JAPAN INTERNATIONAL COOPERATION AGENCY

PUBLIC WORKS DEPARTMENT
MINISTRY OF INTERIOR
THE KINGDOM OF THAILAND

THE STUDY ON MASTER PLANNING FOR THE SEWERAGE DEVELOPMENT PROJECT FOR LOWER CHAO PHRAYA RIVER BASIN IN THE KINGDOM OF THAILAND

VOLUME 4-I

DATA REPORT

JANUARY 1994

NIPPON JOGESUIDO SEKKEI CO., LTD.
PACIFIC CONSULTANTS INTERNATIONAL

JAPAN INTERNATIONAL COOPERATION AGENCY

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PART 1

WATER POLLUTION CONTROL PLAN

1.1 Relevant Report Prepared in Thailand

TABLE 1.1.1 (1) MAJOR REPORT COLLECTED FOR THE STUDY

Category	Report Title	Prepared for (Agency) and by Consultants	Year and language	Reference information
Socio-economic	1. Seventh National Economic and Social Development Plan	National Economic and Social Development Board, Office of the Prime Minister (NESDB)	1991 English	- National policy on country's development (1992-1996) including environmental protection policy
	2. Upper Central Region Study; Master Plan with Sector Study (Environmental Management)	NESDB JICA	1991 English	- Frame work for the upper central region up to year 2000 - Sector study (population, Industry etc.)
Laws and Regulations	3. Immediate Policies and Countermeasure for Water, Air and Noise Pollution Control in Thailand	Special Committee for setting up the policies for water, air and noise pollution control	1990 Thai	Present pollution status and policy
	4. Laws and Standards on Pollution Control in Thailand	Office of National Environment Board (ONEB)	1989 English	- Water quality standards
Water Pollution Control	5. Lower Chao Phraya River Basin Water Pollution Control Master Plan (Wastewater Treatment) for Bangkok and its Vicinity Area)	ONEB Macro Consultants	1990 Thai	- Frame work projection - Pollution load and water quality of Chao Phraya River in the future - Wastewate management concepts (Nonthaburi and Pathumthani)
	6. - do - Organization and Laws (Seminar report)	ONEB Macro Consultants	1992 Thai	- Updated laws and regulations

...cont'd

TABLE 1.1.1 (2) MAJOR REPORT COLLECTED FOR THE STUDY (cont'd)

Category	Report Title	Prepared for (Agency) and by Consultants	Year and language	Reference information
Sewerage Plan	7. Comprehensive Study of Sewerage Systems for the First Group Area (5 provinces); M/P & F/S	PWD Paul Consultants	1992 Thai	- General approach for sewerage planning - Sewerage systems for Ayutthaya and Pathumthani municipalities
	8. Feasibility Study of Wastewater Treatment Systems for Nonthaburi	ONEB	1989 English	- Sewerage Plan - Unit pollution load
	9. Flood Control, Drainage and Sewerage Systems for Nonthaburi Province; Progress Report	PWD Team Consultants	1992 Thai	- Sewerage plan
	10. Pre-Feasibility Study of Domestic Wastewater Management for Muang Pathumthani Municipality; D/F Report	ONEB Envitech Consultants	1992 Thai	Sewerage Plan
	11. Pre-Feasibility Study of Domestic Wastewater Management for Muang Ayutthaya Municipality; D/F Report	ONEB Envitech Consultants	1992 Thai	Sewerage Plan
	12. Domestic Wastewater and Water Pollution Problem in Bangkok and its Vicinity	ONEB	2530 Thai	- Unit pollution load

...cont'd

TABLE 1.1.1 (3) MAJOR REPORT COLLECTED FOR THE STUDY (cont'd)

Category	Report Title	Prepared for (Agency) and by Consultants	Year and language	Reference information
Water Quality Management	13.Development of a Framework for Water Quality Management of Chao Phraya and Tha Chin River	ONEB	1988 English	
	14.Pathogen Analysis in Canals, Bangkok and Chao Phraya River	ONEB	1989	- Hygiene
Hydrology & flood Control	15.Flood Forecasting System in Chao Phraya River	JICA	1989	- Hydrology
	16.Master Plan Study on Water Management System and Monitoring Program in Chao Phraya River Basin	RID JICA		- Flow rate (irrigation)
Industrial Development and Wastewater	17.Data on Hydrological Conditions and Water Quality of Main Rivers and Information on Wastewater Discharged from Factories with Treatment Facilities in Thailand	DIW	1990	- Unit pollution load (quality & quantity by factory)
	18.Feasibility Study on Industrial Water Supply, Central Wastewater Treatment Plant and Hazardous Solid Waste from Factories in Rang Sit Area (Pathumthani Province)	DIW	1991	- Future industrial area in Pathumthani province - Wastewater volume
	19.Detailed Design of Wastewater Treatment Plant for Rangsit Area	DIW	1992	- Pollution load - Sewerage planning

2.4 Flood Records

Table 2.4.1 Flood Record Based on Questionaire Survey

Municipality	Flood Record
Chainat	No flood experience in Chainat area because of proper provision of Chao Phraya Embankment
Sing Buri	Year / Max. Water Level (above mean seawater level) / Flood duration 1975 — 8.69 M — No Record 1978 — 8.59 M — No Record 1980 — 11.80 M — Sep. 10 – Nov. 4 1983 — – — Sep. 7 – Nov. 11 1985 — – — Sep. 18 – Nov. 6
Lop Buri	Year / M / M 1980 — 10.75 – 10.85 — Along Phaholyothin Road (50 cm above GL)
Ang Thong	Year / M 1983 — 6.14 — 30 Days 1988 — 6.09 — 20 Days
Pa Mok	Year 1980 — – — – 1981 — – — – 1983 — Grand Level + 1.5 m — Sep. 19 – Oct. 20 1989 — Grand Level + 1.5 m — Oct. 23 – Nov. 5 Area: All market area and its surrounding area (Flood area was 15% of Municipality area) Duration: 2 months Average Rainfall: 529.7 mm/year (1983)
Sena	Every 4 year during August and September Area : Market and Bus station Level: Ground level + 0.50 meter high
Bang Bua Thong	Year / Level / Area / Duration 1973 — Oct. – Dec. — 53 cm — 1 km2 — 3 weeks 1975 — Oct. – Nov. — 70 cm — 1 km2 — 6 weeks 1980 — Oct. – Dec. — 60 cm — 1 km2 — 5 weeks 1983 — Oct. – Jan. — 210 cm — All — 6 weeks 1986 — Oct. – Nov. — 20 cm — 0.5 km2 — 2 weeks
Prachatipat	1990 — Oct. – Nov. — 30 cm — 1.56 km2 — 85 Days

3.4.1 Water Quality of Chao Phraya River Investigated by Relevant Authorities

Table 3.4.1.1 (1) Water Quality of the Chao Phraya River Investigated by PCD (Ambient Temperature)

Station No.	Distance from Estuary (km)	Ambient Temperature (deg. C) 1988 Feb	1988 May	1989 Feb	1989 May	1990 Feb	1990 May	1988 Aug	1988 Nov	1989 Aug	1989 Nov	1990 Aug	Dry Season Feb. & May Data No.	Avg.	Max.	Min.	Rainy Season Aug. & Nov. Data No.	Avg.	Max.	Min.
1	7.0												0	–	–	–	0	–	–	–
3	18.0	27.8	34.9					33.2					2	31.4	34.9	27.8	1	33.2	33.2	33.2
5	27.0	27.8	34.9					33.2					2	31.4	34.9	27.8	1	33.2	33.2	33.2
8	41.5	27.8	34.9					33.2					2	31.4	34.9	27.8	1	33.2	33.2	33.2
10	48.0	27.8	34.9					33.2					2	31.4	34.9	27.8	1	33.2	33.2	33.2
12	58.0	27.8	34.9					33.2					2	31.4	34.9	27.8	1	33.2	33.2	33.2
15	83.0	27.8	34.9					33.2					2	31.4	34.9	27.8	1	33.2	33.2	33.2
16.1	95.7	27.8	34.9					33.2					2	31.4	34.9	27.8	1	33.2	33.2	33.2
17	101.0	27.8	34.9					33.2					2	31.4	34.9	27.8	1	33.2	33.2	33.2
18	123.6	27.8	34.9					33.2					2	31.4	34.9	27.8	1	33.2	33.2	33.2
20	142.4	27.8	34.9					33.2					2	31.4	34.9	27.8	1	33.2	33.2	33.2
21	183.0		34.9										1	34.9	34.9	34.9	0	–	–	–
24	244.0		34.9										1	34.9	34.9	34.9	0	–	–	–
25	263.5		34.9										1	34.9	34.9	34.9	0	–	–	–
28	280.0		34.9										1	34.9	34.9	34.9	0	–	–	–
29	305.6		34.9										1	34.9	34.9	34.9	0	–	–	–
30	331.0		34.9										1	34.9	34.9	34.9	0	–	–	–
32	376.4		34.9										1	34.9	34.9	34.9	0	–	–	–

Table 3.4.1.1 (2) Water Quality of the Chao Phraya River Investigated by PCD (Water Temperature)

Station No.	Distance from Estuary (km)	Water Temperature (deg. C) 1988 Feb	1988 May	1989 Feb	1989 May	1990 Feb	1990 May	1988 Aug	1988 Nov	1989 Aug	1989 Nov	1990 Aug	Dry Season Feb. & May Data No.	Avg.	Max.	Min.	Rainy Season Aug. & Nov. Data No.	Avg.	Max.	Min.
1	7.0					32.0	30.0						2	31.0	32.0	30.0	0	–	–	–
3	18.0	29.0	33.7	31.0	31.0	31.0	30.0	30.7	27.0	31.5	30.0		6	31.0	33.7	29.0	4	29.8	31.5	27.0
5	27.0	29.0	33.7	30.0	30.0	32.0	31.0	30.7	26.0	32.0	30.0		6	31.0	33.7	29.0	4	29.7	32.0	26.0
8	41.5	29.0	33.7	31.0	30.0	31.0	32.0	30.7	26.0	32.7	30.0		6	31.1	33.7	29.0	4	29.9	32.7	26.0
10	48.0	29.0	33.7	32.0	32.0	31.0	29.5	30.7	26.0	32.5	30.0		6	31.2	33.7	29.0	4	29.8	32.5	26.0
12	58.0	29.0	33.7	31.0	31.0	30.0	30.0	30.7	26.0	29.0	30.0		6	30.8	33.7	29.0	4	28.9	30.7	26.0
15	83.0	29.0	33.7	32.0	31.0	32.0	32.0	30.7	28.0	31.0	31.0		6	31.6	33.7	29.0	4	30.2	31.0	28.0
16.1	95.7	29.0	33.7	31.0	31.0	31.0	31.0	30.7	28.0	31.0	31.0		6	31.1	33.7	29.0	4	30.2	31.0	28.0
17	101.0	29.0	33.7	32.0	33.0	31.0	32.0	30.7	28.0	32.0	31.0		6	31.8	33.7	29.0	4	30.4	32.0	28.0
18	123.6	29.0	33.7	32.0	31.0	32.0	31.0	30.7	28.0	32.0	30.0		6	31.5	33.7	29.0	4	30.2	32.0	28.0
20	142.4	29.0	33.7	32.0	31.0	32.0	29.0	30.7	27.0	33.0	31.0		6	31.1	33.7	29.0	4	30.4	33.0	27.0
21	183.0		33.7		32.0		31.0		27.0		31.0		3	32.2	33.7	31.0	2	29.0	31.0	27.0
24	244.0		33.7		32.0		31.0		27.0		32.0		3	32.2	33.7	31.0	2	29.5	32.0	27.0
25	263.5		33.7		32.0		32.0		27.0		32.0		3	32.6	33.7	32.0	2	29.5	32.0	27.0
28	280.0		33.7		32.0		31.0		27.0		31.0		3	32.2	33.7	31.0	2	29.0	31.0	27.0
29	305.6		33.7		31.0		32.0		27.0		32.0		3	32.2	33.7	31.0	2	29.5	32.0	27.0
30	331.0		33.7		32.0		31.0		27.0		32.0		3	32.2	33.7	31.0	2	29.5	32.0	27.0
32	376.4		33.7		32.0		32.0		27.0		31.0		3	32.6	33.7	32.0	2	29.0	31.0	27.0

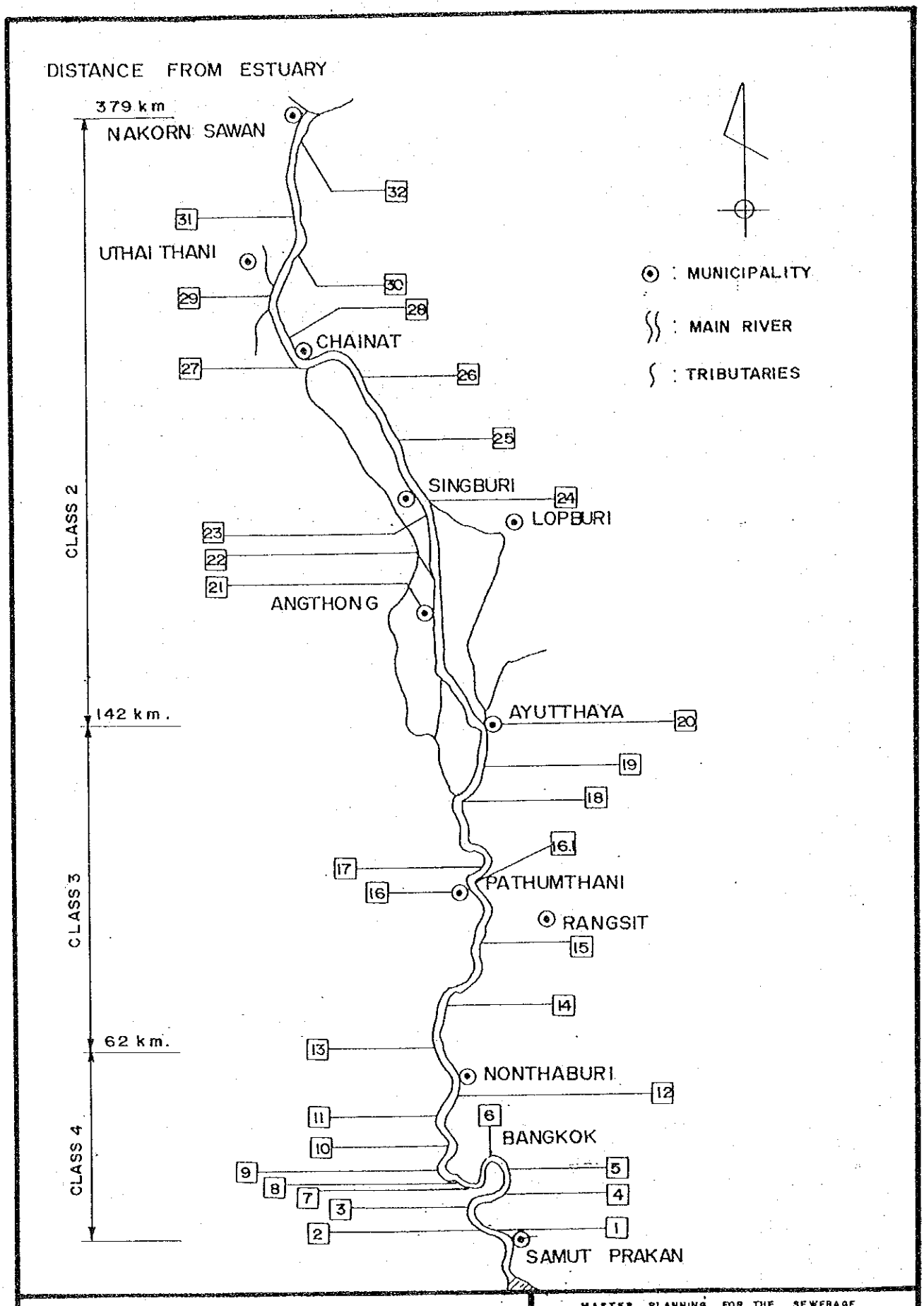

FIG. 3.4.1.1 WATER QUALITY MONITORING STATIONS BY PCD

MASTER PLANNING FOR THE SEWERAGE DEVELOPMENT PROJECT FOR LOWER CHAO PHRAYA RIVER BASIN

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Table 3.4.1.1 (3) Water Quality of Chao Phraya River Investigated by PCD (pH)

Station No.	Distance from Estuary (km)	pH 1988 Feb	1988 May	1989 Feb	1989 May	1990 Feb	1990 May	1988 Aug	1988 Nov	1989 Aug	1989 Nov	1990 Aug	Dry Season Feb. & May Data No.	Avg.	Max.	Min.	Rainy Season Aug. & Nov. Data No.	Avg.	Max.	Min.
1	7.0					7.4	7.2					6.9	2	7.3	7.4	7.2	1	6.9	6.9	6.9
3	18.0	7.6	7.1	6.7	7.6	7.3	7.2		7.1	7.4	7.1	6.9	6	7.3	7.6	6.7	4	7.1	7.4	6.9
5	27.0	7.6	7.2	6.7	7.5	7.3	7.3		7.1	7.5	7.0	6.9	6	7.3	7.6	6.7	4	7.1	7.5	6.9
8	41.5	7.4	7.3	7.0	7.5	7.3	7.3		7.0	7.2	7.2	6.9	6	7.3	7.5	7.0	4	7.1	7.2	6.9
10	48.0	7.0	7.4	7.0	7.5	7.4	7.3		7.1	7.3	7.2	6.9	6	7.3	7.5	7.0	4	7.1	7.3	6.9
12	58.0	7.1	7.1	6.6	7.4	7.4	7.7		7.9	7.3	6.8	7.0	6	7.2	7.7	6.6	4	7.3	7.9	6.8
15	83.0	7.0	7.5	6.7	7.6	7.7	7.4		7.9	7.5	6.9	7.8	6	7.3	7.7	6.7	4	7.5	7.9	6.9
16.1	95.7	7.3	7.4	6.6	7.6	7.4	7.4		7.8	7.6	7.0	7.2	6	7.3	7.6	6.6	4	7.4	7.8	7.0
17	101.0	7.2	7.4	6.7	7.6	7.9	7.5		7.9	7.6	7.0	7.1	6	7.4	7.9	6.7	4	7.4	7.9	7.0
18	123.6	7.2	7.3	6.7	7.4	7.8	7.5		7.9	7.6	7.1	7.2	6	7.3	7.8	6.7	4	7.5	7.9	7.1
20	142.4	7.0	7.3	6.8	7.8	8.0	7.6		7.9	7.7	7.2	7.3	6	7.4	8.0	6.8	4	7.5	7.9	7.2
21	183.0		7.2		8.0		7.7		7.2		7.6		3	7.6	8.0	7.2	2	7.4	7.6	7.2
24	244.0		7.5		8.1		7.5		7.2		7.6		3	7.7	8.1	7.5	2	7.4	7.6	7.2
25	263.5		7.0		8.0		7.8		7.2		7.5		3	7.6	8.0	7.0	2	7.4	7.5	7.2
28	280.0		7.2		7.8		7.7		7.1		7.5		3	7.6	7.8	7.2	2	7.3	7.5	7.1
29	305.6		7.3		7.9		7.8		7.1		7.6		3	7.7	7.9	7.3	2	7.4	7.6	7.1
30	331.0		7.4		8.0		7.8		7.2		7.8		3	7.7	8.0	7.4	2	7.5	7.8	7.2
32	376.4		7.1		8.1		7.9		7.2		7.5		3	7.7	8.1	7.1	2	7.4	7.5	7.2

Table 3.4.1.1 (4) Water Quality of Chao Phraya River Investigated by PCD (Dissolved Oxygen)

Station No.	Distance from Estuary (km)	Disolved Oxygen (mg/l) 1988 Feb	1988 May	1989 Feb	1989 May	1990 Feb	1990 May	1988 Aug	1988 Nov	1989 Aug	1989 Nov	1990 Aug	Dry Season Feb. & May Data No.	Avg.	Max.	Min.	Rainy Season Aug. & Nov. Data No.	Avg.	Max.	Min.
1	7.0					3.50	0.00					0.15	2	1.8	3.5	0.0	1	0.2	0.2	0.2
3	18.0	0.70	0.50	0.64	0.80	0.80	0.50	1.60	3.20	0.70	0.28	0.10	6	0.7	0.8	0.5	5	1.2	3.2	0.1
5	27.0	0.60	1.00	0.00	0.15	0.75	0.05	1.40	3.00	0.85	0.00	0.05	6	0.4	1.0	0.0	5	1.1	3.0	0.0
8	41.5	2.90	2.25	0.64	0.85	0.80	0.70	2.40	3.90	1.05	0.42	0.90	6	1.4	2.9	0.6	5	1.7	3.9	0.4
10	48.0	0.50	2.75	0.79	0.40	0.65	1.50	3.20	4.00	1.20	0.23	2.10	6	1.1	2.8	0.4	5	2.1	4.0	0.2
12	58.0	0.40	3.50	0.94	1.15	1.45	0.50	3.40	4.50	2.00	1.20	2.35	6	1.3	3.5	0.4	5	2.7	4.5	1.2
15	83.0	2.30	4.50	2.20	3.90	2.60	3.50	5.40	5.40	2.85	2.40	3.90	6	3.2	4.5	2.2	5	4.0	5.4	2.4
16.1	95.7	3.10	4.90	2.40	4.10	2.80	4.00	5.80	4.70	4.00	3.40	4.25	6	3.6	4.9	2.4	5	4.4	5.8	3.4
17	101.0	3.00	5.05	2.00	3.80	2.95	4.30	5.30	5.10	4.30	4.20	4.20	6	3.5	5.1	2.0	5	4.6	5.3	4.2
18	123.6	3.30	5.40	3.00	2.70	2.60	5.45	5.80	5.60	4.05	4.90	5.25	6	3.7	5.5	2.6	5	5.1	5.8	4.1
20	142.4	5.40	5.55	4.40	5.75	5.70	6.55	6.40	5.80	5.50	7.00	4.70	6	5.6	6.6	4.4	5	5.9	7.0	4.7
21	183.0		6.80		7.00		6.75		7.80		7.10		3	6.9	7.0	6.8	2	7.5	7.8	7.1
24	244.0		6.80		7.80		7.05		7.60		7.80		3	7.2	7.8	6.8	2	7.7	7.8	7.6
25	263.5		7.30		7.55		7.50		7.50		7.40		3	7.5	7.6	7.3	2	7.5	7.5	7.4
28	280.0		4.60		5.80		5.40		5.80		5.80		3	5.3	5.8	4.6	2	5.8	5.8	5.8
29	305.6		5.40		6.15		5.60		5.80		5.90		3	5.7	6.2	5.4	2	5.9	5.9	5.8
30	331.0		5.40		6.70		6.35		6.10		6.50		3	6.2	6.7	5.4	2	6.3	6.5	6.1
32	376.4		5.70		7.25		6.50		5.20		6.20		3	6.5	7.3	5.7	2	5.7	6.2	5.2

Table 3.4.1.1 (5) Water Quality of Chao Phraya River Investigated by PCD (BOD)

Station No.	Distance from Estuary (km)	Biochemical Oxygen Demand (mg/l) 1988 Feb	1988 May	1989 Feb	1989 May	1990 Feb	1990 May	1988 Aug	1988 Nov	1989 Aug	1989 Nov	1990 Aug	Dry Season Feb. & May Data No.	Avg.	Max.	Min.	Rainy Season Aug. & Nov. Data No.	Avg.	Max.	Min.
1	7.0					2.80	9.40					4.00	2	6.10	9.40	2.80	1	4.00	4.00	4.00
3	18.0	2.80	4.72	1.70	6.83	2.90	3.30	3.80	0.30	3.80	1.60	2.80	6	3.71	6.83	1.70	5	2.46	3.80	0.30
5	27.0	6.50	1.90	2.50	5.25	2.55	6.00	4.00	1.00	2.65	1.60	2.90	6	4.12	6.50	1.90	5	2.43	4.00	1.00
8	41.5	6.00	1.16	1.90	3.86	3.00	1.80	3.30	0.80	1.45	1.70	2.75	6	2.95	6.00	1.16	5	2.00	3.30	0.80
10	48.0	3.70	1.26	2.00	2.77	2.55	1.60	1.70	1.20	2.20	2.20	2.20	6	2.31	3.70	1.26	5	1.90	2.20	1.20
12	58.0	2.80	1.56	2.30	1.80	8.05	1.70	2.00	1.30	1.05	1.40	1.90	6	3.04	8.05	1.56	5	1.53	2.00	1.05
15	83.0	1.20	1.56	1.00	0.09	0.60	1.20	1.10	0.80	1.15	2.00	1.10	6	0.94	1.56	0.09	5	1.23	2.00	0.80
16.1	95.7	1.20	1.07	2.20	1.00	1.10	2.90	1.20	1.60	1.15	0.75	0.85	6	1.58	2.90	1.00	5	1.11	1.60	0.75
17	101.0	1.70	2.29	0.97	1.20	1.40	2.00	1.00	0.90	0.65	2.00	1.00	6	1.59	2.29	0.97	5	1.11	2.00	0.65
18	123.6	4.40	2.24	1.60	2.33	2.60	0.80	3.80	0.80	2.70	1.30	1.40	6	2.33	4.40	0.80	5	2.00	3.80	0.80
20	142.4	1.20	1.81	1.80	0.09	2.35	0.90	1.20	0.20	1.05	2.30	1.05	6	1.36	2.35	0.09	5	1.16	2.30	0.20
21	183.0		1.50		0.50		0.43		0.80		0.63		3	0.81	1.50	0.43	2	0.72	0.80	0.63
24	244.0		1.50		0.95		1.37		0.60		1.60		3	1.27	1.50	0.95	2	1.10	1.60	0.60
25	263.5		1.84		0.20		0.59		1.80		1.10		3	0.88	1.84	0.20	2	1.45	1.80	1.10
28	280.0		1.24		0.27		1.04		1.40		0.48		3	0.85	1.24	0.27	2	0.94	1.40	0.48
29	305.6		0.89		0.57		0.99		0.60		0.44		3	0.82	0.99	0.57	2	0.52	0.60	0.44
30	331.0		1.34		0.51		0.70		2.00		0.82		3	0.85	1.34	0.51	2	1.41	2.00	0.82
32	376.4		1.73		0.81		0.79		1.70		1.20		3	1.11	1.73	0.79	2	1.45	1.70	1.20

Table 3.4.1.1 (6) Water Quality of Chao Phraya River Investigated by PCD (SS)

Station No.	Distance from Estuary (km)	Suspended Solid (mg/l) 1988 Feb	1988 May	1989 Feb	1989 May	1990 Feb	1990 May	1988 Aug	1988 Nov	1989 Aug	1989 Nov	1990 Aug	Dry Season Feb. & May Data No.	Avg.	Max.	Min.	Rainy Season Aug. & Nov. Data No.	Avg.	Max.	Min.
1	7.0					30.00	540.00					95.00	2	285.00	540.00	30.00	1	95.00	95.00	95.00
3	18.0		165.00		332.40	16.00	311.00		25.00	143.00	21.00	101.00	4	206.10	332.40	16.00	4	72.50	143.00	21.00
5	27.0		44.00		122.30	29.00	242.00		24.20	71.00	35.00	92.00	4	109.33	242.00	29.00	4	55.55	92.00	24.20
8	41.5		165.00		211.20	18.00	93.00		22.80	39.00	29.00	100.00	4	121.80	211.20	18.00	4	47.70	100.00	22.80
10	48.0		91.00		176.20	30.00	78.00		18.20	64.30	27.00	147.00	4	93.80	176.20	30.00	4	64.13	147.00	18.20
12	58.0		40.00		34.00	10.00	44.00		28.40	168.00	33.00	207.00	4	32.00	44.00	10.00	4	109.10	207.00	28.40
15	83.0		77.00		178.00	70.00	135.00		28.60	126.50	48.00	154.00	4	115.00	178.00	70.00	4	89.28	154.00	28.60
16.1	95.7		83.00		142.40	57.00	96.00		22.30	170.60	42.00	155.00	4	94.60	142.40	57.00	4	97.48	170.60	22.30
17	101.0		96.00		102.20	43.00	103.00		22.00	82.00	39.00	132.00	4	86.05	103.00	43.00	4	68.75	132.00	22.00
18	123.6		91.00		38.00	57.00	28.00		23.00	33.00	26.00	58.00	4	53.50	91.00	28.00	4	35.00	58.00	23.00
20	142.4		174.00		34.00	53.00	51.00		53.10	32.70	36.00	122.00	4	78.00	174.00	34.00	4	60.95	122.00	32.70
21	183.0		193.00		28.00		165.00		32.40		26.00		3	128.67	193.00	28.00	2	29.20	32.40	26.00
24	244.0		192.00		32.00		209.00		29.50		39.00		3	144.33	209.00	32.00	2	34.25	39.00	29.50
25	263.5		150.00		32.30		223.00		21.60		26.00		3	135.10	223.00	32.30	2	23.80	26.00	21.60
28	280.0		101.00		78.00		262.00		20.00		35.00		3	147.00	262.00	78.00	2	27.50	35.00	20.00
29	305.6		207.00		95.30		280.00		26.60		47.00		3	194.10	280.00	95.30	2	36.80	47.00	26.60
30	331.0		187.00		94.40		222.00		44.50		23.00		3	167.80	222.00	94.40	2	33.75	44.50	23.00
32	376.4		206.00		71.00		277.00		45.50		46.00		3	184.67	277.00	71.00	2	45.75	46.00	45.50

Table 3.4.1.1 (7) Water Quality of Chao Phraya River Investigated by PCD (COD)

Station No.	Distance from Estuary (km)	Chemical Oxygen Demand (mg/l) 1988 Feb	1988 May	1989 Feb	1989 May	1990 Feb	1990 May	1988 Aug	1988 Nov	1989 Aug	1989 Nov	1990 Aug	Dry Season Feb. & May Data No.	Avg.	Max.	Min.	Rainy Season Aug. & Nov. Data No.	Avg.	Max.	Min.
1	7.0					35.40	71.60					32.30	2	53.50	71.60	35.40	1	32.30	32.30	32.30
3	18.0		46.80	61.80	39.90	34.90	30.30	27.70	12.20	28.30	45.00	23.30	5	42.74	61.80	30.30	5	27.30	45.00	12.20
5	27.0		22.70	24.50		30.60	24.60	26.10	18.30	28.30	35.00	20.80	4	25.60	30.60	22.70	5	25.70	35.00	18.30
8	41.5	39.00	18.50	17.20	24.40		24.60	23.40	11.80	15.70	25.00	20.10	5	24.74	39.00	17.20	5	19.20	25.00	11.80
10	48.0	29.60	20.60	14.90	31.90	24.90	29.90	21.80	5.00	22.60	14.00	22.90	6	25.30	31.90	14.90	5	17.26	22.90	5.00
12	58.0	21.90	14.30	18.50	5.00	15.60	19.70	27.70	10.70	27.40	16.00	15.10	6	15.83	21.90	5.00	5	19.38	27.70	10.70
15	83.0	12.20	19.30	18.10	15.10	14.60	11.00	16.60	6.10	16.10	16.00	11.80	6	15.05	19.30	11.00	5	13.32	16.60	6.10
16.1	95.7	11.40	7.56	26.80	8.60	10.30	8.70	25.70	5.40	13.90	16.00	15.80	6	12.23	26.80	7.56	5	15.36	25.70	5.40
17	101.0	13.00		15.90	13.30	11.40	7.20	15.80	8.80	11.70	11.00	17.60	5	12.16	15.90	7.20	5	12.98	17.60	8.80
18	123.6	13.00	4.20	16.90	7.30		6.10	48.30	9.90		21.00	10.00	5	9.50	16.90	4.20	4	22.30	48.30	9.90
20	142.4	6.90	14.30	6.70	3.70	7.70	7.20	21.80	7.60	7.00	18.00	10.80	6	7.75	14.30	3.70	5	13.04	21.80	7.00
21	183.0		33.40		4.80		8.30		1.50		7.70		3	15.50	33.40	4.80	2	4.60	7.70	1.50
24	244.0		25.60		2.54		12.90		3.60		8.00		3	13.68	25.60	2.54	2	5.80	8.00	3.60
25	263.5		37.60		0.51		15.90		12.90		10.00		3	18.00	37.60	0.51	2	11.45	12.90	10.00
28	280.0		27.60		6.10		17.00		2.10		6.60		3	16.90	27.60	6.10	2	4.35	6.60	2.10
29	305.6		43.00		6.60		13.30		8.50		9.70		3	20.97	43.00	6.60	2	9.10	9.70	8.50
30	331.0		37.20		10.15		13.60		7.80		18.00		3	20.32	37.20	10.15	2	12.90	18.00	7.80
32	376.4		45.90		9.60		10.60		13.50		12.00		3	22.03	45.90	9.60	2	12.75	13.50	12.00

Table 3.4.1.1 (8) Water Quality of Chao Phraya River Investigated by PCD (TOC)

Station No.	Distance from Estuary (km)	Total Organic Carbon (mg/l) 1988 Feb	1988 May	1989 Feb	1989 May	1990 Feb	1990 May	1988 Aug	1988 Nov	1989 Aug	1989 Nov	1990 Aug	Dry Season Feb. & May Data No.	Avg.	Max.	Min.	Rainy Season Aug. & Nov. Data No.	Avg.	Max.	Min.
1	7.0											530.00	0	–	–	–	1	530.00	530.00	530.00
3	18.0	3.20	14.70	7.40	12.30			13.10	22.90	28.20	36.30	420.00	4	9.40	14.70	3.20	5	104.10	420.00	13.10
5	27.0	16.10	15.00	9.80	14.80			12.50	21.30	26.00	35.10	360.00	4	13.93	16.10	9.80	5	90.98	360.00	12.50
8	41.5	17.70	10.80	25.30	10.00			11.70	21.70	26.50	33.90	350.00	4	15.95	25.30	10.00	5	88.76	350.00	11.70
10	48.0	17.70	10.30	25.40	8.96			12.30	22.00	24.50	32.80	360.00	4	15.59	25.40	8.96	5	90.32	360.00	12.30
12	58.0	20.40	12.30	26.00	14.20			10.70	20.00	21.60	31.00	360.00	4	18.23	26.00	12.30	5	88.66	360.00	10.70
15	83.0	15.90	10.00	25.70	9.57			8.90	19.70	20.80	34.20	280.00	4	15.29	25.70	9.57	5	72.72	280.00	8.90
16.1	95.7	11.30	10.30	18.40	13.80			7.30	21.20	22.40	25.50	250.00	4	13.45	18.40	10.30	5	65.28	250.00	7.30
17	101.0	13.60	11.80	17.70	13.10			9.80	19.60	22.60	26.40	240.00	4	14.05	17.70	11.80	5	63.68	240.00	9.80
18	123.6	9.10	10.00	21.10	6.46			9.20	19.20	21.50	27.60	250.00	4	11.67	21.10	6.46	5	65.50	250.00	9.20
20	142.4	9.00	11.70	15.20	7.06			8.60	21.10	21.50	27.30	240.00	4	10.74	15.20	7.06	5	63.70	240.00	8.60
21	183.0		9.75		5.69				14.50		26.80		2	7.72	9.75	5.69	2	20.65	26.80	14.50
24	244.0		9.67		4.51				15.00		22.60		2	7.09	9.67	4.51	2	18.80	22.60	15.00
25	263.5		10.00		5.63				14.40		23.50		2	7.82	10.00	5.63	2	18.95	23.50	14.40
28	280.0		10.50		6.30				18.10		26.60		2	8.40	10.50	6.30	2	22.35	26.60	18.10
29	305.6		8.64		6.39				18.10		26.20		2	7.52	8.64	6.39	2	22.15	26.20	18.10
30	331.0		10.60		7.13				13.00		23.40		2	8.87	10.60	7.13	2	18.20	23.40	13.00
32	376.4		9.02		2.89				15.60		21.70		2	5.96	9.02	2.89	2	18.65	21.70	15.60

Table 3.4.1.1 (9) Water Quality of Chao Phraya River Investigated by PCD (Electric Conductivity)

Station No.	Distance from Estuary (km)	Electric Conductivity (mho/cm) 1988 Feb	1988 May	1989 Feb	1989 May	1990 Feb	1990 May	1988 Aug	1988 Nov	1989 Aug	1989 Nov	1990 Aug	Dry Season Feb. & May Data No.	Avg.	Max.	Min.	Rainy Season Aug. & Nov. Data No.	Avg.	Max.	Min.
1	7.0					5,500	3,400					530	2	4,450	5,500	3,400	1	530	530	530
3	18.0	7,000	328	9,200	4,800	7,000	400		225	420	210	420	6	4,788	9,200	328	4	319	420	210
5	27.0	4,000	225	5,000	640	8,000	360		240	310	205	360	6	3,038	8,000	225	4	279	360	205
8	41.5	2,000	190	410	400	4,000	380		200	230	215	350	6	1,230	4,000	190	4	249	350	200
10	48.0	1,000	185	360	380	200	360		200	210	200	360	6	414	1,000	185	4	243	360	200
12	58.0	190	160	340	400	760	300		210	280	180	360	6	358	760	160	4	258	360	180
15	83.0	42	160	310	320	280	260		180	250	150	280	6	229	320	42	4	215	280	150
16.1	95.7	80	170	300	280	280	240		180	220	160	250	6	225	300	80	4	203	250	160
17	101.0	98	150	300	280	260	240		180	220	170	240	6	221	300	98	4	203	240	170
18	123.6	95	12	300	320	240	220		180	200	160	250	6	198	320	12	4	198	250	160
20	142.4	60	130	290	260	240	180		180	200	150	240	6	193	290	60	4	193	240	150
21	183.0		50		64		160		130		150		3	98	180	50	2	140	150	130
24	244.0		50		60		180		130		150		3	97	180	50	2	140	150	130
25	263.5		60		62		180		100		170		3	101	180	60	2	135	170	100
28	280.0		50		61		180		140		160		3	97	180	50	2	150	160	140
29	305.6		50		56		180		140		120		3	95	180	50	2	130	140	120
30	331.0		60		60		170		130		140		3	97	170	60	2	135	140	130
32	376.4		50		60		180		130		130		3	97	180	50	2	130	130	130

Table 3.4.1.1 (10) Water Quality of Chao Phraya River Investigated by PCD (Alkalinity)

Station No.	Distance from Estuary (km)	Alkalinity as CaCO3 (mg/l) 1988 Feb	1988 May	1989 Feb	1989 May	1990 Feb	1990 May	1988 Aug	1988 Nov	1989 Aug	1989 Nov	1990 Aug	Dry Season Feb. & May Data No.	Avg.	Max.	Min.	Rainy Season Aug. & Nov. Data No.	Avg.	Max.	Min.
1	7.0					130.0	119.0					120.0	2	124.5	130.0	119.0	1	120.0	120.0	120.0
3	18.0	122.0	74.0			144.0	113.0	95.0		110.0	104.0	120.0	4	113.3	144.0	74.0	4	107.3	120.0	95.0
5	27.0	122.0	71.0			154.0	101.0	99.0		100.0	106.0	112.0	4	112.0	154.0	71.0	4	104.3	112.0	99.0
8	41.5	133.0	67.0			154.0	94.0	85.0		90.0	90.0	102.0	4	112.0	154.0	67.0	4	91.8	102.0	85.0
10	48.0	118.0	69.0			144.0	90.0	55.8		95.0	92.0	100.0	4	105.3	144.0	69.0	4	85.7	100.0	55.8
12	58.0	110.0	65.0			130.0	86.0	76.5		78.0	90.0	88.0	4	97.8	130.0	65.0	4	83.1	90.0	76.5
15	83.0	96.0	62.0			108.0	80.0	76.7		83.0	92.0	84.0	4	86.5	108.0	62.0	4	83.9	92.0	76.7
16.1	95.7	94.0	60.0			100.0	78.0	72.8		88.0	80.0	84.0	4	83.0	100.0	60.0	4	81.2	88.0	72.8
17	101.0	90.0	59.0			100.0	80.0	76.7		92.0	84.0	90.0	4	82.3	100.0	59.0	4	85.7	92.0	76.7
18	123.6	82.0	58.0			98.0	74.0	6.7		88.0	100.0	90.0	4	78.0	98.0	58.0	4	71.2	100.0	6.7
20	142.4	87.0	69.0			88.0	82.0	6.5		88.0	98.0	88.0	4	81.5	88.0	69.0	4	70.1	98.0	6.5
21	183.0		45.0				60.0				82.0		2	52.5	60.0	45.0	1	82.0	82.0	82.0
24	244.0		47.0				60.0				88.0		2	53.5	60.0	47.0	1	88.0	88.0	88.0
25	263.5		46.0				62.0				90.0		2	54.0	62.0	46.0	1	90.0	90.0	90.0
28	280.0		45.0				56.0				84.0		2	50.5	56.0	45.0	1	84.0	84.0	84.0
29	305.6		46.0				56.0				92.0		2	51.0	56.0	46.0	1	92.0	92.0	92.0
30	331.0		47.0				56.0				90.0		2	51.5	56.0	47.0	1	90.0	90.0	90.0
32	376.4		49.0				62.0				88.0		2	55.5	62.0	49.0	1	88.0	88.0	88.0

Table 3.4.1.1 (11) Water Quality of the Chao Phraya River Investigated by PCD (T-P)

Station No.	Distance from Estuary (km)	Total Phosphorus (mg/l) 1988 Feb	1988 May	1989 Feb	1989 May	1990 Feb	1990 May	1988 Aug	1988 Nov	1989 Aug	1989 Nov	1990 Aug	Dry Season Feb. & May Data No.	Avg.	Max.	Min.	Rainy Season Aug. & Nov. Data No.	Avg.	Max.	Min.
1	7.0					0.28	0.01					0.23	2	0.15	0.28	0.01	1	0.23	0.23	0.23
3	18.0	0.05			0.02	0.64	0.05	0.02	0.03		0.20	0.13	4	0.19	0.64	0.02	4	0.10	0.20	0.02
5	27.0	0.95			0.03	0.15	0.06	0.01	0.07		0.27	0.10	4	0.30	0.95	0.03	4	0.11	0.27	0.01
8	41.5	0.83			0.02	0.97	0.01	0.02	0.02		0.21	0.03	4	0.46	0.97	0.01	4	0.07	0.21	0.02
10	48.0	0.54			0.02	0.59	0.02	0.02	0.02		0.17	0.02	4	0.29	0.59	0.02	4	0.06	0.17	0.02
12	58.0	0.31			0.07	0.36	0.01	0.02	0.03		0.14	0.02	4	0.19	0.36	0.01	4	0.05	0.14	0.02
15	83.0	0.10			0.01	0.07	0.01	0.01	0.02		0.11	0.02	4	0.05	0.10	0.01	4	0.04	0.11	0.01
16.1	95.7	0.01			0.02	0.04	0.01	0.02	0.02		0.12	0.02	4	0.02	0.04	0.01	4	0.05	0.12	0.02
17	101.0	0.09			0.01	0.07	0.00	0.01	0.02		0.07	0.01	4	0.04	0.09	0.00	4	0.03	0.07	0.01
18	123.6	0.04			0.02	0.05	0.07	0.04	0.03		0.09	0.03	4	0.05	0.07	0.02	4	0.06	0.09	0.03
20	142.4	0.05			0.06	0.04	0.01	0.01	0.03		0.12	0.01	4	0.04	0.06	0.01	4	0.04	0.12	0.01
21	163.0				0.03		0.02		0.04		0.11		2	0.03	0.03	0.02	2	0.08	0.11	0.04
24	244.0				0.04		0.01		0.02		0.09		2	0.03	0.04	0.01	2	0.06	0.09	0.02
25	263.5				0.01		0.00		0.04		0.09		2	0.01	0.01	0.00	2	0.07	0.09	0.04
28	280.0				0.06		0.00		0.05		0.17		2	0.03	0.06	0.00	2	0.11	0.17	0.05
29	305.6				0.00		0.01		0.04		0.11		2	0.01	0.01	0.00	2	0.08	0.11	0.04
30	331.0				0.00		0.01		0.01		0.12		2	0.01	0.01	0.00	2	0.07	0.12	0.01
32	376.4				0.13		0.01		0.02		0.10		2	0.07	0.13	0.01	2	0.06	0.10	0.02

Table 3.4.1.1 (12) Water Quality of the Chao Phraya River Investigated by PCD (NO3-N)

Station No.	Distance from Estuary (km)	Nitrate Nitrogen NO3-N (mg/l) 1988 Feb	1988 May	1989 Feb	1989 May	1990 Feb	1990 May	1988 Aug	1988 Nov	1989 Aug	1989 Nov	1990 Aug	Dry Season Feb. & May Data No.	Avg.	Max.	Min.	Rainy Season Aug. & Nov. Data No.	Avg.	Max.	Min.
1	7.0					0.10	0.06					0.11	2	0.08	0.10	0.06	1	0.11	0.11	0.11
3	18.0	0.24	0.34	0.11	0.02	0.07	0.07	0.47	0.07	0.01	0.01	0.11	6	0.14	0.34	0.02	5	0.13	0.47	0.01
5	27.0	0.16	0.41	0.04	0.01	0.06	0.29	0.59	0.06	0.00	0.06	0.50	6	0.16	0.41	0.01	5	0.24	0.59	0.00
8	41.5	0.03	0.42	0.16	0.48	0.04	0.82	0.54	0.10	0.33	0.05	1.50	6	0.33	0.82	0.03	5	0.50	1.50	0.05
10	48.0	0.07	0.44	0.37	0.66	0.05	0.69	0.50	0.09	0.44	0.16	1.07	6	0.38	0.69	0.05	5	0.45	1.07	0.09
12	58.0	0.39	0.48	0.59	0.60	0.63	0.65	0.44	0.07	0.54	0.33	0.58	6	0.56	0.65	0.39	5	0.39	0.58	0.07
15	83.0	0.50	0.36	0.27	0.27	0.40	0.37	0.43	0.04	0.40	0.17	0.37	6	0.36	0.50	0.27	5	0.28	0.43	0.04
16.1	95.7	0.43	0.37	0.25	0.18	0.30	0.32	0.28	0.04	0.35	0.14	0.50	6	0.31	0.43	0.18	5	0.28	0.50	0.04
17	101.0		0.36	0.24	0.17	0.28	0.29	0.29	0.06	0.30	0.20	0.50	5	0.27	0.36	0.17	5	0.27	0.50	0.06
18	123.6	0.33	0.09	0.27	0.01	0.14	0.29	0.30	0.05	0.16	0.10	0.54	6	0.19	0.33	0.01	5	0.23	0.54	0.05
20	142.4	0.33	0.36	0.35	0.68	0.09	0.29	0.26	0.04	0.20	0.09	0.50	6	0.35	0.68	0.09	5	0.22	0.50	0.04
21	163.0		0.28		0.13		0.18		0.01		0.06		3	0.20	0.28	0.13	2	0.03	0.06	0.01
24	244.0		0.26		0.10		0.71		0.01		0.02		3	0.36	0.71	0.10	2	0.02	0.02	0.01
25	263.5		0.24		0.13		0.54		0.01		0.10		3	0.30	0.54	0.13	2	0.06	0.10	0.01
28	280.0		0.30		0.23		1.19		0.01		0.06		3	0.57	1.19	0.23	2	0.03	0.06	0.01
29	305.6		0.25		0.21		0.75		0.01		0.05		3	0.40	0.75	0.21	2	0.03	0.05	0.01
30	331.0		0.23		0.17		0.63		0.01		0.03		3	0.34	0.63	0.17	2	0.02	0.03	0.01
32	376.4		0.22		0.11		0.61		0.00		0.12		3	0.31	0.61	0.11	2	0.06	0.12	0.00

Table 3.4.1.1 (13) Water Quality of the Chao Phraya River Investigated by PCD (NH4-N)

Station No.	Distance from Estuary (km)	Ammoniac Nitrogen NH4-N (mg/l) 1988 Feb	1988 May	1989 Feb	1989 May	1990 Feb	1990 May	1988 Aug	1988 Nov	1989 Aug	1989 Nov	1990 Aug	Dry Season Feb. to May Data No.	Avg.	Max.	Min.	Rainy Season Aug. to Nov. Data No.	Avg.	Max.	Min.
1	7.0					1.26	1.86					0.16	2	1.56	1.86	1.26	1	0.16	0.16	0.16
3	18.0	1.20	0.52	1.56	2.06	2.38	0.97	3.20	0.22	1.51	1.21	1.65	6	1.45	2.38	0.52	5	1.56	3.20	0.22
5	27.0	2.30	0.26	2.57	1.22	3.23	0.88	1.80	0.46	1.46	1.04	1.25	6	1.74	3.23	0.26	5	1.20	1.80	0.46
8	41.5	2.60	0.15	1.33	1.10	3.87	0.09	1.40	0.12	0.69	1.00	0.31	6	1.52	3.87	0.09	5	0.70	1.40	0.12
10	48.0	1.90	0.13	0.13	0.59	3.76	0.06	1.30	0.10	0.48	0.52	0.13	6	1.10	3.76	0.06	5	0.51	1.30	0.10
12	58.0	1.90	0.07	0.15	0.78	0.19	0.12	1.20	0.02	0.03	0.26	0.23	6	0.54	1.90	0.07	5	0.35	1.20	0.02
15	83.0	0.00	0.04	0.02	0.04	0.00	0.00	0.92	0.02	0.11	0.05	0.05	6	0.02	0.04	0.00	5	0.23	0.92	0.02
16.1	95.7	0.00	0.24	0.04	0.04	0.12	0.00	0.66	0.00	0.02	0.00	0.00	6	0.07	0.24	0.00	5	0.14	0.66	0.00
17	101.0	0.02	0.04	0.03	0.02	0.00	0.00	0.61	0.01	0.03	0.07	0.20	6	0.02	0.04	0.00	5	0.18	0.61	0.01
18	123.6	0.08	0.09	0.13	0.02	0.09	0.17	0.71	0.00	0.01	0.06	0.00	6	0.10	0.17	0.02	5	0.16	0.71	0.00
20	142.4	0.07	0.00	0.12	0.12	0.11	0.06	0.33	0.02	0.04	0.00	0.00	6	0.08	0.12	0.00	5	0.06	0.33	0.00
21	183.0		0.08		0.04		0.00		0.00		0.00		3	0.04	0.08	0.00	2	0.00	0.00	0.00
24	244.0		0.03		0.01		0.00		0.00		0.00		3	0.01	0.03	0.00	2	0.00	0.00	0.00
25	263.5		0.10		0.00		0.00		0.03		0.00		3	0.03	0.10	0.00	2	0.02	0.03	0.00
28	280.0		0.04		0.04		0.00		0.01		0.00		3	0.03	0.04	0.00	2	0.01	0.01	0.00
29	305.6		0.03		0.04		0.00		0.00		0.05		3	0.02	0.04	0.00	2	0.03	0.05	0.00
30	331.0		0.06		0.07		0.00		0.00		0.00		3	0.04	0.07	0.00	2	0.00	0.00	0.00
32	376.4		0.06		0.09		0.00		0.00		0.00		3	0.05	0.09	0.00	2	0.00	0.00	0.00

Table 3.4.1.1 (14) Water Quality of the Chao Phraya River Investigated by PCD (Coliform Group)

Station No.	Distance from Estuary (km)	Coliform Group (x1000MPN/100ml) 1988 Feb	1988 May	1989 Feb	1989 May	1990 Feb	1990 May	1988 Aug	1988 Nov	1989 Aug	1989 Nov	1990 Aug	Dry Season Feb. & May Data No.	Avg.	Max.	Min.	Rainy Season Aug. & Nov. Data No.	Avg.	Max.	Min.
1	7.0					30.0	1,600.0					9,000.0	2.0	815.0	1,600.0	30.0	1.0	9,000.0	9,000.0	9,000.0
3	18.0	7.0	300.0	500.0	1,400.0	110.0	2,200.0	14.0	2.2	260.0	220.0	1,200.0	6.0	752.8	2,200.0	7.0	5.0	339.2	1,200.0	2.2
5	27.0	160.0	130.0	500.0	2,200.0	5,000.0	16,000.0	70.0	5.0	350.0	2,400.0	300.0	6.0	3,998.3	16,000.0	130.0	5.0	625.0	2,400.0	5.0
8	41.5	240.0	50.0	240.0	280.0	1,100.0	5,000.0	160.0	9.0	130.0	700.0	2,800.0	6.0	1,151.7	5,000.0	50.0	5.0	759.8	2,800.0	9.0
10	48.0	240.0	240.0	240.0	700.0	210.0	350.0	90.0	5.0	140.0	2,200.0	9,000.0	6.0	330.0	700.0	210.0	5.0	2,287.0	9,000.0	5.0
12	58.0	240.0	240.0	50.0	160.0	220.0	900.0	14.0	0.5	160.0	90.0	34.0	6.0	301.7	900.0	50.0	5.0	59.7	160.0	0.5
15	83.0		13.0	17.0	50.0	70.0	50.0	3.0	0.0	90.0	34.0	22.0	5.0	42.0	70.0	13.0	5.0	29.8	90.0	0.0
16.1	95.7	13.0	5.0	11.0	7.0	9.0	7.0	0.7	0.5	8.0	110.0	8.0	6.0	8.7	13.0	5.0	5.0	25.4	110.0	0.5
17	101.0	17.0	7.0	8.0	2.7	5.0	6.0	2.3	0.3	50.0	1.1	2.7	6.0	7.6	17.0	2.7	5.0	11.3	50.0	0.3
18	123.6	6.3	50.0	11.0	11.0	3.0	11.0	3.3	0.2	3.3	8.0	13.0	6.0	15.4	50.0	3.0	5.0	5.6	13.0	0.2
20	142.4	4.9	30.0	8.0	13.0	11.0	90.0	1.4	1.7	24.0	30.0	11.0	6.0	26.2	90.0	4.9	5.0	13.6	30.0	1.4
21	183.0		5.0		8.0		28.0		0.8		8.0		3.0	13.7	28.0	5.0	2.0	4.4	8.0	0.8
24	244.0		9.0		17.0		4.0		0.5		5.0		3.0	10.0	17.0	4.0	2.0	2.8	5.0	0.5
25	263.5		3.0		8.0		12.0		0.2		3.0		3.0	7.7	12.0	3.0	2.0	1.6	3.0	0.2
28	280.0		9.0		2.7		26.0		0.3		17.0		3.0	12.6	26.0	2.7	2.0	8.7	17.0	0.3
29	305.6		9.0		5.0		14.0		0.8		17.0		3.0	9.3	14.0	5.0	2.0	8.9	17.0	0.8
30	331.0		5.0		5.0		70.0		1.3		28.0		3.0	26.7	70.0	5.0	2.0	14.7	28.0	1.3
32	376.4		16.0		90.0		90.0		0.1		13.0		3.0	65.3	90.0	16.0	2.0	6.6	13.0	0.1

Table 3.4.1.1(15) Water Quality of Chao Phraya River Investigated by PCD (October,1984)

St.No.	Distance from Estuary (km)	BOD (mg/l)	COD (mg/l)	NH4−N (mg/l)	Coliform Group (MPN/100ml)
1	10.0	2.60	31.3	2.25	70,000
2	14.0	2.90	34.3	2.84	79,000
3	20.0	3.25	25.0	2.39	49,000
4	24.0	3.15	18.3	2.35	130,000
5	28.0	3.20	18.4	1.90	540,000
6	30.0	2.00	24.4	1.39	130,000
7	36.0	2.50	18.4	1.95	130,000
8	42.0	2.50	33.8	1.13	540,000
9	44.0	2.10	20.9	0.89	110,000
10	48.0	2.65	18.4	1.54	540,000
11	52.0	1.60	20.4	0.73	54,000
12	58.0	1.15	12.9	0.48	54,000
13	62.0	1.50	20.4	0.41	35,000
14	68.8	1.20	15.9	0.38	−
15	82.4	0.90	7.5	0.31	2,300
16	91.6	1.15	11.9	0.71	7,900
17	98.6	1.05	12.4	0.36	4,900
18	131.1	0.85	22.1	0.18	7,900
19	136.0	4.85	15.4	1.43	12,000
20	142.6	1.05	9.5	1.50	54,000
21	160.0	0.75	13.3	−	240,000
22	172.0	1.30	16.3	−	92,000
23	186.0	0.65	16.8	0.18	4,900
24	200.0	0.80	12.8	0.10	2,800
25	216.0	0.50	16.3	0.11	1,300
26	234.0	0.45	17.3	0.96	2,800
27	241.0	0.85	19.3	ND	2,200
28	249.0	0.75	17.3	0.59	2,800
29	265.0	0.65	17.3	7.98	9,200
30	281.0	0.50	19.3	−	1,700
31	298.0	0.75	22.7	−	5,400
32	333.0	0.45	17.3	−	16,000

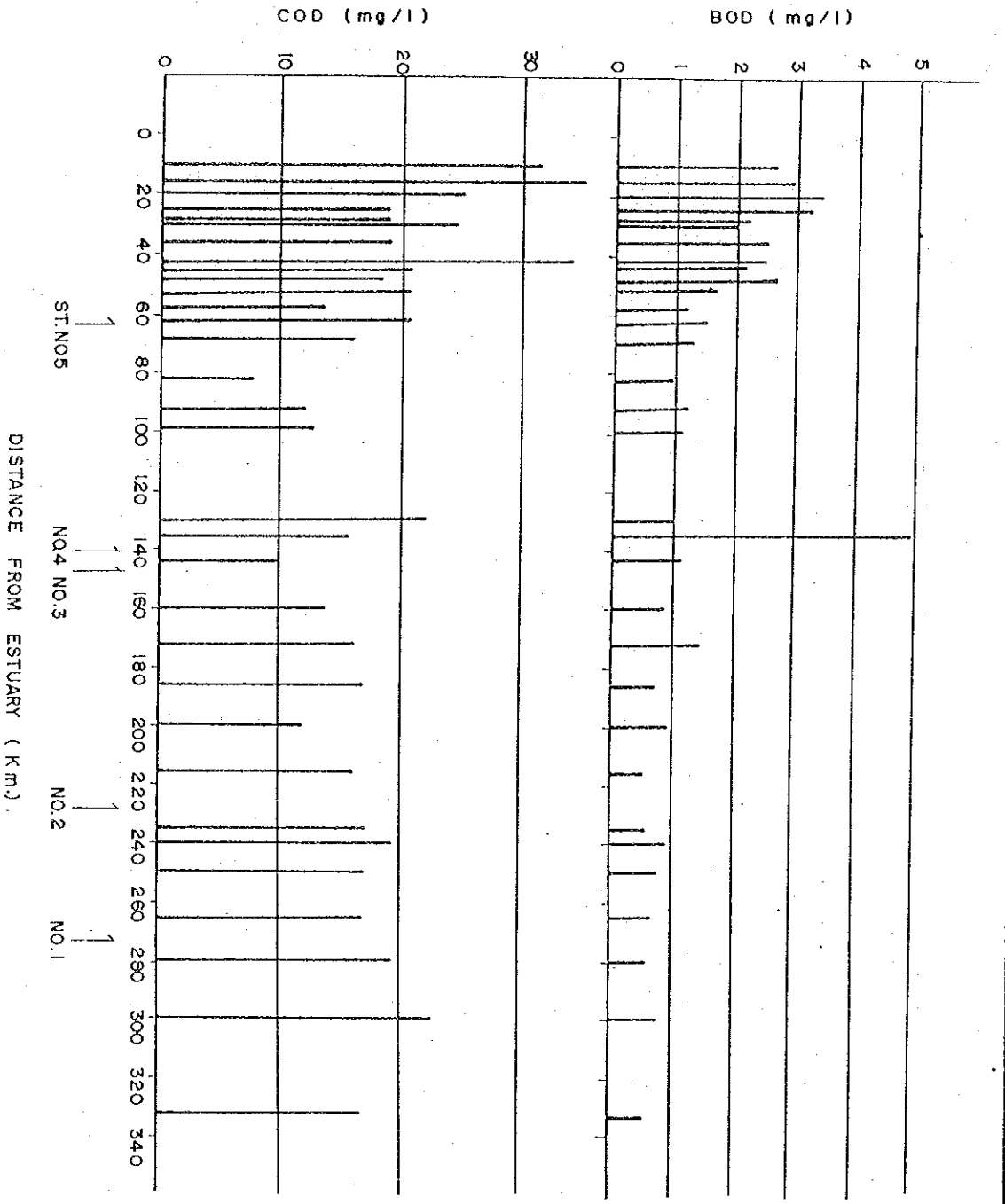

FIG. 3.4.1.2 BOD AND COD ALONG CHAO PHRAYA RIVER (PCD REPORT)

MASTER PLANNING FOR THE SEWERAGE DEVELOPMENT PROJECT FOR LOWER CHAO PHRAYA RIVER BASIN

JAPAN INTERNATIONAL COOPERATION AGENCY

Table 3.4.1.2 (1) Sampling Points For Water Quality Analysis of Chao Phraya River by DOH (1991)

DOH Code No.	Amphoe	Location	Dist. from Estuary	JICA Team Code
(CY)			(km)	
01	Muang Samut Prakan	Municipal Market, A. Muang, Samut Prakan	7	
02	Phra Daen	Amp. Office, Phra Daen, Samut Prakan	18	
03	Phra Kanon	Boat Office, Phra Kanon, Bangkok	30	
04	Yan Nawa	Krungthep Bridge, Yan Nawa, Bangkok	42	
05	Phra Nakhon	Buddha Yotfa Bridge, Phra Nakhon, Bangkok	50	
06	Bang Kruai	Rama VI Bridge, A. Bang Kruai, Nonthaburi	57	
07	Muang Nonthaburi	Wat Wat Sai Ma East, A. Muang, Nonthaburi	67	No.5
08	Pak Kret	Nonthaburi Bridge, A.Pak Kret, Nonthaburi	78	
09	M. Pathum Thani	Market, Amphoe Muang, Pathum Thani	85	
10	Sam Khok	Wat Phirom, Amphoe Sam Khok, Pathum Thani	92	
11	Bang Sai	Market, Amphoe Bang Sai, Ayutthaya	105	
12	Bang Pa-in	Police Stn., Amphoe Bang Pa-in, Ayutthaya	114	
13	Muang Ayutthaya	Hospital, Amphoe Muang, Ayutthaya	129	No.3,4
14	Pa Mok	Amphoe Office, Amphoe Pa Mok, Ang Thong	150	
15	Muang Ang Thong	River Bridge, Amphoe Muang, Ang Thong	163	
16	Chaiyo	Amphoe Office, Amphoe Chaiyo, Ang Thong	175	
17	Phrom buri	Market, Amphoe Phrom Buri, Sing Buri	189	
18	Muang Sing Buri	River Bridge, Amphoe Muang, Sing Buri	203	No.2
19	In Buri	South Market, Amphoe In Buri, Sing Buri	219	
20	Sanphaya	Wat Sanphaya, Amphoe Sanphaya, Chai Nat	237	
21	Muang Chai Nat	Provincial Office, Amphoe Muang, Chai Nat	252	No.1
22	Manorom	Sri Sit Ti Karam, Amp. Manorom, Chai Nat	268	
23	Payukakiri	Saphan Nam Oi, A.Payukakiri, Nakhon Sawan	288	
24	Payukakiri	Wat Manee Wong, A.Payukakiri,Nakhon Sawan	301	
25	Muang Nakhon Sawan	Wat Pak Nan Poo South, A.M., Nakhon Sawan	333	
26	Muang Nakhon Sawan	Wat Sai South, Amp. Muang, Nakhon Sawan	340	

Table 3.4.1.2 (2) Water Quarity of Chao Phraya River Analyzed by DOH

Record#	Code	Name	Date	pH	Hardness	Fe	Mn	Cu	Zn	Pb	Cr	Cd	NO_3	DO	BOD	Coli. Group	Fecal Coli.	G. Level
125	CRO6	จันทบุรี	07/10/34	6.80	122	1.40	0.060	0.006	0.10	0.000	0.008	0.000	0.800	99.99	0.99	99999999.99	99999999.99	2
126	CY	เจ้าพระยา (CHAO PHRAYA RIVER)	01/28/35	6.60	640	0.54	0.430	0.040	0.31	0.150	0.240	0.020	2.400	99.99	93.30	99999999.99	99999999.99	5
127	CY	เจ้าพระยา	01/14/34	7.20	9999	1.31	0.100	0.030	0.16	0.030	0.005	0.001	0.100	99.99	999.99	16000000.00	9200000.00	4
128	CY	เจ้าพระยา	10/03/34	7.50	11	5.00	0.070	0.000	0.02	0.000	0.000	0.001	0.600	99.99	21.90	99999999.99	99999999.99	5
129	CY	เจ้าพระยา	08/23/34	99.99	90	1.10	0.070	0.020	0.46	0.920	0.005	0.004	0.090	8.00	0.99	99999999.99	99999999.99	5
130	CY01	เจ้าพระยา	04/16/34	8.00	9999	0.92	0.060	0.040	0.11	0.150	0.200	0.020	16.000	0.00	4.40	79000.00	17000.00	5
131	CY01	เจ้าพระยา	11/14/34	7.60	1915	0.19	0.150	0.030	0.08	0.100	0.140	0.010	3.000	2.00	1.50	70000.00	46000.00	5
132	CY01	เจ้าพระยา	01/30/35	7.70	578	0.20	0.100	0.040	0.12	0.200	0.330	0.030	17.000	0.40	2.40	2300.00	2300.00	5
133	CY01	เจ้าพระยา	11/28/34	7.60	2547	0.28	0.170	0.040	0.33	0.210	0.240	0.020	3.600	1.60	1.50	7900.00	3300.00	5
134	CY01	เจ้าพระยา	12/19/34	7.20	1690	0.29	0.080	0.030	0.09	0.110	0.190	0.010	10.200	2.80	1.00	0.00	0.00	5
135	CY01	เจ้าพระยา	11/06/34	7.20	974	0.59	0.280	0.020	0.10	0.080	0.100	0.008	0.360	1.80	2.90	350000.00	350000.00	5
136	CY01	เจ้าพระยา	06/20/34	7.30	418	1.60	0.420	0.020	0.20	0.090	0.007	0.006	0.100	0.00	6.90	9200000.00	1800000.00	5
137	CY01	เจ้าพระยา	06/20/34	7.30	730	0.33	0.160	0.050	0.08	0.090	0.160	0.020	7.600	0.00	2.30	13000.00	8000.00	5
138	CY01	เจ้าพระยา	09/12/34	7.60	106	0.30	0.240	0.010	0.29	0.050	0.007	0.003	0.740	0.40	3.70	54000.00	24000.00	5
139	CY01	เจ้าพระยา	05/29/34	7.00	1578	0.76	0.440	0.030	100.0	0.110	0.008	0.010	59.000	99.99	6.90	33000.00	33000.00	5
140	CY02	เจ้าพระยา	04/16/34	8.00	9999	1.56	0.130	0.030	0.14	0.110	0.170	0.010	23.000	0.00	3.70	79000.00	79000.00	5
141	CY02	เจ้าพระยา	11/28/34	7.60	1345	0.92	0.340	0.020	0.16	0.090	0.110	0.010	2.900	0.50	2.60	170000.00	70000.00	5
142	CY02	เจ้าพระยา	12/19/34	7.20	322	0.00	0.000	0.000	0.00	0.000	0.000	0.000	0.510	2.20	3.90	3500000.00	350000.00	4
143	CY02	เจ้าพระยา	01/30/35	7.70	538	0.20	0.110	0.030	0.20	0.200	0.240	0.030	20.000	0.30	1.90	2300.00	2300.00	5
144	CY02	เจ้าพระยา	11/14/34	7.60	248	0.84	0.260	0.006	0.10	0.020	0.010	0.001	27.000	0.20	2.10	110000.00	110000.00	5
145	CY02	เจ้าพระยา	05/29/34	7.00	950	0.62	0.490	0.020	100.0	0.089	0.009	0.009	32.000	99.99	7.70	920000.00	33000.00	5
146	CY02	เจ้าพระยา	05/30/34	7.30	586	1.71	0.410	0.020	0.11	0.010	0.100	0.000	3.300	1.30	6.00	79000.00	17000.00	5
147	CY02	เจ้าพระยา	06/11/34	7.50	144	0.71	0.180	0.006	0.11	0.040	0.005	0.002	0.013	2.60	2.30	220000.00	170000.00	4
148	CY02	เจ้าพระยา	06/11/34	7.50	146	0.63	0.170	0.007	0.29	0.060	0.005	0.002	0.007	1.40	2.70	350000.00	46000.00	5
149	CY02	เจ้าพระยา	07/10/34	7.50	999	0.00	0.000	0.000	0.00	0.000	0.000	0.000	0.000	0.00	0.00	0.00	0.00	0
150	CY02	เจ้าพระยา	07/10/34	7.40	9999	0.75	0.270	0.040	0.10	0.160	0.310	0.020	11.000	0.00	4.80	23000.00	5000.00	5
151	CY02	เจ้าพระยา	06/20/34	7.40	1376	1.07	0.510	0.030	0.12	0.170	0.280	0.020	3.200	0.00	3.80	49000.00	23000.00	5
152	CY02	เจ้าพระยา	09/12/34	7.60	114	0.39	0.110	0.010	0.14	0.030	0.006	0.002	1.400	3.00	2.80	240000.00	79000.00	4
153	CY02.1	เจ้าพระยา	12/19/34	7.80	330	0.42	0.090	0.010	0.07	0.020	0.020	0.003	0.370	1.60	2.70	350000.00	240000.00	5

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Table 3.4.1.2 (3) Water Quarity of Chao Phraya River Analyzed by DOH (cont'd)

Record#	Code	Name	Date	pH	Hardness	Fe	Mn	Cu	Zn	Pb	Cr	Cd	NO_3	DO	BOD	Coli. Group	Fecal Coli.	G. Level
154	CY02.1	เจ้าพระยา	/ /	7.60	240	0.76	0.250	0.006	0.09	0.020	0.010	0.001	0.280	0.30	2.30	92000.00	54000.00	5
155	CY02.1	เจ้าพระยา	01/30/35	7.70	542	0.50	0.400	0.020	0.14	0.130	0.120	0.008	2.500	0.60	2.80	130000.00	130000.00	5
156	CY02.1	เจ้าพระยา	11/28/34	7.60	487	1.59	0.310	0.010	0.13	0.040	0.030	0.003	2.500	0.00	2.20	540000.00	220000.00	5
157	CY02.1	เจ้าพระยา	05/29/34	7.10	710	0.49	0.230	0.010	100.0	0.030	0.020	0.005	11.000	99.99	9.90	33000.00	33000.00	5
158	CY02.1	เจ้าพระยา	09/12/34	7.60	128	0.73	0.110	0.010	0.20	0.040	0.007	0.003	0.600	3.00	2.50	240000.00	160000.00	4
159	CY02.1	เจ้าพระยา	06/20/34	7.30	786	1.17	0.510	0.020	0.28	0.120	0.060	0.010	0.300	0.00	4.00	54000.00	35000.00	5
160	CY03	เจ้าพระยา	11/28/34	7.60	151	0.84	0.160	0.020	0.10	0.020	0.006	0.000	0.370	0.00	1.80	170000.00	170000.00	5
161	CY03	เจ้าพระยา	12/19/34	9.60	138	0.40	0.060	0.010	0.10	0.000	0.007	0.001	0.450	2.10	2.00	5400000.00	5400000.00	5
162	CY03	เจ้าพระยา	01/30/35	7.60	534	0.50	0.400	0.020	0.31	0.150	0.120	0.003	2.700	0.40	2.90	79000.00	33000.00	5
163	CY03	เจ้าพระยา	04/16/34	7.50	9999	1.74	0.160	0.020	0.21	0.060	0.060	0.002	4.200	0.00	13.50	170000.00	33000.00	5
164	CY03	เจ้าพระยา	11/14/34	7.60	154	0.64	0.230	0.005	0.14	0.080	0.006	0.001	0.260	0.00	4.70	160000.00	0.00	5
165	CY03	เจ้าพระยา	05/30/34	7.10	422	0.84	0.250	0.010	0.10	0.020	0.080	0.000	0.200	1.70	4.30	170000.00	49000.00	5
166	CY03	เจ้าพระยา	06/11/34	7.40	146	0.48	0.180	0.005	0.10	0.040	0.005	0.002	0.061	0.70	2.70	79000.00	49000.00	5
167	CY03	เจ้าพระยา	06/11/34	7.40	148	0.73	0.160	0.007	0.19	0.050	0.012	0.002	0.660	0.70	2.10	240000.00	130000.00	5
168	CY03	เจ้าพระยา	09/12/34	7.60	120	0.47	0.130	0.010	0.17	0.040	0.006	0.003	0.950	2.70	2.30	160000.00	18000.00	4
169	CY03.1	เจ้าพระยา	04/16/34	8.00	9999	1.56	0.160	0.020	0.18	0.090	0.110	0.001	10.000	0.00	9.70	540000.00	240000.00	5
170	CY03.1	เจ้าพระยา	05/29/34	7.30	476	1.36	0.280	0.020	100.0	0.060	0.020	0.005	1.700	99.99	6.90	240000.00	79000.00	5
171	CY03.2	เจ้าพระยา	05/29/34	7.30	476	1.44	0.280	0.020	100.0	0.070	0.009	0.006	2.200	99.99	11.00	130000.00	79000.00	5
172	CY04	เจ้าพระยา	04/16/34	7.30	9999	0.81	0.060	0.020	0.16	0.070	0.030	0.001	0.700	0.00	4.40	49000.00	23000.00	5
173	CY04	เจ้าพระยา	11/22/33	7.20	110	1.17	0.080	0.009	0.26	0.000	0.000	0.000	0.100	3.20	1.90	160000.00	160000.00	4
174	CY04	เจ้าพระยา	11/28/34	7.60	109	1.04	0.110	0.030	0.11	0.020	0.004	0.000	0.520	1.10	1.30	35000.00	24000.00	5
175	CY04	เจ้าพระยา	12/11/33	7.80	114	1.17	0.050	0.009	0.08	0.010	0.000	0.000	0.400	4.20	2.40	920000.00	920000.00	4
176	CY04	เจ้าพระยา	12/19/34	7.80	108	0.55	0.040	0.010	0.06	0.000	0.005	0.001	0.510	2.30	1.50	35000.00	35000.00	4
177	CY04	เจ้าพระยา	11/14/34	7.60	108	0.65	0.050	0.010	0.10	0.090	0.005	0.001	0.620	1.40	1.50	35000.00	24000.00	5
178	CY04	เจ้าพระยา	01/10/34	7.20	9999	0.51	0.100	0.008	0.15	0.010	0.010	0.001	0.100	0.00	2.20	350000.00	130000.00	5
179	CY04	เจ้าพระยา	01/30/35	7.60	518	0.50	0.400	0.010	0.33	0.130	0.120	0.000	2.600	0.20	2.90	350000.00	350000.00	5
180	CY04	เจ้าพระยา	05/29/34	7.10	236	1.42	0.160	0.020	100.0	0.010	0.020	0.001	0.900	99.99	9.80	540000.00	240000.00	5
181	CY04	เจ้าพระยา	09/12/34	7.60	112	0.41	0.080	0.008	0.15	0.020	0.005	0.002	0.620	4.00	1.90	2400000.00	920000.00	4
182	CY04	เจ้าพระยา	05/30/34	7.40	168	0.96	0.100	0.010	0.16	0.020	0.050	0.000	0.800	1.80	4.20	110000.00	33000.00	5
183	CY04	เจ้าพระยา	06/20/34	7.50	170	0.23	0.110	0.004	0.10	0.000	0.000	0.001	0.100	3.30	2.10	33000.00	13000.00	4
184	CY04	เจ้าพระยา	06/11/34	7.60	138	0.62	0.180	0.010	0.29	0.070	0.008	0.002	0.028	0.60	2.10	70000.00	49000.00	5
185	CY05	เจ้าพระยา	11/14/34	7.60	104	0.86	0.070	0.010	0.11	0.020	0.004	0.000	0.600	1.40	3.10	350000.00	130000.00	5

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Table 3.4.1.2 (4) Water Quarity of Chao Phraya River Analyzed by DOH (cont'd)

Record#	Code	Name	Date	pH	Hardness	Fe	Mn	Cu	Zn	Pb	Cr	Cd	NO_3	DO	BOD	Coli. Group	Fecal Coli.	G. Level
186	CY05	เจ้าพระยา	01/10/34	7.20	9999	0.44	0.070	0.009	0.15	0.010	0.010	0.001	0.140	0.00	2.30	130000.00	130000.00	5
187	CY05	เจ้าพระยา	11/07/33	7.50	306	0.31	0.130	0.020	0.46	0.130	0.000	0.003	0.100	3.00	3.40	140000.00	140000.00	5
188	CY05	เจ้าพระยา	12/11/33	7.80	112	0.98	0.080	0.000	0.10	0.000	0.000	0.001	0.400	4.60	1.80	130000.00	130000.00	4
189	CY05	เจ้าพระยา	01/30/35	7.60	302	0.22	0.240	0.006	0.09	0.020	0.020	0.000	0.330	0.20	5.00	35000.00	24000.00	5
190	CY05	เจ้าพระยา	12/19/34	7.80	118	0.60	0.050	0.008	0.29	0.010	0.002	0.001	0.520	4.30	1.50	540000.00	540000.00	4
191	CY05	เจ้าพระยา	11/28/34	7.60	64	1.34	0.090	0.020	0.09	0.020	0.006	0.002	0.480	0.50	1.00	17000.00	13000.00	5
192	CY05	เจ้าพระยา	11/22/33	7.00	112	1.57	0.110	0.009	0.33	0.000	0.000	0.000	0.100	4.10	2.50	170000.00	170000.00	4
193	CY05	เจ้าพระยา	04/16/34	7.30	9999	0.00	0.060	0.020	0.14	0.030	0.040	0.002	1.100	0.00	2.80	110000.00	46000.00	5
194	CY05	เจ้าพระยา	06/11/34	7.40	146	1.56	0.220	0.020	0.16	0.040	0.013	0.001	0.047	1.90	2.20	79000.00	33000.00	5
195	CY05	เจ้าพระยา	06/20/34	7.50	306	0.31	0.130	0.020	0.46	0.130	0.000	0.003	0.100	3.00	3.40	14000.00	140.00	5
196	CY05	เจ้าพระยา	09/12/34	7.60	110	0.39	0.080	0.007	0.12	0.020	0.005	0.002	0.610	4.20	0.99	54000.00	54000.00	4
197	CY06	เจ้าพระยา	12/24/34	6.90	102	0.81	0.050	0.003	0.08	0.020	0.006	0.001	0.260	0.00	1.00	17000.00	7000.00	5
198	CY06	เจ้าพระยา	12/12/34	7.60	108	0.47	0.040	0.005	0.06	0.010	0.005	0.000	0.240	3.60	1.40	35000.00	13000.00	4
199	CY06	เจ้าพระยา	02/12/34	7.70	9999	0.24	0.060	0.005	0.08	0.010	0.010	0.000	0.100	1.70	5.10	54000.00	14000.00	5
200	CY06	เจ้าพระยา	04/18/34	7.50	9999	0.00	0.030	0.010	0.10	0.020	0.030	0.000	1.200	99.99	2.30	54000.00	24000.00	4
201	CY06	เจ้าพระยา	11/07/33	6.70	70	0.68	0.070	0.009	0.10	0.010	0.000	0.003	0.100	99.99	1.00	99999999.99	99999999.99	2
202	CY06	เจ้าพระยา	11/16/33	7.90	110	0.74	0.070	0.009	0.10	0.010	0.010	0.003	0.099	3.00	2.10	54000.00	22000.00	4
203	CY06	เจ้าพระยา	11/16/33	7.90	110	0.74	0.070	0.009	0.10	0.010	0.010	0.003	0.100	3.00	2.10	54000.00	22000.00	4
204	CY06	เจ้าพระยา	11/07/34	7.50	103	1.08	0.100	0.020	0.33	0.100	0.005	0.002	0.470	1.20	2.10	92000.00	54000.00	5
205	CY06	เจ้าพระยา	11/22/34	7.60	118	0.59	0.070	0.007	0.02	0.020	0.003	0.000	0.420	2.10	1.30	35000.00	35000.00	5
206	CY06	เจ้าพระยา	01/16/35	7.60	108	0.49	0.120	0.010	0.09	0.010	0.007	0.001	0.490	0.40	2.90	92000.00	54000.00	5
207	CY06	เจ้าพระยา	09/20/34	7.60	9999	0.59	0.150	0.008	0.10	0.020	0.005	0.002	0.230	3.70	1.70	92000.00	35000.00	4
208	CY06	เจ้าพระยา	06/12/34	99.99	9999	1.17	0.050	0.010	0.11	0.040	0.010	0.002	0.090	3.30	2.00	2400000.00	330000.00	4
209	CY06	เจ้าพระยา	06/27/34	7.50	154	0.36	0.060	0.007	0.06	0.010	0.008	0.001	0.600	1.20	6.70	160000.00	24000.00	5
210	CY06	เจ้าพระยา	09/11/34	7.60	98	1.61	0.070	0.008	0.15	0.020	0.004	0.003	1.400	4.80	0.99	92000.00	3300.00	4
211	CY06	เจ้าพระยา	07/19/34	7.60	170	1.38	0.040	0.010	0.41	0.020	0.007	0.001	0.400	1.30	2.80	35000.00	13000.00	5
212	CY07	เจ้าพระยา	02/12/34	7.70	9999	0.44	0.020	0.007	0.09	0.010	0.010	0.000	0.100	5.40	2.00	35000.00	24000.00	4
213	CY07	เจ้าพระยา	12/24/34	6.90	108	0.44	0.050	0.004	0.12	0.020	0.004	0.001	0.210	0.00	1.00	7000.00	1700.00	5
214	CY07	เจ้าพระยา	11/07/34	7.50	95	0.60	0.070	0.020	0.33	0.110	0.005	0.002	0.400	2.40	1.50	17000.00	13000.00	5
215	CY07	เจ้าพระยา	04/18/34	7.50	9999	0.00	0.040	0.010	0.14	0.020	0.040	0.000	1.000	99.99	1.60	99999999.99	99999999.99	3
216	CY07	เจ้าพระยา	01/16/35	7.60	92	0.39	0.040	0.006	0.07	0.010	0.005	0.001	0.640	1.30	2.50	54000.00	24000.00	5
217	CY07	เจ้าพระยา	12/12/34	7.60	111	0.47	0.160	0.020	0.26	0.020	0.020	0.000	0.270	4.00	2.00	35000.00	17000.00	4

JICA No.5

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Table 3.4.1.2 (5) Water Quarity of Chao Phraya River Analyzed by DOH (cont'd)

	Record#	Code	Name	Date	pH	Hardness	Fe	Mn	Cu	Zn	Pb	Cr	Cd	NO_3	DO	BOD	Coli. Group	Fecal Coli. G.	Level
JICA No.5	218	CY07	เจ้าพระยา	11/21/34	7.60	105	1.32	0.070	0.008	0.04	0.020	0.006	0.000	0.380	3.20	1.10	17000.00	13000.00	5
	219	CY07	เจ้าพระยา	11/16/33	7.90	110	1.05	0.080	0.009	0.11	0.000	0.010	0.000	0.100	3.20	1.90	35000.00	35000.00	4
	220	CY07	เจ้าพระยา	07/19/34	7.60	123	0.34	0.050	0.008	0.25	0.010	0.004	0.002	0.400	5.10	1.70	54000.00	17000.00	4
	221	CY07	เจ้าพระยา	09/20/34	7.60	9999	0.72	0.110	0.006	0.14	0.020	0.005	0.002	0.200	3.60	1.30	240000.00	160000.00	4
	222	CY07	เจ้าพระยา	06/27/34	7.50	9999	1.87	0.270	0.020	0.15	0.040	0.010	0.001	0.600	1.40	4.60	92000.00	54000.00	5
	223	CY07	เจ้าพระยา	06/12/34	99.99	9999	1.44	0.110	0.010	0.11	0.040	0.005	0.001	0.300	3.10	1.30	540000.00	540000.00	4
	224	CY07	เจ้าพระยา	09/11/34	7.60	100	1.60	0.930	0.007	0.07	0.030	0.020	0.002	1.200	3.20	0.99	54000.00	54000.00	4
	225	CY08	เจ้าพระยา	01/16/35	7.60	102	0.60	0.040	0.009	0.10	0.020	0.007	0.001	0.510	2.90	1.60	13000.00	4900.00	4
	226	CY08	เจ้าพระยา	11/21/34	7.60	102	1.12	0.060	0.008	0.14	0.050	0.005	0.002	0.390	3.60	1.10	13000.00	7900.00	5
	227	CY08	เจ้าพระยา	04/18/34	7.50	9999	0.00	0.040	0.010	0.10	0.030	0.030	0.000	0.600	99.99	1.00	13000.00	13000.00	4
	228	CY08	เจ้าพระยา	11/16/33	7.80	112	1.21	0.070	0.009	0.12	0.000	0.010	0.003	0.100	4.00	2.20	92000.00	22000.00	4
	229	CY08	เจ้าพระยา	02/12/34	7.70	9999	0.24	0.020	0.004	0.08	0.010	0.010	0.000	0.100	2.80	1.30	35000.00	35000.00	4
	230	CY08	เจ้าพระยา	12/12/34	7.60	105	1.38	0.030	0.006	0.08	0.010	0.006	0.000	0.240	4.00	1.50	4900.00	2300.00	3
	231	CY08	เจ้าพระยา	11/07/34	7.50	91	0.41	0.050	0.010	0.30	0.070	0.004	0.002	0.450	3.60	1.00	24000.00	4900.00	5
	232	CY08	เจ้าพระยา	12/24/34	6.90	106	0.53	0.030	0.003	0.07	0.030	0.003	0.001	0.220	0.00	1.00	4600.00	2100.00	5
	233	CY08	เจ้าพระยา	06/12/34	99.99	9999	1.49	0.090	0.008	0.10	0.040	0.010	0.001	0.900	4.70	1.00	79000.00	23000.00	4
	234	CY08	เจ้าพระยา	09/11/34	7.70	100	1.84	0.550	0.010	0.09	0.030	0.004	0.003	1.500	4.50	0.99	54000.00	7900.00	4
	235	CY08	เจ้าพระยา	09/20/34	7.60	9999	0.92	0.110	0.005	0.11	0.030	0.004	0.002	0.210	4.30	1.20	13000.00	8300.00	3
	236	CY08	เจ้าพระยา	07/19/34	7.60	154	0.81	0.060	0.030	0.24	0.020	0.005	0.001	0.200	4.00	1.50	35000.00	11000.00	4
	237	CY08	เจ้าพระยา	06/27/34	7.50	9999	0.63	0.060	0.010	0.14	0.050	0.010	0.002	0.500	3.60	1.20	24000.00	24000.00	4
	238	CY09	เจ้าพระยา	02/12/34	7.50	9999	0.39	0.790	0.004	0.09	0.010	0.010	0.000	0.100	3.10	1.20	35000.00	17000.00	4
	239	CY09	เจ้าพระยา	11/16/33	7.80	110	0.77	0.060	0.009	0.10	0.000	0.000	0.000	0.100	4.80	1.70	17000.00	11000.00	4
	240	CY09	เจ้าพระยา	01/16/35	7.60	106	0.70	0.070	0.007	0.09	0.010	0.006	0.000	0.530	4.20	1.60	7000.00	2300.00	3
	241	CY09	เจ้าพระยา	11/21/34	7.60	98	0.76	0.050	0.008	0.13	0.010	0.003	0.000	0.340	4.80	1.00	7000.00	1700.00	5
	242	CY09	เจ้าพระยา	11/07/34	7.50	88	0.42	0.060	0.010	0.32	0.090	0.007	0.001	0.360	4.50	1.00	240000.00	160000.00	5
	243	CY09	เจ้าพระยา	04/18/34	7.50	8888	1.57	0.030	0.010	0.10	0.020	0.040	0.000	0.500	99.99	1.10	54000.00	24000.00	4
	244	CY09	เจ้าพระยา	12/12/34	7.60	108	0.75	0.050	0.010	0.07	0.010	0.010	0.000	0.270	3.60	1.90	4900.00	4900.00	4
	245	CY09	เจ้าพระยา	12/24/34	7.00	108	1.28	0.050	0.005	0.20	0.030	0.005	0.002	0.220	0.00	1.00	2700.00	1400.00	5
	246	CY09	เจ้าพระยา	09/11/34	7.60	96	0.77	0.080	0.006	0.10	0.020	0.003	0.002	1.100	5.00	0.99	24000.00	4900.00	4
	247	CY09	เจ้าพระยา	09/20/34	7.60	9999	0.58	0.070	0.004	0.17	0.050	0.003	0.005	0.210	4.90	0.99	35000.00	2700.00	4
	248	CY09	เจ้าพระยา	07/19/34	7.60	150	1.19	0.050	0.008	0.20	0.050	0.005	0.001	0.200	5.60	1.60	13000.00	4900.00	4

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Table 3.4.1.2 (6) Water Quarity of Chao Phraya River Analyzed by DOH (cont'd)

Record#	Code	Name	Date	pH	Hardness	Fe	Mn	Cu	Zn	Pb	Cr	Cd	NO_3	DO	BOD	Coli. Group	Fecal Coli.	G. Level
249	CY09	เจ้าพระยา	06/27/34	7.60	9999	0.99	0.070	0.007	0.11	0.020	0.007	0.001	0.500	5.00	1.00	7900.00	3300.00	3
250	CY09	เจ้าพระยา	06/12/34	99.99	9999	1.56	0.090	0.010	0.29	0.070	0.010	0.001	6.500	5.30	1.00	110000.00	13000.00	5
251	CY10	เจ้าพระยา	01/16/35	7.60	100	1.50	0.050	0.007	0.08	0.020	0.006	0.001	0.420	4.60	1.50	22000.00	7900.00	4
252	CY10	เจ้าพระยา	11/21/34	7.60	97	1.13	0.050	0.006	0.09	0.040	0.006	0.002	0.320	5.30	1.00	13000.00	4900.00	5
253	CY10	เจ้าพระยา	11/16/33	7.80	120	0.71	0.050	0.009	0.12	0.000	0.070	0.000	0.100	6.00	1.70	7900.00	7900.00	5
254	CY10	เจ้าพระยา	01/16/35	7.60	100	1.50	0.050	0.007	0.08	0.020	0.006	0.001	0.420	4.60	1.50	22000.00	7900.00	4
255	CY10	เจ้าพระยา	12/24/34	6.90	106	0.53	0.040	0.003	0.06	0.020	0.004	0.003	0.220	0.00	1.00	4900.00	3300.00	5
256	CY10	เจ้าพระยา	12/12/34	7.60	111	0.68	0.050	0.006	0.08	0.010	0.006	0.000	0.250	4.40	7.60	92000.00	54000.00	5
257	CY10	เจ้าพระยา	04/18/34	7.50	9999	1.01	0.050	0.010	0.08	0.020	0.040	0.000	0.600	99.99	1.00	4900.00	2200.00	3
258	CY10	เจ้าพระยา	02/12/34	7.50	9999	0.63	0.040	0.006	0.11	0.000	0.010	99.999	0.100	3.60	1.40	9200.00	3500.00	4
259	CY10	เจ้าพระยา	11/07/34	7.50	85	0.46	0.060	0.007	0.23	0.030	0.005	0.002	0.350	5.20	1.00	13000.00	2300.00	3
260	CY10	เจ้าพระยา	07/19/34	7.60	124	1.31	0.180	0.020	0.27	0.030	0.007	0.001	0.300	3.00	1.10	4600.00	2100.00	4
261	CY10	เจ้าพระยา	09/20/34	7.60	9999	0.62	0.080	0.003	0.20	0.040	0.003	0.005	0.270	5.30	0.99	13000.00	4900.00	4
262	CY10	เจ้าพระยา	09/11/34	7.60	92	1.39	0.070	0.006	0.13	0.010	0.003	0.002	1.300	4.40	1.00	54000.00	4900.00	4
263	CY10	เจ้าพระยา	06/27/34	7.50	130	0.83	0.060	0.006	0.07	0.020	0.006	0.001	0.500	5.00	1.20	11000.00	11000.00	4
264	CY11	เจ้าพระยา	11/07/33	6.70	96	0.98	0.060	0.009	0.16	0.010	0.040	0.003	0.200	99.99	1.00	99999999.99	99999999.99	2
265	CY11	เจ้าพระยา	12/24/34	6.90	104	0.44	0.040	0.003	0.06	0.020	0.004	0.001	0.230	0.00	1.00	7000.00	2200.00	5
266	CY11	เจ้าพระยา	12/26/34	7.50	46	0.54	0.220	0.003	0.16	0.020	0.003	0.001	0.550	3.00	1.10	0.00	0.00	4
267	CY11	เจ้าพระยา	03/06/34	7.60	9999	1.53	0.030	0.006	0.12	0.030	0.010	0.002	0.500	4.50	1.00	99999999.99	99999999.99	3
268	CY11	เจ้าพระยา	07/10/34	7.00	98	1.82	0.120	0.007	0.08	0.000	0.007	0.001	0.500	7.00	0.99	99999999.99	99999999.99	2
269	CY11	เจ้าพระยา	09/06/34	7.50	76	1.64	0.150	0.010	0.12	0.020	0.009	0.002	1.100	4.00	0.99	99999999.99	99999999.99	3
270	CY12	เจ้าพระยา	12/26/34	7.50	110	0.47	0.050	0.003	0.14	0.020	0.003	0.001	0.450	5.00	1.40	0.00	0.00	3
271	CY12	เจ้าพระยา	11/07/33	6.90	110	0.87	0.060	0.009	0.08	0.010	0.010	0.003	0.200	99.99	1.30	4900.00	4900.00	4
272	CY12	เจ้าพระยา	03/04/34	7.10	9999	0.55	0.040	0.002	0.09	0.040	0.003	0.010	0.300	6.00	1.00	99999999.99	99999999.99	2
273	CY12	เจ้าพระยา	11/07/33	6.90	110	0.87	0.060	0.009	0.08	0.010	0.010	0.003	0.200	99.99	1.30	4900.00	4900.00	4
274	CY12	เจ้าพระยา	07/10/34	6.30	102	2.11	0.170	0.006	0.10	0.000	0.010	0.003	0.400	5.00	0.99	99999999.99	99999999.99	3
275	CY12	เจ้าพระยา	09/06/34	7.40	102	1.69	0.130	0.010	0.11	0.020	0.005	0.001	1.500	4.50	0.99	99999999.99	99999999.99	3
276	CY13	เจ้าพระยา	11/07/33	6.60	74	1.29	0.090	0.009	0.11	0.000	0.010	0.004	0.200	99.99	1.50	13000.00	7900.00	5
277	CY13	เจ้าพระยา	11/07/33	6.60	74	1.29	0.090	0.009	0.11	0.000	0.010	0.004	0.200	99.99	1.50	13000.00	7900.00	5
278	CY13	เจ้าพระยา	12/26/34	7.50	92	0.60	0.070	0.010	0.35	0.030	0.003	0.002	0.480	3.00	1.00	0.00	0.00	4

JICA No.3 No.4

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Table 3.4.1.2 (7) Water Quarity of Chao Phraya River Analyzed by DOH (cont'd)

	Record#	Code	Name	Date	pH	Hardness	Fe	Mn	Cu	Zn	Pb	Cr	Cd	NO_3	DO	BOD	Coli. Group	Fecal Coli.	G. Level
JICA No.3 No.4	279	CY13	เจ้าพระยา	03/06/34	7.00	9999	0.81	0.780	0.003	0.19	0.040	0.005	0.005	0.400	8.00	1.00	99999999.99	99999999.99	2
	280	CY13	เจ้าพระยา	09/06/34	99.99	9999	1.22	0.100	0.010	0.11	0.020	0.004	0.001	99.999	3.00	999.99	99999999.99	99999999.99	4
	281	CY13	เจ้าพระยา	07/10/34	6.50	104	1.80	0.080	0.006	0.09	0.000	0.010	0.001	0.400	5.00	1.30	99999999.99	99999999.99	3
	282	CY14	เจ้าพระยา	11/06/33	7.00	68	0.85	0.050	0.009	0.12	0.020	0.010	0.000	0.200	6.00	1.30	2700.00	1700.00	3
	283	CY14	เจ้าพระยา	12/24/34	7.20	94	0.58	0.060	0.010	0.06	0.030	0.004	0.002	0.360	5.90	1.00	13000.00	2200.00	5
	284	CY14	เจ้าพระยา	03/06/33	7.00	68	0.77	0.060	0.009	0.09	0.000	0.010	0.000	0.200	6.00	1.30	4600.00	4600.00	4
	285	CY14	เจ้าพระยา	11/06/33	7.00	70	1.00	0.060	0.009	0.09	0.020	0.010	0.000	0.200	6.20	1.20	7000.00	3300.00	3
	286	CY14	เจ้าพระยา	03/06/34	8.20	9999	0.44	0.040	0.004	0.12	0.010	0.003	0.001	0.300	6.40	1.00	99999999.99	99999999.99	2
	287	CY14	เจ้าพระยา	03/06/34	8.20	9999	0.38	0.040	0.006	0.10	0.020	0.010	0.002	0.200	6.80	1.00	99999999.99	99999999.99	2
	288	CY14	เจ้าพระยา	03/06/34	8.20	9999	0.95	0.160	0.000	0.24	0.010	0.000	0.000	0.300	6.40	1.10	99999999.99	99999999.99	2
	289	CY14	เจ้าพระยา	08/23/34	7.80	89	1.39	0.060	0.004	0.07	0.070	0.006	0.020	0.099	5.80	0.99	99999999.99	99999999.99	5
	290	CY14.1	เจ้าพระยา	12/24/34	7.20	96	0.56	0.060	0.005	0.07	0.020	0.004	0.001	0.420	5.80	1.00	3300.00	3300.00	3
	291	CY14.1	เจ้าพระยา	08/23/34	7.80	90	1.34	0.070	0.004	0.06	0.060	0.005	0.009	0.099	6.20	0.99	99999999.99	99999999.99	5
	292	CY14.2	เจ้าพระยา	12/24/34	7.20	96	0.54	0.050	0.005	0.06	0.030	0.002	0.002	0.390	6.00	1.00	7000.00	2100.00	5
	293	CY14.2	เจ้าพระยา	08/24/34	7.80	9999	0.59	0.060	0.003	0.03	0.030	0.005	0.004	0.100	5.20	1.00	24000.00	3300.00	4
	294	CY14.3	เจ้าพระยา	08/23/34	7.80	98	0.93	0.080	0.003	0.03	0.030	0.005	0.005	0.100	6.80	0.99	99999999.99	99999999.99	2
	295	CY15	เจ้าพระยา	12/24/34	7.20	96	0.58	0.050	0.010	0.05	0.020	0.003	0.001	0.370	5.90	1.00	4900.00	2300.00	3
	296	CY15	เจ้าพระยา	11/06/33	7.00	0	90.00	0.060	0.009	0.09	0.000	0.010	0.000	0.200	6.00	1.00	11000.00	7900.00	4
	297	CY15	เจ้าพระยา	03/06/34	8.20	9999	0.77	0.040	0.003	0.10	0.010	0.005	0.001	0.300	6.80	1.20	99999999.99	99999999.99	2
	298	CY16	เจ้าพระยา	03/06/34	8.20	9999	1.04	0.090	0.000	0.19	0.000	0.020	0.000	0.600	7.10	1.10	99999999.99	99999999.99	2
	299	CY16	เจ้าพระยา	12/24/34	7.20	92	0.52	0.050	0.004	0.08	0.020	0.003	0.001	0.370	6.80	1.10	11000.00	500.00	3
	300	CY16	เจ้าพระยา	11/05/33	7.00	70	1.20	0.800	0.010	0.13	0.040	0.010	0.000	0.200	6.20	1.30	3300.00	3300.00	3
	301	CY16	เจ้าพระยา	08/23/34	7.60	82	1.02	0.060	0.004	0.24	0.240	0.006	0.030	0.100	6.40	0.99	4900.00	4900.00	5
	302	CY17	เจ้าพระยา	12/14/33	7.20	0	49.00	0.060	0.009	0.09	0.000	0.010	0.000	0.100	6.70	1.00	3500.00	2400.00	3
	303	CY17	เจ้าพระยา	12/20/34	7.00	92	0.39	0.050	0.004	0.11	0.000	0.000	0.001	0.600	8.50	1.00	160000.00	54000.00	4
	304	CY17	เจ้าพระยา	03/06/34	7.60	9999	0.33	0.100	0.001	0.09	0.010	0.002	0.000	0.400	7.80	1.00	99999999.99	99999999.99	2
JICA No.2	305	CY18	เจ้าพระยา	11/14/33	6.80	118	0.63	0.050	0.009	0.09	0.000	0.010	0.000	0.100	7.00	1.00	2200.00	1400.00	3
	306	CY18	เจ้าพระยา	03/06/34	7.20	9999	0.20	0.050	0.001	0.09	0.010	0.002	0.000	0.400	7.30	1.00	99999999.99	99999999.99	2
	307	CY18	เจ้าพระยา	12/20/34	6.70	102	0.48	0.050	0.004	0.05	0.000	0.000	0.001	0.560	8.00	1.00	240000.00	240000.00	4
	308	CY19	เจ้าพระยา	12/20/34	7.50	114	0.37	0.060	0.005	0.01	0.000	0.000	0.001	0.530	8.20	1.00	92000.00	35000.00	4
	309	CY19	เจ้าพระยา	11/14/33	7.20	118	1.02	0.060	0.009	0.09	0.000	0.000	0.000	0.100	7.00	1.00	2400.00	2400.00	3
	310	CY19	เจ้าพระยา	03/06/34	7.60	9999	0.16	0.040	0.001	0.10	0.010	0.001	0.002	0.400	7.50	1.00	99999999.99	99999999.99	2

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Table 3.4.1.2 (8) Water Quarity of Chao Phraya River Analyzed by DOH (cont'd)

	Record#	Code	Name	Date	pH	Hardness	Fe	Mn	Cu	Zn	Pb	Cr	Cd	NO_3	DO	BOD	Coli. Group	Fecal Coli.	G. Level
	311	CY20	เจ้าพระยา	12/23/34	7.60	96	0.40	0.050	0.007	0.05	0.000	0.000	0.001	0.520	6.00	1.00	0.00	0.00	2
	312	CY20	เจ้าพระยา	03/08/34	6.80	9999	0.43	0.040	0.003	0.13	0.030	0.004	0.002	0.140	6.50	1.00	1700.00	1300.00	3
JICA No.1	313	CY21	เจ้าพระยา	12/19/33	7.20	96	0.11	0.940	0.010	0.11	0.030	0.020	0.002	0.300	5.20	5.90	99999999.99	99999999.99	5
	314	CY21	เจ้าพระยา	12/23/34	7.20	92	0.65	0.060	0.006	0.12	0.000	0.004	0.001	0.510	5.00	1.00	0.00	0.00	3
	315	CY21	เจ้าพระยา	03/08/34	7.20	9999	0.35	0.040	0.010	0.22	0.030	0.005	0.001	0.120	6.50	4.20	2700.00	400.00	5
	316	CY22	เจ้าพระยา	12/19/33	7.20	88	0.10	0.950	0.007	0.11	0.020	0.020	0.003	0.400	6.50	1.50	99999999.99	99999999.99	2
	317	CY22	เจ้าพระยา	12/23/34	7.20	88	0.61	0.070	0.010	0.08	0.010	0.006	0.001	0.510	5.00	1.00	0.00	0.00	3
	318	CY22	เจ้าพระยา	03/08/34	7.00	9999	1.11	0.050	0.003	0.21	0.040	0.010	0.001	0.110	6.80	1.00	1300.00	800.00	2
	319	CY23	เจ้าพระยา	08/15/34	99.99	9999	0.36	0.060	0.004	0.10	0.050	0.008	0.006	0.099	99.99	1.20	99999999.99	99999999.99	2
	320	CY24	เจ้าพระยา	03/21/34	99.99	9999	0.12	0.010	0.001	0.09	0.010	0.000	0.000	0.100	99.99	1.00	99999999.99	99999999.99	2
	321	CY24	เจ้าพระยา	12/20/34	7.50	84	0.46	0.050	0.010	0.09	0.000	0.003	0.001	0.730	0.00	1.00	0.00	0.00	5
	322	CY24	เจ้าพระยา	08/15/34	99.99	9999	1.91	0.140	0.010	0.34	0.040	0.030	0.002	0.099	99.99	1.30	9999999.99	99999999.99	2
	323	CY25	เจ้าพระยา	11/20/34	99.99	122	0.53	0.220	0.004	0.02	0.010	0.004	0.000	0.280	0.00	5.10	0.00	0.00	5
	324	CY26	เจ้าพระยา	11/20/34	99.99	113	1.13	0.130	0.005	0.02	0.020	0.004	0.000	0.270	0.00	1.00	0.00	0.00	5
	325	CY26	เจ้าพระยา	08/15/34	99.99	9999	0.87	0.060	0.002	0.10	0.030	0.010	0.003	0.099	99.99	1.10	99999999.99	99999999.99	2
	326	CY30	เจ้าพระยา	03/06/34	8.20	9999	0.95	0.080	0.003	0.14	0.010	0.005	0.001	0.200	6.80	1.00	99999999.99	99999999.99	2
	327	CY30	เจ้าพระยา	12/24/34	7.20	100	0.69	0.060	0.004	0.06	0.010	0.004	0.001	0.400	5.80	1.00	4900.00	4900.00	4
	328	CY30	เจ้าพระยา	11/06/33	7.00	74	0.99	0.060	0.009	0.11	0.000	0.010	0.000	0.200	6.00	1.10	3300.00	2300.00	3
	329	CY30	เจ้าพระยา	08/23/34	7.80	104	0.93	0.080	0.003	0.03	0.030	0.005	0.005	0.100	6.80	0.99	4900.00	3300.00	3
	330	CYSP01	เจ้าพระยา	10/29/34	7.70	94	1.05	0.070	0.005	0.11	0.030	0.005	0.001	0.310	4.80	1.60	24000.00	24000.00	4
	331	CYSP01	เจ้าพระยา	03/27/34	7.30	9999	1.10	0.030	0.010	0.12	0.020	0.002	0.001	0.200	5.50	3.70	92000.00	24000.00	4
	332	CYSP01	เจ้าพระยา	11/19/34	7.20	100	0.72	0.060	0.010	0.09	0.010	0.005	0.000	0.320	5.10	1.00	13000.00	1700.00	3
	333	CYSP01	เจ้าพระยา	12/17/34	6.60	107	0.64	0.040	0.004	0.07	0.020	0.003	0.001	0.180	4.70	1.10	0.00	0.00	3
	334	CYSP01	เจ้าพระยา	01/21/35	6.80	102	1.40	0.070	0.006	0.07	0.010	0.008	0.001	0.470	3.70	0.01	22000.00	9400.00	4
	335	CYSP01	เจ้าพระยา	06/25/34	7.60	9999	2.01	0.330	0.020	0.41	0.050	0.010	0.002	0.200	5.60	1.00	99999999.99	99999999.99	3
	336	CYSP01	เจ้าพระยา	07/31/34	7.80	114	99.99	99.999	99.999	99.99	99.999	99.999	99.999	0.300	4.50	1.20	35000.00	7900.00	4
	337	CYSP01	เจ้าพระยา	06/17/34	7.00	9999	1.54	0.040	0.010	0.10	0.000	0.000	0.001	99.999	6.30	1.00	7900.00	4900.00	4
	338	CYSP02	เจ้าพระยา	10/29/34	7.80	93	1.58	0.070	0.006	0.09	0.010	0.008	0.001	0.280	4.70	1.10	11000.00	3300.00	3
	339	CYSP02	เจ้าพระยา	11/06/33	7.00	68	0.85	0.050	0.009	0.12	0.020	0.010	0.000	0.290	6.00	1.30	2700.00	1700.00	3

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Table 3.4.1.2 (9) Water Quarity of Chao Phraya River Analyzed by DOH (cont'd)

Record#	Code	Name	Date	pH	Hardness	Fe	Mn	Cu	Zn	Pb	Cr	Cd	NO_3	DO	BOD	Coli. Group	Fecal Coli.	G. Level
340	CYSP02	เจ้าพระยา	11/19/34	7.50	94	1.58	0.120	0.010	0.13	0.020	0.005	0.000	0.320	5.10	1.00	2300.00	800.00	3
341	CYSP02	เจ้าพระยา	12/17/34	6.60	120	0.54	0.040	0.004	0.08	0.010	0.000	0.001	0.190	4.30	1.30	1300.00	1300.00	3
342	CYSP02	เจ้าพระยา	03/27/34	7.30	9999	1.41	0.040	0.010	0.06	0.040	0.006	0.002	0.200	5.10	1.00	540000.00	330000.00	4
343	CYSP02	เจ้าพระยา	01/21/35	6.50	100	1.00	0.050	0.008	0.09	0.020	0.006	0.001	0.410	4.30	0.01	35000.00	17000.00	4
344	CYSP02	เจ้าพระยา	06/25/34	7.60	9999	2.16	0.170	0.010	0.17	0.040	0.020	0.002	0.200	4.40	1.30	24000.00	7900.00	4
345	CYSP02	เจ้าพระยา	06/17/34	7.10	9999	1.64	0.060	0.010	0.28	0.000	0.000	0.001	99.999	5.40	1.00	13000.00	2200.00	3
346	CYSP02	เจ้าพระยา	07/31/34	7.80	114	99.99	99.999	99.999	99.99	99.999	99.999	99.999	0.300	5.60	1.00	17000.00	4900.00	4
347	IG01	น้ำอิง	04/08/34	7.10	9999	1.64	0.040	0.010	0.15	0.010	0.010	0.001	0.500	99.99	1.10	9200.00	5700.00	4
348	IG02	อิง	04/08/34	7.10	9999	1.75	0.050	0.005	0.11	0.040	0.016	0.002	0.400	99.99	0.99	1700.00	1700.00	3
349	IG03	อิง	04/08/34	7.20	9999	1.33	0.030	0.004	0.08	0.020	0.005	0.001	0.400	99.99	0.99	170.00	20.00	2
350	K01	คลองหวยขวาง	11/26/34	7.90	196	0.62	0.220	0.040	0.13	0.030	0.020	0.002	0.680	2.80	5.90	920000.00	220000.00	5
351	K01	คลองหวยขวาง	01/28/35	7.60	142	0.33	0.210	0.010	0.14	0.020	0.010	0.002	0.220	0.00	22.70	2400000.00	2400000.00	5
352	K01	ใกล้คลองร่อยพลประทาน	11/05/34	7.50	70	1.64	0.180	0.004	0.08	0.020	0.005	0.000	0.520	0.00	1.70	11000.00	3300.00	5
353	K01	คลองหวยขวาง	10/31/34	7.80	228	0.54	0.330	0.070	0.16	0.040	0.030	0.001	0.600	6.00	4.40	540000.00	240000.00	5
354	K01	คลองหวยขวาง	06/19/34	7.60	208	0.47	0.200	0.230	0.36	0.050	1.460	0.003	0.400	2.30	6.40	130000.00	79000.00	5
355	K02	คลองหวยขวาง	01/28/35	7.90	124	0.29	0.200	0.010	0.17	0.050	0.030	0.004	0.240	2.30	16.70	3300.00	2300.00	5
356	K02	คลองหวยขวาง	11/26/34	8.30	235	0.65	0.870	0.008	0.20	0.040	0.020	0.002	0.530	18.30	8.30	4600.00	1100.00	5
357	K02	คลองทำลาด	11/05/34	7.00	92	1.53	0.190	0.003	0.09	0.030	0.005	0.000	0.480	0.00	1.00	1400.00	80.00	5
358	K02	คลองหวยขวาง	10/31/34	7.50	500	0.46	0.440	0.010	0.14	0.040	0.030	0.002	0.370	7.60	2.40	790.00	110.00	4
359	K02	คลองหวยขวาง	06/19/34	7.60	200	0.09	0.030	0.010	0.11	0.040	0.030	0.004	0.400	0.00	7.00	13000.00	13000.00	5
360	K03	คลองหวยขวาง	01/28/35	8.00	162	0.18	0.030	0.150	0.14	0.060	0.050	0.005	0.270	1.80	7.00	13000.00	4900.00	5
361	K03	คลองทำลาด	11/05/34	7.20	76	1.48	0.160	0.003	0.06	0.010	0.005	0.000	0.490	0.00	1.00	1100.00	230.00	5
362	K03	คลองหวยขวาง	11/26/34	8.00	158	0.46	0.210	0.030	0.29	0.060	0.010	0.000	0.830	11.40	8.40	9200000.00	5400000.00	5
363	K03	คลองหวยขวาง	10/31/34	7.50	208	0.92	0.350	0.060	0.15	0.040	0.020	0.001	0.280	3.10	4.20	540000.00	280000.00	5
364	K03	คลองหวยขวาง	06/19/34	7.50	200	0.63	0.240	0.030	0.26	0.020	0.002	0.002	0.600	0.00	10.40	5400000.00	2400000.00	5
365	K04	คลองหวยขวาง	10/31/34	7.50	176	0.27	0.260	0.010	0.23	0.040	0.010	0.001	0.300	2.60	3.80	54000.00	12000.00	4
366	K04	คลองหวยขวาง	01/28/35	7.50	138	1.30	0.280	0.010	0.15	0.040	0.020	0.002	0.220	0.00	144.00	54000000.00	54000000.00	5
367	K04	คลองหวยขวาง	06/19/34	7.50	156	0.34	0.310	0.006	0.20	0.020	0.008	0.002	0.300	5.80	8.60	3500000.00	3500000.00	5
368	K04/1	คลองบางขนาก	10/08/34	6.50	57	1.65	0.120	0.000	0.00	0.000	0.001	0.004	0.300	3.80	0.00	17000.00	4600.00	4
369	K04/1	คลองบางขนาก	11/06/34	6.50	74	1.64	0.250	0.005	0.12	0.150	0.004	0.020	0.320	3.50	1.70	22000.00	17000.00	5
370	K04/2	คลองบางขนาก	10/08/34	6.50	68	1.76	0.610	0.000	0.00	0.000	0.003	0.002	0.400	0.30	0.00	130000.00	79000.00	5
371	K04/2	คลองบางขนาก	11/06/34	6.50	66	0.70	0.160	0.004	0.12	0.020	0.004	0.001	0.310	0.20	6.10	3500000.00	540000.00	5

Table 3.4.1.3 Water Quality of Chao Phraya River Invesigated by PWD

Item :		DO (mg/l)									BOD (mg/l)									COLIFORM GROUP (MPN/100 ml)		
Year		1989			1990			1991			1989			1990			1991			1989	1990	1991
Location	St.No.	Avg.	Max.	Min.	Avg.	Max.	Min.	Avg.	Max.	Min.	Avg.	Max.	Min.	Avg.	Max.	Min.	Avg.	Max.	Min.			
NONTHABUR	1	4.5	7.2	3.4	3.6	4.6	2.5	1.8	2.2	1.5	1.5	1.9	1.0	2.0	3.4	0.7	1.8	4.0	0.2	1.0E+05	1.9E+06	8.8E+05
	2	4.1	6.5	2.6	2.1	3.0	1.0	2.4	3.5	1.8	1.7	3.3	0.6	13.6	23.0	2.3	3.4	4.3	2.6	1.4E+05	1.0E+06	7.3E+04
PATHUM THANI	3	3.9	7.4	3.0	3.2	3.8	1.9	3.4	4.8	2.0	3.8	7.5	0.8	2.8	5.8	1.1	1.3	1.7	0.8	3.5E+05	8.8E+05	3.0E+06
	4	4.3	7.2	2.6	3.4	4.8	2.3	3.9	4.3	3.3	3.6	11.0	0.7	10.0	28.0	1.0	1.8	2.4	0.8	4.0E+05	7.0E+05	3.5E+05
	5	5.2	7.6	3.2	3.8	4.4	3.0	4.4	4.8	4.0	0.9	1.3	0.4	1.0	1.4	0.4	1.0	2.2	0.1	1.5E+04	1.6E+05	2.2E+04
	6	5.2	7.6	3.2	4.1	4.6	3.6	4.4	4.8	4.0	0.8	1.4	0.4	1.4	1.9	0.7	2.3	5.4	0.6	3.5E+04	7.8E+04	9.5E+04
	7	6.5	7.6	5.0	4.8	5.4	3.5	5.0	5.8	4.2	0.8	2.0	0.3	1.0	1.6	0.8	0.9	1.0	0.8	5.4E+04	1.0E+05	3.9E+04
AYUTTHAYA	8	6.0	7.6	5.2	5.1	6.0	4.0	5.5	6.0	4.9	0.8	1.3	0.2	0.6	1.1	0.2	0.5	0.5	0.4	1.3E+05	4.2E+04	1.3E+04
	9	5.4	7.6	4.2	4.4	5.4	3.2	4.4	5.4	3.4	1.0	1.4	0.4	0.8	1.3	0.3	0.8	0.9	0.6	7.1E+04	1.2E+05	2.0E+04
	10	5.2	7.4	3.0	4.4	6.2	2.5	4.2	4.4	3.9	0.8	1.3	0.2	1.1	1.4	0.6	1.9	2.5	1.2	1.1E+05	2.2E+04	5.9E+04
ANG THONG	11	4.4	7.1	0.4	5.4	7.0	3.8	5.7	6.2	5.2	3.1	7.2	0.4	1.0	1.9	0.2	1.4	2.5	0.3	7.2E+04	1.0E+05	5.6E+04
	12	6.5	7.6	5.5	5.1	6.8	4.1	6.2	6.8	5.5	1.1	1.9	0.2	2.1	3.5	0.3	1.2	1.5	0.8	1.4E+05	7.6E+05	1.6E+06
SING BURI	13	6.8	7.5	5.3	5.7	6.5	5.0	6.9	7.1	6.8	0.9	1.9	0.2	1.4	3.8	0.4	1.3	2.0	0.6	1.1E+05	5.5E+05	1.3E+05
	14	7.0	7.6	6.5	6.0	6.6	5.4	6.2	6.2	6.2	1.0	1.9	0.2	0.8	0.9	0.5	0.5	0.5	0.4	7.4E+04	3.8E+05	1.0E+05
	15	6.9	7.6	6.0	5.9	7.0	5.6	7.1	7.2	7.1	0.8	1.4	0.2	0.7	0.9	0.5	1.3	2.4	0.1	2.4E+04	1.1E+05	1.1E+05
CHAI NAT	16	4.9	5.6	4.2	5.1	5.8	4.6	4.9	5.1	4.7	0.8	0.8	0.8	1.9	3.9	0.7	1.9	2.5	1.2	1.2E+06	9.2E+05	4.7E+06
	17	6.0	6.2	5.8	5.2	6.2	5.0	4.7	5.4	4.0	0.6	1.0	0.2	0.7	1.1	0.2	–	–	–	8.1E+04	2.8E+05	3.0E+03
	18	–	–	–	–	–	–	5.6	6.0	5.2	–	–	–	–	–	–	4.9	9.2	0.5	–	–	1.0E+05

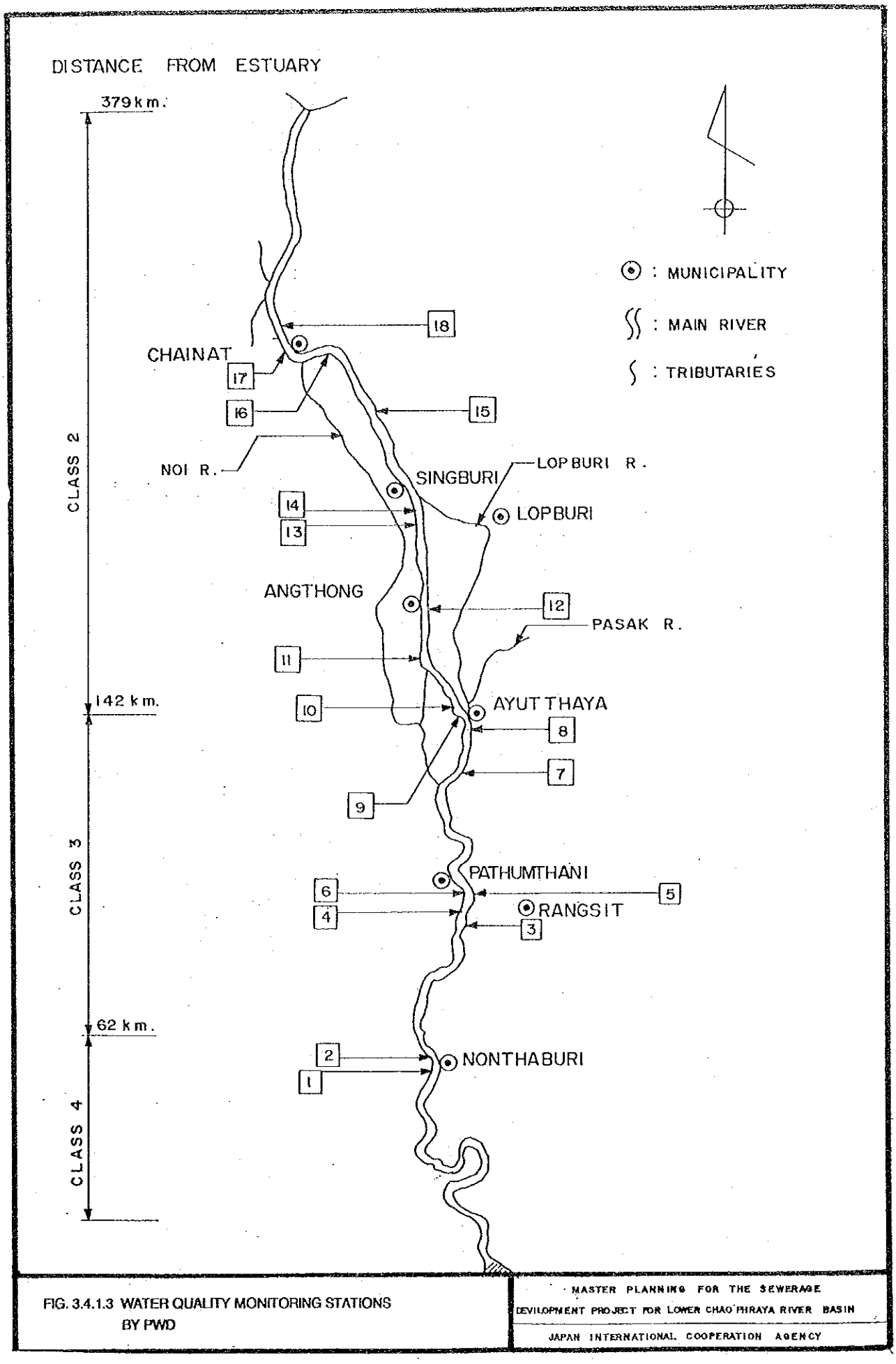

FIG. 3.4.1.3 WATER QUALITY MONITORING STATIONS BY PWD

MASTER PLANNING FOR THE SEWERAGE DEVELOPMENT PROJECT FOR LOWER CHAO PHRAYA RIVER BASIN

JAPAN INTERNATIONAL COOPERATION AGENCY

3.4.2 Water Quality of Rivers Investigated by JICA Study Team

Table 3.4.2.1 (1) Quality of River Water

Station No. 1 (Main river, Chainat, before branching to Noi river) (unit: Pollution Load ton/day)

Time, Date	Item \(unit)	Flow Rate (m3/6hrs.)	Water Temp. (deg.C)	pH	DO (mg/l)	BOD (mg/l)	COD (mg/l)	SS (mg/l)	Alkal. as CaCO3 (mg/l)	Chloride as cl− (mg/l)	Nitrate as NO3− (mg/l)	Sulfate as SO4= (mg/l)	Ammonia as NH3−N (mg/l)	Coliform Group (MPN/100ml)
1st	12:00, 13 June	6,125,841	33.5	8.2	8.0	1.7	3.4	0.5	90	5.4	0.12	4.8	<0.01	2,400
	18:00, 13 June	4,780,007	33.0	7.8	6.3	1.1	2.4	4.0	95	5.7	0.15	4.5	<0.01	2,400
	24:00, 13 June	2,217,929	32.5	7.6	6.0	1.7	3.8	3.0	90	5.1	0.44	4.8	<0.01	500
	6:00, 14 June	1,433,929	32.5	7.6	4.7	1.9	3.1	9.0	95	3.0	0.18	4.7	<0.01	380
	Daily Flow (m3/day)	Maximum	33.5	8.2	8.0	1.9	3.8	9.0	95	5.7	0.44	4.8	0.00	2,400
		Minimum	32.5	7.6	4.7	1.1	2.4	0.5	90	3.0	0.12	4.5	0.00	380
		Arith. Mean	32.9	7.8	6.3	1.6	3.2	4	93	4.8	0.22	4.7	0.00	1,420
	14,557,706	Geom. Mean	33.1	7.9	6.8	1.5	3.1	3	92	5.2	0.18	4.7	0.00	1,912
		Pollution Load	–	–	–	22.17	45.17	41.74	1,341.26	75.94	2.69	68.30	0.00	–
2nd	12:00, 20 June	4,657,450	32.5	8.1	6.9	3.1	8.6	7.0	85	6.7	<0.01	6.7	<0.01	3,500
	18:00, 20 June	4,882,460	32.0	7.3	6.8	3.1	4.9	11.0	90	7.4	<0.01	7.4	<0.01	9,200
	24:00, 20 June	2,114,312	31.5	7.6	7.0	4.6	8.6	26.0	90	6.7	<0.01	6.7	<0.01	270
	6:00, 21 June	1,468,080	30.5	7.5	6.2	2.2	5.9	14.0	85	7.1	<0.01	7.1	<0.01	3,500
	Daily Flow (m3/day)	Maximum	32.5	8.1	7.0	4.6	8.6	26.0	90	7.4	0.00	7.4	0.00	9,200
		Minimum	30.5	7.3	6.2	2.2	4.9	7.0	85	6.7	0.00	6.7	0.00	270
		Arith. Mean	31.6	7.6	6.7	3.3	7.0	15	88	7.0	0.00	7.0	0.00	4,118
	13,122,302	Geom. Mean	31.9	7.7	6.8	3.2	6.9	12	88	7.0	0.00	7.0	0.00	5,100
		Pollution Load	–	–	–	42.53	90.82	161.83	1,150.38	91.92	0.00	91.92	0.00	–
Avg.	Daily Flow (m3/day)	Arith. Mean	32.3	7.7	6.5	2.4	5.1	9	90	5.9	0.11	5.8	0.00	2,769
		Geom. Mean	32.5	7.8	6.8	2.4	5.0	8	90	6.1	0.09	5.8	0.00	3,506
	13,840,004	Pollution Load	–	–	–	32.35	68.00	101.79	1,245.82	83.93	1.34	80.11	0.00	–

Table 3.4.2.1 (2) Quality of River Water

Station No. 2 (Main river, Sing Buri, before branching to Lop Buri river) (unit: Pollution Load ton/day)

Time, Date \ Item (unit)		Flow Rate (m3/6hrs.)	Water Temp. (deg.C)	pH	DO (mg/l)	BOD (mg/l)	COD (mg/l)	SS (mg/l)	Alkal. as CaCO3 (mg/l)	Chloride as cl− (mg/l)	Nitrate as NO3− (mg/l)	Sulfate as SO4= (mg/l)	Ammonia as NH3−N (mg/l)	Coliform Group (MPN/100ml)
1st	12:00, 13 June	979,553	33.0	8.4	8.3	2.6	6.2	26.0	90	5.1	0.15	4.7	<0.01	1,100
	18:00, 13 June	837,279	33.0	8.4	8.8	1.5	1.9	22.0	90	4.8	0.28	4.8	<0.01	2,200
	24:00, 13 June	514,125	32.0	8.1	7.4	2.1	4.8	20.0	90	4.5	0.12	4.5	<0.01	1,300
	6:00, 14 June	971,670	32.0	8.0	6.5	2.3	9.3	22.0	90	5.4	0.18	5.4	<0.01	1,100
	Daily Flow (m3/day)	Maximum	33.0	8.4	8.8	2.6	9.3	26.0	90	5.4	0.28	5.4	0.00	2,200
		Minimum	32.0	8.0	6.5	1.5	1.9	20.0	90	4.5	0.12	4.5	0.00	1,100
		Arith. Mean	32.5	8.2	7.8	2.1	5.6	23	90	5.0	0.18	4.9	0.00	1,425
	3,302,627	Geom. Mean	32.6	8.2	7.8	2.2	5.8	23	90	5.0	0.19	4.9	0.00	1,410
		Pollution Load	–	–	–	7.12	19.17	75.55	297.24	16.58	0.62	16.18	0.00	–
2nd	12:00, 20 June	1,596,334	33.0	7.3	7.9	2.4	3.1	27.0	85	6.6	<0.01	5.5	<0.01	24,000
	18:00, 20 June	1,793,030	33.0	7.4	8.7	2.5	5.1	28.0	95	6.0	<0.01	5.2	<0.01	11,000
	24:00, 20 June	1,787,197	33.0	7.6	7.8	3.6	4.6	25.0	90	6.0	<0.01	5.0	<0.01	11,000
	6:00, 21 June	1,802,885	33.0	7.6	6.9	1.4	3.4	29.0	90	6.0	<0.01	3.2	<0.01	7,900
	Daily Flow (m3/day)	Maximum	33.0	7.6	8.7	3.6	5.1	29.0	95	6.6	0.00	5.5	0.00	24,000
		Minimum	33.0	7.3	6.9	1.4	3.1	25.0	85	6.0	0.00	3.2	0.00	7,900
		Arith. Mean	33.0	7.5	7.8	2.5	4.1	27	90	6.2	0.00	4.7	0.00	13,475
	6,979,446	Geom. Mean	33.0	7.5	7.8	2.5	4.1	27	90	6.1	0.00	4.7	0.00	13,173
		Pollution Load	–	–	–	17.27	28.44	190.27	629.13	42.83	0.00	32.81	0.00	–
Avg.	Daily Flow (m3/day)	Arith. Mean	32.8	7.9	7.8	2.3	4.8	25	90	5.6	0.09	4.8	0.00	7,450
		Geom. Mean	32.8	7.9	7.8	2.3	4.9	25	90	5.6	0.09	4.8	0.00	7,291
	5,141,037	Pollution Load	–	–	–	12.19	23.81	132.91	468.19	29.70	0.31	24.50	0.00	–

Table 3.4.2.1 (3) Quality of River Water

Station No. 3 (Main river, Ayutthaya, before joinning with Pasak river) (unit: Pollution Load ton/day)

Time, Date \ Item (unit)		Flow Rate (m3/6hrs.)	Water Temp. (deg.C)	pH	DO (mg/l)	BOD (mg/l)	COD (mg/l)	SS (mg/l)	Alkal. as CaCO3 (mg/l)	Chloride as cl− (mg/l)	Nitrate as NO3− (mg/l)	Sulfate as SO4= (mg/l)	Ammonia as NH3−N (mg/l)	Coliform Group (MPN/100ml)
1st	12:00, 13 June	3,456,806	34.0	7.3	7.7	2.1	5.3	10.0	95	7.4	0.32	15.9	<0.01	2,200
	18:00, 13 June	4,496,296	33.0	8.0	8.0	2.1	6.4	26.0	85	5.3	0.08	15.1	<0.01	3,300
	24:00, 13 June	−1,319,724	30.0	8.0	7.3	1.6	4.4	15.0	90	5.3	0.12	15.1	<0.01	2,700
	6:00, 14 June	994,047	32.0	7.5	6.0	1.6	4.0	9.0	90	7.2	0.08	14.9	<0.01	7,900
	Daily Flow (m3/day)	Maximum	34.0	8.0	8.0	2.1	6.4	26.0	95	7.4	0.32	15.9	0.00	7,900
		Minimum	30.0	7.3	6.0	1.6	4.0	9.0	85	5.3	0.08	14.9	0.00	2,200
		Arith. Mean	32.3	7.7	7.3	1.9	5.0	15	90	6.3	0.15	15.3	0.00	4,025
	7,627,425	Geom. Mean	33.8	7.6	7.7	2.1	5.9	18	89	6.5	0.18	15.4	0.00	3,505
		Pollution Load	−	−	−	16.18	45.27	140.62	681.27	49.57	1.39	117.74	0.00	−
2nd	12:00, 20 June	3,456,806	32.0	7.5	7.3	1.4	2.0	7.0	95	7.8	<0.01	16.6	<0.01	13,000
	18:00, 20 June	4,496,296	31.0	7.5	6.7	1.4	1.9	17.0	100	7.1	<0.01	13.4	<0.01	17,000
	24:00, 20 June	−1,319,724	31.0	7.5	6.7	2.0	4.2	11.0	95	7.4	<0.01	16.6	<0.01	11,000
	6:00, 21 June	994,047	30.0	7.5	5.6	1.2	4.2	10.0	100	11.7	<0.01	15.6	<0.01	17,000
	Daily Flow (m3/day)	Maximum	32.0	7.5	7.3	2.0	4.2	17.0	100	11.7	0.00	16.6	0.00	17,000
		Minimum	30.0	7.5	5.6	1.2	1.9	7.0	95	7.1	0.00	13.4	0.00	11,000
		Arith. Mean	31.0	7.5	6.6	1.5	3.1	11	98	8.5	0.00	15.6	0.00	14,500
	7,627,425	Geom. Mean	31.3	7.5	6.8	1.3	1.8	13	99	8.0	0.00	14.6	0.00	16,225
		Pollution Load	−	−	−	9.69	14.09	96.06	752.06	60.75	0.00	111.23	0.00	−
Avg.	Daily Flow (m3/day)	Arith. Mean	31.6	7.6	6.9	1.7	4.1	13	94	7.4	0.08	15.4	0.00	9,263
		Geom. Mean	32.6	7.6	7.3	1.7	3.9	16	94	7.2	0.09	15.0	0.00	9,865
	7,627,425	Pollution Load	−	−	−	12.93	29.68	118.34	716.66	55.16	0.69	114.49	0.00	−

Table 3.4.2.1 (4) Quality of River Water

Station No. 4 (Main river, Ayutthaya, after joining with Pasak river) (unit: Pollution Load ton/day)

Time, Date	Item \(unit)	Flow Rate (m3/6hrs.)	Water Temp. (deg.C)	pH	DO (mg/l)	BOD (mg/l)	COD (mg/l)	SS (mg/l)	Alkal. as CaCO3 (mg/l)	Chloride as cl− (mg/l)	Nitrate as NO3− (mg/l)	Sulfate as SO4= (mg/l)	Ammonia as NH3−N (mg/l)	Coliform Group (MPN/100ml)
1st	12:00, 13 June	7,107,037	34.0	6.6	6.8	2.9	14.1	10.0	95	6.9	0.19	14.6	<0.01	92,000
	18:00, 13 June	8,899,958	32.0	7.1	5.6	1.3	5.9	17.0	90	7.1	0.16	15.1	<0.01	24,000
	24:00, 13 June	−7,006,806	33.0	7.1	6.5	1.4	6.2	18.0	95	8.5	0.34	15.1	<0.01	7,900
	6:00, 14 June	2,532,419	33.0	7.3	7.3	1.2	2.4	11.0	90	6.6	0.12	15.2	<0.01	1,700
	Daily Flow (m3/day)	Maximum	34.0	7.3	7.3	2.9	14.1	18.0	95	8.5	0.34	15.2	0.00	92,000
		Minimum	32.0	6.6	5.6	1.2	2.4	10.0	90	6.6	0.12	14.6	0.00	1,700
		Arith. Mean	33.0	7.0	6.6	1.7	7.2	14	93	7.3	0.20	15.0	0.00	31,400
	11,532,608	Geom. Mean	32.8	6.8	6.2	2.2	10.0	11	90	6.0	0.06	14.8	0.00	70,790
		Pollution Load	−	−	−	25.41	115.35	124.10	1,038.44	69.38	0.70	170.84	0.00	−
2nd	12:00, 20 June	7,107,037	32.0	8.0	6.3	1.5	5.4	15.0	95	10.8	<0.01	16.4	<0.01	160,000
	18:00, 20 June	8,899,958	32.0	7.9	6.3	2.3	6.5	23.0	95	11.5	<0.01	15.2	<0.01	35,000
	24:00, 20 June	−7,006,806	32.0	7.7	7.6	1.5	5.4	16.0	95	12.8	<0.01	18.2	<0.01	240,000
	6:00, 21 June	2,532,419	32.0	7.9	6.0	1.8	8.2	17.0	95	10.8	<0.01	16.4	<0.01	35,000
	Daily Flow (m3/day)	Maximum	32.0	8.0	7.6	2.3	8.2	23.0	95	12.8	0.00	18.2	0.00	240,000
		Minimum	32.0	7.7	6.0	1.5	5.4	15.0	95	10.8	0.00	15.2	0.00	35,000
		Arith. Mean	32.0	7.9	6.6	1.8	6.4	18	95	11.5	0.00	16.6	0.00	117,500
	11,532,608	Geom. Mean	32.0	8.1	5.4	2.2	6.9	21	95	10.1	0.00	14.4	0.00	−12,519
		Pollution Load	−	−	−	25.18	79.16	242.25	1,095.60	116.77	0.00	165.84	0.00	−
Avg.	Daily Flow (m3/day)	Arith. Mean	32.5	7.5	6.6	1.7	6.8	16	94	9.4	0.10	15.8	0.00	74,450
		Geom. Mean	32.4	7.5	5.8	2.2	8.4	16	93	8.1	0.03	14.6	0.00	29,136
	11,532,608	Pollution Load	−	−	−	25.29	97.26	183.18	1,067.02	93.08	0.35	168.34	0.00	−

Table 3.4.2.1 (5) Quality of River Water

Station No. 5 (Main river, Nonthaburi, beside Provincial Office) (unit: Pollution Load ton/day)

Time, Date \ Item (unit)		Flow Rate (m3/6hrs.)	Water Temp. (deg.C)	pH	DO (mg/l)	BOD (mg/l)	COD (mg/l)	SS (mg/l)	Alkal. as CaCO3 (mg/l)	Chloride as cl− (mg/l)	Nitrate as NO3− (mg/l)	Sulfate as SO4= (mg/l)	Ammonia as NH3−N (mg/l)	Coliform Group (MPN/100ml)
	12:00, 13 June	13,424,361	33.0	7.5	4.5	6.6	66.9	37.0	90	820.0	0.75	102.0	2.10	35,000
	18:00, 13 June	11,547,271	32.0	6.9	2.1	4.1	37.0	88.0	90	436.0	3.06	56.9	1.51	13,000
	24:00, 13 June	−2,797,571	32.0	6.7	0.3	5.4	52.8	99.0	90	669.0	2.84	72.1	1.68	35,000
	6:00, 14 June	2,858,050	32.0	6.9	0.3	5.4	60.7	27.0	90	1,023.0	<0.01	122.0	0.56	13,000
1st														
	Daily Flow (m3/day)	Maximum	33.0	7.5	4.5	6.6	66.9	99.0	90	1,023.0	3.06	122.0	2.10	35,000
		Minimum	32.0	6.7	0.3	4.1	37.0	27.0	90	436.0	0.00	56.9	0.56	13,000
		Arith. Mean	32.3	7.0	1.8	5.4	54.4	63	90	737.0	1.66	88.3	1.46	24,000
	25,032,111	Geom. Mean	32.5	7.2	3.4	5.4	54.0	52	90	682.9	1.50	86.8	1.70	22,340
		Pollution Load	−	−	−	136.27	1,351.11	1,313.07	2,252.89	17,094.80	37.46	2,173.30	42.53	−
	12:00, 20 June	14,064,032	31.0	8.0	3.4	5.5	14.9	40.0	100	199.0	0.34	54.9	<0.01	35,000
	18:00, 20 June	349,067	31.0	7.6	3.0	2.2	9.1	65.0	100	97.5	0.11	42.3	<0.01	28,000
	24:00, 20 June	−11,658,486	31.0	7.4	0.9	3.7	11.8	60.0	100	166.0	0.22	50.4	<0.01	54,000
	6:00, 21 June	15,107,878	31.0	7.4	0.3	2.5	11.5	28.0	110	2,045.0	0.05	61.8	<0.01	54,000
2nd														
	Daily Flow (m3/day)	Maximum	31.0	8.0	3.4	5.5	14.9	65.0	110	2,045.0	0.34	61.8	0.00	54,000
		Minimum	31.0	7.4	0.3	2.2	9.1	28.0	100	97.5	0.05	42.3	0.00	28,000
		Arith. Mean	31.0	7.6	1.9	3.5	11.8	48	103	626.9	0.18	52.4	0.00	42,750
	17,862,491	Geom. Mean	31.0	7.9	2.4	4.1	13.9	17	108	1,779.9	0.17	63.4	0.00	38,532
		Pollution Load	−	−	−	72.75	248.90	308.76	1,937.33	31,793.08	3.01	1,132.96	0.00	−
Avg.	Daily Flow (m3/day)	Arith. Mean	31.6	7.3	1.9	4.4	33.1	56	96	681.9	0.92	70.3	0.73	33,375
		Geom. Mean	31.8	7.6	2.9	4.8	34.0	35	99	1,231.4	0.83	75.1	0.85	30,436
	21,447,301	Pollution Load	−	−	−	104.51	800.01	810.92	2,095.11	24,443.94	20.23	1,653.13	21.26	−

Table 3.4.2.1 (6) Quality of River Water

Station No. 6 (Noi river, Chainat, after branching from Main river) (unit: Pollution Load ton/day)

	Item / Time, Date \(unit)	Flow Rate (m3/6hrs.)	Water Temp. (deg.C)	pH	DO (mg/l)	BOD (mg/l)	COD (mg/l)	SS (mg/l)	Alkal. as CaCO3 (mg/l)	Chloride as cl− (mg/l)	Nitrate as NO3− (mg/l)	Sulfate as SO4= (mg/l)	Ammonia as NH3−N (mg/l)	Coliform Group (MPN/100ml)
1st	12:00, 13 June	404,570	33.5	7.9	6.4	2.3	2.6	4	125	5.2	<0.01	3.3	<0.01	210
	18:00, 13 June	468,316	33.0	7.7	6.2	1.6	4.4	1	105	5.1	0.01	4.8	<0.01	210
	24:00, 13 June	624,005	33.0	7.6	5.6	2.4	4.4	1	115	5.2	0.06	4.8	<0.01	140
	6:00, 14 June	700,192	32.0	7.7	5.4	1.7	3.5	8	120	4.9	0.24	4.5	<0.01	88
	Daily Flow (m3/day)	Maximum	33.5	7.9	6.4	2.4	4.4	8	125	5.2	0.24	4.8	0.00	210
		Minimum	32.0	7.6	5.4	1.6	2.6	1	105	4.9	0.00	3.3	0.00	88
		Arith. Mean	32.9	7.7	5.9	2.0	3.7	3	116	5.1	0.08	4.4	0.00	162
	2,197,083	Geom. Mean	32.8	7.7	5.8	2.0	3.8	4	116	5.1	0.10	4.4	0.00	151
		Pollution Load	–	–	–	4.37	8.31	7.77	255.53	11.17	0.21	9.73	0.00	–
2nd	12:00, 20 June	298,055	32.5	7.5	6.1	3.3	4.8	28	80	7.7	<0.01	6.7	<0.01	5,400
	18:00, 20 June	241,679	32.5	7.5	5.4	2.6	4.8	29	90	6.9	<0.01	5.9	<0.01	260
	24:00, 20 June	228,326	32.5	7.5	5.9	1.6	2.7	29	85	9.5	<0.01	14.4	<0.01	5,400
	6:00, 21 June	373,673	31.0	7.5	6.2	2.3	2.9	19	85	6.7	<0.01	6.4	<0.01	5,400
	Daily Flow (m3/day)	Maximum	32.5	7.5	6.2	3.3	4.8	29	90	9.5	0.00	14.4	0.00	5,400
		Minimum	31.0	7.5	5.4	1.6	2.7	19	80	6.7	0.00	5.9	0.00	260
		Arith. Mean	32.1	7.5	5.9	2.5	3.8	26	85	7.7	0.00	8.4	0.00	4,115
	1,141,733	Geom. Mean	32.0	7.5	5.9	2.5	3.8	25	85	7.6	0.00	8.0	0.00	4,312
		Pollution Load	–	–	–	2.84	4.29	29.08	96.77	8.64	0.00	9.10	0.00	–
Avg.	Daily Flow (m3/day)	Arith. Mean	32.5	7.6	5.9	2.2	3.8	15	101	6.4	0.04	6.4	0.00	2,139
		Geom. Mean	32.4	7.6	5.9	2.2	3.8	15	101	6.3	0.05	6.2	0.00	2,232
	1,669,408	Pollution Load	–	–	–	3.60	6.30	18.42	176.15	9.90	0.11	9.42	0.00	–

Table 3.4.2.1 (7) Quality of River Water

Station No. 7 (Lopburi river, Lopburi) (unit: Pollution Load ton/day)

Time, Date \ Item (unit)		Flow Rate (m3/6hrs.)	Water Temp. (deg.C)	pH	DO (mg/l)	BOD (mg/l)	COD (mg/l)	SS (mg/l)	Alkal. as CaCO3 (mg/l)	Chloride as cl− (mg/l)	Nitrate as NO3− (mg/l)	Sulfate as SO4= (mg/l)	Ammonia as NH3−N (mg/l)	Coliform Group (MPN/100ml)
1st	12:00, 13 June	32,316	31.5	7.0	4.0	2.9	7.0	35	100	10.2	0.42	8.2	1.34	23,000
	18:00, 13 June	31,527	31.0	7.0	4.2	1.9	2.6	19	100	13.6	0.16	8.0	0.42	23,000
	24:00, 13 June	32,653	30.0	7.0	3.7	1.9	4.4	3	100	12.5	0.38	8.4	0.56	17,000
	6:00, 14 June	37,626	30.0	7.0	3.3	2.1	6.2	6	100	16.2	0.06	8.4	0.56	17,000
	Daily Flow (m3/day)	Maximum	31.5	7.0	4.2	2.9	7.0	35	100	16.2	0.42	8.4	1.34	23,000
		Minimum	30.0	7.0	3.3	1.9	2.6	3	100	10.2	0.06	8.0	0.42	17,000
		Arith. Mean	30.6	7.0	3.8	2.2	5.1	16	100	13.1	0.26	8.3	0.72	20,000
	134,122	Geom. Mean	30.6	7.0	3.8	2.2	5.1	15	100	13.2	0.25	8.3	0.72	19,856
		Pollution Load	−	−	−	0.29	0.69	2.05	13.41	1.78	0.03	1.11	0.10	−
2nd	12:00, 20 June	38,484	32.0	7.0	3.2	3.4	13.5	47	110	35.0	0.02	25.4	0.56	540,000
	18:00, 20 June	41,994	32.0	7.0	3.3	4.1	14.0	40	115	32.7	<0.01	23.4	0.56	24,000
	24:00, 20 June	35,334	31.0	7.0	2.5	3.0	11.4	31	115	43.2	0.02	23.6	0.56	54,000
	6:00, 21 June	34,308	30.0	7.0	2.6	3.7	12.6	45	130	43.9	0.01	23.4	0.56	240,000
	Daily Flow (m3/day)	Maximum	32.0	7.0	3.3	4.1	14.0	47	130	43.9	0.02	25.4	0.56	540,000
		Minimum	30.0	7.0	2.5	3.0	11.4	31	110	32.7	0.00	23.4	0.56	24,000
		Arith. Mean	31.3	7.0	2.9	3.6	12.9	41	118	38.7	0.01	24.0	0.56	214,500
	150,120	Geom. Mean	31.3	7.0	2.9	3.6	12.9	41	117	38.3	0.01	24.0	0.56	212,704
		Pollution Load	−	−	−	0.54	1.94	6.13	17.59	5.75	0.00	3.60	0.08	−
Avg.	Daily Flow (m3/day)	Arith. Mean	30.9	7.0	3.4	2.9	9.0	28	109	25.9	0.13	16.1	0.64	117,250
		Geom. Mean	31.0	7.0	3.4	2.9	9.0	28	109	25.8	0.13	16.1	0.64	116,280
	142,121	Pollution Load	−	−	−	0.42	1.31	4.09	15.50	3.76	0.02	2.35	0.09	−

Table 3.4.2.1 (8) Quality of River Water

Station No. 8 (Lopburi river, Ayutthaya, before joining with Pasak river) (unit: Pollution Load ton/day)

Time, Date	Item \(unit)	Flow Rate (m3/6hrs.)	Water Temp. (deg.C)	pH	DO (mg/l)	BOD (mg/l)	COD (mg/l)	SS (mg/l)	Alkal. as CaCO3 (mg/l)	Chloride as cl− (mg/l)	Nitrate as NO3− (mg/l)	Sulfate as SO4= (mg/l)	Ammonia as NH3−N (mg/l)	Coliform Group (MPN/100ml)
1st*	12:00, 13 June	306,095	33.0	7.5	6.8	1.1	1.9	7	90	11.6	0.03	14.7	<0.01	17,000
	18:00, 13 June	430,170	31.5	7.1	4.4	1.1	1.6	15	100	11.4	0.11	16.9	<0.01	17,000
	24:00, 13 June	−72,214	31.0	7.1	4.4	1.1	1.7	18	100	10.1	0.03	16.6	<0.01	2,000
	6:00, 14 June	−18,130	32.0	7.5	5.4	1.1	1.6	13	90	6.6	0.12	14.9	<0.01	2,000
	Daily Flow (m3/day)	Maximum	33.0	7.5	6.8	1.1	1.9	18	100	11.6	0.12	16.9	0.00	17,000
		Minimum	31.0	7.1	4.4	1.1	1.6	7	90	6.6	0.03	14.7	0.00	2,000
		Arith. Mean	31.9	7.3	5.3	1.1	1.7	13	95	9.9	0.07	15.8	0.00	9,500
	645,921	Geom. Mean	32.3	7.3	5.5	1.1	1.7	11	96	11.8	0.08	15.9	0.00	19,098
		Pollution Load	−	−	−	0.71	1.12	7.06	61.71	7.61	0.05	10.30	0.00	−
2nd	12:00, 20 June	306,095	31.0	7.8	4.4	0.9	6.6	11	100	14.1	0.04	18.2	<0.01	24,000
	18:00, 20 June	430,170	31.0	7.5	2.6	2.3	7.4	23	90	12.4	0.23	14.1	<0.01	3,300
	24:00, 20 June	−72,214	31.0	7.7	2.9	1.0	7.6	28	90	17.0	<0.01	23.1	<0.01	2,700
	6:00, 21 June	−18,130	32.0	8.0	4.0	1.0	6.8	19	100	12.9	<0.01	19.6	<0.01	24,000
	Daily Flow (m3/day)	Maximum	32.0	8.0	4.4	2.3	7.6	28	100	17.0	0.23	23.1	0.00	24,000
		Minimum	31.0	7.5	2.6	0.9	6.6	11	90	12.4	0.00	14.1	0.00	2,700
		Arith. Mean	31.3	7.8	3.5	1.3	7.1	20	95	14.1	0.07	18.8	0.00	13,500
	645,921	Geom. Mean	31.0	7.6	3.4	1.8	7.0	17	94	12.7	0.17	14.9	0.00	12,596
		Pollution Load	−	−	−	1.17	4.53	10.89	61.01	8.19	0.11	9.61	0.00	−
Avg.	Daily Flow (m3/day)	Arith. Mean	31.6	7.5	4.4	1.2	4.4	17	95	12.0	0.07	17.3	0.00	11,500
		Geom. Mean	31.6	7.4	4.4	1.5	4.4	14	95	12.2	0.13	15.4	0.00	15,847
	645,921	Pollution Load	−	−	−	0.94	2.82	8.98	61.36	7.90	0.08	9.96	0.00	−

*: Flow data of 2nd measurement was used.

Table 3.4.2.1 (9) Quality of River Water

Station No. 9 (Pasak river, Ayutthaya, before joining with Lopburi river) (unit: Pollution Load ton/day)

Time, Date	Item \(unit)	Flow Rate (m3/6hrs.)	Water Temp. (deg.C)	pH	DO (mg/l)	BOD (mg/l)	COD (mg/l)	SS (mg/l)	Alkal. as CaCO3 (mg/l)	Chloride as cl− (mg/l)	Nitrate as NO3− (mg/l)	Sulfate as SO4= (mg/l)	Ammonia as NH3−N (mg/l)	Coliform Group (MPN/100ml)
1st*	12:00, 13 June	631,619	32.0	8.2	6.2	1.0	5.6	13	95	6.1	0.07	15.1	<0.01	170,000
	18:00, 13 June	529,691	32.0	8.1	5.7	1.1	2.1	47	90	8.6	0.07	16.9	<0.01	5,000
	24:00, 13 June	−275,530	31.5	7.8	4.0	1.4	3.6	21	105	14.1	0.11	16.4	<0.01	2,000
	6:00, 14 June	−62,570	33.0	8.1	5.5	0.9	2.8	16	90	6.1	0.06	15.1	<0.01	5,000
	Daily Flow (m3/day)	Maximum	33.0	8.2	6.2	1.4	5.6	47	105	14.1	0.11	16.9	0.00	170,000
		Minimum	31.5	7.8	4.0	0.9	2.1	13	90	6.1	0.06	15.1	0.00	2,000
		Arith. Mean	32.1	8.0	5.4	1.1	3.5	24	95	8.7	0.08	15.9	0.00	45,500
	823,210	Geom. Mean	32.1	8.3	6.7	0.9	4.2	32	89	5.0	0.06	15.8	0.00	132,603
		Pollution Load	−	−	−	0.77	3.48	26.32	73.11	4.14	0.05	13.03	0.00	−
2nd	12:00, 20 June	631,619	32.0	7.7	4.2	1.2	5.7	20	100	15.4	<0.01	19.1	<0.01	13,000
	18:00, 20 June	529,691	31.0	7.7	3.4	2.0	10.2	114	100	28.4	0.02	28.4	<0.01	17,000
	24:00, 20 June	−275,530	31.0	7.7	2.9	1.7	7.7	27	90	19.8	0.07	24.4	<0.01	4,600
	6:00, 21 June	−62,570	32.0	7.9	4.4	1.6	6.3	22	100	12.5	0.01	17.2	<0.01	13,000
	Daily Flow (m3/day)	Maximum	32.0	7.9	4.4	2.0	10.2	114	100	28.4	0.07	28.4	0.00	17,000
		Minimum	31.0	7.7	2.9	1.2	5.7	20	90	12.5	0.00	17.2	0.00	4,600
		Arith. Mean	31.5	7.8	3.7	1.6	7.5	46	98	19.0	0.03	22.3	0.00	11,900
	823,210	Geom. Mean	31.7	7.7	4.1	1.5	7.9	78	103	22.5	−0.01	23.5	0.00	18,385
		Pollution Load	−	−	−	1.25	6.49	64.20	85.08	18.53	−0.01	19.31	0.00	−
Avg.	Daily Flow (m3/day)	Arith. Mean	31.8	7.9	4.5	1.4	5.5	35	96	13.9	0.05	19.1	0.00	28,700
		Geom. Mean	31.9	8.0	5.4	1.2	6.1	55	96	13.8	0.02	19.6	0.00	75,494
	823,210	Pollution Load	−	−	−	1.01	4.98	45.26	79.10	11.34	0.02	16.17	0.00	−

*: Flow data of 2nd measurement was used.

Table 3.4.2.1 (10) Quality of River Water

Station No. 10 (Noi river, Bang Sai, before joining with Main river) (unit: Pollution Load ton/day)

Time, Date \ Item (unit)		Flow Rate (m3/6hrs.)	Water Temp. (deg.C)	pH	DO (mg/l)	BOD (mg/l)	COD (mg/l)	SS (mg/l)	Alkal. as CaCO3 (mg/l)	Chloride as cl− (mg/l)	Nitrate as NO3− (mg/l)	Sulfate as SO4= (mg/l)	Ammonia as NH3−N (mg/l)	Coliform Group (MPN/100ml)
1st*	12:00, 13 June	2,002,063	32.0	7.1	6.3	0.1	4.7	64	85	8.6	0.09	18.2	<0.01	5,000
	18:00, 13 June	3,240,338	31.0	6.9	4.2	0.7	4.4	82	85	7.3	0.12	16.7	<0.01	2,000
	24:00, 13 June	−4,213,664	31.0	6.8	4.8	0.1	9.6	72	90	7.7	0.11	18.2	<0.01	2,000
	6:00, 14 June	1,676,254	32.0	6.9	6.2	0.9	6.7	84	95	8.2	0.17	18.6	<0.01	200
	Daily Flow (m3/day)	Maximum	32.0	7.1	6.3	0.9	9.6	84	95	8.6	0.17	18.6	0.00	5,000
		Minimum	31.0	6.8	4.2	0.1	4.4	64	85	7.3	0.09	16.7	0.00	200
		Arith. Mean	31.5	6.9	5.4	0.5	6.4	76	89	8.0	0.12	17.9	0.00	2,300
	2,704,991	Geom. Mean	32.4	7.2	6.1	1.3	−2.1	85	83	8.2	0.14	16.7	0.00	3,105
		Pollution Load	−	−	−	3.56	−5.55	231.26	225.62	22.17	0.39	45.04	0.00	−
2nd	12:00, 20 June	2,002,063	33.0	7.8	6.1	0.7	7.2	50	95	8.2	0.05	21.6	<0.01	7,900
	18:00, 20 June	3,240,338	32.0	7.8	5.2	0.6	7.7	48	90	8.1	0.07	20.7	<0.01	2,100
	24:00, 20 June	−4,213,664	28.0	7.3	4.8	0.8	6.9	75	100	9.1	0.03	17.6	<0.01	4,900
	6:00, 21 June	1,676,254	29.0	7.6	4.4	1.5	7.0	95	95	9.5	<0.01	18.4	<0.01	3,300
	Daily Flow (m3/day)	Maximum	33.0	7.8	6.1	1.5	7.7	95	100	9.5	0.07	21.6	0.00	7,900
		Minimum	28.0	7.3	4.4	0.6	6.9	48	90	8.1	0.00	17.6	0.00	2,100
		Arith. Mean	30.5	7.6	5.1	0.9	7.2	67	95	8.7	0.04	19.6	0.00	4,550
	2,704,991	Geom. Mean	37.1	8.5	6.0	0.9	8.1	37	81	7.5	0.07	24.8	0.00	2,775
		Pollution Load	−	−	−	2.49	22.02	98.86	219.70	20.24	0.20	67.00	0.00	−
Avg.	Daily Flow (m3/day)	Arith. Mean	31.0	7.3	5.3	0.7	6.8	71	92	8.3	0.08	18.8	0.00	3,425
		Geom. Mean	34.7	7.8	6.0	1.1	3.0	61	82	7.8	0.11	20.7	0.00	2,940
	2,704,991	Pollution Load	−	−	−	3.02	8.24	165.06	222.66	21.21	0.30	56.02	0.00	−

*: Flow data of 2nd measurement was used.

Table 3.4.2.1 (11) Quality of River Water

Station No. 11 (Drainage Channel, Ang Thong)

(unit: Pollution Load ton/day)

Time, Date \ Item (unit)		Flow Rate (m3/6hrs.)	Water Temp. (deg.C)	pH	DO (mg/l)	BOD (mg/l)	COD (mg/l)	SS (mg/l)	Alkal. as CaCO3 (mg/l)	Chloride as cl− (mg/l)	Nitrate as NO3− (mg/l)	Sulfate as SO4= (mg/l)	Ammonia as NH3−N (mg/l)	Coliform Group (MPN/100ml)
1st	12:00, 13 June	42,337	34.0	7.4	7.7	2.7	5.3	52	90	3.3	0.06	7.2	<0.01	270,000
	18:00, 13 June	41,688	33.0	7.3	6.6	2.1	14.1	119	85	2.5	0.08	11.4	<0.01	20,000
	24:00, 13 June	39,121	31.0	7.2	5.0	1.6	19.9	42	85	2.8	0.08	6.9	<0.01	2,400
	6:00, 14 June	41,414	30.0	7.1	4.4	1.4	19.0	40	85	2.0	0.08	8.0	<0.01	380
	Daily Flow (m3/day)	Maximum	34.0	7.4	7.7	2.7	19.9	119	90	3.3	0.08	11.4	0.00	270,000
		Minimum	30.0	7.1	4.4	1.4	5.3	40	85	2.0	0.06	6.9	0.00	380
		Arith. Mean	32.0	7.3	5.9	2.0	14.6	63	86	2.7	0.08	8.4	0.00	73,195
	164,560	Geom. Mean	32.0	7.3	5.9	2.0	14.4	64	86	2.7	0.07	8.4	0.00	75,197
		Pollution Load	–	–	–	0.32	2.38	10.46	14.20	0.44	0.01	1.38	0.00	–
2nd	12:00, 20 June	49,695	32.5	7.6	7.2	4.0	6.7	25	90	5.8	0.02	5.0	<0.01	24,000
	18:00, 20 June	52,509	34.0	7.6	8.0	3.1	6.9	44	100	6.0	<0.01	4.7	<0.01	54,000
	24:00, 20 June	50,099	32.0	7.4	6.2	3.3	8.0	25	95	6.5	<0.01	5.0	<0.01	13,000
	6:00, 21 June	39,738	31.0	7.6	5.3	3.1	4.0	21	95	6.5	0.07	5.4	<0.01	35,000
	Daily Flow (m3/day)	Maximum	34.0	7.6	8.0	4.0	8.0	44	100	6.5	0.07	5.4	0.00	54,000
		Minimum	31.0	7.4	5.3	3.1	4.0	21	90	5.8	0.00	4.7	0.00	13,000
		Arith. Mean	32.4	7.6	6.7	3.4	6.4	29	95	6.2	0.02	5.0	0.00	31,500
	192,041	Geom. Mean	32.5	7.5	6.8	3.4	6.5	29	95	6.2	0.02	5.0	0.00	31,609
		Pollution Load	–	–	–	0.65	1.26	5.64	18.26	1.19	0.00	0.96	0.00	–
Avg	Daily Flow (m3/day)	Arith. Mean	32.2	7.4	6.3	2.7	10.5	46	91	4.4	0.05	6.7	0.00	52,348
		Geom. Mean	32.2	7.4	6.4	2.7	10.5	46	91	4.4	0.05	6.7	0.00	53,403
	178,301	Pollution Load	–	–	–	0.49	1.82	8.05	16.23	0.81	0.01	1.17	0.00	–

Table 3.4.2.1 (12) Quality of River Water

Station No. 12 (Drainage Channel, Ayutthaya) (unit: Pollution Load ton/day)

Time, Date	Item \(unit)	Flow Rate (m3/6hrs.)	Water Temp. (deg.C)	pH	DO (mg/l)	BOD (mg/l)	COD (mg/l)	SS (mg/l)	Alkal. as CaCO3 (mg/l)	Chloride as cl− (mg/l)	Nitrate as NO3− (mg/l)	Sulfate as SO4= (mg/l)	Ammonia as NH3−N (mg/l)	Coliform Group (MPN/100ml)
	12:00, 13 June	274,577	32.0	7.2	5.6	0.7	8.8	47	85	5.9	0.09	17.2	<0.01	2,400
	18:00, 13 June	394,056	31.0	7.1	5.3	1.0	5.3	102	85	6.2	0.16	18.6	<0.01	2,400
	24:00, 13 June	−444,343	31.0	7.4	5.5	1.2	5.3	49	95	5.9	0.08	16.7	<0.01	2,000
	6:00, 14 June	434,855	32.0	7.2	6.6	0.5	4.4	48	85	5.4	0.04	17.2	<0.01	240
1st														
	Daily Flow (m3/day)	Maximum	32.0	7.4	6.6	1.2	8.8	102	95	6.2	0.16	18.6	0.00	2,400
		Minimum	31.0	7.1	5.3	0.5	4.4	47	85	5.4	0.04	16.7	0.00	240
		Arith. Mean	31.5	7.2	5.8	0.9	6.0	62	88	5.9	0.09	17.4	0.00	1,760
	659,145	Geom. Mean	32.1	7.0	6.1	0.4	6.2	79	78	5.7	0.11	18.4	0.00	1,245
		Pollution Load	−	−	−	0.27	4.06	52.20	51.58	3.79	0.07	12.11	0.00	−
	12:00, 20 June	369,549	32.0	7.7	6.4	1.6	6.9	32	95	7.6	0.01	19.7	<0.01	13,000
	18:00, 20 June	566,266	31.0	7.7	5.1	1.1	7.0	92	90	7.4	0.11	19.7	<0.01	3,300
	24:00, 20 June	781,333	30.0	7.7	6.1	1.0	5.1	40	95	7.6	0.03	18.1	<0.01	35,000
	6:00, 21 June	625,129	30.0	7.8	4.6	1.0	5.7	71	90	7.7	0.04	21.8	<0.01	3,400
2nd														
	Daily Flow (m3/day)	Maximum	32.0	7.8	6.4	1.6	7.0	92	95	7.7	0.11	21.8	0.00	35,000
		Minimum	30.0	7.7	4.6	1.0	5.1	32	90	7.4	0.01	18.1	0.00	3,300
		Arith. Mean	30.8	7.7	5.6	1.2	6.2	59	93	7.6	0.05	19.8	0.00	13,675
	2,342,277	Geom. Mean	30.6	7.7	5.5	1.1	6.0	60	92	7.6	0.05	19.7	0.00	15,432
		Pollution Load	−	−	−	2.62	14.06	139.56	216.56	17.75	0.11	46.21	0.00	−
	Daily Flow	Arith. Mean	31.1	7.5	5.7	1.0	6.1	60	90	6.7	0.07	18.6	0.00	7,718
Avg	(m3/day)	Geom. Mean	31.3	7.4	5.8	0.8	6.1	69	85	6.7	0.08	19.1	0.00	8,338
	1,500,711	Pollution Load	−	−	−	1.45	9.06	95.88	134.07	10.77	0.09	29.16	0.00	−

Table 3.4.2.1 (13) Quality of River Water

Station No. 13 (Drainage Channel, Ayutthaya) (unit: Pollution Load ton/day)

	Time, Date \ Item (unit)	Flow Rate (m3/6hrs.)	Water Temp. (deg.C)	pH	DO (mg/l)	BOD (mg/l)	COD (mg/l)	SS (mg/l)	Alkal. as CaCO3 (mg/l)	Chloride as cl− (mg/l)	Nitrate as NO3− (mg/l)	Sulfate as SO4= (mg/l)	Ammonia as NH3−N (mg/l)	Coliform Group (MPN/100ml)
1st	12:00, 13 June	1,368	32.0	7.1	1.9	7.1	22.0	20	310	49.2	0.17	31.8	8.12	170,000
	18:00, 13 June	2,498	31.0	7.1	0.0	11.2	122.0	9	320	60.6	0.03	28.3	9.80	2,400,000
	24:00, 13 June	2,500	29.0	7.0	0.0	12.7	123.0	9	320	54.3	0.06	26.6	9.24	3,500,000
	6:00, 14 June	3,233	28.0	7.1	0.0	11.5	123.0	10	300	48.0	0.04	28.6	8.12	330,000
	Daily Flow (m3/day)	Maximum	32.0	7.1	1.9	12.7	123.0	20	320	60.6	0.17	31.8	9.80	3,500,000
		Minimum	28.0	7.0	0.0	7.1	22.0	9	300	48.0	0.03	26.6	8.12	170,000
		Arith. Mean	30.0	7.1	0.5	10.6	97.5	12	313	53.0	0.08	28.8	8.82	1,600,000
	9,599	Geom. Mean	29.6	7.1	0.3	11.1	108.3	11	312	53.1	0.06	28.5	8.85	1,671,492
		Pollution Load	–	–	–	0.11	1.04	0.10	2.99	0.51	0.00	0.27	0.08	–
2nd	12:00, 20 June	1,181	33.0	7.5	2.7	13.5	28.7	11	270	45.0	0.08	34.1	6.16	1,300,000
	18:00, 20 June	1,078	34.0	7.6	0.7	21.3	39.2	4	315	55.4	0.03	36.8	7.56	9,200,000
	24:00, 20 June	1,224	29.0	7.3	0.0	25.5	44.5	8	325	50.8	<0.01	33.8	7.28	16,000,000
	6:00, 21 June	1,293	28.0	7.6	0.0	17.9	37.8	1	285	44.5	0.03	31.6	7.00	3,500,000
	Daily Flow (m3/day)	Maximum	34.0	7.6	2.7	25.5	44.5	11	325	55.4	0.08	36.8	7.56	16,000,000
		Minimum	28.0	7.3	0.0	13.5	28.7	1	270	44.5	0.00	31.6	6.16	1,300,000
		Arith. Mean	31.0	7.5	0.9	19.6	37.6	6	299	48.9	0.04	34.1	7.00	7,500,000
	4,776	Geom. Mean	30.8	7.5	0.8	19.5	37.6	6	298	48.7	0.03	34.0	6.99	7,446,064
		Pollution Load	–	–	–	0.09	0.18	0.03	1.42	0.23	0.00	0.16	0.03	–
Avg.	Daily Flow (m3/day)	Arith. Mean	30.5	7.3	0.7	15.1	67.5	9	306	51.0	0.06	31.5	7.91	4,550,000
		Geom. Mean	30.2	7.3	0.5	15.3	73.0	8	305	50.9	0.05	31.2	7.92	4,558,778
	7,188	Pollution Load	–	–	–	0.10	0.61	0.07	2.21	0.37	0.00	0.22	0.06	–

Table 3.4.2.1 (14) Quality of River Water

Station No. 14 (Drainage Channel, Pathum Thani) (unit: Pollution Load ton/day)

Time, Date \(unit)	Item	Flow Rate (m3/6hrs.)	Water Temp. (deg.C)	pH	DO (mg/l)	BOD (mg/l)	COD (mg/l)	SS (mg/l)	Alkal. as CaCO3 (mg/l)	Chloride as cl− (mg/l)	Nitrate as NO3− (mg/l)	Sulfate as SO4= (mg/l)	Ammonia as NH3−N (mg/l)	Coliform Group (MPN/100ml)
12:00, 13 June		690	33.0	6.9	1.2	2.3	88.0	26	100	75.1	0.26	30.5	3.58	310,000
18:00, 13 June		2,025	32.0	6.8	0.0	70.0	278.0	99	420	143.0	<0.01	32.0	21.30	3,500,000
24:00, 13 June		−11	29.0	7.0	4.2	0.5	4.4	61	90	5.7	0.12	19.9	0.20	460
6:00, 14 June		102	29.5	6.7	0.3	3.1	9.7	37	120	22.1	0.09	24.9	1.96	220,000
1st	Daily Flow (m3/day)	Maximum	33.0	7.0	4.2	70.0	278.0	99	420	143.0	0.26	32.0	21.30	3,500,000
		Minimum	29.0	6.7	0.0	0.5	4.4	26	90	5.7	0.00	19.9	0.20	460
		Arith. Mean	30.9	6.9	1.4	19.0	95.0	56	183	61.5	0.12	26.8	6.76	1,007,615
	2,806	Geom. Mean	32.2	6.8	0.3	51.2	222.6	79	332	122.4	0.07	31.4	16.32	2,610,062
		Pollution Load	−	−	−	0.14	0.62	0.22	0.93	0.34	0.00	0.09	0.05	−
12:00, 20 June		690	32.0	7.2	0.0	18.8	43.1	71	225	57.0	0.05	31.8	7.28	9,200,000
18:00, 20 June		2,025	30.0	6.3	0.0	78.0	143.0	124	440	16.2	0.02	38.5	19.90	16,000,000
24:00, 20 June		−11	29.0	7.6	2.4	1.7	5.7	79	95	11.4	0.02	21.6	<0.01	700,000
6:00, 21 June		102	28.5	7.5	2.7	2.0	5.1	51	100	17.3	0.07	23.6	0.28	490,000
2nd	Daily Flow (m3/day)	Maximum	32.0	7.6	2.7	78.0	143.0	124	440	57.0	0.07	38.5	19.90	16,000,000
		Minimum	28.5	6.3	0.0	1.7	5.1	51	95	11.4	0.02	21.6	0.00	490,000
		Arith. Mean	29.9	7.2	1.3	25.1	49.2	81	215	25.5	0.04	28.9	6.86	6,597,500
	2,806	Geom. Mean	30.4	6.6	0.1	61.0	114.0	108	376	26.3	0.03	36.4	16.16	13,824,048
		Pollution Load	−	−	−	0.17	0.32	0.30	1.06	0.07	0.00	0.10	0.05	−
Avg.	Daily Flow (m3/day)	Arith. Mean	30.4	7.0	1.4	22.1	72.1	69	199	43.5	0.08	27.9	6.81	3,802,558
		Geom. Mean	31.3	6.7	0.2	56.1	168.3	94	354	74.4	0.05	33.9	16.24	8,217,055
	2,806	Pollution Load	−	−	−	0.16	0.47	0.26	0.99	0.21	0.00	0.10	0.05	−

*: Flow data of 1st measurement was used.

Table 3.4.2.1 (15) Quality of River Water

Station No. 15 (Drainage Channel, Nonthaburi) (unit: Pollution Load ton/day)

Time, Date \ Item (unit)		Flow Rate (m3/6hrs.)	Water Temp. (deg.C)	pH	DO (mg/l)	BOD (mg/l)	COD (mg/l)	SS (mg/l)	Alkal. as CaCO3 (mg/l)	Chloride as cl− (mg/l)	Nitrate as NO3− (mg/l)	Sulfate as SO4= (mg/l)	Ammonia as NH3−N (mg/l)	Coliform Group (MPN/100ml)
1st	12:00, 13 June	596	32.5	6.9	0.0	122.0	213.0	87	255	112.0	0.05	33.6	19.30	16,000,000
	18:00, 13 June	3,071	30.0	6.7	0.0	44.0	191.0	104	200	465.0	0.09	35.1	13.20	9,200,000
	24:00, 13 June	4,168	31.0	6.8	0.7	5.0	40.5	15	115	94.1	0.84	53.7	2.27	70,000
	6:00, 14 June	2,078	29.0	6.8	0.0	37.0	123.0	14	215	99.1	0.01	35.0	13.40	9,200,000
	Daily Flow (m3/day)	Maximum	32.5	6.9	0.7	122.0	213.0	104	255	465.0	0.84	53.7	19.30	16,000,000
		Minimum	29.0	6.7	0.0	5.0	40.5	14	115	94.1	0.01	33.6	2.27	70,000
		Arith. Mean	30.6	6.8	0.2	52.0	141.9	55	196	192.6	0.25	39.4	12.04	8,617,500
	9,913	Geom. Mean	30.4	6.8	0.3	30.8	114.8	47	171	211.1	0.39	42.8	9.01	5,770,055
		Pollution Load	–	–	–	0.31	1.14	0.46	1.69	2.09	0.00	0.42	0.09	–
2nd	12:00, 20 June	2,305	32.0	6.7	0.0	133.0	217.0	112	300	163.0	0.02	42.7	26.90	24,000,000
	18:00, 20 June	2,914	30.0	6.9	0.0	95.0	193.0	57	295	103.0	0.06	45.0	23.50	17,000,000
	24:00, 20 June	6,413	29.5	7.1	0.0	28.3	38.5	13	140	104.0	0.11	46.9	4.76	17,000,000
	6:00, 21 June	2,773	29.0	7.0	0.0	77.0	140.0	12	260	76.9	0.03	36.8	18.50	35,000,000
	Daily Flow (m3/day)	Maximum	32.0	7.1	0.0	133.0	217.0	112	300	163.0	0.11	46.9	26.90	35,000,000
		Minimum	29.0	6.7	0.0	28.3	38.5	12	140	76.9	0.02	36.8	4.76	17,000,000
		Arith. Mean	30.1	6.9	0.0	83.3	147.1	49	249	111.7	0.06	42.9	18.42	23,250,000
	14,405	Geom. Mean	29.9	7.0	0.0	67.9	117.9	38	220	108.0	0.07	43.9	14.74	21,585,144
		Pollution Load	–	–	–	0.98	1.70	0.54	3.17	1.56	0.00	0.63	0.21	–
Avg.	Daily Flow (m3/day)	Arith. Mean	30.4	6.9	0.1	67.7	144.5	52	223	152.1	0.15	41.1	15.23	15,933,750
		Geom. Mean	30.1	6.9	0.1	49.4	116.3	42	195	159.6	0.23	43.4	11.88	13,677,600
	12,159	Pollution Load	–	–	–	0.64	1.42	0.50	2.43	1.82	0.00	0.53	0.15	–

Table 3.4.2.2 (1) Quality of River Water

Station No. 1 (Main river, Chainat, befor branching to Noi river) (unit: Pollution Load ton/day)

	Item / Time, Date \(unit)	Flow Rate (m3/6hrs.)	Water Temp. (deg.C)	pH	DO (mg/l)	BOD (mg/l)	COD (mg/l)	SS (mg/l)	Alkal. as CaCO3 (mg/l)	Chloride as cl− (mg/l)	Nitrate as NO3− (mg/l)	Sulfate as SO4= (mg/l)	Ammonia as NH3− (mg/l)	Coliform Group (MPN/100ml)
	12:00, 9 Jan	396,360.00	28.0	7.8	8.0	1.8	4.4	1.0	80.0	6.7	0.7	8.9	<0.01	350
	18:00, 9 Jan	2,220,048.00	27.0	7.9	8.3	2.8	7.4	3.0	85.0	7.1	0.6	9.9	<0.01	500
	0:00, 10 Jan	2,696,112.00	27.0	7.9	7.8	2.5	6.9	5.0	85.0	7.7	1.5	10.5	<0.01	350
	6:00, 10 Jan	2,742,336.00	27.0	7.6	5.7	1.3	4.7	3.0	80.0	7.2	2.2	10.2	<0.01	140
1st														
	Daily Flow (m3/day)	Maximum	28.0	7.9	8.3	2.8	7.4	5.0	85.0	7.7	2.2	10.5	0.00	500
		Minimum	27.0	7.6	5.7	1.3	4.4	1.0	80.0	6.7	0.6	8.9	0.00	140
		Arith. Mean	27.3	7.8	7.5	2.1	5.9	3.0	82.5	7.2	1.2	9.9	0.00	335
	8,054,856	Geom. Mean	27.0	7.8	7.2	2.1	6.2	3.6	83.1	7.3	1.4	10.2	0.00	320
		Pollution Load	−	−	−	17.2	49.7	28.8	669.0	58.9	11.5	81.8	0.00	−
	12:00, 16 Jan	297,216.00	28.5	7.6	6.8	2.7	6.8	10.0	80.0	8.7	0.9	18.7	<0.01	170
	18:00, 16 Jan	356,616.00	28.5	7.8	8.2	3.1	7.9	10.0	85.0	9.0	0.7	19.7	<0.01	170
	0:00, 17 Jan	356,616.00	28.0	7.3	5.7	1.6	2.3	11.0	85.0	8.2	2.9	18.6	<0.01	170
	6:00, 17 Jan	296,352.00	28.0	7.4	5.6	1.8	3.1	7.0	80.0	8.5	0.7	18.9	<0.01	170
2nd														
	Daily Flow (m3/day)	Maximum	28.5	7.8	8.2	3.1	7.9	11.0	85.0	9.0	2.9	19.7	0.00	170
		Minimum	28.0	7.3	5.6	1.6	2.3	7.0	80.0	8.2	0.7	18.6	0.00	170
		Arith. Mean	28.3	7.5	6.6	2.3	5.0	9.5	82.5	8.6	1.3	19.0	0.00	170
	1,306,800	Geom. Mean	28.3	7.5	6.6	2.3	5.0	9.6	82.7	8.6	1.3	19.0	0.00	170
		Pollution Load	−	−	−	3.0	6.6	12.5	108.1	11.2	1.8	24.8	0.00	−
	Daily Flow	Arith. Mean	27.8	7.7	7.0	2.2	5.4	6.3	82.5	7.9	1.3	14.4	0.00	253
Avg	(m3/day)	Geom. Mean	27.6	7.7	6.9	2.2	5.6	6.6	82.9	8.0	1.4	14.6	0.00	245
	4,680,828	Pollution Load	−	−	−	10.1	28.1	20.6	388.5	35.1	6.7	53.3	0.00	−

Table 3.4.2.2 (2) Quality of River Water

Station No. 2 (Main river, Sing Buri, befor branching to Lop Buri river) (unit: Pollution Load ton/day)

	Item / Time, Date \(unit)	Flow Rate (m3/6hrs.)	Water Temp. (deg.C)	pH	DO (mg/l)	BOD (mg/l)	COD (mg/l)	SS (mg/l)	Alkal. as CaCO3 (mg/l)	Chloride as cl− (mg/l)	Nitrate as NO3− (mg/l)	Sulfate as SO4= (mg/l)	Ammonia as NH3− (mg/l)	Coliform Group (MPN/100ml)
1st	12:00, 9 Jan	794,664.00	28.0	7.9	7.9	1.6	4.0	14.0	90.0	8.2	0.5	8.2	<0.01	9,000
	18:00, 9 Jan	398,304.00	28.0	7.9	8.0	1.7	4.0	13.0	85.0	8.1	0.6	8.5	<0.01	550
	0:00, 10 Jan	610,632.00	28.0	7.8	7.8	0.9	1.7	8.0	85.0	7.7	0.5	9.4	<0.01	16,000
	6:00, 10 Jan	368,496.00	27.0	7.7	7.3	1.3	2.3	14.0	85.0	7.7	1.1	9.0	<0.01	8,800
	Daily Flow (m3/day)	Maximum	28.0	7.9	8.0	1.7	4.0	14.0	90.0	8.2	1.1	9.4	0.00	16,000
		Minimum	27.0	7.7	7.3	0.9	1.7	8.0	85.0	7.7	0.5	8.2	0.00	550
		Arith. Mean	27.8	7.8	7.8	1.4	3.0	12.3	86.3	7.9	0.7	8.8	0.00	8,588
	2,172,096	Geom. Mean	27.8	7.8	7.8	1.4	3.1	12.1	86.8	8.0	0.6	8.7	0.00	9,384
		Pollution Load	–	–	–	3.0	6.7	26.3	188.6	17.3	1.3	19.0	0.00	–
2nd	12:00, 16 Jan	324,216.00	29.0	7.7	7.4	2.6	5.2	22.0	85.0	9.7	1.7	15.1	<0.01	450
	18:00, 16 Jan	0.00	29.0	7.6	7.7	1.9	3.5	39.0	90.0	9.1	1.2	16.1	<0.01	1,300
	0:00, 17 Jan	610,632.00	28.0	7.7	7.5	1.7	3.7	19.0	90.0	9.1	1.0	16.2	<0.01	5,500
	6:00, 17 Jan	368,496.00	27.0	7.7	7.5	1.4	3.9	16.0	90.0	9.5	2.9	16.6	<0.01	700
	Daily Flow (m3/day)	Maximum	29.0	7.7	7.7	2.6	5.2	39.0	90.0	9.7	2.9	16.6	0.00	5,500
		Minimum	27.0	7.6	7.4	1.4	3.5	16.0	85.0	9.1	1.0	15.1	0.00	450
		Arith. Mean	28.3	7.7	7.5	1.9	4.1	24.0	88.8	9.4	1.7	16.0	0.00	1,988
	1,303,344	Geom. Mean	28.0	7.7	7.5	1.8	4.1	18.9	88.8	9.4	1.7	16.0	0.00	2,887
		Pollution Load	–	–	–	2.4	5.4	24.6	115.7	12.2	2.3	20.9	0.00	–
Avg	Daily Flow (m3/day)	Arith. Mean	28.0	7.8	7.6	1.6	3.5	18.1	87.5	8.6	1.2	12.4	0.00	5,288
		Geom. Mean	27.9	7.8	7.6	1.6	3.6	15.5	87.8	8.7	1.2	12.4	0.00	6,136
	1,737,720	Pollution Load	–	–	–	2.7	6.0	25.5	152.1	14.7	1.8	19.9	0.00	–

Table 3.4.2.2 (3) Quality of River Water

Station No. 3 (Main river, Ayutthaya, before joining with Pasak river) (unit: Pollution Load ton/day)

Time, Date	Item \(unit)	Flow Rate (m3/6hrs.)	Water Temp. (deg.C)	pH	DO (mg/l)	BOD (mg/l)	COD (mg/l)	SS (mg/l)	Alkal. as CaCO3 (mg/l)	Chloride as Cl− (mg/l)	Nitrate as NO3− (mg/l)	Sulfate as SO4= (mg/l)	Ammonia as NH3− (mg/l)	Coliform Group (MPN/100ml)
1st	12:00, 9 Jan	−514,944.00	29.0	7.7	7.8	1.2	3.0	3.0	90.0	10.3	0.3	12.2	<0.01	4,000
	18:00, 9 Jan	3,008,448.00	28.0	7.2	5.9	1.1	3.7	5.0	95.0	9.6	0.2	13.4	<0.01	35,000
	0:00, 10 Jan	4,060,800.00	24.0	7.4	5.5	1.0	2.0	5.0	85.0	9.9	0.4	11.9	<0.01	1,400
	6:00, 10 Jan	3,768,336.00	26.0	7.4	7.1	1.4	2.7	8.0	90.0	10.4	0.2	14.9	<0.01	400
	Daily Flow (m3/day)	Maximum	29.0	7.7	7.8	1.4	3.7	8.0	95.0	10.4	0.4	14.9	0.00	35,000
		Minimum	24.0	7.2	5.5	1.0	2.0	3.0	85.0	9.6	0.2	11.9	0.00	400
		Arith. Mean	26.8	7.4	6.6	1.2	2.9	5.3	90.0	10.1	0.3	13.1	0.00	10,200
	10,322,640	Geom. Mean	25.6	7.3	6.1	1.2	2.7	6.2	89.5	10.0	0.3	13.4	0.00	10,698
		Pollution Load	−	−	−	12.0	27.9	63.9	923.8	103.0	3.0	136.5	0.00	−
2nd	12:00, 16 Jan	−1,819,800.00	30.0	7.6	5.0	2.5	7.2	23.0	90.0	11.4	0.7	18.2	<0.01	25,000
	18:00, 16 Jan	2,185,272.00	28.0	7.3	4.4	1.8	4.1	15.0	100.0	11.0	0.6	16.9	<0.01	14,000
	0:00, 17 Jan	3,301,776.00	27.0	7.5	5.0	1.1	3.3	19.0	90.0	10.6	0.8	18.4	<0.01	2,500
	6:00, 17 Jan	1,185,840.00	28.0	7.5	5.0	0.9	2.8	9.0	90.0	10.6	0.7	17.1	<0.01	800
	Daily Flow (m3/day)	Maximum	30.0	7.6	5.0	2.5	7.2	23.0	100.0	11.4	0.8	18.4	0.00	25,000
		Minimum	27.0	7.3	4.4	0.9	2.8	9.0	90.0	10.6	0.6	16.9	0.00	800
		Arith. Mean	28.3	7.5	4.9	1.6	4.4	16.5	92.5	10.9	0.7	17.7	0.00	10,575
	4,853,088	Geom. Mean	26.6	7.4	4.7	0.8	2.1	13.3	94.5	10.5	0.8	17.5	0.00	−1,174
		Pollution Load	−	−	−	4.1	10.1	64.3	458.6	50.9	3.7	84.8	0.00	−
Avg	Daily Flow (m3/day)	Arith. Mean	27.5	7.5	5.7	1.4	3.6	10.9	91.3	10.5	0.5	15.4	0.00	10,388
		Geom. Mean	26.1	7.3	5.4	1.0	2.4	9.7	92.0	10.2	0.5	15.4	0.00	4,762
	7,587,864	Pollution Load	−	−	−	8.1	19.0	64.1	691.2	76.9	3.3	111.7	0.00	−

Table 3.4.2.2 (4) Quality of River Water

Station No. 4 (Main river, Ayutthaya, after joining with Pasak river) (unit: Pollution Load ton/day)

	Item / Time, Date \(unit)	Flow Rate (m3/6hrs.)	Water Temp. (deg.C)	pH	DO (mg/l)	BOD (mg/l)	COD (mg/l)	SS (mg/l)	Alkal. as CaCO3 (mg/l)	Chloride as cl− (mg/l)	Nitrate as NO3− (mg/l)	Sulfate as SO4= (mg/l)	Ammonia as NH3− (mg/l)	Coliform Group (MPN/100ml)
1st	12:00, 9 Jan	−4,849,848.00	28.0	7.2	6.1	2.5	7.7	4.0	95.0	11.7	0.3	11.9	<0.01	11,000
	18:00, 9 Jan	6,512,400.00	28.0	7.6	5.9	2.4	6.7	5.0	95.0	10.3	0.2	13.2	<0.01	3,500
	0:00, 10 Jan	8,111,016.00	28.0	7.2	6.1	2.0	4.7	4.0	95.0	10.8	0.2	11.5	<0.01	25,000
	6:00, 10 Jan	6,388,632.00	27.0	7.2	5.9	2.1	5.0	25.0	100.0	12.1	0.1	11.0	<0.01	25,000
	Daily Flow (m3/day)	Maximum	28.0	7.6	6.1	2.5	7.7	25.0	100.0	12.1	0.3	13.2	0.00	25,000
		Minimum	27.0	7.2	5.9	2.0	4.7	4.0	95.0	10.3	0.1	11.0	0.00	3,500
		Arith. Mean	27.8	7.3	6.0	2.3	6.0	9.5	96.3	11.2	0.2	11.9	0.00	16,125
	16,162,200	Geom. Mean	27.6	7.4	5.9	2.1	4.7	12.7	97.0	10.8	0.1	11.9	0.00	20,538
		Pollution Load	−	−	−	33.1	76.4	205.3	1,567.4	175.2	2.1	191.8	0.00	−
2nd	12:00, 16 Jan	−5,383,368.00	29.5	7.2	6.1	2.9	10.9	14.0	100.0	12.5	2.3	15.4	<0.01	90,000
	18:00, 16 Jan	4,398,624.00	29.0	7.6	5.9	2.5	6.2	11.0	100.0	11.5	0.5	16.7	<0.01	17,000
	0:00, 17 Jan	7,564,752.00	28.0	7.2	6.8	2.3	5.9	19.0	95.0	12.4	0.4	16.4	<0.01	7,000
	6:00, 17 Jan	2,465,424.00	28.0	7.2	5.9	2.6	8.2	13.0	105.0	13.0	0.4	13.6	<0.01	1,700
	Daily Flow (m3/day)	Maximum	29.5	7.6	6.8	2.9	10.9	19.0	105.0	13.0	2.3	16.7	0.00	90,000
		Minimum	28.0	7.2	5.9	2.3	5.9	11.0	95.0	11.5	0.4	13.6	0.00	1,700
		Arith. Mean	28.6	7.3	6.2	2.6	7.8	14.3	100.0	12.4	0.9	15.5	0.00	28,925
	9,045,432	Geom. Mean	27.6	7.4	6.5	2.1	3.7	16.5	97.2	12.1	−0.6	16.4	0.00	−38,979
		Pollution Load	−	−	−	19.2	33.4	148.8	879.0	109.1	−5.7	148.1	0.00	−
Avg	Daily Flow (m3/day)	Arith. Mean	28.2	7.3	6.1	2.4	6.9	11.9	98.1	11.8	0.6	13.7	0.00	22,525
		Geom. Mean	27.6	7.4	6.2	2.1	4.2	14.6	97.1	11.5	−0.3	14.1	0.00	−9,221
	12,603,816	Pollution Load	−	−	−	26.2	54.9	177.1	1,223.2	142.2	−1.8	170.0	0.00	−

Table 3.4.2.2 (5) Quality of River Water

Station No. 5 (Main river, Nonthaburi, beside Provincial Office)

(unit: Pollution Load ton/day)

Time, Date	Item (unit)	Flow Rate (m3/6hrs.)	Water Temp. (deg.C)	pH	DO (mg/l)	BOD (mg/l)	COD (mg/l)	SS (mg/l)	Alkal. as CaCO3 (mg/l)	Chloride as Cl− (mg/l)	Nitrate as NO3− (mg/l)	Sulfate as SO4= (mg/l)	Ammonia as NH3− (mg/l)	Coliform Group (MPN/100ml)
1st	12:00, 9 Jan	−18,348,120.00	29.0	6.7	2.0	3.4	12.8	17.0	100.0	14.0	0.5	21.6	<0.01	13,000
	18:00, 9 Jan	13,640,184.00	28.0	6.8	2.3	3.8	13.1	15.0	100.0	13.7	0.3	22.1	<0.01	240,000
	0:00, 10 Jan	36,953,280.00	28.0	6.8	2.6	4.4	16.1	36.0	100.0	11.0	0.3	20.2	<0.01	16,000
	6:00, 10 Jan	−14,289,048.00	28.0	6.8	2.6	3.8	13.8	18.0	100.0	12.7	0.5	16.9	<0.01	140
	Daily Flow (m3/day)	Maximum	29.0	6.8	2.6	4.4	16.1	36.0	100.0	14.0	0.5	22.1	0.00	240,000
		Minimum	28.0	6.7	2.0	3.4	12.8	15.0	100.0	11.0	0.3	16.9	0.00	140
		Arith. Mean	28.3	6.8	2.4	3.9	14.0	21.5	100.0	12.9	0.4	20.2	0.00	67,285
	17,956,296	Geom. Mean	27.0	6.9	3.0	5.4	19.0	53.8	100.0	8.6	−0.2	22.8	0.00	201,844
		Pollution Load	−	−	−	97.7	341.6	965.8	1,795.6	155.0	−3.4	410.1	0.00	−
2nd	12:00, 16 Jan	−30,107,592.00	29.0	7.6	0.8	3.9	19.1	45.0	105.0	16.9	1.4	21.3	<0.01	22,500
	18:00, 16 Jan	31,430,808.00	29.0	7.5	1.3	4.0	17.4	54.0	105.0	16.5	0.6	21.6	<0.01	3,500
	0:00, 17 Jan	17,758,008.00	28.5	7.6	2.0	3.0	13.3	42.0	100.0	15.7	1.0	23.3	<0.01	5,500
	6:00, 17 Jan	−279,720.00	28.5	7.3	1.2	3.5	13.7	32.0	100.0	16.1	1.3	18.7	<0.01	16,000
	Daily Flow (m3/day)	Maximum	29.0	7.6	2.0	4.0	19.1	54.0	105.0	16.9	1.4	23.3	0.00	22,500
		Minimum	28.5	7.3	0.8	3.0	13.3	32.0	100.0	15.7	0.6	18.7	0.00	3,500
		Arith. Mean	28.8	7.5	1.3	3.6	15.9	43.3	102.5	16.3	1.1	21.2	0.00	11,875
	18,801,504	Geom. Mean	28.5	7.4	2.8	3.2	10.9	57.4	100.4	15.1	−0.3	23.7	0.00	−25,222
		Pollution Load	−	−	−	60.6	204.2	1,079.3	1,886.8	284.1	−5.7	446.1	0.00	−
Avg	Daily Flow (m3/day)	Arith. Mean	28.5	7.1	1.9	3.7	14.9	32.4	101.3	14.6	0.7	20.7	0.00	39,580
		Geom. Mean	27.8	7.2	2.9	4.3	14.9	55.6	100.2	11.9	−0.2	23.3	0.00	88,311
	18,378,900	Pollution Load	−	−	−	79.2	272.9	1,022.6	1,841.2	219.5	−4.6	428.1	0.00	−

Table 3.4.2.2 (6) Quality of River Water

Station No. 6 (Noi river, Chainat, after branching from Main river) (unit: Pollution Load ton/day)

Time, Date	Item \(unit)	Flow Rate (m3/6hrs.)	Water Temp. (deg.C)	pH	DO (mg/l)	BOD (mg/l)	COD (mg/l)	SS (mg/l)	Alkal. as CaCO3 (mg/l)	Chloride as cl− (mg/l)	Nitrate as NO3− (mg/l)	Sulfate as SO4= (mg/l)	Ammonia as NH3− (mg/l)	Coliform Group (MPN/100ml)
1st	12:00, 9 Jan	475,632.00	27.0	7.6	3.4	2.8	7.7	16.0	85.0	6.8	0.2	10.5	<0.01	2,000
	18:00, 9 Jan	379,728.00	27.0	7.4	6.0	2.9	7.7	13.0	80.0	7.3	0.3	9.9	<0.01	1,400
	0:00, 10 Jan	605,448.00	27.0	7.6	6.2	3.0	8.4	10.0	85.0	7.3	0.3	9.7	<0.01	1,100
	6:00, 10 Jan	583,200.00	27.0	7.4	5.8	1.3	8.1	9.0	85.0	6.8	0.1	11.7	<0.01	1,400
	Daily Flow (m3/day)	Maximum	27.0	7.6	6.2	3.0	8.4	16.0	85.0	7.3	0.3	11.7	0.00	2,000
		Minimum	27.0	7.4	3.4	1.3	7.7	9.0	80.0	6.8	0.1	9.7	0.00	1,100
		Arith. Mean	27.0	7.5	5.4	2.5	8.0	12.0	83.8	7.1	0.2	10.5	0.00	1,475
	2,044,008	Geom. Mean	27.0	7.5	5.4	2.4	8.0	11.7	84.1	7.0	0.2	10.5	0.00	1,451
		Pollution Load	–	–	–	5.0	16.4	23.8	171.8	14.4	0.5	21.4	0.00	–
2nd	12:00, 16 Jan	179,712.00	28.5	7.4	6.3	2.2	7.5	24.0	85.0	8.6	0.6	20.1	<0.01	500
	18:00, 16 Jan	173,664.00	28.5	7.4	5.9	3.7	9.8	20.0	85.0	9.1	0.7	18.7	<0.01	500
	0:00, 17 Jan	173,664.00	28.0	7.5	6.7	2.6	6.0	12.0	80.0	8.2	0.4	21.9	<0.01	170
	6:00, 17 Jan	215,352.00	28.0	7.5	6.6	2.2	4.1	10.0	85.0	8.2	0.4	17.9	<0.01	40
	Daily Flow (m3/day)	Maximum	28.5	7.5	6.7	3.7	9.8	24.0	85.0	9.1	0.7	21.9	0.00	500
		Minimum	28.0	7.4	5.9	2.2	4.1	10.0	80.0	8.2	0.4	17.9	0.00	40
		Arith. Mean	28.3	7.5	6.4	2.7	6.9	16.5	83.8	8.5	0.5	19.7	0.00	303
	742,392	Geom. Mean	28.2	7.5	6.4	2.6	6.7	16.2	83.8	8.5	0.5	19.6	0.00	289
		Pollution Load	–	–	–	2.0	5.0	12.0	62.2	6.3	0.4	14.5	0.00	–
Avg	Daily Flow (m3/day)	Arith. Mean	27.6	7.5	5.9	2.6	7.4	14.3	83.8	7.8	0.4	15.0	0.00	889
		Geom. Mean	27.6	7.5	5.9	2.5	7.4	13.9	84.0	7.8	0.4	15.0	0.00	870
	1,393,200	Pollution Load	–	–	–	3.5	10.7	17.9	117.0	10.4	0.4	18.0	0.00	–

Table 3.4.2.2 (7) Quality of River Water

Station No. 7 (Lopburi river, Lopburi) (unit: Pollution Load ton/day)

Time, Date	Item \(unit)	Flow Rate (m3/6hrs.)	Water Temp. (deg.C)	pH	DO (mg/l)	BOD (mg/l)	COD (mg/l)	SS (mg/l)	Alkal. as CaCO3 (mg/l)	Chloride as cl− (mg/l)	Nitrate as NO3− (mg/l)	Sulfate as SO4= (mg/l)	Ammonia as NH3− (mg/l)	Coliform Group (MPN/100ml)
	12:00, 9 Jan	2,808.00	30.0	7.5	6.1	2.7	13.4	23.0	115.0	25.4	0.1	9.9	<0.01	35,000
	18:00, 9 Jan	3,456.00	29.0	7.5	4.8	2.9	16.8	26.0	115.0	10.9	0.3	11.2	<0.01	160,000
	0:00, 10 Jan	0.00	27.0	7.3	3.6	2.6	14.4	5.0	130.0	20.5	0.1	13.7	<0.01	90,000
	6:00, 10 Jan	4,536.00	26.5	7.2	3.2	2.5	13.1	4.0	130.0	20.2	0.4	11.9	<0.01	90,000
1st														
	Daily Flow (m3/day)	Maximum	30.0	7.5	6.1	2.9	16.8	26.0	130.0	25.4	0.4	13.7	0.00	160,000
		Minimum	26.5	7.2	3.2	2.5	13.1	4.0	115.0	10.9	0.1	9.9	0.00	35,000
		Arith. Mean	28.1	7.4	4.4	2.7	14.4	14.5	122.5	19.3	0.2	11.7	0.00	93,750
	10,600	Geom. Mean	28.2	7.4	4.5	2.7	14.4	16.0	121.3	18.6	0.3	11.2	0.00	98,100
		Pollution Load	–	–	–	0.0	0.2	0.2	1.3	0.2	0.0	0.1	0.00	–
	12:00, 16 Jan	432.00	29.0	7.2	4.7	3.7	16.5	24.0	120.0	34.2	1.1	13.6	<0.01	27,500
	18:00, 16 Jan	432.00	29.5	7.1	4.3	2.2	16.0	46.0	120.0	38.7	0.7	14.1	<0.01	35,000
	0:00, 17 Jan	432.00	28.5	7.2	4.4	2.4	15.3	24.0	120.0	38.0	1.0	17.4	<0.01	17,000
	6:00, 17 Jan	216.00	27.0	7.1	4.3	2.3	14.7	24.0	125.0	38.7	1.1	15.6	<0.01	14,000
2nd														
	Daily Flow (m3/day)	Maximum	29.5	7.2	4.7	3.7	16.5	46.0	125.0	38.7	1.1	17.4	0.00	35,000
		Minimum	27.0	7.1	4.3	2.2	14.7	24.0	120.0	34.2	0.7	13.6	0.00	14,000
		Arith. Mean	28.5	7.2	4.4	2.7	15.6	29.5	121.3	37.4	1.0	15.2	0.00	23,375
	1,512	Geom. Mean	28.7	7.2	4.4	2.7	15.8	30.3	120.7	37.2	1.0	15.1	0.00	24,714
		Pollution Load	–	–	–	0.0	0.0	0.0	0.2	0.1	0.0	0.0	0.00	–
	Daily Flow	Arith. Mean	28.3	7.3	4.4	2.7	15.0	22.0	121.9	28.3	0.6	13.4	0.00	58,563
Avg	(m3/day)	Geom. Mean	28.5	7.3	4.5	2.7	15.1	23.1	121.0	27.9	0.6	13.1	0.00	61,407
	6,156	Pollution Load	–	–	–	0.0	0.1	0.1	0.7	0.1	0.0	0.1	0.00	–

Table 3.4.2.2 (8) Quality of River Water

Station No. 8 (Lopburi river, Ayutthaya, before joining with Pasak river) (unit: Pollution Load ton/day)

	Item / Time, Date \(unit)	Flow Rate (m3/6hrs.)	Water Temp. (deg.C)	pH	DO (mg/l)	BOD (mg/l)	COD (mg/l)	SS (mg/l)	Alkal. as CaCO3 (mg/l)	Chloride as cl− (mg/l)	Nitrate as NO3− (mg/l)	Sulfate as SO4= (mg/l)	Ammonia as NH3− (mg/l)	Coliform Group (MPN/100ml)
1st	12:00, 9 Jan	−137,592.00	27.0	7.2	3.2	1.8	12.1	7.0	110.0	13.8	0.2	10.0	<0.01	200
	18:00, 9 Jan	825,552.00	29.0	7.1	3.1	2.5	15.1	8.0	110.0	14.2	0.1	9.2	<0.01	2,500
	0:00, 10 Jan	998,784.00	27.0	7.0	3.1	1.2	14.8	0.5	10.0	13.2	0.1	11.0	<0.01	200
	6:00, 10 Jan	381,240.00	27.0	7.1	2.5	1.0	14.4	9.0	115.0	14.6	0.1	7.7	<0.01	2,000
	Daily Flow (m3/day)	Maximum	29.0	7.2	3.2	2.5	15.1	9.0	115.0	14.6	0.2	11.0	0.00	2,500
		Minimum	27.0	7.0	2.5	1.0	12.1	0.5	10.0	13.2	0.1	7.7	0.00	200
		Arith. Mean	27.5	7.1	3.0	1.6	14.1	6.1	86.3	14.0	0.1	9.5	0.00	1,225
	2,067,984	Geom. Mean	27.8	7.0	3.0	1.6	15.0	4.6	62.6	13.8	0.1	9.7	0.00	1,450
		Poliution Load	−	−	−	3.4	31.1	9.6	129.5	28.6	0.2	20.1	0.00	−
2nd	12:00, 16 Jan	−384,264.00	28.0	7.2	2.5	2.2	9.3	25.0	115.0	15.6	0.4	10.2	<0.01	1,300
	18:00, 16 Jan	610,848.00	29.0	7.2	3.4	2.2	10.1	17.0	110.0	15.6	0.7	11.7	<0.01	2,000
	0:00, 17 Jan	811,296.00	27.0	7.3	2.6	2.1	8.8	14.0	115.0	16.5	0.3	10.4	<0.01	1,300
	6:00, 17 Jan	−83,376.00	28.0	7.4	2.4	2.1	7.4	14.0	115.0	15.7	0.4	10.7	<0.01	1,100
	Daily Flow (m3/day)	Maximum	29.0	7.4	3.4	2.2	10.1	25.0	115.0	16.5	0.7	11.7	0.00	2,000
		Minimum	27.0	7.2	2.4	2.1	7.4	14.0	110.0	15.6	0.3	10.2	0.00	1,100
		Arith. Mean	28.0	7.3	2.7	2.2	8.9	17.5	113.8	15.9	0.5	10.8	0.00	1,425
	954,504	Geom. Mean	27.8	7.3	3.2	2.1	9.6	11.5	111.8	16.4	0.5	11.3	0.00	1,765
		Pollution Load	−	−	−	2.0	9.1	11.0	106.7	15.6	0.5	10.8	0.00	−
Avg	Daily Flow (m3/day)	Arith. Mean	27.8	7.2	2.9	1.9	11.5	11.8	100.0	14.9	0.3	10.1	0.00	1,325
		Geom. Mean	27.8	7.2	3.1	1.9	12.3	8.1	87.2	15.1	0.3	10.5	0.00	1,608
	1,511,244	Pollution Load	−	−	−	2.7	20.1	10.3	118.1	22.1	0.3	15.5	0.00	−

Table 3.4.2.2 (9) Quality of River Water

Station No. 9 (Pasak river, Ayutthaya, brfore joining with Lopburi river) (unit: Pollution Load ton/day)

Time, Date	Item \(unit)	Flow Rate (m3/6hrs.)	Water Temp. (deg.C)	pH	DO (mg/l)	BOD (mg/l)	COD (mg/l)	SS (mg/l)	Alkal. as CaCO3 (mg/l)	Chloride as cl− (mg/l)	Nitrate as NO3− (mg/l)	Sulfate as SO4= (mg/l)	Ammonia as NH3− (mg/l)	Coliform Group (MPN/100ml)
1st	12:00, 9 Jan	−2,430,864.00	27.0	7.2	3.6	2.0	10.1	11.0	110.0	12.2	0.2	10.2	<0.01	2,400,000
	18:00, 9 Jan	1,762,776.00	29.0	7.2	3.7	1.7	6.4	10.0	100.0	10.7	0.1	11.0	<0.01	8,000
	0:00, 10 Jan	2,982,312.00	27.0	7.1	1.0	1.2	9.4	6.0	115.0	12.4	0.1	10.2	<0.01	400
	6:00, 10 Jan	1,304,856.00	26.0	7.1	3.5	2.2	14.1	49.0	110.0	12.4	0.1	8.7	<0.01	13,000
	Daily Flow (m3/day)	Maximum	29.0	7.2	3.7	2.2	14.1	49.0	115.0	12.4	0.2	11.0	0.00	2,400,000
		Minimum	26.0	7.1	1.0	1.2	6.4	6.0	100.0	10.7	0.1	8.7	0.00	400
		Arith. Mean	27.3	7.2	3.0	1.8	10.0	19.0	108.8	11.9	0.1	10.0	0.00	605,350
	3,619,080	Geom. Mean	27.6	7.1	1.5	1.3	9.2	20.1	109.2	11.7	0.1	10.0	0.00	−1,603,119
		Pollution Load	−	−	−	4.6	33.2	72.7	395.4	42.4	0.2	36.4	0.00	−
2nd	12:00, 16 Jan	−2,193,480.00	28.0	7.4	3.1	1.6	16.6	28.0	115.0	14.5	0.9	11.2	<0.01	11,000
	18:00, 16 Jan	1,089,720.00	29.0	7.4	3.9	1.7	16.2	17.0	105.0	13.4	0.4	11.5	<0.01	55,000
	0:00, 17 Jan	3,098,952.00	28.0	7.3	2.8	1.6	15.6	47.0	115.0	16.0	0.8	13.7	<0.01	3,500
	6:00, 17 Jan	1,728,000.00	28.0	7.3	2.8	1.1	12.9	31.0	110.0	15.5	0.5	11.2	<0.01	3,500
	Daily Flow (m3/day)	Maximum	29.0	7.4	3.9	1.7	16.6	47.0	115.0	16.0	0.9	13.7	0.00	55,000
		Minimum	28.0	7.3	2.8	1.1	12.9	17.0	105.0	13.4	0.4	11.2	0.00	3,500
		Arith. Mean	28.3	7.4	3.2	1.5	15.3	30.8	111.3	14.9	0.6	11.9	0.00	18,250
	3,723,192	Geom. Mean	28.3	7.3	2.9	1.4	13.9	42.0	109.8	15.9	0.5	13.4	0.00	14,155
		Pollution Load	−	−	−	5.2	51.9	156.3	408.6	59.2	1.8	49.8	0.00	−
Avg	Daily Flow (m3/day)	Arith. Mean	27.8	7.3	3.1	1.6	12.7	24.9	110.0	13.4	0.4	11.0	0.00	311,800
		Geom. Mean	28.0	7.2	2.2	1.3	11.5	31.0	109.5	13.8	0.3	11.7	0.00	−794,482
	3,671,136	Pollution Load	−	−	−	4.9	42.5	114.5	402.0	50.8	1.0	43.1	0.00	−

Table 3.4.2.2 (10) Quality of River Water

Station No. 10 (Noi river, Bang Sai, brfore joining with Main river) (unit: Pollution Load ton/day)

Time, Date \ Item (unit)		Flow Rate (m3/6hrs.)	Water Temp. (deg.C)	pH	DO (mg/l)	BOD (mg/l)	COD (mg/l)	SS (mg/l)	Alkal. as CaCO3 (mg/l)	Chloride as cl− (mg/l)	Nitrate as NO3− (mg/l)	Sulfate as SO4= (mg/l)	Ammonia as NH3− (mg/l)	Coliform Group (MPN/100ml)
1st	12:00, 9 Jan	−2,867,616.00	28.0	7.2	3.1	1.5	8.1	4.0	100.0	12.2	0.0	15.2	<0.01	400
	18:00, 9 Jan	3,606,120.00	28.0	6.8	3.1	2.4	12.4	0.5	105.0	12.3	0.1	16.4	<0.01	400
	0:00, 10 Jan	5,432,184.00	27.0	6.8	3.0	1.8	9.7	8.0	105.0	12.3	0.1	15.4	<0.01	200
	6:00, 10 Jan	3,931,632.00	28.0	6.8	2.6	1.5	11.8	11.0	105.0	12.1	0.0	14.9	<0.01	800
	Daily Flow (m3/day)	Maximum	28.0	7.2	3.1	2.4	12.4	11.0	105.0	12.3	0.1	16.4	0.00	800
		Minimum	27.0	6.8	2.6	1.5	8.1	0.5	100.0	12.1	0.0	14.9	0.00	200
		Arith. Mean	27.8	6.9	3.0	1.8	10.5	5.9	103.8	12.2	0.1	15.5	0.00	450
	10,102,320	Geom. Mean	27.5	6.7	2.9	2.0	11.9	7.6	106.4	12.3	0.1	15.6	0.00	448
		Pollution Load	−	−	−	20.0	120.6	77.0	1,075.1	123.8	0.7	157.8	0.00	−
2nd	12:00, 16 Jan	−3,942,432.00	28.0	7.5	3.1	2.7	13.1	17.0	95.0	13.1	0.3	19.2	<0.01	350
	18:00, 16 Jan	4,703,616.00	28.0	7.5	3.4	3.0	15.2	26.0	95.0	14.1	0.3	21.6	<0.01	1,100
	0:00, 17 Jan	3,400,920.00	28.0	7.4	2.9	1.7	13.5	30.0	100.0	11.6	0.5	15.1	<0.01	400
	6:00, 17 Jan	622,296.00	29.0	7.4	3.6	2.6	15.9	13.0	95.0	13.6	0.4	16.9	<0.01	2,250
	Daily Flow (m3/day)	Maximum	29.0	7.5	3.6	3.0	15.9	30.0	100.0	14.1	0.5	21.6	0.00	2,250
		Minimum	28.0	7.4	2.9	1.7	13.1	13.0	95.0	11.6	0.3	15.1	0.00	350
		Arith. Mean	28.3	7.5	3.3	2.5	14.4	21.5	96.3	13.1	0.4	18.2	0.00	1,025
	4,784,400	Geom. Mean	28.1	7.4	3.3	2.3	15.8	34.6	98.6	13.1	0.4	18.3	0.00	1,370
		Pollution Load	−	−	−	10.9	75.7	165.4	471.5	62.6	2.0	87.8	0.00	−
Avg	Daily Flow (m3/day)	Arith. Mean	28.0	7.2	3.1	2.2	12.5	13.7	100.0	12.7	0.2	16.8	0.00	738
		Geom. Mean	27.8	7.1	3.1	2.1	13.9	21.1	102.5	12.7	0.2	17.0	0.00	909
	7,443,360	Pollution Load	−	−	−	15.4	98.1	121.2	773.3	93.2	1.3	122.8	0.00	−

Table 3.4.2.2 (11) Quality of River Water

Station No. 11 (Drainage Channel, Ang Thong) (unit: Pollution Load ton/day)

Time, Date	Item \(unit)	Flow Rate (m3/6hrs.)	Water Temp. (deg.C)	pH	DO (mg/l)	BOD (mg/l)	COD (mg/l)	SS (mg/l)	Alkal. as CaCO3 (mg/l)	Chloride as cl− (mg/l)	Nitrate as NO3− (mg/l)	Sulfate as SO4= (mg/l)	Ammonia as NH3− (mg/l)	Coliform Group (MPN/100ml)
1st	12:00, 9 Jan	12,096.00	28.0	7.2	3.5	1.9	6.4	73.0	80.0	7.2	0.1	8.0	<0.01	3,500
	18:00, 9 Jan	6,480.00	29.0	7.8	3.6	1.9	5.7	91.0	90.0	7.6	0.2	7.0	<0.01	7,000
	0:00, 10 Jan	5,184.00	27.0	7.7	3.8	1.5	7.7	116.0	80.0	7.2	0.1	9.0	<0.01	17,000
	6:00, 10 Jan	3,888.00	26.0	8.0	4.0	2.2	5.7	96.0	90.0	7.6	0.1	8.4	<0.01	55,000
	Daily Flow (m3/day)	Maximum	29.0	8.0	4.0	2.2	7.7	116.0	90.0	7.6	0.2	9.0	0.00	55,000
		Minimum	26.0	7.2	3.5	1.5	5.7	73.0	80.0	7.2	0.1	7.0	0.00	3,500
		Arith. Mean	27.5	7.7	3.7	1.9	6.4	94.0	85.0	7.4	0.1	8.1	0.00	20,625
	27,648	Geom. Mean	27.8	7.5	3.7	1.9	6.4	88.5	83.8	7.4	0.1	8.0	0.00	14,094
		Pollution Load	–	–	–	0.1	0.2	2.4	2.3	0.2	0.0	0.2	0.00	–
2nd	12:00, 16 Jan	8,856.00	30.0	7.4	5.1	2.1	6.2	111.0	75.0	15.0	0.1	9.4	<0.01	2,500
	18:00, 16 Jan	6,048.00	31.0	7.4	6.0	3.1	9.1	194.0	85.0	15.5	0.1	9.9	<0.01	5,000
	0:00, 17 Jan	5,832.00	28.0	7.3	4.8	2.1	4.1	112.0	85.0	13.5	0.1	7.7	<0.01	1,700
	6:00, 17 Jan	8,424.00	26.0	7.4	4.5	1.8	8.6	118.0	85.0	15.2	0.3	8.4	<0.01	4,500
	Daily Flow (m3/day)	Maximum	31.0	7.4	6.0	3.1	9.1	194.0	85.0	15.5	0.3	9.9	0.00	5,000
		Minimum	26.0	7.3	4.5	1.8	4.1	111.0	75.0	13.5	0.1	7.7	0.00	1,700
		Arith. Mean	28.8	7.4	5.1	2.3	7.0	133.8	82.5	14.8	0.1	8.9	0.00	3,425
	29,160	Geom. Mean	28.7	7.4	5.1	2.2	7.1	130.4	82.0	14.9	0.1	8.9	0.00	3,436
		Pollution Load	–	–	–	0.1	0.2	3.8	2.4	0.4	0.0	0.3	0.00	–
Avg	Daily Flow (m3/day)	Arith. Mean	28.1	7.5	4.4	2.1	6.7	113.9	83.8	11.1	0.1	8.5	0.00	12,025
		Geom. Mean	28.2	7.5	4.4	2.0	6.7	109.5	82.9	11.1	0.1	8.4	0.00	8,765
	28,404	Pollution Load	–	–	–	0.1	0.2	3.1	2.4	0.3	0.0	0.2	0.00	–

Table 3.4.2.2 (12) Quality of River Water

Station No. 12 (Drainage Channel, Ayutthaya) (unit: Pollution Load ton/day)

	Item / Time, Date \(unit)	Flow Rate (m3/6hrs.)	Water Temp. (deg.C)	pH	DO (mg/l)	BOD (mg/l)	COD (mg/l)	SS (mg/l)	Alkal. as CaCO3 (mg/l)	Chloride as cl− (mg/l)	Nitrate as NO3− (mg/l)	Sulfate as SO4= (mg/l)	Ammonia as NH3− (mg/l)	Coliform Group (MPN/100ml)
1st	12:00, 9 Jan	−413,424.00	26.0	7.0	2.6	1.4	11.8	18	105	12.2	0.29	15.1	<0.01	500
	18:00, 9 Jan	527,688.00	27.0	7.2	4.7	2.7	13.1	15	105	11.7	0.08	14.9	<0.01	700
	0:00, 10 Jan	524,448.00	26.0	7.2	4.5	1.1	11.4	18	90	13.6	0.42	16.4	<0.01	400
	6:00, 10 Jan	650,376.00	26.0	7.4	5.3	1.0	10.1	39	90	11.7	0.06	13.2	<0.01	300
	Daily Flow (m3/day)	Maximum	27.0	7.4	5.3	2.7	13.1	39	105	13.6	0.42	16.4	0.00	700
		Minimum	26.0	7.0	2.6	1.0	10.1	15	90	11.7	0.06	13.2	0.00	300
		Arith. Mean	26.3	7.2	4.3	1.6	11.6	23	98	12.3	0.21	14.9	0.00	475
	1,289,088	Geom. Mean	26.4	7.4	5.6	1.6	11.3	27	91	12.3	0.14	14.6	0.00	440
		Pollution Load	−	−	−	2.07	14.58	35.28	117.73	15.87	0.18	18.81	0.00	−
2nd	12:00, 16 Jan	−849,096.00	28.0	7.1	4.2	2.3	9.7	21	95	17.6	0.05	16.2	<0.01	1,300
	18:00, 16 Jan	877,824.00	27.0	7.1	4.1	1.8	7.2	30	95	15.0	0.20	15.6	<0.01	800
	0:00, 17 Jan	571,320.00	27.0	7.6	6.3	2.9	11.1	28	90	89.0	0.07	26.9	<0.01	700
	6:00, 17 Jan	−284,904.00	27.0	7.3	4.1	2.4	9.5	20	95	15.0	0.19	16.9	<0.01	1,700
	Daily Flow (m3/day)	Maximum	28.0	7.6	6.3	2.9	11.1	30	95	89.0	0.20	26.9	0.00	1,700
		Minimum	27.0	7.1	4.1	1.8	7.2	20	90	15.0	0.05	15.6	0.00	700
		Arith. Mean	27.3	7.3	4.7	2.4	9.4	25	94	34.2	0.13	18.9	0.00	1,125
	315,144	Geom. Mean	24.3	7.8	7.8	1.9	5.5	60	86	142.1	0.38	33.3	0.00	−1,542
		Pollution Load	−	−	−	0.60	1.72	18.80	27.08	44.80	0.12	10.49	0.00	−
Avg	Daily Flow (m3/day)	Arith. Mean	26.8	7.2	4.5	2.0	10.5	24	96	23.2	0.17	16.9	0.00	800
		Geom. Mean	25.4	7.6	6.7	1.8	8.4	44	89	77.2	0.26	23.9	0.00	−551
	802,116	Pollution Load	−	−	−	1.34	8.15	27.04	72.41	30.33	0.15	14.65	0.00	−

Table 3.4.2.2 (13) Quality of River Water

Station No. 13 (Drainage Channel, Ayutthaya) (unit: Pollution Load ton/day)

Time, Date	Item \(unit)	Flow Rate (m3/6hrs.)	Water Temp. (deg.C)	pH	DO (mg/l)	BOD (mg/l)	COD (mg/l)	SS (mg/l)	Alkal. as CaCO3 (mg/l)	Chloride as cl− (mg/l)	Nitrate as NO3− (mg/l)	Sulfate as SO4= (mg/l)	Ammonia as NH3− (mg/l)	Coliform Group (MPN/100ml)
	12:00, 9 Jan	3,456.00		7.4	3.6	12.8	17.5	9	265	48.8	0.05	38.8	5.88	440,000
	18:00, 9 Jan	5,400.00		7.5	0.6	19.9	25.1	12	285	56.2	0.05	40.3	7.56	2,100,000
	0:00, 10 Jan	4,752.00		7.4	1.4	18.1	24.9	13	290	45.7	0.06	41.5	7.28	24,000,000
	6:00, 10 Jan	3,240.00		7.5	2.0	11.5	19.7	7	290	36.4	0.02	46.9	6.44	24,000,000
1st														
	Daily Flow (m3/day)	Maximum		7.5	3.6	19.9	25.1	13	290	56.2	0.06	46.9	7.56	24,000,000
		Minimum		7.4	0.6	11.5	17.5	7	265	36.4	0.02	38.8	5.88	440,000
		Arith. Mean		7.5	1.9	15.6	21.8	10	283	46.8	0.05	41.9	6.79	12,635,000
	16,848	Geom. Mean		7.5	1.7	16.3	22.4	11	283	47.9	0.05	41.6	6.92	12,147,949
		Pollution Load	−	−	−	0.27	0.38	0.18	4.77	0.81	0.00	0.70	0.12	−
	12:00, 16 Jan	5,400.00		7.5	3.8	17.9	50.8	19	290	42.5	0.02	42.7	7.00	55,000,000
	18:00, 16 Jan	6,048.00		7.2	0.9	20.7	66.2	48	295	51.9	0.05	43.5	7.84	35,000,000
	0:00, 17 Jan	9,072.00		7.3	1.3	35.1	60.6	35	300	43.1	0.18	43.3	7.84	35,000,000
	6:00, 17 Jan	4,968.00		7.3	2.2	10.0	41.9	8	295	35.6	<0.01	35.6	7.56	8,000,000
2nd														
	Daily Flow (m3/day)	Maximum		7.5	3.8	35.1	66.2	48	300	51.9	0.18	43.5	7.84	55,000,000
		Minimum		7.2	0.9	10.0	41.9	8	290	35.6	0.00	35.6	7.00	8,000,000
		Arith. Mean		7.3	2.1	20.9	54.9	28	295	43.3	0.06	41.3	7.56	33,250,000
	25,488	Geom. Mean		7.3	1.9	23.1	56.2	29	296	43.6	0.08	41.7	7.61	33,974,576
		Pollution Load	−	−	−	0.59	1.43	0.75	7.54	1.11	0.00	1.06	0.19	−
	Daily Flow	Arith. Mean		7.4	2.0	18.3	38.3	19	289	45.0	0.05	41.6	7.18	22,942,500
Avg	(m3/day)	Geom. Mean		7.4	1.8	19.7	39.3	20	289	45.8	0.06	41.7	7.26	23,061,262
	21,168	Pollution Load	−	−	−	0.43	0.91	0.47	6.15	0.96	0.00	0.88	0.16	−

Table 3.4.2.2 (14) Quality of River Water

Station No. 14 (Drainage Channel, Pathum Thani)

(unit: Pollution Load ton/day)

Time, Date	Item \(unit)	Flow Rate (m3/6hrs.)	Water Temp. (deg.C)	pH	DO (mg/l)	BOD (mg/l)	COD (mg/l)	SS (mg/l)	Alkal. as CaCO3 (mg/l)	Chloride as cl− (mg/l)	Nitrate as NO3− (mg/l)	Sulfate as SO4= (mg/l)	Ammonia as NH3− (mg/l)	Coliform Group (MPN/100ml)
	12:00, 9 Jan	0.00	28.0	7.1	2.7	2.4	9.9	35	100	12.5	0.08	17.1	<0.01	25,000
	18:00, 9 Jan	0.00	28.0	7.2	2.9	2.9	15.2	25	95	13.7	0.12	17.7	<0.01	40,000
	0:00, 10 Jan	0.00	27.0	7.0	0.0	21.8	88.0	20	250	65.8	<0.01	35.3	7.84	1,600,000
	6:00, 10 Jan	0.00	27.0	7.1	1.0	7.4	17.9	85	185	31.5	0.06	20.2	3.64	40,000
1st														
	Daily Flow (m3/day)	Maximum	28.0	7.2	2.9	21.8	88.0	85	250	65.8	0.12	35.3	7.84	1,600,000
		Minimum	27.0	7.0	0.0	2.4	9.9	20	95	12.5	0.00	17.1	0.00	25,000
		Arith. Mean	27.5	7.1	1.7	8.6	32.8	41	158	30.9	0.07	22.6	2.87	426,250
	0	Geom. Mean	ERR	ERR	ERR	ERR	ERR	ERR	ERR	ERR	ERR	ERR	ERR	ERR
		Pollution Load	–	–	–	ERR	ERR	ERR	ERR	ERR	ERR	ERR	ERR	–
	12:00, 16 Jan	13,392.00	28.0	7.3	2.6	2.4	7.9	47	100	13.7	0.19	19.7	<0.01	80,000
	18:00, 16 Jan	−4,536.00	29.5	7.1	0.0	53.2	108.0	21	300	77.7	<0.01	40.2	10.64	1,600,000
	0:00, 17 Jan	−2,808.00	30.0	7.2	0.0	61.9	125.0	46	360	82.4	<0.01	37.7	14.28	900,000
	6:00, 17 Jan	6,264.00	28.0	7.2	2.9	4.4	21.7	49	100	10.3	0.20	18.4	<0.01	50,000
2nd														
	Daily Flow (m3/day)	Maximum	30.0	7.3	2.9	61.9	125.0	49	360	82.4	0.20	40.2	14.28	1,600,000
		Minimum	28.0	7.1	0.0	2.4	7.9	21	100	10.3	0.00	18.4	0.00	50,000
		Arith. Mean	28.9	7.2	1.4	30.5	65.7	41	215	46.0	0.10	29.0	6.23	657,500
	12,312	Geom. Mean	27.0	7.3	4.3	−28.9	−48.7	58	−33	−27.3	0.31	7.4	−7.18	−682,281
		Pollution Load	–	–	–	−0.36	−0.60	0.71	−0.41	−0.34	0.00	0.09	−0.09	–
	Daily Flow (m3/day)	Arith. Mean	28.2	7.2	1.5	19.6	49.2	41	186	38.5	0.08	25.8	4.55	541,875
Avg		Geom. Mean	ERR	ERR	ERR	ERR	ERR	ERR	ERR	ERR	ERR	ERR	ERR	ERR
	6,156	Pollution Load	–	–	–	ERR	ERR	ERR	ERR	ERR	ERR	ERR	ERR	–

Table 3.4.2.2 (15) Quality of River Water

Station No. 15 (Drainage Channel, Nonthaburi) (unit: Pollution Load ton/day)

Time, Date	Item \(unit)	Flow Rate (m3/6hrs.)	Water Temp. (deg.C)	pH	DO (mg/l)	BOD (mg/l)	COD (mg/l)	SS (mg/l)	Alkal. as CaCO3 (mg/l)	Chloride as Cl− (mg/l)	Nitrate as NO3− (mg/l)	Sulfate as SO4= (mg/l)	Ammonia as NH3− (mg/l)	Coliform Group (MPN/100ml)
	12:00, 9 Jan	16,848.00	29.0	6.6	1.0	6.4	29.3	20	105	23.8	0.11	18.4	1.12	12,000,000
	18:00, 9 Jan	3,888.00	28.0	6.5	0.0	26.1	50.3	18	130	42.1	0.07	23.4	4.20	240,000,000
	0:00, 10 Jan	3,240.00	27.0	6.5	0.0	57.2	134.0	306	260	67.9	0.05	29.5	17.36	**********
	6:00, 10 Jan	−10,152.00	28.0	6.6	2.0	7.4	36.3	40	100	14.5	0.04	18.7	0.28	8,800,000
1st														
	Daily Flow (m3/day)	Maximum	29.0	6.6	2.0	57.2	134.0	306	260	67.9	0.11	29.5	17.36	**********
		Minimum	27.0	6.5	0.0	6.4	29.3	18	100	14.5	0.04	18.4	0.28	8,800,000
		Arith. Mean	28.0	6.6	0.8	24.3	62.5	96	149	37.1	0.07	22.5	5.74	665,200,000
	13,824	Geom. Mean	29.0	6.5	−0.3	23.1	54.6	72	152	46.1	0.14	22.2	6.41	638,162,500
		Pollution Load	−	−	−	0.32	0.75	0.99	2.10	0.64	0.00	0.31	0.09	−
	12:00, 16 Jan	−4,320.00	30.0	7.5	1.1	4.8	56.3	28	105	14.7	0.42	20.2	<0.01	110,000
	18:00, 16 Jan	2,160.00	28.0	7.3	0.0	110.0	189.0	264	280	104.0	<0.01	35.1	20.16	170,000,000
	0:00, 17 Jan	1,080.00	28.0	7.4	0.0	25.6	78.0	27	155	35.6	0.06	26.6	7.00	70,000,000
	6:00, 17 Jan	3,456.00	27.5	7.5	0.0	8.3	57.2	24	130	24.0	0.11	21.8	2.24	350,000
2nd														
	Daily Flow (m3/day)	Maximum	30.0	7.5	1.1	110.0	189.0	264	280	104.0	0.42	35.1	20.16	170,000,000
		Minimum	27.5	7.3	0.0	4.8	56.3	24	105	14.7	0.00	20.2	0.00	110,000
		Arith. Mean	28.4	7.4	0.3	37.2	95.1	86	168	44.6	0.15	25.9	7.35	60,115,000
	2,376	Geom. Mean	23.6	7.3	−2.0	115.0	188.1	236	323	118.9	−0.58	39.0	24.77	186,672,727
		Pollution Load	−	−	−	0.27	0.45	0.56	0.77	0.28	−0.00	0.09	0.06	−
	Daily Flow (m3/day)	Arith. Mean	28.2	7.0	0.5	30.7	78.8	91	158	40.8	0.11	24.2	6.55	362,657,500
Avg		Geom. Mean	26.3	6.9	−1.1	69.0	121.4	154	238	82.5	−0.22	30.6	15.59	412,417,614
	8,100	Pollution Load	−	−	−	0.30	0.60	0.78	1.43	0.46	0.00	0.20	0.07	−

3.4.3 Water Quality of Drainage Channel Investigated by PWD

Table 3.4.3.1 (1) Water Cuality of Drainage Channel Investigated by PWD

SAMPLING POINT	SS (mg/l)									BOD (mg/l)									COLIFORM GROUP (MPN/100ml)								
	1989			1990			1991			1989			1990			1991			1989			1990			1991		
	Avg.	Max.	Min.	Avg.	Max.	Min.	Avg.	Max.	Min.	Avg.	Max.	Min.	Avg.	Max.	Min.	Avg.	Max.	Min.	Avg.	Max.	Min.	Avg.	Max.	Min.	Avg.	Max.	Min.
NONTHABURI																											
N1 Market (Nonthaburi Municipality)	62	167	18	100	166	25	64	82	54	37	84	1.6	24	30	18	48	80	28	1.2E+08	2.4E+08	7.9E+05	4.2E+06	7.9E+06	1.3E+06	1.8E+08	2.8E+08	1.3E+07
N3 Slaughter House (Nonthaburi Municipality)	232	341	47	571	854	234	390	540	312	356	790	115	294	550	130	257	300	215	1.9E+08	1.6E+09	1.4E+07	2.1E+08	9.2E+08	2.2E+07	6.2E+07	1.3E+08	2.2E+07
PATHUM THANI																											
P1 Market (Pathum Thani Municipality)	118	142	94	–	–	–	–	–	–	39	57	21	–	–	–	–	–	–	1.4E+07	2.4E+07	4.9E+08	–	–	–	–	–	–
P3 Slaughter House (Pathum Thani Municipality)	271	734	64	–	–	–	178	320	106	212	355	65	–	–	–	58	80	40	1.5E+08	2.4E+08	9.0E+05	–	–	–	6.7E+06	9.2E+06	1.6E+06
P5 Ban Pak Klong2 Canal (Amphoe Sam Khok)	53	102	2	95	117	56	71	83	52	1.3	2.6	0.7	1.4	2.2	0.7	1.8	2.5	0.8	9.3E+05	2.4E+06	1.7E+04	4.8E+04	1.3E+05	2.0E+03	6.2E+04	1.6E+05	7.9E+03
P7 Khlong Ban Prao (Amphoe Sam Khok)	59	149	9	134	177	42	96	152	57	0.8	1.3	0.5	1.3	1.9	0.85	1.9	3.0	0.8	4.1E+04	2.4E+05	1.1E+03	3.1E+04	9.2E+04	7.0E+03	1.0E+05	2.4E+05	8.0E+03
PRA NAKORN SI AYUTHAYA																											
A2 Khlong Makham Riang (Pra Nakorn Sri Ayuthaya)	22	30	10	26	35	7	15	18	13	5.8	9.5	0.8	36	34	9.5	13	16	10	1.1E+06	7.9E+06	2.0E+05	2.6E+06	4.9E+06	4.0E+05	4.5E+05	7.0E+05	2.0E+05
A4 Khlong Tho (Pra Nakorn Sri Ayuthaya)	22	60	9	16	44	4	6	9	4	4.1	9.3	0.9	6.4	12	1.9	15	25	3	2.0E+06	2.2E+07	2.0E+05	1.3E+05	2.0E+05	2.0E+04	7.2E+04	9.4E+04	4.9E+04

Table 3.4.3.1 (2) Water Quality of Drainage Channel Investigated by PWD (cont'd)

SAMPLING POINT	SS (mg/l)									BOD (mg/l)									COLIFORM GROUP (MPN/100ml)								
	1989			1990			1991			1989			1990			1991			1989			1990			1991		
	Avg.	Max.	Min.	Avg.	Max.	Min.	Avg.	Max.	Min.	Avg.	Max.	Min.	Avg.	Max.	Min.	Avg.	Max.	Min.	Avg.	Max.	Min.	Avg	Max.	Min.	Avg.	Max.	Min.
ANG THONG																											
AT1 Market (Amphoe Pamok)	25	55	7	25	45	6	24	34	14	15	32	1.8	13	23	6.5	13	15	12	6.3E+07	1.6E+08	2.0E+05	4.0E+07	2.4E+08	3.4E+05	2.0E+07	2.4E+07	1.6E+07
AT3 Market (Amphoe Muang)	113	348	8	–	–	–	–	–	–	37	48	25	–	–	–	–	–	–	1.6E+08	2.5E+08	5.4E+07	–	–	–	–	–	–
AT5 Drain near Chao Praya River Cross Bridge (Amphoe Muang)	47	70	15	42	56	31	77	140	10	32	42	21	28	32	24	26	27	26	1.0E+08	2.4E+08	2.0E+05	5.5E+07	1.6E+08	1.6E+05	1.6E+07	2.4E+07	7.0E+06
SING BURI																											
S1 Market (Sing Buri Municipality)	35	62	9	74	178	15	66	74	54	19	39	6.7	73	195	21.5	42	55	30	2.4E+07	2.4E+08	5.0E+05	9.7E+07	1.6E+08	2.0E+05	6.4E+07	9.2E+07	3.5E+07
S3 Drain near Chao Praya River Cross Bridge (Sing Buri Mun.)	37	76	12	36	79	10	39	46	32	27	82	7.5	31	43	11	18	26	10	1.1E+07	3.5E+07	2.1E+06	6.3E+07	2.4E+08	2.3E+06	1.3E+08	2.4E+08	2.2E+07
S5 Market (Amphoe Inburi)	50	70	36	41	134	22	50	68	32	64	116	33	19	167	41	33	56	10	3.1E+07	2.4E+08	2.4E+05	1.9E+08	2.4E+08	5.4E+07	6.6E+07	2.2E+07	1.1E+06
CHAI NAT																											
S1 Market (Chainat Municipality)	429	684	173	20	1,722	189	367	520	214	860	990	730	853	1,140	650	140	140	140	1.6E+09	1.6E+09	1.6E+09	2.1E+09	5.4E+09	1.7E+08	1.5E+09	2.4E+09	5.4E+08
S5 Drain into Chao Praya River (Chai Nat Municipality)	–	–	–	–	–	–	12	12	12	–	–	–	–	–	–	23	26	20	–	–	–	–	–	–	9.2E+04	1.6E+05	2.4E+04

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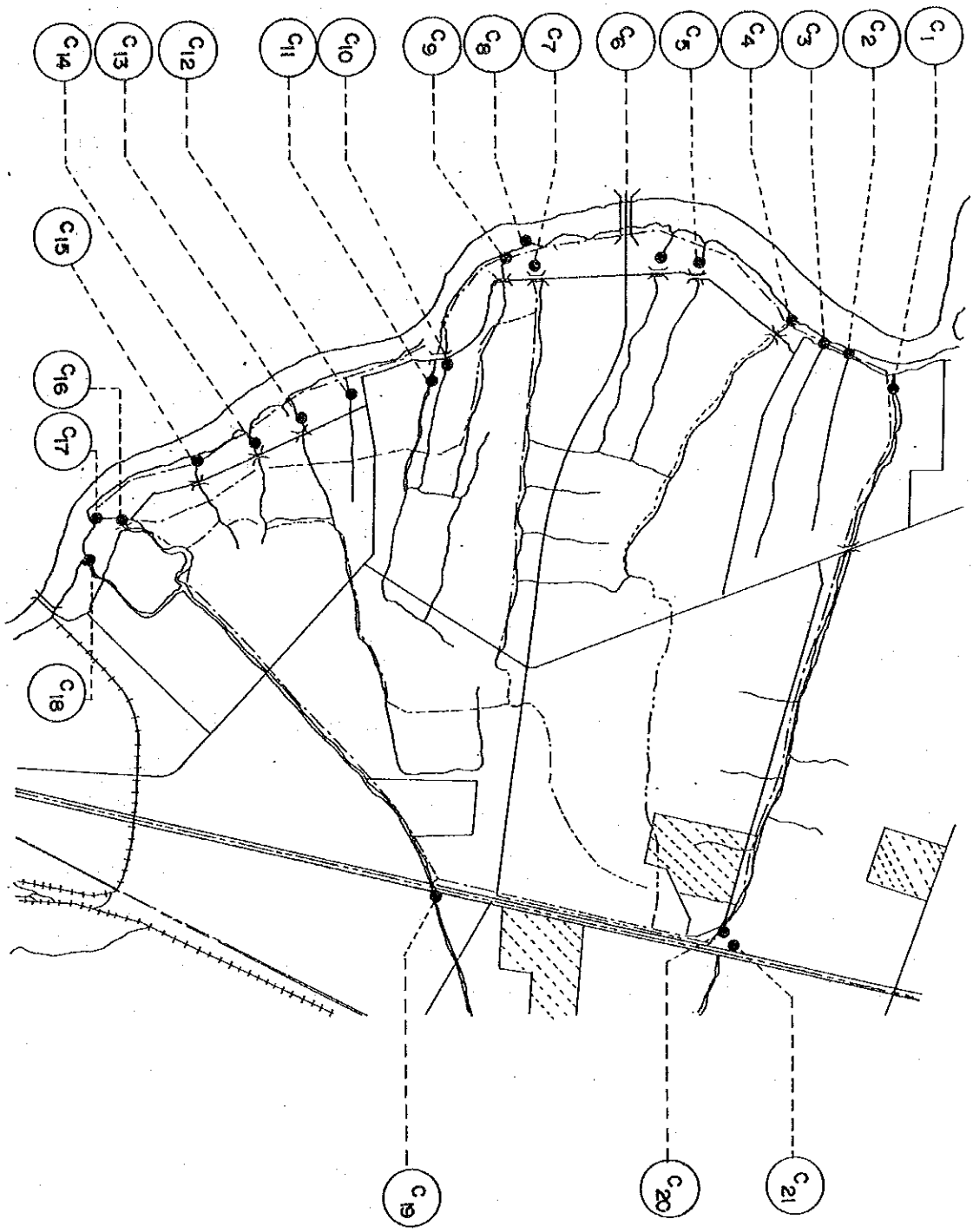

FIG. 3.4.3.1 INVESTIGATION POINTS OF DRAINAGE CHANNELS BY PCD (NON THABURI)

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Table 3.4.3.2 Water Quality of Drainage Channel in Nonthaburi Investigated by PCD

Invest. Point No.	DO (mg/l)				BOD (mg/l)			
	1987 Nov.	1988 Feb.	1988 May	Average	1987 Nov.	1988 Feb.	1988 May	Average
C1	0.2	2.5	0.9	1.2	20.0	9.8	10.0	13.3
C2	1.8	1.3	3.2	2.1	9.0	5.6	20.0	11.5
C3	1.5	1.0	0.8	1.1	19.0	8.0	40.0	22.0
C4	2.2	1.4	0.3	1.3	7.0	4.6	19.0	10.2
C5	1.0	2.2	1.5	1.6	20.0	8.0	8.0	12.0
C6	0.3	2.2	0.2	0.9	20.0	6.6	10.0	12.2
C7	1.4	1.2	1.2	1.3	6.0	4.4	20.0	10.1
C8	0.5	2.3	0.8	1.2	35.0	10.8	12.0	19.3
C9	1.6	2.0	1.1	1.5	11.0	5.6	2.0	6.2
C10	0.1	1.7	1.0	0.9	45.0	9.2	10.0	21.4
C11	0.5	2.0	0.0	0.8	35.0	12.0	14.0	20.3
C12	0.2	1.2	1.2	0.8	35.0	15.6	64.0	38.2
C13	0.5	1.8	1.4	1.2	12.0	8.2	18.0	12.7
C14	1.0	2.1	0.5	1.2	35.0	6.8	6.0	15.9
C15	1.6	1.7	0.7	1.2	8.0	13.2	8.0	9.7
C16	0.9	2.1	0.8	1.3	10.0	8.4	12.0	10.1
C17	1.2	1.5	0.8	1.2	6.0	4.2	8.0	6.1
C18	1.1	1.2	1.2	1.1	6.0	5.8	6.0	5.9
C19	0.6	1.2	0.0	0.6	25.0	6.4	16.0	15.8
C20	4.8	2.9	3.8	3.8	20.0	10.2	25.0	13.4
C21	3.5	1.1	1.4	2.0	20.0	13.6	20.0	17.9

Source : F/S Report, Construction of Wastewater Treatment System Nonthaburi Municipality, 1989, PCD

7.2.1 Rainfall Intensity and Time Duration Analysis

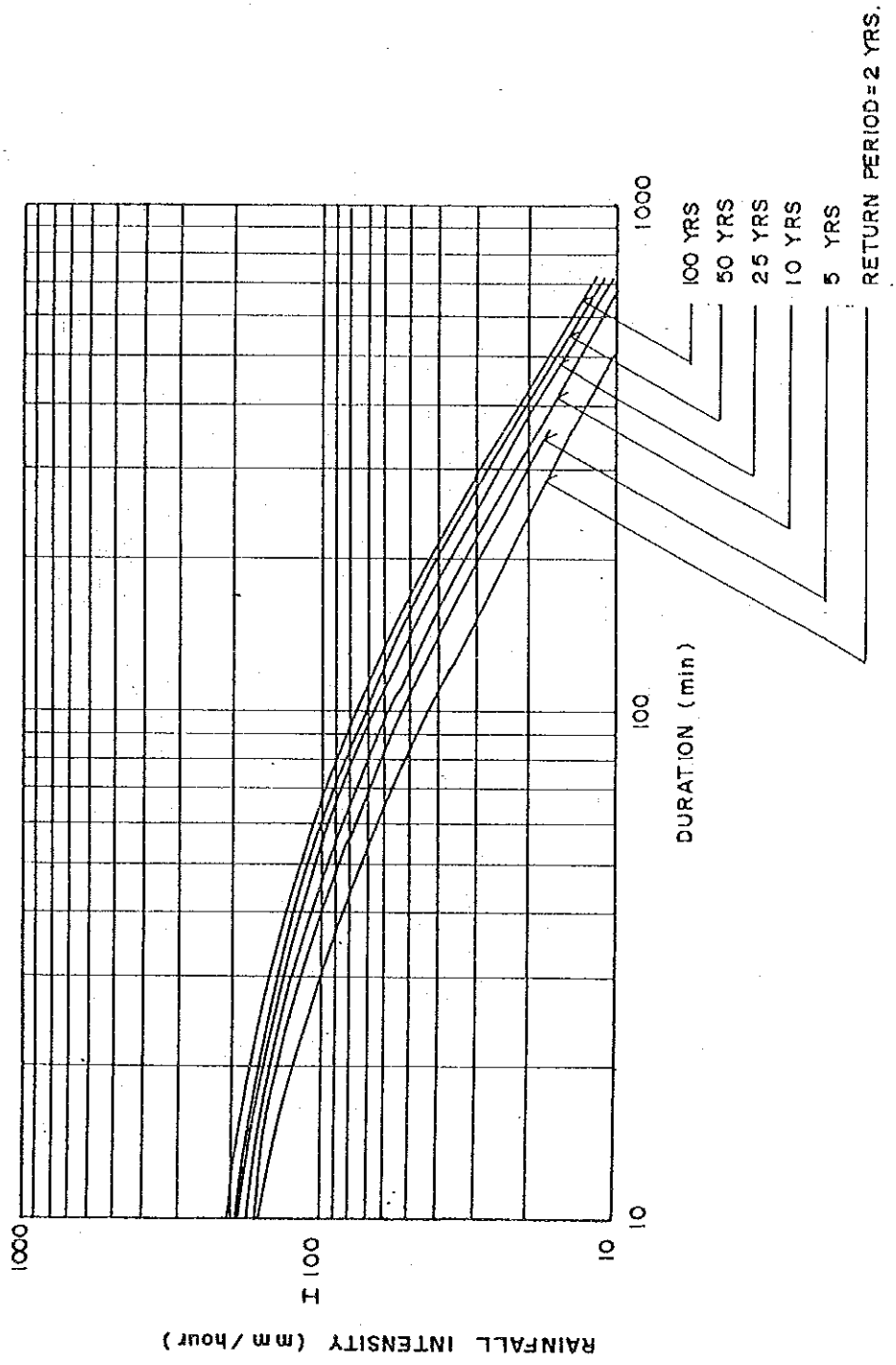

FIG. 7.2.1.1 RELATIONSHIP BETWEEN RAINFALL INTENSITY - DURATION BY RETURN PERIOD AT CHAINAT

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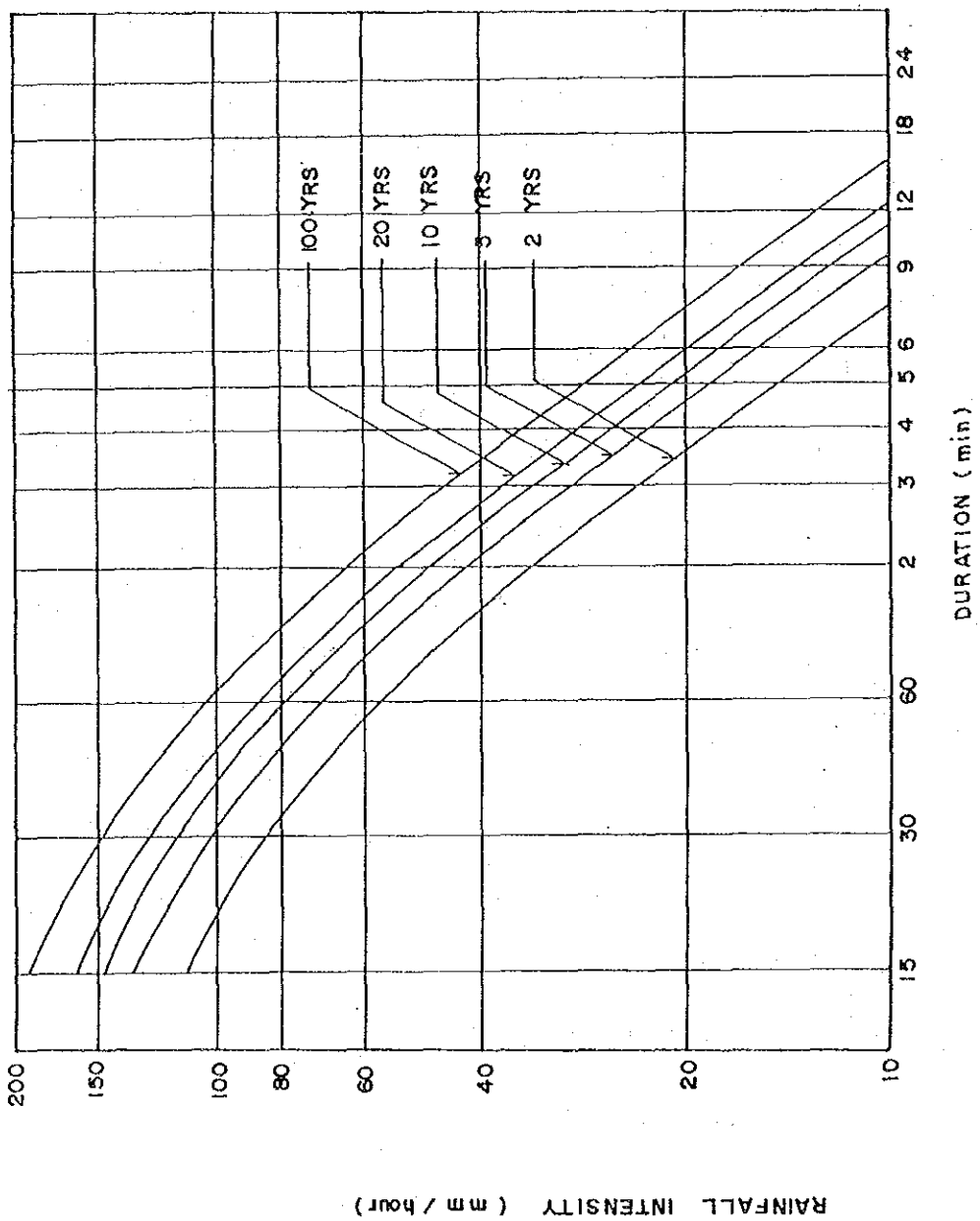

FIG. 7.2.1.2 RELATIONSHIP BETWEEN RAINFALL INTENSITY - DURATION BY RETURN PERIOD AT LOP BURI

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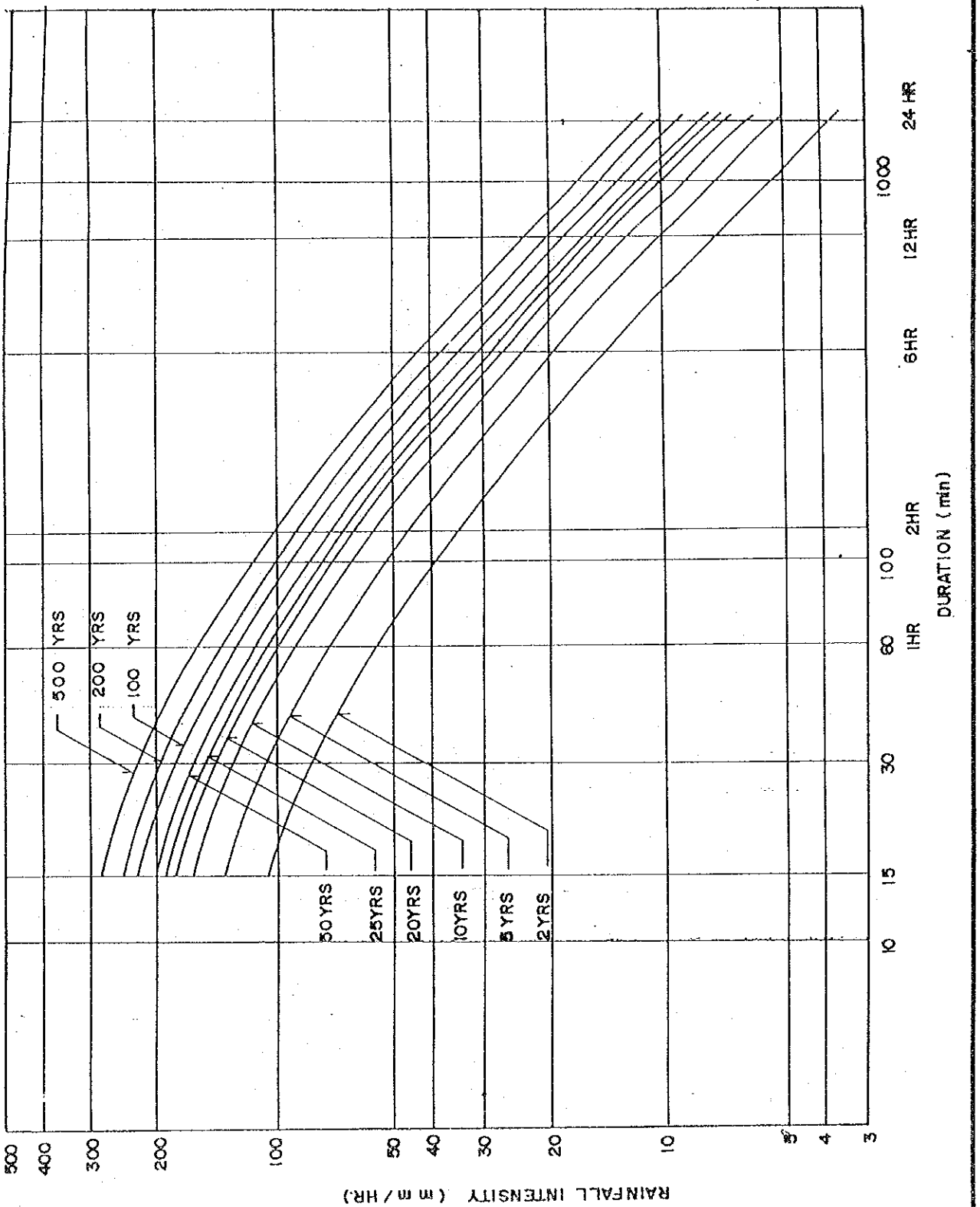

FIG. 7.2.1.3 RELATIONSHIP BETWEEN RAINFALL INTENSITY - DURATION BY RETURN PERIOD AT AYUTTHAYA

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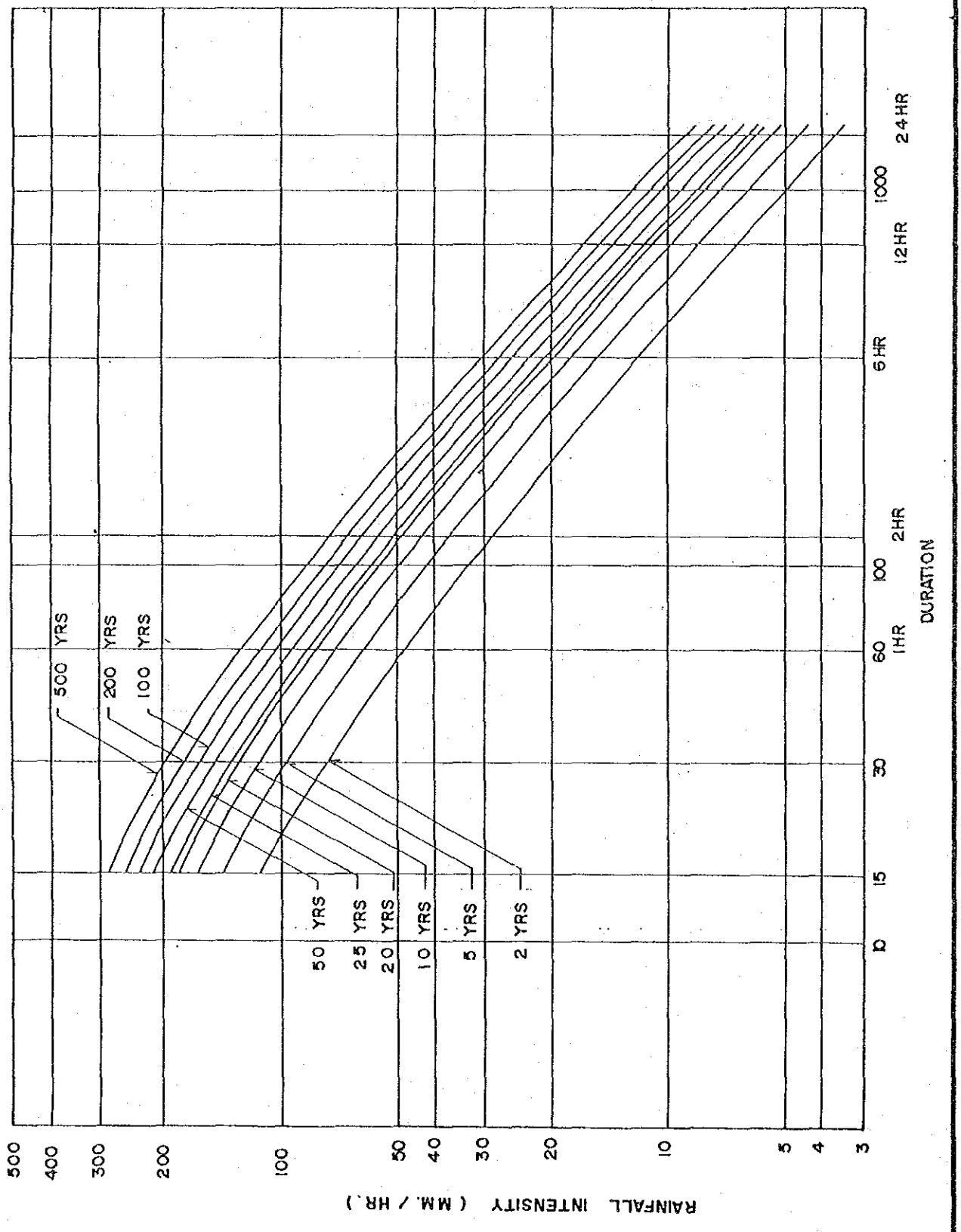

FIG. 7.2.1.4 RELATIONSHIP BETWEEN RAINFALL INTENSITY - DURATION BY RETURN PERIOD AT PATHUM THANI

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