
ภาคผนวก

ภาคผนวก ก

หนังสือรับรองผลการตรวจวิเคราะห์คุณภาพสิ่งแวดล้อม

ภาคผนวก ก1

ผลการตรวจวัดคุณภาพอากาศในบรรยากาศ

Report No. : 2024-500001363-1 / 001 (Page 1 of 8)

Issued date : May 23, 2024

CLIENT : PTTEP International Limited
CONTACT : Khun Sutthiluk Phaisun
ADDRESS : 555/1 Energy Complex Vibhavadi-Rangsit Rd., Chatuchak, Chatuchak, Bangkok 10900
 Tel. 089-968-0061 E-Mail: SutthilukP@pttep.com

Analysis Report

SAMPLE DESIGNATED AS : Ambient Air Quality
SAMPLING LOCATION : NPI-A Production Phase
SAMPLING DATE : April 22-27, 2024
SAMPLING BY : Weerapong Pengtrakul
 โรงเรียนวัดไผ่มั่ง หมู่ที่ 4 ต. วังน้ำเย็น อ. บางปลาม้า จ. สุพรรณบุรี
 (UTM47P 0608995E, 1588085N)

Sampling Date	TSP (mg/m ³)	PM-10 (mg/m ³)
April 22-23, 2024	0.104	0.071
April 23-24, 2024	0.141	0.056
April 24-25, 2024	0.103	0.043
April 25-26, 2024	0.124	0.054
April 26-27, 2024	0.099	0.052
Standard*	0.33	0.12

Remark : - Sampling and analytical technique for TSP based on High Volume Air Sampler / Gravimetric Method and PM10 based on Size Selective High Volume Air Sampler / Gravimetric Method.

Source : - The notification of the National Environment Board No. 24, B.E. 2547 (2004), subjected "The ambient air standards", published in the Royal Government Gazette, Vol. 121, Part 104D, dated September 22, B.E. 2547 (2004).

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(Thespan Yommana)
 Technical Manager

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 (UTM47Q 0608995E, 1588085N)

Parameter	Method	Total Petroleum Hydrocarbon (TPH) (µg/m ³)					Standard*
		April 22-23, 2024	April 23-24, 2024	April 24-25, 2024	April 25-26, 2024	April 26-27, 2024	
Propylene	Based on EPA TO-15	<0.09	0.83	1.17	1.38	0.76	-
Pentane		<0.15	<0.15	0.24	0.59	0.15	-
Cyclopentane		<0.14	<0.14	<0.14	<0.14	<0.14	-
Hexane		<0.18	<0.18	<0.18	0.28	<0.18	-
Cyclohexane		<0.17	<0.17	<0.17	<0.17	<0.17	-
Benzene		<0.16	0.38	0.38	0.38	0.38	7.6
Toluene		<0.19	1.06	1.06	1.66	1.21	-
Ethylbenzene		<0.22	<0.22	<0.22	<0.22	<0.22	-
m,p-Xylene		<0.22	<0.22	<0.22	<0.22	<0.22	-
o-Xylene		<0.22	<0.22	<0.22	<0.22	<0.22	-
Styrene		<0.21	<0.21	<0.21	<0.21	<0.21	-
1,3,5-Trimethylbenzene		<0.25	<0.25	<0.25	<0.25	<0.25	-
1,2,4-Trimethylbenzene		<0.25	<0.25	<0.25	<0.25	<0.25	-
1,2,3-Trimethylbenzene		<0.25	<0.25	<0.25	<0.25	<0.25	-

Source : Notification of Pollution Control Department, subjected 'The surveillant values of volatile organic compounds (VOCs) in ambient air for 24 hours period', dated December 18, B.E. 2551 (2008), published in the Royal Government Gazette Vol. 126, Special Part 13D, dated January 27, B.E. 2552 (2009).

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 (UTM47P 0608995E, 1588085N)

Time	NO ₂ Concentration (ppm)				
	April 22-23, 2024	April 23-24, 2024	April 24-25, 2024	April 25-26, 2024	April 26-27, 2024
11:00-12:00	0.013	0.016	0.019	0.017	0.018
12:00-13:00	0.013	0.014	0.015	0.014	0.015
13:00-14:00	0.013	0.014	0.016	0.015	0.015
14:00-15:00	0.015	0.015	0.016	0.015	0.016
15:00-16:00	0.014	0.015	0.014	0.014	0.014
16:00-17:00	0.019	0.024	0.014	0.019	0.016
17:00-18:00	0.017	0.021	0.013	0.017	0.015
18:00-19:00	0.023	0.031	0.013	0.022	0.017
19:00-20:00	0.018	0.022	0.013	0.017	0.015
20:00-21:00	0.018	0.020	0.015	0.017	0.016
21:00-22:00	0.017	0.019	0.014	0.017	0.015
22:00-23:00	0.018	0.019	0.017	0.018	0.017
23:00-00:00	0.016	0.019	0.015	0.017	0.016
00:00-01:00	0.017	0.019	0.014	0.017	0.015
01:00-02:00	0.017	0.019	0.014	0.017	0.015
02:00-03:00	0.017	0.019	0.014	0.017	0.015
03:00-04:00	0.017	0.019	0.014	0.016	0.015
04:00-05:00	0.016	0.019	0.014	0.016	0.015
05:00-06:00	0.016	0.018	0.014	0.016	0.015
06:00-07:00	0.016	0.018	0.014	0.016	0.015
07:00-08:00	0.018	0.023	0.015	0.019	0.017
08:00-09:00	0.017	0.022	0.015	0.018	0.017
09:00-10:00	0.018	0.024	0.014	0.019	0.017
10:00-11:00	0.017	0.021	0.014	0.017	0.016
1 hr.-Minimum	0.013	0.014	0.013	0.014	0.014
1 hr.-Maximum	0.023	0.031	0.019	0.022	0.018
Standard* (avg. 1 hr.)	0.17				

Analytical Method : - Chemiluminescence Method.

Source : The Notification of the National Environment Board No. 33, B.E. 2552 (2009), subjected "The nitrogen dioxide in ambient air standards", published in the Royal Government Gazette, Vol. 126, Special part 114D, dated August 14, B.E. 2552 (2009).

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 (UTM47Q 0608995E, 1588085N)

Time	SO ₂ Concentration (ppm)				
	April 22-23, 2024	April 23-24, 2024	April 24-25, 2024	April 25-26, 2024	April 26-27, 2024
11:00-12:00	0.001	0.001	0.001	0.001	0.001
12:00-13:00	0.001	0.001	0.001	0.001	0.001
13:00-14:00	0.001	0.001	0.001	0.001	0.001
14:00-15:00	0.001	0.001	0.002	0.001	0.001
15:00-16:00	0.002	0.002	0.002	0.002	0.002
16:00-17:00	0.002	0.002	0.002	0.002	0.002
17:00-18:00	0.002	0.002	0.002	0.002	0.002
18:00-19:00	0.002	0.002	0.002	0.002	0.002
19:00-20:00	0.002	0.002	0.002	0.002	0.002
20:00-21:00	0.001	0.002	0.002	0.002	0.002
21:00-22:00	0.001	0.002	0.002	0.002	0.002
22:00-23:00	0.002	0.002	0.001	0.002	0.002
23:00-00:00	0.001	0.002	0.001	0.002	0.002
00:00-01:00	0.002	0.002	0.002	0.002	0.002
01:00-02:00	0.002	0.002	0.002	0.002	0.002
02:00-03:00	0.002	0.002	0.002	0.002	0.002
03:00-04:00	0.002	0.002	0.002	0.002	0.002
04:00-05:00	0.002	0.002	0.002	0.002	0.002
05:00-06:00	0.002	0.002	0.001	0.002	0.002
06:00-07:00	0.002	0.002	0.001	0.002	0.002
07:00-08:00	0.002	0.002	0.002	0.002	0.002
08:00-09:00	0.002	0.003	0.002	0.002	0.002
09:00-10:00	0.002	0.002	0.002	0.002	0.002
10:00-11:00	0.001	0.002	0.001	0.001	0.001
1 hr.-Minimum	0.001	0.001	0.001	0.001	0.001
1 hr.-Maximum	0.002	0.003	0.002	0.002	0.002
avg. 24 hrs.	0.001	0.002	0.001	0.002	0.002
Standard* (avg. 1 hr.)	0.30				
Standard** (avg. 24 hrs.)	0.12				

Analytical Method : - UV Fluorescence Method

Source : Notification of the National Environment Board No.21, B.E. 2544 (2001), dated April 9, B.E. 2544 (2001)

** Notification of the National Environment Board No.24, B.E. 2547 (2004), d

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 (UTM47Q 0608995E, 1588085N)

Time	CO Concentration (ppm)				
	April 22-23, 2024	April 23-24, 2024	April 24-25, 2024	April 25-26, 2024	April 26-27, 2024
11:00-12:00	0.302	0.139	0.465	0.437	0.451
12:00-13:00	0.518	0.312	0.724	0.409	0.566
13:00-14:00	0.698	0.470	0.563	0.517	0.540
14:00-15:00	0.692	0.522	0.642	0.582	0.612
15:00-16:00	0.525	0.585	0.558	0.571	0.565
16:00-17:00	0.520	0.417	0.466	0.442	0.454
17:00-18:00	0.546	0.371	0.405	0.388	0.397
18:00-19:00	0.521	0.523	0.552	0.537	0.545
19:00-20:00	0.446	0.467	0.548	0.507	0.528
20:00-21:00	0.389	0.477	0.637	0.557	0.597
21:00-22:00	0.394	0.431	0.291	0.361	0.326
22:00-23:00	0.549	0.901	0.527	0.714	0.621
23:00-00:00	0.553	0.589	0.586	0.587	0.587
00:00-01:00	0.408	0.609	0.266	0.437	0.352
01:00-02:00	0.400	0.444	0.914	0.679	0.797
02:00-03:00	0.257	0.393	0.412	0.403	0.408
03:00-04:00	0.336	0.216	0.361	0.289	0.325
04:00-05:00	0.142	0.723	0.305	0.514	0.410
05:00-06:00	0.324	0.755	0.469	0.612	0.541
06:00-07:00	0.548	0.523	0.533	0.528	0.530
07:00-08:00	0.348	0.602	0.683	0.642	0.663
08:00-09:00	0.471	0.798	0.559	0.678	0.619
09:00-10:00	0.525	0.723	0.868	0.795	0.832
10:00-11:00	0.471	0.420	0.672	0.546	0.609
1 hr.-Minimum	0.142	0.139	0.266	0.289	0.325
1 hr.-Maximum	0.698	0.901	0.914	0.795	0.832
Standard* (avg. 1 hr.)	30				

Analytical Method : - Non-dispersive Infrared (NDIR) Method.

Source : * The notification of the National Environment Board No.10, B.E. 2538 (1995), subjected "The ambient air standards", published in the Royal Government Gazette, Vol. 112, Part 42D, dated Ma

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 (UTM47Q 0608995E, 1588085N)

SAMPLING DATE : April 22-27, 2024
 SAMPLING BY : Weerapong Pengtrakul

TIME	April 22-23, 2024		April 23-24, 2024		April 24-25, 2024		April 25-26, 2024		April 26-27, 2024	
	WD	WS (m/s)	WD	WS (m/s)	WD	WS (m/s)	WD	WS (m/s)	WD	WS (m/s)
11:00-12:00	SSE	0.9	SSW	1.3	SSE	1.3	SSW	1.3	S	1.3
12:00-13:00	SSE	1.3	SSW	1.3	SSE	1.3	S	1.3	SSE	1.3
13:00-14:00	SSE	1.8	SSE	1.3	SSE	1.3	SSE	1.8	SSE	1.8
14:00-15:00	SSE	2.2	SSE	1.8	SSE	1.8	SSE	1.3	SSE	1.8
15:00-16:00	SSE	2.2	SSE	2.2	SSE	1.8	SSE	1.8	SSE	1.8
16:00-17:00	SSE	2.2	SSE	2.2	SSE	1.3	SSE	1.3	SSE	2.7
17:00-18:00	SSE	2.2	SSE	2.2	SSE	1.8	SSE	1.3	SSE	2.2
18:00-19:00	SSE	1.8	SSE	2.2	SSE	1.8	SSE	1.3	SSE	1.8
19:00-20:00	SSE	0.9	S	0.9	-	CALM	SSE	1.3	SSE	0.9
20:00-21:00	S	0.9	S	0.9	-	CALM	-	CALM	S	1.3
21:00-22:00	S	0.9	S	0.9	-	CALM	-	CALM	S	0.9
22:00-23:00	-	CALM	-	CALM	-	CALM	-	CALM	-	CALM
23:00-00:00	-	CALM	-	CALM	-	CALM	-	CALM	-	CALM
00:00-01:00	-	CALM	-	CALM	-	CALM	-	CALM	-	CALM
01:00-02:00	-	CALM	-	CALM	-	CALM	-	CALM	-	CALM
02:00-03:00	-	CALM	-	CALM	-	CALM	-	CALM	-	CALM
03:00-04:00	-	CALM	-	CALM	-	CALM	-	CALM	-	CALM
04:00-05:00	-	CALM	-	CALM	-	CALM	-	CALM	-	CALM
05:00-06:00	-	CALM	-	CALM	-	CALM	-	CALM	-	CALM
06:00-07:00	-	CALM	-	CALM	-	CALM	-	CALM	-	CALM
07:00-08:00	-	CALM	-	CALM	-	CALM	-	CALM	-	CALM
08:00-09:00	SSW	0.9	S	0.9	-	CALM	SSE	0.9	-	CALM
09:00-10:00	S	0.9	SSW	0.9	SSE	0.9	SSE	1.3	-	CALM
10:00-11:00	W	0.9	S	1.3	SSE	0.9	SSE	1.3	S	0.9

Measurement Method : - Wind Speed and Wind Direction recording meter

Remarks :
 - WS = Wind Speed
 - WD = Wind Direction

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 (UTM47Q 0608995E, 1588085N)

Wind Speed Wind Direction	Percent of Wind Speed (%)				
	0.5-1.0 m/s	1.1-2.0 m/s	2.1-3.0 m/s	3.1-4.0 m/s	>4.0 m/s
N	-	-	-	-	-
NNE	-	-	-	-	-
NE	-	-	-	-	-
ENE	-	-	-	-	-
E	-	-	-	-	-
ESE	-	-	-	-	-
SE	-	-	-	-	-
SSE	5.00	22.50	8.33	-	-
S	7.50	3.33	-	-	-
SSW	1.67	2.50	-	-	-
SW	-	-	-	-	-
WSW	-	-	-	-	-
W	0.83	-	-	-	-
WNW	-	-	-	-	-
NW	-	-	-	-	-
NNW	-	-	-	-	-
CALM	48.33				

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SGS (THAILAND) LIMITED



Technical Manager

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IE 009088

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Member of the SGS Group

CLIENT : PTTEP International Limited
 CONTACT : Khun Sutthiluk Phaisun
 ADDRESS : 555/1 Energy Complex Vibhavadi-Rangsit Rd., Chatuchak, Chatuchak, Bangkok 10900
 Tel. 089-968-0061 E-Mail: SutthilukP@pttep.com

Analysis Report

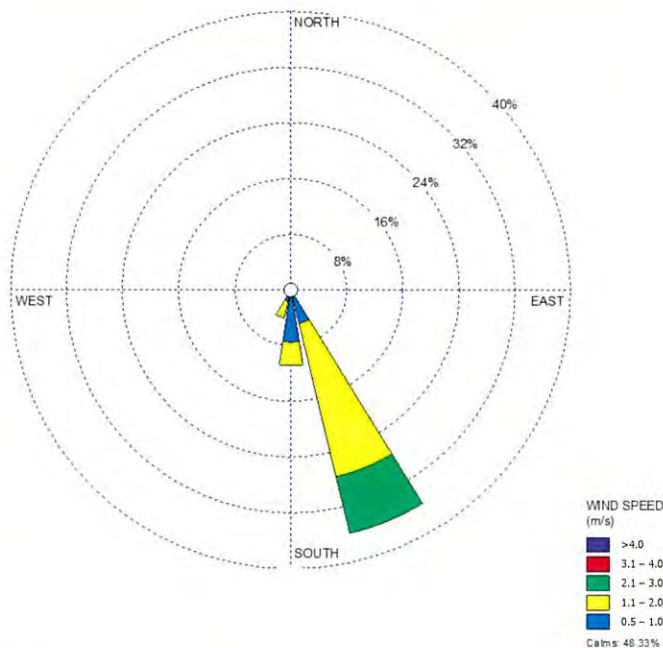
SAMPLE DESIGNATED AS : Ambient Air Quality
 SAMPLING LOCATION : NPI-A Production Phase
 โรงเรียนวัดไผ่มั่ง หมู่ที่ 4 ต. วังน้ำเย็น อ. บางปلام้า จ. สุพรรณบุรี
 (UTM47Q 0608995E, 1588085N)

SAMPLING DATE : April 22-27, 2024

SAMPLING BY : Weerapong Pengtrakul

WIND ROSE PLOT

Station Name : โรงเรียนวัดไผ่มั่ง หมู่ที่ 4 ต. วังน้ำเย็น อ. บางปلام้า จ. สุพรรณบุรี
 Sampling Date : April 22-27, 2024



Wind Direction (Blowing from)

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IE 009089

Report No. : 2024-500001363-12 / 001 (Page 1 of 8) Issued date : September 4, 2024

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 Tel. 089-968-0061 E-Mail: SutthilukP@pttep.com

Analysis Report

SAMPLE DESIGNATED AS : Ambient Air Quality
SAMPLING LOCATION : NPI-A Production Phase
SAMPLING DATE : August 17-22, 2024
SAMPLING BY : Weerapong Pengtrakul
 โรงเรียนวัดไผ่ไร่ หมู่ที่ 4 ต. วังน้ำเย็น อ. บางปลา ม้า จ. สุพรรณบุรี
 (UTM47P 0608995E, 1588085N)

Sampling Date	TSP (mg/m ³)	PM-10 (mg/m ³)
August 17-18, 2024	0.041	0.019
August 18-19, 2024	0.038	0.013
August 19-20, 2024	0.036	0.013
August 20-21, 2024	0.039	0.011
August 21-22, 2024	0.037	0.013
Standard*	0.33	0.12

Remark : - Sampling and analytical technique for TSP based on High Volume Air Sampler / Gravimetric Method and PM10 based on Size Selective High Volume Air Sampler / Gravimetric Method.
Source : - The notification of the National Environment Board No. 24, B.E. 2547 (2004), subjected "The ambient air standards", published in the Royal Government Gazette, Vol. 121, Part 104D, dated September 22, B.E. 2547 (2004).

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Report No. : 2024-500001363-12 / 001 (Page 2 of 8) Issued date : September 4, 2024

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Analysis Report

SAMPLE DESIGNATED AS : Ambient Air Quality
SAMPLING LOCATION : NPI-A Production Phase
SAMPLING DATE : August 17-22, 2024
SAMPLING BY : Weerapong Pengtrakul
 โรงเรือนวัดไผ่มั่ง หมู่ที่ 4 ต. วังน้ำเย็น อ. บางปลา ม้า จ. สุพรรณบุรี
 (UTM47Q 0608995E, 1588085N)

Parameter	Method	Total Petroleum Hydrocarbon (TPH) (µg/m ³)					Standard*
		August 17-18, 2024	August 18-19, 2024	August 19-20, 2024	August 20-21, 2024	August 21-22, 2024	
Propylene	Based on EPA TO-15	0.48	0.41	0.34	0.48	0.48	-
Pentane		0.24	0.24	0.35	1.30	0.59	-
Cyclopentane		<0.14	<0.14	<0.14	<0.14	<0.14	-
Hexane		0.42	<0.18	<0.18	0.42	0.42	-
Cyclohexane		<0.17	<0.17	<0.17	<0.17	<0.17	-
Benzene		0.26	<0.16	<0.16	<0.16	<0.16	7.6
Toluene		1.21	0.60	0.45	0.75	0.60	-
Ethylbenzene		<0.22	<0.22	<0.22	<0.22	<0.22	-
m,p-Xylene		<0.22	<0.22	<0.22	<0.22	<0.22	-
o-Xylene		<0.22	<0.22	<0.22	<0.22	<0.22	-
Styrene		0.34	<0.21	<0.21	<0.21	<0.21	-
1,3,5-Trimethylbenzene		<0.25	<0.25	<0.25	<0.25	<0.25	-
1,2,4-Trimethylbenzene		<0.25	<0.25	<0.25	<0.25	<0.25	-
1,2,3-Trimethylbenzene		<0.25	<0.25	<0.25	<0.25	<0.25	-

Source : Notification of Pollution Control Department, subjected 'The surveillant values of volatile organic compounds (VOCs) in ambient air for 24 hours period', dated December 18, B.E. 2551 (2008), published in the Royal Government Gazette Vol. 126, Special Part 13D, dated January 27, B.E. 2552 (2009).

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Report No. : 2024-500001363-12 / 001 (Page 3 of 8) Issued date : September 4, 2024

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 Tel. 089-968-0061 E-Mail: SutthilukP@pttep.com

Analysis Report

SAMPLE DESIGNATED AS : Ambient Air Quality
SAMPLING LOCATION : NPI-A Production Phase
SAMPLING DATE : August 17-22, 2024
SAMPLING BY : Weerapong Pengtrakul
 โรงเจียนวัดไผ่มั่ง หมู่ที่ 4 ต. วังน้ำเย็น อ. บางปาลม้า จ. สุพรรณบุรี
 (UTM47P 0608995E, 1588085N)

Time	NO ₂ Concentration (ppm)				
	August 17-18, 2024	August 18-19, 2024	August 19-20, 2024	August 20-21, 2024	August 21-22, 2024
09:00-10:00	0.021	0.010	0.017	0.003	0.008
10:00-11:00	0.017	0.010	0.014	0.003	0.005
11:00-12:00	0.015	0.007	0.008	0.002	0.006
12:00-13:00	0.014	0.009	0.005	0.002	0.008
13:00-14:00	0.013	0.007	0.006	0.007	0.010
14:00-15:00	0.011	0.006	0.006	0.006	0.011
15:00-16:00	0.010	0.007	0.004	0.012	0.011
16:00-17:00	0.009	0.006	0.005	0.009	0.014
17:00-18:00	0.006	0.005	0.003	0.004	0.012
18:00-19:00	0.006	0.002	0.001	0.001	0.008
19:00-20:00	0.005	0.002	0.001	0.001	0.001
20:00-21:00	0.004	0.003	0.002	0.001	0.001
21:00-22:00	0.005	0.003	0.002	0.002	0.002
22:00-23:00	0.006	0.003	0.004	0.004	0.004
23:00-00:00	0.007	0.005	0.006	0.006	0.005
00:00-01:00	0.006	0.005	0.005	0.006	0.006
01:00-02:00	0.006	0.006	0.006	0.007	0.005
02:00-03:00	0.008	0.008	0.006	0.007	0.010
03:00-04:00	0.012	0.010	0.008	0.008	0.009
04:00-05:00	0.010	0.009	0.007	0.007	0.006
05:00-06:00	0.005	0.012	0.010	0.010	0.008
06:00-07:00	0.006	0.011	0.005	0.007	0.008
07:00-08:00	0.008	0.011	0.004	0.004	0.006
08:00-09:00	0.011	0.014	0.004	0.002	0.011
1 hr.-Minimum	0.004	0.002	0.001	0.001	0.001
1 hr.-Maximum	0.021	0.014	0.017	0.012	0.014
Standard* (avg. 1 hr.)	0.17				

Analytical Method : - Chemiluminescence Method.

Source : The Notification of the National Environment Board No. 33, B.E. 2552 (2009), subjected "The nitrogen dioxide in ambient air standards", published in the Royal Government Gazette, Vol. 126, Special part 114D, dated August 14, B.E. 2552 (2009).

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Report No. : 2024-500001363-12 / 001 (Page 4 of 8) Issued date : September 4, 2024

CLIENT : PTTEP International Limited
CONTACT : Khun Sutthiluk Phaisun
ADDRESS : 555/1 Energy Complex Vibhavadi-Rangsit Rd., Chatuchak, Bangkok 10900
 Tel. 089-968-0061 E-Mail: SutthilukP@pttep.com

Analysis Report

SAMPLE DESIGNATED AS : Ambient Air Quality
SAMPLING LOCATION : NPI-A Production Phase
SAMPLING DATE : August 17-22, 2024
SAMPLING BY : Weerapong Pengtrakul
 โรงเรียนวัดไผ่มั่ง หมู่ที่ 4 ต. วังน้ำเย็น อ. บางปาลม้า จ. สุพรรณบุรี
 (UTM47Q 0608995E, 1588085N)

Time	SO ₂ Concentration (ppm)				
	August 17-18, 2024	August 18-19, 2024	August 19-20, 2024	August 20-21, 2024	August 21-22, 2024
09:00-10:00	0.001	0.001	0.001	0.001	0.002
10:00-11:00	0.001	0.001	0.001	0.001	0.001
11:00-12:00	0.001	0.001	0.001	0.001	0.001
12:00-13:00	0.001	0.001	0.001	0.001	0.001
13:00-14:00	0.001	0.001	0.001	0.001	0.002
14:00-15:00	0.002	0.002	0.002	0.002	0.002
15:00-16:00	0.002	0.002	0.002	0.002	0.002
16:00-17:00	0.002	0.002	0.002	0.002	0.002
17:00-18:00	0.002	0.002	0.002	0.002	0.002
18:00-19:00	0.002	0.002	0.002	0.002	0.002
19:00-20:00	0.002	0.002	0.001	0.002	0.002
20:00-21:00	0.002	0.002	0.001	0.002	0.002
21:00-22:00	0.002	0.002	0.002	0.002	0.001
22:00-23:00	0.002	0.002	0.001	0.002	0.001
23:00-00:00	0.002	0.002	0.002	0.002	0.002
00:00-01:00	0.002	0.002	0.002	0.002	0.002
01:00-02:00	0.002	0.002	0.002	0.002	0.002
02:00-03:00	0.002	0.002	0.002	0.002	0.002
03:00-04:00	0.002	0.002	0.002	0.002	0.002
04:00-05:00	0.002	0.002	0.002	0.002	0.001
05:00-06:00	0.002	0.002	0.002	0.002	0.001
06:00-07:00	0.002	0.002	0.002	0.002	0.002
07:00-08:00	0.002	0.002	0.002	0.003	0.002
08:00-09:00	0.002	0.002	0.002	0.002	0.001
1 hr.-Minimum	0.001	0.001	0.001	0.001	0.001
1 hr.-Maximum	0.002	0.002	0.002	0.003	0.002
avg. 24 hrs.	0.002	0.002	0.001	0.002	0.001
Standard* (avg. 1 hr.)	0.30				
Standard** (avg. 24 hrs.)	0.12				

Analytical Method : - UV Fluorescence Method

Source : * Notification of the National Environment Board No.21, B.E. 2544 (2001), dated April 9, B.E. 2544 (2001)

** Notification of the National Environment Board No.24, B.E. 2547 (2004), da



(Weerapong Pengtrakul)
 Technical Manager

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Analysis Report

SAMPLE DESIGNATED AS : Ambient Air Quality
SAMPLING LOCATION : NPI-A Production Phase
SAMPLING DATE : August 17-22, 2024
SAMPLING BY : Weerapong Pengtrakul
 โรงเรียนวัดไผ่ม่วง หมู่ที่ 4 ต. วังน้ำเย็น อ. บางปลา ม้า จ. สุพรรณบุรี
 (UTM47Q 0608995E, 1588085N)

Time	CO Concentration (ppm)				
	August 17-18, 2024	August 18-19, 2024	August 19-20, 2024	August 20-21, 2024	August 21-22, 2024
09:00-10:00	0.905	0.813	0.831	0.827	0.929
10:00-11:00	0.881	0.805	0.843	0.828	0.925
11:00-12:00	0.894	0.817	0.846	0.821	0.939
12:00-13:00	0.897	0.827	0.846	0.822	0.906
13:00-14:00	0.887	0.864	0.851	0.827	0.907
14:00-15:00	0.959	0.877	0.867	0.832	0.889
15:00-16:00	1.058	0.896	0.864	0.835	0.887
16:00-17:00	1.039	0.849	0.861	0.840	0.892
17:00-18:00	0.925	0.854	0.859	0.842	0.901
18:00-19:00	1.031	0.852	0.856	0.853	0.911
19:00-20:00	1.025	0.850	0.913	0.907	0.926
20:00-21:00	1.010	0.863	0.898	0.891	1.112
21:00-22:00	0.918	0.863	0.889	0.891	1.120
22:00-23:00	0.984	0.896	0.904	0.897	1.086
23:00-00:00	0.993	0.888	0.903	0.892	1.068
00:00-01:00	1.084	0.905	0.893	0.910	1.035
01:00-02:00	0.026	0.890	0.892	0.909	1.029
02:00-03:00	0.916	0.896	0.910	0.909	1.018
03:00-04:00	0.961	0.917	0.989	0.915	1.031
04:00-05:00	0.972	0.912	0.930	0.921	1.034
05:00-06:00	1.108	0.875	0.908	0.901	1.187
06:00-07:00	1.141	0.899	0.910	0.906	1.346
07:00-08:00	1.161	0.881	0.915	0.952	1.299
08:00-09:00	1.105	0.834	0.860	0.947	1.376
1 hr.-Minimum	0.026	0.805	0.831	0.821	0.887
1 hr.-Maximum	1.161	0.917	0.989	0.952	1.376
Standard* (avg. 1 hr.)	30				

Analytical Method : - Non-dispersive Infrared (NDIR) Method.

Source : * The notification of the National Environment Board No.10, B.E. 2538 (1995), subjected "The ambient air standards", published in the Royal Government Gazette, Vol. 112, Part 42D, dated May 25, B.E. 2538 (1995).



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Analysis Report

SAMPLE DESIGNATED AS : Ambient Air Quality
SAMPLING LOCATION : NPI-A Production Phase
SAMPLING DATE : August 17-22, 2024
SAMPLING BY : Weerapong Pengtrakul
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 (UTM47Q 0608995E, 1588085N)

TIME	August 17-18, 2024		August 18-19, 2024		August 19-20, 2024		August 20-21, 2024		August 21-22, 2024	
	WD	WS (m/s)	WD	WS (m/s)	WD	WS (m/s)	WD	WS (m/s)	WD	WS (m/s)
09:00-10:00	SW	1.3	-	CALM	-	CALM	E	0.9	-	CALM
10:00-11:00	SW	0.9	-	CALM	-	CALM	E	1.3	S	1.3
11:00-12:00	SW	0.9	WSW	0.9	-	CALM	NNE	0.9	SSE	1.8
12:00-13:00	-	CALM	E	0.9	-	CALM	E	0.9	SE	1.3
13:00-14:00	-	CALM	ESE	0.9	E	0.9	E	1.3	E	0.9
14:00-15:00	ESE	0.9	ESE	1.3	-	CALM	E	0.9	-	CALM
15:00-16:00	ESE	0.9	E	0.9	-	CALM	-	CALM	NE	0.9
16:00-17:00	-	CALM	-	CALM	NE	0.9	-	CALM	-	CALM
17:00-18:00	-	CALM	SSE	1.1	NE	0.9	NNE	1.1	-	CALM
18:00-19:00	-	CALM	SE	0.9	-	CALM	NNE	0.9	ENE	0.9
19:00-20:00	WSW	3.1	SW	0.9	-	CALM	-	CALM	-	CALM
20:00-21:00	WSW	1.8	WSW	0.9	-	CALM	E	0.9	-	CALM
21:00-22:00	W	1.3	-	CALM	E	0.9	E	2.2	SE	0.9
22:00-23:00	SW	0.9	-	CALM	-	CALM	S	1.8	-	CALM
23:00-00:00	-	CALM	E	0.9	-	CALM	N	0.9	-	CALM
00:00-01:00	SSE	0.9	-	CALM	E	0.9	NE	0.9	-	CALM
01:00-02:00	-	CALM	E	0.9	ENE	0.9	-	CALM	-	CALM
02:00-03:00	-	CALM	-	CALM	-	CALM	NNW	0.9	E	1.3
03:00-04:00	-	CALM	S	0.9	NE	0.9	NE	0.9	E	0.9
04:00-05:00	-	CALM	-	CALM	-	CALM	-	CALM	-	CALM
05:00-06:00	SW	0.9	SSW	0.9	-	CALM	E	0.9	-	CALM
06:00-07:00	SW	0.9	N	1.1	E	0.9	E	1.1	SW	0.9
07:00-08:00	-	CALM	SSW	0.9	NE	0.9	SSE	0.9	-	CALM
08:00-09:00	-	CALM	E	0.9	-	CALM	-	CALM	-	CALM

Measurement Method : - Wind Speed and Wind Direction recording meter

Remarks :
 - WS = Wind Speed
 - WD = Wind Direction

TY/WP/JK/JK

SGS (THAILAND) LIMITED



Technical Manager

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IE 009119

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Member of the SGS Group

Report No. : 2024-500001363-12 / 001 (Page 7 of 8) Issued date : September 4, 2024

CLIENT : PTTEP International Limited
CONTACT : Khun Sutthiluk Phaisun
ADDRESS : 555/1 Energy Complex Vibhavadi-Rangsit Rd., Chatuchak, Chatuchak, Bangkok 10900
 Tel. 089-968-0061 E-Mail: SutthilukP@pttep.com

Analysis Report

SAMPLE DESIGNATED AS : Ambient Air Quality
SAMPLING LOCATION : NPI-A Production Phase
SAMPLING DATE : August 17-22, 2024
SAMPLING BY : Weerapong Pengtrakul
 โรงเรือนวัดไผ่มั่ง หมู่ที่ 4 ต. วังน้ำเย็น อ. บางปาลมำ จ. สุพรรณบุรี
 (UTM47Q 0608995E, 1588085N)

Wind Speed Wind Direction	Percent of Wind Speed (%)				
	0.5-1.0 m/s	1.1-2.0 m/s	2.1-3.0 m/s	3.1-4.0 m/s	>4.0 m/s
N	0.83	0.83	-	-	-
NNE	1.67	0.83	-	-	-
NE	5.83	-	-	-	-
ENE	1.67	-	-	-	-
E	13.33	3.33	0.83	-	-
ESE	2.50	0.83	-	-	-
SE	1.67	0.83	-	-	-
SSE	1.67	1.67	-	-	-
S	0.83	1.67	-	-	-
SSW	1.67	-	-	-	-
SW	5.83	0.83	-	-	-
WSW	1.67	0.83	-	0.83	-
W	-	0.83	-	-	-
WNW	-	-	-	-	-
NW	-	-	-	-	-
NNW	0.83	-	-	-	-
CALM	45.83				

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IE 009120

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Report No. : 2024-500001363-12 / 001 (Page 8 of 8) Issued date : September 4, 2024

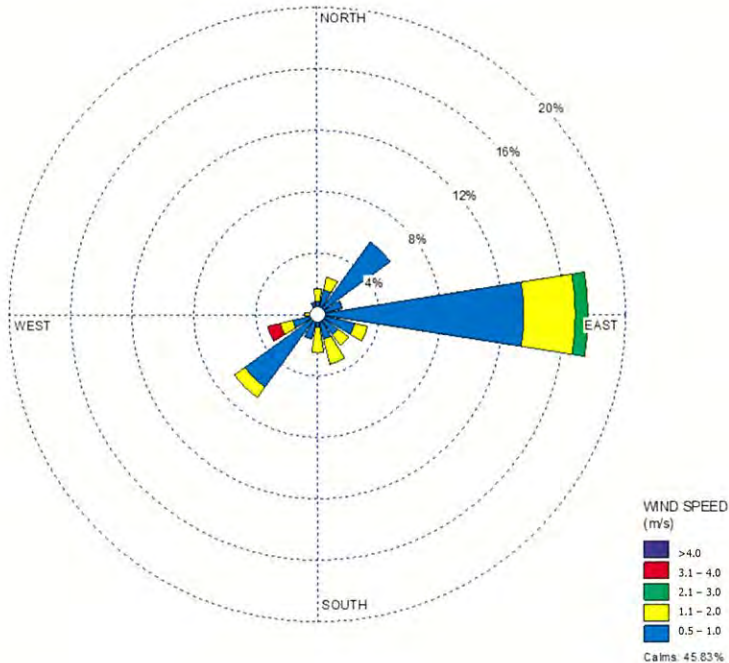
CLIENT : PTTEP International Limited
CONTACT : Khun Sutthiluk Phaisun
ADDRESS : 555/1 Energy Complex Vibhavadi-Rangsit Rd., Chatuchak, Chatuchak, Bangkok 10900
 Tel. 089-968-0061 E-Mail: SutthilukP@pttep.com

Analysis Report

SAMPLE DESIGNATED AS : Ambient Air Quality
SAMPLING LOCATION : NPI-A Production Phase
SAMPLING DATE : August 17-22, 2024
SAMPLING BY : Weerapong Pengtrakul
 โรงเรียนวัดไผ่มั่ง หมู่ที่ 4 ต. วังน้ำเย็น อ. บางปلام้า จ. สุพรรณบุรี
 (UTM47Q 0608995E, 1588085N)

WIND ROSE PLOT

Station Name : โรงเรียนวัดไผ่มั่ง หมู่ที่ 4 ต. วังน้ำเย็น อ. บางปلام้า จ. สุพรรณบุรี
Sampling Date : August 17-22, 2024



Wind Direction (Blowing from)

TY/WP/JK/JK

SGS (THAILAND) LIMITED



(Weerapong Pengtrakul)
 Technical Manager

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IE 009121

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Report No. : 2024-500001363-2 / 001-1 (Page 1 of 6) Issued date : May 31, 2024

CLIENT : PTTEP International Limited
CONTACT : Khun Sutthiluk Phaisun
ADDRESS : 555/1 Energy Complex Vibhavadi-Rangsit Rd., Chatuchak, Chatuchak, Bangkok 10900
 Tel. 089-968-0061 E-Mail: SutthilukP@pttep.com

Analysis Report

SAMPLE DESIGNATED AS : Ambient Air Quality
SAMPLING LOCATION : NPI-B Production Phase
SAMPLING DATE : April 22-25, 2024
SAMPLING BY : Weerapong Pengtrakul
 วัดไผ่มั่ง ต. วังน้ำเย็น อ. บางปลาม้า จ. สุพรรณบุรี
 (UTM47P 0608995E, 1588085N)

Sampling Date	TSP (mg/m ³)	PM-10 (mg/m ³)
April 22-23, 2024	0.104	0.071
April 23-24, 2024	0.141	0.056
April 24-25, 2024	0.103	0.043
Standard*	0.33	0.12

Remark : - Sampling and analytical technique for TSP based on High Volume Air Sampler / Gravimetric Method and PM10 based on Size Selective High Volume Air Sampler / Gravimetric Method.
Source : - The notification of the National Environment Board No. 24, B.E. 2547 (2004), subjected "The ambient air standards", published in the Royal Government Gazette, Vol. 121, Part 104D, dated September 22, B.E. 2547 (2004).

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(Signature)
 Technical Manager

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Report No. : 2024-500001363-2 / 001-1 (Page 2 of 6) Issued date : May 31, 2024

CLIENT : PTTEP International Limited
CONTACT : Khun Sutthiluk Phaisun
ADDRESS : 555/1 Energy Complex Vibhavadi-Rangsit Rd., Chatuchak, Chatuchak, Bangkok 10900
 Tel. 089-968-0061 E-Mail: SutthilukP@pttep.com

Analysis Report

SAMPLE DESIGNATED AS : Ambient Air Quality
SAMPLING LOCATION : NPI-B Production Phase
SAMPLING DATE : April 22-25, 2024
SAMPLING BY : Weerapong Pengtrakul
 วัดไผ่มั่ง ต. วังน้ำเย็น อ. บางปลา ม้า จ. สุพรรณบุรี
 (UTM47P 0608995E, 1588085N)

Time	NO ₂ Concentration (ppm)		
	April 22-23, 2024	April 23-24, 2024	April 24-25, 2024
11:00-12:00	0.013	0.016	0.019
12:00-13:00	0.013	0.014	0.015
13:00-14:00	0.013	0.014	0.016
14:00-15:00	0.015	0.015	0.016
15:00-16:00	0.014	0.015	0.014
16:00-17:00	0.019	0.024	0.014
17:00-18:00	0.017	0.021	0.013
18:00-19:00	0.023	0.031	0.013
19:00-20:00	0.018	0.022	0.013
20:00-21:00	0.018	0.020	0.015
21:00-22:00	0.017	0.019	0.014
22:00-23:00	0.018	0.019	0.017
23:00-00:00	0.016	0.019	0.015
00:00-01:00	0.017	0.019	0.014
01:00-02:00	0.017	0.019	0.014
02:00-03:00	0.017	0.019	0.014
03:00-04:00	0.017	0.019	0.014
04:00-05:00	0.016	0.019	0.014
05:00-06:00	0.016	0.018	0.014
06:00-07:00	0.016	0.018	0.014
07:00-08:00	0.018	0.023	0.015
08:00-09:00	0.017	0.022	0.015
09:00-10:00	0.018	0.024	0.014
10:00-11:00	0.017	0.021	0.014
1 hr-Minimum	0.013	0.014	0.013
1 hr-Maximum	0.023	0.031	0.019
Standard* (avg. 1 hr)	0.17		

Analytical Method : - Chemiluminescence Method.

Source : The Notification of the National Environment Board No. 33, B.E. 2552 (2009), subjected "The nitrogen dioxide in ambient air standards", published in the Royal Government Gazette, Vol. 126, Special part 114D, dated August 14, B.E. 2552 (2009).

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IE 010076

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Report No. : 2024-500001363-2 / 001-1 (Page 3 of 6) Issued date : May 31, 2024

CLIENT : PTTEP International Limited
CONTACT : Khun Sutthiluk Phaisun
ADDRESS : 555/1 Energy Complex Vibhavadi-Rangsit Rd., Chatuchak, Chatuchak, Bangkok 10900
 Tel. 089-968-0061 E-Mail: SutthilukP@pttep.com

Analysis Report

SAMPLE DESIGNATED AS : Ambient Air Quality
SAMPLING LOCATION : NPI-B Production Phase
SAMPLING DATE : April 22-25, 2024
SAMPLING BY : Weerapong Pengtrakul
 วัดไผ่มั่ง ต. วังน้ำเย็น อ. บางปลา ม้า จ. สุพรรณบุรี
 (UTM47P 0608995E, 1588085N)

Time	SO ₂ Concentration (ppm)		
	April 22-23, 2024	April 23-24, 2024	April 24-25, 2024
11:00-12:00	0.001	0.001	0.001
12:00-13:00	0.001	0.001	0.001
13:00-14:00	0.001	0.001	0.001
14:00-15:00	0.001	0.001	0.002
15:00-16:00	0.002	0.002	0.002
16:00-17:00	0.002	0.002	0.002
17:00-18:00	0.002	0.002	0.002
18:00-19:00	0.002	0.002	0.002
19:00-20:00	0.002	0.002	0.002
20:00-21:00	0.001	0.002	0.002
21:00-22:00	0.001	0.002	0.002
22:00-23:00	0.002	0.002	0.001
23:00-00:00	0.001	0.002	0.001
00:00-01:00	0.002	0.002	0.002
01:00-02:00	0.002	0.002	0.002
02:00-03:00	0.002	0.002	0.002
03:00-04:00	0.002	0.002	0.002
04:00-05:00	0.002	0.002	0.002
05:00-06:00	0.002	0.002	0.001
06:00-07:00	0.002	0.002	0.001
07:00-08:00	0.002	0.002	0.002
08:00-09:00	0.002	0.003	0.002
09:00-10:00	0.002	0.002	0.002
10:00-11:00	0.001	0.002	0.001
1 hr-Minimum	0.001	0.001	0.001
1 hr-Maximum	0.002	0.003	0.002
avg. 24 hr	0.001	0.002	0.001
Standard* (avg. 1 hr)	0.30		
Standard** (avg. 24 hr)	0.12		

Analytical Method : - UV Fluorescence Method

Source : " Notification of the National Environment Board No.21, B.E. 2544 (2001), dated April 9, B.E. 2544 (2001)
 " Notification of the National Environment Board No.24, B.E. 2547 (2004)



(Thepsan Yommana)
 Technical Manager

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Report No. : 2024-500001363-2 / 001-1 (Page 4 of 6) Issued date : May 31, 2024

CLIENT : PTTEP International Limited
CONTACT : Khun Sutthiluk Phaisun
ADDRESS : 555/1 Energy Complex Vibhavadi-Rangsit Rd., Chatuchak, Chatuchak, Bangkok 10900
 Tel. 089-968-0061 E-Mail: SutthilukP@pttep.com

Analysis Report

SAMPLE DESIGNATED AS : Ambient Air Quality
SAMPLING LOCATION : NPI-B Production Phase
SAMPLING DATE : April 22-25, 2024
SAMPLING BY : Weerapong Pengtrakul
 วัดไผ่มั่ง ต. วังน้ำเย็น อ. บางปلام้า จ. สุพรรณบุรี
 (UTM47P 0608995E, 1588085N)

TIME	April 22-23, 2024		April 23-24, 2024		April 24-25, 2024	
	WD	WS (m/s)	WD	WS (m/s)	WD	WS (m/s)
11:00-12:00	SSE	0.9	SSW	1.3	SSE	1.3
12:00-13:00	SSE	1.3	SSW	1.3	SSE	1.3
13:00-14:00	SSE	1.8	SSE	1.3	SSE	1.3
14:00-15:00	SSE	2.2	SSE	1.8	SSE	1.8
15:00-16:00	SSE	2.2	SSE	2.2	SSE	1.8
16:00-17:00	SSE	2.2	SSE	2.2	SSE	1.3
17:00-18:00	SSE	2.2	SSE	2.2	SSE	1.8
18:00-19:00	SSE	1.8	SSE	2.2	SSE	1.8
19:00-20:00	SSE	0.9	S	0.9	-	CALM
20:00-21:00	S	0.9	S	0.9	-	CALM
21:00-22:00	S	0.9	S	0.9	-	CALM
22:00-23:00	-	CALM	-	CALM	-	CALM
23:00-00:00	-	CALM	-	CALM	-	CALM
00:00-01:00	-	CALM	-	CALM	-	CALM
01:00-02:00	-	CALM	-	CALM	-	CALM
02:00-03:00	-	CALM	-	CALM	-	CALM
03:00-04:00	-	CALM	-	CALM	-	CALM
04:00-05:00	-	CALM	-	CALM	-	CALM
05:00-06:00	-	CALM	-	CALM	-	CALM
06:00-07:00	-	CALM	-	CALM	-	CALM
07:00-08:00	-	CALM	-	CALM	-	CALM
08:00-09:00	SSW	0.9	S	0.9	-	CALM
09:00-10:00	S	0.9	SSW	0.9	SSE	0.9
10:00-11:00	W	0.9	S	1.3	SSE	0.9

Measurement Method : - Wind Speed and Wind Direction recording meter

Remarks :
 - WS = Wind Speed
 - WD = Wind Direction

TY/WP/NT/NT

SGS (THAILAND) LIMITED



(Thepsan Yommana)
 Technical Manager

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IE 010078

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CLIENT : PTTEP International Limited
 CONTACT : Khun Sutthiluk Phaisun
 ADDRESS : 555/1 Energy Complex Vibhavadi-Rangsit Rd., Chatuchak, Bangkok 10900
 Tel. 089-968-0061 E-Mail: SutthilukP@pttep.com

Analysis Report

SAMPLE DESIGNATED AS : Ambient Air Quality
 SAMPLING LOCATION : NPI-B Production Phase
 วัดไผ่มั่ง ต. วังน้ำเย็น อ. บางปلام้า จ. สุพรรณบุรี
 (UTM47P 0608995E, 1588085N)

SAMPLING DATE : April 22-25, 2024
 SAMPLING BY : Weerapong Pengtrakul

Wind Speed Wind Direction	Percent of Wind Speed (%)				
	0.5-1.0 m/s	1.1-2.0 m/s	2.1-3.0 m/s	3.1-4.0 m/s	>4.0 m/s
N	-	-	-	-	-
NNE	-	-	-	-	-
NE	-	-	-	-	-
ENE	-	-	-	-	-
E	-	-	-	-	-
ESE	-	-	-	-	-
SE	-	-	-	-	-
SSE	5.56	18.06	11.11	-	-
S	9.72	1.39	-	-	-
SSW	2.78	2.78	-	-	-
SW	-	-	-	-	-
WSW	-	-	-	-	-
W	1.39	-	-	-	-
WNW	-	-	-	-	-
NW	-	-	-	-	-
NNW	-	-	-	-	-
CALM	47.22				

TY/WP/NT/NT

SGS (THAILAND) LIMITED



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Report No. : 2024-500001363-2 / 001-1 (Page 6 of 6)

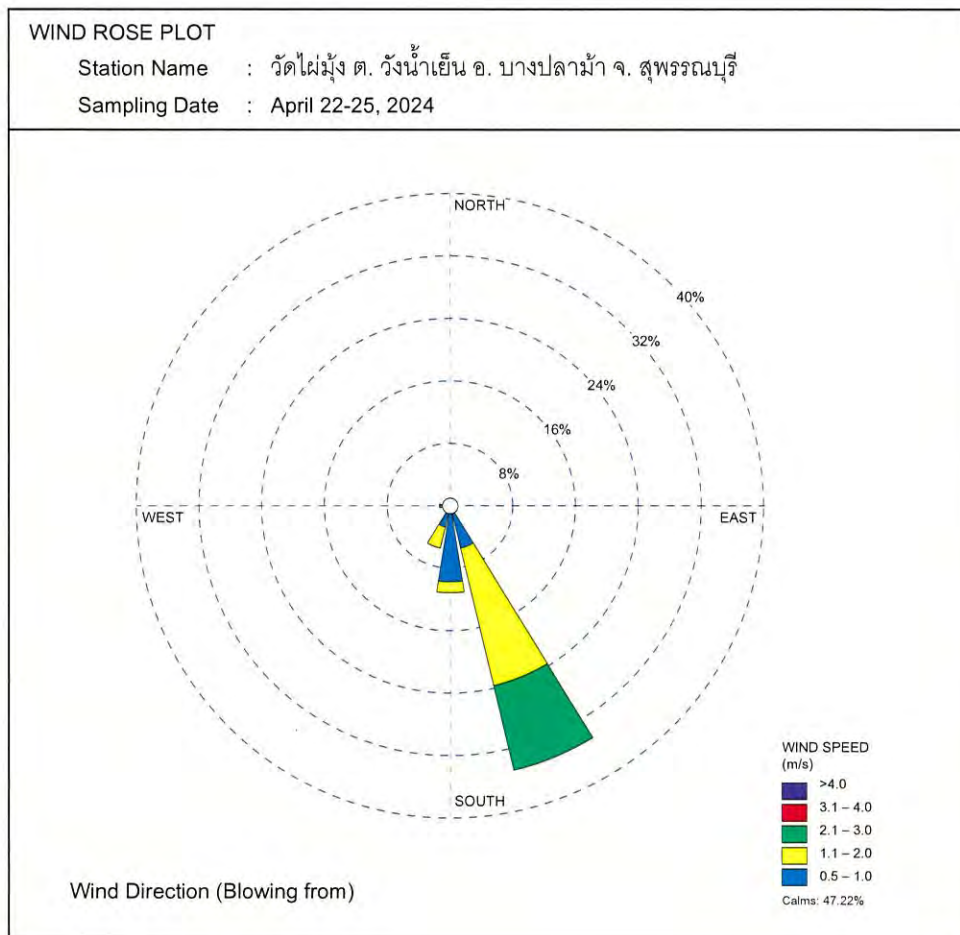
Issued date : May 31, 2024

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Analysis Report

SAMPLE DESIGNATED AS : Ambient Air Quality
 SAMPLING LOCATION : NPI-B Production Phase
 วัดไผ่มั่ง ต. วังน้ำเย็น อ. บางปلام้า จ. สุพรรณบุรี
 (UTM47P 0608995E, 1588085N)

SAMPLING DATE : April 22-25, 2024
 SAMPLING BY : Weerapong Pengtrakul



TY/WP/NT/NT

SGS (THAILAND) LIMITED



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IE 010080

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Report No. : 2024-500001363-2 / 001-2 (Page 1 of 6) Issued date : May 31, 2024

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 Tel. 089-968-0061 E-Mail: SutthilukP@pttep.com

Analysis Report

SAMPLE DESIGNATED AS : Ambient Air Quality
SAMPLING LOCATION : NPI-B Production Phase
SAMPLING DATE : April 22-25, 2024
SAMPLING BY : Weerapong Pengtrakul
 โรงพยาบาลส่งเสริมสุขภาพตำบลบ้านดอนขาด หมู่ที่ 3 ต. วัดโบสถ์ อ. บางปลา มอ จ. สุพรรณบุรี
 (UTM47P 0608791E, 1584854N)

Sampling Date	TSP (mg/m ³)	PM-10 (mg/m ³)
April 22-23, 2024	0.099	0.069
April 23-24, 2024	0.092	0.058
April 24-25, 2024	0.082	0.047
Standard*	0.33	0.12

Remark : - Sampling and analytical technique for TSP based on High Volume Air Sampler / Gravimetric Method and PM10 based on Size Selective High Volume Air Sampler / Gravimetric Method.
Source : - The notification of the National Environment Board No. 24, B.E. 2547 (2004), subjected "The ambient air standards", published in the Royal Government Gazette, Vol. 121, Part 104D, dated September 22, B.E. 2547 (2004).

TY/WP/NT/NT



(Weerapong Pengtrakul)
 Technical Manager

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Report No. : 2024-500001363-2 / 001-1 (Page 2 of 6) Issued date : May 31, 2024

CLIENT : PTTEP International Limited
CONTACT : Khun Sutthiluk Phaisun
ADDRESS : 555/1 Energy Complex Vibhavadi-Rangsit Rd., Chatuchak, Bangkok 10900
 Tel. 089-968-0061 E-Mail: SutthilukP@pttep.com

Analysis Report

SAMPLE DESIGNATED AS : Ambient Air Quality
SAMPLING LOCATION : NPI-B Production Phase
SAMPLING DATE : April 22-25, 2024
SAMPLING BY : Weerapong Pengtrakul
 โรงพยาบาลส่งเสริมสุขภาพตำบลบ้านดอนขาต หมู่ที่ 3 ต. วัดโบสถ์ อ.บางปلام้า จ. สุพรรณบุรี
 (UTM47P 0608995E, 1588085N)

Time	NO ₂ Concentration (ppm)		
	April 22-23, 2024	April 23-24, 2024	April 24-25, 2024
12:00-13:00	0.015	0.014	0.016
13:00-14:00	0.012	0.011	0.013
14:00-15:00	0.014	0.013	0.014
15:00-16:00	0.013	0.014	0.013
16:00-17:00	0.015	0.014	0.011
17:00-18:00	0.015	0.014	0.011
18:00-19:00	0.015	0.018	0.012
19:00-20:00	0.018	0.019	0.014
20:00-21:00	0.018	0.019	0.017
21:00-22:00	0.018	0.020	0.018
22:00-23:00	0.019	0.021	0.017
23:00-00:00	0.019	0.020	0.017
00:00-01:00	0.019	0.020	0.017
01:00-02:00	0.019	0.020	0.017
02:00-03:00	0.019	0.020	0.017
03:00-04:00	0.019	0.020	0.016
04:00-05:00	0.018	0.020	0.017
05:00-06:00	0.017	0.020	0.017
06:00-07:00	0.017	0.020	0.018
07:00-08:00	0.017	0.019	0.017
08:00-09:00	0.017	0.018	0.015
09:00-10:00	0.016	0.017	0.014
10:00-11:00	0.015	0.017	0.013
11:00-12:00	0.015	0.016	0.012
1 hr-Minimum	0.012	0.011	0.011
1 hr-Maximum	0.019	0.021	0.018
Standard* (avg. 1 hr)	0.17		

Analytical Method : - Chemiluminescence Method.

Source : The Notification of the National Environment Board No. 33, B.E. 2552 (2009), subjected "The nitrogen dioxide in ambient air standards", published in the Royal Government Gazette, Vol. 126, Special part 114D, dated August 14, B.E. 2552 (2009).

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SGS (THAILAND) LIMITED

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Report No. : 2024-500001363-2 / 001-2 (Page 3 of 6) Issued date : May 31, 2024

CLIENT : PTTEP International Limited
CONTACT : Khun Sutthiluk Phaisun
ADDRESS : 555/1 Energy Complex Vibhavadi-Rangsit Rd., Chatuchak, Bangkok 10900
Tel. 089-968-0061 E-Mail: SutthilukP@pttep.com

Analysis Report

SAMPLE DESIGNATED AS : Ambient Air Quality
SAMPLING LOCATION : NPI-B Production Phase
SAMPLING DATE : April 22-25, 2024
SAMPLING BY : Weerapong Pengtrakul
โรงพยาบาลส่งเสริมสุขภาพตำบลบ้านดอนขาด หมู่ที่ 3 ต. วัดโบสถ์ อ.บางปلام้า จ. สุพรรณบุรี
(UTM47P 0608791E, 1584854N)

Time	SO ₂ Concentration (ppm)		
	April 22-23, 2024	April 23-24, 2024	April 24-25, 2024
12:00-13:00	0.001	0.001	0.001
13:00-14:00	0.001	0.001	0.001
14:00-15:00	0.002	0.001	0.001
15:00-16:00	0.002	0.002	0.002
16:00-17:00	0.002	0.002	0.002
17:00-18:00	0.002	0.002	0.002
18:00-19:00	0.002	0.002	0.002
19:00-20:00	0.002	0.002	0.002
20:00-21:00	0.002	0.002	0.002
21:00-22:00	0.002	0.001	0.002
22:00-23:00	0.002	0.001	0.002
23:00-00:00	0.002	0.001	0.002
00:00-01:00	0.002	0.001	0.002
01:00-02:00	0.002	0.001	0.002
02:00-03:00	0.002	0.002	0.002
03:00-04:00	0.002	0.001	0.001
04:00-05:00	0.002	0.001	0.002
05:00-06:00	0.002	0.002	0.002
06:00-07:00	0.002	0.003	0.002
07:00-08:00	0.002	0.002	0.002
08:00-09:00	0.001	0.001	0.001
09:00-10:00	0.001	0.001	0.001
10:00-11:00	0.001	0.001	0.001
11:00-12:00	0.001	0.001	0.001
1 hr-Minimum	0.001	0.001	0.001
1 hr-Maximum	0.002	0.003	0.002
avg. 24 hr	0.001	0.002	0.001
Standard* (avg. 1 hr)	0.30		
Standard** (avg. 24 hr)	0.12		

Analytical Method : - UV Fluorescence Method
Source : * Notification of the National Environment Board No.21, B.E. 2544 (2001), dated April 9, B.E. 2544 (2001)
** Notification of the National Environment Board No.24, B.E. 2547 (2004), dated April 14, B.E. 2547 (2004)

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SGS (THAILAND) LIMITED
(Weerapong Pengtrakul)
Technical Manager

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Report No. : 2024-500001363-2 / 001-2 (Page 4 of 6)

Issued date : May 31, 2024

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 Tel. 089-968-0061 E-Mail: SutthilukP@pttep.com

Analysis Report

SAMPLE DESIGNATED AS : Ambient Air Quality
SAMPLING LOCATION : NPI-B Production Phase
SAMPLING DATE : April 22-25, 2024
SAMPLING BY : Weerapong Pengtrakul
 โรงพยาบาลส่งเสริมสุขภาพตำบลบ้านดอนขาด หมู่ที่ 3 ต. วัดโบสถ์ อ. บางปลา มอ. จ. สุพรรณบุรี
 (UTM47P 0608791E, 1584854N)

TIME	April 22-23, 2024		April 23-24, 2024		April 24-25, 2024	
	WD	WS (m/s)	WD	WS (m/s)	WD	WS (m/s)
11:00-12:00	SW	2.2	W	3.1	SW	2.7
12:00-13:00	SSW	3.1	SW	3.1	SW	2.7
13:00-14:00	S	3.6	SW	3.6	SW	3.1
14:00-15:00	S	4.0	SW	3.6	SW	3.6
15:00-16:00	S	4.0	SSW	4.5	SW	3.6
16:00-17:00	SSW	4.0	SSW	4.5	SSW	4.0
17:00-18:00	SSW	4.0	SSW	4.5	SW	4.0
18:00-19:00	SW	3.6	SW	4.0	SW	3.1
19:00-20:00	WSW	2.7	WSW	2.2	SW	2.7
20:00-21:00	WSW	1.8	WSW	2.7	W	1.8
21:00-22:00	WSW	1.8	WSW	1.8	W	2.2
22:00-23:00	WSW	1.8	W	1.3	WSW	0.9
23:00-00:00	WSW	1.3	WSW	0.9	WSW	0.9
00:00-01:00	WSW	1.8	WSW	1.3	W	0.9
01:00-02:00	WSW	1.8	WSW	1.3	-	CALM
02:00-03:00	SW	2.7	WSW	1.3	WSW	1.8
03:00-04:00	SW	2.7	SW	2.2	SW	1.8
04:00-05:00	WSW	1.8	SW	2.7	SSW	1.8
05:00-06:00	WSW	2.2	WSW	1.8	SW	1.8
06:00-07:00	WSW	1.3	W	0.9	SW	1.8
07:00-08:00	WSW	1.8	WSW	1.8	SW	2.7
08:00-09:00	W	2.2	WSW	2.7	SW	3.1
09:00-10:00	W	3.1	WSW	2.7	SW	2.7
10:00-11:00	W	3.1	W	2.7	SW	2.7

Measurement Method : - Wind Speed and Wind Direction recording meter

Remarks :
 - WS = Wind Speed
 - WD = Wind Direction

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SGS (THAILAND) LIMITED



(Thepsan Yommana)
 Technical Manager

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Report No. : 2024-500001363-2 / 001-2 (Page 5 of 6)

Issued date : May 31, 2024

CLIENT : PTTEP International Limited
CONTACT : Khun Sutthiluk Phaisun
ADDRESS : 555/1 Energy Complex Vibhavadi-Rangsit Rd., Chatuchak, Bangkok 10900
 Tel. 089-968-0061 E-Mail: SutthilukP@pttep.com

Analysis Report

SAMPLE DESIGNATED AS : Ambient Air Quality
SAMPLING LOCATION : NPI-B Production Phase
SAMPLING DATE : April 22-25, 2024
SAMPLING BY : Weerapong Pengtrakul
 โรงพยาบาลส่งเสริมสุขภาพตำบลบ้านดอนขาด หมู่ที่ 3 ต. วัดโบสถ์ อ. บางปลาหม้อ จ. สุพรรณบุรี
 (UTM47P 0608791E, 1584854N)

Wind Speed Wind Direction	Percent of Wind Speed (%)				
	0.5-1.0 m/s	1.1-2.0 m/s	2.1-3.0 m/s	3.1-4.0 m/s	>4.0 m/s
N	-	-	-	-	-
NNE	-	-	-	-	-
NE	-	-	-	-	-
ENE	-	-	-	-	-
E	-	-	-	-	-
ESE	-	-	-	-	-
SE	-	-	-	-	-
SSE	-	-	-	-	-
S	-	-	-	4.17	-
SSW	-	1.39	-	5.56	4.17
SW	-	4.17	15.28	15.28	-
WSW	4.17	22.22	8.33	-	-
W	2.78	2.78	4.17	4.17	-
WNW	-	-	-	-	-
NW	-	-	-	-	-
NNW	-	-	-	-	-
CALM	1.39				

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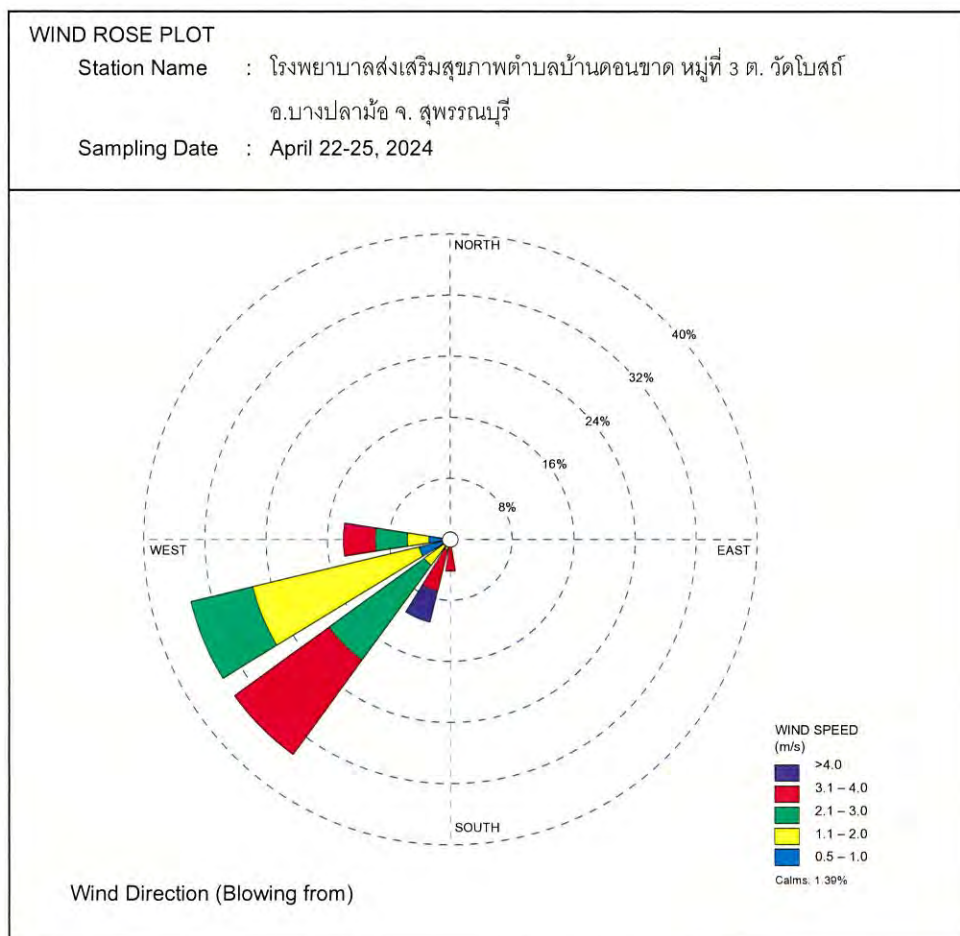
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Report No. : 2024-500001363-2 / 001-2 (Page 6 of 6) Issued date : May 31, 2024

CLIENT : PTTEP International Limited
CONTACT : Khun Sutthiluk Phaisun
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 Tel. 089-968-0061 E-Mail: SutthilukP@pttep.com

Analysis Report

SAMPLE DESIGNATED AS : Ambient Air Quality
SAMPLING LOCATION : NPI-B Production Phase
SAMPLING DATE : April 22-25, 2024
SAMPLING BY : Weerapong Pengtrakul
 โรงพยาบาลส่งเสริมสุขภาพตำบลบ้านดอนขาด หมู่ที่ 3 ต. วัดโบสถ์ อ.บางปลาม้า จ. สุพรรณบุรี
 (UTM47P 0608791E, 1584854N)



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Report No. : 2024-500001363-11 / 001-1 (Page 1 of 6) Issued date : September 11, 2024

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CONTACT : Khun Sutthiluk Phaisun
ADDRESS : 555/1 Energy Complex Vibhavadi-Rangsit Rd., Chatuchak, Chatuchak, Bangkok 10900
 Tel. 089-968-0061 E-Mail: SutthilukP@pttep.com

Analysis Report

SAMPLE DESIGNATED AS : Ambient Air Quality
SAMPLING LOCATION : NPI-B Production Phase
SAMPLING DATE : August 17-20, 2024
SAMPLING BY : Weerapong Pengtrakul
 วัดไผ่มั่ง ต. วังน้ำเย็น อ. บางปลา ม้า จ. สุพรรณบุรี
 (UTM47P 0608989E, 1588081N)

Sampling Date	TSP (mg/m ³)	PM-10 (mg/m ³)
August 17-18, 2024	0.041	0.019
August 18-19, 2024	0.038	0.013
August 19-20, 2024	0.036	0.013
Standard*	0.33	0.12

Remark: - Sampling and analytical technique for TSP based on High Volume Air Sampler / Gravimetric Method and PM10 based on Size Selective High Volume Air Sampler / Gravimetric Method.
Source: - The notification of the National Environment Board No. 24, B.E. 2547 (2004), subjected "The ambient air standards", published in the Royal Government Gazette, Vol. 121, Part 104D, dated September 22, B.E. 2547 (2004).

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Report No. : 2024-500001363-11 / 001-1 (Page 2 of 6) Issued date : September 11, 2024

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Analysis Report

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SAMPLING LOCATION : NPI-B Production Phase
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SAMPLING BY : Weerapong Pengtrakul
 วัดไผ่มั่ง ต. วังน้ำเย็น อ. บางปลา ม้า จ. สุพรรณบุรี
 (UTM47P 0608989E, 1588081N)

Time	NO ₂ Concentration (ppm)		
	August 17-18, 2024	August 18-19, 2024	August 19-20, 2024
09:00-10:00	0.021	0.010	0.017
10:00-11:00	0.017	0.010	0.014
11:00-12:00	0.015	0.007	0.008
12:00-13:00	0.014	0.009	0.005
13:00-14:00	0.013	0.007	0.006
14:00-15:00	0.011	0.006	0.006
15:00-16:00	0.010	0.007	0.004
16:00-17:00	0.009	0.006	0.005
17:00-18:00	0.006	0.005	0.003
18:00-19:00	0.006	0.002	0.001
19:00-20:00	0.005	0.002	0.001
20:00-21:00	0.004	0.003	0.002
21:00-22:00	0.005	0.003	0.002
22:00-23:00	0.006	0.003	0.004
23:00-00:00	0.007	0.005	0.006
00:00-01:00	0.006	0.005	0.005
01:00-02:00	0.006	0.006	0.006
02:00-03:00	0.008	0.008	0.006
03:00-04:00	0.012	0.010	0.008
04:00-05:00	0.010	0.009	0.007
05:00-06:00	0.005	0.012	0.010
06:00-07:00	0.006	0.011	0.005
07:00-08:00	0.008	0.011	0.004
08:00-09:00	0.011	0.014	0.004
1 hr.-Minimum	0.004	0.002	0.001
1 hr.-Maximum	0.021	0.014	0.017
Standard* (avg. 1 hr.)	0.17		

Analytical Method: - Chemiluminescence Method.

Source: The Notification of the National Environment Board No. 33, B.E. 2552 (2009), subjected "The nitrogen dioxide in ambient air standards", published in the Royal Government Gazette, Vol. 126, Special part 114D, dated August 14, B.E. 2552 (2009).

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Report No. : 2024-500001363-11 / 001-1 (Page 3 of 6) Issued date : September 11, 2024

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Analysis Report

SAMPLE DESIGNATED AS : Ambient Air Quality
SAMPLING LOCATION : NPI-B Production Phase
SAMPLING DATE : August 17-20, 2024
SAMPLING BY : Weerapong Pengtrakul
 วัดไผ่มั่ง ต. วังน้ำเย็น อ. บางปلام้า จ. สุพรรณบุรี
 (UTM47P 0608989E, 1588081N)

Time	SO ₂ Concentration (ppm)		
	August 17-18, 2024	August 18-19, 2024	August 19-20, 2024
09:00-10:00	0.001	0.001	0.001
10:00-11:00	0.001	0.001	0.001
11:00-12:00	0.001	0.001	0.001
12:00-13:00	0.001	0.001	0.001
13:00-14:00	0.001	0.001	0.001
14:00-15:00	0.002	0.002	0.002
15:00-16:00	0.002	0.002	0.002
16:00-17:00	0.002	0.002	0.002
17:00-18:00	0.002	0.002	0.002
18:00-19:00	0.002	0.002	0.002
19:00-20:00	0.002	0.002	0.001
20:00-21:00	0.002	0.002	0.001
21:00-22:00	0.002	0.002	0.002
22:00-23:00	0.002	0.002	0.001
23:00-00:00	0.002	0.002	0.002
00:00-01:00	0.002	0.002	0.002
01:00-02:00	0.002	0.002	0.002
02:00-03:00	0.002	0.002	0.002
03:00-04:00	0.002	0.002	0.002
04:00-05:00	0.002	0.002	0.002
05:00-06:00	0.002	0.002	0.002
06:00-07:00	0.002	0.002	0.002
07:00-08:00	0.002	0.002	0.002
08:00-09:00	0.002	0.002	0.002
1 hr.-Minimum	0.001	0.001	0.001
1 hr.-Maximum	0.002	0.002	0.002
avg. 24 hrs.	0.002	0.002	0.001
Standard* (avg. 1 hr.)	0.30		
Standard** (avg. 24 hr.)	0.12		

Analytical Method: - UV Fluorescence Method

Sources: Notification of the National Environment Board No.21, B.E. 2544 (2001), dated April 9, B.E. 2544 (2001)

Notification of the National Environment Board No.24, B.E. 2547 (2004), dated August 9, B.E. 2547 (2004)



SGS (THAILAND) LIMITED

(Weerapong Pengtrakul)
 Technical Manager

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Report No. : 2024-500001363-11 / 001-1 (Page 4 of 6) Issued date : September 11, 2024

CLIENT : PTTEP International Limited
CONTACT : Khun Sutthiluk Phaisun
ADDRESS : 555/1 Energy Complex Vibhavadi-Rangsit Rd., Chatuchak, Chatuchak, Bangkok 10900
Tel. 089-968-0061 E-Mail: SutthilukP@pttep.com

Analysis Report

SAMPLE DESIGNATED AS : Ambient Air Quality
SAMPLING LOCATION : NPI-B Production Phase
วัดไผ่มั่ง ต. วังน้ำเย็น อ. บางปละม้า จ. สุพรรณบุรี
(UTM47P 0608989E, 1588081N)

SAMPLING DATE : August 17-20, 2024
SAMPLING BY : Weerapong Pengtrakul

TIME	August 17-18, 2024		August 18-19, 2024		August 19-20, 2024	
	WD	WS (m/s)	WD	WS (m/s)	WD	WS (m/s)
09:00-10:00	SW	1.3	-	CALM	-	CALM
10:00-11:00	SW	0.9	-	CALM	-	CALM
11:00-12:00	SW	0.9	WSW	0.9	-	CALM
12:00-13:00	-	CALM	E	0.9	-	CALM
13:00-14:00	-	CALM	ESE	0.9	E	0.9
14:00-15:00	ESE	0.9	ESE	1.3	-	CALM
15:00-16:00	ESE	0.9	E	0.9	-	CALM
16:00-17:00	-	CALM	-	CALM	NE	0.9
17:00-18:00	-	CALM	SSE	1.1	NE	0.9
18:00-19:00	-	CALM	SE	0.9	-	CALM
19:00-20:00	WSW	3.1	SW	0.9	-	CALM
20:00-21:00	WSW	1.8	WSW	0.9	-	CALM
21:00-22:00	W	1.3	-	CALM	E	0.9
22:00-23:00	SW	0.9	-	CALM	-	CALM
23:00-00:00	-	CALM	E	0.9	-	CALM
00:00-01:00	SSE	0.9	-	CALM	E	0.9
01:00-02:00	-	CALM	E	0.9	ENE	0.9
02:00-03:00	-	CALM	-	CALM	-	CALM
03:00-04:00	-	CALM	S	0.9	NE	0.9
04:00-05:00	-	CALM	-	CALM	-	CALM
05:00-06:00	SW	0.9	SSW	0.9	-	CALM
06:00-07:00	SW	0.9	N	1.1	E	0.9
07:00-08:00	-	CALM	SSW	0.9	NE	0.9
08:00-09:00	-	CALM	E	0.9	-	CALM

Measurement Method: - Wind Speed and Wind Direction recording meter

Remarks: - WS = Wind Speed
- WD = Wind Direction

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(Inepsan Yommana)
Technical Manager

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Report No. : 2024-500001363-11 / 001-1 (Page 5 of 6) Issued date : September 11, 2024

CLIENT : PTTEP International Limited
CONTACT : Khun Sutthiluk Phaisun
ADDRESS : 555/1 Energy Complex Vibhavadi-Rangsit Rd., Chatuchak, Bangkok 10900
Tel. 089-968-0061 E-Mail: SutthilukP@pttep.com

Analysis Report

SAMPLE DESIGNATED AS : Ambient Air Quality
SAMPLING LOCATION : NPI-B Production Phase
SAMPLING DATE : August 17-20, 2024
SAMPLING BY : Weerapong Pengtrakul
วัดไผ่มั่ง ต. วังน้ำเย็น อ. บางปลา ม้า จ. สุพรรณบุรี
(UTM47P 0608989E, 1588081N)

Wind Speed Wind Direction	Percent of Wind Speed (%)				
	0.5-1.0 m/s	1.1-2.0 m/s	2.1-3.0 m/s	3.1-4.0 m/s	>4.0 m/s
N	-	1.39	-	-	-
NNE	-	-	-	-	-
NE	5.56	-	-	-	-
ENE	1.39	-	-	-	-
E	12.50	-	-	-	-
ESE	4.17	1.39	-	-	-
SE	1.39	-	-	-	-
SSE	1.39	1.39	-	-	-
S	1.39	-	-	-	-
SSW	2.78	-	-	-	-
SW	8.33	1.39	-	-	-
WSW	2.78	1.39	-	1.39	-
W	-	1.39	-	-	-
WNW	-	-	-	-	-
NW	-	-	-	-	-
NNW	-	-	-	-	-
CALM	48.61				

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(Thepsan Yommana)
Technical Manager

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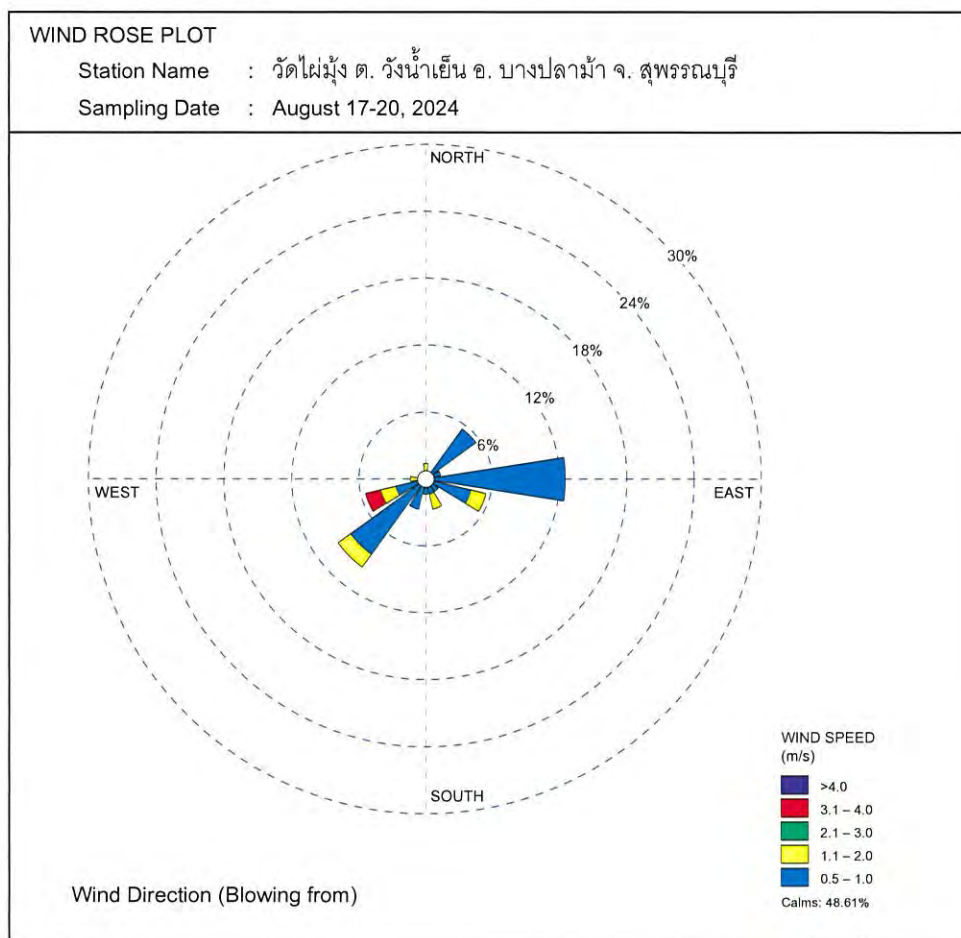
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Report No. : 2024-500001363-11 / 001-1 (Page 6 of 6) Issued date : September 11, 2024

CLIENT : PTTEP International Limited
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 Tel. 089-968-0061 E-Mail: SutthilukP@pttep.com

Analysis Report

SAMPLE DESIGNATED AS : Ambient Air Quality
SAMPLING LOCATION : NPI-B Production Phase
SAMPLING DATE : August 17-20, 2024
SAMPLING BY : Weerapong Pengtrakul
 วัดไผ่มั่ง ต. วังน้ำเย็น อ. บางปلام้า จ. สุพรรณบุรี
 (UTM47P 0608989E, 1588081N)



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SGS (THAILAND) LIMITED

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Report No. : 2024-500001361-11 / 001-2 (Page 1 of 6) Issued date : September 11, 2024

CLIENT : PTTEP International Limited
CONTACT : Khun Sutthiluk Phaisun
ADDRESS : 555/1 Energy Complex Vibhavadi-Rangsit Rd., Chatuchak, Chatuchak, Bangkok 10900
 Tel. 089-968-0061 E-Mail: SutthilukP@pttep.com

Analysis Report

SAMPLE DESIGNATED AS : Ambient Air Quality
SAMPLING LOCATION : NPI-B Production Phase
SAMPLING DATE : August 17-20, 2024
SAMPLING BY : Weerapong Pengtrakul
 โรงพยาบาลส่งเสริมสุขภาพตำบลบ้านดอนขาด หมู่ที่ 3 ต. วัดโบสถ์ อ. บางปาลม้อ จ. สุพรรณบุรี
 (UTM47P 0611203E, 1589772N)

Sampling Date	TSP (mg/m ³)	PM-10 (mg/m ³)
August 17-18, 2024	0.028	0.019
August 18-19, 2024	0.026	0.018
August 19-20, 2024	0.026	0.019
Standard*	0.33	0.12

Remark: - Sampling and analytical technique for TSP based on High Volume Air Sampler / Gravimetric Method and PM10 based on Size Selective High Volume Air Sampler / Gravimetric Method.
Source: - The notification of the National Environment Board No. 24, B.E. 2547 (2004), subjected "The ambient air standards", published in the Royal Government Gazette, Vol. 121, Part 104D, dated September 22, B.E. 2547 (2004)

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(Thepsan Yommana)
 Technical Manager

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Report No. : 2024-500001363-11 / 001-2 (Page 2 of 6) Issued date : September 11, 2024

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Tel. 089-968-0061 E-Mail: SutthilukP@pttep.com

Analysis Report

SAMPLE DESIGNATED AS : Ambient Air Quality
SAMPLING LOCATION : NPI-B Production Phase
SAMPLING DATE : August 17-20, 2024
SAMPLING BY : Weerapong Pengtrakul
โรงพยาบาลส่งเสริมสุขภาพตำบลบ้านดอนขาด หมู่ที่ 3 ต. วัดโบสถ์ อ. บางปลา มอ. จ. สุพรรณบุรี
(UTM47P 0611203E, 1589772N)

Time	NO ₂ Concentration (ppm)		
	August 17-18, 2024	August 18-19, 2024	August 19-20, 2024
09:00-10:00	0.005	0.006	0.005
10:00-11:00	0.006	0.006	0.005
11:00-12:00	0.001	0.003	0.008
12:00-13:00	0.004	0.013	0.008
13:00-14:00	0.007	0.008	0.006
14:00-15:00	0.005	0.003	0.002
15:00-16:00	0.003	0.004	0.005
16:00-17:00	0.005	0.002	0.001
17:00-18:00	0.007	0.003	0.007
18:00-19:00	0.010	0.004	0.008
19:00-20:00	0.013	0.006	0.009
20:00-21:00	0.013	0.005	0.009
21:00-22:00	0.014	0.011	0.011
22:00-23:00	0.010	0.012	0.008
23:00-00:00	0.008	0.014	0.007
00:00-01:00	0.010	0.014	0.003
01:00-02:00	0.011	0.012	0.009
02:00-03:00	0.011	0.014	0.006
03:00-04:00	0.013	0.015	0.005
04:00-05:00	0.017	0.009	0.010
05:00-06:00	0.010	0.005	0.013
06:00-07:00	0.006	0.004	0.002
07:00-08:00	0.007	0.004	0.004
08:00-09:00	0.004	0.005	0.002
1 hr.-Minimum	0.001	0.002	0.001
1 hr.-Maximum	0.017	0.015	0.013
Standard* (avg. 1 hr.)	0.17		

Analytical Method: - Chemiluminescence Method
Source: The Notification of the National Environment Board No. 33, B.E. 2552 (2009), subjected "The nitrogen dioxide in ambient air standards", published in the Royal Government Gazette, Vol. 126, Special part 114D, dated August 14, B.E. 2552 (2009)

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Technical Manager

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Report No. : 2024-500001361-11 / 001-2 (Page 3 of 6) Issued date : September 11, 2024

CLIENT : PTTEP International Limited
CONTACT : Khun Sutthiluk Phaisun
ADDRESS : 555/1 Energy Complex Vibhavadi-Rangsit Rd., Chatuchak, Bangkok 10900
 Tel. 089-968-0061 E-Mail: SutthilukP@pttep.com

Analysis Report

SAMPLE DESIGNATED AS : Ambient Air Quality
SAMPLING LOCATION : NPI-B Production Phase
SAMPLING DATE : August 17-20, 2024
SAMPLING BY : Weerapong Pengtrakul
 โรงพยาบาลส่งเสริมสุขภาพตำบลบ้านดอนขาต หมู่ที่ 3 ต. วัดโบสถ์ อ.บางปلام้อ จ. สุพรรณบุรี
 (UTM47P 0611203E, 1589772N)

Time	SO ₂ Concentration (ppm)		
	August 17-18, 2024	August 18-19, 2024	August 19-20, 2024
09:00-10:00	0.002	0.001	0.001
10:00-11:00	0.002	0.001	0.001
11:00-12:00	0.002	0.001	0.001
12:00-13:00	0.002	0.001	0.001
13:00-14:00	0.002	0.001	0.001
14:00-15:00	0.002	0.001	0.001
15:00-16:00	0.002	0.001	0.001
16:00-17:00	0.002	0.001	0.001
17:00-18:00	0.002	0.001	0.001
18:00-19:00	0.002	0.001	0.001
19:00-20:00	0.001	0.001	0.001
20:00-21:00	0.001	0.001	0.001
21:00-22:00	0.001	0.001	0.001
22:00-23:00	0.001	0.001	0.001
23:00-00:00	0.001	0.001	0.001
00:00-01:00	0.002	0.002	0.002
01:00-02:00	0.001	0.002	0.001
02:00-03:00	0.001	0.002	0.001
03:00-04:00	0.001	0.002	0.001
04:00-05:00	0.001	0.002	0.001
05:00-06:00	0.001	0.002	0.001
06:00-07:00	0.001	0.002	0.001
07:00-08:00	0.001	0.002	0.001
08:00-09:00	0.001	0.002	0.001
1 hr.-Minimum	0.001	0.001	0.001
1 hr.-Maximum	0.002	0.002	0.002
avg. 24 hrs.	0.001	0.001	0.001
Standard* (avg. 1 hr.)	0.30		
Standard** (avg. 24 hrs.)	0.12		

Analytical Method: - UV Fluorescence Method

Source: Notification of the National Environment Board No.21, B.E. 2544 (2001), dated April 9, B.E. 2544 (2001)

Notification of the National Environment Board No.24, B.E. 2547 (2004), dated August 9, B.E. 2547 (2004)



(Thepsan Yommana)
 Technical Manager

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Report No. : 2024-500001361-11 / 001-2 (Page 4 of 6) Issued date : September 11, 2024

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 Tel. 089-968-0061 E-Mail: SutthilukP@pttep.com

Analysis Report

SAMPLE DESIGNATED AS : Ambient Air Quality
SAMPLING LOCATION : NPI-B Production Phase
SAMPLING DATE : August 17-20, 2024
SAMPLING BY : Weerapong Pengtrakul
 โรงพยาบาลส่งเสริมสุขภาพตำบลบ้านดอนขาต หมู่ที่ 3 ต. วัดโบสถ์ อ. บางปลา มอ. จ. สุพรรณบุรี
 (UTM47P 0611203E, 1589772N)

TIME	August 17-18, 2024		August 18-19, 2024		August 19-20, 2024	
	WD	WS (m/s)	WD	WS (m/s)	WD	WS (m/s)
09:00-10:00	W	2.2	WSW	2.2	W	1.8
10:00-11:00	W	2.2	SW	0.9	WSW	2.2
11:00-12:00	WSW	2.7	SW	0.9	W	1.8
12:00-13:00	SW	1.3	E	0.9	WSW	1.3
13:00-14:00	W	0.9	E	1.3	W	1.8
14:00-15:00	-	CALM	ESE	1.8	NW	0.9
15:00-16:00	-	CALM	SW	1.8	WSW	0.9
16:00-17:00	WSW	0.9	SW	2.2	-	CALM
17:00-18:00	SW	1.3	SW	2.2	SSW	0.9
18:00-19:00	SW	0.9	WSW	1.3	SW	0.9
19:00-20:00	NW	2.7	W	1.3	SW	0.9
20:00-21:00	NW	1.3	WNW	1.3	SW	3.6
21:00-22:00	SW	0.9	SW	3.6	SW	3.6
22:00-23:00	SSW	0.9	WSW	2.2	SW	2.2
23:00-00:00	WSW	0.9	SW	2.2	-	CALM
00:00-01:00	WSW	0.9	WSW	1.8	-	CALM
01:00-02:00	-	CALM	WSW	1.8	SW	0.9
02:00-03:00	-	CALM	WSW	0.9	W	1.8
03:00-04:00	-	CALM	SW	1.3	SW	1.3
04:00-05:00	W	1.3	SW	1.8	-	CALM
05:00-06:00	W	1.8	SW	1.8	-	CALM
06:00-07:00	NW	0.9	SW	1.3	-	CALM
07:00-08:00	SW	0.9	WSW	1.3	-	CALM
08:00-09:00	SW	1.3	WSW	1.8	SE	0.9

Measurement Method: - Wind Speed and Wind Direction recording meter

Remarks:
 - WS = Wind Speed
 - WD = Wind Direction



(Nepson Yommana)
 Technical Manager

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Report No. : 2024-500001363-11 / 001-2 (Page 5 of 6) Issued date : September 11, 2024

CLIENT : PTTEP International Limited
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Analysis Report

SAMPLE DESIGNATED AS : Ambient Air Quality
SAMPLING LOCATION : NPI-B Production Phase
SAMPLING DATE : August 17-20, 2024
SAMPLING BY : Weerapong Pengtrakul
โรงพยาบาลส่งเสริมสุขภาพตำบลบ้านดอนขาต หมู่ที่ 3 ต. วัดโบสถ์ อ.บางปلام้า จ. สุพรรณบุรี
(UTM47P 0611203E, 1589772N)

Wind Speed Wind Direction	Percent of Wind Speed (%)				
	0.5-1.0 m/s	1.1-2.0 m/s	2.1-3.0 m/s	3.1-4.0 m/s	>4.0 m/s
N	-	-	-	-	-
NNE	-	-	-	-	-
NE	-	-	-	-	-
ENE	-	-	-	-	-
E	1.39	1.39	-	-	-
ESE	-	1.39	-	-	-
SE	1.39	-	-	-	-
SSE	-	-	-	-	-
S	-	-	-	-	-
SSW	2.78	-	-	-	-
SW	11.11	12.50	5.56	4.17	-
WSW	6.94	8.33	5.56	-	-
W	1.39	9.72	2.78	-	-
WNW	-	1.39	-	-	-
NW	2.78	1.39	1.39	-	-
NNW	-	-	-	-	-
CALM	16.67				

TY/WP/NT/NT



(Thepsan Yommana)
Technical Manager

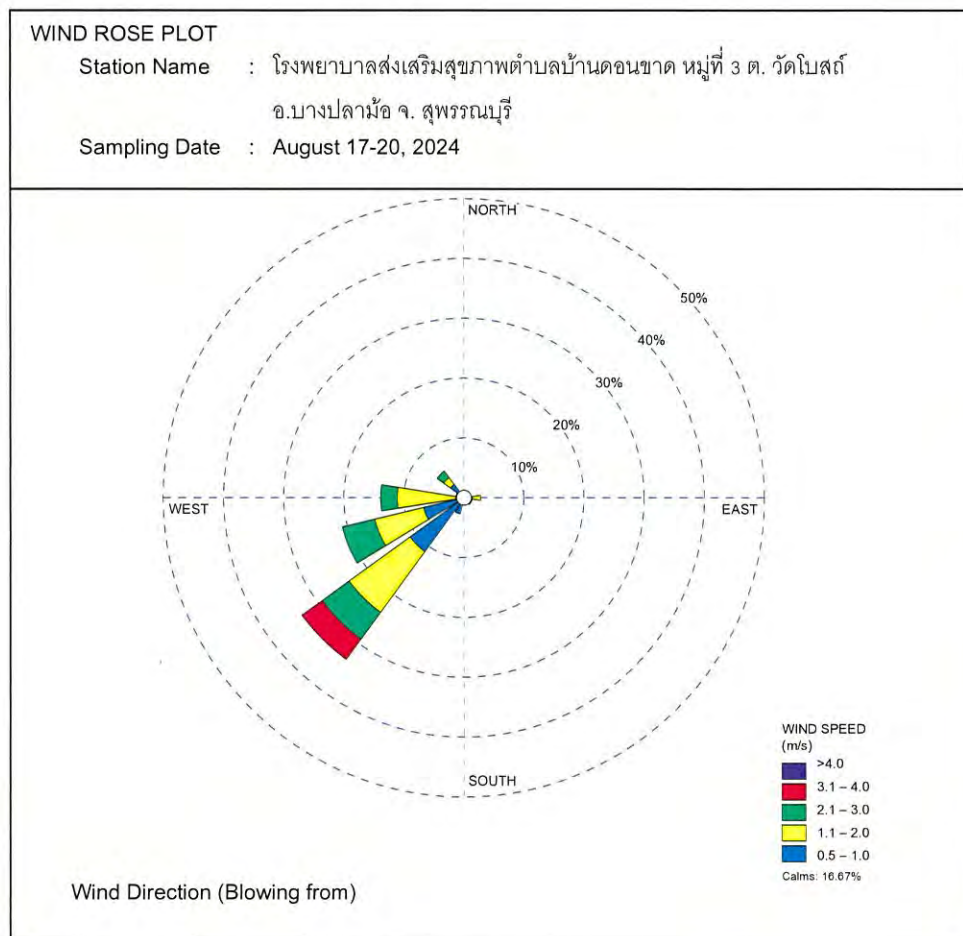
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Report No. : 2024-500001363-11 / 001-2 (Page 6 of 6) Issued date : September 11, 2024

CLIENT : PTTEP International Limited
CONTACT : Khun Sutthiluk Phaisun
ADDRESS : 555/1 Energy Complex Vibhavadi-Rangsit Rd., Chatuchak, Chatuchak, Bangkok 10900
 Tel. 089-968-0061 E-Mail: SutthilukP@pttep.com

Analysis Report

SAMPLE DESIGNATED AS : Ambient Air Quality
SAMPLING LOCATION : NPI-B Production Phase
SAMPLING DATE : August 17-20, 2024
SAMPLING BY : Weerapong Pengtrakul
 โรงพยาบาลส่งเสริมสุขภาพตำบลบ้านดอนขาด หมู่ที่ 3 ต. วัดโบสถ์ อ.บางปลาม้า จ. สุพรรณบุรี
 (UTM47P 0611203E, 1589772N)



TY/WP/NT/NT



(Inepsan Yommana)
 Technical Manager

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IE 010146

Report No. : 2024-500001363-13 / 001-1 (Page 1 of 6) Issued date : September 11, 2024

CLIENT : PTTEP International Limited
CONTACT : Khun Sutthiluk Phaisun
ADDRESS : 555/1 Energy Complex Vibhavadi-Rangsit Rd., Chatuchak, Chatuchak, Bangkok 10900
 Tel. 089-968-0061 E-Mail: SutthilukP@pttep.com

Analysis Report

SAMPLE DESIGNATED AS : Ambient Air Quality **SAMPLING DATE** : August 13-16, 2024
SAMPLING LOCATION : NPI-C Production Phase **SAMPLING BY** : Weerapong Pengtrakul

Sampling Date	TSP (mg/m ³)	PM-10 (mg/m ³)
August 13-14, 2024	0.046	0.017
August 14-15, 2024	0.040	0.018
August 15-16, 2024	0.047	0.020
Standard*	0.33	0.12

Remark : - Sampling and analytical technique for TSP based on High Volume Air Sampler / Gravimetric Method and PM10 based on Size Selective High Volume Air Sampler / Gravimetric Method.

Source : * The notification of the National Environment Board No. 24, B.E. 2547 (2004), subjected "The ambient air standards", published in the Royal Government Gazette, Vol. 121, Part 104D, dated September 22, B.E. 2547 (2004).

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(Thepsan Yommana)
 Technical Manager

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Report No. : 2024-500001363-13 / 001-1 (Page 2 of 6) Issued date : September 11, 2024

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ADDRESS : 555/1 Energy Complex Vibhavadi-Rangsit Rd., Chatuchak, Chatuchak, Bangkok 10900
 Tel. 089-968-0061 E-Mail: SutthilukP@pttep.com

Analysis Report

SAMPLE DESIGNATED AS : Ambient Air Quality **SAMPLING DATE** : August 13-16, 2024
SAMPLING LOCATION : NPI-C Production Phase **SAMPLING BY** : Weerapong Pengtrakul

Time	NO ₂ Concentration (ppm)		
	August 13-14, 2024	August 14-15, 2024	August 15-16, 2024
11:00-12:00	0.005	0.007	0.007
12:00-13:00	0.006	0.006	0.007
13:00-14:00	0.007	0.007	0.008
14:00-15:00	0.006	0.008	0.006
15:00-16:00	0.007	0.007	0.007
16:00-17:00	0.007	0.007	0.006
17:00-18:00	0.006	0.010	0.006
18:00-19:00	0.007	0.007	0.007
19:00-20:00	0.008	0.007	0.007
20:00-21:00	0.007	0.008	0.009
21:00-22:00	0.009	0.008	0.008
22:00-23:00	0.007	0.007	0.007
23:00-00:00	0.007	0.007	0.007
00:00-01:00	0.007	0.007	0.007
01:00-02:00	0.007	0.007	0.007
02:00-03:00	0.008	0.006	0.007
03:00-04:00	0.008	0.007	0.007
04:00-05:00	0.007	0.007	0.007
05:00-06:00	0.007	0.008	0.007
06:00-07:00	0.007	0.007	0.006
07:00-08:00	0.007	0.006	0.007
08:00-09:00	0.010	0.007	0.006
09:00-10:00	0.007	0.006	0.009
10:00-11:00	0.007	0.008	0.006
1 hr.-Minimum	0.005	0.006	0.006
1 hr.-Maximum	0.010	0.010	0.009
Standard* (avg. 1 hr.)	0.17		

Analytical Method : - Chemiluminescence Method.

Source : The Notification of the National Environment Board No. 33, B.E. 2552 (2009), subjected "The nitrogen dioxide in ambient air standards", published in the Royal Government Gazette, Vol. 126, Special part 114D, dated August 14, B.E. 2552 (2009).

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SGS (THAILAND) LIMITED



Thipsan Y.
 (Thepsan Yommana)
 Technical Manager

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Report No. : 2024-500001363-13 / 001-1 (Page 3 of 6) Issued date : September 11, 2024

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CONTACT : Khun Sutthiluk Phaisun
ADDRESS : 555/1 Energy Complex Vibhavadi-Rangsit Rd., Chatuchak, Chatuchak, Bangkok 10900
Tel. 089-968-0061 E-Mail: SutthilukP@pttep.com

Analysis Report

SAMPLE DESIGNATED AS : Ambient Air Quality **SAMPLING DATE** : August 13-16, 2024
SAMPLING LOCATION : NPI-C Production Phase **SAMPLING BY** : Weerapong Pengtrakul

Time	SO ₂ Concentration (ppm)		
	August 13-14, 2024	August 14-15, 2024	August 15-16, 2024
11:00-12:00	0.003	0.003	0.004
12:00-13:00	0.004	0.004	0.003
13:00-14:00	0.003	0.003	0.004
14:00-15:00	0.002	0.004	0.004
15:00-16:00	0.002	0.004	0.004
16:00-17:00	0.003	0.006	0.003
17:00-18:00	0.004	0.006	0.004
18:00-19:00	0.005	0.004	0.004
19:00-20:00	0.003	0.004	0.004
20:00-21:00	0.004	0.004	0.003
21:00-22:00	0.003	0.003	0.003
22:00-23:00	0.003	0.004	0.004
23:00-00:00	0.004	0.004	0.005
00:00-01:00	0.005	0.005	0.004
01:00-02:00	0.004	0.003	0.004
02:00-03:00	0.006	0.002	0.003
03:00-04:00	0.007	0.006	0.007
04:00-05:00	0.007	0.005	0.005
05:00-06:00	0.005	0.007	0.008
06:00-07:00	0.007	0.007	0.004
07:00-08:00	0.005	0.004	0.005
08:00-09:00	0.004	0.003	0.006
09:00-10:00	0.004	0.003	0.003
10:00-11:00	0.003	0.003	0.002
1 hr.-Minimum	0.002	0.002	0.002
1 hr.-Maximum	0.007	0.007	0.008
avg. 24 hrs.	0.004	0.004	0.004
Standard* (avg. 1 hr.)	0.30		
Standard** (avg. 24 hrs.)	0.12		

Analytical Method : - UV Fluorescence Method

Source : Notification of the National Environment Board No.21, B.E. 2544 (2001), dated April 9, B.E. 2544 (2001)

Notification of the National Environment Board No.24, B.E. 2547 (2004), da

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(Thepsan Yommana)
Technical Manager

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IE 009211

Report No. : 2024-500001363-13 / 001-1 (Page 4 of 6) Issued date : September 11, 2024

CLIENT : PTTEP International Limited
CONTACT : Khun Sutthiluk Phaisun
ADDRESS : 555/1 Energy Complex Vibhavadi-Rangsit Rd., Chatuchak, Chatuchak, Bangkok 10900
Tel. 089-968-0061 E-Mail: SutthilukP@pttep.com

Analysis Report

SAMPLE DESIGNATED AS : Ambient Air Quality **SAMPLING DATE** : August 13-16, 2024
SAMPLING LOCATION : NPI-C Production Phase **SAMPLING BY** : Weerapong Pengtrakul

TIME	August 13-14, 2024		August 14-15, 2024		August 15-16, 2024	
	WD	WS (m/s)	WD	WS (m/s)	WD	WS (m/s)
11:00-12:00	SW	2.2	SW	1.3	W	0.9
12:00-13:00	SW	1.8	SW	1.3	SW	0.9
13:00-14:00	SW	2.2	SW	1.8	SW	0.9
14:00-15:00	SW	2.7	SW	2.2	SW	0.9
15:00-16:00	SW	2.7	SW	2.2	SW	0.9
16:00-17:00	SW	2.7	SW	1.3	SW	1.8
17:00-18:00	WNW	3.1	S	0.9	ENE	1.3
18:00-19:00	W	1.8	SW	2.2	---	CALM
19:00-20:00	WNW	0.9	SW	2.7	SW	0.9
20:00-21:00	SW	0.9	WSW	0.9	SW	1.3
21:00-22:00	S	0.9	SW	0.9	SW	0.9
22:00-23:00	SW	1.8	SW	0.9	SW	0.9
23:00-00:00	SW	1.3	SW	1.3	SW	0.9
00:00-01:00	SW	0.9	SW	1.3	SW	0.9
01:00-02:00	WSW	0.9	---	CALM	SW	0.9
02:00-03:00	SW	1.3	SW	1.3	SW	1.3
03:00-04:00	SW	1.3	---	CALM	SW	1.3
04:00-05:00	---	CALM	---	CALM	---	CALM
05:00-06:00	---	CALM	---	CALM	SW	0.9
06:00-07:00	---	CALM	---	CALM	---	CALM
07:00-08:00	---	CALM	---	CALM	---	CALM
08:00-09:00	---	CALM	W	0.9	W	0.9
09:00-10:00	W	0.9	WNW	1.3	W	0.9
10:00-11:00	WNW	0.9	WNW	0.9	WNW	0.9

Measurement Method : - Wind Speed and Wind Direction recording meter

Remarks :
- WS = Wind Speed
- WD = Wind Direction

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(Thepsan Yommana)
Technical Manager

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Report No. : 2024-500001363-13 / 001-1 (Page 5 of 6) Issued date : September 11, 2024

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CONTACT : Khun Sutthiluk Phaisun
ADDRESS : 555/1 Energy Complex Vibhavadi-Rangsit Rd., Chatuchak, Chatuchak, Bangkok 10900
 Tel. 089-968-0061 E-Mail: SutthilukP@pttep.com

Analysis Report

SAMPLE DESIGNATED AS : Ambient Air Quality **SAMPLING DATE** : August 13-16, 2024
SAMPLING LOCATION : NPI-C Production Phase **SAMPLING BY** : Weerapong Pengtrakul

Wind Speed Wind Direction	Percent of Wind Speed (%)				
	0.5-1.0 m/s	1.1-2.0 m/s	2.1-3.0 m/s	3.1-4.0 m/s	>4.0 m/s
N	-	-	-	-	-
NNE	-	-	-	-	-
NE	-	-	-	-	-
ENE	-	1.39	-	-	-
E	-	-	-	-	-
ESE	-	-	-	-	-
SE	-	-	-	-	-
SSE	-	-	-	-	-
S	2.78	-	-	-	-
SSW	-	-	-	-	-
SW	20.83	22.22	12.50	-	-
WSW	2.78	-	-	-	-
W	6.94	1.39	-	-	-
WNW	5.56	1.39	-	1.39	-
NW	-	-	-	-	-
NNW	-	-	-	-	-
CALM	20.83				

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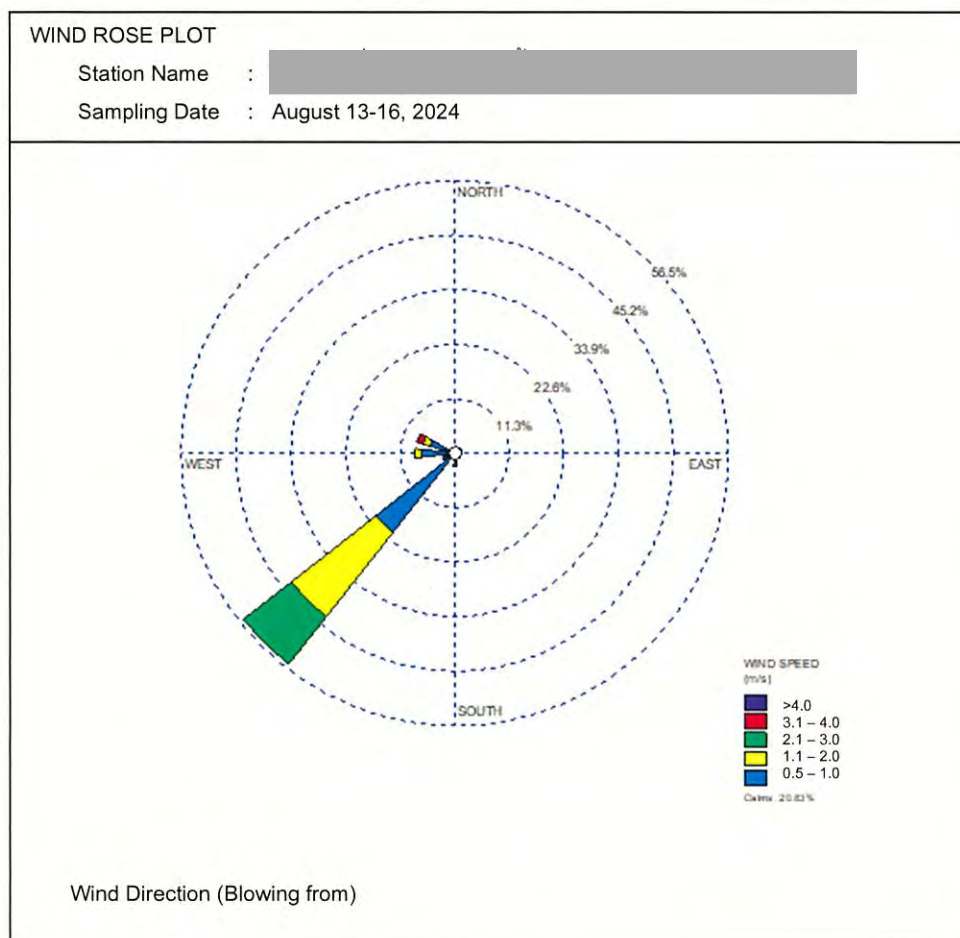
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Report No. : 2024-500001363-13 / 001-1 (Page 6 of 6) Issued date : September 11, 2024

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Analysis Report

SAMPLE DESIGNATED AS : Ambient Air Quality **SAMPLING DATE** : August 13-16, 2024
SAMPLING LOCATION : NPI-C Production Phase **SAMPLING BY** : Weerapong Pengtrakul



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IE 009214

Report No. : 2024-500001363-13 / 001-2 (Page 1 of 6) Issued date : September 11, 2024

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Analysis Report

SAMPLE DESIGNATED AS : Ambient Air Quality **SAMPLING DATE** : August 13-16, 2024
SAMPLING LOCATION : NPI-C Production Phase **SAMPLING BY** : Weerapong Pengtrakul

Sampling Date	TSP (mg/m ³)	PM-10 (mg/m ³)
August 13-14, 2024	0.039	0.017
August 14-15, 2024	0.040	0.023
August 15-16, 2024	0.039	0.022
Standard*	0.33	0.12

Remark : - Sampling and analytical technique for TSP based on High Volume Air Sampler / Gravimetric Method and PM10 based on Size Selective High Volume Air Sampler / Gravimetric Method.
Source : * The notification of the National Environment Board No. 24, B.E. 2547 (2004), subjected "The ambient air standards", published in the Royal Government Gazette, Vol. 121, Part 104D, dated September 22, B.E. 2547 (2004).

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IE 009215

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 Tel. 089-968-0061 E-Mail: SutthilukP@pttep.com

Analysis Report

SAMPLE DESIGNATED AS : Ambient Air Quality **SAMPLING DATE** : August 13-16, 2024
SAMPLING LOCATION : NPI-C Production Phase **SAMPLING BY** : Weerapong Pengtrakul

Time	NO ₂ Concentration (ppm)		
	August 13-14, 2024	August 14-15, 2024	August 15-16, 2024
09:00-10:00	0.004	0.005	0.005
10:00-11:00	0.003	0.008	0.005
11:00-12:00	0.003	0.012	0.005
12:00-13:00	0.004	0.009	0.004
13:00-14:00	0.004	0.012	0.004
14:00-15:00	0.005	0.009	0.005
15:00-16:00	0.004	0.010	0.005
16:00-17:00	0.004	0.010	0.006
17:00-18:00	0.005	0.010	0.006
18:00-19:00	0.005	0.012	0.004
19:00-20:00	0.007	0.008	0.005
20:00-21:00	0.005	0.009	0.005
21:00-22:00	0.005	0.011	0.005
22:00-23:00	0.005	0.009	0.006
23:00-00:00	0.005	0.008	0.005
00:00-01:00	0.005	0.008	0.006
01:00-02:00	0.008	0.007	0.008
02:00-03:00	0.006	0.006	0.007
03:00-04:00	0.005	0.006	0.005
04:00-05:00	0.005	0.007	0.005
05:00-06:00	0.006	0.008	0.006
06:00-07:00	0.005	0.004	0.006
07:00-08:00	0.005	0.006	0.006
08:00-00:00	0.004	0.004	0.010
1 hr.-Minimum	0.003	0.004	0.004
1 hr.-Maximum	0.008	0.012	0.010
Standard* (avg. 1 hr.)	0.17		

Analytical Method : - Chemiluminescence Method.

Source : The Notification of the National Environment Board No. 33, B.E. 2552 (2009), subjected "The nitrogen dioxide in ambient air standards", published in the Royal Government Gazette, Vol. 126, Special part 114D, dated August 14, B.E. 2552 (2009).

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Analysis Report

SAMPLE DESIGNATED AS : Ambient Air Quality **SAMPLING DATE** : August 13-16, 2024
SAMPLING LOCATION : NPI-C Production Phase **SAMPLING BY** : Weerapong Pengtrakul

Time	SO ₂ Concentration (ppm)		
	August 13-14, 2024	August 14-15, 2024	August 15-16, 2024
09:00-10:00	0.003	0.003	0.003
10:00-11:00	0.004	0.003	0.005
11:00-12:00	0.003	0.005	0.003
12:00-13:00	0.006	0.004	0.003
13:00-14:00	0.004	0.003	0.004
14:00-15:00	0.003	0.003	0.003
15:00-16:00	0.004	0.004	0.004
16:00-17:00	0.003	0.004	0.004
17:00-18:00	0.002	0.003	0.002
18:00-19:00	0.004	0.003	0.002
19:00-20:00	0.003	0.004	0.003
20:00-21:00	0.003	0.003	0.004
21:00-22:00	0.003	0.003	0.003
22:00-23:00	0.003	0.004	0.004
23:00-00:00	0.004	0.003	0.003
00:00-01:00	0.004	0.003	0.004
01:00-02:00	0.003	0.005	0.005
02:00-03:00	0.003	0.004	0.003
03:00-04:00	0.003	0.003	0.003
04:00-05:00	0.005	0.003	0.003
05:00-06:00	0.003	0.003	0.003
06:00-07:00	0.003	0.005	0.004
07:00-08:00	0.004	0.006	0.003
08:00-00:00	0.003	0.003	0.003
1 hr.-Minimum	0.002	0.003	0.002
1 hr.-Maximum	0.006	0.006	0.005
avg. 24 hrs.	0.003	0.004	0.003
Standard* (avg. 1 hr.)	0.30		
Standard** (avg. 24 hrs.)	0.12		

Analytical Method : - UV Fluorescence Method

Source : Notification of the National Environment Board No.21, B.E. 2544 (2001), dated April 9, B.E. 2544 (2001)
 Notification of the National Environment Board No.24, B.E. 2547 (2004), dated August 9, B.E. 2547 (2004)



(Thepsan Yommana)
 Technical Manager

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Report No. : 2024-500001363-13 / 001-2 (Page 4 of 6) Issued date : September 11, 2024

CLIENT : PTTEP International Limited
CONTACT : Khun Sutthiluk Phaisun
ADDRESS : 555/1 Energy Complex Vibhavadi-Rangsit Rd., Chatuchak, Chatuchak, Bangkok 10900
 Tel. 089-968-0061 E-Mail: SutthilukP@pttep.com

Analysis Report

SAMPLE DESIGNATED AS : Ambient Air Quality **SAMPLING DATE** : August 13-16, 2024
SAMPLING LOCATION : NPI-C Production Phase **SAMPLING BY** : Weerapong Pengtrakul

TIME	August 13-14, 2024		August 14-15, 2024		August 15-16, 2024	
	WD	WS (m/s)	WD	WS (m/s)	WD	WS (m/s)
09:00-10:00	SSW	3.1	SW	2.2	W	1.8
10:00-11:00	SW	2.7	SSW	2.7	SW	1.8
11:00-12:00	SW	2.7	SW	2.7	SW	1.8
12:00-13:00	SW	3.1	WSW	3.1	S	2.2
13:00-14:00	SSW	3.1	SW	2.7	SW	2.7
14:00-15:00	SW	2.7	S	2.2	WNW	2.7
15:00-16:00	WSW	3.1	SW	2.2	WNW	2.2
16:00-17:00	WNW	3.1	SW	3.1	ENE	1.8
17:00-18:00	W	2.7	SSW	3.1	SW	1.8
18:00-19:00	SW	2.7	SW	1.8	SSW	1.3
19:00-20:00	SSE	3.1	WSW	1.3	SW	1.3
20:00-21:00	SW	3.1	SSW	1.8	WSW	0.9
21:00-22:00	SSW	1.8	SW	1.8	SW	1.3
22:00-23:00	SSW	1.8	SSW	2.2	SW	1.8
23:00-00:00	SSW	1.8	SW	2.2	SW	0.9
00:00-01:00	SW	2.7	SSW	1.8	SSW	1.3
01:00-02:00	SW	2.7	SW	2.2	SSW	1.3
02:00-03:00	SW	0.9	WSW	2.7	SW	1.3
03:00-04:00	SW	1.3	WSW	2.7	SW	1.3
04:00-05:00	WSW	1.3	SSW	0.9	W	0.9
05:00-06:00	SW	0.9	SW	1.3	SW	0.9
06:00-07:00	W	0.9	W	1.3	WSW	1.3
07:00-08:00	SSW	1.3	WNW	1.8	SW	1.8
08:00-09:00	WSW	2.2	W	2.2	W	1.8

Measurement Method : - Wind Speed and Wind Direction recording meter

Remarks :
 - WS = Wind Speed
 - WD = Wind Direction

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(Thepsan Yommana)
 Technical Manager

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Report No. : 2024-500001363-13 / 001-2 (Page 5 of 6) Issued date : September 11, 2024

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 Tel. 089-968-0061 E-Mail: SutthilukP@pttep.com

Analysis Report

SAMPLE DESIGNATED AS : Ambient Air Quality **SAMPLING DATE** : August 13-16, 2024
SAMPLING LOCATION : NPI-C Production Phase **SAMPLING BY** : Weerapong Pengtrakul

Wind Speed Wind Direction	Percent of Wind Speed (%)				
	0.5-1.0 m/s	1.1-2.0 m/s	2.1-3.0 m/s	3.1-4.0 m/s	>4.0 m/s
N	-	-	-	-	-
NNE	-	-	-	-	-
NE	-	-	-	-	-
ENE	-	1.39	-	-	-
E	-	-	-	-	-
ESE	-	-	-	-	-
SE	-	-	-	-	-
SSE	-	-	-	1.39	-
S	-	-	2.78	-	-
SSW	1.39	12.50	2.78	4.17	-
SW	5.56	18.06	18.06	4.17	-
WSW	1.39	4.17	4.17	2.78	-
W	2.78	4.17	2.78	-	-
WNW	-	1.39	2.78	1.39	-
NW	-	-	-	-	-
NNW	-	-	-	-	-
CALM	0.00				

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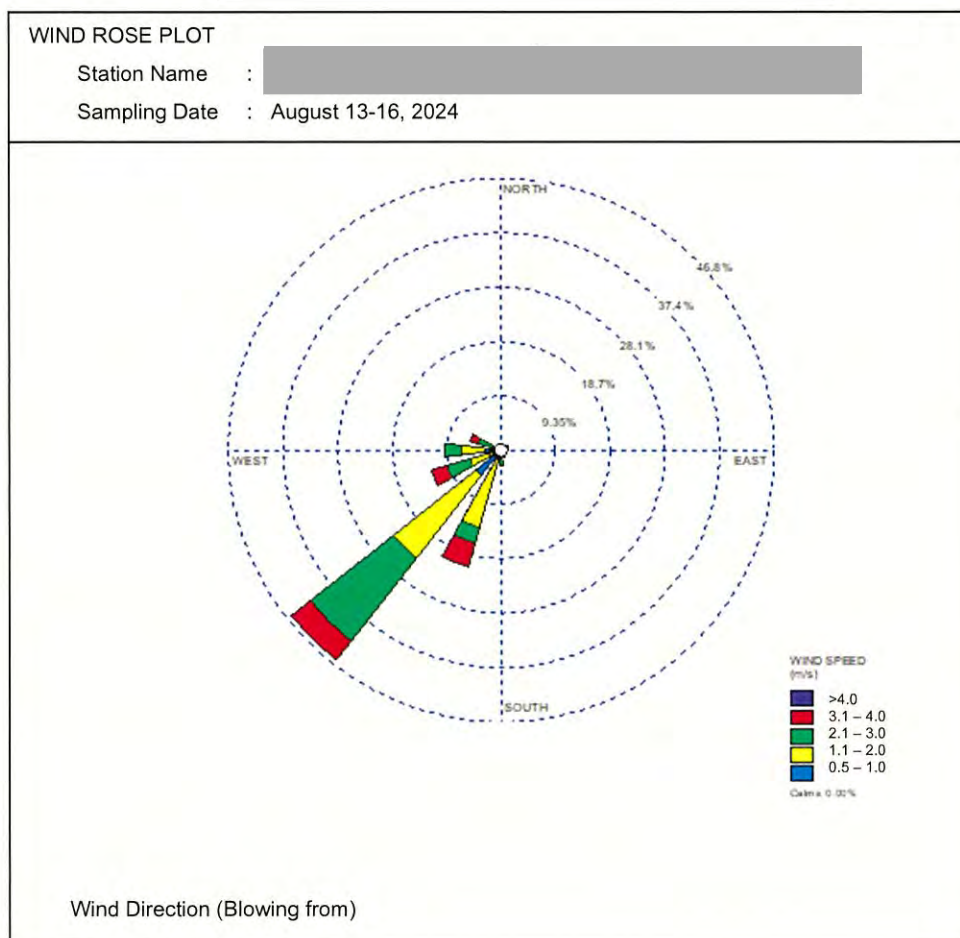
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Analysis Report

SAMPLE DESIGNATED AS : Ambient Air Quality **SAMPLING DATE** : August 13-16, 2024
SAMPLING LOCATION : NPI-C Production Phase **SAMPLING BY** : Weerapong Pengtrakul



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Analysis Report

SAMPLE DESIGNATED AS : Ambient Air Quality **SAMPLING DATE** : August 13-16, 2024
SAMPLING LOCATION : NPI-D Production Phase **SAMPLING BY** : Weerapong Pengtrakul

Sampling Date	TSP (mg/m ³)	PM-10 (mg/m ³)
August 13-14, 2024	0.037	0.015
August 14-15, 2024	0.045	0.018
August 15-16, 2024	0.041	0.017
Standard*	0.33	0.12

Remark : - Sampling and analytical technique for TSP based on High Volume Air Sampler / Gravimetric Method and PM10 based on Size Selective High Volume Air Sampler / Gravimetric Method.

Source : - The notification of the National Environment Board No. 24, B.E. 2547 (2004), subjected "The ambient air standards", published in the Royal Government Gazette, Vol. 121, Part 104D, dated September 22, B.E. 2547 (2004).

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Report No. : 2024-500001363-13 / 001-3 (Page 2 of 6) Issued date : September 11, 2024

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Analysis Report

SAMPLE DESIGNATED AS : Ambient Air Quality **SAMPLING DATE** : August 13-16, 2024
SAMPLING LOCATION : NPI-D Production Phase **SAMPLING BY** : Weerapong Pengtrakul

Time	NO ₂ Concentration (ppm)		
	August 13-14, 2024	August 14-15, 2024	August 15-16, 2024
12:00-13:00	0.005	0.006	0.004
13:00-14:00	0.006	0.005	0.004
14:00-15:00	0.005	0.006	0.005
15:00-16:00	0.006	0.006	0.005
16:00-17:00	0.006	0.006	0.006
17:00-18:00	0.008	0.005	0.006
18:00-19:00	0.008	0.006	0.009
19:00-20:00	0.006	0.006	0.006
20:00-21:00	0.006	0.006	0.006
21:00-22:00	0.006	0.005	0.009
22:00-23:00	0.005	0.005	0.005
23:00-00:00	0.006	0.006	0.004
00:00-01:00	0.006	0.008	0.006
01:00-02:00	0.007	0.006	0.008
02:00-03:00	0.005	0.006	0.008
03:00-04:00	0.004	0.005	0.006
04:00-05:00	0.008	0.009	0.009
05:00-06:00	0.007	0.007	0.011
06:00-07:00	0.009	0.010	0.019
07:00-08:00	0.009	0.006	0.009
08:00-09:00	0.006	0.007	0.007
09:00-10:00	0.005	0.008	0.005
10:00-11:00	0.005	0.005	0.005
11:00-12:00	0.005	0.004	0.007
1 hr.-Minimum	0.004	0.004	0.004
1 hr.-Maximum	0.009	0.010	0.019
Standard* (avg. 1 hr.)	0.17		

Analytical Method : - Chemiluminescence Method.

Source : The Notification of the National Environment Board No. 33, B.E. 2552 (2009), subjected "The nitrogen dioxide in ambient air standards", published in the Royal Government Gazette, Vol. 126, Special part 114D, dated August 14, B.E. 2552 (2009).

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Report No. : 2024-500001363-13 / 001-3 (Page 3 of 6) Issued date : September 11, 2024

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CONTACT : Khun Sutthiluk Phaisun
ADDRESS : 555/1 Energy Complex Vibhavadi-Rangsit Rd., Chatuchak, Chatuchak, Bangkok 10900
Tel. 089-968-0061 E-Mail: SutthilukP@pttep.com

Analysis Report

SAMPLE DESIGNATED AS : Ambient Air Quality **SAMPLING DATE** : August 13-16, 2024
SAMPLING LOCATION : NPI-D Production Phase **SAMPLING BY** : Weerapong Pengtrakul

Time	SO ₂ Concentration (ppm)		
	August 13-14, 2024	August 14-15, 2024	August 15-16, 2024
12:00-13:00	0.002	0.001	0.001
13:00-14:00	0.001	0.003	0.001
14:00-15:00	0.002	0.002	0.001
15:00-16:00	0.001	0.004	0.001
16:00-17:00	0.001	0.002	0.003
17:00-18:00	0.002	0.001	0.003
18:00-19:00	0.004	0.003	0.004
19:00-20:00	0.002	0.002	0.001
20:00-21:00	0.003	0.003	0.003
21:00-22:00	0.003	0.003	0.005
22:00-23:00	0.002	0.002	0.005
23:00-00:00	0.004	0.004	0.002
00:00-01:00	0.005	0.004	0.003
01:00-02:00	0.002	0.002	0.003
02:00-03:00	0.001	0.002	0.004
03:00-04:00	0.003	0.003	0.005
04:00-05:00	0.005	0.005	0.006
05:00-06:00	0.005	0.005	0.004
06:00-07:00	0.004	0.006	0.006
07:00-08:00	0.005	0.002	0.005
08:00-09:00	0.004	0.002	0.003
09:00-10:00	0.001	0.002	0.001
10:00-11:00	0.001	0.001	0.001
11:00-12:00	0.001	0.003	0.001
1 hr.-Minimum	0.001	0.001	0.001
1 hr.-Maximum	0.005	0.006	0.006
avg. 24 hrs.	0.003	0.003	0.003
Standard* (avg. 1 hr.)	0.30		
Standard** (avg. 24 hrs.)	0.12		

Analytical Method : - UV Fluorescence Method

Source : Notification of the National Environment Board No.21, B.E. 2544 (2001), dated April 9, B.E. 2544 (2001)
Notification of the National Environment Board No.24, B.E. 2547 (2004), dated August 9, B.E. 2547 (2004)

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Analysis Report

SAMPLE DESIGNATED AS : Ambient Air Quality **SAMPLING DATE** : August 13-16, 2024
SAMPLING LOCATION : NPI-D Production Phase **SAMPLING BY** : Weerapong Pengtrakul

TIME	August 13-14, 2024		August 14-15, 2024		August 15-16, 2024	
	WD	WS (m/s)	WD	WS (m/s)	WD	WS (m/s)
12:00-13:00	WSW	2.2	WSW	1.8	WNW	0.9
13:00-14:00	WSW	2.2	WSW	2.2	S	0.9
14:00-15:00	SSW	2.7	WSW	2.2	SW	0.9
15:00-16:00	SSW	2.2	SSW	1.8	WSW	0.9
16:00-17:00	S	3.1	S	1.8	SSW	1.8
17:00-18:00	WSW	4.9	S	1.8	WNW	4
18:00-19:00	WSW	2.7	S	2.7	ENE	1.8
19:00-20:00	WSW	1.8	SW	2.7	WSW	1.3
20:00-21:00	WSW	0.9	WSW	1.8	---	CALM
21:00-22:00	SSE	1.8	SW	1.3	---	CALM
22:00-23:00	SSW	1.8	---	CALM	SW	0.9
23:00-00:00	S	1.3	SW	0.9	---	CALM
00:00-01:00	WSW	1.3	WSW	1.3	SW	0.9
01:00-02:00	WSW	0.9	SSW	0.9	WSW	0.9
02:00-03:00	SSW	0.9	SSW	0.9	SW	0.9
03:00-04:00	SW	0.9	---	CALM	SW	0.9
04:00-05:00	---	CALM	SW	0.9	---	CALM
05:00-06:00	---	CALM	WSW	0.9	---	CALM
06:00-07:00	---	CALM	---	CALM	W	0.9
07:00-08:00	---	CALM	---	CALM	WNW	2.7
08:00-09:00	WSW	1.3	WSW	1.8	WNW	2.7
09:00-10:00	WSW	1.8	WSW	1.8	SW	3.1
10:00-11:00	WSW	1.8	W	2.2	SW	2.7
11:00-12:00	WSW	1.3	W	1.8	SSW	2.2

Measurement Method : - Wind Speed and Wind Direction recording meter

Remarks :
 - WS = Wind Speed
 - WD = Wind Direction

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 Technical Manager

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Analysis Report

SAMPLE DESIGNATED AS : Ambient Air Quality **SAMPLING DATE** : August 13-16, 2024
SAMPLING LOCATION : NPI-D Production Phase **SAMPLING BY** : Weerapong Pengtrakul

Wind Speed Wind Direction	Percent of Wind Speed (%)				
	0.5-1.0 m/s	1.1-2.0 m/s	2.1-3.0 m/s	3.1-4.0 m/s	>4.0 m/s
N	-	-	-	-	-
NNE	-	-	-	-	-
NE	-	-	-	-	-
ENE	-	1.39	-	-	-
E	-	-	-	-	-
ESE	-	-	-	-	-
SE	-	-	-	-	-
SSE	-	1.39	-	-	-
S	1.39	4.17	1.39	1.39	-
SSW	4.17	4.17	4.17	-	-
SW	11.11	1.39	2.78	1.39	-
WSW	6.94	16.67	6.94	-	1.39
W	1.39	1.39	1.39	-	-
WNW	1.39	-	2.78	1.39	-
NW	-	-	-	-	-
NNW	-	-	-	-	-
CALM	18.06				

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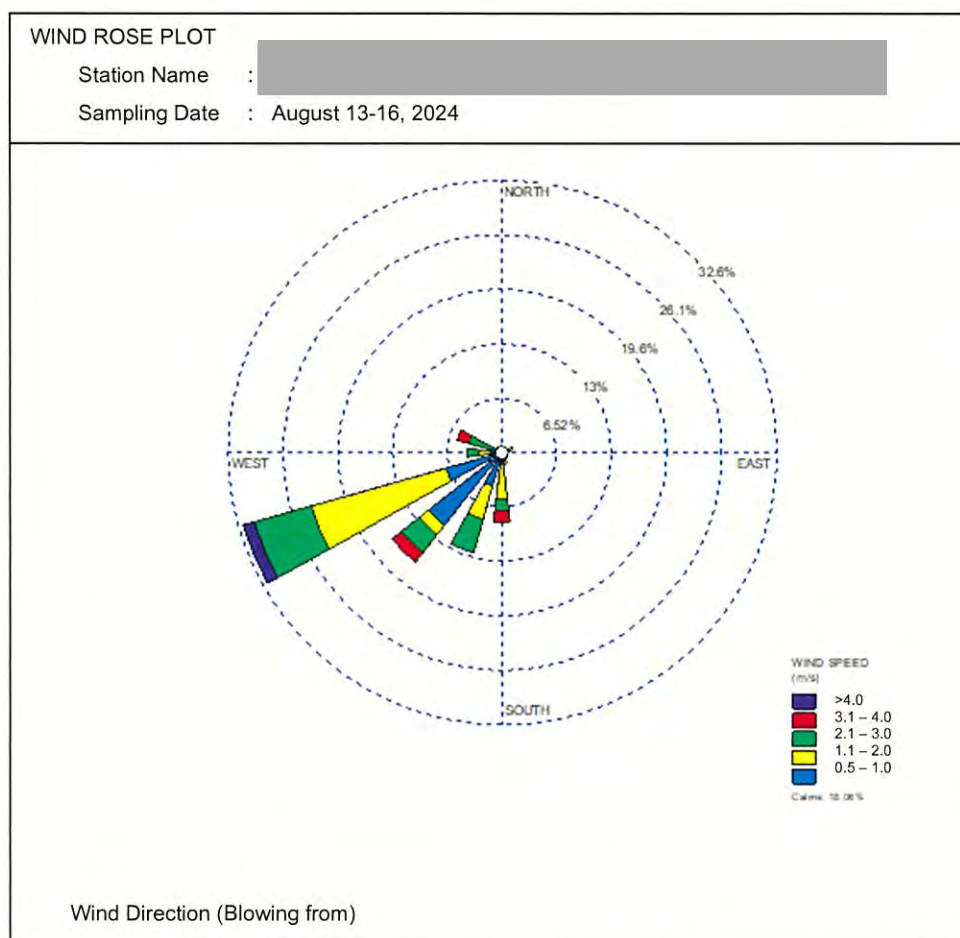
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Analysis Report

SAMPLE DESIGNATED AS : Ambient Air Quality **SAMPLING DATE** : August 13-16, 2024
SAMPLING LOCATION : NPI-D Production Phase **SAMPLING BY** : Weerapong Pengtrakul



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Report No. : 2024-500001363-13 / 001-4 (Page 1 of 6) Issued date : September 11, 2024

CLIENT : PTTEP International Limited
CONTACT : Khun Sutthiluk Phaisun
ADDRESS : 555/1 Energy Complex Vibhavadi-Rangsit Rd., Chatuchak, Chatuchak, Bangkok 10900
Tel. 089-968-0061 E-Mail: SutthilukP@pttep.com

Analysis Report

SAMPLE DESIGNATED AS : Ambient Air Quality **SAMPLING DATE** : August 13-16, 2024
SAMPLING LOCATION : NPI-D Production Phase **SAMPLING BY** : Weerapong Pengtrakul

Sampling Date	TSP (mg/m ³)	PM-10 (mg/m ³)
August 13-14, 2024	0.038	0.019
August 14-15, 2024	0.041	0.018
August 15-16, 2024	0.036	0.017
Standard*	0.33	0.12

Remark : - Sampling and analytical technique for TSP based on High Volume Air Sampler / Gravimetric Method and PM10 based on Size Selective High Volume Air Sampler / Gravimetric Method.
Source : - The notification of the National Environment Board No. 24, B.E. 2547 (2004), subjected "The ambient air standards", published in the Royal Government Gazette, Vol. 121, Part 104D, dated September 22, B.E. 2547 (2004).

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(Weerapong Pengtrakul)
Technical Manager

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Report No. : 2024-500001363-13 / 001-4 (Page 2 of 6) Issued date : September 11, 2024

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 Tel. 089-968-0061 E-Mail: SutthilukP@pttep.com

Analysis Report

SAMPLE DESIGNATED AS : Ambient Air Quality **SAMPLING DATE** : August 13-16, 2024
SAMPLING LOCATION : NPI-D Production Phase **SAMPLING BY** : Weerapong Pengtrakul

Time	NO ₂ Concentration (ppm)		
	August 13-14, 2024	August 14-15, 2024	August 15-16, 2024
13:00-14:00	0.003	0.005	0.004
14:00-15:00	0.005	0.005	0.004
15:00-16:00	0.004	0.007	0.004
16:00-17:00	0.006	0.005	0.006
17:00-18:00	0.005	0.005	0.005
18:00-19:00	0.006	0.007	0.004
19:00-20:00	0.007	0.006	0.004
20:00-21:00	0.005	0.005	0.004
21:00-22:00	0.005	0.004	0.005
22:00-23:00	0.006	0.006	0.005
23:00-00:00	0.006	0.006	0.007
00:00-01:00	0.004	0.004	0.005
01:00-02:00	0.006	0.004	0.006
02:00-03:00	0.007	0.005	0.006
03:00-04:00	0.005	0.006	0.005
04:00-05:00	0.006	0.006	0.006
05:00-06:00	0.005	0.004	0.007
06:00-07:00	0.007	0.006	0.007
07:00-08:00	0.008	0.008	0.005
08:00-09:00	0.006	0.005	0.005
09:00-10:00	0.006	0.005	0.006
10:00-11:00	0.005	0.005	0.006
11:00-12:00	0.005	0.005	0.006
12:00-13:00	0.006	0.006	0.005
1 hr.-Minimum	0.003	0.004	0.004
1 hr.-Maximum	0.008	0.008	0.007
Standard* (avg. 1 hr.)	0.17		

Analytical Method : - Chemiluminescence Method.

Source : The Notification of the National Environment Board No. 33, B.E. 2552 (2009), subjected "The nitrogen dioxide in ambient air standards", published in the Royal Government Gazette, Vol. 126, Special part 114D, dated August 14, B.E. 2552 (2009).

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Report No. : 2024-500001363-13 / 001-4 (Page 3 of 6) Issued date : September 11, 2024

CLIENT : PTTEP International Limited
CONTACT : Khun Sutthiluk Phaisun
ADDRESS : 555/1 Energy Complex Vibhavadi-Rangsit Rd., Chatuchak, Chatuchak, Bangkok 10900
Tel. 089-968-0061 E-Mail: SutthilukP@pttep.com

Analysis Report

SAMPLE DESIGNATED AS : Ambient Air Quality
SAMPLING LOCATION : NPI-D Production Phase
SAMPLING DATE : August 13-16, 2024
SAMPLING BY : Weerapong Pengtrakul

Time	SO ₂ Concentration (ppm)		
	August 13-14, 2024	August 14-15, 2024	August 15-16, 2024
13:00-14:00	0.002	0.002	0.002
14:00-15:00	0.003	0.003	0.003
15:00-16:00	0.002	0.002	0.003
16:00-17:00	0.004	0.003	0.002
17:00-18:00	0.001	0.003	0.002
18:00-19:00	0.002	0.005	0.004
19:00-20:00	0.003	0.006	0.003
20:00-21:00	0.004	0.003	0.006
21:00-22:00	0.003	0.003	0.004
22:00-23:00	0.003	0.004	0.003
23:00-00:00	0.002	0.002	0.006
00:00-01:00	0.002	0.003	0.002
01:00-02:00	0.004	0.003	0.004
02:00-03:00	0.004	0.004	0.003
03:00-04:00	0.003	0.002	0.003
04:00-05:00	0.005	0.002	0.004
05:00-06:00	0.006	0.005	0.006
06:00-07:00	0.006	0.004	0.005
07:00-08:00	0.004	0.006	0.007
08:00-09:00	0.007	0.006	0.007
09:00-10:00	0.004	0.003	0.004
10:00-11:00	0.003	0.002	0.002
11:00-12:00	0.004	0.002	0.002
12:00-13:00	0.002	0.002	0.002
1 hr.-Minimum	0.001	0.002	0.002
1 hr.-Maximum	0.007	0.006	0.007
avg. 24 hrs.	0.004	0.003	0.004
Standard* (avg. 1 hr.)	0.30		
Standard** (avg. 24 hrs.)	0.12		

Analytical Method : - UV Fluorescence Method

Source : Notification of the National Environment Board No.21, B.E. 2544 (2001), dated April 9, B.E. 2544 (2001)

Notification of the National Environment Board No.24, B.E. 2547 (2004),

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Report No. : 2024-500001363-13 / 001-4 (Page 4 of 6) Issued date : September 11, 2024

CLIENT : PTTEP International Limited
CONTACT : Khun Sutthiluk Phaisun
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Tel. 089-968-0061 E-Mail: SutthilukP@pttep.com

Analysis Report

SAMPLE DESIGNATED AS : Ambient Air Quality **SAMPLING DATE** : August 13-16, 2024
SAMPLING LOCATION : NPI-D Production Phase **SAMPLING BY** : Weerapong Pengtrakul

TIME	August 13-14, 2024		August 14-15, 2024		August 15-16, 2024	
	WD	WS (m/s)	WD	WS (m/s)	WD	WS (m/s)
13:00-14:00	WSW	3.1	WSW	3.1	WSW	1.3
14:00-15:00	SW	3.1	WSW	2.7	WSW	1.3
15:00-16:00	WSW	2.7	WSW	3.1	WSW	1.3
16:00-17:00	SW	3.1	SW	2.7	WSW	2.7
17:00-18:00	W	5.8	SW	2.2	NW	3.6
18:00-19:00	W	4	SW	2.7	ENE	1.8
19:00-20:00	W	2.2	WSW	4	WSW	2.2
20:00-21:00	WSW	1.8	WSW	2.7	WSW	1.8
21:00-22:00	SW	1.3	WSW	2.2	WSW	1.8
22:00-23:00	SW	1.8	WSW	1.8	W	1.8
23:00-00:00	SW	1.8	WSW	2.7	WSW	1.8
00:00-01:00	W	1.8	WSW	2.2	SW	1.8
01:00-02:00	WSW	1.8	WSW	2.2	WSW	2.2
02:00-03:00	WSW	2.7	WSW	2.2	SW	1.8
03:00-04:00	WSW	2.2	WSW	1.8	SW	1.3
04:00-05:00	WSW	0.9	WSW	1.8	WSW	1.8
05:00-06:00	WSW	1.3	W	1.8	SW	1.8
06:00-07:00	WSW	1.3	WSW	0.9	W	1.8
07:00-08:00	WSW	1.3	WSW	0.9	W	1.8
08:00-09:00	W	1.8	W	2.7	W	2.2
09:00-10:00	W	2.7	W	3.1	W	2.2
10:00-11:00	WSW	2.7	WNW	3.1	W	2.2
11:00-12:00	WSW	2.2	W	2.2	W	1.8
12:00-13:00	W	2.2	WSW	1.3	W	2.2

Measurement Method : - Wind Speed and Wind Direction recording meter

Remarks :
- WS = Wind Speed
- WD = Wind Direction



(Thepsan Yommana)
Technical Manager

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Report No. : 2024-500001363-13 / 001-4 (Page 5 of 6) Issued date : September 11, 2024

CLIENT : PTTEP International Limited
CONTACT : Khun Sutthiluk Phaisun
ADDRESS : 555/1 Energy Complex Vibhavadi-Rangsit Rd., Chatuchak, Chatuchak, Bangkok 10900
 Tel. 089-968-0061 E-Mail: SutthilukP@pttep.com

Analysis Report

SAMPLE DESIGNATED AS : Ambient Air Quality **SAMPLING DATE** : August 13-16, 2024
SAMPLING LOCATION : NPI-D Production Phase **SAMPLING BY** : Weerapong Pengtrakul

Wind Speed Wind Direction	Percent of Wind Speed (%)				
	0.5-1.0 m/s	1.1-2.0 m/s	2.1-3.0 m/s	3.1-4.0 m/s	>4.0 m/s
N	-	-	-	-	-
NNE	-	-	-	-	-
NE	-	-	-	-	-
ENE	-	1.39	-	-	-
E	-	-	-	-	-
ESE	-	-	-	-	-
SE	-	-	-	-	-
SSE	-	-	-	-	-
S	-	-	-	-	-
SSW	-	-	-	-	-
SW	-	9.72	4.17	2.78	-
WSW	4.17	22.22	20.83	5.56	-
W	-	9.72	12.50	2.78	1.39
WNW	-	-	-	1.39	-
NW	-	-	-	1.39	-
NNW	-	-	-	-	-
CALM	0.00				

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 Technical Manager

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Report No. : 2024-500001363-13 / 001-4 (Page 6 of 6) Issued date : September 11, 2024

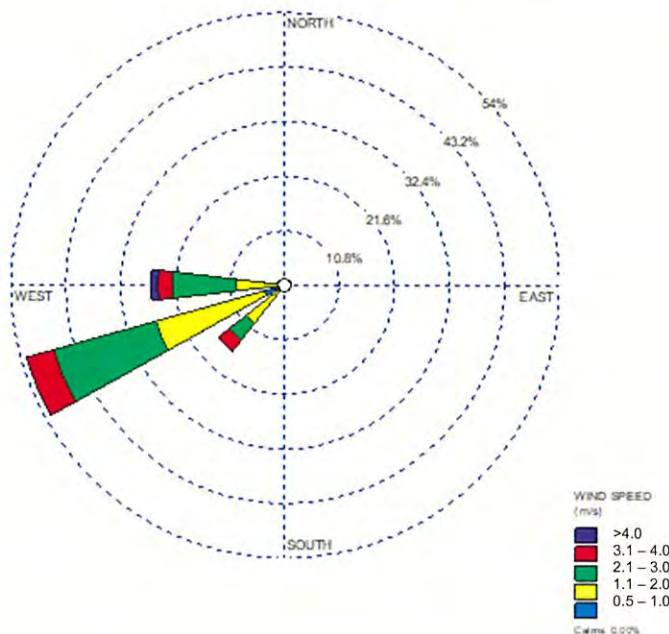
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Analysis Report

SAMPLE DESIGNATED AS : Ambient Air Quality **SAMPLING DATE** : August 13-16, 2024
SAMPLING LOCATION : NPI-D Production Phase **SAMPLING BY** : Weerapong Pengtrakul

WIND ROSE PLOT

Station Name :
Sampling Date : August 13-16, 2024



Wind Direction (Blowing from)

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SGS (THAILAND) LIMITED



(Inepsan Yommana)
 Technical Manager

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Report No. : 2024-500001363-3 / 001-1 (Page 1 of 6) Issued date : May 31, 2024

CLIENT : PTTEP International Limited
CONTACT : Khun Sutthiluk Phaisun
ADDRESS : 555/1 Energy Complex Vibhavadi-Rangsit Rd., Chatuchak, Chatuchak, Bangkok 10900
 Tel. 089-968-0061 E-Mail: SutthilukP@pttep.com

Analysis Report

SAMPLE DESIGNATED AS : Ambient Air Quality **SAMPLING DATE :** April 22-25, 2024
SAMPLING LOCATION : NPI-G, NPI Flow Station Production Phase **SAMPLING BY :** Weerapong Pengtrakul

Sampling Date	TSP (mg/m ³)	PM-10 (mg/m ³)
April 22-23, 2024	0.072	0.056
April 23-24, 2024	0.098	0.049
April 24-25, 2024	0.070	0.044
Standard*	0.33	0.12

Remark : - Sampling and analytical technique for TSP based on High Volume Air Sampler / Gravimetric Method and PM10 based on Size Selective High Volume Air Sampler / Gravimetric Method.

Source : * The notification of the National Environment Board No. 24, B.E. 2547 (2004), subjected "The ambient air standards", published in the Royal Government Gazette, Vol. 121, Part 104D, dated September 22, B.E. 2547 (2004).

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Report No. : 2024-500001363-3 / 001-1 (Page 2 of 6) Issued date : May 31, 2024

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ADDRESS : 555/1 Energy Complex Vibhavadi-Rangsit Rd., Chatuchak, Bangkok 10900
Tel. 089-968-0061 E-Mail: SutthilukP@pttep.com

Analysis Report

SAMPLE DESIGNATED AS : Ambient Air Quality SAMPLING DATE : April 22-25, 2024
SAMPLING LOCATION : NPI-G, NPI Flow Station Production Phase SAMPLING BY : Weerapong Pengtrakul

Time	NO ₂ Concentration (ppm)		
	April 22-23, 2024	April 23-24, 2024	April 24-25, 2024
14:00-15:00	0.015	0.014	0.016
15:00-16:00	0.012	0.011	0.013
16:00-17:00	0.014	0.013	0.014
17:00-18:00	0.013	0.014	0.013
18:00-19:00	0.015	0.014	0.011
19:00-20:00	0.015	0.014	0.011
20:00-21:00	0.015	0.018	0.012
21:00-22:00	0.018	0.019	0.014
22:00-23:00	0.018	0.019	0.017
23:00-00:00	0.018	0.020	0.018
00:00-01:00	0.019	0.021	0.017
01:00-02:00	0.019	0.020	0.017
02:00-03:00	0.019	0.020	0.017
03:00-04:00	0.019	0.020	0.017
04:00-05:00	0.019	0.020	0.017
05:00-06:00	0.019	0.020	0.016
06:00-07:00	0.018	0.020	0.017
07:00-08:00	0.017	0.020	0.017
08:00-09:00	0.017	0.020	0.018
09:00-10:00	0.017	0.019	0.017
10:00-11:00	0.017	0.018	0.015
11:00-12:00	0.016	0.017	0.014
12:00-13:00	0.015	0.017	0.013
13:00-14:00	0.015	0.016	0.012
1 hr-Minimum	0.012	0.011	0.011
1 hr-Maximum	0.019	0.021	0.018
Standard* (avg. 1 hr)	0.17		

Analytical Method : - Chemiluminescence Method.
Source : The Notification of the National Environment Board No. 33, B.E. 2552 (2009), subjected "The nitrogen dioxide in ambient air standards", published in the Royal Government Gazette, Vol. 126, Special part 114D, dated August 14, B.E. 2552 (2009).

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Analysis Report

SAMPLE DESIGNATED AS : Ambient Air Quality **SAMPLING DATE :** April 22-25, 2024
SAMPLING LOCATION : NPLC NPL Flow Station Production Phase **SAMPLING BY :** Weerapong Pengtrakul

Time	SO ₂ Concentration (ppm)		
	April 22-23, 2024	April 23-24, 2024	April 24-25, 2024
14:00-15:00	0.001	0.001	0.001
15:00-16:00	0.001	0.001	0.001
16:00-17:00	0.002	0.001	0.001
17:00-18:00	0.002	0.002	0.002
18:00-19:00	0.002	0.002	0.002
19:00-20:00	0.002	0.002	0.002
20:00-21:00	0.002	0.002	0.002
21:00-22:00	0.002	0.002	0.002
22:00-23:00	0.002	0.002	0.002
23:00-00:00	0.002	0.001	0.002
00:00-01:00	0.002	0.001	0.002
01:00-02:00	0.002	0.001	0.002
02:00-03:00	0.002	0.001	0.002
03:00-04:00	0.002	0.001	0.002
04:00-05:00	0.002	0.002	0.002
05:00-06:00	0.002	0.001	0.001
06:00-07:00	0.002	0.001	0.002
07:00-08:00	0.002	0.002	0.002
08:00-09:00	0.002	0.003	0.002
09:00-10:00	0.002	0.002	0.002
10:00-11:00	0.001	0.001	0.001
11:00-12:00	0.001	0.001	0.001
12:00-13:00	0.001	0.001	0.001
13:00-14:00	0.001	0.001	0.001
1 hr-Minimum	0.001	0.001	0.001
1 hr-Maximum	0.002	0.003	0.002
avg. 24 hr	0.002	0.002	0.002
Standard* (avg. 1 hr)	0.30		
Standard** (avg. 24 hr)	0.12		

Analytical Method : - UV Fluorescence Method

Source : Notification of the National Environment Board No.21, B.E. 2544 (2001), dated April 9, B.E. 2544 (2001)
 Notification of the National Environment Board No.24, B.E. 2547 (2004), dated April 9, B.E. 2547 (2004)



(I hepsan Yommana)
 Technical Manager

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Report No. : 2024-500001363-3 / 001-1 (Page 4 of 6) Issued date : May 31, 2024

CLIENT : PTTEP International Limited
CONTACT : Khun Sutthiluk Phaisun
ADDRESS : 555/1 Energy Complex Vibhavadi-Rangsit Rd., Chatuchak, Chatuchak, Bangkok 10900
 Tel. 089-968-0061 E-Mail: SutthilukP@pttep.com

Analysis Report

SAMPLE DESIGNATED AS : Ambient Air Quality **SAMPLING DATE :** April 22-25, 2024
SAMPLING LOCATION : NPI-G, NPI Flow Station Production Phase **SAMPLING BY :** Weerapong Pengtrakul

TIME	April 22-23, 2024		April 23-24, 2024		April 24-25, 2024	
	WD	WS (m/s)	WD	WS (m/s)	WD	WS (m/s)
14:00-15:00	S	2.7	S	3.6	SSW	3.6
15:00-16:00	S	3.6	S	4.0	SSW	4.0
16:00-17:00	S	3.1	S	4.0	S	4.0
17:00-18:00	S	3.6	SSE	3.6	S	4.0
18:00-19:00	SSE	3.6	SSE	4.0	S	3.6
19:00-20:00	S	3.6	S	3.6	S	2.7
20:00-21:00	SSW	3.6	SSW	4.0	S	3.1
21:00-22:00	SSW	3.6	SSW	3.1	SSW	3.1
22:00-23:00	SSW	2.7	SSW	3.1	SW	2.7
23:00-00:00	SSW	2.7	SSW	1.8	SSW	2.2
00:00-01:00	S	2.2	SSW	1.8	SSW	1.8
01:00-02:00	S	2.7	S	2.2	SW	1.3
02:00-03:00	S	2.7	S	1.8	S	1.3
03:00-04:00	S	2.7	S	2.2	S	1.3
04:00-05:00	S	2.2	S	2.7	SSE	1.3
05:00-06:00	SSW	2.7	S	2.7	S	1.8
06:00-07:00	SSW	2.2	S	2.2	S	1.8
07:00-08:00	SSW	3.1	SSW	2.2	S	1.8
08:00-09:00	SSW	3.6	SSW	3.6	S	2.7
09:00-10:00	SW	4.0	SSW	4.9	SSW	4.0
10:00-11:00	SW	4.0	SSW	4.5	SSW	3.6
11:00-12:00	SW	4.0	SSW	4.0	SSW	3.6
12:00-13:00	SW	4.0	SSW	4.0	SSW	3.6
13:00-14:00	SSW	4.0	SSW	3.6	S	3.6

Measurement Method : - Wind Speed and Wind Direction recording meter

Remarks :
 - WS = Wind Speed
 - WD = Wind Direction

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(Thepsan Yommana)
 Technical Manager

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Analysis Report

SAMPLE DESIGNATED AS : Ambient Air Quality

SAMPLING DATE : April 22-25, 2024

SAMPLING LOCATION : NPI-G, NPI Flow Station Production Phase

SAMPLING BY : Weerapong Pengtrakul

Wind Speed Wind Direction	Percent of Wind Speed (%)				
	0.5-1.0 m/s	1.1-2.0 m/s	2.1-3.0 m/s	3.1-4.0 m/s	>4.0 m/s
N	-	-	-	-	-
NNE	-	-	-	-	-
NE	-	-	-	-	-
ENE	-	-	-	-	-
E	-	-	-	-	-
ESE	-	-	-	-	-
SE	-	-	-	-	-
SSE	-	1.39	-	4.17	-
S	-	8.33	18.06	18.06	-
SSW	-	4.17	8.33	26.39	2.78
SW	-	1.39	1.39	5.56	-
WSW	-	-	-	-	-
W	-	-	-	-	-
WNW	-	-	-	-	-
NW	-	-	-	-	-
NNW	-	-	-	-	-
CALM	0.00				

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Technical Manager

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Report No. : 2024-500001363-3 / 001-1 (Page 6 of 6) Issued date : May 31, 2024

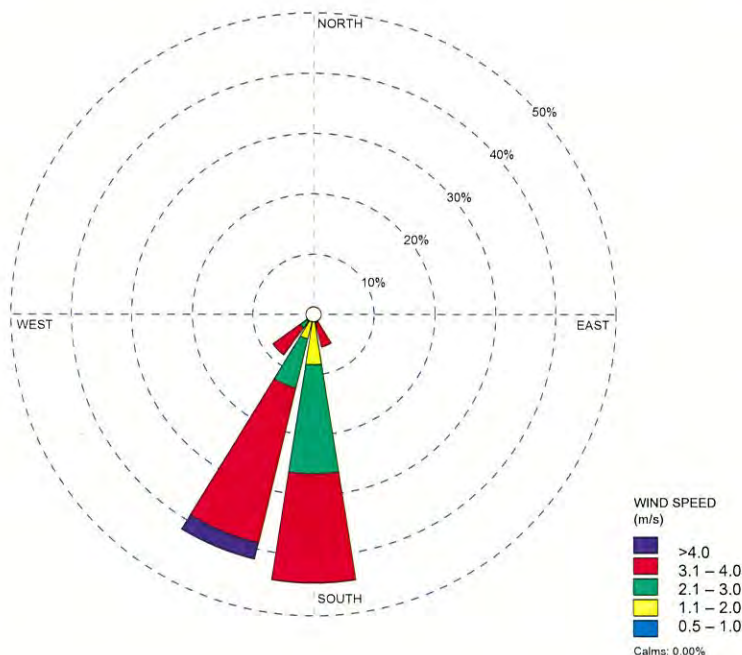
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Analysis Report

SAMPLE DESIGNATED AS : Ambient Air Quality **SAMPLING DATE :** April 22-25, 2024
SAMPLING LOCATION : NPI-G, NPI Flow Station Production Phase **SAMPLING BY :** Weerapong Pengtrakul

WIND ROSE PLOT

Station Name : [REDACTED]
Sampling Date : April 22-25, 2024



Wind Direction (Blowing from)

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(Weerapong Pengtrakul)
 Technical Manager

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 Tel. 089-968-0061 E-Mail: SutthilukP@pttep.com

Analysis Report

SAMPLE DESIGNATED AS : Ambient Air Quality
SAMPLING LOCATION : NPI-G, NPI Flow Station Production Phase
SAMPLING DATE : April 22-25, 2024
SAMPLING BY : Weerapong Pengtrakul
 โรงเรียนวัดไผ่มั่ง หมู่ที่ 4 ต. วังน้ำเย็น อ. บางปลา ม้า จ. สุพรรณบุรี
 (UTM47P 0608995E, 1588085N)

Sampling Date	TSP (mg/m ³)	PM-10 (mg/m ³)
April 22-23, 2024	0.104	0.071
April 23-24, 2024	0.141	0.056
April 24-25, 2024	0.103	0.043
Standard*	0.33	0.12

Remark : - Sampling and analytical technique for TSP based on High Volume Air Sampler / Gravimetric Method and PM10 based on Size Selective High Volume Air Sampler / Gravimetric Method.
Source : - The notification of the National Environment Board No. 24, B.E. 2547 (2004), subjected "The ambient air standards", published in the Royal Government Gazette, Vol. 121, Part 104D, dated September 22, B.E. 2547 (2004).

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(Thepsan Yommana)
 Technical Manager

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Report No. : 2024-500001363-3 / 001-2 (Page 2 of 6) Issued date : May 31, 2024

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 Tel. 089-968-0061 E-Mail: SutthilukP@pttep.com

Analysis Report

SAMPLE DESIGNATED AS : Ambient Air Quality **SAMPLING DATE :** April 22-25, 2024
SAMPLING LOCATION : NPI-G, NPI Flow Station Production Phase **SAMPLING BY :** Weerapong Pengtrakul
 โรงเรือนวัดไผ่มั่ง หมู่ที่ 4 ต. วังน้ำเย็น อ. บางปละมา จ. สุพรรณบุรี
 (UTM47P 0608995E, 1588085N)

Time	NO ₂ Concentration (ppm)		
	April 22-23, 2024	April 23-24, 2024	April 24-25, 2024
11:00-12:00	0.013	0.016	0.019
12:00-13:00	0.013	0.014	0.015
13:00-14:00	0.013	0.014	0.016
14:00-15:00	0.015	0.015	0.016
15:00-16:00	0.014	0.015	0.014
16:00-17:00	0.019	0.024	0.014
17:00-18:00	0.017	0.021	0.013
18:00-19:00	0.023	0.031	0.013
19:00-20:00	0.018	0.022	0.013
20:00-21:00	0.018	0.020	0.015
21:00-22:00	0.017	0.019	0.014
22:00-23:00	0.018	0.019	0.017
23:00-00:00	0.016	0.019	0.015
00:00-01:00	0.017	0.019	0.014
01:00-02:00	0.017	0.019	0.014
02:00-03:00	0.017	0.019	0.014
03:00-04:00	0.017	0.019	0.014
04:00-05:00	0.016	0.019	0.014
05:00-06:00	0.016	0.018	0.014
06:00-07:00	0.016	0.018	0.014
07:00-08:00	0.018	0.023	0.015
08:00-09:00	0.017	0.022	0.015
09:00-10:00	0.018	0.024	0.014
10:00-11:00	0.017	0.021	0.014
1 hr-Minimum	0.013	0.014	0.013
1 hr-Maximum	0.023	0.031	0.019
Standard* (avg. 1 hr)	0.17		

Analytical Method : - Chemiluminescence Method.

Source : The Notification of the National Environment Board No. 33, B.E. 2552 (2009), subjected "The nitrogen dioxide in ambient air standards", published in the Royal Government Gazette, Vol. 126, Special part 114D, dated August 14, B.E. 2552 (2009).

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Report No. : 2024-500001363-3 / 001-2 (Page 3 of 6) Issued date : May 31, 2024

CLIENT : PTTEP International Limited
CONTACT : Khun Sutthiluk Phaisun
ADDRESS : 555/1 Energy Complex Vibhavadi-Rangsit Rd., Chatuchak, Chatuchak, Bangkok 10900
 Tel. 089-968-0061 E-Mail: SutthilukP@pttep.com

Analysis Report

SAMPLE DESIGNATED AS : Ambient Air Quality **SAMPLING DATE :** April 22-25, 2024
SAMPLING LOCATION : NPI-G, NPI Flow Station Production Phase **SAMPLING BY :** Weerapong Pengtrakul
 โรงเรือนวัดไผ่มั่ง หมู่ที่ 4 ต. วังน้ำเย็น อ. บางปละม้า จ. สุพรรณบุรี
 (UTM47P 0608995E, 1588085N)

Time	SO ₂ Concentration (ppm)		
	April 22-23, 2024	April 23-24, 2024	April 24-25, 2024
11:00-12:00	0.001	0.001	0.001
12:00-13:00	0.001	0.001	0.001
13:00-14:00	0.001	0.001	0.001
14:00-15:00	0.001	0.001	0.002
15:00-16:00	0.002	0.002	0.002
16:00-17:00	0.002	0.002	0.002
17:00-18:00	0.002	0.002	0.002
18:00-19:00	0.002	0.002	0.002
19:00-20:00	0.002	0.002	0.002
20:00-21:00	0.001	0.002	0.002
21:00-22:00	0.001	0.002	0.002
22:00-23:00	0.002	0.002	0.001
23:00-00:00	0.001	0.002	0.001
00:00-01:00	0.002	0.002	0.002
01:00-02:00	0.002	0.002	0.002
02:00-03:00	0.002	0.002	0.002
03:00-04:00	0.002	0.002	0.002
04:00-05:00	0.002	0.002	0.002
05:00-06:00	0.002	0.002	0.001
06:00-07:00	0.002	0.002	0.001
07:00-08:00	0.002	0.002	0.002
08:00-09:00	0.002	0.003	0.002
09:00-10:00	0.002	0.002	0.002
10:00-11:00	0.001	0.002	0.001
1 hr-Minimum	0.001	0.001	0.001
1 hr-Maximum	0.002	0.003	0.002
avg. 24 hr	0.001	0.002	0.001
Standard* (avg. 1 hr)	0.30		
Standard** (avg. 24 hr)	0.12		

Analytical Method : - UV Fluorescence Method

Source : Notification of the National Environment Board No.21, B.E. 2544 (2001), dated April 9, B.E. 2544 (2001)
 Notification of the National Environment Board No.24, B.E. 2547 (2004), dated April 9, B.E. 2547 (2004)

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Analysis Report

SAMPLE DESIGNATED AS : Ambient Air Quality
SAMPLING LOCATION : NPI-G, NPI Flow Station Production Phase
SAMPLING DATE : April 22-25, 2024
SAMPLING BY : Weerapong Pengtrakul
 โรงเรียนวัดไผ่มั่ง หมู่ที่ 4 ต. วังน้ำเย็น อ. บางปลาหม้า จ. สุพรรณบุรี
 (UTM47P 0608995E, 1588085N)

TIME	April 22-23, 2024		April 23-24, 2024		April 24-25, 2024	
	WD	WS (m/s)	WD	WS (m/s)	WD	WS (m/s)
11:00-12:00	SSE	0.9	SSW	1.3	SSE	1.3
12:00-13:00	SSE	1.3	SSW	1.3	SSE	1.3
13:00-14:00	SSE	1.8	SSE	1.3	SSE	1.3
14:00-15:00	SSE	2.2	SSE	1.8	SSE	1.8
15:00-16:00	SSE	2.2	SSE	2.2	SSE	1.8
16:00-17:00	SSE	2.2	SSE	2.2	SSE	1.3
17:00-18:00	SSE	2.2	SSE	2.2	SSE	1.8
18:00-19:00	SSE	1.8	SSE	2.2	SSE	1.8
19:00-20:00	SSE	0.9	S	0.9	-	CALM
20:00-21:00	S	0.9	S	0.9	-	CALM
21:00-22:00	S	0.9	S	0.9	-	CALM
22:00-23:00	-	CALM	-	CALM	-	CALM
23:00-00:00	-	CALM	-	CALM	-	CALM
00:00-01:00	-	CALM	-	CALM	-	CALM
01:00-02:00	-	CALM	-	CALM	-	CALM
02:00-03:00	-	CALM	-	CALM	-	CALM
03:00-04:00	-	CALM	-	CALM	-	CALM
04:00-05:00	-	CALM	-	CALM	-	CALM
05:00-06:00	-	CALM	-	CALM	-	CALM
06:00-07:00	-	CALM	-	CALM	-	CALM
07:00-08:00	-	CALM	-	CALM	-	CALM
08:00-09:00	SSW	0.9	S	0.9	-	CALM
09:00-10:00	S	0.9	SSW	0.9	SSE	0.9
10:00-11:00	W	0.9	S	1.3	SSE	0.9

Measurement Method : - Wind Speed and Wind Direction recording meter

Remarks :
 - WS = Wind Speed
 - WD = Wind Direction

TY/WP/NT/NT



Technical Manager

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Tel. 089-968-0061 E-Mail: SutthilukP@pttep.com

Analysis Report

SAMPLE DESIGNATED AS : Ambient Air Quality SAMPLING DATE : April 22-25, 2024
SAMPLING LOCATION : NPI-G, NPI Flow Station Production Phase SAMPLING BY : Weerapong Pengtrakul
โรงเรียนวัดไผ่มั่ง หมู่ที่ 4 ต. วังน้ำเย็น อ. บางปลา ม้า จ. สุพรรณบุรี
(UTM47P 0608995E, 1588085N)

Wind Speed Wind Direction	Percent of Wind Speed (%)				
	0.5-1.0 m/s	1.1-2.0 m/s	2.1-3.0 m/s	3.1-4.0 m/s	>4.0 m/s
N	-	-	-	-	-
NNE	-	-	-	-	-
NE	-	-	-	-	-
ENE	-	-	-	-	-
E	-	-	-	-	-
ESE	-	-	-	-	-
SE	-	-	-	-	-
SSE	5.56	18.06	11.11	-	-
S	9.72	1.39	-	-	-
SSW	2.78	2.78	-	-	-
SW	-	-	-	-	-
WSW	-	-	-	-	-
W	1.39	-	-	-	-
WNW	-	-	-	-	-
NW	-	-	-	-	-
NNW	-	-	-	-	-
CALM	47.22				

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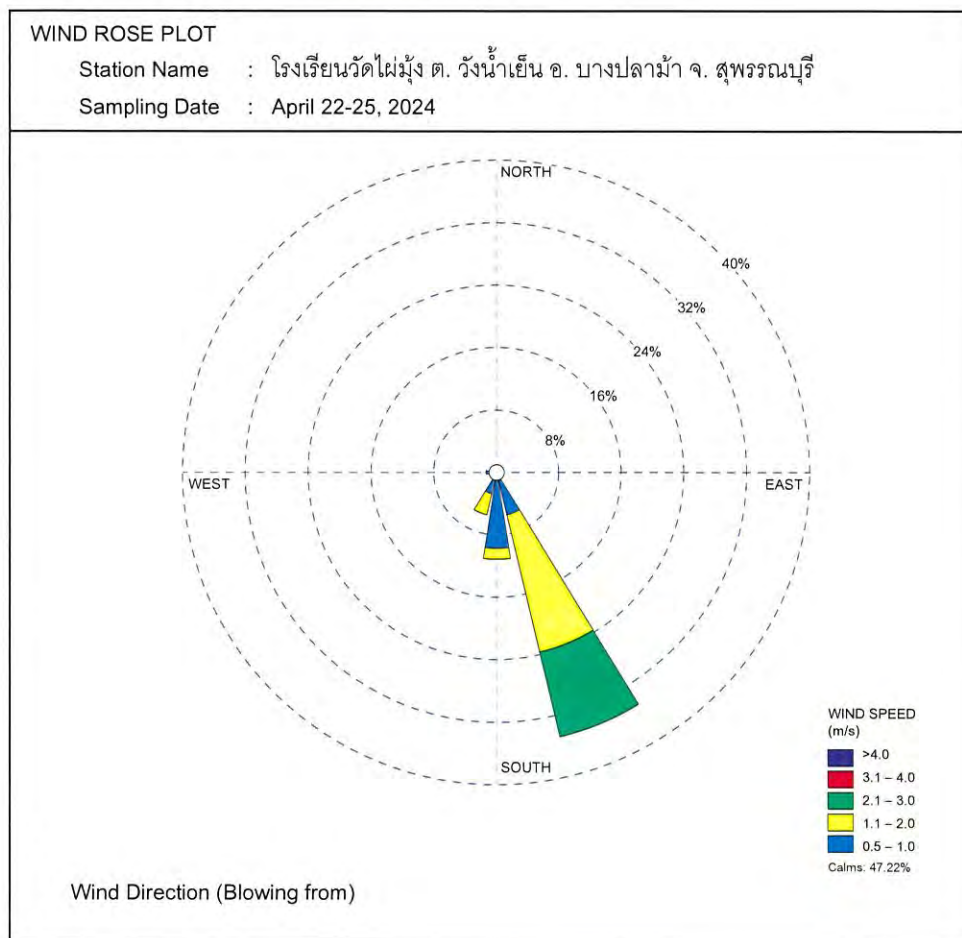
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Report No. : 2024-500001363-3 / 001-2 (Page 6 of 6) Issued date : May 31, 2024

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Analysis Report

SAMPLE DESIGNATED AS : Ambient Air Quality
SAMPLING DATE : April 22-25, 2024
SAMPLING LOCATION : NPI-G, NPI Flow Station Production Phase
SAMPLING BY : Weerapong Pengtrakul
 โรงเรียนวัดไผ่มั่ง หมู่ที่ 4 ต. วังน้ำเย็น อ. บางปلام้า จ. สุพรรณบุรี
 (UTM47P 0608995E, 1588085N)



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Report No. : 2024-500001363-14 / 001-1 (Page 1 of 6) Issued date : September 11, 2024

CLIENT : PTTEP International Limited
CONTACT : Khun Sutthiluk Phaisun
ADDRESS : 555/1 Energy Complex Vibhavadi-Rangsit Rd., Chatuchak, Chatuchak, Bangkok 10900
Tel. 089-968-0061 E-Mail: SutthilukP@pttep.com

Analysis Report

SAMPLE DESIGNATED AS : Ambient Air Quality
SAMPLING LOCATION : NPI-G, NPI Flow Station Production Phase
SAMPLING DATE : August 17-20, 2024
SAMPLING BY : Weerapong Pengtrakul

Sampling Date	TSP (mg/m ³)	PM-10 (mg/m ³)
August 17-18, 2024	0.043	0.022
August 18-19, 2024	0.028	0.014
August 19-20, 2024	0.029	0.022
Standard*	0.33	0.12

Remark: - Sampling and analytical technique for TSP based on High Volume Air Sampler / Gravimetric Method and PM10 based on Size Selective High Volume Air Sampler / Gravimetric Method.
Source: * The notification of the National Environment Board No. 24, B.E. 2547 (2004), subjected "The ambient air standards", published in the Royal Government Gazette, Vol. 121, Part 104D, dated September 22, B.E. 2547 (2004).

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(Thepsan Yommana)
Technical Manager

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Report No. : 2024-500001363-14 / 001-1 (Page 2 of 6) Issued date : September 11, 2024

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 Tel. 089-968-0061 E-Mail: SutthilukP@pttep.com

Analysis Report

SAMPLE DESIGNATED AS : Ambient Air Quality
SAMPLING LOCATION : NPI-G, NPI Flow Station Production Phase
SAMPLING DATE : August 17-20, 2024
SAMPLING BY : Weerapong Pengtrakul

Time	NO ₂ Concentration (ppm)		
	August 17-18, 2024	August 18-19, 2024	August 19-20, 2024
09:00-10:00	0.002	0.014	0.007
10:00-11:00	0.002	0.016	0.015
11:00-12:00	0.004	0.023	0.013
12:00-13:00	0.002	0.020	0.015
13:00-14:00	0.000	0.018	0.015
14:00-15:00	0.003	0.018	0.012
15:00-16:00	0.007	0.019	0.013
16:00-17:00	0.015	0.007	0.009
17:00-18:00	0.018	0.010	0.011
18:00-19:00	0.009	0.008	0.012
19:00-20:00	0.005	0.019	0.006
20:00-21:00	0.005	0.019	0.006
21:00-22:00	0.003	0.020	0.003
22:00-23:00	0.001	0.047	0.004
23:00-00:00	0.009	0.013	0.003
00:00-01:00	0.015	0.011	0.004
01:00-02:00	0.015	0.013	0.005
02:00-03:00	0.021	0.023	0.003
03:00-04:00	0.029	0.032	0.003
04:00-05:00	0.011	0.030	0.004
05:00-06:00	0.016	0.020	0.002
06:00-07:00	0.015	0.027	0.003
07:00-08:00	0.011	0.016	0.002
08:00-09:00	0.017	0.009	0.002
1 hr.-Minimum	0.001	0.007	0.002
1 hr.-Maximum	0.029	0.047	0.015
Standard* (avg. 1 hr.)	0.17		

Analytical Method: - Chemiluminescence Method

Source: The Notification of the National Environment Board No. 33, B.E. 2552 (2009), subjected "The nitrogen dioxide in ambient air standards", published in the Royal Government Gazette, Vol. 126, Special part 114D, dated August 14, B.E. 2552 (2009)

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(Ineaparn Yommana)
Technical Manager

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Report No. : 2024-500001363-14 / 001-1 (Page 3 of 6) Issued date : September 11, 2024

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ADDRESS : 555/1 Energy Complex Vibhavadi-Rangsit Rd., Chatuchak, Chatuchak, Bangkok 10900
 Tel. 089-968-0061 E-Mail: SutthilukP@pttep.com

Analysis Report

SAMPLE DESIGNATED AS : Ambient Air Quality
SAMPLING LOCATION : NPI-G, NPI Flow Station Production Phase
SAMPLING DATE : August 17-20, 2024
SAMPLING BY : Weerapong Pengtrakul

Time	SO ₂ Concentration (ppm)		
	August 17-18, 2024	August 18-19, 2024	August 19-20, 2024
09:00-10:00	0.002	0.001	0.001
10:00-11:00	0.002	0.001	0.001
11:00-12:00	0.002	0.001	0.001
12:00-13:00	0.002	0.002	0.001
13:00-14:00	0.002	0.002	0.002
14:00-15:00	0.002	0.002	0.001
15:00-16:00	0.002	0.002	0.001
16:00-17:00	0.002	0.002	0.002
17:00-18:00	0.002	0.002	0.003
18:00-19:00	0.002	0.002	0.002
19:00-20:00	0.002	0.002	0.001
20:00-21:00	0.001	0.002	0.001
21:00-22:00	0.001	0.002	0.001
22:00-23:00	0.001	0.002	0.001
23:00-00:00	0.001	0.002	0.001
00:00-01:00	0.001	0.002	0.001
01:00-02:00	0.001	0.002	0.001
02:00-03:00	0.001	0.002	0.002
03:00-04:00	0.002	0.002	0.002
04:00-05:00	0.002	0.002	0.002
05:00-06:00	0.002	0.002	0.002
06:00-07:00	0.002	0.001	0.002
07:00-08:00	0.002	0.001	0.002
08:00-09:00	0.002	0.001	0.002
1 hr.-Minimum	0.001	0.001	0.001
1 hr.-Maximum	0.002	0.002	0.003
avg. 24 hrs.	0.002	0.002	0.002
Standard* (avg. 1 hr.)	0.30		
Standard** (avg. 24 hrs.)	0.12		

Analytical Method: - UV Fluorescence Method

Sources: Notification of the National Environment Board No.21, B.E. 2544 (2001), dated April 9, B.E. 2544 (2001)
 " Notification of the National Environment Board No.24, B.E. 2547 (2004), dated August 9, B.E. 2547 (2004)



(Thepsan Yommana)
 Technical Manager

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Report No. : 2024-500001363-14 / 001-1 (Page 4 of 6) Issued date : September 11, 2024

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 Tel. 089-968-0061 E-Mail: SutthilukP@pttep.com

Analysis Report

SAMPLE DESIGNATED AS : Ambient Air Quality
SAMPLING LOCATION : NPI-G, NPI Flow Station Production Phase
SAMPLING DATE : August 17-20, 2024
SAMPLING BY : Weerapong Pengtrakul

TIME	August 17-18, 2024		August 18-19, 2024		August 19-20, 2024	
	WD	WS (m/s)	WD	WS (m/s)	WD	WS (m/s)
09:00-10:00	WNW	1.3	W	1.8	W	1.8
10:00-11:00	W	2.2	WSW	1.3	W	1.8
11:00-12:00	W	1.8	W	0.4	W	1.8
12:00-13:00	W	0.9	-	CALM	W	1.8
13:00-14:00	-	CALM	-	CALM	W	1.3
14:00-15:00	-	CALM	WSW	0.9	W	0.9
15:00-16:00	WNW	0.9	WSW	1.3	SW	0.9
16:00-17:00	-	CALM	WSW	1.8	-	CALM
17:00-18:00	W	0.9	WSW	1.8	-	CALM
18:00-19:00	W	0.9	W	1.8	-	CALM
19:00-20:00	W	1.3	W	1.3	NNE	0.9
20:00-21:00	-	CALM	-	CALM	NNE	2.7
21:00-22:00	WSW	1.3	WSW	3.1	WSW	3.1
22:00-23:00	WSW	1.3	WSW	1.3	W	2.2
23:00-00:00	WSW	0.9	W	2.2	-	CALM
00:00-01:00	WSW	1.3	W	2.2	-	CALM
01:00-02:00	W	1.3	WSW	1.8	WSW	0.9
02:00-03:00	SW	1.3	WNW	0.9	W	2.2
03:00-04:00	SW	1.3	WSW	1.3	WSW	1.3
04:00-05:00	W	2.7	WSW	1.8	-	CALM
05:00-06:00	W	2.2	WSW	1.3	-	CALM
06:00-07:00	W	1.3	WSW	1.8	-	CALM
07:00-08:00	WSW	0.9	WSW	1.3	-	CALM
08:00-09:00	W	1.3	W	1.8	-	CALM

Measurement Method: - Wind Speed and Wind Direction recording meter

Remarks:
 - WS = Wind Speed
 - WD = Wind Direction



(Thepsan Yommana)
 Technical Manager

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Report No. : 2024-500001363-14 / 001-1 (Page 5 of 6) Issued date : September 11, 2024

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Analysis Report

SAMPLE DESIGNATED AS : Ambient Air Quality
SAMPLING LOCATION : NPI-G, NPI Flow Station Production Phase
SAMPLING DATE : August 17-20, 2024
SAMPLING BY : Weerapong Pengtrakul

Wind Speed Wind Direction	Percent of Wind Speed (%)				
	0.5-1.0 m/s	1.1-2.0 m/s	2.1-3.0 m/s	3.1-4.0 m/s	>4.0 m/s
N	-	-	-	-	-
NNE	1.39	-	1.39	-	-
NE	-	-	-	-	-
ENE	-	-	-	-	-
E	-	-	-	-	-
ESE	-	-	-	-	-
SE	-	-	-	-	-
SSE	-	-	-	-	-
S	-	-	-	-	-
SSW	-	-	-	-	-
SW	1.39	2.78	-	-	-
WSW	5.56	20.83	-	2.78	-
W	5.56	19.44	9.72	-	-
WNW	2.78	1.39	-	-	-
NW	-	-	-	-	-
NNW	-	-	-	-	-
CALM	25.00				

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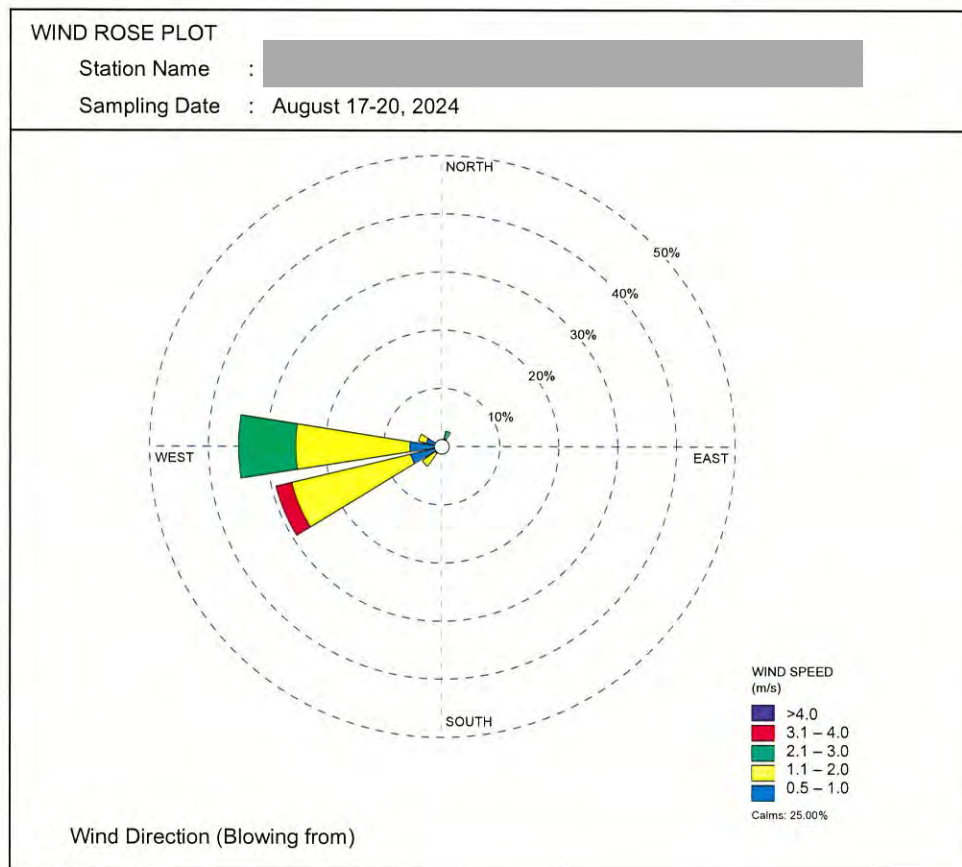
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Report No. : 2024-500001363-14 / 001-1 (Page 6 of 6) Issued date : September 11, 2024

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Analysis Report

SAMPLE DESIGNATED AS : Ambient Air Quality
SAMPLING LOCATION : NPI-G, NPI Flow Station Production Phase
SAMPLING DATE : August 17-20, 2024
SAMPLING BY : Weerapong Pengtrakul



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 Technical Manager

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Report No. : 2024-500001363-14 / 001-2 (Page 1 of 6) Issued date : September 11, 2024

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ADDRESS : 555/1 Energy Complex Vibhavadi-Rangsit Rd., Chatuchak, Chatuchak, Bangkok 10900
Tel. 089-968-0061 E-Mail: SutthilukP@pttep.com

Analysis Report

SAMPLE DESIGNATED AS : Ambient Air Quality
SAMPLING LOCATION : NPI-G, NPI Flow Station Production Phase
SAMPLING DATE : August 17-20, 2024
SAMPLING BY : Weerapong Pengtrakul
โรงเรียนวัดไผ่มั่ง หมู่ที่ 4 ต. วังน้ำเย็น อ. บางปลา ม้า จ. สุพรรณบุรี
(UTM47P 0608989E, 1588081N)

Sampling Date	TSP (mg/m ³)	PM-10 (mg/m ³)
August 17-18, 2024	0.041	0.019
August 18-19, 2024	0.038	0.013
August 19-20, 2024	0.036	0.013
Standard*	0.33	0.12

Remark: - Sampling and analytical technique for TSP based on High Volume Air Sampler / Gravimetric Method and PM10 based on Size Selective High Volume Air Sampler / Gravimetric Method.
Source: * The notification of the National Environment Board No. 24, B.E. 2547 (2004), subjected "The ambient air standards", published in the Royal Government Gazette, Vol. 121, Part 104D, dated September 22, B.E. 2547 (2004).

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Report No. : 2024-500001363-14 / 001-2 (Page 2 of 6) Issued date : September 11, 2024

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 Tel. 089-968-0061 E-Mail: SutthilukP@pttep.com

Analysis Report

SAMPLE DESIGNATED AS : Ambient Air Quality
SAMPLING DATE : August 17-20, 2024
SAMPLING LOCATION : NPI-G, NPI Flow Station Production Phase
SAMPLING BY : Weerapong Pengtrakul
 โรงเรือนวัดไผ่มั่ง หมู่ที่ 4 ต. วังน้ำเย็น อ. บางปละมา้า จ. สุพรรณบุรี
 (UTM47P 0608989E, 1588081N)

Time	NO ₂ Concentration (ppm)		
	August 17-18, 2024	August 18-19, 2024	August 19-20, 2024
09:00-10:00	0.021	0.010	0.017
10:00-11:00	0.017	0.010	0.014
11:00-12:00	0.015	0.007	0.008
12:00-13:00	0.014	0.009	0.005
13:00-14:00	0.013	0.007	0.006
14:00-15:00	0.011	0.006	0.006
15:00-16:00	0.010	0.007	0.004
16:00-17:00	0.009	0.006	0.005
17:00-18:00	0.006	0.005	0.003
18:00-19:00	0.006	0.002	0.001
19:00-20:00	0.005	0.002	0.001
20:00-21:00	0.004	0.003	0.002
21:00-22:00	0.005	0.003	0.002
22:00-23:00	0.006	0.003	0.004
23:00-00:00	0.007	0.005	0.006
00:00-01:00	0.006	0.005	0.005
01:00-02:00	0.006	0.006	0.006
02:00-03:00	0.008	0.008	0.006
03:00-04:00	0.012	0.010	0.008
04:00-05:00	0.010	0.009	0.007
05:00-06:00	0.005	0.012	0.010
06:00-07:00	0.006	0.011	0.005
07:00-08:00	0.008	0.011	0.004
08:00-09:00	0.011	0.014	0.004
1 hr.-Minimum	0.004	0.002	0.001
1 hr.-Maximum	0.021	0.014	0.017
Standard* (avg. 1 hr.)	0.17		

Analytical Method: - Chemiluminescence Method.

Source: The Notification of the National Environment Board No. 33, B.E. 2552 (2009), subjected "The nitrogen dioxide in ambient air standards", published in the Royal Government Gazette, Vol. 126, Special part 114D, dated August 14, B.E. 2552 (2009).



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Analysis Report

SAMPLE DESIGNATED AS : Ambient Air Quality
SAMPLING DATE : August 17-20, 2024
SAMPLING LOCATION : NPI-G, NPI Flow Station Production Phase
SAMPLING BY : Weerapong Pengtrakul
 โรงเรือนวัดไผ่มั่ง หมู่ที่ 4 ต. วังน้ำเย็น อ. บางปละมา จ. สุพรรณบุรี
 (UTM47P 0608989E, 1588081N)

TIME	August 17-18, 2024		August 18-19, 2024		August 19-20, 2024	
	WD	WS (m/s)	WD	WS (m/s)	WD	WS (m/s)
09:00-10:00	SW	1.3	-	CALM	-	CALM
10:00-11:00	SW	0.9	-	CALM	-	CALM
11:00-12:00	SW	0.9	WSW	0.9	-	CALM
12:00-13:00	-	CALM	E	0.9	-	CALM
13:00-14:00	-	CALM	ESE	0.9	E	0.9
14:00-15:00	ESE	0.9	ESE	1.3	-	CALM
15:00-16:00	ESE	0.9	E	0.9	-	CALM
16:00-17:00	-	CALM	-	CALM	NE	0.9
17:00-18:00	-	CALM	SSE	1.1	NE	0.9
18:00-19:00	-	CALM	SE	0.9	-	CALM
19:00-20:00	WSW	3.1	SW	0.9	-	CALM
20:00-21:00	WSW	1.8	WSW	0.9	-	CALM
21:00-22:00	W	1.3	-	CALM	E	0.9
22:00-23:00	SW	0.9	-	CALM	-	CALM
23:00-00:00	-	CALM	E	0.9	-	CALM
00:00-01:00	SSE	0.9	-	CALM	E	0.9
01:00-02:00	-	CALM	E	0.9	ENE	0.9
02:00-03:00	-	CALM	-	CALM	-	CALM
03:00-04:00	-	CALM	S	0.9	NE	0.9
04:00-05:00	-	CALM	-	CALM	-	CALM
05:00-06:00	SW	0.9	SSW	0.9	-	CALM
06:00-07:00	SW	0.9	N	1.1	E	0.9
07:00-08:00	-	CALM	SSW	0.9	NE	0.9
08:00-09:00	-	CALM	E	0.9	-	CALM

Measurement Method: - Wind Speed and Wind Direction recording meter

Remarks:
 - WS = Wind Speed
 - WD = Wind Direction

TY/WP/NT/NT

SGS (THAILAND) LIMITED



(Inepsan Yommana)
 Technical Manager

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IE 010160

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Report No. : 2024-500001363-14 / 001-2 (Page 3 of 6) Issued date : September 11, 2024

CLIENT : PTTEP International Limited
CONTACT : Khun Sutthiluk Phaisun
ADDRESS : 555/1 Energy Complex Vibhavadi-Rangsit Rd., Chatuchak, Chatuchak, Bangkok 10900
Tel. 089-968-0061 E-Mail: SutthilukP@pttep.com

Analysis Report

SAMPLE DESIGNATED AS : Ambient Air Quality
SAMPLING LOCATION : NPI-G, NPI Flow Station Production Phase
SAMPLING DATE : August 17-20, 2024
SAMPLING BY : Weerapong Pengtrakul
โรงเรือนวัดไผ่มั่ง หมู่ที่ 4 ต. วังน้ำเย็น อ. บางปلام้า จ. สุพรรณบุรี
(UTM47P 0608989E, 1588081N)

Time	SO ₂ Concentration (ppm)		
	August 17-18, 2024	August 18-19, 2024	August 19-20, 2024
09:00-10:00	0.001	0.001	0.001
10:00-11:00	0.001	0.001	0.001
11:00-12:00	0.001	0.001	0.001
12:00-13:00	0.001	0.001	0.001
13:00-14:00	0.001	0.001	0.001
14:00-15:00	0.002	0.002	0.002
15:00-16:00	0.002	0.002	0.002
16:00-17:00	0.002	0.002	0.002
17:00-18:00	0.002	0.002	0.002
18:00-19:00	0.002	0.002	0.002
19:00-20:00	0.002	0.002	0.001
20:00-21:00	0.002	0.002	0.001
21:00-22:00	0.002	0.002	0.002
22:00-23:00	0.002	0.002	0.001
23:00-00:00	0.002	0.002	0.002
00:00-01:00	0.002	0.002	0.002
01:00-02:00	0.002	0.002	0.002
02:00-03:00	0.002	0.002	0.002
03:00-04:00	0.002	0.002	0.002
04:00-05:00	0.002	0.002	0.002
05:00-06:00	0.002	0.002	0.002
06:00-07:00	0.002	0.002	0.002
07:00-08:00	0.002	0.002	0.002
08:00-09:00	0.002	0.002	0.002
1 hr.-Minimum	0.001	0.001	0.001
1 hr.-Maximum	0.002	0.002	0.002
avg. 24 hrs.	0.002	0.002	0.001
Standard* (avg. 1 hr.)	0.30		
Standard** (avg. 24 hrs.)	0.12		

Analytical Method: - UV Fluorescence Method
Sources: Notification of the National Environment Board No.21, B.E. 2544 (2001), dated April 9, B.E. 2544 (2001)
Notification of the National Environment Board No.24, B.E. 2547 (2004), dated August 9, B.E. 2547 (2004)

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(Thepsan Yommana)
Technical Manager

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Report No. : 2024-500001363-14 / 001-2 (Page 5 of 6) Issued date : September 11, 2024

CLIENT : PTTEP International Limited
CONTACT : Khun Sutthiluk Phaisun
ADDRESS : 555/1 Energy Complex Vibhavadi-Rangsit Rd., Chatuchak, Chatuchak, Bangkok 10900
Tel. 089-968-0061 E-Mail: SutthilukP@pttep.com

Analysis Report

SAMPLE DESIGNATED AS : Ambient Air Quality
SAMPLING LOCATION : NPI-G, NPI Flow Station Production Phase
SAMPLING DATE : August 17-20, 2024
SAMPLING BY : Weerapong Pengtrakul
โรงเรียนวัดไผ่มั่ง หมู่ที่ 4 ต. วังน้ำเย็น อ. บางปละม้า จ. สุพรรณบุรี
(UTM47P 0608989E, 1588081N)

Wind Speed Wind Direction	Percent of Wind Speed (%)				
	0.5-1.0 m/s	1.1-2.0 m/s	2.1-3.0 m/s	3.1-4.0 m/s	>4.0 m/s
N	-	1.39	-	-	-
NNE	-	-	-	-	-
NE	5.56	-	-	-	-
ENE	1.39	-	-	-	-
E	12.50	-	-	-	-
ESE	4.17	1.39	-	-	-
SE	1.39	-	-	-	-
SSE	1.39	1.39	-	-	-
S	1.39	-	-	-	-
SSW	2.78	-	-	-	-
SW	8.33	1.39	-	-	-
WSW	2.78	1.39	-	1.39	-
W	-	1.39	-	-	-
WNW	-	-	-	-	-
NW	-	-	-	-	-
NNW	-	-	-	-	-
CALM	48.61				

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SGS (THAILAND) LIMITED



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Technical Manager

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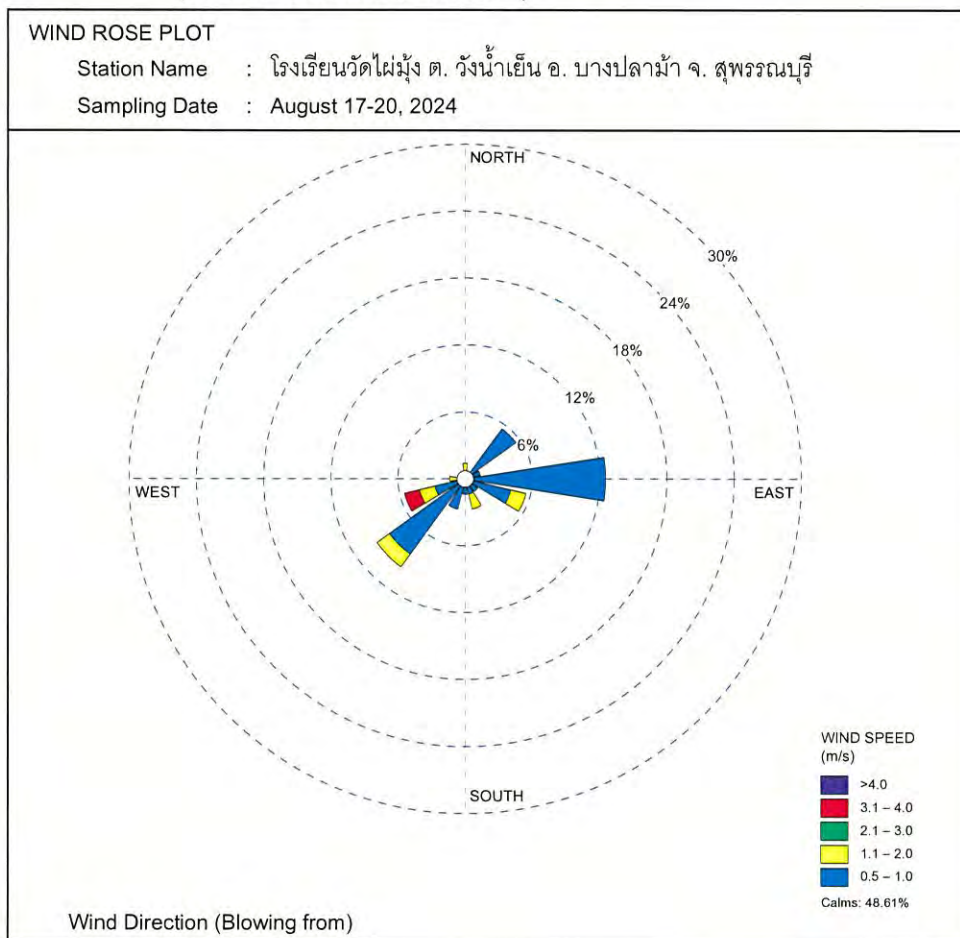
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Report No. : 2024-500001363-14 / 001-2 (Page 6 of 6) Issued date : September 11, 2024

CLIENT : PTTEP International Limited
CONTACT : Khun Sutthiluk Phaisun
ADDRESS : 555/1 Energy Complex Vibhavadi-Rangsit Rd., Chatuchak, Bangkok 10900
 Tel. 089-968-0061 E-Mail: SutthilukP@pttep.com

Analysis Report

SAMPLE DESIGNATED AS : Ambient Air Quality
SAMPLING DATE : August 17-20, 2024
SAMPLING LOCATION : NPI-G, NPI Flow Station Production Phase
SAMPLING BY : Weerapong Pengtrakul
 โรงเรียนวัดไผ่มั่ง หมู่ที่ 4 ต. วังน้ำเย็น อ. บางปلام้า จ. สุพรรณบุรี
 (UTM47P 0608989E, 1588081N)



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(Thapan Pongmanee)
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Report No. : 2024-500001363-19 / 001-1 (Page 1 of 6)

Issued date : November 6, 2024

CLIENT : PTTEP International Limited
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 Tel. 089-968-0061 E-Mail: SutthilukP@pttep.com

Analysis Report

SAMPLE DESIGNATED AS : Ambient Air Quality
SAMPLING LOCATION : UT 1-3 Production Phase
SAMPLING DATE : October 15-18, 2024
SAMPLING BY : Weerapong Pengtrakul

Sampling Date	TSP (mg/m ³)	PM-10 (mg/m ³)
October 15-16, 2024	0.040	0.031
October 16-17, 2024	0.037	0.029
October 17-18, 2024	0.043	0.027
Standard*	0.33	0.12

Remark: - Sampling and analytical technique for TSP based on High Volume Air Sampler / Gravimetric Method and PM10 based on Size Selective High Volume Air Sampler / Gravimetric Method.

Source: - The notification of the National Environment Board No. 24, B.E. 2547 (2004), subjected "The ambient air standards", published in the Royal Government Gazette, Vol. 121, Part 104D, dated September 22, B.E. 2547 (2004).

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Report No. : 2024-500001363-19 / 001-1 (Page 2 of 6)

Issued date : November 6, 2024

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Analysis Report

SAMPLE DESIGNATED AS : Ambient Air Quality
SAMPLING LOCATION : UT 1-3 Production Phase
SAMPLING DATE : October 15-18, 2024
SAMPLING BY : Weerapong Pengtrakul

Time	NO ₂ Concentration (ppm)		
	October 15-16, 2024	October 16-17, 2024	October 17-18, 2024
13:00-14:00	0.012	0.004	0.006
14:00-15:00	0.002	0.004	0.005
15:00-16:00	0.003	0.003	0.004
16:00-17:00	0.003	0.006	0.004
17:00-18:00	0.003	0.003	0.003
18:00-19:00	0.003	0.003	0.002
19:00-20:00	0.003	0.004	0.004
20:00-21:00	0.004	0.004	0.003
21:00-22:00	0.004	0.005	0.004
22:00-23:00	0.006	0.006	0.005
23:00-00:00	0.006	0.013	0.004
00:00-01:00	0.003	0.021	0.001
01:00-02:00	0.002	0.019	0.002
02:00-03:00	0.002	0.021	0.002
03:00-04:00	0.002	0.016	0.002
04:00-05:00	0.002	0.011	0.001
05:00-06:00	0.003	0.013	0.001
06:00-07:00	0.003	0.014	0.002
07:00-08:00	0.003	0.010	0.002
08:00-09:00	0.006	0.008	0.002
09:00-10:00	0.006	0.009	0.003
10:00-11:00	0.005	0.007	0.002
11:00-12:00	0.007	0.008	0.005
12:00-13:00	0.005	0.010	0.004
1 hr.-Minimum	0.002	0.003	0.001
1 hr.-Maximum	0.012	0.021	0.006
Standard* (avg. 1 hr.)	0.17		

Analytical Method: - Chemiluminescence Method.

Source: The Notification of the National Environment Board No. 33, B.E. 2552 (2009), subjected "The nitrogen dioxide in ambient air standards", published in the Royal Government Gazette, Vol. 126, Special part 114D, dated August 14, B.E. 2552 (2009).

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Report No. : 2024-500001363-19 / 001-1 (Page 3 of 6)

Issued date : November 6, 2024

CLIENT : PTTEP International Limited
CONTACT : Khun Sutthiluk Phaisun
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 Tel. 089-968-0061 E-Mail: SutthilukP@pttep.com

Analysis Report

SAMPLE DESIGNATED AS : Ambient Air Quality
SAMPLING LOCATION : UT 1-3 Production Phase
SAMPLING DATE : October 15-18, 2024
SAMPLING BY : Weerapong Pengtrakul

Time	SO ₂ Concentration (ppm)		
	October 15-16, 2024	October 16-17, 2024	October 17-18, 2024
13:00-14:00	0.005	0.002	0.002
14:00-15:00	0.008	0.002	0.002
15:00-16:00	0.004	0.002	0.002
16:00-17:00	0.007	0.002	0.002
17:00-18:00	0.011	0.002	0.002
18:00-19:00	0.007	0.002	0.002
19:00-20:00	0.004	0.002	0.002
20:00-21:00	0.001	0.002	0.002
21:00-22:00	0.001	0.002	0.002
22:00-23:00	0.003	0.002	0.001
23:00-00:00	0.003	0.002	0.002
00:00-01:00	0.003	0.002	0.002
01:00-02:00	0.002	0.002	0.002
02:00-03:00	0.002	0.002	0.001
03:00-04:00	0.002	0.001	0.002
04:00-05:00	0.002	0.001	0.002
05:00-06:00	0.002	0.002	0.002
06:00-07:00	0.002	0.001	0.001
07:00-08:00	0.002	0.001	0.002
08:00-09:00	0.002	0.002	0.002
09:00-10:00	0.002	0.002	0.002
10:00-11:00	0.002	0.002	0.003
11:00-12:00	0.002	0.002	0.001
12:00-13:00	0.002	0.002	0.002
1 hr.-Minimum	0.001	0.001	0.001
1 hr.-Maximum	0.011	0.002	0.003
avg. 24 hrs.	0.003	0.002	0.002
Standard* (avg. 1 hr.)	0.30		
Standard** (avg. 24 hrs.)	0.12		

Analytical Method : - UV Fluorescence Method

Source : Notification of the National Environment Board No.21, B.E. 2544 (2001), dated April 9, B.E. 2544 (2001)

** Notification of the National Environment Board No.24, B.E. 2547 (2004), dated August 9, B.E. 2547 (2004)

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SGS (THAILAND) LIMITED



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Report No. : 2024-500001363-19 / 001 (Page 4 of 6)

Issued date : November 6, 2024

CLIENT : PTTEP International Limited
CONTACT : Khun Sutthiluk Phaisun
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 Tel. 089-968-0061 E-Mail: SutthilukP@pttep.com

Analysis Report

SAMPLE DESIGNATED AS : Ambient Air Quality
SAMPLING LOCATION : UT 1-3 Production Phase
SAMPLING DATE : October 15-18, 2024
SAMPLING BY : Weerapong Pengtrakul

TIME	October 15-16, 2024		October 16-17, 2024		October 17-18, 2024	
	WD	WS (m/s)	WD	WS (m/s)	WD	WS (m/s)
13:00-14:00	N	1.3	-	Calm	ESE	0.9
14:00-15:00	N	0.4	ESE	0.9	ESE	1.3
15:00-16:00	-	Calm	ESE	0.9	E	0.9
16:00-17:00	N	2.2	-	Calm	-	Calm
17:00-18:00	NE	1.8	-	Calm	-	Calm
18:00-19:00	-	Calm	-	Calm	-	Calm
19:00-20:00	S	0.9	WSW	3.1	-	Calm
20:00-21:00	SSW	2.2	WSW	1.8	WSW	0.9
21:00-22:00	-	Calm	-	Calm	-	Calm
22:00-23:00	-	Calm	-	Calm	-	Calm
23:00-00:00	-	Calm	-	Calm	-	Calm
00:00-01:00	-	Calm	-	Calm	-	Calm
01:00-02:00	-	Calm	-	Calm	-	Calm
02:00-03:00	-	Calm	-	Calm	-	Calm
03:00-04:00	-	Calm	-	Calm	-	Calm
04:00-05:00	-	Calm	-	Calm	-	Calm
05:00-06:00	-	Calm	SW	0.9	-	Calm
06:00-07:00	-	Calm	-	Calm	-	Calm
07:00-08:00	-	Calm	-	Calm	-	Calm
08:00-09:00	-	Calm	-	Calm	-	Calm
09:00-10:00	SW	1.3	-	Calm	-	Calm
10:00-11:00	SW	0.9	-	Calm	-	Calm
11:00-12:00	SW	0.9	WSW	0.9	-	Calm
12:00-13:00	-	Calm	E	0.9	-	Calm

Measurement Method : - Wind Speed and Wind Direction recording meter

Remarks :
 - WS = Wind Speed
 - WD = Wind Direction

TY/WP/WK/WK



(Thepsan Yommana)
 Technical Manager

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Report No. : 2024-500001363-19 / 001-1 (Page 5 of 6)

Issued date : November 6, 2024

CLIENT : PTTEP International Limited
CONTACT : Khun Sutthiluk Phaisun
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 Tel. 089-968-0061 E-Mail: SutthilukP@pttep.com

Analysis Report

SAMPLE DESIGNATED AS : Ambient Air Quality
SAMPLING LOCATION : UT 1-3 Production Phase
SAMPLING DATE : October 15-18, 2024
SAMPLING BY : Weerapong Pengtrakul

Wind Speed Wind Direction	Percent of Wind Speed (%)				
	0.5-1.0 m/s	1.1-2.0 m/s	2.1-3.0 m/s	3.1-4.0 m/s	>4.0 m/s
N	-	1.39	1.39	-	-
NNE	-	-	-	-	-
NE	-	1.39	-	-	-
ENE	-	-	-	-	-
E	2.78	-	-	-	-
ESE	4.17	1.39	-	-	-
SE	-	-	-	-	-
SSE	-	-	-	-	-
S	1.39	-	-	-	-
SSW	-	-	1.39	-	-
SW	4.17	1.39	-	-	-
WSW	2.78	1.39	-	1.39	-
W	-	-	-	-	-
WNW	-	-	-	-	-
NW	-	-	-	-	-
NNW	-	-	-	-	-
CALM	73.61				

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 Technical Manager

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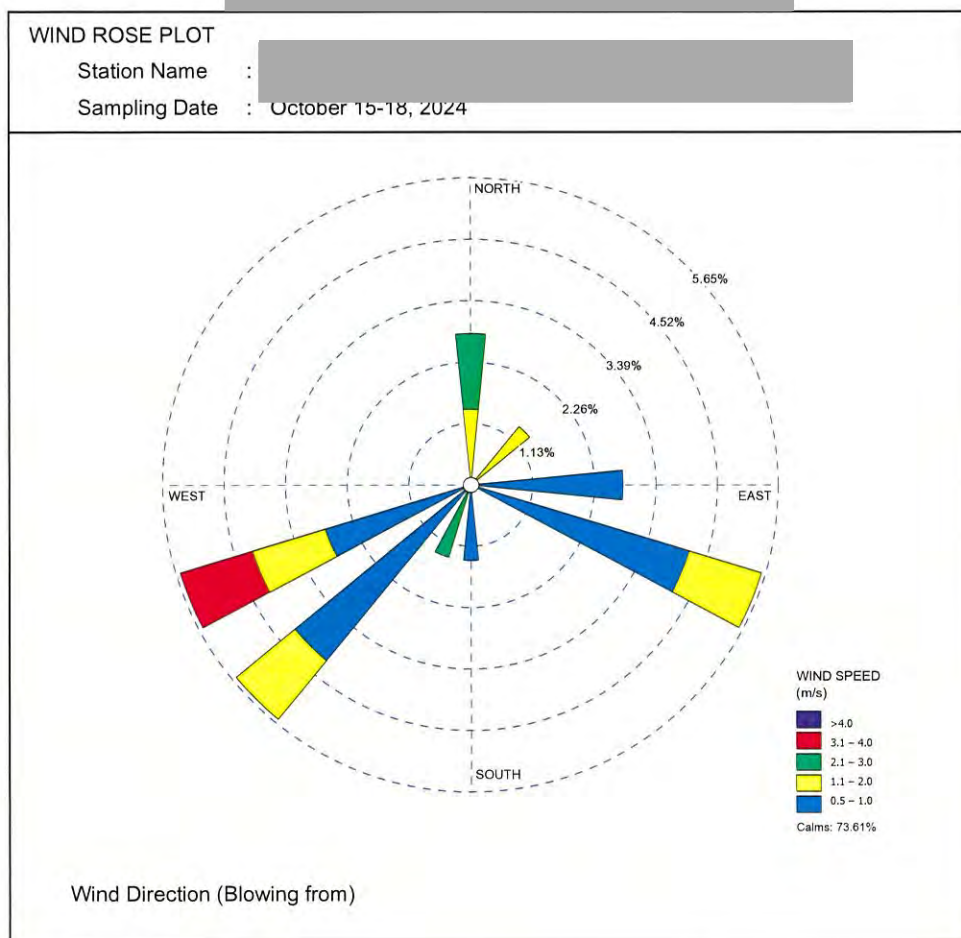
Report No. : 2024-500001363-19 / 001-1 (Page 6 of 6)

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 Tel. 089-968-0061 E-Mail: SutthilukP@pttep.com

Analysis Report

SAMPLE DESIGNATED AS : Ambient Air Quality
SAMPLING LOCATION : UT 1-3 Production Phase
SAMPLING DATE : October 15-18, 2024
SAMPLING BY : Weerapong Pengtrakul



TY/WP/WK/WK

SGS (THAILAND) LIMITED



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 Technical Manager

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Report No. : 2024-500001363-19 / 001-2 (Page 1 of 6)

Issued date : November 6, 2024

CLIENT : PTTEP International Limited
CONTACT : Khun Sutthiluk Phaisun
ADDRESS : 555/1 Energy Complex Vibhavadi-Rangsit Rd., Chatuchak, Chatuchak, Bangkok 10900
 Tel. 089-968-0061 E-Mail: SutthilukP@pttep.com

Analysis Report

SAMPLE DESIGNATED AS : Ambient Air Quality
SAMPLING LOCATION : UT 1-3 Production Phase

SAMPLING DATE : October 15-18, 2024
SAMPLING BY : Weerapong Pengtrakul

Sampling Date	TSP (mg/m ³)	PM-10 (mg/m ³)
October 15-16, 2024	0.041	0.029
October 16-17, 2024	0.042	0.030
October 17-18, 2024	0.032	0.025
Standard*	0.33	0.12

Remark: - Sampling and analytical technique for TSP based on High Volume Air Sampler / Gravimetric Method and PM10 based on Size Selective High Volume Air Sampler / Gravimetric Method.

Source: - The notification of the National Environment Board No. 24, B.E. 2547 (2004), subjected "The ambient air standards", published in the Royal Government Gazette, Vol. 121, Part 104D, dated September 22, B.E. 2547 (2004).

TY/WP/WK/WK

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(Thepsan Yommana)
 Technical Manager

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Report No. : 2024-500001363-19 / 001-2 (Page 2 of 6)

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Analysis Report

SAMPLE DESIGNATED AS : Ambient Air Quality
SAMPLING LOCATION : UT 1-3 Production Phase

SAMPLING DATE : October 15-18, 2024
SAMPLING BY : Weerapong Pengtrakul

Time	NO ₂ Concentration (ppm)		
	October 15-16, 2024	October 16-17, 2024	October 17-18, 2024
10:00-11:00	0.015	0.004	0.004
11:00-12:00	0.008	0.005	0.004
12:00-13:00	0.007	0.006	0.005
13:00-14:00	0.006	0.006	0.005
14:00-15:00	0.005	0.006	0.004
15:00-16:00	0.004	0.005	0.004
16:00-17:00	0.003	0.004	0.004
17:00-18:00	0.002	0.004	0.004
18:00-19:00	0.001	0.003	0.003
19:00-20:00	0.001	0.001	0.000
20:00-21:00	0.001	0.001	0.000
21:00-22:00	0.002	0.001	0.000
22:00-23:00	0.001	0.001	0.000
23:00-00:00	0.001	0.002	0.000
00:00-01:00	0.002	0.001	0.001
01:00-02:00	0.002	0.002	0.001
02:00-03:00	0.002	0.001	0.001
03:00-04:00	0.002	0.001	0.002
04:00-05:00	0.003	0.002	0.002
05:00-06:00	0.003	0.004	0.002
06:00-07:00	0.003	0.003	0.002
07:00-08:00	0.003	0.005	0.002
08:00-09:00	0.003	0.005	0.002
09:00-10:00	0.005	0.005	0.006
1 hr.-Minimum	0.001	0.001	0.001
1 hr.-Maximum	0.015	0.006	0.006
Standard* (avg. 1 hr.)	0.17		

Analytical Method: - Chemiluminescence Method.

Source: The Notification of the National Environment Board No. 33, B.E. 2552 (2009), subjected "The nitrogen dioxide in ambient air standards", published in the Royal Government Gazette, Vol. 126, Special part 114D, dated August 14, B.E. 2552 (2009).

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Report No. : 2024-500001363-19 / 001-2 (Page 3 of 6)

Issued date : November 6, 2024

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CONTACT : Khun Sutthiluk Phaisun
ADDRESS : 555/1 Energy Complex Vibhavadi-Rangsit Rd., Chatuchak, Chatuchak, Bangkok 10900
 Tel. 089-968-0061 E-Mail: SutthilukP@pttep.com

Analysis Report

SAMPLE DESIGNATED AS : Ambient Air Quality
SAMPLING LOCATION : UT 1-3 Production Phase
SAMPLING DATE : October 15-18, 2024
SAMPLING BY : Weerapong Pengtrakul

Time	SO ₂ Concentration (ppm)		
	October 15-16, 2024	October 16-17, 2024	October 17-18, 2024
10:00-11:00	0.001	0.001	0.001
11:00-12:00	0.001	0.001	0.001
12:00-13:00	0.001	0.001	0.001
13:00-14:00	0.001	0.001	0.001
14:00-15:00	0.001	0.001	0.001
15:00-16:00	0.002	0.001	0.002
16:00-17:00	0.001	0.001	0.002
17:00-18:00	0.001	0.001	0.001
18:00-19:00	0.001	0.001	0.009
19:00-20:00	0.003	0.001	0.000
20:00-21:00	0.015	0.001	0.001
21:00-22:00	0.014	0.001	0.002
22:00-23:00	0.001	0.001	0.002
23:00-00:00	0.001	0.001	0.002
00:00-01:00	0.001	0.001	0.002
01:00-02:00	0.001	0.001	0.001
02:00-03:00	0.001	0.003	0.001
03:00-04:00	0.001	0.011	0.001
04:00-05:00	0.004	0.008	0.001
05:00-06:00	0.005	0.001	0.003
06:00-07:00	0.001	0.006	0.004
07:00-08:00	0.001	0.003	0.002
08:00-09:00	0.001	0.002	0.002
09:00-10:00	0.001	0.001	0.003
1 hr.-Minimum	0.001	0.001	0.001
1 hr.-Maximum	0.015	0.011	0.009
avg. 24 hrs.	0.003	0.002	0.002
Standard* (avg. 1 hr.)	0.30		
Standard** (avg. 24 hrs.)	0.12		

Analytical Method : - UV Fluorescence Method

Source : * Notification of the National Environment Board No.21, B.E. 2544 (2001), dated April 9, B.E. 2544 (2001)

** Notification of the National Environment Board No.24, B.E. 2547 (2004), dated August 9, B.E. 2547 (2004)

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(Thepsan Yommana)
Technical Manager

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Report No. : 2024-500001363-19 / 001-2 (Page 4 of 6)

Issued date : November 6, 2024

CLIENT : PTTEP International Limited
CONTACT : Khun Sutthiluk Phaisun
ADDRESS : 555/1 Energy Complex Vibhavadi-Rangsit Rd., Chatuchak, Chatuchak, Bangkok 10900
 Tel. 089-968-0061 E-Mail: SutthilukP@pttep.com

Analysis Report

SAMPLE DESIGNATED AS : Ambient Air Quality
SAMPLING LOCATION : UT 1-3 Production Phase
SAMPLING DATE : October 15-18, 2024
SAMPLING BY : Weerapong Pengtrakul

TIME	October 15-16, 2024		October 16-17, 2024		October 17-18, 2024	
	WD	WS (m/s)	WD	WS (m/s)	WD	WS (m/s)
10:00-11:00	NNW	2.2	E	0.9	E	1.3
11:00-12:00	NNW	1.3	E	1.3	E	0.9
12:00-13:00	E	0.9	E	0.9	ESE	0.9
13:00-14:00	SE	0.9	-	Calm	ESE	0.9
14:00-15:00	E	1.3	-	Calm	SSE	0.9
15:00-16:00	ENE	1.3	NNE	0.9	-	Calm
16:00-17:00	E	1.3	-	Calm	-	Calm
17:00-18:00	E	1.8	-	Calm	-	Calm
18:00-19:00	-	Calm	E	1.1	E	0.9
19:00-20:00	-	Calm	E	2.2	-	Calm
20:00-21:00	ENE	0.9	S	1.8	ENE	0.9
21:00-22:00	NNW	0.9	N	0.9	NE	0.9
22:00-23:00	SSW	0.9	NE	0.9	NNE	0.9
23:00-00:00	SSW	1.8	-	Calm	NE	3.1
00:00-01:00	SSW	1.8	NNW	0.9	WNW	1.8
01:00-02:00	-	Calm	NE	0.9	WNW	1.3
02:00-03:00	E	2.7	-	Calm	W	2.7
03:00-04:00	NW	0.9	E	0.9	W	2.7
04:00-05:00	-	Calm	-	Calm	S	1.8
05:00-06:00	-	Calm	SSE	0.9	WNW	0.9
06:00-07:00	NE	0.9	-	Calm	WNW	1.8
07:00-08:00	NNE	1.1	-	Calm	NW	3.1
08:00-09:00	E	1.3	ESE	0.9	NNW	2.2
09:00-10:00	NNE	0.9	SE	1.1	N	1.8

Measurement Method : - Wind Speed and Wind Direction recording meter

Remarks :
 - WS = Wind Speed
 - WD = Wind Direction

TY/WP/WK/WK

SGS (THAILAND) LIMITED



(Thepsan Yommana)
 Technical Manager

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IE 009409



Report No. : 2024-500001363-19 / 001-2 (Page 5 of 6) Issued date : November 6, 2024

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CONTACT : Khun Sutthiluk Phaisun
ADDRESS : 555/1 Energy Complex Vibhavadi-Rangsit Rd., Chatuchak, Chatuchak, Bangkok 10900
Tel. 089-968-0061 E-Mail: SutthilukP@pttep.com

Analysis Report

SAMPLE DESIGNATED AS : Ambient Air Quality SAMPLING DATE : October 15-18, 2024
SAMPLING LOCATION : UT 1-3 Production Phase SAMPLING BY : Weerapong Pengtrakul

Wind Speed Wind Direction	Percent of Wind Speed (%)				
	0.5-1.0 m/s	1.1-2.0 m/s	2.1-3.0 m/s	3.1-4.0 m/s	>4.0 m/s
N	1.39	1.39	-	-	-
NNE	4.17	1.39	-	-	-
NE	5.56	-	-	1.39	-
ENE	2.78	1.39	-	-	-
E	8.33	9.72	2.78	-	-
ESE	4.17	-	-	-	-
SE	1.39	1.39	-	-	-
SSE	2.78	-	-	-	-
S	-	2.78	-	-	-
SSW	1.39	2.78	-	-	-
SW	-	-	-	-	-
WSW	-	-	-	-	-
W	-	-	2.78	-	-
WNW	1.39	4.17	-	-	-
NW	1.39	-	-	1.39	-
NNW	2.78	1.39	2.78	-	-
CALM	25.00				

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(Weerapong Pengtrakul)
Technical Manager

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Report No. : 2024-500001363-19 / 001-2 (Page 6 of 6)

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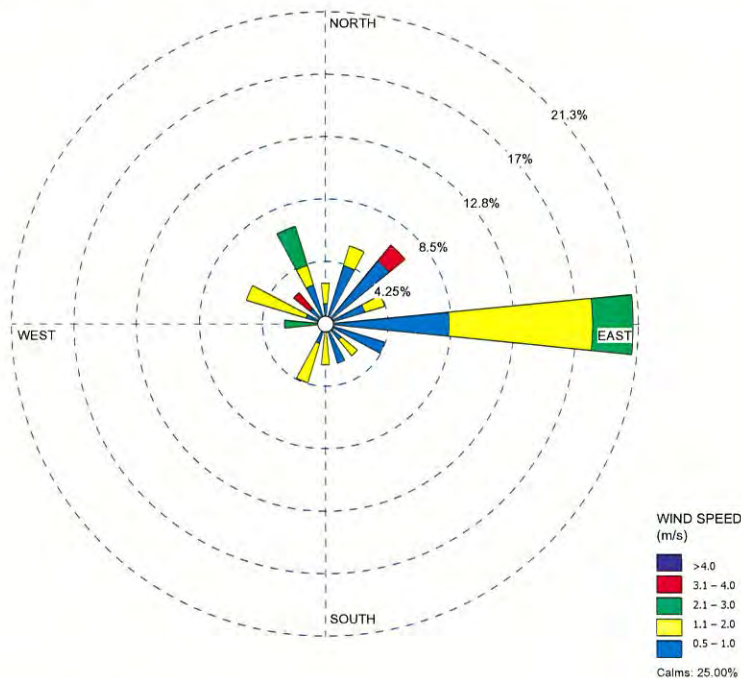
Analysis Report

SAMPLE DESIGNATED AS : Ambient Air Quality
SAMPLING LOCATION : UT 1-3 Production Phase

SAMPLING DATE : October 15-18, 2024
SAMPLING BY : Weerapong Pengtrakul

WIND ROSE PLOT

Station Name : A9: 103 หมู่ที่ 2 ต. เจดีย์ อ. คูทอง จ. สุพรรณบุรี
Sampling Date : October 15-18, 2024



Wind Direction (Blowing from)

(Thepsan Yommana)
Technical Manager

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Report No. : 2024-500001363-19 / 001-3 (Page 1 of 6)

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ADDRESS : 555/1 Energy Complex Vibhavadi-Rangsit Rd., Chatuchak, Chatuchak, Bangkok 10900
 Tel. 089-968-0061 E-Mail: SutthilukP@pttep.com

Analysis Report

SAMPLE DESIGNATED AS : Ambient Air Quality
SAMPLING LOCATION : UT 1-7 Production Phase
SAMPLING DATE : October 15-18, 2024
SAMPLING BY : Weerapong Pengtrakul
 A6: ศาลาอเนกประสงค์ ปตท. หมู่ที่ 1 ต.สวนแดง อ.เมืองสุพรรณบุรี จ.สุพรรณบุรี
 (UTM47P 0605014E, 1589752N)

Sampling Date	TSP (mg/m ³)	PM-10 (mg/m ³)
October 15-16, 2024	0.039	0.026
October 16-17, 2024	0.041	0.029
October 17-18, 2024	0.035	0.023
Standard*	0.33	0.12

Remark: - Sampling and analytical technique for TSP based on High Volume Air Sampler / Gravimetric Method and PM10 based on Size Selective High Volume Air Sampler / Gravimetric Method.
Source: - The notification of the National Environment Board No. 24, B.E. 2547 (2004), subjected "The ambient air standards", published in the Royal Government Gazette, Vol. 121, Part 104D, dated September 22, B.E. 2547 (2004).

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Report No. : 2024-500001363-19 / 001-3 (Page 2 of 6)

Issued date : November 6, 2024

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Analysis Report

SAMPLE DESIGNATED AS : Ambient Air Quality
SAMPLING LOCATION : UT 1-7 Production Phase
SAMPLING DATE : October 15-18, 2024
SAMPLING BY : Weerapong Pengtrakul
 A6: ศาลาอเนกประสงค์ ปตท. หมู่ที่ 1 ต.สวนแตง อ.เมืองสุพรรณบุรี จ.สุพรรณบุรี
 (UTM47P 0605014E, 1589752N)

Time	NO ₂ Concentration (ppm)		
	October 15-16, 2024	October 16-17, 2024	October 17-18, 2024
11:00-12:00	0.005	0.005	0.011
12:00-13:00	0.007	0.007	0.011
13:00-14:00	0.007	0.007	0.008
14:00-15:00	0.006	0.010	0.006
15:00-16:00	0.009	0.010	0.009
16:00-17:00	0.007	0.008	0.009
17:00-18:00	0.009	0.008	0.005
18:00-19:00	0.011	0.006	0.007
19:00-20:00	0.008	0.006	0.007
20:00-21:00	0.005	0.006	0.007
21:00-22:00	0.005	0.015	0.012
22:00-23:00	0.005	0.008	0.010
23:00-00:00	0.007	0.005	0.010
00:00-01:00	0.007	0.007	0.015
01:00-02:00	0.008	0.010	0.013
02:00-03:00	0.009	0.009	0.019
03:00-04:00	0.008	0.008	0.011
04:00-05:00	0.006	0.010	0.015
05:00-06:00	0.004	0.013	0.019
06:00-07:00	0.005	0.012	0.015
07:00-08:00	0.006	0.011	0.012
08:00-09:00	0.005	0.010	0.010
09:00-10:00	0.006	0.011	0.009
10:00-11:00	0.005	0.010	0.008
1 hr.-Minimum	0.004	0.005	0.005
1 hr.-Maximum	0.011	0.015	0.019
Standard* (avg. 1 hr.)	0.17		

Analytical Method: - Chemiluminescence Method.

Source: The Notification of the National Environment Board No. 33, B.E. 2552 (2009), subjected "The nitrogen dioxide in ambient air standards", published in the Royal Government Gazette, Vol. 126, Special part 114D, dated August 14, B.E. 2552 (2009).

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Report No. : 2024-500001363-19 / 001-3 (Page 3 of 6)

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Analysis Report

SAMPLE DESIGNATED AS : Ambient Air Quality
SAMPLING LOCATION : UT 1-7 Production Phase
SAMPLING DATE : October 15-18, 2024
SAMPLING BY : Weerapong Pengtrakul
 A6: ศาลาอเนกประสงค์ ปตท. หมู่ที่ 1 ต.สวนแดง อ.เมืองสุพรรณบุรี จ.สุพรรณบุรี
 (UTM47P 0605014E, 1589752N)

Time	SO ₂ Concentration (ppm)		
	October 15-16, 2024	October 16-17, 2024	October 17-18, 2024
11:00-12:00	0.009	0.006	0.008
12:00-13:00	0.012	0.007	0.008
13:00-14:00	0.005	0.007	0.004
14:00-15:00	0.004	0.004	0.003
15:00-16:00	0.004	0.003	0.003
16:00-17:00	0.003	0.003	0.004
17:00-18:00	0.003	0.003	0.004
18:00-19:00	0.003	0.003	0.003
19:00-20:00	0.003	0.003	0.003
20:00-21:00	0.004	0.003	0.003
21:00-22:00	0.004	0.003	0.003
22:00-23:00	0.004	0.003	0.004
23:00-00:00	0.003	0.003	0.004
00:00-01:00	0.003	0.003	0.005
01:00-02:00	0.003	0.004	0.005
02:00-03:00	0.004	0.005	0.005
03:00-04:00	0.004	0.006	0.004
04:00-05:00	0.004	0.007	0.004
05:00-06:00	0.004	0.007	0.005
06:00-07:00	0.004	0.007	0.003
07:00-08:00	0.004	0.007	0.003
08:00-09:00	0.004	0.007	0.004
09:00-10:00	0.004	0.007	0.004
10:00-11:00	0.005	0.007	0.004
1 hr.-Minimum	0.003	0.003	0.003
1 hr.-Maximum	0.012	0.007	0.008
avg. 24 hrs.	0.004	0.005	0.004
Standard* (avg. 1 hr.)	0.30		
Standard** (avg. 24 hrs.)	0.12		

Analytical Method : - UV Fluorescence Method

Source : * Notification of the National Environment Board No.21, B.E. 2544 (2001), dated April 9, B.E. 2544 (2001)

** Notification of the National Environment Board No.24, B.E. 2547 (2004), dated August 9, B.E. 2547 (2004)

SGS (THAILAND) LIMITED

(Thepsan Yommana)
Technical Manager

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Report No. : 2024-500001363-19 / 001-3 (Page 4 of 6)

Issued date : November 6, 2024

CLIENT : PTTEP International Limited
CONTACT : Khun Sutthiluk Phaisun
ADDRESS : 555/1 Energy Complex Vibhavadi-Rangsit Rd., Chatuchak, Chatuchak, Bangkok 10900
 Tel. 089-968-0061 E-Mail: SutthilukP@pttep.com

Analysis Report

SAMPLE DESIGNATED AS : Ambient Air Quality
SAMPLING LOCATION : UT 1-7 Production Phase
SAMPLING DATE : October 15-18, 2024
SAMPLING BY : Weerapong Pengtrakul
 A6: ศาลาอเนกประสงค์ ปตท. หมู่ที่ 1 ต.สวนแตง อ.เมืองสุพรรณบุรี จ.สุพรรณบุรี
 (UTM47P 0605014E, 1589752N)

TIME	October 15-16, 2024		October 16-17, 2024		October 17-18, 2024	
	WD	WS (m/s)	WD	WS (m/s)	WD	WS (m/s)
11:00-12:00	N	0.9	NE	0.9	-	Calm
12:00-13:00	-	Calm	-	Calm	-	Calm
13:00-14:00	-	Calm	-	Calm	-	Calm
14:00-15:00	-	Calm	-	Calm	-	Calm
15:00-16:00	-	Calm	ENE	1.8	-	Calm
16:00-17:00	NE	0.9	E	3.1	SSW	0.9
17:00-18:00	NE	0.9	E	1.3	-	Calm
18:00-19:00	-	Calm	E	0.9	-	Calm
19:00-20:00	-	Calm	SSE	0.9	-	Calm
20:00-21:00	-	Calm	-	Calm	-	Calm
21:00-22:00	-	Calm	SSE	0.9	-	Calm
22:00-23:00	SW	0.9	ESE	0.9	-	Calm
23:00-00:00	S	2.2	ESE	0.9	NNE	2.2
00:00-01:00	E	1.8	SE	0.9	WSW	1.8
01:00-02:00	S	0.9	SE	0.9	W	0.9
02:00-03:00	ENE	2.7	SE	0.9	SW	3.1
03:00-04:00	-	Calm	-	Calm	SSW	3.1
04:00-05:00	-	Calm	-	Calm	SSE	1.8
05:00-06:00	-	Calm	-	Calm	WSW	1.3
06:00-07:00	-	Calm	-	Calm	WSW	1.3
07:00-08:00	-	Calm	-	Calm	W	1.8
08:00-09:00	-	Calm	-	Calm	WSW	0.9
09:00-10:00	NNW	0.9	-	Calm	SSW	1.1
10:00-11:00	-	Calm	-	Calm	SW	0.9

Measurement Method : - Wind Speed and Wind Direction recording meter

Remarks :
 - WS = Wind Speed
 - WD = Wind Direction



(Thepsan Yommana)
 Technical Manager

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Report No. : 2024-500001363-19 / 001-3 (Page 5 of 6)

Issued date : November 6, 2024

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Analysis Report

SAMPLE DESIGNATED AS : Ambient Air Quality
SAMPLING LOCATION : UT 1-7 Production Phase
SAMPLING DATE : October 15-18, 2024
SAMPLING BY : Weerapong Pengtrakul
 A6: ศาลาอเนกประสงค์ ปตท. หมู่ที่ 1 ต.สวนแตง อ.เมืองสุพรรณบุรี จ.สุพรรณบุรี
 (UTM47P 0605014E, 1589752N)

Wind Speed Wind Direction	Percent of Wind Speed (%)				
	0.5-1.0 m/s	1.1-2.0 m/s	2.1-3.0 m/s	3.1-4.0 m/s	>4.0 m/s
N	1.39	-	-	-	-
NNE	-	-	1.39	-	-
NE	4.17	-	-	-	-
ENE	-	1.39	1.39	-	-
E	1.39	2.78	-	1.39	-
ESE	2.78	-	-	-	-
SE	4.17	-	-	-	-
SSE	2.78	1.39	-	-	-
S	1.39	-	1.39	-	-
SSW	1.39	1.39	-	1.39	-
SW	2.78	-	-	1.39	-
WSW	1.39	4.17	-	-	-
W	1.39	1.39	-	-	-
WNW	-	-	-	-	-
NW	-	-	-	-	-
NNW	1.39	-	-	-	-
CALM	52.78				

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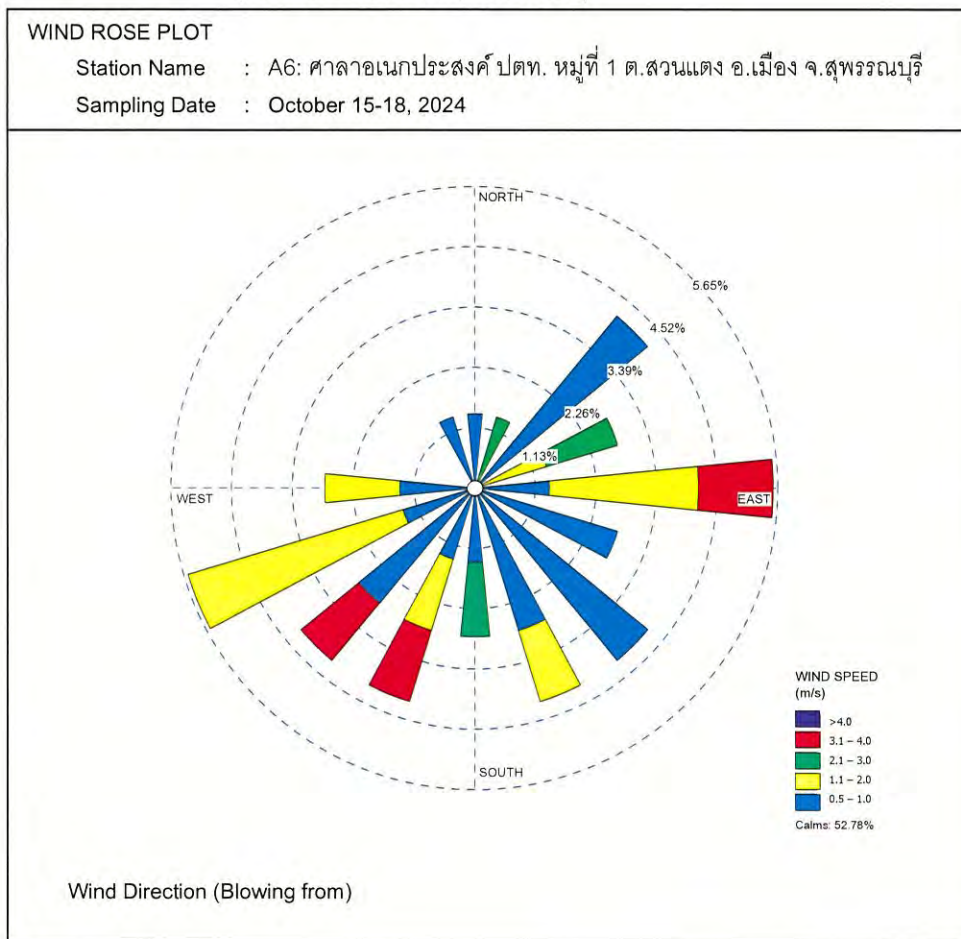
Report No. : 2024-500001363-19 / 001-3 (Page 6 of 6)

Issued date : November 6, 2024

CLIENT : PTTEP International Limited
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Analysis Report

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SAMPLING LOCATION : UT 1-7 Production Phase
SAMPLING DATE : October 15-18, 2024
SAMPLING BY : Weerapong Pengtrakul
 A6: ศาลาอเนกประสงค์ ปตท. หมู่ที่ 1 ต.สวนแตง อ.เมืองสุพรรณบุรี จ.สุพรรณบุรี
 (UTM47P 0605014E, 1589752N)



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Analysis Report

SAMPLE DESIGNATED AS : Ambient Air Quality
SAMPLING LOCATION : UT 1-7 Production Phase
SAMPLING DATE : October 15-18, 2024
SAMPLING BY : Weerapong Pengtrakul
 A7: วัดการ้อง หมู่ที่ 1 ต.สวนแตง อ.เมืองสุพรรณบุรี จ.สุพรรณบุรี
 (UTM47P 0604605E, 1589425N)

Sampling Date	TSP (mg/m ³)	PM-10 (mg/m ³)
October 15-16, 2024	0.044	0.024
October 16-17, 2024	0.045	0.029
October 17-18, 2024	0.037	0.023
Standard*	0.33	0.12

Remark: - Sampling and analytical technique for TSP based on High Volume Air Sampler / Gravimetric Method and PM10 based on Size Selective High Volume Air Sampler / Gravimetric Method.
Source: - The notification of the National Environment Board No. 24, B.E. 2547 (2004), subjected "The ambient air standards", published in the Royal Government Gazette, Vol. 121, Part 104D, dated September 22, B.E. 2547 (2004).

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Report No. : 2024-500001363-19 / 001-4 (Page 2 of 6)

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SAMPLE DESIGNATED AS : Ambient Air Quality
SAMPLING LOCATION : UT 1-7 Production Phase
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SAMPLING BY : Weerapong Pengtrakul
 A7: วัดการ้อง หมู่ที่ 1 ต.สวนแตง อ.เมืองสุพรรณบุรี จ.สุพรรณบุรี
 (UTM47P 0604605E, 1589425N)

Time	NO ₂ Concentration (ppm)		
	October 15-16, 2024	October 16-17, 2024	October 17-18, 2024
10:00-11:00	0.018	0.017	0.016
11:00-12:00	0.017	0.018	0.018
12:00-13:00	0.019	0.019	0.019
13:00-14:00	0.022	0.019	0.022
14:00-15:00	0.024	0.020	0.023
15:00-16:00	0.027	0.023	0.025
16:00-17:00	0.028	0.026	0.027
17:00-18:00	0.035	0.026	0.027
18:00-19:00	0.041	0.027	0.027
19:00-20:00	0.021	0.031	0.028
20:00-21:00	0.026	0.032	0.032
21:00-22:00	0.021	0.030	0.033
22:00-23:00	0.026	0.028	0.022
23:00-00:00	0.021	0.022	0.021
00:00-01:00	0.020	0.017	0.018
01:00-02:00	0.019	0.016	0.017
02:00-03:00	0.023	0.017	0.014
03:00-04:00	0.021	0.014	0.013
04:00-05:00	0.022	0.013	0.013
05:00-06:00	0.021	0.013	0.014
06:00-07:00	0.019	0.013	0.021
07:00-08:00	0.017	0.017	0.019
08:00-09:00	0.018	0.015	0.017
09:00-10:00	0.017	0.016	0.018
1 hr.-Minimum	0.017	0.013	0.013
1 hr.-Maximum	0.041	0.032	0.033
Standard* (avg. 1 hr.)		0.17	

Analytical Method: - Chemiluminescence Method.

Source: The Notification of the National Environment Board No. 33, B.E. 2552 (2009), subjected "The nitrogen dioxide in ambient air standards", published in the Royal Government Gazette, Vol. 126, Special part 114D, dated August 14, B.E. 2552 (2009).

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Report No. : 2024-500001363-19 / 001-4 (Page 3 of 6)

Issued date : November 6, 2024

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 (UTM47P 0604605E, 1589425N)

Time	SO ₂ Concentration (ppm)		
	October 15-16, 2024	October 16-17, 2024	October 17-18, 2024
10:00-11:00	0.001	0.001	0.001
11:00-12:00	0.001	0.001	0.001
12:00-13:00	0.001	0.001	0.001
13:00-14:00	0.001	0.001	0.001
14:00-15:00	0.001	0.001	0.001
15:00-16:00	0.001	0.001	0.001
16:00-17:00	0.001	0.001	0.001
17:00-18:00	0.001	0.001	0.001
18:00-19:00	0.001	0.001	0.001
19:00-20:00	0.001	0.001	0.001
20:00-21:00	0.001	0.001	0.001
21:00-22:00	0.001	0.001	0.001
22:00-23:00	0.001	0.001	0.001
23:00-00:00	0.001	0.001	0.001
00:00-01:00	0.001	0.001	0.001
01:00-02:00	0.001	0.001	0.001
02:00-03:00	0.001	0.001	0.001
03:00-04:00	0.001	0.001	0.001
04:00-05:00	0.001	0.001	0.001
05:00-06:00	0.001	0.001	0.001
06:00-07:00	0.001	0.001	0.001
07:00-08:00	0.001	0.001	0.001
08:00-09:00	0.001	0.001	0.001
09:00-10:00	0.001	0.001	0.001
1 hr.-Minimum	0.001	0.001	0.001
1 hr.-Maximum	0.001	0.001	0.001
avg. 24 hrs.	0.001	0.001	0.001
Standard* (avg. 1 hr.)	0.30		
Standard** (avg. 24 hrs.)	0.12		

Analytical Method : - UV Fluorescence Method

Source : * Notification of the National Environment Board No.21, B.E. 2544 (2001), dated April 9, B.E. 2544 (2001)

** Notification of the National Environment Board No.24, B.E. 2547 (2004), dated August 9, B.E. 2547 (2004)



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Report No. : 2024-500001363-19 / 001-4 (Page 4 of 6)

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 (UTM47P 0604605E, 1589425N)

TIME	October 15-16, 2024		October 16-17, 2024		October 17-18, 2024	
	WD	WS (m/s)	WD	WS (m/s)	WD	WS (m/s)
10:00-11:00	-	Calm	ESE	0.9	ESE	0.9
11:00-12:00	NW	0.9	ESE	0.9	ESE	0.9
12:00-13:00	SE	0.9	ESE	0.9	-	Calm
13:00-14:00	SE	0.9	SE	0.9	-	Calm
14:00-15:00	ESE	0.9	ESE	0.9	SE	0.9
15:00-16:00	ESE	1.3	ESE	2.2	-	Calm
16:00-17:00	ESE	0.9	SE	2.7	-	Calm
17:00-18:00	E	0.9	SE	1.8	-	Calm
18:00-19:00	-	Calm	SSE	0.9	-	Calm
19:00-20:00	-	Calm	-	Calm	-	Calm
20:00-21:00	-	Calm	-	Calm	-	Calm
21:00-22:00	-	Calm	-	Calm	-	Calm
22:00-23:00	SSE	0.9	SSE	0.9	-	Calm
23:00-00:00	WSW	1.3	SSE	0.9	E	1.3
00:00-01:00	SSE	0.9	-	Calm	NW	0.9
01:00-02:00	-	Calm	SSE	0.9	-	Calm
02:00-03:00	E	1.3	-	Calm	W	0.9
03:00-04:00	-	Calm	-	Calm	SE	1.8
04:00-05:00	-	Calm	SSE	1.1	-	Calm
05:00-06:00	-	Calm	SSE	0.9	-	Calm
06:00-07:00	-	Calm	SSE	0.9	-	Calm
07:00-08:00	-	Calm	-	Calm	NW	1.3
08:00-09:00	-	Calm	-	Calm	NW	1.3
09:00-10:00	NNW	0.9	-	Calm	NNW	1.8

Measurement Method : - Wind Speed and Wind Direction recording meter

Remarks :
 - WS = Wind Speed
 - WD = Wind Direction

TY/WP/WK/WK

SGS (THAILAND) LIMITED



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 Technical Manager

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 (UTM47P 0604605E, 1589425N)

Wind Speed Wind Direction	Percent of Wind Speed (%)				
	0.5-1.0 m/s	1.1-2.0 m/s	2.1-3.0 m/s	3.1-4.0 m/s	>4.0 m/s
N	-	-	-	-	-
NNE	-	-	-	-	-
NE	-	-	-	-	-
ENE	-	-	-	-	-
E	1.39	2.78	-	-	-
ESE	11.11	1.39	1.39	-	-
SE	5.56	2.78	1.39	-	-
SSE	11.11	1.39	-	-	-
S	-	-	-	-	-
SSW	-	-	-	-	-
SW	-	-	-	-	-
WSW	-	1.39	-	-	-
W	1.39	-	-	-	-
WNW	-	-	-	-	-
NW	2.78	2.78	-	-	-
NNW	1.39	1.39	-	-	-
CALM	48.61				

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Report No. : 2024-500001363-19 / 001-4 (Page 6 of 6)

Issued date : November 6, 2024

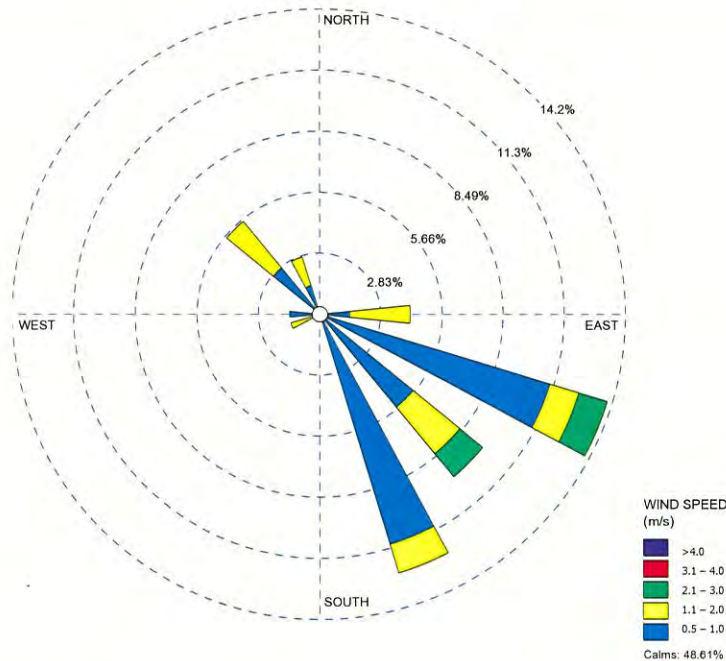
CLIENT : PTTEP International Limited
CONTACT : Khun Sutthiluk Phaisun
ADDRESS : 555/1 Energy Complex Vibhavadi-Rangsit Rd., Chatuchak, Chatuchak, Bangkok 10900
 Tel. 089-968-0061 E-Mail: SutthilukP@pttep.com

Analysis Report

SAMPLE DESIGNATED AS : Ambient Air Quality
SAMPLING LOCATION : UT 1-7 Production Phase
SAMPLING DATE : October 15-18, 2024
SAMPLING BY : Weerapong Pengtrakul
 A7: วัดการ้อง หมู่ที่ 1 ต.สวนแตง อ.เมืองสุพรรณบุรี จ.สุพรรณบุรี
 (UTM47P 0604605E, 1589425N)

WIND ROSE PLOT

Station Name : A7: วัดการ้อง หมู่ที่ 1 ต.สวนแตง อ.เมืองสุพรรณบุรี จ.สุพรรณบุรี
Sampling Date : October 15-18, 2024



Wind Direction (Blowing from)

TY/WP/WK/WK

SGS (THAILAND) LIMITED



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Report No. : 2024-500001363-19 / 001-5 (Page 1 of 6)

Issued date : November 6, 2024

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 Tel. 089-968-0061 E-Mail: SutthilukP@pttep.com

Analysis Report

SAMPLE DESIGNATED AS : Ambient Air Quality
SAMPLING LOCATION : SKJ Production Phase
SAMPLING DATE : October 15-18, 2024
SAMPLING BY : Weerapong Pengtrakul

Sampling Date	TSP (mg/m ³)	PM-10 (mg/m ³)
October 15-16, 2024	0.037	0.030
October 16-17, 2024	0.045	0.034
October 17-18, 2024	0.036	0.020
Standard*	0.33	0.12

Remark: - Sampling and analytical technique for TSP based on High Volume Air Sampler / Gravimetric Method and PM10 based on Size Selective High Volume Air Sampler / Gravimetric Method.
Source: - The notification of the National Environment Board No. 24, B.E. 2547 (2004), subjected "The ambient air standards", published in the Royal Government Gazette, Vol. 121, Part 104D, dated September 22, B.E. 2547 (2004).

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Report No. : 2024-500001363-19 / 001-5 (Page 2 of 6)

Issued date : November 6, 2024

CLIENT : PTTEP International Limited
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ADDRESS : 555/1 Energy Complex Vibhavadi-Rangsit Rd., Chatuchak, Chatuchak, Bangkok 10900
 Tel. 089-968-0061 E-Mail: SutthilukP@pttep.com

Analysis Report

SAMPLE DESIGNATED AS : Ambient Air Quality
SAMPLING LOCATION : SKJ Production Phase
SAMPLING DATE : October 15-18, 2024
SAMPLING BY : Weerapong Pengtrakul

Time	NO ₂ Concentration (ppm)		
	October 15-16, 2024	October 16-17, 2024	October 17-18, 2024
15:00-16:00	0.014	0.005	0.006
16:00-17:00	0.009	0.009	0.005
17:00-18:00	0.011	0.008	0.005
18:00-19:00	0.008	0.006	0.005
19:00-20:00	0.005	0.004	0.009
20:00-21:00	0.014	0.005	0.006
21:00-22:00	0.011	0.006	0.008
22:00-23:00	0.013	0.007	0.010
23:00-00:00	0.016	0.012	0.004
00:00-01:00	0.014	0.020	0.005
01:00-02:00	0.003	0.020	0.005
02:00-03:00	0.008	0.015	0.006
03:00-04:00	0.007	0.015	0.008
04:00-05:00	0.007	0.016	0.009
05:00-06:00	0.006	0.016	0.007
06:00-07:00	0.013	0.015	0.005
07:00-08:00	0.012	0.019	0.003
08:00-09:00	0.015	0.017	0.003
09:00-10:00	0.012	0.016	0.004
10:00-11:00	0.010	0.014	0.002
11:00-12:00	0.011	0.010	0.002
12:00-13:00	0.008	0.008	0.002
13:00-14:00	0.008	0.007	0.002
14:00-15:00	0.007	0.006	0.001
1 hr.-Minimum	0.003	0.004	0.001
1 hr.-Maximum	0.016	0.020	0.010
Standard* (avg. 1 hr.)		0.17	

Analytical Method: - Chemiluminescence Method.

Source: The Notification of the National Environment Board No. 33, B.E. 2552 (2009), subjected "The nitrogen dioxide in ambient air standards", published in the Royal Government Gazette, Vol. 126, Special part 114D, dated August 14, B.E. 2552 (2009).

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Report No. : 2024-500001363-19 / 001-5 (Page 3 of 6)

Issued date : November 6, 2024

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Tel. 089-968-0061 E-Mail: SutthilukP@pttep.com

Analysis Report

SAMPLE DESIGNATED AS : Ambient Air Quality
SAMPLING LOCATION : SKJ Production Phase
SAMPLING DATE : October 15-18, 2024
SAMPLING BY : Weerapong Pengtrakul

Time	SO ₂ Concentration (ppm)		
	October 15-16, 2024	October 16-17, 2024	October 17-18, 2024
15:00-16:00	0.002	0.001	0.001
16:00-17:00	0.001	0.001	0.001
17:00-18:00	0.001	0.001	0.001
18:00-19:00	0.001	0.001	0.001
19:00-20:00	0.001	0.001	0.001
20:00-21:00	0.003	0.001	0.001
21:00-22:00	0.002	0.001	0.001
22:00-23:00	0.002	0.001	0.001
23:00-00:00	0.002	0.001	0.001
00:00-01:00	0.003	0.001	0.001
01:00-02:00	0.011	0.007	0.001
02:00-03:00	0.002	0.001	0.001
03:00-04:00	0.002	0.001	0.001
04:00-05:00	0.002	0.001	0.001
05:00-06:00	0.001	0.001	0.001
06:00-07:00	0.002	0.001	0.001
07:00-08:00	0.002	0.001	0.001
08:00-09:00	0.004	0.001	0.001
09:00-10:00	0.005	0.001	0.001
10:00-11:00	0.003	0.001	0.001
11:00-12:00	0.012	0.001	0.001
12:00-13:00	0.001	0.001	0.001
13:00-14:00	0.001	0.001	0.001
14:00-15:00	0.001	0.001	0.001
1 hr.-Minimum	0.001	0.001	0.001
1 hr.-Maximum	0.012	0.007	0.001
avg. 24 hrs.	0.003	0.001	0.001
Standard* (avg. 1 hr.)	0.30		
Standard** (avg. 24 hrs.)	0.12		

Analytical Method : - UV Fluorescence Method

Source : * Notification of the National Environment Board No.21, B.E. 2544 (2001), dated April 9, B.E. 2544 (2001)

** Notification of the National Environment Board No.24, B.E. 2547 (2004), dated August 9, B.E. 2547 (2004)

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Technical Manager

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Report No. : 2024-500001363-19 / 001-5 (Page 4 of 6)

Issued date : November 6, 2024

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 Tel. 089-968-0061 E-Mail: SutthilukP@pttep.com

Analysis Report

SAMPLE DESIGNATED AS : Ambient Air Quality
SAMPLING LOCATION : SKJ Production Phase
SAMPLING DATE : October 15-18, 2024
SAMPLING BY : Weerapong Pengtrakul

TIME	October 15-16, 2024		October 16-17, 2024		October 17-18, 2024	
	WD	WS (m/s)	WD	WS (m/s)	WD	WS (m/s)
15:00-16:00	ESE	1.3	SE	3.1	N	1.3
16:00-17:00	E	0.9	SE	3.1	N	1.3
17:00-18:00	ESE	1.3	SE	2.2	ENE	1.3
18:00-19:00	E	0.4	S	1.3	NE	0.9
19:00-20:00	E	0.4	SSE	1.3	E	0.4
20:00-21:00	NNE	2.2	SSE	0.4	ENE	1.8
21:00-22:00	NNE	0.9	SSE	0.9	ENE	1.8
22:00-23:00	W	1.3	SSE	1.8	ENE	2.2
23:00-00:00	SW	2.2	SSE	1.8	ENE	3.6
00:00-01:00	SW	2.2	SSE	0.4	W	2.7
01:00-02:00	E	1.3	S	0.4	NW	1.8
02:00-03:00	S	3.1	WNW	1.3	W	4.0
03:00-04:00	WNW	0.9	WNW	0.4	WSW	4.5
04:00-05:00	ENE	0.9	WNW	0.4	S	2.2
05:00-06:00	ESE	0.9	NNE	0.9	NW	2.2
06:00-07:00	S	1.3	NNE	1.3	NW	2.7
07:00-08:00	N	1.3	NNE	0.4	N	2.7
08:00-09:00	NNE	2.2	NNE	1.8	N	2.7
09:00-10:00	NE	1.8	NE	1.3	NNE	2.7
10:00-11:00	NE	0.4	ENE	1.3	NNE	2.7
11:00-12:00	NNE	1.3	ENE	1.3	WNW	2.2
12:00-13:00	NNE	1.3	N	0.9	NW	1.3
13:00-14:00	N	1.3	NNE	0.9	W	1.8
14:00-15:00	NNE	1.3	NW	0.9	NNE	2.2

Measurement Method : - Wind Speed and Wind Direction recording meter

Remarks :
 - WS = Wind Speed
 - WD = Wind Direction

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 Technical Manager

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Report No. : 2024-500001363-19 / 001-5 (Page 5 of 6)

Issued date : November 6, 2024

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ADDRESS : 555/1 Energy Complex Vibhavadi-Rangsit Rd., Chatuchak, Chatuchak, Bangkok 10900
 Tel. 089-968-0061 E-Mail: SutthilukP@pttep.com

Analysis Report

SAMPLE DESIGNATED AS : Ambient Air Quality **SAMPLING DATE :** October 15-18, 2024
SAMPLING LOCATION : SKJ Production Phase **SAMPLING BY :** Weerapong Pengtrakul

Wind Speed Wind Direction	Percent of Wind Speed (%)				
	0.5-1.0 m/s	1.1-2.0 m/s	2.1-3.0 m/s	3.1-4.0 m/s	>4.0 m/s
N	1.39	5.56	2.78	-	-
NNE	4.17	6.94	6.94	-	-
NE	1.39	2.78	-	-	-
ENE	1.39	6.94	1.39	1.39	-
E	1.39	1.39	-	-	-
ESE	1.39	2.78	-	-	-
SE	-	-	1.39	2.78	-
SSE	1.39	4.17	-	-	-
S	-	2.78	1.39	1.39	-
SSW	-	-	-	-	-
SW	-	-	2.78	-	-
WSW	-	-	-	-	1.39
W	-	2.78	1.39	1.39	-
WNW	1.39	1.39	1.39	-	-
NW	1.39	2.78	2.78	-	-
NNW	-	-	-	-	-
CALM	13.89				

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Report No. : 2024-500001363-19 / 001-5 (Page 6 of 6)

Issued date : November 6, 2024

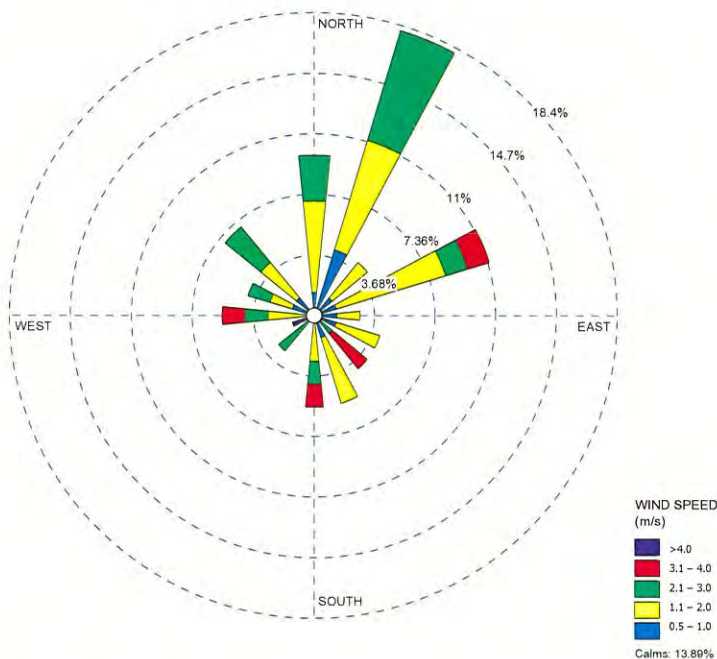
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 Tel. 089-968-0061 E-Mail: SutthilukP@pttep.com

Analysis Report

SAMPLE DESIGNATED AS : Ambient Air Quality
 SAMPLING LOCATION : SKJ Production Phase
 SAMPLING DATE : October 15-18, 2024
 SAMPLING BY : Weerapong Pengtrakul

WIND ROSE PLOT

Station Name :
 Sampling Date : October 15-18, 2024



Wind Direction (Blowing from)



(Thepsan Yommana)
 Technical Manager

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Report No. : 2024-500001363-19 / 001-6 (Page 1 of 6)

Issued date : November 6, 2024

CLIENT : PTTEP International Limited
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Analysis Report

SAMPLE DESIGNATED AS : Ambient Air Quality
SAMPLING LOCATION : SKJ Production Phase
SAMPLING DATE : October 15-18, 2024
SAMPLING BY : Weerapong Pengtrakul

Sampling Date	TSP (mg/m ³)	PM-10 (mg/m ³)
October 15-16, 2024	0.044	0.027
October 16-17, 2024	0.065	0.033
October 17-18, 2024	0.032	0.023
Standard*	0.33	0.12

Remark: - Sampling and analytical technique for TSP based on High Volume Air Sampler / Gravimetric Method and PM10 based on Size Selective High Volume Air Sampler / Gravimetric Method.

Source: * The notification of the National Environment Board No. 24, B.E. 2547 (2004), subjected "The ambient air standards", published in the Royal Government Gazette, Vol. 121, Part 104D, dated September 22, B.E. 2547 (2004).

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Report No. : 2024-500001363-19 / 001-6 (Page 2 of 6)

Issued date : November 6, 2024

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 Tel. 089-968-0061 E-Mail: SutthilukP@pttep.com

Analysis Report

SAMPLE DESIGNATED AS : Ambient Air Quality **SAMPLING DATE :** October 15-18, 2024
SAMPLING LOCATION : SKJ Production Phase **SAMPLING BY :** Weerapong Pengtrakul

Time	NO ₂ Concentration (ppm)		
	October 15-16, 2024	October 16-17, 2024	October 17-18, 2024
12:00-13:00	0.003	0.002	0.003
13:00-14:00	0.003	0.002	0.004
14:00-15:00	0.002	0.002	0.004
15:00-16:00	0.002	0.002	0.004
16:00-17:00	0.002	0.003	0.004
17:00-18:00	0.002	0.004	0.004
18:00-19:00	0.002	0.007	0.004
19:00-20:00	0.001	0.005	0.003
20:00-21:00	0.001	0.004	0.003
21:00-22:00	0.002	0.003	0.004
22:00-23:00	0.002	0.003	0.005
23:00-00:00	0.002	0.003	0.005
00:00-01:00	0.002	0.003	0.005
01:00-02:00	0.002	0.003	0.002
02:00-03:00	0.003	0.004	0.003
03:00-04:00	0.005	0.004	0.003
04:00-05:00	0.004	0.004	0.003
05:00-06:00	0.003	0.003	0.003
06:00-07:00	0.003	0.005	0.004
07:00-08:00	0.024	0.004	0.004
08:00-09:00	0.003	0.004	0.003
09:00-10:00	0.005	0.003	0.005
10:00-11:00	0.007	0.003	0.002
11:00-12:00	0.002	0.003	0.004
1 hr.-Minimum	0.001	0.002	0.002
1 hr.-Maximum	0.024	0.007	0.005
Standard* (avg. 1 hr.)	0.17		

Analytical Method: - Chemiluminescence Method.

Source: The Notification of the National Environment Board No. 33, B.E. 2552 (2009), subjected "The nitrogen dioxide in ambient air standards", published in the Royal Government Gazette, Vol. 126, Special part 114D, dated August 14, B.E. 2552 (2009).

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Report No. : 2024-500001363-19 / 001-6 (Page 3 of 6)

Issued date : November 6, 2024

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 Tel. 089-968-0061 E-Mail: SutthilukP@pttep.com

Analysis Report

SAMPLE DESIGNATED AS : Ambient Air Quality
SAMPLING LOCATION : SKJ Production Phase
SAMPLING DATE : October 15-18, 2024
SAMPLING BY : Weerapong Pengtrakul

Time	SO ₂ Concentration (ppm)		
	October 15-16, 2024	October 16-17, 2024	October 17-18, 2024
12:00-13:00	0.002	0.007	0.001
13:00-14:00	0.006	0.006	0.001
14:00-15:00	0.003	0.002	0.004
15:00-16:00	0.004	0.001	0.005
16:00-17:00	0.009	0.004	0.001
17:00-18:00	0.027	0.008	0.001
18:00-19:00	0.021	0.004	0.001
19:00-20:00	0.004	0.002	0.001
20:00-21:00	0.002	0.001	0.001
21:00-22:00	0.001	0.001	0.001
22:00-23:00	0.001	0.001	0.001
23:00-00:00	0.001	0.001	0.001
00:00-01:00	0.002	0.001	0.001
01:00-02:00	0.001	0.002	0.001
02:00-03:00	0.001	0.001	0.001
03:00-04:00	0.002	0.001	0.001
04:00-05:00	0.002	0.001	0.001
05:00-06:00	0.003	0.003	0.001
06:00-07:00	0.001	0.015	0.001
07:00-08:00	0.001	0.014	0.001
08:00-09:00	0.001	0.001	0.001
09:00-10:00	0.001	0.001	0.001
10:00-11:00	0.001	0.001	0.001
11:00-12:00	0.005	0.001	0.001
1 hr.-Minimum	0.001	0.001	0.001
1 hr.-Maximum	0.027	0.015	0.005
avg. 24 hrs.	0.004	0.003	0.001
Standard* (avg. 1 hr.)	0.30		
Standard** (avg. 24 hrs.)	0.12		

Analytical Method : - UV Fluorescence Method

Source : * Notification of the National Environment Board No.21, B.E. 2544 (2001), dated April 9, B.E. 2544 (2001)

** Notification of the National Environment Board No.24, B.E. 2547 (2004), dated August 9, B.E. 2547 (2004)

SGS (THAILAND) LIMITED

Technical Manager

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Report No. : 2024-500001363-19 / 001-6 (Page 4 of 6)

Issued date : November 6, 2024

CLIENT : PTTEP International Limited
CONTACT : Khun Sutthiluk Phaisun
ADDRESS : 555/1 Energy Complex Vibhavadi-Rangsit Rd., Chatuchak, Chatuchak, Bangkok 10900
 Tel. 089-968-0061 E-Mail: SutthilukP@pttep.com

Analysis Report

SAMPLE DESIGNATED AS : Ambient Air Quality
SAMPLING LOCATION : SKJ Production Phase
SAMPLING DATE : October 15-18, 2024
SAMPLING BY : Weerapong Pengtrakul

TIME	October 15-16, 2024		October 16-17, 2024		October 17-18, 2024	
	WD	WS (m/s)	WD	WS (m/s)	WD	WS (m/s)
12:00-13:00	NE	1.3	N	0.4	N	0.9
13:00-14:00	NE	1.3	SSW	0.9	NNE	1.3
14:00-15:00	ENE	1.8	ENE	1.3	SW	0.9
15:00-16:00	ENE	0.9	SSE	4.0	N	0.9
16:00-17:00	ENE	0.9	SE	2.7	N	0.9
17:00-18:00	ENE	0.4	SE	1.3	NE	0.9
18:00-19:00	SE	0.0	SSE	1.8	NE	0.4
19:00-20:00	E	0.4	SSE	1.3	ENE	0.0
20:00-21:00	N	1.8	SSE	0.4	NE	1.3
21:00-22:00	SW	0.0	SSE	1.8	NNE	1.3
22:00-23:00	SW	1.3	SSE	2.2	NE	2.7
23:00-00:00	SW	2.7	SSE	1.8	WSW	2.7
00:00-01:00	SW	2.2	SSE	0.9	NNW	0.4
01:00-02:00	ENE	1.8	SSE	0.4	N	2.7
02:00-03:00	SW	1.8	WSW	0.0	SSE	3.6
03:00-04:00	WSW	0.0	WSW	0.0	SW	2.7
04:00-05:00	NE	0.9	WSW	0.0	S	1.3
05:00-06:00	NW	0.0	N	0.9	NW	0.4
06:00-07:00	NW	1.3	NNE	0.4	NW	0.9
07:00-08:00	N	1.3	N	0.4	N	2.7
08:00-09:00	NNE	2.2	N	1.3	N	2.7
09:00-10:00	NNE	1.8	NE	1.8	N	3.1
10:00-11:00	NNE	1.3	NNE	0.9	N	2.7
11:00-12:00	NNE	1.3	NNE	0.9	NE	1.3

Measurement Method : - Wind Speed and Wind Direction recording meter

Remarks :
 - WS = Wind Speed
 - WD = Wind Direction

TY/WP/WK/WK

SGS (THAILAND) LIMITED



(Thepsan Yommana)
 Technical Manager

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Report No. : 2024-500001363-19 / 001-6 (Page 5 of 6)

Issued date : November 6, 2024

CLIENT : PTTEP International Limited
CONTACT : Khun Sutthiluk Phaisun
ADDRESS : 555/1 Energy Complex Vibhavadi-Rangsit Rd., Chatuchak, Chatuchak, Bangkok 10900
 Tel. 089-968-0061 E-Mail: SutthilukP@pttep.com

Analysis Report

SAMPLE DESIGNATED AS : Ambient Air Quality
SAMPLING LOCATION : SKJ Production Phase
SAMPLING DATE : October 15-18, 2024
SAMPLING BY : Weerapong Pengtrakul

Wind Speed Wind Direction	Percent of Wind Speed (%)				
	0.5-1.0 m/s	1.1-2.0 m/s	2.1-3.0 m/s	3.1-4.0 m/s	>4.0 m/s
N	5.56	4.17	5.56	1.39	5.56
NNE	2.78	6.94	1.39	-	2.78
NE	2.78	6.94	1.39	-	2.78
ENE	2.78	4.17	-	-	2.78
E	-	-	-	-	-
ESE	-	-	-	-	-
SE	-	1.39	1.39	-	-
SSE	1.39	5.56	1.39	2.78	1.39
S	-	1.39	-	-	-
SSW	1.39	-	-	-	1.39
SW	1.39	2.78	4.17	-	1.39
WSW	-	-	1.39	-	-
W	-	-	-	-	-
WNW	-	-	-	-	-
NW	1.39	1.39	-	-	1.39
NNW	-	-	-	-	-
CALM	25.00				

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SGS (THAILAND) LIMITED



(Thepsan Yommana)
Technical Manager

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Report No. : 2024-500001363-19 / 001-6 (Page 6 of 6)

Issued date : November 6, 2024

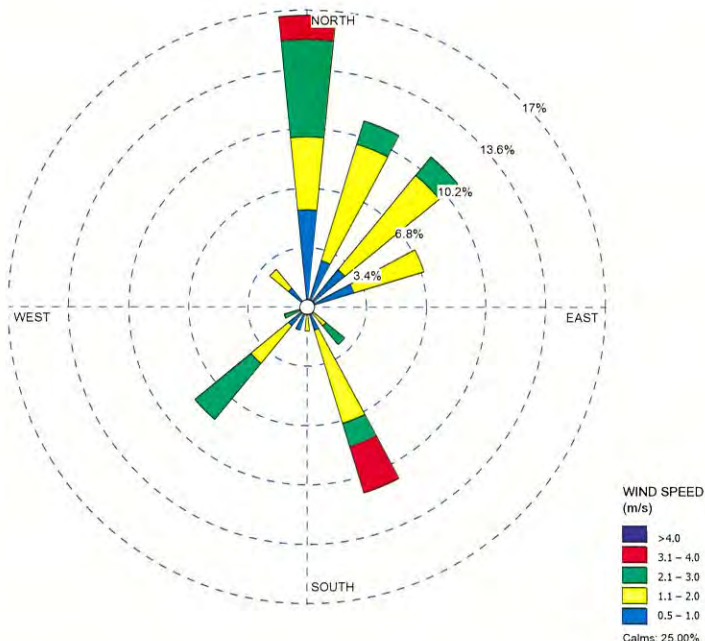
CLIENT : PTTEP International Limited
 CONTACT : Khun Sutthiluk Phaisun
 ADDRESS : 555/1 Energy Complex Vibhavadi-Rangsit Rd., Chatuchak, Chatuchak, Bangkok 10900
 Tel. 089-968-0061 E-Mail: SutthilukP@pttep.com

Analysis Report

SAMPLE DESIGNATED AS : Ambient Air Quality
 SAMPLING LOCATION : SKJ Production Phase
 SAMPLING DATE : October 15-18, 2024
 SAMPLING BY : Weerapong Pengtrakul

WIND ROSE PLOT

Station Name :
 Sampling Date : October 15-18, 2024



Wind Direction (Blowing from)

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(Thepsan Yommana)
 Technical Manager

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ภาคผนวก ก2

ผลการตรวจวัดระดับเสียง

Report No. : 2024-500001363-1 / 002 (Page 1 of 2)

Issued date : May 23, 2024

CLIENT : PTTEP International Limited
CONTACT : Khun Sutthiluk Phaisun
ADDRESS : 555/1 Energy Complex Vibhavadi-Rangsit Rd., Chatuchak, Chatuchak, Bangkok 10900
Tel. 089-968-0061 E-Mail: SutthilukP@pttep.com

Analysis Report

SAMPLE DESIGNATED AS : Ambient Noise Level MEASUREMENT DATE : April 22-27, 2024
MEASUREMENT LOCATION : NPI-A Production Phase MEASURED BY : Weerapong Pengtrakul
โรงเรียนวัดไผ่ม่วง หมู่ที่ 4 ต. วังน้ำเย็น อ. บางปลา ม้า จ. สุพรรณบุรี
(UTM47P 0608969E, 1588090N)
CALIBRATOR DATA : Model : CR: 515, Cirrus Research plc., Serial No. 77273
Calibration value Reference: 94.0 dB(A), Pre Cal : 94.0 dB(A), Post Cal : 94.0 dB(A)
SOUND LEVEL METER NO. : Model : NL-53, RION, Serial No. 00830426

Time	Noise Level [dB(A)]									Standard*
	April 22-23, 2024			April 23-24, 2024			April 24-25, 2024			
	Leq	Lmax	L90	Leq	Lmax	L90	Leq	Lmax	L90	
10:00-11:00	59.3	92.7	47.4	51.4	74.2	46.7	51.0	69.5	45.7	
11:00-12:00	51.3	69.2	46.0	51.4	74.6	45.2	49.8	72.5	45.3	
12:00-13:00	50.3	72.5	44.5	51.7	77.5	45.7	49.0	72.7	44.7	
13:00-14:00	50.9	71.9	44.7	49.2	67.6	44.3	49.9	75.8	43.9	
14:00-15:00	49.3	71.6	44.7	48.5	66.9	44.7	48.7	75.3	43.9	
15:00-16:00	49.3	69.3	44.8	49.9	65.2	46.4	48.0	66.2	43.3	
16:00-17:00	51.6	79.5	45.0	50.9	73.5	46.1	50.6	70.7	46.5	
17:00-18:00	54.3	77.7	46.4	52.2	72.6	47.0	52.3	73.3	46.4	
18:00-19:00	52.5	75.8	45.2	53.0	78.9	45.1	53.5	72.5	46.6	
19:00-20:00	46.7	66.4	41.3	45.9	68.1	42.3	45.8	59.0	43.6	
20:00-21:00	43.8	66.6	39.8	44.6	61.1	42.1	44.9	58.0	42.5	
21:00-22:00	44.5	68.0	41.6	43.9	60.4	41.7	46.4	67.5	42.7	
22:00-23:00	46.7	73.3	41.9	46.7	73.0	41.5	44.1	60.1	42.0	
23:00-00:00	44.2	67.1	42.1	44.3	58.2	42.4	48.8	75.7	42.6	
00:00-01:00	43.4	57.0	41.4	47.6	73.1	41.8	44.3	61.9	42.9	
01:00-02:00	43.5	66.4	41.8	43.7	55.7	41.9	43.7	71.3	42.2	
02:00-03:00	44.2	59.8	42.1	43.9	58.6	41.5	49.0	77.1	42.9	
03:00-04:00	48.2	74.9	42.3	45.3	58.4	41.4	45.1	56.4	43.3	
04:00-05:00	47.9	74.0	42.4	49.2	73.1	42.4	52.5	76.3	42.8	
05:00-06:00	56.3	83.2	44.1	58.0	85.9	44.5	56.6	81.1	45.3	
06:00-07:00	58.5	85.3	48.7	54.0	78.3	48.6	53.5	77.1	49.1	
07:00-08:00	52.7	71.7	47.7	52.3	68.3	48.6	53.4	76.0	48.6	
08:00-09:00	52.8	74.9	48.1	52.8	70.4	48.0	53.1	81.9	47.9	
09:00-10:00	53.6	73.5	47.5	54.2	78.2	47.4	53.3	76.4	47.9	
Leq-24 hrs.	52.3	-	-	51.1	-	-	50.9	-	-	70
Ldn	58.5	-	-	57.6	-	-	57.4	-	-	-
Lmax	-	92.7	-	-	85.9	-	-	81.9	-	115
L90	-	-	42.3	-	-	42.6	-	-	43.0	-

Source: * Notification of the National Environment Board No.15, B.E. 2540 (19



Technical Manager

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Report No. : 2024-500001363-1 / 002 (Page 2 of 2)

Issued date : May 23, 2024

CLIENT : PTTEP International Limited
CONTACT : Khun Sutthiluk Phaisun
ADDRESS : 555/1 Energy Complex Vibhavadi-Rangsit Rd., Chatuchak, Chatuchak, Bangkok 10900
 Tel. 089-968-0061 E-Mail: SutthilukP@pttep.com

Analysis Report

SAMPLE DESIGNATED AS : Ambient Noise Level
MEASUREMENT DATE : April 22-27, 2024
MEASUREMENT LOCATION : NPI-A Production Phase
MEASURED BY : Weerapong Pengtrakul
 โรงเรียนวัดไผ่มั่ง หมู่ที่ 4 ต. วังน้ำเย็น อ. บางปาลม้า จ. สุพรรณบุรี
 (UTM47P 0608969E, 1588090N)
CALIBRATOR DATA : Model : CR: 515, Cirrus Research plc., Serial No. 77273
 Calibration value Reference: 94.0 dB(A), Pre Cal : 94.0 dB(A), Post Cal : 94.0 dB(A)
SOUND LEVEL METER NO. : Model : NL-53, RION, Serial No. 00830426

Time	Noise Level [dB(A)]						Standard*
	April 25-26, 2024			April 26-27, 2024			
	Leq	Lmax	L90	Leq	Lmax	L90	
10:00-11:00	50.9	70.5	47.0	50.6	72.0	45.8	
11:00-12:00	50.7	73.8	45.3	50.9	72.3	45.3	
12:00-13:00	50.3	70.2	46.2	48.6	67.0	43.8	
13:00-14:00	50.3	80.1	46.1	48.5	67.8	43.7	
14:00-15:00	49.8	66.8	46.2	47.8	65.5	44.2	
15:00-16:00	49.1	70.0	45.4	49.9	70.8	46.2	
16:00-17:00	51.0	71.6	45.4	51.2	70.5	45.0	
17:00-18:00	52.6	74.9	45.5	52.1	74.4	47.0	
18:00-19:00	52.5	78.6	45.0	51.0	75.9	44.6	
19:00-20:00	47.2	73.1	43.3	45.4	65.9	42.7	
20:00-21:00	46.1	69.5	42.5	45.0	68.0	42.3	
21:00-22:00	46.3	71.3	41.8	44.2	65.6	40.9	
22:00-23:00	46.3	65.8	41.2	43.4	63.7	40.8	
23:00-00:00	46.8	72.3	40.6	42.9	58.3	40.7	
00:00-01:00	46.9	73.2	40.1	42.3	66.9	40.6	
01:00-02:00	42.4	57.2	39.9	47.6	73.7	40.4	
02:00-03:00	46.9	71.7	40.4	42.7	64.8	40.8	
03:00-04:00	43.0	63.9	40.2	42.8	59.8	40.9	
04:00-05:00	49.1	73.4	40.2	49.3	73.2	41.0	
05:00-06:00	55.2	83.4	41.7	55.6	76.5	41.8	
06:00-07:00	52.6	74.0	48.3	53.8	71.6	48.7	
07:00-08:00	63.0	89.6	47.5	53.7	73.9	48.4	
08:00-09:00	52.3	76.9	46.9	57.0	82.4	47.2	
09:00-10:00	52.5	76.1	47.2	52.0	76.4	46.7	
Leq-24 hrs.	52.6	-	-	50.6	-	-	70
Ldn	56.9	-	-	56.3	-	-	-
Lmax	-	89.6	-	-	82.4	-	115
L90	-	-	41.0	-	-	41.1	-

Source: * Notification of the National Environment Board No.15, B.E. 2540 (1997)

SGS (THAILAND) LIMITED

Technical Manager

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Report No. : 2024-500001363-2 / 002-1 (Page 1 of 1)

Issued date : May 23, 2024

CLIENT : PTTEP International Limited
CONTACT : Khun Sutthiluk Phaisun
ADDRESS : 555/1 Energy Complex Vibhavadi-Rangsit Rd., Chatuchak, Chatuchak, Bangkok 10900
 Tel. 089-968-0061 E-Mail: SutthilukP@pttep.com

Analysis Report

SAMPLE DESIGNATED AS : Ambient Noise Level **MEASUREMENT DATE :** April 22-25, 2024
MEASUREMENT LOCATION : NPI-B Production Phase **MEASURED BY :** Weerapong Pengtrakul

วัดไม่มั่ง ต. วังน้ำเย็น อ. บางปาลม้า จ. สุพรรณบุรี
 (UTM47P 0608969E, 1588090N)

CALIBRATOR DATA : Model : CR: 515, Cirrus Research plc., Serial No. 77273
 Calibration value Reference: 94.0 dB(A), Pre Cal : 94.0 dB(A), Post Cal : 94.0 dB(A)

SOUND LEVEL METER NO. : Model : NL-53, RION, Serial No. 00830426

Time	Noise Level [dB(A)]									Standard*
	April 22-23, 2024			April 23-24, 2024			April 24-25, 2024			
	Leq	Lmax	L90	Leq	Lmax	L90	Leq	Lmax	L90	
10:00-11:00	59.3	92.7	47.4	51.4	74.2	46.7	51.0	69.5	45.7	
11:00-12:00	51.3	69.2	46.0	51.4	74.6	45.2	49.8	72.5	45.3	
12:00-13:00	50.3	72.5	44.5	51.7	77.5	45.7	49.0	72.7	44.7	
13:00-14:00	50.9	71.9	44.7	49.2	67.6	44.3	49.9	75.8	43.9	
14:00-15:00	49.3	71.6	44.7	48.5	66.9	44.7	48.7	75.3	43.9	
15:00-16:00	49.3	69.3	44.8	49.9	65.2	46.4	48.0	66.2	43.3	
16:00-17:00	51.6	79.5	45.0	50.9	73.5	46.1	50.6	70.7	46.5	
17:00-18:00	54.3	77.7	46.4	52.2	72.6	47.0	52.3	73.3	46.4	
18:00-19:00	52.5	75.8	45.2	53.0	78.9	45.1	53.5	72.5	46.6	
19:00-20:00	46.7	66.4	41.3	45.9	68.1	42.3	45.8	59.0	43.6	
20:00-21:00	43.8	66.6	39.8	44.6	61.1	42.1	44.9	58.0	42.5	
21:00-22:00	44.5	68.0	41.6	43.9	60.4	41.7	46.4	67.5	42.7	
22:00-23:00	46.7	73.3	41.9	46.7	73.0	41.5	44.1	60.1	42.0	
23:00-00:00	44.2	67.1	42.1	44.3	58.2	42.4	48.8	75.7	42.6	
00:00-01:00	43.4	57.0	41.4	47.6	73.1	41.8	44.3	61.9	42.9	
01:00-02:00	43.5	66.4	41.8	43.7	55.7	41.9	43.7	71.3	42.2	
02:00-03:00	44.2	59.8	42.1	43.9	58.6	41.5	49.0	77.1	42.9	
03:00-04:00	48.2	74.9	42.3	45.3	58.4	41.4	45.1	56.4	43.3	
04:00-05:00	47.9	74.0	42.4	49.2	73.1	42.4	52.5	76.3	42.8	
05:00-06:00	56.3	83.2	44.1	58.0	85.9	44.5	56.6	81.1	45.3	
06:00-07:00	58.5	85.3	48.7	54.0	78.3	48.6	53.5	77.1	49.1	
07:00-08:00	52.7	71.7	47.7	52.3	68.3	48.6	53.4	76.0	48.6	
08:00-09:00	52.8	74.9	48.1	52.8	70.4	48.0	53.1	81.9	47.9	
09:00-10:00	53.6	73.5	47.5	54.2	78.2	47.4	53.3	76.4	47.9	
Leq-24 hrs	52.3	-	-	51.1	-	-	50.9	-	-	70
Ldn	58.5	-	-	57.6	-	-	57.4	-	-	-
Lmax	-	92.7	-	-	85.9	-	-	81.9	-	115
L90	-	-	42.3	-	-	42.6	-	-	43.0	-

Source: * Notification of the National Environment Board No.15, B.E. 2540 (1997).

SGS (THAILAND) LIMITED

(Thepsan Yommana)
 Technical Manager

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Report No. : 2024-500001363-2 / 002-2 (Page 1 of 1)

Issued date : May 23, 2024

CLIENT : PTTEP International Limited
CONTACT : Khun Sutthiluk Phaisun
ADDRESS : 555/1 Energy Complex Vibhavadi-Rangsit Rd., Chatuchak, Bangkok 10900
 Tel. 089-968-0061 E-Mail: SutthilukP@pttep.com

Analysis Report

SAMPLE DESIGNATED AS : Nuisance Noise Level
MEASUREMENT LOCATION : NPI-B Production Phase
MEASUREMENT DATE : April 22-25, 2024
MEASURED BY : Weerapong Pengtrakul
 วัดไผ่มั่ง ต. วังน้ำเย็น อ. บางปละม้า จ. สุพรรณบุรี
 (UTM47P 0608969E, 1588090N)
CALIBRATOR DATA : Model : CR: 515, Cirrus Research plc., Serial No. 77273
 Calibration value Reference: 94.0 dB(A), Pre Cal : 94.0 dB(A), Post Cal : 94.0 dB(A)
SOUND LEVEL METER NO. : Model : NL-53, RION, Serial No. 00830426

Date	Duration	Specific Noise Level (L_{Aeq, T_s}) [dB(A)] ^{1/}	Background Noise Level (L_{A90}) [dB(A)] ^{2/}	Residual Noise Level ($L_{Aeq R}$) [dB(A)] ^{3/}	Disturbance Level ($L_{Aeq Tr}$) [dB(A)] ^{4/}
April 22-23, 2024	Day Time (06:00-22:00)	49.0	43.6	46.5	4.8
	Night Time (22:00-06:00)	43.1	41.8	42.8	0.0
April 23-24, 2024	Day Time (06:00-22:00)	48.7	44.1	47.5	1.4
	Night Time (22:00-06:00)	43.9	42.6	43.8	0.0
April 24-25, 2024	Day Time (06:00-22:00)	48.4	44.1	46.1	3.4
	Night Time (22:00-06:00)	44.4	42.9	43.2	0.0
Standard ^{*/**}					Not more than 10

Remarks : ^{1/} Specific Noise Level is sound level in the existing environment which is disturbed by activities of factory, measured in term of " $L_{Aeq 1 hr}$ " in day time and " $L_{Aeq 5 min}$ " in night time.
^{2/} Background Noise Level is sound level in the existing environment which is not disturbed by activities of factory. Background noise Level is measured in term of " L_{A90} ".
^{3/} Residual Noise Level is sound level in the existing environment which is not disturbed by activities of factory. Residual Noise Level is measured in term of " $L_{Aeq R}$ ".
^{4/} If the Disturbance Level value exceed 10 dB(A), it will be considered as Nuisance Noise.

Sources : * Notification of the National Environmental Board No. 29, B.E. 2550 (2007), Subjected "Nuisance noise", dated June 29, B.E. 2550 (2007).
 ** Calculation followed Notification of Pullution Control Committee, subjected Measurement Methods of Background Sound Level, Residual Sound Level, Measurment and Calculation of Rating Level, Calculation of Nuisance Noise Level and Record Form B.E. 2565 (2022).

(Thepsan Yommana)
 Technical Manager

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Report No. : 2024-500001363-11 / 002-1 (Page 1 of 1) Issued date : September 4, 2024

CLIENT : PTTEP International Limited
CONTACT : Khun Sutthiluk Phaisun
ADDRESS : 555/1 Energy Complex Vibhavadi-Rangsit Rd., Chatuchak, Chatuchak, Bangkok 10900
 Tel. 089-968-0061 E-Mail: SutthilukP@pttep.com

Analysis Report

SAMPLE DESIGNATED AS : Ambient Noise Level
MEASUREMENT DATE : August 17-20, 2024
MEASUREMENT LOCATION : NPI-B Production Phase
MEASURED BY : Weerapong Pengtrakul
 วัดไผ่มั่ง ด. วังน้ำเย็น อ. บางปาลม้า จ. สุพรรณบุรี
 (UTM47P 0608989E, 1588081N)
CALIBRATOR DATA : Model : CR: 515, Cirrus Research plc., Serial No. 88350
 Calibration value Reference: 94.0 dB(A), Pre Cal : 93.7 dB(A), Post Cal : 93.7 dB(A)
SOUND LEVEL METER NO. : Model : ST-21D, SCARLET, Serial No. 820702

Time	Noise Level [dB(A)]									Standard*
	August 17-18, 2024			August 18-19, 2024			August 19-20, 2024			
	Leq	Lmax	L90	Leq	Lmax	L90	Leq	Lmax	L90	
10:40-11:40	48.2	76.2	46.0	46.7	67.4	43.2	48.8	73.9	43.9	
11:40-12:40	48.0	66.8	46.7	46.1	64.0	42.6	50.5	72.0	44.1	
12:40-13:40	48.2	68.5	46.4	46.6	64.4	41.9	48.8	71.1	43.9	
13:40-14:40	47.8	65.4	45.9	47.4	65.0	44.6	50.4	73.8	46.7	
14:40-15:40	47.8	68.9	46.0	48.1	70.3	44.1	52.7	76.1	47.9	
15:40-16:40	48.7	68.2	46.5	49.6	68.4	45.5	49.2	67.1	46.3	
16:40-17:40	49.9	66.8	47.1	51.3	66.6	46.0	52.1	75.7	45.8	
17:40-18:40	51.9	74.9	48.8	48.1	69.5	44.4	47.3	66.5	44.1	
18:40-19:40	46.1	62.7	40.5	45.7	74.6	41.1	46.4	69.3	40.3	
19:40-20:40	44.0	66.1	42.0	53.9	78.8	43.8	44.8	66.7	42.4	
20:40-21:40	45.9	61.4	43.9	49.2	65.9	41.2	45.4	58.5	44.2	
21:40-22:40	48.6	63.2	47.7	46.2	61.9	42.8	46.6	62.1	44.9	
22:40-23:40	48.1	61.2	46.8	46.7	67.4	45.7	47.2	59.7	46.1	
23:40-00:40	48.8	60.4	47.4	45.8	64.9	45.0	47.5	56.4	45.8	
00:40-01:40	48.5	54.6	47.6	46.4	55.8	45.0	45.2	58.7	41.4	
01:40-02:40	47.5	53.8	45.9	47.6	54.0	46.3	45.1	63.8	41.0	
02:40-03:40	47.6	54.5	45.2	45.9	55.1	44.6	45.3	56.1	42.8	
03:40-04:40	47.8	57.4	44.9	49.0	77.1	46.3	46.0	54.9	44.1	
04:40-05:40	53.9	69.3	49.0	52.7	60.3	49.5	46.8	64.6	45.1	
05:40-06:40	51.5	78.7	48.0	53.9	72.2	51.6	52.3	71.0	49.4	
06:40-07:40	48.8	68.2	46.1	54.4	69.9	50.2	53.9	70.7	47.6	
07:40-08:40	48.3	69.8	44.7	54.1	71.7	47.0	54.5	72.3	45.8	
08:40-09:40	48.2	70.8	44.1	48.6	69.5	45.9	47.8	72.4	44.7	
09:40-10:40	52.1	80.1	42.9	47.4	67.8	44.8	45.7	68.1	43.5	
Leq-24 hrs.	49.1	-	-	49.9	-	-	49.4	-	-	70
Ldn	56.0	-	-	56.8	-	-	55.5	-	-	-
Lmax	-	80.1	-	-	78.8	-	-	76.1	-	115
L90	-	-	44.7	-	-	44.1	-	-	43.8	-

Source: * Notification of the National Environment Board No.15, B.E. 2540 (1997)



(Thepsan Yommana)
Technical Manager

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Report No. : 2024-500001363-11 / 002-2 (Page 1 of 1) Issued date : September 18, 2024

CLIENT : PTTEP International Limited
CONTACT : Khun Sutthiluk Phaisun
ADDRESS : 555/1 Energy Complex Vibhavadi-Rangsit Rd., Chatuchak, Chatuchak, Bangkok 10900
 Tel. 089-968-0061 E-Mail: SutthilukP@pttep.com

Analysis Report

SAMPLE DESIGNATED AS : Nuisance Noise Level **MEASUREMENT DATE :** August 17-20, 2024
MEASUREMENT LOCATION : NPI-B Production Phase **MEASURED BY :** Weerapong Pengtrakul
 วัดไผ่มั่ง ต.วังน้ำเย็น อ. บางปلام้า จ. สุพรรณบุรี
 (UTM47P 0608989E, 1588081N)
CALIBRATOR DATA : Model : CR: 515, Cirrus Research plc., Serial No. 88350
 Calibration value Reference: 94.0 dB(A), Pre Cal : 93.7 dB(A), Post Cal : 93.7 dB(A)
SOUND LEVEL METER NO. : Model : dBadge2, CASELLA, Serial No. 2311488

Date	Duration	Specific Noise Level (L_{Aeq, T_s}) [dB(A)] ^{1/}	Background Noise Level (L_{A90}) [dB(A)] ^{2/}	Residual Noise Level ($L_{Aeq R}$) [dB(A)] ^{3/}	Disturbance Level ($L_{Aeq Tr}$) [dB(A)] ^{4/}
August 17-18, 2024	Day Time (06:00-22:00)	47.0	43.6	45.6	0.8
	Night Time (22:00-06:00)	49.0	46.3	48.9	0.0
August 18-19, 2024	Day Time (06:00-22:00)	48.0	42.1	46.1	4.4
	Night Time (22:00-06:00)	47.1	44.6	46.8	0.0
August 19-20, 2024	Day Time (06:00-22:00)	47.0	41.7	43.8	5.5
	Night Time (22:00-06:00)	46.6	43.6	46.5	0.0
Standard ^{*/**}					Not more than 10

Remarks : ^{1/} Specific Noise Level is sound level in the existing environment which is disturbed by activities of factory, measured in term of " $L_{Aeq 1 hr}$ " in day time and " $L_{Aeq 5 min}$ " in night time.
^{2/} Background Noise Level is sound level in the existing environment which is not disturbed by activities of factory. Background noise Level is measured in term of " L_{A90} ".
^{3/} Residual Noise Level is sound level in the existing environment which is not disturbed by activities of factory. Residual Noise Level is measured in term of " $L_{Aeq R}$ ".
^{4/} If the Disturbance Level value exceed 10 dB(A), it will be considered as Nuisance Noise.

Sources : * Notification of the National Environmental Board No. 29, B.E. 2550 (2007), Subjected "Nuisance noise", dated June 29, B.E. 2550 (2007).
 ** Calculation followed Notification of Pollution Control Committee, subjected Measurement Methods of Background Sound Level, Residual Sound Level, Measurement and Calculation of Rating Level, Calculation of Nuisance Noise Level and Record Form B.E. 2565 (2022).

(Thepsan Yommana)
 Technical Manager

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Report No. : 2024-500001363-13 / 002-1 (Page 1 of 1) Issued date : September 11, 2024

CLIENT : PTTEP International Limited
CONTACT : Khun Sutthiluk Phaisun
ADDRESS : 555/1 Energy Complex Vibhavadi-Rangsit Rd., Chatuchak, Chatuchak, Bangkok 10900
 Tel. 089-968-0061 E-Mail: SutthilukP@pttep.com

Analysis Report

SAMPLE DESIGNATED AS : Ambient Noise Level **MEASUREMENT DATE** : August 13-16, 2024
MEASUREMENT LOCATION : NPI-C Production Phase **MEASURED BY** : Weerapong Pengtrakul
 หมู่ 2 ต.วังน้ำเย็น อ.บางปลาม้า จ.สุพรรณบุรี (UTM47P 061199E, 1586999N)
CALIBRATOR DATA : Model : CR: 515, Cirrus Research plc., Serial No. 88350
 Calibration value Reference: 94.0 dB(A), Pre Cal : 93.7 dB(A), Post Cal : 93.7 dB(A)
SOUND LEVEL METER NO. : Model : ST-21D, Scaarlet, Serial No. 820717

Time	Noise Level [dB(A)]									Standard*
	August 13-14, 2024			August 14-15, 2024			August 15-16, 2024			
	Leq	Lmax	L90	Leq	Lmax	L90	Leq	Lmax	L90	
12:06-13:06	52.2	86.3	40.1	48.4	75.7	39.0	45.6	68.2	39.5	
13:06-14:06	50.6	78.1	40.9	45.0	65.3	38.7	47.6	70.9	39.5	
14:06-15:06	49.3	71.0	41.0	44.2	66.5	39.5	45.3	68.9	38.7	
15:06-16:06	54.9	87.3	42.1	51.4	77.5	41.4	49.2	73.8	41.2	
16:06-17:06	56.9	82.9	47.7	46.9	71.8	41.3	66.3	78.5	50.4	
17:06-18:06	50.0	79.1	45.1	51.0	74.7	43.2	65.9	96.2	45.6	
18:06-19:06	49.8	80.4	40.6	49.9	74.2	41.9	50.5	73.4	42.7	
19:06-20:06	54.7	87.7	41.6	43.4	63.5	40.6	45.0	64.8	39.8	
20:06-21:06	45.4	58.7	44.1	45.2	64.9	43.0	47.5	64.3	46.1	
21:06-22:06	45.1	55.2	44.3	46.4	70.6	44.3	48.4	69.7	45.6	
22:06-23:06	44.9	52.4	43.8	45.1	59.4	44.0	45.4	62.3	44.4	
23:06-00:06	44.8	52.5	44.5	44.0	57.3	43.2	46.1	69.6	45.5	
00:06-01:06	44.5	53.6	43.9	45.5	67.6	44.5	48.2	71.7	44.8	
01:06-02:06	44.6	53.6	43.9	44.9	62.5	44.4	44.2	55.3	43.5	
02:06-03:06	45.8	61.1	44.6	44.6	49.1	44.2	45.9	51.7	45.1	
03:06-04:06	45.9	56.9	44.8	44.6	51.0	43.9	46.3	50.4	45.7	
04:06-05:06	44.6	63.9	43.5	44.4	61.0	43.2	47.1	59.4	46.1	
05:06-06:06	51.5	77.3	42.5	48.7	75.1	42.2	51.4	79.3	45.5	
06:06-07:06	52.3	76.2	44.9	50.1	71.1	45.8	50.5	74.0	46.8	
07:06-08:06	50.2	74.8	43.0	48.8	67.6	45.0	49.5	69.9	44.1	
08:06-09:06	47.4	65.9	41.9	51.7	72.6	43.6	49.9	72.3	45.0	
09:06-10:06	49.3	77.9	42.8	51.0	79.3	43.4	48.4	75.7	39.0	
10:06-11:06	47.6	75.0	40.1	44.9	65.4	39.6	45.4	66.1	39.2	
11:06-12:06	44.8	69.5	39.2	52.5	80.5	40.1	51.3	77.5	41.2	
Leq-24 hrs.	50.3	-	-	48.2	-	-	56.0	-	-	70
Ldn	54.9	-	-	53.2	-	-	57.8	-	-	-
Lmax	-	87.7	-	-	80.5	-	-	96.2	-	115
L90	-	-	42.0	-	-	41.5	-	-	41.6	-

Source: * Notification of the National Environment Board No.15, B.E. 2540 (1997).



SGS (THAILAND) LIMITED

(Thepsan Pommahana)
Technical Manager

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Report No. : 2024-500001363-13 / 002-3 (Page 1 of 1) Issued date : September 11, 2024

CLIENT : PTTEP International Limited
CONTACT : Khun Sutthiluk Phaisun
ADDRESS : 555/1 Energy Complex Vibhavadi-Rangsit Rd., Chatuchak, Bangkok 10900
 Tel. 089-968-0061 E-Mail: SutthilukP@pttep.com

Analysis Report

SAMPLE DESIGNATED AS : Ambient Noise Level **MEASUREMENT DATE** : August 13-16, 2024
MEASUREMENT LOCATION : NPI-C Production Phase **MEASURED BY** : Weerapong Pengtrakul
 หมู่ 2 ต.วังน้ำเย็น อ.บางปลาม้า จ.สุพรรณบุรี (UTM47P 061199E, 1586999N)
CALIBRATOR DATA : Model : CR: 515, Cirrus Research plc., Serial No. 88350
 Calibration value Reference: 94.0 dB(A), Pre Cal : 93.7 dB(A), Post Cal : 93.7 dB(A)
SOUND LEVEL METER NO. : Model : ST-21D, Scaarlet, Serial No. 820717

Date	Duration	Specific Noise Level (L_{Aeq, T_s}) [dB(A)] ^{1/}	Background Noise Level (L_{A90}) [dB(A)] ^{2/}	Residual Noise Level ($L_{Aeq R}$) [dB(A)] ^{3/}	Disturbance Level ($L_{Aeq Tr}$) [dB(A)] ^{4/}
August 13-14, 2024	Day Time (06:00-22:00)	47.6	39.6	44.7	4.9
	Night Time (22:00-06:00)	46.0	44.1	45.0	0.0
August 14-15, 2024	Day Time (06:00-22:00)	48.0	40.1	42.7	6.4
	Night Time (22:00-06:00)	44.9	43.8	44.6	0.0
August 15-16, 2024	Day Time (06:00-22:00)	48.4	41.0	46.9	2.1
	Night Time (22:00-06:00)	46.2	45.1	45.7	0.0
Standard ^{1/} **					Not more than 10

Remarks : ^{1/} Specific Noise Level is sound level in the existing environment which is disturbed by activities of factory, measured in term of " $L_{Aeq 1 hr}$ " in day time and " $L_{Aeq 5 min}$ " in night time.
^{2/} Background Noise Level is sound level in the existing environment which is not disturbed by activities of factory. Background noise Level is measured in term of " L_{A90} ".
^{3/} Residual Noise Level is sound level in the existing environment which is not disturbed by activities of factory. Residual Noise Level is measured in term of " $L_{Aeq R}$ ".
^{4/} If the Disturbance Level value exceed 10 dB(A), it will be considered as Nuisance Noise.
Source : * Notification of the National Environmental Board No. 29, B.E. 2550 (2007), Subjected "Nuisance noise", dated June 29, B.E. 2550 (2007).
 ** Calculation followed Notification of Pullution Control Committee, subjected Measurement Methods of Backgroud Sound Level, Residual Sound Level, Measurment and Calculation of Rating Level, Calcuation of Nuisance Noise Level and Record Form B.E. 2565 (2022).

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(Thepsan Yommana)
 Technical Manager

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Report No. : 2024-500001363-13 / 002-2 (Page 1 of 1) Issued date : September 11, 2024

CLIENT : PTTEP International Limited
CONTACT : Khun Sutthiluk Phaisun
ADDRESS : 555/1 Energy Complex Vibhavadi-Rangsit Rd., Chatuchak, Chatuchak, Bangkok 10900
Tel. 089-968-0061 E-Mail: SutthilukP@pttep.com

Analysis Report

SAMPLE DESIGNATED AS : Ambient Noise Level **MEASUREMENT DATE** : August 13-16, 2024
MEASUREMENT LOCATION : NPI-D Production Phase **MEASURED BY** : Weerapong Pengtrakul

CALIBRATOR DATA : Model : CR: 515, Cirrus Research plc., Serial No. 88350
Calibration value Reference: 94.0 dB(A), Pre Cal : 93.7 dB(A), Post Cal : 93.7 dB(A)
SOUND LEVEL METER NO. : Model : ST-21D, Scaarlet, Serial No. 820702

Time	Noise Level [dB(A)]									Standard*
	August 13-14, 2024			August 14-15, 2024			August 15-16, 2024			
	Leq	Lmax	L90	Leq	Lmax	L90	Leq	Lmax	L90	
10:13-11:13	48.3	82.5	42.8	44.4	66.4	41.4	45.0	63.0	40.9	
11:13-12:13	44.7	66.4	41.9	43.3	69.2	39.3	43.0	62.5	38.8	
12:13-13:13	45.2	64.7	42.1	42.1	68.4	38.8	42.0	66.5	39.4	
13:13-14:13	46.5	70.7	41.7	43.9	67.4	40.2	44.2	65.8	39.1	
14:13-15:13	44.4	66.2	41.2	43.4	62.0	39.1	43.1	62.2	39.0	
15:13-16:13	48.6	74.6	41.0	58.9	81.1	40.5	48.9	66.7	38.8	
16:13-17:13	51.7	72.5	45.6	45.8	69.4	40.7	61.3	72.2	49.4	
17:13-18:13	48.5	74.6	45.8	51.7	74.6	42.5	51.2	79.1	46.3	
18:13-19:13	56.5	72.9	46.3	51.4	71.1	44.3	57.1	75.4	46.6	
19:13-20:13	63.3	77.4	61.8	59.3	75.8	54.1	58.3	83.5	56.8	
20:13-21:13	62.9	76.1	61.8	61.0	75.4	59.9	58.2	70.6	57.0	
21:13-22:13	59.6	73.8	57.6	59.5	74.1	57.0	57.0	71.9	55.6	
22:13-23:13	56.3	73.7	51.6	55.9	73.6	53.6	57.0	72.0	54.7	
23:13-00:13	52.2	73.3	47.3	48.5	69.6	44.1	48.9	69.7	45.0	
00:13-01:13	50.1	69.5	45.0	46.8	64.6	44.1	47.1	62.9	45.7	
01:13-02:13	50.7	66.8	49.3	47.2	64.9	44.8	50.5	64.2	47.2	
02:13-03:13	48.0	70.2	44.9	47.4	67.0	43.6	51.7	67.7	48.2	
03:13-04:13	48.5	67.5	45.0	50.9	65.2	44.7	54.3	68.3	48.5	
04:13-05:13	48.6	66.2	44.8	62.3	68.5	59.9	62.1	71.9	59.5	
05:13-06:13	47.3	66.4	44.2	57.1	69.0	46.7	56.9	69.2	48.2	
06:13-07:13	48.8	68.2	45.7	47.3	70.2	43.8	47.7	70.0	45.1	
07:13-08:13	46.9	64.7	44.0	46.3	72.8	42.7	46.1	69.0	42.8	
08:13-09:13	48.0	75.8	41.7	44.5	68.6	40.4	44.9	71.7	41.1	
09:13-10:13	45.9	66.5	41.3	43.8	66.9	40.2	43.7	67.6	39.3	
Leq-24 hrs.	54.8	-	-	54.9	-	-	54.9	-	-	70
Ldn	58.6	-	-	61.6	-	-	61.9	-	-	-
Lmax	-	82.5	-	-	81.1	-	-	83.5	-	115
L90	-	-	43.0	-	-	41.1	-	-	40.9	-

Source: * Notification of the National Environment Board No.15, B.E. 2540 (1997)

SGS (THAILAND) LIMITED

(Thepsan Yommana)
Technical Manager

TY/WP/DS/DS

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Report No. : 2024-500001363-13 / 002-4 (Page 1 of 1) Issued date : September 11, 2024

CLIENT : PTTEP International Limited
CONTACT : Khun Sutthiluk Phaisun
ADDRESS : 555/1 Energy Complex Vibhavadi-Rangsit Rd., Chatuchak, Chatuchak, Bangkok 10900
Tel. 089-968-0061 E-Mail: SutthilukP@pttep.com

Analysis Report

SAMPLE DESIGNATED AS : Ambient Noise Level **MEASUREMENT DATE** : August 13-16, 2024
MEASUREMENT LOCATION : NPI-D Production Phase **MEASURED BY** : Weerapong Pengtrakul
CALIBRATOR DATA : Model : CR: 515, Cirrus Research plc., Serial No. 88350
Calibration value Reference: 94.0 dB(A), Pre Cal : 93.7 dB(A), Post Cal : 93.7 dB(A)
SOUND LEVEL METER NO. : Model : ST-21D, Scaarlet, Serial No. 820702

Date	Duration	Specific Noise Level (L_{Aeq, T_s}) [dB(A)] ^{1/}	Background Noise Level (L_{A90}) [dB(A)] ^{2/}	Residual Noise Level ($L_{Aeq R}$) [dB(A)] ^{3/}	Disturbance Level ($L_{Aeq Tr}$) [dB(A)] ^{4/}
August 13-14, 2024	Day Time (06:00-22:00)	47.6	40.8	45.1	3.2
	Night Time (22:00-06:00)	48.9	44.5	48.8	0.0
August 14-15, 2024	Day Time (06:00-22:00)	46.4	39.2	43.5	4.1
	Night Time (22:00-06:00)	48.7	43.5	46.9	3.5
August 15-16, 2024	Day Time (06:00-22:00)	46.6	39.4	43.9	3.9
	Night Time (22:00-06:00)	49.2	45.6	47.0	2.6
Standard ^{*/**}					Not more than 10

Remarks : ^{1/} Specific Noise Level is sound level in the existing environment which is disturbed by activities of factory, measured in term of " $L_{Aeq 1 hr}$ " in day time and " $L_{Aeq 5 min}$ " in night time.
^{2/} Background Noise Level is sound level in the existing environment which is not disturbed by activities of factory. Background noise Level is measured in term of " L_{A90} ".
^{3/} Residual Noise Level is sound level in the existing environment which is not disturbed by activities of factory. Residual Noise Level is measured in term of " $L_{Aeq R}$ ".
^{4/} If the Disturbance Level value exceed 10 dB(A), it will be considered as Nuisance Noise.
Source : * Notification of the National Environmental Board No. 29, B.E. 2550 (2007), Subjected "Nuisance noise", dated June 29, B.E. 2550 (2007).
** Calculation followed Notification of Pullution Control Committee, subjected Measurement Methods of Backgroud Sound Level, Residual Sound Level, Measurment and Calculation of Rating Level, Calcuation of Nuisance Noise Level and Record Form B.E. 2565 (2022).



(Thepsan Yommana)
Technical Manager

TY/WP/DS/DS

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CLIENT : PTTEP International Limited
CONTACT : Khun Sutthiluk Phaisun
ADDRESS : 555/1 Energy Complex Vibhavadi-Rangsit Rd., Chatuchak, Chatuchak, Bangkok 10900
 Tel. 089-968-0061 E-Mail: SutthilukP@pttep.com

Analysis Report

SAMPLE DESIGNATED AS : Ambient Noise Level **MEASUREMENT DATE :** April 22-25, 2024
MEASUREMENT LOCATION : NPI-G, NPI Flow Station Production Phase **MEASURED BY:** Weerapong Pengtrakul
 โรงเรือนวัดไฟมุ้ง หมู่ที่ 4 ต. วังน้ำเย็น อ. บางปาลาม้า จ. สุพรรณบุรี
 (UTM47P 0608969E, 1588090N)
CALIBRATOR DATA : Model : CR: 515, Cirrus Research plc., Serial No. 77273
 Calibration value Reference: 94.0 dB(A), Pre Cal : 94.0 dB(A), Post Cal : 94.0 dB(A)
SOUND LEVEL METER NO. : Model : NL-53, RION, Serial No. 00830426

Time	Noise Level [dB(A)]									Standard*
	April 22-23, 2024			April 23-24, 2024			April 24-25, 2024			
	Leq	Lmax	L90	Leq	Lmax	L90	Leq	Lmax	L90	
10:00-11:00	59.3	92.7	47.4	51.4	74.2	46.7	51.0	69.5	45.7	
11:00-12:00	51.3	69.2	46.0	51.4	74.6	45.2	49.8	72.5	45.3	
12:00-13:00	50.3	72.5	44.5	51.7	77.5	45.7	49.0	72.7	44.7	
13:00-14:00	50.9	71.9	44.7	49.2	67.6	44.3	49.9	75.8	43.9	
14:00-15:00	49.3	71.6	44.7	48.5	66.9	44.7	48.7	75.3	43.9	
15:00-16:00	49.3	69.3	44.8	49.9	65.2	46.4	48.0	66.2	43.3	
16:00-17:00	51.6	79.5	45.0	50.9	73.5	46.1	50.6	70.7	46.5	
17:00-18:00	54.3	77.7	46.4	52.2	72.6	47.0	52.3	73.3	46.4	
18:00-19:00	52.5	75.8	45.2	53.0	78.9	45.1	53.5	72.5	46.6	
19:00-20:00	46.7	66.4	41.3	45.9	68.1	42.3	45.8	59.0	43.6	
20:00-21:00	43.8	66.6	39.8	44.6	61.1	42.1	44.9	58.0	42.5	
21:00-22:00	44.5	68.0	41.6	43.9	60.4	41.7	46.4	67.5	42.7	
22:00-23:00	46.7	73.3	41.9	46.7	73.0	41.5	44.1	60.1	42.0	
23:00-00:00	44.2	67.1	42.1	44.3	58.2	42.4	48.8	75.7	42.6	
00:00-01:00	43.4	57.0	41.4	47.6	73.1	41.8	44.3	61.9	42.9	
01:00-02:00	43.5	66.4	41.8	43.7	55.7	41.9	43.7	71.3	42.2	
02:00-03:00	44.2	59.8	42.1	43.9	58.6	41.5	49.0	77.1	42.9	
03:00-04:00	48.2	74.9	42.3	45.3	58.4	41.4	45.1	56.4	43.3	
04:00-05:00	47.9	74.0	42.4	49.2	73.1	42.4	52.5	76.3	42.8	
05:00-06:00	56.3	83.2	44.1	58.0	85.9	44.5	56.6	81.1	45.3	
06:00-07:00	58.5	85.3	48.7	54.0	78.3	48.6	53.5	77.1	49.1	
07:00-08:00	52.7	71.7	47.7	52.3	68.3	48.6	53.4	76.0	48.6	
08:00-09:00	52.8	74.9	48.1	52.8	70.4	48.0	53.1	81.9	47.9	
09:00-10:00	53.6	73.5	47.5	54.2	78.2	47.4	53.3	76.4	47.9	
Leq-24 hrs	52.3	-	-	51.1	-	-	50.9	-	-	70
Ldn	58.5	-	-	57.6	-	-	57.4	-	-	-
Lmax	-	92.7	-	-	85.9	-	-	81.9	-	115
L90	-	-	42.3	-	-	42.6	-	-	43.0	-

Source: * Notification of the National Environment Board No.15, B.E. 2540 (1997)

SGS (THAILAND) LIMITED

(Thepsan Yommana)
Technical Manager

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Report No. : 2024-500001363-3 / 002-2 (Page 1 of 1)

Issued date : May 23, 2024

CLIENT : PTTEP International Limited
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ADDRESS : 555/1 Energy Complex Vibhavadi-Rangsit Rd., Chatuchak, Bangkok 10900
 Tel. 089-968-0061 E-Mail: SutthilukP@pttep.com

Analysis Report

SAMPLE DESIGNATED AS : Ambient Noise Level **MEASUREMENT DATE :** April 22-25, 2024
MEASUREMENT LOCATION : NPI-G, NPI Flow Station Production Phase **MEASURED BY:** Weerapong Pengtrakul
 โรงเรียนวัดไผ่ไร่ หมู่ที่ 4 ต. วังน้ำเย็น อ. บางปลาหม้า จ. สุพรรณบุรี
 (UTM47P 0608969E, 1588090N)
CALIBRATOR DATA : Model : CR: 515, Cirrus Research plc., Serial No. 77273
 Calibration value Reference: 94.0 dB(A), Pre Cal : 94.0 dB(A), Post Cal : 94.0 dB(A)
SOUND LEVEL METER NO. : Model : NL-53, RION, Serial No. 00830426

Date	Duration	Specific Noise Level (L_{Aeq, T_s}) [dB(A)] ^{1/}	Background Noise Level (L_{A90}) [dB(A)] ^{2/}	Residual Noise Level ($L_{Aeq R}$) [dB(A)] ^{3/}	Disturbance Level ($L_{Aeq Tr}$) [dB(A)] ^{4/}
April 22-23, 2024	Day Time (06:00-22:00)	49.0	43.6	46.5	4.8
	Night Time (22:00-06:00)	43.1	41.8	42.8	0.0
April 23-24, 2024	Day Time (06:00-22:00)	48.7	44.1	47.5	1.4
	Night Time (22:00-06:00)	43.9	42.6	43.8	0.0
April 24-25, 2024	Day Time (06:00-22:00)	48.4	44.1	46.1	3.4
	Night Time (22:00-06:00)	44.4	42.9	43.2	0.0
Standard ^{*/**}					Not more than 10

Remarks : ^{1/} Specific Noise Level is sound level in the existing environment which is disturbed by activities of factory, measured in term of " $L_{Aeq 1 hr}$ " in day time and " $L_{Aeq 5 min}$ " in night time.

^{2/} Background Noise Level is sound level in the existing environment which is not disturbed by activities of factory. Background noise Level is measured in term of " L_{A90} ".

^{3/} Residual Noise Level is sound level in the existing environment which is not disturbed by activities of factory. Residual Noise Level is measured in term of " $L_{Aeq R}$ ".

^{4/} If the Disturbance Level value exceed 10 dB(A), it will be considered as Nuisance Noise.

Source : * Notification of the National Environmental Board No. 29, B.E. 2550 (2007), Subjected "Nuisance noise", dated June 29, B.E. 2550 (2007).

** Calculation followed Notification of Pollution Control Committee, subjected Measurement Methods of Background Sound Level, Residual Sound Level, Measurement and Calculation of Rating Level, Calculation of Nuisance Noise Level and Record Form B.E. 2565 (2022).

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SGS (THAILAND) LIMITED



(Thepsai Tommana)
 Technical Manager

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Report No. : 2024-500001363-14 / 002-1 (Page 1 of 1) Issued date : September 9, 2024

CLIENT : PTTEP International Limited
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 Tel. 089-968-0061 E-Mail: SutthilukP@pttep.com

Analysis Report

SAMPLE DESIGNATED AS : Ambient Noise Level **MEASUREMENT DATE :** August 17-20, 2024

MEASUREMENT LOCATION : NPI-G, NPI Flow Station Production Phase **MEASURED BY:** Weerapong Pengtrakul

โรงเรียนวัดไผ่มั่ง หมู่ที่ 4 ต. วังน้ำเย็น อ. บางปาลาม้า จ. สุพรรณบุรี
 (UTM47P 0608989E, 1588081N)

CALIBRATOR DATA : Model : CR: 515, Cirrus Research plc., Serial No. 88350
 Calibration value Reference: 94.0 dB(A), Pre Cal : 93.7 dB(A), Post Cal : 93.7 dB(A)

SOUND LEVEL METER NO. : Model : dBadge2, CASELLA, Serial No. 2311488

Time	Noise Level [dB(A)]									Standard*
	August 17-18, 2024			August 18-19, 2024			August 19-20, 2024			
	Leq	Lmax	L90	Leq	Lmax	L90	Leq	Lmax	L90	
10:40-11:40	48.2	76.2	46.0	46.7	67.4	43.2	48.8	73.9	43.9	
11:40-12:40	48.0	66.8	46.7	46.1	64.0	42.6	50.5	72.0	44.1	
12:40-13:40	48.2	68.5	46.4	46.6	64.4	41.9	48.8	71.1	43.9	
13:40-14:40	47.8	65.4	45.9	47.4	65.0	44.6	50.4	73.8	46.7	
14:40-15:40	47.8	68.9	46.0	48.1	70.3	44.1	52.7	76.1	47.9	
15:40-16:40	48.7	68.2	46.5	49.6	68.4	45.5	49.2	67.1	46.3	
16:40-17:40	49.9	66.8	47.1	51.3	66.6	46.0	52.1	75.7	45.8	
17:40-18:40	51.9	74.9	48.8	48.1	69.5	44.4	47.3	66.5	44.1	
18:40-19:40	46.1	62.7	40.5	45.7	74.6	41.1	46.4	69.3	40.3	
19:40-20:40	44.0	66.1	42.0	53.9	78.8	43.8	44.8	66.7	42.4	
20:40-21:40	45.9	61.4	43.9	49.2	65.9	41.2	45.4	58.5	44.2	
21:40-22:40	48.6	63.2	47.7	46.2	61.9	42.8	46.6	62.1	44.9	
22:40-23:40	48.1	61.2	46.8	46.7	67.4	45.7	47.2	59.7	46.1	
23:40-00:40	48.8	60.4	47.4	45.8	64.9	45.0	47.5	56.4	45.8	
00:40-01:40	48.5	54.6	47.6	46.4	55.8	45.0	45.2	58.7	41.4	
01:40-02:40	47.5	53.8	45.9	47.6	54.0	46.3	45.1	63.8	41.0	
02:40-03:40	47.6	54.5	45.2	45.9	55.1	44.6	45.3	56.1	42.8	
03:40-04:40	47.8	57.4	44.9	49.0	77.1	46.3	46.0	54.9	44.1	
04:40-05:40	53.9	69.3	49.0	52.7	60.3	49.5	46.8	64.6	45.1	
05:40-06:40	51.5	78.7	48.0	53.9	72.2	51.6	52.3	71.0	49.4	
06:40-07:40	48.8	68.2	46.1	54.4	69.9	50.2	53.9	70.7	47.6	
07:40-08:40	48.3	69.8	44.7	54.1	71.7	47.0	54.5	72.3	45.8	
08:40-09:40	48.2	70.8	44.1	48.6	69.5	45.9	47.8	72.4	44.7	
09:40-10:40	52.1	80.1	42.9	47.4	67.8	44.8	45.7	68.1	43.5	
Leq-24 hrs.	49.1	-	-	49.9	-	-	49.4	-	-	70
Ldn	56.0	-	-	56.8	-	-	55.5	-	-	-
Lmax	-	80.1	-	-	78.8	-	-	76.1	-	115
L90	-	-	44.7	-	-	44.1	-	-	43.8	-

Source: * Notification of the National Environment Board No.15, B.E. 2540 (1997)



(Thepsan Yommana)
 Technical Manager

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Report No. : 2024-500001363-14 / 002-2 (Page 1 of 1) Issued date : September 18, 2024

CLIENT : PTTEP International Limited
CONTACT : Khun Sutthiluk Phaisun
ADDRESS : 555/1 Energy Complex Vibhavadi-Rangsit Rd., Chatuchak, Chatuchak, Bangkok 10900
 Tel. 089-968-0061 E-Mail: SutthilukP@pttep.com

Analysis Report

SAMPLE DESIGNATED AS : Ambient Noise Level **MEASUREMENT DATE:** August 17-20, 2024
MEASUREMENT LOCATION : NPI-G, NPI Flow Station Production Phase **MEASUREMENT BY:** Weerapong Pengtrakul
 โรงเรือนวัดไผ่ม่วง หมู่ที่ 4 ต. วังน้ำเย็น อ. บางปลา ม้า จ. สุพรรณบุรี
 (UTM47P 0608989E, 1588081N)
CALIBRATOR DATA : Model : CR: 515, Cirrus Research plc., Serial No. 88350
 Calibration value Reference: 94.0 dB(A), Pre Cal : 93.7 dB(A), Post Cal : 93.7 dB(A)
SOUND LEVEL METER NO. : Model : dBadge2, CASELLA, Serial No. 2311488

Date	Duration	Specific Noise Level (L_{Aeq, T_s}) [dB(A)] ^{1/}	Background Noise Level (L_{A90}) [dB(A)] ^{2/}	Residual Noise Level ($L_{Aeq R}$) [dB(A)] ^{3/}	Disturbance Level ($L_{Aeq Tr}$) [dB(A)] ^{4/}
August 17-18, 2024	Day Time (06:00-22:00)	47.0	43.6	45.6	0.8
	Night Time (22:00-06:00)	49.0	46.3	48.9	0.0
August 18-19, 2024	Day Time (06:00-22:00)	48.0	42.1	46.1	4.4
	Night Time (22:00-06:00)	47.1	44.6	46.8	0.0
August 19-20, 2024	Day Time (06:00-22:00)	47.0	41.7	43.8	5.5
	Night Time (22:00-06:00)	46.6	43.6	46.5	0.0
Standard ^{*/**}					Not more than 10

Remarks : ^{1/} Specific Noise Level is sound level in the existing environment which is disturbed by activities of factory, measured in term of " $L_{Aeq 1 hr}$ " in day time and " $L_{Aeq 5 min}$ " in night time.

^{2/} Background Noise Level is sound level in the existing environment which is not disturbed by activities of factory. Background noise Level is measured in term of " L_{A90} ".

^{3/} Residual Noise Level is sound level in the existing environment which is not disturbed by activities of factory. Residual Noise Level is measured in term of " $L_{Aeq R}$ ".

^{4/} If the Disturbance Level value exceed 10 dB(A), it will be considered as Nuisance Noise.

Sources : * Notification of the National Environmental Board No. 29, B.E. 2550 (2007), Subjected "Nuisance noise", dated June 29, B.E. 2550 (2007).

** Calculation followed Notification of Pullution Control Committee, subjected Measurement Methods of Background Sound Level, Residual Sound Level, Measurment and Calculation of Rating Level, Calculation of Nuisance Noise Level and Record Form B.E. 2565 (2022).

(I hepsan Yommana)

Technical Manager

TY/WP/NT/NT

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Report No. : 2024-500001363-19 / 002-1 (Page 1 of 1)

Issued date : November 8, 2024

CLIENT : PTTEP International Limited
CONTACT : Khun Sutthiluk Phaisun
ADDRESS : 555/1 Energy Complex Vibhavadi-Rangsit Rd., Chatuchak, Chatuchak, Bangkok 10900
 Tel. 089-968-0061 E-Mail: SutthilukP@pttep.com

Analysis Report

SAMPLE DESIGNATED AS : Ambient Noise Level
MEASUREMENT DATE : October 15-18, 2024
MEASUREMENT LOCATION : UT1-3 Production Phase
MEASURED BY : Weerapong Pengtrakul

CALIBRATOR DATA : Model : CR: 515, Cirrus Research plc., Serial No. 80400
 Calibration value Reference: 94.0 dB(A), Pre Cal : 94.0 dB(A), Post Cal : 94.0 dB(A)
SOUND LEVEL METER NO. : Model : NL-53, RION, Serial No. 00541087

Time	Noise Level [dB(A)]									Standard*
	October 15-16, 2024			October 16-17, 2024			October 17-18, 2024			
	Leq	Lmax	L90	Leq	Lmax	L90	Leq	Lmax	L90	
15:00-16:00	42.6	63.5	29.9	46.4	67.3	37.4	43.5	66.4	33.5	
16:00-17:00	47.0	70.8	32.4	41.2	59.7	34.2	46.4	71.1	32.9	
17:00-18:00	46.6	73.9	32.6	47.4	66.1	35.5	46.3	68.5	34.8	
18:00-19:00	46.5	72.0	32.8	46.3	64.3	37.3	51.2	76.1	36.4	
19:00-20:00	50.5	69.2	43.2	45.0	68.1	40.1	46.6	60.2	42.7	
20:00-21:00	55.2	60.0	45.2	43.7	59.4	37.7	47.6	80.0	42.4	
21:00-22:00	55.7	65.2	34.1	44.6	75.7	36.4	43.5	69.5	33.0	
22:00-23:00	56.8	71.6	42.0	41.0	59.1	36.2	52.9	71.3	35.1	
23:00-00:00	54.8	76.8	35.9	40.5	61.2	37.0	50.3	70.2	37.3	
00:00-01:00	58.2	63.5	44.8	39.9	65.5	34.4	44.9	63.2	35.8	
01:00-02:00	67.2	104.6	40.6	45.0	71.5	35.5	54.6	92.4	36.0	
02:00-03:00	56.3	66.2	45.2	44.6	60.0	42.5	64.4	86.1	51.2	
03:00-04:00	47.7	72.3	40.8	45.5	58.2	42.4	50.2	71.0	38.2	
04:00-05:00	50.0	58.9	41.5	46.8	54.3	45.2	50.7	69.2	40.9	
05:00-06:00	47.5	57.0	43.6	44.4	67.6	37.2	60.6	74.0	47.2	
06:00-07:00	46.1	67.9	40.4	42.5	69.3	35.5	51.0	73.0	43.5	
07:00-08:00	45.2	68.5	36.1	44.4	68.6	32.8	45.9	68.6	40.7	
08:00-09:00	48.1	74.8	35.8	43.8	69.0	33.5	45.4	73.7	39.9	
09:00-10:00	39.7	62.3	33.0	43.3	75.5	31.6	43.0	66.3	35.9	
10:00-11:00	48.7	80.7	33.1	43.7	72.4	31.0	40.3	69.6	33.1	
11:00-12:00	43.4	64.1	31.7	45.1	72.5	29.8	42.0	73.5	32.1	
12:00-13:00	39.9	59.0	30.6	41.4	67.5	30.5	46.1	73.9	31.7	
13:00-14:00	40.4	64.1	29.4	42.1	63.8	29.9	46.8	72.0	36.9	
14:00-15:00	51.4	72.7	29.5	42.0	63.6	31.4	54.2	66.2	45.2	
Leq-24 hrs.	55.6	-	-	44.2	-	-	53.8	-	-	70
Ldn	65.0	-	-	50.4	-	-	63.2	-	-	-
Lmax	-	104.6	-	-	75.7	-	-	92.4	-	115
L90	-	-	32.5	-	-	32.8	-	-	34.8	-

Source: * Notification of the National Environment Board No.15, B.E. 2540 (1997)



(Thepsan Yommana)
Technical Manager

TY/WP/WK/WK

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Report No. : 2024-500001363-19 / 002-2 (Page 1 of 1) Issued date : November 8, 2024

CLIENT : PTTEP International Limited
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 Tel. 089-968-0061 E-Mail: SutthilukP@pttep.com

Analysis Report

SAMPLE DESIGNATED AS : Nuisance Noise Level **MEASUREMENT DATE :** October 15-18, 2024
MEASUREMENT LOCATION : UT1-3 Production Phase **MEASURED BY :** Weerapong Pengtrakul

CALIBRATOR DATA : Model : CR: 515, Cirrus Research plc., Serial No. 80400
 Calibration value Reference: 94.0 dB(A), Pre Cal : 94.0 dB(A), Post Cal : 94.0 dB(A)
SOUND LEVEL METER NO. : Model : NL-53, RION, Serial No. 00541087

Date	Duration	Specific Noise Level (L_{Aeq, T_s}) [dB(A)] ^{1/}	Background Noise Level (L_{A90}) [dB(A)] ^{2/}	Residual Noise Level ($L_{Aeq R}$) [dB(A)] ^{3/}	Disturbance Level ($L_{Aeq Tr}$) [dB(A)] ^{4/}
October 15-16, 2024	Day Time (06:00-22:00)	43.4	33.7	40.2	6.8
	Night Time (22:00-06:00)	51.3	41.6	48.8	9.1
October 16-17, 2024	Day Time (06:00-22:00)	43.7	33.5	42.4	4.3
	Night Time (22:00-06:00)	43.5	38.4	40.8	4.8
October 17-18, 2024	Day Time (06:00-22:00)	46.1	37.9	41.4	6.4
	Night Time (22:00-06:00)	50.3	42.9	49.9	0.0
Standard**/**					Not more than 10

Remarks : ^{1/} Specific Noise Level is sound level in the existing environment which is disturbed by activities of factory, measured in term of " $L_{Aeq 1 hr}$ " in day time and " $L_{Aeq 5 min}$ " in night time.
^{2/} Background Noise Level is sound level in the existing environment which is not disturbed by activities of factory. Background noise Level is measured in term of " L_{A90} ".
^{3/} Residual Noise Level is sound level in the existing environment which is not disturbed by activities of factory. Residual Noise Level is measured in term of " $L_{Aeq R}$ ".
^{4/} If the Disturbance Level value exceed 10 dB(A), it will be considered as Nuisance Noise.
Source : * Notification of the National Environmental Board No. 29, B.E. 2550 (2007), Subjected "Nuisance noise", dated June 29, B.E. 2550 (2007).
 ** Calculation followed Notification of Pollution Control Committee, subjected Measurement Methods of Background Sound Level, Residual Sound Level, Measurement and Calculation of Rating Level, Calculation of Nuisance Noise Level and Record Form B.E. 2565 (2022).

(Thepsan Yommana)
 Technical Manager

TY/WP/WK/WK

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Report No. : 2024-500001363-19 / 002-3 (Page 1 of 1)

Issued date : November 8, 2024

CLIENT : PTTEP International Limited
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Analysis Report

SAMPLE DESIGNATED AS : Ambient Noise Level MEASUREMENT DATE : October 15-18, 2024
MEASUREMENT LOCATION : UT1-7 Production Phase MEASURED BY : Weerapong Pengtrakul

CALIBRATOR DATA : Model : CR: 515, Cirrus Research plc., Serial No. 80400
Calibration value Reference: 94.0 dB(A), Pre Cal : 94.0 dB(A), Post Cal : 94.0 dB(A)
SOUND LEVEL METER NO. : Model : NL-53, RION, Serial No. 00541086

Time	Noise Level [dB(A)]									Standard*
	October 15-16, 2024			October 16-17, 2024			October 17-18, 2024			
	Leq	Lmax	L90	Leq	Lmax	L90	Leq	Lmax	L90	
09:00-10:00	53.1	75.0	43.1	48.0	73.6	37.9	48.3	74.3	38.5	
10:00-11:00	47.5	74.6	38.9	48.4	74.7	38.2	45.1	70.1	37.4	
11:00-12:00	45.6	69.4	37.8	46.7	68.5	36.9	46.1	75.5	37.6	
12:00-13:00	50.6	80.6	37.7	44.8	70.2	36.5	50.3	79.2	36.9	
13:00-14:00	47.8	73.6	37.8	48.9	78.1	40.0	44.8	69.4	36.1	
14:00-15:00	48.5	74.7	38.5	54.6	81.5	38.3	45.1	70.7	36.5	
15:00-16:00	46.1	68.5	36.7	56.9	80.3	47.6	43.8	70.2	35.9	
16:00-17:00	45.3	70.2	36.7	51.7	75.8	41.6	45.8	74.7	36.9	
17:00-18:00	48.6	78.1	39.0	47.3	72.1	43.0	49.2	74.5	39.0	
18:00-19:00	55.8	81.5	38.5	58.9	83.3	39.5	59.3	83.6	42.6	
19:00-20:00	54.1	80.3	42.3	47.9	67.5	44.5	52.4	77.1	44.9	
20:00-21:00	57.5	83.1	42.2	48.5	74.4	44.5	49.5	74.3	45.4	
21:00-22:00	55.3	83.3	39.5	47.7	75.8	42.3	47.3	75.7	42.3	
22:00-23:00	48.0	67.5	44.7	51.8	82.5	43.1	54.2	79.5	42.1	
23:00-00:00	48.1	66.7	43.9	47.1	66.2	43.5	47.3	75.7	39.3	
00:00-01:00	51.9	82.5	42.3	47.4	72.1	43.2	45.7	65.3	42.2	
01:00-02:00	47.6	66.5	43.7	46.1	65.5	41.8	61.4	96.3	42.1	
02:00-03:00	47.4	72.1	43.5	46.1	65.2	42.8	60.6	86.4	50.3	
03:00-04:00	46.5	70.1	42.0	48.0	67.5	44.2	50.9	72.9	45.5	
04:00-05:00	56.3	80.3	46.7	49.9	69.4	46.1	54.2	77.5	49.6	
05:00-06:00	52.9	75.4	41.6	50.5	74.4	43.8	59.1	79.5	52.9	
06:00-07:00	57.5	83.1	39.6	54.0	80.4	42.5	66.9	88.7	46.3	
07:00-08:00	55.4	83.3	39.7	64.4	90.0	42.5	65.1	89.6	45.0	
08:00-09:00	52.1	81.4	41.3	66.5	96.2	42.2	71.0	98.6	44.3	
Leq-24 hrs.	52.6	-	-	56.3	-	-	60.4	-	-	70
Ldn	59.0	-	-	58.8	-	-	66.5	-	-	-
Lmax	-	83.3	-	-	96.2	-	-	98.6	-	115
L90	-	-	38.5	-	-	39.1	-	-	37.6	-

Source: * Notification of the National Environment Board No.15, B.E. 2540 (1997)



(Thepsan Yommana)
Technical Manager

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Report No. : 2024-500001363-19 / 002-4 (Page 1 of 1) Issued date : November 12, 2024

CLIENT : PTTEP International Limited
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 Tel. 089-968-0061 E-Mail: SutthilukP@pttep.com

Analysis Report

SAMPLE DESIGNATED AS : Nuisance Noise Level **MEASUREMENT DATE :** October 15-18, 2024
MEASUREMENT LOCATION : UT1-7 Production Phase **MEASURED BY :** Weerapong Pengtrakul

CALIBRATOR DATA : Model : CR: 515, Cirrus Research plc., Serial No. 80400
 Calibration value Reference: 94.0 dB(A), Pre Cal : 94.0 dB(A), Post Cal : 94.0 dB(A)

SOUND LEVEL METER NO. : Model : NL-53, RION, Serial No. 00541086

Date	Duration	Specific Noise Level (L_{Aeq, T_s}) [dB(A)] ^{1/}	Background Noise Level (L_{A90}) [dB(A)] ^{2/}	Residual Noise Level ($L_{Aeq R}$) [dB(A)] ^{3/}	Disturbance Level ($L_{Aeq Tr}$) [dB(A)] ^{4/}
October 15-16, 2024	Day Time (06:00-22:00)	47.8	40.3	44.3	4.9
	Night Time (22:00-06:00)	47.2	43.6	46.6	0.0
October 16-17, 2024	Day Time (06:00-22:00)	48.9	43.4	46.6	1.6
	Night Time (22:00-06:00)	46.2	42.8	45.6	0.0
October 17-18, 2024	Day Time (06:00-22:00)	48.3	39.2	45.3	6.1
	Night Time (22:00-06:00)	46.1	42.5	45.2	0.0
Standard ^{*/**}					Not more than 10

Remarks : ^{1/} Specific Noise Level is sound level in the existing environment which is disturbed by activities of factory, measured in term of " $L_{Aeq 1 hr}$ " in day time and " $L_{Aeq 5 min}$ " in night time.

^{2/} Background Noise Level is sound level in the existing environment which is not disturbed by activities of factory. Background noise Level is measured in term of " L_{A90} ".

^{3/} Residual Noise Level is sound level in the existing environment which is not disturbed by activities of factory. Residual Noise Level is measured in term of " $L_{Aeq R}$ ".

^{4/} If the Disturbance Level value exceed 10 dB(A), it will be considered as Nuisance Noise.

Source : * Notification of the National Environmental Board No. 29, B.E. 2550 (2007), Subjected "Nuisance noise", dated June 29, B.E. 2550 (2007).

** Calculation followed Notification of Pollution Control Committee, subjected Measurement Methods of Background Sound Level, Residual Sound Level, Measurement and Calculation of Rating Level, Calculation of Nuisance Noise Level and Record Form B.E. 2565 (2022).

(Thepsan Yommana)
 Technical Manager

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Report No. : 2024-500001363-19 / 002-5 (Page 1 of 1)

Issued date : November 8, 2024

CLIENT : PTTEP International Limited
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Analysis Report

SAMPLE DESIGNATED AS : Ambient Noise Level
MEASUREMENT LOCATION : SKJ Production Phase
MEASUREMENT DATE : October 15-18, 2024
MEASURED BY : Weerapong Pengtrakul

CALIBRATOR DATA : Model : CR: 515, Cirrus Research plc., Serial No. 80400
 Calibration value Reference: 94.0 dB(A), Pre Cal : 94.0 dB(A), Post Cal : 94.0 dB(A)
SOUND LEVEL METER NO. : Model : NL-53, RION, Serial No. 00541084

Time	Noise Level [dB(A)]									Standard*
	October 15-16, 2024			October 16-17, 2024			October 17-18, 2024			
	Leq	Lmax	L90	Leq	Lmax	L90	Leq	Lmax	L90	
15:00-16:00	56.5	85.9	41.1	56.5	79.0	46.8	56.5	81.0	40.5	
16:00-17:00	54.1	73.7	42.5	55.4	78.4	44.4	56.0	76.7	42.6	
17:00-18:00	57.3	83.9	43.4	56.3	81.1	41.5	56.7	81.8	43.6	
18:00-19:00	55.3	77.3	43.3	54.9	74.5	41.2	54.0	80.6	42.8	
19:00-20:00	55.7	81.6	50.8	55.0	75.5	48.5	53.3	77.8	46.5	
20:00-21:00	55.2	77.9	46.4	53.3	79.2	46.2	52.1	73.6	45.3	
21:00-22:00	51.8	72.4	44.1	50.0	72.2	45.6	52.5	80.7	40.6	
22:00-23:00	47.2	64.9	42.6	49.0	71.7	45.1	60.4	80.6	39.1	
23:00-00:00	48.8	72.7	40.9	47.0	65.0	39.2	57.0	78.7	38.2	
00:00-01:00	45.7	69.5	40.8	48.2	75.5	38.0	53.6	82.4	39.0	
01:00-02:00	59.5	89.9	40.1	47.9	70.5	45.0	50.2	83.0	38.2	
02:00-03:00	46.9	69.7	40.0	47.0	63.1	42.1	66.8	94.8	48.3	
03:00-04:00	49.1	66.6	45.2	47.3	73.3	39.9	50.4	65.0	42.8	
04:00-05:00	48.4	65.0	43.9	48.0	69.9	42.0	53.5	65.9	47.5	
05:00-06:00	50.2	68.3	42.4	53.6	79.1	42.7	57.1	72.5	51.6	
06:00-07:00	54.2	75.2	43.4	54.7	73.1	44.0	56.2	73.7	46.6	
07:00-08:00	55.5	72.7	43.5	59.6	87.6	43.2	56.5	76.6	45.1	
08:00-09:00	56.5	80.2	42.6	55.3	78.7	41.7	55.8	76.5	44.8	
09:00-10:00	59.1	87.1	42.1	56.2	80.9	40.4	55.4	75.8	43.8	
10:00-11:00	55.4	77.5	41.1	54.4	78.2	38.7	55.3	77.0	42.6	
11:00-12:00	55.0	76.7	40.4	53.9	70.6	41.8	58.4	88.5	42.3	
12:00-13:00	55.1	81.7	41.0	55.8	80.1	41.0	55.7	85.9	41.6	
13:00-14:00	55.4	77.6	40.0	52.7	73.5	39.2	55.0	78.1	42.1	
14:00-15:00	56.6	83.3	41.3	57.5	82.4	39.4	58.2	88.5	43.1	
Leq-24 hrs.	54.9	-	-	54.3	-	-	57.6	-	-	70
Ldn	59.6	-	-	58.0	-	-	65.5	-	-	-
Lmax	-	89.9	-	-	87.5	-	-	94.8	-	115
L90	-	-	41.4	-	-	40.9	-	-	41.3	-

Source: * Notification of the National Environment Board No.15, B.E. 2540 (1997).



(Thepsan Yommana)
Technical Manager

TY/WP/WK/WK

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Report No. : 2024-500001363-19 / 002-6 (Page 1 of 1) Issued date : November 12, 2024

CLIENT : PTTEP International Limited
CONTACT : Khun Sutthiluk Phaisun
ADDRESS : 555/1 Energy Complex Vibhavadi-Rangsit Rd., Chatuchak, Chatuchak, Bangkok 10900
 Tel. 089-968-0061 E-Mail: SutthilukP@pttep.com

Analysis Report

SAMPLE DESIGNATED AS : Nuisance Noise Level **MEASUREMENT DATE :** October 15-18, 2024
MEASUREMENT LOCATION : SKJ Production Phase **MEASURED BY :** Weerapong Pengtrakul

CALIBRATOR DATA : Model : CR: 515, Cirrus Research plc., Serial No. 80400
 Calibration value Reference: 94.0 dB(A), Pre Cal : 94.0 dB(A), Post Cal : 94.0 dB(A)

SOUND LEVEL METER NO. : Model : NL-53, RION, Serial No. 00541084

Date	Duration	Specific Noise Level (L_{Aeq, T_s}) [dB(A)] ^{1/}	Background Noise Level (L_{A90}) [dB(A)] ^{2/}	Residual Noise Level ($L_{Aeq R}$) [dB(A)] ^{3/}	Disturbance Level ($L_{Aeq Tr}$) [dB(A)] ^{4/}
October 15-16, 2024	Day Time (06:00-22:00)	55.1	43.0	52.8	8.2
	Night Time (22:00-06:00)	48.7	45.5	48.4	0.0
October 16-17, 2024	Day Time (06:00-22:00)	57.5	43.2	56.8	6.0
	Night Time (22:00-06:00)	46.9	42.3	44.3	4.1
October 17-18, 2024	Day Time (06:00-22:00)	55.7	47.2	54.3	6.8
	Night Time (22:00-06:00)	53.0	43.3	51.4	3.7
Standard ^{*/**}					Not more than 10

Remarks : ^{1/} Specific Noise Level is sound level in the existing environment which is disturbed by activities of factory, measured in term of " $L_{Aeq 1 hr}$ " in day time and " $L_{Aeq 5 min}$ " in night time.

^{2/} Background Noise Level is sound level in the existing environment which is not disturbed by activities of factory. Background noise Level is measured in term of " L_{A90} ".

^{3/} Residual Noise Level is sound level in the existing environment which is not disturbed by activities of factory. Residual Noise Level is measured in term of " $L_{Aeq R}$ ".

^{4/} If the Disturbance Level value exceed 10 dB(A), it will be considered as Nuisance Noise.

Source : * Notification of the National Environmental Board No. 29, B.E. 2550 (2007), Subjected "Nuisance noise", dated June 29, B.E. 2550 (2007).

** Calculation followed Notification of Pullution Control Committee, subjected Measurement Methods of Background Sound Level, Residual Sound Level, Measurment and Calculation of Rating Level, Calcuation of Nuisance Noise Level and Record Form B.E. 2565 (2022).

(Inepsan Yommana)
 Technical Manager

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ภาคผนวก ก3

ผลการตรวจวิเคราะห์คุณภาพน้ำผิวดิน
และนิเวศวิทยาแหล่งน้ำ

Report No. : 2024-500001363-1 / 003 (Page 1 of 1)

Issued date : June 13, 2024

CLIENT : PTTEP International Limited
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 Tel. 089-968-0061 E-Mail: SutthilukP@pttep.com

Analysis Report

SAMPLE DESIGNATED AS : Surface Water Quality

SAMPLING DATE : May 27, 2024

SAMPLING BY : Watchararat Linjee

SAMPLING TIME : 10:20 hr.

SAMPLING LOCATION : NPI-A Production Phase : คลองตาข่ายทางทิศตะวันออกเฉียงใต้
 (UTM47P 0609833E, 1587740N)

Parameter	Unit	Analytical Method	Result	Standard
pH	-	APHA, 4500-H ⁺ B	7.2	5.0-9.0
Conductivity	µs/cm	APHA, 2510 B	302	-
Arsenic (As)	mg/l	APHA, 3125 B	0.005	≤0.01
Chloride (Cl)	mg/l	APHA, 4500 Cl- D	11	-
Barium (Ba)	mg/l	APHA, 3125 B	0.093	-
Mercury (Hg)	mg/l	APHA, 3125 B	<0.0005	≤0.002
Lead (Pb)	mg/l	APHA, 3125 B	0.0010	≤0.05
Chromium Hexavalent (Cr ⁺⁶)	mg/l	APHA, 3500-Cr B	<0.01	≤0.05
Total Petroleum Hydrocarbon (TPH)	mg/l	Based on Method of Seawater analysis*	0.0004	-

Remark: - Analytical Methods followed to Standard Methods for the Examination of Water and Wastewater, recommended by APHA, AWWA&WEF 24th edition., 2023.

* Based on Method of Seawater analysis Third Completely Revised and Extended Edition, 1999, Chapter 21

Source : 1/ Notification of National Environment Board No.8, B.E.2537 (1994), issued under the Enhancement & Conservation of National Environmental Quality Act B.E.2535 (1992), dated January 20, B.E. 2537 (1994), published in the Royal Government Gazette Vol.111, Part 16D, dated June 24, B.E. 2537 (1994).

Classification of surface water Class 3: Medium clean fresh surface water resource used for:

1) Consumption, but passing through an ordinary treatment process b



(Theppan Ponnana)
 Technical Manager

TY/MM/JK/JK

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Report No. : 2024-500001363-1 / 007-1 (Page 1 of 4) Issued date : June 17, 2024

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 Tel. 089-968-0061 E-Mail: SutthilukP@pttep.com

Analysis Report

SAMPLE DESIGNATED AS : Phytoplankton Identification **SAMPLING DATE :** May 27, 2024
SAMPLING BY : Watchararat Linjee **SAMPLING TIME :** 10:30 hr.
SAMPLING LOCATION : NPI-A Production Phase : คลองตาโฆยทางทิศตะวันออกเฉียงใต้
 (UTM47P 0609833E, 1587740N)

Scientific Classification	Phytoplankton (Cell/m ³)
Division Cyanophyta	
Class Cyanophyceae	
Order Chroococcales	
Family Chroococcaceae	
<i>Microcystis aeruginosa</i>	6,000
Order Nostocales	
Family Oscillatoriaceae	
<i>Oscillatoria anguina</i>	165,000
<i>Oscillatoria bervis</i>	94,000
<i>Oscillatoria planctonica</i>	9,440,000
<i>Oscillatoria princeps</i>	189,000
<i>Oscillatoria</i> sp.	236,000
<i>Oscillatoria tenuis</i>	787,000
<i>Spirulina</i> sp.	24,000
Family Nostocaceae	
<i>Anabaena</i> sp.	24,000
<i>Raphidiopsis</i> sp.	12,000
Division Chlorophyta	
Class Chlorophyceae	
Order Volvocales	
Family Volvocaceae	
<i>Eudorina elegans</i>	159,000
<i>Gonium pectorale</i>	6,000
<i>Gonium sociale</i>	18,000
<i>Pandorina morum</i>	1,416,000
<i>Volvox tertius</i>	6,000
Order Tetrasporales	
Family Palmellaceae	
<i>Sphaerocystis shroeteri</i>	12,000
Order Chlorococcales	
Family Hydrodictyaceae	
<i>Pediastrum duplex</i>	24,000
<i>Pediastrum simplex</i>	47,000

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Analysis Report

SAMPLE DESIGNATED AS : Phytoplankton Identification **SAMPLING DATE :** May 27, 2024
SAMPLING BY : Watchararat Linjee **SAMPLING TIME :** 10:30 hr.
SAMPLING LOCATION : NPI-A Production Phase : คลองตาโฆยทางทิศตะวันออกเฉียงใต้
 (UTM47P 0609833E, 1587740N)

Scientific Classification	Phytoplankton (Cell/m ³)
Division Chlorophyta (cont'd)	
Class Chlorophyceae	
Order Chlorococcales	
Family Oocystaceae	
<i>Chlorella vulgaris</i>	6,000
<i>Dictyosphaerium pulchellum</i>	12,000
<i>Selenastrum gracile</i>	18,000
<i>Tetraedron gracile</i>	6,000
<i>Tetraedron trigonum</i>	12,000
Family Scenedesmaceae	
<i>Actinastrum hantzschii</i>	360,000
<i>Crucigenia apiculata</i>	136,000
<i>Scenedesmus bijuga</i>	6,000
<i>Scenedesmus dimorphus</i>	18,000
<i>Scenedesmus opoliensis</i>	6,000
Order Ulotrichales	
Family Ulotrichaceae	
<i>Geminella interrupta</i>	6,000
Order Zygomatales	
Family Zygnemataceae	
<i>Spirogyra</i> sp.	12,000
<i>Spirogyra weberi</i>	47,000
Family Desmidiaceae	
<i>Closterium gracile</i>	6,000
<i>Closterium lineatum</i>	6,000
<i>Closterium ralfsii</i>	6,000
<i>Closterium</i> sp.	6,000

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Analysis Report

SAMPLE DESIGNATED AS : Phytoplankton Identification **SAMPLING DATE :** May 27, 2024
SAMPLING BY : Watchararat Linjee **SAMPLING TIME :** 10:30 hr.
SAMPLING LOCATION : NPI-A Production Phase : คลองตาไผ่ทางทิศตะวันออกเฉียงใต้
 (UTM47P 0609833E, 1587740N)

Scientific Classification	Phytoplankton (Cell/m ³)
Division Chlorophyta (cont'd)	
Class Euglenophyceae	
Order Euglenales	
Family Euglenaceae	
<i>Euglena acus</i>	1,652,000
<i>Euglena oxyuris</i>	148,000
<i>Euglena</i> sp.	148,000
<i>Euglena viridis</i>	413,000
<i>Lepocinclis ovum</i>	4,602,000
<i>Phacus angulatus</i>	1,357,000
<i>Phacus hamatus</i>	177,000
<i>Phacus longicauda</i>	89,000
<i>Phacus platalea</i>	36,000
<i>Phacus ranula</i>	30,000
<i>Phacus</i> sp.	142,000
<i>Phacus stokesii</i>	83,000
<i>Phacus tortus</i>	443,000
<i>Strombomonas australica</i>	40,000
<i>Strombomonas deflandrei</i>	148,000
<i>Strombomonas fluviatilis</i>	142,000
<i>Strombomonas gibberosa</i>	171,000
<i>Strombomonas</i> sp.	41,000
<i>Trachelomonas crebea</i>	1,298,000
<i>Trachelomonas daugerdiana</i>	212,000
<i>Trachelomonas hispida</i>	431,000
<i>Trachelomonas lacustris</i>	12,000
<i>Trachelomonas mirabilis</i>	18,000
<i>Trachelomonas volzii</i>	18,000

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Analysis Report

SAMPLE DESIGNATED AS : Phytoplankton Identification **SAMPLING DATE :** May 27, 2024
SAMPLING BY : Watchararat Linjee **SAMPLING TIME :** 10:30 hr.
SAMPLING LOCATION : NPI-A Production Phase : คลองตาข่ายทางทิศตะวันออกเฉียงใต้
 (UTM47P 0609833E, 1587740N)

Scientific Classification	Phytoplankton (Cell/m ³)
Division Chromophyta	
Class Bacillariophyceae	
Order Biddulphiales	
Suborder Coscinodiscineae	
Family Thalassiosiraceae	
<i>Cyclotella meneghiniana</i>	12,000
Family Aulacoseiraceae	
<i>Aulacoseira granulata</i>	89,000
Order Bacillariales	
Suborder Fragilariineae	
Family Fragilariaceae	
<i>Synedra ulna</i>	6,000
Suborder Bacillariineae	
Family Naviculaceae	
<i>Frustulia vulgaris</i>	6,000
<i>Navicula</i> sp.	6,000
<i>Pinnularia gibba</i>	6,000
<i>Stauroneis anceps</i>	6,000
Class Dinophyceae	
Order Peridiniales	
Family Peridiniaceae	
<i>Peridinium</i> sp.	6,000
Total Species of Phytoplankton (Species)	67
Total Density of Phytoplankton (Cell/m³)	25,322,000
Biodiversity Index^{1/}	2.38
Evenness Index^{2/}	0.57

Remarks : - Analytical Methods followed to Standard Methods for the Examination of Water and Wastewater, recommended by APHA-AWWA-WEF (APHA, 10200F)

^{1/} The biodiversity index was calculated by using the Shannon-Wiener

^{2/} The evenness index was calculated by using the Pielou's Index.

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Technical Manager

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Tel. 089-968-0061 E-Mail: SutthilukP@pttep.com

Analysis Report

SAMPLE DESIGNATED AS : Zooplankton Identification
SAMPLING BY : Watchararat Linjee
SAMPLING LOCATION : NPI-A Production Phase : คลองตาข่ายทางทิศตะวันออกเฉียงใต้
(UTM47P 0609833E, 1587740N)
SAMPLING DATE : May 27, 2024
SAMPLING TIME : 10:40 hr.

Scientific Classification	Zooplankton (individuals/m ³)
Phylum Protozoa (Protozoans) Subphylum Plasmodroma Class Sarcodina Subclass Rhizopoda Order Testacida Family Diffugiidae <i>Diffugia acuminata</i>	6,000
Subphylum Ciliophora Class Ciliata Subclass Holotricha Order Gymnostomatida <i>Coleps</i> sp. <i>Didinium</i> sp.	12,000 12,000
Phylum Rotifera Class Monogononta Order Ploima Family Brachionidae <i>Anuaeopsis fissa</i> Family Lecanidae <i>Lecane inermis</i> Family Synchaetidae <i>Synchaeta</i> sp.	18,000 6,000 6,000
Total Species of Zooplankton (Species)	6
Total Density of Zooplankton (individuals/m ³)	60,000
Biodiversity Index ^{1/}	1.69
Evenness Index ^{2/}	0.95

Remarks : - Analytical Methods followed to Standard Methods for the Examination of Water and Wastewater, recommended by APHA-AWWA-WEF (APHA, 10200G)

^{1/} The biodiversity index was calculated by using the Shannon-Wiener Index

^{2/} The evenness index was calculated by using the Pielou's Index.

(Thepsan Yommana)
Technical Manager

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Report No. : 2024-500001363-1 / 007-3 (Page 1 of 1) Issued date : June 17, 2024

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Analysis Report

SAMPLE DESIGNATED AS : Benthos Identification
SAMPLING BY : Watchararat Linjee
SAMPLING LOCATION : NPI-A Production Phase : คลองตาซอยทางทิศตะวันออกเฉียงใต้
 (UTM47P 0609833E, 1587740N)
SAMPLING DATE : May 27, 2024
SAMPLING TIME : 10:45 hr.

Scientific Classification	Benthos (Individuals/m ²)
Phylum Arthropoda Class Insecta Order Diptera Family Chironomidae <i>Chironomus</i> sp.	104
Phylum Mollusca Class Gastropoda Order Architaenioglossa Family Bithyniidae <i>Bithynia</i> sp.	30
Total Family of Benthos (Species)	2
Total Density of Benthos (individuals/m²)	134
Biodiversity Index^{1/}	0.53

Remarks : - Analytical Methods followed to Standard Methods for the Examination of Water and Wastewater, recommended by APHA-AWWA-WEF.

^{1/} The biodiversity index was calculated by using the Shannon-Wiener's Index.

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(Thepsan Yommana)
Technical Manager

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Tel. 089-968-0061 E-Mail: SutthilukP@pttep.com

Analysis Report

SAMPLE DESIGNATED AS : Surface Water Quality
SAMPLING DATE : April 26, 2024
SAMPLING BY : Weerapong Pengtrakul
SAMPLING TIME : 16:50 hr.
SAMPLING LOCATION : NPI-B Production Phase: SW1, คลองชลประทาน (ต้นน้ำ)
(UTM47P 0611064E, 1586517N)

Parameter	Unit	Analytical Method	Result	Standard
pH	-	APHA, 4500-H ⁺ B	8.1	5.0-9.0
Conductivity	µs/cm	APHA, 2510 B	376	-
Temperature	°C	APHA, 2550 B	35.6	N ^{2/}
Total Suspended Solids (TSS)	mg/l	APHA, 2540 D	60	-
Total Dissolved Solids (TDS)	mg/l	APHA, 2540 C	258	-
Salinity	ppt	APHA, 2520 B	0.18	-
Dissolved Oxygen (DO)	mg/l	APHA, 4500-O C	7.4	≥4.0
Biochemical Oxygen Demand (BOD)	mg/l	APHA, 5210 B	1.8	≤2.0
Total Petroleum Hydrocarbon (TPH)	mg/l	Based on Method of Seawater analysis*	0.0007	-
Fecal Coliform Bacteria	MPN/100 ml	APHA, 9221 B	49	≤4,000

Remarks: - Analytical Methods followed to Standard Methods for the Examination of Water and Wastewater, recommended by APHA, AWWA&WEF 24th edition., 2023.

* Based on Method of Seawater analysis Third Completely Revised and Extended Edition, 1999, Chapter 21

Sources: ^{1/} Notification of National Environment Board No.8, B.E.2537 (1994), issued under the Enhancement & Conservation of National Environmental Quality Act B.E.2535 (1992), dated January 20, B.E. 2537 (1994), published in the Royal Government Gazette Vol.111, Part 16D, dated June 24, B.E. 2537 (1994).

Classification of surface water Class 3: Medium clean fresh surface water resource used for:

1) Consumption, but passing through an ordinary treatment process before use 2) Agriculture

^{2/} N' = Naturally but changing by no more than 3 °C

SGS (THAILAND) LIMITED



(Thepsan Yommana)
Technical Manager

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Report No. : 2024-500001363-2 / 003-1 (Page 2 of 2) Issued date : May 28, 2024

CLIENT : PTTEP International Limited
CONTACT : Khun Sutthiluk Phaisun
ADDRESS : 555/1 Energy Complex Vibhavadi-Rangsit Rd., Chatuchak, Chatuchak, Bangkok 10900
 Tel. 089-968-0061 E-Mail: SutthilukP@pttep.com

Analysis Report

SAMPLE DESIGNATED AS : Surface Water Quality
SAMPLING DATE : April 26, 2024
SAMPLING BY : Weerapong Pengtrakul
SAMPLING TIME : 16:50 hr.
SAMPLING LOCATION : NPI-B Production Phase: SW1, คลองชลประทาน (ต้นน้ำ)
 (UTM47P 0611064E, 1586517N)

Parameter	Unit	Analytical Method	Result	Standard
Arsenic (As)	mg/l	APHA, 3125 B	0.004	≤0.01
Barium (Ba)	mg/l	APHA, 3125 B	0.094	-
Cadmium (Cd)	mg/l	APHA, 3125 B	<0.0001	≤0.005 ^{2/} / 0.05 ^{3/}
Total Chromium (Total Cr)	mg/l	APHA, 3125 B	<0.010	-
Copper (Cu)	mg/l	APHA, 3125 B	0.0058	≤0.1
Iron (Fe)	mg/l	APHA, 3125 B	2.398	-
Mercury (Hg)	mg/l	APHA, 3125 B	<0.0005	≤0.002
Manganese (Mn)	mg/l	APHA, 3125 B	0.286	≤1.0
Nickel (Ni)	mg/l	APHA, 3125 B	0.0042	≤0.1
Lead (Pb)	mg/l	APHA, 3125 B	0.0025	≤0.05
Selenium (Se)	mg/l	APHA, 3125 B	<0.001	-
Zinc (Zn)	mg/l	APHA, 3125 B	0.024	≤1.0

Remark: - Analytical Methods followed to Standard Methods for the Examination of Water and Wastewater, recommended by APHA, AWWA&WEF 24th edition., 2023.

Sources: ^{1/} Notification of National Environment Board No.8, B.E.2537 (1994), issued under the Enhancement & Conservation of National Environmental Quality Act B.E.2535 (1992), dated January 20, B.E. 2537 (1994), published in the Royal Government Gazette Vol.111, Part 16D, dated June 24, B.E. 2537 (1994).

Classification of surface water Class 3: Medium clean fresh surface water resource used for:

- 1) Consumption, but passing through an ordinary treatment process before use 2) Agriculture
^{2/} In case of hardness (CaCO₃) of water not more than 100 mg/l
^{3/} In case of hardness (CaCO₃) of water more than 100 mg/l



(Inepsan Yommana)
 Technical Manager

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Report No. : 2024-500001363-2 / 003-2 (Page 1 of 2) Issued date : May 28, 2024

CLIENT : PTTEP International Limited
CONTACT : Khun Sutthiluk Phaisun
ADDRESS : 555/1 Energy Complex Vibhavadi-Rangsit Rd., Chatuchak, Chatuchak, Bangkok 10900
Tel. 089-968-0061 E-Mail: SutthilukP@pttep.com

Analysis Report

SAMPLE DESIGNATED AS : Surface Water Quality
SAMPLING BY : Weerapong Pengtrakul
SAMPLING LOCATION : NPI-B Production Phase: SW2, คลองชลประทาน (ท้ายน้ำ)
(UTM47P 0610913E, 1585880N)
SAMPLING DATE : April 26, 2024
SAMPLING TIME : 16:38 hr.

Parameter	Unit	Analytical Method	Result	Standard
pH	-	APHA, 4500-H ⁺ B	8.6	5.0-9.0
Conductivity	µs/cm	APHA, 2510 B	313	-
Temperature	°C	APHA, 2550 B	35.9	N ^{2/}
Total Suspended Solids (TSS)	mg/l	APHA, 2540 D	19	-
Total Dissolved Solids (TDS)	mg/l	APHA, 2540 C	211	-
Salinity	ppt	APHA, 2520 B	0.15	-
Dissolved Oxygen (DO)	mg/l	APHA, 4500-O C	7.4	≥4.0
Biochemical Oxygen Demand (BOD)	mg/l	APHA, 5210 B	1.6	≤2.0
Total Petroleum Hydrocarbon (TPH)	mg/l	Based on Method of Seawater analysis*	0.0006	-
Fecal Coliform Bacteria	MPN/100 ml	APHA, 9221 B	23	≤4,000

Remarks: - Analytical Methods followed to Standard Methods for the Examination of Water and Wastewater, recommended by APHA, AWWA&WEF 24th edition., 2023.

* Based on Method of Seawater analysis Third Completely Revised and Extended Edition, 1999, Chapter 21

Sources: ^{1/} Notification of National Environment Board No.8, B.E.2537 (1994), issued under the Enhancement & Conservation of National Environmental Quality Act B.E.2535 (1992), dated January 20, B.E. 2537 (1994), published in the Royal Government Gazette Vol.111, Part 16D, dated June 24, B.E. 2537 (1994).

Classification of surface water Class 3: Medium clean fresh surface water resource used for:

1) Consumption, but passing through an ordinary treatment process before use 2) Agriculture

^{2/} N' = Naturally but changing by no more than 3 °C



(Thepsan Yommana)
Technical Manager

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Report No. : 2024-500001363-2 / 003-2 (Page 2 of 2) Issued date : May 28, 2024

CLIENT : PTTEP International Limited
CONTACT : Khun Sutthiluk Phaisun
ADDRESS : 555/1 Energy Complex Vibhavadi-Rangsit Rd., Chatuchak, Chatuchak, Bangkok 10900
Tel. 089-968-0061 E-Mail: SutthilukP@pttep.com

Analysis Report

SAMPLE DESIGNATED AS : Surface Water Quality
SAMPLING BY : Weerapong Pengtrakul
SAMPLING DATE : April 26, 2024
SAMPLING TIME : 16:38 hr.
SAMPLING LOCATION : NPI-B Production Phase: SW2, คลองชลประทาน (ท้ายน้ำ)
(UTM47P 0610913E, 1585880N)

Parameter	Unit	Analytical Method	Result	Standard
Arsenic (As)	mg/l	APHA, 3125 B	0.003	≤0.01
Barium (Ba)	mg/l	APHA, 3125 B	0.071	-
Cadmium (Cd)	mg/l	APHA, 3125 B	<0.0001	≤0.005 ^{2/} / 0.05 ^{3/}
Total Chromium (Total Cr)	mg/l	APHA, 3125 B	<0.010	-
Copper (Cu)	mg/l	APHA, 3125 B	0.0040	≤0.1
Iron (Fe)	mg/l	APHA, 3125 B	1.657	-
Mercury (Hg)	mg/l	APHA, 3125 B	<0.0005	≤0.002
Manganese (Mn)	mg/l	APHA, 3125 B	0.063	≤1.0
Nickel (Ni)	mg/l	APHA, 3125 B	0.0013	≤0.1
Lead (Pb)	mg/l	APHA, 3125 B	0.0023	≤0.05
Selenium (Se)	mg/l	APHA, 3125 B	<0.001	-
Zinc (Zn)	mg/l	APHA, 3125 B	0.009	≤1.0

Remark: - Analytical Methods followed to Standard Methods for the Examination of Water and Wastewater, recommended by APHA, AWWA&WEF 24th edition., 2023.

Sources: ^{1/} Notification of National Environment Board No.8, B.E.2537 (1994), issued under the Enhancement & Conservation of National Environmental Quality Act B.E.2535 (1992), dated January 20, B.E. 2537 (1994), published in the Royal Government Gazette Vol.111, Part 16D, dated June 24, B.E. 2537 (1994).

Classification of surface water Class 3: Medium clean fresh surface water resource used for:

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^{2/} In case of hardness (CaCO₃) of water not more than 100 mg/l

^{3/} In case of hardness (CaCO₃) of water more than 100 mg/l

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(Thepsan Yommana)
Technical Manager

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Report No. : 2024-500001363-2 / 003-3 (Page 1 of 2) Issued date : May 28, 2024

CLIENT : PTTEP International Limited
CONTACT : Khun Sutthiluk Phaisun
ADDRESS : 555/1 Energy Complex Vibhavadi-Rangsit Rd., Chatuchak, Chatuchak, Bangkok 10900
 Tel. 089-968-0061 E-Mail: SutthilukP@pttep.com

Analysis Report

SAMPLE DESIGNATED AS : Surface Water Quality
SAMPLING DATE : April 26, 2024
SAMPLING BY : Weerapong Pengtrakul
SAMPLING TIME : 14:30 hr.
SAMPLING LOCATION : NPI-B Production Phase: SW3, บ่อน้ำบ้านวัดโบสถ์ หมู่ที่ 6 บ้านวัดโบสถ์ ต.วัดโบสถ์ อ.บางปลาม้า จ.สุพรรณบุรี (UTM47P 0610913E, 1585880N)

Parameter	Unit	Analytical Method	Result	Standard
pH	-	APHA, 4500-H ⁺ B	8.4	5.0-9.0
Conductivity	µs/cm	APHA, 2510 B	2,330	-
Temperature	°C	APHA, 2550 B	35.9	N ^{2/}
Total Suspended Solids (TSS)	mg/l	APHA, 2540 D	33	-
Total Dissolved Solids (TDS)	mg/l	APHA, 2540 C	1,659	-
Salinity	ppt	APHA, 2520 B	1.19	-
Dissolved Oxygen (DO)	mg/l	APHA, 4500-O C	1.8	≥4.0
Biochemical Oxygen Demand (BOD)	mg/l	APHA, 5210 B	93.8	≤2.0
Total Petroleum Hydrocarbon (TPH)	mg/l	Based on Method of Seawater analysis*	0.0012	-
Fecal Coliform Bacteria	MPN/100 ml	APHA, 9221 B	1,300	≤4,000

Remarks: - Analytical Methods followed to Standard Methods for the Examination of Water and Wastewater, recommended by APHA, AWWA&WEF 24th edition., 2023.

* Based on Method of Seawater analysis Third Completely Revised and Extended Edition, 1999, Chapter 21

Sources: ^{1/} Notification of National Environment Board No.8, B.E.2537 (1994), issued under the Enhancement & Conservation of National Environmental Quality Act B.E.2535 (1992), dated January 20, B.E. 2537 (1994), published in the Royal Government Gazette Vol.111, Part 16D, dated June 24, B.E. 2537 (1994).

Classification of surface water Class 3: Medium clean fresh surface water resource used for:

1) Consumption, but passing through an ordinary treatment process before use 2) Agriculture

^{2/} N¹ = Naturally but changing by no more than 3 °C



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Technical Manager

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Report No. : 2024-500001363-2 / 003-3 (Page 2 of 2) Issued date : May 28, 2024

CLIENT : PTTEP International Limited
CONTACT : Khun Sutthiluk Phaisun
ADDRESS : 555/1 Energy Complex Vibhavadi-Rangsit Rd., Chatuchak, Chatuchak, Bangkok 10900
Tel. 089-968-0061 E-Mail: SutthilukP@pttep.com

Analysis Report

SAMPLE DESIGNATED AS : Surface Water Quality
SAMPLING DATE : April 26, 2024
SAMPLING BY : Weerapong Pengtrakul
SAMPLING TIME : 14:30 hr.
SAMPLING LOCATION : NPI-B Production Phase: SW3, บ่อน้ำบ้านวัดโบสถ์ หมู่ที่ 6 บ้านวัดโบสถ์ ต.วัดโบสถ์ อ.บางปลาม้า จ.สุพรรณบุรี (UTM47P 0610913E, 1585880N)

Parameter	Unit	Analytical Method	Result	Standard
Arsenic (As)	mg/l	APHA, 3125 B	0.016	≤0.01
Barium (Ba)	mg/l	APHA, 3125 B	0.144	-
Cadmium (Cd)	mg/l	APHA, 3125 B	0.0004	≤0.005 ^{2/} / 0.05 ^{3/}
Total Chromium (Total Cr)	mg/l	APHA, 3125 B	<0.010	-
Copper (Cu)	mg/l	APHA, 3125 B	0.0046	≤0.1
Iron (Fe)	mg/l	APHA, 3125 B	1.523	-
Mercury (Hg)	mg/l	APHA, 3125 B	<0.0005	≤0.002
Manganese (Mn)	mg/l	APHA, 3125 B	0.283	≤1.0
Nickel (Ni)	mg/l	APHA, 3125 B	0.0040	≤0.1
Lead (Pb)	mg/l	APHA, 3125 B	0.0020	≤0.05
Selenium (Se)	mg/l	APHA, 3125 B	<0.001	-
Zinc (Zn)	mg/l	APHA, 3125 B	0.017	≤1.0

Remark: - Analytical Methods followed to Standard Methods for the Examination of Water and Wastewater, recommended by APHA, AWWA&WEF 24th edition., 2023.

Sources: ^{1/} Notification of National Environment Board No.8, B.E.2537 (1994), issued under the Enhancement & Conservation of National Environmental Quality Act B.E.2535 (1992), dated January 20, B.E. 2537 (1994), published in the Royal Government Gazette Vol.111, Part 16D, dated June 24, B.E. 2537 (1994).

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^{2/} In case of hardness (CaCO₃) of water not more than 100 mg/l

^{3/} In case of hardness (CaCO₃) of water more than 100 mg/l

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Technical Manager

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Report No. : 2024-500001363-13 / 003-3 (Page 1 of 2) Issued date : September 11, 2024

CLIENT : PTTEP International Limited
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ADDRESS : 555/1 Energy Complex Vibhavadi-Rangsit Rd., Chatuchak, Chatuchak, Bangkok 10900
Tel. 089-968-0061 E-Mail: SutthilukP@pttep.com

Analysis Report

SAMPLE DESIGNATED AS : Surface Water Quality **SAMPLING DATE** : August 14, 2024
SAMPLING BY : Weerapong Pengtrakul **SAMPLING TIME** : 14:30 hr.
SAMPLING LOCATION : NPI-C Production Phase: หมู่ 2 ต.วังน้ำเย็น อ.บางปลาม้า จ.สุพรรณบุรี
(UTM47P 0610924E, 1589372N)

Parameter	Unit	Analytical Method	Result	Standard
pH	-	APHA, 4500-H ⁺ B	8.0	5.0-9.0
Conductivity	µs/cm	APHA, 2510 B	607	-
Temperature	°C	APHA, 2550 B	35.8	N ^{2/}
Total Suspended Solids (TSS)	mg/l	APHA, 2540 D	2.8	-
Total Dissolved Solids (TDS)	mg/l	APHA, 2540 C	365	-
Salinity	ppt	APHA, 2520 B	0.28	-
Dissolved Oxygen (DO)	mg/l	APHA, 4500-O C	5.2	≥4.0
Biochemical Oxygen Demand (BOD)	mg/l	APHA, 5210 B	5	≤2.0
Total Petroleum Hydrocarbon (TPH)	mg/l	Based on Method of Seawater analysis*	0.17	-
Fecal Coliform Bacteria	MPN/100 ml	APHA, 9221 B	920	≤4,000

Remarks: - Analytical Methods followed to Standard Methods for the Examination of Water and Wastewater, recommended by APHA, AWWA&WEF 24th edition., 2023.
* Based on Method of Seawater analysis Third Completely Revised and Extended Edition, 1999, Chapter 21

Sources: ^{1/} Notification of National Environment Board No.8, B.E.2537 (1994), issued under the Enhancement & Conservation of National Environmental Quality Act B.E.2535 (1992), dated January 20, B.E. 2537 (1994), published in the Royal Government Gazette Vol.111, Part 16D, dated June 24, B.E. 2537 (1994).
Classification of surface water Class 3: Medium clean fresh surface water resource used for:
1) Consumption, but passing through an ordinary treatment process before use 2) Agriculture
^{2/} N¹ = Naturally but changing by no more than 3 °C



(Inpsan Yommana)
Technical Manager

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Report No. : 2024-500001363-13 / 003-3 (Page 2 of 2) Issued date : September 11, 2024

CLIENT : PTTEP International Limited
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ADDRESS : 555/1 Energy Complex Vibhavadi-Rangsit Rd., Chatuchak, Chatuchak, Bangkok 10900
 Tel. 089-968-0061 E-Mail: SutthilukP@pttep.com

Analysis Report

SAMPLE DESIGNATED AS : Surface Water Quality **SAMPLING DATE :** August 14, 2024
SAMPLING BY : Weerapong Pengtrakul **SAMPLING TIME :** 14:30 hr.
SAMPLING LOCATION : NPI-C Production Phase: หมู่ 2 ต.วังน้ำเย็น อ.บางปลาม้า จ.สุพรรณบุรี
 (UTM47P 0610924E, 1589372N)

Parameter	Unit	Analytical Method	Result	Standard
Arsenic (As)	mg/l	APHA, 3120 B	<0.01	≤0.01
Barium (Ba)	mg/l	APHA, 3120 B	0.07	-
Cadmium (Cd)	mg/l	APHA, 3120 B	<0.002	≤0.005 ^{2/} / 0.05 ^{3/}
Total Chromium (Total Cr)	mg/l	APHA, 3120 B	<0.01	-
Copper (Cu)	mg/l	APHA, 3120 B	<0.01	≤0.1
Iron (Fe)	mg/l	APHA, 3120 B	0.11	-
Mercury (Hg)	mg/l	APHA, 3120 B	<0.0005	≤0.002
Manganese (Mn)	mg/l	APHA, 3120 B	0.03	≤1.0
Nickel (Ni)	mg/l	APHA, 3120 B	<0.004	≤0.1
Lead (Pb)	mg/l	APHA, 3120 B	<0.01	≤0.05
Selenium (Se)	mg/l	APHA, 3120 B	<0.01	-
Zinc (Zn)	mg/l	APHA, 3120 B	<0.02	≤1.0

Remark: - Analytical Methods followed to Standard Methods for the Examination of Water and Wastewater, recommended by APHA, AWWA&WEF 24th edition., 2023.
 * Based on Method of Seawater analysis Third Completely Revised and Extended Edition, 1999, Chapter 21

Source : ^{1/} Notification of National Environment Board No.8, B.E.2537 (1994), issued under the Enhancement & Conservation of National Environmental Quality Act B.E.2535 (1992), dated January 20, B.E. 2537 (1994), published in the Royal Government Gazette Vol.111, Part 16D, dated June 24, B.E. 2537 (1994).
 Classification of surface water Class 3: Medium clean fresh surface water resource used for:
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^{2/} In case of hardness (CaCO₃) of water not more than 100 mg/l
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(Thepsan Yommana)
 Technical Manager

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Report No. : 2024-500001363-13 / 003-1 (Page 1 of 2) Issued date : September 11, 2024

CLIENT : PTTEP International Limited
CONTACT : Khun Sutthiluk Phaisun
ADDRESS : 555/1 Energy Complex Vibhavadi-Rangsit Rd., Chatuchak, Chatuchak, Bangkok 10900
 Tel. 089-968-0061 E-Mail: SutthilukP@pttep.com

Analysis Report

SAMPLE DESIGNATED AS : Surface Water Quality **SAMPLING DATE** : August 14, 2024
SAMPLING BY : Weerapong Pengtrakul **SAMPLING TIME** : 12:50 hr.
SAMPLING LOCATION : NPI-D Production Phase: หมู่ 7 ต.มะขามล้ม อ.บางปลาม้า จ.สุพรรณบุรี
 (UTM47P 0611688E, 1589690N)

Parameter	Unit	Analytical Method	Result	Standard
pH	-	APHA, 4500-H ⁺ B	7.9	5.0-9.0
Conductivity	µs/cm	APHA, 2510 B	601	-
Temperature	°C	APHA, 2550 B	32.5	N ^{2/}
Total Suspended Solids (TSS)	mg/l	APHA, 2540 D	7.0	-
Total Dissolved Solids (TDS)	mg/l	APHA, 2540 C	377	-
Salinity	ppt	APHA, 2520 B	0.29	-
Dissolved Oxygen (DO)	mg/l	APHA, 4500-O C	4.5	≥4.0
Biochemical Oxygen Demand (BOD)	mg/l	APHA, 5210 B	5	≤2.0
Total Petroleum Hydrocarbon (TPH)	mg/l	Based on Method of Seawater analysis*	0.28	-
Fecal Coliform Bacteria	MPN/100 ml	APHA, 9221 B	540	≤4,000

Remarks: - Analytical Methods followed to Standard Methods for the Examination of Water and Wastewater, recommended by APHA, AWWA&WEF 24th edition., 2023.

* Based on Method of Seawater analysis Third Completely Revised and Extended Edition, 1999, Chapter 21

Sources: ^{1/} Notification of National Environment Board No.8, B.E.2537 (1994), issued under the Enhancement & Conservation of National Environmental Quality Act B.E.2535 (1992), dated January 20, B.E. 2537 (1994), published in the Royal Government Gazette Vol.111, Part 16D, dated June 24, B.E. 2537 (1994).

Classification of surface water Class 3: Medium clean fresh surface water resource used for:

1) Consumption, but passing through an ordinary treatment process before use 2) Agriculture

^{2/} N^{*} = Naturally but changing by no more than 3 °C

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(Thepsan Yommana)
 Technical Manager

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Report No. : 2024-500001363-13 / 003-1 (Page 2 of 2) Issued date : September 11, 2024

CLIENT : PTTEP International Limited
CONTACT : Khun Sutthiluk Phaisun
ADDRESS : 555/1 Energy Complex Vibhavadi-Rangsit Rd., Chatuchak, Chatuchak, Bangkok 10900
Tel. 089-968-0061 E-Mail: SutthilukP@pttep.com

Analysis Report

SAMPLE DESIGNATED AS : Surface Water Quality **SAMPLING DATE** : August 14, 2024
SAMPLING BY : Weerapong Pengtrakul **SAMPLING TIME** : 12:50 hr.
SAMPLING LOCATION : NPI-D Production Phase: หมู่ 7 ต.มะขามล้ม อ.บางปลาม้า จ.สุพรรณบุรี
(UTM47P 0611688E, 1589690N)

Parameter	Unit	Analytical Method	Result	Standard
Arsenic (As)	mg/l	APHA, 3120 B	<0.01	≤0.01
Barium (Ba)	mg/l	APHA, 3120 B	0.09	-
Cadmium (Cd)	mg/l	APHA, 3120 B	<0.002	≤0.005 ^{2/} / 0.05 ^{3/}
Total Chromium (Total Cr)	mg/l	APHA, 3120 B	<0.01	-
Copper (Cu)	mg/l	APHA, 3120 B	<0.01	≤0.1
Iron (Fe)	mg/l	APHA, 3120 B	0.91	-
Mercury (Hg)	mg/l	APHA, 3120 B	<0.0005	≤0.002
Manganese (Mn)	mg/l	APHA, 3120 B	0.47	≤1.0
Nickel (Ni)	mg/l	APHA, 3120 B	<0.004	≤0.1
Lead (Pb)	mg/l	APHA, 3120 B	<0.01	≤0.05
Selenium (Se)	mg/l	APHA, 3120 B	<0.01	-
Zinc (Zn)	mg/l	APHA, 3120 B	<0.02	≤1.0

Remark: - Analytical Methods followed to Standard Methods for the Examination of Water and Wastewater, recommended by APHA, AWWA&WEF 24th edition., 2023.

* Based on Method of Seawater analysis Third Completely Revised and Extended Edition, 1999, Chapter 21

Source : ^{1/} Notification of National Environment Board No.8, B.E.2537 (1994), issued under the Enhancement & Conservation of National Environmental Quality Act B.E.2535 (1992), dated January 20, B.E. 2537 (1994), published in the Royal Government Gazette Vol.111, Part 16D, dated June 24, B.E. 2537 (1994).

Classification of surface water Class 3: Medium clean fresh surface water resource used for:

1) Consumption, but passing through an ordinary treatment process before use 2) Agriculture

^{2/} In case of hardness (CaCO₃) of water not more than 100 mg/l

^{3/} In case of hardness (CaCO₃) of water more than 100 mg/l

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Technical Manager

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Report No. : 2024-500001363-13 / 003-2 (Page 1 of 2) Issued date : September 11, 2024

CLIENT : PTTEP International Limited
CONTACT : Khun Sutthiluk Phaisun
ADDRESS : 555/1 Energy Complex Vibhavadi-Rangsit Rd., Chatuchak, Chatuchak, Bangkok 10900
Tel. 089-968-0061 E-Mail: SutthilukP@pttep.com

Analysis Report

SAMPLE DESIGNATED AS : Surface Water Quality **SAMPLING DATE** : August 14, 2024
SAMPLING BY : Weerapong Pengtrakul **SAMPLING TIME** : 12:17 hr.
SAMPLING LOCATION : NPI-D Production Phase: หมู่ 10 ต.มะขามล้ม อ.บางปลาม้า จ.สุพรรณบุรี
(UTM47P 0611560E, 1589107N)

Parameter	Unit	Analytical Method	Result	Standard
pH	-	APHA, 4500-H* B	7.8	5.0-9.0
Conductivity	µs/cm	APHA, 2510 B	602	-
Temperature	°C	APHA, 2550 B	33.1	N ^{2/}
Total Suspended Solids (TSS)	mg/l	APHA, 2540 D	4.6	-
Total Dissolved Solids (TDS)	mg/l	APHA, 2540 C	351	-
Salinity	ppt	APHA, 2520 B	0.28	-
Dissolved Oxygen (DO)	mg/l	APHA, 4500-O C	5.1	≥4.0
Biochemical Oxygen Demand (BOD)	mg/l	APHA, 5210 B	7	≤2.0
Total Petroleum Hydrocarbon (TPH)	mg/l	Based on Method of Seawater analysis*	0.29	-
Fecal Coliform Bacteria	MPN/100 ml	APHA, 9221 B	3,500	≤4,000

Remarks: - Analytical Methods followed to Standard Methods for the Examination of Water and Wastewater, recommended by APHA, AWWA&WEF 24th edition., 2023.
* Based on Method of Seawater analysis Third Completely Revised and Extended Edition, 1999, Chapter 21

Sources: ^{1/} Notification of National Environment Board No.8, B.E.2537 (1994), issued under the Enhancement & Conservation of National Environmental Quality Act B.E.2535 (1992), dated January 20, B.E. 2537 (1994), published in the Royal Government Gazette Vol.111, Part 16D, dated June 24, B.E. 2537 (1994).
Classification of surface water Class 3: Medium clean fresh surface water resource used for:
1) Consumption, but passing through an ordinary treatment process before use 2) Agriculture
^{2/} N' = Naturally but changing by no more than 3 °C



(Thepsan Yommana)
Technical Manager

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Report No. : 2024-500001363-13 / 003-2 (Page 2 of 2) Issued date : September 11, 2024

CLIENT : PTTEP International Limited
CONTACT : Khun Sutthiluk Phaisun
ADDRESS : 555/1 Energy Complex Vibhavadi-Rangsit Rd., Chatuchak, Chatuchak, Bangkok 10900
 Tel. 089-968-0061 E-Mail: SutthilukP@pttep.com

Analysis Report

SAMPLE DESIGNATED AS : Surface Water Quality **SAMPLING DATE** : August 14, 2024
SAMPLING BY : Weerapong Pengtrakul **SAMPLING TIME** : 12:17 hr.
SAMPLING LOCATION : NPI-D Production Phase: หมู่ 10 ต.มะขามล้ม อ.บางปลาม้า จ.สุพรรณบุรี
 (UTM47P 0611560E, 1589107N)

Parameter	Unit	Analytical Method	Result	Standard
Arsenic (As)	mg/l	APHA, 3120 B	<0.01	≤0.01
Barium (Ba)	mg/l	APHA, 3120 B	0.09	-
Cadmium (Cd)	mg/l	APHA, 3120 B	<0.002	≤0.005 ^{2/} / 0.05 ^{3/}
Total Chromium (Total Cr)	mg/l	APHA, 3120 B	<0.01	-
Copper (Cu)	mg/l	APHA, 3120 B	<0.01	≤0.1
Iron (Fe)	mg/l	APHA, 3120 B	0.96	-
Mercury (Hg)	mg/l	APHA, 3120 B	<0.0005	≤0.002
Manganese (Mn)	mg/l	APHA, 3120 B	0.46	≤1.0
Nickel (Ni)	mg/l	APHA, 3120 B	<0.004	≤0.1
Lead (Pb)	mg/l	APHA, 3120 B	<0.01	≤0.05
Selenium (Se)	mg/l	APHA, 3120 B	<0.01	-
Zinc (Zn)	mg/l	APHA, 3120 B	<0.02	≤1.0

Remark: - Analytical Methods followed to Standard Methods for the Examination of Water and Wastewater, recommended by APHA, AWWA&WEF 24th edition., 2023.
 * Based on Method of Seawater analysis Third Completely Revised and Extended Edition, 1999, Chapter 21

Source : ^{1/} Notification of National Environment Board No.8, B.E.2537 (1994), issued under the Enhancement & Conservation of National Environmental Quality Act B.E.2535 (1992), dated January 20, B.E. 2537 (1994), published in the Royal Government Gazette Vol.111, Part 16D, dated June 24, B.E. 2537 (1994).
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^{2/} In case of hardness (CaCO₃) of water not more than 100 mg/l
^{3/} In case of hardness (CaCO₃) of water more than 100 mg/l

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(Thepsan Yommana)
 Technical Manager

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Report No. : 2024-500001363-3 / 003-1 (Page 1 of 2) Issued date : May 28, 2024

CLIENT : PTTEP International Limited
CONTACT : Khun Sutthiluk Phaisun
ADDRESS : 555/1 Energy Complex Vibhavadi-Rangsit Rd., Chatuchak, Chatuchak, Bangkok 10900
 Tel. 089-968-0061 E-Mail: SutthilukP@pttep.com

Analysis Report

SAMPLE DESIGNATED AS : Surface Water Quality **SAMPLING DATE :** April 26, 2024
SAMPLING BY : Weerapong Pengtrakul **SAMPLING TIME :** 11:50 hr.
SAMPLING LOCATION : NPI-G, NPI Flow Station Production Phase: SW1, คลองตาซอย (เหนือหน้า)
 (UTM47P 0610448E, 1587877N)

Parameter	Unit	Analytical Method	Result	Standard ^{1/}
pH	-	APHA, 4500-H* B	7.2	5.0-9.0
Conductivity	µs/cm	APHA, 2510 B	408	-
Temperature	°C	APHA, 2550 B	34.3	N ^{2/}
Total Suspended Solids (TSS)	mg/l	APHA, 2540 D	56	-
Total Dissolved Solids (TDS)	mg/l	APHA, 2540 C	247	-
Salinity	ppt	APHA, 2520 B	0.20	-
Dissolved Oxygen (DO)	mg/l	APHA, 4500-O C	5.3	≥4.0
Biochemical Oxygen Demand (BOD)	mg/l	APHA, 5210 B	1.6	≤2.0
Total Petroleum Hydrocarbon (TPH)	mg/l	Based on Method of Seawater analysis*	0.001	-
Fecal Coliform Bacteria	MPN/100 ml	APHA, 9221 B	170	≤4,000

Remark: - Analytical Methods followed to Standard Methods for the Examination of Water and Wastewater, recommended by APHA, AWWA&WEF 24th edition., 2023.

* Based on Method of Seawater analysis Third Completely Revised and Extended Edition, 1999, Chapter 21

Source : ^{1/} Notification of National Environment Board No.8, B.E.2537 (1994), issued under the Enhancement & Conservation of National Environmental Quality Act B.E.2535 (1992), dated January 20, B.E. 2537 (1994), published in the Royal Government Gazette Vol.111, Part 16D, dated June 24, B.E. 2537 (1994).

Classification of surface water Class 3: Medium clean fresh surface water resource used for:

1) Consumption, but passing through an ordinary treatment process before use 2) Agriculture

^{2/} N = Naturally but changing by no more than 3 °C

SGS (THAILAND) LIMITED



(Thepsan Yommana)
Technical Manager

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Report No. : 2024-500001363-3 / 003-1 (Page 2 of 2) Issued date : May 28, 2024

CLIENT : PTTEP International Limited
CONTACT : Khun Sutthiluk Phaisun
ADDRESS : 555/1 Energy Complex Vibhavadi-Rangsit Rd., Chatuchak, Chatuchak, Bangkok 10900
 Tel. 089-968-0061 E-Mail: SutthilukP@pttep.com

Analysis Report

SAMPLE DESIGNATED AS : Surface Water Quality
SAMPLING DATE : April 26, 2024
SAMPLING BY : Weerapong Pengtrakul
SAMPLING TIME : 11:50 hr.
SAMPLING LOCATION : NPI-G, NPI Flow Station Production Phase: SW1, คลองตาไผ่ (เหนือหน้า)
 (UTM47P 0610448E, 1587877N)

Parameter	Unit	Analytical Method	Result	Standard ^{1/}
Arsenic (As)	mg/l	APHA, 3125 B	0.006	≤0.01
Barium (Ba)	mg/l	APHA, 3125 B	0.126	-
Cadmium (Cd)	mg/l	APHA, 3125 B	0.0001	≤0.005 ^{2/} / 0.05 ^{3/}
Total Chromium (Total Cr)	mg/l	APHA, 3125 B	<0.010	-
Copper (Cu)	mg/l	APHA, 3125 B	0.0036	≤0.1
Iron (Fe)	mg/l	APHA, 3125 B	1.914	-
Mercury (Hg)	mg/l	APHA, 3125 B	<0.0005	≤0.002
Manganese (Mn)	mg/l	APHA, 3125 B	0.428	≤1.0
Nickel (Ni)	mg/l	APHA, 3125 B	0.0017	≤0.1
Lead (Pb)	mg/l	APHA, 3125 B	0.0038	≤0.05
Selenium (Se)	mg/l	APHA, 3125 B	<0.001	-
Zinc (Zn)	mg/l	APHA, 3125 B	0.023	≤1.0

Remark: - Analytical Methods followed to Standard Methods for the Examination of Water and Wastewater, recommended by APHA, AWWA&WEF 24th edition., 2023.

* Based on Method of Seawater analysis Third Completely Revised and Extended Edition, 1999, Chapter 21
Source : ^{1/} Notification of National Environment Board No.8, B.E.2537 (1994), issued under the Enhancement & Conservation of National Environmental Quality Act B.E.2535 (1992), dated January 20, B.E. 2537 (1994), published in the Royal Government Gazette Vol.111, Part 16D, dated June 24, B.E. 2537 (1994).
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^{3/} In case of hardness (CaCO₃) of water not more than 100 mg/l
 In case of hardness (CaCO₃) of water more than 100 mg/l

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 Technical Manager

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Report No. : 2024-500001363-3 / 003-2 (Page 1 of 2) Issued date : May 28, 2024

CLIENT : PTTEP International Limited
CONTACT : Khun Sutthiluk Phaisun
ADDRESS : 555/1 Energy Complex Vibhavadi-Rangsit Rd., Chatuchak, Chatuchak, Bangkok 10900
 Tel. 089-968-0061 E-Mail: SutthilukP@pttep.com

Analysis Report

SAMPLE DESIGNATED AS : Surface Water Quality
SAMPLING DATE : April 26, 2024
SAMPLING BY : Weerapong Pengtrakul
SAMPLING TIME : 12:30 hr.
SAMPLING LOCATION : NPI-G, NPI Flow Station Production Phase: SW1, คลองตาไฮ (ท้ายน้ำ)
 (UTM47P 0609820E, 1587683N)

Parameter	Unit	Analytical Method	Result	Standard ^{1/}
pH	-	APHA, 4500-H ⁺ B	7.3	5.0-9.0
Conductivity	µs/cm	APHA, 2510 B	380	-
Temperature	°C	APHA, 2550 B	33.6	N ^{2/}
Total Suspended Solids (TSS)	mg/l	APHA, 2540 D	40	-
Total Dissolved Solids (TDS)	mg/l	APHA, 2540 C	232	-
Salinity	ppt	APHA, 2520 B	0.18	-
Dissolved Oxygen (DO)	mg/l	APHA, 4500-O C	5.5	≥4.0
Biochemical Oxygen Demand (BOD)	mg/l	APHA, 5210 B	1.5	≤2.0
Total Petroleum Hydrocarbon (TPH)	mg/l	Based on Method of Seawater analysis*	0.001	-
Fecal Coliform Bacteria	MPN/100 ml	APHA, 9221 B	240	≤4,000

Remark: - Analytical Methods followed to Standard Methods for the Examination of Water and Wastewater, recommended by APHA, AWWA&WEF 24th edition., 2023.

* Based on Method of Seawater analysis Third Completely Revised and Extended Edition, 1999, Chapter 21

Source : ^{1/} Notification of National Environment Board No.8, B.E.2537 (1994), issued under the Enhancement & Conservation of National Environmental Quality Act B.E.2535 (1992), dated January 20, B.E. 2537 (1994), published in the Royal Government Gazette Vol.111, Part 16D, dated June 24, B.E. 2537 (1994).

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(Thepsan Yommana)
 Technical Manager

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Report No. : 2024-500001363-3 / 003-2 (Page 2 of 2) Issued date : May 28, 2024

CLIENT : PTTEP International Limited
CONTACT : Khun Sutthiluk Phaisun
ADDRESS : 555/1 Energy Complex Vibhavadi-Rangsit Rd., Chatuchak, Chatuchak, Bangkok 10900
Tel. 089-968-0061 E-Mail: SutthilukP@pttep.com

Analysis Report

SAMPLE DESIGNATED AS : Surface Water Quality
SAMPLING BY : Weerapong Pengtrakul
SAMPLING DATE : April 26, 2024
SAMPLING TIME : 12:30 hr.
SAMPLING LOCATION : NPI-G, NPI Flow Station Production Phase: SW1, คลองตาซอย (ท้ายน้ำ)
(UTM47P 0609820E, 1587683N)

Parameter	Unit	Analytical Method	Result	Standard ^{1/}
Arsenic (As)	mg/l	APHA, 3125 B	0.005	≤0.01
Barium (Ba)	mg/l	APHA, 3125 B	0.098	-
Cadmium (Cd)	mg/l	APHA, 3125 B	0.0006	≤0.005 ^{2/} / 0.05 ^{3/}
Total Chromium (Total Cr)	mg/l	APHA, 3125 B	<0.010	-
Copper (Cu)	mg/l	APHA, 3125 B	0.0032	≤0.1
Iron (Fe)	mg/l	APHA, 3125 B	1.203	-
Mercury (Hg)	mg/l	APHA, 3125 B	<0.0005	≤0.002
Manganese (Mn)	mg/l	APHA, 3125 B	0.199	≤1.0
Nickel (Ni)	mg/l	APHA, 3125 B	0.0012	≤0.1
Lead (Pb)	mg/l	APHA, 3125 B	0.0015	≤0.05
Selenium (Se)	mg/l	APHA, 3125 B	<0.001	-
Zinc (Zn)	mg/l	APHA, 3125 B	0.008	≤1.0

Remark: - Analytical Methods followed to Standard Methods for the Examination of Water and Wastewater, recommended by APHA, AWWA&WEF 24th edition., 2023.

* Based on Method of Seawater analysis Third Completely Revised and Extended Edition, 1999, Chapter 21

Source : ^{1/} Notification of National Environment Board No.8, B.E.2537 (1994), issued under the Enhancement & Conservation of National Environmental Quality Act B.E.2535 (1992), dated January 20, B.E. 2537 (1994), published in the Royal Government Gazette Vol.111, Part 16D, dated June 24, B.E. 2537 (1994).

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^{2/} In case of hardness (CaCO₃) of water not more than 100 mg/l

^{3/} In case of hardness (CaCO₃) of water more than 100 mg/l

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Report No. : 2024-500001363-14 / 003-1 (Page 1 of 2) Issued date : September 11, 2024

CLIENT : PTTEP International Limited
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ADDRESS : 555/1 Energy Complex Vibhavadi-Rangsit Rd., Chatuchak, Chatuchak, Bangkok 10900
 Tel. 089-968-0061 E-Mail: SutthilukP@pttep.com

Analysis Report

SAMPLE DESIGNATED AS : Surface Water Quality
SAMPLING BY : Weerapong Pengtrakul
SAMPLING LOCATION : NPI-G, NPI Flow Station Production Phase: SW1, คลองตาไผ่ (เหนือหน้า)
 (UTM47P 0610248E, 1587834N)

SAMPLING DATE : August 20, 2024
SAMPLING TIME : 9:55 hr.

Parameter	Unit	Analytical Method	Result	Standard
pH	-	APHA, 4500-H ⁺ B	6.9	5.0-9.0
Conductivity	µs/cm	APHA, 2510 B	378	-
Temperature	°C	APHA, 2550 B	31.6	N ^{2/}
Total Suspended Solids (TSS)	mg/l	APHA, 2540 D	5.3	-
Total Dissolved Solids (TDS)	mg/l	APHA, 2540 C	246	-
Salinity	ppt	APHA, 2520 B	0.18	-
Dissolved Oxygen (DO)	mg/l	APHA, 4500-O C	2.7	≥4.0
Biochemical Oxygen Demand (BOD)	mg/l	APHA, 5210 B	17	≤2.0
Total Petroleum Hydrocarbon (TPH)	mg/l	Based on Method of Seawater analysis*	0.001	-
Fecal Coliform Bacteria	MPN/100 ml	APHA, 9221B	350	≤4,000

Remarks: - Analytical Methods followed to Standard Methods for the Examination of Water and Wastewater, recommended by APHA, AWWA&WEF 24th edition., 2023.

* Based on Method of Seawater analysis Third Completely Revised and Extended Edition, 1999, Chapter 21

Sources: ^{1/} Notification of National Environment Board No.8, B.E.2537 (1994), issued under the Enhancement & Conservation of National Environmental Quality Act B.E.2535 (1992), dated January 20, B.E. 2537 (1994), published in the Royal Government Gazette Vol.111, Part 16D, dated June 24, B.E. 2537 (1994).

Classification of surface water Class 3: Medium clean fresh surface water resource used for:

1) Consumption, but passing through an ordinary treatment process before use 2) Agriculture

^{2/} N' = Naturally but changing by no more than 3 °C



(Thepsan Yommana)
 Technical Manager

TY/WP/NT/NT

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Report No. : 2024-500001363-14 / 003-1 (Page 2 of 2) Issued date : September 11, 2024

CLIENT : PTTEP International Limited
CONTACT : Khun Sutthiluk Phaisun
ADDRESS : 555/1 Energy Complex Vibhavadi-Rangsit Rd., Chatuchak, Chatuchak, Bangkok 10900
 Tel. 089-968-0061 E-Mail: SutthilukP@pttep.com

Analysis Report

SAMPLE DESIGNATED AS : Surface Water Quality
SAMPLING BY : Weerapong Pengtrakul
SAMPLING LOCATION : NPI-G, NPI Flow Station Production Phase: SW1, คลองตาไผ่ (เหนือหน้า)
 (UTM47P 0610248E, 1587834N)

SAMPLING DATE : August 20, 2024
SAMPLING TIME : 9:55 hr.

Parameter	Unit	Analytical Method	Result	Standard
Arsenic (As)	mg/l	APHA, 3030K and 3120B	<0.01	≤0.01
Barium (Ba)	mg/l	APHA, 3030K and 3120B	0.08	-
Cadmium (Cd)	mg/l	APHA, 3030K and 3120B	<0.002	≤0.005 ^{2/} / 0.05 ^{3/}
Total Chromium (Total Cr)	mg/l	APHA, 3030K and 3120B	<0.01	-
Copper (Cu)	mg/l	APHA, 3030K and 3120B	<0.01	≤0.1
Iron (Fe)	mg/l	APHA, 3030K and 3120B	0.59	-
Mercury (Hg)	mg/l	APHA, 3112 B	<0.0005	≤0.002
Manganese (Mn)	mg/l	APHA, 3030K and 3120B	0.21	≤1.0
Nickel (Ni)	mg/l	APHA, 3030K and 3120B	<0.004	≤0.1
Lead (Pb)	mg/l	APHA, 3030K and 3120B	<0.01	≤0.05
Selenium (Se)	mg/l	APHA, 3030K and 3120B	<0.01	-
Zinc (Zn)	mg/l	APHA, 3030K and 3120B	<0.02	≤1.0

Remarks: - Analytical Methods followed to Standard Methods for the Examination of Water and Wastewater, recommended by APHA, AWWA&WEF 24th edition., 2023.

* Based on Method of Seawater analysis Third Completely Revised and Extended Edition, 1999, Chapter 21

Sources: ^{1/} Notification of National Environment Board No.8, B.E.2537 (1994), issued under the Enhancement & Conservation of National Environmental Quality Act B.E.2535 (1992), dated January 20, B.E. 2537 (1994), published in the Royal Government Gazette Vol.111, Part 16D, dated June 24, B.E. 2537 (1994).

Classification of surface water Class 3: Medium clean fresh surface water resource used for:

1) Consumption, but passing through an ordinary treatment process before use 2) Agriculture

^{2/} In case of hardness (CaCO₃) of water not more than 100 mg/l

^{3/} In case of hardness (CaCO₃) of water more than 100 mg/l

SGS (THAILAND) LIMITED



(Thepsan Yommana)
 Technical Manager

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Report No. : 2024-500001363-14 / 003-2 (Page 1 of 2) Issued date : September 11, 2024

CLIENT : PTTEP International Limited
CONTACT : Khun Sutthiluk Phaisun
ADDRESS : 555/1 Energy Complex Vibhavadi-Rangsit Rd., Chatuchak, Chatuchak, Bangkok 10900
 Tel. 089-968-0061 E-Mail: SutthilukP@pttep.com

Analysis Report

SAMPLE DESIGNATED AS : Surface Water Quality
SAMPLING BY : Weerapong Pengtrakul
SAMPLING LOCATION : NPI-G, NPI Flow Station Production Phase: SW2, คลองตาโหล (ท้ายน้ำ)
 (UTM47P 0609749E, 1587601N)

SAMPLING DATE : August 20, 2024
SAMPLING TIME : 10:20 hr.

Parameter	Unit	Analytical Method	Result	Standard
pH	-	APHA, 4500-H ⁺ B	7.1	5.0-9.0
Conductivity	µs/cm	APHA, 2510 B	410	-
Temperature	°C	APHA, 2550 B	32.0	N ^{2/}
Total Suspended Solids (TSS)	mg/l	APHA, 2540 D	6.7	-
Total Dissolved Solids (TDS)	mg/l	APHA, 2540 C	286	-
Salinity	ppt	APHA, 2520 B	0.20	-
Dissolved Oxygen (DO)	mg/l	APHA, 4500-O C	3.3	≥4.0
Biochemical Oxygen Demand (BOD)	mg/l	APHA, 5210 B	16	≤2.0
Total Petroleum Hydrocarbon (TPH)	mg/l	Based on Method of Seawater analysis*	0.001	-
Fecal Coliform Bacteria	MPN/100 ml	APHA, 9221B	350	≤4,000

Remarks: - Analytical Methods followed to Standard Methods for the Examination of Water and Wastewater, recommended by APHA, AWWA&WEF 24th edition., 2023.

* Based on Method of Seawater analysis Third Completely Revised and Extended Edition, 1999, Chapter 21

Sources: ^{1/} Notification of National Environment Board No.8, B.E.2537 (1994), issued under the Enhancement & Conservation of National Environmental Quality Act B.E.2535 (1992), dated January 20, B.E. 2537 (1994), published in the Royal Government Gazette Vol.111, Part 16D, dated June 24, B.E. 2537 (1994).

Classification of surface water Class 3: Medium clean fresh surface water resource used for:

1) Consumption, but passing through an ordinary treatment process before use 2) Agriculture

^{2/} N' = Naturally but changing by no more than 3 °C



(Thepsan Yommana)
 Technical Manager

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Report No. : 2024-500001363-14 / 003-2 (Page 2 of 2) Issued date : September 11, 2024

CLIENT : PTTEP International Limited
CONTACT : Khun Sutthiluk Phaisun
ADDRESS : 555/1 Energy Complex Vibhavadi-Rangsit Rd., Chatuchak, Chatuchak, Bangkok 10900
 Tel. 089-968-0061 E-Mail: SutthilukP@pttep.com

Analysis Report

SAMPLE DESIGNATED AS : Surface Water Quality
SAMPLING BY : Weerapong Pengtrakul
SAMPLING LOCATION : NPI-G, NPI Flow Station Production Phase: SW2, คลองตาไผ่ (ท้ายน้ำ)
 (UTM47P 0609749E, 1587601N)

SAMPLING DATE : August 20, 2024
SAMPLING TIME : 10:20 hr.

Parameter	Unit	Analytical Method	Result	Standard
Arsenic (As)	mg/l	APHA, 3030K and 3120B	<0.01	≤0.01
Barium (Ba)	mg/l	APHA, 3030K and 3120B	0.12	-
Cadmium (Cd)	mg/l	APHA, 3030K and 3120B	<0.002	≤0.005 ^{2/} / 0.05 ^{3/}
Total Chromium (Total Cr)	mg/l	APHA, 3030K and 3120B	<0.01	-
Copper (Cu)	mg/l	APHA, 3030K and 3120B	<0.01	≤0.1
Iron (Fe)	mg/l	APHA, 3030K and 3120B	0.77	-
Mercury (Hg)	mg/l	APHA, 3112 B	<0.0005	≤0.002
Manganese (Mn)	mg/l	APHA, 3030K and 3120B	0.23	≤1.0
Nickel (Ni)	mg/l	APHA, 3030K and 3120B	<0.004	≤0.1
Lead (Pb)	mg/l	APHA, 3030K and 3120B	<0.01	≤0.05
Selenium (Se)	mg/l	APHA, 3030K and 3120B	<0.01	-
Zinc (Zn)	mg/l	APHA, 3030K and 3120B	<0.02	≤1.0

Remarks: - Analytical Methods followed to Standard Methods for the Examination of Water and Wastewater, recommended by APHA, AWWA&WEF 24th edition., 2023.

* Based on Method of Seawater analysis Third Completely Revised and Extended Edition, 1999, Chapter 21

Sources: ^{1/} Notification of National Environment Board No.8, B.E.2537 (1994), issued under the Enhancement & Conservation of National Environmental Quality Act B.E.2535 (1992), dated January 20, B.E. 2537 (1994), published in the Royal Government Gazette Vol.111, Part 16D, dated June 24, B.E. 2537 (1994).

Classification of surface water Class 3: Medium clean fresh surface water resource used for:

1) Consumption, but passing through an ordinary treatment process before use 2) Agriculture

^{2/} In case of hardness (CaCO₃) of water not more than 100 mg/l

^{3/} In case of hardness (CaCO₃) of water more than 100 mg/l

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(Thepsan Yommana)
 Technical Manager

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Report No. : 2024-500001363-18 / 001-1 (Page 1 of 1) Issued date: October 15, 2024

CLIENT : PTTEP International Limited
CONTACT : Khun Sutthiluk Phaisun
ADDRESS : 555/1 Energy Complex Vibhavadi-Rangsit Rd., Chatuchak, Chatuchak, Bangkok 10900
Tel. 089-968-0061 E-Mail: SutthilukP@pttep.com

Analysis Report

SAMPLE DESIGNATED AS : Surface Water Quality SAMPLING DATE : September 25, 2024
SAMPLING BY : Weerapong Pengtrakul SAMPLING TIME : 11:00 hr.
SAMPLING LOCATION : NPI-G, NPI Flow Station Production Phase: SW1, คลองตาไผ่ (เหนือ) (UTM47P 0611420E, 1587760N)

Parameter	Unit	Analytical Method	Result	Standard
Dissolved Oxygen (DO)	mg/l	APHA, 4500-O C	5.2	≥4.0
Biochemical Oxygen Demand (BOD)	mg/l	APHA, 5210 B	<2.0	≤2.0

Remark: - Analytical Methods followed to Standard Methods for the Examination of Water and Wastewater, recommended by APHA, AWWA&WEF 24th edition., 2023.
Source: 1/ Notification of National Environment Board No.8, B.E.2537 (1994), issued under the Enhancement & Conservation of National Environmental Quality Act B.E.2535 (1992), dated January 20, B.E. 2537 (1994), published in the Royal Government Gazette Vol.111, Part 16D, dated June 24, B.E. 2537 (1994).
Classification of surface water Class 3: Medium clean fresh surface water resource used for:
1) Consumption, but passing through an ordinary treatment process before use 2) Agriculture

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(Thesah Yommana)
Technical Manager

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Report No. : 2024-500001363-18 / 001-2 (Page 1 of 1) Issued date : October 15, 2024

CLIENT : PTTEP International Limited
CONTACT : Khun Sutthiluk Phaisun
ADDRESS : 555/1 Energy Complex Vibhavadi-Rangsit Rd., Chatuchak, Chatuchak, Bangkok 10900
 Tel. 089-968-0061 E-Mail: SutthilukP@pttep.com

Analysis Report

SAMPLE DESIGNATED AS : Surface Water Quality
SAMPLING BY : Weerapong Pengtrakul
SAMPLING LOCATION : NPI-G, NPI Flow Station Production Phase: SW2, คลองตาไผ่ (ท้ายน้ำ)
 (UTM47P 611121E, 1587666N)

SAMPLING DATE : September 25, 2024
SAMPLING TIME : 11:30 hr.

Parameter	Unit	Analytical Method	Result	Standard
Dissolved Oxygen (DO)	mg/l	APHA, 4500-O C	6.2	≥4.0
Biochemical Oxygen Demand (BOD)	mg/l	APHA, 5210 B	7	≤2.0

Remark: - Analytical Methods followed to Standard Methods for the Examination of Water and Wastewater, recommended by APHA, AWWA&WEF 24th edition., 2023.

Source: 1/ Notification of National Environment Board No.8, B.E.2537 (1994), issued under the Enhancement & Conservation of National Environmental Quality Act B.E.2535 (1992), dated January 20, B.E. 2537 (1994), published in the Royal Government Gazette Vol.111, Part 16D, dated June 24, B.E. 2537 (1994).

Classification of surface water Class 3: Medium clean fresh surface water resource used for:

1) Consumption, but passing through an ordinary treatment process before use 2) Agriculture

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(Thepsan Yommana)
 Technical Manager

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Report No. : 2024-500001363-19 / 003-1 (Page 1 of 2)

Issued date: November 4, 2024

CLIENT : PTTEP International Limited
CONTACT : Khun Sutthiluk Phaisun
ADDRESS : 555/1 Energy Complex Vibhavadi-Rangsit Rd., Chatuchak, Chatuchak, Bangkok 10900
 Tel. 089-968-0061 E-Mail: SutthilukP@pttep.com

Analysis Report

SAMPLE DESIGNATED AS : Surface Water Quality

SAMPLING DATE : October 16, 2024

SAMPLING BY : Watchararat Linjee

SAMPLING TIME : 14:00 hr.

SAMPLING LOCATION : UT1-3 Production Phase : SW6: สะพานวัดม่วง หมู่ที่ 1 ต.สวนแตง อ.เมือง จ.สุพรรณบุรี
 (UTM47P 0603878E, 1588965N)

Parameter	Unit	Analytical Method	Result	Standard
pH	-	APHA, 4500-H ⁺ B	7.3	5.0-9.0
Conductivity	µs/cm	APHA, 2510 B	289	-
Temperature	°C	APHA, 2550 B	32.4	N ^{2/}
Total Suspended Solids (TSS)	mg/l	APHA, 2540 D	14	-
Total Dissolved Solids (TDS)	mg/l	APHA, 2540 C	184	-
Salinity	ppt	APHA, 2520 B	0.14	-
Dissolved Oxygen (DO)	mg/l	APHA, 4500-O C	5.2	≥4.0
Biochemical Oxygen Demand (BOD)	mg/l	APHA, 5210 B	4	≤2.0
Total Petroleum Hydrocarbon (TPH)	mg/l	Based on Method of Seawater analysis*	0.00025	-
Fecal Coliform Bacteria	MPN/100 ml	APHA, 9221 B	1,300	≤4,000

Remarks: - Analytical Methods followed to Standard Methods for the Examination of Water and Wastewater, recommended by APHA, AWWA&WEF 24th edition., 2023.

* Based on Method of Seawater analysis Third Completely Revised and Extended Edition, 1999, Chapter 21

Sources: ^{1/} Notification of National Environment Board No.8, B.E.2537 (1994), issued under the Enhancement & Conservation of National Environmental Quality Act B.E.2535 (1992), dated January 20, B.E. 2537 (1994), published in the Royal Government Gazette Vol.111, Part 16D, dated June 24, B.E. 2537 (1994).

Classification of surface water Class 3: Medium clean fresh surface water resource used for:

1) Consumption, but passing through an ordinary treatment process before use 2) Agriculture

^{2/} N = Naturally but changing by no more than 3 °C

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 Technical Manager

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Report No. : 2024-500001363-19 / 003-1 (Page 2 of 2)
Issued date: November 4, 2024

CLIENT : PTTEP International Limited
CONTACT : Khun Sutthiluk Phaisun
ADDRESS : 555/1 Energy Complex Vibhavadi-Rangsit Rd., Chatuchak, Chatuchak, Bangkok 10900
 Tel. 089-968-0061 E-Mail: SutthilukP@pttep.com

Analysis Report

SAMPLE DESIGNATED AS : Surface Water Quality

SAMPLING DATE : October 16, 2024

SAMPLING BY : Watchararat Linjee

SAMPLING TIME : 14:00 hr.

SAMPLING LOCATION : UT1-3 Production Phase : SW6: สะพานวัดม่วง หมู่ที่ 1 ต.สวนแตง อ.เมือง จ.สุพรรณบุรี
 (UTM47P 0603878E, 1588965N)

Parameter	Unit	Analytical Method	Result	Standard
Arsenic (As)	mg/l	APHA, 3114 C	0.005	≤0.01
Barium (Ba)	mg/l	APHA, 3120 B	0.12	-
Cadmium (Cd)	mg/l	APHA, 3120 B	<0.002	≤0.005 ^{2/} / 0.05 ^{3/}
Total Chromium (Total Cr)	mg/l	APHA, 3120 B	<0.01	-
Copper (Cu)	mg/l	APHA, 3120 B	<0.01	≤0.1
Iron (Fe)	mg/l	APHA, 3120 B	1.05	-
Mercury (Hg)	mg/l	APHA, 3120 B	<0.0005	≤0.002
Manganese (Mn)	mg/l	APHA, 3120 B	0.25	≤1.0
Nickel (Ni)	mg/l	APHA, 3120 B	<0.004	≤0.1
Lead (Pb)	mg/l	APHA, 3120 B	<0.01	≤0.05
Selenium (Se)	mg/l	APHA, 3114 C	<0.003	-
Zinc (Zn)	mg/l	APHA, 3120 B	<0.02	≤1.0

Remark: - Analytical Methods followed to Standard Methods for the Examination of Water and Wastewater, recommended by APHA, AWWA&WEF 24th edition., 2023.

Sources: ^{1/} Notification of National Environment Board No.8, B.E.2537 (1994), issued under the Enhancement & Conservation of National Environmental Quality Act B.E.2535 (1992), dated January 20, B.E. 2537 (1994), published in the Royal Government Gazette Vol.111, Part 16D, dated June 24, B.E. 2537 (1994).

Classification of surface water Class 3: Medium clean fresh surface water resource used for:

1) Consumption, but passing through an ordinary treatment process before use 2) Agriculture

^{2/} In case of hardness (CaCO₃) of water not more than 100 mg/l

^{3/} In case of hardness (CaCO₃) of water more than 100 mg/l



(Thepsan Yommana)
 Technical Manager

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Report No. : 2024-500001363-19 / 003-2 (Page 1 of 2)

Issued date: November 4, 2024

CLIENT : PTTEP International Limited
CONTACT : Khun Sutthiluk Phaisun
ADDRESS : 555/1 Energy Complex Vibhavadi-Rangsit Rd., Chatuchak, Chatuchak, Bangkok 10900
 Tel. 089-968-0061 E-Mail: SutthilukP@pttep.com

Analysis Report

SAMPLE DESIGNATED AS : Surface Water Quality

SAMPLING DATE : October 16, 2024

SAMPLING BY : Watchararat Linjee

SAMPLING TIME : 15:50 hr.

SAMPLING LOCATION : UT1-3 Production Phase : SW7: บ้านวัดนก หมู่ที่ 2 ต.เจดีย์ อ.อุททอง จ.สุพรรณบุรี
 (UTM47P 0605765E, 1591772N)

Parameter	Unit	Analytical Method	Result	Standard
pH	-	APHA, 4500-H ⁺ B	7.7	5.0-9.0
Conductivity	µs/cm	APHA, 2510 B	294	-
Temperature	°C	APHA, 2550 B	32.2	N ^{2/}
Total Suspended Solids (TSS)	mg/l	APHA, 2540 D	19	-
Total Dissolved Solids (TDS)	mg/l	APHA, 2540 C	184	-
Salinity	ppt	APHA, 2520 B	0.14	-
Dissolved Oxygen (DO)	mg/l	APHA, 4500-O C	7.0	≥4.0
Biochemical Oxygen Demand (BOD)	mg/l	APHA, 5210 B	3	≤2.0
Total Petroleum Hydrocarbon (TPH)	mg/l	Based on Method of Seawater analysis*	0.00117	-
Fecal Coliform Bacteria	MPN/100 ml	APHA, 9221 B	4,900	≤4,000

Remarks: - Analytical Methods followed to Standard Methods for the Examination of Water and Wastewater, recommended by APHA, AWWA&WEF 24th edition., 2023.

* Based on Method of Seawater analysis Third Completely Revised and Extended Edition, 1999, Chapter 21

Sources: ^{1/} Notification of National Environment Board No.8, B.E.2537 (1994), issued under the Enhancement & Conservation of National Environmental Quality Act B.E.2535 (1992), dated January 20, B.E. 2537 (1994), published in the Royal Government Gazette Vol.111, Part 16D, dated June 24, B.E. 2537 (1994).

Classification of surface water Class 3: Medium clean fresh surface water resource used for:

1) Consumption, but passing through an ordinary treatment process before use 2) Agriculture

^{2/} N = Naturally but changing by no more than 3 °C



(Thepsah Yommana)
 Technical Manager

TY/MM/WK/WK

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Report No. : 2024-500001363-19 / 003-2 (Page 2 of 2)

Issued date: November 4, 2024

CLIENT : PTTEP International Limited
CONTACT : Khun Sutthiluk Phaisun
ADDRESS : 555/1 Energy Complex Vibhavadi-Rangsit Rd., Chatuchak, Chatuchak, Bangkok 10900
 Tel. 089-968-0061 E-Mail: SutthilukP@pttep.com

Analysis Report

SAMPLE DESIGNATED AS : Surface Water Quality

SAMPLING DATE : October 16, 2024

SAMPLING BY : Watchararat Linjee

SAMPLING TIME : 15:50 hr.

SAMPLING LOCATION : UT1-3 Production Phase : SW7: บ้านวัดนก หมู่ที่ 2 ต.เจดีย์ อ.อุททอง จ.สุพรรณบุรี
 (UTM47P 0605765E, 1591772N)

Parameter	Unit	Analytical Method	Result	Standard
Arsenic (As)	mg/l	APHA, 3114 C	0.006	≤0.01
Barium (Ba)	mg/l	APHA, 3120 B	0.12	-
Cadmium (Cd)	mg/l	APHA, 3120 B	<0.002	≤0.005 ^{2/} / 0.05 ^{3/}
Total Chromium (Total Cr)	mg/l	APHA, 3120 B	<0.01	-
Copper (Cu)	mg/l	APHA, 3120 B	<0.01	≤0.1
Iron (Fe)	mg/l	APHA, 3120 B	1.02	-
Mercury (Hg)	mg/l	APHA, 3120 B	<0.0005	≤0.002
Manganese (Mn)	mg/l	APHA, 3120 B	0.25	≤1.0
Nickel (Ni)	mg/l	APHA, 3120 B	<0.004	≤0.1
Lead (Pb)	mg/l	APHA, 3120 B	<0.01	≤0.05
Selenium (Se)	mg/l	APHA, 3114 C	<0.003	-
Zinc (Zn)	mg/l	APHA, 3120 B	<0.02	≤1.0

Remark: - Analytical Methods followed to Standard Methods for the Examination of Water and Wastewater, recommended by APHA, AWWA&WEF 24th edition., 2023.

Sources: ^{1/} Notification of National Environment Board No.8, B.E.2537 (1994), issued under the Enhancement & Conservation of National Environmental Quality Act B.E.2535 (1992), dated January 20, B.E. 2537 (1994), published in the Royal Government Gazette Vol.111, Part 16D, dated June 24, B.E. 2537 (1994).

Classification of surface water Class 3: Medium clean fresh surface water resource used for:

1) Consumption, but passing through an ordinary treatment process before use 2) Agriculture

^{2/} In case of hardness (CaCO₃) of water not more than 100 mg/l

^{3/} In case of hardness (CaCO₃) of water more than 100 mg/l



(Thepsan Yommana)
 Technical Manager

TY/MM/WK/WK

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Report No. : 2024-500001363-19 / 003-3 (Page 1 of 2)

Issued date: November 4, 2024

CLIENT : PTTEP International Limited
CONTACT : Khun Sutthiluk Phaisun
ADDRESS : 555/1 Energy Complex Vibhavadi-Rangsit Rd., Chatuchak, Chatuchak, Bangkok 10900
 Tel. 089-968-0061 E-Mail: SutthilukP@pttep.com

Analysis Report

SAMPLE DESIGNATED AS : Surface Water Quality

SAMPLING DATE : October 16, 2024

SAMPLING BY : Watchararat Linjee

SAMPLING TIME : 13:30 hr.

SAMPLING LOCATION : UT1-7 Production Phase : SW4: สะพานวัดการ้อง หมู่ที่ 1 ต.สวนแตง อ.เมือง จ.สุพรรณบุรี
 (UTM47P 0604486E, 1589694N)

Parameter	Unit	Analytical Method	Result	Standard
pH	-	APHA, 4500-H ⁺ B	7.3	5.0-9.0
Conductivity	µs/cm	APHA, 2510 B	283	-
Temperature	°C	APHA, 2550 B	35.6	N ^{2/}
Total Suspended Solids (TSS)	mg/l	APHA, 2540 D	13	-
Total Dissolved Solids (TDS)	mg/l	APHA, 2540 C	172	-
Salinity	ppt	APHA, 2520 B	0.13	-
Dissolved Oxygen (DO)	mg/l	APHA, 4500-O C	6.9	≥4.0
Biochemical Oxygen Demand (BOD)	mg/l	APHA, 5210 B	2	≤2.0
Total Petroleum Hydrocarbon (TPH)	mg/l	Based on Method of Seawater analysis*	0.00024	-
Fecal Coliform Bacteria	MPN/100 ml	APHA, 9221 B	3,100	≤4,000

Remarks: - Analytical Methods followed to Standard Methods for the Examination of Water and Wastewater, recommended by APHA, AWWA&WEF 24th edition., 2023.

* Based on Method of Seawater analysis Third Completely Revised and Extended Edition. 1999, Chapter 21

Sources: ^{1/} Notification of National Environment Board No.8, B.E.2537 (1994), issued under the Enhancement & Conservation of National Environmental Quality Act B.E.2535 (1992), dated January 20, B.E. 2537 (1994), published in the Royal Government Gazette Vol.111, Part 16D, dated June 24, B.E. 2537 (1994).

Classification of surface water Class 3: Medium clean fresh surface water resource used for:

1) Consumption, but passing through an ordinary treatment process before use 2) Agriculture

^{2/} N = Naturally but changing by no more than 3 °C

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(Thepsan Yommana)
 Technical Manager

TY/MM/WK/WK

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Report No. : 2024-500001363-19 / 003-3 (Page 2 of 2)

Issued date: November 4, 2024

CLIENT : PTTEP International Limited
CONTACT : Khun Sutthiluk Phaisun
ADDRESS : 555/1 Energy Complex Vibhavadi-Rangsit Rd., Chatuchak, Chatuchak, Bangkok 10900
 Tel. 089-968-0061 E-Mail: SutthilukP@pttep.com

Analysis Report

SAMPLE DESIGNATED AS : Surface Water Quality

SAMPLING DATE : October 16, 2024

SAMPLING BY : Watchararat Linjee

SAMPLING TIME : 13:30 hr.

SAMPLING LOCATION : UT1-7 Production Phase : SW4: สะพานวัดการ้อง หมู่ที่ 1 ต.สวนแตง อ.เมือง จ.สุพรรณบุรี
 (UTM47P 0604486E, 1589694N)

Parameter	Unit	Analytical Method	Result	Standard
Arsenic (As)	mg/l	APHA, 3114 C	0.005	≤0.01
Barium (Ba)	mg/l	APHA, 3120 B	0.12	-
Cadmium (Cd)	mg/l	APHA, 3120 B	<0.002	≤0.005 ^{2/} / 0.05 ^{3/}
Total Chromium (Total Cr)	mg/l	APHA, 3120 B	<0.01	-
Copper (Cu)	mg/l	APHA, 3120 B	<0.01	≤0.1
Iron (Fe)	mg/l	APHA, 3120 B	1.24	-
Mercury (Hg)	mg/l	APHA, 3120 B	<0.0005	≤0.002
Manganese (Mn)	mg/l	APHA, 3120 B	0.27	≤1.0
Nickel (Ni)	mg/l	APHA, 3120 B	<0.004	≤0.1
Lead (Pb)	mg/l	APHA, 3120 B	<0.01	≤0.05
Selenium (Se)	mg/l	APHA, 3114 C	<0.003	-
Zinc (Zn)	mg/l	APHA, 3120 B	<0.02	≤1.0

Remark: - Analytical Methods followed to Standard Methods for the Examination of Water and Wastewater, recommended by APHA, AWWA&WEF 24th edition., 2023.

Sources: ^{1/} Notification of National Environment Board No.8, B.E.2537 (1994), issued under the Enhancement & Conservation of National Environmental Quality Act B.E.2535 (1992), dated January 20, B.E. 2537 (1994), published in the Royal Government Gazette Vol.111, Part 16D, dated June 24, B.E. 2537 (1994).

Classification of surface water Class 3: Medium clean fresh surface water resource used for:

1) Consumption, but passing through an ordinary treatment process before use 2) Agriculture

^{2/} In case of hardness (CaCO₃) of water not more than 100 mg/l

^{3/} In case of hardness (CaCO₃) of water more than 100 mg/l

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(Thepsan Yommana)
 Technical Manager

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Report No. : 2024-500001363-19 / 003-4 (Page 1 of 2)

Issued date: November 4, 2024

CLIENT : PTTEP International Limited
CONTACT : Khun Sutthiluk Phaisun
ADDRESS : 555/1 Energy Complex Vibhavadi-Rangsit Rd., Chatuchak, Chatuchak, Bangkok 10900
 Tel. 089-968-0061 E-Mail: SutthilukP@pttep.com

Analysis Report

SAMPLE DESIGNATED AS : Surface Water Quality

SAMPLING DATE : October 16, 2024

SAMPLING BY : Watchararat Linjee

SAMPLING TIME : 14:00 hr.

SAMPLING LOCATION : UT1-7 Production Phase : SW6: สะพานวัดม่วง หมู่ที่ 1 ต.สวนแตง อ.เมือง จ.สุพรรณบุรี
 (UTM47P 0603878E, 1588965N)

Parameter	Unit	Analytical Method	Result	Standard
pH	-	APHA, 4500-H ⁺ B	7.3	5.0-9.0
Conductivity	µs/cm	APHA, 2510 B	289	-
Temperature	°C	APHA, 2550 B	32.4	N ^{2/}
Total Suspended Solids (TSS)	mg/l	APHA, 2540 D	14	-
Total Dissolved Solids (TDS)	mg/l	APHA, 2540 C	184	-
Salinity	ppt	APHA, 2520 B	0.14	-
Dissolved Oxygen (DO)	mg/l	APHA, 4500-O C	5.2	≥4.0
Biochemical Oxygen Demand (BOD)	mg/l	APHA, 5210 B	4	≤2.0
Total Petroleum Hydrocarbon (TPH)	mg/l	Based on Method of Seawater analysis*	0.00025	-
Fecal Coliform Bacteria	MPN/100 ml	APHA, 9221 B	1,300	≤4,000

Remarks: - Analytical Methods followed to Standard Methods for the Examination of Water and Wastewater, recommended by APHA, AWWA&WEF 24th edition., 2023.

* Based on Method of Seawater analysis Third Completely Revised and Extended Edition, 1999, Chapter 21

Sources: ^{1/} Notification of National Environment Board No.8, B.E.2537 (1994), issued under the Enhancement & Conservation of National Environmental Quality Act B.E.2535 (1992), dated January 20, B.E. 2537 (1994), published in the Royal Government Gazette Vol.111, Part 16D, dated June 24, B.E. 2537 (1994).

Classification of surface water Class 3: Medium clean fresh surface water resource used for:

1) Consumption, but passing through an ordinary treatment process before use 2) Agriculture

^{2/} N = Naturally but changing by no more than 3 °C



(Thepsan Yommana)
 Technical Manager

TY/MM/WK/WK

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Report No. : 2024-500001363-19 / 003-4 (Page 2 of 2)
Issued date: November 4, 2024

CLIENT : PTTEP International Limited
CONTACT : Khun Sutthiluk Phaisun
ADDRESS : 555/1 Energy Complex Vibhavadi-Rangsit Rd., Chatuchak, Chatuchak, Bangkok 10900
 Tel. 089-968-0061 E-Mail: SutthilukP@pttep.com

Analysis Report

SAMPLE DESIGNATED AS : Surface Water Quality

SAMPLING DATE : October 16, 2024

SAMPLING BY : Watchararat Linjee

SAMPLING TIME : 14:00 hr.

SAMPLING LOCATION : UT1-7 Production Phase : SW6: สะพานวัดม่วง หมู่ที่ 1 ต.สวนแตง อ.เมือง จ.สุพรรณบุรี
 (UTM47P 0603878E, 1588965N)

Parameter	Unit	Analytical Method	Result	Standard
Arsenic (As)	mg/l	APHA, 3114 C	0.005	≤0.01
Barium (Ba)	mg/l	APHA, 3120 B	0.12	-
Cadmium (Cd)	mg/l	APHA, 3120 B	<0.002	≤0.005 ^{2/} / 0.05 ^{3/}
Total Chromium (Total Cr)	mg/l	APHA, 3120 B	<0.01	-
Copper (Cu)	mg/l	APHA, 3120 B	<0.01	≤0.1
Iron (Fe)	mg/l	APHA, 3120 B	1.05	-
Mercury (Hg)	mg/l	APHA, 3120 B	<0.0005	≤0.002
Manganese (Mn)	mg/l	APHA, 3120 B	0.25	≤1.0
Nickel (Ni)	mg/l	APHA, 3120 B	<0.004	≤0.1
Lead (Pb)	mg/l	APHA, 3120 B	<0.01	≤0.05
Selenium (Se)	mg/l	APHA, 3114 C	<0.003	-
Zinc (Zn)	mg/l	APHA, 3120 B	<0.02	≤1.0

Remark: - Analytical Methods followed to Standard Methods for the Examination of Water and Wastewater, recommended by APHA, AWWA&WEF 24th edition., 2023.

Sources: ^{1/} Notification of National Environment Board No.8, B.E.2537 (1994), issued under the Enhancement & Conservation of National Environmental Quality Act B.E.2535 (1992), dated January 20, B.E. 2537 (1994), published in the Royal Government Gazette Vol.111, Part 16D, dated June 24, B.E. 2537 (1994).

Classification of surface water Class 3: Medium clean fresh surface water resource used for:

1) Consumption, but passing through an ordinary treatment process before use 2) Agriculture

^{2/} In case of hardness (CaCO₃) of water not more than 100 mg/l

^{3/} In case of hardness (CaCO₃) of water more than 100 mg/l



(Thepsan Yommana)
 Technical Manager

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Report No. : 2024-500001363-19 / 003-5 (Page 1 of 2)
Issued date: November 4, 2024

CLIENT : PTTEP International Limited
CONTACT : Khun Sutthiluk Phaisun
ADDRESS : 555/1 Energy Complex Vibhavadi-Rangsit Rd., Chatuchak, Chatuchak, Bangkok 10900
 Tel. 089-968-0061 E-Mail: SutthilukP@pttep.com

Analysis Report

SAMPLE DESIGNATED AS : Surface Water Quality

SAMPLING DATE : October 16, 2024

SAMPLING BY : Watchararat Linjee

SAMPLING TIME : 15:15 hr.

SAMPLING LOCATION : SKJ Production Phase : SW1: สะพานบ้านท่าช้าง หมู่ที่ 8 ต.สวนแตง อ.เมือง จ.สุพรรณบุรี
 (UTM47P 0605498E, 1593452N)

Parameter	Unit	Analytical Method	Result	Standard
pH	-	APHA, 4500-H ⁺ B	7.2	5.0-9.0
Conductivity	µs/cm	APHA, 2510 B	276	-
Temperature	°C	APHA, 2550 B	31.8	N ^{2/}
Total Suspended Solids (TSS)	mg/l	APHA, 2540 D	14	-
Total Dissolved Solids (TDS)	mg/l	APHA, 2540 C	184	-
Salinity	ppt	APHA, 2520 B	0.13	-
Dissolved Oxygen (DO)	mg/l	APHA, 4500-O C	5.4	≥4.0
Biochemical Oxygen Demand (BOD)	mg/l	APHA, 5210 B	2	≤2.0
Total Petroleum Hydrocarbon (TPH)	mg/l	Based on Method of Seawater analysis*	0.00092	-
Fecal Coliform Bacteria	MPN/100 ml	APHA, 9221 B	2,200	≤4,000

Remarks: - Analytical Methods followed to Standard Methods for the Examination of Water and Wastewater, recommended by APHA, AWWA&WEF 24th edition., 2023.

* Based on Method of Seawater analysis Third Completely Revised and Extended Edition, 1999, Chapter 21

Sources: ^{1/} Notification of National Environment Board No.8, B.E.2537 (1994), issued under the Enhancement & Conservation of National Environmental Quality Act B.E.2535 (1992), dated January 20, B.E. 2537 (1994), published in the Royal Government Gazette Vol.111, Part 16D, dated June 24, B.E. 2537 (1994).

Classification of surface water Class 3: Medium clean fresh surface water resource used for:

1) Consumption, but passing through an ordinary treatment process before use 2) Agriculture

^{2/} N' = Naturally but changing by no more than 3 °C

SGS (THAILAND) LIMITED

(Thepsan Yommana)
 Technical Manager

TY/WM/WK/WK

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Report No. : 2024-500001363-19 / 003-5 (Page 2 of 2)

Issued date: November 4, 2024

CLIENT : PTTEP International Limited
CONTACT : Khun Sutthiluk Phaisun
ADDRESS : 555/1 Energy Complex Vibhavadi-Rangsit Rd., Chatuchak, Chatuchak, Bangkok 10900
 Tel. 089-968-0061 E-Mail: SutthilukP@pttep.com

Analysis Report

SAMPLE DESIGNATED AS : Surface Water Quality

SAMPLING DATE : October 16, 2024

SAMPLING BY : Watchararat Linjee

SAMPLING TIME : 15:15 hr.

SAMPLING LOCATION : SKJ Production Phase : SW1: สะพานบ้านท่าช้าง หมู่ที่ 8 ต.สวนแตง อ.เมือง จ.สุพรรณบุรี
 (UTM47P 0605498E, 1593452N)

Parameter	Unit	Analytical Method	Result	Standard
Arsenic (As)	mg/l	APHA, 3114 C	0.005	≤0.01
Barium (Ba)	mg/l	APHA, 3120 B	0.12	-
Cadmium (Cd)	mg/l	APHA, 3120 B	<0.002	≤0.005 ^{2/} / 0.05 ^{3/}
Total Chromium (Total Cr)	mg/l	APHA, 3120 B	<0.01	-
Copper (Cu)	mg/l	APHA, 3120 B	<0.01	≤0.1
Iron (Fe)	mg/l	APHA, 3120 B	1.04	-
Mercury (Hg)	mg/l	APHA, 3120 B	<0.0005	≤0.002
Manganese (Mn)	mg/l	APHA, 3120 B	0.29	≤1.0
Nickel (Ni)	mg/l	APHA, 3120 B	<0.004	≤0.1
Lead (Pb)	mg/l	APHA, 3120 B	<0.01	≤0.05
Selenium (Se)	mg/l	APHA, 3114 C	<0.003	-
Zinc (Zn)	mg/l	APHA, 3120 B	<0.02	≤1.0

Remark: - Analytical Methods followed to Standard Methods for the Examination of Water and Wastewater, recommended by APHA, AWWA&WEF 24th edition., 2023.

Sources: ^{1/} Notification of National Environment Board No.8, B.E.2537 (1994), issued under the Enhancement & Conservation of National Environmental Quality Act B.E.2535 (1992), dated January 20, B.E. 2537 (1994), published in the Royal Government Gazette Vol.111, Part 16D, dated June 24, B.E. 2537 (1994).

Classification of surface water Class 3: Medium clean fresh surface water resource used for:

1) Consumption, but passing through an ordinary treatment process before use 2) Agriculture

^{2/} In case of hardness (CaCO₃) of water not more than 100 mg/l

^{3/} In case of hardness (CaCO₃) of water more than 100 mg/l

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SGS (THAILAND) LIMITED



(Thepsan Yommana)
 Technical Manager

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Report No. : 2024-500001363-19 / 003-6 (Page 1 of 2)

Issued date: November 4, 2024

CLIENT : PTTEP International Limited
CONTACT : Khun Sutthiluk Phaisun
ADDRESS : 555/1 Energy Complex Vibhavadi-Rangsit Rd., Chatuchak, Chatuchak, Bangkok 10900
 Tel. 089-968-0061 E-Mail: SutthilukP@pttep.com

Analysis Report

SAMPLE DESIGNATED AS : Surface Water Quality

SAMPLING DATE : October 16, 2024

SAMPLING BY : Watchararat Linjee

SAMPLING TIME : 12:30 hr.

SAMPLING LOCATION : SKJ Production Phase : SW2: สะพานวัดสังฆายเถร หมู่ที่ 8 ต.สวนแตง อ.เมือง จ.สุพรรณบุรี
 (UTM47P 0605738E, 1592640N)

Parameter	Unit	Analytical Method	Result	Standard
pH	-	APHA, 4500-H ⁺ B	7.2	5.0-9.0
Conductivity	µs/cm	APHA, 2510 B	281	-
Temperature	°C	APHA, 2550 B	33.3	N ^{2/}
Total Suspended Solids (TSS)	mg/l	APHA, 2540 D	17	-
Total Dissolved Solids (TDS)	mg/l	APHA, 2540 C	179	-
Salinity	ppt	APHA, 2520 B	0.13	-
Dissolved Oxygen (DO)	mg/l	APHA, 4500-O C	5.1	≥4.0
Biochemical Oxygen Demand (BOD)	mg/l	APHA, 5210 B	3	≤2.0
Total Petroleum Hydrocarbon (TPH)	mg/l	Based on Method of Seawater analysis*	0.00038	-
Fecal Coliform Bacteria	MPN/100 ml	APHA, 9221 B	3,300	≤4,000

Remarks: - Analytical Methods followed to Standard Methods for the Examination of Water and Wastewater, recommended by APHA, AWWA&WEF 24th edition., 2023.

* Based on Method of Seawater analysis Third Completely Revised and Extended Edition, 1999, Chapter 21

Sources: ^{1/} Notification of National Environment Board No.8, B.E.2537 (1994), issued under the Enhancement & Conservation of National Environmental Quality Act B.E.2535 (1992), dated January 20, B.E. 2537 (1994), published in the Royal Government Gazette Vol.111, Part 16D, dated June 24, B.E. 2537 (1994).

Classification of surface water Class 3: Medium clean fresh surface water resource used for:

1) Consumption, but passing through an ordinary treatment process before use 2) Agriculture

^{2/} N = Naturally but changing by no more than 3 °C



(Thepsan Yommana)
 Technical Manager

TY/WM/WK/WK

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Report No. : 2024-500001363-19 / 003-6 (Page 2 of 2)

Issued date: November 4, 2024

CLIENT : PTTEP International Limited
CONTACT : Khun Sutthiluk Phaisun
ADDRESS : 555/1 Energy Complex Vibhavadi-Rangsit Rd., Chatuchak, Chatuchak, Bangkok 10900
 Tel. 089-968-0061 E-Mail: SutthilukP@pttep.com

Analysis Report

SAMPLE DESIGNATED AS : Surface Water Quality

SAMPLING DATE : October 16, 2024

SAMPLING BY : Watchararat Linjee

SAMPLING TIME : 12:30 hr.

SAMPLING LOCATION : SKJ Production Phase : SW2: สะพานวัดสังฆาจารย์ หมู่ที่ 8 ต.สวนแตง อ.เมือง จ.สุพรรณบุรี
 (UTM47P 0605738E, 1592640N)

Parameter	Unit	Analytical Method	Result	Standard
Arsenic (As)	mg/l	APHA, 3114 C	0.004	≤0.01
Barium (Ba)	mg/l	APHA, 3120 B	0.12	-
Cadmium (Cd)	mg/l	APHA, 3120 B	<0.002	≤0.005 ^{2/} / 0.05 ^{3/}
Total Chromium (Total Cr)	mg/l	APHA, 3120 B	<0.01	-
Copper (Cu)	mg/l	APHA, 3120 B	<0.01	≤0.1
Iron (Fe)	mg/l	APHA, 3120 B	1.05	-
Mercury (Hg)	mg/l	APHA, 3120 B	<0.0005	≤0.002
Manganese (Mn)	mg/l	APHA, 3120 B	0.27	≤1.0
Nickel (Ni)	mg/l	APHA, 3120 B	<0.004	≤0.1
Lead (Pb)	mg/l	APHA, 3120 B	<0.01	≤0.05
Selenium (Se)	mg/l	APHA, 3114 C	<0.003	-
Zinc (Zn)	mg/l	APHA, 3120 B	<0.02	≤1.0

Remark: - Analytical Methods followed to Standard Methods for the Examination of Water and Wastewater, recommended by APHA, AWWA&WEF 24th edition., 2023.

Sources: ^{1/} Notification of National Environment Board No.8, B.E.2537 (1994), issued under the Enhancement & Conservation of National Environmental Quality Act B.E.2535 (1992), dated January 20, B.E. 2537 (1994), published in the Royal Government Gazette Vol.111, Part 16D, dated June 24, B.E. 2537 (1994).

Classification of surface water Class 3: Medium clean fresh surface water resource used for:

1) Consumption, but passing through an ordinary treatment process before use 2) Agriculture

^{2/} In case of hardness (CaCO₃) of water not more than 100 mg/l

^{3/} In case of hardness (CaCO₃) of water more than 100 mg/l



(Thepsan Yommana)
 Technical Manager

TY/MM/WK/WK

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ภาคผนวก ก4

ผลการตรวจวิเคราะห์คุณภาพน้ำใต้ดิน

Report No. : 2024-500001363-1 / 004-1 (Page 1 of 1) Issued date : May 23, 2024

CLIENT : PTTEP International Limited
CONTACT : Khun Sutthiluk Phaisun
ADDRESS : 555/1 Energy Complex Vibhavadi-Rangsit Rd., Chatuchak, Chatuchak, Bangkok 10900
 Tel. 089-968-0061 E-Mail: SutthilukP@pttep.com

Analysis Report

SAMPLE DESIGNATED AS : Groundwater Quality **SAMPLING DATE :** April 27, 2024
SAMPLING BY : Weerapong Pengtrakul **SAMPLING TIME :** 10:50 hr.
SAMPLING LOCATION : NPI-A Production Phase : บ่อสังเกตการณ์ในฐานหลุมผลิต
 (UTM47P 0609833E, 1587859N)

Parameter	Unit	Method	Result	Standard ^{1/}		Standard ^{2/}
				Optimal Value	Max. Allowable	
pH	-	APHA, 4500-H+ B	6.5	7.0-8.5	6.5-9.2	-
Conductivity	µs/cm	APHA, 2510 B	3,450	-	-	-
Total Dissolved Solids (TDS)	mg/l	APHA, 2540 C	2,983	≥600	1,200	-
Total Petroleum Hydrocarbon (TPH)	mg/l	Based on Method of Seawater analysis*	0.0020	-	-	-
Arsenic (As)	mg/l	APHA, 3125 B	0.009	None	0.05	≥0.01
Barium (Ba)	mg/l	APHA, 3125 B	0.035	-	-	-
Chromium Hexavalent (Cr ⁶⁺)	mg/l	APHA, 3500-Cr B	<0.01	-	-	≥0.05
Chloride (Cl)	mg/l	APHA, 4500 Cl- D	212	≥250	600	-
Mercury (Hg)	mg/l	APHA, 3112 B	<0.0005	None	0.001	≥0.001
Lead (Pb)	mg/l	APHA, 3125 B	0.0006	None	0.05	≥0.01
Total Hardness (as CaCO ₃)	mg/l	APHA, 2340 C	1,232	≥300	500	-

Remarks: - Analytical Methods followed to Standard Methods for the Examination of Water and Wastewater, recommended by APHA, AWWA&WEF 24th edition., 2023.

* Based on Method of Seawater analysis Third Completely Revised and Extended Edition, 1999, Chapter 21

Sources : ^{1/} Notification of the Ministry of Natural Resources and Environment, B.E. 2551 (2008), published in the Royal Government Gazette, Vol. 125, Special Part 85D, dated May 21, B.E. 2551 (2008).

^{2/} Notification of the National Environmental Board No. 20, B.E. 2543 (2000), published in the Royal Government Gazette, Vol. 117, Special part 95 D, dated September 15, B.E. 2543 (2000).

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Report No. : 2024-500001363-1 / 004-2 (Page 1 of 1) Issued date : May 23, 2024

CLIENT : PTTEP International Limited
CONTACT : Khun Sutthiluk Phaisun
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 Tel. 089-968-0061 E-Mail: SutthilukP@pttep.com

Analysis Report

SAMPLE DESIGNATED AS : Groundwater Quality **SAMPLING DATE :** April 27, 2024
SAMPLING BY : Weerapong Pengtrakul **SAMPLING TIME :** 11:24 hr.
SAMPLING LOCATION : NPI-A Production Phase : ประปาบ้านดอนไผ่มั่ง (ต้นน้ำ)
 (UTM47P 0608749E, 1589058N)

Parameter	Unit	Method	Result	Standard ^{1/}		Standard ^{2/}
				Optimal Value	Max. Allowable	
pH	-	APHA, 4500-H+ B	8.0	7.0-8.5	6.5-9.2	-
Conductivity	µs/cm	APHA, 2510 B	1,409	-	-	-
Total Dissolved Solids (TDS)	mg/l	APHA, 2540 C	880	≥600	1,200	-
Total Petroleum Hydrocarbon (TPH)	mg/l	Based on Method of Seawater analysis*	0.0007	-	-	-
Arsenic (As)	mg/l	APHA, 3125 B	0.004	None	0.05	≥0.01
Barium (Ba)	mg/l	APHA, 3125 B	0.062	-	-	-
Chromium Hexavalent (Cr ⁶⁺)	mg/l	APHA, 3500-Cr B	<0.01	-	-	≥0.05
Chloride (Cl)	mg/l	APHA, 4500 Cl- D	183	≥250	600	-
Mercury (Hg)	mg/l	APHA, 3112 B	<0.0005	None	0.001	≥0.001
Lead (Pb)	mg/l	APHA, 3125 B	0.0005	None	0.05	≥0.01
Total Hardness (as CaCO ₃)	mg/l	APHA, 2340 C	328	≥300	500	-

Remarks: - Analytical Methods followed to Standard Methods for the Examination of Water and Wastewater, recommended by APHA, AWWA&WEF 24th edition., 2023.

* Based on Method of Seawater analysis Third Completely Revised and Extended Edition. 1999. Chapter 21

Sources : ^{1/} Notification of the Ministry of Natural Resources and Environment, B.E. 2551 (2008), published in the Royal Government Gazette, Vol. 125, Special Part 85D, dated May 21, B.E. 2551 (2008).

^{2/} Notification of the National Environmental Board No. 20, B.E. 2543 (2000), published in the Royal Government Gazette, Vol. 117, Special part 95 D, dated September 15, B.E. 2543 (2000).

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Report No. : 2024-500001363-1 / 004-3 (Page 1 of 1) Issued date : May 23, 2024

CLIENT : PTTEP International Limited
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 Tel. 089-968-0061 E-Mail: SutthilukP@pttep.com

Analysis Report

SAMPLE DESIGNATED AS : Groundwater Quality **SAMPLING DATE :** April 27, 2024
SAMPLING BY : Weerapong Pengtrakul **SAMPLING TIME :** 11:50 hr.
SAMPLING LOCATION : NPI-A Production Phase : ประปาบ้านดอนขาด (ท้ายน้ำ)
 (UTM47P 0609465E, 1583846N)

Parameter	Unit	Method	Result	Standard ^{1/}		Standard ^{2/}
				Optimal Value	Max. Allowable	
pH	-	APHA, 4500-H+ B	7.9	7.0-8.5	6.5-9.2	-
Conductivity	µs/cm	APHA, 2510 B	1,748	-	-	-
Total Dissolved Solids (TDS)	mg/l	APHA, 2540 C	1,075	≧600	1,200	-
Total Petroleum Hydrocarbon (TPH)	mg/l	Based on Method of Seawater analysis*	0.0007	-	-	-
Arsenic (As)	mg/l	APHA, 3125 B	<0.001	None	0.05	≧0.01
Barium (Ba)	mg/l	APHA, 3125 B	0.032	-	-	-
Chromium Hexavalent (Cr ⁶⁺)	mg/l	APHA, 3500-Cr B	<0.01	-	-	≧0.05
Chloride (Cl)	mg/l	APHA, 4500 Cl- D	193	≧250	600	-
Mercury (Hg)	mg/l	APHA, 3112 B	<0.0005	None	0.001	≧0.001
Lead (Pb)	mg/l	APHA, 3125 B	0.0009	None	0.05	≧0.01
Total Hardness (as CaCO ₃)	mg/l	APHA, 2340 C	120	≧300	500	-

Remarks: - Analytical Methods followed to Standard Methods for the Examination of Water and Wastewater, recommended by APHA, AWWA&WEF 24th edition., 2023.

* Based on Method of Seawater analysis Third Completely Revised and Extended Edition, 1999, Chapter 21

Sources : ^{1/} Notification of the Ministry of Natural Resources and Environment, B.E. 2551 (2008), published in the Royal Government Gazette, Vol. 125, Special Part 85D, dated May 21, B.E. 2551 (2008).

^{2/} Notification of the National Environmental Board No. 20, B.E. 2543 (2000), published in the Royal Government Gazette, Vol. 117, Special part 95 D, dated September 15, B.E. 2543 (2000).

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Report No. : 2024-500001363-2 / 004-1 (Page 1 of 2) Issued date : May 28, 2024

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CONTACT : Khun Sutthiluk Phaisun
ADDRESS : 555/1 Energy Complex Vibhavadi-Rangsit Rd., Chatuchak, Chatuchak, Bangkok 10900
Tel. 089-968-0061 E-Mail: SutthilukP@pttep.com

Analysis Report

SAMPLE DESIGNATED AS : Groundwater Quality
SAMPLING BY : Weerapong Pengtrakul
SAMPLING DATE : April 26, 2024
SAMPLING TIME : 15.40 hr.
SAMPLING LOCATION : NPI-B Production Phase: ป่อดิตตามตรวจสอบบบริเวณท้ายน้ำ ภายในบริเวณฐานผลิต
(UTM47P 0610314E, 1586460N)

Parameter	Unit	Method	Result	Standard ^{1/}		Standard ^{2/}
				Optimal Value	Max. Allowable	
Temperature	°C	APHA, 2550 B	32.6	-	-	-
pH	-	APHA, 4500-H+ B	6.5	7.0-8.5	6.5-9.2	-
Conductivity	µs/cm	APHA, 2510 B	5,670	-	-	-
Salinity	ppt	APHA, 2520 B	3.07	-	-	-
Total Dissolved Solids (TDS)	mg/l	APHA, 2540 C	4,105	≥600	1,200	-
Total Petroleum Hydrocarbon (TPH)	mg/l	Based on Method of Seawater analysis*	0.0023	-	-	-
VOC						
- Benzene	µg/l	APHA, 6200 B	<0.5	-	-	5
- Toluene	µg/l	APHA, 6200 B	<1	-	-	1,000
- Total Xylenes	µg/l	APHA, 6200 B	<2	-	-	10,000
- Ethylbenzene	µg/l	APHA, 6200 B	<1	-	-	700

Remark: - Analytical Methods followed to Standard Methods for the Examination of Water and Wastewater, recommended by APHA, AWWA&WEF 24th edition., 2023.

* Based on Method of Seawater analysis Third Completely Revised and Extended Edition, 1999, Chapter 21

Sources: ^{1/} Notification of the Ministry of Natural Resources and Environment, B.E. 2551 (2008), published in the Royal Government Gazette, Vol. 125, Special Part 85D, dated May 21, B.E. 2551 (2008).

^{2/} Notification of the National Environmental Board No. 20, B.E. 2543 (2000), published in the Royal Government Gazette, Vol. 117, Special part 95 D, dated September 15, B.E. 2543 (2000).

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Report No. : 2024-500001363-2 / 004-1 (Page 2 of 2) Issued date : May 28, 2024

CLIENT : PTTEP International Limited
CONTACT : Khun Sutthiluk Phaisun
ADDRESS : 555/1 Energy Complex Vibhavadi-Rangsit Rd., Chatuchak, Chatuchak, Bangkok 10900
 Tel. 089-968-0061 E-Mail: SutthilukP@pttep.com

Analysis Report

SAMPLE DESIGNATED AS : Groundwater Quality
SAMPLING BY : Weerapong Pengtrakul
SAMPLING LOCATION : NPI-B Production Phase: ปอติดตามตรวจสอบบริเวณท้ายน้ำ ภายในบริเวณฐานผลิต (UTM47P 0610314E, 1586460N)
SAMPLING DATE : April 26, 2024
SAMPLING TIME : 15.40 hr.

Parameter	Unit	Method	Result	Standard ^{1/}		Standard ^{2/}
				Optimal Value	Max. Allowable	
Arsenic (As)	mg/l	APHA, 3125 B	0.038	None	0.05	≥0.01
Barium (Ba)	mg/l	APHA, 3125 B	0.101	-	-	-
Cadmium (Cd)	mg/l	APHA, 3125 B	0.0008	None	0.01	≥0.003
Total Chromium (Total Cr)	mg/l	APHA, 3125 B	<0.010	-	-	-
Copper (Cu)	mg/l	APHA, 3125 B	0.0057	≥1.0	1.5	≥1.0
Iron (Fe)	mg/l	APHA, 3125 B	60.133	≥0.5	1.0	-
Mercury (Hg)	mg/l	APHA, 3112 B	<0.0005	None	0.001	≥0.001
Manganese (Mn)	mg/l	APHA, 3125 B	4.549	≥0.3	0.5	≥0.5
Nickel (Ni)	mg/l	APHA, 3125 B	0.0233	-	-	≥0.2
Lead (Pb)	mg/l	APHA, 3125 B	0.0182	None	0.05	≥0.01
Selenium (Se)	mg/l	APHA, 3125 B	<0.001	None	0.01	≥0.01
Zinc (Zn)	mg/l	APHA, 3125 B	0.370	≥5.0	15.0	≥5.0

Remark: - Analytical Methods followed to Standard Methods for the Examination of Water and Wastewater, recommended by APHA, AWWA&WEF 24th edition., 2023.

Sources: ^{1/} Notification of the Ministry of Natural Resources and Environment, B.E. 2551 (2008), published in the Royal Government Gazette, Vol. 125, Special Part 85D, dated May 21, B.E. 2551 (2008).

^{2/} Notification of the National Environmental Board No. 20, B.E. 2543 (2000), published in the Royal Government Gazette, Vol. 117, Special part 95 D, dated September 15, B.E. 2543 (2000).

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Report No. : 2024-500001363-2 / 004-2 (Page 1 of 2) Issued date : May 28, 2024

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ADDRESS : 555/1 Energy Complex Vibhavadi-Rangsit Rd., Chatuchak, Bangkok 10900
 Tel. 089-968-0061 E-Mail: SutthilukP@pttep.com

Analysis Report

SAMPLE DESIGNATED AS : Groundwater Quality
SAMPLING BY : Weerapong Pengtrakul
SAMPLING LOCATION : NPI-B Production Phase: GW1, บ้านท่าตลาด หมู่ที่ 2 ต.วัดโบสถ์ อ.บางปลาม้า จ.สุพรรณบุรี (UTM47P 0612910E, 1586112N)
SAMPLING DATE : April 26, 2024
SAMPLING TIME : 15:02 hr.

Parameter	Unit	Method	Result	Standard ^{1/}		Standard ^{2/}
				Optimal Value	Max. Allowable	
Temperature	°C	APHA, 2550 B	36.1	-	-	-
pH	-	APHA, 4500-H+ B	8.5	7.0-8.5	6.5-9.2	-
Conductivity	µs/cm	APHA, 2510 B	542	-	-	-
Salinity	ppt	APHA, 2520 B	0.26	-	-	-
Total Dissolved Solids (TDS)	mg/l	APHA, 2540 C	326	≠600	1,200	-
Total Petroleum Hydrocarbon (TPH)	mg/l	Based on Method of Seawater analysis*	0.0001	-	-	-
VOC						
- Benzene	µg/l	APHA, 6200 B	<0.5	-	-	5
- Toluene	µg/l	APHA, 6200 B	<1	-	-	1,000
- Total Xylenes	µg/l	APHA, 6200 B	<2	-	-	10,000
- Ethylbenzene	µg/l	APHA, 6200 B	<1	-	-	700

Remark: - Analytical Methods followed to Standard Methods for the Examination of Water and Wastewater, recommended by APHA, AWWA&WEF 24th edition., 2023.

* Based on Method of Seawater analysis Third Completely Revised and Extended Edition, 1999, Chapter 21

Sources: ^{1/} Notification of the Ministry of Natural Resources and Environment, B.E. 2551 (2008), published in the Royal Government Gazette, Vol. 125, Special Part 85D, dated May 21, B.E. 2551 (2008).

^{2/} Notification of the National Environmental Board No. 20, B.E. 2543 (2000), published in the Royal Government Gazette, Vol. 117, Special part 95 D, dated September 15, B.E. 2543 (2000).

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Report No. : 2024-500001363-2 / 004-2 (Page 2 of 2) Issued date : May 28, 2024

CLIENT : PTTEP International Limited
CONTACT : Khun Sutthiluk Phaisun
ADDRESS : 555/1 Energy Complex Vibhavadi-Rangsit Rd., Chatuchak, Chatuchak, Bangkok 10900
Tel. 089-968-0061 E-Mail: SutthilukP@pttep.com

Analysis Report

SAMPLE DESIGNATED AS : Groundwater Quality
SAMPLING BY : Weerapong Pengtrakul
SAMPLING LOCATION : NPI-B Production Phase: GW1, บ้านท่าตลาด หมู่ที่ 2 ต.วัดโบสถ์ อ.บางปลาม้า จ.สุพรรณบุรี (UTM47P 0612910E, 1586112N)
SAMPLING DATE : April 26, 2024
SAMPLING TIME : 15:02 hr.

Parameter	Unit	Method	Result	Standard ^{1/}		Standard ^{2/}
				Optimal Value	Max. Allowable	
Arsenic (As)	mg/l	APHA, 3125 B	0.005	None	0.05	≧0.01
Barium (Ba)	mg/l	APHA, 3125 B	0.006	-	-	-
Cadmium (Cd)	mg/l	APHA, 3125 B	<0.0001	None	0.01	≧0.003
Total Chromium (Total Cr)	mg/l	APHA, 3125 B	<0.010	-	-	-
Copper (Cu)	mg/l	APHA, 3125 B	0.0031	≧1.0	1.5	≧1.0
Iron (Fe)	mg/l	APHA, 3125 B	0.018	≧0.5	1.0	-
Mercury (Hg)	mg/l	APHA, 3112 B	<0.0005	None	0.001	≧0.001
Manganese (Mn)	mg/l	APHA, 3125 B	<0.002	≧0.3	0.5	≧0.5
Nickel (Ni)	mg/l	APHA, 3125 B	<0.0001	-	-	≧0.2
Lead (Pb)	mg/l	APHA, 3125 B	0.0003	None	0.05	≧0.01
Selenium (Se)	mg/l	APHA, 3125 B	<0.001	None	0.01	≧0.01
Zinc (Zn)	mg/l	APHA, 3125 B	0.008	≧5.0	15.0	≧5.0

Remark: - Analytical Methods followed to Standard Methods for the Examination of Water and Wastewater, recommended by APHA, AWWA&WEF 24th edition., 2023.

Sources: ^{1/} Notification of the Ministry of Natural Resources and Environment, B.E. 2551 (2008), published in the Royal Government Gazette, Vol. 125, Special Part 85D, dated May 21, B.E. 2551 (2008).
^{2/} Notification of the National Environmental Board No. 20, B.E. 2543 (2000), published in the Royal Government Gazette, Vol. 117, Special part 95 D, dated September 15, B.E. 2543 (2000).



(Thepsan Yommana)
Technical Manager

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Report No. : 2024-500001363-2 / 004-3 (Page 1 of 2) Issued date : May 28, 2024

CLIENT : PTTEP International Limited
CONTACT : Khun Sutthiluk Phaisun
ADDRESS : 555/1 Energy Complex Vibhavadi-Rangsit Rd., Chatuchak, Chatuchak, Bangkok 10900
Tel. 089-968-0061 E-Mail: SutthilukP@pttep.com

Analysis Report

SAMPLE DESIGNATED AS : Groundwater Quality
SAMPLING BY : Weerapong Pengtrakul
SAMPLING LOCATION : NPI-B Production Phase: GW2, วัดดอนไข่เต่า หมู่ที่ 8 ต.วัดโบสถ์ อ.บางปลาม้า จ.สุพรรณบุรี (UTM47P 0607084E, 1584477N)
SAMPLING DATE : April 26, 2024
SAMPLING TIME : 17:29 hr.

Parameter	Unit	Method	Result	Standard ^{1/}		Standard ^{2/}
				Optimal Value	Max. Allowable	
Temperature	°C	APHA, 2550 B	34.8	-	-	-
pH	-	APHA, 4500-H+ B	9.1	7.0-8.5	6.5-9.2	-
Conductivity	µs/cm	APHA, 2510 B	951	-	-	-
Salinity	ppt	APHA, 2520 B	0.47	-	-	-
Total Dissolved Solids (TDS)	mg/l	APHA, 2540 C	551	≧600	1,200	-
Total Petroleum Hydrocarbon (TPH)	mg/l	Based on Method of Seawater analysis*	0.0001	-	-	-
VOC						
- Benzene	µg/l	APHA, 6200 B	<0.5	-	-	5
- Toluene	µg/l	APHA, 6200 B	<1	-	-	1,000
- Total Xylenes	µg/l	APHA, 6200 B	<2	-	-	10,000
- Ethylbenzene	µg/l	APHA, 6200 B	<1	-	-	700

Remark: - Analytical Methods followed to Standard Methods for the Examination of Water and Wastewater, recommended by APHA, AWWA&WEF 24th edition., 2023.

* Based on Method of Seawater analysis Third Completely Revised and Extended Edition, 1999, Chapter 21

Sources: ^{1/} Notification of the Ministry of Natural Resources and Environment, B.E. 2551 (2008), published in the Royal Government Gazette, Vol. 125, Special Part 85D, dated May 21, B.E. 2551 (2008).

^{2/} Notification of the National Environmental Board No. 20, B.E. 2543 (2000), published in the Royal Government Gazette, Vol. 117, Special part 95 D, dated September 15, B.E. 2543 (2000).

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Technical Manager

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Report No. : 2024-500001363-2 / 004-3 (Page 2 of 2) Issued date : May 28, 2024

CLIENT : PTTEP International Limited
CONTACT : Khun Sutthiluk Phaisun
ADDRESS : 555/1 Energy Complex Vibhavadi-Rangsit Rd., Chatuchak, Chatuchak, Bangkok 10900
Tel. 089-968-0061 E-Mail: SutthilukP@pttep.com

Analysis Report

SAMPLE DESIGNATED AS : Groundwater Quality
SAMPLING BY : Weerapong Pengtrakul
SAMPLING LOCATION : NPI-B Production Phase: GW2, วัดดอนไข่เต่า หมู่ที่ 8 ต.วัดโบสถ์ อ.บางปลาม้า จ.สุพรรณบุรี (UTM47P 0607084E, 1584477N)
SAMPLING DATE : April 26, 2024
SAMPLING TIME : 17:29 hr.

Parameter	Unit	Method	Result	Standard ^{1/}		Standard ^{2/}
				Optimal Value	Max. Allowable	
Arsenic (As)	mg/l	APHA, 3125 B	0.008	None	0.05	≧0.01
Barium (Ba)	mg/l	APHA, 3125 B	0.015	-	-	-
Cadmium (Cd)	mg/l	APHA, 3125 B	<0.0001	None	0.01	≧0.003
Total Chromium (Total Cr)	mg/l	APHA, 3125 B	<0.010	-	-	-
Copper (Cu)	mg/l	APHA, 3125 B	0.0033	≧1.0	1.5	≧1.0
Iron (Fe)	mg/l	APHA, 3125 B	0.019	≧0.5	1.0	-
Mercury (Hg)	mg/l	APHA, 3112 B	<0.0005	None	0.001	≧0.001
Manganese (Mn)	mg/l	APHA, 3125 B	<0.002	≧0.3	0.5	≧0.5
Nickel (Ni)	mg/l	APHA, 3125 B	<0.0001	-	-	≧0.2
Lead (Pb)	mg/l	APHA, 3125 B	0.0004	None	0.05	≧0.01
Selenium (Se)	mg/l	APHA, 3125 B	<0.001	None	0.01	≧0.01
Zinc (Zn)	mg/l	APHA, 3125 B	0.010	≧5.0	15.0	≧5.0

Remark: - Analytical Methods followed to Standard Methods for the Examination of Water and Wastewater, recommended by APHA, AWWA&WEF 24th edition., 2023.

Sources: ^{1/} Notification of the Ministry of Natural Resources and Environment, B.E. 2551 (2008), published in the Royal Government Gazette, Vol. 125, Special Part 85D, dated May 21, B.E. 2551 (2008).
^{2/} Notification of the National Environmental Board No. 20, B.E. 2543 (2000), published in the Royal Government Gazette, Vol. 117, Special part 95 D, dated September 15, B.E. 2543 (2000).

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Technical Manager

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Report No. : 2024-500001363-13 / 004-1 (Page 1 of 2) Issued date : September 11, 2024

CLIENT : PTTEP International Limited
CONTACT : Khun Sutthiluk Phaisun
ADDRESS : 555/1 Energy Complex Vibhavadi-Rangsit Rd., Chatuchak, Chatuchak, Bangkok 10900
 Tel. 089-968-0061 E-Mail: SutthilukP@pttep.com

Analysis Report

SAMPLE DESIGNATED AS : Groundwater Quality **SAMPLING DATE :** August 14, 2024
SAMPLING BY : Weerapong Pengtrakul **SAMPLING TIME :** 15:00 hr.
SAMPLING LOCATION : NPI-C Production Phase: GW13, หมู่ 11 ต.มะขามล้ม อ.บางปลาม้า จ.สุพรรณบุรี
 (UTM47P 0613202E, 1590046N)

Parameter	Unit	Method	Result	Standard ^{1/}		Standard ^{2/}
				Optimal Value	Max. Allowable	
Temperature	°C	APHA, 2550 B	32.2	-	-	-
pH	-	APHA, 4500-H+ B	8.3	7.0-8.5	6.5-9.2	-
Conductivity	µs/cm	APHA, 2510 B	3,180	-	-	-
Salinity	ppt	APHA, 2520 B	1.73	-	-	-
Total Dissolved Solids (TDS)	mg/l	APHA, 2540 C	2,080	≥600	1,200	-
Total Petroleum Hydrocarbon (TPH)	mg/l	Based on Method of Seawater analysis*	<0.00005	-	-	-
VOC						
- Benzene	µg/l	APHA, 6200 B	<0.5	-	-	5
- Toluene	µg/l	APHA, 6200 B	<1	-	-	1,000
- Total Xylenes	µg/l	APHA, 6200 B	<2	-	-	10,000
- Ethylbenzene	µg/l	APHA, 6200 B	<1	-	-	700

Remark: - Analytical Methods followed to Standard Methods for the Examination of Water and Wastewater, recommended by APHA, AWWA&WEF 24th edition., 2023.

* Based on Method of Seawater analysis Third Completely Revised and Extended Edition, 1999, Chapter 21

Sources : ^{1/} Notification of the Ministry of Natural Resources and Environment, B.E. 2551 (2008), published in the Royal Government Gazette, Vol. 125, Special Part 85D, dated May 21, B.E. 2551 (2008).

^{2/} Notification of the National Environmental Board No. 20, B.E. 2543 (2000), published in the Royal Government Gazette, Vol. 117, Special part 95 D, dated September 15, B.E. 2543 (2000).

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 Technical Manager

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Report No. : 2024-500001363-13 / 004-1 (Page 2 of 2) Issued date : September 11, 2024

CLIENT : PTTEP International Limited
CONTACT : Khun Sutthiluk Phaisun
ADDRESS : 555/1 Energy Complex Vibhavadi-Rangsit Rd., Chatuchak, Chatuchak, Bangkok 10900
 Tel. 089-968-0061 E-Mail: SutthilukP@pttep.com

Analysis Report

SAMPLE DESIGNATED AS : Groundwater Quality **SAMPLING DATE** : August 14, 2024
SAMPLING BY : Weerapong Pengtrakul **SAMPLING TIME** : 15:00 hr.
SAMPLING LOCATION : NPI-C Production Phase: GW13, หมู่ 11 ต.มะขามล้ม อ.บางปลาม้า จ.สุพรรณบุรี
 (UTM47P 0613202E, 1590046N)

Parameter	Unit	Method	Result	Standard ^{1/}		Standard ^{2/}
				Optimal Value	Max. Allowable	
Arsenic (As)	mg/l	APHA, 3120 B	0.003	None	0.05	≥0.01
Barium (Ba)	mg/l	APHA, 3120 B	0.067	-	-	-
Cadmium (Cd)	mg/l	APHA, 3120 B	<0.0001	None	0.01	≥0.003
Total Chromium (Total Cr)	mg/l	APHA, 3120 B	<0.005	-	-	-
Copper (Cu)	mg/l	APHA, 3120 B	0.0020	≥1.0	1.5	≥1.0
Iron (Fe)	mg/l	APHA, 3120 B	0.113	≥0.5	1.0	-
Mercury (Hg)	mg/l	APHA, 3120 B	<0.0005	None	0.001	≥0.001
Manganese (Mn)	mg/l	APHA, 3120 B	0.050	≥0.3	0.5	≥0.5
Nickel (Ni)	mg/l	APHA, 3120 B	<0.001	-	-	≥0.2
Lead (Pb)	mg/l	APHA, 3120 B	0.0011	None	0.05	≥0.01
Selenium (Se)	mg/l	APHA, 3120 B	<0.005	None	0.01	≥0.01
Zinc (Zn)	mg/l	APHA, 3120 B	0.072	≥5.0	15.0	≥5.0

Remark: - Analytical Methods followed to Standard Methods for the Examination of Water and Wastewater, recommended by APHA, AWWA&WEF 24th edition., 2023.

Sources : ^{1/} Notification of the Ministry of Natural Resources and Environment, B.E. 2551 (2008), published in the Royal Government Gazette, Vol. 125, Special Part 85D, dated May 21, B.E. 2551 (2008).
^{2/} Notification of the National Environmental Board No. 20, B.E. 2543 (2000), published in the Royal Government Gazette, Vol. 117, Special part 95 D, dated September 15, B.E. 2543 (2000).

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Report No. : 2024-500001363-13 / 004-2 (Page 1 of 2) Issued date : September 11, 2024

CLIENT : PTTEP International Limited
CONTACT : Khun Sutthiluk Phaisun
ADDRESS : 555/1 Energy Complex Vibhavadi-Rangsit Rd., Chatuchak, Chatuchak, Bangkok 10900
 Tel. 089-968-0061 E-Mail: SutthilukP@pttep.com

Analysis Report

SAMPLE DESIGNATED AS : Groundwater Quality **SAMPLING DATE** : August 14, 2024
SAMPLING BY : Weerapong Pengtrakul **SAMPLING TIME** : 16:40 hr.
SAMPLING LOCATION : NPI-C Production Phase: ปอสังเกตรการณที่ติดตั้งในฐานหลุมผลิต
 (UTM47P 0610131E, 1589275N)

Parameter	Unit	Method	Result	Standard ^{1/}		Standard ^{2/}
				Optimal Value	Max. Allowable	
Temperature	°C	APHA, 2550 B	31.9	-	-	-
pH	-	APHA, 4500-H+ B	7.1	7.0-8.5	6.5-9.2	-
Conductivity	µs/cm	APHA, 2510 B	8,040	-	-	-
Salinity	ppt	APHA, 2520 B	4.88	-	-	-
Total Dissolved Solids (TDS)	mg/l	APHA, 2540 C	6,989	≥600	1,200	-
Total Petroleum Hydrocarbon (TPH)	mg/l	Based on Method of Seawater analysis*	0.00019	-	-	-
VOC						
- Benzene	µg/l	APHA, 6200 B	<0.5	-	-	5
- Toluene	µg/l	APHA, 6200 B	<1	-	-	1,000
- Total Xylenes	µg/l	APHA, 6200 B	<2	-	-	10,000
- Ethylbenzene	µg/l	APHA, 6200 B	<1	-	-	700

Remark: - Analytical Methods followed to Standard Methods for the Examination of Water and Wastewater, recommended by APHA, AWWA&WEF 24th edition., 2023.

* Based on Method of Seawater analysis Third Completely Revised and Extended Edition, 1999, Chapter 21

Sources : ^{1/} Notification of the Ministry of Natural Resources and Environment, B.E. 2551 (2008), published in the Royal Government Gazette, Vol. 125, Special Part 85D, dated May 21, B.E. 2551 (2008).

^{2/} Notification of the National Environmental Board No. 20, B.E. 2543 (2000), published in the Royal Government Gazette, Vol. 117, Special part 95 D, dated September 15, B.E. 2543 (2000).

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Report No. : 2024-500001363-13 / 004-2 (Page 2 of 2) Issued date : September 11, 2024

CLIENT : PTTEP International Limited
CONTACT : Khun Sutthiluk Phaisun
ADDRESS : 555/1 Energy Complex Vibhavadi-Rangsit Rd., Chatuchak, Chatuchak, Bangkok 10900
 Tel. 089-968-0061 E-Mail: SutthilukP@pttep.com

Analysis Report

SAMPLE DESIGNATED AS : Groundwater Quality **SAMPLING DATE** : August 14, 2024
SAMPLING BY : Weerapong Pengtrakul **SAMPLING TIME** : 16:40 hr.
SAMPLING LOCATION : NPI-C Production Phase: บ่อสังเกตการณ์ที่ติดตั้งในฐานหลุมผลิต
 (UTM47P 0610131E, 1589275N)

Parameter	Unit	Method	Result	Standard ^{1/}		Standard ^{2/}
				Optimal Value	Max. Allowable	
Arsenic (As)	mg/l	APHA, 3120 B	0.002	None	0.05	≥0.01
Barium (Ba)	mg/l	APHA, 3120 B	0.166	-	-	-
Cadmium (Cd)	mg/l	APHA, 3120 B	<0.0001	None	0.01	≥0.003
Total Chromium (Total Cr)	mg/l	APHA, 3120 B	<0.005	-	-	-
Copper (Cu)	mg/l	APHA, 3120 B	0.0023	≥1.0	1.5	≥1.0
Iron (Fe)	mg/l	APHA, 3120 B	1.050	≥0.5	1.0	-
Mercury (Hg)	mg/l	APHA, 3120 B	<0.0005	None	0.001	≥0.001
Manganese (Mn)	mg/l	APHA, 3120 B	1.575	≥0.3	0.5	≥0.5
Nickel (Ni)	mg/l	APHA, 3120 B	0.004	-	-	≥0.2
Lead (Pb)	mg/l	APHA, 3120 B	0.0273	None	0.05	≥0.01
Selenium (Se)	mg/l	APHA, 3120 B	<0.005	None	0.01	≥0.01
Zinc (Zn)	mg/l	APHA, 3120 B	<0.010	≥5.0	15.0	≥5.0

Remark: - Analytical Methods followed to Standard Methods for the Examination of Water and Wastewater, recommended by APHA, AWWA&WEF 24th edition., 2023.

Sources : ^{1/} Notification of the Ministry of Natural Resources and Environment, B.E. 2551 (2008), published in the Royal Government Gazette, Vol. 125, Special Part 85D, dated May 21, B.E. 2551 (2008).
^{2/} Notification of the National Environmental Board No. 20, B.E. 2543 (2000), published in the Royal Government Gazette, Vol. 117, Special part 95 D, dated September 15, B.E. 2543 (2000).

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Report No. : 2024-500001363-13 / 004-3 (Page 1 of 2) Issued date : September 11, 2024

CLIENT : PTTEP International Limited
CONTACT : Khun Sutthiluk Phaisun
ADDRESS : 555/1 Energy Complex Vibhavadi-Rangsit Rd., Chatuchak, Chatuchak, Bangkok 10900
 Tel. 089-968-0061 E-Mail: SutthilukP@pttep.com

Analysis Report

SAMPLE DESIGNATED AS : Groundwater Quality **SAMPLING DATE :** August 14, 2024
SAMPLING BY : Weerapong Pengtrakul **SAMPLING TIME :** 11:50 hr.
SAMPLING LOCATION : NPI-D Production Phase: GW14, หมู่ 10 ต.มะขามล้ม อ.บางปลาม้า จ.สุพรรณบุรี
 (UTM47P 0612133E, 1588469N)

Parameter	Unit	Method	Result	Standard ^{1/}		Standard ^{2/}
				Optimal Value	Max. Allowable	
Temperature	°C	APHA, 2550 B	31.4	-	-	-
pH	-	APHA, 4500-H+ B	8.9	7.0-8.5	6.5-9.2	-
Conductivity	µs/cm	APHA, 2510 B	1,122	-	-	-
Salinity	ppt	APHA, 2520 B	0.54	-	-	-
Total Dissolved Solids (TDS)	mg/l	APHA, 2540 C	704	≥600	1,200	-
Total Petroleum Hydrocarbon (TPH)	mg/l	Based on Method of Seawater analysis*	0.00012	-	-	-
VOC						
- Benzene	µg/l	APHA, 6200 B	<0.5	-	-	5
- Toluene	µg/l	APHA, 6200 B	<1	-	-	1,000
- Total Xylenes	µg/l	APHA, 6200 B	<2	-	-	10,000
- Ethylbenzene	µg/l	APHA, 6200 B	<1	-	-	700

Remark: - Analytical Methods followed to Standard Methods for the Examination of Water and Wastewater, recommended by APHA, AWWA&WEF 24th edition., 2023.

* Based on Method of Seawater analysis Third Completely Revised and Extended Edition, 1999, Chapter 21

Sources : ^{1/} Notification of the Ministry of Natural Resources and Environment, B.E. 2551 (2008), published in the Royal Government Gazette, Vol. 125, Special Part 85D, dated May 21, B.E. 2551 (2008).

^{2/} Notification of the National Environmental Board No. 20, B.E. 2543 (2000), published in the Royal Government Gazette, Vol. 117, Special part 95 D, dated September 15, B.E. 2543 (2000).

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Technical Manager

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Report No. : 2024-500001363-13 / 004-3 (Page 2 of 2) Issued date : September 11, 2024

CLIENT : PTTEP International Limited
CONTACT : Khun Sutthiluk Phaisun
ADDRESS : 555/1 Energy Complex Vibhavadi-Rangsit Rd., Chatuchak, Chatuchak, Bangkok 10900
 Tel. 089-968-0061 E-Mail: SutthilukP@pttep.com

Analysis Report

SAMPLE DESIGNATED AS : Groundwater Quality **SAMPLING DATE** : August 14, 2024
SAMPLING BY : Weerapong Pengtrakul **SAMPLING TIME** : 11:50 hr.
SAMPLING LOCATION : NPI-D Production Phase: GW14, หมู่ 10 ต.มะขามล้ม อ.บางปลาม้า จ.สุพรรณบุรี
 (UTM47P 0612133E, 1588469N)

Parameter	Unit	Method	Result	Standard ^{1/}		Standard ^{2/}
				Optimal Value	Max. Allowable	
Arsenic (As)	mg/l	APHA, 3120 B	0.002	None	0.05	≥0.01
Barium (Ba)	mg/l	APHA, 3120 B	<0.010	-	-	-
Cadmium (Cd)	mg/l	APHA, 3120 B	<0.0001	None	0.01	≥0.003
Total Chromium (Total Cr)	mg/l	APHA, 3120 B	<0.005	-	-	-
Copper (Cu)	mg/l	APHA, 3120 B	0.0014	≥1.0	1.5	≥1.0
Iron (Fe)	mg/l	APHA, 3120 B	0.039	≥0.5	1.0	-
Mercury (Hg)	mg/l	APHA, 3120 B	<0.0005	None	0.001	≥0.001
Manganese (Mn)	mg/l	APHA, 3120 B	0.012	≥0.3	0.5	≥0.5
Nickel (Ni)	mg/l	APHA, 3120 B	0.002	-	-	≥0.2
Lead (Pb)	mg/l	APHA, 3120 B	0.0013	None	0.05	≥0.01
Selenium (Se)	mg/l	APHA, 3120 B	<0.005	None	0.01	≥0.01
Zinc (Zn)	mg/l	APHA, 3120 B	0.023	≥5.0	15.0	≥5.0

Remark: - Analytical Methods followed to Standard Methods for the Examination of Water and Wastewater, recommended by APHA, AWWA&WEF 24th edition., 2023.

Sources : ^{1/} Notification of the Ministry of Natural Resources and Environment, B.E. 2551 (2008), published in the Royal Government Gazette, Vol. 125, Special Part 85D, dated May 21, B.E. 2551 (2008).
^{2/} Notification of the National Environmental Board No. 20, B.E. 2543 (2000), published in the Royal Government Gazette, Vol. 117, Special part 95 D, dated September 15, B.E. 2543 (2000).

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Report No. : 2024-500001363-13 / 004-4 (Page 1 of 2) Issued date : September 11, 2024

CLIENT : PTTEP International Limited
CONTACT : Khun Sutthiluk Phaisun
ADDRESS : 555/1 Energy Complex Vibhavadi-Rangsit Rd., Chatuchak, Chatuchak, Bangkok 10900
 Tel. 089-968-0061 E-Mail: SutthilukP@pttep.com

Analysis Report

SAMPLE DESIGNATED AS : Groundwater Quality **SAMPLING DATE :** August 14, 2024
SAMPLING BY : Weerapong Pengtrakul **SAMPLING TIME :** 16:00 hr.
SAMPLING LOCATION : NPI-D Production Phase: บ่อสังเกตการณ์ที่ติดตั้งในฐานหลุมผลิต (ต้นน้ำ)
 (UTM47P 0611813E, 1588987N)

Parameter	Unit	Method	Result	Standard ^{1/}		Standard ^{2/}
				Optimal Value	Max. Allowable	
Temperature	°C	APHA, 2550 B	32.5	-	-	-
pH	-	APHA, 4500-H+ B	7.4	7.0-8.5	6.5-9.2	-
Conductivity	µs/cm	APHA, 2510 B	1,687	-	-	-
Salinity	ppt	APHA, 2520 B	0.83	-	-	-
Total Dissolved Solids (TDS)	mg/l	APHA, 2540 C	942	≥600	1,200	-
Total Petroleum Hydrocarbon (TPH)	mg/l	Based on Method of Seawater analysis*	0.00041	-	-	-
VOC						
- Benzene	µg/l	APHA, 6200 B	<0.5	-	-	5
- Toluene	µg/l	APHA, 6200 B	<1	-	-	1,000
- Total Xylenes	µg/l	APHA, 6200 B	<2	-	-	10,000
- Ethylbenzene	µg/l	APHA, 6200 B	<1	-	-	700

Remark: - Analytical Methods followed to Standard Methods for the Examination of Water and Wastewater, recommended by APHA, AWWA&WEF 24th edition., 2023.

* Based on Method of Seawater analysis Third Completely Revised and Extended Edition, 1999, Chapter 21

Sources : ^{1/} Notification of the Ministry of Natural Resources and Environment, B.E. 2551 (2008), published in the Royal Government Gazette, Vol. 125, Special Part 85D, dated May 21, B.E. 2551 (2008).

^{2/} Notification of the National Environmental Board No. 20, B.E. 2543 (2000), published in the Royal Government Gazette, Vol. 117, Special part 95 D, dated September 15, B.E. 2543 (2000).

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Report No. : 2024-500001363-13 / 004-4 (Page 2 of 2) Issued date : September 11, 2024

CLIENT : PTTEP International Limited
CONTACT : Khun Sutthiluk Phaisun
ADDRESS : 555/1 Energy Complex Vibhavadi-Rangsit Rd., Chatuchak, Chatuchak, Bangkok 10900
 Tel. 089-968-0061 E-Mail: SutthilukP@pttep.com

Analysis Report

SAMPLE DESIGNATED AS : Groundwater Quality **SAMPLING DATE :** August 14, 2024
SAMPLING BY : Weerapong Pengtrakul **SAMPLING TIME :** 16:00 hr.
SAMPLING LOCATION : NPI-D Production Phase: บ่อสังเกตการณ์ที่ติดตั้งในฐานหลุมผลิต (ต้นน้ำ)
 (UTM47P 0611813E, 1588987N)

Parameter	Unit	Method	Result	Standard ^{1/}		Standard ^{2/}
				Optimal Value	Max. Allowable	
Arsenic (As)	mg/l	APHA, 3120 B	0.001	None	0.05	≥0.01
Barium (Ba)	mg/l	APHA, 3120 B	0.033	-	-	-
Cadmium (Cd)	mg/l	APHA, 3120 B	<0.0001	None	0.01	≥0.003
Total Chromium (Total Cr)	mg/l	APHA, 3120 B	<0.005	-	-	-
Copper (Cu)	mg/l	APHA, 3120 B	0.0068	≥1.0	1.5	≥1.0
Iron (Fe)	mg/l	APHA, 3120 B	0.417	≥0.5	1.0	-
Mercury (Hg)	mg/l	APHA, 3120 B	<0.0005	None	0.001	≥0.001
Manganese (Mn)	mg/l	APHA, 3120 B	0.984	≥0.3	0.5	≥0.5
Nickel (Ni)	mg/l	APHA, 3120 B	0.004	-	-	≥0.2
Lead (Pb)	mg/l	APHA, 3120 B	0.1246	None	0.05	≥0.01
Selenium (Se)	mg/l	APHA, 3120 B	<0.005	None	0.01	≥0.01
Zinc (Zn)	mg/l	APHA, 3120 B	0.140	≥5.0	15.0	≥5.0

Remark: - Analytical Methods followed to Standard Methods for the Examination of Water and Wastewater, recommended by APHA, AWWA&WEF 24th edition., 2023.

Sources : ^{1/} Notification of the Ministry of Natural Resources and Environment, B.E. 2551 (2008), published in the Royal Government Gazette, Vol. 125, Special Part 85D, dated May 21, B.E. 2551 (2008).
^{2/} Notification of the National Environmental Board No. 20, B.E. 2543 (2000), published in the Royal Government Gazette, Vol. 117, Special part 95 D, dated September 15, B.E. 2543 (2000).

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Report No. : 2024-500001363-3 / 004-1 (Page 1 of 2) Issued date : May 28, 2024

CLIENT : PTTEP International Limited
CONTACT : Khun Sutthiluk Phaisun
ADDRESS : 555/1 Energy Complex Vibhavadi-Rangsit Rd., Chatuchak, Chatuchak, Bangkok 10900
Tel. 089-968-0061 E-Mail: SutthilukP@pttep.com

Analysis Report

SAMPLE DESIGNATED AS : Groundwater Quality
SAMPLING BY : Weerapong Pengtrakul
SAMPLING LOCATION : NPI-G, NPI Flow Station Production Phase: บ่อสังเกตการณ์ที่ติดตั้งในฐานหลุมผลิต (UTM47P 0609461E, 1587867N)
SAMPLING DATE : April 26, 2024
SAMPLING TIME : 11.40 hr.

Parameter	Unit	Method	Result	Standard ^{1/}		Standard ^{2/}
				Optimal Value	Max. Allowable	
Temperature	°C	APHA, 2550 B	32.5	-	-	-
pH	-	APHA, 4500-H+ B	7.2	7.0-8.5	6.5-9.2	-
Conductivity	µs/cm	APHA, 2510 B	2,480	-	-	-
Salinity	ppt	APHA, 2520 B	1.27	-	-	-
Total Dissolved Solids (TDS)	mg/l	APHA, 2540 C	1,748	≥600	1,200	-
Total Petroleum Hydrocarbon (TPH)	mg/l	Based on Method of Seawater analysis*	0.001	-	-	-
VOC						
- Benzene	µg/l	APHA, 6200 B	<0.5	-	-	5
- Toluene	µg/l	APHA, 6200 B	<1	-	-	1,000
- Total Xylenes	µg/l	APHA, 6200 B	<2	-	-	10,000
- Ethylbenzene	µg/l	APHA, 6200 B	<1	-	-	700

Remark: - Analytical Methods followed to Standard Methods for the Examination of Water and Wastewater, recommended by APHA, AWWA&WEF 24th edition., 2023.

* Based on Method of Seawater analysis Third Completely Revised and Extended Edition, 1999, Chapter 21

Source : ^{1/} Notification of the Ministry of Natural Resources and Environment, B.E. 2551 (2008), published in the Royal Government Gazette, Vol. 125, Special Part 85D, dated May 21, B.E. 2551 (2008).

^{2/} Notification of the National Environmental Board No. 20, B.E. 2543 (2000), published in the Royal Government Gazette, Vol. 117, Special part 95 D, dated September 15, B.E. 2543 (2000).

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Report No. : 2024-500001363-3 / 004-1 (Page 2 of 2) Issued date : May 28, 2024

CLIENT : PTTEP International Limited
CONTACT : Khun Sutthiluk Phaisun
ADDRESS : 555/1 Energy Complex Vibhavadi-Rangsit Rd., Chatuchak, Chatuchak, Bangkok 10900
Tel. 089-968-0061 E-Mail: SutthilukP@pttep.com

Analysis Report

SAMPLE DESIGNATED AS : Groundwater Quality
SAMPLING BY : Weerapong Pengtrakul
SAMPLING LOCATION : NPI-G, NPI Flow Station Production Phase: บ่อส่งเหตุการณ์ที่ติดตั้งในฐานหลุมผลิต (UTM47P 0609461E, 1587867N)
SAMPLING DATE : April 26, 2024
SAMPLING TIME : 11.40 hr.

Parameter	Unit	Method	Result	Standard ^{1/}		Standard ^{2/}
				Optimal Value	Max. Allowable	
Arsenic (As)	mg/l	APHA, 3125 B	0.051	None	0.05	≥0.01
Barium (Ba)	mg/l	APHA, 3125 B	0.074	-	-	-
Cadmium (Cd)	mg/l	APHA, 3125 B	<0.0001	None	0.01	≥0.003
Total Chromium (Total Cr)	mg/l	APHA, 3125 B	<0.010	-	-	-
Copper (Cu)	mg/l	APHA, 3125 B	0.0028	≥1.0	1.5	≥1.0
Iron (Fe)	mg/l	APHA, 3125 B	0.390	≥0.5	1.0	-
Mercury (Hg)	mg/l	APHA, 3112 B	<0.0005	None	0.001	≥0.001
Manganese (Mn)	mg/l	APHA, 3125 B	1.965	≥0.3	0.5	≥0.5
Nickel (Ni)	mg/l	APHA, 3125 B	0.0051	-	-	≥0.2
Lead (Pb)	mg/l	APHA, 3125 B	0.0347	None	0.05	≥0.01
Selenium (Se)	mg/l	APHA, 3125 B	<0.001	None	0.01	≥0.01
Zinc (Zn)	mg/l	APHA, 3125 B	0.041	≥5.0	15.0	≥5.0

Remark: - Analytical Methods followed to Standard Methods for the Examination of Water and Wastewater, recommended by APHA, AWWA&WEF 24th edition., 2023.
Source : ^{1/} Notification of the Ministry of Natural Resources and Environment, B.E. 2551 (2008), published in the Royal Government Gazette, Vol. 125, Special Part 85D, dated May 21, B.E. 2551 (2008).
^{2/} Notification of the National Environmental Board No. 20, B.E. 2543 (2000), published in the Royal Government Gazette, Vol. 117, Special part 95 D, dated September 15, B.E. 2543 (2000).

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Report No. : 2024-500001363-3 / 004-2 (Page 1 of 2) Issued date : May 28, 2024

CLIENT : PTTEP International Limited
CONTACT : Khun Sutthiluk Phaisun
ADDRESS : 555/1 Energy Complex Vibhavadi-Rangsit Rd., Chatuchak, Chatuchak, Bangkok 10900
Tel. 089-968-0061 E-Mail: SutthilukP@pttep.com

Analysis Report

SAMPLE DESIGNATED AS : Groundwater Quality
SAMPLING BY : Weerapong Pengtrakul
SAMPLING LOCATION : NPI-G, NPI Flow Station Production Phase: GW1, ป่อน้ำใต้ดินหรือบ่อบาดาลในศาลากลาง
หมู่ที่ 10 บ้านวัดโบสถ์ ต.มะขามล้ม อ.บางปลาม้า จ.สุพรรณบุรี (UTM47P 0612133E, 1588458N)
SAMPLING DATE : April 26, 2024
SAMPLING TIME : 13:50 hr.

Parameter	Unit	Method	Result	Standard ^{1/}		Standard ^{2/}
				Optimal Value	Max. Allowable	
Temperature	°C	APHA, 2550 B	34.4	-	-	-
pH	-	APHA, 4500-H+ B	8.4	7.0-8.5	6.5-9.2	-
Conductivity	µs/cm	APHA, 2510 B	1,081	-	-	-
Salinity	ppt	APHA, 2520 B	0.54	-	-	-
Total Dissolved Solids (TDS)	mg/l	APHA, 2540 C	693	≥600	1,200	-
Total Petroleum Hydrocarbon (TPH)	mg/l	Based on Method of Seawater analysis*	0.001	-	-	-
VOC						
- Benzene	µg/l	APHA, 6200 B	<0.5	-	-	5
- Toluene	µg/l	APHA, 6200 B	<1	-	-	1,000
- Total Xylenes	µg/l	APHA, 6200 B	<2	-	-	10,000
- Ethylbenzene	µg/l	APHA, 6200 B	<1	-	-	700

Remark: - Analytical Methods followed to Standard Methods for the Examination of Water and Wastewater, recommended by APHA, AWWA&WEF 24th edition., 2023.

* Based on Method of Seawater analysis Third Completely Revised and Extended Edition, 1999, Chapter 21

Source : ^{1/} Notification of the Ministry of Natural Resources and Environment, B.E. 2551 (2008), published in the Royal Government Gazette, Vol. 125, Special Part 85D, dated May 21, B.E. 2551 (2008).

^{2/} Notification of the National Environmental Board No. 20, B.E. 2543 (2000), published in the Royal Government Gazette, Vol. 117, Special part 95 D, dated September 15, B.E. 2543 (2000).

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Report No. : 2024-500001363-3 / 004-2 (Page 2 of 2) Issued date : May 28, 2024

CLIENT : PTTEP International Limited
CONTACT : Khun Sutthiluk Phaisun
ADDRESS : 555/1 Energy Complex Vibhavadi-Rangsit Rd., Chatuchak, Chatuchak, Bangkok 10900
Tel. 089-968-0061 E-Mail: SutthilukP@pttep.com

Analysis Report

SAMPLE DESIGNATED AS : Groundwater Quality
SAMPLING BY : Weerapong Pengtrakul
SAMPLING LOCATION : NPI-G, NPI Flow Station Production Phase: GW1, ป่อน้ำใต้ดินหรือบ่อบาดาลในศาลากลาง หมู่ที่ 10 บ้านวัดโบสถ์ ต.มะขามล้ม อ.บางปลาม้า จ.สุพรรณบุรี (UTM47P 0612133E, 1588458N)
SAMPLING DATE : April 26, 2024
SAMPLING TIME : 13:50 hr.

Parameter	Unit	Method	Result	Standard ^{1/}		Standard ^{2/}
				Optimal Value	Max. Allowable	
Arsenic (As)	mg/l	APHA, 3125 B	0.003	None	0.05	≥0.01
Barium (Ba)	mg/l	APHA, 3125 B	0.007	-	-	-
Cadmium (Cd)	mg/l	APHA, 3125 B	<0.0001	None	0.01	≥0.003
Total Chromium (Total Cr)	mg/l	APHA, 3125 B	<0.010	-	-	-
Copper (Cu)	mg/l	APHA, 3125 B	0.0015	≥1.0	1.5	≥1.0
Iron (Fe)	mg/l	APHA, 3125 B	0.040	≥0.5	1.0	-
Mercury (Hg)	mg/l	APHA, 3112 B	<0.0005	None	0.001	≥0.001
Manganese (Mn)	mg/l	APHA, 3125 B	0.008	≥0.3	0.5	≥0.5
Nickel (Ni)	mg/l	APHA, 3125 B	0.0004	-	-	≥0.2
Lead (Pb)	mg/l	APHA, 3125 B	0.0010	None	0.05	≥0.01
Selenium (Se)	mg/l	APHA, 3125 B	<0.001	None	0.01	≥0.01
Zinc (Zn)	mg/l	APHA, 3125 B	0.036	≥5.0	15.0	≥5.0

Remark: - Analytical Methods followed to Standard Methods for the Examination of Water and Wastewater, recommended by APHA, AWWA&WEF 24th edition., 2023.

Source : ^{1/} Notification of the Ministry of Natural Resources and Environment, B.E. 2551 (2008), published in the Royal Government Gazette, Vol. 125, Special Part 85D, dated May 21, B.E. 2551 (2008).
^{2/} Notification of the National Environmental Board No. 20, B.E. 2543 (2000), published in the Royal Government Gazette, Vol. 117, Special part 95 D, dated September 15, B.E. 2543 (2000).

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Report No. : 2024-500001363-3 / 004-3 (Page 1 of 2) Issued date : May 28, 2024

CLIENT : PTTEP International Limited
CONTACT : Khun Sutthiluk Phaisun
ADDRESS : 555/1 Energy Complex Vibhavadi-Rangsit Rd., Chatuchak, Chatuchak, Bangkok 10900
Tel. 089-968-0061 E-Mail: SutthilukP@pttep.com

Analysis Report

SAMPLE DESIGNATED AS : Groundwater Quality
SAMPLING BY : Weerapong Pengtrakul
SAMPLING LOCATION : NPI-G, NPI Flow Station Production Phase: GW2, บ่อน้ำใต้ดินหรือบ่อบาดาลของวัดดอนไข่เต่า หมู่ที่ 8 บ้านวัดโบสถ์ อ.บางปลาม้า จ.สุพรรณบุรี (UTM47P 0607077E, 1584477N)
SAMPLING DATE : April 26, 2024
SAMPLING TIME : 12:50 hr.

Parameter	Unit	Method	Result	Standard ^{1/}		Standard ^{2/}
				Optimal Value	Max. Allowable	
Temperature	°C	APHA, 2550 B	35.0	-	-	-
pH	-	APHA, 4500-H+ B	9.1	7.0-8.5	6.5-9.2	-
Conductivity	µs/cm	APHA, 2510 B	951	-	-	-
Salinity	ppt	APHA, 2520 B	0.47	-	-	-
Total Dissolved Solids (TDS)	mg/l	APHA, 2540 C	570	>600	1,200	-
Total Petroleum Hydrocarbon (TPH)	mg/l	Based on Method of Seawater analysis*	0.001	-	-	-
VOC						
- Benzene	µg/l	APHA, 6200 B	<0.5	-	-	5
- Toluene	µg/l	APHA, 6200 B	<1	-	-	1,000
- Total Xylenes	µg/l	APHA, 6200 B	<2	-	-	10,000
- Ethylbenzene	µg/l	APHA, 6200 B	<1	-	-	700

Remark: - Analytical Methods followed to Standard Methods for the Examination of Water and Wastewater, recommended by APHA, AWWA&WEF 24th edition., 2023.

* Based on Method of Seawater analysis Third Completely Revised and Extended Edition, 1999, Chapter 21

Source : ^{1/} Notification of the Ministry of Natural Resources and Environment, B.E. 2551 (2008), published in the Royal Government Gazette, Vol. 125, Special Part 85D, dated May 21, B.E. 2551 (2008).

^{2/} Notification of the National Environmental Board No. 20, B.E. 2543 (2000), published in the Royal Government Gazette, Vol. 117, Special part 95 D, dated September 15, B.E. 2543 (2000).



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Report No. : 2024-500001363-3 / 004-3 (Page 2 of 2) Issued date : May 28, 2024

CLIENT : PTTEP International Limited
CONTACT : Khun Sutthiluk Phaisun
ADDRESS : 555/1 Energy Complex Vibhavadi-Rangsit Rd., Chatuchak, Chatuchak, Bangkok 10900
Tel. 089-968-0061 E-Mail: SutthilukP@pttep.com

Analysis Report

SAMPLE DESIGNATED AS : Groundwater Quality
SAMPLING BY : Weerapong Pengtrakul
SAMPLING LOCATION : NPI-G, NPI Flow Station Production Phase: GW2, บ่อน้ำใต้ดินหรือบ่อบาดาลของวัดดอนไข่เต่า หมู่ที่ 8 บ้านวัดโบสถ์ อ.บางปลาม้า จ.สุพรรณบุรี (UTM47P 0607077E, 1584477N)
SAMPLING DATE : April 26, 2024
SAMPLING TIME : 12:50 hr.

Parameter	Unit	Method	Result	Standard ^{1/}		Standard ^{2/}
				Optimal Value	Max. Allowable	
Arsenic (As)	mg/l	APHA, 3125 B	0.008	None	0.05	≧0.01
Barium (Ba)	mg/l	APHA, 3125 B	0.032	-	-	-
Cadmium (Cd)	mg/l	APHA, 3125 B	<0.0001	None	0.01	≧0.003
Total Chromium (Total Cr)	mg/l	APHA, 3125 B	<0.010	-	-	-
Copper (Cu)	mg/l	APHA, 3125 B	0.0029	≧1.0	1.5	≧1.0
Iron (Fe)	mg/l	APHA, 3125 B	0.290	≧0.5	1.0	-
Mercury (Hg)	mg/l	APHA, 3112 B	<0.0005	None	0.001	≧0.001
Manganese (Mn)	mg/l	APHA, 3125 B	0.002	≧0.3	0.5	≧0.5
Nickel (Ni)	mg/l	APHA, 3125 B	0.0022	-	-	≧0.2
Lead (Pb)	mg/l	APHA, 3125 B	0.0013	None	0.05	≧0.01
Selenium (Se)	mg/l	APHA, 3125 B	<0.001	None	0.01	≧0.01
Zinc (Zn)	mg/l	APHA, 3125 B	0.056	≧5.0	15.0	≧5.0

Remark: - Analytical Methods followed to Standard Methods for the Examination of Water and Wastewater, recommended by APHA, AWWA&WEF 24th edition., 2023.
Source : ^{1/} Notification of the Ministry of Natural Resources and Environment, B.E. 2551 (2008), published in the Royal Government Gazette, Vol. 125, Special Part 85D, dated May 21, B.E. 2551 (2008).
^{2/} Notification of the National Environmental Board No. 20, B.E. 2543 (2000), published in the Royal Government Gazette, Vol. 117, Special part 95 D, dated September 15, B.E. 2543 (2000).

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Report No. : 2024-500001363-8 / 001 (Page 1 of 1) Issued date : August 15, 2024

CLIENT : PTTEP International Limited
CONTACT : Khun Sutthiluk Phaisun
ADDRESS : 555/1 Energy Complex Vibhavadi-Rangsit Rd., Chatuchak, Chatuchak, Bangkok 10900
Tel. 089-968-0061 E-Mail: SutthilukP@pttep.com

Analysis Report

SAMPLE DESIGNATED AS : Groundwater Quality
SAMPLING BY : Kittikhun Thaseepech
SAMPLING LOCATION : NPI-G, NPI Flow Station Production Phase: บ่อส่งเหตุการณ์ที่ติดตั้งในฐานหลุมผลิต (UTM47P 0609461E, 1587867N)
SAMPLING DATE : July 24, 2024
SAMPLING TIME : 11.25 hr.

Parameter	Unit	Method	Result	Standard ^{1/}		Standard ^{2/}
				Optimal Value	Max. Allowable	
Total Dissolved Solids (TDS)	mg/l	APHA, 2540 C	1,704	≥600	1,200	-
Arsenic (As)	mg/l	APHA, 3125 B	0.011	None	0.05	≥0.01
Manganese (Mn)	mg/l	APHA, 3125 B	1.904	≥0.3	0.5	≥0.5
Lead (Pb)	mg/l	APHA, 3125 B	0.0321	None	0.05	≥0.01

Remark: - Analytical Methods followed to Standard Methods for the Examination of Water and Wastewater, recommended by APHA, AWWA&WEF 24th edition., 2023.
Sources: ^{1/} Notification of the Ministry of Natural Resources and Environment, B.E. 2551 (2008), published in the Royal Government Gazette, Vol. 125, Special Part 85D, dated May 21, B.E. 2551 (2008).
^{2/} Notification of the National Environmental Board No. 20, B.E. 2543 (2000), published in the Royal Government Gazette, Vol. 117, Special part 95 D, dated September 15, B.E. 2543 (2000).

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Report No. : 2024-500001363-8 / 002 (Page 1 of 1) Issued date : August 15, 2024

CLIENT : PTTEP International Limited
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 Tel. 089-968-0061 E-Mail: SutthilukP@pttep.com

Analysis Report

SAMPLE DESIGNATED AS : Groundwater Quality
SAMPLING DATE : July 24, 2024
SAMPLING BY : Kittikhun Thaseepech
SAMPLING TIME : 12:35 hr.
SAMPLING LOCATION : NPI-G, NPI Flow Station Production Phase: GW1, บ่อน้ำใต้ดินหรือบ่อน้ำบาดาลในศาลากลาง หมู่ที่ 10 บ้านวัดโบสถ์ ต.มะขามล้ม อ.บางปลาม้า จ.สุพรรณบุรี (UTM47P 0612133E, 1588458N)

Parameter	Unit	Method	Result	Standard ^{1/}		Standard ^{2/}
				Optimal Value	Max. Allowable	
Total Dissolved Solids (TDS)	mg/l	APHA, 2540 C	698	≥600	1,200	-
Arsenic (As)	mg/l	APHA, 3125 B	0.002	None	0.05	≥0.01
Lead (Pb)	mg/l	APHA, 3125 B	0.0006	None	0.05	≥0.01

Remark: - Analytical Methods followed to Standard Methods for the Examination of Water and Wastewater, recommended by APHA, AWWA&WEF 24th edition., 2023.

Sources: ^{1/} Notification of the Ministry of Natural Resources and Environment, B.E. 2551 (2008), published in the Royal Government Gazette, Vol. 125, Special Part 85D, dated May 21, B.E. 2551 (2008).
^{2/} Notification of the National Environmental Board No. 20, B.E. 2543 (2000), published in the Royal Government Gazette, Vol. 117, Special part 95 D, dated September 15, B.E. 2543 (2000).



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Report No. : 2024-500001363-8 / 003 (Page 1 of 1) Issued date : August 15, 2024

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Tel. 089-968-0061 E-Mail: SutthilukP@pttep.com

Analysis Report

SAMPLE DESIGNATED AS : Groundwater Quality
SAMPLING BY : Kittikhun Thaseepech
SAMPLING LOCATION : NPI-G, NPI Flow Station Production Phase: GW2, บ่อน้ำใต้ดินหรือบ่อบาดาลของวัดดอนไข่เต่า หมู่ที่ 8 บ้านวัดโบสถ์ อ.บางปลาหมอ จ.สุพรรณบุรี (UTM47P 0607077E, 1584477N)
SAMPLING DATE : July 24, 2024
SAMPLING TIME : 12:10 hr.

Parameter	Unit	Method	Result	Standard ^{1/}		Standard ^{2/}
				Optimal Value	Max. Allowable	
pH	-	APHA, 4500-H+ B	8.4	7.0-8.5	6.5-9.2	-
Arsenic (As)	mg/l	APHA, 3125 B	0.002	None	0.05	≥0.01
Lead (Pb)	mg/l	APHA, 3125 B	0.0006	None	0.05	≥0.01

Remark: - Analytical Methods followed to Standard Methods for the Examination of Water and Wastewater, recommended by APHA, AWWA&WEF 24th edition., 2023.

Sources: ^{1/} Notification of the Ministry of Natural Resources and Environment, B.E. 2551 (2008), published in the Royal Government Gazette, Vol. 125, Special Part 85D, dated May 21, B.E. 2551 (2008).
^{2/} Notification of the National Environmental Board No. 20, B.E. 2543 (2000), published in the Royal Government Gazette, Vol. 117, Special part 95 D, dated September 15, B.E. 2543 (2000).

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Report No. : 2024-500001363-14 / 004-1 (Page 1 of 2) Issued date : September 11, 2024

CLIENT : PTTEP International Limited
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 Tel. 089-968-0061 E-Mail: SutthilukP@pttep.com

Analysis Report

SAMPLE DESIGNATED AS : Groundwater Quality
SAMPLING DATE : August 20, 2024
SAMPLING BY : Weerapong Pengtrakul
SAMPLING TIME : 9:05 hr.
SAMPLING LOCATION : NPI-G, NPI Flow Station Production Phase: บ่อสังเกตการณ์ที่ติดตั้งในฐานหลุมผลิต (UTM47P 0609462E, 1587875N)

Parameter	Unit	Method	Result	Standard ^{1/}		Standard ^{2/}
				Optimal Value	Max. Allowable	
Temperature	°C	APHA, 2550 B	30.25	-	-	-
pH	-	APHA, 4500-H+ B	7.2	7.0-8.5	6.5-9.2	-
Conductivity	µs/cm	APHA, 2510 B	2,188	-	-	-
Salinity	ppt	APHA, 2520 B	1.12	-	-	-
Total Dissolved Solids (TDS)	mg/l	APHA, 2540 C	1,582	≠600	1,200	-
Total Petroleum Hydrocarbon (TPH)	mg/l	Based on Method of Seawater analysis*	0.001	-	-	-
VOC						
- Benzene	µg/l	APHA, 6200 B	<0.5	-	-	5
- Toluene	µg/l	APHA, 6200 B	<1	-	-	1,000
- Total Xylenes	µg/l	APHA, 6200 B	<1	-	-	10,000
- Ethylbenzene	µg/l	APHA, 6200 B	<1	-	-	700

Remarks: - Analytical Methods followed to Standard Methods for the Examination of Water and Wastewater, recommended by APHA, AWWA&WEF 24th edition., 2023.

* Based on Method of Seawater analysis Third Completely Revised and Extended Edition, 1999, Chapter 21

Sources: ^{1/} Notification of the Ministry of Natural Resources and Environment, B.E. 2551 (2008), published in the Royal Government Gazette, Vol. 125, Special Part 85D, dated May 21, B.E. 2551 (2008).

^{2/} Notification of the National Environmental Board No. 20, B.E. 2543 (2000), published in the Royal Government Gazette, Vol. 117, Special part 95 D, dated September 15, B.E. 2543 (2000).

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Report No. : 2024-500001363-14 / 004-1 (Page 2 of 2) Issued date : September 11, 2024

CLIENT : PTTEP International Limited
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 Tel. 089-968-0061 E-Mail: SutthilukP@pttep.com

Analysis Report

SAMPLE DESIGNATED AS : Groundwater Quality
SAMPLING BY : Weerapong Pengtrakul
SAMPLING LOCATION : NPI-G, NPI Flow Station Production Phase: บ่อส่งเหตุการณ์ที่ติดตั้งในฐานหลุมผลิต (UTM47P 0609462E, 1587875N)
SAMPLING DATE : August 20, 2024
SAMPLING TIME : 9:05 hr.

Parameter	Unit	Method	Result	Standard ^{1/}		Standard ^{2/}
				Optimal Value	Max. Allowable	
Arsenic (As)	mg/l	APHA, 3125 B	0.014	None	0.05	≥0.01
Barium (Ba)	mg/l	APHA, 3125 B	0.087	-	-	-
Cadmium (Cd)	mg/l	APHA, 3125 B	<0.0001	None	0.01	≥0.003
Total Chromium (Total Cr)	mg/l	APHA, 3125 B	<0.005	-	-	-
Copper (Cu)	mg/l	APHA, 3125 B	0.0020	≥1.0	1.5	≥1.0
Iron (Fe)	mg/l	APHA, 3125 B	0.155	≥0.5	1.0	-
Mercury (Hg)	mg/l	APHA, 3112 B	<0.0005	None	0.001	≥0.001
Manganese (Mn)	mg/l	APHA, 3125 B	<0.001	≥0.3	0.5	≥0.5
Nickel (Ni)	mg/l	APHA, 3125 B	0.0089	-	-	≥0.2
Lead (Pb)	mg/l	APHA, 3125 B	0.0230	None	0.05	≥0.01
Selenium (Se)	mg/l	APHA, 3125 B	<0.005	None	0.01	≥0.01
Zinc (Zn)	mg/l	APHA, 3125 B	0.021	≥5.0	15.0	≥5.0

Remark: - Analytical Methods followed to Standard Methods for the Examination of Water and Wastewater, recommended by APHA, AWWA&WEF 24th edition., 2023.

Sources: ^{1/} Notification of the Ministry of Natural Resources and Environment, B.E. 2551 (2008), published in the Royal Government Gazette, Vol. 125, Special Part 85D, dated May 21, B.E. 2551 (2008).
^{2/} Notification of the National Environmental Board No. 20, B.E. 2543 (2000), published in the Royal Government Gazette, Vol. 117, Special part 95 D, dated September 15, B.E. 2543 (2000).

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Report No. : 2024-500001363-14 / 004-2 (Page 1 of 2) Issued date : September 11, 2024

CLIENT : PTTEP International Limited
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 Tel. 089-968-0061 E-Mail: SutthilukP@pttep.com

Analysis Report

SAMPLE DESIGNATED AS : Groundwater Quality **SAMPLING DATE :** August 20, 2024
SAMPLING BY : Weerapong Pengtrakul **SAMPLING TIME :** 11:46 hr.
SAMPLING LOCATION : NPI-G, NPI Flow Station Production Phase: GW1, บ่อน้ำใต้ดินหรือบ่อบาดาลในศาลากลาง หมู่ที่ 10 บ้านวัดโบสถ์ ต.มะขามล้ม อ.บางปลาม้า จ.สุพรรณบุรี (UTM47P 0612117E, 1588467N)

Parameter	Unit	Method	Result	Standard ^{1/}		Standard ^{2/}
				Optimal Value	Max. Allowable	
Temperature	°C	APHA, 2550 B	31.69	-	-	-
pH	-	APHA, 4500-H+ B	8.5	7.0-8.5	6.5-9.2	-
Conductivity	µs/cm	APHA, 2510 B	1,059	-	-	-
Salinity	ppt	APHA, 2520 B	0.52	-	-	-
Total Dissolved Solids (TDS)	mg/l	APHA, 2540 C	722	≥600	1,200	-
Total Petroleum Hydrocarbon (TPH)	mg/l	Based on Method of Seawater analysis*	0.002	-	-	-
VOC						
- Benzene	µg/l	APHA, 6200 B	<0.5	-	-	5
- Toluene	µg/l	APHA, 6200 B	<1	-	-	1,000
- Total Xylenes	µg/l	APHA, 6200 B	<1	-	-	10,000
- Ethylbenzene	µg/l	APHA, 6200 B	<1	-	-	700

Remark: - Analytical Methods followed to Standard Methods for the Examination of Water and Wastewater, recommended by APHA, AWWA&WEF 24th edition., 2023.

* Based on Method of Seawater analysis Third Completely Revised and Extended Edition, 1999, Chapter 21

Sources: ^{1/} Notification of the Ministry of Natural Resources and Environment, B.E. 2551 (2008), published in the Royal Government Gazette, Vol. 125, Special Part 85D, dated May 21, B.E. 2551 (2008).

^{2/} Notification of the National Environmental Board No. 20, B.E. 2543 (2000), published in the Royal Government Gazette, Vol. 117, Special part 95 D, dated September 15, B.E. 2543 (2000).

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Report No. : 2024-500001363-14 / 004-2 (Page 2 of 2) Issued date : September 11, 2024

CLIENT : PTTEP International Limited
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 Tel. 089-968-0061 E-Mail: SutthilukP@pttep.com

Analysis Report

SAMPLE DESIGNATED AS : Groundwater Quality **SAMPLING DATE :** August 20, 2024
SAMPLING BY : Weerapong Pengtrakul **SAMPLING TIME :** 11:46 hr.
SAMPLING LOCATION : NPI-G, NPI Flow Station Production Phase: GW1, บ่อน้ำใต้ดินหรือบ่อน้ำบาดาลในศาลากลาง หมู่ที่ 10 บ้านวัดโบสถ์ ต.มะขามล้ม อ.บางปลาม้า จ.สุพรรณบุรี (UTM47P 0612117E, 1588467N)

Parameter	Unit	Method	Result	Standard ^{1/}		Standard ^{2/}
				Optimal Value	Max. Allowable	
Arsenic (As)	mg/l	APHA, 3125 B	0.002	None	0.05	≥0.01
Barium (Ba)	mg/l	APHA, 3125 B	<0.01	-	-	-
Cadmium (Cd)	mg/l	APHA, 3125 B	<0.0001	None	0.01	≥0.003
Total Chromium (Total Cr)	mg/l	APHA, 3125 B	<0.005	-	-	-
Copper (Cu)	mg/l	APHA, 3125 B	<0.001	≥1.0	1.5	≥1.0
Iron (Fe)	mg/l	APHA, 3125 B	0.031	≥0.5	1.0	-
Mercury (Hg)	mg/l	APHA, 3112 B	<0.0005	None	0.001	≥0.001
Manganese (Mn)	mg/l	APHA, 3125 B	0.005	≥0.3	0.5	≥0.5
Nickel (Ni)	mg/l	APHA, 3125 B	<0.001	-	-	≥0.2
Lead (Pb)	mg/l	APHA, 3125 B	0.0003	None	0.05	≥0.01
Selenium (Se)	mg/l	APHA, 3125 B	<0.005	None	0.01	≥0.01
Zinc (Zn)	mg/l	APHA, 3125 B	0.022	≥5.0	15.0	≥5.0

Remark: - Analytical Methods followed to Standard Methods for the Examination of Water and Wastewater, recommended by APHA, AWWA&WEF 24th edition., 2023.

Sources: ^{1/} Notification of the Ministry of Natural Resources and Environment, B.E. 2551 (2008), published in the Royal Government Gazette, Vol. 125, Special Part 85D, dated May 21, B.E. 2551 (2008).
^{2/} Notification of the National Environmental Board No. 20, B.E. 2543 (2000), published in the Royal Government Gazette, Vol. 117, Special part 95 D, dated September 15, B.E. 2543 (2000).

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Report No. : 2024-500001363-14 / 004-3 (Page 1 of 2) Issued date : September 11, 2024

CLIENT : PTTEP International Limited
CONTACT : Khun Sutthiluk Phaisun
ADDRESS : 555/1 Energy Complex Vibhavadi-Rangsit Rd., Chatuchak, Chatuchak, Bangkok 10900
 Tel. 089-968-0061 E-Mail: SutthilukP@pttep.com

Analysis Report

SAMPLE DESIGNATED AS : Groundwater Quality **SAMPLING DATE :** August 20, 2024
SAMPLING BY : Weerapong Pengtrakul **SAMPLING TIME :** 12:17 hr.
SAMPLING LOCATION : NPI-G, NPI Flow Station Production Phase: GW2, บ่อน้ำใต้ดินหรือบ่อบาดาลของวัดดอนไข่เต่า หมู่ที่ 8 บ้านวัดโบสถ์ อ.บางปลาหมอ จ.สุพรรณบุรี (UTM47P 0687087E, N)

Parameter	Unit	Method	Result	Standard ^{1/}		Standard ^{2/}
				Optimal Value	Max. Allowable	
Temperature	°C	APHA, 2550 B	32.32	-	-	-
pH	-	APHA, 4500-H+ B	8.3	7.0-8.5	6.5-9.2	-
Conductivity	µs/cm	APHA, 2510 B	1,303	-	-	-
Salinity	ppt	APHA, 2520 B	0.65	-	-	-
Total Dissolved Solids (TDS)	mg/l	APHA, 2540 C	848	≥600	1,200	-
Total Petroleum Hydrocarbon (TPH)	mg/l	Based on Method of Seawater analysis*	0.002	-	-	-
VOC						
- Benzene	µg/l	APHA, 6200 B	<0.5	-	-	5
- Toluene	µg/l	APHA, 6200 B	<1	-	-	1,000
- Total Xylenes	µg/l	APHA, 6200 B	<1	-	-	10,000
- Ethylbenzene	µg/l	APHA, 6200 B	<1	-	-	700

Remark: - Analytical Methods followed to Standard Methods for the Examination of Water and Wastewater, recommended by APHA, AWWA&WEF 24th edition., 2023.

* Based on Method of Seawater analysis Third Completely Revised and Extended Edition, 1999, Chapter 21

Sources: ^{1/} Notification of the Ministry of Natural Resources and Environment, B.E. 2551 (2008), published in the Royal Government Gazette, Vol. 125, Special Part 85D, dated May 21, B.E. 2551 (2008).

^{2/} Notification of the National Environmental Board No. 20, B.E. 2543 (2000), published in the Royal Government Gazette, Vol. 117, Special part 95 D, dated September 15, B.E. 2543 (2000).

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Report No. : 2024-500001363-14 / 004-3 (Page 2 of 2) Issued date : September 11, 2024

CLIENT : PTTEP International Limited
CONTACT : Khun Sutthiluk Phaisun
ADDRESS : 555/1 Energy Complex Vibhavadi-Rangsit Rd., Chatuchak, Chatuchak, Bangkok 10900
 Tel. 089-968-0061 E-Mail: SutthilukP@pttep.com

Analysis Report

SAMPLE DESIGNATED AS : Groundwater Quality
SAMPLING DATE : August 20, 2024
SAMPLING BY : Weerapong Pengtrakul
SAMPLING TIME : 12:17 hr.
SAMPLING LOCATION : NPI-G, NPI Flow Station Production Phase: GW2, บ่อน้ำใต้ดินหรือบ่อบาดาลของวัดดอนไผ่เต่า หมู่ที่ 8 บ้านวัดโบสถ์ อ.บางปลาม้า จ.สุพรรณบุรี (UTM47P 0687087E, N)

Parameter	Unit	Method	Result	Standard ^{1/}		Standard ^{2/}
				Optimal Value	Max. Allowable	
Arsenic (As)	mg/l	APHA, 3125 B	0.002	None	0.05	≧0.01
Barium (Ba)	mg/l	APHA, 3125 B	0.023	-	-	-
Cadmium (Cd)	mg/l	APHA, 3125 B	<0.0001	None	0.01	≧0.003
Total Chromium (Total Cr)	mg/l	APHA, 3125 B	<0.005	-	-	-
Copper (Cu)	mg/l	APHA, 3125 B	0.0019	≧1.0	1.5	≧1.0
Iron (Fe)	mg/l	APHA, 3125 B	0.036	≧0.5	1.0	-
Mercury (Hg)	mg/l	APHA, 3112 B	<0.0005	None	0.001	≧0.001
Manganese (Mn)	mg/l	APHA, 3125 B	0.031	≧0.3	0.5	≧0.5
Nickel (Ni)	mg/l	APHA, 3125 B	<0.001	-	-	≧0.2
Lead (Pb)	mg/l	APHA, 3125 B	0.0005	None	0.05	≧0.01
Selenium (Se)	mg/l	APHA, 3125 B	<0.005	None	0.01	≧0.01
Zinc (Zn)	mg/l	APHA, 3125 B	0.017	≧5.0	15.0	≧5.0

Remark: - Analytical Methods followed to Standard Methods for the Examination of Water and Wastewater, recommended by APHA, AWWA&WEF 24th edition., 2023.

Sources: ^{1/} Notification of the Ministry of Natural Resources and Environment, B.E. 2551 (2008), published in the Royal Government Gazette, Vol. 125, Special Part 85D, dated May 21, B.E. 2551 (2008).
^{2/} Notification of the National Environmental Board No. 20, B.E. 2543 (2000), published in the Royal Government Gazette, Vol. 117, Special part 95 D, dated September 15, B.E. 2543 (2000).

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Report No. : 2024-500001363-18 / 002-1 (Page 1 of 1) Issued date: October 15, 2024

CLIENT : PTTEP International Limited
CONTACT : Khun Sutthiluk Phaisun
ADDRESS : 555/1 Energy Complex Vibhavadi-Rangsit Rd., Chatuchak, Chatuchak, Bangkok 10900
 Tel. 089-968-0061 E-Mail: SutthilukP@pttep.com

Analysis Report

SAMPLE DESIGNATED AS : Groundwater Quality
SAMPLING DATE : September 25, 2024
SAMPLING BY : Weerapong Pengtrakul
SAMPLING TIME : 10.30 hr.
SAMPLING LOCATION : NPI-G, NPI Flow Station Production Phase: ปอสังเคตการณที่ติดตั้งในฐานหลุมผลิต (UTM47P 0609472E, 1587874N)

Parameter	Unit	Method	Result	Standard ^{1/}		Standard ^{2/}
				Optimal Value	Max. Allowable	
Total Dissolved Solids (TDS)	mg/l	APHA, 2540 C	1,129	≧600	1,200	-
Arsenic (As)	mg/l	APHA, 3125 B	0.026	None	0.05	≧0.01
Lead (Pb)	mg/l	APHA, 3125 B	0.0423	None	0.05	≧0.01

Remark: - Analytical Methods followed to Standard Methods for the Examination of Water and Wastewater, recommended by APHA, AWWA&WEF 24th edition., 2023.

Sources: ^{1/} Notification of the Ministry of Natural Resources and Environment, B.E. 2551 (2008), published in the Royal Government Gazette, Vol. 125, Special Part 85D, dated May 21, B.E. 2551 (2008).
^{2/} Notification of the National Environmental Board No. 20, B.E. 2543 (2000), published in the Royal Government Gazette, Vol. 117, Special part 95 D, dated September 15, B.E. 2543 (2000).

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Report No. : 2024-500001363-18 / 002-2 (Page 1 of 1) Issued date: October 15, 2024

CLIENT : PTTEP International Limited
CONTACT : Khun Sutthiluk Phaisun
ADDRESS : 555/1 Energy Complex Vibhavadi-Rangsit Rd., Chatuchak, Chatuchak, Bangkok 10900
Tel. 089-968-0061 E-Mail: SutthilukP@pttep.com

Analysis Report

SAMPLE DESIGNATED AS : Groundwater Quality
SAMPLING DATE : September 25, 2024
SAMPLING BY : Weerapong Pengtrakul
SAMPLING TIME : 12:29 hr.
SAMPLING LOCATION : NPI-G, NPI Flow Station Production Phase: GW1, บ่อน้ำใต้ดินหรือบ่อน้ำบาดาลในศาลากลาง หมู่ที่ 10 บ้านวัดโบสถ์ ต.มะขามล้ม อ.บางปลาม้า จ.สุพรรณบุรี
(UTM 47P 0648082E, 1588657N)

Parameter	Unit	Method	Result	Standard ^{1/}		Standard ^{2/}
				Optimal Value	Max. Allowable	
Total Dissolved Solids (TDS)	mg/l	APHA, 2540 C	589	≧600	1,200	-
Arsenic (As)	mg/l	APHA, 3125 B	0.003	None	0.05	≧0.01
Lead (Pb)	mg/l	APHA, 3125 B	0.0011	None	0.05	≧0.01

Remark: - Analytical Methods followed to Standard Methods for the Examination of Water and Wastewater, recommended by APHA, AWWA&WEF 24th edition., 2023.

Sources : ^{1/} Notification of the Ministry of Natural Resources and Environment, B.E. 2551 (2008), published in the Royal Government Gazette, Vol. 125, Special Part 85D, dated May 21, B.E. 2551 (2008).
^{2/} Notification of the National Environmental Board No. 20, B.E. 2543 (2000), published in the Royal Government Gazette, Vol. 117, Special part 95 D, dated September 15, B.E. 2543 (2000).

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ADDRESS : 555/1 Energy Complex Vibhavadi-Rangsit Rd., Chatuchak, Chatuchak, Bangkok 10900
 Tel. 089-968-0061 E-Mail: SutthilukP@pttep.com

Analysis Report

SAMPLE DESIGNATED AS : Groundwater Quality
SAMPLING DATE : September 25, 2024
SAMPLING BY : Weerapong Pengtrakul
SAMPLING TIME : 11:50 hr.
SAMPLING LOCATION : NPI-G, NPI Flow Station Production Phase: GW2, บ่อน้ำใต้ดินหรือบ่อบาดาลของวัดดอนไผ่เต่า หมู่ที่ 8 บ้านวัดโบสถ์ อ.บางปลาม้า จ.สุพรรณบุรี
 (UTM47P 0607091E, 1584484N)

Parameter	Unit	Method	Result	Standard ^{1/}		Standard ^{2/}
				Optimal Value	Max. Allowable	
Total Dissolved Solids (TDS)	mg/l	APHA, 2540 C	536	≥600	1,200	-
Arsenic (As)	mg/l	APHA, 3125 B	0.003	None	0.05	≥0.01
Lead (Pb)	mg/l	APHA, 3125 B	0.0009	None	0.05	≥0.01

Remark: - Analytical Methods followed to Standard Methods for the Examination of Water and Wastewater, recommended by APHA, AWWA&WEF 24th edition., 2023.

Sources : ^{1/} Notification of the Ministry of Natural Resources and Environment, B.E. 2551 (2008), published in the Royal Government Gazette, Vol. 125, Special Part 85D, dated May 21, B.E. 2551 (2008).
^{2/} Notification of the National Environmental Board No. 20, B.E. 2543 (2000), published in the Royal Government Gazette, Vol. 117, Special part 95 D, dated September 15, B.E. 2543 (2000).

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Report No. : 2024-500001363-19 / 004-1 (Page 1 of 2) Issued date : November 5, 2024

CLIENT : PTTEP International Limited
CONTACT : Khun Sutthiluk Phaisun
ADDRESS : 555/1 Energy Complex Vibhavadi-Rangsit Rd., Chatuchak, Bangkok 10900
 Tel. 089-968-0061 E-Mail: SutthilukP@pttep.com

Analysis Report

SAMPLE DESIGNATED AS : Groundwater Quality **SAMPLING DATE** : October 16, 2024
SAMPLING BY : Weerapong Pengtrakul **SAMPLING TIME** : 11:00 hr.
SAMPLING LOCATION : UT1-3 Production Phase : บ่อสังเกตการณ์ในฐานหลุมผลิต
 (UTM47P 0605127E, 1588735N)

Parameter	Unit	Method	Result	Standard ^{1/}		Standard ^{2/}
				Optimal Value	Max. Allowable	
Temperature	°C	APHA, 2550 B	32.5	-	-	-
pH	-	APHA, 4500-H+ B	7.5	7.0-8.5	6.5-9.2	-
Conductivity	µs/cm	APHA, 2510 B	885	-	-	-
Salinity	ppt	APHA, 2520 B	0.43	-	-	-
Total Dissolved Solids (TDS)	mg/l	APHA, 2540 C	586	≧600	1,200	-
Total Petroleum Hydrocarbon (TPH)	mg/l	Based on Method of Seawater analysis*	0.0601	-	-	-
VOC						
- Benzene	µg/l	APHA, 6200 B	<0.5	-	-	5
- Toluene	µg/l	APHA, 6200 B	<1	-	-	1,000
- Total Xylenes	µg/l	APHA, 6200 B	<2	-	-	10,000
- Ethylbenzene	µg/l	APHA, 6200 B	<1	-	-	700

Remarks: - Analytical Methods followed to Standard Methods for the Examination of Water and Wastewater, recommended by APHA, AWWA&WEF 24th edition., 2023.

* Based on Method of Seawater analysis Third Completely Revised and Extended Edition, 1999, Chapter 21

Sources: ^{1/} Notification of the Ministry of Natural Resources and Environment, B.E. 2551 (2008), published in the Royal Government Gazette, Vol. 125, Special Part 85D, dated May 21, B.E. 2551 (2008).

^{2/} Notification of the National Environmental Board No. 20, B.E. 2543 (2000), published in the Royal Government Gazette, Vol. 117, Special part 95 D, dated September 15, B.E. 2543 (2000).

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Report No. : 2024-500001363-19 / 004-1 (Page 2 of 2) Issued date : November 5, 2024

CLIENT : PTTEP International Limited
CONTACT : Khun Sutthiluk Phaisun
ADDRESS : 555/1 Energy Complex Vibhavadi-Rangsit Rd., Chatuchak, Chatuchak, Bangkok 10900
Tel. 089-968-0061 E-Mail: SutthilukP@pttep.com

Analysis Report

SAMPLE DESIGNATED AS : Groundwater Quality SAMPLING DATE : October 16, 2024
SAMPLING BY : Weerapong Pengtrakul SAMPLING TIME : 11:00 hr.
SAMPLING LOCATION : UT1-3 Production Phase : บ่อสังเกตการณ์ในฐานหลุมผลิต
(UTM47P 0605127E, 1588735N)

Parameter	Unit	Method	Result	Standard ^{1/}		Standard ^{2/}
				Optimal Value	Max. Allowable	
Arsenic (As)	mg/l	APHA, 3125 B	0.068	None	0.05	≥0.01
Barium (Ba)	mg/l	APHA, 3125 B	0.326	-	-	-
Cadmium (Cd)	mg/l	APHA, 3125 B	0.0003	None	0.01	≥0.003
Total Chromium (Total Cr)	mg/l	APHA, 3125 B	<0.010	-	-	-
Copper (Cu)	mg/l	APHA, 3125 B	0.0188	≥1.0	1.5	≥1.0
Iron (Fe)	mg/l	APHA, 3125 B	64.594	≥0.5	1.0	-
Mercury (Hg)	mg/l	APHA, 3112 B	<0.0005	None	0.001	≥0.001
Manganese (Mn)	mg/l	APHA, 3125 B	0.716	≥0.3	0.5	≥0.5
Nickel (Ni)	mg/l	APHA, 3125 B	0.0685	-	-	≥0.02
Lead (Pb)	mg/l	APHA, 3125 B	0.0223	None	0.05	≥0.01
Selenium (Se)	mg/l	APHA, 3125 B	<0.001	None	0.01	≥0.01
Zinc (Zn)	mg/l	APHA, 3125 B	0.032	≥5.0	15.0	≥5.0

Remark: - Analytical Methods followed to Standard Methods for the Examination of Water and Wastewater, recommended by APHA, AWWA&WEF 24th edition., 2023.

Sources: ^{1/} Notification of the Ministry of Natural Resources and Environment, B.E. 2551 (2008), published in the Royal Government Gazette, Vol. 125, Special Part 85D, dated May 21, B.E. 2551 (2008).
^{2/} Notification of the National Environmental Board No. 20, B.E. 2543 (2000), published in the Royal Government Gazette, Vol. 117, Special part 95 D, dated September 15, B.E. 2543 (2000).

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Report No. : 2024-500001363-19 / 004-2 (Page 1 of 2) Issued date : November 6, 2024

CLIENT : PTTEP International Limited
CONTACT : Khun Sutthiluk Phaisun
ADDRESS : 555/1 Energy Complex Vibhavadi-Rangsit Rd., Chatuchak, Bangkok 10900
 Tel. 089-968-0061 E-Mail: SutthilukP@pttep.com

Analysis Report

SAMPLE DESIGNATED AS : Groundwater Quality **SAMPLING DATE :** October 16, 2024
SAMPLING BY : Weerapong Pengtrakul **SAMPLING TIME :** 16:03 hr.
SAMPLING LOCATION : UT1-3 Production Phase : GW3: วัดม่วง หมู่ที่ 1 ต.สวนแตง อ.เมือง จ.สุพรรณบุรี
 (UTM47P 0604029E, 1589045N)

Parameter	Unit	Method	Result	Standard ^{1/}		Standard ^{2/}
				Optimal Value	Max. Allowable	
Temperature	°C	APHA, 2550 B	32.5	-	-	-
pH	-	APHA, 4500-H+ B	7.3	7.0-8.5	6.5-9.2	-
Conductivity	µs/cm	APHA, 2510 B	1,232	-	-	-
Salinity	ppt	APHA, 2520 B	0.61	-	-	-
Total Dissolved Solids (TDS)	mg/l	APHA, 2540 C	841	≠600	1,200	-
Total Petroleum Hydrocarbon (TPH)	mg/l	Based on Method of Seawater analysis*	0.0005	-	-	-
VOC						
- Benzene	µg/l	APHA, 6200 B	<0.5	-	-	5
- Toluene	µg/l	APHA, 6200 B	<1	-	-	1,000
- Total Xylenes	µg/l	APHA, 6200 B	<2	-	-	10,000
- Ethylbenzene	µg/l	APHA, 6200 B	<1	-	-	700

Remarks: - Analytical Methods followed to Standard Methods for the Examination of Water and Wastewater, recommended by APHA, AWWA&WEF 24th edition., 2023.

* Based on Method of Seawater analysis Third Completely Revised and Extended Edition. 1999, Chapter 21

Sources: ^{1/} Notification of the Ministry of Natural Resources and Environment, B.E. 2551 (2008), published in the Royal Government Gazette, Vol. 125, Special Part 85D, dated May 21, B.E. 2551 (2008).

^{2/} Notification of the National Environmental Board No. 20, B.E. 2543 (2000), published in the Royal Government Gazette, Vol. 117, Special part 95 D, dated September 15, B.E. 2543 (2000).

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SGS (THAILAND) LIMITED



(Thepsah Yommana)
Technical Manager

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Report No. : 2024-500001363-19 / 004-2 (Page 2 of 2) Issued date : November 6, 2024

CLIENT : PTTEP International Limited
CONTACT : Khun Sutthiluk Phaisun
ADDRESS : 555/1 Energy Complex Vibhavadi-Rangsit Rd., Chatuchak, Chatuchak, Bangkok 10900
 Tel. 089-968-0061 E-Mail: SutthilukP@pttep.com

Analysis Report

SAMPLE DESIGNATED AS : Groundwater Quality **SAMPLING DATE** : October 16, 2024
SAMPLING BY : Weerapong Pengtrakul **SAMPLING TIME** : 16:03 hr.
SAMPLING LOCATION : UT1-3 Production Phase : GW3: วัดม่วง หมู่ที่ 1 ต.สวนแตง อ.เมือง จ.สุพรรณบุรี
 (UTM47P 0604029E, 1589045N)

Parameter	Unit	Method	Result	Standard ^{1/}		Standard ^{2/}
				Optimal Value	Max. Allowable	
Arsenic (As)	mg/l	APHA, 3125 B	0.0017	None	0.05	≥0.01
Barium (Ba)	mg/l	APHA, 3125 B	0.201	-	-	-
Cadmium (Cd)	mg/l	APHA, 3125 B	0.0002	None	0.01	≥0.003
Total Chromium (Total Cr)	mg/l	APHA, 3125 B	<0.010	-	-	-
Copper (Cu)	mg/l	APHA, 3125 B	0.0321	≥1.0	1.5	≥1.0
Iron (Fe)	mg/l	APHA, 3125 B	35.371	≥0.5	1.0	-
Mercury (Hg)	mg/l	APHA, 3112 B	<0.0005	None	0.001	≥0.001
Manganese (Mn)	mg/l	APHA, 3125 B	1.023	≥0.3	0.5	≥0.5
Nickel (Ni)	mg/l	APHA, 3125 B	0.0017	-	-	≥0.02
Lead (Pb)	mg/l	APHA, 3125 B	0.0043	None	0.05	≥0.01
Selenium (Se)	mg/l	APHA, 3125 B	<0.001	None	0.01	≥0.01
Zinc (Zn)	mg/l	APHA, 3125 B	0.032	≥5.0	15.0	≥5.0

Remark: - Analytical Methods followed to Standard Methods for the Examination of Water and Wastewater, recommended by APHA, AWWA&WEF 24th edition., 2023.

Sources: ^{1/} Notification of the Ministry of Natural Resources and Environment, B.E. 2551 (2008), published in the Royal Government Gazette, Vol. 125, Special Part 85D, dated May 21, B.E. 2551 (2008).
^{2/} Notification of the National Environmental Board No. 20, B.E. 2543 (2000), published in the Royal Government Gazette, Vol. 117, Special part 95 D, dated September 15, B.E. 2543 (2000).

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Report No. : 2024-500001363-19 / 004-3 (Page 1 of 2) Issued date : November 6, 2024

CLIENT : PTTEP International Limited
CONTACT : Khun Sutthiluk Phaisun
ADDRESS : 555/1 Energy Complex Vibhavadi-Rangsit Rd., Chatuchak, Chatuchak, Bangkok 10900
 Tel. 089-968-0061 E-Mail: SutthilukP@pttep.com

Analysis Report

SAMPLE DESIGNATED AS : Groundwater Quality **SAMPLING DATE :** October 16, 2024
SAMPLING BY : Weerapong Pengtrakul **SAMPLING TIME :** 17:15 hr.
SAMPLING LOCATION : UT1-7 Production Phase : บ่อสังเกตการณ์ในฐานหลุมผลิต
 (UTM47P 0604792E, 1589539N)

Parameter	Unit	Method	Result	Standard ^{1/}		Standard ^{2/}
				Optimal Value	Max. Allowable	
Temperature	°C	APHA, 2550 B	30.3	-	-	-
pH	-	APHA, 4500-H+ B	7.1	7.0-8.5	6.5-9.2	-
Conductivity	µs/cm	APHA, 2510 B	1,097	-	-	-
Salinity	ppt	APHA, 2520 B	0.54	-	-	-
Total Dissolved Solids (TDS)	mg/l	APHA, 2540 C	805	≠600	1,200	-
Total Petroleum Hydrocarbon (TPH)	mg/l	Based on Method of Seawater analysis*	0.0003	-	-	-
VOC						
- Benzene	µg/l	APHA, 6200 B	<0.5	-	-	5
- Toluene	µg/l	APHA, 6200 B	<1	-	-	1,000
- Total Xylenes	µg/l	APHA, 6200 B	<2	-	-	10,000
- Ethylbenzene	µg/l	APHA, 6200 B	<1	-	-	700

Remarks: - Analytical Methods followed to Standard Methods for the Examination of Water and Wastewater, recommended by APHA, AWWA&WEF 24th edition., 2023.

* Based on Method of Seawater analysis Third Completely Revised and Extended Edition, 1999, Chapter 21

Sources: ^{1/} Notification of the Ministry of Natural Resources and Environment, B.E. 2551 (2008), published in the Royal Government Gazette, Vol. 125, Special Part 85D, dated May 21, B.E. 2551 (2008).

^{2/} Notification of the National Environmental Board No. 20, B.E. 2543 (2000), published in the Royal Government Gazette, Vol. 117, Special part 95 D, dated September 15, B.E. 2543 (2000).

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 Technical Manager

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Report No. : 2024-500001363-19 / 004-3 (Page 2 of 2) Issued date : November 6, 2024

CLIENT : PTTEP International Limited
CONTACT : Khun Sutthiluk Phaisun
ADDRESS : 555/1 Energy Complex Vibhavadi-Rangsit Rd., Chatuchak, Chatuchak, Bangkok 10900
 Tel. 089-968-0061 E-Mail: SutthilukP@pttep.com

Analysis Report

SAMPLE DESIGNATED AS : Groundwater Quality **SAMPLING DATE :** October 16, 2024
SAMPLING BY : Weerapong Pengtrakul **SAMPLING TIME :** 17:15 hr.
SAMPLING LOCATION : UT1-7 Production Phase : บ่อสังเกตการณ์ในฐานหลุมผลิต
 (UTM47P 0604792E, 1589539N)

Parameter	Unit	Method	Result	Standard ^{1/}		Standard ^{2/}
				Optimal Value	Max. Allowable	
Arsenic (As)	mg/l	APHA, 3125 B	0.042	None	0.05	≥0.01
Barium (Ba)	mg/l	APHA, 3125 B	0.073	-	-	-
Cadmium (Cd)	mg/l	APHA, 3125 B	<0.0001	None	0.01	≥0.003
Total Chromium (Total Cr)	mg/l	APHA, 3125 B	<0.010	-	-	-
Copper (Cu)	mg/l	APHA, 3125 B	<0.0004	≥1.0	1.5	≥1.0
Iron (Fe)	mg/l	APHA, 3125 B	8.670	≥0.5	1.0	-
Mercury (Hg)	mg/l	APHA, 3112 B	<0.0005	None	0.001	≥0.001
Manganese (Mn)	mg/l	APHA, 3125 B	1.739	≥0.3	0.5	≥0.5
Nickel (Ni)	mg/l	APHA, 3125 B	0.0035	-	-	≥0.02
Lead (Pb)	mg/l	APHA, 3125 B	0.0015	None	0.05	≥0.01
Selenium (Se)	mg/l	APHA, 3125 B	<0.001	None	0.01	≥0.01
Zinc (Zn)	mg/l	APHA, 3125 B	<0.004	≥5.0	15.0	≥5.0

Remark: - Analytical Methods followed to Standard Methods for the Examination of Water and Wastewater, recommended by APHA, AWWA&WEF 24th edition., 2023.

Sources: ^{1/} Notification of the Ministry of Natural Resources and Environment, B.E. 2551 (2008), published in the Royal Government Gazette, Vol. 125, Special Part 85D, dated May 21, B.E. 2551 (2008).
^{2/} Notification of the National Environmental Board No. 20, B.E. 2543 (2000), published in the Royal Government Gazette, Vol. 117, Special part 95 D, dated September 15, B.E. 2543 (2000).

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Report No. : 2024-500001363-19 / 004-4 (Page 1 of 2) Issued date : November 6, 2024

CLIENT : PTTEP International Limited
CONTACT : Khun Sutthiluk Phaisun
ADDRESS : 555/1 Energy Complex Vibhavadi-Rangsit Rd., Chatuchak, Chatuchak, Bangkok 10900
 Tel. 089-968-0061 E-Mail: SutthilukP@pttep.com

Analysis Report

SAMPLE DESIGNATED AS : Groundwater Quality **SAMPLING DATE :** October 16, 2024
SAMPLING BY : Weerapong Pengtrakul **SAMPLING TIME :** 16:03 hr.
SAMPLING LOCATION : UT1-7 Production Phase : GW3: วัดม่วง หมู่ที่ 1 ต.สวนแตง อ.เมือง จ.สุพรรณบุรี
 (UTM47P 0604029E, 1589045N)

Parameter	Unit	Method	Result	Standard ^{1/}		Standard ^{2/}
				Optimal Value	Max. Allowable	
Temperature	°C	APHA, 2550 B	32.5	-	-	-
pH	-	APHA, 4500-H+ B	7.3	7.0-8.5	6.5-9.2	-
Conductivity	µs/cm	APHA, 2510 B	1,232	-	-	-
Salinity	ppt	APHA, 2520 B	0.61	-	-	-
Total Dissolved Solids (TDS)	mg/l	APHA, 2540 C	841	≧600	1,200	-
Total Petroleum Hydrocarbon (TPH)	mg/l	Based on Method of Seawater analysis*	0.0005	-	-	-
VOC						
- Benzene	µg/l	APHA, 6200 B	<0.5	-	-	5
- Toluene	µg/l	APHA, 6200 B	<1	-	-	1,000
- Total Xylenes	µg/l	APHA, 6200 B	<2	-	-	10,000
- Ethylbenzene	µg/l	APHA, 6200 B	<1	-	-	700

Remarks: - Analytical Methods followed to Standard Methods for the Examination of Water and Wastewater, recommended by APHA, AWWA&WEF 24th edition., 2023.

* Based on Method of Seawater analysis Third Completely Revised and Extended Edition. 1999, Chapter 21

Sources: ^{1/} Notification of the Ministry of Natural Resources and Environment, B.E. 2551 (2008), published in the Royal Government Gazette, Vol. 125, Special Part 85D, dated May 21, B.E. 2551 (2008).

^{2/} Notification of the National Environmental Board No. 20, B.E. 2543 (2000), published in the Royal Government Gazette, Vol. 117, Special part 95 D, dated September 15, B.E. 2543 (2000).

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Report No. : 2024-500001363-19 / 004-4 (Page 2 of 2) Issued date : November 6, 2024

CLIENT : PTTEP International Limited
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ADDRESS : 555/1 Energy Complex Vibhavadi-Rangsit Rd., Chatuchak, Bangkok 10900
Tel. 089-968-0061 E-Mail: SutthilukP@pttep.com

Analysis Report

SAMPLE DESIGNATED AS : Groundwater Quality
SAMPLING BY : Weerapong Pengtrakul
SAMPLING LOCATION : UT1-7 Production Phase : GW3: วัดม่วง หมู่ที่ 1 ต.สวนแตง อ.เมือง จ.สุพรรณบุรี
(UTM47P 0604029E, 1589045N)
SAMPLING DATE : October 16, 2024
SAMPLING TIME : 16:03 hr.

Parameter	Unit	Method	Result	Standard ^{1/}		Standard ^{2/}
				Optimal Value	Max. Allowable	
Arsenic (As)	mg/l	APHA, 3125 B	0.0017	None	0.05	≥0.01
Barium (Ba)	mg/l	APHA, 3125 B	0.201	-	-	-
Cadmium (Cd)	mg/l	APHA, 3125 B	0.0002	None	0.01	≥0.003
Total Chromium (Total Cr)	mg/l	APHA, 3125 B	<0.010	-	-	-
Copper (Cu)	mg/l	APHA, 3125 B	0.0321	≥1.0	1.5	≥1.0
Iron (Fe)	mg/l	APHA, 3125 B	35.371	≥0.5	1.0	-
Mercury (Hg)	mg/l	APHA, 3112 B	<0.0005	None	0.001	≥0.001
Manganese (Mn)	mg/l	APHA, 3125 B	1.023	≥0.3	0.5	≥0.5
Nickel (Ni)	mg/l	APHA, 3125 B	0.0017	-	-	≥0.02
Lead (Pb)	mg/l	APHA, 3125 B	0.0043	None	0.05	≥0.01
Selenium (Se)	mg/l	APHA, 3125 B	<0.001	None	0.01	≥0.01
Zinc (Zn)	mg/l	APHA, 3125 B	0.032	≥5.0	15.0	≥5.0

Remark: - Analytical Methods followed to Standard Methods for the Examination of Water and Wastewater, recommended by APHA, AWWA&WEF 24th edition., 2023.

Sources: ^{1/} Notification of the Ministry of Natural Resources and Environment, B.E. 2551 (2008), published in the Royal Government Gazette, Vol. 125, Special Part 85D, dated May 21, B.E. 2551 (2008).
^{2/} Notification of the National Environmental Board No. 20, B.E. 2543 (2000), published in the Royal Government Gazette, Vol. 117, Special part 95 D, dated September 15, B.E. 2543 (2000).

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Report No. : 2024-500001363-19 / 004-5 (Page 1 of 2) Issued date : November 6, 2024

CLIENT : PTTEP International Limited
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ADDRESS : 555/1 Energy Complex Vibhavadi-Rangsit Rd., Chatuchak, Chatuchak, Bangkok 10900
 Tel. 089-968-0061 E-Mail: SutthilukP@pttep.com

Analysis Report

SAMPLE DESIGNATED AS : Groundwater Quality **SAMPLING DATE :** October 16, 2024
SAMPLING BY : Weerapong Pengtrakul **SAMPLING TIME :** 11:55 hr.
SAMPLING LOCATION : SKJ Production Phase : บ่อสังเกตการณ์ในฐานหลุมผลิต
 (UTM47P 0604763E, 1593032N)

Parameter	Unit	Method	Result	Standard ^{1/}		Standard ^{2/}
				Optimal Value	Max. Allowable	
Temperature	°C	APHA, 2550 B	32.3	-	-	-
pH	-	APHA, 4500-H+ B	7.2	7.0-8.5	6.5-9.2	-
Conductivity	µs/cm	APHA, 2510 B	980	-	-	-
Salinity	ppt	APHA, 2520 B	0.48	-	-	-
Total Dissolved Solids (TDS)	mg/l	APHA, 2540 C	682	≠600	1,200	-
Total Petroleum Hydrocarbon (TPH)	mg/l	Based on Method of Seawater analysis*	0.0004	-	-	-
VOC						
- Benzene	µg/l	APHA, 6200 B	<0.5	-	-	5
- Toluene	µg/l	APHA, 6200 B	<1	-	-	1,000
- Total Xylenes	µg/l	APHA, 6200 B	<2	-	-	10,000
- Ethylbenzene	µg/l	APHA, 6200 B	<1	-	-	700

Remarks: - Analytical Methods followed to Standard Methods for the Examination of Water and Wastewater, recommended by APHA, AWWA&WEF 24th edition., 2023.

* Based on Method of Seawater analysis Third Completely Revised and Extended Edition. 1999. Chapter 21

Sources: ^{1/} Notification of the Ministry of Natural Resources and Environment, B.E. 2551 (2008), published in the Royal Government Gazette, Vol. 125, Special Part 85D, dated May 21, B.E. 2551 (2008).

^{2/} Notification of the National Environmental Board No. 20, B.E. 2543 (2000), published in the Royal Government Gazette, Vol. 117, Special part 95 D, dated September 15, B.E. 2543 (2000).

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Report No. : 2024-500001363-19 / 004-5 (Page 2 of 2) Issued date : November 6, 2024

CLIENT : PTTEP International Limited
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ADDRESS : 555/1 Energy Complex Vibhavadi-Rangsit Rd., Chatuchak, Chatuchak, Bangkok 10900
 Tel. 089-968-0061 E-Mail: SutthilukP@pttep.com

Analysis Report

SAMPLE DESIGNATED AS : Groundwater Quality **SAMPLING DATE :** October 16, 2024
SAMPLING BY : Weerapong Pengtrakul **SAMPLING TIME :** 11:55 hr.
SAMPLING LOCATION : SKJ Production Phase : บ่อสังเกตการณ์ในฐานหลุมผลิต
 (UTM47P 0604763E, 1593032N)

Parameter	Unit	Method	Result	Standard ^{1/}		Standard ^{2/}
				Optimal Value	Max. Allowable	
Arsenic (As)	mg/l	APHA, 3125 B	0.022	None	0.05	≥0.01
Barium (Ba)	mg/l	APHA, 3125 B	0.041	-	-	-
Cadmium (Cd)	mg/l	APHA, 3125 B	<0.0001	None	0.01	≥0.003
Total Chromium (Total Cr)	mg/l	APHA, 3125 B	<0.010	-	-	-
Copper (Cu)	mg/l	APHA, 3125 B	0.0013	≥1.0	1.5	≥1.0
Iron (Fe)	mg/l	APHA, 3125 B	7.797	≥0.5	1.0	-
Mercury (Hg)	mg/l	APHA, 3112 B	<0.0005	None	0.001	≥0.001
Manganese (Mn)	mg/l	APHA, 3125 B	0.529	≥0.3	0.5	≥0.5
Nickel (Ni)	mg/l	APHA, 3125 B	0.0048	-	-	≥0.02
Lead (Pb)	mg/l	APHA, 3125 B	0.1329	None	0.05	≥0.01
Selenium (Se)	mg/l	APHA, 3125 B	<0.001	None	0.01	≥0.01
Zinc (Zn)	mg/l	APHA, 3125 B	0.009	≥5.0	15.0	≥5.0

Remark: - Analytical Methods followed to Standard Methods for the Examination of Water and Wastewater, recommended by APHA, AWWA&WEF 24th edition., 2023.

Sources: ^{1/} Notification of the Ministry of Natural Resources and Environment, B.E. 2551 (2008), published in the Royal Government Gazette, Vol. 125, Special Part 85D, dated May 21, B.E. 2551 (2008).
^{2/} Notification of the National Environmental Board No. 20, B.E. 2543 (2000), published in the Royal Government Gazette, Vol. 117, Special part 95 D, dated September 15, B.E. 2543 (2000).

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ภาคผนวก ก5

ผลการตรวจวัด

คุณภาพอากาศ / ระดับเสียงในสถานีผลิต

Report No. : 2024-500001363-1 / 005-1 (Page 1 of 1)

Issued date : June 13, 2024

CLIENT : PTTEP International Limited
 CONTACT : Khun Sutthiluk Phaisun
 ADDRESS : 555/1 Energy Complex Vibhavadi-Rangsit Rd., Chatuchak, Chatuchak, Bangkok 10900
 Tel. 089-968-0061 E-Mail: SutthilukP@pttep.com

Analysis Report

SAMPLE DESIGNATED AS : Workplace Air Quality
 SAMPLING LOCATION : NPI-A Production Phase
 พื้นที่ผลิต (Process Area)
 SAMPLING DATE : May 27-29, 2024
 SAMPLING BY : Weerapong Pengtrakul

Parameter	Unit	Result			Standard ^{1/} (TLV- TWA)	Analytical Method
		May 27, 2024	May 28, 2024	May 29, 2024		
Benzene	ppm	N.D. (<0.0428)	N.D. (<0.0428)	N.D. (<0.0428)	1	NIOSH 1501
Ethyl Benzene	ppm	N.D. (<0.0315)	N.D. (<0.0315)	N.D. (<0.0315)	100	NIOSH 1501
Toluene	ppm	N.D. (<0.0362)	N.D. (<0.0362)	N.D. (<0.0362)	200	NIOSH 1501
Xylene	ppm	N.D. (<0.0315)	N.D. (<0.0315)	N.D. (<0.0315)	100	NIOSH 1501
Respirable Dust	mg/m ³	N.D. (<0.0122)	N.D. (<0.0122)	N.D. (<0.0122)	-	Based on NIOSH 0600

Remarks: - TLV-TWA = Threshold Limit Value - Time Weighted Average
 - N.D. = Not Detected

Source: ^{1/} Notification of the Department of Labor Protection and Welfare, Subject Limitation of Hazardous Chemical Concentration, Vol.134, Special Part 198 D, dated August 3, B.E. 2560 (2017).



(Suppa Sangm)

Acting Environmental Manager

BS/WP/JK/JK

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Report No. : 2024-500001363-1 / 005-2 (Page 1 of 1)

Issued date : June 13, 2024

CLIENT : PTTEP International Limited
CONTACT : Khun Sutthiluk Phaisun
ADDRESS : 555/1 Energy Complex Vibhavadi-Rangsit Rd., Chatuchak, Chatuchak, Bangkok 10900
Tel. 089-968-0061 E-Mail: SutthilukP@pttep.com

Analysis Report

SAMPLE DESIGNATED AS : Workplace Air Quality
SAMPLING LOCATION : NPI-A Production Phase
พื้นที่สูบล้างมลพิษ (Loading Area)
SAMPLING DATE : May 27-29, 2024
SAMPLING BY : Weerapong Pengtrakul

Parameter	Unit	Result			Standard ^{1/} (TLV- TWA)	Analytical Method
		May 27, 2024	May 28, 2024	May 29, 2024		
Benzene	ppm	N.D. (<0.0428)	N.D. (<0.0428)	N.D. (<0.0428)	1	NIOSH 1501
Ethyl Benzene	ppm	N.D. (<0.0315)	N.D. (<0.0315)	N.D. (<0.0315)	100	NIOSH 1501
Toluene	ppm	N.D. (<0.0362)	N.D. (<0.0362)	N.D. (<0.0362)	200	NIOSH 1501
Xylene	ppm	N.D. (<0.0315)	N.D. (<0.0315)	N.D. (<0.0315)	100	NIOSH 1501
Respirable Dust	mg/m ³	N.D. (<0.0122)	N.D. (<0.0122)	N.D. (<0.0122)	-	Based on NIOSH 0600

Remarks: - TLV-TWA = Threshold Limit Value - Time Weighted Average
- N.D. = Not Detected

Source: ^{1/} Notification of the Department of Labor Protection and Welfare, Subject Limitation of Hazardous Chemical Concentration, Vol.134, Special Part 198 D, dated August 3, B.E. 2560 (2017).

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Report No. : 2024-500001363-1 / 005-3 (Page 1 of 1)

Issued date : June 13, 2024

CLIENT : PTTEP International Limited
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 ADDRESS : 555/1 Energy Complex Vibhavadi-Rangsit Rd., Chatuchak, Chatuchak, Bangkok 10900
 Tel. 089-968-0061 E-Mail: SutthilukP@pttep.com

Analysis Report

SAMPLE DESIGNATED AS : Workplace Air Quality
 SAMPLING LOCATION : NPI-A Production Phase
 พื้นที่ถังเก็บกาก (Tank Farm)
 SAMPLING DATE : May 27-29, 2024
 SAMPLING BY : Weerapong Pengtrakul

Parameter	Unit	Result			Standard ^{1/} (TLV- TWA)	Analytical Method
		May 27, 2024	May 28, 2024	May 29, 2024		
Benzene	ppm	N.D. (<0.0428)	N.D. (<0.0428)	N.D. (<0.0428)	1	NIOSH 1501
Ethyl Benzene	ppm	N.D. (<0.0315)	N.D. (<0.0315)	N.D. (<0.0315)	100	NIOSH 1501
Toluene	ppm	N.D. (<0.0362)	N.D. (<0.0362)	N.D. (<0.0362)	200	NIOSH 1501
Xylene	ppm	N.D. (<0.0315)	N.D. (<0.0315)	N.D. (<0.0315)	100	NIOSH 1501
Respirable Dust	mg/m ³	N.D. (<0.0122)	N.D. (<0.0122)	N.D. (<0.0122)	-	Based on NIOSH 0600

Remarks: - TLV-TWA = Threshold Limit Value - Time Weighted Average
 - N.D. = Not Detected

Source: ^{1/} Notification of the Department of Labor Protection and Welfare, Subject Limitation of Hazardous Chemical Concentration, Vol.134, Special Part 198 D, dated August 3, B.E. 2560 (2017).

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Report No. : 2024-500001363-1 / 005-4 (Page 1 of 1)

Issued date : June 13, 2024

CLIENT : PTTEP International Limited
 CONTACT : Khun Sutthiluk Phaisun
 ADDRESS : 555/1 Energy Complex Vibhavadi-Rangsit Rd., Chatuchak, Chatuchak, Bangkok 10900
 Tel. 089-968-0061 E-Mail: SutthilukP@pttep.com

Analysis Report

SAMPLE DESIGNATED AS : Workplace Air Quality
 SAMPLING LOCATION : NPI-A Production Phase
 ห้องควบคุม (Control Room)
 SAMPLING DATE : May 27-29, 2024
 SAMPLING BY : Weerapong Pengtrakul

Parameter	Unit	Result			Standard ^{1/} (TLV- TWA)	Analytical Method
		May 27, 2024	May 28, 2024	May 29, 2024		
Benzene	ppm	N.D. (<0.0428)	N.D. (<0.0428)	N.D. (<0.0428)	1	NIOSH 1501
Ethyl Benzene	ppm	N.D. (<0.0315)	N.D. (<0.0315)	N.D. (<0.0315)	100	NIOSH 1501
Toluene	ppm	N.D. (<0.0362)	N.D. (<0.0362)	N.D. (<0.0362)	200	NIOSH 1501
Xylene	ppm	N.D. (<0.0315)	N.D. (<0.0315)	N.D. (<0.0315)	100	NIOSH 1501
Respirable Dust	mg/m ³	0.0122	0.0367	N.D. (<0.0122)	-	Based on NIOSH 0600

Remarks: - TLV-TWA = Threshold Limit Value - Time Weighted Average
 - N.D. = Not Detected

Source: ^{1/} Notification of the Department of Labor Protection and Welfare, Subject Limitation of Hazardous Chemical Concentration, Vol.134, Special Part 198 D, dated August 3, B.E. 2560 (2017).

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CLIENT : PTTEP International Limited
CONTACT : Khun Sutthiluk Phaisun
ADDRESS : 555/1 Energy Complex Vibhavadi-Rangsit Rd., Chatuchak, Chatuchak, Bangkok 10900
 Tel. 089-968-0061 E-Mail: SutthilukP@pttep.com

Analysis Report

SAMPLE DESIGNATED AS : Workplace Noise Level
MEASUREMENT LOCATION : NPI-A Production Phase
 พื้นที่ผลิต (Process Area)
CALIBRATOR DATA : Model : CR: 515, Cirrus Research plc., Serial No. 88350
 Calibration value Reference: 94.0 dB(A), Pre Cal : 93.9 dB(A), Post Cal : 93.9 dB(A)
SOUND LEVEL METER NO. : Model : NL-52, RION, Serial No. 00710417

Time	Noise Level [dB(A)]								Standard
	May 27-28, 2024				May 28-29, 2024				
	L _{Aeq}	L _{Aeq} 8 hrs.	L _{Amax}	L _{A90}	L _{Aeq}	L _{Aeq} 8 hrs.	L _{Amax}	L _{A90}	
10:00-11:00	66.0	-	73.5	65.2	66.0	-	75.6	65.0	
11:00-12:00	66.0	-	72.8	65.3	65.9	-	72.0	65.1	
12:00-13:00	66.0	-	72.5	65.2	66.0	-	72.6	65.2	
13:00-14:00	66.2	-	71.9	65.4	66.0	-	76.1	65.2	
14:00-15:00	66.3	-	72.7	65.5	66.0	-	73.4	65.2	
15:00-16:00	66.2	-	71.7	65.4	67.0	-	80.5	65.4	
16:00-17:00	66.3	-	72.8	65.5	65.8	-	75.7	65.0	
17:00-18:00	66.3	66.2	82.5	65.5	65.8	66.1	73.9	65.0	
18:00-19:00	66.4	-	73.5	65.5	66.0	-	77.9	65.1	
19:00-20:00	66.2	-	75.0	65.1	65.7	-	71.9	63.8	
20:00-21:00	66.0	-	69.3	65.2	66.0	-	69.8	65.1	
21:00-22:00	66.0	-	69.6	65.1	66.1	-	69.9	65.3	
22:00-23:00	65.8	-	69.3	65.0	66.1	-	69.3	65.3	
23:00-00:00	65.7	-	69.3	64.9	66.2	-	69.4	65.4	
00:00-01:00	65.7	-	69.1	64.9	66.1	-	69.3	65.3	
01:00-02:00	65.8	65.9	69.3	64.9	66.0	66.0	69.4	65.3	
02:00-03:00	65.8	-	69.3	64.9	66.0	-	69.6	65.3	
03:00-04:00	65.9	-	69.4	65.0	66.1	-	69.2	65.3	
04:00-05:00	65.9	-	70.9	65.1	66.2	-	73.4	65.4	
05:00-06:00	66.1	-	75.1	64.9	67.7	-	98.9	65.4	
06:00-07:00	66.4	-	75.6	65.0	66.7	-	76.9	65.5	
07:00-08:00	66.3	-	90.4	65.0	66.3	-	73.8	65.1	
08:00-09:00	65.9	-	80.8	64.9	65.9	-	74.3	64.9	
09:00-10:00	65.9	66.0	74.6	64.9	66.0	66.4	84.3	65.1	
L _{Aeq} 8 hrs.	-	65.9-66.2	-	-	-	66.0-66.4	-	-	85 ^{1/}
L _{Aeq} 24 hrs.	66.0	-	-	-	66.2	-	-	-	-
L _{Adn}	72.3	-	-	-	72.7	-	-	-	-
L _{Amax}	-	-	90.4	-	-	-	98.9	-	115 ^{2/}
L _{A90}	-	-	-	65.0	-	-	-	65.1	-

Source: ^{1/} Notification of the Department of Labour Protection and Welfare, Subject 'The allowable standard for noise exposure level in worker's daily work hours', published in the Royal Government Gazette, Vol.135, Special Part 19D, dated January 26, B.E. 2561 (2018).
^{2/} Ministerial Regulation on the Prescribing of Standard for Administration and Management of Occupational Safety, Health and Environment in relation to Heat, Light and Noise, B.E. 2559, published in the Royal Government Gazette, Vol.133 Part 91A, dated October 17, B.E. 2559 (2016).

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Report No. : 2024-500001363-1 / 006-1 (Page 2 of 2) Issued date : June 13, 2024

CLIENT : PTTEP International Limited
CONTACT : Khun Sutthiluk Phaisun
ADDRESS : 555/1 Energy Complex Vibhavadi-Rangsit Rd., Chatuchak, Chatuchak, Bangkok 10900
 Tel. 089-968-0061 E-Mail: SutthilukP@pttep.com

Analysis Report

SAMPLE DESIGNATED AS : Workplace Noise Level
MEASUREMENT LOCATION : NPI-A Production Phase
 พื้นที่ผลิต (Process Area)
MEASUREMENT DATE : May 27-30, 2024
MEASURED BY : Weerapong Pengtrakul
CALIBRATOR DATA : Model : CR: 515, Cirrus Research plc., Serial No. 88350
 Calibration value Reference: 94.0 dB(A), Pre Cal : 93.9 dB(A), Post Cal : 93.9 dB(A)
SOUND LEVEL METER NO. : Model : NL-52, RION, Serial No. 00710417

Time	Noise Level [dB(A)]				Standard
	May 29-30, 2024				
	L _{Aeq}	L _{Aeq} 8 hrs.	L _{Amax}	L _{A90}	
10:00-11:00	66.0	-	72.7	65.1	
11:00-12:00	65.9	-	75.2	65.0	
12:00-13:00	65.8	-	71.1	65.0	
13:00-14:00	66.0	-	76.1	65.1	
14:00-15:00	66.0	-	77.8	65.1	
15:00-16:00	66.3	-	75.0	65.4	
16:00-17:00	66.0	-	88.2	65.0	
17:00-18:00	65.9	66.0	82.4	65.0	
18:00-19:00	66.2	-	80.3	65.2	
19:00-20:00	65.9	-	70.4	65.1	
20:00-21:00	66.0	-	71.8	65.2	
21:00-22:00	66.0	-	69.4	65.2	
22:00-23:00	66.0	-	69.5	65.2	
23:00-00:00	66.0	-	72.3	65.3	
00:00-01:00	65.9	-	69.1	65.1	
01:00-02:00	65.9	66.0	69.3	65.2	
02:00-03:00	66.1	-	69.4	65.3	
03:00-04:00	66.1	-	69.5	65.3	
04:00-05:00	66.2	-	76.4	65.2	
05:00-06:00	66.4	-	79.5	65.3	
06:00-07:00	66.4	-	76.0	65.3	
07:00-08:00	66.2	-	74.7	65.2	
08:00-09:00	65.4	-	75.9	61.7	
09:00-10:00	63.6	65.9	74.3	61.5	
L _{Aeq} 8 hrs.	-	65.9-66.0	-	-	85 ^{1/}
L _{Aeq} 24 hrs.	66.0	-	-	-	-
L _{Adn}	72.5	-	-	-	-
L _{Amax}	-	-	88.2	-	115 ^{2/}
L _{A90}	-	-	-	65.0	-

Source: ^{1/} Notification of the Department of Labour Protection and Welfare, Subject 'The allowable standard for noise exposure level in worker's daily work hours', published in the Royal Government Gazette, Vol.135, Special Part 19D, dated January 26, B.E. 2561 (2018).
^{2/} Ministerial Regulation on the Prescribing of Standard for Administration and Management of Occupational Safety, Health and Environment in relation to Heat, Light and Noise, B.E. 2559, published in the Royal Government Gazette, Vol.133 Part 91A, dated October 17, B.E. 2559 (2016).

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Report No. : 2024-500001363-1 / 006-2 (Page 1 of 2) Issued date : June 13, 2024

CLIENT : PTTEP International Limited
CONTACT : Khun Sutthiluk Phaisun
ADDRESS : 555/1 Energy Complex Vibhavadi-Rangsit Rd., Chatuchak, Chatuchak, Bangkok 10900
 Tel. 089-968-0061 E-Mail: SutthilukP@pttep.com

Analysis Report

SAMPLE DESIGNATED AS : Workplace Noise Level
MEASUREMENT LOCATION : NPI-A Production Phase
MEASUREMENT DATE : May 27-30, 2024
MEASURED BY : Weerapong Pengtrakul
 พื้นที่ส่งถ่ายผลิตภัณฑ์ (Loading Area)
CALIBRATOR DATA : Model : CR: 515, Cirrus Research plc., Serial No. 88350
 Calibration value Reference: 94.0 dB(A), Pre Cal : 93.9 dB(A), Post Cal : 93.9 dB(A)
SOUND LEVEL METER NO. : Model : NL-52, RION, Serial No. 00710418

Time	Noise Level [dB(A)]								Standard
	May 27-28, 2024				May 28-29, 2024				
	L _{Aeq}	L _{Aeq} 8 hrs.	L _{Amax}	L _{A90}	L _{Aeq}	L _{Aeq} 8 hrs.	L _{Amax}	L _{A90}	
10:00-11:00	58.3	-	71.3	57.8	57.7	-	80.2	56.1	
11:00-12:00	59.8	-	85.3	58.0	57.4	-	75.1	56.1	
12:00-13:00	58.8	-	64.6	58.2	69.7	-	89.6	56.0	
13:00-14:00	58.8	-	73.5	58.1	75.1	-	77.0	74.7	
14:00-15:00	59.3	-	76.3	58.2	75.2	-	76.8	74.8	
15:00-16:00	65.0	-	92.2	53.7	72.9	-	90.2	53.4	
16:00-17:00	70.6	-	96.8	53.5	71.4	-	89.4	54.9	
17:00-18:00	55.0	63.7	82.0	53.6	68.5	71.6	85.9	52.8	
18:00-19:00	67.6	-	92.2	52.8	53.7	-	58.6	53.0	
19:00-20:00	54.7	-	57.2	52.8	67.7	-	92.2	52.8	
20:00-21:00	54.7	-	60.2	53.9	54.2	-	56.9	52.8	
21:00-22:00	54.1	-	59.8	53.6	54.8	-	60.2	53.9	
22:00-23:00	53.8	-	55.7	53.3	54.4	-	59.2	53.8	
23:00-00:00	53.7	-	69.6	53.0	53.9	-	59.8	53.3	
00:00-01:00	55.7	-	60.6	54.2	53.5	-	69.6	53.0	
01:00-02:00	56.5	60.0	74.4	55.4	55.2	59.8	60.6	53.8	
02:00-03:00	54.9	-	74.1	53.4	56.2	-	59.6	55.6	
03:00-04:00	57.0	-	76.0	53.4	55.8	-	74.4	53.5	
04:00-05:00	55.7	-	75.4	53.4	56.7	-	76.0	53.4	
05:00-06:00	58.2	-	77.7	53.9	55.6	-	75.4	53.4	
06:00-07:00	55.0	-	69.3	52.9	57.5	-	77.7	54.0	
07:00-08:00	57.8	-	73.6	52.9	56.6	-	69.3	53.0	
08:00-09:00	57.9	-	73.1	56.4	56.6	-	73.6	52.9	
09:00-10:00	57.5	56.9	69.4	56.2	58.4	56.8	73.1	56.4	
L _{Aeq} 8 hrs.	-	56.9-63.7	-	-	-	56.8-71.6	-	-	85 ^{1/}
L _{Aeq} 24 hrs.	61.1	-	-	-	67.3	-	-	-	-
L _{Adn}	64.1	-	-	-	68.2	-	-	-	-
L _{Amax}	-	-	96.8	-	-	-	92.2	-	115 ^{2/}
L _{A90}	-	-	-	53.3	-	-	-	53.2	-

Source: ^{1/} Notification of the Department of Labour Protection and Welfare, Subject 'The allowable standard for noise exposure level in worker's daily work hours', published in the Royal Government Gazette, Vol.135, Special Part 19D, dated January 26, B.E. 2561 (2018).
^{2/} Ministerial Regulation on the Prescribing of Standard for Administration and Management of Occupational Safety, Health and Environment in relation to Heat, Light and Noise, B.E. 2559, published in the Royal Government Gazette, Vol.133 Part 91A, dated October 17, B.E. 2559 (2016).

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Acting Environmental Manager

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Report No. : 2024-500001363-1 / 006-2 (Page 2 of 2)

Issued date : June 13, 2024

CLIENT : PTTEP International Limited
CONTACT : Khun Sutthiluk Phaisun
ADDRESS : 555/1 Energy Complex Vibhavadi-Rangsit Rd., Chatuchak, Chatuchak, Bangkok 10900
 Tel. 089-968-0061 E-Mail: SutthilukP@pttep.com

Analysis Report

SAMPLE DESIGNATED AS : Workplace Noise Level
MEASUREMENT LOCATION : NPI-A Production Phase
 พื้นที่สูบล้างผลิตภัณฑ์ (Loading Area)
MEASUREMENT DATE : May 27-30, 2024
MEASURED BY : Weerapong Pengtrakul
CALIBRATOR DATA : Model : CR: 515, Cirrus Research plc., Serial No. 88350
 Calibration value Reference: 94.0 dB(A), Pre Cal : 93.9 dB(A), Post Cal : 93.9 dB(A)
SOUND LEVEL METER NO. : Model : NL-52, RION, Serial No. 00710418

Time	Noise Level [dB(A)]				Standard
	May 29-30, 2024				
	L _{Aeq}	L _{Aeq} 8 hrs.	L _{Amax}	L _{A90}	
10:00-11:00	57.6	-	69.4	56.3	
11:00-12:00	57.6	-	72.2	56.2	
12:00-13:00	57.5	-	80.2	56.1	
13:00-14:00	61.2	-	89.6	56.0	
14:00-15:00	75.0	-	77.0	74.6	
15:00-16:00	75.2	-	76.7	74.8	
16:00-17:00	74.1	-	90.2	69.8	
17:00-18:00	71.3	71.3	89.4	53.4	
18:00-19:00	70.1	-	86.6	53.0	
19:00-20:00	53.6	-	68.2	52.8	
20:00-21:00	69.4	-	90.2	52.7	
21:00-22:00	53.6	-	60.6	52.9	
22:00-23:00	53.7	-	56.6	53.1	
23:00-00:00	53.6	-	63.0	52.9	
00:00-01:00	53.8	-	76.1	52.7	
01:00-02:00	54.1	64.1	61.6	53.0	
02:00-03:00	56.3	-	76.6	55.0	
03:00-04:00	54.5	-	62.3	53.7	
04:00-05:00	56.9	-	75.3	53.6	
05:00-06:00	56.5	-	76.8	53.9	
06:00-07:00	56.0	-	84.2	53.6	
07:00-08:00	56.3	-	77.8	53.1	
08:00-09:00	57.7	-	84.7	52.8	
09:00-10:00	64.1	58.5	94.0	51.8	
L _{Aeq} 8 hrs.	-	58.5-71.3	-	-	85 ^{1/}
L _{Aeq} 24 hrs.	67.4	-	-	-	-
L _{Adn}	68.2	-	-	-	-
L _{Amax}	-	-	94.0	-	115 ^{2/}
L _{A90}	-	-	-	52.9	-

Source: ^{1/} Notification of the Department of Labour Protection and Welfare, Subject 'The allowable standard for noise exposure level in worker's daily work hours', published in the Royal Government Gazette, Vol.135, Special Part 19D, dated January 26, B.E. 2561 (2018).
^{2/} Ministerial Regulation on the Prescribing of Standard for Administration and Management of Occupational Safety, Health and Environment in relation to Heat, Light and Noise, B.E. 2559, published in the Royal Government Gazette, Vol.133 Part 91A, dated October 17, B.E. 2559 (2016).

SGS (THAILAND) LIMITED

Acting Environmental Manager

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Member of the SGS Group

CLIENT : PTTEP International Limited
CONTACT : Khun Sutthiluk Phaisun
ADDRESS : 555/1 Energy Complex Vibhavadi-Rangsit Rd., Chatuchak, Chatuchak, Bangkok 10900
 Tel. 089-968-0061 E-Mail: SutthilukP@pttep.com

Analysis Report

SAMPLE DESIGNATED AS : Workplace Noise Level
MEASUREMENT LOCATION : NPI-A Production Phase
 พื้นที่ถังเก็บกาก (Tank Farm)
CALIBRATOR DATA : Model : CR: 515, Cirrus Research plc., Serial No. 88350
 Calibration value Reference: 94.0 dB(A), Pre Cal : 93.9 dB(A), Post Cal : 93.9 dB(A)
SOUND LEVEL METER NO. : Model : NL-52, RION, Serial No. 00710419

Time	Noise Level [dB(A)]								Standard
	May 27-28, 2024				May 28-29, 2024				
	L _{Aeq}	L _{Aeq} 8 hrs.	L _{Amax}	L _{A90}	L _{Aeq}	L _{Aeq} 8 hrs.	L _{Amax}	L _{A90}	
10:00-11:00	69.3	-	71.6	69.1	69.6	-	71.9	69.3	
11:00-12:00	69.4	-	71.1	69.1	69.7	-	72.1	69.5	
12:00-13:00	69.5	-	73.3	69.1	69.5	-	75.6	69.0	
13:00-14:00	69.4	-	72.5	69.1	69.7	-	71.4	69.4	
14:00-15:00	69.3	-	79.2	68.7	69.7	-	74.3	69.4	
15:00-16:00	68.9	-	70.1	68.7	70.1	-	73.3	69.7	
16:00-17:00	69.4	-	74.8	68.9	69.9	-	75.3	68.9	
17:00-18:00	70.3	69.5	79.0	69.4	70.3	69.8	82.2	69.0	
18:00-19:00	70.3	-	76.8	69.5	69.9	-	76.7	69.6	
19:00-20:00	69.1	-	77.6	68.4	69.5	-	81.2	68.5	
20:00-21:00	69.0	-	70.8	68.7	69.7	-	71.3	69.4	
21:00-22:00	69.4	-	71.3	69.0	69.9	-	71.7	69.6	
22:00-23:00	69.7	-	71.5	69.4	69.7	-	71.6	69.3	
23:00-00:00	69.3	-	79.2	68.7	69.6	-	71.7	69.3	
00:00-01:00	69.0	-	70.2	68.7	69.7	-	71.6	69.4	
01:00-02:00	69.5	69.4	79.0	68.9	69.7	69.7	71.5	69.4	
02:00-03:00	70.7	-	76.8	69.7	69.4	-	71.5	69.1	
03:00-04:00	69.8	-	76.1	69.4	69.5	-	71.7	69.2	
04:00-05:00	68.9	-	77.6	68.4	69.2	-	72.0	68.8	
05:00-06:00	69.0	-	70.8	68.7	69.1	-	74.1	68.8	
06:00-07:00	69.5	-	71.4	69.1	69.3	-	75.3	69.0	
07:00-08:00	69.7	-	71.5	69.4	68.9	-	71.1	68.5	
08:00-09:00	69.6	-	73.5	69.3	68.5	-	78.7	68.2	
09:00-10:00	69.6	69.6	71.4	69.3	68.4	69.0	72.8	68.2	
L _{Aeq} 8 hrs.	-	69.4-69.6	-	-	-	69.0-69.8	-	-	85 ^{1/}
L _{Aeq} 24 hrs.	69.5	-	-	-	69.5	-	-	-	-
L _{Adn}	75.9	-	-	-	75.9	-	-	-	-
L _{Amax}	-	-	79.2	-	-	-	82.2	-	115 ^{2/}
L _{A90}	-	-	-	68.7	-	-	-	68.6	-

Source: ^{1/} Notification of the Department of Labour Protection and Welfare, Subject 'The allowable standard for noise exposure level in worker's daily work hours', published in the Royal Government Gazette, Vol.135, Special Part 19D, dated January 26, B.E. 2561 (2018).
^{2/} Ministerial Regulation on the Prescribing of Standard for Administration and Management of Occupational Safety, Health and Environment in relation to Heat, Light and Noise, B.E. 2559, published in the Royal Government Gazette, Vol.133 Part 91A, dated October 17, B.E. 2559 (2016).

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Report No. : 2024-500001363-1 / 006-3 (Page 2 of 2) Issued date : June 13, 2024

CLIENT : PTTEP International Limited
CONTACT : Khun Sutthiluk Phaisun
ADDRESS : 555/1 Energy Complex Vibhavadi-Rangsit Rd., Chatuchak, Chatuchak, Bangkok 10900
 Tel. 089-968-0061 E-Mail: SutthilukP@pttep.com

Analysis Report

SAMPLE DESIGNATED AS : Workplace Noise Level
MEASUREMENT LOCATION : NPI-A Production Phase
 พื้นที่ถังเก็บกาก (Tank Farm)
CALIBRATOR DATA : Model : CR: 515, Cirrus Research plc., Serial No. 88350
 Calibration value Reference: 94.0 dB(A), Pre Cal : 93.9 dB(A), Post Cal : 93.9 dB(A)
SOUND LEVEL METER NO. : Model : NL-52, RION, Serial No. 00710419

Time	Noise Level [dB(A)]				Standard
	May 29-30, 2024				
	L _{Aeq}	L _{Aeq} 8 hrs.	L _{Amax}	L _{A90}	
10:00-11:00	68.3	-	71.0	68.0	
11:00-12:00	68.7	-	73.6	68.4	
12:00-13:00	68.6	-	72.1	68.4	
13:00-14:00	68.3	-	73.3	68.0	
14:00-15:00	68.4	-	72.5	68.2	
15:00-16:00	68.5	-	73.8	68.2	
16:00-17:00	68.8	-	75.9	68.5	
17:00-18:00	68.7	68.5	75.4	67.8	
18:00-19:00	70.1	-	80.4	68.6	
19:00-20:00	68.8	-	79.3	68.6	
20:00-21:00	68.8	-	75.7	67.8	
21:00-22:00	68.9	-	75.4	68.7	
22:00-23:00	69.2	-	70.5	69.0	
23:00-00:00	69.2	-	70.5	68.6	
00:00-01:00	68.9	-	77.9	68.6	
01:00-02:00	68.8	69.1	77.1	68.6	
02:00-03:00	69.1	-	74.5	68.9	
03:00-04:00	69.2	-	72.6	69.0	
04:00-05:00	69.5	-	80.1	69.1	
05:00-06:00	69.7	-	75.5	69.4	
06:00-07:00	69.2	-	71.4	68.8	
07:00-08:00	69.0	-	73.4	68.7	
08:00-09:00	69.6	-	74.7	68.2	
09:00-10:00	71.8	69.7	73.7	71.3	
L _{Aeq} 8 hrs.	-	68.5-69.7	-	-	85 ^{1/}
L _{Aeq} 24 hrs.	69.2	-	-	-	-
L _{Adn}	75.6	-	-	-	-
L _{Amax}	-	-	80.4	-	115 ^{2/}
L _{A90}	-	-	-	68.2	-

Source: ^{1/} Notification of the Department of Labour Protection and Welfare, Subject 'The allowable standard for noise exposure level in worker's daily work hours', published in the Royal Government Gazette, Vol.135, Special Part 19D, dated January 26, B.E. 2561 (2018).
^{2/} Ministerial Regulation on the Prescribing of Standard for Administration and Management of Occupational Safety, Health and Environment in relation to Heat, Light and Noise, B.E. 2559, published in the Royal Government Gazette, Vol.133 Part 91A, dated October 17, B.E. 2559 (2016).

SGS (THAILAND) LIMITED

Acting Environmental Manager

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Report No. : 2024-500001363-1 / 006-4 (Page 1 of 2) Issued date : June 13, 2024

CLIENT : PTTEP International Limited
CONTACT : Khun Sutthiluk Phaisun
ADDRESS : 555/1 Energy Complex Vibhavadi-Rangsit Rd., Chatuchak, Chatuchak, Bangkok 10900
 Tel. 089-968-0061 E-Mail: SutthilukP@pttep.com

Analysis Report

SAMPLE DESIGNATED AS : Workplace Noise Level
MEASUREMENT LOCATION : NPI-A Production Phase
MEASUREMENT DATE : May 27-30, 2024
MEASURED BY : Weerapong Pengtrakul
 ห้องควบคุม (Control Room)
CALIBRATOR DATA : Model : CR: 515, Cirrus Research plc., Serial No. 88350
 Calibration value Reference: 94.0 dB(A), Pre Cal : 93.9 dB(A), Post Cal : 93.9 dB(A)
SOUND LEVEL METER NO. : Model : CR: 161B, Cirrus Research plc., Serial No. G079769

Time	Noise Level [dB(A)]								Standard
	May 27-28, 2024				May 28-29, 2024				
	L _{Aeq}	L _{Aeq} 8 hrs.	L _{Amax}	L _{A90}	L _{Aeq}	L _{Aeq} 8 hrs.	L _{Amax}	L _{A90}	
10:00-11:00	49.3	-	79.8	43.1	49.3	-	50.7	48.3	
11:00-12:00	51.9	-	64.6	49.4	50.2	-	66.5	49.7	
12:00-13:00	52.3	-	69.2	48.8	50.0	-	57.0	49.7	
13:00-14:00	49.0	-	66.1	48.4	49.6	-	66.7	49.0	
14:00-15:00	49.8	-	61.4	48.5	50.8	-	65.4	49.0	
15:00-16:00	53.6	-	68.3	49.2	52.2	-	66.5	49.2	
16:00-17:00	56.8	-	70.8	49.3	49.1	-	64.3	43.6	
17:00-18:00	47.6	52.3	67.2	41.8	53.6	50.9	69.1	42.7	
18:00-19:00	49.5	-	79.5	41.0	49.0	-	65.3	43.5	
19:00-20:00	50.3	-	69.1	42.5	55.1	-	76.1	42.9	
20:00-21:00	49.2	-	67.0	44.5	53.2	-	83.4	43.7	
21:00-22:00	51.2	-	71.7	44.2	44.1	-	52.9	41.3	
22:00-23:00	54.4	-	79.4	38.6	44.5	-	53.2	41.8	
23:00-00:00	46.3	-	71.4	38.4	45.1	-	66.2	42.0	
00:00-01:00	51.6	-	73.4	49.1	44.6	-	67.9	38.8	
01:00-02:00	49.6	50.8	55.2	48.8	43.1	49.7	55.3	40.0	
02:00-03:00	50.2	-	53.7	49.3	43.1	-	49.6	40.2	
03:00-04:00	51.6	-	73.4	50.1	42.3	-	50.7	39.2	
04:00-05:00	51.5	-	71.7	46.8	41.8	-	52.8	38.4	
05:00-06:00	48.7	-	71.9	41.2	47.0	-	71.3	38.7	
06:00-07:00	53.5	-	65.4	45.2	54.4	-	77.0	44.1	
07:00-08:00	53.3	-	66.6	42.9	44.8	-	68.3	41.2	
08:00-09:00	66.5	-	88.9	48.8	49.5	-	73.3	41.6	
09:00-10:00	49.5	58.4	63.9	48.9	52.9	49.4	67.0	48.5	
L _{Aeq} 8 hrs.	-	50.8-58.4	-	-	-	49.4-50.9	-	-	85 ^{1/}
L _{Aeq} 24 hrs.	55.1	-	-	-	50.0	-	-	-	-
L _{Adn}	59.0	-	-	-	54.5	-	-	-	-
L _{Amax}	-	-	88.9	-	-	-	83.4	-	115 ^{2/}
L _{A90}	-	-	-	42.5	-	-	-	40.5	-

Source: ^{1/} Notification of the Department of Labour Protection and Welfare, Subject 'The allowable standard for noise exposure level in worker's daily work hours', published in the Royal Government Gazette, Vol.135, Special Part 19D, dated January 26, B.E. 2561 (2018).
^{2/} Ministerial Regulation on the Prescribing of Standard for Administration and Management of Occupational Safety, Health and Environment in relation to Heat, Light and Noise, B.E. 2559, published in the Royal Government Gazette, Vol.133 Part 91A, dated October 17, B.E. 2559 (2016).

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Report No. : 2024-500001363-1 / 006-4 (Page 2 of 2) Issued date : June 13, 2024

CLIENT : PTTEP International Limited
CONTACT : Khun Sutthiluk Phaisun
ADDRESS : 555/1 Energy Complex Vibhavadi-Rangsit Rd., Chatuchak, Chatuchak, Bangkok 10900
 Tel. 089-968-0061 E-Mail: SutthilukP@pttep.com

Analysis Report

SAMPLE DESIGNATED AS : Workplace Noise Level
MEASUREMENT LOCATION : NPI-A Production Phase
MEASUREMENT DATE : May 27-30, 2024
MEASURED BY : Weerapong Pengtrakul
 ห้องควบคุม (Control Room)
CALIBRATOR DATA : Model : CR: 515, Cirrus Research plc., Serial No. 88350
 Calibration value Reference: 94.0 dB(A), Pre Cal : 93.9 dB(A), Post Cal : 93.9 dB(A)
SOUND LEVEL METER NO. : Model : CR: 161B, Cirrus Research plc., Serial No. G079769

Time	Noise Level [dB(A)]				Standard
	May 29-30, 2024				
	L _{Aeq}	L _{Aeq} 8 hrs.	L _{Amax}	L _{A90}	
10:00-11:00	50.9	-	68.8	48.2	
11:00-12:00	44.5	-	55.9	43.9	
12:00-13:00	43.7	-	57.1	43.0	
13:00-14:00	52.7	-	71.4	43.1	
14:00-15:00	55.3	-	75.8	49.5	
15:00-16:00	51.6	-	73.0	48.8	
16:00-17:00	49.8	-	65.5	48.8	
17:00-18:00	48.8	51.0	72.4	41.0	
18:00-19:00	51.3	-	65.3	42.1	
19:00-20:00	52.9	-	66.8	42.8	
20:00-21:00	49.7	-	68.6	40.4	
21:00-22:00	50.1	-	73.1	37.7	
22:00-23:00	49.3	-	82.2	38.4	
23:00-00:00	48.0	-	64.2	40.0	
00:00-01:00	51.3	-	71.2	41.5	
01:00-02:00	53.5	51.1	66.7	39.8	
02:00-03:00	45.5	-	65.7	39.8	
03:00-04:00	42.2	-	52.4	38.7	
04:00-05:00	42.7	-	49.8	38.6	
05:00-06:00	44.0	-	68.7	39.0	
06:00-07:00	49.2	-	71.4	39.1	
07:00-08:00	42.5	-	53.2	38.9	
08:00-09:00	45.4	-	63.7	39.1	
09:00-10:00	48.8	45.8	67.9	40.3	
L _{Aeq} 8 hrs.	-	45.8-51.1	-	-	85 ^{1/}
L _{Aeq} 24 hrs.	49.9	-	-	-	-
L _{Adn}	55.5	-	-	-	-
L _{Amax}	-	-	82.2	-	115 ^{2/}
L _{A90}	-	-	-	39.6	-

Source: ^{1/} Notification of the Department of Labour Protection and Welfare, Subject 'The allowable standard for noise exposure level in worker's daily work hours', published in the Royal Government Gazette, Vol.135, Special Part 19D, dated January 26, B.E. 2561 (2018).
^{2/} Ministerial Regulation on the Prescribing of Standard for Administration and Management of Occupational Safety, Health and Environment in relation to Heat, Light and Noise, B.E. 2559, published in the Royal Government Gazette, Vol.133 Part 91A, dated October 17, B.E. 2559 (2016).


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Report No. : 2024-500001363-1 / 006-1 (Page 1 of 2) Issued date : June 13, 2024

CLIENT : PTTEP International Limited
CONTACT : Khun Sutthiluk Phaisun
ADDRESS : 555/1 Energy Complex Vibhavadi-Rangsit Rd., Chatuchak, Chatuchak, Bangkok 10900
 Tel. 089-968-0061 E-Mail: SutthilukP@pttep.com

Analysis Report

SAMPLE DESIGNATED AS : Workplace Noise Level
MEASUREMENT LOCATION : NPI-A Production Phase
 พื้นที่ผลิต (Process Area)
MEASUREMENT DATE : May 27-30, 2024
MEASURED BY : Weerapong Pengtrakul
CALIBRATOR DATA : Model : CR: 515, Cirrus Research plc., Serial No. 88350
 Calibration value Reference: 94.0 dB(A), Pre Cal : 93.9 dB(A), Post Cal : 93.9 dB(A)
SOUND LEVEL METER NO. : Model : NL-52, RION, Serial No. 00710417

Time	Noise Level [dB(A)]								Standard
	May 27-28, 2024				May 28-29, 2024				
	L _{Aeq}	L _{Aeq} 8 hrs.	L _{Amax}	L _{A90}	L _{Aeq}	L _{Aeq} 8 hrs.	L _{Amax}	L _{A90}	
10:00-11:00	66.0	-	73.5	65.2	66.0	-	75.6	65.0	
11:00-12:00	66.0	-	72.8	65.3	65.9	-	72.0	65.1	
12:00-13:00	66.0	-	72.5	65.2	66.0	-	72.6	65.2	
13:00-14:00	66.2	-	71.9	65.4	66.0	-	76.1	65.2	
14:00-15:00	66.3	-	72.7	65.5	66.0	-	73.4	65.2	
15:00-16:00	66.2	-	71.7	65.4	67.0	-	80.5	65.4	
16:00-17:00	66.3	-	72.8	65.5	65.8	-	75.7	65.0	
17:00-18:00	66.3	66.2	82.5	65.5	65.8	66.1	73.9	65.0	
18:00-19:00	66.4	-	73.5	65.5	66.0	-	77.9	65.1	
19:00-20:00	66.2	-	75.0	65.1	65.7	-	71.9	63.8	
20:00-21:00	66.0	-	69.3	65.2	66.0	-	69.8	65.1	
21:00-22:00	66.0	-	69.6	65.1	66.1	-	69.9	65.3	
22:00-23:00	65.8	-	69.3	65.0	66.1	-	69.3	65.3	
23:00-00:00	65.7	-	69.3	64.9	66.2	-	69.4	65.4	
00:00-01:00	65.7	-	69.1	64.9	66.1	-	69.3	65.3	
01:00-02:00	65.8	65.9	69.3	64.9	66.0	66.0	69.4	65.3	
02:00-03:00	65.8	-	69.3	64.9	66.0	-	69.6	65.3	
03:00-04:00	65.9	-	69.4	65.0	66.1	-	69.2	65.3	
04:00-05:00	65.9	-	70.9	65.1	66.2	-	73.4	65.4	
05:00-06:00	66.1	-	75.1	64.9	67.7	-	98.9	65.4	
06:00-07:00	66.4	-	75.6	65.0	66.7	-	76.9	65.5	
07:00-08:00	66.3	-	90.4	65.0	66.3	-	73.8	65.1	
08:00-09:00	65.9	-	80.8	64.9	65.9	-	74.3	64.9	
09:00-10:00	65.9	66.0	74.6	64.9	66.0	66.4	84.3	65.1	
L _{Aeq} 8 hrs.	-	65.9-66.2	-	-	-	66.0-66.4	-	-	85 ^{1/}
L _{Aeq} 24 hrs.	66.0	-	-	-	66.2	-	-	-	-
L _{Adn}	72.3	-	-	-	72.7	-	-	-	-
L _{Amax}	-	-	90.4	-	-	-	98.9	-	115 ^{2/}
L _{A90}	-	-	-	65.0	-	-	-	65.1	-

Source: ^{1/} Notification of the Department of Labour Protection and Welfare, Subject 'The allowable standard for noise exposure level in worker's daily work hours', published in the Royal Government Gazette, Vol.135, Special Part 19D, dated January 26, B.E. 2561 (2018).
^{2/} Ministerial Regulation on the Prescribing of Standard for Administration and Management of Occupational Safety, Health and Environment in relation to Heat, Light and Noise, B.E. 2559, published in the Royal Government Gazette, Vol.133 Part 91A, dated October 17, B.E. 2559 (2016).



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Report No. : 2024-500001363-1 / 006-1 (Page 2 of 2) Issued date : June 13, 2024

CLIENT : PTTEP International Limited
CONTACT : Khun Sutthiluk Phaisun
ADDRESS : 555/1 Energy Complex Vibhavadi-Rangsit Rd., Chatuchak, Chatuchak, Bangkok 10900
 Tel. 089-968-0061 E-Mail: SutthilukP@pttep.com

Analysis Report

SAMPLE DESIGNATED AS : Workplace Noise Level
MEASUREMENT LOCATION : NPI-A Production Phase
 พื้นที่ผลิต (Process Area)
MEASUREMENT DATE : May 27-30, 2024
MEASURED BY : Weerapong Pengtrakul
CALIBRATOR DATA : Model : CR: 515, Cirrus Research plc., Serial No. 88350
 Calibration value Reference: 94.0 dB(A), Pre Cal : 93.9 dB(A), Post Cal : 93.9 dB(A)
SOUND LEVEL METER NO. : Model : NL-52, RION, Serial No. 00710417

Time	Noise Level [dB(A)]				Standard
	May 29-30, 2024				
	L _{Aeq}	L _{Aeq} 8 hrs.	L _{Amax}	L _{A90}	
10:00-11:00	66.0	-	72.7	65.1	
11:00-12:00	65.9	-	75.2	65.0	
12:00-13:00	65.8	-	71.1	65.0	
13:00-14:00	66.0	-	76.1	65.1	
14:00-15:00	66.0	-	77.8	65.1	
15:00-16:00	66.3	-	75.0	65.4	
16:00-17:00	66.0	-	88.2	65.0	
17:00-18:00	65.9	66.0	82.4	65.0	
18:00-19:00	66.2	-	80.3	65.2	
19:00-20:00	65.9	-	70.4	65.1	
20:00-21:00	66.0	-	71.8	65.2	
21:00-22:00	66.0	-	69.4	65.2	
22:00-23:00	66.0	-	69.5	65.2	
23:00-00:00	66.0	-	72.3	65.3	
00:00-01:00	65.9	-	69.1	65.1	
01:00-02:00	65.9	66.0	69.3	65.2	
02:00-03:00	66.1	-	69.4	65.3	
03:00-04:00	66.1	-	69.5	65.3	
04:00-05:00	66.2	-	76.4	65.2	
05:00-06:00	66.4	-	79.5	65.3	
06:00-07:00	66.4	-	76.0	65.3	
07:00-08:00	66.2	-	74.7	65.2	
08:00-09:00	65.4	-	75.9	61.7	
09:00-10:00	63.6	65.9	74.3	61.5	
L _{Aeq} 8 hrs.	-	65.9-66.0	-	-	85 ^{1/}
L _{Aeq} 24 hrs.	66.0	-	-	-	-
L _{Adn}	72.5	-	-	-	-
L _{Amax}	-	-	88.2	-	115 ^{2/}
L _{A90}	-	-	-	65.0	-

Source: ^{1/} Notification of the Department of Labour Protection and Welfare, Subject 'The allowable standard for noise exposure level in worker's daily work hours', published in the Royal Government Gazette, Vol.135, Special Part 19D, dated January 26, B.E. 2561 (2018).
^{2/} Ministerial Regulation on the Prescribing of Standard for Administration and Management of Occupational Safety, Health and Environment in relation to Heat, Light and Noise, B.E. 2559, published in the Royal Government Gazette, Vol.133 Part 91A, dated October 17, B.E. 2559 (2016).



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IE 009101

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Report No. : 2024-500001363-1 / 006-2 (Page 1 of 2) Issued date : June 13, 2024

CLIENT : PTTEP International Limited
CONTACT : Khun Sutthiluk Phaisun
ADDRESS : 555/1 Energy Complex Vibhavadi-Rangsit Rd., Chatuchak, Chatuchak, Bangkok 10900
 Tel. 089-968-0061 E-Mail: SutthilukP@pttep.com

Analysis Report

SAMPLE DESIGNATED AS : Workplace Noise Level
MEASUREMENT LOCATION : NPI-A Production Phase
MEASUREMENT DATE : May 27-30, 2024
MEASURED BY : Weerapong Pengtrakul
 พื้นที่ส่งถ่ายผลิตภัณฑ์ (Loading Area)
CALIBRATOR DATA : Model : CR: 515, Cirrus Research plc., Serial No. 88350
 Calibration value Reference: 94.0 dB(A), Pre Cal : 93.9 dB(A), Post Cal : 93.9 dB(A)
SOUND LEVEL METER NO. : Model : NL-52, RION, Serial No. 00710418

Time	Noise Level [dB(A)]								Standard
	May 27-28, 2024				May 28-29, 2024				
	L _{Aeq}	L _{Aeq} 8 hrs.	L _{Amax}	L _{A90}	L _{Aeq}	L _{Aeq} 8 hrs.	L _{Amax}	L _{A90}	
10:00-11:00	58.3	-	71.3	57.8	57.7	-	80.2	56.1	
11:00-12:00	59.8	-	85.3	58.0	57.4	-	75.1	56.1	
12:00-13:00	58.8	-	64.6	58.2	69.7	-	89.6	56.0	
13:00-14:00	58.8	-	73.5	58.1	75.1	-	77.0	74.7	
14:00-15:00	59.3	-	76.3	58.2	75.2	-	76.8	74.8	
15:00-16:00	65.0	-	92.2	53.7	72.9	-	90.2	53.4	
16:00-17:00	70.6	-	96.8	53.5	71.4	-	89.4	54.9	
17:00-18:00	55.0	63.7	82.0	53.6	68.5	71.6	85.9	52.8	
18:00-19:00	67.6	-	92.2	52.8	53.7	-	58.6	53.0	
19:00-20:00	54.7	-	57.2	52.8	67.7	-	92.2	52.8	
20:00-21:00	54.7	-	60.2	53.9	54.2	-	56.9	52.8	
21:00-22:00	54.1	-	59.8	53.6	54.8	-	60.2	53.9	
22:00-23:00	53.8	-	55.7	53.3	54.4	-	59.2	53.8	
23:00-00:00	53.7	-	69.6	53.0	53.9	-	59.8	53.3	
00:00-01:00	55.7	-	60.6	54.2	53.5	-	69.6	53.0	
01:00-02:00	56.5	60.0	74.4	55.4	55.2	59.8	60.6	53.8	
02:00-03:00	54.9	-	74.1	53.4	56.2	-	59.6	55.6	
03:00-04:00	57.0	-	76.0	53.4	55.8	-	74.4	53.5	
04:00-05:00	55.7	-	75.4	53.4	56.7	-	76.0	53.4	
05:00-06:00	58.2	-	77.7	53.9	55.6	-	75.4	53.4	
06:00-07:00	55.0	-	69.3	52.9	57.5	-	77.7	54.0	
07:00-08:00	57.8	-	73.6	52.9	56.6	-	69.3	53.0	
08:00-09:00	57.9	-	73.1	56.4	56.6	-	73.6	52.9	
09:00-10:00	57.5	56.9	69.4	56.2	58.4	56.8	73.1	56.4	
L _{Aeq} 8 hrs.	-	56.9-63.7	-	-	-	56.8-71.6	-	-	85 ^{1/}
L _{Aeq} 24 hrs.	61.1	-	-	-	67.3	-	-	-	-
L _{Adn}	64.1	-	-	-	68.2	-	-	-	-
L _{Amax}	-	-	96.8	-	-	-	92.2	-	115 ^{2/}
L _{A90}	-	-	-	53.3	-	-	-	53.2	-

Source: ^{1/} Notification of the Department of Labour Protection and Welfare, Subject 'The allowable standard for noise exposure level in worker's daily work hours', published in the Royal Government Gazette, Vol.135, Special Part 19D, dated January 26, B.E. 2561 (2018).
^{2/} Ministerial Regulation on the Prescribing of Standard for Administration and Management of Occupational Safety, Health and Environment in relation to Heat, Light and Noise, B.E. 2559, published in the Royal Government Gazette, Vol.133 Part 91A, dated October 17, B.E. 2559 (2016).

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Acting Environmental Manager

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Report No. : 2024-500001363-1 / 006-2 (Page 2 of 2) Issued date : June 13, 2024

CLIENT : PTTEP International Limited
CONTACT : Khun Sutthiluk Phaisun
ADDRESS : 555/1 Energy Complex Vibhavadi-Rangsit Rd., Chatuchak, Chatuchak, Bangkok 10900
 Tel. 089-968-0061 E-Mail: SutthilukP@pttep.com

Analysis Report

SAMPLE DESIGNATED AS : Workplace Noise Level
MEASUREMENT LOCATION : NPI-A Production Phase
MEASUREMENT DATE : May 27-30, 2024
MEASURED BY : Weerapong Pengtrakul
 พื้นที่สูบล้างผลิตภัณฑ์ (Loading Area)
CALBRATOR DATA : Model : CR: 515, Cirrus Research plc., Serial No. 88350
 Calibration value Reference: 94.0 dB(A), Pre Cal : 93.9 dB(A), Post Cal : 93.9 dB(A)
SOUND LEVEL METER NO. : Model : NL-52, RION, Serial No. 00710418

Time	Noise Level [dB(A)]				Standard
	May 29-30, 2024				
	L _{Aeq}	L _{Aeq} 8 hrs.	L _{Amax}	L _{A90}	
10:00-11:00	57.6	-	69.4	56.3	
11:00-12:00	57.6	-	72.2	56.2	
12:00-13:00	57.5	-	80.2	56.1	
13:00-14:00	61.2	-	89.6	56.0	
14:00-15:00	75.0	-	77.0	74.6	
15:00-16:00	75.2	-	76.7	74.8	
16:00-17:00	74.1	-	90.2	69.8	
17:00-18:00	71.3	71.3	89.4	53.4	
18:00-19:00	70.1	-	86.6	53.0	
19:00-20:00	53.6	-	68.2	52.8	
20:00-21:00	69.4	-	90.2	52.7	
21:00-22:00	53.6	-	60.6	52.9	
22:00-23:00	53.7	-	56.6	53.1	
23:00-00:00	53.6	-	63.0	52.9	
00:00-01:00	53.8	-	76.1	52.7	
01:00-02:00	54.1	64.1	61.6	53.0	
02:00-03:00	56.3	-	76.6	55.0	
03:00-04:00	54.5	-	62.3	53.7	
04:00-05:00	56.9	-	75.3	53.6	
05:00-06:00	56.5	-	76.8	53.9	
06:00-07:00	56.0	-	84.2	53.6	
07:00-08:00	56.3	-	77.8	53.1	
08:00-09:00	57.7	-	84.7	52.8	
09:00-10:00	64.1	58.5	94.0	51.8	
L _{Aeq} 8 hrs.	-	58.5-71.3	-	-	85 ^{1/}
L _{Aeq} 24 hrs.	67.4	-	-	-	-
L _{Adn}	68.2	-	-	-	-
L _{Amax}	-	-	94.0	-	115 ^{2/}
L _{A90}	-	-	-	52.9	-

Source: ^{1/} Notification of the Department of Labour Protection and Welfare, Subject 'The allowable standard for noise exposure level in worker's daily work hours', published in the Royal Government Gazette, Vol.135, Special Part 19D, dated January 26, B.E. 2561 (2018).
^{2/} Ministerial Regulation on the Prescribing of Standard for Administration and Management of Occupational Safety, Health and Environment in relation to Heat, Light and Noise, B.E. 2559, published in the Royal Government Gazette, Vol.133 Part 91A, dated October 17, B.E. 2559 (2016).

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Member of the SGS Group

CLIENT : PTTEP International Limited
CONTACT : Khun Sutthiluk Phaisun
ADDRESS : 555/1 Energy Complex Vibhavadi-Rangsit Rd., Chatuchak, Chatuchak, Bangkok 10900
 Tel. 089-968-0061 E-Mail: SutthilukP@pttep.com

Analysis Report

SAMPLE DESIGNATED AS : Workplace Noise Level
MEASUREMENT LOCATION : NPI-A Production Phase
 พื้นที่ถังเก็บกาก (Tank Farm)
CALIBRATOR DATA : Model : CR: 515, Cirrus Research plc., Serial No. 88350
 Calibration value Reference: 94.0 dB(A), Pre Cal : 93.9 dB(A), Post Cal : 93.9 dB(A)
SOUND LEVEL METER NO. : Model : NL-52, RION, Serial No. 00710419

Time	Noise Level [dB(A)]								Standard
	May 27-28, 2024				May 28-29, 2024				
	L _{Aeq}	L _{Aeq} 8 hrs.	L _{Amax}	L _{A90}	L _{Aeq}	L _{Aeq} 8 hrs.	L _{Amax}	L _{A90}	
10:00-11:00	69.3	-	71.6	69.1	69.6	-	71.9	69.3	
11:00-12:00	69.4	-	71.1	69.1	69.7	-	72.1	69.5	
12:00-13:00	69.5	-	73.3	69.1	69.5	-	75.6	69.0	
13:00-14:00	69.4	-	72.5	69.1	69.7	-	71.4	69.4	
14:00-15:00	69.3	-	79.2	68.7	69.7	-	74.3	69.4	
15:00-16:00	68.9	-	70.1	68.7	70.1	-	73.3	69.7	
16:00-17:00	69.4	-	74.8	68.9	69.9	-	75.3	68.9	
17:00-18:00	70.3	69.5	79.0	69.4	70.3	69.8	82.2	69.0	
18:00-19:00	70.3	-	76.8	69.5	69.9	-	76.7	69.6	
19:00-20:00	69.1	-	77.6	68.4	69.5	-	81.2	68.5	
20:00-21:00	69.0	-	70.8	68.7	69.7	-	71.3	69.4	
21:00-22:00	69.4	-	71.3	69.0	69.9	-	71.7	69.6	
22:00-23:00	69.7	-	71.5	69.4	69.7	-	71.6	69.3	
23:00-00:00	69.3	-	79.2	68.7	69.6	-	71.7	69.3	
00:00-01:00	69.0	-	70.2	68.7	69.7	-	71.6	69.4	
01:00-02:00	69.5	69.4	79.0	68.9	69.7	69.7	71.5	69.4	
02:00-03:00	70.7	-	76.8	69.7	69.4	-	71.5	69.1	
03:00-04:00	69.8	-	76.1	69.4	69.5	-	71.7	69.2	
04:00-05:00	68.9	-	77.6	68.4	69.2	-	72.0	68.8	
05:00-06:00	69.0	-	70.8	68.7	69.1	-	74.1	68.8	
06:00-07:00	69.5	-	71.4	69.1	69.3	-	75.3	69.0	
07:00-08:00	69.7	-	71.5	69.4	68.9	-	71.1	68.5	
08:00-09:00	69.6	-	73.5	69.3	68.5	-	78.7	68.2	
09:00-10:00	69.6	69.6	71.4	69.3	68.4	69.0	72.8	68.2	
L _{Aeq} 8 hrs.	-	69.4-69.6	-	-	-	69.0-69.8	-	-	85 ^{1/}
L _{Aeq} 24 hrs.	69.5	-	-	-	69.5	-	-	-	-
L _{Adn}	75.9	-	-	-	75.9	-	-	-	-
L _{Amax}	-	-	79.2	-	-	-	82.2	-	115 ^{2/}
L _{A90}	-	-	-	68.7	-	-	-	68.6	-

Source: ^{1/} Notification of the Department of Labour Protection and Welfare, Subject 'The allowable standard for noise exposure level in worker's daily work hours', published in the Royal Government Gazette, Vol.135, Special Part 19D, dated January 26, B.E. 2561 (2018).
^{2/} Ministerial Regulation on the Prescribing of Standard for Administration and Management of Occupational Safety, Health and Environment in relation to Heat, Light and Noise, B.E. 2559, published in the Royal Government Gazette, Vol.133 Part 91A, dated October 17, B.E. 2559 (2016).

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Acting Environmental Manager

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Report No. : 2024-500001363-1 / 006-3 (Page 2 of 2) Issued date : June 13, 2024

CLIENT : PTTEP International Limited
CONTACT : Khun Sutthiluk Phaisun
ADDRESS : 555/1 Energy Complex Vibhavadi-Rangsit Rd., Chatuchak, Chatuchak, Bangkok 10900
 Tel. 089-968-0061 E-Mail: SutthilukP@pttep.com

Analysis Report

SAMPLE DESIGNATED AS : Workplace Noise Level
MEASUREMENT LOCATION : NPI-A Production Phase
 พื้นที่ถังเก็บกาก (Tank Farm)
CALIBRATOR DATA : Model : CR: 515, Cirrus Research plc., Serial No. 88350
 Calibration value Reference: 94.0 dB(A), Pre Cal : 93.9 dB(A), Post Cal : 93.9 dB(A)
SOUND LEVEL METER NO. : Model : NL-52, RION, Serial No. 00710419

Time	Noise Level [dB(A)]				Standard
	May 29-30, 2024				
	L _{Aeq}	L _{Aeq} 8 hrs.	L _{Amax}	L _{A90}	
10:00-11:00	68.3	-	71.0	68.0	
11:00-12:00	68.7	-	73.6	68.4	
12:00-13:00	68.6	-	72.1	68.4	
13:00-14:00	68.3	-	73.3	68.0	
14:00-15:00	68.4	-	72.5	68.2	
15:00-16:00	68.5	-	73.8	68.2	
16:00-17:00	68.8	-	75.9	68.5	
17:00-18:00	68.7	68.5	75.4	67.8	
18:00-19:00	70.1	-	80.4	68.6	
19:00-20:00	68.8	-	79.3	68.6	
20:00-21:00	68.8	-	75.7	67.8	
21:00-22:00	68.9	-	75.4	68.7	
22:00-23:00	69.2	-	70.5	69.0	
23:00-00:00	69.2	-	70.5	68.6	
00:00-01:00	68.9	-	77.9	68.6	
01:00-02:00	68.8	69.1	77.1	68.6	
02:00-03:00	69.1	-	74.5	68.9	
03:00-04:00	69.2	-	72.6	69.0	
04:00-05:00	69.5	-	80.1	69.1	
05:00-06:00	69.7	-	75.5	69.4	
06:00-07:00	69.2	-	71.4	68.8	
07:00-08:00	69.0	-	73.4	68.7	
08:00-09:00	69.6	-	74.7	68.2	
09:00-10:00	71.8	69.7	73.7	71.3	
L _{Aeq} 8 hrs.	-	68.5-69.7	-	-	85 ^{1/}
L _{Aeq} 24 hrs.	69.2	-	-	-	-
L _{Adn}	75.6	-	-	-	-
L _{Amax}	-	-	80.4	-	115 ^{2/}
L _{A90}	-	-	-	68.2	-

Source: ^{1/} Notification of the Department of Labour Protection and Welfare, Subject 'The allowable standard for noise exposure level in worker's daily work hours', published in the Royal Government Gazette, Vol.135, Special Part 19D, dated January 26, B.E. 2561 (2018).
^{2/} Ministerial Regulation on the Prescribing of Standard for Administration and Management of Occupational Safety, Health and Environment in relation to Heat, Light and Noise, B.E. 2559, published in the Royal Government Gazette, Vol.133 Part 91A, dated October 17, B.E. 2559 (2016).


 Acting Environmental Manager

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Report No. : 2024-500001363-1 / 006-4 (Page 1 of 2) Issued date : June 13, 2024

CLIENT : PTTEP International Limited
CONTACT : Khun Sutthiluk Phaisun
ADDRESS : 555/1 Energy Complex Vibhavadi-Rangsit Rd., Chatuchak, Chatuchak, Bangkok 10900
Tel. 089-968-0061 E-Mail: SutthilukP@pttep.com

Analysis Report

SAMPLE DESIGNATED AS : Workplace Noise Level
MEASUREMENT LOCATION : NPI-A Production Phase
MEASUREMENT DATE : May 27-30, 2024
MEASURED BY : Weerapong Pengtrakul
ห้องควบคุม (Control Room)
CALIBRATOR DATA : Model : CR: 515, Cirrus Research plc., Serial No. 88350
Calibration value Reference: 94.0 dB(A), Pre Cal : 93.9 dB(A), Post Cal : 93.9 dB(A)
SOUND LEVEL METER NO. : Model : CR: 161B, Cirrus Research plc., Serial No. G079769

Time	Noise Level [dB(A)]								Standard
	May 27-28, 2024				May 28-29, 2024				
	L _{Aeq}	L _{Aeq} 8 hrs.	L _{Amax}	L _{A90}	L _{Aeq}	L _{Aeq} 8 hrs.	L _{Amax}	L _{A90}	
10:00-11:00	49.3	-	79.8	43.1	49.3	-	50.7	48.3	
11:00-12:00	51.9	-	64.6	49.4	50.2	-	66.5	49.7	
12:00-13:00	52.3	-	69.2	48.8	50.0	-	57.0	49.7	
13:00-14:00	49.0	-	66.1	48.4	49.6	-	66.7	49.0	
14:00-15:00	49.8	-	61.4	48.5	50.8	-	65.4	49.0	
15:00-16:00	53.6	-	68.3	49.2	52.2	-	66.5	49.2	
16:00-17:00	56.8	-	70.8	49.3	49.1	-	64.3	43.6	
17:00-18:00	47.6	52.3	67.2	41.8	53.6	50.9	69.1	42.7	
18:00-19:00	49.5	-	79.5	41.0	49.0	-	65.3	43.5	
19:00-20:00	50.3	-	69.1	42.5	55.1	-	76.1	42.9	
20:00-21:00	49.2	-	67.0	44.5	53.2	-	83.4	43.7	
21:00-22:00	51.2	-	71.7	44.2	44.1	-	52.9	41.3	
22:00-23:00	54.4	-	79.4	38.6	44.5	-	53.2	41.8	
23:00-00:00	46.3	-	71.4	38.4	45.1	-	66.2	42.0	
00:00-01:00	51.6	-	73.4	49.1	44.6	-	67.9	38.8	
01:00-02:00	49.6	50.8	55.2	48.8	43.1	49.7	55.3	40.0	
02:00-03:00	50.2	-	53.7	49.3	43.1	-	49.6	40.2	
03:00-04:00	51.6	-	73.4	50.1	42.3	-	50.7	39.2	
04:00-05:00	51.5	-	71.7	46.8	41.8	-	52.8	38.4	
05:00-06:00	48.7	-	71.9	41.2	47.0	-	71.3	38.7	
06:00-07:00	53.5	-	65.4	45.2	54.4	-	77.0	44.1	
07:00-08:00	53.3	-	66.6	42.9	44.8	-	68.3	41.2	
08:00-09:00	66.5	-	88.9	48.8	49.5	-	73.3	41.6	
09:00-10:00	49.5	58.4	63.9	48.9	52.9	49.4	67.0	48.5	
L _{Aeq} 8 hrs.	-	50.8-58.4	-	-	-	49.4-50.9	-	-	85 ^{1/}
L _{Aeq} 24 hrs.	55.1	-	-	-	50.0	-	-	-	-
L _{Adn}	59.0	-	-	-	54.5	-	-	-	-
L _{Amax}	-	-	88.9	-	-	-	83.4	-	115 ^{2/}
L _{A90}	-	-	-	42.5	-	-	-	40.5	-

Source: ^{1/} Notification of the Department of Labour Protection and Welfare, Subject 'The allowable standard for noise exposure level in worker's daily work hours', published in the Royal Government Gazette, Vol.135, Special Part 19D, dated January 26, B.E. 2561 (2018).
^{2/} Ministerial Regulation on the Prescribing of Standard for Administration and Management of Occupational Safety, Health and Environment in relation to Heat, Light and Noise, B.E. 2559, published in the Royal Government Gazette, Vol.133 Part 91A, dated October 17, B.E. 2559 (2016).

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Report No. : 2024-500001363-1 / 006-4 (Page 2 of 2) Issued date : June 13, 2024

CLIENT : PTTEP International Limited
CONTACT : Khun Sutthiluk Phaisun
ADDRESS : 555/1 Energy Complex Vibhavadi-Rangsit Rd., Chatuchak, Chatuchak, Bangkok 10900
 Tel. 089-968-0061 E-Mail: SutthilukP@pttep.com

Analysis Report

SAMPLE DESIGNATED AS : Workplace Noise Level
MEASUREMENT LOCATION : NPI-A Production Phase
MEASUREMENT DATE : May 27-30, 2024
MEASURED BY : Weerapong Pengtrakul
 ห้องควบคุม (Control Room)
CALIBRATOR DATA : Model : CR: 515, Cirrus Research plc., Serial No. 88350
 Calibration value Reference: 94.0 dB(A), Pre Cal : 93.9 dB(A), Post Cal : 93.9 dB(A)
SOUND LEVEL METER NO. : Model : CR: 161B, Cirrus Research plc., Serial No. G079769

Time	Noise Level [dB(A)]				Standard
	May 29-30, 2024				
	L _{Aeq}	L _{Aeq} 8 hrs.	L _{Amax}	L _{A90}	
10:00-11:00	50.9	-	68.8	48.2	
11:00-12:00	44.5	-	55.9	43.9	
12:00-13:00	43.7	-	57.1	43.0	
13:00-14:00	52.7	-	71.4	43.1	
14:00-15:00	55.3	-	75.8	49.5	
15:00-16:00	51.6	-	73.0	48.8	
16:00-17:00	49.8	-	65.5	48.8	
17:00-18:00	48.8	51.0	72.4	41.0	
18:00-19:00	51.3	-	65.3	42.1	
19:00-20:00	52.9	-	66.8	42.8	
20:00-21:00	49.7	-	68.6	40.4	
21:00-22:00	50.1	-	73.1	37.7	
22:00-23:00	49.3	-	82.2	38.4	
23:00-00:00	48.0	-	64.2	40.0	
00:00-01:00	51.3	-	71.2	41.5	
01:00-02:00	53.5	51.1	66.7	39.8	
02:00-03:00	45.5	-	65.7	39.8	
03:00-04:00	42.2	-	52.4	38.7	
04:00-05:00	42.7	-	49.8	38.6	
05:00-06:00	44.0	-	68.7	39.0	
06:00-07:00	49.2	-	71.4	39.1	
07:00-08:00	42.5	-	53.2	38.9	
08:00-09:00	45.4	-	63.7	39.1	
09:00-10:00	48.8	45.8	67.9	40.3	
L _{Aeq} 8 hrs.	-	45.8-51.1	-	-	85 ^{1/}
L _{Aeq} 24 hrs.	49.9	-	-	-	-
L _{Adn}	55.5	-	-	-	-
L _{Amax}	-	-	82.2	-	115 ^{2/}
L _{A90}	-	-	-	39.6	-

Source: ^{1/} Notification of the Department of Labour Protection and Welfare, Subject 'The allowable standard for noise exposure level in worker's daily work hours', published in the Royal Government Gazette, Vol.135, Special Part 19D, dated January 26, B.E. 2561 (2018).
^{2/} Ministerial Regulation on the Prescribing of Standard for Administration and Management of Occupational Safety, Health and Environment in relation to Heat, Light and Noise, B.E. 2559, published in the Royal Government Gazette, Vol.133 Part 91A, dated October 17, B.E. 2559 (2016).

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Acting Environmental manager

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ภาคผนวก ก6

ผลการตรวจวิเคราะห์คุณภาพดิน

Report No. : 2024-500001363-2 / 006-1 (Page 1 of 3)

Issued date : May 31, 2024

CLIENT : PTTEP International Limited
CONTACT : Khun Sutthiluk Phaisun
ADDRESS : 555/1 Energy Complex Vibhavadi-Rangsit Rd., Chatuchak, Chatuchak, Bangkok 10900
 Tel. 089-968-0061 E-Mail: SutthilukP@pttep.com

Analysis Report

SAMPLE DESIGNATED AS : Soil
SAMPLING BY : Weerapong Pengtrakul
SAMPLING LOCATION : NPI-B Production Phase,
 UTM47P 0610314E, 1586460N

SAMPLING DATE : April 26, 2024
SAMPLING TIME : 15.50 hr.

Parameter	Unit (dry basis)	Method	Result	Standard	
				Class 1	Class 2
pH	-	U.S.EPA 9045 D	4.0	-	-
Salinity	ppt	In-House method: ENSE-24001	0.35	-	-
Conductivity	dS/m	In-House method: ENSE-24001	0.69	-	-
Chloride (Cl-)	mg/kg	Water extraction/ Potentiometric Titration	101.93	-	-
Total Petroleum Hydrocarbon (TPH)					
- C6-C9	mg/kg	U.S. EPA 8015D	<0.10	-	-
- C10-C14	mg/kg	U.S. EPA 8015D	<0.10	-	-
- C15-C28	mg/kg	U.S. EPA 8015D	<0.10	-	-
- C29-C36	mg/kg	U.S. EPA 8015D	<0.10	-	-

Remarks : - Analytical Methods followed to United States Environmental Protection Agency.
 - Chloride analysis by Department of Silviculture, Faculty of Forestry, Kasetsart University.
Source : - Notification of the National Environmental Board, Subject Soil Quality Standard, published in the Royal Government Gazette, Vol. 138 special part 54D, dated March 11, B.E. 2564 (2021).
 Standard of Soil Class 1 : for residential to protect the populace and a cluster of risky population i.g. children under 6 years old
 Standard of Soil Class 2 : for merchandising, agriculture and other activities to protect working-age population and agriculturists

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SGS (THAILAND) LIMITED



(Thepsan Yommana)
 Technical Manager

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Report No. : 2024-500001363-2 / 006-1 (Page 2 of 3)

Issued date : May 31, 2024

CLIENT : PTTEP International Limited
CONTACT : Khun Sutthiluk Phaisun
ADDRESS : 555/1 Energy Complex Vibhavadi-Rangsit Rd., Chatuchak, Chatuchak, Bangkok 10900
Tel. 089-968-0061 E-Mail: SutthilukP@pttep.com

Analysis Report

SAMPLE DESIGNATED AS : Soil
SAMPLING BY : Weerapong Pengtrakul
SAMPLING LOCATION : NPI-B Production Phase,
UTM47P 0610314E, 1586460N

SAMPLING DATE : April 26, 2024
SAMPLING TIME : 15.50 hr.

Parameter	Unit (dry basis)	Method	Result	Standard	
				Class 1	Class 2
VOCs Groups					
- Benzene	mg/kg	U.S. EPA 8260C	<0.01	1	5
- Toluene	mg/kg	U.S. EPA 8260C	<0.01	4,630	40,140
- Ethylbenzene	mg/kg	U.S. EPA 8260C	<0.01	3,265	19,350
- Total Xylenes	mg/kg	U.S. EPA 8260C	<0.01	575	2,478
Heavy Metals					
Arsenic (As)	mg/kg	U.S. EPA 6020B	17.1	6	25
Barium (Ba)	mg/kg	U.S. EPA 6010D	37.3	-	-
Cadmium (Cd)	mg/kg	U.S. EPA 6010D	1.1	67	762
Chromium (Cr ⁶⁺)	mg/kg	U.S. EPA 3060A	<2.5	17.5	212
Copper (Cu)	mg/kg	U.S. EPA 6010D	27.1	2,920	35,040

Remark : - Analytical Methods followed to United States Environmental Protection Agency.

Source : - Notification of the National Environmental Board, Subject Soil Quality Standard, published in the Royal Government Gazette, Vol. 138 special part 54D, dated March 11, B.E. 2564 (2021).
Standard of Soil Class 1 : for residential to protect the populace and a cluster of risky population i.g. children under 6 years old
Standard of Soil Class 2 : for merchandising, agriculture and other activities to protect working-age population and agriculturists

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SGS (THAILAND) LIMITED



(Signature)
Technical Manager

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Report No. : 2024-500001363-2 / 006-1 (Page 3 of 3)

Issued date : May 31, 2024

CLIENT : PTTEP International Limited
CONTACT : Khun Sutthiluk Phaisun
ADDRESS : 555/1 Energy Complex Vibhavadi-Rangsit Rd., Chatuchak, Chatuchak, Bangkok 10900
 Tel. 089-968-0061 E-Mail: SutthilukP@pttep.com

Analysis Report

SAMPLE DESIGNATED AS : Soil
SAMPLING BY : Weerapong Pengtrakul
SAMPLING LOCATION : NPI-B Production Phase,
 UTM47P 0610314E, 1586460N

SAMPLING DATE : April 26, 2024

SAMPLING TIME : 15.50 hr.

Parameter	Unit (dry basis)	Method	Result	Standard	
				Class 1	Class 2
Heavy Metals (Cont.)					
Iron (Fe)	mg/kg	U.S. EPA 6010D	45,270.5	-	-
Mercury (Hg)	mg/kg	U.S. EPA 7471B	<0.025	22	263
Manganese (Mn)	mg/kg	U.S. EPA 6010D	211.6	1,710	19,640
Nickel (Ni)	mg/kg	U.S. EPA 6010D	25.9	436.5	5,205
Lead (Pb)	mg/kg	U.S. EPA 6010D	23.1	400	800
Selenium (Se)	mg/kg	U.S. EPA 6020B	<0.5	365	4,380
Zinc (Zn)	mg/kg	U.S. EPA 6010D	57.8	-	-

Remark : - Analytical Methods followed to United States Environmental Protection Agency.

Source : - Notification of the National Environmental Board, Subject Soil Quality Standard, published in the Royal Government Gazette, Vol. 138 special part 54D, dated March 11, B.E. 2564 (2021).

Standard of Soil Class 1 : for residential to protect the populace and a cluster of risky population i.g. children under 6 years old

Standard of Soil Class 2 : for merchandising, agriculture and other activities to protect working-age population and agriculturists

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(Thepsah Yommana)
 Technical Manager

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ภาคผนวก ก7

ผลการตรวจวิเคราะห์คุณภาพน้ำจากกระบวนการผลิต

Report No. : 2024-500001363-2 / 005-1 (Page 1 of 1) Issued date : May 28, 2024

CLIENT : PTTEP International Limited
CONTACT : Khun Sutthiluk Phaisun
ADDRESS : 555/1 Energy Complex Vibhavadi-Rangsit Rd., Chatuchak, Chatuchak, Bangkok 10900
 Tel. 089-968-0061 E-Mail: SutthilukP@pttep.com

Analysis Report

SAMPLE DESIGNATED AS : Wastewater Quality (Produce Water) **SAMPLING DATE :** April 26, 2024
SAMPLING BY : Weerapong Pengtrakul **SAMPLING TIME :** 21:00 hr.
SAMPLING LOCATION : NPI-B Production Phase: Tank farm (ตั้งกักเก็บน้ำจากกระบวนการผลิต)

Parameter	Unit	Analytical Method	Result	Standard
pH	-	APHA, 4500-H ⁺ B	7.5	5.5-9.0
Conductivity	µs/cm	APHA, 2510 B	2,770	-
Total Suspended Solids (TSS)	mg/l	APHA, 2540 D	5.3	≤50
Total Dissolved Solids (TDS)	mg/l	APHA, 2540 C	2,097	≤3,000
Salinity	ppt	APHA, 2520 B	1.44	-
Total Petroleum Hydrocarbon (TPH)	mg/l	Based on Method of Seawater analysis*	363.75	-
Arsenic (As)	mg/l	APHA 3120 B	0.02	≤0.25
Barium (Ba)	mg/l	APHA 3120 B	0.89	≤1.0
Cadmium (Cd)	mg/l	APHA, 3120 B	<0.002	≤0.03
Chromium Hexavalent (Cr ⁶⁺)	mg/l	APHA, 3500-Cr B	<0.01	≤0.25
Copper (Cu)	mg/l	APHA, 3120 B	<0.01	≤2.0
Iron (Fe)	mg/l	APHA, 3120 B	0.65	-
Mercury (Hg)	mg/l	APHA, 3112 B	<0.0005	≤0.005
Manganese (Mn)	mg/l	APHA, 3120 B	0.05	≤5.0
Nickel (Ni)	mg/l	APHA, 3120 B	<0.004	≤1.0
Lead (Pb)	mg/l	APHA, 3120 B	<0.01	≤0.2
Selenium (Se)	mg/l	APHA, 3120 B	0.02	≤0.02
Zinc (Zn)	mg/l	APHA, 3120 B	<0.02	≤5.0

Remarks: - Analytical Methods followed to Standard Methods for the Examination of Water and Wastewater, recommended by APHA, AWWA&WEF 24th edition., 2023.

* Based on Method of Seawater analysis Third Completely Revised and Extended Edition, 1999, Chapter 21

Source: ^{1/} Notification of Ministry of Natural Resources and Environment B.E. 2559, published in the Royal Government Gazette, Vol. 133 Special Part 129 D, dated June 6, B.E. 2559.



Technical Manager

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ภาคผนวก ข

มาตรฐานที่ใช้เปรียบเทียบ

ภาคผนวก ข

มาตรฐานที่ใช้เปรียบเทียบ

ภาคผนวก ข1

มาตรฐานคุณภาพอากาศในบรรยากาศ



ประกาศคณะกรรมการสิ่งแวดล้อมแห่งชาติ

ฉบับที่ ๑๐ (พ.ศ. ๒๕๓๘)

ออกตามความในพระราชบัญญัติส่งเสริมและรักษาคุณภาพสิ่งแวดล้อมแห่งชาติ

พ.ศ. ๒๕๓๕

เรื่อง กำหนดมาตรฐานคุณภาพอากาศในบรรยากาศโดยทั่วไป

อาศัยอำนาจตามความในมาตรา ๓๒ แห่งพระราชบัญญัติส่งเสริมและรักษาคุณภาพสิ่งแวดล้อมแห่งชาติ พ.ศ. ๒๕๓๕ คณะกรรมการสิ่งแวดล้อมแห่งชาติกำหนดมาตรฐานคุณภาพอากาศในบรรยากาศโดยทั่วไป ไว้ดังต่อไปนี้

ข้อ ๑ ในประกาศนี้

“เครื่องวัด ระบบนั้ดิสเพอร์ซีฟ อินฟราเรด ดีเทกชั่น (Non- dispersive Infrared Detection)” หมายความว่า เครื่องมือวัดค่าก๊าซคาร์บอนมอนอกไซด์โดยใช้รังสีอินฟราเรด

“เครื่องวัดระบบเคมีลูมิเนสเซน (Chemiluminescence)” หมายความว่า

(๑) เครื่องมือวัดค่าก๊าซไนโตรเจนไดออกไซด์โดยใช้ก๊าซโอโซนทำปฏิกิริยากับก๊าซไนตริกออกไซด์ ซึ่งถูกเปลี่ยนมาจากก๊าซไนโตรเจนไดออกไซด์แล้ววัดความเข้มของแสงซึ่งเกิดจากปฏิกิริยานั้น ณ ที่ความยาวคลื่นที่สูงกว่า ๖๐๐ นาโนมิเตอร์ (Nanometer) หรือ

(๒) เครื่องมือวัดค่าก๊าซโอโซนโดยใช้ก๊าซเอธิลีนทำปฏิกิริยากับก๊าซโอโซนแล้ววัดความเข้มของแสงซึ่งเกิดจากปฏิกิริยานั้น ณ ที่ความยาวคลื่นระหว่าง ๓๕๐ ถึง ๕๕๐ นาโนมิเตอร์

“ระบบพาราโรซานิลีน (Pararosaniline)” หมายความว่า การวัดค่าก๊าซซัลเฟอร์ไดออกไซด์ โดยการดูดอากาศผ่านสารละลายโพตัสเซียม เตตราคลอโรเมอร์คิวเรต (Potassium Tetrachloromercurate) เกิดเป็นสารไดคลอโรซัลไฟโดเมอร์คิวเรต คอมเพลกซ์

(Dichlorosulfite Mercurate Complex) ทำปฏิกิริยากับสารพาราโรซานิลินและฟอร์มัลดีไฮด์ (Pararosaniline and Formaldehyde) เกิดเป็นสีของพาราโรซานิลินเมทิล ซัลฟอนิก แอซิด (Pararosaniline Methyl Sulfonic Acid) ซึ่งจะวัดความสามารถในการดูดซึมแสง ณ ที่ช่วงคลื่น ๕๔๘ นาโนเมตร

“เครื่องวัดระบบอะตอมมิก แอ็บซอร์ปชัน สเปกโตรมิเตอร์ (Atomic Absorption Spectrometer)” หมายความว่า เครื่องมือวัดปริมาณของตะกั่ว โดยใช้เปลวไฟอะเซทิลีน (Acetylene Flame) ที่ความยาวคลื่น ๒๘๓.๓ หรือ ๒๑๗ นาโนเมตร

“ระบบกราวิเมตริก (Gravimetric)” หมายความว่า การวัดค่าฝุ่นละออง โดยดูดอากาศผ่านแผ่นกรอง ซึ่งมีประสิทธิภาพในการกรองฝุ่นละอองขนาด ๐.๓ ไมครอน (Micron) ได้ร้อยละ ๙๙ แล้วหาน้ำหนักฝุ่นละอองจากแผ่นกรองนั้น

ข้อ ๒ ค่าก๊าซในบรรยากาศโดยทั่วไปในช่วงเวลาหนึ่งเวลาใดให้เป็นไปดังต่อไปนี้

(๑) ค่าเฉลี่ยของก๊าซคาร์บอนมอนอกไซด์ในเวลา ๑ ชั่วโมง จะต้องไม่เกิน ๓๐ ส่วนในล้านส่วน (ppm) หรือไม่เกิน ๓๔.๒ มิลลิกรัมต่อลูกบาศก์เมตรและในเวลา ๘ ชั่วโมง จะต้องไม่เกิน ๕ ส่วนในล้านส่วน หรือไม่เกิน ๑๐.๒๖ มิลลิกรัมต่อลูกบาศก์เมตร

(๒) ค่าเฉลี่ยของก๊าซไนโตรเจนไดออกไซด์ในเวลา ๑ ชั่วโมง จะต้องไม่เกิน ๐.๑๓ ส่วนในล้านส่วน หรือไม่เกิน ๐.๓๒ มิลลิกรัมต่อลูกบาศก์เมตร

(๓) ค่าเฉลี่ยของก๊าซโอโซนในเวลา ๑ ชั่วโมง จะต้องไม่เกิน ๐.๑๐ ส่วนในล้านส่วน หรือไม่เกิน ๐.๒๐ มิลลิกรัมต่อลูกบาศก์เมตร

(๔) ค่าเฉลี่ยของก๊าซซัลเฟอร์ไดออกไซด์ในเวลา ๒๔ ชั่วโมง จะต้องไม่เกิน ๐.๑๒ ส่วนในล้านส่วน หรือไม่เกิน ๐.๓๐ มิลลิกรัมต่อลูกบาศก์เมตร และค่ามัธยฐานเรขาคณิต (Geometric Mean) ในเวลา ๑ ปี จะต้องไม่เกิน ๐.๐๔ ส่วนในล้านส่วน หรือไม่เกิน ๐.๑๐ มิลลิกรัมต่อลูกบาศก์เมตร

ข้อ ๓ การคำนวณค่าความเข้มข้นของก๊าซแต่ละชนิดในบรรยากาศโดยทั่วไปให้คำนวณเทียบที่ความดัน ๑ บรรยากาศ และอุณหภูมิ ๒๕ องศาเซลเซียส

ข้อ ๔ ค่าสารในบรรยากาศโดยทั่วไป ในช่วงเวลาหนึ่งเวลาใดให้เป็นไปดังต่อไปนี้

(๑) ค่าเฉลี่ยของตะกั่วในเวลา ๑ เดือน จะต้องไม่เกิน ๑.๕ ไมโครกรัมต่อลูกบาศก์เมตร

(๒) ค่าเฉลี่ยของฝุ่นละอองขนาดไม่เกิน ๑๐ ไมครอน ในเวลา ๒๔ ชั่วโมง จะต้องไม่เกิน ๐.๑๒ มิลลิกรัมต่อลูกบาศก์เมตร และค่ามัธยฐานเรขาคณิตของสารดังกล่าวใน เวลา ๑ ปี จะต้องไม่เกิน ๐.๑๕ มิลลิกรัมต่อลูกบาศก์เมตร

(๓) ค่าเฉลี่ยของฝุ่นละอองรวมหรือฝุ่นละอองขนาดไม่เกิน ๑๐๐ ไมครอน ในเวลา ๒๔ ชั่วโมง จะต้องไม่เกิน ๐.๓๓ มิลลิกรัมต่อลูกบาศก์เมตร และค่ามัธยัมเรขาคณิตของสารดังกล่าวในเวลา ๑ ปี จะต้องไม่เกิน ๐.๑๐ มิลลิกรัมต่อลูกบาศก์เมตร

ข้อ ๕ การวัดค่าเฉลี่ยของก๊าซคาร์บอนมอนอกไซด์ในเวลา ๑ ชั่วโมงหรือในเวลา ๘ ชั่วโมง ให้ใช้เครื่องวัดระบบนันทิสเปอร์ซีฟ อินฟราเรด ดีเทกชั่น หรือระบบอื่นที่กรมควบคุมมลพิษให้ความเห็นชอบ

ข้อ ๖ การวัดค่าเฉลี่ยของก๊าซไนโตรเจนไดออกไซด์หรือก๊าซโอโซนในเวลา ๑ ชั่วโมง ให้ใช้เครื่องวัดระบบเคมีลูมินเนสเซน หรือระบบอื่นที่กรมควบคุมมลพิษให้ความเห็นชอบ

ข้อ ๗ การวัดค่าเฉลี่ยของก๊าซซัลเฟอร์ไดออกไซด์ในเวลา ๒๔ ชั่วโมง หรือในเวลา ๑ ปี ให้ใช้วิธีการวัดตามระบบพาราโรซานิลิน หรือระบบอื่นที่กรมควบคุมมลพิษให้ความเห็นชอบ

ข้อ ๘ การวัดค่าเฉลี่ยของตะกั่วในเวลา ๑ เดือน ให้เก็บอากาศผ่านแผ่นกรองในเครื่องเก็บตัวอย่างอากาศชนิดไฮโวลุ่ม (High Volume-Air Sampler) สกัดตะกั่วออกจากแผ่นกรองโดยใช้กรดดินประสิวและกรดเกลือ แล้วนำไปวัดค่าของตะกั่วโดยใช้เครื่องวัดระบบอะตอมมิก แอ็บซอร์ปชัน สเปกโตรมิเตอร์ หรือระบบอื่นที่กรมควบคุมมลพิษให้ความเห็นชอบ

ข้อ ๙ การวัดค่าเฉลี่ยของฝุ่นละอองรวมหรือฝุ่นละอองขนาดไม่เกิน ๑๐ ไมครอน ในเวลา ๒๔ ชั่วโมง หรือในเวลา ๑ ปี ให้ใช้วิธีการวัดตามระบบกราวิเมตริก หรือระบบอื่นที่กรมควบคุมมลพิษให้ความเห็นชอบ

ข้อ ๑๐ การวัดค่าเฉลี่ยของก๊าซหรือสารอย่างหนึ่งอย่างใดตามข้อ ๕ ถึงข้อ ๗ ให้ทำในบรรยากาศทั่วๆ ไป และต้องสูงจากพื้นดินอย่างน้อย ๓ เมตร แต่ไม่เกิน ๖ เมตร

การวัดค่าเฉลี่ยของตะกั่วและฝุ่นละอองตามข้อ ๘ และข้อ ๙ ให้ทำในบรรยากาศทั่วๆ ไป และต้องสูงจากพื้นดินอย่างน้อย ๑.๕๐ เมตร แต่ไม่เกิน ๖ เมตร

ประกาศ ณ วันที่ ๑๗ เมษายน พ.ศ. ๒๕๓๘

ชวน หลีกภัย

นายกรัฐมนตรี

ประธานคณะกรรมการสิ่งแวดล้อมแห่งชาติ

(ประกาศในราชกิจจานุเบกษา เล่ม ๑๑๒ ตอนที่ ๔๒ ง วันที่ ๒๕ พฤษภาคม ๒๕๓๘)

แก้คำผิด

ประกาศคณะกรรมการสิ่งแวดล้อมแห่งชาติ
ฉบับที่ ๑๐ (พ.ศ. ๒๕๓๘) ออกตามความในพระราชบัญญัติส่งเสริมและรักษา
คุณภาพสิ่งแวดล้อมแห่งชาติ พ.ศ. ๒๕๓๕

เรื่อง กำหนดมาตรฐานคุณภาพอากาศในบรรยากาศโดยทั่วไป
ซึ่งประกาศในราชกิจจานุเบกษา

ฉบับประกาศทั่วไป เล่ม ๑๑๒ ตอนที่ ๔๒ ง ลงวันที่ ๒๕ พฤษภาคม ๒๕๓๘

หน้า ๕๑ บรรทัดที่ ๑๕ คำว่า

“ไม่เกิน ๐.๑๕ มิลลิกรัม” ให้แก้เป็น

“ไม่เกิน ๐.๐๕ มิลลิกรัม”

(ประกาศในราชกิจจานุเบกษา เล่ม ๑๑๒ ตอนที่ ๗๑ ง วันที่ ๕ กันยายน ๒๕๓๘)



ประกาศคณะกรรมการสิ่งแวดล้อมแห่งชาติ
ฉบับที่ ๒๔ (พ.ศ. ๒๕๔๗)
เรื่อง กำหนดมาตรฐานคุณภาพอากาศในบรรยากาศโดยทั่วไป

อาศัยอำนาจตามความในมาตรา ๓๒ และมาตรา ๓๔ แห่งพระราชบัญญัติส่งเสริมและรักษาคุณภาพสิ่งแวดล้อมแห่งชาติ พ.ศ. ๒๕๓๕ อันเป็นพระราชบัญญัติที่มีบทบัญญัติบางประการเกี่ยวกับการจำกัดสิทธิและเสรีภาพของบุคคล ซึ่งมาตรา ๒๙ ประกอบกับมาตรา ๓๕ มาตรา ๔๘ มาตรา ๕๐ และมาตรา ๕๑ ของรัฐธรรมนูญแห่งราชอาณาจักรไทยบัญญัติให้กระทำได้โดยอาศัยอำนาจตามบทบัญญัติแห่งกฎหมาย คณะกรรมการสิ่งแวดล้อมแห่งชาติ จึงได้มีมติในคราวการประชุมครั้งที่ ๒/๒๕๔๗ เมื่อวันที่ ๒๔ กุมภาพันธ์ ๒๕๔๗ ให้ปรับปรุงแก้ไขมาตรฐานคุณภาพอากาศในบรรยากาศโดยทั่วไป ดังต่อไปนี้

ข้อ ๑ ให้ยกเลิกความใน (๔) ของข้อ ๒ แห่งประกาศคณะกรรมการสิ่งแวดล้อมแห่งชาติ ฉบับที่ ๑๐ (พ.ศ. ๒๕๓๘) ออกตามความในพระราชบัญญัติส่งเสริมและรักษาคุณภาพสิ่งแวดล้อมแห่งชาติ พ.ศ. ๒๕๓๕ เรื่อง กำหนดมาตรฐานคุณภาพอากาศในบรรยากาศโดยทั่วไป และให้ใช้ความต่อไปนี้แทน

“(๔) ค่าเฉลี่ยของก๊าซซัลเฟอร์ไดออกไซด์ ในเวลา ๒๔ ชั่วโมง จะต้องไม่เกิน ๐.๑๒ ส่วนในล้านส่วน หรือไม่เกิน ๐.๓๐ มิลลิกรัมต่อลูกบาศก์เมตร และค่ามัธยฐานเลขคณิต (Arithmetic Mean) ในเวลา ๑ ปี จะต้องไม่เกิน ๐.๐๔ ส่วนในล้านส่วน หรือไม่เกิน ๐.๑๐ มิลลิกรัมต่อลูกบาศก์เมตร”

ข้อ ๒ ให้ยกเลิกความใน (๒) และ (๓) ของข้อ ๔ แห่งประกาศคณะกรรมการสิ่งแวดล้อมแห่งชาติ ฉบับที่ ๑๐ (พ.ศ. ๒๕๓๘) ออกตามความในพระราชบัญญัติส่งเสริมและรักษาคุณภาพสิ่งแวดล้อมแห่งชาติ พ.ศ. ๒๕๓๕ เรื่อง กำหนดมาตรฐานคุณภาพอากาศในบรรยากาศโดยทั่วไป และให้ใช้ความต่อไปนี้แทน

“(๒) ค่าเฉลี่ยของฝุ่นละอองขนาดไม่เกิน ๑๐ ไมครอน ในเวลา ๒๔ ชั่วโมง จะต้องไม่เกิน ๐.๑๒ มิลลิกรัมต่อลูกบาศก์เมตร และค่ามัชฌิมเลขคณิต (Arithmetic Mean) ในเวลา ๑ ปี จะต้องไม่เกิน ๐.๐๕ มิลลิกรัมต่อลูกบาศก์เมตร

(๓) ค่าเฉลี่ยของฝุ่นละอองรวมหรือฝุ่นละอองขนาดไม่เกิน ๑๐๐ ไมครอน ในเวลา ๒๔ ชั่วโมง จะต้องไม่เกิน ๐.๓๓ มิลลิกรัมต่อลูกบาศก์เมตร และค่ามัชฌิมเลขคณิต (Arithmetic Mean) ในเวลา ๑ ปี จะต้องไม่เกิน ๐.๑๐ มิลลิกรัมต่อลูกบาศก์เมตร”

ประกาศ ณ วันที่ ๙ สิงหาคม พ.ศ. ๒๕๔๗

(ลงนาม) จาตุรนต์ ฉายแสง

(นายจาตุรนต์ ฉายแสง)

รองนายกรัฐมนตรี

ปฏิบัติหน้าที่ประธานคณะกรรมการสิ่งแวดล้อมแห่งชาติ

ราชกิจจานุเบกษา ฉบับประกาศทั่วไป เล่ม ๑๒๑ ตอนพิเศษ ๑๐๔ ง วันที่ ๒๒ กันยายน ๒๕๔๗

ประกาศคณะกรรมการสิ่งแวดล้อมแห่งชาติ

ฉบับที่ ๓๓ (พ.ศ. ๒๕๕๒)

เรื่อง กำหนดมาตรฐานค่าก๊าซไนโตรเจนไดออกไซด์ในบรรยากาศโดยทั่วไป

โดยที่เป็นการสมควรกำหนดมาตรฐานค่าก๊าซไนโตรเจนไดออกไซด์ในบรรยากาศโดยทั่วไป เพื่อเป็นเกณฑ์ทั่วไปสำหรับการส่งเสริมและรักษาคุณภาพสิ่งแวดล้อมตามพระราชบัญญัติส่งเสริมและรักษาคุณภาพสิ่งแวดล้อมแห่งชาติ พ.ศ. ๒๕๓๕

อาศัยอำนาจตามความในมาตรา ๓๒ (๔) และมาตรา ๓๔ แห่งพระราชบัญญัติส่งเสริมและรักษาคุณภาพสิ่งแวดล้อมแห่งชาติ พ.ศ. ๒๕๓๕ อันเป็นพระราชบัญญัติที่มีบทบัญญัติบางประการเกี่ยวกับการจำกัดสิทธิและเสรีภาพของบุคคล ซึ่งมาตรา ๒๘ ประกอบกับมาตรา ๓๓ มาตรา ๓๔ มาตรา ๔๑ และมาตรา ๔๓ ของรัฐธรรมนูญแห่งราชอาณาจักรไทย บัญญัติให้กระทำได้ โดยอาศัยอำนาจตามบทบัญญัติแห่งกฎหมาย คณะกรรมการสิ่งแวดล้อมแห่งชาติจึงออกประกาศ กำหนดมาตรฐานค่าก๊าซไนโตรเจนไดออกไซด์ในบรรยากาศโดยทั่วไปไว้ ดังต่อไปนี้

ข้อ ๑ ในประกาศนี้

“เครื่องวัดระบบเคมีลูมิเนสเซน” (Chemiluminescence) หมายความว่า เครื่องมือวัดค่าก๊าซไนโตรเจนไดออกไซด์โดยใช้ก๊าซโอโซนทำปฏิกิริยากับก๊าซไนตริกออกไซด์ซึ่งถูกเปลี่ยนมาจากก๊าซไนโตรเจนไดออกไซด์แล้ววัดความเข้มของแสงซึ่งเกิดจากปฏิกิริยานั้น ณ ที่ความยาวคลื่นที่สูงกว่า ๖๐๐ นาโนเมตร (Nanometer)

ข้อ ๒ ให้ยกเลิก

(๑) ความใน (๒) ของข้อ ๒ แห่งประกาศคณะกรรมการสิ่งแวดล้อมแห่งชาติ ฉบับที่ ๑๐ (พ.ศ. ๒๕๓๕) ออกตามความในพระราชบัญญัติส่งเสริมและรักษาคุณภาพสิ่งแวดล้อมแห่งชาติ พ.ศ. ๒๕๓๕ เรื่อง กำหนดมาตรฐานคุณภาพอากาศในบรรยากาศโดยทั่วไป

(๒) ความใน (๑) ของข้อ ๖ แห่งประกาศคณะกรรมการสิ่งแวดล้อมแห่งชาติ ฉบับที่ ๑๐ (พ.ศ. ๒๕๓๕) ออกตามความในพระราชบัญญัติส่งเสริมและรักษาคุณภาพสิ่งแวดล้อมแห่งชาติ พ.ศ. ๒๕๓๕ เรื่อง กำหนดมาตรฐานคุณภาพอากาศในบรรยากาศโดยทั่วไป แก้ไขเพิ่มเติมโดย ประกาศคณะกรรมการสิ่งแวดล้อมแห่งชาติ ฉบับที่ ๒๘ (พ.ศ. ๒๕๕๐) เรื่อง กำหนดมาตรฐานคุณภาพอากาศในบรรยากาศโดยทั่วไป

ข้อ ๓ ให้กำหนดมาตรฐานค่าก๊าซไนโตรเจนไดออกไซด์ในบรรยากาศโดยทั่วไปไว้ดังต่อไปนี้

(๑) ค่าเฉลี่ยของก๊าซไนโตรเจนไดออกไซด์ในเวลา ๑ ชั่วโมง จะต้องไม่เกิน ๐.๑๗ ส่วนในล้านส่วนหรือไม่เกิน ๐.๑๒ มิลลิกรัมต่อลูกบาศก์เมตร

(๒) ค่ามัชฌิมเลขคณิต (Arithmetic Mean) ของก๊าซไนโตรเจนไดออกไซด์ในเวลา ๑ ปี จะต้องไม่เกิน ๐.๐๓ ส่วนในล้านส่วน หรือไม่เกิน ๐.๐๕๗ มิลลิกรัมต่อลูกบาศก์เมตร

ข้อ ๔ การคำนวณค่าความเข้มข้นของก๊าซไนโตรเจนไดออกไซด์ในบรรยากาศโดยทั่วไปให้คำนวณเทียบที่ความดัน ๑ บรรยากาศ และอุณหภูมิ ๒๕ องศาเซลเซียส

ข้อ ๕ การวัดค่าเฉลี่ยของก๊าซไนโตรเจนไดออกไซด์ในเวลา ๑ ชั่วโมง หรือค่ามัชฌิมเลขคณิต (Arithmetic Mean) ในเวลา ๑ ปี ให้ใช้เครื่องวัดระบบเคมีลูมิเนสเซน หรือระบบอื่นที่กรมควบคุมมลพิษให้ความเห็นชอบ

ประกาศ ณ วันที่ ๑๗ มิถุนายน พ.ศ. ๒๕๕๒

อภิสิทธิ์ เวชชาชีวะ

นายกรัฐมนตรี

ประธานกรรมการสิ่งแวดล้อมแห่งชาติ