

ภาคผนวก ค

ใบรายงานผลการวิเคราะห์คุณภาพสิ่งแวดล้อม

ภาคผนวก ค-1

ใบรายงานผลการวิเคราะห์คุณภาพอากาศ

ANALYSIS REPORT

PROJECT NAME : โครงการก่อสร้างท่าเทียบเรือเชียงแสนแห่งที่ 2 (ท่าเรือพาณิชย์เชียงแสน) จังหวัดเชียงราย ระยะดำเนินการ ประจำปี 2567
CUSTOMER NAME : PORT OF CHIANG SAEN
ADDRESS : 888 MOO 10 BANSANSAIKONGNGAM BAN SAE0 CHIANG SAEN CHIANG RAI 57150
CONTACT INFORMATION :
SAMPLING SOURCE : พื้นที่โครงการ
SAMPLE TYPE : AMBIENT
SAMPLING DATE : *, **, ***
SAMPLING TIME : *, **, ***
SAMPLING BY : MR SUPHAKORN SUANSRI
ANALYZED BY : MISS JETJARIN TUMSA-AT

RECEIVED DATE : MARCH 11, 2024
ANALYTICAL DATE : MARCH 11-18, 2024
ISSUE DATE : MARCH 21, 2024
REPORT NO. : 2024-U023107
WORK NO. : 2023-008673
ANALYSIS NO. : T24AF032-0001 - T24AF032-0003

PARAMETER	UNIT	METHOD OF ANALYSIS	RESULT		
			พื้นที่โครงการ		
			* T24AF032-0001	** T24AF032-0002	*** T24AF032-0003
TOTAL SUSPENDED PARTICULATE MATTER	mg/m ³	GRAVIMETRIC (HIGH VOLUME METHOD)	0.087	0.074	0.062
PARTICULATE MATTER (≤ 10 µm)	mg/m ³	GRAVIMETRIC (HIGH VOLUME METHOD)	0.051	0.061	0.026
SAMPLE CONDITION			COMPLETE	COMPLETE	COMPLETE

REMARK
TSP, PM10 : REFERENCE CONDITION IS 25 DEGREE CELSIUS AT 1 ATMOSPHERE.
TSP : US EPA, CODE OF FEDERAL REGULATIONS, 40 CFR CHAPTER I-PART 50 APPENDIX B, REFERENCE METHOD FOR THE DETERMINATION OF SUSPENDED PARTICULATE MATTER IN THE ATMOSPHERE (HIGH-VOLUME METHOD) REVISED AS OF JULY 1, 2021.
PM10 : US EPA, CODE OF FEDERAL REGULATIONS, 40 CFR CHAPTER I-PART 50 APPENDIX J, REFERENCE METHOD FOR THE DETERMINATION OF PARTICULATE MATTER AS PM10 IN THE ATMOSPHERE (HIGH-VOLUME METHOD) REVISED AS OF JULY 1, 2021.
* : SAMPLING FROM 08:30 HOUR ON MARCH 3, 2024 TO 08:30 HOUR ON MARCH 4, 2024.
** : SAMPLING FROM 08:30 HOUR ON MARCH 4, 2024 TO 08:30 HOUR ON MARCH 5, 2024.
*** : SAMPLING FROM 08:30 HOUR ON MARCH 5, 2024 TO 08:30 HOUR ON MARCH 6, 2024.

Budsakorn ✓

(MISS BUDSAKORN LERDPANUMAS)
LABORATORY SUPERVISOR

MARCH 21, 2024



ANALYSIS REPORT

PROJECT NAME : โครงการก่อสร้างท่าเทียบเรือเชียงแสนแห่งที่ 2 (ท่าเรือพาณิชย์เชียงแสน) จังหวัดเชียงราย ระยะดำเนินการ ประจำปี 2567
CUSTOMER NAME : PORT OF CHIANG SAEN
ADDRESS : 888 MOO 10 BANSANSAIKONGNGAM BAN SAE0 CHIANG SAEN CHIANG RAI 57150
CONTACT INFORMATION :
SAMPLING SOURCE : วัดสบกก
SAMPLE TYPE : AMBIENT
SAMPLING DATE : *, **, ***
SAMPLING TIME : *, **, ***
SAMPLING BY : MR SUPHAKORN SUANSRI
ANALYZED BY : MISS JETJARIN TUMSA-AT

RECEIVED DATE : MARCH 11, 2024
ANALYTICAL DATE : MARCH 11-18, 2024
ISSUE DATE : MARCH 21, 2024
REPORT NO. : 2024-U023108
WORK NO. : 2023-008673
ANALYSIS NO. : T24AF032-0004 - T24AF032-0006

PARAMETER	UNIT	METHOD OF ANALYSIS	RESULT		
			วัดสบกก		
			*	**	***
			T24AF032-0004	T24AF032-0005	T24AF032-0006
TOTAL SUSPENDED PARTICULATE MATTER	mg/m ³	GRAVIMETRIC (HIGH VOLUME METHOD)	0.080	0.077	0.098
PARTICULATE MATTER (≤ 10 µm)	mg/m ³	GRAVIMETRIC (HIGH VOLUME METHOD)	0.044	0.053	0.037
SAMPLE CONDITION			COMPLETE	COMPLETE	COMPLETE

REMARK

TSP, PM10 : REFERENCE CONDITION IS 25 DEGREE CELSIUS AT 1 ATMOSPHERE.
TSP : US EPA, CODE OF FEDERAL REGULATIONS, 40 CFR CHAPTER I-PART 50 APPENDIX B, REFERENCE METHOD FOR THE DETERMINATION OF SUSPENDED PARTICULATE MATTER IN THE ATMOSPHERE (HIGH-VOLUME METHOD) REVISED AS OF JULY 1, 2021.
PM10 : US EPA, CODE OF FEDERAL REGULATIONS, 40 CFR CHAPTER I-PART 50 APPENDIX J, REFERENCE METHOD FOR THE DETERMINATION OF PARTICULATE MATTER AS PM10 IN THE ATMOSPHERE (HIGH-VOLUME METHOD) REVISED AS OF JULY 1, 2021.
* : SAMPLING FROM 09:00 HOUR ON MARCH 3, 2024 TO 09:00 HOUR ON MARCH 4, 2024.
** : SAMPLING FROM 09:00 HOUR ON MARCH 4, 2024 TO 09:00 HOUR ON MARCH 5, 2024.
*** : SAMPLING FROM 09:00 HOUR ON MARCH 5, 2024 TO 09:00 HOUR ON MARCH 6, 2024.

Budsakorn ✓

(MISS BUDSAKORN LERDPANUMAS)
LABORATORY SUPERVISOR

MARCH 21, 2024



ภาคผนวก ค-2

ใบรายงานผลการวิเคราะห์ระดับเสี่ยง

ANALYSIS REPORT

PROJECT NAME	: โครงการก่อสร้างท่าเทียบเรือเชียงแสนแห่งที่ 2 (ท่าเรือพาณิชย์เชียงแสน) จังหวัดเชียงราย ระยะดำเนินการ ประจำปี 2567	
CUSTOMER NAME	: PORT OF CHIANG SAEN	
ADDRESS	: 888 MOO 10 BANSANSAIKONGNGAM BAN SAE0 CHIANG SAEN CHIANG RAI 57150	
CONTACT INFORMATION	: [REDACTED]	
MEASURING SOURCE	: พื้นที่โครงการ	
MEASURING TYPE	: AMBIENT (NOISE)	RECEIVED DATE : MARCH 3-6, 2024
MEASURING DATE	: MARCH 3-6, 2024	ANALYTICAL DATE : MARCH 3-6, 2024
MEASURING TIME	: *	ISSUE DATE : MARCH 13, 2024
MEASURING METHOD	: INTEGRATED SOUND LEVEL METER	REPORT NO. : 2024-U020882
MEASURED BY	: MR SUPHAKORN SUANSRI	WORK NO. : 2023-008673
		ANALYSIS NO. : T24AF032-0001 - T24AF032-0003

TIME*	RESULT dB(A)		
	พื้นที่โครงการ		
	MARCH 3-4, 2024		
	T24AF032-0001		
	L _{Aeq} 1 hour	L _{Amax} 1 hour	L _{A90} 1 hour
07:00-08:00 HOUR	51.5	72.2	48.7
08:00-09:00 HOUR	51.3	66.8	48.9
09:00-10:00 HOUR	49.6	58.6	47.0
10:00-11:00 HOUR	49.5	62.4	47.6
11:00-12:00 HOUR	50.4	70.9	47.5
12:00-13:00 HOUR	49.4	61.9	47.1
13:00-14:00 HOUR	49.6	56.7	47.1
14:00-15:00 HOUR	50.3	64.2	47.4
15:00-16:00 HOUR	50.0	60.9	47.9
16:00-17:00 HOUR	49.1	59.6	46.4
17:00-18:00 HOUR	49.6	60.3	46.9
18:00-19:00 HOUR	52.8	62.0	50.8
19:00-20:00 HOUR	55.5	62.9	53.5
20:00-21:00 HOUR	54.7	66.3	52.5
21:00-22:00 HOUR	54.2	60.7	52.3
22:00-23:00 HOUR	56.5	75.1	53.9
23:00-00:00 HOUR	58.0	76.4	55.8
00:00-01:00 HOUR	46.8	56.2	44.6
01:00-02:00 HOUR	50.6	65.3	45.7
02:00-03:00 HOUR	49.2	61.8	45.7
03:00-04:00 HOUR	49.7	63.8	44.0
04:00-05:00 HOUR	48.6	61.6	44.6
05:00-06:00 HOUR	53.4	66.6	45.8
06:00-07:00 HOUR	47.3	59.4	44.9
L _{Aeq} 24 hours	52.2		
L _{Adn}	59.2		



TIME*	RESULT dB(A)		
	พื้นที่โครงการ		
	MARCH 4-5, 2024		
	T24AF032-0002		
	L _{Aeq} 1 hour	L _{Amax} 1 hour	L _{A90} 1 hour
07:00-08:00 HOUR	48.2	60.0	45.1
08:00-09:00 HOUR	50.2	61.2	45.9
09:00-10:00 HOUR	48.6	64.8	45.3
10:00-11:00 HOUR	51.8	68.9	45.3
11:00-12:00 HOUR	50.5	63.9	45.3
12:00-13:00 HOUR	49.6	65.7	45.1
13:00-14:00 HOUR	48.9	58.1	46.0
14:00-15:00 HOUR	49.4	60.0	45.9
15:00-16:00 HOUR	49.2	65.1	45.3
16:00-17:00 HOUR	52.5	73.3	45.3
17:00-18:00 HOUR	48.0	63.3	44.5
18:00-19:00 HOUR	51.0	66.9	45.1
19:00-20:00 HOUR	51.4	66.1	46.5
20:00-21:00 HOUR	53.5	76.3	45.8
21:00-22:00 HOUR	48.6	64.3	45.3
22:00-23:00 HOUR	51.7	70.3	45.5
23:00-00:00 HOUR	51.6	65.8	45.1
00:00-01:00 HOUR	53.4	68.5	46.3
01:00-02:00 HOUR	52.3	68.5	46.3
02:00-03:00 HOUR	48.9	62.7	46.6
03:00-04:00 HOUR	49.1	62.3	46.5
04:00-05:00 HOUR	58.5	74.8	47.1
05:00-06:00 HOUR	52.5	66.3	46.4
06:00-07:00 HOUR	51.3	67.4	45.7
L _{Aeq} 24 hours	51.6		
L _{Adn}	59.3		

TIME*	RESULT dB(A)		
	พื้นที่โครงการ		
	MARCH 5-6, 2024		
	T24AF032-0003		
	L _{Aeq} 1 hour	L _{Amax} 1 hour	L _{A90} 1 hour
07:00-08:00 HOUR	49.8	72.7	45.8
08:00-09:00 HOUR	48.9	65.6	44.8
09:00-10:00 HOUR	48.9	71.7	43.6
10:00-11:00 HOUR	50.7	68.6	45.2
11:00-12:00 HOUR	51.3	83.1	46.1
12:00-13:00 HOUR	56.3	68.2	50.3
13:00-14:00 HOUR	55.4	73.9	54.0
14:00-15:00 HOUR	55.7	65.5	54.2
15:00-16:00 HOUR	55.8	63.7	54.1
16:00-17:00 HOUR	55.7	65.6	54.1
17:00-18:00 HOUR	55.1	67.3	53.3
18:00-19:00 HOUR	54.5	62.8	53.0
19:00-20:00 HOUR	53.8	61.7	52.0
20:00-21:00 HOUR	54.2	63.7	52.6
21:00-22:00 HOUR	55.5	76.5	51.8
22:00-23:00 HOUR	54.6	60.4	53.0
23:00-00:00 HOUR	58.4	78.2	53.0
00:00-01:00 HOUR	59.7	71.2	53.1
01:00-02:00 HOUR	57.2	68.6	55.0
02:00-03:00 HOUR	62.0	70.4	57.2
03:00-04:00 HOUR	61.0	73.3	55.6
04:00-05:00 HOUR	56.9	73.6	54.4
05:00-06:00 HOUR	57.8	76.5	55.2
06:00-07:00 HOUR	58.7	73.9	56.6
L _{Aeq} 24 hours		56.6	
L _{Adn}		64.9	

Sila Banjongjairuk

(MR SILA BANJONGJAIKUK)
LABORATORY SUPERVISOR

MARCH 15, 2024

ANALYSIS REPORT

PROJECT NAME	: โครงการก่อสร้างท่าเทียบเรือเชียงแสนแห่งที่ 2 (ท่าเรือพาณิชย์เชียงแสน) จังหวัดเชียงราย ระยะดำเนินการ ประจำปี 2567
CUSTOMER NAME	: PORT OF CHIANG SAEN
ADDRESS	: 888 MOO 10 BANSANSAIKONGNGAM BAN SAE0 CHIANG SAEN CHIANG RAI 57150
CONTACT INFORMATION	: [REDACTED]
MEASURING SOURCE	: วัดสมกก
MEASURING TYPE	: AMBIENT (NOISE)
MEASURING DATE	: MARCH 3-6, 2024
MEASURING TIME	: *
MEASURING METHOD	: INTEGRATED SOUND LEVEL METER
MEASURED BY	: MR SUPHAKORN SUANSRI
	RECEIVED DATE : MARCH 3-6, 2024
	ANALYTICAL DATE : MARCH 3-6, 2024
	ISSUE DATE : MARCH 13, 2024
	REPORT NO. : 2024-U020883
	WORK NO. : 2023-008673
	ANALYSIS NO. : T24AF032-0004 - T24AF032-0006

TIME*	RESULT dB(A)		
	วัดสมกก		
	MARCH 3-4, 2024		
	T24AF032-0004		
	L _{Aeq} 1 hour	L _{Amax} 1 hour	L _{A90} 1 hour
07:00-08:00 HOUR	47.7	59.1	45.5
08:00-09:00 HOUR	53.2	66.5	50.9
09:00-10:00 HOUR	60.0	74.3	57.4
10:00-11:00 HOUR	49.1	64.1	46.9
11:00-12:00 HOUR	44.9	58.2	42.0
12:00-13:00 HOUR	48.7	63.2	46.1
13:00-14:00 HOUR	50.4	64.0	47.9
14:00-15:00 HOUR	54.0	69.2	51.7
15:00-16:00 HOUR	55.1	69.2	52.7
16:00-17:00 HOUR	53.6	67.9	51.1
17:00-18:00 HOUR	55.1	70.1	53.1
18:00-19:00 HOUR	52.6	65.9	50.3
19:00-20:00 HOUR	52.0	65.2	49.7
20:00-21:00 HOUR	54.2	68.8	52.3
21:00-22:00 HOUR	51.0	65.8	48.5
22:00-23:00 HOUR	52.3	66.3	49.7
23:00-00:00 HOUR	60.3	72.4	58.0
00:00-01:00 HOUR	58.8	73.2	56.4
01:00-02:00 HOUR	44.6	57.1	42.1
02:00-03:00 HOUR	47.3	62.2	44.6
03:00-04:00 HOUR	48.6	62.2	46.7
04:00-05:00 HOUR	54.3	67.0	51.6
05:00-06:00 HOUR	46.5	61.6	44.4
06:00-07:00 HOUR	48.0	61.6	45.2
L_{Aeq} 24 hours	53.9		
L_{Adn}	60.8		



TIME*	RESULT dB(A)		
	วัดสมบก		
	MARCH 4-5, 2024		
	T24AF032-0005		
	L _{Aeq} 1 hour	L _{Amax} 1 hour	L _{A90} 1 hour
07:00-08:00 HOUR	55.3	69.9	52.9
08:00-09:00 HOUR	58.1	70.4	55.4
09:00-10:00 HOUR	50.4	64.1	48.4
10:00-11:00 HOUR	49.4	62.9	46.9
11:00-12:00 HOUR	49.2	62.5	46.8
12:00-13:00 HOUR	47.3	61.0	45.2
13:00-14:00 HOUR	47.1	61.0	45.2
14:00-15:00 HOUR	50.0	65.0	47.9
15:00-16:00 HOUR	50.7	65.5	48.3
16:00-17:00 HOUR	51.3	64.8	48.5
17:00-18:00 HOUR	50.2	63.6	48.0
18:00-19:00 HOUR	50.6	63.5	48.4
19:00-20:00 HOUR	48.6	62.8	46.0
20:00-21:00 HOUR	49.7	64.6	46.8
21:00-22:00 HOUR	52.3	66.6	50.2
22:00-23:00 HOUR	53.6	66.2	51.3
23:00-00:00 HOUR	51.8	66.3	49.9
00:00-01:00 HOUR	54.7	68.3	52.5
01:00-02:00 HOUR	53.9	68.1	51.8
02:00-03:00 HOUR	53.2	67.2	50.5
03:00-04:00 HOUR	51.1	64.9	49.2
04:00-05:00 HOUR	51.8	66.5	49.3
05:00-06:00 HOUR	48.8	63.2	46.1
06:00-07:00 HOUR	50.8	63.4	48.6
L _{Aeq} 24 hours	52.1		
L _{Adn}	58.8		

TIME*	RESULT dB(A)		
	วัดสบบก		
	MARCH 5-6, 2024		
	T24AF032-0006		
	L _{Aeq} 1 hour	L _{Amax} 1 hour	L _{A90} 1 hour
07:00-08:00 HOUR	53.7	68.1	51.5
08:00-09:00 HOUR	51.9	65.8	50.0
09:00-10:00 HOUR	46.8	61.8	44.6
10:00-11:00 HOUR	44.6	59.9	42.1
11:00-12:00 HOUR	45.6	59.5	43.2
12:00-13:00 HOUR	47.1	62.1	44.6
13:00-14:00 HOUR	55.3	70.3	52.6
14:00-15:00 HOUR	55.2	69.4	52.4
15:00-16:00 HOUR	52.7	67.9	50.6
16:00-17:00 HOUR	50.4	64.3	48.2
17:00-18:00 HOUR	47.5	60.8	45.4
18:00-19:00 HOUR	50.8	64.2	48.2
19:00-20:00 HOUR	50.1	64.1	47.2
20:00-21:00 HOUR	49.8	64.4	47.4
21:00-22:00 HOUR	50.5	64.3	48.1
22:00-23:00 HOUR	44.9	58.2	42.2
23:00-00:00 HOUR	46.3	60.0	44.3
00:00-01:00 HOUR	46.5	60.2	44.5
01:00-02:00 HOUR	48.9	63.5	46.7
02:00-03:00 HOUR	49.8	62.4	47.0
03:00-04:00 HOUR	48.1	62.5	45.4
04:00-05:00 HOUR	46.4	60.7	44.2
05:00-06:00 HOUR	50.1	62.0	48.0
06:00-07:00 HOUR	47.1	60.8	44.8
L _{Aeq} 24 hours		50.3	
L _{Adn}		55.0	

Sila Banjongjairuk

(MR SILA BANJONGJAIRUK)
LABORATORY SUPERVISOR

MARCH 15, 2024

ภาคผนวก ค-3

ใบรายงานผลการวิเคราะห์คุณภาพน้ำทิ้ง

ANALYSIS REPORT

PROJECT NAME : โครงการก่อสร้างท่าเทียบเรือเชียงแสนแห่งที่ 2 (ท่าเรือพาณิชย์เชียงแสน) จังหวัดเชียงราย ระยะดำเนินการ ประจำปี 2567
CUSTOMER NAME : PORT OF CHIANG SAEN
ADDRESS : 888 MOO 10 BANSANSAIKONGNGAM BAN SAE0 CHIANG SAEN CHIANG RAI 57150
CONTACT INFORMATION :
SAMPLING SOURCE : จุดระบายน้ำบริเวณบ้านพัก W1
SAMPLE TYPE : EFFLUENT
SAMPLING DATE : MARCH 12, 2024
SAMPLING TIME : 08:35 HOUR
SAMPLING METHOD : GRAB
SAMPLING BY : MR PEERAPAT BANYATSIN
ANALYZED BY : MISS NAPAPORN KHUNNOKKHUM

RECEIVED DATE : MARCH 13, 2024
ANALYTICAL DATE : MARCH 13-20, 2024
ISSUE DATE : MARCH 22, 2024
REPORT NO. : 2024-U024283
WORK NO. : 2023-008673
ANALYSIS NO. : T24AF166-0001

PARAMETER	UNIT	METHOD OF ANALYSIS	RESULT	DETECTION LIMIT
			จุดระบายน้ำบริเวณบ้านพัก W1 T24AF166-0001	
pH ^a	-	ELECTROMETRIC METHOD (AT SITE) SM: PART 4500 -H ⁺ B AND 1060 B	7.8 (24°C)	-
BIOCHEMICAL OXYGEN DEMAND ^a	mg/L	MEMBRANE ELECTRODE METHOD (SM: PART 5210 B AND PART 4500-O G)	70.7	2.0
SUSPENDED SOLIDS ^a	mg/L	SUSPENDED SOLIDS DRIED AT 103-105 °C (SM: PART 2540 D)	32.6	5.0
TOTAL DISSOLVED SOLIDS ^b	mg/L	TOTAL DISSOLVED SOLIDS DRIED AT 180 °C (SM: PART 2540 C)	598	25
SETTLEABLE SOLIDS ^c	mL/L	IMHOFF CONE (SM: PART 2540 F)	< 0.1	0.1
SULPHIDE ^b	mg/L	IODOMETRIC METHOD (SM: PART 4500-S ²⁻ F)	< 0.50	0.50
TOTAL KJELDAHL NITROGEN ^b	mg/L	IN-HOUSE METHOD: UAE.TP.WAS.001 (KJELDAHL METHOD); SM: PART 4500-Norg C	74.4	1.5
FAT, OIL AND GREASE ^c	mg/L	LIQUID-LIQUID, PARTITION-GRAVIMETRIC METHOD (SM: PART 5520 B)	ND	3
SAMPLE CONDITION WATER'S COLOUR/TURBID SEDIMENT			YELLOW/TURBID BROWN	

^a : ISO/IEC 17025 ACCREDITED BY THAI INDUSTRIAL STANDARDS INSTITUTE (TISI)

^b : ISO/IEC 17025 ACCREDITED BY DEPARTMENT OF SCIENCE SERVICE (DSS)

^c : VERIFIED BY OWN LABORATORY QUALITY SYSTEM, BUT STILL NOT ACCREDITED

IN-HOUSE : BASED ON STANDARD METHODS FOR THE EXAMINATION OF WATER AND WASTEWATER, APHA, AWWA, WEF, 23rd EDITION, 2017.

SM : STANDARD METHODS FOR THE EXAMINATION OF WATER AND WASTEWATER, APHA, AWWA, WEF, 23rd EDITION, 2017.

ND : NON-DETECTABLE.

Piyapat S.

(MRS PIYAPAT SUTTAMANUTWONG)
LABORATORY SUPERVISOR

MARCH 25, 2024



ANALYSIS REPORT

PROJECT NAME : โครงการก่อสร้างท่าเทียบเรือเชียงแสนแห่งที่ 2 (ท่าเรือพาณิชย์เชียงแสน) จังหวัดเชียงราย ระยะดำเนินการ ประจำปี 2567
CUSTOMER NAME : PORT OF CHIANG SAEN
ADDRESS : 888 MOO 10 BANSANSAIKONGNGAM BAN SAE0 CHIANG SAEN CHIANG RAI 57150
CONTACT INFORMATION : [REDACTED]
SAMPLING SOURCE : จุดระบายน้ำบริเวณท่าเรือ W2
SAMPLE TYPE : EFFLUENT
SAMPLING DATE : MARCH 12, 2024
SAMPLING TIME : 08:50 HOUR
SAMPLING METHOD : GRAB
SAMPLING BY : MR PEERAPAT BANYATSIN
ANALYZED BY : MISS NAPAPORN KHUNNOKKHUM
RECEIVED DATE : MARCH 13, 2024
ANALYTICAL DATE : MARCH 13-20, 2024
ISSUE DATE : MARCH 22, 2024
REPORT NO. : 2024-U024284
WORK NO. : 2023-008673
ANALYSIS NO. : T24AF166-0002

PARAMETER	UNIT	METHOD OF ANALYSIS	RESULT	DETECTION LIMIT
			จุดระบายน้ำบริเวณท่าเรือ W2 T24AF166-0002	
pH ^a	-	ELECTROMETRIC METHOD (AT SITE) SM: PART 4500 -H ⁺ B AND 1060 B	8.0 (24°C)	-
BIOCHEMICAL OXYGEN DEMAND ^a	mg/L	MEMBRANE ELECTRODE METHOD (SM: PART 5210 B AND PART 4500-O G)	< 2.0	2.0
SUSPENDED SOLIDS ^c	mg/L	SUSPENDED SOLIDS DRIED AT 103-105 °C (SM: PART 2540 D)	ND	5.0
TOTAL DISSOLVED SOLIDS ^b	mg/L	TOTAL DISSOLVED SOLIDS DRIED AT 180 °C (SM: PART 2540 C)	436	25
SETTLEABLE SOLIDS ^c	mL/L	IMHOFF CONE (SM: PART 2540 F)	< 0.1	0.1
SULPHIDE ^b	mg/L	IODOMETRIC METHOD (SM: PART 4500-S ²⁻ F)	< 0.50	0.50
TOTAL KJELDAHL NITROGEN ^c	mg/L	IN-HOUSE METHOD: UAE.TP.WAS.001 (KJELDAHL METHOD); SM: PART 4500-Norg C	ND	1.5
FAT, OIL AND GREASE ^c	mg/L	LIQUID-LIQUID, PARTITION-GRAVIMETRIC METHOD (SM: PART 5520 B)	ND	3
SAMPLE CONDITION WATER'S COLOUR/TURBID SEDIMENT			COLOURLESS/CLEAR BROWN	

^a : ISO/IEC 17025 ACCREDITED BY THAI INDUSTRIAL STANDARDS INSTITUTE (TISI)

^b : ISO/IEC 17025 ACCREDITED BY DEPARTMENT OF SCIENCE SERVICE (DSS)

^c : VERIFIED BY OWN LABORATORY QUALITY SYSTEM, BUT STILL NOT ACCREDITED

IN-HOUSE : BASED ON STANDARD METHODS FOR THE EXAMINATION OF WATER AND WASTEWATER, APHA, AWWA, WEF, 23rd EDITION, 2017.

SM : STANDARD METHODS FOR THE EXAMINATION OF WATER AND WASTEWATER, APHA, AWWA, WEF, 23rd EDITION, 2017.

ND : NON-DETECTABLE.

Piyapat S.

(MRS PIYAPAT SUTTAMANUTWONG)
LABORATORY SUPERVISOR

MARCH 25, 2024



ภาคผนวก ค-4

ใบรายงานผลการวิเคราะห์คุณภาพน้ำผิวดิน

ANALYSIS REPORT

PROJECT NAME : โครงการก่อสร้างท่าเทียบเรือเชียงแสนแห่งที่ 2 (ท่าเรือพาณิชย์เชียงแสน) จังหวัดเชียงราย ระยะดำเนินการ ประจำปี 2567
CUSTOMER NAME : PORT OF CHIANG SAEN
ADDRESS : 888 MOO 10 BANSANSAIKONGNGAM BAN SAE CHANG SAEN CHIANG RAI 57150
CONTACT INFORMATION : [REDACTED]
SAMPLING SOURCE : แม่น้ำกก ก่อนไหลไปรวมกับแม่น้ำโขง S1 P1
SAMPLE TYPE : SURFACE WATER
SAMPLING DATE : MARCH 11, 2024
SAMPLING TIME : 13:00 HOUR
SAMPLING METHOD : GRAB, GRAB AND STERILE TECHNIQUE
SAMPLING BY : MR PEERAPAT BANYATSIN
ANALYZED BY : MISS SALISA KAMWANNA
RECEIVED DATE : MARCH 12, 2024
ANALYTICAL DATE : MARCH 12-18, 2024
ISSUE DATE : MARCH 26, 2024
REPORT NO. : 2024-U025151
WORK NO. : 2023-008673
ANALYSIS NO. : T24AF076-0001

PARAMETER	UNIT	METHOD OF ANALYSIS	RESULT	DETECTION LIMIT
			SURFACE WATER T24AF076-0001	
pH ^a	-	ELECTROMETRIC METHOD (AT SITE) SM: PART 4500 -H ⁺ B AND 1060 B	8.3 (30°C)	-
DISSOLVED OXYGEN ^c	mg/L	AZIDE MODIFICATION METHOD AT SITE (SM: PART 4500-O C)	5.2	0.5
TURBIDITY ^c	NTU	NEPHELOMETRIC METHOD (SM: PART 2130 B)	60	0.1
BIOCHEMICAL OXYGEN DEMAND ^c	mg/L	AZIDE MODIFICATION METHOD (SM: PART 5210 B AND PART 4500-O C)	2.1	1.0
TOTAL SUSPENDED SOLIDS ^a	mg/L	TOTAL SUSPENDED SOLIDS DRIED AT 103-105 °C (SM: PART 2540 D)	38.4	5.0
FAT, OIL AND GREASE ^c	mg/L	LIQUID-LIQUID, PARTITION-GRAVIMETRIC METHOD (SM: PART 5520 B)	ND	3
NITRATE ^c	mg/L NO ₃ ⁻	CADMIUM REDUCTION METHOD (SM: PART 4500-NO ₃ ⁻ E)	0.22	0.09
PHOSPHATE ^c	mg/L PO ₄ ³⁻	ASCORBIC ACID METHOD (SM: PART 4500-P E)	0.09	0.03
MICROBIOLOGY				
COLIFORM BACTERIA ^b	MPN/100 mL	MULTIPLE-TUBE FERMENTATION TECHNIQUE (SM: PART 9221 B)	460	1.8
FAECAL COLIFORM BACTERIA ^b	MPN/100 mL	MULTIPLE-TUBE FERMENTATION TECHNIQUE (SM: PART 9221 E)	460	1.8
SAMPLE CONDITION WATER'S COLOUR/TURBID SEDIMENT			YELLOW/TURBID BROWN	

^a : ISO/IEC 17025 ACCREDITED BY THAI INDUSTRIAL STANDARDS INSTITUTE (TISI)

^b : ISO/IEC 17025 ACCREDITED BY DEPARTMENT OF SCIENCE SERVICE (DSS)

^c : VERIFIED BY OWN LABORATORY QUALITY SYSTEM, BUT STILL NOT ACCREDITED

SM : STANDARD METHODS FOR THE EXAMINATION OF WATER AND WASTEWATER, APHA, AWWA, WEF, 23rd EDITION, 2017.

ND : NON-DETECTABLE.


(MISS CHAWEEVAN BOONLA)
LABORATORY SUPERVISOR

MARCH 27, 2024



ANALYSIS REPORT

PROJECT NAME : โครงการก่อสร้างท่าเทียบเรือเชียงแสนแห่งที่ 2 (ท่าเรือพาณิชย์เชียงแสน) จังหวัดเชียงราย ระยะดำเนินการ ประจำปี 2567

CUSTOMER NAME : PORT OF CHIANG SAEN

ADDRESS : 888 MOO 10 BANSANSAIKONGNGAM BAN SAE0 CHIANG SAEN CHIANG RAI 57150

CONTACT INFORMATION : [REDACTED]

SAMPLING SOURCE : แม่น้ำโขง บริเวณจุดบรรจบแม่น้ำกก S2 P2

SAMPLE TYPE : SURFACE WATER

SAMPLING DATE : MARCH 11, 2024

SAMPLING TIME : 11:30 HOUR

SAMPLING METHOD : GRAB, GRAB AND STERILE TECHNIQUE

SAMPLING BY : MR PEERAPAT BANYATSIN

ANALYZED BY : MISS SALISA KAMWANNA

RECEIVED DATE : MARCH 12, 2024

ANALYTICAL DATE : MARCH 12-18, 2024

ISSUE DATE : MARCH 26, 2024

REPORT NO. : 2024-U025152

WORK NO. : 2023-008673

ANALYSIS NO. : T24AF076-0005

PARAMETER	UNIT	METHOD OF ANALYSIS	RESULT	DETECTION LIMIT
			SURFACE WATER T24AF076-0005	
pH ^a	-	ELECTROMETRIC METHOD (AT SITE) SM: PART 4500 -H ⁺ B AND 1060 B	8.3 (23°C)	-
DISSOLVED OXYGEN ^c	mg/L	AZIDE MODIFICATION METHOD AT SITE (SM: PART 4500-O C)	5.9	0.5
TURBIDITY ^c	NTU	NEPHELOMETRIC METHOD (SM: PART 2130 B)	7.4	0.1
BIOCHEMICAL OXYGEN DEMAND ^c	mg/L	AZIDE MODIFICATION METHOD (SM: PART 5210 B AND PART 4500-O C)	1.8	1.0
TOTAL SUSPENDED SOLIDS ^a	mg/L	TOTAL SUSPENDED SOLIDS DRIED AT 103-105 °C (SM: PART 2540 D)	9.3	5.0
FAT, OIL AND GREASE ^c	mg/L	LIQUID-LIQUID, PARTITION-GRAVIMETRIC METHOD (SM: PART 5520 B)	ND	3
NITRATE ^c	mg/L NO ₃ ⁻	CADMIUM REDUCTION METHOD (SM: PART 4500-NO ₃ ⁻ E)	0.58	0.09
PHOSPHATE ^c	mg/L PO ₄ ³⁻	ASCORBIC ACID METHOD (SM: PART 4500-P E)	0.06	0.03
MICROBIOLOGY				
COLIFORM BACTERIA ^b	MPN/100 mL	MULTIPLE-TUBE FERMENTATION TECHNIQUE (SM: PART 9221 B)	490	1.8
FAECAL COLIFORM BACTERIA ^b	MPN/100 mL	MULTIPLE-TUBE FERMENTATION TECHNIQUE (SM: PART 9221 E)	130	1.8
SAMPLE CONDITION			YELLOW/CLEAR BROWN	
WATER'S COLOUR/TURBID SEDIMENT				


^a : ISO/IEC 17025 ACCREDITED BY THAI INDUSTRIAL STANDARDS INSTITUTE (TISI)

^b : ISO/IEC 17025 ACCREDITED BY DEPARTMENT OF SCIENCE SERVICE (DSS)

^c : VERIFIED BY OWN LABORATORY QUALITY SYSTEM, BUT STILL NOT ACCREDITED

SM : STANDARD METHODS FOR THE EXAMINATION OF WATER AND WASTEWATER, APHA, AWWA, WEF, 23rd EDITION, 2017.

ND : NON-DETECTABLE.


(MISS CHAWEEVAN BOONLA)
LABORATORY SUPERVISOR

MARCH 27, 2024



ANALYSIS REPORT

PROJECT NAME : โครงการก่อสร้างท่าเทียบเรือเชียงแสนแห่งที่ 2 (ท่าเรือพาณิชย์เชียงแสน) จังหวัดเชียงราย ระยะดำเนินการ ประจำปี 2567
CUSTOMER NAME : PORT OF CHIANG SAEN
ADDRESS : 888 MOO 10 BANSANSAIKONGNGAM BAN SAE0 CHIANG SAEN CHIANG RAI 57150
CONTACT INFORMATION : [REDACTED]
SAMPLING SOURCE : แม่น้ำโขง บริเวณหน้าท่าเรือ S3
SAMPLE TYPE : SURFACE WATER
SAMPLING DATE : MARCH 11, 2024
SAMPLING TIME : 11:10 HOUR
SAMPLING METHOD : GRAB, GRAB AND STERILE TECHNIQUE
SAMPLING BY : MR PEERAPAT BANYATSIN
ANALYZED BY : MISS SALISA KAMWANNA
RECEIVED DATE : MARCH 12, 2024
ANALYTICAL DATE : MARCH 12-18, 2024
ISSUE DATE : MARCH 26, 2024
REPORT NO. : 2024-U025153
WORK NO. : 2023-008673
ANALYSIS NO. : T24AF076-0009

PARAMETER	UNIT	METHOD OF ANALYSIS	RESULT	DETECTION LIMIT
			SURFACE WATER T24AF076-0009	
pH ^a	-	ELECTROMETRIC METHOD (AT SITE) SM: PART 4500 -H ⁺ B AND 1060 B	8.5 (24°C)	-
DISSOLVED OXYGEN ^c	mg/L	AZIDE MODIFICATION METHOD AT SITE (SM: PART 4500-O C)	5.5	0.5
TURBIDITY ^c	NTU	NEPHELOMETRIC METHOD (SM: PART 2130 B)	11	0.1
BIOCHEMICAL OXYGEN DEMAND ^c	mg/L	AZIDE MODIFICATION METHOD (SM: PART 5210 B AND PART 4500-O C)	2.0	1.0
TOTAL SUSPENDED SOLIDS ^a	mg/L	TOTAL SUSPENDED SOLIDS DRIED AT 103-105 °C (SM: PART 2540 D)	11.1	5.0
FAT, OIL AND GREASE ^c	mg/L	LIQUID-LIQUID, PARTITION-GRAVIMETRIC METHOD (SM: PART 5520 B)	ND	3
NITRATE ^c	mg/L NO ₃ ⁻	CADMIUM REDUCTION METHOD (SM: PART 4500-NO ₃ ⁻ E)	0.62	0.09
PHOSPHATE ^c	mg/L PO ₄ ³⁻	ASCORBIC ACID METHOD (SM: PART 4500-P E)	0.03	0.03
MICROBIOLOGY				
COLIFORM BACTERIA ^b	MPN/100 mL	MULTIPLE-TUBE FERMENTATION TECHNIQUE (SM: PART 9221 B)	490	1.8
FAECAL COLIFORM BACTERIA ^b	MPN/100 mL	MULTIPLE-TUBE FERMENTATION TECHNIQUE (SM: PART 9221 E)	79	1.8
SAMPLE CONDITION WATER'S COLOUR/TURBID SEDIMENT			YELLOW/CLEAR BROWN	

^a : ISO/IEC 17025 ACCREDITED BY THAI INDUSTRIAL STANDARDS INSTITUTE (TISI)

^b : ISO/IEC 17025 ACCREDITED BY DEPARTMENT OF SCIENCE SERVICE (DSS)

^c : VERIFIED BY OWN LABORATORY QUALITY SYSTEM, BUT STILL NOT ACCREDITED

SM : STANDARD METHODS FOR THE EXAMINATION OF WATER AND WASTEWATER, APHA, AWWA, WEF, 23rd EDITION, 2017.

ND : NON-DETECTABLE.



(MISS CHAWEEVAN BOONLA)
LABORATORY SUPERVISOR

MARCH 27, 2024



ANALYSIS REPORT

PROJECT NAME : โครงการก่อสร้างท่าเทียบเรือเชียงแสนแห่งที่ 2 (ท่าเรือพาณิชย์เชียงแสน) จังหวัดเชียงราย ระยะดำเนินการ ประจำปี 2567
CUSTOMER NAME : PORT OF CHIANG SAEN
ADDRESS : 888 MOO 10 BANSANSAIKONGNGAM BAN SAE CHANG SAEN CHIANG RAI 57150
CONTACT INFORMATION : [REDACTED]
SAMPLING SOURCE : แม่น้ำโขง ห่างจากท่าเรือพาณิชย์เชียงแสนปัจจุบันไปทางด้านท้ายน้ำ 500 เมตร S4 P3
SAMPLE TYPE : SURFACE WATER
SAMPLING DATE : MARCH 11, 2024
SAMPLING TIME : 10:00 HOUR
SAMPLING METHOD : GRAB, GRAB AND STERILE TECHNIQUE
SAMPLING BY : MR PEERAPAT BANYATSIN
ANALYZED BY : MISS SALISA KAMWANNA

RECEIVED DATE : MARCH 12, 2024
ANALYTICAL DATE : MARCH 12-18, 2024
ISSUE DATE : MARCH 26, 2024
REPORT NO. : 2024-U025154
WORK NO. : 2023-008673
ANALYSIS NO. : T24AF076-0010

PARAMETER	UNIT	METHOD OF ANALYSIS	RESULT	DETECTION LIMIT
			SURFACE WATER T24AF076-0010	
pH ^a	-	ELECTROMETRIC METHOD (AT SITE) SM: PART 4500 -H ⁺ B AND 1060 B	8.4 (23°C)	-
DISSOLVED OXYGEN ^c	mg/L	AZIDE MODIFICATION METHOD AT SITE (SM: PART 4500-O C)	5.8	0.5
TURBIDITY ^c	NTU	NEPHELOMETRIC METHOD (SM: PART 2130 B)	7.1	0.1
BIOCHEMICAL OXYGEN DEMAND ^c	mg/L	AZIDE MODIFICATION METHOD (SM: PART 5210 B AND PART 4500-O C)	1.6	1.0
TOTAL SUSPENDED SOLIDS ^a	mg/L	TOTAL SUSPENDED SOLIDS DRIED AT 103-105 °C (SM: PART 2540 D)	11.4	5.0
FAT, OIL AND GREASE ^c	mg/L	LIQUID-LIQUID, PARTITION-GRAVIMETRIC METHOD (SM: PART 5520 B)	ND	3
NITRATE ^c	mg/L NO ₃ ⁻	CADMIUM REDUCTION METHOD (SM: PART 4500-NO ₃ ⁻ E)	0.62	0.09
PHOSPHATE ^c	mg/L PO ₄ ³⁻	ASCORBIC ACID METHOD (SM: PART 4500-P E)	0.03	0.03
MICROBIOLOGY				
COLIFORM BACTERIA ^b	MPN/100 mL	MULTIPLE-TUBE FERMENTATION TECHNIQUE (SM: PART 9221 B)	240	1.8
FAECAL COLIFORM BACTERIA ^b	MPN/100 mL	MULTIPLE-TUBE FERMENTATION TECHNIQUE (SM: PART 9221 E)	33	1.8
SAMPLE CONDITION				
WATER'S COLOUR/TURBID			YELLOW/CLEAR	
SEDIMENT			BROWN	

^a : ISO/IEC 17025 ACCREDITED BY THAI INDUSTRIAL STANDARDS INSTITUTE (TISI)

^b : ISO/IEC 17025 ACCREDITED BY DEPARTMENT OF SCIENCE SERVICE (DSS)

^c : VERIFIED BY OWN LABORATORY QUALITY SYSTEM, BUT STILL NOT ACCREDITED

SM : STANDARD METHODS FOR THE EXAMINATION OF WATER AND WASTEWATER, APHA, AWWA, WEF, 23rd EDITION, 2017.

ND : NON-DETECTABLE.


.....
(MISS CHAWEewan BOONLA)
LABORATORY SUPERVISOR

MARCH 27, 2024



ANALYSIS REPORT

PROJECT NAME : โครงการก่อสร้างท่าเทียบเรือเชียงแสนแห่งที่ 2 (ท่าเรือพาณิชย์เชียงแสน) จังหวัดเชียงราย ระยะดำเนินการ ประจำปี 2567

CUSTOMER NAME : PORT OF CHIANG SAEN

ADDRESS : 888 MOO 10 BANSANSAIKONGNGAM BAN SAE CHANG SAEN CHIANG RAI 57150

CONTACT INFORMATION : [REDACTED]

SAMPLING SOURCE : แม่น้ำโขง ด้านท้ายน้ำบริเวณบ้านแซว S5 P4

SAMPLE TYPE : SURFACE WATER

SAMPLING DATE : MARCH 11, 2024

SAMPLING TIME : 09:00 HOUR

SAMPLING METHOD : GRAB, GRAB AND STERILE TECHNIQUE

SAMPLING BY : MR PEERAPAT BANYATSIN

ANALYZED BY : MISS SALISA KAMWANNA

RECEIVED DATE : MARCH 12, 2024

ANALYTICAL DATE : MARCH 12-18, 2024

ISSUE DATE : MARCH 26, 2024

REPORT NO. : 2024-U025155

WORK NO. : 2023-008673

ANALYSIS NO. : T24AF076-0014

PARAMETER	UNIT	METHOD OF ANALYSIS	RESULT	DETECTION LIMIT
			SURFACE WATER T24AF076-0014	
pH ^a	-	ELECTROMETRIC METHOD (AT SITE) SM: PART 4500 -H ⁺ B AND 1060 B	8.4 (23°C)	-
DISSOLVED OXYGEN ^c	mg/L	AZIDE MODIFICATION METHOD AT SITE (SM: PART 4500-O C)	5.7	0.5
TURBIDITY ^c	NTU	NEPHELOMETRIC METHOD (SM: PART 2130 B)	11	0.1
BIOCHEMICAL OXYGEN DEMAND ^c	mg/L	AZIDE MODIFICATION METHOD (SM: PART 5210 B AND PART 4500-O C)	1.8	1.0
TOTAL SUSPENDED SOLIDS ^a	mg/L	TOTAL SUSPENDED SOLIDS DRIED AT 103-105 °C (SM: PART 2540 D)	10.8	5.0
FAT, OIL AND GREASE ^c	mg/L	LIQUID-LIQUID, PARTITION-GRAVIMETRIC METHOD (SM: PART 5520 B)	ND	3
NITRATE ^c	mg/L NO ₃ ⁻	CADMIUM REDUCTION METHOD (SM: PART 4500-NO ₃ ⁻ E)	0.58	0.09
PHOSPHATE ^c	mg/L PO ₄ ³⁻	ASCORBIC ACID METHOD (SM: PART 4500-P E)	0.06	0.03
MICROBIOLOGY				
COLIFORM BACTERIA ^b	MPN/100 mL	MULTIPLE-TUBE FERMENTATION TECHNIQUE (SM: PART 9221 B)	3,300	1.8
FAECAL COLIFORM BACTERIA ^b	MPN/100 mL	MULTIPLE-TUBE FERMENTATION TECHNIQUE (SM: PART 9221 E)	1,300	1.8
SAMPLE CONDITION				
WATER'S COLOUR/TURBID			YELLOW/CLEAR	
SEDIMENT			BROWN	

^a : ISO/IEC 17025 ACCREDITED BY THAI INDUSTRIAL STANDARDS INSTITUTE (TISI)

^b : ISO/IEC 17025 ACCREDITED BY DEPARTMENT OF SCIENCE SERVICE (DSS)

^c : VERIFIED BY OWN LABORATORY QUALITY SYSTEM, BUT STILL NOT ACCREDITED

SM : STANDARD METHODS FOR THE EXAMINATION OF WATER AND WASTEWATER, APHA, AWWA, WEF, 23rd EDITION, 2017.

ND : NON-DETECTABLE.


(MISS CHAWEewan BOONLA)
LABORATORY SUPERVISOR

MARCH 27, 2024



ANALYSIS REPORT

PROJECT NAME : โครงการก่อสร้างท่าเทียบเรือเชียงแสนแห่งที่ 2 (ท่าเรือพาณิชย์เชียงแสน) จังหวัดเชียงราย ระยะดำเนินการ ประจำปี 2567
CUSTOMER NAME : PORT OF CHIANG SAEN
ADDRESS : 888 MOO 10 BANSANSAIKONGNGAM BAN SAEO CHIANG SAEN CHIANG RAI 57150
CONTACT INFORMATION :
SAMPLING SOURCE : -
SAMPLE TYPE : BLANK (SURFACE WATER) **RECEIVED DATE** : MARCH 12, 2024
SAMPLING DATE : - **ANALYTICAL DATE** : MARCH 12-18, 2024
SAMPLING TIME : - **ISSUE DATE** : MARCH 26, 2024
SAMPLING METHOD : - **REPORT NO.** : 2024-U025156
SAMPLING BY : - **WORK NO.** : 2023-008673
ANALYZED BY : MISS SALISA KAMWANNA **ANALYSIS NO.** : 2024-FB0220, 2024-TB0212

PARAMETER	UNIT	METHOD OF ANALYSIS	RESULT		DETECTION LIMIT
			1 2024-FB0220	2 2024-TB0212	
TURBIDITY	NTU	NEPHELOMETRIC METHOD (SM: PART 2130 B)	ND	ND	0.1
BIOCHEMICAL OXYGEN DEMAND	mg/L	AZIDE MODIFICATION METHOD (SM: PART 5210 B AND PART 4500-O C)	< 1.0	< 1.0	1.0
TOTAL SUSPENDED SOLIDS	mg/L	TOTAL SUSPENDED SOLIDS DRIED AT 103-105 °C (SM: PART 2540 D)	ND	ND	5.0
FAT, OIL AND GREASE	mg/L	LIQUID-LIQUID, PARTITION-GRAVIMETRIC METHOD (SM: PART 5520 B)	ND	ND	3
NITRATE	mg/L NO ₃ ⁻	CADMIUM REDUCTION METHOD (SM: PART 4500 -NO ₃ ⁻ E)	ND	ND	0.09
PHOSPHATE	mg/L PO ₄ ³⁻	ASCORBIC ACID METHOD (SM: PART 4500-P E)	ND	ND	0.03
MICROBIOLOGY					
COLIFORM BACTERIA	MPN/100 mL	MULTIPLE-TUBE FERMENTATION TECHNIQUE (SM: PART 9221 B)	< 1.8	< 1.8	1.8
FAECAL COLIFORM BACTERIA	MPN/100 mL	MULTIPLE-TUBE FERMENTATION TECHNIQUE (SM: PART 9221 E)	< 1.8	< 1.8	1.8
SAMPLE CONDITION WATER'S COLOUR/TURBID SEDIMENT			COLOURLESS/CLEAR	COLOURLESS/CLEAR	

SM : STANDARD METHODS FOR THE EXAMINATION OF WATER AND WASTEWATER, APHA, AWWA, WEF, 23rd EDITION, 2017.
RESULT 1 : FIELD BLANK
RESULT 2 : TRIP BLANK
ND : NON-DETECTABLE.


.....
(MISS CHAWEEWAN BOONLA)
LABORATORY SUPERVISOR

MARCH 27, 2024



ภาคผนวก ค-5

ใบรายงานผลการวิเคราะห์นิเวศวิทยาทางน้ำ

ANALYSIS REPORT

PROJECT NAME : โครงการก่อสร้างท่าเทียบเรือเชียงแสนแห่งที่ 2 (ท่าเรือพาณิชย์เชียงแสน) จังหวัดเชียงราย ระยะดำเนินการ ประจำปี 2567

CUSTOMER NAME : PORT OF CHIANG SAEN

ADDRESS : 888 MOO 10 BANSANSAIKONGNGAM BAN SAEO CHIANG SAEN CHIANG RAI 57150

CONTACT INFORMATION : [REDACTED]

SAMPLING SOURCE : -

SAMPLE TYPE : SURFACE WATER

SAMPLING DATE : MARCH 11, 2024

SAMPLING TIME : *

SAMPLING METHOD^b : PLANKTON NET

SAMPLING BY^b : MR PEERAPAT BANYATSIN

ANALYZED BY : MISS NAPAPORN PURATAKO

RECEIVED DATE : MARCH 12, 2024

ANALYTICAL DATE : MARCH 12-21, 2024

ISSUE DATE : MARCH 26, 2024

REPORT NO. : 2024-U024898

WORK NO. : 2023-008673

ANALYSIS NO. : T24AF076-0002, T24AF076-0006, T24AF076-0011, T24AF076-0015

PHYTOPLANKTON (Natural Units/mL)	COUNTING UNIT	RESULT ¹			
		SAMPLE NO. 1 13:05 HOUR *	SAMPLE NO. 2 11:35 HOUR *	SAMPLE NO. 3 10:05 HOUR *	SAMPLE NO. 4 09:05 HOUR *
		T24AF076-0002	T24AF076-0006	T24AF076-0011	T24AF076-0015
Division Cyanophyta					
Class Cyanophyceae					
Family Chroococcaceae					
<i>Merismopedia</i> spp. ^b	COLONY	2	10	0	0
Family Oscillatoriaceae					
<i>Oscillatoria</i> spp. ^b	FILAMENT	37	61	55	98
Division Chlorophyta					
Class Chlorophyceae					
Family Chlamydomonadaceae					
<i>Gonium</i> spp. ^b	COLONY	0	0	0	3
<i>Pandorina morum</i> ^b	COLONY	0	15	0	14
Family Hydrodictyaceae					
<i>Pediastrum</i> spp. ^a	COLONY	16	186	73	146
Family Coelastraceae					
<i>Coelastrum</i> spp. ^a	COLONY	0	14	0	7
Family Oocystaceae					
<i>Ankistrodesmus</i> spp. ^b	COLONY	0	7	0	0
<i>Closteriopsis longissima</i> ^b	CELL	0	0	0	3
<i>Dictyosphaerium</i> spp. ^b	COLONY	2	0	0	0
<i>Selenastrum</i> spp. ^b	COLONY	0	3	3	0
Family Scenedesmaceae					
<i>Actinastrum</i> spp. ^b	COLONY	2	38	22	37
<i>Crucigenia</i> spp. ^b	COLONY	0	0	3	0
<i>Scenedesmus</i> spp. ^a	COLONY	45	73	39	58
Family Zygnemataceae					
<i>Spirogyra</i> spp. ^b	FILAMENT	2	0	0	0



PHYTOPLANKTON (Natural Units/mL)	COUNTING UNIT	RESULT ¹			
		SAMPLE NO. 1 13:05 HOUR *	SAMPLE NO. 2 11:35 HOUR *	SAMPLE NO. 3 10:05 HOUR *	SAMPLE NO. 4 09:05 HOUR *
		T24AF076-0002	T24AF076-0006	T24AF076-0011	T24AF076-0015
Family Desmidiaceae					
<i>Closterium</i> spp. ^b	CELL	10	0	0	0
<i>Cosmarium</i> spp. ^b	CELL	14	3	0	0
<i>Staurostrum</i> spp. ^b	CELL	5	7	0	8
Class Euglenophyceae					
Family Euglenaceae					
<i>Euglena</i> spp. ^a	CELL	12	3	0	0
<i>Phacus</i> spp. ^a	CELL	10	8	0	0
Division Chromophyta					
Class Bacillariophyceae					
Family Thalassiosiraceae					
<i>Cyclotella</i> spp. ^b	CELL	84	126	105	73
Family Melosiraceae					
<i>Melosira</i> spp. ^b	FILAMENT	0	16	0	0
Family Aulacoseiraceae					
<i>Aulacoseira granulata</i> ^b	FILAMENT	0	624	247	458
Family Fragilariaceae					
<i>Fragilaria</i> spp. ^b	CELL	103	0	194	146
<i>Synedra rumpens</i> ^b	CELL	56	796	604	628
<i>S. ulna</i> ^b	CELL	172	915	337	563
Family Eunotiaceae					
<i>Eunotia</i> spp. ^b	CELL	0	0	7	0
Family Cymbellaceae					
<i>Cymbella</i> spp. ^b	CELL	9	0	0	3
<i>Gomphonema</i> spp. ^b	CELL	0	23	0	0
Family Naviculaceae					
<i>Gyrosigma</i> spp. ^b	CELL	38	53	44	40
<i>Navicula</i> spp. ^b	CELL	44	177	147	403
Family Bacillariaceae					
<i>Nitzschia</i> spp. ^b	CELL	74	31	0	3
Family Rhopalodiaceae					
<i>Rhopalodia</i> spp. ^b	CELL	0	0	0	3
Family Surirellaceae					
<i>Surirella</i> spp. ^b	CELL	535	173	112	107
Class Dinophyceae					
Family Ceratiaceae					
<i>Ceratium</i> spp. ^b	CELL	0	10	7	16

PHYTOPLANKTON (Natural Units/mL)	COUNTING UNIT	RESULT ^a			
		SAMPLE NO. 1 13:05 HOUR * T24AF076-0002	SAMPLE NO. 2 11:35 HOUR * T24AF076-0006	SAMPLE NO. 3 10:05 HOUR * T24AF076-0011	SAMPLE NO. 4 09:05 HOUR * T24AF076-0015
Family Peridiniaceae <i>Peridinium</i> spp. ^b	CELL	0	16	8	14
TOTAL ABUNDANCE ^b	(Natural Units/mL)	1,272	3,388	2,007	2,831
ORGANISMS COUNTED ^b	NUMBER	21	25	17	22
SAMPLE VOLUME COLLECTION ^b	mL	110	94	94	100
SAMPLE VOLUME FILTERED THROUGH PLANKTON NET ^b	LITER	40	40	40	40
SAMPLE CONDITION (VISUAL OBSERVATION)					
COLOUR AND TURBIDITY OF WATER		COLOURLESS/CLEAR	COLOURLESS/CLEAR	COLOURLESS/CLEAR	COLOURLESS/CLEAR
COLOUR OF SEDIMENT		BROWN	BROWN	BROWN	BROWN

^a : ISO/IEC 17025 ACCREDITED BY DEPARTMENT OF SCIENCE SERVICE (DSS)

^b : VERIFIED BY OWN LABORATORY QUALITY SYSTEM, BUT NOT IN SCOPE OF ACCREDITATION

หมายเหตุ: 1. STANDARD METHODS FOR THE EXAMINATION OF WATER AND WASTEWATER, APHA, AWWA, WEF 23rd EDITION, 2017 PART 10200 F.

2. REPORTING COUNTS (Natural Units/mL) BASED ON SUBSAMPLING 1 mL FILTERED WATER SAMPLE WHICH FIELD COLLECTED FROM A PLANKTON NET TOWING.

SAMPLE NAME SAMPLE NO. 1 แม่น้ำกก ก่อนไหลไปรวมกับแม่น้ำโขง S1 P1

SAMPLE NO. 2 แม่น้ำโขง บริเวณจุดบรรจบแม่น้ำกก S2 P2

SAMPLE NO. 3 แม่น้ำโขง ห่างจากท่าเรือพาณิชยเชียงใหม่แสนปีจจุบันไปทางด้านท้ายน้ำ 500 เมตร S4 P3

SAMPLE NO. 4 แม่น้ำโขง ด้านท้ายน้ำบริเวณบ้านแซว S5 P4


(MISS CHAWEEVAN BOONLA)
LABORATORY SUPERVISOR

MARCH 27, 2024

ANALYSIS REPORT

PROJECT NAME : โครงการก่อสร้างท่าเทียบเรือเชียงแสนแห่งที่ 2 (ท่าเรือพาณิชย์เชียงแสน) จังหวัดเชียงราย ระยะดำเนินการ ประจำปี 2567

CUSTOMER NAME : PORT OF CHIANG SAEN

ADDRESS : 888 MOO 10 BANSANSAIKONGNGAM BAN SAEO CHIANG SAEN CHIANG RAI 57150

CONTACT INFORMATION : [REDACTED]

SAMPLING SOURCE : -

SAMPLE TYPE : SURFACE WATER

SAMPLING DATE : MARCH 11, 2024

SAMPLING TIME : *

SAMPLING METHOD : PLANKTON NET

SAMPLING BY : MR PEERAPAT BANYAT SIN

ANALYZED BY : MISS NAPAPORN PURATAKO

RECEIVED DATE : MARCH 12, 2024

ANALYTICAL DATE : MARCH 12-15, 2024

ISSUE DATE : MARCH 26, 2024

REPORT NO. : 2024-U024899

WORK NO. : 2023-008673

ANALYSIS NO. : T24AF076-0002, T24AF076-0006, T24AF076-0011, T24AF076-0015

ZOOPLANKTON (UNITS/m) ³	COUNTING UNIT	RESULT			
		SAMPLE NO. 1	SAMPLE NO. 2	SAMPLE NO. 3	SAMPLE NO. 4
		13:05 HOUR * T24AF076-0002	11:35 HOUR * T24AF076-0006	10:05 HOUR * T24AF076-0011	09:05 HOUR * T24AF076-0015
Phylum Protozoa					
Class Sarcodina					
Family Arcellidae					
<i>Arcella</i> sp.	CELL	1,900	4,500	7,659	4,200
Family Diffugiidae					
<i>Diffugia</i> sp.	CELL	628	2,993	3,841	2,793
<i>Centropyxis</i> sp.	CELL	0	5,243	0	3,507
Phylum Nematoda					
Unknown Nematode	INDIVIDUAL	0	1,508	0	694
Phylum Rotifera					
Class Monogononta					
Family Synchaetidae					
<i>Synchaeta</i> sp.	INDIVIDUAL	0	0	1,541	0
Class Digononta					
Family Philodinidae					
<i>Rotaria</i> sp.	INDIVIDUAL	5,073	743	2,300	1,407
Phylum Arthropoda					
Class Crustacea					
Nauplius of Copepod	INDIVIDUAL	4,427	0	760	0



ZOOPLANKTON (UNITS/m) ³	COUNTING UNIT	RESULT			
		SAMPLE NO. 1 13:05 HOUR * T24AF076-0002	SAMPLE NO. 2 11:35 HOUR * T24AF076-0006	SAMPLE NO. 3 10:05 HOUR * T24AF076-0011	SAMPLE NO. 4 09:05 HOUR * T24AF076-0015
Family Bosminidae <i>Bosmina</i> sp.	INDIVIDUAL	2,528	0	0	0
TOTAL ABUNDANCE	UNITS/m ³	14,556	14,987	16,101	12,601
ORGANISMS COUNTED	NUMBER	5	5	5	5
SAMPLE CONDITION (VISUAL OBSERVATION)					
COLOUR AND TURBIDITY OF WATER		COLOURLESS/CLEAR	COLOURLESS/CLEAR	COLOURLESS/CLEAR	COLOURLESS/CLEAR
COLOUR OF SEDIMENT		BROWN	BROWN	BROWN	BROWN

หมายเหตุ: 1. STANDARD METHODS FOR THE EXAMINATION OF WATER AND WASTEWATER, APHA, AWWA, WEF 23rd EDITION, 2017 PART 10200 F.

SAMPLE NAME SAMPLE NO. 1 แม่น้ำกก ก่อนไหลไปรวมกับแม่น้ำโขง S1 P1
 SAMPLE NO. 2 แม่น้ำโขง บริเวณจุดบรรจบแม่น้ำกก S2 P2
 SAMPLE NO. 3 แม่น้ำโขง ห่างจากท่าเรือพาณิชย์เชียงแสนปัจจุบันไปทางด้านท้ายน้ำ 500 เมตร S4 P3
 SAMPLE NO. 4 แม่น้ำโขง ด้านท้ายน้ำบริเวณบ้านแซว S5 P4



 (MISS CHAWEEVAN BOONLA)
 LABORATORY SUPERVISOR

MARCH 27, 2024

ANALYSIS REPORT

PROJECT NAME : โครงการก่อสร้างท่าเทียบเรือเชียงแสนแห่งที่ 2 (ท่าเรือพาณิชย์เชียงแสน) จังหวัดเชียงราย ระยะดำเนินการ ประจำปี 2567
CUSTOMER NAME : PORT OF CHIANG SAEN
ADDRESS : 888 MOO 10 BANSANSAIKONGNGAM BAN SAE0 CHIANG SAEN CHIANG RAI 57150
CONTACT INFORMATION :
SAMPLING SOURCE : -
SAMPLE TYPE : SEDIMENT
SAMPLING DATE : MARCH 11, 2024
SAMPLING TIME : *
SAMPLING METHOD : PETERSEN GRAB
SAMPLING BY : MR PEERAPAT BANYATSIN
ANALYZED BY : MISS PATCHAREE KONGCHUMNAN
RECEIVED DATE : MARCH 12, 2024
ANALYTICAL DATE : MARCH 12-15, 2024
ISSUE DATE : MARCH 26, 2024
REPORT NO. : 2024-U024901
WORK NO. : 2023-008673
ANALYSIS NO. : T24AF076-0003, T24AF076-0007, T24AF076-0012, T24AF076-0016

BENTHOS (INDIVIDUALS/m ²)	RESULT			
	SAMPLE NO. 1 13:10 HOUR * T24AF076-0003	SAMPLE NO. 2 11:40 HOUR * T24AF076-0007	SAMPLE NO. 3 10:10 HOUR * T24AF076-0012	SAMPLE NO. 4 09:10 HOUR * T24AF076-0016
Phylum Annelida Class Oligochaeta Family Tubificidae	0	0	14	7
Phylum Mollusca Class Bivalvia Family Corbiculidae <i>Corbicula</i> sp.	0	0	21	7
Phylum Arthropoda Class Insecta Family Chironomidae <i>Chironomus</i> sp.	77	14	0	7
Family Baetidae	0	0	0	7
TOTAL DENSITY (INDIVIDUALS/m ²)	77	14	35	28
AMOUNT OF SPECIES	1	1	2	4
SAMPLE CONDITION	GRAVEL	GRAVEL	GRAVEL	GRAVEL

SAMPLE NO. 1 แม่น้ำกก ก่อนไหลไปรวมกับแม่น้ำโขง S1 P1
SAMPLE NO. 2 แม่น้ำโขง บริเวณจุดบรรจบแม่น้ำกก S2 P2
SAMPLE NO. 3 แม่น้ำโขง ห่างจากท่าเรือพาณิชย์เชียงแสนปัจจุบันไปทางด้านท้ายน้ำ 500 เมตร S4 P3
SAMPLE NO. 4 แม่น้ำโขง ด้านท้ายน้ำบริเวณบ้านแขว S5 P4


 (MISS CHAWEEWAN BOONLA)
 LABORATORY SUPERVISOR

MARCH 27, 2024




ANALYSIS REPORT

PROJECT NAME : โครงการก่อสร้างท่าเทียบเรือเชียงแสนแห่งที่ 2 (ท่าเรือพาณิชย์เชียงแสน) จังหวัดเชียงราย ระยะดำเนินการ ประจำปี 2567
CUSTOMER NAME : PORT OF CHIANG SAEN
ADDRESS : 888 MOO 10 BANSANSAIKONGNGAM BAN SAEO CHIANG SAEN CHIANG RAI 57150
CONTACT INFORMATION : [REDACTED]
SAMPLING SOURCE : -
SAMPLE TYPE : SURFACE WATER
SAMPLING DATE : MARCH 11, 2024
SAMPLING TIME : 13:20 HOUR
SAMPLING METHOD : CAST NETS
SAMPLING BY : MR PEERAPAT BANYATSIN
ANALYZED BY : MISS PATCHARAPA SAWANGWONG

RECEIVED DATE : MARCH 12, 2024
ANALYTICAL DATE : MARCH 12-20, 2024
ISSUE DATE : MARCH 26, 2024
REPORT NO. : 2024-U024902
WORK NO. : 2023-008673
ANALYSIS NO. : T24AF076-0004

FISH	COMMON NAME	RESULT			
		T24AF076-0004 (แม่น้ำกก ก่อนไหลไปรวมกับแม่น้ำโขง S1 P1)			
		DENSITY (INDIVIDUALS/RAT)	ABUNDANCE (KILOGRAMS/RAT)	LENGTH (cm.) MIN - MAX	WEIGHT RANGE (g.) MIN - MAX
Family Ambassidae <i>Parambassis siamensis</i>	River Glassfish	4	0.008	5.9	2.53
Family Cyprinidae <i>Mystacoleucus marginatus</i>	-	7	0.042	4.9-9.9	1.28-11.89
<i>Cyclocheilichthys repasson</i>	River Barb	4	0.014	8.1	4.33
<i>Rasbora aurotaenia</i>	Pale Rasbora	4	0.020	9.8	6.11
NUMBER OF SPECIES		4			
TOTAL		19	0.084	-	-


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(MISS CHAWEEWAN BOONLA)
LABORATORY SUPERVISOR

MARCH 27, 2024



ANALYSIS REPORT

PROJECT NAME : โครงการก่อสร้างท่าเทียบเรือเชียงแสนแห่งที่ 2 (ท่าเรือพาณิชย์เชียงแสน) จังหวัดเชียงราย ระยะดำเนินการ ประจำปี 2567
CUSTOMER NAME : PORT OF CHIANG SAEN
ADDRESS : 888 MOO 10 BANSANSAIKONGNGAM BAN SAEO CHIANG SAEN CHIANG RAI 57150
CONTACT INFORMATION :
SAMPLING SOURCE : -
SAMPLE TYPE : SURFACE WATER
SAMPLING DATE : MARCH 11, 2024
SAMPLING TIME : 11:50 HOUR
SAMPLING METHOD : CAST NETS
SAMPLING BY : MR PEERAPAT BANYATSIN
ANALYZED BY : MISS PATCHARAPA SAWANGWONG

RECEIVED DATE : MARCH 12, 2024
ANALYTICAL DATE : MARCH 12-20, 2024
ISSUE DATE : MARCH 26, 2024
REPORT NO. : 2024-U024903
WORK NO. : 2023-008673
ANALYSIS NO. : T24AF076-0008

FISH	COMMON NAME	RESULT			
		T24AF076-0008 (แม่น้ำโขง บริเวณจุดบรรจบแม่น้ำกก S2 P2)			
		DENSITY (INDIVIDUALS/RAI)	ABUNDANCE (KILOGRAMS/RAI)	LENGTH (cm.) MIN - MAX	WEIGHT RANGE (g.) MIN - MAX
Family Ambassidae <i>Parambassis siamensis</i>	River Glassfish	4	0.013	6.8	4.20
Family Cyprinidae <i>Mystacoleucus marginatus</i>	-	4	0.048	10.6	15.09
<i>Raiamas guttatus</i>	Burmese trout	4	0.015	8.4	4.55
<i>Cyclocheilichthys repasson</i>	River Barb	4	0.161	6.3	50.21
NUMBER OF SPECIES		4			
TOTAL		16	0.237	-	-


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(MISS CHAWEEWAN BOONLA)
LABORATORY SUPERVISOR

MARCH 27, 2024



ANALYSIS REPORT

PROJECT NAME : โครงการก่อสร้างท่าเทียบเรือเชียงแสนแห่งที่ 2 (ท่าเรือพาณิชย์เชียงแสน) จังหวัดเชียงราย ระยะดำเนินการ ประจำปี 2567
CUSTOMER NAME : PORT OF CHIANG SAEN
ADDRESS : 888 MOO 10 BANSANSAIKONGNGAM BAN SAE0 CHIANG SAEN CHIANG RAI 57150
CONTACT INFORMATION :
SAMPLING SOURCE : -
SAMPLE TYPE : SURFACE WATER
SAMPLING DATE : MARCH 11, 2024
SAMPLING TIME : 10:20 HOUR
SAMPLING METHOD : CAST NETS
SAMPLING BY : MR PEERAPAT BANYATSIN
ANALYZED BY : MISS PATCHARAPA SAWANGWONG

RECEIVED DATE : MARCH 12, 2024
ANALYTICAL DATE : MARCH 12-20, 2024
ISSUE DATE : MARCH 26, 2024
REPORT NO. : 2024-U024904
WORK NO. : 2023-008673
ANALYSIS NO. : T24AF076-0013

FISH	COMMON NAME	RESULT			
		T24AF076-0013 (แม่น้ำโขง ห่างจากท่าเรือพาณิชย์เชียงแสนปัจจุบันไปทางด้านท้ายน้ำ 500 เมตร S4 P3)			
		DENSITY (INDIVIDUALS/RAI)	ABUNDANCE (KILOGRAMS/RAI)	LENGTH (cm.) MIN - MAX	WEIGHT RANGE (g.) MIN - MAX
Family Ambassidae <i>Pambassis siamensis</i>	River Glassfish	7	0.016	5.3-6.4	1.80-3.23
Family Bagridae <i>Hemibagrus spilopterus</i>	Yellow Catfish	4	0.070	14.7	21.81
Family Cyprinidae <i>Mystacoleucus marginatus</i>	-	4	0.001	3.6	0.38
NUMBER OF SPECIES		3			
TOTAL		15	0.087	-	-


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(MISS CHAWEEWAN BOONLA)
LABORATORY SUPERVISOR

MARCH 27, 2024



ANALYSIS REPORT

PROJECT NAME : โครงการก่อสร้างท่าเทียบเรือเชียงแสนแห่งที่ 2 (ท่าเรือพาณิชย์เชียงแสน) จังหวัดเชียงราย ระยะดำเนินการ ประจำปี 2567

CUSTOMER NAME : PORT OF CHIANG SAEN

ADDRESS : 888 MOO 10 BANSANSAIKONGNGAM BAN SAE0 CHIANG SAEN CHIANG RAI 57150

CONTACT INFORMATION : [REDACTED]

SAMPLING SOURCE : -

SAMPLE TYPE : SURFACE WATER

SAMPLING DATE : MARCH 11, 2024

SAMPLING TIME : 09:20 HOUR

SAMPLING METHOD : CAST NETS

SAMPLING BY : MR PEERAPAT BANYATSIN

ANALYZED BY : MISS PATCHARAPA SAWANGWONG

RECEIVED DATE : MARCH 12, 2024

ANALYTICAL DATE : MARCH 12-20, 2024

ISSUE DATE : MARCH 26, 2024

REPORT NO. : 2024-U024906

WORK NO. : 2023-008673

ANALYSIS NO. : T24AF076-0017

FISH	COMMON NAME	RESULT			
		T24AF076-0017 (แม่น้ำโขง ด้านท้ายน้ำบริเวณบ้านแขว S5 P4)			
		DENSITY (INDIVIDUALS/RAI)	ABUNDANCE (KILOGRAMS/RAI)	LENGTH (cm.) MIN - MAX	WEIGHT RANGE (g.) MIN - MAX
Family Ambassidae <i>Parambassis siamensis</i>	River Glassfish	4	0.012	6.7	3.80
Family Cyprinidae <i>Barbonymus schwanefeldii</i>	Tinfoil barb	4	0.278	17.4	87.03
<i>Mystacoleucus marginatus</i>	-	4	0.123	14.8	38.59
NUMBER OF SPECIES		3			
TOTAL		12	0.413	-	-



(MISS CHAWEEWAN BOONLA)
LABORATORY SUPERVISOR

MARCH 27, 2024

