

ภาคผนวก ก  
ใบรายงานผลการวิเคราะห์

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คุณภาพอากาศในบรรยากาศ

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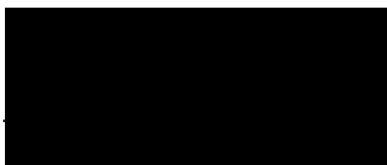
## ANALYSIS REPORT

**PROJECT NAME** : ENVIRONMENTAL & SOCIOECONOMIC SURVEY  
**CUSTOMER NAME** : ESSO (THAILAND) PUBLIC COMPANY LIMITED  
**ADDRESS** : 118 MOO 2 THUNG SUKHLA SI RACHA CHON BURI 20230  
**CONTACT INFORMATION** : TEL : 08 9692 4144 e-mail : paisarn.apiwatananon@exxonmobil.com  
**SAMPLING SOURCE** : BAN AO UDOM  
**SAMPLE TYPE** : AMBIENT  
**SAMPLING DATE** : \*, \*\*, \*\*\*  
**SAMPLING TIME** : \*, \*\*, \*\*\*  
**SAMPLING BY** : MR SIRAPAT JONGPHADUNGKIET  
**ANALYZED BY** : MISS JETJARIN TUMSA-AT  
**RECEIVED DATE** : APRIL 30, 2022  
**ANALYTICAL DATE** : APRIL 30 - MAY 6, 2022  
**REPORT NO.** : 2022-U034087  
**WORK NO.** : 2019-002022  
**ANALYSIS NO.** : T22AI184-0008 - T22AI184-0010

PARAMETER	UNIT	METHOD OF ANALYSIS	RESULT		
			BAN AO UDOM		
			* T22AI184-0008	** T22AI184-0009	*** T22AI184-0010
TOTAL SUSPENDED PARTICULATE	mg/m <sup>3</sup>	GRAVIMETRIC (HIGH VOLUME METHOD)	0.035	0.036	0.039
PARTICULATE MATTER (≤ 10 μm)	mg/m <sup>3</sup>	GRAVIMETRIC (HIGH VOLUME METHOD)	0.018	0.019	0.018
<b>SAMPLE CONDITION</b>			COMPLETE	COMPLETE	COMPLETE

### REMARK

TSP, PM10 : REFERENCE CONDITION IS 25 DEGREE CELSIUS AT 1 ATMOSPHERE.  
TSP : US EPA, CODE OF FEDERAL REGULATION SEARCH RESULTS, 40 CFR-CHAPTER I PART 50, APPENDIX B.  
PM10 : US EPA, CODE OF FEDERAL REGULATION SEARCH RESULTS, 40 CFR-CHAPTER I PART 50, APPENDIX J.  
\* : SAMPLING FROM 09:30 HOUR ON APRIL 23, 2022 TO 09:30 HOUR ON APRIL 24, 2022.  
\*\* : SAMPLING FROM 09:30 HOUR ON APRIL 24, 2022 TO 09:30 HOUR ON APRIL 25, 2022.  
\*\*\* : SAMPLING FROM 09:30 HOUR ON APRIL 25, 2022 TO 09:30 HOUR ON APRIL 26, 2022.



MAY 13, 2022



## ANALYSIS REPORT

**PROJECT NAME** : ENVIRONMENTAL & SOCIOECONOMIC SURVEY  
**CUSTOMER NAME** : ESSO (THAILAND) PUBLIC COMPANY LIMITED  
**ADDRESS** : 118 MOO 2 THUNG SUKHLA SI RACHA CHON BURI 20230  
**CONTACT INFORMATION** : TEL : 08 9692 4144 e-mail : paisarn.apiwatananon@exxonmobil.com  
**SAMPLING SOURCE** : BAN AO UDOM  
**SAMPLE TYPE** : AMBIENT  
**SAMPLING DATE** : \*, \*\*, \*\*\*, \*\*\*\*  
**SAMPLING TIME** : \*, \*\*, \*\*\*, \*\*\*\*  
**SAMPLING BY** : MR SIRAPAT JONGPHADUNGKIET  
**ANALYZED BY** : MISS JETJARIN TUMSA-AT  
**RECEIVED DATE** : APRIL 30, 2022  
**ANALYTICAL DATE** : APRIL 30 - MAY 6, 2022  
**REPORT NO.** : 2022-U034088  
**WORK NO.** : 2019-002022  
**ANALYSIS NO.** : T22AI184-0011 - T22AI184-0014

PARAMETER	UNIT	METHOD OF ANALYSIS	RESULT			
			BAN AO UDOM			
			*	**	***	****
			T22AI184-0011	T22AI184-0012	T22AI184-0013	T22AI184-0014
TOTAL SUSPENDED PARTICULATE	mg/m <sup>3</sup>	GRAVIMETRIC (HIGH VOLUME METHOD)	0.030	0.056	0.065	0.098
PARTICULATE MATTER (≤ 10 µm)	mg/m <sup>3</sup>	GRAVIMETRIC (HIGH VOLUME METHOD)	0.017	0.027	0.020	0.041
SAMPLE CONDITION			COMPLETE	COMPLETE	COMPLETE	COMPLETE

### REMARK

TSP, PM10 : REFERENCE CONDITION IS 25 DEGREE CELSIUS AT 1 ATMOSPHERE.  
TSP : US EPA, CODE OF FEDERAL REGULATION SEARCH RESULTS, 40 CFR-CHAPTER I PART 50, APPENDIX B.  
PM10 : US EPA, CODE OF FEDERAL REGULATION SEARCH RESULTS, 40 CFR-CHAPTER I PART 50, APPENDIX J.  
\* : SAMPLING FROM 09:30 HOUR ON APRIL 26, 2022 TO 09:30 HOUR ON APRIL 27, 2022.  
\*\* : SAMPLING FROM 09:30 HOUR ON APRIL 27, 2022 TO 09:30 HOUR ON APRIL 28, 2022.  
\*\*\* : SAMPLING FROM 09:30 HOUR ON APRIL 28, 2022 TO 09:30 HOUR ON APRIL 29, 2022.  
\*\*\*\* : SAMPLING FROM 09:30 HOUR ON APRIL 29, 2022 TO 09:30 HOUR ON APRIL 30, 2022.

MAY 13, 2022



## ANALYSIS REPORT

**CUSTOMER NAME** : ESSO (THAILAND) PUBLIC COMPANY LIMITED  
**ADDRESS** : 118 MOO 2 THUNG SUKHLA SI RACHA CHON BURI 20230  
**CONTACT INFORMATION** : TEL : 08 9692 4144 e-mail : paisarn.apiwatananon@exxonmobil.com  
**MEASURING PLACE** : BAN AO UDOM  
**MEASURING TYPE** : AMBIENT (AIR) **RECEIVED DATE** : APRIL 23-30, 2022  
**MEASURING DATE** : APRIL 23-30, 2022 **ANALYTICAL DATE** : APRIL 23-30, 2022  
**MEASURING TIME** : \* **REPORT NO.** : 2022-U033184  
**MEASURING METHOD** : CHEMILUMINESCENCE **WORK NO.** : 2019-002022  
**MEASURED BY** : MR SIRAPAT JONGPHADUNGKIET **ANALYSIS NO.** : T22AI184-0008 - T22AI184-0014

TIME *	RESULT (ppm)		
	NITROGEN DIOXIDE		
	BAN AO UDOM		
	APRIL 23 - 24, 2022 T22AI184-0008	APRIL 24 - 25, 2022 T22AI184-0009	APRIL 25 - 26, 2022 T22AI184-0010
07:00-08:00 HOUR	0.0237	0.0252	0.0261
08:00-09:00 HOUR	0.0254	0.0254	0.0258
09:00-10:00 HOUR	0.0277	0.0267	0.0276
10:00-11:00 HOUR	0.0285	0.0278	0.0281
11:00-12:00 HOUR	0.0286	0.0286	0.0287
12:00-13:00 HOUR	0.0278	0.0277	0.0269
13:00-14:00 HOUR	0.0278	0.0281	0.0279
14:00-15:00 HOUR	0.0265	0.0269	0.0275
15:00-16:00 HOUR	0.0277	0.0277	0.0271
16:00-17:00 HOUR	0.0264	0.0280	0.0286
17:00-18:00 HOUR	0.0284	0.0282	0.0264
18:00-19:00 HOUR	0.0265	0.0269	0.0272
19:00-20:00 HOUR	0.0267	0.0257	0.0273
20:00-21:00 HOUR	0.0244	0.0253	0.0274
21:00-22:00 HOUR	0.0245	0.0263	0.0269
22:00-23:00 HOUR	0.0244	0.0256	0.0244
23:00-00:00 HOUR	0.0245	0.0240	0.0253
00:00-01:00 HOUR	0.0243	0.0246	0.0243
01:00-02:00 HOUR	0.0226	0.0233	0.0243
02:00-03:00 HOUR	0.0226	0.0229	0.0268
03:00-04:00 HOUR	0.0214	0.0221	0.0246
04:00-05:00 HOUR	0.0230	0.0237	0.0251
05:00-06:00 HOUR	0.0223	0.0248	0.0252
06:00-07:00 HOUR	0.0230	0.0249	0.0260



TIME *	RESULT (ppm)			
	NITROGEN DIOXIDE			
	BAN AO UDOM			
	APRIL 26 - 27, 2022 T22AI184-0011	APRIL 27 - 28, 2022 T22AI184-0012	APRIL 28 - 29, 2022 T22AI184-0013	APRIL 29 - 30, 2022 T22AI184-0014
07:00-08:00 HOUR	0.0270	0.0267	0.0259	0.0262
08:00-09:00 HOUR	0.0274	0.0271	0.0271	0.0283
09:00-10:00 HOUR	0.0288	0.0273	0.0272	0.0277
10:00-11:00 HOUR	0.0294	0.0276	0.0282	0.0286
11:00-12:00 HOUR	0.0287	0.0271	0.0265	0.0282
12:00-13:00 HOUR	0.0276	0.0278	0.0277	0.0272
13:00-14:00 HOUR	0.0286	0.0281	0.0264	0.0280
14:00-15:00 HOUR	0.0279	0.0273	0.0269	0.0279
15:00-16:00 HOUR	0.0285	0.0275	0.0268	0.0276
16:00-17:00 HOUR	0.0265	0.0277	0.0275	0.0291
17:00-18:00 HOUR	0.0282	0.0269	0.0285	0.0273
18:00-19:00 HOUR	0.0277	0.0277	0.0273	0.0269
19:00-20:00 HOUR	0.0277	0.0270	0.0262	0.0252
20:00-21:00 HOUR	0.0274	0.0267	0.0288	0.0250
21:00-22:00 HOUR	0.0274	0.0260	0.0270	0.0258
22:00-23:00 HOUR	0.0260	0.0241	0.0272	0.0256
23:00-00:00 HOUR	0.0252	0.0246	0.0263	0.0260
00:00-01:00 HOUR	0.0247	0.0234	0.0250	0.0247
01:00-02:00 HOUR	0.0231	0.0225	0.0248	0.0231
02:00-03:00 HOUR	0.0221	0.0227	0.0236	0.0243
03:00-04:00 HOUR	0.0240	0.0231	0.0228	0.0247
04:00-05:00 HOUR	0.0244	0.0244	0.0232	0.0266
05:00-06:00 HOUR	0.0247	0.0253	0.0248	0.0262
06:00-07:00 HOUR	0.0251	0.0261	0.0264	0.0267

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LABORATORY SUPERVISOR

MAY 9, 2022

## ANALYSIS REPORT

**CUSTOMER NAME** : ESSO (THAILAND) PUBLIC COMPANY LIMITED  
**ADDRESS** : 118 MOO 2 THUNG SUKHLA SI RACHA CHON BURI 20230  
**CONTACT INFORMATION** : TEL : 08 9692 4144 e-mail : paisarn.apiwatananon@exxonmobil.com  
**MEASURING PLACE** : BAN AO UDOM  
**MEASURING TYPE** : AMBIENT (AIR) **RECEIVED DATE** : APRIL 23-30, 2022  
**MEASURING DATE** : APRIL 23-30, 2022 **ANALYTICAL DATE** : APRIL 23-30, 2022  
**MEASURING TIME** : \* **REPORT NO.** : 2022-U033188  
**MEASURING METHOD** : UV FLUORESCENCE **WORK NO.** : 2019-002022  
**MEASURED BY** : MR SIRAPAT JONGPHADUNGKIET **ANALYSIS NO.** : T22AI184-0008 - T22AI184-0014

เวลา *	RESULT (ppm)		
	SULPHUR DIOXIDE		
	BAN AO UDOM		
	APRIL 23 - 24, 2022 T22AI184-0008	APRIL 24 - 25, 2022 T22AI184-0009	APRIL 25 - 26, 2022 T22AI184-0010
07:00-08:00 HOUR	0.0037	0.0035	0.0032
08:00-09:00 HOUR	0.0038	0.0038	0.0035
09:00-10:00 HOUR	0.0034	0.0036	0.0033
10:00-11:00 HOUR	0.0039	0.0034	0.0032
11:00-12:00 HOUR	0.0034	0.0033	0.0037
12:00-13:00 HOUR	0.0036	0.0034	0.0031
13:00-14:00 HOUR	0.0038	0.0037	0.0032
14:00-15:00 HOUR	0.0037	0.0033	0.0035
15:00-16:00 HOUR	0.0034	0.0037	0.0034
16:00-17:00 HOUR	0.0032	0.0031	0.0032
17:00-18:00 HOUR	0.0031	0.0037	0.0031
18:00-19:00 HOUR	0.0029	0.0037	0.0039
19:00-20:00 HOUR	0.0026	0.0034	0.0038
20:00-21:00 HOUR	0.0028	0.0031	0.0037
21:00-22:00 HOUR	0.0024	0.0029	0.0032
22:00-23:00 HOUR	0.0025	0.0027	0.0029
23:00-00:00 HOUR	0.0027	0.0024	0.0028
00:00-01:00 HOUR	0.0025	0.0025	0.0027
01:00-02:00 HOUR	0.0026	0.0026	0.0028
02:00-03:00 HOUR	0.0027	0.0023	0.0029
03:00-04:00 HOUR	0.0028	0.0027	0.0028
04:00-05:00 HOUR	0.0029	0.0025	0.0028
05:00-06:00 HOUR	0.0031	0.0027	0.0029
06:00-07:00 HOUR	0.0033	0.0029	0.0027



เวลา *	RESULT (ppm)			
	SULPHUR DIOXIDE			
	BAN AO UDOM			
	APRIL 26 - 27, 2022 T22AI184-0011	APRIL 27 - 28, 2022 T22AI184-0012	APRIL 28 - 29, 2022 T22AI184-0013	APRIL 29 - 30, 2022 T22AI184-0014
07:00-08:00 HOUR	0.0029	0.0031	0.0033	0.0031
08:00-09:00 HOUR	0.0032	0.0032	0.0035	0.0033
09:00-10:00 HOUR	0.0033	0.0033	0.0036	0.0039
10:00-11:00 HOUR	0.0034	0.0034	0.0037	0.0034
11:00-12:00 HOUR	0.0037	0.0036	0.0035	0.0034
12:00-13:00 HOUR	0.0039	0.0034	0.0034	0.0036
13:00-14:00 HOUR	0.0034	0.0031	0.0038	0.0038
14:00-15:00 HOUR	0.0036	0.0034	0.0036	0.0032
15:00-16:00 HOUR	0.0035	0.0036	0.0037	0.0032
16:00-17:00 HOUR	0.0033	0.0035	0.0032	0.0038
17:00-18:00 HOUR	0.0033	0.0032	0.0038	0.0031
18:00-19:00 HOUR	0.0037	0.0034	0.0032	0.0032
19:00-20:00 HOUR	0.0035	0.0037	0.0036	0.0037
20:00-21:00 HOUR	0.0032	0.0033	0.0034	0.0032
21:00-22:00 HOUR	0.0031	0.0034	0.0032	0.0037
22:00-23:00 HOUR	0.0029	0.0032	0.0029	0.0033
23:00-00:00 HOUR	0.0024	0.0031	0.0028	0.0029
00:00-01:00 HOUR	0.0026	0.0029	0.0023	0.0024
01:00-02:00 HOUR	0.0025	0.0028	0.0024	0.0029
02:00-03:00 HOUR	0.0027	0.0027	0.0025	0.0029
03:00-04:00 HOUR	0.0023	0.0026	0.0027	0.0027
04:00-05:00 HOUR	0.0027	0.0028	0.0026	0.0029
05:00-06:00 HOUR	0.0023	0.0029	0.0028	0.0030
06:00-07:00 HOUR	0.0028	0.0031	0.0029	0.0032

LABORATORY SUPERVISOR

MAY 9, 2022



## ANALYSIS REPORT

**PROJECT NAME** : ENVIRONMENTAL & SOCIOECONOMIC SURVEY  
**CUSTOMER NAME** : ESSO (THAILAND) PUBLIC COMPANY LIMITED  
**ADDRESS** : 118 MOO 2 THUNG SUKHLA SI RACHA CHON BURI 20230  
**CONTACT INFORMATION** : TEL : 08 9692 4144 e-mail : paisarn.apiwatananon@exxonmobil.com  
**SAMPLING SOURCE** : LAM CHABANG PORT'S G  
**SAMPLE TYPE** : AMBIENT  
**SAMPLING DATE** : \*, \*\*, \*\*\*  
**SAMPLING TIME** : \*, \*\*, \*\*\*  
**SAMPLING BY** : MR SIRAPAT JONGPHADUNGKIET  
**ANALYZED BY** : MISS JETJARIN TUMSA-AT

**RECEIVED DATE** : APRIL 30, 2022  
**ANALYTICAL DATE** : APRIL 30 - MAY 6, 2022  
**REPORT NO.** : 2022-U034091  
**WORK NO.** : 2019-002022  
**ANALYSIS NO.** : T22AI184-0015 - T22AI184-0017

PARAMETER	UNIT	METHOD OF ANALYSIS	RESULT		
			LAM CHABANG PORT'S G		
			* T22AI184-0015	** T22AI184-0016	*** T22AI184-0017
TOTAL SUSPENDED PARTICULATE	mg/m <sup>3</sup>	GRAVIMETRIC (HIGH VOLUME METHOD)	0.098	0.054	0.108
PARTICULATE MATTER (≤ 10 µm)	mg/m <sup>3</sup>	GRAVIMETRIC (HIGH VOLUME METHOD)	0.038	0.025	0.040
<b>SAMPLE CONDITION</b>			COMPLETE	COMPLETE	COMPLETE

### REMARK

TSP, PM10 : REFERENCE CONDITION IS 25 DEGREE CELSIUS AT 1 ATMOSPHERE.  
TSP : US EPA, CODE OF FEDERAL REGULATION SEARCH RESULTS, 40 CFR-CHAPTER I PART 50, APPENDIX B.  
PM10 : US EPA, CODE OF FEDERAL REGULATION SEARCH RESULTS, 40 CFR-CHAPTER I PART 50, APPENDIX J.  
\* : SAMPLING FROM 09:00 HOUR ON APRIL 23, 2022 TO 09:00 HOUR ON APRIL 24, 2022.  
\*\* : SAMPLING FROM 09:00 HOUR ON APRIL 24, 2022 TO 09:00 HOUR ON APRIL 25, 2022.  
\*\*\* : SAMPLING FROM 09:00 HOUR ON APRIL 25, 2022 TO 09:00 HOUR ON APRIL 26, 2022.

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[REDACTED SIGNATURE]  
LABORATORY SUPERVISOR

MAY 13, 2022



## ANALYSIS REPORT

**PROJECT NAME** : ENVIRONMENTAL & SOCIOECONOMIC SURVEY  
**CUSTOMER NAME** : ESSO (THAILAND) PUBLIC COMPANY LIMITED  
**ADDRESS** : 118 MOO 2 THUNG SUKHLA SI RACHA CHON BURI 20230  
**CONTACT INFORMATION** : TEL : 08 9692 4144 e-mail : paisarn.apiwatananon@exxonmobil.com  
**SAMPLING SOURCE** : LAM CHABANG PORT'S G  
**SAMPLE TYPE** : AMBIENT  
**SAMPLING DATE** : \*, \*\*, \*\*\*, \*\*\*\*  
**SAMPLING TIME** : \*, \*\*, \*\*\*, \*\*\*\*  
**SAMPLING BY** : MR SIRAPAT JONGPHADUNGKIET  
**ANALYZED BY** : MISS JETJARIN TUMSA-AT

**RECEIVED DATE** : APRIL 30, 2022  
**ANALYTICAL DATE** : APRIL 30 - MAY 6, 2022  
**REPORT NO.** : 2022-U034093  
**WORK NO.** : 2019-002022  
**ANALYSIS NO.** : T22AI184-0018 - T22AI184-0021

PARAMETER	UNIT	METHOD OF ANALYSIS	RESULT			
			LAM CHABANG PORT'S G			
			*	**	***	****
			T22AI184-0018	T22AI184-0019	T22AI184-0020	T22AI184-0021
TOTAL SUSPENDED PARTICULATE	mg/m <sup>3</sup>	GRAVIMETRIC (HIGH VOLUME METHOD)	0.109	0.074	0.092	0.057
PARTICULATE MATTER (≤ 10 µm)	mg/m <sup>3</sup>	GRAVIMETRIC (HIGH VOLUME METHOD)	0.039	0.029	0.026	0.026
SAMPLE CONDITION			COMPLETE	COMPLETE	COMPLETE	COMPLETE

### REMARK

TSP, PM10 : REFERENCE CONDITION IS 25 DEGREE CELSIUS AT 1 ATMOSPHERE.  
TSP : US EPA, CODE OF FEDERAL REGULATION SEARCH RESULTS, 40 CFR-CHAPTER I PART 50, APPENDIX B.  
PM10 : US EPA, CODE OF FEDERAL REGULATION SEARCH RESULTS, 40 CFR-CHAPTER I PART 50, APPENDIX J.  
\* : SAMPLING FROM 09:00 HOUR ON APRIL 26, 2022 TO 09:00 HOUR ON APRIL 27, 2022.  
\*\* : SAMPLING FROM 09:00 HOUR ON APRIL 27, 2022 TO 09:00 HOUR ON APRIL 28, 2022.  
\*\*\* : SAMPLING FROM 09:00 HOUR ON APRIL 28, 2022 TO 09:00 HOUR ON APRIL 29, 2022.  
\*\*\*\* : SAMPLING FROM 09:00 HOUR ON APRIL 29, 2022 TO 09:00 HOUR ON APRIL 30, 2022.

LABORATORY SUPERVISOR

MAY 13, 2022



## ANALYSIS REPORT

**CUSTOMER NAME** : ESSO (THAILAND) PUBLIC COMPANY LIMITED  
**ADDRESS** : 118 MOO 2 THUNG SUKHLA SI RACHA CHON BURI 20230  
**CONTACT INFORMATION** : TEL : 08 9692 4144 e-mail : paisarn.apiwatananon@exxonmobil.com  
**MEASURING PLACE** : LAM CHABANG PORT'S G  
**MEASURING TYPE** : AMBIENT (AIR) **RECEIVED DATE** : APRIL 23-30, 2022  
**MEASURING DATE** : APRIL 23-30, 2022 **ANALYTICAL DATE** : APRIL 23-30, 2022  
**MEASURING TIME** : \* **REPORT NO.** : 2022-U033185  
**MEASURING METHOD** : CHEMILUMINESCENCE **WORK NO.** : 2019-002022  
**MEASURED BY** : MR SIRAPAT JONGPHADUNGKIET **ANALYSIS NO.** : T22AI184-0015 - T22AI184-0021

TIME *	RESULT (ppm)		
	NITROGEN DIOXIDE		
	LAM CHABANG PORT'S G		
	APRIL 23 - 24, 2022 T22AI184-0015	APRIL 24 - 25, 2022 T22AI184-0016	APRIL 25 - 26, 2022 T22AI184-0017
07:00-08:00 HOUR	0.0295	0.0270	0.0275
08:00-09:00 HOUR	0.0290	0.0272	0.0270
09:00-10:00 HOUR	0.0277	0.0282	0.0294
10:00-11:00 HOUR	0.0273	0.0285	0.0278
11:00-12:00 HOUR	0.0290	0.0271	0.0281
12:00-13:00 HOUR	0.0285	0.0291	0.0270
13:00-14:00 HOUR	0.0278	0.0286	0.0289
14:00-15:00 HOUR	0.0297	0.0270	0.0286
15:00-16:00 HOUR	0.0301	0.0280	0.0287
16:00-17:00 HOUR	0.0279	0.0286	0.0284
17:00-18:00 HOUR	0.0266	0.0282	0.0303
18:00-19:00 HOUR	0.0270	0.0275	0.0276
19:00-20:00 HOUR	0.0259	0.0268	0.0266
20:00-21:00 HOUR	0.0240	0.0260	0.0263
21:00-22:00 HOUR	0.0252	0.0247	0.0265
22:00-23:00 HOUR	0.0262	0.0219	0.0241
23:00-00:00 HOUR	0.0241	0.0220	0.0263
00:00-01:00 HOUR	0.0234	0.0209	0.0252
01:00-02:00 HOUR	0.0248	0.0236	0.0242
02:00-03:00 HOUR	0.0236	0.0217	0.0237
03:00-04:00 HOUR	0.0221	0.0205	0.0227
04:00-05:00 HOUR	0.0232	0.0200	0.0243
05:00-06:00 HOUR	0.0248	0.0247	0.0257
06:00-07:00 HOUR	0.0253	0.0268	0.0271



TIME *	RESULT (ppm)			
	NITROGEN DIOXIDE			
	LAM CHABANG PORT'S G			
	APRIL 26 - 27, 2022 T22AI184-0018	APRIL 27 - 28, 2022 T22AI184-0019	APRIL 28 - 29, 2022 T22AI184-0020	APRIL 29 - 30, 2022 T22AI184-0021
07:00-08:00 HOUR	0.0278	0.0290	0.0284	0.0278
08:00-09:00 HOUR	0.0290	0.0285	0.0271	0.0299
09:00-10:00 HOUR	0.0293	0.0285	0.0277	0.0276
10:00-11:00 HOUR	0.0284	0.0279	0.0283	0.0295
11:00-12:00 HOUR	0.0284	0.0280	0.0301	0.0287
12:00-13:00 HOUR	0.0289	0.0295	0.0297	0.0292
13:00-14:00 HOUR	0.0288	0.0287	0.0290	0.0298
14:00-15:00 HOUR	0.0282	0.0272	0.0295	0.0282
15:00-16:00 HOUR	0.0275	0.0283	0.0299	0.0293
16:00-17:00 HOUR	0.0302	0.0284	0.0288	0.0286
17:00-18:00 HOUR	0.0296	0.0284	0.0294	0.0275
18:00-19:00 HOUR	0.0274	0.0286	0.0285	0.0259
19:00-20:00 HOUR	0.0263	0.0286	0.0280	0.0259
20:00-21:00 HOUR	0.0272	0.0266	0.0282	0.0226
21:00-22:00 HOUR	0.0255	0.0255	0.0270	0.0227
22:00-23:00 HOUR	0.0246	0.0263	0.0257	0.0237
23:00-00:00 HOUR	0.0219	0.0264	0.0233	0.0228
00:00-01:00 HOUR	0.0229	0.0272	0.0266	0.0233
01:00-02:00 HOUR	0.0238	0.0233	0.0250	0.0232
02:00-03:00 HOUR	0.0252	0.0227	0.0236	0.0247
03:00-04:00 HOUR	0.0254	0.0232	0.0222	0.0256
04:00-05:00 HOUR	0.0255	0.0244	0.0231	0.0251
05:00-06:00 HOUR	0.0264	0.0262	0.0246	0.0266
06:00-07:00 HOUR	0.0268	0.0273	0.0263	0.0268

(Signature)  
LABORATORY SUPERVISOR

MAY 9, 2022

## ANALYSIS REPORT

**CUSTOMER NAME** : ESSO (THAILAND) PUBLIC COMPANY LIMITED  
**ADDRESS** : 118 MOO 2 THUNG SUKHLA SI RACHA CHON BURI 20230  
**CONTACT INFORMATION** : TEL : 08 9692 4144 e-mail : paisarn.apiwatananon@exxonmobil.com  
**MEASURING PLACE** : LAM CHABANG PORT'S G  
**MEASURING TYPE** : AMBIENT (AIR) **RECEIVED DATE** : APRIL 23-30, 2022  
**MEASURING DATE** : APRIL 23-30, 2022 **ANALYTICAL DATE** : APRIL 23-30, 2022  
**MEASURING TIME** : \* **REPORT NO.** : 2022-U033189  
**MEASURING METHOD** : UV FLUORESCENCE **WORK NO.** : 2019-002022  
**MEASURED BY** : MR SIRAPAT JONGPHADUNGKIET **ANALYSIS NO.** : T22AI184-0015 - T22AI184-0021

เวลา *	RESULT (ppm)		
	SULPHUR DIOXIDE		
	LAM CHABANG PORT'S G		
	APRIL 23 - 24, 2022 T22AI184-0015	APRIL 24 - 25, 2022 T22AI184-0016	APRIL 25 - 26, 2022 T22AI184-0017
07:00-08:00 HOUR	0.0034	0.0038	0.0034
08:00-09:00 HOUR	0.0035	0.0034	0.0038
09:00-10:00 HOUR	0.0036	0.0033	0.0038
10:00-11:00 HOUR	0.0036	0.0038	0.0034
11:00-12:00 HOUR	0.0033	0.0039	0.0038
12:00-13:00 HOUR	0.0036	0.0036	0.0038
13:00-14:00 HOUR	0.0033	0.0038	0.0037
14:00-15:00 HOUR	0.0033	0.0038	0.0038
15:00-16:00 HOUR	0.0034	0.0033	0.0033
16:00-17:00 HOUR	0.0035	0.0034	0.0033
17:00-18:00 HOUR	0.0036	0.0036	0.0039
18:00-19:00 HOUR	0.0035	0.0034	0.0034
19:00-20:00 HOUR	0.0033	0.0033	0.0035
20:00-21:00 HOUR	0.0031	0.0033	0.0033
21:00-22:00 HOUR	0.0028	0.0031	0.0031
22:00-23:00 HOUR	0.0032	0.0026	0.0029
23:00-00:00 HOUR	0.0031	0.0032	0.0028
00:00-01:00 HOUR	0.0029	0.0028	0.0027
01:00-02:00 HOUR	0.0029	0.0028	0.0033
02:00-03:00 HOUR	0.0029	0.0028	0.0030
03:00-04:00 HOUR	0.0026	0.0026	0.0033
04:00-05:00 HOUR	0.0027	0.0032	0.0026
05:00-06:00 HOUR	0.0030	0.0035	0.0027
06:00-07:00 HOUR	0.0033	0.0039	0.0029
AVERAGE 24 HOUR	0.0032	0.0033	0.0033



เวลา *	RESULT (ppm)			
	SULPHUR DIOXIDE			
	LAM CHABANG PORT'S G			
	APRIL 26 - 27, 2022 T22AI184-0018	APRIL 27 - 28, 2022 T22AI184-0019	APRIL 28 - 29, 2022 T22AI184-0020	APRIL 29 - 30, 2022 T22AI184-0021
07:00-08:00 HOUR	0.0028	0.0032	0.0030	0.0036
08:00-09:00 HOUR	0.0031	0.0033	0.0033	0.0038
09:00-10:00 HOUR	0.0033	0.0038	0.0035	0.0036
10:00-11:00 HOUR	0.0035	0.0036	0.0039	0.0038
11:00-12:00 HOUR	0.0034	0.0036	0.0039	0.0035
12:00-13:00 HOUR	0.0035	0.0039	0.0035	0.0034
13:00-14:00 HOUR	0.0035	0.0038	0.0033	0.0039
14:00-15:00 HOUR	0.0039	0.0038	0.0034	0.0033
15:00-16:00 HOUR	0.0033	0.0034	0.0037	0.0035
16:00-17:00 HOUR	0.0036	0.0037	0.0038	0.0038
17:00-18:00 HOUR	0.0035	0.0036	0.0036	0.0036
18:00-19:00 HOUR	0.0036	0.0034	0.0035	0.0037
19:00-20:00 HOUR	0.0035	0.0039	0.0033	0.0039
20:00-21:00 HOUR	0.0037	0.0037	0.0032	0.0033
21:00-22:00 HOUR	0.0039	0.0036	0.0030	0.0037
22:00-23:00 HOUR	0.0036	0.0034	0.0027	0.0033
23:00-00:00 HOUR	0.0033	0.0033	0.0026	0.0032
00:00-01:00 HOUR	0.0031	0.0029	0.0026	0.0030
01:00-02:00 HOUR	0.0028	0.0026	0.0029	0.0027
02:00-03:00 HOUR	0.0030	0.0032	0.0028	0.0031
03:00-04:00 HOUR	0.0033	0.0033	0.0032	0.0031
04:00-05:00 HOUR	0.0028	0.0033	0.0034	0.0030
05:00-06:00 HOUR	0.0029	0.0026	0.0033	0.0026
06:00-07:00 HOUR	0.0031	0.0027	0.0035	0.0032
AVERAGE 24 HOUR	0.0033	0.0034	0.0033	0.0034

(MR SIDA BANJONGJAIROK)  
LABORATORY SUPERVISOR

MAY 9, 2022



## ANALYSIS REPORT

**PROJECT NAME** : ENVIRONMENTAL & SOCIOECONOMIC SURVEY  
**CUSTOMER NAME** : ESSO (THAILAND) PUBLIC COMPANY LIMITED  
**ADDRESS** : 118 MOO 2 THUNG SUKHLA SI RACHA CHON BURI 20230  
**CONTACT INFORMATION** : TEL : 08 9692 4144 e-mail : paisarn.apiwatananon@exxonmobil.com  
**SAMPLING SOURCE** : K.U.STATION  
**SAMPLE TYPE** : AMBIENT  
**SAMPLING DATE** : \*, \*\*, \*\*\*  
**SAMPLING TIME** : \*, \*\*, \*\*\*  
**SAMPLING BY** : MR SIRAPAT JONGPHADUNGKIET  
**ANALYZED BY** : MISS JETJARIN TUMSA-AT  
**RECEIVED DATE** : APRIL 30, 2022  
**ANALYTICAL DATE** : APRIL 30 - MAY 6, 2022  
**REPORT NO.** : 2022-U034096  
**WORK NO.** : 2019-002022  
**ANALYSIS NO.** : T22AI184-0022 - T22AI184-0024

PARAMETER	UNIT	METHOD OF ANALYSIS	RESULT		
			K.U.STATION		
			* T22AI184-0022	** T22AI184-0023	*** T22AI184-0024
TOTAL SUSPENDED PARTICULATE	mg/m <sup>3</sup>	GRAVIMETRIC (HIGH VOLUME METHOD)	0.049	0.054	0.048
PARTICULATE MATTER (≤ 10 μm)	mg/m <sup>3</sup>	GRAVIMETRIC (HIGH VOLUME METHOD)	0.029	0.031	0.028
<b>SAMPLE CONDITION</b>			COMPLETE	COMPLETE	COMPLETE

### REMARK

TSP, PM10 : REFERENCE CONDITION IS 25 DEGREE CELSIUS AT 1 ATMOSPHERE.  
TSP : US EPA, CODE OF FEDERAL REGULATION SEARCH RESULTS, 40 CFR-CHAPTER I PART 50, APPENDIX B.  
PM10 : US EPA, CODE OF FEDERAL REGULATION SEARCH RESULTS, 40 CFR-CHAPTER I PART 50, APPENDIX J.  
\* : SAMPLING FROM 10:00 HOUR ON APRIL 23, 2022 TO 10:00 HOUR ON APRIL 24, 2022.  
\*\* : SAMPLING FROM 10:00 HOUR ON APRIL 24, 2022 TO 10:00 HOUR ON APRIL 25, 2022.  
\*\*\* : SAMPLING FROM 10:00 HOUR ON APRIL 25, 2022 TO 10:00 HOUR ON APRIL 26, 2022.

.....  
(MRS PIRAPAT SUTTHAMONGKOLWONG)  
LABORATORY SUPERVISOR

MAY 13, 2022



## ANALYSIS REPORT

**PROJECT NAME** : ENVIRONMENTAL & SOCIOECONOMIC SURVEY  
**CUSTOMER NAME** : ESSO (THAILAND) PUBLIC COMPANY LIMITED  
**ADDRESS** : 118 MOO 2 THUNG SUKHLA SI RACHA CHON BURI 20230  
**CONTACT INFORMATION** : TEL : 08 9692 4144 e-mail : paisarn.apiwatananon@exxonmobil.com  
**SAMPLING SOURCE** : K.U.STATION  
**SAMPLE TYPE** : AMBIENT  
**SAMPLING DATE** : \*, \*\*, \*\*\*, \*\*\*\*  
**SAMPLING TIME** : \*, \*\*, \*\*\*, \*\*\*\*  
**SAMPLING BY** : MR SIRAPAT JONGPHADUNGKIET  
**ANALYZED BY** : MISS JETJARIN TUMSA-AT

**RECEIVED DATE** : APRIL 30, 2022  
**ANALYTICAL DATE** : APRIL 30 - MAY 6, 2022  
**REPORT NO.** : 2022-U034098  
**WORK NO.** : 2019-002022  
**ANALYSIS NO.** : T22AI184-0025 - T22AI184-0028

PARAMETER	UNIT	METHOD OF ANALYSIS	RESULT			
			K.U.STATION			
			* T22AI184-0025	** T22AI184-0026	*** T22AI184-0027	**** T22AI184-0028
TOTAL SUSPENDED PARTICULATE	mg/m <sup>3</sup>	GRAVIMETRIC (HIGH VOLUME METHOD)	0.052	0.060	0.052	0.043
PARTICULATE MATTER ( $\leq 10 \mu\text{m}$ )	mg/m <sup>3</sup>	GRAVIMETRIC (HIGH VOLUME METHOD)	0.026	0.030	0.021	0.025
<b>SAMPLE CONDITION</b>			COMPLETE	COMPLETE	COMPLETE	COMPLETE

### REMARK

TSP, PM10 : REFERENCE CONDITION IS 25 DEGREE CELSIUS AT 1 ATMOSPHERE.  
TSP : US EPA, CODE OF FEDERAL REGULATION SEARCH RESULTS, 40 CFR-CHAPTER I PART 50, APPENDIX B.  
PM10 : US EPA, CODE OF FEDERAL REGULATION SEARCH RESULTS, 40 CFR-CHAPTER I PART 50, APPENDIX J.  
\* : SAMPLING FROM 10:00 HOUR ON APRIL 26, 2022 TO 10:00 HOUR ON APRIL 27, 2022.  
\*\* : SAMPLING FROM 10:00 HOUR ON APRIL 27, 2022 TO 10:00 HOUR ON APRIL 28, 2022.  
\*\*\* : SAMPLING FROM 10:00 HOUR ON APRIL 28, 2022 TO 10:00 HOUR ON APRIL 29, 2022.  
\*\*\*\* : SAMPLING FROM 10:00 HOUR ON APRIL 29, 2022 TO 10:00 HOUR ON APRIL 30, 2022.

(MRS PIYAPAT SUTTAMANOTWONG)  
LABORATORY SUPERVISOR

MAY 13, 2022





## ANALYSIS REPORT

**CUSTOMER NAME** : ESSO (THAILAND) PUBLIC COMPANY LIMITED  
**ADDRESS** : 118 MOO 2 THUNG SUKHLA SI RACHA CHON BURI 20230  
**CONTACT INFORMATION** : TEL : 08 9692 4144 e-mail : paisarn.apiwatananon@exxonmobil.com  
**MEASURING PLACE** : K.U.STATION  
**MEASURING TYPE** : AMBIENT (AIR) **RECEIVED DATE** : APRIL 23-30, 2022  
**MEASURING DATE** : APRIL 23-30, 2022 **ANALYTICAL DATE** : APRIL 23-30, 2022  
**MEASURING TIME** : 10:0 \* **REPORT NO.** : 2022-U033186  
**MEASURING METHOD** : CHEMILUMINESCENCE **WORK NO.** : 2019-002022  
**MEASURED BY** : MR SIRAPAT JONGPHADUNGKIET **ANALYSIS NO.** : T22AI184-0022 - T22AI184-0028

TIME *	RESULT (ppm)		
	NITROGEN DIOXIDE		
	K.U.STATION		
	APRIL 23 - 24, 2022 T22AI184-0022	APRIL 24 - 25, 2022 T22AI184-0023	APRIL 25 - 26, 2022 T22AI184-0024
07:00-08:00 HOUR	0.0285	0.0255	0.0219
08:00-09:00 HOUR	0.0244	0.0267	0.0230
09:00-10:00 HOUR	0.0253	0.0274	0.0241
10:00-11:00 HOUR	0.0283	0.0278	0.0256
11:00-12:00 HOUR	0.0259	0.0274	0.0241
12:00-13:00 HOUR	0.0286	0.0269	0.0246
13:00-14:00 HOUR	0.0273	0.0256	0.0283
14:00-15:00 HOUR	0.0251	0.0254	0.0264
15:00-16:00 HOUR	0.0235	0.0268	0.0251
16:00-17:00 HOUR	0.0255	0.0286	0.0264
17:00-18:00 HOUR	0.0275	0.0281	0.0244
18:00-19:00 HOUR	0.0235	0.0267	0.0242
19:00-20:00 HOUR	0.0283	0.0256	0.0248
20:00-21:00 HOUR	0.0270	0.0257	0.0246
21:00-22:00 HOUR	0.0255	0.0240	0.0256
22:00-23:00 HOUR	0.0228	0.0236	0.0261
23:00-00:00 HOUR	0.0204	0.0238	0.0199
00:00-01:00 HOUR	0.0208	0.0244	0.0225
01:00-02:00 HOUR	0.0243	0.0211	0.0206
02:00-03:00 HOUR	0.0251	0.0226	0.0260
03:00-04:00 HOUR	0.0241	0.0252	0.0199
04:00-05:00 HOUR	0.0240	0.0194	0.0235
05:00-06:00 HOUR	0.0223	0.0210	0.0233
06:00-07:00 HOUR	0.0245	0.0214	0.0253



TIME *	RESULT (ppm)			
	NITROGEN DIOXIDE			
	K.U.STATION			
	APRIL 26 - 27, 2022 T22AI184-0025	APRIL 27 - 28, 2022 T22AI184-0026	APRIL 28 - 29, 2022 T22AI184-0027	APRIL 29 - 30, 2022 T22AI184-0028
07:00-08:00 HOUR	0.0266	0.0264	0.0256	0.0267
08:00-09:00 HOUR	0.0278	0.0281	0.0266	0.0276
09:00-10:00 HOUR	0.0271	0.0288	0.0266	0.0268
10:00-11:00 HOUR	0.0286	0.0283	0.0275	0.0267
11:00-12:00 HOUR	0.0257	0.0278	0.0277	0.0281
12:00-13:00 HOUR	0.0243	0.0268	0.0275	0.0253
13:00-14:00 HOUR	0.0253	0.0272	0.0275	0.0257
14:00-15:00 HOUR	0.0242	0.0264	0.0273	0.0259
15:00-16:00 HOUR	0.0291	0.0264	0.0272	0.0276
16:00-17:00 HOUR	0.0255	0.0259	0.0267	0.0287
17:00-18:00 HOUR	0.0256	0.0284	0.0257	0.0279
18:00-19:00 HOUR	0.0250	0.0260	0.0242	0.0262
19:00-20:00 HOUR	0.0274	0.0249	0.0234	0.0263
20:00-21:00 HOUR	0.0275	0.0208	0.0215	0.0240
21:00-22:00 HOUR	0.0223	0.0259	0.0211	0.0229
22:00-23:00 HOUR	0.0208	0.0184	0.0199	0.0212
23:00-00:00 HOUR	0.0219	0.0198	0.0190	0.0213
00:00-01:00 HOUR	0.0209	0.0186	0.0240	0.0215
01:00-02:00 HOUR	0.0213	0.0218	0.0235	0.0205
02:00-03:00 HOUR	0.0246	0.0204	0.0229	0.0197
03:00-04:00 HOUR	0.0241	0.0235	0.0192	0.0215
04:00-05:00 HOUR	0.0217	0.0246	0.0199	0.0228
05:00-06:00 HOUR	0.0250	0.0244	0.0216	0.0237
06:00-07:00 HOUR	0.0259	0.0243	0.0255	0.0253

(MR. JET BANGKONGKARN)  
LABORATORY SUPERVISOR

MAY 9, 2022

## ANALYSIS REPORT

**CUSTOMER NAME** : ESSO (THAILAND) PUBLIC COMPANY LIMITED  
**ADDRESS** : 118 MOO 2 THUNG SUKHLA SI RACHA CHON BURI 20230  
**CONTACT INFORMATION** : TEL : 08 9692 4144 e-mail : paisarn.apiwatananon@exxonmobil.com  
**MEASURING PLACE** : K.U.STATION  
**MEASURING TYPE** : AMBIENT (AIR) **RECEIVED DATE** : APRIL 23-30, 2022  
**MEASURING DATE** : APRIL 23-30, 2022 **ANALYTICAL DATE** : APRIL 23-30, 2022  
**MEASURING TIME** : \* **REPORT NO.** : 2022-U033190  
**MEASURING METHOD** : UV FLUORESCENCE **WORK NO.** : 2019-002022  
**MEASURED BY** : MR SIRAPAT JONGPHADUNGKIET **ANALYSIS NO.** : T22AI184-0022 - T22AI184-0028

เวลา *	RESULT (ppm)		
	SULPHUR DIOXIDE		
	K.U.STATION		
	APRIL 23 - 24, 2022 T22AI184-0022	APRIL 24 - 25, 2022 T22AI184-0023	APRIL 25 - 26, 2022 T22AI184-0024
07:00-08:00 HOUR	0.0036	0.0034	0.0032
08:00-09:00 HOUR	0.0032	0.0032	0.0034
09:00-10:00 HOUR	0.0038	0.0034	0.0032
10:00-11:00 HOUR	0.0036	0.0033	0.0035
11:00-12:00 HOUR	0.0036	0.0034	0.0036
12:00-13:00 HOUR	0.0032	0.0038	0.0036
13:00-14:00 HOUR	0.0035	0.0034	0.0038
14:00-15:00 HOUR	0.0036	0.0037	0.0034
15:00-16:00 HOUR	0.0034	0.0038	0.0032
16:00-17:00 HOUR	0.0032	0.0032	0.0038
17:00-18:00 HOUR	0.0030	0.0032	0.0038
18:00-19:00 HOUR	0.0028	0.0037	0.0037
19:00-20:00 HOUR	0.0026	0.0033	0.0033
20:00-21:00 HOUR	0.0028	0.0029	0.0031
21:00-22:00 HOUR	0.0028	0.0027	0.0028
22:00-23:00 HOUR	0.0030	0.0031	0.0026
23:00-00:00 HOUR	0.0027	0.0029	0.0026
00:00-01:00 HOUR	0.0029	0.0028	0.0030
01:00-02:00 HOUR	0.0027	0.0026	0.0026
02:00-03:00 HOUR	0.0026	0.0028	0.0029
03:00-04:00 HOUR	0.0029	0.0027	0.0028
04:00-05:00 HOUR	0.0026	0.0027	0.0029
05:00-06:00 HOUR	0.0031	0.0028	0.0031
06:00-07:00 HOUR	0.0034	0.0030	0.0034
AVERAGE 24 HOUR	0.0031	0.0032	0.0032



เวลา *	RESULT (ppm)			
	SULPHUR DIOXIDE			
	K.U.STATION			
	APRIL 26 - 27, 2022 T22AI184-0025	APRIL 27 - 28, 2022 T22AI184-0026	APRIL 28 - 29, 2022 T22AI184-0027	APRIL 29 - 30, 2022 T22AI184-0028
07:00-08:00 HOUR	0.0035	0.0032	0.0035	0.0033
08:00-09:00 HOUR	0.0033	0.0037	0.0035	0.0036
09:00-10:00 HOUR	0.0038	0.0033	0.0033	0.0035
10:00-11:00 HOUR	0.0034	0.0032	0.0036	0.0034
11:00-12:00 HOUR	0.0035	0.0033	0.0032	0.0036
12:00-13:00 HOUR	0.0033	0.0037	0.0032	0.0038
13:00-14:00 HOUR	0.0037	0.0038	0.0032	0.0033
14:00-15:00 HOUR	0.0036	0.0035	0.0038	0.0035
15:00-16:00 HOUR	0.0037	0.0035	0.0036	0.0032
16:00-17:00 HOUR	0.0035	0.0032	0.0038	0.0034
17:00-18:00 HOUR	0.0032	0.0034	0.0036	0.0032
18:00-19:00 HOUR	0.0033	0.0032	0.0036	0.0032
19:00-20:00 HOUR	0.0035	0.0029	0.0035	0.0035
20:00-21:00 HOUR	0.0033	0.0028	0.0033	0.0033
21:00-22:00 HOUR	0.0031	0.0031	0.0031	0.0032
22:00-23:00 HOUR	0.0028	0.0026	0.0027	0.0029
23:00-00:00 HOUR	0.0027	0.0026	0.0028	0.0028
00:00-01:00 HOUR	0.0030	0.0027	0.0026	0.0030
01:00-02:00 HOUR	0.0029	0.0031	0.0029	0.0026
02:00-03:00 HOUR	0.0026	0.0026	0.0030	0.0030
03:00-04:00 HOUR	0.0026	0.0027	0.0026	0.0026
04:00-05:00 HOUR	0.0031	0.0031	0.0031	0.0028
05:00-06:00 HOUR	0.0026	0.0033	0.0030	0.0029
06:00-07:00 HOUR	0.0030	0.0034	0.0032	0.0032
AVERAGE 24 HOUR	0.0032	0.0032	0.0032	0.0032

(MR. SIDA BANONGSAKORN)  
LABORATORY SUPERVISOR

MAY 9, 2022

## ANALYSIS REPORT

**PROJECT NAME** : ENVIRONMENTAL & SOCIOECONOMIC SURVEY  
**CUSTOMER NAME** : ESSO (THAILAND) PUBLIC COMPANY LIMITED  
**ADDRESS** : 118 MOO 2 THUNG SUKHLA SI RACHA CHON BURI 20230  
**CONTACT INFORMATION** : TEL : 08 9692 4144 e-mail : paisarn.apiwatananon@exxonmobil.com  
**SAMPLING SOURCE** : REFINERY GATE  
**SAMPLE TYPE** : AMBIENT  
**SAMPLING DATE** : \*, \*\*, \*\*\*  
**SAMPLING TIME** : \*, \*\*, \*\*\*  
**SAMPLING BY** : MR SIRAPAT JONGPHADUNGKIET  
**ANALYZED BY** : MISS JETJARIN TUMSA-AT

**RECEIVED DATE** : APRIL 30, 2022  
**ANALYTICAL DATE** : APRIL 30 - MAY 6, 2022  
**REPORT NO.** : 2022-U034084  
**WORK NO.** : 2019-002022  
**ANALYSIS NO.** : T22AI184-0001 - T22AI184-0003

PARAMETER	UNIT	METHOD OF ANALYSIS	RESULT		
			REFINERY GATE		
			* T22AI184-0001	** T22AI184-0002	*** T22AI184-0003
TOTAL SUSPENDED PARTICULATE	mg/m <sup>3</sup>	GRAVIMETRIC (HIGH VOLUME METHOD)	0.072	0.099	0.099
PARTICULATE MATTER (≤ 10 µm)	mg/m <sup>3</sup>	GRAVIMETRIC (HIGH VOLUME METHOD)	0.042	0.048	0.053
<b>SAMPLE CONDITION</b>			COMPLETE	COMPLETE	COMPLETE

### REMARK

TSP, PM10 : REFERENCE CONDITION IS 25 DEGREE CELSIUS AT 1 ATMOSPHERE.  
TSP : US EPA, CODE OF FEDERAL REGULATION SEARCH RESULTS, 40 CFR-CHAPTER I PART 50, APPENDIX B.  
PM10 : US EPA, CODE OF FEDERAL REGULATION SEARCH RESULTS, 40 CFR-CHAPTER I PART 50, APPENDIX J.  
\* : SAMPLING FROM 08:30 HOUR ON APRIL 23, 2022 TO 08:30 HOUR ON APRIL 24, 2022.  
\*\* : SAMPLING FROM 08:30 HOUR ON APRIL 24, 2022 TO 08:30 HOUR ON APRIL 25, 2022.  
\*\*\* : SAMPLING FROM 08:30 HOUR ON APRIL 25, 2022 TO 08:30 HOUR ON APRIL 26, 2022.

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

MAY 13, 2022



## ANALYSIS REPORT

**PROJECT NAME** : ENVIRONMENTAL & SOCIOECONOMIC SURVEY  
**CUSTOMER NAME** : ESSO (THAILAND) PUBLIC COMPANY LIMITED  
**ADDRESS** : 118 MOO 2 THUNG SUKHLA SI RACHA CHON BURI 20230  
**CONTACT INFORMATION** : TEL : 08 9692 4144 e-mail : paisarn.apiwatananon@exxonmobil.com  
**SAMPLING SOURCE** : REFINERY GATE  
**SAMPLE TYPE** : AMBIENT  
**SAMPLING DATE** : \*, \*\*, \*\*\*, \*\*\*\*  
**SAMPLING TIME** : \*, \*\*, \*\*\*, \*\*\*\*  
**SAMPLING BY** : MR SIRAPAT JONGPHADUNGKIET  
**ANALYZED BY** : MISS JETJARIN TUMSA-AT

**RECEIVED DATE** : APRIL 30, 2022  
**ANALYTICAL DATE** : APRIL 30 - MAY 6, 2022  
**REPORT NO.** : 2022-U034086  
**WORK NO.** : 2019-002022  
**ANALYSIS NO.** : T22AI184-0004 - T22AI184-0007

PARAMETER	UNIT	METHOD OF ANALYSIS	RESULT			
			REFINERY GATE			
			*	**	***	****
			T22AI184-0004	T22AI184-0005	T22AI184-0006	T22AI184-0007
TOTAL SUSPENDED PARTICULATE	mg/m <sup>3</sup>	GRAVIMETRIC (HIGH VOLUME METHOD)	0.111	0.086	0.072	0.102
PARTICULATE MATTER (≤ 10 μm)	mg/m <sup>3</sup>	GRAVIMETRIC (HIGH VOLUME METHOD)	0.061	0.054	0.044	0.072
<b>SAMPLE CONDITION</b>			COMPLETE	COMPLETE	COMPLETE	COMPLETE

### REMARK

TSP, PM10 : REFERENCE CONDITION IS 25 DEGREE CELSIUS AT 1 ATMOSPHERE.  
TSP : US EPA, CODE OF FEDERAL REGULATION SEARCH RESULTS, 40 CFR-CHAPTER I PART 50, APPENDIX B.  
PM10 : US EPA, CODE OF FEDERAL REGULATION SEARCH RESULTS, 40 CFR-CHAPTER I PART 50, APPENDIX J.  
\* : SAMPLING FROM 08:30 HOUR ON APRIL 26, 2022 TO 08:30 HOUR ON APRIL 27, 2022.  
\*\* : SAMPLING FROM 08:30 HOUR ON APRIL 27, 2022 TO 08:30 HOUR ON APRIL 28, 2022.  
\*\*\* : SAMPLING FROM 08:30 HOUR ON APRIL 28, 2022 TO 08:30 HOUR ON APRIL 29, 2022.  
\*\*\*\* : SAMPLING FROM 08:30 HOUR ON APRIL 29, 2022 TO 08:30 HOUR ON APRIL 30, 2022.

(MRS PIYAPAT SUTTAMANUTWONG)  
LABORATORY SUPERVISOR

MAY 13, 2022





## ANALYSIS REPORT

**CUSTOMER NAME** : ESSO (THAILAND) PUBLIC COMPANY LIMITED  
**ADDRESS** : 118 MOO 2 THUNG SUKHLA SI RACHA CHON BURI 20230  
**CONTACT INFORMATION** : TEL : 08 9692 4144 e-mail : paisarn.apiwatananon@exxonmobil.com  
**MEASURING PLACE** : REFINERY GATE  
**MEASURING TYPE** : AMBIENT (AIR) **RECEIVED DATE** : APRIL 23-30, 2022  
**MEASURING DATE** : APRIL 23-30, 2022 **ANALYTICAL DATE** : APRIL 23-30, 2022  
**MEASURING TIME** : \* **REPORT NO.** : 2022-U033183  
**MEASURING METHOD** : CHEMILUMINESCENCE **WORK NO.** : 2019-002022  
**MEASURED BY** : MR SIRAPAT JONGPHADUNGKIET **ANALYSIS NO.** : T22AI184-0001 - T22AI184-0007

TIME *	RESULT (ppm)		
	NITROGEN DIOXIDE		
	REFINERY GATE		
	APRIL 23 - 24, 2022 T22AI184-0001	APRIL 24 - 25, 2022 T22AI184-0002	APRIL 25 - 26, 2022 T22AI184-0003
07:00-08:00 HOUR	0.0287	0.0278	0.0274
08:00-09:00 HOUR	0.0304	0.0289	0.0294
09:00-10:00 HOUR	0.0297	0.0290	0.0268
10:00-11:00 HOUR	0.0294	0.0269	0.0257
11:00-12:00 HOUR	0.0295	0.0267	0.0290
12:00-13:00 HOUR	0.0281	0.0262	0.0290
13:00-14:00 HOUR	0.0283	0.0276	0.0311
14:00-15:00 HOUR	0.0280	0.0281	0.0295
15:00-16:00 HOUR	0.0269	0.0258	0.0304
16:00-17:00 HOUR	0.0279	0.0265	0.0276
17:00-18:00 HOUR	0.0277	0.0265	0.0291
18:00-19:00 HOUR	0.0280	0.0263	0.0279
19:00-20:00 HOUR	0.0276	0.0266	0.0276
20:00-21:00 HOUR	0.0258	0.0256	0.0267
21:00-22:00 HOUR	0.0248	0.0252	0.0255
22:00-23:00 HOUR	0.0229	0.0241	0.0259
23:00-00:00 HOUR	0.0228	0.0228	0.0244
00:00-01:00 HOUR	0.0224	0.0230	0.0245
01:00-02:00 HOUR	0.0246	0.0224	0.0234
02:00-03:00 HOUR	0.0233	0.0217	0.0217
03:00-04:00 HOUR	0.0240	0.0218	0.0244
04:00-05:00 HOUR	0.0252	0.0228	0.0256
05:00-06:00 HOUR	0.0266	0.0245	0.0266
06:00-07:00 HOUR	0.0267	0.0269	0.0263



TIME *	RESULT (ppm)			
	NITROGEN DIOXIDE			
	REFINERY GATE			
	APRIL 26 - 27, 2022 T22AI184-0004	APRIL 27 - 28, 2022 T22AI184-0005	APRIL 28 - 29, 2022 T22AI184-0006	APRIL 29 - 30, 2022 T22AI184-0007
07:00-08:00 HOUR	0.0276	0.0274	0.0276	0.0269
08:00-09:00 HOUR	0.0282	0.0286	0.0281	0.0287
09:00-10:00 HOUR	0.0293	0.0291	0.0288	0.0296
10:00-11:00 HOUR	0.0309	0.0280	0.0269	0.0276
11:00-12:00 HOUR	0.0302	0.0302	0.0305	0.0288
12:00-13:00 HOUR	0.0291	0.0290	0.0291	0.0290
13:00-14:00 HOUR	0.0274	0.0281	0.0297	0.0283
14:00-15:00 HOUR	0.0281	0.0276	0.0299	0.0266
15:00-16:00 HOUR	0.0295	0.0290	0.0289	0.0264
16:00-17:00 HOUR	0.0271	0.0287	0.0294	0.0303
17:00-18:00 HOUR	0.0285	0.0280	0.0284	0.0286
18:00-19:00 HOUR	0.0267	0.0276	0.0280	0.0288
19:00-20:00 HOUR	0.0263	0.0277	0.0271	0.0293
20:00-21:00 HOUR	0.0256	0.0264	0.0272	0.0270
21:00-22:00 HOUR	0.0254	0.0261	0.0247	0.0255
22:00-23:00 HOUR	0.0264	0.0230	0.0258	0.0258
23:00-00:00 HOUR	0.0257	0.0234	0.0246	0.0252
00:00-01:00 HOUR	0.0238	0.0239	0.0249	0.0246
01:00-02:00 HOUR	0.0234	0.0223	0.0259	0.0232
02:00-03:00 HOUR	0.0228	0.0215	0.0242	0.0217
03:00-04:00 HOUR	0.0234	0.0213	0.0268	0.0240
04:00-05:00 HOUR	0.0244	0.0251	0.0228	0.0250
05:00-06:00 HOUR	0.0254	0.0253	0.0259	0.0262
06:00-07:00 HOUR	0.0259	0.0255	0.0261	0.0275

LABORATORY SUPERVISOR

MAY 9, 2022



## ANALYSIS REPORT

**CUSTOMER NAME** : ESSO (THAILAND) PUBLIC COMPANY LIMITED  
**ADDRESS** : 118 MOO 2 THUNG SUKHLA SI RACHA CHON BURI 20230  
**CONTACT INFORMATION** : TEL : 08 9692 4144 e-mail : paisarn.apiwatananon@exxonmobil.com  
**MEASURING PLACE** : REFINERY GATE  
**MEASURING TYPE** : AMBIENT (AIR) **RECEIVED DATE** : APRIL 23-30, 2022  
**MEASURING DATE** : APRIL 23-30, 2022 **ANALYTICAL DATE** : APRIL 23-30, 2022  
**MEASURING TIME** : 08:30 \* **REPORT NO.** : 2022-U033187  
**MEASURING METHOD** : UV FLUORESCENCE **WORK NO.** : 2019-002022  
**MEASURED BY** : MR SIRAPAT JONGPHADUNGKIET **ANALYSIS NO.** : T22AI184-0001 - T22AI184-0007

เวลา *	RESULT (ppm)		
	SULPHUR DIOXIDE		
	REFINERY GATE		
	APRIL 23 - 24, 2022 T22AI184-0001	APRIL 24 - 25, 2022 T22AI184-0002	APRIL 25 - 26, 2022 T22AI184-0003
07:00-08:00 HOUR	0.0043	0.0041	0.0042
08:00-09:00 HOUR	0.0044	0.0042	0.0045
09:00-10:00 HOUR	0.0042	0.0043	0.0043
10:00-11:00 HOUR	0.0044	0.0041	0.0045
11:00-12:00 HOUR	0.0044	0.0042	0.0046
12:00-13:00 HOUR	0.0042	0.0045	0.0042
13:00-14:00 HOUR	0.0043	0.0042	0.0045
14:00-15:00 HOUR	0.0043	0.0045	0.0044
15:00-16:00 HOUR	0.0045	0.0043	0.0046
16:00-17:00 HOUR	0.0044	0.0043	0.0047
17:00-18:00 HOUR	0.0042	0.0042	0.0045
18:00-19:00 HOUR	0.0041	0.0045	0.0043
19:00-20:00 HOUR	0.0037	0.0042	0.0041
20:00-21:00 HOUR	0.0038	0.0042	0.0038
21:00-22:00 HOUR	0.0035	0.0041	0.0035
22:00-23:00 HOUR	0.0032	0.0040	0.0035
23:00-00:00 HOUR	0.0037	0.0038	0.0034
00:00-01:00 HOUR	0.0038	0.0034	0.0032
01:00-02:00 HOUR	0.0035	0.0036	0.0033
02:00-03:00 HOUR	0.0034	0.0036	0.0038
03:00-04:00 HOUR	0.0032	0.0034	0.0035
04:00-05:00 HOUR	0.0035	0.0033	0.0033
05:00-06:00 HOUR	0.0037	0.0038	0.0037
06:00-07:00 HOUR	0.0039	0.0041	0.0039
AVERAGE 24 HOUR	0.0039	0.0040	0.0040



เวลา *	RESULT (ppm)			
	SULPHUR DIOXIDE			
	REFINERY GATE			
	APRIL 26 - 27, 2022 T22AI184-0004	APRIL 27 - 28, 2022 T22AI184-0005	APRIL 28 - 29, 2022 T22AI184-0006	APRIL 29 - 30, 2022 T22AI184-0007
07:00-08:00 HOUR	0.0040	0.0041	0.0039	0.0041
08:00-09:00 HOUR	0.0041	0.0042	0.0040	0.0042
09:00-10:00 HOUR	0.0042	0.0043	0.0042	0.0043
10:00-11:00 HOUR	0.0045	0.0043	0.0044	0.0042
11:00-12:00 HOUR	0.0046	0.0042	0.0045	0.0041
12:00-13:00 HOUR	0.0044	0.0043	0.0041	0.0041
13:00-14:00 HOUR	0.0045	0.0041	0.0041	0.0042
14:00-15:00 HOUR	0.0043	0.0045	0.0043	0.0043
15:00-16:00 HOUR	0.0042	0.0045	0.0042	0.0044
16:00-17:00 HOUR	0.0044	0.0043	0.0041	0.0044
17:00-18:00 HOUR	0.0045	0.0044	0.0042	0.0043
18:00-19:00 HOUR	0.0043	0.0044	0.0045	0.0045
19:00-20:00 HOUR	0.0041	0.0042	0.0044	0.0041
20:00-21:00 HOUR	0.0043	0.0045	0.0041	0.0041
21:00-22:00 HOUR	0.0041	0.0042	0.0040	0.0039
22:00-23:00 HOUR	0.0039	0.0037	0.0039	0.0038
23:00-00:00 HOUR	0.0038	0.0038	0.0037	0.0036
00:00-01:00 HOUR	0.0036	0.0033	0.0035	0.0035
01:00-02:00 HOUR	0.0035	0.0037	0.0038	0.0032
02:00-03:00 HOUR	0.0035	0.0037	0.0033	0.0037
03:00-04:00 HOUR	0.0034	0.0036	0.0036	0.0038
04:00-05:00 HOUR	0.0032	0.0034	0.0037	0.0042
05:00-06:00 HOUR	0.0035	0.0033	0.0038	0.0041
06:00-07:00 HOUR	0.0038	0.0036	0.0040	0.0042
AVERAGE 24 HOUR	0.0040	0.0040	0.0040	0.0041

LABORATORY SUPERVISOR

MAY 9, 2022

ทิศทางและความเร็วลม

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## ANALYSIS REPORT

**CUSTOMER NAME** : ESSO (THAILAND) PUBLIC COMPANY LIMITED  
**ADDRESS** : 118 MOO 2 THUNG SUKHLA SI RACHA CHON BURI 20230  
**CONTACT INFORMATION** : TEL : 08 9692 4144 e-mail : paisarn.apiwatananon@exxonmobil.com  
**MEASURING PLACE** : BAN AO UDOM  
**MEASURING TYPE** : AMBIENT (AIR) **RECEIVED DATE** : APRIL 23-30, 2022  
**MEASURING DATE** : APRIL 23-30, 2022 **ANALYTICAL DATE** : APRIL 23-30, 2022  
**MEASURING TIME** : \* **REPORT NO.** : 2022-U033180  
**MEASURING METHOD** : WIND SPEED & WIND DIRECTION EQUIPMENT **WORK NO.** : 2019-002022  
**MEASURED BY** : MR SIRAPAT JONGPHADUNGKIET **ANALYSIS NO.** : T22AI184-0008 - T22AI184-0014

TIME *	RESULT (m/s)					
	BAN AO UDOM					
	APRIL 23 - 24, 2022 T22AI184-0008		APRIL 24 - 25, 2022 T22AI184-0009		APRIL 25 - 26, 2022 T22AI184-0010	
	WIND SPEED	WIND DIRECTION	WIND SPEED	WIND DIRECTION	WIND SPEED	WIND DIRECTION
07:00-08:00 HOUR	1.9	W	1.4	SW	3.0	WSW
08:00-09:00 HOUR	2.6	W	0.3	WSW	2.4	W
09:00-10:00 HOUR	2.9	WNW	2.7	W	2.8	W
10:00-11:00 HOUR	2.4	WNW	1.8	WSW	1.8	WNW
11:00-12:00 HOUR	2.1	SW	1.4	WSW	2.3	W
12:00-13:00 HOUR	1.5	WSW	0.9	W	2.5	WNW
13:00-14:00 HOUR	1.8	WSW	0.4	SSW	2.7	WNW
14:00-15:00 HOUR	2.2	WSW	1.2	WSW	3.0	WSW
15:00-16:00 HOUR	0.5	SW	1.4	W	3.1	WSW
16:00-17:00 HOUR	0.4	WSW	3.2	W	2.8	WSW
17:00-18:00 HOUR	0.8	W	1.7	SSW	2.5	SW
18:00-19:00 HOUR	2.3	W	2.5	W	2.9	WSW
19:00-20:00 HOUR	1.9	WSW	2.9	WNW	2.4	SW
20:00-21:00 HOUR	1.1	WSW	3.1	W	1.9	SSW
21:00-22:00 HOUR	2.5	SW	3.3	W	1.6	WNW
22:00-23:00 HOUR	2.7	WNW	2.6	SW	1.3	W
23:00-00:00 HOUR	2.5	WSW	2.4	SW	3.0	WSW
00:00-01:00 HOUR	2.3	W	2.2	W	3.1	SSW
01:00-02:00 HOUR	1.4	WSW	0.5	SW	3.2	WNW
02:00-03:00 HOUR	0.6	WNW	0.7	WSW	2.1	WSW
03:00-04:00 HOUR	0.3	SW	1.1	SSW	2.8	SW
04:00-05:00 HOUR	0.8	WNW	1.4	WNW	1.3	WNW
05:00-06:00 HOUR	0.7	WSW	2.3	WNW	1.8	W
06:00-07:00 HOUR	1.1	WSW	2.8	W	1.1	WNW



TIME *	RESULT (m/s)							
	BAN AO UDOM							
	APRIL 26 - 27, 2022		APRIL 27 - 28, 2022		APRIL 28 - 29, 2022		APRIL 29 - 30, 2022	
	T22AI184-0011		T22AI184-0012		T22AI184-0013		T22AI184-0014	
	WIND SPEED	WIND DIRECTION	WIND SPEED	WIND DIRECTION	WIND SPEED	WIND DIRECTION	WIND SPEED	WIND DIRECTION
07:00-08:00 HOUR	2.1	WNW	2.1	WSW	2.2	WSW	0.9	SE
08:00-09:00 HOUR	3.0	WNW	1.6	SW	2.7	W	2.4	ESE
09:00-10:00 HOUR	3.1	WSW	1.2	W	3.3	SW	0.6	S
10:00-11:00 HOUR	2.5	WNW	0.4	SW	3.4	SSW	0.3	S
11:00-12:00 HOUR	2.4	SW	0.6	W	2.6	SSW	2.9	SSW
12:00-13:00 HOUR	2.7	WSW	2.3	SSW	0.6	S	1.0	SW
13:00-14:00 HOUR	1.1	SSW	2.2	W	0.9	SSE	0.6	SW
14:00-15:00 HOUR	2.0	SW	1.3	SW	1.4	ESE	0.3	W
15:00-16:00 HOUR	1.6	SSW	2.8	W	2.5	ESE	2.7	WNW
16:00-17:00 HOUR	2.2	SSW	1.1	W	0.8	SE	3.3	NW
17:00-18:00 HOUR	1.5	W	2.1	WSW	2.1	ESE	2.8	NNW
18:00-19:00 HOUR	3.1	SW	1.0	SSW	2.5	S	3.1	NNW
19:00-20:00 HOUR	3.0	WSW	0.3	SSW	3.1	SE	1.3	NNW
20:00-21:00 HOUR	3.3	SSW	1.1	W	1.9	SE	1.4	NW
21:00-22:00 HOUR	2.4	W	1.9	WSW	1.2	SE	1.6	NNW
22:00-23:00 HOUR	2.1	SW	2.4	WSW	0.9	SSE	2.9	WNW
23:00-00:00 HOUR	1.8	W	1.7	SSW	0.8	S	1.8	NW
00:00-01:00 HOUR	1.4	SW	0.4	WNW	1.8	SSE	1.2	N
01:00-02:00 HOUR	1.3	SW	0.3	W	2.3	SE	1.6	NNW
02:00-03:00 HOUR	0.5	W	0.6	W	2.3	SSE	1.3	NNW
03:00-04:00 HOUR	0.7	WSW	0.7	WSW	1.1	S	0.4	NNW
04:00-05:00 HOUR	0.3	W	0.9	WSW	2.1	SSE	0.8	NNW
05:00-06:00 HOUR	1.5	WSW	1.6	WNW	2.3	S	1.7	NW
06:00-07:00 HOUR	1.4	WSW	1.8	W	1.8	S	0.7	NW

LABORATORY SUPERVISOR

MAY 9, 2022

## ANALYSIS REPORT

<b>CUSTOMER NAME</b>	: ESSO (THAILAND) PUBLIC COMPANY LIMITED	<b>RECEIVED DATE</b>	: APRIL 23-30, 2022
<b>ADDRESS</b>	: 118 MOO 2 THUNG SUKHLA SI RACHA CHON BURI 20230	<b>ANALYTICAL DATE</b>	: APRIL 23-30, 2022
<b>CONTACT INFORMATION</b>	: TEL : 08 9692 4144 e-mail : paisarn.apiwatananon@exxonmobil.com	<b>REPORT NO.</b>	: 2022-U033181
<b>MEASURING PLACE</b>	: LAM CHABANG PORT'S G	<b>WORK NO.</b>	: 2019-002022
<b>MEASURING TYPE</b>	: AMBIENT (AIR)	<b>ANALYSIS NO.</b>	: T22AI184-0015 - T22AI184-0021
<b>MEASURING DATE</b>	: APRIL 23-30, 2022		
<b>MEASURING TIME</b>	: *		
<b>MEASURING METHOD</b>	: WIND SPEED & WIND DIRECTION EQUIPMENT		
<b>MEASURED BY</b>	: MR SIRAPAT JONGPHADUNGKIET		

TIME *	RESULT (m/s)					
	LAM CHABANG PORT'S G					
	APRIL 23 - 24, 2022 T22AI184-0015		APRIL 24 - 25, 2022 T22AI184-0016		APRIL 25 - 26, 2022 T22AI184-0017	
	WIND SPEED	WIND DIRECTION	WIND SPEED	WIND DIRECTION	WIND SPEED	WIND DIRECTION
07:00-08:00 HOUR	1.3	W	0.8	SSW	2.1	SW
08:00-09:00 HOUR	1.9	WNW	2.2	WNW	2.5	WNW
09:00-10:00 HOUR	2.3	W	1.5	WNW	2.1	WNW
10:00-11:00 HOUR	2.4	W	2.3	W	3.3	SW
11:00-12:00 HOUR	1.7	W	1.9	WSW	0.9	SW
12:00-13:00 HOUR	1.6	WSW	3.4	SW	0.7	WNW
13:00-14:00 HOUR	1.4	SW	1.4	W	0.4	W
14:00-15:00 HOUR	1.2	SW	1.6	SW	3.0	WNW
15:00-16:00 HOUR	2.3	SSW	2.9	WSW	2.4	WSW
16:00-17:00 HOUR	1.7	WSW	1.2	W	1.8	WSW
17:00-18:00 HOUR	2.0	WSW	2.3	SW	2.8	SSW
18:00-19:00 HOUR	3.1	SW	3.1	WNW	1.7	SW
19:00-20:00 HOUR	3.0	W	1.1	WSW	2.4	WNW
20:00-21:00 HOUR	2.8	WSW	0.3	WSW	1.7	WSW
21:00-22:00 HOUR	2.4	SSW	3.3	WNW	2.0	SSW
22:00-23:00 HOUR	2.2	WNW	1.4	WSW	1.5	SW
23:00-00:00 HOUR	1.4	SSW	1.4	SW	1.3	SW
00:00-01:00 HOUR	1.2	SW	1.8	WNW	2.9	SSW
01:00-02:00 HOUR	2.0	WNW	2.0	W	1.6	W
02:00-03:00 HOUR	1.6	W	2.8	WSW	2.3	SW
03:00-04:00 HOUR	0.8	W	2.8	SW	2.6	SW
04:00-05:00 HOUR	0.4	WSW	1.0	SW	1.7	SW
05:00-06:00 HOUR	0.3	WSW	2.3	WNW	0.4	W
06:00-07:00 HOUR	1.0	WSW	0.4	WNW	0.5	WSW





TIME *	RESULT (m/s)							
	LAM CHABANG PORT'S G							
	APRIL 26 - 27, 2022		APRIL 27 - 28, 2022		APRIL 28 - 29, 2022		APRIL 29 - 30, 2022	
	T22AI184-0018		T22AI184-0019		T22AI184-0020		T22AI184-0021	
	WIND SPEED	WIND DIRECTION	WIND SPEED	WIND DIRECTION	WIND SPEED	WIND DIRECTION	WIND SPEED	WIND DIRECTION
07:00-08:00 HOUR	1.6	SSW	1.6	WSW	2.0	W	2.8	ESE
08:00-09:00 HOUR	1.9	WNW	1.5	SW	1.2	W	1.3	ESE
09:00-10:00 HOUR	0.3	SW	2.8	SW	3.2	SW	0.8	SE
10:00-11:00 HOUR	0.4	SSW	2.5	WNW	2.3	W	2.6	S
11:00-12:00 HOUR	0.6	SW	2.7	SW	3.0	W	1.8	SE
12:00-13:00 HOUR	1.3	SW	2.0	SSW	2.5	WNW	3.0	SE
13:00-14:00 HOUR	1.5	WNW	2.7	SSW	2.8	W	1.2	S
14:00-15:00 HOUR	2.6	WSW	1.9	SW	0.7	WSW	3.4	S
15:00-16:00 HOUR	0.9	W	2.1	W	3.3	SW	1.5	SW
16:00-17:00 HOUR	0.9	W	2.2	W	1.2	SW	2.1	WSW
17:00-18:00 HOUR	3.2	WSW	0.3	SSW	1.7	SW	1.9	WSW
18:00-19:00 HOUR	1.5	SW	2.6	WSW	2.0	SSW	2.2	WNW
19:00-20:00 HOUR	3.2	WNW	1.1	WNW	1.0	SSW	2.5	WNW
20:00-21:00 HOUR	2.2	SSW	2.1	WNW	2.9	S	3.2	NW
21:00-22:00 HOUR	2.3	SW	0.5	WNW	0.4	S	3.4	NW
22:00-23:00 HOUR	1.1	WSW	1.3	WSW	0.4	S	3.1	NW
23:00-00:00 HOUR	1.3	WSW	3.0	W	1.8	SE	2.7	NNW
00:00-01:00 HOUR	1.0	WSW	1.1	WSW	2.7	ESE	2.4	NNW
01:00-02:00 HOUR	0.3	WNW	2.8	SSW	1.6	E	2.1	NW
02:00-03:00 HOUR	1.4	SW	2.2	SSW	2.9	E	1.9	NW
03:00-04:00 HOUR	2.3	WSW	0.6	SW	3.2	ENE	2.5	NW
04:00-05:00 HOUR	3.1	W	0.8	WNW	0.9	E	1.8	NW
05:00-06:00 HOUR	2.9	SSW	1.6	SSW	1.1	E	1.6	NNW
06:00-07:00 HOUR	2.4	SW	2.2	WNW	1.7	ESE	1.9	NNW

(MR. SIDA BANJONGJAIROK)  
LABORATORY SUPERVISOR

MAY 9, 2022

## ANALYSIS REPORT

**CUSTOMER NAME** : ESSO (THAILAND) PUBLIC COMPANY LIMITED  
**ADDRESS** : 118 MOO 2 THUNG SUKHLA SI RACHA CHON BURI 20230  
**CONTACT INFORMATION** : TEL : 08 9692 4144 e-mail : paisarn.apiwatananon@exxonmobil.com  
**MEASURING PLACE** : K.U.STATION  
**MEASURING TYPE** : AMBIENT (AIR) **RECEIVED DATE** : APRIL 23-30, 2022  
**MEASURING DATE** : APRIL 23-30, 2022 **ANALYTICAL DATE** : APRIL 23-30, 2022  
**MEASURING TIME** : \* **REPORT NO.** : 2022-U033182  
**MEASURING METHOD** : WIND SPEED & WIND DIRECTION EQUIPMENT **WORK NO.** : 2019-002022  
**MEASURED BY** : MR SIRAPAT JONGPHADUNGKIET **ANALYSIS NO.** : T22AI184-0022 - T22AI184-0028

TIME *	RESULT (m/s)					
	K.U.STATION					
	APRIL 23 - 24, 2022 T22AI184-0022		APRIL 24 - 25, 2022 T22AI184-0023		APRIL 25 - 26, 2022 T22AI184-0024	
	WIND SPEED	WIND DIRECTION	WIND SPEED	WIND DIRECTION	WIND SPEED	WIND DIRECTION
07:00-08:00 HOUR	1.4	WNW	2.2	WSW	1.7	WNW
08:00-09:00 HOUR	0.9	W	3.0	SW	1.8	W
09:00-10:00 HOUR	1.0	SW	2.5	SSW	2.1	W
10:00-11:00 HOUR	1.2	W	2.4	W	2.3	WSW
11:00-12:00 HOUR	1.6	W	2.7	SW	2.9	SW
12:00-13:00 HOUR	1.4	WSW	1.5	W	3.2	WSW
13:00-14:00 HOUR	1.8	SSW	1.6	WNW	3.0	W
14:00-15:00 HOUR	3.0	WNW	2.7	W	2.9	WNW
15:00-16:00 HOUR	2.9	SSW	0.6	SW	2.4	SW
16:00-17:00 HOUR	2.5	SW	2.5	WSW	3.3	WSW
17:00-18:00 HOUR	1.8	SW	2.1	WSW	3.2	SW
18:00-19:00 HOUR	2.2	SSW	1.2	WSW	1.2	W
19:00-20:00 HOUR	0.5	WSW	1.1	SSW	1.4	W
20:00-21:00 HOUR	0.4	WSW	1.7	W	1.7	SSW
21:00-22:00 HOUR	0.7	W	0.9	SW	2.1	SW
22:00-23:00 HOUR	2.5	SW	0.6	SW	1.6	W
23:00-00:00 HOUR	2.9	WSW	0.8	W	1.2	SW
00:00-01:00 HOUR	0.4	WNW	1.2	WSW	1.8	SW
01:00-02:00 HOUR	1.3	SW	1.5	SW	0.3	SSW
02:00-03:00 HOUR	2.2	SSW	1.3	SW	0.6	WSW
03:00-04:00 HOUR	2.3	W	1.1	SSW	1.1	SW
04:00-05:00 HOUR	2.0	WNW	0.8	W	1.7	WSW
05:00-06:00 HOUR	1.9	WSW	1.2	WSW	2.9	W
06:00-07:00 HOUR	1.5	W	1.5	WSW	1.0	WSW





TIME *	RESULT (m/s)							
	K.U.STATION							
	APRIL 26 - 27, 2022		APRIL 27 - 28, 2022		APRIL 28 - 29, 2022		APRIL 29 - 30, 2022	
	T22AI184-0025		T22AI184-0026		T22AI184-0027		T22AI184-0028	
	WIND SPEED	WIND DIRECTION	WIND SPEED	WIND DIRECTION	WIND SPEED	WIND DIRECTION	WIND SPEED	WIND DIRECTION
07:00-08:00 HOUR	1.7	WSW	0.5	SSW	1.4	E	1.2	N
08:00-09:00 HOUR	2.8	SW	2.9	SSE	0.8	ENE	0.4	NNW
09:00-10:00 HOUR	2.3	WNW	0.9	ESE	0.3	NNE	0.3	NNW
10:00-11:00 HOUR	2.5	SW	0.4	SE	0.4	E	1.0	NW
11:00-12:00 HOUR	2.7	SSW	2.4	S	0.7	NNE	1.2	NW
12:00-13:00 HOUR	2.3	WNW	3.1	ESE	1.1	NNE	1.7	NNW
13:00-14:00 HOUR	1.9	WNW	2.4	SSE	1.3	N	1.4	NNW
14:00-15:00 HOUR	1.7	SW	2.8	S	0.9	N	1.6	NW
15:00-16:00 HOUR	0.3	SW	3.3	ESE	1.8	NNW	2.2	NW
16:00-17:00 HOUR	0.3	SW	2.6	SE	1.6	NNW	1.6	WNW
17:00-18:00 HOUR	2.9	WSW	1.2	S	2.0	NNW	0.7	N
18:00-19:00 HOUR	1.8	W	0.6	SSE	2.8	NNW	1.2	N
19:00-20:00 HOUR	1.4	WNW	2.8	SSE	3.4	NW	1.1	WNW
20:00-21:00 HOUR	1.2	W	3.2	S	3.2	WNW	1.9	NNW
21:00-22:00 HOUR	2.4	WSW	2.0	SE	1.7	NW	0.6	N
22:00-23:00 HOUR	3.2	WSW	2.1	ESE	1.2	N	0.4	NNW
23:00-00:00 HOUR	0.4	SW	2.5	NE	0.9	NNW	0.8	NW
00:00-01:00 HOUR	0.3	SW	2.0	E	0.3	N	2.0	N
01:00-02:00 HOUR	3.2	WNW	2.3	NNE	1.1	NNW	2.6	NNW
02:00-03:00 HOUR	3.4	SSW	2.5	NE	1.7	NNW	1.4	NNW
03:00-04:00 HOUR	1.7	SSW	1.9	NE	1.0	NNW	2.7	NNW
04:00-05:00 HOUR	1.9	S	1.9	ENE	0.9	NNW	2.0	NW
05:00-06:00 HOUR	1.6	SE	2.3	ENE	2.7	NW	2.1	WNW
06:00-07:00 HOUR	2.2	S	2.2	NE	3.4	NW	2.6	W

(MR SILA BANJONGJAIKUK)  
LABORATORY SUPERVISOR

MAY 9, 2022

## ANALYSIS REPORT

**CUSTOMER NAME** : ESSO (THAILAND) PUBLIC COMPANY LIMITED  
**ADDRESS** : 118 MOO 2 THUNG SUKHLA SI RACHA CHON BURI 20230  
**CONTACT INFORMATION** : TEL : 08 9692 4144 e-mail : paisarn.apiwatananon@exxonmobil.com  
**MEASURING PLACE** : REFINERY GATE  
**MEASURING TYPE** : AMBIENT (AIR) **RECEIVED DATE** : APRIL 23-30, 2022  
**MEASURING DATE** : APRIL 23-30, 2022 **ANALYTICAL DATE** : APRIL 23-30, 2022  
**MEASURING TIME** : \* **REPORT NO.** : 2022-U033179  
**MEASURING METHOD** : WIND SPEED & WIND DIRECTION EQUIPMENT **WORK NO.** : 2019-002022  
**MEASURED BY** : MR SIRAPAT JONGPHADUNGKIET **ANALYSIS NO.** : T22AI184-0001 - T22AI184-0007

TIME *	RESULT (m/s)					
	REFINERY GATE					
	APRIL 23 - 24, 2022 T22AI184-0001		APRIL 24 - 25, 2022 T22AI184-0002		APRIL 25 - 26, 2022 T22AI184-0003	
	WIND SPEED	WIND DIRECTION	WIND SPEED	WIND DIRECTION	WIND SPEED	WIND DIRECTION
07:00-08:00 HOUR	1.5	SSW	3.1	SW	1.8	WSW
08:00-09:00 HOUR	1.2	SW	2.4	W	1.6	SSW
09:00-10:00 HOUR	0.4	SW	3.3	WSW	1.3	W
10:00-11:00 HOUR	0.8	WSW	2.6	SW	1.8	SW
11:00-12:00 HOUR	1.2	WSW	1.8	SSW	1.7	SW
12:00-13:00 HOUR	1.3	WSW	1.8	WSW	1.3	W
13:00-14:00 HOUR	1.1	SW	2.8	SW	2.4	W
14:00-15:00 HOUR	1.6	SW	0.7	SW	1.5	SW
15:00-16:00 HOUR	2.2	SW	2.7	WSW	0.3	SSW
16:00-17:00 HOUR	2.2	SW	1.4	W	1.0	W
17:00-18:00 HOUR	1.8	SW	1.3	W	1.3	W
18:00-19:00 HOUR	3.4	WSW	1.0	W	1.9	SW
19:00-20:00 HOUR	1.7	SW	1.2	W	2.1	W
20:00-21:00 HOUR	1.2	WNW	2.3	W	2.5	WSW
21:00-22:00 HOUR	2.7	W	3.2	W	0.8	WSW
22:00-23:00 HOUR	0.6	WNW	3.4	SW	1.4	WSW
23:00-00:00 HOUR	1.8	WSW	3.3	WNW	1.6	SSW
00:00-01:00 HOUR	2.2	W	2.7	WSW	3.0	WSW
01:00-02:00 HOUR	3.0	WNW	2.4	SW	0.7	W
02:00-03:00 HOUR	1.5	WNW	0.9	WSW	2.0	SSW
03:00-04:00 HOUR	1.9	SW	0.5	SW	1.4	WNW
04:00-05:00 HOUR	0.3	WNW	0.4	W	0.8	W
05:00-06:00 HOUR	3.4	W	0.3	WSW	2.0	SSW
06:00-07:00 HOUR	1.0	WNW	1.4	WSW	1.3	W



TIME *	RESULT (m/s)							
	REFINERY GATE							
	APRIL 26 - 27, 2022		APRIL 27 - 28, 2022		APRIL 28 - 29, 2022		APRIL 29 - 30, 2022	
	T22AI184-0004		T22AI184-0005		T22AI184-0006		T22AI184-0007	
	WIND SPEED	WIND DIRECTION	WIND SPEED	WIND DIRECTION	WIND SPEED	WIND DIRECTION	WIND SPEED	WIND DIRECTION
07:00-08:00 HOUR	3.3	WSW	0.5	WSW	1.8	S	1.6	SSW
08:00-09:00 HOUR	2.4	SSW	3.1	WNW	3.4	SE	1.4	SW
09:00-10:00 HOUR	0.6	SSW	3.3	W	2.1	ESE	1.2	WSW
10:00-11:00 HOUR	2.8	WSW	2.3	W	2.5	SSE	2.1	WSW
11:00-12:00 HOUR	3.1	WNW	0.4	WNW	1.2	SSE	1.4	W
12:00-13:00 HOUR	1.2	W	3.1	WNW	2.2	SSE	0.8	W
13:00-14:00 HOUR	2.5	W	2.2	W	1.0	ESE	1.2	WNW
14:00-15:00 HOUR	1.2	SSW	2.7	SSW	0.6	ESE	2.0	WNW
15:00-16:00 HOUR	2.5	SW	0.3	W	0.4	S	3.2	WNW
16:00-17:00 HOUR	2.1	SSW	3.1	WSW	0.9	ESE	2.6	NW
17:00-18:00 HOUR	0.9	WSW	2.6	WSW	0.5	E	2.9	NNW
18:00-19:00 HOUR	1.1	SW	1.1	SW	1.3	E	1.3	NNW
19:00-20:00 HOUR	0.9	W	0.7	SW	1.0	E	1.0	N
20:00-21:00 HOUR	3.0	WNW	0.4	SSW	2.8	E	1.3	NNW
21:00-22:00 HOUR	3.3	SW	3.2	W	1.3	ENE	0.9	NW
22:00-23:00 HOUR	2.2	WSW	0.5	WSW	1.0	ENE	2.2	NNW
23:00-00:00 HOUR	2.3	WSW	2.2	WSW	1.2	E	2.2	NW
00:00-01:00 HOUR	2.0	WSW	3.3	WNW	1.4	E	0.4	NNW
01:00-02:00 HOUR	2.7	WNW	3.2	SSW	0.3	ESE	0.3	NW
02:00-03:00 HOUR	1.6	SW	3.4	SSW	1.5	ESE	0.5	WNW
03:00-04:00 HOUR	2.1	SSW	1.1	SE	1.1	SE	1.1	WNW
04:00-05:00 HOUR	0.7	WNW	1.2	SSE	2.0	SSE	1.7	WNW
05:00-06:00 HOUR	1.2	SW	0.4	SSW	2.3	SSE	1.2	WNW
06:00-07:00 HOUR	3.1	WSW	1.4	SSW	2.0	S	2.9	WSW

LABORATORY SUPERVISOR

MAY 9, 2022

คุณภาพอากาศจากปล่องระบายอากาศ

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## ANALYSIS REPORT

**CUSTOMER NAME** : ESSO (THAILAND) PUBLIC COMPANY LIMITED  
**ADDRESS** : 118 MOO 2 THUNG SUKHLA SI RACHA CHON BURI 20230  
**CONTACT INFORMATION** : TEL : 08 9692 4144 e-mail : paisarn.apiwatananon@exxonmobil.com  
**SAMPLING SOURCE** : ESSO (THAILAND) PUBLIC COMPANY LIMITED  
**SAMPLE TYPE** : STACK  
**SAMPLING DATE** : APRIL 25, 2022  
**SAMPLING TIME** : 15:00-16:20 HOUR  
**SAMPLING BY** : MR ATTHAPORN THEPTONG ๖-145-๑-0008  
**ANALYZED BY** : MISS SUWAN KONGTHONG ๖-145-๑-0025

**RECEIVED DATE** : APRIL 29, 2022  
**ANALYTICAL DATE** : APRIL 29-MAY 6, 2022  
**REPORT NO.** : 2022-U034515  
**WORK NO.** : 2019-002022  
**ANALYSIS NO.** : T22AI136-0001

PARAMETER	UNIT	METHOD OF ANALYSIS	RESULT	
			CRUDE DISTILLATION FURNACE (F-101) T22AI136-0001	
			ACTUAL OXYGEN	7% OXYGEN
TOTAL SUSPENDED PARTICULATE	mg/m <sup>3</sup>	ISOKINETIC, GRAVIMETRIC METHOD (US EPA METHOD 5)	0.64	0.53
SULPHUR DIOXIDE	ppm	ABSORPTION, BARIUM-THORIN TITRIMETRIC METHOD AT SITE (US EPA METHOD 6)	< 1.30	< 1.30
OXIDE OF NITROGEN AS NITROGEN DIOXIDE	ppm	ABSORPTION, PHENOLDISULFONIC ACID METHOD (US EPA METHOD 7)	44.6	36.9
SAMPLE CONDITION			COMPLETE	

DESCRIPTION	UNIT	RESULT
		CRUDE DISTILLATION FURNACE (F-101) T22AI136-0001
AMBIENT PRESSURE	mmHg	758
AMBIENT TEMPERATURE	°C	33
STACK TEMPERATURE	°C	357
DIAMETER	m	1.65
GAS VELOCITY	m/s	6.69
FLOW RATE	Nm <sup>3</sup> /hr	20,503.29
OXYGEN	%	4.1
MOISTURE	%	15.56
CARBONDIOXIDE	%	16.66
VOLUME OF DRY GAS AT STP	m <sup>3</sup>	0.943344

### REMARK

RESULT : REFERENCE CONDITION IS 25 DEGREE CELSIUS AT 1 ATMOSPHERE AND DRY BASIS.

LABORATORY SUPERVISOR  
๖-145-๑-0011  
MAY 13, 2022



## ANALYSIS REPORT

**CUSTOMER NAME** : ESSO (THAILAND) PUBLIC COMPANY LIMITED  
**ADDRESS** : 118 MOO 2 THUNG SUKHLA SI RACHA CHON BURI 20230  
**CONTACT INFORMATION** : TEL : 08 9692 4144 e-mail : paisarn.apiwatananon@exxonmobil.com  
**SAMPLING SOURCE** : ESSO (THAILAND) PUBLIC COMPANY LIMITED  
**SAMPLE TYPE** : STACK  
**SAMPLING DATE** : APRIL 25, 2022  
**SAMPLING TIME** : 15:00-16:20 HOUR  
**SAMPLING BY** : MR ATTHAPORN THEPTONG ๓-145-๓-0008  
**ANALYZED BY** : MISS SUWAN KONGTHONG ๓-145-๓-0025

**RECEIVED DATE** : APRIL 29, 2022  
**ANALYTICAL DATE** : APRIL 29-MAY 6, 2022  
**REPORT NO.** : 2022-U034516  
**WORK NO.** : 2019-002022  
**ANALYSIS NO.** : T22AI136-0002

PARAMETER	UNIT	METHOD OF ANALYSIS	RESULT	
			CRUDE DISTILLATION FURNACE (F-102) T22AI136-0002	
			ACTUAL OXYGEN	7% OXYGEN
TOTAL SUSPENDED PARTICULATE	mg/m <sup>3</sup>	ISOKINETIC, GRAVIMETRIC METHOD (US EPA METHOD 5)	1.03	0.94
SULPHUR DIOXIDE	ppm	ABSORPTION, BARIUM-THORIN TITRIMETRIC METHOD AT SITE (US EPA METHOD 6)	< 1.30	< 1.30
OXIDE OF NITROGEN AS NITROGEN DIOXIDE	ppm	ABSORPTION, PHENOLDISULFONIC ACID METHOD (US EPA METHOD 7)	50.8	46.3
SAMPLE CONDITION			COMPLETE	

DESCRIPTION	UNIT	RESULT
		CRUDE DISTILLATION FURNACE (F-102) T22AI136-0002
AMBIENT PRESSURE	mmHg	758
AMBIENT TEMPERATURE	°C	33.92
STACK TEMPERATURE	°C	198.58
DIAMETER	m	1.52
GAS VELOCITY	m/s	6.96
FLOW RATE	Nm <sup>3</sup> /hr	26,038.75
OXYGEN	%	5.65
MOISTURE	%	8.96
CARBONDIOXIDE	%	8.7
VOLUME OF DRY GAS AT STP	m <sup>3</sup>	0.970011

**REMARK**

**RESULT** : REFERENCE CONDITION IS 25 DEGREE CELSIUS AT 1 ATMOSPHERE AND DRY BASIS.

(MISS BUDSAKORN LERDPANUMAS)  
 LABORATORY SUPERVISOR  
 ๓-145-๓-0011  
 MAY 13, 2022



## ANALYSIS REPORT

**CUSTOMER NAME** : ESSO (THAILAND) PUBLIC COMPANY LIMITED  
**ADDRESS** : 118 MOO 2 THUNG SUKHLA SI RACHA CHON BURI 20230  
**CONTACT INFORMATION** : TEL : 08 9692 4144 e-mail : paisarn.apiwatananon@exxonmobil.com  
**SAMPLING SOURCE** : ESSO (THAILAND) PUBLIC COMPANY LIMITED  
**SAMPLE TYPE** : STACK  
**SAMPLING DATE** : MAY 26, 2022  
**SAMPLING TIME** : 11:05-12:25 HOUR  
**SAMPLING BY** : MR ATTHAPORN THEPTONG ๖-145-๖-0008  
**ANALYZED BY** : MISS SUWAN KONGTHONG ๖-145-๖-0025

**RECEIVED DATE** : MAY 26, 2022  
**ANALYTICAL DATE** : MAY 26-31, 2022  
**REPORT NO.** : 2022-U041588  
**WORK NO.** : 2019-002022  
**ANALYSIS NO.** : T22AK048-0001

PARAMETER	UNIT	METHOD OF ANALYSIS	RESULT	
			COMMON STACK OF BOILER 3&4 T22AK048-0001	
			ACTUAL OXYGEN	7% OXYGEN
TOTAL SUSPENDED PARTICULATE	mg/m <sup>3</sup>	ISOKINETIC, GRAVIMETRIC METHOD (US EPA METHOD 5)	5.70	8.26
SULPHUR DIOXIDE	ppm	ABSORPTION, BARIUM-THORIN TITRIMETRIC METHOD AT SITE (US EPA METHOD 6)	< 1.30	< 1.30
OXIDE OF NITROGEN AS NITROGEN DIOXIDE	ppm	ABSORPTION, PHENOLDISULFONIC ACID METHOD (US EPA METHOD 7)	32.7	47.4
SAMPLE CONDITION			COMPLETE	

DESCRIPTION	UNIT	RESULT
		COMMON STACK OF BOILER 3&4 T22AK048-0001
AMBIENT PRESSURE	mmHg	758
AMBIENT TEMPERATURE	°C	31
STACK TEMPERATURE	°C	284
DIAMETER	m	1.32
GAS VELOCITY	m/s	17.22
FLOW RATE	Nm <sup>3</sup> /hr	41,720.11
OXYGEN	%	11.31
MOISTURE	%	7.79
CARBONDIOXIDE	%	5.47
VOLUME OF DRY GAS AT STP	m <sup>3</sup>	0.96558

### REMARK

RESULT : REFERENCE CONDITION IS 25 DEGREE CELSIUS AT 1 ATMOSPHERE AND DRY BASIS.

(MISS BUDSARORN LERDPANOMAS)  
 LABORATORY SUPERVISOR  
 ๖-145-๖-0011  
 JUNE 8, 2022





## ANALYSIS REPORT

**CUSTOMER NAME** : ESSO (THAILAND) PUBLIC COMPANY LIMITED  
**ADDRESS** : 118 MOO 2 THUNG SUKHLA SI RACHA CHON BURI 20230  
**CONTACT INFORMATION** : TEL : 08 9692 4144 e-mail : paisarn.apiwatananon@exxonmobil.com  
**SAMPLING SOURCE** : ESSO (THAILAND) PUBLIC COMPANY LIMITED  
**SAMPLE TYPE** : STACK  
**SAMPLING DATE** : APRIL 28, 2022  
**SAMPLING TIME** : 10:00-11:20 HOUR  
**SAMPLING BY** : MR ATTHAPORN THEPTONG ๓-145-๓-0008  
**ANALYZED BY** : MISS SUWAN KONGTHONG ๓-145-๓-0025

**RECEIVED DATE** : APRIL 29, 2022  
**ANALYTICAL DATE** : APRIL 29-MAY 6, 2022  
**REPORT NO.** : 2022-U034520  
**WORK NO.** : 2019-002022  
**ANALYSIS NO.** : T22AI136-0006

PARAMETER	UNIT	METHOD OF ANALYSIS	RESULT	
			FCCU REGENERATOR T22AI136-0006	
			ACTUAL OXYGEN	7% OXYGEN
TOTAL SUSPENDED PARTICULATE	mg/m <sup>3</sup>	ISOKINETIC, GRAVIMETRIC METHOD (US EPA METHOD 5)	26.1	18.8
SULPHUR DIOXIDE	ppm	ABSORPTION, BARIUM-THORIN TITRIMETRIC METHOD AT SITE (US EPA METHOD 6)	117	84.2
OXIDE OF NITROGEN AS NITROGEN DIOXIDE	ppm	ABSORPTION, PHENOLDISULFONIC ACID METHOD (US EPA METHOD 7)	19.2	13.9
<b>SAMPLE CONDITION</b>			COMPLETE	

DESCRIPTION	UNIT	RESULT
		FCCU REGENERATOR T22AI136-0006
AMBIENT PRESSURE	mmHg	758
AMBIENT TEMPERATURE	°C	33.25
STACK TEMPERATURE	°C	270
DIAMETER	m	1.58
GAS VELOCITY	m/s	43.7
FLOW RATE	Nm <sup>3</sup> /hr	144,839.88
OXYGEN	%	1.6
MOISTURE	%	14.54
CARBONDIOXIDE	%	10.99
VOLUME OF DRY GAS AT STP	m <sup>3</sup>	0.974046

**REMARK**

RESULT : REFERENCE CONDITION IS 25 DEGREE CELSIUS AT 1 ATMOSPHERE AND DRY BASIS.

.....  
  
 (Signature of Laboratory Supervisor)

LABORATORY SUPERVISOR  
 ๓-145-๓-0011  
 MAY 13, 2022





## ANALYSIS REPORT

<b>CUSTOMER NAME</b>	: ESSO (THAILAND) PUBLIC COMPANY LIMITED	<b>RECEIVED DATE</b>	: APRIL 29, 2022
<b>ADDRESS</b>	: 118 MOO 2 THUNG SUKHLA SI RACHA CHON BURI 20230	<b>ANALYTICAL DATE</b>	: APRIL 29-MAY 6, 2022
<b>CONTACT INFORMATION</b>	: TEL : 08 9692 4144 e-mail : paisarn.apiwatananon@exxonmobil.com	<b>REPORT NO.</b>	: 2022-U034521
<b>SAMPLING SOURCE</b>	: ESSO (THAILAND) PUBLIC COMPANY LIMITED	<b>WORK NO.</b>	: 2019-002022
<b>SAMPLE TYPE</b>	: STACK	<b>ANALYSIS NO.</b>	: T22AI136-0006
<b>SAMPLING DATE</b>	: APRIL 28, 2022		
<b>SAMPLING TIME</b>	: 10:00-10:30 HOUR		
<b>SAMPLING BY</b>	: MR ATTHAPORN THEPTONG		
<b>ANALYZED BY</b>	: MISS SUWAN KONGTHONG		

PARAMETER	UNIT	METHOD OF ANALYSIS	RESULT	
			FCCU REGENERATOR T22AI136-0006	
			ACTUAL OXYGEN	7% OXYGEN
HYDROGEN CYANIDE	mg/m <sup>3</sup>	FILTERING, ION-SPECIFIC ELECTRODE METHOD (OSHA METHOD ID120)	< 0.20	< 0.20
SAMPLE CONDITION			COMPLETE	

DESCRIPTION	UNIT	RESULT
		FCCU REGENERATOR T22AI136-0006
AMBIENT PRESSURE	mmHg	758
AMBIENT TEMPERATURE	°C	33.25
STACK TEMPERATURE	°C	270
DIAMETER	m	1.58
GAS VELOCITY	m/s	43.7
FLOW RATE	Nm <sup>3</sup> /hr	144,839.88
OXYGEN	%	1.6
MOISTURE	%	14.54
CARBONDIOXIDE	%	10.99
VOLUME OF DRY GAS AT STP	m <sup>3</sup>	0.974046

REMARK

RESULT : REFERENCE CONDITION IS 25 DEGREE CELSIUS AT 1 ATMOSPHERE AND DRY BASIS.

.....  
[Signature]  
.....

LABORATORY SUPERVISOR

MAY 13, 2022



## ANALYSIS REPORT

**CUSTOMER NAME** : ESSO (THAILAND) PUBLIC COMPANY LIMITED  
**ADDRESS** : 118 MOO 2 THUNG SUKHLA SI RACHA CHON BURI 20230  
**CONTACT INFORMATION** : TEL : 08 9692 4144 e-mail : paisarn.apiwatananon@exxonmobil.com  
**SAMPLING SOURCE** : ESSO (THAILAND) PUBLIC COMPANY LIMITED  
**SAMPLE TYPE** : STACK  
**SAMPLING DATE** : APRIL 27, 2022  
**SAMPLING TIME** : 11:50-13:10 HOUR  
**SAMPLING BY** : MR ATTHAPORN THEPTONG ๖-145-๖-0008  
**ANALYZED BY** : MISS SUWAN KONGTHONG ๖-145-๓-0025

**RECEIVED DATE** : APRIL 29, 2022  
**ANALYTICAL DATE** : APRIL 29-MAY 6, 2022  
**REPORT NO.** : 2022-U034526  
**WORK NO.** : 2019-002022  
**ANALYSIS NO.** : T22AI136-0009

PARAMETER	UNIT	METHOD OF ANALYSIS	RESULT	
			COMMON STACK OF PAREX FURNACE T22AI136-0009	
			ACTUAL OXYGEN	7% OXYGEN
TOTAL SUSPENDED PARTICULATE	mg/m <sup>3</sup>	ISOKINETIC, GRAVIMETRIC METHOD (US EPA METHOD 5)	2.68	2.06
SULPHUR DIOXIDE	ppm	ABSORPTION, BARIUM-THORIN TITRIMETRIC METHOD AT SITE (US EPA METHOD 6)	< 1.30	< 1.30
OXIDE OF NITROGEN AS NITROGEN DIOXIDE	ppm	ABSORPTION, PHENOLDISULFONIC ACID METHOD (US EPA METHOD 7)	10.8	8.29
SAMPLE CONDITION			COMPLETE	

DESCRIPTION	UNIT	RESULT
		COMMON STACK OF PAREX FURNACE T22AI136-0009
AMBIENT PRESSURE	mmHg	758
AMBIENT TEMPERATURE	°C	34.58
STACK TEMPERATURE	°C	218.5
DIAMETER	m	3.65
GAS VELOCITY	m/s	6.48
FLOW RATE	Nm <sup>3</sup> /hr	127,515.81
OXYGEN	%	2.8
MOISTURE	%	13.53
CARBONDIOXIDE	%	10.31
VOLUME OF DRY GAS AT STP	m <sup>3</sup>	0.970997

**REMARK**

RESULT : REFERENCE CONDITION IS 25 DEGREE CELSIUS AT 1 ATMOSPHERE AND DRY BASIS.

(MISS BUDSAKORN LERDPANUMAS)  
 LABORATORY SUPERVISOR  
 ๖-145-๓-0011  
 MAY 13, 2022



## ANALYSIS REPORT

**CUSTOMER NAME** : ESSO (THAILAND) PUBLIC COMPANY LIMITED  
**ADDRESS** : 118 MOO 2 THUNG SUKHLA SI RACHA CHON BURI 20230  
**CONTACT INFORMATION** : TEL : 08 9692 4144 e-mail : paisarn.apiwatananon@exxonmobil.com  
**SAMPLING SOURCE** : ESSO (THAILAND) PUBLIC COMPANY LIMITED  
**SAMPLE TYPE** : STACK  
**SAMPLING DATE** : APRIL 26, 2022  
**SAMPLING TIME** : 10:30-11:20 HOUR  
**SAMPLING BY** : MR ATTAPORN THEPTONG ๓-145-๓-0008  
**ANALYZED BY** : MISS SUWAN KONGTHONG ๓-145-๓-0025

**RECEIVED DATE** : APRIL 29, 2022  
**ANALYTICAL DATE** : APRIL 29-MAY 6, 2022  
**REPORT NO.** : 2022-U034518  
**WORK NO.** : 2019-002022  
**ANALYSIS NO.** : T22AI136-0004

PARAMETER	UNIT	METHOD OF ANALYSIS	RESULT	
			GTG-1+HRSG-1 T22AI136-0004	
			ACTUAL OXYGEN	7% OXYGEN
SULPHUR DIOXIDE	ppm	ABSORPTION, BARIUM-THORIN TITRIMETRIC METHOD AT SITE (US EPA METHOD 6)	< 1.30	< 1.30
OXIDE OF NITROGEN AS NITROGEN DIOXIDE	ppm	ABSORPTION, PHENOLDISULFONIC ACID METHOD (US EPA METHOD 7)	30.9	101
<b>SAMPLE CONDITION</b>			COMPLETE	

DESCRIPTION	UNIT	RESULT
		GTG-1+HRSG-1 T22AI136-0004
AMBIENT PRESSURE	mmHg	758
AMBIENT TEMPERATURE	°C	32.83
STACK TEMPERATURE	°C	209.83
DIAMETER	m	2.95
GAS VELOCITY	m/s	9.77
FLOW RATE	Nm³/hr	135,584.11
OXYGEN	%	16.64
MOISTURE	%	8.31
CARBONDIOXIDE	%	2.47
VOLUME OF DRY GAS AT STP	m³	0.625802

**REMARK**

RESULT : REFERENCE CONDITION IS 25 DEGREE CELSIUS AT 1 ATMOSPHERE AND DRY BASIS.

LABORATORY SUPERVISOR  
 ๓-145-๓-0011  
 MAY 13, 2022



## ANALYSIS REPORT

**CUSTOMER NAME** : ESSO (THAILAND) PUBLIC COMPANY LIMITED  
**ADDRESS** : 118 MOO 2 THUNG SUKHLA SI RACHA CHON BURI 20230  
**CONTACT INFORMATION** : TEL : 08 9692 4144 e-mail : paisarn.apiwatananon@exxonmobil.com  
**SAMPLING SOURCE** : ESSO (THAILAND) PUBLIC COMPANY LIMITED  
**SAMPLE TYPE** : STACK  
**SAMPLING DATE** : MARCH 23, 2022  
**SAMPLING TIME** : 10:45-11:10 HOUR  
**SAMPLING BY** : MR ATTHAPORN THEPTONG ๖-145-๖-0008  
**ANALYZED BY** : MISS SUWAN KONGTHONG ๖-145-๓-0025

**RECEIVED DATE** : MARCH 24, 2022  
**ANALYTICAL DATE** : MARCH 24-25, 2022  
**REPORT NO.** : 2022-U023081  
**WORK NO.** : 2019-002022  
**ANALYSIS NO.** : T22AF686-0001

PARAMETER	UNIT	METHOD OF ANALYSIS	RESULT	
			GTG-2+HRSG-2 (4001) T22AF686-0001	
			ACTUAL OXYGEN	7% OXYGEN
SULPHUR DIOXIDE	ppm	ABSORPTION, BARIUM-THORIN TITRIMETRIC METHOD AT SITE (US EPA METHOD 6)	< 1.30	< 1.30
OXIDE OF NITROGEN AS NITROGEN DIOXIDE	ppm	ABSORPTION, PHENOLDISULFONIC ACID METHOD (US EPA METHOD 7)	19.1	49.2
<b>SAMPLE CONDITION</b>			COMPLETE	

DESCRIPTION	UNIT	RESULT
		GTG-2+HRSG-2 (4001) T22AF686-0001
AMBIENT PRESSURE	mmHg	758
AMBIENT TEMPERATURE	°C	30
STACK TEMPERATURE	°C	202.42
DIAMETER	m	2.95
GAS VELOCITY	m/s	12.37
FLOW RATE	Nm³/hr	172,063.46
OXYGEN	%	15.49
MOISTURE	%	9.54
CARBONDIOXIDE	%	3.12
VOLUME OF DRY GAS AT STP	m³	0.64058

**REMARK**

RESULT : REFERENCE CONDITION IS 25 DEGREE CELSIUS AT 1 ATMOSPHERE AND DRY BASIS.

(MISS BUDSAKORN LERDPANOMAS)  
 LABORATORY SUPERVISOR  
 ๖-145-๓-0011  
 APRIL 1, 2022



## ANALYSIS REPORT

**CUSTOMER NAME** : ESSO (THAILAND) PUBLIC COMPANY LIMITED  
**ADDRESS** : 118 MOO 2 THUNG SUKHLA SI RACHA CHON BURI 20230  
**CONTACT INFORMATION** : TEL : 08 9692 4144 e-mail : paisarn.apiwatananon@exxonmobil.com  
**SAMPLING SOURCE** : ESSO (THAILAND) PUBLIC COMPANY LIMITED  
**SAMPLE TYPE** : STACK  
**SAMPLING DATE** : APRIL 26, 2022  
**SAMPLING TIME** : 10:40-11:30 HOUR  
**SAMPLING BY** : MR ATTAPORN THEPTONG ๓-145-๓-0008  
**ANALYZED BY** : MISS SUWAN KONGTHONG ๓-145-๓-0025

**RECEIVED DATE** : APRIL 29, 2022  
**ANALYTICAL DATE** : APRIL 29-MAY 6, 2022  
**REPORT NO.** : 2022-U034519  
**WORK NO.** : 2019-002022  
**ANALYSIS NO.** : T22AI136-0005

PARAMETER	UNIT	METHOD OF ANALYSIS	RESULT	
			GTG-3+HRSG-3 T22AI136-0005	
			ACTUAL OXYGEN	7% OXYGEN
SULPHUR DIOXIDE	ppm	ABSORPTION, BARIUM-THORIN TITRIMETRIC METHOD AT SITE (US EPA METHOD 6)	< 1.30	< 1.30
OXIDE OF NITROGEN AS NITROGEN DIOXIDE	ppm	ABSORPTION, PHENOLDISULFONIC ACID METHOD (US EPA METHOD 7)	40.8	136
<b>SAMPLE CONDITION</b>			COMPLETE	

DESCRIPTION	UNIT	RESULT
		GTG-3+HRSG-3 T22AI136-0005
AMBIENT PRESSURE	mmHg	758
AMBIENT TEMPERATURE	°C	31
STACK TEMPERATURE	°C	204
DIAMETER	m	3.8
GAS VELOCITY	m/s	13.51
FLOW RATE	Nm³/hr	311,005.64
OXYGEN	%	16.73
MOISTURE	%	9.41
CARBONDIOXIDE	%	2.42
VOLUME OF DRY GAS AT STP	m³	0.650674

**REMARK**

RESULT : REFERENCE CONDITION IS 25 DEGREE CELSIUS AT 1 ATMOSPHERE AND DRY BASIS.



LABORATORY SUPERVISOR

๓-145-๓-0011

MAY 13, 2022



## ANALYSIS REPORT

**CUSTOMER NAME** : ESSO (THAILAND) PUBLIC COMPANY LIMITED  
**ADDRESS** : 118 MOO 2 THUNG SUKHLA SI RACHA CHON BURI 20230  
**CONTACT INFORMATION** : TEL : 08 9692 4144 e-mail : paisarn.apiwatananon@exxonmobil.com  
**SAMPLING SOURCE** : ESSO (THAILAND) PUBLIC COMPANY LIMITED  
**SAMPLE TYPE** : STACK  
**SAMPLING DATE** : APRIL 27, 2022  
**SAMPLING TIME** : 10:45-11:35 HOUR  
**SAMPLING BY** : MR ATTHAPORN THEPTONG ๖-145-๖-0008  
**ANALYZED BY** : MISS SUWAN KONGTHONG ๖-145-๓-0025

**RECEIVED DATE** : APRIL 29, 2022  
**ANALYTICAL DATE** : APRIL 29-MAY 6, 2022  
**REPORT NO.** : 2022-U034517  
**WORK NO.** : 2019-002022  
**ANALYSIS NO.** : T22AI136-0003

PARAMETER	UNIT	METHOD OF ANALYSIS	RESULT	
			PLATFORMER FURNACE-1 (F-3401S) T22AI136-0003	
			ACTUAL OXYGEN	7% OXYGEN
SULPHUR DIOXIDE	ppm	ABSORPTION, BARIUM-THORIN TITRIMETRIC METHOD AT SITE (US EPA METHOD 6)	< 1.30	< 1.30
OXIDE OF NITROGEN AS NITROGEN DIOXIDE	ppm	ABSORPTION, PHENOLDISULFONIC ACID METHOD (US EPA METHOD 7)	23.0	18.1
<b>SAMPLE CONDITION</b>			COMPLETE	

DESCRIPTION	UNIT	RESULT
		PLATFORMER FURNACE-1 (F-3401S) T22AI136-0003
AMBIENT PRESSURE	mmHg	758
AMBIENT TEMPERATURE	°C	33
STACK TEMPERATURE	°C	187.25
DIAMETER	m	2.52
GAS VELOCITY	m/s	6.82
FLOW RATE	Nm³/hr	64,576.23
OXYGEN	%	3.27
MOISTURE	%	18.18
CARBONDIOXIDE	%	10.05
VOLUME OF DRY GAS AT STP	m³	0.638656

**REMARK**

RESULT : REFERENCE CONDITION IS 25 DEGREE CELSIUS AT 1 ATMOSPHERE AND DRY BASIS.

LABORATORY SUPERVISOR  
๖-145-๓-0011  
MAY 13, 2022





## ANALYSIS REPORT

<b>CUSTOMER NAME</b>	: ESSO (THAILAND) PUBLIC COMPANY LIMITED	<b>RECEIVED DATE</b>	: APRIL 29, 2022
<b>ADDRESS</b>	: 118 MOO 2 THUNG SUKHLA SI RACHA CHON BURI 20230	<b>ANALYTICAL DATE</b>	: APRIL 29-MAY 6, 2022
<b>CONTACT INFORMATION</b>	: TEL : 08 9692 4144 e-mail : paisarn.apiwatananon@exxonmobil.com	<b>REPORT NO.</b>	: 2022-U034525
<b>SAMPLING SOURCE</b>	: ESSO (THAILAND) PUBLIC COMPANY LIMITED	<b>WORK NO.</b>	: 2019-002022
<b>SAMPLE TYPE</b>	: STACK	<b>ANALYSIS NO.</b>	: T22AI136-0008
<b>SAMPLING DATE</b>	: APRIL 28, 2022		
<b>SAMPLING TIME</b>	: 10:15-11:10 HOUR		
<b>SAMPLING BY</b>	: MR ATTHAPORN THEPTONG ๖-145-๓-0008		
<b>ANALYZED BY</b>	: MISS SUWAN KONGTHONG ๖-145-๓-0025		

PARAMETER	UNIT	METHOD OF ANALYSIS	RESULT	
			ACTUAL OXYGEN	7% OXYGEN
SULPHUR DIOXIDE	ppm	ABSORPTION, BARIUM-THORIN TITRIMETRIC METHOD AT SITE (US EPA METHOD 6)	< 1.30	< 1.30
OXIDE OF NITROGEN AS NITROGEN DIOXIDE	ppm	ABSORPTION, PHENOLDISULFONIC ACID METHOD (US EPA METHOD 7)	40.3	34.2
SAMPLE CONDITION			COMPLETE	

DESCRIPTION	UNIT	RESULT
		APS2/VPS2 : COMMON STACK OF CRUDE DISTILLATION FURNACE 2& VACUUM DISTILLATION FURNACE-2&NHF-2 FURNACE (F-3101 & F-3601 & F-3301) T22AI136-0008
AMBIENT PRESSURE	mmHg	758
AMBIENT TEMPERATURE	°C	33
STACK TEMPERATURE	°C	321
DIAMETER	m	3.2
GAS VELOCITY	m/s	14.32
FLOW RATE	Nm³/hr	168,830.11
OXYGEN	%	4.54
MOISTURE	%	18.25
CARBONDIOXIDE	%	9.33
VOLUME OF DRY GAS AT STP	m³	0.635815

REMARK

RESULT : REFERENCE CONDITION IS 25 DEGREE CELSIUS AT 1 ATMOSPHERE AND DRY BASIS.

(MISS BUDSAKORN LERDPANOMAS)  
LABORATORY SUPERVISOR  
๖-145-๓-0011  
MAY 13, 2022



## ANALYSIS REPORT

**CUSTOMER NAME** : ESSO (THAILAND) PUBLIC COMPANY LIMITED  
**ADDRESS** : 118 MOO 2 THUNG SUKHLA SI RACHA CHON BURI 20230  
**CONTACT INFORMATION** : TEL : 08 9692 4144 e-mail : paisarn.apiwatananon@exxonmobil.com  
**SAMPLING SOURCE** : ESSO (THAILAND) PUBLIC COMPANY LIMITED  
**SAMPLE TYPE** : STACK  
**SAMPLING DATE** : APRIL 29, 2022  
**SAMPLING TIME** : 10:10-11:25 HOUR  
**SAMPLING BY** : MR ATTAPORN THEPTONG จ-145-ก-0008  
**ANALYZED BY** : MISS SUWAN KONGTHONG จ-145-ก-0025

**RECEIVED DATE** : APRIL 29, 2022  
**ANALYTICAL DATE** : APRIL 29-MAY 6, 2022  
**REPORT NO.** : 2022-U034523  
**WORK NO.** : 2019-002022  
**ANALYSIS NO.** : T22AI136-0007

PARAMETER	UNIT	METHOD OF ANALYSIS	RESULT	
			SRU/TGCU INCINERATOR T22AI136-0007	
			ACTUAL OXYGEN	7% OXYGEN
SULPHUR DIOXIDE	ppm	ABSORPTION, BARIUM-THORIN TITRIMETRIC METHOD AT SITE (US EPA METHOD 6)	64.2	74.2
OXIDE OF NITROGEN AS NITROGEN DIOXIDE	ppm	ABSORPTION, PHENOLDISULFONIC ACID METHOD (US EPA METHOD 7)	11.6	13.4
HYDROGEN SULPHIDE	ppm	ABSORPTION, IODOMETRIC METHOD AT SITE (US EPA METHOD 11)	< 5.75	< 5.75
SAMPLE CONDITION			COMPLETE	

DESCRIPTION	UNIT	RESULT
		SRU/TGCU INCINERATOR T22AI136-0007
AMBIENT PRESSURE	mmHg	758
AMBIENT TEMPERATURE	°C	30
STACK TEMPERATURE	°C	581.67
DIAMETER	m	1.71
GAS VELOCITY	m/s	12.14
FLOW RATE	Nm³/hr	31,439.08
OXYGEN	%	8.88
MOISTURE	%	9.44
CARBONDIOXIDE	%	6.85
VOLUME OF DRY GAS AT STP	m³	0.648422

**REMARK**

RESULT : REFERENCE CONDITION IS 25 DEGREE CELSIUS AT 1 ATMOSPHERE AND DRY BASIS.

LABORATORY SUPERVISOR  
จ-145-ก-0011  
MAY 13, 2022



ระดับเสียงในบรรยากาศ

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## ANALYSIS REPORT

<b>CUSTOMER NAME</b>	: ESSO (THAILAND) PUBLIC COMPANY LIMITED	<b>RECEIVED DATE</b>	: APRIL 23-26, 2022
<b>ADDRESS</b>	: 118 MOO 2 THUNG SUKHLA SI RACHA CHON BURI 20230	<b>ANALYTICAL DATE</b>	: APRIL 23-26, 2022
<b>CONTACT INFORMATION</b>	: TEL : 08 9692 4144 e-mail : paisarn.apiwatananon@exxonmobil.com	<b>REPORT NO.</b>	: 2022-U033191
<b>MEASURING SOURCE</b>	: BAN KON CHA-NANG	<b>WORK NO.</b>	: 2019-002022
<b>MEASURING TYPE</b>	: AMBIENT (NOISE)	<b>ANALYSIS NO.</b>	: T22AH919-0001 - T22AH919-0003
<b>MEASURING DATE</b>	: APRIL 23-26, 2022		
<b>MEASURING TIME</b>	: *		
<b>MEASURING METHOD</b>	: INTEGRATED SOUND LEVEL METER#		
<b>MEASURED BY</b>	: MR SIRAPAT JONGPHADUNGKIET		

TIME*	RESULT dB(A)		
	BAN KON CHA-NANG		
	APRIL 23 - 24, 2022		
	T22AH919-0001		
	L <sub>Aeq</sub> 1 hour	L <sub>Amax</sub> 1 hour	L <sub>A90</sub> 1 hour
07:00-08:00 HOUR	52.4	72.2	50.1
08:00-09:00 HOUR	53.4	73.5	51.2
09:00-10:00 HOUR	54.5	71.9	51.8
10:00-11:00 HOUR	53.8	72.9	51.3
11:00-12:00 HOUR	54.2	71.8	51.6
12:00-13:00 HOUR	54.2	74.2	51.5
13:00-14:00 HOUR	56.3	67.3	54.4
14:00-15:00 HOUR	56.2	68.1	54.2
15:00-16:00 HOUR	56.5	72.6	54.3
16:00-17:00 HOUR	57.0	79.8	53.5
17:00-18:00 HOUR	52.3	74.7	49.3
18:00-19:00 HOUR	54.4	79.6	49.7
19:00-20:00 HOUR	52.9	79.2	49.1
20:00-21:00 HOUR	52.3	71.1	49.5
21:00-22:00 HOUR	52.0	77.6	49.0
22:00-23:00 HOUR	51.9	77.3	49.0
23:00-00:00 HOUR	52.8	71.9	50.1
00:00-01:00 HOUR	52.0	67.8	49.7
01:00-02:00 HOUR	51.6	66.3	49.5
02:00-03:00 HOUR	52.6	62.5	50.1
03:00-04:00 HOUR	51.5	59.8	49.5
04:00-05:00 HOUR	55.0	80.8	50.3
05:00-06:00 HOUR	51.7	72.5	49.3
06:00-07:00 HOUR	50.9	68.7	48.5
<b>L<sub>Aeq</sub> 24 hours</b>		53.8	



TIME*	RESULT dB(A)		
	BAN KON CHA-NANG		
	APRIL 24 - 25, 2022		
	T22AH919-0002		
	L <sub>Aeq</sub> 1 hour	L <sub>Amax</sub> 1 hour	L <sub>A90</sub> 1 hour
07:00-08:00 HOUR	51.2	69.0	49.2
08:00-09:00 HOUR	51.6	62.5	49.6
09:00-10:00 HOUR	52.8	69.4	49.4
10:00-11:00 HOUR	53.1	72.7	51.2
11:00-12:00 HOUR	53.9	67.4	51.6
12:00-13:00 HOUR	56.8	72.7	55.5
13:00-14:00 HOUR	54.9	67.0	53.2
14:00-15:00 HOUR	56.9	71.1	53.1
15:00-16:00 HOUR	53.9	59.9	52.1
16:00-17:00 HOUR	53.8	67.0	52.0
17:00-18:00 HOUR	53.9	65.6	52.3
18:00-19:00 HOUR	54.2	58.4	52.6
19:00-20:00 HOUR	53.9	59.2	52.3
20:00-21:00 HOUR	54.4	83.1	51.7
21:00-22:00 HOUR	52.7	66.9	51.0
22:00-23:00 HOUR	51.6	61.2	49.0
23:00-00:00 HOUR	51.7	74.1	48.5
00:00-01:00 HOUR	52.6	87.7	48.1
01:00-02:00 HOUR	50.7	64.2	48.5
02:00-03:00 HOUR	52.4	62.0	49.4
03:00-04:00 HOUR	51.1	62.8	49.1
04:00-05:00 HOUR	51.5	68.2	48.8
05:00-06:00 HOUR	53.5	66.4	50.4
06:00-07:00 HOUR	52.3	65.1	50.6
L <sub>Aeq</sub> 24 hours		53.5	

TIME*	RESULT dB(A)		
	BAN KON CHA-NANG		
	APRIL 25 - 26, 2022		
	T22AH919-0003		
	L <sub>Aeq</sub> 1 hour	L <sub>Amax</sub> 1 hour	L <sub>A90</sub> 1 hour
07:00-08:00 HOUR	52.7	62.0	51.0
08:00-09:00 HOUR	56.5	67.5	54.0
09:00-10:00 HOUR	56.1	71.4	54.3
10:00-11:00 HOUR	58.5	79.0	54.8
11:00-12:00 HOUR	58.0	80.5	54.5
12:00-13:00 HOUR	55.4	78.4	53.7
13:00-14:00 HOUR	54.1	68.1	52.3
14:00-15:00 HOUR	53.1	64.8	50.7
15:00-16:00 HOUR	55.0	88.8	49.6
16:00-17:00 HOUR	53.4	59.8	51.3
17:00-18:00 HOUR	52.4	63.7	50.1
18:00-19:00 HOUR	55.6	76.2	52.7
19:00-20:00 HOUR	57.3	79.1	52.7
20:00-21:00 HOUR	55.4	73.9	52.2
21:00-22:00 HOUR	56.3	73.1	52.3
22:00-23:00 HOUR	54.7	77.5	51.7
23:00-00:00 HOUR	52.8	66.8	50.8
00:00-01:00 HOUR	52.6	66.2	51.0
01:00-02:00 HOUR	52.4	58.9	50.6
02:00-03:00 HOUR	51.9	61.4	50.0
03:00-04:00 HOUR	52.4	62.1	50.5
04:00-05:00 HOUR	51.8	61.0	50.2
05:00-06:00 HOUR	52.6	59.7	51.0
06:00-07:00 HOUR	52.9	62.4	51.3
L <sub>Aeq</sub> 24 hours		54.8	

(MR. SIDA BANJONGBAKROK)  
LABORATORY SUPERVISOR

MAY 9, 2022



## ANALYSIS REPORT

<b>CUSTOMER NAME</b>	: ESSO (THAILAND) PUBLIC COMPANY LIMITED	<b>RECEIVED DATE</b>	: APRIL 23-26, 2022
<b>ADDRESS</b>	: 118 MOO 2 THUNG SUKHLA SI RACHA CHON BURI 20230	<b>ANALYTICAL DATE</b>	: APRIL 23-26, 2022
<b>CONTACT INFORMATION</b>	: TEL : 08 9692 4144 e-mail : paisarn.apiwatananon@exxonmobil.com	<b>REPORT NO.</b>	: 2022-U033192
<b>MEASURING SOURCE</b>	: BAN NHONG AUNG	<b>WORK NO.</b>	: 2019-002022
<b>MEASURING TYPE</b>	: AMBIENT (NOISE)	<b>ANALYSIS NO.</b>	: T22AH919-0004 - T22AH919-0006
<b>MEASURING DATE</b>	: APRIL 23-26, 2022		
<b>MEASURING TIME</b>	: *		
<b>MEASURING METHOD</b>	: INTEGRATED SOUND LEVEL METER#		
<b>MEASURED BY</b>	: MR SIRAPAT JONGPHADUNGKIET		

TIME*	RESULT dB(A)		
	BAN NHONG AUNG		
	APRIL 23 - 24, 2022		
	T22AH919-0004		
	L <sub>Aeq</sub> 1 hour	L <sub>Amax</sub> 1 hour	L <sub>A90</sub> 1 hour
07:00-08:00 HOUR	58.4	82.1	50.4
08:00-09:00 HOUR	53.7	75.2	48.0
09:00-10:00 HOUR	54.9	77.0	47.0
10:00-11:00 HOUR	54.7	69.7	52.9
11:00-12:00 HOUR	55.8	65.7	53.7
12:00-13:00 HOUR	55.3	74.0	53.2
13:00-14:00 HOUR	56.2	75.0	54.5
14:00-15:00 HOUR	55.3	68.8	52.8
15:00-16:00 HOUR	53.4	70.7	50.9
16:00-17:00 HOUR	51.4	70.7	50.3
17:00-18:00 HOUR	54.4	70.1	52.6
18:00-19:00 HOUR	54.0	70.2	53.0
19:00-20:00 HOUR	52.9	71.1	46.7
20:00-21:00 HOUR	54.7	74.7	47.0
21:00-22:00 HOUR	52.5	70.3	51.2
22:00-23:00 HOUR	51.2	71.6	49.3
23:00-00:00 HOUR	47.6	66.5	44.7
00:00-01:00 HOUR	50.8	57.9	48.2
01:00-02:00 HOUR	52.5	68.6	51.1
02:00-03:00 HOUR	51.5	66.8	46.9
03:00-04:00 HOUR	47.4	68.0	45.5
04:00-05:00 HOUR	46.7	64.6	45.0
05:00-06:00 HOUR	51.2	63.1	45.1
06:00-07:00 HOUR	52.9	75.9	46.5
L <sub>Aeq</sub> 24 hours	53.7		



TIME*	RESULT dB(A)		
	BAN NHONG AUNG		
	APRIL 24 - 25, 2022		
	T22AH919-0005		
	L <sub>Aeq</sub> 1 hour	L <sub>Amax</sub> 1 hour	L <sub>A90</sub> 1 hour
07:00-08:00 HOUR	53.5	65.8	46.7
08:00-09:00 HOUR	58.8	75.6	48.1
09:00-10:00 HOUR	55.9	82.3	48.0
10:00-11:00 HOUR	59.4	79.2	47.3
11:00-12:00 HOUR	53.9	74.0	46.1
12:00-13:00 HOUR	55.1	80.4	45.6
13:00-14:00 HOUR	57.8	76.3	52.6
14:00-15:00 HOUR	57.6	80.3	51.8
15:00-16:00 HOUR	57.4	76.9	51.8
16:00-17:00 HOUR	58.9	77.6	50.6
17:00-18:00 HOUR	57.0	75.9	51.2
18:00-19:00 HOUR	56.6	75.8	52.8
19:00-20:00 HOUR	55.3	78.4	45.9
20:00-21:00 HOUR	54.6	76.8	46.9
21:00-22:00 HOUR	54.8	71.7	48.7
22:00-23:00 HOUR	51.1	69.6	48.8
23:00-00:00 HOUR	47.8	71.1	46.0
00:00-01:00 HOUR	47.7	69.5	46.3
01:00-02:00 HOUR	47.8	68.7	46.6
02:00-03:00 HOUR	49.6	70.5	46.5
03:00-04:00 HOUR	48.4	64.0	46.6
04:00-05:00 HOUR	50.8	63.3	46.7
05:00-06:00 HOUR	52.1	70.1	50.0
06:00-07:00 HOUR	53.6	74.8	50.2
L <sub>Aeq</sub> 24 hours		55.3	

TIME*	RESULT dB(A)		
	BAN NHONG AUNG		
	APRIL 25 - 26, 2022		
	T22AH919-0006		
	L <sub>Aeq</sub> 1 hour	L <sub>Amax</sub> 1 hour	L <sub>A90</sub> 1 hour
07:00-08:00 HOUR	55.6	75.2	51.6
08:00-09:00 HOUR	56.8	79.8	53.1
09:00-10:00 HOUR	57.8	83.9	54.2
10:00-11:00 HOUR	59.6	81.5	53.8
11:00-12:00 HOUR	58.6	79.7	55.7
12:00-13:00 HOUR	58.7	81.1	55.1
13:00-14:00 HOUR	59.3	80.9	55.4
14:00-15:00 HOUR	57.2	77.7	50.8
15:00-16:00 HOUR	58.2	78.5	54.5
16:00-17:00 HOUR	56.4	72.3	54.0
17:00-18:00 HOUR	56.7	71.1	54.5
18:00-19:00 HOUR	55.8	69.8	54.0
19:00-20:00 HOUR	55.9	79.9	49.6
20:00-21:00 HOUR	54.0	79.7	49.3
21:00-22:00 HOUR	54.1	77.3	49.8
22:00-23:00 HOUR	51.3	71.3	48.6
23:00-00:00 HOUR	52.1	70.5	48.8
00:00-01:00 HOUR	51.1	66.7	49.0
01:00-02:00 HOUR	51.9	69.2	49.3
02:00-03:00 HOUR	50.8	69.4	48.8
03:00-04:00 HOUR	50.5	71.0	48.9
04:00-05:00 HOUR	51.3	66.9	49.2
05:00-06:00 HOUR	53.0	71.3	49.1
06:00-07:00 HOUR	54.2	74.5	49.7
L <sub>Aeq</sub> 24 hours		56.0	

LABORATORY SUPERVISOR

MAY 9, 2022

คุณภาพน้ำทิ้ง และคุณภาพน้ำทะเล

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## ANALYSIS REPORT

**PROJECT NAME** : ENVIRONMENTAL & SOCIOECONOMIC SURVEY  
**CUSTOMER NAME** : ESSO (THAILAND) PUBLIC COMPANY LIMITED  
**ADDRESS** : 118 MOO 2 THUNG SUKHLA SI RACHA CHON BURI 20230  
**CONTACT INFORMATION** : TEL : 0 3314 2891 e-mail : wanlop.boongor@exxonmobil.com  
**SAMPLING SOURCE** : -  
**SAMPLE TYPE** : WASTEWATER  
**SAMPLING DATE** : JANUARY 5, 2022  
**SAMPLING TIME** : 10:06 HOUR  
**SAMPLING METHOD °** : GRAB  
**SAMPLING BY °** : MR THANADET WANSANOR ๓-145-๓-8104  
**ANALYZED BY** : MISS AMONRAT PUTTALAE ๓-145-๓-4672

**RECEIVED DATE** : JANUARY 6, 2022  
**ANALYTICAL DATE** : JANUARY 6-11, 2022  
**REPORT NO.** : 2022-U003798  
**WORK NO.** : 2019-002022  
**ANALYSIS NO.** : T22AA098-0001

PARAMETER	UNIT	METHOD OF ANALYSIS	RESULT	DETECTION LIMIT
			LBW001 : INLET API T22AA098-0001	
pH <sup>a</sup>	-	ELECTROMETRIC METHOD (SM: 4500-H <sup>+</sup> B)	7.7 (25°C)	-
TEMPERATURE °	°C	LABORATORY AND FIELD METHODS (SM: 2550 B)	42	-
BIOCHEMICAL OXYGEN DEMAND <sup>a</sup>	mg/L	5-DAY BOD TEST, MEMBRANE ELECTRODE METHOD (SM: 5210 B AND 4500-O G)	224	2.0
CHEMICAL OXYGEN DEMAND °	mg/L	CLOSED REFLUX, TITRIMETRIC METHOD (SM: 5220 C)	275	25.0
TOTAL SUSPENDED SOLIDS <sup>a</sup>	mg/L	DRIED AT 103-105 °C (SM: 2540 D)	43.6	5.0
SULPHIDE °	mg/L	METHYLENE BLUE METHOD(SM: 4500-S <sup>2-</sup> D)	0.07	0.02
TOTAL DISSOLVED SOLIDS °	mg/L	DRIED AT 180 °C (SM: 2540 C)	6,914	25
FAT, OIL AND GREASE <sup>a</sup>	mg/L	LIQUID-LIQUID, PARTITION-GRAVIMETRIC METHOD (SM: 5520 B)	37	3
CYANIDE °	mg/L CN <sup>-</sup>	DISTILLATION, COLOURIMETRIC METHOD (SM: 4500 -CN <sup>-</sup> C AND 4500-CN <sup>-</sup> E)	0.040	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-05-01-002

..... (G)

LABORATORY SUPERVISOR  
๓-145-๓-3314  
JANUARY 17, 2022



## ANALYSIS REPORT

<b>PROJECT NAME</b>	: ENVIRONMENTAL & SOCIOECONOMIC SURVEY		
<b>CUSTOMER NAME</b>	: ESSO (THAILAND) PUBLIC COMPANY LIMITED		
<b>ADDRESS</b>	: 118 MOO 2 THUNG SUKHLA SI RACHA CHON BURI 20230		
<b>CONTACT INFORMATION</b>	: TEL : 0 3314 2891 e-mail : wanlop.boongor@exxonmobil.com		
<b>SAMPLING SOURCE</b>	: -		
<b>SAMPLE TYPE</b>	: WASTEWATER	<b>RECEIVED DATE</b>	: FEBRUARY 2, 2022
<b>SAMPLING DATE</b>	: FEBRUARY 2, 2022	<b>ANALYTICAL DATE</b>	: FEBRUARY 2-10, 2022
<b>SAMPLING TIME</b>	: 11:45 HOUR	<b>REPORT NO.</b>	: 2022-U010219
<b>SAMPLING METHOD <sup>c</sup></b>	: GRAB	<b>WORK NO.</b>	: 2019-002022
<b>SAMPLING BY <sup>c</sup></b>	: MR THANADET WANSANOR ๓-145-๓-0056	<b>ANALYSIS NO.</b>	: T22AB844-0001
<b>ANALYZED BY</b>	: MISS AMONRAT PUTTALEE ๓-145-๓-0009		

PARAMETER	UNIT	METHOD OF ANALYSIS	RESULT	DETECTION LIMIT
			LBW001 : INLET API T22AB844-0001	
pH <sup>a</sup>	-	ELECTROMETRIC METHOD (SM: 4500-H <sup>+</sup> B)	8.2 (25°C)	-
TEMPERATURE <sup>c</sup>	°C	LABORATORY AND FIELD METHODS (SM: 2550 B)	39	-
BIOCHEMICAL OXYGEN DEMAND <sup>a</sup>	mg/L	5-DAY BOD TEST, MEMBRANE ELECTRODE METHOD (SM: 5210 B AND 4500-O G)	232	2.0
CHEMICAL OXYGEN DEMAND <sup>c</sup>	mg/L	CLOSED REFLUX, TITRIMETRIC METHOD (SM: 5220 C)	523	25.0
TOTAL SUSPENDED SOLIDS <sup>a</sup>	mg/L	DRIED AT 103-105 °C (SM: 2540 D)	177	5.0
SULPHIDE <sup>c</sup>	mg/L	METHYLENE BLUE METHOD(SM: 4500-S <sup>2-</sup> D)	1.16	0.02
TOTAL DISSOLVED SOLIDS <sup>c</sup>	mg/L	DRIED AT 180 °C (SM: 2540 C)	10,109	25
FAT, OIL AND GREASE <sup>a</sup>	mg/L	LIQUID-LIQUID, PARTITION-GRAVIMETRIC METHOD (SM: 5520 B)	51	3
CYANIDE <sup>c</sup>	mg/L CN <sup>-</sup>	DISTILLATION, COLOURIMETRIC METHOD (SM: 4500 -CN <sup>-</sup> C AND 4500-CN <sup>-</sup> E)	0.062	0.005
<b>SAMPLE CONDITION</b> WATER'S COLOUR/TURBID SEDIMENT			GREY/TURBID 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.

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

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 ( )  
 LABORATORY SUPERVISOR  
 ๓-145-๓-0004  
 FEBRUARY 11, 2022





## ANALYSIS REPORT

**PROJECT NAME** : ENVIRONMENTAL & SOCIOECONOMIC SURVEY  
**CUSTOMER NAME** : ESSO (THAILAND) PUBLIC COMPANY LIMITED  
**ADDRESS** : 118 MOO 2 THUNG SUKHLA SI RACHA CHON BURI 20230  
**CONTACT INFORMATION** : TEL : 0 3314 2891 e-mail : wanlop.boongor@exxonmobil.com  
**SAMPLING SOURCE** : -  
**SAMPLE TYPE** : WASTEWATER  
**SAMPLING DATE** : MARCH 2, 2022  
**SAMPLING TIME** : 11:55 HOUR  
**SAMPLING METHOD <sup>c</sup>** : GRAB  
**SAMPLING BY <sup>c</sup>** : MR THANADET WANSANOR ๓-145-๓-0056  
**ANALYZED BY** : MISS AMONRAT PUTTALEE ๓-145-๓-0009

**RECEIVED DATE** : MARCH 3, 2022  
**ANALYTICAL DATE** : MARCH 3-9, 2022  
**REPORT NO.** : 2022-U015960  
**WORK NO.** : 2019-002022  
**ANALYSIS NO.** : T22AD863-0004

PARAMETER	UNIT	METHOD OF ANALYSIS	RESULT	DETECTION LIMIT
			LBW001 : INLET API T22AD863-0004	
pH <sup>a</sup>	-	ELECTROMETRIC METHOD (SM: 4500-H <sup>+</sup> B)	8.5 (25°C)	-
TEMPERATURE <sup>c</sup>	°C	LABORATORY AND FIELD METHODS (SM: 2550 B)	36	-
BIOCHEMICAL OXYGEN DEMAND <sup>a</sup>	mg/L	5-DAY BOD TEST, MEMBRANE ELECTRODE METHOD (SM: 5210 B AND 4500-O G)	106	2.0
CHEMICAL OXYGEN DEMAND <sup>c</sup>	mg/L	CLOSED REFLUX, TITRIMETRIC METHOD (SM: 5220 C)	143	25.0
TOTAL SUSPENDED SOLIDS <sup>a</sup>	mg/L	DRIED AT 103-105 °C (SM: 2540 D)	102	5.0
SULPHIDE <sup>c</sup>	mg/L	METHYLENE BLUE METHOD(SM: 4500-S <sup>2-</sup> D)	0.19	0.02
TOTAL DISSOLVED SOLIDS <sup>c</sup>	mg/L	DRIED AT 180 °C (SM: 2540 C)	6,870	25
FAT, OIL AND GREASE <sup>a</sup>	mg/L	LIQUID-LIQUID, PARTITION-GRAVIMETRIC METHOD (SM: 5520 B)	47	3
CYANIDE <sup>c</sup>	mg/L CN <sup>-</sup>	DISTILLATION, COLOURIMETRIC METHOD (SM: 4500-CN <sup>-</sup> C AND 4500-CN <sup>-</sup> E)	< 0.005	0.005
<b>SAMPLE CONDITION</b>				
WATER'S COLOUR/TURBID			GREY/TURBID	
SEDIMENT			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-02-03-001

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 (MR. THANADET WANSANOR)  
 LABORATORY SUPERVISOR  
 ๓-145-๓-0004  
 MARCH 15, 2022



## ANALYSIS REPORT

**PROJECT NAME** : ENVIRONMENTAL & SOCIOECONOMIC SURVEY  
**CUSTOMER NAME** : ESSO (THAILAND) PUBLIC COMPANY LIMITED  
**ADDRESS** : 118 MOO 2 THUNG SUKHLA SI RACHA CHON BURI 20230  
**CONTACT INFORMATION** : TEL : 0 3314 2891 e-mail : wanlop.boongor@exxonmobil.com  
**SAMPLING SOURCE** : -  
**SAMPLE TYPE** : WASTEWATER  
**SAMPLING DATE** : APRIL 7, 2022  
**SAMPLING TIME** : 10:30 HOUR  
**SAMPLING METHOD** <sup>c</sup> : GRAB  
**SAMPLING BY** <sup>c</sup> : MR THANADET WANSANOR ๓-145-๓-0056  
**ANALYZED BY** : MISS AMONRAT PUTTALAE ๓-145-๓-0009

**RECEIVED DATE** : APRIL 7, 2022  
**ANALYTICAL DATE** : APRIL 7-12, 2022  
**REPORT NO.** : 2022-U028794  
**WORK NO.** : 2019-002022  
**ANALYSIS NO.** : T22AG688-0001

PARAMETER	UNIT	METHOD OF ANALYSIS	RESULT	DETECTION LIMIT
			LBW001 : INLET API T22AG688-0001	
pH <sup>a</sup>	-	ELECTROMETRIC METHOD (SM: 4500-H <sup>+</sup> B)	6.8 (25°C)	-
TEMPERATURE <sup>c</sup>	°C	LABORATORY AND FIELD METHODS (SM: 2550 B)	39	-
BIOCHEMICAL OXYGEN DEMAND <sup>a</sup>	mg/L	5-DAY BOD TEST, MEMBRANE ELECTRODE METHOD (SM: 5210 B AND 4500-O G)	698	2.0
CHEMICAL OXYGEN DEMAND <sup>c</sup>	mg/L	CLOSED REFLUX, TITRIMETRIC METHOD (SM: 5220 C)	2,400	25.0
TOTAL SUSPENDED SOLIDS <sup>a</sup>	mg/L	DRIED AT 103-105 °C (SM: 2540 D)	1,005	5.0
SULPHIDE <sup>c</sup>	mg/L	METHYLENE BLUE METHOD (SM: 4500-S <sup>2-</sup> D)	0.20	0.02
TOTAL DISSOLVED SOLIDS <sup>b</sup>	mg/L	DRIED AT 180 °C (SM: 2540 C)	4,610	25
FAT, OIL AND GREASE <sup>c</sup>	mg/L	LIQUID-LIQUID, PARTITION-GRAVIMETRIC METHOD (SM: 5520 B)	711	3
CYANIDE <sup>c</sup>	mg/L CN <sup>-</sup>	DISTILLATION, COLOURIMETRIC METHOD (SM: 4500-CN <sup>-</sup> C AND 4500-CN <sup>-</sup> E)	0.037	0.005
<b>SAMPLE CONDITION</b> WATER'S COLOUR/TURBID SEDIMENT			BLACK/TURBID 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.

RELEASE ORDER NO. : EV-07-04-002

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 (NG)  
 LABORATORY SUPERVISOR  
 ๓-145-๓-0004  
 APRIL 21, 2022



## ANALYSIS REPORT

**PROJECT NAME** : ENVIRONMENTAL & SOCIOECONOMIC SURVEY  
**CUSTOMER NAME** : ESSO (THAILAND) PUBLIC COMPANY LIMITED  
**ADDRESS** : 118 MOO 2 THUNG SUKHLA SI RACHA CHON BURI 20230  
**CONTACT INFORMATION** : TEL : 0 3314 2891 e-mail : wanlop.boongor@exxonmobil.com  
**SAMPLING SOURCE** : -  
**SAMPLE TYPE** : WASTEWATER  
**SAMPLING DATE** : MAY 11, 2022  
**SAMPLING TIME** : 09:55 HOUR  
**SAMPLING METHOD<sup>c</sup>** : GRAB  
**SAMPLING BY<sup>c</sup>** : MR THANADET WANSANOR ๓-145-๓-0056  
**ANALYZED BY** : MISS AMONRAT PUTTALEE ๓-145-๓-0009

**RECEIVED DATE** : MAY 11, 2022  
**ANALYTICAL DATE** : MAY 11-19, 2022  
**REPORT NO.** : 2022-U038258  
**WORK NO.** : 2019-002022  
**ANALYSIS NO.** : T22AI877-0001

PARAMETER	UNIT	METHOD OF ANALYSIS	RESULT	DETECTION LIMIT
			LBW001 : INLET API T22AI877-0001	
pH <sup>a</sup>	-	ELECTROMETRIC METHOD (SM: 4500-H <sup>+</sup> B)	7.5 (25°C)	-
TEMPERATURE <sup>c</sup>	°C	LABORATORY AND FIELD METHODS (SM: 2550 B)	36	-
BIOCHEMICAL OXYGEN DEMAND <sup>a</sup>	mg/L	5-DAY BOD TEST, MEMBRANE ELECTRODE METHOD (SM: 5210 B AND 4500-O G)	241	2.0
CHEMICAL OXYGEN DEMAND <sup>c</sup>	mg/L	CLOSED REFLUX, TITRIMETRIC METHOD (SM: 5220 C)	394	25.0
TOTAL SUSPENDED SOLIDS <sup>a</sup>	mg/L	DRIED AT 103-105 °C (SM: 2540 D)	264	5.0
SULPHIDE <sup>c</sup>	mg/L	METHYLENE BLUE METHOD(SM: 4500-S <sup>2-</sup> D)	0.10	0.02
TOTAL DISSOLVED SOLIDS <sup>b</sup>	mg/L	DRIED AT 180 °C (SM: 2540 C)	5,500	25
FAT, OIL AND GREASE <sup>a</sup>	mg/L	LIQUID-LIQUID, PARTITION-GRAVIMETRIC METHOD (SM: 5520 B)	49	3
CYANIDE <sup>c</sup>	mg/L CN <sup>-</sup>	DISTILLATION, COLOURIMETRIC METHOD (SM: 4500 -CN <sup>-</sup> C AND 4500-CN <sup>-</sup> E)	0.050	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-11-05-004



LABORATORY SUPERVISOR  
๓-145-๓-0004  
MAY 25, 2022



## ANALYSIS REPORT

**PROJECT NAME** : ENVIRONMENTAL & SOCIOECONOMIC SURVEY  
**CUSTOMER NAME** : ESSO (THAILAND) PUBLIC COMPANY LIMITED  
**ADDRESS** : 118 MOO 2 THUNG SUKHLA SI RACHA CHON BURI 20230  
**CONTACT INFORMATION** : TEL : 0 3314 2891 e-mail : wanlop.boongor@exxonmobil.com  
**SAMPLING SOURCE** : -  
**SAMPLE TYPE** : WASTEWATER  
**SAMPLING DATE** : MAY 11, 2022  
**SAMPLING TIME** : 09:55 HOUR  
**SAMPLING METHOD** : GRAB  
**SAMPLING BY** : MR THANADET WANSANOR  
**ANALYZED BY** : MISS NADNAPA KAMOLBOON

**RECEIVED DATE** : MAY 11, 2022  
**ANALYTICAL DATE** : MAY 11-19, 2022  
**REPORT NO.** : 2022-U038260  
**WORK NO.** : 2019-002022  
**ANALYSIS NO.** : T22AI877-0002

PARAMETER	UNIT	METHOD OF ANALYSIS	RESULT	DETECTION LIMIT
			LBW001 : INLET API T22AI877-0002	
METALS				
MERCURY	mg/L Hg	DIGESTION, COLD-VAPOUR ATOMIC ABSORPTION SPECTROMETRIC METHOD (SM: 3112 B)	< 0.0005	0.0005
SAMPLE CONDITION				
WATER'S COLOUR/TURBID			YELLOW/TURBID	
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-11-05-004

LABORATORY SUPERVISOR

MAY 25, 2022



## ANALYSIS REPORT

**PROJECT NAME** : ENVIRONMENTAL & SOCIOECONOMIC SURVEY  
**CUSTOMER NAME** : ESSO (THAILAND) PUBLIC COMPANY LIMITED  
**ADDRESS** : 118 MOO 2 THUNG SUKHLA SI RACHA CHON BURI 20230  
**CONTACT INFORMATION** : TEL : 0 3314 2891 e-mail : wanlop.boongor@exxonmobil.com  
**SAMPLING SOURCE** : -  
**SAMPLE TYPE** : WASTEWATER  
**SAMPLING DATE** : JUNE 1, 2022  
**SAMPLING TIME** : 09:15 HOUR  
**SAMPLING METHOD <sup>c</sup>** : GRAB  
**SAMPLING BY <sup>c</sup>** : MR NAPASIT SRIPIM ๓-145-๓-0085  
**ANALYZED BY** : MISS AMONRAT PUTTALEE ๓-145-๓-0009

**RECEIVED DATE** : JUNE 1, 2022  
**ANALYTICAL DATE** : JUNE 1-7, 2022  
**REPORT NO.** : 2022-U044910  
**WORK NO.** : 2019-002022  
**ANALYSIS NO.** : T22AK402-0001

PARAMETER	UNIT	METHOD OF ANALYSIS	RESULT	DETECTION LIMIT
			LBW001 : INLET API T22AK402-0001	
pH <sup>a</sup>	-	ELECTROMETRIC METHOD (SM: 4500-H <sup>+</sup> B)	8.2 (25°C)	-
TEMPERATURE <sup>c</sup>	°C	LABORATORY AND FIELD METHODS (SM: 2550 B)	36	-
BIOCHEMICAL OXYGEN DEMAND <sup>a</sup>	mg/L	5-DAY BOD TEST, MEMBRANE ELECTRODE METHOD (SM: 5210 B AND 4500-O G)	232	2.0
CHEMICAL OXYGEN DEMAND <sup>c</sup>	mg/L	CLOSED REFLUX, TITRIMETRIC METHOD (SM: 5220 C)	281	25.0
TOTAL SUSPENDED SOLIDS <sup>a</sup>	mg/L	DRIED AT 103-105 °C (SM: 2540 D)	120	5.0
SULPHIDE <sup>c</sup>	mg/L	METHYLENE BLUE METHOD(SM: 4500-S <sup>2-</sup> D)	0.11	0.02
TOTAL DISSOLVED SOLIDS <sup>c</sup>	mg/L	DRIED AT 180 °C (SM: 2540 C)	6,386	25
FAT, OIL AND GREASE <sup>a</sup>	mg/L	LIQUID-LIQUID, PARTITION-GRAVIMETRIC METHOD (SM: 5520 B)	27	3
CYANIDE <sup>c</sup>	mg/L CN <sup>-</sup>	DISTILLATION, COLOURIMETRIC METHOD (SM: 4500 -CN <sup>-</sup> C AND 4500-CN <sup>-</sup> E)	0.026	0.005
<b>SAMPLE CONDITION</b> WATER'S COLOUR/TURBID SEDIMENT			GREY/TURBID 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.

RELEASE ORDER NO. : EV-01-06-001

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LABORATORY SUPERVISOR  
๓-145-๓-0004  
JUNE 15, 2022



## ANALYSIS REPORT

**PROJECT NAME** : ENVIRONMENTAL & SOCIOECONOMIC SURVEY  
**CUSTOMER NAME** : ESSO (THAILAND) PUBLIC COMPANY LIMITED  
**ADDRESS** : 118 MOO 2 THUNG SUKHLA SI RACHA CHON BURI 20230  
**CONTACT INFORMATION** : TEL : 0 3314 2891 e-mail : wanlop.boongor@exxonmobil.com  
**SAMPLING SOURCE** : -  
**SAMPLE TYPE** : WASTEWATER  
**SAMPLING DATE** : MAY 11, 2022  
**SAMPLING TIME** : 10:20 HOUR  
**SAMPLING METHOD °** : GRAB  
**SAMPLING BY °** : MR THANADET WANSANOR  
**ANALYZED BY** : MISS AMONRAT PUTTALEE

**RECEIVED DATE** : MAY 11, 2022  
**ANALYTICAL DATE** : MAY 11-19, 2022  
**REPORT NO.** : 2022-U038266  
**WORK NO.** : 2019-002022  
**ANALYSIS NO.** : T22AI877-0005

PARAMETER	UNIT	METHOD OF ANALYSIS	RESULT	DETECTION LIMIT
			LBW016 : CLARIFIER (SUPERNATANT) T22AI877-0005	
pH <sup>a</sup>	-	ELECTROMETRIC METHOD (SM: 4500-H <sup>+</sup> B)	7.5 (25°C)	-
PHOSPHATE <sup>c</sup>	mg/L	VANADOMOLYBDOPHOSPHORIC ADID COLOURIMETRIC METHOD (SM: 4500-P C)	0.98	0.03
BIOCHEMICAL OXYGEN DEMAND <sup>a</sup>	mg/L	5-DAY BOD TEST, MEMBRANE ELECTRODE METHOD (SM: 5210 B AND 4500-O G)	6.4	2.0
CHEMICAL OXYGEN DEMAND <sup>c</sup>	mg/L	CLOSED REFLUX, TITRIMETRIC METHOD (SM: 5220 C)	48.6	25.0
TOTAL SUSPENDED SOLIDS <sup>a</sup>	mg/L	DRIED AT 103-105 °C (SM: 2540 D)	8.7	5.0
AMMONIA <sup>c</sup>	mg/L NH <sub>3</sub>	KJELDAHL (SM: 4500-NH <sub>3</sub> B AND 4500-NH <sub>3</sub> C) AND CALCULATION METHOD	44.6	1.8
FAT, OIL AND GREASE <sup>c</sup>	mg/L	LIQUID-LIQUID, PARTITION-GRAVIMETRIC METHOD (SM: 5520 B)	1.8	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-11-05-004

.....  
(Signature)  
LABORATORY SUPERVISOR

MAY 25, 2022





## ANALYSIS REPORT

**PROJECT NAME** : ENVIRONMENTAL & SOCIOECONOMIC SURVEY  
**CUSTOMER NAME** : ESSO (THAILAND) PUBLIC COMPANY LIMITED  
**ADDRESS** : 118 MOO 2 THUNG SUKHLA SI RACHA CHON BURI 20230  
**CONTACT INFORMATION** : TEL : 0 3314 2891 e-mail : wanlop.boongor@exxonmobil.com  
**SAMPLING SOURCE** : -  
**SAMPLE TYPE** : WASTEWATER  
**SAMPLING DATE** : MAY 11, 2022  
**SAMPLING TIME** : 10:10 HOUR  
**SAMPLING METHOD <sup>c</sup>** : GRAB  
**SAMPLING BY <sup>c</sup>** : MR THANADET WANSANOR ๓-145-๓-0056  
**ANALYZED BY** : MISS AMONRAT PUTTALEE ๓-145-๓-0009

**RECEIVED DATE** : MAY 11, 2022  
**ANALYTICAL DATE** : MAY 11-19, 2022  
**REPORT NO.** : 2022-U038267  
**WORK NO.** : 2019-002022  
**ANALYSIS NO.** : T22A1877-0006

PARAMETER	UNIT	METHOD OF ANALYSIS	RESULT	DETECTION LIMIT
			LBW013 : SEDIMENTATION ZONE 2 T22A1877-0006	
BIOCHEMICAL OXYGEN DEMAND <sup>a</sup>	mg/L	5-DAY BOD TEST, MEMBRANE ELECTRODE METHOD (SM: 5210 B AND 4500-O G)	6.8	2.0
CHEMICAL OXYGEN DEMAND <sup>c</sup>	mg/L	CLOSED REFLUX, TITRIMETRIC METHOD (SM: 5220 C)	47.0	25.0
TOTAL SUSPENDED SOLIDS <sup>a</sup>	mg/L	DRIED AT 103-105 °C (SM: 2540 D)	6.8	5.0
<b>SAMPLE CONDITION</b> WATER'S COLOUR/TURBID SEDIMENT			YELLOW/CLEAR GREEN	

<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-11-05-004

LABORATORY SUPERVISOR  
๓-145-๓-0004  
MAY 25, 2022



## ANALYSIS REPORT

**PROJECT NAME** : ENVIRONMENTAL & SOCIOECONOMIC SURVEY  
**CUSTOMER NAME** : ESSO (THAILAND) PUBLIC COMPANY LIMITED  
**ADDRESS** : 118 MOO 2 THUNG SUKHLA SI RACHA CHON BURI 20230  
**CONTACT INFORMATION** : TEL : 0 3314 2891 e-mail : wanlop.boongor@exxonmobil.com  
**SAMPLING SOURCE** : -  
**SAMPLE TYPE** : EFFLUENT  
**SAMPLING DATE** : JANUARY 5, 2022  
**SAMPLING TIME** : 09:45 HOUR  
**SAMPLING METHOD °** : GRAB  
**SAMPLING BY °** : MR THANADET WANSANOR ๓-145-๓-8104  
**ANALYZED BY** : MISS AMONRAT PUTTALEE ๓-145-๓-4672

**RECEIVED DATE** : JANUARY 6, 2022  
**ANALYTICAL DATE** : JANUARY 6-11, 2022  
**REPORT NO.** : 2022-U003802  
**WORK NO.** : 2019-002022  
**ANALYSIS NO.** : T22AA098-0005

PARAMETER	UNIT	METHOD OF ANALYSIS	RESULT	DETECTION LIMIT
			LBW004 : OP OUTLET T22AA098-0005	
pH <sup>a</sup>	-	ELECTROMETRIC METHOD (SM: 4500-H <sup>+</sup> B)	7.8 (25°C)	-
TEMPERATURE °	°C	LABORATORY AND FIELD METHODS (SM: 2550 B)	28	-
BIOCHEMICAL OXYGEN DEMAND <sup>a</sup>	mg/L	5-DAY BOD TEST, MEMBRANE ELECTRODE METHOD (SM: 5210 B AND 4500-O G)	2.5	2.0
CHEMICAL OXYGEN DEMAND °	mg/L	CLOSED REFLUX, TITRIMETRIC METHOD (SM: 5220 C)	79.2	25.0
TOTAL SUSPENDED SOLIDS <sup>a</sup>	mg/L	DRIED AT 103-105 °C (SM: 2540 D)	14.9	5.0
SULPHIDE °	mg/L	METHYLENE BLUE METHOD(SM: 4500-S <sup>2-</sup> D)	< 0.02	0.02
TOTAL DISSOLVED SOLIDS °	mg/L	DRIED AT 180 °C (SM: 2540 C)	38,780	25
FAT, OIL AND GREASE °	mg/L	LIQUID-LIQUID, PARTITION-GRAVIMETRIC METHOD (SM: 5520 B)	1.1	3
CYANIDE °	mg/L CN <sup>-</sup>	DISTILLATION, COLOURIMETRIC METHOD (SM: 4500-CN <sup>-</sup> C AND 4500-CN <sup>-</sup> E)	< 0.005	0.005
<b>SAMPLE CONDITION</b>				
WATER'S COLOUR/TURBID			YELLOW/CLEAR	
SEDIMENT			BROWN	

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

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

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

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

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

RELEASE ORDER NO. : EV-05-01-002

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 (MRS PIYAPAT SUTTHAMANGTONG)  
 LABORATORY SUPERVISOR  
 ๓-145-๓-3314  
 JANUARY 17, 2022



## ANALYSIS REPORT

**PROJECT NAME** : ENVIRONMENTAL & SOCIOECONOMIC SURVEY  
**CUSTOMER NAME** : ESSO (THAILAND) PUBLIC COMPANY LIMITED  
**ADDRESS** : 118 MOO 2 THUNG SUKHLA SI RACHA CHON BURI 20230  
**CONTACT INFORMATION** : TEL : 0 3314 2891 e-mail : wanlop.boongor@exxonmobil.com  
**SAMPLING SOURCE** : -  
**SAMPLE TYPE** : EFFLUENT  
**SAMPLING DATE** : FEBRUARY 2, 2022  
**SAMPLING TIME** : 11:15 HOUR  
**SAMPLING METHOD °** : GRAB  
**SAMPLING BY °** : MR THANADET WANSANOR จ-145-๑-0056  
**ANALYZED BY** : MISS AMONRAT PUTTALEE จ-145-๑-0009

**RECEIVED DATE** : FEBRUARY 2, 2022  
**ANALYTICAL DATE** : FEBRUARY 2-10, 2022  
**REPORT NO.** : 2022-U010223  
**WORK NO.** : 2019-002022  
**ANALYSIS NO.** : T22AB844-0005

PARAMETER	UNIT	METHOD OF ANALYSIS	RESULT	DETECTION LIMIT
			LBW004 : OP OUTLET T22AB844-0005	
pH <sup>a</sup>	-	ELECTROMETRIC METHOD (SM: 4500-H <sup>+</sup> B)	7.9 (25°C)	-
TEMPERATURE °	°C	LABORATORY AND FIELD METHODS (SM: 2550 B)	31	-
BIOCHEMICAL OXYGEN DEMAND <sup>a</sup>	mg/L	5-DAY BOD TEST, MEMBRANE ELECTRODE METHOD (SM: 5210 B AND 4500-O G)	2.0	2.0
CHEMICAL OXYGEN DEMAND °	mg/L	CLOSED REFLUX, TITRIMETRIC METHOD (SM: 5220 C)	75.4	25.0
TOTAL SUSPENDED SOLIDS <sup>a</sup>	mg/L	DRIED AT 103-105 °C (SM: 2540 D)	6.5	5.0
SULPHIDE °	mg/L	METHYLENE BLUE METHOD(SM: 4500-S <sup>2-</sup> D)	< 0.02	0.02
TOTAL DISSOLVED SOLIDS °	mg/L	DRIED AT 180 °C (SM: 2540 C)	39,271	25
FAT, OIL AND GREASE °	mg/L	LIQUID-LIQUID, PARTITION-GRAVIMETRIC METHOD (SM: 5520 B)	0.8	3
CYANIDE °	mg/L CN <sup>-</sup>	DISTILLATION, COLOURIMETRIC METHOD (SM: 4500-CN <sup>-</sup> C AND 4500-CN <sup>-</sup> E)	< 0.005	0.005
<b>SAMPLE CONDITION</b>				
WATER'S COLOUR/TURBID			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-02-02-001

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 ( [REDACTED] )  
 LABORATORY SUPERVISOR  
 จ-145-๑-0004  
 FEBRUARY 11, 2022



## ANALYSIS REPORT

**PROJECT NAME** : ENVIRONMENTAL & SOCIOECONOMIC SURVEY  
**CUSTOMER NAME** : ESSO (THAILAND) PUBLIC COMPANY LIMITED  
**ADDRESS** : 118 MOO 2 THUNG SUKHLA SI RACHA CHON BURI 20230  
**CONTACT INFORMATION** : TEL : 0 3314 2891 e-mail : wanlop.boongor@exxonmobil.com  
**SAMPLING SOURCE** : -  
**SAMPLE TYPE** : EFFLUENT  
**SAMPLING DATE** : MARCH 2, 2022  
**SAMPLING TIME** : 12:30 HOUR  
**SAMPLING METHOD °** : GRAB  
**SAMPLING BY °** : MR THANADET WANSANOR จ-145-ก-0056  
**ANALYZED BY** : MISS AMONRAT PUTTALEE จ-145-ก-0009

**RECEIVED DATE** : MARCH 3, 2022  
**ANALYTICAL DATE** : MARCH 3-9, 2022  
**REPORT NO.** : 2022-U015961  
**WORK NO.** : 2019-002022  
**ANALYSIS NO.** : T22AD863-0005

PARAMETER	UNIT	METHOD OF ANALYSIS	RESULT	DETECTION LIMIT
			LBW004 : OP OUTLET T22AD863-0005	
pH <sup>a</sup>	-	ELECTROMETRIC METHOD (SM: 4500-H <sup>+</sup> B)	8.2 (25°C)	-
TEMPERATURE °	°C	LABORATORY AND FIELD METHODS (SM: 2550 B)	33	-
BIOCHEMICAL OXYGEN DEMAND <sup>a</sup>	mg/L	5-DAY BOD TEST, MEMBRANE ELECTRODE METHOD (SM: 5210 B AND 4500-O G)	4.0	2.0
CHEMICAL OXYGEN DEMAND °	mg/L	CLOSED REFLUX, TITRIMETRIC METHOD (SM: 5220 C)	81.6	25.0
TOTAL SUSPENDED SOLIDS <sup>a</sup>	mg/L	DRIED AT 103-105 °C (SM: 2540 D)	12.6	5.0
SULPHIDE °	mg/L	METHYLENE BLUE METHOD(SM: 4500-S <sup>2-</sup> D)	< 0.02	0.02
TOTAL DISSOLVED SOLIDS °	mg/L	DRIED AT 180 °C (SM: 2540 C)	38,860	25
FAT, OIL AND GREASE °	mg/L	LIQUID-LIQUID, PARTITION-GRAVIMETRIC METHOD (SM: 5520 B)	1.2	3
CYANIDE °	mg/L CN <sup>-</sup>	DISTILLATION, COLOURIMETRIC METHOD (SM: 4500-CN <sup>-</sup> C AND 4500-CN <sup>-</sup> E)	< 0.005	0.005
<b>SAMPLE CONDITION</b>				
WATER'S COLOUR/TURBID			YELLOW/CLEAR	
SEDIMENT			YELLOW	

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

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

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

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

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

RELEASE ORDER NO. : EV-02-03-001

(MRS PIYAPAT SUTTAMANUTWONG)  
LABORATORY SUPERVISOR  
จ-145-ก-0004  
MARCH 15, 2022



## ANALYSIS REPORT

<b>PROJECT NAME</b>	: ENVIRONMENTAL & SOCIOECONOMIC SURVEY		
<b>CUSTOMER NAME</b>	: ESSO (THAILAND) PUBLIC COMPANY LIMITED		
<b>ADDRESS</b>	: 118 MOO 2 THUNG SUKHLA SI RACHA CHON BURI 20230		
<b>CONTACT INFORMATION</b>	: TEL : 0 3314 2891 e-mail : wanlop.boongor@exxonmobil.com		
<b>SAMPLING SOURCE</b>	: -		
<b>SAMPLE TYPE</b>	: EFFLUENT	<b>RECEIVED DATE</b>	: APRIL 7, 2022
<b>SAMPLING DATE</b>	: APRIL 7, 2022	<b>ANALYTICAL DATE</b>	: APRIL 7-12, 2022
<b>SAMPLING TIME</b>	: 10:50 HOUR	<b>REPORT NO.</b>	: 2022-U028799
<b>SAMPLING METHOD °</b>	: GRAB	<b>WORK NO.</b>	: 2019-002022
<b>SAMPLING BY °</b>	: MR THANADET WANSANOR ๓-145-๓-0056	<b>ANALYSIS NO.</b>	: T22AG688-0005
<b>ANALYZED BY</b>	: MISS AMONRAT PUTTALEE ๓-145-๓-0009		

PARAMETER	UNIT	METHOD OF ANALYSIS	RESULT	DETECTION LIMIT
			LBW004 : OP OUTLET T22AG688-0005	
pH <sup>a</sup>	-	ELECTROMETRIC METHOD (SM: 4500-H <sup>+</sup> B)	7.8 (25°C)	-
TEMPERATURE °	°C	LABORATORY AND FIELD METHODS (SM: 2550 B)	32	-
BIOCHEMICAL OXYGEN DEMAND <sup>a</sup>	mg/L	5-DAY BOD TEST, MEMBRANE ELECTRODE METHOD (SM: 5210 B AND 4500-O G)	3.2	2.0
CHEMICAL OXYGEN DEMAND °	mg/L	CLOSED REFLUX, TITRIMETRIC METHOD (SM: 5220 C)	84.1	25.0
TOTAL SUSPENDED SOLIDS <sup>a</sup>	mg/L	DRIED AT 103-105 °C (SM: 2540 D)	5.8	5.0
SULPHIDE °	mg/L	METHYLENE BLUE METHOD (SM: 4500-S <sup>2-</sup> D)	< 0.02	0.02
TOTAL DISSOLVED SOLIDS °	mg/L	DRIED AT 180 °C (SM: 2540 C)	38,105	25
FAT, OIL AND GREASE °	mg/L	LIQUID-LIQUID, PARTITION-GRAVIMETRIC METHOD (SM: 5520 B)	0.5	3
CYANIDE °	mg/L CN <sup>-</sup>	DISTILLATION, COLOURIMETRIC METHOD (SM: 4500-CN <sup>-</sup> C AND 4500-CN <sup>-</sup> E)	< 0.005	0.005
<b>SAMPLE CONDITION</b>				
WATER'S COLOUR/TURBID			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-07-04-002

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(MR. PATTARAT SUTTHANONTWONG)  
LABORATORY SUPERVISOR  
๓-145-๓-0004  
APRIL 21, 2022





## ANALYSIS REPORT

<b>PROJECT NAME</b>	: ENVIRONMENTAL & SOCIOECONOMIC SURVEY	<b>RECEIVED DATE</b>	: MAY 11, 2022
<b>CUSTOMER NAME</b>	: ESSO (THAILAND) PUBLIC COMPANY LIMITED	<b>ANALYTICAL DATE</b>	: MAY 11-19, 2022
<b>ADDRESS</b>	: 118 MOO 2 THUNG SUKHLA SI RACHA CHON BURI 20230	<b>REPORT NO.</b>	: 2022-U038268
<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>	: T22AI877-0007
<b>SAMPLE TYPE</b>	: EFFLUENT		
<b>SAMPLING DATE</b>	: MAY 11, 2022		
<b>SAMPLING TIME</b>	: 12:20 HOUR		
<b>SAMPLING METHOD °</b>	: GRAB		
<b>SAMPLING BY °</b>	: MR THANADET WANSANOR จ-145-จ-0056		
<b>ANALYZED BY</b>	: MISS AMONRAT PUTTALEE จ-145-จ-0009		

PARAMETER	UNIT	METHOD OF ANALYSIS	RESULT	DETECTION LIMIT
			LBW004 : OP OUTLET T22AI877-0007	
pH <sup>a</sup>	-	ELECTROMETRIC METHOD (SM: 4500-H <sup>+</sup> B)	7.7 (25°C)	-
TEMPERATURE °	°C	LABORATORY AND FIELD METHODS (SM: 2550 B)	33	-
BIOCHEMICAL OXYGEN DEMAND °	mg/L	5-DAY BOD TEST, MEMBRANE ELECTRODE METHOD (SM: 5210 B AND 4500-O G)	< 2.0	2.0
CHEMICAL OXYGEN DEMAND °	mg/L	CLOSED REFLUX, TITRIMETRIC METHOD (SM: 5220 C)	59.6	25.0
TOTAL SUSPENDED SOLIDS °	mg/L	DRIED AT 103-105 °C (SM: 2540 D)	< 5.0	5.0
SULPHIDE °	mg/L	METHYLENE BLUE METHOD(SM: 4500-S <sup>2-</sup> D)	< 0.02	0.02
TOTAL DISSOLVED SOLIDS °	mg/L	DRIED AT 180 °C (SM: 2540 C)	30,600	25
FAT, OIL AND GREASE °	mg/L	LIQUID-LIQUID, PARTITION-GRAVIMETRIC METHOD (SM: 5520 B)	0.8	3
CYANIDE °	mg/L CN <sup>-</sup>	DISTILLATION, COLOURIMETRIC METHOD (SM: 4500-CN <sup>-</sup> C AND 4500-CN <sup>-</sup> E)	< 0.005	0.005
<b>SAMPLE CONDITION</b>				
WATER'S COLOUR/TURBID			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-11-05-004

(MRS. TITAPAT SUTTHAMNONG)  
LABORATORY SUPERVISOR  
จ-145-จ-0004  
MAY 25, 2022





## ANALYSIS REPORT

**PROJECT NAME** : ENVIRONMENTAL & SOCIOECONOMIC SURVEY  
**CUSTOMER NAME** : ESSO (THAILAND) PUBLIC COMPANY LIMITED  
**ADDRESS** : 118 MOO 2 THUNG SUKHILA SI RACHA CHON BURI 20230  
**CONTACT INFORMATION** : TEL : 0 3314 2891 e-mail : wanlop.boongor@exxonmobil.com  
**SAMPLING SOURCE** : -  
**SAMPLE TYPE** : EFFLUENT  
**SAMPLING DATE** : MAY 11, 2022  
**SAMPLING TIME** : 12:20 HOUR  
**SAMPLING METHOD** : GRAB  
**SAMPLING BY** : MR THANADET WANSANOR  
**ANALYZED BY** : MISS NADNAPA KAMOLBOON

**RECEIVED DATE** : MAY 11, 2022  
**ANALYTICAL DATE** : MAY 11-19, 2022  
**REPORT NO.** : 2022-U038269  
**WORK NO.** : 2019-002022  
**ANALYSIS NO.** : T22AI877-0008

PARAMETER	UNIT	METHOD OF ANALYSIS	RESULT	DETECTION LIMIT
			LBW004 : OP OUTLET T22AI877-0008	
METALS				
MERCURY	.mg/L Hg	DIGESTION, COLD-VAPOUR ATOMIC ABSORPTION SPECTROMETRIC METHOD (SM: 3112 B)	< 0.0005	0.0005
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.

RELEASE ORDER NO. : EV-11-05-004

MAY 25, 2022



## ANALYSIS REPORT

<b>PROJECT NAME</b>	: ENVIRONMENTAL & SOCIOECONOMIC SURVEY	<b>RECEIVED DATE</b>	: JUNE 1, 2022
<b>CUSTOMER NAME</b>	: ESSO (THAILAND) PUBLIC COMPANY LIMITED	<b>ANALYTICAL DATE</b>	: JUNE 1-7, 2022
<b>ADDRESS</b>	: 118 MOO 2 THUNG SUKHLA SI RACHA CHON BURI 20230	<b>REPORT NO.</b>	: 2022-U044950
<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>	: T22AK402-0005
<b>SAMPLE TYPE</b>	: EFFLUENT		
<b>SAMPLING DATE</b>	: JUNE 1, 2022		
<b>SAMPLING TIME</b>	: 09:50 HOUR		
<b>SAMPLING METHOD <sup>c</sup></b>	: GRAB		
<b>SAMPLING BY <sup>c</sup></b>	: MR NAPASIT SRIPIM ๓-145-๓-0085		
<b>ANALYZED BY</b>	: MISS AMONRAT PUTTALEE ๓-145-๓-0009		

PARAMETER	UNIT	METHOD OF ANALYSIS	RESULT	DETECTION LIMIT
			LBW004 : OP OUTLET T22AK402-0005	
pH <sup>a</sup>	-	ELECTROMETRIC METHOD (SM: 4500-H <sup>+</sup> B)	7.9 (25°C)	-
TEMPERATURE <sup>c</sup>	°C	LABORATORY AND FIELD METHODS (SM: 2550 B)	32	-
BIOCHEMICAL OXYGEN DEMAND <sup>a</sup>	mg/L	5-DAY BOD TEST, MEMBRANE ELECTRODE METHOD (SM: 5210 B AND 4500-O G)	2.8	2.0
CHEMICAL OXYGEN DEMAND <sup>c</sup>	mg/L	CLOSED REFLUX, TITRIMETRIC METHOD (SM: 5220 C)	75.2	25.0
TOTAL SUSPENDED SOLIDS <sup>a</sup>	mg/L	DRIED AT 103-105 °C (SM: 2540 D)	9.3	5.0
SULPHIDE <sup>c</sup>	mg/L	METHYLENE BLUE METHOD(SM: 4500-S <sup>2-</sup> D)	< 0.02	0.02
TOTAL DISSOLVED SOLIDS <sup>c</sup>	mg/L	DRIED AT 180 °C (SM: 2540 C)	28,900	25
FAT, OIL AND GREASE <sup>c</sup>	mg/L	LIQUID-LIQUID, PARTITION-GRAVIMETRIC METHOD (SM: 5520 B)	1.1	3
CYANIDE <sup>c</sup>	mg/L CN <sup>-</sup>	DISTILLATION, COLOURIMETRIC METHOD (SM: 4500-CN <sup>-</sup> C AND 4500-CN <sup>-</sup> E)	< 0.005	0.005
<b>SAMPLE CONDITION</b>				
WATER'S COLOUR/TURBID			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-01-06-001

(MRS PIYAPAT SUTTAMANUTWONG)  
LABORATORY SUPERVISOR  
๓-145-๓-0004  
JUNE 15, 2022



## ANALYSIS REPORT

<b>PROJECT NAME</b>	: ENVIRONMENTAL & SOCIOECONOMIC SURVEY		
<b>CUSTOMER NAME</b>	: ESSO (THAILAND) PUBLIC COMPANY LIMITED		
<b>ADDRESS</b>	: 118 MOO 2 THUNG SUKHILA SI RACHA CHON BURI 20230		
<b>CONTACT INFORMATION</b>	: TEL : 0 3314 2891 e-mail : wanlop.boongor@exxonmobil.com		
<b>SAMPLING SOURCE</b>	: -		
<b>SAMPLE TYPE</b>	: EFFLUENT	<b>RECEIVED DATE</b>	: JANUARY 6, 2022
<b>SAMPLING DATE</b>	: JANUARY 5, 2022	<b>ANALYTICAL DATE</b>	: JANUARY 6-13, 2022
<b>SAMPLING TIME</b>	: 09:30 HOUR	<b>REPORT NO.</b>	: 2022-U003803
<b>SAMPLING METHOD <sup>c</sup></b>	: GRAB	<b>WORK NO.</b>	: 2019-002022
<b>SAMPLING BY <sup>c</sup></b>	: MR THANADET WANSANOR	<b>ANALYSIS NO.</b>	: T22AA098-0006
<b>ANALYZED BY</b>	: MISS AMONRAT PUTTALEE		

PARAMETER	UNIT	METHOD OF ANALYSIS	RESULT	DETECTION LIMIT
			LBW005 : REFINERY MIX T22AA098-0006	
pH <sup>a</sup>	-	ELECTROMETRIC METHOD (SM: 4500-H <sup>+</sup> B)	7.8 (25°C)	-
TEMPERATURE <sup>c</sup>	°C	LABORATORY AND FIELD METHODS (SM: 2550 B)	31	-
BIOCHEMICAL OXYGEN DEMAND <sup>c</sup>	mg/L	5-DAY BOD TEST, MEMBRANE ELECTRODE METHOD (SM: 5210 B AND 4500-O G)	< 2.0	2.0
SALINITY <sup>c</sup>	ppt	ELECTRICAL CONDUCTIVITY METHOD AT SITE (SM: 2520 B)	35.8	0.1
CHEMICAL OXYGEN DEMAND <sup>c</sup>	mg/L	CLOSED REFLUX, TITRIMETRIC METHOD (SM: 5220 C)	50.7	25.0
TOTAL SUSPENDED SOLIDS <sup>a</sup>	mg/L	DRIED AT 103-105 °C (SM: 2540 D)	6.5	5.0
NITRATE <sup>c</sup>	mg/L NO <sub>3</sub> <sup>-</sup>	CADMIUM REDUCTION METHOD (SM: 4500-NO <sub>3</sub> <sup>-</sup> E)	2.53	0.09
SULPHIDE <sup>c</sup>	mg/L	METHYLENE BLUE METHOD (SM: 4500-S <sup>2-</sup> D)	< 0.02	0.02
TOTAL DISSOLVED SOLIDS <sup>c</sup>	mg/L	DRIED AT 180 °C (SM: 2540 C)	39,480	25
FAT, OIL AND GREASE <sup>c</sup>	mg/L	LIQUID-LIQUID, PARTITION-GRAVIMETRIC METHOD (SM: 5520 B)	1.1	3
<b>METALS</b>				
LEAD <sup>c</sup>	mg/L Pb	DIGESTION, DIRECT AIR-ACETYLENE FLAME METHOD (SM: 3030 E AND 3111 B)	< 0.015	0.015
<b>SAMPLE CONDITION</b>				
WATER'S COLOUR/TURBID			YELLOW/CLEAR	
SEDIMENT			BROWN	

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

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

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

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

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

RELEASE ORDER NO. : EV-05-01-002

(MR. TITAPAT SUTTHANANTHONG)  
LABORATORY SUPERVISOR

JANUARY 17, 2022



## ANALYSIS REPORT

**PROJECT NAME** : ENVIRONMENTAL & SOCIOECONOMIC SURVEY  
**CUSTOMER NAME** : ESSO (THAILAND) PUBLIC COMPANY LIMITED  
**ADDRESS** : 118 MOO 2 THUNG SUKHLA SI RACHA CHON BURI 20230  
**CONTACT INFORMATION** : TEL : 0 3314 2891 e-mail : wanlop.boongor@exxonmobil.com  
**SAMPLING SOURCE** : -  
**SAMPLE TYPE** : EFFLUENT  
**SAMPLING DATE** : FEBRUARY 2, 2022  
**SAMPLING TIME** : 10:55 HOUR  
**SAMPLING METHOD °** : GRAB  
**SAMPLING BY °** : MR THANADET WANSANOR  
**ANALYZED BY** : MISS AMONRAT PUTTALEE

**RECEIVED DATE** : FEBRUARY 2, 2022  
**ANALYTICAL DATE** : FEBRUARY 2-10, 2022  
**REPORT NO.** : 2022-U010224  
**WORK NO.** : 2019-002022  
**ANALYSIS NO.** : T22AB844-0006

PARAMETER	UNIT	METHOD OF ANALYSIS	RESULT	DETECTION LIMIT
			LBW005 : REFINERY MIX T22AB844-0006	
pH <sup>a</sup>	-	ELECTROMETRIC METHOD (SM: 4500-H <sup>+</sup> B)	7.8 (25°C)	-
TEMPERATURE °	°C	LABORATORY AND FIELD METHODS (SM: 2550 B)	33	-
BIOCHEMICAL OXYGEN DEMAND °	mg/L	5-DAY BOD TEST, MEMBRANE ELECTRODE METHOD (SM: 5210 B AND 4500-O G)	< 2.0	2.0
SALINITY °	ppt	ELECTRICAL CONDUCTIVITY METHOD AT SITE (SM: 2520 B)	34.2	0.1
CHEMICAL OXYGEN DEMAND °	mg/L	CLOSED REFLUX, TITRIMETRIC METHOD (SM: 5220 C)	80.2	25.0
TOTAL SUSPENDED SOLIDS <sup>a</sup>	mg/L	DRIED AT 103-105 °C (SM: 2540 D)	6.6	5.0
NITRATE °	mg/L NO <sub>3</sub> <sup>-</sup>	CADMIUM REDUCTION METHOD (SM: 4500-NO <sub>3</sub> <sup>-</sup> E)	6.87	0.09
SULPHIDE °	mg/L	METHYLENE BLUE METHOD (SM: 4500-S <sup>2-</sup> D)	< 0.02	0.02
TOTAL DISSOLVED SOLIDS °	mg/L	DRIED AT 180 °C (SM: 2540 C)	40,078	25
FAT, OIL AND GREASE °	mg/L	LIQUID-LIQUID, PARTITION-GRAVIMETRIC METHOD (SM: 5520 B)	0.4	3
<b>METALS</b>				
LEAD °	mg/L Pb	DIGESTION, DIRECT AIR-ACETYLENE FLAME METHOD (SM: 3030 E AND 3111 B)	< 0.015	0.015
<b>SAMPLE CONDITION</b>				
WATER'S COLOUR/TURBID			COLOURLESS/CLEAR	
SEDIMENT			YELLOW	

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

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

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

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

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

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

(MRS PHAPAT SUTTHAMONGKOLWONG)  
LABORATORY SUPERVISOR

FEBRUARY 11, 2022



## ANALYSIS REPORT

<b>PROJECT NAME</b>	: ENVIRONMENTAL & SOCIOECONOMIC SURVEY	<b>RECEIVED DATE</b>	: MARCH 3, 2022
<b>CUSTOMER NAME</b>	: ESSO (THAILAND) PUBLIC COMPANY LIMITED	<b>ANALYTICAL DATE</b>	: MARCH 3-13, 2022
<b>ADDRESS</b>	: 118 MOO 2 THUNG SUKHLA SI RACHA CHON BURI 20230	<b>REPORT NO.</b>	: 2022-U015962
<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>	: T22AD863-0006
<b>SAMPLE TYPE</b>	: EFFLUENT		
<b>SAMPLING DATE</b>	: MARCH 2, 2022		
<b>SAMPLING TIME</b>	: 12:13 HOUR		
<b>SAMPLING METHOD <sup>c</sup></b>	: GRAB		
<b>SAMPLING BY <sup>c</sup></b>	: MR THANADET WANSANOR		
<b>ANALYZED BY</b>	: MISS AMONRAT PUTTALEE		

PARAMETER	UNIT	METHOD OF ANALYSIS	RESULT	DETECTION LIMIT
			LBW005 : REFINERY MIX T22AD863-0006	
pH <sup>a</sup>	-	ELECTROMETRIC METHOD (SM: 4500-H <sup>+</sup> B)	7.8 (25°C)	-
TEMPERATURE <sup>c</sup>	°C	LABORATORY AND FIELD METHODS (SM: 2550 B)	36	-
BIOCHEMICAL OXYGEN DEMAND <sup>c</sup>	mg/L	5-DAY BOD TEST, MEMBRANE ELECTRODE METHOD (SM: 5210 B AND 4500-O G)	< 2.0	2.0
SALINITY <sup>c</sup>	ppt	ELECTRICAL CONDUCTIVITY METHOD AT SITE (SM: 2520 B)	35.9	0.1
CHEMICAL OXYGEN DEMAND <sup>c</sup>	mg/L	CLOSED REFLUX, TITRIMETRIC METHOD (SM: 5220 C)	84.8	25.0
TOTAL SUSPENDED SOLIDS <sup>a</sup>	mg/L	DRIED AT 103-105 °C (SM: 2540 D)	5.4	5.0
NITRATE <sup>c</sup>	mg/L NO <sub>3</sub> <sup>-</sup>	CADMIUM REDUCTION METHOD (SM: 4500-NO <sub>3</sub> <sup>-</sup> E)	6.64	0.09
SULPHIDE <sup>c</sup>	mg/L	METHYLENE BLUE METHOD(SM: 4500-S <sup>2-</sup> D)	< 0.02	0.02
TOTAL DISSOLVED SOLIDS <sup>c</sup>	mg/L	DRIED AT 180 °C (SM: 2540 C)	39,040	25
FAT, OIL AND GREASE <sup>c</sup>	mg/L	LIQUID-LIQUID, PARTITION-GRAVIMETRIC METHOD (SM: 5520 B)	0.4	3
<b>METALS</b>				
LEAD <sup>c</sup>	mg/L Pb	DIGESTION, DIRECT AIR-ACETYLENE FLAME METHOD (SM: 3030 E AND 3111 B)	< 0.015	0.015
<b>SAMPLE CONDITION</b>				
WATER'S COLOUR/TURBID			YELLOW/CLEAR	
SEDIMENT			YELLOW	

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

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

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

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

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

RELEASE ORDER NO. : EV-02-03-001

(MRS PIYAPAT SUTTAMANUTWONG)  
LABORATORY SUPERVISOR

MARCH 14, 2022





## ANALYSIS REPORT

**PROJECT NAME** : ENVIRONMENTAL & SOCIOECONOMIC SURVEY  
**CUSTOMER NAME** : ESSO (THAILAND) PUBLIC COMPANY LIMITED  
**ADDRESS** : 118 MOO 2 THUNG SUKHLA SI RACHA CHON BURI 20230  
**CONTACT INFORMATION** : TEL : 0 3314 2891 e-mail : wanlop.boongor@exxonmobil.com  
**SAMPLING SOURCE** : -  
**SAMPLE TYPE** : EFFLUENT  
**SAMPLING DATE** : APRIL 7, 2022  
**SAMPLING TIME** : 11:20 HOUR  
**SAMPLING METHOD °** : GRAB  
**SAMPLING BY °** : MR THANADET WANSANOR  
**ANALYZED BY** : MISS AMONRAT PUTTALEE

**RECEIVED DATE** : APRIL 7, 2022  
**ANALYTICAL DATE** : APRIL 7-18, 2022  
**REPORT NO.** : 2022-U028803  
**WORK NO.** : 2019-002022  
**ANALYSIS NO.** : T22AG688-0006

PARAMETER	UNIT	METHOD OF ANALYSIS	RESULT	DETECTION LIMIT
			LBW005 : REFINERY MIX T22AG688-0006	
pH <sup>a</sup>	-	ELECTROMETRIC METHOD (SM: 4500-H <sup>+</sup> B)	7.9 (25°C)	-
TEMPERATURE <sup>c</sup>	°C	LABORATORY AND FIELD METHODS (SM: 2550 B)	35	-
BIOCHEMICAL OXYGEN DEMAND <sup>c</sup>	mg/L	5-DAY BOD TEST, MEMBRANE ELECTRODE METHOD (SM: 5210 B AND 4500-O <sub>2</sub> G)	< 2.0	2.0
SALINITY <sup>c</sup>	ppt	ELECTRICAL CONDUCTIVITY METHOD AT SITE (SM: 2520 B)	31.5	0.1
CHEMICAL OXYGEN DEMAND <sup>c</sup>	mg/L	CLOSED REFLUX, TITRIMETRIC METHOD (SM: 5220 C)	93.6	25.0
TOTAL SUSPENDED SOLIDS <sup>c</sup>	mg/L	DRIED AT 103-105 °C (SM: 2540 D)	< 5.0	5.0
NITRATE <sup>c</sup>	mg/L NO <sub>3</sub> <sup>-</sup>	CADMIUM REDUCTION METHOD (SM: 4500-NO <sub>3</sub> <sup>-</sup> E)	9.21	0.09
SULPHIDE <sup>c</sup>	mg/L	METHYLENE BLUE METHOD(SM: 4500-S <sup>2-</sup> D)	< 0.02	0.02
TOTAL DISSOLVED SOLIDS <sup>c</sup>	mg/L	DRIED AT 180 °C (SM: 2540 C)	38,875	25
FAT, OIL AND GREASE <sup>c</sup>	mg/L	LIQUID-LIQUID, PARTITION-GRAVIMETRIC METHOD (SM: 5520 B)	0.4	3
METALS				
LEAD <sup>c</sup>	mg/L Pb	DIGESTION, DIRECT AIR-ACETYLENE FLAME METHOD (SM: 3030 E AND 3111 B)	< 0.015	0.015
SAMPLE CONDITION			YELLOW/CLEAR YELLOW	
WATER'S COLOUR/TURBID SEDIMENT				

<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-07-04-002

(Signature)  
LABORATORY SUPERVISOR

APRIL 21, 2022





## ANALYSIS REPORT

**PROJECT NAME** : ENVIRONMENTAL & SOCIOECONOMIC SURVEY  
**CUSTOMER NAME** : ESSO (THAILAND) PUBLIC COMPANY LIMITED  
**ADDRESS** : 118 MOO 2 THUNG SUKHLA SI RACHA CHON BURI 20230  
**CONTACT INFORMATION** : TEL : 0 3314 2891 e-mail : wanlop.boongor@exxonmobil.com  
**SAMPLING SOURCE** : -  
**SAMPLE TYPE** : EFFLUENT  
**SAMPLING DATE** : MAY 11, 2022  
**SAMPLING TIME** : 12:05 HOUR  
**SAMPLING METHOD °** : GRAB  
**SAMPLING BY °** : MR THANADET WANSANOR  
**ANALYZED BY** : MISS AMONRAT PUTTALEE

**RECEIVED DATE** : MAY 11, 2022  
**ANALYTICAL DATE** : MAY 11-19, 2022  
**REPORT NO.** : 2022-U038270  
**WORK NO.** : 2019-002022  
**ANALYSIS NO.** : T22AI877-0009

PARAMETER	UNIT	METHOD OF ANALYSIS	RESULT	DETECTION LIMIT
			LBW005 : REFINERY MIX T22AI877-0009	
pH <sup>a</sup>	-	ELECTROMETRIC METHOD (SM: 4500-H <sup>+</sup> B)	7.6 (25°C)	-
TEMPERATURE °	°C	LABORATORY AND FIELD METHODS (SM: 2550 B)	35	-
BIOCHEMICAL OXYGEN DEMAND °	mg/L	5-DAY BOD TEST, MEMBRANE ELECTRODE METHOD (SM: 5210 B AND 4500-O G)	< 2.0	2.0
SALINITY °	ppt	ELECTRICAL CONDUCTIVITY METHOD AT SITE (SM: 2520 B)	30.1	0.1
CHEMICAL OXYGEN DEMAND °	mg/L	CLOSED REFLUX, TITRIMETRIC METHOD (SM: 5220 C)	61.2	25.0
TOTAL SUSPENDED SOLIDS <sup>a</sup>	mg/L	DRIED AT 103-105 °C (SM: 2540 D)	5.4	5.0
NITRATE °	mg/L NO <sub>3</sub> <sup>-</sup>	CADMIUM REDUCTION METHOD (SM: 4500-NO <sub>3</sub> <sup>-</sup> E)	9.21	0.09
SULPHIDE °	mg/L	METHYLENE BLUE METHOD(SM: 4500-S <sup>2-</sup> D)	< 0.02	0.02
TOTAL DISSOLVED SOLIDS °	mg/L	DRIED AT 180 °C (SM: 2540 C)	32,375	25
FAT, OIL AND GREASE °	mg/L	LIQUID-LIQUID, PARTITION-GRAVIMETRIC METHOD (SM: 5520 B)	0.7	3
<b>METALS</b>				
LEAD °	mg/L Pb	DIGESTION, DIRECT AIR-ACETYLENE FLAME METHOD (SM: 3030 E AND 3111 B)	< 0.015	0.015
<b>SAMPLE CONDITION</b>				
WATER'S COLOUR/TURBID			YELLOW/CLEAR	
SEDIMENT			BROWN	

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

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

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

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

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

RELEASE ORDER NO. : EV-11-05-004

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[REDACTED SIGNATURE]  
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LABORATORY SUPERVISOR

MAY 25, 2022



## ANALYSIS REPORT

**PROJECT NAME** : ENVIRONMENTAL & SOCIOECONOMIC SURVEY  
**CUSTOMER NAME** : ESSO (THAILAND) PUBLIC COMPANY LIMITED  
**ADDRESS** : 118 MOO 2 THUNG SUKHLA SI RACHA CHON BURI 20230  
**CONTACT INFORMATION** : TEL : 0 3314 2891 e-mail : wanlop.boongor@exxonmobil.com  
**SAMPLING SOURCE** : -  
**SAMPLE TYPE** : EFFLUENT  
**SAMPLING DATE** : JUNE 1, 2022  
**SAMPLING TIME** : 10:10 HOUR  
**SAMPLING METHOD °** : GRAB  
**SAMPLING BY °** : MR NAPASIT SRIPIM  
**ANALYZED BY** : MISS AMONRAT PUTTALEE

**RECEIVED DATE** : JUNE 1, 2022  
**ANALYTICAL DATE** : JUNE 1-13, 2022  
**REPORT NO.** : 2022-U044951  
**WORK NO.** : 2019-002022  
**ANALYSIS NO.** : T22AK402-0006

PARAMETER	UNIT	METHOD OF ANALYSIS	RESULT	DETECTION LIMIT
			LBW005 : REFINERY MIX T22AK402-0006	
pH <sup>a</sup>	-	ELECTROMETRIC METHOD (SM: 4500-H <sup>+</sup> B)	8.0 (25°C)	-
TEMPERATURE °	°C	LABORATORY AND FIELD METHODS (SM: 2550 B)	34	-
BIOCHEMICAL OXYGEN DEMAND <sup>a</sup>	mg/L	5-DAY BOD TEST, MEMBRANE ELECTRODE METHOD (SM: 5210 B AND 4500-O G)	2.7	2.0
SALINITY °	ppt	ELECTRICAL CONDUCTIVITY METHOD AT SITE (SM: 2520 B)	30.1	0.1
CHEMICAL OXYGEN DEMAND °	mg/L	CLOSED REFLUX, TITRIMETRIC METHOD (SM: 5220 C)	78.4	25.0
TOTAL SUSPENDED SOLIDS <sup>a</sup>	mg/L	DRIED AT 103-105 °C (SM: 2540 D)	8.1	5.0
NITRATE °	mg/L NO <sub>3</sub> <sup>-</sup>	CADMIUM REDUCTION METHOD (SM: 4500-NO <sub>3</sub> <sup>-</sup> E)	26.4	0.09
SULPHIDE °	mg/L	METHYLENE BLUE METHOD(SM: 4500-S <sup>2-</sup> D)	< 0.02	0.02
TOTAL DISSOLVED SOLIDS °	mg/L	DRIED AT 180 °C (SM: 2540 C)	30,700	25
FAT, OIL AND GREASE °	mg/L	LIQUID-LIQUID, PARTITION-GRAVIMETRIC METHOD (SM: 5520 B)	0.6	3
<b>METALS</b>				
LEAD °	mg/L Pb	DIGESTION, DIRECT AIR-ACETYLENE FLAME METHOD (SM: 3030 E AND 3111 B)	< 0.015	0.015
<b>SAMPLE CONDITION</b>				
WATER'S COLOUR/TURBID			YELLOW/CLEAR	
SEDIMENT			BROWN	

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

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

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

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

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

RELEASE ORDER NO. : EV-01-06-001

(MRS PIYAPAT SUTTAMANUTWONG)  
LABORATORY SUPERVISOR

JUNE 15, 2022



## ANALYSIS REPORT

**PROJECT NAME** : ENVIRONMENTAL & SOCIOECONOMIC SURVEY  
**CUSTOMER NAME** : ESSO (THAILAND) PUBLIC COMPANY LIMITED  
**ADDRESS** : 118 MOO 2 THUNG SUKHLA SI RACHA CHON BURI 20230  
**CONTACT INFORMATION** : TEL : 0 3314 2891 e-mail : wanlop.boongor@exxonmobil.com  
**SAMPLING SOURCE** : -  
**SAMPLE TYPE** : SEAWATER  
**SAMPLING DATE** : JANUARY 5, 2022  
**SAMPLING TIME** : 08:35 HOUR  
**SAMPLING METHOD** : COMPOSITE  
**SAMPLING BY** : MR THANADET WANSANOR  
**ANALYZED BY** : MISS AMONRAT PUTTALEE

**RECEIVED DATE** : JANUARY 6, 2022  
**ANALYTICAL DATE** : JANUARY 6-19, 2022  
**REPORT NO.** : 2022-U005069  
**WORK NO.** : 2019-002022  
**ANALYSIS NO.** : T22AA099-0001

PARAMETER	UNIT	METHOD OF ANALYSIS	RESULT	DETECTION LIMIT
			LBW006. 500 M OFFSHORE (JETTY) T22AA099-0001	
pH	-	ELECTROMETRIC METHOD (SM: 4500-H <sup>+</sup> B)	7.8 (25°C)	-
PHENOLS	mg/L	DISTILLATION, 4-AMINOANTIPYRINE METHOD (SM: 5530 B AND 5530 C)	< 0.005	0.005
TEMPERATURE	°C	THERMOMETER AT SITE (SM: 2550 B)	27	-
SALINITY	ppt	ELECTRICAL CONDUCTIVITY METHOD AT SITE (SM: 2520 B)	32.2	0.1
DISSOLVED OXYGEN	mg/L	MEMBRANE ELECTRODE METHOD AT SITE (SM: 4500-O G)	5.4	0.5
BIOCHEMICAL OXYGEN DEMAND	mg/L	MEMBRANE ELECTRODE METHOD (SM: 4500-O G AND 5210 B)	0.7	0.5
CHEMICAL OXYGEN DEMAND	mg/L	CLOSED REFLUX, TITRIMETRIC METHOD (SM: 5220 C)	77.6	25.0
SUSPENDED SOLIDS	mg/L	GRAVIMETRIC METHOD (SM: 2540 D)	9.1	1.0
TOTAL DISSOLVED SOLIDS	mg/L	TOTAL DISSOLVED SOLIDS DRIED AT 180 °C (SM: 2540 C)	34,520	25
CYANIDE	µg/L CN <sup>-</sup>	DISTILLATION, PYRIDINE-BARBITURIC ACID METHOD (SM: 4500-CN <sup>-</sup> C AND 4500-CN <sup>-</sup> E)	< 5	5
NITRATE-NITROGEN	µg/L N	CADMIUM REDUCTION AND COLOURIMETRIC METHOD (BASED ON PRACTICAL HANDBOOK OF SEAWATER ANALYSIS (STRICKLAND AND PARSON, 1972, II.6))	9.28	0.50
SULPHIDE	µg/L	METHYLENE BLUE COLOURIMETRIC METHOD (METHOD OF SEAWATER ANALYSIS, GRASSHOFF, 1999, CHAPTER 5)	< 10	10
FAT, OIL AND GREASE	mg/L	LIQUID-LIQUID, PARTITION-GRAVIMETRIC METHOD (SM: 5520 B)	0.7	3



PARAMETER	UNIT	METHOD OF ANALYSIS	RESULT	DETECTION LIMIT
			LBW006. 500 M OFFSHORE (JETTY) T22AA099-0001	
METALS				
LEAD	µg/L Pb	PRE-CONCENTRATION AND INDUCTIVELY COUPLED PLASMA (ICP) METHOD (BASED ON METHOD OF SEAWATER ANALYSIS, GRASSHOFF, 1999, CHAPTER 12)	0.370	0.100
SAMPLE CONDITION				
WATER'S COLOUR/TURBID			COLOURLESS/CLEAR	
SEDIMENT			YELLOW	

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

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

RELEASE ORDER NO. : EV-05-01-002

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(MRS PIYAPAT SUTTAMANUTWONG)  
LABORATORY SUPERVISOR

JANUARY 21, 2022

## ANALYSIS REPORT

<b>PROJECT NAME</b>	: ENVIRONMENTAL & SOCIOECONOMIC SURVEY		
<b>CUSTOMER NAME</b>	: ESSO (THAILAND) PUBLIC COMPANY LIMITED		
<b>ADDRESS</b>	: 118 MOO 2 THUNG SUKHLA SI RACHA CHON BURI 20230		
<b>CONTACT INFORMATION</b>	: TEL : 0 3314 2891 e-mail : wanlop.boongor@exxonmobil.com		
<b>SAMPLING SOURCE</b>	: -		
<b>SAMPLE TYPE</b>	: SEAWATER	<b>RECEIVED DATE</b>	: FEBRUARY 2, 2022
<b>SAMPLING DATE</b>	: FEBRUARY 2, 2022	<b>ANALYTICAL DATE</b>	: FEBRUARY 2-15, 2022
<b>SAMPLING TIME</b>	: 09:35 HOUR	<b>REPORT NO.</b>	: 2022-U010230
<b>SAMPLING METHOD</b>	: COMPOSITE	<b>WORK NO.</b>	: 2019-002022
<b>SAMPLING BY</b>	: MR THANADET WANSANOR	<b>ANALYSIS NO.</b>	: T22AB843-0001
<b>ANALYZED BY</b>	: MISS AMONRAT PUTTALEE		

PARAMETER	UNIT	METHOD OF ANALYSIS	RESULT	DETECTION LIMIT
			LBW006. 500 M OFFSHORE (JETTY) T22AB843-0001	
pH	-	ELECTROMETRIC METHOD (SM: 4500-H <sup>+</sup> B)	7.9 (25°C)	-
PHENOLS	mg/L	DISTILLATION, 4-AMINOANTIPYRINE METHOD (SM: 5530 B AND 5530 C)	0.008	0.005
TEMPERATURE	°C	THERMOMETER AT SITE (SM: 2550 B)	29	-
SALINITY	ppt	ELECTRICAL CONDUCTIVITY METHOD AT SITE (SM: 2520 B)	30.9	0.1
DISSOLVED OXYGEN	mg/L	MEMBRANE ELECTRODE METHOD AT SITE (SM: 4500-O G)	5.4	0.5
BIOCHEMICAL OXYGEN DEMAND	mg/L	MEMBRANE ELECTRODE METHOD (SM: 4500-O G AND 5210 B)	1.0	0.5
CHEMICAL OXYGEN DEMAND	mg/L	CLOSED REFLUX, TITRIMETRIC METHOD (SM: 5220 C)	47.1	25.0
SUSPENDED SOLIDS	mg/L	GRAVIMETRIC METHOD (SM: 2540 D)	15.8	1.0
TOTAL DISSOLVED SOLIDS	mg/L	TOTAL DISSOLVED SOLIDS DRIED AT 180 °C (SM: 2540 C)	36,682	25
CYANIDE	µg/L CN <sup>-</sup>	DISTILLATION, PYRIDINE-BARBITURIC ACID METHOD (SM: 4500-CN <sup>-</sup> C AND 4500-CN <sup>-</sup> E)	< 5	5
NITRATE-NITROGEN	µg/L N	CADMIUM REDUCTION AND COLOURIMETRIC METHOD (BASED ON PRACTICAL HANDBOOK OF SEAWATER ANALYSIS (STRICKLAND AND PARSON, 1972, II.6))	33.9	0.50
SULPHIDE	µg/L	METHYLENE BLUE COLOURIMETRIC METHOD (METHOD OF SEAWATER ANALYSIS, GRASSHOFF, 1999, CHAPTER 5)	< 10	10
FAT, OIL AND GREASE	mg/L	LIQUID-LIQUID, PARTITION-GRAVIMETRIC METHOD (SM: 5520 B)	0.4	3



PARAMETER	UNIT	METHOD OF ANALYSIS	RESULT	DETECTION LIMIT
			LBW006. 500 M OFFSHORE (JETTY) T22AB843-0001	
METALS				
LEAD	µg/L Pb	PRE-CONCENTRATION AND INDUCTIVELY COUPLED PLASMA (ICP) METHOD (BASED ON METHOD OF SEAWATER ANALYSIS, GRASSHOFF, 1999, CHAPTER 12)	0.280	0.100
SAMPLE CONDITION				
WATER'S COLOUR/TURBID			COLOURLESS/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-02-02-001



LABORATORY SUPERVISOR

FEBRUARY 15, 2022



## ANALYSIS REPORT

<b>PROJECT NAME</b>	: ENVIRONMENTAL & SOCIOECONOMIC SURVEY		
<b>CUSTOMER NAME</b>	: ESSO (THAILAND) PUBLIC COMPANY LIMITED		
<b>ADDRESS</b>	: 118 MOO 2 THUNG SUKHLA SI RACHA CHON BURI 20230		
<b>CONTACT INFORMATION</b>	: TEL : 0 3314 2891 e-mail : wanlop.boongor@exxonmobil.com		
<b>SAMPLING SOURCE</b>	: -		
<b>SAMPLE TYPE</b>	: SEAWATER	<b>RECEIVED DATE</b>	: MARCH 3, 2022
<b>SAMPLING DATE</b>	: MARCH 2, 2022	<b>ANALYTICAL DATE</b>	: MARCH 3-21, 2022
<b>SAMPLING TIME</b>	: 10:40 HOUR	<b>REPORT NO.</b>	: 2022-U015976
<b>SAMPLING METHOD</b>	: COMPOSITE	<b>WORK NO.</b>	: 2019-002022
<b>SAMPLING BY</b>	: MR THANADET WANSANOR	<b>ANALYSIS NO.</b>	: T22AD865-0001
<b>ANALYZED BY</b>	: MISS AMONRAT PUTTALEE		

PARAMETER	UNIT	METHOD OF ANALYSIS	RESULT	DETECTION LIMIT
			LBW006. 500 M OFFSHORE (JETTY) T22AD865-0001	
pH	-	ELECTROMETRIC METHOD (SM: 4500-H <sup>+</sup> B)	7.9 (25°C)	-
PHENOLS	mg/L	DISTILLATION, 4-AMINOANTIPYRINE METHOD (SM: 5530 B AND 5530 C)	0.007	0.005
TEMPERATURE	°C	THERMOMETER AT SITE (SM: 2550 B)	29	-
SALINITY	ppt	ELECTRICAL CONDUCTIVITY METHOD AT SITE (SM: 2520 B)	31.1	0.1
DISSOLVED OXYGEN	mg/L	MEMBRANE ELECTRODE METHOD AT SITE (SM: 4500-O G)	4.4	0.5
BIOCHEMICAL OXYGEN DEMAND	mg/L	MEMBRANE ELECTRODE METHOD (SM: 4500-O G AND 5210 B)	1.2	0.5
CHEMICAL OXYGEN DEMAND	mg/L	CLOSED REFLUX, TITRIMETRIC METHOD (SM: 5220 C)	48.0	25.0
SUSPENDED SOLIDS	mg/L	GRAVIMETRIC METHOD (SM: 2540 D)	17.3	1.0
TOTAL DISSOLVED SOLIDS	mg/L	TOTAL DISSOLVED SOLIDS DRIED AT 180 °C (SM: 2540 C)	34,520	25
CYANIDE	µg/L CN <sup>-</sup>	DISTILLATION, PYRIDINE-BARBITURIC ACID METHOD (SM: 4500-CN <sup>-</sup> C AND 4500-CN <sup>-</sup> E)	< 5	5
NITRATE-NITROGEN	µg/L N	CADMIUM REDUCTION AND COLOURIMETRIC METHOD (BASED ON PRACTICAL HANDBOOK OF SEAWATER ANALYSIS (STRICKLAND AND PARSON, 1972, II.6))	11.7	0.50
SULPHIDE	µg/L	METHYLENE BLUE COLOURIMETRIC METHOD (METHOD OF SEAWATER ANALYSIS, GRASSHOFF, 1999, CHAPTER 5)	< 10	10
FAT, OIL AND GREASE	mg/L	LIQUID-LIQUID, PARTITION-GRAVIMETRIC METHOD (SM: 5520 B)	0.8	3



PARAMETER	UNIT	METHOD OF ANALYSIS	RESULT	DETECTION LIMIT
			LBW006. 500 M OFFSHORE (JETTY) T22AD865-0001	
METALS				
LEAD	µg/L Pb	PRE-CONCENTRATION AND INDUCTIVELY COUPLED PLASMA (ICP) METHOD (BASED ON METHOD OF SEAWATER ANALYSIS, GRASSHOFF, 1999, CHAPTER 12)	0.310	0.100
SAMPLE CONDITION				
WATER'S COLOUR/TURBID			COLOURLESS/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-02-03-001

[REDACTED]

(MRS PIYAPAT SUTHAMANUTWONG)  
LABORATORY SUPERVISOR

MARCH 23, 2022

## ANALYSIS REPORT

<b>PROJECT NAME</b>	: ENVIRONMENTAL & SOCIOECONOMIC SURVEY		
<b>CUSTOMER NAME</b>	: ESSO (THAILAND) PUBLIC COMPANY LIMITED		
<b>ADDRESS</b>	: 118 MOO 2 THUNG SUKHLA SI RACHA CHON BURI 20230		
<b>CONTACT INFORMATION</b>	: TEL : 0 3314 2891 e-mail : wanlop.boongor@exxonmobil.com		
<b>SAMPLING SOURCE</b>	: -		
<b>SAMPLE TYPE</b>	: SEAWATER	<b>RECEIVED DATE</b>	: APRIL 7, 2022
<b>SAMPLING DATE</b>	: APRIL 7, 2022	<b>ANALYTICAL DATE</b>	: APRIL 7-20, 2022
<b>SAMPLING TIME</b>	: 12:35 HOUR	<b>REPORT NO.</b>	: 2022-U027830
<b>SAMPLING METHOD</b>	: COMPOSITE	<b>WORK NO.</b>	: 2019-002022
<b>SAMPLING BY</b>	: MR THANADET WANSANOR	<b>ANALYSIS NO.</b>	: T22AG690-0001
<b>ANALYZED BY</b>	: MISS AMONRAT PUTTALEE		

PARAMETER	UNIT	METHOD OF ANALYSIS	RESULT	DETECTION LIMIT
			LBW006. 500 M OFFSHORE (JETTY) T22AG690-0001	
pH	-	ELECTROMETRIC METHOD (SM: 4500-H <sup>+</sup> B)	7.8 (25°C)	-
PHENOLS	mg/L	DISTILLATION, 4-AMINOANTIPYRINE METHOD (SM: 5530 B AND 5530 C)	0.007	0.005
TEMPERATURE	°C	THERMOMETER AT SITE (SM: 2550 B)	30	-
SALINITY	ppt	ELECTRICAL CONDUCTIVITY METHOD AT SITE (SM: 2520 B)	27.3	0.1
DISSOLVED OXYGEN	mg/L	MEMBRANE ELECTRODE METHOD AT SITE (SM: 4500-O G)	5.3	0.5
BIOCHEMICAL OXYGEN DEMAND	mg/L	MEMBRANE ELECTRODE METHOD (SM: 4500-O G AND 5210 B)	1.2	0.5
CHEMICAL OXYGEN DEMAND	mg/L	CLOSED REFLUX, TITRIMETRIC METHOD (SM: 5220 C)	65.1	25.0
SUSPENDED SOLIDS	mg/L	GRAVIMETRIC METHOD (SM: 2540 D)	15.2	1.0
TOTAL DISSOLVED SOLIDS	mg/L	TOTAL DISSOLVED SOLIDS DRIED AT 180 °C (SM: 2540 C)	36,550	25
CYANIDE	µg/L CN <sup>-</sup>	DISTILLATION, PYRIDINE-BARBITURIC ACID METHOD (SM: 4500-CN <sup>-</sup> C AND 4500-CN <sup>-</sup> E)	< 5	5
NITRATE-NITROGEN	µg/L N	CADMIUM REDUCTION AND COLOURIMETRIC METHOD (BASED ON PRACTICAL HANDBOOK OF SEAWATER ANALYSIS (STRICKLAND AND PARSON, 1972, II.6))	4.60	0.50
SULPHIDE	µg/L	METHYLENE BLUE COLOURIMETRIC METHOD (METHOD OF SEAWATER ANALYSIS, GRASSHOFF, 1999, CHAPTER 5)	< 10	10
FAT, OIL AND GREASE	mg/L	LIQUID-LIQUID, PARTITION-GRAVIMETRIC METHOD (SM: 5520 B)	0.4	3



PARAMETER	UNIT	METHOD OF ANALYSIS	RESULT	DETECTION LIMIT
			LBW006. 500 M OFFSHORE (JETTY) T22AG690-0001	
METALS				
LEAD	µg/L Pb	PRE-CONCENTRATION AND INDUCTIVELY COUPLED PLASMA (ICP) METHOD (BASED ON METHOD OF SEAWATER ANALYSIS, GRASSHOFF, 1999, CHAPTER 12)	0.290	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-07-04-002

(Signature of Laboratory Supervisor)  
LABORATORY SUPERVISOR

APRIL 22, 2022

## ANALYSIS REPORT

<b>PROJECT NAME</b>	: ENVIRONMENTAL & SOCIOECONOMIC SURVEY		
<b>CUSTOMER NAME</b>	: ESSO (THAILAND) PUBLIC COMPANY LIMITED		
<b>ADDRESS</b>	: 118 MOO 2 THUNG SUKHLA SI RACHA CHON BURI 20230		
<b>CONTACT INFORMATION</b>	: TEL : 0 3314 2891 e-mail : wanlop.boongor@exxonmobil.com		
<b>SAMPLING SOURCE</b>	: -		
<b>SAMPLE TYPE</b>	: SEAWATER	<b>RECEIVED DATE</b>	: MAY 11, 2022
<b>SAMPLING DATE</b>	: MAY 11, 2022	<b>ANALYTICAL DATE</b>	: MAY 11-24, 2022
<b>SAMPLING TIME</b>	: 10:40 HOUR	<b>REPORT NO.</b>	: 2022-U039164
<b>SAMPLING METHOD</b>	: COMPOSITE	<b>WORK NO.</b>	: 2019-002022
<b>SAMPLING BY</b>	: MR THANADET WANSANOR	<b>ANALYSIS NO.</b>	: T22AI881-0001
<b>ANALYZED BY</b>	: MISS AMONRAT PUTTALEE		

PARAMETER	UNIT	METHOD OF ANALYSIS	RESULT	DETECTION LIMIT
			LBW006. 500 M OFFSHORE (JETTY) T22AI881-0001	
pH	-	ELECTROMETRIC METHOD (SM: 4500-H <sup>+</sup> B)	7.8 (25°C)	-
PHENOLS	mg/L	DISTILLATION, 4-AMINOANTIPYRINE METHOD (SM: 5530 B AND 5530 C)	0.008	0.005
TEMPERATURE	°C	THERMOMETER AT SITE (SM: 2550 B)	31	-
SALINITY	ppt	ELECTRICAL CONDUCTIVITY METHOD AT SITE (SM: 2520 B)	30.8	0.1
DISSOLVED OXYGEN	mg/L	MEMBRANE ELECTRODE METHOD AT SITE (SM: 4500-O G)	5.5	0.5
BIOCHEMICAL OXYGEN DEMAND	mg/L	MEMBRANE ELECTRODE METHOD (SM: 4500-O G AND 5210 B)	1.5	0.5
CHEMICAL OXYGEN DEMAND	mg/L	CLOSED REFLUX, TITRIMETRIC METHOD (SM: 5220 C)	69.0	25.0
SUSPENDED SOLIDS	mg/L	GRAVIMETRIC METHOD (SM: 2540 D)	8.0	1.0
TOTAL DISSOLVED SOLIDS	mg/L	TOTAL DISSOLVED SOLIDS DRIED AT 180 °C (SM: 2540 C)	34,275	25
CYANIDE	µg/L CN <sup>-</sup>	DISTILLATION, PYRIDINE-BARBITURIC ACID METHOD (SM: 4500-CN <sup>-</sup> C AND 4500-CN <sup>-</sup> E)	< 5	5
NITRATE-NITROGEN	µg/L N	CADMIUM REDUCTION AND COLOURIMETRIC METHOD (BASED ON PRACTICAL HANDBOOK OF SEAWATER ANALYSIS (STRICKLAND AND PARSON, 1972, II.6))	16.5	0.50
SULPHIDE	µg/L	METHYLENE BLUE COLOURIMETRIC METHOD (METHOD OF SEAWATER ANALYSIS, GRASSHOFF, 1999, CHAPTER 5)	< 10	10
FAT, OIL AND GREASE	mg/L	LIQUID-LIQUID, PARTITION-GRAVIMETRIC METHOD (SM: 5520 B)	0.4	3



PARAMETER	UNIT	METHOD OF ANALYSIS	RESULT	DETECTION LIMIT
			LBW006. 500 M OFFSHORE (JETTY) T22AI881-0001	
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-11-05-004

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LABORATORY SUPERVISOR

MAY 27, 2022



## ANALYSIS REPORT

<b>PROJECT NAME</b>	: ENVIRONMENTAL & SOCIOECONOMIC SURVEY		
<b>CUSTOMER NAME</b>	: ESSO (THAILAND) PUBLIC COMPANY LIMITED		
<b>ADDRESS</b>	: 118 MOO 2 THUNG SUKHLA SI RACHA CHON BURI 20230		
<b>CONTACT INFORMATION</b>	: TEL : 0 3314 2891 e-mail : wanlop.boongor@exxonmobil.com		
<b>SAMPLING SOURCE</b>	: -		
<b>SAMPLE TYPE</b>	: SEAWATER	<b>RECEIVED DATE</b>	: MAY 11, 2022
<b>SAMPLING DATE</b>	: MAY 11, 2022	<b>ANALYTICAL DATE</b>	: MAY 11-19, 2022
<b>SAMPLING TIME</b>	: 10:40 HOUR	<b>REPORT NO.</b>	: 2022-U039165
<b>SAMPLING METHOD</b>	: COMPOSITE	<b>WORK NO.</b>	: 2019-002022
<b>SAMPLING BY</b>	: MR THANADET WANSANOR	<b>ANALYSIS NO.</b>	: T22AI881-0002
<b>ANALYZED BY</b>	: MR KORNVIT CHIASIRISAKUL		

PARAMETER	UNIT	METHOD OF ANALYSIS	RESULT	DETECTION LIMIT
			LBW006 : 500 M OFFSHORE (JETTY) T22AI881-0002	
METALS				
MERCURY	µg/L Hg	COLD-VAPOUR ATOMIC FLUORESCENCE SPECTROMETRIC METHOD (US EPA 2005: 245.7)	< 0.020	0.020
SAMPLE CONDITION				
WATER'S COLOUR/TURBID			COLOURLESS/CLEAR	
SEDIMENT			WHITE	

RELEASE ORDER NO. : EV-11-05-004

LABORATORY SUPERVISOR

MAY 30, 2022



## ANALYSIS REPORT

**PROJECT NAME** : ENVIRONMENTAL & SOCIOECONOMIC SURVEY  
**CUSTOMER NAME** : ESSO (THAILAND) PUBLIC COMPANY LIMITED  
**ADDRESS** : 118 MOO 2 THUNG SUKHLA SI RACHA CHON BURI 20230  
**CONTACT INFORMATION** : TEL : 0 3314 2891 e-mail : wanlop.boongor@exxonmobil.com  
**SAMPLING SOURCE** : -  
**SAMPLE TYPE** : SEAWATER  
**SAMPLING DATE** : JUNE 1, 2022  
**SAMPLING TIME** : 10:30 HOUR  
**SAMPLING METHOD** : COMPOSITE  
**SAMPLING BY** : MR NAPASIT SRIPIM  
**ANALYZED BY** : MISS AMONRAT PUTTALEE

**RECEIVED DATE** : JUNE 1, 2022  
**ANALYTICAL DATE** : JUNE 1-10, 2022  
**REPORT NO.** : 2022-U045027  
**WORK NO.** : 2019-002022  
**ANALYSIS NO.** : T22AK404-0001

PARAMETER	UNIT	METHOD OF ANALYSIS	RESULT	DETECTION LIMIT
			LBW006. 500 M OFFSHORE (JETTY) T22AK404-0001	
pH	-	ELECTROMETRIC METHOD (SM: 4500-H <sup>+</sup> B)	8.0 (25°C)	-
PHENOLS	mg/L	DISTILLATION, 4-AMINOANTIPYRINE METHOD (SM: 5530 B AND 5530 C)	0.006	0.005
TEMPERATURE	°C	THERMOMETER AT SITE (SM: 2550 B)	32	-
SALINITY	ppt	ELECTRICAL CONDUCTIVITY METHOD AT SITE (SM: 2520 B)	30.0	0.1
DISSOLVED OXYGEN	mg/L	MEMBRANE ELECTRODE METHOD AT SITE (SM: 4500-O G)	4.4	0.5
BIOCHEMICAL OXYGEN DEMAND	mg/L	MEMBRANE ELECTRODE METHOD (SM: 4500-O G AND 5210 B)	1.8	0.5
CHEMICAL OXYGEN DEMAND	mg/L	CLOSED REFLUX, TITRIMETRIC METHOD (SM: 5220 C)	64.0	25.0
SUSPENDED SOLIDS	mg/L	GRAVIMETRIC METHOD (SM: 2540 D)	10.8	1.0
TOTAL DISSOLVED SOLIDS	mg/L	TOTAL DISSOLVED SOLIDS DRIED AT 180 °C (SM: 2540 C)	31,125	25
CYANIDE	µg/L CN <sup>-</sup>	DISTILLATION, PYRIDINE-BARBITURIC ACID METHOD (SM: 4500-CN <sup>-</sup> C AND 4500-CN <sup>-</sup> E)	< 5	5
NITRATE-NITROGEN	µg/L N	CADMIUM REDUCTION AND COLOURIMETRIC METHOD (BASED ON PRACTICAL HANDBOOK OF SEAWATER ANALYSIS (STRICKLAND AND PARSON, 1972, II.6))	13.6	0.50
SULPHIDE	µg/L	METHYLENE BLUE COLOURIMETRIC METHOD (METHOD OF SEAWATER ANALYSIS, GRASSHOFF, 1999, CHAPTER 5)	< 10	10
FAT, OIL AND GREASE	mg/L	LIQUID-LIQUID, PARTITION-GRAVIMETRIC METHOD (SM: 5520 B)	0.8	3



PARAMETER	UNIT	METHOD OF ANALYSIS	RESULT	DETECTION LIMIT
			LBW006. 500 M OFFSHORE (JETTY) T22AK404-0001	
METALS				
LEAD	µg/L Pb	PRE-CONCENTRATION AND INDUCTIVELY COUPLED PLASMA (ICP) METHOD (BASED ON METHOD OF SEAWATER ANALYSIS, GRASSHOFF, 1999, CHAPTER 12)	0.970	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-01-06-001

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(Signature)  
LABORATORY SUPERVISOR

JUNE 15, 2022

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## ANALYSIS REPORT

**PROJECT NAME** : ENVIRONMENTAL & SOCIOECONOMIC SURVEY  
**CUSTOMER NAME** : ESSO (THAILAND) PUBLIC COMPANY LIMITED  
**ADDRESS** : 118 MOO 2 THUNG SUKHLA SI RACHA CHON BURI 20230  
**CONTACT INFORMATION** : TEL : 0 3314 2891 e-mail : wanlop.boongor@exxonmobil.com  
**SAMPLING SOURCE** : -  
**SAMPLE TYPE** : SEAWATER **RECEIVED DATE** : APRIL 27, 2022  
**SAMPLING DATE** : APRIL 27, 2022 **ANALYTICAL DATE** : APRIL 27 - MAY 6, 2022  
**SAMPLING TIME** : \* **REPORT NO.** : 2022-U033553  
**SAMPLING METHOD** : PLANKTON NET **WORK NO.** : 2019-002022  
**SAMPLING BY** : MR THANADET WANSANOR **ANALYSIS NO.** : T22AH912-0001, T22AH912-0003  
**ANALYZED BY** : MISS NAPAPORN PURATAKO

PHYTOPLANKTON (UNITS/m <sup>3</sup> )	COUNTING UNIT	RESULT	
		SAMPLE NO. 1 09:50 HOUR * T22AH912-0001	SAMPLE NO. 2 10:30 HOUR * T22AH912-0003
Division Cyanophyta			
Class Cyanophyceae			
Family Oscillatoriaceae			
<i>Oscillatoria</i> spp.	FILAMENT	92,570	19,904
Family Nostocaceae			
<i>Richelia intracellularis</i>	FILAMENT	7,205	1,614
Division Chromophyta			
Class Bacillariophyceae			
Family Thalassiosiraceae			
<i>Planktoniella</i> spp.	CELL	8,224	0
<i>Skeletonema</i> spp.	FILAMENT	4,629	0
<i>Thalassiosira</i> spp.	CELL	121,374	33,345
Family Melosiraceae			
<i>Paralia sulcata</i>	CELL	76,108	10,223
Family Leptocylindraceae			
<i>Corethron criophilum</i>	CELL	14,395	12,909
Family Coscinodiscaceae			
<i>Coscinodiscus</i> spp.	CELL	101,317	70,458
<i>Palmeria hardmaniana</i>	CELL	72,004	45,722
Family Rhizosoleniaceae			
<i>Guinardia</i> spp.	CELL	2,729,243	1,053,674
<i>Rhizosolenia</i> spp.	CELL	2,841,869	1,142,421
Family Hemiaulaceae			
<i>Climacodium</i> spp.	CELL	10,291	21,518
<i>Eucampia</i> spp.	CELL	39,080	51,095
<i>Hemiaulus</i> spp.	CELL	66,342	70,458
Family Biddulphiaceae			
<i>Biddulphia bidduphiana</i>	CELL	3,086	16,677

• DO NOT COPY PARTIAL OF THIS ANALYSIS REPORT WITHOUT OFFICIAL APPROVAL .  
 • REPORTED ANALYSIS REFERS TO SUBMITTED SAMPLE ONLY.



PHYTOPLANKTON (UNITS/m <sup>3</sup> )	COUNTING UNIT	RESULT	
		SAMPLE NO. 1 09:50 HOUR * T22AH912-0001	SAMPLE NO. 2 10:30 HOUR * T22AH912-0003
Family Chaetocerotaceae			
<i>Bacteriastrum</i> spp.	FILAMENT	453,589	150,605
<i>Chaetoceros</i> spp.	FILAMENT	29,138,670	15,057,464
Family Lithodermaceae			
<i>Dityum</i> spp.	CELL	35,994	44,640
<i>Helicotheca tamesis</i>	CELL	19,548	25,277
Family Eupodiscaceae			
<i>Odontella</i> spp.	CELL	51,423	86,061
Family Thalassiommataceae			
<i>Thalassionema frauenfeldii</i>	CELL	128,563	126,933
<i>T. nitzschoides</i>	CELL	61,713	110,265
<i>Thalassiothrix</i> spp.	CELL	50,404	49,481
Family Naviculaceae			
<i>Amphora</i> spp.	CELL	34,452	32,813
<i>Diploneis</i> spp.	CELL	7,205	6,995
<i>Meuniera membranacea</i>	CELL	7,205	19,364
<i>Navicula</i> spp.	CELL	52,456	35,499
<i>Pinnularia</i> spp.	CELL	0	11,836
<i>Pleurosigma</i> spp.	CELL	388,790	463,641
<i>Trachyneis</i> spp.	CELL	0	18,823
Family Bacillariaceae			
<i>Bacillaria paxillifer</i>	CELL	37,028	29,586
<i>Nitzschia</i> spp.	CELL	25,195	6,995
<i>Pseudo-nitzschia</i> spp.	CELL	56,576	51,635
Family Surirellaceae			
<i>Surirella</i> spp.	CELL	553,363	57,549
Class Dictyochophyceae			
Family Dictyochophyceae			
<i>Dictyocha</i> spp.	CELL	17,481	0
Class Dinophyceae			
Family Prorocentraceae			
<i>Prorocentrum</i> spp.	CELL	79,193	32,272
Family Dinophysiaceae			
<i>Dinophysis</i> spp.	CELL	0	18,823
Family Ceratiaceae			
<i>Ceratium</i> spp.	CELL	10,291	26,358
<i>C. furca</i>	CELL	27,262	14,523
Family Goniadomaceae			
<i>Gonyaulax</i> spp.	CELL	37,028	0



PHYTOPLANKTON (UNITS/m <sup>3</sup> )	COUNTING UNIT	RESULT	
		SAMPLE NO. 1 09:50 HOUR * T22AH912-0001	SAMPLE NO. 2 10:30 HOUR * T22AH912-0003
Family Pyrophacaceae <i>Pyrophacus</i> spp.	CELL	73,547	52,176
Family Peridiniaceae <i>Peridinium</i> spp.	CELL	53,999	25,818
Family Protoperidiniaceae <i>Protoperidinium</i> spp.	CELL	55,542	37,654
TOTAL ABUNDANCE (UNITS/m <sup>3</sup> )		37,644,254	19,143,104
AMOUNT OF SPECIES :		40	39
SAMPLE CONDITION			
WATER'S COLOUR/TURBID		COLOURLESS/CLEAR	COLOURLESS/CLEAR
SEDIMENT		GREEN	GREEN

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

ZOOPLANKTON (UNITS/m <sup>3</sup> )	COUNTING UNIT	RESULT	
		SAMPLE NO. 1 09:50 HOUR * T22AH912-0001	SAMPLE NO. 2 10:30 HOUR * T22AH912-0003
Phylum Protozoa			
Class Sarcodina			
Foraminifera	CELL	436	162
Family Actinommidae			
<i>Actinomma leptoderma</i>	CELL	1,161	5,398
Class Ciliata			
Family Codonellidae			
<i>Tintinnopsis</i> sp.	CELL	1,814	242
Family Cyttarocylindae			
<i>Favella</i> sp.	CELL	943	1,531
Phylum Chaetognatha			
Class Sagittoidea			
Family Sagittidae			
<i>Sagitta</i> sp.	INDIVIDUAL	0	484
Phylum Annelida			
Class Polychaeta			
Polychaete Larva	INDIVIDUAL	2,178	2,497
Phylum Arthropoda			
Class Crustacea			
Cyclopoid Copepod	INDIVIDUAL	1,525	1,934
Calanoid Copepod	INDIVIDUAL	15,969	9,911
Harpacticoid Copepod	INDIVIDUAL	2,324	5,398
Nauplius of Copepod	INDIVIDUAL	50,956	49,551
Cerripecta Nauplius	INDIVIDUAL	508	0
Zoea	INDIVIDUAL	654	967
Phylum Mollusca			
Class Gastropoda			
Gastropod Larva	INDIVIDUAL	1,453	484
Class Bivalvia			
Bivalvia Larva	INDIVIDUAL	12,920	16,841
Phylum Echinodermata			
Class Echinoidea			
Echinopluteus Larva	INDIVIDUAL	0	322

ZOOPLANKTON (UNITS/m <sup>3</sup> )	COUNTING UNIT	RESULT	
		SAMPLE NO. 1 09:50 HOUR * T22AH912-0001	SAMPLE NO. 2 10:30 HOUR * T22AH912-0003
Phylum Chordata Class Larvacea Family Oikopleuridae <i>Oikopleura</i> sp.	INDIVIDUAL	8,129	5,964
TOTAL ABUNDANCE (UNITS/m <sup>3</sup> )		100,970	101,686
AMOUNT OF SPECIES		14	15
SAMPLE CONDITION WATER'S COLOUR/TURBID SEDIMENT		COLOURLESS/CLEAR GREEN	COLOURLESS/CLEAR GREEN

SAMPLE NO. 1 500 m OFFSHORE (JETTY)

SAMPLE NO. 2 BERTH ISLAND

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[REDACTED]  
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LABORATORY SUPERVISOR

MAY 12, 2022

## ANALYSIS REPORT

**PROJECT NAME** : ENVIRONMENTAL & SOCIOECONOMIC SURVEY  
**CUSTOMER NAME** : ESSO (THAILAND) PUBLIC COMPANY LIMITED  
**ADDRESS** : 118 MOO 2 THUNG SUKHLA SI RACHA CHON BURI 20230  
**CONTACT INFORMATION** : TEL : 0 3314 2891 e-mail : wanlop.boongor@exxonmobil.com  
**SAMPLING SOURCE** : -  
**SAMPLE TYPE** : SEDIMENT  
**SAMPLING DATE** : APRIL 27, 2022  
**SAMPLING TIME** : \*  
**SAMPLING METHOD** : PETERSEN GRAB  
**SAMPLING BY** : MR THANADET WANSANOR  
**ANALYZED BY** : MISS PATCHAREE KONGCHUMNAN

**RECEIVED DATE** : APRIL 27, 2022  
**ANALYTICAL DATE** : APRIL 27-MAY 6, 2022  
**REPORT NO.** : 2022-U033554  
**WORK NO.** : 2019-002022  
**ANALYSIS NO.** : T22AH912-0002, T22AH912-0004

BENTHOS (INDIVIDUALS/m <sup>2</sup> )	RESULT	
	SAMPLE NO. 1 10:00 HOUR * T22AH912-0002	SAMPLE NO. 2 10:50 HOUR * T22AH912-0004
Phylum Annelida		
Class Polychaeta		
Family Spionidae	0	7
Phylum Mollusca		
Class Bivalvia		
Family Veneridae	7	0
Phylum Arthropoda		
Class Malacostraca		
Family Squillidae	0	7
Family Pilumnidae	7	0
<b>TOTAL DENSITY (INDIVIDUALS/m<sup>2</sup>)</b>	<b>14</b>	<b>14</b>
<b>AMOUNT OF SPECIES</b>	<b>2</b>	<b>2</b>
<b>SAMPLE CONDITION</b>	CLAY WITH SHELLS	CLAY WITH SHELLS

SAMPLE NO. 1 500 m OFFSHORE (JETTY)  
SAMPLE NO. 2 BERTH ISLAND

(MISS CHAWEEWAN BOONLA)  
LABORATORY SUPERVISOR

MAY 12, 2022

