

ภาคผนวก ญ
ใบรายงานผลการวิเคราะห์



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ANALYSIS REPORT

CUSTOMER NAME : PAN ORIENT ENERGY (SIAM) LIMITED
ADDRESS : 555 RASA TOWER II, 17TH FLOOR, UNIT 1702, PHAHOLYOTHIN ROAD, CHATUCHAK, BANGKOK 10900.
CONTACT INFORMATION : TEL : 0 2937 1138-40 e-mail : prakaipruek@poesiam.com
SAMPLING SOURCE : L53-A : PRODUCTION SITE (UTM WGS84 ZONE 47P 598500E 1153010N)
SAMPLE TYPE : AMBIENT
SAMPLING DATE : *, **, ***
SAMPLING TIME : *, **, ***
SAMPLING BY : MR SIRAPAT JONGPHADUNGKIET
ANALYZED BY : MISS WORAKON PADSONGCHAN
RECEIVED DATE : JULY 17, 2023
ANALYTICAL DATE : JULY 17-26, 2023
REPORT NO. : 2023-U062628
WORK NO. : 2023-001311
ANALYSIS NO. : T23AN629-0001 - T23AN629-0003

PARAMETER	UNIT	METHOD OF ANALYSIS	RESULT		
			L53-A : PRODUCTION SITE		
			* T23AN629-0001	** T23AN629-0002	*** T23AN629-0003
BENZENE ^b	µg/m ³	UAE.TP.TOX.003 BASED ON US EPA, COMPENDIUM METHOD TO-15, 2nd EDITION, JANUARY 1999	0.15	0.19	0.15
ETHYLBENZENE ^b	µg/m ³	UAE.TP.TOX.003 BASED ON US EPA, COMPENDIUM METHOD TO-15, 2nd EDITION, JANUARY 1999	< 0.17	0.22	< 0.17
TOLUENE ^a	µg/m ³	UAE.TP.TOX.003 BASED ON US EPA, COMPENDIUM METHOD TO-15, 2nd EDITION, JANUARY 1999	0.60	1.52	0.75
TOTAL XYLENES ^b	µg/m ³	UAE.TP.TOX.003 BASED ON US EPA, COMPENDIUM METHOD TO-15, 2nd EDITION, JANUARY 1999	< 1.05	< 1.05	< 1.05
SAMPLE CONDITION			COMPLETE	COMPLETE	COMPLETE

^a : ISO/IEC 17025 ACCREDITED BY THAI INDUSTRIAL STANDARD INSTITUTE (TISI)
^b : VERIFIED BY OWN LABORATORY QUALITY SYSTEM, BUT STILL NOT ACCREDITED

REMARK

RESULT : REFERENCE CONDITION IS 25 DEGREE CELSIUS AT 1 ATMOSPHERE.
* : SAMPLING FROM 08:00 HOUR ON JULY 11, 2023 TO 08:00 HOUR ON JULY 12, 2023.
** : SAMPLING FROM 08:00 HOUR ON JULY 12, 2023 TO 08:00 HOUR ON JULY 13, 2023.
*** : SAMPLING FROM 08:00 HOUR ON JULY 13, 2023 TO 08:00 HOUR ON JULY 14, 2023.

Benjawan V.

(MISS BENJAWAN VIRIYOTHAI)
LABORATORY SUPERVISOR

JULY 27, 2023



ANALYSIS REPORT

CUSTOMER NAME : PAN ORIENT ENERGY (SIAM) LIMITED
ADDRESS : 555 RASA TOWER II, 17TH FLOOR, UNIT 1702, PHAHOLYOTHIN ROAD, CHATUCHAK, BANGKOK 10900.
CONTACT INFORMATION : TEL : 0 2937 1138-40 e-mail : prakaipruek@poesiam.com
MEASURING PLACE : L53-A AT SITE
MEASURING TYPE : AMBIENT (AIR) **RECEIVED DATE** : JULY 11-14, 2023
MEASURING DATE : JULY 11-14, 2023 **ANALYTICAL DATE** : JULY 11-14, 2023
MEASURING TIME : * **REPORT NO.** : 2023-U060193
MEASURING METHOD : CHEMILUMINESCENCE **WORK NO.** : 2023-001311
MEASURED BY : MR SIRAPAT JONGPHADUNGKIET **ANALYSIS NO.** : T23AN629-0001 - T23AN629-0003

TIME *	RESULT (ppm)		
	NITROGEN DIOXIDE		
	L53-A AT SITE		
	JULY 11-12, 2023 T23AN629-0001	JULY 12-13, 2023 T23AN629-0002	JULY 13-14, 2023 T23AN629-0003
08:00-09:00 HOUR	0.0116	0.0110	0.0112
09:00-10:00 HOUR	0.0114	0.0125	0.0129
10:00-11:00 HOUR	0.0108	0.0118	0.0109
11:00-12:00 HOUR	0.0115	0.0126	0.0119
12:00-13:00 HOUR	0.0119	0.0117	0.0118
13:00-14:00 HOUR	0.0118	0.0116	0.0114
14:00-15:00 HOUR	0.0116	0.0122	0.0104
15:00-16:00 HOUR	0.0107	0.0113	0.0121
16:00-17:00 HOUR	0.0120	0.0120	0.0113
17:00-18:00 HOUR	0.0107	0.0111	0.0109
18:00-19:00 HOUR	0.0109	0.0109	0.0112
19:00-20:00 HOUR	0.0093	0.0120	0.0104
20:00-21:00 HOUR	0.0081	0.0113	0.0097
21:00-22:00 HOUR	0.0083	0.0098	0.0088
22:00-23:00 HOUR	0.0091	0.0087	0.0081
23:00-00:00 HOUR	0.0073	0.0087	0.0077
00:00-01:00 HOUR	0.0084	0.0080	0.0087
01:00-02:00 HOUR	0.0087	0.0072	0.0072
02:00-03:00 HOUR	0.0083	0.0082	0.0092
03:00-04:00 HOUR	0.0098	0.0085	0.0090
04:00-05:00 HOUR	0.0080	0.0080	0.0070
05:00-06:00 HOUR	0.0096	0.0082	0.0095
06:00-07:00 HOUR	0.0104	0.0101	0.0089
07:00-08:00 HOUR	0.0120	0.0105	0.0108



(MR SILA BANJONGJAIKUK)
LABORATORY SUPERVISOR

JULY 20, 2023



ANALYSIS REPORT

CUSTOMER NAME : PAN ORIENT ENERGY (SIAM) LIMITED
ADDRESS : 555 RASA TOWER II, 17TH FLOOR, UNIT 1702, PHAHOLYOTHIN ROAD, CHATUCHAK, BANGKOK 10900.
CONTACT INFORMATION : TEL : 0 2937 1138-40 e-mail : prakaipruek@poesiam.com
MEASURING PLACE : L53-A AT SITE
MEASURING TYPE : AMBIENT (AIR)
MEASURING DATE : JULY 11-14, 2023
MEASURING TIME : *
MEASURING METHOD : UV FLUORESCENCE
MEASURED BY : MR SIRAPAT JONGPHADUNGKIET

RECEIVED DATE : JULY 11-14, 2023
ANALYTICAL DATE : JULY 11-14, 2023
REPORT NO. : 2023-U060194
WORK NO. : 2023-001311
ANALYSIS NO. : T23AN629-0001 - T23AN629-0003

TIME *	RESULT (ppm)		
	SULPHUR DIOXIDE		
	L53-A AT SITE		
	JULY 11-12, 2023 T23AN629-0001	JULY 12-13, 2023 T23AN629-0002	JULY 13-14, 2023 T23AN629-0003
08:00-09:00 HOUR	0.0044	0.0043	0.0040
09:00-10:00 HOUR	0.0040	0.0042	0.0042
10:00-11:00 HOUR	0.0045	0.0043	0.0038
11:00-12:00 HOUR	0.0043	0.0045	0.0039
12:00-13:00 HOUR	0.0045	0.0046	0.0043
13:00-14:00 HOUR	0.0044	0.0044	0.0046
14:00-15:00 HOUR	0.0042	0.0041	0.0040
15:00-16:00 HOUR	0.0041	0.0039	0.0042
16:00-17:00 HOUR	0.0040	0.0037	0.0043
17:00-18:00 HOUR	0.0044	0.0034	0.0044
18:00-19:00 HOUR	0.0033	0.0037	0.0038
19:00-20:00 HOUR	0.0039	0.0038	0.0036
20:00-21:00 HOUR	0.0039	0.0036	0.0035
21:00-22:00 HOUR	0.0038	0.0034	0.0033
22:00-23:00 HOUR	0.0037	0.0033	0.0035
23:00-00:00 HOUR	0.0034	0.0035	0.0034
00:00-01:00 HOUR	0.0033	0.0034	0.0037
01:00-02:00 HOUR	0.0033	0.0038	0.0034
02:00-03:00 HOUR	0.0034	0.0034	0.0036
03:00-04:00 HOUR	0.0035	0.0038	0.0033
04:00-05:00 HOUR	0.0034	0.0036	0.0033
05:00-06:00 HOUR	0.0036	0.0037	0.0039
06:00-07:00 HOUR	0.0040	0.0039	0.0042
07:00-08:00 HOUR	0.0044	0.0041	0.0043
AVERAGE 24 HOUR	0.0039	0.0039	0.0039



(MR SILA BANJONGJAIKUK)
LABORATORY SUPERVISOR

JULY 20, 2023



ANALYSIS REPORT

CUSTOMER NAME : PAN ORIENT ENERGY (SIAM) LIMITED
ADDRESS : 555 RASA TOWER II, 17TH FLOOR, UNIT 1702, PHAHOLYOTHIN ROAD, CHATUCHAK, BANGKOK 10900.
CONTACT INFORMATION : TEL : 0 2937 1138-40 e-mail : prakaipruek@poesiam.com
MEASURING PLACE : L53-A AT SITE
MEASURING TYPE : AMBIENT (AIR)
MEASURING DATE : JULY 11-14, 2023
MEASURING TIME : *
MEASURING METHOD : WIND SPEED & WIND DIRECTION EQUIPMENT
MEASURED BY : MR SIRAPAT JONGPHADUNGKIET

RECEIVED DATE : JULY 11-14, 2023
ANALYTICAL DATE : JULY 11-14, 2023
REPORT NO. : 2023-U060195
WORK NO. : 2023-001311
ANALYSIS NO. : T23AN629-0001 - T23AN629-0003

TIME *	RESULT (m/s)					
	L53-A AT SITE					
	JULY 11-12, 2023 T23AN629-0001		JULY 12-13, 2023 T23AN629-0002		JULY 13-14, 2023 T23AN629-0003	
	WIND SPEED	WIND DIRECTION	WIND SPEED	WIND DIRECTION	WIND SPEED	WIND DIRECTION
08:00-09:00 HOUR	2.3	SSE	3.2	W	1.9	WNW
09:00-10:00 HOUR	2.3	S	2.2	SSW	1.2	SW
10:00-11:00 HOUR	1.6	S	0.9	SSW	0.6	WSW
11:00-12:00 HOUR	2.0	S	1.0	WSW	2.6	W
12:00-13:00 HOUR	2.6	SSE	2.9	W	2.0	NW
13:00-14:00 HOUR	1.4	SSE	1.3	SW	3.1	WSW
14:00-15:00 HOUR	3.4	SSE	1.0	WNW	2.2	W
15:00-16:00 HOUR	2.4	S	3.1	SW	1.5	W
16:00-17:00 HOUR	2.6	S	3.3	WSW	0.6	SW
17:00-18:00 HOUR	3.0	S	1.0	WSW	1.9	NW
18:00-19:00 HOUR	1.8	S	3.4	SW	3.3	SW
19:00-20:00 HOUR	1.6	S	2.9	SSW	1.9	SW
20:00-21:00 HOUR	1.0	S	1.3	WNW	1.2	SW
21:00-22:00 HOUR	1.4	S	1.7	WNW	1.4	WSW
22:00-23:00 HOUR	1.0	S	2.1	WNW	2.1	WNW
23:00-00:00 HOUR	0.8	SSE	0.8	WNW	3.4	W
00:00-01:00 HOUR	1.2	S	1.2	WNW	2.3	WNW
01:00-02:00 HOUR	2.0	S	1.6	SW	0.8	SW
02:00-03:00 HOUR	2.8	SSW	3.1	WSW	2.8	WNW
03:00-04:00 HOUR	2.5	SSW	2.8	WSW	2.6	W
04:00-05:00 HOUR	0.7	SW	3.2	W	1.3	W
05:00-06:00 HOUR	2.2	SW	0.6	SW	3.3	SSW
06:00-07:00 HOUR	2.2	WNW	2.5	SW	0.8	WNW
07:00-08:00 HOUR	1.5	W	2.8	SW	1.7	WSW



(MR SILA BANJONGJAIKUK)
LABORATORY SUPERVISOR

JULY 20, 2023



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ANALYSIS REPORT

CUSTOMER NAME : PAN ORIENT ENERGY (SIAM) LIMITED
ADDRESS : 555 RASA TOWER II 17TH FLOOR UNIT 1702 PHAHONYOTHIN ROAD, CHATUCHAK CHATUCHAK BANGKOK 10900
CONTACT INFORMATION : TEL : 0 2937 1138-40 e-mail : prakaipruek@poesiam.com
SAMPLING SOURCE : L53-A-SW1 (UTM WGS 84 ZONE 47P 598483E 1553403N)
SAMPLE TYPE : SURFACE WATER
SAMPLING DATE : JULY 18, 2023
SAMPLING TIME : 10:55 HOUR
SAMPLING METHOD ° : GRAB
SAMPLING BY ° : MR KRIDSANAPONG NAMTHIP
ANALYZED BY : MISS KEWALEE SUKHAREE

RECEIVED DATE : JULY 19, 2023
ANALYTICAL DATE : JULY 19-25, 2023
REPORT NO. : 2023-U063783
WORK NO. : 2023-001311
ANALYSIS NO. : T23AN828-0001

PARAMETER	UNIT	METHOD OF ANALYSIS	RESULT	DETECTION LIMIT
			L53-A-SW1 T23AN828-0001	
pH °	-	ELECTROMETRIC METHOD AT SITE (SM: PART 4500-H ⁺ B)	8.2 (30°C)	-
ELECTRICAL CONDUCTIVITY °	µmhos/cm	ELECTRICAL CONDUCTIVITY METHOD AT SITE (SM: PART 2510 B)	495 (30°C)	0.1
CHLORIDE ^a	mg/L Cl ⁻	ARGENTOMETRIC METHOD (SM: PART 4500-Cl ⁻ B)	7.9	2.0
SULPHATE °	mg/L SO ₄ ²⁻	TURBIDIMETRIC METHOD (SM: PART 4500-SO ₄ ²⁻ E)	5.1	0.3
TOTAL PETROLEUM HYDROCARBONS °	mg/L	SOXHLET EXTRACTION METHOD (SM: PART 5520 D AND PART 5520 F)	ND	3
METALS				
ARSENIC °	mg/L As	HYDRIDE GENERATION AAS METHOD (SM: PART 3114 C)	0.0087	0.0003
CADMIUM °	mg/L Cd	IN-HOUSE METHOD: UAE.TP.SW.01 (NITRIC ACID DIGESTION AND DIRECT AIR ACETYLENE FLAME METHOD); SM: PART 3030 E AND PART 3111 B	ND	0.002
COPPER °	mg/L Cu	IN-HOUSE METHOD: UAE.TP.SW.01 (NITRIC ACID DIGESTION AND DIRECT AIR ACETYLENE FLAME METHOD); SM: PART 3030 E AND PART 3111 B	ND	0.002
IRON °	mg/L Fe	IN-HOUSE METHOD: UAE.TP.SW.01 (NITRIC ACID DIGESTION AND DIRECT AIR ACETYLENE FLAME METHOD); SM: PART 3030 E AND PART 3111 B	0.307	0.005
LEAD °	mg/L Pb	IN-HOUSE METHOD: UAE.TP.SW.01 (NITRIC ACID DIGESTION AND DIRECT AIR ACETYLENE FLAME METHOD); SM: PART 3030 E AND PART 3111 B	ND	0.003
MANGANESE °	mg/L Mn	IN-HOUSE METHOD: UAE.TP.SW.01 (NITRIC ACID DIGESTION AND DIRECT AIR ACETYLENE FLAME METHOD); SM: PART 3030 E AND PART 3111 B	0.066	0.002
MERCURY °	mg/L Hg	IN-HOUSE METHOD: UAE.TP.HEM.002 (COLD VAPOUR ATOMIC ABSORPTION SPECTROMETRIC METHOD); SM: PART 3112 B	ND	0.0001
NICKEL °	mg/L Ni	IN-HOUSE METHOD: UAE.TP.SW.01 (NITRIC ACID DIGESTION AND DIRECT AIR ACETYLENE FLAME METHOD); SM: PART 3030 E AND PART 3111 B	ND	0.005
TOTAL CHROMIUM °	mg/L Cr	IN-HOUSE METHOD: UAE.TP.SW.01 (NITRIC ACID DIGESTION AND DIRECT AIR ACETYLENE FLAME METHOD); SM: PART 3030 E AND PART 3111 B	ND	0.005



PARAMETER	UNIT	METHOD OF ANALYSIS	RESULT	DETECTION LIMIT
			L53-A-SW1 T23AN828-0001	
ZINC ^c	mg/L Zn	IN-HOUSE METHOD: UAE.TP.SW.01 (NITRIC ACID DIGESTION AND DIRECT AIR ACETYLENE FLAME METHOD); SM: PART 3030 E AND PART 3111 B	ND	0.003
SAMPLE CONDITION WATER'S COLOUR/TURBID SEDIMENT			YELLOW/CLEAR BROWN	

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

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

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

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

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

ND : NON-DETECTABLE.

Benjawan V.

(MISS BENJAWAN VIRIYOTHAI)
LABORATORY SUPERVISOR

AUGUST 7, 2023

ANALYSIS REPORT

CUSTOMER NAME : PAN ORIENT ENERGY (SIAM) LIMITED
ADDRESS : 555 RASA TOWER II 17TH FLOOR UNIT 1702 PHAHONYOTHIN ROAD, CHATUCHAK CHATUCHAK BANGKOK 10900
CONTACT INFORMATION : TEL : 0 2937 1138-40 e-mail : prakaipruek@poesiam.com
SAMPLING SOURCE : L53-A-SW2 (UTM WGS 84 ZONE 47P 599118E 1552826N)
SAMPLE TYPE : SURFACE WATER
SAMPLING DATE : JULY 18, 2023
SAMPLING TIME : 11:05 HOUR
SAMPLING METHOD : GRAB
SAMPLING BY : MR KRIDSANAPONG NAMTHIP
ANALYZED BY : MISS KEWALEE SUKHAREE

RECEIVED DATE : JULY 19, 2023
ANALYTICAL DATE : JULY 19-25, 2023
REPORT NO. : 2023-U063784
WORK NO. : 2023-001311
ANALYSIS NO. : T23AN828-0002

PARAMETER	UNIT	METHOD OF ANALYSIS	RESULT	DETECTION LIMIT
			L53-A-SW2 T23AN828-0002	
pH	-	ELECTROMETRIC METHOD AT SITE (SM: PART 4500-H ⁺ B)	8.2 (29°C)	-
ELECTRICAL CONDUCTIVITY	µmhos/cm	ELECTRICAL CONDUCTIVITY METHOD AT SITE (SM: PART 2510 B)	221 (29°C)	0.1
CHLORIDE	mg/L Cl ⁻	ARGENTOMETRIC METHOD (SM: PART 4500-Cl ⁻ B)	ND	2.0
SULPHATE	mg/L SO ₄ ²⁻	TURBIDIMETRIC METHOD (SM: PART 4500-SO ₄ ²⁻ E)	4.2	0.3
TOTAL PETROLEUM HYDROCARBONS	mg/L	SOXHLET EXTRACTION METHOD (SM: PART 5520 D AND PART 5520 F)	ND	3
METALS				
ARSENIC	mg/L As	HYDRIDE GENERATION AAS METHOD (SM: PART 3114 C)	0.0086	0.0003
CADMIUM	mg/L Cd	IN-HOUSE METHOD: UAE.TP.SW.01 (NITRIC ACID DIGESTION AND DIRECT AIR ACETYLENE FLAME METHOD); SM: PART 3030 E AND PART 3111 B	ND	0.002
COPPER	mg/L Cu	IN-HOUSE METHOD: UAE.TP.SW.01 (NITRIC ACID DIGESTION AND DIRECT AIR ACETYLENE FLAME METHOD); SM: PART 3030 E AND PART 3111 B	ND	0.002
IRON	mg/L Fe	IN-HOUSE METHOD: UAE.TP.SW.01 (NITRIC ACID DIGESTION AND DIRECT AIR ACETYLENE FLAME METHOD); SM: PART 3030 E AND PART 3111 B	0.269	0.005
LEAD	mg/L Pb	IN-HOUSE METHOD: UAE.TP.SW.01 (NITRIC ACID DIGESTION AND DIRECT AIR ACETYLENE FLAME METHOD); SM: PART 3030 E AND PART 3111 B	ND	0.003
MANGANESE	mg/L Mn	IN-HOUSE METHOD: UAE.TP.SW.01 (NITRIC ACID DIGESTION AND DIRECT AIR ACETYLENE FLAME METHOD); SM: PART 3030 E AND PART 3111 B	0.066	0.002
MERCURY	mg/L Hg	IN-HOUSE METHOD: UAE.TP.HEM.002 (COLD VAPOUR ATOMIC ABSORPTION SPECTROMETRIC METHOD); SM: PART 3112 B	ND	0.0001
NICKEL	mg/L Ni	IN-HOUSE METHOD: UAE.TP.SW.01 (NITRIC ACID DIGESTION AND DIRECT AIR ACETYLENE FLAME METHOD); SM: PART 3030 E AND PART 3111 B	ND	0.005
TOTAL CHROMIUM	mg/L Cr	IN-HOUSE METHOD: UAE.TP.SW.01 (NITRIC ACID DIGESTION AND DIRECT AIR ACETYLENE FLAME METHOD); SM: PART 3030 E AND PART 3111 B	ND	0.005



PARAMETER	UNIT	METHOD OF ANALYSIS	RESULT	DETECTION LIMIT
			L53-A-SW2 T23AN828-0002	
ZINC	mg/L Zn	IN-HOUSE METHOD: UAE.TP.SW.01 (NITRIC ACID DIGESTION AND DIRECT AIR ACETYLENE FLAME METHOD); SM: PART 3030 E AND PART 3111 B	ND	0.003
SAMPLE CONDITION WATER'S COLOUR/TURBID SEDIMENT			YELLOW/CLEAR BROWN	

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

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

ND : NON-DETECTABLE.

Benjawan V.

(MISS BENJAWAN VIRIYOTHAI)
LABORATORY SUPERVISOR

AUGUST 7, 2023

ANALYSIS REPORT

CUSTOMER NAME : PAN ORIENT ENERGY (SIAM) LIMITED
ADDRESS : 555 RASA TOWER II 17TH FLOOR UNIT 1702 PHAHONYOTHIN ROAD, CHATUCHAK CHATUCHAK BANGKOK 10900
CONTACT INFORMATION : TEL : 0 2937 1138-40 e-mail : prakaipruek@poesiam.com
SAMPLING SOURCE : L53-A-SW3 (UTM WGS 84 ZONE 47P 599316E 1552559N)
SAMPLE TYPE : SURFACE WATER
SAMPLING DATE : JULY 18, 2023
SAMPLING TIME : 11:15 HOUR
SAMPLING METHOD ° : GRAB
SAMPLING BY ° : MR KRIDSANAPONG NAMTHIP
ANALYZED BY : MISS KEWALEE SUKHAREE

RECEIVED DATE : JULY 19, 2023
ANALYTICAL DATE : JULY 19-25, 2023
REPORT NO. : 2023-U063785
WORK NO. : 2023-001311
ANALYSIS NO. : T23AN828-0003

PARAMETER	UNIT	METHOD OF ANALYSIS	RESULT	DETECTION LIMIT
			L53-A-SW3 T23AN828-0003	
pH °	-	ELECTROMETRIC METHOD AT SITE (SM: PART 4500-H ⁺ B)	7.3 (29°C)	-
ELECTRICAL CONDUCTIVITY °	µmhos/cm	ELECTRICAL CONDUCTIVITY METHOD AT SITE (SM: PART 2510 B)	442 (29°C)	0.1
CHLORIDE ^a	mg/L Cl ⁻	ARGENTOMETRIC METHOD (SM: PART 4500-Cl ⁻ B)	72.4	2.0
SULPHATE °	mg/L SO ₄ ²⁻	TURBIDIMETRIC METHOD (SM: PART 4500-SO ₄ ²⁻ E)	8.2	0.3
TOTAL PETROLEUM HYDROCARBONS °	mg/L	SOXHLET EXTRACTION METHOD (SM: PART 5520 D AND PART 5520 F)	ND	3
METALS				
ARSENIC °	mg/L As	HYDRIDE GENERATION AAS METHOD (SM: PART 3114 C)	0.0083	0.0003
CADMIUM °	mg/L Cd	IN-HOUSE METHOD: UAE.TP.SW.01 (NITRIC ACID DIGESTION AND DIRECT AIR ACETYLENE FLAME METHOD); SM: PART 3030 E AND PART 3111 B	ND	0.002
COPPER °	mg/L Cu	IN-HOUSE METHOD: UAE.TP.SW.01 (NITRIC ACID DIGESTION AND DIRECT AIR ACETYLENE FLAME METHOD); SM: PART 3030 E AND PART 3111 B	ND	0.002
IRON °	mg/L Fe	IN-HOUSE METHOD: UAE.TP.SW.01 (NITRIC ACID DIGESTION AND DIRECT AIR ACETYLENE FLAME METHOD); SM: PART 3030 E AND PART 3111 B	0.859	0.005
LEAD °	mg/L Pb	IN-HOUSE METHOD: UAE.TP.SW.01 (NITRIC ACID DIGESTION AND DIRECT AIR ACETYLENE FLAME METHOD); SM: PART 3030 E AND PART 3111 B	ND	0.003
MANGANESE °	mg/L Mn	IN-HOUSE METHOD: UAE.TP.SW.01 (NITRIC ACID DIGESTION AND DIRECT AIR ACETYLENE FLAME METHOD); SM: PART 3030 E AND PART 3111 B	0.676	0.002
MERCURY °	mg/L Hg	IN-HOUSE METHOD: UAE.TP.HEM.002 (COLD VAPOUR ATOMIC ABSORPTION SPECTROMETRIC METHOD); SM: PART 3112 B	ND	0.0001
NICKEL °	mg/L Ni	IN-HOUSE METHOD: UAE.TP.SW.01 (NITRIC ACID DIGESTION AND DIRECT AIR ACETYLENE FLAME METHOD); SM: PART 3030 E AND PART 3111 B	ND	0.005
TOTAL CHROMIUM °	mg/L Cr	IN-HOUSE METHOD: UAE.TP.SW.01 (NITRIC ACID DIGESTION AND DIRECT AIR ACETYLENE FLAME METHOD); SM: PART 3030 E AND PART 3111 B	ND	0.005



PARAMETER	UNIT	METHOD OF ANALYSIS	RESULT	DETECTION LIMIT
			L53-A-SW3 T23AN828-0003	
ZINC ^c	mg/L Zn	IN-HOUSE METHOD: UAE.TP.SW.01 (NITRIC ACID DIGESTION AND DIRECT AIR ACETYLENE FLAME METHOD); SM: PART 3030 E AND PART 3111 B	ND	0.003
SAMPLE CONDITION WATER'S COLOUR/TURBID SEDIMENT			YELLOW/CLEAR BROWN	

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

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

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

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

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

ND : NON-DETECTABLE.

Benjawan V.

(MISS BENJAWAN VIRIYOTHA)
LABORATORY SUPERVISOR

AUGUST 7, 2023

น้ำใต้ดิน



ANALYSIS REPORT

CUSTOMER NAME	: PAN ORIENT ENERGY (SIAM) LIMITED	RECEIVED DATE	: JULY 19, 2023
ADDRESS	: 555 RASA TOWER II 17TH FLOOR UNIT 1702 PHAHONYOTHIN ROAD, CHATUCHAK CHATUCHAK BANGKOK 10900	ANALYTICAL DATE	: JULY 19-27, 2023
CONTACT INFORMATION	: TEL : 0 2937 1138-40 e-mail : prakaipruek@poesiam.com	REPORT NO.	: 2023-U063649
SAMPLING SOURCE	: L53-A-GW1 (UTM WGS 84 ZONE 47P 600637E 1552177N)	WORK NO.	: 2023-001311
SAMPLE TYPE	: GROUNDWATER	ANALYSIS NO.	: T23AN830-0001
SAMPLING DATE	: JULY 18, 2023		
SAMPLING TIME	: 13:10 HOUR		
SAMPLING METHOD ^c	: GRAB		
SAMPLING BY ^c	: MR KRIDSANAPONG NAMTHIP		
ANALYZED BY	: MISS KEWALEE SUKHAREE		

PARAMETER	UNIT	METHOD OF ANALYSIS	RESULT	DETECTION LIMIT
			L53-A-GW1 T23AN830-0001	
pH ^c	-	ELECTROMETRIC METHOD AT SITE (SM: PART 4500-H ⁺ B)	7.7 (30°C)	-
ELECTRICAL CONDUCTIVITY ^c	µmhos/cm	ELECTRICAL CONDUCTIVITY METHOD AT SITE (SM: PART 2510 B)	1,104 (30°C)	0.1
CHLORIDE ^a	mg/L Cl ⁻	ARGENTOMETRIC METHOD (SM: PART 4500-Cl ⁻ B)	301	2.0
SULPHATE ^c	mg/L SO ₄ ²⁻	TURBIDIMETRIC METHOD (SM: PART 4500-SO ₄ ²⁻ E)	33.9	0.3
TOTAL PETROLEUM HYDROCARBONS ^c	mg/L	SOXHLET EXTRACTION METHOD (SM: PART 5520 D AND PART 5520 F)	ND	3
METALS				
ARSENIC ^c	mg/L As	HYDRIDE GENERATION AAS METHOD (SM: PART 3114 C)	0.0010	0.0003
CADMIUM ^c	mg/L Cd	IN-HOUSE METHOD: UAE.TP.GW.01 (NITRIC ACID DIGESTION AND DIRECT AIR ACETYLENE FLAME METHOD); SM: PART 3030 E AND PART 3111 B	ND	0.002
COPPER ^c	mg/L Cu	IN-HOUSE METHOD: UAE.TP.GW.01 (NITRIC ACID DIGESTION AND DIRECT AIR ACETYLENE FLAME METHOD); SM: PART 3030 E AND PART 3111 B	ND	0.002
IRON ^c	mg/L Fe	IN-HOUSE METHOD: UAE.TP.GW.01 (NITRIC ACID DIGESTION AND DIRECT AIR ACETYLENE FLAME METHOD); SM: PART 3030 E AND PART 3111 B	1.01	0.005
LEAD ^c	mg/L Pb	IN-HOUSE METHOD: UAE.TP.GW.01 (NITRIC ACID DIGESTION AND DIRECT AIR ACETYLENE FLAME METHOD); SM: PART 3030 E AND PART 3111 B	ND	0.003
MANGANESE ^c	mg/L Mn	IN-HOUSE METHOD: UAE.TP.GW.01 (NITRIC ACID DIGESTION AND DIRECT AIR ACETYLENE FLAME METHOD); SM: PART 3030 E AND PART 3111 B	ND	0.002
TOTAL MERCURY ^c	mg/L Hg	IN-HOUSE METHOD: UAE.TP.HEM.002 (COLD VAPOUR ATOMIC ABSORPTION SPECTROMETRIC METHOD); SM: PART 3112 B	ND	0.0001
NICKEL ^c	mg/L Ni	IN-HOUSE METHOD: UAE.TP.GW.01 (NITRIC ACID DIGESTION AND DIRECT AIR ACETYLENE FLAME METHOD); SM: PART 3030 E AND PART 3111 B	ND	0.005
TOTAL CHROMIUM ^c	mg/L Cr	IN-HOUSE METHOD: UAE.TP.GW.01 (NITRIC ACID DIGESTION AND DIRECT AIR ACETYLENE FLAME METHOD); SM: PART 3030 E AND PART 3111 B	ND	0.005



PARAMETER	UNIT	METHOD OF ANALYSIS	RESULT	DETECTION LIMIT
			L53-A-GW1 T23AN830-0001	
ZINC ^c	mg/L Zn	IN-HOUSE METHOD: UAE.TP.GW.01 (NITRIC ACID DIGESTION AND DIRECT AIR ACETYLENE FLAME METHOD); SM: PART 3030 E AND PART 3111 B	0.176	0.003
SAMPLE CONDITION WATER'S COLOUR/TURBID SEDIMENT			YELLOW/CLEAR BROWN	

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

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

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

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

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

ND : NON-DETECTABLE.

Benjawan V.

(MISS BENJAWAN VIRIYOTHAI)
LABORATORY SUPERVISOR

AUGUST 4, 2023

ANALYSIS REPORT

CUSTOMER NAME	: PAN ORIENT ENERGY (SIAM) LIMITED	RECEIVED DATE	: JULY 19, 2023
ADDRESS	: 555 RASA TOWER II 17TH FLOOR UNIT 1702 PHAHONYOTHIN ROAD, CHATUCHAK CHATUCHAK BANGKOK 10900	ANALYTICAL DATE	: JULY 19-27, 2023
CONTACT INFORMATION	: TEL : 0 2937 1138-40 e-mail : prakaipruek@poesiam.com	REPORT NO.	: 2023-U063650
SAMPLING SOURCE	: L53-A-GW2 (UTM WGS 84 ZONE 47P 597561E 1553592N)	WORK NO.	: 2023-001311
SAMPLE TYPE	: GROUNDWATER	ANALYSIS NO.	: T23AN830-0002
SAMPLING DATE	: JULY 18, 2023		
SAMPLING TIME	: 13:35 HOUR		
SAMPLING METHOD °	: GRAB		
SAMPLING BY °	: MR KRIDSANAPONG NAMTHIP		
ANALYZED BY	: MISS KEWALEE SUKHAREE		

PARAMETER	UNIT	METHOD OF ANALYSIS	RESULT	DETECTION LIMIT
			L53-A-GW2 T23AN830-0002	
pH °	-	ELECTROMETRIC METHOD AT SITE (SM: PART 4500-H ⁺ B)	7.6 (29°C)	-
ELECTRICAL CONDUCTIVITY °	µmhos/cm	ELECTRICAL CONDUCTIVITY METHOD AT SITE (SM: PART 2510 B)	1,020 (29°C)	0.1
CHLORIDE ^a	mg/L Cl ⁻	ARGENTOMETRIC METHOD (SM: PART 4500-Cl ⁻ B)	207	2.0
SULPHATE °	mg/L SO ₄ ²⁻	TURBIDIMETRIC METHOD (SM: PART 4500-SO ₄ ²⁻ E)	36.6	0.3
TOTAL PETROLEUM HYDROCARBONS °	mg/L	SOXHLET EXTRACTION METHOD (SM: PART 5520 D AND PART 5520 F)	ND	3
METALS				
ARSENIC °	mg/L As	HYDRIDE GENERATION AAS METHOD (SM: PART 3114 C)	0.0015	0.0003
CADMIUM °	mg/L Cd	IN-HOUSE METHOD: UAE.TP.GW.01 (NITRIC ACID DIGESTION AND DIRECT AIR ACETYLENE FLAME METHOD); SM: PART 3030 E AND PART 3111 B	ND	0.002
COPPER °	mg/L Cu	IN-HOUSE METHOD: UAE.TP.GW.01 (NITRIC ACID DIGESTION AND DIRECT AIR ACETYLENE FLAME METHOD); SM: PART 3030 E AND PART 3111 B	ND	0.002
IRON °	mg/L Fe	IN-HOUSE METHOD: UAE.TP.GW.01 (NITRIC ACID DIGESTION AND DIRECT AIR ACETYLENE FLAME METHOD); SM: PART 3030 E AND PART 3111 B	0.137	0.005
LEAD °	mg/L Pb	IN-HOUSE METHOD: UAE.TP.GW.01 (NITRIC ACID DIGESTION AND DIRECT AIR ACETYLENE FLAME METHOD); SM: PART 3030 E AND PART 3111 B	ND	0.003
MANGANESE °	mg/L Mn	IN-HOUSE METHOD: UAE.TP.GW.01 (NITRIC ACID DIGESTION AND DIRECT AIR ACETYLENE FLAME METHOD); SM: PART 3030 E AND PART 3111 B	ND	0.002
TOTAL MERCURY °	mg/L Hg	IN-HOUSE METHOD: UAE.TP.HEM.002 (COLD VAPOUR ATOMIC ABSORPTION SPECTROMETRIC METHOD); SM: PART 3112 B	ND	0.0001
NICKEL °	mg/L Ni	IN-HOUSE METHOD: UAE.TP.GW.01 (NITRIC ACID DIGESTION AND DIRECT AIR ACETYLENE FLAME METHOD); SM: PART 3030 E AND PART 3111 B	ND	0.005
TOTAL CHROMIUM °	mg/L Cr	IN-HOUSE METHOD: UAE.TP.GW.01 (NITRIC ACID DIGESTION AND DIRECT AIR ACETYLENE FLAME METHOD); SM: PART 3030 E AND PART 3111 B	ND	0.005



PARAMETER	UNIT	METHOD OF ANALYSIS	RESULT	DETECTION LIMIT
			L53-A-GW2 T23AN830-0002	
ZINC ^c	mg/L Zn	IN-HOUSE METHOD: UAE.TP.GW.01 (NITRIC ACID DIGESTION AND DIRECT AIR ACETYLENE FLAME METHOD); SM: PART 3030 E AND PART 3111 B	0.078	0.003
SAMPLE CONDITION WATER'S COLOUR/TURBID SEDIMENT			COLOURLESS/CLEAR	

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

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

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

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

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

ND : NON-DETECTABLE.

Benjawan V.

(MISS BENJAWAN VIRIYOTHAJ)
LABORATORY SUPERVISOR

AUGUST 4, 2023

ANALYSIS REPORT

CUSTOMER NAME : PAN ORIENT ENERGY (SIAM) LIMITED
ADDRESS : 555 RASA TOWER II, 17TH FLOOR, UNIT 1702, PHAHOLYOTHIN ROAD, CHATUCHAK, BANGKOK 10900.
CONTACT INFORMATION : TEL : 0 2937 1138-40 e-mail : prakaipruek@poesiam.com
SAMPLING SOURCE : MWL53A-1 (UTM WGS 84 ZONE 47P 598513E 1553073N)
SAMPLE TYPE : GROUNDWATER
SAMPLING DATE : JULY 18, 2023
SAMPLING TIME : 10:35 HOUR
SAMPLING METHOD : SUBMERSIBLE PUMP
SAMPLING BY : MR KRIDSANAPONG NAMTHIP
ANALYZED BY : MISS NAPAPORN KHUNNOKKHUM

RECEIVED DATE : JULY 19, 2023
ANALYTICAL DATE : JULY 19-25, 2023
REPORT NO. : 2023-U063833
WORK NO. : 2023-001311
ANALYSIS NO. : T23AN829-0002

PARAMETER	UNIT	METHOD OF ANALYSIS	RESULT	DETECTION LIMIT
			MWL53A-1 T23AN829-0002	
pH	-	ELECTROMETRIC METHOD AT SITE (SM: PART 4500-H ⁺ B)	6.6 (31°C)	-
ELECTRICAL CONDUCTIVITY	µmhos/cm	ELECTRICAL CONDUCTIVITY METHOD AT SITE (SM: PART 2510 B)	15,077 (31°C)	0.1
CHLORIDE	mg/L Cl ⁻	ARGENTOMETRIC METHOD (SM: PART 4500-Cl ⁻ B)	16,852	2.0
SULPHATE	mg/L SO ₄ ²⁻	TURBIDIMETRIC METHOD (SM: PART 4500-SO ₄ ²⁻ E)	1,269	0.3
TOTAL PETROLEUM HYDROCARBONS	mg/L	SOXHLET EXTRACTION METHOD (SM: PART 5520 D AND PART 5520 F)	ND	3
METALS				
ARSENIC	mg/L As	HYDRIDE GENERATION AAS METHOD (SM: PART 3114 C)	0.0005	0.0003
CADMIUM	mg/L Cd	IN-HOUSE METHOD: UAE.TP.GW.01 (NITRIC ACID DIGESTION AND DIRECT AIR ACETYLENE FLAME METHOD); SM: PART 3030 E AND PART 3111 B	ND	0.002
TOTAL CHROMIUM	mg/L Cr	IN-HOUSE METHOD: UAE.TP.GW.01 (NITRIC ACID DIGESTION AND DIRECT AIR ACETYLENE FLAME METHOD); SM: PART 3030 E AND PART 3111 B	ND	0.005
COPPER	mg/L Cu	IN-HOUSE METHOD: UAE.TP.GW.01 (NITRIC ACID DIGESTION AND DIRECT AIR ACETYLENE FLAME METHOD); SM: PART 3030 E AND PART 3111 B	ND	0.002
IRON	mg/L Fe	IN-HOUSE METHOD: UAE.TP.GW.01 (NITRIC ACID DIGESTION AND DIRECT AIR ACETYLENE FLAME METHOD); SM: PART 3030 E AND PART 3111 B	0.099	0.005
LEAD	mg/L Pb	IN-HOUSE METHOD: UAE.TP.GW.01 (NITRIC ACID DIGESTION AND DIRECT AIR ACETYLENE FLAME METHOD); SM: PART 3030 E AND PART 3111 B	ND	0.003
MANGANESE	mg/L Mn	IN-HOUSE METHOD: UAE.TP.GW.01 (NITRIC ACID DIGESTION AND DIRECT AIR ACETYLENE FLAME METHOD); SM: PART 3030 E AND PART 3111 B	0.818	0.002
TOTAL MERCURY	mg/L Hg	IN-HOUSE METHOD: UAE.TP.HEM.002 (COLD VAPOUR ATOMIC ABSORPTION SPECTROMETRIC METHOD); SM: PART 3112 B	< LOQ	0.0001
NICKEL	mg/L Ni	IN-HOUSE METHOD: UAE.TP.GW.01 (NITRIC ACID DIGESTION AND DIRECT AIR ACETYLENE FLAME METHOD); SM: PART 3030 E AND PART 3111 B	ND	0.005



PARAMETER	UNIT	METHOD OF ANALYSIS	RESULT	DETECTION LIMIT
			MWL53A-1 T23AN829-0002	
ZINC	mg/L Zn	IN-HOUSE METHOD: UAE.TP.GW.01 (NITRIC ACID DIGESTION AND DIRECT AIR ACETYLENE FLAME METHOD); SM: PART 3030 E AND PART 3111 B	ND	0.003
SAMPLE CONDITION WATER'S COLOUR/TURBID SEDIMENT			COLOURLESS/CLEAR	

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

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

ND : NON-DETECTABLE.

< LOQ : < LIMIT OF QUANTITATION (TOTAL MERCURY ≥ 0.0001 AND < 0.0005 mg/L).

Benjawan V.

(MISS BENJAWAN VIRIYOTHA)
LABORATORY SUPERVISOR

AUGUST 7, 2023

ANALYSIS REPORT

CUSTOMER NAME : PAN ORIENT ENERGY (SIAM) LIMITED
ADDRESS : 555 RASA TOWER II, 17TH FLOOR, UNIT 1702, PHAHOLYOTHIN ROAD, CHATUCHAK, BANGKOK 10900.
CONTACT INFORMATION : TEL : 0 2937 1138-40 e-mail : prakaipruek@poesiam.com
SAMPLING SOURCE : MWL53A-2 (UTM WGS 84 ZONE 47P 598573E 1553042N)
SAMPLE TYPE : GROUNDWATER
SAMPLING DATE : JULY 18, 2023
SAMPLING TIME : 10:15 HOUR
SAMPLING METHOD : SUBMERSIBLE PUMP
SAMPLING BY : MR KRIDSANAPONG NAMTHIP
ANALYZED BY : MISS NAPAPORN KHUNNOKKHUM

RECEIVED DATE : JULY 19, 2023
ANALYTICAL DATE : JULY 19-25, 2023
REPORT NO. : 2023-U063834
WORK NO. : 2023-001311
ANALYSIS NO. : T23AN829-0003

PARAMETER	UNIT	METHOD OF ANALYSIS	RESULT	DETECTION LIMIT
			MWL53A-2 T23AN829-0003	
pH	-	ELECTROMETRIC METHOD AT SITE (SM: PART 4500-H ⁺ B)	6.8 (30°C)	-
ELECTRICAL CONDUCTIVITY	µmhos/cm	ELECTRICAL CONDUCTIVITY METHOD AT SITE (SM: PART 2510 B)	7,950 (30°C)	0.1
CHLORIDE	mg/L Cl ⁻	ARGENTOMETRIC METHOD (SM: PART 4500-Cl ⁻ B)	5,051	2.0
SULPHATE	mg/L SO ₄ ²⁻	TURBIDIMETRIC METHOD (SM: PART 4500-SO ₄ ²⁻ E)	412	0.3
TOTAL PETROLEUM HYDROCARBONS	mg/L	SOXHLET EXTRACTION METHOD (SM: PART 5520 D AND PART 5520 F)	ND	3
METALS				
ARSENIC	mg/L As	HYDRIDE GENERATION AAS METHOD (SM: PART 3114 C)	0.0005	0.0003
CADMIUM	mg/L Cd	IN-HOUSE METHOD: UAE.TP.GW.01 (NITRIC ACID DIGESTION AND DIRECT AIR ACETYLENE FLAME METHOD); SM: PART 3030 E AND PART 3111 B	ND	0.002
TOTAL CHROMIUM	mg/L Cr	IN-HOUSE METHOD: UAE.TP.GW.01 (NITRIC ACID DIGESTION AND DIRECT AIR ACETYLENE FLAME METHOD); SM: PART 3030 E AND PART 3111 B	ND	0.005
COPPER	mg/L Cu	IN-HOUSE METHOD: UAE.TP.GW.01 (NITRIC ACID DIGESTION AND DIRECT AIR ACETYLENE FLAME METHOD); SM: PART 3030 E AND PART 3111 B	ND	0.002
IRON	mg/L Fe	IN-HOUSE METHOD: UAE.TP.GW.01 (NITRIC ACID DIGESTION AND DIRECT AIR ACETYLENE FLAME METHOD); SM: PART 3030 E AND PART 3111 B	0.432	0.005
LEAD	mg/L Pb	IN-HOUSE METHOD: UAE.TP.GW.01 (NITRIC ACID DIGESTION AND DIRECT AIR ACETYLENE FLAME METHOD); SM: PART 3030 E AND PART 3111 B	ND	0.003
MANGANESE	mg/L Mn	IN-HOUSE METHOD: UAE.TP.GW.01 (NITRIC ACID DIGESTION AND DIRECT AIR ACETYLENE FLAME METHOD); SM: PART 3030 E AND PART 3111 B	0.465	0.002
TOTAL MERCURY	mg/L Hg	IN-HOUSE METHOD: UAE.TP.HEM.002 (COLD VAPOUR ATOMIC ABSORPTION SPECTROMETRIC METHOD); SM: PART 3112 B	< LOQ	0.0001
NICKEL	mg/L Ni	IN-HOUSE METHOD: UAE.TP.GW.01 (NITRIC ACID DIGESTION AND DIRECT AIR ACETYLENE FLAME METHOD); SM: PART 3030 E AND PART 3111 B	ND	0.005



PARAMETER	UNIT	METHOD OF ANALYSIS	RESULT	DETECTION LIMIT
			MWL53A-2 T23AN829-0003	
ZINC	mg/L Zn	IN-HOUSE METHOD: UAE.TP.GW.01 (NITRIC ACID DIGESTION AND DIRECT AIR ACETYLENE FLAME METHOD); SM: PART 3030 E AND PART 3111 B	ND	0.003
SAMPLE CONDITION WATER'S COLOUR/TURBID SEDIMENT			COLOURLESS/CLEAR	

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

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

ND : NON-DETECTABLE.

< LOQ : < LIMIT OF QUANTITATION (TOTAL MERCURY ≥ 0.0001 AND < 0.0005 mg/L).

Benjawan V.

(MISS BENJAWAN VIRIYOTHA)
LABORATORY SUPERVISOR

AUGUST 7, 2023

ANALYSIS REPORT

CUSTOMER NAME : PAN ORIENT ENERGY (SIAM) LIMITED
ADDRESS : 555 RASA TOWER II, 17TH FLOOR, UNIT 1702, PHAHOLYOTHIN ROAD, CHATUCHAK, BANGKOK 10900.
CONTACT INFORMATION : TEL : 0 2937 1138-40 e-mail : prakaipruek@poesiam.com
SAMPLING SOURCE : MWL53A-3 (UTM WGS 84 ZONE 47P 598557E 1552983N)
SAMPLE TYPE : GROUNDWATER
SAMPLING DATE : JULY 18, 2023
SAMPLING TIME : 09:45 HOUR
SAMPLING METHOD : SUBMERSIBLE PUMP
SAMPLING BY : MR KRIDSANAPONG NAMTHIP
ANALYZED BY : MISS NAPAPORN KHUNNOKKHUM

RECEIVED DATE : JULY 19, 2023
ANALYTICAL DATE : JULY 19-25, 2023
REPORT NO. : 2023-U063835
WORK NO. : 2023-001311
ANALYSIS NO. : T23AN829-0004

PARAMETER	UNIT	METHOD OF ANALYSIS	RESULT	DETECTION LIMIT
			MWL53A-3 T23AN829-0004	
pH	-	ELECTROMETRIC METHOD AT SITE (SM: PART 4500-H ⁺ B)	7.1 (31°C)	-
ELECTRICAL CONDUCTIVITY	µmhos/cm	ELECTRICAL CONDUCTIVITY METHOD AT SITE (SM: PART 2510 B)	7,500 (31°C)	0.1
CHLORIDE	mg/L Cl ⁻	ARGENTOMETRIC METHOD (SM: PART 4500-Cl ⁻ B)	3,794	2.0
SULPHATE	mg/L SO ₄ ²⁻	TURBIDIMETRIC METHOD (SM: PART 4500-SO ₄ ²⁻ E)	591	0.3
TOTAL PETROLEUM HYDROCARBONS	mg/L	SOXHLET EXTRACTION METHOD (SM: PART 5520 D AND PART 5520 F)	ND	3
METALS				
ARSENIC	mg/L As	HYDRIDE GENERATION AAS METHOD (SM: PART 3114 C)	0.0367	0.0003
CADMIUM	mg/L Cd	IN-HOUSE METHOD: UAE.TP.GW.01 (NITRIC ACID DIGESTION AND DIRECT AIR ACETYLENE FLAME METHOD); SM: PART 3030 E AND PART 3111 B	ND	0.002
TOTAL CHROMIUM	mg/L Cr	IN-HOUSE METHOD: UAE.TP.GW.01 (NITRIC ACID DIGESTION AND DIRECT AIR ACETYLENE FLAME METHOD); SM: PART 3030 E AND PART 3111 B	ND	0.005
COPPER	mg/L Cu	IN-HOUSE METHOD: UAE.TP.GW.01 (NITRIC ACID DIGESTION AND DIRECT AIR ACETYLENE FLAME METHOD); SM: PART 3030 E AND PART 3111 B	< LOQ	0.002
IRON	mg/L Fe	IN-HOUSE METHOD: UAE.TP.GW.01 (NITRIC ACID DIGESTION AND DIRECT AIR ACETYLENE FLAME METHOD); SM: PART 3030 E AND PART 3111 B	1.82	0.005
LEAD	mg/L Pb	IN-HOUSE METHOD: UAE.TP.GW.01 (NITRIC ACID DIGESTION AND DIRECT AIR ACETYLENE FLAME METHOD); SM: PART 3030 E AND PART 3111 B	ND	0.003
MANGANESE	mg/L Mn	IN-HOUSE METHOD: UAE.TP.GW.01 (NITRIC ACID DIGESTION AND DIRECT AIR ACETYLENE FLAME METHOD); SM: PART 3030 E AND PART 3111 B	0.260	0.002
TOTAL MERCURY	mg/L Hg	IN-HOUSE METHOD: UAE.TP.HEM.002 (COLD VAPOUR ATOMIC ABSORPTION SPECTROMETRIC METHOD); SM: PART 3112 B	< LOQ	0.0001
NICKEL	mg/L Ni	IN-HOUSE METHOD: UAE.TP.GW.01 (NITRIC ACID DIGESTION AND DIRECT AIR ACETYLENE FLAME METHOD); SM: PART 3030 E AND PART 3111 B	ND	0.005



PARAMETER	UNIT	METHOD OF ANALYSIS	RESULT	DETECTION LIMIT
			MWL53A-3 T23AN829-0004	
ZINC	mg/L Zn	IN-HOUSE METHOD: UAE.TP.GW.01 (NITRIC ACID DIGESTION AND DIRECT AIR ACETYLENE FLAME METHOD); SM: PART 3030 E AND PART 3111 B	0.029	0.003
SAMPLE CONDITION WATER'S COLOUR/TURBID SEDIMENT			YELLOW/TURBID YELLOW	

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

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

ND : NON-DETECTABLE.

< LOQ : < LIMIT OF QUANTITATION (COPPER ≥ 0.002 AND < 0.025 mg/L, TOTAL MERCURY ≥ 0.0001 AND < 0.0005 mg/L).

Benjawan V.

(MISS BENJAWAN VIRIYOTHAI)
LABORATORY SUPERVISOR

AUGUST 7, 2023

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ANALYSIS REPORT

CUSTOMER NAME : PAN ORIENT ENERGY (SIAM) LIMITED
ADDRESS : 555 RASA TOWER II, 17TH FLOOR, UNIT 1702, PHAHOLYOTHIN ROAD, CHATUCHAK, BANGKOK 10900.
CONTACT INFORMATION : TEL : 0 2937 1138-40 e-mail : prakaipruek@poesiam.com
SAMPLING SOURCE : L53-A-S2 (UTM WGS 84 ZONE 47P 598474E 1552919N)
SAMPLE TYPE : SOIL
SAMPLING DATE : AUGUST 16, 2023
SAMPLING TIME : 14:00 HOUR
SAMPLING METHOD ° : UNDISTURBED
SAMPLING BY ° : MR KRIDSANAPONG NAMTHIP
ANALYZED BY : MISS JINTASUPA PLIANSRI

RECEIVED DATE : AUGUST 16, 2023
ANALYTICAL DATE : AUGUST 16-31, 2023
REPORT NO. : 2023-U072930
WORK NO. : 2023-001311
ANALYSIS NO. : T23AP776-0001

PARAMETER	UNIT	METHOD OF ANALYSIS	RESULT	DETECTION LIMIT
			L53-A-S2 T23AP776-0001	
pH (1:1) ^b	-	ELECTROMETRIC METHOD (US EPA 2004: 9045D)	7.5 (25°C)	-
CHLORIDE °	% w/w	BS 1377 : PART3 : 1990	0.03	0.01
TOTAL PETROLEUM HYDROCARBONS °	mg/kg	SOXHLET EXTRACTION METHOD (SM: PART 5520 E AND PART 5520 F)	170	100
METALS				
ARSENIC (As) °	mg/kg	ACID DIGESTION AND HYDRIDE GENERATION AAS METHOD (US EPA 1996: 3050B AND 1992: 7061A)	12.9	0.100
BARIUM (Ba) °	mg/kg	ACID DIGESTION AND INDUCTIVELY COUPLED PLASMA (ICP) METHOD (US EPA 1996: 3050B AND 2018: 6010D)	109	0.250
CADMIUM AND COMPOUNDS °	mg/kg	ACID DIGESTION AND DIRECT AIR ACETYLENE FLAME METHOD (US EPA 1996: 3050B AND 2007: 7000B)	ND	0.300
LEAD (Pb) °	mg/kg	ACID DIGESTION AND DIRECT AIR ACETYLENE FLAME METHOD (US EPA 1996: 3050B AND 2007: 7000B)	24.9	1.55
MERCURY (Hg) °	mg/kg	ACID DIGESTION AND COLD VAPOUR AAS METHOD (US EPA 2007: 7471B)	ND	0.100
SAMPLE CONDITION			BROWN SOIL	

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

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

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

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

SAMPLE (S) ANALYSED ON AS RECEIVED BASIS. RESULT (S) REPORTED ON A DRY WEIGHT BASIS.

ND : NON-DETECTABLE.



(MR BHUCHONK PANICHLERTUMPI)
LABORATORY SUPERVISOR

SEPTEMBER 4, 2023



ANALYSIS REPORT

CUSTOMER NAME : PAN ORIENT ENERGY (SIAM) LIMITED
ADDRESS : 555 RASA TOWER II, 17TH FLOOR, UNIT 1702, PHAHOLYOTHIN ROAD, CHATUCHAK, BANGKOK 10900.
CONTACT INFORMATION : TEL : 0 2937 1138-40 e-mail : prakaipruek@poesiam.com
SAMPLING SOURCE : L53-A-S3 (UTM WGS 84 ZONE 47P 598502E 1553027N)
SAMPLE TYPE : SOIL
SAMPLING DATE : AUGUST 16, 2023
SAMPLING TIME : 14:10 HOUR
SAMPLING METHOD : UNDISTURBED
SAMPLING BY : MR KRIDSANAPONG NAMTHIP
ANALYZED BY : MISS JINTASUPA PLIANSRI

RECEIVED DATE : AUGUST 16, 2023
ANALYTICAL DATE : AUGUST 16-31, 2023
REPORT NO. : 2023-U072932
WORK NO. : 2023-001311
ANALYSIS NO. : T23AP776-0002

PARAMETER	UNIT	METHOD OF ANALYSIS	RESULT	DETECTION LIMIT
			L53-A-S3 T23AP776-0002	
pH (1:1) ^b	-	ELECTROMETRIC METHOD (US EPA 2004: 9045D)	7.2 (25°C)	-
CHLORIDE ^c	% w/w	BS 1377 : PART3 : 1990	ND	0.01
TOTAL PETROLEUM HYDROCARBONS ^c	mg/kg	SOXHLET EXTRACTION METHOD (SM: PART 5520 E AND PART 5520 F)	255	100
METALS				
ARSENIC (As) ^c	mg/kg	ACID DIGESTION AND HYDRIDE GENERATION AAS METHOD (US EPA 1996: 3050B AND 1992: 7061A)	11.0	0.100
BARIUM (Ba) ^c	mg/kg	ACID DIGESTION AND INDUCTIVELY COUPLED PLASMA (ICP) METHOD (US EPA 1996: 3050B AND 2018: 6010D)	86.5	0.250
CADMIUM AND COMPOUNDS ^c	mg/kg	ACID DIGESTION AND DIRECT AIR ACETYLENE FLAME METHOD (US EPA 1996: 3050B AND 2007: 7000B)	ND	0.300
LEAD (Pb) ^c	mg/kg	ACID DIGESTION AND DIRECT AIR ACETYLENE FLAME METHOD (US EPA 1996: 3050B AND 2007: 7000B)	22.2	1.55
MERCURY (Hg) ^c	mg/kg	ACID DIGESTION AND COLD VAPOUR AAS METHOD (US EPA 2007: 7471B)	ND	0.100
SAMPLE CONDITION			BROWN SOIL	

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

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

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

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

SAMPLE (S) ANALYSED ON AS RECEIVED BASIS. RESULT (S) REPORTED ON A DRY WEIGHT BASIS.

ND : NON-DETECTABLE.



(MR BHUCHONK PANICHLERTUMPI)
LABORATORY SUPERVISOR

SEPTEMBER 4, 2023



ANALYSIS REPORT

CUSTOMER NAME : PAN ORIENT ENERGY (SIAM) LIMITED
ADDRESS : 555 RASA TOWER II, 17TH FLOOR, UNIT 1702, PHAHOLYOTHIN ROAD, CHATUCHAK, BANGKOK 10900.
CONTACT INFORMATION : TEL : 0 2937 1138-40 e-mail : prakaipruek@poesiam.com
SAMPLING SOURCE : L53-A-S4 (UTM WGS 84 ZONE 47P 598573E 1553016N)
SAMPLE TYPE : SOIL
SAMPLING DATE : AUGUST 16, 2023
SAMPLING TIME : 13:25 HOUR
SAMPLING METHOD ° : UNDISTURBED
SAMPLING BY ° : MR KRIDSANAPONG NAMTHIP
ANALYZED BY : MISS JINTASUPA PLIANSRI

RECEIVED DATE : AUGUST 16, 2023
ANALYTICAL DATE : AUGUST 16-31, 2023
REPORT NO. : 2023-U072933
WORK NO. : 2023-001311
ANALYSIS NO. : T23AP776-0003

PARAMETER	UNIT	METHOD OF ANALYSIS	RESULT	DETECTION LIMIT
			L53-A-S4 T23AP776-0003	
pH (1:1) ^b	-	ELECTROMETRIC METHOD (US EPA 2004: 9045D)	5.4 (25°C)	-
CHLORIDE ^c	% w/w	BS 1377 : PART3 : 1990	ND	0.01
TOTAL PETROLEUM HYDROCARBONS ^c	mg/kg	SOXHLET EXTRACTION METHOD (SM: PART 5520 E AND PART 5520 F)	223	100
METALS				
ARSENIC (As) ^c	mg/kg	ACID DIGESTION AND HYDRIDE GENERATION AAS METHOD (US EPA 1996: 3050B AND 1992: 7061A)	8.34	0.100
BARIIUM (Ba) ^c	mg/kg	ACID DIGESTION AND INDUCTIVELY COUPLED PLASMA (ICP) METHOD (US EPA 1996: 3050B AND 2018: 6010D)	49.0	0.250
CADMIUM AND COMPOUNDS ^c	mg/kg	ACID DIGESTION AND DIRECT AIR ACETYLENE FLAME METHOD (US EPA 1996: 3050B AND 2007: 7000B)	ND	0.300
LEAD (Pb) ^c	mg/kg	ACID DIGESTION AND DIRECT AIR ACETYLENE FLAME METHOD (US EPA 1996: 3050B AND 2007: 7000B)	16.4	1.55
MERCURY (Hg) ^c	mg/kg	ACID DIGESTION AND COLD VAPOUR AAS METHOD (US EPA 2007: 7471B)	ND	0.100
SAMPLE CONDITION			BROWN SOIL	

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

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

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

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

SAMPLE (S) ANALYSED ON AS RECEIVED BASIS. RESULT (S) REPORTED ON A DRY WEIGHT BASIS.

ND : NON-DETECTABLE.



(MR BHUCHONK PANICHLERTUMPI)
LABORATORY SUPERVISOR

SEPTEMBER 4, 2023



ANALYSIS REPORT

CUSTOMER NAME : PAN ORIENT ENERGY (SIAM) LIMITED
ADDRESS : 555 RASA TOWER II, 17TH FLOOR, UNIT 1702, PHAHOLYOTHIN ROAD, CHATUCHAK, BANGKOK 10900.
CONTACT INFORMATION : TEL : 0 2937 1138-40 e-mail : prakaipruek@poesiam.com
SAMPLING SOURCE : L53-A-S5 (UTM WGS 84 ZONE 47P 598543E 1552907N)
SAMPLE TYPE : SOIL
SAMPLING DATE : AUGUST 16, 2023
SAMPLING TIME : 13:40 HOUR
SAMPLING METHOD ° : UNDISTURBED
SAMPLING BY ° : MR KRIDSANAPONG NAMTHIP
ANALYZED BY : MISS JINTASUPA PLIANSRI
RECEIVED DATE : AUGUST 16, 2023
ANALYTICAL DATE : AUGUST 16-SEPTEMBER 1, 2023
REPORT NO. : 2023-U072934
WORK NO. : 2023-001311
ANALYSIS NO. : T23AP776-0004

PARAMETER	UNIT	METHOD OF ANALYSIS	RESULT	DETECTION LIMIT
			L53-A-S5 T23AP776-0004	
pH (1:1) ^b	-	ELECTROMETRIC METHOD (US EPA 2004: 9045D)	7.9 (25°C)	-
CHLORIDE °	% w/w	BS 1377 : PART 3 : 1990	ND	0.01
TOTAL PETROLEUM HYDROCARBONS °	mg/kg	SOXHLET EXTRACTION METHOD (SM: PART 5520 E AND PART 5520 F)	154	100
METALS				
ARSENIC (As) °	mg/kg	ACID DIGESTION AND HYDRIDE GENERATION AAS METHOD (US EPA 1996: 3050B AND 1992: 7061A)	9.63	0.100
BARIUM (Ba) °	mg/kg	ACID DIGESTION AND INDUCTIVELY COUPLED PLASMA (ICP) METHOD (US EPA 1996: 3050B AND 2018: 6010D)	72.1	0.250
CADMIUM AND COMPOUNDS °	mg/kg	ACID DIGESTION AND DIRECT AIR ACETYLENE FLAME METHOD (US EPA 1996: 3050B AND 2007: 7000B)	ND	0.300
LEAD (Pb) °	mg/kg	ACID DIGESTION AND DIRECT AIR ACETYLENE FLAME METHOD (US EPA 1996: 3050B AND 2007: 7000B)	20.8	1.55
MERCURY (Hg) °	mg/kg	ACID DIGESTION AND COLD VAPOUR AAS METHOD (US EPA 2007: 7471B)	ND	0.100
SAMPLE CONDITION			BROWN SOIL	

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

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

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

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

SAMPLE (S) ANALYSED ON AS RECEIVED BASIS. RESULT (S) REPORTED ON A DRY WEIGHT BASIS.

ND : NON-DETECTABLE.



(MR BHUCHONK PANICHLERTUMPI)
LABORATORY SUPERVISOR

SEPTEMBER 4, 2023



ANALYSIS REPORT

CUSTOMER NAME : PAN ORIENT ENERGY (SIAM) LIMITED
ADDRESS : 555 RASA TOWER II, 17TH FLOOR, UNIT 1702, PHAHOLYOTHIN ROAD, CHATUCHAK, BANGKOK 10900.
CONTACT INFORMATION : TEL : 0 2937 1138-40 e-mail : prakaipruek@poesiam.com
SAMPLING SOURCE : L53-A-S6 (UTM WGS 84 ZONE 47P 598472E 1552870N)
SAMPLE TYPE : SOIL
SAMPLING DATE : AUGUST 16, 2023
SAMPLING TIME : 13:50 HOUR
SAMPLING METHOD : UNDISTURBED
SAMPLING BY : MR KRIDSANAPONG NAMTHIP
ANALYZED BY : MISS WORAKON PADSONGCHAN

RECEIVED DATE : AUGUST 16, 2023
ANALYTICAL DATE : AUGUST 16-22, 2023
REPORT NO. : 2023-U072935
WORK NO. : 2023-001311
ANALYSIS NO. : T23AP776-0005

PARAMETER	UNIT	METHOD OF ANALYSIS	RESULT	DETECTION LIMIT
			L53-A-S6 T23AP776-0005	
POLYCYCLIC AROMATIC HYDROCARBONS (PAHs)				
ACENAPHTHENE	mg/kg	ULTRASONIC EXTRACTION AND GAS CHROMATOGRAPHIC (FID) METHOD (US EPA 2007: 3550C AND 1986: 8100)	ND	0.01
ACENAPHTHYLENE	mg/kg	ULTRASONIC EXTRACTION AND GAS CHROMATOGRAPHIC (FID) METHOD (US EPA 2007: 3550C AND 1986: 8100)	ND	0.01
ANTHRACENE	mg/kg	ULTRASONIC EXTRACTION AND GAS CHROMATOGRAPHIC (FID) METHOD (US EPA 2007: 3550C AND 1986: 8100)	ND	0.01
BENZ(a)ANTHRACENE	mg/kg	ULTRASONIC EXTRACTION AND GAS CHROMATOGRAPHIC (FID) METHOD (US EPA 2007: 3550C AND 1986: 8100)	ND	0.01
BENZO(a)PYRENE	mg/kg	ULTRASONIC EXTRACTION AND GAS CHROMATOGRAPHIC (FID) METHOD (US EPA 2007: 3550C AND 1986: 8100)	ND	0.01
BENZO(b)FLUORANTHENE	mg/kg	ULTRASONIC EXTRACTION AND GAS CHROMATOGRAPHIC (FID) METHOD (US EPA 2007: 3550C AND 1986: 8100)	ND	0.01
BENZO(g,h,i)PERYLENE	mg/kg	ULTRASONIC EXTRACTION AND GAS CHROMATOGRAPHIC (FID) METHOD (US EPA 2007: 3550C AND 1986: 8100)	ND	0.01
BENZO(k)FLUORANTHENE	mg/kg	ULTRASONIC EXTRACTION AND GAS CHROMATOGRAPHIC (FID) METHOD (US EPA 2007: 3550C AND 1986: 8100)	ND	0.01
CHRYSENE	mg/kg	ULTRASONIC EXTRACTION AND GAS CHROMATOGRAPHIC (FID) METHOD (US EPA 2007: 3550C AND 1986: 8100)	ND	0.01
DIBENZ(a,h)ANTHRACENE	mg/kg	ULTRASONIC EXTRACTION AND GAS CHROMATOGRAPHIC (FID) METHOD (US EPA 2007: 3550C AND 1986: 8100)	ND	0.01
FLUORANTHENE	mg/kg	ULTRASONIC EXTRACTION AND GAS CHROMATOGRAPHIC (FID) METHOD (US EPA 2007: 3550C AND 1986: 8100)	ND	0.01
FLUORENE	mg/kg	ULTRASONIC EXTRACTION AND GAS CHROMATOGRAPHIC (FID) METHOD (US EPA 2007: 3550C AND 1986: 8100)	ND	0.01
INDENO(1,2,3-cd)PYRENE	mg/kg	ULTRASONIC EXTRACTION AND GAS CHROMATOGRAPHIC (FID) METHOD (US EPA 2007: 3550C AND 1986: 8100)	ND	0.01



PARAMETER	UNIT	METHOD OF ANALYSIS	RESULT	DETECTION LIMIT
			L53-A-S6 T23AP776-0005	
1-METHYLNAPHTHALENE	mg/kg	ULTRASONIC EXTRACTION AND GAS CHROMATOGRAPHIC (FID) METHOD (US EPA 2007: 3550C AND 1986: 8100)	ND	0.01
2-METHYLNAPHTHALENE	mg/kg	ULTRASONIC EXTRACTION AND GAS CHROMATOGRAPHIC (FID) METHOD (US EPA 2007: 3550C AND 1986: 8100)	ND	0.01
NAPHTHALENE	mg/kg	ULTRASONIC EXTRACTION AND GAS CHROMATOGRAPHIC (FID) METHOD (US EPA 2007: 3550C AND 1986: 8100)	ND	0.01
PHENANTHRENE	mg/kg	ULTRASONIC EXTRACTION AND GAS CHROMATOGRAPHIC (FID) METHOD (US EPA 2007: 3550C AND 1986: 8100)	ND	0.01
PYRENE	mg/kg	ULTRASONIC EXTRACTION AND GAS CHROMATOGRAPHIC (FID) METHOD (US EPA 2007: 3550C AND 1986: 8100)	ND	0.01
SAMPLE CONDITION			BROWN SOIL	

SAMPLE(S) ANALYSED ON AS RECEIVED BASIS. RESULT(S) REPORTED ON A DRY WEIGHT BASIS.

ND : NON-DETECTABLE.

Benjawan V.

(MISS BENJAWAN VIRIYOTHA)
LABORATORY SUPERVISOR

SEPTEMBER 4, 2023

น้ำจากกระบวนการผลิต



ANALYSIS REPORT

CUSTOMER NAME : PAN ORIENT ENERGY (SIAM) LIMITED
ADDRESS : 555 RASA TOWER II, 17TH FLOOR, UNIT 1702, PHAHOLYOTHIN ROAD, CHATUCHAK, BANGKOK 10900.
CONTACT INFORMATION : TEL : 0 2937 1138-40 e-mail : prakaipruek@poesiam.com
SAMPLING SOURCE : L53-A-PW1 (UTM WGS 84 ZONE 47P 598525E 1553051N)
SAMPLE TYPE : PRODUCED WATER
SAMPLING DATE : JULY 18, 2023
SAMPLING TIME : 10:50 HOUR
SAMPLING METHOD : GRAB
SAMPLING BY : MR KRIDSANAPONG NAMTHIP
ANALYZED BY : MISS CHOMTHANAN APHIPATPAPHA

RECEIVED DATE : JULY 19, 2023
ANALYTICAL DATE : JULY 19-27, 2023
REPORT NO. : 2023-U063832
WORK NO. : 2023-001311
ANALYSIS NO. : T23AN829-0001

PARAMETER	UNIT	METHOD OF ANALYSIS	RESULT	DETECTION LIMIT
			L53-A-PW1 T23AN829-0001	
pH	-	ELECTROMETRIC METHOD (SM: PART 4500-H ⁺ B)	8.3 (25°C)	-
ELECTRICAL CONDUCTIVITY	µS/cm	ELECTRICAL CONDUCTIVITY METHOD (SM: 2510 B)	3,110 (25°C)	0.1
TEMPERATURE	°C	THERMOMETER AT SITE (SM: PART 2550 B)	31	-
SALINITY	ppt	ELECTRICAL CONDUCTIVITY METHOD (SM: PART 2520 B)	1.6	0.1
TOTAL SUSPENDED SOLIDS	mg/L	TOTAL SUSPENDED SOLIDS DRIED AT 103-105 °C (SM: PART 2540 D)	896	5.0
TOTAL DISSOLVED SOLIDS	mg/L	TOTAL DISSOLVED SOLIDS DRIED AT 180 °C (SM: PART 2540 C)	2,500	25
CHLORIDE	mg/L Cl ⁻	ARGENTOMETRIC METHOD (SM: PART 4500-Cl ⁻ B)	30.4	2.0
SULPHATE	mg/L SO ₄ ²⁻	TURBIDIMETRIC METHOD (SM: PART 4500-SO ₄ ²⁻ E)	17.2	0.3
TOTAL PETROLEUM HYDROCARBONS	mg/L	SOXHLET EXTRACTION METHOD (SM: PART 5520 D AND PART 5520 F)	227	3
METALS				
ARSENIC	mg/L As	HYDRIDE GENERATION AAS METHOD (SM: PART 3114 C)	0.0060	0.0003
BARIUM	mg/L Ba	NITRIC ACID-HYDROCHLORIC ACID DIGESTION AND INDUCTIVELY COUPLED PLASMA (ICP) METHOD (SM: PART 3030 F AND PART 3120 B)	0.429	0.005
SELENIUM	mg/L Se	HYDRIDE GENERATION AAS METHOD (SM: PART 3114 C)	ND	0.0005
CADMIUM	mg/L Cd	IN-HOUSE METHOD: UAE.TP.IW.01 (NITRIC ACID DIGESTION AND DIRECT AIR ACETYLENE FLAME METHOD); SM: PART 3030 E AND PART 3111 B	ND	0.002
CHROMIUM	mg/L Cr	IN-HOUSE METHOD: UAE.TP.IW.01 (NITRIC ACID DIGESTION AND DIRECT AIR ACETYLENE FLAME METHOD); SM: PART 3030 E AND PART 3111 B	ND	0.007
COPPER	mg/L Cu	IN-HOUSE METHOD: UAE.TP.IW.01 (NITRIC ACID DIGESTION AND DIRECT AIR ACETYLENE FLAME METHOD); SM: PART 3030 E AND PART 3111 B	ND	0.005
IRON	mg/L Fe	IN-HOUSE METHOD: UAE.TP.IW.01 (NITRIC ACID DIGESTION AND DIRECT AIR ACETYLENE FLAME METHOD); SM: PART 3030 E AND PART 3111 B	182	0.005
LEAD	mg/L Pb	IN-HOUSE METHOD: UAE.TP.IW.01 (NITRIC ACID DIGESTION AND DIRECT AIR ACETYLENE FLAME METHOD); SM: PART 3030 E AND PART 3111 B	ND	0.015



PARAMETER	UNIT	METHOD OF ANALYSIS	RESULT	DETECTION LIMIT
			L53-A-PW1 T23AN829-0001	
MANGANESE	mg/L Mn	IN-HOUSE METHOD: UAE.TP.IW.01 (NITRIC ACID DIGESTION AND DIRECT AIR ACETYLENE FLAME METHOD); SM: PART 3030 E AND PART 3111 B	0.124	0.004
MERCURY	mg/L Hg	COLD VAPOUR AAS METHOD (SM: PART 3112 B)	ND	0.0005
NICKEL	mg/L Ni	IN-HOUSE METHOD: UAE.TP.IW.01 (NITRIC ACID DIGESTION AND DIRECT AIR ACETYLENE FLAME METHOD); SM: PART 3030 E AND PART 3111 B	ND	0.005
ZINC	mg/L Zn	IN-HOUSE METHOD: UAE.TP.IW.01 (NITRIC ACID DIGESTION AND DIRECT AIR ACETYLENE FLAME METHOD); SM: PART 3030 E AND PART 3111 B	< LOQ	0.003
SAMPLE CONDITION				
WATER'S COLOUR/TURBID			BROWN/TURBID	
SEDIMENT			BROWN	

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

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

ND : NON-DETECTABLE.

< LOQ : < LIMIT OF QUANTITATION (ZINC \geq 0.003 AND < 0.050 mg/L).

Benjawan V.

(MISS BENJAWAN VIRIYOTHAI)
LABORATORY SUPERVISOR

AUGUST 7, 2023