

ภาคผนวก ค

รายงานผลการติดตามตรวจสอบคุณภาพสิ่งแวดล้อม



รายงานผลการติดตามตรวจสอบคุณภาพน้ำทิ้ง
เดือนกรกฎาคม พ.ศ. 2566



ANALYSIS REPORT

CUSTOMER NAME	: ENERGY COMPLEX COMPANY LIMITED	RECEIVED DATE	: JULY 14, 2023
ADDRESS	: 555/1 VIBHAVADI-RANGSIT ROAD CHATUCHAK CHATUCHAK BANGKOK 10900	ANALYTICAL DATE	: JULY 14-25, 2023
CONTACT INFORMATION	: TEL : 098 392 6737 e-mail : thitiporn_s@encony.com	REPORT NO.	: 2023-U062079
SAMPLING SOURCE	: อาคาร A ดิเอนโคน์ พื้นที่ ปตท. รังสิต จัหวัดระยอง	WORK NO.	: 2023-002256
SAMPLE TYPE	: WASTEWATER	ANALYSIS NO.	: T23AN542-0001 - T23AN542-0002
SAMPLING DATE	: JULY 14, 2023		
SAMPLING TIME	: 1/		
SAMPLING METHOD °	: GRAB		
SAMPLING BY °	: MR THANADET WANSANOR		
ANALYZED BY	: MISS NAPAPORN KHUNNOKKHUM		

PARAMETER	UNIT	METHOD OF ANALYSIS	RESULT		REGULATORY STANDARD	DETECTION LIMIT
			1 10:16 HOUR 1/ T23AN542-0001	2 10:06 HOUR 1/ T23AN542-0002		
pH °	-	ELECTROMETRIC METHOD AT SITE (SM: PART 4500-H+ B)	7.8 (31°C)	7.7 (32°C)	5-9	-
BIOCHEMICAL OXYGEN DEMAND °	mg/L	AZIDE MODIFICATION METHOD (SM: PART 5210 B AND PART 4500-O C)	196	13.8	≤ 40	2.0
SUSPENDED SOLIDS °	mg/L	SUSPENDED SOLIDS DRIED AT 103-105 °C (SM: PART 2540 D)	76.5	11.5	≤ 50	5.0
TOTAL DISSOLVED SOLIDS °	mg/L	IN-HOUSE METHOD: UAE.TP.WAO.007 (TOTAL DISSOLVED SOLIDS DRIED AT 103-105 °C); SM: PART 2540 C	578	453	500*	25
SETTLABLE SOLIDS °	mL/L	IMHOFF CONE (SM: PART 2540 F)	0.5	< 0.1	≤ 0.5	0.1
SULPHIDE °	mg/L	IODOMETRIC METHOD (SM: PART 4500-S² F)	1.5	< 0.50	≤ 3.0	0.50
TOTAL KJELDAHL NITROGEN °	mg/L	IN-HOUSE METHOD: UAE.TP.WAS.001 (KJELDAHL METHOD); SM: PART 4500-Norg C	78.8	49.8	≤ 40	1.5
FAT, OIL AND GREASE °	mg/L	LIQUID-LIQUID, PARTITION-GRAVIMETRIC METHOD (SM: PART 5520 B)	12	ND	≤ 20	3



PARAMETER	UNIT	METHOD OF ANALYSIS	RESULT		REGULATORY STANDARD	DETECTION LIMIT
			1 10:16 HOUR 1/ T23AN542-0001	2 10:06 HOUR 1/ T23AN542-0002		
MICROBIOLOGY						
FAECAL COLIFORM BACTERIA ^b	MPN/100 mL	MULTIPLE-TUBE FERMENTATION TECHNIQUE (SM: PART 9221 E)	>160,000	>160,000	-	1.8
COLIFORM BACTERIA ^b	MPN/100 mL	MULTIPLE-TUBE FERMENTATION TECHNIQUE (SM: PART 9221 B)	>160,000	>160,000	-	1.8
SAMPLE CONDITION						
WATER'S COLOUR/TURBID SEDIMENT			YELLOW/TURBID BROWN	YELLOW/TURBID BROWN		

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

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

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

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

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

RESULT 1 : INFLUENT

RESULT 2 : EFFLUENT

REGULATORY STANDARD : RANGE OR MAXIMUM PERMITTED VALUE FOR BUILDING EFFLUENT STANDARDS CLASS C, NOTIFICATION OF THE MINISTRY OF RESOURCES AND ENVIRONMENT, PUBLISHED IN THE ROYAL GOVERNMENT GAZETTE, VOL 122, PART 125 D, DATED DECEMBER 29, 2005.

500* : PERMITTED EXCESS VALUE TO TOTAL DISSOLVED SOLIDS OF ACTUAL TAP WATER USED.

ND : NON-DETECTABLE.

(MRS PIYAPAT SUTTAMANUTWONG)
LABORATORY SUPERVISOR

JULY 27, 2023

ANALYSIS REPORT

CUSTOMER NAME	: ENERGY COMPLEX COMPANY LIMITED	RECEIVED DATE	: JULY 14, 2023
ADDRESS	: 555/1 VIBHAVADI-RANGSIT ROAD CHATUCHAK CHATUCHAK BANGKOK 10900	ANALYTICAL DATE	: JULY 14-25, 2023
CONTACT INFORMATION	: TEL : 098 392 6737 e-mail : thitiporn_s@encony.com	REPORT NO.	: 2023-U062086
SAMPLING SOURCE	: อาคาร B ดิเอนโคน์ พื้นที่ ปลดท. รังจันทร จังหวัตรระยอง	WORK NO.	: 2023-002256
SAMPLE TYPE	: WASTEWATER	ANALYSIS NO.	: T23AN542-0003 - T23AN542-0004
SAMPLING DATE	: JULY 14, 2023		
SAMPLING TIME	: 1/		
SAMPLING METHOD °	: GRAB		
SAMPLING BY °	: MR THANADET WANSANOR		
ANALYZED BY	: MISS NAPAPORN KHUNNOKKHUM		

PARAMETER	UNIT	METHOD OF ANALYSIS	RESULT		REGULATORY STANDARD	DETECTION LIMIT
			1 10:15 HOUR 1/ T23AN542-0003	2 10:05 HOUR 1/ T23AN542-0004		
pH °	-	ELECTROMETRIC METHOD AT SITE (SM: PART 4500-H ⁺ B)	7.8 (31°C)	7.7 (32°C)	5-9	-
BIOCHEMICAL OXYGEN DEMAND °	mg/L	AZIDE MODIFICATION METHOD (SM: PART 5210 B AND PART 4500-O C)	246	16.3	≤ 40	2.0
SUSPENDED SOLIDS °	mg/L	SUSPENDED SOLIDS DRIED AT 103-105 °C (SM: PART 2540 D)	89.1	13.6	≤ 50	5.0
TOTAL DISSOLVED SOLIDS °	mg/L	IN-HOUSE METHOD: UAE.TP.WAO.007 (TOTAL DISSOLVED SOLIDS DRIED AT 103-105 °C); SM: PART 2540 C	560	437	500*	25
SETTLEABLE SOLIDS °	mL/L	IMHOFF CONE (SM: PART 2540 F)	0.6	< 0.1	≤ 0.5	0.1
SULPHIDE °	mg/L	IODOMETRIC METHOD (SM: PART 4500-S ²⁻ F)	3.1	< 0.50	≤ 3.0	0.50
TOTAL KJELDAHL NITROGEN °	mg/L	IN-HOUSE METHOD: UAE.TP.WAS.001 (KJELDAHL METHOD); SM: PART 4500-Norg C	57.1	51.6	≤ 40	1.5
FAT, OIL AND GREASE °	mg/L	LIQUID-LIQUID, PARTITION-GRAVIMETRIC METHOD (SM: PART 5520 B)	14	ND	≤ 20	3



PARAMETER	UNIT	METHOD OF ANALYSIS	RESULT		REGULATORY STANDARD	DETECTION LIMIT
			1 10:15 HOUR 1/ T23AN542-0003	2 10:05 HOUR 1/ T23AN542-0004		
MICROBIOLOGY						
FAECAL COLIFORM BACTERIA ^b	MPN/100 mL	MULTIPLE-TUBE FERMENTATION TECHNIQUE (SM: PART 9221 E)	>160,000	>160,000	-	1.8
COLIFORM BACTERIA ^b	MPN/100 mL	MULTIPLE-TUBE FERMENTATION TECHNIQUE (SM: PART 9221 B)	>160,000	>160,000	-	1.8
SAMPLE CONDITION						
WATER'S COLOUR/TURBID			YELLOW/TURBID	YELLOW/TURBID		
SEDIMENT			BROWN	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.

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500* : PERMITTED EXCESS VALUE TO TOTAL DISSOLVED SOLIDS OF ACTUAL TAP WATER USED.

ND : NON-DETECTABLE.

(MRS PIYAPAT SUTTAMANUTWONG)
LABORATORY SUPERVISOR

JULY 27, 2023

ANALYSIS REPORT

CUSTOMER NAME	: ENERGY COMPLEX COMPANY LIMITED	RECEIVED DATE	: JULY 14, 2023
ADDRESS	: 555/1 VIBHAVADI-RANGSIT ROAD CHATUCHAK CHATUCHAK BANGKOK 10900	ANALYTICAL DATE	: JULY 14-25, 2023
CONTACT INFORMATION	: TEL : 098 392 6737 e-mail : thitiporn_s@encony.com	REPORT NO.	: 2023-U062088
SAMPLING SOURCE	: อาคาร C ดิเอนโคน์ พื้นที่ ปตท. รังสิต จังหวัดระยอง	WORK NO.	: 2023-002256
SAMPLE TYPE	: WASTEWATER	ANALYSIS NO.	: T23AN542-0005 - T23AN542-0006
SAMPLING DATE	: JULY 14, 2023		
SAMPLING TIME	: 1/		
SAMPLING METHOD °	: GRAB		
SAMPLING BY °	: MR THANADET WANSANOR		
ANALYZED BY	: MISS NAPAPORN KHUNNOKKHUM		

PARAMETER	UNIT	METHOD OF ANALYSIS	RESULT		REGULATORY STANDARD	DETECTION LIMIT
			1 10:30 HOUR 1/ T23AN542-0005	2 10:35 HOUR 1/ T23AN542-0006		
pH °	-	ELECTROMETRIC METHOD AT SITE (SM: PART 4500-H ⁺ B)	7.3 (30°C)	6.5 (30°C)	5-9	-
BIOCHEMICAL OXYGEN DEMAND °	mg/L	AZIDE MODIFICATION METHOD (SM: PART 5210 B AND PART 4500-O C)	163	5.6	≤ 40	2.0
SUSPENDED SOLIDS °	mg/L	SUSPENDED SOLIDS DRIED AT 103-105 °C (SM: PART 2540 D)	76.9	ND	≤ 50	5.0
TOTAL DISSOLVED SOLIDS °	mg/L	IN-HOUSE METHOD: UAE.TP.WAO.007 (TOTAL DISSOLVED SOLIDS DRIED AT 103-105 °C); SM: PART 2540 C	539	553	500*	25
SETTLABLE SOLIDS °	mL/L	IMHOFF CONE (SM: PART 2540 F)	0.7	0.2	≤ 0.5	0.1
SULPHIDE °	mg/L	IODOMETRIC METHOD (SM: PART 4500-S ²⁻ F)	0.52	< 0.50	≤ 3.0	0.50
TOTAL KJELDAHL NITROGEN °	mg/L	IN-HOUSE METHOD: UAE.TP.WAS.001 (KJELDAHL METHOD); SM: PART 4500-Norg C	60.1	11.9	≤ 40	1.5
FAT, OIL AND GREASE °	mg/L	LIQUID-LIQUID, PARTITION-GRAVIMETRIC METHOD (SM: PART 5520 B)	14	ND	≤ 20	3



PARAMETER	UNIT	METHOD OF ANALYSIS	RESULT		REGULATORY STANDARD	DETECTION LIMIT
			1 10:30 HOUR 1/ T23AN542-0005	2 10:35 HOUR 1/ T23AN542-0006		
MICROBIOLOGY						
FAECAL COLIFORM BACTERIA ^b	MPN/100 mL	MULTIPLE-TUBE FERMENTATION TECHNIQUE (SM: PART 9221 E)	>160,000	160,000	-	1.8
COLIFORM BACTERIA ^b	MPN/100 mL	MULTIPLE-TUBE FERMENTATION TECHNIQUE (SM: PART 9221 B)	>160,000	160,000	-	1.8
SAMPLE CONDITION						
WATER'S COLOUR/TURBID SEDIMENT			YELLOW/TURBID BROWN	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.

RESULT 1 : INFLUENT

RESULT 2 : EFFLUENT

REGULATORY STANDARD : RANGE OR MAXIMUM PERMITTED VALUE FOR BUILDING EFFLUENT STANDARDS CLASS C, NOTIFICATION OF THE MINISTRY OF RESOURCES AND ENVIRONMENT, PUBLISHED IN THE ROYAL GOVERNMENT GAZETTE, VOL 122, PART 125 D, DATED DECEMBER 29, 2005.

500* : PERMITTED EXCESS VALUE TO TOTAL DISSOLVED SOLIDS OF ACTUAL TAP WATER USED.

ND : NON-DETECTABLE.

(MRS PIYAPAT SUTTAMANUTWONG)
LABORATORY SUPERVISOR

JULY 27, 2023

ANALYSIS REPORT

CUSTOMER NAME : ENERGY COMPLEX COMPANY LIMITED
ADDRESS : 555/1 VIBHAVADI-RANGSIT ROAD CHATUCHAK CHATUCHAK BANGKOK 10900
CONTACT INFORMATION : TEL : 098 392 6737 e-mail : thitiporn_s@encony.com
SAMPLING SOURCE : อาคาร D ดิเอนโคน์ พื้นที่ ปตท. รังสิต จังหวัดระยอง
SAMPLE TYPE : WASTEWATER
SAMPLING DATE : JULY 14, 2023
SAMPLING TIME : 1/
SAMPLING METHOD ° : GRAB
SAMPLING BY ° : MR THANADET WANSANOR
ANALYZED BY : MISS NAPAPORN KHUNNOKKHUM

RECEIVED DATE : JULY 14, 2023
ANALYTICAL DATE : JULY 14-25, 2023
REPORT NO. : 2023-U062091
WORK NO. : 2023-002256
ANALYSIS NO. : T23AN542-0007 - T23AN542-0008

PARAMETER	UNIT	METHOD OF ANALYSIS	RESULT		REGULATORY STANDARD	DETECTION LIMIT
			1 11:15 HOUR 1/ T23AN542-0007	2 11:40 HOUR 1/ T23AN542-0008		
pH °	-	ELECTROMETRIC METHOD AT SITE (SM: PART 4500-H ⁺ B)	7.1 (30°C)	7.4 (32°C)	5-9	-
BIOCHEMICAL OXYGEN DEMAND °	mg/L	AZIDE MODIFICATION METHOD (SM: PART 5210 B AND PART 4500-O C)	246	15.5	≤ 40	2.0
SUSPENDED SOLIDS °	mg/L	SUSPENDED SOLIDS DRIED AT 103-105 °C (SM: PART 2540 D)	45.0	16.6	≤ 50	5.0
TOTAL DISSOLVED SOLIDS °	mg/L	IN-HOUSE METHOD: UAE.TP.WAO.007 (TOTAL DISSOLVED SOLIDS DRIED AT 103-105 °C); SM: PART 2540 C	645	557	500*	25
SETTLABLE SOLIDS °	mL/L	IMHOFF CONE (SM: PART 2540 F)	0.3	3.0	≤ 0.5	0.1
SULPHIDE °	mg/L	IODOMETRIC METHOD (SM: PART 4500-S ²⁻ F)	3.1	< 0.50	≤ 3.0	0.50
TOTAL KJELDAHL NITROGEN °	mg/L	IN-HOUSE METHOD: UAE.TP.WAS.001 (KJELDAHL METHOD); SM: PART 4500-Norg C	53.7	35.2	≤ 40	1.5
FAT, OIL AND GREASE °	mg/L	LIQUID-LIQUID, PARTITION-GRAVIMETRIC METHOD (SM: PART 5520 B)	8	ND	≤ 20	3



PARAMETER	UNIT	METHOD OF ANALYSIS	RESULT		REGULATORY STANDARD	DETECTION LIMIT
			1	2		
			11:15 HOUR 1/ T23AN542-0007	11:40 HOUR 1/ T23AN542-0008		
MICROBIOLOGY						
FAECAL COLIFORM BACTERIA ^b	MPN/100 mL	MULTIPLE-TUBE FERMENTATION TECHNIQUE (SM: PART 9221 E)	>160,000	160,000	-	1.8
COLIFORM BACTERIA ^b	MPN/100 mL	MULTIPLE-TUBE FERMENTATION TECHNIQUE (SM: PART 9221 B)	>160,000	160,000	-	1.8
SAMPLE CONDITION						
WATER'S COLOUR/TURBID SEDIMENT			YELLOW/TURBID BROWN	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.

RESULT 1 : INFLUENT

RESULT 2 : EFFLUENT

REGULATORY STANDARD : RANGE OR MAXIMUM PERMITTED VALUE FOR BUILDING EFFLUENT STANDARDS CLASS C, NOTIFICATION OF THE MINISTRY OF RESOURCES AND ENVIRONMENT, PUBLISHED IN THE ROYAL GOVERNMENT GAZETTE, VOL 122, PART 125 D, DATED DECEMBER 29, 2005.

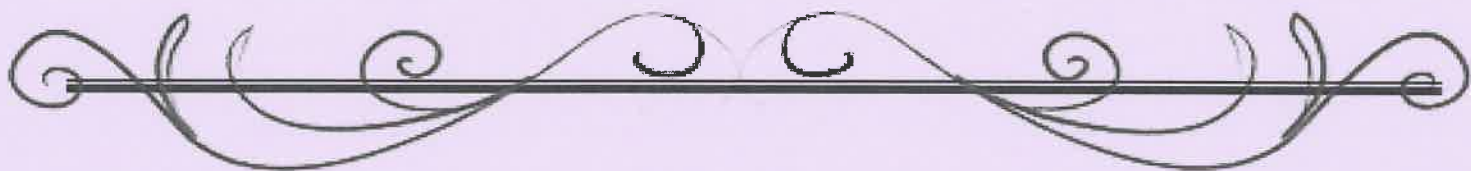
500* : PERMITTED EXCESS VALUE TO TOTAL DISSOLVED SOLIDS OF ACTUAL TAP WATER USED.

ND : NON-DETECTABLE.

(MRS PIYAPAT SUTTAMANUTWONG)
LABORATORY SUPERVISOR

JULY 27, 2023

รายงานผลการติดตามตรวจสอบคุณภาพน้ำทิ้ง
เดือนสิงหาคม พ.ศ. 2566



ANALYSIS REPORT

CUSTOMER NAME	: ENERGY COMPLEX COMPANY LIMITED	RECEIVED DATE	: AUGUST 16, 2023
ADDRESS	: 555/1 VIBHAVADI-RANGSIT ROAD CHATUCHAK CHATUCHAK BANGKOK 10900	ANALYTICAL DATE	: AUGUST 16-22, 2023
CONTACT INFORMATION	: TEL : 098 276 3860 e-mail : Kitsada.s@pttbsacl.com	REPORT NO.	: 2023-U070232
SAMPLING SOURCE	: พื้นที่ ปตท. รังสิต จังหวัดระยอง	WORK NO.	: 2023-002256
SAMPLE TYPE	: WATER SUPPLY	ANALYSIS NO.	: T23AP747-0009
SAMPLING DATE	: AUGUST 15, 2023		
SAMPLING TIME	: 11:50 HOUR		
SAMPLING METHOD ^c	: GRAB		
SAMPLING BY ^c	: MR THANADET WANSANOR		
ANALYZED BY	: MISS NAPAPORN KHUNNOKKHUM		

PARAMETER	UNIT	METHOD OF ANALYSIS	RESULT	REGULATORY STANDARD	DETECTION LIMIT
			WATER SUPPLY (ภายในโครงการ) T23AP747-0009		
TOTAL DISSOLVED SOLIDS ^b	mg/L	TOTAL DISSOLVED SOLIDS DRIED AT 180 °C (SM: PART 2540 C)	311	≤ 1,000	25
SAMPLE CONDITION WATER'S COLOUR/TURBID SEDIMENT			COLOURLESS/CLEAR -		

^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 : WATER SUPPLY STANDARDS, NOTIFICATION OF THE PROVINCIAL WATERWORKS AUTHORITY FOLLOW AS WORLD HEALTH ORGANIZATION (WHO) GUIDELINE VALUE, B.E. 2560 (2017).

(MRS PIYAPAT SUTTAMANUTWONG)
LABORATORY SUPERVISOR

AUGUST 28, 2023



ANALYSIS REPORT

CUSTOMER NAME : ENERGY COMPLEX COMPANY LIMITED
ADDRESS : 555/1 VIBHAVADI-RANGSIT ROAD CHATUCHAK CHATUCHAK BANGKOK 10900
CONTACT INFORMATION : TEL : 098 276 3860 e-mail : Kitsada.s@pttbsacl.com
SAMPLING SOURCE : อาคาร A ดีเอนโคปี้ พื้นที่ ปตท. รังสิต จังหวัดระยอง
SAMPLE TYPE : WASTEWATER
SAMPLING DATE : AUGUST 15, 2023
SAMPLING TIME : 1/
SAMPLING METHOD ° : GRAB
SAMPLING BY ° : MR THANADET WANSANOR
ANALYZED BY : MISS NAPAPORN KHUNNOKKHUM

RECEIVED DATE : AUGUST 16, 2023
ANALYTICAL DATE : AUGUST 16-25, 2023
REPORT NO. : 2023-U070999
WORK NO. : 2023-002256
ANALYSIS NO. : T23AP747-0001 - T23AP747-0002

PARAMETER	UNIT	METHOD OF ANALYSIS	RESULT		REGULATORY STANDARD	DETECTION LIMIT
			1 10:50 HOUR 1/ T23AP747-0001	2 10:40 HOUR 1/ T23AP747-0002		
pH °	-	ELECTROMETRIC METHOD AT SITE (SM: PART 4500-H ⁺ B)	7.1 (32°C)	7.6 (32°C)	5-9	-
BIOCHEMICAL OXYGEN DEMAND °	mg/L	AZIDE MODIFICATION METHOD (SM: PART 5210 B AND PART 4500-O C)	170	14.7	≤ 40	2.0
SUSPENDED SOLIDS °	mg/L	SUSPENDED SOLIDS DRIED AT 103-105 °C (SM: PART 2540 D)	98.6	8.6	≤ 50	5.0
TOTAL DISSOLVED SOLIDS °	mg/L	IN-HOUSE METHOD: UAE.TP.WAO.007 (TOTAL DISSOLVED SOLIDS DRIED AT 103-105 °C); SM: PART 2540 C	636	514	500*	25
SETTLEABLE SOLIDS °	mL/L	IMHOFF CONE (SM: PART 2540 F)	2.0	< 0.1	≤ 0.5	0.1
SULPHIDE °	mg/L	IODOMETRIC METHOD (SM: PART 4500-S ²⁻ F)	1.8	< 0.50	≤ 3.0	0.50
TOTAL KJELDAHL NITROGEN °	mg/L	IN-HOUSE METHOD: UAE.TP.WAS.001 (KJELDAHL METHOD); SM: PART 4500-Norg C	49.1	33.8	≤ 40	1.5
FAT, OIL AND GREASE °	mg/L	LIQUID-LIQUID, PARTITION-GRAVIMETRIC METHOD (SM: PART 5520 B)	7	ND	≤ 20	3



PARAMETER	UNIT	METHOD OF ANALYSIS	RESULT		REGULATORY STANDARD	DETECTION LIMIT
			1 10:50 HOUR 1/ T23AP747-0001	2 10:40 HOUR 1/ T23AP747-0002		
MICROBIOLOGY						
FAECAL COLIFORM BACTERIA ^b	MPN/100 mL	MULTIPLE-TUBE FERMENTATION TECHNIQUE (SM: PART 9221 E)	>160,000	54,000	-	1.8
COLIFORM BACTERIA ^b	MPN/100 mL	MULTIPLE-TUBE FERMENTATION TECHNIQUE (SM: PART 9221 B)	>160,000	>160,000	-	1.8
SAMPLE CONDITION						
WATER'S COLOUR/TURBID SEDIMENT			YELLOW/TURBID BROWN	YELLOW/TURBID BROWN		

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

RESULT 1 : INFLUENT

RESULT 2 : EFFLUENT

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500* : PERMITTED EXCESS VALUE TO TOTAL DISSOLVED SOLIDS OF ACTUAL TAP WATER USED.

ND : NON-DETECTABLE.

(MRS PIYAPAT SUTTAMANUTWONG)
LABORATORY SUPERVISOR

AUGUST 28, 2023

ANALYSIS REPORT

CUSTOMER NAME : ENERGY COMPLEX COMPANY LIMITED
ADDRESS : 555/1 VIBHAVADI-RANGSIT ROAD CHATUCHAK CHATUCHAK BANGKOK 10900
CONTACT INFORMATION : TEL : 098 276 3860 e-mail : Kitsada.s@pttbsad.com
SAMPLING SOURCE : อาคาร B ดิเอนโคนี พื้นที่ ปตท. รังสิต จังหวัดระยอง
SAMPLE TYPE : WASTEWATER
SAMPLING DATE : AUGUST 15, 2023
SAMPLING TIME : 1/
SAMPLING METHOD ° : GRAB
SAMPLING BY ° : MR THANADET WANSANOR
ANALYZED BY : MISS NAPAPORN KHUNNOKKHUM

RECEIVED DATE : AUGUST 16, 2023
ANALYTICAL DATE : AUGUST 16-25, 2023
REPORT NO. : 2023-U071000
WORK NO. : 2023-002256
ANALYSIS NO. : T23AP747-0003 - T23AP747-0004

PARAMETER	UNIT	METHOD OF ANALYSIS	RESULT		REGULATORY STANDARD	DETECTION LIMIT
			1 10:50 HOUR 1/ T23AP747-0003	2 10:40 HOUR 1/ T23AP747-0004		
pH °	-	ELECTROMETRIC METHOD AT SITE (SM: PART 4500-H ⁺ B)	7.1 (32°C)	7.6 (32°C)	5-9	-
BIOCHEMICAL OXYGEN DEMAND °	mg/L	AZIDE MODIFICATION METHOD (SM: PART 5210 B AND PART 4500-O C)	186	14.5	≤ 40	2.0
SUSPENDED SOLIDS °	mg/L	SUSPENDED SOLIDS DRIED AT 103-105 °C (SM: PART 2540 D)	100	7.8	≤ 50	5.0
TOTAL DISSOLVED SOLIDS °	mg/L	IN-HOUSE METHOD: UAE.TP.WAO.007 (TOTAL DISSOLVED SOLIDS DRIED AT 103-105 °C); SM: PART 2540 C	620	496	500*	25
SETTLABLE SOLIDS °	mL/L	IMHOFF CONE (SM: PART 2540 F)	2.0	< 0.1	≤ 0.5	0.1
SULPHIDE °	mg/L	IODOMETRIC METHOD (SM: PART 4500-S ²⁻ F)	1.9	< 0.50	≤ 3.0	0.50
TOTAL KJELDAHL NITROGEN °	mg/L	IN-HOUSE METHOD: UAE.TP.WAS.001 (KJELDAHL METHOD); SM: PART 4500-Norg C	71.7	34.7	≤ 40	1.5
FAT, OIL AND GREASE °	mg/L	LIQUID-LIQUID, PARTITION-GRAVIMETRIC METHOD (SM: PART 5520 B)	6	ND	≤ 20	3



PARAMETER	UNIT	METHOD OF ANALYSIS	RESULT		REGULATORY STANDARD	DETECTION LIMIT
			1 10:50 HOUR 1/ T23AP747-0003	2 10:40 HOUR 1/ T23AP747-0004		
MICROBIOLOGY						
FAECAL COLIFORM BACTERIA ^b	MPN/100 mL	MULTIPLE-TUBE FERMENTATION TECHNIQUE (SM: PART 9221 E)	>160,000	>160,000	-	1.8
COLIFORM BACTERIA ^b	MPN/100 mL	MULTIPLE-TUBE FERMENTATION TECHNIQUE (SM: PART 9221 B)	>160,000	>160,000	-	1.8
SAMPLE CONDITION						
WATER'S COLOUR/TURBID SEDIMENT			YELLOW/TURBID BROWN	YELLOW/TURBID BROWN		

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

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

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

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

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

RESULT 1 : INFLUENT

RESULT 2 : EFFLUENT

REGULATORY STANDARD : RANGE OR MAXIMUM PERMITTED VALUE FOR BUILDING EFFLUENT STANDARDS CLASS C, NOTIFICATION OF THE MINISTRY OF RESOURCES AND ENVIRONMENT, PUBLISHED IN THE ROYAL GOVERNMENT GAZETTE, VOL 122, PART 125 D, DATED DECEMBER 29, 2005.

500* : PERMITTED EXCESS VALUE TO TOTAL DISSOLVED SOLIDS OF ACTUAL TAP WATER USED.

ND : NON-DETECTABLE.

(MRS PIYAPAT SUTTAMANUTWONG)
LABORATORY SUPERVISOR

AUGUST 28, 2023

ANALYSIS REPORT

CUSTOMER NAME : ENERGY COMPLEX COMPANY LIMITED
ADDRESS : 555/1 VIBHAVADI-RANGSIT ROAD CHATUCHAK CHATUCHAK BANGKOK 10900
CONTACT INFORMATION : TEL : 098 276 3860 e-mail : Kitsada.s@pttbsacl.com
SAMPLING SOURCE : อาคาร C ดิเอนโคพี พื้นที่ ปตท. วัจจันทร์ จังหวัดระยอง
SAMPLE TYPE : WASTEWATER
SAMPLING DATE : AUGUST 15, 2023
SAMPLING TIME : 1/
SAMPLING METHOD ° : GRAB
SAMPLING BY ° : MR THANADET WANSANOR
ANALYZED BY : MISS NAPAPORN KHUNNOKKHUM

RECEIVED DATE : AUGUST 16, 2023
ANALYTICAL DATE : AUGUST 16-25, 2023
REPORT NO. : 2023-U071001
WORK NO. : 2023-002256
ANALYSIS NO. : T23AP747-0005 - T23AP747-0006

PARAMETER	UNIT	METHOD OF ANALYSIS	RESULT		REGULATORY STANDARD	DETECTION LIMIT
			1 11:05 HOUR 1/ T23AP747-0005	2 11:15 HOUR 1/ T23AP747-0006		
pH °		ELECTROMETRIC METHOD AT SITE (SM: PART 4500-H ⁺ B)	7.2 (33°C)	7.5 (31°C)	5-9	-
BIOCHEMICAL OXYGEN DEMAND °	mg/L	AZIDE MODIFICATION METHOD (SM: PART 5210 B AND PART 4500-O C)	157	212	≤ 40	2.0
SUSPENDED SOLIDS °	mg/L	SUSPENDED SOLIDS DRIED AT 103-105 °C (SM: PART 2540 D)	74.0	26.2	≤ 50	5.0
TOTAL DISSOLVED SOLIDS °	mg/L	IN-HOUSE METHOD: UAE.TP.WAO.007 (TOTAL DISSOLVED SOLIDS DRIED AT 103-105 °C); SM: PART 2540 C	602	504	500*	25
SETTLEABLE SOLIDS °	mL/L	IMHOFF CONE (SM: PART 2540 F)	0.6	< 0.1	≤ 0.5	0.1
SULPHIDE °	mg/L	IODOMETRIC METHOD (SM: PART 4500-S ²⁻ F)	1.7	< 0.50	≤ 3.0	0.50
TOTAL KJELDAHL NITROGEN °	mg/L	IN-HOUSE METHOD: UAE.TP.WAS.001 (KJELDAHL METHOD); SM: PART 4500-Norg C	97.7	34.5	≤ 40	1.5
FAT, OIL AND GREASE °	mg/L	LIQUID-LIQUID, PARTITION-GRAVIMETRIC METHOD (SM: PART 5520 B)	10	ND	≤ 20	3



PARAMETER	UNIT	METHOD OF ANALYSIS	RESULT		REGULATORY STANDARD	DETECTION LIMIT
			1 11:05 HOUR 1/ T23AP747-0005	2 11:15 HOUR 1/ T23AP747-0006		
MICROBIOLOGY						
FAECAL COLIFORM BACTERIA ^b	MPN/100 mL	MULTIPLE-TUBE FERMENTATION TECHNIQUE (SM: PART 9221 E)	>160,000	160,000	-	1.8
COLIFORM BACTERIA ^b	MPN/100 mL	MULTIPLE-TUBE FERMENTATION TECHNIQUE (SM: PART 9221 B)	>160,000	>160,000	-	1.8
SAMPLE CONDITION						
WATER'S COLOUR/TURBID SEDIMENT			YELLOW/TURBID BROWN	YELLOW/TURBID BROWN		

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

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

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

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

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

RESULT 1 : INFLUENT

RESULT 2 : EFFLUENT

REGULATORY STANDARD : RANGE OR MAXIMUM PERMITTED VALUE FOR BUILDING EFFLUENT STANDARDS CLASS C, NOTIFICATION OF THE MINISTRY OF RESOURCES AND ENVIRONMENT, PUBLISHED IN THE ROYAL GOVERNMENT GAZETTE, VOL. 122, PART 125 D, DATED DECEMBER 29, 2005.

500* : PERMITTED EXCESS VALUE TO TOTAL DISSOLVED SOLIDS OF ACTUAL TAP WATER USED.

ND : NON-DETECTABLE.

(MRS PIYAPAT SUTTAMANUTWONG)
LABORATORY SUPERVISOR

AUGUST 28, 2023

ANALYSIS REPORT

CUSTOMER NAME : ENERGY COMPLEX COMPANY LIMITED
ADDRESS : 555/1 VIBHAVADI-RANGSIT ROAD CHATUCHAK CHATUCHAK BANGKOK 10900
CONTACT INFORMATION : TEL : 098 276 3860 e-mail : Kitsada.s@pttbsacl.com
SAMPLING SOURCE : อาคาร D ดีเอนโคซี่ พื้นที่ ปตท. รังสิต จังหวัดระยอง
SAMPLE TYPE : WASTEWATER
SAMPLING DATE : AUGUST 15, 2023
SAMPLING TIME : 1/
SAMPLING METHOD ° : GRAB
SAMPLING BY ° : MR THANADET WANSANOR
ANALYZED BY : MISS NAPAPORN KHUNNOKKHUM

RECEIVED DATE : AUGUST 16, 2023
ANALYTICAL DATE : AUGUST 16-25, 2023
REPORT NO. : 2023-U071002
WORK NO. : 2023-002256
ANALYSIS NO. : T23AP747-0007 - T23AP747-0008

PARAMETER	UNIT	METHOD OF ANALYSIS	RESULT		REGULATORY STANDARD	DETECTION LIMIT
			1 11:30 HOUR 1/ T23AP747-0007	2 11:40 HOUR 1/ T23AP747-0008		
pH °	-	ELECTROMETRIC METHOD AT SITE (SM: PART 4500-H° B)	7.0 (33°C)	7.1 (32°C)	5-9	-
BIOCHEMICAL OXYGEN DEMAND °	mg/L	AZIDE MODIFICATION METHOD (SM: PART 5210 B AND PART 4500-O C)	195	12.8	≤ 40	2.0
SUSPENDED SOLIDS °	mg/L	SUSPENDED SOLIDS DRIED AT 103-105 °C (SM: PART 2540 D)	62.0	6.5	≤ 50	5.0
TOTAL DISSOLVED SOLIDS °	mg/L	IN-HOUSE METHOD: UAE.TP.WAO.007 (TOTAL DISSOLVED SOLIDS DRIED AT 103-105 °C); SM: PART 2540 C	792	618	500*	25
SETTLEABLE SOLIDS °	mL/L	IMHOFF CONE (SM: PART 2540 F)	0.5	0.1	≤ 0.5	0.1
SULPHIDE °	mg/L	IODOMETRIC METHOD (SM: PART 4500-S° F)	1.8	< 0.50	≤ 3.0	0.50
TOTAL KJELDAHL NITROGEN °	mg/L	IN-HOUSE METHOD: UAE.TP.WAS.001 (KJELDAHL METHOD); SM: PART 4500-Norg C	74.7	16.5	≤ 40	1.5
FAT, OIL AND GREASE °	mg/L	LIQUID-LIQUID, PARTITION-GRAVIMETRIC METHOD (SM: PART 5520 B)	7	ND	≤ 20	3



PARAMETER	UNIT	METHOD OF ANALYSIS	RESULT		REGULATORY STANDARD	DETECTION LIMIT
			1 11:30 HOUR 1/ T23AP747-0007	2 11:40 HOUR 1/ T23AP747-0008		
MICROBIOLOGY						
FAECAL COLIFORM BACTERIA ^b	MPN/100 mL	MULTIPLE-TUBE FERMENTATION TECHNIQUE (SM: PART 9221E)	>160,000	35,000	-	1.8
COLIFORM BACTERIA ^b	MPN/100 mL	MULTIPLE-TUBE FERMENTATION TECHNIQUE (SM: PART 9221B)	>160,000	35,000	-	1.8
SAMPLE CONDITION						
WATER'S COLOUR/TURBID SEDIMENT			YELLOW/TURBID BROWN	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.

RESULT 1 : INFLUENT

RESULT 2 : EFFLUENT

REGULATORY STANDARD : RANGE OR MAXIMUM PERMITTED VALUE FOR BUILDING EFFLUENT STANDARDS CLASS C, NOTIFICATION OF THE MINISTRY OF RESOURCES AND ENVIRONMENT, PUBLISHED IN THE ROYAL GOVERNMENT GAZETTE, VOL 122, PART 125 D, DATED DECEMBER 29, 2005.

500* : PERMITTED EXCESS VALUE TO TOTAL DISSOLVED SOLIDS OF ACTUAL TAP WATER USED.

ND : NON-DETECTABLE.

(MRS PIYAPAT SUTTAMANUTWONG)
LABORATORY SUPERVISOR

AUGUST 28, 2023

รายงานผลการติดตามตรวจสอบคุณภาพน้ำทิ้ง
เดือนกันยายน พ.ศ. 2566



ANALYSIS REPORT

CUSTOMER NAME : ENERGY COMPLEX COMPANY LIMITED
ADDRESS : 555/1 VIBHAVADI-RANGSIT ROAD CHATUCHAK CHATUCHAK BANGKOK 10900
CONTACT INFORMATION : TEL : 098 276 3860 e-mail : Kitsada.s@pttbsacl.com
SAMPLING SOURCE : พื้นที่ ปตท. รังสิต จ.ปทุมธานี
SAMPLE TYPE : WATER SUPPLY
SAMPLING DATE : SEPTEMBER 12, 2023
SAMPLING TIME : 08:40 HOUR
SAMPLING METHOD ° : GRAB
SAMPLING BY ° : MR THANADET WANSANOR
ANALYZED BY : MISS NAPAPORN KHUNNOKKHUM

RECEIVED DATE : SEPTEMBER 12, 2023
ANALYTICAL DATE : SEPTEMBER 12-15, 2023
REPORT NO. : 2023-U079348
WORK NO. : 2023-002256
ANALYSIS NO. : T23AR929-0009

PARAMETER	UNIT	METHOD OF ANALYSIS	RESULT	REGULATORY STANDARD	DETECTION LIMIT
			WATER SUPPLY (ภายในโครงการ) T23AR929-0009		
TOTAL DISSOLVED SOLIDS ^b	mg/L	TOTAL DISSOLVED SOLIDS DRIED AT 180 °C (SM: PART 2540 C)	304	≤ 1,000	25
SAMPLE CONDITION WATER'S COLOUR/TURBID SEDIMENT			COLOURLESS/CLEAR		

^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 : WATER SUPPLY STANDARDS, NOTIFICATION OF THE PROVINCIAL WATERWORKS AUTHORITY FOLLOW AS WORLD HEALTH ORGANIZATION (WHO) GUIDELINE VALUE, B.E. 2560 (2017).

(MISS BENJAWAN VIRIYOTHAI)
LABORATORY SUPERVISOR

SEPTEMBER 25, 2023



ANALYSIS REPORT

CUSTOMER NAME : ENERGY COMPLEX COMPANY LIMITED
ADDRESS : 555/1 VIBHAVADI-RANGSIT ROAD CHATUCHAK CHATUCHAK BANGKOK 10900
CONTACT INFORMATION : TEL : 098 276 3860 e-mail : Kitsada.s@pttbsacl.com
SAMPLING SOURCE : อาคาร A ดิเอนโคปี พื้นที่ ปตท. รังสิต จังหวัระยอง
SAMPLE TYPE : WASTEWATER
SAMPLING DATE : SEPTEMBER 12, 2023
SAMPLING TIME : 1/
SAMPLING METHOD ° : GRAB
SAMPLING BY ° : MR THANADET WANSANOR
ANALYZED BY : MISS NAPAPORN KHUNNOKKHUM

RECEIVED DATE : SEPTEMBER 12, 2023
ANALYTICAL DATE : SEPTEMBER 12-20, 2023
REPORT NO. : 2023-U080344
WORK NO. : 2023-002256
ANALYSIS NO. : T23AR929-0001 - T23AR929-0002

PARAMETER	UNIT	METHOD OF ANALYSIS	RESULT		REGULATORY STANDARD	DETECTION LIMIT
			1 09:15 HOUR 1/ T23AR929-0001	2 09:10 HOUR 1/ T23AR929-0002		
pH °	-	ELECTROMETRIC METHOD AT SITE (SM: PART 4500-H ⁺ B)	7.9 (30°C)	7.6 (30°C)	5-9	-
BIOCHEMICAL OXYGEN DEMAND °	mg/L	AZIDE MODIFICATION METHOD (SM: PART 5210 B AND PART 4500-O C)	227	7.8	≤ 40	2.0
SUSPENDED SOLIDS °	mg/L	SUSPENDED SOLIDS DRIED AT 103-105 °C (SM: PART 2540 D)	68.1	23.8	≤ 50	5.0
TOTAL DISSOLVED SOLIDS °	mg/L	IN-HOUSE METHOD: UAE.TP.WAO.007 (TOTAL DISSOLVED SOLIDS DRIED AT 103-105 °C); SM: PART 2540 C	536	468	500*	25
SETTLEABLE SOLIDS °	mL/L	IMHOFF CONE (SM: PART 2540 F)	0.1	0.2	≤ 0.5	0.1
SULPHIDE °	mg/L	IODOMETRIC METHOD (SM: PART 4500-S ²⁻ F)	1.8	< 0.50	≤ 3.0	0.50
TOTAL KJELDAHL NITROGEN ° b	mg/L	IN-HOUSE METHOD: UAE.TP.WAS.001 (KJELDAHL METHOD); SM: PART 4500-Norg C	72.0	8.9	≤ 40	1.5
FAT, OIL AND GREASE °	mg/L	LIQUID-LIQUID, PARTITION-GRAVIMETRIC METHOD (SM: PART 5520 B)	18	ND	≤ 20	3



PARAMETER	UNIT	METHOD OF ANALYSIS	RESULT		REGULATORY STANDARD	DETECTION LIMIT
			1 09:15 HOUR 1/ T23AR929-0001	2 09:10 HOUR 1/ T23AR929-0002		
MICROBIOLOGY						
FAECAL COLIFORM BACTERIA ^b	MPN/100 mL	MULTIPLE-TUBE FERMENTATION TECHNIQUE (SM: PART 9221 E)	>160,000	92,000	-	1.8
COLIFORM BACTERIA ^b	MPN/100 mL	MULTIPLE-TUBE FERMENTATION TECHNIQUE (SM: PART 9221 B)	>160,000	92,000	-	1.8
SAMPLE CONDITION						
WATER'S COLOUR/TURBID SEDIMENT			GREEN/TURBID BROWN	YELLOW/TURBID BROWN		

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

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

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

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

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

RESULT 1 : INFLUENT

RESULT 2 : EFFLUENT

REGULATORY STANDARD : RANGE OR MAXIMUM PERMITTED VALUE FOR BUILDING EFFLUENT STANDARDS CLASS C, NOTIFICATION OF THE MINISTRY OF RESOURCES AND ENVIRONMENT, PUBLISHED IN THE ROYAL GOVERNMENT GAZETTE, VOL 122, PART 125 D, DATED DECEMBER 29, 2005.

500* : PERMITTED EXCESS VALUE TO TOTAL DISSOLVED SOLIDS OF ACTUAL TAP WATER USED.

ND : NON-DETECTABLE.

(MRS PIYAPAT SUTTAMANUTWONG)
LABORATORY SUPERVISOR

SEPTEMBER 25, 2023

ANALYSIS REPORT

CUSTOMER NAME : ENERGY COMPLEX COMPANY LIMITED
ADDRESS : 555/1 VIBHAVADI-RANGSIT ROAD CHATUCHAK CHATUCHAK BANGKOK 10900
CONTACT INFORMATION : TEL : 098 276 3860 e-mail : Kitsada.s@pttbsacl.com
SAMPLING SOURCE : อาคาร B ดิเจนโลยี พื้นที่ ปตท. รังสิต จัหวัดระยอง
SAMPLE TYPE : WASTEWATER
SAMPLING DATE : SEPTEMBER 12, 2023
SAMPLING TIME : 1/
SAMPLING METHOD ° : GRAB
SAMPLING BY ° : MR THANADET WANSANOR
ANALYZED BY : MISS NAPAPORN KHUNNOKKHUM

RECEIVED DATE : SEPTEMBER 12, 2023
ANALYTICAL DATE : SEPTEMBER 12-20, 2023
REPORT NO. : 2023-U080345
WORK NO. : 2023-002256
ANALYSIS NO. : T23AR929-0003 - T23AR929-0004

PARAMETER	UNIT	METHOD OF ANALYSIS	RESULT		REGULATORY STANDARD	DETECTION LIMIT
			1 09:25 HOUR I/ T23AR929-0003	2 09:18 HOUR I/ T23AR929-0004		
pH °	-	ELECTROMETRIC METHOD AT SITE (SM: PART 4500-H ⁺ B)	7.9 (30°C)	7.6 (30°C)	5-9	-
BIOCHEMICAL OXYGEN DEMAND °	mg/L	AZIDE MODIFICATION METHOD (SM: PART 5210 B AND PART 4500-O C)	224	10.9	≤ 40	2.0
SUSPENDED SOLIDS °	mg/L	SUSPENDED SOLIDS DRIED AT 103-105 °C (SM: PART 2540 D)	73.5	25.2	≤ 50	5.0
TOTAL DISSOLVED SOLIDS °	mg/L	IN-HOUSE METHOD: UAE.TP.WAO.007 (TOTAL DISSOLVED SOLIDS DRIED AT 103-105 °C); SM: PART 2540 C	542	458	500*	25
SETTLABLE SOLIDS °	mL/L	IMHOFF CONE (SM: PART 2540 F)	0.1	< 0.1	≤ 0.5	0.1
SULPHIDE °	mg/L	IODOMETRIC METHOD (SM: PART 4500-S ²⁻ F)	1.8	< 0.50	≤ 3.0	0.50
TOTAL KJELDAHL NITROGEN °	mg/L	IN-HOUSE METHOD: UAE.TP.WAS.001 (KJELDAHL METHOD); SM: PART 4500-Norg C	70.3	8.2	≤ 40	1.5
FAT, OIL AND GREASE °	mg/L	LIQUID-LIQUID, PARTITION-GRAVIMETRIC METHOD (SM: PART 5520 B)	23	ND	≤ 20	3



PARAMETER	UNIT	METHOD OF ANALYSIS	RESULT		REGULATORY STANDARD	DETECTION LIMIT
			1 09:25 HOUR 1/ T23AR929-0003	2 09:18 HOUR 1/ T23AR929-0004		
MICROBIOLOGY						
FAECAL COLIFORM BACTERIA ^b	MPN/100 mL	MULTIPLE-TUBE FERMENTATION TECHNIQUE (SM: PART 9221 E)	>160,000	35,000	-	1.8
COLIFORM BACTERIA ^b	MPN/100 mL	MULTIPLE-TUBE FERMENTATION TECHNIQUE (SM: PART 9221 B)	>160,000	35,000	-	1.8
SAMPLE CONDITION						
WATER'S COLOUR/TURBID SEDIMENT			YELLOW/TURBID BROWN	YELLOW/TURBID BROWN		

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

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

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

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

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

RESULT 1 : INFLUENT

RESULT 2 : EFFLUENT

REGULATORY STANDARD : RANGE OR MAXIMUM PERMITTED VALUE FOR BUILDING EFFLUENT STANDARDS CLASS C, NOTIFICATION OF THE MINISTRY OF RESOURCES AND ENVIRONMENT, PUBLISHED IN THE ROYAL GOVERNMENT GAZETTE, VOL 122, PART 125 D, DATED DECEMBER 29, 2005.

500* : PERMITTED EXCESS VALUE TO TOTAL DISSOLVED SOLIDS OF ACTUAL TAP WATER USED.

ND : NON-DETECTABLE.

(MRS PIYAPAT SUTTAMANUTWONG)
LABORATORY SUPERVISOR

SEPTEMBER 25, 2023

ANALYSIS REPORT

CUSTOMER NAME : ENERGY COMPLEX COMPANY LIMITED
ADDRESS : 555/1 VIBHAVADI-RANGSIT ROAD CHATUCHAK CHATUCHAK BANGKOK 10900
CONTACT INFORMATION : TEL : 098 276 3860 e-mail : Kitsada.s@pttbsacl.com
SAMPLING SOURCE : อาคาร C ตีเอนโคปี่ พื้นที่ ปตท. วัจันทร จังหวัดระยอง
SAMPLE TYPE : WASTEWATER
SAMPLING DATE : SEPTEMBER 12, 2023
SAMPLING TIME : 1/
SAMPLING METHOD ° : GRAB
SAMPLING BY ° : MR THANADET WANSANOR
ANALYZED BY : MISS NAPAPORN KHUNNOKKHUM

RECEIVED DATE : SEPTEMBER 12, 2023
ANALYTICAL DATE : SEPTEMBER 12-20, 2023
REPORT NO. : 2023-U080346
WORK NO. : 2023-002256
ANALYSIS NO. : T23AR929-0005 - T23AR929-0006

PARAMETER	UNIT	METHOD OF ANALYSIS	RESULT		REGULATORY STANDARD	DETECTION LIMIT
			1 08:56 HOUR 1/ T23AR929-0005	2 08:50 HOUR 1/ T23AR929-0006		
pH °	-	ELECTROMETRIC METHOD AT SITE (SM: PART 4500-H ⁺ B)	7.5 (29°C)	6.8 (30°C)	5-9	-
BIOCHEMICAL OXYGEN DEMAND °	mg/L	AZIDE MODIFICATION METHOD (SM: PART 5210 B AND PART 4500-O C)	287	4.9	≤ 40	2.0
SUSPENDED SOLIDS °	mg/L	SUSPENDED SOLIDS DRIED AT 103-105 °C (SM: PART 2540 D)	172	9.7	≤ 50	5.0
TOTAL DISSOLVED SOLIDS °	mg/L	IN-HOUSE METHOD: UAE.TP.WAO.007 (TOTAL DISSOLVED SOLIDS DRIED AT 103-105 °C); SM: PART 2540 C	594	650	500*	25
SETTLEABLE SOLIDS °	mL/L	IMHOFF CONE (SM: PART 2540 F)	2.5	0.4	≤ 0.5	0.1
SULPHIDE °	mg/L	IODOMETRIC METHOD (SM: PART 4500-S ²⁻ F)	1.3	< 0.50	≤ 3.0	0.50
TOTAL KJELDAHL NITROGEN °	mg/L	IN-HOUSE METHOD: UAE.TP.WAS.001 (KJELDAHL METHOD); SM: PART 4500-Norg C	101	11.4	≤ 40	1.5
FAT, OIL AND GREASE °	mg/L	LIQUID-LIQUID, PARTITION-GRAVIMETRIC METHOD (SM: PART 5520 B)	15	ND	≤ 20	3



PARAMETER	UNIT	METHOD OF ANALYSIS	RESULT		REGULATORY STANDARD	DETECTION LIMIT
			1 08:56 HOUR 1/ T23AR929-0005	2 08:50 HOUR 1/ T23AR929-0006		
MICROBIOLOGY						
FAECAL COLIFORM BACTERIA ^b	MPN/100 mL	MULTIPLE-TUBE FERMENTATION TECHNIQUE (SM: PART 9221 E)	>160,000	>160,000	-	1.8
COLIFORM BACTERIA ^b	MPN/100 mL	MULTIPLE-TUBE FERMENTATION TECHNIQUE (SM: PART 9221 B)	>160,000	>160,000	-	1.8
SAMPLE CONDITION						
WATER'S COLOUR/TURBID			YELLOW/TURBID	YELLOW/TURBID		
SEDIMENT			BROWN	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.

RESULT 1 : INFLUENT

RESULT 2 : EFFLUENT

REGULATORY STANDARD : RANGE OR MAXIMUM PERMITTED VALUE FOR BUILDING EFFLUENT STANDARDS CLASS C, NOTIFICATION OF THE MINISTRY OF RESOURCES AND ENVIRONMENT, PUBLISHED IN THE ROYAL GOVERNMENT GAZETTE, VOL 122, PART 125 D, DATED DECEMBER 29, 2005.

500* : PERMITTED EXCESS VALUE TO TOTAL DISSOLVED SOLIDS OF ACTUAL TAP WATER USED.

ND : NON-DETECTABLE.

(MRS PIYAPAT SUTTAMANUTWONG)
LABORATORY SUPERVISOR

SEPTEMBER 25, 2023

ANALYSIS REPORT

CUSTOMER NAME : ENERGY COMPLEX COMPANY LIMITED
ADDRESS : 555/1 VIBHAVADI-RANGSIT ROAD CHATUCHAK CHATUCHAK BANGKOK 10900
CONTACT INFORMATION : TEL : 098 276 3860 e-mail : Kitsada.s@pttbsacl.com
SAMPLING SOURCE : อาคาร D ดีเอนโคเนชั่น ฟันที่ ปตท. วังจันทร์ จังหวัดระยอง
SAMPLE TYPE : WASTEWATER
SAMPLING DATE : SEPTEMBER 12, 2023
SAMPLING TIME : 1/
SAMPLING METHOD ° : GRAB
SAMPLING BY ° : MR THANADET WANSANOR
ANALYZED BY : MISS NAPAPORN KHUNNOKKHUM

RECEIVED DATE : SEPTEMBER 12, 2023
ANALYTICAL DATE : SEPTEMBER 12-20, 2023
REPORT NO. : 2023-U080347
WORK NO. : 2023-002256
ANALYSIS NO. : T23AR929-0007 - T23AR929-0008

PARAMETER	UNIT	METHOD OF ANALYSIS	RESULT		REGULATORY STANDARD	DETECTION LIMIT
			1 08:45 HOUR 1/ T23AR929-0007	2 08:30 HOUR 1/ T23AR929-0008		
pH °	-	ELECTROMETRIC METHOD AT SITE (SM: PART 4500-H ⁺ B)	7.4 (29°C)	7.1 (30°C)	5-9	-
BIOCHEMICAL OXYGEN DEMAND °	mg/L	AZIDE MODIFICATION METHOD (SM: PART 5210 B AND PART 4500-O C)	234	12.2	≤ 40	2.0
SUSPENDED SOLIDS ^a	mg/L	SUSPENDED SOLIDS DRIED AT 103-105 °C (SM: PART 2540 D)	63.7	7.2	≤ 50	5.0
TOTAL DISSOLVED SOLIDS ^b	mg/L	IN-HOUSE METHOD: UAE.TP.WAO.007 (TOTAL DISSOLVED SOLIDS DRIED AT 103-105 °C); SM: PART 2540 C	658	694	500*	25
SETTLEABLE SOLIDS °	mL/L	IMHOFF CONE (SM: PART 2540 F)	< 0.1	< 0.1	≤ 0.5	0.1
SULPHIDE °	mg/L	IODOMETRIC METHOD (SM: PART 4500-S ²⁻ F)	3.3	< 0.50	≤ 3.0	0.50
TOTAL KJELDAHL NITROGEN ^b	mg/L	IN-HOUSE METHOD: UAE.TP.WAS.001 (KJELDAHL METHOD); SM: PART 4500-Norg C	103	18.7	≤ 40	1.5
FAT, OIL AND GREASE °	mg/L	LIQUID-LIQUID, PARTITION-GRAVIMETRIC METHOD (SM: PART 5520 B)	10	ND	≤ 20	3



PARAMETER	UNIT	METHOD OF ANALYSIS	RESULT		REGULATORY STANDARD	DETECTION LIMIT
			1 08:45 HOUR 1/ T23AR929-0007	2 08:30 HOUR 1/ T23AR929-0008		
MICROBIOLOGY						
FAECAL COLIFORM BACTERIA ^b	MPN/100 mL	MULTIPLE-TUBE FERMENTATION TECHNIQUE (SM: PART 9221 E)	>160,000	>160,000	-	1.8
COLIFORM BACTERIA ^b	MPN/100 mL	MULTIPLE-TUBE FERMENTATION TECHNIQUE (SM: PART 9221 B)	>160,000	>160,000	-	1.8
SAMPLE CONDITION						
WATER'S COLOUR/TURBID			YELLOW/TURBID	YELLOW/CLEAR		
SEDIMENT			BROWN	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.

RESULT 1 : INFLUENT

RESULT 2 : EFFLUENT

REGULATORY STANDARD : RANGE OR MAXIMUM PERMITTED VALUE FOR BUILDING EFFLUENT STANDARDS CLASS C, NOTIFICATION OF THE MINISTRY OF RESOURCES AND ENVIRONMENT, PUBLISHED IN THE ROYAL GOVERNMENT GAZETTE, VOL 122, PART 125 D, DATED DECEMBER 29, 2005.

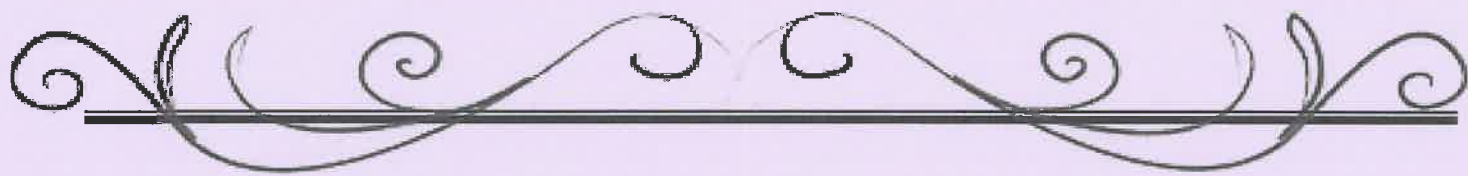
500* : PERMITTED EXCESS VALUE TO TOTAL DISSOLVED SOLIDS OF ACTUAL TAP WATER USED.

ND : NON-DETECTABLE.

(MRS PIYAPAT SUTTAMANUTWONG)
LABORATORY SUPERVISOR

SEPTEMBER 25, 2023

รายงานผลการติดตามตรวจสอบคุณภาพน้ำทิ้ง
เดือนตุลาคม พ.ศ. 2566



ANALYSIS REPORT

CUSTOMER NAME : ENERGY COMPLEX COMPANY LIMITED
ADDRESS : 555/1 VIBHAVADI-RANGSIT ROAD CHATUCHAK CHATUCHAK BANGKOK 10900
CONTACT INFORMATION : TEL : 098 276 3860 e-mail : Kitsada.s@pttbsacl.com
SAMPLING SOURCE : อาคาร A ดิเอนโคน์ พื้นที่ ปตท. รังสิต จังหวัดระยอง
SAMPLE TYPE : WASTEWATER
SAMPLING DATE : OCTOBER 10, 2023
SAMPLING TIME : 1/
SAMPLING METHOD ° : GRAB, GRAB AND STERILE TECHNIQUE
SAMPLING BY ° : MR THANADET WANSANOR
ANALYZED BY : MISS NAPAPORN KHUNNOKKHUM

RECEIVED DATE : OCTOBER 11, 2023
ANALYTICAL DATE : OCTOBER 11-24, 2023
REPORT NO. : 2023-U090359
WORK NO. : 2023-002256
ANALYSIS NO. : T23AU211-0001 - T23AU211-0002

PARAMETER	UNIT	METHOD OF ANALYSIS	RESULT		REGULATORY STANDARD	DETECTION LIMIT
			1 08:30 HOUR 1/ T23AU211-0001	2 08:20 HOUR 1/ T23AU211-0002		
pH °	-	ELECTROMETRIC METHOD AT SITE (SM: PART 4500-H+ B)	7.5 (30°C)	7.6 (30°C)	5-9	-
BIOCHEMICAL OXYGEN DEMAND °	mg/L	AZIDE MODIFICATION METHOD (SM: PART 5210 B AND PART 4500-O C)	159	220	≤ 40	2.0
SUSPENDED SOLIDS °	mg/L	SUSPENDED SOLIDS DRIED AT 103-105 °C (SM: PART 2540 D)	41.8	20.9	≤ 50	5.0
TOTAL DISSOLVED SOLIDS °	mg/L	IN-HOUSE METHOD: UAE.TP.WAO.007 (TOTAL DISSOLVED SOLIDS DRIED AT 103-105 °C); SM: PART 2540 C	510	442	500*	25
SETTLABLE SOLIDS °	mL/L	IMHOFF CONE (SM: PART 2540 F)	< 0.1	< 0.1	≤ 0.5	0.1
SULPHIDE °	mg/L	IODOMETRIC METHOD (SM: PART 4500-S ₂ F)	3.1	< 0.50	≤ 3.0	0.50
TOTAL KJELDAHL NITROGEN °	mg/L	IN-HOUSE METHOD: UAE.TP.WAS.001 (KJELDAHL METHOD); SM: PART 4500-Norg C	82.1	22.1	≤ 40	1.5
FAT, OIL AND GREASE °	mg/L	LIQUID-LIQUID, PARTITION-GRAVIMETRIC METHOD (SM: PART 5520 B)	ND	ND	≤ 20	3



PARAMETER	UNIT	METHOD OF ANALYSIS	RESULT		REGULATORY STANDARD	DETECTION LIMIT
			1 08:30 HOUR 1/ T23AU211-0001	2 08:20 HOUR 1/ T23AU211-0002		
MICROBIOLOGY						
COLIFORM BACTERIA ^b	MPN/100 mL	MULTIPLE-TUBE FERMENTATION TECHNIQUE (SM: PART 9221 B)	>160,000	2,400	-	1.8
FAECAL COLIFORM BACTERIA ^b	MPN/100 mL	MULTIPLE-TUBE FERMENTATION TECHNIQUE (SM: PART 9221 E)	>160,000	1,300	-	1.8
SAMPLE CONDITION						
WATER'S COLOUR/TURBID SEDIMENT			YELLOW/TURBID BROWN	YELLOW/TURBID BROWN		

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

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

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

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

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

RESULT 1 : INFLUENT

RESULT 2 : EFFLUENT

REGULATORY STANDARD : RANGE OR MAXIMUM PERMITTED VALUE FOR BUILDING EFFLUENT STANDARDS CLASS C, NOTIFICATION OF THE
MINISTRY OF RESOURCES AND ENVIRONMENT, PUBLISHED IN THE ROYAL GOVERNMENT GAZETTE, VOL 122,
PART 125 D, DATED DECEMBER 29, 2005.

500* : PERMITTED EXCESS VALUE TO TOTAL DISSOLVED SOLIDS OF ACTUAL TAP WATER USED.

ND : NON-DETECTABLE.

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(MRS PIYAPAT SUTTAMANUTWONG)
LABORATORY SUPERVISOR

OCTOBER 27, 2023

ANALYSIS REPORT

CUSTOMER NAME	: ENERGY COMPLEX COMPANY LIMITED	RECEIVED DATE	: OCTOBER 11, 2023
ADDRESS	: 555/1 VIBHAVADI-RANGSIT ROAD CHATUCHAK CHATUCHAK BANGKOK 10900	ANALYTICAL DATE	: OCTOBER 11-24, 2023
CONTACT INFORMATION	: TEL : 098 276 3860 e-mail : Kitsada.s@pttbsacl.com	REPORT NO.	: 2023-U090360
SAMPLING SOURCE	: อาคาร B ดีไซน์โคเน็กซ์ พื้นที่ ปตท. รังสิต จังหวัดระยอง	WORK NO.	: 2023-002256
SAMPLE TYPE	: WASTEWATER	ANALYSIS NO.	: T23AU211-0003 - T23AU211-0004
SAMPLING DATE	: OCTOBER 10, 2023		
SAMPLING TIME	: 1/		
SAMPLING METHOD ^c	: GRAB, GRAB AND STERILE TECHNIQUE		
SAMPLING BY ^c	: MR THANADET WANSANOR		
ANALYZED BY	: MISS NAPAPORN KHUNNOKKHUM		

PARAMETER	UNIT	METHOD OF ANALYSIS	RESULT		REGULATORY STANDARD	DETECTION LIMIT
			1 08:50 HOUR 1/ T23AU211-0003	2 08:40 HOUR 1/ T23AU211-0004		
pH ^c	-	ELECTROMETRIC METHOD AT SITE (SM: PART 4500-H ⁺ B)	7.5 (29°C)	7.6 (29°C)	5-9	-
BIOCHEMICAL OXYGEN DEMAND ^c	mg/L	AZIDE MODIFICATION METHOD (SM: PART 5210 B AND PART 4500-O C)	273	87.2	≤ 40	2.0
SUSPENDED SOLIDS ^a	mg/L	SUSPENDED SOLIDS DRIED AT 103-105 °C (SM: PART 2540 D)	90.1	66.6	≤ 50	5.0
TOTAL DISSOLVED SOLIDS ^b	mg/L	IN-HOUSE METHOD: UAE.TP.WAO.007 (TOTAL DISSOLVED SOLIDS DRIED AT 103-105 °C); SM: PART 2540 C	510	456	500*	25
SETTLABLE SOLIDS ^c	mL/L	IMHOFF CONE (SM: PART 2540 F)	0.2	1.0	≤ 0.5	0.1
SULPHIDE ^b	mg/L	IODOMETRIC METHOD (SM: PART 4500-S ²⁻ F)	1.9	< 0.50	≤ 3.0	0.50
TOTAL KJELDAHL NITROGEN ^b	mg/L	IN-HOUSE METHOD: UAE.TP.WAS.001 (KJELDAHL METHOD); SM: PART 4500-Norg C	88.1	22.3	≤ 40	1.5
FAT, OIL AND GREASE ^c	mg/L	LIQUID-LIQUID, PARTITION-GRAVIMETRIC METHOD (SM: PART 5520 B)	5	ND	≤ 20	3



PARAMETER	UNIT	METHOD OF ANALYSIS	RESULT		REGULATORY STANDARD	DETECTION LIMIT
			1 08:50 HOUR 1/ T23AU211-0003	2 08:40 HOUR 1/ T23AU211-0004		
MICROBIOLOGY						
COLIFORM BACTERIA ^b	MPN/100 mL	MULTIPLE-TUBE FERMENTATION TECHNIQUE (SM: PART 9221B)	>160,000	160,000	-	1.8
FAECAL COLIFORM BACTERIA ^b	MPN/100 mL	MULTIPLE-TUBE FERMENTATION TECHNIQUE (SM: PART 9221E)	>160,000	92,000	-	1.8
SAMPLE CONDITION						
WATER'S COLOUR/TURBID SEDIMENT			YELLOW/TURBID BROWN	YELLOW/TURBID BROWN		

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

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

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

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

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

RESULT 1 : INFLUENT

RESULT 2 : EFFLUENT

REGULATORY STANDARD : RANGE OR MAXIMUM PERMITTED VALUE FOR BUILDING EFFLUENT STANDARDS CLASS C, NOTIFICATION OF THE MINISTRY OF RESOURCES AND ENVIRONMENT, PUBLISHED IN THE ROYAL GOVERNMENT GAZETTE, VOL 122, PART 125 D, DATED DECEMBER 29, 2005.

500* : PERMITTED EXCESS VALUE TO TOTAL DISSOLVED SOLIDS OF ACTUAL TAP WATER USED.

ND : NON-DETECTABLE.

(MRS PIYAPAT SUTTAMANUTWONG)
LABORATORY SUPERVISOR

OCTOBER 27, 2023

ANALYSIS REPORT

CUSTOMER NAME	: ENERGY COMPLEX COMPANY LIMITED	RECEIVED DATE	: OCTOBER 11, 2023
ADDRESS	: 555/1 VIBHAVADI-RANGSIT ROAD CHATUCHAK CHATUCHAK BANGKOK 10900	ANALYTICAL DATE	: OCTOBER 11-24, 2023
CONTACT INFORMATION	: TEL : 098 276 3860 e-mail : Kitsada.s@pttbsad.com	REPORT NO.	: 2023-U090361
SAMPLING SOURCE	: อาคาร C ดิเอนโคณ์ พื้นที่ ปดท. วั่งจันทร์ จัังหวัตรระยอง	WORK NO.	: 2023-002256
SAMPLE TYPE	: WASTEWATER	ANALYSIS NO.	: T23AU211-0005 - T23AU211-0006
SAMPLING DATE	: OCTOBER 10, 2023		
SAMPLING TIME	: 1/		
SAMPLING METHOD °	: GRAB, GRAB AND STERILE TECHNIQUE		
SAMPLING BY °	: MR THANADET WANSANOR		
ANALYZED BY	: MISS NAPAPORN KHUNNOKKHUM		

PARAMETER	UNIT	METHOD OF ANALYSIS	RESULT		REGULATORY STANDARD	DETECTION LIMIT
			1 09:10 HOUR 1/ T23AU211-0005	2 09:00 HOUR 1/ T23AU211-0006		
pH °	-	ELECTROMETRIC METHOD AT SITE (SM: PART 4500-H ⁺ B)	7.5 (29°C)	7.6 (29°C)	5-9	-
BIOCHEMICAL OXYGEN DEMAND °	mg/L	AZIDE MODIFICATION METHOD (SM: PART 5210 B AND PART 4500-O C)	277	89.1	≤ 40	2.0
SUSPENDED SOLIDS °	mg/L	SUSPENDED SOLIDS DRIED AT 103-105 °C (SM: PART 2540 D)	88.1	60.9	≤ 50	5.0
TOTAL DISSOLVED SOLIDS °	mg/L	IN-HOUSE METHOD: UAE.TP.WAO.007 (TOTAL DISSOLVED SOLIDS DRIED AT 103-105 °C); SM: PART 2540 C	668	480	500*	25
SETTLABLE SOLIDS °	mL/L	IMHOFF CONE (SM: PART 2540 F)	0.7	1.5	≤ 0.5	0.1
SULPHIDE °	mg/L	IODOMETRIC METHOD (SM: PART 4500-S ²⁻ F)	1.7	< 0.50	≤ 3.0	0.50
TOTAL KJELDAHL NITROGEN °	mg/L	IN-HOUSE METHOD: UAE.TP.WAS.001 (KJELDAHL METHOD); SM: PART 4500-Norg C	90.4	24.4	≤ 40	15
FAT, OIL AND GREASE °	mg/L	LIQUID-LIQUID, PARTITION-GRAVIMETRIC METHOD (SM: PART 5520 B)	ND	ND	≤ 20	3



PARAMETER	UNIT	METHOD OF ANALYSIS	RESULT		REGULATORY STANDARD	DETECTION LIMIT
			1 09:10 HOUR 1/ T23AU211-0005	2 09:00 HOUR 1/ T23AU211-0006		
MICROBIOLOGY						
COLIFORM BACTERIA ^b	MPN/100 mL	MULTIPLE-TUBE FERMENTATION TECHNIQUE (SM: PART 9221B)	>160,000	92,000	-	1.8
FAECAL COLIFORM BACTERIA ^b	MPN/100 mL	MULTIPLE-TUBE FERMENTATION TECHNIQUE (SM: PART 9221 E)	>160,000	54,000	-	1.8
SAMPLE CONDITION						
WATER'S COLOUR/TURBID SEDIMENT			YELLOW/TURBID BROWN	YELLOW/TURBID BROWN		

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

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

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

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

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

RESULT 1 : INFLUENT

RESULT 2 : EFFLUENT

REGULATORY STANDARD : RANGE OR MAXIMUM PERMITTED VALUE FOR BUILDING EFFLUENT STANDARDS CLASS C, NOTIFICATION OF THE
MINISTRY OF RESOURCES AND ENVIRONMENT, PUBLISHED IN THE ROYAL GOVERNMENT GAZETTE, VOL 122,
PART 125 D, DATED DECEMBER 29, 2005.

500* : PERMITTED EXCESS VALUE TO TOTAL DISSOLVED SOLIDS OF ACTUAL TAP WATER USED.

ND : NON-DETECTABLE.

(MRS PIYAPAT SUTTAMANUTWONG)
LABORATORY SUPERVISOR

OCTOBER 27, 2023

ANALYSIS REPORT

CUSTOMER NAME	: ENERGY COMPLEX COMPANY LIMITED	RECEIVED DATE	: OCTOBER 11, 2023
ADDRESS	: 555/1 VIBHAVADI-RANGSIT ROAD CHATUCHAK CHATUCHAK BANGKOK 10900	ANALYTICAL DATE	: OCTOBER 11-24, 2023
CONTACT INFORMATION	: TEL : 098 276 3860 e-mail : Kitsada.s@pttbsacl.com	REPORT NO.	: 2023-U090362
SAMPLING SOURCE	: อาคาร D ดิเอนโคซี่ พื้นที่ ปตท. วังจันทร์ จังหวัดระยอง	WORK NO.	: 2023-002256
SAMPLE TYPE	: WASTEWATER	ANALYSIS NO.	: T23AU211-0007 - T23AU211-0008
SAMPLING DATE	: OCTOBER 10, 2023		
SAMPLING TIME	: 1/		
SAMPLING METHOD °	: GRAB, GRAB AND STERILE TECHNIQUE		
SAMPLING BY °	: MR THANADET WANSANOR		
ANALYZED BY	: MISS NAPAPORN KHUNNOKKHUM		

PARAMETER	UNIT	METHOD OF ANALYSIS	RESULT		REGULATORY STANDARD	DETECTION LIMIT
			1 09:30 HOUR 1/ T23AU211-0007	2 09:20 HOUR 1/ T23AU211-0008		
pH °	-	ELECTROMETRIC METHOD AT SITE (SM: PART 4500-H ⁺ B)	7.3 (29°C)	7.6 (29°C)	5-9	-
BIOCHEMICAL OXYGEN DEMAND °	mg/L	AZIDE MODIFICATION METHOD (SM: PART 5210 B AND PART 4500-O C)	268	39.6	≤ 40	2.0
SUSPENDED SOLIDS °	mg/L	SUSPENDED SOLIDS DRIED AT 103-105 °C (SM: PART 2540 D)	57.5	23.6	≤ 50	5.0
TOTAL DISSOLVED SOLIDS °	mg/L	IN-HOUSE METHOD: UAE.TP.WAO.007 (TOTAL DISSOLVED SOLIDS DRIED AT 103-105 °C); SM: PART 2540 C	671	428	500*	25
SETTLABLE SOLIDS °	ml/L	IMHOFF CONE (SM: PART 2540 F)	< 0.1	0.1	≤ 0.5	0.1
SULPHIDE °	mg/L	IODOMETRIC METHOD (SM: PART 4500-S ₂ F)	1.8	< 0.50	≤ 3.0	0.50
TOTAL KJELDAHL NITROGEN °	mg/L	IN-HOUSE METHOD: UAE.TP.WAS.001 (KJELDAHL METHOD); SM: PART 4500-Norg C	94.4	36.2	≤ 40	15
FAT, OIL AND GREASE °	mg/L	LIQUID-LIQUID, PARTITION-GRAVIMETRIC METHOD (SM: PART 5520 B)	3	ND	≤ 20	3



PARAMETER	UNIT	METHOD OF ANALYSIS	RESULT		REGULATORY STANDARD	DETECTION LIMIT
			1 09:30 HOUR 1/ T23AU211-0007	2 09:20 HOUR 1/ T23AU211-0008		
MICROBIOLOGY						
COLIFORM BACTERIA ^b	MPN/100 mL	MULTIPLE-TUBE FERMENTATION TECHNIQUE (SM: PART 9221 B)	>160,000	>160,000	-	1.8
FAECAL COLIFORM BACTERIA ^b	MPN/100 mL	MULTIPLE-TUBE FERMENTATION TECHNIQUE (SM: PART 9221 E)	>160,000	>160,000	-	1.8
SAMPLE CONDITION						
WATER'S COLOUR/TURBID			YELLOW/TURBID	YELLOW/TURBID		
SEDIMENT			BROWN	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.

RESULT 1 : INFLUENT

RESULT 2 : EFFLUENT

REGULATORY STANDARD : RANGE OR MAXIMUM PERMITTED VALUE FOR BUILDING EFFLUENT STANDARDS CLASS C, NOTIFICATION OF THE MINISTRY OF RESOURCES AND ENVIRONMENT, PUBLISHED IN THE ROYAL GOVERNMENT GAZETTE, VOL 122, PART 125 D, DATED DECEMBER 29, 2005.

500* : PERMITTED EXCESS VALUE TO TOTAL DISSOLVED SOLIDS OF ACTUAL TAP WATER USED.

ND : NON-DETECTABLE.

(MRS PIYAPAT SUTTAMANUTWONG)
LABORATORY SUPERVISOR

OCTOBER 27, 2023

รายงานผลการติดตามตรวจสอบคุณภาพน้ำทิ้ง
เดือนพฤศจิกายน พ.ศ. 2566



ANALYSIS REPORT

CUSTOMER NAME	: ENERGY COMPLEX COMPANY LIMITED	RECEIVED DATE	: NOVEMBER 15, 2023
ADDRESS	: 555/1 VIBHAVADI-RANGSIT ROAD CHATUCHAK CHATUCHAK BANGKOK 10900	ANALYTICAL DATE	: NOVEMBER 15-21, 2023
CONTACT INFORMATION	: TEL : 091 794 5792 e-mail : safety.encony@gmail.com	REPORT NO.	: 2023-U101230
SAMPLING SOURCE	: อาคาร A ดิเจนโคพี พื้นที่ ปลด. รังสิต จังหวัดระยอง	WORK NO.	: 2023-002256
SAMPLE TYPE	: WASTEWATER	ANALYSIS NO.	: T23AW743-0001 - T23AW743-0002
SAMPLING DATE	: NOVEMBER 14, 2023		
SAMPLING TIME	: 1/		
SAMPLING METHOD °	: GRAB, GRAB AND STERILE TECHNIQUE		
SAMPLING BY °	: MR THANADET WANSANOR		
ANALYZED BY	: MISS ARIYA THARAROM		

PARAMETER	UNIT	METHOD OF ANALYSIS	RESULT		REGULATORY STANDARD	DETECTION LIMIT
			1 09:20 HOUR 1/ T23AW743-0001	2 09:10 HOUR 1/ T23AW743-0002		
pH °	-	ELECTROMETRIC METHOD (AT SITE) SM: PART 4500-H ⁺ B AND 1060 B	7.2 (30°C)	7.6 (31°C)	5-9	-
BIOCHEMICAL OXYGEN DEMAND °	mg/L	AZIDE MODIFICATION METHOD (SM: PART 5210 B AND PART 4500-O C)	224	12.3**	≤ 40	20
SUSPENDED SOLIDS °	mg/L	SUSPENDED SOLIDS DRIED AT 103-105 °C (SM: PART 2540 D)	524	ND	≤ 50	5.0
TOTAL DISSOLVED SOLIDS °	mg/L	IN-HOUSE METHOD: UAE.TP.WAO.007 (TOTAL DISSOLVED SOLIDS DRIED AT 103-105 °C); SM: PART 2540 C	567	486	500*	25
SETTLABLE SOLIDS °	mL/L	IMHOFF CONE (SM: PART 2540 F)	< 0.1	< 0.1	≤ 0.5	0.1
SULPHIDE °	mg/L	IODOMETRIC METHOD (SM: PART 4500-S ₂ F)	3.2	< 0.50	≤ 3.0	0.50
TOTAL KJELDAHL NITROGEN °	mg/L	IN-HOUSE METHOD: UAE.TP.WAS.001 (KJELDAHL METHOD); SM: PART 4500-Norg C	106	< LOQ	≤ 40	1.5
FAT, OIL AND GREASE °	mg/L	LIQUID-LIQUID, PARTITION-GRAVIMETRIC METHOD (SM: PART 5520 B)	5	ND	≤ 20	3



PARAMETER	UNIT	METHOD OF ANALYSIS	RESULT		REGULATORY STANDARD	DETECTION LIMIT
			1 09:20 HOUR 1/ T23AW743-0001	2 09:10 HOUR 1/ T23AW743-0002		
MICROBIOLOGY						
COLIFORM BACTERIA ^b	MPN/100 mL	MULTIPLE-TUBE FERMENTATION TECHNIQUE (SM: PART 9221 B)	>160,000	4,600	-	1.8
FAECAL COLIFORM BACTERIA ^b	MPN/100 mL	MULTIPLE-TUBE FERMENTATION TECHNIQUE (SM: PART 9221 E)	>160,000	4,600	-	1.8
SAMPLE CONDITION WATER'S COLOUR/TURBID SEDIMENT			YELLOW/TURBID BROWN	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.

RESULT 1 : INFLUENT

RESULT 2 : EFFLUENT

REGULATORY STANDARD : RANGE OR MAXIMUM PERMITTED VALUE FOR BUILDING EFFLUENT STANDARDS CLASS C, NOTIFICATION OF THE
MINISTRY OF RESOURCES AND ENVIRONMENT, PUBLISHED IN THE ROYAL GOVERNMENT GAZETTE, VOL 122,
PART 125 D, DATED DECEMBER 29, 2005.

500* : PERMITTED EXCESS VALUE TO TOTAL DISSOLVED SOLIDS OF ACTUAL TAP WATER USED.

** : ADDITION OF NITRIFICATION INHIBITION (TCMP) FOLLOW TO THE SM: 5210B.5(e).

ND : NON-DETECTABLE.

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

(MRS PIYAPAT SUTTAMANUTWONG)
LABORATORY SUPERVISOR

NOVEMBER 24, 2023

ANALYSIS REPORT

CUSTOMER NAME : ENERGY COMPLEX COMPANY LIMITED
ADDRESS : 555/1 VIBHAVADI-RANGSIT ROAD CHATUCHAK CHATUCHAK BANGKOK 10900
CONTACT INFORMATION : TEL : 091 794 5792 e-mail : safety.encony@gmail.com
SAMPLING SOURCE : อาคาร B ดิเอนโคน์ พื้นที่ ปตท. รังสิต จังหวัดระยอง
SAMPLE TYPE : WASTEWATER
SAMPLING DATE : NOVEMBER 14, 2023
SAMPLING TIME : 1/
SAMPLING METHOD ^c : GRAB, GRAB AND STERILE TECHNIQUE
SAMPLING BY ^c : MR THANADET WANSANOR
ANALYZED BY : MISS ARIYA THARAROM

RECEIVED DATE : NOVEMBER 15, 2023
ANALYTICAL DATE : NOVEMBER 15-21, 2023
REPORT NO. : 2023-U101231
WORK NO. : 2023-002256
ANALYSIS NO. : T23AW743-0003 - T23AW743-0004

PARAMETER	UNIT	METHOD OF ANALYSIS	RESULT		REGULATORY STANDARD	DETECTION LIMIT
			1 09:35 HOUR 1/ T23AW743-0003	2 08:55 HOUR 1/ T23AW743-0004		
pH ^c	-	ELECTROMETRIC METHOD (AT SITE) SM: PART 4500-H ⁺ B AND 1060 B	7.4 (29°C)	7.3 (30°C)	5-9	-
BIOCHEMICAL OXYGEN DEMAND ^c	mg/L	AZIDE MODIFICATION METHOD (SM: PART 5210 B AND PART 4500-O C)	234	11.3 **	≤ 40	2.0
SUSPENDED SOLIDS ^a	mg/L	SUSPENDED SOLIDS DRIED AT 103-105 °C (SM: PART 2540 D)	101	17.6	≤ 50	5.0
TOTAL DISSOLVED SOLIDS ^b	mg/L	IN-HOUSE METHOD: UAE.TP.WAO.007 (TOTAL DISSOLVED SOLIDS DRIED AT 103-105 °C); SM: PART 2540 C	532	452	500*	25
SETTLABLE SOLIDS ^c	mL/L	IMHOFF CONE (SM: PART 2540 F)	0.1	< 0.1	≤ 0.5	0.1
SULPHIDE ^c	mg/L	IODOMETRIC METHOD (SM: PART 4500-S ₂ F)	3.1	< 0.50	≤ 3.0	0.50
TOTAL KJELDAHL NITROGEN ^b	mg/L	IN-HOUSE METHOD: UAE.TP.WAS.001 (KJELDAHL METHOD); SM: PART 4500-Norg C	87.8	20.0	≤ 40	1.5
FAT, OIL AND GREASE ^c	mg/L	LIQUID-LIQUID, PARTITION-GRAVIMETRIC METHOD (SM: PART 5520 B)	5	ND	≤ 20	3



PARAMETER	UNIT	METHOD OF ANALYSIS	RESULT		REGULATORY STANDARD	DETECTION LIMIT
			1 09:35 HOUR 1/ T23AW743-0003	2 08:55 HOUR 1/ T23AW743-0004		
MICROBIOLOGY						
COLIFORM BACTERIA ^b	MPN/100 mL	MULTIPLE-TUBE FERMENTATION TECHNIQUE (SM: PART 9221 B)	>160,000	160,000	-	1.8
FAECAL COLIFORM BACTERIA ^b	MPN/100 mL	MULTIPLE-TUBE FERMENTATION TECHNIQUE (SM: PART 9221 E)	>160,000	160,000	-	1.8
SAMPLE CONDITION						
WATER'S COLOUR/TURBID			YELLOW/TURBID	YELLOW/TURBID		
SEDIMENT			BROWN	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.

RESULT 1 : INFLUENT

RESULT 2 : EFFLUENT

REGULATORY STANDARD : RANGE OR MAXIMUM PERMITTED VALUE FOR BUILDING EFFLUENT STANDARDS CLASS C, NOTIFICATION OF THE MINISTRY OF RESOURCES AND ENVIRONMENT, PUBLISHED IN THE ROYAL GOVERNMENT GAZETTE, VOL.122, PART 125 D, DATED DECEMBER 29, 2005.

500* : PERMITTED EXCESS VALUE TO TOTAL DISSOLVED SOLIDS OF ACTUAL TAP WATER USED.

** : ADDITION OF NITRIFICATION INHIBITION (TCMP) FOLLOW TO THE SM: 5210B,5(e).

ND : NON-DETECTABLE.

(MRS PIYAPAT SUTTAMANUTWONG)
LABORATORY SUPERVISOR

NOVEMBER 24, 2023

ANALYSIS REPORT

CUSTOMER NAME : ENERGY COMPLEX COMPANY LIMITED
ADDRESS : 555/1 VIBHAVADI-RANGSIT ROAD CHATUCHAK CHATUCHAK BANGKOK 10900
CONTACT INFORMATION : TEL : 091 794 5792 e-mail : safety.encony@gmail.com
SAMPLING SOURCE : อาคาร C ดีเอนโคเน่ พื้นที่ ปตท. วังจันทร์ จังหวัดระยอง
SAMPLE TYPE : WASTEWATER
SAMPLING DATE : NOVEMBER 14, 2023
SAMPLING TIME : 1/
SAMPLING METHOD ° : GRAB, GRAB AND STERILE TECHNIQUE
SAMPLING BY ° : MR THANADET WANSANOR
ANALYZED BY : MISS ARIYA THARAROM

RECEIVED DATE : NOVEMBER 15, 2023
ANALYTICAL DATE : NOVEMBER 15-21, 2023
REPORT NO. : 2023-U101232
WORK NO. : 2023-002256
ANALYSIS NO. : T23AW743-0005 - T23AW743-0006

PARAMETER	UNIT	METHOD OF ANALYSIS	RESULT		REGULATORY STANDARD	DETECTION LIMIT
			1 09:45 HOUR 1/ T23AW743-0005	2 08:45 HOUR 1/ T23AW743-0006		
pH °	-	ELECTROMETRIC METHOD (AT SITE) SM: PART 4500-H+ B AND 1060 B	7.4 (29°C)	7.3 (29°C)	5-9	-
BIOCHEMICAL OXYGEN DEMAND °	mg/L	AZIDE MODIFICATION METHOD (SM: PART 5210 B AND PART 4500-O C)	224	10.3 **	≤ 40	2.0
SUSPENDED SOLIDS °	mg/L	SUSPENDED SOLIDS DRIED AT 103-105 °C (SM: PART 2540 D)	86.7	17.6	≤ 50	5.0
TOTAL DISSOLVED SOLIDS °	mg/L	IN-HOUSE METHOD: UAE.TP.WAO.007 (TOTAL DISSOLVED SOLIDS DRIED AT 103-105 °C); SM: PART 2540 C	542	448	500*	25
SETTLEABLE SOLIDS °	mL/L	IMHOFF CONE (SM: PART 2540 F)	0.1	0.1	≤ 0.5	0.1
SULPHIDE °	mg/L	IODOMETRIC METHOD (SM: PART 4500-S ₂ -F)	3.3	< 0.50	≤ 3.0	0.50
TOTAL KJELDAHL NITROGEN °	mg/L	IN-HOUSE METHOD: UAE.TP.WAS.001 (KJELDAHL METHOD); SM: PART 4500-Norg C	86.1	22.5	≤ 40	1.5
FAT, OIL AND GREASE °	mg/L	LIQUID-LIQUID, PARTITION-GRAVIMETRIC METHOD (SM: PART 5520 B)	8	ND	≤ 20	3



PARAMETER	UNIT	METHOD OF ANALYSIS	RESULT		REGULATORY STANDARD	DETECTION LIMIT
			1 09:45 HOUR 1/ T23AW743-0005	2 08:45 HOUR 1/ T23AW743-0006		
MICROBIOLOGY						
COLIFORM BACTERIA ^b	MPN/100 mL	MULTIPLE-TUBE FERMENTATION TECHNIQUE (SM: PART 9221 B)	>160,000	160,000	-	1.8
FAECAL COLIFORM BACTERIA ^b	MPN/100 mL	MULTIPLE-TUBE FERMENTATION TECHNIQUE (SM: PART 9221 E)	>160,000	160,000	-	1.8
SAMPLE CONDITION						
WATER'S COLOUR/TURBID SEDIMENT			YELLOW/TURBID BROWN	YELLOW/TURBID BROWN		

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

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

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

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

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

RESULT 1 : INFLUENT

RESULT 2 : EFFLUENT

REGULATORY STANDARD : RANGE OR MAXIMUM PERMITTED VALUE FOR BUILDING EFFLUENT STANDARDS CLASS C, NOTIFICATION OF THE MINISTRY OF RESOURCES AND ENVIRONMENT, PUBLISHED IN THE ROYAL GOVERNMENT GAZETTE, VOL 122, PART 125 D, DATED DECEMBER 29, 2005.

500* : PERMITTED EXCESS VALUE TO TOTAL DISSOLVED SOLIDS OF ACTUAL TAP WATER USED.

** : ADDITION OF NITRIFICATION INHIBITION (TCMP) FOLLOW TO THE SM: 5210B.5(e).

ND : NON-DETECTABLE.

(MRS PIYAPAT SUTTAMANUTWONG)
LABORATORY SUPERVISOR

NOVEMBER 24, 2023

ANALYSIS REPORT

CUSTOMER NAME : ENERGY COMPLEX COMPANY LIMITED
ADDRESS : 555/1 VIBHAVADI-RANGSIT ROAD CHATUCHAK CHATUCHAK BANGKOK 10900
CONTACT INFORMATION : TEL : 091 794 5792 e-mail : safety.encony@gmail.com
SAMPLING SOURCE : อาคาร D ดิเอนโคณี พื้นที่ ปลดท. รังจันทร จังหรัศระยอง
SAMPLE TYPE : WASTEWATER
SAMPLING DATE : NOVEMBER 14, 2023
SAMPLING TIME : 1/
SAMPLING METHOD ° : GRAB, GRAB AND STERILE TECHNIQUE
SAMPLING BY ° : MR THANADET WANSANOR
ANALYZED BY : MISS ARIYA THARAROM

RECEIVED DATE : NOVEMBER 15, 2023
ANALYTICAL DATE : NOVEMBER 15-21, 2023
REPORT NO. : 2023-U101233
WORK NO. : 2023-002256
ANALYSIS NO. : T23AW743-0007 - T23AW743-0008

PARAMETER	UNIT	METHOD OF ANALYSIS	RESULT		REGULATORY STANDARD	DETECTION LIMIT
			1 08:30 HOUR 1/ T23AW743-0007	2 08:10 HOUR 1/ T23AW743-0008		
pH °	-	ELECTROMETRIC METHOD (AT SITE) SM: PART 4500-H+ B AND 1060 B	7.0 (29°C)	7.1 (30°C)	5-9	-
BIOCHEMICAL OXYGEN DEMAND °	mg/L	AZIDE MODIFICATION METHOD (SM: PART 5210 B AND PART 4500-O C)	218	135**	≤ 40	2.0
SUSPENDED SOLIDS °	mg/L	SUSPENDED SOLIDS DRIED AT 103-105 °C (SM: PART 2540 D)	57.4	32.0	≤ 50	5.0
TOTAL DISSOLVED SOLIDS °	mg/L	IN-HOUSE METHOD: UAE.TP.WAO.007 (TOTAL DISSOLVED SOLIDS DRIED AT 103-105 °C); SM: PART 2540 C	523	470	500*	25
SETTLABLE SOLIDS °	mL/L	IMHOFF CONE (SM: PART 2540 F)	< 0.1	1.4	≤ 0.5	0.1
SULPHIDE °	mg/L	IODOMETRIC METHOD (SM: PART 4500-S ₂ -F)	3.1	< 0.50	≤ 3.0	0.50
TOTAL KJELDAHL NITROGEN ° b	mg/L	IN-HOUSE METHOD: UAE.TP.WAS.001 (KJELDAHL METHOD); SM: PART 4500-Norg C	103	51.1	≤ 40	1.5
FAT, OIL AND GREASE °	mg/L	LIQUID-LIQUID, PARTITION-GRAVIMETRIC METHOD (SM: PART 5520 B)	9	ND	≤ 20	3



PARAMETER	UNIT	METHOD OF ANALYSIS	RESULT		REGULATORY STANDARD	DETECTION LIMIT
			1 08:30 HOUR 1/ T23AW743-0007	2 08:10 HOUR 1/ T23AW743-0008		
MICROBIOLOGY						
COLIFORM BACTERIA ^b	MPN/100 mL	MULTIPLE-TUBE FERMENTATION TECHNIQUE (SM: PART 9221 B)	>160,000	160,000	-	1.8
FAECAL COLIFORM BACTERIA ^b	MPN/100 mL	MULTIPLE-TUBE FERMENTATION TECHNIQUE (SM: PART 9221 E)	>160,000	160,000	-	1.8
SAMPLE CONDITION WATER'S COLOUR/TURBID SEDIMENT			YELLOW/TURBID BROWN	YELLOW/TURBID BROWN		

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

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

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

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

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

RESULT 1 : INFLUENT

RESULT 2 : EFFLUENT

REGULATORY STANDARD : RANGE OR MAXIMUM PERMITTED VALUE FOR BUILDING EFFLUENT STANDARDS CLASS C, NOTIFICATION OF THE MINISTRY OF RESOURCES AND ENVIRONMENT, PUBLISHED IN THE ROYAL GOVERNMENT GAZETTE, VOL.122, PART 125 D, DATED DECEMBER 29, 2005.

500* : PERMITTED EXCESS VALUE TO TOTAL DISSOLVED SOLIDS OF ACTUAL TAP WATER USED.

** : ADDITION OF NITRIFICATION INHIBITION (TCMP) FOLLOW TO THE SM: 5210B.5(e).

ND : NON-DETECTABLE.

(MRS PIYAPAT SUTTAMANUTWONG)
LABORATORY SUPERVISOR

NOVEMBER 24, 2023

ANALYSIS REPORT

CUSTOMER NAME : ENERGY COMPLEX COMPANY LIMITED
ADDRESS : 555/1 VIBHAVADI-RANGSIT ROAD CHATUCHAK CHATUCHAK BANGKOK 10900
CONTACT INFORMATION : TEL : 091 794 5792 e-mail : safety.encony@gmail.com
SAMPLING SOURCE : ดิเอนโคณ์ พื้นที่ ปตท. วั่งจันทร จัังหวัดระยอง
SAMPLE TYPE : WATER SUPPLY
SAMPLING DATE : NOVEMBER 14, 2023
SAMPLING TIME : 08:05 HOUR
SAMPLING METHOD ° : GRAB
SAMPLING BY ° : MR THANADET WANSANOR
ANALYZED BY : MISS NAPAPORN KHUNNOKKHUM

RECEIVED DATE : NOVEMBER 15, 2023
ANALYTICAL DATE : NOVEMBER 15-20, 2023
REPORT NO. : 2023-U101235
WORK NO. : 2023-002256
ANALYSIS NO. : T23AW743-0010

PARAMETER	UNIT	METHOD OF ANALYSIS	RESULT	REGULATORY STANDARD	DETECTION LIMIT
			WATER SUPPLY (ภายในโครงการ) T23AW743-0010		
TOTAL DISSOLVED SOLIDS ^b	mg/L	TOTAL DISSOLVED SOLIDS DRIED AT 180 °C (SM: PART 2540 C)	256	≤ 1,000	25
SAMPLE CONDITION WATER'S COLOUR/TURBID SEDIMENT			COLOURLESS/CLEAR		

^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.

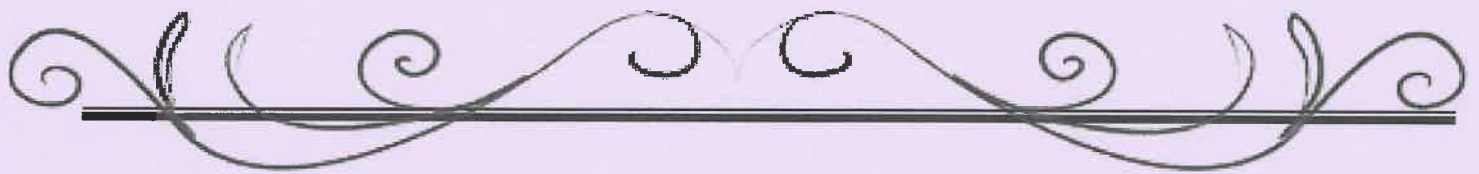
REGULATORY STANDARD : WATER SUPPLY STANDARDS, NOTIFICATION OF THE PROVINCIAL WATERWORKS AUTHORITY FOLLOW AS WORLD HEALTH ORGANIZATION (WHO) GUIDELINE VALUE, B.E. 2560 (2017).

(MRS PIYAPAT SUTTAMANUTWONG)
LABORATORY SUPERVISOR

NOVEMBER 24, 2023



รายงานผลการติดตามตรวจสอบคุณภาพน้ำทิ้ง
เดือนธันวาคม พ.ศ. 2566



ANALYSIS REPORT

CUSTOMER NAME	: ENERGY COMPLEX COMPANY LIMITED	RECEIVED DATE	: DECEMBER 13, 2023
ADDRESS	: 555/1 VIBHAVADI-RANGSIT ROAD CHATUCHAK CHATUCHAK BANGKOK 10900	ANALYTICAL DATE	: DECEMBER 13-20, 2023
CONTACT INFORMATION	: TEL : 091 794 5792 e-mail : safety.encony@gmail.com	REPORT NO.	: 2023-U110122
SAMPLING SOURCE	: อาคาร A ดีเอนโคเน่ พื้นที่ ปตท. รังสิต จังหวัดระยอง	WORK NO.	: 2023-002256
SAMPLE TYPE	: WASTEWATER	ANALYSIS NO.	: T23AY837-0001 - T23AY837-0002
SAMPLING DATE	: DECEMBER 12, 2023		
SAMPLING TIME	: 1/		
SAMPLING METHOD °	: GRAB, GRAB AND STERILE TECHNIQUE		
SAMPLING BY °	: MR CHAI BUASOD		
ANALYZED BY	: MISS ARIYA THARAROM		

PARAMETER	UNIT	METHOD OF ANALYSIS	RESULT		REGULATORY STANDARD	DETECTION LIMIT
			1 08:15 HOUR 1/ T23AY837-0001	2 08:00 HOUR 1/ T23AY837-0002		
pH °	-	ELECTROMETRIC METHOD (AT SITE) SM: PART 4500-H ⁺ B AND 1060 B	7.3 (30°C)	7.6 (31°C)	5-9	-
BIOCHEMICAL OXYGEN DEMAND °	mg/L	AZIDE MODIFICATION METHOD (SM: PART 5210 B AND PART 4500-O C)	157	ND	≤ 40	2.0
SUSPENDED SOLIDS °	mg/L	SUSPENDED SOLIDS DRIED AT 103-105 °C (SM: PART 2540 D)	60.8	ND	≤ 50	5.0
TOTAL DISSOLVED SOLIDS °	mg/L	IN-HOUSE METHOD: UAE.TP.WAO.007 (TOTAL DISSOLVED SOLIDS DRIED AT 103-105 °C); SM: PART 2540 C	585	481	500*	25
SETTLABLE SOLIDS °	mL/L	IMHOFF CONE (SM: PART 2540 F)	0.2	< 0.1	≤ 0.5	0.1
SULPHIDE °	mg/L	IODOMETRIC METHOD (SM: PART 4500-S ² -F)	1.8	< 0.50	≤ 3.0	0.50
TOTAL KJELDAHL NITROGEN °	mg/L	IN-HOUSE METHOD: UAE.TP.WAS.001 (KJELDAHL METHOD); SM: PART 4500-Norg C	912	9.5	≤ 40	1.5
FAT, OIL AND GREASE °	mg/L	LIQUID-LIQUID, PARTITION-GRAVIMETRIC METHOD (SM: PART 5520 B)	13	ND	≤ 20	3



PARAMETER	UNIT	METHOD OF ANALYSIS	RESULT		REGULATORY STANDARD	DETECTION LIMIT
			1 08:15 HOUR 1/ T23AY837-0001	2 08:00 HOUR 1/ T23AY837-0002		
MICROBIOLOGY						
COLIFORM BACTERIA ^b	MPN/100 mL	MULTIPLE-TUBE FERMENTATION TECHNIQUE (SM: PART 9221 B)	>160,000	24,000	-	1.8
FAECAL COLIFORM BACTERIA ^b	MPN/100 mL	MULTIPLE-TUBE FERMENTATION TECHNIQUE (SM: PART 9221 E)	>160,000	7,900	-	1.8
SAMPLE CONDITION						
WATER'S COLOUR/TURBID SEDIMENT			YELLOW/TURBID BROWN	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.

RESULT 1 : INFLUENT

RESULT 2 : EFFLUENT

REGULATORY STANDARD : RANGE OR MAXIMUM PERMITTED VALUE FOR BUILDING EFFLUENT STANDARDS CLASS C, NOTIFICATION OF THE MINISTRY OF RESOURCES AND ENVIRONMENT, PUBLISHED IN THE ROYAL GOVERNMENT GAZETTE, VOL 122, PART 125 D, DATED DECEMBER 29, 2005.

500* : PERMITTED EXCESS VALUE TO TOTAL DISSOLVED SOLIDS OF ACTUAL TAP WATER USED.

BIOCHEMICAL OXYGEN DEMAND (T23AY837-0002) : ADDITION OF NITRIFICATION INHIBITION (TCMP) FOLLOW TO THE SM: 5210B,5(e).

ND : NON-DETECTABLE.

(MISS BENJAWAN VIRIYOTHAI)
LABORATORY SUPERVISOR

DECEMBER 21, 2023

ANALYSIS REPORT

CUSTOMER NAME	: ENERGY COMPLEX COMPANY LIMITED	RECEIVED DATE	: DECEMBER 13, 2023
ADDRESS	: 555/1 VIBHAVADI-RANGSIT ROAD CHATUCHAK CHATUCHAK BANGKOK 10900	ANALYTICAL DATE	: DECEMBER 13-20, 2023
CONTACT INFORMATION	: TEL : 091 794 5792 e-mail : safety.encony@gmail.com	REPORT NO.	: 2023-U110123
SAMPLING SOURCE	: อาคาร B ดิเจนโคน์ พื้นที่ ปตท. รังสิต จังหวัดระยอง	WORK NO.	: 2023-002256
SAMPLE TYPE	: WASTEWATER	ANALYSIS NO.	: T23AY837-0003 - T23AY837-0004
SAMPLING DATE	: DECEMBER 12, 2023		
SAMPLING TIME	: 1/		
SAMPLING METHOD °	: GRAB, GRAB AND STERILE TECHNIQUE		
SAMPLING BY °	: MR CHAI BUASOD		
ANALYZED BY	: MISS ARIYA THARAROM		

PARAMETER	UNIT	METHOD OF ANALYSIS	RESULT		REGULATORY STANDARD	DETECTION LIMIT
			1 08:35 HOUR 1/ T23AY837-0003	2 08:20 HOUR 1/ T23AY837-0004		
pH °	-	ELECTROMETRIC METHOD (AT SITE) SM: PART 4500-H ⁺ B AND 1060 B	7.5 (30°C)	7.1 (30°C)	5-9	-
BIOCHEMICAL OXYGEN DEMAND °	mg/L	AZIDE MODIFICATION METHOD (SM: PART 5210 B AND PART 4500-O C)	178	3.6	≤ 40	2.0
SUSPENDED SOLIDS °	mg/L	SUSPENDED SOLIDS DRIED AT 103-105 °C (SM: PART 2540 D)	64.6	10.7	≤ 50	5.0
TOTAL DISSOLVED SOLIDS °	mg/L	IN-HOUSE METHOD: UAE.TP.WAO.007 (TOTAL DISSOLVED SOLIDS DRIED AT 103-105 °C); SM: PART 2540 C	580	568	500°	25
SETTLABLE SOLIDS °	mL/L	IMHOFF CONE (SM: PART 2540 F)	< 0.1	< 0.1	≤ 0.5	0.1
SULPHIDE °	mg/L	IODOMETRIC METHOD (SM: PART 4500-S ²⁻ F)	1.9	< 0.50	≤ 3.0	0.50
TOTAL KJELDAHL NITROGEN °	mg/L	IN-HOUSE METHOD: UAE.TP.WAS.001 (KJELDAHL METHOD); SM: PART 4500-Norg C	65.1	< LOQ	≤ 40	1.5
FAT, OIL AND GREASE °	mg/L	LIQUID-LIQUID, PARTITION-GRAVIMETRIC METHOD (SM: PART 5520 B)	10	ND	≤ 20	3



PARAMETER	UNIT	METHOD OF ANALYSIS	RESULT		REGULATORY STANDARD	DETECTION LIMIT
			1 08:35 HOUR 1/ T23AY837-0003	2 08:20 HOUR 1/ T23AY837-0004		
MICROBIOLOGY						
COLIFORM BACTERIA ^b	MPN/100 mL	MULTIPLE-TUBE FERMENTATION TECHNIQUE (SM: PART 9221 B)	>160,000	54,000	-	1.8
FAECAL COLIFORM BACTERIA ^b	MPN/100 mL	MULTIPLE-TUBE FERMENTATION TECHNIQUE (SM: PART 9221 E)	>160,000	22,000	-	1.8
SAMPLE CONDITION						
WATER'S COLOUR/TURBID SEDIMENT			YELLOW/TURBID BROWN	YELLOW/TURBID BROWN		

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

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

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

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

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

RESULT 1 : INFLUENT

RESULT 2 : EFFLUENT

REGULATORY STANDARD : RANGE OR MAXIMUM PERMITTED VALUE FOR BUILDING EFFLUENT STANDARDS CLASS C, NOTIFICATION OF THE MINISTRY OF RESOURCES AND ENVIRONMENT, PUBLISHED IN THE ROYAL GOVERNMENT GAZETTE, VOL 122, PART 125 D, DATED DECEMBER 29, 2005.

500* : PERMITTED EXCESS VALUE TO TOTAL DISSOLVED SOLIDS OF ACTUAL TAP WATER USED.

BIOCHEMICAL OXYGEN DEMAND (T23AY837-0004) : ADDITION OF NITRIFICATION INHIBITION (TCMP) FOLLOW TO THE SM: 5210B.5(e).

ND : NON-DETECTABLE.

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

(MISS BENJAWAN VIRIYOTHAI)
LABORATORY SUPERVISOR

DECEMBER 21, 2023

ANALYSIS REPORT

CUSTOMER NAME	: ENERGY COMPLEX COMPANY LIMITED	RECEIVED DATE	: DECEMBER 13, 2023
ADDRESS	: 555/1 VIBHAVADI-RANGSIT ROAD CHATUCHAK CHATUCHAK BANGKOK 10900	ANALYTICAL DATE	: DECEMBER 13-20, 2023
CONTACT INFORMATION	: TEL : 091 794 5792 e-mail : safety.encony@gmail.com	REPORT NO.	: 2023-U110124
SAMPLING SOURCE	: อาคาร C ดิเอนโคน์ พื้นที่ ปตท. รังสิต จังหวัดระยอง	WORK NO.	: 2023-002256
SAMPLE TYPE	: WASTEWATER	ANALYSIS NO.	: T23AY837-0005 - T23AY837-0006
SAMPLING DATE	: DECEMBER 12, 2023		
SAMPLING TIME	: 1/		
SAMPLING METHOD °	: GRAB, GRAB AND STERILE TECHNIQUE		
SAMPLING BY °	: MR CHAI BUASOD		
ANALYZED BY	: MISS ARIYA THARAROM		

PARAMETER	UNIT	METHOD OF ANALYSIS	RESULT		REGULATORY STANDARD	DETECTION LIMIT
			1 08:30 HOUR 1/ T23AY837-0005	2 08:25 HOUR 1/ T23AY837-0006		
pH °	-	ELECTROMETRIC METHOD (AT SITE) SM: PART 4500-H ⁺ B AND 1060 B	7.4 (30°C)	7.1 (30°C)	5-9	-
BIOCHEMICAL OXYGEN DEMAND °	mg/L	AZIDE MODIFICATION METHOD (SM: PART 5210 B AND PART 4500-O C)	163	2.7	≤ 40	2.0
SUSPENDED SOLIDS °	mg/L	SUSPENDED SOLIDS DRIED AT 103-105 °C (SM: PART 2540 D)	59.8	9.1	≤ 50	5.0
TOTAL DISSOLVED SOLIDS °	mg/L	IN-HOUSE METHOD: UAE.TP.WAO.007 (TOTAL DISSOLVED SOLIDS DRIED AT 103-105 °C); SM: PART 2540 C	598	638	500*	25
SETTLEABLE SOLIDS °	mL/L	IMHOFF CONE (SM: PART 2540 F)	0.1	< 0.1	≤ 0.5	0.1
SULPHIDE °	mg/L	IODOMETRIC METHOD (SM: PART 4500-S ²⁻ F)	3.0	< 0.50	≤ 3.0	0.50
TOTAL KJELDAHL NITROGEN °	mg/L	IN-HOUSE METHOD: UAE.TP.WAS.001 (KJELDAHL METHOD); SM: PART 4500-Norg C	66.9	< LOQ	≤ 40	1.5
FAT, OIL AND GREASE °	mg/L	LIQUID-LIQUID, PARTITION-GRAVIMETRIC METHOD (SM: PART 5520 B)	12	ND	≤ 20	3



PARAMETER	UNIT	METHOD OF ANALYSIS	RESULT		REGULATORY STANDARD	DETECTION LIMIT
			1 08:30 HOUR 1/ T23AY837-0005	2 08:25 HOUR 1/ T23AY837-0006		
MICROBIOLOGY						
COLIFORM BACTERIA ^b	MPN/100 mL	MULTIPLE-TUBE FERMENTATION TECHNIQUE (SM: PART 9221B)	>160,000	54,000	-	1.8
FAECAL COLIFORM BACTERIA ^b	MPN/100 mL	MULTIPLE-TUBE FERMENTATION TECHNIQUE (SM: PART 9221E)	>160,000	54,000	-	1.8
SAMPLE CONDITION						
WATER'S COLOUR/TURBID SEDIMENT			YELLOW/TURBID BROWN	YELLOW/TURBID BROWN		

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

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

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

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

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

RESULT 1 : INFLUENT

RESULT 2 : EFFLUENT

REGULATORY STANDARD : RANGE OR MAXIMUM PERMITTED VALUE FOR BUILDING EFFLUENT STANDARDS CLASS C, NOTIFICATION OF THE MINISTRY OF RESOURCES AND ENVIRONMENT, PUBLISHED IN THE ROYAL GOVERNMENT GAZETTE, VOL 122, PART 125 D, DATED DECEMBER 29, 2005.

500* : PERMITTED EXCESS VALUE TO TOTAL DISSOLVED SOLIDS OF ACTUAL TAP WATER USED.

BIOCHEMICAL OXYGEN DEMAND (T23AY837-0006) : ADDITION OF NITRIFICATION INHIBITION (TCMP) FOLLOW TO THE SM: 5210B.5(e).

ND : NON-DETECTABLE.

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

(MISS BENJAWAN VIRIYOTHAI)
LABORATORY SUPERVISOR

DECEMBER 21, 2023

ANALYSIS REPORT

CUSTOMER NAME : ENERGY COMPLEX COMPANY LIMITED
ADDRESS : 555/1 VIBHAVADI-RANGSIT ROAD CHATUCHAK CHATUCHAK BANGKOK 10900
CONTACT INFORMATION : TEL : 091 794 5792 e-mail : safety.encony@gmail.com
SAMPLING SOURCE : อาคาร D ดิเอนโคนี พื้นที่ ปตท. วังจันทร์ จังหวัดระยอง
SAMPLE TYPE : WASTEWATER
SAMPLING DATE : DECEMBER 12, 2023
SAMPLING TIME : 1/
SAMPLING METHOD ° : GRAB, GRAB AND STERILE TECHNIQUE
SAMPLING BY ° : MR CHAI BUASOD
ANALYZED BY : MISS ARIYA THARAROM

RECEIVED DATE : DECEMBER 13, 2023
ANALYTICAL DATE : DECEMBER 13-20, 2023
REPORT NO. : 2023-U110125
WORK NO. : 2023-002256
ANALYSIS NO. : T23AY837-0007 - T23AY837-0008

PARAMETER	UNIT	METHOD OF ANALYSIS	RESULT		REGULATORY STANDARD	DETECTION LIMIT
			1 09:25 HOUR 1/ T23AY837-0007	2 09:30 HOUR 1/ T23AY837-0008		
pH °	-	ELECTROMETRIC METHOD (AT SITE) SM: PART 4500-H* B AND 1060 B	7.0 (29°C)	7.4 (29°C)	5-9	-
BIOCHEMICAL OXYGEN DEMAND °	mg/L	AZIDE MODIFICATION METHOD (SM: PART 5210 B AND PART 4500-O C)	221	6.1	≤ 40	2.0
SUSPENDED SOLIDS °	mg/L	SUSPENDED SOLIDS DRIED AT 103-105 °C (SM: PART 2540 D)	89.6	11.0	≤ 50	5.0
TOTAL DISSOLVED SOLIDS °	mg/L	IN-HOUSE METHOD: UAE.TP.WAO.007 (TOTAL DISSOLVED SOLIDS DRIED AT 103-105 °C); SM: PART 2540 C	611	513	500*	25
SETTLEABLE SOLIDS °	mL/L	IMHOFF CONE (SM: PART 2540 F)	1.0	0.1	≤ 0.5	0.1
SULPHIDE °	mg/L	IODOMETRIC METHOD (SM: PART 4500-S² F)	2.4	< 0.50	≤ 3.0	0.50
TOTAL KJELDAHL NITROGEN °	mg/L	IN-HOUSE METHOD: UAE.TP.WAS.001 (KJELDAHL METHOD); SM: PART 4500-Norg C	90.0	10.6	≤ 40	1.5
FAT, OIL AND GREASE °	mg/L	LIQUID-LIQUID, PARTITION-GRAVIMETRIC METHOD (SM: PART 5520 B)	24	ND	≤ 20	3



PARAMETER	UNIT	METHOD OF ANALYSIS	RESULT		REGULATORY STANDARD	DETECTION LIMIT
			1 09:25 HOUR 1/ T23AY837-0007	2 09:30 HOUR 1/ T23AY837-0008		
MICROBIOLOGY						
COLIFORM BACTERIA ^b	MPN/100 mL	MULTIPLE-TUBE FERMENTATION TECHNIQUE (SM: PART 9221 B)	>160,000	>160,000	-	1.8
FAECAL COLIFORM BACTERIA ^b	MPN/100 mL	MULTIPLE-TUBE FERMENTATION TECHNIQUE (SM: PART 9221 E)	>160,000	>160,000	-	1.8
SAMPLE CONDITION						
WATER'S COLOUR/TURBID			YELLOW/TURBID	YELLOW/TURBID		
SEDIMENT			BROWN	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.

RESULT 1 : INFLUENT

RESULT 2 : EFFLUENT

REGULATORY STANDARD : RANGE OR MAXIMUM PERMITTED VALUE FOR BUILDING EFFLUENT STANDARDS CLASS C, NOTIFICATION OF THE MINISTRY OF RESOURCES AND ENVIRONMENT, PUBLISHED IN THE ROYAL GOVERNMENT GAZETTE, VOL 122, PART 125 D, DATED DECEMBER 29, 2005.

500* : PERMITTED EXCESS VALUE TO TOTAL DISSOLVED SOLIDS OF ACTUAL TAP WATER USED.

BIOCHEMICAL OXYGEN DEMAND (T23AY837-0008) : ADDITION OF NITRIFICATION INHIBITION (TCMP) FOLLOW TO THE SM: 5210B.5(e).

ND : NON-DETECTABLE.

(MISS BENJAWAN VIRIYOTHAI)
LABORATORY SUPERVISOR

DECEMBER 21, 2023

ANALYSIS REPORT

CUSTOMER NAME : ENERGY COMPLEX COMPANY LIMITED
ADDRESS : 555/1 VIBHAVADI-RANGSIT ROAD CHATUCHAK CHATUCHAK BANGKOK 10900
CONTACT INFORMATION : TEL : 091 794 5792 e-mail : safety.encony@gmail.com
SAMPLING SOURCE : ดิเอนโคนี พื้นที่ ปตท. วัจจันท์ จังหวัตรระยอง
SAMPLE TYPE : WATER SUPPLY
SAMPLING DATE : DECEMBER 12, 2023
SAMPLING TIME : 08:53 HOUR
SAMPLING METHOD ^c : GRAB
SAMPLING BY ^c : MR CHAI BUASOD
ANALYZED BY : MISS NAPAPORN KHUNNOKKHUM

RECEIVED DATE : DECEMBER 13, 2023
ANALYTICAL DATE : DECEMBER 13-19, 2023
REPORT NO. : 2023-U110126
WORK NO. : 2023-002256
ANALYSIS NO. : T23AY837-0009

PARAMETER	UNIT	METHOD OF ANALYSIS	RESULT	REGULATORY STANDARD	DETECTION LIMIT
			WATER SUPPLY (ภายในโครงการ) T23AY837-0009		
TOTAL DISSOLVED SOLIDS ^b	mg/L	TOTAL DISSOLVED SOLIDS DRIED AT 180 °C (SM: PART 2540 C)	271	≤ 1,000	25
SAMPLE CONDITION WATER'S COLOUR/TURBID SEDIMENT			COLOURLESS/-		

^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 : WATER SUPPLY STANDARDS, NOTIFICATION OF THE PROVINCIAL WATERWORKS AUTHORITY FOLLOW AS WORLD HEALTH ORGANIZATION (WHO) GUIDELINE VALUE, B.E. 2560 (2017).

(MISS BENJAWAN VIRIYOTHAI)
LABORATORY SUPERVISOR

DECEMBER 21, 2023



รายงานผลการติดตามตรวจสอบคุณภาพอากาศในบรรยากาศโดยทั่วไป



ANALYSIS REPORT

CUSTOMER NAME : ENERGY COMPLEX COMPANY LIMITED
ADDRESS : 555/1 VIBHAVADI-RANGSIT ROAD CHATUCHAK CHATUCHAK BANGKOK 10900
CONTACT INFORMATION : TEL : 098 276 3860 e-mail : Kitsada.s@pttbsacl.com
SAMPLING SOURCE : ภายในพื้นที่โครงการ ด้านทิศตะวันออกติดกับสถาบันวิทยสิริเมธี
SAMPLE TYPE : AMBIENT
SAMPLING DATE : *
SAMPLING TIME : *
SAMPLING BY : MR SUPAKORN RINWONG
ANALYZED BY : MISS JETJARIN TUMSA-AT
RECEIVED DATE : SEPTEMBER 15, 2023
ANALYTICAL DATE : SEPTEMBER 15-18, 2023
REPORT NO. : 2023-U079639
WORK NO. : 2023-002256
ANALYSIS NO. : T23AS257-0001

PARAMETER	UNIT	METHOD OF ANALYSIS	RESULT
			ภายในพื้นที่โครงการ ด้านทิศตะวันออก ติดกับสถาบันวิทยสิริเมธี T23AS257-0001
TOTAL SUSPENDED PARTICULATE MATTER	mg/m ³	GRAVIMETRIC (HIGH VOLUME METHOD)	0.023
PARTICULATE MATTER (≤ 10 μm)	mg/m ³	GRAVIMETRIC (HIGH VOLUME METHOD)	0.011
SAMPLE CONDITION			COMPLETE

REMARK

TSP, PM10 : REFERENCE CONDITION IS 25 DEGREE CELSIUS AT 1 ATMOSPHERE.
TSP : US EPA, CODE OF FEDERAL REGULATIONS, 40 CFR CHAPTER I-PART 50 APPENDIX B, REFERENCE METHOD FOR THE DETERMINATION OF SUSPENDED PARTICULATE MATTER IN THE ATMOSPHERE (HIGH-VOLUME METHOD) REVISED AS OF JULY 1, 2021.
PM10 : US EPA, CODE OF FEDERAL REGULATIONS, 40 CFR CHAPTER I-PART 50 APPENDIX J, REFERENCE METHOD FOR THE DETERMINATION OF PARTICULATE MATTER AS PM10 IN THE ATMOSPHERE (HIGH-VOLUME METHOD) REVISED AS OF JULY 1, 2021.
* : SAMPLING FROM 10:00 HOUR ON SEPTEMBER 11, 2023 TO 10:00 HOUR ON SEPTEMBER 12, 2023.

(MISS BUDSAKORN LERDPANUMAS)
LABORATORY SUPERVISOR

SEPTEMBER 20, 2023



ANALYSIS REPORT

CUSTOMER NAME : ENERGY COMPLEX COMPANY LIMITED
ADDRESS : 555/1 VIBHAVADI-RANGSIT ROAD CHATUCHAK CHATUCHAK BANGKOK 10900
CONTACT INFORMATION : TEL : 098 276 3860 e-mail : Kitsada.s@pttbsacl.com
MEASURING PLACE : ภายในพื้นที่โครงการ ด้านทิศตะวันออกติดกับสถาบันวิทยสิริเมธี
MEASURING TYPE : AMBIENT (AIR) **RECEIVED DATE** : SEPTEMBER 11-12, 2023
MEASURING DATE : SEPTEMBER 11-12, 2023 **ANALYTICAL DATE** : SEPTEMBER 11-12, 2023
MEASURING TIME : * **REPORT NO.** : 2023-U080896
MEASURING METHOD : NON-DISPERSIVE INFRARED DETECTION **WORK NO.** : 2023-002256
MEASURED BY : MR SUPAKORN RINWONG **ANALYSIS NO.** : T23AS257-0001

TIME *	RESULT (ppm)
	CARBON MONOXIDE
	ภายในพื้นที่โครงการ ด้านทิศตะวันออกติดกับสถาบันวิทยสิริเมธี
	SEPTEMBER 11-12, 2023 T23AS257-0001
10:00-11:00 HOUR	1.17
11:00-12:00 HOUR	1.07
12:00-13:00 HOUR	1.04
13:00-14:00 HOUR	1.08
14:00-15:00 HOUR	1.14
15:00-16:00 HOUR	1.21
16:00-17:00 HOUR	1.30
17:00-18:00 HOUR	1.40
18:00-19:00 HOUR	1.52
19:00-20:00 HOUR	1.53
20:00-21:00 HOUR	1.48
21:00-22:00 HOUR	1.37
22:00-23:00 HOUR	1.31
23:00-00:00 HOUR	1.22
00:00-01:00 HOUR	1.13
01:00-02:00 HOUR	1.07
02:00-03:00 HOUR	1.04
03:00-04:00 HOUR	1.06
04:00-05:00 HOUR	1.12
05:00-06:00 HOUR	1.24
06:00-07:00 HOUR	1.35
07:00-08:00 HOUR	1.41
08:00-09:00 HOUR	1.41
09:00-10:00 HOUR	1.33

(MR SILA BANJONGJAIKUK)
LABORATORY SUPERVISOR

SEPTEMBER 22, 2023



ANALYSIS REPORT

CUSTOMER NAME : ENERGY COMPLEX COMPANY LIMITED
ADDRESS : 555/1 VIBHAVADI-RANGSIT ROAD CHATUCHAK CHATUCHAK BANGKOK 10900
CONTACT INFORMATION : TEL : 098 276 3860 e-mail : Kitsada.s@pttbsacl.com
MEASURING PLACE : ภายในพื้นที่โครงการ ด้านทิศตะวันออกติดกับสถาบันวิทยสิริเมธี
MEASURING TYPE : AMBIENT (AIR) **RECEIVED DATE** : SEPTEMBER 11-12, 2023
MEASURING DATE : SEPTEMBER 11-12, 2023 **ANALYTICAL DATE** : SEPTEMBER 11-12, 2023
MEASURING TIME : * **REPORT NO.** : 2023-U080897
MEASURING METHOD : CHEMILUMINESCENCE **WORK NO.** : 2023-002256
MEASURED BY : MR SUPAKORN RINWONG **ANALYSIS NO.** : T23AS257-0001

TIME *	RESULT (ppm)
	NITROGEN DIOXIDE
	ภายในพื้นที่โครงการ ด้านทิศตะวันออกติดกับสถาบันวิทยสิริเมธี
	SEPTEMBER 11-12, 2023 T23AS257-0001
10:00-11:00 HOUR	0.0207
11:00-12:00 HOUR	0.0187
12:00-13:00 HOUR	0.0156
13:00-14:00 HOUR	0.0129
14:00-15:00 HOUR	0.0113
15:00-16:00 HOUR	0.0106
16:00-17:00 HOUR	0.0110
17:00-18:00 HOUR	0.0123
18:00-19:00 HOUR	0.0153
19:00-20:00 HOUR	0.0167
20:00-21:00 HOUR	0.0171
21:00-22:00 HOUR	0.0169
22:00-23:00 HOUR	0.0179
23:00-00:00 HOUR	0.0190
00:00-01:00 HOUR	0.0190
01:00-02:00 HOUR	0.0198
02:00-03:00 HOUR	0.0199
03:00-04:00 HOUR	0.0195
04:00-05:00 HOUR	0.0181
05:00-06:00 HOUR	0.0174
06:00-07:00 HOUR	0.0171
07:00-08:00 HOUR	0.0178
08:00-09:00 HOUR	0.0198
09:00-10:00 HOUR	0.0211

(MR SILA BANJONGJAIKUK)
LABORATORY SUPERVISOR

SEPTEMBER 22, 2023



ANALYSIS REPORT

CUSTOMER NAME : ENERGY COMPLEX COMPANY LIMITED
ADDRESS : 555/1 VIBHAVADI-RANGSIT ROAD CHATUCHAK CHATUCHAK BANGKOK 10900
CONTACT INFORMATION : TEL : 098 276 3860 e-mail : Kitsada.s@pttbsacl.com
MEASURING PLACE : ภายในพื้นที่โครงการ ด้านทิศตะวันออกติดกับสถาบันวิทยสิริเมธี
MEASURING TYPE : AMBIENT (AIR) **RECEIVED DATE** : SEPTEMBER 11-12, 2023
MEASURING DATE : SEPTEMBER 11-12, 2023 **ANALYTICAL DATE** : SEPTEMBER 11-12, 2023
MEASURING TIME : * **REPORT NO.** : 2023-U080899
MEASURING METHOD : UV FLUORESCENCE **WORK NO.** : 2023-002256
MEASURED BY : MR SUPAKORN RINWONG **ANALYSIS NO.** : T23AS257-0001

TIME *	RESULT (ppm)
	SULPHUR DIOXIDE
	ภายในพื้นที่โครงการ ด้านทิศตะวันออกติดกับสถาบันวิทยสิริเมธี
	SEPTEMBER 11-12, 2023 T23AS257-0001
10:00-11:00 HOUR	0.0027
11:00-12:00 HOUR	0.0024
12:00-13:00 HOUR	0.0022
13:00-14:00 HOUR	0.0023
14:00-15:00 HOUR	0.0024
15:00-16:00 HOUR	0.0027
16:00-17:00 HOUR	0.0030
17:00-18:00 HOUR	0.0034
18:00-19:00 HOUR	0.0032
19:00-20:00 HOUR	0.0032
20:00-21:00 HOUR	0.0030
21:00-22:00 HOUR	0.0031
22:00-23:00 HOUR	0.0028
23:00-00:00 HOUR	0.0027
00:00-01:00 HOUR	0.0026
01:00-02:00 HOUR	0.0029
02:00-03:00 HOUR	0.0027
03:00-04:00 HOUR	0.0026
04:00-05:00 HOUR	0.0022
05:00-06:00 HOUR	0.0024
06:00-07:00 HOUR	0.0026
07:00-08:00 HOUR	0.0030
08:00-09:00 HOUR	0.0031
09:00-10:00 HOUR	0.0029
AVERAGE 24 HOUR	0.0028

(MR SILA BANJONGJAIKUK)
LABORATORY SUPERVISOR

SEPTEMBER 22, 2023

