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5-600.2

ACTION PLAN FOR STORMWATER BYPASS EVENTS

07/30/96

DOE-1184-96
DOE-FN EPAS
9
LETTER

L-355

Department of Energy

Ohio Field Office
Fernald Area Office
P. O. Box 538705
Cincinnati, Ohio 45253-8705
(513) 648-3155

JUL 30 1996

DOE-1184-96

Mr. James A. Saric, Remedial Project Director
U.S. Environmental Protection Agency
Region V - SRF-5J
77 West Jackson Boulevard
Chicago, Illinois 60604-3590

Mr. Tom Schneider, Project Manager
Ohio Environmental Protection Agency
401 East 5th Street
Dayton, Ohio 45402-2911

Dear Mr. Saric and Mr. Schneider:

ACTION PLAN FOR STORMWATER BYPASS EVENTS

Reference: Letter from James Saric (U.S. EPA) to Johnny Reising (DOE-FN), "Stormwater Bypass Events," dated June 28, 1996.

This letter provides the requested evaluation of the Department of Energy, Fernald Environmental Management Project's (DOE-FEMP) stormwater management and advanced wastewater treatment plant operations to reduce the duration of stormwater bypass events (see reference). The Environmental Protection Agency (EPA) also requested a summary of the actions to be taken at the DOE-FEMP to reduce both the number and frequency of stormwater bypass events.

Evaluation of Stormwater Management Operations

As you note in your letter, the spring of 1996 produced an extensive amount of rainfall in the region. Specifically, the months of April and May produced record single year combined amounts of precipitation for many gauging stations within the Miami Conservancy District. The Miami Conservancy District monitors precipitation and the associated runoff carried in the Great Miami River. According to the May 1996 monthly precipitation totals for the Hamilton Ohio Station, the combined total precipitation for April and May totaled 18.98 inches. This is nearly half of the annual average precipitation for this location within a two month period and is a record single-year April/May combined total (see enclosed Miami Conservancy District Report for May 1996.)

During this period of exceedingly heavy precipitation, the DOE-FEMP continued to manage the treatment of stormwater runoff to minimize the volumes of water bypassing treatment by either overflow of impoundments or direct pumping to the Great Miami River. Treatment was maximized by dedicated use of both Phase I of the Advanced Wastewater Treatment (AWWT) facility and the Interim AWWT facility for stormwater treatment. Bypasses were strategically limited to those occasions when retention facilities were at risk of overflow. Operations staff followed the DOE-FEMP's existing protocols for emergency flow routing in all bypass decisions. These proactive measures ensured that treatment was maximized and, most importantly, overflow of the FEMP's retention facilities was minimized.

Planned Actions

The DOE-FEMP is actively pursuing several key projects that will enhance the ability of the existing conveyance, collection, and treatment facilities to handle excessive rainfall events in the future. Most notably, the existing AWWT Phase I Treatment System (which is primarily targeted at treatment of stormwater runoff) is being retrofitted with enhanced filtration equipment that will enable this system to sustain design flow rates. The AWWT system is not currently able to sustain design flow rates due to problems with the existing tubular filtration system. These filters will be replaced with a multi-media filtration system anticipated to be completed in early 1997. Additionally, a major stormwater runoff project is being designed to divert uncontaminated parking lot stormwater runoff from the Stormwater Retention Basin. This will minimize the unnecessary treatment of clean stormwater runoff and maximize capacity within existing treatment systems for handling contaminated stormwater runoff from the former production area.

These planned enhancements, coupled with the continued proactive management of the treatment and collection systems, will serve to minimize the number, frequency, and duration of future bypasses of stormwater to the Great Miami River.

Any additional questions concerning the DOE-FEMP's stormwater management system can be directed to Robert Janke at (513) 648-3124.

Sincerely,

Johnny Reising
Fernald Remedial Action
Project Manager

FN:Kappa

Enclosure: As stated

cc w/enc:

L. Griffin, EM-425/GTN
R. L. Nace, EM-425/GTN
G. Jablonowski, USEPA-V, 5HRE-8J
R. Beaumier, TPSS/DERR, OEPA-Columbus
F. Bell, ATSDR
D. S. Ward, GeoTrans
R. Vandegrift, ODOH
S. McLellan, PRC
D. J. Brettschneider, FERMCO/52-5
T. Hagen, FERMCO/65-2
J. Harmon, FERMCO/90
E. H. Henry, FERMCO/52-5
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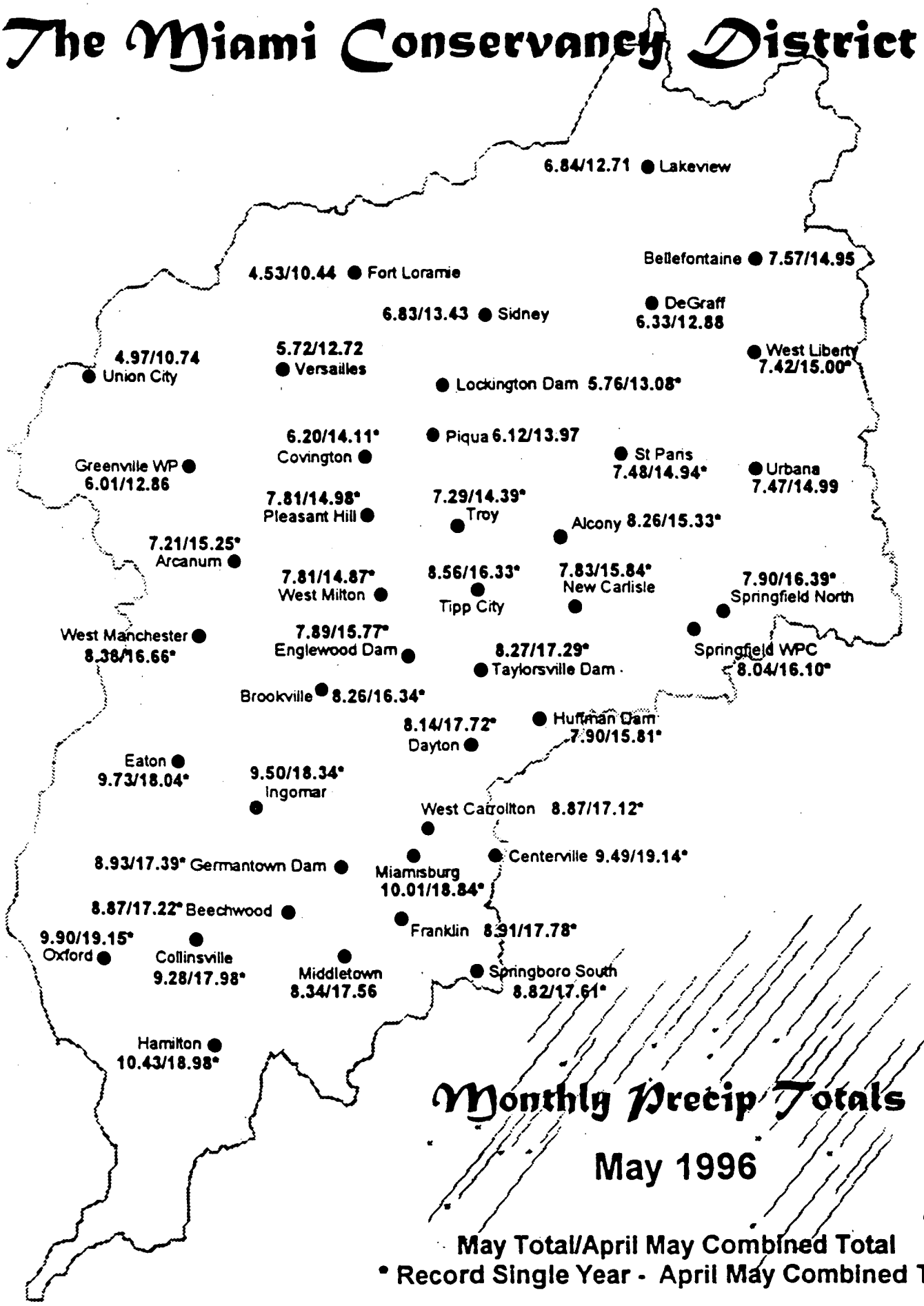
R. W. Kneip, FERMCO/52-5
AR Coordinator/78

cc w/o enc:

C. Little, FERMCO/2

The Miami Conservancy District



Monthly Precip Totals

May 1996

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May Total/April May Combined Total

* Record Single Year - April May Combined Total

Provisional Data -- Subject to revision

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY
WATER RESOURCES DIVISION

Station Number 03-2740.00

Gr. Miama R. at Hamilton

Used rating table dated

Gage heights used to half tenths between ____ and ____ feet; hundredths below and tenths above these limits.

age Read to ____ Once / Twice a Day by ____

April		May		June		July		August		September		Day
age ght	Discharge	Gage height	Discharge	Gage height	Discharge	Gage height	Discharge	Gage height	Discharge	Gage height	Discharge	
	13,600		37,700									1
	13900		26,900									2
	9380		18,600									3
	6700		30,900									4
	6030		31,100									5
	4860		23,800									6
	4400		18,900									7
	3970		22,800									8
	3650		23,600									9
	3380		22,200									10
	3220		31,200									11
	2970		34,500									12
	2860		22,100									13
	2820		14,100									14
	2840		15,400									15
	3510		19,700									16
	3140		13,400									17
	2950		11,900									18
	2890		9860									19
	7820		8210									20
	11200		7050									21
	7390		6170									22
	15400		5330									23
	26700		5530									24
	22200		5750									25
	16400		5960									26
	11800		13,400									27
	8280		16,000									28
	50,600		16,600									29
	49,100		13,300									30
			9240									31
	323,960		541,400									
	10,799		17,465									
	29) 50,600		1) 37,700									
	21) 2820		23) 5330									
	2.97		4.81									
	3.32		5.55									

Fourth / Third / Second / First Quarter — Computed ____ Checked ____ Date ____

Fourth / Third / Second / First Quarter — Disch. applied ____ Disch. checked ____ Date ____

Fourth / Third / Second / First Quarter — G. H. copied ____ G. H. checked ____ Date ____

Period
Year

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The Miami Conservancy District

May 1996 Precipitation

Excessive rainfall continues in the Great Miami River basin. Average basin rainfall for May was 7.80, just 0.09 less than the 7.89 average recorded in April. The maximum of record for May is 8.73 recorded in 1968. Thirty-one observers recorded maximum of record single year combined amounts for April and May as shown on the map.

For May, the Great Miami River mean daily discharge (flow) at Hamilton was 17,465 cubic feet per second (c.f.s.). This was the highest May mean daily flow in record history exceeding the 14,490 c.f.s. record set in 1933. Long term mean daily flow at Hamilton in May is 4,500 c.f.s.

The following are June 1-10 rainfall totals for seven stations within the basin:

Ft. Loramie	1.90
Lockington Dam	1.77
Alcony	3.67
Pleasant Hill	3.20
Dayton	4.18
Germantown Dam	4.65
Hamilton	2.65

Basin average precipitation for the entire month of June is 4.00.

THE MIAMI CONSERVANCY DISTRICT
DAYTON ,OHIO 45402
PRECIPITATION AND RUNOFF ANALYSIS

MAY 1996

AVERAGE PRECIPITATION FOR THE BASIN
(IN INCHES)

THIS MONTH	SINCE JAN. 1	SINCE OCT. 1	PAST 12 MONTHS	PAST 24 MONTHS	PAST 36 MONTHS
TOTAL= 7.80	TOTAL= 24.25	TOTAL= 33.54	TOTAL= 49.68	TOTAL= 85.39	TOTAL=125.16
DEPARTURE= 3.84	DEPARTURE= 8.47	DEPARTURE= 9.46	DEPARTURE= 11.68	DEPARTURE= 9.39	DEPARTURE= 11.16

HIGH STATION		LOW STATION		TOTAL NO. OF STATIONS	NO. STATIONS USED
HAMILTON	10.43	FORT LORAMIE	4.53	IN THE BASIN= 41	IN BASIN AVERAGES= 38

RUNOFF FOR THE MIAMI RIVER AT HAMILTON
(IN INCHES)

THIS MONTH	SINCE JAN. 1	SINCE OCT. 1	PAST 12 MONTHS	PAST 24 MONTHS	PAST 36 MONTHS
TOTAL= 5.55	TOTAL= 15.54	TOTAL= 17.69	TOTAL= 22.33	TOTAL= 31.30	TOTAL= 47.48
DEPARTURE= 4.33	DEPARTURE= 7.50	DEPARTURE= 7.75	DEPARTURE= 10.15	DEPARTURE= 6.94	DEPARTURE= 10.94

PRECIPITATION ANALYSIS - MAY 1996

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
*ALCONY	.03	.12	.07	.65	.37	.30		.48	1.47		.81	1.15			T	.72	.12
ARCANUM	.08	.02	.18	.67	.45	.43		.57	.85		1.04	.10			.06	.47	.02
BEECHWOOD	.15	.18	.10	1.25	.66	.32		.65	.04		1.42	.07			.02	1.45	T
BROOKVILLE	.09	.07	.20	.79	.48	.45		.52	.24		1.25	.20			.07	.68	.02
CENTERVILLE 1NW	.15	.17	.14	1.32	.52	.41	.02	1.19	.14		1.56	.03			.04	.95	.01
COLLINSVILLE	.14	.12	.06	1.12	.61	.35		.87	.14		1.57	.13				1.83	.02
COVINGTON	.02	.09	.11	.68	.31	.39		.34	.73	.01	.97	.03			.05	.58	.10
DAYTON	.02	.16	.14	.92	.57	.24		.73	.16		.87	.41			T	.69	.02
DEGRAFF	.03	.12	.22	.54	.27	.40		.16	.43		1.14	.09			.01	.57	.26
EATON	.09	.13	.36	1.14	.55	.20	.01	.70	.38		1.33	.10			.02	1.00	.02
ENGLEWOOD DAM	.09	.09	.17	.76	.52	.49		.56	.37		1.44	.24			.03	.62	.02
FORT LORAMIE	.02	.08	.14	.44	.14	.53		.22	.43		.51	.02				.50	.12
FRANKLIN	.12		.07	1.11	.56	.11	T	.79	.15		1.58	.16			T	1.34	
GERMANTOWN DAM	.13	.07	.17	1.51	.53	.40		.91	.13		1.11	.20			.04	1.30	.01
GREENVILLE W.P.	.02	.03	.23	.62	.28	.36		.42	.71		.77	.06			.08	.37	.03
HAMILTON	.07	.09	.04	1.37	.62	.08		.43	.09		1.40	.19			.02	2.88	
HUFFMAN DAM	.09	.07	.14	.85	.52	.31		.74	.23		1.06	.21			T	.75	.02
INGOMAR	.12	.18	.36	1.29	.73	.28		.86	.30		1.56	.16			.08	.95	.03
LAKEVIEW 3NE	.09	.21	.09	.31	.17	.47	T	.09	.50	T	.60	.21	T		.27	.54	.33
LOCKINGTON	.06	.06	.13	.56	.31	.38	T	.22	.49		.55	.11			.02	.89	.15
MIAMISBURG	.15	.13	.16	1.59	.60	.32	T	1.34	.13		1.24	.14			.04	1.05	T
MIDDLETOWN	.10	.13	.11	1.15	.49	.20	T	.71	.18		1.58	.11			.02	1.30	T
NEW CARLISLE WWTP	.11	.12	.15	.70	.36	.33	T	.48	.84		1.35	.40	T		.03	.72	.07
OXFORD	.15	.21		1.10	.75	.48		.71	.15		1.65	.06			.05	2.02	.03
PIQUA	.04	.05	.15	.54	.30	.28		.32	.66		.85	.05			.03	.72	.11
PLEASANT HILL	.05	.05	.12	.63	.35	.39		.80	1.09		1.15	.18				.66	.07
SAINT PARIS		.17	.06	.57	.30	.40		.32	.89		.92	.85				.95	.17
SIDNEY	.02	.05	.15	.47	.27	.57		.17	.59		1.33	.07				.65	.11
*SPRINGBORO, SOUTH	.09	.12	.08	1.12	.67	.25		1.05	.07		1.20	.10			.03	1.33	.02
SPRINGFIELD WPC	.10	.06	.13	.66	.57	.40	T	.91	.34		1.18	.41			.01	.92	.30
SPRINGFIELD NORTH	.12	.04	.12	.58	.34	.33	T	.72	1.01		1.32	.53			T	.96	
TAYLORSVILLE DAM	.13	.09	.18	.82	.41	.48		.68	.63		1.53	.41			.04	.58	.13
TIPP CITY	.06		.20	.65	.52	.71		.65	.85		1.58	.22			.11	.53	.05
TROY	.05	.02	.10	.63	.52	.26	T	.70	.92		1.13	.23			.06	.64	.07
UNION CITY	.02		.05	.70	.19	.32		.30	.48		.68	.03			.25	.42	.03
URBANA	.05	.17	.08	.58	.38	.32		.46	1.02		1.42	.35			T	.92	.15
VERSAILLES	.07	.01	.08	.67	.24	.46		.28	.46		.97	.02				.82	.08
*WEST CARROLLTON	.06	.19	.18	1.62	.52	.65		.80	.18		1.18	.23			T	.81	.01
WEST LIBERTY	.11	.15	.11	.55	.34	.53		.27	.90		1.15	.42				.74	.40
WEST MANCHESTER 3SW	.09	.04	.27	.78	.52	.38		.58	.40		1.70	.14			.06	.52	T
WEST MILTON	.10	.04	.14	.63	.60	.32	T	.56	1.09		1.10	.15			.06	.50	.04

PRECIPITATION ANALYSIS - MAY 1996

	18	19	20	21	22	23	24	25	26	27	28	29	30	31	TOTAL	DEPARTURE
*ALCONY				.07	.04		.55	.10	.11	.04	.85	.21			8.26	******
ARCANUM				.03			.76	T	.13	.08	.91	.36			7.21	2.94
BEECHWOOD							.13	.45	.48	.60	.77	.13			8.87	4.69
BROOKVILLE					.15		.85	.07	.17	.21	1.06	.68	.01		8.26	3.85
CENTERVILLE 1NW					.05		.62	.06	.26	.60	.91	.34			9.49	5.19
COLLINSVILLE					.05		.10	.32	.59	.40	.69	.17			9.28	4.88
COVINGTON				.08	.03		.29	.05	.13	.08	.72	.41			6.20	2.22
DAYTON					.40		.82	.10	.12	.45	1.00	.32			8.14	4.35
DEGRAFF				.13			.20	.63	.09	.05	.69	.30			6.33	2.47
EATON					.07		.32	.09	.39	.65	.83	1.35			9.73	5.68
ENGLEWOOD DAM				T	.12		.58	.03	.14	.15	.97	.50			7.89	3.97
FORT LORAMIE				.08			.17	.37	.11	.05	.55	.05			4.53	1.01
FRANKLIN					.03		.74	.12	.37	.45	.86	.35			8.91	4.83
GERMANTOWN DAM				.08	.05		.30	.08	.41	.74	.68	.08			8.93	4.86
GREENVILLE W.P.				.05			.37	.03	.15	.08	.64	.71			6.01	2.21
HAMILTON					.08		.32	.63	.55	.63	.57	.37			10.43	6.44
HUFFMAN DAM				T	.52		.43	.25	.12	.23	.80	.56			7.90	3.99
INGOMAR				.28			.27	.10	.21	.52	.79	.43			9.50	5.59
LAKEVIEW 3NE				.09			.27	1.50	.05	.12	.55	.38	T		6.84	3.33
LOCKINGTON				.08			.16	.13	.11	.12	.65	.58			5.76	2.33
MIAMISBURG				T	.04		.61	.03	.32	.83	.97	.32			10.01	5.79
MIDDLETOWN					.03		.14	.29	.49	.40	.72	.19			8.34	4.24
NEW CARLISLE WWTP	T			.03			.78	.18	.08	.09	.73	.28	T		7.83	3.83
OXFORD					.07			.41	.60	.49	.84	.13			9.90	5.82
PIQUA	T			.07			.20	.06	.10	.05	.96	.58			6.12	2.35
PLEASANT HILL				.08	.01		.49	.14	.13	.07	.98	.37			7.81	4.00
SAINT PARIS				.05	.05			.28	.12	.05	.77	.56			7.48	3.30
SIDNEY				.15			.15	.30	.10	.09	.65	.94			6.83	3.12
*SPRINGBORO, SOUTH					.04		.74	.21	.33	.40	.61	.36			8.82	4.58
SPRINGFIELD WPC	T			.01	.14		.53	.09	.09	.09	.77	.33			8.04	4.11
SPRINGFIELD NORTH	T				.02		.48	.18	.05	.04	.78	.28			7.90	3.58
TAYLORSVILLE DAM	.01			.01	.15		.50	.07	.11	.14	.73	.44			8.27	4.25
TIPP CITY				.03			.86	.12	.09	.08	.98	.27			8.56	4.57
TROY				.03			.40	.03	.11	.05	.82	.52			7.29	3.53
UNION CITY				.14			.26	.15	.10	.11	.55	.19	T		4.97	1.27
URBANA				.14			.16	.06	.11	.02	.74	.34			7.47	3.60
VERSAILLES				.13			.16	.05	.10	.13	.87	.12			5.72	1.99
*WEST CARROLLTON	T			T	.14		.48	.05	.30	.60	.72	.15			8.87	4.51
WEST LIBERTY				.09			.17	.18		.14	.88	.29			7.42	3.48
WEST MANCHESTER 3SW				.04	T		1.14	.02	.21	.16	.98	.35			8.38	4.20
WEST MILTON				.04	T		1.00	.06	.13	.09	.84	.32			7.81	3.91

NOTE: * DENOTES THOSE STATIONS NOT INCLUDED IN THE BASIN AVERAGE

****** SHORT RECORD STATION. AVERAGE NOT AVAILABLE.