

APPENDIX VII
CSO Tables

WATERS of Jefferson County
Year Zero

**Watershed Approach To Environmentally
Responsible Stewardship**

Table 1. Flow Data CSO 110 - 8/6/98 through 11/10/98

<i>Date</i>	<i>Flow Monitor Overflow Quantity (Gallons)</i>	<i>Rainfall Total (RG 19) (inches)</i>	<i>SWMM Predicted Overflow Quantity (Gallons)</i>
AVERAGE ANNUAL OVERFLOW 15.3 MG/YR			
8/6/98	22,230	0.70	27,290
8/8/98	31,850	0.72	28,490
8/25/98	5,670	0.34	9,080
10/3/98	9,410	0.83	35,380
10/7/98	13,640	1.47	84,520
11/10/98	17,110	0.67	25,530

Table 2. Flow Data CSO 132 - 8/6/98 through 12/13/98

<i>Date</i>	<i>Flow Monitor Overflow Quantity (Gallons)</i>	<i>Rainfall Total (RG 7) (inches)</i>	<i>SWMM Predicted Overflow Quantity (Gallons)</i>
AVERAGE ANNUAL OVERFLOW 160.6 MG/YR			
8/6/98	1,156,780	0.24	456,350
8/7/98	215,830	0.16	251,040
8/8/98	202,670	0.08	90,370
8/9/98	42,420	0.38	898,400
8/26/98	159,600	0.11	144,500
8/29/98	152,940	0.14	206,190
9/21/98	130,660	0.14	206,190
9/25/98	45,860	0.10	125,560
10/3/98	1,145,130	0.77	2,544,240
10/7/98	1,429,530	1.23	5,074,480
10/18/98	186,420	0.29	603,180
11/3/98	128,870	0.12	164,280
11/9/98	174,670	0.22	401,420
11/10/98	590,450	0.67	2,072,550
11/19/98	660,620	0.33	729,730
11/20/98	317,870	0.40	968,960
11/25/98	741,590	0.56	1,591,110
12/7/98	744,600	0.76	2,495,690
12/8/98	137,280	0.22	401,420
12/13/98	376,290	0.39	933,470

Table 3. Flow Data Southern Outfall - 8/6/98 through 8/9/98

<i>Date</i>	<i>Flow Monitor Overflow Quantity (Gallons)</i>	<i>Rainfall Total (RG10) (inches)</i>	<i>SWMM Predicted Overflow Quantity (Gallons)</i>
AVERAGE ANNUAL OVERFLOW 892.6 MG/YR			
8/6/98	18,638,010	0.98	19,946,800
8/7/98	6,654,200	0.01	24,620
8/8/98	5,551,050	0.12	928,290
8/9/98	2,047,530	0.39	5,192,450
Totals	32,890,790	1.50	26,092,160

TABLE 4

REGION 1 - RECOMMENDED LTCP COSTS

LTCP DESCRIPTION	CSOs	COSTS
Solids & Floatables Control	82,120,121,153	\$778,700
	141	\$560,600
	20	\$2,185,100
	113,152	\$1,063,200
	148	\$560,700
	109	\$562,800
	86,140	\$688,300
	144	\$560,600
	172	\$560,600
	62	\$1,360,400
Sub-Total		\$8,881,000
Off-Line Storage Basins	83,84,118,119	\$7,838,900
	117,179,146,149	\$9,908,600
	110,111,151	\$6,900,400
	97,106,137	\$2,837,600
	125,126,127,166	\$10,785,300
	132,167,154	\$8,736,400
Sub-Total		\$47,007,200
In-Line Storage	SBRD	\$1,200,000
CDS Facility	108	\$1,000,000
Mini-Separation Projects	123	\$0
	086	\$430,000
	087	\$582,000
	088	\$500,000
	091	\$654,000
	092	\$591,000
	093	\$1,079,000
	130	\$1,476,000
	131	\$2,308,000
	147	\$1,000,000
Sub-total		\$8,620,000
Sewer Separation Projects	206	\$6,950,000
	209	\$1,515,200
Sub-total		\$8,465,200
CSO Elimination	080	\$250,000
In-System Diversions	Goldsmith Lane	\$9,526,000
	Southeastern	\$9,340,000
	West County	\$8,370,000
	WCWTP Expansion	\$40,000,000
Sub-total		\$67,236,000
Sewer Cleaning & Isolation	NSTS	\$8,600,000
TOTAL - REGION 1		\$151,259,400

Indicates "Base Control Options"

TABLE 8 (Continued)

COMBINED SEWER OVERFLOW TABULATION
STATUS THROUGH SEPTEMBER, 1999

CSO NO.	CSO NAME	LOCATION	RECEIVING STREAM	AVG. ANN. OVERFLOW (MG/YR)	OVERFLOW TYPES AND CONFIGURATION										STATUS	LATITUDE - N			LONGITUDE - E			COMMENTS	
					REG	DAM	RACK BARS	DIV SEWER DIA	SIDE WEIR	SIDE WEIR LENGTH	HIGH LEVEL	HIGH LEVEL DIA	LEAP WEIR	DIV SEWER DIA		ORIFICE	DEG	MIN	SEC	DEG	MIN		SEC
150	8th ST @ COMMON PLACE	8th ST & COMMON PLACE	OR	Part of 53		X		8"								ACTIVE	38	15	28.7	85	45	46.8	
151	REG NO 5 - CASTLEWOOD	BGC & CASTLEWOOD DELL	SF BGC	61.4	X		H	24"								ACTIVE	38	13	47.6	85	43	30.8	
152	REG NO 7 - SOUTHEASTERN	BGC & RUFER AVENUE	SF BGC	42.1	X		H	18"								ACTIVE	38	14	1.3	85	43	43.1	
153	COOPER STREET	LEXINGTON & COOPER	SF BGC	10.6		X		8"								ACTIVE	38	15	0.3	85	43	47.3	
154	MELLWOOD @ SCHOEFFEL	MELLWOOD AVE & EDWD POND BR	MudF BGC	10.7		X		12" & 15"								ACTIVE	38	15	43.3	85	42	55.2	
155	ROWAN ST @ 12th ST	ROWAN & 12th	OR	1.2		X		8"								ACTIVE	38	15	33.8	85	46	10.7	
156	6th & WASHINGTON SAN DIV	WASHINGTON W OF 6th	OR	0		X		6"								ACTIVE	38	15	27.5	85	45	35.7	
160	SEWER IN ALLEY SAN DIV	1ST ST BTW MAIN & MARKET	OR	0.9		X		6"								ACTIVE	38	15	19.3	85	45	5.7	
161	MARKET ST SAN DIV	FIRST & MARKET	OR	0.8		X		8"								ACTIVE	38	15	17.0	85	45	6.7	
162	BEALS BRANCH HW REG	ON MFT S OF LEXINGTON	MF BGC	0	X			24"								ELIMINATED	38	14	39.8	85	41	52.6	Overflow Plugged
166	BEALS BRANCH SAN DIV	LEXINGTON RD & I-64	MF BGC	57.9		X	H	24"								ACTIVE	38	14	41.8	85	41	79.1	
167	BROWNSBORO LAT NO 2	BROWNSBORO & DRESCHER B	MudF BGC	Part of 132		X		15"								ACTIVE	38	15	36.6	85	42	43.4	
172	ADAMS STREET	ADAMS ST & I-64	OR	0.9					X	3'-6"						ACTIVE	38	15	46.7	85	43	46.8	
174	SBR GOSS & BOYLE	GOSS AVE & BOYLE ST	SF BGC	Part of 146					X	4'						ACTIVE	38	13	46.5	85	44	20.9	
178	CRD 9th & YORK "B"	9th & YORK	OR	0.2					X	8'						ACTIVE	38	14	41.7	85	46	1.5	
179	KENTUCKY ST SEWER OVFL	KENTUCKY ST & ST PAUL CT	SF BGC	Part of 117					X							ACTIVE	38	14	14.0	85	44	37.5	
180	SBR ORMSBY AVE RELIEF	ORMSBY & CLAY	SF BGC	Part of 146					X	6'						ACTIVE	38	13	49.4	85	44	39.0	
181	CRD 2nd & BROADWAY NO 2	2nd & BROADWAY	OR	1					X	5'-9"						ACTIVE	38	14	45.0	85	45	18.2	
182	SBR SHELBY & BURNETT	BURNETT W OF SHELBY ST	SF BGC	Part of 146					X	5'						ACTIVE	38	13	30.0	85	44	34.1	
183	SBR ALEXANDER & KESWICK	ALEXANDER & KESWICK	SF BGC	Part of 146							X	18"				ACTIVE	38	13	7.2	85	44	33.9	
184	SBR FETTER & ALEXANDER	FETTER & ALEXANDER	SF BGC	Part of 146					X	4'-6"						ACTIVE	38	13	0.7	85	44	28.3	
185	SBR SHELBY & KESWICK	SHELBY & KESWICK	SF BGC	Part of 146					X	4'						ACTIVE	38	13	5.3	85	44	38.2	
186	SBR LOGAN & OAK	LOGAN & OAK	SF BGC	Part of 146					X	7'						ACTIVE	38	13	59.8	85	44	23.8	
187	SBR SHELBY & CAMP	SHELBY & CAMP	SF BGC	Part of 146					X	4'						ACTIVE	38	13	52.5	85	44	30.6	
188	SBR SHELBY & CLAY	SHELBY & CLAY	SF BGC	Part of 146					X	4'						ACTIVE	38	13	55.6	85	44	37.4	
189	NORTHWESTERN SAN DIV	SHAWNEE PARK FLOOD PS	OR	264.1					X	27'						ACTIVE	38	15	19.2	85	49	37.7	
190	SEVENTEENTH ST SAN DIV	17th ST & NW PKWY	OR	20.1		X		24"								ACTIVE	38	15	52.4	85	46	29.3	
191	ALGONQUIN PKWY SAN DIV	SOUTHWESTERN PS	OR	43.9		X		24"								ACTIVE	38	13	16.0	85	49	24.5	
192	CRD S 6th & GARLAND	6th & GARLAND	OR	1.1					X	4'						ACTIVE	38	14	27.9	85	45	45.5	
193	CRD S 6th & KENTUCKY	6th & KENTUCKY	OR	1.3					X	4'						ACTIVE	38	14	24.0	85	45	46.1	
194	CRD S OAK W OF 4th	OAK ST W OF 4th ST	OR	0					X	6'						ACTIVE	38	14	6.4	85	45	40.8	
195	CRD S 4th & OAK	4th & OAK	OR	0.4					X	4'						ACTIVE	38	14	5.8	85	45	37.2	
196	CRD S 3rd & OAK	3rd & OAK	OR	2.2					X	4'						ACTIVE	38	14	4.8	85	45	30.9	
197	CRD S 3rd S OF OAK	3rd ST S OF OAK ST	OR	1					X	4'						ACTIVE	38	14	3.1	85	45	31.5	
198	CRD S 3rd & ORMSBY	3rd & ORMSBY	OR	2.8					X	4'						ACTIVE	38	13	58.2	85	45	32.1	
199	CRD S 3rd N OF MAGNOLIA	3rd ST N OF MAGNOLIA	OR	0.1					X	4'						ACTIVE	38	13	49.2	85	45	33.7	
200	CRD S 3rd & MAGNOLIA	3rd & MAGNOLIA	OR	0.9					X	4'						ACTIVE	38	13	44.7	85	45	34.5	
201	CRD S 5th & KENTUCKY	5th & KENTUCKY	OR	0.3					X	4'						ACTIVE	38	14	20.9	85	45	38.3	
202	CRD S ORMSBY W OF 3rd	ORMSBY W OF 3rd ST	OR	0.3					X	4'						ACTIVE	38	13	58.0	85	45	35.3	
203	CRD S 4th & ORMSBY	4th & ORMSBY	OR	0.2					X	4'						ACTIVE	38	13	58.3	85	45	38.5	
204	CRD S 5th & BRECKINRIDGE	5th & BRECKINRIDGE	OR	1.1					X	4'						ACTIVE	38	14	30.9	85	45	38.1	
205	SBR MORGAN STREET RELIEF	MORGAN & HOERTZ	SF BGC	Part of 146							X	15"				ACTIVE	38	13	20.8	85	44	30.1	
206	CHEROKEE PARK @ SPRING DR	CHEROKEE RD & SPRING DR	MF BGC	73.6		X		8"								ACTIVE	38	14	0.3	85	41	45.8	
207	2nd & JEFFERSON	2ND & JEFFERSON	OR	0		X		8"								ACTIVE	38	15	12.5	85	45	12.8	
208	12th & JEFFERSON	12th & JEFFERSON	OR	0.03		X		12"								ACTIVE	38	15	18.5	85	46	13.0	
209	CHEROKEE PK @ PARK BD RD	CHEROKEE PK @ PARK BD RD	MF BGC	7.9		X										ACTIVE	38	14	0.3	85	41	45.8	

Notes:
OR - Ohio River
SF-BGC - South Fork of Beargrass Creek
MF-BGC - Middle Fork of Beargrass Creek
L-BGC - Lower Beargrass Creek
SBR - Sheads Branch Relief Sewer
CRD - Central Relief Drain

**TABLE 13
AVERAGE ANNUAL POLLUTANT LOADS**

MODEL	MAJOR SEWER OR OVERFLOW	RECEIVING STREAM	AVERAGE ANNUAL OVERFLOW VOLUME (MG/Yr)	AVERAGE ANNUAL OVERFLOW VOLUME (MG/Yr)	AVERAGE CONCENTRATIONS FROM SAMPLING DATA		AVERAGE ANNUAL POLLUTANT LOADS			
			1996	1998	BOD (mg/L)	TSS (mg/L)	BOD (LBS/Yr)		TSS (LBS/Yr)	
			1996	1998	1996	1998	1996	1998		
BG12	NUMEROUS	SOUTH FORK	347.9	347.9	36	104	104,500	104,500	302,000	302,000
BGR	CSO 020 & 062	UPPER POOL	116.5	116.5	36	104	35,000	35,000	101,100	101,100
BGR	NUMEROUS	SOUTH FORK	476.2	473.9	36	104	143,100	142,400	413,300	411,300
BGR	NUMEROUS	MIDDLE FORK	224.3	218.7	36	104	67,400	65,700	194,700	189,800
BGR	NUMEROUS	LOWER BEARGRASS	184.3	184.3	36	104	55,400	55,400	160,000	160,000
CRD	CENTRAL RELIEF	UPPER POOL	44.6	44.6	36	104	13,400	13,400	38,700	38,700
ORI	NUMEROUS	UPPER POOL	69.3	69.3	36	104	20,800	20,800	60,200	60,200
ORI	CSO 019	LOWER POOL	181.9	181.9	99	207	150,300	150,300	314,200	314,200
NWSO	NORTHWESTERN INT.	LOWER POOL	264.1	264.1	99	207	218,200	218,200	456,300	456,300
NWSO	WESTERN OUTFALL/INT.	LOWER POOL	223.7	223.7	99	207	184,800	184,800	386,500	386,500
NWSO	SOUTHERN OUTFALL	LOWER POOL	892.6	892.6	238	343	1,773,000	1,773,000	2,555,200	2,555,200
SWO	SOUTHWESTERN OUTFALL	LOWER POOL	2,357.2	2,346.6	99	207	1,947,600	1,938,900	4,072,300	4,054,000
TOTALS			5,382.6	5,364.1			4,713,500	4,702,400	9,054,500	9,029,300
AVERAGE ANNUAL LOADS BY BASIN										
		SOUTH FORK	824.1	821.8			247,600	246,900	715,300	713,300
		MIDDLE FORK	224.3	218.7			67,400	65,700	194,700	189,800
		LOWER BEARGRASS	184.3	184.3			55,400	55,400	160,000	160,000
		UPPER POOL	230.4	230.4			69,200	69,200	200,000	200,000
		LOWER POOL	3,919.5	3,908.9			4,273,900	4,265,200	7,784,500	7,766,200
		TOTALS	5,382.6	5,364.1			4,713,500	4,702,400	9,054,500	9,029,300

**TABLE 14
OVERFLOWS vs. FLOOD STAGE
OHIO RIVER**

CSO	Combined Sewer System Region	Receiving Stream	Regulator Invert Elevation	Overflow Elevation	Depth to Overflow	Overflow Outlet Elevation	Creek Invert Elevation	Flap Gate	Upper or Lower Pool	FLOOD STAGES										Notes
										1-Year U-424.0 L-416.0	2-Year U-428.0 L-423.0	5-Year U-435.0 L-432.0	10-Year U-440.0 L-437.0	25-Year U-445.0 L-443.0	50-Year U-449.0 L-446.0	100-Year U-451.0 L-448.0	500-Year U-456.0 L-454.0	1937 Flood U-461.0 L-459.0		
(A)	(B)	(C)	(D)	(E)	(F)	(G)	(H)	(I)	(J)	(K)	(L)	(M)	(N)	(O)	(P)	(Q)	(R)	(S)	(T)	
15	3	Ohio	393.44	399.50	6.06	358.29	Ohio	N	L	No	Yes	Yes	No	No	No	No	No	No	Protected by PRFPS, Gate closes at 435.0 Gate closes @ 400.0, opens @ 417.0	
16	3	Ohio	415.34	416.58	1.24	413.38	Ohio	N	L	No	No	No	No	No	No	No	No	No	Protected by WPFPS, closes @ 416.4	
19	2	Ohio	418.40	421.83	3.43	417.81	Ohio	N	L	No	Yes	Yes	No	No	No	No	No	No	Gate #71 closes @ 435.00	
20	1	Ohio	419.38	423.77	4.39	404.62	Ohio	N	U	No	No	No	No	No	No	No	No	No	Gate #23 closes @ 423.10	
22	2	Ohio	418.31	420.80	2.49	407.35	Ohio	N	U	Yes	Yes	Yes	No	No	No	No	No	No	Gate #33 closes @ 436.30	
23	2	Ohio	440.00	443.50	3.50	420.00	Ohio	N	U	No	No	No	No	No	No	No	No	No	Gate #33 closes @ 436.30	
26	2	Ohio	443.10	444.83	1.73	430.00	430.00	N	U	No	No	No	No	No	No	No	No	No	Gate on CRD closes @ 439.00	
27	2	Ohio	442.47	444.62	2.15	428.50	428.50	N	U	No	No	No	No	No	No	No	No	No	Gate on CRD closes @ 439.00	
28	2	Ohio	441.50	444.72	3.22	433.15	433.15	N	U	No	No	No	No	No	No	No	No	No	Gate on CRD closes @ 439.00	
29	2	Ohio	439.60	440.93	1.33	432.00	432.00	N	U	No	No	No	No	No	No	No	No	No	Gate on CRD closes @ 439.00	
30	2	Ohio	439.58	440.43	0.85	433.70	433.70	N	U	No	No	No	No	No	No	No	No	No	Gate on CRD closes @ 439.00	
31	2	Ohio	442.12	443.70	1.58	434.50	434.50	N	U	No	No	No	No	No	No	No	No	No	Gate on CRD closes @ 439.00	
32	2	Ohio	447.48	449.04	1.56	442.42	442.42	N	U	No	No	No	No	No	No	No	No	No	Gate on CRD closes @ 439.00	
33	2	Ohio	441.85	442.64	0.79	441.11	441.11	N	U	No	No	No	No	No	No	No	No	No	Gate on CRD closes @ 439.00	
34	2	Ohio	441.49	441.99	0.50	438.87	438.87	N	U	No	No	No	No	No	No	No	No	No	Gate on CRD closes @ 439.00	
35	2	Ohio	438.10	440.32	2.22	434.99	434.99	N	U	No	No	No	No	No	No	No	No	No	Gate on CRD closes @ 439.00	
36	2	Ohio	438.86	441.02	2.16	437.00	434.01	N	U	No	No	No	No	No	No	No	No	No	Gate on CRD closes @ 439.00	
38	2	Ohio	444.92	445.91	0.99	430.50	430.50	N	U	No	No	No	No	No	No	No	No	No	Gate on CRD closes @ 439.00	
50	2	Ohio	435.70	436.63	0.93	414.28	Ohio	N	U	No	No	No	No	No	No	No	No	No	Gate closes @ 435.30	
51	2	Ohio	438.34	438.74	0.40	429.55	Ohio	Y	U	No	No	No	No	No	No	No	No	No		
52	2	Ohio	436.83	438.39	1.56	423.23	Ohio	N	U	No	No	No	No	No	No	No	No	No	Gate closes @ 434.60	
53	2	Ohio	443.29	443.81	0.52	434.23	Ohio	N	U	No	No	No	No	No	No	No	No	No	Gate on CRD closes @ 439.00	
54	2	Ohio	440.12	440.35	0.23	440.12	Ohio	N	U	No	No	No	No	No	No	No	No	No	Gate closes @ 435.30	
55	2	Ohio	438.98	439.85	0.87	435.64	Ohio	N	U	No	No	No	No	No	No	No	No	No	Gate closes @ 435.30	
56	2	Ohio	443.06	444.55	1.49	440.56	Ohio	N	U	No	No	No	No	No	No	No	No	No	Gate closes @ 434.30	
57	2	Ohio	432.49	449.90	17.41	-	Ohio	N	U	No	No	No	No	No	No	No	No	No	Gate closes @ 448.50	
58	2	Ohio	442.35	447.10	4.75	405.65	Ohio	N	U	No	No	No	No	No	No	No	No	No	Gate closes @ 446.00	
62	1	Ohio	417.30	423.20	5.90	404.62	Ohio	N	U	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Flap Gate to be Installed	
81	1	SF-BGC	436.81	440.31	3.50	420.00	418.00	Y	U	No	No	No	No	No	No	No	No	No	Protected by BGCFPS above 432.6	
87	1	SF-BGC	439.81	441.70	1.89	419.00	419.00	N	U	No	No	No	No	No	No	No	No	No	Protected by BGCFPS above 432.6	
88	1	SF-BGC	426.20	429.10	2.90	419.00	419.00	N	U	No	No	Yes	No	No	No	No	No	No	Protected by BGCFPS above 432.6	
93	1	SF-BGC	435.94	438.61	2.67	420.00	420.00	N	U	No	No	No	No	No	No	No	No	No	Protected by BGCFPS above 432.6	
104	3	Ohio	430.03	431.63	1.60	429.44	Ohio	N	L	No	No	Yes	No	No	No	No	No	No	Gate closes @ 435.00	
105	3	Ohio	426.61	429.30	2.69	426.60	Ohio	N	L	No	No	Yes	No	No	No	No	No	No	Gate closes @ 435.00	
131	1	SF-BGC	435.43	437.33	1.90	434.38	419.00	N	U	No	No	No	No	No	No	No	No	No	Protected by BGCFPS above 432.6	
132	1	MudF-BGC	425.90	428.06	2.16	416.50	416.00	N	U	No	Yes	Yes	No	No	No	No	No	No	Protected by BGCFPS above 432.6	
145	1	SF-BGC	409.33	418.00	8.67	-	P.S.	N	U	Yes	Yes	No	No	No	No	No	No	No	Protected by BGCFPS above 432.6	
150	2	Ohio	438.03	438.85	0.82	415.53	Ohio	N	U	No	No	No	Yes	No	No	No	No	No	Gate on CRD closes @ 439.00	
154	1	MudF-BGC	424.11	428.22	4.11	417.59	416.00	N	U	No	No	No	No	No	No	No	No	No	Protected by BGCFPS above 432.6	
155	2	Ohio	439.91	440.65	0.74	416.75	Ohio	N	U	No	No	No	No	No	No	No	No	No	Gate closes @ 435.30	
156	2	Ohio	442.90	443.22	0.32	439.88	Ohio	N	U	No	No	No	No	No	No	No	No	No	Gate closes @ 435.30	
160	2	Ohio	447.75	448.37	0.62	451.35	Ohio	N	U	No	No	No	No	No	Yes	No	No	No	Gate closes @ 448.50	
161	2	Ohio	452.03	452.83	0.80	432.26	Ohio	N	U	No	No	No	No	No	No	No	No	No	Gate closes @ 448.50	

TABLE 14 (Continued)
OVERFLOWS vs. FLOOD STAGE
OHIO RIVER

CSO	Combined Sewer System Region	Receiving Stream	Regulator Invert Elevation	Overflow Elevation	Depth to Overflow	Overflow Outlet Elevation	Creek Invert Elevation	Flap Gate	Upper or Lower Pool	FLOOD STAGES										Notes
										1-Year U-424.0 L-416.0	2-Year U-428.0 L-423.0	5-Year U-435.0 L-432.0	10-Year U-440.0 L-437.0	25-Year U-445.0 L-443.0	50-Year U-449.0 L-446.0	100-Year U-451.0 L-448.0	500-Year U-456.0 L-454.0	1937 Flood U-461.0 L-459.0		
(A)	(B)	(C)	(D)	(E)	(F)	(G)	(H)	(I)	(J)	(K)	(L)	(M)	(N)	(O)	(P)	(Q)	(R)	(S)	(T)	
167	1	MudF-BGC	429.59	432.18	2.59	428.93	416.00	N	U	No	No	Yes	No	No	No	No	No	No	Protected by BGCFFPS above 432.6	
172	1	Ohio	428.19	428.80	0.61	417.59	419.00	Y	U	No	No	No	No	No	No	No	No	No	No	
178	2	Ohio	439.36	440.77	1.41	433.92	433.92	N	U	No	No	No	No	No	No	No	No	No	Gate on CRD closes @ 439.00	
181	2	Ohio	438.94	440.47	1.53	435.02	435.02	N	U	No	No	No	No	No	No	No	No	No	Gate on CRD closes @ 439.00	
189	3	Ohio	420.60	424.10	3.50	377.00	Ohio	N	L	No	No	Yes	No	No	No	No	No	No	Protected by SPFFPS, closes @ 435.0	
190	2	Ohio	436.20	438.20	2.00	435.44	Ohio	N	U	No	No	No	No	No	No	No	No	No	Gate closes @ 437.50	
191	3	Ohio	411.57	413.87	2.30	398.51	Ohio	N	L	No	Yes	Yes	No	No	No	No	No	No	Protected by PRFFPS, Gate closes at 435.0 Gate closes @ 400.0, opens @ 417.0	
192	2	Ohio	444.59	445.34	0.75	436.09	436.09	N	U	No	No	No	No	No	No	No	No	No	Gate on CRD closes @ 439.00	
193	2	Ohio	445.38	446.13	0.75	436.50	436.50	N	U	No	No	No	No	No	No	No	No	No	Gate on CRD closes @ 439.00	
194	2	Ohio	450.42	451.17	0.75	439.68	439.68	N	U	No	No	No	No	No	No	No	No	No	Gate on CRD closes @ 439.00	
195	2	Ohio	449.75	450.50	0.75	440.06	440.06	N	U	No	No	No	No	No	No	No	No	No	Gate on CRD closes @ 439.00	
196	2	Ohio	445.02	445.52	0.50	440.78	440.78	N	U	No	No	No	No	No	No	No	No	No	Gate on CRD closes @ 439.00	
197	2	Ohio	445.56	445.98	0.42	441.40	441.40	N	U	No	No	No	No	No	No	No	No	No	Gate on CRD closes @ 439.00	
198	2	Ohio	445.70	446.20	0.50	442.10	442.10	N	U	No	No	No	No	No	No	No	No	No	Gate on CRD closes @ 439.00	
199	2	Ohio	446.80	447.30	0.50	443.77	443.77	N	U	No	No	No	No	No	No	No	No	No	Gate on CRD closes @ 439.00	
200	2	Ohio	447.09	447.59	0.50	444.70	444.70	N	U	No	No	No	No	No	No	No	No	No	Gate on CRD closes @ 439.00	
201	2	Ohio	447.93	448.43	0.50	440.09	440.09	N	U	No	No	No	No	No	No	No	No	No	Gate on CRD closes @ 439.00	
202	2	Ohio	449.10	449.43	0.33	442.09	445.36	N	U	No	No	No	No	No	No	No	No	No	Gate on CRD closes @ 439.00	
203	2	Ohio	451.83	452.58	0.75	442.95	442.95	N	U	No	No	No	No	No	No	No	No	No	Gate on CRD closes @ 439.00	
204	2	Ohio	449.98	450.48	0.50	441.17	441.17	N	U	No	No	No	No	No	No	No	No	No	Gate on CRD closes @ 439.00	
207	2	Ohio	454.05	454.15	0.75	432.26	Ohio	N	U	No	No	No	No	No	No	No	Yes	Yes		
208	2	Ohio	446.15	447.10	0.67	413.46	Ohio	N	U	No	No	No	No	No	Yes	Yes	Yes	Yes		

Notes:

Upper Pool Flood Stage is based on location where Beargrass Creek discharges to Ohio River.
Lower Pool Flood Stage is based on location just downstream of docks on Ohio River.
Normal Upper Pool Elevation is 420.00. Normal Lower Pool Elevation is 381.00.

- N/A = Not Available
- Ohio = Ohio River
- CRD = Central Relief Drain
- SF-BGC = South Fork Beargrass Creek
- MudF-BGC = Muddy Fork Beargrass Creek
- S.O. = Southern Outfall
- PRFFPS = Paddy's Run Flood Pumping Station
- WPFPS = Western Parkway Flood Pumping Station
- BGCFFPS = Beargrass Creek Flood Pumping Station
- SPFFPS = Shawnee Park Flood Pumping Station

TABLE 15
OVERFLOWS vs. FLOOD STAGE
BEARGRASS CREEK

CSO	Combined Sewer System Region	Receiving Stream	Regulator Invert Elevation	Overflow Elevation	Depth to Overflow	Overflow Outlet Elevation	Creek Invert Elevation	Flap Gate	Upper or Lower Pool	FLOOD STAGES			Notes
										2-Year	10-Year	25-Year	
(A)	(B)	(C)	(D)	(E)	(F)	(G)	(H)	(I)	(J)	(L)	(N)	(O)	(T)
18	1	SF-BGC	440.68	446.35	5.67	445.00	SF-BGC	Y	U	No	No	No	
65	1	SF-BGC	441.24	444.68	3.44	429.00	429.00	N	U	N/A	N/A	N/A	CSO Eliminated
80	1	MF-BGC	433.33	434.26	0.93	429.83	429.00	N	U	N/A	N/A	N/A	CSO Elimination Ongoing
81	1	SF-BGC	436.81	440.31	3.50	420.00	418.00	Y	U	No	No	No	
82	1	SF-BGC	420.92	425.49	4.57	424.81	422.00	Y	U	No	No	No	
83	1	SF-BGC	439.14	441.64	2.50	427.14	426.00	N	U	No	No	Yes	
84	1	SF-BGC	432.15	433.00	0.85	426.85	426.00	N	U	Yes	Yes	Yes	
86	1	MF-BGC	442.76	444.83	2.07	437.36	432.00	N	U	No	Yes	Yes	
87	1	SF-BGC	439.81	441.70	1.89	419.00	419.00	N	U	No	No	No	
88	1	SF-BGC	426.20	429.10	2.90	419.00	419.00	N	U	No	Yes	Yes	
91	1	SF-BGC	448.80	451.53	2.73	433.00	433.00	Y	U	No	No	No	
92	1	SF-BGC	433.97	444.31	10.34	435.24	433.40	N	U	No	No	Yes	
93	1	SF-BGC	435.94	438.61	2.67	420.00	420.00	N	U	No	No	No	
97	1	SF-BGC	439.24	442.92	3.68	439.93	438.92	Y	U	No	No	No	
106	1	SF-BGC	447.96	448.38	0.42	441.00	439.00	N	U	No	Yes	Yes	
108	1	SF-BGC	448.30	450.85	2.55	447.05	445.00	N	U	Yes	Yes	Yes	New Flap Gate under Construction - 11/99
109	1	SF-BGC	447.63	448.68	1.05	443.46	442.00	N	U	Yes	Yes	Yes	
110	1	SF-BGC	440.80	442.82	2.02	439.00	439.00	N	U	Yes	Yes	Yes	
111	1	SF-BGC	441.10	445.18	4.08	444.41	438.82	Y	U	No	No	No	
113	1	SF-BGC	443.50	444.50	1.00	442.17	434.95	N	U	No	Yes	Yes	
117	1	SF-BGC	433.55	436.21	2.66	430.69	429.40	Y	U	No	No	No	
118	1	SF-BGC	430.06	431.87	1.81	426.79	425.80	Y	U	No	No	No	
119	1	SF-BGC	428.93	431.11	2.18	431.00	425.47	N	U	Yes	Yes	Yes	
120	1	SF-BGC	430.14	431.73	1.59	424.00	423.50	Y	U	No	No	No	
121	1	SF-BGC	428.77	430.02	1.25	424.25	423.00	Y	U	No	No	No	
125	1	MF-BGC	437.02	439.68	2.66	439.23	435.00	N	U	Yes	Yes	Yes	
126	1	MF-BGC	434.44	438.95	4.51	438.50	434.00	N	U	Yes	Yes	Yes	
127	1	MF-BGC	441.07	442.27	1.20	439.00	437.00	N	U	Yes	Yes	Yes	
130	1	SF-BGC	425.45	426.89	1.44	424.75	420.00	N	U	Yes	Yes	Yes	
131	1	SF-BGC	435.43	437.33	1.90	434.38	419.00	N	U	No	No	No	
132	1	MudF-BGC	425.90	428.06	2.16	416.50	416.00	N	U	No	Yes	Yes	
137	1	SF-BGC	452.62	453.54	0.92	441.00	441.00	N	U	No	No	Yes	

TABLE 15 (Continued)
OVERFLOWS vs. FLOOD STAGE
BEARGRASS CREEK

CSO	Combined Sewer System Region	Receiving Stream	Regulator Invert Elevation	Overflow Elevation	Depth to Overflow	Overflow Outlet Elevation	Creek Invert Elevation	Flap Gate	Upper or Lower Pool	FLOOD STAGES			Notes
										2-Year	10-Year	25-Year	
(A)	(B)	(C)	(D)	(E)	(F)	(G)	(H)	(I)	(J)	(L)	(N)	(O)	(T)
140	1	MF-BGC	432.17	433.79	1.62	432.87	430.00	Y	U	Yes	Yes	Yes	
141	1	SF-BGC	435.32	437.57	2.25	425.09	424.00	N	U	No	Yes	Yes	
142	1	SF-BGC	450.05	451.05	1.00	431.85	430.83	N	U	No	No	No	
144	1	MF-BGC	443.69	443.99	0.30	435.03	434.00	N	U	Yes	Yes	Yes	
145	1	SF-BGC	409.33	418.00	8.67	-	P.S.	N	U	Yes	Yes	Yes	
146	1	SF-BGC	438.20	439.31	1.11	430.76	430.76	N	U	No	No	No	
147	1	SF-BGC	443.41	443.57	0.16	437.86	430.53	N	U	No	No	Yes	
148	1	SF-BGC	453.15	453.82	0.67	444.57	438.80	N	U	No	No	No	
149	1	SF-BGC	434.70	437.61	2.91	432.81	430.78	N	U	No	Yes	Yes	
151	1	SF-BGC	438.92	441.58	2.66	436.99	436.00	N	U	Yes	Yes	Yes	
152	1	SF-BGC	438.84	441.25	2.41	435.05	435.05	N	U	Yes	Yes	Yes	
153	1	SF-BGC	426.35	426.85	0.50	423.50	422.50	N	U	Yes	Yes	Yes	
154	1	MudF-BGC	424.11	428.22	4.11	417.59	416.00	N	U	No	Yes	Yes	
162	1	MF-BGC	433.61	438.50	4.89	436.00	436.00	Y	U	N/A	N/A	N/A	CSO Eliminated
166	1	MF-BGC	441.95	443.09	1.14	441.98	437.00	N	U	Yes	Yes	Yes	
167	1	MudF-BGC	429.59	432.18	2.59	428.93	416.00	N	U	No	Yes	Yes	
174	1	SF-BGC	442.57	445.08	2.51	443.87	430.83	N	U	No	No	No	
179	1	SF-BGC	434.47	440.72	6.25	432.81	430.78	N	U	No	Yes	Yes	
180	1	SF-BGC	446.75	447.51	0.76	445.07	445.01	N	U	No	No	No	
182	1	SF-BGC	450.23	451.65	1.42	445.00	430.83	N	U	No	No	No	
183	1	SF-BGC	459.04	459.75	0.71	459.40	450.75	N	U	No	No	No	
184	1	SF-BGC	459.85	460.85	1.00	458.35	430.83	N	U	No	No	No	
185	1	SF-BGC	455.92	456.78	0.86	454.61	430.83	N	U	No	No	No	
186	1	SF-BGC	452.79	453.27	0.48	432.73	430.83	N	U	No	No	No	
187	1	SF-BGC	450.23	451.65	1.42	445.00	430.83	N	U	No	No	No	
188	1	SF-BGC	459.85	460.85	1.00	458.35	430.83	N	U	No	No	No	
205	1	SF-BGC	459.85	460.85	1.00	458.35	430.83	N	U	No	No	No	
206	1	MF-BGC	467.13	468.46	1.33	440.35	440.00	N	U	No	No	No	
209	1	MF-BGC	451.09	451.59	0.50	449.50	N/A	N	U	N/A	N/A	N/A	

Notes:

Upper Pool Flood Stage is based on location where Beargrass Creek discharges to Ohio River.
Normal Upper Pool Elevation is 420.00.

N/A = Not Available

Ohio = Ohio River

SF-BGC = South Fork of Beargrass Creek

MF-BGC = Middle Fork of Beargrass Creek

MudF-BGC = Muddy Fork of Beargrass Creek

Table 16. CSO 108 Stream Sampling - January 31, 1999

Location	Date	Time	BOD	Settable Solids	Total Solids	TDS	TSS	TVSS	Total P	TKN
1-1(554)	31-Jan-99	1150	<6 (1)	0.1	488	424	64	43	0.06	0.8
1-2	31-Jan-99	1440	<6 (2)	0.3	380	330	51	25	0.06	2.0
1-3	31-Jan-99	1510	<6 (3)	0.1	420	352	70	34	0.1	0.4
1-4	31-Jan-99	1545	4	0.5	608	236	373	247	0.3	2.0
1-5	31-Jan-99	1620	35	1.5	180	64	116	36	0.73	3.0
1-6	31-Jan-99	1725	6	1.5	730	122	608	460	0.46	1.0
2-1(553)	31-Jan-99	1115	1	0.1	490	466	24	10	0.06	0.6
2-2	31-Jan-99	1440	<4(1)	0.1	486	462	27	11	0.08	0.7
2-3	31-Jan-99	1515	<4 (2)	0.6	420	242	176	62	0.24	2.0
2-4	31-Jan-99	1600	5	1.2	920	190	730	574	0.54	2.0
2-5	31-Jan-99	1725	6	0.9	800	258	544	336	0.43	2.0
<u>Discreet</u>										
3-1	31-Jan-99	1453	102	6.0	452	154	302	174	1.7	10.0
3-2	31-Jan-99	1508	77	6.0	420	46	376	230	1.2	7.0
3-3	31-Jan-99	1523	29	3.0	312	128	188	82	0.95	3.0
3-4	31-Jan-99	1538	35	1.5	180	64	116	36	0.73	3.0
3-5	31-Jan-99	1553	18	1.0	220	42	180	90	0.55	3.0
3-6	31-Jan-99	1608	19	1.3	240	34	204	126	0.62	3.0
3-7	31-Jan-99	1623	<30 (12)	1.0	200	102	96	52	0.58	2.0
3-8	31-Jan-99	1638	14	0.5	180	98	88	36	0.5	3.0
3-9	31-Jan-99	1653	13	0.5	180	98	80	30	0.44	4.0
4-1(551)	31-Jan-99	1145	<4 (1)	0.5	532	400	130	66	0.11	0.7
4-2	31-Jan-99	1450	6	0.3	468	408	56	35	0.28	1.0
4-3	31-Jan-99	1520	5	1.4	440	334	107	71	0.47	2.0
4-4	31-Jan-99	1550	7	0.5	608	104	500	350	0.47	2.0
4-5	31-Jan-99	1650	6	0.9	756	118	640	364	0.45	2.0

*<20 colonies/plate

**>60 colonies/plate

Location Description

554-Upstream Sampling Location at Schuff Lane (upstream of zoo)

553-Upstream Sampling Location at Trevillian Way (downstream of zoo)

Discreet - CSO 108 - Sample of CSO inside of louvers

551-Downstream Sampling location at Trevillian Way Bridge

Table 17. CSO 108 Stream Sampling - June 2, 1999

Location	Date	Time	BOD	Settable Solids	Total Solids	TDS	TSS	TVSS	Total P	TKN	DET LIM
1-1(554)	02-Jun-99	0650	9	6.0	3800	140	3780	276	1.85	1.5	3
1-2	02-Jun-99	1653	9	2.0	1190	110	1110	76	1.48	2.7	3
1-3	02-Jun-99	1653	9	3.0	1450	170	1400	116	1.26	2.8	3
1-4	02-Jun-99	1653	8	1.4	572	112	452	30	0.68	2	3
2-1(553)	02-Jun-99	1653	3	0.2	424	304	140	6	0.35	2	2
2-2	02-Jun-99	1653	14	2.0	2090	220	1880	136	0.78	2	3
2-3	02-Jun-99	1653	10	2.5	1520	195	1280	72	1.34	3	3
2-4	02-Jun-99	1653	10	3.0	1300	105	1220	92	1.2	4	3
2-5	02-Jun-99	1653	8	1.5	736	108	670	48	1.15	3	3
<u>Discreet</u>											
3-1	02-Jun-99	1653	76	6.0	error	130	892	280	1.45	10	
3-2	02-Jun-99	1653	43	5.0	564	100	472	130	0.59	7	
3-3	02-Jun-99	1653	32	4.0	340	100	238	80	1.23	5	
3-4	02-Jun-99	1653	39	5.0	284	92	228	120	1.41	**	
3-5	02-Jun-99	1653	11	1.0	184	76	78	25	0.43	**	
3-6	02-Jun-99	1653	14	1.0	172	68	111	33	0.68	**	
4-1(551)	02-Jun-99	1653	93	7.0	1640	210	1400	236	1.53	12	3
4-2	02-Jun-99	1653	16	1.7	460	216	266	46	1.49	5	3
4-3	02-Jun-99	1653	16	3.5	1070	170	888	88	1.19	4	3
4-4	02-Jun-99	1653	14	3.0	1310	124	1210	96	1.41	3	3
4-5	02-Jun-99	1653	8	2.0	764	108	656	48	nr	2	3

error-analytical technique

No result-no analysis, technician error

** NaOH found in sample bottle(sampling error)

Detection Limits

< 20 colonies =1

within detection limits=2

> 60 colonies=3

Location Description

554-Upstream Sampling Location at Schuff Lane (upstream of zoo)

553-Upstream Sampling Location at Trevillian Way (downstream of zoo)

Discreet - CSO 108 - Sample of CSO inside of louvers

551-Downstream Sampling location at Trevillian Way Bridge

Fecal Coliform (colonies /100 mls)
38400
35200
10000
26000
26400
138800
43600
37600
37600
144000
48800
56400
45600
36800