

Ohio River

Water Quality Fact Book 1988



Ohio River Valley Water Sanitation Commission

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*As of November 1, 1988

Ohio River Water Quality Fact Book

*A Compendium of Information for Use in Water Quality
Analysis of the Ohio River*



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FOREWORD

This is the second edition of the Ohio River Water Quality Fact Book, first published in 1986. With the publication of this second edition, corrections and additions as suggested by its users have been incorporated as well as updating of information where appropriate. This is intended to be a dynamic document with periodic updating and supplementation as new information becomes available. Users of this document are encouraged to suggest other information for inclusion in subsequent editions.

Many factors, both natural and manmade, affect the water quality of the Ohio River. In order to properly interpret the results of water quality studies, it is necessary to have some understanding of these factors. The information in this book is divided into five sections: Hydrology, Land Use, Water Use, Water Quality, and Directories and Publications. Each section begins with a brief discussion of potential water quality relationships and information included in that section. To aid the reader in finding the necessary information, a table of contents and an index are included.

Ohio River mile points are included in many of the tables in this text, beginning at Pittsburgh, Mile Point 0, and ending where the Ohio River enters the Mississippi River at Mile Point 981. Tributary mile points are expressed as zero (0) where they enter the Ohio River.

In addition to Commission sources, much of the information has been developed by other agencies actively concerned with the Ohio River including the U.S. Army Corps of Engineers, U.S. Geological Survey and water pollution control agencies of the six states along the Ohio River -- Illinois, Indiana, Kentucky, Ohio, Pennsylvania and West Virginia.

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SECTION I: HYDROLOGY

Hydrology is the branch of science dealing with the distribution of water on the surface of the earth and underground and with the cycle involving precipitation, evaporation and flow. For purposes of water quality analysis of rivers, the most important hydrologic factor is stream flow in terms of quantity and velocity. The quantity of flow in a river is a function of the amount of precipitation falling on the drainage basin and the runoff characteristics of the basin. Seasonal variations in precipitation result in similar variations in stream flow. In the Ohio River, flow is also influenced by operations of the Corps of Engineers for the purpose of maintaining year-round navigation on the river.

Long-term records of stream flow are maintained by the U.S. Geological Survey which operates gages on streams throughout the country. Twelve gages are operated on the Ohio River.

Navigation dams on the Ohio River have a significant impact on the velocity of the stream. The modern high lift dams have resulted in a deeper, slower moving river than existed previously. This suggests certain influences on water quality: settling of some materials would increase, resulting in lower turbidity, while atmospheric reaeration would decrease, resulting in lower dissolved oxygen. The year in which each high lift dam was constructed is therefore critical information in the interpretation of historic water quality data.

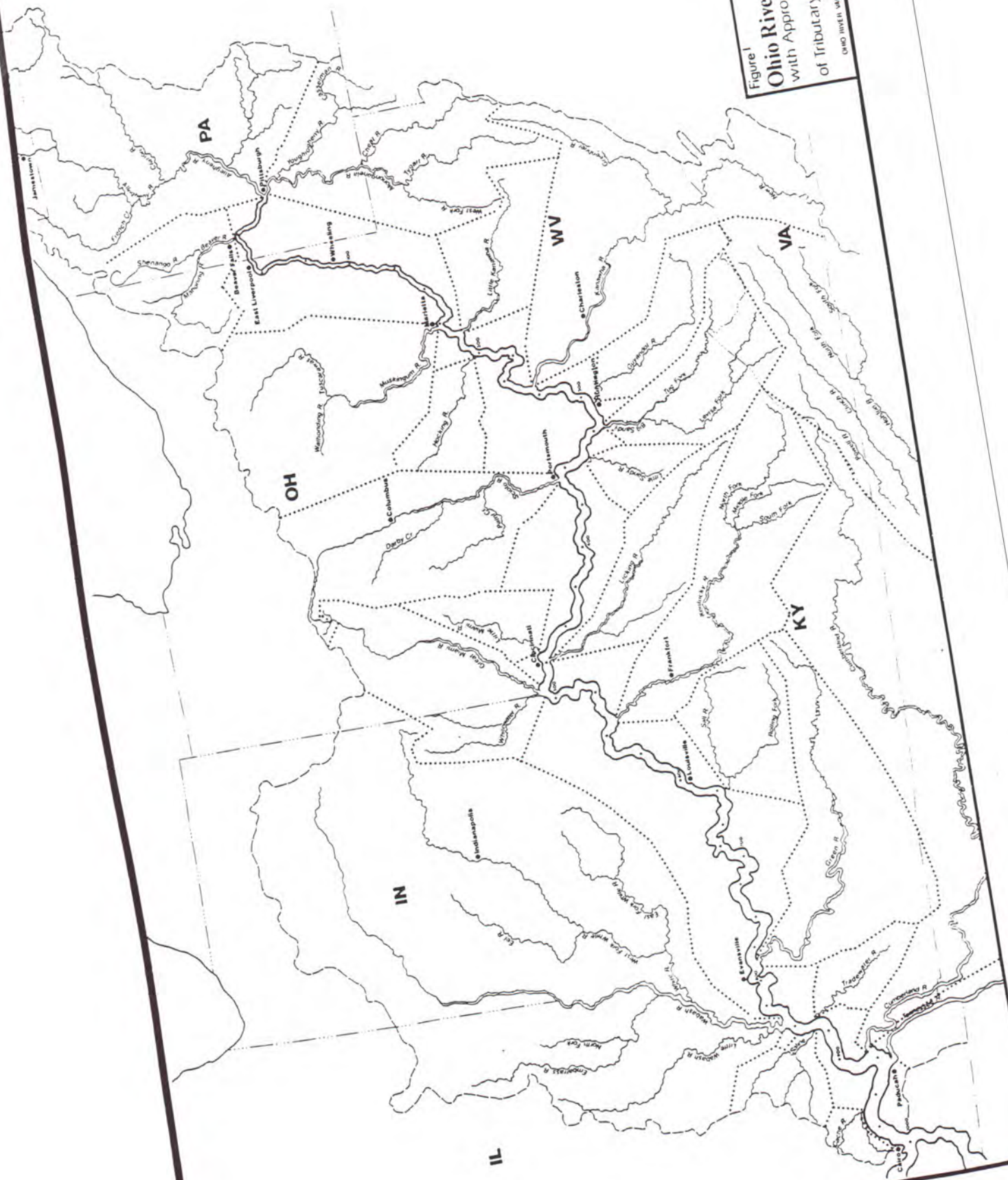
Most of the Ohio River Basin is drained by tributaries; less than five percent of the basin drains directly to the main stem. The runoff characteristics of the tributaries therefore determine the quantity of flow in the Ohio at any time.

The Corps of Engineers operates numerous reservoirs in the Ohio River Basin. Most were built for flood control purposes; many are also used to provide flow augmentation at critical periods. This has resulted in an increase in the quantity of flow which could otherwise be expected in the dry weather months.

Climate is a major factor in determining the seasonal variation in stream flow. Precipitation is the most obvious factor. The form of precipitation, whether it is rain or snow, is also significant. Air temperature, besides determining the form of precipitation, is also a dominant factor determining water temperature. The amount of sunshine will affect the photosynthetic activity of aquatic organisms while wind speed can influence the surface turbulence of a large river which leads to atmospheric reaeration. Evaporation is a significant factor in the seasonal variation of stream flows. Inspection of the data presented shows that precipitation is lowest in February. Due to the effects of evaporation, however, stream flow is lowest in September.

The lowest flow to be expected for seven consecutive days in a ten-year period has been established as the basis for the Commission's water quality standards and associated treatment requirements for wastewater discharges. Flow on the Ohio River is determined to a large degree by the dam operations of the Corps of Engineers which are designed to maintain a minimum depth of nine feet for navigation purposes. The average and minimum monthly flows at selected stations are provided. Daily flow data is posted on ORSANCO's electronic bulletin board. This electronic bulletin board can be accessed by anyone with a computer and communication software. The telephone number and information on use can be obtained from the Commission office.

Figure 1
Ohio River Basin
 with Approximate Boundaries
 of Tributary Watersheds
 OHIO RIVER VALLEY WATER SANITATION COMMISSION



UNITED STATES GEOLOGICAL SURVEY STREAM FLOW GAGES -
OHIO RIVER MAIN STEM

NUMBER -----	LOCATION -----	OHIO RIVER MILE POINT -----	DRAINAGE AREA SQUARE MILES -----	YEAR INITIATED -----	COMMENT -----
03086000	AT SEWICKLEY, PA	13.3	19,500	1933	COE*
03111534	AT MARTINS FERRY, OH	87.5	24,700	1978	COE
03150800	NEAR MARIETTA, OH	174.3	35,600	1968	COE; GAGE HEIGHT ONLY
03159530	AT BELLEVILLE DAM, WV	203.9	39,300	1974	
03201500	AT POINT PLEASANT, WV	265.4	52,760	1977	COE; GAGE HEIGHT ONLY
03206000	AT HUNTINGTON, WV	311.6	55,900	1934	COE; FLOWS LESS THAN 50,000 CFS NOT RECORDED
03216600	AT GREENUP DAM, KY	341.5	62,000	1968	
03277200	AT MARKLAND DAM, KY	531.5	83,170	1970	
03294500	AT LOUISVILLE, KY	607.3	91,170	1928	
03303280	AT CANNELTON DAM, KY	720.8	97,000	1975	
03322000	AT EVANSVILLE, IN	792.3	107,000	1936	LOW FLOWS NOT RECORDED
03611500	AT METROPOLIS, IL	944.1	203,000	1928	

*COE - PART OF U.S. ARMY CORPS OF ENGINEERS TELEMETRY NETWORK

SOURCE OF INFORMATION: U.S.G.S. YEARBOOKS FOR PENNSYLVANIA, OHIO, WEST VIRGINIA, KENTUCKY, INDIANA, ILLINOIS

UNITED STATES GEOLOGICAL SURVEY STREAM FLOW GAGES -
MAJOR OHIO RIVER TRIBUTARIES

NUMBER	RIVER	LOCATION	MILE POINT	DRAINAGE AREA SQUARE MILES	YEAR INITIATED	COMMENT
-----	-----	-----	-----	-----	-----	-----
03049500	ALLEGHENY	AT NATRONA, PA	24.3	11,410	1938	COE*
03085000	MONONGAHELA	AT BRADDOCK, PA	11.2	7,337	1938	
03107500	BEAVER	AT BEAVER FALLS, PA	5.5	3,106	1935	COE
03150000	MUSKINGUM	AT MCCONNELSVILLE, OH		7,422	1921	
03198000	KANAWHA	AT CHARLESTON, WV	54.3	10,419	1939	COE
03155000	LITTLE KANAWHA	AT PALESTINE, WV	27.9	1,515	1915	COE
03234500	SCIOTO	AT HIGBY, OH		5,131	1930	
03245500	LITTLE MIAMI	AT MILFORD, OH	12.9	1,203	1915	COE
03253500	LICKING	AT CATAWBA, KY	48.0	3,300	1914	
03274000	GREAT MIAMI	AT HAMILTON, OH	34.8	3,630	1907	
03290500	KENTUCKY	AT LOCKPORT, KY	31.0	6,180	1925	
03320000	GREEN	AT CALHOUN, KY	63.3	7,566	1930	
03377500	WABASH	AT MOUNT CARMEL, IL	94.4	28,635	1908	PRE-1900 DATA AVAILABLE
03438220	CUMBERLAND	AT GRAND RIVERS, KY	30.6	17,598	1939	
03609500	TENNESSEE	AT PADUCAH, KY	21.6	40,200	1936	PRE-1900 DATA AVAILABLE

*COE - PART OF U.S. ARMY CORPS OF ENGINEERS TELEMETRY NETWORK

SOURCE OF INFORMATION: U.S.G.S. YEARBOOKS FOR PENNSYLVANIA, OHIO, WEST VIRGINIA, KENTUCKY, INDIANA, ILLINOIS

OHIO RIVER NAVIGATION DAMS

<u>Mile Point</u>	<u>Name</u>	<u>Normal Pool Elevation</u>	<u>Year Placed* In Operation</u>
6.2	Emsworth	710.0	1921
13.2	Dashields	692.0	1929
31.7	Montgomery	682.0	1936
54.4	New Cumberland	664.5	1959
84.2	Pike Island	644.0	1963
126.4	Hannibal	623.0	1972
161.7	Willow Island	602.0	1972
203.9	Belleville	582.0	1965
237.5	Racine	560.0	1967
279.2	Gallipolis	538.0	1937
341.0	Greenup	515.0	1962
436.2	Meldahl	485.0	1964
531.5	Markland	455.0	1963
606.8	McAlpine	420.0	1961
720.7	Cannelton	383.0	1972
776.1	Newburgh	358.0	1975
846.0	Uniontown	342.0	1975
918.5	Smithland	324.0	1980
938.9	Lock and Dam 52	302.0	1928
962.6	Lock and Dam 53	290.0	1929

*Year placed in operation defined as when the pool was raised.

Information provided by the U.S. Army Corps of Engineers

SELECTED TRIBUTARIES TO THE OHIO RIVER

<u>Tributary Name</u>	<u>Enters Ohio at Mile Point</u>	<u>Stream Length (Miles)</u>	<u>Drainage Area (Square Miles)</u>
Allegheny River (PA)	0.0 (N)*	325	11,700
Monongahela River (PA)	0.0 (S)	128	7,400
Chartiers Creek (PA)	2.5 (S)		277
Beaver River (PA)	25.4 (N)	21	3,130
Raccoon Creek (PA)	29.6 (S)		200
Little Beaver R. (PA)	39.5 (N)	51	510
Yellow Creek (OH)	50.4	34	240
Cross Creek (OH)	71.6	27	128
Buffalo Creek (WV)	74.7		160
Short Creek (OH)	81.4	29	147
Wheeling Creek (OH)	91.0	30	108
Wheeling Creek (WV)	91.0		300
McMahon Creek (OH)	94.7	28	91
Grave Creek (WV)	102.5		75
Captina Creek (OH)	109.6	39	181
Fish Creek (WV)	113.8		250
Sunfish Creek (OH)	118.0	31	114
Fishing Creek (WV)	128.3		220
Middle Island Creek (WV)	154.0		560
Little Muskingum River (OH)	168.3	70	315
Duck Creek (OH)	170.7	52	228
Muskingum River (OH)	172.2	112	8,040
Little Kanawha River (WV)	184.6	160	2,320
Little Hocking River (OH)	191.8	18	103
Hocking River (OH)	199.3	100	1,190
Shade River (OH)	210.6	38	221
Shady Creek (WV)	220.6		115
Mill Creek (WV)	231.5		230
Leading Creek (OH)	254.2	30	151
Kanawha River (WV)	265.7	97	12,200
Raccoon Creek (OH)	276.0	109	684
Guyandot River (WV)	305.2	66	1,670
Symmes Creek (OH)	308.7	70	356
Twelvepole Creek (WV)	313.2		440
Big Sandy River (WV-KY)	317.1	27	4,280
Little Sandy River (KY)	336.4		724
Pine Creek (OH)	346.9	48	185
Little Scioto River (OH)	349.0	41	233
Tygarts Creek (KY)	353.3		336
Scioto River (OH)	356.5	237	6,510

SELECTED TRIBUTARIES TO THE OHIO RIVER
(continued)

<u>Tributary Name</u>	<u>Enters Ohio at Mile Point</u>	<u>Stream Length (Miles)</u>	<u>Drainage Area (Square Miles)</u>
Kinniconnick Creek (KY)	368.1		253
Ohio Brush Creek (OH)	388.0	57	435
Eagle Creek (OH)	415.7	31	154
Whiteoak Creek (OH)	423.9	49	234
Little Miami R. (OH)	464.1	90	1,670
Licking River (KY)	470.2	320	3,670
Mill Creek (OH)	472.5	28	166
Great Miami River (OH)	491.1	161	5,400
Tanners Creek (IN)	494.8		136
Laughory Creek (IN)	498.7		350
Kentucky River (KY)	545.8	255	6,970
Little Kentucky River (KY)	546.5	35	147
Indian Kentucky River (IN)	550.5		150
Silver Creek (IN)	606.5		225
Salt River (KY)	629.9	125	2,890
Big Indiana Creek (IN)	657.0		249
Blue River (IN)	663.0		466
Sinking Creek (KY)	700.9		199
Anderson Creek (IN)	731.5		276
Blackford Creek (KY)	742.2		124
Little Pigeon Creek (IN)	773.0		415
Green River (KY)	784.2	370	9,230
Pigeon Creek (IN)	792.9		375
Wabash River (IN-IL)	848.0	475	33,100
Saline River (IL)	867.3	27	1,170
Tradewater River (KY)	873.5	110	1,000
Cumberland River (KY)	920.4	693	17,920
Tennessee River (KY)	934.5	652	40,910
Cache River (IL)	975.7		720

*(N) or (S) indicates tributary enters the Ohio River on North or South side

Drainage Area Summary

Total Ohio River Basin	-	195,326 square miles
Tributaries with drainage areas 1,000 square miles or more	-	182,370 square miles (93.4 percent)
Tributaries with drainage areas less than 1,000 square miles	-	12,956 square miles (6.6 percent)

CORPS OF ENGINEERS RESERVOIRS IN THE OHIO RIVER BASIN
WHICH PROVIDE FLOW AUGMENTATION

<u>Tributary Basin</u>	<u>Project</u>	<u>Year Completed</u>	<u>Drainage Area (Square Miles)</u>	<u>Storage Capacity (1000 Acre Feet)</u>
Allegheny	Kinzua Dam	1967	2,180	1180.0
	East Branch, Clarion R.	1952	72.4	84.3
	Woodcock Creek	1974	45.7	20.0
Monongahela	Youghiogheny	1948	434	254.0
	Stonewall Jackson	(UC)	102	74.6
Beaver	Berlin	1943	249	91.2
	Mosquito Creek	1944	97.4	104.1
	Shenango	1967	589	192.4
	M.J. Kirwan	1967	80.5	78.7
Little Kanawha	Burnsville	1978	165	65.9
Kanawha	Summersville	1964	803	413.4
	Sutton	1960	537	265.3
Guyandot	R.D. Bailey	1980	540	203.7
Big Sandy	Fishtrap	1969	395	164.4
	J.W. Flannagan	1963	221	145.7
	Paintsville	1983	92.5	73.5
	Yatesville	(UC)	208	87.0
Little Sandy	Grayson	1969	196	119.0
Scioto	Paint Creek	1974	573	145.0
Little Miami	Caesar Creek	1978	237	242.2
	East Fork	1978	342	294.8
Licking	Cave Run	1974	826	614.1
Great Miami	C.J. Brown	1974	82.0	63.7
Kentucky	Buckhorn	1961	408	167.4
	Carr Fork	1976	58.2	47.7
Salt	Taylorsville	1983	353	291.7
Green	Barren River	1964	940	815.2
	Nolin	1963	703	609.4
	Rough River	1960	454	334.4
	Green River	1969	682	723.2
Wabash	Huntington	1969	707	153.1
	Cecil M. Hardin	1960	216	132.8

CORPS OF ENGINEERS RESERVOIRS IN THE OHIO RIVER BASIN
WHICH PROVIDE FLOW AUGMENTATION
(Continued)

<u>Tributary Basin</u>	<u>Project</u>	<u>Year Completed</u>	<u>Drainage Area (Square Miles)</u>	<u>Storage Capacity (1000 Acre Feet)</u>
Wabash (cont'd)	Mississinewa	1968	809	368.4
	Monroe	1966	441	441.0
	Patoka	1978	168	301.6
	Salamonie	1967	553	263.6
Cumberland	Martins Fork	1978	55.7	21.1

(UC) - Project under construction

Information provided by the U.S. Army Corps of Engineers

ANNUAL CLIMATIC DATA FOR SELECTED CITIES

OHIO RIVER BASIN

	Average Temperature °F	Average Wind Speed MPH	Average % Sunshine	Average No. Days with Precipitation	Annual Precipitation, Inches	Annual Snow and Ice, Inches
Charleston, WV	54.8	6.4	49	152	42.43	32.2
Cincinnati, OH	54.5	9.1	56	129	40.14	24.1
Columbus, OH	51.7	8.7	49	137	36.97	28.8
Indianapolis, IN	52.1	9.6	55	125	39.12	23.3
Louisville, KY	56.2	8.4	56	125	43.56	17.3
Pittsburgh, PA	50.3	9.2	47	154	36.29	44.7

Source: Statistical Abstract of the United States 1987, 107th edition
U.S. Department of Commerce, Bureau of the Census

MONTHLY AIR TEMPERATURES AT SELECTED CITIES - OHIO RIVER BASIN

		Temperatures in Degrees Fahrenheit											
		Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
Charleston, WV	Record Max.	79	78	87	91	93	98	102	100	102	92	85	80
	Normal Daily Max.	41.8	45.4	55.4	67.3	76.0	82.5	85.2	84.2	78.7	67.7	55.6	45.9
	Normal Daily Mean	32.9	35.6	44.8	55.3	63.9	71.0	74.5	73.7	67.6	55.9	45.3	36.9
	Normal Daily Min.	23.9	25.8	34.1	43.3	51.8	59.4	63.8	63.1	56.4	44.0	35.0	27.8
	Record Min.	-12	-6	0	19	26	33	46	41	34	17	6	-2
Cincinnati, OH	Record Max.	69	73	83	89	93	97	100	102	98	88	80	70
	Normal Daily Max.	38.0	42.0	52.3	65.2	75.0	82.9	86.3	85.7	79.4	67.4	52.8	42.2
	Normal Daily Mean	30.3	33.5	43.0	54.7	64.3	72.4	76.1	75.0	68.5	56.7	44.6	34.9
	Normal Daily Min.	22.5	25.0	33.7	44.2	53.6	61.9	65.9	64.4	57.7	46.0	36.3	27.5
	Record Min.	-25	-10	-11	17	27	39	47	43	33	16	1	-11
Columbus, OH	Record Max.	74	73	85	89	94	102	100	100	100	90	80	72
	Normal Daily Max.	34.7	38.1	49.3	62.3	72.6	81.3	84.4	83.0	76.9	65.0	50.7	39.4
	Normal Daily Mean	27.1	29.8	40.0	51.4	61.4	70.2	73.8	72.4	65.8	53.9	42.1	32.1
	Normal Daily Min.	19.4	21.5	30.6	40.5	50.2	59.0	63.2	61.7	54.6	42.8	33.5	24.7
	Record Min.	-19	-13	-2	18	25	35	43	39	31	20	5	-10
Indianapolis, IN	Record Max.	71	74	85	89	93	102	104	100	100	90	81	70
	Normal Daily Max.	34.2	38.5	49.3	63.1	73.4	82.3	85.2	83.7	77.9	66.1	50.8	39.2
	Normal Daily Mean	26.0	29.9	40.0	52.4	62.5	71.6	75.1	73.2	66.6	54.8	41.8	31.5
	Normal Daily Min.	17.8	21.1	30.7	41.7	51.5	60.9	64.9	62.7	55.3	43.4	32.8	23.7
	Record Min.	-20	-19	-7	16	28	39	44	41	28	17	-2	-15
Louisville, KY	Record Max.	77	77	86	91	95	102	105	101	104	92	84	73
	Normal Daily Max.	40.8	45.0	54.9	67.5	76.2	84.0	87.6	86.7	80.6	69.2	55.5	45.4
	Normal Daily Mean	32.5	35.9	45.1	56.6	65.4	73.7	77.6	76.4	69.9	57.7	46.1	37.2
	Normal Daily Min.	24.1	26.8	35.2	45.6	54.6	63.3	67.5	66.1	59.1	46.2	36.6	28.9
	Record Min.	-20	-19	-1	24	31	42	50	49	33	23	-1	-9
Pittsburgh, PA	Record Max.	68	69	80	87	91	96	99	97	97	87	82	72
	Normal Daily Max.	34.1	36.8	47.6	60.7	70.8	79.1	82.7	81.1	74.8	62.9	49.8	38.4
	Normal Daily Mean	26.7	28.8	38.5	50.1	59.7	68.1	72.0	70.6	64.1	52.5	41.6	31.4
	Normal Daily Min.	19.2	20.7	29.4	39.4	48.5	57.1	61.3	60.1	53.3	42.1	33.3	24.3
	Record Min.	-18	-12	-1	15	26	34	42	40	31	16	-1	-7

Source: Statistical Abstract of the United States 1987, U.S. Department of Commerce, Bureau of the Census

AVERAGE PRECIPITATION IN SELECTED CITIES - OHIO RIVER BASIN

	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
Charleston, WV	16	14	15	14	13	11	13	11	9	10	12	14
Precipitation	3.48	3.11	4.00	3.52	3.68	3.32	5.36	4.15	3.01	2.63	2.90	3.27
Snow & Ice	10.6	8.9	4.8	0.4	-	-	-	-	-	0.2	2.4	4.9
Cincinnati, OH	12	11	13	13	12	11	10	9	8	8	11	12
Precipitation	3.13	2.73	3.95	3.58	3.84	4.09	4.28	2.97	2.91	2.54	3.12	3.00
Snow & Ice	7.6	5.4	4.4	0.5	T	-	-	-	-	-	2.4	3.8
Columbus, OH	13	12	14	13	13	11	11	9	8	9	12	13
Precipitation	2.75	2.18	3.23	3.41	3.76	4.01	4.01	3.70	2.76	1.91	2.64	2.61
Snow & Ice	8.9	6.3	4.5	0.7	T	-	-	-	T	-	2.6	5.8
Indianapolis, IN	12	10	13	12	12	10	9	9	8	8	10	12
Precipitation	2.65	2.46	3.61	3.68	3.66	3.99	4.32	3.46	2.74	2.51	3.04	3.00
Snow & Ice	6.3	5.9	3.6	0.5	T	-	-	-	-	-	2.0	5.0
Louisville, KY	12	10	13	12	12	10	11	9	8	8	10	11
Precipitation	3.38	3.23	4.73	4.11	4.15	3.60	4.10	3.31	3.35	2.63	3.49	3.48
Snow & Ice	5.9	4.4	3.4	0.2	-	-	-	-	-	T	1.2	2.2
Pittsburgh, PA	17	14	16	13	12	11	11	10	9	11	13	17
Precipitation	2.86	2.40	3.58	3.28	3.54	3.30	3.83	3.31	2.80	2.49	2.34	2.57
Snow & Ice	12.2	10.0	8.4	0.8	0.2	-	-	-	-	0.2	3.7	8.5
Days	- Number of days with .01 inch or more precipitation											
Precipitation	- Average monthly precipitation in inches											
Snow & Ice	- Average total snow and ice pellets in inches											
T	- Trace											

Source: Statistical Abstract of the United States 1987, 107th edition
U.S. Department of Commerce, Bureau of the Census

SUNSHINE AND WIND IN SELECTED CITIES - OHIO RIVER BASIN

	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
Parkersburg, WV Charleston, WV	Sun Wind 32 7.6	37 7.8	44 8.5	50 7.8	56 6.2	59 5.6	62 5.1	59 4.4	59 4.8	54 5.3	37 6.8	30 7.2
Cincinnati, OH	Sun Wind 41 10.6	44 10.5	50 11.1	55 10.8	60 8.8	66 8.0	68 7.2	66 6.7	66 7.4	58 8.1	44 9.6	38 10.2
Columbus, OH	Sun Wind 36 10.3	42 10.3	44 11.8	51 11.3	56 9.5	60 8.6	60 7.5	60 7.2	61 7.9	55 8.9	37 10.4	30 10.5
Indianapolis, IN	Sun Wind 41 11.0	50 11.0	50 11.8	54 11.3	60 9.5	66 8.6	67 7.5	69 7.2	66 7.9	61 8.9	42 10.4	39 10.5
Louisville, KY	Sun Wind 43 9.6	48 9.7	49 10.4	55 9.9	61 8.0	66 7.5	66 6.7	67 6.4	66 6.8	61 7.2	46 8.9	40 9.3
Pittsburgh, PA	Sun Wind 33 10.7	38 10.7	44 10.9	48 10.5	52 9.0	57 8.2	59 7.5	56 7.1	58 7.5	52 8.5	38 9.9	29 10.5

Sun - Average percentage of possible sunshine
Wind - Average wind speed, miles per hour

Source: Statistical Abstract of the United States 1987, 107th edition, pg. 203, U.S. Department of Commerce
Bureau of the Census

AVERAGE MONTHLY STREAM FLOW - OHIO RIVER

Station-Mile Point (Date Initiated)	Stream Flow in Thousand Cubic Feet per Second											
	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
South Heights - 15.2 (3/63)	39.1	52.0	68.2	54.1	37.9	25.6	17.8	14.5	13.8	18.1	30.0	47.8
East Liverpool - 40.2 (12/61) ¹	45.7	54.8	76.9	61.3	41.8	28.7	19.8	16.3	14.6	19.1	32.4	50.8
Shadyside - 102.4 (4/75)	46.1	62.8	70.5	65.6	44.0	32.8	24.8	22.3	20.4	27.2	41.9	57.0
Addison - 260.0 (6/75)	59.9	85.2	111.9	99.0	62.2	46.9	34.1	29.9	21.3	31.5	56.9	83.8
Gallipolis 279.2 (10/75)	82.9	118.7	149.2	123.8	86.0	65.8	46.2	39.7	27.1	44.5	74.6	101.9
Huntington - 306.9 (9/61)	96.8	122.4	164.8	129.1	91.8	58.4	38.6	32.9	27.9	35.6	65.0	95.9
Cincinnati -462.8 (9/61)	126.4	155.5	215.8	169.2	120.2	72.1	48.1	40.2	34.8	41.7	75.1	128.5
Markland -531.5 (5/69) ²	139.5	171.6	209.9	189.1	136.4	91.1	58.5	50.7	45.3	51.6	91.6	162.1
Louisville - 600.6 (3/62)	145.1	176.7	249.6	197.4	139.4	81.8	53.7	43.8	38.9	45.6	79.2	148.6
West Point - 625.9 (4/75)	143.7	181.0	229.9	199.6	142.2	96.6	64.6	56.2	42.9	61.2	101.5	175.9
Cannelton - 720.7 (10/75)	153.9	182.7	242.4	214.3	150.4	103.2	69.2	60.3	45.8	62.8	103.6	184.9
Evansville - 791.5 (10/68)	191.3	227.4	269.7	244.8	184.0	118.8	74.4	61.0	54.1	64.0	111.9	202.9
Joppa - 952.3 (8/75)	345.8	383.3	497.0	438.7	346.6	235.2	159.3	140.6	124.0	141.6	219.6	411.8

¹Includes data from Stratton (1963-1975)

²Seasonal operation, 1976-1979

AVERAGE MONTHLY STREAM FLOW OHIO RIVER TRIBUTARIES

Flow in Thousand Cubic Feet per Second

Station-Mile Point* (Date Initiated)	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
Allegheny River at Oakmont 0.0, 13.3 (4/62)	23.0	27.6	40.8	33.3	21.8	14.9	10.2	7.60	7.45	11.1	19.0	27.6
Monongahela River at S. Pittsburgh 0.0, 4.5 (6/75)	12.5	23.0	24.4	20.5	13.7	9.00	7.65	5.39	4.72	8.50	12.3	19.1
Beaver River at Beaver Falls 25.3, 5.3 (12/61)	4.37	5.82	7.35	5.32	3.95	2.88	2.15	1.78	1.85	1.87	3.27	4.98
Kanawha River at Winfield 265.7, 31.1 (9/61)	22.4	29.8	36.9	25.1	20.8	13.3	9.24	7.88	6.22	10.0	15.3	21.2
Big Sandy River at Louisa 317.1, 20.3 (1/69)	9.47	8.89	9.39	8.40	6.73	3.43	1.93	1.84	1.35	2.03	3.79	5.78
Licking River at Covington 470.2, 4.5 (5/69)	6.21	7.50	7.46	6.77	4.60	2.72	1.73	1.47	1.87	1.55	2.66	6.44
Wabash River at New Harmony 848.0, 51.5 (8/75)	33.6	36.9	68.5	64.2	44.3	30.6	21.2	19.5	11.9	11.6	21.2	43.7

* Mile point of confluence with Ohio, mile point of monitor

MINIMUM MONTHLY AVERAGE STREAM FLOW - OHIO RIVER

Stream Flow in Thousand Cubic Feet per Second

Station-Mile Point (Date Initiated)	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
South Heights - 15.2 (3/63)	10.3 (1977)	20.6 (1963)	20.0 (1969)	27.0 (1976)	16.8 (1982)	8.67 (1977)	4.61 (1966)	4.68 (1965)	4.80 (1964)	3.55 (1963)	9.90 (1964)	19.1 (1963)
East Liverpool - 40.2 (12/61) ¹	11.7 (1977)	22.7 (1963)	22.1 (1969)	32.5 (1976)	19.3 (1986)	10.6 (1977)	6.12 (1965)	5.61 (1962)	5.82 (1964)	3.95 (1963)	9.83 (1963)	19.1 (1976)
Shadyside - 102.4 (6/75)	12.1 (1977)	25.5 (1980)	55.4 (1983)	38.1 (1976)	20.7 (1986)	11.9 (1977)	13.2 (1975)	10.5 (1985)	7.85 (1983)	9.47 (1982)	22.0 (1978)	33.1 (1976)
Addison - 260.0 (6/75)	15.5 (1977)	36.9 (1980)	72.6 (1983)	49.2 (1986)	22.1 (1982)	16.2 (1977)	16.3 (1975)	14.1 (1983)	10.0 (1986)	12.0 (1982)	29.6 (1978)	43.6 (1976)
Gallipolis - 279.2 (10/75)	24.2 (1977)	58.4 (1980)	90.6 (1986)	53.3 (1982)	40.4 (1977)	22.9 (1976)	32.2 (1983)	17.3 (1983)	12.6 (1983)	17.2 (1982)	35.2 (1978)	59.5 (1980)
Huntington - 306.9 (9/61)	25.5 (1977)	57.4 (1964)	50.7 (1969)	57.4 (1971)	38.2 (1963)	18.0 (1965)	13.4 (1965)	10.3 (1965)	9.07 (1964)	6.71 (1963)	15.8 (1963)	16.8 (1964)
Cincinnati - 462.8 (9/61)	31.3 (1977)	76.2 (1964)	60.0 (1969)	66.0 (1986)	41.3 (1976)	21.5 (1966)	18.2 (1964)	11.6 (1965)	9.77 (1964)	7.10 (1963)	16.6 (1963)	31.5 (1963)
Markland - 531.5 (5/69) ²	32.2 (1977)	97.0 (1978)	65.5 (1969)	72.0 (1986)	71.4 (1977)	28.4 (1977)	34.7 (1975)	20.2 (1983)	20.1 (1973)	19.3 (1969)	43.6 (1969)	74.6 (1980)
Louisville - 600.6 (3/62)	66.6 (1976)	86.7 (1964)	63.4 (1969)	70.2 (1971)	53.2 (1962)	22.4 (1966)	19.3 (1964)	12.2 (1965)	10.4 (1964)	7.87 (1963)	17.5 (1963)	32.5 (1963)
West Point - 625.9 (4/75)	37.6 (1977)	97.6 (1980)	126.2 (1983)	77.7 (1986)	45.6 (1976)	30.3 (1977)	32.2 (1975)	20.7 (1983)	16.7 (1983)	24.6 (1982)	53.5 (1980)	77.4 (1980)
Cannelton - 720.7 (10/75)	39.0 (1977)	101.4 (1980)	130.2 (1983)	86.0 (1986)	50.6 (1976)	31.3 (1977)	52.5 (1983)	21.5 (1983)	16.4 (1983)	24.5 (1982)	51.9 (1980)	77.7 (1980)
Evansville - 791.5 (10/68)	42.3 (1981)	110.4 (1977)	79.3 (1969)	83.4 (1986)	52.4 (1976)	39.0 (1977)	35.2 (1968)	24.6 (1983)	20.9 (1968)	23.9 (1968)	42.0 (1971)	4
Joppa - 952.3 (8/75)	77.2 (1981)	171.6 (1977)	268.9 (1981)	126.6 (1986)	123.4 (1986)	102.3 (1977)	110.9 (1985)	66.8 (1986)	46.9 (1985)	74.0 (1980)	107.8 (1980)	107.8 (1980)

¹Includes data from Stratton (1963-1975)

²Seasonal operation, 1976-1979

MINIMUM MONTHLY AVERAGE FLOW OHIO RIVER TRIBUTARIES

Flow in Thousand Cubic Feet per Second

Station-Mile Point* (Date Initiated)	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
Allegheny River at Oakmont 0.0, 13.3 (4/62)	6.65 (1977)	7.67 (1963)	10.0 (1969)	16.6 (1976)	7.9 (1985)	5.46 (1977)	2.17 (1962)	1.88 (1962)	1.82 (1963)	1.29 (1963)	3.69 (1964)	6.92 (1962)
Monongahela River at S. Pittsburgh 0.0, 4.5 (6/75)	3.82 (1977)	8.58 (1978)	12.9 (1976)	10.1 (1976)	3.59 (1982)	3.48 (1977)	2.76 (1975)	3.18 (1976)	1.86 (1983)	3.35 (1983)	7.18 (1978)	11.6 (1980)
Beaver River at Beaver Falls 25.3, 5.3 (12/61)	1.14 (1963)	1.04 (1963)	1.81 (1969)	2.01 (1986)	1.23 (1982)	1.29 (1966)	1.01 (1965)	.93 (1962)	.84 (1962)	.52 (1982)	.86 (1963)	.84 (1962)
Kanawha River at Winfield 265.7, 31.1 (9/61)	4.20 (1966)	16.9 (1978)	17.1 (1966)	8.2 (1986)	7.13 (1964)	3.62 (1964)	2.71 (1964)	2.61 (1965)	2.30 (1963)	2.13 (1963)	2.60 (1965)	2.58 (1965)
Big Sandy River at Louisa 317.1, 20.3 (1/69)	1.26 (1981)	5.12 (1984)	4.06 (1969)	1.62 (1986)	1.32 (1976)	.65 (1970)	.62 (1970)	.64 (1983)	.51 (1969,83)	.42 (1969)	.90 (1969)	1.65 (1980)
Licking River at Covington 470.2, 4.5 (5/69)	.44 (1981)	3.78 (1974)	1.39 (1983)	2.56 (1976)	.58 (1976)	.15 (1977)	.34 (1983)	.08 (1984)	.18 (1983)	.21 (1983)	.43 (1981)	1.37 (1980)
Wabash River at New Harmony 848.0, 51.5 (8/75)	3.23 (1977)	8.13 (1977)	18.6 (1981)	26.1 (1981)	9.73 (1976)	7.11 (1977)	10.6 (1977)	6.90 (1976)	4.38 (1976)	4.17 (1976)	4.58 (1976)	3.82 (1976)

* Mile point of confluence with Ohio, mile point of monitor

AVERAGE ANNUAL EVAPORATIVE LOSS FROM THE OHIO RIVER
BY NAVIGATION POOL

Navigation Pool	Mile Point	Surface Area (ft ²)*	Mean Annual Pool Evaporation (in)**	<u>Consumptive Water Use</u>		
				million ft ³ /yr	cfs	MGD
Emsworth	0.0 - 6.2	4.8 x 10 ⁷	28.9	115.6	3.7	2.4
Dashields	6.2 - 13.3	5.0 x 10 ⁷	29.2	121.7	3.9	2.5
Montgomery	13.3 - 31.7	1.2 x 10 ⁸	29.5	295.0	9.4	6.1
New Cumberland	31.7 - 54.4	1.5 x 10 ⁸	30.1	376.3	11.9	7.7
Pike Island	54.4 - 84.2	1.9 x 10 ⁸	30.7	486.1	15.4	10.0
Hannibal	84.2 - 126.4	2.3 x 10 ⁸	31.5	603.8	19.1	12.4
Willow Island	126.4 - 161.7	2.4 x 10 ⁸	32.5	650.0	20.6	13.3
Belleville	161.7 - 203.9	2.9 x 10 ⁸	33.6	812.0	25.7	16.7
Racine	203.9 - 237.5	2.1 x 10 ⁸	34.2	598.5	19.0	2.3
Gallipolis	237.5 - 279.2	2.7 x 10 ⁸	34.3	771.8	24.5	15.9
Greenup	279.2 - 341.0	4.6 x 10 ⁸	34.5	1,322.5	41.9	27.2
Meldahl	341.0 - 436.2	8.0 x 10 ⁸	34.4	2,293.3	72.7	47.1
Markland	436.2 - 531.5	9.0 x 10 ⁸	34.3	2,572.5	81.6	52.9
McAlpine	531.5 - 606.8	7.9 x 10 ⁸	34.7	2,284.4	72.4	46.9
Cannelton	606.8 - 720.7	1.1 x 10 ⁹	35.2	3,226.7	102.3	66.3
Newburgh	720.7 - 776.1	7.3 x 10 ⁸	35.4	2,153.5	68.3	44.3
Uniontown	776.1 - 846.0	8.3 x 10 ⁸	35.5	2,455.4	77.9	50.8
Smithland	846.0 - 918.5	1.1 x 10 ⁹	35.9	3,290.8	104.4	67.7
Lock & Dam 52	918.5 - 938.9	3.7 x 10 ⁸	36.2	1,116.2	35.4	22.9
Lock & Dam 53	938.9 - 962.6	4.9 x 10 ⁸	36.2	1,478.2	46.9	30.4
Cairo	962.6 - 981.0	2.7 x 10 ⁸	36.5	821.3	26.0	16.8
Total				27,845.6	883.0	572.6

*Mean Pool Surface Area calculated from US Army Corps of Engineers' navigation maps.

**Source: US Department of Commerce, Environmental Science Services Administrator (1968). Climatic Atlas of the United States. 80 pp.

CRITICAL FLOWS AND DISCHARGE QUANTITIES

Segment	Mile Point	*Critical Flow Cubic Feet Per Second	Discharge Load Which Will Raise Stream Concentration by 1 mg/l	
			Pounds Per Day	Kilograms Per Day
Pittsburgh to Montgomery Dam	0.0 - 32.4	4,800	25,900	11,800
Montgomery Dam to Willow Island Dam	32.4 - 161.8	5,800	31,300	14,200
Willow Island Dam to Gallipolis Dam	161.8 - 279.2	6,800	36,700	16,700
Gallipolis Dam to Greenup Dam	279.2 - 341.0	8,600	45,900	20,900
Greenup Dam to Meldahl Dam	341.0 - 436.2	9,800	52,900	24,100
Meldahl Dam to McAlpine Dam	436.2 - 605.8	11,000	59,400	27,000
McAlpine Dam to Uniontown Dam	605.8 - 846.0	13,000	70,200	31,900
Uniontown Dam to Smithland Dam	846.0 - 918.5	18,800	102,000	46,100
Smithland Dam to Cairo Point	918.5 - 981.0	46,300	250,000	114,000

*Minimum 7 consecutive day low flow occurring once in 10 years based on calculations by the U.S. Corps of Engineers

OHIO RIVER CHANNEL GEOMETRY

River at Normal Pool

Pool	Mile Point	Average Depth (feet)	Average Width (feet)	Length (miles)	Bottom Slope (feet per mile)

Emsworth	0.0 - 6.2	21	1456	6.2	0
Dashields	6.2 - 13.3	14	1467	7.1	0.7
Montgomery	13.3 - 31.2	25	1376	18.4	0.2
New Cumberland	31.7 - 54.4	22	1439	22.7	0.2
Pike Island	54.4 - 84.2	19	1338	29.8	0.4
Hannibal	94.2 - 120.4	21	1133	36.2	0.5
Willow Island	120.4 - 161.7	23	1194	35.3	0.6
Belleville	161.7 - 203.9	24	1327	42.2	0.5
Racine	203.9 - 237.5	24	1275	33.6	0.5
Gallipolis	237.5 - 279.2	26	1154	41.7	0.6
Greenup	279.2 - 341.0	26	1111	61.8	0.4
Meldahl	341.0 - 436.2	23	1603	95.2	0.3
Markland	436.2 - 531.5	31	1594	95.3	0.4
McAlpine	531.5 - 605.0	25	2040	73.5	0.4
Cannelton	605.0 - 720.7	32	1674	115.7	0.3
Newburgh	720.7 - 776.1	28	2477	55.4	0.3
Uniontown	776.1 - 846.0	28	2401	69.9	0.3
Smithland	846.0 - 918.5	30	4116	72.5	0.3
L&D 52	918.5 - 938.9	26	3662	20.4	0.3
L&D 53	938.9 - 962.6	20	3925	23.7	0.2
Open	962.6 - 981.0	13	3135	18.4	0.2

Derived from cross sectional area data provided by the U.S. Corps of Engineers.

SECTION II: LAND USE

Land use is a significant factor in determining both the runoff characteristics of a drainage basin and the water quality of its streams. In urban areas with considerable paved surfaces and storm drainage systems, runoff is conveyed quickly to streams. Runoff is conveyed more slowly from forested areas. Runoff from cropland may contain nutrients from fertilizers as well as pesticides. Urban runoff can contain numerous constituents such as road salts and heavy metals.

Summaries of land use are presented for entire drainage areas, including tributaries, of certain Ohio River locations and major tributary basins.

The remainder of this section presents data on population within the basin. The number of people living in an area will aid in determining the amount of domestic wastewater generated. The data indicate that the population residing in the basin continues to grow, and that most of the growth is occurring in outlying areas. The central cities generally show population declines.

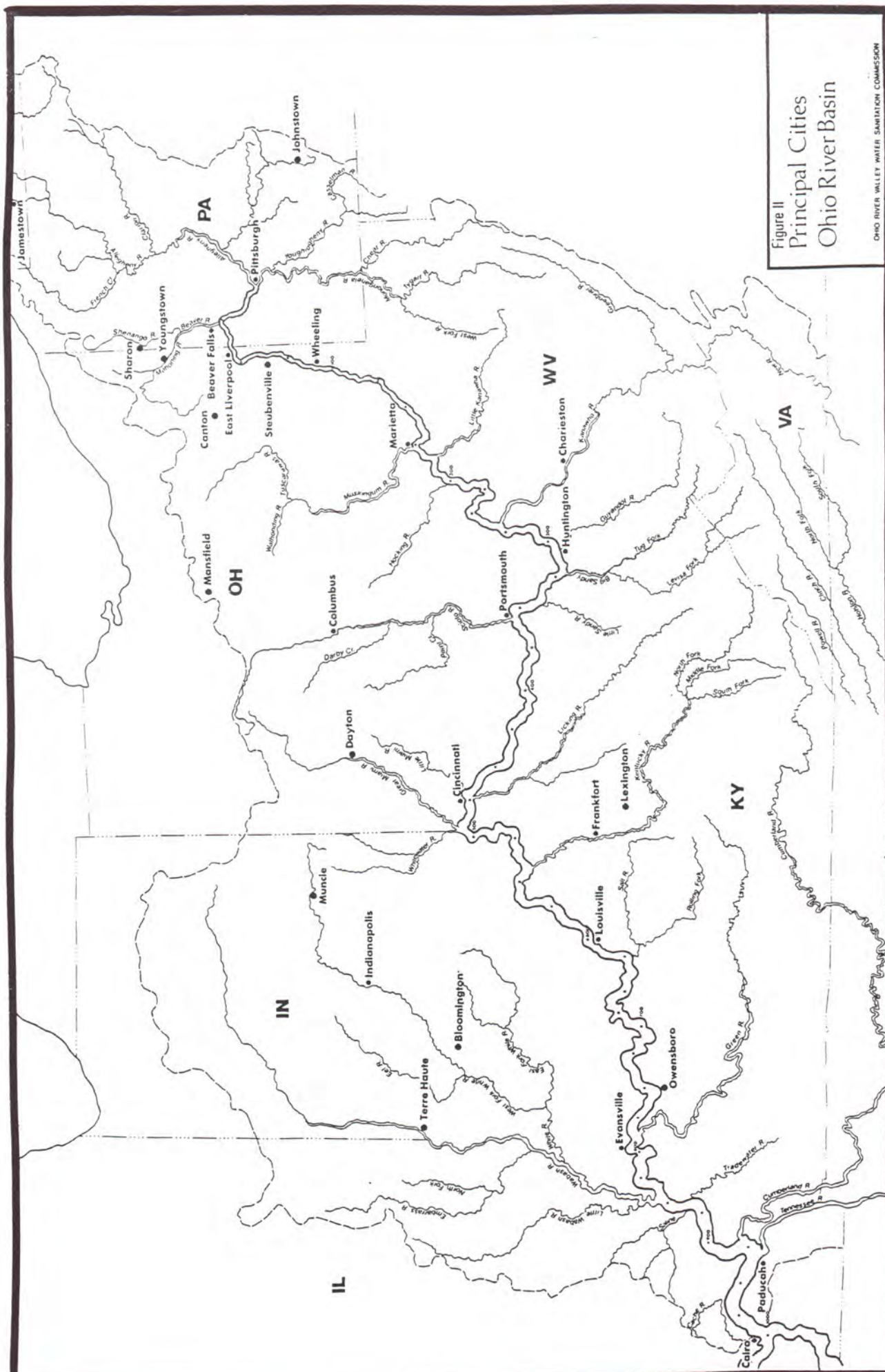


Figure II
Principal Cities
Ohio River Basin

LAND USE IN DRAINAGE AREAS OF OHIO RIVER LOCATIONS

<u>Location</u>	<u>Mile Point</u>	<u>Drainage Area (Square Miles)</u>	<u>Percent</u>				
			<u>Cropland</u>	<u>Pasture</u>	<u>Forest</u>	<u>Urban</u>	<u>Other</u>
South Heights	15.2	19,500	10.5	7.6	49.7	4.7	27.5
Pike Island	84.2	24,700	14.6	8.7	46.4	6.3	24.0
Willow Island	161.8	27,560	14.7	10.1	47.2	6.1	21.9
Belleville	203.9	39,300	15.7	12.3	45.7	5.7	20.6
Gallipolis	279.2	52,760	14.1	13.0	51.7	5.1	16.1
Huntington	306.9	55,900	13.8	12.8	53.0	5.0	15.4
Greenup	341.0	62,000	13.9	12.5	53.9	4.9	14.8
Markland	531.5	83,170	22.9	13.3	45.9	5.9	12.0
Louisville	600.6	91,170	22.6	14.7	45.2	5.6	11.9
Cannelton	720.7	97,000	22.6	15.5	44.8	5.5	11.6
Evansville	791.5	107,000	23.7	15.6	44.2	5.2	11.3
Smithland	918.5	144,170	28.9	14.3	36.7	5.2	14.9
Joppa	952.3	*162,090	27.8	14.5	38.5	5.0	14.2

* Tennessee River Drainage Area Not Included

Source: Derived from The Ohio Main Stem: Water and Related Land Resources Study Report, Ohio River Basin Commission, January, 1978.

LAND USE IN MAJOR OHIO RIVER TRIBUTARY BASINS

<u>Basin</u>	<u>Area Square Miles</u>	<u>Percent Cropland</u>	<u>Percent Pasture</u>	<u>Percent Forest</u>	<u>Percent Urban</u>	<u>Percent Mine Disturbed</u>
Allegheny	11,700	12.1	3.3	50.2	3.4	2.0
Monongahela	7,400	8.1	14.8	50.7	4.1	3.0
Beaver	3,130	33.6	10.7	30.7	11.9	2.0
Muskingum	8,040	34.0	17.3	34.3	8.6	3.5
Kanawha	12,200	7.6	15.2	71.0	3.1	1.6
Big Sandy	4,280	5.7	5.3	82.5	1.6	3.5
Scioto	6,510	60.0	9.0	21.0	7.0	0.1
Little Miami	1,670	58.0	12.3	13.6	11.3	0.0
Licking	3,670	23.9	33.8	34.7	3.9	0.1
Great Miami	5,400	62.8	10.4	10.5	11.1	0.0
Green	9,230	33.2	17.6	39.5	2.4	1.3
Wabash	33,100	43.3	9.9	15.0	4.8	0.4
Cumberland	17,920	18.9	16.2	52.9	3.9	-

Source: Land Use and Hydrologic Impacts on Water Quality - Ohio River Basin,
Ohio River Valley Water Sanitation Commission, March 6, 1980.

LAND AREA AND POPULATION WITHIN THE OHIO RIVER BASIN
ORSANCO COMPACT STATES

<u>State</u>	<u>Area Within Ohio River Basin (Square Miles)</u>	<u>Population within Ohio River Basin</u>	
		<u>1970</u>	<u>1980</u>
Illinois	10,745	606,062	634,259
Indiana	29,135	3,597,990	3,830,357
Kentucky	39,375	3,163,493	3,603,516
New York	1,955	158,355	172,303
Ohio	29,570	6,298,122	6,558,723
Pennsylvania	15,620	3,761,083	3,693,843
Virginia	7,175	438,698	531,743
West Virginia	20,610	1,616,986	1,789,585
Total	154,185	19,640,789	20,814,329

Net Change in Population, 1970-1980 - +1,173,540 (+6.0%)

Persons per square mile, 1980 - 135

Land area information taken from Commission sources.

Population information derived from U.S. Census.

POPULATION OF CITIES IN OHIO RIVER BASIN, 1970, 1980 AND 1984
CITIES WITH POPULATION OVER 100,000
ORSANCO COMPACT DISTRICT

	City Population			*SMSA Population		
	1970	1980	1984	1970	1980	1984
Cincinnati, OH	454,000	385,000	370,000	1,387,000	1,401,000	1,412,000
Columbus, OH	540,000	565,000	566,000	1,149,000	1,244,000	1,288,000
Dayton, OH	243,000	203,000	181,000	975,000	942,000	931,000
Evansville, IL	139,000	130,000	130,000	255,000	276,000	282,000
Indianapolis, IN	737,000	701,000	710,000	1,111,000	1,167,000	1,203,000
Lexington-Fayette, KY	108,000	204,000	210,000	267,000	318,000	329,000
Louisville, KY	362,000	298,000	290,000	907,000	957,000	964,000
Pittsburgh, PA	520,000	424,000	403,000	2,556,000	2,423,000	2,337,000
Youngstown, OH	141,000	115,000	108,000	537,000	531,000	513,000
Total	3,244,000	3,025,000	2,968,000	9,144,000	9,259,000	9,259,000

SMSA - Standard Metropolitan Statistical Area

Source: Statistical Abstract of the United States, 1987, 107th edition, pp. 28-32
U.S. Department of Commerce, Bureau of the Census.

STANDARD METROPOLITAN STATISTICAL AREA POPULATION, 1970 AND 1984

ORSANCO COMPACT DISTRICT

	<u>1970</u>	<u>1984</u>
Anderson, IN	139,000	139,000
Bloomington-Normal, IN	85,000	99,000
Canton, OH	394,000	401,000
Charleston, WV	257,000	269,000
Cincinnati-Hamilton, OH-KY-IN	1,387,000	1,412,000
Columbus, OH	1,149,000	1,288,000
Dayton-Springfield, OH	975,000	931,000
Evansville, IN-KY	255,000	282,000
Huntington-Ashland, WV-KY-OH	307,000	332,000
Indianapolis, IN	1,111,000	1,203,000
Johnstown, PA	263,000	256,000
Kokomo, IN	100,000	109,000
LaFayette, IN	109,000	122,000
Lexington-Fayette, KY	267,000	329,000
Louisville, KY-IN	907,000	964,000
Mansfield, OH	130,000	131,000
Muncie, IN	129,000	129,000
Owensboro, KY	79,000	86,000
Parkersburg-Marietta, WV-OH	144,000	158,000
Pittsburgh, PA	2,556,000	2,337,000
Sharon, PA	127,000	128,000
Steubenville-Weirton, OH-WV	166,000	163,000
Terre Haute, IN	138,000	137,000
Wheeling, WV-OH	182,000	186,000
Youngstown-Warren, OH	537,000	513,000
Total	11,893,000	12,104,000
 Total Compact District	 19,640,789	 20,814,329

Source: Statistical Abstract of the United States 1987, 107th edition, pg. 29
U.S. Department of Commerce, Bureau of the Census

RIVER MILE POINTS OF COUNTY LINES

<u>Pennsylvania</u>		<u>West Virginia</u>	
Allegheny	0.0 - 15.4	40.2 - 65.6	Hancock
Beaver	15.4 - 40.2	65.6 - 81.5	Brooke
		81.5 - 93.0	Ohio
		93.0 - 121.6	Marshall
		121.6 - 135.5	Wetzel
Columbiana	40.2 - 49.8	135.5 - 147.8	Tyler
Jefferson	49.8 - 83.8	147.8 - 164.9	Pleasants
Belmont	83.8 - 110.9	164.9 - 205.7	Wood
Monroe	110.9 - 140.5	205.7 - 234.1	Jackson
Washington	140.5 - 196.4	234.1 - 287.2	Mason
Athens	196.4 - 199.6	287.2 - 311.9	Cabell
Meigs	199.6 - 256.7	311.9 - 317.1	Wayne
Gallia	256.7 - 291.7		
Lawrence	291.9 - 334.8		
Scioto	334.8 - 374.7		
Adams	374.7 - 405.5	317.1 - 324.8	Boyd
Brown	405.5 - 429.5	324.8 - 357.5	Greenup
Clermont	429.5 - 455.2	357.5 - 401.5	Lewis
Hamilton	455.2 - 490.0	401.5 - 421.0	Mason
		421.0 - 440.3	Bracken
		440.3 - 443.7	Pendelton
		443.7 - 470.2	Campbell
		470.2 - 477.5	Kenton
		477.5 - 516.6	Boone
		516.6 - 535.0	Gallatin
		535.0 - 553.3	Carroll
		553.3 - 576.2	Trimble
		576.2 - 592.9	Oldham
		592.9 - 629.9	Jefferson
		629.9 - 633.8	Hardin
		633.8 - 689.5	Meade
		689.5 - 712.4	Breckinridge
		712.4 - 742.1	Hancock
		742.1 - 771.2	Daviess
		771.2 - 832.0	*Henderson
		832.0 - 873.5	Union
		873.5 - 893.0	Crittenden
		893.0 - 934.6	Livingston
		934.6 - 956.0	McCracken
		956.0 - 981.0	Ballard
<u>Indiana</u>		<u>Kentucky</u>	
Dearborn	490.0 - 498.8		
Ohio	498.8 - 509.9		
Switzerland	509.9 - 546.4		
Jefferson	546.4 - 571.7		
Clark	571.7 - 606.8		
Floyd	606.8 - 617.0		
Harrison	617.0 - 602.9		
Crawford	602.9 - 681.4		
Perry	681.4 - 731.4		
Spencer	731.4 - 768.8		
Warrick	768.8 - 780.5		
Vanderberg	816.0 - 848.0		
Posey	816.0 - 848.0		
<u>Illinois</u>			
Gallatin	848.0 - 867.4		
Hardin	867.4 - 896.7		
Pope	896.7 - 928.3		
Massac	928.3 - 956.0		
Pulaski	956.0 - 974.8		
Alexander	974.8 - 981.0		

*Henderson County, Kentucky also includes land north of the river from mile point 784.6 to mile point 791.4 and from mile point 800.3 to mile point 802.8.

SECTION III: WATER USE

The Ohio River is used for numerous purposes including navigation, water supply, and recreation. Several uses which are highly dependent on water quality are public and industrial water supply, fishing, and swimming. Other uses such as navigation and industrial use, can affect water quality. The river is also used for assimilation of treated wastewaters. The degree of treatment provided affects the ability of the river to assimilate an effluent, which in turn affects its ability to support other uses.

Recreational use takes place all along the river. There are no formal bathing beaches on the river. Water contact recreation on the Ohio consists primarily of water skiing and swimming from boats. In the summary of waterbodies, the number of docks and launch ramps in each waterbody is presented to provide an indication of the extent of pleasure boating which takes place. A list of bridges crossing the main stem is included for help in identifying locations when on the river.

The Ohio River serves as a source of drinking water for over three million people. A variety of industries use the river for cooling and process water. This section includes lists of municipal and industrial intakes and discharges. In order to further quantify municipal discharges, a list of those facilities served by combined sewers and pretreatment programs are included.

Power generating facilities use large quantities of water for cooling purposes. Older facilities have once-through cooling in which the water used is returned to the river at an elevated temperature. In order to prevent thermal pollution, newer plants have off-stream cooling in which the water is recirculated through cooling towers. While these systems eliminate the thermal pollution potential, they consume more water. A list of power facilities on the main stem is included.

The final list in this section is of river terminals which handle petroleum products and/or hazardous chemicals. These facilities are potential sites for spills to the river during the loading and unloading of cargo.

SUMMARY OF OHIO RIVER WATERBODY SEGMENTS

MILE POINT FROM TO		WATERBODY NAME	STATE	NUMBER OF			NUMBER OF DISCHARGERS	
				BOAT LANDINGS*	MUNICIPAL INTAKES	MUNICIPAL	INDUSTRIAL	
0.0	6.2	POINT - EMSWORTH	PA	5	1	1	6	
6.2	13.3	EMSWORTH - DASHIELDS	PA	4	2	3	12	
13.3	25.4	DASHIELDS - BEAVER	PA	3	0	7	9	
25.4	31.7	BEAVER - MONTGOMERY	PA	0	0	3	5	
31.7	40.2	MONTGOMERY - PA. STATE LINE	PA	0	1	1	9	
40.2	54.4	PA. STATE LINE - NEW CUMBERLAND	OH-WV	9	1	3	11	
54.4	84.2	NEW CUMBERLAND - PIKE ISLAND	OH-WV	7	2	14	33	
84.2	126.4	PIKE ISLAND - HANNIBAL	OH-WV	12	2	11	34	
126.4	161.7	HANNIBAL - WILLOW ISLAND	OH-WV	10	1	7	8	
161.7	172.2	WILLOW ISLAND - MUSKINGUM	OH-WV	4	0	2	2	
172.2	203.9	MUSKINGUM - BELLEVILLE	OH-WV	12	1	6	22	
203.9	237.5	BELLEVILLE - RACINE	OH-WV	2	0	1	5	
237.5	265.7	RACINE - KANAWHA	OH-WV	11	0	6	14	
265.7	279.2	KANAWHA - GALLIPOLIS	OH-WV	3	0	1	5	
279.2	317.1	GALLIPOLIS - BIG SANDY	OH-WV	6	2	7	16	
317.1	341.0	BIG SANDY - GREENUP	OH-KY	5	1	8	27	
341.0	356.5	GREENUP - SCIOTO	OH-KY	6	1	4	9	
356.5	436.2	SCIOTO - MELDAHL	OH-KY	16	1	5	9	
436.2	464.1	MELDAHL - LITTLE MIAMI	OH-KY	12	2	3	13	
464.1	470.2	LITTLE MIAMI - LICKING	OH-KY	14	0	1	0	
470.2	491.1	LICKING - GREAT MIAMI	OH-KY	16	0	4	10	
491.1	531.5	GREAT MIAMI - MARKLAND	IN-KY	9	0	3	9	
531.5	545.8	MARKLAND - KENTUCKY	IN-KY	7	0	1	5	
545.8	606.8	KENTUCKY - MCALPINE	IN-KY	36	2	9	22	
606.8	629.9	MCALPINE - SALT	IN-KY	4	1	6	19	
629.9	720.7	SALT - CANNELTON	IN-KY	14	0	7	5	
720.7	776.1	CANNELTON - NEWBURGH	IN-KY	10	1	8	34	

SUMMARY OF OHIO RIVER WATERBODY SEGMENTS
(Continued)

MILE POINT		WATERBODY NAME	STATE	NUMBER OF			NUMBER OF DISCHARGERS	
FROM	TO			BOAT LANDINGS*	MUNICIPAL INTAKES	MUNICIPAL	MUNICIPAL	INDUSTRIAL
776.1	784.2	NEWBURGH - GREEN	IN-KY	1	0	1	1	0
784.2	846.0	GREEN - UNIONTOWN	IN-KY	13	4	4	4	15
846.0	848.0	UNIONTOWN - WABASH	IN-KY	0	0	0	0	0
848.0	918.5	WABASH - SMITHLAND	IL-KY	15	3	3	3	4
918.5	920.4	SMITHLAND - CUMBERLAND	IL-KY	1	0	0	0	0
920.4	934.5	CUMBERLAND - TENNESSEE	IL-KY	1	0	1	1	1
934.5	981.0	TENNESSEE - CAIRO	IL-KY	10	2	6	6	9
TOTALS				278	31	147	147	382

*INFORMATION FROM OHIO RIVER AND TRIBUTARIES SMALL BOAT HARBORS, RAMPS, LANDING, ETC., REVISED APRIL 1987.

OHIO RIVER PUBLIC DRINKING WATER INTAKES

MILE POINT	ST	INTAKE	PUMPING RATE IN MGD	INTAKE DEPTH IN FEET	POPULATION SERVED
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4.5	PA	WEST VIEW	20.0	15.0	200,000
8.6	PA	ROBINSON TOWNSHIP	1.5	15.0	
11.7	PA	MOON TOWNSHIP (RANNEY WELL)	3.0		25,000
36.2	PA	MIDLAND	3.3	15.0	7,000
40.2	OH	EAST LIVERPOOL	3.0	0.0	7,000
59.1	OH	TORONTO	0.7	19.5	8,000
65.1	WV	WEIRTON	2.0	4.0	30,000
65.2	OH	STEBENVILLE	6.5	18.0	40,000
86.8	WV	WHEELING	8.0	4.0	70,000
93.9	OH	BELLAIRE (RANNEY WELL)	1.4		81,000
137.1	WV	SISTERSVILLE	0.2	8.0	2,000
182.2	WV	PARKERSBURG (RANNEY WELL)	6.5		40,000
304.2	WV	HUNTINGTON	15.0	15.0	120,000
306.9	WV	HUNTINGTON	(SAME AS ABOVE)		
319.7	KY	ASHLAND	7.0	4.0	29,000
327.0	OH	IRONTON	2.0	18.0	15,000
350.8	OH	PORTSMOUTH	7.0	18.0	50,000
408.5	KY	MAYSVILLE	1.3	12.0	13,000
462.8	OH	CINCINNATI	124.0	27.0	800,000
462.9	KY	KENTON COUNTY WATER (FT. THOMAS)	20.0	25.0	175,000
463.5	KY	NEWPORT	12.0	15.0	85,000
594.5	KY	LOUISVILLE	120.0	20.0	700,000
600.6	KY	LOUISVILLE	(SAME AS ABOVE)		
609.0	IN	INDIANA CITIES (NEW ALBANY)	4.5	15.0	60,000
791.5	IN	EVANSVILLE	30.0	10.0	140,000
803.2	KY	HENDERSON	6.0	30.0	42,000
829.2	IN	MT. VERNON	2.0	45.0	8,000
839.9	KY	MORGANFIELD	1.8	18.0	8,000
842.5	KY	UNIONTOWN	0.1	5.0	1,000
871.3	KY	STURGIS	0.3	16.0	3,000
891.3	IL	ROSICLAIRE	0.2	15.0	17,000
902.5	IL	GOLCONDA	0.1	31.0	1,000
935.5	KY	PADUCAH	6.5	16.5	55,000
977.8	IL	CAIRO	1.4	10.0	6,000

INDUSTRIAL WATER INTAKES ON THE OHIO RIVER MAIN STEM
Indicated on U.S. Army Corps of Engineers Ohio River Navigation Charts

	Location	Mile	Point
Duquesne Light Company	Pittsburgh, PA	PA	2.1 L*
Duquesne Light Company	Pittsburgh, PA	PA	2.3 L
Lockhart Iron & Steel	McKees Rocks, PA	PA	2.6 L
Pittsburgh & Lake Erie RR Co.	McKees Rocks, PA	PA	2.7 L
Conrail	Bellvue, PA	PA	3.4 R*
Shenango, Inc.	Neville, PA	PA	5.2 L
Vulcan Materials Company	Neville, PA	PA	7.4 L
Witherow Steel Company	Neville, PA	PA	8.2 L
Pittsburgh & Lake Erie RR	Coraopolis, PA	PA	8.3 L
Bethlehem Steel Corporation	Leetsdale, PA	PA	14.3 R
Duquesne Light Company	Wierton, PA	PA	15.1 L
American Bridge Company	Ambridge, PA	PA	15.7 R
American Bridge Company	Ambridge, PA	PA	15.8 R
Jones & Laughlin Steel Corp.	Aliquippa, PA	PA	17.3 L
National Supply Company	Ambridge, PA	PA	17.6 R
Jones & Laughlin Steel Corp.	Aliquippa, PA	PA	18.6 L
A. M. Byers Company	Legionville, PA	PA	18.8 R
Conrail	Conway, PA	PA	21.4 R
Colonial Steel Company	Monaca, PA	PA	23.0 L
St. Joseph Lead Company	Bellowsville, PA	PA	28.4 L
St. Joseph Lead Company	Bellowsville, PA	PA	29.1 L
ARCO Polymers	Kobuta, PA	PA	29.8 L
Pennsylvania Power Company	Shippingport, PA	PA	33.6 L
Duquesne Light Company	Shippingport, PA	PA	34.8 L
Duquesne Light Company	Shippingport, PA	PA	34.9 L
Duquesne Light Company	Shippingport, PA	PA	35.0 L
Crucible Steel Company	Midland, PA	PA	36.0 R
Conrail	Midland, PA	PA	37.4 R
Conrail	Wellsville, OH	OH	48.6
Ohio Edison Company	Stratton, OH	OH	53.8
Crescent Brick Company	New Cumberland, WV	WV	54.6
Ohio Edison Company	Toronto, OH	OH	57.5
Toronto Titanium Metals Co.	Toronto, OH	OH	60.6
Weirton Steel Corporation	Weirton, WV	WV	61.7
Weirton Steel Corporation	Weirton, WV	WV	62.2
Hartje Brothers	Steubenville, OH	OH	67.3
Wheeling Pittsburgh Steel Co.	Steubenville, OH	OH	68.0

* L (left) and R (right) bank facing down river

INDUSTRIAL WATER INTAKES ON THE OHIO RIVER MAIN STEM
Indicated on U.S. Army Corps of Engineers Ohio River Navigation Charts
(Continued)

	Location	Mile Point
Wheeling Pittsburgh Steel Co.	East Steubenville, WV	WV 68.1
Wheeling Pittsburgh Steel Co.	Steubenville, OH	OH 68.6
Wheeling Pittsburgh Steel Co.	Steubenville, OH	OH 68.7
Wheeling Pittsburgh Steel Co.	East Steubenville, WV	WV 68.8
Koppers Company	Follansbee, WV	WV 69.3
Wheeling Pittsburgh Steel Co.	Mingo Junction, OH	OH 70.8
Conrail	Mingo Junction, OH	OH 70.9
National Steel Corporation	Mingo Junction, OH	OH 71.7
Ohio Power Company	Brilliant, OH	OH 76.2
Ohio Power Company	Brilliant, OH	OH 76.5
Wheeling Pittsburgh Steel Corp.	Beech Bottom, WV	WV 79.2
Ohio Power Company	Beech Bottom, WV	WV 79.8
Wheeling Pittsburgh Steel Corp.	Tiltonsville, OH	OH 83.2
Wheeling Pittsburgh Steel Corp.	Tiltonsville, OH	OH 83.3
Wheeling Pittsburgh Steel Corp.	Tiltonsville, OH	OH 83.4
Warwood Tool Company	Warwood, WV	WV 86.6
Wheeling Pittsburgh Steel Corp.	Martins Ferry, OH	OH 87.7
Baltimore & Ohio Railroad Company	Bridgeport, OH	OH 90.1
Wheeling Pittsburgh Steel Corp.	Benwood, WV	WV 94.6
Baltimore & Ohio Railroad Co.	McMechan, WV	WV 95.6
Ohio Edison Company (Burger Plant)	Shadyside, OH	OH 102.2
North American Coal Company	Shadyside, OH	OH 104.0
Allied Chemical & Dye Corp.	Moundsville, WV	WV 105.9
Kammer Generating Company	Captina, WV	WV 111.1
Ohio Power Company (Mitchell)	Captina, WV	WV 112.4
Consolidation Coal Company	Woodlands, WV	WV 113.1
PPG Industries	Natrium, WV	WV 119.0
PPG Industries	Natrium, WV	WV 119.3
Mobay Chemical Company	Natrium, WV	WV 121.2
Olin Matheson Chemical Corp.	Clarington, OH	OH 123.6
Union Carbide Corporation (Ranney Collector)	Long Reach, WV	WV 144.8
Union Carbide Corporation (Ranney Collector)	Long Reach, WV	WV 145.4
Union Carbide Corporation (Ranney Collector)	Long Reach, WV	WV 145.6
Union Carbide Corporation (Ranney Collector)	Long Reach, WV	WV 145.9
American Cyanamid Corporation (Ranney Collector)	Willow Island, WV	WV 160.1
Monongahela Power Company	Willow Island, WV	WV 160.5

INDUSTRIAL WATER INTAKES ON THE OHIO RIVER MAIN STEM
Indicated on U.S. Army Corps of Engineers Ohio River Navigation Charts

(Continued)

	Location	Mile Point
American Cyanamid Corporation (Ranney Collector)	Willow Island, WV	WV 161.8
Union Carbide Metals Company	Marietta, OH	OH 176.8
Monongahela Power Company	Parkersburg, WV	WV 183.9
Shell Chemical Company	Marietta, OH	OH 188.6
E.I. duPont deNemours & Company	Parkersburg, WV	WV 190.3
E.I. duPont deNemours & Company (Ranney Collector)	Parkersburg, WV	WV 190.4
E.I. duPont deNemours & Company	Parkersburg, WV	WV 190.8
Appalachian Power Company	Grahams Station, WV	WV 241.6
Ohio Electric Company	Addison, OH	OH 258.3
Ohio Electric Company	Addison, OH	OH 258.4
Ohio Valley Electric Corp.	Addison, OH	OH 260.0
Appalachian Power Company	Applegrove, WV	WV 281.5
Oglebay Norton Company	Ceredo, WV	WV 314.6
Allied Chemical Corporation Nitrogen Division	South Point, OH	OH 318.2
Allied Chemical Corporation Semet Solvay Division	Ashland, KY	KY 320.0
Allied Chemical Corporation Semet Solvay Division	Ashland, KY	KY 320.1
Allied Chemical Corporation Semet Solvay Division	Ashland, KY	KY 320.2
Armco Steel Corporation	Ashland, KY	KY 322.0
Mansbach Metal Company	Ashland, KY	KY 322.1
Armco Steel Corporation	Ashland, KY	KY 323.2
Armco Steel Corporation	Ashland, KY	KY 324.0
Allied Chemical Corporation	Ironton, OH	OH 324.6
Armco Steel Corporation Pump Incline	Ashland, KY	KY 324.7
C & O Railway Company	Russell, KY	KY 327.7
E.I. duPont deNemours & Company	Riverton, KY	KY 333.2
New Boston Coke Corporation	Portsmouth, OH	OH 351.0
New Boston Coke Corporation	Portsmouth, OH	OH 351.1
New Boston Coke Corporation	Portsmouth, OH	OH 351.4
C & O Railway Company	Fullerton, KY	KY 356.0
Dayton Power & Light Company	Monroe, OH	OH 390.0
Dayton Power & Light Company	Aberdeen, OH	OH 404.7
C & O Railway Company	Maysville, KY	KY 409.0
Cincinnati Gas & Electric Beckjord Station	New Richmond, OH	OH 453.0

INDUSTRIAL WATER INTAKES ON THE OHIO RIVER MAIN STEM
Indicated on U.S. Army Corps of Engineers Ohio River Navigation Charts
(Continued)

	Location	Mile Point
Cincinnati Gas & Electric Co. Miami Fort	North Bend, OH	OH 490.3
Indiana & Michigan Electric Co. Tanners Creek	Lawrenceburg, IN	IN 494.0
Ghent Power Plant	Ghent, KY	KY 535.3
Indiana & Kentucky Power Corp. Clifty Creek Station	Madison, IN	IN 560.0
Indiana Ordinance	Clark County, IN	IN 589.3
Louisville Gas & Electric Co. Waterside Station	Louisville, KY	KY 603.6
Colgate Palmolive Co.	Jefferson, IN	IN 603.6
Louisville Gas & Electric Co. Canal Station	Louisville, KY	KY 604.9
Public Service of Indiana- Gallagher	New Albany, IN	IN 610.0
National Carbide Corp.	Louisville, KY	KY 612.6
Louisville Gas & Electric Co. Paddys Run Station	Louisville, KY	KY 612.9
E.I. duPont deNemours & Co.	Louisville, KY	KY 613.5
Publicker Chemical Co. (Rohm & Haas)	Louisville, KY	KY 613.5
Louisville Gas & Electric Co. Cane Run Station	Louisville, KY	KY 616.6
Indiana Glass Sand Company	Harrison County, IN	IN 620.6
Louisville Gas & Electric Co. Mill Creek	Louisville, KY	KY 625.9
Kosmos-Portland Cement Company	Kosmosdale, KY	KY 627.0
Olin Corporation	Brandenburg, KY	KY 643.4
Olin Corporation	Brandenburg, KY	KY 644.0
Kosmos-Portland Cement Company	Brandenburg, KY	KY 654.1
Can-Tex Industries	Cannelton, IN	IN 724.3
Big Rivers RECC, Coleman Station	Hawesville, KY	KY 728.3
Owensboro Municipal Power Co.	Owensboro, KY	KY 755.6
Southern Indiana Gas & Electric	Yankeetown, IN	IN 773.0
Alcoa-Warrick Works	Yankeetown, IN	IN 773.6
Southern Indiana Gas & Electric	Evansville, IN	IN 793.7
Henderson Electric Power Company	Henderson, KY	KY 803.6
Agrico Chemical Company	Henderson, KY	KY 806.5
Agrico Chemical Company	Henderson, KY	KY 806.6
Agrico Chemical Company	Henderson, KY	KY 807.2

INDUSTRIAL WATER INTAKES ON THE OHIO RIVER MAIN STEM
Indicated on U.S. Army Corps of Engineers Ohio River Navigation Charts
(Continued)

	Location	Mile Point
General Electric	Mt. Vernon, IN	IN 831.2
Aluminum Company of American (inactive)	Rosiclare, IL	IL 892.2
Shawnee Steam Plant (TVA)	Paducah, KY	KY 946.0
Electric Energy Plant	Joppa, IL	IL 952.2

BRIDGES CROSSING THE OHIO RIVER
AS INDICATED ON U.S. ARMY CORPS OF ENGINEERS
OHIO RIVER NAVIGATION CHARTS

<u>Mile Point</u>	<u>Bridge Name</u>	<u>Clearance at Pool Stage*</u>		<u>Normal Pool Elevation</u>
		<u>Vertical</u>	<u>Horizontal</u>	
0.6	West End-North Side Highway	66.3	755	710
2.4	Ohio Connecting RR	67.9	508	710
5.2	Fleming Park Highway - Back Channel - no navigation			
8.5	Interstate 79 Highway Ramp (back channel)	45	300	692
8.6	Interstate 79 Highway (back channel)	45	301	692
8.6	Interstate 79 Highway (main channel)	68	725	692
9.6	Coraopolis Highway (back channel)	45	199	692
11.7	Sewickley Highway	73.4	724	692
16.7	Ambridge Highway	78.5	510	682
24.3	Monaca-East Rochester Highway	68	705	682
25.3	Rochester-Monaca Highway	70.6	761	682
25.7	Pittsburgh & Lake Erie RR	69.2	734	682
28.0	Vanport Highway	68	700	682
34.8	Midland-Shippingport Highway	68	606	664.5
42.7	Jennings Randolph Highway	75.7	722	664.5
42.7	Jennings Randolph Highway (back channel)	60.3	202	664.5
44.4	Newell Highway	72.8	725	664.5
61.9	National Steel Corporation	70	640	644.5
66.4	Steubenville-Weirton Highway	72.3	663	644.5
66.8	Conrail Railroad	71.8	546	644.5
67.9	Steubenville Highway	69.9	675	644.5
68.8	LaBelle Railroad	70.5	645	644.5
71.5	Pittsburgh and West Virginia RR	68.7	675	644.5
89.1	Wheeling Terminal Railroad	80.6	500	623
89.8	Aetnaville Highway - Back channel - no navigation			
90.1	Bridgeport Highway - Back channel - no navigation			
90.2	Interstate 70 Highway - Back channel - no navigation			
90.2	Interstate 70 Highway	76.8	554	623
90.3	Tenth Street Highway	56.2	830	623
92.8	Interstate 470 Highway	69	762	623

BRIDGES CROSSING THE OHIO RIVER
AS INDICATED ON U.S. ARMY CORPS OF ENGINEERS
OHIO RIVER NAVIGATION CHARTS
(Continued)

<u>Mile Point</u>	<u>Bridge Name</u>	<u>Clearance at Pool Stage*</u>		<u>Normal Pool Elevation</u>
		<u>Vertical</u>	<u>Horizontal</u>	
94.3	Belleaire Highway	77	675	623
94.5	B and O Railroad	73.2	320	623
126.9	New Martinsville Highway	79.4	690	602
155.4	Hi Carpenter Memorial	70.1	880	602
170.7	Interstate Route 77	73	637	582
172.0	Marietta Highway	82.1	630	582
183.5	New Parkersburg Highway	75.1	685	582
184.2	Parkersburg-Belpre Highway	77	723	582
221.2	Ravenswood Highway	70.6	890	560
251.4	Pomeroy-Mason Highway	92.2	645	538
265.0	New York Central Railroad	67.9	400	538
266.0	Silver Memorial Highway	69.5	870	538
305.1	East Huntington Highway	77	870	515
308.8	Huntington Highway	87.5	675	515
310.8	Huntington West End Highway	74.0	550	515
315.8	North and West Railroad	74.6	500	515
322.8	Ashland Coal Grove Highway	69.5	722	515
322.9	Ashland Coal Grove Highway	78.3	722	515
327.0	Irononton Russell Highway	77.7	705	515
348.9	C and O Northland Railroad	96.5	750	485
355.7	General U.S. Grant Highway	95.5	675	485
356.8	Portsmouth-South Shore	89.7	900	485
408.7	Maysville-Aberdeen Highway	81	1000	485
461.9	Interstate 275 Highway (left span)	99.2	700	455
461.9	Interstate 275 Highway (right span)	81.1	700	455
469.6	Daniel Carter Beard Highway (I-471)	78.9	704	455
469.8	L and N Railroad and Kentucky State Highway	78.3	490	455
470.0	Newport and Cincinnati Highway (U.S. 27)	85.1	502	455
470.5	Covington and Cincinnati Highway (KY 17)	77.4	1004	455

BRIDGES CROSSING THE OHIO RIVER
AS INDICATED ON U.S. ARMY CORPS OF ENGINEERS
OHIO RIVER NAVIGATION CHARTS
(Continued)

<u>Mile Point</u>	<u>Bridge Name</u>	<u>Clearance at Pool Stage*</u>		<u>Normal Pool Elevation</u>
		<u>Vertical</u>	<u>Horizontal</u>	
471.0	Clay Wade Bailey (U.S. 42)	81.2	645	455
471.0	C and O Railroad	81.2	645	455
471.2	Brent Spence Highway (I-75)	79.6	800	455
472.4	Cincinnati Southern Railroad	78.5	500	455
491.8	Interstate 275 Highway	90.2	720	455
531.6	Markland Dam Highway Bridge	---DATA UNAVAILABLE---		420
557.3	Madison Highway (U.S. 421)	95.0	710.5	420
602.9	Big Four Railroad	77.5	537.6	420
603.1	John F. Kennedy Memorial Highway	71.0	680	420
603.8	Clark Memorial Highway	72.6	802	420
604.5	Conrail Railroad (raised)	69.8	241.5	420
604.5	Conrail Railroad (lower)	38.8	241.5	420
606.7	27th Street Highway	80	110	383
607.3	K and I Railroad and Highway	98	600	383
608.7	Sherman Minton	100	780	383
647.8	Matthew E. Welsh Highway	91.3	700	383
723.8	Lincoln Trails Highway	88	800	358
756.3	Owensboro Highway	83.7	730	358
786.9	Kentucky-Indiana Highway	84.5	580	342
803.8	L and N Railroad	78.7	648	342
858.1	Shawnee Town Highway	113.4	800	324
937.3	Irving Cobb Highway	91	700	302
940.9	Interstate 24 Highway	75	600	290
944.1	P and I Railroad	98	530	290
977.8	ICC Railroad	104.6**	500.5	***
980.4	Cairo Highway	116.9**	630	***

* All measurements given in feet

** Vertical clearance from zero Cairo gage

***Normal stage 7.5' Cairo gage

LIST OF POWER GENERATING FACILITIES
OHIO RIVER MAIN STEM
AS OF JUNE, 1984

<u>Mile Point</u>	<u>Operating Company</u>	<u>Station Name</u>	<u>Capacity MW</u>	<u>Fuel</u>	<u>Cooling</u>
2.5	Duquesne Light	Brunet Island	333	Oil	Off stream
15.3	Duquesne Light	F. R. Phillips	325	Coal	Once through
33.7	Pennsylvania Power	Bruce Mansfield	2,360	Coal	Off stream
34.9	Duquesne Light	Beaver Valley	810	Nuclear	Off stream
53.9	Ohio Edison	W.H. Sammis	2,220	Coal	Once through
57.5	Ohio Edison	Toronto	172	Coal	Once through
76.5	Cardinal Op. Co. (Buckeye)	Cardinal	1,200	Coal	Once through
			630	Coal	Off stream
102.4	Ohio Edison	R.E. Burger	544	Coal	Once through
111.1	Ohio Power	Kammer	675	Coal	Once through
111.5	Ohio Power	Mitchell	1,600	Coal	Off stream
119.5	PPG Industries, Inc.	New Martinsville	124	Coal	Once through
160.0	Monongahela	Pleasants	1,252	Coal	Off stream
160.5	Monongahela	Willow Island	215	Coal	Once through
176.8	Union Carbide	Marietta	200	Coal	Once through
237.5	Ohio Power	Racine	40	Hydro	
241.6	Central Op.Co.(Appalachian)	Phillip Sporn	1,050	Coal	Once through
243.0	Appalachian	Mountaineer	1,300	Coal	Off stream
258.0	Ohio Power	Gen. J.M. Gavin	2,600	Coal	Off stream
260.0	Ohio Valley Elec. Corp.	Kyger Creek	1,068	Coal	Once through
341.0	City of Hamilton!, OH	Greenup	72	Hydro	
390.0	Dayton Power & Light	Killen	660	Coal	Off stream
405.7	Dayton Power & Light	J.M. Stuart	1,830	Coal	Once through
			610	Coal	Off stream
412.5	Eastern Ky. Power Corp.,Inc.	H.L. Spurlock	300	Coal	Off stream
453.0	Cincinnati Gas & Elec. Co.	W.C. Beckjord	1,201	Coal	Once through
			245	Gas Turbine	Off stream
490.0	Cincinnati Gas & Elec. Co.	Miami Fort	280	Coal	Once through
			1,048	Coal	Off stream
			207	Gas Turbine	Off stream
495.5	Indiana & Michigan	Tanners Creek	995	Coal	Once through
510.0	Cincinnati Gas & Elec. Co.	East Bend	650	Coal	Off stream
531.5	Public Service of Indiana	Markland	81	Hydro	
536.0	Kentucky Utilities	Ghent	2,116	Coal	Off stream
560.0	Indiana-Kentucky Elec. Corp.	Clifty Creek	1,304	Coal	Once through
606.8	Louisville Gas & Elec. Co.	Ohio Falls	75	Hydro	
610.0	Public Service of Indiana	Gallagher	600	Coal	Once through
613.6	Louisville Gas & Elec. Co.	Paddy's Run	75	Coal	Once through
616.8	Louisville Gas & Elec. Co.	Cane Run	1,003	Coal	Once through
626.0	Louisville Gas & Elec. Co.	Mill Creek	335	Coal	Once through
			1,296	Coal	Off stream
728.4	Big Rivers RECC.	Coleman	460	Coal	Once through
753.5	Owensboro Mun. Utilities	Elmer Smith	416	Coal	Once through
773.0	Southern Indiana Gas & Elec.	F.S. Calley	397	Coal	Once through

LIST OF POWER GENERATING FACILITIES
OHIO RIVER MAIN STEM
AS OF JUNE, 1984
(Continued)

<u>Mile</u> <u>Point</u>	<u>Operating Company</u>	<u>Station Name</u>	<u>Capacity</u> MW	<u>Fuel</u>	<u>Cooling</u>
773.5	Southern Indiana Gas & Elec.	Warrick	720	Coal	Once through
793.5	Southern Indiana Gas & Elec.	Ohio River	121	Gas & Oil	Once through
804.0	Henderson, KY	Henderson	40	Coal	Once through
817.0	Southern Indiana Gas & Elec.	A.B. Brown	255	Coal	Off stream
948.0	Tennessee Valley Authority	Shawnee	1,750	Coal	Once through
952.3	Electric Energy Co.	Joppa	1,086	Coal	Once through

Total generating capacity, facilities operating 6/84	- 38,363 MW
Generating capacity, facilities with once through cooling	- 18,186 MW
Generating capacity, facilities with off stream cooling	- 19,909 MW
Generating capacity, coal fired plants	- 36,379 MW
Generating capacity, oil fired plants	- 454 MW
Generating capacity, hydropower plants	- 268 MW
Generating capacity, gas turbine plants	- 452 MW
Generating capacity, nuclear plants	- 810 MW

Information provided by ORSANCO Power Industry Advisory Committee

MUNICIPAL DISCHARGES TO THE OHIO RIVER MAIN STEM
(Secondary Treatment Provided Unless Otherwise Noted)

RIVER MILE	FACILITY NAME	STATE	TOTAL FLOW	PRETREATMENT PROGRAM
3.2	Allegheny County Sanitary Authority	PA	200.0	Required
9.4	Moon Township Municipal Authority	PA	5.6	
10.2	Coraopolis Municipal Sanitary Authority	PA	3.0	
11.8	Sewickley, Borough of	PA	.9	
13.9	Leetsdale, Municipal Authority of	PA	.78	
15.2	Crescent - South Heights Municipal Authority	PA	.40	
15.9	Ambridge, Municipal Authority of	PA	2.56	
20.0	Aliquippa, Municipal Water Authority of	PA	3.40	
20.3	Baden, Municipal Authority of	PA	.50	
21.6	Conway Borough Municipal Authority	PA	.50	
25.0	Rochester Area Joint Sewer Authority	PA	1.40	
25.4	Monaca Borough	PA	1.15	Required
26.5	Beaver Borough Municipal Authority	PA	1.04	
28.0	Vanport Township Municipal Authority	PA	1.56	
37.3	Midland, Municipal Authority of	PA	1.25	
43.3	Chester, City of (Primary)	WV	.47	
44.6	East Liverpool, City of (Primary)	OH	3.50	
47.6	Wellsville, City of	OH	1.00	

MUNICIPAL DISCHARGES TO THE OHIO RIVER MAIN STEM
(Secondary Treatment Provided Unless Otherwise Noted)
(Continued)

RIVER MILE	FACILITY NAME	STATE	TOTAL FLOW	PRETREATMENT PROGRAM
55.0	Stratton, Village of	OH	.08	
55.6	Empire, Village of	OH	0.01	
56.7	New Cumberland, City of (Primary)	WV	.25	
59.1	Toronto, City of (Primary)	OH	.01	
63.0	Weirton, City of	WV	4.00	
68.0	Steubenville, City of	OH	4.61	
70.6	Follansbee, City of	WV	.50	
71.0	Mingo Junction, City of (Primary)	OH	.50	
74.0	Wellsburg, City of	WV	1.25	
76.0	Brilliant, Village of (Primary)	OH	.37	
78.3	Brooke County PSD/Village of Beech Bottom (No Treatment)	WV	.04	
80.7	Tiltonsville, Village of	OH	.40	
81.6	Rayland, Village of (Primary)	OH	.10	
91.2	Wheeling, City of	WV	10.00	Required
93.1	Benwood, City of	WV	.10	
94.0	Belmont County Sewer Authority	OH	6.10	Required
96.5	McMechen, City of	WV	.30	
97.6	Shadyside, Village of	OH	.25	
99.5	Glendale, City of (Primary)	WV	.30	
102.4	Moundsville, City of (Primary)	WV	2.34	

MUNICIPAL DISCHARGES TO THE OHIO RIVER MAIN STEM
 (Secondary Treatment Provided Unless Otherwise Noted)
 (Continued)

RIVER MILE	FACILITY NAME	STATE	TOTAL FLOW	PRETREATMENT PROGRAM
107.6	Marshall County Sewer District	WV	.07	
109.5	Powhatan Point, Village of	OH	.16	
124.7	New Martinsville, City of	WV	1.75	
128.7	New Martinsville, City of	WV	1.00	
133.2	Paden City, City of	WV	.60	
138.2	Sistersville, City of (Primary)	WV	.50	
146.9	Friendly Public Service District	WV	.01	
155.1	St. Marys, City of	WV	.30	
157.7	Belmont, City of	WV	.12	
163.0	Newport Water & Sewer Association	OH	.06	
171.0	Marietta, City of	OH	3.40	Required
172.2	Williamstown, City of	WV	.40	
175.8	Central Boaz Public Service District	WV	.04	
183.3	Parkersburg	WV	9.66	Required
185.7	Belpre, City of	OH	.56	
220.2	Ravenswood, City of	WV	.75	
243.0	Syracuse-Racine Regional Sewer District	OH	.27	
245.6	New Haven, City of	WV	.40	
250.4	Pomeroy, Village of	OH	.31	
250.7	Mason, Town of	WV	.25	
251.2	Middleport, Village of	OH	.30	
264.3	Pt. Pleasant, City of (Primary)	WV	.78	

MUNICIPAL DISCHARGES TO THE OHIO RIVER MAIN STEM
 (Secondary Treatment Provided Unless Otherwise Noted)
 (Continued)

RIVER MILE	FACILITY NAME	STATE	TOTAL FLOW	PRETREATMENT PROGRAM
269.7	Gallipolis, City of	OH	1.80	
308.3	Huntington Sanitary Board	WV	17.00	Required
309.2	Chesapeake, Village of (Primary)	OH	0.00	
314.8	Ceredo, City of (Primary)	WV	.31	
315.7	Kenova, City of (Primary)	WV	.55	
317.0	South Point, Village of	OH	.66	
322.5	Ashland, City of	KY	11.00	
327.0	Union Township Sewer District #1	OH	.19	
327.2	Boyd-Greenup Counties	KY	.75	Required
327.2	Ironton, City of	OH	2.0	
327.8	Flatwoods, City of	KY	0.00	
328.9	Worthington, City of	KY	.20	
336.4	Greenup, City of	KY	.20	
342.8	Scioto County Board of County Commissioners	OH	.16	
349.0	Portsmouth, City of	OH	.16	
351.8	New Boston, Village of (Primary)	OH	.53	
353.8	South Shore, City of	KY	.20	
356.0	Portsmouth, City of	OH	4.00	
378.4	Vanceburg Utilities	KY	0.00	
400.0	Aberdeen, Village of	OH	.10	
411.8	Maysville Utility Commission	KY	1.42	Required
417.1	Ripley, Village of	OH	.22	

MUNICIPAL DISCHARGES TO THE OHIO RIVER MAIN STEM
(Secondary Treatment Provided Unless Otherwise Noted)
(Continued)

RIVER MILE	FACILITY NAME	STATE	TOTAL FLOW	PRETREATMENT PROGRAM
427.7	Augusta, City of	KY	.15	
449.9	New Richmond, Village of	OH	.25	
455.1	Clermont County Nine Mile Plant	OH	1.80	Required
464.5	Hamilton County Little Miami Plant	OH	38.00	Required
472.5	Hamilton County Mill Creek Plant	OH	120.00	Required
477.4	Dry Creek (Covington)	KY	30.00	Required
482.0	Hamilton County Muddy Creek Plant	OH	15.00	Required
486.0	Hamilton County Indian Lookout Plant	OH	.50	Required
493.0	South Dearborn	IN	1.98	
506.0	Rising Sun, Town of	IN	.36	
530.0	Warsaw, City of	KY	.12	
537.5	Vevay, Town of	IN	.40	
556.6	Milton, City of	KY	.16	
558.6	Madison, City of	IN	3.60	Required
559.0	Hanover, Town of	IN	.54	
589.5	Goshen Utilities, Inc.	KY	0.00	
590.5	Charlestown, City of	IN	.44	
601.0	Louisville and Jefferson County MSD	KY	.08	
602.0	Conservancy District of Oak Park	IN	.50	
604.1	Jeffersonville, City of	IN	4.00	Required
605.2	Clarksville, Town of	IN	1.10	

MUNICIPAL DISCHARGES TO THE OHIO RIVER MAIN STEM
(Secondary Treatment Provided Unless Otherwise Noted)
(Continued)

RIVER MILE	FACILITY NAME	STATE	TOTAL FLOW	PRETREATMENT PROGRAM
609.5	New Albany, City of	IN	8.32	Required
612.0	Louisville & Jefferson County MSD - Morris Forman Plant	KY	105.00	Required
623.3	Louisville & Jefferson County MSD - West End Plant	KY	15.00	Required
631.4	West Point, City of	KY	.20	
642.3	Doe Valley Utilities, Inc.	KY	0.00	
645.8	Brandenburg, City of	KY	.20	
664.0	Leavenworth, Town of	IN	.03	
711.8	Cloverport, City of	KY	.20	
724.0	Cannelton, City of (Primary)	IN	.30	
727.0	Tell City, City of	IN	2.06	
738.0	Lewisport, City of	KY	.25	
742.2	Grandview, Town of	IN	.12	
746.2	Rockport, City of	IN	.50	
758.2	Owensboro Wastewater Treatment Plant (Two Plants)	KY	12.00	Required
778.0	Newburgh, Town of	IN	2.50	
792.5	Evansville Water and Sewer Utility (Two Plants)	IN	38.60	Required
806.0	Henderson Water and Sewer Dept.	KY	5.00	Required
829.0	Mount Vernon, City of	IN	1.80	
889.0	Elizabethtown, Village of	IL	.20	

MUNICIPAL DISCHARGES TO THE OHIO RIVER MAIN STEM
(Secondary Treatment Provided Unless Otherwise Noted)
(Continued)

RIVER MILE	FACILITY NAME	STATE	TOTAL FLOW	PRETREATMENT PROGRAM
891.5	Rosiclare, City of	IL	.66	
903.0	Golconda, City of	IL	.37	
920.6	Smithland, City of	KY	0.00	
936.0	Paducah, City of	KY	4.00	Required
937.5	Brookport, City of	IL	.37	
944.0	Metropolis, City of (Primary)	IL	3.80	
952.0	Joppa Sanitary District (Primary)	IL	0.00	
973.9	Mound City, City of	IL	.37	
979.0	Cairo, City of	IL	3.00	

Total Permitted Flow - Secondary Facilities 749.4 MGD
 - Primary Facilities 14.6 MGD

COMMUNITIES WITH COMBINED SEWER SYSTEMS

<u>Mile Point</u>	<u>Municipality</u>
0.0	Pittsburgh, PA
4.0	Bellevue, PA
5.0	Avalon, PA
6.5	Emsworth, PA
11.8	Sewickley, PA
13.9	Leetsdale, PA
15.9	Ambridge, PA
20.0	Aliquippa, PA
25.0	Rochester, PA
43.3	Chester, WV
45.7	Newell, WV
56.7	New Cumberland, WV
59.1	Toronto, OH
63.0	Weirton, WV
68.0	Steubenville, OH
71.0	Mingo Junction, OH
74.7	Wellsburg, WV
90.8	Wheeling, WV
93.0	Benwood, WV
94.0	Belmont County, OH
96.2	McMechen, WV
102.4	Moundsville, WV
128.7	New Martinsville, WV
184.0	Parkersburg, WV
250.4	Pomeroy, OH
252.1	Middleport, OH
308.3	Huntington, WV
322.5	Ashland, KY
327.2	Ironton, OH
349.0	Sciotoville, OH
351.8	New Boston, OH
356.0	Portsmouth, OH
411.8	Maysville, KY
470.0	Newport, KY
472.5	Cincinnati, OH
545.0	Carrollton, KY
604.1	Jeffersonville, IN
605.0	Louisville, KY
609.5	New Albany, IN
727.0	Tell City, IN
746.2	Rockport, IN
758.2	Owensboro, KY
778.0	Newburgh, IN
792.5	Evansville, IN
806.0	Henderson, KY
829.0	Mt. Vernon, IN
936.0	Paducah, KY

OHIO RIVER MAIN STEM DISCHARGES

MILE POINT	DISCHARGER	PLANT NAME	STATE	CODE*	DESCRIPTION	PERMITTED FLOW MGD
2.5	DUQUESNE LIGHT COMPANY	BRUNOT ISLAND POWER STATION	PA	IW	POWER PLANT	
3.1	PITT OIL COMPANY, INC.		PA	IW	OIL TERMINAL	
3.2	ALLEGHENY COUNTY SANITARY AUTHORITY	ALCOSAN WWTP	PA	MW	MUNICIPAL WWTP	200.00
4.0	UNITED STATES STEEL CORP.	WHEEL AND AXLE PLANT	PA	IW	WHEEL AND AXLE MANUFACTURER	3.65
4.5	UNITED STATES STEEL COP.	HOMESTEAD WORKS	PA	IW	STEEL MANUFACTURER	
5.1	MARQUETTE COMPANY	MARQUETTE CEMENT PLANT	PA	IW	CEMENT MANUFACTURER	
5.3	CALGON CORPORATION	NEVILLE ISLAND PLANT	PA	IW	NCCW ONLY	.27
6.4	EXXON COMPANY, U.S.A.	NEVILLE ISLAND TERMINAL	PA	IW	OIL TERMINAL	
6.5	MAYCO OIL AND CHEMICAL CO.		PA	IW	INEDIBLE LARD OIL MANUFACTURER	
6.6	NEVILLE CHEMICAL COMPANY		PA	IW	RESINS, CHLORINATED PARAFFINS, ORGANIC AND INORGANIC CHEMICAL MANUFACTURER	2.36
6.7	DRAVO CORPORATION	ENGINEERING WORKS DIVISION	PA	IW	STORMWATER AND NCCW ONLY	
6.8	ARISTECH CHEMICAL CORPORATION	NEVILLE ISLAND PLANT	PA	IW	CHEMICAL MANUFACTURER	
7.0	TAPCO, INC.	TAPCO PROCESSING PLANT	PA	IW	NCCW ONLY	.74
7.6	DEPARTMENT OF PUBLIC WELFARE	DIXMONT STATE HOSPITAL	PA	DW	STATE OWNED WWTP	.18
7.7	VULCAN MATERIALS COMPANY	METALLICS DIVISION	PA	IW	INORGANIC TIN CHEMICALS MANUFACTURER	.33
8.0	SHENANGO, INCORPORATED	SHENANGO COKE AND IRON DIV.	PA	IW	COKE PLANT AND BLAST FURNACE	13.89

IW = INDUSTRIAL WASTEWATER DW = DOMESTIC WASTEWATER MW = MUNICIPAL WASTEWATER

OHIO RIVER MAIN STEM DISCHARGES
(Continued)

MILE POINT	DISCHARGER	PLANT NAME	STATE	CODE*	DESCRIPTION	PERMITTED FLOW MGD
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8.1	SHENANGO, INCORPORATED	NEVILLE ISLAND FOUNDRY DIV.	PA	IW	INGOT MOLD MANUFACTURER	.24
9.4	MOON TOWNSHIP MUNICIPAL AUTH.	MONTOUR RUN WWTP	PA	MW	MUNICIPAL WWTP	5.60
10.2	CORAOPOLIS MUNICIPAL SAN. AUTH.	CORAOPOLIS WWTP	PA	MW	MUNICIPAL WWTP	3.00
10.7	BORON OIL COMPANY	CORAOPOLIS TERMINAL	PA	IW	OIL TERMINAL	
10.8	PITTSBURGH FORGINGS COMPANY	METALS FABRICATION PLANT	PA	IW	METALS FABRICATION	1.13
10.9	TEXACO, INC.	CORAOPOLIS SALES TERMINAL	PA	IW	OIL TERMINAL	
11.8	SEWICKLEY, BOROUGH OF	SEWICKLEY WWTP	PA	MW	MUNICIPAL WWTP	.90
13.9	LEETSDALE, MUNICIPAL AUTHORITY OF	LEETSDALE WWTP	PA	MW	MUNICIPAL WWTP	.78
14.6	BETHLEHEM STEEL CORPORATION	LEETSDALE WORKS	PA	IW	NCCW ONLY	.12
15.2	CRESCENT-SOUTH HEIGHTS MUN. AUTH.	CRESCENT-SOUTH HEIGHTS WWTP	PA	MW	MUNICIPAL WWTP	.40
15.3	DUQUESNE LIGHT COMPANY	PHILIPS POWER STATION	PA	IW	POWER PLANT	
15.9	AMBRIDGE, MUNICIPAL AUTHORITY	AMBRIDGE BOROUGH WWTP	PA	MW	MUNICIPAL WWTP	2.56
16.0	BABCOCK & WILCOX COMPANY	AMBRIDGE WORKS	PA	IW	SEAMLESS STEEL PIPE MANUFACTURER	2.14
16.1	UNITED STATES STEEL CORP.	USS FABRICATION WORKS	PA	IW	NCCW AND STORMWATER RUNOFF	1.59
16.9	H.H. ROBERTSON COMPANY	AMBRIDGE DIVISION PLANT	PA	IW	METAL BUILDING PANEL MANUFACTURER	.32
17.0	LTV STEEL COMPANY, INC.	ALIQUIPPA WORKS	PA	IW	STEEL MANUFACTURER	88.70
20.0	ALIQUIPPA, MUNICIPAL WATER AUTHORITY OF	ALIQUIPPA WORKS	PA	MW	MUNICIPAL WWTP	3.40
20.3	BADEN, MUNICIPAL AUTHORITY OF	BADEN WWTP	PA	MW	MUNICIPAL WWTP	.50
21.6	CONWAY BOROUGH MUNICIPAL AUTH.	CONWAY WWTP	PA	MW	MUNICIPAL WWTP	.50

OHIO RIVER MAIN STEM DISCHARGES
(Continued)

MILE POINT	DISCHARGER	PLANT NAME	STATE	CODE*	DESCRIPTION	PERMITTED FLOW MGD
23.9	AMPCO PITTSBURGH CORPORATION	COLONA DIVISION	PA	IW	STEEL MANUFACTURER	
24.0	ASHLAND PETROLEUM COMPANY	FREEDOM REFINERY	PA	DW, IW	OIL REFINERY	1.09
24.2	SUPERIOR DRAWN STEEL COMPANY	MONACA PLANT	PA	IW	STEEL MANUFACTURER	0.2
25.0	ROCHESTER AREA JOINT SEWER AUTH.	ROCHESTER AREA WWTP	PA	MW	MUNICIPAL WWTP	1.40
25.4	MONACA BOROUGH	MONACA WWTP	PA	MW	MUNICIPAL WWTP	1.15
25.6	TELEDYNE PITTSBURGH TOOL STEEL		PA	IW		.01
26.5	BEAVER BOROUGH MUNICIPAL AUTH.	BEAVER BOROUGH WWTP	PA	MW	MUNICIPAL WWTP	1.05
28.0	VANPORT TOWNSHIP MUNICIPAL AUTH.	VANPORT-BRIGHTON WWTP	PA	MW	MUNICIPAL WWTP	1.56
28.2	ASHLAND OIL COMPANY	VANPORT TERMINAL	PA	IW	OIL TERMINAL	
28.5	ST. JOE RESOURCES COMPANY	SMELTING DIVISION	PA	IW	MANUFACTURER ZINC METAL, ZINC OXIDE, SULFURIC ACID	74.94
29.4	WESTINGHOUSE ELECTRIC CORP.	WESTINGHOUSE BEAVER PLANT	PA	IW		.61
29.7	ARCO CHEMICAL COMPANY	BEAVER VALLEY PLANT	PA	IW	ORGANIC CHEMICAL MANUFACTURER	44.89
33.7	PENNSYLVANIA POWER COMPANY	BRUCE MANSFIELD PLANT	PA	IW	POWER PLANT	3.80
33.8	SHIPPINGPORT SAND AND GRAVEL CO.	GEORGETOWN PLANT	PA	IW	SAND AND GRAVEL MANUFACTURER	
34.9	DUQUESNE LIGHT COMPANY	BEAVER VALLEY POWER STATION	PA	IW	POWER PLANT	68.04
35.0	DUQUESNE LIGHT COMPANY	BEAVER VALLEY UNIT #2	PA	IW	POWER PLANT	
35.2	PENNZOIL COMPANY	MIDLAND TERMINAL	PA	IW	OIL TERMINAL	

OHIO RIVER MAIN STEM DISCHARGES
(Continued)

MILE POINT	DISCHARGER	PLANT NAME	STATE	CODE*	DESCRIPTION	PERMITTED FLOW MGD
35.4	DEPARTMENT OF ENERGY	SHIPPINGSPOINT ATOMIC POWER STATION	PA	IW	POWER PLANT PERMANENTLY SHUTDOWN OCTOBER 1982	165.00
36.3	J. AND L. SPECIALTY STEELS INC.	MIDLAND WORKS	PA	IW	STEEL PLANT	
36.4	L.T.V. STEEL COMPANY	MIDLAND	PA	IW	STEEL PLANT, STORMWATER RUNOFF ONLY	.00
37.3	MIDLAND, MUNICIPAL AUTHORITY OF	MIDLAND WWTP	PA	MW	MUNICIPAL WWTP	1.25
40.1	HALL CHINA COMPANY		OH	IW	CHINA MANUFACTURER	
42.2	TAYLOR, SMITH AND TAYLOR COMPANY		WV	IW	CERAMIC DINNERWARE MANUFACTURER	.15
42.4	COLETEX CORPORATION, THE		WV	IW	ASPHALT ROOFING MATERIAL MANUFACTURER	.05
43.3	CHESTER, CITY OF	CHESTER WWTP	WV	MW	MUNICIPAL WWTP, PRIMARY	.47
44.6	EAST LIVERPOOL, CITY OF	EAST LIVERPOOL WWTP	OH	MW	MUNICIPAL WWTP, PRIMARY	3.50
45.1	SHIPPINGSPOINT SAND AND GRAVEL CO.	IRON CITY PLANT	WV	IW	SAND GRAVEL	.50
45.2	QUAKER STATE OIL REFINING CORP.	CONGO PLANT	WV	IW	OIL REFINERY	1.34
45.3	OHIO BRASS COMPANY, THE		WV	IW	ELECTRIC REGULATORS MANUFACTURERS	.06
45.5	GLOBE REFRACTORIES, INC.		WV	IW	CLAY MINING AND REFRACTORY BRICK MANUFACTURER	.14
45.5	HOMER LAUGHLIN CHINA COMPANY		WV	DW	CHINA MANUFACTURER	0.49
45.7	NEWELL COMPANY, THE		WV	DW	PRIVATELY OWNED DOMESTIC WWTP	.40
47.6	WELLSVILLE, CITY OF	WELLSVILLE WWTP	OH	MW	MUNICIPAL WWTP	1.00
49.2	STERLING CHINA COMPANY		OH	IW	CHINA MANUFACTURER	

OHIO RIVER MAIN STEM DISCHARGES
(Continued)

MILE POINT	DISCHARGER	PLANT NAME	STATE	CODE*	DESCRIPTION	PERMITTED FLOW MGD
49.3	ASHLAND PETROLEUM COMPANY	WELLSVILLE TERMINAL	OH	IW	OIL TERMINAL	.01
53.9	OHIO EDISON COMPANY	W.H. SAMMIS PLANT	OH	IW	POWER PLANT	1356.00
54.9	STRATTON, VILLAGE OF	STRATTON WWTP #1	OH	MW	MUNICIPAL WWTP	.07
55.0	STRATTON, VILLAGE OF	STRATTON WWTP #2	OH	MW	MUNICIPAL WWTP	.01
55.6	EMPIRE, VILLAGE OF	EMPIRE WWTP	OH	MW	MUNICIPAL WWTP	
56.7	NEW CUMBERLAND, CITY OF	NEW CUMBERLAND WWTP	WV	MW	MUNICIPAL WWTP	.25
57.5	OHIO EDISON COMPANY	TORONTO PLANT	OH	IW	POWER PLANT	134.71
59.1	TORONTO, CITY OF	TORONTO WWTP	OH	MW	MUNICIPAL WWTP	.01
59.2	TORONTO PAPERBOARD COMPANY		OH	IW	PAPERBOARD MANUFACTURER	1.02
60.5	TITANIUM METALS CORPORATION	TORONTO PLANT	OH	IW	METAL MANUFACTURER	2.41
61.5	INTERNATIONAL MILL SERVICES INC.		WV	IW	EMERGENCY OVERFLOW FROM SLAGPILE RECYCLE OPERATION	
62.4	AIR PRODUCTS AND CHEMICALS INC.		WV	IW	COOLING TOWER BLOWDOWN	.12
62.5	WEIRTON STEEL CORPORATION	WEIRTON WWTP	WV	MW	MUNICIPAL WWTP	4.00
64.9	PETROLEUM FUEL AND TERMINAL CO.		WV	IW	OIL TERMINAL	.36
65.2	WEIRTON, CITY OF	WEIRTON WTP	WV	IW	POTABLE WATER TREATMENT PLANT	.54
65.8	SIGNODE SUPPLY CORPORATION		WV	IW	NCCW	
66.0	WEIRTON ICE AND COAL SUPPLY		WV	IW	COAL PREPARATION PLANT	
68.0	STEUERENVILLE, CITY OF	STEUERENVILLE WWTP	OH	MW	MUNICIPAL WWTP	4.61

OHIO RIVER MAIN STEM DISCHARGES
(Continued)

MILE POINT	DISCHARGER	PLANT NAME	STATE	CODE*	DESCRIPTION	PERMITTED FLOW MGD
68.6	WHEELING PITTSBURGH STEEL CORP.	STEUBENVILLE NORTH PLANT	OH	IW	STEEL MANUFACTURER	39.05
68.8	WHEELING PITTSBURGH STEEL CORP.	STEUBENVILLE EAST COKE PLANT	WV	IW	COLD ROLLED STEEL MANUFACTURER	.87
69.3	KOPPERS COMPANY, INC.		WV	IW	PROCESSING OF COKE OVEN TAR, PRODUCTION OF SOLVENTS, TARS, ORGANIC	0.25
69.7	WHEELING PITTSBURGH STEEL CORP.	STEUBENVILLE EAST SINTER PLANT	WV	IW	PRODUCES SINTER FOR USE IN BLAST FURNACES	.24
70.4	WHEELING PITTSBURGH STEEL CORP.	STEUBENVILLE EAST STRIP PLANT	WV	IW	STEEL PLANT	15.00
70.6	FOLLANSBEE, CITY OF	FOLLANSBEE WWTP	WV	MW	MUNICIPAL WWTP	.50
70.7	WHEELING PITTSBURGH STEEL CORP.	STEUBENVILLE SOUTH PLANT	OH	IW	MANUFACTURER OF PIG IRON, STEEL AND STEEL STRIP	3310.00
71.1	MINGO JUNCTION, VILLAGE OF	MINGO JUNCTION WTP	OH	IW	POTABLE WATER TREATMENT PLANT	
73.0	EAGLE MANUFACTURING COMPANY		WV	IW	NCCW	
73.6	GENPAK CORPORATION		WV	IW	NCCW	.19
73.8	S. GEORGE COMPANY		WV	DW	PRIVATELY OWNED DOMESTIC WWTP	
74.0	WELLSBURG, CITY OF	WELLSBURG WWTP	WV	MW	MUNICIPAL WWTP	1.25
74.4	BRILLIANT, VILLAGE OF	BRILLIANT WWTP	OH	MW	MUNICIPAL WWTP	.37
74.5	BANNER FIBERBOARD COMPANY		WV	IW	NCCW	
76.3	OHIO POWER COMPANY	TIDD PLANT	OH	IW	POWER PLANT	260.70
76.5	CARDINAL OPERATING COMPANY	CARDINAL PLANT	OH	IW	POWER PLANT	

OHIO RIVER MAIN STEM DISCHARGES
(Continued)

MILE POINT	DISCHARGER	PLANT NAME	STATE	CODE*	DESCRIPTION	PERMITTED FLOW MGD
77.7	W B COAL COMPANY		OH	IW	COAL PROCESSING	0.72
78.3	BROOKE COUNTY PSD/VILLAGE OF BEECH BOTTOM	BEECH BOTTOM WWTP	WV	IW	MUNICIPAL WWTP	.04
79.4	WHEELING PITTSBURGH STEEL CORP.	BEECH BOTTOM PLANT	WV	IW	STEEL, COATING AND METAL FABRICATING	.04
80.0	WINDSOR POWER HOUSE COAL CO.		WV	IW	COAL TERMINAL	
80.7	TILTONSVILLE, VILLAGE OF	TILTONSVILLE WWTP	OH	MW	MUNICIPAL WWTP	.40
80.9	OHIO COAL & CONSTRUCTION CORP.		OH	IW	STRIP MINE RUNOFF	.15
81.0	OHIO COAL & CONSTRUCTION CORP.	WARRENTON PREPARATION AND LOADING FACILITY	OH	IW	COAL PREPARATION AND LOADING	.62
81.1	TRI-STATE ASPHALT CORPORATION	WARRENTON TERMINAL	OH	IW	ASPHALT MANUFACTURER	0.01
81.6	TAYLAND, VILLAGE OF	RAYLAND WWTP	OH	MW	MUNICIPAL WWTP	.10
82.2	VALLEY CAMP COAL COMPANY	ALEXANDER MINE	WV	IW	COAL STRIP MINE RUNOFF	.02
83.0	TILTONSVILLE, VILLAGE OF	TILTONSVILLE WTP	OH	IW	POTABLE WATER TREATMENT PLANT	.00
83.1	TILTONSVILLE, VILLAGE OF	TILTONSVILLE WWTP	OH	MW	MUNICIPAL WWTP	.31
83.6	YORKVILLE WATERWORKS	YORKVILLE WTP	OH	IW	POTABLE WATER TREATMENT PLANT	
83.7	WHEELING PITTSBURGH STEEL CORP.	YORKVILLE PLANT	OH	IW	STEEL MANUFACTURER	9.47
85.0	MARIETTA COAL COMPANY		OH	IW	COAL STRIP MINE RUNOFF	
86.4	WARWOOD TOOL COMPANY		WV	IW	NCCW	
86.6	OHIO COAL & CONSTRUCTION CORP.		OH	IW	COAL PREPARATION	

OHIO RIVER MAIN STEM DISCHARGES
(Continued)

MILE POINT	DISCHARGER	PLANT NAME	STATE	CODE*	DESCRIPTION	PERMITTED FLOW MGD	
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86.8	WHEELING, CITY OF	WHEELING WTP	WV	IW	POTABLE WATER TREATMENT PLANT	.75	
87.2	WHEELING STAMPING COMPANY		WV	IW	NCCW	.16	
87.8	WHEELING PITTSBURGH STEEL CORP.	MARTINS FERRY PLANT	OH	IW	STEEL MANUFACTURER	1.38	
88.3	UNION OIL COMPANY	WHEELING BULK PLANT	WV	IW	OIL TREATMENT		
89.0	WHEELING PITTSBURGH STEEL CORP.	BENWOOD PLANT	WV	IW	STEEL MANUFACTURER TEMPORARILY SHUTDOWN	.75	
90.2	BRIDGEPORT, CITY OF	BRIDGEPORT WTP	OH	IW	POTABLE WATER TREATMENT PLANT		
90.6	L NIEBERGALL ICE & FREEZER STORAGE		WV	IW	NCCW	.22	
91.2	WHEELING, CITY OF	WHEELING WWTP	WV	MW	MUNICIPAL WWTP	10.00	
92.7	R & F COAL COMPANY	BELLAIRE TERMINAL	OH	IW	COAL PREPARATION PLANT		
93.1	BENWOOD, CITY OF	BENWOOD WWTP	WV	MW	MUNICIPAL WWTP	.10	
93.8	CONSOLIDATION COAL COMPANY	OHIO VALLEY DIVISION - SHOEMAKER MINE	WV	IW	COAL PREPARATION PLANT	.02	
94.0	BELMONT COUNTY SEWER AUTHORITY	WWTP	OH	MW	MUNICIPAL WWTP	6.10	
94.3	CONSOLIDATION COAL COMPANY	OHIO VALLEY DIVISION - SHOEMAKER MINE	WV	DW	PRIVATELY OWNED DOMESTIC WWTP	.00	
95.5	BALTIMORE AND OHIO RAILROAD CO.	BENWOOD YARD	WV	IW	FUELING AND SERVICING OF DIESEL LOCOMOTIVES	.04	
96.5	McMECHEN, CITY OF	McMECHEN WWTP	WV	MW	MUNICIPAL WWTP	.30	
97.0	SHADYSIDE, VILLAGE OF	SHADYSIDE WTP	OH	IW	POTABLE WATER TREATMENT PLANT		
97.6	SHADYSIDE, VILLAGE OF	SHADYSIDE WWTP	OH	MW	MUNICIPAL WWTP	0.25	

OHIO RIVER MAIN STEM DISCHARGES

(Continued)

MILE POINT	DISCHARGER	PLANT NAME	STATE	CODE*	DESCRIPTION	PERMITTED FLOW MGD
99.5	GLENDAL, CITY OF	GLENDAL WWTP	WV	MW	MUNICIPAL WWTP	.30
100.5	TRIANGLE PWC, INC.		WV	IW	PRODUCES GALVANIZED CONDUIT AND STRIP	6.43
102.4	MOUNDSVILLE, CITY OF	MOUNDSVILLE WWTP	WV			
102.5	OHIO EDISON COMPANY	R.E. BURGER PLANT	OH	DW,IW	POWER PLANT	7.54
103.0	SHADYSIDE STAMPING CORP.		OH	IW	NCCW	
104.9	OLIN CORPORATION		WV	IW	PRODUCES INORGANIC AND ORGANIC CHEMICALS DNT, TDS, TDI	474.19
106.1	LCP CHEMICALS OF WEST VIRGINIA, INC.		WV	IW	PRODUCES CHLORINE, CAUSTIC SODA, CHLOROMETHANES	11.60
107.6	MARSHALL COUNTY SEWER DISTRICT	MARSHALL COUNTY WWTP	WV	MW	MUNICIPAL WWTP	.07
109.5	POWHATAN POINT, VILLAGE OF	POWHATAN POINT WWTP	OH	MW	MUNICIPAL WWTP	.16
110.5	NORTH AMERICAN COAL CORP.	POWHATAN NO. 1 MINE	OH	IW	COAL PREPARATION PLANT, DOMESTIC WWTP	.98
110.6	OHIO FERRO-ALLOYS CORPORATION	POWHATAN POINT PLANT	OH	DW	PRIVATELY OWNED DOMESTIC WWTP	.17
111.1	OHIO POWER COMPANY	KAMMER PLANT	WV	DW,IW	POWER PLANT	.03
112.1	MOUNTAINEER CARBON COMPANY		WV	DW,IW	DOMESTIC WWTP	.00
112.3	CONSOLIDATION COAL COMPANY	MOUNDSVILLE OPERATION	WV	DW,IW	COAL PREPARATION PLANT, DOMESTIC WWTP	.02
112.4	CONSOLIDATION COAL COMPANY	McELROY MINE	WV	DW	PRIVATELY OWNED DOMESTIC WWTP	
112.6	OHIO POWER COMPANY	MITCHELL PLANT	WV	IW	POWER PLANT	
112.8	HACKETT-HARSCO CORPORATION	REED MINERAL DIVISION	WV	IW	STORM WATER RUNOFF ONLY	

OHIO RIVER MAIN STEM DISCHARGES
(Continued)

MILE POINT	DISCHARGER	PLANT NAME	STATE	CODE*	DESCRIPTION	PERMITTED FLOW MGD
113.0	LIQUIFIED COAL DEVELOPMENT CO.		WV	IW	PILOT PLANT FOR COAL LIQUID FRACTIONATION	
114.5	COLUMBIAN CHEMICALS COMPANY		WV	DW	PRIVATELY OWNED DOMESTIC WWTP	.01
115.6	QUARTO MINING COMPANY	MINE NO. 4	WV	IW	COAL PREPARATION PLANT, MANUFACTURER OF CHLORINE, CAUSTIC SODA	
119.7	PPG INDUSTRIES, INC.	NATRIUM PLANT	WV	IW	SODIUM SULFIDE, CHLORINATED BENZENES, CARBON BISULFIDE, SODIUM	118. 3 7
121.3	MOBAY CHEMICAL CORPORATION		WV	IW	MANUFACTURER POLYURETHANE CHEMICALS AND INTERMEDIATES, TOLUENE DIISOCYANATES, POLYMERIC ISOCYANATES, POLYESTER, NITRIC AND HYDROCHLORIC ACID	6.50
123.5	ORMET CORPORATION	HANNIBAL PLANT	OH	IW	PRIMARY SMELTING AND REFINING ALUMINUM	4.76
123.7	CONSOLIDATED ALUMINUM CORP.		OH	DW,IW	MANUFACTURING ALUMINUM SHEET AND COAL	6.87
124.7	NEW MARTINSVILLE, CITY OF	NEW MARTINSVILLE NORTH WWTP	WV	MW	MUNICIPAL WWTP	1.75
126.0	OHIO & LEE TWP WATER SEWER AUTH.	LEE TOWNSHIP WWTP	OH	MW	MUNICIPAL WWTP	
127.8	OHIO DEPT OF TRANSPORTATION	DUFFEY OUTPOST BUILDING	OH	DW	STATE OWNED DOMESTIC WWTP	.00
128.4	BALTIMORE & OHIO RAILROAD CO.	BROOKLYN JCT.	WV	IW	STORMWATER RUNOFF	
128.7	NEW MARTINSVILLE, CITY OF	NEW MARTINSVILLE SOUTH WWTP	WV	MW	MUNICIPAL WWTP	1.00
133.2	PADEN CITY, CITY OF	PADEN CITY WWTP	WV	MW	MUNICIPAL WWTP	.60
138.2	SISTERSVILLE, CITY OF	SISTERSVILLE WWTP	WV	MW	MUNICIPAL WWTP	.50
142.5	FRONTIER BOARD OF EDUCATION	FRONTIER HIGH SCHOOL WWTP	OH	DW	PRIVATELY OWNED DOMESTIC WWTP	.01

OHIO RIVER MAIN STEM DISCHARGES
(Continued)

MILE POINT	DISCHARGER	PLANT NAME	STATE	CODE*	DESCRIPTION	PERMITTED FLOW MGD
142.6	FRIENDLY PUBLIC SERVICE DISTRICT	FRIENDLY WWTP	WV	MW	MUNICIPAL WWTP	.12
145.3	UNION CARBIDE CORPORATION	SISTERSVILLE FACILITY	WV	IW	MANUFACTURER OF SILICONE PRODUCTS	4.60
146.9	FRIENDLY PUBLIC SERVICE DISTRICT	BENS RUN WWTP	WV	MW	MUNICIPAL WWTP	.02
150.9	WV DEPARTMENT OF HEALTH	COLIN ANDERSON CENTER	WV	DW	STATE OWNED DOMESTIC WWTP	0.15
155.1	ST. MARYS, CITY OF	ST. MARYS WWTP	WV	MW	MUNICIPAL WWTP	.30
155.4	QUAKER STATE OIL REFINING CORP.	ST. MARYS PLANT	WV	IW	OIL REFINERY	0.58
157.7	BELMONT, CITY OF	WWTP	WV	MW	MUNICIPAL WWTP	.12
160.5	MONONGAHELA POWER COMPANY	ISLAND POWER STATION	WV	DW,IW	POWER PLANT	.01
160.6	MONONGAHELA POWER COMPANY	PLEASANTS POWER STATION	WV	DW,IW	POWER PLANT	12.05
161.9	AMERICAN CYANAMID COMPANY	WILLOW ISLAND FACILITY	WV	IW	MANUFACTURER OF INDUSTRIAL ORGANIC CHEMICALS UNCOMPOUNDED ANTIBIOTICS, CYCLIC INTERMEDIATES, INDUSTRIAL INORGANIC CHEMICALS	8.02
163.0	NEWPORT WATER & SEWER ASSOC.	NEWPORT WATER & SEWER WWTP	OH	MW	MUNICIPAL WWTP	.06
163.7	CABOT CORPORATION	OHIO RIVER VALLEY PLANT	WV	IW	MANUFACTURER OF CARBON BLACK	0.19
171.0	MARIETTA, CITY OF	MARIETTA WWTP	OH	MW	MUNICIPAL WWTP	3.40
172.2	WILLIAMSTOWN, CITY OF	WILLIAMSTOWN WWTP	WV	MW	MUNICIPAL WWTP	.40
172.7	FENTON ART GLASS COMPANY		WV	IW	MANUFACTURER OF GLASS	
173.5	MARIETTA INDUSTRIAL ENTERPRISES		OH	IW	COAL PREPARATION PLANT	

OHIO RIVER MAIN STEM DISCHARGES
(Continued)

MILE POINT	DISCHARGER	PLANT NAME	STATE	CODE*	DESCRIPTION	PERMITTED FLOW MGD
175.0	BYERLYTE CO. OF KOPPERS CO., INC.	MARIETTA TERMINAL	OH	IW	BULK TERMINAL	
175.1	GULF OIL COMPANY	MARIETTA TERMINAL	OH	IW	OIL TERMINAL	
175.3	PAR MAR OIL COMPANY, INC.		OH	IW	OIL TERMINAL	.02
175.8	CENTRAL BOAZ PUBLIC SERVICE DIST.	WWTP	WV	MW	MUNICIPAL WWTP	.04
175.9	AMOCO PERFORMANCE PRODUCES, INC.		OH	IW	MANUFACTURER OF PLASTICS	2.20
176.9	ELKEM METALS COMPANY	MARIETTA PLANT	OH	DW, IW	MANUFACTURER OF FERRO ALLOY MATERIALS	237.70
179.2	CHEVRON ASPHALT COMPANY	MARIETTA TERMINAL	OH	DW, IW	MANUFACTURER OF ASPHALT PRODUCTS	0.01
180.3	MANVILLE BUILDING MATERIALS CORP.		WV	IW	MANUFACTURER MARBLE GLASS AND FIBERGLASS	0.01
180.9	TEXACO, INC.		WV	IW	OIL TERMINAL	
181.4	VIENNA, CITY OF	VIENNA WWTP	WV	MW	MUNICIPAL WWTP	1.50
181.5	DIAMOND GLASS COMPANY		WV	IW	MANUFACTURER GLASS PRODUCTS	
183.2	PARKERSBURG, CITY OF	PARKERSBURG WTP	WV	IW	POTABLE WATER TREATMENT PLANT	
183.3	PARKERSBURG, CITY OF	PARKERSBURG WWTP	WV	MW	MUNICIPAL WWTP	9.66
183.5	PENNZOIL COMPANY		WV	IW	OIL TERMINAL	
184.9	WV DEPT. OF HIGHWAYS	WWTP	WV	DW	STATE OWNED DOMESTIC WWTP	.00
185.7	BELPRE, CITY OF	BELPRE WWTP	OH	MW	MUNICIPAL WWTP	.56
188.7	SHELL CHEMICAL COMPANY	MARIETTA PLANT	OH	IW	MANUFACTURER OF CHEMICAL PRODUCTS	23.39
189.7	OHIO POWER COMPANY	BELPRE COAL TERMINAL	OH	IW	COAL TERMINAL	.02

OHIO RIVER MAIN STEM DISCHARGES
(Continued)

MILE POINT	DISCHARGER	PLANT NAME	STATE	CODE*	DESCRIPTION	PERMITTED FLOW MGD
190.5	E.I. DUPONT DeNEMOURS AND CO.	WASHINGTON WORKS	WV	IW	MANUFACTURER OF PLASTIC, NYLON, ACRYLIC, POLYVINYL BUTYRAL, FLUOROPOLYMER	9.20
191.4	DISTRIBUTION CENTERS OF PARKERSBURG		WV	DW	PRIVATELY OWNED DOMESTIC WWTP	.00
191.5	BORG-WARNER CHEMICALS, INC.	MARBON DIVISION	WV	IW	MANUFACTURER SYNTHETICS, BUTADIENE ACRYLONITRILE	2.80
192.5	OHIO RIVER SAND AND GRAVEL		WV	IW	SAND AND GRAVEL WASHING	
193.0	AMERICAN METAL CLIMAX, INC.	AMAX SPECIALTY METALS CORP.	WV	DW, IW	SHUTDOWN	
193.0	E.I. DUPONT DeNEMOURS AND CO.	WAREHOUSE FACILITY	WV	IW	STORMWATER RUNOFF ONLY	
193.0	AGA GAS, INC.		WV	DW, IW	STORMWATER RUNOFF, NCCW, DOMESTIC WWTP	.02
210.8	TUPPERS PLAINS	CHESTER WATER PLANT	OH	IW	POTABLE WATER TREATMENT PLANT	.01
220.2	RAVENSWOOD, CITY OF	RAVENSWOOD WWTP	WV	MW	MUNICIPAL WWTP	.75
222.0	KAISER ALUMINUM & CHEMICAL CO.	RAVENSWOOD WORKS	WV	IW	SMELTING OF ALUMINUM, HOT AND COLD ROLLING OF ALUMINUM SHEET AND FOIL	2.27
229.3	CABELL COUNTY BOARD OF EDUCATION	COX'S LANDING JR. HIGH SCHOOL WWTP	WV	DW	COUNTY OWNED DOMESTIC WWTP	.01
231.5	MILLWOOD HOUSING AND COMMERCIAL DEVELOPMENT		WV	DW	PRIVATELY OWNED DOMESTIC WWTP	.03
231.6	TRI-STATE MATERIALS CORPORATION	APPLE GROVE PLANT	OH	IW	SAND AND GRAVEL WASHING	1.35
237.5	OHIO POWER COMPANY	RACINE HYDROELECTRIC PLANT	OH	IW	POWER PLANT	
241.6	FOOTE MINERAL COMPANY		WV	IW	SEDIMENTATION POND	

OHIO RIVER MAIN STEM DISCHARGES
(Continued)

MILE POINT	DISCHARGER	PLANT NAME	STATE	CODE*	DESCRIPTION	PERMITTED FLOW MGD
241.7	CENTRAL OPERATING COMPANY	PHILIP SPORN PLANT	WV	IW	POWER PLANT	1048.09
242.0	COAL POWER INC.		OH	IW	COAL STORAGE AND HANDLING	
242.1	APPALACHIAN POWER COMPANY	MOUNTAINEER PLANT	WV	IW	POWER PLANT	7.66
243.0	SYRACUSE-RACINE REGIONAL S.D.	SYRACUSE-RACINE WWTP	OH	MW	MUNICIPAL WWTP	.28
245.6	NEW HAVEN, CITY OF	NEW HAVEN WWTP	WV	MW	MUNICIPAL WWTP	.40
250.4	POMEROY, VILLAGE OF	POMEROY WWTP	OH	MW	MUNICIPAL WWTP	.31
250.7	MASON, TOWN OF	MASON WWTP	WV	MW	MUNICIPAL WWTP	.25
251.2	MIDDLEPORT, VILLAGE OF	MIDDLEPORT WWTP	OH	MW	MUNICIPAL WWTP	0.30
256.2	JAY MAR COAL COMPANY		OH	IW	COAL STORAGE AND HANDLING	
256.3	WV DEPARTMENT OF HEALTH	LAKIN STATE HOSPITAL	WV	DW	STATE OWNED DOMESTIC WWTP	.06
257.6	CHESHIRE, VILLAGE OF	CHESHIRE WWTP (PROPOSED)	OH	MW	MUNICIPAL WWTP (PROPOSED)	
258.1	OHIO POWER COMPANY	JAMES GAVIN PLANT	OH	IW	POWER PLANT	14.42
260.0	OHIO VALLEY ELECTRIC CORP.	KYGER CREEK STATION	OH	DW, IW	POWER PLANT	1207.10
260.1	PANTASOTE CO. OF NEW YORK, INC.		WV	IW	MANUFACTURER OF POLYVINYLCHLORIDE	0.55
260.2	CAMP CONLEY PUBLIC SERVICE DIST.	WWTP	WV	MW	MUNICIPAL WWTP	.12
262.0	E AND R INVESTMENTS	HOLIDAY INN-GALLIPOLIS WWTP	OH	DW	PRIVATELY OWNED DOMESTIC WWTP	.03
263.0	CONRICH OF OHIO		OH	IW	COAL CRUSHING	.34
264.1	CONRICH OF OHIO	COAL DOCK	OH	IW	COAL STORAGE AND HANDLING	

OHIO RIVER MAIN STEM DISCHARGES
(Continued)

MILE POINT	DISCHARGER	PLANT NAME	STATE	CODE*	DESCRIPTION	PERMITTED FLOW MGD
266.0	SAVEMORE SERVICE STATION		OH	DW	PRIVATELY OWNED DOMESTIC WWTP	.00
268.5	GALLIA COUNTY RURAL WATER ASSOC.	GALLIA WTP	OH	IW	POTABLE WATER TREATMENT PLANT	.07
269.7	GALLIPOLIS, CITY OF	GALLIPOLIS WWTP	OH	MW	MUNICIPAL WWTP	1.80
270.0	STAUFFER CHEMICAL COMPANY	GALLIPOLIS FERRY PLANT	WV	IW	MANUFACTURER INDUSTRIAL ORGANICS	.59
273.5	CLIPPER MILLS DOCKING CO.		OH	IW	COAL LOADING	
274.5	MASON CO. PUBLIC SERVICE DIST.	WTP	WV	IW	POTABLE WATER TREATMENT PLANT	.03
281.0	GOODYEAR TIRE AND RUBBER CO.		WV	DW, IW	MANUFACTURER POLYESTER RESINS	.58
292.2	CROWN COAL COMPANY		OH	IW	COAL LOADING	.76
293.8	GREEN ACRES REGIONAL CENTER INC.	WWTP	WV	DW	PRIVATELY OWNED DOMESTIC WWTP	.02
296.7	RIVERSIDE MOBIL HOME PARK	WWTP	WV	DW	PRIVATELY OWNED DOMESTIC WWTP	0.01
299.3	CABELL CO. BOARD OF EDUCATION	COX'S LANDING ELEMENTARY SCHOOL WWTP	WV	DW	COUNTY OWNED DOMESTIC WWTP	.01
301.0	ALL AMERICAN DEVELOPMENT CORP.		WV	DW	PRIVATELY OWNED DOMESTIC WWTP	.03
301.3	OHIO RIVER SEWER PROJECT HOMEOWNERS	WWTP	WV	DW	PRIVATELY OWNED DOMESTIC WWTP	.02
302.5	MONTROSE COMMERCIAL DEVELOPMENT		OH	DW	PRIVATELY OWNED DOMESTIC WWTP	.05
303.0	CABELL CO. BOARD OF EDUCATION	PARK HILLS ELEM. SCHOOL WWTP	WV	DW	PRIVATELY OWNED DOMESTIC WWTP	0.02
303.5	GULF OIL PRODUCTS COMPANY	HUNTINGTON TERMINAL	WV	IW	OIL TERMINAL	
304.0	CABELL CO. BOARD OF EDUCATION	FETTY ELEM. SCHOOL WWTP	WV	DW	PRIVATELY OWNED DOMESTIC WWTP	.00

OHIO RIVER MAIN STEM DISCHARGES
(Continued)

MILE POINT	DISCHARGER	PLANT NAME	STATE	CODE*	DESCRIPTION	PERMITTED	
						FLOW MGD	
304.6	PROCTORVILLE, VILLAGE OF	PROCTORVILLE WWTP	OH	MW	MUNICIPAL WWTP	.01	
306.5	HUNTINGTON INDUSTRIAL CORP.		WV	DW	PRIVATELY OWNED DOMESTIC WWTP	.02	
306.5	TEXACO, INC.		WV	DW	PRIVATELY OWNED DOMESTIC WWTP	0.02	
306.9	HUNTINGTON WATER CORPORATION	HUNTINGTON WTP	WV	MW	POTABLE WATER TREATMENT PLANT	2.00	
308.3	HUNTINGTON SANITARY BOARD	HUNTINGTON WWTP	WV	MW	MUNICIPAL WWTP	17.00	
309.2	CHESAPEAKE, VILLAGE OF	CHESAPEAKE WWTP (PROPOSED)	OH	MW	MUNICIPAL WWTP (PROPOSED)		
311.0	PENNZOIL COMPANY		WV	IW	OIL TERMINAL		
313.1	EASTERN LAWRENCE CO. REGIONAL SEWER DISTRICT	WWTP	OH	MW	MUNICIPAL WWTP	1.10	
314.7	OGLEBAY NORTON COMPANY		WV	IW	COAL REPROCESSING PLANT		
314.8	CEREDO, CITY OF	CEREDO WWTP	WV	MW	MUNICIPAL WWTP	.31	
315.4	SUN OIL COMPANY		WV	IW	OIL TERMINAL		
315.7	KENOVA, CITY OF	KENOVA WWTP	WV	MW	MUNICIPAL WWTP	.55	
316.8	AMERICAN COMMERCIAL TERMINALS		OH	IW	COAL STORAGE AND HANDLING		
317.0	SOUTH POINT, VILLAGE OF	SOUTH POINT WWTP	OH	MW	MUNICIPAL WWTP	.67	
317.1	ASHLAND OIL, INC.	CATLETTSBURG REFINERY	KY	DW, IW	OIL REFINERY DISCHARGES TO BIG SANDY RIVER AT CONFLUENCE		
317.5	BIG SANDY ASPHALT COMPANY		KY	DW	DOMESTIC WWTP AND STORMWATER RUNOFF		
318.2	ASHLAND OIL COMPANY	MARINE REPAIR TERMINAL	KY	IW	MARINE REPAIR SHOP		

OHIO RIVER MAIN STEM DISCHARGES
(Continued)

MILE POINT	DISCHARGER	PLANT NAME	STATE	CODE*	DESCRIPTION	PERMITTED FLOW MGD
318.4	SOUTH POINT ETHANOL		OH	IW	PRODUCER OF FUEL GRADE ETHANOL	1.24
318.5	ASHLAND OIL COMPANY, INC.	SOUTH POINT PLANT	OH	IW	CHEMICAL MANUFACTURER	
318.6	TRI-STATE TERMINALS, INC.	SOUTH POINT PROCESSING	OH	IW	COAL PREPARATION AND STORAGE	.04
319.0	CHEVRON U.S.A., INC.	ASHLAND TERMINAL	KY	IW	OIL TERMINAL	
319.9	LOWMAN DOCK, INC.	BARGE LOADING TERMINAL	OH	IW	STORMWATER RUNOFF ONLY	.01
320.3	ARMCO INC.	ASHLAND COKE PLANT	KY	IW	COAL PRODUCTION	
321.0	CHESAPEAKE AND OHIO RAILROAD	ASHLAND YARD	KY	IW	COAL PRODUCTION	
321.1	MANSBACH METAL COMPANY		KY	IW	INACTIVE FACILITY	
322.0	ARMCO INC.	NORTON FOUNDRY	KY	IW	IRON FOUNDRY	
322.5	ASHLAND, CITY OF	ASHLAND WWTP	KY	MW	MUNICIPAL WWTP	11.00
323.8	OLIVER ELAM JR., INC.		OH	IW	COAL CRUSHING AND LOADING	0.31
324.4	IRONTON COAL COMPANY	COAL LOADING FACILITY	OH	IW	COAL STORAGE AND HANDLING	.01
324.5	IRON CITY FUELS, INC.	IRONTON COKE PLANT	OH	IW	COKE PLANT	
324.6	ARMCO INC.	ASHLAND WORKS	KY	IW	MANUFACTURER CARBON STEEL PRODUCTS	7.30
324.9	RAIL RIVER TERMINAL CO., INC.		OH	IW	COAL STORAGE AND HANDLING	
325.0	ALLIED CHEMICAL	IRONTON TAR PROCESSING PLANT	OH	IW	MANUFACTURER COAL TAR PITCH, REFINED COAL TAR, NAPHTHALENE, CREOSOLE	.62
325.1	IRONTON IRON, INC.		OH	IW	MANUFACTURER DUCTILE IRON	.51

OHIO RIVER MAIN STEM DISCHARGES
(Continued)

MILE POINT	DISCHARGER	PLANT NAME	STATE	CODE*	DESCRIPTION	PERMITTED FLOW	
						MGD	---
326.4	CHESAPEAKE AND OHIO RAILROAD	RUSSELL YARD	KY	DW,IW	PRIVATELY OWNED DOMESTIC WWTP STORMWATER RUNOFF		
327.0	UNION TWP SEWER DISTRICT #1	UNION TOWNSHIP WWTP	OH	MW	MUNICIPAL WWTP		
327.1	IRONTON, CITY OF	IRONTON WTP	OH	IW	POTABLE WATER TREATMENT PLANT		
327.2	IRONTON, CITY OF	IRONTON WWTP	OH	MW	MUNICIPAL WWTP	2.00	
327.3	BOYD & GREENUP COUNTIES	SANITATION DIST. #1 WWTP	KY	MW	MUNICIPAL WWTP	.75	
327.5	PENN PROPERTIES INC.	BARGE LOADING TERMINAL	OH	IW	COAL LOADING		
327.8	FLATWOODS, CITY OF	FLATWOODS WWTP	KY	MW	MUNICIPAL WWTP	.80	
327.9	GREENUP COUNTY ENVIRONMENTAL COMMISSION	GREENUP COUNTY ENVIRONMENTAL COMMISSION WWTP	KY	MW	MUNICIPAL WWTP	2.05	
328.9	WORTHINGTON, CITY OF	WORTHINGTON WWTP	KY	MW	MUNICIPAL WWTP	.20	
329.6	McGOVERN READY MIX, INC.	HANGING ROCK PLANT	OH	IW	MANUFACTURER CONCRETE	.04	
331.2	SUPERIOR RIVER COAL COMPANY		OH	IW	COAL CRUSHING	.00	
332.0	ARISTECH CHEMICAL CORP.	HAVERHILL PLANT	OH	DW,IW	MANUFACTURER PHENOL, ACETONE, ALPHA- METHYLSTYRENE, BISPHENOL-A, ANILINE, AND DIPHENYLAMINE	.76	
333.2	E.I. DuPONT DeNEMOURS & CO.		KY	DW,IW	MANUFACTURER SULFURIC ACID AND MICROFOAM SHEETING	5.07	
335.5	BLUEGRASS MINING	GREENUP DOCK	KY	IW	COAL PREPARATION PLANT		
336.4	GREENUP, CITY OF	GREENUP WWTP	KY	MW	MUNICIPAL WWTP	0.20	

OHIO RIVER MAIN STEM DISCHARGES
(Continued)

MILE POINT	DISCHARGER	PLANT NAME	STATE	CODE*	DESCRIPTION	PERMITTED FLOW MGD
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341.0	TENNESSEE GAS PIPELINE		KY	IW	PIPELINE TESTING INTERMITTENT DISCHARGE	
342.8	SCIOTO COUNTY, BOARD OF COUNTY COMMISSIONERS	PORTSMOUTH INDUSTRIAL PARK WWTP	OH	MW	MUNICIPAL WWTP	0.16
345.0	BEL DOCKING CORPORATION		OH	IW	COAL STORAGE AND HANDLING	
347.2	STANDARD SLAG COMPANY	WHEELINGSBURG DOCK	OH	IW	COAL STORAGE AND HANDLING	1.30
349.0	PORTSMOUTH, CITY OF	SCIOTOVILLE WWTP	OH	MW	MUNICIPAL WWTP	0.16
349.2	STANDARD OIL COMPANY	SCIOTOVILLE TERMINAL	OH	IW	OIL TERMINAL	.19
350.8	PORTSMOUTH, CITY OF	PORTSMOUTH WTP	OH	IW	POTABLE WATER TREATMENT PLANT	.04
351.2	NEW BOSTON COKE CORP.		OH	IW	PRODUCTION OF COKE	6.03
351.8	NEW BOSTON, VILLAGE OF	NEW BOSTON WWTP	OH	MW	MUNICIPAL WWTP (PRIMARY)	0.53
353.8	SOUTH SHORE, CITY OF	SOUTH SHORE WWTP	KY	MW	MUNICIPAL WWTP	0.20
355.5	DAYTON WALTHER CORPORATION	PORTSMOUTH DIVISION	OH	IW		
355.8	NORFOLK & WESTERN RAILWAY CO.		OH	IW	RAILROAD YARD STORMWATER RUNOFF	.05
356.0	PORTSMOUTH, CITY OF	PORTSMOUTH WWTP	OH	MW	MUNICIPAL WWTP	4.00
378.4	VANCEBURG UTILITIES	VANCEBURG WWTP	KY	MW	MUNICIPAL WWTP	.25
397.0	ADAMS CO. WATER CO., INC.	CHERRY FORK WTP	OH	IW	POTABLE WATER TREATMENT PLANT	
400.0	ABERDEEN, VILLAGE OF	ABERDEEN WWTP	OH	MW	MUNICIPAL WWTP	.10
403.0	DRAVO LIME COMPANY		KY	IW	LIMESTONE FACILITY	

OHIO RIVER MAIN STEM DISCHARGES
(Continued)

MILE POINT	DISCHARGER	PLANT NAME	STATE	CODE*	DESCRIPTION	PERMITTED FLOW MGD
403.6	WALD MANUFACTURING COMPANY	DISPOSAL FACILITY	KY	IW	STANDING RAINWATER FROM SURFACE IMPOUND- MENTS	0.60
405.2	FRANKFORT MATERIALS COMPANY		KY	IW	SAND AND GRAVEL WASHING	
405.7	DAYTON POWER & LIGHT COMPANY	J.M. STUART STATION	OH	IW	POWER PLANT	824.18
407.1	EMERSON ELECTRIC COMPANY		KY	IW	NCCW	.33
408.4	MAYSVILLE UTILITY COMMISSION	MAYSVILLE WTP	KY	IW	POTABLE WATER TREATMENT PLANT	1.20
408.5	WALD MANUFACTURING CO., INC.		KY	IW	ELECTROPLATING OPERATION	.20
408.8	CARNATION COMPANY		KY	IW	MANUFACTURER EVAPORATED MILK	.85
411.8	MAYSVILLE UTILITY COMMISSION	MAYSVILLE WWTP	KY	MW	MUNICIPAL WWTP	1.42
412.2	CONSOLIDATED BREATHITT COAL CO.		KY	IW	COAL STORAGE AND HANDLING	
413.8	EAST KENTUCKY POWER COOPERATIVE	HUGH L. SPURLOCK POWER STA.	KY	IW	POWER PLANT	3.41
417.1	RIPLY, VILLAGE OF	RIPLY WWTP	OH	MW	MUNICIPAL WWTP	.22
427.7	AUGUSTA, CITY OF	AUGUSTA WWTP	KY	MW	MUNICIPAL WWTP	.15
441.5	BLACK RIVER MINING COMPANY		KY	IW	LIME HYDRATION PLANT	
443.2	CINCINNATI GAS & ELECTRIC CO.	W.H. ZIMMER POWER STATION	OH	IW	POWER PLANT UNDER CONSTRUCTION	47.10
447.5	CAMPBELL CO. BOARD OF EDUCATION	A.J. JOLLY ELEM. SCHOOL WWTP	KY	DW	PRIVATELY OWNED DOMESTIC WWTP	.01
449.8	NEW RICHMOND, VILLAGE OF	NEW RICHMOND WTP	OH	IW	POTABLE WATER TREATMENT PLANT	.01
449.9	NEW RICHMOND, VILLAGE OF	NEW RICHMOND WWTP	OH	MW	MUNICIPAL WWTP	.25
453.0	CINCINNATI GAS & ELECTRIC CO.	W.C. BECKJORD STATION	OH	IW	POWER PLANT	786.50

OHIO RIVER MAIN STEM DISCHARGES
(Continued)

MILE POINT	DISCHARGER	PLANT NAME	STATE	CODE*	DESCRIPTION	PERMITTED FLOW MGD
455.1	CLERMONT COUNTY BOARD OF COMMISSIONERS	NINE MILE CREEK REGIONAL WWTP	OH	MW	MUNICIPAL WWTP	1.80
456.3	CAMPBELL COUNTY BOARD OF EDUCATION	ALEXANDRIA ELEMENTARY SCHOOL WWTP	KY	DW	PRIVATELY OWNED DOMESTIC WWTP	
456.5	CAMPBELL COUNTY BOARD OF EDUCATION	CAMPBELL COUNTY HIGH SCHOOL WWTP	KY	DW	PRIVATELY OWNED DOMESTIC WWTP	
457.3	UNIVERSAL CONCRETE PRODUCTS		KY	DW	PRIVATELY OWNED DOMESTIC WWTP	0.00
457.7	HARRISON MOBILE HOME PARK	HARRISON MOBILE HOME PARK WWTP	KY	DW	PRIVATELY OWNED DOMESTIC WWTP	
458.4	SISTERS OF DIVINE PROVIDENCE	ST. ANNE CONVENT WWTP	KY	DW	PRIVATELY OWNED DOMESTIC WWTP	
461.0	RIVER DOWNS INVESTMENT CO.	RIVER DOWNS RACE TRACK	OH	DW	PRIVATELY OWNED DOMESTIC WWTP	.05
461.5	TAFT BROADCAST COMPANY	CONEY ISLAND REC. CENTER	OH	DW	PRIVATELY OWNED DOMESTIC WWTP	
462.8	CINCINNATI WATERWORKS	CINCINNATI WTP	OH	DW	POTABLE WATER TREATMENT PLANT	2.00
462.9	NEWPORT WATER FILTRATION PLANT	NEWPORT WTP	KY	IW	POTABLE WATER TREATMENT PLANT	.85
463.0	DEPARTMENT OF THE ARMY	FT. THOMAS-US ARMY RESERVE	KY	IW	SURFACE RUNOFF FROM TRUCK WASHING	
464.5	HAMILTON CO. COMMISSIONERS	LITTLE MIAMI WWTP	OH	MW	MUNICIPAL WWTP	38.00
472.5	HAMILTON CO. COMMISSIONERS	MILL CREEK WWTP	OH	MW	MUNICIPAL WWTP	120.00
474.3	UNION OIL CO. OF CALIFORNIA	CINCINNATI TERMINAL	OH	IW	OIL TERMINAL	.00
474.4	CHEVRON U.S.A., INC.	COVINGTON TERMINAL	KY	IW	OIL TERMINAL	
474.5	BORON OIL COMPANY	BROMLEY TERMINAL	KY	IW	OIL TERMINAL	

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OHIO RIVER MAIN STEM DISCHARGES
(Continued)

MILE POINT	DISCHARGER	PLANT NAME	STATE	CODE*	DESCRIPTION	PERMITTED FLOW MGD
475.8	ASHLAND OIL COMPANY	VALVOLINE OIL CO. DIVSN.	OH	IW	OIL TERMINAL	.52
476.8	TRESLER OIL COMPANY		OH	IW	OIL TERMINAL	
477.4	SANITATION DISTRICT NO. 1 OF CAMPBELL AND KENTON COUNTIES	DRY CREEK WWTP	KY	MW	MUNICIPAL WWTP	30.00
480.0	HILLTOP BASIC RESOURCES, INC.	RIVER TERMINAL PLANT	OH	IW	MANUFACTURER CONCRETE	.06
482.0	HAMILTON CO. COMMISSIONERS	MUDDY CREEK WWTP	OH	MW	MUNICIPAL WWTP	15.00
484.0	MONSANTO PLASTICS & RESIN CO.	PORT PLASTICS PLANT	OH	IW	MANUFACTURER PLASTIC, ACRYLONITRILE BUTADIENE, STYRENE, UREA FORMAL	11.10
486.0	HAMILTON CO. COMMISSIONERS	CLEVES WWTP	OH	MW	MUNICIPAL WWTP	.50
489.5	KAISER ALUMINUM & CHEMICAL CO.	KAISER AGRICULTURAL CHEMICAL DIVISION	OH	IW	MANUFACTURER LIQUID NITRIC ACID AND NITROGENOUS FERTILIZERS	.16
490.0	CINCINNATI GAS & ELECTRIC CO.	MIAMI FORT STATION	OH	IW	POWER PLANT	298.82
493.0	SOUTH DEARBORN REGIONAL SEWER DISTRICT	SOUTH DEARBORN REGIONAL SEWER DISTRICT WWTP	IN	MW	MUNICIPAL WWTP	2.00
495.0	INDIANA & MICHIGAN ELECTRIC CO.	TANNER'S CREEK GENERATING STATION	IN	IW	POWER PLANT	999.40
495.1	JOSEPH E. SEAGRAM & SONS, INC.		IN	IW	DISTILLERY NCCW	6.79
495.2	SCHENLEY DISTILLERS, INC.		IN	IW	DISTILLERY NCCW	2.62
502.5	BOONE CO. BOARD OF EDUCATION	CHARLES H. KELLEY ELEMENTARY SCHOOL	KY	DW	PRIVATELY OWNED DOMESTIC WWTP	.02
502.9	TOM ARLINGHAUS	ARLINGHAUS PROPERTIES	KY	DW	PRIVATELY OWNED DOMESTIC WWTP	.01

OHIO RIVER MAIN STEM DISCHARGES
(Continued)

MILE POINT	DISCHARGER	PLANT NAME	STATE	CODE*	DESCRIPTION	PERMITTED FLOW MGD
503.9	RIVER RIDGE PARKS, INC.		KY	DW	PRIVATELY OWNED DOMESTIC WWTP	.01
506.0	RISING SUN, TOWN OF	RISING SUN WWTP	IN	MW	MUNICIPAL WWTP	.36
511.0	CINCINNATI GAS & ELECTRIC CO.	EAST BEND STATION	KY	IW	POWER PLANT	4.70
516.5	U.S. ARMY CORPS OF ENGINEERS	BIG BONE CREEK RAMP WTP	KY	IW	POTABLE WATER TREATMENT PLANT	.05
516.6	KENTUCKY DEPARTMENT OF PARKS	BIG BONE LICK STATE PARK WTP	KY	IW	POTABLE WATER TREATMENT PLANT	.04
529.9	LANDMARK MOBILE HOME PARK		KY	DW	PRIVATELY OWNED DOMESTIC WWTP	
530.0	CITY OF WARSAW	WWTP	KY	MW	MUNICIPAL WWTP	.12
535.0	CLEANCOAL TERMINAL COMPANY		KY	IW	COAL HANDLING AND STORAGE	
536.0	KENTUCKY UTILITIES COMPANY	GHENT GENERATING STATION	KY	IW	POWER PLANT	7.00
537.5	VEVAY, TOWN OF	VEVAY WWTP	IN	MW	MUNICIPAL POTW	.40
540.8	DOW CORNING CORPORATION		KY	IW	MANUFACTURER SILICONES AND EMULSIONS	.30
544.0	CHEVRON U.S.A, INC.	CARROLTON BULK PLANT	KY	IW	OIL TERMINAL	
544.5	M & T CHEMICALS INC.		KY	IW	MANUFACTURER ORGANIC, ORGANO-METALLIC, ORGANIC CHEMICALS, PESTICIDES	4.94
553.5	MILTON SAND & GRAVEL CO., INC.		KY	IW	SAND AND GRAVEL WASHING	
554.7	KAWNEER COMPANY, INC.		KY	DW,IW	ALUMINUM ANODIZING METALS FABRICATION	.50
556.6	MILTON, CITY OF	MILTON WWTP	KY	MW	MUNICIPAL WWTP	0.16
558.6	MADISON, CITY OF	MADISON WWTP	IN	MW	MUNICIPAL WWTP	3.60
559.0	HANOVER, TOWN OW	HANOVER WWTP	IN	MW	MUNICIPAL WWTP	.54

OHIO RIVER MAIN STEM DISCHARGES
(Continued)

MILE POINT	DISCHARGER	PLANT NAME	STATE	CODE*	DESCRIPTION	PERMITTED FLOW MGD
560.0	INDIANA-KENTUCKY ELECTRIC CORP.	CLIFTY CREEK STATION	IN	IW	POWER PLANT	1393.67
572.0	LOUISVILLE GAS & ELECTRIC CO.	TRIMBLE CO. GENERATING STA.	KY	IW	POWER PLANT	3.66
586.0	MARTIN MARIETTA BASIC PRODUCTS	LANE QUARRY	IN	IW	STONE QUARRY	
589.5	GOSHEN UTILITIES, INC.	GOSHEN WWTP	KY	MW	MUNICIPAL WWTP	.05
590.0	HEIL COMPANY		KY	IW	HYDROSTATIC TRESTLING WATER	
590.5	CHARLESTOWN, CITY OF	WWTP	IN	MW	MUNICIPAL WWTP	.44
593.3	INDIANA ARMY AMMUNITION PLANT		IN	DW	PRIVATELY OWNED DOMESTIC WWTP	.63
600.7	LOUISVILLE WATER COMPANY	B.E. PAYNE WTP	KY	IW	POTABLE WTP	2.40
600.8	LOUISVILLE WATER COMPANY	ZORN AVENUE WTP	KY	IW	POTABLE WTP	2.40
601.0	LOUISVILLE & JEFFERSON CO. MSD	NEW MARKET SUBDIV. WWTP	KY	DW	PRIVATELY OWNED DOMESTIC WWTP	.08
601.5	CONVENIENT ENERGY, INC.		KY	IW	COAL STORAGE AND HANDLING	
602.0	CONSERVANCY DISTRICT OF OAK PARK	CONSERVANCY DISTRICT OF OAK PARK WWTP	IN	MW	MUNICIPAL WWTP	.50
602.6	ASHLAND PETROLEUM COMPANY	LOUISVILLE PLANT	KY	IW	ASPHALT AND FUEL OIL TERMINAL	
602.7	SHELL OIL COMPANY	MARKETING TERMINAL	KY	IW	OIL TERMINAL	
603.0	CHEVRON U.S.A., INC.	LOUISVILLE ASPHALT PLANT	KY	IW	ASPHALT TERMINAL	

OHIO RIVER MAIN STEM DISCHARGES
(Continued)

MILE POINT	DISCHARGER	PLANT NAME	STATE	CODE*	DESCRIPTION	PERMITTED FLOW MGD
603.0	MARTIN MARIETTA AGGREGATES	UTICA SAND AND GRAVEL	IN	IW	SAND AND GRAVEL OPERATION	
603.3	JEFFERSON CO. MEDICAL CENTER	STEAM AND CHILLED WATER PLANT	KY	IW	NCCW	
603.5	GALT HOUSE EAST		KY	IW	NCCW	
603.8	LOUISVILLE GAS & ELECTRIC CO.	WATERSIDE STATION	KY	IW	POWER STATION NCCW	.15
604.0	HUMANA, INC.		KY	IW	NCCW	
604.1	JEFFERSONVILLE, CITY OF	JEFFERSONVILLE WWTP	IN	MW	MUNICIPAL WWTP	4.00
604.5	ASHLAND PETROLEUM COMPANY		IN	IW	OIL WATER SEPARATOR STORMWATER RUNOFF	0.03
605.0	COLGATE PALMOLIVE COMPANY		IN	IW	MANUFACTURER SOAP AND DETERGENTS	3.50
605.2	CLARKSVILLE, TOWN OF	CLARKSVILLE WWTP	IN	MW	MUNICIPAL WWTP	1.10
605.9	LOUISVILLE GAS & ELECTRIC CO.	OHIO FALLS STATION	KY	IW	POWER PLANT	1.33
606.3	U.S. ARMY CORPS OF ENGINEERS	MCALPINE LOCK AND DAM	KY	DW	PRIVATELY OWNED DOMESTIC WWTP	.00
606.4	MOSER LEATHER COMPANY, INC.		IN	DW, IW	LEATHER TANNING AND FINISHING	.13
609.5	NEW ALBANY, CITY OF	NEW ALBANY WWTP	IN	MW	MUNICIPAL WWTP	8.32
611.6	ASHLAND PETROLEUM COMPANY		KY	IW	OIL TERMINAL	
612.0	LOUISVILLE & JEFFERSON CO. MSD	MORRIS FORMAN WWTP	KY	MW	MUNICIPAL WWTP	105.00
612.5	CHEVRON U.S.A., INC.	LOUISVILLE TERMINAL	KY	IW	OIL TERMINAL	
612.6	TEXACO, INC.	TERMINALS & BULK STORAGE	KY	IW	OIL TERMINAL	
613.0	ASHLAND CHEMICAL COMPANY		KY	IW	PETROLEUM CHEMICAL STORAGE TERMINAL	

OHIO RIVER MAIN STEM DISCHARGES
(Continued)

MILE POINT	DISCHARGER	PLANT NAME	STATE	CODE*	DESCRIPTION	PERMITTED FLOW MGD
613.1	B.F. GOODRICH CHEMICAL CO.		KY	IW	MANUFACTURER SYNTHETIC RUBBER AND PLASTIC RESINS	.72
613.3	ROHM & HAAS KENTUCKY, INC.		KY	IW	MANUFACTURER ACRYLIC POLYMERS, DISTILLATION OF CRUDE METHYL METHACRYLATE	28.80
613.5	AMERICAN SYNTHETIC RUBBER CORP.		KY	IW	MANUFACTURER POLYBUTADIENE RUBBER, STYRENE BUTADIENE RUBBER	1.40
613.6	LOUISVILLE GAS & ELECTRIC CO.	PADDY'S RUN STATION	KY	DW, IW	POWER PLANT	482.00
613.8	E.I. DUPONT DeNEMOURS AND CO.		KY	IW	NCCW ONLY	71.00
614.0	ASHLAND SERVICE STATION	#14-0	KY	DW	PRIVATELY OWNED DOMESTIC WWTP	
614.1	MARATHON OIL COMPANY		KY	IW	OIL TERMINAL	
614.9	STAUFFER CHEMICAL COMPANY		KY	IW	CHEMICAL STORAGE TERMINAL	.08
615.0	DEPARTMENT OF THE ARMY	U.S. ARMY RESERVE CENTER #2	KY	IW	TRUCK WASHING DISCHARGE	
615.2	BORDEN CHEMICAL A&C	LOUISVILLE SITE	KY	IW	MANUFACTURE FORMALDEHYDE, UREA FORMALDE- HYDE, PHENOLIC RESINS, ADHESIVES	2.50
615.7	WELLINGTON ELEMENTARY SCHOOL	WWTP	KY	DW	PRIVATELY OWNED DOMESTIC WWTP	
616.0	SUN OIL COMPANY OF PENNSYLVANIA	LOUISVILLE BULK PLANT	KY	IW	OIL TERMINAL	
616.2	LOUISVILLE GAS & ELECTRIC CO.	CANE RUN STATION	KY	IW	POWER PLANT	9.67
616.3	EDWARDSVILLE WATER CORP.	EDWARDSVILLE WTP	IN	IW	POTABLE WATER TREATMENT PLANT	.04
617.4	INTERPOLYMER CORPORATION		KY	IW		.01
620.0	SHACKLETTE ELEMENTARY SCHOOL	WWTP	KY	DW	PRIVATELY OWNED DOMESTIC WWTP	

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OHIO RIVER MAIN STEM DISCHARGES
(Continued)

MILE POINT	DISCHARGER	PLANT NAME	STATE	CODE*	DESCRIPTION	PERMITTED FLOW MGD
620.5	EXXON COMPANY, U.S.A.	EXXON TERMINAL NO. 5277	KY	IW	OIL TERMINAL	
621.0	JOHNSONTOWN RD. ELEM. SCHOOL	WWTP	KY	DW	PRIVATELY OWNED DOMESTIC WWTP	
623.3	LOUISVILLE & JEFFERSON CO. MSD	WEST COUNTY WWTP	KY	MW	MUNICIPAL WWTP	15.00
626.0	LOUISVILLE GAS & ELECTRIC CO.	MILL CREEK STATION	KY	DW,IW	POWER PLANT	16.90
627.8	B-T ENERGY CORPORATION		KY	IW	OIL WATER SEPARATOR STORMWATER RUNOFF	
631.4	WEST POINT, CITY OF	WEST POINT WWTP	KY	MW	MUNICIPAL WWTP	.20
637.4	LOUISVILLE, CITY OF	OTTER CREEK PARK WWTP	KY	MW	MUNICIPAL WWTP	.01
642.0	OLIN CORPORATION	DOE RUN KENTUCKY PLANT	KY	IW	MANUFACTURER GLYCOL ETHERS, POLYALKALINE GLYCOLS, TOLUENE DIAMINE	16.30
642.3	DOE VALLEY UTILITIES, INC.	DOE VALLEY WWTP	KY	MW	MUNICIPAL WWTP	.05
645.8	BRANDENBURG, CITY OF	BRANDENBURG WWTP	KY	MW	MUNICIPAL WWTP	.20
653.0	MARIETTA MARTIN AGGREGATES	BIG BEND QUARRY	KY	IW	LIMESTONE QUARRY	.01
664.0	LEAVENWORTH, TOWN OF	LEAVENWORTH WWTP	IN	MW	MUNICIPAL WWTP	.03
674.0	MULZER CRUSHED STONE, INC.	CAPE SANDY QUARRY	IN	IW	STONE QUARRY	
686.7	CARNEY RESIDENCE	WWTP	KY	DW	PRIVATELY OWNED DOMESTIC WWTP	.00
710.4	AMERICAN OLEAN TILE CO.	CLOVERPORT PLANT	KY	DW	PRIVATELY OWNED DOMESTIC WWTP	
711.8	CLOVERPORT, CITY OF	CLOVERPORT WWTP	KY	MW	MUNICIPAL WWTP	.20
719.0	WILLIAMETTE INDUSTRIES INC.	BLEACHED PUMP MILL	KY	IW	MANUFACTURER BLEACHED HARDWOOD PULP	5.70

OHIO RIVER MAIN STEM DISCHARGES
(Continued)

MILE POINT	DISCHARGER	PLANT NAME	STATE	CODE*	DESCRIPTION	PERMITTED FLOW MGD
721.0	WILLIAMETTE INDUSTRIES INC.	CORRUGATED MEDIUM MILL	KY	IW	MANUFACTURER CORRUGATED PAPER	2.50
721.7	RIVERVIEW RESTAURANT	WWTP	KY	DW	PRIVATELY OWNED DOMESTIC WWTP	
723.0	HAWESVILLE, CITY OF	HAWESVILLE WTP	KY	IW	POTABLE WATER TREATMENT PLANT	
724.0	CANNELTON, CITY OF	CANNELTON WWTP	IN	MW	MUNICIPAL WWTP	.30
726.4	ALUMAX ALUMINUM CORPORATION		KY	DW,IW	MANUFACTURER COLD ROLLED ALUMINUM REROLL, HEAT TREATMENT OF ALUMINUM	
726.5	NATIONAL ALUMINUM CORP.	HAWESVILLE PLANT	KY	DW,IW	CASTING ALUMINUM INGOT, ROLLING OF OF ALUMINUM SHEETS & PAINTING OF STEEL	6.00
726.6	TELL CITY ELECTRIC DEPT.	TELL CITY WTP	IN	IW	POTABLE WATER TREATMENT PLANT	.01
727.0	TELL CITY, CITY OF	TELL CITY WWTP	IN	MW	MUNICIPAL WWTP	1.20
727.2	SOUTHWIRE COMPANY	KENTUCKY DIVISION	KY	DW,IW	SMELTING OF ALUMINUM, MANUFACTURING CARBON	0.00
728.4	BIG RIVER ELECTRIC CORPORATION	COLEMAN STATION	KY	IW	POWER STATION	6.20
731.0	TROY, TOWN OF	TROY WWTP	IN	MW	MUNICIPAL WWTP	.07
737.7	LEWISPORT, CITY OF	LEWISPORT WTP	KY	IW	POTABLE WATER TREATMENT PLANT	
738.0	LEWISPORT, CITY OF	LEWISPORT WWTP	KY	MW	MUNICIPAL WWTP	.25
738.1	AMERICAN OLEAN TILE CO.		KY	DW	PRIVATELY OWNED DOMESTIC WWTP	
742.2	GRANDVIEW, TOWN OF	GRANDVIEW WWTP	IN	MW	MUNICIPAL WWTP	.12
746.2	ROCKPORT, CITY OF	ROCKPORT WWTP	IN	MW	MUNICIPAL WWTP	.50

OHIO RIVER MAIN STEM DISCHARGES
(Continued)

MILE POINT	DISCHARGER	PLANT NAME	STATE	CODE*	DESCRIPTION	PERMITTED FLOW MGD
750.0	GREEN COAL COMPANY		KY	IW	COAL PREPARATION PLANT	
751.3	W.R. GRACE AND COMPANY		KY	DW,IW	MANUFACTURER STYRENE, BUTADIENE LATEX, POLYVINYLIDENE AND PLASTIC BATTERY SEPARATOR	4.58
752.8	OWENSBORO MUNICIPAL UTILITIES	ELMER SMITH ELECTRIC GENERATING STATION	KY	IW	POWER PLANT	5.40
753.0	KENTUCKY FRIED CHICKEN		KY	DW	PRIVATELY OWNED DOMESTIC WWTP	.00
753.5	GREEN RIVER STEEL CORP.		KY	DW,IW	MANUFACTURER SPECIALTY STEEL PLOOM AND BILLETS	3.83
753.9	LONG JOHN SILVERS ANCHORS, INC.	LONG JOHN SILVER'S SEAFOOD RESTAURANT #3	KY	DW	PRIVATELY OWNED DOMESTIC WWTP	.00
754.0	EAST 60 APARTMENTS		KY	DW	PRIVATELY OWNED DOMESTIC WWTP	.01
754.1	CROSBY GROUP	OWENSBORO PLANT	KY	DW,IW	GOLD MECHANICAL GALVANIZING, STEEL FORGINGS	.06
754.5	KROGER COMPANY		KY	DW	PRIVATELY OWNED DOMESTIC WWTP	
754.6	OWENSBORO WWTP	EAST PLANT	KY	MW	MUNICIPAL WWTP	6.80
754.9	MCDONALD'S RESTAURANT		KY	DW	PRIVATELY OWNED DOMESTIC WWTP	
755.0	SOUTH CENTRAL OIL	RED BIRD SERVICE STATION	KY	DW	PRIVATELY OWNED DOMESTIC WWTP	
755.0	MAPCO PETROLEUM, INC.	D.B.A. DELTA STORE #7373	KY	DW	PRIVATELY OWNED DOMESTIC WWTP	
755.4	CHEVRON U.S.A., INC.	OWENSBORO TERMINAL	KY	IW	OIL TERMINAL	
755.5	GLENMORE DISTILLERIES CO.		KY	DW,IW	DISTILLERY	.03

OHIO RIVER MAIN STEM DISCHARGES
(Continued)

MILE POINT	DISCHARGER	PLANT NAME	STATE	CODE*	DESCRIPTION	PERMITTED FLOW MGD
755.6	OWENSBORO, CITY OF	OWENSBORO WTP	KY	IW	POTABLE WATER TREATMENT PLANT	
757.0	DAVISS CO. CHILDRENS CENTER INC.	LEVI MEMORIAL HOME	KY	DW	PRIVATELY OWNED DOMESTIC WWTP	
757.1	WYNDALLS'S CENTER		KY	DW	PRIVATELY OWNED DOMESTIC WWTP	
757.2	MEDLEY DISTILLING COMPANY		KY	IW	DISTILLERY	1.99
757.5	FIELD PACKING COMPANY		KY	IW	MEAT PROCESSING PLANT NCCW	
757.7	JULIUS WILE & CO., INC.		KY	IW	DISTILLERY	
758.2	OWENSBORO WWTP	OWENSBORO WWTP-WEST	KY	MW	MUNICIPAL WWTP	12.00
760.0	OWENSBORO RIVERPORT AUTHORITY		KY	IW	COAL HANDLING AND STORAGE	
765.0	OWENSBORO GRAIN COMPANY		KY	IW	GRAIN STORAGE, NCCW	0.00
773.0	SO. INDIANA GAS & ELECTRIC CO.	F.B. CULLEY STATION	IN	IW	POWER PLANT	264.74
773.5	ALUMINUM CO. OF AMERICA	WARRICK WORKS	IN	IW	SMELTER OF ALUMINUM, ROLLING, AND FORMATION OF SHEET METAL	443.12
778.0	NEWBURGH, TOWN OF	NEWBURGH WWTP	IN	MW	MUNICIPAL WWTP	2.50
790.0	ASHLAND PETROLEUM COMPANY		IN	IW	OIL TERMINAL	0.01
791.5	EVANSVILLE, CITY OF	EVANSVILLE WTP	IN	IW	POTABLE WATER TREATMENT PLANT	1.75
792.5	EVANSVILLE WATER & SEWER UTILITY	EVANSVILLE WWTP-EAST SIDE	IN	MW	MUNICIPAL WWTP	18.00
793.5	SO. INDIANA GAS & ELECTRIC CO.	OHIO RIVER GENERATING STA.	IN	IW	POWER PLANT	57.30
793.6	EVANSVILLE TERMINAL CORP.		IN	IW	COAL LOADING AND PREPARATION	

OHIO RIVER MAIN STEM DISCHARGES
(Continued)

MILE POINT	DISCHARGER	PLANT NAME	STATE	CODE*	DESCRIPTION	PERMITTED FLOW MGD
794.0	EVANSVILLE WATER & SEWER UTILITY	EVANSVILLE WWTW-WEST SIDE	IN	MW	MUNICIPAL WWTW	20.60
804.4	MUNICIPAL POWER AND LIGHT	POWER STATION ONE	KY	IW	POWER STATION	13.87
805.0	BENIS COMPANY, INC.	CUSTOM RESINS DIVISION	KY	IW	MANUFACTURER NYLON RESIN	.74
806.0	HENDERSON WATER & SEWER DEPT.	HENDERSON WWTW	KY	MW	MUNICIPAL WWTW	5.00
807.0	KENTUCKY NATIONAL GUARD		KY	IW	INACTIVE	
807.3	AGRICOLA CHEMICAL COMPANY	HENDERSON TERMINAL	KY	DW,IW	NCCW AND DOMESTIC WWTW	
812.0	UNIONTOWN	UNIONTOWN WTP	KY	IW	POTABLE WATER TREATMENT PLANT	
817.0	SO. INDIANA GAS & ELECTRIC CO.	A.B. BROWN GENERATING STA.	IN	DW,IW	POWER PLANT	1.13
828.9	GENERAL ELECTRIC COMPANY		IN	IW	MANUFACTURER PLASTIC	6.70
829.0	MOUNT VERNON, CITY OF	MOUNT VERNON WWTW	IN	MW	MUNICIPAL WWTW	1.80
829.1	INDIANA FARM BUREAU COOP ASSOC.	INDIANA FARM BUREAU REFINERY	IN	IW	OIL REFINERY	
829.2	TEXACO, INC.	MOUNT VERNON TERMINAL	IN	IW	OIL TERMINAL	
830.0	BABCOCK & WILCOX COMPANY		IN	IW	MANUFACTURER OF HEAVY PRESSURE VESSELS AND ASSOCIATED COMPONENTS	
830.1	MG INDUSTRIES		IN	DW,IW	INDUSTRIAL GASSES	43.50
830.2	SOHIO PIPE LINE COMPANY		IN	IW	PIPELINE TERMINAL	
871.0	PYRO MINING COMPANY	LOADING DOCK, OHIO RIVER	KY	IW	COAL PREPARATION	
878.5	DRAVO BASIC MATERIALS CO., INC.	CAVE-IN-ROCK QUARRY	IL	IW	STONE QUARRY	

OHIO RIVER MAIN STEM DISCHARGES
(Continued)

MILE POINT	DISCHARGER	PLANT NAME	STATE	CODE*	DESCRIPTION	PERMITTED FLOW	
						MGD	---
889.0	ELIZABETHTOWN, VILLAGE OF	ELIZABETHTOWN WWTP	IL	MW	MUNICIPAL WWTP	.20	
891.4	ROSICLARE, CITY OF	ROSICLARE WTP	IL	IW	POTABLE WATER TREATMENT PLANT		
891.5	ROSICLARE, CITY OF	ROSICLARE WWTP	IL	MW	MUNICIPAL WWTP	.66	
891.7	OZARK - MAHONING COMPANY	JOHNSON WORKS	IL	IW	FLUORSPAR MINING	.94	
903.0	GOLCONDA, CITY OF	GOLCONDA WWTP	IL	MW	MUNICIPAL WWTP	.38	
920.6	SMITHLAND, CITY OF	SMITHLAND WWTP	KY	MW	MUNICIPAL WWTP		
927.1	SOUTHWIRE COMPANY	KENTUCKY DIVISION	KY	IW	EXTRUDING OF ALUMINUM INTO ELECTRIC CONDUCTORS	.00	
934.3	PADUCAH WATER WORKS	PADUCAH WTP	KY	IW	POTABLE WATER TREATMENT PLANT	.08	
936.0	PADUCAH, CITY OF	PADUCAH WWTP	KY	MW	MUNICIPAL WWTP	4.00	
936.5	ESSEX GROUP	POWER CONDUCTOR DIV.	KY	DW, IW	NCCW AND DOMESTIC WASTEWATER		
937.5	BROOKPORT, CITY OF	BROOKPORT WWTP	IL	MW	MUNICIPAL WWTP	.38	
944.0	METROPOLIS, CITY OF	METROPOLIS WWTP	IL	MW	MUNICIPAL WWTP	3.80	
945.0	ALLIED CORPORATION	METROPOLIS WORKS	IL	IW	MANUFACTURER URANIUM HEXAFLUORIDE, IODINE PENTAFLUORIDE, SULFUR HEXA- FLUORIDE, ANTIMONY, PENTAFLUORIDE, FLUORINE	4.42	
946.0	TENNESSEE VALLEY AUTHORITY	SHAWNEE STREAM PLANT	KY	IW	POWER PLANT	26.20	
946.1	TENNESSEE VALLEY AUTHORITY	20-MW ATMOSPHERE FLUIDIZED BED COMBUSTION PILOT PLANT	KY	IW	POWER PLANT RESEARCH PROJECT	.28	

OHIO RIVER MAIN STEM DISCHARGES
(Continued)

MILE POINT	DISCHARGER	PLANT NAME	STATE	CODE*	DESCRIPTION	PERMITTED FLOW MGD
949.0	U.S. ATOMIC ENERGY COMMISSION	OAK RIDGE OPERATIONS	KY	DW, IW	GASEOUS DIFFUSION PLANT PRODUCES HIGHLY ENRICHED URANIUM	6.95
951.2	ELECTRIC ENERGY, INC.	JOPPA GENERATING STATION	IL	IW	POWER PLANT	524.22
952.0	JOPPA SANITARY DISTRICT	JOPPA WWTP	IL	DW	MUNICIPAL WWTP	
963.0	CORPS OF ENGINEERS	LOCK AND DAM 53	IL	DW	PRIVATELY OWNED DOMESTIC WWTP	.00
973.9	MOUND CITY, CITY OF	MOUND CITY WWTP	IL	MW	MUNICIPAL WWTP	.38
978.0	GARDEN INN MOTEL & TRAILER COURT	WWTP	IL	DW	PRIVATELY OWNED DOMESTIC WWTP	.01
979.0	CAIRO, CITY OF	CAIRO WWTP	IL	MW	MUNICIPAL WWTP	3.00

RIVER TERMINALS HANDLING PETROLEUM PRODUCTS AND HAZARDOUS CHEMICALS
OHIO RIVER

MILE POINT	LOCATION	OWNER	PRODUCTS HANDLED
2.9 L*	MCKEES ROCK, PA	PITTSBURGH OIL CO.	GASOLINE
3.1 L	MCKEES ROCK, PA	GORDON LUBRICATING CO. AND CITIES SERVICE	OIL
5.5 L	NEVILLE ISLAND, PA	U.S. STEEL CHEMICALS CO.	ACID
5.8 L	NEVILLE ISLAND, PA	GULF OIL CORP.	GASOLINE, KEROSENE, FUEL OIL, CRUDE OIL
6.5 L	NEVILLE ISLAND, PA	EXXON CO.	GASOLINE AND FUEL
6.8 L	NEVILLE ISLAND, PA	NEVILLE CHEMICAL CO.	PETROLEUM DISTILLATE, FUEL OIL, SOLVENTS, TAR
10.8 L	CORAOPOLIS, PA	TEXACO, INC.	GASOLINE, KEROSENE, FUEL OIL
10.9 L	CORAOPOLIS, PA	TEXACO, INC.	GASOLINE, KEROSENE, FUEL OIL
11.2 L	CORAOPOLIS, PA	BUCKEYE PIPELINE CO.	PETROLEUM PRODUCTS
12.1 L	STOOPS FERRY, PA	GORDON LUBRICATING CO.	AVIATION GRADE FUEL
18.0 L	ALIQUIPPA, PA	LTV STEEL CORP.	COAL, ACID, FUEL OIL, TAR, AMMONIUM SULFATE
22.6 L	COLONA, PA	NORTH STAR	MOLASSES, PETROLEUM
22.5 R*	CONWAY, PA	CONRAIL	FUEL OIL
24.1 R	FREEDOM, PA	ASHLAND OIL & REFINING CO.	GASOLINE, FUEL, CRUDE OIL
28.3 R	VANPORT, PA	SUN OIL CO.	GASOLINE
28.6 L	JOSEPH TOWN, PA	ST. JOSEPH RESOURCES CO.	ACID
28.7 R	VANPORT, PA	ASHLAND PETROLEUM CO.	SOLVENT FUEL OIL, NEUTRAL OILS
29.9 L	POTTER TOWNSHIP, PA	ARCO CHEMICAL CO.	BENZOL, FUEL AND CRUDE OILS, ALCOHOL
33.3 R	INDUSTRY, PA	SHELL CHEMICAL CORP. AND GREAT LAKES SOLVENTS, INC.	LIQUID INDUSTRIAL CHEMICALS

*LOCATED L (LEFT) AND R (RIGHT) BANK FACING DOWNRIVER.

BASED ON INFORMATION COLLECTED FROM U.S. CORPS OF ENGINEERS,
OHIO RIVER AND TRIBUTARIES RIVER TERMINALS (1 APRIL 1986)

RIVER TERMINALS HANDLING PETROLEUM PRODUCTS AND HAZARDOUS CHEMICALS

OHIO RIVER

(Continued)

MILE POINT	LOCATION	OWNER	PRODUCTS HANDLED
35.1 R	MIDLAND, PA	MOBIL OIL CO., INC.	GASOLINE
36.2 R	MIDLAND, PA	LTV STEEL CO.	COAL FLUOSPAR, FUEL OIL, BENZOL
41.4	EAST LIVERPOOL, OH	OHIO RIVER OIL CO.	CHEMICAL SOLVENTS
42.0	CHESTER, WV	CELOTEX CORP.	ASPHALT, OIL
42.8	EAST LIVERPOOL, OH	WILLIAMSON LEASING CO.	OIL
46.8	CONGO, WV	QUAKER STATE OIL REFINING	LIQUID
49.1	WELLSVILLE, OH	ASHLAND OIL & REFINING CO.	PETROLEUM PRODUCTS
62.2	WEIRTON, WV	NATIONAL STEEL CORP. - WEIRTON STEEL DIVISION	COAL, STEEL, FUEL OIL, ACID, SCRAP
64.6	STEUBENVILLE, OH	ARCO	OIL, GASOLINE
64.9	WEIRTON, WV	APEX OIL	PETROLEUM PRODUCTS
68.9	FOLLANSBEE, WV	WHEELING PITTSBURGH STEEL CORP.	COAL, ACID, BENZOL
69.1	FOLLANSBEE, WV	WHEELING PITTSBURGH STEEL AND ALLIED OIL CO.	FUEL OIL
69.3	FOLLANSBEE, WV	KOPPERS CO.	CRUDE TAR, CREOSOTE
81.1	WARRENTON, OH	TRI-STATE ASPHALT	MISCELLANEOUS OILS, TAR
85.4	WHEELING WV	WESTVACO	GASOLINE
85.5	WARWOOD, WHEELING, WV	SUN OIL CO.	GASOLINE
85.8	WARWOOD, WHEELING, WV	TRI-STATE PETROLEUM	GASOLINE
88.2	WARWOOD, WHEELING, WV	UNION OIL CO.	GASOLINE
105.9	NATRIUM, WV	SOLVAY PROCESS DIVISION, ALLIED CHEMICAL	INDUSTRIAL CHEMICALS

RIVER TERMINALS HANDLING PETROLEUM PRODUCTS AND HAZARDOUS CHEMICALS

OHIO RIVER

(Continued)

MILE POINT	LOCATION	OWNER	PRODUCTS HANDLED
119.4	NATRIUM, WV	CHEMICAL DIVISION, PPG INDUSTRIES	COAL, CHEMICALS, BENZENE
121.0	PROCTOR, WV	MOBAY CHEMICAL CO.	CHEMICALS
121.3	PROCTOR, WV	MOBAY CHEMICAL CO.	CHEMICALS
143.3	GRANDVIEW, OH	TRI-STATE PETROLEUM	GASOLINE
145.3	LONG REACH, WV	UNION CARBIDE CORP.	LIQUID FUEL
146.0	BENS RUN, WV	BENS RUN PIPELINE CO.	GASOLINE
147.0	BENS RUN, WV	INORGANIC CHEMICALS DIV., FMC CORP.	SALT BRINE
155.2	ST. MARYS, WV	QUAKER STATE OIL REFINING CO.	GASOLINE, OIL
159.8	BELLS RUN, WV	BUCKEYE PIPELINE	CRUDE OIL
161.1	WILLOW ISLAND, WV	AMERICAN CYANAMID CO.	CHEMICALS
164.0	WAVERLY, WV	CABOT CORP.	CHEMICALS
173.1	MARIETTA, OH	MOBIL OIL CO.	GASOLINE, OIL
173.8	MARIETTA, OH	ASHLAND PIPELINE	GASOLINE, OIL
174.7	MARIETTA, OH	ASHLAND OIL, INC.	GASOLINE, OIL
174.8	MARIETTA, OH	ASHLAND OIL, INC.	GASOLINE, OIL, DIESEL FUEL
175.0	MARIETTA, OH	ASPHALT MATERIALS &	ASPHALT CONSTRUCTION CO.
175.0	MARIETTA, OH	GULF OIL CORP.	GASOLINE, OIL
175.5	MARIETTA, OH	STANDARD OIL CO. (OH)	GASOLINE, OIL
175.7	MARIETTA, OH	PAR-MAR OIL CO.	GASOLINE, OIL
179.3	CONSTITUTION, OH	CHEVRON ASPHALT CO.	CRUDE OIL, DISTILLATE OIL, ASPHALT PRODUCTS
180.8	VIENNA, WV	TEXACO	GASOLINE, OIL

RIVER TERMINALS HANDLING PETROLEUM PRODUCTS AND HAZARDOUS CHEMICALS

OHIO RIVER

(Continued)

MILE POINT	LOCATION	OWNER	PRODUCTS HANDLED
182.0	BELPRE, OH	ASHLAND CHEMICAL	CHEMICALS
183.4	PARKERSBURG, WV	ELK REFINING CO.	GASOLINE, OIL
188.6	BELPRE, OH	SHELL OIL CO.	CHEMICALS
191.3	WASHINGTON, WV	MARBON CHEMICAL DIVISION, BORG-WARNER CORP.	CHEMICALS
242.9	GRAHAMS STATION, WV	AMERICAN ELECTRIC POWER	OIL
253.1	MIDDLEPORT, OH	TEXACO, INC.	GASOLINE, OIL
258.5	CHESHIRE, OH	AMERICAN ELECTRIC POWER	COAL, OIL SERVICE, INC.
260.5	PT. PLEASANT, WV	PANTASOTE CO.	CHEMICALS
265.4	PT. PLEASANT, WV	HARTLEY MARINE CORP.	DIESEL FUEL
280.7	APPLE GROVE, WV	GOODYEAR TIRE & RUBBER CO.	CHEMICALS
303.5	HUNTINGTON, WV	GULF REFINING CO.	GASOLINE, OIL
304.1	HUNTINGTON, WV	HUNTINGTON ASPHALT	MISCELLANEOUS
307.6	HUNTINGTON, WV	EXXON CO.	GASOLINE, OIL
310.8	HUNTINGTON, WV	D-A LUBRICANT CO.	GASOLINE, OIL
315.9	KENOVA, WV	ASHLAND OIL, INC.	CRUDE OIL
316.3	KENOVA, WV	ASHLAND OIL, INC.	GASOLINE, OIL
316.5	KENOVA, WV	ASHLAND OIL, INC.	GASOLINE, OIL
318.5	CATLETTSBURG, KY	ASHLAND OIL, INC.	PETROLEUM PRODUCTS
319.0	ASHLAND, KY	STANDARD OIL CO. (KY)	GASOLINE, OIL
320.2	ASHLAND, KY	SEMET SOLVAY DIV. ARMCO	COAL TAR
324.6	IRONTON, OH	PLASTICS AND COAL CHEMICALS	COAL TAR DIV., ALLIED CHEMICAL CORP.
324.9	IRONTON, OH	ACTION TERMINAL, INC.	GASOLINE, OIL

RIVER TERMINALS HANDLING PETROLEUM PRODUCTS AND HAZARDOUS CHEMICALS

OHIO RIVER

(Continued)

MILE POINT	LOCATION	OWNER	PRODUCTS HANDLED
326.8	IRONTON, OH	RICH OIL, INC.	PETROLEUM PRODUCTS
327.8	RUSSELL, KY	CHESAPEAKE & OHIO RAILWAY	DIESEL OIL
333.2	HANGING ROCK, OH	THE DOW CHEMICAL CO.	CHEMICALS
336.5	HAVERHILL, OH	U.S.S. CHEMICALS CO.	CHEMICALS
347.3	WHEELERSBURG, OH	STANDARD SLAG CO.	MISCELLANEOUS
349.3	SCIOTOVILLE, OH	STANDARD OIL CO. (OH)	GASOLINE, OIL
350.8	NEW BOSTON, OH	NEW BOSTON COKE	OIL
351.5	NEW BOSTON, OH	KING RIVER LIMITED, INC.	TAR
351.6	SILAM, KY	COLUMBIA HYDROCARBON CORP.	GASOLINE, BUTANE
352.6	NEW BOSTON, OH	NORFOLK & WESTERN RAILROAD	DIESEL OIL
389.6	MANCHESTER, OH	DAYTON LIGHT & POWER	COAL, OIL
452.9	BLAIRVILLE, OH	CINCINNATI GAS & ELECTRIC	COAL, FUEL OIL
457.0	CAMPBELL CO., KY	AGRICOLA CHEMICAL CO.	FERTILIZER
465.7	CINCINNATI, OH	QUEEN CITY TERMINAL	FUEL OIL, LIQUID FERTILIZER, PETRO-CHEMICAL
465.8	CINCINNATI, OH	ARCADIAN CHEMICAL CORP.	COKE, COAL, LIQUID FERTILIZER
468.5	CINCINNATI, OH	UNITED AMERICAN FUELS	GASOLINE, KEROSENE, FUEL OIL
474.0	CINCINNATI, OH	UNION OIL CO.	PETROLEUM PRODUCTS
474.2	BROMLEY, KY	BORON OIL CO.	BULK PETROLEUM
474.8	CINCINNATI, OH	CARGILL, INC.	MOLASSES, CALCIUM CHLORIDE, CAUSTIC SODA
475.5	FAIRVIEW, KY	CHEVRON USA, INC.	PETROLEUM PRODUCTS
476.2	CINCINNATI, OH	ASHLAND PETROLEUM CO.	PETROLEUM PRODUCTS
476.7	CINCINNATI, OH	ASHLAND PETROLEUM CO.	PETROLEUM, PETRO-CHEMICALS, OTHER CHEMICALS

RIVER TERMINALS HANDLING PETROLEUM PRODUCTS AND HAZARDOUS CHEMICALS

OHIO RIVER

(Continued)

MILE POINT	LOCATION	OWNER	PRODUCTS HANDLED
478.7	CINCINNATI, OH	U.S. DEFENSE LOGISTIC	GASOLINE, PETROLEUM AGENCY PRODUCTS
479.0	CINCINNATI, OH	SHELL ASPHALT COMPANY	PETROLEUM PRODUCTS, ASPHALTS, LIGHT OILS
479.2	CINCINNATI, OH	C.F. INDUSTRIES	FERTILIZERS AND PHOSPHATE
479.5	CINCINNATI, OH	RIVER TRANSPORTATION CO.	SALT, FERTILIZERS, MOLASSES, SULFUR, CAUSTIC S
480.9	STRINGTOWN, KY	ASHLAND OIL, INC.	CRUDE OIL
484.2	ADDYSTON, OH	MONSANTO CHEMICAL CO.	CHEMICALS
486.8	NORTH BEND, OH	CHEVRON USA, INC.	PETROLEUM PRODUCTS
487.9	NORTH BEND, OH	KOCH ASPHALT CO.	LIQUID ASPHALT AND FLUX OIL
489.3	NORTH BEND, OH	KAISER AGRICULTURAL	ANHYDROUS AMMONIA AND LIQUID FERTILIZER
489.7	NORTH BEND, OH	CHEVRON USA, INC.	DISTILLATE OIL, ASPHALTIC PRODUCTS
490.3	NORTH BEND, OH	CINCINNATI GAS & ELECTRIC	COAL, FUEL OIL
490.7	MIAMI FORT STATION, OH	E.I. DUPONT DENEMOURS & CO.	SULFURIC ACID
494.0	LAWRENCEBURG, IN	INDIANA & MICHIGAN ELECTRIC CO.	FUEL OIL, COAL
541.0	GHENT, KY	DOW CORNING CO.	METHANOL
559.0	MADISON, IN	CHARTER TRANSPORT	PETROLEUM PRODUCTS
601.0	LOUISVILLE, KY	RIVER ROAD TERMINAL	COAL, SALT, FERTILIZER
601.3	LOUISVILLE, KY	LOUISIANA DOCK CO.	COAL, FUEL OIL
602.6	LOUISVILLE, KY	SHELL OIL CO.	GASOLINE, OIL
602.7	LOUISVILLE, KY	AMERICAN CONTINENTAL OIL CO.	PETROLEUM PRODUCTS
602.8	LOUISVILLE, KY	CHEVRON USA, INC.	ASPHALT
603.0	LOUISVILLE, KY	ASHLAND ASPHALT PLANT	GASOLINE, DIESEL FUEL

RIVER TERMINALS HANDLING PETROLEUM PRODUCTS AND HAZARDOUS CHEMICALS

OHIO RIVER
(Continued)

MILE POINT	LOCATION	OWNER	PRODUCTS HANDLED
604.0	JEFFERSONVILLE, IN	ASHLAND OIL, INC.	GASOLINE, KEROSENE, DIESEL OILS
609.4	NEW ALBANY, IN	ITAPCO	PETROLEUM PRODUCTS
611.7	LOUISVILLE, KY	LOUISVILLE REFINING TERMINAL	PETROLEUM PRODUCTS
612.0	LOUISVILLE, KY	GULF OIL CO.	GASOLINE, DIESEL OIL
612.2	LOUISVILLE, KY	ASHLAND OIL, INC.	PETROLEUM PRODUCTS
612.4	LOUISVILLE, KY	CHEVRON USA, INC.	PETROLEUM PRODUCTS
612.5	LOUISVILLE, KY	AIRCO CARBIDE CO.	WASTE CARBIDE
613.5	LOUISVILLE, KY	AMERICAN SYNTHETIC RUBBER	BUTADIENE, STYRENE
614.0	LOUISVILLE, KY	TRIANGLE REFINERIES, INC.	PETROLEUM PRODUCTS
614.8	LOUISVILLE, KY	STAUFFER CHEMICAL CO.	SOLVENTS
615.2	LOUISVILLE, KY	BORDEN CHEMICAL DIVISION,	METHANOL
619.9	LOUISVILLE, KY	SUN REFINING & MARKETING	REFINED PETROLEUM PRODUCTS
620.5	LOUISVILLE, KY	EXXON CO., USA	ASPHALT, TAR, MINERAL SPIRITS, MOLASSES, GROUND ROCK
627.8	KOSMOSDALE, KY	BT ENERGY CO.	PETROLEUM PRODUCTS
643.4	BRANDENBERG, KY	OLIN CORP.	BUTANE, NATURAL GAS
731.4	TROY, IN	KENTUCKY OIL & REFINING	CRUDE OIL CO., INC.
753.7	OWENSBORO, KY	RIVER TERMINAL CO.	PETROLEUM PRODUCTS
755.2	OWENSBORO, KY	GLENMORE DISTILLERIES	GRAIN ALCOHOL
755.3	OWENSBORO, KY	CHEVRON USA, INC.	PETROLEUM PRODUCTS, FUEL OIL
793.0	EVANSVILLE, IN	MEAD-JOHNSON TERMINAL CORP.	GENERAL
793.7	EVANSVILLE, IN	ASHLAND OIL, INC.	PETROLEUM PRODUCTS
794.0	EVANSVILLE, IN	SHELL OIL CO. AND AMOCO	GASOLINE, FUEL OIL, OIL CO. PETROLEUM PRODUCTS

RIVER TERMINALS HANDLING PETROLEUM PRODUCTS AND HAZARDOUS CHEMICALS

OHIO RIVER

(Continued)

MILE POINT	LOCATION	OWNER	PRODUCTS HANDLED
794.5	EVANSVILLE, IN	HOWELL DOCK, INC.	FUEL OIL, COAL, GRAIN
801.4	HENDERSON, KY	HOME OIL CO.	GASOLINE, KEROSENE, FUEL
807.5	HENDERSON, KY	AGRICO CHEMICAL CO.	AMMONIA, LIQUID AND SOLID FERTILIZER
808.4	HENDERSON, KY	SUN REFINING & MARKETING	REFINED PETROLEUM CO. PRODUCTS
829.7	MT. VERNON, IN	INDIANA FARM BUREAU	CRUDE OIL, GASOLINE CO-OPERATIVE ASSOCIATION
830.5	MT. VERNON, IN	MARATHON OIL CO.	GASOLINE, FUEL OILS
831.1	MT. VERNON, IN	C.F. INDUSTRIES	ANHYDROUS AMMONIA, NITROGEN SOLUTIONS
831.2	MT. VERNON, IN	GENERAL ELECTRIC CO.	PETROLEUM
933.0	PADUCAH, KY	SHELL OIL CO., INC.	PETROLEUM
933.2	PADUCAH, KY	GULF OIL CO.	PETROLEUM
933.4	PADUCAH, KY	CHEVRON USA, INC.	PETROLEUM
975.6	MOUND CITY, IL	MARTIN OIL CO.	GASOLINE, KEROSENE, DIESEL AND FUEL OIL

RIVER TERMINALS HANDLING PETROLEUM PRODUCTS AND HAZARDOUS CHEMICALS
OHIO RIVER TRIBUTARIES

MILE POINT	LOCATION	OWNER	PRODUCTS HANDLED
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ALLEGHENY RIVER
(ENTERS OHIO AT MILEPOINT 0.0)

2.7 L	PITTSBURGH, PA	EXXON	GASOLINE, OIL
4.4 L	PITTSBURGH, PA	THE PENNZOIL CO.	PETROLEUM PRODUCTS
5.0 L	PITTSBURGH, PA	ARCO	PETROLEUM PRODUCTS
16.4 R	SPRINGDALE, PA	CHEVRON ASPHALT CO.	ASPHALT PRODUCTS
17.7 L	NEW KENSINGTON, PA	PENN GLEN OIL CO.	PETROLEUM
19.7 R	TARENTUM, PA	PITTSBURGH PENN OIL CO.	PETROLEUM PRODUCTS
29.6 R	FREEPORT, PA	FREEPORT TERMINALS	PETROLEUM PRODUCTS

MONONGAHELA RIVER
(ENTERS OHIO AT MILEPOINT 0.0)

4.0 L	PITTSBURGH, PA	LTV STEEL CORP.	FUEL OIL
4.2 R	PITTSBURGH, PA	LTV STEEL CORP.	ACID, LIGHT OIL
5.7 L	HAYS, PITTSBURGH, PA	AMOCO OIL CO.	PETROLEUM PRODUCTS
9.4 R	RANKIN, PA	U.S. STEEL CORP.	FUEL OIL
11.7 L	DUQUESNE, PA	UNION RAILROAD CO.	FUEL OIL
12.7 L	DUQUESNE, PA	U.S. STEEL CORP.	FUEL OIL
16.1 L	DRAVOSBURG, PA	DAVISON-BOSWELL CO.	ASPHALT
19.3 L	CLAIRTON, PA	U.S.X. CORP.	BENZOL

 *LOCATED L(LEFT) AND R(RIGHT) BANK FACING DOWNRIVER

Based on Information collected from U.S. Corps of Engineers
 Ohio River and Tributaries River Terminals (1 April 1986)

RIVER TERMINALS HANDLING PETROLEUM PRODUCTS AND HAZARDOUS CHEMICALS
OHIO RIVER TRIBUTARIES
(Continued)

<u>MILE</u> <u>POINT</u>	<u>LOCATION</u>	<u>OWNER</u>	<u>PRODUCTS HANDLED</u>
20.8 R	GLASSPORT, PA	ASHLAND OIL CO.	FUEL OIL
23.8 L	WEST ELIZABETH, PA	HERCULES, INC.	CHEMICALS
24.7 L	FLOREFFE, PA	ASHLAND OIL & REFINING CO.	PETROLEUM PRODUCTS
27.8 R	BUNDA, PA	CHEMPLY CORP.	CHEMICALS
29.0 L	COURTNEY, PA	WEST PENN POWER CO.	OIL
35.9 L	DONORA, PA	IRECO, INC.	ACID
39.7 L	MONESSEN, PA	WHEELING-PITTSBURGH STEEL CORP.	FUEL OIL
40.9 L	NORTH CHARLEROI, PA	RESERVE PETROLEUM CO.	ASPHALT
43.5 L	SPEERS, PA	GUTTMAN OIL CO.	PETROLEUM PRODUCTS
44.3 L	DUNLEVY, PA	HANEY BARGE LINE, INC.	COAL, SAND, GRAVEL, FUEL OIL
47.0 L	ALLENPORT, PA	WHEELING-PITTSBURGH STEEL	SCRAP, FUEL OIL, FINISHED PRODUCTS
50.1 R	NEWELL, PA	ALLIED CHEMICAL CORP., INDUSTRIAL CHEMICAL DIV.	SULFUR, ACID

LITTLE KANAWHA RIVER
(ENTERS OHIO AT MILEPOINT 184.6)

1.5 R	PARKERSBURG, WV	EXXON OIL CO.	GASOLINE
1.6 R	PARKERSBURG, WV	PURE OIL CO.	GASOLINE
3.6 L	PARKERSBURG, WV	AMERICAN VISCOSE DIV. FMC CORP.	SULFURIC ACID

RIVER TERMINALS HANDLING PETROLEUM PRODUCTS AND HAZARDOUS CHEMICALS
OHIO RIVER TRIBUTARIES
(Continued)

MILE POINT	LOCATION	OWNER	PRODUCTS HANDLED
<u>KANAWHA RIVER</u> <u>(ENTERS OHIO AT MILEPOINT 265.0)</u>			
39.1 L	SCARY, WV	AMERICAN ELECTRIC SERVICE INC.	FUEL OIL
42.4 R	NITRO, WV	MONSANTO CHEMICAL CO.	CHEMICALS
42.7 R	NITRO, WV	AMERICAN VISCOSE DIVISION, FMC CORP.	COAL, ACID
43.1 R	NITRO, WV	ALLIED CHEMICAL CORP.	COAL, ACID, LIQUID SULFUR
45.2 L	ST. ALBANS, WV	HEATER OIL CO.	PETROLEUM PRODUCTS
47.8 R	INSTITUTE, WV	UNION CARBIDE CORP. (KANAWHA VALLEY FLEET)	CHEMICALS
48.9 R	INSTITUTE, WV	UNION CARBIDE CHEMICALS CO.	CHEMICALS
49.1 R	INSTITUTE, WV	UNION CARBIDE CHEMICALS CO.	CHEMICALS
49.3 R	INSTITUTE, WV	UNION CARBIDE CHEMICALS CO.	CHEMICALS
49.4 R	INSTITUTE, WV	UNION CARBIDE CHEMICALS CO.	CHEMICALS
54.5 L	SOUTH CHARLESTON, WV	INORGANIC CHEMICALS DIV. FMC CORP.	SALT BRINE
54.7 L	SOUTH CHARLESTON, WV	INORGANIC CHEMICALS DIV. FMC CORP.	SALT BRINE
55.0 R	NORTH CHARLESTON, WV	UNION CARBIDE CHEMICALS CO.	CHEMICALS
55.0 L	BLAINE ISLAND, WV	UNION CARBIDE CHEMICALS CO.	CHEMICALS
55.0 L	BLAINE ISLAND, WV	UNION CARBIDE CHEMICALS CO.	ACETYLENE, SLUDGE (BACK CHANNEL)
55.3 R	NORTH CHARLESTON, WV	UNION CARBIDE CHEMICALS CO.	CHEMICALS
55.4 L	BLAINE ISLAND, WV	UNION CARBIDE CHEMICALS CO.	GASOLINE, CHEMICALS
55.6 R	NORTH CHARLESTON, WV	GULF OIL CORP.	GASOLINE
57.9 L	CHARLESTON, WV	EXXON, U.S.A.	GASOLINE

RIVER TERMINALS HANDLING PETROLEUM PRODUCTS AND HAZARDOUS CHEMICALS

OHIO RIVER TRIBUTARIES

(Continued)

<u>MILE POINT</u>	<u>LOCATION</u>	<u>OWNER</u>	<u>PRODUCTS HANDLED</u>
68.4 R	BELLE, WV	E.I. DUPONT DENEMOURS & CO.	CHEMICALS
69.1 R	BELLE, WV	E.I. DUPONT DENEMOURS & CO.	CHEMICALS
69.3 R	BELLE, WV	DIAMOND SHAMROCK CO.	CHEMICALS
74.7 L	CABIN CREEK, WV	UNION OIL OF CALIFORNIA	OIL, GASOLINE
81.6 R	HUGHESTON, WV	BAKER OIL CO.	GASOLINE
88.9 R	BOOMER, WV	EXXON CO., U.S.A.	GASOLINE

BIG SANDY RIVER

(ENTERS OHIO AT MILEPOINT 317.0)

3.2 L	LEACH, KY	ASHLAND OIL & REFINING CO.	PETROLEUM PRODUCTS
3.7 L	LEACH, KY	ASHLAND OIL & REFINING CO.	PETROLEUM PRODUCTS
4.0 L	LEACH, KY	ASHLAND OIL & REFINING CO.	FUEL OIL

LICKING RIVER

(ENTERS OHIO AT MILEPOINT 470.2)

2.7 L	COVINGTON, KY	ASHLAND OIL, INC.	OIL PRODUCTS
3.0 R	WILDER, KY	AGRICO	LIQUID FERTILIZER
7.0 L	DECOURSEY, KY	SEABOARD SYSTEMS RR CO	FUEL OIL

CUMBERLAND RIVER

(ENTERS OHIO AT MILEPOINT 922.5)

38.3	KUTTAWA, KY	BARKLEY TERMINAL, INC.	ASPHALT
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TENNESSEE RIVER

(ENTERS OHIO AT MILEPOINT 934.4)

1.1	PADUCAH, KY	STANDARD OIL CO. OF KY	PETROLEUM PRODUCTS
1.3 L	PADUCAH, KY	GULF REFINING CO.	PETROLEUM PRODUCTS

RIVER TERMINALS HANDLING PETROLEUM PRODUCTS AND HAZARDOUS CHEMICALS
OHIO RIVER TRIBUTARIES
(Continued)

MILE POINT	LOCATION	OWNER	PRODUCTS HANDLED
1.7 L	PADUCAH, KY	SHELL OIL CO., INC.	PETROLEUM PRODUCTS
6.0 L	REIDLAND, KY	AHSLAND OIL & REFINING CO.	PETROLEUM PRODUCTS
14.0 L	CALVERT CITY, KY	BAILEY FUEL TERMINAL	PETROLEUM PRODUCTS
17.5 L	CALVERT CITY, KY	AIRCO CARBIDE	CHEMICALS, STONE
17.6 L	CALVERT CITY, KY	AIR PRODUCTS & CHEMICALS, INC.	VINYL ACETATE
17.9 L	CALVERT CITY, KY	B.F. GOODRICH CHEMICAL CO.	CHEMICALS
18.0 L	CALVERT CITY, KY	B.F. GOODRICH CHEMICAL CO.	PETROLEUM

SECTION IV: WATER QUALITY

Water quality of the Ohio River and its tributaries is monitored routinely by the Commission, the states, and the U.S. Geological Survey. Data from all of these efforts are entered into STORET, the data storage and retrieval system of the U.S. Environmental Protection Agency.

The Commission has the primary responsibility for monitoring the Ohio River. Samples are also collected from major tributaries just above their confluence with the Ohio in order to assess their impacts. Four monitoring systems are maintained by the Commission: Water Users, Manual, Fecal Coliform, and Organics Detection System.

The Water Users Network is the oldest of the systems and consists of data collected by water utilities along the river as part of their operations and made available to the Commission. The network was established in the 1950's, but some utilities have data extending back to the early 1900's.

The manual system initiated in 1975 and continuing today, involves collection of monthly samples at 38 sites. The samples are analyzed for 33 physical, chemical, and bacteriological parameters.

The Organics Detection System, established in 1978, consists of 13 water utilities which run daily analyses of river samples by gas chromatograph for 17 purgable halogenated organic compounds. Fecal Coliform monitoring is conducted by the Commission at selected stations during the recreational season.

Each of the states operates a sampling network similar to the Commission's manual sampling program. The states' efforts in the Ohio River Basin are concentrated on the tributaries. The combined results of the state and Commission networks presents a comprehensive picture of Ohio River water quality.

The U.S. Geological Survey operates the National Stream Quality Accounting Network, or NASQAN. This network involves monthly sampling at sites throughout the United States. A total of 25 NASQAN sites are located in the Ohio River Basin.

In the fall of 1986, the Commission revised its electronic monitoring system. This system, established in the 1960's, provided hourly measurements of temperature, specific conductance, pH and dissolved oxygen, at 22 stations along the Ohio River and its tributaries. At locations where electronic monitors operated, historical data for temperature and specific conductance are presented. (Flow data is presented in Section I.) The data (eight or more years) are for the period of record for each monitor through the fall of 1986. The behavior of these parameters describes seasonal patterns at each monitoring site which are major influences on overall water quality conditions.

Historical data summaries for certain manual sampling parameters at selected sites are also provided in this section. Summaries include period of record, long term monthly average values and standard deviations (based on detections only) of hardness, total suspended solids, ammonia, nitrate-nitrite, total Kjeldahl nitrogen, iron, and manganese. Standard deviation is included to give the reader some indication of variance.

Spill Information

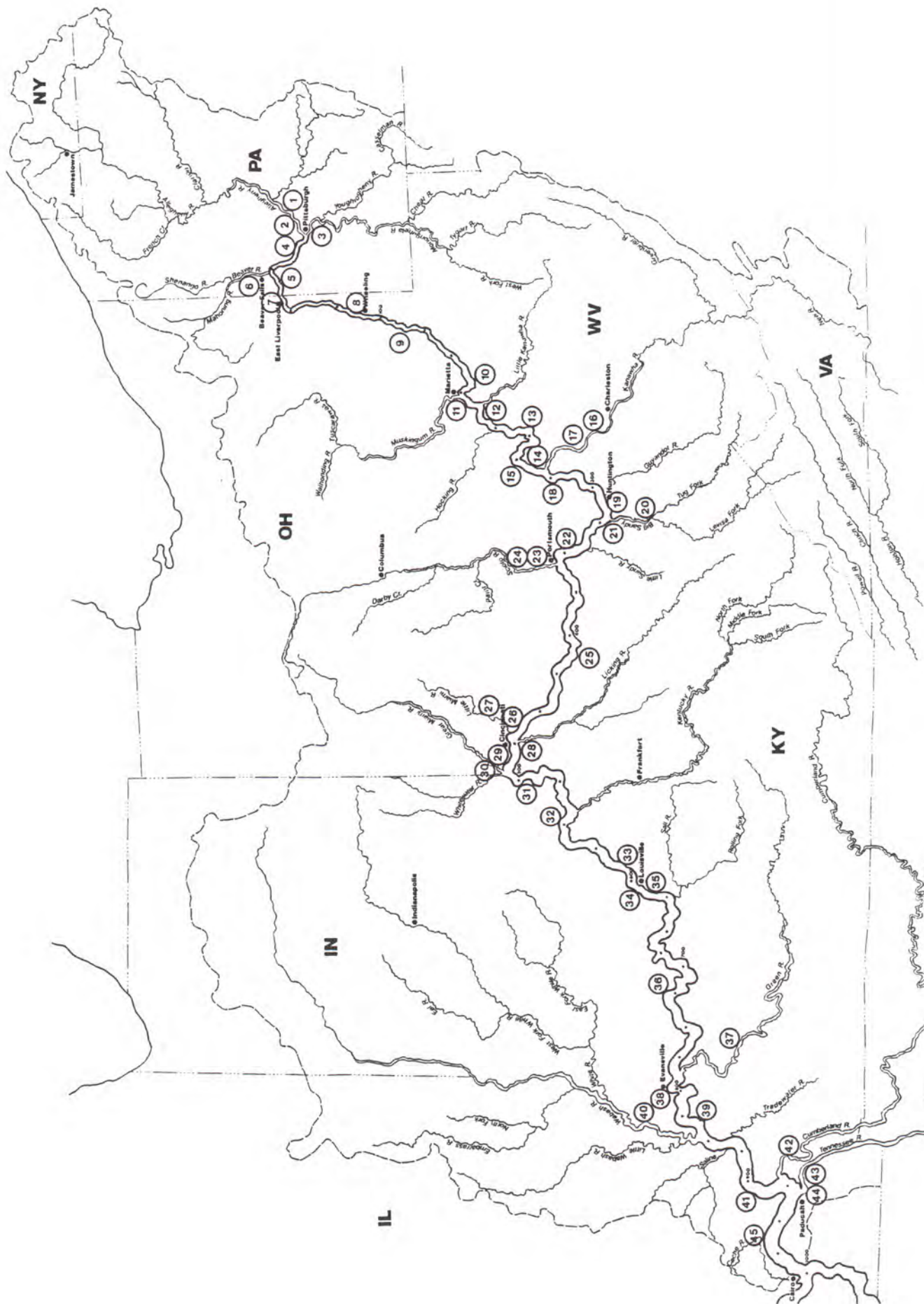
Information concerning spills can now be obtained by the following means:

By Telephone

The ORSANCO Spill Message Center can be accessed by calling (513) 241-3705. A prerecorded telephone message will provide information on the type and amount of spill, location, and estimated time of travel.

By Computer

ORSANCO's Electronic Bulletin Board, which has been in operation several years, can be accessed with a computer and modem and not only lists the reported spills, but also lists flow information for selected stations along the Ohio River. Bulletin Board telephone number and information on its use can be obtained from the Commission office, (513) 421-1151.



Sampling Locations

Station	Mile Point	Type(s)	Station	Mile Point	Type(s)
1. Wilkinsburg (Allegheny)	8.5*	W	23. Portsmouth	350.7	M, W, O
2. Pittsburgh (Allegheny)	7.4*	M, O	24. Lucasville (Scioto)	15.0*	M
3. South Pittsburgh—Hays Mine (Monongahela)	4.5*	M, W, O	25. Maysville	408.5	M
4. Neville Island—West View	4.5	O	26. Cincinnati	462.8	M, W, O
5. South Heights	15.2	M	27. Newtown (Little Miami)	7.5*	M
6. Beaver Falls (Beaver)	5.3*	M, W	28. Covington (Licking)	4.5*	M
7. East Liverpool	40.2	M, O	29. North Bend	490.0	M
8. Wheeling	86.8	M, W, O	30. Elizabethtown (Great Miami)	5.5*	M
9. Hannibal	126.4	M	31. Markland	531.5	D, M
10. Willow Island	161.8	M	32. Madison	558.5	W
11. Marietta (Muskingum)	5.8*	M	33. Louisville	600.6	M, O
12. Parkersburg	190.3	W, O	34. McAlpine	605.9	D
13. Belleville	203.9	M	35. West Point	625.9	M
14. Racine	237.5	D	36. Cannelton	720.7	M
15. Addison	260.0	M	37. Sebre (Green)	41.3*	M
16. St. Albans (Kanawha)	38.3*	O	38. Evansville	791.5	M, W, O
17. Winfield (Kanawha)	31.1*	M	39. Uniontown	846.0	M
18. Gallipolis	279.2	M	40. New Harmony (Wabash)	51.5*	M
19. Huntington	306.9	M, W, O	41. Smithland	918.5	M
20. Louisa (Big Sandy)	20.3*	M	42. Barkley Dam (Cumberland)	30.6*	M
21. Ashland	319.7	M	43. Paducah (Tennessee)	6.0*	M
22. Greenup	341.0	D	44. Paducah	935.5	O
			45. Joppa	952.3	M

*From confluence with the Ohio River
 TYPE: M — Manual Sampling
 W — Water Users Network
 O — Organics Detection System
 D — Dissolved Oxygen

COMMISSION MONITORING STATIONS AND STORET STATION CODES

STORET#	STATION NAME	MILE POINT
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MANUAL MONITORING STATIONS (MAIN STEM)

OR9658M	SOUTH HEIGHTS	15.2
OR9408M	EAST LIVERPOOL WATER WORKS	40.2
OR8968M	PIKE ISLAND LOCK	84.2
OR894.2M	WHEELING WATER TREATMENT PLANT	86.8
OR8786M	SHADYSIDE	102.4
OR8546M	HANNIBAL LOCK	126.4
OR8192M	WILLOW ISLAND LOCK	161.8
OR7771M	BELLEVILLE LOCK	203.9
OR7210M	ADDISON - KYGER CREEK	260.0
OR7018M	GALLIPOLIS LOCK	279.2
OR6741M	HUNTINGTON WATER CORPORATION	306.9
OR6652M	KENOVA	315.8
OR661.3M	ASHLAND WATER WORKS	319.7
OR6400M	GREENUP LOCK	341.0
OR630.3M	PORTSMOUTH WATER TREATMENT PLANT	350.7
OR572.5M	MAYSVILLE WATERWORKS	408.5
OR5448M	MELDAHL LOCK	436.2
OR5182M	CINCINNATI WATER WORKS	462.8
OR4910M	NORTH BEND	490.0
OR4495M	MARKLAND LOCK	531.5
OR3804M	LOUISVILLE WATER COMPANY	600.6
OR3551M	WEST POINT	625.9
OR2603M	CANNELTON LOCK	720.7
OR1895M	EVANSVILLE WATER WORKS	791.5
OR1350M	UNIONTOWN LOCK	846.0
OR62.5M	SMITHLAND LOCK	918.5
OR45.5M	PADUCAH WATER WORKS	935.5
OR28.7M	JOPPA, IL	952.3

MANUAL MONITORING STATIONS (TRIBUTARIES)

MR4.5M	SOUTH PITTSBURGH (MONONGAHELA)	4.5
AR7.4M	PITTSBURGH WATER WORKS (ALLEGHENY)	7.4
BR5.3M	BEAVER FALLS (BEAVER RIVER)	5.3
MU5.8M	MUSKINGUM L&D #2 (MUSKINGUM RIVER)	5.8
KR31.1M	WINFIELD L&D (KANAWHA RIVER)	31.1
SR20.3M	LOUISA (BIG SANDY)	20.3
SC15.0M	LUCASVILLE (SCIOTO RIVER)	15.0
LM7.5M	NEWTOWN (LITTLE MIAMI)	7.5
LR4.5M	COVINGTON (LICKING RIVER)	4.5
GM5.5M	ELIZABETHTOWN (GREAT MIAMI RIVER)	5.5
GR41.3M	SEEBREE (GREEN RIVER)	41.3
WA9295M	NEW HARMONY (WABASH RIVER)	51.5
CR30.6M	BARKLEY DAM (CUMBERLAND RIVER)	30.6
TR6.0M	PADUCAH (TENNESSEE RIVER)	6.0

COMMISSION MONITORING STATIONS AND STORET STATION CODES
(CONTINUED)

<u>STORET#</u>	<u>STATION NAME</u>	<u>MILE POINT</u>
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ORGANICS DETECTION SYSTEM (MAIN STEM)

OR975.50	WEST VIEW WATER AUTHORITY	4.5
OR9408	EAST LIVERPOOL WATER WORKS	40.2
OR894.2	WHEELING WATER TREATMENT PLANT	86.8
OR790.7	E.I. DUPONT DENEMOURS & CO.	190.3
OR674.1	HUNTINGTON WATER CORPORATION	306.9
OR630.9	PORTSMOUTH WATER TREATMENT PLANT	350.7
OR518.2	CINCINNATI WATER WORKS	462.8
OR380.4	LOUISVILLE WATER COMPANY	600.6
OR189.5	EVANSVILLE WATER WORKS	791.5
OR45.5	PADUCAH WATER WORKS	935.5

ORGANICS DETECTION SYSTEM (TRIBUTARIES)

AR7.40	PITTSBURGH WATER (ALLEGHENY)	7.4
MR4.5	SOUTH PITTSBURGH (MONONGAHELA)	4.5
MR24.5	ELRAMA (MONONGAHELA)	24.5
KR38.3	ST ALBANS (KANAWHA)	38.3

ADDITIONAL COMMISSION MONITORING STATIONS

WATER USER NETWORK

MR4.5	HAYS MINE (MONONGAHELA RIVER)	4.5
BR5.3	BEAVER FALLS (BEAVER RIVER)	5.3
AR8.9	WILKINSBURG (ALLEGHENY RIVER)	8.5
OR9652	SOUTH HEIGHTS	15.2
OR8945	WHEELING WATER TREATMENT PLANT	86.8
OR7965	PARKERSBURG WATER WORKS	183.0
OR7196	ADDISON - KYGER CREEK	260.0
OR6741	HUNTINGTON WATER CORPORATION	306.9
OR6303	PORTSMOUTH WATER TREATMENT PLANT	350.7
OR5182	CINCINNATI WATER WORKS	462.8
OR4215	MADISON	550.8
OR3804	LOUISVILLE WATER WORKS	600.6
OR1895	EVANSVILLE WATER WORKS	791.5

FECAL COLIFORM MONITORING*

	NEW CUMBERLAND LOCK	54.2
OR5035	ANDERSON FERRY	477.5
	TANNERS CREEK	495.5
	WEST POINT	625.9

*WATER USERS NETWORK MONITOR FECAL COLIFORM THROUGHOUT THE YEAR, THESE STATIONS ADDED DURING MAY THROUGH OCTOBER ONLY

STATE SAMPLING LOCATIONS IN THE OHIO RIVER BASIN

PENNSYLVANIA

Monongahela River Basin

Stream

701 Monongahela River
702 Monongahela River
725 Monongahela River
704 Turtle Creek
706 Youghiogheny River
709 Youghiogheny River
714 Dunkard Creek
715 Sewickley Creek
717 Ten Mile Creek
720 Casselman River
726 Casselman River
727 Cheat River
728 Whiteley Creek
729 Indian Creek

Location

Rankin Bridge at Braddock
Bridge between Rts. 88 & 906 at Charleroi
Lock & Dam 8, Point Marion
Second railroad bridge, Trafford
Bridge on LR 64326, Sutersville
Rt. 281 bridge, Addison Township
LR 30130 bridge, Bobtown
LR 64164 bridge, Hunker
SR.88 at Millsboro, E. Bethlehem Township
LR 55029 bridge, Markleton
SR.2009 bridge, Elk Lick Township
SR.119 bridge, Springhill Township
SR.19 bridge, Kirby
SR.381 bridge, Jones Mill

Allegheny River Basin

Stream

801 Allegheny River
802 Allegheny River
804 Allegheny River
805 Allegheny River
806 Allegheny River
807 Allegheny River
810 Conemaugh River
812 Loyalhanna Creek
814 Blacklick Creek
818 Crooked Creek
819 Mahoning Creek
820 Redbank Creek
822 Clarion River
830 Tionesta Creek
831 Brokenstraw Creek
832 Conewango Creek
843 Clarion River
845 French Creek
846 French Creek
852 Oil Creek
858 Tunungwant Creek
859 Little Toby Creek
861 Mahoning Creek

Location

Highway bridge at New Kensington
Rt. 422 bridge, Kittaning
Rt.3008 bridge, Kennerdell
Rt. 127 bridge, West Hicory
U.S.Rt.6 Glade bridge, below Warren
Rt. 346 bridge, Eldred
LR 64269 bridge, Tunnelton
LR 64185 bridge, Loyalhanna Township
Rt. 660 bridge, Burrell Twp.
Rt. 66 bridge, Bethel Twp.
Rt. 748 bridge, Redbank Twp.
T 468 bridge, Porter Twp.
Rt. 36 bridge, Cooksburg
LR 27015 bridge, Lynch
Rt. 6 bridge, Youngsville
LR 61038 bridge, Russell
PA Rt.58, Callensburg
Rt. 322 bridge, Franklin
LR 20027 bridge, Wilson Chutes
Rt. 8 bridge, Cornplanter Township
LR 42012 bridge, Bradford
RR bridge above Rt. 949, Portland Mills
T374 bridge, Sportsburg

STATE SAMPLING LOCATIONS IN THE OHIO RIVER BASIN
(Continued)

Allegheny River Basin (cont.)

<u>Stream</u>	<u>Location</u>
862 Blue Eye Run	PA Rt.27 bridge, Garland
863 Cathers Run	T634 bridge, Millcreek Township
864 S. Br. Two Lick Creek	SR.1014 bridge, Wandin

Beaver River Basin

<u>Stream</u>	<u>Location</u>
905 Beaver River	Rt. 588 bridge, Eastvale
906 Beaver River	Rt. 288 bridge, Wampum
907 Connoquenessing Creek	LR 04078 bridge, Franklin Township
909 Shenango River	Rts. 422 & 224 bridge, New Castle
910 Shenango River	LR 43081 bridge, Sharpsville
911 Shenango River	Pymatuning Dam Spillway, W. Shenango Twp.
913 Little Shenango River	Williamson Road bridge, N. of Greenville
915 Mahoning River	Rt. 224 bridge, Edinburg
917 Connoquenessing Creek	LR 10015 bridge, Renfrew
922 Slippery Rock Creek	LR 37083 bridge, Camp Allegheny
927 Shenango River	Ohio 54 bridge, Mercer Co., Ohio
929 Thorn Creek	T556 bridge, Saxonburg

Ohio River Basin

<u>Stream</u>	<u>Location</u>
901 Ohio River	Rt. 30 bridge, East Liverpool, Ohio
902 Ohio River	Ambridge-Woodlawn Bridge, Sewickley
903 Raccoon Creek	LR 04068 bridge, Raccoon Township
914 Chartiers Creek	LR 02037 bridge, Carnegie
916 Chartiers Creek	T 748 bridge, Peters Township
918 Two Mile Run	L Street bridge, Vanport Borough

OHIO

Beaver River Basin

<u>Stream</u>	<u>Mile Point</u>	<u>Location</u>
Mahoning River	10.8	First Street, Lowellville
Mahoning River	43.8	Leavitt Road, Leavittsburg

STATE SAMPLING LOCATIONS IN THE OHIO RIVER BASIN
(Continued)

Muskingum River Basin

<u>Stream</u>	<u>Mile Point</u>	<u>Location</u>
Muskingum River	107.3	Rt. 83, Coshocton
Licking River	26.8	Stadden bridge, Newark
Mohican River	16.6	Rt. 514, Greer
Nimishillen Creek	8.2	Cheyenne Street, North Industry
Tuscarawas River	21.3	Rt. 83, Newcomerstown
Tuscarawas River	87.4	Warmington Street, Massilon
Walhanding River	14.7	Rt. 36, Nellie

Scioto River Basin

<u>Stream</u>	<u>Mile Point</u>	<u>Location</u>
Scioto River	102.1	Florence Chapen Road, Circleville
Big Darby Creek	13.4	Rt. 316, Darbyville
Mill Creek	16.8	Radner Road, Marysville
Olentangy River	11.5	Interstate 270, Worthington

Little Miami River Basin

<u>Stream</u>	<u>Mile Point</u>	<u>Location</u>
Little Miami River	80.6	Rt. 68, Oldtown

Great Miami River Basin

<u>Stream</u>	<u>Mile Point</u>	<u>Location</u>
Great Miami River	81.2	Monument Ave., Dayton
Mad River	29.6	St. Paris Pike, Eagle City

Ohio River Basin

<u>Stream</u>	<u>Mile Point</u>	<u>Location</u>
Hocking River	86.4	Rt. 33, Lancaster
Little Beaver Creek	4.5	Grimms Bridge Road, East Liverpool
Ohio Brush Creek	13.1	Rt. 348, West Union
Raccoon Creek	29.2	Rt. 35, Adamsville

STATE SAMPLING LOCATIONS IN THE OHIO RIVER BASIN

(Continued)

WEST VIRGINIA

Monongahela River Basin

<u>Stream</u>	<u>Location</u>
Monongahela River	Rt. 19, Star City
Cheat River	Rt. 26, Albright
Cheat River	Rt. 1, St. George
Tygart Valley River	Rts. 219, 250, Beverly
Tygart Valley River	Rt. 62, Colfax
West Fork River	Off US 19, Enterprise

Kanawha River Basin

<u>Stream</u>	<u>Location</u>
Kanawha River	APCO Power Plant, Winfield
Kanawha River	Rts. 60, 61 bridge, Chelyan
Coal River	Rt. 9 bridge, Tornado
Elk River	Coonskin Park bridge, Charleston
Gauley River	Rt. 39/1 bridge, Beech Glen
New River	C & O RR bridge, Gauley Bridge
Greenbrier River	Rt. 3, Hilldale

Ohio River Basin

<u>Stream</u>	<u>Location</u>
Little Kanawha River	Rt. 5, Elizabeth
Guyandotte River	Rt. 26, Huntington

KENTUCKY

Big Sandy River Basin

<u>Stream</u>	<u>Mile Point</u>	<u>Location</u>
Tug Fork	35.1	Kermit
Levisa Fork	69.4	Paintsville
Levisa Fork	115.0	Pikeville

Licking River Basin

<u>Stream</u>	<u>Mile Point</u>	<u>Location</u>
Licking River	126.9	Sherburne
Licking River	266.9	Salyersville
North Fork Licking River	50.1	Lewisburg
South Fork Licking River	49.1	Cynthiana

STATE SAMPLING LOCATIONS IN THE OHIO RIVER BASIN
(Continued)

Little Sandy River Basin

<u>Stream</u>	<u>Mile Point</u>	<u>Location</u>
Little Sandy River	13.2	Argillits

Kentucky River Basin

<u>Stream</u>	<u>Mile Point</u>	<u>Location</u>
Kentucky River	66.4	Above Frankfort
Kentucky River	135.3	Camp Nelson
Kentucky River	249.0	Heidelberg
North Fork Kentucky River	304.5	Jackson
Middle Fork Kentucky River	8.3	Tallega
South Fork Kentucky River	11.5	Booneville
Red River	68.5	Hazel Green
Eagle Creek	21.6	Glencoe
South Elkhorn Creek	25.3	Midway
Dix River	34.6	Danville

Salt River Basin

<u>Stream</u>	<u>Mile Point</u>	<u>Location</u>
Salt River	22.9	Shepherdsville
Pond Creek	15.4	Louisville
Beech Fork	48.1	Maud
Rolling Fork	38.8	New Haven

Green River Basin

<u>Stream</u>	<u>Mile Point</u>	<u>Location</u>
Green River	130.6	Cromwell
Green River	225.9	Munfordville
Nolin River	81.0	White Mills
Bacon Creek	7.2	Priceville
Barren River	37.5	Bowling Green
Mud River	44.5	Lewisburg
Rough River	62.5	Dundee
Pond River	12.4	Sacramento
Pond River	62.8	Apex

Tradewater River Basin

<u>Stream</u>	<u>Mile Point</u>	<u>Location</u>
Tradewater River	28.1	Olney

STATE SAMPLING LOCATIONS IN THE OHIO RIVER BASIN
(Continued)

Tygart Creek Basin

	<u>Mile</u>	
<u>Stream</u>	<u>Point</u>	<u>Location</u>
Tygart Creek	28.1	Load

Cumberland River Basin

	<u>Mile</u>	
<u>Stream</u>	<u>Point</u>	<u>Location</u>
Cumberland River	427.0	Burksville
Cumberland River	562.3	Cumberland Falls
Cumberland River	654.4	Pineville
South Fork Cumberland R.	40.3	Yamacraw
Rockcastle River	24.4	Billows
Burk Creek	45.0	Eubank
Horse Lick Creek	7.5	Lamero

INDIANA

Great Miami River Basin

	<u>Mile</u>	
<u>Stream</u>	<u>Point</u>	<u>Location</u>
East Fork, Whitewater R.	27.0	Abington Pike Road, Abington
West Fork, Whitewater R.	22.0	SR.1 bridge, Cedar Grove

Ohio River Basin

	<u>Mile</u>	
<u>Stream</u>	<u>Point</u>	<u>Location</u>
Blue River, West Fork	57.0	US Rt. 150, Fredericksburg

Wabash River Basin

	<u>Mile</u>	
<u>Stream</u>	<u>Point</u>	<u>Location</u>
Wabash River	52.0	US Rt. 460, New Harmony
Wabash River	130.0	US Rt. 50, Vincennes
Wabash River	183.0	I & M Breed Station, Fairbanks
Wabash River	218.0	Ft. Harrison Boat Club, Terre Haute
Wabash River	230.0	Rt. 163 bridge, Clinton
Wabash River	240.0	Rt. 36, Montezuma
Wabash River	256.0	Rt. 234, Cayuga
Wabash River	303.0	Granville bridge, Lafayette
Wabash River	316.0	SR.225, Battleground
Wabash River	347.0	CR 675, Georgetown

STATE SAMPLING LOCATIONS IN THE OHIO RIVER BASIN

(Continued)

Wabash River Basin (cont.)

<u>Stream</u>	<u>Mile Point</u>	<u>Location</u>
Wabash River	370.0	US Rt. 31, Peru
Wabash River	402.0	Rt. 105, Andrews
Wabash River	409.0	Huntington Waterworks
Wabash River	420.0	Rt. 3, Markle
Wabash River	452.0	US Rt. 27, Geneva
Patoka River	35.0	Miller Rd., Oakland City
Patoka River	76.0	County Rd., Jasper
White River	19.0	Rt. 56, Hazelton
White River	46.0	Rt. 61, Petersburg
West Fork, White River	81.0	Rt. 358, Edwardsport
West Fork, White River	162.0	Rts. 43 & 46, Spencer
West Fork, White River	192.0	Rt. 39, Martinsville
West Fork, White River	210.0	SR. 144, Waverly
West Fork, White River	248.0	Rt. 100, Nora
West Fork, White River	279.0	Rt. 13, Perkinsville
West Fork, White River	293.0	10th St. at Waterworks, Anderson
West Fork, White River	309.0	County Rd. bridge, Yorktown
West Fork, White River	319.0	Memorial Drive, Muncie
West Fork, White River	348.0	US Rt. 24, Winchester
East Fork, White River	1.0	Rt. 57, Petersburg
East Fork, White River	79.0	County Road, Williams
East Fork, White River	94.0	US Rt. 50, Bedford
East Fork, White River	168.0	Waterworks Intake, Seymour
East Fork, White River	239.0	SR. 46, Columbus
Salt Creek	12.0	Rt. 37, Oolitic
Big Blue River	0.7	US Rt. 31, Edinburg
Big Blue River	64.0	County Road 400S, Spiceland
Mill Creek	18.0	US Rt. 231, Devore
Mill Creek	35.0	US Rt. 40, Stilesville
Eagle Creek	1.0	Raymond St., Indianapolis
Eagle Creek	7.0	Lynhurst Rd. bridge, Speedway
Eagle Creek	21.0	Rt. 100, Zionsville
Fall Creek	0.6	Stadium Drive, Indianapolis
Fall Creek	7.0	Keystone Ave., Indianapolis
Indianapolis Waterway Canal	9.0	Confluence with White River, Indianapolis
Sugar Creek	1.0	Rt. 79, Edinburgh
Sugar Creek	25.0	Rt. 274, above Shades State Park
Wildcat Creek	3.0	Rt. 25, Lafayette
Wildcat Creek	60.0	County Road 300W, Kokomo
Wildcat Creek	66.0	US Rt. 31, Kokomo
Wildcat Creek, South Fork	34.0	Hwy. 38-39, Frankfort
Tippecanoe River	9.0	Rt. 18, Delphi
Tippecanoe River	107.0	US Rt. 31, Rochester
Eel River	7.0	C.R. 125N, Logansport
Eel River	1.0	Rt. 67, Worthington
Eel River	41.0	Rt. 15, Roann

STATE SAMPLING LOCATIONS IN THE OHIO RIVER BASIN
(Continued)

Wabash River Basin (cont.)

Mississinewa River	1.0	Rt. 124, Peru
Mississinewa River	28.0	Isaak Walton Lodge, Jalapa
Mississinewa River	36.0	Highland Ave., Marion
Mississinewa River	99.0	CR 134E, Ridgeville
Salomonie River	0.0	Division Road, Largo
Salomonie River	25.0	C.R. 300W, Lancaster
Salomonie River	71.0	106 South Road, Portland
Muscatatuck River	20.0	Rt. 39 bridge, Austin
Big Pin Creek	21.0	Rt. 55, Pine Village
Vermillion River	0.8	St. Hwy. 63, Cayuga

ILLINOIS

Wabash River Basin

<u>Stream</u>	<u>Location</u>
Wabash River	IN Rt. 154, Hudsonville
Wabash River	Rt. 460, New Harmony, IN
Bonpas Creek	Rt. 15, Browns, IL
Embarras River	County Road, Billet
Embarras River	County Road, St. Marie
Embarras River	Ryan Bridge, County Road, Charleston
Embarras River	County Road, Camargo
North Fork, Embarras River	County Road, Oblong
Sugar Creek	Township Road, Palestine
Sugar Creek	County Road, IN State line
Brouilletts Creek	IN. Rt. 71, Blanford
Little Vermillion River	County Road, Georgetown
Vermillion River	Grape Creek Road, Danville
Middle Fork, Vermillion River	Kickapoo State Park
North Fork, Vermillion River	County Road, Bismark
Salt Fork, Vermillion River	County Road, Oakwood
Salt Fork, Vermillion River	County Road, St. Joseph
Saline Branch	County Road, Mayview
Little Wabash River	W. Salem-Mt. Erie Road, Mt. Erie
Little Wabash River	County Road, Louisville
Little Wabash River	US Rt. 40, Effingham
Little Wabash River	County Road, Clay City
Little Wabash River	Main Street bridge, Carmi
Skillet Fork	Winters bridge County Rd., Carmi
Skillet Fork	Rt. 15, Wayne City
Skillet Fork	County Road, Iuka
Elm Creek	Price Bridge, Fairfield

STATE SAMPLING LOCATIONS IN THE OHIO RIVER
Continued

Saline River Basin

Stream

Saline River
North Fork, Saline River
Middle Fork, Saline River
South Fork, Saline River
Bankston Creek
South Fork, Saline River
Sugar Creek

Location

Peabody Bridge, Gibsonia
Rt. 45, Eldorado
County Rd., Harrisburg
County Rd., Crab Orchard
Rt. 34, Harrisburg
Rt. 45, Carrier Mills
County Road, Creal Springs

Ohio River Basin

Stream

Lush Creek
Cache River
Ohio River

Location

County Road, Eddysville
County Road, Belknap
Dam 53, Olmsted

UNITED STATES GEOLOGICAL SURVEY (NASQAN)
NATIONAL STREAM QUALITY ACCOUNTING NETWORK STATIONS -
OHIO RIVER AND PRIMARY TRIBUTARIES

<u>Station Number</u>	<u>Location</u>	<u>Mile Point</u>	<u>Period of Record Begun</u>
03049625	Allegheny R. at New Kensington, PA	19.0	1974
03085000	Monongahela R. at Braddock, PA	9.5	1958
03107500	Beaver R. at Beaver Falls, PA	5.5	1975
03112510	Ohio R. at Benwood Near Wheeling, WV	94.3	1978
03150000	Muskingum R. at McConnelsville, OH	-	1950
03155000	Little Kanawha R. at Palestine, WV	27.9	1976
03159510	Hocking R. below Athens, OH	-	1966
03201300	Kanawha R. at Winfield Dam at Winfield, WV	31.3	1974
03204000	Guyandotte R. at Branchland, WV	35.3	1975
03215000	Big Sandy R. at Louisa, KY	21.3	1974
03216600	Ohio R. at Greenup Dam, KY	341.5	1974
03234500	Scioto R. at Higby, OH	-	1954
03245500	Little Miami R. at Milford, OH	12.9	1965
03254000	Licking R. at Butler, KY	36.7	1975
03274600	Great Miami R. at New Baltimore, OH	20.5	1966
03277200	Ohio R. at Markland Dam, KY	531.5	1974
03290500	Kentucky R. at Lock 2 at Lockport, KY	31.0	1973
03298500	Salt R. at Shepherdsville, KY	22.9	1979
03303280	Ohio R. at Cannelton Dam, KY	720.8	1975
03321230	Green R. near Beech Grove, KY	49.1	1975
03378500	Wabash R. at New Harmony, IN	51.5	1974
03383000	Tradewater R. at Olney, KY	72.7	1982
03438220	Cumberland R. near Grand Rivers, KY	30.6	1975
03609750	Tennessee R. at Highway 60 near Paducah, KY	5.3	1975
03612500	Ohio R. at Lock & Dam 53 near Grand Chain, IL	962.2	1955

AVERAGE MONTHLY TEMPERATURE - OHIO RIVER ELECTRONIC MONITORS

Station-Mile Point (Date Initiated)	Temperature in Degrees Fahrenheit											
	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
South Heights - 15.2 (3/63)	36.3	37.0	43.3	52.8	63.3	73.1	78.4	78.6	74.0	61.9	49.9	39.9
East Liverpool - 40.2 (12/61) ¹	37.2	37.1	42.9	53.5	63.9	73.9	79.9	79.7	75.3	63.3	51.3	40.3
Shadyside - 102.4 (4/75)	39.6	40.3	45.7	55.7	66.0	74.6	80.5	80.6	75.7	65.0	54.2	44.2
Addison - 260.0 (6/75)	35.7	37.0	43.2	53.7	64.6	74.0	80.1	80.1	76.0	63.8	52.6	41.4
Gallipolis 279.2 (10/75)	36.8	36.9	44.9	55.3	65.0	74.2	79.6	80.5	77.0	64.3	53.6	42.4
Huntington - 306.9 (9/61)	37.6	38.5	44.9	55.5	65.1	75.2	80.8	80.4	76.4	65.7	53.5	42.6
Cincinnati -462.8 (9/61)	37.3	37.9	44.4	53.6	63.8	74.1	79.8	80.4	76.5	65.8	53.9	42.6
Markland -531.5 (5/69) ²	39.1	39.3	44.7	53.7	64.9	74.3	80.2	80.9	77.3	66.6	55.4	44.3
Louisville - 600.6 (3/62)	38.6	38.9	44.9	54.8	65.1	74.6	80.5	81.1	76.7	66.3	54.5	43.4
West Point - 625.9 (4/75)	38.1	38.6	46.1	55.2	66.2	75.4	82.0	82.4	77.2	66.2	55.3	44.0
Cannelton - 720.7 (10/75)	37.5	38.9	45.9	55.6	66.7	76.1	82.3	82.7	78.2	66.5	55.7	44.3
Evansville - 791.5 (10/68)	38.2	38.8	45.6	55.1	65.8	75.5	81.8	82.3	77.4	66.3	54.9	43.3
Joppa - 952.3 (8/75)	40.0	40.6	46.7	57.0	66.8	77.0	83.8	83.1	77.7	65.4	54.8	43.8

¹Includes data from Stratton (1963-1975)

²Seasonal operation, 1976-1979

AVERAGE MONTHLY TEMPERATURE - OHIO RIVER TRIBUTARY ELECTRONIC MONITORS

Temperatures in degrees Fahrenheit

Station-Mile Point* (Date Initiated)	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
Allegheny River at Oakmont 0.0, 13.3 (4/62)	35.0	35.3	40.5	50.3	61.8	72.3	77.6	77.4	72.6	60.0	47.3	36.7
Monongahela River at S. Pittsburgh 0.0, 4.5 (6/75)	36.7	38.2	45.3	54.8	64.3	74.3	80.1	80.4	75.2	63.3	52.9	42.2
Beaver River at Beaver Falls 25.3, 5.3 (12/61)	37.3	37.7	43.2	54.4	66.0	73.5	79.7	79.5	73.5	62.2	50.4	39.5
Kanawha River at Winfield 265.7, 31.1 (9/61)	39.4	40.1	46.2	56.4	65.9	75.7	81.0	80.8	77.6	66.3	53.7	43.0
Big Sandy River at Louisa 317.1, 20.3 (1/69)	38.9	41.2	48.0	58.2	65.7	75.9	79.9	78.8	72.9	61.1	50.2	42.3
Licking River at Covington 470.2, 4.5 (5/69)	35.7	37.5	45.9	56.2	64.1	72.6	78.2	76.8	71.9	59.8	48.3	40.5
Wabash River at New Harmony 848.0, 51.5 (8/75)	36.7	39.0	47.8	58.2	67.9	77.5	82.9	81.4	74.9	62.6	51.1	40.8

* Mile point of confluence with Ohio; mile point of monitor

MAXIMUM MONTHLY AVERAGE TEMPERATURE - OHIO RIVER ELECTRONIC MONITORS

Station-Mile Point (Date Initiated)	Temperatures in Degrees Fahrenheit (Year)											
	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
South Heights - 15.2 (3/63)	41.2 (1974)	40.0 (1974)	47.2 (1976)	59.7 (1968)	69.8 (1975)	76.2 (1969)	82.3 (1066)	79.3 (1968)	69.2 (1966)	69.2 (1969)	57.3 (1964)	43.6 (1982)
East Liverpool - 40.2 (12/61) ¹	43.7 (1974)	42.1 (1974,75)	47.8 (1974)	59.2 (1968)	71.7 (1962)	80.9 (1964)	84.9 (1966)	83.4 (1968)	79.5 (1973)	70.1 (1963)	58.6 (1964)	45.4 (1973)
Shadyside - 102.4 (4/75)	44.1 (1979)	43.5 (1984)	50.5 (1985)	61.1 (1981)	70.4 (1982)	81.2 (1978)	82.9 (1978)	84.8 (1983)	79.7 (1983)	71.6 (1978)	65.5 (1978)	49.3 (1978)
Addison - 260.0 (6/75)	38.9 (1983)	40.0 (1984)	49.2 (1976)	58.6 (1986)	69.3 (1986)	76.8 (1986)	82.8 (1975)	83.6 (1975)	79.5 (1978)	68.2 (1985)	55.9 (1982)	45.0 (1982)
Gallipolis - 279.2 (10/75)	41.2 (1983)	41.9 (1986)	51.6 (1976)	64.6 (1985)	68.7 (1985)	77.7 (1977)	82.9 (1977)	83.3 (1983)	80.8 (1978)	66.9 (1978)	59.3 (1985)	46.4 (1985)
Huntington - 306.9 (9/61)	43.9 (1974)	47.6 (1976)	50.0 (1976)	60.6 (1968)	72.7 (1966)	79.9 (1962)	84.1 (1966)	84.4 (1983)	82.8 (1970)	71.4 (1973)	57.8 (1963)	74.4 (1961)
Cincinnati - 462.8 (9/61)	43.8 (1974)	43.0 (1962)	47.7 (1966)	58.8 (1977)	69.1 (1977)	79.1 (1962)	84.1 (1975)	85.5 (1975)	80.9 (1978)	72.1 (1973)	59.6 (1963)	49.4 (1961)
Markland - 531.5 (5/69) ²	44.4 (1972)	43.6 (1974)	49.0 (1974)	59.7 (1979)	69.6 (1970)	78.2 (1970)	84.9 (1983)	85.7 (1983)	81.0 (1970)	74.2 (1980)	59.6 (1978)	47.7 (1982)
Louisville - 600.6 (3/62)	43.7 (1974)	44.1 (1974)	52.3 (1976)	61.5 (1967)	72.1 (1962)	79.3 (1962)	82.8 (1969)	83.6 (1983)	80.1 (1970)	71.4 (1963)	60.0 (1963)	48.0 (1971)
West Point - 625.9 (4/75)	42.6 (1983)	42.0 (1976)	50.6 (1976)	59.2 (1976)	70.7 (1977)	78.9 (1986)	84.5 (1983)	85.2 (1983)	81.3 (1986)	70.1 (1982)	58.2 (1982)	48.1 (1982)
Cannelton - 720.7 (10/75)	46.5 (1985)	42.3 (1986)	51.7 (1976)	60.8 (1986)	72.0 (1985)	80.0 (1986)	85.8 (1983)	88.2 (1983)	92.1 (1986)	71.4 (1982)	57.7 (1982)	49.7 (1982)
Evansville - 791.5 (10/68)	44.5 (1974)	45.0 (1974)	51.2 (1976)	60.2 (1981)	70.6 (1970,77)	79.6 (1977)	84.8 (1967)	86.6 (1983)	80.5 (1970)	70.9 (1971)	59.7 (1971)	46.9 (1978)
Joppa - 952.3 (8/75)	41.8 (1983)	44.4 (1976)	52.9 (1976)	61.2 (1976,81)	71.3 (1982)	80.2 (1977)	86.7 (1977)	86.6 (1983)	81.5 (1978)	67.9 (1982)	57.4 (1985)	48.7 (1982)

¹Includes data from Stratton (1963-1975)

²Seasonal operation, 1976-1979

MAXIMUM MONTHLY AVERAGE TEMPERATURE
OHIO RIVER TRIBUTARY ELECTRONIC MONITORS

Station-Mile Point* (Date Initiated)	Temperatures in degrees Fahrenheit (Year)											
	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
Allegheny River at Oakmont 0.0, 13.3 (4/62)	37.7 (1974)	38.4 (1986)	44.3 (1973)	55.0 (1968)	68.1 (1985)	78.1 (1967)	83.7 (1966)	82.1 (1983)	76.0 (1983)	68.5 (1963)	53.6 (1964)	41.2 (1982)
Monongahela River at S. Pittsburgh 0.0, 4.5 (6/75)	42.9 (1985)	41.9 (1976)	51.9 (1976)	61.2 (1976)	70.9 (1977)	81.1 (1976)	84.6 (1975)	83.6 (1975)	80.3 (1977)	67.5 (1984)	57.1 (1978)	45.9 (1984)
Beaver River at Beaver Falls 25.3, 5.3 (12/61)	41.2 (1967)	41.6 (1973)	53.8 (1973)	64.9 (1986)	75.7 (1965)	81.9 (1966)	87.0 (1966)	83.1 (1968)	79.5 (1970)	66.9 (1963)	57.2 (1982)	41.9 (1982)
Kanawha River at Winfield 265.7, 31.1 (9/61)	46.2 (1965)	48.3 (1965)	55.0 (1966)	62.5 (1963)	75.3 (1964)	84.9 (1964)	87.4 (1964)	86.3 (1966)	83.3 (1962)	74.5 (1961)	60.9 (1965)	51.7 (1965)
Big Sandy River at Louisa 317.1, 20.3 (1/69)	44.5 (1974)	45.8 (1976)	51.5 (1983)	62.6 (1986)	72.0 (1982)	79.4 (1984)	83.8 (1977)	83.4 (1983)	77.2 (1977)	66.8 (1982)	56.9 (1985)	48.2 (1982)
Licking River at Covington 470.2, 4.5 (5/69)	40.5 (1972)	43.1 (1983)	52.2 (1976)	60.4 (1976)	69.4 (1977)	78.5 (1971)	81.5 (1977)	81.3 (1983)	76.0 (1980)	65.3 (1971)	54.0 (1985)	45.6 (1982)
Wabash River at New Harmony 848.0, 51.5 (8/75)	41.1 (1980)	45.1 (1976)	51.6 (1977)	64.2 (1981)	71.5 (1986)	80.7 (1984)	86.3 (1983)	84.7 (1983)	77.8 (1978)	64.9 (1977)	54.2 (1978)	47.6 (1982)

* Mile point of confluence with Ohio; mile point of monitor

AVERAGE MONTHLY SPECIFIC CONDUCTANCE - OHIO RIVER ELECTRONIC MONITORS

Station-Mile Point (Date Initiated)	Specific Conductance in Micromhos per Centimeter											
	Jan.	Feb.	Mar.	April	May	June	JULY	AUG.	Sept.	Oct.	Nov.	Dec.
South Heights 15.2 (3/63)	272	292	266	260	288	337	403	445	425	413	330	254
East Liverpool 40.2 (12/61) ¹	295	305	268	260	303	355	427	462	447	440	365	274
Shadyside 102.4 (4/75)	318	350	284	288	336	341	394	414	411	413	351	286
Addison 260.0 (6/75)	326	392	308	308	358	372	418	430	466	473	418	323
Gallipolis 279.2 (10/75)	298	337	261	272	305	341	381	379	423	403	361	293
Huntington 282.9 (9/61)	289	286	279	282	319	379	437	437	501	487	445	296
Cincinnati 462.8 (9/61)	286	289	280	283	320	360	412	431	453	486	437	320
Markland 531.5 (5/69) ²	309	309	308	306	321	348	389	404	415	443	419	336
Louisville 600.6 (3/62)	297	299	286	284	316	347	392	423	428	455	450	357
West Point 625.9 (4/75)	324	333	301	306	309	355	396	409	414	414	418	334
Cannelton 720.7 (10/75)	337	336	307	317	356	361	380	411	398	410	419	339
Evansville 791.5 (10/68)	315	329	310	316	338	352	388	376	406	430	442	355
Joppa 952.3 (8/75)	349	352	326	325	353	372	427	334	329	355	389	362

¹ Includes data from Stratton (1963-1975)

² Seasonal operation, 1976-1979

AVERAGE MONTHLY SPECIFIC CONDUCTANCE
OHIO RIVER TRIBUTARY ELECTRONIC MONITORS

Station-Mile Point* (Date Initiated)	Specific Conductance in Micromhos per Centimeter											
	<u>Jan.</u>	<u>Feb.</u>	<u>Mar.</u>	<u>Apr.</u>	<u>May</u>	<u>June</u>	<u>July</u>	<u>Aug.</u>	<u>Sep.</u>	<u>Oct.</u>	<u>Nov.</u>	<u>Dec.</u>
Allegheny River at Oakmont 0.0, 13.3 (4/62)	241	216	189	187	213	255	308	319	340	327	272	203
Monongahela River at S. Pittsburgh 0.0, 4.5 (6/75)	313	335	275	272	326	381	407	422	430	426	364	270
Beaver River at Beaver Falls 25.3, 5.3 (12/61)	400	404	347	357	400	455	455	474	482	488	452	389
Kanawha River at Winfield 265.7, 31.1 (9/61)	198	182	156	178	207	263	310	305	359	296	253	220
Big Sandy River at Louisa 317.1, 20.3 (1/69)	270	254	266	338	319	434	431	439	490	467	383	323
Licking River at Covington 470.2, 4.5 (5/69)	278	265	287	276	269	271	264	269	261	268	287	275
Wabash River at New Harmony 848.0, 51.5 (8/75)	528	515	449	467	485	525	489	477	514	586	570	521

* Mile point of confluence with Ohio; mile point of monitor

HARDNESS (mg/l)

LONG TERM AVERAGES (WITH STANDARD DEVIATION) OVER PERIOD OF RECORD FOR EACH MONITORING STATION BY MONTH

<u>STATION</u>	<u>JAN.</u>	<u>FEB.</u>	<u>MAR.</u>	<u>APR.</u>	<u>MAY</u>	<u>JUNE</u>	<u>JULY</u>	<u>AUG.</u>	<u>SEP.</u>	<u>OCT.</u>	<u>NOV.</u>	<u>DEC.</u>
SOUTH HEIGHTS M.P. 15.2	109.3 (21.9)	112.6 (16.2)	96.0 (11.3)	93.1 (38.1)	123.6 (48.5)	107.4 (17.4)	118.6 (35.3)	124.4 (40.0)	131.9 (25.5)	140.3 (32.6)	102.1 (20.3)	86.2 (14.9)
EAST LIVERPOOL M.P. 40.2	123.9 (21.3)	102.0 (42.8)	99.4 (22.6)	102.1 (18.0)	115.7 (29.8)	111.3 (17.2)	123.1 (33.2)	129.8 (50.6)	145.1 (26.7)	143.4 (22.5)	112.5 (24.4)	102.1 (11.2)
HANNIBAL M.P. 126.4	125.9 (23.3)	119.8 (14.4)	102.9 (23.6)	96.1 (24.7)	136.0 (17.9)	127.1 (17.1)	133.8 (24.8)	144.9 (28.2)	150.0 (24.8)	160.6 (34.2)	133.6 (41.0)	116.6 (32.8)
WILLOW ISLAND M.P. 161.8	119.1 (13.9)	129.6 (9.4)	104.1 (21.0)	101.6 (23.2)	117.4 (19.9)	122.0 (10.3)	125.8 (25.3)	146.2 (34.5)	151.9 (26.9)	152.7 (43.5)	136.6 (31.9)	115.6 (21.6)
BELLEVILLE M.P. 203.9	138.9 (18.5)	139.9 (23.5)	116.4 (24.6)	123.7 (19.2)	136.6 (22.1)	136.7 (22.2)	146.0 (28.7)	148.4 (29.1)	162.6 (34.5)	166.4 (41.9)	155.9 (22.1)	131.1 (29.4)
ADDISON M.P. 260.0	130.1 (26.3)	129.7 (29.2)	120.6 (14.6)	117.7 (10.9)	134.2 (17.1)	133.6 (18.6)	143.2 (31.9)	143.1 (20.4)	183.8 (49.7)	169.1 (42.0)	142.9 (41.9)	125.6 (13.9)
GALLIPOLIS M.P. 279.2	109.9 (25.8)	103.1 (25.4)	95.6 (14.0)	102.4 (24.0)	104.3 (26.6)	111.2 (22.3)	127.1 (20.5)	133.6 (43.3)	138.4 (39.3)	148.0 (31.1)	115.1 (42.8)	99.0 (19.3)
HUNTINGTON M.P. 306.9	130.6 (41.6)	100.9 (21.8)	105.7 (11.9)	114.2 (18.9)	111.0 (24.0)	126.6 (21.8)	135.1 (23.9)	124.0 (23.4)	142.0 (36.9)	150.4 (26.0)	135.6 (38.9)	107.9 (13.2)
CINCINNATI M.P. 462.8	130.4 (34.3)	116.3 (12.1)	111.7 (15.7)	116.6 (18.3)	116.6 (19.5)	123.1 (22.5)	142.2 (25.9)	135.8 (22.8)	146.5 (30.2)	146.6 (29.2)	142.0 (31.4)	126.0 (17.4)
NORTH BEND M.P. 490.0	139.1 (47.4)	127.6 (13.7)	117.3 (11.2)	123.4 (17.6)	133.0 (12.2)	124.4 (12.3)	143.1 (20.8)	142.2 (23.6)	144.8 (16.6)	167.2 (43.3)	155.7 (31.0)	125.7 (16.4)
MARKLAND M.P. 531.5	139.5 (19.1)	150.3 (55.7)	136.5 (37.3)	131.7 (27.8)	140.1 (19.8)	137.7 (14.9)	162.0 (34.9)	157.8 (29.0)	149.8 (16.2)	160.1 (23.8)	166.3 (28.8)	136.7 (9.6)
LOUISVILLE M.P. 600.6	127.9 (40.7)	137.3 (20.0)	139.6 (35.9)	130.2 (15.8)	139.4 (31.9)	134.4 (16.8)	138.9 (20.0)	142.8 (11.3)	143.1 (17.8)	160.9 (25.5)	161.1 (33.3)	131.1 (15.5)

HARDNESS (cont.)

LONG TERM AVERAGES (WITH STANDARD DEVIATION) OVER PERIOD OF RECORD FOR EACH MONITORING STATION BY MONTH

<u>STATION</u>	<u>JAN.</u>	<u>FEB.</u>	<u>MAR.</u>	<u>APR.</u>	<u>MAY</u>	<u>JUNE</u>	<u>JULY</u>	<u>AUG.</u>	<u>SEP.</u>	<u>OCT.</u>	<u>NOV.</u>	<u>DEC.</u>
WEST POINT M.P. 625.9	135.5 (36.6)	134.9 (15.7)	128.6 (9.7)	128.0 (16.2)	136.7 (21.1)	144.1 (30.6)	146.3 (20.7)	145.2 (22.0)	146.6 (14.6)	167.6 (30.1)	166.0 (33.2)	135.4 (12.5)
CANNELTON M.P. 720.7	140.4 (12.2)	135.1 (11.5)	132.4 (28.6)	123.3 (11.9)	134.0 (19.4)	134.2 (14.4)	135.4 (32.5)	129.2 (49.8)	150.9 (23.5)	143.7 (20.8)	134.6 (40.7)	124.7 (15.9)
EVANSVILLE M.P. 791.5	138.2 (40.5)	143.4 (21.5)	125.2 (19.2)	132.1 (13.8)	142.4 (26.3)	144.4 (22.1)	148.4 (14.1)	159.8 (26.1)	161.3 (52.0)	155.2 (25.0)	137.8 (48.6)	142.4 (26.0)
UNIONTOWN M.P. 846.0	141.8 (16.7)	127.7 (31.0)	145.0 (42.5)	127.8 (14.4)	137.9 (24.2)	143.9 (26.1)	138.8 (19.4)	146.7 (13.2)	148.6 (23.6)	159.9 (25.4)	166.6 (49.7)	141.7 (21.2)
JOPPA M.P. 952.3	177.2 (28.6)	150.8 (12.8)	148.6 (21.1)	144.4 (15.4)	162.2 (36.5)	180.4 (29.2)	154.2 (20.1)	140.0 (27.5)	117.9 (30.4)	133.1 (20.8)	156.4 (27.6)	168.6 (31.0)

TOTAL SUSPENDED SOLIDS (mg/l)

LONG TERM AVERAGES (WITH STANDARD DEVIATION) OVER PERIOD OF RECORD FOR EACH MONITORING STATION BY MONTH

STATION	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEP.	OCT.	NOV.	DEC.
SOUTH HEIGHTS M.P. 15.2	209.5 (42.5)	219.7 (50.6)	178.4 (40.1)	161.6 (21.1)	180.2 (37.7)	179.8 (16.1)	210.4 (37.6)	217.4 (71.9)	259.4 (43.9)	282.1 (29.9)	217.0 (26.4)	171.6 (29.0)
EAST LIVERPOOL M.P. 40.2	190.8 (40.6)	200.1 (57.8)	155.2 (31.7)	139.9 (15.5)	172.6 (37.9)	170.5 (15.9)	195.5 (40.6)	206.5 (54.8)	247.5 (29.3)	271.6 (18.9)	198.4 (53.8)	153.7 (17.7)
HANNIBAL M.P. 126.4	209.6 (49.4)	239.4 (60.4)	188.8 (32.1)	167.0 (26.6)	188.7 (30.3)	200.6 (23.7)	225.0 (22.3)	252.4 (55.3)	288.3 (53.1)	330.1 (51.0)	274.9 (85.9)	199.4 (15.4)
WILLOW ISLAND M.P. 161.8	219.6 (39.7)	222.8 (40.8)	188.2 (35.8)	181.9 (28.2)	186.9 (33.8)	194.4 (29.1)	219.6 (18.9)	244.9 (55.7)	283.0 (61.4)	313.1 (42.6)	266.6 (76.1)	199.3 (30.7)
BELLEVILLE M.P. 203.9	232.5 (18.2)	185.5 (59.4)	198.9 (42.9)	179.2 (42.2)	225.1 (34.4)	179.9 (94.1)	255.8 (26.8)	256.8 (65.8)	308.4 (50.7)	332.3 (58.9)	282.7 (40.3)	228.8 (42.9)
ADDISON M.P. 260.0	204.6 (35.1)	237.0 (49.0)	215.7 (37.7)	177.9 (11.1)	212.6 (41.5)	187.5 (25.2)	230.6 (40.9)	253.2 (26.3)	289.9 (59.6)	313.1 (50.6)	298.8 (64.6)	199.8 (26.2)
GALLIPOLIS M.P. 279.2	201.5 (48.3)	168.9 (71.3)	182.6 (26.1)	161.8 (30.9)	179.8 (56.6)	174.2 (30.1)	221.9 (29.3)	208.5 (78.3)	263.5 (52.8)	291.0 (33.9)	250.5 (69.3)	171.1 (39.9)
HUNTINGTON M.P. 306.9	186.0 (33.5)	193.8 (36.5)	175.9 (23.9)	169.9 (32.8)	163.0 (40.3)	174.6 (42.0)	217.2 (26.5)	208.7 (92.9)	263.5 (50.5)	276.5 (39.3)	260.4 (47.0)	187.2 (13.4)
CINCINNATI M.P. 462.8	175.7 (22.8)	174.6 (26.6)	165.1 (19.0)	155.4 (11.6)	173.1 (18.4)	183.4 (21.5)	213.4 (27.6)	220.6 (40.9)	241.5 (35.9)	248.6 (33.3)	272.5 (34.1)	188.8 (26.2)
NORTH BEND M.P. 490.0	205.1 (28.0)	204.0 (33.4)	193.4 (31.8)	197.2 (24.7)	199.4 (35.0)	206.2 (18.2)	233.7 (26.4)	246.2 (35.5)	252.0 (34.8)	288.8 (40.0)	280.5 (52.0)	196.9 (30.4)
MARKLAND M.P. 531.5	203.0 (23.2)	205.8 (29.9)	190.1 (34.1)	197.2 (27.6)	167.7 (69.8)	207.2 (21.5)	232.5 (21.7)	252.6 (39.6)	264.3 (55.1)	306.9 (19.4)	305.4 (68.2)	216.9 (50.6)
LOUISVILLE M.P. 600.6	213.9 (22.1)	214.4 (38.7)	197.4 (20.3)	199.6 (20.6)	207.7 (32.6)	202.5 (27.4)	223.9 (21.3)	246.7 (35.8)	245.3 (37.7)	251.9 (119.6)	312.6 (43.4)	214.4 (32.1)

TOTAL SUSPENDED SOLIDS (cont.)

LONG TERM AVERAGES (WITH STANDARD DEVIATION) OVER PERIOD OF RECORD FOR EACH MONITORING STATION BY MONTH

<u>STATION</u>	<u>JAN.</u>	<u>FEB.</u>	<u>MAR.</u>	<u>APR.</u>	<u>MAY</u>	<u>JUNE</u>	<u>JULY</u>	<u>AUG.</u>	<u>SEP.</u>	<u>OCT.</u>	<u>NOV.</u>	<u>DEC.</u>
WEST POINT M.P. 625.9	225.8 (31.3)	220.1 (39.7)	202.0 (30.1)	197.8 (28.0)	207.7 (32.4)	213.4 (28.4)	232.9 (20.4)	257.7 (34.7)	252.0 (34.6)	256.7 (112.0)	313.8 (47.0)	215.1 (34.7)
CANNELTON M.P. 720.7	202.5 (38.2)	204.1 (25.3)	199.4 (19.4)	143.3 (70.9)	194.8 (24.0)	211.3 (24.6)	237.1 (23.3)	254.9 (30.5)	254.7 (41.0)	207.2 (112.0)	294.8 (36.7)	226.5 (37.7)
EVANSVILLE M.P. 791.5	205.6 (33.9)	212.3 (39.9)	187.0 (24.5)	190.3 (27.9)	210.8 (20.6)	228.5 (31.8)	233.3 (15.8)	255.1 (50.6)	230.9 (50.0)	269.7 (53.7)	295.2 (54.8)	234.0 (38.7)
UNIONTOWN M.P. 846.0	200.6 (48.2)	200.1 (39.0)	194.8 (24.7)	191.6 (20.0)	202.1 (35.8)	217.0 (21.2)	230.4 (17.7)	249.0 (18.5)	246.4 (41.2)	261.5 (64.4)	267.2 (44.9)	238.7 (72.5)
JOPPA M.P. 952.3	233.0 (26.2)	209.2 (19.9)	220.1 (26.4)	212.6 (26.7)	227.8 (53.8)	232.0 (14.5)	232.5 (29.0)	225.1 (20.1)	199.7 (41.6)	217.5 (41.3)	264.3 (49.0)	295.7 (83.2)

AMMONIA NITROGEN (mg/l)

LONG TERM AVERAGES (WITH STANDARD DEVIATION) OVER PERIOD OF RECORD FOR EACH MONITORING STATION BY MONTH

<u>STATION</u>	<u>JAN.</u>	<u>FEB.</u>	<u>MAR.</u>	<u>APR.</u>	<u>MAY</u>	<u>JUNE</u>	<u>JULY</u>	<u>AUG.</u>	<u>SEP.</u>	<u>OCT.</u>	<u>NOV.</u>	<u>DEC.</u>
SOUTH HEIGHTS M.P. 15.2	0.426 (0.24)	0.451 (0.25)	0.400 (0.47)	0.331 (0.41)	0.242 (0.15)	0.276 (0.19)	0.256 (0.21)	0.343 (0.30)	0.381 (0.22)	0.381 (0.29)	0.281 (0.19)	0.295 (0.14)
EAST LIVERPOOL M.P. 40.2	0.547 (0.31)	0.597 (0.36)	0.450 (0.42)	0.309 (0.33)	0.218 (0.14)	0.251 (0.16)	0.575 (1.18)	0.255 (0.21)	0.320 (0.20)	0.291 (0.24)	0.342 (0.22)	0.350 (0.25)
HANNIBAL M.P. 126.4	0.376 (0.20)	0.510 (0.24)	0.319 (0.24)	0.196 (0.07)	0.203 (0.15)	0.186 (0.12)	0.145 (0.08)	0.137 (0.08)	0.129 (0.08)	0.182 (0.09)	0.223 (0.09)	0.269 (0.12)
WILLOW ISLAND M.P. 161.8	0.488 (0.28)	0.715 (0.5)	0.426 (0.43)	0.294 (0.42)	0.166 (0.11)	0.157 (0.09)	0.178 (0.15)	0.152 (0.11)	0.114 (0.09)	0.171 (0.1)	0.289 (0.15)	0.377 (0.28)
BELLEVILLE M.P. 203.9	0.422 (0.16)	0.573 (0.35)	0.380 (0.35)	0.266 (0.36)	0.202 (0.1)	0.189 (0.08)	0.264 (0.22)	0.146 (0.05)	0.196 (0.11)	0.194 (0.07)	0.310 (0.18)	0.325 (0.2)
ADDISON M.P. 260.0	0.328 (0.15)	0.479 (0.35)	0.473 (0.6)	0.162 (0.09)	0.159 (0.13)	0.145 (0.11)	0.138 (0.12)	0.135 (0.09)	0.141 (0.1)	0.138 (0.07)	0.249 (0.14)	0.322 (0.18)
GALLIPOLIS M.P. 279.2	0.339 (0.23)	0.379 (0.31)	0.474 (0.79)	0.195 (0.16)	0.134 (0.14)	0.127 (0.12)	0.152 (0.14)	0.154 (0.10)	0.175 (0.19)	0.141 (0.07)	0.249 (0.13)	0.295 (0.16)
HUNTINGTON M.P. 306.9	0.165 (0.17)	0.181 (0.15)	0.207 (0.3)	0.263 (0.51)	0.088 (0.1)	0.101 (0.08)	0.084 (0.07)	0.118 (0.09)	0.083 (0.08)	0.086 (0.07)	0.192 (0.11)	0.155 (0.09)
CINCINNATI M.P. 462.8	0.31 (0.15)	0.291 (0.23)	0.352 (0.28)	0.189 (0.20)	0.129 (0.1)	0.11 (0.1)	0.112 (0.1)	0.096 (0.05)	0.086 (0.06)	0.117 (0.07)	0.18 (0.09)	0.264 (0.14)
NORTH BEND M.P. 490.0	0.416 (0.197)	0.499 (0.27)	0.350 (0.26)	0.245 (0.2)	0.186 (0.09)	0.147 (0.08)	0.137 (0.1)	0.159 (0.08)	0.202 (0.11)	0.202 (0.11)	0.261 (0.13)	0.283 (0.16)
MARKLAND M.P. 531.5	0.378 (0.15)	0.412 (0.29)	0.246 (0.16)	0.267 (0.27)	0.152 (0.09)	0.148 (0.13)	0.130 (0.11)	0.225 (0.17)	0.128 (0.09)	0.173 (0.06)	0.25 (0.15)	0.266 (0.154)
LOUISVILLE M.P. 600.6	0.271 (0.16)	0.303 (0.23)	0.190 (0.12)	0.108 (0.06)	0.106 (0.05)	0.118 (0.1)	0.077 (0.05)	0.104 (0.125)	0.169 (0.30)	0.111 (0.05)	0.118 (0.07)	0.15 (0.07)

AMMONIA NITROGEN (cont.)

LONG TERM AVERAGES (WITH STANDARD DEVIATION) OVER PERIOD OF RECORD FOR EACH MONITORING STATION BY MONTH

<u>STATION</u>	<u>JAN.</u>	<u>FEB.</u>	<u>MAR.</u>	<u>APR.</u>	<u>MAY</u>	<u>JUNE</u>	<u>JULY</u>	<u>AUG.</u>	<u>SEP.</u>	<u>OCT.</u>	<u>NOV.</u>	<u>DEC.</u>
WEST POINT M.P. 625.9	0.484 (0.18)	0.438 (0.25)	0.327 (0.17)	0.154 (0.09)	0.199 (0.11)	0.226 (0.11)	0.222 (0.18)	0.197 (0.13)	0.224 (0.07)	0.231 (0.08)	0.302 (0.16)	0.294 (0.18)
CANNELTON M.P. 720.7	0.344 (0.19)	0.595 (0.58)	0.235 (0.09)	0.172 (0.14)	0.179 (0.26)	0.142 (0.08)	0.083 (0.05)	0.069 (0.03)	0.068 (0.02)	0.097 (0.05)	0.163 (0.07)	0.255 (0.1)
EVANSVILLE M.P. 791.5	0.275 (0.18)	0.349 (0.24)	0.221 (0.16)	0.125 (0.07)	0.114 (0.09)	0.105 (0.06)	0.074 (0.05)	0.087 (0.08)	0.008 (0.03)	0.116 (0.08)	0.122 (0.07)	0.201 (0.1)
UNIONTOWN M.P. 846.0	0.327 (0.15)	0.382 (0.2)	0.211 (0.1)	0.119 (0.08)	0.078 (0.02)	0.075 (0.04)	0.078 (0.06)	0.091 (0.06)	0.098 (0.09)	0.072 (0.03)	0.134 (0.08)	0.221 (0.1)
JOPPA M.P. 952.3	0.223 (0.16)	0.252 (0.14)	0.256 (0.19)	0.096 (0.08)	0.089 (0.03)	0.116 (0.07)	0.094 (0.07)	0.122 (0.1)	0.087 (0.03)	0.116 (0.08)	0.104 (0.04)	0.241 (0.39)

IRON (ug/L)

LONG TERM AVERAGES (WITH STANDARD DEVIATION) OVER PERIOD OF RECORD FOR EACH MONITORING STATION BY MONTH

<u>STATION</u>	<u>JAN.</u>	<u>FEB.</u>	<u>MAR.</u>	<u>APR.</u>	<u>MAY</u>	<u>JUNE</u>	<u>JULY</u>	<u>AUG.</u>	<u>SEP.</u>	<u>OCT.</u>	<u>NOV.</u>	<u>DEC.</u>
SOUTH HEIGHTS M.P. 15.2	1707.27 (1441.01)	2761.82 (3088.03)	2233.64 (1389.13)	2898.18 (2606.48)	1115.45 (648.00)	1951.67 (2034.85)	2066.67 (1507.40)	1495.38 (1380.3)	710 (256.8)	1524.0 (1158.35)	1921.82 (2525.13)	3694.54 (4098.72)
EAST LIVERPOOL M.P. 40.2	4122.73 (5315.76)	4649.09 (4937.4)	5033.64 (4357.8)	4370.91 (3560.10)	875.45 (364.56)	2052.73 (1695.08)	2011.67 (1737.41)	1108.08 (1422.38)	1056.36 (1163.96)	2309.0 (2970.11)	3149.09 (3615.19)	4678.18 (3346.65)
HANNIBAL M.P. 126.4	1028.4 (280.43)	1811.4 (2562.01)	1504.0 (1114.24)	2178.0 (1590.86)	729 (409.84)	899.0 (624.28)	768.0 (493.6)	487.0 (182.09)	623.5 (492.65)	566.8 (357.73)	898.0 (1117.58)	1469.0 (857.34)
WILLOW ISLAND M.P. 161.8	1274.0 (637.93)	1753.64 (1771.76)	2069.09 (2866.86)	2674.54 (1752.64)	862.0 (546.66)	907.27 (498.92)	592.5 (281.98)	604.67 (272.11)	477.5 (278.11)	797.27 (686.84)	638.18 (255.57)	2835.64 (3006.43)
BELLEVILLE M.P. 203.9	1070.54 (484.16)	3047.64 (4455.93)	2135.45 (1983.40)	4784.54 (2458.69)	1347.73 (1314.28)	2433.64 (4953.16)	1632.33 (2540.77)	720.0 (368.41)	1127.31 (1089.36)	1436.36 (2308.00)	991.82 (995.89)	2553.64 (2265.66)
ADDISON M.P. 260.0	2540.0 (1795.91)	3526.0 (4189.64)	3896.0 (3979.47)	5870.0 (6053.72)	1563.45 (1393.40)	2257.27 (2520.38)	1969.17 (1517.66)	1115.0 (1009.12)	1044.17 (848.89)	1050.0 (854.24)	2672.73 (4342.34)	3006.36 (2016.64)
GALLIPOLIS M.P. 279.2	2317.5 (1621.01)	1956.36 (1518.68)	2830.0 (2424.12)	4158.0 (3675.47)	1613.64 (1258.74)	2089.09 (1661.85)	2085.33 (3276.36)	1265.0 (1256.84)	1080.0 (1906.58)	1485.09 (2172.44)	3118.18 (4241.76)	2968.18 (2461.78)
HUNTINGTON M.P. 306.9	2154.54 (2881.81)	1288.73 (1214.35)	2186.91 (4114.17)	3488.0 (4207.06)	1222.18 (1449.17)	2143.64 (3138.97)	958.18 (1328.55)	1077.78 (1806.11)	422.50 (377.89)	2688.18 (4653.73)	1890.45 (2908.28)	3210.91 (5502.90)
CINCINNATI M.P. 462.8	3264.17 (3733.52)	4747.27 (4339.48)	5550.0 (3306.28)	8090.0 (5410.0)	2387.27 (2250.75)	2081.91 (1701.36)	1870.0 (3083.85)	1021.67 (1004.36)	1272.73 (966.58)	1625.45 (1380.26)	317.27 (8911.89)	3553.64 (2393.09)
NORTH BEND M.P. 490.0	2611.67 (3126.0)	2505.0 (5711.45)	5423.0 (4096.13)	4810.0 (2971.63)	2203.0 (1854.44)	1788.64 (1211.66)	1199.09 (535.62)	1303.64 (937.03)	1150.83 (996.44)	1110.91 (699.98)	921.67 (362.49)	5397.27 (5333.9)
MARKLAND M.P. 531.5	2267.5 (2359.54)	5652.50 (5324.47)	4821.25 (4592.49)	6792.0 (12867.23)	1442.22 (1100.28)	1725.45 (2507.58)	1598.18 (1423.71)	931.67 (846.57)	748.33 (492.91)	947.79 (956.65)	735.45 (452.2)	2959.54 (3255.40)
LOUISVILLE M.P. 600.6	1954.54 (2112.24)	4908.18 (4720.97)	4088.18 (4442.29)	5464.0 (5151.36)	2282.0 (2475.97)	2716.00 (2815.03)	1152.18 (944.08)	540.0 (424.17)	355.46 (237.33)	1277.27 (1829.34)	945.45 (923.79)	5208.18 (4288.37)

IRON (cont.)

LONG TERM AVERAGES (WITH STANDARD DEVIATION) OVER PERIOD OF RECORD FOR EACH MONITORING STATION

<u>STATION</u>	<u>JAN.</u>	<u>FEB.</u>	<u>MAR.</u>	<u>APR.</u>	<u>MAY</u>	<u>JUNE</u>	<u>JULY</u>	<u>AUG.</u>	<u>SEP.</u>	<u>OCT.</u>	<u>NOV.</u>	<u>DEC.</u>
WEST POINT M.P. 625.9	3157.27 (3325.22)	5794.54 (5613.41)	5861.0 (5092.73)	7013.64 (3223.61)	4004.54 (4438.46)	4817.27 (6998.73)	1546.91 (608.16)	1063.64 (1017.39)	1224.55 (953.02)	1866.36 (1999.24)	2004.54 (1772.98)	6304.54 (5339.95)
CANNELTON M.P. 720.7	3279.09 (5218.15)	4297.27 (3846.9)	3963.64 (2407.32)	6698.18 (3483.5)	2066.5 (2498.10)	1605.0 (1616.53)	835.45 (531.80)	1050.0 (1556.95)	575.67 (345.88)	1234.0 (1649.6)	1700.0 (3493.8)	5397.27 (4998.89)
EVANSVILLE M.P. 791.5	5909.09 (4482.86)	6846.36 (4111.43)	11529.09 (9582.95)	7797.0 (4149.4)	5195.8 (4188.3)	3942.73 (2320.06)	2183.64 (1141.38)	3573.3 (8292.50)	1930.91 (1912.39)	4087.27 (4244.46)	3735.45 (6004.95)	6733.64 (4358.54)
UNIONTOWN M.P. 846.0	2505.45 (2049.2)	3977.30 (2863.1)	6450.91 (4031.09)	5423.64 (2215.45)	2364.54 (1798.94)	1641.82 (1039.75)	1641.82 (2256.63)	660.91 (359.43)	2826.36 (4758.35)	1659.09 (2093.85)	3756.36 (4878.68)	4412.73 (3828.82)
JOPPA M.P. 952.3	3659.09 (3025.13)	5385.45 (3849.58)	4545.45 (1605.9)	4248.18 (2249.69)	2826.36 (1265.85)	2518.18 (1078.10)	2434.54 (1448.86)	1400.0 (1211.5)	1040.0 (546.59)	1739.09 (1616.12)	2112.73 (1546.81)	4373.64 (2300.19)

NITRATE-NITRITE NITROGEN (mg/L)

LONG TERM AVERAGES (WITH STANDARD DEVIATION) OVER PERIOD OF RECORD FOR EACH MONITORING STATION BY MONTH

<u>STATION</u>	<u>JAN.</u>	<u>FEB.</u>	<u>MAR.</u>	<u>APR.</u>	<u>MAY</u>	<u>JUNE</u>	<u>JULY</u>	<u>AUG.</u>	<u>SEP.</u>	<u>OCT.</u>	<u>NOV.</u>	<u>DEC.</u>
SOUTH HEIGHTS M.P. 15.2	0.814 (0.15)	0.934 (0.19)	1.081 (0.44)	0.908 (0.25)	0.829 (0.23)	0.853 (0.33)	0.854 (0.30)	0.810 (0.24)	0.693 (0.27)	0.701 (0.18)	0.642 (0.16)	0.815 (0.18)
EAST LIVERPOOL M.P. 40.2	0.916 (0.17)	1.027 (0.15)	1.184 (0.42)	0.975 (0.16)	0.906 (0.30)	1.072 (0.28)	1.064 (0.37)	1.005 (0.20)	0.881 (0.27)	0.986 (0.37)	0.809 (0.18)	0.966 (0.38)
HANNIBAL M.P. 126.4	1.008 (0.13)	1.011 (0.29)	1.184 (0.41)	0.948 (0.14)	0.927 (0.21)	0.972 (0.22)	1.015 (0.19)	1.025 (0.31)	1.512 (1.9)	1.075 (0.39)	0.897 (0.21)	0.937 (0.16)
WILLOW ISLAND M.P. 161.8	0.925 (0.17)	1.010 (0.31)	1.148 (0.36)	0.915 (0.12)	0.920 (0.26)	0.968 (0.22)	0.995 (0.33)	1.029 (0.31)	1.016 (0.22)	1.089 (0.41)	0.893 (0.29)	0.887 (0.18)
BELLEVILLE M.P. 203.9	1.028 (0.23)	1.069 (0.44)	1.149 (0.15)	1.013 (0.13)	0.902 (0.24)	1.063 (0.29)	0.987 (0.26)	0.961 (0.31)	0.819 (0.29)	1.092 (0.40)	0.970 (0.28)	0.961 (0.38)
ADDISON M.P. 260.0	0.975 (0.20)	1.093 (0.21)	1.124 (0.19)	1.041 (0.14)	0.946 (0.25)	1.144 (0.19)	1.143 (0.33)	0.996 (0.31)	1.180 (0.74)	1.013 (0.32)	0.954 (0.28)	0.981 (0.21)
GALLIPOLIS M.P. 279.2	0.896 (0.18)	0.977 (0.24)	0.944 (0.15)	0.946 (0.15)	0.799 (0.18)	0.989 (0.23)	1.032 (0.27)	0.827 (0.26)	0.891 (0.31)	0.929 (0.39)	0.834 (0.25)	1.153 (0.85)
HUNTINGTON M.P. 306.9	0.901 (0.3)	0.792 (0.15)	0.925 (0.14)	0.886 (0.20)	0.725 (0.17)	0.947 (0.2)	0.991 (0.14)	0.834 (0.28)	0.903 (0.16)	0.894 (0.35)	0.844 (0.28)	0.727 (0.22)
CINCINNATI M.P. 462.8	0.908 (0.34)	1.030 (0.20)	1.290 (0.27)	1.136 (0.19)	1.056 (0.62)	1.073 (0.37)	1.083 (0.37)	0.954 (0.22)	0.950 (0.33)	0.858 (0.35)	0.934 (0.36)	0.930 (0.32)
NORTH BEND M.P. 490.0	1.120 (0.28)	1.217 (0.21)	1.246 (0.13)	1.191 (0.23)	1.105 (0.31)	1.255 (0.40)	1.485 (0.90)	1.122 (0.18)	0.993 (0.22)	1.042 (0.29)	1.081 (0.44)	1.115 (0.32)
MARKLAND M.P. 531.5	1.276 (0.48)	1.217 (0.25)	1.462 (0.31)	1.342 (0.35)	1.125 (0.31)	1.334 (0.46)	1.491 (0.35)	1.179 (0.14)	1.002 (0.33)	1.152 (0.33)	1.266 (0.80)	1.145 (0.31)
LOUISVILLE M.P. 600.6	1.232 (0.31)	1.292 (0.32)	1.439 (0.63)	1.299 (0.21)	1.184 (0.33)	1.366 (0.42)	1.373 (0.38)	1.126 (0.21)	0.98 (0.32)	1.169 (0.18)	1.157 (0.38)	1.209 (0.31)

NITRATE-NITRITE NITROGEN (cont.)

LONG TERM AVERAGES (WITH STANDARD DEVIATION) OVER PERIOD OF RECORD FOR EACH MONITORING STATION

<u>STATION</u>	<u>JAN.</u>	<u>FEB.</u>	<u>MAR.</u>	<u>APR.</u>	<u>MAY</u>	<u>JUNE</u>	<u>JULY</u>	<u>AUG.</u>	<u>SEP.</u>	<u>OCT.</u>	<u>NOV.</u>	<u>DEC.</u>
WEST POINT M.P. 625.9	1.208 (0.26)	1.253 (0.31)	1.322 (0.23)	1.301 (0.20)	1.234 (0.34)	1.421 (0.41)	1.409 (0.33)	1.214 (0.20)	1.092 (0.16)	1.158 (0.14)	1.191 (0.46)	1.164 (0.39)
CANNELTON M.P. 720.7	1.171 (0.3)	1.15 (0.2)	1.404 (0.23)	1.184 (0.17)	1.127 (0.4)	1.289 (0.26)	1.379 (0.22)	1.225 (0.17)	1.158 (0.25)	1.11 (0.26)	1.078 (0.42)	1.124 (0.35)
EVANSVILLE M.P. 791.5	1.203 (0.29)	1.097 (0.25)	1.758 (1.71)	1.208 (0.19)	1.289 (0.34)	1.426 (0.38)	1.284 (0.24)	1.178 (0.19)	1.045 (0.24)	1.197 (0.20)	1.134 (0.20)	1.237 (0.45)
UNIONTOWN M.P. 846.0	1.300 (0.48)	1.600 (1.03)	1.803 (1.41)	1.26 (0.22)	1.188 (0.35)	1.275 (0.30)	1.321 (0.30)	1.173 (0.199)	1.095 (0.483)	1.130 (0.23)	1.112 (0.50)	1.387 (0.81)
JOPPA M.P. 952.3	1.729 (0.89)	1.468 (0.40)	1.619 (0.41)	1.749 (0.40)	1.521 (0.50)	1.669 (0.97)	1.608 (0.61)	1.009 (0.53)	0.769 (0.66)	0.911 (0.44)	1.072 (0.26)	1.404 (0.67)

TOTAL KJELDAHL NITROGEN (mg/l)

LONG TERM AVERAGES (WITH STANDARD DEVIATION) OVER PERIOD OF RECORD FOR EACH MONITORING STATION BY MONTH

<u>STATION</u>	<u>JAN.</u>	<u>FEB.</u>	<u>MAR.</u>	<u>APR.</u>	<u>MAY</u>	<u>JUNE</u>	<u>JULY</u>	<u>AUG.</u>	<u>SEP.</u>	<u>OCT.</u>	<u>NOV.</u>	<u>DEC.</u>
SOUTH HEIGHTS M.P. 15.2	0.774 (0.39)	1.199 (1.07)	0.921 (0.71)	1.092 (1.59)	0.762 (0.38)	0.785 (0.4)	0.844 (0.36)	0.965 (0.39)	0.755 (0.28)	1.071 (0.70)	1.073 (0.82)	0.855 (0.47)
EAST LIVERPOOL M.P. 40.2	1.173 (0.50)	1.454 (1.02)	1.155 (0.72)	1.127 (1.62)	0.786 (0.37)	0.769 (0.38)	1.211 (1.45)	1.011 (0.66)	0.841 (0.28)	1.191 (0.77)	1.154 (0.77)	0.969 (0.50)
HANNIBAL M.P. 126.4	0.785 (0.26)	0.851 (0.34)	0.615 (0.27)	0.612 (0.25)	0.501 (0.20)	0.625 (0.18)	0.525 (0.14)	0.606 (0.21)	0.632 (0.28)	0.701 (0.43)	0.617 (0.18)	0.609 (0.24)
WILLOW ISLAND M.P. 161.8	1.13 (0.78)	1.571 (1.33)	1.152 (1.03)	0.834 (0.5)	0.625 (0.32)	0.617 (0.24)	0.857 (0.63)	0.779 (0.39)	0.894 (0.66)	0.794 (0.44)	0.897 (0.44)	0.831 (0.42)
BELLEVILLE M.P. 203.9	1.187 (0.77)	1.400 (1.01)	1.089 (0.86)	0.901 (0.45)	0.808 (0.41)	0.786 (0.37)	0.977 (0.65)	0.876 (0.72)	0.777 (0.43)	0.867 (0.51)	0.941 (0.47)	0.765 (0.24)
ADDISON M.P. 260.0	1.137 (0.71)	1.263 (1.18)	1.153 (0.89)	0.900 (0.73)	0.971 (0.54)	0.747 (0.47)	0.68 (0.31)	0.903 (0.64)	0.816 (0.56)	0.743 (0.52)	0.82 (0.52)	0.788 (0.29)
GALLIPOLIS M.P. 279.2	1.102 (0.7)	1.232 (1.24)	1.042 (0.91)	0.856 (0.58)	0.841 (0.51)	0.751 (0.57)	0.765 (0.68)	0.788 (0.44)	0.845 (0.50)	0.633 (0.35)	0.873 (0.53)	0.832 (0.30)
HUNTINGTON M.P. 306.9	0.677 (0.52)	0.857 (1.665)	0.762 (0.81)	1.181 (1.67)	0.671 (0.47)	0.681 (0.48)	0.541 (0.34)	0.724 (0.61)	0.511 (0.24)	0.694 (0.57)	0.764 (0.53)	0.644 (0.37)
CINCINNATI M.P. 462.8	1.118 (0.25)	0.793 (0.78)	1.63 (0.93)	1.27 (0.95)	0.756 (0.37)	0.59 (0.31)	0.641 (0.36)	0.713 (0.4)	0.560 (0.24)	0.671 (0.3)	0.715 (0.51)	1.025 (0.30)
NORTH BEND M.P. 490.0	0.992 (0.29)	1.17 (0.61)	1.751 (0.99)	1.373 (1.77)	0.758 (0.421)	0.731 (0.38)	0.718 (0.32)	0.771 (0.34)	0.828 (0.33)	0.911 (0.53)	0.921 (0.76)	0.907 (0.39)
MARKLAND M.P. 531.5	1.056 (0.44)	1.841 (2.84)	1.615 (1.22)	1.523 (2.18)	0.745 (0.58)	0.681 (0.39)	0.734 (0.23)	0.816 (0.42)	0.677 (0.37)	0.819 (0.53)	0.956 (0.57)	0.883 (0.28)
LOUISVILLE M.P. 600.6	0.539 (0.25)	0.908 (0.49)	0.724 (0.30)	0.796 (0.63)	0.459 (0.19)	0.497 (0.30)	0.515 (0.35)	0.472 (0.17)	0.408 (0.24)	0.561 (0.27)	0.48 (0.18)	0.759 (0.33)

TOTAL KJELDAHL NITROGEN (cont.)

LONG TERM AVERAGES (WITH STANDARD DEVIATIONS) OVER PERIOD OF RECORD FOR EACH MONITORING STATION BY MONTH

<u>STATION</u>	<u>JAN.</u>	<u>FEB.</u>	<u>MAR.</u>	<u>APR.</u>	<u>MAY</u>	<u>JUNE</u>	<u>JULY</u>	<u>AUG.</u>	<u>SEP.</u>	<u>OCT.</u>	<u>NOV.</u>	<u>DEC.</u>
WEST POINT M.P. 625.9	0.992 (0.26)	1.125 (0.53)	1.305 (1.01)	0.881 (0.64)	0.739 (0.30)	0.765 (0.53)	0.808 (0.29)	0.706 (0.27)	0.918 (0.63)	0.809 (0.34)	0.815 (0.31)	1.16 (0.44)
CANNELTON M.P. 720.7	1.113 (0.782)	1.104 (0.42)	0.785 (0.36)	0.83 (0.43)	0.492 (0.22)	0.526 (0.33)	0.446 (0.16)	0.429 (0.22)	0.648 (0.36)	0.483 (0.20)	0.474 (0.19)	0.766 (0.28)
EVANSVILLE M.P. 791.5	0.79 (0.27)	1.189 (0.74)	1.523 (2.085)	0.739 (0.35)	0.737 (0.51)	0.824 (1.027)	0.448 (0.218)	0.566 (0.361)	0.559 (0.344)	0.576 (0.294)	0.606 (0.348)	0.93 (0.358)
UNIONTOWN M.P. 846.0	0.606 (0.22)	1.117 (0.80)	0.937 (0.31)	0.69 (0.47)	0.621 (0.29)	0.443 (0.19)	0.461 (0.20)	0.534 (0.20)	0.694 (0.40)	0.513 (0.21)	0.588 (0.19)	0.764 (0.21)
JOPPA M.P. 952.3	0.647 (0.32)	0.847 (0.37)	0.86 (0.33)	0.599 (0.32)	1.019 (1.83)	0.584 (0.30)	0.545 (0.19)	0.564 (0.30)	0.596 (0.25)	0.532 (0.2)	0.541 (0.22)	0.889 (0.37)

MANGANESE (ug/l)

LONG TERM AVERAGES (WITH STANDARD DEVIATION) OVER PERIOD OF RECORD FOR EACH MONITORING STATION BY MONTH

<u>STATION</u>	<u>JAN.</u>	<u>FEB.</u>	<u>MAR.</u>	<u>APR.</u>	<u>MAY</u>	<u>JUNE</u>	<u>JULY</u>	<u>AUG.</u>	<u>SEP.</u>	<u>OCT.</u>	<u>NOV.</u>	<u>DEC.</u>
SOUTH HEIGHTS M.P. 15.2	414.2 (64.09)	401.2 (64.09)	386.4 (146.04)	395.11 (129.88)	344.67 (83.30)	311.67 (80.69)	401.64 (127.02)	382.57 (299.66)	273.0 (140.73)	326.4 (216.14)	394.29 (122.32)	445.0 (266.81)
EAST LIVERPOOL M.P. 40.2	585.45 (440.13)	404.80 (58.75)	444.0 (185.82)	446.44 (201.51)	283.67 (101.75)	456.33 (556.8)	404.83 (282.57)	259.43 (172.88)	151.43 (43.89)	468.6 (570.48)	610.0 (570.35)	447.0 (233.14)
HANNIBAL M.P. 126.4	307.2 (81.75)	341.0 (84.01)	323.50 (102.94)	329.6 (107.24)	811.6 (1449.78)	180.67 (89.27)	152.5 (103.91)	102.33 (59.12)	86.00 (23.26)	120.67 (95.67)	211.0 (104.95)	233.2 (103.3)
WILLOW ISLAND M.P. 161.8	310.67 (73.07)	390.0 (69.96)	350.8 (104.04)	346.91 (98.84)	296.0 (1221.65)	174.57 (101.04)	117.5 (70.32)	169.0 (156.70)	61.56 (27.53)	175.8 (196.56)	191.43 (134.53)	364.67 (140.52)
BELLEVILLE M.P. 203.9	314.18 (92.07)	403.2 (123.86)	374.4 (141.44)	452.73 (124.99)	670.33 (860.44)	183.67 (73.5)	134.55 (84.04)	179.71 (121.18)	146.0 (108.99)	184.0 (188.95)	253.1 (84.4)	372.67 (141.32)
ADDISON M.P. 260.0	404.17 (105.31)	590.8 (379.06)	486.0 (315.16)	662.6 (848.49)	174.0 (149.5)	159.67 (71.29)	249.45 (231.19)	191.14 (121.03)	124.5 (55.02)	149.2 (75.26)	323.14 (311.30)	434.3 (275.6)
GALLIPOLIS M.P. 279.2	386.0 (235.74)	339.2 (110.77)	265.0 (197.16)	349.6 (216.79)	153.33 (92.31)	222.0 (201.32)	211.45 (350.52)	144.0 (57.43)	146.89 (173.37)	196.0 (183.44)	378.0 (281.48)	515.14 (391.36)
HUNTINGTON M.P. 306.9	242.80 (187.75)	179.5 (167.81)	200.0 (370.88)	271.64 (308.12)	144.0 (154.97)	164.67 (142.23)	122.40 (114.12)	216.83 (323.11)	71.00 (50.81)	235.8 (298.94)	302.0 (219.76)	469.67 (693.84)
CINCINNATI M.P. 462.8	349.0 (301.89)	381.20 (93.95)	512.80 (229.85)	535.27 (400.53)	221.43 (129.87)	89.67 (20.88)	155.8 (192.12)	86.67 (43.0)	155.0 (92.03)	191.45 (230.25)	557.67 (1167.31)	304.80 (411.15)
NORTH BEND M.P. 490.0	245.00 (143.96)	310.0 (248.33)	434.5 (238.22)	336.36 (258.89)	154.67 (49.21)	134.40 (38.19)	102.54 (37.06)	115.83 (42.13)	97.20 (18.09)	121.64 (55.00)	118.33 (70.54)	694.14 (634.42)
MARKLAND M.P. 531.5	213.64 (137.21)	314.00 (246.0)	164.0 (113.14)	423.40 (689.78)	88.80 (16.65)	98.00 (20.04)	184.36 (353.76)	196.0 (168.17)	93.2 (30.12)	81.56 (24.53)	113.17 (53.76)	323.33 (282.89)
LOUISVILLE M.P. 600.6	163.00 (89.36)	252.60 (197.81)	410.40 (458.88)	316.91 (199.29)	158.67 (165.23)	56.35 (35.19)	77.45 (27.94)	49.20 (19.57)	64.67 (61.91)	157.64 (264.92)	113.80 (69.12)	479.33 (216.91)

MANGANESE (cont.)

LONG TERM AVERAGES (WITH STANDARD DEVIATIONS) OVER PERIOD OF RECORD FOR EACH MONITORING STATION BY MONTH

<u>STATION</u>	<u>JAN.</u>	<u>FEB.</u>	<u>MAR.</u>	<u>APR.</u>	<u>MAY</u>	<u>JUNE</u>	<u>JULY</u>	<u>AUG.</u>	<u>SEP.</u>	<u>OCT.</u>	<u>NOV.</u>	<u>DEC.</u>
WEST POINT M.P. 625.9	277.70 (206.33)	300.80 (245.46)	578.5 (561.46)	392.73 (153.16)	253.33 (139.63)	483.20 (758.63)	147.18 (49.9)	105.0 (38.42)	131.0 (90.76)	188.54 (229.02)	188.60 (94.75)	621.67 (406.37)
CANNELTON M.P. 720.7	246.91 (334.41)	290.00 (242.38)	212.00 (165.74)	348.45 (195.73)	108.33 (73.87)	57.6 (14.17)	70.20 (30.63)	48.67 (20.92)	64.50 (20.84)	107.80 (162.45)	251.25 (379.48)	373.0 (316.54)
EVANSVILLE M.P. 791.5	526.18 (323.91)	437.2 (249.55)	653.20 (378.84)	431.1 (184.63)	350.40 (109.18)	252.67 (128.88)	234.18 (206.6)	123.43 (66.79)	185.17 (199.77)	332.91 (251.63)	599.00 (821.13)	491.43 (384.15)
UNIONTOWN M.P. 846.0	189.60 (103.72)	242.2 (120.7)	480.0 (111.13)	332.36 (117.53)	127.6 (91.55)	100.50 (39.23)	105.00 (116.43)	47.67 (18.99)	73.5 (56.05)	154.55 (187.28)	540.0 (475.39)	325.6 (262.27)
JOPPA M.P. 952.3	219.73 (140.61)	237.20 (165.56)	252.00 (104.50)	216.73 (84.46)	172.80 (47.53)	157.20 (51.86)	150.64 (69.43)	100.00 (29.64)	96.33 (25.47)	123.09 (71.54)	188.0 (137.0)	296.60 (176.97)

SECTION V:

ADDITIONAL INFORMATION SOURCES

There are many state and federal agencies involved in the regulation and preservation of the Ohio River. While this book is meant to be a summary of all water quality information available, additional information may be required in some situations. The following summary of state and federal agencies is to aid the reader in obtaining the necessary information.

The directory of state water pollution control agencies includes the local office address with a list of counties served by each office. The list of U.S. EPA regional offices includes their address and a list of states in each region. These water pollution control agencies are basically responsible for pollution monitoring, permitting and emergency response in a spill event for the Ohio River basin.

Additional names and addresses of other federal agencies includes U.S. Fish and Wildlife, U.S. Army Corps of Engineers, U.S. Geological Survey, and the U.S. Coast Guard.

Daily flow data and water quality data can be accessed electronically through ORSANCO's bulletin board. This board, originally designed for use during spill events, is maintained by the Commission on a daily basis. The telephone number and information on bulletin board use can be obtained from the Commission office.

The Commission has several other publications available through the Commission office. A list of these publications is included in this section.

STATE OF ILLINOIS
ENVIRONMENTAL PROTECTION AGENCY
Division of Water Pollution Control
2200 Churchill Road
Springfield, Illinois 62706
(217) 782-1654

Champaign Office
2125 South First Street
Champaign, Illinois 61820
217-333-8361

Marion Office
2209 West Main Street
Marion, Illinois 62959
618-997-4371

<u>County</u>	<u>River Basin</u>
Champaign	Wabash
Clark	Wabash
Coles	Wabash
Crawford	Wabash
Cumberland	Wabash
Douglas	Wabash
Edgar	Wabash
Effingham	Wabash
Ford	Wabash
Iroquois	Wabash
Jasper	Wabash
Livingston	Wabash
Moultrie	Wabash
Shelby	Wabash
Vermillion	Wabash

Collinsville Office
2009 Mall Street
Collinsville, Illinois 62234
618-345-6220

<u>County</u>	<u>River Basin</u>
Marion	Wabash

<u>County</u>	<u>River Basin</u>
Alexander	Ohio
Clay	Wabash
Edwards	Wabash
Fayette	Wabash
Gallatin	Ohio
Hamilton	Wabash
Hardin	Ohio
Jefferson	Wabash
Johnson	Ohio
Lawrence	Wabash
Massac	Ohio
Pope	Ohio
Pulaski	Ohio
Richland	Wabash
Saline	Ohio
Union	Ohio
Wabash	Wabash
Wayne	Wabash
White	Wabash
Williamson	Ohio

STATE OF INDIANA
 STREAM POLLUTION CONTROL BOARD
 State Board of Health
 1330 West Michigan Street
 Indianapolis, Indiana 46206
 (317) 633-0795

<u>County</u>	<u>County</u>	<u>County</u>
P Adams	Jay	Tipton
P Allen	Jefferson	Union
Bartholomew	Jennings	Vanderburgh
P Benton	Johnson	Vermillion
Blackford	Knox	Virgo
Boone	P Kosciusko	Wabash
Brown	Lawrence	Warren
Carroll	Madison	Warrick
Cass	Marion	Washington
Clark	P Marshall	Wayne
Clay	Martin	P Wells
Clinton	Miami	P White
Crawford	Monroe	Whitley
Daviess	Montgomery	
Dearborn	Morgan	
Decatur	P Nobel	
Delaware	Ohio	
Dubois	Orange	
Fayette	Owen	
Floyd	Parke	
Fountain	Perry	
Franklin	Pike	
Fulton	Posey	
Gibson	P Pulaski	
Grant	Putnam	
Greene	Randolph	
Hamilton	Ripley	
Hancock	Rush	
Harrison	Scott	
Hendricks	Shelby	
Henry	Spencer	
Howard	P Starke	P-Partially within
Huntington	Sullivan	the Ohio River
Jackson	Switzerland	Basin
P Jasper	Tippecanoe	

COMMONWEALTH OF KENTUCKY
NATURAL RESOURCES AND ENVIRONMENTAL PROTECTION CABINET
Division of Water Quality
18 Reilly Road
Frankfort, Kentucky 40601
(502) 564-3410

Bowling Green District Office
1508 Western Avenue
Bowling Green, Kentucky 42101
502-843-5475

Florence District Office
7964 Kentucky Drive, Suite 8
Florence, Kentucky 41042
606-371-0598

<u>County</u>	<u>River Basin</u>
Allen	Green
Barren	Green
Butler	Green
Edmondson	Green
Hart	Green
Logan	Green
Metcalfe	Green
Monroe	Green
Simpson	Green
Warren	Green

<u>County</u>	<u>River Basin</u>
Boone	Ohio
Campbell	Licking
Carroll	Kentucky
Gallatin	Ohio
Grant	Licking
Kenton	Licking
Owen	Kentucky
Pendleton	Licking

Columbia District Office
P.O. Box 353
Columbia, Kentucky 42728
502-384-4734

Frankfort District Office
18 Reilly Road
Frankfort, Kentucky 40601
502-564-3410

<u>County</u>	<u>River Basin</u>
Adair	Green
Boyle	Ohio
Casey	Green
Clinton	Cumberland
Cumberland	Cumberland
Garrard	Kentucky
Green	Green
Hardin	Green
LaRue	Green
Lincoln	Kentucky
Marion	Ohio
Nelson	Ohio
Pulaski	Cumberland
Russell	Cumberland
Taylor	Green
Washington	Ohio
Wayne	Cumberland

<u>County</u>	<u>River Basin</u>
Anderson	Ohio
Bourbon	Licking
Bullitt	Ohio
Clark	Licking
Fayette	Kentucky
Franklin	Kentucky
Harrison	Licking
Henry	Kentucky
Jefferson	Ohio
Jessamine	Kentucky
Madison	Kentucky
Mercer	Ohio
Nicholas	Licking
Oldham	Ohio
Scott	Kentucky
Shelby	Ohio
Spencer	Ohio
Trimble	Ohio
Woodford	Kentucky

COMMONWEALTH OF KENTUCKY
NATURAL RESOURCES AND ENVIRONMENTAL PROTECTION CABINET
Division of Water Quality
(Continued)

Hazard District Office
213 Lovern Street
Hazard, Kentucky 41701
606-439-2391

<u>County</u>	<u>River Basin</u>
Breathitt	Kentucky
Estill	Kentucky
Floyd	Big Sandy
Johnson	Big Sandy
Knott	Kentucky
Lee	Kentucky
Letcher	Kentucky
Margoffin	Licking
Martin	Big Sandy
Perry	Kentucky
Pike	Big Sandy
Powell	Kentucky
Wolf	Kentucky

London District Office
Regional State Office Bldg., Rm. 343
London, Kentucky 40741
606-878-0610 Ext. 303

<u>County</u>	<u>River Basin</u>
Bell	Cumberland
Clay	Kentucky
Harlan	Cumberland
Jackson	Kentucky
Knox	Cumberland
Laurel	Cumberland
Leslie	Kentucky
McCreary	Cumberland
Owlsley	Kentucky
Rockcastle	Cumberland
Whitley	Cumberland

Madisonville District Office
800 N. Laffoon Street
Madisonville, Kentucky 42421
502-825-6529

<u>County</u>	<u>River Basin</u>
Breckinridge	Ohio
Caldwell	Ohio
Christian	

Madisonville District Office
(Cont.)

<u>County</u>	<u>River Basin</u>
Cumberland	
Crittenden	Ohio
Daviess	Green
Grayson	Green
Hancock	Ohio
Henderson	Ohio
Hopkins	Ohio
Livingston	Ohio
Lyon	Cumberland
McLean	Green
Meade	Ohio
Muhlenburg	Green
Ohio	Green
Todd	Cumberland
Union	Ohio
Webster	Ohio
Trigg	Ohio

Morehead District Office
Mabry Bldg., Ky. 32 South
Morehead, Kentucky 40351
606-784-6635

<u>County</u>	<u>River Basin</u>
Bath	Licking
Boyd	Licking
Bracken	Ohio
Carter	Ohio
Elliott	Ohio
Fleming	Licking
Greenup	Ohio
Lawrence	Big Sandy
Lewis	Ohio
Mason	Ohio
Menifee	Licking
Montgomery	Licking
Morgan	Licking
Robertson	Licking
Rowan	Licking

COMMONWEALTH OF KENTUCKY
NATURAL RESOURCES AND ENVIRONMENTAL PROTECTION CABINET
Division of Water Quality
(Continued)

Paducah District Office
1390 Irvin Cobb Drive
Paducah, Kentucky 42001
502-444-8298

<u>County</u>	<u>River Basin</u>
Ballard	Ohio
Calloway	Ohio
Carlisle	Ohio
Fulton	Ohio
Graves	Ohio
Hickman	Ohio
Marshall	Ohio
McCracken	Ohio

STATE OF OHIO
ENVIRONMENTAL OF PROTECTION AGENCY
Division of Water Pollution Control
P. O. Box 1049, 1800 Watermark Drive
Columbus, Ohio 43266-0149
(614) 644-2001

Central District
1800 Watermark Drive
P. O. Box 1049
Columbus, Ohio 43266-0149
614-644-2055

Southeast District
2195 Front Street
Logan, Ohio 43138
614-385-8501

<u>County</u>	<u>River Basin</u>	<u>County</u>	<u>River Basin</u>
Delaware	Scioto	Adams	Ohio
Fairfield	Ohio	Athens	Ohio
Fayette	Scioto	Belmont	Ohio
Franklin	Scioto	Coshocton	Muskingum
Knox	Muskingum	Gallia	Ohio
Licking	Muskingum	Guernsey	Muskingum
Madison	Scioto	Harrison	Muskingum
Pickaway	Scioto	Hocking	Ohio
Union	Scioto	Jackson	Ohio
		Jefferson	Ohio
		Lawrence	Ohio
		Meigs	Ohio
		Monroe	Ohio
		Morgan	Muskingum
		Muskingum	Muskingum
		Noble	Ohio
		Perry	Muskingum
		Pike	Scioto
		Ross	Scioto
		Tuscarawas	Muskingum
		Vinton	Ohio
		Washington	Ohio

Northeast District
2100 East Aurora Road
Twinsburg, Ohio 44807
216-425-9171

<u>County</u>	<u>River Basin</u>
Carroll	Muskingum
Columbiana	Ohio
Holmes	Muskingum
Mahoning	Ohio
Medina	Muskingum
Portage	Ohio
Stark	Muskingum
Trumbull	Ohio
Wayne	Muskingum

Southwest District
7 East Fourth Street
Dayton, Ohio 45402
513-449-6357

Northwest District
1035 Devlac Grove Drive
Bowling Green, Ohio 43402
419-352-8461

<u>County</u>	<u>River Basin</u>	<u>County</u>	<u>River Basin</u>
Ashland	Muskingum	Brown	Ohio
Auglaize	Great Miami	Butler	Great Miami
Crawford	Scioto	Champaign	Great Miami
Hardin	Scioto	Clark	Great Miami
Marion	Scioto	Clermont	Little Miami
Mercer	Wabash	Clinton	Little Miami
Richland	Muskingum	Darke	Great Miami
		Greene	Little Miami
		Hamilton	Ohio
		Highland	Little Miami
		Logan	Great Miami

STATE OF OHIO
ENVIRONMENTAL PROTECTION AGENCY
(Continued)

Southwest District
(Cont.)

<u>County</u>	<u>River Basin</u>
Montgomery	Great Miami
Miami	Great Miami
Preble	Great Miami
Shlby	Great Miami
Warren	Great Miami

STATE OF NEW YORK
DEPARTMENT OF ENVIRONMENTAL CONSERVATION
Division of Water
50 Wolf Road
Albany, New York 12233
(518) 457-6674

Buffalo Regional Office
600 Delaware Avenue
Buffalo, New York 14202
716-847-4590

<u>County</u>	<u>River Basin</u>
Chautauqua	Allegheny
Cattaraugus	Allegheny
Allegheny	Allegheny

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL RESOURCES
Bureau of Water Quality Management
P.O. Box 2063
Harrisburg, Pennsylvania 17120
(717) 787-2666

Pittsburgh Regional Office
121 South Highland Mall
Pittsburgh, Pennsylvania 15206
412-645-7100

<u>County</u>	<u>River Basin</u>
Allegheny	Ohio
Armstrong	Allegheny
Beaver	Ohio
Cambria	Allegheny
Fayette	Monongahela
Greene	Monongahela
Indiana	Allegheny
Somerset	Monongahela
Washington	Ohio
Westmoreland	Monongahela

Meadville Regional Office
1012 Water Street
Meadville, Pennsylvania 16335
814-724-8557

<u>County</u>	<u>River Basin</u>
Butler	Ohio
Clarion	Allegheny
Crawford	Allegheny
Elk	Allegheny
Erie	Allegheny
Forest	Allegheny
Jefferson	Allegheny
Lawrence	Ohio
McKean	Allegheny
Mercer	Ohio
Potter	Allegheny
Venango	Allegheny
Warren	Allegheny

COMMONWEALTH OF VIRGINIA
STATE WATER CONTROL BOARD
P.O. BOX 11143
Richmond, Virginia 63230
(804) 257-6383

Abingdon Office
P.O. Box 888
Abingdon, Virginia 24210
703-628-5183

Roanoke Office
5312 Peters Creek Road
Roanoke, Virginia 24019
703-982-7432

<u>County</u>	<u>River Basin</u>	<u>County</u>	<u>River Basin</u>
Bland	Kanawha	Craig	Kanawha
Buchanan	Big Sandy	Floyd	Kanawha
Carroll	Kanawha	Giles	Kanawha
Dickenson	Big Sandy	Montgomery	Kanawha
Grayson	Kanawha	Pulaski	Kanawha
Lee	Big Sandy		
Russell	Big Sandy		
Scott	Big Sandy		
Smyth	Kanawha		
Tazewell	Kanawha		
Washington	Big Sandy		
Wythe	Kanawha		

STATE OF WEST VIRGINIA
DEPARTMENT OF NATURAL RESOURCES
DIVISION OF WATER RESOURCES
1201 Greenbrier Street
Charleston, West Virginia 25311
(304) 348-2107

District 1
1304 Goose Run Road
Fairmont, West Virginia 26554
304-366-5880

<u>County</u>	<u>River Basin</u>
Barbour	Monongahela
Brooke	Ohio
Hancock	Ohio
Harrison	Monongahela
Marion	Monongahela
Marshall	Ohio
Monongahela	Monongahela
Ohio	Ohio
Preston	Monongahela
Taylor	Monongahela
Tucker	Monongahela
Wetzel	Ohio

District 3
Post Office Box 38
French Creek, West Virginia 26218
304-924-6211

<u>County</u>	<u>River Basin</u>
Braxton	Ohio
Clay	Kanawha
Lewis	Monongahela
Nicholas	Kanawha
Pocahontas	Kanawha
Randolph	Monongahela
Upshur	Monongahela
Webster	Kanawha

District 4
General Delivery
McArthur, West Virginia 25873
304-256-6850

<u>County</u>	<u>River Basin</u>
Fayette	Kanawha
Greenbrier	Kanawha
McDowell	Guyandotte
Mercer	Kanawha
Monroe	Kanawha
Raleigh	Kanawha

District 4 (continued)

<u>County</u>	<u>River Basin</u>
Summers	Kanawha
Wyoming	Guyandotte

District 5
694 Winfield Road
St. Albans, West Virginia 25177
304-755-9141

<u>County</u>	<u>River Basin</u>
Boone	Kanawha
Cabell	Ohio
Kanawha	Kanawha
Lincoln	Guyandotte
Logan	Guyandotte
Mason	Ohio
Mingo	Guyandotte
Putnam	Kanawha
Wayne	Ohio

District 6
6321 Emerson Avenue
Parkersburg, West Virginia 26101
304-420-4550

<u>County</u>	<u>River Basin</u>
Calhoun	Ohio
Doddridge	Ohio
Gilmer	Ohio
Jackson	Ohio
Pleasants	Ohio
Ritchie	Ohio
Roane	Ohio
Tyler	Ohio
Wirt	Ohio
Wood	Ohio

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Illinois
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Bloomington, Indiana 47401
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State College, Pennsylvania 16861
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Elkins, West Virginia 26241
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Forbes Avenue and Stanwix Building
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Huntington, West Virginia 25725
304-529-5524

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Louisville, Kentucky 40201
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P.O. Box 7509
Paducah, Kentucky 42001
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ORSANCO PUBLICATIONS
AVAILABLE THROUGH THE COMMISSION OFFICE

Analysis of Fundamentals of Acid Mine Drainage: A Basis for Future Investigations. 1961.

Annual Reports. 1948 through 1987

Aquatic-Life Resources of the Ohio River. 1962

Assessment of Nonpoint Sources of Pollutants. 1976

*Assessment of Water Quality Conditions: Ohio River Mainstem 1978-9. 1980 (\$5.00)
NTIS Accession No. PB81110397

*Assessment of Water Quality Conditions: Ohio River Mainstem 1980-81. 1982 (\$6.00)

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*Assessment of Water Quality Conditions: Ohio River Mainstem 1986-87. 1988 (\$5.00)

Bacterial Quality Objectives for the Ohio River. 1951

Brine Contamination in the Muskingum River. 1951

Clean Streams for the Ohio Valley. (undated) (loan copies only)

*Disposal of Spent Sulfate Pickling Solutions. 1952 (loan copy only)

*Dust Recovery Practice at Blast Furnaces. 1958 (\$1.00)

*Early-Warning Organics Detection System, Final Report (EWODS). 1981 (\$7.50)

Emergency Response Directory. 19887 (Updated every six months)

*Evaluation of the Ohio Valley Region Basal Sandstone as a Wastewater Injection Interval. 1976 (loan copy only)

Executive Summary, Assessment of Water Quality Conditions: Ohio River Mainstem 1984-85. 1986

*Fishes of the Ohio River: Testimony to Clean Water. 1983 (\$4.00)

*Groundwater Report, A Primer 1985 - (\$5.00)

*There are charges for these publications

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Room 301, 75 High Street
Morgantown, West Virginia 26505
304-291-4151

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Annual Reports. 1948 through 1987

Aquatic-Life Resources of the Ohio River. 1962

Assessment of Nonpoint Sources of Pollutants. 1976

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*Fishes of the Ohio River: Testimony to Clean Water. 1983 (\$4.00)

*Groundwater Report, A Primer 1985 - (\$5.00)

*There are charges for these publications

Guidelines for Prevention Control, and Reporting of Chemical Spills at an Industrial Facility. 1978

How to Get Sewage Treatment Works in Ohio. 1952

In Progress - Newsletter on Energy Facilities Study, Summer, Fall, 1981; Spring, 1982.

Land Use and Hydrologic Impacts on Water Quality: Ohio River Basin. 1980
NTIS Accession No. PB80156102

*Methods for Treating Metal Finishing Wastes. 1953 (loan copy only)

**Model State Program for Control and Prevention of Water Pollution from Coal Preparation Plants and Refuse Disposal Areas. 1979

**Model State Program for Control and Prevention of Water Pollution from Surface Mines. 1978

**Model State Program for Control and Prevention of Water Pollution from Underground Mines. 1978

Monongahela River Sewage Treatment Considerations. 1959

Multiple-Purpose Reservoirs and Pollution Control Benefits. 1951

Ohio River Main Stem: Assessment of 1974 (1975, 1976, 1977) and Future Water Quality Conditions. 1975 (1976, 1977, 1978)

Ohio River Pollution-Abatement Needs: Cincinnati Pool. 1949

Ohio River Pollution Abatement Needs--Cincinnati to Cairo Stretch. 1953

Ohio River Pollution Abatement Needs-Huntington to Cincinnati Stretch. 1952

Ohio River Pollution Abatement Needs--Pittsburgh to Huntington Stretch. 1953

Ohio River Pollution Patterns--1950. 1951 (loan copies only)

Ohio River: Recommended Pollution Control Standards--Pittsburgh to Cairo Point. 1970

*Ohio River Valley Fish Population Data 1968-1980. 1981 (\$3.50)

Ohio River Valley Water Sanitation Compact. 1948

ORSANCO Outlook. 1988

*ORSANCO 24-Hour Bioassay. 1974 (\$1.00)

*Ohio River Water Quality Fact Book. 1986 (\$7.50)

*There are charges for these publications

*NTIS Accession No. PB80106941 (three reports printed as single volume)

- *Perspective on the Regulation of Underground Injection of Wastewaters. 1969 (\$3.00)
- Phenol Wastes Treatment by Chemical Oxidation. 1951 (Loan Copy Only)
- *Planning and Making Industrial Waste Surveys. 1952 (reprinted 1964 and 1973) (\$2.00)
- *Plating-Room Controls for Pollution Abatement. 1951 (50¢)
- Pollution Control Standards. 1987
- Pollution Patterns in the Ohio River--1950. 1951 (loan copy only)
- Presence of Toxic Substances in the Ohio River. 1987 (\$5.00)
- Preventing Stream Pollution from Oil Pipeline Breaks. 1950 (loan copy only)
- Principles and Guide to Practices in the Control of Acid Mine-Drainage. 1963
- *Procedures for Investigation of Fish-Kills. 1956 (50¢)
- *Procedures for Analyzing Metal Finishing Wastes. 1954 (\$1.00)
- *Procedures Manual: Organics Detection System. 1983 (\$3.50)
- *Quality Control Assurance Program. 1981 (\$5.00)
- *Quality Control Assurance Program. 1984 (\$6.00)
- Quality Control Assurance Program for Primary In-Stream Monitor Network. 1977
- Radioactivity in the Ohio River. 1984
- *Reducing Phenol Wastes from Coke Plants. 1953 (\$1.00)
- *Registry of Wells for Use in Underground Injection of Wastewater in the Ohio River Valley. 1974 (\$2.50)
- *Registry of Wells for Use in Underground Injection of Wastewater 1972-1975. 1976 (\$2.50)
- Regulatory Actions for the Control of Sewage, Industrial Wastes and Other Substances. 1961 (revised 1963 and 1964)
- Revenue Programs for Wastewater Agencies. 1975
- River Quality Conditions During a 16-Week Shutdown of Upper Ohio Valley Steel Mills. 1961
- State and Federal Regulations Affecting the Siting of Major Energy-related Facilities: Background Paper. 1979
- *There are charges for these publications

- *Status of Wastewater Facilities. 1981 (\$3.00) NTIS Accession No. PB81178808
- *Status of Wastewater Facilities. 1983 (\$3.00)
- *Status of Wastewater Facilities. 1986 (\$3.00)
- *Thermal Discharges to the Ohio River: An Evaluation of River Temperature Relationships, 1964-1974. 1975 (\$5.00)
- Transporting Hazardous Materials on the Ohio River. 1985
- Treatment Requirements for Sewage Discharged into the Ohio River Between Cincinnati and Cairo: Treatment Standards No. 5, 6, and 7. 1954
- Treatment Requirements for Sewage Discharged into the Ohio River Between Huntington and Cincinnati: Treatment Standard No. 2. 1952
- Treatment Requirements for Sewage Discharged into the Ohio River Between Pittsburgh and Huntington: Treatment Standards No. 3 and 4. 1953
- *Underground Injection of Wastewaters in the Ohio River Valley Region. 1973 (\$3.00)
- Unfinished Agenda for the Ohio River Valley. 1984
- Wabash River: Pollution Abatement Needs. 1950
- Wastewater Discharges from Water Treatment Plants, April 1981
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- *Water Quality and Flow Variations: Ohio River and Tributaries--1956-1957. 1959 (\$2.00)
- *Water Quality Monitoring Strategy for the Ohio River and Lower Reaches of Major Tributaries. 1982 (\$3.50)
- Water Treatment Process Modifications for Trihalomethane Control and Organic Substances in the Ohio River. 1979 NTIS Accession No. PB301222/AS

Orders can be made by contacting:

Ohio River Valley Water Sanitation Commission
49 E. Fourth Street, Suite 815
Cincinnati, OH 45202
(513) 421-1151

*There are charges for these publications. The charges are waived for requests from government agencies, non-profit organizations and educational institutions (single copy only). A \$2.50 postage and handling fee is also levied on publication orders.

A P P E N D I C E S

Ohio River Valley Water Sanitation Commission

POLLUTION CONTROL STANDARDS 1987 REVISION

NOTICE OF REQUIREMENTS

*Established by Pollution Control Standards
for Discharges to the Ohio River*

1987 Revision

You are hereby notified that, having considered all the evidence presented at a public hearing, the Ohio River Valley Water Sanitation Commission, at its regularly held meeting on September 10, 1987, acting in accordance with and pursuant to the authority contained in Article VI of the Ohio River Valley Water Sanitation Compact, adopted and promulgated, subject to revision as changing conditions require, Pollution Control Standards 1987 Revision for the modification or treatment of all sewage from municipalities or other political subdivisions, public or private institutions, corporations, or watercraft, and for the modification or treatment of all industrial wastes discharged or permitted to flow into the Ohio River from the point of confluence of the Allegheny and Monongahela Rivers at Pittsburgh, Pennsylvania, designated as Ohio River mile point 0.0, to Cairo Point, Illinois, located at the confluence of the Ohio and Mississippi

Rivers, and being 981.0 miles downstream from Pittsburgh, Pennsylvania.

Under terms and provisions of the Ohio River Valley Water Sanitation Compact all sewage from municipalities or other political subdivisions, public or private institutions, corporations or watercraft and all industrial wastes discharged or permitted to flow into the Ohio River will be required to be modified or treated to the extent specified in the standards established as above set forth.

The Commission at its September 10, 1987 meeting also rescinded Pollution Control Standards (September 13, 1984 Revision), which were established by Commission action September 13, 1984, including all definitions and application procedures appended to or incorporated therein, together with such other treatment standards and regulatory actions as have been heretofore adopted.

Alan H. Vicory, Jr.
Executive Director and Chief Engineer

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Ohio River Valley Water Sanitation Commission

An interstate Commission created by compact among: • Illinois • Indiana • Kentucky •
New York • Ohio • Pennsylvania • Virginia • West Virginia

Headquarters: 49 E. Fourth Street, Suite 815, Cincinnati, Ohio 45202
(513) 421-1151

I. PREAMBLE^a

Pollution control standards implement many decisions affecting water quality of the Ohio River and the uses made thereof. The Ohio River Valley Water Sanitation Compact provides the basis for assuring multipurpose uses of the Ohio River, and authorizes the Commission to promulgate standards of treatment for sewage and industrial wastes. It also states that: "The guiding principle of this Compact shall be that pollution by sewage or industrial wastes originating within a signatory state shall not injuriously affect the various uses of the interstate waters as hereinbefore defined."

The purpose of these regulations, therefore, is to recognize those uses to be protected in the Ohio

River, establish stream criteria to assure that the uses will be achieved, and set Standards of Treatment needed to attain the established stream criteria. These regulations also implement the formal decisions of the Commission as they are concerned with pollution control activities, provide for the granting of variances upon justification and recognize that individual states may adopt more stringent regulations.

Article IX of the Compact grants the Commission certain enforcement powers. These regulations must be implemented in the issuance of any permit to a discharger to the mainstem of the Ohio River (unless the state or the Federal government has a more stringent regulation).

II. DEFINITIONS

- A. "*Cooling Water*" means water used as a heat transfer medium for once-through cooling or cooling tower blowdown to which no Industrial Wastes, Toxic Wastes, Residues from Potable Water Treatment Plants, untreated Sewage, or Other Wastes, exclusive of approved anti-fouling agents (e.g., chlorine) are added prior to discharge.
- B. "*Compact*," as used in these regulations, means the Ohio River Valley Water Sanitation Compact and is an agreement entered into by and between the states of Indiana, West Virginia, Ohio, New York, Illinois, Kentucky, Pennsylvania, and Virginia, which pledges each to the other of the signatory states faithful cooperation in the control of future pollution and abatement of existing pollution from the waters in the Ohio River basin. This compact created the Ohio River Valley Water Sanitation Commission (ORSANCO).
- C. "*Industrial Wastes*" means any liquid, gaseous, solid materials or waste substances or combination thereof other than Cooling Water as herein defined, resulting from any process or operation including storage and transportation, manufacturing, commercial, agricultural, and government operations.
- D. "*Mixing Zone*" means that portion of the water body receiving a discharge where effluent and receiving waters are not totally mixed and uniform with the result that the zone is not representative of the receiving waters and may not meet all ambient water quality standards or other requirements of any signatory state applicable to the particular receiving waters.
- E. "*Net Discharge*" is determined by excluding the amount of pollutant in an intake water when determining the quality of a discharge if both the intake and discharge are from and to the same body of water.
- F. "*96 hour LC₅₀*" as used in these standards means the concentration of a substance that kills 50 percent of the test organisms within 96 hours. The test organisms shall be representative important species indigenous to the Ohio River or standard test organisms.
- G. "*Non-Cumulative Substances*" means those substances which have a biological half-life of less than four days. All other substances are cumulative substances.
- H. The "*Ohio River*," as used in these regulations, extends from the point of confluence of the Allegheny and Monongahela Rivers at Pittsburgh, Pennsylvania, designated as Ohio River mile-point 0.0 to Cairo Point, Illinois, located at the confluence of the Ohio and Mississippi Rivers and being 981.0 miles downstream from Pittsburgh.

^aSpecific Standards of Treatment are established in these regulations and must be incorporated into discharge permits issued under the authority of the National Pollutant Discharge Elimination System or state discharge permitting programs when they are more stringent than:

1. applicable US EPA technology-based effluent guidelines required under Sections 301, 304, 306 and 307 of the Federal Clean Water Act, or
2. any state treatment requirements, effluent standards, or water quality based effluent limitations.

In the absence of promulgated Federal effluent guidelines pursuant to Sections 301, 304, 306 and 307 of the Clean Water Act, the Compact signatory states have the responsibility to establish effluent limitations to be included in any discharge permit, consistent with the standards contained herein using Best Professional Judgment on a case by case basis.

- I. "*Ohio River Valley Water Sanitation Commission*" (Commission) means a body corporate created by authority of the Compact and is the operating agency established to implement the Compact. It consists of three (3) representatives of each signatory state and three (3) representatives of the Federal government.
- J. "*Other Wastes*" means any waste other than Sewage, Cooling Water, Residues from Potable Water Treatment Plants, Industrial Wastes or Toxic Wastes, which if discharged to the Ohio River could cause or contribute to any violations of these regulations, or of any water quality standards of any signatory state or which may be deleterious to the designated uses.
- K. "*Primary Contact Recreation*" means recreational activities where the human body may come in direct contact with water to the point of complete body submergence and where ingestion of the water is probable.
- L. "*Representative Important Species*" means those species of aquatic life whose protection and propagation will assure the sustained presence of a balanced indigenous community. Such species are representative in the sense that maintenance of suitable water quality conditions will assure the overall protection and sustained propagation of the balanced indigenous community.
- M. "*Residues from Potable Water Treatment Plants*" means those wastes emanating from processes used in water purification. Such processes may include sedimentation, chemical coagulation, filtration, iron and manganese removal, softening and disinfection.
- N. "*Sewage*" means water-carried human or animal wastes from such sources as residences; industrial, commercial or governmental establishments; public or private institutions; or other places. The admixture of Sewage with Industrial Wastes, Toxic Wastes or Other Wastes, in amounts detrimental to the quality of the combined effluent shall also be regarded as Sewage.
- O. "*Standards of Treatment*" means the degree of processing of wastes necessary to meet the specific discharge limitations provided by these regulations but does not prescribe the methodology.
- P. "*Substantially Complete Removal*" means removal to the lowest practicable level attainable with current technology.
- Q. "*Toxic Wastes*" means wastes containing substances or combinations of substances which might reasonably be expected to cause death, disease, behavioral abnormalities, cancer, genetic mutations, physiological malfunctions, including malfunctions in reproduction, or physical deformations in fish, other aquatic life, wildlife, livestock, or humans.

III. DESIGNATED USES

The Ohio River, as hereinbefore defined, has been designated by the Compact as available for safe and satisfactory use as public and industrial water supplies after reasonable treatment, suitable for recreational

usage, capable of maintaining fish and other aquatic life and adaptable to such other uses as may be legitimate.

IV. STREAM CRITERIA

- A. The minimum conditions which these regulations are intended to achieve in the receiving waters outside the Mixing Zone are as follows:
 - 1. Freedom from anything that will settle to form objectionable sludge deposits which interfere with designated water uses.
 - 2. Freedom from floating debris, scum, oil and other floating material in amount sufficient to be unsightly or deleterious.
 - 3. Freedom from materials producing color or odors in such a degree as to create unaesthetic conditions or a nuisance.
 - 4. Freedom from substances in concentrations which are toxic or harmful to humans, animals, or fish and other aquatic life; which would in any manner adversely affect the flavor, color, odor, or edibility of fish and other aquatic life, wildlife, or livestock; or which are otherwise detrimental to the designated uses specified in Section III.
- B. To assure that the foregoing conditions will be attained, the following criteria shall be met outside the Mixing Zone:
 - 1. **DISSOLVED OXYGEN:** Concentrations shall average at least 5.0 mg/L per calendar day and shall not be less than 4.0 mg/L at any time provided that a minimum of 5.0 mg/L at any time is maintained during the April 15-June 15 spawning season.

2. **TEMPERATURE:** Allowable stream temperatures are:

<u>Month/Date</u>	<u>Period Average (°F)</u>	<u>Instantaneous Maximum (°F)</u>
January 1-31	45	50
February 1-29	45	50
March 1-15	51	56
March 16-31	54	59
April 1-15	58	64
April 16-30	64	69
May 1-15	68	73
May 16-31	75	80
June 1-15	80	85
June 16-30	83	87
July 1-31	84	89
August 1-31	84	89
September 1-15	84	87
September 16-30	82	86
October 1-15	77	82
October 16-31	72	77
November 1-30	67	72
December 1-31	52	57

3. **pH:** No value below 6.0 nor above 9.0.

4. **FECAL COLIFORM BACTERIA:**
Maximum allowable level (either MPN or MF count) for Primary Contact Recreation — For the months of May through October, content shall not exceed 200/100 ml as a monthly geometric mean based on not less than five samples per month; nor exceed 400/100 ml in more than ten percent of all samples taken during the month.

Maximum allowable level (either MPN or MF count) for use as a source of public water supply — For the months of November through April, content shall not exceed 2,000/100 ml as a monthly geometric mean based on not less than five samples per month.

5. **DISSOLVED SOLIDS:** Not to exceed 500 mg/L as a monthly average value, nor exceed 750 mg/L at any time. (Equivalent 25°C specific conductance values are 800 and 1,200 micromhos/cm.)

6. **AMMONIA:** The concentration of un-ionized ammonia (as NH_3) shall not exceed 0.05 mg/L; un-ionized ammonia shall be determined from values for total ammonia-N, pH and temperature, by means of the following equation:

$$Y = \frac{1.2 (\text{Total ammonia-N})}{[1 + 10 (\text{pK}_a - \text{pH})]}$$

$$\text{pK}_a = 0.0902 + \frac{2730}{(273.2 + T_c)}$$

Where:

T_c = Temperature, degrees Centigrade

Y = Un-ionized ammonia, milligrams per liter

Combinations of values for total ammonia-N, pH, and temperature which yield an un-ionized ammonia concentration of 0.05 mg/L are shown in Appendix B.

7. CHEMICAL CONSTITUENTS

Not to exceed the following concentrations:

Constituents	Concentration (mg/L)
Arsenic	.05
Barium	1.0
Chloride	250
Fluoride	1.0
Nitrite + Nitrate Nitrogen	10.0
Nitrite Nitrogen	1.0
Phenolics	.005
Selenium	.01
Silver	.05
Sulfate	250

Constituent ^b	Chronic Criteria Concentration ug/L	Acute Criteria Concentration ug/L
Cadmium	$e(.7852[\ln \text{Hard.}] - 3.490)$	$e(1.128[\ln \text{Hard.}] - 3.828)$
Chromium (hexavalent)	11	16
Copper	$e(.8545[\ln \text{Hard.}] - 1.465)$	$e(.9422[\ln \text{Hard.}] - 1.464)$
Cyanide (free)	5	22
Lead	$e(1.273[\ln \text{Hard.}] - 4.705)$	$e(1.273[\ln \text{Hard.}] - 1.460)$
Mercury	.012	2.4
Zinc	$e(.8473[\ln \text{Hard.}] + .7614)$	$e(.8473[\ln \text{Hard.}] + .8604)$

(Note: Concentrations for metals are total recoverable except hexavalent chromium which is dissolved.)

8. **RADIONUCLIDES:** Gross total alpha activity (including radium-226 but excluding radon and uranium) shall not exceed 15 picocurie per liter (pCi/L) and combined radium-226 and radium-228 shall not exceed 5 pCi/L; provided that specific determinations of radium-226 and radium-228 are not required if gross particle activity does not exceed 5 pCi/L. Concentration of total gross beta particle activity shall not exceed 50 pCi/L; the concentration of tritium shall not exceed 20,000 pCi/L; the concentration of total Strontium-90 shall not exceed 8 pCi/L.

9. OTHER TOXIC SUBSTANCES:

- a. Non-Cumulative Substances — not to exceed an average of one-twentieth (0.05), nor at any time exceed one-tenth (0.1) of the 96 hour

LC₅₀ of representative important species indigenous to the Ohio River or standard test organisms.

- b. Cumulative Substances — not to exceed an average of one one-hundredth (0.01), nor at any time exceed one-twentieth (0.05) of the 96 hour LC₅₀ of representative important species indigenous to the Ohio River or standard test organisms.

- c. Limiting concentrations other than those derived from paragraphs a. and b. above may be used for the protection of human health or aquatic life when justified on the basis of available evidence and approved by the appropriate regulatory agencies.

^bEffluent requirements for these constituents shall be calculated based on the chronic criteria concentrations, the in-stream concentration above the point of discharge, and the critical stream flow as contained in Appendix A. The acute criteria concentrations shall not be exceeded in the stream at any time. Criteria for cadmium, copper, lead, and zinc at specific hardness values are listed in Appendix C.

V. STANDARDS OF TREATMENT

A. General

1. No discharge of any Sewage, Industrial Wastes, Toxic Wastes, Other Wastes, Cooling Water or Residues from Potable Water Treatment Plants shall cause or contribute to a violation of these regulations, shall preclude the attainment of any designated use of the mainstem waters of the Ohio River or shall interfere with the attainment of the stream criteria set forth in Section IV.
2. All discharges of Sewage, Industrial Wastes, Toxic Wastes, Other Wastes, Cooling Water or Residues from Potable Water Treatment Plants shall be treated or otherwise modified so as to provide:
 - a. Substantially Complete Removal of settleable solids, which may form sludge deposits;
 - b. Substantially Complete Removal of oil, debris, scum and other floating material;
 - c. Reduction of total suspended solids and other materials to such a degree that the discharge will not produce a substantial negative visible contrast to natural conditions in turbidity, color or odor of the river, or impart taste to the potable water supplies or cause tainting of fish flesh;
 - d. Reduction of all substances in amounts which, when concentrated or combined in the receiving stream, would result in conditions toxic or harmful to humans, animals, or fish and other aquatic life; which would in any manner adversely affect the flavor, color, odor, or edibility of fish and other aquatic life, wildlife, or livestock; or which are otherwise detrimental to the designated water uses specified in Section III.

B. Sewage

MINIMUM LEVEL OF TREATMENT

The minimum level of treatment required for sewage prior to discharge shall meet the following standards in addition to those contained in Section V.A.

- a. *Biochemical Oxygen Demand*
 - i. Five day Biochemical Oxygen Demand (BOD₅) - the arithmetic mean of the values for effluent samples collected in a period of 30 consecutive days shall not exceed 30

mg/L, and the arithmetic mean of the values for effluent samples collected in a period of seven consecutive days shall not exceed 45 mg/L.

- ii. Five-day Carbonaceous Biochemical Oxygen Demand (CBOD₅) may be substituted for Five-Day Biochemical Oxygen Demand provided that the arithmetic mean of the values for effluent samples collected in a period of 30 consecutive days shall not exceed 25 mg/L per liter, and the arithmetic mean for the values of effluent samples collected in a period of seven consecutive days shall not exceed 40 mg/L.

b. *Suspended Solids*

The arithmetic mean of the values for effluent samples collected in a period of 30 consecutive days shall not exceed 30 mg/L, and the arithmetic mean of the values for effluent samples collected in a period of seven consecutive days shall not exceed 45 mg/L.

c. *pH*

The effluent values for pH shall be maintained within the limits of 6.0 to 9.0

d. *Fecal Coliform Bacteria*

- i. During the months of May through October, the geometric mean of the values for effluent samples collected in a period of 30 consecutive days shall not exceed 200/100 ml, and no more than 10 percent of the values shall exceed 400/100 ml.
- ii. During the months of November through April, the geometric mean of the values for effluent samples collected in a period of 30 consecutive days shall not exceed 2000/100 ml.

2. ALTERNATIVE TREATMENT

Such facilities as waste stabilization ponds and trickling filters shall be deemed to provide effective treatment of sewage provided that the requirements of Section V.B.1.(c) and (d) are met, that the effluent does not cause any violations of applicable states' water quality standards or Sections III and IV of these regulations, and that the following requirements are met.

a. *Biochemical Oxygen Demand*

- i. Five day Biochemical Oxygen Demand (BOD₅) — the arithmetic mean of the values for effluent samples collected in a period of 30 consecutive days shall not exceed 45 mg/L;

the arithmetic mean of the values for effluent samples collected in a period of seven consecutive days shall not exceed 65 mg/L; and

the average percent removal for any 30 consecutive day period shall not be less than 65 percent.

- ii. Five-day Carbonaceous Biochemical Oxygen Demand (CBOD₅) may be substituted for BOD₅ provided that the levels are not less stringent than the following:

the arithmetic mean of the values for effluent samples collected in a period of 30 consecutive days shall not exceed 40 mg/L;

the arithmetic mean of the values for effluent samples collected in a period of seven consecutive days shall not exceed 60 mg/L; and

the average percent removal for any 30 consecutive day period shall not be less than 65 percent.

c. *Suspended Solids*

the arithmetic mean of the values for effluent samples collected in a period of 30 consecutive days shall not exceed 45 mg/L;

the arithmetic mean of the values for effluent samples collected in a period of seven consecutive days shall not exceed 65 mg/L; and

the average percent removal for any 30 consecutive day period shall not be less than 65 percent.

c. *Industrial Wastes, Toxic Wastes and Other Wastes*

1. The treatment of Industrial Wastes, Toxic Wastes, and Other Wastes shall be in accordance with Section V.A.

2. In addition, the net discharge of the following toxic pollutants is hereby prohibited:

a. Aldrin (1,2,3,4,10,10-hexachloro-1,4,4a,5,8,8a-hexahydro-1, 4-endo-5, 8-exo-dimethanonaphthalene)

b. Dieldrin (1,2,3,4,10,10-hexachloro-6, 7-epoxy-1,4,4a,5,6,7,8,8a-octahydro-1, 4-endo-5, 8-exo-dimethanonaphthalene)

c. DDT, including DDD and DDE

1. DDT means 1,1,1-trichloro-2,2-bis(p-chlorophenyl) ethane and some o,p'-isomers

2. DDD (TDE) means 1, 1-dichloro-2, 2-bis(p-chlorophenyl) ethane and some o,p'-isomers

3. DDE means 1, 1-dichloro-2, 2-bis(p-chlorophenyl) ethylene

d. Endrin (1,2,3,4,10,10-hexachloro-6, 7-epoxy-1, 4,4a,5,6,7,8, 8a-octahydro-1, 4-endo-5, 8-endo-dimethanonaphthalene)

e. Toxaphene — a material consisting of technical grade chlorinated camphene having the approximate formula of C₁₀H₁₀Cl₈ and normally containing 67-69 percent chlorine by weight

f. Benidine — the compound benidine and its salts as identified by the chemical name 4,4-diaminobiphenyl

g. Polychlorinated Biphenyls (PCB) — a mixture of compounds composed of the biphenyl molecule which has been chlorinated to varying degrees

D. *Residues from Potable Water Treatment Plants*

The use of controlled discharge for Residues from Potable Water Treatment Plant processes of sedimentation, coagulation and filtration may be authorized provided that as a minimum the discharge meets all the requirements of Section IV.A. and V.A.

VI. MIXING ZONE DESIGNATION

- A. A Mixing Zone shall be deemed to exist for each discharge. When required, the specific numerical limits for any Mixing Zone shall be determined on a case by case basis, and shall include considerations for existing uses, linear distance (i.e., length and width) from the point of discharge, surface area involved, and volume of receiving water within the defined zone.
- B. Conditions within the Mixing Zone shall not be injurious to human health, in the event of a temporary exposure.
- C. Conditions within the Mixing Zone shall not be lethal to aquatic life or wildlife that may enter the zone.
- D. The Mixing Zone shall be free from substances attributable to Sewage, Industrial Wastes, Toxic Wastes, Other Wastes, Cooling Water, or Residues from Potable Water Treatment Plants in quantities which:
 - 1. Settle to form sludge deposits;
 - 2. Float as debris, scum, or oil;
- 3. Contaminate natural sediments so as to cause or contribute to a violation of:
 - a. appropriate stream criteria outside the Mixing Zone, or
 - b. any condition of the designated uses of the water.
- 4. Impart a disagreeable flavor or odor to flesh of fish or other aquatic life, wildlife or livestock which are consumed by man and which acquire such a flavor because of passage through or ingestion of the waters from the Mixing Zone.
- E. The Mixing Zone shall be located so as not to interfere significantly with migratory movements and passage of fish, other aquatic life and wildlife. No waste discharge related to the Mixing Zone shall, outside the limits of the Mixing Zone, interfere with potable water supply intakes, bathing areas, reproduction of fish, other aquatic life and wildlife; or adversely affect fish or aquatic life normally inhabiting waters prior to addition of waste discharged; or result in any other violations of appropriate stream criteria relating to the designated use at or above critical river flow as shown in Appendix A.

VII. LIMITATION

Nothing contained in these regulations shall be construed to limit the powers of any state signatory to the Compact to promulgate more stringent cri-

teria, conditions and restrictions to further lessen or prevent the pollution of waters within its jurisdiction.

VIII. VARIANCE

- A. The Commission may grant a variance from the provisions in Section V of these regulations, in accordance with the following procedures, provided that the uses set forth in Section III are maintained:
 - 1. The burden of proof is upon the applicant to assure that the uses set forth in Section III are maintained;
 - 2. Prior concurrence of the state where the applicant's discharge is located and those state(s) which may be affected must be obtained;
 - 3. The specific reasons for the variance shall be clearly stated in writing;
 - 4. Such additional information shall be provided to the Commission as it may request.
- B. A variance may be granted for a period not to exceed the life of the applicable discharge permit; the applicant may apply for a variance renewal prior to the expiration of the permit.

IX. ANALYTICAL METHODS

Tests or analytical determinations to determine compliance or non-compliance with the Standards of Treatment and stream criteria established herein shall be made in accordance with accepted procedures such as those contained in the (a) 16th edition of *Standard Methods for the Examination of Water and Wastewater* prepared and published jointly by the American Public Health Association (APHA), American Water Works Association (AWWA), and Water Pollution Control Federation (WPCF); (b) 1986 *An-*

nual Book of ASTM Standards Part 31—Water published by the American Society for Testing and Materials; (c) *Guidelines Establishing Test Procedures for the Analysis of Pollutants* by the U.S. Environmental Protection Agency; or (d) by such other methods as are approved by the Commission equal to or superior to or not available within methods in documents listed above, provided such other test methods are available to the public.

X. SEVERABILITY CLAUSE

Should any one or more of the Pollution Control Standards hereby established or should any one or more provisions of the regulations herein contained

be held or determined to be invalid, illegal or unenforceable, for any reason whatsoever, all other Standards and other provisions shall remain effective.

APPENDIX A

CRITICAL FLOW VALUES

River Reach		
From	To	Critical Flow in cfs*
Pittsburgh	Montgomery Dam (MP32.4)	4,800
Montgomery	Willow Island Dam (MP161.8)	5,800
Willow Island	Gallipolis Dam (MP279.2)	6,800
Gallipolis	Greenup Dam (MP341.0)	8,500
Greenup	Meldahl Dam (MP436.2)	9,800
Meldahl	McAlpine Dam (MP605.8)	11,000
McAlpine	Uniontown Dam (MP846.0)	13,000
Uniontown	Smithland Dam (MP918.5)	18,800
Smithland	Cairo Point (MP981.0)	46,300

* Minimum 7 day, 10 year low flow (in cubic feet per second) based on calculations by the U.S. Corps of Engineers

^c 40 CFR 136; 38 FR 28758, October 16, 1973; Amended by 41 FR 52780, December 1, 1976; Amended by 42 FR 3306, January 18, 1977; 42 FR 37205, July 20, 1977; 49 FR 43250, October 26, 1984; Corrected by 50 FR 691, 695, January 4, 1985; Amended by 51 FR 23692, June 30, 1986 —

APPENDIX B

Combinations of Values for Total Ammonia-N,
Temperature, and pH Which Yield an
Un-ionized Ammonia Concentration of .05 mg/L

	T _F	41	45	50	55	59	64	68	70	72	75	77	80	84	86	89
	T _C	5	7.2	10	12.8	15	17.8	20	21.1	22.2	23.9	25	26.7	28.9	30	31.7
pH																
6.5		106	89	71	58	48	39	33	31	28	25	24	20	18	16	14
6.6		84	71	56	46	38	31	27	25	23	20	19	16	14	13	12
6.7		67	56	46	36	30	25	21	20	18	16	15	13	11	10	9.2
6.8		53	45	36	29	24	20	17	16	14	13	12	10	9.0	8.2	7.3
6.9		42	36	28	23	19	16	13	12	11	10	9.4	8.2	7.2	6.5	5.8
7.0		33	28	22	18	15	12	11	9.8	9.0	8.0	7.5	6.5	5.7	5.2	4.6
7.1		27	22	18	14	12	9.8	8.4	7.8	7.2	6.3	5.9	5.3	4.5	4.1	3.7
7.2		21	18	14	12	9.7	7.8	6.7	6.2	5.7	5.1	4.7	4.1	3.6	3.3	2.9
7.3		17	14	11	9.2	7.7	6.2	5.3	4.9	4.5	4.0	3.8	3.3	2.9	2.6	2.3
7.4		13	11	8.9	7.3	6.1	4.9	4.2	3.9	3.6	3.2	3.0	2.6	2.3	2.1	1.9
7.5		11	8.9	7.1	5.8	4.9	3.9	3.4	3.1	2.9	2.6	2.4	2.1	1.8	1.7	1.5
7.6		8.4	7.1	5.7	4.6	3.9	3.1	2.7	2.5	2.3	2.0	1.9	1.7	1.5	1.3	1.2
7.7		6.7	5.7	4.6	3.7	3.1	2.5	2.1	2.0	1.8	1.6	1.5	1.3	1.2	1.1	.95
7.8		5.3	4.5	3.6	2.9	2.5	2.0	1.7	1.6	1.5	1.3	1.2	1.1	.94	.85	.77
7.9		4.2	3.6	2.9	2.3	2.0	1.6	1.4	1.3	1.2	1.0	.97	.85	.76	.69	.62
8.0		3.4	2.9	2.3	1.9	1.6	1.3	1.1	1.0	.94	.84	.79	.69	.61	.55	.50
8.1		2.7	2.3	1.8	1.5	1.3	1.0	.88	.82	.76	.67	.63	.55	.49	.45	.40
8.2		2.1	1.8	1.5	1.2	1.0	.82	.71	.66	.61	.54	.51	.45	.40	.37	.33
8.3		1.7	1.5	1.2	.94	.81	.66	.57	.53	.49	.44	.41	.37	.33	.30	.27
8.4		1.4	1.2	.93	.76	.65	.53	.46	.43	.40	.36	.34	.30	.27	.25	.22
8.5		1.1	.93	.75	.62	.52	.43	.38	.35	.33	.29	.28	.25	.22	.20	.19
8.6		.88	.75	.60	.50	.43	.35	.31	.29	.27	.24	.23	.20	.18	.17	.16
8.7		.71	.60	.49	.40	.35	.29	.25	.24	.22	.20	.19	.17	.16	.14	.13
8.8		.57	.49	.40	.33	.28	.24	.21	.20	.18	.17	.16	.14	.13	.12	.11
8.9		.46	.40	.32	.27	.23	.20	.17	.16	.16	.14	.14	.12	.11	.11	.10
9.0		.38	.32	.27	.22	.19	.17	.15	.14	.13	.12	.12	.11	.10	.09	.09

T_F — Temperature in degrees Fahrenheit

T_C — Temperature in degrees Centigrade

APPENDIX C

NUMERICAL VALUES OF CADMIUM, COPPER, LEAD, AND ZINC CRITERIA
AT SPECIFIED HARDNESS LEVELS

Hardness (mg/L)	Cadmium		Copper		Lead		Zinc	
	Chronic Criterion (ug/L)	Acute Criterion (ug/L)	Chronic Criterion (ug/L)	Acute Criterion (ug/L)	Chronic Criterion (ug/L)	Acute Criterion (ug/L)	Chronic Criterion (ug/L)	Acute Criterion (ug/L)
50	0.7	1.8	7	9	1.3	34	59	65
100	1.1	3.9	12	18	3.2	82	106	117
150	1.6	6.2	17	26	5.3	137	149	165
200	2.0	8.6	21	34	7.7	197	191	211
250	2.3	11.0	26	42	10	262	230	254
300	2.7	13.5	30	50	13	331	269	297

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CONVERSION FACTORS FOR WATER QUALITY ANALYSIS

FLOW

1 Million Gallons per Day (MGD)	=	1.547 cfs	=	694.4 GPM	=	43.8 LPS
1 Cubic Foot per Second (cfs)	=	0.646 MGD	=	448.8 GPM	=	28.3 LPS
1 Gallon per Minute (GPM)	=	0.00144 MGD	=	0.00223 cfs	=	0.063 LPS
1 Liter per Second (LPS)	=	0.023 MGD	=	0.036 cfs	=	15.9 GPM

VELOCITY

1 Foot per Second (fps)	=	0.682 MPH	=	0.303 mps	=	1.09 KPH
1 Mile per Hour (MPH)	=	1.47 fps	=	0.444 mps	=	1.61 KPH
1 Meter per Second (mps)	=	3.3 fps	=	2.25 MPH	=	3.6 KPH
1 Kilometer per Hour (KPH)	=	0.92 fps	=	0.62 MPH	=	0.28 mps

MASS DISCHARGE

Discharge in Pounds per Day	=	Flow (MGD) x Concentration (mg/l) x 8.33
	=	Flow (cfs) x Concentration (mg/l) x 5.39
	=	Flow (GPM) x Concentration (mg/l) x .012
	=	Flow (LPS) x Concentration (mg/l) x .192

Discharge in Kilograms per Day	=	Flow (MGD) x Concentration (mg/l) x 3.78
	=	Flow (cfs) x Concentration (mg/l) x 2.44
	=	Flow (GPM) x Concentration (mg/l) x .0054
	=	Flow (LPS) x Concentration (mg/l) x .0864

1 Pound per Day = .454 Kilograms per Day

1 Kilogram per Day = 2.2 Pounds per Day

Calculation of stream concentration resulting from a spill or shock load

$$\text{Load (L) in pounds: Concentration (C) = } \frac{L \times T}{5.39 Q}$$

Q = Stream flow in cfs

$$\text{L in kilograms: } C = \frac{L \times T}{2.44 Q}$$

T = Duration of spill or shock load expressed as fraction of a day

t = duration of spill

$$\text{If t is expressed in days, } T = \frac{1}{t}$$

$$\text{If t is expressed in hours, } T = \frac{24}{t}$$

$$\text{If t is expressed in minutes, } T = \frac{1440}{t}$$

$$\text{If t is expressed in seconds, } T = \frac{86,400}{t}$$

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