

ภาคผนวก ข

ใบรายงานผลการติดตามตรวจสอบผลกระทบสิ่งแวดล้อม

---



## 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@bangchak.co.th  
**SAMPLING SOURCE** : -  
**SAMPLE TYPE** : WASTEWATER  
**SAMPLING DATE** : SEPTEMBER 7, 2023  
**SAMPLING TIME** : 09:10 HOUR  
**SAMPLING METHOD °** : GRAB  
**SAMPLING BY °** : MR THANADET WANSANOR ๓-145-๓-0056  
**ANALYZED BY** : MISS NAPAPORN KHUNNOKKHUM ๓-145-๓-0114  
**RECEIVED DATE** : SEPTEMBER 8, 2023  
**ANALYTICAL DATE** : SEPTEMBER 8-15, 2023  
**REPORT NO.** : 2023-U077925  
**WORK NO.** : 2019-002022  
**ANALYSIS NO.** : T23AR664-0001

PARAMETER	UNIT	METHOD OF ANALYSIS	RESULT	DETECTION LIMIT
			LBW001 : INLET API T23AR664-0001	
pH <sup>a</sup>	-	ELECTROMETRIC METHOD (SM: PART 4500-H <sup>+</sup> B)	7.1 (25°C)	-
TEMPERATURE <sup>c</sup>	°C	THERMOMETER AT SITE (SM: PART 2550 B)	38	-
BIOCHEMICAL OXYGEN DEMAND <sup>a</sup>	mg/L	MEMBRANE ELECTRODE METHOD (SM: PART 5210 B AND PART 4500-O G)	244	2.0
CHEMICAL OXYGEN DEMAND <sup>c</sup>	mg/L	CLOSED REFLUX, TITRIMETRIC METHOD (SM: PART 5220 C)	400	25.0
TOTAL SUSPENDED SOLIDS <sup>a</sup>	mg/L	TOTAL SUSPENDED SOLIDS DRIED AT 103-105 °C (SM: PART 2540 D)	57.9	5.0
SULPHIDE <sup>c</sup>	mg/L	METHYLENE BLUE METHOD (SM: PART 4500-S <sup>2-</sup> D)	0.28	0.02
TOTAL DISSOLVED SOLIDS <sup>c</sup>	mg/L	TOTAL DISSOLVED SOLIDS DRIED AT 180 °C (SM: PART 2540 C)	8,071	25
FAT, OIL AND GREASE <sup>a</sup>	mg/L	LIQUID-LIQUID, PARTITION-GRAVIMETRIC METHOD (SM: PART 5520 B)	13	3
CYANIDE <sup>c</sup>	mg/L CN <sup>-</sup>	DISTILLATION, PYRIDINE-BARBITURIC ACID METHOD (SM: PART 4500-CN <sup>-</sup> C AND PART 4500-CN <sup>-</sup> E)	0.008	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-07-09-002



## ANALYSIS REPORT

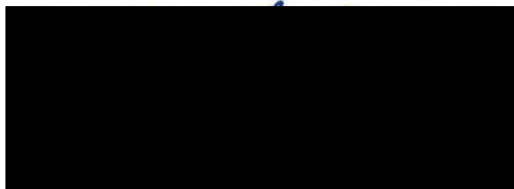
**PROJECT NAME** : ENVIRONMENTAL & SOCIOECONOMIC SURVEY  
**CUSTOMER NAME** : ESSO (THAILAND) PUBLIC COMPANY LIMITED  
**ADDRESS** : 118 MOO 2 THUNG SUKHLA SI RACHA CHON BURI 20230  
**CONTACT INFORMATION** : TEL : 0 3314 2891 e-mail : wanlop.boongor@bangchak.co.th  
**SAMPLING SOURCE** : -  
**SAMPLE TYPE** : WASTEWATER  
**SAMPLING DATE** : SEPTEMBER 7, 2023  
**SAMPLING TIME** : 09:10 HOUR  
**SAMPLING METHOD** : GRAB  
**SAMPLING BY** : MR THANADET WANSANOR  
**ANALYZED BY** : MISS NAPAPORN KHUNNOKKHUM

**RECEIVED DATE** : SEPTEMBER 8, 2023  
**ANALYTICAL DATE** : SEPTEMBER 8-12, 2023  
**REPORT NO.** : 2023-U077926  
**WORK NO.** : 2019-002022  
**ANALYSIS NO.** : T23AR664-0002

PARAMETER	UNIT	METHOD OF ANALYSIS	RESULT	DETECTION LIMIT
			LBW001 : INLET API T23AR664-0002	
TOTAL SOLIDS	mg/L	TOTAL SOLIDS DRIED AT 103-105 °C (SM: PART 2540 B)	9,550	25
<b>SAMPLE CONDITION</b> WATER'S COLOUR/TURBID SEDIMENT			GREY/TURBID GREY	

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

RELEASE ORDER NO. : EV-07-09-002



## ANALYSIS REPORT

<b>PROJECT NAME</b>	: ENVIRONMENTAL & SOCIOECONOMIC SURVEY	<b>RECEIVED DATE</b>	: DECEMBER 8, 2023
<b>CUSTOMER NAME</b>	: BANGCHAK SRIRACHA PUBLIC COMPANY LIMITED	<b>ANALYTICAL DATE</b>	: DECEMBER 8-15, 2023
<b>ADDRESS</b>	: 118 MOO 2 THUNG SUKHLA SI RACHA CHON BURI 20230	<b>REPORT NO.</b>	: 2023-U108960
<b>CONTACT INFORMATION</b>	: TEL : 0 3314 2891 e-mail : wanlop.boongor@bangchak.co.th	<b>WORK NO.</b>	: 2019-002022
<b>SAMPLING SOURCE</b>	: -	<b>ANALYSIS NO.</b>	: T23AY516-0001
<b>SAMPLE TYPE</b>	: WASTEWATER		
<b>SAMPLING DATE</b>	: DECEMBER 7, 2023		
<b>SAMPLING TIME</b>	: 09:35 HOUR		
<b>SAMPLING METHOD <sup>c</sup></b>	: GRAB		
<b>SAMPLING BY <sup>c</sup></b>	: MR THANADET WANSANOR ๓-145-๓-0056		
<b>ANALYZED BY</b>	: MISS NAPAPORN KHUNNOKKHUM ๓-145-๓-0114		

PARAMETER	UNIT	METHOD OF ANALYSIS	RESULT	DETECTION LIMIT
			LBW001 : INLET API T23AY516-0001	
pH <sup>a</sup>	-	ELECTROMETRIC METHOD (SM: PART 4500-H <sup>+</sup> B)	7.5 (25°C)	-
TEMPERATURE <sup>c</sup>	°C	THERMOMETER AT SITE (SM: PART 2550 B)	42	-
BIOCHEMICAL OXYGEN DEMAND <sup>a</sup>	mg/L	MEMBRANE ELECTRODE METHOD (SM: PART 5210 B AND PART 4500-O G)	284	2.0
CHEMICAL OXYGEN DEMAND <sup>c</sup>	mg/L	CLOSED REFLUX, TITRIMETRIC METHOD (SM: PART 5220 C)	487	25.0
TOTAL SUSPENDED SOLIDS <sup>a</sup>	mg/L	TOTAL SUSPENDED SOLIDS DRIED AT 103-105 °C (SM: PART 2540 D)	373	5.0
TOTAL DISSOLVED SOLIDS <sup>b</sup>	mg/L	TOTAL DISSOLVED SOLIDS DRIED AT 180 °C (SM: PART 2540 C)	4,000	25
SULPHIDE <sup>c</sup>	mg/L	METHYLENE BLUE METHOD(SM: PART 4500-S <sup>2-</sup> D)	0.27	0.02
FAT, OIL AND GREASE <sup>a</sup>	mg/L	LIQUID-LIQUID, PARTITION-GRAVIMETRIC METHOD (SM: PART 5520 B)	65	3
CYANIDE <sup>c</sup>	mg/L CN <sup>-</sup>	DISTILLATION, PYRIDINE-BARBITURIC ACID METHOD (SM: PART 4500-CN <sup>-</sup> C AND PART 4500-CN <sup>-</sup> E)	< 0.005	0.005
<b>SAMPLE CONDITION</b> WATER'S COLOUR/TURBID SEDIMENT			YELLOW/TURBID BROWN	

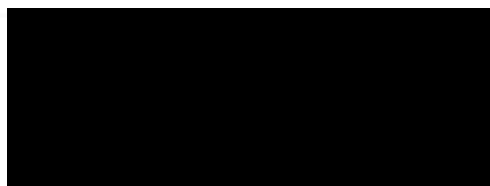
<sup>a</sup> : ISO/IEC 17025 ACCREDITED BY THAI INDUSTRIAL STANDARDS INSTITUTE (TISI)

<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.

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





## ANALYSIS REPORT

**PROJECT NAME** : ENVIRONMENTAL & SOCIOECONOMIC SURVEY  
**CUSTOMER NAME** : BANGCHAK SRIRACHA PUBLIC COMPANY LIMITED  
**ADDRESS** : 118 MOO 2 THUNG SUKHLA SI RACHA CHON BURI 20230  
**CONTACT INFORMATION** : TEL : 0 3314 2891 e-mail : wanlop.boongor@bangchak.co.th  
**SAMPLING SOURCE** : -  
**SAMPLE TYPE** : WASTEWATER  
**SAMPLING DATE** : DECEMBER 7, 2023  
**SAMPLING TIME** : 09:35 HOUR  
**SAMPLING METHOD** : GRAB  
**SAMPLING BY** : MR THANADET WANSANOR  
**ANALYZED BY** : MISS NAPAPORN KHUNNOKKHUM

**RECEIVED DATE** : DECEMBER 8, 2023  
**ANALYTICAL DATE** : DECEMBER 8-12, 2023  
**REPORT NO.** : 2023-U108961  
**WORK NO.** : 2019-002022  
**ANALYSIS NO.** : T23AY516-0002

PARAMETER	UNIT	METHOD OF ANALYSIS	RESULT	DETECTION LIMIT
			LBW001 : INLET API T23AY516-0002	
TOTAL SOLIDS	mg/L	TOTAL SOLIDS DRIED AT 103-105 °C (SM: PART 2540 B)	5,462	25
<b>SAMPLE CONDITION</b> WATER'S COLOUR/TURBID SEDIMENT			YELLOW/TURBID BROWN	

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



## ANALYSIS REPORT

<b>PROJECT NAME</b>	: ENVIRONMENTAL & SOCIOECONOMIC SURVEY	<b>RECEIVED DATE</b>	: SEPTEMBER 8, 2023
<b>CUSTOMER NAME</b>	: ESSO (THAILAND) PUBLIC COMPANY LIMITED	<b>ANALYTICAL DATE</b>	: SEPTEMBER 8-15, 2023
<b>ADDRESS</b>	: 118 MOO 2 THUNG SUKHLA SI RACHA CHON BURI 20230	<b>REPORT NO.</b>	: 2023-U099670
<b>CONTACT INFORMATION</b>	: TEL : 0 3314 2891 e-mail : wanlop.boongor@bangchak.co.th	<b>WORK NO.</b>	: 2019-002022
<b>SAMPLING SOURCE</b>	: -	<b>ANALYSIS NO.</b>	: T23AR664-0006
<b>SAMPLE TYPE</b>	: EFFLUENT		
<b>SAMPLING DATE</b>	: SEPTEMBER 7, 2023		
<b>SAMPLING TIME</b>	: 09:55 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	REGULATORY STANDARD 1	REGULATORY STANDARD 2
			LBW004 : OP OUTLET T23AR664-0006		
pH <sup>a</sup>	-	ELECTROMETRIC METHOD (SM: PART 4500-H <sup>+</sup> B)	7.7 (25°C)	5.5-9.0	5.5-9.0
TEMPERATURE °	°C	THERMOMETER AT SITE (SM: PART 2550 B)	31	≤ 40	≤ 40
BIOCHEMICAL OXYGEN DEMAND °	mg/L	MEMBRANE ELECTRODE METHOD (SM: PART 5210 B AND PART 4500-O G)	< 2.0	≤ 20	≤ 20
SULPHIDE °	mg/L	METHYLENE BLUE METHOD (SM: PART 4500-S <sup>2-</sup> D)	< 0.02	≤ 1	≤ 1
CHEMICAL OXYGEN DEMAND °	mg/L	CLOSED REF. LUX, TITRIMETRIC METHOD (SM: PART 5220 C)	60.2	≤ 120	≤ 120
TOTAL SUSPENDED SOLIDS <sup>a</sup>	mg/L	TOTAL SUSPENDED SOLIDS DRIED AT 103-105 °C (SM: PART 2540 D)	8.1	≤ 50	≤ 50
TOTAL DISSOLVED SOLIDS °	mg/L	TOTAL DISSOLVED SOLIDS DRIED AT 180 °C (SM: PART 2540 C)	35,950	≤ 3,000 <sup>1</sup>	≤ 3,000 <sup>1</sup>
FAT, OIL AND GREASE °	mg/L	LIQUID-LIQUID, PARTITION-GRAVIMETRIC METHOD (SM: PART 5520 B)	0.6	≤ 5	≤ 5



PARAMETER	UNIT	METHOD OF ANALYSIS	RESULT	REGULATORY STANDARD 1	REGULATORY STANDARD 2
			LBW004 : OP OUTLET T23AR664-0006		
CYANIDE <sup>c</sup>	mg/L CN <sup>-</sup>	DISTILLATION, PYRIDINE-BARBITURIC ACID METHOD (SM: PART 4500-CN <sup>-</sup> C AND PART 4500-CN <sup>-</sup> E)	< 0.005	≤ 0.2	-
<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.

REGULATORY STANDARD 1: INDUSTRIAL EFFLUENT STANDARDS, NOTIFICATION OF THE MINISTRY OF INDUSTRY, B.E. 2560,  
PUBLISHED IN THE ROYAL GOVERNMENT GAZETTE, VOL 134, PART 153 D, DATED JUNE 7, 2017.

REGULATORY STANDARD 2: STANDARD FOR CONTROL THE EFFLUENT FROM INDUSTRIAL PLANTS, INDUSTRIAL ESTATE AND INDUSTRIAL ZONES  
ANNOUNCEMENT OF THE MINISTRY OF NATURAL RESOURCES AND ENVIRONMENT, PUBLISHED IN THE ROYAL  
GOVERNMENT GAZETTE, VOL 133, PART 129 (SPECIAL ISSUED), DATED JUNE 6, B.E. 2559 (2016).

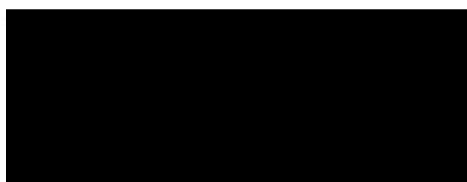
<sup>1/</sup> : NOT MORE THAN 5,000 mg/L, IN CASE RECEIVING WATER HAVING TOTAL DISSOLVED SOLIDS  
MORE THAN 3,000 mg/L.

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

RELEASE ORDER NO. : EV-07-09-002

THE REASON FOR ISSUING THE NEW REPORT IS DUE TO ADDITION REGULATORY STANDARD.

SUBSTITUTED REPORT FOR REPORT NO. 2023-U077930, DATED SEPTEMBER 20, 2023.



## ANALYSIS REPORT

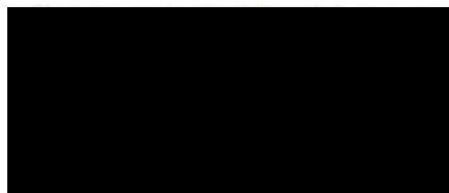
**PROJECT NAME** : ENVIRONMENTAL & SOCIOECONOMIC SURVEY  
**CUSTOMER NAME** : ESSO (THAILAND) PUBLIC COMPANY LIMITED  
**ADDRESS** : 118 MOO 2 THUNG SUKHLA SI RACHA CHON BURI 20230  
**CONTACT INFORMATION** : TEL : 0 3314 2891 e-mail : wanlop.boongor@bangchak.co.th  
**SAMPLING SOURCE** : -  
**SAMPLE TYPE** : WASTEWATER  
**SAMPLING DATE** : SEPTEMBER 7, 2023  
**SAMPLING TIME** : 09:55 HOUR  
**SAMPLING METHOD** : GRAB  
**SAMPLING BY** : MR THANADET WANSANOR  
**ANALYZED BY** : MISS NAPAPORN KHUNNOKKHUM

**RECEIVED DATE** : SEPTEMBER 8, 2023  
**ANALYTICAL DATE** : SEPTEMBER 8-12, 2023  
**REPORT NO.** : 2023-U077933  
**WORK NO.** : 2019-002022  
**ANALYSIS NO.** : T23AR664-0007

PARAMETER	UNIT	METHOD OF ANALYSIS	RESULT	DETECTION LIMIT
			LBW004 : OP OUTLET T23AR664-0007	
TOTAL SOLIDS	mg/L	TOTAL SOLIDS DRIED AT 103-105 °C (SM: PART 2540 B)	42,800	25
<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.

RELEASE ORDER NO. : EV-07-09-002





## ANALYSIS REPORT

<b>PROJECT NAME</b>	: ENVIRONMENTAL & SOCIOECONOMIC SURVEY	<b>RECEIVED DATE</b>	: DECEMBER 8, 2023
<b>CUSTOMER NAME</b>	: BANGCHAK SRIRACHA PUBLIC COMPANY LIMITED	<b>ANALYTICAL DATE</b>	: DECEMBER 8-15, 2023
<b>ADDRESS</b>	: 118 MOO 2 THUNG SUKHLA SI RACHA CHON BURI 20230	<b>REPORT NO.</b>	: 2023-U108966
<b>CONTACT INFORMATION</b>	: TEL : 0 3314 2891 e-mail : wanlop.boongor@bangchak.co.th	<b>WORK NO.</b>	: 2019-002022
<b>SAMPLING SOURCE</b>	: -	<b>ANALYSIS NO.</b>	: T23AY516-0006
<b>SAMPLE TYPE</b>	: EFFLUENT		
<b>SAMPLING DATE</b>	: DECEMBER 7, 2023		
<b>SAMPLING TIME</b>	: 10:10 HOUR		
<b>SAMPLING METHOD <sup>c</sup></b>	: GRAB		
<b>SAMPLING BY <sup>c</sup></b>	: MR THANADET WANSANOR ๓-145-๓-0056		
<b>ANALYZED BY</b>	: MISS NAPAPORN KHUNNOKKHUM ๓-145-๓-0114		

PARAMETER	UNIT	METHOD OF ANALYSIS	RESULT	DETECTION LIMIT
			LBW004 : OP OUTLET T23AY516-0006	
pH <sup>a</sup>	-	ELECTROMETRIC METHOD (SM: PART 4500-H <sup>+</sup> B)	7.5 (25°C)	-
TEMPERATURE <sup>c</sup>	°C	THERMOMETER AT SITE (SM: PART 2550 B)	32	-
BIOCHEMICAL OXYGEN DEMAND <sup>c</sup>	mg/L	MEMBRANE ELECTRODE METHOD (SM: PART 5210 B AND PART 4500-O G)	< 2.0	2.0
CHEMICAL OXYGEN DEMAND <sup>c</sup>	mg/L	CLOSED REFLUX, TITRIMETRIC METHOD (SM: PART 5220 C)	59.2	25.0
TOTAL SUSPENDED SOLIDS <sup>a</sup>	mg/L	TOTAL SUSPENDED SOLIDS DRIED AT 103-105 °C (SM: PART 2540 D)	10.4	5.0
TOTAL DISSOLVED SOLIDS <sup>c</sup>	mg/L	TOTAL DISSOLVED SOLIDS DRIED AT 180 °C (SM: PART 2540 C)	39,200	25
SULPHIDE <sup>c</sup>	mg/L	METHYLENE BLUE METHOD(SM: PART 4500-S <sup>2-</sup> D)	< 0.02	0.02
FAT, OIL AND GREASE <sup>c</sup>	mg/L	LIQUID-LIQUID, PARTITION-GRAVIMETRIC METHOD (SM: PART 5520 B)	0.4	3
CYANIDE <sup>c</sup>	mg/L CN <sup>-</sup>	DISTILLATION, PYRIDINE-BARBITURIC ACID METHOD (SM: PART 4500-CN <sup>-</sup> C AND PART 4500-CN <sup>-</sup> E)	< 0.005	0.005
<b>SAMPLE CONDITION</b>				
WATER'S COLOUR/TURBID			YELLOW/CLEAR	
SEDIMENT			BROWN	

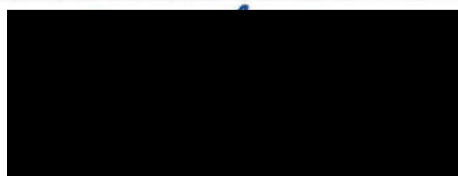
<sup>a</sup> : ISO/IEC 17025 ACCREDITED BY THAI INDUSTRIAL STANDARDS INSTITUTE (TISI)

<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



## ANALYSIS REPORT

**PROJECT NAME** : ENVIRONMENTAL & SOCIOECONOMIC SURVEY  
**CUSTOMER NAME** : BANGCHAK SRIRACHA PUBLIC COMPANY LIMITED  
**ADDRESS** : 118 MOO 2 THUNG SUKHLA SI RACHA CHON BURI 20230  
**CONTACT INFORMATION** : TEL : 0 3314 2891 e-mail : wanlop.boongor@bangchak.co.th  
**SAMPLING SOURCE** : -  
**SAMPLE TYPE** : WASTEWATER  
**SAMPLING DATE** : DECEMBER 7, 2023  
**SAMPLING TIME** : 10:10 HOUR  
**SAMPLING METHOD** : GRAB  
**SAMPLING BY** : MR THANADET WANSANOR  
**ANALYZED BY** : MISS NAPAPORN KHUNNOKKHUM

**RECEIVED DATE** : DECEMBER 8, 2023  
**ANALYTICAL DATE** : DECEMBER 8-13, 2023  
**REPORT NO.** : 2023-U108968  
**WORK NO.** : 2019-002022  
**ANALYSIS NO.** : T23AY516-0007

PARAMETER	UNIT	METHOD OF ANALYSIS	RESULT	DETECTION LIMIT
			LBW004 : OP OUTLET T23AY516-0007	
TOTAL SOLIDS	mg/L	TOTAL SOLIDS DRIED AT 103-105 °C (SM: PART 2540 B)	41,933	25
<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.

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



## ANALYSIS REPORT

<b>PROJECT NAME</b>	: ENVIRONMENTAL & SOCIOECONOMIC SURVEY	<b>RECEIVED DATE</b>	: JULY 7, 2023
<b>CUSTOMER NAME</b>	: ESSO (THAILAND) PUBLIC COMPANY LIMITED	<b>ANALYTICAL DATE</b>	: JULY 7-15, 2023
<b>ADDRESS</b>	: 118 MOO 2 THUNG SUKHLA SI RACHA CHON BURI 20230	<b>REPORT NO.</b>	: 2023-U058810
<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>	: T23AM982-0006
<b>SAMPLE TYPE</b>	: EFFLUENT		
<b>SAMPLING DATE</b>	: JULY 6, 2023		
<b>SAMPLING TIME</b>	: 10:25 HOUR		
<b>SAMPLING METHOD <sup>c</sup></b>	: GRAB		
<b>SAMPLING BY <sup>c</sup></b>	: MR THANADET WANSANOR		
<b>ANALYZED BY</b>	: MISS NAPAPORN KHUNNOKKHUM		

PARAMETER	UNIT	METHOD OF ANALYSIS	RESULT	DETECTION LIMIT
			LBW005 : REFINERY MIX T23AM982-0006	
pH <sup>a</sup>	-	ELECTROMETRIC METHOD (SM: PART 4500-H <sup>+</sup> B)	7.7 (25°C)	-
TEMPERATURE <sup>c</sup>	°C	THERMOMETER AT SITE (SM: PART 2550 B)	35	-
BIOCHEMICAL OXYGEN DEMAND <sup>c</sup>	mg/L	MEMBRANE ELECTRODE METHOD (SM: PART 5210 B AND PART 4500-O G)	< 2.0	2.0
SALINITY <sup>c</sup>	ppt	ELECTRICAL CONDUCTIVITY METHOD AT SITE (SM: PART 2520 B)	27.1	0.1
CHEMICAL OXYGEN DEMAND <sup>c</sup>	mg/L	CLOSED REFLUX, TITRIMETRIC METHOD (SM: PART 5220 C)	80.8	25.0
TOTAL SUSPENDED SOLIDS <sup>a</sup>	mg/L	TOTAL SUSPENDED SOLIDS DRIED AT 103-105 °C (SM: PART 2540 D)	11.5	5.0
NITRATE <sup>c</sup>	mg/L NO <sub>3</sub> <sup>-</sup>	CADMIUM REDUCTION METHOD (SM: PART 4500-NO <sub>3</sub> <sup>-</sup> E)	11.6	0.09
SULPHIDE <sup>c</sup>	mg/L	METHYLENE BLUE METHOD(SM: PART 4500-S <sup>2-</sup> D)	0.04	0.02
TOTAL DISSOLVED SOLIDS <sup>c</sup>	mg/L	TOTAL DISSOLVED SOLIDS DRIED AT 180 °C (SM: PART 2540 C)	36,625	25
FAT, OIL AND GREASE <sup>c</sup>	mg/L	LIQUID-LIQUID, PARTITION-GRAVIMETRIC METHOD (SM: PART 5520 B)	0.6	3





PARAMETER	UNIT	METHOD OF ANALYSIS	RESULT	DETECTION LIMIT
			LBW005 : REFINERY MIX T23AM982-0006	
METALS				
LEAD °	mg/L Pb	IN-HOUSE METHOD: UAE.TP.IW.01 (NITRIC ACID DIGESTION AND DIRECT AIR ACETYLENE FLAME METHOD); SM: PART 3030 E AND PART 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)

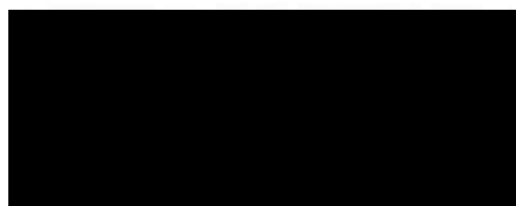
<sup>c</sup> : VERIFIED BY OWN LABORATORY QUALITY SYSTEM, BUT STILL NOT ACCREDITED

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

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





## 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 13, 2023  
**SAMPLING TIME** : 10:30 HOUR  
**SAMPLING METHOD** <sup>c</sup> : GRAB  
**SAMPLING BY** <sup>c</sup> : MR THANADET WANSANOR  
**ANALYZED BY** : MISS KEWALEE SUKHAREE  
**RECEIVED DATE** : JULY 13, 2023  
**ANALYTICAL DATE** : JULY 13-18, 2023  
**REPORT NO.** : 2023-U060260  
**WORK NO.** : 2019-002022  
**ANALYSIS NO.** : T23AN473-0005

PARAMETER	UNIT	METHOD OF ANALYSIS	RESULT	DETECTION LIMIT
			LBW005 : REFINERY MIX T23AN473-0005	
pH <sup>a</sup>	-	ELECTROMETRIC METHOD (SM: PART 4500-H <sup>+</sup> B)	7.8 (25°C)	-
TEMPERATURE <sup>c</sup>	°C	THERMOMETER AT SITE (SM: PART 2550 B)	35	-
TOTAL DISSOLVED SOLIDS <sup>c</sup>	mg/L	TOTAL DISSOLVED SOLIDS DRIED AT 180 °C (SM: PART 2540 C)	37,700	25
FAT, OIL AND GREASE <sup>c</sup>	mg/L	LIQUID-LIQUID, PARTITION-GRAVIMETRIC METHOD (SM: PART 5520 B)	0.9	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)

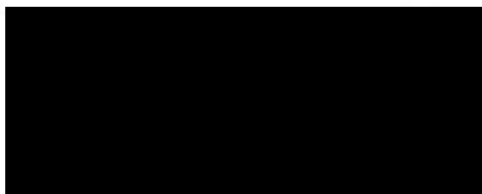
<sup>b</sup> : ISO/IEC 17025 ACCREDITED BY DEPARTMENT OF SCIENCE SERVICE (DSS)

<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-13-07-004



## ANALYSIS REPORT

<b>PROJECT NAME</b>	: ENVIRONMENTAL & SOCIOECONOMIC SURVEY	<b>RECEIVED DATE</b>	: AUGUST 4, 2023
<b>CUSTOMER NAME</b>	: ESSO (THAILAND) PUBLIC COMPANY LIMITED	<b>ANALYTICAL DATE</b>	: AUGUST 4-14, 2023
<b>ADDRESS</b>	: 118 MOO 2 THUNG SUKHLA SI RACHA CHON BURI 20230	<b>REPORT NO.</b>	: 2023-U066471
<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>	: T23A0873-0006
<b>SAMPLE TYPE</b>	: EFFLUENT		
<b>SAMPLING DATE</b>	: AUGUST 3, 2023		
<b>SAMPLING TIME</b>	: 10:20 HOUR		
<b>SAMPLING METHOD °</b>	: GRAB		
<b>SAMPLING BY °</b>	: MR THANADET WANSANOR		
<b>ANALYZED BY</b>	: MISS NAPAPORN KHUNNOKKHUM		

PARAMETER	UNIT	METHOD OF ANALYSIS	RESULT	DETECTION LIMIT
			LBW005 : REFINERY MIX T23A0873-0006	
pH <sup>a</sup>	-	ELECTROMETRIC METHOD (SM: PART 4500-H <sup>+</sup> B)	7.6 (25°C)	-
TEMPERATURE °	°C	THERMOMETER AT SITE (SM: PART 2550 B)	34	-
BIOCHEMICAL OXYGEN DEMAND °	mg/L	MEMBRANE ELECTRODE METHOD (SM: PART 5210 B AND PART 4500-O G)	< 2.0	2.0
SALINITY °	ppt	ELECTRICAL CONDUCTIVITY METHOD AT SITE (SM: PART 2520 B)	29.5	0.1
CHEMICAL OXYGEN DEMAND °	mg/L	CLOSED REFLUX, TITRIMETRIC METHOD (SM: PART 5220 C)	59.2	25.0
TOTAL SUSPENDED SOLIDS <sup>a</sup>	mg/L	TOTAL SUSPENDED SOLIDS DRIED AT 103-105 °C (SM: PART 2540 D)	29.6	5.0
NITRATE °	mg/L NO <sub>3</sub> <sup>-</sup>	CADMIUM REDUCTION METHOD (SM: PART 4500-NO <sub>3</sub> <sup>-</sup> E)	5.89	0.09
SULPHIDE °	mg/L	METHYLENE BLUE METHOD(SM: PART 4500-S <sup>2-</sup> D)	< 0.02	0.02
TOTAL DISSOLVED SOLIDS °	mg/L	TOTAL DISSOLVED SOLIDS DRIED AT 180 °C (SM: PART 2540 C)	38,200	25
FAT, OIL AND GREASE °	mg/L	LIQUID-LIQUID, PARTITION-GRAVIMETRIC METHOD (SM: PART 5520 B)	1.0	3



PARAMETER	UNIT	METHOD OF ANALYSIS	RESULT	DETECTION LIMIT
			LBW005 : REFINERY MIX T23A0873-0006	
METALS				
LEAD °	mg/L Pb	IN-HOUSE METHOD: UAE.TP.IW.01 (NITRIC ACID DIGESTION AND DIRECT AIR ACETYLENE FLAME METHOD); SM: PART 3030 E AND PART 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

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

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

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

RELEASE ORDER NO. : EV-03-08-001

AUGUST 16, 2023



## 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** : AUGUST 10, 2023  
**SAMPLING TIME** : 10:00 HOUR  
**SAMPLING METHOD** <sup>c</sup> : GRAB  
**SAMPLING BY** <sup>c</sup> : MR THANADET WANSANOR  
**ANALYZED BY** : MISS KEWALEE SUKHAREE  
**RECEIVED DATE** : AUGUST 10, 2023  
**ANALYTICAL DATE** : AUGUST 10-15, 2023  
**REPORT NO.** : 2023-U068733  
**WORK NO.** : 2019-002022  
**ANALYSIS NO.** : T23AP409-0005

PARAMETER	UNIT	METHOD OF ANALYSIS	RESULT	DETECTION LIMIT
			LBW005 : REFINERY MIX T23AP409-0005	
pH <sup>a</sup>	-	ELECTROMETRIC METHOD (SM: PART 4500-H <sup>+</sup> B)	7.7 (25°C)	-
TEMPERATURE <sup>c</sup>	°C	THERMOMETER AT SITE (SM: PART 2550 B)	36	-
TOTAL DISSOLVED SOLIDS <sup>c</sup>	mg/L	TOTAL DISSOLVED SOLIDS DRIED AT 180 °C (SM: PART 2540 C)	38,180	25
FAT, OIL AND GREASE <sup>c</sup>	mg/L	LIQUID-LIQUID, PARTITION-GRAVIMETRIC METHOD (SM: PART 5520 B)	0.8	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-10-08-003

AUGUST 23, 2023





## ANALYSIS REPORT

<b>PROJECT NAME</b>	: ENVIRONMENTAL & SOCIOECONOMIC SURVEY	<b>RECEIVED DATE</b>	: SEPTEMBER 8, 2023
<b>CUSTOMER NAME</b>	: ESSO (THAILAND) PUBLIC COMPANY LIMITED	<b>ANALYTICAL DATE</b>	: SEPTEMBER 8-17, 2023
<b>ADDRESS</b>	: 118 MOO 2 THUNG SUKHLA SI RACHA CHON BURI 20230	<b>REPORT NO.</b>	: 2023-U087567
<b>CONTACT INFORMATION</b>	: TEL : 0 3314 2891 e-mail : wanlop.boongor@bangchak.co.th	<b>WORK NO.</b>	: 2019-002022
<b>SAMPLING SOURCE</b>	: -	<b>ANALYSIS NO.</b>	: T23AR664-0008
<b>SAMPLE TYPE</b>	: EFFLUENT		
<b>SAMPLING DATE</b>	: SEPTEMBER 7, 2023		
<b>SAMPLING TIME</b>	: 10:10 HOUR		
<b>SAMPLING METHOD °</b>	: GRAB		
<b>SAMPLING BY °</b>	: MR THANADET WANSANOR		
<b>ANALYZED BY</b>	: MISS NAPAPORN KHUNNOKKHUM		

PARAMETER	UNIT	METHOD OF ANALYSIS	RESULT	DETECTION LIMIT
			LBW005 : REFINERY MIX T23AR664-0008	
pH <sup>a</sup>	-	ELECTROMETRIC METHOD (SM: PART 4500-H <sup>+</sup> B)	7.5 (25°C)	-
SALINITY °	ppt	ELECTRICAL CONDUCTIVITY METHOD AT SITE (SM: PART 2520 B)	29.7	0.1
TEMPERATURE °	°C	THERMOMETER AT SITE (SM: PART 2550 B)	34	-
BIOCHEMICAL OXYGEN DEMAND °	mg/L	MEMBRANE ELECTRODE METHOD (SM: PART 5210 B AND PART 4500-O G)	< 2.0	2.0
NITRATE °	mg/L NO <sub>3</sub> <sup>-</sup>	CADMIUM REDUCTION METHOD (SM: PART 4500-NO <sub>3</sub> <sup>-</sup> E)	5.58	0.09
CHEMICAL OXYGEN DEMAND °	mg/L	CLOSED REFLUX, TITRIMETRIC METHOD (SM: PART 5220 C)	74.4	25.0
SULPHIDE °	mg/L	METHYLENE BLUE METHOD(SM: PART 4500-S <sup>2-</sup> D)	< 0.02	0.02
TOTAL SUSPENDED SOLIDS <sup>a</sup>	mg/L	TOTAL SUSPENDED SOLIDS DRIED AT 103-105 °C (SM: PART 2540 D)	8.9	5.0
TOTAL DISSOLVED SOLIDS °	mg/L	TOTAL DISSOLVED SOLIDS DRIED AT 180 °C (SM: PART 2540 C)	36,700	25
FAT, OIL AND GREASE °	mg/L	LIQUID-LIQUID, PARTITION-GRAVIMETRIC METHOD (SM: PART 5520 B)	0.6	3



PARAMETER	UNIT	METHOD OF ANALYSIS	RESULT	DETECTION LIMIT
			LBW005 : REFINERY MIX T23AR664-0008	
METALS				
LEAD °	mg/L Pb	IN-HOUSE METHOD: UAE.TP.IW.01 (NITRIC ACID DIGESTION AND DIRECT AIR ACETYLENE FLAME METHOD); SM: PART 3030 E AND PART 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

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

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-07-09-002

SUBSTITUTED REPORT FOR REPORT NO. 2023-U077935, DATED SEPTEMBER 20, 2023.

THE REASON FOR ISSUING THE NEW REPORT IS DUE TO THE CORRECTION OF SAMPLING TIME.

OCTOBER 16, 2023

## 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@bangchak.co.th  
**SAMPLING SOURCE** : -  
**SAMPLE TYPE** : EFFLUENT **RECEIVED DATE** : -  
**MEASURING DATE** : SEPTEMBER 7, 2023 **ANALYTICAL DATE** : -  
**MEASURING TIME** : 10:10 HOUR **REPORT NO.** : 2023-U087568  
**SAMPLING METHOD** : GRAB **WORK NO.** : 2019-002022  
**MEASURED BY** : MR THANADET WANSANOR **ANALYSIS NO.** : T23AR664-0009

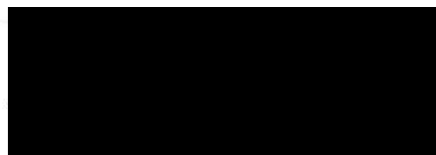
PARAMETER	UNIT	METHOD OF ANALYSIS	RESULT	DETECTION LIMIT
			LBW005 : REFINERY MIX T23AR664-0009	
DISSOLVED OXYGEN	mg/L	MEMBRANE ELECTRODE METHOD AT SITE (SM: PART 4500-O G)	5.4	0.5
<b>SAMPLE CONDITION</b> WATER'S COLOUR/TURBID SEDIMENT			YELLOW/CLEAR BROWN	

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

RELEASE ORDER NO. : EV-07-09-002

SUBSTITUTED REPORT FOR REPORT NO. 2023-U077936, DATED SEPTEMBER 26, 2023.

THE REASON FOR ISSUING THE NEW REPORT IS DUE TO THE CORRECTION OF SAMPLING TIME.



OCTOBER 16, 2023





## 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@bangchak.co.th  
**SAMPLING SOURCE** : -  
**SAMPLE TYPE** : EFFLUENT  
**SAMPLING DATE** : SEPTEMBER 14, 2023  
**SAMPLING TIME** : 09:20 HOUR  
**SAMPLING METHOD °** : GRAB  
**SAMPLING BY °** : MR THANADET WANSANOR  
**ANALYZED BY** : MISS KEWALEE SUKHAREE  
**RECEIVED DATE** : SEPTEMBER 14, 2023  
**ANALYTICAL DATE** : SEPTEMBER 14-21, 2023  
**REPORT NO.** : 2023-U081312  
**WORK NO.** : 2019-002022  
**ANALYSIS NO.** : T23AS208-0005

PARAMETER	UNIT	METHOD OF ANALYSIS	RESULT	DETECTION LIMIT
			LBW005 : REFINERY MIX T23AS208-0005	
pH <sup>a</sup>	-	ELECTROMETRIC METHOD (SM: PART 4500-H <sup>+</sup> B)	7.5 (25°C)	-
TEMPERATURE °	°C	THERMOMETER AT SITE (SM: PART 2550 B)	34	-
TOTAL DISSOLVED SOLIDS °	mg/L	TOTAL DISSOLVED SOLIDS DRIED AT 180 °C (SM: PART 2540 C)	39,100	25
FAT, OIL AND GREASE °	mg/L	LIQUID-LIQUID, PARTITION-GRAVIMETRIC METHOD (SM: PART 5520 B)	2.9	3
<b>SAMPLE CONDITION</b> WATER'S COLOUR/TURBID SEDIMENT			COLOURLESS/CLEAR BLACK	

<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-14-09-003

SEPTEMBER 26, 2023





## 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@bangchak.co.th  
**SAMPLING SOURCE** : -  
**SAMPLE TYPE** : EFFLUENT  
**SAMPLING DATE** : OCTOBER 12, 2023  
**SAMPLING TIME** : 09:30 HOUR  
**SAMPLING METHOD <sup>c</sup>** : GRAB  
**SAMPLING BY <sup>c</sup>** : MR THANADET WANSANOR  
**ANALYZED BY** : MISS KEWALEE SUKHAREE

**RECEIVED DATE** : OCTOBER 12, 2023  
**ANALYTICAL DATE** : OCTOBER 12-24, 2023  
**REPORT NO.** : 2023-U090953  
**WORK NO.** : 2019-002022  
**ANALYSIS NO.** : T23AU319-0005

PARAMETER	UNIT	METHOD OF ANALYSIS	RESULT	DETECTION LIMIT
			LBW005 : REFINERY MIX T23AU319-0005	
pH <sup>a</sup>	-	ELECTROMETRIC METHOD (SM: PART 4500-H <sup>+</sup> B)	7.7 (25°C)	-
TEMPERATURE <sup>c</sup>	°C	THERMOMETER AT SITE (SM: PART 2550 B)	33	-
TOTAL DISSOLVED SOLIDS <sup>c</sup>	mg/L	TOTAL DISSOLVED SOLIDS DRIED AT 180 °C (SM: PART 2540 C)	37,333	25
FAT, OIL AND GREASE <sup>c</sup>	mg/L	LIQUID-LIQUID, PARTITION-GRAVIMETRIC METHOD (SM: PART 5520 B)	0.8	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-12-10-004

OCTOBER 27, 2023



## ANALYSIS REPORT

<b>PROJECT NAME</b>	: ENVIRONMENTAL & SOCIOECONOMIC SURVEY	<b>RECEIVED DATE</b>	: OCTOBER 19, 2023
<b>CUSTOMER NAME</b>	: ESSO (THAILAND) PUBLIC COMPANY LIMITED	<b>ANALYTICAL DATE</b>	: OCTOBER 19-27, 2023
<b>ADDRESS</b>	: 118 MOO 2 THUNG SUKHLA SI RACHA CHON BURI 20230	<b>REPORT NO.</b>	: 2023-U091941
<b>CONTACT INFORMATION</b>	: TEL : 0 3314 2891 e-mail : wanlop.boongor@bangchak.co.th	<b>WORK NO.</b>	: 2019-002022
<b>SAMPLING SOURCE</b>	: -	<b>ANALYSIS NO.</b>	: T23AU783-0006
<b>SAMPLE TYPE</b>	: EFFLUENT		
<b>SAMPLING DATE</b>	: OCTOBER 19, 2023		
<b>SAMPLING TIME</b>	: 09:15 HOUR		
<b>SAMPLING METHOD °</b>	: GRAB		
<b>SAMPLING BY °</b>	: MR THANADET WANSANOR		
<b>ANALYZED BY</b>	: MISS NAPAPORN KHUNNOKKHUM		

PARAMETER	UNIT	METHOD OF ANALYSIS	RESULT	DETECTION LIMIT
			LBW005 : REFINERY MIX T23AU783-0006	
pH <sup>a</sup>	-	ELECTROMETRIC METHOD (SM: PART 4500-H <sup>+</sup> B)	7.7 (25°C)	-
SALINITY °	ppt	ELECTRICAL CONDUCTIVITY METHOD AT SITE (SM: PART 2520 B)	33.8	0.1
TEMPERATURE °	°C	THERMOMETER AT SITE (SM: PART 2550 B)	32	-
BIOCHEMICAL OXYGEN DEMAND °	mg/L	MEMBRANE ELECTRODE METHOD (SM: PART 5210 B AND PART 4500-O G)	< 2.0	2.0
NITRATE °	mg/L NO <sub>3</sub> <sup>-</sup>	CADMIUM REDUCTION METHOD (SM: PART 4500-NO <sub>3</sub> <sup>-</sup> E)	5.14	0.09
CHEMICAL OXYGEN DEMAND °	mg/L	CLOSED REFLUX, TITRIMETRIC METHOD (SM: PART 5220 C)	92.1	25.0
SULPHIDE °	mg/L	METHYLENE BLUE METHOD(SM: PART 4500-S <sup>2-</sup> D)	< 0.02	0.02
TOTAL SUSPENDED SOLIDS <sup>a</sup>	mg/L	TOTAL SUSPENDED SOLIDS DRIED AT 103-105 °C (SM: PART 2540 D)	15.5	5.0
TOTAL DISSOLVED SOLIDS °	mg/L	TOTAL DISSOLVED SOLIDS DRIED AT 180 °C (SM: PART 2540 C)	39,567	25
FAT, OIL AND GREASE °	mg/L	LIQUID-LIQUID, PARTITION-GRAVIMETRIC METHOD (SM: PART 5520 B)	0.7	3



PARAMETER	UNIT	METHOD OF ANALYSIS	RESULT	DETECTION LIMIT
			LBW005 : REFINERY MIX T23AU783-0006	
METALS				
LEAD °	mg/L Pb	IN-HOUSE METHOD: UAE.TP.IW.01 (NITRIC ACID DIGESTION AND DIRECT AIR ACETYLENE FLAME METHOD); SM: PART 3030 E AND PART 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

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

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-19-10-006

OCTOBER 31, 2023



## ANALYSIS REPORT

<b>PROJECT NAME</b>	: ENVIRONMENTAL & SOCIOECONOMIC SURVEY	<b>RECEIVED DATE</b>	: NOVEMBER 3, 2023
<b>CUSTOMER NAME</b>	: ESSO (THAILAND) PUBLIC COMPANY LIMITED	<b>ANALYTICAL DATE</b>	: NOVEMBER 3-8, 2023
<b>ADDRESS</b>	: 118 MOO 2 THUNG SUKHLA SI RACHA CHON BURI 20230	<b>REPORT NO.</b>	: 2023-U097261
<b>CONTACT INFORMATION</b>	: TEL : 0 3314 2891 e-mail : wanlop.boongor@bangchak.co.th	<b>WORK NO.</b>	: 2019-002022
<b>SAMPLING SOURCE</b>	: -	<b>ANALYSIS NO.</b>	: T23AV859-0009
<b>SAMPLE TYPE</b>	: EFFLUENT		
<b>SAMPLING DATE</b>	: NOVEMBER 2, 2023		
<b>SAMPLING TIME</b>	: 10:15 HOUR		
<b>SAMPLING METHOD °</b>	: GRAB		
<b>SAMPLING BY °</b>	: MR THANADET WANSANOR		
<b>ANALYZED BY</b>	: MISS NAPAPORN KHUNNOKKHUM		

PARAMETER	UNIT	METHOD OF ANALYSIS	RESULT	DETECTION LIMIT
			LBW005 : REFINERY MIX T23AV859-0009	
pH <sup>a</sup>	-	ELECTROMETRIC METHOD (SM: PART 4500-H <sup>+</sup> B)	7.9 (25°C)	-
TEMPERATURE °	°C	THERMOMETER AT SITE (SM: PART 2550 B)	33	-
SALINITY °	ppt	ELECTRICAL CONDUCTIVITY METHOD AT SITE (SM: PART 2520 B)	25.4	0.1
BIOCHEMICAL OXYGEN DEMAND °	mg/L	MEMBRANE ELECTRODE METHOD (SM: PART 5210 B AND PART 4500-O G)	< 2.0	2.0
CHEMICAL OXYGEN DEMAND °	mg/L	CLOSED REFLUX, TITRIMETRIC METHOD (SM: PART 5220 C)	85.5	25.0
TOTAL SUSPENDED SOLIDS <sup>a</sup>	mg/L	TOTAL SUSPENDED SOLIDS DRIED AT 103-105 °C (SM: PART 2540 D)	5.3	5.0
TOTAL DISSOLVED SOLIDS °	mg/L	TOTAL DISSOLVED SOLIDS DRIED AT 180 °C (SM: PART 2540 C)	31,040	25
SULPHIDE °	mg/L	METHYLENE BLUE METHOD(SM: PART 4500-S <sup>2-</sup> D)	< 0.02	0.02
NITRATE °	mg/L NO <sub>3</sub> <sup>-</sup>	CADMIUM REDUCTION METHOD (SM: PART 4500-NO <sub>3</sub> <sup>-</sup> E)	5.58	0.09
FAT, OIL AND GREASE °	mg/L	LIQUID-LIQUID, PARTITION-GRAVIMETRIC METHOD (SM: PART 5520 B)	0.7	3





PARAMETER	UNIT	METHOD OF ANALYSIS	RESULT	DETECTION LIMIT
			LBW005 : REFINERY MIX T23AV859-0009	
METALS				
LEAD °	mg/L Pb	IN-HOUSE METHOD: UAE.TP.IW.01 (NITRIC ACID DIGESTION AND DIRECT AIR ACETYLENE FLAME METHOD); SM: PART 3030 E AND PART 3111 B	0.026	0.015
SAMPLE CONDITION				
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

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

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

NOVEMBER 14, 2023

## 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@bangchak.co.th  
**SAMPLING SOURCE** : -  
**SAMPLE TYPE** : EFFLUENT  
**SAMPLING DATE** : NOVEMBER 9, 2023  
**SAMPLING TIME** : 10:10 HOUR  
**SAMPLING METHOD** <sup>c</sup> : GRAB  
**SAMPLING BY** <sup>c</sup> : MR THANADET WANSANOR  
**ANALYZED BY** : MISS KEWALEE SUKHAREE  
**RECEIVED DATE** : NOVEMBER 10, 2023  
**ANALYTICAL DATE** : NOVEMBER 10-14, 2023  
**REPORT NO.** : 2023-U099662  
**WORK NO.** : 2019-002022  
**ANALYSIS NO.** : T23AW414-0005

PARAMETER	UNIT	METHOD OF ANALYSIS	RESULT	DETECTION LIMIT
			LBW005 : REFINERY MIX T23AW414-0005	
pH <sup>a</sup>	-	ELECTROMETRIC METHOD (SM: PART 4500-H <sup>+</sup> B)	7.6 (25°C)	-
TEMPERATURE <sup>c</sup>	°C	THERMOMETER AT SITE (SM: PART 2550 B)	35	-
TOTAL DISSOLVED SOLIDS <sup>c</sup>	mg/L	TOTAL DISSOLVED SOLIDS DRIED AT 180 °C (SM: PART 2540 C)	22,850	25
FAT, OIL AND GREASE <sup>c</sup>	mg/L	LIQUID-LIQUID, PARTITION-GRAVIMETRIC METHOD (SM: PART 5520 B)	0.7	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

NOVEMBER 22, 2023



## ANALYSIS REPORT

<b>PROJECT NAME</b>	: ENVIRONMENTAL & SOCIOECONOMIC SURVEY	<b>RECEIVED DATE</b>	: DECEMBER 8, 2023
<b>CUSTOMER NAME</b>	: BANGCHAK SRIRACHA PUBLIC COMPANY LIMITED	<b>ANALYTICAL DATE</b>	: DECEMBER 8-15, 2023
<b>ADDRESS</b>	: 118 MOO 2 THUNG SUKHLA SI RACHA CHON BURI 20230	<b>REPORT NO.</b>	: 2023-U108970
<b>CONTACT INFORMATION</b>	: TEL : 0 3314 2891 e-mail : wanlop.boongor@bangchak.co.th	<b>WORK NO.</b>	: 2019-002022
<b>SAMPLING SOURCE</b>	: -	<b>ANALYSIS NO.</b>	: T23AY516-0008
<b>SAMPLE TYPE</b>	: EFFLUENT		
<b>SAMPLING DATE</b>	: DECEMBER 7, 2023		
<b>SAMPLING TIME</b>	: 12:10 HOUR		
<b>SAMPLING METHOD <sup>c</sup></b>	: GRAB		
<b>SAMPLING BY <sup>c</sup></b>	: MR THANADET WANSANOR		
<b>ANALYZED BY</b>	: MISS NAPAPORN KHUNNOKKHUM		

PARAMETER	UNIT	METHOD OF ANALYSIS	RESULT	DETECTION LIMIT
			LBW005 : REFINERY MIX T23AY516-0008	
pH <sup>a</sup>	-	ELECTROMETRIC METHOD (SM: PART 4500-H <sup>+</sup> B)	7.7 (25°C)	-
TEMPERATURE <sup>c</sup>	°C	THERMOMETER AT SITE (SM: PART 2550 B)	34	-
SALINITY <sup>c</sup>	ppt	ELECTRICAL CONDUCTIVITY METHOD AT SITE (SM: PART 2520 B)	35.8	0.1
BIOCHEMICAL OXYGEN DEMAND <sup>c</sup>	mg/L	MEMBRANE ELECTRODE METHOD (SM: PART 5210 B AND PART 4500-O G)	< 2.0	2.0
CHEMICAL OXYGEN DEMAND <sup>c</sup>	mg/L	CLOSED REFLUX, TITRIMETRIC METHOD (SM: PART 5220 C)	57.6	25.0
TOTAL SUSPENDED SOLIDS <sup>a</sup>	mg/L	TOTAL SUSPENDED SOLIDS DRIED AT 103-105 °C (SM: PART 2540 D)	7.1	5.0
TOTAL DISSOLVED SOLIDS <sup>c</sup>	mg/L	TOTAL DISSOLVED SOLIDS DRIED AT 180 °C (SM: PART 2540 C)	38,467	25
SULPHIDE <sup>c</sup>	mg/L	METHYLENE BLUE METHOD(SM: PART 4500-S <sup>2-</sup> D)	< 0.02	0.02
NITRATE <sup>c</sup>	mg/L NO <sub>3</sub> <sup>-</sup>	CADMIUM REDUCTION METHOD (SM: PART 4500-NO <sub>3</sub> <sup>-</sup> E)	14.2	0.09
FAT, OIL AND GREASE <sup>c</sup>	mg/L	LIQUID-LIQUID, PARTITION-GRAVIMETRIC METHOD (SM: PART 5520 B)	0.4	3



PARAMETER	UNIT	METHOD OF ANALYSIS	RESULT	DETECTION LIMIT
			LBW005 : REFINERY MIX T23AY516-0008	
METALS				
LEAD °	mg/L Pb	IN-HOUSE METHOD: UAE.TP.IW.01 (NITRIC ACID DIGESTION AND DIRECT AIR ACETYLENE FLAME METHOD); SM: PART 3030 E AND PART 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

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

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

DECEMBER 19, 2023



## ANALYSIS REPORT

**PROJECT NAME** : ENVIRONMENTAL & SOCIOECONOMIC SURVEY  
**CUSTOMER NAME** : BANGCHAK SRIRACHA PUBLIC COMPANY LIMITED  
**ADDRESS** : 118 MOO 2 THUNG SUKHLA SI RACHA CHON BURI 20230  
**CONTACT INFORMATION** : TEL : 0 3314 2891 e-mail : wanlop.boongor@bangchak.co.th  
**SAMPLING SOURCE** : -  
**SAMPLE TYPE** : EFFLUENT  
**MEASURING DATE** : DECEMBER 7, 2023  
**MEASURING TIME** : 12:20 HOUR  
**SAMPLING METHOD** : GRAB  
**MEASURED BY** : MR THANADET WANSANOR

**RECEIVED DATE** : -  
**ANALYTICAL DATE** : -  
**REPORT NO.** : 2023-U108972  
**WORK NO.** : 2019-002022  
**ANALYSIS NO.** : T23AY516-0009

PARAMETER	UNIT	METHOD OF ANALYSIS	RESULT	DETECTION LIMIT
			LBW005 : REFINERY MIX T23AY516-0009	
DISSOLVED OXYGEN	mg/L	MEMBRANE ELECTRODE METHOD AT SITE (SM: PART 4500-O G)	4.8	0.5
<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.

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

DECEMBER 19, 2023



## ANALYSIS REPORT

**PROJECT NAME** : ENVIRONMENTAL & SOCIOECONOMIC SURVEY  
**CUSTOMER NAME** : BANGCHAK SRIRACHA PUBLIC COMPANY LIMITED  
**ADDRESS** : 118 MOO 2 THUNG SUKHLA SI RACHA CHON BURI 20230  
**CONTACT INFORMATION** : TEL : 0 3314 2891 e-mail : wanlop.boongor@bangchak.co.th  
**SAMPLING SOURCE** : -  
**SAMPLE TYPE** : EFFLUENT  
**SAMPLING DATE** : DECEMBER 14, 2023  
**SAMPLING TIME** : 10:20 HOUR  
**SAMPLING METHOD °** : GRAB  
**SAMPLING BY °** : MR THANADET WANSANOR  
**ANALYZED BY** : MISS NAPAPORN KHUNNOKKHUM

**RECEIVED DATE** : DECEMBER 15, 2023  
**ANALYTICAL DATE** : DECEMBER 15-19, 2023  
**REPORT NO.** : 2023-U111151  
**WORK NO.** : 2019-002022  
**ANALYSIS NO.** : T23AZ087-0005

PARAMETER	UNIT	METHOD OF ANALYSIS	RESULT	DETECTION LIMIT
			LBW005 : REFINERY MIX T23AZ087-0005	
pH <sup>a</sup>	-	ELECTROMETRIC METHOD (SM: PART 4500-H <sup>+</sup> B)	7.4 (25°C)	-
TEMPERATURE °	°C	THERMOMETER AT SITE (SM: PART 2550 B)	34	-
TOTAL DISSOLVED SOLIDS °	mg/L	TOTAL DISSOLVED SOLIDS DRIED AT 180 °C (SM: PART 2540 C)	37,788	25
FAT, OIL AND GREASE °	mg/L	LIQUID-LIQUID, PARTITION-GRAVIMETRIC METHOD (SM: PART 5520 B)	0.8	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-14-12-004

DECEMBER 26, 2023



## 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, 2023  
**SAMPLING TIME** : 10:45 HOUR  
**SAMPLING METHOD** : COMPOSITE  
**SAMPLING BY** : MR THANADET WANSANOR  
**ANALYZED BY** : MISS KANNIKAR SUMLEETHA

**RECEIVED DATE** : JULY 7, 2023  
**ANALYTICAL DATE** : JULY 7-18, 2023  
**REPORT NO.** : 2023-U059406  
**WORK NO.** : 2019-002022  
**ANALYSIS NO.** : T23AM983-0001

PARAMETER	UNIT	METHOD OF ANALYSIS	RESULT	DETECTION LIMIT
			LBW006. 500 M OFFSHORE (JETTY) T23AM983-0001	
pH	-	ELECTROMETRIC METHOD (SM: PART 4500-H <sup>+</sup> B)	7.7 (25°C)	-
PHENOLS	mg/L	DISTILLATION, 4-AMINOANTIPYRINE METHOD (SM: PART 5530 B AND PART 5530 C)	0.006	0.005
TEMPERATURE	°C	THERMOMETER AT SITE (SM: PART 2550 B)	32	-
SALINITY	ppt	ELECTRICAL CONDUCTIVITY METHOD AT SITE (SM: PART 2520 B)	24.5	0.1
DISSOLVED OXYGEN	mg/L	MEMBRANE ELECTRODE METHOD AT SITE (SM: PART 4500-O G)	4.7	0.5
BIOCHEMICAL OXYGEN DEMAND	mg/L	MEMBRANE ELECTRODE METHOD (SM: PART 5210 B AND PART 4500-O G)	1.5	0.5
CHEMICAL OXYGEN DEMAND	mg/L	CLOSED REFLUX, TITRIMETRIC METHOD (SM: PART 5220 C)	82.4	25.0
SUSPENDED SOLIDS	mg/L	GRAVIMETRIC METHOD (SM: PART 2540 D)	11.5	1.0
TOTAL DISSOLVED SOLIDS	mg/L	TOTAL DISSOLVED SOLIDS DRIED AT 180 °C (SM: PART 2540 C)	35,774	25
CYANIDE	µg/L CN <sup>-</sup>	DISTILLATION, PYRIDINE-BARBITURIC ACID METHOD (SM: PART 4500-CN <sup>-</sup> C AND PART 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))	6.65	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: PART 5520 B)	0.8	3

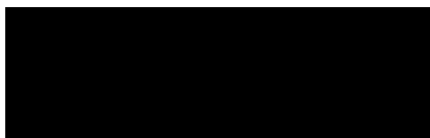


PARAMETER	UNIT	METHOD OF ANALYSIS	RESULT	DETECTION LIMIT
			LBW006. 500 M OFFSHORE (JETTY) T23AM983-0001	
METALS				
LEAD	µg/L Pb	PRE-CONCENTRATION AND INDUCTIVELY COUPLED PLASMA (ICP) METHOD (BASED ON METHOD OF SEAWATER ANALYSIS, GRASSHOFF, 1999, CHAPTER 12)	0.610	0.100
SAMPLE CONDITION				
WATER'S 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-06-07-002



JULY 24, 2023



## 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 13, 2023  
**SAMPLING TIME** : 10:45 HOUR  
**SAMPLING METHOD** : COMPOSITE  
**SAMPLING BY** : MR THANADET WANSANOR  
**ANALYZED BY** : MR THAPAGORN PIMSORN

**RECEIVED DATE** : JULY 13, 2023  
**ANALYTICAL DATE** : JULY 13-18, 2023  
**REPORT NO.** : 2023-U060261  
**WORK NO.** : 2019-002022  
**ANALYSIS NO.** : T23AN473-0006

PARAMETER	UNIT	METHOD OF ANALYSIS	RESULT	DETECTION LIMIT
			LBW006. 500 M OFFSHORE (JETTY) T23AN473-0006	
pH	-	ELECTROMETRIC METHOD (SM: PART 4500-H <sup>+</sup> B)	8.0 (25°C)	-
TEMPERATURE	°C	THERMOMETER AT SITE (SM: PART 2550 B)	32	-
TOTAL DISSOLVED SOLIDS	mg/L	TOTAL DISSOLVED SOLIDS DRIED AT 180 °C (SM: PART 2540 C)	33,409	25
FAT, OIL AND GREASE	mg/L	LIQUID-LIQUID, PARTITION-GRAVIMETRIC METHOD (SM: PART 5520 B)	0.5	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-13-07-004

JULY 21, 2023



## ANALYSIS REPORT

<b>PROJECT NAME</b>	: ENVIRONMENTAL & SOCIOECONOMIC SURVEY	<b>RECEIVED DATE</b>	: AUGUST 4, 2023
<b>CUSTOMER NAME</b>	: ESSO (THAILAND) PUBLIC COMPANY LIMITED	<b>ANALYTICAL DATE</b>	: AUGUST 4-22, 2023
<b>ADDRESS</b>	: 118 MOO 2 THUNG SUKHLA SI RACHA CHON BURI 20230	<b>REPORT NO.</b>	: 2023-U066643
<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>	: T23A0874-0001
<b>SAMPLE TYPE</b>	: SEAWATER		
<b>SAMPLING DATE</b>	: AUGUST 3, 2023		
<b>SAMPLING TIME</b>	: 10:25 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
			LBW006. 500 M OFFSHORE (JETTY) T23A0874-0001	
pH	-	ELECTROMETRIC METHOD (SM: PART 4500-H <sup>+</sup> B)	7.6 (25°C)	-
PHENOLS	mg/L	DISTILLATION, 4-AMINOANTIPYRINE METHOD (SM: PART 5530 B AND PART 5530 C)	< 0.005	0.005
TEMPERATURE	°C	THERMOMETER AT SITE (SM: PART 2550 B)	30	-
SALINITY	ppt	ELECTRICAL CONDUCTIVITY METHOD AT SITE (SM: PART 2520 B)	27.5	0.1
DISSOLVED OXYGEN	mg/L	MEMBRANE ELECTRODE METHOD AT SITE (SM: PART 4500-O G)	4.7	0.5
BIOCHEMICAL OXYGEN DEMAND	mg/L	MEMBRANE ELECTRODE METHOD (SM: PART 5210 B AND PART 4500-O G)	1.1	0.5
CHEMICAL OXYGEN DEMAND	mg/L	CLOSED REFLUX, TITRIMETRIC METHOD (SM: PART 5220 C)	65.6	25.0
SUSPENDED SOLIDS	mg/L	GRAVIMETRIC METHOD (SM: PART 2540 D)	35.7	1.0
TOTAL DISSOLVED SOLIDS	mg/L	TOTAL DISSOLVED SOLIDS DRIED AT 180 °C (SM: PART 2540 C)	33,947	25
CYANIDE	µg/L CN <sup>-</sup>	DISTILLATION, PYRIDINE-BARBITURIC ACID METHOD (SM: PART 4500-CN C AND PART 4500-CN 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))	10.3	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: PART 5520 B)	1.2	3



PARAMETER	UNIT	METHOD OF ANALYSIS	RESULT	DETECTION LIMIT
			LBW006. 500 M OFFSHORE (JETTY) T23A0874-0001	
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-03-08-001

AUGUST 24, 2023

## 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, 2023  
**SAMPLING TIME** : 10:55 HOUR  
**SAMPLING METHOD** : COMPOSITE  
**SAMPLING BY** : MR THANADET WANSANOR  
**ANALYZED BY** : MR THAPAGORN PIMSORN

**RECEIVED DATE** : AUGUST 10, 2023  
**ANALYTICAL DATE** : AUGUST 10-15, 2023  
**REPORT NO.** : 2023-U068734  
**WORK NO.** : 2019-002022  
**ANALYSIS NO.** : T23AP409-0006

PARAMETER	UNIT	METHOD OF ANALYSIS	RESULT	DETECTION LIMIT
			LBW006. 500 M OFFSHORE (JETTY) T23AP409-0006	
pH	-	ELECTROMETRIC METHOD (SM: PART 4500-H <sup>+</sup> B)	7.9 (25°C)	-
TEMPERATURE	°C	THERMOMETER AT SITE (SM: PART 2550 B)	32	-
TOTAL DISSOLVED SOLIDS	mg/L	TOTAL DISSOLVED SOLIDS DRIED AT 180 °C (SM: PART 2540 C)	34,670	25
FAT, OIL AND GREASE	mg/L	LIQUID-LIQUID, PARTITION-GRAVIMETRIC METHOD (SM: PART 5520 B)	0.7	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-10-08-003

AUGUST 23, 2023





## ANALYSIS REPORT

<b>PROJECT NAME</b>	: ENVIRONMENTAL & SOCIOECONOMIC SURVEY	<b>RECEIVED DATE</b>	: SEPTEMBER 8, 2023
<b>CUSTOMER NAME</b>	: ESSO (THAILAND) PUBLIC COMPANY LIMITED	<b>ANALYTICAL DATE</b>	: SEPTEMBER 8-24, 2023
<b>ADDRESS</b>	: 118 MOO 2 THUNG SUKHLA SI RACHA CHON BURI 20230	<b>REPORT NO.</b>	: 2023-U078930
<b>CONTACT INFORMATION</b>	: TEL : 0 3314 2891 e-mail : wanlop.boongor@bangchak.co.th	<b>WORK NO.</b>	: 2019-002022
<b>SAMPLING SOURCE</b>	: -	<b>ANALYSIS NO.</b>	: T23AR666-0001
<b>SAMPLE TYPE</b>	: SEAWATER		
<b>SAMPLING DATE</b>	: SEPTEMBER 7, 2023		
<b>SAMPLING TIME</b>	: 10:40 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
			LBW006. 500 M OFFSHORE (JETTY) T23AR666-0001	
pH	-	ELECTROMETRIC METHOD (SM: PART 4500-H <sup>+</sup> B)	7.7 (25°C)	-
PHENOLS	mg/L	DISTILLATION, 4-AMINOANTIPYRINE METHOD (SM: PART 5530 B AND PART 5530 C)	< 0.005	0.005
TEMPERATURE	°C	THERMOMETER AT SITE (SM: PART 2550 B)	31	-
SALINITY	ppt	ELECTRICAL CONDUCTIVITY METHOD AT SITE (SM: PART 2520 B)	28.1	0.1
DISSOLVED OXYGEN	mg/L	MEMBRANE ELECTRODE METHOD AT SITE (SM: PART 4500-O G)	5.0	0.5
BIOCHEMICAL OXYGEN DEMAND	mg/L	MEMBRANE ELECTRODE METHOD (SM: PART 5210 B AND PART 4500-O G)	0.9	0.5
CHEMICAL OXYGEN DEMAND	mg/L	CLOSED REFLUX, TITRIMETRIC METHOD (SM: PART 5220 C)	84.0	25.0
SUSPENDED SOLIDS	mg/L	GRAVIMETRIC METHOD (SM: PART 2540 D)	4.7	1.0
TOTAL DISSOLVED SOLIDS	mg/L	TOTAL DISSOLVED SOLIDS DRIED AT 180 °C (SM: PART 2540 C)	35,080	25
CYANIDE	µg/L CN <sup>-</sup>	DISTILLATION, PYRIDINE-BARBITURIC ACID METHOD (SM: PART 4500-CN <sup>-</sup> C AND PART 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))	12.2	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: PART 5520 B)	0.8	3



PARAMETER	UNIT	METHOD OF ANALYSIS	RESULT	DETECTION LIMIT
			LBW006. 500 M OFFSHORE (JETTY) T23AR666-0001	
METALS				
LEAD	µg/L Pb	PRE-CONCENTRATION AND INDUCTIVELY COUPLED PLASMA (ICP) METHOD (BASED ON METHOD OF SEAWATER ANALYSIS, GRASSHOFF, 1999, CHAPTER 12)	0.680	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-07-09-002



SEPTEMBER 26, 2023

## 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@bangchak.co.th  
**SAMPLING SOURCE** : -  
**SAMPLE TYPE** : SEAWATER  
**SAMPLING DATE** : SEPTEMBER 14, 2023  
**SAMPLING TIME** : 09:35 HOUR  
**SAMPLING METHOD** : COMPOSITE  
**SAMPLING BY** : MR THANADET WANSANOR  
**ANALYZED BY** : MISS KEWALEE SUKHAREE  
**RECEIVED DATE** : SEPTEMBER 14, 2023  
**ANALYTICAL DATE** : SEPTEMBER 14-21, 2023  
**REPORT NO.** : 2023-U081313  
**WORK NO.** : 2019-002022  
**ANALYSIS NO.** : T23AS208-0006

PARAMETER	UNIT	METHOD OF ANALYSIS	RESULT	DETECTION LIMIT
			LBW006. 500 M OFFSHORE (JETTY) T23AS208-0006	
pH	-	ELECTROMETRIC METHOD (SM: PART 4500-H <sup>+</sup> B)	7.7 (25°C)	-
TEMPERATURE	°C	THERMOMETER AT SITE (SM: PART 2550 B)	30	-
TOTAL DISSOLVED SOLIDS	mg/L	TOTAL DISSOLVED SOLIDS DRIED AT 180 °C (SM: PART 2540 C)	35,860	25
FAT, OIL AND GREASE	mg/L	LIQUID-LIQUID, PARTITION-GRAVIMETRIC METHOD (SM: PART 5520 B)	0.6	3
<b>SAMPLE CONDITION</b> WATER'S COLOUR/TURBID SEDIMENT			COLOURLESS/CLEAR WHITE	

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-14-09-003

SEPTEMBER 26, 2023





## 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@bangchak.co.th  
**SAMPLING SOURCE** : -  
**SAMPLE TYPE** : SEAWATER  
**SAMPLING DATE** : OCTOBER 12, 2023  
**SAMPLING TIME** : 09:51 HOUR  
**SAMPLING METHOD** : COMPOSITE  
**SAMPLING BY** : MR THANADET WANSANOR  
**ANALYZED BY** : MISS KEWALEE SUKHAREE  
**RECEIVED DATE** : OCTOBER 12, 2023  
**ANALYTICAL DATE** : OCTOBER 12-24, 2023  
**REPORT NO.** : 2023-U090954  
**WORK NO.** : 2019-002022  
**ANALYSIS NO.** : T23AU319-0006

PARAMETER	UNIT	METHOD OF ANALYSIS	RESULT	DETECTION LIMIT
			LBW006. 500 M OFFSHORE (JETTY) T23AU319-0006	
pH	-	ELECTROMETRIC METHOD (SM: PART 4500-H <sup>+</sup> B)	7.8 (25°C)	-
TEMPERATURE	°C	THERMOMETER AT SITE (SM: PART 2550 B)	30	-
TOTAL DISSOLVED SOLIDS	mg/L	TOTAL DISSOLVED SOLIDS DRIED AT 180 °C (SM: PART 2540 C)	33,300	25
FAT, OIL AND GREASE	mg/L	LIQUID-LIQUID, PARTITION-GRAVIMETRIC METHOD (SM: PART 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-12-10-004



OCTOBER 27, 2023



## ANALYSIS REPORT

<b>PROJECT NAME</b>	: ENVIRONMENTAL & SOCIOECONOMIC SURVEY	<b>RECEIVED DATE</b>	: OCTOBER 19, 2023
<b>CUSTOMER NAME</b>	: ESSO (THAILAND) PUBLIC COMPANY LIMITED	<b>ANALYTICAL DATE</b>	: OCTOBER 19-27, 2023
<b>ADDRESS</b>	: 118 MOO 2 THUNG SUKHLA SI RACHA CHON BURI 20230	<b>REPORT NO.</b>	: 2023-U092280
<b>CONTACT INFORMATION</b>	: TEL : 0 3314 2891 e-mail : wanlop.boongor@bangchak.co.th	<b>WORK NO.</b>	: 2019-002022
<b>SAMPLING SOURCE</b>	: -	<b>ANALYSIS NO.</b>	: T23AU785-0001
<b>SAMPLE TYPE</b>	: SEAWATER		
<b>SAMPLING DATE</b>	: OCTOBER 19, 2023		
<b>SAMPLING TIME</b>	: 08:25 HOUR		
<b>SAMPLING METHOD</b>	: COMPOSITE		
<b>SAMPLING BY</b>	: MR NAPASIT SRIPIM		
<b>ANALYZED BY</b>	: MISS KANNIKAR SUMLEETHA		

PARAMETER	UNIT	METHOD OF ANALYSIS	RESULT	DETECTION LIMIT
			LBW006. 500 M OFFSHORE (JETTY) T23AU785-0001	
pH	-	ELECTROMETRIC METHOD (SM: PART 4500-H <sup>+</sup> B)	7.8 (25°C)	-
PHENOLS	mg/L	DISTILLATION, 4-AMINOANTIPYRINE METHOD (SM: PART 5530 B AND PART 5530 C)	< 0.005	0.005
TEMPERATURE	°C	THERMOMETER AT SITE (SM: PART 2550 B)	30	-
SALINITY	ppt	ELECTRICAL CONDUCTIVITY METHOD AT SITE (SM: PART 2520 B)	31.1	0.1
DISSOLVED OXYGEN	mg/L	MEMBRANE ELECTRODE METHOD AT SITE (SM: PART 4500-O G)	3.7	0.5
BIOCHEMICAL OXYGEN DEMAND	mg/L	MEMBRANE ELECTRODE METHOD (SM: PART 5210 B AND PART 4500-O G)	1.3	0.5
CHEMICAL OXYGEN DEMAND	mg/L	CLOSED REFLUX, TITRIMETRIC METHOD (SM: PART 5220 C)	88.9	25.0
SUSPENDED SOLIDS	mg/L	GRAVIMETRIC METHOD (SM: PART 2540 D)	5.1	1.0
TOTAL DISSOLVED SOLIDS	mg/L	TOTAL DISSOLVED SOLIDS DRIED AT 180 °C (SM: PART 2540 C)	35,750	25
CYANIDE	µg/L CN <sup>-</sup>	DISTILLATION, PYRIDINE-BARBITURIC ACID METHOD (SM: PART 4500-CN <sup>-</sup> C AND PART 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))	22.6	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: PART 5520 B)	0.6	3



PARAMETER	UNIT	METHOD OF ANALYSIS	RESULT	DETECTION LIMIT
			LBW006. 500 M OFFSHORE (JETTY) T23AU785-0001	
METALS				
LEAD	µg/L Pb	PRE-CONCENTRATION AND INDUCTIVELY COUPLED PLASMA (ICP) METHOD (BASED ON METHOD OF SEAWATER ANALYSIS, GRASSHOFF, 1999, CHAPTER 12)	0.110	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-19-10-006

OCTOBER 31, 2023



## ANALYSIS REPORT

<b>PROJECT NAME</b>	: ENVIRONMENTAL & SOCIOECONOMIC SURVEY	<b>RECEIVED DATE</b>	: NOVEMBER 3, 2023
<b>CUSTOMER NAME</b>	: ESSO (THAILAND) PUBLIC COMPANY LIMITED	<b>ANALYTICAL DATE</b>	: NOVEMBER 3-10, 2023
<b>ADDRESS</b>	: 118 MOO 2 THUNG SUKHLA SI RACHA CHON BURI 20230	<b>REPORT NO.</b>	: 2023-U097316
<b>CONTACT INFORMATION</b>	: TEL : 0 3314 2891 e-mail : wanlop.boongor@bangchak.co.th	<b>WORK NO.</b>	: 2019-002022
<b>SAMPLING SOURCE</b>	: -	<b>ANALYSIS NO.</b>	: T23AV861-0001
<b>SAMPLE TYPE</b>	: SEAWATER		
<b>SAMPLING DATE</b>	: NOVEMBER 2, 2023		
<b>SAMPLING TIME</b>	: 10:35 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
			LBW006 : 500 M OFFSHORE (JETTY) T23AV861-0001	
pH	-	ELECTROMETRIC METHOD (SM: PART 4500-H <sup>+</sup> B)	7.8 (25°C)	-
PHENOLS	mg/L	DISTILLATION, 4-AMINOANTIPYRINE METHOD (SM: PART 5530 B AND PART 5530 C)	< 0.005	0.005
TEMPERATURE	°C	THERMOMETER AT SITE (SM: PART 2550 B)	30	-
SALINITY	ppt	ELECTRICAL CONDUCTIVITY METHOD AT SITE (SM: PART 2520 B)	28.5	0.1
DISSOLVED OXYGEN	mg/L	MEMBRANE ELECTRODE METHOD AT SITE (SM: PART 4500-O G)	4.6	0.5
BIOCHEMICAL OXYGEN DEMAND	mg/L	MEMBRANE ELECTRODE METHOD (SM: PART 5210 B AND PART 4500-O G)	0.9	0.5
CHEMICAL OXYGEN DEMAND	mg/L	CLOSED REFLUX, TITRIMETRIC METHOD (SM: PART 5220 C)	57.0	25.0
SUSPENDED SOLIDS	mg/L	GRAVIMETRIC METHOD (SM: PART 2540 D)	5.0	1.0
TOTAL DISSOLVED SOLIDS	mg/L	TOTAL DISSOLVED SOLIDS DRIED AT 180 °C (SM: PART 2540 C)	33,980	25
CYANIDE	µg/L CN	DISTILLATION, PYRIDINE-BARBITURIC ACID METHOD (SM: PART 4500-CN C AND PART 4500-CN 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))	4.78	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: PART 5520 B)	0.5	3

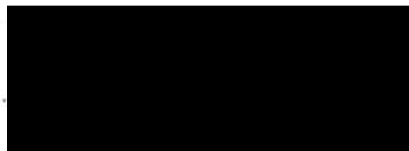




PARAMETER	UNIT	METHOD OF ANALYSIS	RESULT	DETECTION LIMIT
			LBW006 : 500 M OFFSHORE (JETTY) T23AV861-0001	
METALS				
LEAD	µg/L Pb	PRE-CONCENTRATION AND INDUCTIVELY COUPLED PLASMA (ICP) METHOD (BASED ON METHOD OF SEAWATER ANALYSIS, GRASSHOFF, 1999, CHAPTER 12)	0.840	0.100
SAMPLE CONDITION				
WATER'S 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



NOVEMBER 20, 2023

## 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@bangchak.co.th  
**SAMPLING SOURCE** : -  
**SAMPLE TYPE** : SEAWATER  
**SAMPLING DATE** : NOVEMBER 9, 2023  
**SAMPLING TIME** : 10:30 HOUR  
**SAMPLING METHOD** : COMPOSITE  
**SAMPLING BY** : MR THANADET WANSANOR  
**ANALYZED BY** : MISS KEWALEE SUKHAREE  
**RECEIVED DATE** : NOVEMBER 10, 2023  
**ANALYTICAL DATE** : NOVEMBER 10-14, 2023  
**REPORT NO.** : 2023-U099663  
**WORK NO.** : 2019-002022  
**ANALYSIS NO.** : T23AW414-0006

PARAMETER	UNIT	METHOD OF ANALYSIS	RESULT	DETECTION LIMIT
			LBW006. 500 M OFFSHORE (JETTY) T23AW414-0006	
pH	-	ELECTROMETRIC METHOD (SM: PART 4500-H <sup>+</sup> B)	7.7 (25°C)	-
TEMPERATURE	°C	THERMOMETER AT SITE (SM: PART 2550 B)	31	-
TOTAL DISSOLVED SOLIDS	mg/L	TOTAL DISSOLVED SOLIDS DRIED AT 180 °C (SM: PART 2540 C)	38,525	25
FAT, OIL AND GREASE	mg/L	LIQUID-LIQUID, PARTITION-GRAVIMETRIC METHOD (SM: PART 5520 B)	0.8	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

NOVEMBER 22, 2023



## ANALYSIS REPORT

<b>PROJECT NAME</b>	: ENVIRONMENTAL & SOCIOECONOMIC SURVEY	<b>RECEIVED DATE</b>	: DECEMBER 8, 2023
<b>CUSTOMER NAME</b>	: BANGCHAK SRIRACHA PUBLIC COMPANY LIMITED	<b>ANALYTICAL DATE</b>	: DECEMBER 8-18, 2023
<b>ADDRESS</b>	: 118 MOO 2 THUNG SUKHLA SI RACHA CHON BURI 20230	<b>REPORT NO.</b>	: 2023-U109006
<b>CONTACT INFORMATION</b>	: TEL : 0 3314 2891 e-mail : wanlop.boongor@bangchak.co.th	<b>WORK NO.</b>	: 2019-002022
<b>SAMPLING SOURCE</b>	: -	<b>ANALYSIS NO.</b>	: T23AY513-0001
<b>SAMPLE TYPE</b>	: SEAWATER		
<b>SAMPLING DATE</b>	: DECEMBER 7, 2023		
<b>SAMPLING TIME</b>	: 11:50 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
			LBW006 : 500 M OFFSHORE (JETTY) T23AY513-0001	
pH	-	ELECTROMETRIC METHOD (SM: PART 4500-H <sup>+</sup> B)	7.7 (25°C)	-
PHENOLS	mg/L	DISTILLATION, 4-AMINOANTIPYRINE METHOD (SM: PART 5530 B AND PART 5530 C)	< 0.005	0.005
TEMPERATURE	°C	THERMOMETER AT SITE (SM: PART 2550 B)	29	-
SALINITY	ppt	ELECTRICAL CONDUCTIVITY METHOD AT SITE (SM: PART 2520 B)	30.0	0.1
DISSOLVED OXYGEN	mg/L	MEMBRANE ELECTRODE METHOD AT SITE (SM: PART 4500-O G)	5.0	0.5
BIOCHEMICAL OXYGEN DEMAND	mg/L	MEMBRANE ELECTRODE METHOD (SM: PART 5210 B AND PART 4500-O G)	1.1	0.5
CHEMICAL OXYGEN DEMAND	mg/L	CLOSED REFLUX, TITRIMETRIC METHOD (SM: PART 5220 C)	44.8	25.0
SUSPENDED SOLIDS	mg/L	GRAVIMETRIC METHOD (SM: PART 2540 D)	3.7	1.0
TOTAL DISSOLVED SOLIDS	mg/L	TOTAL DISSOLVED SOLIDS DRIED AT 180 °C (SM: PART 2540 C)	35,433	25
CYANIDE	µg/L CN <sup>-</sup>	DISTILLATION, PYRIDINE-BARBITURIC ACID METHOD (SM: PART 4500-CN <sup>-</sup> C AND PART 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))	2.42	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: PART 5520 B)	0.4	3



PARAMETER	UNIT	METHOD OF ANALYSIS	RESULT	DETECTION LIMIT
			LBW006 : 500 M OFFSHORE (JETTY) T23AY513-0001	
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-07-12-002



DECEMBER 20, 2023



## ANALYSIS REPORT

**PROJECT NAME** : ENVIRONMENTAL & SOCIOECONOMIC SURVEY  
**CUSTOMER NAME** : BANGCHAK SRIRACHA PUBLIC COMPANY LIMITED  
**ADDRESS** : 118 MOO 2 THUNG SUKHLA SI RACHA CHON BURI 20230  
**CONTACT INFORMATION** : TEL : 0 3314 2891 e-mail : wanlop.boongor@bangchak.co.th  
**SAMPLING SOURCE** : -  
**SAMPLE TYPE** : SEAWATER  
**SAMPLING DATE** : DECEMBER 14, 2023  
**SAMPLING TIME** : 10:35 HOUR  
**SAMPLING METHOD** : COMPOSITE  
**SAMPLING BY** : MR THANADET WANSANOR  
**ANALYZED BY** : MISS NAPAPORN KHUNNOKKHUM

**RECEIVED DATE** : DECEMBER 15, 2023  
**ANALYTICAL DATE** : DECEMBER 15-19, 2023  
**REPORT NO.** : 2023-U111152  
**WORK NO.** : 2019-002022  
**ANALYSIS NO.** : T23AZ087-0006

PARAMETER	UNIT	METHOD OF ANALYSIS	RESULT	DETECTION LIMIT
			LBW006. 500 M OFFSHORE (JETTY) T23AZ087-0006	
pH	-	ELECTROMETRIC METHOD (SM: PART 4500-H <sup>+</sup> B)	7.6 (25°C)	-
TEMPERATURE	°C	THERMOMETER AT SITE (SM: PART 2550 B)	30	-
TOTAL DISSOLVED SOLIDS	mg/L	TOTAL DISSOLVED SOLIDS DRIED AT 180 °C (SM: PART 2540 C)	34,488	25
FAT, OIL AND GREASE	mg/L	LIQUID-LIQUID, PARTITION-GRAVIMETRIC METHOD (SM: PART 5520 B)	0.6	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-14-12-004

DECEMBER 26, 2023



## 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>	: JULY 7, 2023
<b>SAMPLING DATE</b>	: JULY 6, 2023	<b>ANALYTICAL DATE</b>	: JULY 7-21, 2023
<b>SAMPLING TIME</b>	: 10:55 HOUR	<b>REPORT NO.</b>	: 2023-U059407
<b>SAMPLING METHOD</b>	: COMPOSITE	<b>WORK NO.</b>	: 2019-002022
<b>SAMPLING BY</b>	: MR THANADET WANSANOR	<b>ANALYSIS NO.</b>	: T23AM983-0002
<b>ANALYZED BY</b>	: MISS KANNIKAR SUMLEETHA		

PARAMETER	UNIT	METHOD OF ANALYSIS	RESULT	DETECTION LIMIT
			LBW007. BERTH ISLAND T23AM983-0002	
pH	-	ELECTROMETRIC METHOD (SM: PART 4500-H <sup>+</sup> B)	8.0 (25°C)	-
TEMPERATURE	°C	THERMOMETER AT SITE (SM: PART 2550 B)	31	-
SALINITY	ppt	ELECTRICAL CONDUCTIVITY METHOD AT SITE (SM: PART 2520 B)	24.4	0.1
DISSOLVED OXYGEN	mg/L	MEMBRANE ELECTRODE METHOD AT SITE (SM: PART 4500-O G)	4.8	0.5
BIOCHEMICAL OXYGEN DEMAND	mg/L	MEMBRANE ELECTRODE METHOD (SM: PART 5210 B AND PART 4500-O G)	1.5	0.5
CHEMICAL OXYGEN DEMAND	mg/L	CLOSED REFLUX, TITRIMETRIC METHOD (SM: PART 5220 C)	69.7	25.0
TOTAL DISSOLVED SOLIDS	mg/L	TOTAL DISSOLVED SOLIDS DRIED AT 180 °C (SM: PART 2540 C)	34,188	25
NITRATE-NITROGEN	µg/L N	CADMIUM REDUCTION AND COLOURIMETRIC METHOD (BASED ON PRACTICAL HANDBOOK OF SEAWATER ANALYSIS (STRICKLAND AND PARSON, 1972, II.6))	6.11	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: PART 5520 B)	0.5	3

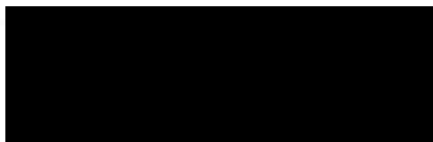


PARAMETER	UNIT	METHOD OF ANALYSIS	RESULT	DETECTION LIMIT
			LBW007. BERTH ISLAND T23AM983-0002	
METALS				
LEAD	µg/L Pb	PRE-CONCENTRATION AND INDUCTIVELY COUPLED PLASMA (ICP) METHOD (BASED ON METHOD OF SEAWATER ANALYSIS, GRASSHOFF, 1999, CHAPTER 12)	0.120	0.100
SAMPLE CONDITION				
WATER'S COLOUR/TURBID			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



JULY 24, 2023

## ANALYSIS REPORT

<b>PROJECT NAME</b>	: ENVIRONMENTAL & SOCIOECONOMIC SURVEY	<b>RECEIVED DATE</b>	: AUGUST 4, 2023
<b>CUSTOMER NAME</b>	: ESSO (THAILAND) PUBLIC COMPANY LIMITED	<b>ANALYTICAL DATE</b>	: AUGUST 4-22, 2023
<b>ADDRESS</b>	: 118 MOO 2 THUNG SUKHLA SI RACHA CHON BURI 20230	<b>REPORT NO.</b>	: 2023-U066644
<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>	: T23AQ874-0002
<b>SAMPLE TYPE</b>	: SEAWATER		
<b>SAMPLING DATE</b>	: AUGUST 3, 2023		
<b>SAMPLING TIME</b>	: 10:41 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 T23AQ874-0002	
pH	-	ELECTROMETRIC METHOD (SM: PART 4500-H <sup>+</sup> B)	7.9 (25°C)	-
TEMPERATURE	°C	THERMOMETER AT SITE (SM: PART 2550 B)	30	-
SALINITY	ppt	ELECTRICAL CONDUCTIVITY METHOD AT SITE (SM: PART 2520 B)	27.6	0.1
DISSOLVED OXYGEN	mg/L	MEMBRANE ELECTRODE METHOD AT SITE (SM: PART 4500-O G)	5.4	0.5
BIOCHEMICAL OXYGEN DEMAND	mg/L	MEMBRANE ELECTRODE METHOD (SM: PART 5210 B AND PART 4500-O G)	1.1	0.5
CHEMICAL OXYGEN DEMAND	mg/L	CLOSED REFLUX, TITRIMETRIC METHOD (SM: PART 5220 C)	88.0	25.0
TOTAL DISSOLVED SOLIDS	mg/L	TOTAL DISSOLVED SOLIDS DRIED AT 180 °C (SM: PART 2540 C)	34,230	25
NITRATE-NITROGEN	µg/L N	CADMIUM REDUCTION AND COLOURIMETRIC METHOD (BASED ON PRACTICAL HANDBOOK OF SEAWATER ANALYSIS (STRICKLAND AND PARSON, 1972, II.6))	1.53	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: PART 5520 B)	2.1	3





PARAMETER	UNIT	METHOD OF ANALYSIS	RESULT	DETECTION LIMIT
			LBW007. BERTH ISLAND T23A0874-0002	
METALS				
LEAD	µg/L Pb	PRE-CONCENTRATION AND INDUCTIVELY COUPLED PLASMA (ICP) METHOD (BASED ON METHOD OF SEAWATER ANALYSIS, GRASSHOFF, 1999, CHAPTER 12)	0.430	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-03-08-001



AUGUST 24, 2023

## 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@bangchak.co.th		
<b>SAMPLING SOURCE</b>	: -		
<b>SAMPLE TYPE</b>	: SEAWATER	<b>RECEIVED DATE</b>	: SEPTEMBER 8, 2023
<b>SAMPLING DATE</b>	: SEPTEMBER 7, 2023	<b>ANALYTICAL DATE</b>	: SEPTEMBER 8-24, 2023
<b>SAMPLING TIME</b>	: 11:10 HOUR	<b>REPORT NO.</b>	: 2023-U078932
<b>SAMPLING METHOD</b>	: COMPOSITE	<b>WORK NO.</b>	: 2019-002022
<b>SAMPLING BY</b>	: MR THANADET WANSANOR	<b>ANALYSIS NO.</b>	: T23AR666-0002
<b>ANALYZED BY</b>	: MISS KANNIKAR SUMLEETHA		

PARAMETER	UNIT	METHOD OF ANALYSIS	RESULT	DETECTION LIMIT
			LBW007. BERTH ISLAND T23AR666-0002	
pH	-	ELECTROMETRIC METHOD (SM: PART 4500-H <sup>+</sup> B)	7.9 (25°C)	-
TEMPERATURE	°C	THERMOMETER AT SITE (SM: PART 2550 B)	32	-
SALINITY	ppt	ELECTRICAL CONDUCTIVITY METHOD AT SITE (SM: PART 2520 B)	29.3	0.1
DISSOLVED OXYGEN	mg/L	MEMBRANE ELECTRODE METHOD AT SITE (SM: PART 4500-O G)	5.0	0.5
BIOCHEMICAL OXYGEN DEMAND	mg/L	MEMBRANE ELECTRODE METHOD (SM: PART 5210 B AND PART 4500-O G)	0.9	0.5
CHEMICAL OXYGEN DEMAND	mg/L	CLOSED REFLUX, TITRIMETRIC METHOD (SM: PART 5220 C)	85.5	25.0
TOTAL DISSOLVED SOLIDS	mg/L	TOTAL DISSOLVED SOLIDS DRIED AT 180 °C (SM: PART 2540 C)	35,560	25
NITRATE-NITROGEN	µg/L N	CADMIUM REDUCTION AND COLOURIMETRIC METHOD (BASED ON PRACTICAL HANDBOOK OF SEAWATER ANALYSIS (STRICKLAND AND PARSON, 1972, II.6))	7.20	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: PART 5520 B)	0.5	3



PARAMETER	UNIT	METHOD OF ANALYSIS	RESULT	DETECTION LIMIT
			LBW007. BERTH ISLAND T23AR666-0002	
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			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-07-09-002

SEPTEMBER 26, 2023

## 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@bangchak.co.th  
**SAMPLING SOURCE** : -  
**SAMPLE TYPE** : SEAWATER  
**SAMPLING DATE** : SEPTEMBER 7, 2023  
**SAMPLING TIME** : 11:10 HOUR  
**SAMPLING METHOD** : COMPOSITE  
**SAMPLING BY** : MR THANADET WANSANOR  
**ANALYZED BY** : MISS NAPAPORN KHUNNOKKHUM

**RECEIVED DATE** : SEPTEMBER 8, 2023  
**ANALYTICAL DATE** : SEPTEMBER 8-11, 2023  
**REPORT NO.** : 2023-U078934  
**WORK NO.** : 2019-002022  
**ANALYSIS NO.** : T23AR666-0003

PARAMETER	UNIT	METHOD OF ANALYSIS	RESULT	DETECTION LIMIT
			LBW007 : BERTH ISLAND T23AR666-0003	
SUSPENDED SOLIDS	mg/L	GRAVIMETRIC METHOD (SM: PART 2540 D)	4.8	1.0
<b>SAMPLE CONDITION</b>				
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.

RELEASE ORDER NO. : EV-07-09-002

SEPTEMBER 26, 2023





## ANALYSIS REPORT

<b>PROJECT NAME</b>	: ENVIRONMENTAL & SOCIOECONOMIC SURVEY	<b>RECEIVED DATE</b>	: OCTOBER 19, 2023
<b>CUSTOMER NAME</b>	: ESSO (THAILAND) PUBLIC COMPANY LIMITED	<b>ANALYTICAL DATE</b>	: OCTOBER 19-27, 2023
<b>ADDRESS</b>	: 118 MOO 2 THUNG SUKHLA SI RACHA CHON BURI 20230	<b>REPORT NO.</b>	: 2023-U092281
<b>CONTACT INFORMATION</b>	: TEL : 0 3314 2891 e-mail : wanlop.boongor@bangchak.co.th	<b>WORK NO.</b>	: 2019-002022
<b>SAMPLING SOURCE</b>	: -	<b>ANALYSIS NO.</b>	: T23AU785-0002
<b>SAMPLE TYPE</b>	: SEAWATER		
<b>SAMPLING DATE</b>	: OCTOBER 19, 2023		
<b>SAMPLING TIME</b>	: 08:50 HOUR		
<b>SAMPLING METHOD</b>	: COMPOSITE		
<b>SAMPLING BY</b>	: MR NAPASIT SRIPIM		
<b>ANALYZED BY</b>	: MISS KANNIKAR SUMLEETHA		

PARAMETER	UNIT	METHOD OF ANALYSIS	RESULT	DETECTION LIMIT
			LBW007. BERTH ISLAND T23AU785-0002	
pH	-	ELECTROMETRIC METHOD (SM: PART 4500-H <sup>+</sup> B)	7.9 (25°C)	-
TEMPERATURE	°C	THERMOMETER AT SITE (SM: PART 2550 B)	30	-
SALINITY	ppt	ELECTRICAL CONDUCTIVITY METHOD AT SITE (SM: PART 2520 B)	31.1	0.1
DISSOLVED OXYGEN	mg/L	MEMBRANE ELECTRODE METHOD AT SITE (SM: PART 4500-O G)	3.7	0.5
BIOCHEMICAL OXYGEN DEMAND	mg/L	MEMBRANE ELECTRODE METHOD (SM: PART 5210 B AND PART 4500-O G)	2.3	0.5
CHEMICAL OXYGEN DEMAND	mg/L	CLOSED REFLUX, TITRIMETRIC METHOD (SM: PART 5220 C)	85.6	25.0
TOTAL DISSOLVED SOLIDS	mg/L	TOTAL DISSOLVED SOLIDS DRIED AT 180 °C (SM: PART 2540 C)	36,488	25
NITRATE-NITROGEN	µg/L N	CADMIUM REDUCTION AND COLOURIMETRIC METHOD (BASED ON PRACTICAL HANDBOOK OF SEAWATER ANALYSIS (STRICKLAND AND PARSON, 1972, II.6))	4.04	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: PART 5520 B)	0.6	3



PARAMETER	UNIT	METHOD OF ANALYSIS	RESULT	DETECTION LIMIT
			LBW007. BERTH ISLAND T23AU785-0002	
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-19-10-006

OCTOBER 31, 2023

## ANALYSIS REPORT

<b>PROJECT NAME</b>	: ENVIRONMENTAL & SOCIOECONOMIC SURVEY	<b>RECEIVED DATE</b>	: NOVEMBER 3, 2023
<b>CUSTOMER NAME</b>	: ESSO (THAILAND) PUBLIC COMPANY LIMITED	<b>ANALYTICAL DATE</b>	: NOVEMBER 3-10, 2023
<b>ADDRESS</b>	: 118 MOO 2 THUNG SUKHLA SI RACHA CHON BURI 20230	<b>REPORT NO.</b>	: 2023-U097319
<b>CONTACT INFORMATION</b>	: TEL : 0 3314 2891 e-mail : wanlop.boongor@bangchak.co.th	<b>WORK NO.</b>	: 2019-002022
<b>SAMPLING SOURCE</b>	: -	<b>ANALYSIS NO.</b>	: T23AV861-0004
<b>SAMPLE TYPE</b>	: SEAWATER		
<b>SAMPLING DATE</b>	: NOVEMBER 2, 2023		
<b>SAMPLING TIME</b>	: 10:55 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 T23AV861-0004	
pH	-	ELECTROMETRIC METHOD (SM: PART 4500-H <sup>+</sup> B)	8.1 (25°C)	-
TEMPERATURE	°C	THERMOMETER AT SITE (SM: PART 2550 B)	30	-
SALINITY	ppt	ELECTRICAL CONDUCTIVITY METHOD AT SITE (SM: PART 2520 B)	28.6	0.1
DISSOLVED OXYGEN	mg/L	MEMBRANE ELECTRODE METHOD AT SITE (SM: PART 4500-O G)	4.8	0.5
BIOCHEMICAL OXYGEN DEMAND	mg/L	MEMBRANE ELECTRODE METHOD (SM: PART 5210 B AND PART 4500-O G)	< 0.5	0.5
CHEMICAL OXYGEN DEMAND	mg/L	CLOSED REFLUX, TITRIMETRIC METHOD (SM: PART 5220 C)	66.5	25.0
TOTAL DISSOLVED SOLIDS	mg/L	TOTAL DISSOLVED SOLIDS DRIED AT 180 °C (SM: PART 2540 C)	33,720	25
NITRATE-NITROGEN	µg/L N	CADMIUM REDUCTION AND COLOURIMETRIC METHOD (BASED ON PRACTICAL HANDBOOK OF SEAWATER ANALYSIS (STRICKLAND AND PARSON, 1972, II.6))	5.06	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: PART 5520 B)	0.4	3



PARAMETER	UNIT	METHOD OF ANALYSIS	RESULT	DETECTION LIMIT
			LBW007 : BERTH ISLAND T23AV861-0004	
METALS				
LEAD	µg/L Pb	PRE-CONCENTRATION AND INDUCTIVELY COUPLED PLASMA (ICP) METHOD (BASED ON METHOD OF SEAWATER ANALYSIS, GRASSHOFF, 1999, CHAPTER 12)	0.570	0.100
SAMPLE CONDITION				
WATER'S COLOUR/TURBID			YELLOW/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

NOVEMBER 20, 2023



## ANALYSIS REPORT

<b>PROJECT NAME</b>	: ENVIRONMENTAL & SOCIOECONOMIC SURVEY	<b>RECEIVED DATE</b>	: DECEMBER 8, 2023
<b>CUSTOMER NAME</b>	: BANGCHAK SRIRACHA PUBLIC COMPANY LIMITED	<b>ANALYTICAL DATE</b>	: DECEMBER 8-18, 2023
<b>ADDRESS</b>	: 118 MOO 2 THUNG SUKHLA SI RACHA CHON BURI 20230	<b>REPORT NO.</b>	: 2023-U109007
<b>CONTACT INFORMATION</b>	: TEL : 0 3314 2891 e-mail : wanlop.boongor@bangchak.co.th	<b>WORK NO.</b>	: 2019-002022
<b>SAMPLING SOURCE</b>	: -	<b>ANALYSIS NO.</b>	: T23AY513-0002
<b>SAMPLE TYPE</b>	: SEAWATER		
<b>SAMPLING DATE</b>	: DECEMBER 7, 2023		
<b>SAMPLING TIME</b>	: 11:35 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 T23AY513-0002	
pH	-	ELECTROMETRIC METHOD (SM: PART 4500-H <sup>+</sup> B)	7.8 (25°C)	-
TEMPERATURE	°C	THERMOMETER AT SITE (SM: PART 2550 B)	30	-
SALINITY	ppt	ELECTRICAL CONDUCTIVITY METHOD AT SITE (SM: PART 2520 B)	30.0	0.1
DISSOLVED OXYGEN	mg/L	MEMBRANE ELECTRODE METHOD AT SITE (SM: PART 4500-O G)	5.3	0.5
BIOCHEMICAL OXYGEN DEMAND	mg/L	MEMBRANE ELECTRODE METHOD (SM: PART 5210 B AND PART 4500-O G)	0.9	0.5
CHEMICAL OXYGEN DEMAND	mg/L	CLOSED REFLUX, TITRIMETRIC METHOD (SM: PART 5220 C)	52.8	25.0
TOTAL DISSOLVED SOLIDS	mg/L	TOTAL DISSOLVED SOLIDS DRIED AT 180 °C (SM: PART 2540 C)	33,840	25
NITRATE-NITROGEN	µg/L N	CADMIUM REDUCTION AND COLOURIMETRIC METHOD (BASED ON PRACTICAL HANDBOOK OF SEAWATER ANALYSIS (STRICKLAND AND PARSON, 1972, II.6))	1.24	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: PART 5520 B)	2.6	3

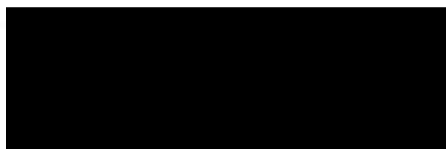


PARAMETER	UNIT	METHOD OF ANALYSIS	RESULT	DETECTION LIMIT
			LBW007. BERTH ISLAND T23AY513-0002	
METALS				
LEAD	µg/L Pb	PRE-CONCENTRATION AND INDUCTIVELY COUPLED PLASMA (ICP) METHOD (BASED ON METHOD OF SEAWATER ANALYSIS, GRASSHOFF, 1999, CHAPTER 12)	< 0.100	0.100
SAMPLE CONDITION				
WATER'S COLOUR/TURBID 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-07-12-002



DECEMBER 20, 2023

## ANALYSIS REPORT

**PROJECT NAME** : ENVIRONMENTAL & SOCIOECONOMIC SURVEY  
**CUSTOMER NAME** : BANGCHAK SRIRACHA PUBLIC COMPANY LIMITED  
**ADDRESS** : 118 MOO 2 THUNG SUKHLA SI RACHA CHON BURI 20230  
**CONTACT INFORMATION** : TEL : 0 3314 2891 e-mail : wanlop.boongor@bangchak.co.th  
**SAMPLING SOURCE** : -  
**SAMPLE TYPE** : SEAWATER  
**SAMPLING DATE** : DECEMBER 7, 2023  
**SAMPLING TIME** : 11:35 HOUR  
**SAMPLING METHOD** : COMPOSITE  
**SAMPLING BY** : MR THANADET WANSANOR  
**ANALYZED BY** : MISS NAPAPORN KHUNNOKKHUM

**RECEIVED DATE** : DECEMBER 8, 2023  
**ANALYTICAL DATE** : DECEMBER 8-9, 2023  
**REPORT NO.** : 2023-U109572  
**WORK NO.** : 2019-002022  
**ANALYSIS NO.** : T23AY513-0003

PARAMETER	UNIT	METHOD OF ANALYSIS	RESULT	DETECTION LIMIT
			LBW007 : BERTH ISLAND T23AY513-0003	
SUSPENDED SOLIDS	mg/L	GRAVIMETRIC METHOD (SM: PART 2540 D)	2.6	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

DECEMBER 20, 2023



## 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, 2023  
**SAMPLING TIME** : 1/  
**SAMPLING METHOD** : COMPOSITE  
**SAMPLING BY** : MR THANADET WANSANOR  
**ANALYZED BY** : MISS LAKSIKA CHANTARASUK  
**RECEIVED DATE** : AUGUST 10, 2023  
**ANALYTICAL DATE** : AUGUST 10-16, 2023  
**REPORT NO.** : 2023-U067724  
**WORK NO.** : 2019-002022  
**ANALYSIS NO.** : T23AP408-0001 - T23AP408-0002

PARAMETER	UNIT	METHOD OF ANALYSIS	RESULT		DETECTION LIMIT
			1 10:20 HOUR 1/ T23AP408-0001	2 10:40 HOUR 1/ T23AP408-0002	
TOTAL ORGANIC CARBON	mg/L	HIGH-TEMPERATURE COMBUSTION METHOD (SM: PART 5310 B)	2.42	2.16	0.50
FAT, OIL AND GREASE	mg/L	LIQUID-LIQUID, PARTITION-GRAVIMETRIC METHOD (SM: PART 5520 B)	3	1.0	3
<b>SAMPLE CONDITION</b> WATER'S COLOUR/TURBID SEDIMENT			COLOURLESS/CLEAR YELLOW	COLOURLESS/CLEAR YELLOW	

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

RESULT 1 : UNDER BL-1/2 SUMP

RESULT 2 : UNDER BL-3 SUMP

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

AUGUST 18, 2023







Your Project #: SRT-RF-2023 07

**Attention: Tanaphorn Taweeyat**

ESSO Thailand Public Company  
3195/17-29 Rama 4 Road  
Klongton, Klongtoey  
Bangkok, --  
Thailand

**Report Date: 10/11/2023**

Report #: R7855908

Version: 2 - Revision

**ANALYTICAL REPORT – REVISED REPORT**

**BV LABS JOB #: C3U4070**

**Received: 10/02/2023, 00:00**

Sample Matrix: Passive Monitor

# Samples Received: 2

Analyses	Quantity	Date Analyzed	Laboratory Method	Analytical Method
Naphtas by NIOSH 1550 - Monitor	2	10/03/2023	NOV4SOP-00001	NIOSH 1550 / 1551
Volatiles (VOC) - List 1 -GC/FID-Monitor	2	10/03/2023	NOV SOP-00005	NOV SOP-00005

**Remarks:**

Report Qualifier - Any general comments can be added to appear here.

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

Wendy Lesniak  
CS  
11 Oct 2023 17:27:19

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

Wendy Lesniak, CS

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, Director of Operations responsible for Michigan Industrial Hygiene laboratory operations.



BUREAU  
VERITAS

BV Labs Job #: C3U4070

Report Date: 10/11/2023

ESSO Thailand Public Company

Client Project #: SRT-RF-2023 07

## ANALYTICAL RESULTS

Client ID:	SRT-RF-2023-07-001				Matrix:	Passive Monitor	
BV Labs ID:	XDW220				Sample Media:	AT 566/3M3500+Monitor Charcoal	
Date Sampled:	09/09/2023				Sampling Time (Minutes):	270	
ANALYTE	Samp Rate cc/min	Mass ug	Concentration mg/m3	ppm	RL ug	Test Method	Date Analyzed
Benzene	9.7	<0.50	<0.19	<0.060	0.50	NOV SOP-00005	10/03/2023
THCs as n-Hexane	9.9	<30	<11	<3.2	30	NIOSH 1550 / 1551	10/03/2023
RL = Reporting Limit							

Client ID:	SRT-RF-2023-07-BLANK				Matrix:	Passive Monitor	
BV Labs ID:	XDW221				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
Benzene	9.7	<0.50	N/A	N/A	0.50	NOV SOP-00005	10/03/2023
THCs as n-Hexane	9.9	<30	N/A	N/A	30	NIOSH 1550 / 1551	10/03/2023
RL = Reporting Limit							



BUREAU  
VERITAS

BV Labs Job #: C3U4070

Report Date: 10/11/2023

ESSO Thailand Public Company

Client Project #: SRT-RF-2023 07

### 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.

#### REVISED REPORT:

As discussed on October 10, 2023, the company report to address has been corrected. The project was entered under the old company name. The change is reflected in the attached revised report. We apologize for the inconvenience.

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







Your P.O. #: T35/4510178805  
Your Project #: SRT-RF-2023 10

**Attention: Tanaphorn Taweeyat**

ESSO Thailand Public Company  
3195/17-29 Rama 4 Road  
Klongton, Klongtoey  
Bangkok, --  
Thailand

**Report Date: 01/04/2024**

Report #: R7976986

Version: 1 - Final

**ANALYTICAL REPORT**

**BV LABS JOB #: C3BT090**

**Received: 12/28/2023, 00:00**

Sample Matrix: Passive Monitor  
# Samples Received: 5

Analyses	Quantity	Date Analyzed	Laboratory Method	Analytical Method
Naphthas by NIOSH 1550 - Monitor	5	12/30/2023	NOV4SOP-00001	NIOSH 1550 / 1551
Volatiles (VOC) - List 1 -GC/FID-Monitor	3	12/30/2023	NOV SOP-00005	NOV SOP-00005
Volatiles (VOC) - List 1 -GC/FID-Monitor	2	12/31/2023	NOV SOP-00005	NOV SOP-00005

**Remarks:**

Report Qualifier - Any general comments can be added to appear here.

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

Wendy Lesniak  
CS  
04 Jan 2024 10:09:06

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

Wendy Lesniak, CS

Email: Wendy.Lesniak@bureauveritas.com

Phone# (248) 344-1770

=====

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 F. [REDACTED] for Michigan Industrial Hygiene laboratory operations.

BUREAU  
VERITAS

BV Labs Job #: C3BT090

Report Date: 01/04/2024

ESSO Thailand Public Company

Client Project #: SRT-RF-2023 10

Your P.O. #: T35/4510178805

## ANALYTICAL RESULTS

Client ID: SRT-RF-2023-10-001				Matrix: Passive Monitor			
BV Labs ID: XZM423				Sample Media: AT 566/3M3500+Monitor Charcoal			
Date Sampled: 11/30/2023				Sampling Time (Minutes): 480			
ANALYTE		Samp Rate cc/min	Mass ug	Concentration mg/m3      ppm	RL ug	Test Method	Date Analyzed
Benzene		9.7	<0.50	<0.11    <0.034	0.50	NOV SOP-00005	12/30/2023
THCs as n-Hexane		9.9	<30	<6.3    <1.8	30	NIOSH 1550 / 1551	12/30/2023
Toluene		9.5	<3.0	<0.66    <0.17	3.0	NOV SOP-00005	12/30/2023
Xylenes		7.5	<6.0	<1.7    <0.38	6.0	NOV SOP-00005	12/30/2023
RL = Reporting Limit							

Client ID: SRT-RF-2023-10-002				Matrix: Passive Monitor			
BV Labs ID: XZM424				Sample Media: AT 566/3M3500+Monitor Charcoal			
Date Sampled: 12/02/2023				Sampling Time (Minutes): 300			
ANALYTE		Samp Rate cc/min	Mass ug	Concentration mg/m3      ppm	RL ug	Test Method	Date Analyzed
Benzene		9.7	<0.50	<0.17    <0.054	0.50	NOV SOP-00005	12/30/2023
THCs as n-Hexane		9.9	<30	<10      <2.9	30	NIOSH 1550 / 1551	12/30/2023
RL = Reporting Limit							

Client ID: SRT-RF-2023-10-003				Matrix: Passive Monitor			
BV Labs ID: XZM425				Sample Media: AT 566/3M3500+Monitor Charcoal			
Date Sampled: 12/20/2023				Sampling Time (Minutes): 480			
ANALYTE		Samp Rate cc/min	Mass ug	Concentration mg/m3    ppm	RL ug	Test Method	Date Analyzed
Benzene		9.7	<0.50	<0.11    <0.034	0.50	NOV SOP-00005	12/30/2023
THCs as n-Hexane		9.9	<30	<6.3    <1.8	30	NIOSH 1550 / 1551	12/30/2023
Toluene		9.5	<3.0	<0.66    <0.17	3.0	NOV SOP-00005	12/30/2023
Xylenes		7.5	<6.0	<1.7    <0.38	6.0	NOV SOP-00005	12/30/2023
RL = Reporting Limit							

Client ID: SRT-RF-2023-10-004				Matrix: Passive Monitor			
BV Labs ID: XZM426				Sample Media: AT 566/3M3500+Monitor Charcoal			
Date Sampled: 12/20/2023				Sampling Time (Minutes): 480			
ANALYTE		Samp Rate cc/min	Mass ug	Concentration mg/m3    ppm	RL ug	Test Method	Date Analyzed
Benzene		9.7	<0.50	<0.11    <0.034	0.50	NOV SOP-00005	12/31/2023
THCs as n-Hexane		9.9	<30	<6.3    <1.8	30	NIOSH 1550 / 1551	12/30/2023
Toluene		9.5	<3.0	<0.66    <0.17	3.0	NOV SOP-00005	12/31/2023
Xylenes		7.5	<6.0	<1.7    <0.38	6.0	NOV SOP-00005	12/31/2023
RL = Reporting Limit							



BUREAU  
VERITAS

BV Labs Job #: C3BT090  
Report Date: 01/04/2024

ESSO Thailand Public Company  
Client Project #: SRT-RF-2023 10  
Your P.O. #: T35/4510178805

### ANALYTICAL RESULTS

Client ID:	SRT-RF-2023-10-BLANK				Matrix:	Passive Monitor	
BV Labs ID:	XZM427				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
Benzene	9.7	<0.50	N/A	N/A	0.50	NOV SOP-00005	12/31/2023
THCs as n-Hexane	9.9	64	N/A	N/A	30	NIOSH 1550 / 1551	12/30/2023
Toluene	9.5	<3.0	N/A	N/A	3.0	NOV SOP-00005	12/31/2023
Xylenes	7.5	<6.0	N/A	N/A	6.0	NOV SOP-00005	12/31/2023
RL = Reporting Limit							



BUREAU  
VERITAS

BV Labs Job #: C3BT090  
Report Date: 01/04/2024

ESSO Thailand Public Company  
Client Project #: SRT-RF-2023 10  
Your P.O. #: T35/4510178805

### 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.

Sample XZM427 [SRT-RF-2023-10-BLANK] : Actual value of the THC's as n-hexane client blank; results have been blank corrected. This value includes background present in the solvent, and does not necessarily indicate contamination of the media.

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



<p><b>Bangchak Sriracha Public Company Limited</b>  <b>Request for Laboratory</b>  <b>Analytical Services</b>  <b>Bureau Veritas North America, Inc.</b></p>	<table border="1"> <tr> <td data-bbox="164 327 177 1780"> <p><b><u>IMPORTANT:</u></b></p> <p>Rush charges authorized?    Yes <input type="checkbox"/>    No <input checked="" type="checkbox"/></p> <p>E-mail results to: (responsible IH technician)</p> <p>E-mail Address: (responsible IH technician)</p> <p>E-mail Address: (responsible IH technician)</p> </td> <td data-bbox="177 327 302 1780"> <p>Page: 1 of 1</p> <p>For Lab Use Only</p> <p>Lab Project No.</p> </td> </tr> </table>	<p><b><u>IMPORTANT:</u></b></p> <p>Rush charges authorized?    Yes <input type="checkbox"/>    No <input checked="" type="checkbox"/></p> <p>E-mail results to: (responsible IH technician)</p> <p>E-mail Address: (responsible IH technician)</p> <p>E-mail Address: (responsible IH technician)</p>	<p>Page: 1 of 1</p> <p>For Lab Use Only</p> <p>Lab Project No.</p>
<p><b><u>IMPORTANT:</u></b></p> <p>Rush charges authorized?    Yes <input type="checkbox"/>    No <input checked="" type="checkbox"/></p> <p>E-mail results to: (responsible IH technician)</p> <p>E-mail Address: (responsible IH technician)</p> <p>E-mail Address: (responsible IH technician)</p>	<p>Page: 1 of 1</p> <p>For Lab Use Only</p> <p>Lab Project No.</p>		

<b>Report results to:</b> <b>Name Tanaphorn Taweeyat</b> <b>Company Bangchak Sriracha refinery</b> <b>Mailing Address : 118 Moo 2 ,Sukhapiban 7 road , Thungsukla</b> <b>City, State, Zip : Chonburi , Thailand 20230</b> <b>Telephone No. : 66-3314-2396 EXT. - FAX No. 66-38-493939</b> <b>email request to: wiesniak@maxxamlabs.com</b>	<b>Client Campaign: SRT-RF-2023</b> <b>Number: 10</b>
<b>Special instructions and/or specific regulatory requirements:</b> (method, limit of detection, etc.)	

[illegible]

<b>Relinquished by:</b> <b>Relinquished by:</b> <b>Method of Ship:</b> <b>Authorized by:</b> <b>Date:</b>	<b>ST accompany request!!</b>  <b>Visit our Website:</b> <a href="http://www.us.bureauveritas.com/labs">www.us.bureauveritas.com/labs</a> <b>BV Lab Contact:</b> Wendy Lesniak 248-344-2653 <b>BV Lab Contact:</b> Matt Pressnell 248-344-2651	<b>Date</b> <u>26-Dec-27</u> <b>Date</b> _____	<b>Received by:</b> _____ <b>Received by:</b> _____ <b>Sample Condition of</b> _____ <b>Acceptable</b> _____	<b>Date/Time</b> _____ <b>Date/Time</b> _____
		<b>Ship to:</b> 22345 Roethel Drive Novi, Michigan, 48375 Ph: 248.344.2652, Toll-free 800.806.5887 Fax: 248-344-2655	<b>(Explain)</b> Atlanta (Asbestos & Electron Microscopy) 3380 Chastain Meadows Pkwy., Suite 300 Kennesaw, Georgia, 30144 Phone: 770.499.7500, Toll-free 800.252.9919 Fax: 770.499.7511	