DRAFT

Sougahatchee Creek

Water Quality Study

DRAFT

Introduction

During the period of July 25 - 27 and September 12 - 14, 1995, personnel from the Water Quality Branch of the Water Division and from the Field Operations Division of ADEM conducted an intensive survey on Sougahatchee Creek near Opelika, Alabama. The purpose of the survey was to develop a Use Attainability Analysis (UAA) to be submitted to the EPA Region IV addressing a possible upgrade of the Agriculture and Industry Water Supply (A&I) use classification to the Fish and Wildlife (F&W) water use classification. Water quality data was needed to demonstrate existing water quality conditions in Sougahatchee Creek and the stream's potential to support a higher use classification. **Figure 1** shows the study area as well as the locations of the discharges and the sampling locations. Station location descriptions are listed in **Table 1**.

Water Quality Data

Water quality samples were collected and transported to the Central Laboratory in Montgomery and analyzed for the parameters listed in **Tables 2** and **3**. ISCO composite samplers were set up at both the Opelika Westside WWTP and the Auburn Northside WWTP. Composite samples were collected on Wednesday and Thursday mornings for both sampling periods. Field parameters listed in **Table 3** were also measured on Tuesday afternoon, Wednesday morning, Wednesday afternoon, and Thursday morning for both sampling periods. **Tables 4** and **5** list the water quality data collected during the the two studies.

Time of Travel and Flow Measurements

Time-of-travel was measured during both study periods using rhodamine WT dye in the 5 stream segments listed in **Table 6**. Dye injections were made on the respective Tuesday mornings with sequential samplers being deployed from sometime shortly after the injection until the respective Thursday afternoon.

Datasonde III Hydrolab Data

Datasonde III Hydrolabs were deployed at 3 stations, PB-1, SO-5, and SO-6, during the September study period. Hydrolab data are presented in **Tables 7**, **8**, and **9**.

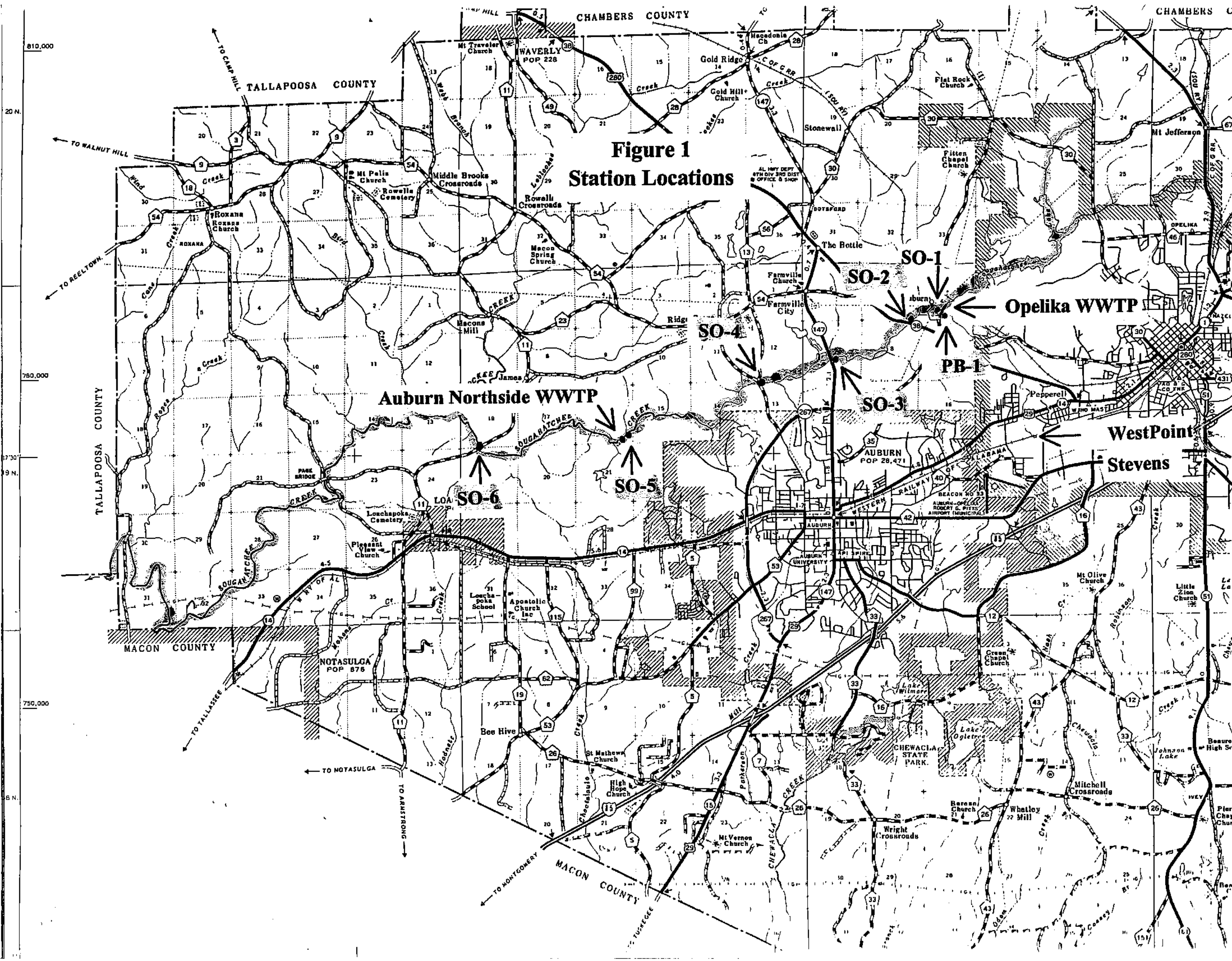
Figure 1
Station Locations
SO-1
SO-2
SO-3
SO-4
SO-5
SO-6
PB-1
Opelika WWTP
Auburn Northside WWTP
WestPoint
Stevens
TALLAPOOSA COUNTY
CHAMBERS COUNTY
MACON COUNTY
AUBURN
POP 28,471
NOTASULGA
POP 876
WAVERLY
POP 228
OPELIKA
CHEWACLA STATE PARK

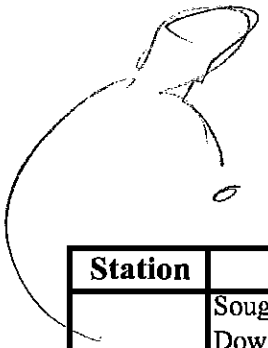

Table 1
Sougahatchee Creek Sampling Locations

Station	Description	Location	Latitude	Longitude	Remarks
PB-1	Sougahatchee Creek Downstream of Pepperell Branch	SE 1/4, SW 1/4, Sec. 4, T19N, R26E	32º 39' 36"	085º 26' 55"	Shallow
SO-1	ADEM Ambient Trend Station at Co. Rd. 35	SE 1/4, SW 1/4, Sec. 4, T19N, R26E	32º 39' 38"	085º 27' 05"	Shallow
SO-2	US Hwy 280	NE 1/4, NE 1/4, Sec. 8, T19N, R26E	32º 39' 26"	085º 27' 35"	Shallow
SO-3	AL Hwy 147	NE 1/4, SW 1/4, Sec. 7, T19N, R26E	32º 38' 54"	085º 28' 58"	Shallow
SO-4	Donahue Drive	NW 1/4, NW 1/4, Sec. 13, T19N, R25E	32º 38' 33"	085º 30' 16"	Shallow
SO-5	Upstream of Auburn Northside WWTP	SE 1/4, SE 1/4, Sec. 16, T19N, R25E	32º 37' 47"	085º 32' 38"	Shallow
SO-6	Co. Rd. 11 (188)	SE 1/4, SW 1/4, Sec. 18, T19N, R25E	32º 37' 35"	085º 35' 16"	Pool upstream
Opelika Westside WWTP	Effluent to Sougahatchee Creek	SE 1/4, SW 1/4, Sec. 4, T19N, R26E	32º 39' 39"	085º 27' 02"	
Auburn Northside WWTP	Effluent to Sougahatchee Creek	SE 1/4, SE 1/4, Sec. 16, T19N, R25E	32º 37' 45"	085º 32' 42"	

Table 2

Laboratory Parameters

Parameter	Units	Preservative
$CBOD_5$	mg/L	Ice
$CBOD_U$	mg/L	Ice
TSS	mg/L	Ice
CL^-	mg/L	Ice
$CaCO_3$	mg/L	Ice
NH_3-N	mg/L	H_2SO_4
NO_2+NO_3-N	mg/L	H_2SO_4
TKN	mg/L	H_2SO_4
Total PO_4-P	mg/L	H_2SO_4

Table 3

Field Parameters

Parameter	Unit
Weather Conditions	
Air Temperature	°C
Water Temperature	°C
Stream Depth	feet
Stream Width	feet
Dissolved Oxygen	mg/L
Conductivity	umhos/cm
pH	s.u.
Turbidity	NTU

Table 4
Sougahatchee Creek Water Quality Data - July 1995

Station	Miles Downstream of Opelika WWTP	Date	Time	Flow cfs	T_A °C	T_W °C	DO mg/L	pH s.u.	Cond. µS/cm	Turbidity NTU	CBOD5 mg/L	CBODU mg/L	TSS mg/L	Cl mg/L	Hardness mg CaCO3/L	NH3-N mg/L	NO2-NO3-N mg/L	TKN mg/L	Total PO4-P mg/L
PB-1	-0.05	7/25/95	9:40	5.22															
		7/25/95	15:31		34	31	7.2	8.5	1650	-									
		7/26/95	9:10		29	26	5.55	8.3	1600	2.8	1.7		3.0	66.5	35.5	0.015	0.450	3.840	3.430
		7/26/95	11:30	5.5															
		7/26/95	14:30		30	30	6.75	7.5	330	2.4									
		7/27/95	8:57		28	25	5.25	8.2	1500	3.2	7.3		6.0	62.0	44.0	0.156	0.780	2.750	13.990
		7/27/95	11:12	5.25															
Opelika WWTP	0	7/25/95	15:37	3.87	35	29	7	7.4	330	-									
		7/26/95	9:20		28	28	7.4	7.5	320	1.7	3.5		3.0	35.0	46.8	0.042	0.430	2.400	0.920
		7/26/95	14:40	3.87	30	29	7.25	7.5	330	2.2									
		7/27/95	9:07		25	27	7.1	7.3	350	2.1	2.5		3.0	40.0	51.7	0.016	0.090	2.630	0.770
SO-1	0.05	7/25/95	15:25		35	31	7.2	8.4	1100	-									
		7/26/95	8:57		28	27	5.45	8.2	1200	3.3	2.0		5.0	56.0	38.7	0.015	0.400	4.420	2.680
		7/26/95	14:25		30	29	7.25	8.3	1100	3.3									
		7/27/95	8:47		27	26	5.35	8	1000	3.4	7.5		107.0	51.0	45.6	0.081	0.520	3.010	7.230
SO-2	0.64	7/25/95	15:15		36	31	7.9	8.5	1100	-									
		7/26/95	8:50		29	27	6.45	8.2	950	2.7	1.8		3.0	48.0	38.8	0.022	0.370	3.570	2.170
		7/26/95	14:20		32	30	7	8.4	1100	2.6									
		7/27/95	8:40		27	26	6.55	8.2	1000	3.2	5.7		3.0	50.5	40.0	0.015	0.510	3.880	4.380
SO-3	2.64	7/25/95	11:50	8.79															
		7/25/95	15:05		32	30	5.45	8.1	1000	-									
		7/26/95	8:40		28	27	4.6	8	1000	2.4	1.2		4.0	47.5	38.9	0.015	0.410	4.110	2.410
		7/26/95	10:35	8.34															
		7/26/95	14:10		30	30	5.15	8.1	1000	2.3									
		7/27/95	8:30		27	25	4.7	8	950	3.1	1.4		8.0	48.0	40.1	0.015	0.400	3.380	1.980
		7/27/95	8:45	7.9															
SO-4	4.16	7/25/95	14:55		36	30	5.6	8.1	1000	-									
		7/26/95	8:25		28	27	4.8	8	900	2.3	1.0		4.0	43.0	39.5	0.015	0.460	2.250	2.320
		7/26/95	13:57		29	29	5.35	8	950	2.3									
		7/27/95	8:15		26	26	5.1	8	800	2	0.6		1.0	44.5	38.5	0.015	0.400	1.890	1.720

Table 4
July Data (cont.)

Station	Miles Downstream of Opelika WWTP	Date	Time	Flow cfs	T_A °C	T_W °C	DO mg/L	pH s.u.	Cond. mS/cm	Turbidity NTU	CBOD5 mg/L	CBODU mg/L	TSS mg/L	Cl mg/L	Hardness mg CaCO3/L	NH3-N mg/L	NO2-NO3-N mg/L	TKN mg/L	Total PO4-P mg/L
Auburn WWTP	7.78	7/25/95	14:39	1.72	37	29	4.85	6.5	390	-									
		7/26/95	8:10		26	26	7.4	7.5	320	1.4	2.4		3.0	32.0	59.4	0.015	19.420	1.090	2.600
		7/26/95	13:37	1.78	32	28	7.3	6.9	370	1.9									
		7/27/95	7:52		25	26	7.15	6.9	370	1.4	2.4		2.0	32.0	63.9	0.015	19.190	0.984	2.630
SO-5	7.77	7/25/95	14:26		37	32	6.45	8	700	2.9									
		7/26/95	8:05		26	27	5	7.8	750	2.9	0.8		14.0	38.0	37.0	0.015	0.390	2.070	2.100
		7/26/95	9:15	10.76															
		7/26/95	15:45	11.88															
		7/26/95	13:35		32	30	6.15	8	800	2.3									
		7/27/95	7:50		25	26	5	7.9	800	2.7	0.5		3.0	38.5	37.5	0.015	0.350	2.180	1.760
		7/27/95	10:00	10.25															
SO-6	11.12	7/25/95	10:30	12.19															
		7/25/95	14:00		35	31	7.1	8	650	3									
		7/26/95	7:35		25	26	5.1	7.8	600	5.9	0.8		8.0	36.5	37.2	0.015	2.740	1.670	1.670
		7/26/95	12:00	12.82															
		7/26/95	13:10		34	29	7.05	8.1	700	2.8									
		7/27/95	7:21		24	26	5.35	7.9	600	5.7	0.5		6.0	35.0	37.8	0.015	2.750	1.440	1.690
		7/27/95	11:20	11.6															

Table 5
Sougahatchee Creek Water Quality Data - September 1995

Station	Miles Downstream of Opelika WWTP	Date	Time	Flow cfs	T_A °C	T_W °C	DO mg/L	pH s.u.	Cond. µS/cm	Turbidity NTU	CBOD5 mg/L	CBODU mg/L	TSS mg/L	Cl mg/L	Hardness mg CaCO3/L	NH3-N mg/L	NO2-NO3-N mg/L	TKN mg/L	Total PO4-P mg/L
PB-1	-0.05	9/12/95	10:20 AM	4.111															
		9/12/95	3:35 PM		29	27	6.45	8.4	1750	3									
		9/13/95	9:35 AM		26	24	5.5	8.2	1500	3.3		1.8	7	60.6	34.4	0.015	0.93	5.3	8.79
		9/13/95	11:15 AM	4.41															
		9/13/95	2:20 PM		30	26	6.5	8.4	1850	3.5									
		9/14/95	9:30 AM		26	25	5.5	8.3	1850	3.8		2	3	43.9	34	0.015	1.03	5.24	14.18
		9/14/95	9:50 AM	5.35															
Opelika WWTP	0	9/12/95	10:00 AM		25	27	7.5	7.3	360	1.3									
		9/12/95	3:30 PM	3.71	30	28	7.05	7.2	370	1.4									
		9/13/95	9:30 AM		26	27	7.15	7.2	390	1.4		2	2	46.8	51.1	0.015	0.6	2.59	1.12
		9/13/95	2:15 PM	3.56	30	28	7.5	7.5	400	1.2									
		9/14/95	9:25 AM		26	28	7.15	7.4	410	1.2		1.8	1	50.5	52.4	0.015	0.03	3.02	0.82
SO-1	0.05	9/12/95	3:20 PM		28	27	6.8	8.2	1100	2.4									
		9/13/95	9:15 AM		26	25	5.75	8	1100	3.2		1.9	7	54.2	40.3	0.015	0.5	4.35	4.2
		9/13/95	2:05 PM		30	27	6.55	8.2	1150	2.8									
		9/14/95	9:10 AM		26	25	5.35	8.3	1500	4.3		1.9	10	63.2	40.4	0.015	0.84	4.41	9.81
SO-2	0.64	9/12/95	3:10 PM		31	28	7.55	8.4	1100	3.2									
		9/13/95	9:10 AM		25	25	6.5	8.1	1100	2.6		2	6	54.9	41.8	0.015	0.47	3.85	4.19
		9/13/95	2:05 PM		30	27	7.65	8.3	1050	2.4									
		9/14/95	8:55 AM		25	25	6.5	8.3	1300	3.2		2	7	39.5	40.8	0.015	0.61	3.66	7.34
SO-3	2.64	9/12/95	12:00 PM	6.34															
		9/12/95	3:00 PM		31	26	5.4	8.1	1200	1.6									
		9/13/95	8:55 AM		24	24	5.1	7.9	900	1.3		1.2	1	52.6	44	0.015	0.58	3.29	2.82
		9/13/95	12:45 PM	6.87															
		9/13/95	1:55 PM		30	26	5.35	8	1100	1.6									
		9/14/95	8:45 AM		24	25	4.9	8.1	1150	2.2		1.4	6	63.4	40.4	0.015	0.47	3.91	4.91

Table 5
September Data (cont.)

Station	Miles Downstream of Opelika WWTP	Date	Time	Flow cfs	T_A °C	T_w °C	DO mg/L	pH s.u.	Cond. µS/cm	Turbidity NTU	CBOD5 mg/L	CBODU mg/L	TSS mg/L	Cl mg/L	Hardness mg CaCO3/L	NH3-N mg/L	NO2-NO3-N mg/L	TKN mg/L	Total PO4-P mg/L
SO-4	4.16	9/12/95	2:45 PM		31	26	5.65	8.1	1100	1.2									
		9/13/95	8:40 AM		24	24	5.1	8	950	3.2		0.9	4	49.5	42.4	0.015	0.57	3.04	2.62
		9/13/95	1:40 PM		29	26	5.85	8	850	16									
		9/14/95	8:35 AM		24	24	4.95	8	1100	1.7		1	3	51.7	40.1	0.015	0.61	3.81	4.24
Auburn WWTP	7.78	9/12/95	9:15 AM		26	25	7.7	7.1	380	1.5									
		9/12/95	1:10 PM																
		9/12/95	2:27 PM	1.73	31	27	7.45	7.3	390	1.2									
		9/13/95	8:25 AM		24	26	7.45	7.2	390	1.3		1.9	3	36.4	63.3	0.015	17.01	0.83	3.13
		9/13/95	1:25 PM	1.86	30	26	7.5	7.3	390	1.2									
		9/14/95	8:15 AM		23	25	7.4	7.2	380	1		1.3	3	36.8	62.9	0.015	17.94	0.9	3.21
SO-5	7.77	9/12/95	2:26 PM	8.51	31	27	7.25	8.2	1000	1.2									
		9/13/95	8:20 AM		24	24	5	7.9	1000	1.4		0.6	1	51.2	39.9	0.015	0.59	2.71	2.06
		9/13/95	11:00 AM	7.81															
		9/13/95	1:20 PM		30	26	6.05	8	1000	1.2									
		9/14/95	8:10 AM		23	24	5.05	7.9	900	1.7		0.8	2	43.8	36.8	0.015	0.45	2.83	2.03
		9/14/95	10:45 AM	10.78															
SO-6	11.12	9/12/95	9:20 AM	10.22															
		9/12/95	1:57 PM		27	26	8.7	8.2	850	1.9									
		9/13/95	7:50 AM		23	24	5.1	7.9	800	3.7		0.7*	6	552.4	41.4	0.015	3.415 3.4	1.78	1.62
		9/13/95	9:35 AM	10.13															
		9/13/95	1:00 PM		29	25	6.25	7.9	800	2.2									
		9/14/95	7:45 AM		23	23	5.05	7.9	800	3.7		0.8*	5	40.6	38.8	0.015	3.325 3.32	2.42	1.87

Table 6
Time of Travel Results

From	To	Length (feet)	Velocity (ft/sec)	Average Measured Flow (cfs)
Opelika WWTP	SO-2	3,390	0.20	-
Opelika WWTP	SO-3	13,961	0.34	8.79
Opelika WWTP	SO-4	21,950	0.36	8.79
Opelika WWTP	SO-5	41,016	0.32	10.76
Auburn Northside WWTP	SO-6	17,688	0.44	12.82

Table 7
Sougahatchee Creek - Opelika / Auburn
Station PB-1 At Confluence of Pepperell Branch and Sougahatchee Creek
September 12 - 14, 1995

Date	Time	Elapsed Hours	Temp degC	pH units	SpCond uS/cm	DO %Sat	DO mg/l	Winkler DO mg/l
91295	120000	0.00	25.24	8.38	1416.3	97.3	7.86	
91295	123000	0.50	25.48	8.41	1408.6	95.5	7.68	
91295	130000	1.00	25.84	8.38	1441.2	96.7	7.73	
91295	133000	1.50	26.24	8.35	1435.9	98.8	7.83	
91295	140000	2.00	26.58	8.35	1469.6	98.2	7.74	
91295	143000	2.50	26.84	8.37	1471.8	98.3	7.71	
91295	150000	3.00	27.01	8.39	1449.3	95.2	7.45	
91295	153000	3.50	27.09	8.40	1482.9	94.1	7.34	6.45
91295	160000	4.00	26.92	8.39	1460	89.1	6.98	
91295	163000	4.50	26.69	8.37	1452.7	85.7	6.74	
91295	170000	5.00	26.58	8.36	1456.2	83.5	6.58	
91295	173000	5.50	26.41	8.35	1470.8	80.8	6.39	
91295	180000	6.00	26.18	8.34	1454.2	78.3	6.22	
91295	183000	6.50	25.95	8.32	1458.8	76.2	6.07	
91295	190000	7.00	25.78	8.31	1478.7	74	5.92	
91295	193000	7.50	25.52	8.29	1476.2	72.5	5.83	
91295	200000	8.00	25.28	8.27	1473.4	71.1	5.74	
91295	203000	8.50	25.06	8.28	1476.3	70.1	5.68	
91295	210000	9.00	24.85	8.26	1510.6	69.2	5.63	
91295	213000	9.50	24.69	8.27	1519.3	68.8	5.61	
91295	220000	10.00	24.56	8.27	1518	68.7	5.61	
91295	223000	10.50	24.45	8.27	1527.2	68.8	5.64	
91295	230000	11.00	24.36	8.28	1562.5	69	5.66	
91295	233000	11.50	24.28	8.28	1556.6	69	5.67	
91395	0	12.00	24.25	8.27	1545.9	69.2	5.69	
91395	3000	12.50	24.19	8.26	1555.7	69.3	5.70	
91395	10000	13.00	24.14	8.25	1544.8	69.3	5.71	
91395	13000	13.50	24.05	8.24	1523.7	69.5	5.74	
91395	20000	14.00	23.98	8.24	1517.9	69.5	5.75	
91395	23000	14.50	23.92	8.23	1491.1	69.5	5.75	
91395	30000	15.00	23.81	8.21	1464.5	69.4	5.76	
91395	33000	15.50	23.71	8.21	1441.1	69.7	5.79	
91395	40000	16.00	23.63	8.21	1430.4	69.7	5.80	
91395	43000	16.50	23.58	8.21	1410.6	69.8	5.81	
91395	50000	17.00	23.56	8.20	1366.4	69.7	5.81	
91395	53000	17.50	23.54	8.20	1333.8	70.3	5.86	
91395	60000	18.00	23.54	8.19	1292.1	70.4	5.87	
91395	63000	18.50	23.52	8.18	1261.8	70.4	5.87	
91395	70000	19.00	23.52	8.17	1234	70.4	5.87	
91395	73000	19.50	23.54	8.17	1226.4	70.7	5.89	
91395	80000	20.00	23.58	8.17	1240.6	70.7	5.89	
91395	83000	20.50	23.63	8.18	1268.9	71.4	5.95	
91395	90000	21.00	23.71	8.20	1310.4	72.1	6.00	
91395	93000	21.50	23.81	8.22	1343	73.1	6.07	5.5
91395	100000	22.00	23.93	8.23	1389.3	74.5	6.16	
91395	103000	22.50	24.03	8.25	1424.2	75.3	6.22	

Table 7 Station PB-1 (cont.)

Date	Time	Elapsed Hours	Temp degC	pH units	SpCond uS/cm	DO %Sat	DO mg/l	Winkler DO mg/l
91395	113000	23.50	24.32	8.31	1479.4	78.2	6.42	
91395	120000	24.00	24.45	8.34	1485.8	79.3	6.49	
91395	123000	24.50	24.63	8.35	1534.3	80.8	6.60	
91395	130000	25.00	24.76	8.37	1525.2	80.8	6.58	
91395	133000	25.50	24.98	8.39	1558.7	83.2	6.75	
91395	140000	26.00	25.26	8.46	1572.1	84.5	6.81	
91395	143000	26.50	25.6	8.50	1602	86.6	6.94	6.5
91395	150000	27.00	25.92	8.47	1590	86.8	6.92	
91395	153000	27.50	26.1	8.48	1618.4	88.7	7.05	
91395	160000	28.00	26.37	8.47	1663.5	87.1	6.89	
91395	163000	28.50	26.35	8.48	1616.1	84.4	6.68	
91395	170000	29.00	26.33	8.47	1652.6	83.4	6.60	
91395	173000	29.50	26.12	8.45	1623.8	79.8	6.33	
91395	180000	30.00	25.88	8.42	1657.5	76.7	6.12	
91395	183000	30.50	25.58	8.39	1622.6	73.8	5.92	
91395	190000	31.00	25.32	8.36	1650.9	71.9	5.79	
91395	193000	31.50	25.09	8.35	1622.3	70.6	5.71	
91395	200000	32.00	24.95	8.35	1636.2	70	5.68	
91395	203000	32.50	24.82	8.33	1567.3	70.2	5.71	
91395	210000	33.00	24.76	8.32	1582.3	70	5.70	
91395	213000	33.50	24.72	8.31	1571.5	68.9	5.62	
91395	220000	34.00	24.69	8.30	1591.9	68.7	5.60	
91395	223000	34.50	24.67	8.30	1596.9	68.9	5.62	
91395	230000	35.00	24.63	8.29	1549.8	69.2	5.65	
91395	233000	35.50	24.59	8.29	1559.8	68.8	5.62	
91495	0	36.00	24.54	8.28	1543.7	69.1	5.65	
91495	3000	36.50	24.47	8.27	1548.1	69.2	5.67	
91495	10000	37.00	24.38	8.26	1558	69	5.66	
91495	13000	37.50	24.3	8.26	1562	69.3	5.69	
91495	20000	38.00	24.2	8.25	1566.5	69.1	5.69	
91495	23000	38.50	24.11	8.25	1570.8	68.7	5.66	
91495	30000	39.00	24.02	8.24	1580.2	68.8	5.68	
91495	33000	39.50	23.94	8.24	1589.8	68.6	5.67	
91495	40000	40.00	23.9	8.25	1588.9	68.5	5.67	
91495	43000	40.50	23.82	8.24	1603.7	68.3	5.66	
91495	50000	41.00	23.74	8.24	1582.6	68	5.64	
91495	53000	41.50	23.67	8.24	1612.8	68.3	5.67	
91495	60000	42.00	23.58	8.24	1601.6	68.1	5.67	
91495	63000	42.50	23.53	8.24	1621.4	68	5.67	
91495	70000	43.00	23.5	8.24	1605.6	68.8	5.74	
91495	73000	43.50	23.47	8.25	1621.2	69	5.75	
91495	80000	44.00	23.53	8.26	1621.4	69.3	5.78	
91495	83000	44.50	23.62	8.27	1642.9	71.1	5.92	
91495	90000	45.00	23.77	8.28	1608.3	72.4	6.00	
91495	93000	45.50	23.95	8.29	1604.9	72.5	5.99	7.1
91495	100000	46.00	24.17	8.32	1633	73.9	6.08	
91495	103000	46.50	24.32	8.32	1619.1	76	6.24	
91495	110000	47.00	24.59	8.34	1632.4	77.6	6.33	
91495	113000	47.50	24.69	8.31	1581.5	77.2	6.30	
91495	120000	48.00	24.37	8.30	1536.8	77.5	6.35	

Table 8
Sougahatchee Creek - Opelika / Auburn
Station SO-5 Upstream of the Auburn Northside WWTP
September 13 & 14, 1995

Same as µmhos/cm

Date	Time	Elapsed Hours	Temp degC	pH units	SpCond uS/cm	DO %Sat	DO mg/l	Winkler DO mg/l
91395	150000	27.0	26.3	8.1	848.1	89.6	7.11	
91395	153000	27.5	26.43	8.11	848.2	89	7.05	
91395	160000	28.0	26.51	8.11	847.7	87.7	6.94	
91395	163000	28.5	26.47	8.1	848.4	85.4	6.76	
91395	170000	29.0	26.4	8.09	847.8	83	6.58	
91395	173000	29.5	26.26	8.07	848.7	80.4	6.39	
91395	180000	30.0	26.14	8.06	848	78.1	6.22	
91395	183000	30.5	26.01	8.04	847.1	75.9	6.06	
91395	190000	31.0	25.88	8.03	844.7	73.8	5.90	
91395	193000	31.5	25.73	8.01	841.4	71.8	5.76	
91395	200000	32.0	25.6	8	837.5	70.1	5.63	
91395	203000	32.5	25.48	7.99	831.8	68.7	5.54	
91395	210000	33.0	25.37	7.98	826.3	67.9	5.48	
91395	213000	33.5	25.28	7.97	821	67.1	5.42	
91395	220000	34.0	25.19	7.96	816	66.5	5.39	
91395	223000	34.5	25.09	7.96	811.3	66	5.36	
91395	230000	35.0	25.01	7.95	807.8	65.7	5.34	
91395	233000	35.5	24.92	7.94	804	65.3	5.32	
91495	0	36.0	24.85	7.94	802	65.2	5.32	
91495	3000	36.5	24.78	7.94	800	65.1	5.31	
91495	10000	37.0	24.7	7.93	798.8	65	5.31	
91495	13000	37.5	24.62	7.93	798.6	64.9	5.32	
91495	20000	38.0	24.56	7.93	798.1	64.8	5.32	
91495	23000	38.5	24.47	7.93	797.8	64.9	5.33	
91495	30000	39.0	24.41	7.93	797.3	64.7	5.31	
91495	33000	39.5	24.34	7.93	796.9	64.8	5.34	
91495	40000	40.0	24.24	7.93	795.6	64.9	5.35	
91495	43000	40.5	24.17	7.92	794.5	64.8	5.35	
91495	50000	41.0	24.1	7.92	793.3	64.9	5.37	
91495	53000	41.5	24.01	7.92	791.3	64.9	5.38	
91495	60000	42.0	23.93	7.92	790.1	64.9	5.38	
91495	63000	42.5	23.86	7.92	788.2	64.9	5.39	
91495	70000	43.0	23.81	7.92	785.6	64.7	5.38	
91495	73000	43.5	23.77	7.91	782.3	64.9	5.40	
91495	80000	44.0	23.76	7.91	778.5	65.4	5.44	5.05
91495	83000	44.5	23.81	7.91	772.2	66	5.49	
91495	90000	45.0	23.85	7.91	765.6	66.8	5.55	
91495	93000	45.5	24	7.91	758.4	68.5	5.67	
91495	100000	46.0	24.1	7.94	739	72.4	5.99	
91495	103000	46.5	24.17	7.95	718.1	74.5	6.16	
91495	110000	47.0	24.4	7.95	716.2	76.3	6.28	
91495	113000	47.5	24.56	7.97	708.9	78.8	6.46	
91495	120000	48.0	24.41	7.98	703.4	78	6.41	

Table 9
Sougahatchee Creek - Opelika / Auburn
Station SO-6 At Lee Co. Rd. 188 (Formerly Co. Rd. 11)
September 12 - 14, 1995

Date	Time	Elapsed Hours	Temp degC	pH units	SpCond uS/cm	DO %Sat	DO mg/l	Winkler DO mg/l
91295	120000	0.0	24.23	7.89	762.7	88.4	7.29	
91295	123000	0.5	24.43	7.94	766.2	92.7	7.62	
91295	130000	1.0	24.70	7.99	771.5	97.8	7.99	
91295	133000	1.5	25.12	8.05	778.9	103.1	8.36	
91295	140000	2.0	25.11	8.07	782.8	104.9	8.51	8.7
91295	143000	2.5	25.36	8.09	785.2	105.5	8.52	
91295	150000	3.0	25.42	8.1	793.7	106	8.55	
91295	153000	3.5	25.55	8.1	796.1	104.7	8.43	
91295	160000	4.0	25.65	8.09	800	102.2	8.21	
91295	163000	4.5	25.68	8.08	801	99.8	8.01	
91295	170000	5.0	25.73	8.07	800.7	96.5	7.74	
91295	173000	5.5	25.75	8.05	799.9	92.5	7.42	
91295	180000	6.0	25.75	8.03	797.4	89.3	7.16	
91295	183000	6.5	25.75	8.01	792.4	86.8	6.96	
91295	190000	7.0	25.77	7.99	787.5	84.8	6.80	
91295	193000	7.5	25.77	7.97	780.8	81.9	6.57	
91295	200000	8.0	25.71	7.95	776.3	79.1	6.35	
91295	203000	8.5	25.64	7.92	772.5	75.2	6.04	
91295	210000	9.0	25.53	7.9	771.1	72.7	5.86	
91295	213000	9.5	25.43	7.88	770.6	70.9	5.72	
91295	220000	10.0	25.32	7.87	770.8	68.9	5.57	
91295	223000	10.5	25.19	7.85	770.9	67.6	5.47	
91295	230000	11.0	25.08	7.84	771.2	66.6	5.41	
91295	233000	11.5	24.97	7.83	773.1	65.9	5.36	
91395	0	12.0	24.84	7.83	775.7	65	5.30	
91395	3000	12.5	24.73	7.82	777.6	64.5	5.27	
91395	10000	13.0	24.64	7.81	776.3	64.3	5.26	
91395	13000	13.5	24.54	7.81	775.9	64.1	5.25	
91395	20000	14.0	24.47	7.8	773.8	63.7	5.23	
91395	23000	14.5	24.38	7.79	769.2	63.7	5.24	
91395	30000	15.0	24.31	7.79	767.2	63.7	5.25	
91395	33000	15.5	24.21	7.79	764.2	63.9	5.27	
91395	40000	16.0	24.10	7.78	761.2	64	5.29	
91395	43000	16.5	24.03	7.78	759.2	64.3	5.32	
91395	50000	17.0	23.92	7.78	757	64.2	5.33	
91395	53000	17.5	23.83	7.78	756.6	64.7	5.38	
91395	60000	18.0	23.76	7.77	756.3	64.8	5.39	
91395	63000	18.5	23.69	7.77	754.3	65.1	5.42	
91395	70000	19.0	23.61	7.77	751.5	65.5	5.47	
91395	73000	19.5	23.58	7.77	749.6	65.5	5.47	
91395	80000	20.0	23.56	7.77	747.9	65.8	5.50	5.1
91395	83000	20.5	23.52	7.76	746.1	66.1	5.52	
91395	90000	21.0	23.54	7.76	745.4	66.5	5.56	
91395	93000	21.5	23.56	7.77	745.4	67.1	5.61	
91395	100000	22.0	23.59	7.78	746.4	68.7	5.74	
91395	103000	22.5	23.67	7.79	747.6	70.3	5.86	

Table 9 Station SO-6 (cont.)

Date	Time	Elapsed Hours	Temp degC	pH units	SpCond uS/cm	DO %Sat	DO mg/l	Winkler DO mg/l
91395	113000	23.5	23.83	7.82	750.8	74.6	6.20	
91395	120000	24.0	23.92	7.84	753.7	76.8	6.37	
91395	123000	24.5	24.01	7.86	759.1	79.1	6.55	
91395	130000	25.0	24.18	7.88	762.4	81	6.69	6.25
91395	133000	25.5	24.34	7.9	766.5	83.3	6.86	
91395	140000	26.0	24.49	7.92	769.8	84.8	6.96	
91395	143000	26.5	24.64	7.94	774.7	86.7	7.10	
91395	150000	27.0	24.85	7.95	778.1	88.5	7.21	
91395	153000	27.5	24.90	7.97	781.7	89.1	7.25	
91395	160000	28.0	25.02	7.98	786.4	88.8	7.22	
91395	163000	28.5	25.07	7.98	790.1	88	7.15	
91395	170000	29.0	25.15	7.98	792.4	87.4	7.09	
91395	173000	29.5	25.28	7.98	792.3	86.9	7.03	
91395	180000	30.0	25.42	7.97	790.4	86.1	6.95	
91395	183000	30.5	25.47	7.96	786.6	84.2	6.79	
91395	190000	31.0	25.51	7.95	782.7	81.9	6.60	
91395	193000	31.5	25.51	7.93	777.7	79.1	6.37	
91395	200000	32.0	25.49	7.91	771.7	76	6.13	
91395	203000	32.5	25.45	7.89	769	73.5	5.93	
91395	210000	33.0	25.38	7.87	768.6	71.4	5.76	
91395	213000	33.5	25.32	7.87	769.1	70.4	5.69	
91395	220000	34.0	25.25	7.85	769.6	68.5	5.55	
91395	223000	34.5	25.15	7.84	771.6	67.3	5.46	
91395	230000	35.0	25.06	7.83	772.7	66.4	5.39	
91395	233000	35.5	24.97	7.83	775.6	65.7	5.35	
91495	0	36.0	24.86	7.82	778.3	65.3	5.32	
91495	3000	36.5	24.75	7.81	780.2	64.5	5.27	
91495	10000	37.0	24.65	7.81	782.2	64.1	5.25	
91495	13000	37.5	24.56	7.81	781.8	64	5.25	
91495	20000	38.0	24.51	7.8	780.6	63.8	5.23	
91495	23000	38.5	24.38	7.79	777.5	63.7	5.24	
91495	30000	39.0	24.27	7.79	772.8	63.4	5.22	
91495	33000	39.5	24.20	7.79	768.3	63.4	5.23	
91495	40000	40.0	24.05	7.78	765.1	63.5	5.25	
91495	43000	40.5	23.98	7.78	763.9	63.8	5.29	
91495	50000	41.0	23.87	7.78	763.4	64	5.31	
91495	53000	41.5	23.74	7.77	763.6	64.2	5.35	
91495	60000	42.0	23.65	7.77	762.4	64.2	5.36	
91495	63000	42.5	23.54	7.77	760.2	64.6	5.40	
91495	70000	43.0	23.45	7.77	756.5	64.7	5.42	
91495	73000	43.5	23.36	7.76	752.8	65.1	5.46	5.05
91495	80000	44.0	23.27	7.76	748.3	65.3	5.49	
91495	83000	44.5	23.23	7.76	744	65.6	5.51	
91495	90000	45.0	23.20	7.76	741.4	66	5.55	
91495	93000	45.5	23.20	7.76	738.9	66.8	5.62	
91495	100000	46.0	23.21	7.77	734	68.7	5.78	
91495	103000	46.5	23.29	7.78	733.5	70.3	5.91	
91495	110000	47.0	23.43	7.79	732.5	72.6	6.08	
91495	113000	47.5	23.54	7.81	728.9	75.4	6.30	
91495	120000	48.0	23.59	7.84	720	78.7	6.57	