

ภาคผนวก ค

ใบรายงานผลการวิเคราะห์คุณภาพสิ่งแวดล้อม

ภาคผนวก ค-1

ใบรายงานผลการวิเคราะห์คุณภาพอากาศ

ANALYSIS REPORT

PROJECT NAME : โครงการก่อสร้างท่าเทียบเรือเชียงแสนแห่งที่ 2 (ท่าเรือพาณิชย์เชียงแสน) จังหวัดเชียงราย ระยะดำเนินการ ประจำปี 2566
CUSTOMER NAME : PORT OF CHIANG SAEN
ADDRESS : 888 MOO 10 BANSANSAIKONGNGAM BAN SAEO CHIANG SAEN CHIANG RAI 57150
CONTACT INFORMATION : 
SAMPLING SOURCE : บริเวณพื้นที่โครงการ
SAMPLE TYPE : AMBIENT
SAMPLING DATE : *, **, ***
SAMPLING TIME : *, **, ***
SAMPLING BY : MR SUPAKORN RINWONG
ANALYZED BY : MISS JETJARIN TUMSA-AT
RECEIVED DATE : MARCH 13, 2023
ANALYTICAL DATE : MARCH 13-16, 2023
REPORT NO. : 2023-U019786
WORK NO. : 2022-009126
ANALYSIS NO. : T23AE422-0001 - T23AE422-0003

| PARAMETER | UNIT | METHOD OF ANALYSIS | RESULT | | |
|------------------------------|-------------------|----------------------------------|----------------------|---------------------|----------------------|
| | | | บริเวณพื้นที่โครงการ | | |
| | | | * T23AE422-0001 | ** T23AE422-0002 | *** T23AE422-0003 |
| TOTAL SUSPENDED PARTICULATE | mg/m ³ | GRAVIMETRIC (HIGH VOLUME METHOD) | 0.118 | 0.121 | 0.130 |
| PARTICULATE MATTER (≤ 10 μm) | mg/m ³ | GRAVIMETRIC (HIGH VOLUME METHOD) | 0.107 | 0.098 | 0.096 |
| SAMPLE CONDITION | | | COMPLETE | COMPLETE | COMPLETE |

REMARK

TSP, PM10 : REFERENCE CONDITION IS 25 DEGREE CELSIUS AT 1 ATMOSPHERE.
TSP : US EPA, CODE OF FEDERAL REGULATION SEARCH RESULTS, 40 CFR-CHAPTER I PART 50, APPENDIX B.
PM10 : US EPA, CODE OF FEDERAL REGULATION SEARCH RESULTS, 40 CFR-CHAPTER I PART 50, APPENDIX J.
* : SAMPLING FROM 08:00 HOUR ON MARCH 6, 2023 TO 08:00 HOUR ON MARCH 7, 2023.
** : SAMPLING FROM 08:00 HOUR ON MARCH 7, 2023 TO 08:00 HOUR ON MARCH 8, 2023.
*** : SAMPLING FROM 08:00 HOUR ON MARCH 8, 2023 TO 08:00 HOUR ON MARCH 9, 2023.



(MISS BUDSAKORN LERDPANUMAS)
LABORATORY SUPERVISOR

MARCH 21, 2023



ANALYSIS REPORT

PROJECT NAME : โครงการก่อสร้างท่าเทียบเรือเชียงแสนแห่งที่ 2 (ท่าเรือพาณิชย์เชียงแสน) จังหวัดเชียงราย ระยะดำเนินการ ประจำปี 2566
CUSTOMER NAME : PORT OF CHIANG SAEN
ADDRESS : 888 MOO 10 BANSANSAIKONGNGAM BAN SAEU CHIANG SAEN CHIANG RAI 57150
CONTACT INFORMATION :
SAMPLING SOURCE : บริเวณบ้านสบกก
SAMPLE TYPE : AMBIENT
SAMPLING DATE : *, **, ***
SAMPLING TIME : *, **, ***
SAMPLING BY : MR SUPAKORN RINWONG
ANALYZED BY : MISS JETJARIN TUMSA-AT
RECEIVED DATE : MARCH 13, 2023
ANALYTICAL DATE : MARCH 13-16, 2023
REPORT NO. : 2023-U019787
WORK NO. : 2022-009126
ANALYSIS NO. : T23AE422-0004 - T23AE422-0006

| PARAMETER | UNIT | METHOD OF ANALYSIS | RESULT | | |
|------------------------------|-------------------|----------------------------------|--------------------|---------------------|----------------------|
| | | | บริเวณบ้านสบกก | | |
| | | | * T23AE422-0004 | ** T23AE422-0005 | *** T23AE422-0006 |
| TOTAL SUSPENDED PARTICULATE | mg/m ³ | GRAVIMETRIC (HIGH VOLUME METHOD) | 0.148 | 0.126 | 0.105 |
| PARTICULATE MATTER (≤ 10 µm) | mg/m ³ | GRAVIMETRIC (HIGH VOLUME METHOD) | 0.085 | 0.103 | 0.080 |
| SAMPLE CONDITION | | | COMPLETE | COMPLETE | COMPLETE |

REMARK

TSP, PM10 : REFERENCE CONDITION IS 25 DEGREE CELSIUS AT 1 ATMOSPHERE.
TSP : US EPA, CODE OF FEDERAL REGULATION SEARCH RESULTS, 40 CFR-CHAPTER I PART 50, APPENDIX B.
PM10 : US EPA, CODE OF FEDERAL REGULATION SEARCH RESULTS, 40 CFR-CHAPTER I PART 50, APPENDIX J.
* : SAMPLING FROM 08:30 HOUR ON MARCH 6, 2023 TO 08:30 HOUR ON MARCH 7, 2023.
** : SAMPLING FROM 08:30 HOUR ON MARCH 7, 2023 TO 08:30 HOUR ON MARCH 8, 2023.
*** : SAMPLING FROM 08:30 HOUR ON MARCH 8, 2023 TO 08:30 HOUR ON MARCH 9, 2023.

(MISS BUDSAKORN LERDPANUMAS)
LABORATORY SUPERVISOR

MARCH 21, 2023



ภาคผนวก ค-2

ใบรายงานผลการวิเคราะห์ระดับเสี่ยง

ANALYSIS REPORT

PROJECT NAME : โครงการก่อสร้างท่าเทียบเรือเชียงแสนแห่งที่ 2 (ท่าเรือพาณิชย์เชียงแสน) จังหวัดเชียงราย ระยะดำเนินการ ประจำปี 2566
CUSTOMER NAME : PORT OF CHIANG SAEN
ADDRESS : 888 MOO 10 BANSANSAIKONGNGAM BAN SAEO CHIANG SAEN CHIANG RAI 57150
CONTACT INFORMATION : [REDACTED]
MEASURING SOURCE : บริเวณพื้นที่โครงการ
MEASURING TYPE : AMBIENT (NOISE) **RECEIVED DATE** : MARCH 6-9, 2023
MEASURING DATE : MARCH 6-9, 2023 **ANALYTICAL DATE** : MARCH 6-9, 2023
MEASURING TIME : * **REPORT NO.** : 2023-U018542
MEASURING METHOD : INTEGRATED SOUND LEVEL METER **WORK NO.** : 2022-009126
MEASURED BY : MR SUPAKORN RINWONG **ANALYSIS NO.** : T23AE422-0001 - T23AE422-0003

| TIME* | RESULT dB(A) | | |
|---------------------------|-------------------------|--------------------------|-------------------------|
| | บริเวณพื้นที่โครงการ | | |
| | MARCH 6 - 7, 2023 | | |
| | T23AE422-0001 | | |
| | L _{Aeq} 1 hour | L _{Amax} 1 hour | L _{A90} 1 hour |
| 07:00-08:00 HOUR | 51.1 | 65.1 | 45.2 |
| 08:00-09:00 HOUR | 50.9 | 62.5 | 45.6 |
| 09:00-10:00 HOUR | 50.7 | 61.4 | 45.1 |
| 10:00-11:00 HOUR | 49.9 | 62.1 | 45.6 |
| 11:00-12:00 HOUR | 51.2 | 68.3 | 45.1 |
| 12:00-13:00 HOUR | 51.1 | 62.8 | 44.5 |
| 13:00-14:00 HOUR | 50.8 | 64.6 | 45.7 |
| 14:00-15:00 HOUR | 51.9 | 64.0 | 47.1 |
| 15:00-16:00 HOUR | 47.5 | 56.0 | 42.9 |
| 16:00-17:00 HOUR | 49.7 | 65.6 | 45.9 |
| 17:00-18:00 HOUR | 49.0 | 61.3 | 44.5 |
| 18:00-19:00 HOUR | 51.5 | 66.2 | 45.6 |
| 19:00-20:00 HOUR | 50.0 | 61.5 | 45.6 |
| 20:00-21:00 HOUR | 51.6 | 62.1 | 46.7 |
| 21:00-22:00 HOUR | 50.1 | 60.1 | 43.9 |
| 22:00-23:00 HOUR | 51.3 | 68.9 | 43.5 |
| 23:00-00:00 HOUR | 51.7 | 63.5 | 42.7 |
| 00:00-01:00 HOUR | 51.2 | 66.8 | 41.8 |
| 01:00-02:00 HOUR | 53.1 | 68.5 | 42.5 |
| 02:00-03:00 HOUR | 50.2 | 66.0 | 41.9 |
| 03:00-04:00 HOUR | 50.9 | 64.3 | 45.6 |
| 04:00-05:00 HOUR | 52.4 | 71.5 | 48.2 |
| 05:00-06:00 HOUR | 51.2 | 61.4 | 48.5 |
| 06:00-07:00 HOUR | 51.2 | 65.3 | 47.8 |
| L _{Aeq} 24 hours | 51.0 | | |
| L _{Adn} | 57.8 | | |



| TIME* | RESULT dB(A) | | |
|---------------------------|-------------------------|--------------------------|-------------------------|
| | บริเวณพื้นที่โครงการ | | |
| | MARCH 7 - 8, 2023 | | |
| | T23AE422-0002 | | |
| | L _{Aeq} 1 hour | L _{Amax} 1 hour | L _{A90} 1 hour |
| 07:00-08:00 HOUR | 52.0 | 64.6 | 47.9 |
| 08:00-09:00 HOUR | 51.5 | 69.8 | 48.1 |
| 09:00-10:00 HOUR | 50.7 | 64.5 | 48.1 |
| 10:00-11:00 HOUR | 50.2 | 61.9 | 47.9 |
| 11:00-12:00 HOUR | 51.3 | 63.5 | 48.2 |
| 12:00-13:00 HOUR | 51.6 | 62.5 | 48.3 |
| 13:00-14:00 HOUR | 49.4 | 57.4 | 48.1 |
| 14:00-15:00 HOUR | 56.4 | 71.4 | 48.3 |
| 15:00-16:00 HOUR | 49.9 | 58.3 | 48.1 |
| 16:00-17:00 HOUR | 50.6 | 67.3 | 47.8 |
| 17:00-18:00 HOUR | 49.6 | 59.1 | 47.7 |
| 18:00-19:00 HOUR | 49.3 | 59.5 | 47.7 |
| 19:00-20:00 HOUR | 48.6 | 55.5 | 47.2 |
| 20:00-21:00 HOUR | 51.1 | 64.3 | 47.3 |
| 21:00-22:00 HOUR | 49.7 | 60.6 | 47.3 |
| 22:00-23:00 HOUR | 49.9 | 67.3 | 47.3 |
| 23:00-00:00 HOUR | 49.9 | 60.2 | 47.4 |
| 00:00-01:00 HOUR | 50.2 | 65.0 | 47.3 |
| 01:00-02:00 HOUR | 50.1 | 60.9 | 47.1 |
| 02:00-03:00 HOUR | 50.8 | 66.8 | 47.1 |
| 03:00-04:00 HOUR | 51.0 | 62.2 | 47.7 |
| 04:00-05:00 HOUR | 51.1 | 65.3 | 47.0 |
| 05:00-06:00 HOUR | 51.8 | 67.8 | 46.7 |
| 06:00-07:00 HOUR | 49.4 | 60.4 | 46.7 |
| L _{Aeq} 24 hours | | 51.0 | |
| L _{Adn} | | 57.0 | |

| TIME* | RESULT dB(A) | | |
|---------------------------|-------------------------|--------------------------|-------------------------|
| | บริเวณพื้นที่โครงการ | | |
| | MARCH 8 - 9, 2023 | | |
| | T23AE422-0003 | | |
| | L _{Aeq} 1 hour | L _{Amax} 1 hour | L _{A90} 1 hour |
| 07:00-08:00 HOUR | 49.9 | 62.1 | 46.6 |
| 08:00-09:00 HOUR | 49.2 | 60.0 | 47.0 |
| 09:00-10:00 HOUR | 50.8 | 69.6 | 46.9 |
| 10:00-11:00 HOUR | 49.2 | 58.0 | 47.0 |
| 11:00-12:00 HOUR | 50.4 | 62.1 | 47.1 |
| 12:00-13:00 HOUR | 51.2 | 65.0 | 47.0 |
| 13:00-14:00 HOUR | 51.3 | 62.6 | 47.2 |
| 14:00-15:00 HOUR | 50.0 | 61.1 | 47.1 |
| 15:00-16:00 HOUR | 50.9 | 61.8 | 47.1 |
| 16:00-17:00 HOUR | 51.0 | 61.0 | 47.6 |
| 17:00-18:00 HOUR | 49.0 | 60.8 | 47.2 |
| 18:00-19:00 HOUR | 49.2 | 61.9 | 47.2 |
| 19:00-20:00 HOUR | 50.4 | 63.8 | 47.4 |
| 20:00-21:00 HOUR | 51.5 | 71.6 | 47.9 |
| 21:00-22:00 HOUR | 53.0 | 68.0 | 48.3 |
| 22:00-23:00 HOUR | 55.1 | 71.6 | 48.2 |
| 23:00-00:00 HOUR | 50.3 | 65.1 | 47.4 |
| 00:00-01:00 HOUR | 51.2 | 64.1 | 48.0 |
| 01:00-02:00 HOUR | 50.8 | 59.3 | 48.2 |
| 02:00-03:00 HOUR | 50.9 | 64.0 | 48.3 |
| 03:00-04:00 HOUR | 51.7 | 62.2 | 45.4 |
| 04:00-05:00 HOUR | 52.4 | 62.7 | 47.9 |
| 05:00-06:00 HOUR | 50.6 | 57.2 | 49.2 |
| 06:00-07:00 HOUR | 52.2 | 60.3 | 49.8 |
| L _{Aeq} 24 hours | | 51.2 | |
| L _{Adn} | | 58.2 | |

(MR SILA BANJONGJAIKUK)
LABORATORY SUPERVISOR

MARCH 16, 2023

ANALYSIS REPORT

PROJECT NAME : โครงการก่อสร้างท่าเทียบเรือเชียงแสนแห่งที่ 2 (ท่าเรือพาณิชย์เชียงแสน) จังหวัดเชียงราย ระยะดำเนินการ ประจำปี 2566

CUSTOMER NAME : PORT OF CHIANG SAEN

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

CONTACT INFORMATION : [REDACTED]

MEASURING SOURCE : บ้านสมกก

MEASURING TYPE : AMBIENT (NOISE)

MEASURING DATE : MARCH 6-9, 2023

MEASURING TIME : *

MEASURING METHOD : INTEGRATED SOUND LEVEL METER

MEASURED BY : MR SUPAKORN RINWONG

RECEIVED DATE : MARCH 6-9, 2023

ANALYTICAL DATE : MARCH 6-9, 2023

REPORT NO. : 2023-U018543

WORK NO. : 2022-009126

ANALYSIS NO. : T23AE422-0004 - T23AE422-0006

| TIME* | RESULT dB(A) | | |
|---------------------------|-------------------------|--------------------------|-------------------------|
| | บ้านสมกก | | |
| | MARCH 6 - 7, 2023 | | |
| | T23AE422-0004 | | |
| | L _{Aeq} 1 hour | L _{Amax} 1 hour | L _{A90} 1 hour |
| 07:00-08:00 HOUR | 51.6 | 78.9 | 43.1 |
| 08:00-09:00 HOUR | 49.0 | 59.7 | 43.7 |
| 09:00-10:00 HOUR | 47.1 | 59.6 | 41.2 |
| 10:00-11:00 HOUR | 46.9 | 56.9 | 40.8 |
| 11:00-12:00 HOUR | 50.0 | 61.4 | 43.2 |
| 12:00-13:00 HOUR | 52.4 | 65.8 | 41.9 |
| 13:00-14:00 HOUR | 48.5 | 62.1 | 42.3 |
| 14:00-15:00 HOUR | 47.9 | 61.6 | 41.2 |
| 15:00-16:00 HOUR | 51.1 | 66.1 | 44.6 |
| 16:00-17:00 HOUR | 50.3 | 62.8 | 44.2 |
| 17:00-18:00 HOUR | 51.3 | 61.2 | 45.3 |
| 18:00-19:00 HOUR | 50.8 | 64.9 | 43.3 |
| 19:00-20:00 HOUR | 48.8 | 58.1 | 42.1 |
| 20:00-21:00 HOUR | 49.2 | 66.3 | 42.3 |
| 21:00-22:00 HOUR | 49.3 | 64.0 | 43.9 |
| 22:00-23:00 HOUR | 51.6 | 72.3 | 43.6 |
| 23:00-00:00 HOUR | 49.7 | 67.0 | 43.1 |
| 00:00-01:00 HOUR | 48.8 | 61.9 | 41.6 |
| 01:00-02:00 HOUR | 48.0 | 59.5 | 41.4 |
| 02:00-03:00 HOUR | 50.9 | 66.9 | 41.9 |
| 03:00-04:00 HOUR | 49.5 | 62.1 | 42.7 |
| 04:00-05:00 HOUR | 48.2 | 61.4 | 42.3 |
| 05:00-06:00 HOUR | 49.9 | 60.1 | 42.8 |
| 06:00-07:00 HOUR | 49.2 | 65.6 | 40.7 |
| L _{Aeq} 24 hours | | 49.8 | |
| L _{Adn} | | 56.1 | |



| TIME* | RESULT dB(A) | | |
|---------------------------|-------------------------|--------------------------|-------------------------|
| | งานสั่นสะเทือน | | |
| | MARCH 7 - 8, 2023 | | |
| | T23AE422-0005 | | |
| | L _{Aeq} 1 hour | L _{Amax} 1 hour | L _{A90} 1 hour |
| 07:00-08:00 HOUR | 46.4 | 63.0 | 40.5 |
| 08:00-09:00 HOUR | 45.2 | 58.3 | 38.5 |
| 09:00-10:00 HOUR | 46.6 | 62.9 | 39.6 |
| 10:00-11:00 HOUR | 49.9 | 67.2 | 41.7 |
| 11:00-12:00 HOUR | 50.3 | 65.9 | 41.8 |
| 12:00-13:00 HOUR | 46.7 | 58.6 | 41.0 |
| 13:00-14:00 HOUR | 47.2 | 62.1 | 40.1 |
| 14:00-15:00 HOUR | 48.4 | 60.8 | 42.5 |
| 15:00-16:00 HOUR | 49.8 | 68.7 | 41.9 |
| 16:00-17:00 HOUR | 51.5 | 67.0 | 41.6 |
| 17:00-18:00 HOUR | 52.8 | 64.2 | 43.7 |
| 18:00-19:00 HOUR | 50.7 | 62.3 | 44.4 |
| 19:00-20:00 HOUR | 49.2 | 60.7 | 42.4 |
| 20:00-21:00 HOUR | 47.3 | 60.5 | 41.4 |
| 21:00-22:00 HOUR | 50.3 | 63.5 | 43.1 |
| 22:00-23:00 HOUR | 49.4 | 60.0 | 42.5 |
| 23:00-00:00 HOUR | 47.4 | 58.2 | 42.7 |
| 00:00-01:00 HOUR | 47.6 | 59.0 | 42.7 |
| 01:00-02:00 HOUR | 48.5 | 61.7 | 42.4 |
| 02:00-03:00 HOUR | 47.2 | 60.9 | 41.9 |
| 03:00-04:00 HOUR | 47.2 | 66.7 | 40.8 |
| 04:00-05:00 HOUR | 48.0 | 62.4 | 41.6 |
| 05:00-06:00 HOUR | 48.4 | 64.0 | 41.6 |
| 06:00-07:00 HOUR | 48.7 | 59.4 | 46.5 |
| L _{Aeq} 24 hours | | 48.9 | |
| L _{Adn} | | 54.7 | |

| TIME* | RESULT dB(A) | | |
|---------------------------|-------------------------|--------------------------|-------------------------|
| | มาตรฐาน | | |
| | MARCH 8 - 9, 2023 | | |
| | T23AE422-0006 | | |
| | L _{Aeq} 1 hour | L _{Amax} 1 hour | L _{A90} 1 hour |
| 07:00-08:00 HOUR | 48.1 | 63.1 | 45.8 |
| 08:00-09:00 HOUR | 48.0 | 55.1 | 46.5 |
| 09:00-10:00 HOUR | 47.0 | 53.5 | 45.1 |
| 10:00-11:00 HOUR | 47.8 | 56.1 | 46.0 |
| 11:00-12:00 HOUR | 48.6 | 64.5 | 45.9 |
| 12:00-13:00 HOUR | 49.6 | 58.6 | 47.1 |
| 13:00-14:00 HOUR | 48.0 | 54.9 | 45.7 |
| 14:00-15:00 HOUR | 48.5 | 59.8 | 45.9 |
| 15:00-16:00 HOUR | 46.9 | 50.9 | 45.4 |
| 16:00-17:00 HOUR | 47.4 | 53.2 | 46.0 |
| 17:00-18:00 HOUR | 48.7 | 54.7 | 46.9 |
| 18:00-19:00 HOUR | 49.7 | 61.5 | 46.4 |
| 19:00-20:00 HOUR | 47.7 | 53.3 | 46.1 |
| 20:00-21:00 HOUR | 48.3 | 52.0 | 47.0 |
| 21:00-22:00 HOUR | 49.1 | 58.5 | 47.1 |
| 22:00-23:00 HOUR | 48.1 | 60.5 | 44.2 |
| 23:00-00:00 HOUR | 46.8 | 51.9 | 45.2 |
| 00:00-01:00 HOUR | 46.6 | 53.1 | 44.5 |
| 01:00-02:00 HOUR | 48.0 | 56.2 | 45.9 |
| 02:00-03:00 HOUR | 49.6 | 60.4 | 46.2 |
| 03:00-04:00 HOUR | 48.8 | 59.1 | 46.2 |
| 04:00-05:00 HOUR | 48.4 | 55.5 | 46.2 |
| 05:00-06:00 HOUR | 52.5 | 62.8 | 47.3 |
| 06:00-07:00 HOUR | 50.1 | 65.2 | 47.0 |
| L _{Aeq} 24 hours | 48.6 | | |
| L _{Adn} | 55.4 | | |

(MR SILA BANJONGJAIKUK)
LABORATORY SUPERVISOR

MARCH 16, 2023

ภาคผนวก ค-3

ใบรายงานผลการวิเคราะห์คุณภาพน้ำทิ้ง

ANALYSIS REPORT

PROJECT NAME : โครงการก่อสร้างท่าเทียบเรือเชียงแสนแห่งที่ 2 (ท่าเรือพาณิชย์เชียงแสน) จังหวัดเชียงราย ระยะดำเนินการ ประจำปี 2566
CUSTOMER NAME : PORT OF CHIANG SAEN
ADDRESS : 888 MOO 10 BANSANSAIKONGNGAM BAN SAEO CHIANG SAEN CHIANG RAI 57150
CONTACT INFORMATION : [REDACTED]
SAMPLING SOURCE : จุดระบายน้ำบริเวณบ้านพัก W1
SAMPLE TYPE : EFFLUENT
SAMPLING DATE : MARCH 29, 2023
SAMPLING TIME : 09:30 HOUR
SAMPLING METHOD : GRAB
SAMPLING BY : MR PEERAPAT BANYATSIN
ANALYZED BY : MISS AKSARIN BUNKONG

RECEIVED DATE : MARCH 30, 2023
ANALYTICAL DATE : MARCH 30 - APRIL 10, 2023
REPORT NO. : 2023-U026343
WORK NO. : 2022-009126
ANALYSIS NO. : T23AF650-0001

| PARAMETER | UNIT | METHOD OF ANALYSIS | RESULT | DETECTION LIMIT |
|--|------|---|--|-----------------|
| | | | จุดระบายน้ำบริเวณบ้านพัก W1 T23AF650-0001 | |
| pH ^a | - | ELECTROMETRIC METHOD AT SITE (SM: PART 4500-H ⁺ B) | 8.1 (26°C) | - |
| BIOCHEMICAL OXYGEN DEMAND ^a | mg/L | MEMBRANE ELECTRODE METHOD (SM: PART 5210 B AND PART 4500-O G) | 70.8 | 2.0 |
| SUSPENDED SOLIDS ^a | mg/L | SUSPENDED SOLIDS DRIED AT 103-105 °C (SM: PART 2540 D) | 29.1 | 5.0 |
| TOTAL DISSOLVED SOLIDS ^b | mg/L | TOTAL DISSOLVED SOLIDS DRIED AT 180 °C (SM: PART 2540 C) | 619 | 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) | 2.0 | 0.50 |
| TOTAL KJELDAHL NITROGEN ^b | mg/L | IN-HOUSE METHOD: UAE.TP.WAS.001 (KJELDAHL METHOD); SM: PART 4500-Norg C | 61.7 | 1.5 |
| FAT, OIL AND GREASE ^a | mg/L | LIQUID-LIQUID, PARTITION-GRAVIMETRIC METHOD (SM: PART 5520 B) | 6 | 3 |
| SAMPLE CONDITION | | | | |
| WATER'S COLOUR/TURBID | | | YELLOW/TURBID | |
| 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

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.

(MRS PIYAPAT SUTTAMANUTWONG)
LABORATORY SUPERVISOR

APRIL 12, 2023



ANALYSIS REPORT

PROJECT NAME : โครงการก่อสร้างท่าเทียบเรือเชียงแสนแห่งที่ 2 (ท่าเรือพาณิชย์เชียงแสน) จังหวัดเชียงราย ระยะดำเนินการ ประจำปี 2566

CUSTOMER NAME : PORT OF CHIANG SAEN

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

CONTACT INFORMATION : [REDACTED]

SAMPLING SOURCE : จุดระบายน้ำบริเวณท่าเรือ W2

SAMPLE TYPE : EFFLUENT

SAMPLING DATE : MARCH 29, 2023

SAMPLING TIME : 10:00 HOUR

SAMPLING METHOD : GRAB

SAMPLING BY : MR PEERAPAT BANYATSIN

ANALYZED BY : MISS ARIYA THARAROM

RECEIVED DATE : MARCH 30, 2023

ANALYTICAL DATE : MARCH 30 - APRIL 10, 2023

REPORT NO. : 2023-U026344

WORK NO. : 2022-009126

ANALYSIS NO. : T23AF650-0002

| PARAMETER | UNIT | METHOD OF ANALYSIS | RESULT | DETECTION LIMIT |
|--|------|---|--|-----------------|
| | | | จุดระบายน้ำบริเวณท่าเรือ W2 T23AF650-0002 | |
| pH ^a | - | ELECTROMETRIC METHOD AT SITE (SM: PART 4500-H ⁺ B) | 8.4 (24°C) | - |
| BIOCHEMICAL OXYGEN DEMAND ^c | mg/L | MEMBRANE ELECTRODE METHOD (SM: PART 5210 B AND PART 4500-O G) | ND | 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) | 418 | 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 | < LOQ | 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 | | | 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

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.

< LOQ : < LIMIT OF QUANTITATION (TOTAL KJELDAHL NITROGEN ≥ 1.5 AND < 5.0 mg/L).

(MRS PIYAPAT SUTTAMANUTWONG)
LABORATORY SUPERVISOR

APRIL 12, 2023



ภาคผนวก ค-4

ใบรายงานผลการวิเคราะห์คุณภาพน้ำผิวดิน

ANALYSIS REPORT

PROJECT NAME : โครงการก่อสร้างท่าเทียบเรือเชียงแสนแห่งที่ 2 (ท่าเรือพาณิชย์เชียงแสน) จังหวัดเชียงราย ระยะดำเนินการ ประจำปี 2566
CUSTOMER NAME : PORT OF CHIANG SAEN
ADDRESS : 888 MOO 10 BANSANSAIKONGNGAM BAN SAEO CHIANG SAEN CHIANG RAI 57150
CONTACT INFORMATION : [REDACTED]
SAMPLING SOURCE : แม่น้ำกกก่อนไหลไปรวมกับแม่น้ำโขง S1 P1
SAMPLE TYPE : SURFACE WATER
SAMPLING DATE : MARCH 28, 2023
SAMPLING TIME : 13:00 HOUR
SAMPLING METHOD : GRAB, GRAB AND STERILE TECHNIQUE
SAMPLING BY : MR PEERAPAT BANYATSIN
ANALYZED BY : MISS ITSARIYAPORN BUATIB

RECEIVED DATE : MARCH 29, 2023
ANALYTICAL DATE : MARCH 29-APRIL 5, 2023
REPORT NO. : 2023-U026631
WORK NO. : 2022-009126
ANALYSIS NO. : T23AF562-0001

| PARAMETER | UNIT | METHOD OF ANALYSIS | RESULT | DETECTION LIMIT |
|--|------------------------------------|---|--------------------------------|-----------------|
| | | | SURFACE WATER T23AF562-0001 | |
| pH ^a | - | ELECTROMETRIC METHOD AT SITE (SM: PART 4500-H ⁺ B) | 8.2 (25°C) | - |
| DISSOLVED OXYGEN ^c | mg/L | AZIDE MODIFICATION METHOD AT SITE (SM: PART 4500-O C) | 6.1 | 0.5 |
| TURBIDITY ^c | NTU | NEPHELOMETRIC METHOD (SM: PART 2130 B) | 40 | 0.1 |
| BIOCHEMICAL OXYGEN DEMAND ^c | mg/L | AZIDE MODIFICATION METHOD (SM: PART 5210 B AND PART 4500-O C) | 1.2 | 1.0 |
| TOTAL SUSPENDED SOLIDS ^a | mg/L | TOTAL SUSPENDED SOLIDS DRIED AT 103-105 °C (SM: PART 2540 D) | 39.4 | 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) | 0.66 | 0.09 |
| PHOSPHATE ^c | mg/L PO ₄ ³⁻ | ASCORBIC ACID METHOD (SM: PART 4500-P E) | 0.06 | 0.03 |
| MICROBIOLOGY | | | | |
| FAECAL COLIFORM BACTERIA ^b | MPN/100 mL | MULTIPLE-TUBE FERMENTATION TECHNIQUE (SM: PART 9221 E) | 33 | 1.8 |
| COLIFORM BACTERIA ^b | MPN/100 mL | MULTIPLE-TUBE FERMENTATION TECHNIQUE (SM: PART 9221 B) | 79 | 1.8 |
| SAMPLE CONDITION | | | | |
| WATER'S COLOUR/TURBID | | | YELLOW/TURBID | |
| 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.

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(MISS CHAWEEWAN BOONLA)
LABORATORY SUPERVISOR

APRIL 18, 2023



ANALYSIS REPORT

PROJECT NAME : โครงการก่อสร้างท่าเทียบเรือเชียงแสนแห่งที่ 2 (ท่าเรือพาณิชย์เชียงแสน) จังหวัดเชียงราย ระยะดำเนินการ ประจำปี 2566
CUSTOMER NAME : PORT OF CHIANG SAEN
ADDRESS : 888 MOO 10 BANSANSAIKONGNGAM BAN SAEU CHIANG SAEN CHIANG RAI 57150
CONTACT INFORMATION :
SAMPLING SOURCE : แม่น้ำโขง บริเวณจุดบรรจบแม่น้ำกก S2 P2
SAMPLE TYPE : SURFACE WATER
SAMPLING DATE : MARCH 28, 2023
SAMPLING TIME : 11:20 HOUR
SAMPLING METHOD : GRAB, GRAB AND STERILE TECHNIQUE
SAMPLING BY : MR PEERAPAT BANYATSI
ANALYZED BY : MISS ITSARIYAPORN BUATIB

RECEIVED DATE : MARCH 29, 2023
ANALYTICAL DATE : MARCH 29-APRIL 5, 2023
REPORT NO. : 2023-U026632
WORK NO. : 2022-009126
ANALYSIS NO. : T23AF562-0002

| PARAMETER | UNIT | METHOD OF ANALYSIS | RESULT | DETECTION LIMIT |
|--|------------------------------------|---|--------------------------------|-----------------|
| | | | SURFACE WATER T23AF562-0002 | |
| pH ^a | - | ELECTROMETRIC METHOD AT SITE (SM: PART 4500-H ⁺ B) | 8.3 (24°C) | - |
| DISSOLVED OXYGEN ^c | mg/L | AZIDE MODIFICATION METHOD AT SITE (SM: PART 4500-O C) | 6.3 | 0.5 |
| TURBIDITY ^c | NTU | NEPHELOMETRIC METHOD (SM: PART 2130 B) | 16 | 0.1 |
| BIOCHEMICAL OXYGEN DEMAND ^c | mg/L | AZIDE MODIFICATION METHOD (SM: PART 5210 B AND PART 4500-O C) | ND | 1.0 |
| TOTAL SUSPENDED SOLIDS ^a | mg/L | TOTAL SUSPENDED SOLIDS DRIED AT 103-105 °C (SM: PART 2540 D) | 212 | 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) | ND | 0.03 |
| MICROBIOLOGY | | | | |
| FAECAL COLIFORM BACTERIA ^b | MPN/100 mL | MULTIPLE-TUBE FERMENTATION TECHNIQUE (SM: PART 9221 E) | 68 | 1.8 |
| COLIFORM BACTERIA ^b | MPN/100 mL | MULTIPLE-TUBE FERMENTATION TECHNIQUE (SM: PART 9221 B) | 1,700 | 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

APRIL 18, 2023



ANALYSIS REPORT

PROJECT NAME : โครงการก่อสร้างท่าเทียบเรือเชียงแสนแห่งที่ 2 (ท่าเรือพาณิชย์เชียงแสน) จังหวัดเชียงราย ระยะดำเนินการ ประจำปี 2566
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 28, 2023
SAMPLING TIME : 12:20 HOUR
SAMPLING METHOD : GRAB, GRAB AND STERILE TECHNIQUE
SAMPLING BY : MR PEERAPAT BANYATSIN
ANALYZED BY : MISS ITSARIYAPORN BUATIB

RECEIVED DATE : MARCH 29, 2023
ANALYTICAL DATE : MARCH 29-APRIL 5, 2023
REPORT NO. : 2023-U026641
WORK NO. : 2022-009126
ANALYSIS NO. : T23AF565-0003

| PARAMETER | UNIT | METHOD OF ANALYSIS | RESULT | DETECTION LIMIT |
|--|------------------------------------|---|--------------------------------|-----------------|
| | | | SURFACE WATER T23AF565-0003 | |
| pH ^a | - | ELECTROMETRIC METHOD AT SITE (SM: PART 4500-H ⁺ B) | 8.4 (26°C) | - |
| DISSOLVED OXYGEN ^c | mg/L | AZIDE MODIFICATION METHOD AT SITE (SM: PART 4500-O C) | 6.2 | 0.5 |
| TURBIDITY ^c | NTU | NEPHELOMETRIC METHOD (SM: PART 2130 B) | 27 | 0.1 |
| BIOCHEMICAL OXYGEN DEMAND ^c | mg/L | AZIDE MODIFICATION METHOD (SM: PART 5210 B AND PART 4500-O C) | 1.3 | 1.0 |
| TOTAL SUSPENDED SOLIDS ^a | mg/L | TOTAL SUSPENDED SOLIDS DRIED AT 103-105 °C (SM: PART 2540 D) | 24.8 | 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) | 0.49 | 0.09 |
| PHOSPHATE ^c | mg/L PO ₄ ³⁻ | ASCORBIC ACID METHOD (SM: PART 4500-P E) | 0.06 | 0.03 |
| MICROBIOLOGY | | | | |
| FAECAL COLIFORM BACTERIA ^b | MPN/100 mL | MULTIPLE-TUBE FERMENTATION TECHNIQUE (SM: PART 9221 E) | 110 | 1.8 |
| COLIFORM BACTERIA ^b | MPN/100 mL | MULTIPLE-TUBE FERMENTATION TECHNIQUE (SM: PART 9221 B) | 460 | 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.

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(MISS CHAWEEVAN BOONLA)
LABORATORY SUPERVISOR

APRIL 18, 2023



ANALYSIS REPORT

PROJECT NAME : โครงการก่อสร้างท่าเทียบเรือเชียงแสนแห่งที่ 2 (ท่าเรือพาณิชย์เชียงแสน) จังหวัดเชียงราย ระยะดำเนินการ ประจำปี 2566
CUSTOMER NAME : PORT OF CHIANG SAEN
ADDRESS : 888 MOO 10 BANSANSAIKONGNGAM BAN SAE O CHIANG SAEN CHIANG RAI 57150
CONTACT INFORMATION : [REDACTED]
SAMPLING SOURCE : แม่น้ำโขง ห่างจากท่าเรือพาณิชย์เชียงแสน บัจุบันไปทางด้านท้ายน้ำ 500 เมตร S4 P3
SAMPLE TYPE : SURFACE WATER
SAMPLING DATE : MARCH 28, 2023
SAMPLING TIME : 10:20 HOUR
SAMPLING METHOD : GRAB, GRAB AND STERILE TECHNIQUE
SAMPLING BY : MR PEERAPAT BANYATSIN
ANALYZED BY : MISS ITSARIYAPORN BUATIB

RECEIVED DATE : MARCH 29, 2023
ANALYTICAL DATE : MARCH 29-APRIL 5, 2023
REPORT NO. : 2023-U026639
WORK NO. : 2022-009126
ANALYSIS NO. : T23AF565-0001

| PARAMETER | UNIT | METHOD OF ANALYSIS | RESULT | DETECTION LIMIT |
|--|------------------------------------|---|--------------------------------|-----------------|
| | | | SURFACE WATER T23AF565-0001 | |
| pH ^a | - | ELECTROMETRIC METHOD AT SITE (SM: PART 4500-H ⁺ B) | 8.4 (22°C) | - |
| DISSOLVED OXYGEN ^c | mg/L | AZIDE MODIFICATION METHOD AT SITE (SM: PART 4500-O C) | 6.2 | 0.5 |
| TURBIDITY ^c | NTU | NEPHELOMETRIC METHOD (SM: PART 2130 B) | 19 | 0.1 |
| BIOCHEMICAL OXYGEN DEMAND ^c | mg/L | AZIDE MODIFICATION METHOD (SM: PART 5210 B AND PART 4500-O C) | ND | 1.0 |
| TOTAL SUSPENDED SOLIDS ^a | mg/L | TOTAL SUSPENDED SOLIDS DRIED AT 103-105 °C (SM: PART 2540 D) | 21.7 | 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) | 0.66 | 0.09 |
| PHOSPHATE ^c | mg/L PO ₄ ³⁻ | ASCORBIC ACID METHOD (SM: PART 4500-P E) | 0.03 | 0.03 |
| MICROBIOLOGY | | | | |
| FAECAL COLIFORM BACTERIA ^b | MPN/100 mL | MULTIPLE-TUBE FERMENTATION TECHNIQUE (SM: PART 9221 E) | 330 | 1.8 |
| COLIFORM BACTERIA ^b | MPN/100 mL | MULTIPLE-TUBE FERMENTATION TECHNIQUE (SM: PART 9221 B) | 490 | 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

APRIL 18, 2023



ANALYSIS REPORT

PROJECT NAME : โครงการก่อสร้างท่าเทียบเรือเชียงแสนแห่งที่ 2 (ท่าเรือพาณิชย์เชียงแสน) จังหวัดเชียงราย ระยะดำเนินการ ประจำปี 2566
CUSTOMER NAME : PORT OF CHIANG SAEN
ADDRESS : 888 MOO 10 BANSANSAIKONGNGAM BAN SAEU CHIANG SAEN CHIANG RAI 57150
CONTACT INFORMATION :
SAMPLING SOURCE : แม่น้ำโขง ด้านท้ายน้ำบริเวณบ้านแซว S5 P4
SAMPLE TYPE : SURFACE WATER
SAMPLING DATE : MARCH 28, 2023
SAMPLING TIME : 09:20 HOUR
SAMPLING METHOD : GRAB, GRAB AND STERILE TECHNIQUE
SAMPLING BY : MR PEERAPAT BANYATSIN
ANALYZED BY : MISS ITSARIYAPORN BUATIB

RECEIVED DATE : MARCH 29, 2023
ANALYTICAL DATE : MARCH 29-APRIL 5, 2023
REPORT NO. : 2023-U026640
WORK NO. : 2022-009126
ANALYSIS NO. : T23AF565-0002

| PARAMETER | UNIT | METHOD OF ANALYSIS | RESULT | DETECTION LIMIT |
|--|------------------------------------|---|--------------------------------|-----------------|
| | | | SURFACE WATER T23AF565-0002 | |
| pH ^a | - | ELECTROMETRIC METHOD AT SITE (SM: PART 4500-H ⁺ B) | 8.4 (23°C) | - |
| DISSOLVED OXYGEN ^c | mg/L | AZIDE MODIFICATION METHOD AT SITE (SM: PART 4500-O C) | 6.1 | 0.5 |
| TURBIDITY ^c | NTU | NEPHELOMETRIC METHOD (SM: PART 2130 B) | 17 | 0.1 |
| BIOCHEMICAL OXYGEN DEMAND ^c | mg/L | AZIDE MODIFICATION METHOD (SM: PART 5210 B AND PART 4500-O C) | 1.1 | 1.0 |
| TOTAL SUSPENDED SOLIDS ^a | mg/L | TOTAL SUSPENDED SOLIDS DRIED AT 103-105 °C (SM: PART 2540 D) | 23.7 | 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) | 0.49 | 0.09 |
| PHOSPHATE ^c | mg/L PO ₄ ³⁻ | ASCORBIC ACID METHOD (SM: PART 4500-P E) | 0.03 | 0.03 |
| MICROBIOLOGY | | | | |
| FAECAL COLIFORM BACTERIA ^b | MPN/100 mL | MULTIPLE-TUBE FERMENTATION TECHNIQUE (SM: PART 9221 E) | 70 | 1.8 |
| COLIFORM BACTERIA ^b | MPN/100 mL | MULTIPLE-TUBE FERMENTATION TECHNIQUE (SM: PART 9221 B) | 260 | 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

APRIL 18, 2023



ANALYSIS REPORT

PROJECT NAME : โครงการก่อสร้างท่าเทียบเรือเชียงแสนแห่งที่ 2 (ท่าเรือพาณิชย์เชียงแสน) จังหวัดเชียงราย ระยะดำเนินการ ประจำปี 2566
CUSTOMER NAME : PORT OF CHIANG SAEN
ADDRESS : 888 MOO 10 BANSANSAIKONGNGAM BAN SAE CHANG SAEN CHIANG RAI 57150
CONTACT INFORMATION : 
SAMPLING SOURCE : -
SAMPLE TYPE : BLANK (SURFACE WATER) **RECEIVED DATE** : MARCH 29, 2023
SAMPLING DATE : - **ANALYTICAL DATE** : MARCH 29-APRIL 5, 2023
SAMPLING TIME : - **REPORT NO.** : 2023-U026633
SAMPLING METHOD : - **WORK NO.** : 2022-009126
SAMPLING BY : - **ANALYSIS NO.** : 2023-FB0290, 2023-TB0278
ANALYZED BY : MISS ITSARIYAPORN BUATIB

| PARAMETER | UNIT | METHOD OF ANALYSIS | RESULT | | DETECTION LIMIT |
|---------------------------|------------------------------------|--|------------------|------------------|-----------------|
| | | | 1 2023-FB0290 | 2 2023-TB0278 | |
| BIOCHEMICAL OXYGEN DEMAND | mg/L | AZIDE MODIFICATION METHOD (SM: PART 5210 B AND PART 4500-O C) | ND | ND | 1.0 |
| TURBIDITY | NTU | NEPHELOMETRIC METHOD (SM: PART 2130 B) | ND | ND | 0.1 |
| 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 | | | | | |
| FAECAL COLIFORM BACTERIA | MPN/100 mL | MULTIPLE-TUBE FERMENTATION TECHNIQUE (SM: PART 9221 E) | < 1.8 | < 1.8 | 1.8 |
| COLIFORM BACTERIA | MPN/100 mL | MULTIPLE-TUBE FERMENTATION TECHNIQUE (SM: PART 9221 B) | < 1.8 | < 1.8 | 1.8 |
| SAMPLE CONDITION | | | | | |
| WATER'S COLOUR/TURBID | | | COLOURLESS/CLEAR | COLOURLESS/CLEAR | |
| SEDIMENT | | | - | - | |

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.

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(MISS CHAWEEWAN BOONLA)
LABORATORY SUPERVISOR

APRIL 18, 2023



ภาคผนวก ค-5

ใบรายงานผลการวิเคราะห์นิเวศวิทยาทางน้ำ

ANALYSIS REPORT

PROJECT NAME : โครงการก่อสร้างท่าเทียบเรือเชียงแสนแห่งที่ 2 (ท่าเรือพาณิชย์เชียงแสน) จังหวัดเชียงราย ระยะดำเนินการ ประจำปี 2566

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 28, 2023

SAMPLING TIME : *

SAMPLING METHOD^b : PLANKTON NET

SAMPLING BY^b : MR PEERAPAT BANYATSIN

ANALYZED BY : MISS NAPAPORN PURATAKO

RECEIVED DATE : MARCH 29, 2023

ANALYTICAL DATE : MARCH 29-APRIL 5, 2023

REPORT NO. : 2023-U026124

WORK NO. : 2022-009126

ANALYSIS NO. : T23AF562-0003 - T23AF562-0004

| PHYTOPLANKTON (Natural Units/mL) | COUNTING UNIT | RESULT | |
|---|------------------|---|---|
| | | SAMPLE NO. 1 13:20 HOUR * T23AF562-0003 | SAMPLE NO. 2 11:30 HOUR * T23AF562-0004 |
| Division Cyanophyta | | | |
| Class Cyanophyceae | | | |
| Family Oscillatoriaceae | | | |
| <i>Oscillatoria</i> spp. ^b | FILAMENT | 105 | 38 |
| Division Chlorophyta | | | |
| Class Chlorophyceae | | | |
| Family Chlamydomonadaceae | | | |
| <i>Pandorina morum</i> ^b | COLONY | 5 | 18 |
| Family Hydrodictyaceae | | | |
| <i>Pediastrum</i> spp. ^a | COLONY | 29 | 29 |
| Family Oocystaceae | | | |
| <i>Selenastrum</i> spp. ^b | COLONY | 0 | 3 |
| Family Scenedesmaceae | | | |
| <i>Actinastrum</i> spp. ^b | COLONY | 5 | 0 |
| <i>Scenedesmus</i> spp. ^a | COLONY | 257 | 21 |
| Family Zygnemataceae | | | |
| <i>Spirogyra</i> spp. ^b | FILAMENT | 5 | 0 |
| Family Desmidiaceae | | | |
| <i>Closterium</i> spp. ^b | CELL | 11 | 11 |
| <i>Cosmarium</i> spp. ^b | CELL | 13 | 0 |
| <i>Staurastrum</i> spp. ^b | CELL | 13 | 3 |
| Class Euglenophyceae | | | |
| Family Euglenaceae | | | |
| <i>Euglena</i> spp. ^a | CELL | 36 | 10 |
| <i>Phacus</i> spp. ^a | CELL | 5 | 5 |
| <i>Strombomonas</i> spp. ^b | CELL | 5 | 0 |
| <i>Trachelomonas volvocina</i> ^b | CELL | 0 | 3 |



| PHYTOPLANKTON (Natural Units/mL) | COUNTING UNIT | RESULT | |
|---|------------------|---|---|
| | | SAMPLE NO. 1 13:20 HOUR * T23AF562-0003 | SAMPLE NO. 2 11:30 HOUR * T23AF562-0004 |
| Division Chromophyta | | | |
| Class Bacillariophyceae | | | |
| Family Thalassiosiraceae | | | |
| <i>Cyclotella</i> spp. ^b | CELL | 20 | 118 |
| Family Aulacoseiraceae | | | |
| <i>Aulacoseira granulata</i> ^b | FILAMENT | 18 | 1,036 |
| Family Fragilariaceae | | | |
| <i>Fragilaria</i> spp. ^b | CELL | 152 | 49 |
| <i>Synedra rumpens</i> ^b | CELL | 76 | 450 |
| <i>S. ulna</i> ^b | CELL | 117 | 364 |
| Family Cymbellaceae | | | |
| <i>Cymbella</i> spp. ^b | CELL | 0 | 5 |
| Family Naviculaceae | | | |
| <i>Gyrosigma</i> spp. ^b | CELL | 56 | 33 |
| <i>Navicula</i> spp. ^b | CELL | 72 | 53 |
| Family Bacillariaceae | | | |
| <i>Nitzschia</i> spp. ^b | CELL | 77 | 0 |
| Family Surirellaceae | | | |
| <i>Surirella</i> spp. ^b | CELL | 1,707 | 75 |
| Class Dinophyceae | | | |
| Family Ceratiaceae | | | |
| <i>Ceratium</i> spp. ^b | CELL | 0 | 10 |
| TOTAL ABUNDANCE (Natural Units/mL) | | 2,784 | 2,334 |
| AMOUNT OF SPECIES | | 21 | 20 |
| SAMPLE VOLUME (mL) | | 84 | 82 |
| SAMPLE CONDITION | | | |
| WATER'S COLOUR/TURBID | | COLOURLESS/CLEAR | COLOURLESS/CLEAR |
| SEDIMENT | | BROWN | BROWN |

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

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

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

SAMPLE NO. 1 แม่น้ำกกก่อนไหลไปรวมกับแม่น้ำโขง S1 P1

SAMPLE NO. 2 แม่น้ำโขง บริเวณจุดบรรจบแม่น้ำกก S2 P2



(MISS CHAWEEVAN BOONLA)
LABORATORY SUPERVISOR

APRIL 12, 2023

ANALYSIS REPORT

PROJECT NAME : โครงการก่อสร้างท่าเทียบเรือเชียงแสนแห่งที่ 2 (ท่าเรือพาณิชย์เชียงแสน) จังหวัดเชียงราย ระยะดำเนินการ ประจำปี 2566

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 **RECEIVED DATE** : MARCH 29, 2023

SAMPLING DATE : MARCH 28, 2023 **ANALYTICAL DATE** : MARCH 29-APRIL 5, 2023

SAMPLING TIME : * **REPORT NO.** : 2023-U025324

SAMPLING METHOD^b : PLANKTON NET **WORK NO.** : 2022-009126

SAMPLING BY^b : MR PEERAPAT BANYATSIN **ANALYSIS NO.** : T23AF565-0004 - T23AF565-0005

ANALYZED BY : MISS NAPAPORN PURATAKO

| PHYTOPLANKTON (Natural Units/mL) | COUNTING UNIT | RESULT | |
|---------------------------------------|------------------|---|---|
| | | SAMPLE NO. 1 10:30 HOUR * T23AF565-0004 | SAMPLE NO. 2 09:30 HOUR * T23AF565-0005 |
| Division Cyanophyta | | | |
| Class Cyanophyceae | | | |
| Family Oscillatoriaceae | | | |
| <i>Oscillatoria</i> spp. ^b | FILAMENT | 35 | 0 |
| Family Nostocaceae | | | |
| <i>Anabaena</i> spp. ^b | FILAMENT | 15 | 0 |
| Division Chlorophyta | | | |
| Class Chlorophyceae | | | |
| Family Chlamydomonadaceae | | | |
| <i>Pandorina morum</i> ^b | COLONY | 49 | 21 |
| Family Hydrodictyaceae | | | |
| <i>Pediastrum</i> spp. ^a | COLONY | 26 | 11 |
| Family Coelastraceae | | | |
| <i>Coelastrum</i> spp. ^a | COLONY | 13 | 9 |
| Family Oocystaceae | | | |
| <i>Tetraedron</i> spp. ^b | CELL | 4 | 6 |
| Family Scenedesmaceae | | | |
| <i>Actinastrum</i> spp. ^b | COLONY | 19 | 0 |
| <i>Scenedesmus</i> spp. ^a | COLONY | 109 | 72 |
| Family Desmidiaceae | | | |
| <i>Closterium</i> spp. ^b | CELL | 17 | 25 |
| Class Euglenophyceae | | | |
| Family Euglenaceae | | | |
| <i>Euglena</i> spp. ^a | CELL | 16 | 7 |
| <i>Phacus</i> spp. ^a | CELL | 18 | 25 |



| PHYTOPLANKTON (Natural Units/mL) | COUNTING UNIT | RESULT | |
|---|------------------|---|---|
| | | SAMPLE NO. 1 10:30 HOUR * T23AF565-0004 | SAMPLE NO. 2 09:30 HOUR * T23AF565-0005 |
| Division Chromophyta | | | |
| Class Bacillariophyceae | | | |
| Family Thalassiosiraceae | | | |
| <i>Cyclotella</i> spp. ^b | CELL | 672 | 344 |
| Family Melosiraceae | | | |
| <i>Melosira</i> spp. ^b | FILAMENT | 333 | 150 |
| Family Aulacoseiraceae | | | |
| <i>Aulacoseira granulata</i> ^b | FILAMENT | 1,077 | 531 |
| Family Eupodiscaceae | | | |
| <i>Pleurosira</i> spp. ^b | CELL | 39 | 52 |
| Family Fragilariaceae | | | |
| <i>Asterionella</i> spp. ^b | CELL | 52 | 0 |
| <i>Fragilaria</i> spp. ^b | CELL | 46 | 89 |
| <i>Synedra rumpens</i> ^b | CELL | 30 | 48 |
| <i>S. ulna</i> ^b | CELL | 492 | 270 |
| Family Eunotiaceae | | | |
| <i>Eunotia</i> spp. ^b | CELL | 71 | 79 |
| Family Naviculaceae | | | |
| <i>Amphora</i> spp. ^b | CELL | 84 | 29 |
| <i>Gyrosigma</i> spp. ^b | CELL | 15 | 11 |
| <i>Navicula</i> spp. ^b | CELL | 140 | 14 |
| <i>Pinnularia</i> spp. ^b | CELL | 20 | 10 |
| Family Bacillariaceae | | | |
| <i>Nitzschia</i> spp. ^b | CELL | 76 | 64 |
| Family Surirellaceae | | | |
| <i>Surirella</i> spp. ^b | CELL | 56 | 74 |
| Class Chrysophyceae | | | |
| Family Pleurochloridaceae | | | |
| <i>Isthmochloron</i> spp. ^b | CELL | 4 | 4 |
| Class Dinophyceae | | | |
| Family Ceratiaceae | | | |
| <i>Ceratium furca</i> ^b | CELL | 0 | 4 |

| PHYTOPLANKTON (Natural Units/mL) | COUNTING UNIT | RESULT | |
|---|------------------|---|---|
| | | SAMPLE NO. 1 10:30 HOUR * T23AF565-0004 | SAMPLE NO. 2 09:30 HOUR * T23AF565-0005 |
| Family Peridiniaceae <i>Peridinium</i> spp. ^b | CELL | 0 | 69 |
| TOTAL ABUNDANCE (Natural Units/mL) | | 3,528 | 2,018 |
| AMOUNT OF SPECIES | | 27 | 25 |
| SAMPLE VOLUME (mL) | | 98 | 102 |
| SAMPLE CONDITION WATER'S COLOUR/TURBID SEDIMENT | | COLOURLESS/CLEAR BROWN | COLOURLESS/CLEAR BROWN |

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

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

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

SAMPLE NO. 1 แม่น้ำโขง ห่างจากท่าเรือพาณิชย์เชียงแสน บัจุบันไปทางด้านท้ายน้ำ 500 เมตร S4 P3

SAMPLE NO. 2 แม่น้ำโขง ด้านท้ายน้ำบริเวณบ้านแซว S5 P4

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(MISS CHAWEEWAN BOONLA)
LABORATORY SUPERVISOR

APRIL 12, 2023

ANALYSIS REPORT

PROJECT NAME : โครงการก่อสร้างท่าเทียบเรือเชียงแสนแห่งที่ 2 (ท่าเรือพาณิชย์เชียงแสน) จังหวัดเชียงราย ระยะดำเนินการ ประจำปี 2566
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 28, 2023
SAMPLING TIME : *
SAMPLING METHOD : PLANKTON NET
SAMPLING BY : MR PEERAPAT BANYATSIN
ANALYZED BY : MISS NAPAPORN PURATAKO

RECEIVED DATE : MARCH 29, 2023
ANALYTICAL DATE : MARCH 29-APRIL 3, 2023
REPORT NO. : 2023-U026125
WORK NO. : 2022-009126
ANALYSIS NO. : T23AF562-0003 - T23AF562-0004

| ZOOPLANKTON (UNITS/m ³) | COUNTING UNIT | RESULT | |
|--|------------------|---|---|
| | | SAMPLE NO. 1 13:20 HOUR * T23AF562-0003 | SAMPLE NO. 2 11:30 HOUR * T23AF562-0004 |
| Phylum Protozoa | | | |
| Class Sarcodina | | | |
| Family Arcellidae | | | |
| <i>Arcella</i> sp. | CELL | 3,146 | 0 |
| Family Diffugiidae | | | |
| <i>Centropyxis</i> sp. | CELL | 7,655 | 10,163 |
| Phylum Nematoda | | | |
| Unknown Nematode | INDIVIDUAL | 0 | 888 |
| Phylum Rotifera | | | |
| Class Monogononta | | | |
| Family Brachionidae | | | |
| <i>Anuraeopsis</i> sp. | INDIVIDUAL | 0 | 1,325 |
| <i>Brachionus</i> sp. | INDIVIDUAL | 3,605 | 0 |
| Family Lecanidae | | | |
| <i>Lecane</i> sp. | INDIVIDUAL | 1,796 | 0 |
| Family Synchaetidae | | | |
| <i>Polyarthra</i> sp. | INDIVIDUAL | 905 | 888 |
| Class Digononta | | | |
| Family Philodinidae | | | |
| <i>Rotaria</i> sp. | INDIVIDUAL | 2,255 | 1,763 |
| Phylum Arthropoda | | | |
| Class Crustacea | | | |
| Cyclopoid Copepod | INDIVIDUAL | 905 | 0 |



| ZOOPLANKTON (UNITS/m ³) | COUNTING UNIT | RESULT | |
|---|------------------|---|---|
| | | SAMPLE NO. 1 13:20 HOUR * T23AF562-0003 | SAMPLE NO. 2 11:30 HOUR * T23AF562-0004 |
| Phylum Mollusca | | | |
| Class Bivalvia | | | |
| Bivalvia Larva | INDIVIDUAL | 5,400 | 11,038 |
| TOTAL ABUNDANCE (UNITS/m ³) | | 25,667 | 26,065 |
| AMOUNT OF SPECIES | | 8 | 6 |
| SAMPLE CONDITION | | | |
| WATER'S COLOUR/TURBID | | COLOURLESS/CLEAR | COLOURLESS/CLEAR |
| SEDIMENT | | BROWN | BROWN |

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

SAMPLE NO. 1 แม่น้ำกกก่อนไหลไปรวมกับแม่น้ำโขง S1 P1

SAMPLE NO. 2 แม่น้ำโขง บริเวณจุดบรรจบแม่น้ำกก S2 P2



(MISS CHAWEEWAN BOONLA)
LABORATORY SUPERVISOR

APRIL 12, 2023

ANALYSIS REPORT

PROJECT NAME : โครงการก่อสร้างท่าเทียบเรือเชียงแสนแห่งที่ 2 (ท่าเรือพาณิชย์เชียงแสน) จังหวัดเชียงราย ระยะดำเนินการ ประจำปี 2566
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 28, 2023
SAMPLING TIME : *
SAMPLING METHOD : PLANKTON NET
SAMPLING BY : MR PEERAPAT BANYATSIN
ANALYZED BY : MISS NAPAPORN PURATAKO

RECEIVED DATE : MARCH 29, 2023
ANALYTICAL DATE : MARCH 29-APRIL 5, 2023
REPORT NO. : 2023-U025325
WORK NO. : 2022-009126
ANALYSIS NO. : T23AF565-0004 - T23AF565-0005

| ZOOPLANKTON (UNITS/m ³) | COUNTING UNIT | RESULT | |
|--|------------------|---|---|
| | | SAMPLE NO. 1 10:30 HOUR * T23AF565-0004 | SAMPLE NO. 2 09:30 HOUR * T23AF565-0005 |
| Phylum Protozoa | | | |
| Class Sarcodina | | | |
| Family Arcellidae | | | |
| <i>Arcella</i> sp. | CELL | 6,495 | 2,672 |
| Family Diffugiidae | | | |
| <i>Centropyxis</i> sp. | CELL | 4,005 | 6,928 |
| Phylum Nematoda | | | |
| Unknown Nematode | INDIVIDUAL | 1,005 | 0 |
| Phylum Rotifera | | | |
| Class Monogononta | | | |
| Family Lecanidae | | | |
| <i>Lecane</i> sp. | INDIVIDUAL | 0 | 1,600 |
| Phylum Arthropoda | | | |
| Class Crustacea | | | |
| Nauplius of Copepod | INDIVIDUAL | 4,500 | 1,072 |
| Phylum Mollusca | | | |
| Class Gastropoda | | | |
| Gastropod Larva | INDIVIDUAL | 495 | 0 |



| ZOOPLANKTON (UNITS/m ³) | COUNTING UNIT | RESULT | |
|---|------------------|---|---|
| | | SAMPLE NO. 1 10:30 HOUR * T23AF565-0004 | SAMPLE NO. 2 09:30 HOUR * T23AF565-0005 |
| Class Bivalvia Bivalvia Larva | INDIVIDUAL | 7,995 | 4,800 |
| TOTAL ABUNDANCE (UNITS/m ³) | | 24,495 | 17,072 |
| AMOUNT OF SPECIES | | 6 | 5 |
| SAMPLE CONDITION WATER'S COLOUR/TURBID SEDIMENT | | COLOURLESS/CLEAR BROWN | COLOURLESS/CLEAR BROWN |

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

SAMPLE NO. 1 แม่น้ำโขง ห่างจากท่าเรือพาณิชย์เชียงแสน บัจุบันไปทางด้านท้ายน้ำ 500 เมตร S4 P3

SAMPLE NO. 2 แม่น้ำโขง ด้านท้ายน้ำบริเวณบ้านแซว S5 P4

(MISS CHAWEEWAN BOONLA)
LABORATORY SUPERVISOR

APRIL 12, 2023

ANALYSIS REPORT

PROJECT NAME : โครงการก่อสร้างท่าเทียบเรือเชียงแสนแห่งที่ 2 (ท่าเรือพาณิชย์เชียงแสน) จังหวัดเชียงราย ระยะดำเนินการ ประจำปี 2566
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 28, 2023
SAMPLING TIME : *
SAMPLING METHOD : PETERSEN GRAB
SAMPLING BY : MR PEERAPAT BANYATSIN
ANALYZED BY : MISS PATCHAREE KONGCHUMNAN
RECEIVED DATE : MARCH 29, 2023
ANALYTICAL DATE : MARCH 29-31, 2023
REPORT NO. : 2023-U026200
WORK NO. : 2022-009126
ANALYSIS NO. : T23AF562-0005 - T23AF562-0006

| BENTHOS (INDIVIDUALS/m ²) | RESULT | |
|---|---|---|
| | SAMPLE NO. 1 13:40 HOUR * T23AF562-0005 | SAMPLE NO. 2 11:50 HOUR * T23AF562-0006 |
| Phylum Annelida | | |
| Class Oligochaeta | | |
| Family Tubificidae | 14 | 7 |
| Phylum Mollusca | | |
| Class Bivalvia | | |
| Family Corbiculidae | | |
| <i>Corbicula</i> sp. | 0 | 413 |
| Family Mytilidae | 0 | 77 |
| Phylum Arthropoda | | |
| Class Insecta | | |
| Family Chironomidae | | |
| <i>Chironomus</i> sp. | 0 | 14 |
| TOTAL DENSITY (INDIVIDUALS/m ²) | 14 | 511 |
| AMOUNT OF SPECIES | 1 | 4 |
| SAMPLE CONDITION | GRAVEL | GRAVEL |

SAMPLE NO. 1 แม่น้ำกกก่อนไหลไปรวมกับแม่น้ำโขง S1 P1

SAMPLE NO. 2 แม่น้ำโขง บริเวณจุดบรรจบแม่น้ำกก S2 P2

(MISS CHAWEEWAN BOONLA)
LABORATORY SUPERVISOR

APRIL 12, 2023



ANALYSIS REPORT

PROJECT NAME : โครงการก่อสร้างท่าเทียบเรือเชียงแสนแห่งที่ 2 (ท่าเรือพาณิชย์เชียงแสน) จังหวัดเชียงราย ระยะดำเนินการ ประจำปี 2566
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 28, 2023
SAMPLING TIME : *
SAMPLING METHOD : PETERSEN GRAB
SAMPLING BY : MR PEERAPAT BANYATSIN
ANALYZED BY : MISS PATCHAREE KONGCHUMNAN

RECEIVED DATE : MARCH 29, 2023
ANALYTICAL DATE : MARCH 29-31, 2023
REPORT NO. : 2023-U025326
WORK NO. : 2022-009126
ANALYSIS NO. : T23AF565-0006 - T23AF565-0007

| BENTHOS (INDIVIDUALS/m ²) | RESULT | |
|---|---|---|
| | SAMPLE NO. 1 10:50 HOUR * T23AF565-0006 | SAMPLE NO. 2 09:50 HOUR * T23AF565-0007 |
| Phylum Mollusca | | |
| Class Bivalvia | | |
| Family Corbiculidae | | |
| <i>Corbicula</i> sp. | 322 | 0 |
| Family Mytilidae | 7 | 0 |
| Phylum Arthropoda | | |
| Class Insecta | | |
| Family Chironomidae | | |
| <i>Chironomus</i> sp. | 7 | 7 |
| TOTAL DENSITY (INDIVIDUALS/m ²) | 336 | 7 |
| AMOUNT OF SPECIES | 3 | 1 |
| SAMPLE CONDITION | GRAVEL | GRAVEL |

SAMPLE NO. 1 แม่น้ำโขง ห่างจากท่าเรือพาณิชย์เชียงแสน ปัจจุบันไปทางด้านท้ายน้ำ 500 เมตร S4 P3

SAMPLE NO. 2 แม่น้ำโขง ด้านท้ายน้ำบริเวณบ้านแซว S5 P4

(MISS CHAWEEWAN BOONLA)
LABORATORY SUPERVISOR

APRIL 12, 2023



ANALYSIS REPORT

PROJECT NAME : โครงการก่อสร้างท่าเทียบเรือเชียงแสนแห่งที่ 2 (ท่าเรือพาณิชย์เชียงแสน) จังหวัดเชียงราย ระยะดำเนินการ ประจำปี 2566
CUSTOMER NAME : PORT OF CHIANG SAEN
ADDRESS : 888 MOO 10 BANSANSAIKONGNGAM BAN SAEU CHIANG SAEN CHIANG RAI 57150
CONTACT INFORMATION :
SAMPLING SOURCE : -
SAMPLE TYPE : SURFACE WATER
SAMPLING DATE : MARCH 28, 2023
SAMPLING TIME : 14:10 HOUR
SAMPLING METHOD : CAST NETS
SAMPLING BY : MR PEERAPAT BANYAT SIN
ANALYZED BY : MISS PATCHARAPA SAWANGWONG
RECEIVED DATE : MARCH 29, 2023
ANALYTICAL DATE : MARCH 29-APRIL 3, 2023
REPORT NO. : 2023-U026202
WORK NO. : 2022-009126
ANALYSIS NO. : T23AF562-0007

| FISH | COMMON NAME | RESULT | | | |
|--|------------------|--|------------------------------|---------------------------|--------------------------------|
| | | T23AF562-0007 (แม่น้ำกกก่อนไหลไปรวมกับแม่น้ำโขง S1 P1) | | | |
| | | DENSITY (INDIVIDUALS/RAI) | ABUNDANCE (KILOGRAMS/RAI) | LENGTH (cm.) MIN - MAX | WEIGHT RANGE (g.) MIN - MAX |
| Family Ambassidae <i>Parambassis siamensis</i> | River Glassfish | 16 | 0.069 | 5.2-7.2 | 1.76-5.99 |
| Family Bagridae <i>Hemibagrus spilopterus</i> | Yellow Catfish | 10 | 0.365 | 15.7-20.8 | 23.92-52.31 |
| Family Cyprinidae <i>Henicorhynchus siamensis</i> | Siamese Mud Carp | 16 | 0.559 | 14.6-15.9 | 31.34-37.15 |
| NUMBER OF SPECIES | | 3 | | | |
| TOTAL | | 42 | 0.993 | - | - |

(MISS CHAWEEWAN BOONLA)
LABORATORY SUPERVISOR

APRIL 12, 2023



ANALYSIS REPORT

PROJECT NAME : โครงการก่อสร้างท่าเทียบเรือเชียงแสนแห่งที่ 2 (ท่าเรือพาณิชย์เชียงแสน) จังหวัดเชียงราย ระยะดำเนินการ ประจำปี 2566
CUSTOMER NAME : PORT OF CHIANG SAEN
ADDRESS : 888 MOO 10 BANSANSAIKONGNGAM BAN SAEO CHIANG SAEN CHIANG RAI 57150
CONTACT INFORMATION : T [REDACTED]
SAMPLING SOURCE : -
SAMPLE TYPE : SURFACE WATER
SAMPLING DATE : MARCH 28, 2023
SAMPLING TIME : 12:10 HOUR
SAMPLING METHOD : CAST NETS
SAMPLING BY : MR PEERAPAT BANYATSIN
ANALYZED BY : MISS PATCHARAPA SAWANGWONG

RECEIVED DATE : MARCH 29, 2023
ANALYTICAL DATE : MARCH 29-APRIL 3, 2023
REPORT NO. : 2023-U026203
WORK NO. : 2022-009126
ANALYSIS NO. : T23AF562-0008

| FISH | COMMON NAME | RESULT | | | |
|--|------------------|--|------------------------------|---------------------------|--------------------------------|
| | | T23AF562-0008 (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 | 74 | 0.227 | 5.2-7.7 | 1.59-5.96 |
| Family Cyprinidae <i>Ctenopharyngodon idella</i> | Grass carp | 4 | 0.027 | 9.5 | 8.58 |
| <i>Henicorhynchus siamensis</i> | Siamese Mud Carp | 10 | 0.328 | 15.0-15.4 | 33.32-35.44 |
| NUMBER OF SPECIES | | 3 | | | |
| TOTAL | | 88 | 0.582 | - | - |

[REDACTED]
.....
(MISS CHAWEEWAN BOONLA)
LABORATORY SUPERVISOR

APRIL 12, 2023



ANALYSIS REPORT

PROJECT NAME : โครงการก่อสร้างท่าเทียบเรือเชียงแสนแห่งที่ 2 (ท่าเรือพาณิชย์เชียงแสน) จังหวัดเชียงราย ระยะดำเนินการ ประจำปี 2566
CUSTOMER NAME : PORT OF CHIANG SAEN
ADDRESS : 888 MOO 10 BANSANSAIKONGNGAM BAN SAEO CHIANG SAEN CHIANG RAI 57150
CONTACT INFORMATION : T [REDACTED]
SAMPLING SOURCE : -
SAMPLE TYPE : SURFACE WATER
SAMPLING DATE : MARCH 28, 2023
SAMPLING TIME : 11:10 HOUR
SAMPLING METHOD : CAST NETS
SAMPLING BY : MR PEERAPAT BANYATSIN
ANALYZED BY : MISS PATCHARAPA SAWANGWONG

RECEIVED DATE : MARCH 29, 2023
ANALYTICAL DATE : MARCH 29-APRIL 3, 2023
REPORT NO. : 2023-U025328
WORK NO. : 2022-009126
ANALYSIS NO. : T23AF565-0008

| FISH | COMMON NAME | RESULT | | | |
|--|--------------------|---|------------------------------|---------------------------|--------------------------------|
| | | T23AF565-0008 (แม่น้ำโขง ห่างจากท่าเรือพาณิชย์เชียงแสน ปัจจุบันไปทางด้านท้ายน้ำ 500 เมตร S4 P3) | | | |
| | | DENSITY (INDIVIDUALS/RAI) | ABUNDANCE (KILOGRAMS/RAI) | LENGTH (cm.) MIN - MAX | WEIGHT RANGE (g.) MIN - MAX |
| Family Ambassidae <i>Parambassis siamensis</i> | River Glassfish | 16 | 0.054 | 5.9-7.5 | 2.26-4.57 |
| Family Bagridae <i>Hemibagrus spilopterus</i> | Yellow Catfish | 4 | 0.064 | 14.2 | 20.00 |
| Family Cyprinidae <i>Barbonymus gonionotus</i> | Common Silver Barb | 4 | 0.053 | 11.4 | 16.48 |
| <i>Rasbora aurotaenia</i> | Pale Rasbora | 4 | 0.013 | 8.3 | 3.94 |
| NUMBER OF SPECIES | | 4 | | | |
| TOTAL | | 28 | 0.184 | - | - |

(MISS CHAWEEWAN BOONLA)
LABORATORY SUPERVISOR

APRIL 12, 2023



ANALYSIS REPORT

PROJECT NAME : โครงการก่อสร้างท่าเทียบเรือเชียงแสนแห่งที่ 2 (ท่าเรือพาณิชย์เชียงแสน) จังหวัดเชียงราย ระยะดำเนินการ ประจำปี 2566
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 28, 2023
SAMPLING TIME : 10:10 HOUR
SAMPLING METHOD : CAST NETS
SAMPLING BY : MR PEERAPAT BANYATSIN
ANALYZED BY : MISS PATCHARAPA SAWANGWONG

RECEIVED DATE : MARCH 29, 2023
ANALYTICAL DATE : MARCH 29-APRIL 3, 2023
REPORT NO. : 2023-U025330
WORK NO. : 2022-009126
ANALYSIS NO. : T23AF565-0009

| FISH | COMMON NAME | RESULT | | | |
|---|------------------|---|------------------------------|---------------------------|--------------------------------|
| | | T23AF565-0009 (แม่น้ำโขง ด้านท้ายน้ำบริเวณบ้านแขวง 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 | 26 | 0.103 | 5.5-7.1 | 1.97-5.83 |
| Family Bagridae <i>Hemibagrus spilopterus</i> | Yellow Catfish | 7 | 0.224 | 15.1-17.2 | 27.83-42.04 |
| Family Cyprinidae <i>Henicorhynchus siamensis</i> | Siamese Mud Carp | 10 | 0.294 | 13.7-15.1 | 25.69-34.68 |
| NUMBER OF SPECIES | | 3 | | | |
| TOTAL | | 43 | 0.621 | - | - |

(MISS CHAWEEWAN BOONLA)
LABORATORY SUPERVISOR

APRIL 12, 2023

