

ภาคผนวก ง-3

ผลการตรวจวัดคุณภาพน้ำทะเล



PARAMETER	UNIT	METHOD OF ANALYSIS	RESULT	REGULATORY STANDARD	DETECTION LIMIT
			บริเวณด้านขวาของ ตาราง ระยะ 35 เมตร (SW1) T24AG274-0001		
METALS					
ARSENIC °	µg/L As	PRE-CONCENTRATION AND HYDRIDE GENERATION ATOMIC ABSORPTION SPECTROMETRIC METHOD (BASED ON METHOD OF SEAWATER ANALYSIS, GRASSHOFF, 1999, CHAPTER 12)	ND	≤ 10	0.300
CADMIUM °	µg/L Cd	PRE-CONCENTRATION AND INDUCTIVELY COUPLED PLASMA (ICP) METHOD (BASED ON METHOD OF SEAWATER ANALYSIS, GRASSHOFF, 1999, CHAPTER 12)	ND	≤ 5	0.100
HEXAVALENT CHROMIUM °	µg/L Cr ⁶⁺	PRE-CONCENTRATION AND ELECTROTHERMAL ATOMIC ABSORPTION SPECTROMETRIC METHOD (BASED ON METHOD OF SEAWATER ANALYSIS, GRASSHOFF, 1999, CHAPTER 12)	ND	≤ 50	0.100
COPPER °	µg/L Cu	PRE-CONCENTRATION AND INDUCTIVELY COUPLED PLASMA (ICP) METHOD (BASED ON METHOD OF SEAWATER ANALYSIS, GRASSHOFF, 1999, CHAPTER 12)	0.810	≤ 8	0.100
IRON °	µg/L Fe	PRE-CONCENTRATION AND INDUCTIVELY COUPLED PLASMA (ICP) METHOD (BASED ON METHOD OF SEAWATER ANALYSIS, GRASSHOFF, 1999, CHAPTER 12)	11.5	≤ 300	0.100
LEAD °	µg/L Pb	PRE-CONCENTRATION AND INDUCTIVELY COUPLED PLASMA (ICP) METHOD (BASED ON METHOD OF SEAWATER ANALYSIS, GRASSHOFF, 1999, CHAPTER 12)	0.880	≤ 8.5	0.100
MANGANESE °	µg/L Mn	PRE-CONCENTRATION AND INDUCTIVELY COUPLED PLASMA (ICP) METHOD (BASED ON METHOD OF SEAWATER ANALYSIS, GRASSHOFF, 1999, CHAPTER 12)	0.550	≤ 100	0.100
MERCURY °	µg/L Hg	COLD-VAPOUR ATOMIC FLUORESCENCE SPECTROMETRIC METHOD (US EPA 2005: 245.7)	ND	≤ 0.1	0.020
ZINC °	µg/L Zn	PRE-CONCENTRATION AND INDUCTIVELY COUPLED PLASMA (ICP) METHOD (BASED ON METHOD OF SEAWATER ANALYSIS, GRASSHOFF, 1999, CHAPTER 12)	4.23	≤ 50	0.100

ANALYSIS REPORT

PROJECT NAME : โครงการท่าเทียบเรือ บริษัท เจริญ พลธร จำกัด
CUSTOMER NAME : JC MARINE PORT COMPANY LIMITED
ADDRESS : 153/1 MOO 1 THUNG SUKHLA SI RACHA CHON BURI 20230
CONTACT INFORMATION : TEL : 08 1309 5708, 0 3835 1473 e-mail : jcmarineport.info@gmail.com
SAMPLING SOURCE : -
SAMPLE TYPE : SEAWATER
SAMPLING DATE : MARCH 25, 2024
SAMPLING TIME : 11:00 HOUR
SAMPLING METHOD : COMPOSITE
SAMPLING BY : MR. ANUSART SUAYDEE
ANALYZED BY : MR. WEERAYUT SARAPAGDEE

RECEIVED DATE : MARCH 25, 2024
ANALYTICAL DATE : MARCH 25 - APRIL 11, 2024
ISSUE DATE : APRIL 17, 2024
REPORT NO. : 2024-U031390
WORK NO. : 2022-008114
ANALYSIS NO. : T24AG274-0001

PARAMETER	UNIT	METHOD OF ANALYSIS	RESULT	REGULATORY STANDARD	DETECTION LIMIT
			บริเวณด้านขวาของ ตาราง ระยะ 35 เมตร (SW1) T24AG274-0001		
pH ^a	-	ELECTROMETRIC METHOD (AT SITE) SM: PART 4500-H ⁺ B AND 1060 B	8.3 (32°C)	7.0-8.5	-
TEMPERATURE °	°C	THERMOMETER AT SITE (SM: PART 2550 B)	32	n ²	-
FLOATABLE OIL AND GREASE °	-	OBSERVATION METHOD	NOT VISIBLE	NOT VISIBLE	-
SALINITY °	ppt	ELECTRICAL CONDUCTIVITY METHOD AT SITE (SM: PART 2520 B)	29.2	n ³	0.1
TRANSPARENCY °	m	SECCHI DISC	2.0	n ³	-
DISSOLVED OXYGEN °	mg/L	MEMBRANE ELECTRODE METHOD AT SITE (SM: PART 4500-O G)	4.4	≥ 4	0.5
SUSPENDED SOLIDS °	mg/L	GRAVIMETRIC METHOD (SM: PART 2540 D)	10.1	n ⁴	1.0
TOTAL DISSOLVED SOLIDS °	mg/L	TOTAL DISSOLVED SOLIDS DRIED AT 180 °C (SM: PART 2540 C)	35,720	-	25
NITRATE-NITROGEN °	µg/L N	CADMIUM REDUCTION AND COLOURIMETRIC METHOD (BASED ON PRACTICAL HANDBOOK OF SEAWATER ANALYSIS (STRICKLAND AND PARSON, 1972, II.8))	3.73	≤ 60	0.50
PHOSPHATE-PHOSPHORUS ^b	µg/L P	IN-HOUSE METHOD: JAE.TP.WAT.002 BASED ON PRACTICAL HANDBOOK OF SEAWATER ANALYSIS STRICKLAND AND PARSON, 1972	25.9	≤ 45	0.50
TOTAL AMMONIA ^b	µg/L N	IN-HOUSE METHOD: JAE.TP.WAT.001 BASED ON STANDARD METHODS FOR THE EXAMINATION OF WATER AND WASTEWATER, APHA, AWWA&WEF, 23rd ED., 2017, PART 4500-NH ₃ -H	85.5	≤ 950	10.0
PETROLEUM HYDROCARBON ^b	µg/L	INTERGOVERNMENT OCEANOGRAPHIC COMMISSION, MANUAL FOR MONITORING OIL AND DISSOLVED/ DISPERSED PETROLEUM HYDROCARBONS IN MARINE WATERS AND ON BEACHES, 1984	0.20	≤ 5	0.02





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NSC-TISI-TIS 17025
TESTING 0207



TESTING
No. 0063

ANALYSIS REPORT

PROJECT NAME : โครงการท่าเทียบเรือ บริษัท แจ๊ส มาร์ีน พอร์ต จำกัด
CUSTOMER NAME : JC MARINE PORT COMPANY LIMITED
ADDRESS : 153/1 MOO 1 THUNG SUKHLA SI RACHA CHON BURI 20230
CONTACT INFORMATION : TEL : 08 1309 5708, 0 3835 1473 e-mail : jcmarineport.info@gmail.com
SAMPLING SOURCE : -
SAMPLE TYPE : SEAWATER
SAMPLING DATE : MARCH 25, 2024
SAMPLING TIME : 10:12 HOUR
SAMPLING METHOD : COMPOSITE
SAMPLING BY : MR ANUSART SUAYDEE
ANALYZED BY : MR WEERAYUT SARAPAGDEE

RECEIVED DATE : MARCH 25, 2024
ANALYTICAL DATE : MARCH 25 - APRIL 11, 2024
ISSUE DATE : APRIL 17, 2024
REPORT NO. : 2024-U031391
WORK NO. : 2022-008114
ANALYSIS NO. : T24AG274-0002

PARAMETER	UNIT	METHOD OF ANALYSIS	RESULT	REGULATORY STANDARD	DETECTION LIMIT
			บริเวณด้านหน้าของท่าเรือ ระยะ 60 เมตร (SW2) T24AG274-0002		
pH ^a	-	ELECTROMETRIC METHOD (AT SITE) SM: PART 4500-H ⁺ B AND 1060 B	8.2 (31°C)	7.0-8.5	-
TEMPERATURE ^c	°C	THERMOMETER AT SITE (SM: PART 2550 B)	31	n ²	-
FLOATABLE OIL AND GREASE ^c	-	OBSERVATION METHOD	NOT VISIBLE	NOT VISIBLE	-
SALINITY ^c	ppt	ELECTRICAL CONDUCTIVITY METHOD AT SITE (SM: PART 2520 B)	29.2	n ¹	0.1
TRANSPARENCY ^c	m	SECCHI DISC	2.0	n ³	-
DISSOLVED OXYGEN ^c	mg/L	MEMBRANE ELECTRODE METHOD AT SITE (SM: PART 4500-O G)	4.8	≥ 4	0.5
SUSPENDED SOLIDS ^c	mg/L	GRAVIMETRIC METHOD (SM: PART 2540 D)	9.9	n ⁴	1.0
TOTAL DISSOLVED SOLIDS ^c	mg/L	TOTAL DISSOLVED SOLIDS DRIED AT 180 °C (SM: PART 2540 C)	36,160	-	25
NITRATE-NITROGEN ^c	µg/L N	CADMIUM REDUCTION AND COLOURIMETRIC METHOD (BASED ON PRACTICAL HANDBOOK OF SEAWATER ANALYSIS (STRICKLAND AND PARSON, 1972, II.6))	1.18	≤ 60	0.50
PHOSPHATE-PHOSPHORUS ^b	µg/L P	IN-HOUSE METHOD: UAE.TP.WAT.002 BASED ON PRACTICAL HANDBOOK OF SEAWATER ANALYSIS STRICKLAND AND PARSON, 1972	36.1	≤ 45	0.50
TOTAL AMMONIA ^b	µg/L N	IN-HOUSE METHOD: UAE.TP.WAT.001 BASED ON STANDARD METHODS FOR THE EXAMINATION OF WATER AND WASTEWATER, APHA, AWWA&WEF, 23rd ED., 2017, PART 4500-NH ₄ H	139	≤ 950	10.0
PETROLEUM HYDROCARBON ^b	µg/L	INTERGOVERNMENT OCEANOGRAPHIC COMMISSION, MANUAL FOR MONITORING OIL AND DISSOLVED/ DISPERSED PETROLEUM HYDROCARBONS IN MARINE WATERS AND ON BEACHES, 1984	0.26	≤ 5	0.02



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PARAMETER	UNIT	METHOD OF ANALYSIS	RESULT	REGULATORY STANDARD	DETECTION LIMIT
			บริเวณด้านหน้าของท่าเรือ ระยะ 35 เมตร (SW1) T24AG274-0001		
MICROBIOLOGY					
FAECAL COLIFORM BACTERIA* °	CFU/100 mL	MEMBRANE FILTER TECHNIQUE (SM: PART 9222 D)	22	≤ 100	1
COLIFORM BACTERIA* °b	MPN/100 mL	MULTIPLE-TUBE FERMENTATION TECHNIQUE (SM: PART 9221B)	240	≤ 1,000	1.8
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

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

REGULATORY STANDARD : SEAWATER QUALITY STANDARDS, NOTIFICATION OF THE NATIONAL ENVIRONMENT BOARD, B.E. 2564 PUBLISHED IN THE ROYAL GOVERNMENT GAZETTE, VOL 138, PART 245 D, DATED OCTOBER 6, 2021.

CLASS 5 : SEAWATER QUALITY FOR INDUSTRY AND PORTS
(1) SEAWATER ADJACENT TO INDUSTRIAL ESTATES BOUNDARY ACCORDING TO THE INDUSTRIAL ESTATE AUTHORITY OF THAILAND ACT AND INDUSTRIAL ZONE ACCORDING TO INDUSTRIAL LAW WITH A BOUNDARY FROM THE HIGHEST TIDE LINE TO THE LOWEST TIDE LINE UP TO A DISTANCE OF 1000 METERS ALONG THE HORIZONTAL LINE OF THE SEAWATER SURFACE (2) SEAWATER IN THE PORTAL AREA THE MOORING AREA ACCORDING TO THE NAVIGATION IN THE THAI WATERS ACT (3) SEAWATER ADJACENT TO THE TERMINAL PORT THAT ACCEPTS SHIPS OF 500 GROSS TONS (OR ABOVE) OR THE BERTH'S LENGTH IS FROM 100 METERS (OR ABOVE), OR HAS A TOTAL BERTH AREA OF 1000 SQUARE METERS OR ABOVE, WITH A BOUNDARY STARTING FROM THE ADJACENT BERTH TO A DISTANCE OF 1000 METERS ALONG THE SEAWATER SURFACE.

n¹ : ANY CHANGE SHALL NOT EXCEED 10% OF THE MINIMUM SALINITY. (THE MINIMUM LEVEL OF SALINITY SHALL BE DETERMINED BASED ON MARINE WATER SAMPLES TAKEN IN THE SAME SEASON AND FROM THE SAME STATION FOR 1 YEAR DURING WHICH OCCURRENCE OF TIDES EXISTS).

n² : AN INCREASE SHALL NOT EXCEED 2°C FROM THE NATURAL TEMPERATURE.

n³ : A DECREASE SHALL NOT BE EXCEED THAN 10% OF THE MINIMUM TRANSPARENCY GOVERNED BY NATURAL CONDITION (THE MINIMUM LEVEL OF TRANSPARENCY SHALL BE ASCERTAINED BASED ON MARINE WATER SAMPLES TAKEN IN THE SAME SEASON AND FROM THE SAME STATION FOR 1 YEAR DURING WHICH OCCURRENCE OF TIDES EXISTS).

n⁴ : THE RESULTS SHOULD NOT BE CHANGED BY MORE THAN THE SUM OF DAILY OR MONTHLY OR YEARLY AVERAGE AND THE STANDARD DIIVATION. DAILY AVERAGE WAS CALCULATED FROM HOURLY MEASUREMENT OR AT LEAST 5 SAMPLES TAKEN AT EQUAL TIME INTERVAL WITHIN ONE DAY. MONTHLY AVERAGE WAS CALCULATED FROM DAILY MEASUREMENT OR AT LEAST 4 SAMPLES TAKEN AT EQUAL TIME INTERVAL WITHIN ONE MONTH. YEARLY AVERAGE WAS CALCULATED FROM MONTHLY MEASUREMENT AT EQUAL TIME INTERVAL AND THE SAME PLACE WITHIN ONE YEAR.

* : COLLECTED THE SAMPLE AT 30 CENTIMETRES UNDER THE WATER SURFACE LEVEL.

ND : NON-DETECTABLE.

Benjawan V.

(MISS BENJAWAN VIRIYOTHAI)
LABORATORY SUPERVISOR

APRIL 18, 2024

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2024-U031390



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TESTING
No. 0063

PARAMETER	UNIT	METHOD OF ANALYSIS	RESULT	REGULATORY STANDARD	DETECTION LIMIT
			บริเวณด้านหน้าท่าเรือ ระยะ 60 เมตร (SW2) T24AG274-0002		
MICROBIOLOGY					
FAECAL COLIFORM BACTERIA* °	CFU/100 mL	MEMBRANE FILTER TECHNIQUE (SM: PART 9222 D)	15	≤ 100	1
COLIFORM BACTERIA* ° ^b	MPN/100 mL	MULTIPLE-TUBE FERMENTATION TECHNIQUE (SM: PART 9221B)	170	≤ 1,000	1.8
SAMPLE CONDITION					
WATER'S COLOUR/TURBID SEDIMENT			COLOURLESS/CLEAR BROWN		

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

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

° : 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.

REGULATORY STANDARD : SEAWATER QUALITY STANDARDS, NOTIFICATION OF THE NATIONAL ENVIRONMENT BOARD, B.E. 2564
PUBLISHED IN THE ROYAL GOVERNMENT GAZETTE, VOL. 138, PART 245 D, DATED OCTOBER 6, 2021

CLASS 5 : SEAWATER QUALITY FOR INDUSTRY AND PORTS

(1) SEAWATER ADJACENT TO INDUSTRIAL ESTATES BOUNDARY ACCORDING TO THE INDUSTRIAL ESTATE AUTHORITY OF THAILAND ACT AND INDUSTRIAL ZONE ACCORDING TO INDUSTRIAL LAW WITH A BOUNDARY FROM THE HIGHEST TIDE LINE TO THE LOWEST TIDE LINE UP TO A DISTANCE OF 1000 METERS ALONG THE HORIZONTAL LINE OF THE SEAWATER SURFACE (2) SEAWATER IN THE PORTAL AREA THE MOORING AREA ACCORDING TO THE NAVIGATION IN THE THAI WATERS ACT (3) SEAWATER ADJACENT TO THE TERMINAL PORT THAT ACCEPTS SHIPS OF 500 GROSS TONS (OR ABOVE) OR THE BERTH'S LENGTH IS FROM 100 METERS (OR ABOVE), OR HAS A TOTAL BERTH AREA OF 1000 SQUARE METERS OR ABOVE, WITH A BOUNDARY STARTING FROM THE ADJACENT BERTH TO A DISTANCE OF 1000 METERS ALONG THE SEAWATER SURFACE.

n¹ : ANY CHANGE SHALL NOT EXCEED 10% OF THE MINIMUM SALINITY. (THE MINIMUM LEVEL OF SALINITY SHALL BE DETERMINED BASED ON MARINE WATER SAMPLES TAKEN IN THE SAME SEASON AND FROM THE SAME STATION FOR 1 YEAR DURING WHICH OCCURRENCE OF TIDES EXISTS).

n² : AN INCREASE SHALL NOT EXCEED 2°C FROM THE NATURAL TEMPERATURE.

n³ : A DECREASE SHALL NOT BE EXCEED THAN 10% OF THE MINIMUM TRANSPARENCY GOVERNED BY NATURAL CONDITION (THE MINIMUM LEVEL OF TRANSPARENCY SHALL BE ASCERTAINED BASED ON MARINE WATER SAMPLES TAKEN IN THE SAME SEASON AND FROM THE SAME STATION FOR 1 YEAR DURING WHICH OCCURRENCE OF TIDES EXISTS).

n⁴ : THE RESULTS SHOULD NOT BE CHANGED BY MORE THAN THE SUM OF DAILY OR MONTHLY OR YEARLY AVERAGE AND THE STANDARD DIVIATION. DAILY AVERAGE WAS CALCULATED FROM HOURLY MEASUREMENT OR AT LEAST 5 SAMPLES TAKEN AT EQUAL TIME INTERVAL WITHIN ONE DAY. MONTHLY AVERAGE WAS CALCULATED FROM DAILY MEASUREMENT OR AT LEAST 4 SAMPLES TAKEN AT EQUAL TIME INTERVAL WITHIN ONE MONTH. YEARLY AVERAGE WAS CALCULATED FROM MONTHLY MEASUREMENT AT EQUAL TIME INTERVAL AND THE SAME PLACE WITHIN ONE YEAR.

* : COLLECTED THE SAMPLE AT 30 CENTIMETRES UNDER THE WATER SURFACE LEVEL.

ND : NON-DETECTABLE.

Benjawan V.

(MISS BENJAWAN VIRIYOTHAJ)
LABORATORY SUPERVISOR

APRIL 18, 2024

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PARAMETER	UNIT	METHOD OF ANALYSIS	RESULT	REGULATORY STANDARD	DETECTION LIMIT
			บริเวณด้านหน้าของท่าเรือ ระยะ 60 เมตร (SW2) T24AG274-0002		
METALS					
ARSENIC °	µg/L As	PRE-CONCENTRATION AND HYDRIDE GENERATION ATOMIC ABSORPTION SPECTROMETRIC METHOD (BASED ON METHOD OF SEAWATER ANALYSIS, GRASSHOFF, 1999, CHAPTER 12)	ND	≤ 10	0.300
CADMIUM °	µg/L Cd	PRE-CONCENTRATION AND INDUCTIVELY COUPLED PLASMA (ICP) METHOD (BASED ON METHOD OF SEAWATER ANALYSIS, GRASSHOFF, 1999, CHAPTER 12)	ND	≤ 5	0.100
HEXAVALENT CHROMIUM °	µg/L Cr ⁶⁺	PRE-CONCENTRATION AND ELECTROTHERMAL ATOMIC ABSORPTION SPECTROMETRIC METHOD (BASED ON METHOD OF SEAWATER ANALYSIS, GRASSHOFF, 1999, CHAPTER 12)	ND	≤ 50	0.100
COPPER °	µg/L Cu	PRE-CONCENTRATION AND INDUCTIVELY COUPLED PLASMA (ICP) METHOD (BASED ON METHOD OF SEAWATER ANALYSIS, GRASSHOFF, 1999, CHAPTER 12)	0.730	≤ 8	0.100
IRON °	µg/L Fe	PRE-CONCENTRATION AND INDUCTIVELY COUPLED PLASMA (ICP) METHOD (BASED ON METHOD OF SEAWATER ANALYSIS, GRASSHOFF, 1999, CHAPTER 12)	46.2	≤ 300	0.100
LEAD °	µg/L Pb	PRE-CONCENTRATION AND INDUCTIVELY COUPLED PLASMA (ICP) METHOD (BASED ON METHOD OF SEAWATER ANALYSIS, GRASSHOFF, 1999, CHAPTER 12)	2.29	≤ 8.5	0.100
MANGANESE °	µg/L Mn	PRE-CONCENTRATION AND INDUCTIVELY COUPLED PLASMA (ICP) METHOD (BASED ON METHOD OF SEAWATER ANALYSIS, GRASSHOFF, 1999, CHAPTER 12)	0.130	≤ 100	0.100
MERCURY °	µg/L Hg	COLD-VAPOUR ATOMIC FLUORESCENCE SPECTROMETRIC METHOD (US EPA 2005: 245.7)	ND	≤ 0.1	0.020
ZINC °	µg/L Zn	PRE-CONCENTRATION AND INDUCTIVELY COUPLED PLASMA (ICP) METHOD (BASED ON METHOD OF SEAWATER ANALYSIS, GRASSHOFF, 1999, CHAPTER 12)	3.35	≤ 50	0.100

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2024-U031391

PARAMETER	UNIT	METHOD OF ANALYSIS	RESULT บริเวณด้านซ้ายของ ท่าเรือ ระยะ 90 เมตร (SW3) T24AG274-0003	REGULATORY STANDARD	DETECTION LIMIT
METALS					
ARSENIC °	µg/L As	PRE-CONCENTRATION AND HYDRIDE GENERATION ATOMIC ABSORPTION SPECTROMETRIC METHOD (BASED ON METHOD OF SEAWATER ANALYSIS, GRASSHOFF, 1999, CHAPTER 12)	ND	≤ 10	0.300
CADMIUM °	µg/L Cd	PRE-CONCENTRATION AND INDUCTIVELY COUPLED PLASMA (ICP) METHOD (BASED ON METHOD OF SEAWATER ANALYSIS, GRASSHOFF, 1999, CHAPTER 12)	ND	≤ 5	0.100
HEXAVALENT CHROMIUM °	µg/L Cr ⁶⁺	PRE-CONCENTRATION AND ELECTROTHERMAL ATOMIC ABSORPTION SPECTROMETRIC METHOD (BASED ON METHOD OF SEAWATER ANALYSIS, GRASSHOFF, 1999, CHAPTER 12)	ND	≤ 50	0.100
COPPER °	µg/L Cu	PRE-CONCENTRATION AND INDUCTIVELY COUPLED PLASMA (ICP) METHOD (BASED ON METHOD OF SEAWATER ANALYSIS, GRASSHOFF, 1999, CHAPTER 12)	1.12	≤ 8	0.100
IRON °	µg/L Fe	PRE-CONCENTRATION AND INDUCTIVELY COUPLED PLASMA (ICP) METHOD (BASED ON METHOD OF SEAWATER ANALYSIS, GRASSHOFF, 1999, CHAPTER 12)	40.8	≤ 300	0.100
LEAD °	µg/L Pb	PRE-CONCENTRATION AND INDUCTIVELY COUPLED PLASMA (ICP) METHOD (BASED ON METHOD OF SEAWATER ANALYSIS, GRASSHOFF, 1999, CHAPTER 12)	2.08	≤ 8.5	0.100
MANGANESE °	µg/L Mn	PRE-CONCENTRATION AND INDUCTIVELY COUPLED PLASMA (ICP) METHOD (BASED ON METHOD OF SEAWATER ANALYSIS, GRASSHOFF, 1999, CHAPTER 12)	ND	≤ 100	0.100
MERCURY °	µg/L Hg	COLD-VAPOUR ATOMIC FLUORESCENCE SPECTROMETRIC METHOD (US EPA 2005: 245.7)	ND	≤ 0.1	0.020
ZINC °	µg/L Zn	PRE-CONCENTRATION AND INDUCTIVELY COUPLED PLASMA (ICP) METHOD (BASED ON METHOD OF SEAWATER ANALYSIS, GRASSHOFF, 1999, CHAPTER 12)	4.69	≤ 50	0.100

ANALYSIS REPORT

PROJECT NAME	: โครงการท่าเทียบเรือ บริษัท เจริญ พอร์ต จำกัด	RECEIVED DATE	: MARCH 25, 2024
CUSTOMER NAME	: JC MARINE PORT COMPANY LIMITED	ANALYTICAL DATE	: MARCH 25 - APRIL 11, 2024
ADDRESS	: 153/1 MOO 1 THUNG SUKHLA SI RACHA CHON BURI 20230	ISSUE DATE	: APRIL 17, 2024
CONTACT INFORMATION	: TEL : 08 1309 5708, 0 3835 1473 e-mail : jcmarineport.info@gmail.com	REPORT NO.	: 2024-U031392
SAMPLING SOURCE	: -	WORK NO.	: 2022-008114
SAMPLE TYPE	: SEAWATER	ANALYSIS NO.	: T24AG274-0003
SAMPLING DATE	: MARCH 25, 2024		
SAMPLING TIME	: 09:55 HOUR		
SAMPLING METHOD	: COMPOSITE		
SAMPLING BY	: MR ANUSART SUAYDEE		
ANALYZED BY	: MR WEERAYUT SARAPAGDEE		

PARAMETER	UNIT	METHOD OF ANALYSIS	RESULT บริเวณด้านซ้ายของ ท่าเรือ ระยะ 90 เมตร (SW3) T24AG274-0003	REGULATORY STANDARD	DETECTION LIMIT
pH ^a	-	ELECTROMETRIC METHOD (AT SITE) SM: PART 4500-H ⁺ B AND 1060 B	8.0 (31°C)	7.0-8.5	-
TEMPERATURE °	°C	THERMOMETER AT SITE (SM: PART 2550 B)	31	n ²	-
FLOATABLE OIL AND GREASE °	-	OBSERVATION METHOD	NOT VISIBLE	NOT VISIBLE	-
SALINITY °	ppt	ELECTRICAL CONDUCTIVITY METHOD AT SITE (SM: PART 2520B)	29.3	n ¹	0.1
TRANSPARENCY °	m	SECCHI DISC	2.0	n ³	-
DISSOLVED OXYGEN °	mg/L	MEMBRANE ELECTRODE METHOD AT SITE (SM: PART 4500-O G)	4.8	≥ 4	0.5
SUSPENDED SOLIDS °	mg/L	GRAVIMETRIC METHOD (SM: PART 2540 D)	8.1	n ⁴	1.0
TOTAL DISSOLVED SOLIDS °	mg/L	TOTAL DISSOLVED SOLIDS DRIED AT 180 °C (SM: PART 2540 C)	36,020	-	25
NITRATE-NITROGEN °	µg/L N	CADMIUM REDUCTION AND COLOURIMETRIC METHOD (BASED ON PRACTICAL HANDBOOK OF SEAWATER ANALYSIS (STRICKLAND AND PARSON, 1972, II.6))	1.06	≤ 60	0.50
PHOSPHATE-PHOSPHORUS ^b	µg/L P	IN-HOUSE METHOD: UAE.TP.WAT.002 BASED ON PRACTICAL HANDBOOK OF SEAWATER ANALYSIS STRICKLAND AND PARSON, 1972	22.0	≤ 45	0.50
TOTAL AMMONIA ^b	µg/L N	IN-HOUSE METHOD: UAE.TP.WAT.001 BASED ON STANDARD METHODS FOR THE EXAMINATION OF WATER AND WASTEWATER, APHA, AWWA&WEF, 23rd ED., 2017, PART 4500-NH ₃ H	117	≤ 950	10.0
PETROLEUM HYDROCARBON ^b	µg/L	INTERGOVERNMENT OCEANOGRAPHIC COMMISSION, MANUAL FOR MONITORING OIL AND DISSOLVED/ DISPERSED PETROLEUM HYDROCARBONS IN MARINE WATERS AND ON BEACHES, 1984	0.26	≤ 5	0.02





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NSC-TISI-TIS 17025
TESTING 0207



TESTING
No. 0063

ANALYSIS REPORT

PROJECT NAME : โครงการท่าเทียบเรือ บริษัท มารีน พอร์ต จำกัด
CUSTOMER NAME : JC MARINE PORT COMPANY LIMITED
ADDRESS : 153/1 MOO 1 THUNG SUKHLA SI RACHA CHON BURI 20230
CONTACT INFORMATION : TEL : 08 1309 5708, 0 3835 1473 e-mail : jcmarineport.info@gmail.com
SAMPLING SOURCE : -
SAMPLE TYPE : SEAWATER
SAMPLING DATE : MARCH 25, 2024
SAMPLING TIME : 10:40 HOUR
SAMPLING METHOD : COMPOSITE
SAMPLING BY : MR ANUSART SUAYDEE
ANALYZED BY : MR WEERAYUT SARAPAGDEE

RECEIVED DATE : MARCH 25, 2024
ANALYTICAL DATE : MARCH 25 - APRIL 11, 2024
ISSUE DATE : APRIL 17, 2024
REPORT NO. : 2024-U031393
WORK NO. : 2022-008114
ANALYSIS NO. : T24AG274-0004

PARAMETER	UNIT	METHOD OF ANALYSIS	RESULT	REGULATORY STANDARD	DETECTION LIMIT
			บริเวณด้านขวาของท่าเรือ ระยะ 220 เมตร (SW4) T24AG274-0004		
pH ^a	-	ELECTROMETRIC METHOD (AT SITE) SM: PART 4500-H ⁺ B AND 1060 B	8.2 (30°C)	7.0-8.5	-
TEMPERATURE ^c	°C	THERMOMETER AT SITE (SM: PART 2550 B)	30	n ²	-
FLOATABLE OIL AND GREASE ^c	-	OBSERVATION METHOD	NOT VISIBLE	NOT VISIBLE	-
SALINITY ^c	ppt	ELECTRICAL CONDUCTIVITY METHOD AT SITE (SM: PART 2520 B)	29.3	n ¹	0.1
TRANSPARENCY ^c	m	SECCHI DISC	2.0	n ³	-
DISSOLVED OXYGEN ^c	mg/L	MEMBRANE ELECTRODE METHOD AT SITE (SM: PART 4500-O G)	4.7	≥ 4	0.5
SUSPENDED SOLIDS ^c	mg/L	GRAVIMETRIC METHOD (SM: PART 2540 D)	10.2	n ⁴	1.0
TOTAL DISSOLVED SOLIDS ^c	mg/L	TOTAL DISSOLVED SOLIDS DRIED AT 180 °C (SM: PART 2540 C)	35,960	-	25
NITRATE-NITROGEN ^c	µg/L N	CADMIUM REDUCTION AND COLOURIMETRIC METHOD (BASED ON PRACTICAL HANDBOOK OF SEAWATER ANALYSIS (STRICKLAND AND PARSON, 1972, II.6))	124	≤ 60	0.50
PHOSPHATE-PHOSPHORUS ^b	µg/L P	IN-HOUSE METHOD: UAE.TP.WAT.002 BASED ON PRACTICAL HANDBOOK OF SEAWATER ANALYSIS STRICKLAND AND PARSON, 1972	35.9	≤ 45	0.50
TOTAL AMMONIA ^b	µg/L N	IN-HOUSE METHOD: UAE.TP.WAT.001 BASED ON STANDARD METHODS FOR THE EXAMINATION OF WATER AND WASTEWATER, APHA, AWWA&WEF, 23rd ED., 2017, PART 4500-NH ₃ H	128	≤ 950	10.0
PETROLEUM HYDROCARBON ^b	µg/L	INTERGOVERNMENT OCEANOGRAPHIC COMMISSION, MANUAL FOR MONITORING OIL AND DISSOLVED/ DISPERSED PETROLEUM HYDROCARBONS IN MARINE WATERS AND ON BEACHES, 1984	0.14	≤ 5	0.02



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TESTING
No. 0063

PARAMETER	UNIT	METHOD OF ANALYSIS	RESULT	REGULATORY STANDARD	DETECTION LIMIT
			บริเวณด้านซ้ายของท่าเรือ ระยะ 90 เมตร (SW3) T24AG274-0003		
MICROBIOLOGY					
FAECAL COLIFORM BACTERIA* °	CFU/100 mL	MEMBRANE FILTER TECHNIQUE (SM: PART 9222 D)	6	≤ 100	1
COLIFORM BACTERIA* °	MPN/100 mL	MULTIPLE-TUBE FERMENTATION TECHNIQUE (SM: PART 9221B)	49	≤ 1,000	1.8
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

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

REGULATORY STANDARD : SEAWATER QUALITY STANDARDS, NOTIFICATION OF THE NATIONAL ENVIRONMENT BOARD, B.E. 2564 PUBLISHED IN THE ROYAL GOVERNMENT GAZETTE, VOL. 138, PART 245 D, DATED OCTOBER 6, 2021.

CLASS 5 : SEAWATER QUALITY FOR INDUSTRY AND PORTS
(1) SEAWATER ADJACENT TO INDUSTRIAL ESTATES BOUNDARY ACCORDING TO THE INDUSTRIAL ESTATE AUTHORITY OF THAILAND ACT AND INDUSTRIAL ZONE ACCORDING TO INDUSTRIAL LAW WITH A BOUNDARY FROM THE HIGHEST TIDE LINE TO THE LOWEST TIDE LINE UP TO A DISTANCE OF 100 METERS ALONG THE HORIZONTAL LINE OF THE SEAWATER SURFACE (2) SEAWATER IN THE PORTAL AREA THE MOORING AREA ACCORDING TO THE NAVIGATION IN THE THAI WATERS ACT (3) SEAWATER ADJACENT TO THE TERMINAL PORT THAT ACCEPTS SHIPS OF 500 GROSS TONS (OR ABOVE) OR THE BERTH'S LENGTH IS FROM 100 METERS (OR ABOVE), OR HAS A TOTAL BERTH AREA OF 1000 SQUARE METERS OR ABOVE, WITH A BOUNDARY STARTING FROM THE ADJACENT BERTH TO A DISTANCE OF 1000 METERS ALONG THE SEAWATER SURFACE.

n¹ : ANY CHANGE SHALL NOT EXCEED 10% OF THE MINIMUM SALINITY. (THE MINIMUM LEVEL OF SALINITY SHALL BE DETERMINED BASED ON MARINE WATER SAMPLES TAKEN IN THE SAME SEASON AND FROM THE SAME STATION FOR 1 YEAR DURING WHICH OCCURRENCE OF TIDES EXISTS).

n² : AN INCREASE SHALL NOT EXCEED 2°C FROM THE NATURAL TEMPERATURE.

n³ : A DECREASE SHALL NOT BE EXCEED THAN 10% OF THE MINIMUM TRANSPARENCY GOVERNED BY NATURAL CONDITION (THE MINIMUM LEVEL OF TRANSPARENCY SHALL BE ASCERTAINED BASED ON MARINE WATER SAMPLES TAKEN IN THE SAME SEASON AND FROM THE SAME STATION FOR 1 YEAR DURING WHICH OCCURRENCE OF TIDES EXISTS).

n⁴ : THE RESULTS SHOULD NOT BE CHANGED BY MORE THAN THE SUM OF DAILY OR MONTHLY OR YEARLY AVERAGE AND THE STANDARD DIIVATION. DAILY AVERAGE WAS CALCULATED FROM HOURLY MEASUREMENT OR AT LEAST 5 SAMPLES TAKEN AT EQUAL TIME INTERVAL WITHIN ONE DAY. MONTHLY AVERAGE WAS CALCULATED FROM DAILY MEASUREMENT OR AT LEAST 4 SAMPLES TAKEN AT EQUAL TIME INTERVAL WITHIN ONE MONTH. YEARLY AVERAGE WAS CALCULATED FROM MONTHLY MEASUREMENT AT EQUAL TIME INTERVAL AND THE SAME PLACE WITHIN ONE YEAR.

* : COLLECTED THE SAMPLE AT 30 CENTIMETRES UNDER THE WATER SURFACE LEVEL.

ND : NON-DETECTABLE.

Benjawan V.

(MISS BENJAWAN VIRIYOTHAI)
LABORATORY SUPERVISOR

APRIL 18, 2024

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- End of Analysis Report -

2024-U031392

PARAMETER	UNIT	METHOD OF ANALYSIS	RESULT บริเวณด้านขวาของ ท่าเรือ ระยะ 220 เมตร (SW4) T24AG274-0004	REGULATORY STANDARD	DETECTION LIMIT
MICROBIOLOGY					
FAECAL COLIFORM BACTERIA* ^c	CFU/100 mL	MEMBRANE FILTER TECHNIQUE (SM: PART 9222 D)	3	≤ 100	1
COLIFORM BACTERIA* ^b	MPN/100 mL	MULTIPLE-TUBE FERMENTATION TECHNIQUE (SM: PART 9221 B)	23	≤ 1,000	1.8
SAMPLE CONDITION WATER'S COLOUR/TURBID SEDIMENT			COLOURLESS/CLEAR BROWN		

* : 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.

REGULATORY STANDARD : SEAWATER QUALITY STANDARDS, NOTIFICATION OF THE NATIONAL ENVIRONMENT BOARD, B.E. 2564
PUBLISHED IN THE ROYAL GOVERNMENT GAZETTE, VOL 138, PART 245 D, DATED OCTOBER 6, 2021.

CLASS 5 : SEAWATER QUALITY FOR INDUSTRY AND PORTS

(1) SEAWATER ADJACENT TO INDUSTRIAL ESTATES BOUNDARY ACCORDING TO THE INDUSTRIAL ESTATE AUTHORITY OF THAILAND ACT AND INDUSTRIAL ZONE ACCORDING TO INDUSTRIAL LAW WITH A BOUNDARY FROM THE HIGHEST TIDE LINE TO THE LOWEST TIDE LINE UP TO A DISTANCE OF 1000 METERS ALONG THE HORIZONTAL LINE OF THE SEAWATER SURFACE (2) SEAWATER IN THE PORTAL AREA THE MOORING AREA ACCORDING TO THE NAVIGATION IN THE THAI WATERS ACT (3) SEAWATER ADJACENT TO THE TERMINAL PORT THAT ACCEPTS SHIPS OF 500 GROSS TONS (OR ABOVE) OR THE BERTH'S LENGTH IS FROM 100 METERS (OR ABOVE), OR HAS A TOTAL BERTH AREA OF 1000 SQUARE METERS OR ABOVE, WITH A BOUNDARY STARTING FROM THE ADJACENT BERTH TO A DISTANCE OF 1000 METERS ALONG THE SEAWATER SURFACE.

n¹ : ANY CHANGE SHALL NOT EXCEED 10% OF THE MINIMUM SALINITY. (THE MINIMUM LEVEL OF SALINITY SHALL BE DETERMINED BASED ON MARINE WATER SAMPLES TAKEN IN THE SAME SEASON AND FROM THE SAME STATION FOR 1 YEAR DURING WHICH OCCURRENCE OF TIDES EXISTS).

n² : AN INCREASE SHALL NOT EXCEED 2°C FROM THE NATURAL TEMPERATURE.

n³ : A DECREASE SHALL NOT BE EXCEED THAN 10% OF THE MINIMUM TRANSPARENCY GOVERNED BY NATURAL CONDITION (THE MINIMUM LEVEL OF TRANSPARENCY SHALL BE ASCERTAINED BASED ON MARINE WATER SAMPLES TAKEN IN THE SAME SEASON AND FROM THE SAME STATION FOR 1 YEAR DURING WHICH OCCURRENCE OF TIDES EXISTS).

n⁴ : THE RESULTS SHOULD NOT BE CHANGED BY MORE THAN THE SUM OF DAILY OR MONTHLY OR YEARLY AVERAGE AND THE STANDARD DIVIATION. DAILY AVERAGE WAS CALCULATED FROM HOURLY MEASUREMENT OR AT LEAST 5 SAMPLES TAKEN AT EQUAL TIME INTERVAL WITHIN ONE DAY. MONTHLY AVERAGE WAS CALCULATED FROM DAILY MEASUREMENT OR AT LEAST 4 SAMPLES TAKEN AT EQUAL TIME INTERVAL WITHIN ONE MONTH. YEARLY AVERAGE WAS CALCULATED FROM MONTHLY MEASUREMENT AT EQUAL TIME INTERVAL AND THE SAME PLACE WITHIN ONE YEAR.

* : COLLECTED THE SAMPLE AT 30 CENTIMETRES UNDER THE WATER SURFACE LEVEL.

ND : NON-DETECTABLE.

Benjawan V.

(MISS BENJAWAN VIRIYOTHAJ)
LABORATORY SUPERVISOR

APRIL 18, 2024

PARAMETER	UNIT	METHOD OF ANALYSIS	RESULT บริเวณด้านขวาของ ท่าเรือ ระยะ 220 เมตร (SW4) T24AG274-0004	REGULATORY STANDARD	DETECTION LIMIT
METALS					
ARSENIC ^c	µg/L As	PRE-CONCENTRATION AND HYDRIDE GENERATION ATOMIC ABSORPTION SPECTROMETRIC METHOD (BASED ON METHOD OF SEAWATER ANALYSIS, GRASSHOFF, 1999, CHAPTER 12)	ND	≤ 10	0.300
CADMIUM ^c	µg/L Cd	PRE-CONCENTRATION AND INDUCTIVELY COUPLED PLASMA (ICP) METHOD (BASED ON METHOD OF SEAWATER ANALYSIS, GRASSHOFF, 1999, CHAPTER 12)	ND	≤ 5	0.100
HEXAVALENT CHROMIUM ^c	µg/L Cr ⁶⁺	PRE-CONCENTRATION AND ELECTROTHERMAL ATOMIC ABSORPTION SPECTROMETRIC METHOD (BASED ON METHOD OF SEAWATER ANALYSIS, GRASSHOFF, 1999, CHAPTER 12)	ND	≤ 50	0.100
COPPER ^c	µg/L Cu	PRE-CONCENTRATION AND INDUCTIVELY COUPLED PLASMA (ICP) METHOD (BASED ON METHOD OF SEAWATER ANALYSIS, GRASSHOFF, 1999, CHAPTER 12)	0.850	≤ 8	0.100
IRON ^c	µg/L Fe	PRE-CONCENTRATION AND INDUCTIVELY COUPLED PLASMA (ICP) METHOD (BASED ON METHOD OF SEAWATER ANALYSIS, GRASSHOFF, 1999, CHAPTER 12)	39.7	≤ 300	0.100
LEAD ^c	µg/L Pb	PRE-CONCENTRATION AND INDUCTIVELY COUPLED PLASMA (ICP) METHOD (BASED ON METHOD OF SEAWATER ANALYSIS, GRASSHOFF, 1999, CHAPTER 12)	0.450	≤ 8.5	0.100
MANGANESE ^c	µg/L Mn	PRE-CONCENTRATION AND INDUCTIVELY COUPLED PLASMA (ICP) METHOD (BASED ON METHOD OF SEAWATER ANALYSIS, GRASSHOFF, 1999, CHAPTER 12)	0.120	≤ 100	0.100
MERCURY ^c	µg/L Hg	COLD-VAPOUR ATOMIC FLUORESCENCE SPECTROMETRIC METHOD (US EPA 2005: 245.7)	ND	≤ 0.1	0.020
ZINC ^c	µg/L Zn	PRE-CONCENTRATION AND INDUCTIVELY COUPLED PLASMA (ICP) METHOD (BASED ON METHOD OF SEAWATER ANALYSIS, GRASSHOFF, 1999, CHAPTER 12)	12.0	≤ 50	0.100



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NSC-TISI-TIS 17025
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TESTING
No. 0063

PARAMETER	UNIT	METHOD OF ANALYSIS	RESULT	REGULATORY STANDARD	DETECTION LIMIT
			บริเวณด้านขวาของท่าเรือ ระยะ 320 เมตร (SW5) T24AG274-0005		
METALS					
ARSENIC °	µg/L As	PRE-CONCENTRATION AND HYDRIDE GENERATION ATOMIC ABSORPTION SPECTROMETRIC METHOD (BASED ON METHOD OF SEAWATER ANALYSIS, GRASSHOFF, 1999, CHAPTER 12)	ND	≤ 10	0.300
CADMIUM °	µg/L Cd	PRE-CONCENTRATION AND INDUCTIVELY COUPLED PLASMA (ICP) METHOD (BASED ON METHOD OF SEAWATER ANALYSIS, GRASSHOFF, 1999, CHAPTER 12)	ND	≤ 5	0.100
HEXAVALENT CHROMIUM °	µg/L Cr ⁶⁺	PRE-CONCENTRATION AND ELECTROTHERMAL ATOMIC ABSORPTION SPECTROMETRIC METHOD (BASED ON METHOD OF SEAWATER ANALYSIS, GRASSHOFF, 1999, CHAPTER 12)	ND	≤ 50	0.100
COPPER °	µg/L Cu	PRE-CONCENTRATION AND INDUCTIVELY COUPLED PLASMA (ICP) METHOD (BASED ON METHOD OF SEAWATER ANALYSIS, GRASSHOFF, 1999, CHAPTER 12)	0.650	≤ 8	0.100
IRON °	µg/L Fe	PRE-CONCENTRATION AND INDUCTIVELY COUPLED PLASMA (ICP) METHOD (BASED ON METHOD OF SEAWATER ANALYSIS, GRASSHOFF, 1999, CHAPTER 12)	32.3	≤ 300	0.100
LEAD °	µg/L Pb	PRE-CONCENTRATION AND INDUCTIVELY COUPLED PLASMA (ICP) METHOD (BASED ON METHOD OF SEAWATER ANALYSIS, GRASSHOFF, 1999, CHAPTER 12)	2.35	≤ 8.5	0.100
MANGANESE °	µg/L Mn	PRE-CONCENTRATION AND INDUCTIVELY COUPLED PLASMA (ICP) METHOD (BASED ON METHOD OF SEAWATER ANALYSIS, GRASSHOFF, 1999, CHAPTER 12)	ND	≤ 100	0.100
MERCURY °	µg/L Hg	COLD-VAPOUR ATOMIC FLUORESCENCE SPECTROMETRIC METHOD (US EPA 2005: 245.7)	ND	≤ 0.1	0.020
ZINC °	µg/L Zn	PRE-CONCENTRATION AND INDUCTIVELY COUPLED PLASMA (ICP) METHOD (BASED ON METHOD OF SEAWATER ANALYSIS, GRASSHOFF, 1999, CHAPTER 12)	3.55	≤ 50	0.100



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NSC-TISI-TIS 17025
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TESTING
No. 0063

ANALYSIS REPORT

PROJECT NAME : โครงการท่าเทียบเรือ บริษัท เจซี มาร์ีน พอร์ต จำกัด
CUSTOMER NAME : JC MARINE PORT COMPANY LIMITED
ADDRESS : 153/1 MOO 1 THUNG SUKHLA SI RACHA CHON BURI 20230
CONTACT INFORMATION : TEL : 08 1309 5708, 0 3835 1473 e-mail : jcmarineport.info@gmail.com
SAMPLING SOURCE : -
SAMPLE TYPE : SEAWATER
SAMPLING DATE : MARCH 25, 2024
SAMPLING TIME : 10:30 HOUR
SAMPLING METHOD : COMPOSITE
SAMPLING BY : MR ANUSART SUAYDEE
ANALYZED BY : MR WEERAYUT SARAPAGDEE

RECEIVED DATE : MARCH 25, 2024
ANALYTICAL DATE : MARCH 25 - APRIL 11, 2024
ISSUE DATE : APRIL 17, 2024
REPORT NO. : 2024-U031394
WORK NO. : 2022-008114
ANALYSIS NO. : T24AG274-0005

PARAMETER	UNIT	METHOD OF ANALYSIS	RESULT	REGULATORY STANDARD	DETECTION LIMIT
			บริเวณด้านขวาของท่าเรือ ระยะ 320 เมตร (SW5) T24AG274-0005		
pH ^a	-	ELECTROMETRIC METHOD (AT SITE) SM: PART 4500-H ⁺ B AND 1060 B	8.3 (30°C)	7.0-8.5	-
TEMPERATURE °	°C	THERMOMETER AT SITE (SM: PART 2550 B)	30	n ²	-
FLOATABLE OIL AND GREASE °	-	OBSERVATION METHOD	NOT VISIBLE	NOT VISIBLE	-
SALINITY °	ppt	ELECTRICAL CONDUCTIVITY METHOD AT SITE (SM: PART 2520 B)	29.2	n ¹	0.1
TRANSPARENCY °	m	SECCHI DISC	2.0	n ³	-
DISSOLVED OXYGEN °	mg/L	MEMBRANE ELECTRODE METHOD AT SITE (SM: PART 4500-O G)	4.9	≥ 4	0.5
SUSPENDED SOLIDS °	mg/L	GRAVIMETRIC METHOD (SM: PART 2540 D)	5.1	n ⁴	1.0
TOTAL DISSOLVED SOLIDS °	mg/L	TOTAL DISSOLVED SOLIDS DRIED AT 180 °C (SM: PART 2540 C)	35,420	-	25
NITRATE-NITROGEN °	µg/L N	CADMIUM REDUCTION AND COLOURIMETRIC METHOD (BASED ON PRACTICAL HANDBOOK OF SEAWATER ANALYSIS (STRICKLAND AND PARSON, 1972, II.6))	1.06	≤ 60	0.50
PHOSPHATE-PHOSPHORUS ^b	µg/L P	IN-HOUSE METHOD: JAE.TP.WAT.002 BASED ON PRACTICAL HANDBOOK OF SEAWATER ANALYSIS STRICKLAND AND PARSON, 1972	64.5	≤ 45	0.50
TOTAL AMMONIA ^b	µg/L N	IN-HOUSE METHOD: JAE.TP.WAT.001 BASED ON STANDARD METHODS FOR THE EXAMINATION OF WATER AND WASTEWATER, APHA, AWWA&WEF, 23rd ED., 2017, PART 4500-NH ₃ H	148	≤ 950	10.0
PETROLEUM HYDROCARBON ^b	µg/L	INTERGOVERNMENT OCEANOGRAPHIC COMMISSION, MANUAL FOR MONITORING OIL AND DISSOLVED/ DISPERSED PETROLEUM HYDROCARBONS IN MARINE WATERS AND ON BEACHES, 1984	0.15	≤ 5	0.02

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PARAMETER	UNIT	METHOD OF ANALYSIS	RESULT บริเวณด้านขวาของ ท่าเรือ ระยะ 320 เมตร (SW5) T24AG274-0005	REGULATORY STANDARD	DETECTION LIMIT
MICROBIOLOGY					
FAECAL COLIFORM BACTERIA* ^c	CFU/100 mL	MEMBRANE FILTER TECHNIQUE (SM: PART 9222 D)	10	≤ 100	1
COLIFORM BACTERIA* ^b	MPN/100 mL	MULTIPLE-TUBE FERMENTATION TECHNIQUE (SM: PART 9221 B)	130	≤ 1,000	1.8
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

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

REGULATORY STANDARD : SEAWATER QUALITY STANDARDS, NOTIFICATION OF THE NATIONAL ENVIRONMENT BOARD, B.E. 2564
PUBLISHED IN THE ROYAL GOVERNMENT GAZETTE, VOL 138, PART 245 D, DATED OCTOBER 6, 2021.

CLASS 5 : SEAWATER QUALITY FOR INDUSTRY AND PORTS
(1) SEAWATER ADJACENT TO INDUSTRIAL ESTATES BOUNDARY ACCORDING TO THE INDUSTRIAL ESTATE AUTHORITY OF THAILAND ACT AND INDUSTRIAL ZONE ACCORDING TO INDUSTRIAL LAW WITH A BOUNDARY FROM THE HIGHEST TIDE LINE TO THE LOWEST TIDE LINE UP TO A DISTANCE OF 1000 METERS ALONG THE HORIZONTAL LINE OF THE SEAWATER SURFACE (2) SEAWATER IN THE PORTAL AREA THE MOORING AREA ACCORDING TO THE NAVIGATION IN THE THAI WATERS ACT (3) SEAWATER ADJACENT TO THE TERMINAL PORT THAT ACCEPTS SHIPS OF 500 GROSS TONS (OR ABOVE) OR THE BERTH'S LENGTH IS FROM 100 METERS (OR ABOVE), OR HAS A TOTAL BERTH AREA OF 1000 SQUARE METERS OR ABOVE, WITH A BOUNDARY STARTING FROM THE ADJACENT BERTH TO A DISTANCE OF 1000 METERS ALONG THE SEAWATER SURFACE.

n¹ : ANY CHANGE SHALL NOT EXCEED 10% OF THE MINIMUM SALINITY. (THE MINIMUM LEVEL OF SALINITY SHALL BE DETERMINED BASED ON MARINE WATER SAMPLES TAKEN IN THE SAME SEASON AND FROM THE SAME STATION FOR 1 YEAR DURING WHICH OCCURRENCE OF TIDES EXISTS).

n² : AN INCREASE SHALL NOT EXCEED 2°C FROM THE NATURAL TEMPERATURE.

n³ : A DECREASE SHALL NOT BE EXCEED THAN 10% OF THE MINIMUM TRANSPARENCY GOVERNED BY NATURAL CONDITION (THE MINIMUM LEVEL OF TRANSPARENCY SHALL BE ASCERTAINED BASED ON MARINE WATER SAMPLES TAKEN IN THE SAME SEASON AND FROM THE SAME STATION FOR 1 YEAR DURING WHICH OCCURRENCE OF TIDES EXISTS).

n⁴ : THE RESULTS SHOULD NOT BE CHANGED BY MORE THAN THE SUM OF DAILY OR MONTHLY OR YEARLY AVERAGE AND THE STANDARD DIVIATION. DAILY AVERAGE WAS CALCULATED FROM HOURLY MEASUREMENT OR AT LEAST 5 SAMPLES TAKEN AT EQUAL TIME INTERVAL WITHIN ONE DAY. MONTHLY AVERAGE WAS CALCULATED FROM DAILY MEASUREMENT OR AT LEAST 4 SAMPLES TAKEN AT EQUAL TIME INTERVAL WITHIN ONE MONTH. YEARLY AVERAGE WAS CALCULATED FROM MONTHLY MEASUREMENT AT EQUAL TIME INTERVAL AND THE SAME PLACE WITHIN ONE YEAR.

* : COLLECTED THE SAMPLE AT 30 CENTIMETRES UNDER THE WATER SURFACE LEVEL.

ND : NON-DETECTABLE.

Benjawan V.

(MISS BENJAWAN VIRIYOTHAI)
LABORATORY SUPERVISOR

APRIL 18, 2024

ภาคผนวก ง-4

ผลการตรวจวัดทรัพยากรชีวภาพในทะเล



PHYTOPLANKTON (Natural Units/mL)	COUNTING UNIT	RESULT ¹				
		SAMPLE NO. 1	SAMPLE NO. 2	SAMPLE NO. 3	SAMPLE NO. 4	SAMPLE NO. 5
		11:05 HOUR * T24AG274-0006	10:15 HOUR * T24AG274-0007	10:00 HOUR * T24AG274-0008	10:45 HOUR * T24AG274-0009	10:35 HOUR * T24AG274-0010
Family Lithodesmaceae						
<i>Ditylum</i> spp. ^b	CELL	5	0	0	0	0
Family Eupodiscaceae						
<i>Odontella</i> spp. ^b	CELL	33	12	26	10	5
<i>Triceratium</i> spp. ^b	CELL	0	0	2	0	0
Family Thalassionemataceae						
<i>Thalassionema frauenfeldii</i> ^b	CELL	387	329	415	316	356
Family Striellaceae						
<i>Grammatophora</i> spp. ^b	CELL	0	0	0	0	36
Family Lyrelliaceae						
<i>Lyrella</i> spp. ^b	CELL	4	0	0	0	0
Family Naviculaceae						
<i>Amphora</i> spp. ^b	CELL	0	22	45	59	22
<i>Navicula</i> spp. ^b	CELL	20	18	64	23	55
<i>Pleurosigma</i> spp. ^b	CELL	460	634	833	456	424
<i>Trachyneis</i> spp. ^b	CELL	0	5	5	0	0
Family Bacillariaceae						
<i>Bacillaria paxillifer</i> ^b	CELL	208	0	0	121	0
<i>Cylindrotheca gracilis</i> ^b	CELL	114	310	546	403	428
<i>Nitzschia</i> spp. ^b	CELL	0	15	26	0	0
<i>N. longissima</i> ^b	CELL	113	87	124	182	56
<i>Pseudo-nitzschia</i> spp. ^b	CELL	117	86	177	125	147
Family Surirellaceae						
<i>Entomoneis</i> spp. ^b	CELL	0	20	44	13	0
<i>Surirella</i> spp. ^b	CELL	53	139	127	69	12
Class Dictyochophyceae						
Family Dictyochophyceae						
<i>Dictyocha</i> spp. ^b	CELL	0	0	0	0	8
Class Dinophyceae						
Family Noctilucaeae						
<i>Noctiluca</i> spp. ^b	CELL	9	6	4	5	2
Family Cerataceae						
<i>Ceratium</i> spp. ^b	CELL	0	0	0	4	2
Family Pyrophacaceae						
<i>Pyrophacus</i> spp. ^b	CELL	0	0	0	0	2
Family Peridiniaceae						
<i>Peridinium</i> spp. ^b	CELL	128	204	283	310	365

ANALYSIS REPORT

PROJECT NAME : โครงการท่าเทียบเรือ บริษัท เจซี มาร์ีน พอร์ต จำกัด
CUSTOMER NAME : JC MARINE PORT COMPANY LIMITED
ADDRESS : 153/1 MOO 1 THUNG SUKHLA SI RACHA CHON BURI 20230
CONTACT INFORMATION : TEL : 08 1309 5708, 0 3835 1473 e-mail : jcnarineport.info@gmail.com
SAMPLING SOURCE : -
SAMPLE TYPE : SEAWATER
SAMPLING DATE : MARCH 25, 2024
SAMPLING TIME : *
SAMPLING METHOD^b : PLANKTON NET
SAMPLING BY^b : MR. ANUSART SUAYDEE
ANALYZED BY : MISS NAPAPORN PURATAKO
RECEIVED DATE : MARCH 25, 2024
ANALYTICAL DATE : MARCH 25-APRIL 2, 2024
ISSUE DATE : APRIL 9, 2024
REPORT NO. : 2024-U029455
WORK NO. : 2022-008114
ANALYSIS NO. : T24AG274-0006 - T24AG274-0010

PHYTOPLANKTON (Natural Units/mL)	COUNTING UNIT	RESULT ¹				
		SAMPLE NO. 1	SAMPLE NO. 2	SAMPLE NO. 3	SAMPLE NO. 4	SAMPLE NO. 5
		11:05 HOUR * T24AG274-0006	10:15 HOUR * T24AG274-0007	10:00 HOUR * T24AG274-0008	10:45 HOUR * T24AG274-0009	10:35 HOUR * T24AG274-0010
Division Cyanophyta						
Class Cyanophyceae						
Family Oscillatoriaceae						
<i>Oscillatoria</i> spp. ^b	FILAMENT	21	0	0	0	0
Division Chromophyta						
Class Bacillariophyceae						
Family Thalassiosiraceae						
<i>Lauderia annulata</i> ^b	FILAMENT	32	65	54	38	33
<i>Skeletonema</i> spp. ^b	FILAMENT	0	35	0	0	0
<i>Thalassiosira</i> spp. ^b	CELL	238	267	227	345	214
Family Melosiraceae						
<i>Paralia sulcata</i> ^b	CELL	8	9	10	4	0
Family Leptocylindraceae						
<i>Leptocylindrus danicus</i> ^b	FILAMENT	24	0	0	0	0
Family Coscinodiscaceae						
<i>Coscinodiscus</i> spp. ^b	CELL	29	39	32	35	32
<i>Palmeria hardmaniana</i> ^b	CELL	0	0	0	0	2
Family Rhizosoleniaceae						
<i>Dactylosolen</i> spp. ^b	CELL	0	0	10	0	0
<i>Guinardia</i> spp. ^b	CELL	16	14	32	29	12
<i>Proboscia alata</i> ^b	CELL	0	27	10	0	18
<i>Rhizosolenia</i> spp. ^b	CELL	25	0	14	0	24
Family Hemiaulaceae						
<i>Hemiaulus</i> spp. ^b	CELL	0	16	0	0	0
Family Chaetocerotaceae						
<i>Bacteriasium</i> spp. ^b	FILAMENT	1,666	1,624	1,826	1,567	1,646
<i>Chaetoceros</i> spp. ^a	CELL	92,550	114,883	120,422	110,416	111,131



ANALYSIS REPORT

PROJECT NAME : โครงการท่าเทียบเรือ บริษัท เจซี มารีน พอร์ต จำกัด
CUSTOMER NAME : JC MARINE PORT COMPANY LIMITED
ADDRESS : 153/1 MOO 1 THUNG SUKHLA SI RACHA CHON BURI 20230
CONTACT INFORMATION : TEL : 08 1309 5708, 0 3835 1473 e-mail : jcmarineport.info@gmail.com
SAMPLING SOURCE : -
SAMPLE TYPE : SEAWATER
SAMPLING DATE : MARCH 25, 2024
SAMPLING TIME : *
SAMPLING METHOD : PLANKTON NET
SAMPLING BY : MR ANUSART SUAYDEE
ANALYZED BY : MISS NAPAPORN PURATAKO
RECEIVED DATE : MARCH 25, 2024
ANALYTICAL DATE : MARCH 25-APRIL 3, 2024
ISSUE DATE : APRIL 9, 2024
REPORT NO. : 2024-U029456
WORK NO. : 2022-008114
ANALYSIS NO. : T24AG274-0006 - T24AG274-0010

ZOOPLANKTON (UNITS/m) ³	COUNTING UNIT	RESULT				
		SAMPLE NO. 1 11:05 HOUR *	SAMPLE NO. 2 10:15 HOUR *	SAMPLE NO. 3 10:00 HOUR *	SAMPLE NO. 4 10:45 HOUR *	SAMPLE NO. 5 10:35 HOUR *
		T24AG274-0006	T24AG274-0007	T24AG274-0008	T24AG274-0009	T24AG274-0010
Phylum Protozoa						
Class Sarcodina						
Foraminifera	CELL	13,499	3,171	13,376	0	0
Class Ciliata						
Family Codonellidae						
Tintinnopsis sp.	CELL	175,424	202,393	105,030	66,879	186,719
Family Codonellopsidae						
Codonellopsis sp.	CELL	0	1,063	1,487	0	968
Family Cylindrocapsidae						
Favella sp.	CELL	7,272	7,404	4,950	9,408	5,299
Phylum Annelida						
Class Polychaeta						
Polychaete Larva	INDIVIDUAL	5,715	3,171	4,950	996	4,808
Phylum Nematoda						
Unknown Nematode	INDIVIDUAL	514	0	2,482	0	0
Phylum Arthropoda						
Class Crustacea						
Cyclopoid Copepod	INDIVIDUAL	32,697	54,962	14,372	25,756	30,319
Calanoid Copepod	INDIVIDUAL	16,613	28,536	28,729	25,266	23,577
Harpacticoid Copepod	INDIVIDUAL	12,456	13,745	2,482	4,950	11,550
Nauplius of Copepod	INDIVIDUAL	102,247	127,346	59,939	75,797	121,274
Ceripedia Nauplius	INDIVIDUAL	9,856	23,780	27,243	9,408	27,908
Phylum Mollusca						
Class Gastropoda						
Gastropod Larva	INDIVIDUAL	1,044	7,927	996	996	3,855
Class Bivalvia						
Bivalvia Larva	INDIVIDUAL	25,426	76,094	45,077	16,349	57,750



PHYTOPLANKTON (Natural Units/mL)	COUNTING UNIT	RESULT ¹				
		SAMPLE NO. 1 11:05 HOUR *	SAMPLE NO. 2 10:15 HOUR *	SAMPLE NO. 3 10:00 HOUR *	SAMPLE NO. 4 10:45 HOUR *	SAMPLE NO. 5 10:35 HOUR *
		T24AG274-0006	T24AG274-0007	T24AG274-0008	T24AG274-0009	T24AG274-0010
Family Protopteridiniaceae Protopteridium spp. ^b	CELL	24	41	15	24	39
TOTAL ABUNDANCE ^b	² Natural Units/mL	96,284	118,907	125,373	114,554	115,071
ORGANISMS COUNTED ³	NUMBER	24	25	26	22	25
SAMPLE VOLUME COLLECTION ³	mL	206	230	232	230	230
SAMPLE VOLUME FILTERED THROUGH PLANKTON NET ³	LITER	14130	14130	14130	14130	14130
SAMPLE CONDITION (VISUAL OBSERVATION) COLOUR AND TURBIDITY OF WATER COLOUR OF SEDIMENT		COLOURLESS/CLEAR GREEN	COLOURLESS/CLEAR GREEN	COLOURLESS/CLEAR GREEN	COLOURLESS/CLEAR GREEN	COLOURLESS/CLEAR GREEN

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

^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.

SAMPLE NAME SAMPLE NO. 1 บริเวณด้านซ้ายของท่าเรือ ระยะ 35 เมตร (SW1)
SAMPLE NO. 2 บริเวณด้านหน้าของท่าเรือ ระยะ 60 เมตร (SW2)
SAMPLE NO. 3 บริเวณด้านซ้ายของท่าเรือ ระยะ 90 เมตร (SW3)
SAMPLE NO. 4 บริเวณด้านขวาของท่าเรือ ระยะ 220 เมตร (SW4)
SAMPLE NO. 5 บริเวณด้านขวาของท่าเรือ ระยะ 320 เมตร (SW5)

(MISS CHAWEEVAN BOONLA)
LABORATORY SUPERVISOR

APRIL 10, 2024

ANALYSIS REPORT

PROJECT NAME : โครงการท่าเทียบเรือ บริษัท เจซี มารีน พอร์ต จำกัด
CUSTOMER NAME : JC MARINE PORT COMPANY LIMITED
ADDRESS : 153/1 MOO 1 THUNG SUKHLA SI RACHA CHON BURI 20230
CONTACT INFORMATION : TEL : 08 1309 5708, 0 3835 1473 e-mail : jcmarineport.info@gmail.com
SAMPLING SOURCE : -
SAMPLE TYPE : SEDIMENT
SAMPLING DATE : MARCH 25, 2024
SAMPLING TIME : *
SAMPLING METHOD : PETERSEN GRAB
SAMPLING BY : MR ANUSART SUAYDEE
ANALYZED BY : MISS PATCHAREE KONGCHUMNAN
RECEIVED DATE : MARCH 25, 2024
ANALYTICAL DATE : MARCH 25-28, 2024
ISSUE DATE : APRIL 9, 2024
REPORT NO. : 2024-U029457
WORK NO. : 2022-008114
ANALYSIS NO. : T24AG274-0011 - T24AG274-0015

BENTHOS (INDIVIDUALS/m ²)	RESULT				
	SAMPLE NO. 1 11:10 HOUR *	SAMPLE NO. 2 10:20 HOUR *	SAMPLE NO. 3 10:05 HOUR *	SAMPLE NO. 4 10:50 HOUR *	SAMPLE NO. 5 10:40 HOUR *
	T24AG274-0011	T24AG274-0012	T24AG274-0013	T24AG274-0014	T24AG274-0015
Phylum Annelida					
Class Polychaeta					
Family Glyceridae	0	0	0	7	0
Family Capitellidae	7	0	0	28	14
Family Nereididae	0	0	7	0	0
Family Eunicidae	0	0	7	0	0
Family Spionidae	7	7	0	28	0
Family Pilargidae	0	0	0	0	35
Family Magelonidae	14	0	0	0	0
TOTAL DENSITY (INDIVIDUALS/m ²)	28	7	14	63	49
AMOUNT OF SPECIES	3	1	2	3	2
SAMPLE CONDITION	SAND WITH SHELLS	SAND WITH SHELLS	SAND WITH SHELLS	SAND WITH SHELLS	SAND WITH SHELLS

SAMPLE NO. 1 บริเวณด้านขวาของท่าเรือ ระยะ 35 เมตร (SW1)
SAMPLE NO. 2 บริเวณด้านหน้าของท่าเรือ ระยะ 60 เมตร (SW2)
SAMPLE NO. 3 บริเวณด้านซ้ายของท่าเรือ ระยะ 90 เมตร (SW3)
SAMPLE NO. 4 บริเวณด้านขวาของท่าเรือ ระยะ 220 เมตร (SW4)
SAMPLE NO. 5 บริเวณด้านขวาของท่าเรือ ระยะ 320 เมตร (SW5)


(MISS CHAWEEWAN BOONLA)
LABORATORY SUPERVISOR


APRIL 10, 2024



ZOOPLANKTON (UNITS/m ³)	COUNTING UNIT	RESULT				
		SAMPLE NO. 1 11:05 HOUR *	SAMPLE NO. 2 10:15 HOUR *	SAMPLE NO. 3 10:00 HOUR *	SAMPLE NO. 4 10:45 HOUR *	SAMPLE NO. 5 10:35 HOUR *
		T24AG274-0006	T24AG274-0007	T24AG274-0008	T24AG274-0009	T24AG274-0010
Phylum Echinodermata Class Echinoidea Echinopluteus Larva	INDIVIDUAL	0	0	0	0	2,412
Phylum Chordata Class Larvacea Family Oikopleuridae Oikopleura sp.	INDIVIDUAL	38,411	33,291	15,858	19,321	20,689
TOTAL ABUNDANCE	UNITS/m ³	441,174	582,883	326,971	255,126	497,128
ORGANISMS COUNTED	NUMBER	13	13	14	11	13
SAMPLE CONDITION (VISUAL OBSERVATION) COLOUR AND TURBIDITY OF WATER COLOUR OF SEDIMENT		COLOURLESS/CLEAR GREEN	COLOURLESS/CLEAR GREEN	COLOURLESS/CLEAR GREEN	COLOURLESS/CLEAR GREEN	COLOURLESS/CLEAR GREEN

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 บริเวณด้านขวาของท่าเรือ ระยะ 35 เมตร (SW1)
SAMPLE NO. 2 บริเวณด้านหน้าของท่าเรือ ระยะ 60 เมตร (SW2)
SAMPLE NO. 3 บริเวณด้านซ้ายของท่าเรือ ระยะ 90 เมตร (SW3)
SAMPLE NO. 4 บริเวณด้านขวาของท่าเรือ ระยะ 220 เมตร (SW4)
SAMPLE NO. 5 บริเวณด้านขวาของท่าเรือ ระยะ 320 เมตร (SW5)


(MISS CHAWEEWAN BOONLA)
LABORATORY SUPERVISOR

APRIL 10, 2024

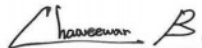
ANALYSIS REPORT

PROJECT NAME : โครงการท่าเทียบเรือ บริษัท เจซี มารีน พอร์ต จำกัด
CUSTOMER NAME : JC MARINE PORT COMPANY LIMITED
ADDRESS : 153/1 MOO 1 THUNG SUKHLA SI RACHA CHON BURI 20230
CONTACT INFORMATION : TEL : 08 1309 5708, 0 3835 1473 e-mail : jcmarineport.info@gmail.com
SAMPLING SOURCE : -
SAMPLE TYPE : SEAWATER
SAMPLING DATE : MARCH 25, 2024
SAMPLING TIME : *
SAMPLING METHOD : LARVA NET
SAMPLING BY : MR ANUSART SUAYDEE
ANALYZED BY : MISS PATCHARAPA SAWANGWONG
RECEIVED DATE : MARCH 25, 2024
ANALYTICAL DATE : MARCH 25-APRIL 3, 2024
ISSUE DATE : APRIL 8, 2024
REPORT NO. : 2024-U029420
WORK NO. : 2022-008114
ANALYSIS NO. : T24AG275-0001 - T24AG275-0005

FISH EGG AND FISH LARVA	RESULT				
	SAMPLE NO. 1	SAMPLE NO. 2	SAMPLE NO. 3	SAMPLE NO. 4	SAMPLE NO. 5
	11:30 HOUR *	12:55 HOUR *	13:30 HOUR *	12:30 HOUR *	12:05 HOUR *
	(INDIVIDUALS/1000m ³)	(INDIVIDUALS/1000m ³)	(INDIVIDUALS/1000m ³)	(INDIVIDUALS/1000m ³)	(INDIVIDUALS/1000m ³)
	T24AG275-0001	T24AG275-0002	T24AG275-0003	T24AG275-0004	T24AG275-0005
Fish Egg **	898	789	1,792	2,038	2,455
Phylum Chordata					
Apogonidae	0	0	0	0	5
Blenniidae	10	19	41	11	0
Nemipteridae	0	0	0	33	15
TOTAL ABUNDANCE (FISH LARVA)	10	19	41	44	20
TOTAL ABUNDANCE (FISH EGG)	898	789	1,792	2,038	2,455
TOTAL FISH FAMILY	1	1	1	2	2

REMARK ** MEAN INDIVIDUALS/1000m³

SAMPLE NO. 1 บริเวณด้านขวาของท่าเรือ ระยะ 35 เมตร (SW1)
SAMPLE NO. 2 บริเวณด้านหน้าของท่าเรือ ระยะ 60 เมตร (SW2)
SAMPLE NO. 3 บริเวณด้านซ้ายของท่าเรือ ระยะ 90 เมตร (SW3)
SAMPLE NO. 4 บริเวณด้านขวาของท่าเรือ ระยะ 220 เมตร (SW4)
SAMPLE NO. 5 บริเวณด้านขวาของท่าเรือ ระยะ 320 เมตร (SW5)


(MISS CHAWEEVAN BOONLA)
LABORATORY SUPERVISOR

APRIL 9, 2024

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ANALYSIS REPORT

PROJECT NAME : โครงการท่าเทียบเรือ บริษัท เจซี มารีน พอร์ต จำกัด
CUSTOMER NAME : JC MARINE PORT COMPANY LIMITED
ADDRESS : 153/1 MOO 1 THUNG SUKHLA SI RACHA CHON BURI 20230
CONTACT INFORMATION : TEL : 08 1309 5708, 0 3835 1473 e-mail : jcmarineport.info@gmail.com
SAMPLING SOURCE : -
SAMPLE TYPE : SEDIMENT
SAMPLING DATE : MARCH 25, 2024
SAMPLING TIME : *
SAMPLING METHOD : LARVA NET
SAMPLING BY : MR ANUSART SUAYDEE
ANALYZED BY : MISS PATCHARAPA SAWANGWONG
RECEIVED DATE : MARCH 25, 2024
ANALYTICAL DATE : MARCH 25-APRIL 2, 2024
ISSUE DATE : APRIL 8, 2024
REPORT NO. : 2024-U029413
WORK NO. : 2022-008114
ANALYSIS NO. : T24AG276-0001 - T24AG276-0005

MACRO-ZOOPLANKTON (INDIVIDUALS/1000m ³)	RESULT				
	SAMPLE NO. 1	SAMPLE NO. 2	SAMPLE NO. 3	SAMPLE NO. 4	SAMPLE NO. 5
	11:30 HOUR *	12:55 HOUR *	13:30 HOUR *	12:30 HOUR *	12:05 HOUR *
	(INDIVIDUALS/1000m ³)	(INDIVIDUALS/1000m ³)	(INDIVIDUALS/1000m ³)	(INDIVIDUALS/1000m ³)	(INDIVIDUALS/1000m ³)
	T24AG276-0001	T24AG276-0002	T24AG276-0003	T24AG276-0004	T24AG276-0005
Phylum Arthropoda					
Class Malacostraca					
Crab Larva	7,100	11,392	11,211	8,369	13,643
Megalopa	100	44	0	0	72
Shrimp Larva	3,900	4,870	4,369	4,106	8,500
Zoea	150	348	211	211	72
Lucifer sp.	950	261	1,422	474	358
Phylum Mollusca					
Class Gastropoda					
Gastropoda Larva	100	87	0	264	72
Class Bivalvia					
Bivalvia Larva	50	44	0	0	0
TOTAL ABUNDANCE (INDIVIDUALS/1000m ³)	12,350	17,046	17,213	13,424	22,717
AMOUNT OF SPECIES	7	7	4	5	6

REMARK : PLANKTON COUNTING TECHNIQUES IS NATURAL UNIT COUNT. REFERENCE : AMERICAN PUBLIC HEALTH ASSOCIATION, AMERICAN WATER WORKS ASSOCIATION ENVIRONMENT AND WATER FEDERATION (APHA, AWWA AND WEF) 2017 . STANDARD METHODS FOR THE EXAMINATION OF WATER AND WASTEWATER. AMERICAN PUBLIC HEALTH ASSOCIATION WASHINGTON, DC., U.S.A.

SAMPLE NO. 1 บริเวณด้านขวาของท่าเรือ ระยะ 35 เมตร (SW1)
SAMPLE NO. 2 บริเวณด้านหน้าของท่าเรือ ระยะ 60 เมตร (SW2)
SAMPLE NO. 3 บริเวณด้านซ้ายของท่าเรือ ระยะ 90 เมตร (SW3)
SAMPLE NO. 4 บริเวณด้านขวาของท่าเรือ ระยะ 220 เมตร (SW4)
SAMPLE NO. 5 บริเวณด้านขวาของท่าเรือ ระยะ 320 เมตร (SW5)


(MISS CHAWEEVAN BOONLA)
LABORATORY SUPERVISOR

APRIL 9, 2024

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- End of Analysis Report -

ภาคผนวก ง-5

ผลการตรวจวัดคุณภาพน้ำทิ้ง





ANALYSIS REPORT

PROJECT NAME : โครงการท่าเทียบเรือ บริษัท เจริญโภคภัณฑ์อาหาร จำกัด
CUSTOMER NAME : JC MARINE PORT COMPANY LIMITED
ADDRESS : 153/1 MOO 1 THUNG SUKHLA SI RACHA CHON BURI 20230
CONTACT INFORMATION : TEL : 08 1309 5708, 0 3835 1473 e-mail : jcmarineport.info@gmail.com
SAMPLING SOURCE : -
SAMPLE TYPE : EFFLUENT
SAMPLING DATE : JANUARY 17, 2024
SAMPLING TIME : 13:20 HOUR
SAMPLING METHOD : GRAB
SAMPLING BY : MR SETTHAWUT EMKLINBUA
ANALYZED BY : MISS NAPAPORN KHUNNOKKHUM

RECEIVED DATE : JANUARY 18, 2024
ANALYTICAL DATE : JANUARY 18-23, 2024
REPORT NO. : 2024-U006384
WORK NO. : 2022-008114
ANALYSIS NO. : T24AB022-0001

PARAMETER	UNIT	METHOD OF ANALYSIS	RESULT	REGULATORY STANDARD	DETECTION LIMIT
			ปลายท่อน้ำทิ้ง ของโครงการ T24AB022-0001		
pH ^a	-	ELECTROMETRIC METHOD (AT SITE) SM: PART 4500-H ⁺ B AND 1060 B	7.6 (30°C)	5.5-9.0	-
TEMPERATURE ^c	°C	THERMOMETER AT SITE (SM: PART 2550 B)	30	≤ 40	-
BIOCHEMICAL OXYGEN DEMAND ^c	mg/L	MEMBRANE ELECTRODE METHOD (SM: PART 5210 B AND PART 4500-O G)	ND	≤ 20	2.0
CHEMICAL OXYGEN DEMAND ^c	mg/L	CLOSED REFLUX, COLOURIMETRIC METHOD (SM: PART 5220 D)	ND	≤ 120	25.0
TOTAL SUSPENDED SOLIDS ^c	mg/L	TOTAL SUSPENDED SOLIDS DRIED AT 103-105 °C (SM: PART 2540 D)	ND	≤ 50	5.0
TOTAL DISSOLVED SOLIDS ^b	mg/L	TOTAL DISSOLVED SOLIDS DRIED AT 180 °C (SM: PART 2540 C)	655	≤ 3,000	25
SULPHIDE ^b	mg/L	IODOMETRIC METHOD (SM: PART 4500-S ²⁻ F)	< 0.50	≤ 1	0.50
TOTAL KJELDAHL NITROGEN ^c	mg/L	IN-HOUSE METHOD: UAE.TP.WAS.001 (KJELDAHL METHOD); SM: PART 4500-Norg C	ND	≤ 100	1.5

PARAMETER	UNIT	METHOD OF ANALYSIS	RESULT	REGULATORY STANDARD	DETECTION LIMIT
			ปลายท่อน้ำทิ้ง ของโครงการ T24AB022-0001		
FAT, OIL AND GREASE ^c	mg/L	LIQUID-LIQUID, PARTITION-GRAVIMETRIC METHOD (SM: PART 5520 B)	ND	≤ 5	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.

REGULATORY STANDARD : THE MARINE DEPARTMENT NOTICE 164/2560 REGARDING THE STANDARDS OF ORIGIN OF SEWERAGE AND INDUSTRIAL ESTATES, PUBLISHED IN THE ROYAL GOVERNMENT GAZETTE, VOL. 134, PART 246 D, DATED OCTOBER 5, 2017.

ND : NON-DETECTABLE.

Piyapat S.

(MRS PIYAPAT SUTTAMANUTWONG)
LABORATORY SUPERVISOR

JANUARY 26, 2024



ANALYSIS REPORT

PROJECT NAME : โครงการท่าเทียบเรือ บริษัท เจริญ พอร์ต จำกัด
CUSTOMER NAME : JC MARINE PORT COMPANY LIMITED
ADDRESS : 153/1 MOO 1 THUNG SUKHLA SI RACHA CHON BURI 20230
CONTACT INFORMATION : TEL : 08 1309 5708, 0 3835 1473 e-mail : jcmarineport.info@gmail.com
SAMPLING SOURCE : -
SAMPLE TYPE : EFFLUENT
SAMPLING DATE : FEBRUARY 14, 2024
SAMPLING TIME : 10:30 HOUR
SAMPLING METHOD : GRAB
SAMPLING BY : MR THANADET WANSANOR
ANALYZED BY : MISS NAPAPORN KHUNNOKKHUM

RECEIVED DATE : FEBRUARY 14, 2024
ANALYTICAL DATE : FEBRUARY 14-20, 2024
ISSUE DATE : FEBRUARY 23, 2024
REPORT NO. : 2024-U015103
WORK NO. : 2022-008114
ANALYSIS NO. : T24AC970-0001

PARAMETER	UNIT	METHOD OF ANALYSIS	RESULT ปลายท่อน้ำทิ้ง ของโครงการ T24AC970-0001	REGULATORY STANDARD	DETECTION LIMIT
pH ^a	-	ELECTROMETRIC METHOD (AT SITE) SM: PART 4500-H ⁺ B AND 1060 B	6.6 (31°C)	5.5-9.0	-
TEMPERATURE ^c	°C	THERMOMETER AT SITE (SM: PART 2550 B)	31	≤ 40	-
BIOCHEMICAL OXYGEN DEMAND ^a	mg/L	MEMBRANE ELECTRODE METHOD (SM: PART 5210 B AND PART 4500-O G)	7.9	≤ 20	2.0
CHEMICAL OXYGEN DEMAND ^c	mg/L	CLOSED REFLUX, COLOURIMETRIC METHOD (SM: PART 5220 D)	ND	≤ 120	25.0
TOTAL SUSPENDED SOLIDS ^c	mg/L	TOTAL SUSPENDED SOLIDS DRIED AT 103-105 °C (SM: PART 2540 D)	ND	≤ 50	5.0
TOTAL DISSOLVED SOLIDS ^b	mg/L	TOTAL DISSOLVED SOLIDS DRIED AT 180 °C (SM: PART 2540 C)	278	≤ 3,000	25
SULPHIDE ^b	mg/L	IODOMETRIC METHOD (SM: PART 4500 -S ²⁻ F)	< 0.50	≤ 1	0.50
TOTAL KJELDAHL NITROGEN ^b	mg/L	IN-HOUSE METHOD: UAE.TP.WAS.001 (KJELDAHL METHOD); SM: PART 4500-Norg C	< LOQ	≤ 100	1.5

PARAMETER	UNIT	METHOD OF ANALYSIS	RESULT ปลายท่อน้ำทิ้ง ของโครงการ T24AC970-0001	REGULATORY STANDARD	DETECTION LIMIT
FAT, OIL AND GREASE ^c	mg/L	LIQUID-LIQUID, PARTITION-GRAVIMETRIC METHOD (SM: PART 5520 B)	ND	≤ 5	3
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

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.
REGULATORY STANDARD : THE MARINE DEPARTMENT NOTICE 164/2560 REGARDING THE STANDARDS OF ORIGIN OF SEWERAGE AND INDUSTRIAL ESTATES, PUBLISHED IN THE ROYAL GOVERNMENT GAZETTE, VOL 134, PART 246 D, DATED OCTOBER 5, 2017.
ND : NON-DETECTABLE.
< LOQ : < LIMIT OF QUANTITATION (TOTAL KJELDAHL NITROGEN ≥ 1.5 AND < 5.0 mg/L).

Piyapat S.

(MRS PIYAPAT SUTTAMANUTWONG)
LABORATORY SUPERVISOR

FEBRUARY 27, 2024



ANALYSIS REPORT

PROJECT NAME : โครงการท่าเทียบเรือ บริษัท เจริญ มารีเนอ พอร์ต จำกัด
CUSTOMER NAME : JC MARINE PORT COMPANY LIMITED
ADDRESS : 153/1 MOO 1 THUNG SUKHLA SI RACHA CHON BURI 20230
CONTACT INFORMATION : TEL : 08 1309 5708, 0 3835 1473 e-mail : jcmarineport.info@gmail.com
SAMPLING SOURCE : -
SAMPLE TYPE : EFFLUENT
SAMPLING DATE : MARCH 13, 2024
SAMPLING TIME : 13:10 HOUR
SAMPLING METHOD : GRAB
SAMPLING BY : MR. THANADET WANSANOR
ANALYZED BY : MISS NAPAPORN KHUNNOKKHUM

RECEIVED DATE : MARCH 14, 2024
ANALYTICAL DATE : MARCH 14-21, 2024
ISSUE DATE : MARCH 25, 2024
REPORT NO. : 2024-U024607
WORK NO. : 2022-008114
ANALYSIS NO. : T24AF273-0001

PARAMETER	UNIT	METHOD OF ANALYSIS	RESULT	REGULATORY STANDARD	DETECTION LIMIT
			ปลายท่อน้ำทิ้ง ของโครงการ T24AF273-0001		
pH ^a	-	ELECTROMETRIC METHOD (AT SITE) SM: PART 4500-H ⁺ B AND 1060 B	7.2 (31°C)	5.5-9.0	-
TEMPERATURE ^c	°C	THERMOMETER AT SITE (SM: PART 2550 B)	31	≤ 40	-
BIOCHEMICAL OXYGEN DEMAND ^a	mg/L	MEMBRANE ELECTRODE METHOD (SM: PART 5210 B AND PART 4500-O G)	< 2.0	≤ 20	2.0
CHEMICAL OXYGEN DEMAND ^c	mg/L	CLOSED REFLUX, COLOURIMETRIC METHOD (SM: PART 5220 D)	ND	≤ 120	25.0
TOTAL SUSPENDED SOLIDS ^c	mg/L	TOTAL SUSPENDED SOLIDS DRIED AT 103-105 °C (SM: PART 2540 D)	ND	≤ 50	5.0
TOTAL DISSOLVED SOLIDS ^b	mg/L	TOTAL DISSOLVED SOLIDS DRIED AT 180 °C (SM: PART 2540 C)	292	≤ 3,000	25
SULPHIDE ^b	mg/L	IODOMETRIC METHOD (SM: PART 4500-S ²⁻ F)	< 0.50	≤ 1	0.50
TOTAL KJELDAHL NITROGEN ^c	mg/L	IN-HOUSE METHOD: UAE.TP.WAS.001 (KJELDAHL METHOD); SM: PART 4500-Norg C	ND	≤ 100	15

PARAMETER	UNIT	METHOD OF ANALYSIS	RESULT	REGULATORY STANDARD	DETECTION LIMIT
			ปลายท่อน้ำทิ้ง ของโครงการ T24AF273-0001		
FAT, OIL AND GREASE ^c	mg/L	LIQUID-LIQUID, PARTITION-GRAVIMETRIC METHOD (SM: PART 5520 B)	ND	≤ 5	3
SAMPLE CONDITION WATER'S COLOUR/TURBID SEDIMENT			YELLOW/CLEAR YELLOW		

^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.

REGULATORY STANDARD : THE MARINE DEPARTMENT NOTICE 164/2560 REGARDING THE STANDARDS OF ORIGIN OF SEWERAGE AND INDUSTRIAL ESTATES, PUBLISHED IN THE ROYAL GOVERNMENT GAZETTE, VOL. 134, PART 246 D, DATED OCTOBER 5, 2017.

ND : NON-DETECTABLE.

Piyapol S.

(MRS PIYAPAT SUTTAMANUTWONG)
LABORATORY SUPERVISOR

MARCH 26, 2024



ANALYSIS REPORT

PROJECT NAME : โครงการท่าเทียบเรือ บริษัท เจริญ มารีนา พอร์ต จำกัด
CUSTOMER NAME : JC MARINE PORT COMPANY LIMITED
ADDRESS : 153/1 MOO 1 THUNG SUKHLA SI RACHA CHON BURI 20230
CONTACT INFORMATION : TEL : 08 1309 5708, 0 3835 1473 e-mail : jcmarineport.info@gmail.com
SAMPLING SOURCE : -
SAMPLE TYPE : EFFLUENT
SAMPLING DATE : APRIL 17, 2024
SAMPLING TIME : 08:30 HOUR
SAMPLING METHOD : GRAB
SAMPLING BY : MR THANADET WANSANOR
ANALYZED BY : MISS NAPAPORN KHUNNOKKHUM

RECEIVED DATE : APRIL 18, 2024
ANALYTICAL DATE : APRIL 18-24, 2024
ISSUE DATE : APRIL 29, 2024
REPORT NO. : 2024-U035796
WORK NO. : 2022-008114
ANALYSIS NO. : T24AI041-0001

PARAMETER	UNIT	METHOD OF ANALYSIS	RESULT	REGULATORY STANDARD	DETECTION LIMIT
			ปลายท่อน้ำทิ้ง ของโครงการ T24AI041-0001		
pH ^a	-	ELECTROMETRIC METHOD (AT SITE) SM: PART 4500-H ⁺ B AND 1060 B	6.8 (3°C)	5.5-9.0	-
TEMPERATURE ^c	°C	THERMOMETER AT SITE (SM: PART 2550 B)	31	≤ 40	-
BIOCHEMICAL OXYGEN DEMAND ^a	mg/L	MEMBRANE ELECTRODE METHOD (SM: PART 5210 B AND PART 4500-O G)	< 2.0	≤ 20	2.0
CHEMICAL OXYGEN DEMAND ^c	mg/L	CLOSED REFLUX, COLOURIMETRIC METHOD (SM: PART 5220 D)	ND	≤ 120	25.0
TOTAL SUSPENDED SOLIDS ^c	mg/L	TOTAL SUSPENDED SOLIDS DRIED AT 103-105 °C (SM: PART 2540 D)	ND	≤ 50	5.0
TOTAL DISSOLVED SOLIDS ^b	mg/L	TOTAL DISSOLVED SOLIDS DRIED AT 180 °C (SM: PART 2540 C)	291	≤ 3,000	25
SULPHIDE ^b	mg/L	IODOMETRIC METHOD (SM: PART 4500-S ²⁻ F)	< 0.50	≤ 1	0.50
TOTAL KJELDAHL NITROGEN ^c	mg/L	IN-HOUSE METHOD: UAE.TP.WAS.001 (KJELDAHL METHOD); SM: PART 4500-Norg C	ND	≤ 100	1.5

PARAMETER	UNIT	METHOD OF ANALYSIS	RESULT	REGULATORY STANDARD	DETECTION LIMIT
			ปลายท่อน้ำทิ้ง ของโครงการ T24AI041-0001		
FAT, OIL AND GREASE ^c	mg/L	LIQUID-LIQUID, PARTITION-GRAVIMETRIC METHOD (SM: PART 5520 B)	ND	≤ 5	3
SAMPLE CONDITION WATER'S COLOUR/TURBID SEDIMENT			YELLOW/CLEAR YELLOW		

^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.
REGULATORY STANDARD : THE MARINE DEPARTMENT NOTICE 164/2560 REGARDING THE STANDARDS OF ORIGIN OF SEWERAGE AND INDUSTRIAL ESTATES, PUBLISHED IN THE ROYAL GOVERNMENT GAZETTE, VOL.134, PART 246 D, DATED OCTOBER 5, 2017.
ND : NON-DETECTABLE.

Piyapat S.

(MRS PIYAPAT SUTTAMANUTWONG)
LABORATORY SUPERVISOR

APRIL 29, 2024





United Analyst and Engineering Consultant Co., Ltd.
3 Soi Udomsuk 41, Sukhumvit Road, Bangchak, Phrakhanong, Bangkok 10260
Tel.0 2763 2828 Fax 0 2763 2800 www.uaeconsultant.com E-mail: uae@uaeconsultant.com

ANALYSIS REPORT

PROJECT NAME : โครงการท่าเทียบเรือ บริษัท เจซี มาร์ีน พอร์ต จำกัด
CUSTOMER NAME : JC MARINE PORT COMPANY LIMITED
ADDRESS : 153/1 MOO 1 THUNG SUKHLA SI RACHA CHON BURI 20230
CONTACT INFORMATION : TEL : 08 1309 5708, 0 3835 1473 e-mail : jcmarineport.info@gmail.com
SAMPLING SOURCE : -
SAMPLE TYPE : EFFLUENT
SAMPLING DATE : MAY 15, 2024
SAMPLING TIME : 10:25 HOUR
SAMPLING METHOD : GRAB
SAMPLING BY : MR THANADET WANSANOR
ANALYZED BY : MISS NAPAPORN KHUNNOKKHUM

RECEIVED DATE : MAY 15, 2024
ANALYTICAL DATE : MAY 15-24, 2024
ISSUE DATE : MAY 27, 2024
REPORT NO. : 2024-U045214
WORK NO. : 2022-008114
ANALYSIS NO. : T24AK286-0001

PARAMETER	UNIT	METHOD OF ANALYSIS	RESULT	REGULATORY STANDARD	DETECTION LIMIT
			ปลายท่อน้ำทิ้ง ของโครงการ T24AK286-0001		
pH	-	ELECTROMETRIC METHOD (AT SITE) SM: PART 4500-H ⁺ B AND 1060 B	7.0 (31°C)	5.5-9.0	-
TEMPERATURE	°C	THERMOMETER AT SITE (SM: PART 2550 B)	31	≤ 40	-
BIOCHEMICAL OXYGEN DEMAND	mg/L	MEMBRANE ELECTRODE METHOD (SM: PART 5210 B AND PART 4500-O G)	< 2.0	≤ 20	2.0
CHEMICAL OXYGEN DEMAND	mg/L	CLOSED REFLUX, COLOURIMETRIC METHOD (SM: PART 5220 D)	ND	≤ 120	25.0
TOTAL SUSPENDED SOLIDS	mg/L	TOTAL SUSPENDED SOLIDS DRIED AT 103-105 °C (SM: PART 2540 D)	ND	≤ 50	5.0
TOTAL DISSOLVED SOLIDS	mg/L	TOTAL DISSOLVED SOLIDS DRIED AT 180 °C (SM: PART 2540 C)	283	≤ 3,000	25
SULPHIDE	mg/L	IODOMETRIC METHOD (SM: PART 4500-S ²⁻ F)	< 0.50	≤ 1	0.50
TOTAL KJELDAHL NITROGEN	mg/L	IN-HOUSE METHOD: UAE.TP.WAS.001 (KJELDAHL METHOD); SM: PART 4500-Norg C	ND	≤ 100	1.5
FAT, OIL AND GREASE	mg/L	LIQUID-LIQUID, PARTITION-GRAVIMETRIC METHOD (SM: PART 5520 B)	ND	≤ 5	3
SAMPLE CONDITION WATER'S COLOUR/TURBID SEDIMENT			YELLOW/CLEAR YELLOW		

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.
REGULATORY STANDARD : THE MARINE DEPARTMENT NOTICE 164/2560 REGARDING THE STANDARDS OF ORIGIN OF SEWERAGE AND INDUSTRIAL ESTATES, PUBLISHED IN THE ROYAL GOVERNMENT GAZETTE, VOL 134, PART 246 D, DATED OCTOBER 5, 2017.
ND : NON-DETECTABLE.

Piyapat S.
.....
(MRS PIYAPAT SUTTAMANUTWONG)
LABORATORY SUPERVISOR

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United Analyst and Engineering Consultant Co., Ltd.
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Tel.0 2763 2828 Fax 0 2763 2800 www.uaeconsultant.com E-mail: uae@uaeconsultant.com



ANALYSIS REPORT

PROJECT NAME : โครงการท่าเทียบเรือ บริษัท เจซี มาร์ีน พอร์ต จำกัด
CUSTOMER NAME : JC MARINE PORT COMPANY LIMITED
ADDRESS : 153/1 MOO 1 THUNG SUKHLA SI RACHA CHON BURI 20230
CONTACT INFORMATION : TEL : 08 1309 5708, 0 3835 1473 e-mail : jcmarineport.info@gmail.com
SAMPLING SOURCE : -
SAMPLE TYPE : EFFLUENT
SAMPLING DATE : JUNE 13, 2024
SAMPLING TIME : 11:40 HOUR
SAMPLING METHOD : GRAB
SAMPLING BY : MR THANADET WANSANOR
ANALYZED BY : MISS NAPAPORN KHUNNOKKHUM

RECEIVED DATE : JUNE 13, 2024
ANALYTICAL DATE : JUNE 13-20, 2024
ISSUE DATE : JUNE 24, 2024
REPORT NO. : 2024-U056202
WORK NO. : 2022-008114
ANALYSIS NO. : T24AN050-0001

PARAMETER	UNIT	METHOD OF ANALYSIS	RESULT	REGULATORY STANDARD	DETECTION LIMIT
			ปลายท่อน้ำทิ้ง ของโครงการ T24AN050-0001		
pH ^a	-	ELECTROMETRIC METHOD (AT SITE) SM: PART 4500-H ⁺ B AND 1060 B	7.3 (32°C)	5.5-9.0	-
TEMPERATURE °C	°C	THERMOMETER (AT SITE) SM: PART 2550 B	32	≤ 40	-
BIOCHEMICAL OXYGEN DEMAND ^a	mg/L	MEMBRANE ELECTRODE METHOD (SM: PART 5210 B AND PART 4500-O G)	< 2.0	≤ 20	2.0
CHEMICAL OXYGEN DEMAND °C	mg/L	CLOSED REFLUX, COLOURIMETRIC METHOD (SM: PART 5220 D)	ND	≤ 120	25.0
TOTAL SUSPENDED SOLIDS °C	mg/L	TOTAL SUSPENDED SOLIDS DRIED AT 103-105 °C (SM: PART 2540 D)	ND	≤ 50	5.0
TOTAL DISSOLVED SOLIDS ^b	mg/L	TOTAL DISSOLVED SOLIDS DRIED AT 180 °C (SM: PART 2540 C)	312	≤ 3,000	25
SULPHIDE ^b	mg/L	IODOMETRIC METHOD (SM: PART 4500-S ²⁻ F)	< 0.50	≤ 1	0.50
TOTAL KJELDAHL NITROGEN °C	mg/L	IN-HOUSE METHOD: UAE.TP.WAS.001 (KJELDAHL METHOD); SM: PART 4500-Norg C	ND	≤ 100	1.5

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United Analyst and Engineering Consultant Co., Ltd.

3 Soi Udomsuk 41, Sukhumvit Road, Bangchak, Phrakhanong, Bangkok 10260

Tel.0 2763 2828 Fax 0 2763 2800 www.uaeconsultant.com E-mail: uae@uaeconsultant.com



NSC-TISI-TIS 17025
TESTING 0207



TESTING
No. 0063

PARAMETER	UNIT	METHOD OF ANALYSIS	RESULT	REGULATORY STANDARD	DETECTION LIMIT
			ปลายท่อปล่อย ของโครงการ T24AN050-0001		
FAT, OIL AND GREASE ^c	mg/L	LIQUID-LIQUID, PARTITION-GRAVIMETRIC METHOD (SM: PART 5520 B)	ND	≤ 5	3
SAMPLE CONDITION					
WATER'S COLOUR/TURBID			YELLOW/CLEAR		
SEDIMENT			YELLOW		

^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, 24th EDITION, 2023.

SM : STANDARD METHODS FOR THE EXAMINATION OF WATER AND WASTEWATER, APHA, AWWA, WEF, 24th EDITION, 2023.

REGULATORY STANDARD : THE MARINE DEPARTMENT NOTICE 164/2560 REGARDING THE STANDARDS OF ORIGIN OF SEWERAGE AND INDUSTRIAL ESTATES, PUBLISHED IN THE ROYAL GOVERNMENT GAZETTE, VOL 134, PART 246 D,
DATED OCTOBER 5, 2017.

ND : NOT DETECTED.

Piyapat S.

(MRS PIYAPAT SUTTAMANUTWONG)
LABORATORY SUPERVISOR

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2024-U056202

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