000	81/10	82/09
MGNSIUM	MG,TOT	MG/L		8	6.51249	2.07190	10.4000	4.20000	81/12	82/09
SODIUM	NA,TOT	MG/L		3	16.8000	10.0956	28.4000	10.0000	81/10	82/09
CHLORIDE	TOTAL	MG/L		2	21.0000	.000000	21.0000	21.0000	81/10	81/11
SULFATE	SO4-TOT	MG/L		2	33.0000	5.65685	37.0000	29.0000	81/10	81/11
SILICA	DISOLVED	MG/L		2	2.80500	3.37290	5.19000	.420000	81/10	81/11
CADMIUM	CD,TOT	UG/L	K	7	.500000	.000000	.500000	.500000	81/12	82/09
CHROMIUM	CR,TOT	UG/L	K	7	30.0000	.000000	30.0000	30.0000	81/12	82/09
COPPER	CU,TOT	UG/L	K	10	14.0000	8.43274	30.0000	10.0000	81/10	82/09
IRON	FE,TOT	UG/L		7	470.000	150.665	630.000	190.000	81/12	82/09
LEAD	PB,TOT	UG/L		1	3.00000		3.00000	3.00000	82/09	82/09
			K	10	3.80000	1.54920	5.00000	2.00000	81/10	82/08
			T	11	3.72727	1.48936	5.00000	2.00000	81/10	82/09
MANGNESE	MN	UG/L		2	55.0000	49.4975	90.0000	20.0000	82/03	82/09
NICKEL	NI,TOTAL	UG/L	K	6	48.3333	25.6256	100.000	30.0000	81/12	82/09
ZINC	ZN,TOT	UG/L		3	18.3333	10.4083	30.0000	10.0000	82/03	82/08
			K	8	15.0000	9.25820	30.0000	10.0000	81/10	82/09
			T	11	15.9091	9.17011	30.0000	10.0000	81/10	82/09
FEC COLI	MFM-FCBR	/100ML		11	52.6363	66.7402	220.000	4.00000	81/10	82/09
FECSTREP	MF M-ENT	/100ML		11	282.182	613.549	2100.00	10.0000	81/10	82/09
PHENOLS	TOTAL	UG/L		2	4.00000	2.82843	6.00000	2.00000	81/10	81/11
			K	2	10.0000	.000000	10.0000	10.0000	82/08	82/09
			T	4	7.00000	3.82971	10.0000	2.00000	81/10	82/09
PCBS	WHL SMPL	UG/L	K	11	.500000	.000000	.500000	.500000	81/10	82/09
RESIDUE	DISS-180	C MG/L		10	192.200	89.3717	408.000	110.000	81/10	82/09

TABLE RD 1-3

STATION NUMBER 502780
41 53 36.0 080 47 34.0 2
FIELDS BROOK AT ASHTABULA - 15TH ST
LAKE ERIE (ASHTABULA RIVER)
MILES 0001.50 0000.30

PARAMETER			R	NO	MEAN	STAN DEV	MAXIMUM	MINIMUM	BEG	END
WATER	TEMP	CENT		10	16.8000	8.38387	29.0000	6.00000	80/10	81/08
STREAM	FLOW,	INST-CFS		1	26.6000		26.6000	26.6000	80/11	80/11
CNDUCTVY	FIELD	MICROMHO		10	2168.50	1167.54	4900.00	900.000	80/10	81/08
CNDUCTVY	AT 25C	MICROMHO		1	1206.00		1206.00	1206.00	81/02	81/02
DO		MG/L		10	9.14000	1.61810	11.2000	6.50000	80/10	81/08
COD	LOWLEVEL	MG/L		10	27.0900	9.34490	42.0000	8.00000	80/10	81/08
PH		SU		1	8.00000		8.00000	8.00000	81/08	81/08
LAB	PH	SU		9	7.21111	.662291	7.70000	5.70000	80/10	81/07
RESIDUE	TOT NFLT	MG/L		10	45.2000	41.4482	146.000	12.0000	80/10	81/08
NH3+NH4-	N TOTAL	MG/L		10	.194000	.113745	.460000	.070000	80/11	81/08
NO2-N	TOTAL	MG/L		10	.024000	.016465	.060000	.010000	80/11	81/08
NO3-N	TOTAL	MG/L		10	.482000	.153391	.770000	.320000	80/11	81/08
TOT KJEL	N	MG/L		10	.834000	.237309	1.44000	.610000	80/11	81/08
PHOS-TOT		MG/L P		10	.115800	.036905	.159000	.061000	80/11	81/08
TOT HARD	CACO3	MG/L		11	648.454	167.046	815.000	321.000	80/10	81/08
SULFATE	SO4-TOT	MG/L		1	163.000		163.000	163.000	81/07	81/07
CADMIUM	CD,TOT	UG/L		1	8.00000		8.00000	8.00000	81/07	81/07
			K	3	5.00000	.000000	5.00000	5.00000	81/01	81/04
			T	4	5.75000	1.50000	8.00000	5.00000	81/01	81/07
CHROMIUM	CR,TOT	UG/L		2	35.0000	7.07107	40.0000	30.0000	81/04	81/07
			K	3	30.0000	.000000	30.0000	30.0000	80/11	81/02
			T	5	32.0000	4.47214	40.0000	30.0000	80/11	81/07
COPPER	CU,TOT	UG/L		2	75.0000	63.6396	120.000	30.0000	80/11	81/07
			K	9	30.0000	.000000	30.0000	30.0000	80/10	81/08
			T	11	38.1818	27.1360	120.000	30.0000	80/10	81/08
IRON	FE,TOT	UG/L		6	2968.33	2533.36	7900.00	1170.00	80/10	81/07
LEAD	PB,TOT	UG/L		3	10.0000	5.19615	16.0000	7.00000	81/01	81/07
			K	3	5.00000	.000000	5.00000	5.00000	80/10	81/04
			T	6	7.50000	4.27785	16.0000	5.00000	80/10	81/07
NICKEL	NI,TOTAL	UG/L	K	4	100.000	.000000	100.000	100.000	81/01	81/07
ZINC	ZN,TOT	UG/L		6	46.6667	19.6639	80.0000	30.0000	80/10	81/07
FEC COLI	MFM-FCBR	/100ML		9	611.666	917.579	3000.00	85.0000	80/10	81/08
FECSTREP	MF M-ENT	/100ML		7	752.286	1026.39	2900.00	19.0000	80/10	81/08

TABLE RD 1-3 (Continued)

STATION NUMBER 502780
41 53 36.0 080 47 34.0 2
FIELDS BROOK AT ASHTABULA - 15TH ST
LAKE ERIE (ASHTABULA RIVER)
MILES 0001.50 0000.30

PARAMETER			R	NO	MEAN	STAN DEV	MAXIMUM	MINIMUM	BEG	END
DICLBRMT		TOTUG/L		2	2.96500	3.14662	5.19000	.740000	80/10	80/11
			K	4	.500000	.000000	.500000	.500000	80/12	81/06
			T	6	1.32167	1.89752	5.19000	.500000	80/10	81/06
CARBNTET		TOTUG/L		6	2.63167	2.37054	6.80000	.540000	80/10	81/06
12DICLET		TOTUG/L		3	1.20000	.540280	1.73000	.650000	80/12	81/02
			K	3	.500000	.000000	.500000	.500000	80/10	81/06
			T	6	.850000	.513575	1.73000	.500000	80/10	81/06
BROMOFRM	WHL-WTR	UG/L		1	2.21000		2.21000	2.21000	80/11	80/11
BROMOFRM	WHL-WTR	UG/L	K	5	1.50000	.000000	1.50000	1.50000	80/10	81/06
			T	6	1.61833	.289857	2.21000	1.50000	80/10	81/06
CLDIBRMT		TOTUG/L		2	2.76000	2.98399	4.87000	.650000	80/10	80/11
			K	4	.500000	.000000	.500000	.500000	80/12	81/06
			T	6	1.25333	1.77281	4.87000	.500000	80/10	81/06
CHLRFORM		TOTUG/L		6	2.41833	2.95274	8.30000	.610000	80/10	81/06
PHENOLS	TOTAL	UG/L		11	12.0000	4.26615	18.0000	5.00000	80/10	81/08
METHYLEN	ECHLORID	TOTWUG/L	K	6	1.50000	.000000	1.50000	1.50000	80/10	81/06
TETRACHL	OROETHYL	TOTWUG/L		6	28.6266	14.3140	48.0800	16.3600	80/10	81/06
TRICHLOR	ETHYLENE	TOT UG/L		6	33.7833	6.14302	40.9800	25.3200	80/10	81/06
PCBS	WHL SMPL	UG/L		1	.000000		.000000	.000000	80/12	80/12
			K	5	.500000	.000000	.500000	.500000	81/01	81/07
			T	6	.416667	.204124	.500000	.000000	80/12	81/07
CHLORINE	TOT RESD	MG/L		1	.580000		.580000	.580000	80/11	80/11
			K	6	.021667	.007528	.030000	.010000	80/10	81/07
			T	7	.101428	.211142	.580000	.010000	80/10	81/07
RESIDUE	DISS-180	C MG/L		10	1558.00	455.245	2444.00	704.000	80/10	81/08
MERCURY	HG,TOTAL	UG/L		1	1.40000		1.40000	1.40000	80/11	80/11
			K	8	.500000	.000000	.500000	.500000	80/10	81/08
			T	9	.600000	.300000	1.40000	.500000	80/10	81/08
TETRACL	ETHANE	TOT UG/L		6	39.5133	8.53778	50.5300	30.9500	80/10	81/06
TRICLETH	WHL WAT	UG/L	K	3	.500000	.000000	.500000	.500000	81/01	81/06

TABLE RD 1-4

STATION NUMBER 502780
41 53 36.0 080 47 34.0 2
FIELDS BROOK AT ASHTABULA - 15TH ST
LAKE ERIE (ASHTABULA RIVER)
MILES 0001.50 0000.30

PARAMETER			R	NO	MEAN	STAN DEV	MAXIMUM	MINIMUM	BEG	END
WATER	TEMP	CENT		11	17.0000	7.26292	28.5000	7.00000	81/10	82/09
CNDUCTVY	FIELD	MICROMHO		9	2322.22	511.195	3000.00	1200.00	81/11	82/09
CNDUCTVY	AT 25C	MICROMHO		9	2601.00	419.311	3000.00	1800.00	81/12	82/09
DO	PROBE	MG/L		9	9.27777	1.67691	11.8000	6.80000	81/12	82/09
DO		MG/L		2	8.64999	.353834	8.90000	8.40000	81/10	81/11
BOD	5 DAY	MG/L		5	3.40000	1.91964	6.50000	1.80000	82/04	82/09
COD	LOWLEVEL	MG/L		10	35.3000	22.1763	95.0000	18.0000	81/11	82/09
			K	1	4.00000		4.00000	4.00000	81/10	81/10
			T	11	32.4545	23.0581	95.0000	4.00000	81/10	82/09
PH		SU		11	7.78181	.407000	8.40000	7.00000	81/10	82/09
T ALK	CACO3	MG/L		1	76.0000		76.0000	76.0000	81/11	81/11
RESIDUE	TOT NFLT	MG/L		11	16.6363	6.66745	28.0000	8.00000	81/10	82/09
NH3+NH4-	N TOTAL	MG/L		10	.149000	.125384	.490000	.050000	81/10	82/09
NO2-N	TOTAL	MG/L		5	.024000	.005477	.030000	.020000	81/10	82/09
			K	5	.026000	.013416	.050000	.020000	81/12	82/08
			T	10	.025000	.009718	.050000	.020000	81/10	82/09
NO3-N	TOTAL	MG/L		9	.387777	.096538	.580000	.250000	81/10	82/09
TOT KJEL	N	MG/L		10	.545000	.202004	.950000	.300000	81/10	82/09
PHOS-TOT		MG/L P		6	.559999	1.04238	2.67000	.050000	81/10	82/09
			K	4	.050000	.000050	.050000	.050000	82/01	82/06
			T	10	.356000	.820368	2.67000	.050000	81/10	82/09
CYANIDE	CN-TOT	MG/L	K	1	.010000		.010000	.010000	82/09	82/09
TOT HARD	CACO3	MG/L		10	702.180	363.509	1040.00	34.8000	81/10	82/09
CALCIUM	CA-TOT	MG/L		9	253.756	140.299	395.000	28.0000	81/12	82/09
MGNSIUM	MG,TOT	MG/L		9	11.6222	1.77541	14.6000	8.70000	81/12	82/09
CADMIUM	CD,TOT	UG/L		4	6.39999	10.4115	22.0000	.600000	82/01	82/06
			K	6	1.41667	1.77248	5.00000	.500000	81/10	82/09
			T	10	3.41000	6.67091	22.0000	.500000	81/10	82/09
CHROMIUM	CR,TOT	UG/L		1	30.0000		30.0000	30.0000	82/01	82/01
			K	9	30.0000	.000000	30.0000	30.0000	81/10	82/09
			T	10	30.0000	.000000	30.0000	30.0000	81/10	82/09
COPPER	CU,TOT	UG/L		9	22.0000	9.60469	45.0000	13.0000	81/12	82/09
			K	2	30.0000	.000000	30.0000	30.0000	81/10	81/11
			T	11	23.4545	9.18006	45.0000	13.0000	81/10	82/09
IRON	FE,TOT	UG/L		10	1061.00	396.189	1840.00	530.000	81/10	82/09
LEAD	PB,TOT	UG/L		1	20.0000		20.0000	20.0000	82/01	82/01
			K	9	3.33333	1.58114	5.00000	2.00000	81/10	82/09
			T	10	5.00000	5.47723	20.0000	2.00000	81/10	82/09

TABLE RD 1-4 (Continued)

STATION NUMBER 502780
41 53 36.0 080 47 34.0 2
FIELDS BROOK AT ASHTABULA - 15TH ST
LAKE ERIE (ASHTABULA RIVER)
MILES 0001.50 0000.30

PARAMETER			R	NO	MEAN	STAN DEV	MAXIMUM	MINIMUM	BEG	END
NICKEL	NI,TOTAL	UG/L	K	9	52.2222	27.2845	100.000	30.0000	81/10	82/09
ZINC	ZN,TOT	UG/L		9	16.6667	8.66028	35.0000	10.0000	81/12	82/09
			K	1	30.0000		30.0000	30.0000	81/10	81/10
ZINC	ZN,TOT	UG/L	T	10	18.0000	9.18937	35.0000	10.0000	81/10	82/09
FEC COLI	MFM-FCBR	/100ML		11	163.636	119.388	360.000	36.0000	81/10	82/09
FECSTREP	MF M-ENT	/100ML		11	599.545	1304.31	4500.00	12.0000	81/10	82/09
DICLBRMT		TOTUG/L	K	7	.500000	.000000	.500000	.500000	82/02	82/09
CARBNTET		TOTUG/L		4	1.50000	.658282	2.20000	.800000	82/02	82/06
			K	3	.500000	.000000	.500000	.500000	82/05	82/09
			T	7	1.07143	.708788	2.20000	.500000	82/02	82/09
12DICLET		TOTUG/L		1	.800000		.800000	.800000	82/02	82/02
			K	6	.500000	.000000	.500000	.500000	82/03	82/09
			T	7	.542857	.113391	.800000	.500000	82/02	82/09
BROMOFRM	WHL-WTR	UG/L		1	2.00000		2.00000	2.00000	82/06	82/06
			K	6	1.50000	.000000	1.50000	1.50000	82/02	82/09
			T	7	1.57143	.188986	2.00000	1.50000	82/02	82/09
CLDIBRMT		TOTUG/L	K	7	.500000	.000000	.500000	.500000	82/02	82/09
CHLRFORM		TOTUG/L		4	.950000	.443471	1.50000	.500000	82/02	82/06
			K	3	.500000	.000000	.500000	.500000	82/03	82/09
			T	7	.757143	.395209	1.50000	.500000	82/02	82/09
PHENOLS	TOTAL	UG/L		2	7.50000	.707107	8.00000	7.00000	81/10	81/11
			K	2	10.0000	.000000	10.0000	10.0000	82/08	82/09
			T	4	8.75000	1.50000	10.0000	7.00000	81/10	82/09
METHYLEN	ECHLORID	TOTWUG/L	K	7	1.50000	.000000	1.50000	1.50000	82/02	82/09
TETRACHL	OROETHYL	TOTWUG/L		7	23.4857	10.0305	33.2000	9.10000	82/02	82/09
TRICHLOR	ETHYLENE	TOT UG/L		7	30.5428	14.6409	48.7000	9.00000	82/02	82/09
PCBS	WHL SMPL	UG/L	K	10	.500000	.000000	.500000	.500000	81/10	82/09
HCB		TOT UG/L	K	1	.030000		.030000	.030000	82/09	82/09
CHLORINE	TOT RESD	MG/L		7	.028571	.048795	.100000	.000000	82/01	82/09
RESIDUE	DISS-180	C MG/L		11	2165.36	450.770	2810.00	1391.00	81/10	82/09
MERCURY	HG,TOTAL	UG/L	K	2	.500000	.000000	.500000	.500000	81/10	81/11
C-1,2DCE	TOTAL	UG/L		4	3.87500	1.68003	5.70000	2.00000	82/04	82/09
TETRACL	ETHANE	TOT UG/L		6	27.1000	12.4788	43.2000	10.9000	82/02	82/09
DICHLORO	ETHYLENE	TOT UG/L		3	9.86666	4.69187	15.0000	5.80000	82/02	82/06
TETRACLP	WHL WAT	UG/L		1	33.8000		33.8000	33.8000	82/03	82/03
TRICLETH	WHL WAT	UG/L		4	1.87500	.478715	2.40000	1.30000	82/04	82/08
			K	1	.500000		.500000	.500000	82/09	82/09
			T	5	1.60000	.741620	2.40000	.500000	82/04	82/09

TABLE RD 1-5

STATION NUMBER 501520
41 22 50.0 082 06 17.0 2
BLACK RIVER AT ELYRIA - CASCADE PARK
LAKE ERIE 060591 (BLACK RIVER)
MILES 0015.60

PARAMETER			R	NO	MEAN	STAN DEV	MAXIMUM	MINIMUM	BEG	END
WATER	TEMP	CENT		11	10.0455	8.45711	24.0000	.000000	80/10	81/09
STREAM	FLOW,	INST-CFS		7	719.870	1364.90	3784.00	45.8000	81/01	81/09
STREAM	STAGE	FEET		8	2.72750	2.89509	9.58000	.670000	81/01	81/09
CNDUCTVY	FIELD	MICROMHO		9	450.000	128.695	600.000	220.000	80/10	81/07
DO		MG/L		10	10.9900	2.44016	14.0000	7.60000	80/11	81/09
BOD	5 DAY	MG/L		1	10.0000		10.0000	10.0000	81/02	81/02
COD	LOWLEVEL	MG/L		12	28.3917	14.0572	63.7000	12.0000	80/10	81/09
PH		SU		2	7.95000	.070745	8.00000	7.90000	81/07	81/09
LAB	PH	SU		9	7.66666	.403196	8.10000	6.90000	80/10	81/08
RESIDUE	TOT NFLT	MG/L		8	96.1250	161.540	494.000	16.0000	80/12	81/09
			K	4	10.0000	.000000	10.0000	10.0000	80/10	81/03
			T	12	67.4167	135.662	494.000	10.0000	80/10	81/09
NH3+NH4-	N TOTAL	MG/L		12	.323333	.276252	1.09000	.080000	80/10	81/09
NO2-N	TOTAL	MG/L		12	.060000	.027634	.120000	.020000	80/10	81/09
NO3-N	TOTAL	MG/L		12	1.85166	1.36000	4.34000	.500000	80/10	81/09
TOT KJEL	N	MG/L		12	1.40417	.531761	2.85000	.810000	80/10	81/09
PHOS-TOT		MG/L P		12	.256166	.124036	.599000	.140000	80/10	81/09
TOT HARD	CACO3	MG/L		6	249.500	90.8091	380.000	139.000	80/11	81/09
CADMIUM	CD,TOT	UG/L	K	6	5.00000	.000000	5.00000	5.00000	80/11	81/09
CHROMIUM	CR,TOT	UG/L	K	5	30.0000	.000000	30.0000	30.0000	80/11	81/09
COPPER	CU,TOT	UG/L		2	130.000	141.421	230.000	30.0000	80/11	81/02
			K	4	30.0000	.000000	30.0000	30.0000	81/01	81/09
			T	6	63.3333	81.6497	230.000	30.0000	80/11	81/09
IRON	FE,TOT	UG/L		6	4360.00	7198.42	19000.0	650.000	80/11	81/09
LEAD	PB,TOT	UG/L		5	9.40000	8.26438	24.0000	5.00000	80/11	81/09
			K	1	5.00000		5.00000	5.00000	81/04	81/04
			T	6	8.66667	7.60702	24.0000	5.00000	80/11	81/09
NICKEL	NI,TOTAL	UG/L		1	200.000		200.000	200.000	80/11	80/11
			K	5	100.000	.000000	100.000	100.000	81/01	81/09
			T	6	116.667	40.8249	200.000	100.000	80/11	81/09
ZINC	ZN,TOT	UG/L		3	60.0000	26.4575	80.0000	30.0000	80/11	81/04
			K	3	30.0000	.000000	30.0000	30.0000	81/01	81/09
			T	6	45.0000	23.4521	80.0000	30.0000	80/11	81/09
FEC COLI	MFM-FCBR	/100ML		11	3036.36	2027.94	8200.00	1100.00	80/10	81/09
FECSTREP	MF M-ENT	/100ML		8	7896.25	14387.0	42000.0	300.000	80/10	81/07
PHENOLS	TOTAL	UG/L		6	8.00000	3.22490	12.0000	4.00000	80/11	81/09
MBAS		MG/L		1	.110000		.110000	.110000	81/09	81/09
RESIDUE	DISS-180	C MG/L		12	394.250	153.269	696.000	150.000	80/10	81/09
MERCURY	HG,TOTAL	UG/L	K	6	.500000	.000000	.500000	.500000	80/11	81/09

TABLE RD 1-6

STATION NUMBER 501520
41 22 50.0 082 06 17.0 2
BLACK RIVER AT ELYRIA - CASCADE PARK
LAKE ERIE 060591 (BLACK RIVER)
MILES 0015.60

PARAMETER			R	NO	MEAN	STAN DEV	MAXIMUM	MINIMUM	BEG	END
WATER	TEMP	CENT		11	10.6818	8.06620	22.5000	1.00000	81/10	82/09
STREAM	FLOW	CFS		8	1058.07	1557.32	3607.00	9.46000	82/01	82/09
STREAM	FLOW,	INST-CFS		2	29.7500	1.20241	30.6000	28.9000	81/10	81/11
STREAM	STAGE	FEET		9	2.36444	2.71140	8.78000	.550000	81/10	82/09
TURB	TRBIDMTR	HACH FTU		2	5.50000	1.41421	6.50000	4.50000	81/10	81/11
CNDUCTVY	FIELD	MICROMHO		10	508.500	200.334	750.000	140.000	81/10	82/09
CNDUCTVY	AT 25C	MICROMHO		7	586.428	197.546	817.000	270.000	81/10	82/08
DO	PROBE	MG/L		9	10.8578	3.19399	14.8000	5.50000	81/12	82/09
DO		MG/L		2	10.5500	1.48499	11.6000	9.50000	81/10	81/11
BOD	5 DAY	MG/L		2	6.00000	.848529	6.60000	5.40000	82/04	82/05
COD	LOWLEVEL	MG/L		11	36.2727	13.3574	70.0000	25.0000	81/10	82/09
PH		SU		8	8.13749	.254699	8.35000	7.70000	81/11	82/09
LAB	PH	SU		3	7.67000	.168286	7.80000	7.48000	81/10	82/01
T ALK	CACO3	MG/L		2	182.500	31.8198	205.000	160.000	81/10	81/11
RESIDUE	TOT NFLT	MG/L		8	132.250	269.374	792.000	7.00000	82/01	82/09
			K	2	10.0000	.000000	10.0000	10.0000	81/10	81/11
			T	10	107.800	243.093	792.000	7.00000	81/10	82/09
OIL-GRSE	FREON-GR	MG/L	K	1	5.00000		5.00000	5.00000	81/11	81/11
NH3+NH4-	N TOTAL	MG/L		10	.191000	.092310	.400000	.090000	81/10	82/09
			K	1	.050000		.050000	.050000	82/04	82/04
			T	11	.178181	.097347	.400000	.050000	81/10	82/09
NO2-N	TOTAL	MG/L		8	.056250	.026152	.100000	.030000	81/12	82/09
NO3-N	TOTAL	MG/L		11	1.21545	1.06864	3.07000	.110000	81/10	82/09
TOT KJEL	N	MG/L		11	1.37273	.675427	2.90000	.700000	81/10	82/09
PHOS-TOT		MG/L P		11	.297000	.177671	.800000	.150000	81/10	82/09
PHOS-DIS		MG/L P		3	.189333	.018475	.200000	.168000	81/10	81/12
T ORG C	C	MG/L		2	10.5000	.707107	11.0000	10.0000	81/10	81/11
D ORG C	C	MG/L		2	12.0000	.000000	12.0000	12.0000	81/10	81/11

TABLE RD 1-6 (Continued)

STATION NUMBER 501520
41 22 50.0 082 06 17.0 2
BLACK RIVER AT ELYRIA - CASCADE PARK
LAKE ERIE 060591 (BLACK RIVER)
MILES 0015.60

PARAMETER			R	NO	MEAN	STAN DEV	MAXIMUM	MINIMUM	BEG	END
TOT HARD	CACO3	MG/L		6	271.666	58.0377	334.000	166.000	81/10	82/09
CALCIUM	CA-TOT	MG/L		6	75.4250	19.7124	96.0000	40.5000	81/10	82/09
MGNSIUM	MG,TOT	MG/L		4	19.9000	3.06597	23.2000	15.8000	81/12	82/09
SODIUM	NA,TOT	MG/L		2	50.5000	2.12132	52.0000	49.0000	81/10	81/11
CHLORIDE	TOTAL	MG/L		2	59.0000	1.41421	60.0000	58.0000	81/10	81/11
SULFATE	SO4-TOT	MG/L		2	145.000	21.2132	160.000	130.000	81/10	81/11
SILICA	DISOLVED	MG/L		2	2.18000	1.00409	2.89000	1.47000	81/10	81/11
CADMIUM	CD,TOT	UG/L		1	1.30000		1.30000	1.30000	82/03	82/03
			K	5	2.36000	2.41309	5.00000	.500000	81/10	82/09
			T	6	2.18333	2.20129	5.00000	.500000	81/10	82/09
CHROMIUM	CR,TOT	UG/L	K	6	30.0000	.000000	30.0000	30.0000	81/10	82/09
COPPER	CU,TOT	UG/L		5	22.0000	10.3682	35.0000	10.0000	81/10	82/09
			K	1	30.0000		30.0000	30.0000	81/11	81/11
COPPER	CU,TOT	UG/L	T	6	23.3333	9.83194	35.0000	10.0000	81/10	82/09
IRON	FE,TOT	UG/L		4	9087.50	16312.1	33550.0	480.000	81/12	82/09
LEAD	PB,TOT	UG/L		3	8.33333	9.29158	19.0000	2.00000	82/03	82/09
			K	2	5.00000	.000000	5.00000	5.00000	81/11	81/12
			T	5	7.00000	6.81909	19.0000	2.00000	81/11	82/09
NICKEL	NI,TOTAL	UG/L	K	4	35.0000	5.77350	40.0000	30.0000	81/12	82/09
ZINC	ZN,TOT	UG/L		4	52.5000	50.0833	125.000	10.0000	81/12	82/09
			K	2	30.0000	.000000	30.0000	30.0000	81/10	81/11
			T	6	45.0000	40.4969	125.000	10.0000	81/10	82/09
FEC COLI	MFM-FCBR	/100ML		11	8018.18	14819.3	52000.0	900.000	81/10	82/09
FECSTREP	MF M-ENT	/100ML		11	11320.9	17867.9	48000.0	320.000	81/10	82/09
PHENOLS	TOTAL	UG/L		2	5.50000	2.12132	7.00000	4.00000	81/10	81/11
			K	1	10.0000		10.0000	10.0000	82/09	82/09
			T	3	7.00000	3.00000	10.0000	4.00000	81/10	82/09
RESIDUE	DISS-180 C	MG/L		9	419.222	116.772	568.000	189.000	81/10	82/09

TABLE RD 1-7

STATION NUMBER 501510
41 24 42.0 082 05 45.0 2
BLACK RIVER BELOW ELYRIA - FORD RD
LAKE ERIE 060591 (BLACK RIVER)
MILES 0010.40

PARAMETER			R	NO	MEAN	STAN DEV	MAXIMUM	MINIMUM	BEG	END
WATER	TEMP	CENT		12	11.4167	8.20707	23.0000	1.00000	80/10	81/09
TURB	TRBIDMTR	HACH FTU		12	40.0500	75.2610	275.000	4.40000	80/10	81/09
CNDUCTVY	FIELD	MICROMHO		8	554.375	211.954	850.000	230.000	80/10	81/07
CNDUCTVY	AT 25C	MICROMHO		8	622.000	400.660	1544.00	263.000	80/12	81/08
DO		MG/L		11	9.54545	2.84408	14.1000	5.70000	80/10	81/09
COD	LOWLEVEL	MG/L		12	35.1333	14.6954	69.7000	16.0000	80/10	81/09
PH		SU		2	7.75000	.070745	7.80000	7.70000	81/07	81/09
LAB	PH	SU		9	7.59999	.444489	8.10000	6.80000	80/10	81/08
T ALK	CACO3	MG/L		12	145.583	39.5026	203.000	62.0000	80/10	81/09
RESIDUE	TOT NFLT	MG/L		9	82.8889	147.049	473.000	14.0000	80/11	81/09
			K	3	10.0000	.000000	10.0000	10.0000	80/10	81/08
			T	12	64.6667	129.664	473.000	10.0000	80/10	81/09
NH3+NH4-	N TOTAL	MG/L		12	2.98166	2.31959	7.38000	.450000	80/10	81/09
NO2-N	TOTAL	MG/L		12	.107500	.056428	.230000	.040000	80/10	81/09
NO3-N	TOTAL	MG/L		12	1.81416	1.36988	4.25000	.350000	80/10	81/09
TOT KJEL	N	MG/L		12	4.48666	2.36193	8.74000	1.61000	80/10	81/09
PHOS-TOT		MG/L P		12	.738750	.461196	1.61000	.261000	80/10	81/09
PHOS-DIS		MG/L P		12	.542000	.443868	1.49000	.129000	80/10	81/09
T ORG C	C	MG/L		4	19.2500	4.57347	26.0000	16.0000	81/01	81/07
D ORG C	C	MG/L		4	11.7500	1.70782	14.0000	10.0000	81/01	81/07
TOT HARD	CACO3	MG/L		11	249.091	55.8865	365.000	145.000	80/10	81/09
CALCIUM	CA-TOT	MG/L		9	70.7778	18.7136	106.000	39.0000	80/11	81/08
SODIUM	NA,TOT	MG/L		9	62.4444	48.7625	165.000	20.0000	80/11	81/08
CHLORIDE	TOTAL	MG/L		11	80.6363	54.1079	223.000	35.0000	80/10	81/09
SULFATE	SO4-TOT	MG/L		12	133.667	39.9098	203.000	64.0000	80/10	81/09
SILICA	DISOLVED	MG/L		12	6.59166	1.63317	9.90000	4.35000	80/10	81/09
ARSENIC	AS,TOT	UG/L	K	3	10.0000	.000000	10.0000	10.0000	81/04	81/09
CADMIUM	CD,TOT	UG/L		1	6.00000		6.00000	6.00000	80/11	80/11
			K	10	5.00000	.000000	5.00000	5.00000	80/10	81/09
			T	11	5.09091	.301526	6.00000	5.00000	80/10	81/09
CHROMIUM	CR,TOT	UG/L		1	50.0000		50.0000	50.0000	81/01	81/01
			K	9	30.0000	.000000	30.0000	30.0000	80/11	81/09
			T	10	32.0000	6.32456	50.0000	30.0000	80/11	81/09

TABLE RD 1-7 (Continued)

STATION NUMBER 501510
41 24 42.0 082 05 45.0 2
BLACK RIVER BELOW ELYRIA - FORD RD
LAKE ERIE 060591 (BLACK RIVER)
MILES 0010.40

PARAMETER			R	NO	MEAN	STAN DEV	MAXIMUM	MINIMUM	BEG	END
COPPER	CU,TOT	UG/L		6	55.0000	46.7974	150.000	30.0000	80/10	81/09
			K	5	30.0000	.000000	30.0000	30.0000	81/03	81/07
			T	11	43.6363	35.5732	150.000	30.0000	80/10	81/09
IRON	FE,TOT	UG/L		7	4262.85	6982.82	20000.0	740.000	80/11	81/09
LEAD	PB,TOT	UG/L		5	14.6000	13.3154	38.0000	5.00000	80/11	81/09
			K	1	5.00000		5.00000	5.00000	81/04	81/04
			T	6	13.0000	12.5379	38.0000	5.00000	80/11	81/09
MANGNESE	MN	UG/L		2	115.000	7.07107	120.000	110.000	81/07	81/09
NICKEL	NI,TOTAL	UG/L		4	100.000	.000000	100.000	100.000	80/11	81/07
			K	2	100.000	.000000	100.000	100.000	81/04	81/09
			T	6	100.000	.000000	100.000	100.000	80/11	81/09
VANADIUM	V,TOT	UG/L	K	3	80.0000	103.923	200.000	20.0000	81/04	81/09
ZINC	ZN,TOT	UG/L		10	60.0000	29.0593	120.000	30.0000	80/10	81/09
			K	2	30.0000	.000000	30.0000	30.0000	81/03	81/05
			T	12	55.0000	28.7623	120.000	30.0000	80/10	81/09
ALUMINUM	AL,TOT	UG/L		3	800.000	346.410	1200.00	600.000	81/04	81/09
SELENIUM	SE,TOT	UG/L	K	3	68.3333	54.8483	100.000	5.00000	81/04	81/09
FEC COLI	MFM-FCBR	/100ML		9	3544.44	4239.73	14000.0	300.000	80/10	81/09
FECSTREP	MF M-ENT	/100ML		9	11066.7	17792.1	55000.0	200.000	80/10	81/07
PHENOLS	TOTAL	UG/L		12	8.41667	4.10008	17.0000	3.00000	80/10	81/09
DIETHYLP	HTHALATE	TOTWUG/L	K	8	100.000	.000000	100.000	100.000	80/11	81/08
DIMETHYL	PHTHALAT	TOTWUG/L	K	8	100.000	.000000	100.000	100.000	80/11	81/08
MBAS		MG/L		3	.163333	.051316	.220000	.120000	80/11	81/09
PCBS	WHL SMPL	UG/L	K	8	.500000	.000000	.500000	.500000	80/11	81/08
RESIDUE	DISS-180	C MG/L		12	472.666	164.480	862.000	240.000	80/10	81/09
MERCURY	HG,TOTAL	UG/L		1	1.20000		1.20000	1.20000	81/09	81/09
			K	5	.500000	.000000	.500000	.500000	80/11	81/07
			T	6	.616667	.285774	1.20000	.500000	80/11	81/09

TABLE RD 1-8

STATION NUMBER 501510
41 24 42.0 082 05 45.0 2
BLACK RIVER BELOW ELYRIA - FORD RD
LAKE ERIE 060591 (BLACK RIVER)
MILES 0010.40

PARAMETER			R	NO	MEAN	STAN DEV	MAXIMUM	MINIMUM	BEG	END
WATER	TEMP	CENT		11	10.6364	7.81374	23.0000	1.00000	81/10	82/09
STREAM	STAGE	FEET		9	32.0255	13.8723	52.2000	20.4800	81/11	82/08
TURB	TRBIDMTR	HACH FTU		2	4.65000	.494985	5.00000	4.30000	81/10	81/11
CNDUCTVY	FIELD	MICROMHO		10	628.500	308.519	1200.00	155.000	81/10	82/09
CNDUCTVY	AT 25C	MICROMHO		9	707.889	291.455	1110.00	300.000	81/10	82/09
DO	PROBE	MG/L		9	9.89999	4.10793	14.6000	3.20000	81/12	82/09
DO		MG/L		2	8.55000	.353726	8.80000	8.30000	81/10	81/11
BOD	5 DAY	MG/L		2	9.64999	4.73764	13.0000	6.30000	82/04	82/05
COD	LOWLEVEL	MG/L		11	41.0909	19.8165	88.0000	22.0000	81/10	82/09
PH		SU		8	7.88749	.235784	8.10000	7.50000	81/11	82/09
LAB	PH	SU		3	7.59666	.273967	7.84000	7.30000	81/10	82/01
T ALK	CACO3	MG/L		2	189.000	18.3848	202.000	176.000	81/10	81/11
RESIDUE	TOT NFLT	MG/L		9	116.778	221.327	691.000	7.00000	81/12	82/09
			K	2	10.0000	.000000	10.0000	10.0000	81/10	81/11
			T	11	97.3636	202.618	691.000	7.00000	81/10	82/09
NH3+NH4-	N TOTAL	MG/L		11	3.02818	2.84522	7.65000	.210000	81/10	82/09
NO2-N	TOTAL	MG/L		8	.087500	.065629	.190000	.020000	81/12	82/09
NO3-N	TOTAL	MG/L		11	1.44545	1.09389	3.03000	.050000	81/10	82/09
KJELDL N	DISS	MG/L		1	2.20000		2.20000	2.20000	81/12	81/12
TOT KJEL	N	MG/L		10	4.18800	3.43602	12.0000	1.45000	81/10	82/09
PHOS-TOT		MG/L P		11	1.02727	.961812	3.55000	.310000	81/10	82/09
PHOS-DIS		MG/L P		8	.496249	.551464	1.44000	.070000	81/10	82/06
T ORG C	C	MG/L		2	12.5000	.707107	13.0000	12.0000	81/10	81/11
D ORG C	C	MG/L		2	12.5000	2.12132	14.0000	11.0000	81/10	81/11
TOT HARD	CACO3	MG/L		9	226.902	70.1758	310.000	96.0000	81/10	82/09
CALCIUM	CA-TOT	MG/L		11	63.8635	20.5903	94.0000	25.4000	81/10	82/09
MGNSIUM	MG,TOT	MG/L		8	18.5125	5.43391	25.2000	8.00000	81/12	82/09

TABLE RD 1-8 (Continued)

STATION NUMBER 501510
41 24 42.0 082 05 45.0 2
BLACK RIVER BELOW ELYRIA - FORD RD
LAKE ERIE 060591 (BLACK RIVER)
MILES 0010.40

PARAMETER			R	NO	MEAN	STAN DEV	MAXIMUM	MINIMUM	BEG	END
SODIUM	NA,TOT	MG/L		3	107.100	16.7530	119.300	88.0000	81/10	82/09
CHLORIDE	TOTAL	MG/L		2	110.500	6.36396	115.000	106.000	81/10	81/11
SULFATE	SO4-TOT	MG/L		2	168.500	17.6777	181.000	156.000	81/10	81/11
SILICA	DISOLVED	MG/L		2	5.09000	1.56978	6.20000	3.98000	81/10	81/11
CADMIUM	CD,TOT	UG/L		10	2.29000	1.85500	6.00000	1.00000	81/10	82/09
			K	1	5.00000		5.00000	5.00000	81/11	81/11
			T	11	2.53636	1.94024	6.00000	1.00000	81/10	82/09
CHROMIUM	CR,TOT	UG/L	K	11	28.1818	6.03033	30.0000	10.0000	81/10	82/09
COPPER	CU,TOT	UG/L		11	28.6363	17.3337	70.0000	15.0000	81/10	82/09
IRON	FE,TOT	UG/L		8	4880.00	10638.8	31120.0	430.000	81/12	82/09
LEAD	PB,TOT	UG/L		8	7.35000	5.77754	20.0000	2.00000	82/01	82/09
			K	2	5.00000	.000000	5.00000	5.00000	81/11	81/12
			T	10	6.88000	5.19076	20.0000	2.00000	81/11	82/09
MANGNESE	MN	UG/L		2	265.000	240.416	435.000	95.0000	82/03	82/09
NICKEL	NI,TOTAL	UG/L		2	40.0000	14.1421	50.0000	30.0000	82/03	82/09
			K	4	40.0000	.000000	40.0000	40.0000	81/12	82/06
			T	6	40.0000	6.32456	50.0000	30.0000	81/12	82/09
ZINC	ZN,TOT	UG/L		11	42.2727	30.8516	115.000	20.0000	81/10	82/09
FEC COLI	MFM-FCBR	/100ML		11	7575.45	9245.73	30000.0	210.000	81/10	82/09
FECSTREP	MF M-ENT	/100ML		11	10043.7	15434.2	44000.0	91.0000	81/10	82/09
PHENOLS	TOTAL	UG/L		3	10.0000	7.81025	19.0000	5.00000	81/10	82/09
			K	1	10.0000		10.0000	10.0000	82/08	82/08
			T	4	10.0000	6.37704	19.0000	5.00000	81/10	82/09
DIETHYLP	HTHALATE	TOTWUG/L	K	2	100.000	.000000	100.000	100.000	82/03	82/05
DIMETHYL	PHTHALAT	TOTWUG/L	K	2	100.000	.000000	100.000	100.000	82/03	82/05
PCBS	WHL SMPL	UG/L	K	8	.500000	.000000	.500000	.500000	81/11	82/09
RESIDUE	DISS-180	C MG/L		11	445.727	151.688	664.000	198.000	81/10	82/09

TABLE RD 1-9

STATION NUMBER 502400
41 37 51.0 081 24 13.0 2
CHAGRIN RIVER AT WILLOUGHBY - RIDGE RD (SR 84)
LAKE ERIE 060691 (CHAGRIN RIVER)
MILES 0005.00

PARAMETER			R	NO	MEAN	STAN DEV	MAXIMUM	MINIMUM	BEG	END
WATER	TEMP	CENT		12	10.0833	8.64143	24.0000	.000000	80/10	81/09
STREAM	FLOW,	INST-CFS		8	467.762	311.788	1016.00	123.700	80/12	81/07
STREAM	STAGE	FEET		12	2.97916	1.62540	7.68000	1.05000	80/10	81/09
TURB	TRBIDMTR	HACH FTU		12	15.2875	20.8078	69.0000	1.20000	80/10	81/09
CNDUCTVY	FIELD	MICROMHO		10	332.900	73.6191	460.000	210.000	80/10	81/09
CNDUCTVY	AT 25C	MICROMHO		7	499.286	178.874	894.000	364.000	81/02	81/09
DO		MG/L		11	10.5454	2.31490	14.4000	7.20000	80/10	81/09
COD	LOWLEVEL	MG/L		9	14.4333	9.59114	33.4000	4.00000	80/10	81/06
			K	2	6.00000	.000000	6.00000	6.00000	81/07	81/08
			T	11	12.9000	9.23201	33.4000	4.00000	80/10	81/08
PH		SU		2	8.20000	.283008	8.40000	8.00000	81/07	81/09
LAB	PH	SU		11	7.67272	.534982	8.20000	6.40000	80/10	81/08
T ALK	CACO3	MG/L		11	134.636	47.9381	260.000	71.0000	80/10	81/09
RESIDUE	TOT NFLT	MG/L		7	48.4286	44.7656	136.000	10.0000	81/01	81/09
			K	5	10.0000	.000000	10.0000	10.0000	80/10	81/08
			T	12	32.4167	38.5309	136.000	10.0000	80/10	81/09
NH3+NH4-	N TOTAL	MG/L		7	.117143	.095867	.330000	.050000	80/12	81/09
			K	5	.050000	.000061	.050000	.050000	80/10	81/08
			T	12	.089166	.078793	.330000	.050000	80/10	81/09
NO2-N	TOTAL	MG/L		7	.028571	.029681	.090000	.010000	81/01	81/08
			K	4	.010000	.000000	.010000	.010000	80/10	81/05
			T	11	.021818	.024827	.090000	.010000	80/10	81/08
NO3-N	TOTAL	MG/L		9	.592222	.441808	1.20000	.060000	80/11	81/09
			K	3	.050000	.000075	.050000	.050000	80/10	81/08
			T	12	.456666	.449552	1.20000	.050000	80/10	81/09
TOT KJEL	N	MG/L		12	.460833	.197137	.910000	.210000	80/10	81/09
PHOS-TOT		MG/L P		12	.096083	.058109	.224000	.026000	80/10	81/09
PHOS-DIS		MG/L P		12	.057250	.040915	.132000	.010000	80/10	81/09
T ORG C	C	MG/L		5	10.0000	2.12132	13.0000	7.00000	81/01	81/09
D ORG C	C	MG/L		6	8.16667	1.16906	10.0000	7.00000	81/01	81/09
TOT HARD	CACO3	MG/L		8	187.125	56.9547	304.000	121.000	80/11	81/09
CALCIUM	CA-TOT	MG/L		10	56.9000	16.2444	91.0000	35.0000	80/11	81/09
SODIUM	NA,TOT	MG/L		10	57.2000	77.3302	275.000	24.0000	80/11	81/09
CHLORIDE	TOTAL	MG/L		12	90.8333	119.158	447.000	35.0000	80/10	81/09

TABLE RD 1-9 (Continued)

STATION NUMBER 502400
41 37 51.0 081 24 13.0 2
CHAGRIN RIVER AT WILLOUGHBY - RIDGE RD (SR 84)
LAKE ERIE 060691 (CHAGRIN RIVER)
MILES 0005.00

PARAMETER			R	NO	MEAN	STAN DEV	MAXIMUM	MINIMUM	BEG	END
SULFATE	SO4-TOT	MG/L		12	58.7500	16.6576	99.0000	40.0000	80/10	81/09
SILICA	DISOLVED	MG/L		12	4.40916	2.11806	7.10000	.520000	80/10	81/09
ARSENIC	AS,TOT	UG/L	K	1	10.0000		10.0000	10.0000	81/04	81/04
CADMIUM	CD,TOT	UG/L	K	6	5.83333	2.04125	10.0000	5.00000	80/11	81/09
CHROMIUM	CR,TOT	UG/L		1	30.0000		30.0000	30.0000	81/01	81/01
			K	5	30.0000	.000000	30.0000	30.0000	80/11	81/09
			T	6	30.0000	.000000	30.0000	30.0000	80/11	81/09
COPPER	CU,TOT	UG/L		1	30.0000		30.0000	30.0000	81/07	81/07
			K	5	30.0000	.000000	30.0000	30.0000	80/11	81/09
			T	6	30.0000	.000000	30.0000	30.0000	80/11	81/09
IRON	FE,TOT	UG/L		6	2223.33	2515.86	6600.00	180.000	80/11	81/09
LEAD	PB,TOT	UG/L		1	7.00000		7.00000	7.00000	81/01	81/01
			K	5	5.00000	.000000	5.00000	5.00000	80/11	81/09
			T	6	5.33333	.816509	7.00000	5.00000	80/11	81/09
MANGNESE	MN	UG/L		1	70.0000		70.0000	70.0000	81/04	81/04
NICKEL	NI,TOTAL	UG/L	K	6	100.000	.000000	100.000	100.000	80/11	81/09
VANADIUM	V,TOT	UG/L	K	1	100.000		100.000	100.000	81/04	81/04
ZINC	ZN,TOT	UG/L		1	50.0000		50.0000	50.0000	81/01	81/01
			K	5	30.0000	.000000	30.0000	30.0000	80/11	81/09
			T	6	33.3333	8.16500	50.0000	30.0000	80/11	81/09
ALUMINUM	AL,TOT	UG/L		1	400.000		400.000	400.000	81/04	81/04
SELENIUM	SE,TOT	UG/L	K	1	25.0000		25.0000	25.0000	81/04	81/04
FEC COLI	MFM-FCBR	/100ML		10	1274.10	2626.20	8700.00	140.000	80/11	81/09
FECSTREP	MF M-ENT	/100ML		10	676.000	847.810	2200.00	20.0000	80/11	81/09
PHENOLS	TOTAL	UG/L		10	4.90000	1.85293	8.00000	2.00000	80/10	81/09
			K	2	2.00000	.000000	2.00000	2.00000	81/07	81/08
			T	12	4.41667	2.02073	8.00000	2.00000	80/10	81/09
MBAS		MG/L		1	.080000		.080000	.080000	80/10	80/10
PCBS	WHL SMPL	UG/L	K	10	.500000	.000000	.500000	.500000	80/12	81/09
RESIDUE	DISS-180	C MG/L		11	383.000	251.585	1096.00	230.000	80/10	81/09
MERCURY	HG,TOTAL	UG/L	K	6	.500000	.000000	.500000	.500000	80/11	81/09

TABLE RD 1-10

STATION NUMBER 502400
41 37 51.0 081 24 13.0 2
CHAGRIN RIVER AT WILLOUGHBY - RIDGE RD (SR 84)
LAKE ERIE 060691 (CHAGRIN RIVER)
MILES 0005.00

PARAMETER			R	NO	MEAN	STAN DEV	MAXIMUM	MINIMUM	BEG	END
WATER	TEMP	CENT		11	8.31818	7.81432	22.0000	.000000	81/10	82/09
STREAM	FLOW	CFS		6	2072.38	3006.62	6491.00	70.8000	81/12	82/08
STREAM	FLOW,	INST-CFS		3	3343.00	2835.54	5083.00	71.0000	81/10	82/09
STREAM	STAGE	FEET		9	4.90444	3.06976	8.98000	2.18000	81/10	82/09
TURB	TRBIDMTR	HACH FTU		2	2.90000	.707107	3.40000	2.40000	81/10	81/11
CNDUCTVY	FIELD	MICROMHO		11	359.545	95.7987	530.000	250.000	81/10	82/09
CNDUCTVY	AT 25C	MICROMHO		9	560.778	155.203	950.000	420.000	81/10	82/09
DO	PROBE	MG/L		9	10.5889	2.51171	13.3000	6.40000	81/12	82/09
DO		MG/L		2	12.3000	1.13149	13.1000	11.5000	81/10	81/11
BOD	5 DAY	MG/L		2	1.50000	.707107	2.00000	1.00000	82/03	82/05
			K	1	1.00000		1.00000	1.00000	82/04	82/04
			T	3	1.33333	.577352	2.00000	1.00000	82/03	82/05
COD	LOWLEVEL	MG/L		9	14.5556	5.50253	21.0000	7.00000	81/10	82/09
			K	2	4.00000	.000000	4.00000	4.00000	81/12	82/01
			T	11	12.6364	6.51572	21.0000	4.00000	81/10	82/09
PH		SU		11	8.38181	.312539	8.80000	7.90000	81/10	82/09
T ALK	CACO3	MG/L		2	143.000	9.89949	150.000	136.000	81/10	81/11
RESIDUE	TOT NFLT	MG/L		7	19.8571	14.4618	47.0000	6.00000	82/02	82/09
			K	4	7.50000	2.88675	10.0000	5.00000	81/10	82/01
			T	11	15.3636	12.9172	47.0000	5.00000	81/10	82/09
NH3+NH4-	N TOTAL	MG/L		4	.137500	.107199	.240000	.040000	81/12	82/06
			K	7	.050000	.000056	.050000	.050000	81/10	82/09
			T	11	.081818	.073460	.240000	.040000	81/10	82/09
NO2-N	TOTAL	MG/L		3	.033333	.015275	.050000	.020000	82/02	82/09
			K	5	.020000	.000020	.020000	.020000	81/12	82/08
			T	8	.025000	.010690	.050000	.020000	81/12	82/09
NO3-N	TOTAL	MG/L		8	.538750	.295366	.870000	.070000	81/10	82/09
			K	3	.050000	.000075	.050000	.050000	81/11	82/08
			T	11	.405454	.336433	.870000	.050000	81/10	82/09
TOT KJEL	N	MG/L		11	.405454	.118606	.600000	.200000	81/10	82/09
PHOS-TOT		MG/L P		7	.090143	.048071	.160000	.044000	81/10	82/09
			K	3	.050000	.000075	.050000	.050000	81/12	82/05
			T	10	.078100	.043778	.160000	.044000	81/10	82/09
PHOS-DIS		MG/L P		5	.053000	.019313	.070000	.029000	81/10	82/06
			K	1	.050000		.050000	.050000	81/12	81/12
			T	6	.052500	.017318	.070000	.029000	81/10	82/06

TABLE RD 1-10 (Continued)

STATION NUMBER 502400
41 37 51.0 081 24 13.0 2
CHAGRIN RIVER AT WILLOUGHBY - RIDGE RD (SR 84)
LAKE ERIE 060691 (CHAGRIN RIVER)
MILES 0005.00

PARAMETER			R	NO	MEAN	STAN DEV	MAXIMUM	MINIMUM	BEG	END
T ORG C	C	MG/L		2	11.5000	7.77817	17.0000	6.00000	81/10	81/11
D ORG C	C	MG/L		2	6.00000	.000000	6.00000	6.00000	81/10	81/11
TOT HARD	CACO3	MG/L		7	175.571	24.4261	216.000	145.000	81/12	82/09
CALCIUM	CA-TOT	MG/L		11	53.7908	7.90834	67.0000	41.5000	81/10	82/09
MGNSIUM	MG,TOT	MG/L		9	13.0556	2.16744	16.6000	10.0000	81/12	82/09
SODIUM	NA,TOT	MG/L		3	33.1667	8.80820	42.5000	25.0000	81/10	82/09
CHLORIDE	TOTAL	MG/L		2	42.0000	5.65685	46.0000	38.0000	81/10	81/11
SULFATE	SO4-TOT	MG/L		2	52.5000	2.12132	54.0000	51.0000	81/10	81/11
SILICA	DISOLVED	MG/L		2	2.58500	2.17082	4.12000	1.05000	81/10	81/11
CADMIUM	CD,TOT	UG/L	K	7	.500000	.000000	.500000	.500000	81/12	82/09
CHROMIUM	CR,TOT	UG/L	K	6	30.0000	.000000	30.0000	30.0000	81/12	82/09
COPPER	CU,TOT	UG/L		2	10.0000	.000000	10.0000	10.0000	82/02	82/03
			K	4	10.0000	.000000	10.0000	10.0000	81/12	82/09
			T	6	10.0000	.000000	10.0000	10.0000	81/12	82/09
IRON	FE,TOT	UG/L		7	970.000	603.876	2060.00	200.000	81/12	82/09
LEAD	PB,TOT	UG/L		2	2.50000	.707107	3.00000	2.00000	82/06	82/09
			K	9	4.00000	1.50000	5.00000	2.00000	81/10	82/08
			T	11	3.72727	1.48936	5.00000	2.00000	81/10	82/09
MANGNESE	MN	UG/L		1	65.0000		65.0000	65.0000	82/03	82/03
NICKEL	NI,TOTAL	UG/L	K	6	36.6667	5.16410	40.0000	30.0000	81/12	82/09
ZINC	ZN,TOT	UG/L		3	30.0000	18.0278	45.0000	10.0000	82/02	82/09
			K	3	10.0000	.000000	10.0000	10.0000	81/12	82/06
			T	6	20.0000	15.8114	45.0000	10.0000	81/12	82/09
FEC COLI	MFM-FCBR	/100ML		10	372.700	652.876	2200.00	20.0000	81/10	82/09
			K	1	23.0000		23.0000	23.0000	82/03	82/03
			T	11	340.909	628.283	2200.00	20.0000	81/10	82/09
FECSTREP	MF M-ENT	/100ML		11	796.454	1503.76	4300.00	15.0000	81/10	82/09
PHENOLS	TOTAL	UG/L		1	2.00000		2.00000	2.00000	81/10	81/10
			K	3	7.33333	4.61881	10.0000	2.00000	81/11	82/09
			T	4	6.00000	4.61880	10.0000	2.00000	81/10	82/09
PCBS	WHL SMPL	UG/L		1	.730000		.730000	.730000	82/08	82/08
			K	9	.500000	.000000	.500000	.500000	81/11	82/09
			T	10	.523000	.072733	.730000	.500000	81/11	82/09
RESIDUE	DISS-180 C	MG/L		10	341.300	74.1245	515.000	259.000	81/10	82/09

TABLE RD 1-11

STATION NUMBER 502870
41 55 37.0 080 36 15.0 2
CONNEAUT CREEK AT CONNEAUT - KEEFUS RD
LAKE ERIE 060691 (CONNEAUT CREEK)
MILES 0006.40

PARAMETER			R	NO	MEAN	STAN DEV	MAXIMUM	MINIMUM	BEG	END
WATER	TEMP	CENT		12	8.98333	7.99168	22.0000	.000000	80/10	81/09
STREAM	FLOW,	INST-CFS		8	350.387	303.434	876.700	98.4000	80/11	81/09
STREAM	STAGE	FEET		11	2.49272	1.05084	4.10000	1.12000	80/10	81/09
TURB	TRBIDMTR	HACH FTU		12	27.4625	25.6413	78.0000	1.95000	80/10	81/09
CNDUCTVY	FIELD	MICROMHO		12	168.333	88.8649	400.000	70.0000	80/10	81/09
CNDUCTVY	AT 25C	MICROMHO		7	236.429	82.6718	312.000	138.000	81/01	81/09
DO		MG/L		12	11.4042	2.45473	15.8000	7.30000	80/10	81/09
COD	LOWLEVEL	MG/L		9	14.6556	6.16180	28.0000	8.00000	80/11	81/08
			K	1	4.00000		4.00000	4.00000	81/06	81/06
			T	10	13.5900	6.71590	28.0000	4.00000	80/11	81/08
PH		SU		2	8.20000	.283008	8.40000	8.00000	81/08	81/09
LAB	PH	SU		11	7.37272	.665008	7.90000	5.90000	80/10	81/09
T ALK	CACO3	MG/L		12	50.3333	21.3726	86.0000	21.0000	80/10	81/09
RESIDUE	TOT NFLT	MG/L		9	71.1111	41.6127	142.000	15.0000	80/10	81/08
			K	3	10.0000	.000000	10.0000	10.0000	80/12	81/09
			T	12	55.8333	44.9805	142.000	10.0000	80/10	81/09
NH3+NH4-	N TOTAL	MG/L		9	.115555	.112262	.390000	.050000	80/10	81/09
			K	3	.050000	.000075	.050000	.050000	80/12	81/04
			T	12	.099166	.100223	.390000	.050000	80/10	81/09
NO2-N	TOTAL	MG/L		5	.026000	.011402	.040000	.010000	80/11	81/08
			K	4	.010000	.000000	.010000	.010000	80/12	81/05
			T	9	.018889	.011667	.040000	.010000	80/11	81/08
NO3-N	TOTAL	MG/L		10	.438000	.209592	.830000	.210000	80/10	81/08
			K	2	.050000	.000061	.050000	.050000	81/05	81/09
			T	12	.373333	.242387	.830000	.050000	80/10	81/09
TOT KJEL	N	MG/L		12	.593333	.174686	.810000	.350000	80/10	81/09
PHOS-TOT		MG/L P		12	.076167	.040734	.148000	.018000	80/10	81/09
PHOS-DIS		MG/L P		11	.026091	.010895	.048000	.009000	80/11	81/09
T ORG C	C	MG/L		5	10.2000	1.64319	13.0000	9.00000	80/10	81/09
D ORG C	C	MG/L		6	8.00000	1.09544	10.0000	7.00000	81/01	81/09
TOT HARD	CACO3	MG/L		8	99.6250	34.6573	160.000	57.0000	80/10	81/09
CALCIUM	CA-TOT	MG/L		9	27.6667	10.2348	48.0000	11.0000	80/11	81/09

TABLE RD 1-11 (Continued)

STATION NUMBER 502870
41 55 37.0 080 36 15.0 2
CONNEAUT CREEK AT CONNEAUT - KEEFUS RD
LAKE ERIE 060691 (CONNEAUT CREEK)
MILES 0006.40

PARAMETER			R	NO	MEAN	STAN DEV	MAXIMUM	MINIMUM	BEG	END
SODIUM	NA,TOT	MG/L		9	10.3333	5.26783	23.0000	6.00000	80/11	81/09
CHLORIDE	TOTAL	MG/L		12	20.5833	8.86731	40.0000	12.0000	80/10	81/09
SULFATE	SO4-TOT	MG/L		12	32.6667	15.2276	71.0000	17.0000	80/10	81/09
SILICA	DISOLVED	MG/L		11	3.62363	1.45685	5.41000	.640000	80/11	81/09
ARSENIC	AS,TOT	UG/L	K	1	10.0000		10.0000	10.0000	81/07	81/07
CADMIUM	CD,TOT	UG/L	K	7	5.00000	.000000	5.00000	5.00000	80/10	81/09
CHROMIUM	CR,TOT	UG/L	K	7	30.0000	.000000	30.0000	30.0000	80/10	81/09
COPPER	CU,TOT	UG/L	K	7	30.0000	.000000	30.0000	30.0000	80/10	81/09
IRON	FE,TOT	UG/L		7	3335.71	2197.57	6900.00	550.000	80/10	81/09
LEAD	PB,TOT	UG/L		4	6.25000	1.89297	9.00000	5.00000	80/10	81/07
			K	3	5.00000	.000000	5.00000	5.00000	81/01	81/09
			T	7	5.71428	1.49603	9.00000	5.00000	80/10	81/09
MANGNESE	MN	UG/L		1	180.000		180.000	180.000	81/07	81/07
NICKEL	NI,TOTAL	UG/L	K	7	100.000	.000000	100.000	100.000	80/10	81/09
VANADIUM	V,TOT	UG/L	K	1	200.000		200.000	200.000	81/07	81/07
ZINC	ZN,TOT	UG/L		2	30.0000	.000000	30.0000	30.0000	81/01	81/02
			K	4	30.0000	.000000	30.0000	30.0000	80/10	81/07
			T	6	30.0000	.000000	30.0000	30.0000	80/10	81/07
ALUMINUM	AL,TOT	UG/L		1	1800.00		1800.00	1800.00	81/07	81/07
SELENIUM	SE,TOT	UG/L	K	1	10.0000		10.0000	10.0000	81/07	81/07
FEC COLI	MFM-FCBR	/100ML		9	771.111	983.702	3100.00	37.0000	80/12	81/09
FECSTREP	MF M-ENT	/100ML		7	1814.86	3002.45	7800.00	23.0000	80/12	81/09
PHENOLS	TOTAL	UG/L		11	5.81818	2.63888	11.0000	2.00000	80/10	81/08
			K	1	2.00000		2.00000	2.00000	81/09	81/09
			T	12	5.50000	2.74690	11.0000	2.00000	80/10	81/09
PCBS	WHL SMPL	UG/L		1	.000000		.000000	.000000	80/12	80/12
			K	8	.500000	.000000	.500000	.500000	80/11	81/09
			T	9	.444444	.166667	.500000	.000000	80/11	81/09
RESIDUE	DISS-180 C	MG/L		12	146.167	47.0394	250.000	78.0000	80/10	81/09
PHOS-T	ORTHO	MG/L P		1	.022000		.022000	.022000	81/04	81/04
MERCURY	HG,TOTAL	UG/L	K	6	.500000	.000000	.500000	.500000	80/10	81/09

TABLE RD 1-12

STATION NUMBER 502870
41 55 37.0 080 36 15.0 2
CONNEAUT CREEK AT CONNEAUT - KEEFUS RD
LAKE ERIE 060691 (CONNEAUT CREEK)
MILES 0006.40

PARAMETER			R	NO	MEAN	STAN DEV	MAXIMUM	MINIMUM	BEG	END
WATER	TEMP	CENT		10	9.85000	8.08651	23.0000	.500000	81/10	82/09
STREAM	FLOW	CFS		5	86.7399	86.5225	211.000	15.4000	81/12	82/09
STREAM	FLOW,	INST-CFS		1	84.3000		84.3000	84.3000	81/11	81/11
STREAM	STAGE	FEET		8	1.87125	.982915	3.46000	.830000	81/10	82/09
TURB	TRBIDMTR	HACH FTU		2	7.30000	7.35391	12.5000	2.10000	81/10	81/11
CNDUCTVY	FIELD	MICROMHO		8	205.000	101.136	350.000	90.0000	81/11	82/09
CNDUCTVY	AT 25C	MICROMHO		8	254.625	92.0045	420.000	150.000	81/10	82/09
DO	PROBE	MG/L		8	11.0000	2.43546	15.0000	7.90000	81/12	82/09
DO		MG/L		2	11.3500	1.48495	12.4000	10.3000	81/10	81/11
BOD	5 DAY	MG/L		1	1.80000		1.80000	1.80000	82/05	82/05
			K	1	1.00000		1.00000	1.00000	82/04	82/04
			T	2	1.40000	.565685	1.80000	1.00000	82/04	82/05
COD	LOWLEVEL	MG/L		9	14.5556	4.21638	24.0000	10.0000	81/11	82/09
			K	1	4.00000		4.00000	4.00000	81/10	81/10
			T	10	13.5000	5.19080	24.0000	4.00000	81/10	82/09
PH		SU		10	8.31999	.319157	8.70000	7.60000	81/10	82/09
T ALK	CACO3	MG/L		2	64.5000	20.5061	79.0000	50.0000	81/10	81/11
RESIDUE	TOT NFLT	MG/L		6	8.33333	4.45721	15.0000	5.00000	82/02	82/09
			K	3	8.33333	2.88676	10.0000	5.00000	81/10	81/12
			T	9	8.33333	3.80789	15.0000	5.00000	81/10	82/09
NH3+NH4-	N TOTAL	MG/L		1	.050000		.050000	.050000	82/06	82/06
			K	9	.050000	.000057	.050000	.050000	81/10	82/09
			T	10	.050000	.000054	.050000	.050000	81/10	82/09
NO2-N	TOTAL	MG/L	K	8	.020000	.000017	.020000	.020000	81/12	82/09
NO3-N	TOTAL	MG/L		9	.277777	.175270	.510000	.070000	81/10	82/09
			K	1	.050000		.050000	.050000	82/05	82/05
			T	10	.254999	.180263	.510000	.050000	81/10	82/09
KJELDL N	DISS	MG/L		1	.200000		.200000	.200000	81/12	81/12
TOT KJEL	N	MG/L		9	.327777	.143856	.600000	.200000	81/10	82/09
			K	1	.060000		.060000	.060000	81/11	81/11
			T	10	.301000	.159892	.600000	.060000	81/10	82/09
PHOS-TOT		MG/L P		3	.063000	.032512	.100000	.039000	81/10	82/09
			K	7	.045714	.011339	.050000	.020000	81/11	82/08
			T	10	.050900	.019757	.100000	.020000	81/10	82/09

TABLE RD 1-12 (Continued)

STATION NUMBER 502870
41 55 37.0 080 36 15.0 2
CONNEAUT CREEK AT CONNEAUT - KEEFUS RD
LAKE ERIE 060691 (CONNEAUT CREEK)
MILES 0006.40

PARAMETER			R	NO	MEAN	STAN DEV	MAXIMUM	MINIMUM	BEG	END
PHOS-DIS		MG/L P		1	.037000		.037000	.037000	81/11	81/11
			K	5	.044000	.013416	.050000	.020000	81/10	82/05
			T	6	.042833	.012336	.050000	.020000	81/10	82/05
T ORG C	C	MG/L		2	6.50000	.707107	7.00000	6.00000	81/10	81/11
D ORG C	C	MG/L		2	7.00000	.000000	7.00000	7.00000	81/10	81/11
TOT HARD	CACO3	MG/L		6	113.000	37.2827	157.000	63.0000	81/12	82/09
CALCIUM	CA-TOT	MG/L		10	30.3200	10.3987	45.5000	17.6000	81/10	82/09
MGNSIUM	MG,TOT	MG/L		7	6.95713	2.35292	10.6000	4.60000	81/12	82/09
SODIUM	NA,TOT	MG/L		3	12.7000	3.84318	17.1000	10.0000	81/10	82/09
CHLORIDE	TOTAL	MG/L		2	20.0000	.000000	20.0000	20.0000	81/10	81/11
SULFATE	SO4-TOT	MG/L		2	30.0000	5.65685	34.0000	26.0000	81/10	81/11
SILICA	DISOLVED	MG/L		2	3.17500	2.99106	5.29000	1.06000	81/10	81/11
CADMIUM	CD,TOT	UG/L	K	7	.500000	.000000	.500000	.500000	81/12	82/09
CHROMIUM	CR,TOT	UG/L	K	7	30.0000	.000000	30.0000	30.0000	81/12	82/09
COPPER	CU,TOT	UG/L		1	10.0000		10.0000	10.0000	82/09	82/09
			K	5	10.0000	.000000	10.0000	10.0000	81/12	82/06
			T	6	10.0000	.000000	10.0000	10.0000	81/12	82/09
IRON	FE,TOT	UG/L		7	622.857	349.559	1320.00	330.000	81/12	82/09
LEAD	PB,TOT	UG/L		2	10.0000	11.3137	18.0000	2.00000	82/03	82/09
			K	8	3.50000	1.60357	5.00000	2.00000	81/10	82/08
			T	10	4.80000	4.87169	18.0000	2.00000	81/10	82/09
MANGNESE	MN	UG/L		1	20.0000		20.0000	20.0000	82/03	82/03
NICKEL	NI,TOTAL	UG/L	K	6	48.3333	25.6256	100.000	30.0000	81/12	82/09
ZINC	ZN,TOT	UG/L		1	25.0000		25.0000	25.0000	82/04	82/04
			K	5	10.0000	.000000	10.0000	10.0000	81/12	82/09
			T	6	12.5000	6.12372	25.0000	10.0000	81/12	82/09
FEC COLI	MFM-FCBR	/100ML		10	87.1000	63.5706	210.000	10.0000	81/10	82/09
FECSTREP	MF M-ENT	/100ML		10	447.000	628.265	2100.00	25.0000	81/10	82/09
PHENOLS	TOTAL	UG/L		1	6.00000		6.00000	6.00000	81/10	81/10
			K	3	7.33333	4.61881	10.0000	2.00000	81/11	82/09
			T	4	7.00000	3.82971	10.0000	2.00000	81/10	82/09
PCBS	WHL SMPL	UG/L	K	9	.500000	.000000	.500000	.500000	81/11	82/09
RESIDUE	DISS-180	C MG/L		8	184.875	64.2482	286.000	112.000	81/10	82/09

TABLE RD 1-13

STATION NUMBER 502020
41 23 43.0 081 37 48.0 2
CUYAHOGA RIVER AT INDEPENDENCE - OLD ROCKSIDE RD
LAKE ERIE 060391 (CUYAHOGA RIVER)
MILES 0013.50

PARAMETER			R	NO	MEAN	STAN DEV	MAXIMUM	MINIMUM	BEG	END
WATER	TEMP	CENT		9	12.8222	9.36533	24.4000	.500000	80/12	81/08
STREAM	FLOW,	INST-CFS		8	1347.84	1032.06	2896.00	406.600	80/12	81/08
STREAM	STAGE	FEET		9	4.62777	1.84615	7.48000	2.72000	80/12	81/08
TURB	TRBIDMTR	HACH FTU		9	68.7500	130.842	405.000	1.60000	80/10	81/08
CNDUCTVY	FIELD	MICROMHO		6	664.333	133.053	880.000	484.000	80/12	81/08
DO		MG/L		9	8.59999	2.67582	12.3000	5.70000	80/12	81/08
COD	LOWLEVEL	MG/L		10	40.7700	27.7220	91.0000	20.0000	80/10	81/08
PH		SU		3	7.43333	.153168	7.60000	7.30000	81/06	81/08
LAB	PH	SU		8	7.51249	.352318	7.90000	6.80000	80/12	81/08
T ALK	CACO3	MG/L		10	126.300	27.7572	178.000	88.0000	80/10	81/08
RESIDUE	TOT NFLT	MG/L		9	170.333	257.901	790.000	13.0000	80/12	81/08
NH3+NH4-	N TOTAL	MG/L		10	1.11400	1.14096	3.94000	.050000	80/10	81/08
NO2-N	TOTAL	MG/L		9	.202222	.232313	.750000	.010000	80/10	81/08
NO3-N	TOTAL	MG/L		10	1.60500	.779423	2.90000	.760000	80/10	81/08
TOT KJEL	N	MG/L		10	2.75299	1.55658	5.91000	1.09000	80/10	81/08
PHOS-TOT		MG/L P		10	.601299	.339114	1.36000	.262000	80/10	81/08
PHOS-DIS		MG/L P		9	.254666	.176716	.535000	.070000	80/10	81/08
T ORG C	C	MG/L		7	20.0000	5.59762	30.0000	13.0000	80/10	81/07
D ORG C	C	MG/L		4	12.7500	4.42531	17.0000	8.00000	80/10	81/08
CYANIDE	CN-TOT	MG/L	K	10	.010000	.000007	.010000	.010000	80/10	81/08
TOT HARD	CACO3	MG/L		10	213.000	38.4881	272.000	165.000	80/10	81/08
CALCIUM	CA-TOT	MG/L		6	63.3333	12.3398	81.0000	47.0000	80/12	81/07
SODIUM	NA,TOT	MG/L		6	83.0000	28.7889	114.000	54.0000	80/12	81/07
CHLORIDE	TOTAL	MG/L		10	129.700	47.6051	212.000	69.0000	80/10	81/08
SULFATE	SO4-TOT	MG/L		9	86.4444	15.4929	116.000	66.0000	80/10	81/08
FLUORIDE	F,TOTAL	MG/L		9	.358888	.107755	.540000	.210000	80/10	81/08
SILICA	DISOLVED	MG/L		8	7.22999	1.35565	8.96000	4.50000	80/10	81/08
ARSENIC	AS,TOT	UG/L	K	3	10.0000	.000000	10.0000	10.0000	80/10	81/06
CADMIUM	CD,TOT	UG/L		2	9.50000	3.53553	12.0000	7.00000	81/04	81/07
			K	8	5.00000	.000000	5.00000	5.00000	80/10	81/08
			T	10	5.90000	2.23359	12.0000	5.00000	80/10	81/08

TABLE RD 1-13 (Continued)

STATION NUMBER 502020
41 23 43.0 081 37 48.0 2
CUYAHOGA RIVER AT INDEPENDENCE - OLD ROCKSIDE RD
LAKE ERIE 060391 (CUYAHOGA RIVER)
MILES 0013.50

PARAMETER			R	NO	MEAN	STAN DEV	MAXIMUM	MINIMUM	BEG	END
CHROMIUM	HEX-VAL	UG/L	K	1	30.0000		30.0000	30.0000	81/01	81/01
CHROMIUM	CR,TOT	UG/L		1	50.0000		50.0000	50.0000	81/07	81/07
			K	8	30.0000	.000000	30.0000	30.0000	80/10	81/08
			T	9	32.2222	6.66677	50.0000	30.0000	80/10	81/08
COPPER	CU,TOT	UG/L		4	105.000	85.8293	210.000	30.0000	81/02	81/07
			K	6	30.0000	.000000	30.0000	30.0000	80/10	81/08
			T	10	60.0000	62.8932	210.000	30.0000	80/10	81/08
IRON	FE,TOT	UG/L		10	6877.00	10501.0	33500.0	390.000	80/10	81/08
LEAD	PB,TOT	UG/L		6	74.1667	84.5965	225.000	6.00000	81/01	81/07
			K	4	5.00000	.000000	5.00000	5.00000	80/10	81/08
LEAD	PB,TOT	UG/L	T	10	46.5000	72.4680	225.000	5.00000	80/10	81/08
MANGNESE	MN	UG/L		3	178.333	52.9941	235.000	130.000	80/10	81/06
NICKEL	NI,TOTAL	UG/L		1	100.000		100.000	100.000	80/12	80/12
			K	9	100.000	.000000	100.000	100.000	80/10	81/08
			T	10	100.000	.000000	100.000	100.000	80/10	81/08
VANADIUM	V,TOT	UG/L	K	2	15.0000	7.07107	20.0000	10.0000	81/01	81/06
ZINC	ZN,TOT	UG/L		9	172.778	228.324	640.000	30.0000	80/10	81/07
			K	1	30.0000		30.0000	30.0000	81/08	81/08
			T	10	158.500	219.950	640.000	30.0000	80/10	81/08
ALUMINUM	AL,TOT	UG/L		2	250.000	70.7107	300.000	200.000	81/01	81/06
			K	1	200.000		200.000	200.000	80/10	80/10
			T	3	233.333	57.7354	300.000	200.000	80/10	81/06
SELENIUM	SE,TOT	UG/L	K	3	6.66667	2.88676	10.0000	5.00000	80/10	81/06
FEC COLI	MFM-FCBR	/100ML		9	22700.0	22567.2	66000.0	4200.00	80/12	81/08
FECSTREP	MF M-ENT	/100ML		7	9135.71	10370.5	26000.0	850.000	80/12	81/06
PHENOLS	TOTAL	UG/L		10	11.4000	4.24788	18.0000	7.00000	80/10	81/08
DIETHYLP	HTHALATE	TOTWUG/L	K	6	100.000	.000000	100.000	100.000	81/01	81/08
DIMETHYL	PHTHALAT	TOTWUG/L	K	6	100.000	.000000	100.000	100.000	81/01	81/08
MBAS		MG/L		9	.170000	.069822	.300000	.110000	80/10	81/08
PCBS	WHL SMPL	UG/L	K	6	.500000	.000000	.500000	.500000	81/01	81/08
RESIDUE	DISS-180	C MG/L		8	435.625	115.536	608.000	300.000	80/12	81/07
MERCURY	HG,TOTAL	UG/L		1	4.00000		4.00000	4.00000	81/06	81/06
			K	8	.500000	.000000	.500000	.500000	80/10	81/07
			T	9	.888889	1.16667	4.00000	.500000	80/10	81/07
DEHP	ISOMER	TOT UG/L	K	1	100.000		100.000	100.000	81/02	81/02
DIBUTYL	NONANDOA	TOT UG/L	K	2	100.000	.000000	100.000	100.000	81/01	81/02

TABLE RD 1-14

STATION NUMBER 502020
41 23 43.0 081 37 48.0 2
CUYAHOGA RIVER AT INDEPENDENCE - OLD ROCKSIDE RD
LAKE ERIE 060391 (CUYAHOGA RIVER)
MILES 0013.50

PARAMETER			R	NO	MEAN	STAN DEV	MAXIMUM	MINIMUM	BEG	END
WATER	TEMP	CENT		11	10.5909	7.60861	22.5000	.500000	81/10	82/09
STREAM	FLOW	CFS		5	913.159	419.099	1478.00	431.000	81/12	82/05
STREAM	FLOW,	INST-CFS		3	447.166	122.915	555.900	313.800	81/10	82/08
STREAM	STAGE	FEET		10	3.93299	1.14010	5.90000	2.57000	81/10	82/09
TURB	TRBIDMTR	HACH FTU		1	5.50000		5.50000	5.50000	81/10	81/10
CNDUCTVY	FIELD	MICROMHO		1	500.000		500.000	500.000	82/09	82/09
CNDUCTVY	AT 25C	MICROMHO		5	664.000	112.605	860.000	600.000	82/02	82/09
DO	PROBE	MG/L		9	10.1222	2.44274	13.4000	6.50000	81/12	82/09
DO		MG/L		2	9.20000	.283035	9.40000	9.00000	81/10	81/11
COD	LOWLEVEL	MG/L		14	32.3571	29.6819	114.000	10.0000	81/10	82/09
PH		SU		10	7.84000	.195573	8.20000	7.60000	81/10	82/09
LAB	PH	SU		2	7.80000	.282873	8.00000	7.60000	81/11	82/05
T ALK	CACO3	MG/L		2	135.000	5.65685	139.000	131.000	81/10	81/11
RESIDUE	TOTAL	MG/L		1	372.000		372.000	372.000	81/12	81/12
RESIDUE	TOT NFLT	MG/L		9	73.2222	128.924	410.000	8.00000	81/12	82/09
			K	2	10.0000	.000000	10.0000	10.0000	81/10	81/11
			T	11	61.7273	118.115	410.000	8.00000	81/10	82/09
NH3+NH4-	N TOTAL	MG/L		11	.845454	.767611	2.56000	.140000	81/10	82/09
NO2-N	TOTAL	MG/L		10	.132000	.078853	.310000	.050000	81/10	82/09
NO3-N	TOTAL	MG/L		10	1.65600	.763403	3.11000	.760000	81/10	82/09
TOT KJEL	N	MG/L		11	1.63727	.808024	3.00000	.700000	81/10	82/09
PHOS-TOT		MG/L P		11	.364181	.311687	1.25000	.140000	81/10	82/09
PHOS-DIS		MG/L P		6	.139833	.067173	.234000	.050000	81/10	82/03
T ORG C	C	MG/L		2	9.50000	2.12132	11.0000	8.00000	81/10	81/11
CYANIDE	CN-TOT	MG/L	K	2	.010000	.000000	.010000	.010000	81/10	81/11
TOT HARD	CACO3	MG/L		11	200.064	50.3294	266.000	80.7000	81/10	82/09
CALCIUM	CA-TOT	MG/L		8	58.9124	9.86906	75.0000	47.1000	81/12	82/09
			K	1	.100000		.100000	.100000	82/08	82/08
			T	9	52.3777	21.6691	75.0000	.100000	81/12	82/09

TABLE RD 1-14 (Continued)

STATION NUMBER 502020
41 23 43.0 081 37 48.0 2
CUYAHOGA RIVER AT INDEPENDENCE - OLD ROCKSIDE RD
LAKE ERIE 060391 (CUYAHOGA RIVER)
MILES 0013.50

PARAMETER			R	NO	MEAN	STAN DEV	MAXIMUM	MINIMUM	BEG	END
MGNSIUM	MG,TOT	MG/L		9	15.6444	3.02287	19.6000	11.6000	81/12	82/09
CHLORIDE	TOTAL	MG/L		2	93.0000	21.2132	108.000	78.0000	81/10	81/11
SULFATE	SO4-TOT	MG/L		2	82.0000	8.48528	88.0000	76.0000	81/10	81/11
FLUORIDE	F,TOTAL	MG/L		1	.420000		.420000	.420000	81/10	81/10
SILICA	DISOLVED	MG/L		2	7.22500	.105974	7.30000	7.15000	81/10	81/11
ARSENIC	AS,TOT	UG/L	K	1	10.0000		10.0000	10.0000	81/11	81/11
CADMIUM	CD,TOT	UG/L		1	2.60000		2.60000	2.60000	82/09	82/09
			K	8	1.62500	2.08309	5.00000	.500000	81/10	82/08
			T	9	1.73333	1.97548	5.00000	.500000	81/10	82/09
CHROMIUM	CR,TOT	UG/L	K	9	30.0000	.000000	30.0000	30.0000	81/10	82/09
COPPER	CU,TOT	UG/L		4	22.5000	21.7945	55.0000	10.0000	82/02	82/09
			K	7	15.7143	9.75900	30.0000	10.0000	81/10	82/08
COPPER	CU,TOT	UG/L	T	11	18.1818	14.5384	55.0000	10.0000	81/10	82/09
IRON	FE,TOT	UG/L		11	2644.55	4558.44	16200.0	390.000	81/10	82/09
LEAD	PB,TOT	UG/L		7	11.4286	18.3563	53.0000	3.00000	81/12	82/09
			K	4	4.25000	1.50000	5.00000	2.00000	81/10	82/05
			T	11	8.81818	14.6957	53.0000	2.00000	81/10	82/09
MANGNESE	MN	UG/L		7	188.571	163.215	555.000	100.000	82/02	82/09
NICKEL	NI,TOTAL	UG/L	K	9	58.8889	31.0018	100.000	30.0000	81/10	82/09
ZINC	ZN,TOT	UG/L		10	40.0000	46.6667	170.000	15.0000	81/10	82/09
			K	1	30.0000		30.0000	30.0000	81/11	81/11
			T	11	39.0909	44.3745	170.000	15.0000	81/10	82/09
ALUMINUM	AL,TOT	UG/L		1	200.000		200.000	200.000	81/11	81/11
FEC COLI	MFM-FCBR	/100ML		11	8639.09	10385.6	32000.0	460.000	81/10	82/09
FECSTREP	MF M-ENT	/100ML		10	4906.80	6870.03	23000.0	18.0000	81/10	82/09
PHENOLS	TOTAL	UG/L		3	6.66667	3.05506	10.0000	4.00000	81/10	82/09
MBAS		MG/L		2	.185000	.063640	.230000	.140000	81/10	81/11
RESIDUE	DISS-180 C	MG/L		11	446.454	91.6526	605.000	342.000	81/10	82/09
MERCURY	HG,TOTAL	UG/L	K	1	.500000		.500000	.500000	81/11	81/11

TABLE RD 1-15

STATION NUMBER 502130
41 26 52.0 081 41 06.0 2
CUYAHOGA R AT CLEVELAND - LOWER HARVARD AVE
LAKE ERIE 060391 (CUYAHOGA RIVER)
MILES 0007.30

PARAMETER			R	NO	MEAN	STAN DEV	MAXIMUM	MINIMUM	BEG	END
WATER	TEMP	CENT		11	13.0909	8.11732	25.0000	1.50000	80/10	81/08
TURB	TRBIDMTR	HACH FTU		9	76.3277	138.453	425.000	5.90000	80/11	81/08
CNDUCTVY	FIELD	MICROMHO		5	772.000	89.9639	897.000	660.000	80/10	81/03
DO		MG/L		11	7.77272	2.19777	11.6000	5.10000	80/10	81/08
COD	LOWLEVEL	MG/L		11	46.2454	24.4639	97.0000	16.0000	80/10	81/08
PH		SU		1	7.30000		7.30000	7.30000	81/07	81/07
LAB	PH	SU		11	7.38181	.248285	7.80000	7.00000	80/10	81/08
T ALK	CACO3	MG/L		10	129.400	27.6094	178.000	94.0000	80/11	81/08
RESIDUE	TOT NFLT	MG/L		11	151.818	267.931	905.000	15.0000	80/10	81/08
NH3+NH4-	N TOTAL	MG/L		11	2.66908	1.47570	5.67000	1.20000	80/10	81/08
NO2-N	TOTAL	MG/L		10	.254000	.188397	.560000	.010000	80/10	81/08
NO3-N	TOTAL	MG/L		11	1.58727	.587044	2.38000	.780000	80/10	81/08
TOT KJEL	N	MG/L		11	4.73454	1.67956	8.14000	2.81000	80/10	81/08
PHOS-TOT		MG/L P		11	.656000	.279367	1.28000	.306000	80/10	81/08
PHOS-DIS		MG/L P		9	.237666	.110825	.377000	.121000	80/11	81/08
T ORG C	C	MG/L		7	21.2857	6.99323	33.0000	14.0000	80/12	81/07
D ORG C	C	MG/L		3	13.3333	4.93290	19.0000	10.0000	81/01	81/08
CYANIDE	CN-TOT	MG/L		4	.012000	.004000	.018000	.010000	80/10	81/03
			K	7	.010000	.000009	.010000	.010000	80/12	81/08
			T	11	.010727	.002412	.018000	.010000	80/10	81/08
TOT HARD	CACO3	MG/L		11	213.909	30.7197	264.000	175.000	80/10	81/08
CALCIUM	CA-TOT	MG/L		7	64.7143	10.0287	78.0000	51.0000	80/11	81/07
SODIUM	NA,TOT	MG/L		7	91.8571	31.7093	139.000	59.0000	80/11	81/07
CHLORIDE	TOTAL	MG/L		10	127.000	41.1231	197.000	76.0000	80/11	81/08
SULFATE	SO4-TOT	MG/L		9	87.2222	11.4544	106.000	72.0000	80/11	81/08
FLUORIDE	F,TOTAL	MG/L		10	.592999	.206401	.920000	.310000	80/10	81/08
SILICA	DISOLVED	MG/L		8	6.67999	1.97165	8.26000	2.58000	80/11	81/08
ARSENIC	AS,TOT	UG/L	K	2	10.0000	.000000	10.0000	10.0000	81/01	81/06
CADMIUM	CD,TOT	UG/L	K	11	5.00000	.000000	5.00000	5.00000	80/10	81/08

TABLE RD 1-15 (Continued)

STATION NUMBER 502130
41 26 52.0 081 41 06.0 2
CUYAHOGA R AT CLEVELAND - LOWER HARVARD AVE
LAKE ERIE 060391 (CUYAHOGA RIVER)
MILES 0007.30

PARAMETER			R	NO	MEAN	STAN DEV	MAXIMUM	MINIMUM	BEG	END
CHROMIUM	CR,TOT	UG/L		3	50.0000	10.0000	60.0000	40.0000	81/02	81/07
			K	8	30.0000	.000000	30.0000	30.0000	80/10	81/08
			T	11	35.4545	10.3573	60.0000	30.0000	80/10	81/08
COPPER	CU,TOT	UG/L		4	40.0000	14.1421	60.0000	30.0000	80/10	81/07
			K	7	30.0000	.000000	30.0000	30.0000	80/11	81/08
			T	11	33.6363	9.24423	60.0000	30.0000	80/10	81/08
IRON	FE,TOT	UG/L		11	7503.63	12255.3	41500.0	1040.00	80/10	81/08
LEAD	PB,TOT	UG/L		11	34.2727	49.6711	175.000	6.00000	80/10	81/08
MANGNESE	MN	UG/L		2	205.000	77.7817	260.000	150.000	81/01	81/06
NICKEL	NI,TOTAL	UG/L		4	100.000	.000000	100.000	100.000	80/12	81/08
			K	5	100.000	.000000	100.000	100.000	81/02	81/07
			T	9	100.000	.000000	100.000	100.000	80/12	81/08
VANADIUM	V,TOT	UG/L	K	2	15.0000	7.07107	20.0000	10.0000	81/01	81/06
ZINC	ZN,TOT	UG/L		10	115.000	77.0642	290.000	50.0000	80/11	81/08
			K	1	30.0000		30.0000	30.0000	80/10	80/10
			T	11	107.273	77.4714	290.000	30.0000	80/10	81/08
ALUMINUM	AL,TOT	UG/L		2	300.000	.000000	300.000	300.000	81/01	81/06
SELENIUM	SE,TOT	UG/L	K	2	7.50000	3.53553	10.0000	5.00000	81/01	81/06
FEC COLI	MFM-FCBR	/100ML		9	22033.3	25401.3	69000.0	1200.00	80/11	81/08
FECSTREP	MF M-ENT	/100ML		8	12123.7	13848.4	36000.0	590.000	80/11	81/06
PHENOLS	TOTAL	UG/L		11	19.3636	19.8760	78.0000	9.00000	80/10	81/08
DIETHYLP	HTHALATE	TOTWUG/L	K	7	100.000	.000000	100.000	100.000	80/11	81/08
DIMETHYL	PHTHALAT	TOTWUG/L	K	7	100.000	.000000	100.000	100.000	80/11	81/08
MBAS		MG/L		10	.199000	.076370	.350000	.120000	80/10	81/08
PCBS	WHL SMPL	UG/L	K	7	.500000	.000000	.500000	.500000	80/11	81/08
RESIDUE	DISS-180	C MG/L		10	459.400	110.676	678.000	320.000	80/10	81/07
MERCURY	HG,TOTAL	UG/L		1	1.00000		1.00000	1.00000	80/11	80/11
			K	10	.500000	.000000	.500000	.500000	80/10	81/08
			T	11	.545454	.150756	1.00000	.500000	80/10	81/08
DEHP	ISOMER	TOT UG/L	K	1	100.000		100.000	100.000	81/02	81/02
DIBUTYL	NONANDOA	TOT UG/L	K	2	100.000	.000000	100.000	100.000	81/01	81/02

TABLE RD 1-16

STATION NUMBER 502130
41 26 52.0 081 41 06.0 2
CUYAHOGA R AT CLEVELAND - LOWER HARVARD AVE
LAKE ERIE 060391 (CUYAHOGA RIVER)
MILES 0007.30

PARAMETER			R	NO	MEAN	STAN DEV	MAXIMUM	MINIMUM	BEG	END
WATER	TEMP	CENT		11	11.0000	7.25603	22.5000	.500000	81/10	82/09
TURB	TRBIDMTR	HACH FTU		1	7.80000		7.80000	7.80000	81/10	81/10
CNDUCTVY	FIELD	MICROMHO		1	415.000		415.000	415.000	82/09	82/09
CNDUCTVY	AT 25C	MICROMHO		5	718.000	174.270	960.000	470.000	82/02	82/09
DO	PROBE	MG/L		9	9.52222	2.62097	12.8000	5.70000	81/12	82/09
DO		MG/L		2	8.30000	.565800	8.70000	7.90000	81/10	81/11
COD	LOWLEVEL	MG/L		11	29.6363	13.8151	62.0000	12.0000	81/10	82/09
PH		SU		11	7.71817	.282203	8.40000	7.30000	81/10	82/09
LAB	PH	SU		3	7.48666	.167855	7.68000	7.38000	81/11	82/09
T ALK	CACO3	MG/L		2	137.500	9.19239	144.000	131.000	81/10	81/11
RESIDUE	TOTAL	MG/L		1	398.000		398.000	398.000	81/12	81/12
RESIDUE	TOT NFLT	MG/L		11	53.5454	91.2375	323.000	10.0000	81/10	82/09
NH3+NH4-	N TOTAL	MG/L		11	1.93818	1.04612	4.44000	.850000	81/10	82/09
NO2-N	TOTAL	MG/L		10	.174000	.104796	.350000	.050000	81/10	82/09
NO3-N	TOTAL	MG/L		11	2.02545	.943148	3.56000	.700000	81/10	82/09
TOT KJEL	N	MG/L		11	3.01000	1.11087	5.45000	1.90000	81/10	82/09
PHOS-TOT		MG/L P		11	.443090	.244327	.960000	.190000	81/10	82/09
PHOS-DIS		MG/L P		6	.192833	.090422	.300000	.070000	81/10	82/03
T ORG C	C	MG/L		2	11.5000	2.12132	13.0000	10.0000	81/10	81/11
CYANIDE	CN-TOT	MG/L	K	2	.010000	.000000	.010000	.010000	81/10	81/11
TOT HARD	CACO3	MG/L		10	211.700	29.1665	264.000	174.000	81/10	82/09
CALCIUM	CA-TOT	MG/L		9	59.6666	8.90197	74.5000	48.1000	81/12	82/09
MGNSIUM	MG,TOT	MG/L		9	15.2778	2.33013	19.0000	12.5000	81/12	82/09
CHLORIDE	TOTAL	MG/L		2	97.5000	17.6777	110.000	85.0000	81/10	81/11
SULFATE	SO4-TOT	MG/L		2	89.5000	12.0208	98.0000	81.0000	81/10	81/11
FLUORIDE	F,TOTAL	MG/L		1	.800000		.800000	.800000	81/10	81/10
SILICA	DISOLVED	MG/L		2	7.87000	.763669	8.41000	7.33000	81/10	81/11

TABLE RD 1-16 (Continued)

STATION NUMBER 502130
41 26 52.0 081 41 06.0 2
CUYAHOGA R AT CLEVELAND - LOWER HARVARD AVE
LAKE ERIE 060391 (CUYAHOGA RIVER)
MILES 0007.30

PARAMETER			R	NO	MEAN	STAN DEV	MAXIMUM	MINIMUM	BEG	END
ARSENIC	AS,TOT	UG/L	K	1	10.0000		10.0000	10.0000	81/11	81/11
CADMIUM	CD,TOT	UG/L		7	2.08571	1.59523	5.20000	.800000	82/02	82/09
			K	2	7.50000	3.53553	10.0000	5.00000	81/10	81/11
			T	9	3.28889	3.02839	10.0000	.800000	81/10	82/09
CHROMIUM	CR,TOT	UG/L	K	9	30.0000	.000000	30.0000	30.0000	81/10	82/09
COPPER	CU,TOT	UG/L		8	19.3750	14.9851	55.0000	10.0000	82/01	82/09
			K	3	23.3333	11.5470	30.0000	10.0000	81/10	81/12
			T	11	20.4545	13.6848	55.0000	10.0000	81/10	82/09
IRON	FE,TOT	UG/L		11	2588.18	3483.19	12900.0	630.000	81/10	82/09
LEAD	PB,TOT	UG/L		8	11.0000	14.6969	47.0000	3.00000	82/01	82/09
			K	3	5.00000	.000000	5.00000	5.00000	81/10	81/12
			T	11	9.36364	12.6117	47.0000	3.00000	81/10	82/09
MANGNESE	MN	UG/L		6	200.000	87.9773	375.000	135.000	82/02	82/09
NICKEL	NI,TOTAL	UG/L		1	100.000		100.000	100.000	81/10	81/10
NICKEL	NI,TOTAL	UG/L	K	7	55.7143	30.4725	100.000	30.0000	81/11	82/09
			T	8	61.2500	32.2656	100.000	30.0000	81/10	82/09
ZINC	ZN,TOT	UG/L		11	69.5454	51.0125	220.000	40.0000	81/10	82/09
ALUMINUM	AL,TOT	UG/L		1	300.000		300.000	300.000	81/11	81/11
FEC COLI	MFM-FCBR	/100ML		11	14536.4	27791.8	97000.0	1400.00	81/10	82/09
FECSTREP	MF M-ENT	/100ML		10	6611.00	7761.14	26000.0	360.000	81/10	82/09
PHENOLS	TOTAL	UG/L		3	17.3333	18.0093	38.0000	5.00000	81/10	82/09
DIETHYLP	HTHALATE	TOTWUG/L	K	2	100.000	.000000	100.000	100.000	82/02	82/04
DIMETHYL	PHTHALAT	TOTWUG/L	K	2	100.000	.000000	100.000	100.000	82/02	82/04
MBAS		MG/L		2	.195000	.049497	.230000	.160000	81/10	81/11
PCBS	WHL SMPL	UG/L	K	2	.500000	.000000	.500000	.500000	82/02	82/04
RESIDUE	DISS-180	C MG/L		11	474.909	98.3656	676.000	374.000	81/10	82/09
MERCURY	HG,TOTAL	UG/L	K	1	.500000		.500000	.500000	81/11	81/11

TABLE RD 1-17

STATION NUMBER 502120
41 26 48.0 081 41 18.0 2
BIG CREEK AT CLEVELAND - JENNINGS AVE
LAKE ERIE 060391 (CUYAHOGA RIVER)
MILES 0007.20 0000.30

PARAMETER			R	NO	MEAN	STAN DEV	MAXIMUM	MINIMUM	BEG	END
WATER	TEMP	CENT		3	9.50000	8.76071	18.0000	.500000	80/12	81/06
CNDUCTVY	FIELD	MICROMHO		2	958.500	44.5533	990.000	927.000	80/12	81/03
DO		MG/L		3	9.60000	1.96726	11.4000	7.50000	80/12	81/06
COD	LOWLEVEL	MG/L		3	24.0000	21.0713	46.0000	4.00000	80/12	81/06
LAB	PH	SU		3	7.76666	.152993	7.90000	7.60000	80/12	81/06
RESIDUE	TOT NFLT	MG/L		1	10.0000		10.0000	10.0000	80/12	80/12
			K	2	10.0000	.000000	10.0000	10.0000	81/03	81/06
			T	3	10.0000	.000000	10.0000	10.0000	80/12	81/06
NH3+NH4-	N TOTAL	MG/L		3	1.28000	.719238	2.11000	.840000	80/12	81/06
NO2-N	TOTAL	MG/L		3	.140000	.062450	.190000	.070000	80/12	81/06
NO3-N	TOTAL	MG/L		3	.793333	.135770	.950000	.710000	80/12	81/06
TOT KJEL	N	MG/L		3	2.56333	1.42135	4.18000	1.51000	80/12	81/06
PHOS-TOT		MG/L P		3	.468333	.216317	.718000	.337000	80/12	81/06
TOT HARD	CACO3	MG/L		3	268.000	30.0000	298.000	238.000	80/12	81/06
CHLORIDE	TOTAL	MG/L		2	174.500	65.7609	221.000	128.000	81/03	81/06
FLUORIDE	F,TOTAL	MG/L		2	.695000	.049505	.730000	.660000	81/03	81/06
CADMIUM	CD,TOT	UG/L	K	3	5.00000	.000000	5.00000	5.00000	80/12	81/06
CHROMIUM	CR,TOT	UG/L		1	30.0000		30.0000	30.0000	81/06	81/06
			K	2	30.0000	.000000	30.0000	30.0000	80/12	81/03
			T	3	30.0000	.000000	30.0000	30.0000	80/12	81/06
COPPER	CU,TOT	UG/L		1	40.0000		40.0000	40.0000	80/12	80/12
			K	2	30.0000	.000000	30.0000	30.0000	81/03	81/06
			T	3	33.3333	5.77355	40.0000	30.0000	80/12	81/06
IRON	FE,TOT	UG/L		3	923.333	310.699	1270.00	670.000	80/12	81/06
LEAD	PB,TOT	UG/L		2	9.00000	4.24264	12.0000	6.00000	80/12	81/03
			K	1	5.00000		5.00000	5.00000	81/06	81/06
			T	3	7.66667	3.78595	12.0000	5.00000	80/12	81/06
NICKEL	NI,TOTAL	UG/L		1	100.000		100.000	100.000	80/12	80/12
			K	2	100.000	.000000	100.000	100.000	81/03	81/06
			T	3	100.000	.000000	100.000	100.000	80/12	81/06
ZINC	ZN,TOT	UG/L		2	70.0000	42.4264	100.000	40.0000	80/12	81/03
			K	1	30.0000		30.0000	30.0000	81/06	81/06
			T	3	56.6667	37.8594	100.000	30.0000	80/12	81/06
FEC COLI	MFM-FCBR	/100ML		3	14766.7	11758.5	23000.0	1300.00	80/12	81/06
FECSTREP	MF M-ENT	/100ML		3	7133.33	6850.06	14000.0	300.000	80/12	81/06
PHENOLS	TOTAL	UG/L		3	13.0000	6.00000	19.0000	7.00000	80/12	81/06
MBAS		MG/L		3	.210000	.000000	.210000	.210000	80/12	81/06
RESIDUE	DISS-180	C MG/L		3	617.333	287.961	862.000	300.000	80/12	81/06
MERCURY	HG,TOTAL	UG/L	K	2	.500000	.000000	.500000	.500000	80/12	81/03

TABLE RD 1-18

STATION NUMBER 502120
41 26 48.0 081 41 18.0 2
BIG CREEK AT CLEVELAND - JENNINGS AVE
LAKE ERIE 060391 (CUYAHOGA RIVER)
MILES 0007.20 0000.30

No data were collected from 10/81 - 9/82.

TABLE RD 1-19

STATION NUMBER 502080
41 05 39.0 081 31 44.0 2
L CUYAHOGA R BL CANAL (AKRON) - OTTO ST GAGE
LAKE ERIE 050492 (CUYAHOGA RIVER)
MILES 0044.20 0002.00

PARAMETER			R	NO	MEAN	STAN DEV	MAXIMUM	MINIMUM	BEG	END
WATER	TEMP	CENT		2	14.5000	12.7279	23.5000	5.50000	80/12	81/06
CNDUCTVY	FIELD	MICROMHO		2	694.000	107.480	770.000	618.000	80/12	81/03
DO		MG/L		2	9.25000	1.76777	10.5000	8.00000	80/12	81/06
COD	LOWLEVEL	MG/L		3	26.0000	17.7764	46.0000	12.0000	80/12	81/06
LAB	PH	SU		3	7.83333	.305687	8.10000	7.50000	80/12	81/06
RESIDUE	TOT NFLT	MG/L		3	11.6667	1.52758	13.0000	10.0000	80/12	81/06
NH3+NH4-	N TOTAL	MG/L		3	.580000	.395096	.980000	.190000	80/12	81/06
NO2-N	TOTAL	MG/L		3	.146667	.176163	.350000	.040000	80/12	81/06
NO3-N	TOTAL	MG/L		3	.636667	.238608	.830000	.370000	80/12	81/06
TOT KJEL	N	MG/L		3	2.09667	.955737	3.03000	1.12000	80/12	81/06
PHOS-TOT		MG/L P		3	.282667	.130385	.425000	.169000	80/12	81/06
TOT HARD	CACO3	MG/L		3	221.333	8.32917	228.000	212.000	80/12	81/06
CHLORIDE	TOTAL	MG/L		2	101.500	14.8492	112.000	91.0000	81/03	81/06
FLUORIDE	F,TOTAL	MG/L		2	.320000	.000000	.320000	.320000	81/03	81/06
CADMIUM	CD,TOT	UG/L	K	3	5.00000	.000000	5.00000	5.00000	80/12	81/06
CHROMIUM	CR,TOT	UG/L		1	40.0000		40.0000	40.0000	81/06	81/06
			K	2	30.0000	.000000	30.0000	30.0000	80/12	81/03
			T	3	33.3333	5.77355	40.0000	30.0000	80/12	81/06
COPPER	CU,TOT	UG/L		1	40.0000		40.0000	40.0000	81/03	81/03
			K	2	30.0000	.000000	30.0000	30.0000	80/12	81/06
			T	3	33.3333	5.77355	40.0000	30.0000	80/12	81/06
IRON	FE,TOT	UG/L		3	626.666	130.131	760.000	500.000	80/12	81/06
LEAD	PB,TOT	UG/L		2	6.00000	.000000	6.00000	6.00000	80/12	81/06
			K	1	5.00000		5.00000	5.00000	81/03	81/03
			T	3	5.66667	.577399	6.00000	5.00000	80/12	81/06
NICKEL	NI,TOTAL	UG/L		1	100.000		100.000	100.000	80/12	80/12
			K	2	100.000	.000000	100.000	100.000	81/03	81/06
			T	3	100.000	.000000	100.000	100.000	80/12	81/06
ZINC	ZN,TOT	UG/L		2	100.000	42.4264	130.000	70.0000	80/12	81/03
FEC COLI	MFM-FCBR	/100ML		3	15000.0	5567.77	20000.0	9000.00	80/12	81/06
FECSTREP	MF M-ENT	/100ML		3	9500.00	5894.91	16000.0	4500.00	80/12	81/06
PHENOLS	TOTAL	UG/L		3	14.3333	4.50927	19.0000	10.0000	80/12	81/06
MBAS		MG/L		3	.250000	.233880	.520000	.110000	80/12	81/06
RESIDUE	DISS-180	C MG/L		3	302.666	177.001	480.000	126.000	80/12	81/06
MERCURY	HG,TOTAL	UG/L		1	.600000		.600000	.600000	80/12	80/12
			K	2	.500000	.000000	.500000	.500000	81/03	81/06
			T	3	.533333	.057740	.600000	.500000	80/12	81/06

TABLE RD 1-20

STATION NUMBER 502080
41 05 39.0 081 31 44.0 2
L CUYAHOGA R BL CANAL (AKRON) - OTTO ST GAGE
LAKE ERIE 050492 (CUYAHOGA RIVER)
MILES 0044.20 0002.00

No data were collected from 10/81 - 9/92.

TABLE RD 1-21

STATION NUMBER 502110
41 25 04.0 081 38 18.0 2
MILL CREEK AT GARFIELD HEIGHTS - CANAL RD
LAKE ERIE 060391 (CUYAHOGA RIVER)
MILES 0011.70 0000.10

PARAMETER			R	NO	MEAN	STAN DEV	MAXIMUM	MINIMUM	BEG	END
WATER	TEMP	CENT		3	9.00000	8.50000	17.5000	.500000	80/12	81/06
CNDUCTVY	FIELD	MICROMHO		2	1175.00	205.061	1320.00	1030.00	80/12	81/03
DO		MG/L		3	9.13333	2.00332	11.2000	7.20000	80/12	81/06
COD	LOWLEVEL	MG/L		3	38.6667	16.1659	56.0000	24.0000	80/12	81/06
LAB	PH	SU		3	7.30000	.100429	7.40000	7.20000	80/12	81/06
RESIDUE	TOT NFLT	MG/L		3	38.0000	22.6053	64.0000	23.0000	80/12	81/06
NH3+NH4-	N TOTAL	MG/L		3	4.87000	1.78429	6.90000	3.55000	80/12	81/06
NO2-N	TOTAL	MG/L		3	.233333	.181475	.440000	.100000	80/12	81/06
NO3-N	TOTAL	MG/L		3	.760000	.384317	1.20000	.490000	80/12	81/06
TOT KJEL	N	MG/L		3	6.30333	2.37255	8.91000	4.27000	80/12	81/06
PHOS-TOT		MG/L P		3	.657666	.397601	1.05000	.255000	80/12	81/06
TOT HARD	CACO3	MG/L		3	342.000	10.5830	350.000	330.000	80/12	81/06
CHLORIDE	TOTAL	MG/L		2	244.500	70.0036	294.000	195.000	81/03	81/06
FLUORIDE	F,TOTAL	MG/L		2	.730000	.084860	.790000	.670000	81/03	81/06
CADMIUM	CD,TOT	UG/L	K	3	5.00000	.000000	5.00000	5.00000	80/12	81/06
CHROMIUM	CR,TOT	UG/L		2	40.0000	.000000	40.0000	40.0000	81/03	81/06
			K	1	30.0000		30.0000	30.0000	80/12	80/12
			T	3	36.6667	5.77360	40.0000	30.0000	80/12	81/06
COPPER	CU,TOT	UG/L		3	53.3333	5.77373	60.0000	50.0000	80/12	81/06
IRON	FE,TOT	UG/L		3	3686.67	773.656	4500.00	2960.00	80/12	81/06
LEAD	PB,TOT	UG/L		2	6.00000	.000000	6.00000	6.00000	80/12	81/06
			K	1	25.0000		25.0000	25.0000	81/03	81/03
			T	3	12.3333	10.9697	25.0000	6.00000	80/12	81/06
NICKEL	NI,TOTAL	UG/L		1	100.000		100.000	100.000	80/12	80/12
			K	2	100.000	.000000	100.000	100.000	81/03	81/06
			T	3	100.000	.000000	100.000	100.000	80/12	81/06
ZINC	ZN,TOT	UG/L		3	190.000	10.0000	200.000	180.000	80/12	81/06
FEC COLI	MFM-FCBR	/100ML		3	11966.7	7057.15	17000.0	3900.00	80/12	81/06
FECSTREP	MF M-ENT	/100ML		3	12623.3	12077.1	25000.0	870.000	80/12	81/06
PHENOLS	TOTAL	UG/L		3	14.3333	4.50927	19.0000	10.0000	80/12	81/06
MBAS		MG/L		3	.703333	.510131	1.22000	.200000	80/12	81/06
RESIDUE	DISS-180	C MG/L		3	770.666	324.878	1006.00	400.000	80/12	81/06
MERCURY	HG,TOTAL	UG/L	K	2	.500000	.000000	.500000	.500000	80/12	81/03

TABLE RD 1-22

STATION NUMBER 502110
41 25 04.0 081 38 18.0 2
MILL CREEK AT GARFIELD HEIGHTS - CANAL RD
LAKE ERIE 060391 (CUYAHOGA RIVER)
MILES 0011.70 0000.10

No data were collected from 10/81 - 9/82.

TABLE RD 1-23

STATION NUMBER 502220
41 23 04.0 081 31 39.0 2
TINKERS CREEK AT BEDFORD - SR 14
LAKE ERIE (CUYAHOGA RIVER)
MILES 0017.80 0006.30

PARAMETER			R	NO	MEAN	STAN DEV	MAXIMUM	MINIMUM	BEG	END
WATER	TEMP	CENT		2	9.75000	13.0815	19.0000	.500000	80/12	81/06
STREAM	FLOW,	INST-CFS		2	53.7000	5.09135	57.3000	50.1000	80/12	81/06
STREAM	STAGE	FEET		2	3.14000	.042433	3.17000	3.11000	80/12	81/06
CNDUCTVY	FIELD	MICROMHO		1	484.000		484.000	484.000	80/12	80/12
DO		MG/L		2	10.4000	3.11131	12.6000	8.20000	80/12	81/06
COD	LOWLEVEL	MG/L		2	25.5000	.707107	26.0000	25.0000	80/12	81/06
LAB	PH	SU		2	7.60000	.282819	7.80000	7.40000	80/12	81/06
RESIDUE	TOT NFLT	MG/L		1	70.0000		70.0000	70.0000	81/06	81/06
			K	1	10.0000		10.0000	10.0000	80/12	80/12
			T	2	40.0000	42.4264	70.0000	10.0000	80/12	81/06
NH3+NH4-	N TOTAL	MG/L		2	.520000	.282843	.720000	.320000	80/12	81/06
NO2-N	TOTAL	MG/L		2	.115000	.035355	.140000	.090000	80/12	81/06
NO3-N	TOTAL	MG/L		2	1.35500	.445476	1.67000	1.04000	80/12	81/06
TOT KJEL	N	MG/L		2	1.37500	.106077	1.45000	1.30000	80/12	81/06
PHOS-TOT		MG/L P		2	1.05750	.540939	1.44000	.675000	80/12	81/06
TOT HARD	CACO3	MG/L		2	209.000	43.8406	240.000	178.000	80/12	81/06
CHLORIDE	TOTAL	MG/L		1	74.0000		74.0000	74.0000	81/06	81/06
FLUORIDE	F,TOTAL	MG/L		1	.520000		.520000	.520000	81/06	81/06
CADMIUM	CD,TOT	UG/L	K	2	5.00000	.000000	5.00000	5.00000	80/12	81/06
CHROMIUM	CR,TOT	UG/L	K	2	30.0000	.000000	30.0000	30.0000	80/12	81/06
COPPER	CU,TOT	UG/L	K	2	30.0000	.000000	30.0000	30.0000	80/12	81/06
IRON	FE,TOT	UG/L		2	1860.00	1329.36	2800.00	920.000	80/12	81/06
LEAD	PB,TOT	UG/L		1	5.00000		5.00000	5.00000	81/06	81/06
			K	1	5.00000		5.00000	5.00000	80/12	80/12
			T	2	5.00000	.000000	5.00000	5.00000	80/12	81/06
NICKEL	NI,TOTAL	UG/L		1	100.000		100.000	100.000	80/12	80/12
			K	1	100.000		100.000	100.000	81/06	81/06
			T	2	100.000	.000000	100.000	100.000	80/12	81/06
ZINC	ZN,TOT	UG/L		1	30.0000		30.0000	30.0000	80/12	80/12
FEC COLI	MFM-FCBR	/100ML		2	1900.00	282.843	2100.00	1700.00	80/12	81/06
FECSTREP	MF M-ENT	/100ML		2	683.500	871.863	1300.00	67.0000	80/12	81/06
PHENOLS	TOTAL	UG/L		2	7.50000	.707107	8.00000	7.00000	80/12	81/06
MBAS		MG/L		2	.135000	.021214	.150000	.120000	80/12	81/06
RESIDUE	DISS-180	C MG/L		2	440.500	92.6310	506.000	375.000	80/12	81/06
MERCURY	HG,TOTAL	UG/L	K	1	.500000		.500000	.500000	80/12	80/12

TABLE RD 1-24

STATION NUMBER 502220
41 23 04.0 081 31 39.0 2
TINKERS CREEK AT BEDFORD - SR 14
LAKE ERIE (CUYAHOGA RIVER)
MILES 0017.80 0006.30

No data were collected from 10/81 - 9/82.

TABLE RD 1-25

STATION NUMBER 504250
41 34 27.0 081 34 10.0 2
EUCLID CREEK AT EUCLID - ST. CLAIR AVE
LAKE ERIE (EUCLID CREEK)
MILES 0001.70

PARAMETER			R	NO	MEAN	STAN DEV	MAXIMUM	MINIMUM	BEG	END
WATER	TEMP	CENT		11	9.45454	7.95442	22.5000	.000000	80/10	81/08
STREAM	STAGE	FEET		2	2.51000	.113138	2.59000	2.43000	80/10	80/11
CNDUCTVY	FIELD	MICROMHO		9	659.889	308.382	1339.00	310.000	80/11	81/08
CNDUCTVY	AT 25C	MICROMHO		1	557.000		557.000	557.000	80/10	80/10
DO		MG/L		10	11.4100	2.17383	13.8000	6.30000	80/10	81/07
COD	LOWLEVEL	MG/L		10	24.9200	16.3479	64.7000	12.0000	80/10	81/07
			K	1	6.00000		6.00000	6.00000	81/08	81/08
			T	11	23.2000	16.5248	64.7000	6.00000	80/10	81/08
PH		SU		1	6.80000		6.80000	6.80000	81/07	81/07
LAB	PH	SU		11	7.38181	.296051	7.80000	6.70000	80/10	81/08
RESIDUE	TOT NFLT	MG/L		6	78.6667	89.6385	251.000	20.0000	80/10	81/07
			K	5	10.0000	.000000	10.0000	10.0000	80/11	81/08
			T	11	47.4545	72.8249	251.000	10.0000	80/10	81/08
NH3+NH4-	N TOTAL	MG/L		10	.463000	.447364	1.60000	.140000	80/10	81/08
			K	1	.050000		.050000	.050000	81/07	81/07
			T	11	.425454	.442298	1.60000	.050000	80/10	81/08
NO2-N	TOTAL	MG/L		10	.065000	.143236	.470000	.010000	80/10	81/08
			K	1	.010000		.010000	.010000	81/03	81/03
			T	11	.060000	.136894	.470000	.010000	80/10	81/08
NO3-N	TOTAL	MG/L		11	.920909	.421958	1.72000	.390000	80/10	81/08
TOT KJEL	N	MG/L		11	1.25636	1.06813	3.49000	.490000	80/10	81/08
PHOS-TOT		MG/L P		11	.294000	.264108	.836000	.067000	80/10	81/08
TOT HARD	CACO3	MG/L		10	197.000	41.6893	268.000	136.000	80/10	81/08
CHLORIDE	TOTAL	MG/L		4	89.2500	37.0799	117.000	35.0000	81/05	81/08

TABLE RD 1-25 (Continued)

STATION NUMBER 504250
41 34 27.0 081 34 10.0 2
EUCLID CREEK AT EUCLID - ST. CLAIR AVE
LAKE ERIE (EUCLID CREEK)
MILES 0001.70

PARAMETER			R	NO	MEAN	STAN DEV	MAXIMUM	MINIMUM	BEG	END
SULFATE	SO4-TOT	MG/L		2	67.0000	46.6690	100.000	34.0000	81/06	81/07
CADMIUM	CD,TOT	UG/L	K	4	10.0000	10.0000	25.0000	5.00000	80/11	81/04
CHROMIUM	CR,TOT	UG/L		1	40.0000		40.0000	40.0000	81/01	81/01
			K	3	30.0000	.000000	30.0000	30.0000	80/11	81/04
			T	4	32.5000	5.00000	40.0000	30.0000	80/11	81/04
COPPER	CU,TOT	UG/L		1	30.0000		30.0000	30.0000	81/01	81/01
			K	10	30.0000	.000000	30.0000	30.0000	80/10	81/08
			T	11	30.0000	.000000	30.0000	30.0000	80/10	81/08
IRON	FE,TOT	UG/L		11	3044.55	3640.99	10600.0	810.000	80/10	81/08
LEAD	PB,TOT	UG/L		2	26.0000	4.24264	29.0000	23.0000	81/01	81/02
			K	9	5.55556	1.66667	10.0000	5.00000	80/10	81/08
			T	11	9.27273	8.50989	29.0000	5.00000	80/10	81/08
NICKEL	NI,TOTAL	UG/L	K	4	100.000	.000000	100.000	100.000	80/11	81/04
ZINC	ZN,TOT	UG/L		4	62.5000	33.0404	100.000	30.0000	80/11	81/06
			K	7	30.0000	.000000	30.0000	30.0000	80/10	81/08
			T	11	41.8182	24.4206	100.000	30.0000	80/10	81/08
FEC COLI	MFM-FCBR	/100ML		10	13687.5	16456.6	50000.0	55.0000	80/10	81/08
FECSTREP	MF M-ENT	/100ML		10	8950.00	10308.2	29000.0	40.0000	80/10	81/08
PHENOLS	TOTAL	UG/L		10	7.00000	5.01110	20.0000	2.00000	80/10	81/07
CHLORINE	TOT RESD	MG/L		1	.050000		.050000	.050000	81/05	81/05
			K	1	.020000		.020000	.020000	81/03	81/03
			T	2	.035000	.021213	.050000	.020000	81/03	81/05
RESIDUE	DISS-180 C	MG/L		11	673.273	455.273	1816.00	300.000	80/10	81/08
MERCURY	HG,TOTAL	UG/L	K	4	.500000	.000000	.500000	.500000	80/11	81/04

TABLE RD 1-26

STATION NUMBER 504250
41 34 27.0 081 34 10.0 2
EUCLID CREEK AT EUCLID - ST. CLAIR AVE
LAKE ERIE (EUCLID CREEK)
MILES 0001.70

No data were collected from 10/81 - 9/82.

TABLE RD 1-27

STATION NUMBER 502530
41 43 09.0 081 13 41.0 2
GRAND RIVER AT PAINESVILLE - SR 84
LAKE ERIE (GRAND RIVER)
MILES 0008.70

PARAMETER			R	NO	MEAN	STAN DEV	MAXIMUM	MINIMUM	BEG	END
WATER	TEMP	CENT		12	10.0000	9.47005	24.0000	.000000	80/10	81/09
STREAM	FLOW,	INST-CFS		6	1544.95	2210.82	5977.00	31.4000	80/12	81/07
STREAM	STAGE	FEET		11	3.33181	1.59346	7.41000	1.38000	80/10	81/08
CNDUCTVY	FIELD	MICROMHO		11	235.909	78.2886	360.000	90.0000	80/10	81/09
DO		MG/L		11	10.7636	2.60321	14.0000	6.30000	80/10	81/09
COD	LOWLEVEL	MG/L		11	19.3818	7.56970	31.4000	8.00000	80/10	81/09
			K	1	6.00000		6.00000	6.00000	81/07	81/07
			T	12	18.2667	8.18617	31.4000	6.00000	80/10	81/09
PH		SU		2	7.85000	.353532	8.10000	7.60000	81/07	81/09
LAB	PH	SU		11	7.19999	.469036	7.70000	6.10000	80/10	81/08
RESIDUE	TOT NFLT	MG/L		6	33.0000	29.0310	80.0000	10.0000	80/10	81/09
			K	6	10.0000	.000000	10.0000	10.0000	80/11	81/08
			T	12	21.5000	22.9644	80.0000	10.0000	80/10	81/09
OIL-GRSE	FREON-GR	MG/L	K	1	5.00000		5.00000	5.00000	81/09	81/09
NH3+NH4-	N TOTAL	MG/L		7	.125714	.081005	.290000	.060000	80/11	81/09
			K	5	.050000	.000061	.050000	.050000	80/10	81/08
			T	12	.094167	.071409	.290000	.050000	80/10	81/09
NO2-N	TOTAL	MG/L		7	.020000	.015275	.050000	.010000	80/10	81/08
			K	4	.010000	.000000	.010000	.010000	80/11	81/05
			T	11	.016364	.012863	.050000	.010000	80/10	81/08
NO3-N	TOTAL	MG/L		11	.421818	.321708	1.12000	.080000	80/10	81/09
			K	1	.050000		.050000	.050000	81/08	81/08
			T	12	.390833	.324974	1.12000	.050000	80/10	81/09
TOT KJEL	N	MG/L		12	.537500	.192502	.830000	.200000	80/10	81/09
PHOS-TOT		MG/L P		12	.058833	.031342	.123000	.027000	80/10	81/09
TOT HARD	CACO3	MG/L		7	130.143	28.1689	163.000	92.0000	80/10	81/07

TABLE RD 1-27 (Continued)

STATION NUMBER 502530
41 43 09.0 081 13 41.0 2
GRAND RIVER AT PAINESVILLE - SR 84
LAKE ERIE (GRAND RIVER)
MILES 0008.70

PARAMETER			R	NO	MEAN	STAN DEV	MAXIMUM	MINIMUM	BEG	END
CHLORIDE	TOTAL	MG/L		1	23.0000		23.0000	23.0000	81/06	81/06
SULFATE	SO4-TOT	MG/L		3	45.3333	14.2245	55.0000	29.0000	80/11	81/07
ARSENIC	AS,TOT	UG/L	K	2	10.0000	.000000	10.0000	10.0000	80/12	81/06
CADMIUM	CD,TOT	UG/L	K	6	5.00000	.000000	5.00000	5.00000	80/10	81/07
CHROMIUM	HEX-VAL	UG/L	K	6	50.0000	48.9898	150.000	30.0000	80/10	81/08
CHROMIUM	CR,TOT	UG/L		2	35.0000	7.07107	40.0000	30.0000	81/01	81/06
			K	10	30.0000	.000000	30.0000	30.0000	80/10	81/09
			T	12	30.8333	2.88696	40.0000	30.0000	80/10	81/09
COPPER	CU,TOT	UG/L	K	7	30.0000	.000000	30.0000	30.0000	80/10	81/05
IRON	FE,TOT	UG/L		12	1311.67	1163.47	4200.00	360.000	80/10	81/09
LEAD	PB,TOT	UG/L		3	13.0000	12.1655	27.0000	5.00000	80/10	81/04
			K	6	5.00000	.000000	5.00000	5.00000	80/11	81/09
			T	9	7.66667	7.28011	27.0000	5.00000	80/10	81/09
NICKEL	NI,TOTAL	UG/L	K	4	100.000	.000000	100.000	100.000	80/11	81/04
ZINC	ZN,TOT	UG/L		1	30.0000		30.0000	30.0000	81/01	81/01
ZINC	ZN,TOT	UG/L	K	11	30.0000	.000000	30.0000	30.0000	80/10	81/09
			T	12	30.0000	.000000	30.0000	30.0000	80/10	81/09
FEC COLI	MFM-FCBR	/100ML		11	304.091	267.477	730.000	30.0000	80/10	81/09
			K	1	7.00000		7.00000	7.00000	80/11	80/11
			T	12	279.333	269.064	730.000	7.00000	80/10	81/09
FECSTREP	MF M-ENT	/100ML		11	832.364	1191.17	3000.00	20.0000	80/10	81/09
PHENOLS	TOTAL	UG/L		9	5.44444	2.69774	10.0000	2.00000	80/11	81/09
			K	1	2.00000		2.00000	2.00000	81/07	81/07
			T	10	5.10000	2.76687	10.0000	2.00000	80/11	81/09
RESIDUE	DISS-180	C MG/L		12	278.916	182.296	786.000	94.0000	80/10	81/09
MERCURY	HG,TOTAL	UG/L	K	6	.500000	.000000	.500000	.500000	80/10	81/04

TABLE RD 1-28

STATION NUMBER 502530
41 43 09.0 081 13 41.0 2
GRAND RIVER AT PAINESVILLE - SR 84
LAKE ERIE (GRAND RIVER)
MILES 0008.70

PARAMETER			R	NO	MEAN	STAN DEV	MAXIMUM	MINIMUM	BEG	END
WATER	TEMP	CENT		11	9.31818	8.55358	23.5000	.000000	81/10	82/09
STREAM	FLOW,	INST-CFS		10	1028.53	1164.95	3208.00	29.0000	81/10	82/09
STREAM	STAGE	FEET		10	3.12799	1.32375	5.23000	1.27000	81/10	82/09
TURB	TRBIDMTR	HACH FTU		1	7.30000		7.30000	7.30000	81/10	81/10
CNDUCTVY	FIELD	MICROMHO		11	239.091	111.194	440.000	110.000	81/10	82/09
CNDUCTVY	AT 25C	MICROMHO		8	341.750	107.445	520.000	230.000	81/10	82/09
DO	PROBE	MG/L		9	10.9222	2.09033	13.2000	7.00000	81/12	82/09
DO		MG/L		2	12.5000	1.83858	13.8000	11.2000	81/10	81/11
BOD	5 DAY	MG/L		2	1.95000	1.34350	2.90000	1.00000	82/03	82/05
			K	1	1.00000		1.00000	1.00000	82/04	82/04
			T	3	1.63333	1.09697	2.90000	1.00000	82/03	82/05
COD	LOWLEVEL	MG/L		10	16.8000	8.29728	32.0000	7.00000	81/10	82/08
			K	1	10.0000		10.0000	10.0000	82/09	82/09
			T	11	16.1818	8.13412	32.0000	7.00000	81/10	82/09
PH		SU		11	8.09090	.291522	8.40000	7.40000	81/10	82/09
T ALK	CACO3	MG/L		1	68.0000		68.0000	68.0000	81/10	81/10
RESIDUE	TOT NFLT	MG/L		7	22.9714	16.4562	50.0000	5.80000	81/10	82/06
			K	4	6.25000	2.50000	10.0000	5.00000	81/11	82/09
			T	11	16.8909	15.3470	50.0000	5.00000	81/10	82/09
OIL-GRSE	FREON-GR	MG/L	K	1	5.00000		5.00000	5.00000	81/11	81/11
NH3+NH4-	N TOTAL	MG/L		4	.072500	.040311	.130000	.040000	82/01	82/08
			K	7	.050000	.000056	.050000	.050000	81/10	82/09
			T	11	.058182	.024827	.130000	.040000	81/10	82/09
NO2-N	TOTAL	MG/L		2	.025000	.007071	.030000	.020000	82/02	82/06
			K	6	.020000	.000023	.020000	.020000	81/12	82/09
			T	8	.021250	.003536	.030000	.020000	81/12	82/09
NO3-N	TOTAL	MG/L		8	.308750	.170415	.580000	.070000	81/10	82/09
			K	3	.050000	.000075	.050000	.050000	81/11	82/08
			T	11	.238182	.186913	.580000	.050000	81/10	82/09
TOT KJEL	N	MG/L		11	.429091	.115192	.700000	.300000	81/10	82/09
PHOS-TOT		MG/L P		4	.062750	.021685	.080000	.031000	81/10	82/06
			K	7	.050000	.000056	.050000	.050000	81/12	82/09
			T	11	.054636	.013508	.080000	.031000	81/10	82/09
PHOS-DIS		MG/L P		2	.052000	.002829	.054000	.050000	81/10	82/02
			K	2	.050000	.000061	.050000	.050000	82/01	82/03
			T	4	.051000	.002001	.054000	.050000	81/10	82/03

TABLE RD 1-28 (Continued)

STATION NUMBER 502530
41 43 09.0 081 13 41.0 2
GRAND RIVER AT PAINESVILLE - SR 84
LAKE ERIE (GRAND RIVER)
MILES 0008.70

PARAMETER			R	NO	MEAN	STAN DEV	MAXIMUM	MINIMUM	BEG	END
T ORG C	C	MG/L		1	9.00000		9.00000	9.00000	81/10	81/10
D ORG C	C	MG/L		1	17.0000		17.0000	17.0000	81/10	81/10
TOT HARD	CACO3	MG/L		7	104.286	49.9458	198.000	32.0000	81/10	82/09
CALCIUM	CA-TOT	MG/L		6	31.8166	11.2995	52.7000	20.1000	81/10	82/09
			K	1	100.000		100.000	100.000	82/01	82/01
CALCIUM	CA-TOT	MG/L	T	7	41.5571	27.7585	100.000	20.1000	81/10	82/09
MGNSIUM	MG,TOT	MG/L		6	9.23333	3.53706	16.2000	6.30000	81/12	82/09
SODIUM	NA,TOT	MG/L		1	19.0000		19.0000	19.0000	81/10	81/10
CHLORIDE	TOTAL	MG/L		1	37.0000		37.0000	37.0000	81/10	81/10
SULFATE	SO4-TOT	MG/L		1	35.0000		35.0000	35.0000	81/10	81/10
SILICA	DISOLVED	MG/L		1	5.19000		5.19000	5.19000	81/10	81/10
CADMIUM	CD,TOT	UG/L		1	3.20000		3.20000	3.20000	82/02	82/02
			K	4	.500000	.000000	.500000	.500000	81/12	82/09
			T	5	1.04000	1.20748	3.20000	.500000	81/12	82/09
CHROMIUM	CR,TOT	UG/L	K	5	30.0000	.000000	30.0000	30.0000	81/12	82/09
COPPER	CU,TOT	UG/L		2	10.0000	.000000	10.0000	10.0000	82/02	82/09
			K	5	14.0000	8.94427	30.0000	10.0000	81/10	82/06
			T	7	12.8571	7.55929	30.0000	10.0000	81/10	82/09
IRON	FE,TOT	UG/L		5	1192.00	678.727	1800.00	250.000	81/12	82/09
LEAD	PB,TOT	UG/L		1	2.00000		2.00000	2.00000	82/09	82/09
			K	6	4.50000	1.22474	5.00000	2.00000	81/10	82/06
			T	7	4.14286	1.46385	5.00000	2.00000	81/10	82/09
MANGNESE	MN	UG/L		1	40.0000		40.0000	40.0000	82/03	82/03
NICKEL	NI,TOTAL	UG/L	K	5	36.0000	5.47723	40.0000	30.0000	81/12	82/09
ZINC	ZN,TOT	UG/L		3	31.6667	12.5831	45.0000	20.0000	82/02	82/09
			K	4	15.0000	10.0000	30.0000	10.0000	81/10	82/06
			T	7	22.1428	13.4960	45.0000	10.0000	81/10	82/09
FEC COLI	MFM-FCBR	/100ML		11	102.364	110.587	380.000	15.0000	81/10	82/09
FECSTREP	MF M-ENT	/100ML		11	461.727	793.302	2200.00	20.0000	81/10	82/09
PHENOLS	TOTAL	UG/L		1	5.00000		5.00000	5.00000	81/10	81/10
			K	1	10.0000		10.0000	10.0000	82/09	82/09
			T	2	7.50000	3.53553	10.0000	5.00000	81/10	82/09
MBAS		MG/L		1	.070000		.070000	.070000	81/10	81/10
PCBS	WHL SMPL	UG/L	K	4	.500000	.000000	.500000	.500000	82/01	82/04
RESIDUE	DISS-180	C MG/L		10	232.700	80.8566	364.000	141.000	81/10	82/09

TABLE RD 1-29

STATION NUMBER 502520
41 44 09.0 081 15 59.0 2
GRAND RIVER AT PAINESVILLE - SR 535
LAKE ERIE 060691 (GRAND RIVER)
MILES 0002.30

PARAMETER			R	NO	MEAN	STAN DEV	MAXIMUM	MINIMUM	BEG	END
WATER	TEMP	CENT		11	11.4545	9.67330	24.5000	.500000	80/10	81/09
STREAM	STAGE	FEET		1	45.0900		45.0900	45.0900	81/09	81/09
TURB	TRBIDMTR	HACH FTU		12	14.3667	16.7452	62.0000	3.20000	80/10	81/09
CNDUCTVY	FIELD	MICROMHO		9	995.111	979.391	2750.00	120.000	80/10	81/09
CNDUCTVY	AT 25C	MICROMHO		7	806.286	575.496	1976.00	240.000	81/02	81/09
DO		MG/L		10	10.3450	2.28625	13.2000	6.95000	80/10	81/09
COD	LOWLEVEL	MG/L		12	22.1000	4.86012	30.0000	14.0000	80/10	81/09
PH		SU		2	8.00000	.000000	8.00000	8.00000	81/07	81/09
LAB	PH	SU		11	7.28182	.365572	7.70000	6.50000	80/10	81/08
T ALK	CACO3	MG/L		9	86.6667	75.2397	282.000	25.0000	80/10	81/09
			K	1	10.0000		10.0000	10.0000	80/12	80/12
			T	10	79.0000	74.9652	282.000	10.0000	80/10	81/09
RESIDUE	TOT NFLT	MG/L		7	31.8571	31.3870	96.0000	10.0000	80/10	81/09
			K	5	10.0000	.000000	10.0000	10.0000	80/11	81/05
			T	12	22.7500	25.7686	96.0000	10.0000	80/10	81/09
NH3+NH4-	N TOTAL	MG/L		12	.150833	.062153	.260000	.070000	80/10	81/09
NO2-N	TOTAL	MG/L		10	.029000	.028067	.100000	.010000	80/10	81/08
			K	1	.010000		.010000	.010000	81/03	81/03
			T	11	.027273	.027236	.100000	.010000	80/10	81/08
NO3-N	TOTAL	MG/L		12	.504166	.213306	.800000	.190000	80/10	81/09
TOT KJEL	N	MG/L		12	.715000	.175163	1.07000	.390000	80/10	81/09
PHOS-TOT		MG/L P		12	.075000	.026202	.134000	.037000	80/10	81/09
PHOS-DIS		MG/L P		11	.033091	.013262	.054000	.014000	80/11	81/09
T ORG C	C	MG/L		5	11.0000	2.73861	15.0000	8.00000	81/01	81/09
D ORG C	C	MG/L		6	10.0000	3.03315	15.0000	6.00000	81/01	81/09
TOT HARD	CACO3	MG/L		11	314.364	228.569	741.000	65.0000	80/10	81/09
CALCIUM	CA-TOT	MG/L		9	132.889	97.2027	300.000	17.0000	80/11	81/08
SODIUM	NA,TOT	MG/L		9	115.222	87.3968	275.000	15.0000	80/11	81/08
CHLORIDE	TOTAL	MG/L		12	289.000	277.983	865.000	34.0000	80/10	81/09

TABLE RD 1-29 (Continued)

STATION NUMBER 502520
41 44 09.0 081 15 59.0 2
GRAND RIVER AT PAINESVILLE - SR 535
LAKE ERIE 060691 (GRAND RIVER)
MILES 0002.30

PARAMETER			R	NO	MEAN	STAN DEV	MAXIMUM	MINIMUM	BEG	END
SULFATE	SO4-TOT	MG/L		12	44.0833	12.0790	61.0000	25.0000	80/10	81/09
SILICA	DISOLVED	MG/L		12	4.05333	1.63619	6.13000	1.11000	80/10	81/09
ARSENIC	AS,TOT	UG/L	K	3	10.0000	.000000	10.0000	10.0000	80/12	81/06
CADMIUM	CD,TOT	UG/L	K	7	5.71428	1.88983	10.0000	5.00000	80/10	81/09
CHROMIUM	HEX-VAL	UG/L		1	60.0000		60.0000	60.0000	81/08	81/08
			K	5	36.0000	13.4164	60.0000	30.0000	80/11	81/09
			T	6	40.0000	15.4919	60.0000	30.0000	80/11	81/09
CHROMIUM	CR,TOT	UG/L		6	38.3333	16.0208	70.0000	30.0000	80/12	81/08
			K	6	30.0000	.000000	30.0000	30.0000	80/10	81/09
			T	12	34.1667	11.6451	70.0000	30.0000	80/10	81/09
COPPER	CU,TOT	UG/L	K	10	30.0000	.000000	30.0000	30.0000	80/10	81/09
IRON	FE,TOT	UG/L		12	1315.00	1145.71	4500.00	290.000	80/10	81/09
LEAD	PB,TOT	UG/L		2	5.50000	.707107	6.00000	5.00000	80/10	81/02
			K	7	5.00000	.000000	5.00000	5.00000	80/11	81/09
			T	9	5.11111	.333353	6.00000	5.00000	80/10	81/09
MANGNESE	MN	UG/L		1	60.0000		60.0000	60.0000	81/04	81/04
NICKEL	NI,TOTAL	UG/L	K	7	100.000	.000000	100.000	100.000	80/10	81/09
VANADIUM	V,TOT	UG/L	K	1	100.000		100.000	100.000	81/04	81/04
ZINC	ZN,TOT	UG/L		1	30.0000		30.0000	30.0000	81/01	81/01
			K	11	30.0000	.000000	30.0000	30.0000	80/10	81/09
			T	12	30.0000	.000000	30.0000	30.0000	80/10	81/09
ALUMINUM	AL,TOT	UG/L		1	400.000		400.000	400.000	81/04	81/04
SELENIUM	SE,TOT	UG/L	K	1	50.0000		50.0000	50.0000	81/04	81/04
FEC COLI	MFM-FCBR	/100ML		11	617.273	505.254	2000.00	150.000	80/10	81/09
FECSTREP	MF M-ENT	/100ML		11	1346.45	2724.53	9400.00	57.0000	80/10	81/09
PHENOLS	TOTAL	UG/L		12	8.50000	3.28910	17.0000	4.00000	80/10	81/09
MBAS		MG/L		6	1.50333	3.32999	8.30000	.090000	80/10	81/09
PCBS	WHL SMPL	UG/L	K	10	.500000	.000000	.500000	.500000	80/12	81/09
RESIDUE	DISS-180	C MG/L		12	730.000	567.824	1908.00	118.000	80/10	81/09
MERCURY	HG,TOTAL	UG/L	K	7	.500000	.000000	.500000	.500000	80/10	81/07

TABLE RD 1-30

STATION NUMBER 502520
41 44 09.0 081 15 59.0 2
GRAND RIVER AT PAINESVILLE - SR 535
LAKE ERIE 060691 (GRAND RIVER)
MILES 0002.30

PARAMETER			R	NO	MEAN	STAN DEV	MAXIMUM	MINIMUM	BEG	END
WATER	TEMP	CENT		11	9.95454	9.25596	25.5000	.000000	81/10	82/09
STREAM	STAGE	FEET		5	51.2019	13.7137	75.7300	44.9100	81/10	82/03
TURB	TRBIDMTR	HACH FTU		2	5.10000	2.82843	7.10000	3.10000	81/10	81/11
CNDUCTVY	FIELD	MICROMHO		11	993.182	1346.67	4850.00	260.000	81/10	82/09
CNDUCTVY	AT 25C	MICROMHO		9	1206.78	1299.84	4500.00	440.000	81/10	82/09
DO	PROBE	MG/L		9	10.5667	2.14595	12.8000	7.00000	81/12	82/09
DO		MG/L		2	11.6500	1.62643	12.8000	10.5000	81/10	81/11
BOD	5 DAY	MG/L		3	1.30000	.519617	1.90000	1.00000	82/02	82/05
			K	1	1.00000		1.00000	1.00000	82/04	82/04
			T	4	1.22500	.450001	1.90000	1.00000	82/02	82/05
COD	LOWLEVEL	MG/L		14	25.1428	9.27247	40.0000	11.0000	81/10	82/09
PH		SU		11	7.94545	.304587	8.40000	7.30000	81/10	82/09
T ALK	CACO3	MG/L		2	76.5000	3.53553	79.0000	74.0000	81/10	81/11
RESIDUE	TOT NFLT	MG/L		8	16.5000	11.8683	42.0000	6.00000	81/12	82/09
			K	3	8.33333	2.88676	10.0000	5.00000	81/10	82/01
			T	11	14.2727	10.7153	42.0000	5.00000	81/10	82/09
NH3+NH4-	N TOTAL	MG/L		10	.135000	.085927	.350000	.060000	81/10	82/09
			K	1	.050000		.050000	.050000	82/04	82/04
			T	11	.127272	.085451	.350000	.050000	81/10	82/09
NO2-N	TOTAL	MG/L		5	.026000	.008944	.040000	.020000	82/02	82/09
			K	3	.020000	.000000	.020000	.020000	81/12	82/04
			T	8	.023750	.007440	.040000	.020000	81/12	82/09
NO3-N	TOTAL	MG/L		11	.383636	.217590	.860000	.130000	81/10	82/09
TOT KJEL	N	MG/L		11	.609090	.180912	.800000	.350000	81/10	82/09
PHOS-TOT		MG/L P		7	.070571	.026658	.120000	.049000	81/10	82/09
			K	4	.050000	.000050	.050000	.050000	81/12	82/05
			T	11	.063091	.023110	.120000	.049000	81/10	82/09
PHOS-DIS		MG/L P		2	.068000	.025456	.086000	.050000	81/10	82/02
			K	4	.050000	.000050	.050000	.050000	81/12	82/06
			T	6	.056000	.014697	.086000	.050000	81/10	82/06
T ORG C	C	MG/L		2	10.5000	2.12132	12.0000	9.00000	81/10	81/11
D ORG C	C	MG/L	K	1	6.00000		6.00000	6.00000	81/10	81/10

TABLE RD 1-30 (Continued)

STATION NUMBER 502520
41 44 09.0 081 15 59.0 2
GRAND RIVER AT PAINESVILLE - SR 535
LAKE ERIE 060691 (GRAND RIVER)
MILES 0002.30

PARAMETER			R	NO	MEAN	STAN DEV	MAXIMUM	MINIMUM	BEG	END
TOT HARD	CACO3	MG/L		11	219.609	124.777	479.000	32.7000	81/10	82/09
CALCIUM	CA-TOT	MG/L		11	79.9090	43.8773	174.200	44.6000	81/10	82/09
MGNSIUM	MG,TOT	MG/L		9	9.24444	2.18926	13.1000	6.70000	81/12	82/09
SODIUM	NA,TOT	MG/L		3	99.1667	48.2763	146.500	50.0000	81/10	82/09
CHLORIDE	TOTAL	MG/L		2	220.500	109.602	298.000	143.000	81/10	81/11
SULFATE	SO4-TOT	MG/L		2	44.0000	9.89949	51.0000	37.0000	81/10	81/11
SILICA	DISOLVED	MG/L		2	3.77500	2.04354	5.22000	2.33000	81/10	81/11
CADMIUM	CD,TOT	UG/L	K	6	.500000	.000000	.500000	.500000	81/12	82/08
CHROMIUM	CR,TOT	UG/L		2	35.0000	7.07107	40.0000	30.0000	82/02	82/08
CHROMIUM	CR,TOT	UG/L	K	4	30.0000	.000000	30.0000	30.0000	81/12	82/06
			T	6	31.6667	4.08264	40.0000	30.0000	81/12	82/08
COPPER	CU,TOT	UG/L		4	12.5000	2.88675	15.0000	10.0000	82/04	82/09
			K	7	15.7143	9.75900	30.0000	10.0000	81/10	82/06
			T	11	14.5455	7.89131	30.0000	10.0000	81/10	82/09
IRON	FE,TOT	UG/L		6	1081.67	467.395	1680.00	450.000	81/12	82/06
LEAD	PB,TOT	UG/L		2	5.00000	2.82843	7.00000	3.00000	81/10	82/06
			K	8	3.87500	1.55265	5.00000	2.00000	81/11	82/08
			T	10	4.10000	1.72884	7.00000	2.00000	81/10	82/08
MANGNESE	MN	UG/L		1	50.0000		50.0000	50.0000	82/03	82/03
NICKEL	NI,TOTAL	UG/L	K	5	36.0000	5.47723	40.0000	30.0000	81/12	82/06
ZINC	ZN,TOT	UG/L		4	23.7500	15.4785	45.0000	10.0000	82/02	82/09
			K	7	15.7143	9.75900	30.0000	10.0000	81/10	82/06
			T	11	18.6363	12.0605	45.0000	10.0000	81/10	82/09
FEC COLI	MFM-FCBR	/100ML		11	285.182	287.321	770.000	63.0000	81/10	82/09
FECSTREP	MF M-ENT	/100ML		11	426.091	593.915	1900.00	15.0000	81/10	82/09
PHENOLS	TOTAL	UG/L		2	4.50000	.707107	5.00000	4.00000	81/10	81/11
			K	2	10.0000	.000000	10.0000	10.0000	82/08	82/09
			T	4	7.25000	3.20156	10.0000	4.00000	81/10	82/09
MBAS		MG/L		2	.110000	.014142	.120000	.100000	81/10	81/11
PCBS	WHL SMPL	UG/L	K	10	.500000	.000000	.500000	.500000	81/11	82/09
RESIDUE	DISS-180	C MG/L		9	594.444	337.308	1350.00	318.000	81/10	82/09

TABLE RD 1-31

STATION NUMBER 610050
39 52 20.5 084 09 48.0 2
GREAT MIAMI R NR VANDALIA - SR 440
OHIO RIVER (GREAT MIAMI RIVER)
MILES 0953.80 0490.43 092.46

PARAMETER			R	NO	MEAN	STAN DEV	MAXIMUM	MINIMUM	BEG	END
WATER	TEMP	CENT		14	11.8143	7.64489	23.2000	.000000	80/10	81/09
CNDUCTVY	AT 25C	MICROMHO		13	648.231	171.472	833.000	136.000	80/10	81/09
INTNSVE	SURVEY	IDENT		2	803901	.000000	803901	803901	80/10	80/10
DO	PROBE	MG/L		2	8.55000	.495124	8.90000	8.20000	80/10	80/10
DO		MG/L		12	9.75833	2.10432	13.2000	6.40000	80/10	81/09
BOD	5 DAY	MG/L		1	4.30000		4.30000	4.30000	80/10	80/10
COD	LOWLEVEL	MG/L		14	22.0143	12.1685	53.0000	8.00000	80/10	81/09
PH		SU		3	7.96666	.351324	8.30000	7.60000	81/06	81/09
LAB	PH	SU		10	7.94999	.151042	8.10000	7.60000	80/10	81/08
RESIDUE	TOT NFLT	MG/L		9	58.2111	36.3047	136.000	23.0000	80/10	81/09
			K	5	10.0000	.000000	10.0000	10.0000	80/10	81/03
			T	14	40.9928	37.2262	136.000	10.0000	80/10	81/09
NH3+NH4-	N TOTAL	MG/L		12	.282500	.235762	.790000	.060000	80/10	81/09
			K	2	.050000	.000061	.050000	.050000	81/04	81/06
			T	14	.249285	.232724	.790000	.050000	80/10	81/09
NO2-N	TOTAL	MG/L		2	.020000	.000000	.020000	.020000	80/10	80/10
NO3-N	TOTAL	MG/L		14	3.52571	1.46546	6.60000	2.02000	80/10	81/09
TOT KJEL	N	MG/L		14	1.12357	.507629	2.65000	.630000	80/10	81/09
PHOS-TOT		MG/L P		14	.433142	.160424	.663000	.198000	80/10	81/09
CYANIDE	CN-TOT	MG/L	K	7	.010000	.000009	.010000	.010000	80/10	81/09
TOT HARD	CACO3	MG/L		7	350.000	20.9125	392.000	326.000	80/10	81/09
MGNSIUM	MG,TOT	MG/L		2	40.0000	.000000	40.0000	40.0000	80/10	80/10
CADMIUM	CD,TOT	UG/L	K	7	3.85714	1.95180	5.00000	1.00000	80/10	81/09
CHROMIUM	CR,TOT	UG/L		1	30.0000		30.0000	30.0000	81/06	81/06
			K	6	33.3333	5.16403	40.0000	30.0000	80/10	81/09
			T	7	32.8571	4.87961	40.0000	30.0000	80/10	81/09
COPPER	CU,TOT	UG/L	K	7	22.8571	12.1988	30.0000	5.00000	80/10	81/09
IRON	FE,TOT	UG/L		7	758.571	509.720	1490.00	230.000	80/10	81/09
LEAD	PB,TOT	UG/L		2	7.00000	2.82843	9.00000	5.00000	80/10	81/03
			K	5	5.00000	.000000	5.00000	5.00000	80/10	81/09
			T	7	5.57143	1.51186	9.00000	5.00000	80/10	81/09
NICKEL	NI,TOTAL	UG/L		3	100.000	.000000	100.000	100.000	80/12	81/09
			K	4	70.0000	34.6410	100.000	40.0000	80/10	81/06
			T	7	82.8571	29.2771	100.000	40.0000	80/10	81/09
ZINC	ZN,TOT	UG/L		2	12.5000	3.53553	15.0000	10.0000	80/10	80/10
			K	5	30.0000	.000000	30.0000	30.0000	80/10	81/09
			T	7	25.0000	8.66025	30.0000	10.0000	80/10	81/09
FEC COLI	MFM-FCBR	/100ML		12	2955.00	2450.00	8000.00	260.000	80/10	81/09
			L	1	100000		100000	100000	80/11	80/11
			T	13	10420.0	27017.5	100000	260.000	80/10	81/09
PHENOLS	TOTAL	UG/L		6	3.66667	1.75119	7.00000	2.00000	80/10	81/06
PHENOLS	TOTAL	UG/L	K	1	2.00000		2.00000	2.00000	81/09	81/09
			T	7	3.42857	1.71825	7.00000	2.00000	80/10	81/09
MERCURY	HG,TOTAL	UG/L	K	5	.500000	.000000	.500000	.500000	80/10	81/09

TABLE RD 1-32

STATION NUMBER 610050
39 52 20.5 084 09 48.0 2
GREAT MIAMI R NR VANDALIA - SR 440
OHIO RIVER (GREAT MIAMI RIVER)
MILES 0953.80 0490.43 092.46

No data were collected from 10/81 - 9/82.

TABLE RD 1-33

STATION NUMBER 610060
39 45 55.0 084 11 51.0 2
GREAT MIAMI RIVER AT DAYTON - MAIN ST
OHIO RIVER (GREAT MIAMI RIVER)
MILES 0953.80 0490.10 080.00

PARAMETER			R	NO	MEAN	STAN DEV	MAXIMUM	MINIMUM	BEG	END
WATER	TEMP	CENT		12	11.5333	7.22865	23.1000	1.00000	80/10	81/09
CNDUCTVY	AT 25C	MICROMHO		12	679.833	110.414	879.000	508.000	80/10	81/09
INTNSVE	SURVEY	IDENT		2	803901	.000000	803901	803901	80/10	80/10
DO	PROBE	MG/L		2	8.64999	.072028	8.70000	8.60000	80/10	80/10
DO		MG/L		10	10.6500	2.00403	13.6000	7.60000	80/11	81/09
BOD	5 DAY	MG/L		2	3.20000	1.55563	4.30000	2.10000	80/10	80/10
COD	LOWLEVEL	MG/L		13	19.6769	12.3760	44.0000	9.00000	80/10	81/09
PH		SU		3	8.13333	.153516	8.30000	8.00000	81/06	81/09
LAB	PH	SU		8	8.02499	.175390	8.30000	7.70000	80/10	81/05
RESIDUE	TOT NFLT	MG/L		9	85.7111	103.780	325.000	13.0000	80/10	81/09
			K	3	10.0000	.000000	10.0000	10.0000	80/12	81/03
			T	12	66.7833	94.8971	325.000	10.0000	80/10	81/09
NH3+NH4-	N TOTAL	MG/L		11	.289091	.338185	1.09000	.050000	80/10	81/09
			K	2	.050000	.000061	.050000	.050000	81/04	81/06
			T	13	.252307	.321510	1.09000	.050000	80/10	81/09
NO2-N	TOTAL	MG/L		2	.050000	.014142	.060000	.040000	80/10	80/10
NO3-N	TOTAL	MG/L		13	3.60307	1.83021	7.70000	2.14000	80/10	81/09
TOT KJEL	N	MG/L		13	1.13077	.783817	3.48000	.600000	80/10	81/09
PHOS-TOT		MG/L P		13	.361384	.125573	.598000	.212000	80/10	81/09
CYANIDE	CN-TOT	MG/L	K	6	.010000	.000000	.010000	.010000	80/10	81/09
TOT HARD	CACO3	MG/L		6	364.000	20.5134	388.000	340.000	80/10	81/09
MGNSIUM	MG,TOT	MG/L		2	41.5000	2.12132	43.0000	40.0000	80/10	80/10
CADMIUM	CD,TOT	UG/L	K	6	3.66667	2.06559	5.00000	1.00000	80/10	81/09
CHROMIUM	CR,TOT	UG/L		1	30.0000		30.0000	30.0000	81/06	81/06
			K	5	34.0000	5.47723	40.0000	30.0000	80/10	81/09
			T	6	33.3333	5.16403	40.0000	30.0000	80/10	81/09
COPPER	CU,TOT	UG/L		1	5.00000		5.00000	5.00000	80/10	80/10
			K	5	25.0000	11.1803	30.0000	5.00000	80/10	81/09
			T	6	21.6667	12.9100	30.0000	5.00000	80/10	81/09
IRON	FE,TOT	UG/L		6	681.666	433.978	1380.00	300.000	80/10	81/09
LEAD	PB,TOT	UG/L		1	6.00000		6.00000	6.00000	81/06	81/06
			K	5	5.00000	.000000	5.00000	5.00000	80/10	81/09
			T	6	5.16667	.408273	6.00000	5.00000	80/10	81/09
NICKEL	NI,TOTAL	UG/L		3	100.000	.000000	100.000	100.000	80/12	81/09
			K	3	60.0000	34.6410	100.000	40.0000	80/10	81/06
			T	6	80.0000	30.9839	100.000	40.0000	80/10	81/09
ZINC	ZN,TOT	UG/L		3	15.0000	13.2288	30.0000	5.00000	80/10	80/12
			K	3	30.0000	.000000	30.0000	30.0000	81/03	81/09
			T	6	22.5000	11.7260	30.0000	5.00000	80/10	81/09
FEC COLI	MFM-FCBR	/100ML		11	1382.27	966.062	3200.00	85.0000	80/10	81/09
			L	1	100000		100000	100000	81/08	81/08
FEC COLI	MFM-FCBR	/100ML	T	12	9600.41	28483.4	100000	85.0000	80/10	81/09
PHENOLS	TOTAL	UG/L		5	3.60000	1.34165	5.00000	2.00000	80/10	81/06
			K	1	2.00000		2.00000	2.00000	81/09	81/09
			T	6	3.33333	1.36627	5.00000	2.00000	80/10	81/09
MERCURY	HG,TOTAL	UG/L	K	4	.500000	.000000	.500000	.500000	80/12	81/09

TABLE RD 1-34

STATION NUMBER 610060
39 45 55.0 084 11 51.0 2
GREAT MIAMI RIVER AT DAYTON - MAIN ST
OHIO RIVER (GREAT MIAMI RIVER)
MILES 0953.80 0490.10 080.00

PARAMETER			R	NO	MEAN	STAN DEV	MAXIMUM	MINIMUM	BEG	END
WATER	TEMP	CENT		12	12.0333	8.02636	23.5000	.000000	81/10	82/09
STREAM	FLOW	CFS		7	3360.71	3065.15	10230.0	1389.00	81/12	82/06
STREAM	STAGE	FEET		6	26.4283	.975080	28.3200	25.5300	81/11	82/06
CNDUCTVY	AT 25C	MICROMHO		11	622.091	121.327	783.000	410.000	81/10	82/09
DO	PROBE	MG/L		10	10.4500	2.77219	14.8000	7.10000	81/12	82/09
DO		MG/L		2	10.7000	.424417	11.0000	10.4000	81/10	81/11
COD	LOWLEVEL	MG/L		12	23.5000	14.2287	66.0000	12.0000	81/10	82/09
PH		SU		1	8.40000		8.40000	8.40000	81/10	81/10
LAB	PH	SU		10	8.09899	.229876	8.46000	7.74000	81/11	82/09
RESIDUE	TOT NFLT	MG/L		10	54.6000	66.8750	215.000	8.00000	81/10	82/09
			K	1	10.0000		10.0000	10.0000	81/11	81/11
			T	11	50.5454	64.8527	215.000	8.00000	81/10	82/09
NH3+NH4-	N TOTAL	MG/L		10	.248000	.147634	.500000	.090000	81/10	82/09
			K	2	.050000	.000061	.050000	.050000	82/05	82/07
			T	12	.215000	.154185	.500000	.050000	81/10	82/09
NO2-N	TOTAL	MG/L		2	.105000	.021213	.120000	.090000	82/03	82/06
NO3-N	TOTAL	MG/L		11	3.06545	1.30057	5.45000	1.14000	81/10	82/08
TOT KJEL	N	MG/L		12	.971666	.219994	1.50000	.640000	81/10	82/09
PHOS-TOT		MG/L P		12	.318416	.093688	.480000	.170000	81/10	82/09
CYANIDE	CN-TOT	MG/L	K	1	.010000		.010000	.010000	81/12	81/12
TOT HARD	CACO3	MG/L		4	310.500	58.8189	366.000	252.000	81/12	82/09
CALCIUM	CA-TOT	MG/L		4	72.9250	11.8409	86.2000	62.3000	81/12	82/09
MGNSIUM	MG,TOT	MG/L		4	31.1750	7.81300	40.7000	23.4000	81/12	82/09
CADMIUM	CD,TOT	UG/L	K	3	.500000	.000000	.500000	.500000	81/12	82/06
CHROMIUM	CR,TOT	UG/L	K	4	30.0000	.000000	30.0000	30.0000	81/12	82/09
COPPER	CU,TOT	UG/L		1	10.0000		10.0000	10.0000	82/06	82/06
			K	3	10.0000	.000000	10.0000	10.0000	81/12	82/09
			T	4	10.0000	.000000	10.0000	10.0000	81/12	82/09
IRON	FE,TOT	UG/L		4	3957.50	3837.21	8580.00	780.000	81/12	82/09
LEAD	PB,TOT	UG/L		3	7.06667	2.72275	9.20000	4.00000	82/03	82/09
			K	1	5.00000		5.00000	5.00000	81/12	81/12
			T	4	6.55000	2.45153	9.20000	4.00000	81/12	82/09
NICKEL	NI,TOTAL	UG/L	K	4	37.5000	5.00000	40.0000	30.0000	81/12	82/09
ZINC	ZN,TOT	UG/L		4	27.5000	10.4083	40.0000	15.0000	81/12	82/09
FEC COLI	MFM-FCBR	/100ML		11	2097.00	1532.09	4500.00	67.0000	81/10	82/09
PHENOLS	TOTAL	UG/L		1	2.00000		2.00000	2.00000	81/12	81/12

TABLE RD 1-35

STATION NUMBER 600150
39 38 40.0 084 17 23.0 2
GREAT MIAMI R. AT MIAMISBURG - SR 725
OHIO RIVER 051391 (GREAT MIAMI RIVER)
MILES 0953.80 0490.10 066.40

PARAMETER			R	NO	MEAN	STAN DEV	MAXIMUM	MINIMUM	BEG	END
WATER	TEMP	CENT		13	14.1462	7.44207	23.5000	4.50000	80/10	81/09
STREAM	FLOW,	INST-CFS		11	2891.69	2207.14	6691.00	405.000	80/11	81/09
STREAM	STAGE	FEET		9	4.36222	1.64708	6.62000	2.40000	80/11	81/09
CNDUCTVY	AT 25C	MICROMHO		12	688.333	187.622	983.000	271.000	80/10	81/09
INTNSVE	SURVEY	IDENT		2	803901	.000000	803901	803901	80/10	80/10
DO	PROBE	MG/L		2	6.45000	.919248	7.10000	5.80000	80/10	80/10
DO		MG/L		7	8.29999	1.63710	10.5000	6.30000	80/11	81/09
BOD	5 DAY	MG/L		2	9.85000	3.04057	12.0000	7.70000	80/10	80/10
COD	LOWLEVEL	MG/L		13	27.2000	10.8684	49.0000	15.0000	80/10	81/09
PH		SU		2	8.24999	.072345	8.30000	8.20000	81/08	81/09
LAB	PH	SU		10	7.83999	.183995	8.20000	7.60000	80/10	81/07
RESIDUE	TOT NFLT	MG/L		10	87.7100	89.7676	280.000	15.0000	80/10	81/09
			K	3	10.0000	.000000	10.0000	10.0000	80/11	81/03
			T	13	69.7769	84.8821	280.000	10.0000	80/10	81/09
NH3+NH4-	N TOTAL	MG/L		13	1.20769	1.05624	3.34000	.160000	80/10	81/09
NO2-N	TOTAL	MG/L		2	.420000	.056568	.460000	.380000	80/10	80/10
NO3-N	TOTAL	MG/L		13	3.81923	1.51499	6.33000	1.92000	80/10	81/09
TOT KJEL	N	MG/L		13	2.31923	.981668	4.74000	1.35000	80/10	81/09
PHOS-TOT		MG/L P		13	.621153	.267230	1.00000	.275000	80/10	81/09
CYANIDE	CN-TOT	MG/L		2	.024000	.005657	.028000	.020000	80/10	81/03
			K	4	.010000	.000000	.010000	.010000	80/10	81/09
			T	6	.014667	.007659	.028000	.010000	80/10	81/09
TOT HARD	CACO3	MG/L		6	345.000	45.6070	387.000	261.000	80/10	81/09
MGNSIUM	MG,TOT	MG/L		2	42.5000	3.53553	45.0000	40.0000	80/10	80/10
CADMIUM	CD,TOT	UG/L	K	6	3.66667	2.06559	5.00000	1.00000	80/10	81/09
CHROMIUM	CR,TOT	UG/L		1	30.0000		30.0000	30.0000	81/06	81/06
			K	5	34.0000	5.47723	40.0000	30.0000	80/10	81/09
			T	6	33.3333	5.16403	40.0000	30.0000	80/10	81/09
COPPER	CU,TOT	UG/L		2	12.5000	3.53553	15.0000	10.0000	80/10	80/10
			K	4	30.0000	.000000	30.0000	30.0000	80/12	81/09
			T	6	24.1667	9.17427	30.0000	10.0000	80/10	81/09
IRON	FE,TOT	UG/L		6	1851.67	2868.19	7600.00	230.000	80/10	81/09
LEAD	PB,TOT	UG/L		5	10.4000	9.28978	27.0000	6.00000	80/10	81/09
			K	1	5.00000		5.00000	5.00000	81/03	81/03
			T	6	9.50000	8.59651	27.0000	5.00000	80/10	81/09
NICKEL	NI,TOTAL	UG/L		2	100.000	.000000	100.000	100.000	80/12	81/03
			K	4	70.0000	34.6410	100.000	40.0000	80/10	81/09
			T	6	80.0000	30.9839	100.000	40.0000	80/10	81/09
ZINC	ZN,TOT	UG/L		6	54.1667	31.0511	105.000	30.0000	80/10	81/09
FEC COLI	MFM-FCBR	/100ML		8	18007.5	11296.9	39000.0	7200.00	80/10	81/09
			L	3	100000	.000000	100000	100000	80/11	81/01
FEC COLI	MFM-FCBR	/100ML	T	11	40369.1	39447.7	100000	7200.00	80/10	81/09
PHENOLS	TOTAL	UG/L		6	6.66667	1.96639	9.00000	4.00000	80/10	81/09
MERCURY	HG,TOTAL	UG/L	K	4	.500000	.000000	.500000	.500000	80/12	81/09

TABLE RD 1-36

STATION NUMBER 600150
39 38 40.0 084 17 23.0 2
GREAT MIAMI R. AT MIAMISBURG - SR 725
OHIO RIVER 051391 (GREAT MIAMI RIVER)
MILES 0953.80 0490.10 066.40

No data were collected from 10/81 - 9/82.

TABLE RD 1-37

STATION NUMBER 600270
39 23 28.0 084 34 20.0 2
GREAT MIAMI RIVER AT HAMILTON - COLUMBIA RD
OHIO RIVER 051391 (GREAT MIAMI RIVER)
MILES 0953.80 0490.10 034.90

PARAMETER			R	NO	MEAN	STAN DEV	MAXIMUM	MINIMUM	BEG	END
WATER	TEMP	CENT		13	15.1462	7.69758	25.5000	5.00000	80/10	81/09
STREAM	FLOW,	INST-CFS		11	3519.35	3147.13	11510.0	951.900	80/10	81/09
STREAM	STAGE	FEET		9	59.1543	1.70320	62.6100	57.3500	80/11	81/09
CNDUCTVY	AT 25C	MICROMHO		12	734.250	143.027	971.000	509.000	80/10	81/09
INTNSVE	SURVEY	IDENT		2	803901	.000000	803901	803901	80/10	80/10
DO	PROBE	MG/L		2	10.7000	1.41425	11.7000	9.70000	80/10	80/10
DO		MG/L		7	9.77142	1.73082	11.8000	7.40000	80/11	81/09
BOD	5 DAY	MG/L		2	5.20000	1.83848	6.50000	3.90000	80/10	80/10
COD	LOWLEVEL	MG/L		13	23.7769	9.70901	46.0000	14.5000	80/10	81/09
PH		SU		2	8.39999	.142136	8.50000	8.30000	81/08	81/09
LAB	PH	SU		10	7.92999	.141873	8.20000	7.70000	80/10	81/07
RESIDUE	TOT NFLT	MG/L		11	87.8636	94.7793	290.000	10.0000	80/10	81/09
			K	1	10.0000		10.0000	10.0000	80/11	80/11
			T	12	81.3750	93.1219	290.000	10.0000	80/10	81/09
NH3+NH4-	N TOTAL	MG/L		12	.556666	.605585	2.02000	.100000	80/10	81/09
			K	1	.050000		.050000	.050000	81/08	81/08
			T	13	.517692	.596590	2.02000	.050000	80/10	81/09
NO2-N	TOTAL	MG/L		2	.135000	.021214	.150000	.120000	80/10	80/10
NO3-N	TOTAL	MG/L		13	3.95153	1.27731	6.27000	2.63000	80/10	81/09
TOT KJEL	N	MG/L		13	1.50923	.488017	2.51000	.770000	80/10	81/09
PHOS-TOT		MG/L P		13	.502923	.180531	.770000	.248000	80/10	81/09
CYANIDE	CN-TOT	MG/L	K	6	.010000	.000000	.010000	.010000	80/10	81/09
TOT HARD	CACO3	MG/L		6	349.666	37.1431	397.000	293.000	80/10	81/09
MGNSIUM	MG,TOT	MG/L		2	42.5000	3.53553	45.0000	40.0000	80/10	80/10
CADMIUM	CD,TOT	UG/L	K	6	3.66667	2.06559	5.00000	1.00000	80/10	81/09
CHROMIUM	CR,TOT	UG/L		1	40.0000		40.0000	40.0000	81/06	81/06
			K	5	34.0000	5.47723	40.0000	30.0000	80/10	81/09
			T	6	35.0000	5.47723	40.0000	30.0000	80/10	81/09
COPPER	CU,TOT	UG/L		2	10.0000	.000000	10.0000	10.0000	80/10	80/10
			K	4	30.0000	.000000	30.0000	30.0000	80/12	81/09
			T	6	23.3333	10.3280	30.0000	10.0000	80/10	81/09
IRON	FE,TOT	UG/L		6	2580.00	3800.44	10300.0	670.000	80/10	81/09
LEAD	PB,TOT	UG/L		3	10.6667	8.08291	20.0000	6.00000	80/12	81/09
			K	3	5.00000	.000000	5.00000	5.00000	80/10	81/03
			T	6	7.83333	5.98053	20.0000	5.00000	80/10	81/09
NICKEL	NI,TOTAL	UG/L		2	100.000	.000000	100.000	100.000	80/12	81/03
			K	4	70.0000	34.6410	100.000	40.0000	80/10	81/09
			T	6	80.0000	30.9839	100.000	40.0000	80/10	81/09
ZINC	ZN,TOT	UG/L		6	73.3333	68.6052	200.000	20.0000	80/10	81/09
FEC COLI	MFM-FCBR	/100ML		8	22050.0	27918.4	72000.0	1700.00	81/01	81/09
			L	2	100000	.000000	100000	100000	80/12	81/07
FEC COLI	MFM-FCBR	/100ML	T	10	37640.0	41066.3	100000	1700.00	80/12	81/09
PHENOLS	TOTAL	UG/L		6	5.66667	1.96639	9.00000	4.00000	80/10	81/09
MERCURY	HG,TOTAL	UG/L		1	1.00000		1.00000	1.00000	81/09	81/09
			K	3	.500000	.000000	.500000	.500000	80/12	81/06
			T	4	.625000	.250000	1.00000	.500000	80/12	81/09

TABLE RD 1-38

STATION NUMBER 600270
39 23 28.0 084 34 20.0 2
GREAT MIAMI RIVER AT HAMILTON - COLUMBIA RD
OHIO RIVER 051391 (GREAT MIAMI RIVER)
MILES 0953.80 0490.10 034.90

No data were collected from 10/81 - 9/82.

TABLE RD 1-39

STATION NUMBER 600350
39 55 32.0 083 50 53.0 2
BUCK CREEK AT SPRINGFIELD - U.S. RT. 40
OHIO RIVER (GREAT MIAMI RIVER)
MILES 0953.80 0490.10 080.70 026.50 000.20

PARAMETER			R	NO	MEAN	STAN DEV	MAXIMUM	MINIMUM	BEG	END
WATER	TEMP	CENT		3	11.2333	9.35219	21.5000	3.20000	80/10	81/07
CNDUCTVY	AT 25C	MICROMHO		4	579.750	77.3757	671.000	496.000	80/10	81/07
DO		MG/L		3	10.6667	2.48464	12.2000	7.80000	80/10	81/07
COD	LOWLEVEL	MG/L		4	13.5000	6.85565	19.0000	4.00000	80/10	81/07
PH		SU		1	8.10000		8.10000	8.10000	81/07	81/07
LAB	PH	SU		2	8.05000	.071709	8.10000	8.00000	80/10	81/02
RESIDUE	TOT NFLT	MG/L		3	26.0000	12.7671	37.0000	12.0000	81/02	81/07
			K	1	10.0000		10.0000	10.0000	80/10	80/10
			T	4	22.0000	13.1403	37.0000	10.0000	80/10	81/07
NH3+NH4-	N TOTAL	MG/L		3	.223333	.030551	.250000	.190000	80/10	81/07
			K	1	.050000		.050000	.050000	81/02	81/02
			T	4	.180000	.090185	.250000	.050000	80/10	81/07
NO3-N	TOTAL	MG/L		4	2.41000	.696803	3.17000	1.59000	80/10	81/07
TOT KJEL	N	MG/L		4	.769999	.199668	.960000	.560000	80/10	81/07
PHOS-TOT		MG/L P		4	.075500	.028572	.117000	.052000	80/10	81/07
CYANIDE	CN-TOT	MG/L	K	4	.010000	.000000	.010000	.010000	80/10	81/07
TOT HARD	CACO3	MG/L		3	304.000	12.0000	316.000	292.000	80/10	81/06
CADMIUM	CD,TOT	UG/L	K	4	5.00000	.000000	5.00000	5.00000	80/10	81/07
CHROMIUM	CR,TOT	UG/L		1	40.0000		40.0000	40.0000	80/10	80/10
			K	3	30.0000	.000000	30.0000	30.0000	81/02	81/07
			T	4	32.5000	5.00000	40.0000	30.0000	80/10	81/07
COPPER	CU,TOT	UG/L	K	4	30.0000	.000000	30.0000	30.0000	80/10	81/07
IRON	FE,TOT	UG/L		4	970.000	723.003	1830.00	230.000	80/10	81/07
LEAD	PB,TOT	UG/L		2	5.50000	.707107	6.00000	5.00000	81/06	81/07
			K	2	5.00000	.000000	5.00000	5.00000	80/10	81/02
			T	4	5.25000	.500000	6.00000	5.00000	80/10	81/07
NICKEL	NI,TOTAL	UG/L	K	4	100.000	.000000	100.000	100.000	80/10	81/07
ZINC	ZN,TOT	UG/L		2	50.0000	28.2843	70.0000	30.0000	80/10	81/06
			K	2	30.0000	.000000	30.0000	30.0000	81/02	81/07
			T	4	40.0000	20.0000	70.0000	30.0000	80/10	81/07
FEC COLI	MFM-FCBR	/100ML		2	635.000	417.193	930.000	340.000	81/02	81/06
			L	2	100000	.000000	100000	100000	80/10	81/07
			T	4	50317.5	57368.9	100000	340.000	80/10	81/07
PHENOLS	TOTAL	UG/L		2	4.00000	2.82843	6.00000	2.00000	80/10	81/07
			K	2	2.00000	.000000	2.00000	2.00000	81/02	81/06
			T	4	3.00000	2.00000	6.00000	2.00000	80/10	81/07
MERCURY	HG,TOTAL	UG/L		1	.500000		.500000	.500000	81/06	81/06
			K	3	.500000	.000000	.500000	.500000	80/10	81/07
			T	4	.500000	.000000	.500000	.500000	80/10	81/07

TABLE RD 1-40

STATION NUMBER 600350
39 55 32.0 083 50 53.0 2
BUCK CREEK AT SPRINGFIELD - U.S. RT. 40
OHIO RIVER (GREAT MIAMI RIVER)
MILES 0953.80 0490.10 080.70 026.50 000.20

No data were collected from 10/81 - 9/82.

TABLE RD 1-41

STATION NUMBER 600250
39 28 26.0 084 23 51.0 2
DICKS CREEK NEAR EXCELLO - YANKEE RD
OHIO RIVER 051392 (GREAT MIAMI RIVER)
MILES 0953.80 0490.10 046.80 002.50

PARAMETER			R	NO	MEAN	STAN DEV	MAXIMUM	MINIMUM	BEG	END
WATER	TEMP	CENT		3	11.1667	6.20671	17.8000	5.50000	80/12	81/05
CNDUCTVY	AT 25C	MICROMHO		3	1009.00	327.602	1320.00	667.000	80/12	81/05
DO		MG/L		2	8.80000	.283089	9.00000	8.60000	80/12	81/05
COD	LOWLEVEL	MG/L		3	16.6667	8.96292	27.0000	11.0000	80/12	81/05
PH		SU		1	8.00000		8.00000	8.00000	81/05	81/05
LAB	PH	SU		2	7.90000	.282846	8.10000	7.70000	80/12	81/02
RESIDUE	TOT NFLT	MG/L		2	54.0000	62.2254	98.0000	10.0000	80/12	81/05
			K	1	10.0000		10.0000	10.0000	81/02	81/02
			T	3	39.3333	50.8068	98.0000	10.0000	80/12	81/05
NH3+NH4-	N TOTAL	MG/L		3	1.45000	1.19486	2.76000	.420000	80/12	81/05
NO3-N	TOTAL	MG/L		3	3.44667	.966250	4.44000	2.51000	80/12	81/05
TOT KJEL	N	MG/L		3	2.38333	1.34031	3.91000	1.40000	80/12	81/05
PHOS-TOT		MG/L P		3	.316000	.104096	.382000	.196000	80/12	81/05
CYANIDE	CN-TOT	MG/L		2	.021500	.012021	.030000	.013000	80/12	81/02
			K	1	.010000		.010000	.010000	81/05	81/05
			T	3	.017667	.010786	.030000	.010000	80/12	81/05
TOT HARD	CACO3	MG/L		3	386.000	80.6722	460.000	300.000	80/12	81/05
CHLORIDE	TOTAL	MG/L		1	58.0000		58.0000	58.0000	81/05	81/05
FLUORIDE	F,TOTAL	MG/L		1	.930000		.930000	.930000	81/05	81/05
CADMIUM	CD,TOT	UG/L		2	5.50000	.707107	6.00000	5.00000	81/02	81/05
			K	1	5.00000		5.00000	5.00000	80/12	80/12
			T	3	5.33333	.577359	6.00000	5.00000	80/12	81/05
CHROMIUM	CR,TOT	UG/L	K	3	30.0000	.000000	30.0000	30.0000	80/12	81/05
COPPER	CU,TOT	UG/L	K	3	30.0000	.000000	30.0000	30.0000	80/12	81/05
IRON	FE,TOT	UG/L		3	2176.67	1839.68	4300.00	1060.00	80/12	81/05
LEAD	PB,TOT	UG/L		2	16.0000	4.24264	19.0000	13.0000	81/02	81/05
			K	1	5.00000		5.00000	5.00000	80/12	80/12
			T	3	12.3333	7.02378	19.0000	5.00000	80/12	81/05
NICKEL	NI,TOTAL	UG/L	K	3	100.000	.000000	100.000	100.000	80/12	81/05
ZINC	ZN,TOT	UG/L		3	2300.00	1425.66	3750.00	900.000	80/12	81/05
FEC COLI	MFM-FCBR	/100ML		3	7866.66	1006.68	8800.00	6800.00	80/12	81/05
PHENOLS	TOTAL	UG/L		3	8.66667	1.52755	10.0000	7.00000	80/12	81/05
MERCURY	HG,TOTAL	UG/L		1	.500000		.500000	.500000	81/05	81/05
			K	2	.500000	.000000	.500000	.500000	80/12	81/02
			T	3	.500000	.000000	.500000	.500000	80/12	81/05

TABLE RD 1-42

STATION NUMBER 600250
39 28 26.0 084 23 51.0 2
DICKS CREEK NEAR EXCELLO - YANKEE RD
OHIO RIVER 051392 (GREAT MIAMI RIVER)
MILES 0953.80 0490.10 046.80 002.50

No data were collected from 10/81 - 9/82.

TABLE RD 1-43

STATION NUMBER 600260
39 26 36.0 084 32 50.0 2
FOUR MILE CREEK AT NEW MIAMI - JACKSONBURG RD
OHIO RIVER 051391 (GREAT MIAMI RIVER)
MILES 0953.80 0490.10 037.50 000.30

PARAMETER			R	NO	MEAN	STAN DEV	MAXIMUM	MINIMUM	BEG	END
WATER	TEMP	CENT		3	8.13333	8.57341	18.0000	2.50000	80/12	81/05
CNDUCTVY	AT 25C	MICROMHO		3	628.666	75.0866	710.000	562.000	80/12	81/05
DO		MG/L		1	12.8000		12.8000	12.8000	80/12	80/12
COD	LOWLEVEL	MG/L		3	10.6667	3.05508	14.0000	8.00000	80/12	81/05
LAB	PH	SU		3	7.90000	.008735	7.90000	7.90000	80/12	81/05
RESIDUE	TOT NFLT	MG/L		1	26.0000		26.0000	26.0000	81/05	81/05
			K	2	10.0000	.000000	10.0000	10.0000	80/12	81/02
			T	3	15.3333	9.23761	26.0000	10.0000	80/12	81/05
NH3+NH4-	N TOTAL	MG/L		2	.205000	.106066	.280000	.130000	81/02	81/05
			K	1	.050000		.050000	.050000	80/12	80/12
			T	3	.153333	.116762	.280000	.050000	80/12	81/05
NO3-N	TOTAL	MG/L		3	3.84333	1.20604	4.73000	2.47000	80/12	81/05
TOT KJEL	N	MG/L		3	.686666	.331714	1.05000	.400000	80/12	81/05
PHOS-TOT		MG/L P		3	.155667	.008738	.163000	.146000	80/12	81/05
CYANIDE	CN-TOT	MG/L	K	3	.010000	.000000	.010000	.010000	80/12	81/05
TOT HARD	CACO3	MG/L		3	297.333	27.2288	328.000	276.000	80/12	81/05
CADMIUM	CD,TOT	UG/L	K	3	5.00000	.000000	5.00000	5.00000	80/12	81/05
CHROMIUM	CR,TOT	UG/L	K	3	30.0000	.000000	30.0000	30.0000	80/12	81/05
COPPER	CU,TOT	UG/L	K	3	30.0000	.000000	30.0000	30.0000	80/12	81/05
IRON	FE,TOT	UG/L		3	516.666	418.848	860.000	50.0000	80/12	81/05
LEAD	PB,TOT	UG/L	K	3	5.00000	.000000	5.00000	5.00000	80/12	81/05
NICKEL	NI,TOTAL	UG/L		1	100.000		100.000	100.000	80/12	80/12
			K	2	100.000	.000000	100.000	100.000	81/02	81/05
			T	3	100.000	.000000	100.000	100.000	80/12	81/05
ZINC	ZN,TOT	UG/L	K	3	30.0000	.000000	30.0000	30.0000	80/12	81/05
FEC COLI	MFM-FCBR	/100ML		2	275.000	120.208	360.000	190.000	80/12	81/02
			L	1	100000		100000	100000	81/05	81/05
			T	3	33516.7	57576.3	100000	190.000	80/12	81/05
PHENOLS	TOTAL	UG/L		2	3.50000	.707107	4.00000	3.00000	81/02	81/05
			K	1	2.00000		2.00000	2.00000	80/12	80/12
			T	3	3.00000	1.00000	4.00000	2.00000	80/12	81/05
MERCURY	HG,TOTAL	UG/L	K	3	.500000	.000000	.500000	.500000	80/12	81/05

TABLE RD 1-44

STATION NUMBER 600260
39 26 36.0 084 32 50.0 2
FOUR MILE CREEK AT NEW MIAMI - JACKSONBURG RD
OHIO RIVER 051391 (GREAT MIAMI RIVER)
MILES 0953.80 0490.10 037.50 000.30

No data were collected from 10/81 - 9/82.

TABLE RD 1-45

STATION NUMBER 600060
40 06 32.0 084 22 22.0 2
GREENVILLE CREEK NR COVINGTON - RANGELINE RD
OHIO RIVER 051391 (GREAT MIAMI RIVER)
MILES 0953.80 0490.10 081.70 032.60 003.40

PARAMETER			R	NO	MEAN	STAN DEV	MAXIMUM	MINIMUM	BEG	END
WATER	TEMP	CENT		3	10.1667	9.92892	21.5000	3.00000	80/10	81/07
CNDUCTVY	AT 25C	MICROMHO		4	606.000	122.229	717.000	435.000	80/10	81/07
DO		MG/L		3	11.6000	2.98666	13.8000	8.20000	80/10	81/07
COD	LOWLEVEL	MG/L		4	16.5000	2.08167	19.0000	14.0000	80/10	81/07
PH		SU		1	8.40000		8.40000	8.40000	81/07	81/07
LAB	PH	SU		2	7.95000	.212164	8.10000	7.80000	80/10	81/02
RESIDUE	TOT NFLT	MG/L		2	157.500	99.7021	228.000	87.0000	81/06	81/07
			K	2	10.0000	.000000	10.0000	10.0000	80/10	81/02
			T	4	83.7500	102.789	228.000	10.0000	80/10	81/07
NH3+NH4-	N TOTAL	MG/L		2	.155000	.063640	.200000	.110000	81/02	81/07
			K	2	.050000	.000061	.050000	.050000	80/10	81/06
			T	4	.102500	.070887	.200000	.050000	80/10	81/07
NO3-N	TOTAL	MG/L		4	4.25500	2.29063	6.10000	.930000	80/10	81/07
TOT KJEL	N	MG/L		4	1.01250	.512471	1.67000	.440000	80/10	81/07
PHOS-TOT		MG/L P		4	.290000	.137751	.427000	.127000	80/10	81/07
CYANIDE	CN-TOT	MG/L	K	4	.010000	.000000	.010000	.010000	80/10	81/07
TOT HARD	CACO3	MG/L		4	310.000	47.2723	356.000	252.000	80/10	81/07
CADMIUM	CD,TOT	UG/L	K	4	5.00000	.000000	5.00000	5.00000	80/10	81/07
CHROMIUM	CR,TOT	UG/L		1	30.0000		30.0000	30.0000	81/07	81/07
			K	3	30.0000	.000000	30.0000	30.0000	80/10	81/06
			T	4	30.0000	.000000	30.0000	30.0000	80/10	81/07
COPPER	CU,TOT	UG/L	K	4	30.0000	.000000	30.0000	30.0000	80/10	81/07
IRON	FE,TOT	UG/L		4	3187.50	3722.75	8300.00	370.000	80/10	81/07
LEAD	PB,TOT	UG/L		2	7.00000	1.41421	8.00000	6.00000	81/06	81/07
			K	2	5.00000	.000000	5.00000	5.00000	80/10	81/02
			T	4	6.00000	1.41421	8.00000	5.00000	80/10	81/07
NICKEL	NI,TOTAL	UG/L	K	4	100.000	.000000	100.000	100.000	80/10	81/07
ZINC	ZN,TOT	UG/L		1	40.0000		40.0000	40.0000	81/06	81/06
			K	3	30.0000	.000000	30.0000	30.0000	80/10	81/07
			T	4	32.5000	5.00000	40.0000	30.0000	80/10	81/07
FEC COLI	MFM-FCBR	/100ML		4	2372.50	2813.74	6500.00	410.000	80/10	81/07
PHENOLS	TOTAL	UG/L		3	5.00000	2.64575	8.00000	3.00000	80/10	81/07
			K	1	2.00000		2.00000	2.00000	81/06	81/06
			T	4	4.25000	2.62996	8.00000	2.00000	80/10	81/07
MERCURY	HG,TOTAL	UG/L		1	.800000		.800000	.800000	81/06	81/06
			K	3	.500000	.000000	.500000	.500000	80/10	81/07
			T	4	.575000	.150001	.800000	.500000	80/10	81/07

TABLE RD 1-46

STATION NUMBER 600060
40 06 32.0 084 22 22.0 2
GREENVILLE CREEK NR COVINGTON - RANGELINE RD
OHIO RIVER 051391 (GREAT MIAMI RIVER)
MILES 0953.80 0490.10 081.70 032.60 003.40

No data were collected from 10/81 - 9/82.

TABLE RD 1-47

STATION NUMBER 600280
39 20 28.0 084 37 46.0 2
INDIAN CREEK NEAR ROSS - SR 128
OHIO RIVER 051391 (MIAMI RIVER)
MILES 0953.80 0490.10 027.70 001.00

PARAMETER			R	NO	MEAN	STAN DEV	MAXIMUM	MINIMUM	BEG	END
WATER	TEMP	CENT		3	8.33333	9.23761	19.0000	3.00000	80/12	81/06
STREAM	FLOW,	INST-CFS		1	4277.00		4277.00	4277.00	81/06	81/06
STREAM	STAGE	FEET		1	59.5700		59.5700	59.5700	81/06	81/06
CNDUCTVY	AT 25C	MICROMHO		3	677.333	29.4873	700.000	644.000	80/12	81/06
DO		MG/L		1	13.6000		13.6000	13.6000	80/12	80/12
COD	LOWLEVEL	MG/L		3	11.3333	1.15477	12.0000	10.0000	80/12	81/06
LAB	PH	SU		3	7.99999	.100884	8.10000	7.90000	80/12	81/06
RESIDUE	TOT NFLT	MG/L	K	3	10.0000	.000000	10.0000	10.0000	80/12	81/06
NH3+NH4-	N TOTAL	MG/L	K	3	.050000	.000075	.050000	.050000	80/12	81/06
NO3-N	TOTAL	MG/L		3	4.75000	2.20218	6.75000	2.39000	80/12	81/06
TOT KJEL	N	MG/L		3	.300000	.164621	.490000	.200000	80/12	81/06
PHOS-TOT		MG/L P		3	.052667	.021008	.074000	.032000	80/12	81/06
CYANIDE	CN-TOT	MG/L	K	3	.010000	.000000	.010000	.010000	80/12	81/06
TOT HARD	CACO3	MG/L		3	334.000	8.71780	344.000	328.000	80/12	81/06
CADMIUM	CD,TOT	UG/L	K	3	5.00000	.000000	5.00000	5.00000	80/12	81/06
CHROMIUM	CR,TOT	UG/L		1	30.0000		30.0000	30.0000	81/06	81/06
			K	2	30.0000	.000000	30.0000	30.0000	80/12	81/02
			T	3	30.0000	.000000	30.0000	30.0000	80/12	81/06
COPPER	CU,TOT	UG/L	K	3	30.0000	.000000	30.0000	30.0000	80/12	81/06
IRON	FE,TOT	UG/L		3	290.000	266.270	570.000	40.0000	80/12	81/06
LEAD	PB,TOT	UG/L	K	3	5.00000	.000000	5.00000	5.00000	80/12	81/06
NICKEL	NI,TOTAL	UG/L		1	100.000		100.000	100.000	80/12	80/12
			K	2	100.000	.000000	100.000	100.000	81/02	81/06
			T	3	100.000	.000000	100.000	100.000	80/12	81/06
ZINC	ZN,TOT	UG/L	K	3	30.0000	.000000	30.0000	30.0000	80/12	81/06
FEC COLI	MFM-FCBR	/100ML		3	273.333	160.416	440.000	120.000	80/12	81/06
PHENOLS	TOTAL	UG/L		1	2.00000		2.00000	2.00000	81/06	81/06
			K	2	2.00000	.000000	2.00000	2.00000	80/12	81/02
			T	3	2.00000	.000000	2.00000	2.00000	80/12	81/06
MERCURY	HG,TOTAL	UG/L	K	3	.500000	.000000	.500000	.500000	80/12	81/06

TABLE RD 1-48

STATION NUMBER 600280
39 20 28.0 084 37 46.0 2
INDIAN CREEK NEAR ROSS - SR 128
OHIO RIVER 051391 (MIAMI RIVER)
MILES 0953.80 0490.10 027.70 001.00

No data were collected from 10/81 - 9/82.

TABLE RD 1-49

STATION NUMBER 600320
40 11 39.0 084 14 29.0 2
LORAMIE CRK NR LOCKINGTON - HARDIN-WAPAKONETA RD
OHIO RIVER 051391 (GREAT MIAMI RIVER)
MILES 0953.80 0490.10 118.80 000.40

PARAMETER			R	NO	MEAN	STAN DEV	MAXIMUM	MINIMUM	BEG	END
WATER	TEMP	CENT		4	12.6250	9.44964	21.6000	2.90000	80/10	81/07
STREAM	FLOW,	INST-CFS		4	446.600	654.574	1421.00	17.3000	80/10	81/07
STREAM	STAGE	FEET		4	78.6550	.998045	79.9900	77.5900	80/10	81/07
CNDUCTVY	AT 25C	MICROMHO		4	670.750	170.524	892.000	476.000	80/10	81/07
DO		MG/L		4	9.97500	2.78374	12.6000	6.50000	80/10	81/07
COD	LOWLEVEL	MG/L		4	27.5000	12.3423	45.0000	16.0000	80/10	81/07
PH		SU		2	8.00000	.141436	8.10000	7.90000	81/06	81/07
LAB	PH	SU		2	7.85000	.070637	7.90000	7.80000	80/10	81/02
RESIDUE	TOT NFLT	MG/L		3	89.3333	116.899	224.000	14.0000	81/02	81/07
			K	1	10.0000		10.0000	10.0000	80/10	80/10
			T	4	69.5000	103.362	224.000	10.0000	80/10	81/07
NH3+NH4-	N TOTAL	MG/L		2	.365000	.021214	.380000	.350000	81/02	81/07
			K	2	.050000	.000061	.050000	.050000	80/10	81/06
			T	4	.207500	.182277	.380000	.050000	80/10	81/07
NO3-N	TOTAL	MG/L		4	5.74500	4.07680	10.8000	1.16000	80/10	81/07
TOT KJEL	N	MG/L		4	1.44250	.998445	2.67000	.350000	80/10	81/07
PHOS-TOT		MG/L P		4	.252000	.195912	.520000	.056000	80/10	81/07
CYANIDE	CN-TOT	MG/L	K	4	.010000	.000000	.010000	.010000	80/10	81/07
TOT HARD	CACO3	MG/L		4	310.000	73.9369	404.000	232.000	80/10	81/07
CADMIUM	CD,TOT	UG/L	K	4	5.00000	.000000	5.00000	5.00000	80/10	81/07
CHROMIUM	CR,TOT	UG/L		1	40.0000		40.0000	40.0000	81/06	81/06
			K	3	30.0000	.000000	30.0000	30.0000	80/10	81/07
			T	4	32.5000	5.00000	40.0000	30.0000	80/10	81/07
COPPER	CU,TOT	UG/L	K	4	30.0000	.000000	30.0000	30.0000	80/10	81/07
IRON	FE,TOT	UG/L		4	2872.50	4111.60	9000.00	170.000	80/10	81/07
LEAD	PB,TOT	UG/L	K	4	5.00000	.000000	5.00000	5.00000	80/10	81/07
NICKEL	NI,TOTAL	UG/L	K	4	100.000	.000000	100.000	100.000	80/10	81/07
ZINC	ZN,TOT	UG/L		2	35.0000	7.07107	40.0000	30.0000	81/06	81/07
			K	2	30.0000	.000000	30.0000	30.0000	80/10	81/02
			T	4	32.5000	5.00000	40.0000	30.0000	80/10	81/07
FEC COLI	MFM-FCBR	/100ML		2	145.000	7.07107	150.000	140.000	80/10	81/02
			L	1	100000		100000	100000	81/07	81/07
			T	3	33430.0	57651.3	100000	140.000	80/10	81/07
PHENOLS	TOTAL	UG/L		4	6.50000	1.73205	8.00000	4.00000	80/10	81/07
MERCURY	HG,TOTAL	UG/L	K	4	.500000	.000000	.500000	.500000	80/10	81/07

TABLE RD 1-50

STATION NUMBER 600320
40 11 39.0 084 14 29.0 2
LORAMIE CRK NR LOCKINGTON - HARDIN-WAPAKONETA RD
OHIO RIVER 051391 (GREAT MIAMI RIVER)
MILES 0953.80 0490.10 118.80 000.40

No data were collected from 10/81 - 9/82.

TABLE RD 1-51

STATION NUMBER 610040
39 57 51.0 083 49 54.0 2
MAD RIVER AT EAGLE CITY - ST PARIS PIKE
OHIO RIVER (GREAT MIAMI RIVER)
MILES 0953.80 0490.10 080.70 028.70

PARAMETER			R	NO	MEAN	STAN DEV	MAXIMUM	MINIMUM	BEG	END
WATER	TEMP	CENT		12	10.5000	5.30917	19.5000	4.20000	80/10	81/09
STREAM	FLOW,	INST-CFS		12	338.633	191.691	743.400	167.200	80/10	81/09
STREAM	STAGE	FEET		12	5.26749	.564587	6.40000	4.67000	80/10	81/09
CNDUCTVY	AT 25C	MICROMHO		12	694.833	50.4110	758.000	600.000	80/10	81/09
DO		MG/L		12	11.7167	2.49868	16.2000	8.60000	80/10	81/09
COD	LOWLEVEL	MG/L		8	8.62500	3.73927	14.0000	4.00000	80/10	81/06
			K	4	5.50000	1.00000	6.00000	4.00000	81/03	81/09
			T	12	7.58333	3.39675	14.0000	4.00000	80/10	81/09
PH		SU		3	8.03333	.602867	8.60000	7.40000	81/06	81/09
LAB	PH	SU		9	8.04444	.101562	8.20000	7.90000	80/10	81/08
RESIDUE	TOT NFLT	MG/L		5	24.6000	17.9527	55.0000	13.0000	81/02	81/08
			K	7	10.0000	.000000	10.0000	10.0000	80/10	81/09
			T	12	16.0833	13.1803	55.0000	10.0000	80/10	81/09
NH3+NH4-	N TOTAL	MG/L		3	.123333	.087369	.220000	.050000	80/11	81/02
			K	9	.050000	.000057	.050000	.050000	80/10	81/09
			T	12	.068333	.049879	.220000	.050000	80/10	81/09
NO3-N	TOTAL	MG/L		12	3.69916	.626289	5.09000	3.10000	80/10	81/09
TOT KJEL	N	MG/L		12	.347500	.244210	1.05000	.060000	80/10	81/09
PHOS-TOT		MG/L P		12	.062250	.031537	.142000	.031000	80/10	81/09
CYANIDE	CN-TOT	MG/L	K	5	.010000	.000000	.010000	.010000	80/10	81/09
TOT HARD	CACO3	MG/L		5	394.400	10.0452	408.000	380.000	80/10	81/09
CADMIUM	CD,TOT	UG/L	K	5	2.30000	2.46475	5.00000	.500000	80/10	81/09
CHROMIUM	CR,TOT	UG/L		1	30.0000		30.0000	30.0000	81/06	81/06
			K	4	30.0000	.000000	30.0000	30.0000	80/10	81/09
			T	5	30.0000	.000000	30.0000	30.0000	80/10	81/09
COPPER	CU,TOT	UG/L	K	5	30.0000	.000000	30.0000	30.0000	80/10	81/09
IRON	FE,TOT	UG/L		5	252.000	217.876	630.000	80.0000	80/10	81/09
LEAD	PB,TOT	UG/L	K	5	6.00000	2.23607	10.0000	5.00000	80/10	81/09
NICKEL	NI,TOTAL	UG/L		1	100.000		100.000	100.000	81/09	81/09
			K	4	100.000	.000000	100.000	100.000	80/10	81/06
			T	5	100.000	.000000	100.000	100.000	80/10	81/09
ZINC	ZN,TOT	UG/L	K	5	30.0000	.000000	30.0000	30.0000	80/10	81/09
FEC COLI	MFM-FCBR	/100ML		10	448.500	427.896	1300.00	25.0000	80/10	81/07
			L	1	100000		100000	100000	81/08	81/08
			T	11	9498.63	30018.6	100000	25.0000	80/10	81/08
PHENOLS	TOTAL	UG/L		1	5.00000		5.00000	5.00000	80/10	80/10
			K	4	2.00000	.000000	2.00000	2.00000	80/12	81/09
			T	5	2.60000	1.34164	5.00000	2.00000	80/10	81/09
MERCURY	HG,TOTAL	UG/L	K	5	.500000	.000000	.500000	.500000	80/10	81/09

TABLE RD 1-52

STATION NUMBER 610040
39 57 51.0 083 49 54.0 2
MAD RIVER AT EAGLE CITY - ST PARIS PIKE
OHIO RIVER (GREAT MIAMI RIVER)
MILES 0953.80 0490.10 080.70 028.70

PARAMETER			R	NO	MEAN	STAN DEV	MAXIMUM	MINIMUM	BEG	END
WATER	TEMP	CENT		12	10.1083	5.10356	17.5000	3.00000	81/10	82/09
STREAM	FLOW,	INST-CFS		12	408.191	460.774	1854.00	178.000	81/10	82/09
STREAM	STAGE	FEET		12	5.38833	1.01501	8.50000	4.72000	81/10	82/09
CNDUCTVY	AT 25C	MICROMHO		11	694.182	81.8181	790.000	500.000	81/10	82/09
DO	PROBE	MG/L		10	10.9100	2.41544	14.6000	7.70000	81/12	82/09
DO		MG/L		2	11.2500	2.47487	13.0000	9.50000	81/10	81/11
COD	LOWLEVEL	MG/L		7	21.8571	22.8796	66.0000	2.00000	81/12	82/08
			K	5	7.20000	2.68330	10.0000	4.00000	81/10	82/09
			T	12	15.7500	18.5772	66.0000	2.00000	81/10	82/09
PH		SU		1	7.90000		7.90000	7.90000	81/10	81/10
LAB	PH	SU		10	8.02599	.229817	8.43000	7.67000	81/11	82/09
RESIDUE	TOT NFLT	MG/L		6	840.333	1921.52	4758.00	5.00000	82/01	82/08
			K	5	7.00000	2.73861	10.0000	5.00000	81/10	82/09
			T	11	461.545	1426.72	4758.00	5.00000	81/10	82/09
NH3+NH4-	N TOTAL	MG/L		2	.110000	.084853	.170000	.050000	82/01	82/03
			K	10	.050000	.000054	.050000	.050000	81/10	82/09
			T	12	.060000	.034641	.170000	.050000	81/10	82/09
NO2-N	TOTAL	MG/L		2	.040000	.014142	.050000	.030000	82/03	82/06
NO3-N	TOTAL	MG/L		12	3.49749	.540441	4.52000	2.42000	81/10	82/09
TOT KJEL	N	MG/L		12	1.14417	2.76644	9.90000	.100000	81/10	82/09
PHOS-TOT		MG/L P		9	.576888	1.23953	3.83000	.043000	81/10	82/09
			K	3	.050000	.000075	.050000	.050000	81/12	82/02
			T	12	.445166	1.08360	3.83000	.043000	81/10	82/09
CYANIDE	CN-TOT	MG/L	K	1	.010000		.010000	.010000	81/12	81/12

TABLE RD 1-52 (Continued)

STATION NUMBER 610040
39 57 51.0 083 49 54.0 2
MAD RIVER AT EAGLE CITY - ST PARIS PIKE
OHIO RIVER (GREAT MIAMI RIVER)
MILES 0953.80 0490.10 080.70 028.70

PARAMETER			R	NO	MEAN	STAN DEV	MAXIMUM	MINIMUM	BEG	END
TOT HARD	CACO3	MG/L		4	667.500	526.461	1457.00	388.000	81/12	82/09
CALCIUM	CA-TOT	MG/L		4	155.675	118.605	333.500	91.6000	81/12	82/09
MGNSIUM	MG,TOT	MG/L		4	67.6750	55.8992	151.500	38.6000	81/12	82/09
CADMIUM	CD,TOT	UG/L		1	1.60000		1.60000	1.60000	82/03	82/03
			K	3	.500000	.000000	.500000	.500000	81/12	82/09
			T	4	.775000	.550000	1.60000	.500000	81/12	82/09
CHROMIUM	CR,TOT	UG/L		1	110.000		110.000	110.000	82/03	82/03
			K	3	30.0000	.000000	30.0000	30.0000	81/12	82/09
			T	4	50.0000	40.0000	110.000	30.0000	81/12	82/09
COPPER	CU,TOT	UG/L		3	70.0000	62.4500	140.000	20.0000	82/03	82/09
			K	1	10.0000		10.0000	10.0000	81/12	81/12
			T	4	55.0000	59.1608	140.000	10.0000	81/12	82/09
IRON	FE,TOT	UG/L		4	34175.0	61912.1	126800	30.0000	81/12	82/09
LEAD	PB,TOT	UG/L		3	69.0000	109.160	195.000	3.00000	82/03	82/09
			K	1	5.00000		5.00000	5.00000	81/12	81/12
			T	4	53.0000	94.6995	195.000	3.00000	81/12	82/09
NICKEL	NI,TOTAL	UG/L		1	120.000		120.000	120.000	82/03	82/03
NICKEL	NI,TOTAL	UG/L	K	3	36.6667	5.77360	40.0000	30.0000	81/12	82/09
			T	4	57.5000	41.9325	120.000	30.0000	81/12	82/09
ZINC	ZN,TOT	UG/L		2	272.500	321.734	500.000	45.0000	82/03	82/06
			K	2	10.0000	.000000	10.0000	10.0000	81/12	82/09
			T	4	141.250	239.735	500.000	10.0000	81/12	82/09
FEC COLI	MFM-FCBR	/100ML		12	1487.75	2898.53	8800.00	63.0000	81/10	82/09
PHENOLS	TOTAL	UG/L	K	1	2.00000		2.00000	2.00000	81/12	81/12

TABLE RD 1-53

STATION NUMBER 600190
39 47 50.0 084 05 19.0 2
MAD RIVER NEAR DAYTON - SR 444
OHIO RIVER 051392 (GREAT MIAMI RIVER)
MILES 0953.80 0490.10 080.70 005.90

PARAMETER			R	NO	MEAN	STAN DEV	MAXIMUM	MINIMUM	BEG	END
WATER	TEMP	CENT		12	12.0250	6.29244	21.5000	4.80000	80/10	81/09
STREAM	FLOW,	INST-CFS		12	716.266	444.950	1646.00	289.500	80/10	81/09
STREAM	STAGE	FEET		12	3.50666	.899680	5.34000	2.60000	80/10	81/09
CNDUCTVY	AT 25C	MICROMHO		12	684.666	82.9540	834.000	498.000	80/10	81/09
DO		MG/L		12	10.7333	2.51769	16.6000	7.10000	80/10	81/09
COD	LOWLEVEL	MG/L		12	16.6667	9.07880	40.0000	6.00000	80/10	81/09
PH		SU		3	8.06667	.550767	8.60000	7.50000	81/06	81/09
LAB	PH	SU		9	7.93333	.141490	8.10000	7.70000	80/10	81/08
RESIDUE	TOT NFLT	MG/L		6	93.8333	132.801	363.000	12.0000	81/02	81/08
			K	6	10.0000	.000000	10.0000	10.0000	80/10	81/09
			T	12	51.9167	99.6653	363.000	10.0000	80/10	81/09
NH3+NH4-	N TOTAL	MG/L		12	.190833	.145756	.590000	.070000	80/10	81/09
NO3-N	TOTAL	MG/L		12	3.30083	.591417	4.49000	2.62000	80/10	81/09
TOT KJEL	N	MG/L		12	.777500	.541566	2.33000	.320000	80/10	81/09
PHOS-TOT		MG/L P		12	.265250	.095979	.532000	.178000	80/10	81/09
CYANIDE	CN-TOT	MG/L	K	5	.010000	.000000	.010000	.010000	80/10	81/09
TOT HARD	CACO3	MG/L		5	363.200	5.93717	372.000	356.000	80/10	81/09
CADMIUM	CD,TOT	UG/L	K	5	5.00000	.000000	5.00000	5.00000	80/10	81/09
CHROMIUM	CR,TOT	UG/L		2	40.0000	.000000	40.0000	40.0000	80/12	81/06
			K	3	30.0000	.000000	30.0000	30.0000	80/10	81/09
			T	5	34.0000	5.47723	40.0000	30.0000	80/10	81/09
COPPER	CU,TOT	UG/L	K	5	30.0000	.000000	30.0000	30.0000	80/10	81/09
IRON	FE,TOT	UG/L		5	578.000	712.159	1840.00	190.000	80/10	81/09
LEAD	PB,TOT	UG/L		1	7.00000		7.00000	7.00000	81/06	81/06
			K	4	6.25000	2.50000	10.0000	5.00000	80/10	81/09
			T	5	6.40000	2.19090	10.0000	5.00000	80/10	81/09
NICKEL	NI,TOTAL	UG/L		3	100.000	.000000	100.000	100.000	80/12	81/09
			K	2	100.000	.000000	100.000	100.000	80/10	81/06
			T	5	100.000	.000000	100.000	100.000	80/10	81/09
ZINC	ZN,TOT	UG/L		2	30.0000	.000000	30.0000	30.0000	80/12	81/06
			K	3	30.0000	.000000	30.0000	30.0000	80/10	81/09
			T	5	30.0000	.000000	30.0000	30.0000	80/10	81/09
FEC COLI	MFM-FCBR	/100ML		11	2890.00	3342.17	9600.00	170.000	80/10	81/09
			L	1	100000		100000	100000	81/08	81/08
			T	12	10982.5	28213.8	100000	170.000	80/10	81/09
PHENOLS	TOTAL	UG/L		4	3.00000	1.15470	4.00000	2.00000	80/10	81/06
			K	1	2.00000		2.00000	2.00000	81/09	81/09
			T	5	2.80000	1.09545	4.00000	2.00000	80/10	81/09
MERCURY	HG,TOTAL	UG/L	K	5	.500000	.000000	.500000	.500000	80/10	81/09

TABLE RD 1-54

STATION NUMBER 600190
39 47 50.0 084 05 19.0 2
MAD RIVER NEAR DAYTON - SR 444
OHIO RIVER 051392 (GREAT MIAMI RIVER)
MILES 0953.80 0490.10 080.70 005.90

No data were collected from 10/81 - 9/82.

TABLE RD 1-55

STATION NUMBER 600110
39 52 10.0 084 16 57.0 2
STILLWATER R AT ENGLEWOOD- US 40
OHIO RIVER 051391 (GREAT MIAMI RIVER)
MILES 0953.80 0490.10 081.70 008.90

PARAMETER			R	NO	MEAN	STAN DEV	MAXIMUM	MINIMUM	BEG	END
WATER	TEMP	CENT		10	11.7900	8.87536	24.0000	.000000	80/12	81/09
CNDUCTVY	AT 25C	MICROMHO		10	652.500	110.684	858.000	490.000	80/12	81/09
DO		MG/L		10	10.5600	2.36794	14.4000	7.30000	80/12	81/09
COD	LOWLEVEL	MG/L		10	17.1000	7.86627	35.0000	8.00000	80/12	81/09
PH		SU		3	8.20000	.360625	8.60000	7.90000	81/06	81/09
LAB	PH	SU		6	7.98333	.213897	8.20000	7.60000	80/12	81/05
RESIDUE	TOT NFLT	MG/L		7	78.8571	39.8223	155.000	34.0000	81/02	81/09
			K	3	10.0000	.000000	10.0000	10.0000	80/12	81/03
			T	10	58.2000	46.5136	155.000	10.0000	80/12	81/09
NH3+NH4-	N TOTAL	MG/L		4	.340000	.384968	.890000	.050000	80/12	81/07
			K	6	.050000	.000061	.050000	.050000	81/03	81/09
			T	10	.166000	.268005	.890000	.050000	80/12	81/09
NO3-N	TOTAL	MG/L		10	4.38400	2.75631	9.98000	1.42000	80/12	81/09
TOT KJEL	N	MG/L		10	1.16500	.690414	2.45000	.480000	80/12	81/09
PHOS-TOT		MG/L P		10	.254100	.096190	.436000	.120000	80/12	81/09
CYANIDE	CN-TOT	MG/L	K	4	.010000	.000000	.010000	.010000	80/12	81/09
TOT HARD	CACO3	MG/L		4	354.750	16.2763	372.000	336.000	80/12	81/09
CADMIUM	CD,TOT	UG/L	K	4	5.00000	.000000	5.00000	5.00000	80/12	81/09
CHROMIUM	CR,TOT	UG/L		1	40.0000		40.0000	40.0000	81/06	81/06
			K	3	30.0000	.000000	30.0000	30.0000	80/12	81/09
			T	4	32.5000	5.00000	40.0000	30.0000	80/12	81/09
COPPER	CU,TOT	UG/L		1	730.000		730.000	730.000	81/09	81/09
			K	3	30.0000	.000000	30.0000	30.0000	80/12	81/06
			T	4	205.000	350.000	730.000	30.0000	80/12	81/09
IRON	FE,TOT	UG/L		4	1115.00	942.426	2360.00	350.000	80/12	81/09
LEAD	PB,TOT	UG/L	K	4	5.00000	.000000	5.00000	5.00000	80/12	81/09
NICKEL	NI,TOTAL	UG/L		1	100.000		100.000	100.000	81/09	81/09
			K	3	100.000	.000000	100.000	100.000	80/12	81/06
			T	4	100.000	.000000	100.000	100.000	80/12	81/09
ZINC	ZN,TOT	UG/L	K	4	30.0000	.000000	30.0000	30.0000	80/12	81/09
FEC COLI	MFM-FCBR	/100ML		10	4168.00	5751.53	20000.0	270.000	80/10	81/08
PHENOLS	TOTAL	UG/L		1	3.00000		3.00000	3.00000	80/12	80/12
			K	3	2.00000	.000000	2.00000	2.00000	81/03	81/09
			T	4	2.25000	.500000	3.00000	2.00000	80/12	81/09
MERCURY	HG,TOTAL	UG/L	K	4	.500000	.000000	.500000	.500000	80/12	81/09

TABLE RD 1-56

STATION NUMBER 600110
39 52 10.0 084 16 57.0 2
STILLWATER R AT ENGLEWOOD- US 40
OHIO RIVER 051391 (GREAT MIAMI RIVER)
MILES 0953.80 0490.10 081.70 008.90

No data were collected from 10/81 - 9/82.

TABLE RD 1-57

STATION NUMBER 600180
39 33 22.0 084 21 00.0 2
TWIN CREEK NR FRANKLIN - DAYTON-OXFORD RD
OHIO RIVER 051391 (GREAT MIAMI RIVER)
MILES 0953.80 0490.10 056.60 000.60

PARAMETER			R	NO	MEAN	STAN DEV	MAXIMUM	MINIMUM	BEG	END
WATER	TEMP	CENT		2	13.1500	12.6572	22.1000	4.20000	81/02	81/07
CNDUCTVY	AT 25C	MICROMHO		3	600.000	134.570	715.000	452.000	81/02	81/07
DO		MG/L		2	10.0500	3.60627	12.6000	7.50000	81/02	81/07
COD	LOWLEVEL	MG/L		3	21.3333	17.0392	41.0000	11.0000	81/02	81/07
PH		SU		1	8.20000		8.20000	8.20000	81/07	81/07
LAB	PH	SU		2	8.14999	.072028	8.20000	8.10000	81/02	81/05
RESIDUE	TOT NFLT	MG/L		1	460.000		460.000	460.000	81/07	81/07
			K	2	10.0000	.000000	10.0000	10.0000	81/02	81/05
			T	3	160.000	259.808	460.000	10.0000	81/02	81/07
NH3+NH4-	N TOTAL	MG/L		2	.115000	.049498	.150000	.080000	81/05	81/07
			K	1	.050000		.050000	.050000	81/02	81/02
			T	3	.093333	.051316	.150000	.050000	81/02	81/07
NO3-N	TOTAL	MG/L		3	7.81667	4.23396	12.5000	4.26000	81/02	81/07
TOT KJEL	N	MG/L		3	1.20333	1.24949	2.64000	.370000	81/02	81/07
PHOS-TOT		MG/L P		3	.219000	.294104	.558000	.032000	81/02	81/07
CYANIDE	CN-TOT	MG/L	K	3	.010000	.000000	.010000	.010000	81/02	81/07
TOT HARD	CACO3	MG/L		3	304.333	58.4503	342.000	237.000	81/02	81/07
CADMIUM	CD,TOT	UG/L	K	3	5.00000	.000000	5.00000	5.00000	81/02	81/07
CHROMIUM	CR,TOT	UG/L		1	30.0000		30.0000	30.0000	81/07	81/07
			K	2	30.0000	.000000	30.0000	30.0000	81/02	81/05
			T	3	30.0000	.000000	30.0000	30.0000	81/02	81/07
COPPER	CU,TOT	UG/L	K	3	30.0000	.000000	30.0000	30.0000	81/02	81/07
IRON	FE,TOT	UG/L		3	3403.33	5280.40	9500.00	280.000	81/02	81/07
LEAD	PB,TOT	UG/L		2	8.00000	4.24264	11.0000	5.00000	81/02	81/07
			K	1	5.00000		5.00000	5.00000	81/05	81/05
			T	3	7.00000	3.46410	11.0000	5.00000	81/02	81/07
NICKEL	NI,TOTAL	UG/L	K	3	100.000	.000000	100.000	100.000	81/02	81/07
ZINC	ZN,TOT	UG/L		2	35.0000	7.07107	40.0000	30.0000	81/05	81/07
			K	1	30.0000		30.0000	30.0000	81/02	81/02
			T	3	33.3333	5.77355	40.0000	30.0000	81/02	81/07
FEC COLI	MFM-FCBR	/100ML		2	495.000	516.188	860.000	130.000	81/02	81/05
			L	1	100000		100000	100000	81/07	81/07
			T	3	33663.3	57450.4	100000	130.000	81/02	81/07
PHENOLS	TOTAL	UG/L		3	3.00000	1.00000	4.00000	2.00000	81/02	81/07
MERCURY	HG,TOTAL	UG/L	K	3	.500000	.000000	.500000	.500000	81/02	81/07

TABLE RD 1-58

STATION NUMBER 600180
39 33 22.0 084 21 00.0 2
TWIN CREEK NR FRANKLIN - DAYTON-OXFORD RD
OHIO RIVER 051391 (GREAT MIAMI RIVER)
MILES 0953.80 0490.10 056.60 000.60

No data were collected from 10/81 - 9/82.

TABLE RD 1-59

STATION NUMBER 600290
39 09 54.0 084 47 18.0 2
WHITEWATER RIVER NR HOOVEN - U.S. RT. 50
OHIO RIVER 051391 (GREAT MIAMI RIVER)
MILES 0953.80 0490.10 005.60 000.50

PARAMETER			R	NO	MEAN	STAN DEV	MAXIMUM	MINIMUM	BEG	END
WATER	TEMP	CENT		3	8.00000	7.79423	17.0000	3.50000	80/12	81/06
CNDUCTVY	AT 25C	MICROMHO		3	591.333	29.0086	620.000	562.000	80/12	81/06
DO		MG/L		1	13.0000		13.0000	13.0000	80/12	80/12
COD	LOWLEVEL	MG/L		2	8.00000	2.82843	10.0000	6.00000	81/02	81/06
			K	1	4.00000		4.00000	4.00000	80/12	80/12
			T	3	6.66667	3.05506	10.0000	4.00000	80/12	81/06
LAB	PH	SU		3	8.06667	.057873	8.10000	8.00000	80/12	81/06
RESIDUE	TOT NFLT	MG/L		2	31.0000	22.6274	47.0000	15.0000	81/02	81/06
			K	1	10.0000		10.0000	10.0000	80/12	80/12
			T	3	24.0000	20.0749	47.0000	10.0000	80/12	81/06
NH3+NH4-	N TOTAL	MG/L		2	.125000	.049498	.160000	.090000	80/12	81/02
			K	1	.050000		.050000	.050000	81/06	81/06
			T	3	.100000	.055678	.160000	.050000	80/12	81/06
NO3-N	TOTAL	MG/L		3	2.83000	.720208	3.29000	2.00000	80/12	81/06
TOT KJEL	N	MG/L		3	.333333	.118462	.470000	.260000	80/12	81/06
PHOS-TOT		MG/L P		3	.058333	.033171	.087000	.022000	80/12	81/06
CYANIDE	CN-TOT	MG/L	K	3	.010000	.000000	.010000	.010000	80/12	81/06
TOT HARD	CACO3	MG/L		2	300.500	4.94975	304.000	297.000	80/12	81/06
CADMIUM	CD,TOT	UG/L	K	3	5.00000	.000000	5.00000	5.00000	80/12	81/06
CHROMIUM	CR,TOT	UG/L		1	30.0000		30.0000	30.0000	81/06	81/06
			K	2	30.0000	.000000	30.0000	30.0000	80/12	81/02
			T	3	30.0000	.000000	30.0000	30.0000	80/12	81/06
COPPER	CU,TOT	UG/L		1	30.0000		30.0000	30.0000	81/02	81/02
			K	2	30.0000	.000000	30.0000	30.0000	80/12	81/06
			T	3	30.0000	.000000	30.0000	30.0000	80/12	81/06
IRON	FE,TOT	UG/L		3	730.000	731.232	1510.00	60.0000	80/12	81/06
LEAD	PB,TOT	UG/L		1	7.00000		7.00000	7.00000	81/06	81/06
			K	2	5.00000	.000000	5.00000	5.00000	80/12	81/02
			T	3	5.66667	1.15472	7.00000	5.00000	80/12	81/06
NICKEL	NI,TOTAL	UG/L		1	100.000		100.000	100.000	80/12	80/12
			K	2	100.000	.000000	100.000	100.000	81/02	81/06
			T	3	100.000	.000000	100.000	100.000	80/12	81/06
ZINC	ZN,TOT	UG/L		1	30.0000		30.0000	30.0000	80/12	80/12
			K	2	30.0000	.000000	30.0000	30.0000	81/02	81/06
			T	3	30.0000	.000000	30.0000	30.0000	80/12	81/06
FEC COLI	MFM-FCBR	/100ML		3	180.000	65.5744	250.000	120.000	80/12	81/06
PHENOLS	TOTAL	UG/L		2	2.50000	.707107	3.00000	2.00000	81/02	81/06
			K	1	2.00000		2.00000	2.00000	80/12	80/12
			T	3	2.33333	.577352	3.00000	2.00000	80/12	81/06
MERCURY	HG,TOTAL	UG/L	K	3	.500000	.000000	.500000	.500000	80/12	81/06

TABLE RD 1-60

STATION NUMBER 600290
39 09 54.0 084 47 18.0 2
WHITEWATER RIVER NR HOOVEN - U.S. RT. 50
OHIO RIVER 051391 (GREAT MIAMI RIVER)
MILES 0953.80 0490.10 005.60 000.50

No data were collected from 10/81 - 9/82.

TABLE RD 1-61

STATION NUMBER 601550
39 40 00.0 082 33 04.0 2
HOCKING RIVER NR LANCASTER
OHIO RIVER 050691 (HOCKING RIVER)
MILES 0953.80 0781.80 086.70

PARAMETER			R	NO	MEAN	STAN DEV	MAXIMUM	MINIMUM	BEG	END
WATER	TEMP	CENT		10	10.00000	6.36781	18.0000	1.80000	80/12	81/09
STREAM	FLOW,	INST-CFS		5	79.8000	29.4059	120.000	47.0000	81/04	81/08
STREAM	STAGE	FEET		10	2.79100	.334800	3.39000	2.31000	80/12	81/09
CNDUCTVY	FIELD	MICROMHO		10	699.000	324.558	1450.00	350.000	80/12	81/09
DO		MG/L		10	7.75999	3.73429	12.1000	2.30000	80/12	81/09
BOD	5 DAY	MG/L		2	5.00000	.000000	5.00000	5.00000	81/04	81/09
COD	LOWLEVEL	MG/L		9	21.2222	6.13961	29.0000	12.0000	80/12	81/09
PH		SU		9	7.53444	.230038	7.90000	7.20000	80/12	81/09
RESIDUE	TOT NFLT	MG/L		5	42.4000	33.8275	87.0000	14.0000	81/01	81/08
			K	5	10.0000	.000000	10.0000	10.0000	80/12	81/09
			T	10	26.2000	28.2874	87.0000	10.0000	80/12	81/09
NH3+NH4-	N TOTAL	MG/L		10	1.31900	.771758	3.13000	.520000	80/12	81/09
NO2-N	TOTAL	MG/L		10	.135000	.104270	.360000	.040000	80/12	81/09
NO3-N	TOTAL	MG/L		10	1.76600	.896279	3.23000	.250000	80/12	81/09
TOT KJEL	N	MG/L		10	2.14600	.788650	4.07000	1.36000	80/12	81/09
PHOS-TOT		MG/L P		10	.489000	.381230	1.26000	.163000	80/12	81/09
CYANIDE	CN-TOT	MG/L		5	.020800	.011541	.040000	.010000	80/12	81/09
			K	2	.010000	.000000	.010000	.010000	81/05	81/06
			T	7	.017714	.010797	.040000	.010000	80/12	81/09
TOT HARD	CACO3	MG/L		4	366.500	88.8800	490.000	284.000	80/12	81/09
CHLORIDE	TOTAL	MG/L		8	124.125	82.2217	292.000	42.0000	80/12	81/09
SULFATE	SO4-TOT	MG/L		7	64.8571	15.4212	90.0000	49.0000	80/12	81/09
CADMIUM	CD,TOT	UG/L	K	4	5.00000	.000000	5.00000	5.00000	80/12	81/09
CHROMIUM	CR,TOT	UG/L		3	36.6667	5.77360	40.0000	30.0000	80/12	81/09
			K	1	30.0000		30.0000	30.0000	81/03	81/03
			T	4	35.0000	5.77350	40.0000	30.0000	80/12	81/09
COPPER	CU,TOT	UG/L		1	40.0000		40.0000	40.0000	81/09	81/09
			K	3	30.0000	.000000	30.0000	30.0000	80/12	81/06
			T	4	32.5000	5.00000	40.0000	30.0000	80/12	81/09
IRON	FE,TOT	UG/L		4	1542.50	1240.39	3400.00	850.000	80/12	81/09
LEAD	PB,TOT	UG/L		4	12.2500	4.57347	18.0000	7.00000	80/12	81/09
NICKEL	NI,TOTAL	UG/L		3	100.000	.000000	100.000	100.000	80/12	81/09
			K	1	100.000		100.000	100.000	81/06	81/06
			T	4	100.000	.000000	100.000	100.000	80/12	81/09
ZINC	ZN,TOT	UG/L		4	60.0000	11.5470	70.0000	50.0000	80/12	81/09
PHENOLS	TOTAL	UG/L		9	5.44444	2.12786	8.00000	2.00000	80/12	81/09
			K	1	2.00000		2.00000	2.00000	81/03	81/03
			T	10	5.10000	2.28279	8.00000	2.00000	80/12	81/09
MERCURY	HG,TOTAL	UG/L	K	4	.500000	.000000	.500000	.500000	80/12	81/09

TABLE RD 1-62

STATION NUMBER 601550
39 40 00.0 082 33 04.0 2
HOCKING RIVER NR LANCASTER
OHIO RIVER 050691 (HOCKING RIVER)
MILES 0953.80 0781.80 086.70

PARAMETER			R	NO	MEAN	STAN DEV	MAXIMUM	MINIMUM	BEG	END
WATER	TEMP	CENT		12	11.6250	6.46869	22.0000	2.00000	81/10	82/09
STREAM	FLOW	CFS		8	53.5037	49.6176	168.000	2.53000	81/12	82/08
STREAM	FLOW,	INST-CFS		3	31.0000	8.42561	40.0000	23.3000	81/10	82/09
STREAM	STAGE	FEET		7	2.40000	.195820	2.69000	2.20000	81/10	82/09
TURB	TRBIDMTR	HACH FTU		1	3.89000		3.89000	3.89000	82/02	82/02
CNDUCTVY	FIELD	MICROMHO		12	1060.00	430.687	1780.00	270.000	81/10	82/09
DO	PROBE	MG/L		10	7.28999	3.96917	12.4000	1.50000	81/12	82/09
DO		MG/L		2	4.60000	.000000	4.60000	4.60000	81/10	81/11
BOD	5 DAY	MG/L		12	9.94166	4.48907	18.0000	4.50000	81/10	82/09
COD	LOWLEVEL	MG/L		5	29.4000	9.12693	40.0000	19.0000	81/10	82/03
PH		SU		11	7.70909	.254740	8.20000	7.30000	81/10	82/08
LAB	PH	SU		2	7.76500	.021395	7.78000	7.75000	82/07	82/09
RESIDUE	TOT VOL	MG/L		1	266.000		266.000	266.000	81/11	81/11
RESIDUE	TOT NFLT	MG/L		11	25.2727	28.3093	106.000	6.00000	81/10	82/09
NH3+NH4-	N TOTAL	MG/L		12	2.84083	1.76670	6.05000	.670000	81/10	82/09
NO2-N	TOTAL	MG/L		11	.099091	.039612	.180000	.040000	81/10	82/09
NO3-N	TOTAL	MG/L		12	.985833	.801820	2.60000	.090000	81/10	82/09
TOT KJEL	N	MG/L		12	4.04416	1.95238	7.20000	1.80000	81/10	82/09
PHOS-TOT		MG/L P		12	.761833	.389807	1.67000	.220000	81/10	82/09
CYANIDE	CN-TOT	MG/L		1	.029000		.029000	.029000	82/09	82/09
TOT HARD	CACO3	MG/L		5	443.400	144.279	647.000	286.000	81/11	82/09
CALCIUM	CA-TOT	MG/L		4	102.925	26.9089	139.600	77.3000	81/12	82/09
MGNSIUM	MG,TOT	MG/L		4	32.8500	8.71496	43.3000	22.5000	81/12	82/09
CHLORIDE	TOTAL	MG/L		2	441.500	132.229	535.000	348.000	81/10	81/11
SULFATE	SO4-TOT	MG/L		1	87.0000		87.0000	87.0000	81/11	81/11
CADMIUM	CD,TOT	UG/L		3	1.56667	.288679	1.90000	1.40000	82/03	82/09
CHROMIUM	CR,TOT	UG/L		2	40.0000	14.1421	50.0000	30.0000	81/12	82/09
			K	2	30.0000	.000000	30.0000	30.0000	82/03	82/06
			T	4	35.0000	10.0000	50.0000	30.0000	81/12	82/09
COPPER	CU,TOT	UG/L		3	11.6667	2.88678	15.0000	10.0000	81/12	82/09
			K	1	10.0000		10.0000	10.0000	82/06	82/06
			T	4	11.2500	2.50000	15.0000	10.0000	81/12	82/09
IRON	FE,TOT	UG/L		4	890.000	299.444	1170.00	530.000	81/12	82/09
LEAD	PB,TOT	UG/L		3	7.00000	2.64575	10.0000	5.00000	81/12	82/09
			K	1	5.00000		5.00000	5.00000	82/03	82/03
			T	4	6.50000	2.38048	10.0000	5.00000	81/12	82/09
NICKEL	NI,TOTAL	UG/L		2	160.000	155.563	270.000	50.0000	81/12	82/09
			K	2	40.0000	.000000	40.0000	40.0000	82/03	82/06
			T	4	100.000	113.431	270.000	40.0000	81/12	82/09
ZINC	ZN,TOT	UG/L		4	60.0000	34.6410	90.0000	30.0000	81/12	82/09
FEC COLI	MFM-FCBR	/100ML		6	46805.2	80328.5	209000	520.000	81/12	82/06
FEC COLI	MFM-FCBR	/100ML	L	1	400000		400000	400000	82/07	82/07
			T	7	97261.5	152309	400000	520.000	81/12	82/07
PHENOLS	TOTAL	UG/L		2	6.50000	2.12132	8.00000	5.00000	81/10	81/11
			K	2	10.0000	.000000	10.0000	10.0000	82/08	82/09
			T	4	8.25000	2.36291	10.0000	5.00000	81/10	82/09

TABLE RD 1-63

STATION NUMBER 601530
39 33 54.0 082 28 30.0 2
HOCKING RIVER NEAR ENTERPRISE
OHIO RIVER 050691 (HOCKING RIVER)
MILES 0953.80 0781.80 072.80

PARAMETER			R	NO	MEAN	STAN DEV	MAXIMUM	MINIMUM	BEG	END
WATER	TEMP	CENT		7	13.6429	8.79732	23.0000	.500000	80/10	81/09
STREAM	FLOW,	INST-CFS		6	383.683	296.622	897.000	168.000	80/10	81/07
STREAM	STAGE	FEET		7	2.01857	.974564	3.70000	.760000	80/10	81/09
CNDUCTVY	AT 25C	MICROMHO		5	733.800	148.362	930.000	549.000	80/10	81/09
DO		MG/L		8	9.76875	2.03452	13.1000	7.35000	80/10	81/09
COD	LOWLEVEL	MG/L		6	9.33333	3.72380	16.0000	6.00000	80/10	81/09
			K	2	6.00000	.000000	6.00000	6.00000	81/06	81/07
			T	8	8.50000	3.50510	16.0000	6.00000	80/10	81/09
PH		SU		6	7.50833	.735206	8.35000	6.20000	80/12	81/09
LAB	PH	SU		4	7.34999	.506715	7.70000	6.60000	80/10	81/06
RESIDUE	TOT NFLT	MG/L		5	31.2000	19.0184	60.0000	12.0000	80/12	81/07
			K	3	10.0000	.000000	10.0000	10.0000	80/10	81/09
			T	8	23.2500	18.0851	60.0000	10.0000	80/10	81/09
NH3+NH4-	N TOTAL	MG/L		7	.364285	.283482	.790000	.120000	80/10	81/09
			K	1	.050000		.050000	.050000	81/07	81/07
			T	8	.325000	.285006	.790000	.050000	80/10	81/09
NO2-N	TOTAL	MG/L		8	.078750	.058661	.170000	.010000	80/10	81/09
NO3-N	TOTAL	MG/L		8	1.28250	.312718	1.83000	.910000	80/10	81/09
TOT KJEL	N	MG/L		8	.848749	.474776	1.47000	.250000	80/10	81/09
PHOS-TOT		MG/L P		8	.170375	.081913	.339000	.061000	80/10	81/09
TOT HARD	CACO3	MG/L		2	183.500	164.756	300.000	67.0000	81/02	81/07
CHLORIDE	TOTAL	MG/L		1	29.0000		29.0000	29.0000	81/04	81/04
SULFATE	SO4-TOT	MG/L		1	107.000		107.000	107.000	81/07	81/07
CADMIUM	CD,TOT	UG/L	K	2	5.00000	.000000	5.00000	5.00000	81/02	81/07
CHROMIUM	CR,TOT	UG/L	K	2	30.0000	.000000	30.0000	30.0000	81/02	81/07
COPPER	CU,TOT	UG/L	K	2	30.0000	.000000	30.0000	30.0000	81/02	81/07
IRON	FE,TOT	UG/L		2	1790.00	1739.48	3020.00	560.000	81/02	81/07
LEAD	PB,TOT	UG/L	K	2	5.00000	.000000	5.00000	5.00000	81/02	81/07
MANGNESE	MN	UG/L		1	1170.00		1170.00	1170.00	81/07	81/07
NICKEL	NI,TOTAL	UG/L	K	2	100.000	.000000	100.000	100.000	81/02	81/07
ZINC	ZN,TOT	UG/L		1	50.0000		50.0000	50.0000	81/02	81/02
			K	1	30.0000		30.0000	30.0000	81/07	81/07
			T	2	40.0000	14.1421	50.0000	30.0000	81/02	81/07
FEC COLI	MFM-FCBR	/100ML		9	3936.67	2956.41	9600.00	330.000	80/10	81/09
PHENOLS	TOTAL	UG/L		1	3.00000		3.00000	3.00000	81/06	81/06
			K	1	2.00000		2.00000	2.00000	81/07	81/07
			T	2	2.50000	.707107	3.00000	2.00000	81/06	81/07
RESIDUE	DISS-180	C MG/L		5	338.000	141.924	470.000	117.000	80/10	81/07
MERCURY	HG,TOTAL	UG/L	K	1	.500000		.500000	.500000	81/07	81/07

TABLE RD 1-64

STATION NUMBER 601530
39 33 54.0 082 28 30.0 2
HOCKING RIVER NEAR ENTERPRISE
OHIO RIVER 050691 (HOCKING RIVER)
MILES 0953.80 0781.80 072.80

PARAMETER			R	NO	MEAN	STAN DEV	MAXIMUM	MINIMUM	BEG	END
WATER	TEMP	CENT		7	18.3286	4.77554	23.3000	10.0000	81/10	82/09
STREAM	FLOW,	INST-CFS		5	92.6199	14.8523	118.000	80.1000	82/08	82/09
STREAM	STAGE	FEET		6	1.08667	.205003	1.35000	.720000	81/10	82/09
CNDUCTVY	AT 25C	MICROMHO		5	751.400	63.1664	837.000	680.000	81/10	82/09
INTNSVE	SURVEY	IDENT		6	823912	.000000	823912	823912	82/05	82/09
DO	PROBE	MG/L		6	6.83333	.625078	7.70000	6.10000	82/05	82/09
DO		MG/L		1	9.20000		9.20000	9.20000	81/10	81/10
BOD	5 DAY	MG/L		5	3.54000	1.00649	4.50000	2.00000	82/08	82/09
COD	LOWLEVEL	MG/L		3	16.0000	2.00000	18.0000	14.0000	82/08	82/09
			K	3	12.0000	7.21110	20.0000	6.00000	81/10	82/08
			T	6	14.0000	5.21536	20.0000	6.00000	81/10	82/09
PH		SU		5	7.68000	.164620	7.80000	7.50000	82/05	82/09
LAB	PH	SU		3	7.63666	.110347	7.70000	7.51000	81/10	82/09
RESIDUE	TOT NFLT	MG/L		7	29.0000	18.1292	60.0000	9.00000	81/10	82/09
NH3+NH4-	N TOTAL	MG/L		6	.598333	.300095	1.00000	.170000	81/10	82/09
NO2-N	TOTAL	MG/L		5	.132000	.038340	.180000	.080000	81/10	82/09
NO3-N	TOTAL	MG/L		7	1.16857	.735129	2.80000	.630000	81/10	82/09
TOT KJEL	N	MG/L		6	.981666	.316886	1.29000	.400000	81/10	82/09
PHOS-TOT		MG/L P		7	.152857	.038173	.210000	.120000	81/10	82/09
CYANIDE	CN-TOT	MG/L	K	4	.010000	.000000	.010000	.010000	82/08	82/09
TOT HARD	CACO3	MG/L		6	285.166	21.9428	317.000	255.000	82/05	82/09
CALCIUM	CA-TOT	MG/L		6	67.7666	3.95324	72.9000	62.3000	82/05	82/09
MGNSIUM	MG,TOT	MG/L		6	28.1333	2.95011	32.7000	24.2000	82/05	82/09
CHLORIDE	TOTAL	MG/L		1	79.2000		79.2000	79.2000	82/09	82/09
SULFATE	SO4-TOT	MG/L		1	97.0000		97.0000	97.0000	82/09	82/09
CADMIUM	CD,TOT	UG/L	K	6	.500000	.000000	.500000	.500000	82/05	82/09
CHROMIUM	CR,TOT	UG/L	K	5	30.0000	.000000	30.0000	30.0000	82/08	82/09
COPPER	CU,TOT	UG/L		1	10.0000		10.0000	10.0000	82/09	82/09
			K	5	10.0000	.000000	10.0000	10.0000	82/05	82/09
			T	6	10.0000	.000000	10.0000	10.0000	82/05	82/09
IRON	FE,TOT	UG/L		6	1900.00	872.444	3020.00	530.000	82/05	82/09
LEAD	PB,TOT	UG/L		6	4.83333	1.60209	7.00000	3.00000	82/05	82/09
MANGNESE	MN	UG/L		1	1640.00		1640.00	1640.00	82/08	82/08
NICKEL	NI,TOTAL	UG/L	K	5	40.0000	.000000	40.0000	40.0000	82/08	82/09
ZINC	ZN,TOT	UG/L		4	30.0000	13.5401	50.0000	20.0000	82/05	82/09
			K	2	10.0000	.000000	10.0000	10.0000	82/08	82/09
			T	6	23.3333	14.7196	50.0000	10.0000	82/05	82/09
FEC COLI	MFM-FCBR	/100ML		4	1664.25	1907.88	4300.00	40.0000	81/10	82/08
PHENOLS	TOTAL	UG/L	K	4	10.0000	.000000	10.0000	10.0000	82/08	82/09
RESIDUE	DISS-180	C MG/L		7	523.000	12.4633	539.000	499.000	81/10	82/09
COD	LOWLEVEL	MG/L		3	14.3333	3.05508	17.0000	11.0000	82/05	82/08

TABLE RD 1-65

STATION NUMBER 501050
41 18 24.0 082 36 21.0 2
HURON RIVER BELOW MILAN - MUD BROOK RD
LAKE ERIE (HURON RIVER)
MILES 0011.60

PARAMETER			R	NO	MEAN	STAN DEV	MAXIMUM	MINIMUM	BEG	END
WATER	TEMP	CENT		10	8.41999	8.81750	23.6000	-.399E+00	80/10	81/07
TURB	TRBIDMTR	HACH FTU		1	144.000		144.000	144.000	81/04	81/04
CNDUCTVY	AT 25C	MICROMHO		8	655.125	74.1225	743.000	513.000	81/02	81/09
DO		MG/L		10	11.0600	2.62901	14.8000	6.90000	80/10	81/07
BOD	5 DAY	MG/L		11	3.07272	1.57423	6.50000	1.30000	80/10	81/09
COD	LOWLEVEL	MG/L		8	24.4000	11.6150	37.9000	7.70000	80/10	81/08
			K	3	4.00000	.000000	4.00000	4.00000	80/12	81/05
			T	11	18.8363	13.6101	37.9000	4.00000	80/10	81/08
LAB	PH	SU		12	8.15832	.308425	8.62000	7.40000	80/10	81/09
T ALK	CACO3	MG/L		2	137.500	28.9914	158.000	117.000	81/02	81/05
RESIDUE	TOT NFLT	MG/L		8	72.8750	133.541	402.000	14.0000	80/11	81/09
			K	4	10.0000	.000000	10.0000	10.0000	80/10	81/05
			T	12	51.9167	110.936	402.000	10.0000	80/10	81/09
NH3+NH4-	N TOTAL	MG/L		5	.601999	.689725	1.80000	.100000	80/10	81/09
			K	4	.387500	.225000	.500000	.050000	80/12	81/03
			T	9	.506666	.519254	1.80000	.050000	80/10	81/09
NO2-N	TOTAL	MG/L		12	.075833	.066121	.220000	.010000	80/10	81/09
NO3-N	TOTAL	MG/L		12	3.27833	3.09742	10.6000	.430000	80/10	81/09
TOT KJEL	N	MG/L		12	1.36083	.770000	3.15000	.700000	80/10	81/09
PHOS-TOT		MG/L P		12	.473166	.327471	1.19000	.159000	80/10	81/09
T ORG C	C	MG/L		6	16.5000	5.89067	28.0000	12.0000	80/10	81/07
TOT HARD	CACO3	MG/L		12	323.500	56.9777	412.000	224.000	80/10	81/09
CALCIUM	CA-TOT	MG/L		10	90.8000	14.6200	118.000	66.0000	80/12	81/09
MGNSIUM	MG,TOT	MG/L		10	25.0000	4.00000	30.0000	16.0000	80/12	81/09
SODIUM	NA,TOT	MG/L		10	26.1000	9.91581	44.0000	11.0000	80/12	81/09
PTSSIUM	K,TOT	MG/L		9	4.71111	.908933	5.90000	3.30000	81/01	81/09
CHLORIDE	TOTAL	MG/L		12	44.4167	8.39336	60.0000	31.0000	80/10	81/09
SULFATE	SO4-TOT	MG/L		12	136.750	28.5056	174.000	84.0000	80/10	81/09
SILICA	DISOLVED	MG/L		9	4.88444	2.08162	7.23000	1.47000	80/12	81/09
ARSENIC	AS,TOT	UG/L	K	12	10.8333	2.88676	20.0000	10.0000	80/10	81/09
CADMIUM	CD,TOT	UG/L	K	12	5.00000	.000000	5.00000	5.00000	80/10	81/09
CHROMIUM	CR,TOT	UG/L		3	30.0000	.000000	30.0000	30.0000	80/10	81/08
			K	9	30.0000	.000000	30.0000	30.0000	80/11	81/09
			T	12	30.0000	.000000	30.0000	30.0000	80/10	81/09

TABLE RD 1-65 (Continued)

STATION NUMBER 501050
41 18 24.0 082 36 21.0 2
HURON RIVER BELOW MILAN - MUD BROOK RD
LAKE ERIE (HURON RIVER)
MILES 0011.60

PARAMETER			R	NO	MEAN	STAN DEV	MAXIMUM	MINIMUM	BEG	END
COPPER	CU,TOT	UG/L		1	30.0000		30.0000	30.0000	81/06	81/06
			K	11	30.0000	.000000	30.0000	30.0000	80/10	81/09
			T	12	30.0000	.000000	30.0000	30.0000	80/10	81/09
IRON	FE,TOT	UG/L		12	2110.00	3581.05	10000.0	100.000	80/10	81/09
LEAD	PB,TOT	UG/L		2	19.0000	14.1421	29.0000	9.00000	81/04	81/06
			K	10	5.00000	.000000	5.00000	5.00000	80/10	81/09
			T	12	7.33333	6.91945	29.0000	5.00000	80/10	81/09
MANGNESE	MN	UG/L		10	115.000	151.236	520.000	30.0000	80/10	81/09
			K	2	30.0000	.000000	30.0000	30.0000	80/11	81/07
			T	12	100.833	140.742	520.000	30.0000	80/10	81/09
NICKEL	NI,TOTAL	UG/L		2	100.000	.000000	100.000	100.000	81/06	81/09
			K	7	100.000	.000000	100.000	100.000	81/01	81/08
			T	9	100.000	.000000	100.000	100.000	81/01	81/09
ZINC	ZN,TOT	UG/L		2	70.0000	28.2843	90.0000	50.0000	81/04	81/06
			K	10	30.0000	.000000	30.0000	30.0000	80/10	81/09
			T	12	36.6667	17.7525	90.0000	30.0000	80/10	81/09
ALUMINUM	AL,TOT	UG/L		9	1455.56	2015.63	6000.00	200.000	80/10	81/09
			K	3	200.000	.000000	200.000	200.000	80/11	81/01
			T	12	1141.67	1810.30	6000.00	200.000	80/10	81/09
FEC COLI	MFM-FCBR	/100ML		9	1627.78	1354.71	3900.00	100.000	80/10	81/09
			L	3	73333.3	46188.1	100000	20000.0	81/01	81/06
			T	12	19554.2	37959.5	100000	100.000	80/10	81/09
PHENOLS	TOTAL	UG/L		8	5.87500	2.94897	12.0000	3.00000	80/10	81/09
			K	2	11.0000	12.7279	20.0000	2.00000	81/02	81/03
			T	10	6.90000	5.42525	20.0000	2.00000	80/10	81/09
MBAS		MG/L		12	.110833	.033428	.170000	.070000	80/10	81/09
PCBS	WHL SMPL	UG/L	K	7	.500000	.000000	.500000	.500000	81/02	81/09
RESIDUE	DISS-180	C MG/L		12	436.083	113.378	672.000	294.000	80/10	81/09
MERCURY	HG,TOTAL	UG/L		1	.800000		.800000	.800000	81/04	81/04
			K	10	.500000	.000000	.500000	.500000	80/10	81/08
			T	11	.527273	.090454	.800000	.500000	80/10	81/08

TABLE RD 1-66

STATION NUMBER 501050
41 18 24.0 082 36 21.0 2
HURON RIVER BELOW MILAN - MUD BROOK RD
LAKE ERIE (HURON RIVER)
MILES 0011.60

PARAMETER			R	NO	MEAN	STAN DEV	MAXIMUM	MINIMUM	BEG	END
WATER	TEMP	CENT		6	12.5667	8.56053	22.1000	2.20000	81/10	82/09
CNDUCTVY	AT 25C	MICROMHO		6	749.333	117.965	863.000	553.000	81/10	82/09
DO	PROBE	MG/L		3	6.78333	1.14496	7.70000	5.50000	82/07	82/09
DO		MG/L		3	10.8000	3.05124	12.9000	7.30000	81/10	81/12
BOD	5 DAY	MG/L		5	4.24000	1.12606	5.60000	3.00000	81/10	82/09
COD	LOWLEVEL	MG/L		3	27.8333	3.01394	31.0000	25.0000	81/12	82/09
			K	3	6.00000	3.46410	10.0000	4.00000	81/10	82/07
			T	6	16.9167	12.3062	31.0000	4.00000	81/10	82/09
LAB	PH	SU		6	7.95333	.413694	8.30000	7.20000	81/10	82/09
T ALK	CACO3	MG/L		1	215.000		215.000	215.000	81/10	81/10
RESIDUE	TOT NFLT	MG/L		2	16.0000	2.82843	18.0000	14.0000	81/12	82/09
			K	3	8.33333	2.88676	10.0000	5.00000	81/10	82/08
			T	5	11.4000	4.87854	18.0000	5.00000	81/10	82/09
NH3+NH4-	N TOTAL	MG/L		6	.346666	.204907	.660000	.130000	81/10	82/09
NO2-N	TOTAL	MG/L		6	.086667	.033267	.150000	.060000	81/10	82/09
NO3-N	TOTAL	MG/L		6	1.95500	1.69925	5.22000	.630000	81/10	82/09
TOT KJEL	N	MG/L		6	1.26000	.361499	1.79000	.800000	81/10	82/09
PHOS-TOT		MG/L P		6	.763666	.495998	1.39000	.115000	81/10	82/09
T ORG C	C	MG/L		3	11.6667	5.03324	17.0000	7.00000	81/10	81/12
TOT HARD	CACO3	MG/L		5	326.420	50.3945	380.000	246.000	81/10	82/08
CALCIUM	CA-TOT	MG/L		6	91.6999	15.4332	119.000	71.0000	81/10	82/09
MGNSIUM	MG,TOT	MG/L		6	28.4833	5.03208	33.0000	19.0000	81/10	82/09
SODIUM	NA,TOT	MG/L		5	37.2800	13.6475	51.8000	19.0000	81/10	82/09
PTSSIUM	K,TOT	MG/L		5	6.70000	.827669	7.40000	5.30000	81/10	82/09
CHLORIDE	TOTAL	MG/L		3	46.0000	7.54983	54.0000	39.0000	81/10	81/12

TABLE RD 1-66 (Continued)

STATION NUMBER 501050
41 18 24.0 082 36 21.0 2
HURON RIVER BELOW MILAN - MUD BROOK RD
LAKE ERIE (HURON RIVER)
MILES 0011.60

PARAMETER			R	NO	MEAN	STAN DEV	MAXIMUM	MINIMUM	BEG	END
SULFATE	SO4-TOT	MG/L		3	130.000	35.5106	166.000	95.0000	81/10	81/12
SILICA	DISOLVED	MG/L		3	4.17667	2.41334	6.76000	1.98000	81/10	81/12
ARSENIC	AS,TOT	UG/L	K	3	10.0000	.000000	10.0000	10.0000	81/10	81/12
CADMIUM	CD,TOT	UG/L	K	6	2.75000	2.46475	5.00000	.500000	81/10	82/09
CHROMIUM	CR,TOT	UG/L	K	6	30.0000	.000000	30.0000	30.0000	81/10	82/09
COPPER	CU,TOT	UG/L	K	6	20.0000	10.9545	30.0000	10.0000	81/10	82/09
IRON	FE,TOT	UG/L		6	928.333	1000.11	2680.00	230.000	81/10	82/09
LEAD	PB,TOT	UG/L		1	8.00000		8.00000	8.00000	81/12	81/12
			K	5	3.20000	1.64317	5.00000	2.00000	81/10	82/09
			T	6	4.00000	2.44949	8.00000	2.00000	81/10	82/09
MANGNESE	MN	UG/L		6	53.3333	15.3841	80.0000	40.0000	81/10	82/09
NICKEL	NI,TOTAL	UG/L	K	5	76.0000	32.8634	100.000	40.0000	81/10	82/09
ZINC	ZN,TOT	UG/L		2	35.0000	7.07107	40.0000	30.0000	81/12	82/09
			K	4	20.0000	11.5470	30.0000	10.0000	81/10	82/08
			T	6	25.0000	12.2474	40.0000	10.0000	81/10	82/09
ALUMINUM	AL,TOT	UG/L		3	666.666	416.334	1000.00	200.000	81/10	81/12
FEC COLI	MFM-FCBR	/100ML		2	13255.0	18024.2	26000.0	510.000	81/10	82/09
			L	2	100000	.000000	100000	100000	81/12	82/08
			T	4	56627.5	51151.9	100000	510.000	81/10	82/09
PHENOLS	TOTAL	UG/L		2	5.50000	.707107	6.00000	5.00000	81/10	81/12
			K	1	10.0000		10.0000	10.0000	82/07	82/07
			T	3	7.00000	2.64575	10.0000	5.00000	81/10	82/07
MBAS		MG/L		3	.116667	.015275	.130000	.100000	81/10	81/12
RESIDUE	DISS-180	C MG/L		4	544.000	387.997	1058.00	240.000	81/10	82/09
MERCURY	HG,TOTAL	UG/L	K	1	.500000		.500000	.500000	81/12	81/12

TABLE RD 1-67

STATION NUMBER 504260
41 58 24.0 080 31 52.0 2
TURKEY CREEK NR CONNEAUT AT MOUTH - LAKE RD
LAKE ERIE (TURKEY CREEK)
MILES 0000.10

PARAMETER			R	NO	MEAN	STAN DEV	MAXIMUM	MINIMUM	BEG	END
WATER	TEMP	CENT		2	12.7500	13.7886	22.5000	3.00000	80/11	81/07
CNDUCTVY	FIELD	MICROMHO		3	275.000	282.356	600.000	90.0000	80/11	81/07
DO		MG/L		3	10.8000	4.85698	14.5000	5.30000	80/11	81/07
COD	LOWLEVEL	MG/L		3	15.3000	4.17974	20.0000	12.0000	80/11	81/07
LAB	PH	SU		3	6.86666	.776823	7.50000	6.00000	80/11	81/07
RESIDUE	TOT NFLT	MG/L		1	24.0000		24.0000	24.0000	81/02	81/02
			K	2	10.0000	.000000	10.0000	10.0000	80/11	81/07
			T	3	14.6667	8.08291	24.0000	10.0000	80/11	81/07
NH3+NH4-	N TOTAL	MG/L		2	.065000	.007072	.070000	.060000	81/02	81/07
			K	1	.050000		.050000	.050000	80/11	80/11
			T	3	.060000	.010000	.070000	.050000	80/11	81/07
NO2-N	TOTAL	MG/L		2	.010000	.000000	.010000	.010000	81/02	81/07
			K	1	.010000		.010000	.010000	80/11	80/11
			T	3	.010000	.000000	.010000	.010000	80/11	81/07
NO3-N	TOTAL	MG/L		3	.280000	.176918	.470000	.120000	80/11	81/07
TOT KJEL	N	MG/L		3	.493333	.130514	.640000	.390000	80/11	81/07
PHOS-TOT		MG/L P		3	.029000	.007937	.038000	.023000	80/11	81/07
CYANIDE	CN-TOT	MG/L	K	2	.010000	.000000	.010000	.010000	80/11	81/02
TOT HARD	CACO3	MG/L		3	107.000	60.2578	172.000	53.0000	80/11	81/07
SULFATE	SO4-TOT	MG/L		1	50.0000		50.0000	50.0000	81/07	81/07
FLUORIDE	F,TOTAL	MG/L		2	.085000	.021213	.100000	.070000	80/11	81/07
CADMIUM	CD,TOT	UG/L	K	3	5.00000	.000000	5.00000	5.00000	80/11	81/07
CHROMIUM	CR,TOT	UG/L	K	3	30.0000	.000000	30.0000	30.0000	80/11	81/07
COPPER	CU,TOT	UG/L	K	3	30.0000	.000000	30.0000	30.0000	80/11	81/07
IRON	FE,TOT	UG/L		3	996.666	763.763	1830.00	330.000	80/11	81/07
LEAD	PB,TOT	UG/L	K	3	5.00000	.000000	5.00000	5.00000	80/11	81/07
NICKEL	NI,TOTAL	UG/L	K	3	100.000	.000000	100.000	100.000	80/11	81/07
ZINC	ZN,TOT	UG/L	K	3	30.0000	.000000	30.0000	30.0000	80/11	81/07
FEC COLI	MFM-FCBR	/100ML		2	213.500	221.324	370.000	57.0000	81/02	81/07
FECSTREP	MF M-ENT	/100ML		1	840.000		840.000	840.000	81/02	81/02
PHENOLS	TOTAL	UG/L		3	5.66667	2.51662	8.00000	3.00000	80/11	81/07
MBAS		MG/L		2	.090000	.000000	.090000	.090000	80/11	81/02
RESIDUE	DISS-180	C MG/L		3	210.333	132.802	356.000	96.0000	80/11	81/07
MERCURY	HG,TOTAL	UG/L	K	2	.500000	.000000	.500000	.500000	80/11	81/02

Little Beaver

p 92 - 105 has been sent out

600570
55 53.0 2
NEAR OLDTOWN - U.S. RT. 68
051191 (LITTLE MIAMI RIVER)
MILES 0953.80 0517.50 079.50

PARAMETER			R	NO	MEAN	STAN DEV	MAXIMUM	MINIMUM	BEG	END
WATER	TEMP	CENT		12	10.2083	7.38185	20.5000	.000000	81/10	82/09
STREAM	FLOW,	INST-CFS		12	143.400	218.764	817.000	17.3000	81/10	82/09
STREAM	STAGE	FEET		11	1.94636	.869650	4.34000	1.20000	81/10	82/09
CNDUCTVY	AT 25C	MICROMHO		11	650.727	113.666	770.000	410.000	81/10	82/09
DO	PROBE	MG/L		10	10.8500	2.85785	16.4000	7.70000	81/12	82/09
DO		MG/L		2	10.6000	1.69707	11.8000	9.40000	81/10	81/11
COD	LOWLEVEL	MG/L		8	29.0000	15.6570	55.0000	12.0000	81/10	82/08
			K	4	7.00000	3.46410	10.0000	4.00000	82/01	82/09
			T	12	21.6667	16.6315	55.0000	4.00000	81/10	82/09
PH		SU		1	8.20000		8.20000	8.20000	81/10	81/10
LAB	PH	SU		10	8.10399	.162714	8.31000	7.82000	81/11	82/09
RESIDUE	TOT NFLT	MG/L		9	142.444	314.376	968.000	5.00000	81/12	82/09
			K	2	10.0000	.000000	10.0000	10.0000	81/10	81/11
			T	11	118.364	286.245	968.000	5.00000	81/10	82/09
NH3+NH4-	N TOTAL	MG/L		7	.124286	.105492	.350000	.050000	82/01	82/08
			K	5	.050000	.000061	.050000	.050000	81/10	82/09
			T	12	.093333	.086795	.350000	.050000	81/10	82/09
NO2-N	TOTAL	MG/L		2	.060000	.056569	.100000	.020000	82/03	82/06
NO3-N	TOTAL	MG/L		12	3.80416	1.43443	7.60000	2.25000	81/10	82/09
TOT KJEL	N	MG/L		12	.666666	.777529	2.60000	.110000	81/10	82/09
PHOS-TOT		MG/L P		11	.211727	.240256	.780000	.050000	81/10	82/09
			K	1	.050000		.050000	.050000	82/04	82/04
			T	12	.198250	.233784	.780000	.050000	81/10	82/09
CYANIDE	CN-TOT	MG/L	K	1	.010000		.010000	.010000	81/12	81/12
TOT HARD	CACO3	MG/L		4	360.000	56.8448	392.000	275.000	81/12	82/09
CALCIUM	CA-TOT	MG/L		4	83.7499	12.9355	93.4000	64.8000	81/12	82/09
MGNSIUM	MG,TOT	MG/L		4	36.6250	6.37214	42.6000	27.6000	81/12	82/09
CADMIUM	CD,TOT	UG/L	K	4	.500000	.000000	.500000	.500000	81/12	82/09
CHROMIUM	CR,TOT	UG/L		1	30.0000		30.0000	30.0000	82/03	82/03
			K	3	30.0000	.000000	30.0000	30.0000	81/12	82/09
			T	4	30.0000	.000000	30.0000	30.0000	81/12	82/09
COPPER	CU,TOT	UG/L		2	17.5000	3.53553	20.0000	15.0000	82/03	82/06
			K	2	10.0000	.000000	10.0000	10.0000	81/12	82/09
			T	4	13.7500	4.78713	20.0000	10.0000	81/12	82/09
IRON	FE,TOT	UG/L		4	8700.00	9925.89	20120.0	360.000	81/12	82/09
LEAD	PB,TOT	UG/L		3	14.8333	9.51438	25.7000	8.00000	82/03	82/09
			K	1	5.00000		5.00000	5.00000	81/12	81/12
			T	4	12.3750	9.19361	25.7000	5.00000	81/12	82/09
NICKEL	NI,TOTAL	UG/L	K	4	37.5000	5.00000	40.0000	30.0000	81/12	82/09
ZINC	ZN,TOT	UG/L		2	67.5000	17.6777	80.0000	55.0000	82/03	82/06
			K	2	10.0000	.000000	10.0000	10.0000	81/12	82/09
ZINC	ZN,TOT	UG/L	T	4	38.7500	34.7311	80.0000	10.0000	81/12	82/09
FEC COLI	MFM-FCBR	/100ML		10	1835.30	3112.50	10000.0	25.0000	81/10	82/09
			K	1	14.3000		14.3000	14.3000	82/02	82/02
			L	1	100000		100000	100000	82/08	82/08
			T	12	9863.94	28529.6	100000	14.3000	81/10	82/09
PHENOLS	TOTAL	UG/L	K	1	2.00000		2.00000	2.00000	81/12	81/12

RD 1-107

TABLE RD 1-83

STATION NUMBER 610550
39 39 30.0 084 02 30.0 2
L MIAMI R NR BELLBROOK - UPPER BELLBROOK RD
OHIO RIVER (LITTLE MIAMI RIVER)
MILES 0953.80 0517.50 068.20

PARAMETER			R	NO	MEAN	STAN DEV	MAXIMUM	MINIMUM	BEG	END
WATER	TEMP	CENT		4	12.7250	7.05283	18.7000	4.00000	80/12	81/09
CNDUCTVY	AT 25C	MICROMHO		4	751.750	38.8887	800.000	706.000	80/12	81/09
DO		MG/L		4	8.62499	2.49586	12.2000	6.60000	80/12	81/09
COD	LOWLEVEL	MG/L		4	12.2500	5.43906	20.0000	8.00000	80/12	81/09
PH		SU		2	7.50000	.282846	7.70000	7.30000	81/06	81/09
LAB	PH	SU		2	8.00000	.141436	8.10000	7.90000	80/12	81/03
RESIDUE	TOT NFLT	MG/L		3	52.0000	32.0000	84.0000	20.0000	80/12	81/09
			K	1	10.0000		10.0000	10.0000	81/03	81/03
			T	4	41.5000	33.5211	84.0000	10.0000	80/12	81/09
NH3+NH4-	N TOTAL	MG/L		4	.605000	.179351	.790000	.360000	80/12	81/09
NO3-N	TOTAL	MG/L		4	3.63500	1.05794	4.90000	2.67000	80/12	81/09
TOT KJEL	N	MG/L		4	1.13250	.127646	1.30000	.990000	80/12	81/09
PHOS-TOT		MG/L P		4	.587000	.091897	.717000	.515000	80/12	81/09
CYANIDE	CN-TOT	MG/L	K	4	.010000	.000000	.010000	.010000	80/12	81/09
TOT HARD	CACO3	MG/L		4	369.000	18.5831	392.000	352.000	80/12	81/09
CADMIUM	CD,TOT	UG/L	K	4	5.00000	.000000	5.00000	5.00000	80/12	81/09
CHROMIUM	CR,TOT	UG/L	K	4	30.0000	.000000	30.0000	30.0000	80/12	81/09
COPPER	CU,TOT	UG/L	K	4	30.0000	.000000	30.0000	30.0000	80/12	81/09
IRON	FE,TOT	UG/L		4	1637.50	1371.97	3500.00	400.000	80/12	81/09
LEAD	PB,TOT	UG/L		2	6.50000	.707107	7.00000	6.00000	80/12	81/06
			K	2	7.50000	3.53553	10.0000	5.00000	81/03	81/09
			T	4	7.00000	2.16025	10.0000	5.00000	80/12	81/09
NICKEL	NI,TOTAL	UG/L	K	4	100.000	.000000	100.000	100.000	80/12	81/09
ZINC	ZN,TOT	UG/L		2	35.0000	7.07107	40.0000	30.0000	81/03	81/06
			K	2	30.0000	.000000	30.0000	30.0000	80/12	81/09
			T	4	32.5000	5.00000	40.0000	30.0000	80/12	81/09
FEC COLI	MFM-FCBR	/100ML		4	5550.00	6306.87	15000.0	2100.00	80/12	81/09
PHENOLS	TOTAL	UG/L		3	3.66667	2.88675	7.00000	2.00000	80/12	81/09
			K	1	2.00000		2.00000	2.00000	81/03	81/03
			T	4	3.25000	2.50000	7.00000	2.00000	80/12	81/09
MERCURY	HG,TOTAL	UG/L		2	.600000	.000423	.600000	.600000	80/12	81/06
			K	2	.500000	.000000	.500000	.500000	81/03	81/09
			T	4	.550000	.057736	.600000	.500000	80/12	81/09

TABLE RD 1-84

STATION NUMBER 610550
39 39 30.0 084 02 30.0 2
L MIAMI R NR BELLBROOK - UPPER BELLBROOK RD
OHIO RIVER (LITTLE MIAMI RIVER)
MILES 0953.80 0517.50 068.20

No data were collected from 10/81 - 9/82.

TABLE RD 1-85

STATION NUMBER 600600
39 35 00.0 084 01 49.0 2
L MIAMI R NR SPRING VALLEY - ROXANNA-N. BURL. RD
OHIO RIVER 051191 (LITTLE MIAMI RIVER)
MILES 0953.80 0517.50 059.30

PARAMETER			R	NO	MEAN	STAN DEV	MAXIMUM	MINIMUM	BEG	END
WATER	TEMP	CENT		11	11.3091	7.52548	21.0000	.000000	80/10	81/09
STREAM	FLOW,	INST-CFS		12	760.441	1092.93	4102.00	187.000	80/10	81/09
STREAM	STAGE	FEET		12	4.63583	1.93362	10.0900	3.18000	80/10	81/09
CNDUCTVY	AT 25C	MICROMHO		12	757.500	171.581	945.000	264.000	80/10	81/09
DO		MG/L		11	9.23636	2.34789	13.2000	6.10000	80/10	81/09
COD	LOWLEVEL	MG/L		11	17.8182	18.9885	73.0000	6.00000	80/10	81/09
			K	1	6.00000		6.00000	6.00000	81/06	81/06
			T	12	16.8333	18.4235	73.0000	6.00000	80/10	81/09
PH		SU		4	7.97500	.590921	8.40000	7.10000	81/06	81/09
LAB	PH	SU		8	7.97500	.116628	8.20000	7.80000	80/10	81/05
RESIDUE	TOT NFLT	MG/L		8	212.250	436.866	1290.00	13.0000	80/12	81/09
			K	4	10.0000	.000000	10.0000	10.0000	80/10	81/03
			T	12	144.833	362.447	1290.00	10.0000	80/10	81/09
NH3+NH4-	N TOTAL	MG/L		12	.477500	.228915	1.01000	.160000	80/10	81/09
NO3-N	TOTAL	MG/L		12	3.66583	.731909	4.75000	2.26000	80/10	81/09
TOT KJEL	N	MG/L		12	1.30917	.942013	4.22000	.760000	80/10	81/09
PHOS-TOT		MG/L P		12	.544583	.378947	1.70000	.276000	80/10	81/09
CYANIDE	CN-TOT	MG/L	K	4	.010000	.000000	.010000	.010000	80/12	81/09
TOT HARD	CACO3	MG/L		4	372.000	7.48331	380.000	362.000	80/12	81/09
CADMIUM	CD,TOT	UG/L	K	4	5.00000	.000000	5.00000	5.00000	80/12	81/09
CHROMIUM	CR,TOT	UG/L	K	4	30.0000	.000000	30.0000	30.0000	80/12	81/09
COPPER	CU,TOT	UG/L	K	4	30.0000	.000000	30.0000	30.0000	80/12	81/09
IRON	FE,TOT	UG/L		4	1430.00	989.074	2380.00	380.000	80/12	81/09
LEAD	PB,TOT	UG/L		1	5.00000		5.00000	5.00000	81/06	81/06
			K	3	5.00000	.000000	5.00000	5.00000	80/12	81/09
			T	4	5.00000	.000000	5.00000	5.00000	80/12	81/09
NICKEL	NI,TOTAL	UG/L	K	4	100.000	.000000	100.000	100.000	80/12	81/09
ZINC	ZN,TOT	UG/L		1	40.0000		40.0000	40.0000	81/06	81/06
			K	3	30.0000	.000000	30.0000	30.0000	80/12	81/09
			T	4	32.5000	5.00000	40.0000	30.0000	80/12	81/09
FEC COLI	MFM-FCBR	/100ML		6	1226.67	1611.53	4400.00	110.000	80/10	81/08
			L	2	100000	.000000	100000	100000	81/05	81/07
			T	8	25920.0	45743.4	100000	110.000	80/10	81/08
PHENOLS	TOTAL	UG/L		3	2.66667	.577359	3.00000	2.00000	80/12	81/09
			K	1	2.00000		2.00000	2.00000	81/03	81/03
			T	4	2.50000	.577350	3.00000	2.00000	80/12	81/09
MERCURY	HG,TOTAL	UG/L	K	4	.500000	.000000	.500000	.500000	80/12	81/09

TABLE RD 1-86

STATION NUMBER 600600
39 35 00.0 084 01 49.0 2
L MIAMI R NR SPRING VALLEY - ROXANNA-N. BURL. RD
OHIO RIVER 051191 (LITTLE MIAMI RIVER)
MILES 0953.80 0517.50 059.30

No data were collected from 10/81 - 9/82.

TABLE RD 1-87

STATION NUMBER 610520
39 20 48.0 084 10 26.0 2
L MIAMI R NR MORROW - STUBBS MILL RD
OHIO RIVER (L. MIAMI RIVER)
MILES 0953.80 0517.50 035.70

PARAMETER			R	NO	MEAN	STAN DEV	MAXIMUM	MINIMUM	BEG	END
WATER	TEMP	CENT		10	13.2700	8.15135	23.2000	3.00000	80/10	81/09
CNDUCTVY	AT 25C	MICROMHO		11	649.727	75.6181	795.000	494.000	80/10	81/09
DO		MG/L		10	10.5600	2.25055	13.4000	7.60000	80/10	81/09
COD	LOWLEVEL	MG/L		9	16.1111	9.98056	39.0000	6.00000	80/10	81/09
			K	1	6.00000		6.00000	6.00000	81/08	81/08
			T	10	15.1000	9.93814	39.0000	6.00000	80/10	81/09
PH		SU		4	8.12500	.550065	8.40000	7.30000	81/06	81/09
LAB	PH	SU		7	8.01428	.157547	8.20000	7.70000	80/10	81/05
RESIDUE	TOT NFLT	MG/L		8	111.125	129.310	339.000	10.0000	80/12	81/09
			K	3	10.0000	.000000	10.0000	10.0000	80/10	81/03
			T	11	83.5454	118.050	339.000	10.0000	80/10	81/09
NH3+NH4-	N TOTAL	MG/L		6	.186666	.102111	.370000	.090000	80/11	81/05
			K	5	.050000	.000061	.050000	.050000	80/10	81/09
			T	11	.124545	.101525	.370000	.050000	80/10	81/09
NO3-N	TOTAL	MG/L		11	3.32181	.662871	4.42000	2.13000	80/10	81/09
TOT KJEL	N	MG/L		11	.763636	.442499	1.91000	.380000	80/10	81/09
PHOS-TOT		MG/L P		11	.327181	.130257	.542000	.164000	80/10	81/09
CYANIDE	CN-TOT	MG/L	K	4	.010000	.000000	.010000	.010000	80/12	81/09
TOT HARD	CACO3	MG/L		4	321.000	7.74597	332.000	314.000	80/12	81/09
CADMIUM	CD,TOT	UG/L	K	4	5.00000	.000000	5.00000	5.00000	80/12	81/09
CHROMIUM	CR,TOT	UG/L	K	4	30.0000	.000000	30.0000	30.0000	80/12	81/09
COPPER	CU,TOT	UG/L	K	4	30.0000	.000000	30.0000	30.0000	80/12	81/09
IRON	FE,TOT	UG/L		4	1202.50	959.596	2260.00	360.000	80/12	81/09
LEAD	PB,TOT	UG/L	K	4	10.0000	10.0000	25.0000	5.00000	80/12	81/09
NICKEL	NI,TOTAL	UG/L	K	4	100.000	.000000	100.000	100.000	80/12	81/09
ZINC	ZN,TOT	UG/L		1	40.0000		40.0000	40.0000	81/06	81/06
			K	3	30.0000	.000000	30.0000	30.0000	80/12	81/09
			T	4	32.5000	5.00000	40.0000	30.0000	80/12	81/09
FEC COLI	MFM-FCBR	/100ML		9	742.333	776.755	2200.00	48.0000	80/10	81/09
PHENOLS	TOTAL	UG/L		4	2.75000	.957427	4.00000	2.00000	80/12	81/09
MERCURY	HG,TOTAL	UG/L		1	.600000		.600000	.600000	81/09	81/09
			K	3	.500000	.000000	.500000	.500000	80/12	81/06
			T	4	.525000	.050002	.600000	.500000	80/12	81/09

TABLE RD 1-88

STATION NUMBER 610520
39 20 48.0 084 10 26.0 2
L MIAMI R NR MORROW - STUBBS MILL RD
OHIO RIVER (L. MIAMI RIVER)
MILES 0953.80 0517.50 035.70

No data were collected from 10/81 - 9/82.

TABLE RD 1-89

STATION NUMBER 610530
39 09 20.0 084 17 30.0 2
E FK L MIAMI R NR MILFORD - NR TERRACE PARK C.C.
OHIO RIVER (LITTLE MIAMI RIVER)
MILES 0953.80 0517.50 011.10 000.80

PARAMETER			R	NO	MEAN	STAN DEV	MAXIMUM	MINIMUM	BEG	END
WATER	TEMP	CENT		11	13.1727	9.33725	25.0000	.500000	80/10	81/09
CNDUCTVY	AT 25C	MICROMHO		12	467.333	127.220	747.000	327.000	80/10	81/09
DO		MG/L		11	9.60000	2.81319	13.5000	5.40000	80/10	81/09
COD	LOWLEVEL	MG/L		12	19.4167	10.9167	49.0000	8.00000	80/10	81/09
PH		SU		4	8.00000	.571613	8.50000	7.20000	81/06	81/09
LAB	PH	SU		8	7.69999	.075630	7.80000	7.60000	80/10	81/05
RESIDUE	TOT NFLT	MG/L		7	119.429	238.670	660.000	12.0000	80/12	81/09
			K	5	10.0000	.000000	10.0000	10.0000	80/10	81/06
			T	12	73.8333	185.057	660.000	10.0000	80/10	81/09
NH3+NH4-	N TOTAL	MG/L		11	.224545	.175292	.580000	.070000	80/10	81/09
			K	1	.050000		.050000	.050000	81/07	81/07
			T	12	.210000	.174565	.580000	.050000	80/10	81/09
NO3-N	TOTAL	MG/L		12	1.60750	.448646	2.61000	.970000	80/10	81/09
TOT KJEL	N	MG/L		12	1.01500	.399853	2.15000	.680000	80/10	81/09
PHOS-TOT		MG/L P		12	.442333	.304949	1.15000	.124000	80/10	81/09
CYANIDE	CN-TOT	MG/L	K	4	.010000	.000000	.010000	.010000	80/12	81/09
TOT HARD	CACO3	MG/L		4	174.500	43.3090	236.000	138.000	80/12	81/09
CADMIUM	CD,TOT	UG/L	K	4	5.00000	.000000	5.00000	5.00000	80/12	81/09
CHROMIUM	CR,TOT	UG/L	K	4	30.0000	.000000	30.0000	30.0000	80/12	81/09
COPPER	CU,TOT	UG/L	K	4	30.0000	.000000	30.0000	30.0000	80/12	81/09
IRON	FE,TOT	UG/L		4	1160.00	513.615	1770.00	630.000	80/12	81/09
LEAD	PB,TOT	UG/L	K	4	5.00000	.000000	5.00000	5.00000	80/12	81/09
NICKEL	NI,TOTAL	UG/L	K	4	100.000	.000000	100.000	100.000	80/12	81/09
ZINC	ZN,TOT	UG/L		2	30.0000	.000000	30.0000	30.0000	80/12	81/06
			K	2	30.0000	.000000	30.0000	30.0000	81/03	81/09
			T	4	30.0000	.000000	30.0000	30.0000	80/12	81/09
FEC COLI	MFM-FCBR	/100ML		12	3741.67	3985.24	14000.0	150.000	80/10	81/09
PHENOLS	TOTAL	UG/L		4	4.50000	1.73205	7.00000	3.00000	80/12	81/09
MERCURY	HG,TOTAL	UG/L		2	.550000	.070715	.600000	.500000	81/06	81/09
			K	2	.500000	.000000	.500000	.500000	80/12	81/03
			T	4	.525000	.050002	.600000	.500000	80/12	81/09

TABLE RD 1-90

STATION NUMBER 610530
39 09 20.0 084 17 30.0 2
E FK L MIAMI R NR MILFORD - NR TERRACE PARK C.C.
OHIO RIVER (LITTLE MIAMI RIVER)
MILES 0953.80 0517.50 011.10 000.80

No data were collected from 10/81 - 9/82.

TABLE RD 1-91

STATION NUMBER 600510
39 41 54.0 084 01 10.0 2
BEAVER CREEK NEAR ALPHA - BELOW STP
OHIO RIVER 051192 (LITTLE MIAMI RIVER)
MILES 0953.80 0517.50 072.60 001.50

PARAMETER			R	NO	MEAN	STAN DEV	MAXIMUM	MINIMUM	BEG	END
WATER	TEMP	CENT		4	12.6750	6.65501	18.2000	4.50000	80/12	81/09
CNDUCTVY	AT 25C	MICROMHO		4	908.500	98.5140	979.000	763.000	80/12	81/09
DO		MG/L		4	8.27500	2.23812	11.6000	6.90000	80/12	81/09
COD	LOWLEVEL	MG/L		4	23.0000	6.63325	32.0000	18.0000	80/12	81/09
PH		SU		2	7.30000	.424273	7.60000	7.00000	81/06	81/09
LAB	PH	SU		2	7.80000	.282873	8.00000	7.60000	80/12	81/03
RESIDUE	TOT NFLT	MG/L		3	32.0000	19.0526	54.0000	21.0000	80/12	81/09
			K	1	10.0000		10.0000	10.0000	81/03	81/03
			T	4	26.5000	19.0526	54.0000	10.0000	80/12	81/09
NH3+NH4-	N TOTAL	MG/L		4	2.49500	.485838	2.92000	1.93000	80/12	81/09
NO3-N	TOTAL	MG/L		4	1.89500	.364647	2.29000	1.58000	80/12	81/09
TOT KJEL	N	MG/L		4	3.47250	.458143	4.08000	3.03000	80/12	81/09
PHOS-TOT		MG/L P		4	1.65750	.390246	2.08000	1.14000	80/12	81/09
CYANIDE	CN-TOT	MG/L	K	4	.010000	.000000	.010000	.010000	80/12	81/09
TOT HARD	CACO3	MG/L		4	358.000	52.3068	392.000	280.000	80/12	81/09
CADMIUM	CD,TOT	UG/L	K	4	5.00000	.000000	5.00000	5.00000	80/12	81/09
CHROMIUM	CR,TOT	UG/L		1	30.0000		30.0000	30.0000	80/12	80/12
			K	3	30.0000	.000000	30.0000	30.0000	81/03	81/09
			T	4	30.0000	.000000	30.0000	30.0000	80/12	81/09
COPPER	CU,TOT	UG/L	K	4	30.0000	.000000	30.0000	30.0000	80/12	81/09
IRON	FE,TOT	UG/L		4	955.000	552.901	1710.00	390.000	80/12	81/09
LEAD	PB,TOT	UG/L		2	9.50000	.707107	10.0000	9.00000	80/12	81/09
			K	2	5.00000	.000000	5.00000	5.00000	81/03	81/06
			T	4	7.25000	2.62996	10.0000	5.00000	80/12	81/09
NICKEL	NI,TOTAL	UG/L	K	4	100.000	.000000	100.000	100.000	80/12	81/09
ZINC	ZN,TOT	UG/L		3	40.0000	10.0000	50.0000	30.0000	80/12	81/09
			K	1	30.0000		30.0000	30.0000	81/03	81/03
			T	4	37.5000	9.57427	50.0000	30.0000	80/12	81/09
FEC COLI	MFM-FCBR	/100ML		4	26525.0	23263.0	53000.0	5000.00	80/12	81/09
PHENOLS	TOTAL	UG/L		4	10.0000	7.83156	20.0000	2.00000	80/12	81/09
MERCURY	HG,TOTAL	UG/L	K	4	.500000	.000000	.500000	.500000	80/12	81/09

TABLE RD 1-92

STATION NUMBER 600510
39 41 54.0 084 01 10.0 2
BEAVER CREEK NEAR ALPHA - BELOW STP
OHIO RIVER 051192 (LITTLE MIAMI RIVER)
MILES 0953.80 0517.50 072.60 001.50

No data were collected from 10/81 - 9/82.

TABLE RD 1-93

STATION NUMBER 600550
39 29 34.0 084 06 06.0 2
CAESAR CREEK NR OREGONIA - CORWIN RD
OHIO RIVER 051191 (LITTLE MIAMI RIVER)
MILES 0953.80 0517.50 051.00 000.10

PARAMETER			R	NO	MEAN	STAN DEV	MAXIMUM	MINIMUM	BEG	END
WATER	TEMP	CENT		11	12.9818	9.05735	24.3000	.000000	80/10	81/09
CNDUCTVY	AT 25C	MICROMHO		12	459.166	35.5208	515.000	384.000	80/10	81/09
DO		MG/L		11	10.6818	2.89477	15.0000	5.40000	80/10	81/09
COD	LOWLEVEL	MG/L		10	10.6000	2.63313	16.0000	6.00000	80/10	81/09
			K	2	6.00000	.000000	6.00000	6.00000	81/04	81/05
			T	12	9.83333	2.97973	16.0000	6.00000	80/10	81/09
PH		SU		4	8.17500	.457415	8.50000	7.50000	81/06	81/09
LAB	PH	SU		8	8.03750	.118850	8.20000	7.90000	80/10	81/05
RESIDUE	TOT NFLT	MG/L		3	11.6667	5.13162	16.0000	6.00000	81/02	81/09
			K	9	10.0000	.000000	10.0000	10.0000	80/10	81/07
			T	12	10.4167	2.31432	16.0000	6.00000	80/10	81/09
NH3+NH4-	N TOTAL	MG/L		5	.106000	.042778	.150000	.060000	80/11	81/04
			K	7	.050000	.000056	.050000	.050000	80/10	81/09
			T	12	.073333	.038691	.150000	.050000	80/10	81/09
NO3-N	TOTAL	MG/L		12	2.62583	.773520	4.23000	1.86000	80/10	81/09
TOT KJEL	N	MG/L		12	.501666	.107857	.700000	.320000	80/10	81/09
PHOS-TOT		MG/L P		10	.029800	.008942	.047000	.020000	80/12	81/09
			K	2	.020000	.000000	.020000	.020000	80/10	80/11
			T	12	.028167	.008943	.047000	.020000	80/10	81/09
CYANIDE	CN-TOT	MG/L	K	4	.010000	.000000	.010000	.010000	80/12	81/09
TOT HARD	CACO3	MG/L		4	231.250	13.1498	248.000	216.000	80/12	81/09
CADMIUM	CD,TOT	UG/L	K	4	5.00000	.000000	5.00000	5.00000	80/12	81/09
CHROMIUM	CR,TOT	UG/L	K	4	30.0000	.000000	30.0000	30.0000	80/12	81/09
COPPER	CU,TOT	UG/L	K	4	30.0000	.000000	30.0000	30.0000	80/12	81/09
IRON	FE,TOT	UG/L		4	370.000	184.029	610.000	190.000	80/12	81/09
LEAD	PB,TOT	UG/L	K	4	5.00000	.000000	5.00000	5.00000	80/12	81/09
NICKEL	NI,TOTAL	UG/L	K	4	100.000	.000000	100.000	100.000	80/12	81/09
ZINC	ZN,TOT	UG/L		1	30.0000		30.0000	30.0000	81/06	81/06
			K	3	30.0000	.000000	30.0000	30.0000	80/12	81/09
			T	4	30.0000	.000000	30.0000	30.0000	80/12	81/09
FEC COLI	MFM-FCBR	/100ML		10	165.700	366.669	1200.00	3.00000	80/10	81/09
			K	1	1.80000		1.80000	1.80000	81/01	81/01
			T	11	150.800	351.346	1200.00	1.80000	80/10	81/09
PHENOLS	TOTAL	UG/L		3	3.00000	1.00000	4.00000	2.00000	80/12	81/06
			K	1	2.00000		2.00000	2.00000	81/09	81/09
			T	4	2.75000	.957427	4.00000	2.00000	80/12	81/09
MERCURY	HG,TOTAL	UG/L		1	.800000		.800000	.800000	81/06	81/06
			K	3	.500000	.000000	.500000	.500000	80/12	81/09
			T	4	.575000	.150001	.800000	.500000	80/12	81/09

TABLE RD 1-94

STATION NUMBER 600550
39 29 34.0 084 06 06.0 2
CAESAR CREEK NR OREGONIA - CORWIN RD
OHIO RIVER 051191 (LITTLE MIAMI RIVER)
MILES 0953.80 0517.50 051.00 000.10

No data were collected from 10/81 - 9/82.

TABLE RD 1-95

STATION NUMBER 602280
41 14 22.0 080 52 52.0 2
MAHONING R AT LEAVITTSBURG - LEAVITT RD
OHIO RIVER 052191 (MAHONING RIVER BASIN)
MILES 0953.80 0955.50 021.80 045.00

PARAMETER			R	NO	MEAN	STAN DEV	MAXIMUM	MINIMUM	BEG	END
WATER	TEMP	CENT		11	7.45454	8.32303	21.0000	-.300E+01	80/10	81/08
STREAM	FLOW,	INST-CFS		10	770.900	442.573	1585.00	196.000	80/11	81/08
STREAM	STAGE	FEET		11	4.44545	.963588	6.17000	3.17000	80/10	81/08
CNDUCTVY	FIELD	MICROMHO		5	311.800	52.6295	375.000	260.000	80/10	81/08
CNDUCTVY	AT 25C	MICROMHO		5	500.400	85.5424	577.000	366.000	80/11	81/04
INTNSVE	SURVEY	IDENT		1	803905		803905	803905	80/10	80/10
DO	PROBE	MG/L		1	10.1000		10.1000	10.1000	80/10	80/10
DO		MG/L		10	10.9600	2.42360	14.6000	8.00000	80/11	81/08
BOD	5 DAY	MG/L		2	1.15000	1.20208	2.00000	.300000	80/10	81/07
COD	LOWLEVEL	MG/L		10	13.7400	5.34254	26.0000	7.00000	80/10	81/07
PH		SU		2	7.80000	.000000	7.80000	7.80000	81/07	81/08
LAB	PH	SU		8	7.42500	.474371	8.10000	6.70000	80/10	81/05
RESIDUE	TOT NFLT	MG/L		7	17.8857	10.1205	40.0000	12.0000	80/10	81/08
			K	4	10.0000	.000000	10.0000	10.0000	80/11	81/03
			T	11	15.0182	8.79111	40.0000	10.0000	80/10	81/08
NH3+NH4-	N TOTAL	MG/L		9	.240000	.185944	.590000	.050000	80/10	81/07
			K	2	.050000	.000061	.050000	.050000	81/04	81/08
			T	11	.205454	.183214	.590000	.050000	80/10	81/08
NO2-N	TOTAL	MG/L		6	.028333	.027142	.080000	.000000	80/10	81/08
			K	1	.010000		.010000	.010000	80/11	80/11
			T	7	.025714	.025728	.080000	.000000	80/10	81/08
NO3-N	TOTAL	MG/L		10	.767000	.313725	1.10000	.290000	80/10	81/07
TOT KJEL	N	MG/L		10	.722000	.194068	1.05000	.500000	80/10	81/07
PHOS-TOT		MG/L P		11	.082273	.033735	.157000	.048000	80/10	81/08
CYANIDE	CN-TOT	MG/L	K	11	.010000	.000007	.010000	.010000	80/10	81/08
TOT HARD	CACO3	MG/L		5	164.000	13.6382	184.000	148.000	80/10	81/08

TABLE RD 1-95 (Continued)

STATION NUMBER 602280
41 14 22.0 080 52 52.0 2
MAHONING R AT LEAVITTSBURG - LEAVITT RD
OHIO RIVER 052191 (MAHONING RIVER BASIN)
MILES 0953.80 0955.50 021.80 045.00

PARAMETER			R	NO	MEAN	STAN DEV	MAXIMUM	MINIMUM	BEG	END
CALCIUM	CA-TOT	MG/L		1	42.0000		42.0000	42.0000	80/10	80/10
MGNSIUM	MG,TOT	MG/L		1	13.0000		13.0000	13.0000	80/10	80/10
FLUORIDE	F,TOTAL	MG/L		5	.244000	.026079	.280000	.220000	80/11	81/08
BARIUM	BA,TOT	UG/L		1	200.000		200.000	200.000	81/07	81/07
CADMIUM	CD,TOT	UG/L	K	5	4.20000	1.78886	5.00000	1.00000	80/10	81/08
CHROMIUM	CR,TOT	UG/L	K	5	32.0000	4.47214	40.0000	30.0000	80/10	81/08
COPPER	CU,TOT	UG/L	K	5	25.0000	11.1803	30.0000	5.00000	80/10	81/08
IRON	FE,TOT	UG/L		11	852.727	596.927	2400.00	210.000	80/10	81/08
LEAD	PB,TOT	UG/L		1	6.00000		6.00000	6.00000	81/08	81/08
			K	4	6.25000	2.50000	10.0000	5.00000	80/10	81/05
			T	5	6.20000	2.16795	10.0000	5.00000	80/10	81/08
MANGNESE	MN	UG/L		2	345.000	21.2132	360.000	330.000	81/07	81/08
NICKEL	NI,TOTAL	UG/L	K	5	88.0000	26.8328	100.000	40.0000	80/10	81/08
ZINC	ZN,TOT	UG/L		1	10.0000		10.0000	10.0000	80/10	80/10
			K	4	30.0000	.000000	30.0000	30.0000	80/11	81/08
ZINC	ZN,TOT	UG/L	T	5	26.0000	8.94427	30.0000	10.0000	80/10	81/08
FEC COLI	MFM-FCBR	/100ML		8	2471.25	1566.08	4600.00	570.000	80/12	81/08
FECSTREP	MF M-ENT	/100ML		7	6997.14	13892.9	38000.0	250.000	80/12	81/06
PHENOLS	TOTAL	UG/L		10	6.70000	3.74315	14.0000	3.00000	80/10	81/07
			K	1	2.00000		2.00000	2.00000	81/08	81/08
			T	11	6.27273	3.82338	14.0000	2.00000	80/10	81/08
MBAS		MG/L		2	.090000	.028284	.110000	.070000	80/11	81/02
RESIDUE	DISS-180 C	MG/L		11	270.854	41.0928	336.000	202.000	80/10	81/08
PH	CACO3	STABL		1	7.60000		7.60000	7.60000	81/06	81/06
MERCURY	HG,TOTAL	UG/L	K	4	.500000	.000000	.500000	.500000	80/11	81/08

TABLE RD 1-96

STATION NUMBER 602280
41 14 22.0 080 52 52.0 2
MAHONING R AT LEAVITTSBURG - LEAVITT RD
OHIO RIVER 052191 (MAHONING RIVER BASIN)
MILES 0953.80 0955.50 021.80 045.00

PARAMETER			R	NO	MEAN	STAN DEV	MAXIMUM	MINIMUM	BEG	END
WATER	TEMP	CENT		9	9.94444	7.62580	19.0000	-.100E+01	81/10	82/09
STREAM	FLOW,	INST-CFS		9	592.967	631.872	2047.00	212.000	81/10	82/09
STREAM	STAGE	FEET		6	3.87499	.857204	5.45000	3.31000	81/10	82/09
CNDUCTVY	FIELD	MICROMHO		6	308.166	80.9388	396.000	209.000	82/03	82/09
CNDUCTVY	AT 25C	MICROMHO		1	370.000		370.000	370.000	82/04	82/04
DO	PROBE	MG/L		9	10.9111	2.24247	14.2000	7.90000	81/10	82/09
BOD	5 DAY	MG/L		4	3.20000	1.16619	4.80000	2.00000	82/03	82/09
COD	LOWLEVEL	MG/L		8	18.5000	9.57676	34.0000	6.00000	81/10	82/08
PH		SU		8	8.04999	.267392	8.50000	7.80000	81/10	82/09
LAB	PH	SU		3	7.65333	.062010	7.72000	7.60000	82/04	82/06
RESIDUE	TOT NFLT	MG/L		6	13.6667	2.80477	17.0000	9.00000	82/03	82/09
			K	3	6.66667	2.88676	10.0000	5.00000	81/10	82/01
			T	9	11.3333	4.38749	17.0000	5.00000	81/10	82/09
NH3+NH4-	N TOTAL	MG/L		6	.156667	.081158	.310000	.100000	81/12	82/09
			K	3	.200000	.259808	.500000	.050000	81/10	82/05
			T	9	.171111	.146496	.500000	.050000	81/10	82/09
NO2-N	TOTAL	MG/L		6	.050000	.073756	.200000	.010000	81/10	82/09
			K	3	.020000	.000000	.020000	.020000	81/12	82/04
			T	9	.040000	.060208	.200000	.010000	81/10	82/09
NO3-N	TOTAL	MG/L		9	.541111	.219058	.850000	.260000	81/10	82/09
TOT KJEL	N	MG/L		9	.701111	.138786	.900000	.450000	81/10	82/09
PHOS-TOT		MG/L P		8	.196875	.289987	.900000	.045000	81/10	82/09
			K	1	.050000		.050000	.050000	82/01	82/01
			T	9	.180555	.275641	.900000	.045000	81/10	82/09
CYANIDE	CN-TOT	MG/L	K	3	.010000	.000000	.010000	.010000	81/10	82/09
TOT HARD	CACO3	MG/L		6	167.833	28.5760	211.000	124.000	81/10	82/09
CALCIUM	CA-TOT	MG/L		5	44.5300	8.41043	55.4000	32.5000	81/12	82/09

TABLE RD 1-96 (Continued)

STATION NUMBER 602280
41 14 22.0 080 52 52.0 2
MAHONING R AT LEAVITTSBURG - LEAVITT RD
OHIO RIVER 052191 (MAHONING RIVER BASIN)
MILES 0953.80 0955.50 021.80 045.00

PARAMETER			R	NO	MEAN	STAN DEV	MAXIMUM	MINIMUM	BEG	END
MGNSIUM	MG,TOT	MG/L		5	14.0400	2.67826	17.7000	10.3000	81/12	82/09
CHLORIDE	TOTAL	MG/L		1	32.0000		32.0000	32.0000	81/10	81/10
FLUORIDE	F,TOTAL	MG/L		1	.300000		.300000	.300000	81/10	81/10
CADMIUM	CD,TOT	UG/L	K	6	1.25000	1.83712	5.00000	.500000	81/10	82/09
CHROMIUM	CR,TOT	UG/L	K	7	30.0000	.000000	30.0000	30.0000	81/10	82/09
COPPER	CU,TOT	UG/L		2	10.0000	.000000	10.0000	10.0000	82/03	82/09
			K	5	14.0000	8.94427	30.0000	10.0000	81/10	82/08
			T	7	12.8571	7.55929	30.0000	10.0000	81/10	82/09
IRON	FE,TOT	UG/L		7	800.000	332.516	1470.00	430.000	81/10	82/09
IRON	FE,DISS	UG/L		1	40.0000		40.0000	40.0000	82/01	82/01
LEAD	PB,TOT	UG/L		3	6.00000	1.73205	7.00000	4.00000	82/03	82/09
			K	3	5.00000	.000000	5.00000	5.00000	81/10	82/01
			T	6	5.50000	1.22474	7.00000	4.00000	81/10	82/09
NICKEL	NI,TOTAL	UG/L	K	7	47.1428	23.6039	100.000	30.0000	81/10	82/09
ZINC	ZN,TOT	UG/L		3	20.0000	10.0000	30.0000	10.0000	82/03	82/09
			K	4	15.0000	10.0000	30.0000	10.0000	81/10	82/05
			T	7	17.1428	9.51191	30.0000	10.0000	81/10	82/09
FEC COLI	MFM-FCBR	/100ML		9	981.111	676.950	2300.00	220.000	81/10	82/09
FECSTREP	MF M-ENT	/100ML		8	1553.75	2298.25	7200.00	350.000	81/10	82/09
			K	1	33.0000		33.0000	33.0000	82/04	82/04
			T	9	1384.78	2208.78	7200.00	33.0000	81/10	82/09
PHENOLS	TOTAL	UG/L		1	7.00000		7.00000	7.00000	81/10	81/10
			K	3	10.0000	.000000	10.0000	10.0000	82/05	82/09
			T	4	9.25000	1.50000	10.0000	7.00000	81/10	82/09
MBAS		MG/L		1	.070000		.070000	.070000	81/10	81/10
RESIDUE	DISS-180	C MG/L		9	289.000	40.4475	345.000	230.000	81/10	82/09
MERCURY	HG,TOTAL	UG/L	K	1	.500000		.500000	.500000	81/10	81/10

TABLE RD 1-97

STATION NUMBER 602400
41 14 02.0 080 49 23.0 2
MAHONING RIVER AT WARREN - SOUTH ST
OHIO RIVER (MAHONING RIVER)
MILES 0953.80 0955.50 021.80 037.40

PARAMETER			R	NO	MEAN	STAN DEV	MAXIMUM	MINIMUM	BEG	END
WATER	TEMP	CENT		4	5.50000	6.55744	11.0000	-.200E+01	80/10	81/05
STREAM	STAGE	FEET		4	3.03500	.789452	4.21000	2.52000	80/10	81/05
CNDUCTVY	FIELD	MICROMHO		1	295.000		295.000	295.000	80/10	80/10
CNDUCTVY	AT 25C	MICROMHO		2	530.000	79.1959	586.000	474.000	80/11	81/02
INTNSVE	SURVEY	IDENT		1	803905		803905	803905	80/10	80/10
DO	PROBE	MG/L		1	9.60000		9.60000	9.60000	80/10	80/10
DO		MG/L		3	11.6000	2.16568	13.9000	9.60000	80/11	81/05
BOD	5 DAY	MG/L		1	.400000		.400000	.400000	80/10	80/10
COD	LOWLEVEL	MG/L		4	20.5750	9.98745	32.0000	12.0000	80/10	81/05
LAB	PH	SU		4	7.40000	.707128	7.90000	6.40000	80/10	81/05
RESIDUE	TOT NFLT	MG/L		3	15.2000	6.70225	22.0000	8.60000	80/10	81/05
			K	1	10.0000		10.0000	10.0000	80/11	80/11
			T	4	13.9000	6.05861	22.0000	8.60000	80/10	81/05
NH3+NH4-	N TOTAL	MG/L		4	.192500	.251975	.570000	.050000	80/10	81/05
NO2-N	TOTAL	MG/L		1	.010000		.010000	.010000	80/10	80/10
			K	1	.010000		.010000	.010000	80/11	80/11
			T	2	.010000	.000000	.010000	.010000	80/10	80/11
NO3-N	TOTAL	MG/L		4	.647500	.407543	1.08000	.280000	80/10	81/05
TOT KJEL	N	MG/L		4	.757500	.339840	1.24000	.500000	80/10	81/05
PHOS-TOT		MG/L P		4	.086000	.057451	.171000	.047000	80/10	81/05
CYANIDE	CN-TOT	MG/L		1	.010000		.010000	.010000	80/11	80/11
			K	3	.010000	.000000	.010000	.010000	80/10	81/05
			T	4	.010000	.000000	.010000	.010000	80/10	81/05
TOT HARD	CACO3	MG/L		3	168.333	17.1574	184.000	150.000	80/11	81/05
CALCIUM	CA-TOT	MG/L		1	44.0000		44.0000	44.0000	80/10	80/10
MGNSIUM	MG,TOT	MG/L		1	13.0000		13.0000	13.0000	80/10	80/10
FLUORIDE	F,TOTAL	MG/L		3	.250000	.026457	.280000	.230000	80/11	81/05
CADMIUM	CD,TOT	UG/L	K	4	4.00000	2.00000	5.00000	1.00000	80/10	81/05
CHROMIUM	CR,TOT	UG/L	K	4	32.5000	5.00000	40.0000	30.0000	80/10	81/05
COPPER	CU,TOT	UG/L	K	4	23.7500	12.5000	30.0000	5.00000	80/10	81/05
IRON	FE,TOT	UG/L		4	910.000	643.635	1840.00	360.000	80/10	81/05
LEAD	PB,TOT	UG/L		2	36.0000	19.7990	50.0000	22.0000	80/10	81/02
			K	2	5.00000	.000000	5.00000	5.00000	80/11	81/05
			T	4	20.5000	21.2368	50.0000	5.00000	80/10	81/05
NICKEL	NI,TOTAL	UG/L	K	4	85.0000	30.0000	100.000	40.0000	80/10	81/05
ZINC	ZN,TOT	UG/L		3	130.000	173.205	330.000	30.0000	80/10	81/05
			K	1	30.0000		30.0000	30.0000	80/11	80/11
			T	4	105.000	150.000	330.000	30.0000	80/10	81/05
FEC COLI	MFM-FCBR	/100ML		2	3250.00	2192.03	4800.00	1700.00	81/02	81/05
FECSTREP	MF M-ENT	/100ML		2	7900.00	8626.70	14000.0	1800.00	81/02	81/05
PHENOLS	TOTAL	UG/L		4	9.00000	5.35412	16.0000	3.00000	80/10	81/05
MBAS		MG/L		2	.080000	.014142	.090000	.070000	80/11	81/02
RESIDUE	DISS-180	C MG/L		4	291.700	45.8689	346.000	236.000	80/10	81/05
MERCURY	HG,TOTAL	UG/L	K	3	.500000	.000000	.500000	.500000	80/11	81/05

TABLE RD 1-98

STATION NUMBER 602400
41 14 02.0 080 49 23.0 2
MAHONING RIVER AT WARREN - SOUTH ST
OHIO RIVER (MAHONING RIVER)
MILES 0953.80 0955.50 021.80 037.40

No data were collected from 10/81 - 9/82.

TABLE RD 1-99

STATION NUMBER 602290
41 10 52.0 080 47 21.0 2
MAHONING R. AT NILES
OHIO RIVER 052191 (MAHONING RIVER)

PARAMETER			R	NO	MEAN	STAN DEV	MAXIMUM	MINIMUM	BEG	END
WATER	TEMP	CENT		4	6.75000	5.73730	12.0000	.000000	80/10	81/05
CNDUCTVY	FIELD	MICROMHO		2	483.000	230.517	646.000	320.000	80/10	81/02
CNDUCTVY	AT 25C	MICROMHO		3	619.000	117.843	721.000	490.000	80/11	81/02
INTNSVE	SURVEY	IDENT		1	803905		803905	803905	80/10	80/10
DO	PROBE	MG/L		1	8.70000		8.70000	8.70000	80/10	80/10
DO		MG/L		4	11.1250	2.05491	13.6000	8.80000	80/11	81/05
BOD	5 DAY	MG/L		1	2.20000		2.20000	2.20000	80/10	80/10
COD	LOWLEVEL	MG/L		6	26.0666	8.13335	35.9000	18.0000	80/10	81/05
LAB	PH	SU		6	6.95000	.692101	7.80000	6.20000	80/10	81/05
RESIDUE	TOT NFLT	MG/L		5	28.6200	17.9895	44.0000	5.10000	80/10	81/05
			K	1	10.0000		10.0000	10.0000	80/11	80/11
			T	6	25.5167	17.7955	44.0000	5.10000	80/10	81/05
NH3+NH4-	N TOTAL	MG/L		4	.622500	.272320	1.03000	.460000	80/10	81/05
NO2-N	TOTAL	MG/L		2	.135000	.162634	.250000	.020000	80/10	80/11
NO3-N	TOTAL	MG/L		4	.682500	.436147	1.07000	.290000	80/10	81/05
TOT KJEL	N	MG/L		4	1.28750	.352455	1.80000	1.02000	80/10	81/05
PHOS-TOT		MG/L P		4	.190750	.070962	.272000	.099000	80/10	81/05
CYANIDE	CN-TOT	MG/L		3	.014333	.005132	.020000	.010000	80/11	81/05
			K	1	.010000		.010000	.010000	80/10	80/10
			T	4	.013250	.004717	.020000	.010000	80/10	81/05
TOT HARD	CACO3	MG/L		3	172.333	16.0117	188.000	156.000	80/11	81/05
CALCIUM	CA-TOT	MG/L		1	46.0000		46.0000	46.0000	80/10	80/10
MGNSIUM	MG,TOT	MG/L		1	13.0000		13.0000	13.0000	80/10	80/10
FLUORIDE	F,TOTAL	MG/L		3	.313333	.050332	.360000	.260000	80/11	81/05
CADMIUM	CD,TOT	UG/L	K	4	4.00000	2.00000	5.00000	1.00000	80/10	81/05
CHROMIUM	CR,TOT	UG/L		2	35.0000	7.07107	40.0000	30.0000	80/10	81/02
			K	2	30.0000	.000000	30.0000	30.0000	80/11	81/05
			T	4	32.5000	5.00000	40.0000	30.0000	80/10	81/05
COPPER	CU,TOT	UG/L		1	30.0000		30.0000	30.0000	81/02	81/02
			K	3	21.6667	14.4338	30.0000	5.00000	80/10	81/05
			T	4	23.7500	12.5000	30.0000	5.00000	80/10	81/05
IRON	FE,TOT	UG/L		4	1807.50	1142.00	3500.00	1090.00	80/10	81/05
LEAD	PB,TOT	UG/L		3	20.6667	23.6925	48.0000	6.00000	80/11	81/05
			K	1	5.00000		5.00000	5.00000	80/10	80/10
			T	4	16.7500	20.8706	48.0000	5.00000	80/10	81/05
NICKEL	NI,TOTAL	UG/L	K	4	85.0000	30.0000	100.000	40.0000	80/10	81/05
ZINC	ZN,TOT	UG/L		3	241.667	362.296	660.000	30.0000	80/10	81/05
			K	1	30.0000		30.0000	30.0000	80/11	80/11
			T	4	188.750	314.176	660.000	30.0000	80/10	81/05
FEC COLI	MFM-FCBR	/100ML		4	19000.0	17323.6	34000.0	3600.00	81/01	81/05
FECSTREP	MF M-ENT	/100ML		4	19025.0	17879.3	39000.0	1600.00	81/01	81/05
PHENOLS	TOTAL	UG/L		4	16.0000	13.4412	35.0000	6.00000	80/10	81/05
MBAS		MG/L		2	.115000	.007071	.120000	.110000	80/11	81/02
RESIDUE	DISS-180	C MG/L		6	331.533	71.1401	440.000	232.000	80/10	81/05
MERCURY	HG,TOTAL	UG/L	K	3	.500000	.000000	.500000	.500000	80/11	81/05

TABLE RD 1-100

STATION NUMBER 602290
41 10 52.0 080 47 21.0 2
MAHONING R. AT NILES
OHIO RIVER 052191 (MAHONING RIVER)

No data were collected from 10/81 - 9/82.

TABLE RD 1-101

STATION NUMBER 602300
41 02 10.0 080 32 10.0 2
MAHONING R. AT LOWELLVILLE
OHIO RIVER 050392 (MAHONING RIVER)
MILES 0953.80 0955.50 021.80 011.60

PARAMETER			R	NO	MEAN	STAN DEV	MAXIMUM	MINIMUM	BEG	END
WATER	TEMP	CENT		11	12.0909	8.28800	26.0000	1.00000	80/10	81/08
STREAM	FLOW,	INST-CFS		11	1847.82	1119.17	3565.00	539.000	80/10	81/08
STREAM	STAGE	FEET		11	4.17636	.859197	5.38000	3.00000	80/10	81/08
CNDUCTVY	FIELD	MICROMHO		5	507.000	95.3520	618.000	417.000	80/10	81/08
CNDUCTVY	AT 25C	MICROMHO		5	694.200	125.324	886.000	583.000	80/11	81/04
INTNSVE	SURVEY	IDENT		1	803905		803905	803905	80/10	80/10
DO	PROBE	MG/L		1	6.10000		6.10000	6.10000	80/10	80/10
DO		MG/L		10	8.36999	2.69859	13.2000	4.00000	80/11	81/08
BOD	5 DAY	MG/L		2	5.30000	2.40417	7.00000	3.60000	80/10	81/07
COD	LOWLEVEL	MG/L		10	33.7600	14.9620	70.7000	20.0000	80/10	81/07
PH		SU		1	7.30000		7.30000	7.30000	81/07	81/07
LAB	PH	SU		9	7.37777	.408647	7.90000	6.70000	80/10	81/06
RESIDUE	TOT NFLT	MG/L		9	29.6333	31.4183	91.0000	4.70000	80/10	81/07
			K	2	10.0000	.000000	10.0000	10.0000	80/11	81/08
			T	11	26.0636	29.2021	91.0000	4.70000	80/10	81/08
NH3+NH4-	N TOTAL	MG/L		11	2.17090	1.48585	5.92000	.540000	80/10	81/08
NO2-N	TOTAL	MG/L		6	.153333	.086410	.250000	.020000	80/10	81/08
NO3-N	TOTAL	MG/L		10	.928999	.231347	1.27000	.520000	80/10	81/07
TOT KJEL	N	MG/L		10	3.47099	1.78449	7.93000	1.52000	80/10	81/07
PHOS-TOT		MG/L P		11	.833636	.483757	1.91000	.281000	80/10	81/08
CYANIDE	CN-TOT	MG/L		11	.050727	.025946	.100000	.020000	80/10	81/08
TOT HARD	CACO3	MG/L		4	180.000	16.4114	200.000	160.000	80/11	81/08
CALCIUM	CA-TOT	MG/L		1	55.0000		55.0000	55.0000	80/10	80/10
MGNSIUM	MG,TOT	MG/L		1	15.0000		15.0000	15.0000	80/10	80/10
FLUORIDE	F,TOTAL	MG/L		5	.556000	.185688	.770000	.360000	80/11	81/08
BARIUM	BA,TOT	UG/L		1	200.000		200.000	200.000	81/07	81/07

TABLE RD 1-101 (Continued)

STATION NUMBER 602300
41 02 10.0 080 32 10.0 2
MAHONING R. AT LOWELLVILLE
OHIO RIVER 050392 (MAHONING RIVER)
MILES 0953.80 0955.50 021.80 011.60

PARAMETER			R	NO	MEAN	STAN DEV	MAXIMUM	MINIMUM	BEG	END
CADMIUM	CD,TOT	UG/L	K	5	9.20000	11.7559	30.0000	1.00000	80/10	81/08
CHROMIUM	CR,TOT	UG/L		1	30.0000		30.0000	30.0000	81/02	81/02
			K	4	32.5000	5.00000	40.0000	30.0000	80/10	81/08
			T	5	32.0000	4.47214	40.0000	30.0000	80/10	81/08
COPPER	CU,TOT	UG/L		1	30.0000		30.0000	30.0000	81/02	81/02
			K	4	23.7500	12.5000	30.0000	5.00000	80/10	81/08
			T	5	25.0000	11.1803	30.0000	5.00000	80/10	81/08
IRON	FE,TOT	UG/L		11	2852.73	3053.17	11400.0	770.000	80/10	81/08
LEAD	PB,TOT	UG/L		4	25.5000	16.3809	47.0000	10.0000	80/11	81/08
			K	1	5.00000		5.00000	5.00000	80/10	80/10
			T	5	21.4000	16.8908	47.0000	5.00000	80/10	81/08
MANGNESE	MN	UG/L		2	265.000	77.7817	320.000	210.000	81/07	81/08
NICKEL	NI,TOTAL	UG/L	K	5	88.0000	26.8328	100.000	40.0000	80/10	81/08
ZINC	ZN,TOT	UG/L		5	142.000	99.8499	270.000	50.0000	80/10	81/08
FEC COLI	MFM-FCBR	/100ML		8	17000.0	23083.5	73000.0	1600.00	80/12	81/08
FEC COLI	MFM-FCBR	/100ML	L	1	100000		100000	100000	81/03	81/03
			T	9	26222.2	35095.4	100000	1600.00	80/12	81/08
FECSTREP	MF M-ENT	/100ML		6	17916.7	22997.3	64000.0	4300.00	80/12	81/06
			L	1	100000		100000	100000	81/03	81/03
			T	7	29642.9	37460.0	100000	4300.00	80/12	81/06
PHENOLS	TOTAL	UG/L		11	65.4545	83.9218	285.000	6.00000	80/10	81/08
MBAS		MG/L		2	.265000	.233345	.430000	.100000	80/11	81/02
RESIDUE	DISS-180	C MG/L		11	353.200	57.2608	458.000	266.000	80/10	81/08
MERCURY	HG,TOTAL	UG/L		1	3.50000		3.50000	3.50000	81/08	81/08
			K	3	.500000	.000000	.500000	.500000	80/11	81/05
			T	4	1.25000	1.50000	3.50000	.500000	80/11	81/08

TABLE RD 1-102

STATION NUMBER 602300
41 02 10.0 080 32 10.0 2
MAHONING R. AT LOWELLVILLE
OHIO RIVER 050392 (MAHONING RIVER)
MILES 0953.80 0955.50 021.80 011.60

PARAMETER			R	NO	MEAN	STAN DEV	MAXIMUM	MINIMUM	BEG	END
WATER	TEMP	CENT		9	14.3889	9.41335	26.0000	.000000	81/10	82/09
STREAM	FLOW	CFS		1	1334.00		1334.00	1334.00	82/01	82/01
STREAM	FLOW,	INST-CFS		7	826.857	486.640	1820.00	500.000	81/10	82/09
STREAM	STAGE	FEET		8	3.18375	.657579	4.20000	2.09000	81/10	82/09
CNDUCTVY	FIELD	MICROMHO		5	520.800	38.2099	583.000	485.000	82/04	82/09
CNDUCTVY	AT 25C	MICROMHO		1	660.000		660.000	660.000	82/04	82/04
DO	PROBE	MG/L		8	7.65000	4.05392	14.0000	3.90000	81/12	82/09
DO		MG/L		1	7.60000		7.60000	7.60000	81/10	81/10
BOD	5 DAY	MG/L		3	15.8333	15.7615	34.0000	5.80000	82/05	82/09
COD	LOWLEVEL	MG/L		9	27.5555	6.24730	36.0000	17.0000	81/10	82/09
PH		SU		6	7.70000	.357877	8.40000	7.40000	81/10	82/09
LAB	PH	SU		5	7.46199	.166280	7.74000	7.30000	82/01	82/08
RESIDUE	TOT NFLT	MG/L		9	11.0000	2.78388	15.0000	7.00000	81/10	82/09
NH3+NH4-	N TOTAL	MG/L		8	2.38625	.976452	4.16000	1.15000	81/10	82/08
NO2-N	TOTAL	MG/L		7	.121428	.075151	.230000	.040000	81/10	82/08
NO3-N	TOTAL	MG/L		8	.723749	.142925	.890000	.530000	81/10	82/08
TOT KJEL	N	MG/L		8	3.40750	1.01131	5.30000	2.10000	81/10	82/08
PHOS-TOT		MG/L P		8	.711375	.341427	1.40000	.250000	81/10	82/08
CYANIDE	CN-TOT	MG/L		2	.044500	.036062	.070000	.019000	81/10	82/09
TOT HARD	CACO3	MG/L		6	183.900	35.5832	232.000	142.000	81/10	82/08
CALCIUM	CA-TOT	MG/L		6	51.5833	10.2225	66.2000	38.5000	81/12	82/09
MGNSIUM	MG,TOT	MG/L		6	13.8167	2.27722	16.4000	11.1000	81/12	82/09
FLUORIDE	F,TOTAL	MG/L		1	.560000		.560000	.560000	81/10	81/10
CADMIUM	CD,TOT	UG/L	K	6	1.33333	1.80739	5.00000	.500000	81/10	82/09
CHROMIUM	CR,TOT	UG/L		1	20.0000		20.0000	20.0000	82/08	82/08
			K	6	30.0000	.000000	30.0000	30.0000	81/10	82/09
			T	7	28.5714	3.77974	30.0000	20.0000	81/10	82/09
COPPER	CU,TOT	UG/L		6	15.0000	3.16228	20.0000	10.0000	81/12	82/09
			K	1	30.0000		30.0000	30.0000	81/10	81/10
			T	7	17.1428	6.36211	30.0000	10.0000	81/10	82/09
IRON	FE,TOT	UG/L		7	1030.00	365.787	1500.00	570.000	81/10	82/09
IRON	FE,DISS	UG/L		2	85.0000	7.07107	90.0000	80.0000	81/12	82/01
LEAD	PB,TOT	UG/L		6	11.1667	6.30609	23.0000	5.00000	81/10	82/09
			K	1	5.00000		5.00000	5.00000	82/01	82/01
			T	7	10.2857	6.21059	23.0000	5.00000	81/10	82/09
NICKEL	NI,TOTAL	UG/L	K	7	47.1428	23.6039	100.000	30.0000	81/10	82/09
ZINC	ZN,TOT	UG/L		6	134.167	77.6799	255.000	40.0000	81/12	82/09
			K	1	30.0000		30.0000	30.0000	81/10	81/10
			T	7	119.286	81.1085	255.000	30.0000	81/10	82/09
FEC COLI	MFM-FCBR	/100ML		8	18437.5	11837.0	34000.0	4000.00	81/10	82/09
FECSTREP	MF M-ENT	/100ML		8	9300.00	8399.32	21000.0	1500.00	81/10	82/09
PHENOLS	TOTAL	UG/L		1	19.0000		19.0000	19.0000	81/10	81/10
			K	2	10.0000	.000000	10.0000	10.0000	82/08	82/09
			T	3	13.0000	5.19615	19.0000	10.0000	81/10	82/09
MBAS		MG/L		1	.230000		.230000	.230000	81/10	81/10
RESIDUE	DISS-180	C MG/L		9	349.000	51.3128	432.000	270.000	81/10	82/09
MERCURY	HG,TOTAL	UG/L	K	1	.500000		.500000	.500000	81/10	81/10

TABLE RD 1-103

STATION NUMBER 500140
41 11 56.0 084 44 40.0 2
MAUMEE R. AT ANTWERP
LAKE ERIE 060190 (MAUMEE RIVER BASIN)
MILES 0100.30

PARAMETER			R	NO	MEAN	STAN DEV	MAXIMUM	MINIMUM	BEG	END
WATER	TEMP	CENT		5	5.19999	5.53941	14.6000	.900000	80/10	81/03
TURB	TRBIDMTR	HACH FTU		2	54.0000	26.8701	73.0000	35.0000	81/02	81/04
CNDUCTVY	AT 25C	MICROMHO		8	518.625	114.885	667.000	388.000	81/02	81/09
DO		MG/L		6	12.3667	1.32166	14.0000	10.5000	80/10	81/03
BOD	5 DAY	MG/L		11	3.60909	2.02013	7.00000	1.50000	80/10	81/09
			K	1	1.00000		1.00000	1.00000	80/12	80/12
			T	12	3.39166	2.06814	7.00000	1.00000	80/10	81/09
COD	LOWLEVEL	MG/L		10	28.3300	7.66542	39.7000	14.3000	80/10	81/09
			K	3	4.00000	.000000	4.00000	4.00000	81/05	81/08
			T	13	22.7154	12.5660	39.7000	4.00000	80/10	81/09
LAB	PH	SU		13	8.20846	.240290	8.64000	7.90000	80/10	81/09
T ALK	CACO3	MG/L		6	181.500	54.3093	246.000	101.000	80/10	81/09
RESIDUE	TOT NFLT	MG/L		10	76.8000	73.7907	242.000	13.0000	80/11	81/09
			K	3	10.0000	.000000	10.0000	10.0000	80/10	81/05
			T	13	61.3846	70.2988	242.000	10.0000	80/10	81/09
NH3+NH4-	N TOTAL	MG/L		4	.612500	.826009	1.80000	.050000	80/10	81/04
			K	4	.275000	.259808	.500000	.050000	80/11	81/09
			T	8	.443750	.594881	1.80000	.050000	80/10	81/09
NO2-N	TOTAL	MG/L		13	.073077	.092230	.360000	.010000	80/10	81/09
NO3-N	TOTAL	MG/L		13	3.63845	2.02313	8.36000	1.05000	80/10	81/09
TOT KJEL	N	MG/L		13	1.51615	.513629	2.87000	.790000	80/10	81/09
PHOS-TOT		MG/L P		13	.327846	.243196	.954000	.121000	80/10	81/09
T ORG C	C	MG/L		7	18.2857	5.61888	30.0000	12.0000	80/10	81/08
TOT HARD	CACO3	MG/L		13	278.308	63.2386	376.000	176.000	80/10	81/09
CALCIUM	CA-TOT	MG/L		11	79.0909	17.5357	101.000	48.0000	80/12	81/09
MGNSIUM	MG,TOT	MG/L		11	21.5454	4.56874	31.0000	14.0000	80/12	81/09
SODIUM	NA,TOT	MG/L		11	20.4545	12.0861	50.0000	7.00000	80/12	81/09
PTSSIUM	K,TOT	MG/L		9	4.19999	.877517	5.80000	3.20000	81/01	81/09
CHLORIDE	TOTAL	MG/L		13	38.2308	14.9675	66.0000	17.0000	80/10	81/09
SULFATE	SO4-TOT	MG/L		13	74.4615	24.4971	108.000	33.0000	80/10	81/09
SILICA	DISOLVED	MG/L		7	6.07142	1.11355	8.49000	5.30000	81/01	81/08
ARSENIC	AS,TOT	UG/L	K	13	10.7692	2.77351	20.0000	10.0000	80/10	81/09

TABLE RD 1-103 (Continued)

STATION NUMBER 500140
41 11 56.0 084 44 40.0 2
MAUMEE R. AT ANTWERP
LAKE ERIE 060190 (MAUMEE RIVER BASIN)
MILES 0100.30

PARAMETER			R	NO	MEAN	STAN DEV	MAXIMUM	MINIMUM	BEG	END
CADMIUM	CD,TOT	UG/L	K	13	5.00000	.000000	5.00000	5.00000	80/10	81/09
CHROMIUM	CR,TOT	UG/L		2	40.0000	14.1421	50.0000	30.0000	81/06	81/08
			K	11	30.0000	.000000	30.0000	30.0000	80/10	81/09
			T	13	31.5384	5.54712	50.0000	30.0000	80/10	81/09
COPPER	CU,TOT	UG/L		1	40.0000		40.0000	40.0000	81/06	81/06
			K	12	30.0000	.000000	30.0000	30.0000	80/10	81/09
			T	13	30.7692	2.77369	40.0000	30.0000	80/10	81/09
IRON	FE,TOT	UG/L		13	4669.23	7667.12	29000.0	350.000	80/10	81/09
LEAD	PB,TOT	UG/L		6	10.6667	5.88785	19.0000	5.00000	81/02	81/09
LEAD	PB,TOT	UG/L	K	7	5.00000	.000000	5.00000	5.00000	80/10	81/08
			T	13	7.61538	4.80518	19.0000	5.00000	80/10	81/09
MANGNESE	MN	UG/L		13	114.615	87.5229	360.000	40.0000	80/10	81/09
NICKEL	NI,TOTAL	UG/L		4	100.000	.000000	100.000	100.000	80/12	81/08
			K	8	100.000	.000000	100.000	100.000	80/10	81/09
			T	12	100.000	.000000	100.000	100.000	80/10	81/09
ZINC	ZN,TOT	UG/L		8	46.8750	27.3780	110.000	30.0000	80/10	81/09
			K	5	30.0000	.000000	30.0000	30.0000	80/11	81/08
			T	13	40.3846	22.5889	110.000	30.0000	80/10	81/09
ALUMINUM	AL,TOT	UG/L		12	2450.00	3937.58	14500.0	200.000	80/10	81/09
			K	1	200.000		200.000	200.000	81/01	81/01
			T	13	2276.92	3821.25	14500.0	200.000	80/10	81/09
FEC COLI	MFM-FCBR	/100ML		12	2636.00	3835.95	12000.0	33.0000	80/10	81/09
			K	1	10.0000		10.0000	10.0000	81/07	81/07
			T	13	2434.00	3744.16	12000.0	10.0000	80/10	81/09
PHENOLS	TOTAL	UG/L		2	8.50000	2.12132	10.0000	7.00000	80/10	81/02
MBAS		MG/L		13	.113077	.022131	.160000	.090000	80/10	81/09
PCBS	WHL SMPL	UG/L	K	1	.500000		.500000	.500000	81/02	81/02
RESIDUE	DISS-180	C MG/L		13	359.231	122.215	582.000	208.000	80/10	81/09
MERCURY	HG,TOTAL	UG/L		2	1.75000	1.48493	2.80000	.700000	80/12	81/08
			K	10	.500000	.000000	.500000	.500000	80/10	81/07
			T	12	.708333	.661209	2.80000	.500000	80/10	81/08

TABLE RD 1-104

STATION NUMBER 500140
41 11 56.0 084 44 40.0 2
MAUMEE R. AT ANTWERP
LAKE ERIE 060190 (MAUMEE RIVER BASIN)
MILES 0100.30

PARAMETER			R	NO	MEAN	STAN DEV	MAXIMUM	MINIMUM	BEG	END
WATER	TEMP	CENT		5	13.2800	8.67047	25.8000	3.90000	81/10	82/09
CNDUCTVY	AT 25C	MICROMHO		5	677.600	89.5865	765.000	540.000	81/10	82/09
DO	PROBE	MG/L		2	8.07500	4.49014	11.2500	4.90000	82/08	82/09
DO		MG/L		3	11.2667	1.85839	12.8000	9.20000	81/10	81/12
BOD	5 DAY	MG/L		3	3.70000	2.82135	6.30000	.700000	81/12	82/09
COD	LOWLEVEL	MG/L		4	12.7750	10.2860	24.0000	3.60000	81/10	82/09
			K	1	4.00000		4.00000	4.00000	81/11	81/11
			T	5	11.0200	9.73407	24.0000	3.60000	81/10	82/09
LAB	PH	SU		5	8.03600	.252913	8.46000	7.80000	81/10	82/09
RESIDUE	TOT NFLT	MG/L		3	35.6667	16.2584	54.0000	23.0000	81/10	82/09
			K	2	10.0000	.000000	10.0000	10.0000	81/11	81/12
			T	5	25.4000	18.1604	54.0000	10.0000	81/10	82/09
NH3+NH4-	N TOTAL	MG/L		3	.326667	.255016	.580000	.070000	81/11	82/08
			K	2	.050000	.000061	.050000	.050000	81/10	82/09
			T	5	.216000	.235542	.580000	.050000	81/10	82/09
NO2-N	TOTAL	MG/L		5	.030000	.015811	.050000	.010000	81/10	82/09
NO3-N	TOTAL	MG/L		5	2.28600	1.27117	4.41000	1.12000	81/10	82/09
TOT KJEL	N	MG/L		5	1.57200	.679316	2.61000	.740000	81/10	82/09
PHOS-TOT		MG/L P		5	.196000	.048985	.250000	.140000	81/10	82/09
T ORG C	C	MG/L		3	13.0000	3.00000	16.0000	10.0000	81/10	81/12
TOT HARD	CACO3	MG/L		4	302.750	45.5732	358.000	249.000	81/10	82/08
CALCIUM	CA-TOT	MG/L		5	89.0799	15.1785	107.000	66.1000	81/10	82/09
MGNSIUM	MG,TOT	MG/L		5	25.9200	4.31715	31.3000	20.3000	81/10	82/09
SODIUM	NA,TOT	MG/L		4	32.0750	13.5827	51.3000	20.0000	81/10	82/09
PTSSIUM	K,TOT	MG/L		4	5.17500	.684958	6.00000	4.40000	81/10	82/09
CHLORIDE	TOTAL	MG/L		4	46.4000	10.3396	61.6000	39.0000	81/10	82/09

TABLE RD 1-104 (Continued)

STATION NUMBER 500140
41 11 56.0 084 44 40.0 2
MAUMEE R. AT ANTWERP
LAKE ERIE 060190 (MAUMEE RIVER BASIN)
MILES 0100.30

PARAMETER			R	NO	MEAN	STAN DEV	MAXIMUM	MINIMUM	BEG	END
SULFATE	SO4-TOT	MG/L		4	97.7500	26.5754	137.000	80.0000	81/10	82/09
ARSENIC	AS,TOT	UG/L	K	3	10.0000	.000000	10.0000	10.0000	81/10	81/12
CADMIUM	CD,TOT	UG/L	K	5	3.20000	2.46475	5.00000	.500000	81/10	82/09
CHROMIUM	CR,TOT	UG/L		1	90.0000		90.0000	90.0000	82/09	82/09
			K	4	30.0000	.000000	30.0000	30.0000	81/10	82/08
			T	5	42.0000	26.8328	90.0000	30.0000	81/10	82/09
COPPER	CU,TOT	UG/L		2	15.0000	7.07107	20.0000	10.0000	82/08	82/09
			K	3	30.0000	.000000	30.0000	30.0000	81/10	81/12
			T	5	24.0000	8.94427	30.0000	10.0000	81/10	82/09
IRON	FE,TOT	UG/L		5	1806.00	854.065	2900.00	620.000	81/10	82/09
LEAD	PB,TOT	UG/L		2	3.00000	1.41421	4.00000	2.00000	82/08	82/09
			K	3	5.00000	.000000	5.00000	5.00000	81/10	81/12
			T	5	4.20000	1.30385	5.00000	2.00000	81/10	82/09
MANGNESE	MN	UG/L		4	76.2500	25.6174	100.000	40.0000	81/10	82/08
NICKEL	NI,TOTAL	UG/L		1	100.000		100.000	100.000	81/10	81/10
NICKEL	NI,TOTAL	UG/L	K	4	70.0000	34.6410	100.000	40.0000	81/11	82/09
			T	5	76.0000	32.8634	100.000	40.0000	81/10	82/09
ZINC	ZN,TOT	UG/L		3	36.6667	20.8167	60.0000	20.0000	81/10	82/09
			K	2	30.0000	.000000	30.0000	30.0000	81/11	81/12
			T	5	34.0000	15.1658	60.0000	20.0000	81/10	82/09
ALUMINUM	AL,TOT	UG/L		3	933.333	650.641	1600.00	300.000	81/10	81/12
FEC COLI	MFM-FCBR	/100ML		5	440.600	254.326	730.000	100.000	81/10	82/09
MBAS		MG/L		3	.126667	.020817	.150000	.110000	81/10	81/12
RESIDUE	DISS-180	C MG/L		4	420.500	77.0000	530.000	354.000	81/10	82/09
MERCURY	HG,TOTAL	UG/L	K	3	.500000	.000000	.500000	.500000	81/10	81/12

TABLE RD 1-105

STATION NUMBER 500080
41 30 00.0 083 42 46.0 2
MAUMEE RIVER AT WATERVILLE - SR 64
LAKE ERIE 060491 (MAUMEE RIVER BASIN)
MILES 0020.80

No data were collected from 10/80 - 9/81.

TABLE RD 1-106

STATION NUMBER 500080
41 30 00.0 083 42 46.0 2
MAUMEE RIVER AT WATERVILLE - SR 64
LAKE ERIE 060491 (MAUMEE RIVER BASIN)
MILES 0020.80

PARAMETER			R	NO	MEAN	STAN DEV	MAXIMUM	MINIMUM	BEG	END
WATER	TEMP	CENT		1	16.2000		16.2000	16.2000	82/09	82/09
CNDUCTVY	AT 25C	MICROMHO		1	620.000		620.000	620.000	82/09	82/09
DO	PROBE	MG/L		1	9.60000		9.60000	9.60000	82/09	82/09
BOD	5 DAY	MG/L		1	3.30000		3.30000	3.30000	82/09	82/09
COD	LOWLEVEL	MG/L		4	27.5000	7.14143	37.0000	20.0000	82/05	82/09
LAB	PH	SU		1	8.59000		8.59000	8.59000	82/09	82/09
RESIDUE	TOT NFLT	MG/L		1	40.0000		40.0000	40.0000	82/09	82/09
NH3+NH4-	N TOTAL	MG/L	K	1	.050000		.050000	.050000	82/09	82/09
NO2-N	TOTAL	MG/L	K	1	.020000		.020000	.020000	82/09	82/09
NO3-N	TOTAL	MG/L		1	.050000		.050000	.050000	82/09	82/09
TOT KJEL	N	MG/L		1	1.10000		1.10000	1.10000	82/09	82/09
PHOS-TOT		MG/L P		1	.240000		.240000	.240000	82/09	82/09
CALCIUM	CA-TOT	MG/L		1	60.8000		60.8000	60.8000	82/09	82/09
MGNSIUM	MG,TOT	MG/L		1	29.9000		29.9000	29.9000	82/09	82/09
SODIUM	NA,TOT	MG/L		1	47.8000		47.8000	47.8000	82/09	82/09
PTSSIUM	K,TOT	MG/L		1	6.10000		6.10000	6.10000	82/09	82/09
CHLORIDE	TOTAL	MG/L		1	63.3000		63.3000	63.3000	82/09	82/09
SULFATE	SO4-TOT	MG/L		1	126.000		126.000	126.000	82/09	82/09
CADMIUM	CD,TOT	UG/L	K	1	.500000		.500000	.500000	82/09	82/09
CHROMIUM	CR,TOT	UG/L	K	1	30.0000		30.0000	30.0000	82/09	82/09
COPPER	CU,TOT	UG/L		1	15.0000		15.0000	15.0000	82/09	82/09
IRON	FE,TOT	UG/L		1	1300.00		1300.00	1300.00	82/09	82/09
LEAD	PB,TOT	UG/L		1	3.00000		3.00000	3.00000	82/09	82/09
MANGNESE	MN	UG/L		1	155.000		155.000	155.000	82/09	82/09
NICKEL	NI,TOTAL	UG/L	K	1	40.0000		40.0000	40.0000	82/09	82/09
ZINC	ZN,TOT	UG/L		1	40.0000		40.0000	40.0000	82/09	82/09
FEC COLI	MFM-FCBR	/100ML		1	105.000		105.000	105.000	82/09	82/09
RESIDUE	DISS-180	C MG/L		1	466.000		466.000	466.000	82/09	82/09

TABLE RD 107

STATION NUMBER 500290
41 15 13.0 084 23 33.0 2
AUGLAIZE R AB DEFIANCE - POWER DAM AT HARDING RD
LAKE ERIE 060191 (MAUMEE RIVER BASIN)
MILES 0063.80 0004.10

PARAMETER			R	NO	MEAN	STAN DEV	MAXIMUM	MINIMUM	BEG	END
WATER	TEMP	CENT		11	11.3727	8.63274	23.7000	.300000	80/10	81/08
TURB	TRBIDMTR	HACH FTU		2	60.5000	27.5772	80.0000	41.0000	81/02	81/04
CNDUCTVY	AT 25C	MICROMHO		8	606.875	148.570	763.000	393.000	81/02	81/09
DO		MG/L		11	10.9182	2.18989	13.4000	6.90000	80/10	81/08
BOD	5 DAY	MG/L		11	4.63636	1.70839	7.60000	2.00000	80/10	81/09
COD	LOWLEVEL	MG/L		9	22.4222	5.31411	29.8000	12.6000	80/11	81/09
			K	2	4.00000	.000000	4.00000	4.00000	81/05	81/06
			T	11	19.0727	8.83892	29.8000	4.00000	80/11	81/09
LAB	PH	SU		12	8.18333	.185057	8.50000	7.90000	80/10	81/09
T ALK	CACO3	MG/L		5	151.800	37.2320	186.000	108.000	80/10	81/09
RESIDUE	TOT NFLT	MG/L		11	49.8182	56.1726	201.000	10.0000	80/10	81/09
			K	1	10.0000		10.0000	10.0000	81/05	81/05
			T	12	46.5000	54.7781	201.000	10.0000	80/10	81/09
NH3+NH4-	N TOTAL	MG/L		2	.305000	.275772	.500000	.110000	80/10	81/09
			K	5	.320000	.246475	.500000	.050000	80/11	81/04
			T	7	.315714	.230713	.500000	.050000	80/10	81/09
NO2-N	TOTAL	MG/L		12	.061667	.048021	.200000	.020000	80/10	81/09
NO3-N	TOTAL	MG/L		12	5.12166	4.05913	13.1000	.930000	80/10	81/09
TOT KJEL	N	MG/L		12	1.62166	.724471	3.06000	.970000	80/10	81/09
PHOS-TOT		MG/L P		12	.344083	.217350	.840000	.118000	80/10	81/09
T ORG C	C	MG/L		7	17.8571	6.41431	26.0000	8.00000	80/10	81/08
CYANIDE	CN-TOT	MG/L		1	.010000		.010000	.010000	81/02	81/02
			K	3	.010000	.000000	.010000	.010000	80/10	81/06
			T	4	.010000	.000000	.010000	.010000	80/10	81/06
TOT HARD	CACO3	MG/L		12	324.583	80.4815	452.000	178.000	80/10	81/09
CALCIUM	CA-TOT	MG/L		9	81.3333	20.4879	114.000	50.0000	81/01	81/09
MGNSIUM	MG,TOT	MG/L		9	26.5555	7.90752	41.0000	15.0000	81/01	81/09
SODIUM	NA,TOT	MG/L		9	27.8889	23.6719	83.0000	8.00000	81/01	81/09
PTSSIUM	K,TOT	MG/L		9	4.35555	1.61100	7.90000	2.80000	81/01	81/09
CHLORIDE	TOTAL	MG/L		12	63.8333	36.5683	116.000	19.0000	80/10	81/09
SULFATE	SO4-TOT	MG/L		12	132.833	66.8171	229.000	44.0000	80/10	81/09
SILICA	DISOLVED	MG/L		7	4.20000	2.31162	7.09000	.960000	81/01	81/08
ARSENIC	AS,TOT	UG/L	K	12	10.0000	.000000	10.0000	10.0000	80/10	81/09
CADMIUM	CD,TOT	UG/L	K	12	5.00000	.000000	5.00000	5.00000	80/10	81/09
CHROMIUM	CR,TOT	UG/L		2	40.0000	14.1421	50.0000	30.0000	80/11	81/06
			K	10	30.0000	.000000	30.0000	30.0000	80/10	81/09
			T	12	31.6667	5.77360	50.0000	30.0000	80/10	81/09
COPPER	CU,TOT	UG/L		1	30.0000		30.0000	30.0000	81/06	81/06
			K	11	30.0000	.000000	30.0000	30.0000	80/10	81/09
			T	12	30.0000	.000000	30.0000	30.0000	80/10	81/09
IRON	FE,TOT	UG/L		12	3325.83	6426.58	23500.0	170.000	80/10	81/09

TABLE RD 1-107 (Continued)

STATION NUMBER 500290
41 15 13.0 084 23 33.0 2
AUGLAIZE R AB DEFIANCE - POWER DAM AT HARDING RD
LAKE ERIE 060191 (MAUMEE RIVER BASIN)
MILES 0063.80 0004.10

PARAMETER			R	NO	MEAN	STAN DEV	MAXIMUM	MINIMUM	BEG	END
LEAD	PB,TOT	UG/L		5	9.00000	4.30116	15.0000	5.00000	81/01	81/09
			K	7	5.00000	.000000	5.00000	5.00000	80/10	81/08
			T	12	6.66667	3.31206	15.0000	5.00000	80/10	81/09
MANGNESE	MN	UG/L		12	90.0000	73.6083	290.000	30.0000	80/10	81/09
NICKEL	NI,TOTAL	UG/L		3	100.000	.000000	100.000	100.000	80/10	81/01
			K	8	100.000	.000000	100.000	100.000	81/02	81/09
			T	11	100.000	.000000	100.000	100.000	80/10	81/09
ZINC	ZN,TOT	UG/L		5	56.0000	27.0185	90.0000	30.0000	81/02	81/09
			K	7	30.0000	.000000	30.0000	30.0000	80/10	81/07
			T	12	40.8333	21.0879	90.0000	30.0000	80/10	81/09
ALUMINUM	AL,TOT	UG/L		11	2272.73	4415.90	15500.0	200.000	80/10	81/09
			K	1	200.000		200.000	200.000	81/01	81/01
			T	12	2100.00	4252.70	15500.0	200.000	80/10	81/09
FEC COLI	MFM-FCBR	/100ML		10	432.900	1045.85	3400.00	20.0000	80/10	81/09
			K	2	10.0000	.000000	10.0000	10.0000	81/01	81/03
			T	12	362.416	960.223	3400.00	10.0000	80/10	81/09
PHENOLS	TOTAL	UG/L		3	7.66667	1.52755	9.00000	6.00000	80/10	81/04
MBAS		MG/L		12	.140833	.036547	.210000	.100000	80/10	81/09
RESIDUE	DISS-180 C	MG/L		12	475.416	220.989	846.000	184.000	80/10	81/09
MERCURY	HG,TOTAL	UG/L		2	.550000	.070715	.600000	.500000	80/12	81/07
			K	8	.500000	.000000	.500000	.500000	80/10	81/06
			T	10	.510000	.031626	.600000	.500000	80/10	81/07

TABLE RD 1-108

STATION NUMBER 500290
41 15 13.0 084 23 33.0 2
AUGLAIZE R AB DEFIANCE - POWER DAM AT HARDING RD
LAKE ERIE 060191 (MAUMEE RIVER BASIN)
MILES 0063.80 0004.10

PARAMETER			R	NO	MEAN	STAN DEV	MAXIMUM	MINIMUM	BEG	END
WATER	TEMP	CENT		5	13.2800	8.83046	26.7000	4.00000	81/10	82/09
CNDUCTVY	AT 25C	MICROMHO		5	775.600	99.7133	900.000	670.000	81/10	82/09
DO	PROBE	MG/L		2	6.85000	1.62635	8.00000	5.70000	82/08	82/09
DO		MG/L		3	11.3333	1.51446	12.4000	9.60000	81/10	81/12
BOD	5 DAY	MG/L		3	2.96667	1.09696	4.20000	2.10000	81/12	82/09
COD	LOWLEVEL	MG/L		3	17.8666	3.38435	21.6000	15.0000	81/10	82/09
			K	1	4.00000		4.00000	4.00000	81/11	81/11
			T	4	14.4000	7.46369	21.6000	4.00000	81/10	82/09
LAB	PH	SU		5	8.07999	.156640	8.26000	7.86000	81/10	82/09
RESIDUE	TOT NFLT	MG/L		4	27.0000	9.05539	40.0000	19.0000	81/10	82/09
			K	1	10.0000		10.0000	10.0000	81/11	81/11
			T	5	23.6000	10.9225	40.0000	10.0000	81/10	82/09
NH3+NH4-	N TOTAL	MG/L		4	.167500	.129711	.350000	.070000	81/10	82/09
			K	1	.050000		.050000	.050000	81/11	81/11
			T	5	.144000	.124016	.350000	.050000	81/10	82/09
NO2-N	TOTAL	MG/L		5	.046000	.020736	.070000	.020000	81/10	82/09
NO3-N	TOTAL	MG/L		5	2.57200	2.40042	6.17000	.270000	81/10	82/09
TOT KJEL	N	MG/L		5	1.13200	.134799	1.24000	.910000	81/10	82/09
PHOS-TOT		MG/L P		5	.193800	.057273	.282000	.130000	81/10	82/09
T ORG C	C	MG/L		3	8.66667	.577419	9.00000	8.00000	81/10	81/12
TOT HARD	CACO3	MG/L		4	328.500	32.6241	373.000	296.000	81/10	82/08
CALCIUM	CA-TOT	MG/L		5	85.4199	10.7181	99.0000	69.8000	81/10	82/09
MGNSIUM	MG,TOT	MG/L		5	31.8600	3.16999	36.8000	29.0000	81/10	82/09
SODIUM	NA,TOT	MG/L		4	38.9500	25.1875	75.8000	19.0000	81/10	82/09
PTSSIUM	K,TOT	MG/L		4	5.27500	1.29712	6.90000	4.00000	81/10	82/09
CHLORIDE	TOTAL	MG/L		4	67.0000	27.5802	107.000	46.0000	81/10	82/09
SULFATE	SO4-TOT	MG/L		4	140.500	42.1466	195.000	98.0000	81/10	82/09
ARSENIC	AS,TOT	UG/L	K	3	10.0000	.000000	10.0000	10.0000	81/10	81/12
CADMIUM	CD,TOT	UG/L	K	5	3.20000	2.46475	5.00000	.500000	81/10	82/09
CHROMIUM	CR,TOT	UG/L	K	5	30.0000	.000000	30.0000	30.0000	81/10	82/09

TABLE RD 1-108 (Continued)

STATION NUMBER 500290
41 15 13.0 084 23 33.0 2
AUGLAIZE R AB DEFIANCE - POWER DAM AT HARDING RD
LAKE ERIE 060191 (MAUMEE RIVER BASIN)
MILES 0063.80 0004.10

PARAMETER			R	NO	MEAN	STAN DEV	MAXIMUM	MINIMUM	BEG	END
COPPER	CU,TOT	UG/L		1	10.0000		10.0000	10.0000	82/08	82/08
			K	4	25.0000	10.0000	30.0000	10.0000	81/10	82/09
			T	5	22.0000	10.9545	30.0000	10.0000	81/10	82/09
IRON	FE,TOT	UG/L		4	1457.50	436.377	1940.00	890.000	81/10	82/09
LEAD	PB,TOT	UG/L		2	2.00000	.000000	2.00000	2.00000	82/08	82/09
			K	3	5.00000	.000000	5.00000	5.00000	81/10	81/12
			T	5	3.80000	1.64317	5.00000	2.00000	81/10	82/09
MANGNESE	MN	UG/L		5	81.0000	31.3049	115.000	30.0000	81/10	82/09
NICKEL	NI,TOTAL	UG/L	K	5	76.0000	32.8634	100.000	40.0000	81/10	82/09
ZINC	ZN,TOT	UG/L	K	5	22.0000	10.9545	30.0000	10.0000	81/10	82/09
ALUMINUM	AL,TOT	UG/L		3	900.000	360.555	1200.00	500.000	81/10	81/12
FEC COLI	MFM-FCBR	/100ML		4	139.000	130.836	330.000	33.0000	81/11	82/09
			K	1	10.0000		10.0000	10.0000	81/10	81/10
			T	5	113.200	127.148	330.000	10.0000	81/10	82/09
MBAS		MG/L		3	.140000	.020000	.160000	.120000	81/10	81/12
RESIDUE	DISS-180	C MG/L		3	579.333	225.800	840.000	444.000	81/10	82/09
MERCURY	HG,TOTAL	UG/L	K	3	.500000	.000000	.500000	.500000	81/10	81/12

TABLE RD 1-109

STATION NUMBER 500040
41 03 21.0 083 41 17.0 2
BLANCHARD RIVER BELOW FINDLAY - COUNTY RD 140
LAKE ERIE 060191 (MAUMEE RIVER BASIN)
MILES 0064.04 0026.20 055.26

PARAMETER			R	NO	MEAN	STAN DEV	MAXIMUM	MINIMUM	BEG	END
WATER	TEMP	CENT		12	11.7917	7.88086	22.3000	.000000	80/10	81/09
STREAM	STAGE	FEET		5	1.70600	.845947	3.06000	.940000	81/02	81/06
TURB	TRBIDMTR	HACH FTU		1	99.0000		99.0000	99.0000	81/09	81/09
CNDUCTVY	AT 25C	MICROMHO		8	650.125	219.347	898.000	298.000	81/02	81/09
DO		MG/L		12	9.10833	2.76783	13.3000	5.30000	80/10	81/09
BOD	5 DAY	MG/L		9	7.77777	6.23795	24.0000	4.00000	80/10	81/08
			K	1	1.00000		1.00000	1.00000	81/09	81/09
			T	10	7.10000	6.25957	24.0000	1.00000	80/10	81/09
COD	LOWLEVEL	MG/L		10	28.8400	19.6181	66.0000	7.60000	80/10	81/09
			K	1	4.00000		4.00000	4.00000	81/05	81/05
			T	11	26.5818	20.0618	66.0000	4.00000	80/10	81/09
LAB	PH	SU		12	8.01000	.445692	8.60000	7.20000	80/10	81/09
T ALK	CACO3	MG/L		5	145.200	61.9655	213.000	68.0000	80/12	81/09
RESIDUE	TOT NFLT	MG/L		10	79.3000	80.6447	264.000	18.0000	80/10	81/09
			K	1	10.0000		10.0000	10.0000	81/01	81/01
			T	11	73.0000	79.3082	264.000	10.0000	80/10	81/09
OIL-GRSE	FREON-GR	MG/L	K	1	.500000		.500000	.500000	81/09	81/09
NH3+NH4-	N TOTAL	MG/L		5	2.20000	1.76318	4.00000	.240000	80/10	81/09
			K	3	.350000	.259809	.500000	.050000	80/11	81/04
			T	8	1.50625	1.64696	4.00000	.050000	80/10	81/09
NO2-N	TOTAL	MG/L		11	.185454	.145215	.580000	.030000	80/10	81/09
			K	1	.010000		.010000	.010000	80/11	80/11
			T	12	.170833	.147430	.580000	.010000	80/10	81/09
NO3-N	TOTAL	MG/L		12	2.87166	3.14883	9.50000	.280000	80/10	81/09
TOT KJEL	N	MG/L		12	4.06166	2.86945	9.20000	1.59000	80/10	81/09
PHOS-TOT		MG/L P		12	.551416	.355418	1.34000	.146000	80/10	81/09
T ORG C	C	MG/L		6	16.2833	5.65349	24.0000	8.70000	80/10	81/07
TOT HARD	CACO3	MG/L		12	315.583	93.0259	412.000	123.000	80/10	81/09
CALCIUM	CA-TOT	MG/L		10	80.2000	25.6290	104.000	33.0000	80/12	81/09
MGNSIUM	MG,TOT	MG/L		10	28.9000	9.67764	39.0000	11.0000	80/12	81/09
SODIUM	NA,TOT	MG/L		10	30.7000	18.8565	68.0000	7.00000	80/12	81/09
PTSSIUM	K,TOT	MG/L		9	4.78888	1.53090	8.10000	3.10000	81/01	81/09
CHLORIDE	TOTAL	MG/L		12	48.8333	18.2649	77.0000	18.0000	80/10	81/09
SULFATE	SO4-TOT	MG/L		12	137.500	54.8709	204.000	36.0000	80/10	81/09

TABLE RD 1-109 (Continued)

STATION NUMBER 500040
41 03 21.0 083 41 17.0 2
BLANCHARD RIVER BELOW FINDLAY - COUNTY RD 140
LAKE ERIE 060191 (MAUMEE RIVER BASIN)
MILES 0064.04 0026.20 055.26

PARAMETER			R	NO	MEAN	STAN DEV	MAXIMUM	MINIMUM	BEG	END
SILICA	DISOLVED	MG/L		9	4.06555	1.50887	6.78000	2.13000	80/12	81/08
ARSENIC	AS,TOT	UG/L	K	12	13.3333	11.5470	50.0000	10.0000	80/10	81/09
CADMIUM	CD,TOT	UG/L	K	12	5.00000	.000000	5.00000	5.00000	80/10	81/09
CHROMIUM	CR,TOT	UG/L		3	30.0000	.000000	30.0000	30.0000	80/11	81/08
			K	9	30.0000	.000000	30.0000	30.0000	80/10	81/09
			T	12	30.0000	.000000	30.0000	30.0000	80/10	81/09
COPPER	CU,TOT	UG/L	K	12	30.0000	.000000	30.0000	30.0000	80/10	81/09
IRON	FE,TOT	UG/L		12	2453.33	3448.79	12500.0	240.000	80/10	81/09
LEAD	PB,TOT	UG/L		8	7.12500	2.23207	11.0000	5.00000	80/10	81/08
			K	4	5.00000	.000000	5.00000	5.00000	80/11	81/09
			T	12	6.41667	2.06523	11.0000	5.00000	80/10	81/09
MANGNESE	MN	UG/L		12	97.5000	41.1483	180.000	50.0000	80/10	81/09
NICKEL	NI,TOTAL	UG/L		1	100.000		100.000	100.000	81/01	81/01
			K	8	100.000	.000000	100.000	100.000	81/02	81/09
			T	9	100.000	.000000	100.000	100.000	81/01	81/09
ZINC	ZN,TOT	UG/L		5	36.0000	8.94427	50.0000	30.0000	80/10	81/09
			K	7	30.0000	.000000	30.0000	30.0000	80/11	81/08
			T	12	32.5000	6.21581	50.0000	30.0000	80/10	81/09
ALUMINUM	AL,TOT	UG/L		10	1540.00	2015.05	6900.00	200.000	80/10	81/09
			K	2	200.000	.000000	200.000	200.000	80/11	81/01
			T	12	1316.67	1895.85	6900.00	200.000	80/10	81/09
FEC COLI	MFM-FCBR	/100ML		8	4613.75	5685.18	15000.0	380.000	80/10	81/09
			L	3	100000	.000000	100000	100000	80/11	81/04
			T	11	30628.2	44808.0	100000	380.000	80/10	81/09
PHENOLS	TOTAL	UG/L		10	7.80000	4.15799	16.0000	2.00000	80/10	81/09
MBAS		MG/L		12	.150000	.071732	.310000	.070000	80/10	81/09
PCBS	WHL SMPL	UG/L		1	1.30000		1.30000	1.30000	81/03	81/03
			K	6	.500000	.000000	.500000	.500000	81/02	81/09
			T	7	.614286	.302372	1.30000	.500000	81/02	81/09
RESIDUE	DISS-180	C MG/L		11	463.091	203.860	732.000	144.000	80/10	81/09
MERCURY	HG,TOTAL	UG/L		1	.600000		.600000	.600000	80/12	80/12
			K	9	.500000	.000000	.500000	.500000	80/10	81/07
			T	10	.510000	.031626	.600000	.500000	80/10	81/07

TABLE RD 1-110

STATION NUMBER 500040
41 03 21.0 083 41 17.0 2
BLANCHARD RIVER BELOW FINDLAY - COUNTY RD 140
LAKE ERIE 060191 (MAUMEE RIVER BASIN)
MILES 0064.04 0026.20 055.26

PARAMETER			R	NO	MEAN	STAN DEV	MAXIMUM	MINIMUM	BEG	END
WATER	TEMP	CENT		2	6.85000	4.45477	10.0000	3.70000	81/10	81/12
STREAM	FLOW	CFS		1	104.000		104.000	104.000	81/12	81/12
TURB	TRBIDMTR	HACH FTU		1	94.0000		94.0000	94.0000	81/10	81/10
CNDUCTVY	AT 25C	MICROMHO		3	750.333	268.591	980.000	455.000	81/10	81/12
DO	PROBE	MG/L		1	12.3000		12.3000	12.3000	81/12	81/12
DO		MG/L		1	8.20000		8.20000	8.20000	81/10	81/10
BOD	5 DAY	MG/L		2	3.80000	3.11127	6.00000	1.60000	81/11	81/12
COD	LOWLEVEL	MG/L		2	20.6500	18.8798	34.0000	7.30000	81/11	81/12
LAB	PH	SU		3	7.94666	.051155	8.00000	7.90000	81/10	81/12
RESIDUE	TOT NFLT	MG/L	K	2	7.50000	3.53553	10.0000	5.00000	81/11	81/12
NH3+NH4-	N TOTAL	MG/L		3	1.15667	.893663	1.76000	.130000	81/10	81/12
NO2-N	TOTAL	MG/L		3	.103333	.030551	.130000	.070000	81/10	81/12
NO3-N	TOTAL	MG/L		3	3.86333	2.10623	6.01000	1.80000	81/10	81/12
TOT KJEL	N	MG/L		3	2.28667	.342104	2.55000	1.90000	81/10	81/12
PHOS-TOT		MG/L P		3	.537000	.145339	.663000	.378000	81/10	81/12
T ORG C	C	MG/L		2	13.0000	7.07107	18.0000	8.00000	81/10	81/11
TOT HARD	CACO3	MG/L		3	326.000	109.284	395.000	200.000	81/10	81/12
CALCIUM	CA-TOT	MG/L		3	85.8000	25.8174	101.400	56.0000	81/10	81/12
MGNSIUM	MG,TOT	MG/L		3	29.1667	9.67389	35.0000	18.0000	81/10	81/12
SODIUM	NA,TOT	MG/L		2	19.5000	16.2635	31.0000	8.00000	81/10	81/11
PTSSIUM	K,TOT	MG/L		2	5.65000	2.05061	7.10000	4.20000	81/10	81/11
CHLORIDE	TOTAL	MG/L		2	34.5000	6.36396	39.0000	30.0000	81/10	81/11
SULFATE	SO4-TOT	MG/L		2	96.0000	56.5685	136.000	56.0000	81/10	81/11
ARSENIC	AS,TOT	UG/L	K	2	10.0000	.000000	10.0000	10.0000	81/10	81/11
CADMIUM	CD,TOT	UG/L	K	3	3.50000	2.59808	5.00000	.500000	81/10	81/12
CHROMIUM	CR,TOT	UG/L	K	3	30.0000	.000000	30.0000	30.0000	81/10	81/12
COPPER	CU,TOT	UG/L	K	3	23.3333	11.5470	30.0000	10.0000	81/10	81/12
IRON	FE,TOT	UG/L		3	2106.67	3198.77	5800.00	220.000	81/10	81/12
LEAD	PB,TOT	UG/L		1	6.00000		6.00000	6.00000	81/10	81/10
			K	2	5.00000	.000000	5.00000	5.00000	81/11	81/12
			T	3	5.33333	.577359	6.00000	5.00000	81/10	81/12
MANGNESE	MN	UG/L		2	91.0000	69.2965	140.000	42.0000	81/10	81/12
			K	1	100.000		100.000	100.000	81/11	81/11
			T	3	94.0000	49.2747	140.000	42.0000	81/10	81/12
NICKEL	NI,TOTAL	UG/L	K	3	53.3333	40.4145	100.000	30.0000	81/10	81/12
ZINC	ZN,TOT	UG/L		1	30.0000		30.0000	30.0000	81/10	81/10
			K	2	20.0000	14.1421	30.0000	10.0000	81/11	81/12
			T	3	23.3333	11.5470	30.0000	10.0000	81/10	81/12
ALUMINUM	AL,TOT	UG/L		2	2050.00	2474.87	3800.00	300.000	81/10	81/11
FEC COLI	MFM-FCBR	/100ML		3	9000.00	5291.49	13000.0	3000.00	81/10	81/12
MBAS		MG/L		2	.120000	.014143	.130000	.110000	81/10	81/11
RESIDUE	DISS-180	C MG/L		2	497.000	46.6690	530.000	464.000	81/11	81/12
MERCURY	HG,TOTAL	UG/L	K	1	.500000		.500000	.500000	81/11	81/11

TABLE RD 1-111

STATION NUMBER 500050
40 45 18.0 084 11 41.0 2
OTTAWA R AT ALLENTOWN - SR 81
LAKE ERIE 060191 (MAUMEE RIVER BASIN)
MILES 0063.80 0033.20 028.40

PARAMETER			R	NO	MEAN	STAN DEV	MAXIMUM	MINIMUM	BEG	END
WATER	TEMP	CENT		12	11.4667	7.30795	25.0000	1.60000	80/10	81/09
STREAM	STAGE	FEET		8	3.29125	.482876	4.20000	2.76000	81/02	81/09
CNDUCTVY	AT 25C	MICROMHO		8	1042.00	317.649	1540.00	541.000	81/02	81/09
DO		MG/L		12	9.63333	2.41825	12.4000	4.20000	80/10	81/09
BOD	5 DAY	MG/L		11	8.46363	4.31932	16.8000	1.00000	80/10	81/09
COD	LOWLEVEL	MG/L		12	23.3166	19.2504	62.9000	7.00000	80/10	81/09
LAB	PH	SU		12	7.96499	.367014	8.60000	7.42000	80/10	81/09
T ALK	CACO3	MG/L		3	125.667	36.2953	159.000	87.0000	80/10	81/02
RESIDUE	TOT NFLT	MG/L		9	50.5555	59.0426	201.000	13.0000	80/12	81/09
			K	3	10.0000	.000000	10.0000	10.0000	80/10	81/08
			T	12	40.4167	53.5884	201.000	10.0000	80/10	81/09
NH3+NH4-	N TOTAL	MG/L		8	2.51125	2.00167	5.70000	.090000	80/10	81/09
			K	2	.275000	.318198	.500000	.050000	80/11	81/05
			T	10	2.06400	2.00415	5.70000	.050000	80/10	81/09
NO2-N	TOTAL	MG/L		12	.357500	.312471	1.15000	.010000	80/10	81/09
NO3-N	TOTAL	MG/L		12	7.19499	2.62748	12.6000	3.20000	80/10	81/09
TOT KJEL	N	MG/L		12	4.48416	2.37411	9.35000	1.36000	80/10	81/09
PHOS-TOT		MG/L P		12	.780499	.372872	1.49000	.310000	80/10	81/09
T ORG C	C	MG/L		6	20.6667	4.84429	28.0000	13.0000	80/10	81/09
CYANIDE	CN-TOT	MG/L		5	.027600	.014639	.050000	.013000	80/10	81/04
			K	3	.010000	.000000	.010000	.010000	81/06	81/08
			T	8	.021000	.014333	.050000	.010000	80/10	81/08
TOT HARD	CACO3	MG/L		12	384.250	84.1778	488.000	176.000	80/10	81/09
CALCIUM	CA-TOT	MG/L		9	99.6667	20.8688	121.000	54.0000	81/01	81/09
MGNSIUM	MG,TOT	MG/L		9	35.4444	10.8180	48.0000	15.0000	81/01	81/09
SODIUM	NA,TOT	MG/L		9	98.8889	62.9036	210.000	28.0000	81/01	81/09
PTSSIUM	K,TOT	MG/L		9	6.97777	1.99737	10.5000	4.20000	81/01	81/09
CHLORIDE	TOTAL	MG/L		12	141.750	68.4771	280.000	58.0000	80/10	81/09
SULFATE	SO4-TOT	MG/L		12	243.417	100.565	385.000	80.0000	80/10	81/09
SILICA	DISOLVED	MG/L		7	6.08428	2.63166	9.20000	2.56000	81/01	81/08
ARSENIC	AS,TOT	UG/L	K	13	13.0769	11.0940	50.0000	10.0000	80/10	81/09

TABLE RD 1-111 (Continued)

STATION NUMBER 500050
40 45 18.0 084 11 41.0 2
OTTAWA R AT ALLENTOWN - SR 81
LAKE ERIE 060191 (MAUMEE RIVER BASIN)
MILES 0063.80 0033.20 028.40

PARAMETER			R	NO	MEAN	STAN DEV	MAXIMUM	MINIMUM	BEG	END
CADMIUM	CD,TOT	UG/L	K	13	5.76923	1.87767	10.0000	5.00000	80/10	81/09
CHROMIUM	CR,TOT	UG/L		2	35.0000	7.07107	40.0000	30.0000	80/11	80/12
			K	11	30.0000	.000000	30.0000	30.0000	80/10	81/09
			T	13	30.7692	2.77369	40.0000	30.0000	80/10	81/09
COPPER	CU,TOT	UG/L		2	30.0000	.000000	30.0000	30.0000	81/07	81/09
			K	11	30.0000	.000000	30.0000	30.0000	80/10	81/08
			T	13	30.0000	.000000	30.0000	30.0000	80/10	81/09
IRON	FE,TOT	UG/L		13	1650.77	3663.59	13600.0	150.000	80/10	81/09
LEAD	PB,TOT	UG/L		4	9.00000	4.24264	15.0000	6.00000	80/10	81/05
			K	9	5.55556	1.66667	10.0000	5.00000	80/11	81/09
LEAD	PB,TOT	UG/L	T	13	6.61538	3.01492	15.0000	5.00000	80/10	81/09
MANGNESE	MN	UG/L		13	83.8461	44.4482	210.000	30.0000	80/10	81/09
NICKEL	NI,TOTAL	UG/L		11	100.909	3.01558	110.000	100.000	80/10	81/09
			K	1	100.000		100.000	100.000	81/04	81/04
			T	12	100.833	2.88806	110.000	100.000	80/10	81/09
ZINC	ZN,TOT	UG/L		8	41.2500	16.4208	80.0000	30.0000	80/10	81/06
			K	5	30.0000	.000000	30.0000	30.0000	81/03	81/09
			T	13	36.9231	13.7748	80.0000	30.0000	80/10	81/09
ANTIMONY	SB,TOT	UG/L	K	1	10.0000		10.0000	10.0000	81/09	81/09
ALUMINUM	AL,TOT	UG/L		7	1400.00	2354.43	6700.00	200.000	80/10	81/09
			K	6	200.000	.000000	200.000	200.000	80/11	81/08
			T	13	846.154	1777.46	6700.00	200.000	80/10	81/09
FEC COLI	MFM-FCBR	/100ML		9	3868.89	4966.64	16000.0	20.0000	80/10	81/06
PHENOLS	TOTAL	UG/L		10	14.9000	3.90015	21.0000	9.00000	80/10	81/09
MBAS		MG/L		12	.319166	.101127	.460000	.160000	80/10	81/09
PCBS	WHL SMPL	UG/L		1	.900000		.900000	.900000	81/03	81/03
			K	1	.500000		.500000	.500000	81/08	81/08
			T	2	.700000	.282843	.900000	.500000	81/03	81/08
RESIDUE	DISS-180 C	MG/L		11	773.636	279.742	1136.00	362.000	80/10	81/09
MERCURY	HG,TOTAL	UG/L		4	.925000	.386220	1.30000	.500000	81/01	81/07
			K	7	.500000	.000000	.500000	.500000	80/10	81/06
			T	11	.654545	.301209	1.30000	.500000	80/10	81/07

TABLE RD 1-112

STATION NUMBER 500050
40 45 18.0 084 11 41.0 2
OTTAWA R AT ALLENTOWN - SR 81
LAKE ERIE 060191 (MAUMEE RIVER BASIN)
MILES 0063.80 0033.20 028.40

PARAMETER			R	NO	MEAN	STAN DEV	MAXIMUM	MINIMUM	BEG	END
WATER	TEMP	CENT		3	6.06667	4.14286	10.8000	3.10000	81/10	81/12
STREAM	STAGE	FEET		2	3.33500	.487906	3.68000	2.99000	81/11	81/12
TURB	TRBIDMTR	HACH FTU		1	85.0000		85.0000	85.0000	81/10	81/10
CNDUCTVY	AT 25C	MICROMHO		4	871.750	350.227	1350.00	512.000	81/10	82/03
DO	PROBE	MG/L		2	11.4000	.015625	11.4000	11.4000	81/11	81/12
DO		MG/L		1	9.20000		9.20000	9.20000	81/10	81/10
BOD	5 DAY	MG/L		2	4.55000	3.74767	7.20000	1.90000	81/12	82/03
			K	1	1.00000		1.00000	1.00000	81/11	81/11
			T	3	3.36667	3.35012	7.20000	1.00000	81/11	82/03
COD	LOWLEVEL	MG/L		2	25.0000	1.41421	26.0000	24.0000	81/12	82/03
			K	1	4.00000		4.00000	4.00000	81/11	81/11
			T	3	18.0000	12.1655	26.0000	4.00000	81/11	82/03
LAB	PH	SU		4	7.97499	.140245	8.16000	7.84000	81/10	82/03
T ALK	CACO3	MG/L		1	144.000		144.000	144.000	81/11	81/11
RESIDUE	TOT NFLT	MG/L		3	40.6667	33.1713	77.0000	12.0000	81/10	82/03
			K	1	5.00000		5.00000	5.00000	81/12	81/12
			T	4	31.7500	32.4281	77.0000	5.00000	81/10	82/03
NH3+NH4-	N TOTAL	MG/L		4	1.15750	1.07760	2.77000	.540000	81/10	82/03
NO2-N	TOTAL	MG/L		4	.222500	.094295	.310000	.090000	81/10	82/03
NO3-N	TOTAL	MG/L		4	6.09999	2.02531	8.36000	4.22000	81/10	82/03
TOT KJEL	N	MG/L		4	2.44500	.523734	3.16000	1.90000	81/10	82/03
PHOS-TOT		MG/L P		4	.477500	.046575	.540000	.440000	81/10	82/03
T ORG C	C	MG/L		2	12.5000	2.12132	14.0000	11.0000	81/10	81/11
CYANIDE	CN-TOT	MG/L	K	2	.010000	.000000	.010000	.010000	81/10	81/11
TOT HARD	CACO3	MG/L		4	276.000	73.6342	364.000	208.000	81/10	82/03

TABLE RD 1-112 (Continued)

STATION NUMBER 500050
40 45 18.0 084 11 41.0 2
OTTAWA R AT ALLENTOWN - SR 81
LAKE ERIE 060191 (MAUMEE RIVER BASIN)
MILES 0063.80 0033.20 028.40

PARAMETER			R	NO	MEAN	STAN DEV	MAXIMUM	MINIMUM	BEG	END
CALCIUM	CA-TOT	MG/L		4	68.8500	26.9611	92.7000	33.7000	81/10	82/03
MGNSIUM	MG,TOT	MG/L		4	28.2250	6.60628	33.7000	19.0000	81/10	82/03
SODIUM	NA,TOT	MG/L		2	30.0000	19.7990	44.0000	16.0000	81/10	81/11
PTSSIUM	K,TOT	MG/L		2	6.40000	2.40416	8.10000	4.70000	81/10	81/11
CHLORIDE	TOTAL	MG/L		2	53.5000	17.6777	66.0000	41.0000	81/10	81/11
SULFATE	SO4-TOT	MG/L		2	101.000	49.4975	136.000	66.0000	81/10	81/11
ARSENIC	AS,TOT	UG/L	K	2	10.0000	.000000	10.0000	10.0000	81/10	81/11
CADMIUM	CD,TOT	UG/L	K	4	2.75000	2.59808	5.00000	.500000	81/10	82/03
CHROMIUM	CR,TOT	UG/L		1	60.0000		60.0000	60.0000	82/03	82/03
			K	3	30.0000	.000000	30.0000	30.0000	81/10	81/12
			T	4	37.5000	15.0000	60.0000	30.0000	81/10	82/03
COPPER	CU,TOT	UG/L	K	4	20.0000	11.5470	30.0000	10.0000	81/10	82/03
IRON	FE,TOT	UG/L		4	2172.50	2372.47	5600.00	130.000	81/10	82/03
LEAD	PB,TOT	UG/L		3	8.66667	2.51663	11.0000	6.00000	81/10	82/03
			K	1	5.00000		5.00000	5.00000	81/12	81/12
			T	4	7.75000	2.75378	11.0000	5.00000	81/10	82/03
MANGNESE	MN	UG/L		4	72.0000	30.5941	110.000	38.0000	81/10	82/03
NICKEL	NI,TOTAL	UG/L		4	80.0000	28.2843	100.000	40.0000	81/10	82/03
ZINC	ZN,TOT	UG/L		4	36.2500	14.9304	50.0000	15.0000	81/10	82/03
ALUMINUM	AL,TOT	UG/L		2	1750.00	1343.50	2700.00	800.000	81/10	81/11
FEC COLI	MFM-FCBR	/100ML		2	3500.00	3111.27	5700.00	1300.00	81/10	81/12
PHENOLS	TOTAL	UG/L		2	9.50000	2.12132	11.0000	8.00000	81/10	81/11
MBAS		MG/L		2	.175000	.007071	.180000	.170000	81/10	81/11
RESIDUE	DISS-180	C MG/L		3	568.333	282.207	828.000	268.000	81/10	82/03
MERCURY	HG,TOTAL	UG/L	K	2	.500000	.000000	.500000	.500000	81/10	81/11

TABLE RD 1-113

STATION NUMBER 600410
39 12 07.0 084 26 16.0 2
MILL CREEK AT CARTHAGE - ANTHONY WAYNE AVE.
OHIO RIVER 051191 (MILL CREEK)
MILES 0953.80 0508.50 011.00

PARAMETER			R	NO	MEAN	STAN DEV	MAXIMUM	MINIMUM	BEG	END
WATER	TEMP	CENT		12	13.3083	7.83204	23.0000	1.00000	80/10	81/09
STREAM	FLOW,	INST-CFS		12	111.475	123.823	407.000	22.0000	80/10	81/09
STREAM	STAGE	FEET		12	5.75749	.590414	7.04000	5.18000	80/10	81/09
CNDUCTVY	AT 25C	MICROMHO		12	705.416	217.161	1290.00	466.000	80/10	81/09
DO		MG/L		8	7.75000	3.97851	12.6000	.200000	80/10	81/09
COD	LOWLEVEL	MG/L		12	34.3333	14.6805	59.0000	16.0000	80/10	81/09
PH		SU		2	8.00000	.282846	8.20000	7.80000	81/08	81/09
LAB	PH	SU		10	7.60999	.179215	7.90000	7.40000	80/10	81/07
RESIDUE	TOT NFLT	MG/L		8	39.6250	40.0462	132.000	11.0000	80/11	81/08
			K	4	10.0000	.000000	10.0000	10.0000	80/10	81/09
			T	12	29.7500	35.1183	132.000	10.0000	80/10	81/09
NH3+NH4-	N TOTAL	MG/L		12	1.08250	1.46002	4.98000	.110000	80/10	81/09
NO3-N	TOTAL	MG/L		11	1.10091	.461812	1.96000	.510000	80/10	81/09
			K	1	.050000		.050000	.050000	81/07	81/07
			T	12	1.01333	.534711	1.96000	.050000	80/10	81/09
TOT KJEL	N	MG/L		12	2.19583	1.91557	6.38000	.630000	80/10	81/09
PHOS-TOT		MG/L P		12	.637916	.515941	2.10000	.199000	80/10	81/09
CYANIDE	CN-TOT	MG/L		2	.025000	.021213	.040000	.010000	81/03	81/06
			K	2	.010000	.000000	.010000	.010000	80/12	81/09
			T	4	.017500	.015000	.040000	.010000	80/12	81/09
TOT HARD	CACO3	MG/L		3	253.667	58.4498	300.000	188.000	80/12	81/09
CADMIUM	CD,TOT	UG/L	K	4	5.00000	.000000	5.00000	5.00000	80/12	81/09
CHROMIUM	CR,TOT	UG/L		1	30.0000		30.0000	30.0000	81/06	81/06
			K	3	30.0000	.000000	30.0000	30.0000	80/12	81/09
			T	4	30.0000	.000000	30.0000	30.0000	80/12	81/09
COPPER	CU,TOT	UG/L	K	4	30.0000	.000000	30.0000	30.0000	80/12	81/09
IRON	FE,TOT	UG/L		4	812.500	868.500	2110.00	280.000	80/12	81/09
LEAD	PB,TOT	UG/L		1	16.0000		16.0000	16.0000	80/12	80/12
			K	3	5.00000	.000000	5.00000	5.00000	81/03	81/09
			T	4	7.75000	5.50000	16.0000	5.00000	80/12	81/09
NICKEL	NI,TOTAL	UG/L		1	100.000		100.000	100.000	81/09	81/09
			K	3	100.000	.000000	100.000	100.000	80/12	81/06
			T	4	100.000	.000000	100.000	100.000	80/12	81/09
ZINC	ZN,TOT	UG/L		3	66.6667	20.8167	90.0000	50.0000	80/12	81/06
			K	1	30.0000		30.0000	30.0000	81/09	81/09
			T	4	57.5000	25.0000	90.0000	30.0000	80/12	81/09
FEC COLI	MFM-FCBR	/100ML		11	61609.1	100605	320000	1100.00	80/10	81/09
			L	1	100000		100000	100000	81/07	81/07
			T	12	64808.3	96561.2	320000	1100.00	80/10	81/09
PHENOLS	TOTAL	UG/L		4	22.7500	13.3010	40.0000	10.0000	80/12	81/09
MERCURY	HG,TOTAL	UG/L		2	.800000	.000977	.800000	.800000	80/12	81/09
MERCURY	HG,TOTAL	UG/L	K	2	.500000	.000000	.500000	.500000	81/03	81/06
			T	4	.650000	.173206	.800000	.500000	80/12	81/09

TABLE RD 1-114

STATION NUMBER 600410
39 12 07.0 084 26 16.0 2
MILL CREEK AT CARTHAGE - ANTHONY WAYNE AVE.
OHIO RIVER 051191 (MILL CREEK)
MILES 0953.80 0508.50 011.00

No data were collected 10/81 - 9/82.

TABLE RD 1-115

STATION NUMBER 600430
39 06 10.0 084 32 00.0 2
MILL CREEK AT CINCINNATI - NR GEST ST
OHIO RIVER 051191 (MILL CREEK)
MILES 0953.80 0508.50 000.30

PARAMETER			R	NO	MEAN	STAN DEV	MAXIMUM	MINIMUM	BEG	END
WATER	TEMP	CENT		10	13.2500	7.61610	24.0000	3.50000	80/10	81/09
CNDUCTVY	AT 25C	MICROMHO		11	822.182	208.534	1330.00	552.000	80/10	81/09
DO		MG/L		8	3.27500	3.78899	8.60000	.000000	80/10	81/09
COD	LOWLEVEL	MG/L		11	46.0000	24.3352	86.0000	14.0000	80/10	81/09
PH		SU		2	7.65000	.070637	7.70000	7.60000	81/08	81/09
LAB	PH	SU		9	7.37777	.198643	7.60000	7.00000	80/10	81/07
RESIDUE	TOT NFLT	MG/L		8	21.7500	11.2345	43.0000	11.0000	80/10	81/09
			K	3	10.0000	.000000	10.0000	10.0000	81/03	81/07
			T	11	18.5454	10.8845	43.0000	10.0000	80/10	81/09
NH3+NH4-	N TOTAL	MG/L		11	3.27818	1.59038	5.84000	1.07000	80/10	81/09
NO3-N	TOTAL	MG/L		9	.976666	.337713	1.57000	.610000	80/10	81/08
			K	2	.050000	.000061	.050000	.050000	81/07	81/09
			T	11	.808181	.481411	1.57000	.050000	80/10	81/09
TOT KJEL	N	MG/L		11	5.22636	2.14549	9.02000	2.20000	80/10	81/09
PHOS-TOT		MG/L P		11	.868090	.350075	1.67000	.499000	80/10	81/09
CYANIDE	CN-TOT	MG/L		2	.015000	.007071	.020000	.010000	81/03	81/09
			K	1	.010000		.010000	.010000	80/12	80/12
			T	3	.013333	.005773	.020000	.010000	80/12	81/09
TOT HARD	CACO3	MG/L		2	287.000	41.0122	316.000	258.000	80/12	81/09
CADMIUM	CD,TOT	UG/L	K	3	5.00000	.000000	5.00000	5.00000	80/12	81/09
CHROMIUM	CR,TOT	UG/L	K	3	30.0000	.000000	30.0000	30.0000	80/12	81/09
COPPER	CU,TOT	UG/L		2	30.0000	.000000	30.0000	30.0000	81/03	81/09
			K	1	30.0000		30.0000	30.0000	80/12	80/12
			T	3	30.0000	.000000	30.0000	30.0000	80/12	81/09
IRON	FE,TOT	UG/L		3	1033.33	106.930	1100.00	910.000	80/12	81/09
LEAD	PB,TOT	UG/L		3	38.6667	43.1432	88.0000	8.00000	80/12	81/09
NICKEL	NI,TOTAL	UG/L		3	100.000	.000000	100.000	100.000	80/12	81/09
ZINC	ZN,TOT	UG/L		1	50.0000		50.0000	50.0000	81/03	81/03
			K	1	30.0000		30.0000	30.0000	80/12	80/12
			T	2	40.0000	14.1421	50.0000	30.0000	80/12	81/03
FEC COLI	MFM-FCBR	/100ML		10	266310	397919	1100100	35000.0	80/10	81/09
PHENOLS	TOTAL	UG/L		3	18.0000	4.00000	22.0000	14.0000	80/12	81/09
MERCURY	HG,TOTAL	UG/L		1	.600000		.600000	.600000	81/09	81/09
			K	2	.500000	.000000	.500000	.500000	80/12	81/03
			T	3	.533333	.057740	.600000	.500000	80/12	81/09

TABLE RD 1-116

STATION NUMBER 600430
39 06 10.0 084 32 00.0 2
MILL CREEK AT CINCINNATI - NR GEST ST
OHIO RIVER 051191 (MILL CREEK)
MILES 0953.80 0508.50 000.30

No data were collected from 10/81 - 9/82.

TABLE RD 1-117

STATION NUMBER 611740
40 14 02.0 081 52 16.0 2
MUSKINGUM RIVER BELOW COSHOCTON - SR 83
OHIO RIVER (MUSKINGUM RIVER)
MILES 0953.80 0808.80 107.30

PARAMETER			R	NO	MEAN	STAN DEV	MAXIMUM	MINIMUM	BEG	END
WATER	TEMP	CENT		11	11.6364	9.10794	25.0000	.000000	80/10	81/09
STREAM	FLOW,	INST-CFS		12	6643.75	4184.22	13930.0	1523.00	80/10	81/09
STREAM	STAGE	FEET		12	9.27499	2.17923	12.7400	6.22000	80/10	81/09
CNDUCTVY	FIELD	MICROMHO		1	700.000		700.000	700.000	81/08	81/08
CNDUCTVY	AT 25C	MICROMHO		10	625.200	158.394	882.000	449.000	80/10	81/09
DO		MG/L		9	8.97777	1.04737	10.5000	7.80000	80/10	81/09
COD	LOWLEVEL	MG/L		12	16.2500	5.97152	26.0000	6.00000	80/10	81/09
PH		SU		7	7.50000	.544750	8.10000	6.90000	81/03	81/09
LAB	PH	SU		5	7.73999	.260989	7.90000	7.30000	80/10	81/02
T ALK	CACO3	MG/L		4	124.750	65.3420	215.000	68.0000	80/11	81/03
RESIDUE	TOTAL	MG/L		3	515.333	109.112	610.000	396.000	81/02	81/08
RESIDUE	TOT NFLT	MG/L		8	69.5000	39.0018	157.000	37.0000	80/12	81/09
			K	3	10.0000	.000000	10.0000	10.0000	80/10	81/01
			T	11	53.2727	42.8628	157.000	10.0000	80/10	81/09
NH3+NH4-	N TOTAL	MG/L		7	.275714	.298432	.920000	.050000	80/10	81/04
			K	5	.050000	.000061	.050000	.050000	81/05	81/09
			T	12	.181666	.249174	.920000	.050000	80/10	81/09
NO2-N	TOTAL	MG/L		7	.021429	.008997	.040000	.010000	80/10	81/08
NO3-N	TOTAL	MG/L		12	1.67166	.451043	2.72000	1.04000	80/10	81/09
TOT KJEL	N	MG/L		11	.872727	.289693	1.27000	.460000	80/10	81/09
PHOS-TOT		MG/L P		12	.176916	.055457	.317000	.118000	80/10	81/09
CYANIDE	CN-TOT	MG/L	K	1	.010000		.010000	.010000	81/02	81/02
TOT HARD	CACO3	MG/L		3	247.000	83.6242	316.000	154.000	80/11	81/08
CALCIUM	CA-TOT	MG/L		1	56.0000		56.0000	56.0000	81/05	81/05
MGNSIUM	MG,TOT	MG/L		1	18.0000		18.0000	18.0000	81/05	81/05

TABLE RD 1-117 (Continued)

STATION NUMBER 611740
40 14 02.0 081 52 16.0 2
MUSKINGUM RIVER BELOW COSHOCTON - SR 83
OHIO RIVER (MUSKINGUM RIVER)
MILES 0953.80 0808.80 107.30

PARAMETER			R	NO	MEAN	STAN DEV	MAXIMUM	MINIMUM	BEG	END
CHLORIDE	TOTAL	MG/L		9	50.6667	19.6406	95.0000	32.0000	80/10	81/07
CADMIUM	CD,TOT	UG/L	K	4	5.00000	.000000	5.00000	5.00000	80/11	81/08
CHROMIUM	CR,TOT	UG/L	K	4	30.0000	.000000	30.0000	30.0000	80/11	81/08
COPPER	CU,TOT	UG/L		2	80.0000	70.7107	130.000	30.0000	81/02	81/05
			K	2	30.0000	.000000	30.0000	30.0000	80/11	81/08
			T	4	55.0000	50.0000	130.000	30.0000	80/11	81/08
IRON	FE,TOT	UG/L		4	2940.00	2563.86	6600.00	610.000	80/11	81/08
LEAD	PB,TOT	UG/L		3	7.66667	2.88676	11.0000	6.00000	80/11	81/08
			K	1	5.00000		5.00000	5.00000	81/05	81/05
			T	4	7.00000	2.70801	11.0000	5.00000	80/11	81/08
MANGNESE	MN	UG/L		2	425.000	176.777	550.000	300.000	80/11	81/08
NICKEL	NI,TOTAL	UG/L	K	4	100.000	.000000	100.000	100.000	80/11	81/08
ZINC	ZN,TOT	UG/L		4	42.5000	15.0000	60.0000	30.0000	80/11	81/08
ALUMINUM	AL,TOT	UG/L		3	1033.33	1040.83	2200.00	200.000	80/11	81/08
FEC COLI	MFM-FCBR	/100ML		12	1520.67	1004.40	3100.00	28.0000	80/10	81/09
PHENOLS	TOTAL	UG/L		11	8.81818	4.16697	18.0000	4.00000	80/10	81/09
PHENOLS	TOTAL	UG/L	K	1	20.0000		20.0000	20.0000	81/02	81/02
			T	12	9.75000	5.11904	20.0000	4.00000	80/10	81/09
MBAS		MG/L		2	.080000	.014142	.090000	.070000	80/11	81/08
RESIDUE	DISS-180	C MG/L		7	419.286	79.1581	531.000	321.000	80/10	81/09
PHOS-T	ORTHO	MG/L P		1	.037000		.037000	.037000	81/08	81/08
T ACDITY	HOT-MG/L	CACO3	K	2	10.0000	.000000	10.0000	10.0000	81/02	81/03
MERCURY	HG,TOTAL	UG/L		1	.600000		.600000	.600000	81/08	81/08
			K	3	.500000	.000000	.500000	.500000	80/11	81/05
			T	4	.525000	.050002	.600000	.500000	80/11	81/08

TABLE RD 1-118

STATION NUMBER 611740
40 14 02.0 081 52 16.0 2
MUSKINGUM RIVER BELOW COSHOCTON - SR 83
OHIO RIVER (MUSKINGUM RIVER)
MILES 0953.80 0808.80 107.30

PARAMETER			R	NO	MEAN	STAN DEV	MAXIMUM	MINIMUM	BEG	END
WATER	TEMP	CENT		11	10.7636	8.46490	25.0000	.000000	81/10	82/09
STREAM	FLOW	CFS		5	7273.40	6548.09	18450.0	2477.00	81/12	82/06
STREAM	FLOW,	INST-CFS		4	4411.40	7154.42	15140.0	641.600	81/10	82/09
STREAM	STAGE	FEET		10	8.36599	3.17161	14.4000	5.30000	81/10	82/09
CNDUCTVY	AT 25C	MICROMHO		10	743.900	200.843	953.000	380.000	81/10	82/09
DO	PROBE	MG/L		9	9.65555	2.50855	13.4000	6.40000	81/12	82/09
DO		MG/L		1	9.60000		9.60000	9.60000	81/10	81/10
COD	LOWLEVEL	MG/L		6	24.6667	6.59297	35.0000	17.0000	81/10	82/07
PH		SU		11	8.30454	.369854	9.00000	7.90000	81/10	82/09
LAB	PH	SU		6	7.99166	.229533	8.30000	7.67000	81/10	82/08
T ALK	CACO3	MG/L		1	151.000		151.000	151.000	82/09	82/09
RESIDUE	TOTAL	MG/L		1	351.000		351.000	351.000	82/01	82/01
RESIDUE	TOT NFLT	MG/L		10	38.7000	14.0084	60.0000	18.0000	81/11	82/09
			K	2	7.50000	3.53553	10.0000	5.00000	81/10	81/12
			T	12	33.5000	17.5836	60.0000	5.00000	81/10	82/09
NH3+NH4-	N TOTAL	MG/L		6	.216666	.130333	.380000	.080000	81/11	82/04
			K	6	.050000	.000061	.050000	.050000	81/10	82/09
			T	12	.133333	.123681	.380000	.050000	81/10	82/09
NO2-N	TOTAL	MG/L		7	.027143	.007559	.040000	.020000	82/01	82/09
			K	2	.020000	.000000	.020000	.020000	81/12	82/08
			T	9	.025556	.007265	.040000	.020000	81/12	82/09
NO3-N	TOTAL	MG/L		11	1.56727	.422708	2.01000	.550000	81/10	82/09
			K	1	.050000		.050000	.050000	82/07	82/07
			T	12	1.44083	.595216	2.01000	.050000	81/10	82/09
TOT KJEL	N	MG/L		12	1.02333	.337218	1.80000	.700000	81/10	82/09

TABLE RD 1-118 (Continued)

STATION NUMBER 611740
40 14 02.0 081 52 16.0 2
MUSKINGUM RIVER BELOW COSHOCTON - SR 83
OHIO RIVER (MUSKINGUM RIVER)
MILES 0953.80 0808.80 107.30

PARAMETER			R	NO	MEAN	STAN DEV	MAXIMUM	MINIMUM	BEG	END
PHOS-TOT		MG/L P		12	.146666	.034318	.200000	.090000	81/10	82/09
TOT HARD	CACO3	MG/L		4	261.975	85.3133	360.000	156.000	81/11	82/08
CALCIUM	CA-TOT	MG/L		3	59.4000	17.3554	75.9000	41.3000	82/02	82/08
MGNSIUM	MG,TOT	MG/L		3	19.6667	6.00027	23.9000	12.8000	82/02	82/08
CHLORIDE	TOTAL	MG/L		3	106.667	13.5775	115.000	91.0000	81/10	82/08
CADMIUM	CD,TOT	UG/L	K	5	1.40000	2.01246	5.00000	.500000	81/11	82/08
CHROMIUM	CR,TOT	UG/L	K	5	30.0000	.000000	30.0000	30.0000	81/11	82/08
COPPER	CU,TOT	UG/L		2	10.0000	.000000	10.0000	10.0000	82/05	82/08
			K	3	16.6667	11.5470	30.0000	10.0000	81/11	82/07
			T	5	14.0000	8.94427	30.0000	10.0000	81/11	82/08
IRON	FE,TOT	UG/L		5	1186.00	945.267	2830.00	470.000	81/11	82/08
LEAD	PB,TOT	UG/L		2	3.00000	1.41421	4.00000	2.00000	82/07	82/08
			K	3	4.00000	1.73205	5.00000	2.00000	81/11	82/05
			T	5	3.60000	1.51658	5.00000	2.00000	81/11	82/08
MANGNESE	MN	UG/L		5	424.000	124.368	590.000	275.000	81/11	82/08
NICKEL	NI,TOTAL	UG/L	K	5	64.0000	32.8634	100.000	40.0000	81/11	82/08
ZINC	ZN,TOT	UG/L		4	21.2500	9.46485	35.0000	15.0000	82/02	82/08
			K	1	30.0000		30.0000	30.0000	81/11	81/11
			T	5	23.0000	9.08295	35.0000	15.0000	81/11	82/08
ALUMINUM	AL,TOT	UG/L		1	500.000		500.000	500.000	81/11	81/11
FEC COLI	MFM-FCBR	/100ML		9	1519.78	1095.80	3100.00	173.000	81/10	82/07
PHENOLS	TOTAL	UG/L		4	23.5000	8.69866	36.0000	16.0000	81/10	82/09
RESIDUE	DISS-180	C MG/L		10	466.200	134.471	612.000	257.000	81/10	82/09
MERCURY	HG,TOTAL	UG/L	K	1	.500000		.500000	.500000	81/11	81/11

TABLE RD 1-119

STATION NUMBER 611750
40 07 14.0 082 00 00.0 2
MUSKINGUM R IN DRESDEN - SR 208
OHIO RIVER (MUSKINGUM RIVER)
MILES 0953.80 0808.80 091.30

PARAMETER			R	NO	MEAN	STAN DEV	MAXIMUM	MINIMUM	BEG	END
WATER	TEMP	CENT		11	12.9091	9.20820	26.0000	.000000	80/10	81/09
STREAM	FLOW,	INST-CFS		12	9686.58	6917.30	21980.0	2252.00	80/10	81/09
STREAM	STAGE	FEET		12	10.0800	3.12306	15.2200	6.41000	80/10	81/09
CNDUCTVY	FIELD	MICROMHO		1	750.000		750.000	750.000	81/08	81/08
CNDUCTVY	AT 25C	MICROMHO		9	656.111	166.652	898.000	418.000	80/10	81/09
DO		MG/L		10	9.33999	1.46684	12.5000	8.10000	80/10	81/09
COD	LOWLEVEL	MG/L		12	18.4167	7.20430	34.0000	10.0000	80/10	81/09
PH		SU		8	7.60625	.504617	8.20000	6.85000	80/11	81/09
LAB	PH	SU		6	7.80000	.253009	8.10000	7.40000	80/10	81/09
T ALK	CACO3	MG/L		3	136.667	61.4602	202.000	80.0000	80/11	81/03
RESIDUE	TOTAL	MG/L		2	607.000	147.078	711.000	503.000	81/07	81/08
RESIDUE	TOT NFLT	MG/L		8	79.0000	65.8895	228.000	24.0000	80/12	81/09
			K	3	10.0000	.000000	10.0000	10.0000	80/10	81/01
			T	11	60.1818	63.8574	228.000	10.0000	80/10	81/09
NH3+NH4-	N TOTAL	MG/L		7	.299999	.271661	.870000	.120000	80/11	81/07
			K	5	.050000	.000061	.050000	.050000	80/10	81/09
			T	12	.195833	.238383	.870000	.050000	80/10	81/09
NO2-N	TOTAL	MG/L		7	.024286	.007868	.040000	.020000	80/10	81/08
NO3-N	TOTAL	MG/L		12	1.56333	.463924	2.51000	.980000	80/10	81/09
TOT KJEL	N	MG/L		11	.807272	.283518	1.45000	.460000	80/10	81/09
PHOS-TOT		MG/L P		12	.167416	.060673	.270000	.077000	80/10	81/09
TOT HARD	CACO3	MG/L		3	268.666	51.9372	314.000	212.000	80/11	81/08
MGNSIUM	MG,TOT	MG/L		1	25.0000		25.0000	25.0000	80/11	80/11
CHLORIDE	TOTAL	MG/L		8	42.7500	23.8971	85.0000	5.00000	80/10	81/07
CADMIUM	CD,TOT	UG/L	K	4	5.00000	.000000	5.00000	5.00000	80/11	81/08

TABLE RD 1-119 (Continued)

STATION NUMBER 611750
40 07 14.0 082 00 00.0 2
MUSKINGUM R IN DRESDEN - SR 208
OHIO RIVER (MUSKINGUM RIVER)
MILES 0953.80 0808.80 091.30

PARAMETER			R	NO	MEAN	STAN DEV	MAXIMUM	MINIMUM	BEG	END
CHROMIUM	CR,TOT	UG/L		1	30.0000		30.0000	30.0000	81/05	81/05
			K	3	30.0000	.000000	30.0000	30.0000	80/11	81/08
			T	4	30.0000	.000000	30.0000	30.0000	80/11	81/08
COPPER	CU,TOT	UG/L	K	4	30.0000	.000000	30.0000	30.0000	80/11	81/08
IRON	FE,TOT	UG/L		4	4530.00	3729.83	9600.00	720.000	80/11	81/08
LEAD	PB,TOT	UG/L		2	7.00000	.000000	7.00000	7.00000	81/02	81/08
			K	1	5.00000		5.00000	5.00000	80/11	80/11
			T	3	6.33333	1.15472	7.00000	5.00000	80/11	81/08
MANGNESE	MN	UG/L		3	440.000	95.3939	500.000	330.000	80/11	81/08
NICKEL	NI,TOTAL	UG/L		1	100.000		100.000	100.000	81/02	81/02
			K	3	100.000	.000000	100.000	100.000	80/11	81/08
			T	4	100.000	.000000	100.000	100.000	80/11	81/08
ZINC	ZN,TOT	UG/L		3	40.0000	10.0000	50.0000	30.0000	81/02	81/08
			K	1	30.0000		30.0000	30.0000	80/11	80/11
			T	4	37.5000	9.57427	50.0000	30.0000	80/11	81/08
ALUMINUM	AL,TOT	UG/L		4	1475.00	1201.04	3100.00	200.000	80/11	81/08
FEC COLI	MFM-FCBR	/100ML		12	1466.75	1462.59	4600.00	28.0000	80/10	81/09
PHENOLS	TOTAL	UG/L		10	6.70000	2.21360	10.0000	4.00000	80/10	81/08
			K	2	11.0000	12.7279	20.0000	2.00000	81/02	81/09
			T	12	7.41667	4.64089	20.0000	2.00000	80/10	81/09
MBAS		MG/L		2	.080000	.000000	.080000	.080000	80/11	81/08
RESIDUE	DISS-180	C MG/L		8	430.625	91.4315	551.000	299.000	80/10	81/09
PHOS-T	ORTHO	MG/L P		1	.053000		.053000	.053000	81/08	81/08
T ACDITY	HOT-MG/L	CACO3	K	2	10.0000	.000000	10.0000	10.0000	81/02	81/03
MERCURY	HG,TOTAL	UG/L	K	3	.500000	.000000	.500000	.500000	80/11	81/08

TABLE RD 1-120

STATION NUMBER 611750
40 07 14.0 082 00 00.0 2
MUSKINGUM R IN DRESDEN - SR 208
OHIO RIVER (MUSKINGUM RIVER)
MILES 0953.80 0808.80 091.30

No data were collected from 10/81 - 9/82.

TABLED RD 1-121

STATION NUMBER 611850
40 46 27.0 081 23 26.0 2
HURFORD RUN AT CANTON - CHURCH ST
OHIO RIVER (MUSKINGUM RIVER)
MILES 0953.80 0808.80 110.20 070.50 007.90 012.00 00.20

PARAMETER			R	NO	MEAN	STAN DEV	MAXIMUM	MINIMUM	BEG	END
WATER	TEMP	CENT		3	8.00000	1.73205	9.00000	6.00000	80/11	81/05
CNDUCTVY	FIELD	MICROMHO		2	1049.00	383.252	1320.00	778.000	80/11	81/05
CNDUCTVY	AT 25C	MICROMHO		2	1263.00	250.316	1440.00	1086.00	81/02	81/05
DO		MG/L		3	9.66666	.862282	10.6000	8.90000	80/11	81/05
COD	LOWLEVEL	MG/L		3	11.3333	3.05508	14.0000	8.00000	80/11	81/05
LAB	PH	SU		3	7.40000	.400081	7.80000	7.00000	80/11	81/05
RESIDUE	TOT NFLT	MG/L		2	11.5000	.707107	12.0000	11.0000	81/02	81/05
			K	1	10.0000		10.0000	10.0000	80/11	80/11
			T	3	11.0000	1.00000	12.0000	10.0000	80/11	81/05
NH3+NH4-	N TOTAL	MG/L		3	3.53333	3.87531	7.73000	.090000	80/11	81/05
NO2-N	TOTAL	MG/L		2	.160000	.084853	.220000	.100000	80/11	81/02
NO3-N	TOTAL	MG/L		3	1.21667	.323470	1.59000	1.02000	80/11	81/05
TOT KJEL	N	MG/L		3	4.13000	4.11530	8.65000	.600000	80/11	81/05
PHOS-TOT		MG/L P		3	.078000	.010536	.088000	.067000	80/11	81/05
CYANIDE	CN-TOT	MG/L	K	3	.010000	.000000	.010000	.010000	80/11	81/05
TOT HARD	CACO3	MG/L		2	386.000	42.4264	416.000	356.000	81/02	81/05
CALCIUM	CA-TOT	MG/L		1	142.000		142.000	142.000	80/11	80/11
SODIUM	NA,TOT	MG/L		1	119.000		119.000	119.000	81/02	81/02
CHLORIDE	TOTAL	MG/L		3	199.667	60.3355	256.000	136.000	80/11	81/05
FLUORIDE	F,TOTAL	MG/L		3	1.78333	1.64056	3.60000	.410000	80/11	81/05
CADMIUM	CD,TOT	UG/L	K	3	5.00000	.000000	5.00000	5.00000	80/11	81/05
CHROMIUM	CR,TOT	UG/L		2	85.0000	21.2132	100.000	70.0000	80/11	81/02
			K	1	30.0000		30.0000	30.0000	81/05	81/05
			T	3	66.6667	35.1189	100.000	30.0000	80/11	81/05
COPPER	CU,TOT	UG/L		2	40.0000	14.1421	50.0000	30.0000	81/02	81/05
			K	1	30.0000		30.0000	30.0000	80/11	80/11
			T	3	36.6667	11.5471	50.0000	30.0000	80/11	81/05
IRON	FE,TOT	UG/L		3	1770.00	820.549	2530.00	900.000	80/11	81/05
LEAD	PB,TOT	UG/L		2	21.5000	6.36396	26.0000	17.0000	81/02	81/05
			K	1	5.00000		5.00000	5.00000	80/11	80/11
			T	3	16.0000	10.5357	26.0000	5.00000	80/11	81/05
MANGNESE	MN	UG/L		1	630.000		630.000	630.000	81/02	81/02
NICKEL	NI,TOTAL	UG/L		3	200.000	.000000	200.000	200.000	80/11	81/05
ZINC	ZN,TOT	UG/L		3	66.6667	15.2753	80.0000	50.0000	80/11	81/05
FEC COLI	MFM-FCBR	/100ML		2	320.000	311.127	540.000	100.000	80/11	81/05
FECSTREP	MF M-ENT	/100ML		2	700.000	565.686	1100.00	300.000	80/11	81/05
PHENOLS	TOTAL	UG/L		3	11.0000	3.46410	15.0000	9.00000	80/11	81/05
MBAS		MG/L		1	.170000		.170000	.170000	81/05	81/05
RESIDUE	DISS-180	C MG/L		3	872.666	218.197	1096.00	660.000	80/11	81/05
MERCURY	HG,TOTAL	UG/L	K	2	.500000	.000000	.500000	.500000	80/11	81/05

TABLED RD 1-122

STATION NUMBER 611850
40 46 27.0 081 23 26.0 2
HURFORD RUN AT CANTON - CHURCH ST
OHIO RIVER (MUSKINGUM RIVER)
MILES 0953.80 0808.80 110.20 070.50 007.90 012.00 00.20

No data were collected from 10/81 - 9/82.

TABLE RD 1-123

STATION NUMBER 601880
40 45 19.0 081 57 26.0 2
KILLBUCK CREEK BELOW WOOSTER - WILLOW RD
OHIO RIVER (MUSKINGUM RIVER)
MILES 0953.80 0808.80 110.20 007.30 044.76

PARAMETER			R	NO	MEAN	STAN DEV	MAXIMUM	MINIMUM	BEG	END
WATER	TEMP	CENT		4	11.5000	9.74679	21.0000	.000000	80/12	81/08
CNDUCTVY	AT 25C	MICROMHO		2	610.000	141.421	710.000	510.000	81/07	81/08
INTNSVE	SURVEY	IDENT		2	813915	.000000	813915	813915	81/07	81/08
DO	PROBE	MG/L		2	4.90000	.282819	5.10000	4.70000	81/07	81/08
DO		MG/L		2	10.5500	1.34357	11.5000	9.60000	80/12	81/04
BOD	5 DAY	MG/L		2	6.45000	3.88909	9.20000	3.70000	81/07	81/08
COD	LOWLEVEL	MG/L		4	17.5000	6.13732	25.0000	12.0000	80/12	81/08
PH		SU		1	7.60000		7.60000	7.60000	81/08	81/08
LAB	PH	SU		2	7.64000	.056472	7.68000	7.60000	81/04	81/07
RESIDUE	TOT NFLT	MG/L		3	48.3333	35.4869	86.3000	16.0000	81/04	81/08
NH3+NH4-	N TOTAL	MG/L		3	1.04000	.596576	1.66000	.470000	80/12	81/08
NO2-N	TOTAL	MG/L		2	.140000	.070711	.190000	.090000	81/07	81/08
NO3-N	TOTAL	MG/L		2	1.31000	.339410	1.55000	1.07000	81/07	81/08
TOT KJEL	N	MG/L		2	1.75000	.777818	2.30000	1.20000	81/07	81/08
PHOS-TOT		MG/L P		2	.770000	.678823	1.25000	.290000	81/07	81/08
TOT HARD	CACO3	MG/L		2	260.000	32.5269	283.000	237.000	81/07	81/08
CALCIUM	CA-TOT	MG/L		2	69.3000	9.47530	76.0000	62.6000	81/07	81/08
MGNSIUM	MG,TOT	MG/L		2	21.1500	2.05063	22.6000	19.7000	81/07	81/08
CADMIUM	CD,TOT	UG/L	K	2	.500000	.000000	.500000	.500000	81/07	81/08
CHROMIUM	CR,TOT	UG/L	K	2	30.0000	.000000	30.0000	30.0000	81/07	81/08
COPPER	CU,TOT	UG/L	K	2	10.0000	.000000	10.0000	10.0000	81/07	81/08
IRON	FE,TOT	UG/L		3	2486.67	1641.63	4260.00	1020.00	80/12	81/08
LEAD	PB,TOT	UG/L		1	7.00000		7.00000	7.00000	81/07	81/07
			K	1	5.00000		5.00000	5.00000	81/08	81/08
			T	2	6.00000	1.41421	7.00000	5.00000	81/07	81/08
NICKEL	NI,TOTAL	UG/L	K	2	40.0000	.000000	40.0000	40.0000	81/07	81/08
ZINC	ZN,TOT	UG/L		1	15.0000		15.0000	15.0000	81/07	81/07
			K	1	10.0000		10.0000	10.0000	81/08	81/08
			T	2	12.5000	3.53553	15.0000	10.0000	81/07	81/08
FEC COLI	MFM-FCBR	/100ML		3	2706.67	3982.48	7300.00	220.000	81/04	81/08
FECSTREP	MF M-ENT	/100ML		3	3513.33	4844.65	9100.00	470.000	81/04	81/08
PHENOLS	TOTAL	UG/L		1	17.0000		17.0000	17.0000	80/12	80/12
RESIDUE	DISS-180	C MG/L		3	371.900	74.4142	453.600	308.000	81/04	81/08

TABLE RD 1-124

STATION NUMBER 601880
40 45 19.0 081 57 26.0 2
KILLBUCK CREEK BELOW WOOSTER - WILLOW RD
OHIO RIVER (MUSKINGUM RIVER)
MILES 0953.80 0808.80 110.20 007.30 044.76

No data were collected from 10/81 - 9/82.

TABLE RD 1-125

STATION NUMBER 601770
40 03 33.0 082 20 23.0 2
LICKING R NR NEWARK - SR 16 (STADDEN BRIDGE)
OHIO RIVER 050491 (MUSKINGUM RIVER)
MILES 0953.80 0808.80 078.30 025.60

PARAMETER			R	NO	MEAN	STAN DEV	MAXIMUM	MINIMUM	BEG	END
WATER	TEMP	CENT		15	11.5400	7.73922	23.5000	.000000	80/10	81/09
STREAM	FLOW,	INST-CFS		11	872.709	662.736	2044.00	208.200	80/10	81/09
STREAM	STAGE	FEET		11	4.20545	.930527	5.83000	3.22000	80/10	81/09
CNDUCTVY	FIELD	MICROMHO		12	441.833	177.348	800.000	250.000	80/10	81/09
CNDUCTVY	AT 25C	MICROMHO		5	755.000	128.695	880.000	545.000	81/07	81/08
INTNSVE	SURVEY	IDENT		6	813903	.000000	813903	813903	81/07	81/08
DO	PROBE	MG/L		6	6.76666	.918000	7.80000	5.50000	81/07	81/08
DO		MG/L		12	10.4333	2.72909	14.6000	7.00000	80/10	81/09
BOD	5 DAY	MG/L		8	5.29375	2.37790	9.47000	3.00000	81/04	81/09
COD	LOWLEVEL	MG/L		18	20.6111	10.9660	47.0000	6.00000	80/10	81/09
PH		SU		11	7.89999	.228093	8.30000	7.40000	80/10	81/09
LAB	PH	SU		5	7.78800	.195936	7.97000	7.47000	81/07	81/08
RESIDUE	TOTAL	MG/L		1	526.800		526.800	526.800	81/08	81/08
RESIDUE	TOT NFLT	MG/L		14	53.8071	56.0010	201.000	16.0000	80/10	81/09
			K	3	10.0000	.000000	10.0000	10.0000	80/12	81/03
			T	17	46.0764	53.3331	201.000	10.0000	80/10	81/09
NH3+NH4-	N TOTAL	MG/L		18	1.24778	.943501	3.24000	.180000	80/10	81/09
NO2-N	TOTAL	MG/L		17	.124706	.121456	.500000	.010000	80/10	81/09
NO3-N	TOTAL	MG/L		18	1.95166	.923622	3.41000	.570000	80/10	81/09
TOT KJEL	N	MG/L		18	2.31389	1.17448	5.16000	1.07000	80/10	81/09
PHOS-TOT		MG/L P		18	.263611	.239229	1.09500	.077000	80/10	81/09
CYANIDE	CN-TOT	MG/L	K	4	.010000	.000000	.010000	.010000	80/12	81/09
TOT HARD	CACO3	MG/L		10	288.680	42.6801	340.000	202.000	80/12	81/09
CALCIUM	CA-TOT	MG/L		6	78.0333	8.92919	87.7000	66.5000	81/07	81/08
MGNSIUM	MG,TOT	MG/L		6	25.3000	3.63706	29.3000	19.9000	81/07	81/08
CHLORIDE	TOTAL	MG/L		13	44.1692	18.0039	74.2000	21.0000	80/10	81/09
SULFATE	SO4-TOT	MG/L		17	62.0764	18.9146	88.0000	24.3000	80/10	81/09
CADMIUM	CD,TOT	UG/L	K	10	2.35000	2.28583	5.00000	.500000	80/12	81/09

TABLE RD 1-125 (Continued)

STATION NUMBER 601770
40 03 33.0 082 20 23.0 2
LICKING R NR NEWARK - SR 16 (STADDEN BRIDGE)
OHIO RIVER 050491 (MUSKINGUM RIVER)
MILES 0953.80 0808.80 078.30 025.60

PARAMETER			R	NO	MEAN	STAN DEV	MAXIMUM	MINIMUM	BEG	END
CHROMIUM	CR,TOT	UG/L		1	20.0000		20.0000	20.0000	81/08	81/08
			K	9	30.0000	.000000	30.0000	30.0000	80/12	81/09
			T	10	29.0000	3.16228	30.0000	20.0000	80/12	81/09
COPPER	CU,TOT	UG/L		6	16.6667	6.83133	30.0000	10.0000	81/07	81/09
			K	4	25.0000	10.0000	30.0000	10.0000	80/12	81/07
			T	10	20.0000	8.81917	30.0000	10.0000	80/12	81/09
IRON	FE,TOT	UG/L		10	2636.00	2739.30	8300.00	290.000	80/12	81/09
LEAD	PB,TOT	UG/L		3	14.6667	14.1539	31.0000	6.00000	81/06	81/08
			K	7	5.00000	.000000	5.00000	5.00000	80/12	81/09
			T	10	7.90000	8.14385	31.0000	5.00000	80/12	81/09
MANGNESE	MN	UG/L		4	127.500	12.5831	140.000	110.000	81/07	81/08
NICKEL	NI,TOTAL	UG/L		3	83.3333	28.8675	100.000	50.0000	80/12	81/09
			K	7	55.7143	30.4725	100.000	30.0000	81/03	81/08
NICKEL	NI,TOTAL	UG/L	T	10	64.0000	31.3404	100.000	30.0000	80/12	81/09
ZINC	ZN,TOT	UG/L		9	31.6667	16.2019	60.0000	15.0000	80/12	81/09
			K	1	30.0000		30.0000	30.0000	81/03	81/03
			T	10	31.5000	15.2843	60.0000	15.0000	80/12	81/09
ALUMINUM	AL,TOT	UG/L		4	1150.00	723.418	2000.00	500.000	81/07	81/08
FEC COLI	MFM-FCBR	/100ML		14	3672.71	3871.82	13000.0	36.0000	80/10	81/09
			L	1	48000.0		48000.0	48000.0	80/12	80/12
			T	15	6627.86	12038.0	48000.0	36.0000	80/10	81/09
PHENOLS	TOTAL	UG/L		11	9.09091	11.1665	39.0000	2.00000	80/10	81/08
			K	6	2.00000	.000000	2.00000	2.00000	81/02	81/09
			T	17	6.58823	9.49381	39.0000	2.00000	80/10	81/09
RESIDUE	DISS-180	C MG/L		5	471.080	91.6133	564.200	327.800	81/07	81/08
MERCURY	HG,TOTAL	UG/L		1	.600000		.600000	.600000	81/06	81/06
			K	3	.500000	.000000	.500000	.500000	80/12	81/09
			T	4	.525000	.050002	.600000	.500000	80/12	81/09

TABLE RD 1-126

STATION NUMBER 601770
40 03 33.0 082 20 23.0 2
LICKING R NR NEWARK - SR 16 (STADDEN BRIDGE)
OHIO RIVER 050491 (MUSKINGUM RIVER)
MILES 0953.80 0808.80 078.30 025.60

PARAMETER			R	NO	MEAN	STAN DEV	MAXIMUM	MINIMUM	BEG	END
WATER	TEMP	CENT		24	16.3271	6.26372	24.0000	.000000	81/10	82/09
STREAM	FLOW	CFS		5	616.060	543.030	1481.00	77.2000	81/12	82/08
STREAM	FLOW,	INST-CFS		23	176.130	158.908	715.900	63.0000	81/11	82/09
STREAM	STAGE	FEET		9	3.68111	.583424	4.87000	3.00000	81/11	82/09
CNDUCTVY	FIELD	MICROMHO		12	547.916	222.655	950.000	300.000	81/10	82/09
INTNSVE	SURVEY	IDENT		1	813903		813903	813903	81/10	81/10
DO	PROBE	MG/L		23	8.64999	2.79399	16.8000	3.90000	81/10	82/09
DO		MG/L		1	12.4000		12.4000	12.4000	81/11	81/11
BOD	5 DAY	MG/L		17	7.28235	3.44134	16.5000	3.00000	81/10	82/09
			K	1	1.00000		1.00000	1.00000	82/04	82/04
			T	18	6.93333	3.65224	16.5000	1.00000	81/10	82/09
BOD	20 DAY	MG/L		6	21.2167	9.43068	33.9000	11.9000	82/06	82/09
COD	LOWLEVEL	MG/L		7	21.0000	8.36660	32.0000	6.00000	81/10	82/03
PH		SU		23	7.98478	.229107	8.50000	7.30000	81/10	82/09
LAB	PH	SU		4	7.94750	.181392	8.14000	7.76000	81/10	82/09
RESIDUE	TOT NFLT	MG/L		11	21.2818	18.1089	65.0000	5.00000	81/10	82/09
			K	1	10.0000		10.0000	10.0000	81/10	81/10
			T	12	20.3417	17.5707	65.0000	5.00000	81/10	82/09
NH3+NH4-	N TOTAL	MG/L		18	2.11722	1.32482	4.60000	.280000	81/10	82/09
NO2-N	TOTAL	MG/L		17	.141176	.111124	.360000	.020000	81/10	82/09
			K	1	.020000		.020000	.020000	82/04	82/04
			T	18	.134444	.111526	.360000	.020000	81/10	82/09
NO3-N	TOTAL	MG/L		19	1.57210	1.62466	7.90000	.210000	81/10	82/09
TOT KJEL	N	MG/L		18	3.22500	1.70986	6.50000	.900000	81/10	82/09
PHOS-TOT		MG/L P		18	.370611	.297127	1.23000	.050000	81/10	82/09
CYANIDE	CN-TOT	MG/L		2	.006500	.002121	.008000	.005000	82/06	82/06
TOT HARD	CACO3	MG/L		8	293.875	55.2253	354.000	208.000	81/10	82/09

TABLE RD 1-126 (Continued)

STATION NUMBER 601770
40 03 33.0 082 20 23.0 2
LICKING R NR NEWARK - SR 16 (STADDEN BRIDGE)
OHIO RIVER 050491 (MUSKINGUM RIVER)
MILES 0953.80 0808.80 078.30 025.60

PARAMETER			R	NO	MEAN	STAN DEV	MAXIMUM	MINIMUM	BEG	END
CALCIUM	CA-TOT	MG/L		7	78.9285	11.5238	91.8000	55.5000	81/10	82/09
MGNSIUM	MG,TOT	MG/L		7	26.4714	4.31220	30.3000	17.7000	81/10	82/09
CHLORIDE	TOTAL	MG/L		3	55.6667	21.3854	69.0000	31.0000	81/10	81/11
SULFATE	SO4-TOT	MG/L		4	74.1750	24.7842	95.0000	46.0000	81/10	82/09
CADMIUM	CD,TOT	UG/L		1	.500000		.500000	.500000	82/03	82/03
			K	6	.500000	.000000	.500000	.500000	81/10	82/09
			T	7	.500000	.000000	.500000	.500000	81/10	82/09
CHROMIUM	CR,TOT	UG/L	K	7	30.0000	.000000	30.0000	30.0000	81/10	82/09
COPPER	CU,TOT	UG/L		4	16.2500	2.50000	20.0000	15.0000	81/12	82/06
			K	3	10.0000	.000000	10.0000	10.0000	81/10	82/09
			T	7	13.5714	3.77965	20.0000	10.0000	81/10	82/09
IRON	FE,TOT	UG/L		7	1184.29	901.016	3100.00	380.000	81/10	82/09
LEAD	PB,TOT	UG/L		3	3.33333	.577359	4.00000	3.00000	82/06	82/09
			K	4	4.25000	1.50000	5.00000	2.00000	81/10	82/06
LEAD	PB,TOT	UG/L	T	7	3.85714	1.21499	5.00000	2.00000	81/10	82/09
MANGNESE	MN	UG/L		1	90.0000		90.0000	90.0000	81/10	81/10
NICKEL	NI,TOTAL	UG/L	K	7	37.1428	4.87974	40.0000	30.0000	81/10	82/09
ZINC	ZN,TOT	UG/L		7	26.4286	8.99743	40.0000	15.0000	81/10	82/09
ALUMINUM	AL,TOT	UG/L		1	300.000		300.000	300.000	81/10	81/10
FEC COLI	MFM-FCBR	/100ML		5	402.400	491.448	1275.00	117.000	81/10	82/07
PHENOLS	TOTAL	UG/L		2	5.50000	3.53553	8.00000	3.00000	81/10	82/06
			K	5	5.80000	4.02493	10.0000	2.00000	81/10	82/09
			T	7	5.71428	3.59232	10.0000	2.00000	81/10	82/09
RESIDUE	DISS-180	C MG/L		3	517.000	28.6182	547.000	490.000	81/10	82/06
BOD 20C	5DAY CAR	MG/L		6	2.60000	.501998	3.20000	2.00000	82/06	82/09
BOD 20C	20DAYCAR	MG/L		6	7.13333	1.70139	9.10000	5.20000	82/06	82/09

TABLE RD 1-127

STATION NUMBER 601870
40 31 20.0 082 11 45.0 2
MOHICAN RIVER AT GREER - SR 514
OHIO RIVER (MUSKINGUM RIVER)
MILES 0953.80 0808.80 110.20 023.30 016.60

PARAMETER			R	NO	MEAN	STAN DEV	MAXIMUM	MINIMUM	BEG	END
WATER	TEMP	CENT		11	12.6364	8.78946	25.0000	1.00000	80/10	81/09
STREAM	FLOW,	INST-CFS		10	1043.21	891.900	2831.00	200.000	80/10	81/08
STREAM	STAGE	FEET		10	2.31500	.777304	3.78000	1.36000	80/10	81/09
CNDUCTVY	FIELD	MICROMHO		1	390.000		390.000	390.000	81/07	81/07
CNDUCTVY	AT 25C	MICROMHO		9	462.889	77.2545	600.000	370.000	80/10	81/09
DO		MG/L		11	9.59999	1.61557	12.0000	6.90000	80/10	81/09
COD	LOWLEVEL	MG/L		11	20.1818	17.5660	67.0000	4.00000	80/11	81/09
			K	1	4.00000		4.00000	4.00000	80/10	80/10
			T	12	18.8333	17.3877	67.0000	4.00000	80/10	81/09
PH		SU		8	7.97499	.337039	8.40000	7.40000	80/10	81/09
LAB	PH	SU		5	7.79999	.187500	8.10000	7.60000	81/01	81/06
RESIDUE	TOTAL	MG/L		1	334.000		334.000	334.000	81/08	81/08
RESIDUE	TOT NFLT	MG/L		10	39.6000	26.0862	99.0000	12.0000	80/10	81/09
			K	2	10.0000	.000000	10.0000	10.0000	80/11	81/01
			T	12	34.6667	26.2586	99.0000	10.0000	80/10	81/09
NH3+NH4-	N TOTAL	MG/L		9	.188889	.160035	.560000	.050000	80/11	81/09
			K	3	.050000	.000075	.050000	.050000	80/10	81/08
			T	12	.154166	.150240	.560000	.050000	80/10	81/09
NO2-N	TOTAL	MG/L		11	.030000	.022361	.070000	.010000	80/10	81/08
NO3-N	TOTAL	MG/L		12	1.95916	.809202	3.77000	.870000	80/10	81/09
TOT KJEL	N	MG/L		12	.817500	.222348	1.05000	.370000	80/10	81/09
PHOS-TOT		MG/L P		12	.206083	.072282	.360000	.102000	80/10	81/09
CYANIDE	CN-TOT	MG/L	K	1	.010000		.010000	.010000	81/02	81/02
TOT HARD	CACO3	MG/L		5	208.400	27.3647	240.000	174.000	80/11	81/08
CHLORIDE	TOTAL	MG/L		2	27.5000	9.19239	34.0000	21.0000	81/06	81/07
SULFATE	SO4-TOT	MG/L		1	44.0000		44.0000	44.0000	81/02	81/02
CADMIUM	CD,TOT	UG/L	K	5	5.00000	.000000	5.00000	5.00000	80/11	81/08

TABLE RD 1-127 (Continued)

STATION NUMBER 601870
40 31 20.0 082 11 45.0 2
MOHICAN RIVER AT GREER - SR 514
OHIO RIVER (MUSKINGUM RIVER)
MILES 0953.80 0808.80 110.20 023.30 016.60

PARAMETER			R	NO	MEAN	STAN DEV	MAXIMUM	MINIMUM	BEG	END
CHROMIUM	CR,TOT	UG/L		1	30.0000		30.0000	30.0000	80/11	80/11
			K	4	30.0000	.000000	30.0000	30.0000	81/02	81/08
			T	5	30.0000	.000000	30.0000	30.0000	80/11	81/08
COPPER	CU,TOT	UG/L		1	30.0000		30.0000	30.0000	80/11	80/11
			K	4	30.0000	.000000	30.0000	30.0000	81/02	81/08
			T	5	30.0000	.000000	30.0000	30.0000	80/11	81/08
IRON	FE,TOT	UG/L		5	1690.00	1098.66	3300.00	310.000	80/11	81/08
LEAD	PB,TOT	UG/L		2	7.00000	1.41421	8.00000	6.00000	80/11	81/06
			K	2	5.00000	.000000	5.00000	5.00000	81/02	81/08
			T	4	6.00000	1.41421	8.00000	5.00000	80/11	81/08
MANGNESE	MN	UG/L		2	185.000	162.635	300.000	70.0000	80/11	81/06
NICKEL	NI,TOTAL	UG/L		3	100.000	.000000	100.000	100.000	80/11	81/08
			K	2	100.000	.000000	100.000	100.000	81/02	81/05
			T	5	100.000	.000000	100.000	100.000	80/11	81/08
ZINC	ZN,TOT	UG/L		4	62.5000	37.7492	100.000	30.0000	80/11	81/08
			K	1	30.0000		30.0000	30.0000	81/02	81/02
			T	5	56.0000	35.7771	100.000	30.0000	80/11	81/08
ALUMINUM	AL,TOT	UG/L		2	1000.00	565.686	1400.00	600.000	81/05	81/06
FEC COLI	MFM-FCBR	/100ML		10	1741.00	2575.39	8600.00	270.000	80/10	81/08
			K	1	57.0000		57.0000	57.0000	81/04	81/04
			T	11	1587.91	2495.43	8600.00	57.0000	80/10	81/08
PHENOLS	TOTAL	UG/L		2	6.00000	.000000	6.00000	6.00000	80/11	81/05
			K	3	8.00000	10.3923	20.0000	2.00000	81/02	81/09
			T	5	7.20000	7.42967	20.0000	2.00000	80/11	81/09
RESIDUE	DISS-180	C MG/L		11	278.636	40.6367	362.000	222.000	80/10	81/09
MERCURY	HG,TOTAL	UG/L	K	3	.500000	.000000	.500000	.500000	80/11	81/08

TABLE RD 1-128

STATION NUMBER 601870
40 31 20.0 082 11 45.0 2
MOHICAN RIVER AT GREER - SR 514
OHIO RIVER (MUSKINGUM RIVER)
MILES 0953.80 0808.80 110.20 023.30 016.60

PARAMETER			R	NO	MEAN	STAN DEV	MAXIMUM	MINIMUM	BEG	END
WATER	TEMP	CENT		11	12.3364	7.88940	24.2000	.000000	81/10	82/09
STREAM	FLOW,	INST-CFS		9	1068.33	1310.43	3821.00	112.500	81/10	82/09
STREAM	STAGE	FEET		9	2.27666	1.11955	4.55000	1.24000	81/10	82/09
CNDUCTVY	FIELD	MICROMHO		9	346.889	102.601	490.000	210.000	82/01	82/09
CNDUCTVY	AT 25C	MICROMHO		2	531.500	21.9203	547.000	516.000	81/10	81/11
DO	PROBE	MG/L		9	9.85555	1.94752	13.5000	8.10000	82/01	82/09
DO		MG/L		1	9.90000		9.90000	9.90000	81/10	81/10
BOD	5 DAY	MG/L		6	4.24999	4.31452	13.0000	1.90000	82/01	82/08
			K	1	1.00000		1.00000	1.00000	82/04	82/04
			T	7	3.78571	4.12571	13.0000	1.00000	82/01	82/08
COD	LOWLEVEL	MG/L		5	25.4800	15.7814	49.4000	10.0000	81/10	82/03
PH		SU		10	7.96000	.313410	8.50000	7.50000	81/10	82/09
LAB	PH	SU		3	8.05999	.055174	8.10000	8.00000	81/10	82/07
T ALK	CACO3	MG/L		1	164.000		164.000	164.000	82/09	82/09
RESIDUE	TOT NFLT	MG/L		7	47.8571	70.0629	204.000	5.00000	82/03	82/09
			K	2	10.0000	.000000	10.0000	10.0000	81/10	81/11
			T	9	39.4444	62.9308	204.000	5.00000	81/10	82/09
NH3+NH4-	N TOTAL	MG/L		6	.241666	.210088	.530000	.060000	81/10	82/09
			K	5	.050000	.000061	.050000	.050000	81/11	82/08
			T	11	.154545	.179129	.530000	.050000	81/10	82/09
NO2-N	TOTAL	MG/L		6	.040000	.036332	.100000	.010000	81/10	82/06
			K	2	.020000	.000000	.020000	.020000	82/08	82/09
			T	8	.035000	.032071	.100000	.010000	81/10	82/09
NO3-N	TOTAL	MG/L		11	1.27636	.624712	2.44000	.240000	81/10	82/09
TOT KJEL	N	MG/L		11	.751818	.494910	2.10000	.300000	81/10	82/09
PHOS-TOT		MG/L P		11	.206727	.136899	.600000	.100000	81/10	82/09
TOT HARD	CACO3	MG/L		4	214.250	51.7325	246.000	137.000	81/11	82/09

TABLE RD 1-128 (Continued)

STATION NUMBER 601870
40 31 20.0 082 11 45.0 2
MOHICAN RIVER AT GREER - SR 514
OHIO RIVER (MUSKINGUM RIVER)
MILES 0953.80 0808.80 110.20 023.30 016.60

PARAMETER			R	NO	MEAN	STAN DEV	MAXIMUM	MINIMUM	BEG	END
CALCIUM	CA-TOT	MG/L		3	54.7000	15.4182	63.9000	36.9000	82/03	82/09
MGNSIUM	MG,TOT	MG/L		3	17.2666	5.55191	21.1000	10.9000	82/03	82/09
CHLORIDE	TOTAL	MG/L		2	33.0000	5.65685	37.0000	29.0000	81/11	82/09
CADMIUM	CD,TOT	UG/L		1	2.70000		2.70000	2.70000	82/03	82/03
			K	3	2.00000	2.59808	5.00000	.500000	81/11	82/09
			T	4	2.17500	2.15000	5.00000	.500000	81/11	82/09
CHROMIUM	CR,TOT	UG/L	K	4	30.0000	.000000	30.0000	30.0000	81/11	82/09
COPPER	CU,TOT	UG/L		2	12.5000	3.53553	15.0000	10.0000	82/03	82/09
			K	2	20.0000	14.1421	30.0000	10.0000	81/11	82/06
			T	4	16.2500	9.46485	30.0000	10.0000	81/11	82/09
IRON	FE,TOT	UG/L		4	2337.50	2857.66	6470.00	350.000	81/11	82/09
LEAD	PB,TOT	UG/L		3	5.33333	.577359	6.00000	5.00000	82/03	82/09
			K	1	5.00000		5.00000	5.00000	81/11	81/11
			T	4	5.25000	.500000	6.00000	5.00000	81/11	82/09
MANGNESE	MN	UG/L		1	110.000		110.000	110.000	81/11	81/11
NICKEL	NI,TOTAL	UG/L	K	4	52.5000	32.0156	100.000	30.0000	81/11	82/09
ZINC	ZN,TOT	UG/L		3	35.0000	10.0000	45.0000	25.0000	82/03	82/09
			K	1	30.0000		30.0000	30.0000	81/11	81/11
			T	4	33.7500	8.53913	45.0000	25.0000	81/11	82/09
ALUMINUM	AL,TOT	UG/L		1	300.000		300.000	300.000	81/11	81/11
FEC COLI	MFM-FCBR	/100ML		6	4608.83	10243.4	25500.0	80.0000	81/10	82/07
PHENOLS	TOTAL	UG/L		1	3.00000		3.00000	3.00000	81/10	81/10
			K	2	6.00000	5.65685	10.0000	2.00000	81/11	82/08
			T	3	5.00000	4.35890	10.0000	2.00000	81/10	82/08
RESIDUE	DISS-180	C MG/L		2	271.000	38.1838	298.000	244.000	81/11	82/03
MERCURY	HG,TOTAL	UG/L	K	1	.500000		.500000	.500000	81/11	81/11
EXCESS	ALKALNTY	MG/L		1	164.000		164.000	164.000	82/09	82/09

TABLE RD 1-137

STATION NUMBER 611790
40 15 41.0 081 36 33.0 2
TUSCARAWAS RIVER AT NEWCOMERSTOWN - SR 83
OHIO RIVER (MUSKINGUM RIVER)
MILES 0953.80 0808.80 110.20 021.30

PARAMETER			R	NO	MEAN	STAN DEV	MAXIMUM	MINIMUM	BEG	END
WATER	TEMP	CENT		12	10.7500	9.33590	25.0000	.000000	80/10	81/09
STREAM	FLOW,	INST-CFS		12	3355.08	2154.72	8134.00	957.000	80/10	81/09
STREAM	STAGE	FEET		12	3.68749	1.55214	6.86000	1.75000	80/10	81/09
CNDUCTVY	FIELD	MICROMHO		1	900.000		900.000	900.000	81/08	81/08
CNDUCTVY	AT 25C	MICROMHO		11	824.454	253.506	1190.00	506.000	80/10	81/09
DO		MG/L		10	9.45999	1.27211	12.0000	7.60000	80/10	81/09
COD	LOWLEVEL	MG/L		12	16.0000	7.23627	30.0000	4.00000	80/10	81/09
PH		SU		7	7.65714	.457860	8.30000	7.10000	81/03	81/09
LAB	PH	SU		5	7.64000	.321074	8.10000	7.20000	80/10	81/02
T ALK	CACO3	MG/L		4	88.2500	22.0662	119.000	68.0000	80/11	81/03
RESIDUE	TOTAL	MG/L		3	594.666	172.444	742.000	405.000	81/02	81/08
RESIDUE	TOT NFLT	MG/L		8	61.1250	51.5071	143.000	10.0000	80/11	81/09
			K	2	10.0000	.000000	10.0000	10.0000	80/10	81/01
			T	10	50.9000	50.2802	143.000	10.0000	80/10	81/09
NH3+NH4-	N TOTAL	MG/L		9	.347777	.428858	1.45000	.060000	80/11	81/08
			K	3	.050000	.000075	.050000	.050000	80/10	81/09
			T	12	.273333	.389739	1.45000	.050000	80/10	81/09
NO2-N	TOTAL	MG/L		7	.035714	.022254	.080000	.010000	80/10	81/08
NO3-N	TOTAL	MG/L		12	1.55417	.305419	2.15000	1.03000	80/10	81/09
TOT KJEL	N	MG/L		11	.870000	.345832	1.53000	.460000	80/10	81/09
PHOS-TOT		MG/L P		12	.187250	.067876	.332000	.084000	80/10	81/09
TOT HARD	CACO3	MG/L		3	376.000	48.8672	410.000	320.000	80/11	81/09
CALCIUM	CA-TOT	MG/L		1	69.0000		69.0000	69.0000	81/05	81/05
MGNSIUM	MG,TOT	MG/L		1	24.0000		24.0000	24.0000	81/05	81/05
CHLORIDE	TOTAL	MG/L		9	65.0000	40.9329	149.000	5.00000	80/10	81/07
CADMIUM	CD,TOT	UG/L	K	5	5.00000	.000000	5.00000	5.00000	80/11	81/09
CHROMIUM	CR,TOT	UG/L		2	30.0000	.000000	30.0000	30.0000	80/11	81/05
			K	3	30.0000	.000000	30.0000	30.0000	81/02	81/09
			T	5	30.0000	.000000	30.0000	30.0000	80/11	81/09

TABLE RD 1-137 (Continued)

STATION NUMBER 611790
40 15 41.0 081 36 33.0 2
TUSCARAWAS RIVER AT NEWCOMERSTOWN - SR 83
OHIO RIVER (MUSKINGUM RIVER)
MILES 0953.80 0808.80 110.20 021.30

PARAMETER			R	NO	MEAN	STAN DEV	MAXIMUM	MINIMUM	BEG	END
COPPER	CU,TOT	UG/L		1	30.0000		30.0000	30.0000	81/05	81/05
			K	4	30.0000	.000000	30.0000	30.0000	80/11	81/09
			T	5	30.0000	.000000	30.0000	30.0000	80/11	81/09
IRON	FE,TOT	UG/L		5	2678.00	2296.66	6600.00	970.000	80/11	81/09
LEAD	PB,TOT	UG/L		2	7.00000	1.41421	8.00000	6.00000	81/02	81/08
			K	3	5.00000	.000000	5.00000	5.00000	80/11	81/09
			T	5	5.80000	1.30385	8.00000	5.00000	80/11	81/09
MANGNESE	MN	UG/L		4	607.500	99.7914	700.000	490.000	80/11	81/09
NICKEL	NI,TOTAL	UG/L		1	100.000		100.000	100.000	81/08	81/08
			K	4	100.000	.000000	100.000	100.000	80/11	81/09
			T	5	100.000	.000000	100.000	100.000	80/11	81/09
ZINC	ZN,TOT	UG/L		4	50.0000	24.4949	80.0000	30.0000	80/11	81/08
ZINC	ZN,TOT	UG/L	K	1	30.0000		30.0000	30.0000	81/09	81/09
			T	5	46.0000	23.0217	80.0000	30.0000	80/11	81/09
ALUMINUM	AL,TOT	UG/L		4	1125.00	861.684	2400.00	600.000	81/02	81/09
			K	1	200.000		200.000	200.000	80/11	80/11
			T	5	940.000	853.229	2400.00	200.000	80/11	81/09
FEC COLI	MFM-FCBR	/100ML		12	2485.83	1682.56	5600.00	510.000	80/10	81/09
PHENOLS	TOTAL	UG/L		11	5.00000	3.03315	13.0000	3.00000	80/10	81/09
			K	1	20.0000		20.0000	20.0000	81/02	81/02
			T	12	6.25000	5.20707	20.0000	3.00000	80/10	81/09
MBAS		MG/L		2	.090000	.028284	.110000	.070000	80/11	81/08
RESIDUE	DISS-180	C MG/L		7	558.000	165.621	805.000	348.000	80/10	81/09
PHOS-T	ORTHO	MG/L P		1	.070000		.070000	.070000	81/08	81/08
T ACDITY	HOT-MG/L	CACO3	K	2	10.0000	.000000	10.0000	10.0000	81/02	81/03
MERCURY	HG,TOTAL	UG/L		2	.600000	.000423	.600000	.600000	81/08	81/09
			K	3	.500000	.000000	.500000	.500000	80/11	81/05
			T	5	.540000	.054772	.600000	.500000	80/11	81/09

TABLE RD 1-138

STATION NUMBER 611790
40 15 41.0 081 36 33.0 2
TUSCARAWAS RIVER AT NEWCOMERSTOWN - SR 83
OHIO RIVER (MUSKINGUM RIVER)
MILES 0953.80 0808.80 110.20 021.30

PARAMETER			R	NO	MEAN	STAN DEV	MAXIMUM	MINIMUM	BEG	END
WATER	TEMP	CENT		12	11.3750	8.23552	24.5000	-.100E+01	81/10	82/09
STREAM	FLOW	CFS		4	3645.75	3307.54	8479.00	1444.00	82/03	82/06
STREAM	FLOW,	INST-CFS		6	2791.33	2498.40	6849.00	533.000	81/10	82/07
			K	2	505.000	.000000	505.000	505.000	82/08	82/09
			T	8	2219.75	2361.93	6849.00	505.000	81/10	82/09
STREAM	STAGE	FEET		12	2.99999	1.97544	7.00000	1.05000	81/10	82/09
CNDUCTVY	AT 25C	MICROMHO		10	1007.70	276.180	1330.00	550.000	81/10	82/09
DO	PROBE	MG/L		8	10.4125	2.29125	14.2000	7.30000	81/12	82/09
DO		MG/L		1	9.70000		9.70000	9.70000	81/10	81/10
COD	LOWLEVEL	MG/L		6	19.6667	10.3473	34.0000	9.00000	81/10	82/07
PH		SU		11	8.25909	.305707	8.70000	7.90000	81/10	82/09
LAB	PH	SU		6	7.93499	.299413	8.32000	7.60000	81/10	82/08
T ALK	CACO3	MG/L		1	127.000		127.000	127.000	82/09	82/09
RESIDUE	TOTAL	MG/L		1	356.000		356.000	356.000	82/01	82/01
RESIDUE	TOT NFLT	MG/L		11	31.4545	12.1850	56.0000	13.0000	81/11	82/09
			K	1	10.0000		10.0000	10.0000	81/10	81/10
			T	12	29.6667	13.1657	56.0000	10.0000	81/10	82/09
NH3+NH4-	N TOTAL	MG/L		8	.242500	.143403	.440000	.050000	81/11	82/06
			K	4	.050000	.000050	.050000	.050000	81/10	82/09
			T	12	.178333	.148559	.440000	.050000	81/10	82/09
NO2-N	TOTAL	MG/L		6	.041667	.029269	.100000	.020000	82/01	82/07
			K	3	.020000	.000000	.020000	.020000	81/12	82/09
			T	9	.034444	.025550	.100000	.020000	81/12	82/09
NO3-N	TOTAL	MG/L		12	1.46333	.678829	2.93000	.470000	81/10	82/09
TOT KJEL	N	MG/L		12	1.00917	.406929	1.90000	.600000	81/10	82/09
PHOS-TOT		MG/L P		12	.175916	.064169	.313000	.110000	81/10	82/09
TOT HARD	CACO3	MG/L		4	321.575	95.8749	427.000	198.000	81/11	82/08

TABLE RD 1-138 (Continued)

STATION NUMBER 611790
40 15 41.0 081 36 33.0 2
TUSCARAWAS RIVER AT NEWCOMERSTOWN - SR 83
OHIO RIVER (MUSKINGUM RIVER)
MILES 0953.80 0808.80 110.20 021.30

PARAMETER			R	NO	MEAN	STAN DEV	MAXIMUM	MINIMUM	BEG	END
CALCIUM	CA-TOT	MG/L		3	75.2000	21.6363	95.3000	52.3000	82/02	82/08
MGNSIUM	MG,TOT	MG/L		3	23.9333	6.53101	28.0000	16.4000	82/02	82/08
CHLORIDE	TOTAL	MG/L		3	175.333	52.2912	218.000	117.000	81/10	82/08
CADMIUM	CD,TOT	UG/L		2	.949999	.494975	1.30000	.600000	82/02	82/05
			K	3	2.00000	2.59808	5.00000	.500000	81/11	82/08
			T	5	1.58000	1.94088	5.00000	.500000	81/11	82/08
CHROMIUM	CR,TOT	UG/L		1	30.0000		30.0000	30.0000	82/02	82/02
			K	4	30.0000	.000000	30.0000	30.0000	81/11	82/08
			T	5	30.0000	.000000	30.0000	30.0000	81/11	82/08
COPPER	CU,TOT	UG/L		2	10.0000	.000000	10.0000	10.0000	82/05	82/08
			K	3	16.6667	11.5470	30.0000	10.0000	81/11	82/07
			T	5	14.0000	8.94427	30.0000	10.0000	81/11	82/08
IRON	FE,TOT	UG/L		5	1100.00	924.067	2370.00	270.000	81/11	82/08
LEAD	PB,TOT	UG/L		2	8.50000	3.53553	11.0000	6.00000	82/05	82/07
LEAD	PB,TOT	UG/L	K	3	4.00000	1.73205	5.00000	2.00000	81/11	82/08
			T	5	5.80000	3.27109	11.0000	2.00000	81/11	82/08
MANGNESE	MN	UG/L		5	627.000	256.310	970.000	255.000	81/11	82/08
NICKEL	NI,TOTAL	UG/L	K	5	64.0000	32.8634	100.000	40.0000	81/11	82/08
ZINC	ZN,TOT	UG/L		4	26.2500	11.0868	40.0000	15.0000	81/11	82/08
			K	1	10.0000		10.0000	10.0000	82/07	82/07
			T	5	23.0000	12.0416	40.0000	10.0000	81/11	82/08
ALUMINUM	AL,TOT	UG/L		1	600.000		600.000	600.000	81/11	81/11
FEC COLI	MFM-FCBR	/100ML		8	2448.37	2008.14	6000.00	87.0000	81/10	82/07
PHENOLS	TOTAL	UG/L		3	5.33333	4.16333	10.0000	2.00000	81/10	82/08
RESIDUE	DISS-180	C MG/L		10	628.500	194.693	920.000	353.000	81/10	82/09
MERCURY	HG,TOTAL	UG/L	K	1	.500000		.500000	.500000	81/11	81/11

TABLE RD 1-139

STATION NUMBER 601910
40 20 29.0 082 03 56.0 2
WALHONDING R AT NELLIE BELOW DAM - U.S. RT. 36
OHIO RIVER (MUSKINGUM RIVER)
MILES 0953.80 0808.80 110.20 014.70

PARAMETER			R	NO	MEAN	STAN DEV	MAXIMUM	MINIMUM	BEG	END
WATER	TEMP	CENT		11	12.6364	8.55012	24.5000	3.00000	80/10	81/09
STREAM	FLOW,	INST-CFS		9	2341.77	2365.79	7462.00	650.000	80/11	81/08
STREAM	STAGE	FEET		11	7.46090	1.71188	11.3900	5.78000	80/10	81/09
CNDUCTVY	FIELD	MICROMHO		1	390.000		390.000	390.000	81/07	81/07
CNDUCTVY	AT 25C	MICROMHO		9	458.000	92.7874	622.000	340.000	80/10	81/09
DO		MG/L		11	9.97272	2.21274	14.5000	7.50000	80/10	81/09
COD	LOWLEVEL	MG/L		12	16.2500	8.90480	39.0000	6.00000	80/10	81/09
PH		SU		10	7.87999	.312022	8.40000	7.40000	80/10	81/09
LAB	PH	SU		5	7.86000	.151892	8.00000	7.70000	81/01	81/06
RESIDUE	TOTAL	MG/L		1	344.000		344.000	344.000	81/08	81/08
RESIDUE	TOT NFLT	MG/L		7	60.5714	74.4644	224.000	13.0000	80/12	81/09
			K	4	10.0000	.000000	10.0000	10.0000	80/10	81/06
			T	11	42.1818	63.0711	224.000	10.0000	80/10	81/09
NH3+NH4-	N TOTAL	MG/L		7	.194285	.148083	.460000	.060000	80/12	81/09
			K	5	.050000	.000061	.050000	.050000	80/10	81/08
			T	12	.134166	.132216	.460000	.050000	80/10	81/09
NO2-N	TOTAL	MG/L		10	.027000	.021108	.070000	.010000	80/10	81/08
			K	1	.010000		.010000	.010000	81/07	81/07
			T	11	.025455	.020671	.070000	.010000	80/10	81/08
NO3-N	TOTAL	MG/L		12	1.95416	.886361	3.62000	.910000	80/10	81/09
TOT KJEL	N	MG/L		12	.709166	.371250	1.56000	.260000	80/10	81/09
PHOS-TOT		MG/L P		12	.143833	.080557	.367000	.058000	80/10	81/09
CYANIDE	CN-TOT	MG/L	K	1	.010000		.010000	.010000	81/02	81/02
TOT HARD	CACO3	MG/L		4	191.250	38.9647	224.000	140.000	80/11	81/08
CHLORIDE	TOTAL	MG/L		2	23.5000	3.53553	26.0000	21.0000	81/06	81/07

TABLE RD 1-139 (Continued)

STATION NUMBER 601910
40 20 29.0 082 03 56.0 2
WALHONDING R AT NELLIE BELOW DAM - U.S. RT. 36
OHIO RIVER (MUSKINGUM RIVER)
MILES 0953.80 0808.80 110.20 014.70

PARAMETER			R	NO	MEAN	STAN DEV	MAXIMUM	MINIMUM	BEG	END
SULFATE	SO4-TOT	MG/L		1	57.0000		57.0000	57.0000	81/02	81/02
CADMIUM	CD,TOT	UG/L	K	4	5.00000	.000000	5.00000	5.00000	80/11	81/08
CHROMIUM	CR,TOT	UG/L		1	30.0000		30.0000	30.0000	80/11	80/11
			K	3	30.0000	.000000	30.0000	30.0000	81/02	81/08
			T	4	30.0000	.000000	30.0000	30.0000	80/11	81/08
COPPER	CU,TOT	UG/L	K	4	30.0000	.000000	30.0000	30.0000	80/11	81/08
IRON	FE,TOT	UG/L		4	1120.00	638.488	1890.00	400.000	80/11	81/08
LEAD	PB,TOT	UG/L	K	3	6.66667	2.88676	10.0000	5.00000	80/11	81/08
MANGNESE	MN	UG/L		1	50.0000		50.0000	50.0000	80/11	80/11
NICKEL	NI,TOTAL	UG/L		1	100.000		100.000	100.000	81/08	81/08
			K	3	100.000	.000000	100.000	100.000	80/11	81/05
			T	4	100.000	.000000	100.000	100.000	80/11	81/08
ZINC	ZN,TOT	UG/L		2	55.0000	35.3553	80.0000	30.0000	80/11	81/02
			K	2	30.0000	.000000	30.0000	30.0000	81/05	81/08
			T	4	42.5000	25.0000	80.0000	30.0000	80/11	81/08
ALUMINUM	AL,TOT	UG/L		1	700.000		700.000	700.000	81/05	81/05
FEC COLI	MFM-FCBR	/100ML		11	767.545	931.215	2600.00	33.0000	80/10	81/09
			K	1	29.0000		29.0000	29.0000	80/11	80/11
			T	12	706.000	913.116	2600.00	29.0000	80/10	81/09
PHENOLS	TOTAL	UG/L		1	6.00000		6.00000	6.00000	81/05	81/05
			K	4	6.50000	9.00000	20.0000	2.00000	80/11	81/09
			T	5	6.40000	7.79744	20.0000	2.00000	80/11	81/09
RESIDUE	DISS-180 C	MG/L		10	259.500	45.7803	346.000	205.000	80/10	81/09
MERCURY	HG,TOTAL	UG/L	K	3	.500000	.000000	.500000	.500000	80/11	81/08

TABLE RD 1-140

STATION NUMBER 601910
40 20 29.0 082 03 56.0 2
WALHONDING R AT NELLIE BELOW DAM - U.S. RT. 36
OHIO RIVER (MUSKINGUM RIVER)
MILES 0953.80 0808.80 110.20 014.70

PARAMETER			R	NO	MEAN	STAN DEV	MAXIMUM	MINIMUM	BEG	END
WATER	TEMP	CENT		12	10.5250	7.81539	22.5000	.000000	81/10	82/09
STREAM	FLOW	CFS		6	3250.38	2889.12	8443.00	884.300	81/12	82/06
STREAM	FLOW,	INST-CFS		5	1563.52	2266.11	5546.00	252.800	81/10	82/09
STREAM	STAGE	FEET		12	7.55333	2.03889	11.9500	5.52000	81/10	82/09
CNDUCTVY	AT 25C	MICROMHO		10	425.600	96.4336	540.000	280.000	81/10	82/09
DO	PROBE	MG/L		9	10.0444	2.48754	13.2000	6.60000	81/12	82/09
DO		MG/L		1	9.80000		9.80000	9.80000	81/10	81/10
COD	LOWLEVEL	MG/L		5	25.0000	27.6677	74.0000	9.00000	81/10	82/07
PH		SU		11	8.31818	.277844	8.90000	7.90000	81/10	82/09
LAB	PH	SU		6	8.05666	.272341	8.45000	7.77000	81/10	82/08
T ALK	CACO3	MG/L		1	161.000		161.000	161.000	82/09	82/09
RESIDUE	TOT NFLT	MG/L		10	53.6000	75.0810	263.000	13.0000	81/12	82/09
			K	2	10.0000	.000000	10.0000	10.0000	81/10	81/11
			T	12	46.3333	70.0017	263.000	10.0000	81/10	82/09
NH3+NH4-	N TOTAL	MG/L		6	.148333	.077309	.230000	.040000	81/12	82/07
			K	6	.050000	.000061	.050000	.050000	81/10	82/09
			T	12	.099167	.073170	.230000	.040000	81/10	82/09
NO2-N	TOTAL	MG/L		7	.034286	.019024	.060000	.010000	81/10	82/08
			K	2	.020000	.000000	.020000	.020000	81/12	82/09
			T	9	.031111	.017638	.060000	.010000	81/10	82/09
NO3-N	TOTAL	MG/L		12	1.48500	.666110	2.39000	.710000	81/10	82/09
TOT KJEL	N	MG/L		12	.680000	.297902	1.50000	.390000	81/10	82/09
PHOS-TOT		MG/L P		11	.113273	.039802	.200000	.060000	81/10	82/09
			K	1	.050000		.050000	.050000	82/07	82/07
			T	12	.108000	.042117	.200000	.050000	81/10	82/09

TABLE RD 1-140 (Continued)

STATION NUMBER 601910
40 20 29.0 082 03 56.0 2
WALHONDING R AT NELLIE BELOW DAM - U.S. RT. 36
OHIO RIVER (MUSKINGUM RIVER)
MILES 0953.80 0808.80 110.20 014.70

PARAMETER			R	NO	MEAN	STAN DEV	MAXIMUM	MINIMUM	BEG	END
TOT HARD	CACO3	MG/L		4	166.425	47.1628	219.700	121.000	81/11	82/08
CALCIUM	CA-TOT	MG/L		3	40.9333	13.5080	56.5000	32.3000	82/02	82/08
MGNSIUM	MG,TOT	MG/L		3	13.4667	4.97025	19.1000	9.70000	82/02	82/08
CHLORIDE	TOTAL	MG/L		2	28.2500	7.42462	33.5000	23.0000	81/11	82/08
CADMIUM	CD,TOT	UG/L	K	5	1.40000	2.01246	5.00000	.500000	81/11	82/08
CHROMIUM	CR,TOT	UG/L	K	5	30.0000	.000000	30.0000	30.0000	81/11	82/08
COPPER	CU,TOT	UG/L		1	10.0000		10.0000	10.0000	82/08	82/08
			K	4	15.0000	10.0000	30.0000	10.0000	81/11	82/07
			T	5	14.0000	8.94427	30.0000	10.0000	81/11	82/08
IRON	FE,TOT	UG/L		5	3186.00	4678.37	11400.0	380.000	81/11	82/08
LEAD	PB,TOT	UG/L		3	6.33333	3.51189	10.0000	3.00000	82/05	82/08
			K	2	5.00000	.000000	5.00000	5.00000	81/11	82/02
			T	5	5.80000	2.58844	10.0000	3.00000	81/11	82/08
MANGNESE	MN	UG/L		5	114.200	72.1506	241.000	65.0000	81/11	82/08
NICKEL	NI,TOTAL	UG/L	K	5	64.0000	32.8634	100.000	40.0000	81/11	82/08
ZINC	ZN,TOT	UG/L		4	23.7500	13.7689	40.0000	10.0000	82/02	82/08
ZINC	ZN,TOT	UG/L	K	1	30.0000		30.0000	30.0000	81/11	81/11
			T	5	25.0000	12.2474	40.0000	10.0000	81/11	82/08
ALUMINUM	AL,TOT	UG/L		1	300.000		300.000	300.000	81/11	81/11
FEC COLI	MFM-FCBR	/100ML		8	1768.12	3538.03	10450.0	40.0000	81/10	82/07
PHENOLS	TOTAL	UG/L		1	4.00000		4.00000	4.00000	81/11	81/11
			K	2	6.00000	5.65685	10.0000	2.00000	81/10	82/08
			T	3	5.33333	4.16333	10.0000	2.00000	81/10	82/08
RESIDUE	DISS-180	C MG/L		9	262.778	54.0653	342.000	198.000	81/11	82/09
MERCURY	HG,TOTAL	UG/L	K	1	.500000		.500000	.500000	81/11	81/11

TABLE RD 1-141

STATION NUMBER 611820
41 00 11.0 081 36 33.0 2
WOLF CREEK AT BARBERTON - SNYDER AVE.
OHIO RIVER (MUSKINGUM RIVER)
MILES 0953.80 0808.80 110.20 111.10 000.20

PARAMETER			R	NO	MEAN	STAN DEV	MAXIMUM	MINIMUM	BEG	END
WATER	TEMP	CENT		4	8.50000	5.06623	13.0000	2.00000	80/11	81/05
CNDUCTVY	FIELD	MICROMHO		2	733.000	222.032	890.000	576.000	80/11	81/05
CNDUCTVY	AT 25C	MICROMHO		1	1110.00		1110.00	1110.00	81/02	81/02
DO		MG/L		4	8.09999	.648202	8.80000	7.50000	80/11	81/05
COD	LOWLEVEL	MG/L		3	18.6667	3.05516	22.0000	16.0000	80/11	81/05
LAB	PH	SU		3	7.50000	.000000	7.50000	7.50000	80/11	81/05
RESIDUE	TOT NFLT	MG/L		3	17.6667	6.35090	25.0000	14.0000	80/11	81/05
NH3+NH4-	N TOTAL	MG/L		4	1.47250	2.16765	4.71000	.200000	80/11	81/05
NO2-N	TOTAL	MG/L		2	.015000	.007071	.020000	.010000	80/11	81/02
NO3-N	TOTAL	MG/L		3	.760000	.633167	1.48000	.290000	80/11	81/05
TOT KJEL	N	MG/L		3	2.41667	2.52500	5.33000	.860000	80/11	81/05
PHOS-TOT		MG/L P		3	.099000	.018028	.119000	.084000	80/11	81/05
CYANIDE	CN-TOT	MG/L	K	3	.010000	.000000	.010000	.010000	80/11	81/05
TOT HARD	CACO3	MG/L		2	217.000	38.1838	244.000	190.000	81/02	81/05
CALCIUM	CA-TOT	MG/L		1	70.0000		70.0000	70.0000	80/11	80/11
SODIUM	NA,TOT	MG/L		1	122.000		122.000	122.000	81/02	81/02
CHLORIDE	TOTAL	MG/L		3	137.333	45.3249	164.000	85.0000	80/11	81/05
FLUORIDE	F,TOTAL	MG/L		3	.213333	.015275	.230000	.200000	80/11	81/05
CADMIUM	CD,TOT	UG/L	K	3	5.00000	.000000	5.00000	5.00000	80/11	81/05
CHROMIUM	CR,TOT	UG/L	K	3	30.0000	.000000	30.0000	30.0000	80/11	81/05
COPPER	CU,TOT	UG/L		1	30.0000		30.0000	30.0000	81/05	81/05
			K	2	30.0000	.000000	30.0000	30.0000	80/11	81/02
			T	3	30.0000	.000000	30.0000	30.0000	80/11	81/05
IRON	FE,TOT	UG/L		4	1120.00	411.177	1660.00	780.000	80/11	81/05
LEAD	PB,TOT	UG/L		3	21.3333	20.7926	45.0000	6.00000	80/11	81/05
NICKEL	NI,TOTAL	UG/L	K	3	100.000	.000000	100.000	100.000	80/11	81/05
ZINC	ZN,TOT	UG/L		2	30.0000	.000000	30.0000	30.0000	81/02	81/05
			K	1	30.0000		30.0000	30.0000	80/11	80/11
			T	3	30.0000	.000000	30.0000	30.0000	80/11	81/05
FEC COLI	MFM-FCBR	/100ML		2	1365.00	756.604	1900.00	830.000	80/11	81/05
FECSTREP	MF M-ENT	/100ML		2	1295.00	1421.28	2300.00	290.000	80/11	81/05
PHENOLS	TOTAL	UG/L		4	7.75000	.500000	8.00000	7.00000	80/11	81/05
MBAS		MG/L		1	.080000		.080000	.080000	81/05	81/05
RESIDUE	DISS-180	C MG/L		3	549.000	125.861	630.000	404.000	80/11	81/05
MERCURY	HG,TOTAL	UG/L	K	3	.500000	.000000	.500000	.500000	80/11	81/05

TABLE RD 1-142

STATION NUMBER 611820
41 00 11.0 081 36 33.0 2
WOLF CREEK AT BARBERTON - SNYDER AVE.
OHIO RIVER (MUSKINGUM RIVER)
MILES 0953.80 0808.80 110.20 111.10 000.20

No data were collected from 10/81 - 9/82.

TABLE RD 1-143

STATION NUMBER 600660
38 48 13.0 083 25 16.0 2
OHIO BRUSH CREEK NR WEST UNION - SR 348
OHIO RIVER (OHIO BRUSH CREEK)
MILES 0953.80 0592.80 013.10

PARAMETER			R	NO	MEAN	STAN DEV	MAXIMUM	MINIMUM	BEG	END
WATER	TEMP	CENT		11	11.0455	9.44313	25.0000	.000000	80/10	81/09
STREAM	FLOW,	INST-CFS		12	328.892	616.227	2146.00	11.1000	80/10	81/09
STREAM	STAGE	FEET		12	3.10666	1.15180	6.10000	2.09000	80/10	81/09
CNDUCTVY	AT 25C	MICROMHO		8	469.250	94.8593	640.000	343.000	80/10	81/09
DO		MG/L		11	10.4182	2.75059	14.2000	6.00000	80/10	81/09
COD	LOWLEVEL	MG/L		11	12.4545	6.25082	27.0000	5.00000	80/10	81/09
			K	1	6.00000		6.00000	6.00000	81/05	81/05
			T	12	11.9167	6.24439	27.0000	5.00000	80/10	81/09
PH		SU		11	7.58181	.442328	8.20000	6.90000	80/10	81/09
LAB	PH	SU		2	8.24999	.072345	8.30000	8.20000	81/01	81/04
RESIDUE	TOT NFLT	MG/L		7	42.0000	64.9949	188.000	10.0000	80/10	81/09
			K	4	10.0000	.000000	10.0000	10.0000	80/11	81/03
			T	11	30.3636	52.8702	188.000	10.0000	80/10	81/09
NH3+NH4-	N TOTAL	MG/L		4	.137500	.083815	.260000	.070000	81/02	81/07
			K	8	.050000	.000052	.050000	.050000	80/10	81/09
			T	12	.079167	.061416	.260000	.050000	80/10	81/09
NO2-N	TOTAL	MG/L		9	.027778	.035629	.100000	.010000	80/11	81/09
			K	2	.010000	.000000	.010000	.010000	80/10	81/04
			T	11	.024545	.032669	.100000	.010000	80/10	81/09
NO3-N	TOTAL	MG/L		12	.849999	.614329	1.76000	.050000	80/10	81/09
TOT KJEL	N	MG/L		12	.530000	.431172	1.56000	.200000	80/10	81/09
PHOS-TOT		MG/L P		11	.057636	.085008	.310000	.019000	80/10	81/09
			K	1	.020000		.020000	.020000	81/01	81/01
			T	12	.054500	.081777	.310000	.019000	80/10	81/09
TOT HARD	CACO3	MG/L		7	240.000	29.6873	276.000	190.000	80/10	81/08
CHLORIDE	TOTAL	MG/L		2	10.0000	2.82843	12.0000	8.00000	81/02	81/05
SULFATE	SO4-TOT	MG/L		2	36.0000	.000000	36.0000	36.0000	80/10	81/05

TABLE RD 1-143 (Continued)

STATION NUMBER 600660
38 48 13.0 083 25 16.0 2
OHIO BRUSH CREEK NR WEST UNION - SR 348
OHIO RIVER (OHIO BRUSH CREEK)
MILES 0953.80 0592.80 013.10

PARAMETER			R	NO	MEAN	STAN DEV	MAXIMUM	MINIMUM	BEG	END
CADMIUM	CD,TOT	UG/L	K	7	5.71428	1.88983	10.0000	5.00000	80/10	81/08
CHROMIUM	CR,TOT	UG/L	K	7	30.0000	.000000	30.0000	30.0000	80/10	81/08
COPPER	CU,TOT	UG/L	K	7	30.0000	.000000	30.0000	30.0000	80/10	81/08
IRON	FE,TOT	UG/L		7	2195.71	3599.86	10300.0	470.000	80/10	81/08
LEAD	PB,TOT	UG/L		2	24.0000	16.9706	36.0000	12.0000	81/02	81/08
			K	5	6.00000	2.23607	10.0000	5.00000	80/10	81/07
			T	7	11.1429	11.3347	36.0000	5.00000	80/10	81/08
MANGNESE	MN	UG/L		2	70.0000	.000000	70.0000	70.0000	81/05	81/08
			K	1	30.0000		30.0000	30.0000	80/11	80/11
			T	3	56.6667	23.0941	70.0000	30.0000	80/11	81/08
NICKEL	NI,TOTAL	UG/L		1	100.000		100.000	100.000	80/10	80/10
			K	5	100.000	.000000	100.000	100.000	80/11	81/08
			T	6	100.000	.000000	100.000	100.000	80/10	81/08
ZINC	ZN,TOT	UG/L		1	40.0000		40.0000	40.0000	81/02	81/02
ZINC	ZN,TOT	UG/L	K	6	30.0000	.000000	30.0000	30.0000	80/10	81/08
			T	7	31.4286	3.77983	40.0000	30.0000	80/10	81/08
ALUMINUM	AL,TOT	UG/L		4	1950.00	2836.08	6200.00	400.000	81/02	81/08
FEC COLI	MFM-FCBR	/100ML		10	629.060	909.617	2400.00	16.6000	80/10	81/09
			K	2	5.15000	2.19203	6.70000	3.60000	80/12	81/01
			T	12	525.074	857.873	2400.00	3.60000	80/10	81/09
PHENOLS	TOTAL	UG/L		2	4.50000	.707107	5.00000	4.00000	80/11	81/03
			K	2	2.00000	.000000	2.00000	2.00000	81/07	81/08
			T	4	3.25000	1.50000	5.00000	2.00000	80/11	81/08
RESIDUE	DISS-180	C MG/L		9	270.555	29.9394	304.000	216.000	80/10	81/08
MERCURY	HG,TOTAL	UG/L		1	1.00000		1.00000	1.00000	81/08	81/08
			K	3	.500000	.000000	.500000	.500000	80/10	81/07
			T	4	.625000	.250000	1.00000	.500000	80/10	81/08

TABLE RD 1-144

STATION NUMBER 600660
38 48 13.0 083 25 16.0 2
OHIO BRUSH CREEK NR WEST UNION - SR 348
OHIO RIVER (OHIO BRUSH CREEK)
MILES 0953.80 0592.80 013.10

PARAMETER			R	NO	MEAN	STAN DEV	MAXIMUM	MINIMUM	BEG	END
WATER	TEMP	CENT		12	12.9583	9.03392	26.0000	.000000	81/10	82/09
STREAM	FLOW	CFS		7	569.428	716.634	1943.00	38.0000	81/12	82/06
STREAM	FLOW,	INST-CFS		4	10.4125	4.99639	14.6000	3.95000	81/10	82/09
STREAM	STAGE	FEET		9	3.23777	1.37058	5.86000	1.94000	81/10	82/09
CNDUCTVY	AT 25C	MICROMHO		3	397.666	76.5280	473.000	320.000	81/10	82/03
DO	PROBE	MG/L		10	10.4700	3.79095	17.0000	6.30000	81/12	82/09
DO		MG/L		2	10.7500	2.61635	12.6000	8.90000	81/10	81/11
COD	LOWLEVEL	MG/L		7	13.0000	1.00000	15.0000	12.0000	81/11	82/09
			K	1	20.0000		20.0000	20.0000	82/08	82/08
			T	8	13.8750	2.64237	20.0000	12.0000	81/11	82/09
PH		SU		10	8.16000	.316939	8.80000	7.70000	81/10	82/09
LAB	PH	SU		2	7.95000	.353553	8.20000	7.70000	81/10	81/11
RESIDUE	TOTAL	MG/L		1	369.000		369.000	369.000	81/12	81/12
RESIDUE	TOT NFLT	MG/L		8	48.0000	96.5105	286.000	6.00000	81/10	82/09
			K	1	10.0000		10.0000	10.0000	81/11	81/11
			T	9	43.7778	91.1616	286.000	6.00000	81/10	82/09
NH3+NH4-	N TOTAL	MG/L		4	.062500	.015000	.080000	.050000	82/01	82/08
			K	8	.050000	.000052	.050000	.050000	81/10	82/09
			T	12	.054167	.009962	.080000	.050000	81/10	82/09
NO2-N	TOTAL	MG/L		1	.080000		.080000	.080000	82/03	82/03
			K	4	.017500	.005000	.020000	.010000	81/11	82/09
			T	5	.030000	.028284	.080000	.010000	81/11	82/09
NO3-N	TOTAL	MG/L		10	1.23800	1.36560	4.21000	.080000	81/12	82/09
			K	2	.050000	.000061	.050000	.050000	81/10	81/11
			T	12	1.04000	1.31895	4.21000	.050000	81/10	82/09
TOT KJEL	N	MG/L		12	.473333	.284520	1.30000	.300000	81/10	82/09
PHOS-TOT		MG/L P		3	.026333	.015177	.040000	.010000	81/10	82/08
			K	7	.045714	.011339	.050000	.020000	81/11	82/09
			T	10	.039900	.014985	.050000	.010000	81/10	82/09
PHOS-DIS		MG/L P	K	1	.050000		.050000	.050000	82/01	82/01
TOT HARD	CACO3	MG/L		4	244.250	32.3148	290.000	220.000	81/11	82/08
CALCIUM	CA-TOT	MG/L		4	53.7750	3.20238	57.4000	49.6000	82/02	82/08
MGNSIUM	MG,TOT	MG/L		4	25.3750	3.84056	30.2000	21.4000	82/02	82/08
CADMIUM	CD,TOT	UG/L	K	3	2.00000	2.59808	5.00000	.500000	81/11	82/08
CHROMIUM	CR,TOT	UG/L	K	5	30.0000	.000000	30.0000	30.0000	81/11	82/08
COPPER	CU,TOT	UG/L	K	5	14.0000	8.94427	30.0000	10.0000	81/11	82/08
IRON	FE,TOT	UG/L		5	688.000	439.340	1320.00	250.000	81/11	82/08
LEAD	PB,TOT	UG/L		1	80.0000		80.0000	80.0000	82/08	82/08
			K	3	4.00000	1.73205	5.00000	2.00000	81/11	82/04
			T	4	23.0000	38.0263	80.0000	2.00000	81/11	82/08
MANGNESE	MN	UG/L		4	65.0000	27.3861	85.0000	25.0000	81/11	82/08

TABLE RD 1-144 (Continued)

STATION NUMBER 600660
38 48 13.0 083 25 16.0 2
OHIO BRUSH CREEK NR WEST UNION - SR 348
OHIO RIVER (OHIO BRUSH CREEK)
MILES 0953.80 0592.80 013.10

PARAMETER			R	NO	MEAN	STAN DEV	MAXIMUM	MINIMUM	BEG	END
NICKEL	NI,TOTAL	UG/L	K	5	64.0000	32.8634	100.000	40.0000	81/11	82/08
ZINC	ZN,TOT	UG/L	K	5	14.0000	8.94427	30.0000	10.0000	81/11	82/08
ALUMINUM	AL,TOT	UG/L		1	300.000		300.000	300.000	81/11	81/11
FEC COLI	MFM-FCBR	/100ML		9	326.222	502.348	1600.00	13.0000	81/11	82/07
			K	1	17.0000		17.0000	17.0000	81/10	81/10
			T	10	295.300	483.608	1600.00	13.0000	81/10	82/07
PHENOLS	TOTAL	UG/L	K	1	10.0000		10.0000	10.0000	82/08	82/08
RESIDUE	DISS-180	C MG/L		7	266.571	33.3623	327.000	212.000	81/10	82/09
MERCURY	HG,TOTAL	UG/L	K	1	.500000		.500000	.500000	81/11	81/11

TABLE RD 1-145

STATION NUMBER 500510
41 26 58.0 083 21 29.0 2
PORTAGE RIVER AT WOODVILLE - U.S. 20
LAKE ERIE 060492 (PORTAGE RIVER BASIN)
MILES 0028.20

PARAMETER			R	NO	MEAN	STAN DEV	MAXIMUM	MINIMUM	BEG	END
WATER	TEMP	CENT		12	10.8417	8.37718	21.6000	-.299E+00	80/10	81/09
WIND	VELOCITY	MPH	K	1	4.00000		4.00000	4.00000	81/09	81/09
STREAM	STAGE	FEET		5	3.74200	2.42157	7.97000	2.18000	81/03	81/09
TURB	TRBIDMTR	HACH FTU		1	154.000		154.000	154.000	81/09	81/09
CNDUCTVY	AT 25C	MICROMHO		8	729.000	208.784	927.000	333.000	81/02	81/09
DO		MG/L		12	8.83333	2.68982	12.6000	4.20000	80/10	81/09
BOD	5 DAY	MG/L		11	4.47272	3.99627	15.0000	1.00000	80/10	81/09
COD	LOWLEVEL	MG/L		8	21.6500	9.62986	39.6000	11.0000	80/10	81/07
			K	4	4.00000	.000000	4.00000	4.00000	80/11	81/09
			T	12	15.7667	11.5988	39.6000	4.00000	80/10	81/09
LAB	PH	SU		12	8.07666	.278035	8.64000	7.60000	80/10	81/09
T ALK	CACO3	MG/L		5	165.200	121.469	375.000	88.0000	80/10	81/09
RESIDUE	TOT NFLT	MG/L		6	61.3333	58.7935	176.000	22.0000	80/11	81/09
			K	6	10.0000	.000000	10.0000	10.0000	80/10	81/08
			T	12	35.6667	47.8527	176.000	10.0000	80/10	81/09
NH3+NH4-	N TOTAL	MG/L		5	.674000	.797421	2.00000	.070000	80/10	81/09
			K	3	.500000	.000000	.500000	.500000	81/02	81/04
			T	8	.608750	.609483	2.00000	.070000	80/10	81/09
NO2-N	TOTAL	MG/L		12	.079167	.084902	.280000	.010000	80/10	81/09
NO3-N	TOTAL	MG/L		12	4.62333	3.27307	11.4000	.080000	80/10	81/09
TOT KJEL	N	MG/L		12	1.77500	1.01449	3.91000	.830000	80/10	81/09
PHOS-TOT		MG/L P		12	.231249	.176009	.609000	.057000	80/10	81/09
T ORG C	C	MG/L		5	15.2000	2.77490	18.0000	12.0000	80/10	81/07
TOT HARD	CACO3	MG/L		12	320.250	92.4873	456.000	156.000	80/10	81/09
CALCIUM	CA-TOT	MG/L		10	86.9000	28.8655	123.000	42.0000	80/12	81/09
MGNSIUM	MG,TOT	MG/L		10	26.0000	8.24621	38.0000	12.0000	80/12	81/09
SODIUM	NA,TOT	MG/L		10	50.0000	38.1401	139.000	7.00000	80/12	81/09
PTSSIUM	K,TOT	MG/L		9	5.76666	2.70787	11.0000	3.00000	81/01	81/09
CHLORIDE	TOTAL	MG/L		12	88.5000	48.2107	199.000	20.0000	80/10	81/09
SULFATE	SO4-TOT	MG/L		12	121.000	43.8738	198.000	38.0000	80/10	81/09
SILICA	DISOLVED	MG/L		8	3.52749	2.27045	5.99000	.130000	80/12	81/07
			K	1	.100000		.100000	.100000	81/08	81/08
			T	9	3.14666	2.41162	5.99000	.100000	80/12	81/08

TABLE RD 1-145 (Continued)

STATION NUMBER 500510
41 26 58.0 083 21 29.0 2
PORTAGE RIVER AT WOODVILLE - U.S. 20
LAKE ERIE 060492 (PORTAGE RIVER BASIN)
MILES 0028.20

PARAMETER			R	NO	MEAN	STAN DEV	MAXIMUM	MINIMUM	BEG	END
ARSENIC	AS,TOT	UG/L	K	12	50.8333	141.451	500.000	10.0000	80/10	81/09
CADMIUM	CD,TOT	UG/L	K	12	5.00000	.000000	5.00000	5.00000	80/10	81/09
CHROMIUM	CR,TOT	UG/L		1	30.0000		30.0000	30.0000	80/12	80/12
			K	11	30.0000	.000000	30.0000	30.0000	80/10	81/09
			T	12	30.0000	.000000	30.0000	30.0000	80/10	81/09
COPPER	CU,TOT	UG/L		1	30.0000		30.0000	30.0000	81/09	81/09
			K	11	30.0000	.000000	30.0000	30.0000	80/10	81/08
			T	12	30.0000	.000000	30.0000	30.0000	80/10	81/09
IRON	FE,TOT	UG/L		12	2007.50	3521.87	10000.0	140.000	80/10	81/09
LEAD	PB,TOT	UG/L		2	10.0000	2.82843	12.0000	8.00000	81/02	81/09
			K	10	5.00000	.000000	5.00000	5.00000	80/10	81/08
			T	12	5.83333	2.12489	12.0000	5.00000	80/10	81/09
MANGNESE	MN	UG/L		9	72.2222	47.9004	150.000	30.0000	80/10	81/09
			K	3	30.0000	.000000	30.0000	30.0000	80/11	81/04
			T	12	61.6667	45.0925	150.000	30.0000	80/10	81/09
NICKEL	NI,TOTAL	UG/L		1	100.000		100.000	100.000	81/08	81/08
			K	8	100.000	.000000	100.000	100.000	81/01	81/09
			T	9	100.000	.000000	100.000	100.000	81/01	81/09
ZINC	ZN,TOT	UG/L		3	46.6667	15.2753	60.0000	30.0000	80/12	81/09
			K	9	30.0000	.000000	30.0000	30.0000	80/10	81/08
			T	12	34.1667	9.96211	60.0000	30.0000	80/10	81/09
ALUMINUM	AL,TOT	UG/L		9	1311.11	1837.42	5100.00	200.000	80/10	81/09
			K	3	200.000	.000000	200.000	200.000	80/11	81/04
			T	12	1033.33	1645.56	5100.00	200.000	80/10	81/09
FEC COLI	MFM-FCBR	/100ML		11	1717.09	2953.79	9900.00	8.00000	80/10	81/09
MBAS		MG/L		12	.159166	.060523	.300000	.100000	80/10	81/09
PCBS	WHL SMPL	UG/L	K	7	.500000	.000000	.500000	.500000	81/02	81/09
RESIDUE	DISS-180	C MG/L		12	491.000	217.626	884.000	214.000	80/10	81/09
MERCURY	HG,TOTAL	UG/L		1	.600000		.600000	.600000	80/12	80/12
			K	9	.500000	.000000	.500000	.500000	80/10	81/07
			T	10	.510000	.031626	.600000	.500000	80/10	81/07

TABLE RD 1-149

STATION NUMBER 501800
41 24 24.0 081 53 14.0 2
ROCKY RIVER NR BEREA - CEDAR POINT RD
LAKE ERIE 060591 (ROCKY RIVER)
MILES 0012.00

PARAMETER			R	NO	MEAN	STAN DEV	MAXIMUM	MINIMUM	BEG	END
WATER	TEMP	CENT		26	16.1538	8.65655	30.0000	.000000	80/10	81/09
STREAM	FLOW	CFS		14	169.529	224.181	846.000	36.7000	81/06	81/09
STREAM	FLOW,	INST-CFS		10	526.789	1103.34	3652.00	43.9000	80/10	81/09
STREAM	STAGE	FEET		13	1.61384	.972231	4.65000	.910000	80/10	81/09
TURB	TRBIDMTR	HACH FTU		10	82.2000	204.332	660.000	2.50000	80/10	81/07
CNDUCTVY	FIELD	MICROMHO		9	485.000	153.256	800.000	300.000	80/10	81/07
CNDUCTVY	AT 25C	MICROMHO		22	715.591	260.355	1507.00	231.000	80/12	81/09
INTNSVE	SURVEY	IDENT		14	813901	.000000	813901	813901	81/06	81/09
DO	PROBE	MG/L		14	8.72142	1.51108	12.9000	6.00000	81/06	81/09
DO		MG/L		13	10.4692	2.38097	14.4000	7.30000	80/10	81/09
BOD	5 DAY	MG/L		14	9.18214	9.53050	41.7000	3.50000	81/06	81/09
COD	LOWLEVEL	MG/L		24	31.0917	22.4681	104.000	12.0000	80/10	81/09
PH		SU		15	8.07666	.294575	8.90000	7.75000	81/07	81/09
LAB	PH	SU		22	7.73999	.448366	8.60000	6.40000	80/10	81/09
T ALK	CACO3	MG/L		11	142.455	46.1809	253.000	80.0000	80/10	81/09
RESIDUE	TOT NFLT	MG/L		22	92.7008	224.009	1027.00	5.10000	80/12	81/09
			K	4	10.0000	.000000	10.0000	10.0000	80/10	81/08
			T	26	79.9776	207.551	1027.00	5.10000	80/10	81/09
NH3+NH4-	N TOTAL	MG/L		24	1.01375	.933019	3.62000	.190000	80/10	81/09
NO2-N	TOTAL	MG/L		23	.309130	.205955	.760000	.070000	80/10	81/09
			K	1	.030000		.030000	.030000	81/09	81/09
			T	24	.297500	.209331	.760000	.030000	80/10	81/09
NO3-N	TOTAL	MG/L		24	2.24166	.841704	4.07000	.720000	80/10	81/09
TOT KJEL	N	MG/L		24	2.44291	1.55340	6.94000	1.00000	80/10	81/09
PHOS-TOT		MG/L P		24	1.02046	.474749	2.00000	.303000	80/10	81/09
PHOS-DIS		MG/L P		11	.717090	.447957	1.82000	.198000	80/10	81/09
T ORG C	C	MG/L		4	15.2500	2.50000	19.0000	14.0000	80/10	81/07
D ORG C	C	MG/L		4	11.2500	3.09570	14.0000	7.00000	81/01	81/07
TOT HARD	CACO3	MG/L		19	227.537	30.8184	304.000	162.000	80/11	81/09
CALCIUM	CA-TOT	MG/L		22	62.9636	8.36571	87.0000	50.0000	80/11	81/09
MGNSIUM	MG,TOT	MG/L		13	17.9692	1.69779	20.9000	15.7000	81/07	81/09
SODIUM	NA,TOT	MG/L		10	74.0000	44.9197	193.000	36.0000	80/11	81/09
CHLORIDE	TOTAL	MG/L		11	113.545	68.3965	298.000	51.0000	80/10	81/09
SULFATE	SO4-TOT	MG/L		11	95.5454	17.3862	118.000	63.0000	80/10	81/09
SILICA	DISOLVED	MG/L		12	5.20083	2.04190	8.47000	1.13000	80/10	81/09
ARSENIC	AS,TOT	UG/L	K	3	10.0000	.000000	10.0000	10.0000	81/04	81/07
CADMIUM	CD,TOT	UG/L		1	.600000		.600000	.600000	81/09	81/09
			K	17	2.08823	2.21667	5.00000	.500000	80/11	81/09
			T	18	2.00555	2.17890	5.00000	.500000	80/11	81/09
CHROMIUM	CR,TOT	UG/L		2	50.0000	28.2843	70.0000	30.0000	81/07	81/09
			K	17	30.0000	.000000	30.0000	30.0000	80/11	81/09
CHROMIUM	CR,TOT	UG/L	T	19	32.1053	9.17667	70.0000	30.0000	80/11	81/09

TABLE RD 1-149 (Continued)

STATION NUMBER 501800
41 24 24.0 081 53 14.0 2
ROCKY RIVER NR BEREA - CEDAR POINT RD
LAKE ERIE 060591 (ROCKY RIVER)
MILES 0012.00

PARAMETER			R	NO	MEAN	STAN DEV	MAXIMUM	MINIMUM	BEG	END
COPPER	CU,TOT	UG/L		6	24.1667	12.4164	40.0000	10.0000	81/02	81/09
			K	13	16.1538	9.60770	30.0000	10.0000	80/11	81/09
			T	19	18.6842	10.9090	40.0000	10.0000	80/11	81/09
IRON	FE,TOT	UG/L		19	4187.89	9097.62	38500.0	220.000	80/11	81/09
LEAD	PB,TOT	UG/L		6	19.5000	23.2530	65.0000	5.00000	81/01	81/09
			K	13	5.00000	.000000	5.00000	5.00000	80/11	81/09
			T	19	9.57895	14.0764	65.0000	5.00000	80/11	81/09
MANGNESE	MN	UG/L		3	133.333	86.2169	210.000	40.0000	81/04	81/07
NICKEL	NI,TOTAL	UG/L		1	100.000		100.000	100.000	81/02	81/02
			K	18	55.0000	28.9523	100.000	30.0000	80/11	81/09
			T	19	57.3684	29.9708	100.000	30.0000	80/11	81/09
VANADIUM	V,TOT	UG/L	K	3	140.000	103.923	200.000	20.0000	81/04	81/07
ZINC	ZN,TOT	UG/L		12	50.0000	53.7249	170.000	10.0000	81/01	81/09
			K	7	15.7143	9.75900	30.0000	10.0000	80/11	81/09
			T	19	37.3684	45.6548	170.000	10.0000	80/11	81/09
ALUMINUM	AL,TOT	UG/L		3	1000.00	953.939	2100.00	400.000	81/04	81/07
SELENIUM	SE,TOT	UG/L	K	2	100.000	.000000	100.000	100.000	81/04	81/07
FEC COLI	MFM-FCBR	/100ML		9	4866.66	8537.53	27000.0	830.000	80/10	81/09
FECSTREP	MF M-ENT	/100ML		8	4502.50	6346.36	19000.0	200.000	80/10	81/07
PHENOLS	TOTAL	UG/L		13	7.84615	2.03496	11.0000	4.00000	80/10	81/09
ALDRIN		TOT UG/L		1	.000000		.000000	.000000	81/07	81/07
GAMMABHC	LINDANE	TOT.UG/L		1	.000000		.000000	.000000	81/07	81/07
CHLRDANE	TECH&MET	TOT UG/L		1	.000000		.000000	.000000	81/07	81/07
DDD	WHL SMPL	UG/L		1	.000000		.000000	.000000	81/07	81/07
DDE	WHL SMPL	UG/L		1	.000000		.000000	.000000	81/07	81/07
DDT	WHL SMPL	UG/L		1	.000000		.000000	.000000	81/07	81/07
DIELDRIN		TOTUG/L		1	.000000		.000000	.000000	81/07	81/07
ENDRIN		TOT UG/L		1	.000000		.000000	.000000	81/07	81/07
TOXAPHEN		TOTUG/L		1	.000000		.000000	.000000	81/07	81/07
HEPTCHLR		TOTUG/L		1	.000000		.000000	.000000	81/07	81/07
HPCHLREP		TOTUG/L		1	.000000		.000000	.000000	81/07	81/07
MTHXYCLR	WHL SMPL	UG/L		1	.000000		.000000	.000000	81/07	81/07
PCBS	WHL SMPL	UG/L		2	.000000	.000000	.000000	.000000	80/12	81/07
			K	8	.500000	.000000	.500000	.500000	81/01	81/09
			T	10	.400000	.210819	.500000	.000000	80/12	81/09
MALATHN	WHL SMPL	UG/L		1	.000000		.000000	.000000	81/07	81/07
PARATHN	WHL SMPL	UG/L		1	.000000		.000000	.000000	81/07	81/07
DIAZINON	WHL SMPL	UG/L		1	.000000		.000000	.000000	81/07	81/07
MPARATHN	WHL SMPL	UG/L		1	.000000		.000000	.000000	81/07	81/07
MIREX	WHL SMPL	UG/L		1	.000000		.000000	.000000	81/07	81/07
LINDANE	WHL SMPL	UG/L		1	.000000		.000000	.000000	81/07	81/07
RESIDUE	DISS-180	C MG/L		26	451.611	136.248	848.000	120.000	80/10	81/09
MERCURY	HG,TOTAL	UG/L	K	6	.500000	.000000	.500000	.500000	80/11	81/07

TABLE RD 1-152

STATION NUMBER 501790
41 28 10.0 081 49 54.0 2
ROCKY RIVER AT LAKEWOOD - PARK BLVD
LAKE ERIE 060500 (ROCKY RIVER)
MILES 0003.00

PARAMETER			R	NO	MEAN	STAN DEV	MAXIMUM	MINIMUM	BEG	END
STREAM	WIDTH	FEET		4	99.2499	5.51973	107.000	93.9900	82/06	82/09
WATER	TEMP	CENT		25	15.0900	7.08689	25.5000	1.00000	81/10	82/09
STREAM	VELOCITY	FT/SEC		3	.409333	.223003	.664000	.249000	82/06	82/09
STREAM	FLOW,	INST-CFS		2	72.7750	40.5950	101.480	44.0700	82/06	82/09
DEPTH OF	STREAM	MEAN(FT)		4	1.11250	.369268	1.64000	.780000	82/06	82/09
TURB	TRBIDMTR	HACH FTU		2	4.57500	.954597	5.25000	3.90000	81/10	81/11
CNDUCTVY	FIELD	MICROMHO		10	535.000	167.465	750.000	255.000	81/10	82/09
CNDUCTVY	AT 25C	MICROMHO		9	705.111	113.822	826.000	530.000	81/10	82/09
TIME OF	TRAVEL	HOURS		3	2.64333	.310061	2.95000	2.33000	82/06	82/09
UPSTREAM	REACH	MILES		3	3.73333	.404151	4.20000	3.50000	82/06	82/09
DNSTREAM	REACH	MILES		3	3.00000	.000000	3.00000	3.00000	82/06	82/09
DO	PROBE	MG/L		23	8.62173	2.73512	13.4000	5.00000	81/12	82/09
DO		MG/L		2	10.2000	.848583	10.8000	9.60000	81/10	81/11
BOD	5 DAY	MG/L		7	4.59999	1.23965	6.50000	3.30000	82/04	82/09
BOD	20 DAY	MG/L		4	13.4500	1.93653	15.4000	10.8000	82/08	82/09
COD	LOWLEVEL	MG/L		10	30.3000	11.8515	55.0000	19.0000	81/11	82/09
PH		SU		21	8.37618	.455181	9.60000	7.75000	81/11	82/09
LAB	PH	SU		7	7.94428	.297833	8.35000	7.50000	81/10	82/09
T ALK	CACO3	MG/L		2	140.000	5.65685	144.000	136.000	81/10	81/11
RESIDUE	TOT NFLT	MG/L		11	79.0909	138.089	479.000	7.00000	81/12	82/09
			K	2	10.0000	.000000	10.0000	10.0000	81/10	81/11
			T	13	68.4615	128.700	479.000	7.00000	81/10	82/09
NH3+NH4-	N TOTAL	MG/L		15	.512000	.466785	1.58000	.060000	81/10	82/09
			K	1	.050000		.050000	.050000	82/08	82/08
			T	16	.483125	.465513	1.58000	.050000	81/10	82/09
NO2-N	TOTAL	MG/L		13	.223077	.151074	.580000	.050000	81/12	82/09
NO3-N	TOTAL	MG/L		15	4.03533	2.50737	7.85000	.680000	81/10	82/09
KJELDL N	DISS	MG/L		1	2.20000		2.20000	2.20000	81/12	81/12
TOT KJEL	N	MG/L		16	1.92250	1.27292	6.37000	.800000	81/10	82/09
PHOS-TOT		MG/L P		16	.931249	.527899	1.64000	.200000	81/10	82/09
PHOS-DIS		MG/L P		7	.249428	.271580	.856000	.080000	81/11	82/06
T ORG C	C	MG/L		2	11.0000	2.82843	13.0000	9.00000	81/10	81/11
D ORG C	C	MG/L		2	14.0000	1.41421	15.0000	13.0000	81/10	81/11

TABLE RD 1-152 (Continued)

STATION NUMBER 501790
41 28 10.0 081 49 54.0 2
ROCKY RIVER AT LAKEWOOD - PARK BLVD
LAKE ERIE 060500 (ROCKY RIVER)
MILES 0003.00

PARAMETER			R	NO	MEAN	STAN DEV	MAXIMUM	MINIMUM	BEG	END
TOT HARD	CACO3	MG/L		9	191.599	46.0344	240.000	113.000	82/02	82/09
CALCIUM	CA-TOT	MG/L		13	56.6153	12.3666	74.0000	30.7000	81/10	82/09
MGNSIUM	MG,TOT	MG/L		10	15.8700	3.00297	18.4000	8.80000	81/12	82/09
SODIUM	NA,TOT	MG/L		3	76.8000	1.05974	78.0000	76.0000	81/10	82/09
CHLORIDE	TOTAL	MG/L		2	103.000	1.41421	104.000	102.000	81/10	81/11
SULFATE	SO4-TOT	MG/L		2	106.000	4.24264	109.000	103.000	81/10	81/11
SILICA	DISOLVED	MG/L		2	2.78000	2.47487	4.53000	1.03000	81/10	81/11
CADMIUM	CD,TOT	UG/L		3	1.000000	.700000	1.80000	.500000	82/02	82/09
CADMIUM	CD,TOT	UG/L	K	5	.500000	.000000	.500000	.500000	81/12	82/09
			T	8	.687500	.454933	1.80000	.500000	81/12	82/09
CHROMIUM	CR,TOT	UG/L	K	8	30.0000	.000000	30.0000	30.0000	81/12	82/09
COPPER	CU,TOT	UG/L		5	15.0000	5.00000	20.0000	10.0000	81/12	82/09
			K	4	10.0000	.000000	10.0000	10.0000	82/04	82/09
			T	9	12.7778	4.40959	20.0000	10.0000	81/12	82/09
IRON	FE,TOT	UG/L		11	3252.73	5930.08	20560.0	520.000	81/10	82/09
LEAD	PB,TOT	UG/L		8	8.12500	4.67325	14.0000	3.00000	81/12	82/09
			K	4	3.50000	1.73205	5.00000	2.00000	81/11	82/08
			T	12	6.58333	4.46111	14.0000	2.00000	81/11	82/09
NICKEL	NI,TOTAL	UG/L	K	8	37.5000	4.62910	40.0000	30.0000	81/12	82/09
ZINC	ZN,TOT	UG/L		8	33.7500	21.5058	80.0000	10.0000	81/12	82/09
			K	1	40.0000		40.0000	40.0000	82/09	82/09
			T	9	34.4444	20.2245	80.0000	10.0000	81/12	82/09
FEC COLI	MFM-FCBR	/100ML		11	3505.45	3846.28	11000.0	170.000	81/10	82/09
FECSTREP	MF M-ENT	/100ML		11	6498.18	11517.9	38000.0	140.000	81/10	82/09
CHLRPHYL	A	UG/L		2	15.8460	.226966	16.0060	15.6860	82/09	82/09
PHENOLS	TOTAL	UG/L		2	3.50000	.707107	4.00000	3.00000	81/10	81/11
			K	2	10.0000	.000000	10.0000	10.0000	82/08	82/09
			T	4	6.75000	3.77492	10.0000	3.00000	81/10	82/09
PCBS	WHL SMPL	UG/L	K	9	.500000	.000000	.500000	.500000	81/11	82/08
RESIDUE	DISS-180	C MG/L		11	409.182	96.8643	504.000	244.000	81/10	82/09
BOD 20C	5DAY CAR	MG/L		4	3.80000	1.58745	5.90000	2.10000	82/08	82/09
BOD 20C	20DAYCAR	MG/L		4	7.77499	2.66882	11.6000	5.40000	82/08	82/09

TABLE RD 1-153

STATION NUMBER 500820
41 18 28.0 083 09 32.0 2
SANDUSKY RIVER ABOVE FREMONT - RICE RD
LAKE ERIE 060191 (SANDUSKY RIVER BASIN)
MILES 0020.30

No data were collected from 10/80 - 9/81.

TABLE RD 1-154

STATION NUMBER 500820
41 18 28.0 083 09 32.0 2
SANDUSKY RIVER ABOVE FREMONT - RICE RD
LAKE ERIE 060191 (SANDUSKY RIVER BASIN)
MILES 0020.30

PARAMETER			R	NO	MEAN	STAN DEV	MAXIMUM	MINIMUM	BEG	END
WATER	TEMP	CENT		5	7.93999	7.12341	16.3000	.000000	81/10	82/09
STREAM	STAGE	FEET		5	2.68200	2.38393	6.82000	.940000	81/10	82/09
CNDUCTVY	AT 25C	MICROMHO		5	754.200	141.847	1000.00	656.000	81/10	82/09
INTNSVE	SURVEY	IDENT		1	813905		813905	813905	81/10	81/10
DO	PROBE	MG/L		4	11.6000	2.20458	14.1000	9.60000	81/10	82/09
DO		MG/L		1	8.90000		8.90000	8.90000	81/10	81/10
BOD	5 DAY	MG/L		3	2.86667	1.50444	4.60000	1.90000	81/10	82/09
			K	2	1.00000	.000000	1.00000	1.00000	81/12	82/01
			T	5	2.12000	1.47547	4.60000	1.00000	81/10	82/09
COD	LOWLEVEL	MG/L		8	15.4750	8.53426	29.0000	6.00000	81/10	82/09
LAB	PH	SU		5	8.07599	.216224	8.39000	7.90000	81/10	82/09
T ALK	CACO3	MG/L		1	220.000		220.000	220.000	81/10	81/10
RESIDUE	TOT NFLT	MG/L		2	24.8500	.214239	25.0000	24.7000	81/10	82/09
			K	3	6.66667	2.88676	10.0000	5.00000	81/10	82/01
			T	5	13.9400	10.1670	25.0000	5.00000	81/10	82/09
NH3+NH4-	N TOTAL	MG/L		3	.090000	.052915	.130000	.030000	81/10	82/01
			K	2	.050000	.000061	.050000	.050000	81/10	82/09
			T	5	.074000	.043359	.130000	.030000	81/10	82/09
NO2-N	TOTAL	MG/L		3	.016667	.005773	.020000	.010000	81/10	82/01
			K	2	.020000	.000000	.020000	.020000	81/10	82/09
			T	5	.018000	.004472	.020000	.010000	81/10	82/09
NO3-N	TOTAL	MG/L		5	2.48200	1.95981	4.79000	.050000	81/10	82/09
TOT KJEL	N	MG/L		5	.803999	.207559	1.10000	.600000	81/10	82/09
PHOS-TOT		MG/L P		4	.069500	.022234	.100000	.048000	81/10	82/09
			K	1	.050000		.050000	.050000	81/12	81/12
			T	5	.065600	.021138	.100000	.048000	81/10	82/09
T ORG C	C	MG/L		1	7.00000		7.00000	7.00000	81/10	81/10
TOT HARD	CACO3	MG/L		4	378.000	8.28653	385.000	366.000	81/10	82/01
CALCIUM	CA-TOT	MG/L		5	99.0999	8.53600	110.000	86.4000	81/10	82/09

TABLE RD 1-154 (Continued)

STATION NUMBER 500820
41 18 28.0 083 09 32.0 2
SANDUSKY RIVER ABOVE FREMONT - RICE RD
LAKE ERIE 060191 (SANDUSKY RIVER BASIN)
MILES 0020.30

PARAMETER			R	NO	MEAN	STAN DEV	MAXIMUM	MINIMUM	BEG	END
MGNSIUM	MG,TOT	MG/L		5	34.7000	7.02215	47.1000	30.0000	81/10	82/09
SODIUM	NA,TOT	MG/L		2	47.0000	39.5980	75.0000	19.0000	81/10	82/09
PTSSIUM	K,TOT	MG/L		2	4.90000	1.13136	5.70000	4.10000	81/10	82/09
CHLORIDE	TOTAL	MG/L		2	32.5000	3.53553	35.0000	30.0000	81/10	81/10
SULFATE	SO4-TOT	MG/L		2	124.500	7.77817	130.000	119.000	81/10	81/10
SILICA	DISOLVED	MG/L		1	2.78000		2.78000	2.78000	81/10	81/10
ARSENIC	AS,TOT	UG/L	K	1	10.0000		10.0000	10.0000	81/10	81/10
CADMIUM	CD,TOT	UG/L		1	1.00000		1.00000	1.00000	81/10	81/10
			K	4	1.62500	2.25000	5.00000	.500000	81/10	82/09
			T	5	1.50000	1.96850	5.00000	.500000	81/10	82/09
CHROMIUM	CR,TOT	UG/L	K	5	30.0000	.000000	30.0000	30.0000	81/10	82/09
COPPER	CU,TOT	UG/L		1	10.0000		10.0000	10.0000	82/09	82/09
COPPER	CU,TOT	UG/L	K	4	15.0000	10.0000	30.0000	10.0000	81/10	82/01
			T	5	14.0000	8.94427	30.0000	10.0000	81/10	82/09
IRON	FE,TOT	UG/L		5	686.000	317.931	1130.00	240.000	81/10	82/09
LEAD	PB,TOT	UG/L	K	5	4.40000	1.34165	5.00000	2.00000	81/10	82/09
MANGNESE	MN	UG/L		2	82.5000	74.2462	135.000	30.0000	82/01	82/09
			K	2	30.0000	.000000	30.0000	30.0000	81/10	81/12
			T	4	56.2500	52.5000	135.000	30.0000	81/10	82/09
NICKEL	NI,TOTAL	UG/L	K	5	48.0000	29.4958	100.000	30.0000	81/10	82/09
ZINC	ZN,TOT	UG/L		1	30.0000		30.0000	30.0000	82/09	82/09
			K	4	15.0000	10.0000	30.0000	10.0000	81/10	82/01
			T	5	18.0000	10.9545	30.0000	10.0000	81/10	82/09
ALUMINUM	AL,TOT	UG/L		1	200.000		200.000	200.000	81/10	81/10
FEC COLI	MFM-FCBR	/100ML		5	3731.40	5282.37	13000.0	77.0000	81/10	82/09
PHENOLS	TOTAL	UG/L		1	4.00000		4.00000	4.00000	81/10	81/10
MBAS		MG/L		1	.100000		.100000	.100000	81/10	81/10
PCBS	WHL SMPL	UG/L	K	1	.500000		.500000	.500000	81/10	81/10
RESIDUE	DISS-180	C MG/L		5	537.280	104.373	696.000	428.000	81/10	82/09

TABLE RD 1-155

STATION NUMBER 601340
39 37 58.0 082 57 45.0 2
SCIOTO R NR CIRCLEVILLE - FLORENCE CHAPEL RD
OHIO RIVER (SCIOTO RIVER)
MILES 0953.80 0624.60 102.10

PARAMETER			R	NO	MEAN	STAN DEV	MAXIMUM	MINIMUM	BEG	END
WATER	TEMP	CENT		18	14.6222	8.45526	24.8000	2.00000	80/10	81/09
STREAM	FLOW,	INST-CFS		11	4201.63	4334.35	12820.0	873.000	80/10	81/09
STREAM	STAGE	FEET		12	5.46000	3.27357	12.0300	2.65000	80/10	81/09
CNDUCTVY	FIELD	MICROMHO		16	593.750	190.425	950.000	290.000	80/12	81/09
CNDUCTVY	AT 25C	MICROMHO		3	707.666	142.503	850.000	565.000	80/10	81/09
INTNSVE	SURVEY	IDENT		8	812654	3440.05	813904	803902	80/10	81/09
DO	PROBE	MG/L		5	5.78000	1.41139	7.20000	3.50000	80/10	81/08
DO		MG/L		12	9.02916	2.71432	12.8000	4.70000	80/10	81/09
BOD	5 DAY	MG/L		12	3.65166	1.42295	6.30000	2.00000	80/10	81/09
COD	LOWLEVEL	MG/L		20	22.8350	6.03916	39.0000	14.0000	80/10	81/09
PH		SU		12	7.68333	.158646	7.90000	7.40000	80/10	81/09
LAB	PH	SU		7	7.70571	.106357	7.82000	7.54000	80/10	81/08
RESIDUE	TOT NFLT	MG/L		18	56.1333	61.5075	281.000	10.6000	80/10	81/09
			K	2	10.0000	.000000	10.0000	10.0000	80/12	80/12
			T	20	51.5200	59.8880	281.000	10.0000	80/10	81/09
NH3+NH4-	N TOTAL	MG/L		19	.336315	.216544	1.03000	.100000	80/10	81/09
			K	1	.050000		.050000	.050000	81/07	81/07
			T	20	.322000	.220277	1.03000	.050000	80/10	81/09
NO2-N	TOTAL	MG/L		20	.126500	.049127	.240000	.040000	80/10	81/09
NO3-N	TOTAL	MG/L		20	4.29799	1.42186	6.99000	1.46000	80/10	81/09
TOT KJEL	N	MG/L		20	1.40350	.366057	2.42000	.900000	80/10	81/09
PHOS-TOT		MG/L P		20	.853548	.522033	2.25000	.217000	80/10	81/09
CYANIDE	CN-TOT	MG/L	K	4	.012500	.005000	.020000	.010000	80/12	81/09
TOT HARD	CACO3	MG/L		11	281.254	54.3825	334.000	175.000	80/12	81/09
CALCIUM	CA-TOT	MG/L		8	74.1499	12.1823	83.8000	45.4000	80/10	81/09

TABLE RD 1-155 (Continued)

STATION NUMBER 601340
39 37 58.0 082 57 45.0 2
SCIOTO R NR CIRCLEVILLE - FLORENCE CHAPEL RD
OHIO RIVER (SCIOTO RIVER)
MILES 0953.80 0624.60 102.10

PARAMETER			R	NO	MEAN	STAN DEV	MAXIMUM	MINIMUM	BEG	END
MGNSIUM	MG,TOT	MG/L		8	25.1875	5.31586	31.0000	15.0000	80/10	81/09
CADMIUM	CD,TOT	UG/L	K	12	2.04167	2.18942	5.00000	.500000	80/10	81/09
CHROMIUM	CR,TOT	UG/L		1	40.0000		40.0000	40.0000	81/06	81/06
			K	11	30.9091	3.01526	40.0000	30.0000	80/10	81/09
			T	12	31.6667	3.89265	40.0000	30.0000	80/10	81/09
COPPER	CU,TOT	UG/L		7	18.5714	10.6905	30.0000	10.0000	81/06	81/09
			K	5	17.0000	12.0416	30.0000	5.00000	80/10	81/08
			T	12	17.9167	10.7573	30.0000	5.00000	80/10	81/09
IRON	FE,TOT	UG/L		12	2330.83	3378.26	12400.0	400.000	80/10	81/09
IRON	FE,DISS	UG/L		1	90.0000		90.0000	90.0000	80/10	80/10
LEAD	PB,TOT	UG/L		9	15.7778	9.16212	38.0000	9.00000	80/12	81/09
			K	2	5.00000	.000000	5.00000	5.00000	80/10	81/03
			T	11	13.8182	9.28244	38.0000	5.00000	80/10	81/09
NICKEL	NI,TOTAL	UG/L		3	100.000	.000000	100.000	100.000	80/12	81/09
			K	9	45.5555	20.6828	100.000	30.0000	80/10	81/09
			T	12	59.1667	30.2890	100.000	30.0000	80/10	81/09
ZINC	ZN,TOT	UG/L		12	53.3333	35.5050	155.000	25.0000	80/10	81/09
FEC COLI	MFM-FCBR	/100ML		16	17300.3	38504.3	157000	150.000	80/10	81/09
PHENOLS	TOTAL	UG/L		19	5.05263	1.89952	8.00000	2.00000	80/10	81/09
			K	1	2.00000		2.00000	2.00000	81/08	81/08
			T	20	4.90000	1.97084	8.00000	2.00000	80/10	81/09
RESIDUE	DISS-180	C MG/L		8	465.562	77.2232	582.200	325.000	80/10	81/09
MERCURY	HG,TOTAL	UG/L		1	.500000		.500000	.500000	80/12	80/12
			K	3	.500000	.000000	.500000	.500000	81/03	81/09
			T	4	.500000	.000000	.500000	.500000	80/12	81/09

TABLE RD 1-156

STATION NUMBER 601340
39 37 58.0 082 57 45.0 2
SCIOTO R NR CIRCLEVILLE - FLORENCE CHAPEL RD
OHIO RIVER (SCIOTO RIVER)
MILES 0953.80 0624.60 102.10

PARAMETER			R	NO	MEAN	STAN DEV	MAXIMUM	MINIMUM	BEG	END
WATER	TEMP	CENT		12	12.1250	8.62050	23.0000	.500000	81/10	82/09
STREAM	FLOW,	INST-CFS		10	2030.02	1891.47	5359.00	220.000	81/11	82/09
STREAM	STAGE	FEET		11	3.55818	2.01773	7.05000	1.46000	81/11	82/09
CNDUCTVY	FIELD	MICROMHO		12	559.250	207.305	830.000	262.000	81/10	82/09
CNDUCTVY	AT 25C	MICROMHO		1	820.000		820.000	820.000	81/10	81/10
DO	PROBE	MG/L		10	9.40999	3.19008	13.1000	3.50000	81/12	82/09
DO		MG/L		2	7.10000	2.54558	8.90000	5.30000	81/10	81/11
BOD	5 DAY	MG/L		13	4.22307	2.06404	8.50000	2.00000	81/10	82/09
BOD	20 DAY	MG/L		1	6.40000		6.40000	6.40000	81/10	81/10
COD	LOWLEVEL	MG/L		5	21.2000	5.54078	30.0000	15.0000	81/10	82/03
PH		SU		11	7.83636	.211140	8.20000	7.50000	81/10	82/08
LAB	PH	SU		2	7.84000	.254566	8.02000	7.66000	82/07	82/09
RESIDUE	TOT NFLT	MG/L		11	33.3454	17.9799	71.0000	11.0000	81/10	82/09
			K	1	5.00000		5.00000	5.00000	81/12	81/12
			T	12	30.9833	18.9958	71.0000	5.00000	81/10	82/09
NH3+NH4-	N TOTAL	MG/L		13	.336153	.272230	.920000	.050000	81/10	82/09
NO2-N	TOTAL	MG/L		12	.144167	.050894	.230000	.060000	81/10	82/09
NO3-N	TOTAL	MG/L		13	4.19230	.898117	5.60000	2.10000	81/10	82/09
TOT KJEL	N	MG/L		12	1.35333	.528073	2.80000	.800000	81/10	82/09
			K	1	.060000		.060000	.060000	81/11	81/11
			T	13	1.25384	.619913	2.80000	.060000	81/10	82/09
PHOS-TOT		MG/L P		13	1.03308	.588237	1.91000	.280000	81/10	82/09
CYANIDE	CN-TOT	MG/L	K	1	.010000		.010000	.010000	82/09	82/09
TOT HARD	CACO3	MG/L		7	283.143	38.5811	337.000	220.000	81/10	82/09
CALCIUM	CA-TOT	MG/L		6	73.6833	10.4059	87.4000	57.8000	81/10	82/09
MGNSIUM	MG,TOT	MG/L		6	24.8333	3.83136	28.9000	18.4000	81/10	82/09
SULFATE	SO4-TOT	MG/L		1	93.0000		93.0000	93.0000	81/11	81/11
CADMIUM	CD,TOT	UG/L	K	6	.500000	.000000	.500000	.500000	81/10	82/09
CHROMIUM	CR,TOT	UG/L	K	5	30.0000	.000000	30.0000	30.0000	81/10	82/09
COPPER	CU,TOT	UG/L		1	10.0000		10.0000	10.0000	82/03	82/03
			K	4	10.0000	.000000	10.0000	10.0000	81/10	82/09
			T	5	10.0000	.000000	10.0000	10.0000	81/10	82/09
IRON	FE,TOT	UG/L		5	1596.00	1753.96	4610.00	260.000	81/10	82/09
LEAD	PB,TOT	UG/L		3	16.6667	13.3167	32.0000	8.00000	81/10	82/09
			K	2	5.00000	.000000	5.00000	5.00000	81/12	82/03
			T	5	12.0000	11.3798	32.0000	5.00000	81/10	82/09
NICKEL	NI,TOTAL	UG/L	K	5	36.0000	5.47723	40.0000	30.0000	81/10	82/09
ZINC	ZN,TOT	UG/L		5	37.0000	11.5109	55.0000	25.0000	81/10	82/09
FEC COLI	MFM-FCBR	/100ML		10	1247.40	692.830	2369.00	145.000	81/10	82/07
PHENOLS	TOTAL	UG/L		2	3.50000	.707107	4.00000	3.00000	81/10	81/11
			K	2	10.0000	.000000	10.0000	10.0000	82/08	82/09
PHENOLS	TOTAL	UG/L	T	4	6.75000	3.77492	10.0000	3.00000	81/10	82/09
RESIDUE	DISS-180	C MG/L		3	422.133	101.200	523.400	321.000	81/10	82/02
BOD 20C	5DAY CAR	MG/L		1	1.40000		1.40000	1.40000	81/10	81/10
BOD 20C	20DAYCAR	MG/L		1	3.80000		3.80000	3.80000	81/10	81/10

TABLE RD 1-157

STATION NUMBER 601300
39 42 03.0 083 06 35.0 2
BIG DARBY CREEK AT DARBYVILLE - SR 316
OHIO RIVER (SCIOTO RIVER)
MILES 0953.80 0624.60 101.00 013.20

PARAMETER			R	NO	MEAN	STAN DEV	MAXIMUM	MINIMUM	BEG	END
WATER	TEMP	CENT		12	9.98333	8.73226	24.0000	.000000	80/10	81/09
STREAM	FLOW,	INST-CFS		10	763.130	906.252	2678.00	107.000	80/12	81/09
STREAM	STAGE	FEET		11	2.81272	1.93320	6.64000	1.10000	80/12	81/09
CNDUCTVY	FIELD	MICROMHO		12	518.750	183.565	900.000	260.000	80/10	81/09
DO		MG/L		12	11.3583	2.50036	15.2000	8.20000	80/10	81/09
BOD	5 DAY	MG/L		5	2.18000	1.66193	5.00000	.900000	80/10	81/09
COD	LOWLEVEL	MG/L		11	18.6818	9.32277	37.0000	4.00000	80/10	81/09
			K	1	4.00000		4.00000	4.00000	81/03	81/03
			T	12	17.4583	9.84762	37.0000	4.00000	80/10	81/09
PH		SU		12	8.05416	.238877	8.40000	7.70000	80/10	81/09
RESIDUE	TOT NFLT	MG/L		8	54.8000	88.1215	272.000	5.40000	80/10	81/09
			K	4	10.0000	.000000	10.0000	10.0000	80/12	81/03
			T	12	39.8666	73.6761	272.000	5.40000	80/10	81/09
NH3+NH4-	N TOTAL	MG/L		5	.122000	.064962	.200000	.050000	80/10	81/06
			K	7	.050000	.000056	.050000	.050000	80/12	81/09
			T	12	.080000	.053936	.200000	.050000	80/10	81/09
NO2-N	TOTAL	MG/L		11	.022727	.014206	.050000	.000000	80/10	81/09
			K	1	.010000		.010000	.010000	81/07	81/07
			T	12	.021667	.014035	.050000	.000000	80/10	81/09
NO3-N	TOTAL	MG/L		12	4.53999	2.60092	8.46000	1.35000	80/10	81/09
TOT KJEL	N	MG/L		12	.731666	.512105	1.89000	.300000	80/10	81/09
PHOS-TOT		MG/L P		12	.140333	.089136	.380000	.050000	80/10	81/09
CYANIDE	CN-TOT	MG/L	K	1	.010000		.010000	.010000	81/09	81/09
TOT HARD	CACO3	MG/L		4	329.750	57.8295	388.000	253.000	80/12	81/09
CADMIUM	CD,TOT	UG/L	K	4	5.00000	.000000	5.00000	5.00000	80/12	81/09
CHROMIUM	CR,TOT	UG/L		1	30.0000		30.0000	30.0000	81/06	81/06
			K	3	30.0000	.000000	30.0000	30.0000	80/12	81/09
			T	4	30.0000	.000000	30.0000	30.0000	80/12	81/09
COPPER	CU,TOT	UG/L		2	40.0000	14.1421	50.0000	30.0000	81/06	81/09
			K	2	30.0000	.000000	30.0000	30.0000	80/12	81/03
			T	4	35.0000	10.0000	50.0000	30.0000	80/12	81/09
IRON	FE,TOT	UG/L		4	3287.50	5680.99	11800.0	200.000	80/12	81/09
LEAD	PB,TOT	UG/L	K	4	10.0000	10.0000	25.0000	5.00000	80/12	81/09
NICKEL	NI,TOTAL	UG/L		2	100.000	.000000	100.000	100.000	80/12	81/09
			K	2	100.000	.000000	100.000	100.000	81/03	81/06
			T	4	100.000	.000000	100.000	100.000	80/12	81/09
ZINC	ZN,TOT	UG/L		1	40.0000		40.0000	40.0000	81/06	81/06
			K	3	30.0000	.000000	30.0000	30.0000	80/12	81/09
			T	4	32.5000	5.00000	40.0000	30.0000	80/12	81/09
FEC COLI	MFM-FCBR	/100ML		12	397.750	791.972	2800.00	1.00000	80/10	81/09
PHENOLS	TOTAL	UG/L		2	4.00000	.000000	4.00000	4.00000	80/12	81/05
PHENOLS	TOTAL	UG/L	K	2	2.00000	.000000	2.00000	2.00000	81/03	81/09
			T	4	3.00000	1.15470	4.00000	2.00000	80/12	81/09
MERCURY	HG,TOTAL	UG/L	K	4	.500000	.000000	.500000	.500000	80/12	81/09

TABLE RD 1-158 (Continued)

STATION NUMBER 601300
39 42 03.0 083 06 35.0 2
BIG DARBY CREEK AT DARBYVILLE - SR 316
OHIO RIVER (SCIOTO RIVER)
MILES 0953.80 0624.60 101.00 013.20

PARAMETER			R	NO	MEAN	STAN DEV	MAXIMUM	MINIMUM	BEG	END
PHOS-TOT		MG/L P		10	.110100	.043647	.190000	.050000	81/10	82/09
			K	2	.050000	.000061	.050000	.050000	82/05	82/07
			T	12	.100083	.045890	.190000	.050000	81/10	82/09
TOT HARD	CACO3	MG/L		5	356.600	23.3010	384.000	326.000	81/11	82/09
CALCIUM	CA-TOT	MG/L		5	79.9600	7.97047	88.8000	69.9000	81/12	82/09
MGNSIUM	MG,TOT	MG/L		5	38.1200	3.63549	41.8000	32.6000	81/12	82/09
SULFATE	SO4-TOT	MG/L		1	90.0000		90.0000	90.0000	81/11	81/11
CADMIUM	CD,TOT	UG/L	K	5	.500000	.000000	.500000	.500000	81/12	82/09
CHROMIUM	CR,TOT	UG/L	K	4	30.0000	.000000	30.0000	30.0000	81/12	82/09
COPPER	CU,TOT	UG/L		2	12.5000	3.53553	15.0000	10.0000	81/12	82/03
			K	2	10.0000	.000000	10.0000	10.0000	82/06	82/09
			T	4	11.2500	2.50000	15.0000	10.0000	81/12	82/09
IRON	FE,TOT	UG/L		4	1010.00	857.321	2270.00	380.000	81/12	82/09
LEAD	PB,TOT	UG/L		3	5.33333	1.15470	6.00000	4.00000	81/12	82/09
			K	1	5.00000		5.00000	5.00000	82/03	82/03
			T	4	5.25000	.957427	6.00000	4.00000	81/12	82/09
NICKEL	NI,TOTAL	UG/L	K	4	37.5000	5.00000	40.0000	30.0000	81/12	82/09
ZINC	ZN,TOT	UG/L		2	22.5000	3.53553	25.0000	20.0000	82/06	82/09
			K	2	10.0000	.000000	10.0000	10.0000	81/12	82/03
			T	4	16.2500	7.50000	25.0000	10.0000	81/12	82/09
FEC COLI	MFM-FCBR	/100ML		10	290.700	418.907	1344.00	1.00000	81/10	82/07
PHENOLS	TOTAL	UG/L		1	2.00000		2.00000	2.00000	81/11	81/11
			K	1	10.0000		10.0000	10.0000	82/08	82/08
			T	2	6.00000	5.65685	10.0000	2.00000	81/11	82/08

TABLE RD 1-158

STATION NUMBER 601300
39 42 03.0 083 06 35.0 2
BIG DARBY CREEK AT DARBYVILLE - SR 316
OHIO RIVER (SCIOTO RIVER)
MILES 0953.80 0624.60 101.00 013.20

PARAMETER			R	NO	MEAN	STAN DEV	MAXIMUM	MINIMUM	BEG	END
WATER	TEMP	CENT		12	11.4667	9.07838	27.0000	.000000	81/10	82/09
STREAM	FLOW,	INST-CFS		11	391.345	615.897	2106.00	21.6000	81/11	82/09
STREAM	STAGE	FEET		10	1.85500	1.69875	5.98000	.570000	81/11	82/09
CNDUCTVY	FIELD	MICROMHO		12	563.916	172.971	800.000	275.000	81/10	82/09
DO	PROBE	MG/L		10	11.5750	1.48648	14.2000	9.00000	81/12	82/09
DO		MG/L		2	13.1500	6.57608	17.8000	8.50000	81/10	81/11
BOD	5 DAY	MG/L		10	3.69999	1.90030	7.60000	1.20000	81/10	82/09
			K	2	1.00000	.000000	1.00000	1.00000	81/12	82/03
			T	12	3.25000	2.01472	7.60000	1.00000	81/10	82/09
COD	LOWLEVEL	MG/L		3	10.0000	1.00000	11.0000	9.00000	81/10	82/03
			K	1	4.00000		4.00000	4.00000	81/12	81/12
			T	4	8.50000	3.10913	11.0000	4.00000	81/10	82/03
PH		SU		10	8.26999	.200436	8.60000	8.00000	81/10	82/08
LAB	PH	SU		1	8.28000		8.28000	8.28000	82/07	82/07
RESIDUE	TOT NFLT	MG/L		10	47.1600	40.7496	124.000	5.60000	81/12	82/09
			K	2	10.0000	.000000	10.0000	10.0000	81/10	81/11
			T	12	40.9666	39.5959	124.000	5.60000	81/10	82/09
NH3+NH4-	N TOTAL	MG/L		2	.055000	.007071	.060000	.050000	81/10	82/02
			K	10	.050000	.000054	.050000	.050000	81/11	82/09
			T	12	.050833	.002887	.060000	.050000	81/10	82/09
NO2-N	TOTAL	MG/L		6	.016667	.005164	.020000	.010000	81/10	82/04
			K	5	.020000	.000020	.020000	.020000	82/02	82/09
			T	11	.018182	.004045	.020000	.010000	81/10	82/09
NO3-N	TOTAL	MG/L		12	2.88416	2.62078	6.25000	.070000	81/10	82/09
TOT KJEL	N	MG/L		12	.685000	.187884	1.00000	.400000	81/10	82/09

TABLE RD 1-159

STATION NUMBER 601350
40 15 21.0 083 20 43.0 2
MILL CREEK BELOW MARYSVILLE - RADNOR RD
OHIO RIVER (SCIOTO RIVER)
MILES 0953.80 0624.60 157.20 017.20

PARAMETER			R	NO	MEAN	STAN DEV	MAXIMUM	MINIMUM	BEG	END
WATER	TEMP	CENT		12	9.98333	7.87053	23.0000	.000000	80/10	81/09
STREAM	FLOW,	INST-CFS		11	84.5081	92.3443	254.400	6.29000	80/10	81/09
STREAM	STAGE	FEET		12	1.64166	.609397	2.63000	1.00000	80/10	81/09
CNDUCTVY	FIELD	MICROMHO		12	700.000	229.495	950.000	335.000	80/10	81/09
DO		MG/L		11	9.05454	3.79352	14.0000	3.50000	80/10	81/09
BOD	5 DAY	MG/L		5	8.20000	3.56372	14.0000	5.00000	80/10	81/09
COD	LOWLEVEL	MG/L		12	25.5000	7.82188	42.0000	18.0000	80/10	81/09
PH		SU		12	7.68749	.144824	8.00000	7.50000	80/10	81/09
T ALK	CACO3	MG/L		1	234.000		234.000	234.000	80/11	80/11
RESIDUE	TOTAL	MG/L		1	798.000		798.000	798.000	80/11	80/11
RESIDUE	TOT NFLT	MG/L		10	38.7000	48.3989	172.000	13.0000	80/10	81/09
			K	2	10.0000	.000000	10.0000	10.0000	80/12	81/03
			T	12	33.9167	45.1814	172.000	10.0000	80/10	81/09
NH3+NH4-	N TOTAL	MG/L		12	1.78750	1.44862	5.17000	.170000	80/10	81/09
NO2-N	TOTAL	MG/L		12	.245000	.315119	1.02000	.030000	80/10	81/09
NO3-N	TOTAL	MG/L		12	2.30083	2.05893	5.74000	.370000	80/10	81/09
TOT KJEL	N	MG/L		12	2.89333	1.80058	7.32000	1.19000	80/10	81/09
PHOS-TOT		MG/L P		12	1.05225	.915792	3.17000	.166000	80/10	81/09
CYANIDE	CN-TOT	MG/L		5	.089600	.157249	.370000	.010000	80/10	81/08
			K	6	.010000	.000000	.010000	.010000	81/01	81/09
			T	11	.046182	.107791	.370000	.010000	80/10	81/09
TOT HARD	CACO3	MG/L		4	364.000	87.8787	476.000	276.000	80/12	81/09
CADMIUM	CD,TOT	UG/L	K	4	5.00000	.000000	5.00000	5.00000	80/12	81/09
CHROMIUM	CR,TOT	UG/L		2	35.0000	7.07107	40.0000	30.0000	81/06	81/09
			K	2	30.0000	.000000	30.0000	30.0000	80/12	81/03
			T	4	32.5000	5.00000	40.0000	30.0000	80/12	81/09
COPPER	CU,TOT	UG/L		2	35.0000	7.07107	40.0000	30.0000	80/12	81/09
			K	2	30.0000	.000000	30.0000	30.0000	81/03	81/06
			T	4	32.5000	5.00000	40.0000	30.0000	80/12	81/09
IRON	FE,TOT	UG/L		4	2512.50	3271.93	7400.00	620.000	80/12	81/09
LEAD	PB,TOT	UG/L		3	14.3333	11.1505	27.0000	6.00000	80/12	81/09
			K	1	5.00000		5.00000	5.00000	81/03	81/03
			T	4	12.0000	10.2307	27.0000	5.00000	80/12	81/09
NICKEL	NI,TOTAL	UG/L		3	100.000	.000000	100.000	100.000	80/12	81/09
			K	1	100.000		100.000	100.000	81/06	81/06
			T	4	100.000	.000000	100.000	100.000	80/12	81/09
ZINC	ZN,TOT	UG/L		4	50.0000	20.0000	80.0000	40.0000	80/12	81/09
FEC COLI	MFM-FCBR	/100ML		10	1246.00	898.531	3000.00	20.0000	80/10	81/09
			L	1	100000		100000	100000	81/04	81/04
			T	11	10223.6	29787.6	100000	20.0000	80/10	81/09
PHENOLS	TOTAL	UG/L		12	7.83333	3.18615	14.0000	4.00000	80/10	81/09
MERCURY	HG,TOTAL	UG/L		1	.500000		.500000	.500000	81/06	81/06
			K	3	.500000	.000000	.500000	.500000	80/12	81/09
			T	4	.500000	.000000	.500000	.500000	80/12	81/09

TABLE RD 1-160

STATION NUMBER 601350
40 15 21.0 083 20 43.0 2
MILL CREEK BELOW MARYSVILLE - RADNOR RD
OHIO RIVER (SCIOTO RIVER)
MILES 0953.80 0624.60 157.20 017.20

PARAMETER			R	NO	MEAN	STAN DEV	MAXIMUM	MINIMUM	BEG	END
WATER	TEMP	CENT		12	11.5167	8.67293	23.0000	.000000	81/10	82/09
STREAM	FLOW,	INST-CFS		12	89.4766	158.502	556.000	4.24000	81/10	82/09
STREAM	STAGE	FEET		12	1.57916	.779509	3.53000	.920000	81/10	82/09
CNDUCTVY	FIELD	MICROMHO		12	849.500	385.759	1310.00	286.000	81/10	82/09
DO	PROBE	MG/L		10	8.47999	5.04244	18.2000	1.20000	81/12	82/09
DO		MG/L		2	5.55000	2.75772	7.50000	3.60000	81/10	81/11
BOD	5 DAY	MG/L		9	7.78889	5.80548	18.6000	2.10000	81/10	82/09
			L	1	48.0000		48.0000	48.0000	82/08	82/08
			T	10	11.8100	13.8438	48.0000	2.10000	81/10	82/09
COD	LOWLEVEL	MG/L		7	36.7143	22.7722	81.0000	17.0000	81/10	82/04
PH		SU		10	7.59999	.312673	8.00000	7.00000	81/12	82/09
LAB	PH	SU		3	7.62333	.157248	7.80000	7.50000	81/10	82/07
RESIDUE	TOT NFLT	MG/L		9	37.3333	46.3007	156.000	6.00000	81/12	82/09
			K	2	10.0000	.000000	10.0000	10.0000	81/10	81/11
			T	11	32.3636	42.8632	156.000	6.00000	81/10	82/09
NH3+NH4-	N TOTAL	MG/L		12	3.75583	3.81390	13.6000	.160000	81/10	82/09
NO2-N	TOTAL	MG/L		11	.228181	.279063	.900000	.020000	81/10	82/09
NO3-N	TOTAL	MG/L		12	2.80000	1.86819	6.65000	.340000	81/10	82/09
TOT KJEL	N	MG/L		10	4.26000	2.90842	9.28000	1.20000	81/10	82/07
PHOS-TOT		MG/L P		11	1.67091	1.37868	4.30000	.150000	81/10	82/09
CYANIDE	CN-TOT	MG/L		2	.015000	.007071	.020000	.010000	81/11	82/09
TOT HARD	CACO3	MG/L		6	379.166	86.3523	447.000	214.000	81/11	82/09
CALCIUM	CA-TOT	MG/L		5	87.1999	19.3381	99.7000	53.6000	81/12	82/09
MGNSIUM	MG,TOT	MG/L		5	35.9600	10.1673	45.5000	19.4000	81/12	82/09
SULFATE	SO4-TOT	MG/L		1	292.000		292.000	292.000	81/11	81/11
CADMIUM	CD,TOT	UG/L	K	5	.500000	.000000	.500000	.500000	81/12	82/09
CHROMIUM	CR,TOT	UG/L		1	90.0000		90.0000	90.0000	82/09	82/09
			K	3	30.0000	.000000	30.0000	30.0000	81/12	82/06
			T	4	45.0000	30.0000	90.0000	30.0000	81/12	82/09
COPPER	CU,TOT	UG/L		4	27.5000	19.3649	55.0000	10.0000	81/12	82/09
IRON	FE,TOT	UG/L		4	3175.00	4434.43	9820.00	680.000	81/12	82/09
LEAD	PB,TOT	UG/L		3	5.33333	1.52753	7.00000	4.00000	82/03	82/09
			K	1	5.00000		5.00000	5.00000	81/12	81/12
			T	4	5.25000	1.25831	7.00000	4.00000	81/12	82/09
NICKEL	NI,TOTAL	UG/L		1	60.0000		60.0000	60.0000	82/09	82/09
			K	3	33.3333	5.77355	40.0000	30.0000	81/12	82/06
			T	4	40.0000	14.1421	60.0000	30.0000	81/12	82/09
ZINC	ZN,TOT	UG/L		4	52.5000	43.3013	115.000	15.0000	81/12	82/09
FEC COLI	MFM-FCBR	/100ML		7	11069.1	8857.21	26091.0	860.000	81/10	82/06
PHENOLS	TOTAL	UG/L		1	5.00000		5.00000	5.00000	81/11	81/11
			K	2	10.0000	.000000	10.0000	10.0000	82/08	82/09
PHENOLS	TOTAL	UG/L	T	3	8.33333	2.88676	10.0000	5.00000	81/11	82/09

TABLE RD 1-161

STATION NUMBER 601290
40 06 37.0 083 01 55.0 2
OLENTANGY RIVER NR WORTHINGTON - I 270 N.
OHIO RIVER (SCIOTO RIVER)
MILES 0953.80 0624.60 133.30 011.50

PARAMETER			R	NO	MEAN	STAN DEV	MAXIMUM	MINIMUM	BEG	END
WATER	TEMP	CENT		12	10.2333	8.11635	25.0000	.000000	80/10	81/09
STREAM	FLOW,	INST-CFS		11	539.990	834.737	2663.00	28.6000	80/10	81/09
STREAM	STAGE	FEET		12	2.56000	1.19920	5.43000	1.57000	80/10	81/09
CNDUCTVY	FIELD	MICROMHO		12	449.583	130.950	700.000	280.000	80/10	81/09
DO		MG/L		12	11.1667	3.10728	17.5000	7.00000	80/10	81/09
BOD	5 DAY	MG/L		4	4.00000	1.82574	6.00000	2.00000	80/10	81/06
			K	1	1.00000		1.00000	1.00000	81/09	81/09
			T	5	3.40000	2.07365	6.00000	1.00000	80/10	81/09
COD	LOWLEVEL	MG/L		12	19.1667	4.26051	27.0000	12.0000	80/10	81/09
PH		SU		11	7.68181	.411949	8.20000	6.90000	80/10	81/09
RESIDUE	TOT NFLT	MG/L		9	59.8889	86.1444	267.000	10.0000	80/11	81/09
			K	3	10.0000	.000000	10.0000	10.0000	80/10	81/03
			T	12	47.4167	76.8510	267.000	10.0000	80/10	81/09
NH3+NH4-	N TOTAL	MG/L		7	.177143	.088641	.290000	.070000	80/11	81/07
			K	5	.050000	.000061	.050000	.050000	80/10	81/09
			T	12	.124166	.092585	.290000	.050000	80/10	81/09
NO2-N	TOTAL	MG/L		11	.136363	.242952	.840000	.010000	80/10	81/09
			K	1	.010000		.010000	.010000	81/07	81/07
			T	12	.125833	.234500	.840000	.010000	80/10	81/09
NO3-N	TOTAL	MG/L		12	3.54750	2.29710	7.24000	.010000	80/10	81/09
TOT KJEL	N	MG/L		12	.865000	.359077	1.73000	.440000	80/10	81/09
PHOS-TOT		MG/L P		12	.165000	.090833	.376000	.067000	80/10	81/09
CYANIDE	CN-TOT	MG/L	K	1	.010000		.010000	.010000	81/09	81/09
TOT HARD	CACO3	MG/L		4	255.500	89.5377	340.000	146.000	80/12	81/09
CADMIUM	CD,TOT	UG/L	K	4	5.00000	.000000	5.00000	5.00000	80/12	81/09
CHROMIUM	CR,TOT	UG/L		1	40.0000		40.0000	40.0000	81/06	81/06
			K	3	30.0000	.000000	30.0000	30.0000	80/12	81/09
			T	4	32.5000	5.00000	40.0000	30.0000	80/12	81/09
COPPER	CU,TOT	UG/L	K	4	30.0000	.000000	30.0000	30.0000	80/12	81/09
IRON	FE,TOT	UG/L		4	3537.50	6051.02	12600.0	240.000	80/12	81/09
LEAD	PB,TOT	UG/L		1	9.00000		9.00000	9.00000	81/06	81/06
			K	3	5.00000	.000000	5.00000	5.00000	80/12	81/09
			T	4	6.00000	2.00000	9.00000	5.00000	80/12	81/09
NICKEL	NI,TOTAL	UG/L		2	100.000	.000000	100.000	100.000	80/12	81/03
			K	2	100.000	.000000	100.000	100.000	81/06	81/09
			T	4	100.000	.000000	100.000	100.000	80/12	81/09
ZINC	ZN,TOT	UG/L		1	50.0000		50.0000	50.0000	81/06	81/06
			K	3	30.0000	.000000	30.0000	30.0000	80/12	81/09
			T	4	35.0000	10.0000	50.0000	30.0000	80/12	81/09
FEC COLI	MFM-FCBR	/100ML		10	827.600	1252.02	3500.00	1.00000	80/10	81/09
PHENOLS	TOTAL	UG/L		5	4.40000	2.60768	8.00000	2.00000	80/12	81/09
RESIDUE	DISS-180	C MG/L		1	421.000		421.000	421.000	81/08	81/08
MERCURY	HG,TOTAL	UG/L		1	.500000		.500000	.500000	80/12	80/12
			K	3	.500000	.000000	.500000	.500000	81/03	81/09
			T	4	.500000	.000000	.500000	.500000	80/12	81/09

TABLE RD 1-162

STATION NUMBER 601290
40 06 37.0 083 01 55.0 2
OLENTANGY RIVER NR WORTHINGTON - I 270 N.
OHIO RIVER (SCIOTO RIVER)
MILES 0953.80 0624.60 133.30 011.50

PARAMETER			R	NO	MEAN	STAN DEV	MAXIMUM	MINIMUM	BEG	END
WATER	TEMP	CENT		12	11.6583	9.49962	26.0000	-.199E+00	81/10	82/09
STREAM	FLOW,	INST-CFS		12	242.517	291.737	905.000	21.0000	81/10	82/09
STREAM	STAGE	FEET		12	2.18666	.635571	3.37000	1.50000	81/10	82/09
CNDUCTVY	FIELD	MICROMHO		12	447.333	167.116	680.000	141.000	81/10	82/09
DO	PROBE	MG/L		10	10.4900	2.41682	13.6000	6.70000	81/12	82/09
DO		MG/L		2	9.80000	1.69710	11.0000	8.60000	81/10	81/11
BOD	5 DAY	MG/L		10	1.96000	.961716	4.10000	.900000	81/10	82/09
COD	LOWLEVEL	MG/L		7	23.1428	15.2034	57.0000	12.0000	81/10	82/04
PH		SU		10	8.03999	.392219	8.70000	7.30000	81/12	82/09
LAB	PH	SU		3	8.10666	.091150	8.20000	8.02000	81/10	82/07
RESIDUE	TOT NFLT	MG/L		8	26.7500	23.2118	82.0000	11.0000	82/02	82/09
			K	4	7.50000	2.88675	10.0000	5.00000	81/10	82/01
			T	12	20.3333	20.8559	82.0000	5.00000	81/10	82/09
NH3+NH4-	N TOTAL	MG/L		5	.190000	.101735	.350000	.100000	82/01	82/07
			K	7	.050000	.000056	.050000	.050000	81/10	82/09
			T	12	.108333	.094661	.350000	.050000	81/10	82/09
NO2-N	TOTAL	MG/L		7	.035714	.025728	.080000	.010000	81/10	82/05
			K	4	.020000	.000000	.020000	.020000	82/01	82/09
			T	11	.030000	.021448	.080000	.010000	81/10	82/09
NO3-N	TOTAL	MG/L		12	2.25833	1.18914	4.19000	.870000	81/10	82/09
TOT KJEL	N	MG/L		12	.720000	.273729	1.40000	.400000	81/10	82/09
PHOS-TOT		MG/L P		10	.125000	.053592	.240000	.057000	81/10	82/09
			K	2	.050000	.000061	.050000	.050000	81/12	82/05
			T	12	.112500	.056587	.240000	.050000	81/10	82/09
TOT HARD	CACO3	MG/L		6	266.833	44.8311	312.000	194.000	81/11	82/09
CALCIUM	CA-TOT	MG/L		5	69.1399	11.7399	81.7000	51.3000	81/12	82/09
MGNSIUM	MG,TOT	MG/L		5	23.7800	5.03266	28.1000	15.9000	81/12	82/09
SULFATE	SO4-TOT	MG/L		1	85.0000		85.0000	85.0000	81/11	81/11
CADMIUM	CD,TOT	UG/L	K	5	.500000	.000000	.500000	.500000	81/12	82/09
CHROMIUM	CR,TOT	UG/L	K	4	30.0000	.000000	30.0000	30.0000	81/12	82/09
COPPER	CU,TOT	UG/L		2	15.0000	.000000	15.0000	15.0000	82/03	82/09
			K	2	10.0000	.000000	10.0000	10.0000	81/12	82/06
			T	4	12.5000	2.88675	15.0000	10.0000	81/12	82/09
IRON	FE,TOT	UG/L		4	2617.50	4011.89	8610.00	180.000	81/12	82/09
LEAD	PB,TOT	UG/L		2	4.00000	2.82843	6.00000	2.00000	82/03	82/09
			K	2	3.50000	2.12132	5.00000	2.00000	81/12	82/06
			T	4	3.75000	2.06155	6.00000	2.00000	81/12	82/09
NICKEL	NI,TOTAL	UG/L	K	4	35.0000	5.77350	40.0000	30.0000	81/12	82/09
ZINC	ZN,TOT	UG/L		2	37.5000	3.53553	40.0000	35.0000	82/03	82/09
			K	2	10.0000	.000000	10.0000	10.0000	81/12	82/06
			T	4	23.7500	16.0078	40.0000	10.0000	81/12	82/09
FEC COLI	MFM-FCBR	/100ML		10	2809.60	7805.16	25000.0	10.0000	81/10	82/07
PHENOLS	TOTAL	UG/L		1	2.00000		2.00000	2.00000	81/11	81/11
			K	2	10.0000	.000000	10.0000	10.0000	82/08	82/09
			T	3	7.33333	4.61881	10.0000	2.00000	81/11	82/09
RESIDUE	DISS-180	C MG/L		1	267.000		267.000	267.000	82/02	82/02

TABLE RD 1-163

STATION NUMBER 601320
39 15 49.0 083 10 01.0 2
PAINT CREEK NR BOURNEVILLE - JONES LEVEE RD
OHIO RIVER (SCIOTO RIVER)
MILES 0953.80 0624.60 063.80 021.80

PARAMETER			R	NO	MEAN	STAN DEV	MAXIMUM	MINIMUM	BEG	END
WATER	TEMP	CENT		12	12.0000	8.98484	26.5000	1.00000	80/10	81/09
STREAM	FLOW,	INST-CFS		12	416.183	327.830	1001.00	80.7000	80/10	81/09
STREAM	STAGE	FEET		12	2.32750	.847488	3.60000	1.29000	80/10	81/09
CNDUCTVY	AT 25C	MICROMHO		8	535.375	56.3915	656.000	477.000	80/10	81/09
DO		MG/L		12	10.5667	2.31019	14.2000	7.40000	80/10	81/09
COD	LOWLEVEL	MG/L		12	12.0833	5.21289	21.0000	4.00000	80/10	81/09
PH		SU		11	7.68636	.489988	8.30000	6.90000	80/10	81/09
LAB	PH	SU		2	8.10000	.141598	8.20000	8.00000	81/01	81/04
RESIDUE	TOT NFLT	MG/L		5	38.6000	37.8788	104.000	14.0000	81/02	81/08
			K	5	10.0000	.000000	10.0000	10.0000	80/10	81/09
			T	10	24.3000	29.4092	104.000	10.0000	80/10	81/09
NH3+NH4-	N TOTAL	MG/L		6	.138333	.103037	.320000	.050000	80/12	81/05
			K	6	.050000	.000061	.050000	.050000	80/10	81/09
			T	12	.094167	.083389	.320000	.050000	80/10	81/09
NO2-N	TOTAL	MG/L		11	.153636	.365629	1.24000	.010000	80/10	81/09
NO3-N	TOTAL	MG/L		12	2.74083	1.56380	5.26000	.010000	80/10	81/09
TOT KJEL	N	MG/L		12	.623333	.293454	1.40000	.230000	80/10	81/09
PHOS-TOT		MG/L P		12	.086000	.066759	.276000	.027000	80/10	81/09
TOT HARD	CACO3	MG/L		6	272.666	25.5729	300.000	230.000	80/10	81/0[illegible]
CHLORIDE	TOTAL	MG/L		2	21.5000	.707107	22.0000	21.0000	81/02	81/05
SULFATE	SO4-TOT	MG/L		2	37.5000	7.77817	43.0000	32.0000	80/10	81/05
ARSENIC	AS,TOT	UG/L	K	1	10.0000		10.0000	10.0000	81/03	81/03
CADMIUM	CD,TOT	UG/L	K	6	5.00000	.000000	5.00000	5.00000	80/10	81/08
CHROMIUM	CR,TOT	UG/L	K	6	30.0000	.000000	30.0000	30.0000	80/10	81/08
COPPER	CU,TOT	UG/L	K	6	30.0000	.000000	30.0000	30.0000	80/10	81/08
IRON	FE,TOT	UG/L		6	1278.33	1567.87	4400.00	210.000	80/10	81/08
LEAD	PB,TOT	UG/L		3	7.00000	1.00000	8.00000	6.00000	80/11	81/08
			K	3	5.00000	.000000	5.00000	5.00000	80/10	81/05
			T	6	6.00000	1.26491	8.00000	5.00000	80/10	81/08
MANGNESE	MN	UG/L		3	63.3333	25.1662	90.0000	40.0000	80/11	81/08
NICKEL	NI,TOTAL	UG/L		1	100.000		100.000	100.000	80/10	80/10
			K	4	100.000	.000000	100.000	100.000	80/11	81/08
			T	5	100.000	.000000	100.000	100.000	80/10	81/08
ZINC	ZN,TOT	UG/L		2	35.0000	7.07107	40.0000	30.0000	80/11	81/02
			K	4	30.0000	.000000	30.0000	30.0000	80/10	81/08
			T	6	31.6667	4.08264	40.0000	30.0000	80/10	81/08
ALUMINUM	AL,TOT	UG/L		4	900.000	812.404	2100.00	400.000	81/02	81/08
FEC COLI	MFM-FCBR	/100ML		11	176.209	237.106	790.000	29.0000	80/10	81/09
			K	1	3.60000		3.60000	3.60000	81/01	81/01
			T	12	161.825	231.498	790.000	3.60000	80/10	81/09
PHENOLS	TOTAL	UG/L		3	4.00000	1.00000	5.00000	3.00000	80/11	81/05
PHENOLS	TOTAL	UG/L	K	1	2.00000		2.00000	2.00000	81/08	81/08
			T	4	3.50000	1.29099	5.00000	2.00000	80/11	81/08
RESIDUE	DISS-180	C MG/L		10	370.100	202.081	943.000	269.000	80/10	81/0[illegible]
MERCURY	HG,TOTAL	UG/L	K	3	.500000	.000000	.500000	.500000	80/10	81/0[illegible]

TABLE RD 1-166 (Continued)

STATION NUMBER 501260
41 22 55.0 082 19 01.0 2
VERMILION RIVER NR VERMILION - NORTH RIDGE RD
LAKE ERIE 060591 (VERMILION RIVER)
MILES 0004.50

PARAMETER			R	NO	MEAN	STAN DEV	MAXIMUM	MINIMUM	BEG	END
T ORG C	C	MG/L		2	11.5000	6.36396	16.0000	7.00000	81/10	81/11
TOT HARD	CACO3	MG/L		5	287.200	24.0780	315.000	254.000	81/10	82/08
CALCIUM	CA-TOT	MG/L		7	87.1857	35.4583	163.500	57.0000	81/10	82/09
MGNSIUM	MG,TOT	MG/L		7	22.6857	3.64169	26.6000	15.0000	81/10	82/09
SODIUM	NA,TOT	MG/L		4	26.2250	5.04143	33.1000	21.0000	81/10	82/09
PTSSIUM	K,TOT	MG/L		4	5.42500	1.45459	6.50000	3.30000	81/10	82/09
CHLORIDE	TOTAL	MG/L		2	38.5000	3.53553	41.0000	36.0000	81/10	81/11
SULFATE	SO4-TOT	MG/L		2	113.000	1.41421	114.000	112.000	81/10	81/11
SILICA	DISOLVED	MG/L		2	3.39000	4.55377	6.61000	.170000	81/10	81/11
ARSENIC	AS,TOT	UG/L	K	2	10.0000	.000000	10.0000	10.0000	81/10	81/11
CADMIUM	CD,TOT	UG/L	K	7	1.78571	2.19578	5.00000	.500000	81/10	82/09
CHROMIUM	CR,TOT	UG/L	K	7	30.0000	.000000	30.0000	30.0000	81/10	82/09
COPPER	CU,TOT	UG/L		1	10.0000		10.0000	10.0000	82/09	82/09
			K	6	16.6667	10.3280	30.0000	10.0000	81/10	82/08
			T	7	15.7143	9.75900	30.0000	10.0000	81/10	82/09
IRON	FE,TOT	UG/L		7	438.571	319.449	1110.00	120.000	81/10	82/09
LEAD	PB,TOT	UG/L	K	7	3.71428	1.60357	5.00000	2.00000	81/10	82/09
MANGNESE	MN	UG/L		5	27.0000	8.36660	40.0000	20.0000	81/10	82/09
			K	2	17.5000	17.6777	30.0000	5.00000	81/12	82/07
			T	7	24.2857	10.9654	40.0000	5.00000	81/10	82/09
NICKEL	NI,TOTAL	UG/L	K	7	55.7143	30.4725	100.000	30.0000	81/10	82/09
ZINC	ZN,TOT	UG/L		1	25.0000		25.0000	25.0000	82/09	82/09
			K	6	16.6667	10.3280	30.0000	10.0000	81/10	82/08
			T	7	17.8571	9.94032	30.0000	10.0000	81/10	82/09
ALUMINUM	AL,TOT	UG/L		2	400.000	282.843	600.000	200.000	81/10	81/11
FEC COLI	MFM-FCBR	/100ML		5	1806.60	3798.41	8600.00	33.0000	81/10	82/09
MBAS		MG/L		2	.095000	.035355	.120000	.070000	81/10	81/11
RESIDUE	DISS-180 C	MG/L		6	405.333	75.2991	464.000	266.000	81/10	82/09
MERCURY	HG,TOTAL	UG/L	K	2	.500000	.000000	.500000	.500000	81/10	81/11

TABLE RD 1-167

STATION NUMBER 504160
41 54 30.0 080 48 38.0 2
ASHTABULA WATER SUPPLY INTAKE
LAKE ERIE 060691 (CENTRAL BASIN ASHTABULA ARE
MILES 0000.00

PARAMETER			R	NO	MEAN	STAN DEV	MAXIMUM	MINIMUM	BEG	END
WATER	TEMP	CENT		8	10.1875	8.81937	21.0000	.000000	80/10	81/09
TURB	TRBIDMTR	HACH FTU		11	9.98182	13.3236	45.0000	2.50000	80/10	81/09
CNDUCTVY	FIELD	MICROMHO		6	205.833	53.8905	270.000	150.000	81/02	81/09
CNDUCTVY	AT 25C	MICROMHO		9	291.555	25.0971	320.000	229.000	80/10	81/09
DO		MG/L		4	9.67500	2.70848	12.7000	7.10000	81/03	81/09
PH		SU		2	8.55000	.071709	8.60000	8.50000	81/08	81/09
LAB	PH	SU		7	7.64285	.475601	8.10000	6.70000	80/12	81/09
T ALK	CACO3	MG/L		11	95.5454	3.38840	101.000	92.0000	80/10	81/09
RESIDUE	TOT NFLT	MG/L	K	2	10.0000	.000000	10.0000	10.0000	81/03	81/04
NH3+NH4-	N TOTAL	MG/L		6	.100000	.075631	.250000	.050000	80/12	81/09
			K	5	.050000	.000061	.050000	.050000	80/10	81/08
			T	11	.077273	.059513	.250000	.050000	80/10	81/09
NO2-N	TOTAL	MG/L		7	.010000	.000009	.010000	.010000	80/10	81/08
			K	3	.010000	.000000	.010000	.010000	80/12	81/03
			T	10	.010000	.000009	.010000	.010000	80/10	81/08
NO3-N	TOTAL	MG/L		11	.252727	.165233	.640000	.110000	80/10	81/09
TOT KJEL	N	MG/L		11	.320909	.070350	.460000	.220000	80/10	81/09
PHOS-TOT		MG/L P		10	.036600	.032925	.119000	.011000	80/10	81/09
			K	1	.020000		.020000	.020000	81/01	81/01
			T	11	.035091	.031634	.119000	.011000	80/10	81/09
CHLORIDE	TOTAL	MG/L		11	20.6363	2.57974	25.0000	17.0000	80/10	81/09
SULFATE	SO4-TOT	MG/L		10	22.7000	1.63644	25.0000	20.0000	80/10	81/09
SILICA	DISOLVED	MG/L		11	.244545	.136262	.450000	.060000	80/10	81/09
FEC COLI	MFM-FCBR	/100ML		4	63.7500	42.4136	93.0000	2.00000	80/10	81/04
			K	5	2.40000	.547725	3.00000	2.00000	80/11	81/09
			T	9	29.6667	41.4759	93.0000	2.00000	80/10	81/09
FECSTREP	MF M-ENT	/100ML		5	64.0000	95.1315	230.000	4.00000	80/10	81/03
			K	3	2.66667	.577359	3.00000	2.00000	81/04	81/09
			T	8	41.0000	78.6075	230.000	2.00000	80/10	81/09
DICLBRMT		TOTUG/L	K	2	.500000	.000000	.500000	.500000	80/12	81/01
CARBNTET		TOTUG/L	K	2	.500000	.000000	.500000	.500000	80/12	81/01
12DICLET		TOTUG/L	K	2	.500000	.000000	.500000	.500000	80/12	81/01
BROMOFRM	WHL-WTR	UG/L	K	2	1.50000	.000000	1.50000	1.50000	80/12	81/01
CLDIBRMT		TOTUG/L	K	2	.500000	.000000	.500000	.500000	80/12	81/01
CHLRFORM		TOTUG/L	K	2	.500000	.000000	.500000	.500000	80/12	81/01
METHYLEN	ECHLORID	TOTWUG/L	K	2	1.50000	.000000	1.50000	1.50000	80/12	81/01
TETRACHL	OROETHYL	TOTWUG/L	K	2	.500000	.000000	.500000	.500000	80/12	81/01
TRICHLOR	ETHYLENE	TOT UG/L	K	2	.500000	.000000	.500000	.500000	80/12	81/01
RESIDUE	DISS-180	C MG/L		5	171.200	7.29512	180.000	164.000	81/01	81/06
TETRACL	ETHANE	TOT UG/L	K	2	.500000	.000000	.500000	.500000	80/12	81/01
TRICLETH	WHL WAT	UG/L	K	2	.500000	.000000	.500000	.500000	80/12	81/01

TABLE RD 1-168

STATION NUMBER 504160
41 54 30.0 080 48 38.0 2
ASHTABULA WATER SUPPLY INTAKE
LAKE ERIE 060691 (CENTRAL BASIN ASHTABULA ARE/
MILES 0000.00

PARAMETER			R	NO	MEAN	STAN DEV	MAXIMUM	MINIMUM	BEG	END
WATER	TEMP	CENT		10	8.55000	8.36145	23.5000	.000000	81/11	82/09
TURB	TRBIDMTR	HACH FTU		2	13.3500	8.69741	19.5000	7.20000	81/10	81/11
CNDUCTVY	FIELD	MICROMHO		9	201.667	49.2444	275.000	150.000	81/11	82/09
CNDUCTVY	AT 25C	MICROMHO		9	287.111	21.4915	326.000	255.000	81/10	82/09
DO	PROBE	MG/L		9	10.5444	2.37494	13.4000	6.90000	81/12	82/09
DO		MG/L		1	11.2000		11.2000	11.2000	81/11	81/11
COD	LOWLEVEL	MG/L		6	11.6667	4.36655	17.0000	4.00000	81/11	82/09
PH		SU		10	8.18999	.433263	8.90000	7.30000	81/11	82/09
LAB	PH	SU		1	7.61000		7.61000	7.61000	81/12	81/12
T ALK	CACO3	MG/L		2	95.5000	2.12132	97.0000	94.0000	81/10	81/11
RESIDUE	TOTAL	MG/L		1	200.000		200.000	200.000	82/09	82/09
RESIDUE	TOT NFLT	MG/L		3	43.3333	49.3289	100.000	10.0000	81/11	82/04
NH3+NH4-	N TOTAL	MG/L		3	.070000	.043589	.120000	.040000	82/01	82/04
			K	8	.050000	.000052	.050000	.050000	81/10	82/09
			T	11	.055455	.021617	.120000	.040000	81/10	82/09
NO2-N	TOTAL	MG/L		2	.035000	.007071	.040000	.030000	82/03	82/04
			K	7	.020000	.000022	.020000	.020000	81/12	82/09
			T	9	.023333	.007071	.040000	.020000	81/12	82/09
NO3-N	TOTAL	MG/L		11	.349091	.162509	.670000	.150000	81/10	82/09
TOT KJEL	N	MG/L		11	.312727	.111364	.520000	.200000	81/10	82/09
PHOS-TOT		MG/L P		4	.054000	.019114	.080000	.034000	81/10	82/09
			K	7	.050000	.000056	.050000	.050000	81/12	82/08
			T	11	.051455	.010662	.080000	.034000	81/10	82/09
CHLORIDE	TOTAL	MG/L		2	17.0000	1.41421	18.0000	16.0000	81/10	81/11
SULFATE	SO4-TOT	MG/L		2	22.5000	2.12132	24.0000	21.0000	81/10	81/11
SILICA	DISOLVED	MG/L		2	.215000	.091924	.280000	.150000	81/10	81/11
FEC COLI	MFM-FCBR	/100ML		8	57.1250	44.8025	130.000	10.0000	81/10	82/06
			K	3	2.16667	.288683	2.50000	2.00000	82/05	82/09
			T	11	42.1363	45.4324	130.000	2.00000	81/10	82/09
FECSTREP	MF M-ENT	/100ML		6	114.000	162.755	440.000	23.0000	81/10	82/06
			K	5	2.46000	.531982	3.30000	2.00000	81/11	82/09
			T	11	63.3000	128.987	440.000	2.00000	81/10	82/09
RESIDUE	DISS-180	C MG/L		4	182.250	20.3859	209.000	164.000	81/11	82/09

TABLE RD 1-169

STATION NUMBER 504170
41 42 00.0 083 15 32.0 2
CONNEAUT WATER SUPPLY INTAKE
LAKE ERIE 060691 (CENTRAL BASIN CONNEAUT ARE/
MILES 0000.00

PARAMETER			R	NO	MEAN	STAN DEV	MAXIMUM	MINIMUM	BEG	END
WATER	TEMP	CENT		5	10.5000	8.87412	21.0000	.000000	81/02	81/08
TURB	TRBIDMTR	HACH FTU		3	6.16666	7.65790	15.0000	1.40000	80/11	81/08
CNDUCTVY	FIELD	MICROMHO		5	189.000	40.2182	235.000	155.000	81/02	81/08
DO		MG/L		5	11.0800	2.15106	13.5000	8.40000	81/02	81/08
COD	LOWLEVEL	MG/L		6	9.96666	2.06076	12.0000	7.00000	80/10	81/08
			K	1	4.00000		4.00000	4.00000	81/06	81/06
			T	7	9.11428	2.93680	12.0000	4.00000	80/10	81/08
PH		SU		1	8.40000		8.40000	8.40000	81/08	81/08
LAB	PH	SU		5	7.68000	.277536	8.00000	7.40000	80/11	81/06
T ALK	CACO3	MG/L		1	98.0000		98.0000	98.0000	80/11	80/11
RESIDUE	TOT NFLT	MG/L		3	28.3333	16.0728	40.0000	10.0000	80/10	81/06
			K	4	10.0000	.000000	10.0000	10.0000	81/02	81/08
			T	7	17.8571	13.4960	40.0000	10.0000	80/10	81/08
NH3+NH4-	N TOTAL	MG/L		2	.125000	.021213	.140000	.110000	81/01	81/03
			K	7	.050000	.000056	.050000	.050000	80/11	81/08
			T	9	.066667	.033912	.140000	.050000	80/11	81/08
NO2-N	TOTAL	MG/L		5	.010000	.000000	.010000	.010000	81/02	81/08
			K	4	.010000	.000000	.010000	.010000	80/11	81/03
			T	9	.010000	.000008	.010000	.010000	80/11	81/08
NO3-N	TOTAL	MG/L		9	.266666	.172989	.640000	.070000	80/11	81/08
TOT KJEL	N	MG/L		9	.317777	.072936	.450000	.170000	80/11	81/08
PHOS-TOT		MG/L P		6	.030000	.008319	.046000	.024000	80/11	81/06
			K	3	.020000	.000000	.020000	.020000	81/03	81/08
			T	9	.026667	.008261	.046000	.020000	80/11	81/08
PHOS-DIS		MG/L P		3	.018333	.007638	.025000	.010000	80/10	81/04
			K	6	.020000	.000023	.020000	.020000	80/12	81/08
			T	9	.019444	.003909	.025000	.010000	80/10	81/08
T ORG C	C	MG/L		4	8.00000	2.94392	12.0000	5.00000	81/01	81/07
CYANIDE	CN-TOT	MG/L	K	9	.010000	.000008	.010000	.010000	80/10	81/08
TOT HARD	CACO3	MG/L		4	124.500	4.12311	130.000	120.000	81/01	81/07
CHLORIDE	TOTAL	MG/L		2	18.5000	2.12132	20.0000	17.0000	80/11	81/03
SULFATE	SO4-TOT	MG/L		3	25.3333	2.51669	28.0000	23.0000	81/04	81/07
SILICA	DISOLVED	MG/L		10	.316000	.201616	.610000	.060000	80/10	81/08
CADMIUM	CD,TOT	UG/L	K	10	5.00000	.000000	5.00000	5.00000	80/10	81/08
CHROMIUM	CR,TOT	UG/L		1	30.0000		30.0000	30.0000	81/06	81/06
			K	3	30.0000	.000000	30.0000	30.0000	81/01	81/07
			T	4	30.0000	.000000	30.0000	30.0000	81/01	81/07
COPPER	CU,TOT	UG/L	K	4	30.0000	.000000	30.0000	30.0000	81/01	81/07
IRON	FE,TOT	UG/L		10	549.000	614.952	1790.00	110.000	80/10	81/08
LEAD	PB,TOT	UG/L	K	4	5.00000	.000000	5.00000	5.00000	81/01	81/07
NICKEL	NI,TOTAL	UG/L	K	4	100.000	.000000	100.000	100.000	81/01	81/07

TABLE RD 1-170

STATION NUMBER 504170
41 42 00.0 083 15 32.0 2
CONNEAUT WATER SUPPLY INTAKE
LAKE ERIE 060691 (CENTRAL BASIN CONNEAUT AREA)
MILES 0000.00

No data were collected from 10/81 - 9/82.

TABLE RD 1-171

STATION NUMBER 504090
41 31 08.0 081 52 46.0 2
CROWN WATER SUPPLY INTAKE
LAKE ERIE (CENTRAL BASIN CLEVELAND AREA)
MILES 0000.00

PARAMETER			R	NO	MEAN	STAN DEV	MAXIMUM	MINIMUM	BEG	END
WATER	TEMP	CENT		7	12.5000	8.02081	23.5000	.500000	80/10	81/09
TURB	TRBIDMTR	HACH FTU		11	8.08181	4.75197	17.0000	2.20000	80/10	81/09
CNDUCTVY	FIELD	MICROMHO		8	217.750	29.3245	280.000	188.000	80/12	81/09
CNDUCTVY	AT 25C	MICROMHO		8	288.000	36.2688	340.000	213.000	80/11	81/08
DO		MG/L		9	10.9111	2.72418	14.5000	7.80000	80/10	81/09
PH		SU		4	8.15000	.310934	8.50000	7.80000	80/12	81/09
LAB	PH	SU		8	7.31249	.318141	7.60000	6.80000	80/10	81/06
T ALK	CACO3	MG/L		11	95.5454	3.07916	102.000	92.0000	80/10	81/09
RESIDUE	TOT NFLT	MG/L	K	2	10.0000	.000000	10.0000	10.0000	81/03	81/04
NH3+NH4-	N TOTAL	MG/L		6	.108333	.051153	.170000	.050000	80/10	81/09
			K	5	.050000	.000061	.050000	.050000	80/12	81/08
			T	11	.081818	.047290	.170000	.050000	80/10	81/09
NO2-N	TOTAL	MG/L		5	.010000	.000000	.010000	.010000	80/11	81/06
			K	5	.010000	.000000	.010000	.010000	80/10	81/08
			T	10	.010000	.000007	.010000	.010000	80/10	81/08
NO3-N	TOTAL	MG/L		11	.353636	.309815	1.22000	.150000	80/10	81/09
TOT KJEL	N	MG/L		11	.330000	.126333	.560000	.160000	80/10	81/09
PHOS-TOT		MG/L P		11	.035636	.013611	.057000	.020000	80/10	81/09
PHOS-DIS		MG/L P		9	.035778	.054113	.179000	.009000	80/10	81/09
CYANIDE	CN-TOT	MG/L	K	4	.010000	.000000	.010000	.010000	80/11	81/07
TOT HARD	CACO3	MG/L		4	120.250	4.78713	127.000	116.000	80/11	81/07
CHLORIDE	TOTAL	MG/L		11	17.7273	3.37913	24.0000	13.0000	80/10	81/09
SULFATE	SO4-TOT	MG/L		11	21.8182	1.40145	24.0000	19.0000	80/10	81/09
FLUORIDE	F,TOTAL	MG/L		4	.145000	.030000	.180000	.120000	80/11	81/07
SILICA	DISOLVED	MG/L		11	.378181	.325939	1.19000	.100000	80/10	81/09
ARSENIC	AS,TOT	UG/L	K	4	10.0000	.000000	10.0000	10.0000	80/11	81/07
CADMIUM	CD,TOT	UG/L	K	4	5.00000	.000000	5.00000	5.00000	80/11	81/07
CHROMIUM	CR,TOT	UG/L		1	30.0000		30.0000	30.0000	81/06	81/06
			K	3	30.0000	.000000	30.0000	30.0000	80/11	81/07
			T	4	30.0000	.000000	30.0000	30.0000	80/11	81/07
COPPER	CU,TOT	UG/L		4	60.0000	18.2574	80.0000	40.0000	80/11	81/07
IRON	FE,TOT	UG/L		4	525.000	297.602	950.000	300.000	80/11	81/07
LEAD	PB,TOT	UG/L	K	4	5.00000	.000000	5.00000	5.00000	80/11	81/07
NICKEL	NI,TOTAL	UG/L	K	4	100.000	.000000	100.000	100.000	80/11	81/07
VANADIUM	V,TOT	UG/L	K	3	86.6667	100.167	200.000	10.0000	80/11	81/07

TABLE RD 1-171 (Continued)

STATION NUMBER 504090
41 31 08.0 081 52 46.0 2
CROWN WATER SUPPLY INTAKE
LAKE ERIE (CENTRAL BASIN CLEVELAND AREA)
MILES 0000.00

PARAMETER			R	NO	MEAN	STAN DEV	MAXIMUM	MINIMUM	BEG	END
ZINC	ZN,TOT	UG/L		1	30.0000		30.0000	30.0000	81/06	81/06
			K	3	30.0000	.000000	30.0000	30.0000	80/11	81/07
			T	4	30.0000	.000000	30.0000	30.0000	80/11	81/07
ALUMINUM	AL,TOT	UG/L		3	333.333	152.753	500.000	200.000	80/11	81/07
			K	1	200.000		200.000	200.000	81/04	81/04
			T	4	300.000	141.421	500.000	200.000	80/11	81/07
SELENIUM	SE,TOT	UG/L	K	2	5.00000	.000000	5.00000	5.00000	80/11	81/07
FEC COLI	MFM-FCBR	/100ML		4	8.50000	6.80686	18.0000	2.00000	80/10	81/03
			K	6	2.58333	.801042	4.00000	2.00000	80/12	81/09
			T	10	4.95000	5.01359	18.0000	2.00000	80/10	81/09
FECSTREP	MF M-ENT	/100ML		5	7.60000	5.89916	16.0000	2.00000	81/01	81/06
			K	4	2.50000	.577350	3.00000	2.00000	80/10	81/09
			T	9	5.33333	4.97494	16.0000	2.00000	80/10	81/09
PHENOLS	TOTAL	UG/L		2	4.00000	2.82843	6.00000	2.00000	80/11	81/04
			K	2	2.00000	.000000	2.00000	2.00000	81/06	81/07
			T	4	3.00000	2.00000	6.00000	2.00000	80/11	81/07
DIETHYLP	HTHALATE	TOTWUG/L	K	3	100.000	.000000	100.000	100.000	80/11	81/07
DIMETHYL	PHTHALAT	TOTWUG/L	K	3	100.000	.000000	100.000	100.000	80/11	81/07
ALDRIN		TOT UG/L		3	.000000	.000000	.000000	.000000	81/04	81/07
GAMMABHC	LINDANE	TOT.UG/L		3	.000000	.000000	.000000	.000000	81/04	81/07
CHLRDANE	TECH&MET	TOT UG/L		3	.000000	.000000	.000000	.000000	81/04	81/07
DDD	WHL SMPL	UG/L		3	.000000	.000000	.000000	.000000	81/04	81/07
DDE	WHL SMPL	UG/L		3	.000000	.000000	.000000	.000000	81/04	81/07
DDT	WHL SMPL	UG/L		3	.000000	.000000	.000000	.000000	81/04	81/07
			K	1	.100000		.100000	.100000	80/11	80/11
			T	4	.025000	.050000	.100000	.000000	80/11	81/07
DIELDRIN		TOTUG/L		3	.000000	.000000	.000000	.000000	81/04	81/07
			K	1	.050000		.050000	.050000	80/11	80/11
			T	4	.012500	.025000	.050000	.000000	80/11	81/07
ENDRIN		TOT UG/L		3	.000000	.000000	.000000	.000000	81/04	81/07
			K	1	.030000		.030000	.030000	80/11	80/11
			T	4	.007500	.015000	.030000	.000000	80/11	81/07
TOXAPHEN		TOTUG/L		3	.000000	.000000	.000000	.000000	81/04	81/07
			K	1	.500000		.500000	.500000	80/11	80/11
			T	4	.125000	.250000	.500000	.000000	80/11	81/07

TABLE RD 1-171 (Continued)

STATION NUMBER 504090
41 31 08.0 081 52 46.0 2
CROWN WATER SUPPLY INTAKE
LAKE ERIE (CENTRAL BASIN CLEVELAND AREA)
MILES 0000.00

PARAMETER			R	NO	MEAN	STAN DEV	MAXIMUM	MINIMUM	BEG	END
HEPTCHLR		TOTUG/L		3	.000000	.000000	.000000	.000000	81/04	81/07
			K	1	.030000		.030000	.030000	80/11	80/11
			T	4	.007500	.015000	.030000	.000000	80/11	81/07
HPCHLREP		TOTUG/L		3	.000000	.000000	.000000	.000000	81/04	81/07
			K	1	.030000		.030000	.030000	80/11	80/11
			T	4	.007500	.015000	.030000	.000000	80/11	81/07
MTHXYCLR	WHL SMPL	UG/L		3	.000000	.000000	.000000	.000000	81/04	81/07
			K	1	.150000		.150000	.150000	80/11	80/11
			T	4	.037500	.075000	.150000	.000000	80/11	81/07
PCBS	WHL SMPL	UG/L		1	.000000		.000000	.000000	81/06	81/06
			K	3	.500000	.000000	.500000	.500000	80/11	81/07
			T	4	.375000	.250000	.500000	.000000	80/11	81/07
MALATHN	WHL SMPL	UG/L		3	.000000	.000000	.000000	.000000	81/04	81/07
			K	1	.100000		.100000	.100000	80/11	80/11
			T	4	.025000	.050000	.100000	.000000	80/11	81/07
PARATHN	WHL SMPL	UG/L		3	.000000	.000000	.000000	.000000	81/04	81/07
			K	1	.150000		.150000	.150000	80/11	80/11
			T	4	.037500	.075000	.150000	.000000	80/11	81/07
DIAZINON	WHL SMPL	UG/L		3	.000000	.000000	.000000	.000000	81/04	81/07
MPARATHN	WHL SMPL	UG/L		3	.000000	.000000	.000000	.000000	81/04	81/07
			K	1	.100000		.100000	.100000	80/11	80/11
			T	4	.025000	.050000	.100000	.000000	80/11	81/07
2,4-D	WHL SMPL	UG/L	K	1	10.0000		10.0000	10.0000	80/11	80/11
MIREX	WHL SMPL	UG/L		3	.000000	.000000	.000000	.000000	81/04	81/07
			K	1	.250000		.250000	.250000	80/11	80/11
			T	4	.062500	.125000	.250000	.000000	80/11	81/07
SILVEX	WHL SMPL	UG/L	K	1	1.00000		1.00000	1.00000	80/11	80/11
LINDANE	WHL SMPL	UG/L		3	.000000	.000000	.000000	.000000	81/04	81/07
			K	1	.010000		.010000	.010000	80/11	80/11
			T	4	.002500	.005000	.010000	.000000	80/11	81/07
RESIDUE	DISS-180	C MG/L		5	165.800	14.9070	188.000	150.000	81/01	81/06
MERCURY	HG,TOTAL	UG/L	K	2	.500000	.000000	.500000	.500000	80/11	81/04

TABLE RD 1-172

STATION NUMBER 504090
41 31 08.0 081 52 46.0 2
CROWN WATER SUPPLY INTAKE
LAKE ERIE (CENTRAL BASIN CLEVELAND AREA)
MILES 0000.00

PARAMETER			R	NO	MEAN	STAN DEV	MAXIMUM	MINIMUM	BEG	END
WATER	TEMP	CENT		11	12.2273	6.68343	23.0000	3.00000	81/10	82/09
TURB	TRBIDMTR	HACH FTU		2	4.35000	1.48492	5.40000	3.30000	81/10	81/11
CNDUCTVY	FIELD	MICROMHO		10	217.000	40.4283	275.000	150.000	81/10	82/09
CNDUCTVY	AT 25C	MICROMHO		8	293.375	49.9970	375.000	230.000	81/10	82/09
DO	PROBE	MG/L		9	10.6111	2.31002	13.2000	6.60000	81/12	82/09
DO		MG/L		2	11.4500	.495093	11.8000	11.1000	81/10	81/11
BOD	5 DAY	MG/L	K	2	1.00000	.000000	1.00000	1.00000	82/04	82/05
COD	LOWLEVEL	MG/L		9	9.33333	3.39117	14.0000	4.00000	81/11	82/09
			K	1	4.00000		4.00000	4.00000	82/05	82/05
			T	10	8.80000	3.61479	14.0000	4.00000	81/11	82/09
PH		SU		9	8.14444	.371238	8.50000	7.30000	81/10	82/09
LAB	PH	SU		1	7.47000		7.47000	7.47000	82/01	82/01
T ALK	CACO3	MG/L		2	94.5000	3.53553	97.0000	92.0000	81/10	81/11
RESIDUE	TOT NFLT	MG/L		2	8.50000	3.53553	11.0000	6.00000	82/05	82/06
			K	4	6.25000	2.50000	10.0000	5.00000	81/11	82/09
			T	6	7.00000	2.75681	11.0000	5.00000	81/11	82/09
NH3+NH4-	N TOTAL	MG/L		1	.060000		.060000	.060000	82/05	82/05
			K	10	.050000	.000054	.050000	.050000	81/10	82/09
			T	11	.050909	.003016	.060000	.050000	81/10	82/09
NO2-N	TOTAL	MG/L	K	7	.020000	.000022	.020000	.020000	82/01	82/09
NO3-N	TOTAL	MG/L		11	.378181	.169754	.680000	.150000	81/10	82/09
TOT KJEL	N	MG/L		10	.288000	.101523	.450000	.100000	81/10	82/09
			K	1	1.00000		1.00000	1.00000	82/08	82/08
			T	11	.352727	.235291	1.00000	.100000	81/10	82/09
PHOS-TOT		MG/L P		4	.038000	.014236	.050000	.022000	81/10	82/09
			K	6	.050000	.000061	.050000	.050000	81/12	82/06
			T	10	.045200	.010294	.050000	.022000	81/10	82/09
PHOS-DIS		MG/L P		1	.050000		.050000	.050000	82/09	82/09
			K	6	.050000	.000061	.050000	.050000	82/02	82/08
			T	7	.050000	.000056	.050000	.050000	82/02	82/09
CYANIDE	CN-TOT	MG/L	K	1	.010000		.010000	.010000	82/09	82/09
TOT HARD	CACO3	MG/L		3	125.333	6.65955	131.000	118.000	82/03	82/09
CALCIUM	CA-TOT	MG/L		3	35.3000	1.80274	36.8000	33.3000	82/03	82/09
MGNSIUM	MG,TOT	MG/L		3	9.13333	.451210	9.60000	8.70000	82/03	82/09
CHLORIDE	TOTAL	MG/L		2	15.0000	1.41421	16.0000	14.0000	81/10	81/11
SULFATE	SO4-TOT	MG/L		2	20.0000	2.82843	22.0000	18.0000	81/10	81/11
SILICA	DISOLVED	MG/L		2	.395000	.219203	.550000	.240000	81/10	81/11
CADMIUM	CD,TOT	UG/L		1	.600000		.600000	.600000	82/03	82/03
			K	2	.500000	.000000	.500000	.500000	82/06	82/09
			T	3	.533333	.057740	.600000	.500000	82/03	82/09

TABLE RD 1-172 (Continued)

STATION NUMBER 504090
41 31 08.0 081 52 46.0 2
CROWN WATER SUPPLY INTAKE
LAKE ERIE (CENTRAL BASIN CLEVELAND AREA)
MILES 0000.00

PARAMETER			R	NO	MEAN	STAN DEV	MAXIMUM	MINIMUM	BEG	END
CHROMIUM	CR,TOT	UG/L	K	3	30.0000	.000000	30.0000	30.0000	82/03	82/09
COPPER	CU,TOT	UG/L		3	56.6667	15.2753	70.0000	40.0000	82/03	82/09
IRON	FE,TOT	UG/L		3	363.333	414.287	840.000	90.0000	82/03	82/09
LEAD	PB,TOT	UG/L		1	2.00000		2.00000	2.00000	82/09	82/09
			K	2	3.50000	2.12132	5.00000	2.00000	82/03	82/06
			T	3	3.00000	1.73205	5.00000	2.00000	82/03	82/09
NICKEL	NI,TOTAL	UG/L	K	3	36.6667	5.77360	40.0000	30.0000	82/03	82/09
ZINC	ZN,TOT	UG/L		2	35.0000	14.1421	45.0000	25.0000	82/06	82/09
			K	1	10.0000		10.0000	10.0000	82/03	82/03
			T	3	26.6667	17.5594	45.0000	10.0000	82/03	82/09
FEC COLI	MFM-FCBR	/100ML		1	160.000		160.000	160.000	82/01	82/01
			K	10	2.55000	.365925	3.30000	2.00000	81/10	82/09
			T	11	16.8636	47.4742	160.000	2.00000	81/10	82/09
FECSTREP	MF M-ENT	/100ML		5	38.4600	79.1257	180.000	2.50000	82/01	82/06
			K	6	2.53333	.258209	3.00000	2.20000	81/10	82/09
			T	11	18.8636	53.4453	180.000	2.20000	81/10	82/09
PHENOLS	TOTAL	UG/L	K	1	10.0000		10.0000	10.0000	82/09	82/09
DIETHYLP	HTHALATE	TOTWUG/L	K	2	100.000	.000000	100.000	100.000	82/03	82/06
DIMETHYL	PHTHALAT	TOTWUG/L	K	2	100.000	.000000	100.000	100.000	82/03	82/06
ALDRIN		TOT UG/L	K	3	.030000	.000036	.030000	.030000	82/03	82/09
CHLRDANE	TECH&MET	TOT UG/L	K	3	.400000	.000488	.400000	.400000	82/03	82/09
DDT	WHL SMPL	UG/L	K	3	.100000	.000000	.100000	.100000	82/03	82/09
DIELDRIN		TOTUG/L	K	3	.050000	.000075	.050000	.050000	82/03	82/09
ENDRIN		TOT UG/L	K	3	.030000	.000036	.030000	.030000	82/03	82/09
TOXAPHEN		TOTUG/L	K	3	.500000	.000000	.500000	.500000	82/03	82/09
HEPTCHLR		TOTUG/L	K	3	.030000	.000036	.030000	.030000	82/03	82/09
MTHXYCLR	WHL SMPL	UG/L	K	3	.516666	.635085	1.25000	.150000	82/03	82/09
PCBS	WHL SMPL	UG/L	K	3	.500000	.000000	.500000	.500000	82/03	82/09
MALATHN	WHL SMPL	UG/L	K	2	.100000	.000000	.100000	.100000	82/03	82/06
PARATHN	WHL SMPL	UG/L	K	3	.150000	.000000	.150000	.150000	82/03	82/09
DIAZINON	WHL SMPL	UG/L	K	3	.100000	.000000	.100000	.100000	82/03	82/09
2,4-D	WHL SMPL	UG/L	K	1	10.0000		10.0000	10.0000	82/06	82/06
MIREX	WHL SMPL	UG/L	K	3	.333333	.144338	.500000	.250000	82/03	82/09
SILVEX	WHL SMPL	UG/L	K	1	1.00000		1.00000	1.00000	82/06	82/06
LINDANE	WHL SMPL	UG/L	K	3	.010000	.000000	.010000	.010000	82/03	82/09
RESIDUE	DISS-180	C MG/L		5	162.200	13.9003	178.000	140.000	81/11	82/09

TABLE RD 1-173

STATION NUMBER 504130
41 43 34.0 081 22 05.0 2
MENTOR ON L. WATER SUPPLY INTAKE
LAKE ERIE 060691 (CENTRAL BASIN)
MILES 0000.00

PARAMETER			R	NO	MEAN	STAN DEV	MAXIMUM	MINIMUM	BEG	END
WATER	TEMP	CENT		8	9.93750	8.44494	22.0000	.000000	80/10	81/09
TURB	TRBIDMTR	HACH FTU		11	11.8591	10.0669	30.0000	3.90000	80/10	81/09
CNDUCTVY	FIELD	MICROMHO		6	211.667	57.3296	275.000	110.000	81/02	81/09
CNDUCTVY	AT 25C	MICROMHO		9	313.222	30.0580	361.000	260.000	80/10	81/09
DO		MG/L		4	10.00000	1.92355	12.6000	8.40000	81/03	81/09
PH		SU		2	8.55000	.071709	8.60000	8.50000	81/08	81/09
LAB	PH	SU		8	7.62500	.506411	8.20000	6.80000	80/11	81/09
T ALK	CACO3	MG/L		11	88.3636	26.5191	101.000	9.00000	80/10	81/09
RESIDUE	TOT NFLT	MG/L	K	3	10.0000	.000000	10.0000	10.0000	81/03	81/06
NH3+NH4-	N TOTAL	MG/L		8	.112500	.062735	.240000	.050000	80/10	81/09
			K	3	.050000	.000075	.050000	.050000	81/06	81/08
			T	11	.095454	.060061	.240000	.050000	80/10	81/09
NO2-N	TOTAL	MG/L		9	.011111	.003333	.020000	.010000	80/10	81/07
			K	1	.010000		.010000	.010000	81/08	81/08
			T	10	.011000	.003162	.020000	.010000	80/10	81/08
NO3-N	TOTAL	MG/L		11	.303636	.205050	.770000	.140000	80/10	81/09
TOT KJEL	N	MG/L		11	.396363	.110116	.580000	.220000	80/10	81/09
PHOS-TOT		MG/L P		11	.048636	.032346	.129000	.021000	80/10	81/09
CHLORIDE	TOTAL	MG/L		11	24.7273	6.23050	36.0000	15.0000	80/10	81/09
SULFATE	SO4-TOT	MG/L		10	24.5000	2.06828	28.0000	22.0000	80/10	81/09
SILICA	DISOLVED	MG/L		11	.307272	.140293	.590000	.060000	80/10	81/09
FEC COLI	MFM-FCBR	/100ML		9	55.3333	50.6039	160.000	8.00000	80/10	81/09
			K	1	2.00000		2.00000	2.00000	81/03	81/03
			T	10	50.0000	50.6030	160.000	2.00000	80/10	81/09
FECSTREP	MF M-ENT	/100ML		6	47.6667	48.6361	140.000	8.00000	80/10	81/06
			K	3	3.00000	1.00000	4.00000	2.00000	81/03	81/09
			T	9	32.7778	44.4685	140.000	2.00000	80/10	81/09
RESIDUE	DISS-180	C MG/L		5	318.800	269.231	800.000	180.000	81/01	81/06

TABLE RD 1-174

STATION NUMBER 504130
41 43 34.0 081 22 05.0 2
MENTOR ON L. WATER SUPPLY INTAKE
LAKE ERIE 060691 (CENTRAL BASIN)
MILES 0000.00

PARAMETER			R	NO	MEAN	STAN DEV	MAXIMUM	MINIMUM	BEG	END
WATER	TEMP	CENT		11	10.1818	7.68854	23.0000	1.00000	81/10	82/09
TURB	TRBIDMTR	HACH FTU		2	8.10000	.707118	8.60000	7.60000	81/10	81/11
CNDUCTVY	FIELD	MICROMHO		10	213.000	40.2216	285.000	170.000	81/10	82/09
CNDUCTVY	AT 25C	MICROMHO		8	301.375	31.3457	350.000	270.000	81/10	82/09
DO	PROBE	MG/L		9	10.8555	1.67640	12.4000	8.30000	81/12	82/09
DO		MG/L		2	10.9000	.707279	11.4000	10.4000	81/10	81/11
BOD	5 DAY	MG/L		3	1.66667	.513160	2.10000	1.10000	82/04	82/06
COD	LOWLEVEL	MG/L		7	10.8571	5.66947	19.0000	4.00000	81/11	82/09
			K	3	4.00000	.000000	4.00000	4.00000	81/10	82/08
			T	10	8.80000	5.69210	19.0000	4.00000	81/10	82/09
PH		SU		11	8.37727	.302859	8.70000	8.00000	81/10	82/09
T ALK	CACO3	MG/L		2	94.5000	3.53553	97.0000	92.0000	81/10	81/11
RESIDUE	TOT NFLT	MG/L		6	14.3333	11.4134	36.0000	5.00000	81/12	82/09
			K	4	7.50000	2.88675	10.0000	5.00000	81/10	82/08
			T	10	11.6000	9.35949	36.0000	5.00000	81/10	82/09
OIL-GRSE	FREON-GR	MG/L	K	1	5.00000		5.00000	5.00000	81/11	81/11
NH3+NH4-	N TOTAL	MG/L		6	.113333	.050067	.190000	.050000	81/10	82/09
			K	5	.050000	.000061	.050000	.050000	81/11	82/08
			T	11	.084545	.048449	.190000	.050000	81/10	82/09
NO2-N	TOTAL	MG/L		1	.020000		.020000	.020000	81/10	81/10
			K	8	.020000	.000017	.020000	.020000	81/12	82/09
			T	9	.020000	.000024	.020000	.020000	81/10	82/09
NO3-N	TOTAL	MG/L		11	.376363	.187151	.720000	.090000	81/10	82/09
TOT KJEL	N	MG/L		11	.437272	.149071	.800000	.300000	81/10	82/09
PHOS-TOT		MG/L P		2	.035000	.005657	.039000	.031000	81/10	81/11
			K	9	.050000	.000057	.050000	.050000	81/12	82/09
			T	11	.047273	.006326	.050000	.031000	81/10	82/09

TABLE RD 1-174 (Continued)

STATION NUMBER 504130
41 43 34.0 081 22 05.0 2
MENTOR ON L. WATER SUPPLY INTAKE
LAKE ERIE 060691 (CENTRAL BASIN)
MILES 0000.00

PARAMETER			R	NO	MEAN	STAN DEV	MAXIMUM	MINIMUM	BEG	END
TOT HARD	CACO3	MG/L		2	132.500	3.53553	135.000	130.000	82/03	82/09
CALCIUM	CA-TOT	MG/L		2	37.3000	.849086	37.9000	36.7000	82/03	82/09
MGNSIUM	MG,TOT	MG/L		2	9.55000	.212487	9.70000	9.40000	82/03	82/09
SODIUM	NA,TOT	MG/L		1	11.7000		11.7000	11.7000	82/09	82/09
CHLORIDE	TOTAL	MG/L		2	18.0000	2.82843	20.0000	16.0000	81/10	81/11
SULFATE	SO4-TOT	MG/L		2	23.0000	1.41421	24.0000	22.0000	81/10	81/11
SILICA	DISOLVED	MG/L		2	.320000	.169705	.440000	.200000	81/10	81/11
CADMIUM	CD,TOT	UG/L	K	2	.500000	.000000	.500000	.500000	82/03	82/09
CHROMIUM	CR,TOT	UG/L	K	2	30.0000	.000000	30.0000	30.0000	82/03	82/09
COPPER	CU,TOT	UG/L		2	15.0000	.000000	15.0000	15.0000	82/03	82/09
IRON	FE,TOT	UG/L		2	520.000	70.7107	570.000	470.000	82/03	82/09
LEAD	PB,TOT	UG/L		1	3.00000		3.00000	3.00000	82/09	82/09
			K	1	5.00000		5.00000	5.00000	82/03	82/03
			T	2	4.00000	1.41421	5.00000	3.00000	82/03	82/09
MANGNESE	MN	UG/L		1	15.0000		15.0000	15.0000	82/03	82/03
NICKEL	NI,TOTAL	UG/L	K	2	35.0000	7.07107	40.0000	30.0000	82/03	82/09
ZINC	ZN,TOT	UG/L		2	22.5000	17.6777	35.0000	10.0000	82/03	82/09
FEC COLI	MFM-FCBR	/100ML		10	50.2500	53.4806	130.000	2.50000	81/10	82/09
			K	1	2.50000		2.50000	2.50000	82/08	82/08
			T	11	45.9091	52.7394	130.000	2.50000	81/10	82/09
FECSTREP	MF M-ENT	/100ML		10	27.4000	44.7349	150.000	2.00000	81/10	82/09
			K	1	2.50000		2.50000	2.50000	82/08	82/08
			T	11	25.1363	43.0982	150.000	2.00000	81/10	82/09
PHENOLS	TOTAL	UG/L	K	1	10.0000		10.0000	10.0000	82/09	82/09
RESIDUE	DISS-180	C MG/L		7	174.286	15.8193	195.000	152.000	81/10	82/09

TABLE RD 1-175

STATION NUMBER 504240
41 41 33.0 083 15 33.0 2
OREGON WATER SUPPLY INTAKE
LAKE ERIE 060491 (WESTERN BASIN-TOLEDO AREA)
MILES 0000.00

PARAMETER			R	NO	MEAN	STAN DEV	MAXIMUM	MINIMUM	BEG	END
WATER	TEMP	CENT		4	13.7500	5.90903	22.0000	8.00000	80/10	81/08
CNDUCTVY	AT 25C	MICROMHO		9	335.666	72.3231	483.000	246.000	81/02	81/09
BOD	5 DAY	MG/L		12	3.10000	1.30872	5.90000	1.20000	80/10	81/09
COD	LOWLEVEL	MG/L		6	21.1500	8.70834	31.0000	7.70000	80/10	81/07
			K	7	4.00000	.000000	4.00000	4.00000	80/11	81/09
			T	13	11.9154	10.5254	31.0000	4.00000	80/10	81/09
LAB	PH	SU		13	8.15846	.163752	8.50000	7.90000	80/10	81/09
T ALK	CACO3	MG/L		3	99.6667	9.29234	106.000	89.0000	81/02	81/09
RESIDUE	TOT NFLT	MG/L		11	43.8182	38.2696	143.000	10.0000	80/10	81/09
			K	2	10.0000	.000000	10.0000	10.0000	81/01	81/02
			T	13	38.6154	37.1720	143.000	10.0000	80/10	81/09
NH3+NH4-	N TOTAL	MG/L		3	.293333	.280416	.600000	.050000	80/10	81/09
			K	6	.350000	.232379	.500000	.050000	80/11	81/05
			T	9	.331111	.232833	.600000	.050000	80/10	81/09
NO2-N	TOTAL	MG/L		11	.028182	.026389	.090000	.010000	80/10	81/09
			K	2	.010000	.000000	.010000	.010000	80/11	81/04
			T	13	.025385	.025038	.090000	.010000	80/10	81/09
NO3-N	TOTAL	MG/L		13	1.38769	1.49125	4.72000	.170000	80/10	81/09
TOT KJEL	N	MG/L		13	.685384	.351511	1.45000	.310000	80/10	81/09
PHOS-TOT		MG/L P		13	.086384	.070594	.224000	.022000	80/10	81/09
T ORG C	C	MG/L		7	9.14286	1.77282	11.0000	7.00000	80/10	81/09
TOT HARD	CACO3	MG/L		13	138.385	31.1864	220.000	108.000	80/10	81/09
CALCIUM	CA-TOT	MG/L		11	42.9091	9.62768	64.0000	32.0000	80/12	81/09
MGNSIUM	MG,TOT	MG/L		10	11.1000	3.07138	17.0000	8.00000	81/01	81/09
SODIUM	NA,TOT	MG/L		11	9.90909	3.53425	19.0000	7.00000	80/12	81/09
PTSSIUM	K,TOT	MG/L		10	1.86000	.643262	3.10000	1.20000	81/01	81/09
CHLORIDE	TOTAL	MG/L		13	17.3077	7.04022	34.0000	10.0000	80/10	81/09
SULFATE	SO4-TOT	MG/L		13	28.8461	11.8029	56.0000	17.0000	80/10	81/09
SILICA	DISOLVED	MG/L		11	.884545	1.06823	3.11000	.130000	80/12	81/09
ARSENIC	AS,TOT	UG/L	K	13	10.0000	.000000	10.0000	10.0000	80/10	81/09

TABLE RD 1-175 (Continued)

STATION NUMBER 504240
41 41 33.0 083 15 33.0 2
OREGON WATER SUPPLY INTAKE
LAKE ERIE 060491 (WESTERN BASIN-TOLEDO AREA)
MILES 0000.00

PARAMETER			R	NO	MEAN	STAN DEV	MAXIMUM	MINIMUM	BEG	END
CADMIUM	CD,TOT	UG/L	K	13	5.00000	.000000	5.00000	5.00000	80/10	81/09
CHROMIUM	CR,TOT	UG/L		2	30.0000	.000000	30.0000	30.0000	80/12	81/06
			K	11	30.0000	.000000	30.0000	30.0000	80/10	81/09
			T	13	30.0000	.000000	30.0000	30.0000	80/10	81/09
COPPER	CU,TOT	UG/L		1	30.0000		30.0000	30.0000	80/10	80/10
			K	12	30.0000	.000000	30.0000	30.0000	80/11	81/09
			T	13	30.0000	.000000	30.0000	30.0000	80/10	81/09
IRON	FE,TOT	UG/L		13	1370.00	1418.10	4900.00	110.000	80/10	81/09
LEAD	PB,TOT	UG/L		2	8.50000	2.12132	10.0000	7.00000	80/10	81/05
			K	11	5.90909	2.02261	10.0000	5.00000	80/11	81/09
			T	13	6.30769	2.17504	10.0000	5.00000	80/10	81/09
MANGNESE	MN	UG/L		8	52.5000	27.6457	110.000	30.0000	80/10	81/09
			K	4	30.0000	.000000	30.0000	30.0000	80/11	81/04
			T	12	45.0000	24.6798	110.000	30.0000	80/10	81/09
NICKEL	NI,TOTAL	UG/L	K	10	100.000	.000000	100.000	100.000	81/01	81/09
ZINC	ZN,TOT	UG/L		4	40.0000	14.1421	60.0000	30.0000	80/10	81/07
			K	9	30.0000	.000000	30.0000	30.0000	80/11	81/09
			T	13	33.0769	8.54855	60.0000	30.0000	80/10	81/09
ALUMINUM	AL,TOT	UG/L		11	909.091	699.221	2300.00	200.000	80/10	81/09
			K	2	200.000	.000000	200.000	200.000	81/01	81/02
			T	13	800.000	691.616	2300.00	200.000	80/10	81/09
FEC COLI	MFM-FCBR	/100ML		3	7.66667	4.93289	11.0000	2.00000	81/03	81/08
			K	10	7.40000	4.19524	10.0000	1.00000	80/10	81/09
			T	13	7.46154	4.15563	11.0000	1.00000	80/10	81/09
MBAS		MG/L		8	.076250	.027223	.130000	.050000	81/02	81/09
			K	4	.050000	.000050	.050000	.050000	80/11	81/09
			T	12	.067500	.025271	.130000	.050000	80/11	81/09
PCBS	WHL SMPL	UG/L	K	1	.500000		.500000	.500000	81/08	81/08
RESIDUE	DISS-180	C MG/L		13	177.077	55.6814	314.000	108.000	80/10	81/09
MERCURY	HG,TOTAL	UG/L	K	10	.500000	.000000	.500000	.500000	80/10	81/07

TABLE RD 1-176

STATION NUMBER 504240
41 41 33.0 083 15 33.0 2
OREGON WATER SUPPLY INTAKE
LAKE ERIE 060491 (WESTERN BASIN-TOLEDO AREA)
MILES 0000.00

PARAMETER			R	NO	MEAN	STAN DEV	MAXIMUM	MINIMUM	BEG	END
WATER	TEMP	CENT		2	12.4500	16.1927	23.9000	1.00000	82/01	82/08
TURB	TRBIDMTR	HACH FTU		1	9.80000		9.80000	9.80000	81/12	81/12
CNDUCTVY	AT 25C	MICROMHO		6	314.833	106.419	493.000	236.000	81/11	82/09
BOD	5 DAY	MG/L		5	2.78000	1.46356	4.80000	1.40000	81/11	82/09
			K	1	1.00000		1.00000	1.00000	82/08	82/08
			T	6	2.48333	1.49722	4.80000	1.00000	81/11	82/09
COD	LOWLEVEL	MG/L		4	13.8750	4.55293	20.0000	9.00000	81/11	82/08
			K	2	7.00000	4.24264	10.0000	4.00000	81/12	82/09
			T	6	11.5833	5.35180	20.0000	4.00000	81/11	82/09
LAB	PH	SU		6	8.11333	.269729	8.53000	7.77000	81/11	82/09
T ALK	CACO3	MG/L		3	94.6667	25.1067	121.000	71.0000	81/11	82/08
RESIDUE	TOT NFLT	MG/L		5	31.4000	23.4691	70.0000	8.00000	81/11	82/09
			K	1	5.00000		5.00000	5.00000	82/07	82/07
			T	6	27.0000	23.5966	70.0000	5.00000	81/11	82/09
NH3+NH4-	N TOTAL	MG/L		4	.120000	.060553	.200000	.060000	81/11	82/08
			K	2	.050000	.000061	.050000	.050000	81/12	82/09
			T	6	.096667	.059217	.200000	.050000	81/11	82/09
NO2-N	TOTAL	MG/L		4	.022500	.012583	.040000	.010000	81/11	82/08
			K	2	.020000	.000000	.020000	.020000	82/01	82/09
			T	6	.021667	.009832	.040000	.010000	81/11	82/09
NO3-N	TOTAL	MG/L		6	.830000	.896817	2.28000	.060000	81/11	82/09
TOT KJEL	N	MG/L		6	.619999	.320562	1.01000	.260000	81/11	82/09
PHOS-TOT		MG/L P		3	.086667	.040415	.130000	.050000	81/11	82/09
			K	3	.040000	.017321	.050000	.020000	81/12	82/07
			T	6	.063333	.037771	.130000	.020000	81/11	82/09
T ORG C	C	MG/L		1	9.00000		9.00000	9.00000	81/11	81/11
			K	1	6.00000		6.00000	6.00000	81/12	81/12
			T	2	7.50000	2.12132	9.00000	6.00000	81/11	81/12
TOT HARD	CACO3	MG/L		5	139.240	32.1060	180.000	110.200	81/11	82/08
CALCIUM	CA-TOT	MG/L		6	38.0167	8.94436	52.0000	26.8000	81/11	82/09
MGNSIUM	MG,TOT	MG/L		6	11.6333	2.42213	16.0000	10.0000	81/11	82/09

TABLE RD 1-176 (Continued)

STATION NUMBER 504240
41 41 33.0 083 15 33.0 2
OREGON WATER SUPPLY INTAKE
LAKE ERIE 060491 (WESTERN BASIN-TOLEDO AREA)
MILES 0000.00

PARAMETER			R	NO	MEAN	STAN DEV	MAXIMUM	MINIMUM	BEG	END
SODIUM	NA,TOT	MG/L		3	8.86666	3.55717	12.0000	5.00000	81/11	82/09
PTSSIUM	K,TOT	MG/L		3	2.26667	1.34288	3.80000	1.30000	81/11	82/09
CHLORIDE	TOTAL	MG/L		2	17.5000	10.6066	25.0000	10.0000	81/11	81/12
SULFATE	SO4-TOT	MG/L		2	28.0000	14.1421	38.0000	18.0000	81/11	81/12
SILICA	DISOLVED	MG/L		2	2.39000	1.69706	3.59000	1.19000	81/11	81/12
ARSENIC	AS,TOT	UG/L	K	2	10.0000	.000000	10.0000	10.0000	81/11	81/12
CADMIUM	CD,TOT	UG/L	K	6	2.00000	2.32379	5.00000	.500000	81/11	82/09
CHROMIUM	CR,TOT	UG/L		1	230.000		230.000	230.000	81/11	81/11
			K	5	30.0000	.000000	30.0000	30.0000	81/12	82/09
			T	6	63.3333	81.6497	230.000	30.0000	81/11	82/09
COPPER	CU,TOT	UG/L	K	6	16.6667	10.3280	30.0000	10.0000	81/11	82/09
IRON	FE,TOT	UG/L		6	905.000	842.253	2580.00	260.000	81/11	82/09
LEAD	PB,TOT	UG/L		3	5.66667	5.50758	12.0000	2.00000	82/07	82/09
			K	3	5.00000	.000000	5.00000	5.00000	81/11	82/01
			T	6	5.33333	3.50238	12.0000	2.00000	81/11	82/09
MANGNESE	MN	UG/L		5	25.0000	12.2474	40.0000	10.0000	81/11	82/09
			K	1	30.0000		30.0000	30.0000	81/12	81/12
			T	6	25.8333	11.1430	40.0000	10.0000	81/11	82/09
NICKEL	NI,TOTAL	UG/L	K	6	60.0000	30.9839	100.000	40.0000	81/11	82/09
ZINC	ZN,TOT	UG/L		1	25.0000		25.0000	25.0000	82/08	82/08
			K	5	18.0000	10.9545	30.0000	10.0000	81/11	82/09
			T	6	19.1667	10.2062	30.0000	10.0000	81/11	82/09
ALUMINUM	AL,TOT	UG/L		2	900.000	707.107	1400.00	400.000	81/11	81/12
FEC COLI	MFM-FCBR	/100ML	K	4	3.75000	4.27200	10.0000	1.00000	81/12	82/09
MBAS		MG/L		1	.080000		.080000	.080000	81/11	81/11
			K	1	.050000		.050000	.050000	81/12	81/12
			T	2	.065000	.021213	.080000	.050000	81/11	81/12
RESIDUE	DISS-180 C	MG/L		6	187.333	21.5566	220.000	163.000	81/11	82/09
T ACDITY	HOT-MG/L	CACO3		1	-.800E+02		-.800E+02	-.800E+02	82/08	82/08
			K	1	10.0000		10.0000	10.0000	81/11	81/11
			T	2	-.350E+02	63.6396	10.0000	-.800E+02	81/11	82/08
MERCURY	HG,TOTAL	UG/L	K	1	.500000		.500000	.500000	81/12	81/12

TABLE RD 1-177

STATION NUMBER 504030
41 27 51.0 082 38 50.0 2
SANDUSKY WATER SUPPLY INTAKE
LAKE ERIE 060292 (CENTRAL BASIN SANDUSKY AREA
MILES 0000.00

PARAMETER			R	NO	MEAN	STAN DEV	MAXIMUM	MINIMUM	BEG	END
WATER	TEMP	CENT		9	14.8444	8.64987	24.5000	1.40000	80/10	81/09
CNDUCTVY	AT 25C	MICROMHO		8	284.875	14.2772	311.000	268.000	81/02	81/09
BOD	5 DAY	MG/L		11	3.00909	1.75810	7.00000	1.00000	80/10	81/09
			K	1	1.00000		1.00000	1.00000	81/08	81/08
			T	12	2.84166	1.77378	7.00000	1.00000	80/10	81/09
COD	LOWLEVEL	MG/L		6	17.3000	10.8235	34.7000	5.80000	80/10	81/09
			K	7	4.72857	1.92762	9.10000	4.00000	80/11	81/09
			T	13	10.5308	9.65499	34.7000	4.00000	80/10	81/09
LAB	PH	SU		13	8.13384	.184822	8.40000	7.80000	80/10	81/09
T ALK	CACO3	MG/L		3	102.333	4.04322	107.000	100.000	81/02	81/09
RESIDUE	TOT NFLT	MG/L		7	18.5714	6.67976	32.0000	12.0000	80/12	81/09
			K	6	10.0000	.000000	10.0000	10.0000	80/10	81/09
			T	13	14.6154	6.48766	32.0000	10.0000	80/10	81/09
NH3+NH4-	N TOTAL	MG/L		2	.250000	.212132	.400000	.100000	80/10	81/09
			K	8	.331250	.232897	.500000	.050000	80/11	81/09
			T	10	.315000	.219911	.500000	.050000	80/10	81/09
NO2-N	TOTAL	MG/L		7	.015714	.011339	.040000	.010000	81/01	81/09
			K	6	.010000	.000000	.010000	.010000	80/10	81/05
			T	13	.013077	.008549	.040000	.010000	80/10	81/09
NO3-N	TOTAL	MG/L		12	.489166	.317074	1.10000	.060000	80/11	81/09
			K	1	.050000		.050000	.050000	80/10	80/10
			T	13	.455384	.327099	1.10000	.050000	80/10	81/09
TOT KJEL	N	MG/L		13	.443077	.100531	.690000	.310000	80/10	81/09
PHOS-TOT		MG/L P		13	.058231	.064595	.270000	.022000	80/10	81/09
T ORG C	C	MG/L		7	8.14286	1.86447	12.0000	6.00000	80/10	81/09
TOT HARD	CACO3	MG/L		13	127.231	5.06931	140.000	120.000	80/10	81/09
CALCIUM	CA-TOT	MG/L		11	37.9091	3.04831	44.0000	35.0000	80/12	81/09
MGNSIUM	MG,TOT	MG/L		10	9.00000	.942809	11.0000	8.00000	81/01	81/09
SODIUM	NA,TOT	MG/L		11	8.81818	1.07874	10.0000	7.00000	80/12	81/09
PTSSIUM	K,TOT	MG/L		10	1.37000	.286937	1.90000	1.00000	81/01	81/09
CHLORIDE	TOTAL	MG/L		13	16.3846	2.84426	24.0000	13.0000	80/10	81/09
SULFATE	SO4-TOT	MG/L		13	24.4615	2.96145	31.0000	21.0000	80/10	81/09
SILICA	DISOLVED	MG/L		11	.477272	.438955	1.59000	.110000	80/12	81/09
ARSENIC	AS,TOT	UG/L	K	13	10.0000	.000000	10.0000	10.0000	80/10	81/09

TABLE RD 1-177 (Continued)

STATION NUMBER 504030
41 27 51.0 082 38 50.0 2
SANDUSKY WATER SUPPLY INTAKE
LAKE ERIE 060292 (CENTRAL BASIN SANDUSKY AREA
MILES 0000.00

PARAMETER			R	NO	MEAN	STAN DEV	MAXIMUM	MINIMUM	BEG	END
CADMIUM	CD,TOT	UG/L	K	13	5.38461	1.38676	10.0000	5.00000	80/10	81/09
CHROMIUM	CR,TOT	UG/L		4	32.5000	5.00000	40.0000	30.0000	80/11	81/06
			K	9	30.0000	.000000	30.0000	30.0000	80/10	81/09
			T	13	30.7692	2.77369	40.0000	30.0000	80/10	81/09
COPPER	CU,TOT	UG/L		9	44.4444	12.3604	60.0000	30.0000	80/10	81/09
			K	4	30.0000	.000000	30.0000	30.0000	80/12	81/03
			T	13	40.0000	12.2474	60.0000	30.0000	80/10	81/09
IRON	FE,TOT	UG/L		13	436.154	240.262	1120.00	120.000	80/10	81/09
LEAD	PB,TOT	UG/L		1	9.00000		9.00000	9.00000	80/10	80/10
			K	12	5.41667	1.44339	10.0000	5.00000	80/11	81/09
			T	13	5.69231	1.70219	10.0000	5.00000	80/10	81/09
MANGNESE	MN	UG/L		9	55.5555	18.1047	80.0000	30.0000	80/10	81/09
			K	3	30.0000	.000000	30.0000	30.0000	81/01	81/04
			T	12	49.1667	19.2866	80.0000	30.0000	80/10	81/09
NICKEL	NI,TOTAL	UG/L		1	100.000		100.000	100.000	81/08	81/08
			K	9	100.000	.000000	100.000	100.000	81/01	81/09
			T	10	100.000	.000000	100.000	100.000	81/01	81/09
ZINC	ZN,TOT	UG/L		1	50.0000		50.0000	50.0000	80/10	80/10
			K	12	30.0000	.000000	30.0000	30.0000	80/11	81/09
			T	13	31.5384	5.54712	50.0000	30.0000	80/10	81/09
ALUMINUM	AL,TOT	UG/L		12	400.000	221.565	1000.00	200.000	80/10	81/09
			K	1	200.000		200.000	200.000	81/01	81/01
			T	13	384.615	219.265	1000.00	200.000	80/10	81/09
FEC COLI	MFM-FCBR	/100ML		8	16.0000	13.8667	33.0000	1.00000	80/10	81/09
			K	5	10.0000	.000000	10.0000	10.0000	80/11	81/03
			T	13	13.6923	11.0181	33.0000	1.00000	80/10	81/09
MBAS		MG/L		6	.060000	.016733	.090000	.050000	81/02	81/09
			K	6	.050000	.000061	.050000	.050000	80/11	81/09
			T	12	.055000	.012432	.090000	.050000	80/11	81/09
PCBS	WHL SMPL	UG/L	K	2	.500000	.000000	.500000	.500000	81/08	81/09
RESIDUE	DISS-180	C MG/L		13	166.769	45.5745	256.000	70.0000	80/10	81/09
MERCURY	HG,TOTAL	UG/L	K	10	.500000	.000000	.500000	.500000	80/10	81/07

TABLE RD, 1-178

STATION NUMBER 504030
41 27 51.0 082 38 50.0 2
SANDUSKY WATER SUPPLY INTAKE
LAKE ERIE 060292 (CENTRAL BASIN SANDUSKY AREA
MILES 0000.00

PARAMETER			R	NO	MEAN	STAN DEV	MAXIMUM	MINIMUM	BEG	END
WATER	TEMP	CENT		4	9.70000	7.80897	20.0000	1.60000	81/11	82/09
TURB	TRBIDMTR	HACH FTU		2	7.05000	.919248	7.70000	6.40000	81/12	82/09
CNDUCTVY	AT 25C	MICROMHO		6	296.500	67.1170	428.000	240.000	81/11	82/09
BOD	5 DAY	MG/L		5	3.10000	2.44131	7.20000	1.20000	81/11	82/09
			K	1	1.00000		1.00000	1.00000	82/01	82/01
			T	6	2.75000	2.34585	7.20000	1.00000	81/11	82/09
COD	LOWLEVEL	MG/L		4	17.3750	5.46771	25.0000	12.0000	81/11	82/07
			K	2	10.0000	.000000	10.0000	10.0000	82/08	82/09
			T	6	14.9167	5.69577	25.0000	10.0000	81/11	82/09
PH		SU		1	8.27000		8.27000	8.27000	82/09	82/09
LAB	PH	SU		6	8.23666	.202040	8.41000	7.90000	81/11	82/09
T ALK	CACO3	MG/L		3	100.000	7.21110	106.000	92.0000	81/11	82/08
RESIDUE	TOT NFLT	MG/L		6	14.1667	7.90991	24.0000	5.00000	81/11	82/09
NH3+NH4-	N TOTAL	MG/L		2	.050000	.000061	.050000	.050000	82/07	82/08
			K	4	.050000	.000050	.050000	.050000	81/11	82/09
			T	6	.050000	.000055	.050000	.050000	81/11	82/09
NO2-N	TOTAL	MG/L		4	.015000	.005774	.020000	.010000	81/11	82/08
			K	2	.020000	.000000	.020000	.020000	82/01	82/09
			T	6	.016667	.005164	.020000	.010000	81/11	82/09
NO3-N	TOTAL	MG/L		6	.346666	.206075	.670000	.100000	81/11	82/09
TOT KJEL	N	MG/L		6	.436666	.100930	.600000	.300000	81/11	82/09
PHOS-TOT		MG/L P		3	.058667	.024090	.075000	.031000	81/11	82/07
			K	3	.050000	.000075	.050000	.050000	82/01	82/09
			T	6	.054333	.015958	.075000	.031000	81/11	82/09
T ORG C	C	MG/L		1	8.00000		8.00000	8.00000	81/12	81/12
			K	1	6.00000		6.00000	6.00000	81/11	81/11
			T	2	7.00000	1.41421	8.00000	6.00000	81/11	81/12
TOT HARD	CACO3	MG/L		6	128.883	8.26892	139.000	115.000	81/11	82/09
CALCIUM	CA-TOT	MG/L		6	36.1333	2.81125	40.0000	33.0000	81/11	82/09
MGNSIUM	MG,TOT	MG/L		6	9.96666	.711856	11.0000	9.00000	81/11	82/09

TABLE RD 1-178 (Continued)

STATION NUMBER 504030
41 27 51.0 082 38 50.0 2
SANDUSKY WATER SUPPLY INTAKE
LAKE ERIE 060292 (CENTRAL BASIN SANDUSKY AREA)
MILES 0000.00

PARAMETER			R	NO	MEAN	STAN DEV	MAXIMUM	MINIMUM	BEG	END
SODIUM	NA,TOT	MG/L		3	8.13333	1.20556	9.40000	7.00000	81/11	82/09
PTSSIUM	K,TOT	MG/L		3	1.63333	.208172	1.80000	1.40000	81/11	82/09
CHLORIDE	TOTAL	MG/L		2	14.5000	.707107	15.0000	14.0000	81/11	81/12
SULFATE	SO4-TOT	MG/L		2	22.5000	4.94975	26.0000	19.0000	81/11	81/12
SILICA	DISOLVED	MG/L		2	.230000	.070711	.280000	.180000	81/11	81/12
ARSENIC	AS,TOT	UG/L	K	2	10.0000	.000000	10.0000	10.0000	81/11	81/12
CADMIUM	CD,TOT	UG/L	K	6	2.00000	2.32379	5.00000	.500000	81/11	82/09
CHROMIUM	CR,TOT	UG/L	K	6	30.0000	.000000	30.0000	30.0000	81/11	82/09
COPPER	CU,TOT	UG/L		5	24.0000	6.51920	30.0000	15.0000	81/11	82/09
			K	1	30.0000		30.0000	30.0000	81/12	81/12
			T	6	25.0000	6.32456	30.0000	15.0000	81/11	82/09
IRON	FE,TOT	UG/L		6	696.666	871.956	2470.00	290.000	81/11	82/09
LEAD	PB,TOT	UG/L		2	2.50000	.707107	3.00000	2.00000	82/07	82/09
			K	4	4.25000	1.50000	5.00000	2.00000	81/11	82/08
			T	6	3.66667	1.50555	5.00000	2.00000	81/11	82/09
MANGNESE	MN	UG/L		5	42.2000	19.2146	66.0000	20.0000	81/11	82/09
			K	1	30.0000		30.0000	30.0000	81/12	81/12
			T	6	40.1667	17.8932	66.0000	20.0000	81/11	82/09
NICKEL	NI,TOTAL	UG/L	K	6	60.0000	30.9839	100.000	40.0000	81/11	82/09
ZINC	ZN,TOT	UG/L		1	20.0000		20.0000	20.0000	82/08	82/08
			K	5	18.0000	10.9545	30.0000	10.0000	81/11	82/09
			T	6	18.3333	9.83193	30.0000	10.0000	81/11	82/09
ALUMINUM	AL,TOT	UG/L		2	600.000	282.843	800.000	400.000	81/11	81/12
FEC COLI	MFM-FCBR	/100ML		4	16.2500	12.0934	33.0000	6.00000	81/12	82/09
MBAS		MG/L		1	.070000		.070000	.070000	81/12	81/12
			K	1	.050000		.050000	.050000	81/11	81/11
			T	2	.060000	.014142	.070000	.050000	81/11	81/12
RESIDUE	DISS-180 C	MG/L		6	166.833	33.3555	195.000	102.000	81/11	82/09
T ACDITY	HOT-MG/L	CACO3	K	1	10.0000		10.0000	10.0000	81/11	81/11
MERCURY	HG,TOTAL	UG/L	K	2	.500000	.000000	.500000	.500000	81/11	81/12

TABLE RD 1-179

STATIONS RECORDED IN PAST 305(b) REPORTS;
NOT SAMPLED DURING THIS REPORTING PERIOD

STATION DESCRIPTION	RM (MAP)	STATION #	DISTRICT	PURPOSE	USE DESIGNATION
BLACK RIVER					
French Creek near Lorain (Rt 301)	0.7 (D-4)	501530	NEDO	OEPA (LF)	WWH
CUYAHOGA RIVER					
Cuyahoga River at Cleveland (W. Third St)	3.0 (E-2)	502140 (04208506)	NEDO	OEPA (LF)	WWH
Cuyahoga River near Akron (USGS gage, Old Portage Trail)	40.3 (E-2)	502160 (04206000)	NEDO	OEPA (LF)	WWH
GREAT MIAMI RIVER					
Great Miami River Below Lakeview (Rt 33)	156.2 (H-1)	600000	SWDO	OEPA (M)	WWH
Great Miami River below Piqua (Peterson Rd)	108.8 (H-2)	600090	SWDO	OEPA (LF)	WWH
Great Miami River at New Baltimore (Blue Rock Road)	20.8 (H-11)	600030 (03274600)	SWDO	NAWQMN, NASQAN (M)	WWH
Great Miami River near Lawrenceburg (Lost Bridge)	5.2 (H-11)	600300	SWDO	OEPA (M)	WWH
Mad River near Urbana (SR 36)	39.0 (H-3)	600130	SWDO	OEPA (LF)	CWH
Mad River below Springfield (lower Valley Pike)	23.5 (H-4)	610010	SWDO	OEPA (LF)	WWH
Seven Mile Creek near Seven Mile (Taylor School Rd)	1.3 (H-10)	600340	SWDO	OEPA (Q)	WWH

TABLE RD 1-179 (Continued)

STATION DESCRIPTION	RM (MAP)	STATION #	DISTRICT	PURPOSE	USE DESIGNATION
HOCKING RIVER					
Hocking River at Athens (U.S. 33)	39.6 (O-2)	601650 (03159510)	SEDO	NAMWQN, NASQAN (M)	WWH
HURON RIVER					
East Branch Huron River below Norwalk (Schaeffer Rd)	2.0 (D-2)	501070	NWDO	OEPA (LF)	WWH
Rattlesnake Creek at Norwalk (Lais Rd)	1.7 (D-2)	501080	NWDO	OEPA (Q)	WWH
LITTLE BEAVER CREEK					
Middle Fork near Salem (Beachwood Rd)	52.8 (S-1)	602120	NEDO	OEPA (LF)	WWH
LITTLE MIAMI RIVER					
Little Miami River at Milford (U.S. 50)	12.7 (K-5)	600520 (03245500)	SWDO	NAWQMN, NASQAN (M)	WWH
MAUMEE RIVER					
Maumee River at Defiance (WTP)	65.6 (A-7)	500180 (04184100)	NWDO	OEPA (LF)	WWH
Maumee River near Florida (CR 18)	54.6 (A-10)	510210	NWDO	OEPA (LF)	WWH
Auglaize River at Wapakoneta (Water St)	74.5 (A-3)	510240	NWDO	OEPA (Q)	WWH
Auglaize River at Wapakoneta (Fox Ranch Rd)	70.8 (A-3)	510250	NWDO	OEPA (Q)	WWH
Auglaize River near Fort Jennings (SR 224)	39.5 (A-3)	500070	NWDO	OEPA (LF)	WWH
Auglaize River near Cloverdale (SR 114)	28.5 (A-3)	500110	NWDO	OEPA (LF)	WWH
Auglaize River near Oakwood (SR 613)	19.3 (A-3)	500130	NWDO	OEPA (LF)	WWH

TABLE RD 1-179 (Continued)

STATION DESCRIPTION	RM (MAP)	STATION #	DISTRICT	PURPOSE	USE DESIGNATION
BLANCHARD RIVER (CONTINUED)					
Blanchard River near Dupont (CR 21)	2.5 (A-5)	500090	NWDO	OEPA (LF)	WWH
Little Auglaize River below Melrose (SR 613)	2.0 (A-2)	510200	NWDO	OEPA (LF)	WWH
Ottawa River above Lima (Thayer Rd)	45.4 (A-4)	500270	NWDO	OEPA (LF)	WWH
Ottawa River near Kalida (CR 19)	0.7 (A-4)	500150	NWDO	OEPA (LF)	WWH
St. Joseph River below Edgerton (SR 49)	8.9 (A-9)	510180	NWDO	OEPA (LF)	WWH
St. Marys River at St. Marys (Aqueduct Rd)	47.2 (A-1)	510010	NWDO	OEPA (Q)	WWH
St. Marys River at St. Marys (Glynwood Rd)	43.0 (A-1)	510020	NWDO	OEPA (Q)	WWH
St. Marys River near Willshire (SR 81)	1.3 (A-1)	510170	NWDO	OEPA (LF)	WWH
Tiffin River at Defiance (W. High St)	0.8 (A-8)	500160	NWDO	OEPA (LF)	WWH
MILL CREEK					
Mill Creek near Hamilton (Tylersville Rd)	24.5 (J)	600440	SWDO	OEPA (M)	WWH
MUSKINGUM RIVER					
Muskingum River at McConnelsville (SR 37)	48.2 (P-16)	601860 (03150000)	SEDO	NAWQMN, NASQAN (M)	WWH
Chippewa Creek at Easton (USGS gage at SR 585)	6.8 (P-6)	611810 (03116200)	NEDO	OEPA (LF)	WWH
Jerome Fork near Ashland (Rt 42)	13.0 (P-2)	611860	NWDO	OEPA (Q)	WWH
Jerome Fork near Ashland (CR 1032)	10.5 (P-2)	611870	NWDO	OEPA (Q)	WWH

TABLE RD 1-179 (Continued)

STATION DESCRIPTION	RM (MAP)	STATION #	DISTRICT	PURPOSE	USE DESIGNATION
MUSKINGUM RIVER (CONTINUED)					
Kokosing River near Mt. Vernon (SR 661)	23.6 (P-12)	611880	NWDO	OEPA (Q)	WWH
Kokosing River near Mt. Vernon (Twp Rd 257)	21.6 (P-12)	611890	NWDO	OEPA (Q)	WWH
Rocky Fork near Mansfield (SR 39)	12.5 (P-1)	611900	NWDO	OEPA (Q)	WWH
Rocky Fork near Mansfield (Illinois Ave)	10.1 (P-1)	611910	NWDO	OEPA (Q)	WWH
Sandy Creek at Waynesburg (USGS gage)	17.4 (P-7)	611800 (03117500)	NEDO	OEPA (LF)	WWH
Wills Creek at Cambridge (Twp Rd 452)	54.9 (P-17)	611760	SEDO	OEPA (LF)	WWH
Wills Creek below Dam (Twp Rd 274)	6.2 (P-17)	611770 (03143500)	SEDO	OEPA (LF)	WWH
PORTAGE RIVER					
North Branch Portage River at Pemberville (N. River Rd)	0.1 (B-1)	500520	NWDO	OEPA (LF)	WWH
ROCKY RIVER					
West Branch Rocky River near Medina (Fenn Rd)	28.0 (D-5)	501820	NEDO	OEPA (Q)	WWH
Abrams Creek near Berea (Cedar Point Rd)	0.9 (D-5)	501830	NEDO	OEPA (LF)	WWH
SANDUSKY RIVER					
Sandusky River below Upper Sandusky (CR 121)	78.7 (C-2)	500860	NWDO	OEPA (LF)	WWH
Sandusky River below Mexico (Scott Bridge Rd)	48.0 (C-2)	500830	NWDO	OEPA (LF)	WWH
Sandusky River at Fremont (Twp Rd 549)	13.0 (C-4)	500890	NWDO	OEPA (Q)	WWH

TABLE RD 1-179 (Continued)

STATION DESCRIPTION	RM (MAP)	STATION #	DISTRICT	PURPOSE	USE DESIGNATION
SCIOTO RIVER					
Scioto River near Kenton (CR 175)	206.8 (M-1)	610760	NWDO	OEPA (Q)	WWH
Scioto River near Kenton (CR 106)	201.0 (M-1)	610770	NWDO	OEPA (Q)	WWH
Scioto River near Richmondale (Higby Rd)	56.0 (M-11)	600770 (03234500)	SEDO	NAWQMN, NASQAN (M)	WWH
Big Darby Creek below Plain City (Cemetary Pike Rd)	50.3 (M-6)	600790	CDO	OEPA (LF)	EWH
Little Scioto River near Marion (SR 309)	8.9 (M-2)	610750	NWDO	OEPA (Q)	WWH
Little Scioto River near Marion (SR 739)	2.6 (M-5)	610740	NWDO	OEPA (Q)	WWH
Paint Creek below Washington C.H. (SR 35)	64.3 (M-13)	600740	CDO	OEPA (LF)	WWH
Rocky Fork of Paint Creek near Barrett's Mills (Browning Rd)	2.8 (M-14)	610800 (03232500)	SEDO	OEPA (Q)	EWH
Walnut Creek below Baltimore (Leonard Rd)	36.6 (M-9)	600750	CDO	OEPA (LF)	WWH
Whetstone Creek near Mt. Gilead (SR 61)	21.5 (M-3)	610780	NWDO	OEPA (Q)	WWH
Whetstone Creek near Mt. Gilead (Cardington Rd)	19.9 (M-3)	610790	NWDO	OEPA (Q)	WWH
WABASH RIVER					
Wabash River near New Corydon, Ind (State Line)	465.6 (G)	610000	NWDO	OEPA (LF)	WWH
Beaver Creek at Celina - (SR 703)	10.7 (G)	605010	NWDO	OEPA (Q)	WWH
Beaver Creek at Celina-Meyer Rd.	9.6 (G)	605020	NWDO	OEPQ (Q)	WWH

TABLE RD 1-179 (Continued)

STATION DESCRIPTION	RM (MAP)	STATION #	DISTRICT	PURPOSE	USE DESIGNATION
MINOR OHIO TRIBUTARIES					
Bullskin Creek near Cedron (Cedron Rd)	3.1 (K-6)	609100	SWDO	OEPA (LF)	WWH
Captina Creek near Powhatan Point (SR 148)	3.2 (S-4)	609210	SEDO	OEPA (LF)	WWH
Cross Creek near Mingo Junction (Twp Rd 167)	1.7 (S-2)	609250	SEDO	OEPA (LF)	WWH
Duck Creek near Marietta (SR 26)	1.8 (R-1,2)	609180	SEDO	OEPA (LF)	WWH
Eagle Creek near Ripley (CR 49)	3.7 (L-3)	609120	SEDO	OEPA (LF)	EWH
Indian Guyan Creek near Bradrick (SR 243)	2.5 (N-5)	609150	SEDO	OEPA (LF)	WWH
Leading Creek near Middleport (SR 7)	1.4 (O-4)	609160	SEDO	OEPA (LF)	WWH
Little Muskingum River near Reno (CR 9)	2.3 (R-2)	609190	SEDO	OEPA (LF)	WWH
Little Scioto River near Sciotoville (Twp Rd 248)	2.1 (N-4)	609130	SEDO	OEPA (LF)	EWH
McMahon Creek near Bellaire (SR 147)	1.3 (S-4)	609220	SEDO	OEPA (LF)	WWH
Pine Creek near Garden City (SR 52)	4.1 (N-4)	609140	SEDO	OEPA (LF)	WWH
Shade River near Keno (Twp Rd 114)	5.9 (O-4)	609170	SEDO	OEPA (LF)	EWH
Short Creek near Rayland (SR 150)	3.9 (S-3)	609240	SEDO	OEPA (LF)	WWH
Sunfish Creek near Cameron (SR 78)	6.8 (S-4)	609200	SEDO	OEPA (LF)	WWH
Symmes Creek near Chesapeake (SR 7)	0.4 (N-3)	609270	SEDO	OEPA (LF)	
Ten Mile Creek near New Palestine (SR 749)	1.1 (K-6)	609050	SWDO	OEPA (LF)	WWH

TABLE RD 1-179 (Continued)

STATION DESCRIPTION	RM (MAP)	STATION #	DISTRICT	PURPOSE	USE DESIGNATION
MINOR OHIO TRIBUTARIES (CONTINUED)					
Wheeling Creek near Bridgeport (CR 24)	1.5 (S-3)	609230	SEDO	OEPA (LF)	WWH
White Oak Creek below Georgetown (Rt. 221)	5.7 (L-1)	609110	SEDO	OEPA (LF)	WWH
Yellow Creek near Hammondsville (SR 213)	2.5 (S-2)	609260	SEDO	OEPA (LF)	WWH