APPENDIX E

FLOW TYPE DATA FROM TUSCALOOSA AND BIRMINGHAM, AL

Appendix E1: Data Tables for Tuscaloosa

Table E1.1: Tap Water Reference ("Library") Samples

Sample number	Sampling Location	Date	pH	Spec. cond. (µS/cm)	Temp. (°F)	Turb. (NTU)	Color (APHA Platinum Cobalt Units)	F (mg/L)	Hard. (mg/L $CaCO_3$)	Detergent (mg/L as MBAS)	Fluorescence (raw signal strength)	Fluorescence (mg/L as "Tide")
1	B.B.Commer Hall	5/17/2002	8.19	132	N/A	N/A	0	0.97	63.6	0	N/A	N/A
2	Rose Towers	5/17/2002	7.92	145	N/A	N/A	0	0.97	68.4	0	N/A	N/A
3	H.C.Commer Hall	5/17/2002	8.46	125	N/A	N/A	0	0.96	60.8	0	N/A	N/A
4	Rec Centre	5/17/2002	8.11	130	N/A	N/A	0	0.92	64.8	0	N/A	N/A
5	Coleman Coliseum	5/17/2002	8.28	130	N/A	N/A	0	0.94	72.8	0	N/A	N/A
6	Mib (UA)	5/29/2003	7.81	146	N/A	1.15	0	1.04	28	0	2115	4.88
7	Alex Appt.	5/30/2003	7.38	156	N/A	0.761	0	0.82	44	0	92	0.21
8	Georgas Library (UA)	6/3/2003	8.13	152	N/A	0.811	0		42	0	1255	2.9
9	Rodgers Library	6/8/2003	7.5	141	N/A	0.566	0	0.84	40	0	165	0.38
10	Alexander Property Appt.	6/8/2003	7.5	138	N/A	0.61	0	0.89	46	0	637	1.47
11	Pslidea Court Appt.	6/8/2003	7.68	139	N/A	0.433	0	1.00	44	0	566	1.3
12	University Plaza Appt.	6/8/2003	7.5	140	N/A	0.856	0	0.94	46	0	1003	2.31
Mean			7.87	140	-	0.74	0	0.94	52	0	833	1.92
Standard Deviation			0.36	9.3	-	0.23	0	0.065	14	0	702	1.62
COV			0.05	0.07	-	0.32	-	0.07	0.27	-	0.84	0.84
Anderson Darling Probability Test Value (Normal)			**1.138**	**1.004**	-	**1.57**	-	**1.144**	**1.331**	-	-	**1.601**
Anderson Darling Probability Test Value (Log-normal)			-	0.998	-	1.543	-	1.185	1.307	-	-	1.639

Data provided by Robert Pitt, University of Alabama

Table E1.1: Tap Water Reference ("Library") Samples, CONT.

Sample number	Sampling Location	Date	K (mg/L)	NH_3 (mg/L as N)	NH_3/K (ratio)	B (mg/L)	Total Coliforms (MPN/100 mL)	*E. coli* (MPN/100 mL)	Enterococci (MPN/100 mL)
1	B.B.Commer Hall	5/17/2002	1	<LD	N/A	N/A	N/A	N/A	N/A
2	Rose Towers	5/17/2002	1	<LD	N/A	N/A	N/A	N/A	N/A
3	H.C.Commer Hall	5/17/2002	1	<LD	N/A	N/A	N/A	N/A	N/A
4	Rec Centre	5/17/2002	1	<LD	N/A	N/A	N/A	N/A	N/A
5	Coleman Coliseum	5/17/2002	1	<LD	N/A	N/A	N/A	N/A	N/A
6	Mib (UA)	5/29/2003	2	0.01	0.005	0.19	1	<1	<1
7	Alex Appt.	5/30/2003	2	<LD	N/A	0.1	<1	<1	<1
8	Georgas Library (UA)	6/3/2003	1	<LD	N/A	0.12	<1	<1	<1
9	Rodgers Library	6/8/2003	1	<LD	N/A	0.04	21.6	<1	<1
10	Alexander Property Appt.	6/8/2003	1	0.07	0.07	0.14	<1	<1	<1
11	Pslidea Court Appt.	6/8/2003	2	0.07	0.035	0.27	<1	<1	<1
12	University Plaza Appt.	6/8/2003	2	0.07	0.035	0.11	<1	<1	<1
Mean			1.3	<0.055	0.036	0.14	<11	<1	<1
Standard Deviation			0.49	0.03	0.026	0.07	15	-	-
COV			0.37	0.55	0.73	0.53	1.3	-	-
Anderson Darling Probability Test Value (Normal)			**3.809**	**3.199**	**2.539**	**1.663**	4.103	-	-
Anderson Darling Probability Test Value (Log-normal)			3.809	3.199	2.703	1.685	4.103	-	-

Data provided by Robert Pitt, University of Alabama

Table E1.2: Spring Water Reference ("Library") Samples

Sample number	Sampling Location	Date	pH	Spec. cond. (µS/cm)	Temp. (°F)	Turb. (NTU)	Color (APHA Platinum Cobalt Units)	F (mg/L)	Hard. (mg/L $CaCO_3$)	Detergent (mg/L as MBAS)	Fluorescence (raw signal strength)	Fluorescence (mg/L as "Tide")
1	Marrs Spring	9/30/2002	5.77	128	30	56	0	0.01	24.6	0	N/A	0.94
2	Jack Warner Pkwy	10/11/2002	6.46	124	30	67	0	0.01	34.4	0	N/A	0.56
3	Marrs Spring	11/3/2002	6.21	166	N/A	0.85	0	0.01	40.2	0	N/A	4.84
4	Jack Warner Pkwy	11/3/2002	6.36	112	N/A	42	0	0.01	28.6	0	N/A	6.64
5	Marrs Spring	3/11/2003	6.64	230	N/A	0.591	0	0.08	38	0	N/A	0.46
6	Jack Warner Pkwy	5/16/2003	6.45	126	N/A	19.3	0	0.21	32	0	20754	47.97
7	Jack Warner Pkwy	5/17/2003	6.16	128	N/A	19.6	0	0.17	44	0	2296	5.30
8	Marrs Spring	5/18/2003	6.82	182	N/A	1.78	0	0.39	42	0	1542	3.56
9	Marrs Spring	5/30/2003	6.43	143	N/A	1.12	5	0.31	40	0	1130	2.61
10	Marrs Spring	6/3/2003	6.81	200	N/A	21.2	27	0.07	42	0	6537	15.11
11	Jack Warner Pkwy	6/3/2003	5.63	125	72	4.08	0	0.14	48	0	7855	18.15
12	Jack Warner Pkwy	6/5/2003	6.04	130	68	4.89	0	0.24	48	0	5343	12.35
Mean			**6.3**	**149**	**50**	**19.8**	**2.6**	**0.13**	**38**	**0**	**6493**	**9.8**
Standard Deviation			**0.37**	**36**	**23**	**23**	**7.7**	**0.12**	**7.3**	**0**	**6800**	**13.3**
COV			**0.05**	**0.24**	**0.46**	**1.16**	**2.92**	**0.93**	**0.19**	**-**	**-**	**1.3**
Anderson Darling Probability Test (Normal)			**1.046**	**1.046**	**1.795**	**-**	**1.726**	**5.451**	**1.215**	**1.08**	**-**	**-**
Anderson Darling Probability Test (Log-normal)			**-**	**-**	**1.633**	**-**	**1.192**	**4.201**	**1.664**	**1.213**	**-**	**-**

Data provided by Robert Pitt, University of Alabama

Table E1.2: Spring Water Reference ("Library") Samples, CONT.

Sample number	Sampling Location	Date	K (mg/L)	NH_3 (mg/L as N)	NH_3/K (ratio)	B (mg/L)	Total Coliforms (MPN/100 mL)	*E. coli* (MPN/100 mL)	Enterococci (MPN/100 mL)
1	Marrs Spring	9/30/2002	8	0.01	0.001	N/A	1203.3	4.1	4.1
2	Jack Warner Pkwy	10/11/2002	1	0.02	0.02	N/A	275.5	1	36.4
3	Marrs Spring	11/3/2002	3	0.04	0.013	N/A	N/A	N/A	N/A
4	Jack Warner Pkwy	11/3/2002	2	0.02	0.01	N/A	N/A	N/A	N/A
5	Marrs Spring	3/11/2003	3	0.08	0.026	N/A	N/A	N/A	N/A
6	Jack Warner Pkwy	5/16/2003	3	0.01	0.0033	0.15	116.2	<1	<1
7	Jack Warner Pkwy	5/17/2003	2	0.29	0.14	0.15	>2419.2	290.9	412
8	Marrs Spring	5/18/2003	4	0.01	0.0025	0.14	>2419.2	172.3	140.8
9	Marrs Spring	5/30/2003	3	0.05	0.016	0.09	111.2	<1	3.1
10	Marrs Spring	6/3/2003	2	0.05	0.025	0.16	>2419.2	9.7	65.7
11	Jack Warner Pkwy	6/3/2003	4	0.05	0.012	0.09	4.1	1	<1
12	Jack Warner Pkwy	6/5/2003	3	0.05	0.016	0.04	7.2	<1	<1
Mean			3.1	0.057	0.024	0.117	>286	<80	<110
Standard Deviation			1.7	0.077	0.039	0.045	460	123	156
COV			0.55	1.35	1.592	0.381	1.60	1.54	1.41
Anderson Darling Probability Test Value (Normal)			1.9	3.01	3.498	**1.864**	2.06	3.27	2.66
Anderson Darling Probability Test Value (Log-normal)			**1.4**	**1.2**	**1.3**	2.04	1.55	2.14	1.47

Data provided by Robert Pitt, University of Alabama

Table E1.3: Car Wash Reference ("Library") Samples

Sample number	Sampling Location	Date	pH	Spec. cond. (µS/cm)	Temp. (°F)	Turb. (NTU)	Color (APHA Platinum Cobalt Units)	F (mg/L)	Hard. (mg/L $CaCO_3$)	Detergent (mg/L as MBAS)	Fluorescence (raw signal strength)
1	Gee's Car Wash-Self Service	10/31/2002	6.62	320	26	263	100	<LD	56		N/A
2	Texaco Gas Station - Automatic Carwash	10/31/2002	6.90	300	28	232	>100	0.04	15	150	N/A
3	Chevey Gas Station - Automatic Carwash	5/16/2003	7.00	260	N/A	383	80.00	6.45	68	120	46162
4	Self service carwash-University Blvd.	5/17/2003	9.04	380	N/A	81	>100	1.70	76	150	19192
5	Self service carwash-University Blvd.	5/17/2003	7.37	390	N/A	239	>100	0.56	78	140	294014
6	Chevey Gas Station - Automatic Carwash	5/17/2003	9.34	570	N/A	264	>100	<LD	82	80	39262
7	Chevey Gas Station-McFarland - Automatic Carwash	5/29/2003	7.79	210	N/A	62	77.00	1.47	83	200	41341
8	Parade gas station (McFarland) - Automatic Carwash	6/3/2003	8.57	200	N/A	207	>100	0.05	84	150	54268
9	Stop and go self service carwash-Skyland Blvd.	6/3/2003	6.81	200	70	65	80.00	0.42	76	120	70180
10	Parade gas station-(Skyland Blvd.) - Automatic Carwash	6/3/2003	7.53	192	70	69	60.00	0.19	74	150	35731
11	Shell gas station (Skyland Blvd.) - Automatic Carwash	6/3/2003	7.2	120	71	1	30.00	0.50	82	150	14937
12	Parade gas station (Skyland Blvd.) - Automatic Carwash	6/8/2003	7.89	154	N/A	14	0.00	0.87	80	140	13681
Mean			7.67	274	53	156	>61	1.22	71	140	62876
Standard Deviation			0.89	126	23	122	34	1.92	19	29	83144
COV			0.11	0.45	0.44	0.77	0.56	1.56	0.27	0.20	1.32
Anderson Darling Probability Test (Normal)			**1.22**	**1.27**	-	**1.33**	**1.96**	2.66	**1.72**	**1.87**	-
Anderson Darling Probability Test (Log-normal)			-	1.02	-	1.79	2.18	**1.20**	1.81	3.12	-

Data provided by Robert Pitt, University of Alabama

Table E1.3: Car Wash Reference ("Library") Samples, CONT.

Sample number	Sampling Location	Date	Fluorescence (mg/L as "Tide")	K (mg/L)	NH_3 (mg/L as N)	NH_3/K (ratio)	B (mg/L)	Total Coliforms (MPN/100 mL)	*E. coli* (MPN/100 mL)	Enterococci (MPN/100 mL)
1	Gee's Car Wash-Self Service	10/31/2002	132	10	0.44	0.044	N/A	>2419.2	1553.1	>2419.2
2	Texaco Gas Station - Automatic Carwash	10/31/2002	130	2	0.65	0.33	N/A	>2419.2	1413.60	6.20
3	Chevey Gas Station - Automatic Carwash	5/16/2003	106	2	0.37	0.19	0.50	>2419.2	4.1	5.2
4	Self service carwash-University Blvd.	5/17/2003	44	5	0.28	0.06	0.65	>2419.2	14.6	3.1
5	Self service carwash-University Blvd.	5/17/2003	55	2	0.03	0.02	1.23	>2419.2	>2419.2	1
6	Chevey Gas Station - Automatic Carwash	5/17/2003	90	3	4.50	1.50	1.74	>2419.2	1413.6	>2419.2
7	Chevey Gas Station-McFarland - Automatic Carwash	5/29/2003	95	3	0.75	0.25	0.37	>2419.2	15.8	<1
8	Parade gas station (McFarland) - Automatic Carwash	6/3/2003	125	2	0.25	0.13	0.48	>2419.2	11.9	11.1
9	Stop and go self service carwash-Skyland Blvd.	6/3/2003	162	6	1	0.17	0.70	>2419.2	235.9	<1
10	Parade gas station-(Skyland Blvd.) - Automatic Carwash	6/3/2003	82	2	0.25	0.13	0.50	>2419.2	15.5	<1
11	shell gas station (Skyland Blvd.) - Automatic Carwash	6/3/2003	34	3	0.05	0.02	0.09	>2419.2	1553.1	2419.2
12	parade gas station (Skyland Blvd.) - Automatic Carwash	6/8/2003	31	3	2.25	0.75	0.28	<1	<1	<1
Mean			90	3.6	0.90	0.29	0.65	>2419.2	>623	>407
Standard Deviation			42	2.4	1.2	0.42	0.48	-	744	985
COV			0.46	0.667	1.4	1.4	0.74	-	1.1	2.4
Anderson Darling Probability Test (Normal)			**1.029**	2.313	2.6	2.58	1.678	-	2.158	4.467
Anderson Darling Probability Test (Log-normal)			1.254	**1.71**	**1.103**	**0.999**	**1.34**	-	1.626	2.372

Data provided by Robert Pitt, University of Alabama

Table E1.4: Laundry Reference ("Library") Samples

Sample number	Sampling Location	Date	pH	Spec. cond. (µS/cm)	Temp. (°F)	Turb. (NTU)	Color (APHA Platinum Cobalt Units)	F (mg/L)	Hard. (mg/L $CaCO_3$)	Detergent (mg/L as MBAS)	Fluorescence (raw signal strength)	Fluorescence (mg/L as "Tide")
1	Renee's House (unknown)	11/3/2002	6.52	220	26	90.40	20	1.27	13.00	1000.00	N/A	1231
2	Renee's House (unknown)	12/14/2002	6.22	180	26	66.20	30	0.98	18.00	920.00	N/A	1002
3	Renee's House (unknown)	5/11/2003	9.06	440	N/A	366.00	20	0.82	54	900	644924	1490
4	Renee's House (unknown)	5/11/2003	7.73	1690	N/A	85.70	20	0.78	60	1020	744120	1720
5	Renee's House (unknown)	5/11/2003	9.63	360	N/A	398.00	20	1.07	58	1000	131046	302
6	Yukio's apartment (Purex)	5/30/2003	7.10	590	N/A	226.00	20	0.84	42	920	886425	2049
7	Yukio's apartment (Purex)	5/31/2003	8.7	370	81	344	20	0.76	46	800	606787	1402
8	Suman (Tide)	5/30/2003	7.1	430	70	25	>100	0.05	52	620	1280468	2805
9	Yukio's apartment (Purex)	6/3/2003	8.2	470	84	128	>100	0.38	50	760	583967	1349
10	Soumya (Tide)	6/3/2003	8.03	420	110	304	>100	1.04	56	420	745300	1722
11	Veera (Gain)	6/3/2003	9.45	240	N/A	135	45	1.12	54	580	186050	430
12	Sanju (Tide)	6/8/2003	7.2	152	N/A	59.1	40	1.09	44	480	260002	601
Mean			7.91	463.5	26	185	>26	0.85	45	785	532069	1342
Standard Deviation			1.12	408	26	134	9.93	0.34	15	212	271933	709
COV			0.14	0.880	N/A	0.72	0.38	0.40	0.33	0.27	0.51	0.52
Anderson Darling Probability Test Value (Normal)			**1.013**	2.641	N/A	1.401	**2.578**	**1.42**	**1.841**	**1.28**	-	**1.035**
Anderson Darling Probability Test Value (Log-normal)			-	1.298	N/A	**1.132**	2.587	2.71	2.583	1.435	-	1.32

Data provided by Robert Pitt, University of Alabama

Table E1.4: Laundry Reference ("Library") Samples, CONT.

Sample number	Sampling Location	Date	K (mg/L)	NH_3 (mg/L as N)	NH_3/K (ratio)	B (mg/L)	Total Coliforms (MPN/100 mL)	*E. coli* (MPN/100 mL)	Enterococci (MPN/100 mL)
1	Renee's House (unknown)	11/3/2002	2	1.10	0.55	N/A	N/A	N/A	N/A
2	Renee's House (unknown)	12/14/2002	2	0.89	0.44	N/A	N/A	N/A	N/A
3	Renee's House (unknown)	5/11/2003	7	2.50	0.35	0.53	290.9	<1	<1
4	Renee's House (unknown)	5/11/2003	4	0.50	0.12	0.36	<1	<1	<1
5	Renee's House (unknown)	5/11/2003	15	0.53	0.03	0.67	<1	<1	<1
6	Yukio's apartment (Purex)	5/30/2003	15	1.50	0.1	0.75	>2419.2	>2419.2	<1
7	Yukio's apartment (Purex)	5/31/2003	9	5	0.55	0.58	>2419.2	20.1	<1
8	Suman (Tide)	5/30/2003	5	8	1.6	7.90	>2419.2	<1	<1
9	Yukio's apartment (Purex)	6/3/2003	12	3	0.25	0.97	>2419.2	19.7	<1
10	Soumya (Tide)	6/3/2003	2	5	2.5	10.80	<1	<1	<1
11	Veera (Gain)	6/3/2003	2	2	1	1.16	<1	<1	<1
12	Sanju (Tide)	6/8/2003	3	9	3	0.70	<1	<1	<1
Mean			6.5	3.2	0.87	2.4	>2419.2	-	<1
Standard Deviation			5.0	2.8	0.98	3.7	-	-	-
COV			0.78	0.89	1.12	1.59	-	-	-
Anderson Darling Probability Test Value (Normal)			1.568	1.468	1.871	3.419	-	-	-
Anderson Darling Probability Test Value (Log-normal)			**1.294**	**0.982**	**0.99**	**2.106**	-	-	-

Data provided by Robert Pitt, University of Alabama

Table E1.5: Sewage (Dry Weather) Reference ("Library") Samples

Sample number	Sampling Location	Date	pH	Spec. cond. (µS/cm)	Temp. (°F)	Turb. (NTU)	Color (APHA Platinum Cobalt Units)	F (mg/L)	Hard. (mg/L $CaCO_3$)	Detergent (mg/L as MBAS)	Fluorescence (raw signal strength)	Fluorescence (mg/L as "Tide")
1	Tuscaloosa WWTP (Dry Season)	12/18/2002	6.44	780	N/A	192	>100	0.64	36	10	N/A	260
2	Tuscaloosa WWTP (Dry Season)	1/8/2003	6.56	2100	N/A	306	>100	0.74	42	10	N/A	156
3	Tuscaloosa WWTP (Dry Season)	1/15/2003	6.42	1500	N/A	203	>100	0.64	52	12.5	N/A	142
4	Tuscaloosa WWTP (Dry Season)	3/11/2003	6.9	1280	N/A	53.6	>100	0.68	68	10	N/A	189
5	Tuscaloosa WWTP (Dry Season)	5/18/2003	7.1	540	N/A	230	70	0.65	65	8	114406	264
6	Tuscaloosa WWTP (Dry Season)	5/29/2003	6.99	1090	N/A	128	100	0.82	42	8	115847	267
Mean			6.73	1215	-	185	>100	0.695	50	9.7	115126	213
Standard Deviation			0.29	553	-	86	-	0.072	13	1.66	1018	57
COV			0.04	0.45	-	0.46	-	0.104	0.260	0.171	0.009	0.27
Anderson Darling Probability Test Value (Normal)			**1.878**	**1.96**	-	**1.77**	**-**	**1.992**	**1.874**	**2.012**	**-**	**2.042**
Anderson Darling Probability Test Value (Log-normal)			-	1.913	-	1.996	-	1.96	1.846	2	-	2.025

Sample number	Sampling Location	Date	K (mg/L)	NH_3 (mg/L as N)	NH_3/K (ratio)	B (mg/L)	Total Coliforms (MPN/100 mL)	*E. coli* (MPN/100 mL)	Enterococci (MPN/100 mL)
1	Tuscaloosa WWTP (Dry Season)	12/18/2002	11	11	1	N/A	>2419.2	>2419.2	>2419.2
2	Tuscaloosa WWTP (Dry Season)	1/8/2003	10	14	1.4	N/A	N/A	N/A	N/A
3	Tuscaloosa WWTP (Dry Season)	1/15/2003	15	18	1.2	N/A	>2419.2	>2419.2	>2419.2
4	Tuscaloosa WWTP (Dry Season)	3/11/2003	11	45	4.0	N/A	>2419.2	816.4	43.6
5	Tuscaloosa WWTP (Dry Season)	5/18/2003	15	37.5	2.5	N/A	N/A	N/A	N/A
6	Tuscaloosa WWTP (Dry Season)	5/29/2003	9	27	3	0.97	>24192000	12033000	613000
Mean			11.8	25.4	2.19	0.97	>2419.2	6000000	300000
Standard Deviation			2.5	13.6	1.21	-	-	8500000	430000
COV			0.21	0.53	0.55	-	-	1.41	1.41
Anderson Darling Probability Test Value (Normal)			**2.026**	**1.77**	**1.81**	-	-	3.066	3.065
Anderson Darling Probability Test Value (Log-normal)			1.955	1.737	1.785	-	-	2.846	2.672

Data provided by Robert Pitt, University of Alabama

Table E1.6: Sewage (Wet Weather) Reference ("Library") Samples

Sample number	Sampling Location	Date	pH	Spec. cond. (µS/cm)	Temp. (°F)	Turb. (NTU)	Color (APHA Platinum Cobalt Units)	F (mg/L)	Hard. (mg/L $CaCO_3$)	Detergent (mg/L as MBAS)	Fluorescence (raw signal strength)	Fluorescence (mg/L as "Tide")
1	Tuscaloosa WWTP (Wet Season)	5/30/2003	6.8	1240	N/A	202	>100	0.19	52	8	115770	267
2	Tuscaloosa WWTP (Wet Season)	6/2/2003	6.81	1250	N/A	270	>100	0.22	48	7.5	126580	292
3	Tuscaloosa WWTP (Wet Season)	6/3/2003	6.99	440	N/A	255	100	0.25	44	6	108689	251
4	Tuscaloosa WWTP (Wet Season)	6/4/2003	6.92	440	N/A	231	100	0.14	52	8	129110	298
5	Tuscaloosa WWTP (Wet Season)	6/5/2003	7.00	550	N/A	113	57	0.20	54	7.5	109058	252
6	Tuscaloosa WWTP (Wet Season)	6/6/2003	7.00	850	N/A	259	60	0.17	47	7.5	105607	244
Mean			6.9	795	-	221	>79	0.19	49	7.4	115802	267
Standard Deviation			0.09	379	-	58	24	0.03	3.78	0.73	9932	22
COV			0.01	0.47	-	0.26	0.30	0.197	0.07	0.0996	0.086	0.086
Anderson Darling Probability Test Value (Normal)			**2.097**	**1.722**	-	**2.097**	**2.72**	**1.708**	**1.83**	**2.357**	-	**1.911**
Anderson Darling Probability Test Value (Log-normal)			-	1.725	-	2.3	2.706	1.734	1.838	2.43	-	1.898

Sample number	Sampling Location	Date	K (mg/L)	NH_3 (mg/L as N)	NH_3/K (ratio)	B (mg/L)	Total Coliforms (MPN/100 mL)	*E. coli* (MPN/100 mL)	Enterococci (MPN/100 mL)
1	Tuscaloosa WWTP (Wet Season)	5/30/2003	11	30	2.72	1.38	>24192000	2851000	833000
2	Tuscaloosa WWTP (Wet Season)	6/2/2003	12	35	2.91	0.98	>24192000	3654000	598000
3	Tuscaloosa WWTP (Wet Season)	6/3/2003	12	22.5	1.87	0.93	>24192000	2187000	292000
4	Tuscaloosa WWTP (Wet Season)	6/4/2003	10	22.5	2.25	1.05	>24192000	1785000	328000
5	Tuscaloosa WWTP (Wet Season)	6/5/2003	11	36	3.27	1.01	>24192000	3255000	369000
6	Tuscaloosa WWTP (Wet Season)	6/6/2003	14	27.5	1.96	0.78	>24192000	2282000	609000
Mean			11.6	28.9	2.500	1.02	>24192000	2669000	504833
Standard Deviation			1.3	5.8	0.55	0.19	-	708561	210828
COV			0.11	0.203	0.22	0.195	-	0.265	0.418
Anderson Darling Probability Test Value (Normal)			**1.891**	**1.809**	**1.751**	**1.984**	-	1.744	1.854
Anderson Darling Probability Test Value (Log-normal)			1.858	1.825	1.761	1.906	-	1.747	1.833

Data provided by Robert Pitt, University of Alabama

Table E1.7: Industrial Reference ("Library") Samples

Sample number	Sampling Location	Date	pH	Spec. cond. (µS/cm)	Temp. (°F)	Turb. (NTU)	Color (APHA Platinum Cobalt Units)	F (mg/L)	Hard. (mg/L $CaCO_3$)	Detergent (mg/L as MBAS)	Fluores-cence (raw signal strength)	Fluores-cence (mg/L as "Tide")
1	DELPHI (Automotive manufacture)(Water supply unknown)	12/18/2002	6.72	240	N/A	91.6	20	0.04	23	7.5	N/A	722
2	PECO FOODS (Poultry Supplier) (City water supply)	12/18/2002	6.44	850	N/A	309	40	0.89	34	10	N/A	149
3	TAMKO (Roofing Products)(Water supply unknown)	12/18/2002	7	380	N/A	251	>100	0.02	32	12.5	N/A	309
4	DELPHI (Automotive manufacture)(Water supply unknown)	1/8/2003	6.88	340	N/A	225	10	LD	30	0.25	N/A	101
5	PECO FOODS (Poultry Supplier)(City water supply)	1/8/2003	6.22	960	N/A	14.8	10	0.72	32	0.5	N/A	130
6	TAMKO (Roofing Products)(Water supply unknown)	1/8/2003	6.9	310	N/A	210	>100	0.01	38	2	N/A	410
7	DELPHI (Automotive manufacture)(Water supply unknown)	1/15/2003	6.42	81	N/A	37.4	15	0.01	36	6	N/A	599
8	PECO FOODS (Poultry Supplier)(City water supply)	1/15/2003	6.36	45	N/A	10	20	0.81	28	5	N/A	150
9	TAMKO (Roofing Products)(Water supply unknown)	1/15/2003	7.3	37	N/A	226	>100	0.01	26	10	N/A	375
Mean			6.6	360	-	152	>19	0.31	31	5.9	-	327
Standard Deviation			0.35	335	-	114	11	0.41	4.7	4.4	-	221
COV			0.053	0.930	-	0.748	0.58	1.309	0.155	0.741	-	0.67
Anderson Darling Probability Test Value (Normal)			**1.321**	1.629	-	**1.538**	2.056	2.414	**1.21**	**1.276**	-	**1.451**
Anderson Darling Probability Test Value (Log-normal)			-	**1.408**	-	1.792	**1.833**	**1.982**	1.254	1.763	-	1.386

Sample number	Sampling Location	Date	K (mg/L)	NH_3 (mg/L as N)	NH_3/K (ratio)	B (mg/L)	Total Coliforms (MPN/100 mL)	*E. coli* (MPN/100 mL)	Enterococci (MPN/100 mL)
1	DELPHI (Automotive manufacture)(Water supply unknown)	12/18/2002	24	0.55	0.02	N/A	920.8	66.3	0
2	PECO FOODS (Poultry Supplier) (City water supply)	12/18/2002	37	6	0.16	N/A	>2419.2	>2419.2	>2419.2
3	TAMKO (Roofing Products)(Water supply unknown)	12/18/2002	8	10	1.25	N/A	>2419.2	3	>2419.2
4	DELPHI (Automotive manufacture)(Water supply unknown)	1/8/2003	92	0.4	0.004	N/A	N/A	N/A	N/A
5	PECO FOODS (Poultry Supplier)(City water supply)	1/8/2003	42	4.5	0.10	N/A	N/A	N/A	N/A
6	TAMKO (Roofing Products)(Water supply unknown)	1/8/2003	32	12	0.37	N/A	N/A	N/A	N/A
7	DELPHI (Automotive manufacture)(Water supply unknown)	1/15/2003	81	0.9	0.01	N/A	>2419.2	<1	<1
8	PECO FOODS (Poultry Supplier)(City water supply)	1/15/2003	45	2	0.04	N/A	>2419.2	>2419.2	866.4
9	TAMKO (Roofing Products)(Water supply unknown)	1/15/2003	37	8.5	0.22	N/A	204.6	<1	<1
Mean			44	4.9	0.24	-	>562	>34	>433.2
Standard Deviation			26.5	4.3	0.39	-	506	44	612
COV			0.60	0.88	1.6	-	0.89	1.2	1.4
Anderson Darling Probability Test Value (Normal)			**1.611**	**1.371**	2.499	-	2.575	2.668	2.172
Anderson Darling Probability Test Value (Log-normal)			1.536	1.436	1.203	-	2.603	1.963	2.467

Data provided by Robert Pitt, University of Alabama

Table E1.8: Industrial (Cintas) Reference ("Library") Samples

Sample number	Sampling Location	Date	pH	Spec. cond. (µS/cm)	Temp. (°F)	Turb. (NTU)	Color (APHA Platinum Cobalt Units)	F (mg/L)	Hard. (mg/L $CaCO_3$)	Detergent (mg/L as MBAS)	Fluorescence (raw signal strength)	Fluorescence (mg/L as "Tide")
1	CINTAS (Cooperate uniform mfg.)(City water supply)	12/18/2002	11.44	1460	N/A	3388	>100	<LD	35	5	N/A	29
2	CINTAS (Cooperate uniform mfg.)(City water supply)	1/8/2003	9.56	850	N/A	483	>100	<LD	40	10	N/A	285
3	CINTAS (Cooperate uniform mfg.)(City water supply)	1/15/2003	10.22	85	N/A	4023	>100	0.02	32	3	N/A	66
Mean			10.4	798	-	2631	>100	<0.02	35	6	-	127
Standard Deviation			0.95	688	-	1887	-	-	4.0	3.6	-	138
COV			0.091	0.86	-	0.71	-	-	0.11	0.6	-	1.08
Anderson Darling Probability Test Value (Normal)			**3.067**	**3.072**	-	**3.21**	-	-	**3.063**	**3.084**	-	**3.15**
Anderson Darling Probability Test Value (Log-normal)			-	3.201	-	3.298	-	-	3.06	3.059	-	3.067

Sample number	Sampling Location	Date	K (mg/L)	NH_3 (mg/L as N)	NH_3/K (ratio)	B (mg/L)	Total Coliforms (MPN/100 mL)	*E. coli* (MPN/100 mL)	Enterococci (MPN/100 mL)
1	CINTAS (Cooperate uniform mfg.)(City water supply)	12/18/2002	53	7.5	0.14	N/A	0	0	0
2	CINTAS (Cooperate uniform mfg.)(City water supply)	1/8/2003	56	6	0.10	N/A	N/A	N/A	N/A
3	CINTAS (Cooperate uniform mfg.)(City water supply)	1/15/2003	85	5	**0.05**	N/A	0	<1	22.2
Mean			64	6.1	0.10	-	0	-	11.1
Standard Deviation			17	1.2	0.04	-	0	-	15.6
COV			0.27	0.20	0.40	-	-	-	1.4
Anderson Darling Probability Test Value (Normal)			**3.182**	**3.06**	**3.079**	-	4.201	-	4.201
Anderson Darling Probability Test Value (Log-normal)			3.167	3.059	3.118	-	-	-	-

Data provided by Robert Pitt, University of Alabama

Table E1.9: Irrigation Reference ("Library") Samples

Sample number	Sampling Location	Date	pH	Spec. cond. (µS/cm)	Temp. (°F)	Turb. (NTU)	Color (APHA Platinum Cobalt Units)	F (mg/L)	Hard. (mg/L $CaCO_3$)	Detergent (mg/L as MBAS)	Fluorescence (raw signal strength)	Fluorescence (mg/L as "Tide")
1	Ferguson Parking (UA) - Run over concrete	5/16/2003	7.91	200	N/A	16.2	0	0.69	62	0	21226	49
2	B.B. Commer (UA) - Run over concrete	5/18/2003	7.38		N/A	4.03	10	0.68	60	0	13915	32
3	Art Building (UA) - Taken at a little puddle, NO concrete	5/16/2003	7.46	200	N/A	64.6	0	0.76	55	0	40040	92
4	MIB (UA) - Run over concrete	5/19/2003	7.18	163	N/A	9.95	20	0.83	58	0	19234	44
5	MIB (UA) - Run over concrete	5/30/2003	7.1	148	89	21.8	50	0.30	40	0	26851	62
6	Art Building (UA) - Taken at a little puddle, NO concrete	5/30/2003	7.46	200	70	96.6	56	0.39	44	0	38389	88
7	Quad(UA) - Taken at a little puddle, NO concrete	5/30/2003	6.99	181	70	826	54	0.23	52	0	30820	53
8	MIB (UA) - Run over concrete	6/5/2003	7.26	183	82	14.5	50	0.64	54	0	23353	53
9	MIB (UA) - Taken at a little puddle, NO concrete	6/5/2003	7.16	182	78	16.5	30	0.91	52	0	17788	41
10	Bevil (UA) - Taken at a little puddle, NO concrete	6/5/2003	6.91	156	72	32	27	0.57	48	0	24149	55
11	MIB (UA) - Run over concrete	6/9/2003	7.4	183	78	9	40	0.84	66	0	23160	53
12	MIB (UA) - Taken at a little puddle, NO concrete	6/9/2003	7.3	194	80	16.6	50	0.57	54	0	23260	53
Mean			7.2	180	77	93	32	0.61	53	0	25182	56
Standard Deviation			0.26	18	6.5	232	20	0.21	7.3	0	7831	17
COV			0.03	0.10	0.08	2.46	0.64	0.35	0.13	-	0.31	0.31
Anderson Darling Probability Test Value (Normal)			**1.147**	**1.401**		5.099	**1.296**	**1.103**	**1.002**	-	-	1.718
Anderson Darling Probability Test Value (Log-normal)			-	1.457		**1.516**	1.677	1.457	1.006	-	-	**1.383**

Data provided by Robert Pitt, University of Alabama

Table E1.9: Irrigation Reference ("Library") Samples, CONT.

Sample number	Sampling Location	Date	K (mg/L)	NH_3 (mg/L as N)	NH_3/K (ratio)	B (mg/L)	Total Coliforms (MPN/100 mL)	*E. coli* (MPN/100 mL)	Enterococci (MPN/100 mL)
1	Ferguson Parking (UA) - Run over concrete	5/16/2003	2	<LD	N/A	0.14	>2419.2	27.8	>2419.2
2	B.B. Commer (UA) - Run over concrete	5/18/2003	9	1.0	0.111	0.20	>2419.2	8.3	2
3	Art Building (UA) - Taken at a little puddle, NO concrete	5/16/2003	5	0.08	0.016	0.25	>2419.2	>2419.2	>2419.2
4	MIB (UA) - Run over concrete	5/19/2003	3	0.21	0.07	0.13	>2419.2	>2419.2	>2419.2
5	MIB (UA) - Run over concrete	5/30/2003	2	3.5	1.75	0.2	>2419.2	31.8	>2419.2
6	Art Building (UA) -Taken at a little puddle, NO concrete	5/30/2003	4	0.5	0.125	0.36	>2419.2	>2419.2	287.7
7	Quad(UA) - Taken at a little puddle, NO concrete	5/30/2003	5	1	0.2	0.5	>2419.2	>2419.2	>2419.2
8	MIB (UA) - Run over concrete	6/5/2003	9	4.5	0.5	0.22	>2419.2	>2419.2	>2419.2
9	MIB (UA) - Taken at a little puddle, NO concrete	6/5/2003	8	0.5	0.06	0.14	>2419.2	>2419.2	>2419.2
10	Bevil (UA) - Taken at a little puddle, NO concrete	6/5/2003	4	1	0.25	0.23	>2419.2	1299.7	>2419.2
11	MIB (UA) - Run over concrete	6/9/2003	7	0.5	0.07	0.25	>4838.4	>4838.4	>4838.4
12	MIB (UA) - Taken at a little puddle, NO concrete	6/9/2003	10	1	0.1	0.35	>4838.4	>4838.4	>4838.4
Mean			5.6	1.25	0.29	0.24	>2419.2	>2419.2	>2419.2
Standard Deviation			2.8	1.41	0.50	0.10	-	-	-
COV			0.50	1.12	1.69	0.43	-	-	-
Anderson Darling Probability Test Value (Normal)			**1.144**	2.471	3.343	1.366	-	-	-
Anderson Darling Probability Test Value (Log-normal)			1.146	**1.325**	**1.277**	**1.094**	-	-	-

Data provided by Robert Pitt, University of Alabama

Appendix E-2. Data Tables for Birmingham

Table E2.1: Spring Water Samples

Sample #	Conductivity (µS/cm)	Fluoride (mg/L)	Hardness (mg/L) (as $CaCO_3$)	Detergent (mg/L)	Fluoresc. (% scale)	Potassium (mg/L)	Ammonia (mg/L)	pH	Color (units)	Chlorine (mg/L)	Toxicity (I25) (% reduc.)	Copper (mg/L)	Phenols (mg/L)
1	310	0.09	231	0	11	0.83	0.02	6.92	0	0.00	0	NA	NA
2	288	0.01	239	0	4	0.76	0.00	6.89	0	0.00	0	NA	NA
3	327	0.01	255	0	5	0.69	0.01	7.01	0	0.00	0	NA	NA
4	310	0.03	248	0	5	0.72	0.05	6.98	0	0.01	0	0	0
5	301	0.05	240	0	10	0.74	0.00	7.00	0	0.01	0	0	0
6	295	0.00	243	0	2	0.73	0.00	6.87	0	0.00	0	0	0
7	298	0.03	241	0	6	0.56	0.00	6.99	0	0.00	0	0	0
8	290	0.03	229	0	8	0.72	0.00	6.95	0	0.00	0	0	0
9	295	0.05	233	0	10	0.76	0.00	6.99	0	0.01	0	0	0
10	298	0.01	239	0	7	0.77	0.01	7.01	0	0.00	0	0	0
Mean	301	0.03	240	0	7	0.73	0.01	6.96	0	0.00	0	0	0
St. Dev.	11.6	0.03	7.83	0	2.9	0.07	0.02	0.05	0	0.00	0	0	0
95% conf limits (mean +/-)	6.87	0.02	4.63	0	1.7	0.04	0.01	0.03	0	0.00	0	0	0
Median	298	0.03	240	0	7	0.74	0.00	6.99	0	0.00	0	0	0
Coefficient of Variability	0.04	1.00	0.03	--	0.43	0.10	2.00	0.01	--	--	--	--	--
Distribution	normal	normal	normal	uniform	normal	normal	l-norm	normal	uniform	uniform	uniform	uniform	uniform

Data provided by Robert Pitt, University of Alabama

NA: Data not available

Table E2.2: Shallow Ground Water Samples

Sample #	Conductivity (µS/cm)	Fluoride (mg/L)	Hardness (mg/L) (as $CaCO_3$)	Detergent (mg/L)	Fluoresc. (% scale)	Potassium (mg/L)	Ammonia (mg/L)	pH	Color (units)	Chlorine (mg/L)	Toxicity (I25) (% reduc.)	Copper (mg/L)	Phenols (mg/L)
1	5	0.08	5	0	7	NA	NA	NA	5	0.04	0	0.01	0
2	5	0.03	22	0	12	NA	NA	NA	20	0.00	0	0.01	0
3	32	0.14	18	0	160	NA	NA	7.8	35	0.08	0	0.00	0
4	128	0.07	41	0	34	1.70	0.38	6.2	0	0.02	0	0.00	0
5	119	0.05	38	0	22	2.15	0.89	5.4	0	0.00	0	0.00	0
6	77	0.04	29	0	15	0.81	0.08	6.4	10	0.01	0	0.00	0
7	31	0.05	32	0	8	0.91	0.05	6.5	5	0.00	0	0.00	0
8	43	0.06	35	0	11	0.89	0.09	6.7	0	0.00	0	0.00	0
9	46	0.04	27	0	17	1.01	0.13	6.4	5	0.01	0	0.00	0
10	28	0.07	26	0	13	0.83	0.08	6.3	0	0.00	0	0.00	0
Mean	51	0.06	27	0	30	1.19	0.24	6.46	8	0.02	0	0.00	0
St. Dev.	43.3	0.03	10.5	0	46.4	0.53	0.31	0.66	11.4	0.03	0	0.00	0
95% conf limits (mean +/-)	34.6	0.03	8.48	0	37.1	0.42	0.25	0.53	9	0.02		0.00	0
Median	38	0.06	28	0	14	0.91	0.09	6.40	5	0.01	0	0.00	0
Coefficient of Variability	0.84	0.50	0.39	--	1.55	0.44	1.26	0.10	1.42	1.50	--	--	--
Distribution	normal	l-normal	normal	uniform	l-normal	normal	normal	normal	l-normal	normal	uniform	uniform	uniform

Data provided by Robert Pitt, University of Alabama

NA: Data not available

Table E2.3: Samples from Irrigation of Landscaped Areas

Sample #	Conductivity (µS/cm)	Fluoride (mg/L)	Hardness (mg/L) (as $CaCO_3$)	Detergent (mg/L)	Fluoresc. (% scale)	Potassium (mg/L)	Ammonia (mg/L)	pH	Color (units)	Chlorine (mg/L)	Toxicity (I25) (% reduc.)	Copper (mg/L)	Phenols (mg/L)
1	109	0.98	42.3	0	132.1	6.46	0.28	6.88	5	0.03	0.0	0.00	0.00
2	119	0.93	39.0	0	218.6	9.42	0.24	6.90	15	0.05	0.0	0.00	0.00
3	92	1.65	41.4	0	267.6	3.21	0.55	7.09	15	0.08	0.0	0.00	0.00
4	98	1.94	40.4	0	199.9	6.32	0.40	7.04	10	0.02	0.0	0.00	0.00
5	107	0.97	39.4	0	231.6	5.44	0.41	6.90	10	0.03	0.0	0.00	0.00
6	110	0.81	38.0	0	242.0	6.71	0.37	7.02	13	0.00	0.0	0.00	0.00
7	100	0.93	39.0	0	212.4	6.49	0.31	7.01	10	0.03	0.0	0.00	0.00
8	102	0.89	41.0	0	201.2	4.98	0.48	6.89	7	0.01	0.0	0.00	0.00
9	106	0.91	42.0	0	223.6	5.79	0.35	6.91	5	0.00	0.0	0.00	0.00
10	107	0.98	39.0	0	215.0	6.01	0.32	6.98	10	0.00	0.0	0.00	0.00
Mean	105	0.90	40.2	0	214.4	6.08	0.37	6.96	10	0.03	0.0	0.00	0.00
St. Dev.	7.28	0.10	1.47	0	35.20	1.56	0.09	0.08	3.62	0.03	0.00	0.00	0.00
95% conf. limits (mean +/-)	5.83	0.08	1.18	0	28.17	1.25	0.07	0.06	2.90	0.02	0.00	0.00	0.00
Median	106	0.93	39.9	0	216.80	6.17	0.36	6.95	10	0.03	0.0	0.00	0.00
Coefficient of Variability	0.07	0.11	0.04	--	0.16	0.26	0.25	0.01	0.36	1.00	--	--	--
Distribution	normal	normal	normal	uniform	normal	normal	normal	bi-modal	normal	normal	uniform	uniform	uniform

Data provided by Robert Pitt, University of Alabama

NA: Data not available

Table E2.4: Residential/Commercial Sanitary Sewage Samples

Sample #	Collection Date	Collection Time	Conductivity (µS/cm)	Fluoride (mg/L)	Hardness (mg/L) (as $CaCO_3$)	Detergent (mg/L)	Fluoresc. (% scale)	Potassium (mg/L)
1	1-Aug	10 p.m.	265	0.90	149	0.96	240	5.25
2	2-Aug	12 a.m.	320	0.72	161	3.80	200	4.79
3	2-Aiug	2 a.m.	360	0.46	172	0.58	170	3.44
4	2-Aug	4 a.m.	350	0.58	181	0.54	155	3.09
5	2-Aug	6 a.m.	410	0.74	167	0.54	205	4.51
6	2-Aug	8 a.m.	435	0.87	154	0.99	265	5.88
7	2-Aug	10 a.m.	410	1.08	150	0.48	265	5.99
8	2-Aug	12 p.m.	400	0.77	145	3.60	270	5.70
9	2-Aug	2 p.m.	410	0.83	149	0.54	280	7.50
10	2-Aug	4 p.m.	460	0.93	151	0.95	265	7.20
11	2-Aug	6 p.m.	410	0.88	156	0.98	265	6.78
12	2-Aug	8 p.m.	430	0.88	158	0.96	300	7.56
13	4-Aug	6 p.m.	550	0.69	145	4.20	280	7.00
14	4-Aug	8 p.m.	460	0.64	133	4.40	280	6.73
15	4-Aug	10 p.m.	500	0.74	123	0.97	265	6.05
16	5-Aug	12 a.m.	420	0.60	142	0.99	227	4.03
17	5-Aug	2 a.m.	360	0.54	148	0.65	175	3.55
18	5-Aug	4 a.m.	365	0.43	158	0.64	120	4.94
19	5-Aug	6 a.m.	390	0.60	142	0.62	230	7.47
20	5-Aug	8 a.m.	500	1.04	126	0.65	310	7.13
21	5-Aug	10 a.m.	450	0.80	125	0.96	315	6.87
22	5-Aug	12 p.m.	430	0.97	126	0.98	310	6.88
23	5-Aug	2 p.m.	420	0.85	126	0.90	300	7.07
24	5-Aug	4 p.m.	460	0.83	122	0.94	290	7.55
25	6-Aug	6 p.m.	440	0.81	127	2.40	280	7.14
26	6-Aug	8 p.m.	435	0.66	123	1.60	290	6.75
27	6-Aug	10 p.m.	400	0.77	120	0.97	265	6.12
28	7-Aug	12 a.m.	390	0.67	133	0.96	210	5.06
29	7-Aug	2 a.m.	340	0.44	149	0.89	175	3.59
30	7-Aug	4 a.m.	400	0.43	141	0.76	170	3.57
31	7-Aug	6 a.m.	420	0.68	138	0.98	300	6.65
32	7-Aug	8 a.m.	465	1.04	136	0.95	260	5.68
33	7-Aug	10 a.m.	460	0.94	141	3.00	280	6.69
34	7-Aug	12 p.m.	460	0.89	138	3.60	285	6.93
35	7-Aug	2 p.m.	490	0.85	135	4.00	265	7.11
36	7-Aug	4 p.m.	450	0.83	155	2.00	270	6.69
Mean			420	0.76	143	1.50	251	5.97
St. Dev.			55.14	0.17	15.04	1.22	49.88	1.36
95% conf. limits (mean +/-)			18.01	0.06	4.91	0.40	16.33	0.45
Median			420	0.79	142	0.96	265	6.67
Coefficient of Variability			0.13	0.23	0.11	0.82	0.20	0.23
Distribution			normal	normal	normal	normal	normal	normal

Data provided by Robert Pitt, University of Alabama

Table E2.4 (cont.)

Sample #	Collection Date	Collection Time	Ammonia (mg/L)	pH	Color (units)	Chlorine (mg/L)	Toxicity (I25) (% reduc.)	Copper (mg/L)	Phenols (mg/L)
1	1-Aug	10 p.m.	8.59	7.35	42	0.01	23.8	0.01	0.00
2	2-Aug	12 a.m.	7.25	7.23	10	0.03	29.2	0.00	0.00
3	2-Aiug	2 a.m.	5.02	7.33	12	0.03	30.3	0.00	0.00
4	2-Aug	4 a.m.	5.22	7.24	8	0.01	26.0	0.00	0.00
5	2-Aug	6 a.m.	13.04	7.35	11	0.02	16.3	0.00	0.00
6	2-Aug	8 a.m.	14.23	7.30	12	0.00	23.8	0.00	0.00
7	2-Aug	10 a.m.	13.03	7.17	15	0.01	20.6	0.01	0.00
8	2-Aug	12 p.m.	9.67	6.97	31	0.00	21.7	0.02	0.00
9	2-Aug	2 p.m.	8.00	6.98	28	0.00	15.3	0.00	0.00
10	2-Aug	4 p.m.	8.81	7.12	22	0.00	11.0	0.00	0.00
11	2-Aug	6 p.m.	7.82	7.03	23	0.00	17.4	0.00	0.00
12	2-Aug	8 p.m.	7.32	7.09	21	0.05	19.5	0.01	0.00
13	4-Aug	6 p.m.	10.03	7.21	75	0.00	43.3	NA	NA
14	4-Aug	8 p.m.	9.18	6.94	61	0.03	47.2	NA	NA
15	4-Aug	10 p.m.	11.82	7.10	45	0.00	41.7	NA	NA
16	5-Aug	12 a.m.	11.04	6.89	49	0.00	41.1	NA	NA
17	5-Aug	2 a.m.	6.38	7.10	26	0.02	46.7	NA	NA
18	5-Aug	4 a.m.	6.00	7.05	19	0.01	49.6	NA	NA
19	5-Aug	6 a.m.	12.83	7.16	22	0.00	52.2	NA	NA
20	5-Aug	8 a.m.	19.49	7.06	50	0.01	52.8	NA	NA
21	5-Aug	10 a.m.	12.34	6.88	60	0.00	37.8	NA	NA
22	5-Aug	12 p.m.	10.67	7.00	64	0.00	48.9	NA	NA
23	5-Aug	2 p.m.	8.57	6.98	54	0.01	47.8	NA	NA
24	5-Aug	4 p.m.	9.25	7.06	48	0.00	53.3	NA	NA
25	6-Aug	6 p.m.	11.00	7.03	62	0.02	65.4	NA	NA
26	6-Aug	8 p.m.	9.99	6.98	48	0.04	99.6	NA	NA
27	6-Aug	10 p.m.	10.66	7.01	43	0.10	99.4	NA	NA
28	7-Aug	12 a.m.	8.29	7.06	15	0.03	40.5	NA	NA
29	7-Aug	2 a.m.	5.53	7.13	16	0.00	4.2	NA	NA
30	7-Aug	4 a.m.	5.84	7.13	18	0.01	3.1	NA	NA
31	7-Aug	6 a.m.	17.28	7.16	42	0.02	54.0	NA	NA
32	7-Aug	8 a.m.	15.74	7.18	68	0.00	98.3	NA	NA
33	7-Aug	10 a.m.	10.99	7.03	80	0.00	68.6	NA	NA
34	7-Aug	12 p.m.	10.03	7.08	54	0.00	71.9	NA	NA
35	7-Aug	2 p.m.	7.43	6.86	52	0.01	69.7	NA	NA
36	7-Aug	4 p.m.	8.58	7.11	58	0.03	71.9	NA	NA
Mean			9.92	7.09	38	0.01	43.4	0.00	0.00
St. Dev.			3.33	0.13	20.95	0.02	25.47	0.01	0.00
95% Conf. limits (mean +/-)			1.09	0.04	6.84	0.01	8.32	0.00	0.00
Median			9.46	7.09	42	0.01	42.5	0.00	0.00
Coefficient of Variability			0.34	0.02	0.55	2.00	0.59	--	--
Distribution			L-normal	normal	normal	L-normal	normal	uniform	uniform

Data provided by Robert Pitt, University of Alabama

NA: Data not available

Table E2.5: Residential Septic Tank Discharge Samples

Sample #	Conductivity (µS/cm)	Fluoride (mg/L)	Hardness (mg/L) (as $CaCO_3$)	Detergent (mg/L)	Fluoresc. (% scale)	Potassium (mg/L)	Ammonia (mg/L)	pH (units)	Color (units)	Chlorine (mg/L)	Toxicity (I25) (% reduc.)	Copper (mg/L)	Phenols (mg/L)
1	82	0.75	252	0.03	511	30.06	117.80	7.23	38	0.03	100	NA	NA
2	108	0.70	186	0.00	547	32.06	124.60	7.38	38	0.01	100	NA	NA
3	56	0.62	186	0.00	536	27.26	114.40	7.16	18	0.00	100	NA	NA
4	397	1.19	36	10.00	266	8.16	26.07	6.61	68	0.01	100	NA	NA
5	482	0.70	29	5.00	321	8.83	135.75	6.53	87	0.03	100	NA	NA
6	362	1.12	36	12.00	351	8.16	26.77	6.67	77	0.00	100	NA	NA
7	812	0.92	80	0.50	466	20.85	89.60	6.63	54	0.00	100	NA	NA
8	812	1.55	84	0.15	431	23.25	91.60	6.59	64	0.01	100	NA	NA
9	762	1.26	82	0.57	471	22.25	86.10	6.54	91	0.03	100	NA	NA
10	432	0.61	45	2.50	455	24.51	95.90	7.39	55	0.20	100	0.00	0.00
11	297	0.42	53	1.00	253	18.66	107.80	6.19	10	0.00	100	0.00	0.00
12	236	0.56	61	0.50	463	21.73	99.30	6.59	100	0.19	100	0.40	0.00
13	327	0.87	63	0.45	339	31.81	113.20	6.72	100	0.20	100	0.35	0.00
Mean	502	0.93	57	3.27	382	18.82	87.21	6.65	70.60	0.07	100	0.19	0.00
St. Dev.	209.87	0.36	20.52	4.35	84.95	7.97	35.11	0.30	27.28	0.09	0.00	0.22	0.00
95% conf. limits (mean +/-)	114.09	0.20	11.16	2.37	46.18	4.33	19.09	0.16	14.83	0.05	0.00	0.12	0.00
Median	414	0.90	57	0.79	391	21.29	93.75	6.60	72.50	0.02	100	0.18	0.00
Coefficient of Variability	0.42	0.39	0.36	1.33	0.22	0.42	0.40	0.04	0.39	1.28	0.00	1.16	--
Distribution	normal	normal	log-normal	log-normal	normal	normal	normal	normal	normal	normal	uniform	bi-modal	uniform

Data provided by Robert Pitt, University of Alabama

NA: Data not available

Table E2.6: Commercial Carwash Samples

Sample #	Conductivity (µS/cm)	Fluoride (mg/L)	Hardness (mg/L) (as $CaCO_3$)	Detergent (mg/L)	Fluoresc. (% scale)	Potassium (mg/L)	Ammonia (mg/L)	pH	Color (units)	Chlorine (mg/L)	Toxicity (I25) (% reduc.)	Copper (mg/L)	Phenols (mg/L)
1	448	16.5	145	50.4	1325	22.00	0.28	6.49	380	0.00	100	0.00	0.00
2	450	11.5	149	52.2	1350	22.00	0.32	6.46	340	0.00	100	0.00	0.00
3	550	12.5	152	52.5	1400	78.40	0.20	7.11	190	0.00	100	0.00	0.00
4	490	15.5	150	49.0	1100	40.70	0.23	6.90	190	0.01	100	0.00	0.00
5	495	12.5	158	56.7	1075	47.70	0.19	6.84	190	0.00	100	0.00	0.00
6	470	8.0	160	50.3	1095	35.40	0.14	6.77	240	0.02	100	0.00	0.00
7	480	10.2	172	38.0	1005	48.20	0.23	6.76	200	0.08	100	NA	NA
8	473	11.8	165	49.0	1155	46.20	0.25	6.67	175	0.23	100	NA	NA
9	492	12.3	159	43.5	1190	16.70	0.19	6.40	160	0.12	100	0.00	0.00
10	505	12.2	155	48.0	1205	39.60	0.36	6.80	150	0.15	100	0.00	0.00
Mean	485	12.3	157	49.0	1190	42.69	0.24	6.72	222	0.07	100	0.00	0.00
St. Dev.	9.41	2.40	8.07	5.14	130.79	15.92	0.07	0.22	77.46	0.08	0.00	0.00	0.00
95% conf. limits (mean +/-)	8.23	1.49	5.00	3.19	81.06	9.87	0.04	0.14	48.01	0.05	0.00	0.00	0.00
Median	485	12.3	157	49.7	1173	43.45	0.23	6.77	190	0.05	100	0.00	0.00
Coefficient of Variability	0.06	0.19	0.05	0.10	0.11	0.37	0.28	0.03	0.35	1.14	0.00	--	--
Distribution	normal	normal	normal	normal	normal	normal	normal	normal	normal	bi-modal	uniform	uniform	uniform

Data provided by Robert Pitt, University of Alabama

NA: Data not available

Table E2.7: Commercial Laundry Samples

Sample #	Conductivity (µS/cm)	Fluoride (mg/L)	Hardness (mg/L) (as $CaCO_3$)	Detergent (mg/L)	Fluoresc. (% scale)	Potassium (mg/L)	Ammonia (mg/L)	pH	Color (units)	Chlorine (mg/L)	Toxicity (I25) (% reduc.)	Copper (mg/L)	Phenols (mg/L)
1	752	15.89	32	37.0	1169.6	3.47	0.94	9.37	25	0.57	100	NA	NA
2	462	23.98	40	21.5	1144.6	3.97	0.96	9.40	59	0.51	100	NA	NA
3	422	54.48	38	17.0	844.6	3.37	0.62	8.37	61	0.44	100	NA	NA
4	589	42.48	36	32.5	819.6	3.67	0.70	8.60	43	0.38	100	NA	NA
5	657	48.98	34	35.0	1169.6	3.57	0.84	9.10	49	0.21	100	NA	NA
6	565	31.48	37	31.0	1094.6	3.27	0.91	9.20	30	0.33	100	NA	NA
7	485	22.48	38	20.0	994.6	3.77	0.78	9.41	55	0.42	100	NA	NA
8	715	26.98	33	25.0	1019.6	2.57	0.88	9.05	38	0.47	100	0.00	0.00
9	545	35.98	32	24.0	1019.6	3.67	0.69	9.36	57	0.33	100	0.00	0.00
10	437	25.48	37	26.0	969.9	3.47	0.84	9.12	50	0.35	100	0.00	0.00
Mean	563	32.82	36	26.9	1024.6	3.48	0.82	9.10	47	0.40	100	0.00	0.00
St. Dev.	115.81	12.45	2.78	6.69	124.61	0.38	0.12	0.35	12.41	0.10	0.00	0.00	0.00
95% conf. limits (mean +/-)	68.44	7.36	1.64	3.96	73.64	0.22	0.07	0.21	7.33	0.06	0.00	0.00	0.00
Median	555	29.23	37	25.5	1019.6	3.52	0.84	9.16	50	0.40	100	0.00	0.00
Coefficient of Variability	0.21	0.38	0.08	0.25	0.12	0.11	0.14	0.04	0.27	0.26	0.00	--	--
Distribution	normal	normal	normal	normal	normal	normal	normal	normal	normal	normal	uniform	uniform	uniform

Data provided by Robert Pitt, University of Alabama

NA: Data not available

Table E2.8: Radiator Waste Samples

Sample #	Conductivity (µS/cm)	Fluoride (mg/L)	Hardness (mg/L) (as $CaCO_3$)	Detergent (mg/L)	Fluoresc. (% scale)	Potassium (mg/L)	Ammonia (mg/L)	pH	Color (units)	Chlorine (mg/L)	Toxicity (I25) (% reduc.)	Copper (mg/L)	Phenols (mg/L)
1	4250	136.5	0	17.4	20850	3230	16.9	6.95	2933	0.04	100	NA	NA
2	3350	177.0	0	13.8	24000	2446	32.4	6.99	3000	0.02	100	NA	NA
3	4200	172.5	32	14.7	20500	3473	21.0	6.25	3066	0.06	100	NA	NA
4	3321	133.3	12	14.2	21940	2694	18.1	7.01	3000	0.03	100	NA	NA
5	3289	129.8	0	15.1	22210	2902	22.3	6.85	3000	0.04	100	NA	NA
6	3510	121.5	12	18.3	22240	2907	12.2	6.50	3000	0.00	100	NA	NA
7	1900	183.0	0	13.5	22650	2282	8.9	7.61	2933	0.03	100	NA	NA
8	2510	124.5	0	13.5	22250	2364	90.1	7.38	3000	0.03	100	NA	NA
9	2987	170.1	0	14.6	21920	2899	23.8	6.98	3066	0.02	100	NA	NA
10	3466	145.0	0	15.3	21900	2821	17.5	7.11	3000	0.03	100	NA	NA
Mean	3278	149.3	5.6	15.04	22046	2801	26.3	6.96	3000	0.03	100	NA	NA
St. Dev.	704.32	23.76	10.53	1.62	952.08	374.89	23.32	0.39	44.33	0.02	0.00	NA	NA
95% conf. limits (mean +/-)	436.54	14.73	6.53	1.00	590.10	323.36	14.45	0.24	27.48	0.01	0.00	NA	NA
Median	3335	140.8	0	14.65	22075	2864	24.5	6.99	3000	0.03	100	NA	NA
Coefficient of Variability	0.21	0.16	1.88	0.11	0.04	0.13	0.89	0.06	0.01	0.52	0.00	NA	NA
Distribution	normal	normal	normal	normal	normal	normal	normal	normal	normal	normal	uniform	NA	NA

Data provided by Robert Pitt, University of Alabama

NA: Data not available

Table E2.9: Plating Bath Waste Samples

Sample #	Conductivity (µS/cm)	Fluoride (mg/L)	Hardness (mg/L) (as $CaCO_3$)	Detergent (mg/L)	Fluoresc. (% scale)	Potassium (mg/L)	Ammonia (mg/L)	pH	Color (units)	Chlorine (mg/L)	Toxicity (I25) (% reduc.)	Copper (mg/L)	Phenols (mg/L)
1	16200	9.00	1408	15.0	640.0	774	105.00	1.78	60	0.12	100	0.27	0
2	3620	1.68	950	1.8	505.0	552	74.20	4.82	90	0.27	100	0.00	0
3	8500	1.86	775	10.0	77.5	1730	3.05	5.20	368	0.01	89.4	0.00	0
4	9700	6.00	1452	9.0	225.0	186	139.37	6.15	70	0.08	100	0.21	0
5	10200	5.52	1476	11.4	390.0	220	29.33	3.36	90	0.00	100	0.32	0
6	7000	5.85	1818	1.5	88.0	490	76.00	8.60	50	0.04	68.4	0.07	0
7	8000	6.00	2433	1.6	75.0	356	58.60	7.60	50	0.03	90.5	0.05	0
8	12500	7.95	1484	6.9	510.5	380	60.90	3.10	75	0.02	100	0.35	0
9	8100	4.20	1398	3.9	147.5	1100	101.00	2.50	110	0.00	100	0.48	0
10	19700	3.20	1091	7.0	275.0	4300	9.05	6.20	75	0.19	100	0.00	0
Mean	10352	5.13	1429	6.8	293.4	1009	65.65	4.93	104	0.08	94.8	0.18	0.00
St. Dev.	4681.35	2.41	464.03	4.63	206.61	1247.85	43.37	2.25	94.71	0.09	10.15	0.17	0.00
95% conf. limits (mean +/-)	2901.53	1.49	287.61	2.87	128.06	773.42	26.88	1.39	58.70	0.06	6.29	0.11	0.00
Median	9100	5.69	1430	6.9	250.0	521	67.55	5.01	75	0.04	100	0.14	0.00
Coefficient of Variability	0.45	0.47	0.32	0.68	0.70	1.24	0.66	0.46	0.91	1.20	0.11	0.94	--
Distribution	normal	normal	normal	normal	normal	log-normal	normal	normal	normal	normal	bi-modal	uniform	uniform

Data provided by Robert Pitt, University of Alabama