

ภาคผนวก ข

ใบรายงานผลการติดตามตรวจสอบผลกระทบสิ่งแวดล้อม

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## ANALYSIS REPORT

**PROJECT NAME** : ENVIRONMENTAL & SOCIOECONOMIC SURVEY  
**CUSTOMER NAME** : ESSO (THAILAND) PUBLIC COMPANY LIMITED  
**ADDRESS** : 118 MOO 2 THUNG SUKHLA SI RACHA CHON BURI 20230  
**CONTACT INFORMATION** : TEL : 0 3314 2891 e-mail : wanlop.boongor@exxonmobil.com  
**SAMPLING SOURCE** : -  
**SAMPLE TYPE** : WASTEWATER  
**SAMPLING DATE** : SEPTEMBER 12, 2022  
**SAMPLING TIME** : 10:25 HOUR  
**SAMPLING METHOD <sup>c</sup>** : GRAB  
**SAMPLING BY <sup>c</sup>** : MR THANADET WANSANOR ๓-145-๓-0056  
**ANALYZED BY** : MISS AMONRAT PUTTALAE ๓-145-๓-0009

**RECEIVED DATE** : SEPTEMBER 12, 2022  
**ANALYTICAL DATE** : SEPTEMBER 12-19, 2022  
**REPORT NO.** : 2022-U073436  
**WORK NO.** : 2019-002022  
**ANALYSIS NO.** : T22AS016-0001

PARAMETER	UNIT	METHOD OF ANALYSIS	RESULT	DETECTION LIMIT
			LBW001 : INLET API T22AS016-0001	
pH <sup>a</sup>	-	ELECTROMETRIC METHOD (SM: 4500-H <sup>+</sup> B)	8.3 (25°C)	-
TEMPERATURE <sup>c</sup>	°C	LABORATORY AND FIELD METHODS (SM: 2550 B)	37	-
BIOCHEMICAL OXYGEN DEMAND <sup>a</sup>	mg/L	5-DAY BOD TEST, MEMBRANE ELECTRODE METHOD (SM: 5210 B AND 4500-O G)	260	2.0
CHEMICAL OXYGEN DEMAND <sup>c</sup>	mg/L	CLOSED REFLUX, TITRIMETRIC METHOD (SM: 5220 C)	496	25.0
TOTAL SUSPENDED SOLIDS <sup>a</sup>	mg/L	DRIED AT 103-105 °C (SM: 2540 D)	175	5.0
SULPHIDE <sup>c</sup>	mg/L	METHYLENE BLUE METHOD(SM: 4500-S <sup>2-</sup> D)	0.16	0.02
TOTAL DISSOLVED SOLIDS <sup>b</sup>	mg/L	DRIED AT 180 °C (SM: 2540 C)	2,027	25
FAT, OIL AND GREASE <sup>a</sup>	mg/L	LIQUID-LIQUID, PARTITION-GRAVIMETRIC METHOD (SM: 5520 B)	38	3
CYANIDE <sup>c</sup>	mg/L CN <sup>-</sup>	DISTILLATION, COLOURIMETRIC METHOD (SM: 4500 -CN <sup>-</sup> C AND 4500-CN <sup>-</sup> E)	0.083	0.005
<b>SAMPLE CONDITION</b> WATER'S COLOUR/TURBID SEDIMENT			GREY/TURBID GREY	

<sup>a</sup> : ISO/IEC 17025 ACCREDITED BY THAI INDUSTRIAL STANDARDS INSTITUTE (TISI)

<sup>b</sup> : ISO/IEC 17025 ACCREDITED BY DEPARTMENT OF SCIENCE SERVICE (DSS)

<sup>c</sup> : VERIFIED BY OWN LABORATORY QUALITY SYSTEM, BUT STILL NOT ACCREDITED

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

RELEASE ORDER NO. : EV-12-09-003

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(MRS PIYAPAT SUTTAMANUTWONG)  
LABORATORY SUPERVISOR  
๓-145-๓-0004  
SEPTEMBER 23, 2022



## ANALYSIS REPORT

**PROJECT NAME** : ENVIRONMENTAL & SOCIOECONOMIC SURVEY  
**CUSTOMER NAME** : ESSO (THAILAND) PUBLIC COMPANY LIMITED  
**ADDRESS** : 118 MOO 2 THUNG SUKHILA SI RACHA CHON BURI 20230  
**CONTACT INFORMATION** : TEL : 0 3314 2891 e-mail : wanlop.boongor@exxonmobil.com  
**SAMPLING SOURCE** : -  
**SAMPLE TYPE** : EFFLUENT  
**SAMPLING DATE** : SEPTEMBER 12, 2022  
**SAMPLING TIME** : 10:25 HOUR  
**SAMPLING METHOD** : GRAB  
**SAMPLING BY** : MR THANADET WANSANOR  
**ANALYZED BY** : MISS AMONRAT PUTTALEE

**RECEIVED DATE** : SEPTEMBER 12, 2022  
**ANALYTICAL DATE** : SEPTEMBER 12-15, 2022  
**REPORT NO.** : 2022-U073437  
**WORK NO.** : 2019-002022  
**ANALYSIS NO.** : T22AS016-0002

PARAMETER	UNIT	METHOD OF ANALYSIS	RESULT	DETECTION LIMIT
			LBW001 : INLET API T22AS016-0002	
TOTAL SOLIDS	mg/L	TOTAL SOLIDS DRIED AT 103-105 °C (SM: 2540 B)	2,555	25
<b>SAMPLE CONDITION</b> WATER'S COLOUR/TURBID SEDIMENT			GREY/TURBID GREY	

RELEASE ORDER NO. : EV-12-09-003

(MRS PIYAPAT SUTTAMANUTWONG)  
LABORATORY SUPERVISOR

SEPTEMBER 23, 2022



## ANALYSIS REPORT

<b>PROJECT NAME</b>	: ENVIRONMENTAL & SOCIOECONOMIC SURVEY	<b>RECEIVED DATE</b>	: DECEMBER 7, 2022
<b>CUSTOMER NAME</b>	: ESSO (THAILAND) PUBLIC COMPANY LIMITED	<b>ANALYTICAL DATE</b>	: DECEMBER 7-14, 2022
<b>ADDRESS</b>	: 118 MOO 2 THUNG SUKHLA SI RACHA CHON BURI 20230	<b>REPORT NO.</b>	: 2022-U100603
<b>CONTACT INFORMATION</b>	: TEL : 0 3314 2891 e-mail : wanlop.boongor@exxonmobil.com	<b>WORK NO.</b>	: 2019-002022
<b>SAMPLING SOURCE</b>	: -	<b>ANALYSIS NO.</b>	: T22AY432-0001
<b>SAMPLE TYPE</b>	: WASTEWATER		
<b>SAMPLING DATE</b>	: DECEMBER 7, 2022		
<b>SAMPLING TIME</b>	: 09:55 HOUR		
<b>SAMPLING METHOD <sup>c</sup></b>	: GRAB		
<b>SAMPLING BY <sup>c</sup></b>	: MR THANADET WANSANOR ๓-145-๑-0056		
<b>ANALYZED BY</b>	: MISS AMONRAT PUTTALEE ๓-145-๑-0009		

PARAMETER	UNIT	METHOD OF ANALYSIS	RESULT	DETECTION LIMIT
			LBW001 : INLET API T22AY432-0001	
pH <sup>a</sup>	-	ELECTROMETRIC METHOD (SM: 4500-H <sup>+</sup> B)	7.4 (25°C)	-
TEMPERATURE <sup>c</sup>	°C	LABORATORY AND FIELD METHODS (SM: 2550 B)	36	-
BIOCHEMICAL OXYGEN DEMAND <sup>a</sup>	mg/L	5-DAY BOD TEST, MEMBRANE ELECTRODE METHOD (SM: 5210 B AND 4500-O G)	189	2.0
CHEMICAL OXYGEN DEMAND <sup>c</sup>	mg/L	CLOSED REFLUX, TITRIMETRIC METHOD (SM: 5220 C)	277	25.0
TOTAL SUSPENDED SOLIDS <sup>a</sup>	mg/L	DRIED AT 103-105 °C (SM: 2540 D)	172	5.0
SULPHIDE <sup>c</sup>	mg/L	METHYLENE BLUE METHOD(SM: 4500-S <sup>2-</sup> D)	0.75	0.02
TOTAL DISSOLVED SOLIDS <sup>b</sup>	mg/L	DRIED AT 180 °C (SM: 2540 C)	5,120	25
FAT, OIL AND GREASE <sup>a</sup>	mg/L	LIQUID-LIQUID, PARTITION-GRAVIMETRIC METHOD (SM: 5520 B)	12	3
CYANIDE <sup>c</sup>	mg/L CN <sup>-</sup>	DISTILLATION, COLOURIMETRIC METHOD (SM: 4500-CN <sup>-</sup> C AND 4500-CN <sup>-</sup> E)	0.042	0.005
<b>SAMPLE CONDITION</b> WATER'S COLOUR/TURBID SEDIMENT			GREY/TURBID GREY	

<sup>a</sup> : ISO/IEC 17025 ACCREDITED BY THAI INDUSTRIAL STANDARDS INSTITUTE (TISI)

<sup>b</sup> : ISO/IEC 17025 ACCREDITED BY DEPARTMENT OF SCIENCE SERVICE (DSS)

<sup>c</sup> : VERIFIED BY OWN LABORATORY QUALITY SYSTEM, BUT STILL NOT ACCREDITED

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

RELEASE ORDER NO. : EV-07-12-002

(MRS PIYAPAT SUTTAMANUTWONG)  
LABORATORY SUPERVISOR  
๓-145-๑-0004  
DECEMBER 20, 2022





## ANALYSIS REPORT

**PROJECT NAME** : ENVIRONMENTAL & SOCIOECONOMIC SURVEY  
**CUSTOMER NAME** : ESSO (THAILAND) PUBLIC COMPANY LIMITED  
**ADDRESS** : 118 MOO 2 THUNG SUKHLA SI RACHA CHON BURI 20230  
**CONTACT INFORMATION** : TEL : 0 3314 2891 e-mail : wanlop.boongor@exxonmobil.com  
**SAMPLING SOURCE** : -  
**SAMPLE TYPE** : WASTEWATER  
**SAMPLING DATE** : DECEMBER 7, 2022  
**SAMPLING TIME** : 09:55 HOUR  
**SAMPLING METHOD** : GRAB  
**SAMPLING BY** : MR THANADET WANSANOR  
**ANALYZED BY** : MISS AMONRAT PUTTALEE

**RECEIVED DATE** : DECEMBER 7, 2022  
**ANALYTICAL DATE** : DECEMBER 7-9, 2022  
**REPORT NO.** : 2022-U100604  
**WORK NO.** : 2019-002022  
**ANALYSIS NO.** : T22AY432-0002

PARAMETER	UNIT	METHOD OF ANALYSIS	RESULT	DETECTION LIMIT
			LBW001 : INLET API T22AY432-0002	
TOTAL SOLIDS	mg/L	TOTAL SOLIDS DRIED AT 103-105 °C (SM: 2540 B)	5,850	25
<b>SAMPLE CONDITION</b> WATER'S COLOUR/TURBID SEDIMENT			GREY/TURBID GREY	

RELEASE ORDER NO. : EV-07-12-002

(MRS PIYAPAT SUTTAMANUTWONG)  
LABORATORY SUPERVISOR

DECEMBER 20, 2022



## ANALYSIS REPORT

**PROJECT NAME** : ENVIRONMENTAL & SOCIOECONOMIC SURVEY  
**CUSTOMER NAME** : ESSO (THAILAND) PUBLIC COMPANY LIMITED  
**ADDRESS** : 118 MOO 2 THUNG SUKHLA SI RACHA CHON BURI 20230  
**CONTACT INFORMATION** : TEL : 0 3314 2891 e-mail : wanlop.boongor@exxonmobil.com  
**SAMPLING SOURCE** : -  
**SAMPLE TYPE** : EFFLUENT  
**SAMPLING DATE** : SEPTEMBER 12, 2022  
**SAMPLING TIME** : 11:00 HOUR  
**SAMPLING METHOD <sup>c</sup>** : GRAB  
**SAMPLING BY <sup>c</sup>** : MR THANADET WANSANOR ๓-145-๓-0056  
**ANALYZED BY** : MISS AMONRAT PUTTALEE ๓-145-๓-0009

**RECEIVED DATE** : SEPTEMBER 12, 2022  
**ANALYTICAL DATE** : SEPTEMBER 12-19, 2022  
**REPORT NO.** : 2022-U073458  
**WORK NO.** : 2019-002022  
**ANALYSIS NO.** : T22AS016-0006

PARAMETER	UNIT	METHOD OF ANALYSIS	RESULT	DETECTION LIMIT
			LBW004 : OP OUTLET T22AS016-0006	
pH <sup>a</sup>	-	ELECTROMETRIC METHOD (SM: 4500-H <sup>+</sup> B)	7.7 (25°C)	-
TEMPERATURE <sup>c</sup>	°C	LABORATORY AND FIELD METHODS (SM: 2550 B)	30	-
BIOCHEMICAL OXYGEN DEMAND <sup>c</sup>	mg/L	5-DAY BOD TEST, MEMBRANE ELECTRODE METHOD (SM: 5210 B AND 4500-O G)	< 2.0	2.0
CHEMICAL OXYGEN DEMAND <sup>c</sup>	mg/L	CLOSED REFLUX, TITRIMETRIC METHOD (SM: 5220 C)	65.6	25.0
TOTAL SUSPENDED SOLIDS <sup>a</sup>	mg/L	DRIED AT 103-105 °C (SM: 2540 D)	10.1	5.0
SULPHIDE <sup>c</sup>	mg/L	METHYLENE BLUE METHOD(SM: 4500-S <sup>2-</sup> D)	< 0.02	0.02
TOTAL DISSOLVED SOLIDS <sup>c</sup>	mg/L	DRIED AT 180 °C (SM: 2540 C)	12,590	25
FAT, OIL AND GREASE <sup>c</sup>	mg/L	LIQUID-LIQUID, PARTITION-GRAVIMETRIC METHOD (SM: 5520 B)	1.6	3
CYANIDE <sup>c</sup>	mg/L CN <sup>-</sup>	DISTILLATION, COLOURIMETRIC METHOD (SM: 4500-CN <sup>-</sup> C AND 4500-CN <sup>-</sup> E)	< 0.005	0.005
<b>SAMPLE CONDITION</b> WATER'S COLOUR/TURBID SEDIMENT			YELLOW/CLEAR BROWN	

<sup>a</sup> : ISO/IEC 17025 ACCREDITED BY THAI INDUSTRIAL STANDARDS INSTITUTE (TISI)

<sup>b</sup> : ISO/IEC 17025 ACCREDITED BY DEPARTMENT OF SCIENCE SERVICE (DSS)

<sup>c</sup> : VERIFIED BY OWN LABORATORY QUALITY SYSTEM, BUT STILL NOT ACCREDITED

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

FAT, OIL AND GREASE : THIS REPORTED VALUE IS BELOW LIMIT OF DETECTION. ITS USE IS SUBJECT TO CUSTOMER JUSTIFICATION.

RELEASE ORDER NO. : EV-12-09-003

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(MRS PIYAPAT SUTTAMANUTWONG)  
LABORATORY SUPERVISOR  
๓-145-๓-0004  
SEPTEMBER 23, 2022



## ANALYSIS REPORT

**PROJECT NAME** : ENVIRONMENTAL & SOCIOECONOMIC SURVEY  
**CUSTOMER NAME** : ESSO (THAILAND) PUBLIC COMPANY LIMITED  
**ADDRESS** : 118 MOO 2 THUNG SUKHLA SI RACHA CHON BURI 20230  
**CONTACT INFORMATION** : TEL : 0 3314 2891 e-mail : wanlop.boongor@exxonmobil.com  
**SAMPLING SOURCE** : -  
**SAMPLE TYPE** : EFFLUENT  
**SAMPLING DATE** : SEPTEMBER 12, 2022  
**SAMPLING TIME** : 11:00 HOUR  
**SAMPLING METHOD** : GRAB  
**SAMPLING BY** : MR THANADET WANSANOR  
**ANALYZED BY** : MISS AMONRAT PUTTALEE

**RECEIVED DATE** : SEPTEMBER 12, 2022  
**ANALYTICAL DATE** : SEPTEMBER 12-15, 2022  
**REPORT NO.** : 2022-U073459  
**WORK NO.** : 2019-002022  
**ANALYSIS NO.** : T22AS016-0007

PARAMETER	UNIT	METHOD OF ANALYSIS	RESULT	DETECTION LIMIT
			LBW004 : OP OUTLET T22AS016-0007	
TOTAL SOLIDS	mg/L	TOTAL SOLIDS DRIED AT 103-105 °C (SM: 2540 B)	13,525	25
<b>SAMPLE CONDITION</b> WATER'S COLOUR/TURBID SEDIMENT			YELLOW/CLEAR BROWN	

RELEASE ORDER NO. : EV-12-09-003

(MRS PIYAPAT SUTTAMANUTWONG)  
LABORATORY SUPERVISOR

SEPTEMBER 23, 2022



## ANALYSIS REPORT

<b>PROJECT NAME</b>	: ENVIRONMENTAL & SOCIOECONOMIC SURVEY	<b>RECEIVED DATE</b>	: DECEMBER 7, 2022
<b>CUSTOMER NAME</b>	: ESSO (THAILAND) PUBLIC COMPANY LIMITED	<b>ANALYTICAL DATE</b>	: DECEMBER 7-14, 2022
<b>ADDRESS</b>	: 118 MOO 2 THUNG SUKHLA SI RACHA CHON BURI 20230	<b>REPORT NO.</b>	: 2022-U100608
<b>CONTACT INFORMATION</b>	: TEL : 0 3314 2891 e-mail : wanlop.boongor@exxonmobil.com	<b>WORK NO.</b>	: 2019-002022
<b>SAMPLING SOURCE</b>	: -	<b>ANALYSIS NO.</b>	: T22AY432-0006
<b>SAMPLE TYPE</b>	: EFFLUENT		
<b>SAMPLING DATE</b>	: DECEMBER 7, 2022		
<b>SAMPLING TIME</b>	: 10:05 HOUR		
<b>SAMPLING METHOD °</b>	: GRAB		
<b>SAMPLING BY °</b>	: MR THANADET WANSANOR ๓-145-๓-0056		
<b>ANALYZED BY</b>	: MISS KANNIKAR SUMLEETHA ๓-145-๓-0074		

PARAMETER	UNIT	METHOD OF ANALYSIS	RESULT	DETECTION LIMIT
			LBW004 : OP OUTLET T22AY432-0006	
pH <sup>a</sup>	-	ELECTROMETRIC METHOD (SM: 4500-H <sup>+</sup> B)	7.7 (25°C)	-
TEMPERATURE °	°C	LABORATORY AND FIELD METHODS (SM: 2550 B)	29	-
BIOCHEMICAL OXYGEN DEMAND °	mg/L	5-DAY BOD TEST, MEMBRANE ELECTRODE METHOD (SM: 5210 B AND 4500-O G)	ND	2.0
CHEMICAL OXYGEN DEMAND °	mg/L	CLOSED REFLUX, TITRIMETRIC METHOD (SM: 5220 C)	77.6	25.0
TOTAL SUSPENDED SOLIDS °	mg/L	DRIED AT 103-105 °C (SM: 2540 D)	ND	5.0
SULPHIDE °	mg/L	METHYLENE BLUE METHOD(SM: 4500-S <sup>2-</sup> D)	ND	0.02
TOTAL DISSOLVED SOLIDS °	mg/L	DRIED AT 180 °C (SM: 2540 C)	37,560	25
FAT, OIL AND GREASE °	mg/L	LIQUID-LIQUID, PARTITION-GRAVIMETRIC METHOD (SM: 5520 B)	0.6	3
CYANIDE °	mg/L CN <sup>-</sup>	DISTILLATION, COLOURIMETRIC METHOD (SM: 4500 -CN <sup>-</sup> C AND 4500-CN <sup>-</sup> E)	ND	0.005
<b>SAMPLE CONDITION</b> WATER'S COLOUR/TURBID SEDIMENT			YELLOW/CLEAR BROWN	

<sup>a</sup> : ISO/IEC 17025 ACCREDITED BY THAI INDUSTRIAL STANDARDS INSTITUTE (TISI)

<sup>b</sup> : ISO/IEC 17025 ACCREDITED BY DEPARTMENT OF SCIENCE SERVICE (DSS)

<sup>c</sup> : VERIFIED BY OWN LABORATORY QUALITY SYSTEM, BUT STILL NOT ACCREDITED

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

FAT, OIL AND GREASE : THIS REPORTED VALUE IS BELOW LIMIT OF DETECTION. ITS USE IS SUBJECT TO CUSTOMER JUSTIFICATION.

RELEASE ORDER NO. : EV-07-12-002

(MRS PIYAPAT SUTTAMANUTWONG)  
LABORATORY SUPERVISOR  
๓-145-๓-0004  
DECEMBER 23, 2022





## ANALYSIS REPORT

<b>PROJECT NAME</b>	: ENVIRONMENTAL & SOCIOECONOMIC SURVEY		
<b>CUSTOMER NAME</b>	: ESSO (THAILAND) PUBLIC COMPANY LIMITED		
<b>ADDRESS</b>	: 118 MOO 2 THUNG SUKHLA SI RACHA CHON BURI 20230		
<b>CONTACT INFORMATION</b>	: TEL : 0 3314 2891 e-mail : wanlop.boongor@exxonmobil.com		
<b>SAMPLING SOURCE</b>	: -		
<b>SAMPLE TYPE</b>	: EFFLUENT	<b>RECEIVED DATE</b>	: DECEMBER 7, 2022
<b>SAMPLING DATE</b>	: DECEMBER 7, 2022	<b>ANALYTICAL DATE</b>	: DECEMBER 7-9, 2022
<b>SAMPLING TIME</b>	: 10:05 HOUR	<b>REPORT NO.</b>	: 2022-U100610
<b>SAMPLING METHOD</b>	: GRAB	<b>WORK NO.</b>	: 2019-002022
<b>SAMPLING BY</b>	: MR THANADET WANSANOR	<b>ANALYSIS NO.</b>	: T22AY432-0007
<b>ANALYZED BY</b>	: MISS AMONRAT PUTTALEE		

PARAMETER	UNIT	METHOD OF ANALYSIS	RESULT	DETECTION LIMIT
			LBW004 : OP OUTLET T22AY432-0007	
TOTAL SOLIDS	mg/L	TOTAL SOLIDS DRIED AT 103-105 °C (SM: 2540 B)	38,843	25
<b>SAMPLE CONDITION</b> WATER'S COLOUR/TURBID SEDIMENT			YELLOW/CLEAR BROWN	

RELEASE ORDER NO. : EV-07-12-002

(MRS PIYAPAT SUTTAMANUTWONG)  
LABORATORY SUPERVISOR

DECEMBER 20, 2022





## ANALYSIS REPORT

<b>PROJECT NAME</b>	: ENVIRONMENTAL & SOCIOECONOMIC SURVEY		
<b>CUSTOMER NAME</b>	: ESSO (THAILAND) PUBLIC COMPANY LIMITED		
<b>ADDRESS</b>	: 118 MOO 2 THUNG SUKHLA SI RACHA CHON BURI 20230		
<b>CONTACT INFORMATION</b>	: TEL : 0 3314 2891 e-mail : wanlop.boongor@exxonmobil.com		
<b>SAMPLING SOURCE</b>	: -		
<b>SAMPLE TYPE</b>	: EFFLUENT	<b>RECEIVED DATE</b>	: JULY 7, 2022
<b>SAMPLING DATE</b>	: JULY 6, 2022	<b>ANALYTICAL DATE</b>	: JULY 7-19, 2022
<b>SAMPLING TIME</b>	: 10:10 HOUR	<b>REPORT NO.</b>	: 2022-U056014
<b>SAMPLING METHOD <sup>c</sup></b>	: GRAB	<b>WORK NO.</b>	: 2019-002022
<b>SAMPLING BY <sup>c</sup></b>	: MR THANADET WANSANOR	<b>ANALYSIS NO.</b>	: T22AN354-0006
<b>ANALYZED BY</b>	: MISS AMONRAT PUTTALEE		

PARAMETER	UNIT	METHOD OF ANALYSIS	RESULT	DETECTION LIMIT
			LBW005 : REFINERY MIX T22AN354-0006	
pH <sup>a</sup>	-	ELECTROMETRIC METHOD (SM: 4500-H <sup>+</sup> B)	8.1 (25°C)	-
TEMPERATURE <sup>c</sup>	°C	LABORATORY AND FIELD METHODS (SM: 2550 B)	35	-
BIOCHEMICAL OXYGEN DEMAND <sup>c</sup>	mg/L	5-DAY BOD TEST, MEMBRANE ELECTRODE METHOD (SM: 5210 B AND 4500-O G)	< 2.0	2.0
SALINITY <sup>c</sup>	ppt	ELECTRICAL CONDUCTIVITY METHOD AT SITE (SM: 2520 B)	34.7	0.1
CHEMICAL OXYGEN DEMAND <sup>c</sup>	mg/L	CLOSED REFLUX, TITRIMETRIC METHOD (SM: 5220 C)	72.1	25.0
TOTAL SUSPENDED SOLIDS <sup>a</sup>	mg/L	DRIED AT 103-105 °C (SM: 2540 D)	9.0	5.0
NITRATE <sup>c</sup>	mg/L NO <sub>3</sub> <sup>-</sup>	CADMIUM REDUCTION METHOD (SM: 4500-NO <sub>3</sub> <sup>-</sup> E)	3.94	0.09
SULPHIDE <sup>c</sup>	mg/L	METHYLENE BLUE METHOD(SM: 4500-S <sup>2-</sup> D)	< 0.02	0.02
TOTAL DISSOLVED SOLIDS <sup>c</sup>	mg/L	DRIED AT 180 °C (SM: 2540 C)	37,460	25
FAT, OIL AND GREASE <sup>c</sup>	mg/L	LIQUID-LIQUID, PARTITION-GRAVIMETRIC METHOD (SM: 5520 B)	0.8	3
<b>METALS</b>				
LEAD <sup>c</sup>	mg/L Pb	DIGESTION, DIRECT AIR-ACETYLENE FLAME METHOD (SM: 3030 E AND 3111 B)	< 0.015	0.015
<b>SAMPLE CONDITION</b>				
WATER'S COLOUR/TURBID			YELLOW/CLEAR	
SEDIMENT			YELLOW	

<sup>a</sup> : ISO/IEC 17025 ACCREDITED BY THAI INDUSTRIAL STANDARDS INSTITUTE (TISI)

<sup>b</sup> : ISO/IEC 17025 ACCREDITED BY DEPARTMENT OF SCIENCE SERVICE (DSS)

<sup>c</sup> : VERIFIED BY OWN LABORATORY QUALITY SYSTEM, BUT STILL NOT ACCREDITED

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

FAT, OIL AND GREASE : THIS REPORTED VALUE IS BELOW LIMIT OF DETECTION. ITS USE IS SUBJECT TO CUSTOMER JUSTIFICATION.

RELEASE ORDER NO. : EV-06-07-002

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(MRS PIYAPAT SUTTAMANUTWONG)  
LABORATORY SUPERVISOR

JULY 19, 2022



## ANALYSIS REPORT

**PROJECT NAME** : ENVIRONMENTAL & SOCIOECONOMIC SURVEY  
**CUSTOMER NAME** : ESSO (THAILAND) PUBLIC COMPANY LIMITED  
**ADDRESS** : 118 MOO 2 THUNG SUKHLA SI RACHA CHON BURI 20230  
**CONTACT INFORMATION** : TEL : 0 3314 2891 e-mail : wanlop.boongor@exxonmobil.com  
**SAMPLING SOURCE** : -  
**SAMPLE TYPE** : EFFLUENT  
**SAMPLING DATE** : JULY 14, 2022  
**SAMPLING TIME** : 10:10 HOUR  
**SAMPLING METHOD <sup>c</sup>** : GRAB  
**SAMPLING BY <sup>c</sup>** : MR THANADET WANSANOR  
**ANALYZED BY** : MISS AMONRAT PUTTALEE

**RECEIVED DATE** : JULY 14, 2022  
**ANALYTICAL DATE** : JULY 14-19, 2022  
**REPORT NO.** : 2022-U057452  
**WORK NO.** : 2019-002022  
**ANALYSIS NO.** : T22AN973-0005

PARAMETER	UNIT	METHOD OF ANALYSIS	RESULT	DETECTION LIMIT
			LBW005 : REFINERY MIX T22AN973-0005	
pH <sup>a</sup>	-	ELECTROMETRIC METHOD (SM: 4500-H <sup>+</sup> B)	7.9 (25°C)	-
TEMPERATURE <sup>c</sup>	°C	LABORATORY AND FIELD METHODS (SM: 2550 B)	34	-
TOTAL DISSOLVED SOLIDS <sup>c</sup>	mg/L	DRIED AT 180 °C (SM: 2540 C)	29,843	25
FAT, OIL AND GREASE <sup>c</sup>	mg/L	LIQUID-LIQUID, PARTITION-GRAVIMETRIC METHOD (SM: 5520 B)	1.3	3
<b>SAMPLE CONDITION</b> WATER'S COLOUR/TURBID SEDIMENT			YELLOW/CLEAR BROWN	

<sup>a</sup> : ISO/IEC 17025 ACCREDITED BY THAI INDUSTRIAL STANDARDS INSTITUTE (TISI)

<sup>b</sup> : ISO/IEC 17025 ACCREDITED BY DEPARTMENT OF SCIENCE SERVICE (DSS)

<sup>c</sup> : VERIFIED BY OWN LABORATORY QUALITY SYSTEM, BUT STILL NOT ACCREDITED

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

FAT, OIL AND GREASE : THIS REPORTED VALUE IS BELOW LIMIT OF DETECTION. ITS USE IS SUBJECT TO CUSTOMER JUSTIFICATION.

RELEASE ORDER NO. : EV-14-07-004

(MRS PIYAPAT SUTTAMANUTWONG)  
LABORATORY SUPERVISOR

JULY 22, 2022



## ANALYSIS REPORT

<b>PROJECT NAME</b>	: ENVIRONMENTAL & SOCIOECONOMIC SURVEY	<b>RECEIVED DATE</b>	: AUGUST 3, 2022
<b>CUSTOMER NAME</b>	: ESSO (THAILAND) PUBLIC COMPANY LIMITED	<b>ANALYTICAL DATE</b>	: AUGUST 3-10, 2022
<b>ADDRESS</b>	: 118 MOO 2 THUNG SUKHLA SI RACHA CHON BURI 20230	<b>REPORT NO.</b>	: 2022-U062963
<b>CONTACT INFORMATION</b>	: TEL : 0 3314 2891 e-mail : wanlop.boongor@exxonmobil.com	<b>WORK NO.</b>	: 2019-002022
<b>SAMPLING SOURCE</b>	: -	<b>ANALYSIS NO.</b>	: T22AP191-0006
<b>SAMPLE TYPE</b>	: EFFLUENT		
<b>SAMPLING DATE</b>	: AUGUST 3, 2022		
<b>SAMPLING TIME</b>	: 10:50 HOUR		
<b>SAMPLING METHOD <sup>c</sup></b>	: GRAB		
<b>SAMPLING BY <sup>c</sup></b>	: MR THANADET WANSANOR		
<b>ANALYZED BY</b>	: MISS AMONRAT PUTTALEE		

PARAMETER	UNIT	METHOD OF ANALYSIS	RESULT	DETECTION LIMIT
			LBW005 : REFINERY MIX T22AP191-0006	
pH <sup>a</sup>	-	ELECTROMETRIC METHOD (SM: 4500-H <sup>+</sup> B)	7.9 (25°C)	-
TEMPERATURE <sup>c</sup>	°C	LABORATORY AND FIELD METHODS (SM: 2550 B)	30	-
BIOCHEMICAL OXYGEN DEMAND <sup>c</sup>	mg/L	5-DAY BOD TEST, MEMBRANE ELECTRODE METHOD (SM: 5210 B AND 4500-O G)	< 2.0	2.0
SALINITY <sup>c</sup>	ppt	ELECTRICAL CONDUCTIVITY METHOD AT SITE (SM: 2520 B)	26.1	0.1
CHEMICAL OXYGEN DEMAND <sup>c</sup>	mg/L	CLOSED REFLUX, TITRIMETRIC METHOD (SM: 5220 C)	52.8	25.0
TOTAL SUSPENDED SOLIDS <sup>a</sup>	mg/L	DRIED AT 103-105 °C (SM: 2540 D)	11.1	5.0
NITRATE <sup>c</sup>	mg/L NO <sub>3</sub> <sup>-</sup>	CADMIUM REDUCTION METHOD (SM: 4500-NO <sub>3</sub> <sup>-</sup> E)	3.15	0.09
SULPHIDE <sup>c</sup>	mg/L	METHYLENE BLUE METHOD (SM: 4500-S <sup>2-</sup> D)	< 0.02	0.02
TOTAL DISSOLVED SOLIDS <sup>c</sup>	mg/L	DRIED AT 180 °C (SM: 2540 C)	29,820	25
FAT, OIL AND GREASE <sup>c</sup>	mg/L	LIQUID-LIQUID, PARTITION-GRAVIMETRIC METHOD (SM: 5520 B)	0.7	3
<b>METALS</b>				
LEAD <sup>c</sup>	mg/L Pb	DIGESTION, DIRECT AIR-ACETYLENE FLAME METHOD (SM: 3030 E AND 3111 B)	< 0.015	0.015
<b>SAMPLE CONDITION</b>				
WATER'S COLOUR/TURBID			YELLOW/TURBID	
SEDIMENT			BROWN	

<sup>a</sup> : ISO/IEC 17025 ACCREDITED BY THAI INDUSTRIAL STANDARDS INSTITUTE (TISI)

<sup>b</sup> : ISO/IEC 17025 ACCREDITED BY DEPARTMENT OF SCIENCE SERVICE (DSS)

<sup>c</sup> : VERIFIED BY OWN LABORATORY QUALITY SYSTEM, BUT STILL NOT ACCREDITED

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

FAT, OIL AND GREASE : THIS REPORTED VALUE IS BELOW LIMIT OF DETECTION. ITS USE IS SUBJECT TO CUSTOMER JUSTIFICATION.  
RELEASE ORDER NO. : EV-03-08-002

(MRS PIYAPAT SUTTAMANUTWONG)  
LABORATORY SUPERVISOR

AUGUST 15, 2022



## ANALYSIS REPORT

<b>PROJECT NAME</b>	: ENVIRONMENTAL & SOCIOECONOMIC SURVEY		
<b>CUSTOMER NAME</b>	: ESSO (THAILAND) PUBLIC COMPANY LIMITED		
<b>ADDRESS</b>	: 118 MOO 2 THUNG SUKHLA SI RACHA CHON BURI 20230		
<b>CONTACT INFORMATION</b>	: TEL : 0 3314 2891 e-mail : wanlop.boongor@exxonmobil.com		
<b>SAMPLING SOURCE</b>	: -		
<b>SAMPLE TYPE</b>	: EFFLUENT	<b>RECEIVED DATE</b>	: AUGUST 10, 2022
<b>SAMPLING DATE</b>	: AUGUST 10, 2022	<b>ANALYTICAL DATE</b>	: AUGUST 10-15, 2022
<b>SAMPLING TIME</b>	: 10:45 HOUR	<b>REPORT NO.</b>	: 2022-U064766
<b>SAMPLING METHOD <sup>c</sup></b>	: GRAB	<b>WORK NO.</b>	: 2019-002022
<b>SAMPLING BY <sup>c</sup></b>	: MR THANADET WANSANOR	<b>ANALYSIS NO.</b>	: T22AP761-0005
<b>ANALYZED BY</b>	: MISS AMONRAT PUTTALEE		

PARAMETER	UNIT	METHOD OF ANALYSIS	RESULT	DETECTION LIMIT
			LBW005 : REFINERY MIX T22AP761-0005	
pH <sup>a</sup>	-	ELECTROMETRIC METHOD (SM: 4500-H <sup>+</sup> B)	8.0 (25°C)	-
TEMPERATURE <sup>c</sup>	°C	LABORATORY AND FIELD METHODS (SM: 2550 B)	35	-
TOTAL DISSOLVED SOLIDS <sup>c</sup>	mg/L	DRIED AT 180 °C (SM: 2540 C)	29,316	25
FAT, OIL AND GREASE <sup>c</sup>	mg/L	LIQUID-LIQUID, PARTITION-GRAVIMETRIC METHOD (SM: 5520 B)	0.8	3
<b>SAMPLE CONDITION</b> WATER'S COLOUR/TURBID SEDIMENT			YELLOW/CLEAR YELLOW	

<sup>a</sup> : ISO/IEC 17025 ACCREDITED BY THAI INDUSTRIAL STANDARDS INSTITUTE (TISI)

<sup>b</sup> : ISO/IEC 17025 ACCREDITED BY DEPARTMENT OF SCIENCE SERVICE (DSS)

<sup>c</sup> : VERIFIED BY OWN LABORATORY QUALITY SYSTEM, BUT STILL NOT ACCREDITED

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

FAT, OIL AND GREASE : THIS REPORTED VALUE IS BELOW LIMIT OF DETECTION. ITS USE IS SUBJECT TO CUSTOMER JUSTIFICATION.

RELEASE ORDER NO. : EV-10-08-004

(MRS PIYAPAT SUTTAMANUTWONG)  
LABORATORY SUPERVISOR

AUGUST 22, 2022



## ANALYSIS REPORT

<b>PROJECT NAME</b>	: ENVIRONMENTAL & SOCIOECONOMIC SURVEY	<b>RECEIVED DATE</b>	: SEPTEMBER 12, 2022
<b>CUSTOMER NAME</b>	: ESSO (THAILAND) PUBLIC COMPANY LIMITED	<b>ANALYTICAL DATE</b>	: SEPTEMBER 12-19, 2022
<b>ADDRESS</b>	: 118 MOO 2 THUNG SUKHLA SI RACHA CHON BURI 20230	<b>REPORT NO.</b>	: 2022-U073460
<b>CONTACT INFORMATION</b>	: TEL : 0 3314 2891 e-mail : wanlop.boongor@exxonmobil.com	<b>WORK NO.</b>	: 2019-002022
<b>SAMPLING SOURCE</b>	: -	<b>ANALYSIS NO.</b>	: T22AS016-0008
<b>SAMPLE TYPE</b>	: EFFLUENT		
<b>SAMPLING DATE</b>	: SEPTEMBER 12, 2022		
<b>SAMPLING TIME</b>	: 09:55 HOUR		
<b>SAMPLING METHOD <sup>c</sup></b>	: GRAB		
<b>SAMPLING BY <sup>c</sup></b>	: MR THANADET WANSANOR		
<b>ANALYZED BY</b>	: MISS AMONRAT PUTTALEE		

PARAMETER	UNIT	METHOD OF ANALYSIS	RESULT	DETECTION LIMIT
			LBW005 : REFINERY MIX T22AS016-0008	
pH <sup>a</sup>	-	ELECTROMETRIC METHOD (SM: 4500-H <sup>+</sup> B)	7.7 (25°C)	-
TEMPERATURE <sup>c</sup>	°C	LABORATORY AND FIELD METHODS (SM: 2550 B)	30	-
BIOCHEMICAL OXYGEN DEMAND <sup>a</sup>	mg/L	5-DAY BOD TEST, MEMBRANE ELECTRODE METHOD (SM: 5210 B AND 4500-O G)	2.2	2.0
SALINITY <sup>c</sup>	ppt	ELECTRICAL CONDUCTIVITY METHOD AT SITE (SM: 2520 B)	13.3	0.1
CHEMICAL OXYGEN DEMAND <sup>c</sup>	mg/L	CLOSED REFLUX, TITRIMETRIC METHOD (SM: 5220 C)	41.6	25.0
TOTAL SUSPENDED SOLIDS <sup>a</sup>	mg/L	DRIED AT 103-105 °C (SM: 2540 D)	11.0	5.0
NITRATE <sup>c</sup>	mg/L NO <sub>3</sub> <sup>-</sup>	CADMIUM REDUCTION METHOD (SM: 4500-NO <sub>3</sub> <sup>-</sup> E)	1.42	0.09
SULPHIDE <sup>c</sup>	mg/L	METHYLENE BLUE METHOD (SM: 4500-S <sup>2-</sup> D)	< 0.02	0.02
TOTAL DISSOLVED SOLIDS <sup>c</sup>	mg/L	DRIED AT 180 °C (SM: 2540 C)	15,080	25
FAT, OIL AND GREASE <sup>c</sup>	mg/L	LIQUID-LIQUID, PARTITION-GRAVIMETRIC METHOD (SM: 5520 B)	0.6	3
<b>METALS</b>				
LEAD <sup>c</sup>	mg/L Pb	DIGESTION, DIRECT AIR-ACETYLENE FLAME METHOD (SM: 3030 E AND 3111 B)	< 0.015	0.015
<b>SAMPLE CONDITION</b>				
WATER'S COLOUR/TURBID			YELLOW/CLEAR	
SEDIMENT			BROWN	

<sup>a</sup> : ISO/IEC 17025 ACCREDITED BY THAI INDUSTRIAL STANDARDS INSTITUTE (TISI)

<sup>b</sup> : ISO/IEC 17025 ACCREDITED BY DEPARTMENT OF SCIENCE SERVICE (DSS)

<sup>c</sup> : VERIFIED BY OWN LABORATORY QUALITY SYSTEM, BUT STILL NOT ACCREDITED

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

FAT, OIL AND GREASE : THIS REPORTED VALUE IS BELOW LIMIT OF DETECTION. ITS USE IS SUBJECT TO CUSTOMER JUSTIFICATION.

RELEASE ORDER NO. : EV-12-09-003

(MRS PIYAPAT SUTTAMANUTWONG)  
LABORATORY SUPERVISOR

SEPTEMBER 23, 2022





## ANALYSIS REPORT

**PROJECT NAME** : ENVIRONMENTAL & SOCIOECONOMIC SURVEY  
**CUSTOMER NAME** : ESSO (THAILAND) PUBLIC COMPANY LIMITED  
**ADDRESS** : 118 MOO 2 THUNG SUKHLA SI RACHA CHON BURI 20230  
**CONTACT INFORMATION** : TEL : 0 3314 2891 e-mail : wanlop.boongor@exxonmobil.com  
**SAMPLING SOURCE** : -  
**SAMPLE TYPE** : EFFLUENT  
**MEASURING DATE** : SEPTEMBER 12, 2022  
**MEASURING TIME** : 09:55 HOUR  
**SAMPLING METHOD** : GRAB  
**MEASURED BY** : MR THANADET WANSANOR

**RECEIVED DATE** : -  
**ANALYTICAL DATE** : -  
**REPORT NO.** : 2022-U073461  
**WORK NO.** : 2019-002022  
**ANALYSIS NO.** : T22AS016-0009

PARAMETER	UNIT	METHOD OF ANALYSIS	RESULT	DETECTION LIMIT
			LBW005 : REFINERY MIX T22AS016-0009	
DISSOLVED OXYGEN	mg/L	MEMBRANE ELECTRODE METHOD AT SITE (SM: 4500-O G)	4.1	0.5
<b>SAMPLE CONDITION</b> WATER'S COLOUR/TURBID SEDIMENT			YELLOW/CLEAR BROWN	

RELEASE ORDER NO. : EV-12-09-003

.....  
(MR THEERAWAT CHOMMING)  
LABORATORY SUPERVISOR

SEPTEMBER 26, 2022



## ANALYSIS REPORT

**PROJECT NAME** : ENVIRONMENTAL & SOCIOECONOMIC SURVEY  
**CUSTOMER NAME** : ESSO (THAILAND) PUBLIC COMPANY LIMITED  
**ADDRESS** : 118 MOO 2 THUNG SUKHLA SI RACHA CHON BURI 20230  
**CONTACT INFORMATION** : TEL : 0 3314 2891 e-mail : wanlop.boongor@exxonmobil.com  
**SAMPLING SOURCE** : -  
**SAMPLE TYPE** : EFFLUENT  
**SAMPLING DATE** : SEPTEMBER 14, 2022  
**SAMPLING TIME** : 09:20 HOUR  
**SAMPLING METHOD <sup>c</sup>** : GRAB  
**SAMPLING BY <sup>c</sup>** : MR THANADET WANSANOR  
**ANALYZED BY** : MISS AMONRAT PUTTALEE

**RECEIVED DATE** : SEPTEMBER 14, 2022  
**ANALYTICAL DATE** : SEPTEMBER 14-19, 2022  
**REPORT NO.** : 2022-U074226  
**WORK NO.** : 2019-002022  
**ANALYSIS NO.** : T22AS205-0005

PARAMETER	UNIT	METHOD OF ANALYSIS	RESULT	DETECTION LIMIT
			LBW005 : REFINERY MIX T22AS205-0005	
pH <sup>a</sup>	-	ELECTROMETRIC METHOD (SM: 4500-H <sup>+</sup> B)	7.7 (25°C)	-
TEMPERATURE <sup>c</sup>	°C	LABORATORY AND FIELD METHODS (SM: 2550 B)	32	-
TOTAL DISSOLVED SOLIDS <sup>c</sup>	mg/L	DRIED AT 180 °C (SM: 2540 C)	24,960	25
FAT, OIL AND GREASE <sup>c</sup>	mg/L	LIQUID-LIQUID, PARTITION-GRAVIMETRIC METHOD (SM: 5520 B)	0.5	3
<b>SAMPLE CONDITION</b> WATER'S COLOUR/TURBID SEDIMENT			YELLOW/CLEAR BROWN	

<sup>a</sup> : ISO/IEC 17025 ACCREDITED BY THAI INDUSTRIAL STANDARDS INSTITUTE (TISI)

<sup>b</sup> : ISO/IEC 17025 ACCREDITED BY DEPARTMENT OF SCIENCE SERVICE (DSS)

<sup>c</sup> : VERIFIED BY OWN LABORATORY QUALITY SYSTEM, BUT STILL NOT ACCREDITED

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

FAT, OIL AND GREASE : THIS REPORTED VALUE IS BELOW LIMIT OF DETECTION. ITS USE IS SUBJECT TO CUSTOMER JUSTIFICATION.

RELEASE ORDER NO. : EV-14-09-004

(MRS PIYAPAT SUTTAMANUTWONG)  
LABORATORY SUPERVISOR

SEPTEMBER 23, 2022



## ANALYSIS REPORT

<b>PROJECT NAME</b>	: ENVIRONMENTAL & SOCIOECONOMIC SURVEY		
<b>CUSTOMER NAME</b>	: ESSO (THAILAND) PUBLIC COMPANY LIMITED		
<b>ADDRESS</b>	: 118 MOO 2 THUNG SUKHLA SI RACHA CHON BURI 20230		
<b>CONTACT INFORMATION</b>	: TEL : 0 3314 2891 e-mail : wanlop.boongor@exxonmobil.com		
<b>SAMPLING SOURCE</b>	: -		
<b>SAMPLE TYPE</b>	: EFFLUENT	<b>RECEIVED DATE</b>	: OCTOBER 6, 2022
<b>SAMPLING DATE</b>	: OCTOBER 5, 2022	<b>ANALYTICAL DATE</b>	: OCTOBER 6-17, 2022
<b>SAMPLING TIME</b>	: 09:15 HOUR	<b>REPORT NO.</b>	: 2022-U080473
<b>SAMPLING METHOD °</b>	: GRAB	<b>WORK NO.</b>	: 2019-002022
<b>SAMPLING BY °</b>	: MR THANADET WANSANOR	<b>ANALYSIS NO.</b>	: T22AT795-0006
<b>ANALYZED BY</b>	: MISS AMONRAT PUTTALEE		

PARAMETER	UNIT	METHOD OF ANALYSIS	RESULT	DETECTION LIMIT
			LBW005 : REFINERY MIX T22AT795-0006	
pH <sup>a</sup>	-	ELECTROMETRIC METHOD (SM: 4500-H <sup>+</sup> B)	7.7 (25°C)	-
TEMPERATURE °	°C	LABORATORY AND FIELD METHODS (SM: 2550 B)	33	-
BIOCHEMICAL OXYGEN DEMAND °	mg/L	5-DAY BOD TEST, MEMBRANE ELECTRODE METHOD (SM: 5210 B AND 4500-O G)	< 2.0	2.0
SALINITY °	ppt	ELECTRICAL CONDUCTIVITY METHOD AT SITE (SM: 2520 B)	25.2	0.1
CHEMICAL OXYGEN DEMAND °	mg/L	CLOSED REFLUX, TITRIMETRIC METHOD (SM: 5220 C)	68.1	25.0
TOTAL SUSPENDED SOLIDS <sup>a</sup>	mg/L	DRIED AT 103-105 °C (SM: 2540 D)	8.0	5.0
NITRATE °	mg/L NO <sub>3</sub> <sup>-</sup>	CADMIUM REDUCTION METHOD (SM: 4500-NO <sub>3</sub> <sup>-</sup> E)	1.86	0.09
SULPHIDE °	mg/L	METHYLENE BLUE METHOD (SM: 4500-S <sup>2-</sup> D)	< 0.02	0.02
TOTAL DISSOLVED SOLIDS °	mg/L	DRIED AT 180 °C (SM: 2540 C)	27,960	25
FAT, OIL AND GREASE °	mg/L	LIQUID-LIQUID, PARTITION-GRAVIMETRIC METHOD (SM: 5520 B)	0.6	3



PARAMETER	UNIT	METHOD OF ANALYSIS	RESULT	DETECTION LIMIT
			LBW005 : REFINERY MIX T22AT795-0006	
METALS				
LEAD °	mg/L Pb	DIGESTION, DIRECT AIR-ACETYLENE FLAME METHOD (SM: 3030 E AND 3111 B)	< 0.015	0.015
SAMPLE CONDITION				
WATER'S COLOUR/TURBID			YELLOW/CLEAR	
SEDIMENT			BROWN	

<sup>a</sup> : ISO/IEC 17025 ACCREDITED BY THAI INDUSTRIAL STANDARDS INSTITUTE (TISI)

<sup>b</sup> : ISO/IEC 17025 ACCREDITED BY DEPARTMENT OF SCIENCE SERVICE (DSS)

<sup>c</sup> : VERIFIED BY OWN LABORATORY QUALITY SYSTEM, BUT STILL NOT ACCREDITED

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

FAT, OIL AND GREASE : THIS REPORTED VALUE IS BELOW LIMIT OF DETECTION. ITS USE IS SUBJECT TO CUSTOMER JUSTIFICATION.

RELEASE ORDER NO. : EV-05-10-002

(MRS PIYAPAT SUTTAMANUTWONG)  
LABORATORY SUPERVISOR

OCTOBER 18, 2022

## ANALYSIS REPORT

**PROJECT NAME** : ENVIRONMENTAL & SOCIOECONOMIC SURVEY  
**CUSTOMER NAME** : ESSO (THAILAND) PUBLIC COMPANY LIMITED  
**ADDRESS** : 118 MOO 2 THUNG SUKHLA SI RACHA CHON BURI 20230  
**CONTACT INFORMATION** : TEL : 0 3314 2891 e-mail : wanlop.boongor@exxonmobil.com  
**SAMPLING SOURCE** : -  
**SAMPLE TYPE** : EFFLUENT  
**SAMPLING DATE** : OCTOBER 12, 2022  
**SAMPLING TIME** : 09:05 HOUR  
**SAMPLING METHOD °** : GRAB  
**SAMPLING BY °** : MR THANADET WANSANOR  
**ANALYZED BY** : MISS AMONRAT PUTTALEE

**RECEIVED DATE** : OCTOBER 12, 2022  
**ANALYTICAL DATE** : OCTOBER 12-20, 2022  
**REPORT NO.** : 2022-U083494  
**WORK NO.** : 2019-002022  
**ANALYSIS NO.** : T22AU323-0005

PARAMETER	UNIT	METHOD OF ANALYSIS	RESULT	DETECTION LIMIT
			LBW005 : REFINERY MIX T22AU323-0005	
pH <sup>a</sup>	-	ELECTROMETRIC METHOD (SM: 4500-H <sup>+</sup> B)	7.7 (25°C)	-
TEMPERATURE °	°C	LABORATORY AND FIELD METHODS (SM: 2550 B)	33	-
TOTAL DISSOLVED SOLIDS °	mg/L	DRIED AT 180 °C (SM: 2540 C)	27,090	25
FAT, OIL AND GREASE °	mg/L	LIQUID-LIQUID, PARTITION-GRAVIMETRIC METHOD (SM: 5520 B)	0.4	3
<b>SAMPLE CONDITION</b> WATER'S COLOUR/TURBID SEDIMENT			COLOURLESS/CLEAR BROWN	

<sup>a</sup> : ISO/IEC 17025 ACCREDITED BY THAI INDUSTRIAL STANDARDS INSTITUTE (TISI)

<sup>b</sup> : ISO/IEC 17025 ACCREDITED BY DEPARTMENT OF SCIENCE SERVICE (DSS)

<sup>c</sup> : VERIFIED BY OWN LABORATORY QUALITY SYSTEM, BUT STILL NOT ACCREDITED

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

FAT, OIL AND GREASE : THIS REPORTED VALUE IS BELOW LIMIT OF DETECTION. ITS USE IS SUBJECT TO CUSTOMER JUSTIFICATION.

RELEASE ORDER NO. : EV-12-10-004

(MRS PIYAPAT SUTTAMANUTWONG)  
LABORATORY SUPERVISOR

OCTOBER 26, 2022





## ANALYSIS REPORT

<b>PROJECT NAME</b>	: ENVIRONMENTAL & SOCIOECONOMIC SURVEY		
<b>CUSTOMER NAME</b>	: ESSO (THAILAND) PUBLIC COMPANY LIMITED		
<b>ADDRESS</b>	: 118 MOO 2 THUNG SUKHLA SI RACHA CHON BURI 20230		
<b>CONTACT INFORMATION</b>	: TEL : 0 3314 2891 e-mail : wanlop.boongor@exxonmobil.com		
<b>SAMPLING SOURCE</b>	: -		
<b>SAMPLE TYPE</b>	: EFFLUENT	<b>RECEIVED DATE</b>	: NOVEMBER 2, 2022
<b>SAMPLING DATE</b>	: NOVEMBER 2, 2022	<b>ANALYTICAL DATE</b>	: NOVEMBER 2-8, 2022
<b>SAMPLING TIME</b>	: 10:30 HOUR	<b>REPORT NO.</b>	: 2022-U089091
<b>SAMPLING METHOD <sup>c</sup></b>	: GRAB	<b>WORK NO.</b>	: 2019-002022
<b>SAMPLING BY <sup>c</sup></b>	: MR THANADET WANSANOR	<b>ANALYSIS NO.</b>	: T22AV769-0009
<b>ANALYZED BY</b>	: MISS AMONRAT PUTTALEE		

PARAMETER	UNIT	METHOD OF ANALYSIS	RESULT	DETECTION LIMIT
			LBW005 : REFINERY MIX T22AV769-0009	
pH <sup>a</sup>	-	ELECTROMETRIC METHOD (SM: 4500-H <sup>+</sup> B)	7.9 (25°C)	-
TEMPERATURE <sup>c</sup>	°C	LABORATORY AND FIELD METHODS (SM: 2550 B)	32	-
BIOCHEMICAL OXYGEN DEMAND <sup>c</sup>	mg/L	5-DAY BOD TEST, MEMBRANE ELECTRODE METHOD (SM: 5210 B AND 4500-O G)	2.8	2.0
SALINITY <sup>c</sup>	ppt	ELECTRICAL CONDUCTIVITY METHOD AT SITE (SM: 2520 B)	33.0	0.1
CHEMICAL OXYGEN DEMAND <sup>c</sup>	mg/L	CLOSED REFLUX, TITRIMETRIC METHOD (SM: 5220 C)	56.0	25.0
TOTAL SUSPENDED SOLIDS <sup>c</sup>	mg/L	DRIED AT 103-105 °C (SM: 2540 D)	< 5.0	5.0
NITRATE <sup>c</sup>	mg/L NO <sub>3</sub> <sup>-</sup>	CADMIUM REDUCTION METHOD (SM: 4500-NO <sub>3</sub> <sup>-</sup> E)	1.33	0.09
SULPHIDE <sup>c</sup>	mg/L	METHYLENE BLUE METHOD (SM: 4500-S <sup>2-</sup> D)	< 0.02	0.02
TOTAL DISSOLVED SOLIDS <sup>c</sup>	mg/L	DRIED AT 180 °C (SM: 2540 C)	37,240	25
FAT, OIL AND GREASE <sup>c</sup>	mg/L	LIQUID-LIQUID, PARTITION-GRAVIMETRIC METHOD (SM: 5520 B)	0.7	3
<b>METALS</b>				
LEAD <sup>c</sup>	mg/L Pb	DIGESTION, DIRECT AIR-ACETYLENE FLAME METHOD (SM: 3030 E AND 3111 B)	< 0.015	0.015
<b>SAMPLE CONDITION</b>				
WATER'S COLOUR/TURBID			YELLOW/CLEAR	
SEDIMENT			YELLOW	

<sup>a</sup> : ISO/IEC 17025 ACCREDITED BY THAI INDUSTRIAL STANDARDS INSTITUTE (TISI)

<sup>b</sup> : ISO/IEC 17025 ACCREDITED BY DEPARTMENT OF SCIENCE SERVICE (DSS)

<sup>c</sup> : VERIFIED BY OWN LABORATORY QUALITY SYSTEM, BUT STILL NOT ACCREDITED

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

FAT, OIL AND GREASE : THIS REPORTED VALUE IS BELOW LIMIT OF DETECTION. ITS USE IS SUBJECT TO CUSTOMER JUSTIFICATION.

RELEASE ORDER NO. : EV-02-11-001

(MRS PIYAPAT SUTTAMANUTWONG)  
LABORATORY SUPERVISOR

NOVEMBER 10, 2022



## ANALYSIS REPORT

<b>PROJECT NAME</b>	: ENVIRONMENTAL & SOCIOECONOMIC SURVEY		
<b>CUSTOMER NAME</b>	: ESSO (THAILAND) PUBLIC COMPANY LIMITED		
<b>ADDRESS</b>	: 118 MOO 2 THUNG SUKHLA SI RACHA CHON BURI 20230		
<b>CONTACT INFORMATION</b>	: TEL : 0 3314 2891 e-mail : wanlop.boongor@exxonmobil.com		
<b>SAMPLING SOURCE</b>	: -		
<b>SAMPLE TYPE</b>	: EFFLUENT	<b>RECEIVED DATE</b>	: NOVEMBER 9, 2022
<b>SAMPLING DATE</b>	: NOVEMBER 9, 2022	<b>ANALYTICAL DATE</b>	: NOVEMBER 9-14, 2022
<b>SAMPLING TIME</b>	: 10:10 HOUR	<b>REPORT NO.</b>	: 2022-U091494
<b>SAMPLING METHOD °</b>	: GRAB	<b>WORK NO.</b>	: 2019-002022
<b>SAMPLING BY °</b>	: MR THANADET WANSANOR	<b>ANALYSIS NO.</b>	: T22AW369-0005
<b>ANALYZED BY</b>	: MISS AMONRAT PUTTALEE		

PARAMETER	UNIT	METHOD OF ANALYSIS	RESULT	DETECTION LIMIT
			LBW005 : REFINERY MIX T22AW369-0005	
pH <sup>a</sup>	-	ELECTROMETRIC METHOD (SM: 4500-H <sup>+</sup> B)	7.9 (25°C)	-
TEMPERATURE °	°C	LABORATORY AND FIELD METHODS (SM: 2550 B)	32	-
TOTAL DISSOLVED SOLIDS °	mg/L	DRIED AT 180 °C (SM: 2540 C)	36,740	25
FAT, OIL AND GREASE °	mg/L	LIQUID-LIQUID, PARTITION-GRAVIMETRIC METHOD (SM: 5520 B)	0.4	3
<b>SAMPLE CONDITION</b> WATER'S COLOUR/TURBID SEDIMENT			COLOURLESS/CLEAR YELLOW	

<sup>a</sup> : ISO/IEC 17025 ACCREDITED BY THAI INDUSTRIAL STANDARDS INSTITUTE (TISI)

<sup>b</sup> : ISO/IEC 17025 ACCREDITED BY DEPARTMENT OF SCIENCE SERVICE (DSS)

<sup>c</sup> : VERIFIED BY OWN LABORATORY QUALITY SYSTEM, BUT STILL NOT ACCREDITED

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

FAT, OIL AND GREASE : THIS REPORTED VALUE IS BELOW LIMIT OF DETECTION. ITS USE IS SUBJECT TO CUSTOMER JUSTIFICATION.

RELEASE ORDER NO. : EV-09-11-003

(MRS PIYAPAT SUTTAMANUTWONG)  
LABORATORY SUPERVISOR

NOVEMBER 18, 2022



## ANALYSIS REPORT

<b>PROJECT NAME</b>	: ENVIRONMENTAL & SOCIOECONOMIC SURVEY		
<b>CUSTOMER NAME</b>	: ESSO (THAILAND) PUBLIC COMPANY LIMITED		
<b>ADDRESS</b>	: 118 MOO 2 THUNG SUKHLA SI RACHA CHON BURI 20230		
<b>CONTACT INFORMATION</b>	: TEL : 0 3314 2891 e-mail : wanlop.boongor@exxonmobil.com		
<b>SAMPLING SOURCE</b>	: -		
<b>SAMPLE TYPE</b>	: EFFLUENT	<b>RECEIVED DATE</b>	: DECEMBER 7, 2022
<b>SAMPLING DATE</b>	: DECEMBER 7, 2022	<b>ANALYTICAL DATE</b>	: DECEMBER 7-16, 2022
<b>SAMPLING TIME</b>	: 10:25 HOUR	<b>REPORT NO.</b>	: 2022-U100612
<b>SAMPLING METHOD °</b>	: GRAB	<b>WORK NO.</b>	: 2019-002022
<b>SAMPLING BY °</b>	: MR THANADET WANSANOR	<b>ANALYSIS NO.</b>	: T22AY432-0008
<b>ANALYZED BY</b>	: MISS AMONRAT PUTTALEE		

PARAMETER	UNIT	METHOD OF ANALYSIS	RESULT	DETECTION LIMIT
			LBW005 : REFINERY MIX T22AY432-0008	
pH <sup>a</sup>	-	ELECTROMETRIC METHOD (SM: 4500-H <sup>+</sup> B)	7.7 (25°C)	-
TEMPERATURE °	°C	LABORATORY AND FIELD METHODS (SM: 2550 B)	33	-
BIOCHEMICAL OXYGEN DEMAND °	mg/L	5-DAY BOD TEST, MEMBRANE ELECTRODE METHOD (SM: 5210 B AND 4500-O G)	< 2.0	2.0
SALINITY °	ppt	ELECTRICAL CONDUCTIVITY METHOD AT SITE (SM: 2520 B)	34.2	0.1
CHEMICAL OXYGEN DEMAND °	mg/L	CLOSED REFLUX, TITRIMETRIC METHOD (SM: 5220 C)	76.0	25.0
TOTAL SUSPENDED SOLIDS °	mg/L	DRIED AT 103-105 °C (SM: 2540 D)	< 5.0	5.0
NITRATE °	mg/L NO <sub>3</sub> <sup>-</sup>	CADMIUM REDUCTION METHOD (SM: 4500-NO <sub>3</sub> <sup>-</sup> E)	0.66	0.09
SULPHIDE °	mg/L	METHYLENE BLUE METHOD (SM: 4500-S <sup>2-</sup> D)	< 0.02	0.02
TOTAL DISSOLVED SOLIDS °	mg/L	DRIED AT 180 °C (SM: 2540 C)	38,180	25
FAT, OIL AND GREASE °	mg/L	LIQUID-LIQUID, PARTITION-GRAVIMETRIC METHOD (SM: 5520 B)	0.7	3
<b>METALS</b>				
LEAD °	mg/L Pb	DIGESTION, DIRECT AIR-ACETYLENE FLAME METHOD (SM: 3030 E AND 3111 B)	< 0.015	0.015
<b>SAMPLE CONDITION</b>				
WATER'S COLOUR/TURBID			YELLOW/CLEAR	
SEDIMENT			BROWN	

<sup>a</sup> : ISO/IEC 17025 ACCREDITED BY THAI INDUSTRIAL STANDARDS INSTITUTE (TISI)

<sup>b</sup> : ISO/IEC 17025 ACCREDITED BY DEPARTMENT OF SCIENCE SERVICE (DSS)

<sup>c</sup> : VERIFIED BY OWN LABORATORY QUALITY SYSTEM, BUT STILL NOT ACCREDITED

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

FAT, OIL AND GREASE : THIS REPORTED VALUE IS BELOW LIMIT OF DETECTION. ITS USE IS SUBJECT TO CUSTOMER JUSTIFICATION.

RELEASE ORDER NO. : EV-07-12-002

(MRS PIYAPAT SUTTAMANUTWONG)  
LABORATORY SUPERVISOR

DECEMBER 20, 2022





## ANALYSIS REPORT

**PROJECT NAME** : ENVIRONMENTAL & SOCIOECONOMIC SURVEY  
**CUSTOMER NAME** : ESSO (THAILAND) PUBLIC COMPANY LIMITED  
**ADDRESS** : 118 MOO 2 THUNG SUKHLA SI RACHA CHON BURI 20230  
**CONTACT INFORMATION** : TEL : 0 3314 2891 e-mail : wanlop.boongor@exxonmobil.com  
**SAMPLING SOURCE** : -  
**SAMPLE TYPE** : EFFLUENT  
**MEASURING DATE** : DECEMBER 7, 2022  
**MEASURING TIME** : 10:25 HOUR  
**SAMPLING METHOD** : GRAB  
**MEASURED BY** : MR THANADET WANSANOR

**RECEIVED DATE** : -  
**ANALYTICAL DATE** : -  
**REPORT NO.** : 2022-U100614  
**WORK NO.** : 2019-002022  
**ANALYSIS NO.** : T22AY432-0009

PARAMETER	UNIT	METHOD OF ANALYSIS	RESULT	DETECTION LIMIT
			LBW005 : REFINERY MIX T22AY432-0009	
DISSOLVED OXYGEN	mg/L	MEMBRANE ELECTRODE METHOD AT SITE (SM: 4500-O G)	5.9	0.5
<b>SAMPLE CONDITION</b> WATER'S COLOUR/TURBID SEDIMENT			YELLOW/CLEAR BROWN	

RELEASE ORDER NO. : EV-07-12-002

(MR THEERAWAT CHOMMING)  
LABORATORY SUPERVISOR

DECEMBER 20, 2022



## ANALYSIS REPORT

<b>PROJECT NAME</b>	: ENVIRONMENTAL & SOCIOECONOMIC SURVEY	<b>RECEIVED DATE</b>	: DECEMBER 14, 2022
<b>CUSTOMER NAME</b>	: ESSO (THAILAND) PUBLIC COMPANY LIMITED	<b>ANALYTICAL DATE</b>	: DECEMBER 14-19, 2022
<b>ADDRESS</b>	: 118 MOO 2 THUNG SUKHLA SI RACHA CHON BURI 20230	<b>REPORT NO.</b>	: 2022-U101941
<b>CONTACT INFORMATION</b>	: TEL : 0 3314 2891 e-mail : wanlop.boongor@exxonmobil.com	<b>WORK NO.</b>	: 2019-002022
<b>SAMPLING SOURCE</b>	: -	<b>ANALYSIS NO.</b>	: T22AY930-0005
<b>SAMPLE TYPE</b>	: EFFLUENT		
<b>SAMPLING DATE</b>	: DECEMBER 14, 2022		
<b>SAMPLING TIME</b>	: 10:00 HOUR		
<b>SAMPLING METHOD <sup>c</sup></b>	: GRAB		
<b>SAMPLING BY <sup>c</sup></b>	: MR THANADET WANSANOR		
<b>ANALYZED BY</b>	: MISS AMONRAT PUTTALEE		

PARAMETER	UNIT	METHOD OF ANALYSIS	RESULT	DETECTION LIMIT
			LBW005 : REFINERY MIX T22AY930-0005	
pH <sup>a</sup>	-	ELECTROMETRIC METHOD (SM: 4500-H <sup>+</sup> B)	8.0 (25°C)	-
TEMPERATURE <sup>c</sup>	°C	LABORATORY AND FIELD METHODS (SM: 2550 B)	30	-
TOTAL DISSOLVED SOLIDS <sup>c</sup>	mg/L	DRIED AT 180 °C (SM: 2540 C)	37,400	25
FAT, OIL AND GREASE <sup>c</sup>	mg/L	LIQUID-LIQUID, PARTITION-GRAVIMETRIC METHOD (SM: 5520 B)	1.2	3
<b>SAMPLE CONDITION</b> WATER'S COLOUR/TURBID SEDIMENT			COLOURLESS/CLEAR YELLOW	

<sup>a</sup> : ISO/IEC 17025 ACCREDITED BY THAI INDUSTRIAL STANDARDS INSTITUTE (TISI)

<sup>b</sup> : ISO/IEC 17025 ACCREDITED BY DEPARTMENT OF SCIENCE SERVICE (DSS)

<sup>c</sup> : VERIFIED BY OWN LABORATORY QUALITY SYSTEM, BUT STILL NOT ACCREDITED

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

FAT, OIL AND GREASE : THIS REPORTED VALUE IS BELOW LIMIT OF DETECTION. ITS USE IS SUBJECT TO CUSTOMER JUSTIFICATION.

RELEASE ORDER NO. : EV-14-12-004

(MRS PIYAPAT SUTTAMANUTWONG)  
LABORATORY SUPERVISOR

DECEMBER 23, 2022





## ANALYSIS REPORT

**PROJECT NAME** : ENVIRONMENTAL & SOCIOECONOMIC SURVEY  
**CUSTOMER NAME** : ESSO (THAILAND) PUBLIC COMPANY LIMITED  
**ADDRESS** : 118 MOO 2 THUNG SUKHLA SI RACHA CHON BURI 20230  
**CONTACT INFORMATION** : TEL : 0 3314 2891 e-mail : wanlop.boongor@exxonmobil.com  
**SAMPLING SOURCE** : -  
**SAMPLE TYPE** : SEAWATER  
**SAMPLING DATE** : JULY 6, 2022  
**SAMPLING TIME** : 10:30 HOUR  
**SAMPLING METHOD** : COMPOSITE  
**SAMPLING BY** : MR THANADET WANSANOR  
**ANALYZED BY** : MISS AMONRAT PUTTALEE

**RECEIVED DATE** : JULY 7, 2022  
**ANALYTICAL DATE** : JULY 7-25, 2022  
**REPORT NO.** : 2022-U058385  
**WORK NO.** : 2019-002022  
**ANALYSIS NO.** : T22AN353-0001

PARAMETER	UNIT	METHOD OF ANALYSIS	RESULT	DETECTION LIMIT
			LBW006. 500 M OFFSHORE (JETTY) T22AN353-0001	
pH	-	ELECTROMETRIC METHOD (SM: 4500-H <sup>+</sup> B)	8.0 (25°C)	-
PHENOLS	mg/L	DISTILLATION, 4-AMINOANTIPYRINE METHOD (SM: 5530 B AND 5530 C)	< 0.005	0.005
TEMPERATURE	°C	THERMOMETER AT SITE (SM: 2550 B)	32	-
SALINITY	ppt	ELECTRICAL CONDUCTIVITY METHOD AT SITE (SM: 2520 B)	30.9	0.1
DISSOLVED OXYGEN	mg/L	MEMBRANE ELECTRODE METHOD AT SITE (SM: 4500-O G)	4.7	0.5
BIOCHEMICAL OXYGEN DEMAND	mg/L	MEMBRANE ELECTRODE METHOD (SM: 4500-O G AND 5210 B)	1.6	0.5
CHEMICAL OXYGEN DEMAND	mg/L	CLOSED REFLUX, TITRIMETRIC METHOD (SM: 5220 C)	62.7	25.0
SUSPENDED SOLIDS	mg/L	GRAVIMETRIC METHOD (SM: 2540 D)	7.1	1.0
TOTAL DISSOLVED SOLIDS	mg/L	TOTAL DISSOLVED SOLIDS DRIED AT 180 °C (SM: 2540 C)	34,288	25
CYANIDE	µg/L CN <sup>-</sup>	DISTILLATION, PYRIDINE-BARBITURIC ACID METHOD (SM: 4500-CN <sup>-</sup> C AND 4500-CN <sup>-</sup> E)	< 5	5
NITRATE-NITROGEN	µg/L N	CADMIUM REDUCTION AND COLOURIMETRIC METHOD (BASED ON PRACTICAL HANDBOOK OF SEAWATER ANALYSIS (STRICKLAND AND PARSON, 1972, II.6))	9.40	0.50
SULPHIDE	µg/L	METHYLENE BLUE COLOURIMETRIC METHOD (METHOD OF SEAWATER ANALYSIS, GRASSHOFF, 1999, CHAPTER 5)	< 10	10
FAT, OIL AND GREASE	mg/L	LIQUID-LIQUID, PARTITION-GRAVIMETRIC METHOD (SM: 5520 B)	0.4	3



PARAMETER	UNIT	METHOD OF ANALYSIS	RESULT	DETECTION LIMIT
			LBW006. 500 M OFFSHORE (JETTY) T22AN353-0001	
METALS				
LEAD	µg/L Pb	PRE-CONCENTRATION AND INDUCTIVELY COUPLED PLASMA (ICP) METHOD (BASED ON METHOD OF SEAWATER ANALYSIS, GRASSHOFF, 1999, CHAPTER 12)	< 0.100	0.100
SAMPLE CONDITION				
WATER'S COLOUR/TURBID			COLOURLESS/CLEAR	
SEDIMENT			YELLOW	

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

FAT, OIL AND GREASE : THIS REPORTED VALUE IS BELOW LIMIT OF DETECTION. ITS USE IS SUBJECT TO CUSTOMER JUSTIFICATION.

RELEASE ORDER NO. : EV-06-07-002

(MRS PIYAPAT SUTTAMANUTWONG)  
LABORATORY SUPERVISOR

JULY 26, 2022

## ANALYSIS REPORT

**PROJECT NAME** : ENVIRONMENTAL & SOCIOECONOMIC SURVEY  
**CUSTOMER NAME** : ESSO (THAILAND) PUBLIC COMPANY LIMITED  
**ADDRESS** : 118 MOO 2 THUNG SUKHILA SI RACHA CHON BURI 20230  
**CONTACT INFORMATION** : TEL : 0 3314 2891 e-mail : wanlop.boongor@exxonmobil.com  
**SAMPLING SOURCE** : -  
**SAMPLE TYPE** : SEAWATER  
**SAMPLING DATE** : JULY 14, 2022  
**SAMPLING TIME** : 10:30 HOUR  
**SAMPLING METHOD** : COMPOSITE  
**SAMPLING BY** : MR THANADET WANSANOR  
**ANALYZED BY** : MISS AMONRAT PUTTALEE

**RECEIVED DATE** : JULY 14, 2022  
**ANALYTICAL DATE** : JULY 14-19, 2022  
**REPORT NO.** : 2022-U057453  
**WORK NO.** : 2019-002022  
**ANALYSIS NO.** : T22AN973-0006

PARAMETER	UNIT	METHOD OF ANALYSIS	RESULT	DETECTION LIMIT
			LBW006. 500 M OFFSHORE (JETTY) T22AN973-0006	
pH	-	ELECTROMETRIC METHOD (SM: 4500-H <sup>+</sup> B)	8.0 (25°C)	-
TEMPERATURE	°C	LABORATORY AND FIELD METHODS (SM: 2550 B)	31	-
TOTAL DISSOLVED SOLIDS	mg/L	DRIED AT 180 °C (SM: 2540 C)	28,200	25
FAT, OIL AND GREASE	mg/L	LIQUID-LIQUID, PARTITION-GRAVIMETRIC METHOD (SM: 5520 B)	0.8	3
<b>SAMPLE CONDITION</b> WATER'S COLOUR/TURBID SEDIMENT			YELLOW/CLEAR BROWN	

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

FAT, OIL AND GREASE : THIS REPORTED VALUE IS BELOW LIMIT OF DETECTION. ITS USE IS SUBJECT TO CUSTOMER JUSTIFICATION.

RELEASE ORDER NO. : EV-14-07-004

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(MRS PIYAPAT SUTTAMANUTWONG)  
LABORATORY SUPERVISOR

JULY 22, 2022



## ANALYSIS REPORT

**PROJECT NAME** : ENVIRONMENTAL & SOCIOECONOMIC SURVEY  
**CUSTOMER NAME** : ESSO (THAILAND) PUBLIC COMPANY LIMITED  
**ADDRESS** : 118 MOO 2 THUNG SUKHLA SI RACHA CHON BURI 20230  
**CONTACT INFORMATION** : TEL : 0 3314 2891 e-mail : wanlop.boongor@exxonmobil.com  
**SAMPLING SOURCE** : -  
**SAMPLE TYPE** : SEAWATER  
**SAMPLING DATE** : AUGUST 3, 2022  
**SAMPLING TIME** : 10:29 HOUR  
**SAMPLING METHOD** : COMPOSITE  
**SAMPLING BY** : MR THANADET WANSANOR  
**ANALYZED BY** : MISS AMONRAT PUTTALEE

**RECEIVED DATE** : AUGUST 3, 2022  
**ANALYTICAL DATE** : AUGUST 3-19, 2022  
**REPORT NO.** : 2022-U064770  
**WORK NO.** : 2019-002022  
**ANALYSIS NO.** : T22AP190-0001

PARAMETER	UNIT	METHOD OF ANALYSIS	RESULT	DETECTION LIMIT
			LBW006. 500 M OFFSHORE (JETTY) T22AP190-0001	
pH	-	ELECTROMETRIC METHOD (SM: 4500-H <sup>+</sup> B)	7.8 (25°C)	-
PHENOLS	mg/L	DISTILLATION, 4-AMINOANTIPYRINE METHOD (SM: 5530 B AND 5530 C)	0.009	0.005
TEMPERATURE	°C	THERMOMETER AT SITE (SM: 2550 B)	31	-
SALINITY	ppt	ELECTRICAL CONDUCTIVITY METHOD AT SITE (SM: 2520 B)	30.6	0.1
DISSOLVED OXYGEN	mg/L	MEMBRANE ELECTRODE METHOD AT SITE (SM: 4500-O G)	5.1	0.5
BIOCHEMICAL OXYGEN DEMAND	mg/L	MEMBRANE ELECTRODE METHOD (SM: 4500-O G AND 5210 B)	1.5	0.5
CHEMICAL OXYGEN DEMAND	mg/L	CLOSED REFLUX, TITRIMETRIC METHOD (SM: 5220 C)	59.2	25.0
SUSPENDED SOLIDS	mg/L	GRAVIMETRIC METHOD (SM: 2540 D)	24.6	1.0
TOTAL DISSOLVED SOLIDS	mg/L	TOTAL DISSOLVED SOLIDS DRIED AT 180 °C (SM: 2540 C)	34,475	25
CYANIDE	µg/L CN <sup>-</sup>	DISTILLATION, PYRIDINE-BARBITURIC ACID METHOD (SM: 4500-CN <sup>-</sup> C AND 4500-CN <sup>-</sup> E)	< 5	5
NITRATE-NITROGEN	µg/L N	CADMIUM REDUCTION AND COLOURIMETRIC METHOD (BASED ON PRACTICAL HANDBOOK OF SEAWATER ANALYSIS (STRICKLAND AND PARSON, 1972, II.6))	21.0	0.50
SULPHIDE	µg/L	METHYLENE BLUE COLOURIMETRIC METHOD (METHOD OF SEAWATER ANALYSIS, GRASSHOFF, 1999, CHAPTER 5)	< 10	10
FAT, OIL AND GREASE	mg/L	LIQUID-LIQUID, PARTITION-GRAVIMETRIC METHOD (SM: 5520 B)	0.3	3





PARAMETER	UNIT	METHOD OF ANALYSIS	RESULT	DETECTION LIMIT
			LBW006. 500 M OFFSHORE (JETTY) T22AP190-0001	
METALS				
LEAD	µg/L Pb	PRE-CONCENTRATION AND INDUCTIVELY COUPLED PLASMA (ICP) METHOD (BASED ON METHOD OF SEAWATER ANALYSIS, GRASSHOFF, 1999, CHAPTER 12)	0.670	0.100
SAMPLE CONDITION				
WATER'S COLOUR/TURBID			COLOURLESS/CLEAR	
SEDIMENT			YELLOW	

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

FAT, OIL AND GREASE : THIS REPORTED VALUE IS BELOW LIMIT OF DETECTION. ITS USE IS SUBJECT TO CUSTOMER JUSTIFICATION.

RELEASE ORDER NO. : EV-03-08-002

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

AUGUST 22, 2022

## ANALYSIS REPORT

**PROJECT NAME** : ENVIRONMENTAL & SOCIOECONOMIC SURVEY  
**CUSTOMER NAME** : ESSO (THAILAND) PUBLIC COMPANY LIMITED  
**ADDRESS** : 118 MOO 2 THUNG SUKHLA SI RACHA CHON BURI 20230  
**CONTACT INFORMATION** : TEL : 0 3314 2891 e-mail : wanlop.boongor@exxonmobil.com  
**SAMPLING SOURCE** : -  
**SAMPLE TYPE** : SEAWATER  
**SAMPLING DATE** : AUGUST 10, 2022  
**SAMPLING TIME** : 09:45 HOUR  
**SAMPLING METHOD** : COMPOSITE  
**SAMPLING BY** : MR THANADET WANSANOR  
**ANALYZED BY** : MISS AMONRAT PUTTALEE

**RECEIVED DATE** : AUGUST 10, 2022  
**ANALYTICAL DATE** : AUGUST 10-15, 2022  
**REPORT NO.** : 2022-U064767  
**WORK NO.** : 2019-002022  
**ANALYSIS NO.** : T22AP761-0006

PARAMETER	UNIT	METHOD OF ANALYSIS	RESULT	DETECTION LIMIT
			LBW006. 500 M OFFSHORE (JETTY) T22AP761-0006	
pH	-	ELECTROMETRIC METHOD (SM: 4500-H <sup>+</sup> B)	8.2 (25°C)	-
TEMPERATURE	°C	LABORATORY AND FIELD METHODS (SM: 2550 B)	30	-
TOTAL DISSOLVED SOLIDS	mg/L	DRIED AT 180 °C (SM: 2540 C)	24,460	25
FAT, OIL AND GREASE	mg/L	LIQUID-LIQUID, PARTITION-GRAVIMETRIC METHOD (SM: 5520 B)	0.8	3
<b>SAMPLE CONDITION</b> WATER'S COLOUR/TURBID SEDIMENT			YELLOW/CLEAR YELLOW	

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

FAT, OIL AND GREASE : THIS REPORTED VALUE IS BELOW LIMIT OF DETECTION. ITS USE IS SUBJECT TO CUSTOMER JUSTIFICATION.

RELEASE ORDER NO. : EV-10-08-004

(MRS PIYAPAT SUTTAMANUTWONG)  
LABORATORY SUPERVISOR

AUGUST 26, 2022



## ANALYSIS REPORT

**PROJECT NAME** : ENVIRONMENTAL & SOCIOECONOMIC SURVEY  
**CUSTOMER NAME** : ESSO (THAILAND) PUBLIC COMPANY LIMITED  
**ADDRESS** : 118 MOO 2 THUNG SUKHLA SI RACHA CHON BURI 20230  
**CONTACT INFORMATION** : TEL : 0 3314 2891 e-mail : wanlop.boongor@exxonmobil.com  
**SAMPLING SOURCE** : -  
**SAMPLE TYPE** : SEAWATER **RECEIVED DATE** : SEPTEMBER 12, 2022  
**SAMPLING DATE** : SEPTEMBER 12, 2022 **ANALYTICAL DATE** : SEPTEMBER 12-23, 2022  
**SAMPLING TIME** : 12:15 HOUR **REPORT NO.** : 2022-U074758  
**SAMPLING METHOD** : COMPOSITE **WORK NO.** : 2019-002022  
**SAMPLING BY** : MR THANADET WANSANOR **ANALYSIS NO.** : T22AS017-0001  
**ANALYZED BY** : MISS AMONRAT PUTTALEE

PARAMETER	UNIT	METHOD OF ANALYSIS	RESULT	DETECTION LIMIT
			LBW006. 500 M OFFSHORE (JETTY) T22AS017-0001	
pH	-	ELECTROMETRIC METHOD (SM: 4500-H <sup>+</sup> B)	8.2 (25°C)	-
PHENOLS	mg/L	DISTILLATION, 4-AMINOANTIPYRINE METHOD (SM: 5530 B AND 5530 C)	< 0.005	0.005
TEMPERATURE	°C	THERMOMETER AT SITE (SM: 2550 B)	31	-
SALINITY	ppt	ELECTRICAL CONDUCTIVITY METHOD AT SITE (SM: 2520 B)	16.8	0.1
DISSOLVED OXYGEN	mg/L	MEMBRANE ELECTRODE METHOD AT SITE (SM: 4500-O G)	4.7	0.5
BIOCHEMICAL OXYGEN DEMAND	mg/L	MEMBRANE ELECTRODE METHOD (SM: 4500-O G AND 5210 B)	1.6	0.5
CHEMICAL OXYGEN DEMAND	mg/L	CLOSED REFLUX, TITRIMETRIC METHOD (SM: 5220 C)	59.2	25.0
SUSPENDED SOLIDS	mg/L	GRAVIMETRIC METHOD (SM: 2540 D)	14.9	1.0
TOTAL DISSOLVED SOLIDS	mg/L	TOTAL DISSOLVED SOLIDS DRIED AT 180 °C (SM: 2540 C)	19,000	25
CYANIDE	µg/L CN <sup>-</sup>	DISTILLATION, PYRIDINE-BARBITURIC ACID METHOD (SM: 4500-CN <sup>-</sup> C AND 4500-CN <sup>-</sup> E)	< 5	5
NITRATE-NITROGEN	µg/L N	CADMIUM REDUCTION AND COLOURIMETRIC METHOD (BASED ON PRACTICAL HANDBOOK OF SEAWATER ANALYSIS (STRICKLAND AND PARSON, 1972, II.6))	17.8	0.50
SULPHIDE	µg/L	METHYLENE BLUE COLOURIMETRIC METHOD (METHOD OF SEAWATER ANALYSIS, GRASSHOFF, 1999, CHAPTER 5)	< 10	10
FAT, OIL AND GREASE	mg/L	LIQUID-LIQUID, PARTITION-GRAVIMETRIC METHOD (SM: 5520 B)	0.8	3



PARAMETER	UNIT	METHOD OF ANALYSIS	RESULT	DETECTION LIMIT
			LBW006. 500 M OFFSHORE (JETTY) T22AS017-0001	
METALS				
LEAD	µg/L Pb	PRE-CONCENTRATION AND INDUCTIVELY COUPLED PLASMA (ICP) METHOD (BASED ON METHOD OF SEAWATER ANALYSIS, GRASSHOFF, 1999, CHAPTER 12)	0.330	0.100
SAMPLE CONDITION				
WATER'S COLOUR/TURBID			YELLOW/CLEAR	
SEDIMENT			BROWN	

SM ; STANDARD METHODS FOR THE EXAMINATION OF WATER AND WASTEWATER, APHA, AWWA, WEF, 23<sup>rd</sup> EDITION, 2017.

FAT, OIL AND GREASE : THIS REPORTED VALUE IS BELOW LIMIT OF DETECTION. ITS USE IS SUBJECT TO CUSTOMER JUSTIFICATION.  
RELEASE ORDER NO. : EV-12-09-003

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

SEPTEMBER 26, 2022

## ANALYSIS REPORT

**PROJECT NAME** : ENVIRONMENTAL & SOCIOECONOMIC SURVEY  
**CUSTOMER NAME** : ESSO (THAILAND) PUBLIC COMPANY LIMITED  
**ADDRESS** : 118 MOO 2 THUNG SUKHLA SI RACHA CHON BURI 20230  
**CONTACT INFORMATION** : TEL : 0 3314 2891 e-mail : wanlop.boongor@exxonmobil.com  
**SAMPLING SOURCE** : -  
**SAMPLE TYPE** : SEAWATER  
**SAMPLING DATE** : SEPTEMBER 14, 2022  
**SAMPLING TIME** : 09:35 HOUR  
**SAMPLING METHOD** : COMPOSITE  
**SAMPLING BY** : MR THANADET WANSANOR  
**ANALYZED BY** : MISS AMONRAT PUTTALEE

**RECEIVED DATE** : SEPTEMBER 14, 2022  
**ANALYTICAL DATE** : SEPTEMBER 14-19, 2022  
**REPORT NO.** : 2022-U074232  
**WORK NO.** : 2019-002022  
**ANALYSIS NO.** : T22AS205-0006

PARAMETER	UNIT	METHOD OF ANALYSIS	RESULT	DETECTION LIMIT
			LBW006. 500 M OFFSHORE (JETTY) T22AS205-0006	
pH	-	ELECTROMETRIC METHOD (SM: 4500-H <sup>+</sup> B)	8.0 (25°C)	-
TEMPERATURE	°C	LABORATORY AND FIELD METHODS (SM: 2550 B)	30	-
TOTAL DISSOLVED SOLIDS	mg/L	DRIED AT 180 °C (SM: 2540 C)	27,770	25
FAT, OIL AND GREASE	mg/L	LIQUID-LIQUID, PARTITION-GRAVIMETRIC METHOD (SM: 5520 B)	0.8	3
<b>SAMPLE CONDITION</b> WATER'S COLOUR/TURBID SEDIMENT			YELLOW/CLEAR BROWN	

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

FAT, OIL AND GREASE : THIS REPORTED VALUE IS BELOW LIMIT OF DETECTION. ITS USE IS SUBJECT TO CUSTOMER JUSTIFICATION.

RELEASE ORDER NO. : EV-14-09-004

(MRS PIYAPAT SUTTAMANUTWONG)  
LABORATORY SUPERVISOR

SEPTEMBER 23, 2022





## ANALYSIS REPORT

<b>PROJECT NAME</b>	: ENVIRONMENTAL & SOCIOECONOMIC SURVEY		
<b>CUSTOMER NAME</b>	: ESSO (THAILAND) PUBLIC COMPANY LIMITED		
<b>ADDRESS</b>	: 118 MOO 2 THUNG SUKHLA SI RACHA CHON BURI 20230		
<b>CONTACT INFORMATION</b>	: TEL : 0 3314 2891 e-mail : wanlop.boongor@exxonmobil.com		
<b>SAMPLING SOURCE</b>	: -		
<b>SAMPLE TYPE</b>	: SEAWATER	<b>RECEIVED DATE</b>	: OCTOBER 6, 2022
<b>SAMPLING DATE</b>	: OCTOBER 5, 2022	<b>ANALYTICAL DATE</b>	: OCTOBER 6-18, 2022
<b>SAMPLING TIME</b>	: 10:00 HOUR	<b>REPORT NO.</b>	: 2022-U082074
<b>SAMPLING METHOD</b>	: COMPOSITE	<b>WORK NO.</b>	: 2019-002022
<b>SAMPLING BY</b>	: MR THANADET WANSANOR	<b>ANALYSIS NO.</b>	: T22AT794-0001
<b>ANALYZED BY</b>	: MISS KANNIKAR SUMLEETHA		

PARAMETER	UNIT	METHOD OF ANALYSIS	RESULT	DETECTION LIMIT
			LBW006. 500 M OFFSHORE (JETTY) T22AT794-0001	
pH	-	ELECTROMETRIC METHOD (SM: 4500-H <sup>+</sup> B)	7.8 (25°C)	-
PHENOLS	mg/L	DISTILLATION, 4-AMINOANTIPYRINE METHOD (SM: 5530 B AND 5530 C)	< 0.005	0.005
TEMPERATURE	°C	THERMOMETER AT SITE (SM: 2550 B)	29	-
SALINITY	ppt	ELECTRICAL CONDUCTIVITY METHOD AT SITE (SM: 2520 B)	27.7	0.1
DISSOLVED OXYGEN	mg/L	MEMBRANE ELECTRODE METHOD AT SITE (SM: 4500-O G)	4.5	0.5
BIOCHEMICAL OXYGEN DEMAND	mg/L	MEMBRANE ELECTRODE METHOD (SM: 4500-O G AND 5210 B)	1.3	0.5
CHEMICAL OXYGEN DEMAND	mg/L	CLOSED REFLUX, TITRIMETRIC METHOD (SM: 5220 C)	52.3	25.0
SUSPENDED SOLIDS	mg/L	GRAVIMETRIC METHOD (SM: 2540 D)	6.3	1.0
TOTAL DISSOLVED SOLIDS	mg/L	TOTAL DISSOLVED SOLIDS DRIED AT 180 °C (SM: 2540 C)	31,060	25
CYANIDE	µg/L CN <sup>-</sup>	DISTILLATION, PYRIDINE-BARBITURIC ACID METHOD (SM: 4500-CN <sup>-</sup> C AND 4500-CN <sup>-</sup> E)	< 5	5
NITRATE-NITROGEN	µg/L N	CADMIUM REDUCTION AND COLOURIMETRIC METHOD (BASED ON PRACTICAL HANDBOOK OF SEAWATER ANALYSIS (STRICKLAND AND PARSON, 1972, II.6))	35.6	0.50
SULPHIDE	µg/L	METHYLENE BLUE COLOURIMETRIC METHOD (METHOD OF SEAWATER ANALYSIS, GRASSHOFF, 1999, CHAPTER 5)	< 10	10
FAT, OIL AND GREASE	mg/L	LIQUID-LIQUID, PARTITION-GRAVIMETRIC METHOD (SM: 5520 B)	0.6	3



PARAMETER	UNIT	METHOD OF ANALYSIS	RESULT	DETECTION LIMIT
			LBW006. 500 M OFFSHORE (JETTY) T22AT794-0001	
METALS				
LEAD	µg/L Pb	PRE-CONCENTRATION AND INDUCTIVELY COUPLED PLASMA (ICP) METHOD (BASED ON METHOD OF SEAWATER ANALYSIS, GRASSHOFF, 1999, CHAPTER 12)	0.460	0.100
SAMPLE CONDITION				
WATER'S COLOUR/TURBID			COLOURLESS/CLEAR	
SEDIMENT			YELLOW	

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

FAT, OIL AND GREASE : THIS REPORTED VALUE IS BELOW LIMIT OF DETECTION. ITS USE IS SUBJECT TO CUSTOMER JUSTIFICATION.

RELEASE ORDER NO. : EV-05-10-002

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

OCTOBER 20, 2022

## ANALYSIS REPORT

**PROJECT NAME** : ENVIRONMENTAL & SOCIOECONOMIC SURVEY  
**CUSTOMER NAME** : ESSO (THAILAND) PUBLIC COMPANY LIMITED  
**ADDRESS** : 118 MOO 2 THUNG SUKHLA SI RACHA CHON BURI 20230  
**CONTACT INFORMATION** : TEL : 0 3314 2891 e-mail : wanlop.boongor@exxonmobil.com  
**SAMPLING SOURCE** : -  
**SAMPLE TYPE** : SEAWATER  
**SAMPLING DATE** : OCTOBER 12, 2022  
**SAMPLING TIME** : 08:40 HOUR  
**SAMPLING METHOD** : COMPOSITE  
**SAMPLING BY** : MR THANADET WANSANOR  
**ANALYZED BY** : MISS AMONRAT PUTTALEE

**RECEIVED DATE** : OCTOBER 12, 2022  
**ANALYTICAL DATE** : OCTOBER 12-20, 2022  
**REPORT NO.** : 2022-U083495  
**WORK NO.** : 2019-002022  
**ANALYSIS NO.** : T22AU323-0006

PARAMETER	UNIT	METHOD OF ANALYSIS	RESULT	DETECTION LIMIT
			LBW006. 500 M OFFSHORE (JETTY) T22AU323-0006	
pH	-	ELECTROMETRIC METHOD (SM: 4500-H <sup>+</sup> B)	7.8 (25°C)	-
TEMPERATURE	°C	THERMOMETER AT SITE (SM: 2550 B)	30	-
TOTAL DISSOLVED SOLIDS	mg/L	TOTAL DISSOLVED SOLIDS DRIED AT 180 °C (SM: 2540 C)	32,840	25
FAT, OIL AND GREASE	mg/L	LIQUID-LIQUID, PARTITION-GRAVIMETRIC METHOD (SM: 5520 B)	0.6	3
<b>SAMPLE CONDITION</b> WATER'S COLOUR/TURBID SEDIMENT			COLOURLESS/CLEAR BROWN	

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

FAT, OIL AND GREASE : THIS REPORTED VALUE IS BELOW LIMIT OF DETECTION. ITS USE IS SUBJECT TO CUSTOMER JUSTIFICATION.

RELEASE ORDER NO. : EV-12-10-004

(MRS PIYAPAT SUTTAMANUTWONG)  
LABORATORY SUPERVISOR

OCTOBER 26, 2022



## ANALYSIS REPORT

<b>PROJECT NAME</b>	: ENVIRONMENTAL & SOCIOECONOMIC SURVEY		
<b>CUSTOMER NAME</b>	: ESSO (THAILAND) PUBLIC COMPANY LIMITED		
<b>ADDRESS</b>	: 118 MOO 2 THUNG SUKHLA SI RACHA CHON BURI 20230		
<b>CONTACT INFORMATION</b>	: TEL : 0 3314 2891 e-mail : wanlop.boongor@exxonmobil.com		
<b>SAMPLING SOURCE</b>	: -		
<b>SAMPLE TYPE</b>	: SEAWATER	<b>RECEIVED DATE</b>	: NOVEMBER 2, 2022
<b>SAMPLING DATE</b>	: NOVEMBER 2, 2022	<b>ANALYTICAL DATE</b>	: NOVEMBER 2-11, 2022
<b>SAMPLING TIME</b>	: 10:45 HOUR	<b>REPORT NO.</b>	: 2022-U090812
<b>SAMPLING METHOD</b>	: COMPOSITE	<b>WORK NO.</b>	: 2019-002022
<b>SAMPLING BY</b>	: MR THANADET WANSANOR	<b>ANALYSIS NO.</b>	: T22AV775-0001
<b>ANALYZED BY</b>	: MISS AMONRAT PUTTALEE		

PARAMETER	UNIT	METHOD OF ANALYSIS	RESULT	DETECTION LIMIT
			LBW006. 500 M OFFSHORE (JETTY) T22AV775-0001	
pH	-	ELECTROMETRIC METHOD (SM: 4500-H <sup>+</sup> B)	7.8 (25°C)	-
PHENOLS	mg/L	DISTILLATION, 4-AMINOANTIPYRINE METHOD (SM: 5530 B AND 5530 C)	< 0.005	0.005
TEMPERATURE	°C	THERMOMETER AT SITE (SM: 2550 B)	29	-
SALINITY	ppt	ELECTRICAL CONDUCTIVITY METHOD AT SITE (SM: 2520 B)	31.8	0.1
DISSOLVED OXYGEN	mg/L	MEMBRANE ELECTRODE METHOD AT SITE (SM: 4500-O G)	5.6	0.5
BIOCHEMICAL OXYGEN DEMAND	mg/L	MEMBRANE ELECTRODE METHOD (SM: 4500-O G AND 5210 B)	1.1	0.5
CHEMICAL OXYGEN DEMAND	mg/L	CLOSED REFLUX, TITRIMETRIC METHOD (SM: 5220 C)	35.2	25.0
SUSPENDED SOLIDS	mg/L	GRAVIMETRIC METHOD (SM: 2540 D)	5.0	1.0
TOTAL DISSOLVED SOLIDS	mg/L	TOTAL DISSOLVED SOLIDS DRIED AT 180 °C (SM: 2540 C)	33,930	25
CYANIDE	µg/L CN <sup>-</sup>	DISTILLATION, PYRIDINE-BARBITURIC ACID METHOD (SM: 4500-CN <sup>-</sup> C AND 4500-CN <sup>-</sup> E)	< 5	5
NITRATE-NITROGEN	µg/L N	CADMIUM REDUCTION AND COLOURIMETRIC METHOD (BASED ON PRACTICAL HANDBOOK OF SEAWATER ANALYSIS (STRICKLAND AND PARSON, 1972, II.6))	15.1	0.50
SULPHIDE	µg/L	METHYLENE BLUE COLOURIMETRIC METHOD (METHOD OF SEAWATER ANALYSIS, GRASSHOFF, 1999, CHAPTER 5)	< 10	10
FAT, OIL AND GREASE	mg/L	LIQUID-LIQUID, PARTITION-GRAVIMETRIC METHOD (SM: 5520 B)	0.8	3



PARAMETER	UNIT	METHOD OF ANALYSIS	RESULT	DETECTION LIMIT
			LBW006. 500 M OFFSHORE (JETTY) T22AV775-0001	
METALS				
LEAD	µg/L Pb	PRE-CONCENTRATION AND INDUCTIVELY COUPLED PLASMA (ICP) METHOD (BASED ON METHOD OF SEAWATER ANALYSIS, GRASSHOFF, 1999, CHAPTER 12)	0.520	0.100
SAMPLE CONDITION				
WATER'S COLOUR/TURBID			COLOURLESS/CLEAR	
SEDIMENT			YELLOW	

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

FAT, OIL AND GREASE : THIS REPORTED VALUE IS BELOW LIMIT OF DETECTION. ITS USE IS SUBJECT TO CUSTOMER JUSTIFICATION.

RELEASE ORDER NO. : EV-02-11-001

(MRS PIYAPAT SUTTAMANUTWONG)  
LABORATORY SUPERVISOR

NOVEMBER 17, 2022



## ANALYSIS REPORT

**PROJECT NAME** : ENVIRONMENTAL & SOCIOECONOMIC SURVEY  
**CUSTOMER NAME** : ESSO (THAILAND) PUBLIC COMPANY LIMITED  
**ADDRESS** : 118 MOO 2 THUNG SUKHLA SI RACHA CHON BURI 20230  
**CONTACT INFORMATION** : TEL : 0 3314 2891 e-mail : wanlop.boongor@exxonmobil.com  
**SAMPLING SOURCE** : -  
**SAMPLE TYPE** : SEAWATER  
**SAMPLING DATE** : NOVEMBER 2, 2022  
**SAMPLING TIME** : 10:45 HOUR  
**SAMPLING METHOD** : COMPOSITE  
**SAMPLING BY** : MR THANADET WANSANOR  
**ANALYZED BY** : MR KORNVIT CHIASIRISAKUL

**RECEIVED DATE** : NOVEMBER 2, 2022  
**ANALYTICAL DATE** : NOVEMBER 2-7, 2022  
**REPORT NO.** : 2022-U090813  
**WORK NO.** : 2019-002022  
**ANALYSIS NO.** : T22AV775-0002

PARAMETER	UNIT	METHOD OF ANALYSIS	RESULT	DETECTION LIMIT
			LBW006. 500 M OFFSHORE (JETTY) T22AV775-0002	
METALS				
MERCURY	µg/L Hg	COLD-VAPOUR ATOMIC FLUORESCENCE SPECTROMETRIC METHOD (US EPA 2005: 245.7)	< 0.020	0.020
SAMPLE CONDITION				
WATER'S COLOUR/TURBID SEDIMENT			COLOURLESS/CLEAR	

RELEASE ORDER NO. : EV-02-11-001

(MR BHUCHONK PANICHLERTUMPI)  
LABORATORY SUPERVISOR

NOVEMBER 17, 2022



## ANALYSIS REPORT

**PROJECT NAME** : ENVIRONMENTAL & SOCIOECONOMIC SURVEY  
**CUSTOMER NAME** : ESSO (THAILAND) PUBLIC COMPANY LIMITED  
**ADDRESS** : 118 MOO 2 THUNG SUKHLA SI RACHA CHON BURI 20230  
**CONTACT INFORMATION** : TEL : 0 3314 2891 e-mail : wanlop.boongor@exxonmobil.com  
**SAMPLING SOURCE** : -  
**SAMPLE TYPE** : SEAWATER  
**SAMPLING DATE** : NOVEMBER 9, 2022  
**SAMPLING TIME** : 10:20 HOUR  
**SAMPLING METHOD** : COMPOSITE  
**SAMPLING BY** : MR THANADET WANSANOR  
**ANALYZED BY** : MISS AMONRAT PUTTALEE

**RECEIVED DATE** : NOVEMBER 9, 2022  
**ANALYTICAL DATE** : NOVEMBER 9-14, 2022  
**REPORT NO.** : 2022-U091495  
**WORK NO.** : 2019-002022  
**ANALYSIS NO.** : T22AW369-0006

PARAMETER	UNIT	METHOD OF ANALYSIS	RESULT	DETECTION LIMIT
			LBW006. 500 M OFFSHORE (JETTY) T22AW369-0006	
pH	-	ELECTROMETRIC METHOD (SM: 4500-H <sup>+</sup> B)	7.8 (25°C)	-
TEMPERATURE	°C	LABORATORY AND FIELD METHODS (SM: 2550 B)	29	-
TOTAL DISSOLVED SOLIDS	mg/L	DRIED AT 180 °C (SM: 2540 C)	34,150	25
FAT, OIL AND GREASE	mg/L	LIQUID-LIQUID, PARTITION-GRAVIMETRIC METHOD (SM: 5520 B)	0.4	3
<b>SAMPLE CONDITION</b> WATER'S COLOUR/TURBID SEDIMENT			COLOURLESS/CLEAR YELLOW	

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

FAT, OIL AND GREASE : THIS REPORTED VALUE IS BELOW LIMIT OF DETECTION. ITS USE IS SUBJECT TO CUSTOMER JUSTIFICATION.

RELEASE ORDER NO. : EV-09-11-003

  
(MRS PIYAPAT SUTTAMANUTWONG)  
LABORATORY SUPERVISOR

NOVEMBER 18, 2022



## ANALYSIS REPORT

<b>PROJECT NAME</b>	: ENVIRONMENTAL & SOCIOECONOMIC SURVEY	<b>RECEIVED DATE</b>	: DECEMBER 7, 2022
<b>CUSTOMER NAME</b>	: ESSO (THAILAND) PUBLIC COMPANY LIMITED	<b>ANALYTICAL DATE</b>	: DECEMBER 7-21, 2022
<b>ADDRESS</b>	: 118 MOO 2 THUNG SUKHLA SI RACHA CHON BURI 20230	<b>REPORT NO.</b>	: 2022-U100773
<b>CONTACT INFORMATION</b>	: TEL : 0 3314 2891 e-mail : wanlop.boongor@exxonmobil.com	<b>WORK NO.</b>	: 2019-002022
<b>SAMPLING SOURCE</b>	: -	<b>ANALYSIS NO.</b>	: T22AY429-0001
<b>SAMPLE TYPE</b>	: SEAWATER		
<b>SAMPLING DATE</b>	: DECEMBER 7, 2022		
<b>SAMPLING TIME</b>	: 10:38 HOUR		
<b>SAMPLING METHOD</b>	: COMPOSITE		
<b>SAMPLING BY</b>	: MR THANADET WANSANOR		
<b>ANALYZED BY</b>	: MISS AMONRAT PUTTALEE		

PARAMETER	UNIT	METHOD OF ANALYSIS	RESULT	DETECTION LIMIT
			LBW006. 500 M OFFSHORE (JETTY) T22AY429-0001	
pH	-	ELECTROMETRIC METHOD (SM: 4500-H <sup>+</sup> B)	7.8 (25°C)	-
PHENOLS	mg/L	DISTILLATION, 4-AMINOANTIPYRINE METHOD (SM: 5530 B AND 5530 C)	0.006	0.005
TEMPERATURE	°C	THERMOMETER AT SITE (SM: 2550 B)	29	-
SALINITY	ppt	ELECTRICAL CONDUCTIVITY METHOD AT SITE (SM: 2520 B)	29.0	0.1
DISSOLVED OXYGEN	mg/L	MEMBRANE ELECTRODE METHOD AT SITE (SM: 4500-O G)	5.6	0.5
BIOCHEMICAL OXYGEN DEMAND	mg/L	MEMBRANE ELECTRODE METHOD (SM: 4500-O G AND 5210 B)	1.3	0.5
CHEMICAL OXYGEN DEMAND	mg/L	CLOSED REFLUX, TITRIMETRIC METHOD (SM: 5220 C)	77.6	25.0
SUSPENDED SOLIDS	mg/L	GRAVIMETRIC METHOD (SM: 2540 D)	8.1	1.0
TOTAL DISSOLVED SOLIDS	mg/L	TOTAL DISSOLVED SOLIDS DRIED AT 180 °C (SM: 2540 C)	37,100	25
CYANIDE	µg/L CN <sup>-</sup>	DISTILLATION, PYRIDINE-BARBITURIC ACID METHOD (SM: 4500-CN <sup>-</sup> C AND 4500-CN <sup>-</sup> E)	< 5	5
NITRATE-NITROGEN	µg/L N	CADMIUM REDUCTION AND COLOURIMETRIC METHOD (BASED ON PRACTICAL HANDBOOK OF SEAWATER ANALYSIS (STRICKLAND AND PARSON, 1972, II.6))	28.4	0.50
SULPHIDE	µg/L	METHYLENE BLUE COLOURIMETRIC METHOD (METHOD OF SEAWATER ANALYSIS, GRASSHOFF, 1999, CHAPTER 5)	< 10	10
FAT, OIL AND GREASE	mg/L	LIQUID-LIQUID, PARTITION-GRAVIMETRIC METHOD (SM: 5520 B)	0.6	3



PARAMETER	UNIT	METHOD OF ANALYSIS	RESULT	DETECTION LIMIT
			LBW006. 500 M OFFSHORE (JETTY) T22AY429-0001	
METALS				
LEAD	µg/L Pb	PRE-CONCENTRATION AND INDUCTIVELY COUPLED PLASMA (ICP) METHOD (BASED ON METHOD OF SEAWATER ANALYSIS, GRASSHOFF, 1999, CHAPTER 12)	0.890	0.100
SAMPLE CONDITION				
WATER'S COLOUR/TURBID			COLOURLESS/CLEAR	
SEDIMENT			YELLOW	

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

FAT, OIL AND GREASE : THIS REPORTED VALUE IS BELOW LIMIT OF DETECTION. ITS USE IS SUBJECT TO CUSTOMER JUSTIFICATION.

RELEASE ORDER NO. : EV-07-12-002

(MRS PIYAPAT SUTTAMANUTWONG)  
LABORATORY SUPERVISOR

DECEMBER 23, 2022



## ANALYSIS REPORT

**PROJECT NAME** : ENVIRONMENTAL & SOCIOECONOMIC SURVEY  
**CUSTOMER NAME** : ESSO (THAILAND) PUBLIC COMPANY LIMITED  
**ADDRESS** : 118 MOO 2 THUNG SUKHLA SI RACHA CHON BURI 20230  
**CONTACT INFORMATION** : TEL : 0 3314 2891 e-mail : wanlop.boongor@exxonmobil.com  
**SAMPLING SOURCE** : -  
**SAMPLE TYPE** : SEAWATER  
**SAMPLING DATE** : DECEMBER 14, 2022  
**SAMPLING TIME** : 10:25 HOUR  
**SAMPLING METHOD** : COMPOSITE  
**SAMPLING BY** : MR THANADET WANSANOR  
**ANALYZED BY** : MISS AMONRAT PUTTALEE

**RECEIVED DATE** : DECEMBER 14, 2022  
**ANALYTICAL DATE** : DECEMBER 14-19, 2022  
**REPORT NO.** : 2022-U101942  
**WORK NO.** : 2019-002022  
**ANALYSIS NO.** : T22AY930-0006

PARAMETER	UNIT	METHOD OF ANALYSIS	RESULT	DETECTION LIMIT
			LBW006. 500 M OFFSHORE (JETTY) T22AY930-0006	
pH	-	ELECTROMETRIC METHOD (SM: 4500-H <sup>+</sup> B)	8.0 (25°C)	-
TEMPERATURE	°C	LABORATORY AND FIELD METHODS (SM: 2550 B)	27	-
TOTAL DISSOLVED SOLIDS	mg/L	DRIED AT 180 °C (SM: 2540 C)	34,480	25
FAT, OIL AND GREASE	mg/L	LIQUID-LIQUID, PARTITION-GRAVIMETRIC METHOD (SM: 5520 B)	0.7	3
<b>SAMPLE CONDITION</b> WATER'S COLOUR/TURBID SEDIMENT			COLOURLESS/CLEAR YELLOW	

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

FAT, OIL AND GREASE : THIS REPORTED VALUE IS BELOW LIMIT OF DETECTION. ITS USE IS SUBJECT TO CUSTOMER JUSTIFICATION.

RELEASE ORDER NO. : EV-14-12-004

(MRS PIYAPAT SUTTAMANUTWONG)  
LABORATORY SUPERVISOR

DECEMBER 23, 2022





## ANALYSIS REPORT

**PROJECT NAME** : ENVIRONMENTAL & SOCIOECONOMIC SURVEY  
**CUSTOMER NAME** : ESSO (THAILAND) PUBLIC COMPANY LIMITED  
**ADDRESS** : 118 MOO 2 THUNG SUKHLA SI RACHA CHON BURI 20230  
**CONTACT INFORMATION** : TEL : 0 3314 2891 e-mail : wanlop.boongor@exxonmobil.com  
**SAMPLING SOURCE** : -  
**SAMPLE TYPE** : SEAWATER  
**SAMPLING DATE** : JULY 6, 2022  
**SAMPLING TIME** : 10:44 HOUR  
**SAMPLING METHOD** : COMPOSITE  
**SAMPLING BY** : MR THANADET WANSANOR  
**ANALYZED BY** : MISS AMONRAT PUTTALEE

**RECEIVED DATE** : JULY 7, 2022  
**ANALYTICAL DATE** : JULY 7-25, 2022  
**REPORT NO.** : 2022-U058386  
**WORK NO.** : 2019-002022  
**ANALYSIS NO.** : T22AN353-0002

PARAMETER	UNIT	METHOD OF ANALYSIS	RESULT	DETECTION LIMIT
			LBW007. BERTH ISLAND T22AN353-0002	
pH	-	ELECTROMETRIC METHOD (SM: 4500-H <sup>+</sup> B)	8.1 (25°C)	-
TEMPERATURE	°C	THERMOMETER AT SITE (SM: 2550 B)	31	-
SALINITY	ppt	ELECTRICAL CONDUCTIVITY METHOD AT SITE (SM: 2520 B)	30.3	0.1
DISSOLVED OXYGEN	mg/L	MEMBRANE ELECTRODE METHOD AT SITE (SM: 4500-O G)	4.8	0.5
BIOCHEMICAL OXYGEN DEMAND	mg/L	MEMBRANE ELECTRODE METHOD (SM: 4500-O G AND 5210 B)	1.2	0.5
CHEMICAL OXYGEN DEMAND	mg/L	CLOSED REFLUX, TITRIMETRIC METHOD (SM: 5220 C)	73.7	25.0
TOTAL DISSOLVED SOLIDS	mg/L	TOTAL DISSOLVED SOLIDS DRIED AT 180 °C (SM: 2540 C)	34,025	25
NITRATE-NITROGEN	µg/L N	CADMIUM REDUCTION AND COLOURIMETRIC METHOD (BASED ON PRACTICAL HANDBOOK OF SEAWATER ANALYSIS (STRICKLAND AND PARSON, 1972, II.6))	10.2	0.50
SULPHIDE	µg/L	METHYLENE BLUE COLOURIMETRIC METHOD (METHOD OF SEAWATER ANALYSIS, GRASSHOFF, 1999, CHAPTER 5)	< 10	10
FAT, OIL AND GREASE	mg/L	LIQUID-LIQUID, PARTITION-GRAVIMETRIC METHOD (SM: 5520 B)	0.4	3



PARAMETER	UNIT	METHOD OF ANALYSIS	RESULT	DETECTION LIMIT
			LBW007. BERTH ISLAND T22AN353-0002	
METALS				
LEAD	µg/L Pb	PRE-CONCENTRATION AND INDUCTIVELY COUPLED PLASMA (ICP) METHOD (BASED ON METHOD OF SEAWATER ANALYSIS, GRASSHOFF, 1999, CHAPTER 12)	< 0.100	0.100
SAMPLE CONDITION				
WATER'S COLOUR/TURBID			COLOURLESS/CLEAR	
SEDIMENT			YELLOW	

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

FAT, OIL AND GREASE : THIS REPORTED VALUE IS BELOW LIMIT OF DETECTION. ITS USE IS SUBJECT TO CUSTOMER JUSTIFICATION.

RELEASE ORDER NO. : EV-06-07-002

(MRS PIYAPAT SUTTAMANUTWONG)  
LABORATORY SUPERVISOR

JULY 26, 2022

## ANALYSIS REPORT

<b>PROJECT NAME</b>	: ENVIRONMENTAL & SOCIOECONOMIC SURVEY		
<b>CUSTOMER NAME</b>	: ESSO (THAILAND) PUBLIC COMPANY LIMITED		
<b>ADDRESS</b>	: 118 MOO 2 THUNG SUKHLA SI RACHA CHON BURI 20230		
<b>CONTACT INFORMATION</b>	: TEL : 0 3314 2891 e-mail : wanlop.boongor@exxonmobil.com		
<b>SAMPLING SOURCE</b>	: -		
<b>SAMPLE TYPE</b>	: SEAWATER	<b>RECEIVED DATE</b>	: AUGUST 3, 2022
<b>SAMPLING DATE</b>	: AUGUST 3, 2022	<b>ANALYTICAL DATE</b>	: AUGUST 3-19, 2022
<b>SAMPLING TIME</b>	: 10:00 HOUR	<b>REPORT NO.</b>	: 2022-U064771
<b>SAMPLING METHOD</b>	: COMPOSITE	<b>WORK NO.</b>	: 2019-002022
<b>SAMPLING BY</b>	: MR THANADET WANSANOR	<b>ANALYSIS NO.</b>	: T22AP190-0002
<b>ANALYZED BY</b>	: MISS AMONRAT PUTTALEE		

PARAMETER	UNIT	METHOD OF ANALYSIS	RESULT	DETECTION LIMIT
			LBW007. BERTH ISLAND T22AP190-0002	
pH	-	ELECTROMETRIC METHOD (SM: 4500-H <sup>+</sup> B)	8.0 (25°C)	-
TEMPERATURE	°C	THERMOMETER AT SITE (SM: 2550 B)	30	-
SALINITY	ppt	ELECTRICAL CONDUCTIVITY METHOD AT SITE (SM: 2520 B)	30.6	0.1
DISSOLVED OXYGEN	mg/L	MEMBRANE ELECTRODE METHOD AT SITE (SM: 4500-O G)	5.0	0.5
BIOCHEMICAL OXYGEN DEMAND	mg/L	MEMBRANE ELECTRODE METHOD (SM: 4500-O G AND 5210 B)	1.7	0.5
CHEMICAL OXYGEN DEMAND	mg/L	CLOSED REFLUX, TITRIMETRIC METHOD (SM: 5220 C)	65.6	25.0
TOTAL DISSOLVED SOLIDS	mg/L	TOTAL DISSOLVED SOLIDS DRIED AT 180 °C (SM: 2540 C)	35,425	25
NITRATE-NITROGEN	µg/L N	CADMIUM REDUCTION AND COLOURIMETRIC METHOD (BASED ON PRACTICAL HANDBOOK OF SEAWATER ANALYSIS (STRICKLAND AND PARSON, 1972, II.6))	15.1	0.50
SULPHIDE	µg/L	METHYLENE BLUE COLOURIMETRIC METHOD (METHOD OF SEAWATER ANALYSIS, GRASSHOFF, 1999, CHAPTER 5)	< 10	10
FAT, OIL AND GREASE	mg/L	LIQUID-LIQUID, PARTITION-GRAVIMETRIC METHOD (SM: 5520 B)	0.8	3



PARAMETER	UNIT	METHOD OF ANALYSIS	RESULT	DETECTION LIMIT
			LBW007. BERTH ISLAND T22AP190-0002	
METALS				
LEAD	µg/L Pb	PRE-CONCENTRATION AND INDUCTIVELY COUPLED PLASMA (ICP) METHOD (BASED ON METHOD OF SEAWATER ANALYSIS, GRASSHOFF, 1999, CHAPTER 12)	1.49	0.100
SAMPLE CONDITION				
WATER'S COLOUR/TURBID			COLOURLESS/CLEAR	
SEDIMENT			YELLOW	

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

FAT, OIL AND GREASE : THIS REPORTED VALUE IS BELOW LIMIT OF DETECTION. ITS USE IS SUBJECT TO CUSTOMER JUSTIFICATION.

RELEASE ORDER NO. : EV-03-08-002

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(MRS PIYAPAT SUTTAMANUTWONG)  
LABORATORY SUPERVISOR

AUGUST 22, 2022

## ANALYSIS REPORT

**PROJECT NAME** : ENVIRONMENTAL & SOCIOECONOMIC SURVEY  
**CUSTOMER NAME** : ESSO (THAILAND) PUBLIC COMPANY LIMITED  
**ADDRESS** : 118 MOO 2 THUNG SUKHLA SI RACHA CHON BURI 20230  
**CONTACT INFORMATION** : TEL : 0 3314 2891 e-mail : wanlop.boongor@exxonmobil.com  
**SAMPLING SOURCE** : -  
**SAMPLE TYPE** : SEAWATER **RECEIVED DATE** : SEPTEMBER 12, 2022  
**SAMPLING DATE** : SEPTEMBER 12, 2022 **ANALYTICAL DATE** : SEPTEMBER 12-23, 2022  
**SAMPLING TIME** : 11:35 HOUR **REPORT NO.** : 2022-U074759  
**SAMPLING METHOD** : COMPOSITE **WORK NO.** : 2019-002022  
**SAMPLING BY** : MR THANADET WANSANOR **ANALYSIS NO.** : T22AS017-0002  
**ANALYZED BY** : MISS AMONRAT PUTTALEE

PARAMETER	UNIT	METHOD OF ANALYSIS	RESULT	DETECTION LIMIT
			LBW007. BERTH ISLAND T22AS017-0002	
pH	-	ELECTROMETRIC METHOD (SM: 4500-H <sup>+</sup> B)	8.1 (25°C)	-
TEMPERATURE	°C	THERMOMETER AT SITE (SM: 2550 B)	30	-
SALINITY	ppt	ELECTRICAL CONDUCTIVITY METHOD AT SITE (SM: 2520 B)	23.7	0.1
DISSOLVED OXYGEN	mg/L	MEMBRANE ELECTRODE METHOD AT SITE (SM: 4500-O G)	4.5	0.5
BIOCHEMICAL OXYGEN DEMAND	mg/L	MEMBRANE ELECTRODE METHOD (SM: 4500-O G AND 5210 B)	1.5	0.5
CHEMICAL OXYGEN DEMAND	mg/L	CLOSED REFLUX, TITRIMETRIC METHOD (SM: 5220 C)	70.4	25.0
TOTAL DISSOLVED SOLIDS	mg/L	TOTAL DISSOLVED SOLIDS DRIED AT 180 °C (SM: 2540 C)	23,010	25
NITRATE-NITROGEN	µg/L N	CADMIUM REDUCTION AND COLOURIMETRIC METHOD (BASED ON PRACTICAL HANDBOOK OF SEAWATER ANALYSIS (STRICKLAND AND PARSON, 1972, II.6))	9.40	0.50
SULPHIDE	µg/L	METHYLENE BLUE COLOURIMETRIC METHOD (METHOD OF SEAWATER ANALYSIS, GRASSHOFF, 1999, CHAPTER 5)	< 10	10
FAT, OIL AND GREASE	mg/L	LIQUID-LIQUID, PARTITION-GRAVIMETRIC METHOD (SM: 5520 B)	0.9	3





PARAMETER	UNIT	METHOD OF ANALYSIS	RESULT	DETECTION LIMIT
			LBW007. BERTH ISLAND T22AS017-0002	
METALS				
LEAD	µg/L Pb	PRE-CONCENTRATION AND INDUCTIVELY COUPLED PLASMA (ICP) METHOD (BASED ON METHOD OF SEAWATER ANALYSIS, GRASSHOFF, 1999, CHAPTER 12)	0.300	0.100
SAMPLE CONDITION				
WATER'S COLOUR/TURBID			COLOURLESS/CLEAR	
SEDIMENT			YELLOW	

SM ; STANDARD METHODS FOR THE EXAMINATION OF WATER AND WASTEWATER, APHA, AWWA, WEF, 23<sup>rd</sup> EDITION, 2017.

FAT, OIL AND GREASE : THIS REPORTED VALUE IS BELOW LIMIT OF DETECTION. ITS USE IS SUBJECT TO CUSTOMER JUSTIFICATION.  
RELEASE ORDER NO. : EV-12-09-003

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(MRS PIYAPAT SUTTAMANUTWONG)  
LABORATORY SUPERVISOR  
SEPTEMBER 26, 2022

## ANALYSIS REPORT

**PROJECT NAME** : ENVIRONMENTAL & SOCIOECONOMIC SURVEY  
**CUSTOMER NAME** : ESSO (THAILAND) PUBLIC COMPANY LIMITED  
**ADDRESS** : 118 MOO 2 THUNG SUKHLA SI RACHA CHON BURI 20230  
**CONTACT INFORMATION** : TEL : 0 3314 2891 e-mail : wanlop.boongor@exxonmobil.com  
**SAMPLING SOURCE** : -  
**SAMPLE TYPE** : SEAWATER  
**SAMPLING DATE** : SEPTEMBER 12, 2022  
**SAMPLING TIME** : 11:35 HOUR  
**SAMPLING METHOD** : COMPOSITE  
**SAMPLING BY** : MR THANADET WANSANOR  
**ANALYZED BY** : MISS AMONRAT PUTTALEE

**RECEIVED DATE** : SEPTEMBER 12, 2022  
**ANALYTICAL DATE** : SEPTEMBER 12-13, 2022  
**REPORT NO.** : 2022-U074760  
**WORK NO.** : 2019-002022  
**ANALYSIS NO.** : T22AS017-0003

PARAMETER	UNIT	METHOD OF ANALYSIS	RESULT	DETECTION LIMIT
			LBW007. BERTH ISLAND T22AS017-0003	
SUSPENDED SOLIDS	mg/L	GRAVIMETRIC METHOD (SM: 2540 D)	7.4	1.0
<b>SAMPLE CONDITION</b> WATER'S COLOUR/TURBID SEDIMENT			COLOURLESS/CLEAR YELLOW	

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

RELEASE ORDER NO. : EV-12-09-003

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(MRS PIYAPAT SUTTAMANUTWONG)  
LABORATORY SUPERVISOR

SEPTEMBER 26, 2022



## ANALYSIS REPORT

**PROJECT NAME** : ENVIRONMENTAL & SOCIOECONOMIC SURVEY  
**CUSTOMER NAME** : ESSO (THAILAND) PUBLIC COMPANY LIMITED  
**ADDRESS** : 118 MOO 2 THUNG SUKHLA SI RACHA CHON BURI 20230  
**CONTACT INFORMATION** : TEL : 0 3314 2891 e-mail : wanlop.boongor@exxonmobil.com  
**SAMPLING SOURCE** : -  
**SAMPLE TYPE** : SEAWATER  
**SAMPLING DATE** : OCTOBER 5, 2022  
**SAMPLING TIME** : 10:35 HOUR  
**SAMPLING METHOD** : COMPOSITE  
**SAMPLING BY** : MR THANADET WANSANOR  
**ANALYZED BY** : MISS KANNIKAR SUMLEETHA

**RECEIVED DATE** : OCTOBER 6, 2022  
**ANALYTICAL DATE** : OCTOBER 6-18, 2022  
**REPORT NO.** : 2022-U082075  
**WORK NO.** : 2019-002022  
**ANALYSIS NO.** : T22AT794-0002

PARAMETER	UNIT	METHOD OF ANALYSIS	RESULT	DETECTION LIMIT
			LBW007. BERTH ISLAND T22AT794-0002	
pH	-	ELECTROMETRIC METHOD (SM: 4500-H <sup>+</sup> B)	7.9 (25°C)	-
TEMPERATURE	°C	THERMOMETER AT SITE (SM: 2550 B)	30	-
SALINITY	ppt	ELECTRICAL CONDUCTIVITY METHOD AT SITE (SM: 2520 B)	28.6	0.1
DISSOLVED OXYGEN	mg/L	MEMBRANE ELECTRODE METHOD AT SITE (SM: 4500-O G)	4.8	0.5
BIOCHEMICAL OXYGEN DEMAND	mg/L	MEMBRANE ELECTRODE METHOD (SM: 4500-O G AND 5210 B)	1.2	0.5
CHEMICAL OXYGEN DEMAND	mg/L	CLOSED REFLUX, TITRIMETRIC METHOD (SM: 5220 C)	66.5	25.0
TOTAL DISSOLVED SOLIDS	mg/L	TOTAL DISSOLVED SOLIDS DRIED AT 180 °C (SM: 2540 C)	30,880	25
NITRATE-NITROGEN	µg/L N	CADMIUM REDUCTION AND COLOURIMETRIC METHOD (BASED ON PRACTICAL HANDBOOK OF SEAWATER ANALYSIS (STRICKLAND AND PARSON, 1972, II.6))	18.6	0.50
SULPHIDE	µg/L	METHYLENE BLUE COLOURIMETRIC METHOD (METHOD OF SEAWATER ANALYSIS, GRASSHOFF, 1999, CHAPTER 5)	< 10	10
FAT, OIL AND GREASE	mg/L	LIQUID-LIQUID, PARTITION-GRAVIMETRIC METHOD (SM: 5520 B)	0.4	3



PARAMETER	UNIT	METHOD OF ANALYSIS	RESULT	DETECTION LIMIT
			LBW007. BERTH ISLAND T22AT794-0002	
METALS				
LEAD	µg/L Pb	PRE-CONCENTRATION AND INDUCTIVELY COUPLED PLASMA (ICP) METHOD (BASED ON METHOD OF SEAWATER ANALYSIS, GRASSHOFF, 1999, CHAPTER 12)	0.180	0.100
SAMPLE CONDITION				
WATER'S COLOUR/TURBID			COLOURLESS/CLEAR	
SEDIMENT			YELLOW	

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

FAT, OIL AND GREASE : THIS REPORTED VALUE IS BELOW LIMIT OF DETECTION. ITS USE IS SUBJECT TO CUSTOMER JUSTIFICATION.

RELEASE ORDER NO. : EV-05-10-002

(MRS PIYAPAT SUTTAMANUTWONG)  
LABORATORY SUPERVISOR

OCTOBER 20, 2022

## ANALYSIS REPORT

**PROJECT NAME** : ENVIRONMENTAL & SOCIOECONOMIC SURVEY  
**CUSTOMER NAME** : ESSO (THAILAND) PUBLIC COMPANY LIMITED  
**ADDRESS** : 118 MOO 2 THUNG SUKHLA SI RACHA CHON BURI 20230  
**CONTACT INFORMATION** : TEL : 0 3314 2891 e-mail : wanlop.boongor@exxonmobil.com  
**SAMPLING SOURCE** : -  
**SAMPLE TYPE** : SEAWATER  
**SAMPLING DATE** : NOVEMBER 2, 2022  
**SAMPLING TIME** : 11:10 HOUR  
**SAMPLING METHOD** : COMPOSITE  
**SAMPLING BY** : MR THANADET WANSANOR  
**ANALYZED BY** : MISS KANNIKAR SUMLEETHA

**RECEIVED DATE** : NOVEMBER 2, 2022  
**ANALYTICAL DATE** : NOVEMBER 2-11, 2022  
**REPORT NO.** : 2022-U090814  
**WORK NO.** : 2019-002022  
**ANALYSIS NO.** : T22AV775-0003

PARAMETER	UNIT	METHOD OF ANALYSIS	RESULT	DETECTION LIMIT
			LBW007. BERTH ISLAND T22AV775-0003	
pH	-	ELECTROMETRIC METHOD (SM: 4500-H <sup>+</sup> B)	7.9 (25°C)	-
TEMPERATURE	°C	THERMOMETER AT SITE (SM: 2550 B)	29	-
SALINITY	ppt	ELECTRICAL CONDUCTIVITY METHOD AT SITE (SM: 2520 B)	31.4	0.1
DISSOLVED OXYGEN	mg/L	MEMBRANE ELECTRODE METHOD AT SITE (SM: 4500-O G)	5.3	0.5
BIOCHEMICAL OXYGEN DEMAND	mg/L	MEMBRANE ELECTRODE METHOD (SM: 4500-O G AND 5210 B)	0.9	0.5
CHEMICAL OXYGEN DEMAND	mg/L	CLOSED REFLUX, TITRIMETRIC METHOD (SM: 5220 C)	38.4	25.0
TOTAL DISSOLVED SOLIDS	mg/L	TOTAL DISSOLVED SOLIDS DRIED AT 180 °C (SM: 2540 C)	34,100	25
NITRATE-NITROGEN	µg/L N	CADMIUM REDUCTION AND COLOURIMETRIC METHOD (BASED ON PRACTICAL HANDBOOK OF SEAWATER ANALYSIS (STRICKLAND AND PARSON, 1972, II.6))	14.8	0.50
SULPHIDE	µg/L	METHYLENE BLUE COLOURIMETRIC METHOD (METHOD OF SEAWATER ANALYSIS, GRASSHOFF, 1999, CHAPTER 5)	< 10	10
FAT, OIL AND GREASE	mg/L	LIQUID-LIQUID, PARTITION-GRAVIMETRIC METHOD (SM: 5520 B)	0.7	3





PARAMETER	UNIT	METHOD OF ANALYSIS	RESULT	DETECTION LIMIT
			LBW007. BERTH ISLAND T22AV775-0003	
METALS				
LEAD	µg/L Pb	PRE-CONCENTRATION AND INDUCTIVELY COUPLED PLASMA (ICP) METHOD (BASED ON METHOD OF SEAWATER ANALYSIS, GRASSHOFF, 1999, CHAPTER 12)	0.270	0.100
SAMPLE CONDITION				
WATER'S COLOUR/TURBID			COLOURLESS/CLEAR	
SEDIMENT			YELLOW	

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

FAT, OIL AND GREASE : THIS REPORTED VALUE IS BELOW LIMIT OF DETECTION. ITS USE IS SUBJECT TO CUSTOMER JUSTIFICATION.

RELEASE ORDER NO. : EV-02-11-001

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(MRS PIYAPAT SUTTAMANUTWONG)  
LABORATORY SUPERVISOR

NOVEMBER 17, 2022

## ANALYSIS REPORT

<b>PROJECT NAME</b>	: ENVIRONMENTAL & SOCIOECONOMIC SURVEY	<b>RECEIVED DATE</b>	: DECEMBER 7, 2022
<b>CUSTOMER NAME</b>	: ESSO (THAILAND) PUBLIC COMPANY LIMITED	<b>ANALYTICAL DATE</b>	: DECEMBER 7-21, 2022
<b>ADDRESS</b>	: 118 MOO 2 THUNG SUKHLA SI RACHA CHON BURI 20230	<b>REPORT NO.</b>	: 2022-U100775
<b>CONTACT INFORMATION</b>	: TEL : 0 3314 2891 e-mail : wanlop.boongor@exxonmobil.com	<b>WORK NO.</b>	: 2019-002022
<b>SAMPLING SOURCE</b>	: -	<b>ANALYSIS NO.</b>	: T22AY429-0003
<b>SAMPLE TYPE</b>	: SEAWATER		
<b>SAMPLING DATE</b>	: DECEMBER 7, 2022		
<b>SAMPLING TIME</b>	: 11:08 HOUR		
<b>SAMPLING METHOD</b>	: COMPOSITE		
<b>SAMPLING BY</b>	: MR THANADET WANSANOR		
<b>ANALYZED BY</b>	: MISS KANNIKAR SUMLEETHA		

PARAMETER	UNIT	METHOD OF ANALYSIS	RESULT	DETECTION LIMIT
			LBW007. BERTH ISLAND T22AY429-0003	
pH	-	ELECTROMETRIC METHOD (SM: 4500-H <sup>+</sup> B)	8.0 (25°C)	-
TEMPERATURE	°C	THERMOMETER AT SITE (SM: 2550 B)	29	-
SALINITY	ppt	ELECTRICAL CONDUCTIVITY METHOD AT SITE (SM: 2520 B)	29.5	0.1
DISSOLVED OXYGEN	mg/L	MEMBRANE ELECTRODE METHOD AT SITE (SM: 4500-O G)	5.8	0.5
BIOCHEMICAL OXYGEN DEMAND	mg/L	MEMBRANE ELECTRODE METHOD (SM: 4500-O G AND 5210 B)	1.2	0.5
CHEMICAL OXYGEN DEMAND	mg/L	CLOSED REFLUX, TITRIMETRIC METHOD (SM: 5220 C)	84.0	25.0
TOTAL DISSOLVED SOLIDS	mg/L	TOTAL DISSOLVED SOLIDS DRIED AT 180 °C (SM: 2540 C)	37,600	25
NITRATE-NITROGEN	µg/L N	CADMIUM REDUCTION AND COLOURIMETRIC METHOD (BASED ON PRACTICAL HANDBOOK OF SEAWATER ANALYSIS (STRICKLAND AND PARSON, 1972, II.6))	3.89	0.50
SULPHIDE	µg/L	METHYLENE BLUE COLOURIMETRIC METHOD (METHOD OF SEAWATER ANALYSIS, GRASSHOFF, 1999, CHAPTER 5)	< 10	10
FAT, OIL AND GREASE	mg/L	LIQUID-LIQUID, PARTITION-GRAVIMETRIC METHOD (SM: 5520 B)	0.9	3



PARAMETER	UNIT	METHOD OF ANALYSIS	RESULT	DETECTION LIMIT
			LBW007. BERTH ISLAND T22AY429-0003	
METALS				
LEAD	µg/L Pb	PRE-CONCENTRATION AND INDUCTIVELY COUPLED PLASMA (ICP) METHOD (BASED ON METHOD OF SEAWATER ANALYSIS, GRASSHOFF, 1999, CHAPTER 12)	4.63	0.100
SAMPLE CONDITION				
WATER'S COLOUR/TURBID			COLOURLESS/CLEAR	
SEDIMENT			YELLOW	

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

FAT, OIL AND GREASE : THIS REPORTED VALUE IS BELOW LIMIT OF DETECTION. ITS USE IS SUBJECT TO CUSTOMER JUSTIFICATION.

RELEASE ORDER NO. : EV-07-12-002

(MRS PIYAPAT SUTTAMANUTWONG)  
LABORATORY SUPERVISOR

DECEMBER 23, 2022

## ANALYSIS REPORT

**PROJECT NAME** : ENVIRONMENTAL & SOCIOECONOMIC SURVEY  
**CUSTOMER NAME** : ESSO (THAILAND) PUBLIC COMPANY LIMITED  
**ADDRESS** : 118 MOO 2 THUNG SUKHLA SI RACHA CHON BURI 20230  
**CONTACT INFORMATION** : TEL : 0 3314 2891 e-mail : wanlop.boongor@exxonmobil.com  
**SAMPLING SOURCE** : -  
**SAMPLE TYPE** : SEAWATER  
**SAMPLING DATE** : DECEMBER 7, 2022  
**SAMPLING TIME** : 11:08 HOUR  
**SAMPLING METHOD** : COMPOSITE  
**SAMPLING BY** : MR THANADET WANSANOR  
**ANALYZED BY** : MISS AMONRAT PUTTALEE

**RECEIVED DATE** : DECEMBER 7, 2022  
**ANALYTICAL DATE** : DECEMBER 7-8, 2022  
**REPORT NO.** : 2022-U100774  
**WORK NO.** : 2019-002022  
**ANALYSIS NO.** : T22AY429-0002

PARAMETER	UNIT	METHOD OF ANALYSIS	RESULT	DETECTION LIMIT
			LBW007. BERTH ISLAND T22AY429-0002	
SUSPENDED SOLIDS	mg/L	GRAVIMETRIC METHOD (SM: 2540 D)	4.6	1.0
<b>SAMPLE CONDITION</b> WATER'S COLOUR/TURBID SEDIMENT			COLOURLESS/CLEAR YELLOW	

SM : STANDARD METHODS FOR THE EXAMINATION OF WATER AND WASTEWATER, APHA, AWWA, WEF, 23<sup>rd</sup> EDITION, 2017.  
RELEASE ORDER NO. : EV-07-12-002

(MRS PIYAPAT SUTTAMANUTWONG)  
LABORATORY SUPERVISOR

DECEMBER 23, 2022



## ANALYSIS REPORT

**PROJECT NAME** : ENVIRONMENTAL & SOCIOECONOMIC SURVEY  
**CUSTOMER NAME** : ESSO (THAILAND) PUBLIC COMPANY LIMITED  
**ADDRESS** : 118 MOO 2 THUNG SUKHLA SI RACHA CHON BURI 20230  
**CONTACT INFORMATION** : TEL : 0 3314 2891 e-mail : wanlop.boongor@exxonmobil.com  
**SAMPLING SOURCE** : -  
**SAMPLE TYPE** : SEAWATER  
**SAMPLING DATE** : AUGUST 10, 2022  
**SAMPLING TIME** : 10:27 HOUR  
**SAMPLING METHOD** : COMPOSITE  
**SAMPLING BY** : MR THANADET WANSANOR  
**ANALYZED BY** : MR THAPAGORN PIMSORN

**RECEIVED DATE** : AUGUST 10, 2022  
**ANALYTICAL DATE** : AUGUST 10-18, 2022  
**REPORT NO.** : 2022-U064768  
**WORK NO.** : 2019-002022  
**ANALYSIS NO.** : T22AP760-0001

PARAMETER	UNIT	METHOD OF ANALYSIS	RESULT	DETECTION LIMIT
			UNDER BL-1/2 SUMP T22AP760-0001	
TOTAL ORGANIC CARBON	mg/L	HIGH-TEMPERATURE COMBUSTION METHOD (SM: 5310 B)	3.56	0.50
FAT, OIL AND GREASE	mg/L	LIQUID-LIQUID, PARTITION-GRAVIMETRIC METHOD (SM: 5520 B)	0.5	3
<b>SAMPLE CONDITION</b> WATER'S COLOUR/TURBID SEDIMENT			COLOURLESS/CLEAR YELLOW	

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

FAT, OIL AND GREASE : THIS REPORTED VALUE IS BELOW LIMIT OF DETECTION. ITS USE IS SUBJECT TO CUSTOMER JUSTIFICATION.

RELEASE ORDER NO. : EV-10-08-004

(MRS PIYAPAT SUTTAMANUTWONG)  
LABORATORY SUPERVISOR

AUGUST 22, 2022





## ANALYSIS REPORT

**PROJECT NAME** : ENVIRONMENTAL & SOCIOECONOMIC SURVEY  
**CUSTOMER NAME** : ESSO (THAILAND) PUBLIC COMPANY LIMITED  
**ADDRESS** : 118 MOO 2 THUNG SUKHLA SI RACHA CHON BURI 20230  
**CONTACT INFORMATION** : TEL : 0 3314 2891 e-mail : wanlop.boongor@exxonmobil.com  
**SAMPLING SOURCE** : -  
**SAMPLE TYPE** : SEAWATER  
**SAMPLING DATE** : AUGUST 10, 2022  
**SAMPLING TIME** : 10:13 HOUR  
**SAMPLING METHOD** : COMPOSITE  
**SAMPLING BY** : MR THANADET WANSANOR  
**ANALYZED BY** : MR THAPAGORN PIMSORN

**RECEIVED DATE** : AUGUST 10, 2022  
**ANALYTICAL DATE** : AUGUST 10-18, 2022  
**REPORT NO.** : 2022-U064769  
**WORK NO.** : 2019-002022  
**ANALYSIS NO.** : T22AP760-0002

PARAMETER	UNIT	METHOD OF ANALYSIS	RESULT	DETECTION LIMIT
			UNDER BL-3 SUMP T22AP760-0002	
TOTAL ORGANIC CARBON	mg/L	HIGH-TEMPERATURE COMBUSTION METHOD (SM: 5310 B)	3.24	0.50
FAT, OIL AND GREASE	mg/L	LIQUID-LIQUID, PARTITION-GRAVIMETRIC METHOD (SM: 5520 B)	0.6	3
<b>SAMPLE CONDITION</b> WATER'S COLOUR/TURBID SEDIMENT			COLOURLESS/CLEAR YELLOW	

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

FAT, OIL AND GREASE : THIS REPORTED VALUE IS BELOW LIMIT OF DETECTION. ITS USE IS SUBJECT TO CUSTOMER JUSTIFICATION.

RELEASE ORDER NO. : EV-10-08-004

(MRS PIYAPAT SUTTAMANUTWONG)  
LABORATORY SUPERVISOR

AUGUST 22, 2022





Your Project #: SRT-RF-2022-04

**Attention: Tanaphorn Taweeyat**

ESSO SRIRACHA REFINERY  
118, Moo 2, Sukhapiban 7 Rd  
Sriracha, Chonburi  
Thailand 20230

**Report Date: 10/28/2022**

Report #: R7361843

Version: 1 - Final

**ANALYTICAL REPORT**

**BV LABS JOB #: C2U1192**

**Received: 10/17/2022, 00:00**

Sample Matrix: Passive Monitor  
# Samples Received: 2

Analyses	Quantity	Date Analyzed	Laboratory Method	Analytical Method
Naphthas by NIOSH 1550 - Monitor	2	10/26/2022	NOV4SOP-00001	NIOSH 1550 / 1551
Volatiles (VOC) - List 1 -GC/FID-Monitor	2	10/26/2022	NOV SOP-00005	NOV SOP-00005

This report shall not be reproduced except in full, without the written approval of the laboratory.

Results relate only to the items tested.

Reference Method suffix "m" indicates test methods incorporate validated modifications from specific reference methods to improve performance.

**Encryption Key**

Please direct all questions regarding this Analytical Report to your Project Manager.

Wendy Lesniak, CS

Email: Wendy.Lesniak@bureauveritas.com

Phone# (248) 344-1770

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Bureau Veritas has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per ISO/IEC 17025, signing the reports.  
This report is authorized by Jason Forbes, General Manager responsible for Michigan Industrial Hygiene laboratory operations.



BUREAU  
VERITAS

BV Labs Job #: C2U1192  
Report Date: 10/28/2022

ESSO SRIRACHA REFINERY  
Client Project #: SRT-RF-2022-04

### ANALYTICAL RESULTS

Client ID:	SRT-RF-2022-04-001				Matrix:	Passive Monitor		
BV Labs ID:	UAJ445				Sample Media:	AT 566/3M3500+Monitor Charcoal		
Date Sampled:	09/16/2022				Sampling Time (Minutes):	540		
	Samp Rate	Mass	Concentration		RL		Date	
ANALYTE	cc/min	ug	mg/m3	ppm	ug	Test Method	Analyzed	QC Batch
Benzene	9.7	<0.50	<0.096	<0.030	0.50	NOV SOP-00005	10/26/2022	8306632
THCs as n-Hexane	9.9	<30	<5.6	<1.6	30	NIOSH 1550 / 1551	10/26/2022	8306635
QC Batch = Quality Control Batch								
RL = Reporting Limit								

Client ID:	SRT-RF-2022-04-BLANK					Matrix:	Passive Monitor	
BV Labs ID:	UAJ446					Sample Media:	AT 566/3M3500+Monitor Charcoal	
Date Sampled:								
	Samp Rate	Mass	Concentration		RL		Date	
ANALYTE	cc/min	ug	mg/m3	ppm	ug	Test Method	Analyzed	QC Batch
Benzene	9.7	<0.50	N/A	N/A	0.50	NOV SOP-00005	10/26/2022	8306632
THCs as n-Hexane	9.9	<30	N/A	N/A	30	NIOSH 1550 / 1551	10/26/2022	8306635
QC Batch = Quality Control Batch								
RL = Reporting Limit								



BUREAU  
VERITAS

BV Labs Job #: C2U1192

Report Date: 10/28/2022

ESSO SRIRACHA REFINERY

Client Project #: SRT-RF-2022-04

### GENERAL COMMENTS

Unless otherwise noted below the following statements apply: 1) all samples were received in acceptable condition, 2) all quality control results associated with this sample set were within acceptable limits and /or do not adversely affect the reported results and 3) the industrial hygiene results have not been blank corrected.

The client provided their pertinent field sampling data on the analysis request paperwork submitted with the samples. Results apply to the sample as received.

**Results relate only to the items tested.**



### QUALITY ASSURANCE REPORT

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	% Recovery	UNITS	QC Limits
8306632	CWX	LCS	Benzene	10/26/2022		94	%	79 - 113
8306632	CWX	LCS DUP	Benzene	10/26/2022		96	%	79 - 113
8306632	CWX	LCS/LCSD RPD	Benzene	10/26/2022	1.9		%	20
8306632	CWX	Method Blank	Benzene	10/26/2022	<1.0		ug	

Method Blank: A blank matrix containing all reagents used in the analytical procedure. Used to identify laboratory contamination.

LCS: A blank matrix sample to which a known amount of the analyte, usually from a second source, has been added. Used to evaluate method accuracy.





Your Project #: SRT-RF-2022-13

**Attention: Tanaphorn Taweeyat**

ESSO SRIRACHA REFINERY  
118, Moo 2, Sukhapiban 7 Rd  
Sriracha, Chonburi  
Thailand 20230

**Report Date: 01/09/2023**

Report #: R7459067

Version: 1 - Final

**ANALYTICAL REPORT**

**BV LABS JOB #: C2AU775**

**Received: 12/30/2022, 00:00**

Sample Matrix: Passive Monitor  
# Samples Received: 3

Analyses	Quantity	Date Analyzed	Laboratory Method	Analytical Method
Naphthas by NIOSH 1550 - Monitor	3	01/04/2023	NOV4SOP-00001	NIOSH 1550 / 1551
Volatiles (VOC) - List 1 -GC/FID-Monitor	3	01/04/2023	NOV SOP-00005	NOV SOP-00005

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Results relate only to the items tested.

Reference Method suffix "m" indicates test methods incorporate validated modifications from specific reference methods to improve performance.

**Encryption Key**

Please direct all questions regarding this Analytical Report to your Project Manager.

Wendy Lesniak, CS

Email: Wendy.Lesniak@bureauveritas.com

Phone# (248) 344-1770

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Bureau Veritas has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per ISO/IEC 17025, signing the reports.  
This report is authorized by Jason Forbes, General Manager responsible for Michigan Industrial Hygiene laboratory operations.



BUREAU  
VERITAS

BV Labs Job #: C2AU775  
Report Date: 01/09/2023

ESSO SRIRACHA REFINERY  
Client Project #: SRT-RF-2022-13

### ANALYTICAL RESULTS

Client ID: SRT-RF-2022-13-003					Matrix: Passive Monitor			
BV Labs ID: URY052					Sample Media: AT 566/3M3500+Monitor Charcoal			
Date Sampled: 12/26/2022					Sampling Time (Minutes): 480			
ANALYTE	Samp Rate cc/min	Mass ug	Concentration mg/m3 ppm		RL ug	Test Method	Date Analyzed	QC Batch
Benzene	9.7	<0.50	<0.11	<0.034	0.50	NOV SOP-00005	01/04/2023	8431947
THCs as n-Hexane	9.9	<30	<6.3	<1.8	30	NIOSH 1550 / 1551	01/04/2023	8434613
QC Batch = Quality Control Batch								
RL = Reporting Limit								

Client ID: SRT-RF-2022-13-004					Matrix: Passive Monitor			
BV Labs ID: URY053					Sample Media: AT 566/3M3500+Monitor Charcoal			
Date Sampled: 12/24/2022					Sampling Time (Minutes): 280			
ANALYTE	Samp Rate cc/min	Mass ug	Concentration mg/m3 ppm		RL ug	Test Method	Date Analyzed	QC Batch
Benzene	9.7	<0.50	<0.18	<0.058	0.50	NOV SOP-00005	01/04/2023	8431947
THCs as n-Hexane	9.9	<30	<11	<3.1	30	NIOSH 1550 / 1551	01/04/2023	8434613
QC Batch = Quality Control Batch								
RL = Reporting Limit								

Client ID: SRT-RF-2022-13-BLANK					Matrix: Passive Monitor			
BV Labs ID: URY054					Sample Media: AT 566/3M3500+Monitor Charcoal			
Date Sampled:								
ANALYTE	Samp Rate cc/min	Mass ug	Concentration mg/m3 ppm		RL ug	Test Method	Date Analyzed	QC Batch
Benzene	9.7	<0.50	N/A	N/A	0.50	NOV SOP-00005	01/04/2023	8431947
THCs as n-Hexane	9.9	<30	N/A	N/A	30	NIOSH 1550 / 1551	01/04/2023	8434613
QC Batch = Quality Control Batch								
RL = Reporting Limit								



BUREAU  
VERITAS

BV Labs Job #: C2AU775

Report Date: 01/09/2023

ESSO SRIRACHA REFINERY

Client Project #: SRT-RF-2022-13

### GENERAL COMMENTS

Unless otherwise noted below the following statements apply: 1) all samples were received in acceptable condition, 2) all quality control results associated with this sample set were within acceptable limits and /or do not adversely affect the reported results and 3) the industrial hygiene results have not been blank corrected.

The client provided their pertinent field sampling data on the analysis request paperwork submitted with the samples. Results apply to the sample as received.

**Results relate only to the items tested.**



### QUALITY ASSURANCE REPORT

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	% Recovery	UNITS	QC Limits
8431947	CWX	LCS	Benzene	01/03/2023		92	%	68 - 122
8431947	CWX	LCS DUP	Benzene	01/03/2023		91	%	68 - 122
8431947	CWX	LCS/LCSD RPD	Benzene	01/03/2023	0.90		%	20
8431947	CWX	Method Blank	Benzene	01/03/2023	<1.0		ug	
Method Blank: A blank matrix containing all reagents used in the analytical procedure. Used to identify laboratory contamination.								
LCS: A blank matrix sample to which a known amount of the analyte, usually from a second source, has been added. Used to evaluate method accuracy.								