Table A-1.1-1 Hourly Change of Water Quality in Anyang Chong, St. 1, July 5-6, 1990

Item / Time	WT (°C)	pH	EC (mS/cm)	Turbid. (mg/l)	DO (mg/l)	TN (mg/l)	TON (mg/l)	NO3-N (mg/l)	NO2-N (mg/l)	NH4-N (mg/l)	TP (mg/l)	TDP (mg/l)	PO4-P (mg/l)	BOD (mg/l)	DBOD (mg/l)	COD (mg/l)	DCOD (mg/l)	Sulfide (mg/l)	MBAS (mg/l)	SS (mg/l)	Settleable matter (mg/l)	(%)	Gauge (cm)
10:00	21.9	6.9	-	-	0.0	-	-	0.01	0.000	10.56	0.602	0.329	0.309	39.4	-	22.7	-	3.0	3.42	#12.0	7.4	62	-
12:00	22.4	7.0	-	-	0.0	-	-	0.03	0.015	9.85	0.851	0.433	0.302	41.1	-	22.8	-	3.6	4.94	25.1	23.0	92	-
14:00	23.2	6.9	-	-	0.0	-	-	0.02	0.050	12.67	0.771	0.518	0.449	55.5	-	27.4	-	3.5	5.02	19.0	14.0	74	-
16:00	24.4	6.9	-	-	0.0	-	-	0.03	0.075	16.49	1.166	0.713	0.612	64.0	-	26.1	-	3.4	7.28	21.1	14.0	66	-
18:00	24.7	6.8	-	-	0.0	-	-	0.03	0.000	14.19	0.944	0.617	0.586	70.5	-	35.4	-	3.6	6.42	31.0	16.7	54	-
20:00	24.8	6.8	-	-	0.0	-	-	0.03	0.000	13.32	0.950	0.939	0.372	75.5	-	36.1	-	3.6	4.78	26.7	12.1	45	-
22:00	24.3	6.9	-	-	0.0	-	-	0.03	0.085	12.56	0.898	0.760	0.432	66.9	-	32.1	-	3.6	3.45	49.2	92.3	-	-
24:00	24.0	7.0	-	-	0.0	-	-	0.03	0.022	14.30	1.061	0.971	0.487	61.0	-	28.1	-	3.6	5.42	51.4	43.2	84	-
02:00	23.7	7.1	-	-	0.0	-	-	0.04	0.123	12.67	0.961	0.944	0.572	64.5	-	30.1	-	3.5	4.45	35.6	24.5	69	-
04:00	23.4	6.8	-	-	0.0	-	-	0.03	0.013	13.00	1.088	1.012	0.644	62.1	-	28.1	-	3.7	6.05	39.0	23.6	61	-
06:00	23.0	7.0	-	-	0.0	-	-	0.03	0.008	12.24	0.849	0.745	0.711	53.5	-	29.5	-	#2.5	3.42	49.8	32.5	66	-
08:00	22.0	7.0	-	-	0.0	-	-	0.03	0.033	13.86	0.944	0.888	0.642	60.5	-	30.7	-	3.5	2.45	27.2	19.6	72	-
10:00	22.3	6.9	-	-	0.0	-	-	0.04	0.125	12.78	1.055	1.022	0.704	66.1	-	34.7	-	3.5	3.33	57.9	86.5	-	-
Mean	23.4	6.9	-	-	0.0	-	-	0.03	0.042	12.96	0.934	0.761	0.525	60.0	-	29.5	-	3.4	4.73	34.2	31.5	68	
SD	1.0	0.1	-	-	0.0	-	-	0.01	0.044	1.59	0.142	0.221	0.137	10.1	-	4.2	-	0.3	1.42	12.6	26.3	12	
																		3.5		36.1			
																		0.2		12.6			

Table A-1.1-2 Hourly Change of Water Quality in Anyang Chong, St. 2, July 5-6, 1990

Item / Time	WT (°C)	pH	EC (mS/cm)	Turbid. (mg/l)	DO (mg/l)	TN (mg/l)	TON (mg/l)	NO3-N (mg/l)	NO2-N (mg/l)	NH4-N (mg/l)	TP (mg/l)	TDP (mg/l)	PO4-P (mg/l)	BOD (mg/l)	DBOD (mg/l)	COD (mg/l)	DCOD (mg/l)	Sulfide (mg/l)	MBAS (mg/l)	SS (mg/l)	Settleable matte (mg/l)	(%)	Gauge (cm)
10:00	22.1	7.1	-	-	0.0	-	-	0.00	0.000	12.33	0.520	0.382	0.284	62.1	-	38.2	-	3.6	4.66	58.4	55.4	95	36
12:00	24.3	7.2	-	-	0.0	-	-	0.00	0.000	13.00	0.778	0.582	0.417	64.6	-	38.1	-	3.7	2.82	70.0	56.7	81	38
14:00	25.3	7.2	-	-	0.0	-	-	0.00	0.000	13.21	0.767	0.629	0.502	72.0	-	36.2	-	3.4	4.18	82.5	78.5	95	38
16:00	25.8	7.2	-	-	0.0	-	-	0.00	0.000	12.88	0.729	0.556	0.384	66.0	-	30.1	-	3.8	3.95	65.4	60.7	93	40
18:00	25.2	7.1	-	-	0.0	-	-	0.00	0.000	12.56	0.707	0.457	0.371	54.8	-	37.1	-	3.3	4.74	82.6	76.6	93	38
20:00	25.7	7.2	-	-	0.0	-	-	0.00	0.000	12.89	0.547	#0.182	#0.148	62.0	-	45.3	-	3.4	2.32	#134.6	#128.6	96	38
22:00	25.1	7.2	-	-	0.0	-	-	0.00	0.000	13.11	0.982	0.711	0.452	66.2	-	36.2	-	3.3	3.05	83.6	71.1	85	37
24:00	24.7	7.2	-	-	0.0	-	-	0.00	0.000	13.54	0.938	0.798	0.432	71.0	-	35.6	-	3.4	4.44	86.5	72.2	83	37
02:00	24.5	6.9	-	-	0.0	-	-	0.00	0.000	13.11	1.209	0.860	0.572	67.0	-	36.2	-	3.7	7.39	76.1	63.2	83	35
04:00	23.5	6.9	-	-	0.0	-	-	0.00	0.000	13.12	1.004	0.844	0.444	50.1	-	29.2	-	3.0	5.42	79.6	72.4	91	35
06:00	23.0	6.9	-	-	0.0	-	-	0.00	0.000	13.97	0.911	0.802	0.415	56.1	-	41.1	-	3.5	1.70	68.3	57.4	81	35
08:00	23.0	6.9	-	-	0.0	-	-	0.00	0.000	12.46	0.604	0.578	0.342	62.2	-	27.2	-	3.3	2.70	63.2	60.4	96	38
10:00	23.2	7.2	-	-	0.0	-	-	0.00	0.000	12.89	0.969	0.773	0.433	56.0	-	33.2	-	3.4	3.20	57.4	48.5	84	38
Mean	24.3	7.1	-	-	0.0	-	-	0.00	0.000	13.01	0.820	0.664	0.400	63.0	-	35.7	-	3.4	3.88	77.6	69.4	89	37
SD	1.2	0.1	-	-	0.0	-	-	0.00	0.000	0.42	0.195	0.193	0.009	5.3	-	4.7	-	0.2	1.45	19.0	19.2	6	1
												0.664	0.421							72.8	64.4		
												0.150	0.071							9.9	9.1		

Table A-1.1-3 Hourly Change of Water Quality in Anyang Chong, St. 3, July 5-6, 1990

Item / Time	WT (°C)	pH	EC (mS/cm)	Turbidi (mg/l)	DO (mg/l)	TN (mg/l)	TON (mg/l)	NO3-N (mg/l)	NO2-N (mg/l)	NH4-N (mg/l)	TP (mg/l)	TDP (mg/l)	PO4-P (mg/l)	BOD (mg/l)	DBOD (mg/l)	COD (mg/l)	DCOD (mg/l)	Sulfide (mg/l)	MBAS (mg/l)	SS (mg/l)	Settleable matter (mg/l)	(%)	Gauge (cm)
10:00	21.9	7.4	-	-	0.0	-	-	0.00	0.000	12.13	1.635	1.333	1.067	112.5	-	41.2	-	2.2	3.95	71.1	68.2	96	57
12:00	23.0	7.4	-	-	#0.7	-	-	0.00	0.000	11.48	1.547	1.249	1.040	(183.6)	-	44.2	-	3.5	4.08	100.4	88.2	88	53
14:00	22.5	7.1	-	-	0.0	-	-	0.00	0.000	10.01	1.311	0.857	0.697	108.8	-	34.3	-	1.8	3.42	92.3	81.3	88	55
16:00	22.7	7.0	-	-	0.0	-	-	0.00	0.000	9.54	1.000	0.600	0.433	93.8	-	35.2	-	3.2	2.58	118.5	112.5	95	57
18:00	21.9	7.1	-	-	0.2	-	-	0.00	0.000	9.12	0.833	0.667	0.533	90.0	-	34.2	-	1.1	2.20	113.6	107.2	94	55
20:00	21.5	6.8	-	-	0.0	-	-	0.00	0.000	9.32	1.018	0.689	0.573	86.3	-	46.2	-	2.7	1.72	75.3	73.2	97	60
22:00	21.0	7.1	-	-	0.0	-	-	0.00	0.000	9.42	1.200	0.771	0.573	112.5	-	35.3	-	3.2	2.24	85.4	75.4	88	57
24:00	20.9	6.8	-	-	0.1	-	-	0.00	0.000	9.96	1.151	0.858	0.667	120.0	-	38.1	-	3.2	#8.29	83.2	73.4	88	53
02:00	21.0	6.8	-	-	0.0	-	-	0.00	0.000	9.64	1.013	0.911	0.613	109.0	-	29.4	-	3.5	3.23	74.0	71.2	96	55
04:00	20.8	7.0	-	-	0.2	-	-	0.09	0.229	7.69	0.671	0.538	0.367	138.4	-	31.1	-	3.2	3.04	93.6	90.4	97	57
06:00	20.6	7.1	-	-	0.0	-	-	0.00	0.178	7.91	0.582	0.300	0.280	75.0	-	33.2	-	3.1	2.61	58.5	53.4	91	55
08:00	21.0	6.9	-	-	0.0	-	-	0.23	0.263	8.67	0.713	0.511	0.463	82.5	-	34.5	-	3.0	2.74	88.5	87.4	99	60
10:00	21.4	7.1	-	-	0.0	-	-	0.00	0.000	10.83	0.980	0.733	0.693	71.3	-	35.2	-	3.3	2.82	87.2	84.6	97	58
Mean	21.6	7.0	-	-	0.1	-	-	0.02	0.052	9.67	1.050	0.771	0.615	106.4	-	36.3	-	2.8	3.30	87.8	82.0	93	56
SD	0.8	0.2	-	-	0.2	-	-	0.06	0.096	1.22	0.307	0.274	0.222	28.9	-	4.7	-	0.7	1.58	16.0	15.3	4	2
					0.04									100.0					2.89				
					0.08									19.2					0.67				

Table A-1.1-4 Hourly Change of Water Quality in Anyang Chong, St. 4, July 5-6, 1990

Item / Time	WT (°C)	pH	EC (mS/cm)	Turbidi (mg/l)	DO (mg/l)	TN (mg/l)	TON (mg/l)	NO3-N (mg/l)	NO2-N (mg/l)	NH4-N (mg/l)	TP (mg/l)	TDP (mg/l)	PO4-P (mg/l)	BOD (mg/l)	DBOD (mg/l)	COD (mg/l)	DCOD (mg/l)	Sulfide (mg/l)	MBAS (mg/l)	SS (mg/l)	Settleable matter (mg/l)	(%)	Gauge (cm)
10:00	23.5	7.1	-	-	0.0	-	-	0.00	0.000	10.98	0.418	0.249	0.067	51.6	-	24.7	-	3.8	1.73	43.2	39.2	91	19
12:00	26.3	7.1	-	-	0.0	-	-	0.00	0.000	13.67	0.451	0.400	0.133	39.5	-	23.5	-	3.1	1.93	25.4	22.4	88	20
14:00	26.0	7.0	-	-	0.0	-	-	0.00	0.000	11.38	0.569	0.309	0.083	52.5	-	30.7	-	3.5	1.85	44.2	38.6	87	23
16:00	26.8	7.1	-	-	0.2	-	-	0.00	0.000	11.37	0.700	0.256	0.088	46.9	-	45.2	-	3.7	1.44	113.0	109.5	97	23
18:00	26.8	7.2	-	-	0.2	-	-	0.00	0.000	11.86	0.716	0.211	0.065	54.7	-	38.2	-	2.9	1.42	156.4	151.2	97	20
20:00	26.6	7.1	-	-	0.0	-	-	0.00	0.000	12.35	0.907	0.271	0.167	52.0	-	35.6	-	3.8	1.39	62.4	60.4	97	21
22:00	25.1	7.1	-	-	0.0	-	-	0.00	0.000	11.40	1.387	0.453	0.241	78.1	-	38.7	-	3.4	1.49	107.5	100.5	93	23
24:00	25.1	7.1	-	-	0.0	-	-	0.00	0.000	12.75	1.120	0.471	0.307	74.1	-	43.2	-	3.1	1.88	73.4	70.4	96	23
02:00	24.6	6.9	-	-	0.0	-	-	0.00	0.000	12.06	1.091	0.327	0.067	72.4	-	38.2	-	2.9	1.85	178.5	171.4	96	20
04:00	23.4	7.0	-	-	0.0	-	-	0.00	0.000	12.75	0.722	0.402	0.142	46.1	-	43.1	-	3.4	1.60	60.5	53.4	88	20
06:00	23.1	7.0	-	-	0.1	-	-	0.00	0.000	12.06	0.787	0.384	0.089	52.4	-	24.7	-	3.4	1.62	51.4	46.8	91	20
08:00	23.4	7.0	-	-	0.0	-	-	0.00	0.000	11.13	0.749	0.359	0.129	96.6	-	29.5	-	3.4	1.41	91.2	88.7	97	18
10:00	23.5	7.1	-	-	0.0	-	-	0.00	0.000	11.97	0.740	0.368	0.267	62.8	-	35.2	-	3.2	1.71	33.4	30.8	92	18
Mean	25.1	7.1	-	-	0.0	-	-	0.00	0.000	12.06	0.828	0.351	0.148	60.7	-	35.5	-	3.3	1.63	83.1	78.7	93	21
SD	1.4	0.1	-	-	0.1	-	-	0.00	0.000	0.70	0.248	0.076	0.078	15.8	-	6.8	-	0.3	0.20	46.0	45.2	4	2

Table A-1.1-5 Hourly Change of Water Quality in Anyang Chong, St. 5, July 5-6, 1990

Item / Time	WT (°C)	pH	EC (mS/cm)	Turbid. (mg/l)	DO (mg/l)	TN (mg/l)	TON (mg/l)	NO3-N (mg/l)	NO2-N (mg/l)	NH4-N (mg/l)	TP (mg/l)	TDP (mg/l)	PO4-P (mg/l)	BOD (mg/l)	DBOD (mg/l)	COD (mg/l)	DCOD (mg/l)	Sulfide (mg/l)	MBAS (mg/l)	SS (mg/l)	Settleable matter (mg/l)	(%)	Gauge (cm)
11:40	24.8	7.6	0.6	15	#1.9	-	-	0.12	0.124	11.00	0.480	0.331	0.303	46.5	-	15.4	-	3.2	(2.72)	43.2	40.2	93	31
13:45	25.4	7.5	0.6	9	0.9	-	-	0.29	0.196	10.26	0.331	0.253	0.242	36.7	-	28.0	-	3.2	2.45	34.5	31.2	90	32
15:40	27.0	7.6	0.6	31	0.5	-	-	0.07	0.105	10.66	0.607	0.102	$0.052	48.1	-	28.6	-	3.2	1.33	83.4	62.2	75	26
17:40	27.9	7.5	0.6	33	0.4	-	-	0.00	0.000	12.95	1.022	-	-	57.4	-	26.7	-	3.4	1.56	55.6	51.2	92	40
19:40	28.4	7.8	0.6	24	0.4	-	-	0.00	0.000	12.31	0.584	0.447	0.353	76.5	-	32.1	-	2.6	1.42	94.2	88.2	94	43
21:40	26.5	7.6	0.6	28	0.5	-	-	0.00	0.000	13.58	1.129	0.820	0.372	69.0	-	31.1	-	3.8	1.39	79.4	71.5	90	44
23:40	25.8	7.6	0.6	28	0.5	-	-	0.00	0.000	13.90	1.084	0.302	0.213	81.5	-	41.6	-	2.7	1.40	86.4	83.9	97	41
01:40	24.7	7.5	0.6	13	0.6	-	-	0.00	0.000	11.96	0.942	0.293	0.239	63.3	-	28.7	-	3.5	1.47	59.4	52.7	89	47
03:40	24.0	7.5	0.6	23	0.6	-	-	0.00	0.000	10.29	0.638	0.333	0.267	56.3	-	29.1	-	3.2	1.44	59.2	55.3	93	41
05:40	23.3	7.3	0.6	14	0.5	-	-	0.00	0.000	11.29	0.702	0.271	0.254	48.8	-	28.4	-	3.2	1.42	52.2	48.7	93	41
07:40	23.0	7.9	0.7	10	0.6	-	-	0.00	0.000	10.72	0.729	0.289	0.274	47.3	-	25.1	-	3.1	1.36	36.4	32.2	88	41
09:40	23.2	7.5	0.7	22	0.6	-	-	0.00	0.000	10.76	0.451	0.255	0.240	45.8	-	27.4	-	3.7	1.44	30.2	26.6	88	41
11:40	23.5	7.4	0.7	15	0.8	-	-	0.00	0.000	10.57	0.640	0.342	0.314	51.3	-	29.6	-	3.0	1.69	47.7	43.5	93	42
Mean	25.2	7.6	0.6	20	0.7	-	-	0.04	0.033	11.56	0.718	0.337	0.256	56.0	-	28.6	-	3.2	1.62	58.6	52.9	90	39
SD	1.7	0.1	0.0	8	0.4	-	-	0.08	0.063	1.21	0.243	0.164	0.083	12.6	-	5.4	-	0.3	0.42	20.3	18.6	5	6
					0.6								0.260						1.53				
					0.1								0.078						0.29				

Table A-1.1-6 Hourly Change of Water Quality in Anyang Chong, St. 6, July 5-6, 1990

Item / Time	WT (°C)	pH	EC (mS/cm)	Turbid. (mg/l)	DO (mg/l)	TN (mg/l)	TON (mg/l)	NO3-N (mg/l)	NO2-N (mg/l)	NH4-N (mg/l)	TP (mg/l)	TDP (mg/l)	PO4-P (mg/l)	BOD (mg/l)	DBOD (mg/l)	COD (mg/l)	DCOD (mg/l)	Sulfide (mg/l)	MBAS (mg/l)	SS (mg/l)	Settleable matter (mg/l)	(%)	Gauge (cm)
12:00	26.5	6.6	-	-	0.0	-	-	0.00	0.082	11.23	0.460	0.221	0.045	48.6	-	38.4	-	3.0	1.13	(142.4)	(138.6)	97	62
14:00	27.0	6.9	-	-	0.0	-	-	0.00	0.112	10.83	0.793	0.364	0.113	34.5	-	37.1	-	2.7	1.89	82.5	79.6	96	62
16:00	28.3	6.8	-	-	0.0	-	-	0.00	0.052	11.51	0.711	0.267	0.067	69.5	-	30.1	-	3.6	2.19	92.4	88.5	96	62
18:00	28.5	6.9	-	-	0.0	-	-	0.00	0.000	10.73	0.938	0.295	0.193	58.5	-	40.2	-	3.7	2.41	64.2	61.2	95	61
20:00	27.0	6.8	-	-	0.0	-	-	0.00	0.000	10.50	0.836	0.239	0.140	85.5	-	37.1	-	3.0	4.44	62.2	58.4	94	60
22:00	25.5	6.7	-	-	0.0	-	-	0.00	0.000	10.68	0.840	0.353	0.263	57.7	-	32.1	-	3.8	2.58	42.2	35.7	85	61
24:00	24.5	7.2	-	-	0.0	-	-	0.00	0.000	12.08	0.907	0.342	0.273	60.6	-	26.7	-	4.1	1.67	60.4	53.2	88	62
02:00	23.5	7.2	-	-	0.0	-	-	0.07	0.000	11.80	0.867	0.298	0.147	37.5	-	36.1	-	3.7	1.67	51.2	45.2	88	61
04:00	21.5	7.2	-	-	0.0	-	-	0.07	0.000	11.15	0.893	0.307	0.167	39.9	-	29.4	-	3.5	1.69	46.4	41.2	89	59
06:00	22.5	7.0	-	-	0.0	-	-	0.15	0.042	10.94	0.702	0.402	0.354	46.6	-	39.1	-	3.3	1.62	21.7	18.5	85	57
08:00	22.8	7.3	-	-	0.0	-	-	0.19	0.026	9.89	0.467	0.173	0.153	36.8	-	35.1	-	3.4	1.53	42.4	35.6	84	58
10:00	23.0	7.2	-	-	0.0	-	-	0.21	0.067	9.32	0.462	0.218	0.033	33.8	-	26.4	-	3.7	2.49	43.2	37.2	86	60
12:00	23.5	7.2	-	-	0.0	-	-	0.16	0.141	10.47	0.653	0.349	0.240	42.8	-	24.7	-	2.9	3.97	47.2	35.6	75	62
Mean	24.9	7.0	-	-	0.0	-	-	0.07	0.040	10.84	0.733	0.294	0.168	50.2	-	33.3	-	3.4	2.25	61.4	56.0	89	61
SD	2.2	0.2	-	-	0.0	-	-	0.08	0.046	0.70	0.168	0.065	0.091	14.9	-	5.1	-	0.4	0.93	29.3	30.1	6	2
																				54.7	49.2		
																				17.0	17.6		

Table A-1.1-7 Hourly Change of Water Quality in Anyang Chong, St. 7, July 5-6, 1990

Item / Time	WT (°C)	pH	EC (mS/cm)	Turbid. (mg/l)	DO (mg/l)	TN (mg/l)	TON (mg/l)	NO3-N (mg/l)	NO2-N (mg/l)	NH4-N (mg/l)	TP (mg/l)	TDP (mg/l)	PO4-P (mg/l)	BOD (mg/l)	DBOD (mg/l)	COD (mg/l)	DCOD (mg/l)	Sulfide (mg/l)	MBAS (mg/l)	SS (mg/l)	Settleable matter (mg/l)	(%)	Gauge (cm)
12:00	26.7	7.9	1.2	13	1.2	-	-	#0.24	#0.454	10.24	1.107	0.859	0.550	33.4	-	20.0	-	3.8	1.63	27.4	24.5	89	32
14:00	27.0	7.6	0.6	16	0.6	-	-	0.02	0.000	12.65	1.522	0.933	0.667	45.5	-	32.1	-	3.8	1.63	51.2	48.7	95	32
16:00	29.4	7.5	0.2	45	0.2	-	-	0.00	0.000	13.43	1.578	0.731	0.600	48.8	-	38.1	-	3.8	1.88	#96.2	88.8	92	30
18:00	28.2	7.6	0.3	23	0.3	-	-	0.03	0.000	11.57	1.636	1.267	0.960	46.7	-	31.4	-	3.0	2.36	45.3	40.4	89	30
20:00	27.6	7.6	0.5	20	0.5	-	-	0.04	0.000	10.10	0.371	0.153	$0.042	40.5	-	25.4	-	3.0	2.04	74.2	73.8	99	30
22:00	26.1	7.5	0.7	25	0.7	-	-	0.02	0.000	10.59	1.658	1.139	0.900	38.8	-	27.4	-	3.0	1.89	51.2	50.7	99	29
24:00	24.8	7.9	0.7	15	0.7	-	-	0.02	0.000	11.18	1.662	0.947	0.693	54.7	-	30.1	-	3.5	1.42	40.4	36.4	90	30
02:00	24.0	7.5	0.8	14	0.6	-	-	0.03	0.000	10.78	1.591	0.787	0.467	63.9	-	28.1	-	3.5	1.00	43.2	40.9	95	31
04:00	23.3	7.5	0.8	22	0.6	-	-	0.05	0.000	9.85	1.218	0.920	0.255	65.8	-	29.4	-	3.4	1.36	54.2	51.2	94	28
06:00	22.9	7.4	0.8	18	0.8	-	-	0.06	0.025	9.46	0.950	0.747	0.338	46.6	-	33.1	-	3.7	1.39	25.4	24.6	97	29
08:00	22.8	7.5	0.8	20	0.7	-	-	0.14	0.049	9.37	0.867	0.853	0.351	49.5	-	35.1	-	3.5	1.72	50.2	48.6	97	31
10:00	23.4	7.5	0.8	24	0.8	-	-	0.12	0.060	9.27	0.880	0.780	0.439	48.7	-	36.1	-	3.7	2.62	44.2	40.7	92	28
12:00	23.5	7.5	0.8	48	0.6	-	-	0.07	0.052	9.12	1.533	0.793	0.559	28.7	-	#60.1	-	3.5	2.75	49.2	42.7	87	41
Mean	25.4	7.6	0.7	23	0.6	-	-	0.06	0.083	10.59	1.283	0.839	0.525	47.0	-	32.8	-	3.5	1.84	50.2	47.1	93	31
SD	2.2	0.1	0.2	11	0.2	-	-	0.06	0.119	1.28	0.400	0.248	0.243	10.2	-	9.1	-	0.3	0.49	17.7	17.0	4	3
								0.05	0.047				0.565			30.5				46.3			
								0.04	0.013				0.207			4.8				12.1			

Table A-1.1-8 Hourly Change of Water Quality in Anyang Chong, St. 1, September 7-8, 1990

Item / Time	WT (°C)	pH	DO (mg/l)	TN (mg/l)	TON (mg/l)	TDN (mg/l)	NO3-N (mg/l)	NO2-N (mg/l)	NH4-N (mg/l)	TP (mg/l)	TDP (mg/l)	PO4-P (mg/l)	TBOD (mg/l)	DBOD (mg/l)	TCOD (mg/l)	DCOD (mg/l)	Sulfide (mg/l)	MBAS (mg/l)	SS (mg/l)	Settleable matter (mg/	(%)	Gauge (cm)	Water-l level (m
10:00	22.8	7.1	1.9	8.30	1.07	8.16	0.24	0.146	6.84	0.449	0.320	0.280	13.0	10.3	15.2	12.5	3.76	3.21	17.5	(14	(84)	120	3.950
12:00	23.7	7.0	1.4	12.46	1.84	12.18	0.20	0.000	10.41	0.756	0.480	0.380	-	12.4	-	16.0	4.00	4.56	18.5	6.4	35	95	3.700
14:00	24.4	6.8	1.0	12.71	1.95	12.35	0.17	0.000	10.60	0.671	0.520	0.426	-	10.9	-	17.0	4.02	4.97	13.7	6.2	45	65	3.400
16:00	25.8	6.9	0.8	13.95	1.30	13.67	0.15	0.000	12.50	0.884	0.740	0.536	-	10.5	-	17.1	4.24	7.21	20.5	6.1	30	30	3.050
18:00	26.5	7.2	0.8	12.74	#0.66	12.53	0.13	0.000	11.32	0.818	0.644	0.494	32.5	14.8	32.8	29.1	3.92	6.54	19.9	6.1	31	22	2.970
20:00	26.6	7.0	0.9	13.97	2.41	13.64	0.24	0.000	11.94	0.733	0.494	0.418	-	15.0	-	18.5	4.08	5.07	32.1	8.5	26	17	2.920
22:00	24.3	7.0	1.8	7.62	1.56	7.14	0.42	0.062	5.56	0.467	0.492	0.246	-	8.9	-	13.0	4.00	3.62	15.1	5.0	33	105	3.800
24:00	26.6	7.2	0.9	13.70	2.37	13.28	0.33	0.000	11.01	0.858	0.450	0.370	-	14.1	-	24.6	3.84	5.47	22.6	4.5	20	102	3.770
02:00	26.5	7.2	1.1	12.15	1.42	11.94	0.18	0.000	10.56	0.751	0.640	0.434	48.0	15.2	27.1	23.1	3.76	4.21	20.8	10.9	52	62	3.370
04:00	25.8	7.3	0.7	12.97	1.29	12.34	0.16	0.000	11.53	1.033	0.780	0.638	-	13.7	-	17.6	3.92	6.28	19.9	3.9	20	38	3.130
06:00	25.2	7.3	1.7	13.05	1.15	12.63	0.09	0.000	11.81	1.102	0.900	0.724	-	12.4	-	16.0	3.90	3.22	23.4	4.3	18	12	2.870
08:00	24.8	7.1	0.7	13.26	1.57	12.49	0.23	0.000	11.46	1.093	0.798	0.648	-	22.1	-	23.1	4.00	2.98	26.5	7.7	29	5	2.800
10:00	24.0	7.1	1.9	13.20	1.50	12.28	0.31	0.007	11.39	0.980	0.704	0.598	34.8	16.9	20.0	17.0	3.84	3.54	26.3	8.8	33	78	3.530
Mean	25.2	7.1	1.2	12.31	1.55	11.89	0.22	0.017	10.53	0.813	0.606	0.476	32.1	13.6	23.8	18.8	3.94	4.68	21.3	7.2	35	58	
SD	1.2	0.1	0.5	1.93	0.48	1.89	0.09	0.041	1.95	0.201	0.168	0.140	12.5	3.3	6.7	4.6	0.13	1.33	4.8	2.9	17	38	
					1.62															6.5	31		
					0.42															2.0	10		

Table A-1.1-9 Hourly Change of Water Quality in Anyang Chong, St. 2, September 7-8, 1990

Item	WT	pH	DO	TN	TON	TDN	NO3-N	NO2-N	NH4-N	TP	TDP	PO4-P	TBOD	DBOD	TCOD	DCOD	Sulfide	MBAS	SS	Settleable matter		Gauge
Time	(°C)		(mg/l)	(mg/l)	(mg/l)	(mg/l)	(mg/l)	(mg/l)	(mg/l)	(mg/l)	(mg/l)	(mg/l)	(mg/l)	(mg/l)	(mg/l)	(mg/l)	(mg/l)	(mg/l)	(mg/l)	(mg	(%)	(cm)
10:00	22.8	7.3	0.2	12.64	1.25	12.23	0.00	0.029	11.35	0.782	0.358	0.399	29.5	23.3	17.5	14.0	4.00	4.24	27.7	19.4	86	60
12:00	24.9	7.3	0.5	14.22	0.68	-	0.00	0.000	13.54	1.556	0.550	0.546	-	32.0	-	27.1	4.08	3.04	83.9	72.2	76	60
14:00	26.4	7.3	0.3	13.10	1.22	13.03	0.00	0.000	11.88	1.089	0.508	0.422	-	8.8	-	21.5	4.06	4.50	45.6	34.5	85	40
16:00	27.0	7.4	0.1	12.89	1.22	12.33	0.00	0.000	11.67	1.131	0.556	0.420	-	9.9	-	20.0	4.48	4.02	57.9	49.2	85	38
18:00	28.5	7.3	0.4	12.84	1.25	12.14	0.00	0.024	11.57	0.989	0.522	0.460	28.2	17.1	24.2	20.5	4.16	4.56	64.6	54.3	84	37
20:00	28.2	7.3	0.2	13.17	1.71	13.03	0.00	0.000	11.46	1.147	0.502	0.474	-	10.1	-	29.1	4.00	2.87	63.0	50.0	79	40
22:00	27.3	7.1	0.1	13.67	1.58	13.03	0.00	0.000	10.29	0.844	0.532	0.500	-	12.0	-	27.1	4.06	2.98	29.4	18.5	63	55
24:00	26.3	7.2	0.4	13.73	1.54	-	0.00	0.000	12.19	1.400	0.622	0.610	-	11.1	-	15.0	4.32	4.22	46.5	37.1	80	54
02:00	25.9	7.2	0.2	14.08	1.58	12.96	0.00	0.000	12.46	2.067	#0.992	0.910	19.1	15.0	25.2	21.5	4.17	6.54	65.2	50.5	77	37
04:00	25.0	7.2	0.1	13.89	1.78	12.98	0.00	0.019	12.08	1.467	0.802	0.662	-	18.0	-	23.6	4.15	5.30	51.9	34.3	66	35
06:00	24.3	7.2	0.3	12.61	1.15	11.98	0.00	0.000	11.46	1.211	0.622	0.562	-	13.7	-	17.0	3.84	2.02	41.9	32.8	78	37
08:00	24.0	7.0	0.2	13.24	1.26	12.89	0.00	0.000	11.98	1.156	0.610	0.536	-	16.6	-	23.1	4.25	2.88	36.1	22.5	62	36
10:00	24.3	7.1	0.4	13.46	1.89	13.04	0.00	0.013	11.56	1.178	0.544	0.512	18.7	15.0	26.7	22.0	4.08	3.48	34.3	22.7	66	37
Mean	25.8	7.2	0.3	13.35	1.39	12.69	0.00	0.007	11.81	1.232	0.594	0.539	23.9	15.7	23.4	21.7	4.13	3.90	49.8	38.3	76	44
SD	1.7	0.1	0.1	0.52	0.31	0.41	0.00	0.010	0.71	0.322	0.149	0.130	5.0	6.1	3.5	4.4	0.15	1.16	15.9	15.5	8	9
											0.561											
											0.099											

Table A-1.1-10 Hourly Change of Water Quality in Anyang Chong, St. 3, September 7-8, 1990

Item	WT	pH	DO	TN	TON	TDN	NO3-N	NO2-N	NH4-N	TP	TDP	PO4-P	TBOD	DBOD	TCOD	DCOD	Sulfide	MBAS	SS	Settleable matter		Gauge
Time	(°C)		(mg/l)	(mg/l)	(mg/l)	(mg/l)	(mg/l)	(mg/l)	(mg/l)	(mg/l)	(mg/l)	(mg/l)	(mg/l)	(mg/l)	(mg/l)	(mg/l)	(mg/l)	(mg/l)	(mg/l)	(mg	(%)	(cm)
10:00	26.5	7.2	0.1	17.32	1.15	16.16	0.00	0.016	16.15	2.733	1.146	0.942	49.6	26.0	40.1	35.1	3.52	4.12	77.2	68.2	77	55
12:00	27.3	7.2	0.1	16.20	1.39	14.80	0.00	0.019	14.79	2.193	1.140	0.986	-	38.4	-	38.1	3.84	3.88	81.8	70.3	86	53
14:00	26.8	7.1	0.3	16.26	1.67	14.60	0.00	0.013	14.58	2.734	1.246	1.044	-	42.5	-	31.6	3.44	3.21	98.5	81.2	82	52
16:00	26.3	6.9	0.0	14.23	1.06	13.39	0.00	0.013	13.16	2.867	0.944	0.782	-	43.5	-	26.1	3.52	3.04	108.7	92.6	85	52
18:00	25.9	7.1	0.1	14.50	1.37	13.13	0.00	0.000	13.13	2.667	0.870	0.686	61.5	39.5	34.6	22.6	3.20	2.70	95.3	86.3	91	50
20:00	25.0	7.0	0.2	11.70	0.78	10.93	0.00	0.000	10.92	1.507	0.820	0.692	-	34.5	-	23.6	2.64	2.01	55.6	40.0	72	50
22:00	24.5	6.9	0.1	15.34	0.86	14.52	0.00	0.043	14.48	1.956	1.240	0.966	-	30.5	-	20.5	2.88	2.30	88.1	78.0	89	53
24:00	23.0	7.3	0.3	14.33	0.54	13.79	0.00	0.039	13.75	1.778	0.974	0.940	-	29.7	-	18.0	3.44	#7.21	63.3	51.4	81	50
02:00	24.1	7.2	0.1	12.96	1.45	11.51	0.00	0.000	11.51	1.622	1.002	0.906	54.0	37.2	25.4	19.0	2.72	4.01	64.4	53.6	83	45
04:00	24.3	6.9	0.2	11.57	0.86	10.95	0.00	0.024	10.63	1.178	0.990	0.742	-	20.3	-	19.5	3.04	2.92	32.7	43.8	-	42
06:00	23.7	7.2	0.1	9.71	0.57	9.14	0.00	$0.186	8.96	1.007	0.692	0.582	-	29.5	-	8.5	3.28	2.74	38.6	35.7	92	43
08:00	24.0	7.0	0.3	8.81	1.00	8.00	0.00	$0.181	7.81	0.747	0.442	0.394	-	15.9	-	16.5	3.20	2.89	35.7	31.2	87	45
10:00	24.6	7.1	0.4	14.93	1.18	13.76	0.00	0.011	13.75	0.834	0.462	0.834	39.0	36.5	18.0	15.5	3.36	3.00	78.2	57.4	73	55
Mean	25.1	7.1	0.2	13.68	1.07	12.67	0.00	0.042	12.59	1.833	0.921	0.807	51.0	32.6	29.5	22.7	3.24	3.39	70.6	60.7	77	50
SD	1.3	0.1	0.1	2.49	0.33	2.30	0.00	0.062	2.36	0.732	0.252	0.178	8.1	8.0	8.5	8.0	0.33	1.26	23.8	19.4	23	4
								0.022										3.07				
								0.012										0.51				

Table A-1.1-11 Hourly Change of Water Quality in Anyang Chong, St. 4, September 7-8, 1990

Item	WT	pH	DO	TN	TON	TDN	NO3-N	NO2-N	NH4-N	TP	TDP	PO4-P	BOD	DBOD	COD	DCOD	Sulfide	MBAS	SS	Settleable matter		Gauge
Time	(°C)		(mg/l)	(mg/l)	(mg/l)	(mg/l)	(mg/l)	(mg/l)	(mg/l)	(mg/l)	(mg/l)	(mg/l)	(mg/l)	(mg/l)	(mg/l)	(mg/l)	(mg/l)	(mg/l)	(mg/l)	(mg	(%)	(cm)
10:00	26.8	6.9	0.1	10.32	0.35	9.97	0.00	0.024	9.92	0.711	0.362	0.284	27.0	24.4	48.0	42.6	4.00	1.54	40.7	32.8	81	27
12:00	27.3	6.9	0.0	10.26	0.47	9.79	0.00	0.033	9.70	0.879	0.450	0.326	-	18.8	-	43.1	3.76	2.21	30.1	25.1	83	27
14:00	28.4	7.0	0.2	10.14	0.66	9.72	0.00	0.054	9.47	0.622	0.366	0.334	-	17.3	-	39.6	3.68	2.08	29.0	22.4	88	30
16:00	28.1	7.1	0.1	11.78	0.93	10.85	0.00	0.016	10.24	0.989	0.388	0.382	-	10.1	-	33.1	3.44	2.11	50.4	43.1	77	29
18:00	29.0	7.1	0.3	12.06	0.80	11.43	0.00	0.017	11.20	0.993	0.740	0.542	28.0	13.1	17.5	16.0	3.68	1.54	46.9	37.1	79	28
20:00	28.4	7.2	0.1	13.10	1.64	12.54	0.00	0.000	11.46	1.589	0.580	0.482	-	18.4	-	18.0	3.84	1.42	59.8	49.6	83	26
22:00	27.7	7.2	0.1	13.87	1.37	12.50	0.00	0.000	12.50	0.842	0.690	0.590	-	12.6	-	18.5	3.60	2.04	108.9	93.3	86	26
24:00	27.1	6.9	0.2	14.01	1.82	12.19	0.00	0.000	12.13	1.067	0.740	0.656	-	28.1	-	21.0	3.68	1.92	89.7	80.8	90	27
02:00	26.3	7.2	0.3	15.41	0.62	14.79	0.00	0.000	14.19	1.289	0.840	0.662	29.8	26.4	24.1	23.1	3.76	2.11	113.0	97.1	86	24
04:00	25.7	7.3	0.1	13.66	1.37	12.54	0.00	0.000	12.38	0.719	0.636	0.408	-	24.0	-	27.6	3.52	2.82	58.1	46.7	80	23
06:00	24.8	7.2	0.8	12.96	1.50	11.77	0.00	0.000	14.46	0.658	0.496	0.480	-	24.6	-	18.6	3.68	2.04	39.9	28.0	70	22
08:00	24.6	7.1	1.2	13.10	1.74	11.35	0.00	0.000	11.34	1.192	0.600	0.504	-	16.3	-	18.0	3.84	2.11	35.3	27.3	77	21
10:00	25.3	7.3	1.3	13.32	1.85	12.55	0.00	0.016	11.66	1.273	0.540	0.438	21.5	10.3	30.2	26.6	3.92	2.27	33.7	24.6	73	20
Mean	26.9	7.1	0.4	12.61	1.16	11.69	0.00	0.012	11.59	0.986	0.571	0.468	26.6	18.8	30.0	26.6	3.72	2.02	56.6	46.8	81	25
SD	1.4	0.1	0.4	1.56	0.52	1.36	0.00	0.016	1.51	0.278	0.149	0.117	3.1	6.0	11.3	9.5	0.15	0.35	27.9	25.5	6	3

Table A-1.1-12 Hourly Change of Water Quality in Anyang Chong, St. 5, September 7-8, 1990

Item	WT	pH	DO	TN	TON	TDN	NO3-N	NO2-N	NH4-N	TP	TDP	PO4-P	TBOD	DBOD	TCOD	DCOD	Sulfide	MBAS	SS	Settleable matter		Gauge
Time	(°C)		(mg/l)	(mg/l)	(mg/l)	(mg/l)	(mg/l)	(mg/l)	(mg/l)	(mg/l)	(mg/l)	(mg/l)	(mg/l)	(mg/l)	(mg/l)	(mg/l)	(mg/l)	(mg/l)	(mg/l)	(mg	(%)	(cm)
10:00	24.6	7.0	0.6	13.45	1.36	12.08	0.00	0.000	12.08	0.800	0.502	0.296	23.5	18.4	25.0	20.0	3.52	3.04	38.5	33.4	87	48
12:00	25.9	6.9	0.0	13.92	1.47	12.45	0.00	0.049	12.40	0.836	0.432	0.300	-	20.1	-	19.0	3.54	2.82	33.7	20.0	59	48
14:00	28.9	6.7	0.0	12.47	1.42	11.04	0.00	0.000	11.04	0.922	0.390	0.362	-	19.4	-	22.0	3.68	1.84	53.3	47.7	89	47
16:00	29.2	6.9	0.0	14.08	0.43	13.65	0.00	0.000	13.65	0.642	0.538	0.406	-	15.2	-	17.5	4.08	2.02	84.1	75.9	90	47
18:00	28.5	7.1	0.0	14.22	0.68	13.54	0.00	0.000	13.54	1.029	0.500	0.380	31.8	23.5	36.2	31.6	4.40	1.30	99.3	95.0	96	45
20:00	27.9	7.1	0.0	16.32	1.63	14.69	0.00	0.000	14.69	1.222	0.596	0.544	-	8.0	-	22.0	3.68	1.51	97.6	89.0	91	44
22:00	27.2	7.0	0.0	15.28	0.92	14.36	0.00	#0.921	13.44	#3.444	#2.180	#2.020	-	14.8	-	30.6	3.92	1.52	43.3	32.2	74	43
24:00	26.1	7.0	0.1	15.06	1.20	13.85	0.00	0.000	13.85	0.800	0.604	0.498	-	18.5	-	17.0	4.00	1.48	48.7	31.3	64	42
02:00	25.1	7.0	0.0	15.76	1.70	14.06	0.00	0.000	14.06	1.033	0.610	0.460	26.4	14.0	29.5	25.6	4.02	1.62	55.5	43.8	79	45
04:00	24.5	7.0	0.4	14.50	0.85	13.65	0.00	0.000	13.65	0.504	0.160	0.090	-	20.1	-	26.6	3.52	1.40	34.0	25.5	75	40
06:00	23.8	7.5	0.2	16.11	1.05	15.41	0.00	0.000	14.06	0.647	0.526	0.430	-	11.1	-	16.5	3.68	1.29	30.8	20.9	68	38
08:00	23.6	7.0	0.6	14.50	0.64	13.85	0.00	0.000	13.85	0.600	0.500	0.400	-	11.4	-	18.0	3.54	1.87	31.3	24.3	78	37
10:00	24.3	7.1	0.7	16.25	1.67	14.58	0.00	0.000	14.58	0.596	0.498	0.464	22.5	12.4	18.2	15.5	3.36	1.92	25.6	18.1	71	37
Mean	26.1	7.0	0.2	14.76	1.16	13.63	0.00	0.075	13.45	1.006	0.618	0.512	26.1	15.9	27.2	21.7	3.76	1.82	52.0	42.9	79	43
SD	1.9	0.2	0.3	1.12	0.41	1.13	0.00	0.245	0.99	0.732	0.465	0.449	3.6	4.3	6.6	5.2	0.28	0.53	24.6	25.7	11	4

Table A-1.1-13 Hourly Change of Water Quality in Anyang Chong, St. 6, September 7-8, 1990

Item / Time	WT (°C)	pH	DO (mg/l)	TN (mg/l)	TON (mg/l)	TDN (mg/l)	NO3-N (mg/l)	NO2-N (mg/l)	NH4-N (mg/l)	TP (mg/l)	TDP (mg/l)	PO4-P (mg/l)	TBOD (mg/l)	DBOD (mg/l)	TCOD (mg/l)	DCOD (mg/l)	Sulfide (mg/l)	MBAS (mg/l)	SS (mg/l)	Settleable matter (mg/	(%)	Gauge (cm)
10:00	25.1	7.1	0.2	12.79	1.01	12.09	0.00	0.109	11.66	1.200	0.496	0.458	22.7	8.6	24.1	20.0	3.68	1.43	46.7	36.7	79	44
12:00	26.2	7.2	0.4	14.01	0.52	13.54	0.00	0.049	13.54	1.267	0.616	0.602	-	18.6	-	26.1	3.70	2.02	50.1	38.9	78	44
14:00	28.6	7.3	0.1	14.43	1.09	13.34	0.00	0.000	13.37	1.378	0.612	0.584	-	11.4	-	18.5	3.60	2.42	#95.6	#82	-	44
16:00	29.2	7.2	0.1	14.50	0.99	12.51	0.00	0.068	13.44	0.776	0.725	0.600	-	9.8	-	16.5	3.44	2.07	58.5	46.8	80	43
18:00	28.1	7.3	0.3	14.71	1.06	13.65	0.00	0.000	13.65	1.280	0.652	0.598	35.5	15.6	21.0	20.5	3.84	3.92	61.7	49.6	80	42
20:00	26.5	7.0	0.1	14.71	1.58	13.31	0.00	0.000	12.13	1.007	0.602	0.566	-	16.3	-	22.0	4.00	2.41	56.1	40.3	72	42
22:00	24.5	6.9	0.4	13.29	0.56	13.08	0.00	0.121	12.60	0.740	0.518	0.468	-	12.9	-	19.5	3.52	1.92	38.1	27.9	73	45
24:00	24.0	7.0	0.0	14.07	0.99	13.58	0.00	0.063	12.02	0.836	0.410	0.400	-	15.8	-	22.6	3.28	1.84	46.1	32.2	70	43
02:00	23.7	7.0	0.2	14.93	0.92	14.40	0.00	0.148	13.85	0.845	0.378	0.374	30.0	10.9	26.2	19.0	3.69	2.02	30.7	18.2	59	42
04:00	23.1	7.0	0.4	14.97	1.10	13.87	0.00	0.121	13.75	0.516	0.406	0.396	-	7.5	-	19.5	2.56	1.80	30.6	17.8	58	40
06:00	22.9	7.2	0.3	14.11	1.40	13.48	0.00	0.151	12.50	0.738	0.418	0.410	-	9.8	-	26.6	3.36	2.02	30.1	19.5	65	40
08:00	23.8	7.2	1.1	12.14	0.70	11.44	0.00	0.091	11.35	0.765	0.324	0.318	-	6.4	-	20.0	3.68	3.04	22.8	18.3	80	40
10:00	24.6	7.2	0.7	12.72	0.63	12.09	0.00	0.112	11.98	0.489	0.422	0.420	20.4	7.1	25.5	21.5	3.60	4.01	33.6	19.7	59	42
Mean	25.4	7.1	0.3	13.95	0.97	13.11	0.00	0.079	12.76	0.911	0.506	0.476	27.2	11.6	24.2	20.9	3.53	2.38	46.2	34.5	71	42
SD	2.0	0.1	0.3	0.89	0.30	0.80	0.00	0.052	0.84	0.280	0.120	0.097	6.0	3.8	2.0	2.8	0.34	0.77	18.5	17.7	8	2
																			42.1	30.5		
																			12.3	11.3		

Table A-1.1-14 Hourly Change of Water Quality in Anyang Chong, St. 7, September 7-8, 1990

Item / Time	WT (°C)	pH	DO (mg/l)	TN (mg/l)	TON (mg/l)	TDN (mg/l)	NO3-N (mg/l)	NO2-N (mg/l)	NH4-N (mg/l)	TP (mg/l)	TDP (mg/l)	PO4-P (mg/l)	TBOD (mg/l)	DBOD (mg/l)	TCOD (mg/l)	DCOD (mg/l)	Sulfide (mg/l)	MBAS (mg/l)	SS (mg/l)	Settleable matter (mg/l)	(%)	Gauge (cm)
10:00	24.6	7.0	0.0	13.75	1.87	12.35	0.00	0.718	11.35	2.600	1.500	1.360	21.0	18.0	21.2	18.5	3.68	1.82	60.7	53.3	88	13
12:00	25.8	7.2	0.0	16.73	1.63	15.10	0.00	0.621	14.48	1.507	0.736	0.622	-	18.8	-	23.6	3.52	1.90	50.1	22.1	44	13
14:00	29.1	7.4	0.0	16.41	1.73	15.71	0.00	0.305	14.38	1.711	0.738	0.618	-	18.9	-	21.8	3.92	2.54	52.5	25.6	49	12
16:00	30.1	7.3	0.0	15.11	1.48	13.71	0.00	0.401	13.23	1.156	0.734	0.724	-	16.5	-	22.3	3.36	2.21	31.6	18.2	58	12
18:00	29.3	7.3	0.0	14.22	1.92	13.25	0.00	0.256	12.08	1.422	0.820	0.798	33.8	27.2	24.5	19.5	3.84	2.01	29.3	18.5	63	12
20:00	27.8	7.2	0.0	14.31	1.16	13.18	0.00	0.228	12.96	2.889	2.200	2.040	-	21.9	-	26.8	3.44	1.97	61.4	47.5	77	10
22:00	26.1	7.3	0.0	14.88	1.30	13.90	0.00	0.484	13.13	1.642	1.042	0.972	-	23.0	-	23.4	3.52	1.80	48.5	32.5	67	10
24:00	-	7.1	0.0	15.78	1.55	14.80	0.00	0.796	13.44	#4.352	#3.100	#2.800	-	26.3	-	25.1	3.68	1.21	19.0	6.4	34	9
02:00	25.1	7.3	0.0	16.19	1.35	15.00	0.00	0.785	14.06	2.444	1.700	1.500	29.0	28.1	-	20.0	3.60	1.50	30.1	17.4	58	9
04:00	23.9	7.0	0.0	16.65	1.76	14.11	0.00	0.450	13.44	2.044	1.320	1.240	-	19.9	-	23.0	3.12	1.40	26.5	12.4	47	8
06:00	22.9	7.1	0.0	14.35	1.16	13.86	0.00	0.691	12.50	1.733	1.370	1.322	-	20.3	-	21.5	3.60	1.82	18.1	10.0	55	8
08:00	23.0	7.2	0.0	9.83	2.03	8.64	0.00	#1.710	6.09	1.822	1.086	0.982	-	15.4	-	27.8	3.76	2.40	23.3	14.6	63	6
10:00	24.5	7.5	0.0	13.87	1.02	12.57	0.00	0.663	11.46	1.489	0.842	0.756	-	18.8	26.3	20.5	3.52	3.08	19.9	16.3	82	6
Mean	24.0	7.2	0.0	14.78	1.54	13.55	0.00	0.624	12.51	2.062	1.322	1.210	27.9	21.0	24.0	22.6	3.58	1.97	36.2	22.7	60	10
SD	7.3	0.1	0.0	1.76	0.31	1.71	0.00	0.366	2.08	0.818	0.665	0.605	5.3	3.9	2.1	2.7	0.20	0.48	15.4	13.5	15	2
								0.533		1.872	1.174	1.078										
								0.197		0.501	0.441	0.410										

Table 1.1-15 Hourly Change of Water Quality of Anyang Chong. St. 1, November 13-14, 1990

Item	WT	pH	DO	TN	TON	TDN	NO3-N	NO2-N	NH4-N	TP	TDP	PO4-P	BOD	DBOD	COD	DCOD	Sulfide	MBAS	SS	Settleable matter		Gauge
Time	(°C)		(mg/l)	(mg/l)	(mg/l)	(mg/l)	(mg/l)	(mg/l)	(mg/l)	(mg/l)	(mg/l)	(mg/l)	(mg/l)	(mg/l)	(mg/l)	(mg/l)	(mg/l)	(mg/l)	(mg/l)	(mg/l)	(%)	(cm)
10:00	14.0	7.2	2.2	20.45	2.67	19.75	0.12	0.020	17.64	1.846	1.647	0.943	57.6	42.0	35.8	25.1	4.32	2.33	46.7	32.0	69	32
12:00	14.7	7.3	2.4	19.42	2.45	19.00	0.07	0.019	16.88	1.667	1.400	1.000	-	36.4	-	23.1	4.16	2.22	32.5	27.4	84	34
14:00	14.9	7.1	1.9	21.25	3.35	20.42	0.09	0.019	17.78	1.464	1.322	0.900	-	28.5	-	25.1	4.24	2.04	17.3	14.3	75	35
16:00	15.2	7.2	1.6	22.79	4.25	20.97	0.08	0.019	18.44	1.556	1.333	0.820	-	46.7	-	28.1	4.32	2.36	27.8	18.7	67	38
18:00	14.7	7.3	1.8	21.79	3.00	19.83	0.06	0.017	18.71	1.667	1.005	1.001	58.0	46.4	30.1	28.1	4.32	2.81	31.3	15.3	49	39
20:00	14.0	7.1	1.4	22.06	3.66	21.10	0.05	0.018	18.33	1.778	1.556	0.750	-	41.3	-	24.1	4.08	2.54	24.2	12.0	50	38
22:00	14.2	7.0	1.0	22.76	3.66	21.37	0.04	0.018	19.04	1.452	1.238	1.012	-	40.5	-	25.1	3.84	2.72	27.3	15.4	56	40
24:00	14.6	7.0	1.2	21.21	2.44	19.66	0.00	0.019	18.75	1.378	1.187	0.750	-	62.0	-	30.1	4.24	2.3	20.5	11.7	57	42
02:00	14.0	7.0	1.7	18.93	2.42	17.39	0.00	0.016	16.49	1.548	1.339	1.025	58.7	37.9	30.1	28.4	4.16	2.25	18.0	7.7	43	38
04:00	13.8	7.1	1.6	18.64	2.28	16.26	0.00	0.013	16.35	1.600	1.511	0.920	-	32.4	-	27.1	4.32	2.95	13.5	6.5	48	37
06:00	13.4	7.1	1.3	20.60	3.53	19.76	0.00	0.011	17.06	1.885	1.422	1.120	-	41.1	-	25.1	4.24	2.17	16.0	8.5	53	34
08:00	13.0	7.3	1.1	19.62	1.69	8.92	0.00	0.013	17.92	2.044	1.556	0.960	-	36.4	-	22.4	4.16	3.04	22.7	13.4	59	32
10:00	12.9	7.2	1.8	19.36	2.46	18.24	0.00	0.026	16.87	1.644	1.533	0.946	64.7	45.9	27.7	21.0	4.16	3.19	24.7	15.8	64	33
Mean	14.1	7.1	1.6	20.68	2.91	18.67	0.04	0.018	17.71	1.656	1.387	0.934	59.8	41.3	30.9	25.6	4.20	2.53	24.8	15.3	60	36
SD	0.7	0.1	0.4	1.37	0.70	3.15	0.04	0.004	0.88	0.183	0.173	0.104	2.9	7.9	3.0	2.6	0.13	0.36	8.4	7.1	11	3

Table A-1.1-16 Hourly Change of Water Quality of Anyang Chong. St. 2, November 13-14, 1990

Item	WT	pH	DO	TN	TON	TDN	NO3-N	NO2-N	NH4-N	TP	TDP	PO4-P	BOD	DBOD	COD	DCOD	Sulfide	MBAS	SS	Settleable matter		Gauge
Time	(°C)		(mg/l)	(mg/l)	(mg/l)	(mg/l)	(mg/l)	(mg/l)	(mg/l)	(mg/l)	(mg/l)	(mg/l)	(mg/l)	(mg/l)	(mg/l)	(mg/l)	(mg/l)	(mg/l)	(mg/l)	(mg/l)	(%)	(cm)
10:00	13.6	7.3	2.0	14.86	2.29	13.58	0.09	0.000	12.48	1.027	0.942	0.675	37.0	29.7	35.1	30.1	4.00	3.61	16.5	6.4	39	24
12:00	13.9	7.3	1.8	15.76	1.72	14.03	0.08	0.000	13.96	1.333	1.200	0.720	-	63.0	-	36.1	(5.84)	2.47	36.5	18.5	70	26
14:00	14.2	7.2	1.4	17.75	3.62	15.16	0.10	0.000	14.03	1.534	1.421	0.945	-	40.5	-	29.1	4.24	3.26	24.7	14.5	59	28
16:00	13.7	7.2	1.9	16.81	2.49	14.31	0.14	0.010	14.17	1.578	1.378	0.800	-	52.4	-	28.1	4.32	3.85	22.8	13.6	60	27
18:00	12.9	7.1	2.0	19.48	2.84	18.78	0.11	0.036	16.49	1.503	1.275	0.822	34.5	30.0	36.1	27.1	4.16	1.11	20.7	8.7	42	26
20:00	13.2	7.1	2.2	20.17	2.37	18.77	0.09	0.050	17.71	1.511	1.289	0.800	-	50.6	-	29.1	4.32	1.34	24.2	15.5	64	28
22:00	14.0	7.3	2.4	21.34	3.81	19.52	0.14	0.047	17.34	1.495	1.300	0.845	-	40.0	-	27.3	3.52	1.65	30.7	21.4	68	28
24:00	13.2	7.3	1.9	20.50	2.60	19.08	0.14	0.049	17.71	1.533	1.311	0.898	-	58.7	-	30.1	4.08	1.22	16.5	9.4	57	27
02:00	12.7	7.1	1.7	18.76	2.14	16.62	0.11	0.025	16.49	1.742	1.333	0.940	58.4	54.0	32.1	27.1	3.92	1.53	12.7	6.3	50	26
04:00	13.0	7.0	1.6	19.05	2.24	16.81	0.14	0.003	16.67	1.956	1.356	0.980	-	55.5	-	32.5	4.08	1.17	10.7	5.7	53	27
06:00	13.2	7.2	1.9	20.50	2.60	19.52	0.18	0.010	17.71	1.847	1.521	0.974	-	41.5	-	30.1	4.16	2.05	11.3	5.4	48	27
08:00	13.0	7.1	1.7	20.77	1.85	19.08	0.16	0.013	18.75	1.756	1.411	0.940	-	60.6	-	30.1	4.16	1.74	18.0	10.6	56	26
10:00	12.7	7.1	1.9	22.33	2.11	21.33	0.18	0.005	20.04	1.644	1.222	0.980	46.3	37.2	33.1	27.1	3.92	0.78	15.0	4.2	28	26
Mean	13.3	7.2	1.9	19.08	2.51	17.43	0.13	0.019	16.43	1.574	1.305	0.871	46.6	47.2	34.1	30.1	4.21	1.98	20.0	10.8	53	27
SD	0.5	0.1	0.2	2.14	0.59	2.41	0.03	0.019	2.09	0.226	0.133	0.098	13.4	10.9	1.6	3.4	0.51	0.97	7.4	5.3	11	1
																	4.07					
																	0.21					

Table A-1.1-17 Hourly Change of Water Quality of Anyang Chong, St. 3, November 13-14, 1990

Item / Time	WT (°C)	pH	DO (mg/l)	TN (mg/l)	TON (mg/l)	TDN (mg/l)	NO3-N (mg/l)	NO2-N (mg/l)	NH4-N (mg/l)	TP (mg/l)	TDP (mg/l)	PO4-P (mg/l)	BOD (mg/l)	DBOD (mg/l)	COD (mg/l)	DCOD (mg/l)	Sulfide (mg/l)	MBAS (mg/l)	SS (mg/l)	Settleable matter (mg/l)	(%)	Gauge (cm)
10:00	13.2	7.3	2.4	25.23	1.74	24.53	0.00	0.020	23.47	(3.425)	3.124	(2.942)	(132.8)	(86.4)	76.2	41.1	5.92	5.92	(182.0)	(124.7)	69	43
12:00	13.0	7.1	2.3	28.03	3.01	25.63	0.00	0.013	25.00	2.356	2.222	1.520	-	65.7	-	38.4	5.52	4.75	84.5	63.5	75	46
14:00	13.4	7.2	2.6	20.32	1.77	18.92	0.00	0.011	18.54	1.952	1.864	0.988	-	29.0	-	39.3	4.08	2.36	21.3	14.5	68	48
16:00	13.5	7.2	1.8	17.93	2.51	15.82	0.00	0.000	15.42	1.311	1.089	0.720	-	46.3	-	37.2	4.08	2.74	23.2	16.2	70	42
18:00	13.7	7.3	1.9	14.10	1.09	13.26	0.02	0.000	12.99	1.442	1.306	0.942	39.0	29.4	35.1	32.3	4.00	2.30	24.7	10.7	43	46
20:00	13.2	7.2	2.2	14.08	1.93	13.38	0.07	0.000	12.08	1.289	1.267	0.838	-	34.7	-	28.1	3.84	2.95	30.5	15.4	50	48
22:00	14.1	7.2	2.3	13.17	2.56	11.63	0.13	0.012	10.47	1.300	0.129	0.922	-	31.5	-	32.4	3.68	3.26	35.3	21.6	61	42
24:00	13.8	7.3	2.6	13.77	2.62	12.02	0.10	0.013	11.04	1.511	1.378	0.880	-	27.4	-	29.1	3.76	2.14	16.4	9.8	60	42
02:00	13.2	7.4	2.8	11.50	2.50	11.29	0.35	0.017	8.63	0.946	0.832	0.776	39.0	29.2	32.3	32.3	4.08	1.94	11.3	9.3	82	39
04:00	13.0	7.3	2.4	9.75	2.82	8.70	0.39	0.118	6.42	0.767	0.756	0.450	-	42.0	-	29.1	3.68	0.86	9.7	6.3	65	38
06:00	12.7	7.2	1.8	10.37	2.50	8.89	0.27	0.146	7.45	0.921	0.884	0.762	-	22.0	-	30.4	3.44	1.07	8.0	4.0	50	37
08:00	12.4	7.1	1.6	8.42	1.60	8.35	0.21	0.092	6.52	1.000	0.822	0.492	-	16.4	-	32.3	3.68	1.23	6.9	4.8	70	39
10:00	12.6	7.1	1.4	22.21	3.24	19.83	0.22	0.000	18.75	1.889	1.867	1.320	40.5	28.4	36.5	33.5	3.68	1.11	64.0	59.6	93	43
Mean	13.2	7.2	2.2	16.07	2.30	14.94	0.14	0.034	13.60	1.547	1.349	1.042	62.8	37.6	45.0	33.5	4.11	2.51	39.8	27.7	66	43
SD	0.5	0.1	0.4	5.95	0.60	5.74	0.13	0.048	5.98	0.697	0.740	0.615	40.4	18.4	18.1	4.0	0.72	1.42	46.5	33.6	13	4
										1.390		0.884	39.5	33.5					28.0	19.6		
										0.456		0.290	0.7	12.3					22.8	19.4		

Table A-1.1-18 Hourly Change of Water Quality of Anyang Chong, St. 4, November 13-14, 1990

Item / Time	WT (°C)	pH	DO (mg/l)	TN (mg/l)	TON (mg/l)	TDN (mg/l)	NO3-N (mg/l)	NO2-N (mg/l)	NH4-N (mg/l)	TP (mg/l)	TDP (mg/l)	PO4-P (mg/l)	BOD (mg/l)	DBOD (mg/l)	COD (mg/l)	DCOD (mg/l)	Sulfide (mg/l)	MBAS (mg/l)	SS (mg/l)	Settleable matter (mg/l)	(%)	Gauge (cm)
10:00	14.4	7.1	2.2	18.33	2.74	18.05	0.10	0.021	15.47	1.360	1.165	1.033	36.5	22.8	31.1	30.1	3.84	2.27	14.8	4.2	28	15
12:00	14.2	7.2	2.7	19.49	2.82	19.07	0.13	0.026	16.51	1.500	1.289	1.040	-	20.0	-	28.1	4.16	2.65	16.4	6.5	40	16
14:00	14.1	7.2	2.4	20.49	2.55	19.93	0.16	0.020	17.75	1.475	1.222	1.102	-	24.5	-	41.3	3.84	2.36	22.0	12.5	57	18
16:00	14.5	7.2	2.1	21.07	3.32	20.23	0.18	0.021	17.55	1.300	1.111	0.880	-	22.6	-	37.5	4.16	2.08	18.7	13.6	73	19
18:00	13.2	7.3	2.7	21.34	3.13	21.06	0.17	0.018	18.02	1.562	1.435	1.009	46.5	18.2	32.1	24.1	4.00	2.36	25.3	7.8	31	21
20:00	12.7	7.2	2.3	20.50	2.64	20.22	0.18	0.016	17.66	1.689	1.556	1.300	-	21.0	-	27.3	4.08	2.74	32.9	15.6	47	23
22:00	12.9	7.1	2.0	21.62	2.97	21.34	0.17	0.014	18.47	1.642	1.485	1.225	-	31.5	-	27.1	4.08	3.01	35.3	19.4	55	21
24:00	13.2	7.2	1.8	21.06	3.11	20.78	0.18	0.012	17.76	1.667	1.556	1.150	-	27.0	-	24.1	4.16	2.85	26.5	12.1	46	20
02:00	13.6	7.1	1.7	22.33	2.81	22.19	0.16	0.032	19.33	1.703	1.622	1.427	52.0	26.4	36.1	23.1	4.32	2.31	27.3	11.5	42	20
04:00	13.3	7.3	1.6	22.19	3.19	21.63	0.16	0.040	18.80	1.822	1.556	1.320	-	32.6	-	28.1	4.48	2.46	36.4	14.5	40	19
06:00	13.4	7.3	1.9	20.25	2.09	19.55	0.19	0.024	17.95	1.745	1.436	1.270	-	35.0	-	35.1	4.64	1.97	32.0	13.6	43	18
08:00	13.7	7.2	2.4	20.79	2.03	20.51	0.18	0.020	17.66	1.556	1.356	1.220	-	33.7	-	30.1	4.32	1.64	25.6	10.5	41	17
10:00	13.9	7.2	2.6	22.44	2.53	21.88	0.16	0.010	19.74	1.622	1.356	1.120	53.0	20.7	46.3	26.8	3.68	1.75	30.0	14.3	48	16
Mean	13.6	7.2	2.2	20.92	2.76	20.50	0.16	0.021	17.90	1.588	1.396	1.161	47.0	25.8	36.4	29.4	4.14	2.34	26.4	12.0	45	19
SD	0.5	0.1	0.4	1.12	0.38	1.13	0.02	0.008	1.06	0.144	0.157	0.145	6.5	5.5	6.0	5.2	0.26	0.40	6.7	3.9	11	2

Table A-1.1-19 Hourly Change of Water Quality of Anyang Chong, St. 5, November 13-14, 1990

Item / Time	WT (°C)	pH	DO (mg/l)	TN (mg/l)	TON (mg/l)	TDN (mg/l)	NO3-N (mg/l)	NO2-N (mg/l)	NH4-N (mg/l)	TP (mg/l)	TDP (mg/l)	PO4-P (mg/l)	BOD (mg/l)	DBOD (mg/l)	COD (mg/l)	DCOD (mg/l)	Sulfide (mg/l)	MBAS (mg/l)	SS (mg/l)	Settleable matter (mg/l)	Gauge (%)	Gauge (cm)
10:00	14.0	7.0	1.8	19.34	2.82	18.96	0.04	0.012	16.47	1.425	1.233	1.127	58.7	46.5	37.2	34.1	4.32	3.64	26.5	12.0	45	37
12:00	14.2	7.1	1.9	20.37	2.50	20.09	0.05	0.012	17.81	1.356	1.199	1.000	-	50.3	-	37.5	4.16	3.86	32.5	19.6	60	37
14:00	14.7	7.2	2.2	18.95	2.84	18.25	0.03	0.012	16.87	1.246	1.044	0.965	-	33.4	-	30.1	3.76	3.25	34.7	21.4	62	38
16:00	14.8	7.1	2.4	18.68	2.08	18.26	0.03	0.013	16.56	1.069	1.012	0.620	-	27.4	-	27.3	4.00	2.47	24.6	10.5	43	39
18:00	14.3	7.2	1.5	20.07	2.19	19.79	0.03	0.010	17.84	1.236	1.099	0.832	35.6	28.1	42.3	32.2	4.24	2.81	28.7	16.4	57	41
20:00	14.0	7.2	1.8	19.78	1.93	19.40	0.03	0.007	17.81	1.444	1.356	1.120	-	42.3	-	38.0	4.16	2.96	30.5	12.6	41	42
22:00	13.8	7.3	1.9	21.20	3.14	20.92	0.04	0.008	18.01	1.459	1.402	1.220	-	26.5	-	32.3	6.24	3.05	32.7	13.0	40	40
24:00	13.6	7.3	1.5	20.70	2.67	19.44	0.10	0.007	17.92	1.667	1.556	1.120	-	46.4	-	30.1	4.32	4.12	24.6	8.7	35	38
02:00	13.4	7.2	1.2	20.78	3.23	19.94	0.18	0.010	17.36	1.602	1.533	1.225	46.4	36.0	44.1	35.1	3.76	4.47	28.7	14.3	50	38
04:00	13.3	7.0	1.3	19.76	2.32	19.48	0.14	0.012	17.29	1.711	1.667	1.160	-	55.5	-	36.1	3.84	2.45	22.6	11.5	51	37
06:00	13.0	7.1	1.4	19.86	2.50	19.02	0.10	0.012	17.25	1.687	1.533	1.447	-	74.3	-	54.1	3.92	2.94	32.7	24.6	75	36
08:00	13.3	7.2	1.5	20.20	2.97	19.96	0.03	0.014	17.19	1.799	1.599	1.240	-	64.3	-	36.5	4.40	2.35	42.9	33.5	78	36
10:00	13.5	7.2	1.9	19.41	2.67	18.99	0.06	0.013	16.67	1.289	1.022	0.960	39.0	29.9	50.1	47.1	3.68	1.97	(65.3)	(51.6)	79	35
Mean	13.8	7.2	1.7	19.93	2.54	19.42	0.07	0.011	17.31	1.461	1.327	1.080	44.9	43.1	43.4	36.2	4.22	3.10	32.8	19.2	55	38
SD	0.5	0.1	0.3	0.70	0.41	0.72	0.05	0.002	0.52	0.212	0.229	0.200	8.9	14.5	4.6	7.0	0.63	0.71	10.7	11.4	14	2
																			27.8	15.2		
																			9.5	7.9		

Table A-1.1-20 Hourly Change of Water Quality of Anyang Chong, St. 6, November 13-14, 1990

Item / Time	WT (°C)	pH	DO (mg/l)	TN (mg/l)	TON (mg/l)	TDN (mg/l)	NO3-N (mg/l)	NO2-N (mg/l)	NH4-N (mg/l)	TP (mg/l)	TDP (mg/l)	PO4-P (mg/l)	BOD (mg/l)	DBOD (mg/l)	COD (mg/l)	DCOD (mg/l)	Sulfide (mg/l)	MBAS (mg/l)	SS (mg/l)	Settleable matter (mg/l)	Gauge (%)	Gauge (cm)
10:00	13.2	7.0	0.8	22.25	2.68	22.25	0.10	0.013	19.46	1.502	1.464	1.245	36.0	32.4	52.1	36.1	4.32	0.94	(12.7)	3.5	28	32
12:00	13.4	6.9	0.9	23.22	2.90	20.98	0.09	0.016	20.21	1.336	1.222	1.120	-	38.4	-	36.3	4.08	1.23	16.5	9.4	57	32
14:00	13.5	7.1	1.2	23.93	2.12	22.39	0.09	0.028	21.69	1.386	1.285	1.202	-	47.7	-	45.1	3.68	1.42	22.0	12.0	45	33
16:00	13.7	7.1	1.4	25.38	2.30	23.98	0.09	0.069	22.92	1.444	1.167	1.120	-	42.0	-	42.3	3.76	1.75	18.4	8.4	46	35
18:00	13.9	7.1	1.7	26.79	2.19	25.39	0.14	0.042	24.42	1.946	1.642	1.330	42.5	26.9	52.1	43.1	3.84	8.11	20.0	6.4	32	36
20:00	13.4	7.2	1.8	29.71	3.37	26.91	0.28	0.021	26.04	2.142	2.044	1.260	-	35.4	-	41.3	4.16	6.40	20.6	7.2	35	34
22:00	12.9	7.2	1.4	26.92	2.61	24.82	0.24	0.064	24.01	1.845	1.680	1.521	-	38.0	-	52.1	(5.28)	7.20	22.7	11.5	51	34
24:00	12.4	7.2	1.2	23.51	2.56	22.53	0.11	0.013	20.83	1.778	1.389	1.200	-	29.0	-	46.3	4.48	5.60	19.0	12.0	63	33
02:00	12.5	7.1	1.1	28.11	2.37	26.73	0.08	0.012	25.65	1.531	1.127	0.894	41.5	31.1	55.1	48.1	3.52	4.81	19.3	5.3	27	32
04:00	13.0	7.1	0.9	30.91	3.31	28.11	0.08	0.017	27.50	1.333	0.940	0.511	-	32.5	-	50.2	3.60	3.20	17.5	8.8	50	32
06:00	13.2	7.1	0.8	28.80	3.22	26.00	0.07	0.016	25.49	1.550	1.249	1.111	-	27.6	-	43.1	3.68	2.90	18.7	7.5	40	31
08:00	12.7	7.1	0.9	22.65	1.98	22.51	0.23	0.016	20.42	1.756	1.444	1.080	-	30.7	-	45.3	3.68	2.40	20.4	13.5	66	30
10:00	12.0	7.3	1.2	21.95	2.76	20.27	0.21	0.025	18.96	1.111	0.799	0.360	35.5	32.7	46.1	43.1	3.60	2.17	19.3	12.4	64	32
Mean	13.1	7.1	1.2	25.70	2.64	24.07	0.14	0.027	22.89	1.589	1.342	1.073	38.9	34.2	51.4	44.0	3.98	3.70	19.0	9.1	46	33
SD	0.5	0.1	0.3	2.92	0.44	2.36	0.07	0.019	2.71	0.277	0.314	0.307	3.1	5.8	3.3	4.5	2.34	2.34	2.4	2.9	13	2
																	3.87		19.5			
																	0.30		1.7			

Table A-1.1-21 Hourly Change of Water Quality of Anyang Chong, St. 7, November 13-14, 1990

Item / Time	WT (°C)	pH	DO (mg/l)	TN (mg/l)	TON (mg/l)	TDN (mg/l)	NO3-N (mg/l)	NO2-N (mg/l)	NH4-N (mg/l)	TP (mg/l)	TDP (mg/l)	PO4-P (mg/l)	BOD (mg/l)	DBOD (mg/l)	COD (mg/l)	DCOD (mg/l)	Sulfide (mg/l)	MBAS (mg/l)	SS (mg/l)	Settleable matter (mg/l)	Gauge (%)	Gauge (cm)
10:00	13.8	7.2	1.2	22.41	1.86	21.28	0.12	0.010	20.42	1.745	1.465	1.220	65.5	28.8	47.1	36.1	3.52	1.67	58.7	28.0	48	12
12:00	14.0	7.3	1.3	21.59	2.26	20.19	0.15	0.012	19.17	1.889	1.180	1.067	-	26.5	-	35.1	4.16	1.36	53.6	24.2	45	12
14:00	14.3	7.3	1.5	26.79	2.16	24.69	0.16	0.010	24.46	1.921	1.746	1.526	-	22.4	-	35.1	3.68	1.68	48.0	22.7	47	13
16:00	14.4	7.2	1.7	(32.44)	3.21	28.13	0.10	0.012	(28.13)	2.444	1.830	1.778	-	54.0	-	42.3	3.68	1.29	40.4	24.9	62	16
18:00	14.5	7.2	1.4	20.17	1.56	18.76	0.13	0.008	18.47	2.042	1.888	1.674	46.0	33.7	66.1	41.1	4.00	1.25	32.0	18.4	58	14
20:00	14.8	7.2	1.6	21.28	1.98	19.04	0.13	0.004	19.17	1.911	1.778	1.500	-	46.5	-	52.1	4.00	2.03	36.2	23.2	64	14
22:00	13.2	7.2	1.7	21.39	2.13	19.55	0.24	0.000	19.02	1.847	1.649	1.526	-	34.0	-	33.0	4.00	1.88	48.0	30.5	64	13
24:00	12.7	7.2	1.9	22.23	2.61	20.55	0.24	0.000	19.38	1.999	1.711	1.250	-	34.5	-	40.2	3.84	1.95	45.7	24.2	53	12
02:00	12.5	7.0	2.1	22.33	2.49	22.19	0.20	0.000	19.54	2.495	2.346	2.129	60.0	27.1	42.1	41.1	3.68	1.42	51.3	24.7	48	12
04:00	12.6	7.1	2.3	22.95	3.52	22.25	0.25	0.010	19.17	3.111	2.002	1.840	-	30.3	-	42.1	3.52	2.63	50.9	20.5	40	10
06:00	12.4	7.0	2.4	19.17	2.46	17.21	0.24	0.016	16.45	#4.765	#1.422	#3.895	-	28.9	-	40.1	3.52	2.46	48.0	29.6	62	10
08:00	12.4	7.1	2.2	22.12	3.12	18.68	0.23	0.022	18.75	#5.498	#4.688	#4.088	-	16.4	-	28.1	3.68	3.29	54.5	38.6	71	10
10:00	12.6	7.1	1.8	22.87	2.91	22.17	0.16	0.010	19.79	1.778	1.467	0.920	36.0	21.6	33.1	31.1	3.44	4.89	67.0	37.0	55	11
Mean	13.4	7.2	1.8	22.90	2.48	21.15	0.18	0.009	20.16	2.573	2.167	1.878	51.9	31.1	47.1	38.3	3.75	2.14	48.8	26.7	55	12
SD	0.9	0.1	0.4	3.23	0.55	2.76	0.05	0.006	2.85	1.159	1.054	0.955	11.6	9.7	12.1	5.9	0.22	0.98	8.9	5.7	9	2
				22.11					19.49	2.107	1.733	1.494										
				1.76					1.76	0.395	0.292	0.342										

Table A-1.1-22 Water Quality of Anyang Chong. 24-hour Survey. St. 1, January 15-16, 1991

Item	WT	pH	DO	TN	TON	NO3-N	NO2-N	NH4-N	TP	TDP	PO4-P	TBOD	DBOD	TCOD	DCOD	Sulfide	MBAS	SS	Settleable matter	Gauge	
Time	(°C)		(mg/l)	(mg/l)	(mg/l)	(mg/l)	(mg/l)	(mg/l)	(mg/l)	(mg/l)	(mg/l)	(mg/l)	(mg/l)	(mg/l)	(mg/l)	(mg/l)	(mg/l)	(mg/l)	(mg/l)	(%)	(cm)
10:00	0.8	7.3	2.5	13.89	0.12	0.00	0.020	13.75	1.744	1.273	0.642	120.4	89.7	83.0	48.9	4.56	1.84	44.7	16.7	37	33
12:00	0.9	7.5	2.7	15.43	1.24	0.00	0.024	14.17	1.822	1.311	0.789	-	76.4	-	46.7	4.48	1.61	46.0	15.4	33	35
14:00	0.7	7.1	2.6	15.01	0.40	0.00	0.026	14.58	1.944	1.295	0.648	-	36.5	-	53.4	4.32	1.64	32.4	10.3	32	40
16:00	0.6	7.1	1.2	14.16	0.74	0.00	0.085	13.33	1.578	0.956	0.578	-	42.3	-	52.3	4.30	1.67	35.3	11.7	33	36
18:00	0.5	7.0	1.6	14.17	0.47	0.00	0.164	13.54	1.085	0.946	0.487	103.4	82.0	91.4	50.3	4.48	1.61	34.3	13.0	38	38
20:00	0.7	7.1	2.1	15.20	0.47	0.00	0.141	14.58	1.800	1.156	0.733	-	68.8	-	52.3	4.39	1.67	36.7	11.4	31	39
22:00	0.9	7.0	1.8	14.79	0.61	0.00	0.013	14.17	1.746	1.109	0.742	-	38.5	-	53.4	4.48	1.84	34.5	10.1	29	43
24:00	1.4	7.0	1.8	16.04	0.55	0.00	0.070	15.42	1.911	1.600	0.800	-	42.0	-	56.4	4.24	1.84	42.0	15.0	36	46
02:00	1.2	7.0	1.2	16.26	1.14	0.00	0.016	15.10	2.104	1.545	0.805	78.5	72.0	62.4	51.8	4.16	1.94	34.6	15.3	44	40
04:00	0.9	7.1	1.2	16.12	1.11	0.00	0.012	15.00	2.356	1.467	0.722	-	63.5	-	49.5	4.08	1.50	42.0	13.7	33	37
06:00	1.7	7.3	1.7	15.42	0.62	0.03	0.013	14.79	1.965	1.622	1.005	-	36.0	-	52.5	4.39	2.05	40.3	14.6	36	34
08:00	1.8	7.1	1.6	12.41	0.94	0.00	0.016	#11.46	1.844	1.600	1.022	-	38.7	-	50.3	4.48	2.50	42.7	14.6	34	33
10:00	2.4	7.0	1.2	14.72	0.54	0.00	0.017	14.17	1.900	1.455	0.985	70.1	66.0	67.1	54.6	4.24	2.33	44.0	16.4	37	32
Mean	1.1	7.1	1.8	14.89	0.69	0.00	0.047	14.16	1.831	1.333	0.766	93.1	57.9	76.0	51.7	4.35	1.85	39.2	13.7	35	37
SD	0.5	0.1	0.5	1.02	0.32	0.01	0.050	0.98	0.281	0.229	0.157	20.0	18.7	11.7	2.5	0.14	0.28	4.5	2.1	4	4
								14.38													
								0.62													

Table A-1.1-23 Water Quality of Anyang Chong. 24-hour Survey, St. 2, January 15-16, 1991

Item	WT	pH	DO	TN	TON	NO3-N	NO2-N	NH4-N	TP	TDP	PO4-P	TBOD	DBOD	TCOD	DCOD	Sulfide	MBAS	SS	Settleable matter	Gauge	
Time	(°C)		(mg/l)	(mg/l)	(mg/l)	(mg/l)	(mg/l)	(mg/l)	(mg/l)	(mg/l)	(mg/l)	(mg/l)	(mg/l)	(mg/l)	(mg/l)	(mg/l)	(mg/l)	(mg/l)	(mg/l)	(%)	(cm)
10:00	0.8	7.6	3.1	18.45	1.33	0.21	0.032	16.88	1.211	0.864	0.502	61.0	58.5	65.4	52.1	4.39	1.04	38.0	10.0	26	19
12:00	0.7	7.3	3.0	15.07	1.51	0.09	0.035	13.33	1.333	0.956	0.489	-	54.3	-	48.5	4.48	1.39	34.2	8.6	25	21
14:00	0.5	7.1	3.2	13.41	0.74	0.13	0.038	12.50	1.202	0.944	0.584	-	38.5	-	46.2	4.46	1.25	41.3	27.4	66	22
16:00	2.0	7.1	2.2	15.12	1.58	0.16	0.035	13.33	1.222	1.022	0.733	-	40.2	-	45.4	4.32	1.11	45.3	25.4	56	22
18:00	3.0	7.4	2.3	15.41	0.54	0.25	0.029	14.58	1.302	1.020	0.765	89.1	60.5	73.2	46.2	4.24	1.67	51.3	16.0	31	21
20:00	3.3	7.6	2.5	16.31	0.69	0.18	0.029	15.42	1.667	1.200	0.889	-	54.7	-	44.1	4.34	1.72	41.7	18.0	43	20
22:00	3.1	7.5	2.8	16.62	0.76	0.20	0.030	15.63	1.422	1.303	0.946	-	34.0	-	44.1	4.21	1.04	40.7	22.4	55	20
24:00	2.8	7.5	3.0	18.83	1.55	0.17	0.031	17.08	1.467	1.356	1.156	-	36.0	-	48.5	4.30	0.95	43.0	17.6	41	20
02:00	3.3	7.6	3.4	19.17	0.99	0.23	0.033	17.92	1.550	1.248	1.165	111.0	88.4	72.4	52.1	4.32	0.78	44.0	8.5	19	19
04:00	3.4	7.5	3.1	19.55	0.97	0.18	0.033	18.33	1.622	1.467	1.244	-	72.4	-	55.5	4.39	0.88	42.1	10.0	24	18
06:00	1.8	7.5	3.3	17.52	0.70	0.12	0.033	16.67	1.540	1.347	1.200	-	53.5	-	57.5	4.56	1.01	42.7	12.3	29	17
08:00	1.4	7.6	3.6	17.55	1.33	0.09	0.086	16.04	1.450	1.356	0.844	-	48.6	-	56.3	4.48	1.25	42.0	8.4	20	17
10:00	2.0	7.3	2.9	16.90	1.04	0.10	0.128	15.63	1.411	1.233	0.940	109.5	91.7	63.0	52.8	4.39	1.33	42.1	6.4	15	18
Mean	2.2	7.4	3.0	16.92	1.06	0.16	0.044	15.64	1.415	1.178	0.881	92.7	56.3	68.5	49.9	4.38	1.19	42.2	14.7	35	20
SD	1.0	0.2	0.4	1.76	0.35	0.05	0.028	1.73	0.149	0.186	0.251	20.2	17.8	4.4	4.5	0.10	0.28	3.7	6.7	16	2

Table A-1.1-24 Water Quality of Anyang Chong, 24-hour Survey, St. 3, January 15-16, 1991

Item Time	WT (°C)	pH	DO (mg/l)	TN (mg/l)	TON (mg/l)	NO3-N (mg/l)	NO2-N (mg/l)	NH4-N (mg/l)	TP (mg/l)	TDP (mg/l)	PO4-P (mg/l)	TBOD (mg/l)	DBOD (mg/l)	TCOD (mg/l)	DCOD (mg/l)	Sulfide (mg/l)	MBAS (mg/l)	SS (mg/l)	Settleable matter (mg/l)	Gauge (%)	Gauge (cm)
10:00	3.8	7.4	3.7	17.28	2.22	0.00	0.887	14.17	1.945	1.425	1.133	45.0	39.5	46.7	38.7	4.48	2.04	46.0	26.0	57	18
12:00	4.2	7.3	3.9	19.85	1.62	0.00	0.525	17.71	2.222	1.600	1.244	-	40.1	-	36.6	4.39	2.44	53.3	32.0	60	18
14:00	4.6	7.3	4.1	16.00	1.39	0.00	0.036	14.56	1.643	1.255	0.946	-	29.5	-	40.1	4.45	2.63	46.0	28.7	62	19
16:00	4.2	7.3	3.7	12.00	1.25	0.00	0.025	10.73	1.467	1.067	0.800	-	42.7	-	40.6	4.32	1.87	60.7	34.7	57	20
18:00	4.0	7.3	3.1	14.69	1.99	0.15	0.824	11.88	1.542	1.233	0.805	68.5	53.5	49.5	40.6	4.24	2.04	64.0	14.0	22	18
20:00	4.5	7.4	3.1	11.84	1.76	0.00	0.070	10.01	1.511	1.133	0.644	-	43.6	-	40.0	4.32	2.83	55.4	27.7	50	19
22:00	4.4	7.4	3.0	12.02	1.77	0.00	0.039	10.21	1.564	1.200	0.748	-	45.5	-	38.9	4.39	1.67	53.3	16.3	31	18
24:00	4.0	7.5	3.1	12.31	2.05	0.00	0.264	10.00	1.600	1.111	0.800	-	27.9	-	36.4	4.08	1.72	48.3	22.7	47	18
02:00	3.3	7.5	3.3	13.29	2.11	0.00	0.334	10.85	1.465	1.233	1.112	63.0	31.5	52.4	37.3	4.16	1.78	43.3	16.4	38	16
04:00	3.0	7.4	3.4	12.36	1.77	0.00	0.170	10.42	1.556	1.245	1.222	-	28.7	-	32.4	4.00	1.87	24.3	12.4	51	15
06:00	3.1	7.3	3.5	12.05	#3.82	0.00	0.141	8.08	1.642	1.288	1.006	-	12.4	-	29.0	#3.05	2.04	17.3	8.7	50	14
08:00	2.8	7.3	3.6	8.06	1.97	0.00	0.565	5.53	0.733	0.674	0.589	-	20.4	-	30.4	4.08	2.03	29.7	11.4	38	14
10:00	4.0	7.4	3.5	14.86	2.25	0.45	0.897	11.27	0.849	0.756	0.547	37.0	34.5	40.1	31.2	4.00	1.87	33.3	17.3	52	17
Mean	3.8	7.4	3.5	13.59	2.00	0.05	0.367	11.19	1.518	1.171	0.900	53.4	34.6	47.2	36.3	4.15	2.06	44.2	20.6	47	17
1	0.6	0.1	0.3	2.85	0.60	0.12	0.322	2.91	0.371	0.235	0.219	12.8	10.7	4.6	4.0	0.36	0.34	13.7	8.1	11	2
					1.85											4.24					
					0.30											0.17					

Table A-1.1-25 Water Quality of Anyang Chong, 24-hour Survey, St. 4, January 15-16, 1991

Item Time	WT (°C)	pH	DO (mg/l)	TN (mg/l)	TON (mg/l)	NO3-N (mg/l)	NO2-N (mg/l)	NH4-N (mg/l)	TP (mg/l)	TDP (mg/l)	PO4-P (mg/l)	TBOD (mg/l)	DBOD (mg/l)	TCOD (mg/l)	DCOD (mg/l)	Sulfide (mg/l)	MBAS (mg/l)	SS (mg/l)	Settleable matter (mg/l)	Gauge (%)	Gauge (cm)
10:00	1.9	8.0	3.2	16.43	0.76	0.00	0.037	15.63	1.488	0.945	0.846	75.5	65.4	60.4	48.4	4.32	2.03	46.0	23.3	51	12
12:00	1.7	7.3	3.0	15.44	0.82	0.00	0.030	14.58	1.511	0.956	0.744	-	54.4	-	49.8	4.24	2.92	36.3	12.3	34	11
14:00	1.8	7.1	3.1	16.98	1.32	0.00	0.033	15.63	1.245	0.988	0.785	-	43.3	-	52.8	4.16	2.63	37.3	11.0	29	11
16:00	1.8	7.3	2.7	18.93	1.02	0.00	0.029	17.89	1.049	1.044	0.778	-	36.7	-	53.8	4.00	2.83	32.7	8.4	26	11
18:00	3.0	7.6	1.9	15.44	1.02	0.00	0.029	14.39	1.225	1.102	0.888	69.5	60.0	55.4	50.1	4.18	2.83	41.3	18.0	44	12
20:00	3.3	7.5	2.0	15.57	0.58	0.00	0.020	14.97	1.289	1.111	0.933	-	44.7	-	52.4	4.00	2.72	41.3	16.4	40	12
22:00	3.9	7.5	3.8	16.14	1.52	0.00	0.028	14.58	1.832	1.205	0.965	-	65.5	-	55.4	4.16	1.87	43.3	15.3	35	12
24:00	3.5	7.5	3.8	17.96	1.40	0.00	0.026	16.53	2.333	1.889	1.467	-	69.5	-	57.0	3.84	1.86	49.0	32.4	66	11
02:00	2.2	7.6	3.9	17.73	1.12	0.05	0.030	16.53	2.033	1.649	1.546	104.5	88.0	72.4	58.5	4.48	1.94	47.3	22.4	47	10
04:00	2.1	7.6	4.0	15.58	1.16	0.00	0.032	14.39	1.889	1.692	1.689	-	73.3	-	55.4	4.24	1.87	45.3	25.0	55	10
06:00	1.6	7.4	3.8	17.68	1.12	0.00	0.034	16.53	1.942	1.246	1.004	-	70.5	-	52.8	4.47	2.04	49.0	19.4	40	10
08:00	1.7	7.5	3.3	16.28	0.69	0.00	0.035	15.56	1.378	1.244	1.067	-	88.7	-	60.7	4.32	1.94	45.3	14.0	31	10
10:00	2.4	7.5	3.4	16.15	1.91	0.00	0.038	14.19	1.333	1.024	0.975	75.5	66.6	60.7	62.1	4.30	1.87	41.3	11.4	28	12
Mean	2.4	7.5	3.2	16.64	1.11	0.00	0.031	15.49	1.581	1.238	1.053	81.3	63.6	62.2	54.6	4.21	2.26	42.7	17.6	40	11.1
SD	0.8	0.2	0.7	1.08	0.35	0.01	0.005	1.08	0.370	0.297	0.299	13.6	15.2	6.2	4.0	0.18	0.43	4.8	6.5	11	0.8

Table A-1.1-26 Water Quality of Anyang Chong, 24-hour Survey, St. 5, January 15-16, 1991

Item	WT	pH	DO	TN	TON	NO3-N	NO2-N	NH4-N	TP	TDP	PO4-P	TBOD	DBOD	TCOD	DCOD	Sulfide	MBAS	SS	Settleable matter	Gauge
Time	(°C)		(mg/l)	(mg/l)	(mg/l)	(mg/l)	(mg/l)	(mg/l)	(mg/l)	(mg/l)	(mg/l)	(mg/l)	(mg/l)	(mg/l)	(mg/l)	(mg/l)	(mg/l)	(mg/l)	(mg/l)	(%)	(cm)
10:00	1.0	7.1	2.4	17.95	1.26	0.00	0.024	16.67	1.433	1.023	0.744	75.5	72.2	56.5	48.1	4.24	1.25	36.0	6.3	16	26
12:00	2.0	7.5	1.7	16.97	1.32	0.00	0.024	15.63	1.556	1.111	0.800	-	68.7	-	46.6	4.20	1.22	32.0	7.0	22	27
14:00	3.9	7.6	1.5	17.67	1.40	0.00	0.024	16.25	1.645	1.336	1.027	-	34.0	-	54.1	3.68	1.67	40.0	12.1	30	28
16:00	4.4	7.6	1.5	19.34	1.00	0.00	0.018	18.33	1.933	1.511	1.133	-	39.4	-	52.4	3.76	1.04	42.5	13.0	31	28
18:00	4.5	7.7	1.5	20.02	0.21	0.00	0.017	19.79	2.125	1.639	1.275	78.5	65.5	67.3	53.4	4.32	1.39	46.5	16.0	34	31
20:00	4.2	7.6	2.2	23.13	0.61	0.00	0.020	22.50	3.667	2.667	1.999	-	63.7	-	54.6	4.30	2.04	43.0	22.1	51	31
22:00	3.7	7.5	1.8	19.35	1.20	0.00	0.025	18.13	2.755	2.461	1.825	-	59.5	-	60.1	4.24	2.03	48.8	33.0	68	32
24:00	2.8	7.6	1.6	18.22	1.54	0.00	0.008	16.67	1.933	1.333	0.956	-	68.7	-	58.4	4.32	1.25	50.8	21.4	42	31
02:00	3.0	7.5	2.4	18.93	0.99	0.00	0.024	17.92	1.744	1.365	1.002	93.4	72.5	88.8	60.1	4.32	1.67	52.7	24.7	47	31
04:00	1.9	7.6	2.8	17.39	1.12	0.00	0.020	16.25	1.867	1.533	1.067	-	56.4	-	44.8	3.84	1.72	44.3	24.3	55	31
06:00	1.7	7.8	3.1	18.93	0.99	0.00	0.019	17.92	1.733	1.605	1.020	-	43.0	-	54.8	4.08	2.03	35.3	16.4	46	30
08:00	1.9	7.7	2.1	21.17	1.15	0.00	0.016	20.00	1.911	1.556	1.022	-	64.0	-	53.4	4.24	2.22	39.0	18.4	47	29
10:00	2.1	7.6	3.0	22.01	2.20	0.00	0.019	19.79	2.032	1.632	1.248	69.0	61.1	72.4	61.5	4.32	1.87	45.3	17.6	39	29
Mean	2.9	7.6	2.1	19.31	1.15	0.00	0.020	18.14	2.026	1.598	1.163	79.1	59.1	71.3	54.0	4.14	1.65	42.8	17.9	41	30
SD	1.1	0.2	0.6	1.78	0.45	0.00	0.005	1.88	0.567	0.453	0.351	8.9	12.1	11.6	5.0	0.22	0.37	6.0	7.1	13	2

Table A-1.1-27 Water Quality of Anyang Chong, 24-hour Survey, St. 6, January 15-16, 1991

Item	WT	pH	DO	TN	TON	NO3-N	NO2-N	NH4-N	TP	TDP	PO4-P	TBOD	DBOD	TCOD	DCOD	Sulfide	MBAS	SS	Settleable matter	Gauge
Time	(°C)		(mg/l)	(mg/l)	(mg/l)	(mg/l)	(mg/l)	(mg/l)	(mg/l)	(mg/l)	(mg/l)	(mg/l)	(mg/l)	(mg/l)	(mg/l)	(mg/l)	(mg/l)	(mg/l)	(mg/l)	(%)	(cm)
10:00	2.4	7.3	1.7	15.08	0.27	0.00	0.021	14.79	1.989	1.532	1.011	82.5	65.5	63.2	54.8	4.16	1.86	29.3	12.2	42	15
12:00	3.7	7.5	1.6	#22.15	1.51	0.00	0.023	#20.63	2.778	1.722	1.444	-	61.7	-	52.3	4.08	1.50	44.3	24.3	55	16
14:00	4.6	7.7	0.9	14.87	1.10	0.00	0.026	13.75	2.932	1.888	1.336	-	46.5	-	55.1	4.24	1.67	54.7	32.1	59	18
16:00	4.6	7.6	1.6	15.08	0.81	0.00	0.025	14.25	1.667	1.511	1.200	-	54.0	-	55.0	4.24	1.72	32.7	12.0	37	18
18:00	3.4	7.5	1.8	18.65	3.63	0.00	0.024	15.00	1.858	1.632	1.245	97.5	84.0	67.4	56.8	3.92	2.04	37.3	15.4	41	18
20:00	2.8	0.6	2.4	14.87	1.10	0.00	0.024	13.75	1.778	1.711	1.333	-	62.7	-	58.5	4.00	2.22	29.0	11.4	39	19
22:00	1.8	7.6	2.8	16.98	1.85	0.00	0.028	15.00	1.846	1.544	1.102	-	58.5	-	63.5	4.03	2.35	34.7	18.7	54	18
24:00	1.3	7.8	2.0	16.13	0.48	0.00	0.026	15.63	1.778	1.333	1.022	-	74.5	-	62.4	3.84	2.50	34.6	15.0	43	18
02:00	1.4	7.6	2.9	16.90	1.25	0.00	0.025	15.00	1.655	1.274	1.022	86.4	76.5	81.4	65.5	3.89	2.76	36.6	10.0	27	17
04:00	1.3	7.6	3.2	17.39	1.74	0.00	0.025	15.63	1.578	#1.022	0.767	-	72.3	-	62.5	3.92	2.04	42.7	22.7	53	16
06:00	1.6	7.6	2.4	15.85	1.25	0.00	0.022	14.58	1.849	1.648	1.211	-	40.0	-	58.8	4.00	2.22	59.3	33.6	57	16
08:00	1.9	7.5	2.3	17.67	1.61	0.00	0.023	16.04	1.642	1.578	1.022	-	46.5	-	55.1	4.25	2.17	55.3	24.5	44	16
10:00	2.0	7.5	2.9	14.45	0.47	0.00	0.024	13.96	1.749	1.633	1.045	92.5	76.5	65.2	53.4	4.32	1.72	55.3	18.4	33	16
Man	2.5	7.0	2.2	16.62	1.31	0.00	0.024	15.23	1.931	1.525	1.135	89.7	63.0	69.3	58.0	4.07	2.06	42.0	19.3	45	17
SD	1.1	1.9	0.6	2.02	0.82	0.00	0.002	1.71	0.409	0.195	0.174	5.7	13.0	7.1	4.1	0.15	0.35	10.4	7.4	9	1
				16.16				14.78		1.567											
				1.29				0.72		0.135											

Table A-1.1-28 Water Quality of Anyang Chong, 24-hour Survey, St. 7, January 15-16, 1991

Item	WT	pH	DO	TN	TON	NO3-N	NO2-N	NH4-N	TP	TDP	PO4-P	TBOD	DBOD	TCOD	DCOD	Sulfide	MBAS	SS	Settleable matter	Gauge
Time	(°C)		(mg/l)	(mg/l)	(mg/l)	(mg/l)	(mg/l)	(mg/l)	(mg/l)	(mg/l)	(mg/l)	(mg/l)	(mg/l)	(mg/l)	(mg/l)	(mg/l)	(mg/l)	(mg/l)	(mg/l)	(%)	(cm)
10:00	1.1	7.6	1.5	19.36	0.37	0.00	0.032	18.96	1.632	1.246	0.946	67.5	61.5	56.4	52.1	4.24	1.50	63.0	15.0	24	24
12:00	2.0	7.7	1.4	16.28	1.25	0.00	0.031	15.00	1.778	1.400	1.067	-	54.5	-	50.1	3.84	1.67	103.2	74.0	72	26
14:00	4.3	7.7	1.9	18.94	1.20	0.00	0.030	17.71	2.049	1.633	1.245	-	32.8	-	50.2	#3.53	2.50	118.1	82.0	69	28
16:00	4.7	7.7	2.1	18.66	0.84	0.00	0.028	17.79	3.111	1.844	1.667	-	44.7	-	54.2	4.00	2.35	46.2	24.0	52	28
18:00	4.5	7.8	2.4	16.41	1.39	0.00	0.025	15.00	2.456	1.979	1.868	64.5	36.3	70.3	58.1	4.39	2.50	43.3	30.2	70	28
20:00	4.0	7.6	2.0	24.55	1.80	0.00	0.035	22.71	2.667	2.622	2.000	-	46.4	-	54.2	4.08	2.78	64.7	26.7	41	27
22:00	3.0	7.7	1.8	19.37	2.04	0.00	0.038	17.29	2.440	1.999	1.632	-	58.5	-	58.8	4.02	2.35	80.0	30.0	38	27
24:00	1.9	7.7	2.2	20.04	1.88	0.00	0.036	18.13	2.667	2.333	1.500	-	48.5	-	62.3	4.24	2.86	95.0	53.0	56	26
02:00	1.3	7.7	2.7	20.63	1.84	0.00	0.043	18.75	2.334	2.003	1.203	42.5	30.0	85.4	66.8	4.32	2.04	114.0	49.0	43	24
04:00	1.0	7.7	2.9	22.23	3.03	0.00	0.043	18.96	2.444	1.644	1.333	-	35.4	-	62.3	4.08	2.22	88.0	34.0	39	23
06:00	1.7	7.5	2.3	19.65	2.53	0.00	0.042	17.08	2.032	1.465	1.255	-	26.5	-	61.5	4.16	1.87	70.1	25.0	36	23
08:00	1.9	7.7	1.8	18.95	1.83	0.00	0.040	17.08	2.420	1.578	1.200	-	48.8	-	54.2	4.32	2.08	75.1	26.1	35	22
10:00	1.2	7.8	2.1	27.41	2.35	0.00	0.038	15.02	2.225	1.645	1.136	40.0	25.3	56.7	45.7	4.39	2.17	68.8	23.4	34	25
Man	2.5	7.7	2.1	20.19	1.72	0.00	0.035	17.65	2.327	1.799	1.389	53.6	42.2	67.2	56.2	4.12	2.22	79.2	37.9	47	25
SD	1.3	0.1	0.4	2.94	0.69	0.00	0.006	2.00	0.378	0.370	0.307	12.5	11.6	11.9	5.8	0.23	0.38	22.7	19.8	15	2
																4.17					
																0.17					

Table A-1.1-29 Hourly Change of Water Quality of Anyang Chong, A-St. 1, March 5-6, 1991

Item / Time	WT (°C)	pH	DO (mg/l)	TN (mg/l)	TON (mg/l)	NO3-N (mg/l)	NO2-N (mg/l)	NH4-N (mg/l)	TP (mg/l)	TDP (mg/l)	PO4-P (mg/l)	TBOD (mg/l)	DBOD (mg/l)	TCOD(Mn) (mg/l)	DCOD(Mn) (mg/l)	Sulfide (mg/l)	MBAS (mg/l)	SS (mg/l)	Settleable matter (mg/l)	(%)	Gauge (cm)
10:00	7.0	7.4	0.3	14.59	0.66	0.00	0.024	13.91	1.760	0.890	0.620	69.7	42.8	57.3	43.4	3.88	5.61	36.3	18.3	50	32
12:00	7.4	7.4	0.3	15.44	1.28	0.00	0.030	14.13	1.645	0.794	0.575	-	45.1	-	48.6	3.96	5.35	45.1	22.0	49	40
14:00	7.9	7.3	0.2	15.44	1.27	0.00	0.036	14.13	1.932	0.889	0.563	-	37.5	-	52.1	3.8	4.94	38.7	19.4	50	49
16:00	8.6	7.5	0.1	15.29	1.17	0.00	0.025	14.09	2.600	1.720	0.540	-	52.3	-	48.1	3.88	5.70	42.1	21.3	51	37
18:00	8.9	7.5	0.1	16.99	2.60	0.00	0.035	14.35	1.975	1.063	0.564	72.3	42.8	58.7	50.1	4.12	6.69	44.0	24.7	56	34
20:00	9.5	7.7	0.1	17.13	2.05	0.00	0.036	15.04	2.036	1.248	0.785	-	55.1	-	46.1	4.29	6.62	46.0	23.3	51	33
22:00	9.7	7.5	0.0	17.07	0.18	0.00	0.042	16.85	3.400	2.800	0.880	-	56.5	-	52.1	4.29	5.90	45.3	21.7	48	32
24:00	9.4	7.6	0.1	17.68	1.34	0.00	0.034	16.31	3.020	2.245	0.832	-	54.1	-	45.1	4.37	6.02	43.3	20.0	46	39
02:00	9.0	7.5	0.2	17.54	1.42	0.00	0.027	16.09	3.011	2.365	0.975	68.1	55.5	51.5	42.8	4.45	6.53	41.0	18.0	44	32
04:00	8.5	7.3	0.3	17.13	1.61	0.00	0.036	15.48	3.360	2.720	0.980	-	47.1	-	40.8	4.29	5.90	42.7	21.3	50	30
06:00	8.2	7.3	0.2	16.98	1.73	0.00	0.033	15.22	3.025	2.366	0.869	-	56.0	-	38.7	4.21	4.47	39.7	16.3	41	31
08:00	7.9	7.4	0.4	18.93	2.00	0.00	0.024	16.91	3.033	2.405	0.865	-	42.3	-	36.7	4.21	5.70	38.7	15.0	39	29
10:00	7.6	7.5	0.1	19.35	1.72	0.00	0.021	17.61	3.000	2.380	0.850	73.5	56.5	47.0	38.7	3.96	6.11	41.3	17.8	43	31
Mean	8.4	7.5	0.2	16.89	1.46	0.00	0.031	15.39	2.600	1.837	0.761	70.9	49.5	53.6	44.9	4.13	5.81	41.9	19.9	47	35
SD	0.8	0.1	0.1	1.81	0.59	0.00	0.006	1.21	0.612	0.728	0.158	2.1	6.5	4.7	5.0	0.20	0.62	2.8	2.7	5	5
																	1.34	8.3	5.1	58	

Table A-1.1-30 Hourly Change of Water Quality of Anyang Chong, A-St. 2, March 5-6, 1991

Item / Time	WT (°C)	pH	DO (mg/l)	TN (mg/l)	TON (mg/l)	NO3-N (mg/l)	NO2-N (mg/l)	NH4-N (mg/l)	TP (mg/l)	TDP (mg/l)	PO4-P (mg/l)	TBOD (mg/l)	DBOD (mg/l)	TCOD(Mn) (mg/l)	DCOD(Mn) (mg/l)	Sulfide (mg/l)	MBAS (mg/l)	SS (mg/l)	Settleable matter (mg/l)	(%)	Gauge (cm)
10:00	7.2	7.3	1.8	15.69	1.09	0.00	0.025	14.57	1.220	0.600	0.420	65.8	47.5	51.3	40.8	4.12	4.58	38.3	18.7	49	17
12:00	7.8	7.3	2.2	15.56	1.06	0.00	0.036	14.46	1.365	0.705	0.565	-	42.3	-	36.7	4.21	4.50	42.7	22.7	53	17
14:00	7.6	7.3	1.9	15.42	1.04	0.00	0.027	14.35	1.402	0.864	0.636	-	46.5	-	38.7	4.29	4.44	36.7	15.3	42	18
16:00	8.1	7.3	1.6	15.29	0.73	0.00	0.041	14.52	1.480	0.950	0.750	-	49.8	-	41.0	4.29	4.24	30.0	13.0	43	19
18:00	8.4	7.3	1.2	16.14	1.32	0.00	0.036	14.78	1.532	0.960	0.863	62.7	42.0	53.0	41.4	4.21	4.17	30.3	13.0	43	19
20:00	8.0	7.4	1.8	17.25	1.26	0.00	0.025	15.96	1.604	1.025	0.910	-	41.5	-	46.1	4.29	4.07	32.7	18.6	57	20
22:00	8.2	7.4	2.0	17.95	0.97	0.00	0.024	16.96	1.700	1.360	1.020	-	57.0	-	48.1	4.04	3.63	32.0	14.1	44	20
24:00	7.6	7.3	2.2	18.10	1.55	0.00	0.090	16.46	1.569	1.242	0.933	-	48.7	-	43.6	4.53	3.21	30.1	12.1	40	19
02:00	7.8	7.3	2.4	15.72	1.34	0.00	0.030	14.35	1.462	1.033	0.865	88.5	67.5	65.0	49.4	4.29	4.03	31.3	10.4	33	17
04:00	8.1	7.3	2.6	16.13	1.32	0.00	0.026	14.78	1.380	0.938	0.640	-	50.1	-	42.4	4.21	4.42	32.7	9.4	29	17
06:00	7.2	7.4	2.1	16.70	1.45	0.00	0.033	15.22	1.149	0.916	0.615	-	72.5	-	45.1	4.04	5.56	27.7	8.6	31	16
08:00	7.0	7.4	1.8	17.12	1.11	0.00	0.029	15.98	1.233	0.933	0.565	-	47.7	-	41.0	4.21	5.05	31.3	10.2	33	16
10:00	7.6	7.4	2.4	17.83	1.49	0.00	0.040	16.30	1.066	0.978	0.508	82.3	64.0	56.7	44.1	4.12	5.61	34.7	8.2	24	16
Mean	7.7	7.3	2.0	16.53	1.21	0.00	0.036	15.28	1.397	0.962	0.715	74.8	52.1	56.5	43.0	4.22	4.42	33.1	13.4	40	18
SD	0.4	0.0	0.4	0.98	0.23	0.00	0.017	0.886	0.181	0.187	0.180	10.9	9.7	5.3	3.5	0.12	0.66	3.9	4.2	9	1

Table A-1.1-31 Hourly Change of Water Quality of Anyang Chong, A-St. 3, March 5-6, 1991

Item / Time	WT (°C)	pH	DO (mg/l)	TN (mg/l)	TON (mg/l)	NO3-N (mg/l)	NO2-N (mg/l)	NH4-N (mg/l)	TP (mg/l)	TDP (mg/l)	PO4-P (mg/l)	TBOD (mg/l)	DBOD (mg/l)	TCOD(Mn) (mg/l)	DCOD(Mn) (mg/l)	Sulfide (mg/l)	MBAS (mg/l)	SS (mg/l)	Settleable matter (mg/l)	(%)	Gauge (cm)
10:00	7.0	7.4	2.8	6.27	0.37	0.00	0.033	5.87	1.258	0.756	0.238	13.1	11.5	20.3	17.0	2.82	2.17	16.1	10.1	63	18
12:00	7.4	7.4	2.4	6.12	0.66	0.00	0.024	5.44	1.303	0.864	0.313	-	10.0	-	16.4	#1.61	3.05	12.0	5.3	44	17
14:00	7.6	7.5	3.2	6.74	0.85	0.00	0.017	5.87	1.365	0.946	0.364	-	10.2	-	15.0	3.48	3.14	16.6	9.7	58	18
16:00	7.9	7.3	3.4	8.14	1.05	0.00	0.020	7.07	1.403	1.109	0.408	-	12.7	-	19.7	3.15	2.68	20.7	11.7	57	18
18:00	8.4	7.4	2.7	8.36	0.69	0.00	0.021	7.65	1.369	0.446	0.278	18.7	14.5	25.4	20.0	3.15	2.47	42.7	24.3	57	19
20:00	8.2	7.5	2.1	9.96	0.89	0.00	0.036	9.03	1.695	0.420	0.205	-	#22.4	-	18.0	3.48	2.04	#76.7	#43.3	#56	19
22:00	8.1	7.4	1.9	10.63	0.91	0.00	0.051	9.67	1.562	0.380	0.135	-	15.4	-	22.0	3.53	1.99	24.7	12.7	51	19
24:00	7.8	7.4	2.2	9.64	1.12	0.00	0.043	8.48	1.245	0.465	0.146	-	11.1	-	19.3	3.80	2.71	18.0	10.0	56	20
02:00	7.6	7.4	2.5	9.13	1.10	0.00	0.027	8.00	1.170	0.805	0.188	19	14.7	20.8	17.0	3.72	3.06	20.3	12.3	61	19
04:00	7.3	7.3	2.3	9.27	1.22	0.00	0.027	8.02	1.199	0.715	0.196	-	12.1	-	16.0	3.23	4.20	22.7	10.0	44	18
06:00	7.1	7.3	2.7	9.20	1.08	0.00	0.028	8.09	1.050	0.720	0.205	-	16.0	-	20.0	3.48	4.83	20.3	9.3	46	16
08:00	6.8	7.5	2.1	8.64	0.96	0.00	0.030	7.65	1.133	0.805	0.236	-	11.5	-	14.7	3.31	4.77	20.0	8.0	40	15
10:00	7.3	7.5	2.7	6.54	0.86	0.00	0.027	5.65	1.263	0.810	0.216	13.3	12.7	16.0	14.0	3.64	4.01	18.3	7.1	39	16
Mean	7.6	7.4	2.5	8.36	0.91	0.00	0.030	7.42	1.309	0.703	0.241	16.0	13.6	20.6	17.6	3.26	3.16	25.3	13.4	52	18
SD	0.5	0.1	0.4	1.53	0.22	0.00	0.009	1.30	0.168	0.220	0.077	2.8	3.3	3.3	2.3	0.54	0.95	16.4	9.7	8	1
													12.9			3.40	1.34	21.0	10.9	51	
													2.3			0.27	0.20	7.2	4.5	8	

Table A-1.1-32 Hourly Change of Water Quality of Anyang Chong, A-St. 4, March 5-6, 1991

Item / Time	WT (°C)	pH	DO (mg/l)	TN (mg/l)	TON (mg/l)	NO3-N (mg/l)	NO2-N (mg/l)	NH4-N (mg/l)	TP (mg/l)	TDP (mg/l)	PO4-P (mg/l)	TBOD (mg/l)	DBOD (mg/l)	TCOD(Mn) (mg/l)	DCOD(Mn) (mg/l)	Sulfide (mg/l)	MBAS (mg/l)	SS (mg/l)	Settleable matter (mg/l)	(%)	Gauge (cm)
10:00	7.2	7.3	1.8	16.28	1.90	0.00	0.032	14.35	1.565	1.065	0.956	65.0	59.0	52.5	44.6	4.61	4.80	38.8	16.8	43	10
12:00	7.8	7.3	2.2	16.14	1.76	0.00	0.028	14.35	1.640	1.103	0.940	-	53.0	-	43.6	4.45	4.74	34.0	14.0	41	10
14:00	7.6	7.3	1.9	16.41	1.81	0.00	0.027	14.57	1.746	1.115	0.956	-	55.0	-	42.4	4.37	4.50	34.3	16.3	48	10
16:00	8.1	7.3	1.6	16.97	1.29	0.00	0.026	15.65	1.850	1.180	0.960	-	57.0	-	44.6	4.45	5.05	36.7	18.7	51	11
18:00	8.4	7.3	1.2	17.39	1.28	0.00	0.025	16.09	1.760	1.205	0.950	83.6	62.0	55.7	46.1	4.61	5.64	36.3	18.0	50	12
20:00	8.0	7.4	1.8	17.31	1.31	0.00	0.016	15.98	1.689	1.242	0.948	-	49.7	-	42.6	4.53	4.38	36.7	18.3	50	12
22:00	8.2	7.4	2.0	17.24	1.36	0.00	0.010	15.87	1.660	1.250	0.940	-	62.5	-	42.6	4.45	3.63	24.7	10.7	43	10
24:00	7.6	7.3	2.2	17.80	1.81	0.00	0.013	15.98	1.640	1.033	0.910	-	58.7	-	41.0	4.61	4.11	#10.0	3.0	30	10
02:00	7.8	7.3	2.4	18.16	1.73	0.00	0.016	16.41	1.589	1.075	0.895	43.2	35.0	46.8	43.1	4.61	2.50	23.7	8.7	37	10
04:00	8.1	7.3	2.6	17.95	1.74	0.00	0.018	16.19	1.650	0.915	0.880	-	33.0	-	41.0	4.21	3.05	30.7	12.7	41	9
06:00	7.2	7.4	2.1	17.95	1.74	0.00	0.021	16.19	1.703	0.984	0.864	-	66.5	-	41.1	4.29	3.61	26.3	12.3	47	9
08:00	7.0	7.4	1.8	16.97	1.15	0.00	0.020	15.80	1.625	0.965	0.851	-	56.5	-	39.0	4.45	4.11	26.7	10.7	40	8
10:00	7.6	7.4	2.4	16.69	1.12	0.00	0.024	15.55	1.550	0.990	0.825	73.2	62.5	50.0	41.1	4.29	4.31	28.7	12.3	43	9
Mean	7.7	7.3	2.0	17.17	1.54	0.00	0.021	15.61	1.667	1.086	0.913	66.3	54.6	51.3	42.5	4.46	4.19	29.8	13.3	43	10
SD	0.4	0.0	0.4	0.64	0.28	0.00	0.006	0.690	0.080	0.105	0.044	14.9	9.8	3.3	1.8	0.13	0.81	7.5	4.3	6	1
																		31.5			
																		5.1			

Table A-1.1-33 Hourly Change of Water Quality of Anyang Chong, A-St. 5, March 5-6, 1991

Item / Time	WT (°C)	pH	DO (mg/l)	TN (mg/l)	TON (mg/l)	NO3-N (mg/l)	NO2-N (mg/l)	NH4-N (mg/l)	TP (mg/l)	TDP (mg/l)	PO4-P (mg/l)	TBOD (mg/l)	DBOD (mg/l)	TCOD(Mn) (mg/l)	DCOD(Mn) (mg/l)	Sulfide (mg/l)	MBAS (mg/l)	SS (mg/l)	Settleable matter (mg/l)	(%)	Gauge (cm)
10:00	7.8	7.5	3.7	17.38	1.07	0.00	0.013	16.30	1.400	1.310	0.700	95.3	82.0	56.4	50.3	4.29	4.96	28.7	12.7	44	20
12:00	8.2	7.6	2.8	16.96	1.03	0.00	0.016	15.91	1.730	1.520	0.946	-	85.7	-	52.3	4.37	4.00	31.3	17.3	55	20
14:00	8.4	7.5	3.0	15.14	1.22	0.00	0.015	13.91	1.860	1.530	1.005	-	60.0	-	55.7	4.45	4.63	30.0	15.0	50	21
16:00	9.7	7.3	3.4	15.28	1.14	0.00	0.011	14.13	1.940	1.460	1.040	-	58.6	-	54.6	4.77	5.36	33.3	17.7	53	21
18:00	9.6	7.4	4.5	15.42	2.05	0.00	0.016	13.35	1.755	1.369	1.010	76.4	69.0	64.1	53.1	4.85	6.67	36.7	20.7	56	22
20:00	9.3	7.6	4.0	14.79	1.29	0.00	0.015	13.48	1.686	1.246	0.965	-	72.3	-	52.3	4.12	4.48	42.7	18.7	44	21
22:00	8.9	7.4	3.8	14.65	1.16	0.00	0.013	13.48	1.600	1.140	0.685	-	70.0	-	48.1	4.29	3.36	37.0	16.0	43	21
24:00	8.2	7.5	4.2	15.00	1.29	0.00	0.011	13.70	1.548	1.205	0.765	-	64.5	-	46.1	4.37	3.29	34.0	18.0	53	21
02:00	7.8	7.6	4.7	15.15	1.22	0.00	0.020	13.91	1.603	1.369	0.830	96.4	85.0	52.6	43.6	4.37	3.61	31.3	14.7	47	21
04:00	7.4	7.4	4.3	15.56	1.41	0.00	0.016	14.13	1.825	1.535	0.950	-	76.4	-	41.0	4.45	4.37	30.6	8.6	28	20
06:00	6.8	7.5	3.7	16.00	1.41	0.00	0.020	14.57	1.511	1.120	0.869	-	66.0	-	42.6	4.61	5.53	30.0	10.4	35	19
08:00	6.9	7.5	4.5	15.71	1.30	0.00	0.023	14.39	1.602	1.340	0.790	-	46.4	-	39.0	4.78	4.41	29.3	11.7	40	18
10:00	7.4	7.6	5.0	15.99	1.19	0.00	0.021	14.78	1.565	1.040	0.755	67.4	58.0	48.1	37.1	4.45	4.74	35.3	7.3	21	16
Mean	8.2	7.5	4.0	15.62	1.29	0.00	0.016	14.31	1.663	1.322	0.870	83.9	69.7	55.3	47.4	4.47	4.57	33.1	14.5	44	20
SD	0.9	0.1	0.6	0.77	0.25	0.00	0.004	0.87	0.147	0.158	0.119	12.4	11.2	5.9	6.0	0.21	0.90	3.8	4.0	10	2

Table A-1.1-34 Hourly Change of Water Quality of Anyang Chong, A-St. 6, March 5-6, 1991

Item / Time	WT (°C)	pH	DO (mg/l)	TN (mg/l)	TON (mg/l)	NO3-N (mg/l)	NO2-N (mg/l)	NH4-N (mg/l)	TP (mg/l)	TDP (mg/l)	PO4-P (mg/l)	TBOD (mg/l)	DBOD (mg/l)	TCOD(Mn) (mg/l)	DCOD(Mn) (mg/l)	Sulfide (mg/l)	MBAS (mg/l)	SS (mg/l)	Settleable matter (mg/l)	(%)	Gauge (cm)
10:00	7.9	7.3	3.4	15.29	15.27	0.00	0.024	#14.35	1.772	1.310	0.672	86.8	63.0	56.7	44.6	4.53	4.50	36.4	16.7	46	15
12:00	8.1	7.4	3.8	17.11	1.44	0.00	0.021	15.65	1.786	1.362	0.736	-	66.0	-	48.7	4.53	4.64	40.0	18.3	46	16
14:00	8.4	7.3	4.2	18.19	1.65	0.00	0.020	16.52	1.805	1.403	0.745	-	66.7	-	54.4	4.45	5.11	32.3	11.3	35	17
16:00	9.0	7.5	3.2	17.67	1.35	0.00	0.018	16.30	1.600	1.365	0.700	-	56.4	-	50.4	4.29	5.30	29.3	10.7	37	16
18:00	9.2	7.5	3.0	17.15	1.04	0.00	0.017	16.09	1.624	1.305	0.765	89.7	88.5	58.7	52.1	4.12	6.10	28.7	10.3	36	16
20:00	8.7	7.9	2.8	17.39	1.07	0.00	0.020	16.30	1.690	1.315	0.810	-	65.5	-	48.7	4.45	5.76	27.3	10.4	38	16
22:00	8.6	7.6	3.4	18.09	1.33	0.00	0.024	16.74	1.500	1.340	0.840	-	126.0	-	46.1	4.29	4.04	26.0	10.3	40	16
24:00	8.3	7.5	3.7	18.37	1.61	0.00	0.016	16.74	1.588	1.405	0.864	-	88.4	-	44.6	4.45	3.21	26.0	11.3	43	16
02:00	7.9	7.4	4.2	18.65	1.78	0.00	0.022	16.85	1.746	1.502	0.922	69.7	57.7	46.0	43.1	4.29	2.69	25.3	9.3	37	15
04:00	7.4	7.4	4.5	18.65	1.66	0.00	0.025	16.96	1.700	1.680	0.925	-	73.6	-	36.1	4.29	3.60	24.7	7.6	31	14
06:00	7.1	7.3	4.0	18.80	1.81	0.00	0.031	16.96	1.686	1.630	0.923	-	118.5	-	43.1	4.69	3.78	25.0	8.3	33	13
08:00	6.7	7.4	3.8	19.35	1.93	0.00	0.026	17.39	1.703	1.605	0.905	-	103.2	-	42.4	4.61	2.10	25.7	10.7	40	13
10:00	7.0	7.5	3.9	20.15	2.09	0.00	0.022	18.04	1.615	1.600	0.910	129.4	119.2	46.7	42.6	4.37	1.05	26.3	10.3	39	13
Mean	8.0	7.5	3.7	18.07	2.62	0.00	0.022	16.53	1.678	1.448	0.824	93.9	84.1	52.5	45.9	4.41	3.99	28.8	11.2	38	15
SD	0.8	0.2	0.5	1.16	3.66	0.00	0.004	0.85	0.086	0.131	0.088	21.9	24.1	5.2	4.7	0.15	1.41	4.5	2.9	4	1
								16.71													
								0.60													

Table A-1.1-35 Hourly Change of Water Quality of Anyang Chong, A-St. 7, March 5-6, 1991

Item / Time	WT (°C)	pH	DO (mg/l)	TN (mg/l)	TON (mg/l)	NO3-N (mg/l)	NO2-N (mg/l)	NH4-N (mg/l)	TP (mg/l)	TDP (mg/l)	PO4-P (mg/l)	TBOD (mg/l)	DBOD (mg/l)	TCOD(Cr) (mg/l)	DCOD(Cr) (mg/l)	Sulfide (mg/l)	MBAS (mg/l)	SS (mg/l)	Settleable matter (ml/l)	(%)	Gauge (cm)
10:00	8.0	7.3	7.4	18.09	1.33	0.00	0.021	16.74	1.560	1.300	0.875	83.2	64.5	48.7	31.6	4.12	2.14	75.7	46.7	62	8
12:00	11.6	7.2	5.5	19.63	1.21	0.00	0.023	18.40	1.788	1.520	0.965	-	60.5	-	31.1	4.77	2.30	67.3	30.0	45	9
14:00	12.6	7.2	4.8	21.74	1.27	0.00	0.027	20.44	2.045	1.936	1.140	-	87.0	-	32.6	4.45	2.39	63.3	28.3	45	12
16:00	12.7	7.3	5.1	20.62	1.86	0.00	0.031	18.73	3.050	2.365	#1.850	-	97.6	-	34.6	5.91	2.47	59.3	22.3	38	11
18:00	10.8	7.2	4.0	20.05	1.77	0.00	0.016	18.26	3.005	2.705	1.636	93.2	73.5	42.1	35.1	5.50	3.06	48.7	25.7	53	11
20:00	8.8	7.3	5.9	18.77	1.10	0.00	0.020	17.65	2.830	2.042	1.025	-	63.7	-	34.6	4.29	4.01	42.7	21.3	50	10
22:00	7.8	7.4	7.2	18.93	1.95	0.00	0.019	16.96	1.615	1.375	0.915	-	59.2	-	33.1	4.61	3.64	50.7	25.7	51	10
24:00	6.4	7.4	6.8	19.35	2.29	0.00	0.023	17.04	2.036	1.111	0.936	-	49.5	-	38.8	4.21	3.40	54.0	27.3	51	10
02:00	5.5	7.3	6.1	19.63	2.22	0.00	0.021	17.39	1.998	1.275	0.950	103.4	90.0	46.0	38.1	4.29	3.75	50.3	21.0	42	9
04:00	5.0	7.2	6.6	17.95	0.98	0.00	0.024	16.95	2.000	1.440	0.970	-	80.3	-	35.1	4.21	2.89	48.0	16.7	35	8
06:00	4.5	7.1	7.0	17.53	1.21	0.00	0.020	16.30	1.869	1.321	0.860	-	57.0	-	32.1	4.29	2.53	45.0	18.6	41	7
08:00	5.3	7.1	5.8	18.23	1.43	0.00	0.021	16.78	1.793	1.274	0.833	-	48.7	-	30.0	4.45	1.68	32.0	18.4	58	6
10:00	6.3	7.2	6.1	17.11	1.33	0.00	0.018	15.76	1.525	1.075	0.715	90.4	76.5	40.1	31.1	4.04	1.50	32.7	12.7	39	6
Mean	8.1	7.2	6.0	19.05	1.53	0.00	0.022	17.49	2.086	1.595	1.052	92.6	66.8	44.2	33.8	4.55	2.75	51.5	24.2	47	9
SD	2.8	0.1	1.0	1.25	0.42	0.00	0.004	1.17	0.510	0.488	0.313	7.2	13.0	3.3	2.7	0.53	0.76	12.1	8.1	8	2
											0.985										
											0.220										

Table A-1.1-36 Hourly Change of Water Quality of Anyang Chong, A-St. 1, May 31-June 1, 1991

Item / Time	WT (°C)	pH	DO (mg/l)	TN (mg/l)	TON (mg/l)	NO3-N (mg/l)	NO2-N (mg/l)	NH4-N (mg/l)	TP (mg/l)	TDP (mg/l)	PO4-P (mg/l)	TBOD (mg/l)	DBOD (mg/l)	TCOD(Mn) (mg/l)	DCOD(Mn) (mg/l)	Sulfide (mg/l)	MBAS (mg/l)	SS (mg/l)	Settleable matter (mg/l)	(%)	Gauge (cm)
10:00	20.7	7.3	0.3	14.87	1.37	0.03	0.000	13.47	1.842	1.605	1.335	54.5	46.0	45.7	35.1	5.49	1.33	24.7	6.7	27	70
12:00	20.9	7.8	0.5	13.49	1.16	0.04	0.000	12.29	1.667	1.644	1.240	-	42.0	-	32.0	5.33	1.17	25.3	8.3	33	62
14:00	21.5	7.7	0.5	13.31	1.12	0.15	0.000	12.04	1.745	1.605	1.047	-	53.4	-	42.1	5.41	1.25	24.3	10.3	42	60
16:00	22.8	7.9	0.5	12.94	0.90	0.27	0.000	11.77	1.800	1.555	1.280	-	45.0	-	33.7	5.18	1.17	45.7	22.7	58	50
18:00	23.1	7.6	0.3	13.35	1.21	0.19	0.000	11.95	1.832	1.624	1.048	48.5	36.0	36.8	27.0	5.41	1.56	48.7	26.3	54	47
20:00	23.6	7.7	0.3	13.20	1.22	0.11	0.000	11.87	1.867	1.711	1.360	-	55.6	-	42.2	5.25	1.69	48.0	24.0	50	48
22:00	22.9	7.9	0.7	14.24	1.90	0.09	0.000	12.25	2.102	1.748	1.465	-	48.6	-	39.6	5.49	2.39	48.0	26.0	54	50
24:00	22.8	7.9	0.4	14.37	1.79	0.08	0.000	12.50	2.333	1.689	1.604	-	45.5	-	35.5	5.33	2.22	42.3	18.3	43	46
02:00	22.6	7.8	0.2	12.41	0.88	0.08	0.000	11.45	2.000	1.633	1.346	58.4	46.0	42.4	34.1	5.41	2.08	59.3	38.0	64	42
04:00	20.0	7.8	0.5	14.77	1.79	0.06	0.000	12.92	2.109	1.440	1.244	-	39.6	-	28.7	5.49	1.14	60.3	42.3	70	38
06:00	20.8	7.9	0.4	15.48	2.20	0.07	0.000	13.21	2.156	1.454	1.205	-	42.4	-	33.1	5.10	1.75	61.3	45.7	75	29
08:00	20.9	7.8	0.2	16.08	1.80	0.11	0.000	14.17	2.667	1.867	1.380	-	45.0	-	34.6	5.57	2.19	60.3	37.3	62	45
10:00	21.1	7.7	0.5	15.68	1.04	0.14	0.000	14.50	2.346	1.746	1.474	70.4	53.6	50.7	36.1	5.18	2.31	58.7	34.0	58	65
Mean	21.8	7.8	0.4	14.17	1.41	0.11	0.000	12.85	2.036	1.640	1.310	58.0	46.1	43.9	34.9	5.36	1.71	46.7	26.1	52	50
SD	1.1	0.2	0.1	1.39	0.41	0.06	0.000	0.91	0.276	0.113	0.153	8.0	5.4	5.1	4.3	0.14	0.46	13.5	12.4	13	11

Table A-1.1-37 Hourly Change of Water Quality of Anyang Chong, A-St. 2, May 31-June 1, 1991

Item / Time	WT (°C)	pH	DO (mg/l)	TN (mg/l)	TON (mg/l)	NO3-N (mg/l)	NO2-N (mg/l)	NH4-N (mg/l)	TP (mg/l)	TDP (mg/l)	PO4-P (mg/l)	TBOD (mg/l)	DBOD (mg/l)	TCOD(Mn) (mg/l)	DCOD(Mn) (mg/l)	Sulfide (mg/l)	MBAS (mg/l)	SS (mg/l)	Settleable matter (mg/l)	(%)	Gauge (cm)
10:00	22.1	7.6	0.3	13.24	1.16	0.04	0.000	12.04	2.630	2.030	1.630	22	18.4	28.0	23.4	5.33	1.58	23.3	8.7	37	10
12:00	24.0	7.7	0.3	12.51	1.03	0.02	0.000	11.46	2.400	1.960	1.580	-	22.0	-	25.5	4.87	1.44	25.0	12.0	48	11
14:00	26.4	7.5	0.2	13.16	0.53	0.01	0.000	12.62	1.990	1.460	1.333	-	30.4	-	29.1	5.41	1.86	26.0	#18.0	#69	13
16:00	26.2	7.6	0.1	14.28	0.64	0.10	0.000	13.54	1.820	1.560	1.200	-	24.0	-	26.0	4.94	2.08	22.0	10.0	45	14
18:00	25.4	7.5	0.2	12.71	1.13	0.09	0.000	11.49	1.800	1.639	1.521	26.6	22.4	32.4	27.0	5.41	2.14	24.0	9.3	39	13
20:00	24.8	7.5	0.4	10.30	0.72	0.00	0.000	9.58	1.780	1.560	1.400	-	20.0	-	24.4	5.10	1.72	18.0	9.0	50	12
22:00	22.5	7.4	0.3	10.43	0.74	0.00	0.000	9.69	2.040	1.680	1.036	-	18.6	-	25.0	5.33	1.86	16.0	7.0	44	11
24:00	21.9	7.5	0.7	11.00	0.48	0.00	0.000	10.52	2.110	1.200	0.933	-	16.7	-	22.4	5.25	1.89	18.0	8.0	44	11
02:00	21.1	7.7	0.5	11.42	0.66	0.00	0.000	10.76	1.640	1.360	0.952	38.6	30.4	32.0	27.6	5.41	2.53	18.7	5.3	28	10
04:00	19.5	7.7	0.5	11.69	0.72	0.03	0.000	10.94	1.560	1.280	0.600	-	28.7	-	25.6	5.48	2.08	24.0	6.0	25	9
06:00	19.0	7.6	0.7	11.64	0.77	0.04	0.000	10.83	1.580	1.360	1.300	-	36.0	-	31.1	5.10	2.44	30.0	10.0	33	8
08:00	20.0	7.5	0.4	11.26	1.06	0.10	0.000	10.10	1.560	1.240	1.240	-	18.4	-	23.0	4.94	1.28	11.3	6.3	56	9
10:00	22.0	7.5	0.3	9.94	0.79	0.10	0.000	9.05	1.450	1.280	1.042	20.0	16.2	24.0	21.0	5.25	2.50	9.3	4.0	43	10
Mean	22.7	7.6	0.4	11.81	0.80	0.04	0.000	10.97	1.874	1.508	1.213	26.8	23.2	29.1	25.5	5.22	1.95	20.4	8.7	43	11
SD	2.4	0.1	0.2	1.24	0.21	0.04	0.000	1.22	0.337	0.255	0.283	7.2	6.0	3.4	2.7	0.20	0.38	5.7	3.4	11	2
																			8.0	41	
																			2.2	9	

Table A-1.1-38 Hourly Change of Water Quality of Anyang Chong, A-St. 3, May 31-June 1, 1991

Item / Time	WT (°C)	pH	DO (mg/l)	TN (mg/l)	TON (mg/l)	NO3-N (mg/l)	NO2-N (mg/l)	NH4-N (mg/l)	TP (mg/l)	TDP (mg/l)	PO4-P (mg/l)	TBOD (mg/l)	DBOD (mg/l)	TCOD(Mn) (mg/l)	DCOD(Mn) (mg/l)	Sulfide (mg/l)	MBAS (mg/l)	SS (mg/l)	Settleable matter (mg/l)	(%)	Gauge (cm)
10:00	20.4	7.5	2.3	7.05	0.94	0.24	0.000	5.87	0.635	0.465	0.332	12.4	11.7	9.4	8.0	2.39	0.92	49.3	19.3	39	13
12:00	25.0	7.8	4.2	5.90	0.80	0.20	0.000	4.90	0.578	0.422	0.290	-	6.4	-	7.2	1.98	0.89	23.0	11.0	48	13
14:00	27.0	7.7	3.8	5.78	0.96	0.05	0.000	4.77	0.625	0.402	0.287	-	5.8	-	8.0	2.83	0.83	8.7	3.7	43	14
16:00	28.3	7.7	2.2	5.62	0.97	0.04	0.000	4.61	0.644	0.333	0.280	-	6.4	-	8.3	2.66	1.00	6.0	2.0	33	13
18:00	25.6	7.7	1.8	6.16	1.27	0.10	0.000	4.69	0.653	0.387	0.340	8.6	7.9	8.0	7.8	4.33	1.33	8.7	4.7	54	13
20:00	23.4	7.9	2.0	6.24	1.43	0.17	0.000	4.64	0.644	0.356	0.260	-	10.6	-	12.4	3.17	1.11	10.7	4.7	44	14
22:00	21.3	7.9	2.4	8.29	1.22	0.03	0.000	7.04	0.735	0.698	0.455	-	8.7	-	10.0	2.39	1.08	12.0	5.0	42	15
24:00	19.0	7.9	1.5	8.05	0.86	0.00	0.000	7.19	0.822	0.760	0.578	-	6.0	-	8.0	4.87	1.67	12.7	5.7	45	17
02:00	18.9	7.6	1.7	8.19	0.82	0.00	0.000	7.37	0.887	0.705	0.612	15.0	12.4	13.0	10.5	3.33	1.28	13.3	4.0	30	15
04:00	18.7	7.5	1.3	8.19	0.69	0.00	0.000	7.50	0.911	0.711	0.600	-	8.0	-	13.0	4.56	0.94	13.0	5.0	38	14
06:00	18.0	7.5	2.0	6.51	0.49	0.00	0.000	6.02	0.895	0.632	0.457	-	6.0	-	10.9	4.79	1.36	15.3	6.3	41	13
08:00	17.2	7.6	2.3	6.30	0.64	0.04	0.000	5.62	0.867	0.511	0.420	-	7.0	-	11.4	4.64	1.39	24.3	10.7	44	12
10:00	17.4	7.6	2.8	6.40	0.45	0.09	0.000	5.86	0.855	0.534	0.403	10.4	8.0	10.8	9.0	3.56	1.53	48.0	20.0	42	12
Mean	21.6	7.7	2.3	6.82	0.90	0.07	0.000	5.85	0.750	0.532	0.409	11.6	8.1	10.3	9.6	3.50	1.18	18.8	7.9	42	14
SD	3.7	0.1	0.8	1.44	0.29	0.08	0.000	1.06	0.120	0.152	0.121	2.4	2.1	1.8	1.8	0.99	0.26	13.7	5.6	6	1

Table A-1.1-39 Hourly Change of Water Quality of Anyang Chong, A-St. 4, May 31-June 1, 1991

Item / Time	WT (°C)	pH	DO (mg/l)	TN (mg/l)	TON (mg/l)	NO3-N (mg/l)	NO2-N (mg/l)	NH4-N (mg/l)	TP (mg/l)	TDP (mg/l)	PO4-P (mg/l)	TBOD (mg/l)	DBOD (mg/l)	TCOD(Mn) (mg/l)	DCOD(Mn) (mg/l)	Sulfide (mg/l)	MBAS (mg/l)	SS (mg/l)	Settleable matter (mg/l)	(%)	Gauge (cm)
10:00	22.1	7.6	0.2	14.03	1.97	0.01	0.000	12.05	2.234	1.685	1.367	42.7	33.5	36.5	28.5	4.64	2.08	42.7	33.3	78	15
12:00	23.5	7.7	0.5	14.30	1.90	0.01	0.000	12.40	1.956	1.422	1.240	-	38.6	-	32.5	4.79	2.19	45.0	34.0	76	15
14:00	26.0	7.8	0.6	10.94	1.57	0.01	0.000	9.37	1.885	1.340	1.205	-	35.4	-	24.8	4.56	2.53	54.7	42.7	78	18
16:00	26.3	7.6	0.7	9.68	0.93	0.01	0.000	8.75	1.711	1.280	1.156	-	44.6	-	36.3	4.33	2.44	52.0	40.0	77	19
18:00	25.3	7.4	0.7	9.74	0.89	0.00	0.000	8.85	1.635	1.425	1.334	53.6	42.7	42.7	31.3	4.87	2.14	66.7	52.3	76	21
20:00	24.5	7.5	0.1	10.92	1.34	0.00	0.000	9.58	1.422	1.300	1.222	-	36.5	-	29.3	4.56	1.72	46.7	31.7	65	22
22:00	22.3	7.6	1.4	10.36	1.12	0.00	0.000	9.24	2.027	1.646	1.535	-	35.4	-	26.4	4.87	2.47	39.3	22.3	57	24
24:00	21.5	7.7	1.1	11.77	1.40	0.00	0.000	10.37	2.400	1.978	1.667	-	45.6	-	36.7	4.41	2.86	$242.0	$167.0	$69	23
02:00	20.6	7.8	0.9	14.15	1.80	0.00	0.000	12.35	2.247	1.869	1.732	56.7	44.8	48.6	32.9	4.33	1.92	#413.0	#356.7	#86	21
04:00	18.8	7.8	0.7	10.64	1.47	0.00	0.000	9.17	1.800	1.653	1.400	-	48.6	-	36.3	5.10	1.75	32.0	18.0	56	20
06:00	18.7	7.7	0.5	9.80	0.88	0.00	0.000	8.92	1.785	1.624	1.536	-	36.7	-	26.6	4.79	4.39	38.0	20.0	53	20
08:00	21.2	7.6	0.3	9.73	0.88	0.00	0.000	8.85	1.644	1.560	1.556	-	40.4	-	32.2	2.39	3.37	41.3	25.3	61	19
10:00	22.5	7.7	0.5	9.73	1.09	0.00	0.000	8.64	1.478	1.295	1.034	42.7	36.2	34.0	28.5	4.87	4.61	38.7	22.7	59	17
Mean	22.6	7.7	0.6	11.21	1.33	0.00	0.000	9.89	1.863	1.544	1.383	48.9	39.9	40.5	30.9	4.50	2.65	86.9	66.7	69	20
SD	2.4	0.1	0.3	1.72	0.38	0.00	0.000	1.37	0.289	0.216	0.203	6.3	4.6	5.7	3.8	0.65	0.90	107.5	91.8	10	3
																		61.5	42.4	67	
																		55.1	38.8	9	
																		45.6	31.1	67	
																		9.6	10.2	10	

Table A-1.1-40 Hourly Change of Water Quality of Anyang Chong, A-St. 5, May 31-June 1, 1991

Item / Time	WT (°C)	pH	DO (mg/l)	TN (mg/l)	TON (mg/l)	NO3-N (mg/l)	NO2-N (mg/l)	NH4-N (mg/l)	TP (mg/l)	TDP (mg/l)	PO4-P (mg/l)	TBOD (mg/l)	DBOD (mg/l)	TCOD(Mn) (mg/l)	DCOD(Mn) (mg/l)	Sulfide (mg/l)	MBAS (mg/l)	SS (mg/l)	Settleable matter (mg/l)	(%)	Gauge (cm)
10:00	22.3	7.5	0.2	11.80	1.07	0.10	0.000	10.63	1.469	1.236	1.022	23.4	20.4	27.4	24.0	4.87	1.92	28.0	18.0	64	28
12:00	23.8	7.5	0.5	11.58	1.07	0.09	0.000	10.42	1.378	1.044	0.920	-	23.0	-	26.4	4.64	1.69	30.0	21.0	70	28
14:00	27.4	7.5	0.1	10.59	0.82	0.08	0.000	9.69	1.856	1.564	1.233	-	19.4	-	24.0	4.71	1.72	29.3	16.3	56	27
16:00	28.0	7.5	0.4	9.85	1.05	0.05	0.000	8.75	2.044	1.489	1.400	-	18.6	-	23.2	4.87	1.56	46.0	25.0	54	29
18:00	26.0	7.5	0.7	9.92	1.04	0.05	0.000	8.83	1.695	1.203	1.011	40	33.6	32.6	27.7	4.87	1.81	54.0	39.3	73	29
20:00	25.1	7.5	0.4	10.97	1.24	0.04	0.000	9.69	1.556	1.178	1.040	-	42.4	-	32.5	4.33	1.83	34.0	19.0	56	31
22:00	24.9	7.5	0.2	10.74	1.35	0.02	0.000	9.37	1.346	1.275	1.034	-	36.2	-	25.6	4.87	2.31	56.0	41.0	73	32
24:00	23.8	7.5	0.5	10.51	1.23	0.01	0.000	9.27	1.556	1.356	1.080	-	38.4	-	28.6	4.33	1.58	42.3	28.3	67	30
02:00	22.4	7.6	0.7	10.80	1.10	0.02	0.000	9.68	1.634	1.369	1.034	43.4	39.5	35.7	30.1	4.71	2.22	31.3	16.7	53	29
04:00	21.2	7.5	0.9	10.90	1.16	0.05	0.000	9.69	1.778	1.422	1.100	-	36.4	-	26.4	4.79	1.69	40.7	28.3	70	27
06:00	20.4	7.5	0.4	9.92	0.93	0.05	0.000	8.94	1.853	1.275	1.030	-	32.5	-	24.0	4.41	1.97	32.7	15.7	48	25
08:00	19.6	7.4	0.2	9.71	1.33	0.05	0.000	8.33	1.933	1.333	1.300	-	40.7	-	30.0	5.16	2.08	28.7	15.3	53	23
10:00	19.1	7.5	0.4	9.79	1.37	0.05	0.000	8.37	1.675	1.211	1.002	48.5	42.4	32.4	27.2	4.87	2.14	33.3	17.3	52	22
Mean	23.4	7.5	0.4	10.54	1.14	0.05	0.000	9.36	1.675	1.304	1.093	38.8	32.6	32.0	26.9	4.73	1.89	37.4	23.2	61	28
SD	2.8	0.0	0.2	0.66	0.16	0.03	0.000	0.68	0.205	0.134	0.130	9.4	8.5	3.0	2.7	0.23	0.23	9.2	8.4	9	3

Table A-1.1-41 Hourly Change of Water Quality of Anyang Chong, A-St. 6, May 31-June 1, 1991

Item / Time	WT (°C)	pH	DO (mg/l)	TN (mg/l)	TON (mg/l)	NO3-N (mg/l)	NO2-N (mg/l)	NH4-N (mg/l)	TP (mg/l)	TDP (mg/l)	PO4-P (mg/l)	TBOD (mg/l)	DBOD (mg/l)	TCOD(Mn) (mg/l)	DCOD(Mn) (mg/l)	Sulfide (mg/l)	MBAS (mg/l)	SS (mg/l)	Settleable matter (mg/l)	(%)	Gauge (cm)
10:00	25.9	7.5	0.2	10.01	0.87	0.00	0.000	9.14	1.456	1.321	0.895	25.7	22.6	28.7	24.8	5.02	1.18	16.7	8.7	52	26
12:00	27.2	7.5	0.7	9.10	1.03	0.00	0.000	8.07	1.167	1.111	0.783	-	25.7	-	32.6	5.10	1.27	20.0	11.0	55	26
14:00	27.9	7.6	1.2	9.48	1.11	0.24	0.000	8.13	1.432	1.215	1.022	-	16.3	-	21.6	4.87	1.20	22.7	11.7	52	27
16:00	28.1	7.6	0.8	9.67	1.16	0.28	0.000	8.23	1.629	1.481	1.250	-	18.6	-	24.8	4.79	1.40	16.3	7.7	47	26
18:00	27.6	7.7	0.4	9.20	0.86	0.30	0.000	8.04	1.865	1.364	1.140	35.6	32.4	30.4	28.5	4.71	1.63	18.7	5.3	28	25
20:00	25.2	7.8	0.2	9.41	1.09	0.30	0.000	8.02	2.259	1.481	1.300	-	16.7	-	20.6	4.87	1.82	14.7	6.7	46	25
22:00	24.5	7.8	0.1	9.03	1.23	0.34	0.000	7.46	1.888	1.636	1.304	-	20.5	-	25.6	4.71	1.25	10.7	3.3	31	25
24:00	22.5	7.8	0.3	9.08	1.06	0.31	0.000	7.71	1.556	1.444	1.200	-	16.4	-	22.4	4.79	1.34	10.3	3.3	32	24
02:00	21.6	7.7	0.8	10.19	0.94	0.31	0.000	8.94	1.339	1.214	1.037	27.6	24.5	29.5	22.7	4.87	1.44	11.3	4.3	38	24
04:00	20.1	7.6	0.5	10.14	1.05	0.34	0.000	8.75	1.185	1.037	0.950	-	18.2	-	22.7	4.33	1.00	10.3	3.0	29	24
06:00	19.1	7.7	0.4	9.08	0.90	0.32	0.000	7.86	1.106	0.985	0.874	-	20.4	-	24.8	4.87	1.24	9.3	2.7	29	23
08:00	19.2	7.7	0.6	8.79	1.18	0.32	0.000	7.29	1.250	1.111	1.037	-	24.7	-	30.8	4.64	1.47	10.3	3.3	32	23
10:00	20.0	7.8	0.2	8.92	1.04	0.24	0.000	7.64	1.364	1.146	1.002	25.3	22.3	28.6	25.2	4.79	1.63	11.3	3.7	33	22
Mean	23.8	7.7	0.5	9.39	1.04	0.25	0.000	8.098	1.500	1.273	1.061	28.6	21.5	29.3	25.2	4.80	1.37	14.0	5.7	39	25
SD	3.4	0.1	0.3	0.46	0.11	0.11	0.000	0.535	0.323	0.191	0.161	4.2	4.4	0.7	3.4	0.18	0.21	4.3	3.0	10	1

Table A-1.1-42 Hourly Change of Water Quality of Anyang Chong, A-St. 7, May 31-June 1, 1991

Item	WT	pH	DO	TN	TON	NO3-N	NO2-N	NH4-N	TP	TDP	PO4-P	TBOD	DBOD	TCOD(Cr)	DCOD(Cr)	Sulfide	MBAS	SS	Settleable matter	Gauge
Time	(°C)		(mg/l)	(mg/l)	(mg/l)	(mg/l)	(mg/l)	(mg/l)	(mg/l)	(mg/l)	(mg/l)	(mg/l)	(mg/l)	(mg/l)	(mg/l)	(mg/l)	(mg/l)	(mg/l)	(%)	(cm)
10:00	25.0	7.7	0.2	15.65	2.36	0.24	0.000	13.05	4.532	3.215	2.746	53.7	46.7	40.7	34.6	5.10	4.09	133.3	68.3	22	8
12:00	25.9	7.8	0.4	14.74	2.07	0.17	0.000	12.50	3.999	2.940	2.289	-	55.4	-	35.6	4.87	4.79	120.4	54.4	22	9
14:00	28.5	7.8	0.2	13.47	1.51	0.09	0.000	11.87	3.648	2.850	2.304	-	36.7	-	28.4	5.00	2.36	95.3	36.7	23	12
16:00	28.0	7.6	0.3	13.48	1.74	0.07	0.000	11.67	2.889	2.222	2.220	-	43.4	-	32.5	4.87	1.88	83.3	39.0	22	11
18:00	27.2	7.7	0.2	15.06	1.78	0.07	0.000	13.21	2.765	2.303	2.186	55.2	44.3	42.5	34.5	4.64	2.74	69.0	35.3	21	11
20:00	26.3	7.6	0.5	16.34	1.98	0.09	0.000	14.27	2.733	2.200	1.999	-	42.6	-	32.5	4.79	1.25	72.0	33.0	20	10
22:00	25.4	7.7	0.3	15.29	2.07	0.02	0.000	13.20	2.652	2.334	2.100	-	46.7	-	34.5	4.87	1.34	80.0	35.0	20	10
24:00	24.5	7.7	0.2	14.64	2.14	0.00	0.000	12.50	2.666	2.489	2.160	-	36.9	-	29.7	4.64	1.64	48.3	16.3	18	10
02:00	22.9	7.8	0.1	13.87	1.93	0.00	0.000	11.94	1.656	1.342	0.844	46.5	38.7	33.5	27.7	4.87	1.72	31.3	18.3	18	9
04:00	20.8	7.7	0.7	13.89	1.99	0.02	0.000	11.88	1.489	1.254	0.925	-	24.6	-	18.6	4.71	1.33	26.7	13.7	18	8
06:00	19.6	7.6	0.5	13.02	2.49	0.06	0.000	10.47	1.745	1.364	1.022	-	28.5	-	22.0	4.79	1.24	23.3	15.3	17	7
08:00	18.2	7.8	0.4	10.00	1.44	0.12	0.000	8.44	2.222	1.711	1.640	-	30.4	-	23.7	4.64	1.72	12.3	4.3	16	6
10:00	18.5	7.8	0.6	9.83	1.63	0.17	0.000	8.03	2.367	2.005	1.724	36.6	32.5	28.0	24.8	4.87	1.64	10.7	2.7	16	6
Mean	23.9	7.7	0.4	13.79	1.93	0.09	0.000	11.77	2.720	2.171	1.858	48.0	39.0	36.2	29.2	4.82	2.13	62.0	28.6	19	9
SD	3.4	0.1	0.2	1.89	0.30	0.07	0.000	1.75	0.868	0.602	0.571	7.4	8.3	5.8	5.3	0.13	1.08	38.7	18.5	2	2

Table A-2.1-1 Hourly Change of Water Quality of Yangjae Chong, Y-St. 1, July 13-14, 1990

Item / Time	WT (°C)	pH	DO (mg/l)	TN (mg/l)	TON (mg/l)	TDN (mg/l)	NO3-N (mg/l)	NO2-N (mg/l)	NH4-N (mg/l)	TP (mg/l)	TDP (mg/l)	PO4-P (mg/l)	BOD (mg/l)	DBOD (mg/l)	COD (mg/l)	DCOD (mg/l)	Sulfide (mg/l)	MBAS (mg/l)	SS (mg/l)	Settleable matter (mg/l)	(%)	Gauge (cm)
10:00	23.0	6.8	5.0	-	-	-	1.73	0.253	1.53	0.320	0.144	0.102	7.1	-	6.6	-	3.4	1.78	178.7	145.9	82	64
12:00	24.0	6.9	6.0	-	-	-	2.40	0.329	1.11	0.180	0.140	0.098	7.9	-	4.4	-	3.2	1.52	213.6	184.5	86	68
14:00	24.5	6.8	6.4	-	-	-	2.23	0.513	1.70	0.169	0.149	0.111	10.5	-	6.4	-	2.4	1.49	121.0	109.5	90	68
16:00	25.0	6.7	6.6	-	-	-	1.98	0.434	2.19	0.242	0.173	0.124	12.6	-	7.2	-	2.5	1.63	101.0	85.1	84	66
18:00	23.0	6.8	6.2	-	-	-	1.84	0.421	2.08	0.293	0.220	0.150	8.0	-	5.5	-	1.3	1.34	139.9	122.7	88	65
20:00	22.4	6.8	6.2	-	-	-	1.97	0.326	2.08	0.373	0.189	0.155	6.1	-	5.8	-	2.7	1.42	105.1	95.7	91	64
22:00	22.0	6.8	5.6	-	-	-	1.87	0.395	2.41	0.264	0.211	0.185	6.4	-	6.4	-	1.8	1.53	103.8	91.5	88	63
24:00	21.5	6.8	5.2	-	-	-	1.74	0.309	2.33	0.364	0.162	0.142	6.7	-	6.5	-	2.9	1.41	43.1	38.5	89	63
02:00	21.0	6.8	5.7	-	-	-	1.77	0.487	2.20	0.307	0.176	0.133	3.4	-	6.2	-	1.8	1.10	19.2	16.5	86	61
04:00	20.8	6.8	6.0	-	-	-	1.61	0.401	2.11	0.202	0.186	0.144	4.6	-	5.4	-	2.7	1.35	30.3	27.6	91	60
06:00	20.6	6.9	6.1	-	-	-	1.95	0.303	2.19	0.196	0.182	0.152	4.1	-	7.2	-	2.9	1.52	23.6	19.0	81	59
08:00	21.9	6.9	6.4	-	-	-	1.86	#0.855	#0.34	0.229	0.122	0.115	7.1	-	#10.6	-	2.7	1.52	38.1	22.7	60	63
10:00	21.2	6.9	6.0	-	-	-	1.66	0.158	2.00	0.227	0.127	0.118	5.6	-	7.6	-	3.5	1.82	32.3	29.7	92	64
Mean	22.4	6.8	6.0	-	-	-	1.89	0.399	1.87	0.259	0.168	0.133	6.9	-	6.6	-	2.6	1.49	88.4	76.1	85	64
SD	1.4	0.1	0.4	-	-	-	0.21	0.161	0.56	0.065	0.029	0.024	2.4	-	1.4	-	0.6	0.18	61.0	52.8	8	3
								0.361	1.99						6.3							
								0.097	0.36						0.9							

Table A-2.1-2 Hourly Change of Water Quality of Yangjae Chong, Y-St. 2, July 13-14, 1990

Item / Time	WT (°C)	pH	DO (mg/l)	TN (mg/l)	TON (mg/l)	TDN (mg/l)	NO3-N (mg/l)	NO2-N (mg/l)	NH4-N (mg/l)	TP (mg/l)	TDP (mg/l)	PO4-P (mg/l)	BOD (mg/l)	DBOD (mg/l)	COD (mg/l)	DCOD (mg/l)	Sulfide (mg/l)	MBAS (mg/l)	SS (mg/l)	Settleable matter (mg/l)	(%)	Gauge (cm)
10:00	21.5	7.2	6.7	-	-	-	1.73	0.132	1.55	0.180	0.164	0.127	7.1	-	9.6	-	3.8	2.03	182.0	152.7	94	27
12:00	21.8	7.1	7.0	-	-	-	1.61	0.342	2.10	0.160	0.142	0.103	6.8	-	7.4	-	3.0	1.72	148.6	140.6	95	27
14:00	22.5	6.8	7.1	-	-	-	1.65	0.460	1.68	0.280	0.189	0.154	6.9	-	6.6	-	3.0	2.11	67.5	50.9	75	25
16:00	22.9	7.1	6.8	-	-	-	1.95	0.539	2.61	0.278	0.184	0.162	8.1	-	7.8	-	2.9	1.91	130.0	128.2	99	25
18:00	22.8	6.7	6.8	-	-	-	1.78	0.360	1.85	0.256	0.202	0.188	6.1	-	7.4	-	3.2	1.81	101.3	87.2	86	25
20:00	22.1	6.9	6.5	-	-	-	1.71	0.287	1.90	0.189	0.151	0.141	6.1	-	7.6	-	3.5	1.72	119.9	101.5	85	24
22:00	19.6	7.1	6.0	-	-	-	1.81	0.326	1.84	0.196	0.182	0.155	4.9	-	7.2	-	3.4	2.01	43.1	35.9	83	24
24:00	14.0	6.8	5.5	-	-	-	1.44	0.110	1.87	0.144	0.087	0.085	6.2	-	6.7	-	3.2	1.80	31.8	25.9	81	23
02:00	13.0	6.8	6.5	-	-	-	1.70	0.301	2.10	0.231	0.169	0.152	5.6	-	6.9	-	3.4	1.62	25.8	19.1	74	23
04:00	14.8	6.9	6.7	-	-	-	1.58	0.342	2.12	0.220	0.144	0.124	4.2	-	6.7	-	3.4	1.51	11.6	9.1	78	22
06:00	14.2	6.2	6.5	-	-	-	1.59	0.282	1.87	0.198	0.104	0.092	4.3	-	5.9	-	3.4	1.63	18.0	15.8	88	21
08:00	13.8	6.2	6.4	-	-	-	1.58	0.079	1.86	0.214	0.131	0.086	3.8	-	5.4	-	3.8	1.80	26.6	21.6	81	22
10:00	13.5	7.4	6.4	-	-	-	1.73	0.210	2.20	0.236	0.191	0.123	6.4	-	7.2	-	3.4	1.93	51.7	30.2	58	26
Mean	18.2	6.9	6.5	-	-	-	1.68	0.290	1.97	0.214	0.157	0.130	5.9	-	7.1	-	3.3	1.82	72.1	63.0	83	24
SD	4.1	0.3	0.4	-	-	-	0.12	0.127	0.26	0.040	0.033	0.031	1.2	-	1.0	-	0.3	0.17	51.2	50.0	10	2

Table A-2.1-3 Hourly Change of Water Quality of Yangjae Chong, Y-St. 3, July 13-14, 1990

Item / Time	WT (°C)	pH	DO (mg/l)	TN (mg/l)	TON (mg/l)	TDN (mg/l)	NO3-N (mg/l)	NO2-N (mg/l)	NH4-N (mg/l)	TP (mg/l)	TDP (mg/l)	PO4-P (mg/l)	BOD (mg/l)	DBOD (mg/l)	COD (mg/l)	DCOD (mg/l)	Sulfide (mg/l)	MBAS (mg/l)	SS (mg/l)	Settleable matter (mg/l)	(%)	Gauge (cm)
10:00	20.4	7.0	5.1	-	-	-	1.98	0.047	1.08	0.158	0.124	0.120	6.4	-	4.4	-	3.4	1.44	13.0	11.4	81	30
12:00	21.2	6.9	5.6	-	-	-	1.79	0.054	0.71	0.149	0.118	0.072	3.4	-	4.8	-	3.5	1.50	20.5	18.9	92	32
14:00	22.1	6.9	5.6	-	-	-	1.79	0.059	0.32	0.142	0.107	0.075	6.8	-	4.6	-	3.4	1.39	21.9	18.6	85	30
16:00	22.5	6.9	3.9	-	-	-	1.71	0.072	1.09	0.169	0.158	0.090	5.6	-	6.0	-	3.6	1.49	#69.8	$44.0	$63	29
18:00	22.5	7.1	3.7	-	-	-	1.66	0.037	0.60	0.127	0.088	0.079	3.4	-	5.4	-	3.8	1.47	20.5	18.6	91	29
20:00	22.4	6.9	3.5	-	-	-	1.61	0.097	0.63	0.098	0.093	0.070	3.3	-	3.9	-	3.6	1.43	28.1	22.1	79	29
22:00	21.2	6.8	3.4	-	-	-	0.07	0.091	0.61	0.082	0.073	0.072	3.9	-	5.0	-	3.5	1.59	14.6	12.5	86	28
24:00	20.3	6.9	3.6	-	-	-	0.16	0.063	0.52	0.145	0.140	0.108	3.8	-	5.6	-	3.4	1.51	12.9	9.4	73	28
02:00	19.9	6.9	3.5	-	-	-	0.15	0.034	0.82	0.113	0.102	0.070	3.1	-	4.0	-	3.5	1.40	8.7	7.9	91	28
04:00	19.8	6.8	4.0	-	-	-	0.16	0.029	0.67	0.080	0.075	0.048	1.8	-	3.6	-	3.0	1.39	7.3	3.7	51	28
06:00	19.3	7.0	3.5	-	-	-	0.15	0.025	0.26	0.142	0.114	0.080	1.1	-	3.5	-	3.7	1.43	10.2	6.6	65	27
08:00	18.2	6.9	5.1	-	-	-	0.18	0.029	0.92	0.160	0.132	0.121	6.2	-	6.4	-	3.7	1.46	45.1	39.5	88	30
10:00	19.7	7.1	5.1	-	-	-	0.16	0.047	1.07	0.233	0.160	0.125	5.6	-	7.4	-	3.7	1.51	38.0	27.1	71	32
Mean	20.7	6.9	4.3	0	0	0	0.89	0.053	0.72	0.138	0.114	0.087	4.2	0.0	5.0	0.0	3.5	1.46	23.9	18.5	73	29
SD	1.3	0.1	0.8	0	0	0	0.81	0.022	0.26	0.039	0.027	0.023	1.7	0.0	1.1	0.0	0.2	0.06	17.1	11.8	24	1
																			20.1	16.4	79	
																			11.3	9.6	12	

Table A-2.1-4 Hourly Change of Water Quality of Yangjae Chong, Y-St. 4, July 13-14, 1990

Item / Time	WT (°C)	pH	DO (mg/l)	TN (mg/l)	TON (mg/l)	TDN (mg/l)	NO3-N (mg/l)	NO2-N (mg/l)	NH4-N (mg/l)	TP (mg/l)	TDP (mg/l)	PO4-P (mg/l)	BOD (mg/l)	DBOD (mg/l)	COD (mg/l)	DCOD (mg/l)	Sulfide (mg/l)	MBAS (mg/l)	SS (mg/l)	Settleable matter (mg/l)	(%)	Gauge (cm)
10:00	21.3	6.9	5.7	-	-	-	1.81	0.095	3.27	0.247	0.138	0.055	8.0	-	34.1	-	3.9	1.36	145.9	130.1	89	25
12:00	22.3	7.0	5.8	-	-	-	1.55	0.099	1.45	0.362	0.147	0.080	4.9	-	37.1	-	3.8	1.28	129.0	112.8	87	25
14:00	23.6	7.1	4.7	-	-	-	1.94	0.592	1.48	0.327	0.153	0.142	8.6	-	15.0	-	2.7	1.36	120.7	107.5	89	23
16:00	23.7	6.7	4.4	-	-	-	1.73	0.592	1.76	0.244	0.182	0.155	7.9	-	16.0	-	2.4	1.73	110.2	101.4	92	23
18:00	26.5	7.0	4.4	-	-	-	1.76	0.526	1.56	0.251	0.180	0.160	5.0	-	7.0	-	2.6	1.69	105.8	98.8	93	23
20:00	22.9	6.8	3.9	-	-	-	1.48	0.559	1.27	0.231	0.187	0.162	6.8	-	8.0	-	3.0	1.69	100.7	90.7	90	20
22:00	22.4	7.0	3.4	-	-	-	1.76	0.095	1.98	0.258	0.124	0.101	6.1	-	6.4	-	3.8	1.70	99.3	88.2	89	20
24:00	21.6	6.8	3.3	-	-	-	1.65	0.592	1.67	0.288	0.142	0.122	4.7	-	5.8	-	2.7	1.62	59.3	49.2	83	19
02:00	21.3	6.9	3.1	-	-	-	1.92	0.487	1.87	0.316	0.231	0.172	7.5	-	6.0	-	2.9	1.02	72.6	65.4	90	17
04:00	20.9	7.1	2.9	-	-	-	1.73	0.329	2.13	0.328	0.153	0.140	5.3	-	5.4	-	3.0	1.14	88.7	80.2	90	16
06:00	21.0	7.0	3.0	-	-	-	1.65	0.355	$0.54	0.224	0.140	0.131	6.6	-	16.0	-	3.2	1.21	120.3	107.4	89	18
08:00	19.9	6.8	5.3	-	-	-	#.05	0.447	1.96	0.385	0.111	0.102	5.5	-	6.4	-	3.3	1.30	112.3	101.7	91	18
10:00	19.7	6.9	5.9	-	-	-	1.61	0.318	1.99	0.261	0.082	0.075	6.3	-	7.2	-	3.3	1.42	60.0	52.7	88	23
Mean	22.1	6.9	4.3	-	-	-	1.59	0.391	1.76	0.286	0.152	0.124	6.4	-	13.1	-	3.1	1.42	101.9	91.2	89	21
SD	1.7	0.1	1.1	-	-	-	0.46	0.186	0.59	0.050	0.036	0.034	1.2	-	10.3	-	0.5	0.23	25.1	22.9	2	3
							1.72		1.87													
							0.13		0.49													

Table A-2.1-5 Hourly Change of Water Quality of Yangjae Chong, Y-St. 1, September 17-18, 1990

Item / Time	WT (°C)	pH	DO (mg/l)	TN (mg/l)	TON (mg/l)	TDN (mg/l)	NO3-N (mg/l)	NO2-N (mg/l)	NH4-N (mg/l)	TP (mg/l)	TDP (mg/l)	PO4-P (mg/l)	TBOD (mg/l)	DBOD (mg/l)	TCOD (mg/l)	DCOD (mg/l)	Sulfide (mg/l)	MBAS (mg/l)	SS (mg/l)	Settleable matter (mg/l)	(%)	Gauge (cm)
12:00	20.0	7.1	6.1	6.03	0.98	5.82	2.34	0.184	$2.52	0.462	0.196	0.157	6.0	5.9	7.8	7.6	2.88	1.82	164.0	146.0	89	56
14:00	21.3	7.1	6.0	3.71	$0.04	-	3.31	0.050	0.31	0.475	0.195	0.163	-	2.1		3.3	3.20	1.62	47.5	33.0	69	57
16:00	22.0	7.4	5.8	4.31	0.14	4.17	3.87	0.018	0.28	0.486	0.199	0.176	-	2.4		2.8	3.36	1.30	131.6	110.9	84	48
18:00	21.2	7.4	6.0	7.39	0.66	7.23	3.07	2.928	0.74	0.473	0.203	0.186	-	3.2		3.1	3.75	1.70	56.5	42.0	74	46
20:00	19.7	7.4	6.1	6.88	0.85	-	2.66	0.018	$3.35	0.463	0.266	0.219	5.4	2.6	9.4	7.2	3.68	1.32	217.3	187.2	86	46
22:00	19.1	7.2	5.8	6.74	0.32	-	2.87	2.954	0.59	0.397	0.242	0.205	-	5.4		11.4	3.28	1.14	56.2	38.5	61	46
24:00	18.0	7.2	5.9	5.91	0.51	5.77	3.13	1.382	0.39	0.414	0.259	0.220	-	2.5		6.7	3.36	1.82	71.0	68.5	96	46
02:00	16.9	7.3	6.9	3.95	0.41	3.81	3.11	0.000	0.43	0.333	0.191	0.183	-	2.9		10.2	3.52	1.94	55.7	47.4	85	45
04:00	15.9	7.5	6.2	3.73	0.30	3.66	3.03	0.000	0.40	0.252	0.203	0.195	8.5	5.3	7.6	7.4	3.68	1.21	32.6	31.3	96	44
06:00	15.4	7.4	6.4	4.06	0.53	3.99	2.73	0.000	0.80	0.264	0.211	0.185	-	3.0		9.5	3.60	1.52	42.6	37.1	87	43
08:00	15.5	7.4	5.8	2.77	0.28	2.70	2.21	0.000	0.28	0.289	0.209	0.201	-	2.0		3.8	3.20	1.60	46.3	44.1	95	44
10:00	17.5	7.4	6.5	7.46	0.59	7.32	2.94	3.191	0.74	0.290	0.232	0.211	-	3.8		9.1	3.21	1.84	58.4	48.4	83	44
12:00	19.5	7.3	6.2	6.55	0.48	6.48	3.02	0.032	$3.02	0.299	0.248	0.229	9.0	5.3	10.8	9.4	3.04	2.12	102.1	90.4	89	45
Mean	18.6	7.3	6.1	5.35	0.47	5.10	2.95	0.827	1.07	0.377	0.220	0.195	7.2	3.6	8.9	7.0	3.37	1.61	83.2	71.1	84	47
SD	2.2	0.1	0.3	1.56	0.26	1.55	0.40	1.257	1.07	0.087	0.027	0.021	1.5	1.4	1.3	2.8	0.26	0.29	53.4	47.2	10	4
					0.50				0.50													
					0.23				0.19													

Table A-2.1-6 Hourly Change of Water Quality of Yangjae Chong, Y-St. 2, September 17-18, 1990

Item / Time	WT (°C)	pH	DO (mg/l)	TN (mg/l)	TON (mg/l)	TDN (mg/l)	NO3-N (mg/l)	NO2-N (mg/l)	NH4-N (mg/l)	TP (mg/l)	TDP (mg/l)	PO4-P (mg/l)	TBOD (mg/l)	DBOD (mg/l)	TCOD (mg/l)	DCOD (mg/l)	Sulfide (mg/l)	MBAS (mg/l)	SS (mg/l)	Settleable matter (mg/l)	(%)	Gauge (cm)
12:00	22.9	7.1	6.4	3.51	0.37	3.37	3.02	0.000	0.13	0.759	0.161	0.127	3.3	2.1	10.0	6.6	3.44	1.82	297.8	250.4	84	25
14:00	22.5	7.2	6.2	3.69	0.31	3.62	3.13	0.000	0.25	0.635	0.174	0.132	-	1.1	-	6.0	3.68	1.60	222.9	194.0	87	25
16:00	22.2	7.5	5.8	3.92	0.34	3.78	3.10	0.262	0.22	0.381	0.182	0.171	-	0.9	-	7.3	3.52	1.40	261.9	219.7	84	25
18:00	21.7	7.1	5.9	3.76	0.26	3.62	3.07	0.200	0.23	0.446	0.203	0.185	-	1.8	-	7.0	3.44	1.52	225.0	199.5	89	24
20:00	19.6	7.2	5.8	3.36	0.24	3.36	3.01	0.000	0.12	0.548	0.221	0.176	3.2	1.2	9.8	7.8	2.96	1.47	164.3	139.5	85	24
22:00	18.4	7.2	6.0	3.29	0.25	3.22	2.94	0.000	0.10	0.473	0.209	0.193	-	2.1	-	5.4	3.04	1.48	75.8	60.0	79	24
24:00	18.0	7.0	5.7	3.36	0.32	3.29	2.94	0.000	0.10	0.395	0.173	0.141	-	2.5	-	3.5	3.36	1.63	77.8	73.2	94	24
02:00	17.1	7.0	6.5	3.31	0.31	3.17	2.89	0.000	0.12	0.342	0.183	0.133	-	3.0	-	2.8	3.60	1.50	48.0	37.5	78	23
04:00	16.0	7.0	7.2	3.43	0.23	3.29	2.75	0.325	0.13	0.332	0.174	0.119	3.0	1.5	8.8	8.6	3.68	1.21	63.5	58.0	91	23
06:00	16.3	7.0	6.8	3.13	0.25	3.06	2.78	0.000	0.10	0.414	0.162	0.104	-	2.4	-	4.0	3.68	1.47	42.6	36.4	85	22
08:00	17.2	7.1	7.0	3.24	0.31	3.17	2.82	0.000	0.12	0.475	0.137	0.129	-	3.9	-	8.6	3.69	1.62	147.5	115.5	78	21
10:00	17.8	7.0	6.7	3.44	0.23	3.37	2.95	0.000	0.26	0.387	0.199	0.164	-	3.8	-	8.5	3.52	1.82	227.8	185.4	81	23
12:00	19.4	7.2	6.5	3.53	0.17	3.39	3.02	0.097	0.25	0.256	0.160	0.156	9.3	3.8	11.4	10.2	3.50	1.91	266.4	224.7	84	24
Mean	19.2	7.1	6.3	3.46	0.28	3.36	2.96	0.068	0.16	0.449	0.180	0.148	4.7	2.3	10.0	6.6	3.47	1.57	163.2	120.7	85	24
SD	2.3	0.1	0.5	0.21	0.05	0.20	0.11	0.112	0.06	0.129	0.022	0.027	2.7	1.0	0.9	2.1	0.23	0.18	89.0	75.2	5	1

Table A-2.1-7 Hourly Change of Water Quality of Yangjae Chong, Y-St. 3, Septemb 1990

Item / Time	WT (°C)	pH	DO (mg/l)	TN (mg/l)	TON (mg/l)	TDN (mg/l)	NO3-N (mg/l)	NO2-N (mg/l)	NH4-N (mg/l)	TP (mg/l)	TDP (mg/l)	PO4-P (mg/l)	TBOD (mg/l)	DBOD (mg/l)	TCOD (mg/l)	DCOD (mg/l)	Sulfide (mg/l)	MBAS (mg/l)	SS (mg/l)	Settleable matter (mg/l)	(%)	Gauge (cm)
12:00	22.2	6.9	5.8	5.13	0.50	4.85	2.39	0.641	1.60	0.189	0.113	0.093	4.8	2.5	6.7	6.4	4.16	1.52	10.1	7.3	72	92
14:00	22.6	6.9	5.4	4.47	0.73	4.33	1.67	0.000	2.07	0.175	0.102	0.091	-	3.0	-	5.0	4.18	1.47	5.6	4.2	75	92
16:00	22.8	6.9	5.2	4.78	0.34	4.56	2.67	0.000	1.76	0.162	0.099	0.094	-	3.2	-	3.9	3.44	1.42	9.1	6.9	76	91
18:00	21.6	6.9	4.3	4.67	1.16	4.60	1.82	0.054	1.65	0.152	0.101	0.089	-	2.4	-	3.8	3.04	1.50	6.6	4.4	67	91
20:00	19.7	6.9	3.7	5.71	1.13	5.57	1.89	0.325	2.34	0.146	0.094	0.086	2.3	1.2	8.0	6.0	4.40	1.52	12.9	9.9	77	91
22:00	18.4	7.3	4.0	5.45	1.25	5.31	2.00	0.646	1.55	0.168	0.097	0.081	-	1.8	-	5.8	4.32	1.60	2.5	0.5	20	91
24:00	17.9	6.9	4.1	4.88	0.43	-	2.05	0.732	1.66	0.175	0.074	0.070	-	2.3	-	7.3	4.52	1.30	2.1	0.8	38	91
02:00	17.0	7.0	4.6	5.33	1.04	5.12	2.19	0.342	1.74	0.102	0.088	0.062	-	2.3	-	6.3	4.16	1.42	1.1	0.8	73	90
04:00	16.0	6.9	4.5	3.29	0.44	3.01	2.34	0.463	0.05	0.078	0.064	0.053	3.8	2.9	6.0	3.3	3.04	1.42	1.9	1.5	79	89
06:00	16.2	6.8	4.3	2.45	0.30	2.31	1.77	0.321	0.05	0.110	0.084	0.062	-	1.9	-	4.5	3.76	1.50	0.5	0.2	40	89
08:00	16.0	6.8	3.6	3.10	0.30	3.03	2.58	0.167	0.05	0.114	0.099	0.084	-	2.3	-	5.3	4.00	1.48	2.6	1.0	38	89
10:00	17.2	6.7	5.2	3.51	0.28	3.37	2.84	0.107	0.28	0.175	0.133	0.102	-	1.8	-	6.7	4.32	1.49	5.5	3.3	60	90
12:00	19.4	6.9	5.0	3.87	0.28	3.73	2.16	$1.216	0.21	(0.283)	(0.159)	(0.139)	1.7	1.4	7.4	-	3.68	1.92	11.0	8.4	85	91
Mean	19.8	6.9	4.6	4.36	0.63	4.15	2.18	0.292	1.15	0.156	0.101	0.085	3.2	2.2	7.0	5.4	3.92	1.50	5.5	3.8	62	91
SD	2.5	0.1	0.7	0.98	0.37	1.00	0.35	0.254	0.84	0.049	0.023	0.021	1.2	0.6	0.7	1.2	0.48	0.14	4.0	3.2	20	1
								0.317		0.146	0.096	0.081										
								0.249		0.034	0.017	0.015										

Table A-2.1-8 Hourly Change of Water Quality of Yangjae Chong, Y-St. 4, September 17-18, 1990

Item / Time	WT (°C)	pH	DO (mg/l)	TN (mg/l)	TON (mg/l)	TDN (mg/l)	NO3-N (mg/l)	NO2-N (mg/l)	NH4-N (mg/l)	TP (mg/l)	TDP (mg/l)	PO4-P (mg/l)	TBOD (mg/l)	DBOD (mg/l)	COD (mg/l)	DCOD (mg/l)	Sulfide (mg/l)	MBAS (mg/l)	SS (mg/l)	Settleable matter (mg/l)	(%)	Gauge (cm)
12:00	22.7	6.9	4.7	4.60	0.25	4.53	2.94	0.750	0.66	0.413	0.254	0.183	28.8	27.0	18.0	14.4	3.20	1.38	48.6	42.4	87	46
14:00	21.6	6.9	5.0	6.00	0.29	5.93	2.98	2.039	0.69	0.402	0.233	0.172	-	5.3	-	12.5	3.24	1.30	34.5	27.5	80	47
16:00	20.6	6.9	5.0	3.54	0.22	3.53	3.18	0.000	0.20	0.368	0.299	0.289	-	4.8	-	23.0	3.88	1.42	$91.4	$71.3	78	48
18:00	19.1	7.0	5.4	5.11	0.22	5.11	3.11	1.645	0.13	0.405	0.334	0.247	-	2.8	-	12.4	3.36	1.82	23.7	18.4	78	46
20:00	16.7	7.1	5.1	4.10	0.51	4.03	3.00	0.124	0.47	0.419	0.357	0.239	17.0	10.1	22.0	20.0	3.44	1.77	24.1	21.5	89	46
22:00	17.0	6.9	5.6	4.68	0.70	4.61	3.07	0.000	0.91	0.386	0.275	0.225	-	8.5	-	18.5	3.52	1.62	9.4	7.9	84	46
24:00	16.2	7.2	5.5	4.55	0.67	4.48	3.08	0.071	0.73	0.344	0.244	0.200	-	6.2	-	15.4	2.80	1.54	13.7	11.5	84	46
02:00	15.4	7.1	6.1	4.12	0.71	4.05	2.58	0.000	0.84	0.302	0.233	0.202	-	8.5	-	12.4	3.20	1.74	10.3	6.4	62	45
04:00	14.5	7.1	7.0	5.45	0.59	5.31	2.39	1.447	1.02	0.290	0.227	0.170	28.3	26.5	12.9	11.6	3.28	1.21	5.0	6.5	82	44
06:00	14.7	7.0	7.2	3.48	0.15	3.41	2.50	0.000	0.84	0.285	0.232	0.169	-	14.4	-	8.5	3.36	1.27	5.7	3.3	58	43
08:00	15.0	7.0	6.8	4.19	0.19	4.19	2.77	0.579	0.65	0.298	0.186	0.149	-	18.2	-	10.1	3.34	1.24	8.9	7.9	89	44
10:00	16.4	7.0	5.7	4.73	0.47	4.59	2.73	0.671	0.86	0.363	0.279	0.232	-	8.2	-	11.3	3.39	1.40	26.1	17.7	68	44
12:00	19.2	7.0	5.4	4.46	0.50	4.39	2.71	0.000	1.25	0.490	0.221	0.150	29.8	26.0	16.4	11.2	2.96	1.72	$72.8	$70.1	96	45
Mean	17.6	7.0	5.7	4.54	0.42	4.47	2.85	0.584	0.71	0.367	0.260	0.202	26.0	12.8	17.3	13.9	3.31	1.49	28.8	24.0	80	45
SD	2.6	0.1	0.8	0.68	0.20	0.66	0.24	0.690	0.30	0.059	0.046	0.040	5.2	8.4	3.3	4.0	0.25	0.21	26.0	22.4	11	1
																			19.1	15.5		
																			13.1	11.1		

Table A-2.1-9 Hourly Change of Water Quality of Yangjae Chong, Y-St. 1, November 6-7, 1990

Item / Time	WT (°C)	pH	DO (mg/l)	TN (mg/l)	TON (mg/l)	TDN (mg/l)	NO3-N (mg/l)	NO2-N (mg/l)	NH4-N (mg/l)	TP (mg/l)	TDP (mg/l)	PO4-P (mg/l)	BOD (mg/l)	DBOD (mg/l)	COD (mg/l)	DCOD (mg/l)	Sulfide (mg/l)	MBAS (mg/l)	SS (mg/l)	Settleable matter (mg/l)	(%)	Gauge (cm)
10:00	13.4	7.3	4.2	5.11	0.65	5.11	1.24	0.013	3.21	0.389	0.304	0.258	15.9	9.9	9.2	8.3	3.27	1.78	28.5	21.7	76	31
12:00	13.1	7.3	4.4	5.34	0.59	5.06	1.19	0.024	3.54	0.289	0.222	-	-	6.4	-	7.9	2.20	1.42	22.7	18.5	81	31
14:00	12.8	7.1	4.7	5.05	0.60	4.84	0.97	0.020	3.46	0.267	0.229	0.104	-	4.0	-	44.3	3.19	1.78	38.6	30.4	79	32
16:00	12.7	7.2	4.8	5.02	0.16	4.86	0.58	0.033	4.25	0.249	0.168	0.126	-	34.1	-	51.1	3.36	1.92	202.0	142.7	71	33
18:00	13.0	7.3	4.5	6.10	0.27	5.83	0.32	0.040	5.47	0.302	0.209	0.110	#39.5	25.8	#44.1	32.6	3.11	1.86	529.0	442.0	84	35
20:00	13.2	7.4	4.9	6.67	0.33	6.34	0.25	0.051	6.04	0.347	0.227	0.094	-	36.5	-	48.1	2.69	1.89	425.0	315.0	74	34
22:00	13.3	7.4	5.1	5.98	0.50	5.63	0.00	0.027	5.45	0.489	0.404	0.204	-	26.4	-	36.1	2.04	2.04	154.7	114.0	74	34
24:00	13.0	7.3	5.3	5.69	0.68	5.41	0.00	0.013	5.00	0.593	0.313	0.174	-	45.0	-	56.4	2.69	2.74	42.7	28.6	67	33
02:00	12.9	7.3	5.0	5.69	0.64	5.41	0.00	0.020	5.03	0.322	0.296	0.170	12.0	10.1	7.9	7.1	4.34	3.06	44.0	29.7	68	32
04:00	12.7	7.3	4.9	4.41	0.56	4.27	1.23	0.029	2.60	0.222	0.171	0.130	-	6.3	-	8.5	3.19	3.00	25.3	14.4	57	32
06:00	12.8	7.3	5.3	4.31	0.76	4.10	1.03	0.052	2.47	0.238	0.180	0.090	-	4.4	-	5.6	2.69	2.82	12.7	10.2	80	31
08:00	13.0	7.4	5.4	5.08	0.40	4.68	1.18	0.039	3.46	0.284	0.182	0.161	-	3.2	-	5.5	3.36	1.95	19.3	14.3	74	30
10:00	13.1	7.4	5.1	4.78	0.46	4.71	1.23	0.046	3.04	0.285	0.154	0.095	3.1	2.1	4.7	4.4	3.19	1.17	16.5	10.7	65	31
Mean	13.0	7.3	4.9	5.33	0.51	5.10	0.71	0.031	4.25	0.329	0.235	0.143	17.6	16.5	16.5	24.3	3.02	2.11	120.1	91.7	73	32
SD	0.2	0.1	0.4	0.65	0.17	0.60	0.51	0.013	1.10	0.102	0.071	0.050	13.5	14.4	16.0	19.8	0.56	0.58	163.1	130.9	7	1
													10.3		7.3							
													5.4		1.9							

Table A-2.1-10 Hourly Change of Water Quality of Yangjae Chong, Y-St. 2, November 6-7, 1990

Item / Time	WT (°C)	pH	DO (mg/l)	TN (mg/l)	TON (mg/l)	TDN (mg/l)	NO3-N (mg/l)	NO2-N (mg/l)	NH4-N (mg/l)	TP (mg/l)	TDP (mg/l)	PO4-P (mg/l)	BOD (mg/l)	DBOD (mg/l)	COD (mg/l)	DCOD (mg/l)	Sulfide (mg/l)	MBAS (mg/l)	SS (mg/l)	Settleable matter (mg/l)	(%)	Gauge (cm)
10:00	12.7	7.3	3.8	7.46	0.40	7.06	0.25	0.068	6.75	0.642	0.308	0.202	#48.0	38.4	#80.2	64.3	2.94	3.53	(892.0)	592.0	66	19
12:00	12.8	7.3	4.2	6.65	0.61	6.23	0.18	0.021	5.83	0.764	0.376	0.219	-	29.4		64.6	3.03	3.48	248.0	197.0	79	19
14:00	13.0	7.2	4.7	6.63	0.80	6.21	0.15	0.042	5.64	0.629	0.421	0.232	-	32.6	-	75.2	3.03	#4.24	#778.0	545.7	70	20
16:00	13.4	7.2	4.8	7.01	0.61	6.80	0.95	0.039	5.42	0.472	0.431	0.265	-	27.2	-	59.3	3.19	3.21	195.0	132.4	68	20
18:00	13.5	7.2	5.2	6.31	0.44	5.96	0.11	0.032	5.73	0.406	0.257	0.132	31.8	25.8	37.9	32.1	2.86	1.53	162.0	65.0	40	21
20:00	13.7	7.3	5.7	6.93	0.47	6.46	0.16	0.050	6.25	0.368	0.271	0.129	-	17.4	-	26.6	2.53	1.64	188.0	102.7	55	20
22:00	13.5	7.2	6.2	6.44	0.80	6.33	0.20	0.036	5.33	0.353	0.235	0.102	-	10.4	-	14.5	2.37	1.21	124.0	65.8	53	19
24:00	13.4	7.2	5.7	6.38	0.53	6.10	1.65	0.042	4.17	0.346	0.319	0.060	-	16.2	-	17.3	2.20	1.04	104.7	72.0	69	19
02:00	13.1	7.2	6.0	5.82	0.44	5.80	1.74	0.068	3.70	0.356	0.302	0.085	14.2	12.2	9.8	8.6	2.37	0.94	83.3	74.3	89	18
04:00	12.9	7.1	5.4	5.40	0.38	5.33	1.23	0.045	3.75	0.375	0.338	0.075	-	9.2	-	7.8	2.53	1.46	67.7	33.3	49	18
06:00	12.7	7.3	5.2	5.96	0.51	5.56	1.36	0.068	4.04	0.433	0.345	0.085	-	44.0	-	89.1	2.20	#4.33	#630.0	492.0	78	17
08:00	12.8	7.3	5.8	8.05	0.47	7.33	2.10	0.063	5.42	0.493	0.431	0.263	-	21.6	-	32.4	1.95	1.92	85.4	64.7	76	16
10:00	13.0	7.2	6.1	8.09	0.47	7.63	2.15	0.060	5.42	0.444	0.438	0.275	14.1	8.1	11.4	10.1	2.53	0.67	65.3	59.3	91	17
Mean	13.1	7.2	5.3	6.70	0.53	6.37	0.94	0.049	5.19	0.468	0.344	0.163	20.0	22.5	19.7	38.6	2.59	1.88	287.7	192.0	68	19
SD	0.3	0.1	0.7	0.78	0.13	0.65	0.77	0.015	0.93	0.127	0.068	0.078	8.3	11.1	12.9	27.1	0.37	1.00	277.1	197.3	15	1
													20.0		19.7			1.88	227.6			
													8.3		12.9			1.00	221.6			
																			132.3			
																			59.5			

Table A-2.1-11 Hourly Change of Water Quality of Yangjae Chong, Y-St. 3, November 6-7, 1990

Item / Time	WT (°C)	pH	DO (mg/l)	TN (mg/l)	TON (mg/l)	TDN (mg/l)	NO3-N (mg/l)	NO2-N (mg/l)	NH4-N (mg/l)	TP (mg/l)	TDP (mg/l)	PO4-P (mg/l)	BOD (mg/l)	DBOD (mg/l)	COD (mg/l)	DCOD (mg/l)	Sulfide (mg/l)	MBAS (mg/l)	SS (mg/l)	Settleable matter (mg/l)	(%)	Gauge (cm)
10:00	13.2	7.2	5.6	3.76	0.69	3.55	$0.21	0.048	3.02	$0.648	$0.597	$0.504	4.3	4.0	10.4	8.3	2.45	1.11	2.0	1.0	50	15
12:00	13.3	7.1	5.8	4.36	0.43	4.22	$0.12	0.105	3.83	$0.792	$0.611	0.371	-	8.7	-	12.5	2.69	1.72	6.8	4.5	66	15
14:00	13.4	7.2	6.2	4.24	0.46	3.78	1.21	0.095	2.48	0.422	0.385	0.302	-	#26.1	-	#54.1	2.86	1.36	#174.7	#134.7	77	16
16:00	13.6	7.1	6.4	4.23	0.54	4.09	1.88	0.045	1.77	0.250	0.208	0.156	-	18.7	-	$42.7	2.53	1.48	$132.5	$98.5	74	17
18:00	13.7	7.0	6.7	4.10	0.72	3.82	1.90	0.033	1.45	0.222	0.195	0.147	10.2	4.8	9.8	7.2	2.20	1.33	$44.7	$38.7	87	16
20:00	13.9	7.1	6.5	4.40	0.88	4.26	2.20	0.024	1.30	0.194	0.179	0.078	-	4.2	-	7.2	3.11	1.02	12.6	8.6	68	15
22:00	14.2	7.2	6.4	3.99	0.56	3.92	2.00	0.020	1.41	0.235	0.205	0.110	-	5.0	-	8.2	1.95	1.43	3.3	2.7	82	15
24:00	14.0	7.3	6.2	4.17	0.37	4.10	2.18	0.038	1.58	0.209	0.171	0.135	-	3.4	-	6.8	2.61	1.27	2.4	1.8	75	14
02:00	13.6	7.3	6.1	3.63	0.47	3.56	2.25	0.055	0.85	0.189	0.136	0.085	4.3	4.1	6.9	6.7	2.69	1.11	3.3	2.0	61	13
04:00	13.5	7.3	6.4	3.36	0.35	3.30	2.30	0.084	0.63	0.139	0.111	0.063	-	2.0	-	4.3	2.20	1.60	2.0	1.3	65	13
06:00	13.4	#7.5	6.3	3.15	0.27	3.15	2.10	0.060	0.72	0.177	0.162	0.100	-	2.3	-	5.1	2.28	1.30	2.0	1.2	60	13
08:00	13.1	7.4	6.1	3.45	0.42	3.45	2.13	0.066	0.83	0.165	0.150	0.133	-	6.2	-	9.5	2.20	1.27	12.4	7.5	60	12
10:00	13.3	7.3	6.5	3.71	0.63	3.43	2.00	0.026	1.05	0.169	0.143	0.069	5.0	3.0	5.4	5.0	2.12	1.33	19.3	18.6	96	14
Mean	13.6	7.2	6.2	3.89	0.52	3.74	1.70	0.054	1.61	0.182	0.157	0.135	6.0	7.1	8.1	13.7	2.45	1.33	32.2	24.7	71	14
SD	0.3	0.1	0.3	0.39	0.16	0.35	0.77	0.026	0.92	0.102	0.092	0.096	2.5	6.9	2.1	15.1	0.32	0.19	53.6	41.1	12	1
		7.2					2.01			0.216	0.186	0.146		5.5		7.3			6.6	4.9		
		0.1					0.29			0.072	0.069	0.091		4.3		2.2			5.8	5.2		
																7.3			6.6	4.9		
																2.2			5.8	5.2		

Table A-2.1-12 Hourly Change of Water Quality of Yangjae Chong, Y-St. 4, November 6-7, 1990

Item / Time	WT (°C)	pH	DO (mg/l)	TN (mg/l)	TON (mg/l)	TDN (mg/l)	NO3-N (mg/l)	NO2-N (mg/l)	NH4-N (mg/l)	TP (mg/l)	TDP (mg/l)	PO4-P (mg/l)	BOD (mg/l)	DBOD (mg/l)	COD (mg/l)	DCOD (mg/l)	Sulfide (mg/l)	MBAS (mg/l)	SS (mg/l)	Settleable matter (mg/l)	(%)	Gauge (cm)
10:00	12.9	7.0	5.6	4.69	0.22	4.41	0.37	0.036	4.06	$0.554	$0.512	$0.483	8.5	6.8	11.4	10.2	2.45	1.39	186.7	142.7	76	28
12:00	13.0	7.2	5.4	5.16	0.63	4.77	0.38	0.021	4.13	0.451	0.444	0.281	-	16.8	-	27.4	2.26	1.74	242.5	212.5	88	28
14:00	13.4	7.2	5.6	5.20	0.42	5.15	0.37	$0.000	4.41	0.466	0.453	0.295	-	42.7	-	33.4	1.54	2.42	$329.3	294.2	89	29
16:00	13.5	7.3	6.0	5.73	0.72	5.48	0.60	$0.000	4.41	0.486	0.319	0.085	-	36.5	-	34.2	2.04	1.43	180.7	114.5	63	30
18:00	13.6	6.2	6.2	5.07	0.94	4.93	$0.09	$0.000	4.13	0.354	0.304	0.188	30.3	17.0	33.4	22.7	1.87	1.50	$250.0	194.9	74	29
20:00	13.4	7.3	6.3	5.81	0.49	5.56	1.38	0.018	3.92	0.319	0.254	0.163	-	14.5	-	16.4	2.37	1.46	100.5	64.7	64	28
22:00	13.2	7.3	6.5	5.90	0.49	5.75	1.46	0.026	3.92	0.303	0.242	0.109	-	18.0	-	14.0	3.03	1.20	73.3	53.5	73	28
24:00	13.9	7.3	5.9	6.00	0.41	5.69	1.70	0.037	3.85	0.364	0.306	0.219	-	8.7	-	12.7	3.03	1.33	42.5	38.7	91	28
02:00	14.0	7.2	5.6	6.59	0.57	6.41	1.44	0.034	4.55	0.425	0.388	0.324	6.3	6.0	8.6	7.3	2.94	1.36	29.3	16.0	55	27
04:00	13.2	7.2	5.7	6.81	0.66	6.81	1.55	0.053	4.55	0.472	0.458	0.281	-	5.7	-	8.5	2.04	1.02	12.7	7.4	58	27
06:00	12.9	7.1	5.4	4.62	0.07	4.55	1.04	0.012	3.50	0.409	0.384	0.242	-	4.3	-	7.2	2.53	0.09	3.3	2.5	76	26
08:00	12.7	7.0	6.0	5.59	0.38	4.84	1.63	0.045	3.54	0.361	0.250	0.166	-	19.0	-	24.7	2.69	1.64	125.0	88.8	71	27
10:00	13.1	7.1	6.2	5.57	0.35	5.48	1.60	0.046	3.57	0.250	0.243	0.175	38.7	26.4	29.0	21.5	2.86	1.97	$394.0	$306.0	78	27
Mean	13.3	7.1	5.9	5.60	0.49	5.37	1.05	0.025	4.04	0.401	0.337	0.232	21.0	17.1	20.6	18.5	2.43	1.43	151.5	117.3	74	28
SD	0.4	0.3	0.3	0.63	0.21	0.68	0.57	0.018	0.35	0.082	0.081	0.101	13.9	11.5	10.8	9.2	0.45	0.52	120.2	100.2	11	1
							1.13	0.033		0.388	0.337	0.211							79.9	89.2		
							0.52	0.013		0.072	0.081	0.073							59.8	83.4		

Loading Amount (kg/h)

Table A-2.1-13 Hourly Change of Water Quality of Yangjae Chong, Y-St. 1, January 17-18, 1991

Item	WT	pH	DO	TN	TON	NO3-N	NO2-N	NH4-N	TP	TDP	PO4-P	TBOD	DBOD	TCOD	DCOD	Sulfide	MBAS	SS	Settleable matter		Gauge
Time	(°C)		(mg/l)	(mg/l)	(mg/l)	(mg/l)	(mg/l)	(mg/l)	(mg/l)	(mg/l)	(mg/l)	(mg/l)	(mg/l)	(mg/l)	(mg/l)	(mg/l)	(mg/l)	(mg/l)	(mg/l)	(%)	(cm)
10:00	2.1	7.8	6.2	14.06	1.22	0.90	0.062	11.88	1.125	0.965	0.865	14.6	7.9	20.6	19.0	3.84	1.22	49.3	33.3	68	24
12:00	4.4	7.6	6.8	14.46	1.59	0.85	0.061	13.96	1.028	0.611	0.778	-	6.4	-	18.6	3.80	1.11	34.3	21.3	62	23
14:00	5.6	7.8	7.1	15.61	2.56	0.70	0.061	12.29	1.005	0.711	0.685	-	16.0	-	19.3	3.76	0.97	26.7	12.7	48	22
16:00	5.5	7.8	6.4	13.11	1.63	0.79	0.062	10.63	0.999	0.667	0.625	-	12.3	-	18.6	4.16	1.22	32.3	18.3	57	22
18:00	4.0	7.6	6.0	14.48	2.13	0.83	0.063	11.46	0.746	0.599	0.526	15.0	12.6	18.0	18.0	4.24	1.39	42.0	28.0	67	23
20:00	3.0	7.6	6.2	14.01	1.92	0.77	0.068	11.25	0.833	0.583	0.500	-	10.7	-	20.4	4.32	1.17	50.0	32.4	65	24
22:00	2.3	7.8	6.8	13.76	2.12	0.73	0.076	10.83	0.849	0.596	0.588	-	16.5	-	22.4	4.48	1.20	56.0	31.5	56	24
24:00	1.9	7.7	7.0	14.56	2.34	0.85	0.064	11.25	0.903	0.632	0.569	-	15.5	-	20.4	4.46	1.04	62.3	44.0	71	24
02:00	1.6	7.3	6.4	14.56	1.99	0.85	0.057	11.67	0.747	0.586	0.497	10.9	6.3	25.3	20.0	4.24	1.25	63.3	47.3	75	23
04:00	0.4	7.4	7.2	14.72	2.06	0.94	0.047	11.67	0.639	0.444	0.440	-	7.3	-	16.3	4.20	1.04	44.0	25.0	57	23
06:00	0.8	7.5	7.0	14.91	2.41	1.00	0.043	11.46	0.704	0.522	0.483	-	16.3	-	13.0	4.08	1.72	32.0	13.4	42	22
08:00	0.9	7.6	7.1	14.61	1.85	0.84	0.043	11.88	0.667	0.496	0.493	-	12.4	-	13.0	4.16	1.61	39.3	30.0	76	21
10:00	1.5	7.8	6.4	14.99	1.30	0.73	0.045	12.92	0.688	0.533	0.465	13.1	12.0	19.4	15.4	3.84	1.25	42.7	32.7	77	24
Mean	2.6	7.6	6.7	14.44	1.93	0.83	0.058	11.78	0.841	0.611	0.578	13.4	11.7	20.8	18.0	4.12	1.25	44.2	28.5	63	23
SD	1.7	0.2	0.4	0.59	0.39	0.08	0.010	0.85	0.153	0.123	0.124	1.6	3.6	2.7	2.7	0.23	0.21	11.2	10.0	10	1

Table A-2.1-14 Hourly Change of Water Quality of Yangjae Chong, Y-St. 2, January 17-18, 1991

Item	WT	pH	DO	TN	TON	NO3-N	NO2-N	NH4-N	TP	TDP	PO4-P	TBOD	DBOD	TCOD	DCOD	Sulfide	MBAS	SS	Settleable matter		Gauge
Time	(°C)		(mg/l)	(mg/l)	(mg/l)	(mg/l)	(mg/l)	(mg/l)	(mg/l)	(mg/l)	(mg/l)	(mg/l)	(mg/l)	(mg/l)	(mg/l)	(mg/l)	(mg/l)	(mg/l)	(mg/l)	(%)	(cm)
10:00	3.8	7.2	6.7	13.44	1.63	0.93	0.046	10.83	0.624	0.538	0.422	8.9	8.2	22.4	15.8	4.08	1.28	36.7	28.5	78	25
12:00	4.7	7.0	4.9	12.09	2.57	0.97	0.049	8.50	0.736	0.569	0.489	-	7.7	-	16.8	4.02	1.84	32.7	21.0	64	26
14:00	4.2	7.3	7.0	12.15	2.16	1.10	0.057	8.83	0.763	0.622	0.473	-	12.8	-	18.2	4.00	1.83	30.7	19.4	63	27
16:00	5.8	7.2	4.5	13.06	2.95	1.09	0.059	8.96	0.819	0.653	0.489	-	10.3	-	16.0	4.09	1.97	48.3	34.0	70	27
18:00	4.9	7.3	5.3	12.29	2.76	1.30	0.062	8.17	0.765	0.535	0.422	12.8	5.4	20.7	16.5	4.01	2.04	64.7	47.6	74	27
20:00	4.2	7.3	6.2	9.59	1.80	0.98	0.060	6.75	0.583	0.451	0.347	-	6.5	-	15.0	3.84	2.44	45.3	31.4	69	27
22:00	3.4	7.3	4.6	10.61	1.82	0.81	0.058	7.92	0.547	0.488	0.365	-	8.3	-	16.0	4.00	2.53	38.3	25.6	65	28
24:00	3.0	7.2	5.2	11.63	1.79	0.99	0.064	8.75	0.625	0.451	0.431	-	5.3	-	12.3	4.32	3.03	40.0	30.4	76	27
02:00	2.5	7.2	6.5	13.92	2.26	1.20	0.045	10.42	0.611	0.502	0.486	4.2	4.2	13.4	11.4	4.24	3.03	41.3	32.0	77	26
04:00	2.5	7.3	3.2	13.22	2.68	1.20	0.043	9.29	0.605	0.600	0.514	-	5.3	-	12.3	4.16	2.03	25.7	18.0	70	26
06:00	2.0	7.2	6.0	13.10	2.77	1.22	0.042	9.06	0.614	0.532	0.499	-	5.3	-	13.4	4.48	1.48	26.7	6.4	24	25
08:00	2.0	7.3	3.2	12.51	2.53	1.18	0.050	8.75	0.659	0.542	0.507	-	6.7	-	13.4	4.39	1.81	29.3	19.4	66	24
10:00	2.3	7.3	6.9	12.56	2.92	1.10	0.039	8.50	0.642	0.533	0.483	10.9	10.5	16.7	14.6	4.08	1.87	27.3	17.3	63	25
Mean	3.5	7.2	5.4	12.32	2.36	1.08	0.052	8.83	0.661	0.540	0.456	9.2	7.4	18.3	14.7	4.13	2.09	37.5	25.5	66	26
SD	1.2	0.1	1.2	1.14	0.45	0.13	0.008	0.99	0.079	0.058	0.052	3.2	2.4	3.5	2.0	0.17	0.51	10.5	9.8	13	1

Table A-2.1-15 Hourly Change of Water Quality of Yangjae Chong, Y-St. 3, January 17-18, 1991

Item Time	WT (°C)	pH	DO (mg/l)	TN (mg/l)	TON (mg/l)	NO3-N (mg/l)	NO2-N (mg/l)	NH4-N (mg/l)	TP (mg/l)	TDP (mg/l)	PO4-P (mg/l)	TBOD (mg/l)	DBOD (mg/l)	TCOD (mg/l)	DCOD (mg/l)	Sulfide (mg/l)	MBAS (mg/l)	SS (mg/l)	Settleable matter (mg/l)	(%)	Gauge (cm)
10:00	1.3	7.2	5.5	8.93	2.47	1.45	0.053	4.96	0.334	0.202	0.153	4.1	3.7	10.4	10.4	4.1	1.41	4.0	2.0	50	22
12:00	3.0	7.3	4.6	7.88	2.21	1.24	0.055	4.38	0.309	0.224	0.167	-	3.2	-	9.5	4.2	2.03	3.3	1.5	45	23
14:00	2.0	7.1	6.8	8.18	2.38	1.55	0.050	4.21	0.297	0.253	0.200	-	3.2	-	10.7	4.3	1.68	4.7	2.7	57	22
16:00	3.9	7.1	4.1	8.77	2.63	1.50	0.055	4.58	0.319	0.264	0.208	-	2.9	-	10.4	4.5	1.35	4.0	2.0	50	23
18:00	3.1	7.2	3.1	7.72	2.03	1.43	0.058	4.21	0.248	0.205	0.186	5.4	4.2	10.5	10.4	4.3	1.03	4.0	1.7	43	22
20:00	1.8	7.2	5.8	7.71	2.55	1.35	0.060	3.75	0.197	0.139	0.122	-	5.2	-	11.7	4.3	1.38	6.1	4.1	67	22
22:00	1.0	7.3	7.4	6.43	2.04	1.20	0.063	4.13	0.188	0.129	0.120	-	5.4	-	12.4	4.2	1.25	#8.1	3.6	$44	22
24:00	0.6	7.3	7.0	8.07	2.93	1.29	0.059	3.79	0.199	0.167	0.111	-	5.5	-	10.4	4.2	1.05	5.7	2.7	47	21
02:00	0.5	7.2	6.2	7.94	2.45	1.30	0.058	4.13	0.189	0.147	0.100	5.6	5.5	10.7	9.5	4.3	1.44	3.3	1.3	39	21
04:00	0.5	7.3	6.0	8.19	3.03	1.28	0.047	3.84	0.171	0.137	0.125	-	3.4	-	8.6	4.3	1.22	2.5	0.9	36	21
06:00	0.5	7.2	4.2	7.69	2.58	1.28	0.042	3.79	0.141	0.109	0.099	-	2.2	-	8.5	4.1	1.04	3.4	2.0	59	20
08:00	0.7	7.1	3.9	6.60	2.47	1.20	0.048	2.79	0.139	0.098	0.097	-	2.6	-	8.4	4.0	1.11	3.3	1.6	48	21
10:00	0.9	7.2	5.9	13.73	2.29	1.25	0.053	#10.03	0.127	0.100	0.082	3.4	3.4	9.5	7.8	4.2	1.04	4.0	2.7	68	26
Mean	1.5	7.2	5.4	8.30	2.47	1.33	0.054	4.51	0.220	0.167	0.136	4.6	3.9	10.3	9.9	4.2	1.31	4.3	2.2	63	22
SD	1.1	0.1	1.3	1.71	0.29	0.11	0.006	1.67	0.070	0.055	0.041	0.9	1.1	0.5	1.3	0.1	0.28	1.4	0.9	10	1
								4.05										4.0		51	
								0.51										1.0		10	

Table A-3.1-16 Hourly Change of Water Quality of Yangjae Chong, Y-St. 4, January 17-18, 1991

Item Time	WT (°C)	pH	DO (mg/l)	TN (mg/l)	TON (mg/l)	NO3-N (mg/l)	NO2-N (mg/l)	NH4-N (mg/l)	TP (mg/l)	TDP (mg/l)	PO4-P (mg/l)	TBOD (mg/l)	DBOD (mg/l)	TCOD (mg/l)	DCOD (mg/l)	Sulfide (mg/l)	MBAS (mg/l)	SS (mg/l)	Settleable matter (mg/l)	(%)	Gauge (cm)
10:00	4.7	7.2	4.2	14.87	2.67	1.30	0.049	10.833	0.842	0.699	0.633	8.9	6.3	15.4	12.2	4.08	0.78	42.7	33.3	78	13
12:00	5.5	7.3	5.3	12.87	2.84	1.33	0.055	8.65	0.764	0.694	0.572	-	5.2	-	10.4	4.16	0.83	36.7	22.7	62	15
14:00	3.5	7.3	6.2	12.41	2.45	1.35	0.066	8.54	0.825	0.632	0.525	-	10.5	-	14.3	4.11	0.87	26.7	24.3	85	16
16:00	6.3	7.1	6.3	13.00	2.63	1.45	0.068	8.85	0.903	0.583	0.493	-	8.7	-	12.3	4.24	0.83	44.3	30.3	68	14
18:00	5.6	7.1	5.7	11.43	2.51	1.55	0.075	7.29	0.729	0.556	0.482	12.8	8.2	20.3	15.3	4.32	0.90	64.0	47.0	73	14
20:00	4.8	7.3	5.7	13.13	3.02	1.30	0.065	8.75	0.694	0.542	0.486	-	7.5	-	14.3	4.48	0.97	39.7	22.7	57	13
22:00	4.3	7.3	5.6	13.21	2.46	1.33	0.051	9.34	0.685	0.575	0.494	-	6.5	-	13.0	4.39	0.94	36.7	24.7	67	13
24:00	4.0	7.3	6.2	15.03	2.48	1.25	0.050	11.25	0.708	0.653	0.569	-	10.3	-	12.3	4.24	0.92	40.3	28.3	70	13
02:00	3.7	7.4	5.1	14.96	2.82	1.25	0.053	10.83	0.805	0.717	0.632	4.2	3.7	15.9	11.9	4.30	0.83	42.7	32.7	77	13
04:00	3.5	7.4	5.2	14.73	2.46	1.30	0.052	10.92	0.878	0.875	0.681	-	8.8	-	10.4	4.28	0.97	30.7	19.7	64	13
06:00	2.9	7.3	7.4	14.87	2.76	1.38	0.051	10.58	0.862	0.804	0.665	-	3.3	-	10.5	4.16	1.04	26.7	16.0	60	12
08:00	2.7	7.3	7.0	14.03	2.16	1.45	0.045	10.38	0.806	0.764	0.653	-	10.7	-	11.8	4.11	1.11	16.3	10.3	63	11
10:00	2.3	7.4	6.8	14.40	2.47	1.48	0.039	10.42	0.885	0.806	0.733	5.5	3.3	20.3	12.2	3.61	1.04	25.3	17.3	68	11
Mean	4.1	7.3	5.9	13.76	2.59	1.36	0.055	9.74	0.799	0.685	0.586	7.9	7.2	18.0	12.4	4.19	0.93	36.5	25.3	69	13
SD	1.2	0.1	0.8	1.12	0.22	0.09	0.010	1.18	0.073	0.102	0.082	3.3	2.6	2.3	1.5	0.20	0.09	11.2	9.0	8	1

Table A-2.1-17 Hourly Change of Water Quality of Yangjae Chong, St. 1, March 5-6, 1991

Item / Time	WT (°C)	pH	DO (mg/l)	TN (mg/l)	TON (mg/l)	NO3-N (mg/l)	NO2-N (mg/l)	NH4-N (mg/l)	TP (mg/l)	TDP (mg/l)	PO4-P (mg/l)	BOD (mg/l)	DBOD (mg/l)	COD(Mn) (mg/l)	DCOD(Mn) (mg/l)	Sulfide (mg/l)	MBAS (mg/l)	SS (mg/l)	Settleable matter (mg/l)	(%)	Gauge (cm)
10:00	8.1	7.4	7.1	7.64	0.77	0.25	0.051	6.57	0.850	0.744	0.590	36.7	27.6	16.4	12.3	3.80	1.11	72.0	31.3	43	30
12:00	9.5	7.3	6.8	7.63	0.71	0.24	0.047	6.63	0.860	0.768	0.580	-	35.0		14.7	4.04	1.17	84.0	48.3	58	30
14:00	12.6	7.3	7.3	8.56	1.10	0.26	0.034	7.17	0.920	0.804	0.562	-	32.0	-	10.5	4.12	1.08	63.3	27.7	44	31
16:00	13.5	7.3	6.4	8.65	1.08	0.29	0.030	7.25	1.140	0.800	0.560	-	24.6	-	12.3	4.12	1.11	58.7	22.0	37	31
18:00	12.8	7.1	6.1	9.53	1.15	0.26	0.029	8.09	0.880	0.785	0.555	32.4	32.0	15.0	13.0	3.96	1.14	60.0	28.3	47	32
20:00	12.0	7.2	5.8	8.40	1.03	0.25	0.028	7.09	0.890	0.725	0.548	-	25.8	-	14.7	3.88	1.31	64.0	32.2	50	32
22:00	10.9	7.1	7.0	8.30	1.30	0.23	0.026	6.74	0.920	0.760	0.540	-	20.4	-	13.5	3.96	1.61	26.7	10.7	40	32
24:00	9.8	7.2	6.2	8.16	1.51	0.29	0.021	6.34	0.955	0.804	0.620	-	12.4	-	11.4	3.88	1.33	24.0	8.0	33	32
02:00	8.9	7.2	5.9	8.99	1.32	0.30	0.017	7.35	0.940	0.797	0.636	34.1	30.3	12.3	10.8	3.80	1.61	18.7	10.0	53	31
04:00	8.0	7.3	5.4	8.70	1.25	0.28	0.022	7.15	0.960	0.820	0.676	-	18.3	-	10.5	3.96	1.42	16.7	4.5	27	30
06:00	7.6	7.4	5.1	9.35	1.33	0.22	0.024	7.78	0.895	0.788	0.602	-	4.3	-	9.5	3.88	1.25	10.3	4.0	39	30
08:00	6.8	7.1	5.9	9.58	1.38	0.25	0.020	7.93	0.955	0.836	0.745	-	8.5	-	10.4	3.80	1.19	13.3	6.3	47	30
10:00	8.1	7.3	6.2	11.34	1.49	0.26	0.016	9.57	1.016	0.900	0.790	38.6	34.8	14.7	12.7	3.72	1.11	32.0	16.4	51	30
Mean	9.9	7.2	6.2	8.83	1.19	0.26	0.028	7.36	0.937	0.796	0.616	35.5	23.5	14.6	12.0	3.92	1.26	41.8	19.2	44	31
SD	2.2	0.1	0.6	0.94	0.24	0.02	0.010	0.82	0.073	0.042	0.075	2.4	9.7	1.5	1.6	0.12	0.18	24.6	13.1	8	1

Table A-2.1-18 Hourly Change of Water Quality of Yangjae Chong, St. 2, March 5-6, 1991

Item / Time	WT (°C)	pH	DO (mg/l)	TN (mg/l)	TON (mg/l)	NO3-N (mg/l)	NO2-N (mg/l)	NH4-N (mg/l)	TP (mg/l)	TDP (mg/l)	PO4-P (mg/l)	BOD (mg/l)	DBOD (mg/l)	COD(Mn) (mg/l)	DCOD(Mn) (mg/l)	Sulfide (mg/l)	MBAS (mg/l)	SS (mg/l)	Settleable matter (mg/l)	(%)	Gauge (cm)
10:00	8.9	7.2	7.3	15.12	2.96	1.22	0.034	12.13	0.820	0.720	0.596	36.5	30.8	18.7	15.8	4.04	1.06	48.3	28.7	59	30
12:00	10.3	7.3	7.2	14.93	2.73	1.03	0.035	12.17	0.933	0.805	0.603	-	23.6	-	16.4	3.48	0.97	54.7	32.7	60	30
14:00	12.9	7.2	6.6	14.88	2.68	1.12	0.028	12.17	1.002	0.742	0.625	-	33.8	-	15.0	3.64	0.92	64.3	40.0	62	32
16:00	12.8	7.2	8.2	13.59	2.07	0.87	0.040	11.48	1.040	0.940	0.700	-	38.7	-	13.3	3.72	1.00	78.0	46.3	59	32
18:00	11.6	7.3	7.8	12.64	1.84	0.69	0.039	10.76	1.235	0.842	0.688	35.4	30.1	14.3	13.0	3.56	1.19	32.0	16.8	50	32
20:00	11.1	7.3	7.0	12.19	1.84	0.74	0.026	10.32	0.942	0.863	0.705	-	28.6	-	15.8	3.64	1.23	25.3	10.3	41	33
22:00	10.5	7.3	5.8	12.90	2.21	0.89	0.037	10.65	1.100	0.940	0.700	-	29.4	-	16.0	3.48	1.04	20.7	8.7	42	32
24:00	9.9	7.2	5.9	12.95	2.39	0.94	0.027	10.53	1.103	0.788	0.636	-	16.4	-	12.7	3.88	0.98	16.7	8.3	50	32
02:00	9.1	7.1	4.5	12.90	2.44	1.04	0.024	10.44	1.010	0.812	0.674	26.7	22.4	11.6	10.8	3.80	0.95	15.3	4.3	28	31
04:00	8.4	7.3	4.7	13.12	2.47	1.13	0.020	10.63	1.020	0.820	0.660	-	13.4	-	12.7	4.04	1.10	15.3	5.3	35	30
06:00	8.0	7.4	4.2	12.82	1.93	0.69	0.019	10.87	1.015	0.730	0.688	-	16.8	-	12.5	3.88	1.08	24.0	6.0	25	29
08:00	7.8	7.4	4.7	11.79	1.92	0.70	0.024	9.85	1.164	0.903	0.717	-	20.5	-	10.8	3.96	0.77	36.0	13.3	37	29
10:00	9.0	7.3	5.2	11.64	1.83	0.55	0.026	9.78	1.180	0.860	0.748	39.7	30.0	14.2	12.3	3.48	0.58	94.7	$58.3	0	30
Mean	10.0	7.3	6.1	13.19	2.25	0.89	0.029	10.91	1.043	0.828	0.672	34.6	25.7	14.7	13.6	3.74	0.99	40.4	21.4	42	31
SD	1.6	0.1	1.3	1.10	0.37	0.20	0.007	0.80	0.109	0.070	0.044	4.8	7.2	2.6	1.9	0.20	0.16	24.8	17.2	17	1
																			18.3		
																			14.1		

Table A-2.1-19 Hourly Change of Water Quality of Yangjae Chong, St. 3, March 5-6, 1991

Item Time	WT (°C)	pH	DO (mg/l)	TN (mg/l)	TON (mg/l)	NO3-N (mg/l)	NO2-N (mg/l)	NH4-N (mg/l)	TP (mg/l)	TDP (mg/l)	PO4-P (mg/l)	BOD (mg/l)	DBOD (mg/l)	COD(Mn) (mg/l)	DCOD(Mn) (mg/l)	Sulfide (mg/l)	MBAS (mg/l)	SS (mg/l)	Settleable matter (mg/l)	(%)	Gauge (cm)
10:00	6.5	7.3	7.4	16.67	2.52	0.96	0.016	14.13	0.512	0.280	0.182	8.8	7.5	12.4	10.5	3.96	2.06	16.0	8.7	54	14
12:00	9.0	7.1	7.2	15.84	2.18	0.84	0.015	13.64	0.486	0.263	0.165	-	10.4	-	12.8	4.04	1.84	14.0	6.3	45	15
14:00	10.7	7.3	6.9	15.53	2.47	0.88	0.017	13.04	0.494	0.362	0.236	-	13.1	-	12.5	4.12	1.11	13.3	5.7	43	14
16:00	10.6	7.4	6.7	15.82	2.45	0.81	0.023	13.35	0.560	0.420	0.296	-	11.3	-	12.3	3.96	1.32	12.7	4.3	34	14
18:00	10.8	7.3	6.2	16.07	2.13	0.78	0.026	13.91	0.572	0.414	0.202	9.1	9.0	13.3	11.3	3.80	1.42	8.7	4.3	49	14
20:00	10.0	7.3	6.8	14.53	2.47	0.83	0.035	12.03	0.365	0.286	0.186	-	8.7	-	10.8	4.04	1.28	8.3	2.7	33	14
22:00	8.9	7.4	6.0	12.83	2.14	0.74	0.042	10.65	0.244	0.240	0.136	-	8.9	-	11.5	3.88	1.11	5.3	2.0	38	15
24:00	7.5	7.3	5.7	12.88	2.10	0.81	0.027	10.75	0.302	0.265	0.156	-	7.4	-	9.9	3.98	1.36	5.0	1.3	26	15
02:00	6.4	7.2	5.5	15.25	3.28	1.30	0.013	11.96	0.246	0.184	0.100	8.9	8.6	10.0	9.0	3.72	1.47	4.7	2.0	43	14
04:00	5.7	7.3	5.9	13.69	2.73	1.14	0.011	10.95	0.206	0.164	0.108	-	7.1	-	9.4	4.21	1.40	4.3	2.7	63	14
06:00	5.3	7.2	6.2	13.50	3.05	1.23	0.013	10.44	0.214	0.172	0.136	-	4.6	-	9.5	3.88	1.33	4.7	2.0	43	13
08:00	4.4	7.2	6.4	15.67	2.38	0.64	0.042	13.25	0.222	0.193	0.142	-	4.9	-	9.3	4.04	1.25	4.3	1.3	30	13
10:00	6.6	7.3	6.8	16.61	2.20	0.44	0.058	14.35	0.286	0.226	0.158	5.0	4.9	11.5	9.4	3.80	1.17	8.0	6.0	75	14
Mean	7.9	7.3	6.4	14.99	2.47	0.88	0.026	12.50	0.362	0.267	0.169	8.0	8.2	11.8	10.6	3.96	1.39	8.4	3.8	44	14
SD	2.1	0.1	0.6	1.30	0.35	0.23	0.014	1.38	0.136	0.083	0.051	1.7	2.4	1.2	1.3	0.13	0.26	4.1	2.2	13	1

Table A-2.1-20 Hourly Change of Water Quality of Yangjae Chong, St. 4, March 5-6, 1991

Item Time	WT (°C)	pH	DO (mg/l)	TN (mg/l)	TON (mg/l)	NO3-N (mg/l)	NO2-N (mg/l)	NH4-N (mg/l)	TP (mg/l)	TDP (mg/l)	PO4-P (mg/l)	BOD (mg/l)	DBOD (mg/l)	COD(Mn) (mg/l)	DCOD(Mn) (mg/l)	Sulfide (mg/l)	MBAS (mg/l)	SS (mg/l)	Settleable matter (mg/l)	(%)	Gauge (cm)
10:00	8.7	7.3	5.0	6.11	2.30	1.05	0.012	3.80	1.380	1.080	1.064	32.0	24.8	15.6	12.8	3.48	1.03	30.3	15.3	50	29
12:00	10.1	7.4	7.3	6.01	2.25	0.95	0.024	3.74	1.230	1.010	1.004	-	26.3	-	14.7	3.39	1.06	26.7	12.3	46	30
14:00	12.6	7.4	6.8	6.48	1.87	0.75	#.054	4.61	1.110	0.998	0.942	-	30.3	-	15.0	3.31	1.00	24.7	10.3	42	30
16:00	12.8	7.3	6.1	5.30	2.12	0.80	0.036	3.23	1.120	1.000	0.860	-	24.0	-	12.7	2.99	0.89	31.3	12.3	39	30
18:00	12.2	7.3	5.2	5.67	1.91	0.75	0.018	3.74	1.022	0.933	0.846	28.5	22.0	18.7	13.0	3.15	0.83	32.7	15.0	46	28
20:00	12.1	7.3	5.7	5.61	2.04	0.75	0.027	3.54	1.130	0.879	0.798	-	18.6	-	13.5	3.56	0.95	34.7	17.3	50	29
22:00	11.5	7.5	6.1	5.69	2.18	0.82	0.033	3.48	0.980	0.900	0.780	-	20.4	-	13.3	3.48	0.86	24.3	10.4	43	28
24:00	11.0	7.4	5.2	5.68	2.21	0.82	0.028	3.44	0.990	0.865	0.805	-	16.4	-	12.3	3.48	0.86	16.7	6.7	28	27
02:00	10.8	7.3	4.9	5.77	2.23	0.85	0.016	3.52	1.020	0.940	0.801	34.7	32.0	13.4	11.3	3.64	0.92	18.3	8.3	50	27
04:00	10.5	7.5	5.2	5.46	2.08	0.89	0.015	3.37	1.100	0.860	0.808	-	21.5	-	10.8	4.04	1.11	19.3	9.3	51	26
06:00	9.2	7.5	5.6	5.49	2.22	0.93	0.013	3.26	1.033	0.945	0.863	-	24.7	-	12.3	3.88	1.28	28.7	12.3	64	26
08:00	8.7	7.4	6.2	5.01	2.10	0.94	0.010	2.90	1.763	1.088	0.972	-	28.5	-	13.5	4.37	2.00	40.7	23.7	83	25
10:00	8.8	7.2	6.7	4.87	2.14	0.94	0.010	2.72	1.500	1.180	1.020	46.4	38.0	21.5	15.0	3.23	2.44	34.0	18.7	46	26
Mean	10.7	7.4	5.8	5.63	2.13	0.86	0.023	3.49	1.183	0.975	0.889	35.4	25.2	17.3	13.1	3.54	1.17	27.4	13.2	49	28
SD	1.4	0.1	0.7	0.41	0.12	0.09	0.012	0.44	0.224	0.093	0.095	6.7	5.7	3.1	1.2	0.36	0.47	6.9	4.5	12	2
							0.020														
							0.009														

Table A-2.1-21 Hourly Change of Water Quality of Yangjae Chong, Y-St. 1, May 31-June 1, 1991

Item / Time	WT (°C)	pH	DO (mg/l)	TN (mg/l)	TON (mg/l)	NO3-N (mg/l)	NO2-N (mg/l)	NH4-N (mg/l)	TP (mg/l)	TDP (mg/l)	PO4-P (mg/l)	BOD (mg/l)	DBOD (mg/l)	COD(Mn) (mg/l)	DCOD(Mn) (mg/l)	Sulfide (mg/l)	MBAS (mg/l)	SS (mg/l)	Settleable matter (mg/l)	(%)	Gauge (cm)
10:00	19.5	7.8	2.4	8.69	1.48	1.12	1.965	4.13	0.547	0.425	0.263	18.6	12.4	13.2	9.6	1.98	1.17	70.7	#54.3	0	22
12:00	21.3	7.6	2.3	8.55	1.36	1.03	2.197	3.95	0.514	0.472	0.225	-	13.0		9.0	2.66	0.86	64.3	36.7	57	22
14:00	23.8	7.3	2.4	8.07	1.36	1.04	1.364	4.30	0.462	0.255	0.220	-	12.5	-	9.8	2.83	0.97	42.0	23.0	55	23
16:00	24.7	7.3	2.1	7.54	0.81	1.42	0.934	4.38	0.319	0.236	0.188	-	6.4	-	8.2	3.17	1.00	50.0	25.0	50	24
18:00	25.2	7.3	2.8	7.41	0.91	1.24	0.985	4.28	0.303	0.225	0.169	13.2	8.4	9.2	7.4	2.49	0.94	48.0	31.0	65	26
20:00	22.7	7.5	2.8	7.21	0.85	1.32	0.566	4.48	0.324	0.319	0.188	-	10.2	-	12.3	2.83	0.72	42.7	19.3	45	25
22:00	21.0	7.4	4.5	8.17	1.30	1.47	1.232	4.17	0.265	0.195	0.164	-	9.4	-	11.2	3.00	1.28	36.0	16.3	45	21
24:00	20.4	7.6	4.3	8.02	1.42	1.65	1.184	3.77	0.250	0.210	0.139	-	11.4	-	13.3	3.17	1.17	32.0	14.0	44	21
02:00	20.0	7.5	3.6	8.20	1.12	2.04	1.405	3.63	0.245	0.213	0.148	18.6	14.0	15.0	12.8	2.83	1.42	36.7	24.7	67	20
04:00	19.3	7.5	4.2	8.72	1.43	2.87	2.066	2.35	0.236	0.225	0.167	-	11.4	-	13.3	2.49	1.08	35.7	16.7	47	20
06:00	18.0	7.4	3.5	7.29	1.07	1.94	1.638	2.64	0.284	0.195	0.164	-	12.5	-	10.6	2.58	1.31	36.0	20.0	56	19
08:00	18.3	7.2	4.6	7.15	1.07	1.87	1.631	2.58	0.243	0.181	0.115	-	13.4	-	11.7	2.33	1.56	42.3	28.7	68	20
10:00	18.6	7.3	#6.1	7.26	1.20	1.99	1.702	2.37	0.225	0.156	0.124	18.7	14.6	14.7	12.2	2.66	1.53	36.0	26.0	72	21
Mean	21.2	7.4	3.5	7.87	1.18	1.62	1.451	3.62	0.324	0.254	0.175	17.3	11.5	13.0	10.9	2.69	1.15	44.0	25.8	52	22
SD	2.3	0.2	1.1	0.56	0.22	0.50	0.458	0.79	0.106	0.091	0.040	2.4	2.3	2.3	1.9	0.32	0.25	11.2	10.2	18	2
			3.3																23.5		
			0.9																6.4		

Table A-2.1-22 Hourly Change of Water Quality of Yangjae Chong, Y-St. 2, May 31-June 1, 1991

Item / Time	WT (°C)	pH	DO (mg/l)	TN (mg/l)	TON (mg/l)	NO3-N (mg/l)	NO2-N (mg/l)	NH4-N (mg/l)	TP (mg/l)	TDP (mg/l)	PO4-P (mg/l)	BOD (mg/l)	DBOD (mg/l)	COD(Mn) (mg/l)	DCOD(Mn) (mg/l)	Sulfide (mg/l)	MBAS (mg/l)	SS (mg/l)	Settleable matter (mg/l)	(%)	Gauge (cm)
10:00	21.6	7.3	5.4	6.67	3.16	2.37	1.636	1.87	0.412	0.364	0.288	7.5	7.2	11.0	10.0	2.49	1.26	11.3	6.0	53	35
12:00	21.8	7.4	5.6	8.55	4.70	3.55	2.158	1.79	0.389	0.347	0.263	-	10.4	-	12.7	1.98	1.11	16.0	12.0	75	36
14:00	23.4	7.4	5.2	8.62	4.25	3.04	2.002	2.37	0.453	0.322	0.205	-	15.4	-	11.6	0.99	1.14	#73.3	43.0	$59	36
16:00	24.0	7.3	5.0	8.01	2.86	2.00	1.316	3.83	0.449	0.319	0.266	-	16.8	-	16.4	1.98	1.19	52.3	40.7	78	38
18:00	24.2	7.3	4.9	8.33	2.88	2.01	1.636	3.81	0.536	0.384	0.303	15.5	12.4	14.6	11.6	2.66	1.22	41.3	36.3	88	41
20:00	21.6	7.5	6.0	9.37	3.45	2.40	2.210	3.71	0.583	0.333	0.269	-	18.0	-	14.5	2.83	#0.83	38.0	22.0	58	40
22:00	19.6	7.5	6.3	8.44	3.81	2.77	2.175	2.46	0.474	0.412	0.302	-	14.8	-	13.2	2.49	1.22	31.3	16.7	53	40
24:00	19.1	7.5	6.2	8.43	4.48	3.75	2.158	1.79	0.458	0.389	0.275	-	12.0	-	14.0	3.17	1.39	22.3	16.3	73	40
02:00	18.4	7.4	6.3	9.10	4.36	3.22	2.025	2.72	0.424	0.321	0.311	15	13.0	13.7	11.4	3.00	1.53	27.3	11.3	41	40
04:00	18.1	7.4	6.4	9.06	3.13	2.33	1.974	3.96	0.417	0.313	0.306	-	4.2	-	9.2	2.83	1.44	16.0	12.0	75	38
06:00	17.2	7.4	6.3	7.93	1.89	1.05	1.985	4.06	0.485	0.411	0.323	-	6.8	-	9.8	2.49	1.42	18.7	11.3	60	37
08:00	18.4	7.3	6.5	6.49	1.21	0.57	0.454	4.83	0.514	0.389	0.319	-	10.4	-	11.4	2.49	1.17	20.0	13.0	65	37
10:00	18.8	7.1	6.1	6.73	1.14	0.63	0.636	4.95	0.525	0.473	0.333	11.9	11.7	10.9	10.4	2.33	1.33	22.7	18.7	82	35
Mean	20.5	7.4	5.9	8.14	3.18	2.28	1.720	3.24	0.471	0.387	0.289	12.5	11.7	12.6	12.0	2.44	1.25	30.0	19.9	66	38
SD	2.3	0.1	0.5	0.92	1.14	0.99	0.561	1.08	0.054	0.046	0.033	3.2	3.8	1.6	2.0	0.54	0.17	16.8	11.7	13	2
																	1.29	26.4		67	
																	0.13	11.6		13	

Table A-2.1-23 Hourly Change of Water Quality of Yangjae Chong, Y-St. 3, May 31-June 1, 1991

Item / Time	WT (°C)	pH	DO (mg/l)	TN (mg/l)	TON (mg/l)	NO3-N (mg/l)	NO2-N (mg/l)	NH4-N (mg/l)	TP (mg/l)	TDP (mg/l)	PO4-P (mg/l)	BOD (mg/l)	DBOD (mg/l)	COD(Mn) (mg/l)	DCOD(Mn) (mg/l)	Sulfide (mg/l)	MBAS (mg/l)	SS (mg/l)	Settleable matter (mg/l)	(%)	Gauge (cm)
10:00	21.0	7.1	4.8	4.69	0.35	1.86	1.636	0.84	0.833	0.342	0.250	7.0	6.4	11.4	10.8	1.98	1.33	11.3	3.3	29	14
12:00	22.2	7.2	4.5	5.40	0.42	1.77	2.500	0.71	0.625	0.194	0.153	-	3.5	-	8.5	2.83	1.36	7.0	2.3	33	14
14:00	23.7	7.2	5.6	3.72	0.34	2.34	1.025	0.02	0.365	0.102	0.098	-	4.0	-	9.0	3.09	1.53	2.7	0.8	30	15
16:00	24.6	7.4	4.4	4.82	0.39	4.00	0.404	0.03	0.222	0.164	0.097	-	3.8	-	8.6	3.17	1.44	4.3	1.7	40	14
18:00	25.0	7.5	4.2	4.23	0.39	3.00	0.811	0.03	0.164	0.105	0.088	5.1	4.0	9.7	9.2	2.66	1.31	8.7	6.0	69	14
20:00	20.5	7.3	5.6	4.45	0.33	3.25	0.855	0.02	0.118	0.097	0.063	-	3.7	-	7.2	3.00	1.08	12.0	7.0	58	12
22:00	18.0	7.5	5.5	4.51	0.36	2.75	1.274	0.13	0.253	0.200	0.146	-	4.2	-	8.2	3.26	1.33	17.3	#11.7	$68	13
24:00	17.7	7.6	5.3	3.40	0.40	1.00	1.421	0.58	0.347	0.278	0.218	-	4.0	-	8.6	2.83	1.17	10.7	4.3	40	12
02:00	17.1	7.5	5.5	3.32	0.30	1.02	1.036	0.96	0.255	0.149	0.108	4.2	4.0	9.0	8.2	3.00	1.11	7.3	2.0	27	13
04:00	16.8	7.6	5.6	4.79	0.75	1.27	1.211	1.56	0.167	0.123	0.111	-	6.6	-	10.0	3.34	1.39	5.0	2.0	40	12
06:00	16.4	7.4	5.8	5.20	0.88	1.63	1.465	1.23	0.232	0.164	0.130	-	4.2	-	8.8	3.17	1.28	4.0	1.7	43	13
08:00	17.4	7.4	5.7	7.45	1.11	2.10	2.895	1.35	0.250	0.188	0.181	-	3.6	-	7.8	2.49	1.14	7.3	2.7	37	13
10:00	18.7	7.3	6.0	5.86	0.95	1.86	2.034	1.02	0.188	0.137	0.100	5.8	5.4	12.0	10.8	3.26	1.25	10.0	2.7	27	14
Mean	19.9	7.4	5.3	4.76	0.53	2.14	1.428	0.65	0.309	0.173	0.134	5.5	4.4	10.5	8.9	2.93	1.29	8.3	3.7	36	13
SD	3.0	0.2	0.6	1.06	0.27	0.86	0.671	0.54	0.195	0.068	0.052	1.0	1.0	1.2	1.0	0.36	0.13	3.9	2.9	16	1
																			3.0	39	
																			1.8	12	

Table A-2.1-24 Hourly Change of Water Quality of Yangjae Chong, Y-St. 4, May 31-June 1, 1991

Item / Time	WT (°C)	pH	DO (mg/l)	TN (mg/l)	TON (mg/l)	NO3-N (mg/l)	NO2-N (mg/l)	NH4-N (mg/l)	TP (mg/l)	TDP (mg/l)	PO4-P (mg/l)	BOD (mg/l)	DBOD (mg/l)	COD(Mn) (mg/l)	DCOD(Mn) (mg/l)	Sulfide (mg/l)	MBAS (mg/l)	SS (mg/l)	Settleable matter (mg/l)	(%)	Gauge (cm)
10:00	18.0	7.9	2.9	6.77	0.69	0.05	0.000	6.03	1.825	1.004	0.985	36.5	20.5	22.4	15.4	#0.28	2.00	#166.7	#136.7	82	30
12:00	18.2	7.4	3.2	5.87	0.48	0.06	0.000	5.33	1.333	1.188	0.944	-	28.4	-	14.6	1.98	1.17	65.0	38.0	58	30
14:00	18.7	7.3	2.8	5.32	0.19	0.14	0.000	4.99	1.536	1.104	0.995	-	25.5	-	19.0	3.51	1.61	26.7	12.7	48	31
16:00	19.5	7.3	4.8	5.54	0.27	0.36	0.000	4.92	1.917	1.875	1.639	-	29.0	-	23.0	2.66	1.25	42.3	24.7	58	32
18:00	20.0	7.4	4.8	6.71	0.24	0.13	0.000	6.34	2.364	2.115	1.984	32.7	24.2	25.4	21.4	3.34	1.72	37.3	14.3	38	32
20:00	18.2	7.4	4.7	7.28	0.14	0.06	0.000	7.08	2.500	2.472	2.465	-	20.4	-	16.3	3.17	1.03	46.7	25.7	55	31
22:00	18.0	7.5	2.2	6.14	0.39	0.05	0.000	5.70	2.336	2.105	1.486	-	25.6	-	18.8	3.51	2.92	72.7	53.3	73	30
24:00	18.0	7.6	3.6	4.69	0.46	0.07	0.000	4.17	1.778	1.639	1.500	-	20.0	-	14.5	2.49	3.39	64.3	36.3	50	30
02:00	17.7	7.5	3.8	6.04	0.32	0.09	0.000	5.63	1.236	0.988	0.834	23.6	18.7	15.7	12.7	3.17	3.75	71.3	50.0	78	29
04:00	17.0	7.5	3.7	6.05	0.19	0.03	0.000	5.83	0.764	0.538	0.528	-	10.4	-	11.4	2.49	3.08	24.7	10.7	15	29
06:00	17.8	7.3	3.8	6.24	0.17	0.07	0.000	6.00	0.872	0.746	0.511	-	18.6	-	14.6	2.83	2.36	10.7	7.3	30	28
08:00	18.0	7.2	4.1	6.35	0.06	0.12	0.000	6.17	1.361	0.650	0.552	-	10.4	-	12.4	2.83	1.72	48.3	22.0	46	27
10:00	18.4	7.3	4.3	7.21	0.31	0.06	0.000	6.83	1.465	1.233	0.645	30.5	22.7	21.3	15.4	3.00	2.08	109.3	68.3	62	26
Mean	18.3	7.4	3.7	6.17	0.30	0.10	0.000	5.77	1.645	1.358	1.159	30.8	21.1	21.2	16.1	2.71	2.16	56.4	38.5	53	30
SD	0.7	0.2	0.8	0.70	0.16	0.08	0.000	0.76	0.526	0.597	0.588	4.7	5.6	3.5	3.3	0.82	0.85	38.2	33.4	18	2
																2.92		46.4	30.3		
																0.44		19.6	18.4		

Table A-3.1-1 Hourly Change of Water Quality in Ui Chong, St. 1, July 26-27, 1990

Item / Time	WT (°C)	pH	EC (mS/cm)	Turbid. (mg/l)	DO (mg/l)	TN (mg/l)	TDN (mg/l)	NO3-N (mg/l)	NO2-N (mg/l)	NH4-N (mg/l)	TP (mg/l)	TDP (mg/l)	PO4-P (mg/l)	BOD (mg/l)	DBOD (mg/l)	COD (mg/l)	DCOD (mg/l)	Sulfide (mg/l)	MBAS (mg/l)	SS (mg/l)	Settleab matter (mg/l)	(%)	Gauge (cm)
12:00	22.5	8.1	0.2	14	6.2	-	-	1.21	0.021	1.06	0.186	0.131	0.120	4.4	-	5.5	-	2.5	2.12	5.8	5.0	86	37
14:00	21.7	7.6	0.4	5	6.7	-	-	1.32	0.018	0.73	0.200	0.133	0.081	5.0	-	6.2	-	2.7	1.63	3.4	3.2	94	32
16:00	23.0	7.5	0.7	13	6.4	-	-	1.44	0.021	0.81	0.278	0.068	0.071	3.5	-	3.8	-	3.2	1.41	4.5	4.4	98	31
18:00	23.2	7.3	0.7	1	6.6	-	-	1.42	0.017	0.48	0.097	0.096	0.070	3.6	-	4.0	-	3.5	1.36	7.9	7.7	97	30
20:00	20.9	7.3	0.8	1	6.8	-	-	1.44	0.012	0.63	0.083	0.051	0.060	2.9	-	3.3	-	3.8	1.30	4.7	4.5	96	30
22:00	20.2	7.2	0.8	1	6.8	-	-	1.42	0.014	0.33	0.092	0.066	0.060	3.0	-	3.6	-	3.3	1.27	2.6	2.5	96	29
24:00	20.1	7.2	0.8	1	6.8	-	-	1.00	0.011	0.58	0.100	0.068	0.072	4.3	-	5.3	-	4.4	1.36	$0.5	$0.4	80	29
02:00	29.9	7.1	0.8	2	6.9	-	-	1.55	0.012	0.28	0.072	0.061	0.052	3.8	-	4.6	-	3.3	1.82	$0.3	$0.3	100	28
04:00	29.5	7.3	0.8	2	7.2	-	-	1.61	0.007	0.34	0.087	0.059	0.058	2.9	-	3.4	-	3.3	2.34	3.9	3.7	95	28
06:00	28.2	7.4	0.8	2	7.3	-	-	1.61	0.010	0.22	0.270	0.066	0.052	3.6	-	3.9	-	3.5	1.44	$0.2	$0.1	50	27
08:00	20.4	7.3	0.8	2	7.2	-	-	2.10	0.013	0.62	0.104	0.090	0.089	2.4	-	3.4	-	3.8	1.39	1.3	1.1	85	27
10:00	21.8	7.2	0.9	3	6.7	-	-	1.55	0.014	0.76	0.111	0.081	0.087	3.5	-	4.5	-	4.1	1.65	1.9	1.4	74	27
12:00	22.6	7.2	0.9	1	6.2	-	-	2.23	#0.032	1.11	0.116	0.088	0.089	3.2	-	4.1	-	2.7	2.12	1.3	1.2	92	28
Mean	23.5	7.4	0.7	4	6.8	-	-	1.53	0.016	0.61	0.138	0.081	0.074	3.5	-	4.3	-	3.4	1.63	2.9	2.7	88	29
SD	3.5	0.2	0.2	4	0.3	-	-	0.32	0.006	0.27	0.068	0.025	0.018	0.7	-	0.9	-	0.5	0.34	2.3	2.2	13	3
									0											3.4	3.2		
									0											2.2	2.1		

Table A-3.1-2 Hourly Change of Water Quality in Ui Chong, St. 2, July 26-27, 1990

Item / Time	WT (°C)	pH	EC (mS/cm)	Turbid. (mg/l)	DO (mg/l)	TN (mg/l)	TDN (mg/l)	NO3-N (mg/l)	NO2-N (mg/l)	NH4-N (mg/l)	TP (mg/l)	TDP (mg/l)	PO4-P (mg/l)	BOD (mg/l)	DBOD (mg/l)	COD (mg/l)	DCOD (mg/l)	Sulfide (mg/l)	MBAS (mg/l)	SS (mg/l)	Settleable matter (mg/	(%)	Gauge (cm)
12:00	20.2	6.0	0.1	-	5.0	-	-	0.94	0.007	0.50	0.112	0.098	0.092	3.3	-	4.0	-	4.10	2.31	31.2	24.5	79	38
14:00	20.7	6.3	0.1	-	5.1	-	-	0.45	0.014	0.34	0.142	0.102	0.099	3.1	-	3.5	-	4.30	1.94	38.7	32.8	85	38
16:00	22.5	5.8	0.1	-	6.5	-	-	0.87	0.007	0.28	0.099	0.096	0.087	3.6	-	4.1	-	4.40	1.79	43.1	36.8	85	38
18:00	20.5	6.8	0.2	-	6.4	-	-	0.91	0.007	0.37	0.119	0.098	0.082	4.6	-	5.4	-	4.10	1.65	10.7	9.4	88	36
20:00	20.0	6.3	0.3	-	6.1	-	-	0.89	0.005	0.36	0.110	0.108	0.097	2.8	-	3.3	-	4.20	1.47	6.7	4.7	70	36
20:00	19.6	6.8	0.4	-	5.8	-	-	0.70	0.012	0.50	0.211	0.100	0.089	2.8	-	3.5	-	4.10	1.60	6.9	6.6	96	35
24:00	19.5	7.6	#0.6	-	7.4	-	-	0.98	0.009	0.37	0.162	0.139	0.125	2.5	-	3.0	-	4.20	1.90	4.6	3.9	85	34
02:00	19.4	7.4	0.1	-	6.7	-	-	0.93	0.005	0.37	0.096	0.089	0.077	2.0	-	2.2	-	4.00	1.85	1.5	1.4	93	34
04:00	19.3	7.2	0.2	-	7.5	-	-	0.69	0.009	0.20	0.110	0.108	0.075	2.7	-	3.5	-	3.60	2.20	3.1	2.6	84	33
06:00	19.5	9.0	0.3	-	7.4	-	-	0.84	0.004	0.17	0.113	0.084	0.095	2.8	-	3.4	-	3.00	1.30	1.6	1.2	75	33
08:00	21.0	8.3	0.2	-	7.0	-	-	1.02	#0.032	0.50	0.159	0.133	0.135	2.5	-	3.3	-	$0.90	1.86	5.1	4.1	80	33
10:00	22.6	9.5	0.2	-	5.8	-	-	1.12	0.017	#1.08	0.189	0.152	0.147	3.0	-	3.9	-	1.10	1.55	11.9	9.8	82	32
12:00	22.9	9.4	0.2	-	4.9	-	-	0.83	0.014	0.65	0.157	0.132	0.130	2.9	-	3.8	-	2.70	1.94	6.7	5.5	82	31
Mean	20.6	7.4	0.2	-	6.3	-	-	0.86	0.011	0.44	0.137	0.111	0.102	3.0	-	3.6	-	3.37	1.80	13.2	11.0	83	35
SD	1.2	1.2	0.1	-	0.9	-	-	0.16	0.007	0.22	0.035	0.020	0.023	0.6	-	0.7	-	1.31	0.27	13.9	11.7	7	2
			0.2						0.009	0.38								3.65					
			0.1						0.004	0.13								0.92					

Table A-3.1-3 Hourly Change of Water Quality in Ui Chong, St. 1, September 13-14, 1990

Item / Time	WT (°C)	pH	EC (mS/cm)	DO (mg/l)	TN (mg/l)	TON (mg/l)	TDN (mg/l)	NO3-N (mg/l)	NO2-N (mg/l)	NH4-N (mg/l)	TP (mg/l)	TDP (mg/l)	PO4-P (mg/l)	TBOD (mg/l)	DBOD (mg/l)	COD (mg/l)	DCOD (mg/l)	Sulfide (mg/l)	MBAS (mg/l)	SS (mg/l)	Settleable matter (mg/l)	Gauge (%)	Gauge (cm)
10:00	20.1	7.1	-	5.2	5.15	0.38	5.15	4.52	0.000	0.25	#0.589	#0.409	0.346	7.2	6.5	9.4	6.8	3.12	2.30	17.5	14.7	84	86
12:00	21.8	7.1	-	4.7	3.89	0.32	3.75	3.47	0.000	0.10	0.347	0.299	0.236	-	10.1	-	8.4	2.48	1.82	15.4	13.3	86	83
14:00	22.9	7.0	-	4.3	3.32	0.29	3.32	2.97	0.000	0.06	0.385	0.303	0.275	-	12.9	-	8.8	2.48	1.60	13.2	12.0	91	74
16:00	22.6	7.1	-	4.6	5.90	#0.71	5.90	3.10	0.000	$2.09	0.326	0.203	0.178	-	8.1	-	9.4	2.56	1.47	9.8	8.5	87	71
18:00	21.8	7.1	-	4.4	3.97	0.33	3.90	3.55	0.000	0.09	0.249	0.183	0.172	8.1	6.7	7.6	6.2	2.58	1.32	7.3	5.4	74	67
20:00	20.3	7.0	-	4.9	5.23	0.23	5.23	3.13	0.000	$1.87	0.271	0.175	0.165	-	7.1	-	6.5	3.36	1.30	7.0	5.6	80	70
20:00	19.3	6.8	-	5.3	3.55	0.12	3.55	3.34	0.000	0.09	0.299	0.208	0.185	-	8.0	-	10.1	3.12	2.07	6.5	5.1	78	72
24:00	19.2	6.9	-	5.5	3.18	0.17	3.18	2.97	0.000	0.04	0.308	0.218	0.199	-	8.2	-	12.0	2.40	2.57	4.7	3.3	70	72
02:00	19.1	6.8	-	5.6	4.61	0.37	4.54	4.19	0.000	0.05	0.294	0.233	0.194	8.0	5.7	7.0	6.6	2.72	2.82	3.3	2.8	85	72
04:00	18.6	7.0	-	6.2	4.61	0.31	4.61	4.27	0.000	0.04	0.290	0.214	0.176	-	1.2	-	3.0	2.88	1.62	2.7	1.7	63	70
06:00	18.7	7.1	-	6.7	3.35	0.23	3.28	3.07	0.000	0.05	0.301	0.237	0.202	-	4.1	-	5.5	3.12	1.84	3.5	2.1	60	70
08:00	19.1	7.0	-	6.5	3.45	0.30	3.45	3.10	0.000	0.05	0.303	0.253	0.194	-	3.3	-	5.4	2.88	1.98	6.6	5.5	83	72
10:00	20.1	6.9	-	4.7	6.61	0.38	6.54	#6.19	0.000	0.04	0.300	0.212	0.203	12.5	9.6	8.8	8.4	2.64	2.48	5.7	3.9	68	72
Mean	20.3	7.0	-	5.3	4.37	0.32	4.34	3.68	0.000	0.37	0.328	0.242	0.210	9.0	7.0	8.2	7.5	2.80	1.94	7.9	6.5	78	73
SD	1.4	0.1	-	0.8	1.05	0.14	1.05	0.88	0.000	0.69	0.082	0.061	0.048	2.1	2.9	0.9	2.3	0.30	0.47	4.5	4.2	9	5
						0.29		3.47		0.08	0.306	0.228											
						0.08		0.53		0.06	0.033	0.039											

Table A-3.1-4 Hourly Change of Water Quality of Ui Chong, St. 2, September 13-14, 1990

Item / Time	WT (°C)	pH	EC (mS/cm)	DO (mg/l)	TN (mg/l)	TON (mg/l)	TDN (mg/l)	NO3-N (mg/l)	NO2-N (mg/l)	NH4-N (mg/l)	TP (mg/l)	TDP (mg/l)	PO4-P (mg/l)	TBOD (mg/l)	DBOD (mg/l)	COD (mg/l)	DCOD (mg/l)	Sulfide (mg/l)	MBAS (mg/l)	SS (mg/l)	Settleable matter (mg/l)	Gauge (%)	Gauge (cm)
10:00	20.2	7.3	-	6.2	2.71	0.16	2.64	2.36	0.000	0.19	0.196	0.165	0.116	6.5	5.7	5.4	5.0	3.76	2.12	1.8	1.0	56	19
12:00	22.1	7.3	-	5.5	2.75	0.28	2.61	2.07	0.195	0.21	0.143	0.118	0.091	-	1.2	-	2.0	4.21	2.02	2.2	1.7	77	14
14:00	23.3	7.2	-	5.2	2.52	0.17	2.52	2.17	0.000	0.18	0.138	0.104	0.090	-	3.3	-	5.5	4.16	1.82	1.7	1.0	45	12
16:00	22.9	7.2	-	5.4	2.45	0.25	2.31	2.03	0.000	0.17	0.101	0.074	0.064	-	3.4	-	5.1	3.68	1.80	1.3	0.6	46	11
18:00	20.6	7.2	-	5.4	2.61	0.22	2.61	2.19	0.000	0.20	0.127	0.095	0.083	5.0	3.1	4.4	4.0	4.08	1.69	1.1	0.7	64	11
20:00	19.2	7.2	-	6.0	2.83	0.33	2.76	2.27	0.000	0.23	0.146	0.101	0.070	-	4.3	-	5.1	3.84	1.70	2.0	1.3	65	11
20:00	18.2	7.2	-	6.5	3.01	0.31	3.01	2.45	0.000	0.25	0.138	0.097	0.072	-	5.4	-	7.2	3.60	2.12	2.4	1.9	79	10
24:00	18.2	7.1	-	6.3	3.08	0.22	3.01	2.52	0.000	0.34	0.140	0.096	0.075	-	5.3	-	6.5	3.76	2.04	2.1	1.4	67	10
02:00	17.9	6.9	-	7.0	3.13	0.28	3.06	2.23	#0.276	0.35	0.085	0.072	0.061	3.0	1.9	4.8	4.4	4.16	2.37	1.0	0.6	60	9
04:00	17.8	7.0	-	6.6	2.88	0.29	2.81	2.10	0.084	0.41	0.079	0.056	0.053	-	1.6	-	3.5	3.92	1.40	1.0	0.4	40	9
06:00	17.7	7.1	-	6.4	2.31	$0.05	2.31	1.89	0.000	0.37	0.136	0.111	0.105	-	1.2	-	2.4	3.68	1.97	1.2	0.8	67	8
08:00	18.6	7.1	-	6.2	2.82	0.25	2.82	2.19	0.000	0.38	0.192	0.164	$0.027	-	3.3	-	5.0	3.68	1.62	1.2	0.9	75	8
10:00	19.0	7.0	-	5.7	2.88	0.36	2.81	2.18	0.000	0.34	0.189	0.162	0.133	5.1	4.8	5.4	5.0	4.16	2.01	1.8	0.5	28	9
Mean	19.7	7.1	-	6.0	2.77	0.24	2.71	2.20	0.043	0.28	0.139	0.109	0.080	4.9	3.4	5.0	4.7	3.90	1.90	1.6	1.0	59	11
SD	1.9	0.1	-	0.5	0.24	0.09	0.23	0.16	0.087	0.08	0.036	0.034	0.027	1.2	1.5	0.4	1.4	0.22	0.25	0.5	0.4	15	3
						0.26			0.140				0.084										
						0.06			0.055				0.023										

Table A-3.1-5 Hourly Change of Water Quality of Ui Chong, St. 1, November 6-7, 1990

Item / Time	WT (°C)	pH	DO (mg/l)	TN (mg/l)	TON (mg/l	TDN (mg/l	NO3-N (mg/l)	NO2-N (mg/l)	NH4-N (mg/l)	TP (mg/l)	TDP (mg/l)	PO4-P (mg/l)	BOD (mg/l)	DBOD (mg/l)	COD (mg/l)	DCOD (mg/l)	Sulfide (mg/l)	MBAS (mg/l)	SS (mg/l)	Settleable matter (mg/l)	(%)	Gauge (cm)
10:00	13.7	7.2	6.2	4.54	0.30	4.47	0.12	0.000	4.12	$1.024	0.464	0.103	17.4	14.3	18.4	17.4	4.51	1.39	19.3	16.2	84	47
12:00	13.8	7.1	6.0	4.50	0.18	4.32	0.09	0.000	4.23	$0.958	0.238	$0.069	-	$36.3	-	$63.5	3.19	1.34	#175.0	$94.0	54	47
14:00	13.6	7.0	5.8	5.42	0.15	5.28	0.41	0.033	4.83	$0.732	0.210	0.121	-	$32.5	-	$57.5	3.56	1.27	$139.0	$85.0	61	46
16:00	13.9	7.0	6.1	6.18	0.19	5.99	0.51	0.059	5.42	0.381	0.349	0.150	-	12.3	-	25.7	1.21	1.20	55.0	36.7	67	44
18:00	13.7	7.0	6.4	5.93	0.27	5.67	0.40	0.063	5.20	0.388	0.302	0.160	20.4	16.2	21.4	20.0	0.22	1.22	24.6	18.4	75	44
20:00	13.5	7.2	6.5	5.97	0.35	5.80	0.41	0.100	5.29	0.389	0.382	0.200	-	8.4	-	13.2	0.22	1.13	18.3	8.7	48	42
22:00	13.2	7.3	6.7	6.00	0.43	5.65	0.36	0.105	5.11	0.433	0.410	0.232	-	7.4	-	15.9	2.37	1.32	6.6	5.3	80	42
24:00	13.0	7.3	6.8	7.25	0.62	6.69	1.18	0.118	5.33	0.449	0.336	0.225	-	10.2	-	12.6	0.39	1.11	14.7	11.4	78	41
02:00	13.2	7.2	6.4	6.37	0.56	5.97	1.42	0.064	4.33	0.494	0.387	0.248	8.3	8.3	11.4	11.0	1.71	1.06	14.7	10.7	73	39
04:00	12.9	7.2	6.1	6.76	0.81	6.34	1.33	0.043	4.58	0.528	0.333	0.156	-	7.2	-	10.2	3.44	1.10	18.0	13.4	74	39
06:00	12.8	7.1	5.9	7.02	0.91	6.60	1.05	0.021	5.04	0.505	0.364	0.211	-	4.4	-	8.8	2.45	0.93	7.3	4.3	59	38
08:00	12.6	7.1	5.7	7.99	0.94	7.71	1.95	0.016	5.08	0.514	0.504	0.338	-	4.8	-	9.1	2.26	0.92	7.4	3.8	51	38
10:00	12.4	7.0	5.5	7.34	0.82	7.08	1.23	0.039	5.25	0.611	0.472	0.300	6.8	6.2	9.8	9.2	2.28	0.97	6.0	2.5	42	40
Mean	13.3	7.1	6.2	6.25	0.50	5.97	0.80	0.051	4.91	0.570	0.365	0.193	13.2	14.3	15.3	21.1	2.14	1.15	38.9	23.9	65	42
SD	0.5	0.1	0.4	1.00	0.28	0.92	0.56	0.037	0.43	0.071	0.083	0.074	5.8	10.0	4.8	17.5	1.30	0.15	52.3	29.3	13	3
										0.469		0.204		9.1		13.9			27.6	11.9		
										0.071		0.067		3.6		5.1			35.9	9.3		
																			17.3			
																			13.9			

Table A-3.1-6 Hourly Change of Water Quality of Ui Chong, St. 2, November 6-7, 1990

Item / Time	WT (°C)	pH	DO (mg/l)	TN (mg/l)	TON (mg/l)	TDN (mg/l)	NO3-N (mg/l)	NO2-N (mg/l)	NH4-N (mg/l)	TP (mg/l)	TDP (mg/l)	PO4-P (mg/l)	BOD (mg/l)	DBOD (mg/l)	COD (mg/l)	DCOD (mg/l)	Sulfide (mg/l)	MBAS (mg/l)	SS (mg/l)	Settleable matter (mg/l)	(%)	Gauge (cm)
10:00	12.7	7.2	6.8	4.63	0.34	4.42	4.03	0.033	0.23	0.322	0.274	0.182	2.8	2.4	5.4	4.7	2.69	1.39	21.0	16.0	76	6
12:00	12.4	7.2	7.0	2.96	0.10	2.86	2.10	0.017	0.74	0.375	0.306	0.164	-	#14.2	-	(38.1)	3.19	1.42	(185.0)	(162.4)	88	6
14:00	12.4	7.3	7.2	3.00	0.17	2.83	2.11	0.048	0.67	0.233	0.206	0.133	-	#10.5	-	#23.1	2.69	1.32	#91.3	#65.7	72	7
16:00	12.2	7.3	7.3	4.90	0.18	4.83	4.17	0.030	0.52	0.240	0.197	0.113	-	#10.1	-	#11.2	3.03	1.40	11.0	8.3	75	6
18:00	12.1	7.2	7.1	4.79	#0.06	4.65	3.22	0.027	1.36	0.165	0.147	0.102	4.0	3.2	7.0	6.7	2.86	1.39	5.3	4.3	81	5
20:00	11.9	7.1	6.9	5.27	0.13	5.14	3.63	0.034	1.48	0.178	0.156	0.093	-	3.6	-	7.4	2.37	1.22	5.0	4.0	80	5
22:00	11.7	7.1	6.7	5.40	0.31	5.40	3.84	0.016	1.23	0.170	0.148	0.098	-	3.6	-	6.9	2.86	1.32	5.3	3.8	72	5
24:00	11.6	7.1	7.2	5.50	0.25	5.43	4.08	0.026	1.14	0.167	0.157	0.079	-	2.7	-	5.6	2.20	1.40	4.0	2.4	60	4
02:00	11.4	7.0	7.3	5.04	0.26	5.04	3.53	#0.141	1.01	0.100	0.083	0.052	3.1	2.4	5.1	4.9	2.04	1.53	2.0	1.5	75	4
04:00	11.3	7.0	7.5	5.52	0.14	5.45	4.58	(0.289)	0.41	0.069	0.059	0.021	-	2.5	-	5.1	1.38	1.04	8.9	5.7	71	4
06:00	11.1	7.0	(6.2)	4.82	0.26	4.66	4.28	0.033	0.25	0.080	0.054	0.027	-	3.1	-	5.1	2.37	1.69	19.4	16.4	85	3
08:00	11.3	7.1	6.8	5.17	0.16	5.03	4.65	0.026	0.33	0.070	0.065	0.013	-	2.6	-	4.8	3.03	1.80	10.2	8.5	83	3
10:00	11.5	7.1	7.2	5.82	0.50	5.47	2.98	0.039	2.30	0.308	0.215	0.202	4.3	4.0	7.3	5.7	0.31	1.22	8.6	4.2	49	4
Mean	11.8	7.1	7.0	4.83	0.22	4.71	3.65	0.058	0.90	0.191	0.159	0.098	3.6	5.0	6.2	9.9	2.39	1.40	28.9	23.3	74	5
SD	0.5	0.1	0.3	0.85	0.11	0.86	0.91	0.073	0.58	0.096	0.077	0.058	0.6	3.8	1.0	9.4	0.76	0.19	50.4	43.3	10	1
			7.1		0.23			0.039						3.0		7.6			15.9	11.7		
			0.2		0.11			0.032						0.5		5.0			23.4	16.9		
								0.030								5.7			9.1	6.8		
								0.009								1.5			7.8	6.5		

Table A-3.1-7 Hourly Change of Water Quality of Ui Chong, St. 1, January 24-25, 1991

Item	WT	pH	DO	TN	TON	TDN	NO3-N	NO2-N	NH4-N	TP	TDP	PO4-P	BOD	DBOD	COD	DCOD	Sulfide	MBAS	SS	Settleable matter		Gauge
Time	(°C)		(mg/l)	(mg/l)	(mg/l)	(mg/l)	(mg/l)	(mg/l)	(mg/l)	(mg/l)	(mg/l)	(mg/l)	(mg/l)	(mg/l)	(mg/l)	(mg/l)	(mg/l)	(mg/l)	(mg/l)	(mg/l)	(%)	(cm)
10:00	3.1	7.2	7.9	5.90	0.49	5.83	5.00	0.057	0.35	0.040	0.033	0.029	4.0	2.7	9.6	7.4	2.03	1.06	#42.7	$ 26.7	63	30
12:00	2.1	7.3	7.4	5.80	0.42	5.83	5.00	0.059	0.42	$0.440	0.044	0.040	-	2.9	-	7.4	3.19	1.07	$34.3	$ 24.3	71	31
14:00	2.2	7.2	7.4	5.59	0.28	5.59	4.90	0.058	0.35	0.042	0.038	0.033	-	2.0	-	7.0	2.94	0.89	7.3	4.3	59	32
16:00	2.2	7.3	7.4	5.97	0.37	5.90	5.00	0.057	0.54	$0.566	0.030	0.028	-	3.5	-	8.3	2.61	0.56	7.0	3.3	47	31
18:00	1.9	7.1	8.2	5.97	0.33	5.89	5.00	0.056	0.58	0.094	0.055	0.030	5.0	4.7	12.5	9.4	2.78	0.75	6.7	4.7	70	30
20:00	3.0	7.3	9.2	5.92	0.34	5.85	5.02	0.055	0.50	0.088	0.064	0.042	-	4.6	-	9.3	2.94	1.09	7.3	5.0	68	30
22:00	2.6	7.4	9.6	5.62	0.32	5.55	4.80	0.050	0.45	0.076	0.052	0.034	-	2.3	-	8.3	3.11	0.94	8.0	4.1	51	30
24:00	2.4	7.3	9.0	5.50	0.33	5.49	4.75	0.050	0.38	0.040	0.031	0.028	-	3.6	-	8.8	3.27	0.83	6.7	4.7	70	29
02:00	2.4	7.2	8.7	4.35	0.29	4.28	3.60	0.051	0.41	0.049	0.036	0.026	4.6	4.5	9.6	7.9	3.30	0.83	5.4	3.3	61	29
04:00	2.4	7.5	8.4	3.67	0.32	3.60	2.78	0.053	0.52	0.060	0.056	0.024	-	3.5	-	8.3	2.94	0.55	6.0	3.0	50	28
06:00	2.6	7.2	7.4	4.96	0.37	4.95	4.00	0.054	0.54	0.035	0.033	0.020	-	2.7	-	8.8	3.27	0.68	7.3	4.3	59	28
08:00	1.8	7.2	6.8	6.15	0.54	6.08	5.04	0.055	0.51	0.025	0.019	0.014	-	2.6	-	7.4	3.19	1.27	6.7	4.1	61	28
10:00	1.7	7.1	6.6	5.24	0.61	5.02	4.09	0.050	0.58	0.027	0.014	0.015	3.1	3.0	7.4	7.4	3.11	1.03	5.3	3.3	62	29
Mean	2.3	7.3	8.0	5.43	0.39	5.37	4.53	0.054	0.47	0.122	0.039	0.028	4.2	3.3	9.8	8.1	2.98	0.89	11.6	7.3	61	30
SD	0.4	0.1	0.9	0.70	0.10	0.70	0.69	0.003	0.08	0.166	0.014	0.008	0.7	0.9	1.8	0.8	0.34	0.21	11.6	7.8	8	1
										0.052									9.0	4.0		
										0.023									7.7	0.7		
																			7.1	4.3		
																			1.6	1.6		

Table A-3.1-8 Hourly Change of Water Quality of Ui Chong, St. 2, January 24-25, 1991

Item	WT	pH	DO	TN	TON	TDN	NO3-N	NO2-N	NH4-N	TP	TDP	PO4-P	BOD	DBOD	COD	DCOD	Sulfide	MBAS	SS	Settleable matter		Gauge
Time	(°C)		(mg/l)	(mg/l)	(mg/l)	(mg/l)	(mg/l)	(mg/l)	(mg/l)	(mg/l)	(mg/l)	(mg/l)	(mg/l)	(mg/l)	(mg/l)	(mg/l)	(mg/l)	(mg/l)	(mg/l)	(mg/l)	(%)	(cm)
10:00	3.3	7.3	8.5	4.21	0.24	4.21	3.78	0.013	0.19	0.055	0.042	0.036	1.2	1.8	3.4	3.4	3.44	1.10	5.3	2.3	43	0>
12:00	6.5	7.4	7.8	4.33	0.28	4.33	3.83	0.014	0.21	0.062	0.045	0.042	-	0.5		2.5	3.19	1.19	4.7	2.7	57	0>
14:00	5.8	7.5	8.2	4.25	0.31	4.27	3.77	0.010	0.18	0.053	0.048	0.039	-	1.2	-	3.8	3.27	0.94	5.3	2.0	38	0>
16:00	5.2	7.4	8.9	4.15	0.22	4.25	3.73	0.009	0.20	0.063	0.053	0.042	-	0.9	-	2.5	3.24	0.83	2.3	0.5	22	0>
18:00	5.0	7.5	7.6	4.50	0.35	4.50	3.93	0.012	0.21	0.060	0.049	0.045	0.9	0.8	3.4	3.3	3.56	0.87	1.3	0.6	46	0>
20:00	4.2	7.6	7.0	4.90	0.40	4.83	4.25	0.018	0.23	0.055	0.050	0.049	-	2.2	-	3.3	3.57	0.89	6.7	4.7	70	0>
22:00	3.8	7.6	8.8	4.57	0.36	4.50	4.00	0.013	0.20	0.060	0.052	0.045	-	1.9	-	3.7	#2.78	0.97	10.0	5.0	50	0>
24:00	3.7	7.7	9.2	4.27	0.26	4.20	3.78	0.008	0.23	0.052	0.052	0.047	-	2.0	-	4.3	3.27	0.87	9.8	4.7	48	0>
02:00	3.0	7.4	8.7	4.28	0.27	4.21	3.78	0.015	0.22	0.032	0.027	0.022	2.5	1.3	5.3	5.8	3.24	1.41	10.7	6.7	63	0>
04:00	3.2	7.5	7.0	4.27	0.22	4.20	3.83	#0.026	0.20	0.012	0.010	0.007	-	1.8	-	4.3	3.44	1.03	8.3	3.3	40	0>
06:00	2.8	7.4	6.8	4.04	0.20	3.97	3.60	0.018	0.22	0.025	0.018	0.012	-	2.0	-	5.2	3.61	1.24	7.7	3.0	39	0>
08:00	2.4	7.4	7.2	4.00	0.24	4.00	3.50	0.005	0.25	0.070	0.058	0.056	-	1.8	-	3.7	3.52	1.05	3.3	1.7	52	0>
10:00	3.0	7.5	7.4	3.93	0.29	3.93	3.50	0.006	0.20	0.040	0.035	0.032	2.0	1.1	5.7	4.3	3.36	1.00	5.3	3.0	57	0>
Mean	4.0	7.5	7.9	4.28	0.28	4.26	3.79	0.013	0.21	0.050	0.041	0.036	1.7	1.5	4.5	3.9	3.35	1.03	6.2	3.1	48	0>
SD	1.2	0.1	0.8	0.25	0.06	0.24	0.19	0.005	0.02	0.017	0.014	0.014	0.6	0.5	1.1	0.9	0.21	0.16	2.9	1.7	12	0>
								0.012									3.39					
								0.004									0.14					

Table A-3.1-9 Hourly Change of Water Quality of Ui Chong, U-St. 1, March 7-8, 1991

Item Time	WT (°C)	pH	DO (mg/l)	TN (mg/l)	TON (mg/l)	NO3-N (mg/l)	NO2-N (mg/l)	NH4-N (mg/l)	TP (mg/l)	TDP (mg/l)	PO4-P (mg/l)	TBOD (mg/l)	DBOD (mg/l)	TCOD(Cr) (mg/l)	DCOD(Cr) (mg/l)	Sulfide (mg/l)	MBAS (mg/l)	SS (mg/l)	Settleable matter (mg/l)	(%)	Gauge (cm)
10:00	7.7	7.6	7.8	5.74	0.34	4.95	#0.061	0.45	0.092	0.070	0.025	2.4	2.3	9.6	7.6	4.29	1.97	4.3	2.0	47	27
12:00	8.0	7.5	7.2	5.98	0.37	5.27	0.015	0.33	0.093	0.081	0.022	-	2.4	-	6.8	4.45	1.86	4.7	3.3	70	27
14:00	10.3	7.5	6.9	5.82	0.17	5.39	0.013	0.25	0.056	0.045	0.020	-	2.3	-	6.2	4.29	1.99	4.3	1.7	40	28
16:00	9.9	7.5	7.5	6.25	0.24	5.85	0.013	0.95	0.046	0.024	0.011	-	1.9	-	6.3	4.37	2.01	4.0	1.0	25	28
18:00	9.0	7.4	7.2	7.08	0.62	5.25	0.012	1.20	0.058	0.033	0.018	3.5	2.0	7.4	6.6	4.29	2.04	4.7	2.3	49	28
20:00	8.8	7.4	7.0	6.93	0.57	5.11	0.012	1.24	0.096	0.070	0.024	-	2.3	-	7.1	4.45	2.13	4.7	2.5	53	27
22:00	8.7	7.5	6.7	6.94	0.51	4.97	0.013	1.45	0.094	0.064	0.028	-	3.4	-	8.0	4.37	2.20	8.3	4.3	52	27
24:00	8.2	7.5	7.5	6.85	0.72	4.87	0.011	1.25	0.088	0.036	0.025	-	2.1	-	7.6	4.53	2.19	#10.7	4.0	$37	26
02:00	10.4	7.4	7.8	6.58	0.66	4.75	0.013	1.16	0.052	0.029	0.021	3.1	2.0	8.1	7.4	4.37	2.20	6.7	3.0	45	26
04:00	7.2	7.5	6.9	6.23	0.40	4.96	0.012	0.86	0.056	0.026	0.014	-	1.7	-	6.3	4.37	1.89	6.7	3.3	49	26
06:00	8.7	7.6	7.0	6.17	0.59	5.03	0.012	0.54	0.048	0.022	0.016	-	2.0	-	7.1	4.45	1.95	5.3	2.3	43	25
08:00	5.8	7.5	7.0	6.49	0.54	5.21	0.014	0.73	0.050	0.026	0.014	-	3.1	-	8.0	#3.37	1.97	4.7	2.0	43	25
10:00	6.3	7.4	#5.8	6.03	0.41	4.75	0.015	0.86	0.044	0.024	0.013	3.1	3.8	9.5	8.5	4.45	2.05	4.7	4.0	85	24
Mean	8.4	7.5	7.1	6.39	0.47	5.04	0.017	0.87	0.067	0.042	0.019	3.0	2.4	8.7	7.2	4.31	2.03	5.7	2.7	49	26
SD	1.4	0.1	0.5	0.44	0.16	0.19	0.013	0.37	0.021	0.020	0.005	0.4	0.6	0.9	0.7	0.28	0.11	1.9	1.0	14	1
			7.2				0.013									4.39		5.3		50	
			0.3				0.001									0.07		1.2		15	

Table A-3.1-10 Hourly Change of Water Quality of Ui Chong, U-St. 2, March 7-8, 1991

Item Time	WT (°C)	pH	DO (mg/l)	TN (mg/l)	TON (mg/l)	NO3-N (mg/l)	NO2-N (mg/l)	NH4-N (mg/l)	TP (mg/l)	TDP (mg/l)	PO4-P (mg/l)	TBOD (mg/l)	DBOD (mg/l)	TCOD(Cr) (mg/l)	DCOD(Cr) (mg/l)	Sulfide (mg/l)	MBAS (mg/l)	SS (mg/l)	Settleable matter (mg/l)	(%)	Gauge (cm)
10:00	8.0	7.3	8.2	5.26	0.35	4.90	0.013	#0.09	0.175	0.045	0.012	13.7	6.5	8.6	5.5	4.77	1.08	$132.4	$68.7	$52	0>
12:00	8.5	7.3	8.4	5.15	0.25	4.86	0.012	0.03	0.186	0.042	0.014	-	#10.2	-	5.2	#5.26	1.36	#224.0	#142.0	$63	0>
14:00	7.4	7.3	8.8	5.02	0.30	4.65	0.015	0.05	0.065	0.020	0.011	-	2.0	-	4.5	4.77	1.72	26.7	11.4	43	0>
16:00	7.2	7.4	7.2	4.50	0.25	4.21	0.013	0.03	0.044	0.016	0.012	-	1.3	-	3.8	4.61	1.64	28.7	13.7	48	0>
18:00	7.1	7.4	7.6	4.39	0.25	4.10	0.011	0.03	0.072	0.016	0.013	2.1	1.9	5.1	4.4	4.45	1.33	30.3	10.0	33	0>
20:00	6.1	7.3	7.1	4.25	0.26	3.96	0.011	0.02	0.085	0.015	0.012	-	1.9	-	4.5	4.53	1.21	34.7	12.0	35	0>
22:00	6.0	7.3	8.0	4.04	0.19	3.82	0.012	0.02	0.098	0.016	0.015	-	1.9	-	3.8	4.61	1.36	30.3	15.3	50	0>
24:00	6.9	7.3	7.5	3.97	0.19	3.74	0.016	0.02	0.046	0.020	0.011	-	2.1	-	4.4	4.61	1.31	28.7	12.7	44	0>
02:00	5.8	7.3	8.2	3.97	0.23	3.70	0.018	0.02	0.089	0.018	0.012	2.6	2.3	6.3	5.3	4.45	1.42	28.3	13.3	47	0>
04:00	5.6	7.3	7.8	3.98	0.20	3.76	0.015	0.01	0.225	0.025	0.014	-	2.1	-	4.5	4.45	1.01	38.0	22.3	59	0>
06:00	5.4	7.3	7.7	4.02	0.19	3.80	0.012	0.02	0.125	0.020	0.015	-	3.7	-	3.7	4.53	1.79	18.3	8.7	48	0>
08:00	5.2	7.3	7.5	3.98	0.26	3.69	0.011	0.02	0.165	0.018	0.015	-	1.0	-	3.8	4.45	0.94	17.3	11.2	65	0>
10:00	5.7	7.4	7.0	3.94	0.26	3.65	0.013	0.02	0.156	0.028	0.016	3.3	2.4	6.4	4.1	4.53	2.03	73.3	48.3	66	0>
Mean	6.5	7.3	7.8	4.34	0.24	4.06	0.013	0.03	0.118	0.023	0.013	5.4	3.0	6.6	4.4	4.62	1.40	54.7	30.0	50	0>
SD	1.0	0.0	0.5	0.47	0.04	0.44	0.002	0.02	0.056	0.009	0.001	4.8	2.5	1.3	0.6	0.21	0.31	57.2	36.6	10	0>
								0.02					2.4			4.56		40.6	20.5	49	
								0.01					1.4			0.11		30.8	17.7	10	
																		32.2	16.3		
																		14.2	10.7		

Table A-3.1-11 Hourly Change of Water Quality of Ui Chong, U-St. 1, May 14-15, 1991

Item / Time	WT (°C)	pH	DO (mg/l)	TN (mg/l)	TON (mg/l)	NO3-N (mg/l)	NO2-N (mg/l)	NH4-N (mg/l)	TP (mg/l)	TDP (mg/l)	PO4-P (mg/l)	TBOD (mg/l)	DBOD (mg/l)	TCOD(Mn) (mg/l)	DCOD(Mn) (mg/l)	Sulfide (mg/l)	MBAS (mg/l)	SS (mg/l)	Settleable matter (mg/l)	(%)	Gauge (cm)
10:00	21.0	7.3	6.2	1.30	0.12	1.16	0.000	0.02	0.241	0.203	0.182	1.3	1.0	5.2	4.8	4.48	1.96	#26.0	#23.0	$88	23
12:00	23.5	7.4	6.8	1.38	0.13	1.24	0.000	0.01	0.128	0.106	0.095	-	1.0	-	4.6	4.25	#2.28	13.0	8.0	62	23
14:00	23.7	7.4	7.2	2.17	$0.05	1.97	0.126	0.02	0.164	0.133	0.102	-	2.2	-	5.2	4.09	1.27	10.0	6.4	64	24
16:00	24.0	7.3	7.4	2.16	0.20	1.86	0.105	0.02	0.200	0.151	0.126	-	1.0	-	4.0	4.25	1.11	12.3	8.3	67	25
18:00	21.4	7.3	6.0	2.08	0.33	1.60	0.132	0.02	0.174	0.133	0.120	1.0	1.0	3.2	3.0	4.56	1.30	16.7	14.0	84	24
20:00	19.6	7.3	5.8	1.87	0.33	1.47	0.047	0.02	0.133	0.109	0.090	-	1.0	-	3.8	4.33	1.28	8.3	2.4	29	23
22:00	19.2	7.4	5.2	1.97	0.33	1.56	0.056	0.02	0.094	0.075	0.053	-	1.0	-	3.8	4.56	1.24	7.3	3.0	41	23
24:00	18.7	7.5	6.2	2.13	0.26	1.82	0.025	0.02	0.067	0.048	0.014	-	1.4	-	4.4	4.09	1.25	5.7	1.3	23	21
02:00	18.5	7.4	6.7	2.10	0.34	1.74	0.000	0.02	0.014	0.113	0.097	2.2	2.0	5.6	5.2	4.33	1.28	4.7	3.3	70	23
04:00	18.3	7.3	6.3	1.99	0.33	1.64	0.000	0.02	0.016	0.138	0.080	-	1.2	-	4.6	4.25	1.44	3.0	1.3	43	22
06:00	16.2	7.2	6.8	1.98	0.40	1.56	0.000	0.02	0.128	0.111	0.084	-	1.0	-	4.4	4.71	1.29	2.0	1.3	65	21
08:00	15.8	7.4	5.7	2.01	0.47	1.52	0.000	0.02	0.093	0.087	0.050	-	1.0	-	4.0	4.56	1.39	5.3	3.7	70	19
10:00	16.8	7.4	6.0	2.09	0.59	1.46	0.000	0.04	0.088	0.074	0.025	1.2	1.0	4.0	3.4	4.71	1.24	11.3	8.7	77	19
Mean	19.7	7.4	6.3	1.94	0.30	1.58	0.038	0.02	0.118	0.114	0.086	1.4	1.2	4.5	4.2	4.4	1.41	9.7	6.5	60	22
SD	2.7	0.1	0.6	0.27	0.14	0.22	0.049	0.01	0.064	0.038	0.043	0.5	0.4	1.0	0.6	0.2	0.32	6.2	6.0	19	2
					0.32												1.34	8.3	5.1	56	
					0.13												0.20	4.3	3.8	18	

Table A-3.1-12 Hourly Change of Water Quality of Ui Chong, U-St. 2, May 14-15, 1991

Item / Time	WT (°C)	pH	DO (mg/l)	TN (mg/l)	TON (mg/l)	NO3-N (mg/l)	NO2-N (mg/l)	NH4-N (mg/l)	TP (mg/l)	TDP (mg/l)	PO4-P (mg/l)	TBOD (mg/l)	DBOD (mg/l)	TCOD(Mn) (mg/l)	DCOD(Mn) (mg/l)	Sulfide (mg/l)	MBAS (mg/l)	SS (mg/l)	Settleable matter (mg/l)	(%)	Gauge (cm)
10:00	16.7	7.3	5.2	4.01	0.52	2.75	0.724	0.02	0.185	0.142	0.084	2.8	2.6	6.4	6.2	4.48	1.64	6.0	2.0	33	0>
12:00	19.4	7.2	6.0	4.52	0.53	2.64	1.325	0.02	0.169	0.106	0.075	-	2.8	-	6.4	4.33	1.72	6.3	3.0	48	0>
14:00	21.0	7.2	5.2	5.62	0.62	2.72	2.263	0.02	0.273	0.211	0.163	-	2.5	-	6.8	4.25	1.81	8.0	3.5	44	0>
16:00	23.0	7.3	6.4	4.53	0.54	2.49	1.478	0.02	0.344	0.260	0.154	-	3.0	-	7.0	4.48	1.83	6.0	2.0	33	0>
18:00	23.2	7.4	6.1	5.40	0.76	2.45	2.185	0.01	0.286	0.145	0.102	5.2	#5.2	9.6	8.5	4.56	1.44	7.3	2.7	37	0>
20:00	22.2	7.5	6.7	4.52	0.55	3.01	0.946	0.01	0.207	0.076	0.051	-	2.9	-	7.6	4.41	1.67	5.0	1.3	26	0>
22:00	20.8	7.3	5.2	3.72	0.51	3.00	0.192	0.02	0.188	0.065	0.048	-	3.0	-	8.4	4.56	1.24	5.3	2.0	38	0>
24:00	20.2	7.4	4.8	4.05	0.48	3.14	0.422	0.01	0.094	0.090	0.025	-	2.9	-	7.6	4.71	1.33	6.3	3.3	52	0>
02:00	19.3	7.4	4.2	3.96	0.40	3.17	0.368	0.02	0.147	0.085	0.053	3.0	2.8	7.6	7.0	4.64	1.44	6.0	4.7	78	0>
04:00	18.2	7.4	3.9	3.68	0.40	2.99	0.274	0.02	0.193	0.050	0.040	-	3.2	-	8.4	4.33	1.69	5.3	2.0	38	0>
06:00	17.0	7.3	4.8	3.59	0.47	3.10	0.000	0.02	0.155	0.112	0.073	-	2.8	-	6.8	4.87	1.30	6.7	3.3	49	0>
08:00	16.5	7.3	5.2	3.70	0.48	3.20	0.000	0.02	0.144	0.083	0.050	-	3.0	-	7.6	4.56	2.08	8.0	6.0	75	0>
10:00	18.6	7.2	5.7	3.59	1.54	2.03	0.000	0.02	0.152	0.093	0.064	2.9	2.7	6.2	6.2	4.09	2.28	9.3	#8.0	$86	0>
Mean	19.7	7.3	5.3	4.22	0.60	2.82	0.783	0.02	0.195	0.117	0.076	3.5	3.0	7.5	7.3	4.48	1.65	6.6	3.4	49	
SD	2.2	0.1	0.8	0.64	0.29	0.34	0.770	0.004	0.066	0.058	0.040	1.0	0.7	1.4	0.8	0.20	0.29	1.2	1.8	18	
													2.9						3.0	46	
													0.2						1.3	15	

Table A-4.1-1 Hourly Change of Water Quality of Chungroung Chong, C-St. 1, July 26-27, 1990

Item / Time	WT (°C)	pH	DO (mg/l)	TN (mg/l)	TON (mg/l)	TDN (mg/l)	NO3-N (mg/l)	NO2-N (mg/l)	NH4-N (mg/l)	TP (mg/l)	TDP (mg/l)	PO4-P (mg/l)	BOD (mg/l)	DBOD (mg/l)	COD (mg/l)	DCOD (mg/l)	Sulfide (mg/l)	MBAS (mg/l)	SS (mg/l)	Settleable matter (mg/l)	(%)	Gauge (cm)
12:10	24.6	7.0	4.0	-	-	-	1.53	0.068	2.43	0.340	0.235	0.190	5.8	-	7.2	-	2.4	1.30	13.7	13.1	96	22
14:10	24.9	6.9	4.4	-	-	-	1.77	0.086	2.45	0.394	0.383	0.184	6.2	-	7.4	-	1.7	1.24	28.3	27.4	97	19
16:10	24.5	6.9	5.8	-	-	-	2.10	0.055	2.20	0.558	0.228	0.144	6.0	-	7.0	-	3.2	1.03	(43.5)	(39.4)	91	23
18:10	23.0	7.0	5.9	-	-	-	1.77	0.051	2.10	0.256	0.235	0.135	5.9	-	6.4	-	3.2	1.11	4.6	3.9	85	14
20:10	23.1	6.8	5.2	-	-	-	2.09	0.058	1.80	0.196	0.163	0.124	4.1	-	5.2	-	3.5	1.33	6.1	4.9	80	15
22:10	22.6	6.9	5.0	-	-	-	2.15	0.063	2.13	0.290	0.185	0.151	5.7	-	6.2	-	3.0	1.39	4.7	2.5	53	15
24:10	22.2	6.9	5.4	-	-	-	2.02	0.069	2.35	0.253	0.206	0.158	5.8	-	6.2	-	2.9	1.42	2.3	1.7	74	12
02:10	21.6	6.8	5.7	-	-	-	1.94	0.063	2.18	0.259	0.218	0.160	6.0	-	6.2	-	3.2	1.52	2.6	1.1	42	13
04:10	21.1	6.8	6.1	-	-	-	1.56	0.058	2.00	0.268	0.203	0.176	6.0	-	6.8	-	3.3	1.75	2.5	1.8	72	12
06:10	20.7	6.9	6.6	-	-	-	2.10	0.051	1.77	0.239	0.219	0.175	4.9	-	5.4	-	2.7	1.50	2.8	2.0	71	12
08:10	21.8	6.8	6.6	-	-	-	2.18	0.059	1.57	0.259	0.222	0.185	4.2	-	4.4	-	3.2	1.33	2.3	1.6	70	11
10:10	23.9	6.8	5.7	-	-	-	1.93	0.071	2.90	0.415	0.325	0.275	4.8	-	5.2	-	2.7	2.06	3.8	1.9	50	13
12:10	24.8	6.9	5.1	-	-	-	2.05	0.064	(3.97)	0.458	0.422	(0.338)	5.2	-	5.6	-	2.7	(2.86)	6.1	5.7	93	18
Mean	23.0	6.9	5.5	-	-	-	1.94	0.063	2.30	0.322	0.250	0.184	5.4	-	6.1	-	2.9	1.31	9.5	8.2	75	15
SD	1.4	0.1	0.7	-	-	-	0.21	0.009	0.58	0.101	0.075	0.057	0.7	-	0.9	-	0.5	0.46	12.0	11.4	17	4
									2.16			0.171						1.42	6.7	5.6		
									0.34			0.037						0.27	7.2	7.3		

Table A-4.1-2 Hourly Change of Water Quality of Chungroung Chong, C-St. 2, July 26-27, 1990

Item / Time	WT (°C)	pH	DO (mg/l)	TN (mg/l)	TON (mg/l)	TDN (mg/l)	NO3-N (mg/l)	NO2-N (mg/l)	NH4-N (mg/l)	TP (mg/l)	TDP (mg/l)	PO4-P (mg/l)	BOD (mg/l)	DBOD (mg/l)	TCOD (mg/l)	DCOD (mg/l)	Sulfide (mg/l)	MBAS (mg/l)	SS (mg/l)	Settleable matter (mg/l)	(%)	Gauge (cm)
12:10	24.0	7.3	5.8	-	-	-	1.81	0.067	2.64	0.246	0.233	0.215	5.1	-	5.8	-	2.9	1.41	10.1	9.6	95	25
14:10	23.8	5.0	7.2	-	-	-	1.76	0.092	3.24	0.407	0.293	0.254	5.6	-	6.4	-	2.1	1.49	(17.1)	(16.3)	76	23
16:10	23.7	6.9	7.5	-	-	-	1.69	(0.211)	1.22	0.240	0.191	0.140	4.8	-	5.4	-	2.2	1.57	9.3	8.9	96	21
18:10	22.3	7.2	6.8	-	-	-	1.94	0.056	1.89	0.199	0.168	0.138	5.8	-	6.2	-	3.5	2.39	3.8	2.8	74	20
20:10	22.1	6.9	6.5	-	-	-	1.90	0.069	2.20	0.292	0.153	0.128	4.9	-	5.7	-	3.2	3.32	1.2	0.9	75	17
22:10	21.3	7.0	6.2	-	-	-	1.82	0.067	2.50	0.240	0.165	0.131	5.8	-	6.6	-	2.8	3.45	3.9	3.2	82	16
24:10	21.2	7.1	6.3	-	-	-	1.45	0.066	2.78	0.307	0.197	0.166	5.6	-	6.4	-	3.6	3.29	2.9	2.3	79	15
02:10	20.8	7.0	6.1	-	-	-	1.97	0.050	2.45	0.275	0.269	0.184	4.9	-	5.4	-	3.5	2.31	1.6	1.3	81	14
04:10	20.4	7.1	6.4	-	-	-	2.08	0.057	1.90	0.283	0.236	0.186	4.7	-	5.1	-	3.5	2.49	1.1	0.9	82	14
06:10	20.5	7.2	6.6	-	-	-	2.18	0.053	1.77	0.242	0.211	0.182	4.8	-	5.3	-	3.4	2.02	0.8	0.4	50	13
08:10	22.0	7.2	6.8	-	-	-	2.26	0.066	2.66	0.383	0.293	0.253	4.3	-	5.0	-	3.6	1.71	2.6	2.2	85	14
10:10	22.5	7.2	6.7	-	-	-	1.94	0.076	4.52	0.423	0.397	0.375	6.8	-	7.1	-	3.6	1.88	3.1	2.8	90	15
12:10	22.6	7.2	6.2	-	-	-	1.74	0.097	4.20	0.361	0.312	0.301	7.4	-	8.0	-	2.7	2.34	4.6	4.3	93	15
Mean	22.1	6.9	6.6	-	-	-	1.89	0.080	2.61	0.300	0.240	0.204	5.4	-	6.0	-	3.1	2.28	4.8	4.3	81	17
SD	1.2	0.6	0.4	-	-	-	0.21	0.040	0.90	0.069	0.068	0.071	0.8	-	0.8	-	0.5	0.68	4.5	4.4	12	4
								0.069											3.8	3.3		
								0.013											2.9	2.9		

Table A-4.1-3 Hourly Change of Water Quality of Chungroung Chong, C-St. 3, July 26-27, 1990

Item / Time	WT (°C)	pH	DO (mg/l)	TN (mg/l)	TON (mg/l)	TDN (mg/l)	NO3-N (mg/l)	NO2-N (mg/l)	NH4-N (mg/l)	TP (mg/l)	TDP (mg/l)	PO4-P (mg/l)	BOD (mg/l)	DBOD (mg/l)	COD (mg/l)	DCOD (mg/l)	Sulfide (mg/l)	MBAS (mg/l)	SS (mg/l)	Settleable matter (mg/l)	(%)	Gauge (cm)
12:10	23.7	7.1	6.9	-	-	-	2.42	0.064	2.67	0.346	0.309	0.263	6.0	-	6.4	-	3.3	2.28	7.1	6.7	94	32
14:10	23.5	7.2	7.7	-	-	-	2.32	0.055	2.26	0.261	0.241	0.195	6.0	-	6.3	-	3.6	2.17	4.2	4.0	95	30
16:10	23.2	7.0	6.9	-	-	-	2.34	0.057	2.09	0.194	0.153	0.138	6.2	-	6.8	-	3.6	2.06	7.4	7.1	96	28
18:10	23.0	7.0	6.8	-	-	-	2.61	0.049	2.00	0.219	0.191	0.169	5.7	-	6.5	-	3.6	2.31	6.5	6.1	94	24
20:10	22.7	7.0	6.7	-	-	-	2.31	0.054	2.21	0.238	0.222	0.185	5.8	-	6.2	-	3.7	2.64	3.0	2.8	93	23
22:10	22.4	7.2	6.1	-	-	-	2.44	0.083	2.47	0.292	0.237	0.206	6.6	-	7.1	-	3.2	1.63	3.9	2.5	64	20
24:10	21.9	7.3	5.7	-	-	-	2.61	0.057	2.42	0.352	0.227	0.200	5.0	-	5.4	-	3.2	1.52	1.1	0.7	64	19
02:10	21.3	7.2	5.6	-	-	-	2.48	0.055	2.09	0.237	0.224	0.223	8.9	-	4.7	-	3.5	1.55	0.6	0.4	67	17
04:10	20.8	7.2	5.4	-	-	-	2.71	0.061	2.11	0.226	0.219	0.198	4.8	-	5.1	-	3.6	1.88	0.3	0.2	67	17
06:10	21.0	7.2	5.4	-	-	-	2.57	0.059	1.50	0.253	0.231	0.212	4.2	-	4.0	-	3.6	1.93	0.9	0.6	67	17
08:10	21.3	7.4	6.5	-	-	-	2.29	0.061	2.65	0.371	0.334	0.326	5.0	-	5.6	-	3.3	1.71	7.9	7.4	94	18
10:10	21.9	7.4	6.4	-	-	-	2.05	0.067	(4.77)	(0.588)	(0.489)	(0.481)	6.9	-	7.4	-	2.2	1.90	4.1	3.7	90	19
12:10	22.1	7.3	6.3	-	-	-	1.86	(0.098)	3.77	0.453	0.358	0.340	6.3	-	9.1	-	1.4	2.78	6.4	5.8	91	19
Mean	22.2	7.2	6.3	-	-	-	2.39	0.063	2.54	0.311	0.264	0.241	6.0	-	6.2	-	3.2	2.00	4.1	3.7	83	22
SD	0.9	0.1	0.7	-	-	-	0.23	0.013	0.82	0.107	0.085	0.089	1.1	-	1.3	-	0.6	0.40	2.7	2.6	14	5
								0.060	2.35	0.288	0.246	0.221										
								0.008	0.52	0.074	0.057	0.058										

Table A-4.1-4 Hourly Change of Water Quality of Chungroung Chong, C-St. 1, September 13-14, 1990

Item / Time	WT (°C)	pH	DO (mg/l)	TN (mg/l)	TON (mg/l)	TDN (mg/l)	NO3-N (mg/l)	NO2-N (mg/l)	NH4-N (mg/l)	TP (mg/l)	TDP (mg/l)	PO4-P (mg/l)	TBOD (mg/l)	DBOD (mg/l)	TCOD (mg/l)	DCOD (mg/l)	Sulfide (mg/l)	MBAS (mg/l)	SS (mg/l)	Settleable matter (mg/l)	(%)	Gauge (cm)
10:00	21.3	7.2	5.1	3.62	0.18	3.55	3.34	0.000	0.10	0.465	0.313	0.271	7.2	6.9	8.6	8.0	0.32	1.12	7.1	6.7	94	30
12:00	22.5	7.0	4.8	3.45	0.12	3.43	3.24	0.000	0.04	0.402	0.255	0.231	-	7.1	-	10.4	3.04	1.30	5.3	5.1	96	30
14:00	22.9	7.2	4.2	3.33	0.14	3.33	3.12	0.000	0.07	0.346	0.297	0.253	-	3.9	-	5.3	3.07	1.10	6.5	6.0	92	29
16:00	23.8	7.3	4.0	3.48	0.16	3.45	3.10	0.033	(0.19)	0.278	0.153	0.133	-	8.8	-	14.7	2.72	1.21	7.3	7.0	96	27
18:00	21.7	7.1	4.1	3.44	0.25	3.44	3.08	0.013	0.10	0.233	0.195	0.144	5.8	4.7	9.8	7.2	2.08	1.29	4.2	3.9	93	25
20:00	20.5	7.1	4.0	3.44	0.32	3.44	3.02	0.000	0.10	0.196	0.164	0.126	-	4.8	-	8.5	0.96	1.46	6.3	5.5	87	25
22:00	19.5	6.9	4.4	3.46	0.33	3.46	3.02	0.013	0.09	0.188	0.102	0.098	-	5.6	-	8.8	1.60	1.60	7.2	6.9	96	23
24:00	19.2	7.0	4.2	3.40	0.24	3.40	3.05	0.000	0.11	0.213	0.166	0.124	-	5.3	-	8.7	2.40	1.59	1.7	0.9	82	23
02:00	18.6	7.2	4.5	3.36	0.19	3.29	3.08	0.000	0.09	0.235	0.182	0.133	5.5	4.4	7.0	6.4	2.24	1.87	8.3	6.8	82	22
04:00	18.6	7.1	5.1	3.21	0.14	3.14	2.93	0.000	0.14	0.256	0.194	0.151	-	3.6	-	5.4	2.08	1.62	2.0	1.5	75	21
06:00	18.8	7.3	5.2	3.07	0.13	2.96	2.83	0.039	0.08	0.233	0.146	0.109	-	4.0	-	5.2	2.48	1.40	1.0	0.8	80	21
08:00	19.2	7.0	5.4	3.25	0.25	3.38	2.90	0.000	0.10	0.224	0.169	0.136	-	2.5	-	4.3	2.08	2.24	1.1	0.9	82	21
10:00	20.4	0.1	5.5	3.53	0.31	3.45	3.10	0.013	0.11	0.295	0.233	0.197	3.7	2.6	6.1	6.8	2.10	(3.02)	1.0	0.8	80	22
Mean	21.3	6.6	4.7	3.39	0.21	3.29	3.06	0.009	0.10	0.274	0.198	0.162	5.6	4.9	7.9	7.7	2.1	1.60	4.5	4.1	87	25
SD	2.9	1.9	0.5	0.14	0.07	0.30	0.13	0.013	0.03	0.080	0.059	0.054	1.2	1.7	1.4	2.6	0.7	0.51	2.7	2.6	7	3
									0.09									1.48				
									0.02									0.32				

Table A-4.1-5 Hourly Change of Water Quality of Chungroung Chong, C-St. 2, September 13-14, 1990

Item / Time	WT (°C)	pH	DO (mg/l)	TN (mg/l)	TON (mg/l)	TDN (mg/l)	NO3-N (mg/l)	NO2-N (mg/l)	NH4-N (mg/l)	TP (mg/l)	TDP (mg/l)	PO4-P (mg/l)	TBOD (mg/l)	DBOD (mg/l)	TCOD (mg/l)	DCOD (mg/l)	Sulfide (mg/l)	MBAS (mg/l)	SS (mg/l)	Settleable matter (mg/l)	(%)	Gauge (cm)
10:00	20.7	7.2	6.1	3.91	0.30	3.84	3.40	0.190	0.19	(0.631)	0.448	0.370	13.1	11.0	12.0	10.0	2.96	1.52	1.9	1.1	58	22
12:00	22.6	7.3	5.5	3.87	0.26	3.87	3.34	0.112	0.16	0.451	0.370	0.324	-	11.4	-	9.5	2.64	1.62	1.2	1.0	83	20
14:00	22.4	7.3	5.3	4.68	0.53	4.61	3.26	0.437	0.45	0.416	0.416	0.273	-	10.5	-	8.6	2.97	1.84	4.8	2.9	60	20
16:00	22.2	7.2	4.7	3.79	0.29	3.79	3.21	0.024	0.27	0.382	0.382	0.362	-	10.7	-	12.4	2.56	2.40	5.2	4.7	90	20
18:00	21.0	7.1	5.7	3.61	0.20	3.54	3.24	0.014	0.15	0.288	0.288	0.224	8.0	6.1	7.9	7.4	2.98	3.18	3.4	2.1	62	17
20:00	19.9	7.1	5.6	3.64	0.23	3.57	3.27	0.019	0.13	0.318	0.218	0.169	-	6.1	-	11.5	2.90	3.62	3.1	1.8	58	15
22:00	19.8	7.2	5.1	3.62	0.20	3.62	3.31	0.033	0.08	0.245	0.245	0.202	-	8.3	-	9.4	3.28	3.47	3.1	1.8	58	16
24:00	19.3	7.3	5.4	3.76	0.29	3.69	3.24	0.028	0.21	0.274	0.274	0.194	-	6.9	-	7.7	2.40	2.12	2.7	1.3	48	16
02:00	19.1	7.2	5.9	(5.54)	0.39	(5.54)	3.11	(1.868)	0.17	0.248	0.248	0.198	7.5	5.3	10.2	9.0	3.44	2.67	2.0	1.0	50	15
04:00	19.0	7.2	6.2	3.50	0.18	3.50	3.07	0.017	0.29	0.263	0.263	0.218	-	3.7	-	4.1	3.12	2.21	0.9	0.7	78	14
06:00	19.0	7.1	6.0	3.37	0.20	3.30	3.05	0.045	0.08	0.272	0.272	0.235	-	2.7	-	2.5	3.52	1.54	1.0	0.8	80	15
08:00	18.4	7.1	6.5	3.90	0.34	3.83	3.11	0.016	0.43	0.251	0.251	0.199	-	3.8	-	1.8	3.12	2.09	4.0	3.1	78	16
10:00	20.0	7.2	6.3	3.99	0.49	3.92	3.42	0.012	0.07	0.240	0.240	0.218	5.1	4.7	11.2	9.0	1.52	2.81	3.6	2.7	75	12
Mean	20.3	7.2	5.7	3.84	0.30	3.89	3.23	0.203	0.21	0.321	0.301	0.245	8.4	7.0	10.3	7.9	2.9	2.39	2.8	1.9	68	17
SD	1.4	0.1	0.5	0.55	0.11	0.56	0.12	0.493	0.12	0.114	0.073	0.064	2.9	2.9	1.5	3.1	0.5	0.69	1.3	1.1	13	3
				3.80		3.76		0.079		0.304												
				0.32		0.31		0.119		0.069												

Table S-4.1-6 Hourly Change of Water Quality of Chungroung Chong, C-St. 3, September 13-14, 1990

Item / Time	WT (°C)	pH	DO (mg/l)	TN (mg/l)	TON (mg/l)	TDN (mg/l)	NO3-N (mg/l)	NO2-N (mg/l)	NH4-N (mg/l)	TP (mg/l)	TDP (mg/l)	PO4-P (mg/l)	TBOD (mg/l)	DBOD (mg/l)	TCOD (mg/l)	DCOD (mg/l)	Sulfide (mg/l)	MBAS (mg/l)	SS (mg/l)	Settleable matter (mg/l)	(%)	Gauge (cm)
10:00	20.0	7.2	5.9	5.40	0.47	5.33	4.31	0.454	0.16	0.364	0.310	0.260	10.9	7.8	7.0	5.6	3.04	2.12	4.8	4.1	85	25
12:00	20.4	7.3	5.7	4.89	0.38	4.82	4.33	0.075	0.11	0.388	0.239	0.194	-	10.4	-	14.1	3.20	2.30	5.1	4.9	96	24
14:00	20.6	7.2	5.4	5.34	0.07	5.34	5.20	0.000	0.08	0.297	0.265	0.233	-	9.8	-	8.4	3.04	1.96	5.3	4.2	79	20
16:00	20.9	7.2	5.7	5.67	0.53	5.60	5.04	0.000	0.10	0.235	0.150	0.139	-	6.8	-	7.3	3.68	2.42	5.9	4.7	80	18
18:00	20.6	7.2	5.7	5.70	0.41	5.70	5.14	0.000	0.15	0.258	0.194	0.183	8.0	5.3	6.6	6.4	3.28	2.59	4.3	3.8	88	20
20:00	20.5	7.1	5.6	5.34	0.40	5.27	4.85	0.000	0.09	0.293	0.238	0.184	-	5.6	-	6.9	3.20	1.78	5.4	3.6	67	20
22:00	20.3	7.1	5.5	5.93	0.43	5.79	5.30	0.000	0.20	0.272	0.221	0.168	-	8.6	-	11.3	2.96	1.65	3.4	2.4	71	20
24:00	20.0	7.2	5.3	4.69	0.34	4.55	4.27	0.000	0.08	0.300	0.213	0.204	-	7.6	-	13.1	1.60	1.60	2.7	1.1	41	24
02:00	19.8	7.0	5.6	5.49	0.30	5.35	5.14	0.000	0.05	0.233	0.195	0.183	5.5	3.7	6.0	5.6	3.20	1.94	1.9	1.0	53	23
04:00	19.6	7.0	6.4	5.58	0.31	5.51	5.23	0.000	0.04	0.215	0.200	0.162	-	2.6	-	6.4	3.52	1.70	2.7	1.3	48	22
06:00	19.7	6.9	5.8	6.49	0.37	6.32	4.94	1.026	0.05	0.333	0.257	0.210	-	3.0	-	5.8	3.28	1.50	3.3	2.1	64	21
08:00	20.0	7.1	6.2	5.92	0.51	5.78	5.36	0.000	0.05	0.315	0.220	0.191	-	3.8	-	6.3	3.68	2.12	3.3	2.2	67	19
10:00	20.2	7.2	5.7	6.27	0.22	6.27	5.78	0.000	0.27	0.340	0.285	0.254	10.2	8.8	12.5	10.4	3.64	2.97	3.1	1.8	58	17
Mean	20.2	7.1	5.7	5.59	0.36	5.51	4.99	0.518	0.11	0.296	0.230	0.198	8.7	6.4	8.0	8.3	3.2	2.05	3.9	2.9	69	21
SD	0.4	0.1	0.3	0.48	0.12	0.48	0.43	0.391	0.07	0.050	0.041	0.034	2.1	2.5	2.6	2.8	0.5	0.41	1.2	1.3	16	2

Table A-4.1-7 Hourly Change of Water Quality of Chungroung Chong, C-St. 1, November 6-7, 1990

Item / Time	WT (°C)	pH	DO (mg/l)	TN (mg/l)	TON (mg/l)	TDN (mg/l)	NO3-N (mg/l)	NO2-N (mg/l)	NH4-N (mg/l)	TP (mg/l)	DTP (mg/l)	PO4-P (mg/l)	BOD (mg/l)	DBOD (mg/l)	COD (mg/l)	DCOD (mg/l)	Sulfide (mg/l)	MBAS (mg/l)	SS (mg/l)	Settleable matter (mg/l)	(%)	Gauge (cm)
10:00	12.7	7.0	5.6	5.48	0.70	4.99	0.07	0.010	4.70	0.476	0.386	0.342	130.5	58.7	120.2	46.4	2.86	3.23	(1340.0)	1020.0	76	12
12:00	12.9	7.1	5.7	4.65	0.51	4.14	0.08	0.016	4.04	0.396	0.306	0.231	-	165.3	-	123.1	(4.84)	4.86	1010.4	846.7	84	13
14:00	13.0	7.2	6.2	6.33	0.59	5.73	0.68	0.048	5.01	0.365	0.274	0.295	-	112.5	-	104.0	2.69	3.33	448.0	325.9	73	15
16:00	13.4	7.2	6.3	6.44	0.56	5.95	0.72	0.118	5.04	0.333	0.186	0.119	-	17.5	-	29.0	1.54	2.46	45.0	27.4	61	15
18:00	13.7	7.2	6.5	7.95	0.74	7.25	0.95	0.210	6.05	0.305	0.205	0.146	14.4	9.2	13.8	11.4	1.05	0.86	16.1	4.5	28	14
20:00	13.5	7.3	6.7	7.78	0.68	7.52	1.06	0.368	5.67	0.319	0.294	0.204	-	16.3	-	13.3	1.54	0.98	11.3	8.7	77	13
22:00	13.4	7.3	6.4	6.53	0.62	6.21	0.07	0.049	5.89	0.445	0.302	0.199	-	15.8	-	11.7	1.71	1.05	6.6	3.4	52	13
24:00	13.0	7.2	6.2	6.14	0.46	5.86	0.04	0.013	5.63	0.459	0.292	0.175	-	13.4	-	11.7	0.39	1.42	12.4	7.3	59	12
02:00	12.4	7.3	6.0	6.51	0.57	6.09	0.65	0.322	4.97	0.436	0.365	0.275	16.7	12.8	9.4	9.0	0.39	1.14	23.3	18.4	79	12
04:00	12.2	7.3	5.2	6.55	0.57	6.27	0.75	0.266	4.96	0.409	0.368	0.263	-	6.0	-	8.1	0.88	1.05	6.9	3.8	55	11
06:00	12.0	7.3	5.0	6.72	2.00	6.72	1.01	0.464	3.25	0.411	0.345	0.270	-	5.7	-	8.2	0.72	0.85	1.3	0.7	54	11
08:00	12.4	7.3	5.4	4.99	0.41	4.99	1.13	0.366	3.08	0.419	0.357	0.256	-	4.4	-	7.0	0.72	0.90	2.0	1.2	60	10
10:00	12.9	7.4	5.1	4.93	0.54	4.93	(2.36)	0.397	1.63	0.368	0.349	0.225	13.2	6.0	8.0	7.7	0.72	0.61	4.0	3.2	80	11
Mean	12.9	7.2	5.9	6.24	0.69	5.90	0.74	0.204	4.61	0.395	0.310	0.231	43.7	34.1	37.9	30.0	1.54	1.75	122.1	174.7	64	12
SD	0.5	0.1	0.5	0.97	0.39	0.92	0.61	0.162	1.24	0.052	0.059	0.060	50.1	47.8	47.6	37.3	1.22	1.26	281.6	336.0	15	1
							0.60										1.27		132.3			
							0.41						14.8	10.7	10.4	11.7	0.79		290.8	7.9		
													1.5	4.8	2.5	6.1						

Table A-4.1-8 Hourly Change of Water Quality of Chungroung Chong, C-St. 2, November 6-7, 1990

Item / Time	WT (°C)	pH	DO (mg/l)	TN (mg/l)	TON (mg/l)	TDN (mg/l)	NO3-N (mg/l)	NO2-N (mg/l)	NH4-N (mg/l)	TP (mg/l)	TDP (mg/l)	PO4-P (mg/l)	BOD (mg/l)	DBOD (mg/l)	COD (mg/l)	DCOD (mg/l)	Sulfide (mg/l)	MBAS (mg/l)	SS (mg/l)	Settleable matter (mg/l)	(%)	Gauge (cm)
10:00	13.0	7.2	4.9	7.37	0.31	7.06	0.21	0.012	6.84	2.046	1.821	1.434	84.7	48.4	114.7	86.4	4.34	3.75	(243.0)	(189.1)	78	15
12:00	13.2	7.1	5.2	7.18	0.30	6.88	0.16	0.013	6.71	1.944	1.693	1.213	-	64.2	-	113.1	3.77	3.20	162.4	114.0	70	15
14:00	13.5	7.2	5.4	6.49	0.81	5.93	0.14	0.045	5.50	0.943	0.888	0.620	-	58.6	-	62.4	4.34	3.64	134.6	78.9	59	16
16:00	13.7	7.2	5.7	5.08	0.19	4.88	0.11	0.066	4.71	0.375	0.251	0.138	-	27.5	-	36.4	1.05	1.02	24.7	16.4	66	16
18:00	13.8	7.2	5.6	5.03	0.49	4.54	0.09	0.038	4.41	0.412	0.364	0.210	19.8	16.8	15.0	12.4	1.05	0.83	10.0	2.5	25	15
20:00	14.0	7.3	5.8	7.09	0.29	7.02	0.06	0.033	6.71	0.431	0.306	0.150	-	25.6	-	28.4	2.86	2.45	25.8	16.3	63	14
22:00	13.7	7.2	6.2	5.67	0.39	5.28	0.05	0.021	5.21	0.389	0.342	0.194	-	14.7	-	12.0	2.53	2.45	38.7	21.7	56	14
24:00	13.6	7.0	6.3	5.75	0.56	5.19	0.15	0.000	5.04	0.409	0.382	0.215	-	8.6	-	12.5	2.20	1.86	12.4	10.6	85	13
02:00	13.4	7.1	6.2	5.73	0.96	5.24	0.13	0.000	4.64	0.395	0.322	0.236	20.4	14.1	18.9	15.6	1.02	0.56	8.7	6.4	74	13
04:00	13.2	7.0	6.8	7.72	0.86	7.51	2.70	0.118	4.04	0.375	0.338	0.213	-	10.3	-	11.7	1.22	0.70	8.5	6.2	73	12
06:00	13.1	7.0	6.9	6.05	0.82	5.98	2.40	0.092	2.74	0.249	0.213	0.194	-	7.2	-	12.6	0.70	0.42	4.6	2.1	46	12
08:00	12.9	7.0	6.4	3.66	0.72	3.66	2.70	0.118	0.12	0.228	0.208	0.186	-	12.0	-	13.4	1.62	0.93	8.8	4.2	48	13
10:00	12.7	7.0	7.0	2.47	0.20	2.47	2.06	0.066	0.14	0.764	0.604	0.425	24.4	16.8	14.0	12.7	2.61	0.83	11.3	4.3	38	13
Mean	13.4	7.1	6.0	5.79	0.53	5.51	0.84	0.048	4.37	0.689	0.595	0.418	37.3	25.0	40.7	33.0	2.25	1.74	53.3	36.4	60	14
SD	0.4	0.1	0.6	1.44	0.26	1.39	1.09	0.040	2.12	0.588	0.526	0.408	27.4	18.7	42.8	32.1	1.24	1.17	73.4	54.8	16	1
													21.5	15.4	16.0	16.8			37.5	23.6		
													2.0	6.4	2.1	8.1			50.8	33.9		

Table A-4.1-9 Hourly Change of Water Quality of Chungroung Chong, C-St. 3, November 6-7, 1990

Item / Time	WT (°C)	pH	DO (mg/l)	TN (mg/l)	TON (mg/l)	TDN (mg/l)	NO3-N (mg/l)	NO2-N (mg/l)	NH4-N (mg/l)	TP (mg/l)	TDP (mg/l)	PO4-P (mg/l)	BOD (mg/l)	DBOD (mg/l)	COD (mg/l)	DCOD (mg/l)	Sulfide (mg/l)	MBAS (mg/l)	SS (mg/l)	Settleable matter (mg/l)	(%)	Gauge (cm)
10:00	13.4	7.2	5.2	5.04	0.11	4.92	0.00	0.065	4.86	0.465	0.424	0.165	133.8	92.5	92.7	74.6	4.67	3.00	(598.0)	(564.0)	94	18
12:00	13.5	7.2	5.9	5.39	0.32	5.11	0.00	0.000	5.07	0.389	0.365	0.126	-	59.2	-	82.4	3.60	2.47	345.0	274.5	80	18
14:00	13.2	7.3	6.4	5.75	0.56	5.47	1.02	0.054	4.13	0.400	0.335	0.185	-	12.5	-	24.1	0.72	2.05	12.1	8.3	69	19
16:00	13.6	7.3	6.3	6.82	0.53	6.68	1.63	0.082	4.58	0.463	0.318	0.191	-	10.7	-	13.0	3.36	1.48	16.5	12.7	77	18
18:00	13.8	7.3	6.7	6.17	0.57	5.62	0.47	0.104	5.03	0.372	0.345	0.200	12.5	12.5	9.9	9.8	2.20	1.33	20.1	18.7	93	18
20:00	13.7	7.3	7.0	6.89	0.54	6.36	0.58	0.155	5.63	0.389	0.371	0.198	-	12.8	-	11.4	0.88	1.45	12.1	6.3	52	17
22:00	13.8	7.3	7.2	5.96	0.56	5.62	0.50	0.074	4.83	0.395	0.340	0.195	-	15.8	-	14.3	2.63	1.30	4.6	2.4	52	17
24:00	13.2	7.2	6.4	7.12	0.88	6.91	1.43	0.093	4.72	0.403	0.338	0.233	-	10.5	-	12.3	3.27	1.20	4.1	2.0	49	17
02:00	13.0	7.3	6.2	5.83	0.88	5.83	0.41	0.038	4.51	0.365	0.315	0.246	10.4	7.4	11.7	10.5	3.03	1.17	2.6	1.7	65	16
04:00	12.7	7.2	6.7	5.86	0.95	5.86	0.43	0.039	4.44	0.340	0.328	0.253	-	3.7	-	6.2	3.11	1.20	2.1	1.1	52	16
06:00	12.5	7.1	6.8	4.50	1.15	4.50	1.34	0.010	2.01	0.298	0.268	0.210	-	2.7	-	5.7	3.52	1.72	0.5	0.2	40	16
08:00	12.3	7.1	6.3	4.68	0.72	4.68	1.50	0.026	2.43	0.208	0.200	0.138	-	2.0	-	4.2	2.94	1.72	0.5	0.2	40	17
10:00	12.7	7.1	6.8	7.27	1.05	6.50	1.00	0.039	5.18	(0.681)	0.488	0.369	10.4	8.0	9.7	9.5	3.30	0.69	1.0	0.6	60	18
Mean	13.2	7.2	6.5	5.94	0.68	5.70	0.79	0.060	4.42	0.398	0.341	0.208	41.8	19.3	31.0	21.4	2.9	1.6	78.4	68.7	63	17
SD	0.5	0.1	0.5	0.86	0.28	0.74	0.54	0.041	1.01	0.104	0.066	0.059	53.1	25.3	35.6	24.9	1.0	0.6	174.9	160.0	18	1
										0.374			11.1	9.0	10.4	11.0			35.1	27.4		
										0.067			1.0	4.4	0.9	5.1			93.7	74.7		

Table A-4.1-10 Hourly Change of Water Quality of Chungroung Chong, C-St. 1, January 24-25, 1991

Item / Time	WT (°C)	pH	DO (mg/l)	TN (mg/l)	TON (mg/l)	NO3-N (mg/l)	NO2-N (mg/l)	NH4-N (mg/l)	TP (mg/l)	TDP (mg/l)	PO4-P (mg/l)	BOD (mg/l)	DBOD (mg/l)	COD(Mn) (mg/l)	DCOD (mg/l)	Sulfide (mg/l)	MBAS (mg/l)	SS (mg/l)	Settleable matter (ml/l)	(%)	Gauge (cm)
10:00	3.0	7.8	7.2	7.08	1.14	1.80	0.100	4.04	0.388	0.246	0.203	7.2	5.4	7.5	7.5	2.94	1.04	10.7	3.4	32	3
12:00	2.2	7.8	7.4	6.33	0.51	2.10	0.101	3.63	0.400	0.281	0.211	-	5.4	-	8.6	3.19	1.28	10.3	4.5	44	3
14:00	3.4	7.7	7.0	7.09	0.95	1.75	0.152	4.23	0.566	0.532	0.465	-	6.3	-	9.4	2.94	1.11	8.1	3.1	38	4
16:00	4.4	7.4	6.8	7.49	0.61	1.63	0.191	5.06	0.581	0.576	0.542	-	8.6	-	12.4	2.78	1.06	14.1	8.0	57	4
18:00	4.0	7.0	7.3	6.95	0.52	1.30	0.233	4.88	0.487	0.395	0.388	24.5	17.0	20.4	16.7	3.11	1.22	#26.7	#19.4	#73	5
20:00	3.7	7.1	7.7	6.64	0.95	1.32	0.303	4.23	0.583	0.472	0.294	-	10.7	-	13.3	3.19	1.33	12.7	6.7	53	4
22:00	3.6	7.2	7.4	6.47	0.79	1.15	0.275	4.25	0.532	0.399	0.275	-	14.5	-	13.4	2.94	1.04	8.7	4.0	46	3
24:00	3.4	7.5	7.1	5.85	0.85	1.18	0.189	3.83	0.514	0.408	0.253	-	9.6	-	12.4	2.78	0.97	6.7	2.7	40	3
02:00	3.0	7.5	6.8	6.17	0.51	1.22	0.193	4.25	0.535	0.424	0.288	26.7	22.3	22.4	16.0	2.77	1.01	8.6	3.7	43	3
04:00	2.5	7.6	6.5	4.49	0.50	1.24	0.167	2.58	0.583	0.403	0.306	-	10.2	-	12.4	2.80	1.12	6.4	3.4	53	2
06:00	1.7	7.5	6.9	6.54	0.52	0.93	0.133	4.88	0.588	0.427	0.311	-	13.5	-	12.2	2.94	1.44	4.0	2.0	50	2
08:00	0.8	7.4	7.2	5.75	0.60	0.79	0.133	4.23	0.514	0.417	0.333	-	6.5	-	16.8	3.11	#2.67	4.3	1.9	44	3
10:00	1.4	7.6	7.5	5.74	0.60	0.78	0.127	4.23	0.563	0.447	0.362	8.5	6.0	12.5	10.8	3.14	1.69	5.3	2.3	43	3
Mean	2.9	7.5	7.1	6.35	0.68	1.32	0.177	4.18	0.526	0.417	0.325	16.7	10.5	15.7	12.0	2.97	1.31	9.7	5.0	47	3
SD	1.0	0.2	0.3	0.75	0.20	0.38	0.061	0.61	0.064	0.084	0.092	8.9	4.9	6.0	2.5	0.15	0.44	5.7	4.5	10	1
																	1.19	8.3	3.8	45	
																	0.20	3.1	1.8	7	

Table A-4.1-11 Hourly Change of Water Quality of Chungroung Chong, C-St. 2, January 24-25, 1991

Item / Time	WT (°C)	pH	DO (mg/l)	TN (mg/l)	TON (mg/l)	NO3-N (mg/l)	NO2-N (mg/l)	NH4-N (mg/l)	TP (mg/l)	TDP (mg/l)	PO4-P (mg/l)	BOD (mg/l)	DBOD (mg/l)	COD(Mn) (mg/l)	DCOD (mg/l)	Sulfide (mg/l)	MBAS (mg/l)	SS (mg/l)	Settleable matter (ml/l)	(%)	Gauge (cm)
10:00	5.2	7.3	8.2	6.77	1.27	1.24	0.140	4.13	0.544	0.521	0.422	7.0	5.2	10.5	9.4	0.96	0.87	13.3	7.3	55	7
12:00	4.2	7.6	7.8	10.28	1.52	2.36	0.142	6.25	0.581	0.508	0.500	-	6.3	-	12.4	0.98	0.94	18.7	12.7	68	7
14:00	4.8	7.3	7.0	10.85	1.40	0.93	0.192	8.33	0.620	0.533	0.503	-	18.7	-	14.5	2.12	1.02	26.7	15.7	59	8
16:00	5.7	7.2	7.5	9.89	1.19	0.06	0.305	8.33	0.833	0.528	0.514	-	8.3	-	12.5	2.94	0.50	42.3	33.3	79	8
18:00	5.3	7.2	6.9	9.96	0.76	1.27	0.422	7.50	0.499	0.425	0.365	25.7	19.4	20.4	16.7	3.44	0.87	#56.7	42.7	#75	8
20:00	4.8	7.2	6.7	9.76	1.11	0.96	0.589	7.08	0.472	0.313	0.261	-	8.2	-	12.5	3.36	1.33	24.3	10.3	42	7
22:00	4.7	7.3	7.2	9.95	1.04	1.33	0.498	7.08	0.450	0.330	0.266	-	10.1	-	12.9	2.69	1.22	13.3	7.3	55	8
24:00	5.1	7.3	7.8	9.51	1.32	0.98	0.553	6.67	0.467	0.340	0.275	-	9.3	-	14.5	2.12	1.11	14.0	5.0	36	8
02:00	5.1	7.4	6.2	10.24	1.11	2.10	0.367	6.67	0.504	0.395	0.303	30.4	22.7	19.3	14.0	2.53	1.23	15.3	10.0	65	7
04:00	3.9	7.3	5.8	9.59	1.04	2.13	0.178	6.25	0.556	0.431	0.375	-	10.7	-	12.5	2.61	1.24	8.7	5.7	66	7
06:00	3.8	7.4	6.1	9.32	0.97	1.95	0.159	6.25	0.499	0.385	0.342	-	10.6	-	13.4	2.94	1.04	6.7	3.0	45	7
08:00	3.3	7.5	5.7	7.61	0.60	1.87	0.139	5.00	0.382	-	0.375	-	5.4	-	9.4	2.90	1.39	7.3	4.2	58	7
10:00	3.8	7.5	6.3	7.26	1.09	1.86	0.144	4.17	0.425	0.394	0.363	8.2	5.6	10.3	8.2	3.03	1.10	6.3	3.3	52	8
Mean	4.6	7.3	6.9	9.31	1.11	1.46	0.294	6.44	0.526	0.425	0.374	17.8	10.8	15.1	12.5	2.51	1.07	19.5	12.3	58	7
SD	0.7	0.1	0.8	1.22	0.24	0.62	0.165	1.30	0.108	0.077	0.085	10.4	5.6	4.7	2.3	0.76	0.23	14.4	11.7	12	0
																		16.4		57	
																		10.0		11	

Table A-4.1-12 Hourly Change of Water Quality of Chungroung Chong, C-St. 3, January 24-25, 1991

Item / Time	WT (°C)	pH	DO (mg/l)	TN (mg/l)	TON (mg/l)	NO3-N (mg/l)	NO2-N (mg/l)	NH4-N (mg/l)	TP (mg/l)	TDP (mg/l)	PO4-P (mg/l)	BOD (mg/l)	DBOD (mg/l)	COD(Mn) (mg/l)	DCOD (mg/l)	Sulfide (mg/l)	MBAS (mg/l)	SS (mg/l)	Settleable matter (mg/l)	(%)	Gauge (cm)
10:00	4.1	7.1	7.2	14.72	1.17	0.00	0.010	13.54	1.045	0.949	0.865	26.4	16.0	18.7	13.7	3.11	1.04	20.0	14.0	70	18
12:00	3.9	7.3	5.9	13.87	1.05	0.00	0.007	12.81	1.278	1.011	0.971	-	15.4	-	18.7	3.60	1.50	18.0	11.0	61	19
14:00	4.1	7.2	5.0	12.72	1.56	0.00	0.011	11.04	1.584	0.942	0.833	-	11.9	-	22.9	4.10	1.28	13.0	7.0	54	19
16:00	4.2	7.2	4.4	10.38	0.89	0.00	0.011	9.48	1.944	0.867	0.722	-	18.4	-	20.5	4.19	1.22	#54.0	#42.0	#66	19
18:00	4.3	7.3	3.8	9.68	1.64	0.00	0.012	8.02	1.042	0.667	0.454	22.2	18.8	25.7	14.0	3.52	1.27	23.4	11.2	48	18
20:00	4.0	7.4	3.9	8.63	0.91	0.00	0.011	7.71	0.653	0.458	0.354	-	10.3	-	12.2	3.44	1.89	21.0	11.0	52	18
22:00	4.0	7.3	4.3	9.17	0.40	0.00	0.023	8.75	0.745	0.638	0.366	-	19.0	-	14.2	3.03	2.02	18.0	15.0	83	18
24:00	3.8	7.3	6.2	9.42	1.05	0.00	0.039	8.33	0.583	0.572	0.458	-	16.0	-	13.4	2.61	1.03	12.0	7.3	61	17
02:00	3.8	7.3	6.8	9.56	0.98	0.00	0.037	8.54	0.532	0.488	0.421	13.3	12.0	14.0	12.2	2.78	0.28	6.7	4.7	70	15
04:00	3.6	7.2	7.2	8.02	1.11	2.45	0.032	4.43	0.292	0.278	0.243	-	6.7	-	10.8	1.20	0.78	8.7	4.7	54	14
06:00	3.4	7.3	3.8	8.04	1.23	2.20	0.028	4.58	0.362	0.333	0.265	-	5.6	-	8.4	2.12	1.03	12.3	6.3	51	15
08:00	3.4	7.4	4.2	7.71	1.20	1.80	0.026	4.69	0.324	0.319	0.281	-	7.0	-	13.4	2.10	1.72	14.7	8.0	54	16
10:00	3.8	7.3	3.8	13.45	1.63	1.80	0.026	10.00	0.388	0.345	0.303	24.7	20.0	17.4	13.6	2.76	1.87	15.0	8.7	58	16
Mean	3.9	7.3	5.1	10.41	1.14	0.63	0.021	8.61	0.84	0.605	0.503	21.7	13.6	19.0	14.5	2.97	1.30	19.0	11.6	60	17
SD	0.3	0.1	1.3	2.33	0.33	0.96	0.011	2.79	0.51	0.254	0.244	5.0	4.9	4.3	3.8	0.81	0.48	13.8	9.3	10	2
																		15.2	9.1	60	
																		4.8	3.2	10	

Table A-4.1-13 Hourly Change of Water Quality of Chungroung Chong, C-St. 1, March 7-8, 1991

Item / Time	WT (°C)	pH	DO (mg/l)	TN (mg/l)	TON (mg/l)	NO3-N (mg/l)	NO2-N (mg/l)	NH4-N (mg/l)	TP (mg/l)	TDP (mg/l)	PO4-P (mg/l)	TBOD (mg/l)	DBOD (mg/l)	TCOD(Cr) (mg/l)	DCOD(Cr) (mg/l)	Sulfide (mg/l)	MBAS (mg/l)	SS (mg/l)	Settleable matter (mg/l)	(%)	Gauge (cm)
10:00	8.9	7.3	8.2	7.35	1.56	1.07	0.047	4.67	0.700	0.335	0.320	10.4	9.6	12.7	10.8	3.96	1.61	28.3	12.0	42.4	8
12:00	9.8	7.3	7.9	8.30	1.82	1.11	0.049	5.32	0.936	0.410	0.360	-	13.6	-	12.3	4.04	2.05	37.3	16.0	42.9	8
14:00	8.8	7.3	7.6	11.51	0.92	0.32	0.053	10.22	1.005	0.570	0.450	-	22.5	-	15.4	3.96	2.28	38.7	18.3	47.3	8
16:00	9.0	7.2	7.8	11.49	1.07	0.51	0.053	9.86	1.240	0.720	0.630	-	18.7	-	15.7	3.88	2.94	40.7	22.7	55.8	8
18:00	7.6	7.4	8.0	11.21	1.38	0.65	0.050	9.13	1.015	0.800	0.520	26.1	23.1	18.0	16.4	3.48	3.02	21.3	11.3	53.1	7
20:00	5.6	7.4	8.2	11.00	1.53	1.01	0.049	8.41	0.922	0.730	0.480	-	18.7	-	15.4	3.49	3.47	14.7	6.3	42.9	8
22:00	5.2	7.3	7.4	10.93	1.57	0.94	0.049	8.37	0.400	0.360	0.340	-	11.0	-	14.0	3.80	3.84	13.0	6.0	46.2	7
24:00	4.8	7.4	7.6	10.05	1.19	0.69	0.047	8.12	0.848	0.536	0.416	-	8.7	-	12.3	3.64	3.41	11.3	3.5	31.0	8
02:00	4.3	7.3	7.3	9.91	1.27	0.55	0.046	8.04	0.940	0.727	0.480	11.3	7.8	13.0	11.9	3.88	3.00	18.7	8.7	46.5	7
04:00	4.1	7.3	7.1	9.86	1.26	0.91	0.053	7.64	1.120	0.770	0.574	-	12.6	-	19.7	4.53	3.41	19.3	7.0	36.3	6
06:00	4.0	7.4	7.8	9.91	1.50	0.96	0.057	7.39	1.165	0.880	0.465	-	18.6	-	20.0	3.80	3.72	13.7	7.7	56.2	6
08:00	3.8	7.2	7.7	10.05	1.93	1.04	0.044	7.04	0.746	0.560	0.405	-	15.4	-	16.3	4.12	2.36	16.7	8.3	49.7	7
10:00	4.2	7.3	7.5	9.19	1.09	1.10	0.039	6.96	0.500	0.410	0.370	15.7	12.6	17.2	15.8	3.96	1.25	16.0	4.6	28.8	7
Mean	6.2	7.3	7.7	10.06	1.39	0.84	0.049	7.78	0.887	0.605	0.447	15.9	14.8	15.2	15.1	3.89	2.80	22.3	10.2	45	7
SD	2.2	0.1	0.3	1.19	0.28	0.25	0.004	1.52	0.238	0.182	0.088	6.2	4.9	2.4	2.7	0.26	0.79	10.0	5.5	8	1

Table A-4.1-14 Hourly Change of Water Quality of Chungroung Chong, C-St. 2, March 7-8, 1991

Item / Time	WT (°C)	pH	DO (mg/l)	TN (mg/l)	TON (mg/l)	NO3-N (mg/l)	NO2-N (mg/l)	NH4-N (mg/l)	TP (mg/l)	TDP (mg/l)	PO4-P (mg/l)	TBOD (mg/l)	DBOD (mg/l)	TCOD(Cr) (mg/l)	DCOD(Cr) (mg/l)	Sulfide (mg/l)	MBAS (mg/l)	SS (mg/l)	Settleable matter (mg/l)	(%)	Gauge (cm)
10:00	9.3	7.5	7.5	6.44	0.66	1.50	0.041	4.24	0.960	0.640	0.560	10.4	8.3	13.1	9.5	3.96	1.17	36.7	16.7	45.5	21
12:00	10.2	7.4	7.8	6.34	0.50	1.64	0.086	4.11	0.896	0.630	0.470	-	14.1	-	12.3	4.21	2.31	40.7	22.3	54.8	22
14:00	9.3	7.6	6.9	7.12	0.77	1.11	0.132	5.11	0.912	0.680	0.410	-	18.3	-	16.3	3.15	2.81	29.3	11.3	38.6	22
16:00	8.6	7.4	5.9	6.90	0.67	1.79	0.075	4.37	0.900	0.480	0.350	-	12	-	14.0	1.69	2.95	28.0	12.0	42.9	21
18:00	8.0	7.4	5.5	5.86	0.37	1.27	0.047	4.17	0.888	0.390	0.340	7.9	7.6	12.7	10.6	2.99	3.50	16.7	7.7	46.1	21
20:00	6.4	7.4	6.2	7.84	0.87	1.21	0.053	5.71	0.790	0.650	0.304	-	8.3	-	15.7	3.23	3.37	14.0	4.0	28.6	22
22:00	6.0	7.6	6.8	10.57	1.65	0.98	0.068	7.87	0.720	0.590	0.300	-	8.6	-	16.0	2.18	3.30	16.7	6.3	37.7	21
24:00	5.7	7.5	4.7	8.29	0.80	1.01	0.070	6.41	0.880	0.406	0.315	-	5.3	-	13.2	1.53	3.67	18.0	7.3	40.6	22
02:00	5.3	7.4	4.8	8.39	0.69	1.11	0.068	6.52	0.760	0.416	0.386	7.1	6.7	13.6	12.9	2.99	3.89	15.7	6.7	42.7	21
04:00	5.2	7.3	5.2	8.23	0.81	1.03	0.058	6.33	0.720	0.540	0.396	-	4.5	-	12.7	3.96	2.87	15.3	5.3	34.6	22
06:00	5.1	7.4	5.4	9.04	1.52	1.04	0.043	6.44	0.690	0.480	0.325	-	5.6	-	12.6	4.12	2.61	24.3	8.7	35.8	22
08:00	5.2	7.5	6.7	9.16	1.15	0.94	0.040	7.03	0.635	0.416	0.336	-	14.7	-	12.9	3.96	3.00	46.7	22.7	48.6	21
10:00	5.7	7.5	6.9	9.19	0.80	1.00	0.039	7.35	0.620	0.420	0.320	24.2	20.3	16.7	12.5	4.12	3.01	55.3	27.0	48.8	22
Mean	6.9	7.5	6.2	7.95	0.87	1.20	0.063	5.82	0.798	0.526	0.370	12.4	10.3	14.0	13.2	3.24	2.96	27.5	12.2	42	22
SD	1.8	0.1	1.0	1.32	0.35	0.26	0.025	1.25	0.110	0.112	0.072	6.9	4.9	1.6	1.9	0.90	0.66	13.0	7.3	7	0

Table A-4.1-15 Hourly Change of Water Quality of Chungroung Chong, C-St. 3, March 7-8, 1991

Item / Time	WT (°C)	pH	DO (mg/l)	TN (mg/l)	TON (mg/l)	NO3-N (mg/l)	NO2-N (mg/l)	NH4-N (mg/l)	TP (mg/l)	TDP (mg/l)	PO4-P (mg/l)	TBOD (mg/l)	DBOD (mg/l)	TCOD(Cr) (mg/l)	DCOD(Cr) (mg/l)	Sulfide (mg/l)	MBAS (mg/l)	SS (mg/l)	Settleable matter (mg/l)	(%)	Gauge (cm)
10:00	8.3	7.6	5.8	9.18	1.07	0.05	0.026	8.03	1.900	1.280	1.120	30.0	24.7	21.1	18.0	4.45	4.44	65.1	44.1	67.7	18
12:00	9.4	7.8	6.2	9.45	0.83	0.93	0.046	7.64	1.865	1.304	1.136	-	24.1	-	16.4	4.61	5.04	78.0	#52.0	0.0	18
14:00	7.6	7.6	6.9	9.57	0.93	1.04	0.062	7.54	0.920	0.530	0.420	-	20.3	-	17.8	4.61	5.37	32.0	12.0	37.5	18
16:00	7.2	7.6	7.2	9.68	0.75	2.10	0.083	6.75	0.840	0.470	0.360	-	20.1	-	16.4	4.53	4.12	28.0	18.7	66.8	19
18:00	6.8	7.5	6.4	8.92	1.14	2.31	0.099	5.37	0.900	0.636	0.412	21.1	18.6	18.7	15.3	4.12	3.61	29.1	15.3	52.6	18
20:00	6.6	7.4	5.8	9.78	1.03	1.87	0.064	6.82	1.004	0.720	0.470	-	28.6	-	19.3	4.21	3.46	33.3	18.3	55.0	19
22:00	6.4	7.6	6.2	9.83	1.10	1.93	0.055	6.75	1.240	0.584	0.466	-	45.6	-	29.7	4.61	3.02	30.7	13.3	43.3	18
24:00	6.2	7.6	6.5	8.86	0.85	1.03	0.057	6.92	1.105	0.695	0.547	-	56.3	-	40.3	4.69	3.42	33.3	15.7	47.1	17
02:00	5.9	7.5	6.0	9.63	1.22	0.95	0.066	7.39	0.749	0.405	0.369	62.7	58.7	50.3	45.1	4.45	3.21	21.7	11.7	53.9	17
04:00	5.6	7.5	5.4	8.75	0.82	0.87	0.041	7.02	0.450	0.356	0.280	-	6.4	-	12.1	4.04	2.00	12.7	4.3	33.9	15
06:00	5.3	7.4	6.2	7.21	0.68	0.99	0.037	5.50	0.396	0.344	0.210	-	11.3	-	10.0	3.96	1.72	10.3	3.3	32.0	15
08:00	5.4	7.3	6.4	7.05	0.29	0.83	0.036	5.89	0.425	0.306	0.265	-	7.1	-	8.7	4.29	1.65	11.3	5.0	44.2	17
10:00	6.7	7.6	6.7	6.90	0.22	0.78	0.030	5.87	0.404	0.320	0.284	11.3	10.2	7.3	6.7	3.96	1.87	10.3	3.0	29.1	18
Mean	6.7	7.6	6.3	8.83	0.84	1.21	0.054	6.73	0.938	0.612	0.495	31.3	25.5	24.4	19.7	4.35	3.30	30.4	16.7	43	17
SD	1.1	0.1	0.5	1.03	0.29	0.62	0.020	0.81	0.483	0.320	0.291	19.3	16.9	15.9	11.3	0.26	1.19	19.7	14.5	17	1
																			13.7		
																			10.7		

Table A-4.1-16 Hourly Change of Water Quality of Chungroung Chong, C-St. 1, May 14-15, 1991

Item / Time	WT (°C)	pH	DO (mg/l)	TN (mg/l)	TON (mg/l)	NO3-N (mg/l)	NO2-N (mg/l)	NH4-N (mg/l)	TP (mg/l)	TDP (mg/l)	PO4-P (mg/l)	BOD (mg/l)	DBOD (mg/l)	COD (mg/l)	DCOD (mg/l)	Sulfide (mg/l)	MBAS (mg/l)	SS (mg/l)	Settleable matter (mg/l)	(%)	Gauge (cm)
10:00	23.8	7.8	3.9	2.58	0.40	0.81	1.072	0.30	0.030	0.272	0.214	6.4	5.4	8.5	6.3	4.33	1.36	24.3	15.7	65	0>
12:00	24.2	7.9	3.0	2.70	0.35	0.94	1.136	0.27	0.286	0.214	0.132	-	4.7	-	7.5	3.17	2.36	42.7	#30.3	$71	0>
14:00	25.7	8.0	4.2	2.64	0.40	1.03	0.986	0.22	0.309	0.236	0.175	-	3.4	-	6.9	4.48	2.30	25.0	10.0	40	0>
16:00	26.4	7.8	3.4	2.17	0.34	1.04	0.475	0.31	0.242	0.164	0.098	-	4.3	-	7.8	4.33	1.39	32.0	16.0	50	0>
18:00	28.2	7.7	2.8	2.69	0.30	1.48	0.655	0.25	0.138	0.103	0.072	5.8	5.1	7.5	7.0	4.09	1.11	12.3	7.3	59	0>
20:00	27.4	7.8	3.7	2.34	0.29	0.99	0.727	0.33	0.247	0.152	0.116	-	5.3	-	6.4	4.71	1.25	8.7	2.7	31	0>
22:00	26.0	7.6	4.2	4.05	0.63	2.42	0.855	0.14	0.105	0.093	0.062	-	4.3	-	5.6	4.64	1.62	10.0	3.0	30	0>
24:00	24.8	7.6	3.8	2.52	0.16	1.36	0.455	#0.54	0.333	0.236	0.175	-	3.5	-	6.3	4.41	1.28	4.7	1.3	28	0>
02:00	24.2	7.6	4.5	3.67	0.44	2.74	0.236	0.25	0.245	0.203	0.132	3.8	3.8	4.0	4.0	4.56	1.03	3.0	1.0	33	0>
04:00	22.0	7.5	4.8	3.74	0.63	2.49	0.414	0.21	0.211	0.147	0.083	-	1.4	-	3.8	4.25	1.72	4.7	1.7	36	0>
06:00	20.7	7.6	4.9	4.42	0.62	3.06	0.522	0.22	0.303	0.225	0.136	-	2.0	-	4.4	4.25	1.25	7.3	2.7	37	0>
08:00	20.4	7.6	3.9	3.74	0.41	2.87	0.104	0.36	0.101	0.084	0.063	-	2.1	-	5.4	4.56	2.00	12.0	3.7	31	0>
10:00	19.2	7.6	4.2	3.63	0.48	2.75	0.115	0.28	0.055	0.079	0.058	3.2	2.5	7.4	6.7	4.09	1.33	18.3	8.7	48	0>
Mean	24.1	7.7	3.9	3.15	0.42	1.84	0.596	0.28	0.200	0.170	0.117	4.8	3.7	6.9	6.0	4.3	1.5	15.8	8.0	43	
SD	2.7	0.1	0.6	0.71	0.14	0.84	0.332	0.09	0.099	0.063	0.048	1.3	1.3	1.7	1.2	0.4	0.4	11.6	8.1	14	
								0.26											6.2	41	
								0.06											5.2	12	

Table A-4.1-17 Hourly Change of Water Quality of Chungroung Chong, C-St. 2, May 14-15, 1991

Item / Time	WT (°C)	pH	DO (mg/l)	TN (mg/l)	TON (mg/l)	NO3-N (mg/l)	NO2-N (mg/l)	NH4-N (mg/l)	TP (mg/l)	TDP (mg/l)	PO4-P (mg/l)	BOD (mg/l)	DBOD (mg/l)	COD (mg/l)	DCOD (mg/l)	Sulfide (mg/l)	MBAS (mg/l)	SS (mg/l)	Settleable matter (mg/l)	(%)	Gauge (cm)
10:00	21.8	-	3.8	2.22	0.37	0.27	1.316	0.26	0.245	0.075	0.127	8.4	4.6	10.0	8.6	4.87	1.25	44.0	33.3	76	7
12:00	22.2	-	4.5	2.02	0.43	0.36	1.025	0.21	0.266	0.188	0.104	-	4.3		10.1	4.41	1.33	52.7	42.7	81	7
14:00	23.0	-	5.7	1.90	0.29	0.34	1.060	0.21	0.258	0.133	0.098	-	6.8	-	12.5	4.56	1.25	48.7	30.7	63	6
16:00	21.5	-	4.9	1.85	0.22	0.49	0.946	0.19	0.233	0.085	0.062	-	#10.4	-	13.4	4.33	1.14	33.0	20.0	61	7
18:00	18.1	-	5.9	5.18	0.73	3.45	0.816	0.18	0.165	0.074	0.062	4.1	2.5	7.2	6.0	4.48	1.24	16.0	11.3	71	7
20:00	16.0	-	6.2	4.56	0.62	3.03	0.627	0.28	0.123	0.061	0.041	-	2.1	-	5.2	4.33	1.36	8.7	4.7	54	7
22:00	16.0	-	5.4	4.98	0.47	3.55	0.589	0.37	0.128	0.114	0.075	-	2.0	-	4.5	4.41	1.03	2.7	1.0	37	6
24:00	15.4	-	5.7	4.10	0.38	3.00	0.256	0.46	0.134	0.131	0.067	-	2.4	-	5.2	4.56	1.11	2.0	0.9	45	6
02:00	15.0	-	6.1	4.69	0.44	3.25	0.463	0.54	0.115	0.074	0.053	3.5	2.1	4.8	4.5	4.41	1.49	4.7	3.3	70	6
04:00	14.5	-	6.8	4.38	0.54	3.14	0.333	0.37	0.078	0.069	0.059	-	2.2	-	4.6	4.64	1.44	2.7	1.0	37	6
06:00	15.9	-	5.2	4.39	0.60	3.55	0.000	0.24	0.080	0.073	0.045	-	2.0	-	4.8	4.71	1.33	2.7	0.8	30	5
08:00	16.0	-	4.9	4.04	0.47	3.27	0.000	0.30	0.083	0.067	0.032	-	1.9	-	4.6	4.64	0.86	7.3	3.7	51	7
10:00	19.2	-	5.4	4.34	0.55	3.50	0.000	0.29	0.097	0.071	0.055	6.0	4.3	8.0	5.6	4.56	1.11	13.3	6.3	47	7
Mean	18.0	-	5.4	3.74	0.47	2.40	0.572	0.30	0.154	0.093	0.068	5.5	3.7	7.5	6.9	4.53	1.23	18.3	12.3	58	6
SD	3.0	-	0.6	1.17	0.14	1.27	0.382	0.11	0.066	0.037	0.020	1.1	2.5	1.4	3.1	0.12	0.17	17.5	13.1	15	1
													3.0								
													1.5								

Table A-4.1-18 Hourly Change of Water Quality of Chungroung Chong, C-St. 3, May 14-15, 1991

Item / Time	WT (°C)	pH	DO (mg/l)	TN (mg/l)	TON (mg/l)	NO3-N (mg/l)	NO2-N (mg/l)	NH4-N (mg/l)	TP (mg/l)	TDP (mg/l)	PO4-P (mg/l)	BOD (mg/l)	DBOD (mg/l)	COD (mg/l)	DCOD (mg/l)	Sulfide (mg/l)	MBAS (mg/l)	SS (mg/l)	Settleable matter (mg/l)	(%)	Gauge (cm)
10:00	17.8	7.2	6.2	7.99	0.69	0.99	1.039	5.83	1.232	1.163	0.920	17.1	14.3	9.9	9.5	4.09	1.17	10.7	4.0	37	18
12:00	19.2	7.4	6.0	7.32	0.43	0.05	1.105	4.24	1.167	1.133	0.800	-	18.3	-	10.5	4.41	1.03	8.3	2.3	28	17
14:00	21.1	7.3	5.8	8.71	0.46	0.11	2.368	4.17	1.105	0.899	0.763	-	4.4	-	9.1	4.25	1.25	2.7	0.8	30	16
16:00	20.9	7.4	6.9	8.66	0.54	0.10	3.464	3.64	0.733	0.711	0.530	-	18.9	-	12.3	4.33	1.22	6.7	2.7	40	17
18:00	19.4	7.4	7.2	8.96	0.72	0.30	2.632	3.23	0.756	0.688	0.534	17.1	16.5	13.1	10.4	4.41	1.53	8.0	3.1	39	18
20:00	17.5	7.5	6.5	8.69	0.88	0.24	1.869	4.03	0.878	0.789	0.600	-	8.0	-	13.0	4.25	1.47	6.3	2.3	37	18
22:00	16.7	7.5	6.1	8.63	0.56	0.14	1.408	4.17	0.845	0.522	0.411	-	6.4	-	10.5	4.33	1.41	4.0	1.1	28	17
24:00	14.7	7.4	5.3	7.31	0.37	0.11	1.033	4.28	0.833	0.489	0.402	-	4.5	-	11.4	4.41	1.28	5.7	2.0	35	16
02:00	12.2	7.4	5.8	6.30	0.47	0.20	$0.289	4.50	0.803	0.733	0.648	18.1	16.4	13.5	11.2	4.25	1.22	10.7	3.3	31	15
04:00	14.8	7.4	6.1	5.56	0.35	$1.03	$0.469	2.69	0.722	0.622	0.510	-	8.5	-	9.5	4.09	1.12	7.3	2.0	27	15
06:00	16.0	7.4	6.7	7.71	0.27	#2.10	$0.563	2.58	0.688	0.602	0.487	-	4.4	-	7.8	4.64	1.04	3.3	1.0	30	15
08:00	16.7	7.3	6.0	4.91	0.42	$1.01	1.025	1.84	0.722	0.678	0.580	-	2.4	-	6.2	4.33	#0.55	6.0	2.1	35	17
10:00	17.9	7.4	5.4	4.47	0.63	0.16	1.579	1.14	0.835	0.785	0.647	6.9	6.5	9.7	8.3	4.56	1.22	8.0	3.0	38	18
Mean	13.6	7.4	6.2	7.32	0.52	0.43	1.449	3.56	0.87	0.75	0.60	14.80	9.96	11.55	9.98	4.33	1.19	6.7	2.3	33	17
SD	0.3	0.1	0.5	1.49	0.16	0.58	0.887	1.20	0.17	0.20	0.15	4.58	5.76	1.76	1.79	0.15	0.24	2.4	0.9	4	1
						0.29	1.870										1.25				
						0.33	0.764										0.15				
						0.15															
						0.07															

Annex-4 Comparison of Water Quality between River and Sewage

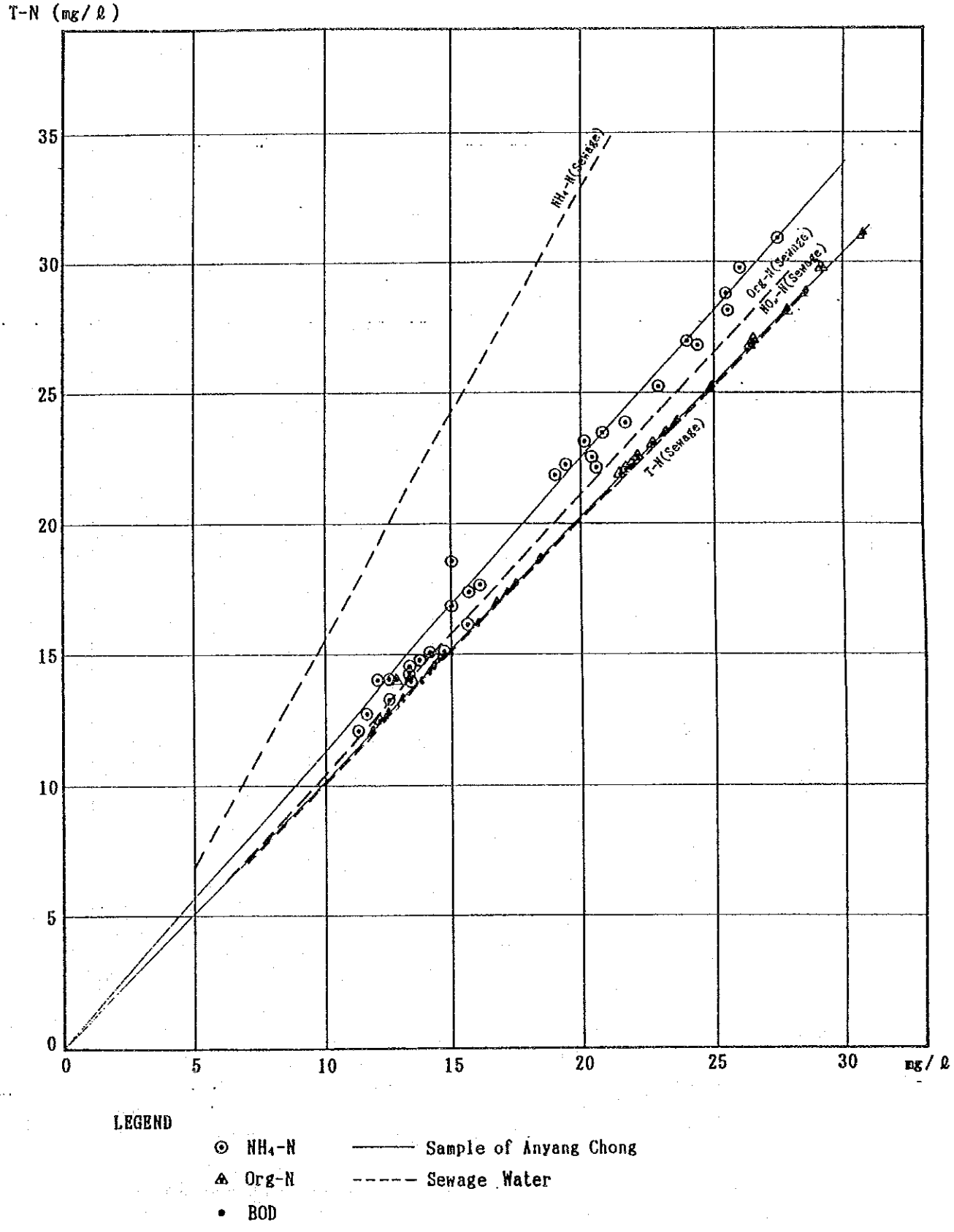

Fig. A-3.1 Comparison of Water Quallty between Anyang Chong and Sewage

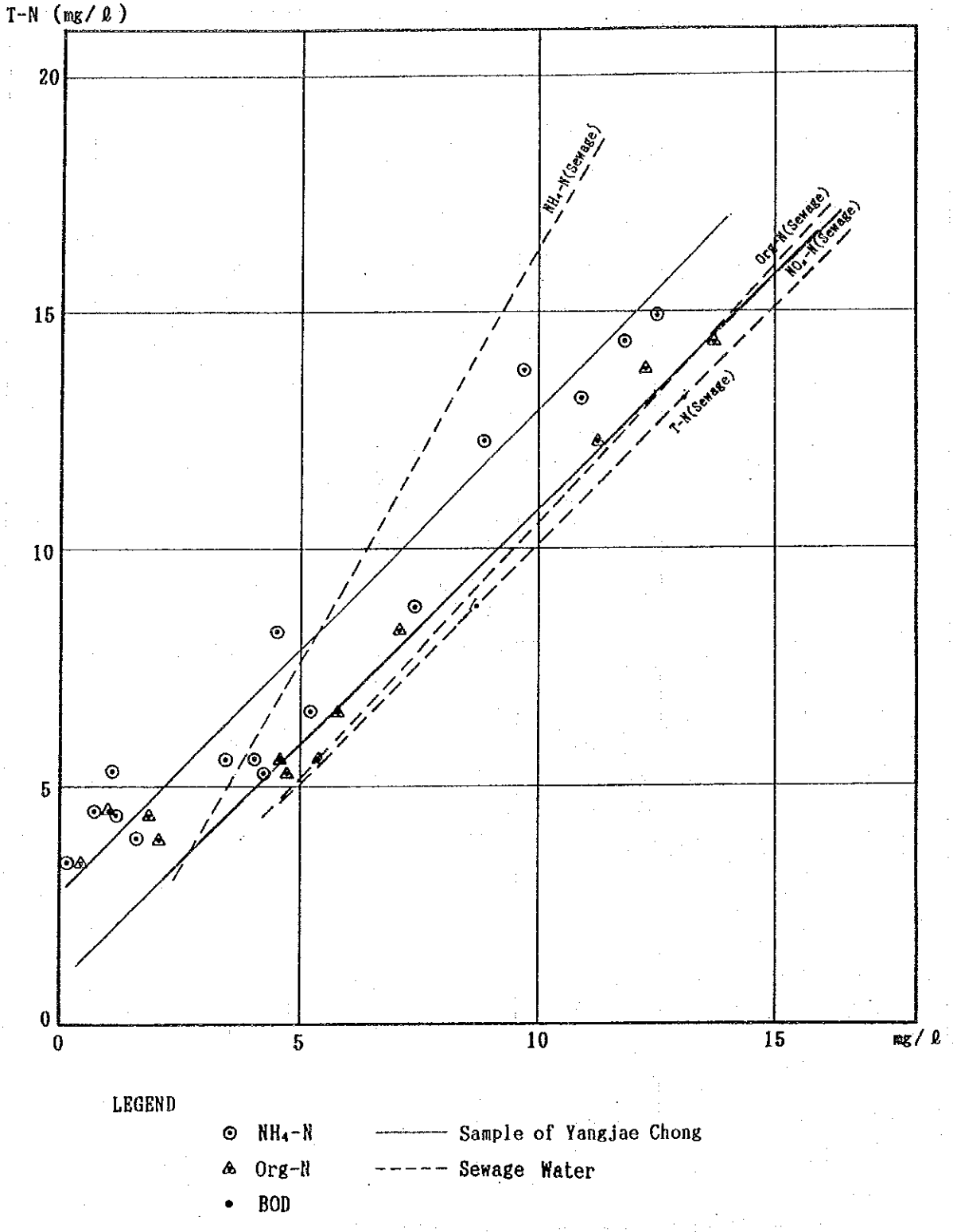

Fig. A-3.2 Comparison of Water Quality between Yangjae Chong and Sewage

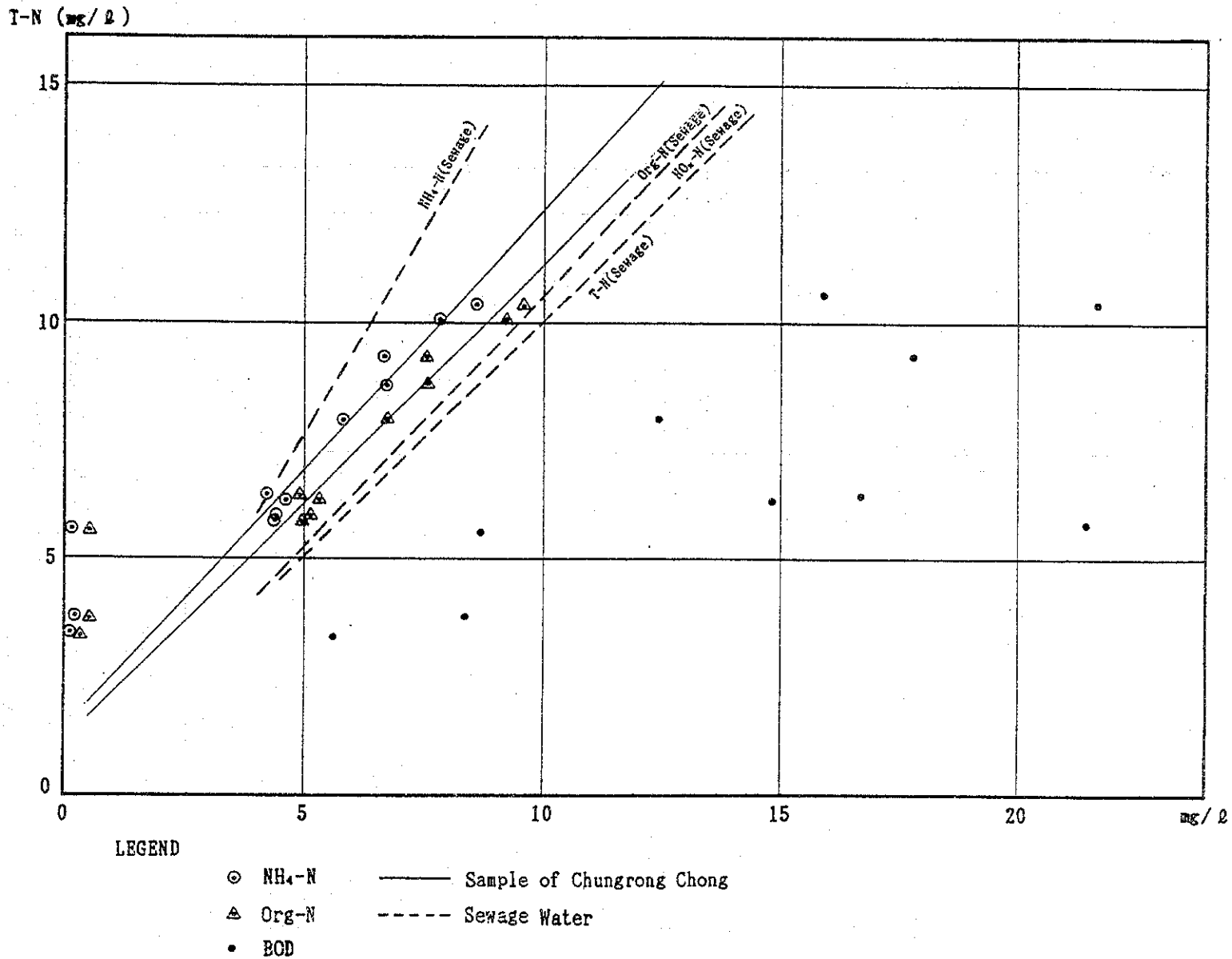

Fig. A-3.3 Comparison of Water Quality between Chungroung Chong and Sewage

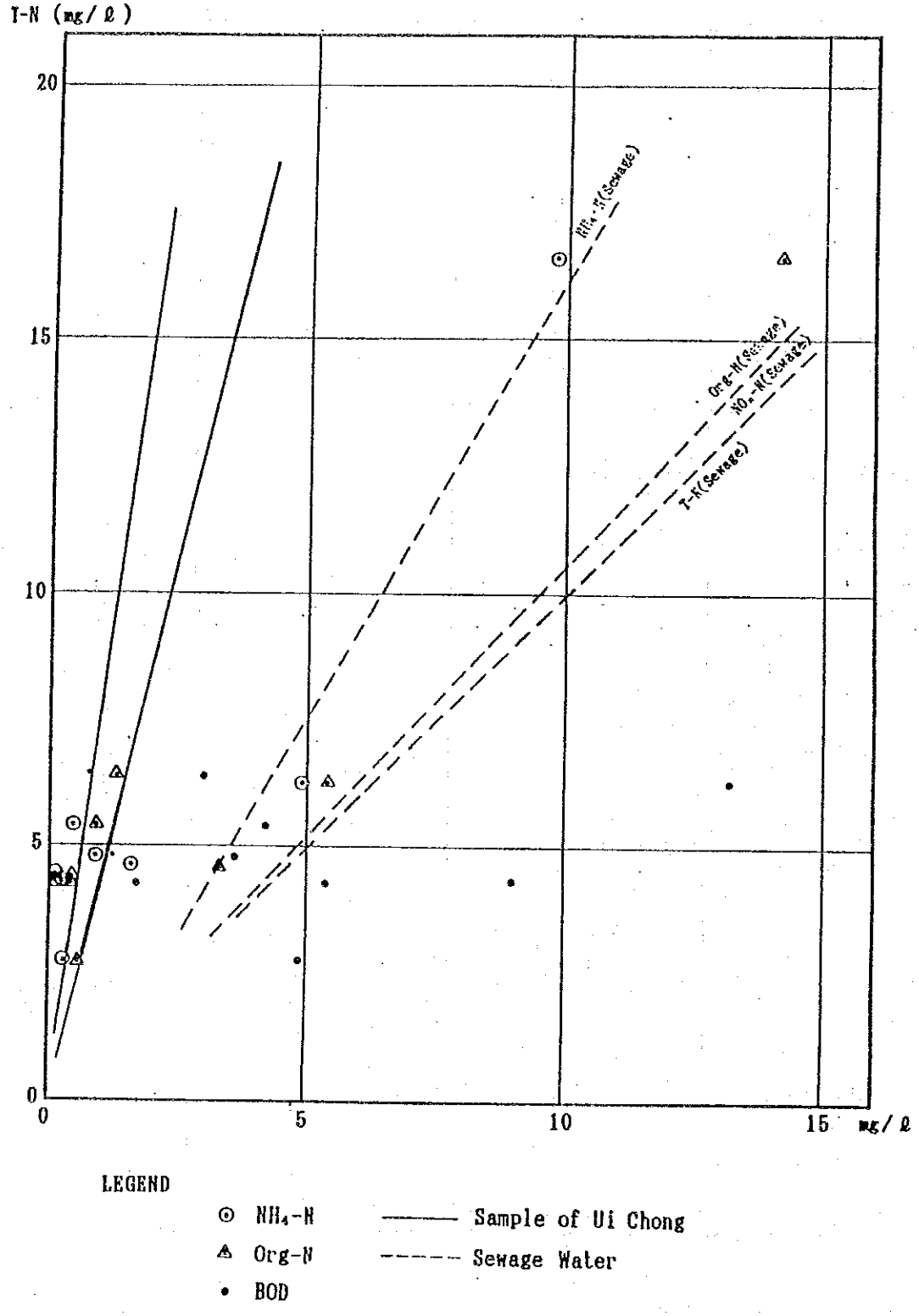

Fig. A-3.4 Comparison of Water Quality between Ui Chong and Sewage

Annex-5 Water Quality at Freshet Time

Table A-1.5-1 Water Quality of Anyang Chong at Freshet Time, A-St. 1
November 9, 1990, Precipitation: 3 mm

Item	WT (°C)	pH	DO (mg/l)	BOD (mg/l)	COD (mg/l)	SS (mg/l)	NH4-N (mg/l)	Coli-form (MPN/100ml)	Gauge (cm)	Discharge (m3/s)
Time										
10:00	15.7	7.0	0.3	32.3	18.1	55.3	14.13	840	180	155.103
11:00	15.2	7.2	0.3	25.5	20.6	49.3	14.02	720	720	197.805
12:00	14.8	7.2	0.1	22.0	23.1	45.3	13.91	680	220	212.880
13:00	14.0	7.1	0.1	19.3	17.1	18.7	13.59	920	240	244.292
14:00	13.7	7.1	0.6	18.8	17.0	18.0	12.04	1180	242	247.526
15:00	13.3	7.2	0.8	34.5	18.6	27.3	12.28	1020	250	260.629
16:00	13.0	7.3	1.1	19.5	13.1	36.0	13.59	1100	252	263.947
17:00	12.8	7.1	1.4	18.5	14.1	18.0	13.04	1200	280	312.164
18:00	12.6	7.3	1.8	21.0	17.6	12.7	13.59	960	290	330.184
19:00	12.3	7.3	2.0	19.5	14.1	16.7	14.13	950	270	294.565
20:00	12.1	7.1	1.6	20.4	13.1	19.3	13.37	1200	240	244.292
21:00	12.6	7.0	1.4	26.5	11.1	17.3	14.13	980	220	212.880

Table A-1.5-2 Water Quality of Anyang Chong at Freshet Time, A-St. 4
November 9, 1990, Precipitation: 3 mm

Item	WT (°C)	pH	DO (mg/l)	BOD (mg/l)	COD (mg/l)	SS (mg/l)	NH4-N (mg/l)	Coli-form (MPN/100ml)	Gauge (cm)	Discharge (m3/s)
Time										
10:00	15.4	7.3	1.8	32.4	18.1	15.5	13.04	880	42	14.525
11:00	15.2	7.2	1.4	21.3	16.1	21.5	14.13	980	44	15.273
12:00	14.7	7.1	1.1	33.8	16.0	18.5	13.69	940	47	16.440
13:00	14.4	7.2	0.9	57.0	19.0	22.7	13.26	1100	48	16.841
14:00	14.1	7.1	1.2	35.3	19.5	20.7	14.13	1200	50	17.660
15:00	13.9	7.0	1.3	38.5	18.0	20.7	13.37	1600	52	18.504
16:00	13.6	7.2	1.7	42.0	19.3	25.3	14.13	1200	53	18.935
17:00	13.1	7.2	2.1	35.3	20.6	20.0	13.37	1060	53	18.935
18:00	12.7	7.3	2.6	37.5	20.6	24.7	13.91	1150	52	18.504
19:00	12.4	7.3	2.3	35.6	19.3	23.3	14.13	1100	50	17.660
20:00	12.1	7.3	2.0	32.3	21.1	26.0	13.59	980	49	17.247
21:00	12.8	7.2	1.8	55.0	17.0	20.0	14.13	840	47	16.440

Table A-1.5-3 Water Quality of Anyang Chong at Freshet Time, A-St. 5
November 9, 1990, Precipitation: 3 mm

Item	WT (°C)	pH	DO (mg/l)	BOD (mg/l)	COD (mg/l)	SS (mg/l)	NH4-N (mg/l)	Coli-form (MPN/100ml)	Gauge (cm)	Discharge (m3/l)
10:00	14.8	7.2	2.7	34.1	23.1	20.0	15.76	950	50	12.631
11:00	14.7	7.3	2.1	36.4	25.1	23.3	16.30	780	52	13.122
12:00	14.4	7.3	1.8	32.6	24.1	28.0	15.76	820	55	13.880
13:00	14.0	7.3	1.2	33.5	25.0	22.1	15.22	950	57	14.401
14:00	13.7	7.2	2.0	32.6	23.1	24.1	14.13	1100	58	14.665
15:00	13.4	7.2	2.4	26.3	22.0	20.7	14.02	1200	61	15.478
16:00	13.1	7.3	2.7	37.0	22.6	22.7	13.59	1500	64	16.318
17:00	12.7	7.3	2.9	30.5	23.1	21.0	15.22	1200	66	16.894
18:00	12.5	7.3	3.4	33.4	22.6	23.9	14.13	1100	65	16.604
19:00	12.0	7.2	2.4	34.0	25.1	27.3	12.20	930	62	15.755
20:00	12.7	7.3	2.1	35.1	23.0	23.3	13.59	980	60	15.204
21:00	12.9	7.3	1.9	29.6	19.1	22.6	14.13	1100	57	14.401

Table A-1.5-4 Water Quality of Anyang Chong at Freshet Time, A-St. 6
November 9, 1990, Precipitation: 3 mm

Item	WT (°C)	pH	DO (mg/l)	BOD (mg/l)	COD (mg/l)	SS (mg/l)	NH4-N (mg/l)	Coli-form (MPN/100ml)	Water level (cm)	Discharge (m3/s)
10:00	14.2	7.2	1.8	104.0	26.1	15.3	12.50	680	47	11.551
11:00	14.0	7.1	1.2	43.3	27.0	16.0	13.04	760	50	15.850
12:00	13.7	7.1	0.9	84.6	26.1	12.0	11.41	880	52	18.733
13:00	13.6	7.2	1.6	80.4	25.1	12.2	12.17	920	53	20.180
14:00	13.3	7.3	2.1	102.0	24.1	18.0	11.74	980	57	26.002
15:00	13.1	7.2	2.2	44.5	22.1	22.0	11.28	1000	59	28.933
16:00	12.8	7.3	2.8	44.0	23.1	16.7	12.29	1100	62	33.357
17:00	12.5	7.2	3.0	48.3	22.6	18.7	12.17	960	63	34.838
18:00	12.3	7.0	3.2	46.5	22.0	22.2	10.23	840	62	33.357
19:00	11.9	7.1	2.9	37.2	22.1	16.2	12.50	1000	60	30.404
20:00	12.1	7.2	2.6	39.5	21.1	14.7	12.17	1200	57	26.002
21:00	12.4	7.3	2.4	37.0	20.1	27.3	10.33	980	54	21.630

Table A-1.5 Water Quality of Anyang Chong at Freshet Time, A-St. 1
February 27-28, 1991, Precipitation: 5 mm

Item	WT (°C)	pH	DO (mg/l)	BOD (mg/l)	COD(Mn) (mg/l)	SS (mg/l)	NH4-N (mg/l)	Coli-form (MPN/100ml)	Gauge (cm)	Discharge (m3/s)
Time										
10:00	5.2	7.3	3.8	68.5	56.8	31.3	15.98	12000	33	155.103
13:30	5.7	7.4	2.7	69.5	58.1	37.0	16.20	18000	47	197.805
14:00	5.9	7.4	3.0	72.5	60.1	42.7	16.09	18000	53	212.880
14:30	6.2	7.3	2.1	74.3	63.7	45.5	16.20	10000	54	244.292
15:00	6.4	7.3	2.8	61.5	59.5	48.0	15.98	9000	57	247.526
15:30	6.7	7.3	3.2	65.0	57.6	36.5	16.28	8800	58	260.629
16:00	7.0	7.4	3.4	69.0	58.8	52.0	15.00	11000	58	263.947
16:30	7.3	7.3	2.7	66.8	57.6	61.3	16.41	18000	57	312.164
17:00	7.1	7.3	2.1	63.8	56.8	59.1	16.09	15000	56	330.184
18:00	6.7	7.3	2.3	77.5	60.1	57.3	15.02	12000	55	294.565
09:30	6.4	7.2	2.7	67.5	58.5	55.4	16.11	18000	42	244.292
10:30	6.2	7.2	3.1	64.2	59.3	50.7	16.20	13000	39	212.880

Table A-1.5-6 Water Quality of Anyang Chong at Freshet Time, A-St. 4
February 27-28, 1991, Precipitation: 5 mm

Item	WT (°C)	pH	DO (mg/l)	BOD (mg/l)	COD (mg/l)	SS (mg/l)	NH4-N (mg/l)	Coli-form (MPN/100ml)	Gauge (cm)	Discharge (m3/s)
Time										
10:00	7.2	7.3	5.8	82.5	62.8	282.0	15.11	11000	14	
13:30	7.4	7.2	4.7	67.3	55.5	105.0	16.74	9000	14	
14:00	8.0	7.2	3.8	59.4	52.1	71.0	15.98	8000	15	
14:30	7.0	7.3	4.1	55.0	50.0	53.0	16.41	13000	16	
15:00	6.8	7.2	5.9	63.4	53.4	57.0	16.21	15000	16	
15:30	6.5	7.3	3.2	69.4	56.8	53.5	15.42	18000	17	
16:00	6.9	7.3	3.0	67.5	52.2	50.0	16.96	19000	18	
16:30	7.1	7.4	2.7	70.2	53.4	47.3	16.41	16000	16	
17:00	6.4	7.2	3.4	66.7	54.3	51.3	16.43	14000	15	
18:00	6.1	7.2	4.5	70.0	54.8	42.0	15.87	12000	15	
09:30	6.0	7.2	3.0	71.2	58.5	52.4	15.55	12000	13	
10:30	6.7	7.4	2.9	74.0	59.4	56.0	14.78	13000	13	

Table A-1.5-7 Water Quality of Anyang Chong at Freshet Time, A-St. 5
February 27-28, 1991, Precipitation: 5 mm

Item	WT (°C)	pH	DO (mg/l)	BOD (mg/l)	COD (mg/l)	SS (mg/l)	NH4-N (mg/l)	Coli-form (MPN/100ml)	Gauge (cm)	Discharge (m3/l)
Time										
10:00	6.7	7.3	2.8	71.4	58.7	95.0	15.43	13000	22	
13:30	7.2	7.3	2.9	69.2	55.4	76.0	14.35	14000	23	
14:00	6.9	7.4	4.2	60.5	48.0	37.3	14.33	10000	24	
14:30	7.1	7.3	3.8	70.5	56.6	32.5	14.35	10000	24	
15:00	6.5	7.2	3.6	68.4	53.7	39.3	15.22	8000	25	
15:30	6.8	7.2	3.1	62.3	50.8	45.0	14.34	9000	25	
16:00	7.4	7.3	3.7	64.2	52.1	48.7	15.22	7000	24	
16:30	7.0	7.3	4.2	60.5	48.1	51.0	15.22	6000	24	
17:00	6.8	7.4	3.2	58.5	49.4	46.3	16.30	9000	23	
18:00	6.5	7.4	2.8	69.4	56.8	55.0	13.48	11000	22	
09:30	6.0	7.3	2.4	74.4	53.4	64.5	14.54	10000	20	
10:30	6.8	7.2	2.9	72.4	57.2	76.0	15.23	9000	20	

Table A-1.5-8 Water Quality of Anyang Chong at Freshet Time, A-St. 6
February 27-28, 1991, Precipitation: 5 mm

Item	WT (°C)	pH	DO (mg/l)	BOD (mg/l)	COD (mg/l)	SS (mg/l)	NH4-N (mg/l)	Coli-form (MPN/100ml)	Water level (cm)	Discharge (m3/s)
Time										
10:00	5.9	7.4	2.4	69.4	57.4	31.3	15.00	6000	47	11.551
13:30	6.2	7.3	2.9	72.4	56.0	43.0	14.13	6000	50	15.850
14:00	6.5	7.6	3.0	68.5	54.1	54.7	14.46	8000	52	18.733
14:30	6.3	7.7	2.1	69.4	53.4	65.5	13.37	10000	53	20.180
15:00	6.1	7.5	2.8	67.5	50.4	81.3	13.04	7000	57	26.002
15:30	6.7	7.5	3.2	75.0	55.3	69.3	14.14	12000	59	28.933
16:00	6.5	7.4	3.4	68.5	52.1	64.7	14.35	16000	62	33.357
16:30	6.1	7.3	3.0	69.4	53.3	57.4	14.36	11000	63	34.838
17:00	5.4	7.4	2.7	70.0	51.4	50.7	14.13	12000	62	33.357
18:00	5.2	7.4	2.5	75.4	53.5	52.0	13.59	11000	60	30.404
09:30	5.0	7.4	2.3	71.6	52.5	48.6	13.69	7000	57	26.002
10:30	5.7	7.3	2.1	68.5	51.2	31.3	13.91	9000	54	21.630

Table A-2.5-1 Water Quality of Yangjae Chong at Freshet Time, Y-St. 1
August 31, 1990, Precipitation: 60 mm

Item	WT (°C)	DO (mg/l)	EC (mS/cm)	Turbid. (mg/l)	BOD (mg/l)	COD (mg/l)	SS (mg/l)	NH4-N (mg/l)	Coli- form (MPN/100ml)	Gauge (cm)
Time										
13:00	24.5	4.2	0.8	126	16.8	13.6	112.0	2.96	2400	140
13:30	24.2	4.3	0.8	126	21.3	13.0	124.0	2.82	2800	139
14:00	24.3	4.5	0.8	129	19.5	14.3	118.7	2.21	3100	136
14:30	24.1	4.7	0.7	130	16.5	13.9	108.3	2.07	2100	133
15:00	24.1	5.4	0.8	69	21.0	13.6	120.5	3.90	1900	130
16:00	23.7	5.3	0.8	65	17.9	13.4	102.8	2.07	1700	129
17:00	23.6	5.6	0.8	69	12.3	11.2	94.7	1.88	2500	130
18:00	23.4	5.6	0.7	66	11.7	13.3	90.8	1.35	1280	128
19:00	23.0	5.7	0.7	64	18.0	12.0	88.7	0.93	2100	126
20:00	22.8	5.6	0.7	62	10.5	10.2	82.7	0.54	1200	117
21:00	22.7	5.6	0.7	42	3.3	9.5	68.7	0.50	1100	107
22:00	22.5	5.7	0.7	31	5.9	9.3	74.6	0.39	1080	96

Table A-2.5-2 Water Quality of Yangjae Chong at Freshet Time, Y-St. 3
August 31, 1990

It	WT (°C)	DO (mg/l)	BOD (mg/l)	COD (mg/l)	SS (mg/l)	NH4-N (mg/l)	Coli- form (MPN/100ml)	Gauge (cm)	Discharge (m3/s)
Time									
13:00	22.3	7.0	7.5	14.4	114.7	0.40	2300	42	9.894
13:30	22.1	7.0	13.8	12.2	127.8	0.36	2100	36	7.589
14:00	21.9	7.1	15.6	13.5	132.2	0.30	2900	42	9.894
15:00	22.0	7.2	10.7	14.4	110.5	0.32	1800	46	11.427
16:00	21.9	7.7	10.1	16.0	121.4	0.49	1700	48	12.192
17:00	21.7	7.7	11.3	14.0	125.0	0.56	1580	46	11.427
17:30	21.5	7.6	8.1	10.7	120.8	0.29	2600	38	8.358
19:00	21.2	7.6	5.1	8.4	77.2	0.20	1300	26	4.255
20:00	20.5	7.6	4.7	8.7	59.2	0.26	2000	22	3.239
21:00	20.6	7.3	4.7	7.4	28.2	0.14	1000	22	3.239
22:00	20.4	7.5	4.5	6.0	34.0	0.25	800	18	2.364
23:00	20.4	7.5	3.6	7	28.8	0.38	900	16	1.979

Table A-2.5-3 Water Quality of Yangjae Chong at Freshet Time, Y-St. 1
February 27-28, 1991, Precipitation: 4 mm

Item	WT (°C)	pH	DO (mg/l)	BOD (mg/l)	COD (mg/l)	SS (mg/l)	NH4-N (mg/l)	Coli-form (MPN/100ml)	Water level (cm)	Discharge (m3/s)
Time										
10:00	5.4	7.4	3.8	11.6	11.0	35.0	10.14	4200	33	13.099
13:30	5.8	7.3	2.9	11.9	11.7	55.0	10.22	4600	34	14.240
14:00	6.2	7.4	2.4	12.7	12.0	58.0	10.29	5000	34	16.642
14:30	6.4	7.4	2.7	12.0	11.6	61.3	10.65	6000	35	24.812
15:00	5.8	7.4	2.1	12.4	11.4	60.4	10.72	3800	35	25.559
15:30	5.6	7.3	3.2	11.5	10.6	58.7	10.94	4000	36	26.315
16:00	5.2	7.3	3.4	15.7	10.0	65.5	10.72	2800	36	29.441
16:30	4.9	7.2	3.0	13.6	12.4	70.0	10.58	3000	35	21.232
17:00	4.8	7.2	2.4	17.6	15.0	64.5	10.59	4000	35	17.267
18:00	4.2	7.2	2.0	15.0	14.0	53.0	10.14	2800	34	15.421
09:30	5.7	7.2	2.7	16.8	16.0	39.5	7.61	3200	32	14.825
10:30	5.4	7.3	2.8	16.3	16.3	48.0	9.13	2900	31	13.664

Table A-2.5-4 Water Quality of Yangjae Chong at Freshet Time, Y-St. 3
February 27-28, 1991, Precipitation: 4 mm

Item	WT (°C)	pH	DO (mg/l)	BOD (mg/l)	COD (mg/l)	SS (mg/l)	NH4-N (mg/l)	Coli-form (MPN/100ml)	Water level (cm)	Discharge (m3/s)
Time										
10:00	4.8	7.3	5.2	19.2	12.0	14.0	12.39	2000	17	
13:30	4.9	7.4	5.4	16.2	12.5	15.0	12.17	3000	17	
14:00	5.2	7.5	5.7	16.5	12.6	16.0	13.04	3000	18	
14:30	5.4	7.3	5.1	15.9	12.4	64.5	12.50	5000	19	
15:00	5.1	7.3	6.2	15.4	12.4	78.0	12.61	6000	20	
15:30	4.9	7.4	6.4	15.8	12.6	85.3	12.17	5000	21	
16:00	4.7	7.2	5.1	19.0	12.5	90.0	11.30	4000	21	
16:30	4.7	7.3	5.6	16.2	12.5	72.0	10.33	3000	22	
17:00	4.6	7.3	5.9	17.5	12.6	65.7	9.67	1000	20	
18:00	4.4	7.4	6.4	11.3	12.0	50.0	9.78	8000	20	
09:30	4.6	7.4	6.0	15.2	14.8	48.0	10.65	2000	16	
10:30	4.8	7.4	6.2	23.2	16.8	39.3	10.68	1000	16	

Table A-3.5-1 Water Quality of Ui Chong at Freshet Time, U-St. 1, November 3, 1990
Precipitation: 4 mm

Item / Time	WT (°C)	pH	DO (mg/l)	BOD (mg/l)	COD (mg/l)	SS (mg/l)	NH4-N (mg/l)	Coli-form (MPN/100ml)	Gauge (cm)	Discharge (m3/s)
10:00	13.5	7.3	4.2	12.4	14.0	19.3	0.97	210	22	18.846
11:00	13.3	7.3	3.9	7.3	11.8	11.0	0.98	180	24	20.281
12:00	13.0	7.2	3.0	20.4	31.2	248.0	0.71	480	27	22.445
13:00	12.8	7.2	2.1	32.1	65.7	475.0	0.76	620	30	24.621
14:00	12.5	7.2	2.7	21.5	40.8	242.5	0.95	840	32	26.079
15:00	12.3	7.3	3.2	20.0	49.8	472.5	0.82	920	34	27.542
16:00	12.0	7.4	2.9	14.6	38.4	315.0	0.87	380	35	28.276
17:00	11.7	7.3	2.4	13.5	39.0	339.0	0.91	660	33	26.810
18:00	11.5	7.2	3.8	12.5	16.4	51.0	0.94	520	31	25.349
19:00	11.2	7.1	4.0	8.5	12.5	87.0	0.92	470	28	23.169
20:00	11.0	7.0	3.6	6.4	12.0	59.0	0.90	490	26	21.722
21:00	11.4	7.1	3.1	9.6	13.1	55.0	1.03	410	21	18.131

Table A-3.5-2 Water Quality of Ui Chong at Freshet Time, U-St. 2, November 3, 1990

Item / Time	WT (°C)	pH	DO (mg/l)	BOD (mg/l)	COD (mg/l)	SS (mg/l)	NH4-N (mg/l)	Coli-form (MPN/100ml)	Gauge (cm)	Discharge (m3/s)
10:00	13.2	7.3	4.2	8.8	12.4	21.0	0.23	380	7	2.590
11:00	13.0	7.3	4.0	8.5	13.5	32.0	0.44	360	9	3.308
12:00	12.9	7.4	3.7	17.0	29.5	84.0	0.54	480	11	4.125
13:00	12.7	7.3	4.1	10.4	27.4	185.0	0.74	420	14	5.535
14:00	12.4	7.2	3.9	7.5	18.6	118.0	0.71	260	17	7.166
15:00	12.1	7.2	4.4	9.6	17.4	106.0	0.65	320	20	9.019
16:00	11.9	7.3	3.6	12.4	21.0	118.6	0.63	410	21	9.685
17:00	11.6	7.2	3.8	12.4	14.5	91.3	0.67	390	23	10.702
18:00	11.4	7.2	3.1	13.6	12.0	36.0	0.65	520	22	10.377
19:00	11.1	7.4	3.5	11.4	10.1	18.0	0.66	460	19	8.376
20:00	10.9	7.2	3.7	12.6	8.6	14.0	0.53	580	16	6.598
21:00	11.2	7.3	4.3	9.2	9.0	11.0	0.52	370	11	4.125

Table A-3.5-3 Water Quality of Ui Chong at Freshet Time, U-St. 1
February 27-28, 1991, Precipitation: 3 mm

Item / Time	WT (°C)	pH	DO (mg/l)	BOD (mg/l)	COD (mg/l)	SS (mg/l)	NH4-N (mg/l)	Coli- form (MPN/100ml)	Gauge (cm)
10:00	4.9	7.4	5.8	4.1	6.8	1.5	0.21	600	29
10:30	5.0	7.3	6.2	4.1	6.5	1.0	0.24	800	30
14:00	5.2	7.2	6.8	3.9	6.6	1.3	0.36	1000	31
14:30	5.7	7.5	7.0	4.4	7.0	1.5	0.30	1200	32
15:00	5.6	7.4	6.2	4.3	7.9	1.7	0.28	1000	33
15:30	5.3	7.3	6.7	4.1	7.3	1.8	0.38	900	34
16:00	5.0	7.5	6.0	2.9	6.0	1.5	0.22	800	34
16:30	4.7	7.3	5.7	2.5	5.9	1.9	0.26	900	35
17:00	4.6	7.3	5.3	2.4	5.4	1.8	0.29	800	34
18:00	4.3	7.2	5.1	3.1	6.6	2.2	0.52	400	33
09:30	5.8	7.3	5.0	3.1	5.9	1.9	0.61	800	29
10:30	6.0	7.6	6.0	3.8	6.8	1.9	0.48	900	28

Table A-3.5-4 Water Quality of Ui Chong at Freshet Time, U-St. 2
February 27-28, 1991, Precipitation: 3 mm

It / Time	WT (°C)	pH	DO (mg/l)	BOD (mg/l)	COD (mg/l)	SS (mg/l)	NH4-N (mg/l)	Coli- form (MPN/100ml)	Gauge (cm)
10:00	3.8	7.6	6.8	57.4	50.3	30.3	14.28	380	1
10:30	4.0	7.7	7.2	60.5	28.3	26.3	15.39	380	2
14:00	4.2	7.5	8.4	62.5	30.5	28.4	16.02	420	2
14:30	4.8	7.6	7.0	-	42.3	38.2	15.03	480	3
15:00	3.7	7.5	6.7	52.4	31.0	27.6	16.22	500	3
15:30	3.6	7.4	6.2	50.4	41.3	37.3	15.43	320	3
16:00	3.5	7.4	6.5	41.3	34.8	1.4	14.98	680	4
16:30	3.4	7.4	7.1	38.3	30.2	28.3	15.22	790	3
17:00	3.3	7.4	7.3	47.3	29.3	27.6	16.23	880	2
18:00	3.2	7.5	7.0	52.1	32.4	30.4	17.38	240	2
09:30	3.0	7.5	6.2	60.3	38.2	31.3	14.30	380	1
10:30	3.7	7.4	6.8	57.3	39.4	15.7	15.69	560	1

Table A-4.5-1 Water Quality of Chungroung Chong at Freshet Time, C-St. 1
November 3, 1990, Precipitation: 5 mm

Item / Time	WT (°C)	pH	DO (mg/l)	BOD (mg/l)	COD (mg/l)	SS (mg/l)	NH4-N (mg/l)	Coli-form (MPN/100ml)	Gauge (cm)	Discharge (m3/s)
10:00	14.2	7.3	2.7	110.5	100.8	1344.0	0.8	1100	33	6.320
11:00	14.0	7.3	2.1	150.4	114.5	1058.7	0.81	960	35	6.762
12:00	13.7	7.2	2.8	82.6	80.0	463.3	1.01	1200	38	7.456
13:00	13.4	7.0	2.0	104.8	93.2	448.0	0.94	860	39	7.696
14:00	13.1	7.1	3.8	16.2	18.4	85.0	1.81	620	41	8.189
15:00	12.9	7.2	4.1	11.6	16.2	45.0	0.98	430	43	8.699
16:00	12.7	7.3	4.2	10.3	12.0	12.0	0.94	380	46	9.497
17:00	12.6	7.3	4.0	10.4	11.5	16.0	1.16	410	47	9.771
18:00	12.3	7.1	3.2	12.6	13.2	10.0	1.17	520	45	9.227
19:00	12.0	7.0	4.8	9.5	8.5	11.0	1.23	630	42	8.442
20:00	12.4	7.1	5.2	7.9	8.0	10.0	1.16	490	40	7.941
21:00	12.6	7.2	3.7	12.0	11.0	13.0	1.25	740	36	6.989

Table A-4.5-2 Water Quality of Chungroung Chong at Freshet Time, C-St. 3
November 3, 1990, Precipitation: 5 mm

Item / Time	WT (°C)	pH	DO (mg/l)	BOD (mg/l)	COD (mg/l)	SS (mg/l)	NH4-N (mg/l)	Coli-form (MPN/100ml)	Gauge (cm)	Discharge (m3/s)
10:00	13.8	7.2	2.7	104.0	80.4	598.0	0.87	550	21	0.761
11:00	13.5	7.3	2.1	50.4	61.5	408.0	0.88	510	23	1.004
12:00	13.4	7.3	3.4	8.6	13.4	28.0	0.80	470	24	1.240
13:00	13.1	7.3	3.7	12.4	22.6	60.0	0.79	220	28	1.780
14:00	12.9	7.1	4.0	10.3	12.3	23.0	0.82	380	30	2.158
15:00	12.6	7.2	3.1	8.6	10.4	16.0	0.91	520	32	2.574
16:00	12.3	7.3	3.8	10.5	8.6	20.0	0.91	410	33	2.796
17:00	12.1	7.4	3.0	11.7	8.0	21.0	1.01	370	31	2.361
18:00	11.9	7.1	4.7	6.0	7.0	9.0	0.78	380	29	1.964
19:00	11.7	7.3	4.4	9.5	10.6	16.0	0.98	510	26	1.441
20:00	11.1	7.3	4.1	12.0	7.8	9.0	0.80	480	25	1.286
21:00	12.0	7.4	4.8	11.1	10.4	10.0	0.81	500	23	1.004

Table A-4.5-3 Water Quality of Chongroung Chong at Freshet Time, C-St. 1
February 27-28, 1991, Precipitation: 3 mm

Item / Time	WT (°C)	pH	DO (mg/l)	BOD (mg/l)	COD (mg/l)	SS (mg/l)	NH4-N (mg/l)	Coli- form (MPN/100ml)	Gauge (cm)
10:00	5.2	7.3	6.2	16.4	13.6	12.0	5.61	1200	9
10:30	5.7	7.3	6.8	10.2	9.9	9.0	6.17	1500	10
14:00	5.9	7.2	6.0	18.0	14.0	14.0	6.29	900	10
14:30	6.1	7.3	5.7	14.8	14.5	11.0	6.26	1000	11
15:00	5.7	7.2	5.2	19.3	14.8	10.7	7.13	1100	12
15:30	5.4	7.4	5.8	20.3	16.4	11.5	7.35	1000	11
16:00	5.0	7.4	6.7	25.5	17.8	13.3	7.78	880	11
16:30	4.9	7.5	6.4	17.3	14.3	12.5	7.88	920	10
17:00	4.8	7.4	6.3	15.9	12.4	14.7	8.22	840	10
18:00	4.7	7.3	6.6	23.8	18.2	15.0	7.78	900	10
09:30	4.5	7.4	5.1	28.6	19.0	18.7	7.57	820	8
10:30	4.8	7.5	5.2	19.2	14.3	12.5	4.44	780	7

Table A-4.5-4 Water Quality of Chongroung Chong at Fresfet Time, St. 3
February 27-28, 1990, Precipitation: 3 mm

Item / Time	WT (°C)	pH	DO (mg/l)	BOD (mg/l)	COD (mg/l)	SS (mg/l)	NH4-N (mg/l)	Coli- form (MPN/100ml)	Gauge (cm)
10:00	4.3	7.5	6.2	31.6	23.6	28.7	11.81	700	19
10:30	4.8	7.6	7.4	62.0	54.2	75.0	10.07	600	20
14:00	4.8	7.5	6.0	58.5	51.6	113.7	11.16	500	21
14:30	5.3	7.4	5.9	58.6	49.3	95.5	10.94	800	21
15:00	4.9	7.3	6.2	49.8	45.1	81.3	11.15	900	21
15:30	5.0	7.4	6.8	52.3	44.2	89.0	9.06	1000	22
16:00	4.8	7.5	6.2	50.2	42.1	71.0	9.42	800	22
16:30	4.7	7.6	6.3	49.3	40.0	60.7	8.55	900	21
17:00	4.6	7.5	7.1	46.4	39.6	65.5	8.95	800	20
18:00	4.4	7.4	6.0	40.0	30.2	65.0	8.55	700	18
09:30	4.1	7.4	5.8	31.2	24.8	55.0	8.70	600	17
10:30	4.6	7.3	5.2	39.4	29.3	43.0	10.58	800	17

Annex-8 Heavy Metals in River Sediment in Japan, 1986

Table A-8 Heavy Metals in River Sediment in Japan, 1986 (Saitama Prefecture)
(Arakawa River, Shiba River, Toemon River, other 9 rivers)

	Cd (mg/kg d.w)	Pb (mg/kg d.w)	Cr(6+) (mg/kg d.w)	As (mg/kg d.w)	THg (mg/kg d.w)	IL (%)	DL (%)
	0.60	11.30	ND	5.1	0.05	2.3	4.7
	0.35	20.60	ND	2.1	0.23	2.0	5.5
	0.51	23.00	ND	6.3	0.24	8.3	83.6
	0.04	23.30	ND	1.5	0.02	6.5	53.3
	0.09	8.70	ND	1.8	0.08	6.6	28.2
	0.08	10.70	ND	3.6	1.46	4.2	42.1
	0.36	120.00	ND	2.9	0.44	8.0	61.0
	6.60	39.00	ND	5.5	0.19	7.0	51.6
	0.40	17.00	ND	4.7	0.81	12.8	20.3
	0.55	130.00	ND	3.2	0.10	2.2	92.4
	4.10	24.00	ND	1.7	0.05	6.6	41.6
	0.16	217.00	ND	4.8	0.09	4.9	34.5
	5.00	11.00	ND	10.2	0.39	17.9	37.9
	0.21	25.00	ND	3.7	0.05	1.6	68.6
	0.60	16.00	ND	19.0	0.15	2.8	46.7
	0.30	84.00	ND	11.5	0.18	11.2	34.0
	0.60	12.40	ND	1.8	0.02	6.6	50.7
	0.70	6.00	ND	0.6	0.03	5.2	49.6
	0.06	3.90	ND	0.3	0.22	3.9	27.8
	0.05	7.50	ND	0.6	0.91	8.6	33.0
	0.08	6.20	ND	0.5	0.01	7.0	47.6
	0.08	4.90	ND	0.1	0.01	4.2	61.5
	0.04	4.40	ND	1.9	0.05	7.5	26.5
	0.00	10.90	ND	8.3	0.08	17.9	24.6
	0.21	26.10	ND	6.3	0.10	6.6	18.5
	1.13	45.60	ND	3.9	0.02	3.4	17.8
	2.55	17.00	ND	5.8	0.04	6.0	16.3
	0.13	68.50	ND	3.6	0.10	44.0	18.0
	0.72	123.00	ND	9.1	0.65	2.5	19.2
	11.00	76.00	ND	4.3	0.34	4.2	28.5
	1.28	23.80	ND	5.6	0.33	11.4	76.6
	0.36	72.70	ND	4.4	0.06	20.3	36.0
	0.80	109.00	ND	4.0	1.84	1.4	41.0
	0.17	16.10	ND	4.2	0.37	1.4	24.5
	0.17	16.00	ND	1.8	0.67		59.0
	0.22	24.10	ND	3.7	0.07		44.0
	1.51	140.00	ND	6.7	0.33		43.3
	0.23	27.20	ND	2.4	0.07		30.8
	0.67	20.60	ND	12.1	0.72		56.0
	0.84	25.60	ND	14.1	0.04		39.0
	0.09	6.80	ND	11.1	0.02		51.9
	0.22	10.70	ND	4.6	0.01		19.9
	0.95	53.20	ND	5.9	0.02		18.7
	0.04	68.20	ND	6.0	0.02		16.1
	1.79	4.10	ND	1.1	0.02		52.9
	0.04	3.00	ND	1.4	0.04		48.0
Mean	1.01	39.44		4.9	0.26	7.9	38.9
SD	1.98	45.71		3.9	0.38	7.8	20.8

SUPPORTING REPORT III

PREDICTION OF RIVER WATER QUALITY IN FUTURE AND WATER QUALITY IMPROVEMENT FACILITIES

C O N T E N T

List of Table

L I S T O F T A B L E

Chapter 1 Introduction

1.1 Purpose of this Study

In this chapter the outlines of the items presented below are described for the purpose of formulating the countermeasure for water quality improvement.

a. Estimates of generation load within the study basin in 1990, 2002 and 2010.

b. Present condition of load in the study rivers based on the measured survey result from 1990 to 1991.

c. Calculation of apparent ran-off ratio based on the two items above.

d. Prediction of future water quality at each observation station based on the items described above.

e. Investment amount using the estimated cost, at each water quality level determined.

1.2 Method of this Study

(1) Generation load

Estimate of generation load is described below.

* Generation load of the year 1990 will be calculated at each system such as life system, industrial system, livestock system and nonM-point source, using existing data.

* Generation loads of the year 2002 and 2010 are calculated based on the investigate study by Seoul Metropolitan, etc.

(2) Measured pollution load

Current generation load at each observation station will be calculated using the measured value estimated by the study team from, 1990 to 1991. In calculation of the measured load, the average value, excluding the maximum and minimum data, will be used in order to determine annual average value. This is because generation load itself is also considered to be annual average value calculated by using various sort of statistical data.

(3) Apparent run-off ratio

Apparent run-off ratio is calculated using the data obtained during the survey period.

(4) Future water quality

The prediction method for water quality is determined using the ratio between current generation load and measured load obtained at each observation station along the river (apparent run-off ratio).
As the data were not highly precise, and in order to obtain positive result, self-purification of the rivers were not taken into consideration.

(5) Inquiry into countermeasure

Countermeasure for water quality improvement will be examined taking environment of study river into consideration. Moreover, the similar cases of Japan will be able to give some suggestions for reference.

(6) Investment amount in view of water quality level

Investment amount in view of water quality level will be estimated on the basis of the necessary investment roughly calculated with a method described above.

Chapter 2 Pollution Load within the River Basin

In order to grasp the pollution content of the basin, the quantity of the generation load was estimated on the basis of the latest available data. The data used for the calculations are indicated as follows.

(1) Population

The population estimate was based on the following data.

*the population of each don-district by the data in 1988.
*Basic Town Plan of Seoul Metropolitan
*The Sewerage Service Basic Plan of Komei City

(2) Land Utilization

Land utilization was estimated on the basis of the Basic Town plan of Seoul Metropolitan.

(3) Industry

1) Manufacturing Industry

The manufacturing industry was estimated on the basis of the following data.

*the number of employees by industrial classification
*the study result of the Research on the Load Factor Discharged from Factories compiled by the Ministry of Commerce in 1984.

2) Livestock

Estimate was based on the investigative study by Seoul metropolitan
The Study by Seoul Metropolitan:
The Study on River Environment Improvement for The Tributaries of Han River system in the Seoul Municipality and Its Vicinity, December 1990, Seoul metropolitan

2.1 Pollution Load in the Present Condition

2.1.1 Anyang Chong

(1) Generation Load Discharged by the Population of the Basin

1) Settled Population within the basin

Seoul

The population was calculated using the data of don-districts in 1988. The population of each don-district was summed up at every basin where the water quality and discharge observation stations were installed.

Komei

The population was calculated using the data indicated in the sewerag service basic plan of Komei City.

Future population was estimated on the basis of the Basic Town Plan of Seoul Metropolitan and the Sewerage Service Basic Plan of Komei City.

The population in 1990 and 2002 were estimated using the data in 1988, 2001 and 2010 by quota allotment. The result is indicated in Table 2.1.1-1.

Table 2.1.1-1 Population in Anyang Chong Basin

unit:person

	St.1to2	St.2to4	St.4 to 5	St.5to6	St.3 to	Total
			Seoul/Kwangmyong			
1988	243,162	151,809	230,787/230,200	267,483	996,569	2,120,010
1990	262,031	163,589	248,695/248,061	288,240	1,073,903	2,284,519
2001	283,973	177,288	269,530/300,000	312,377	1,163,832	2,507,000
2002	302,641	195,956	288,198/305,000	331,045	1,182,500	2,605,340
2010	305,591	190,784	290,038/345,000	336,157	1,252,430	2,720,000

2) Generation Load discharged by the Population

The generation load of the settled population was calculated using the

pollutant load factor adopted in the Basic Sewerage Plan of SMG published in 1984.

Table 2.1.1-2 Adopted Pollution Load Factor by Basic Sewage Plan of SMG

Treatment District	Item	Pollution Load of Population			Pollution Load of Commercial Use	Total
		Domest	Night Soil	Sub-total		
Anyang	BOD	29	19	48	14.2	62.2
	S S	29.3	25	54	14.3	68.3
Tan	BOD	29	19	48	12.8	60.8
	S S	29.3	25	54	12.9	66.9
Joongnang	BOD	29	19	48	18.9	66.9
	S S	29.3	25	54	19.0	73.0

cf:converted figures 1990

Table 2.1.1-3 Pollution Load Amount of Anyang Chong Basin(1990)

	St.1～2	St.2～4	St.4～5	St.5～6	St.3～	Total
Population	262,031	163,589	496,756	288,240	1,073,903	2,284,519
BOD(kg/day)	16,298	10,175	30,898	17,929	66,797	142,097
S S(kg/day)	17,897	11,173	33,928	19,687	73,348	156,033

(2) Estimate of Generation Load Discharged by Industry

1) Industrial Classification and Production Amount within the Basin

The data on the factories in the basin were offered by Seoul Metropolitan. These data includes the industries in the basin and the number of workers in each unit of the district. The data list textile, chemistry, machinery and others as major industries of this area.

The production amount of each factory classification within the basin was calculated by multiplication--population amount per employee number multiplied by employee number--using the results from the Research on the Load Factor Discharged from Factories compiled by the Ministry of Commerce in 1984.

The production amounts of the year 1990 were arrived at, based on the assumption that annual growth rate was 10% from 1984 to 1990.

Table 2.1.1-4 Production Amount per Employee

unit:million won per year

	Textile	Chemistry	Machinery	Others
1984	16.4	55.3	21.3	10.8
1990	29.1	98.0	37.7	19.1

Table 2.1.1-5 Employee Numbers & Yearly Production Amount

Unit: persons, Million Won per Year

		St.1 to 2	St.2 to 4	St.4 to 5	St.5 to 6	St.3 to
Te	Employee nos	3,158	6,018	873	42,949	8,994
	Production A	91,898	175,124	25,404	1,249,816	261,725
Ch	Employee nos	10,980	2,223	2,814	28,525	2,340
	Production A	1,076,040	217,854	275,772	2,795,450	229,320
Ma	Employee nos	23,873	10,806	14,612	89,693	20,040
	Production A	900,012	407,386	550,872	3,381,426	755,508
Ot	Employee nos	17,951	4,650	7,455	47,864	11,066
	Production A	342,864	88,815	142,391	914,202	211,361
To	Employee nos	55,962	23,698	25,753	209,030	42,440
	Production A	2,410,814	889,179	994,439	8,340,894	1,457,914

Te:Textil Ch:Chemistry Ma:Machinery Ot:Others Production A:Production Amount

2) Estimate of Generation Load Discharged by Industry

The industries in Korea are classified broadly into four categories, textile, chemistry, machinery and others. Machinery is further divided into three and others into four sub-categories.

The pollutant load factor per production has not been determined in Korea, because there was no Industry Pollution Load factor included in the data. The pollutant load factor was thus estimated using the data in the Pollution Load Factor from the Japanese Design Criteria of Sewerage Facilities.

The industry discharge factor was estimated using the results of the Research on the Load Factor Discharged from Factories compiled by the Ministry of Commercae of Korea in 1984.

The estimates were arrived at using the following formulas.

Industry Discharge Factor

=discharge from the factories / production amount

Industry pollution Load Factor

=discharge from the factories / pollution amount

a. Industry Discharge Factor and Discharge by Each Factory Classification per Production Amount

i. Industry Discharge Factor per Production Amount

The industry discharge factor is indicated as follows.

Table 2.1.1-6 Industry Discharge Factor

unit:m3/million won

	Industry Discharge Factor
Textile	17.7
Chemistry	28.3
Machinery	7.1
Others	4.8

ii. Discharge of Each Factory Classification

The discharge of each factory category, which was estimated using its production amount and the discharge factor, is as follows.

Table 2.1.1-7 Industry Discharge

Unit:m^3/day

	St.1 to 2	St.2 to 4	St.4 to 5	St.5 to 6	St.3 to
Textile	4,456	8,492	1,232	60,608	12,692
Chemistry	83,430	16,891	21,382	216,743	17,780
Machinery	17,507	7,924	10,716	65,776	14,696
Others	4,509	1,168	1,873	12,022	2,780
Total	109,902	34,475	35,203	355,149	47,948

b. Estimate of the Production Amount

The production amounts were estimated using the ratio of the production amount to each factory sort and the calculated total.

Table 2.1.1-8 Industry Production Breakdown (Seoul Area)

	Production per year	Ratio
Textile	1,164(billion won)	1.00000
Chemistry	1,182	1.00000
Machinery	2,462	1.00000
Casting & Nonferrousmetal	256	0.10398
Primary Metals	386	0.15678
Machinery&Instrumentation	1,820	0.73924
Others	2,515	1.00000
Foods	1,673	0.66521
Wooden	65	0.02584
Printing	599	0.23817
Others	178	0.07078
Total	7,323	-

c. Pollution Load Factor per Industry Discharge

Pollution load factor per industry discharge was estimate using the data of the Japanese Design Criteria of Sewerage Facilities because the data obtained from Korea were insufficient.

Table 2.1.1-9 Industry Pollution Load Factor

	BOD (g/m^3)	S S (g/m^3)
Textile	15.0	22.5
Textil Industry	20.0	15.0
Clothing	10.0	30.0
Chemistry	633.0	233.0
Resin acid & Glycerin	600.0	500.0
Crude Drugs	1,000.0	100.0
Petroleum	300.0	100.0
Casting & Nonferrousmetal	50.0	100.0
Primary Metals	360.0	230.5
Machinery & Instrumentation	25.0	20.0
Machinery	40.0	30.0
Instrumentation	10.0	100.0
Foods	2,400.0	1,200.0
Wooden	10.0	40.0
Printing	200.0	60.0
Others	10.0	100.0

d. Industry Discharge

The industry discharges of the nine categories were calculate using the ratio presented above.

Table 2.1.1-10 Industry Discharge of Anyang Chong Basin

unit:m^3/day

Item	St.1to 2	St.2to 4	St.4to 5	St.5to 6	St.3 to
Textile	4,456	8,492	1,232	60,608	12,692
Chemistry	83,430	16,891	21,382	216,743	17,780
Machinery	17,507	7,924	10,716	65,776	14,696
Casting & Nonferrou	1,820	824	1,114	6,839	1,528
Primary Metals	2,745	1,242	1,680	10,313	2,304
Machin & Inst	12,942	5,858	7,922	48,624	10,864
Other	4,509	1,168	1,873	12,022	2,780
Foods	2,999	777	1,246	7,997	1,849
Wooden	117	30	48	311	72
Printing	1,074	278	446	2,863	662
Others	319	83	133	851	197

e. Generation Load by Industry

The generation load by industry based on the industry pollution load factor and industry discharge is presented in the Table below.

Table 2.1.1-11 Industry Input Load of Anyang Chong Basin

unit:kg/day

Item		St.1to 2	St.2to 4	St.4to 5	St.5to 6	St.3 to
Textile	BOD	66.8	127.4	18.5	909.1	190.4
	S S	100.3	191.1	27.7	1,363.7	285.6
Chemistry	BOD	52,811.2	10,692.0	13,534.8	137,198.3	11,254.7
	S S	19,439.2	3,935.6	4,982.0	50,501.1	4,142.7
Casting & Nonfer	BOD	91.0	41.2	55.7	342.0	76.4
	S S	182.0	82.4	111.4	683.9	152.8
Primary Metals	BOD	988.2	447.1	604.8	3,712.7	829.4
	S S	632.7	286.3	387.2	2,377.1	531.1
Machin & Inst	BOD	323.6	146.5	198.1	1,215.6	271.6
	S S	258.8	117.2	158.4	972.5	217.3
Foods	BOD	7,197.6	1,864.8	2,990.4	19,192.8	4,437.6
	S S	3,598.8	932.4	1,495.2	9,596.4	2,218.8
Wooden	BOD	1.2	0.3	0.5	3.1	0.7
	S S	4.7	1.2	1.9	12.4	2.9
Printing	BOD	214.8	55.6	89.2	572.6	132.4
	S S	64.4	16.7	26.8	171.8	39.7
Others	BOD	3.2	0.8	1.3	8.5	2.0
	S S	31.9	8.3	13.3	85.1	19.7
Total	BOD	61,630.8	13,248.3	17,474.8	162,245.6	17,004.8
	S S	24,312.8	5,571.2	7,203.9	65,764.0	7,610.6

(3) Generation Load by Land Utilization

1) Present Land Utilization Conditions

The present land utilization condition and the land utilization plan for Seoul Metropolitan have not been compiled. Therefore, in order to grasp the present state of land utilization at each observation station, the condition of land utilization was studied at each river basin based on the Town Plan of Seoul Metropolitan published in 1989, 1/25,000 in scale. However, this method includes the areas of the productive green zone, natural green zone, development restricted zone, the agricultural farm zone, the bush zone and the green zone conbined.
The land area fomation ratio of the farms, paddy fields including orchards and forest, were determined using the land utilization area survey of the smallest district. Each of the land utilization area was obtained by using the determined land area formation ratio. The green zone area includes the development restricted zone, the natural green zone, the reductive green zone and the scenic zone.

Table 2.1.1-12 Land Use Area by Each Observation Station

unit:km^2

	Farm	Paddy	Forest	Residence	Others	Total
St.1 to 2	0.329	0.746	2.320	14.738	1.457	19.590
St.2 to 4	0.156	0.739	2.127	1.532	5.876	10.430
St.4 to 5	5.881	9.641	25.044	17.674	0.450	58.690
St.5 to 6	0.166	1.272	10.460	13.335	1.987	27.220
St.3 to	0.100	0.073	16.023	24.035	1.599	41.830
Total	6.632	12.471	55.974	71.314	11.369	157.760

2) Generation Load by Land Utilization

a. Generation unit Load

The generation unit load of the land utilization was adopted from the basic study result for principal rivers in Korea which was summarized in the Basic Plan and the Detailed Plan of the Water Purification Pro-

ject for Anyang Chong.

The park is classified the forest category. While residential zone, the quasi-industrial zone, the quasi-residential zone and the commercial zone fall under the residential area category.

Table 2.1.1-13 Pollution Load Factor by Land Use

unit:kg/km^2·day

	Farm	Paddy	Forest	Residence	Others
BOD	7.10	5.12	0.96	87.59	0.96
S S	7.59	4.41	1.26	227.73	1.26

b) Generation Load by Land Utilization

The generation load by land utilizaion was calculated using the size of the land and the generation unit load.

Table 2.1.1-14 Input Load by Land Use unit:kg/day

		Farm	Paddy	Forest	Residence	Others	Total
St.1 to 2	BOD	2.3	3.8	2.2	1,290.9	1.4	1,300.6
	S S	2.5	3.3	2.9	3,356.3	1.8	3,366.8
St.2 to 4	BOD	1.1	3.8	2.0	134.2	5.6	146.7
	S S	1.2	3.3	2.7	348.9	7.4	363.5
St.4 to 5	BOD	41.8	49.4	24.0	1,548.1	0.4	1,663.7
	S S	44.6	42.5	31.6	4,024.9	0.6	4,144.2
St.5 to 6	BOD	1.2	6.5	10.0	1,168.0	1.9	1,187.6
	S S	1.3	5.6	13.2	3,036.8	2.5	3,059.4
St.3 to	BOD	0.7	0.4	15.4	2,105.2	1.5	2,123.2
	S S	0.8	0.3	20.2	5,473.5	2.0	5,496.8
Total	BOD	47.1	63.9	53.6	6,246.4	10.8	6,421.8
	S S	50.4	55.0	70.6	16,240.4	14.3	16,430.7

(4) Generation Load by Livestock

1) Present Condition of Livestock

The present condition of the livestock within the basin is shown in the following.

Table 2.1.1-15 Livestok Amount of Anyang Chong

unit:head

	St.1 to 2	St.2 to 4	St.4 to 5	St.5 to 6	St.3 to
Cow	9	818	2,506	6,986	29
Pig	11	1,134	5,059	8,285	2
Chicken	-	162	47,908	25,848	682
Toal	20	2,114	55,473	41,119	713

2) Generation Load by Livestock

a. Generation Unit Load of livestock

The generation unit load of the livestock was estimated on the basis of the investigative study by Seoul Metropolitan. The result is indicated in Table 2.1.1-16.

Table 2.1.1-16 Livestock Pollution Load Factor

	BOD (g/head)	S S (g/head)
Cow	640	3,800
Pig	125	356
Chicken	12.5	18

b. Generation Load by Livestock

The generation load by livestock was estimated using thi number of the livestock (in Table 2.1.1-16) and the generation unit load.

Table 2.1.1-17 Livestock Input Load unit:kg/day

		St.1 to 2	St.2 to 4	St.4 to 5	St.5 to 6	St.3 to
Cow	BOD	5.8	523.5	1,603.8	4,471.0	18.6
	S S	34.2	3,108.4	9,522.8	26,546.8	110.2
Pig	BOD	1.4	141.8	632.4	1,035.6	0.3
	S S	3.9	403.7	1,801.0	2,949.5	0.7
Chicken	BOD	0	2.0	598.9	323.1	8.5
	S S	0	2.9	862.3	465.3	12.3
Total	BOD	7.2	667.3	2,835.1	5,829.7	27.4
	S S	38.1	3,515.0	12,186.1	29,961.6	123.2

(5) Result

The generation load obtained by the method described above is summarized in Table 2.1.1-18 and 19.

Table 2.1.1-18 Continuous Input Load (BOD) unit:kg/day

	St.1 to 2	St.2 to 4	St.4 to 5	St.5 to 6	St.3 to
Poulation	16,298	10,175	30,898	17,929	66,797
Industry	61,631	13,248	17,475	162,246	17,005
Land Use	1,301	147	1,664	1,188	2,123
Livestock	7	667	2,835	5,830	27
Total	79,237	24,237	52,872	187,193	85,952

Table 2.1.1-19 Continuous Input Load (S S) unit:kg/day

	St.1 to 2	St.2 to 4	St.4 to 5	St.5 to 6	St.3 to
Poulation	17,897	11,173	33,928	19,687	73,348
Industry	24,313	5,571	7,204	65,764	7,611
Land Use	3,367	364	4,144	3,059	5,497
Livestock	38	3,515	12,186	29,962	123
Total	45,615	20,623	57,462	118,472	86,579