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ภาคผนวก

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## ภาคผนวก ก

หนังสือรับรองผลการตรวจวิเคราะห์คุณภาพสิ่งแวดล้อม

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## ภาคผนวก ก1

ผลการตรวจวัดคุณภาพอากาศในบรรยากาศ

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**Report No. : 2024-500001363-4 / 001-1 (Page 1 of 7)** 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 :** KS Production Phase  
**SAMPLING DATE :** April 22-25, 2024  
**SAMPLING BY :** Weerapong Pengtrakul  
 KS1-A1 : วัดหนองกร่าง หมู่ที่ 3 ต. พึ่งลูกนก อ. กำแพงแสน จ. นครปฐม  
 (UTM47P 0597732E, 1553635N)

Sampling Date	TSP (mg/m <sup>3</sup> )	PM-10 (mg/m <sup>3</sup> )
April 22-23, 2024	0.105	0.053
April 23-24, 2024	0.088	0.038
April 24-25, 2024	0.065	0.039
<b>Standard*</b>	<b>0.33</b>	<b>0.12</b>

**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 009122

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**Report No. : 2024-500001363-4 / 001-1 (Page 2 of 7)** Issued date : May 23, 2024

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 (UTM47P 0597732E, 1553635N)

Time	NO <sub>2</sub> Concentration (ppm)		
	April 22-23, 2024	April 23-24, 2024	April 24-25, 2024
13:00-14:00	0.027	0.025	0.029
14:00-15:00	0.024	0.021	0.027
15:00-16:00	0.022	0.018	0.025
16:00-17:00	0.018	0.016	0.019
17:00-18:00	0.018	0.014	0.022
18:00-19:00	0.019	0.013	0.026
19:00-20:00	0.019	0.012	0.026
20:00-21:00	0.021	0.010	0.033
21:00-22:00	0.025	0.011	0.039
22:00-23:00	0.021	0.010	0.031
23:00-00:00	0.018	0.011	0.025
00:00-01:00	0.019	0.011	0.027
01:00-02:00	0.016	0.011	0.022
02:00-03:00	0.015	0.011	0.019
03:00-04:00	0.018	0.018	0.018
04:00-05:00	0.023	0.028	0.017
05:00-06:00	0.018	0.019	0.017
06:00-07:00	0.019	0.021	0.016
07:00-08:00	0.021	0.024	0.017
08:00-09:00	0.020	0.020	0.020
09:00-10:00	0.022	0.019	0.025
10:00-11:00	0.024	0.020	0.027
11:00-12:00	0.028	0.024	0.032
12:00-13:00	0.028	0.033	0.023
1 hr.-Minimum	0.015	0.010	0.016
1 hr.-Maximum	0.028	0.033	0.039
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

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 KS1-A1 : วัดหนองกร่าง หมู่ที่ 3 ต. พึ่งสุกกนก อ. กำแพงแสน จ. นครปฐม  
 (UTM47P 0597732E, 1553635N)

Time	SO <sub>2</sub> Concentration (ppm)		
	April 22-23, 2024	April 23-24, 2024	April 24-25, 2024
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	0.002	0.002	0.001
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	0.002	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	0.001	0.002
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	0.001
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
1 hr.-Minimum	0.001	0.001	0.001
1 hr.-Maximum	0.002	0.003	0.002
avg. 24 hrs.	0.002	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),



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 (UTM47P 0597732E, 1553635N)

Time	CO Concentration (ppm)		
	April 22-23, 2024	April 23-24, 2024	April 24-25, 2024
13:00-14:00	0.650	0.591	0.593
14:00-15:00	0.656	0.550	0.675
15:00-16:00	0.547	0.616	0.587
16:00-17:00	0.551	0.439	0.491
17:00-18:00	0.566	0.391	0.427
18:00-19:00	0.578	0.550	0.581
19:00-20:00	0.531	0.492	0.576
20:00-21:00	0.486	0.502	0.671
21:00-22:00	0.495	0.454	0.307
22:00-23:00	0.613	0.949	0.555
23:00-00:00	0.599	0.620	0.617
00:00-01:00	0.488	0.641	0.280
01:00-02:00	0.486	0.467	0.962
02:00-03:00	0.329	0.414	0.434
03:00-04:00	0.397	0.228	0.380
04:00-05:00	0.250	0.761	0.321
05:00-06:00	0.405	0.795	0.494
06:00-07:00	0.542	0.551	0.561
07:00-08:00	0.402	0.634	0.719
08:00-09:00	0.499	0.840	0.588
09:00-10:00	0.521	0.761	0.914
10:00-11:00	0.489	0.442	0.707
11:00-12:00	0.231	0.489	0.460
12:00-13:00	0.486	0.762	0.431
1 hr.-Minimum	0.231	0.228	0.280
1 hr.-Maximum	0.656	0.949	0.962
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



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**Report No. : 2024-500001363-4 / 001-1 (Page 5 of 7)** Issued date : May 23, 2024

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## Analysis Report

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 (UTM47P 0597732E, 1553635N)

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)
13:00-14:00	SW	1.3	SW	1.3	S	1.3
14:00-15:00	SW	0.9	S	1.3	ESE	1.3
15:00-16:00	S	1.3	S	1.3	S	1.3
16:00-17:00	E	1.3	ESE	1.3	ESE	1.3
17:00-18:00	SSE	1.3	S	1.8	ESE	1.3
18:00-19:00	S	1.8	S	1.8	S	1.3
19:00-20:00	S	1.8	S	1.8	S	1.3
20:00-21:00	S	1.3	S	0.9	S	1.3
21:00-22:00	S	0.9	S	1.3	S	1.3
22:00-23:00	S	0.9	S	0.9	-	CALM
23:00-00:00	-	CALM	S	0.9	-	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	-	CALM	-	CALM	S	0.9
09:00-10:00	SW	0.9	S	0.9	S	0.9
10:00-11:00	SW	1.3	S	0.9	S	0.9
11:00-12:00	WSW	1.3	SW	0.9	S	0.9
12:00-13:00	WSW	0.9	S	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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 Technical Manager

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 (UTM47P 0597732E, 1553635N)

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	-	-	-
ESE	-	5.56	-	-	-
SE	-	-	-	-	-
SSE	-	1.39	-	-	-
S	16.67	23.61	-	-	-
SSW	-	-	-	-	-
SW	4.17	4.17	-	-	-
WSW	1.39	1.39	-	-	-
W	-	-	-	-	-
WNW	-	-	-	-	-
NW	-	-	-	-	-
NNW	-	-	-	-	-
<b>CALM</b>	<b>40.28</b>				

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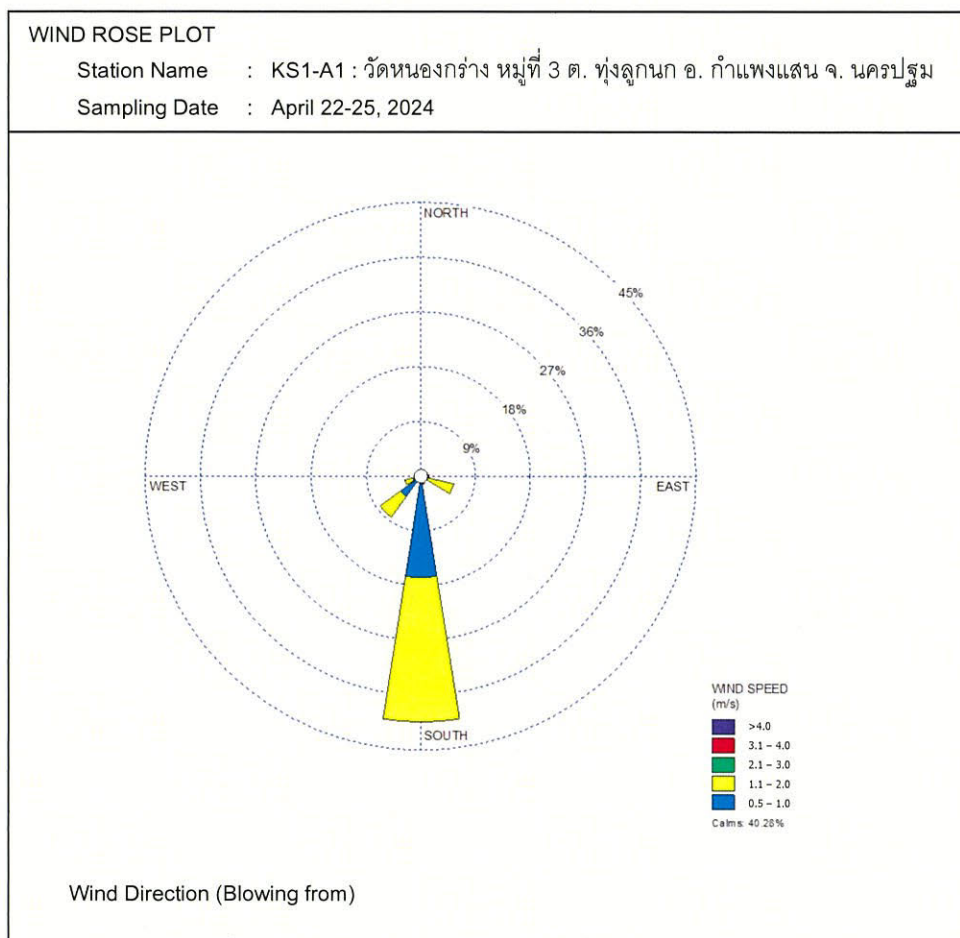
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 (UTM47P 0597732E, 1553635N)  
 SAMPLING DATE : April 22-25, 2024  
 SAMPLING BY : Weerapong Pengtrakul



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SGS (THAILAND) LIMITED



(Tnepsan Yommana)  
 Technical Manager

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**SAMPLING LOCATION :** KS Production Phase  
**SAMPLING DATE :** April 22-25, 2024  
**SAMPLING BY :** Weerapong Pengtrakul  
 KS2-A1 : วัดไผ่ร่มเย็น หมู่ที่ 7 ต. กระดังงะ อ. กำแพงแสน จ. นครปฐม  
 (UTM47P 0599949E, 1556077N)

Sampling Date	TSP (mg/m <sup>3</sup> )	PM-10 (mg/m <sup>3</sup> )
April 22-23, 2024	0.097	0.039
April 23-24, 2024	0.097	0.038
April 24-25, 2024	0.073	0.036
<b>Standard*</b>	<b>0.33</b>	<b>0.12</b>

**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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**SAMPLE DESIGNATED AS :** Ambient Air Quality  
**SAMPLING LOCATION :** KS Production Phase  
**SAMPLING DATE :** April 22-25, 2024  
**SAMPLING BY :** Weerapong Pengtrakul  
 KS2-A1 : วัดไผ่ร่มเย็น หมู่ที่ 7 ต. กระดังงะ อ. กำแพงแสน จ. นครปฐม  
 (UTM47P 0599949E, 1556077N)

Time	NO <sub>2</sub> Concentration (ppm)		
	April 22-23, 2024	April 23-24, 2024	April 24-25, 2024
11:00-12:00	0.020	0.021	0.020
12:00-13:00	0.019	0.019	0.019
13:00-14:00	0.022	0.018	0.019
14:00-15:00	0.027	0.020	0.019
15:00-16:00	0.021	0.019	0.019
16:00-17:00	0.021	0.019	0.020
17:00-18:00	0.022	0.021	0.019
18:00-19:00	0.023	0.022	0.020
19:00-20:00	0.021	0.019	0.021
20:00-21:00	0.020	0.019	0.019
21:00-22:00	0.020	0.018	0.017
22:00-23:00	0.020	0.018	0.019
23:00-00:00	0.020	0.018	0.018
00:00-01:00	0.020	0.019	0.018
01:00-02:00	0.020	0.018	0.018
02:00-03:00	0.020	0.018	0.019
03:00-04:00	0.020	0.018	0.019
04:00-05:00	0.020	0.018	0.018
05:00-06:00	0.021	0.019	0.019
06:00-07:00	0.020	0.018	0.019
07:00-08:00	0.022	0.020	0.020
08:00-09:00	0.023	0.020	0.020
09:00-10:00	0.021	0.020	0.019
10:00-11:00	0.023	0.019	0.020
1 hr.-Minimum	0.019	0.018	0.017
1 hr.-Maximum	0.027	0.022	0.021
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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Technical Manager

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**Report No. : 2024-500001363-4 / 001-2 (Page 3 of 7)**

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 :** KS Production Phase  
**SAMPLING DATE :** April 22-25, 2024  
**SAMPLING BY :** Weerapong Pengtrakul  
 KS2-A1 : วัดไผ่ล้อม หมู่ที่ 7 ต. กระดังงะ อ. กำแพงแสน จ. นครปฐม  
 (UTM47P 0599949E, 1556077N)

Time	SO <sub>2</sub> 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	0.002	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	0.002	0.001	0.001
18:00-19:00	0.002	0.002	0.001
19:00-20:00	0.002	0.002	0.001
20:00-21:00	0.002	0.002	0.002
21:00-22:00	0.002	0.002	0.001
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	0.001
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	0.002	0.002
08:00-09:00	0.002	0.001	0.001
09:00-10:00	0.002	0.001	0.001
10:00-11:00	0.001	0.001	0.001
1 hr.-Minimum	0.001	0.001	0.001
1 hr.-Maximum	0.002	0.002	0.002
avg. 24 hrs.	0.002	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 8, B.E. 2547 (2004)

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(I hepšan Yommana)  
 Technical Manager

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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 Air Quality  
**SAMPLING LOCATION :** KS Production Phase  
**SAMPLING DATE :** April 22-25, 2024  
**SAMPLING BY :** Weerapong Pengtrakul  
 KS2-A1 : วัดไผ่ล้อม หมู่ที่ 7 ต. กระดังงะ อ. กำแพงแสน จ. นครปฐม  
 (UTM47P 0599949E, 1556077N)

Time	CO Concentration (ppm)		
	April 22-23, 2024	April 23-24, 2024	April 24-25, 2024
11:00-12:00	0.621	0.424	0.764
12:00-13:00	0.504	0.854	0.786
13:00-14:00	0.549	0.846	0.710
14:00-15:00	0.580	0.891	0.719
15:00-16:00	0.594	0.429	0.690
16:00-17:00	0.618	0.431	0.686
17:00-18:00	0.607	0.624	0.641
18:00-19:00	0.697	0.631	0.565
19:00-20:00	0.710	0.598	0.485
20:00-21:00	0.690	0.592	0.494
21:00-22:00	0.707	0.628	0.548
22:00-23:00	0.749	0.633	0.517
23:00-00:00	0.695	0.559	0.423
00:00-01:00	0.654	0.581	0.508
01:00-02:00	0.666	0.644	0.437
02:00-03:00	0.479	0.418	0.533
03:00-04:00	0.524	0.561	0.525
04:00-05:00	0.478	0.577	0.547
05:00-06:00	0.576	0.597	0.372
06:00-07:00	0.531	0.462	0.383
07:00-08:00	0.515	0.335	0.489
08:00-09:00	0.557	0.426	0.439
09:00-10:00	0.513	0.686	0.538
10:00-11:00	0.526	0.731	0.475
1 hr.-Minimum	0.478	0.335	0.372
1 hr.-Maximum	0.749	0.891	0.786
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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 Technical Manager

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**Report No. : 2024-500001363-4 / 001-2 (Page 5 of 7)**

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 :** KS Production Phase  
**SAMPLING DATE :** April 22-25, 2024  
**SAMPLING BY :** Weerapong Pengtrakul  
 KS2-A1 : วัดไผ่ร่มเย็น หมู่ที่ 7 ต. กระดังงะ อ. กำแพงแสน จ. นครปฐม  
 (UTM47P 0599949E, 1556077N)

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	SSW	1.3	W	2.2	S	2.2
12:00-13:00	S	1.8	W	1.8	S	1.8
13:00-14:00	S	1.8	SSE	2.7	S	2.2
14:00-15:00	SE	2.2	SE	2.2	SSE	2.2
15:00-16:00	SSE	2.2	SE	2.2	SE	2.7
16:00-17:00	SE	3.1	SE	3.1	SE	3.1
17:00-18:00	SE	3.6	SE	4.0	SE	3.1
18:00-19:00	SE	3.6	SE	3.6	SE	3.6
19:00-20:00	SSE	3.1	S	3.6	SSE	2.7
20:00-21:00	SSE	3.1	S	2.7	SSE	2.7
21:00-22:00	S	2.7	S	2.2	SSE	2.7
22:00-23:00	SSE	2.2	SSE	2.2	S	1.3
23:00-00:00	S	2.2	SSE	2.2	SSE	1.8
00:00-01:00	SSE	1.8	SSE	1.8	S	1.3
01:00-02:00	SSE	1.8	S	1.8	S	0.9
02:00-03:00	SSE	1.8	SSE	1.8	SSE	0.9
03:00-04:00	S	1.8	S	1.8	SSE	1.3
04:00-05:00	SSE	1.8	SSE	1.8	SSE	1.3
05:00-06:00	SSE	1.8	S	2.2	SSE	1.3
06:00-07:00	SSE	0.9	SSE	1.3	SSE	0.9
07:00-08:00	SSE	1.3	S	0.9	SSE	0.9
08:00-09:00	S	1.3	S	1.8	S	1.8
09:00-10:00	W	1.3	SSE	2.2	S	2.2
10:00-11:00	W	1.8	S	2.2	S	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. : 2024-500001363-4 / 001-2 (Page 6 of 7)

Issued date : May 23, 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 : KS Production Phase  
KS2-A1 : วัดไผ่ร่มเย็น หมู่ที่ 7 ต. กระต๊อบ อ. กำแพงแสน จ. นครปฐม  
(UTM47P 0599949E, 1556077N)  
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	-	-	5.56	12.50	-
SSE	5.56	19.44	13.89	2.78	-
S	2.78	15.28	13.89	1.39	-
SSW	-	1.39	-	-	-
SW	-	-	-	-	-
WSW	-	-	-	-	-
W	-	4.17	1.39	-	-
WNW	-	-	-	-	-
NW	-	-	-	-	-
NNW	-	-	-	-	-
CALM	0.00				

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Technical Manager

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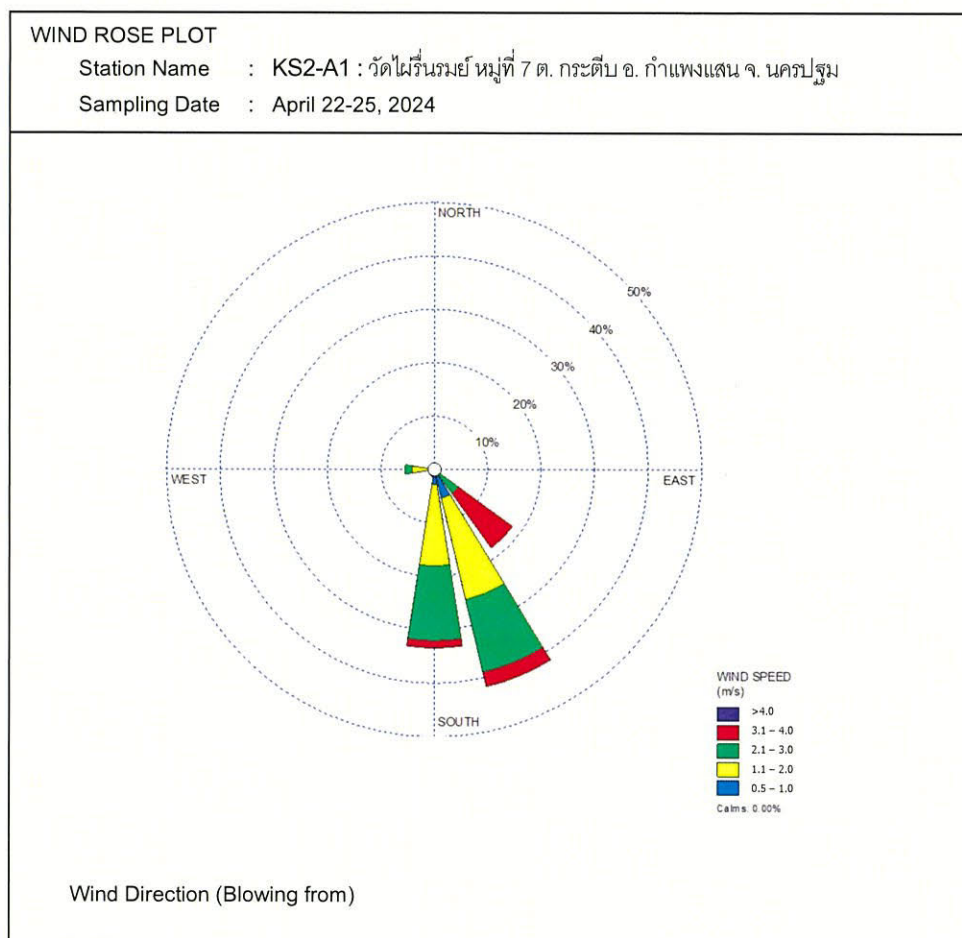
Report No. : 2024-500001363-4 / 001-2 (Page 7 of 7)

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 : KS Production Phase  
 KS2-A1 : วัดไผ่ร่มเย็น หมู่ที่ 7 ต. กระต๊อบ อ. กำแพงแสน จ. นครปฐม  
 (UTM47P 0599949E, 1556077N)  
 SAMPLING DATE : April 22-25, 2024  
 SAMPLING BY : Weerapong Pengtrakul



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 Technical Manager

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**Report No. : 2024-500001363-4 / 001-3 (Page 1 of 7)** 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 :** Ambient Air Quality  
**SAMPLING LOCATION :** KS Production Phase  
**SAMPLING DATE :** April 22-25, 2024  
**SAMPLING BY :** Weerapong Pengtrakul  
 KS2-A2 : บ้านทุ่งบัว หมู่ที่ 6 ต. ทุ่งบัว อ. กำแพงแสน จ. นครปฐม  
 (UTM47P 0600441E, 1552435N)

Sampling Date	TSP (mg/m <sup>3</sup> )	PM-10 (mg/m <sup>3</sup> )
April 22-23, 2024	0.088	0.039
April 23-24, 2024	0.071	0.028
April 24-25, 2024	0.063	0.025
<b>Standard*</b>	<b>0.33</b>	<b>0.12</b>

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

## Analysis Report

SAMPLE DESIGNATED AS : Ambient Air Quality  
 SAMPLING LOCATION : KS Production Phase  
 KS2-A2 : บ้านทุ่งบัว หมู่ที่ 6 ต. ทุ่งบัว อ. กำแพงแสน จ. นครปฐม  
 (UTM47P 0600441E, 1552435N)

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

Time	NO <sub>2</sub> Concentration (ppm)		
	April 22-23, 2024	April 23-24, 2024	April 24-25, 2024
15:00-16:00	0.022	0.019	0.021
16:00-17:00	0.021	0.019	0.022
17:00-18:00	0.021	0.018	0.022
18:00-19:00	0.022	0.018	0.024
19:00-20:00	0.021	0.016	0.025
20:00-21:00	0.022	0.015	0.027
21:00-22:00	0.024	0.015	0.030
22:00-23:00	0.021	0.015	0.026
23:00-00:00	0.020	0.015	0.022
00:00-01:00	0.020	0.015	0.023
01:00-02:00	0.019	0.015	0.021
02:00-03:00	0.018	0.015	0.020
03:00-04:00	0.020	0.019	0.019
04:00-05:00	0.023	0.025	0.019
05:00-06:00	0.020	0.020	0.019
06:00-07:00	0.020	0.021	0.018
07:00-08:00	0.022	0.023	0.019
08:00-09:00	0.023	0.021	0.022
09:00-10:00	0.022	0.020	0.023
10:00-11:00	0.024	0.021	0.025
11:00-12:00	0.026	0.023	0.028
12:00-13:00	0.025	0.027	0.022
13:00-14:00	0.023	0.025	0.026
14:00-15:00	0.021	0.025	0.026
1 hr.-Minimum	0.018	0.015	0.018
1 hr.-Maximum	0.026	0.027	0.030
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. : 2024-500001363-4 / 001-3 (Page 3 of 7)** Issued date : May 23, 2024

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## Analysis Report

**SAMPLE DESIGNATED AS :** Ambient Air Quality  
**SAMPLING LOCATION :** KS Production Phase  
**SAMPLING DATE :** April 22-25, 2024  
**SAMPLING BY :** Weerapong Pengtrakul  
 KS2-A2 : บ้านทุ่งบัว หมู่ที่ 6 ต. ทุ่งบัว อ. กำแพงแสน จ. นครปฐม  
 (UTM47P 0600441E, 1552435N)

Time	SO <sub>2</sub> Concentration (ppm)		
	April 22-23, 2024	April 23-24, 2024	April 24-25, 2024
15:00-16:00	0.002	0.002	0.002
16:00-17:00	0.002	0.002	0.003
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	0.002	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	0.001	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	0.004	0.002
09:00-10:00	0.002	0.002	0.002
10:00-11:00	0.002	0.002	0.002
11:00-12:00	0.002	0.002	0.002
12:00-13:00	0.001	0.002	0.001
13:00-14:00	0.001	0.002	0.001
14:00-15:00	0.001	0.002	0.001
1 hr.-Minimum	0.001	0.001	0.001
1 hr.-Maximum	0.002	0.004	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

**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. : 2024-500001363-4 / 001-3 (Page 4 of 7)** 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 :** KS Production Phase  
**SAMPLING DATE :** April 22-25, 2024  
**SAMPLING BY :** Weerapong Pengtrakul  
 KS2-A2 : บ้านทุ่งบัว หมู่ที่ 6 ต. ทุ่งบัว อ. กำแพงแสน จ. นครปฐม  
 (UTM47P 0600441E, 1552435N)

Time	CO Concentration (ppm)		
	April 22-23, 2024	April 23-24, 2024	April 24-25, 2024
15:00-16:00	0.558	0.616	0.524
16:00-17:00	0.543	0.439	0.476
17:00-18:00	0.584	0.391	0.427
18:00-19:00	0.520	0.550	0.581
19:00-20:00	0.407	0.492	0.576
20:00-21:00	0.334	0.502	0.671
21:00-22:00	0.335	0.454	0.307
22:00-23:00	0.542	0.949	0.555
23:00-00:00	0.565	0.620	0.617
00:00-01:00	0.372	0.641	0.280
01:00-02:00	0.357	0.467	0.962
02:00-03:00	0.213	0.414	0.434
03:00-04:00	0.311	0.228	0.380
04:00-05:00	0.049	0.761	0.321
05:00-06:00	0.277	0.795	0.494
06:00-07:00	0.611	0.551	0.561
07:00-08:00	0.331	0.634	0.719
08:00-09:00	0.494	0.840	0.588
09:00-10:00	0.585	0.761	0.914
10:00-11:00	0.503	0.442	0.707
11:00-12:00	0.062	0.489	0.460
12:00-13:00	0.170	0.762	0.431
13:00-14:00	0.399	0.593	0.820
14:00-15:00	0.550	0.574	0.801
1 hr.-Minimum	0.049	0.228	0.280
1 hr.-Maximum	0.611	0.949	0.962
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



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 Technical Manager

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**Report No. : 2024-500001363-4 / 001-3 (Page 5 of 7)**

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 :** Ambient Air Quality  
**SAMPLING LOCATION :** KS Production Phase  
**SAMPLING DATE :** April 22-25, 2024  
**SAMPLING BY :** Weerapong Pengtrakul  
 KS2-A2 : บ้านทุ่งบัว หมู่ที่ 6 ต. ทุ่งบัว อ. กำแพงแสน จ. นครปฐม  
 (UTM47P 0600441E, 1552435N)

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)
15:00-16:00	WNW	1.8	WNW	2.2	WNW	2.7
16:00-17:00	W	3.6	W	2.7	W	3.1
17:00-18:00	W	3.6	W	4.0	W	3.1
18:00-19:00	WNW	4.0	WNW	4.0	WNW	4.0
19:00-20:00	WNW	3.1	WNW	3.1	WNW	3.6
20:00-21:00	WNW	2.2	WNW	1.8	WNW	3.1
21:00-22:00	WNW	1.8	WNW	1.8	WNW	3.1
22:00-23:00	WNW	1.8	WNW	2.2	NW	0.9
23:00-00:00	WNW	1.3	WNW	1.3	NW	1.3
00:00-01:00	WNW	1.3	NW	0.9	WNW	1.3
01:00-02:00	WNW	0.9	WNW	0.9	-	CALM
02:00-03:00	NW	0.9	WNW	1.3	-	CALM
03:00-04:00	WNW	1.3	NW	0.9	NW	0.9
04:00-05:00	WNW	0.9	NW	0.9	WNW	1.3
05:00-06:00	-	CALM	NW	0.9	WNW	1.3
06:00-07:00	-	CALM	-	CALM	-	CALM
07:00-08:00	NW	0.9	-	CALM	WNW	0.9
08:00-09:00	NW	0.9	NW	0.9	WNW	1.8
09:00-10:00	NW	1.3	NW	1.3	WNW	2.2
10:00-11:00	NNE	1.8	WNW	1.8	WNW	2.2
11:00-12:00	NW	1.8	WNW	1.8	WNW	1.8
12:00-13:00	WNW	1.8	WNW	1.8	WNW	1.8
13:00-14:00	WNW	1.8	WNW	2.2	WNW	2.7
14:00-15:00	WNW	2.7	WNW	2.2	WNW	2.2

**Measurement Method :** - Wind Speed and Wind Direction recording meter

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

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(Weerapong Pengtrakul)  
 Technical Manager

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**Report No. : 2024-500001363-4 / 001-3 (Page 6 of 7)**

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 :** KS Production Phase  
**SAMPLING DATE :** April 22-25, 2024  
**SAMPLING BY :** Weerapong Pengtrakul  
 KS2-A2 : บ้านทุ่งบัว หมู่ที่ 6 ต. ทุ่งบัว อ. กำแพงแสน จ. นครปฐม  
 (UTM47P 0600441E, 1552435N)

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	-	-	-
NE	-	-	-	-	-
ENE	-	-	-	-	-
E	-	-	-	-	-
ESE	-	-	-	-	-
SE	-	-	-	-	-
SSE	-	-	-	-	-
S	-	-	-	-	-
SSW	-	-	-	-	-
SW	-	-	-	-	-
WSW	-	-	-	-	-
W	-	-	1.39	6.94	-
WNW	5.56	29.17	15.28	11.11	-
NW	13.89	5.56	-	-	-
NNW	-	-	-	-	-
<b>CALM</b>	<b>9.72</b>				

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SGS (THAILAND) LIMITED



(Thepsan Yommana)  
Technical Manager

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Report No. : 2024-500001363-4 / 001-3 (Page 7 of 7)

Issued date : May 23, 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

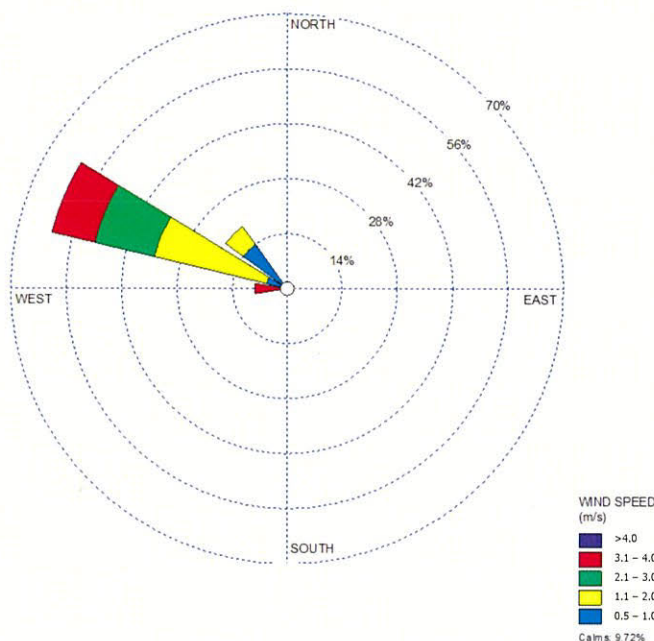
SAMPLE DESIGNATED AS : Ambient Air Quality  
SAMPLING LOCATION : KS Production Phase  
KS2-A2 : บ้านทุ่งบัว หมู่ที่ 6 ต. ทุ่งบัว อ. กำแพงแสน จ. นครปฐม  
(UTM47P 0600441E, 1552435N)

SAMPLING DATE : April 22-25, 2024

SAMPLING BY : Weerapong Pengtrakul

### WIND ROSE PLOT

Station Name : KS2-A2 : บ้านทุ่งบัว หมู่ที่ 6 ต. ทุ่งบัว อ. กำแพงแสน จ. นครปฐม  
Sampling Date : April 22-25, 2024



Wind Direction (Blowing from)

WIND SPEED  
(m/s)  
>4.0  
3.1 - 4.0  
2.1 - 3.0  
1.1 - 2.0  
0.5 - 1.0  
Calms: 9.72%

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Technical Manager

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**Report No. : 2024-500001363-15 / 001-1 (Page 1 of 7)** Issued date : September 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 :** Ambient Air Quality  
**SAMPLING LOCATION :** KS Production Phase  
**SAMPLING DATE :** August 19-22, 2024  
**SAMPLING BY :** Oran Boonphan  
 KS1-A1 : วัดหนองกร่าง หมู่ที่ 3 ต. ท่งตุ๊กนกก อ. กำแพงแสน จ. นครปฐม  
 (UTM47P 0597732E, 1553635N)

Sampling Date	TSP (mg/m <sup>3</sup> )	PM-10 (mg/m <sup>3</sup> )
August 19-20, 2024	0.045	0.018
August 20-21, 2024	0.036	0.021
August 21-22, 2024	0.035	0.018
<b>Standard*</b>	<b>0.33</b>	<b>0.12</b>

**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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 Technical Manager

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**Report No. : 2024-500001363-15 / 001-1 (Page 2 of 7)** Issued date : September 5, 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 :** KS Production Phase  
**SAMPLING DATE :** August 19-22, 2024  
**SAMPLING BY :** Oran Boonphan  
 KS1-A1 : วัดหนองกร่าง หมู่ที่ 3 ต.ทุ่งลูกนก อ.กำแพงแสน จ. นครปฐม  
 (UTM47P 0597732E, 1553635N)

Time	NO <sub>2</sub> Concentration (ppm)		
	August 19-20, 2024	August 20-21, 2024	August 21-22, 2024
09:00-10:00	0.006	0.008	0.005
10:00-11:00	0.007	0.005	0.004
11:00-12:00	0.004	0.005	0.004
12:00-13:00	0.004	0.004	0.004
13:00-14:00	0.004	0.005	0.006
14:00-15:00	0.006	0.004	0.008
15:00-16:00	0.006	0.006	0.008
16:00-17:00	0.006	0.006	0.003
17:00-18:00	0.008	0.008	0.003
18:00-19:00	0.006	0.006	0.004
19:00-20:00	0.004	0.005	0.005
20:00-21:00	0.005	0.005	0.007
21:00-22:00	0.005	0.006	0.004
22:00-23:00	0.006	0.009	0.004
23:00-00:00	0.008	0.006	0.004
00:00-01:00	0.008	0.007	0.008
01:00-02:00	0.011	0.010	0.007
02:00-03:00	0.008	0.010	0.008
03:00-04:00	0.007	0.012	0.014
04:00-05:00	0.010	0.008	0.023
05:00-06:00	0.008	0.007	0.008
06:00-07:00	0.006	0.009	0.007
07:00-08:00	0.007	0.006	0.008
08:00-09:00	0.008	0.007	0.011
1 hr.-Minimum	0.004	0.004	0.003
1 hr.-Maximum	0.011	0.012	0.023
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. : 2024-500001363-15 / 001-1 (Page 3 of 7) Issued date : September 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 : Ambient Air Quality  
SAMPLING LOCATION : KS Production Phase  
SAMPLING DATE : August 19-22, 2024  
SAMPLING BY : Oran Boonphan  
KS1-A1 : วัดหนองกร่าง หมู่ที่ 3 ต. พุ่งดินนา อ. กำแพงแสน จ. นครปฐม  
(UTM47P 0597732E, 1553635N)

Time	SO <sub>2</sub> Concentration (ppm)		
	August 19-20, 2024	August 20-21, 2024	August 21-22, 2024
09:00-10:00	0.002	0.002	0.002
10:00-11:00	0.002	0.001	0.003
11:00-12:00	0.001	0.002	0.002
12:00-13:00	0.001	0.001	0.004
13:00-14:00	0.001	0.001	0.002
14:00-15:00	0.001	0.002	0.001
15:00-16:00	0.002	0.003	0.003
16:00-17:00	0.003	0.002	0.002
17:00-18:00	0.003	0.003	0.003
18:00-19:00	0.001	0.002	0.002
19:00-20:00	0.003	0.002	0.002
20:00-21:00	0.002	0.004	0.004
21:00-22:00	0.003	0.005	0.004
22:00-23:00	0.004	0.002	0.002
23:00-00:00	0.002	0.001	0.002
00:00-01:00	0.001	0.003	0.003
01:00-02:00	0.005	0.005	0.004
02:00-03:00	0.005	0.005	0.005
03:00-04:00	0.001	0.003	0.006
04:00-05:00	0.003	0.005	0.002
05:00-06:00	0.002	0.004	0.002
06:00-07:00	0.001	0.001	0.002
07:00-08:00	0.001	0.001	0.001
08:00-09:00	0.003	0.001	0.003
1 hr.-Minimum	0.001	0.001	0.001
1 hr.-Maximum	0.005	0.005	0.006
avg. 24 hrs.	0.002	0.002	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 April 9, B.E. 2547 (2004)

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**Report No. : 2024-500001363-15 / 001-1 (Page 4 of 7)** Issued date : September 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 :** Ambient Air Quality **SAMPLING DATE :** August 19-22, 2024  
**SAMPLING LOCATION :** KS Production Phase **SAMPLING BY :** Oran Boonphan

KS1-A1 : วัดหนองกร่าง หมู่ที่ 3 ต. พึ่งดูนก อ. กำแพงแสน จ. นครปฐม  
 (UTM47P 0597732E, 1553635N)

Time	CO Concentration (ppm)		
	August 19-20, 2024	August 20-21, 2024	August 21-22, 2024
09:00-10:00	0.268	0.636	0.200
10:00-11:00	0.268	0.215	0.226
11:00-12:00	0.345	0.146	0.079
12:00-13:00	0.482	0.191	0.019
13:00-14:00	0.610	0.259	0.038
14:00-15:00	0.580	0.319	0.023
15:00-16:00	0.439	0.174	0.018
16:00-17:00	0.503	0.166	0.031
17:00-18:00	0.411	0.186	0.084
18:00-19:00	0.568	0.211	0.160
19:00-20:00	0.405	0.174	0.378
20:00-21:00	0.697	0.206	0.206
21:00-22:00	0.760	0.149	0.098
22:00-23:00	0.348	0.097	0.111
23:00-00:00	0.295	0.100	0.055
00:00-01:00	0.442	0.068	0.082
01:00-02:00	0.270	0.074	0.098
02:00-03:00	0.272	0.115	0.378
03:00-04:00	0.250	0.067	0.119
04:00-05:00	0.262	0.126	0.119
05:00-06:00	0.248	0.187	0.133
06:00-07:00	0.257	0.080	0.113
07:00-08:00	0.192	0.107	0.227
08:00-09:00	0.465	0.133	0.509
1 hr.-Minimum	0.192	0.067	0.018
1 hr.-Maximum	0.760	0.636	0.509
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)



(Thepsan Yommana)  
 Technical Manager

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## Analysis Report

**SAMPLE DESIGNATED AS :** Ambient Air Quality  
**SAMPLING LOCATION :** KS Production Phase  
**SAMPLING DATE :** August 19-22, 2024  
**SAMPLING BY :** Oran Boonphan

KS1-A1 : วัดหนองกร่าง หมู่ที่ 3 ต.ทุ่งลูกนก อ.กำแพงแสน จ. นครปฐม  
 (UTM47P 0597732E, 1553635N)

TIME	August 19-20, 2024		August 20-21, 2024		August 21-22, 2024	
	WD	WS (m/s)	WD	WS (m/s)	WD	WS (m/s)
09:00-10:00	-	CALM	-	CALM	WSW	0.9
10:00-11:00	WSW	0.9	-	CALM	W	1.3
11:00-12:00	W	0.9	-	CALM	W	1.3
12:00-13:00	WSW	0.9	-	CALM	WNW	0.9
13:00-14:00	-	CALM	-	CALM	-	CALM
14:00-15:00	-	CALM	-	CALM	-	CALM
15:00-16:00	-	CALM	-	CALM	-	CALM
16:00-17:00	-	CALM	-	CALM	WSW	0.9
17:00-18:00	-	CALM	-	CALM	WSW	0.9
18:00-19:00	-	CALM	-	CALM	-	CALM
19:00-20:00	S	1.3	-	CALM	-	CALM
20:00-21:00	SW	0.9	-	CALM	-	CALM
21:00-22:00	-	CALM	WSW	0.9	-	CALM
22:00-23:00	-	CALM	NW	0.9	-	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	-	CALM	-	CALM	WSW	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. : 2024-500001363-15 / 001-1 (Page 6 of 7)** Issued date : September 5, 2024

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## Analysis Report

**SAMPLE DESIGNATED AS :** Ambient Air Quality  
**SAMPLING LOCATION :** KS Production Phase  
**SAMPLING DATE :** August 19-22, 2024  
**SAMPLING BY :** Oran Boonphan  
 KS1-A1 : วัดหนองกร่าง หมู่ที่ 3 ต. พึ่งดุกนก อ. กำแพงแสน จ. นครปฐม  
 (UTM47P 0597732E, 1553635N)

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	-	1.39	-	-	-
SSW	-	-	-	-	-
SW	1.39	-	-	-	-
WSW	9.72	-	-	-	-
W	1.39	2.78	-	-	-
WNW	1.39	-	-	-	-
NW	1.39	-	-	-	-
NNW	-	-	-	-	-
<b>CALM</b>	<b>80.56</b>				

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(Thepsan Yommana)  
 Technical Manager

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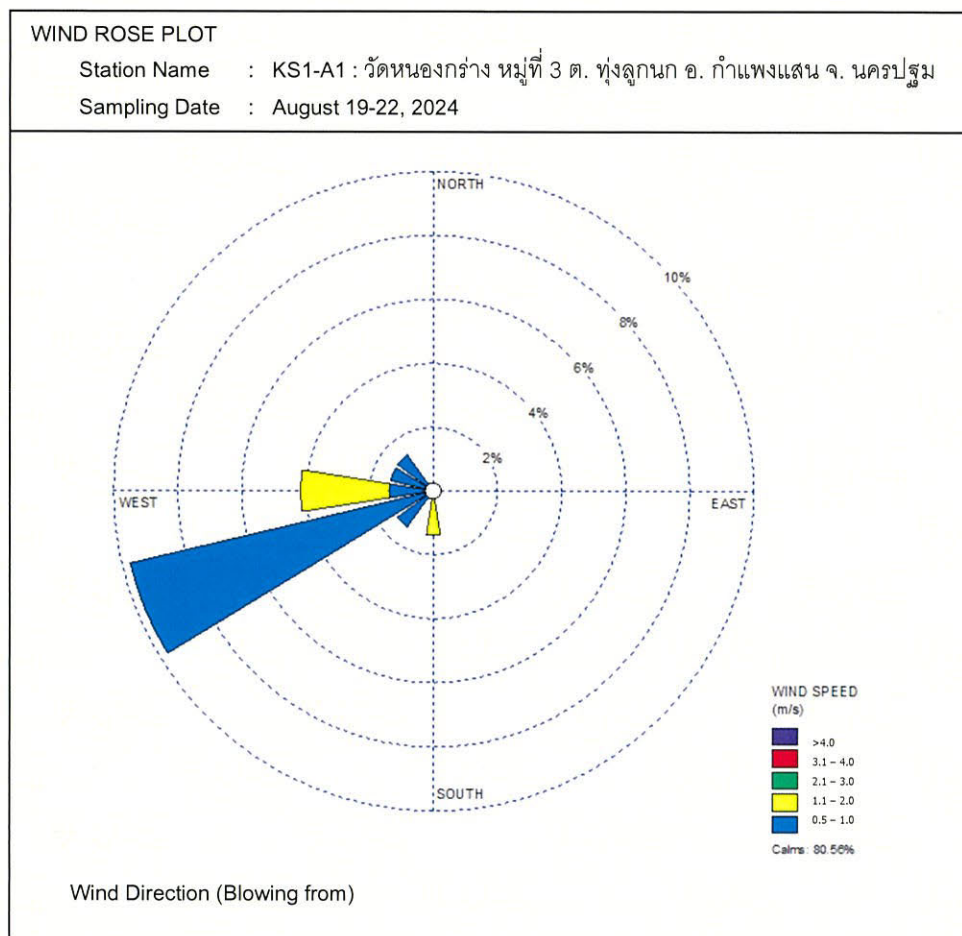


**Report No. : 2024-500001363-15 / 001-1 (Page 7 of 7)** Issued date : September 5, 2024

**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** : KS Production Phase  
**SAMPLING DATE** : August 19-22, 2024  
**SAMPLING BY** : Oran Boonphan  
 KS1-A1 : วัดหนองกร่าง หมู่ที่ 3 ต. พึ่งบุญนอก อ. กำแพงแสน จ. นครปฐม  
 (UTM47P 0597732E, 1553635N)



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(Theppan Ponnana)  
 Technical Manager

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**Report No. : 2024-500001363-15 / 001-2 (Page 1 of 7)** Issued date : September 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 :** Ambient Air Quality  
**SAMPLING LOCATION :** KS Production Phase  
**SAMPLING DATE :** August 19-22, 2024  
**SAMPLING BY :** Oran Boonphan  
 KS2-A1 : วัดไฟเ็นนรมย์ หมู่ที่ 7 ต. กระต๊อบ อ. กำแพงแสน จ. นครปฐม  
 (UTM47P 0599949E, 1556077N)

Sampling Date	TSP (mg/m <sup>3</sup> )	PM-10 (mg/m <sup>3</sup> )
August 19-20, 2024	0.044	0.018
August 20-21, 2024	0.038	0.017
August 21-22, 2024	0.040	0.017
<b>Standard*</b>	<b>0.33</b>	<b>0.12</b>

**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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(I hepsan Yommana)  
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**Report No. : 2024-500001363-15 / 001-2 (Page 2 of 7)** Issued date : September 5, 2024

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## Analysis Report

**SAMPLE DESIGNATED AS :** Ambient Air Quality  
**SAMPLING LOCATION :** KS Production Phase  
**SAMPLING DATE :** August 19-22, 2024  
**SAMPLING BY :** Oran Boonphan  
 KS2-A1 : วัดไผ่ร่มเย็น หมู่ที่ 7 ต. กระดังงะ อ. กำแพงแสน จ. นครปฐม  
 (UTM47P 0599949E, 1556077N)

Time	NO <sub>2</sub> Concentration (ppm)		
	August 19-20, 2024	August 20-21, 2024	August 21-22, 2024
10:00-11:00	0.005	0.005	0.010
11:00-12:00	0.005	0.005	0.017
12:00-13:00	0.005	0.005	0.004
13:00-14:00	0.005	0.005	0.005
14:00-15:00	0.006	0.004	0.005
15:00-16:00	0.005	0.004	0.004
16:00-17:00	0.004	0.004	0.004
17:00-18:00	0.005	0.004	0.004
18:00-19:00	0.004	0.004	0.004
19:00-20:00	0.005	0.005	0.004
20:00-21:00	0.008	0.005	0.008
21:00-22:00	0.004	0.004	0.007
22:00-23:00	0.009	0.004	0.006
23:00-00:00	0.005	0.005	0.006
00:00-01:00	0.005	0.007	0.006
01:00-02:00	0.006	0.006	0.005
02:00-03:00	0.006	0.006	0.005
03:00-04:00	0.005	0.006	0.007
04:00-05:00	0.005	0.006	0.007
05:00-06:00	0.008	0.007	0.008
06:00-07:00	0.008	0.008	0.009
07:00-08:00	0.007	0.007	0.006
08:00-09:00	0.007	0.005	0.005
09:00-10:00	0.005	0.005	0.005
1 hr.-Minimum	0.004	0.004	0.004
1 hr.-Maximum	0.009	0.008	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 LOCATION :** KS Production Phase  
**SAMPLING DATE :** August 19-22, 2024  
**SAMPLING BY :** Oran Boonphan  
 KS2-A1 : วัดไผ่ร่มเย็น หมู่ที่ 7 ต. กระต๊อบ อ. กำแพงแสน จ. นครปฐม  
 (UTM47P 0599949E, 1556077N)

Time	SO <sub>2</sub> Concentration (ppm)		
	August 19-20, 2024	August 20-21, 2024	August 21-22, 2024
10:00-11:00	0.001	0.001	0.001
11:00-12:00	0.005	0.001	0.003
12:00-13:00	0.001	0.003	0.001
13:00-14:00	0.004	0.003	0.001
14:00-15:00	0.002	0.001	0.003
15:00-16:00	0.001	0.001	0.001
16:00-17:00	0.002	0.002	0.002
17:00-18:00	0.001	0.002	0.002
18:00-19:00	0.001	0.001	0.001
19:00-20:00	0.003	0.001	0.001
20:00-21:00	0.001	0.002	0.001
21:00-22:00	0.001	0.001	0.003
22:00-23:00	0.001	0.001	0.001
23:00-00:00	0.001	0.002	0.002
00:00-01:00	0.002	0.001	0.001
01:00-02:00	0.002	0.001	0.003
02:00-03:00	0.001	0.003	0.003
03:00-04:00	0.001	0.002	0.001
04:00-05:00	0.001	0.002	0.001
05:00-06:00	0.003	0.001	0.001
06:00-07:00	0.001	0.001	0.001
07:00-08:00	0.001	0.003	0.002
08:00-09:00	0.002	0.004	0.001
09:00-10:00	0.001	0.001	0.001
1 hr.-Minimum	0.001	0.001	0.001
1 hr.-Maximum	0.005	0.004	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

**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

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**SAMPLING DATE :** August 19-22, 2024  
**SAMPLING BY :** Oran Boonphan  
 KS2-A1 : วัดไผ่ร่มเย็น หมู่ที่ 7 ต. กระต๊อบ อ. กำแพงแสน จ. นครปฐม  
 (UTM47P 0599949E, 1556077N)

Time	CO Concentration (ppm)		
	August 19-20, 2024	August 20-21, 2024	August 21-22, 2024
10:00-11:00	0.384	0.400	0.530
11:00-12:00	0.488	0.426	0.285
12:00-13:00	0.293	0.392	0.293
13:00-14:00	0.411	0.298	0.295
14:00-15:00	0.547	0.500	0.370
15:00-16:00	0.306	0.625	0.480
16:00-17:00	0.225	0.611	0.644
17:00-18:00	0.106	0.840	0.303
18:00-19:00	0.424	0.925	0.803
19:00-20:00	0.303	0.433	0.624
20:00-21:00	0.290	0.550	0.293
21:00-22:00	0.281	0.370	0.319
22:00-23:00	0.279	0.292	0.304
23:00-00:00	0.277	0.184	0.330
00:00-01:00	0.275	0.227	0.282
01:00-02:00	0.238	0.324	0.294
02:00-03:00	0.216	0.334	0.334
03:00-04:00	0.498	0.488	0.312
04:00-05:00	0.544	0.450	0.295
05:00-06:00	0.585	0.532	0.418
06:00-07:00	0.475	0.509	0.584
07:00-08:00	0.890	0.595	0.575
08:00-09:00	0.280	0.374	0.556
09:00-10:00	0.275	0.417	0.399
1 hr.-Minimum	0.106	0.184	0.282
1 hr.-Maximum	0.890	0.925	0.803
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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SGS (THAILAND) LIMITED



(Thepsan Yommana)  
 Technical Manager

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**Report No. : 2024-500001363-15 / 001-2 (Page 5 of 7)** Issued date : September 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 :** Ambient Air Quality  
**SAMPLING LOCATION :** KS Production Phase  
**SAMPLING DATE :** August 19-22, 2024  
**SAMPLING BY :** Oran Boonphan  
 KS2-A1 : วัดไผ่ล้อม หมู่ที่ 7 ต. กระดังงะ อ. กำแพงแสน จ. นครปฐม  
 (UTM47P 0599949E, 1556077N)

TIME	August 19-20, 2024		August 20-21, 2024		August 21-22, 2024	
	WD	WS (m/s)	WD	WS (m/s)	WD	WS (m/s)
10:00-11:00	W	0.9	-	CALM	W	1.3
11:00-12:00	WSW	0.9	-	CALM	W	1.8
12:00-13:00	WSW	0.9	-	CALM	W	1.3
13:00-14:00	W	0.9	-	CALM	W	1.3
14:00-15:00	SW	0.9	-	CALM	W	0.9
15:00-16:00	-	CALM	-	CALM	W	0.9
16:00-17:00	-	CALM	-	CALM	W	0.9
17:00-18:00	-	CALM	-	CALM	W	0.9
18:00-19:00	SSE	0.9	-	CALM	W	0.9
19:00-20:00	S	1.3	-	CALM	-	CALM
20:00-21:00	SSE	1.8	-	CALM	-	CALM
21:00-22:00	-	CALM	SW	0.9	-	CALM
22:00-23:00	SSW	0.9	-	CALM	-	CALM
23:00-00:00	-	CALM	-	CALM	-	CALM
00:00-01:00	W	0.9	-	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	-	CALM	-	CALM	-	CALM
09:00-10:00	-	CALM	WSW	0.9	W	0.9

**Measurement Method :** - Wind Speed and Wind Direction recording meter

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

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**Report No. : 2024-500001363-15 / 001-2 (Page 6 of 7)** Issued date : September 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** : Ambient Air Quality **SAMPLING DATE** : August 19-22, 2024  
**SAMPLING LOCATION** : KS Production Phase **SAMPLING BY** : Oran Boonphan  
 KS2-A1 : วัดไผ่ร่มเย็น หมู่ที่ 7 ต. กระต๊อบ อ. กำแพงแสน จ. นครปฐม  
 (UTM47P 0599949E, 1556077N)

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	1.39	-	-	-
S	-	1.39	-	-	-
SSW	1.39	-	-	-	-
SW	2.78	-	-	-	-
WSW	4.17	-	-	-	-
W	12.50	5.56	-	-	-
WNW	-	-	-	-	-
NW	-	-	-	-	-
NNW	-	-	-	-	-
<b>CALM</b>	<b>69.44</b>				

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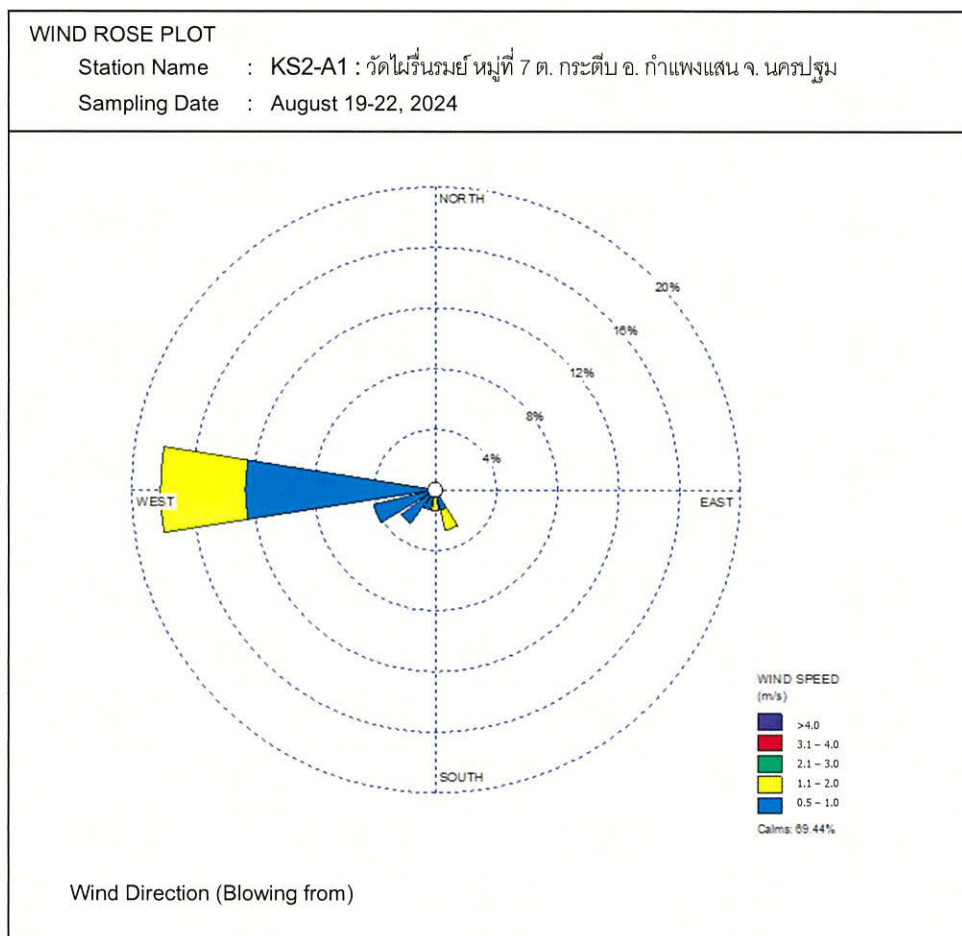
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**Report No. : 2024-500001363-15 / 001-2 (Page 7 of 7)** Issued date : September 5, 2024

**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 :** Ambient Air Quality  
**SAMPLING LOCATION :** KS Production Phase  
**SAMPLING DATE :** August 19-22, 2024  
**SAMPLING BY :** Oran Boonphan  
 KS2-A1 : วัดไผ่ร่มเย็น หมู่ที่ 7 ต. กระต๊อบ อ. กำแพงแสน จ. นครปฐม  
 (UTM47P 0599949E, 1556077N)



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**Report No. : 2024-500001363-15 / 001-3 (Page 1 of 7)** Issued date : September 5, 2024

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

## Analysis Report

**SAMPLE DESIGNATED AS :** Ambient Air Quality  
**SAMPLING LOCATION :** KS Production Phase  
**SAMPLING DATE :** August 19-22, 2024  
**SAMPLING BY :** Oran Boonphan  
 KS2-A2 : บ้านทุ่งบัว หมู่ที่ 6 ต. ทุ่งบัว อ. กำแพงแสน จ. นครปฐม  
 (UTM47P 0600441E, 1552435N)

Sampling Date	TSP (mg/m <sup>3</sup> )	PM-10 (mg/m <sup>3</sup> )
August 19-20, 2024	0.042	0.023
August 20-21, 2024	0.034	0.021
August 21-22, 2024	0.040	0.024
<b>Standard*</b>	<b>0.33</b>	<b>0.12</b>

**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. : 2024-500001363-15 / 001-3 (Page 2 of 7)** Issued date : September 5, 2024

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## Analysis Report

**SAMPLE DESIGNATED AS :** Ambient Air Quality  
**SAMPLING LOCATION :** KS Production Phase  
**SAMPLING DATE :** August 19-22, 2024  
**SAMPLING BY :** Oran Boonphan  
 KS2-A2 : บ้านทุ่งบัว หมู่ที่ 6 ต. ทุ่งบัว อ. กำแพงแสน จ. นครปฐม  
 (UTM47P 0600441E, 1552435N)

Time	NO <sub>2</sub> Concentration (ppm)		
	August 19-20, 2024	August 20-21, 2024	August 21-22, 2024
13:00-14:00	0.008	0.006	0.008
14:00-15:00	0.006	0.006	0.006
15:00-16:00	0.006	0.006	0.006
16:00-17:00	0.007	0.006	0.006
17:00-18:00	0.007	0.007	0.006
18:00-19:00	0.006	0.008	0.006
19:00-20:00	0.008	0.010	0.007
20:00-21:00	0.010	0.011	0.007
21:00-22:00	0.013	0.012	0.008
22:00-23:00	0.015	0.011	0.008
23:00-00:00	0.017	0.011	0.009
00:00-01:00	0.017	0.011	0.007
01:00-02:00	0.018	0.009	0.007
02:00-03:00	0.018	0.008	0.009
03:00-04:00	0.017	0.007	0.008
04:00-05:00	0.015	0.008	0.009
05:00-06:00	0.014	0.007	0.013
06:00-07:00	0.013	0.005	0.015
07:00-08:00	0.010	0.006	0.014
08:00-09:00	0.008	0.007	0.014
09:00-10:00	0.007	0.008	0.015
10:00-11:00	0.007	0.010	0.019
11:00-12:00	0.008	0.010	0.020
12:00-13:00	0.008	0.010	0.013
1 hr.-Minimum	0.006	0.005	0.006
1 hr.-Maximum	0.018	0.012	0.020
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. : 2024-500001363-15 / 001-3 (Page 3 of 7)** Issued date : September 5, 2024

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

## Analysis Report

**SAMPLE DESIGNATED AS :** Ambient Air Quality  
**SAMPLING LOCATION :** KS Production Phase  
**SAMPLING DATE :** August 19-22, 2024  
**SAMPLING BY :** Oran Boonphan  
 KS2-A2 : บ้านทุ่งบัว หมู่ที่ 6 ต. ทุ่งบัว อ. กำแพงแสน จ. นครปฐม  
 (UTM47P 0600441E, 1552435N)

Time	SO <sub>2</sub> Concentration (ppm)		
	August 19-20, 2024	August 20-21, 2024	August 21-22, 2024
13:00-14:00	0.003	0.002	0.002
14:00-15:00	0.002	0.003	0.003
15:00-16:00	0.003	0.002	0.002
16:00-17:00	0.003	0.004	0.003
17:00-18:00	0.003	0.001	0.003
18:00-19:00	0.002	0.002	0.005
19:00-20:00	0.003	0.003	0.005
20:00-21:00	0.003	0.004	0.003
21:00-22:00	0.003	0.002	0.003
22:00-23:00	0.002	0.003	0.003
23:00-00:00	0.002	0.002	0.002
00:00-01:00	0.003	0.002	0.003
01:00-02:00	0.005	0.003	0.003
02:00-03:00	0.003	0.004	0.004
03:00-04:00	0.003	0.003	0.002
04:00-05:00	0.002	0.005	0.001
05:00-06:00	0.006	0.006	0.005
06:00-07:00	0.004	0.006	0.004
07:00-08:00	0.007	0.004	0.006
08:00-09:00	0.003	0.006	0.006
09:00-10:00	0.004	0.004	0.003
10:00-11:00	0.005	0.003	0.002
11:00-12:00	0.002	0.003	0.002
12:00-13:00	0.001	0.002	0.002
1 hr.-Minimum	0.001	0.001	0.001
1 hr.-Maximum	0.007	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 [REDACTED]



(Inepsan Yommana)  
 Technical Manager

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**Report No. : 2024-500001363-15 / 001-3 (Page 4 of 7)** Issued date : September 5, 2024

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## Analysis Report

**SAMPLE DESIGNATED AS :** Ambient Air Quality  
**SAMPLING LOCATION :** KS Production Phase  
**SAMPLING DATE :** August 19-22, 2024  
**SAMPLING BY :** Oran Boonphan  
 KS2-A2 : บ้านทุ่งบัว หมู่ที่ 6 ต. ทุ่งบัว อ. กำแพงแสน จ. นครปฐม  
 (UTM47P 0600441E, 1552435N)

Time	CO Concentration (ppm)		
	August 19-20, 2024	August 20-21, 2024	August 21-22, 2024
13:00-14:00	0.567	0.683	0.589
14:00-15:00	0.430	0.700	0.582
15:00-16:00	0.666	0.694	0.713
16:00-17:00	0.624	0.441	0.692
17:00-18:00	0.535	0.545	0.756
18:00-19:00	0.737	0.590	0.876
19:00-20:00	0.801	0.684	0.794
20:00-21:00	0.693	0.737	0.640
21:00-22:00	0.331	0.445	0.542
22:00-23:00	0.326	0.416	0.438
23:00-00:00	0.340	0.470	0.350
00:00-01:00	0.250	0.505	0.413
01:00-02:00	0.270	0.366	0.500
02:00-03:00	0.340	0.423	0.452
03:00-04:00	0.454	0.548	0.556
04:00-05:00	0.558	0.431	0.603
05:00-06:00	0.673	0.354	0.669
06:00-07:00	0.644	0.573	0.692
07:00-08:00	0.692	0.669	0.790
08:00-09:00	0.579	0.703	0.952
09:00-10:00	0.754	0.741	0.790
10:00-11:00	0.566	0.580	0.674
11:00-12:00	0.471	0.702	0.635
12:00-13:00	0.447	0.455	0.581
1 hr.-Minimum	0.250	0.354	0.350
1 hr.-Maximum	0.801	0.741	0.952
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

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## Analysis Report

**SAMPLE DESIGNATED AS :** Ambient Air Quality  
**SAMPLING LOCATION :** KS Production Phase  
**SAMPLING DATE :** August 19-22, 2024  
**SAMPLING BY :** Oran Boonphan  
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 (UTM47P 0600441E, 1552435N)

TIME	August 19-20, 2024		August 20-21, 2024		August 21-22, 2024	
	WD	WS (m/s)	WD	WS (m/s)	WD	WS (m/s)
13:00-14:00	WNW	1.3	WNW	0.9	WNW	2.2
14:00-15:00	WSW	1.3	NNE	0.9	WNW	1.8
15:00-16:00	W	0.9	-	CALM	WNW	1.8
16:00-17:00	W	0.9	-	CALM	WNW	1.8
17:00-18:00	SSW	0.9	-	CALM	WNW	2.2
18:00-19:00	S	0.9	-	CALM	WNW	1.8
19:00-20:00	S	0.9	-	CALM	-	CALM
20:00-21:00	S	1.8	-	CALM	-	CALM
21:00-22:00	-	CALM	SSW	0.9	-	CALM
22:00-23:00	-	CALM	W	0.9	-	CALM
23:00-00:00	-	CALM	WNW	0.9	-	CALM
00:00-01:00	SW	0.9	-	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	WSW	0.9
08:00-09:00	-	CALM	-	CALM	W	1.3
09:00-10:00	-	CALM	-	CALM	W	1.3
10:00-11:00	WNW	0.9	W	2.7	W	0.9
11:00-12:00	N	0.9	W	2.7	W	0.9
12:00-13:00	NW	1.3	WNW	3.1	W	0.9

**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. : 2024-500001363-15 / 001-3 (Page 6 of 7)** Issued date : September 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** : Ambient Air Quality  
**SAMPLING LOCATION** : KS Production Phase  
**SAMPLING DATE** : August 19-22, 2024  
**SAMPLING BY** : Oran Boonphan  
 KS2-A2 : บ้านทุ่งบัว หมู่ที่ 6 ต. ทุ่งบัว อ. กำแพงแสน จ. นครปฐม  
 (UTM47P 0600441E, 1552435N)

Wind Direction \ Wind Speed	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	-	-	-	-	-
ENE	-	-	-	-	-
E	-	-	-	-	-
ESE	-	-	-	-	-
SE	-	-	-	-	-
SSE	-	-	-	-	-
S	2.78	1.39	-	-	-
SSW	2.78	-	-	-	-
SW	1.39	-	-	-	-
WSW	1.39	1.39	-	-	-
W	8.33	2.78	2.78	-	-
WNW	4.17	6.94	2.78	1.39	-
NW	-	1.39	-	-	-
NNW	-	-	-	-	-
<b>CALM</b>	<b>55.56</b>				

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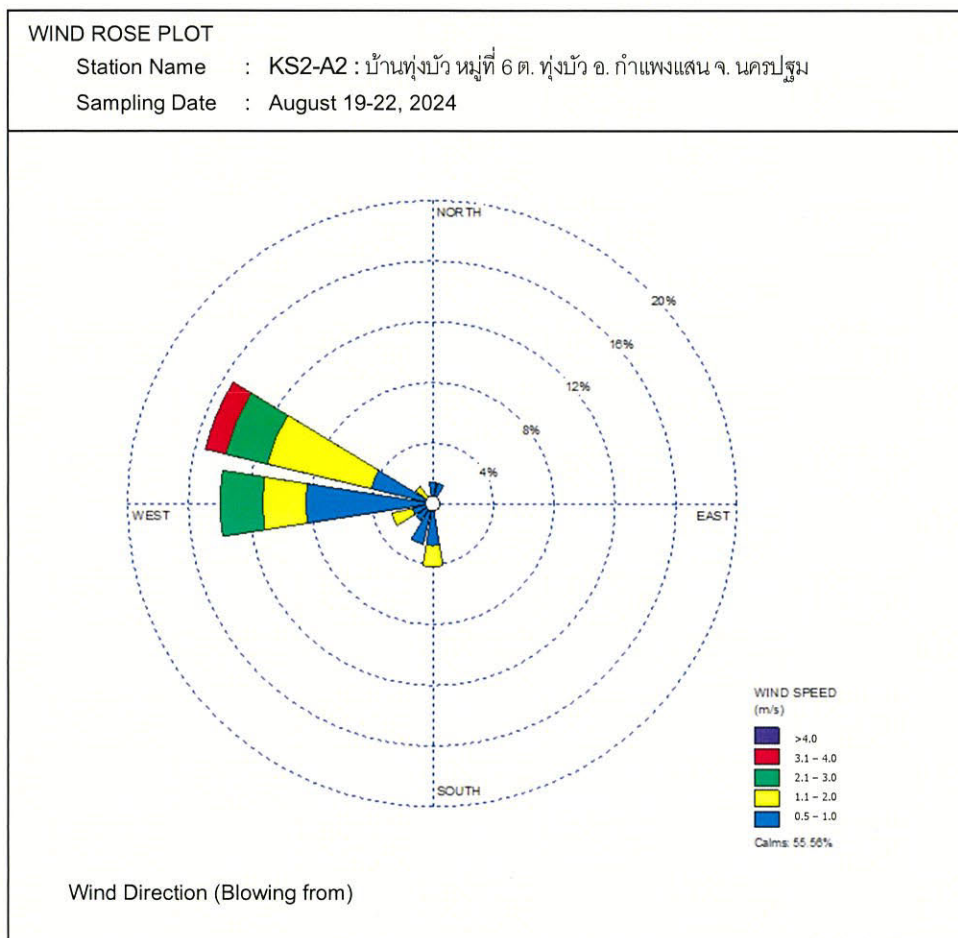


**Report No. : 2024-500001363-15 / 001-3 (Page 7 of 7)** Issued date : September 5, 2024

**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** : Ambient Air Quality  
**SAMPLING LOCATION** : KS Production Phase  
**SAMPLING DATE** : August 19-22, 2024  
**SAMPLING BY** : Oran Boonphan  
 KS2-A2 : บ้านทุ่งบัว หมู่ที่ 6 ต. ทุ่งบัว อ. กำแพงแสน จ. นครปฐม  
 (UTM47P 0600441E, 1552435N)



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SGS (THAILAND) LIMITED



(Thepsan Yommana)  
 Technical Manager

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ภาคผนวก ก2

ผลการตรวจวัดระดับเสียง

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Report No. : 2024-500001363-4 / 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 : KS Production Phase MEASURED BY : Weerapong Pengtrakul

KS1-N1 :

(UTM47P

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-21, RION, Serial No. 00598466

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	
16:00-17:00	60.4	84.1	47.4	60.3	89.2	47.5	59.9	83.5	48.7	
17:00-18:00	61.4	88.9	48.3	60.8	82.2	46.7	58.0	81.7	43.1	
18:00-19:00	60.0	84.3	44.3	57.7	80.0	44.7	55.2	78.9	39.6	
19:00-20:00	53.7	76.2	41.9	53.6	78.4	40.2	56.0	78.8	43.4	
20:00-21:00	65.1	101.3	38.7	49.7	72.9	39.3	53.7	82.6	40.8	
21:00-22:00	48.3	75.2	38.4	48.3	71.9	38.6	48.4	72.6	36.8	
22:00-23:00	46.1	74.8	37.9	45.8	67.1	37.7	44.9	69.8	37.6	
23:00-00:00	44.3	68.4	35.7	46.0	68.1	37.1	42.9	70.8	34.6	
00:00-01:00	49.2	76.0	34.9	43.2	67.7	35.4	46.2	68.6	34.6	
01:00-02:00	51.6	89.5	34.7	46.6	72.6	35.3	43.6	77.2	34.9	
02:00-03:00	46.3	72.8	35.4	49.0	81.6	33.6	44.7	68.1	34.0	
03:00-04:00	44.9	76.4	33.7	39.9	61.9	34.2	42.1	70.8	34.8	
04:00-05:00	50.2	74.7	34.7	47.5	73.2	35.5	47.7	74.6	36.3	
05:00-06:00	57.9	84.5	36.8	55.0	78.0	37.1	53.2	75.0	38.8	
06:00-07:00	54.1	84.4	38.9	52.5	84.1	38.3	54.0	77.2	39.5	
07:00-08:00	57.6	81.3	40.4	55.2	78.4	40.3	58.1	92.7	40.8	
08:00-09:00	55.9	82.7	39.7	54.6	84.2	38.1	57.5	89.0	40.6	
09:00-10:00	52.7	73.6	39.2	49.8	72.0	38.4	54.1	75.5	39.6	
10:00-11:00	52.5	75.8	38.1	54.1	86.5	37.7	55.4	78.2	39.7	
11:00-12:00	51.5	74.3	36.5	50.2	77.2	37.3	54.9	80.0	38.1	
12:00-13:00	53.8	76.4	41.2	54.3	74.5	39.5	53.7	76.4	40.9	
13:00-14:00	52.1	72.5	37.7	50.1	70.0	38.4	54.6	74.5	42.3	
14:00-15:00	52.8	78.3	37.1	51.3	72.0	38.9	56.8	79.0	42.5	
15:00-16:00	55.9	84.6	41.5	55.6	76.6	42.2	56.3	78.6	43.2	
Leq-24 hrs.	56.5	-	-	54.0	-	-	54.6	-	-	70
Ldn	59.8	-	-	57.3	-	-	57.3	-	-	-
Lmax	-	101.3	-	-	89.2	-	-	92.7	-	115
L90	-	-	35.8	-	-	36.0	-	-	35.5	-

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



(Weerapong Pengtrakul)  
Technical Manager

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**Report No. : 2024-500001363-4 / 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 :** Nuisance Noise Level  
**MEASUREMENT LOCATION :** KS Production Phase  
**MEASUREMENT DATE :** April 22-25, 2024  
**MEASURED BY :** Weerapong Pengtrakul  
 KS1-N1  
 (UTM47F)

**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-21, RION, Serial No. 00598466

Date	Duration	Specific Noise Level ( $L_{Aeq, T_s}$ ) [dB(A)] <sup>1/</sup>	Background Noise Level ( $L_{A90}$ ) [dB(A)] <sup>2/</sup>	Residual Noise Level ( $L_{Aeq R}$ ) [dB(A)] <sup>3/</sup>	Disturbance Level ( $L_{Aeq Tr}$ ) [dB(A)] <sup>4/</sup>
April 22-23, 2024	Day Time (06:00-22:00)	52.1	39.7	52.3	0.0
	Night Time (22:00-06:00)	41.5	36.2	39.4	4.1
April 23-24, 2024	Day Time (06:00-22:00)	50.1	38.3	53.5	0.0
	Night Time (22:00-06:00)	40.1	35.9	38.8	1.1
April 24-25, 2024	Day Time (06:00-22:00)	54.6	41.0	54.8	0.0
	Night Time (22:00-06:00)	39.0	35.0	38.7	0.0
Standard <sup>*/**</sup>					Not more than 10

**Remarks :** <sup>1/</sup> 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.  
<sup>2/</sup> 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 " $L_{A90}$ ".  
<sup>3/</sup> 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 " $L_{Aeq R}$ ".  
<sup>4/</sup> 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



(Thepsan Yommana)  
 Technical Manager

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**Report No. : 2024-500001363-15 / 002-1 (Page 1 of 1)** Issued date : September 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 :** Ambient Noise Level  
**MEASUREMENT LOCATION :** KS Production Phase  
**MEASUREMENT DATE :** August 19-22, 2024  
**MEASURED BY :** Oran Boonphan

KS1-N1  
 (UTM47)

**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. 820717

Time	Noise Level [dB(A)]									Standard*
	August 19-20, 2024			August 20-21, 2024			August 21-22, 2024			
	Leq	Lmax	L90	Leq	Lmax	L90	Leq	Lmax	L90	
10:00-11:00	53.1	80.5	43.8	53.8	75.9	43.3	52.6	77.7	45.9	
11:00-12:00	51.7	73.0	41.8	54.9	76.7	41.2	52.8	75.5	47.5	
12:00-13:00	51.4	70.6	41.6	55.7	83.6	45.9	53.0	72.3	42.5	
13:00-14:00	54.8	86.4	43.0	56.1	96.1	44.3	50.6	71.9	39.9	
14:00-15:00	52.1	77.0	38.0	50.8	72.1	36.2	51.3	74.7	40.5	
15:00-16:00	51.0	73.2	41.1	52.0	73.0	43.4	51.0	73.5	40.3	
16:00-17:00	51.0	73.0	44.3	51.5	72.9	37.4	53.4	76.5	46.4	
17:00-18:00	54.4	78.3	46.8	53.1	75.6	46.8	54.0	78.3	42.9	
18:00-19:00	56.2	78.7	50.4	55.4	83.7	45.4	53.5	82.3	43.0	
19:00-20:00	52.3	72.2	48.4	52.6	82.7	48.2	53.2	78.1	48.8	
20:00-21:00	51.1	75.5	48.1	48.3	66.9	44.2	52.8	83.2	45.1	
21:00-22:00	48.9	73.9	44.8	51.0	70.3	42.5	47.4	69.8	42.7	
22:00-23:00	45.8	65.1	44.3	47.1	71.5	42.7	46.6	70.0	42.2	
23:00-00:00	54.8	68.1	42.6	46.4	71.1	41.9	43.7	65.8	41.3	
00:00-01:00	44.4	65.8	41.8	45.9	77.1	38.0	45.2	69.9	40.3	
01:00-02:00	46.9	55.2	41.0	47.1	78.7	39.0	42.3	68.1	38.3	
02:00-03:00	50.5	61.5	50.1	43.0	64.2	38.5	41.2	63.1	38.2	
03:00-04:00	50.6	62.9	50.0	43.9	74.9	38.6	42.0	71.4	37.3	
04:00-05:00	50.4	73.8	45.9	49.5	71.6	40.2	46.9	78.8	40.1	
05:00-06:00	51.8	72.1	47.8	55.5	73.9	54.2	53.4	70.5	49.0	
06:00-07:00	52.4	74.3	47.5	52.7	71.3	46.4	52.2	75.8	46.3	
07:00-08:00	54.4	74.8	49.4	55.1	78.4	50.2	54.6	77.4	49.1	
08:00-09:00	53.9	75.2	42.7	52.5	73.5	43.6	53.7	71.3	45.6	
09:00-10:00	54.2	77.4	43.1	53.2	73.7	46.9	53.5	76.2	45.0	
Leq-24 hrs.	52.4	-	-	52.5	-	-	51.5	-	-	70
Ldn	57.6	-	-	57.0	-	-	55.6	-	-	-
Lmax	-	86.4	-	-	96.1	-	-	83.2	-	115
L90	-	-	43.1	-	-	40.1	-	-	39.9	-

**Source:** \* Notification of the National Environment Board No.15, B.E. 2540 (1



(Thepsan Ponnana)  
 Technical Manager

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**Report No.** : 2024-500001363-15 / 002-1 (Page 1 of 1) **Issued date** : September 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** : Nuisance Noise Level **MEASUREMENT DATE** : August 19-22, 2024  
**MEASUREMENT LOCATION** : KS Production Phase **MEASURED BY** : Oran Boonphan

KS1-N1 :  
 (UTM47P

**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. 820717

Date	Duration	Specific Noise Level ( $L_{Aeq, T_s}$ ) [dB(A)] <sup>1/</sup>	Background Noise Level ( $L_{A90}$ ) [dB(A)] <sup>2/</sup>	Residual Noise Level ( $L_{Aeq R}$ ) [dB(A)] <sup>3/</sup>	Disturbance Level ( $L_{Aeq Tr}$ ) [dB(A)] <sup>4/</sup>
August 19-20, 2024	Day Time (06:00-22:00)	53.9	48.6	48.8	3.7
	Night Time (22:00-06:00)	45.1	42.0	42.8	2.1
August 20-21, 2024	Day Time (06:00-22:00)	52.5	45.3	49.7	4.0
	Night Time (22:00-06:00)	41.1	39.8	40.9	0.0
August 21-22, 2024	Day Time (06:00-22:00)	53.7	47.3	48.5	4.8
	Night Time (22:00-06:00)	44.6	41.5	41.7	3.0
Standard**					Not more than 10

**Remarks** : <sup>1/</sup> Specific Noise Level is sound level in the existing environment which is disturbed by activities of factory, measured in term of " $L_{Aeq, 1\text{ hr}}$ " in day time and " $L_{Aeq, 5\text{ min}}$ " in night time.  
<sup>2/</sup> 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 " $L_{A90}$ ".  
<sup>3/</sup> 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 " $L_{Aeq R}$ ".  
<sup>4/</sup> 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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Technical Manager

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## ภาคผนวก ก3

ผลการตรวจวิเคราะห์คุณภาพน้ำผิวดิน

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**Report No. : 2024-500001363-4 / 003-1 (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 :** Surface Water Quality  
**SAMPLING BY :** Weerapong Pengtrakul  
**SAMPLING LOCATION :** KS Production Phase : SW1, คลองชลประทานบริเวณด้านเหนือพื้นที่โครงการ (UTM47P 0597731E, 1553892N)  
**SAMPLING DATE :** April 24, 2024  
**SAMPLING TIME :** 15:43 hr.

Parameter	Unit	Analytical Method	Result	Standard
pH	-	APHA, 4500-H <sup>+</sup> B	8.2	5.0-9.0
Conductivity	µs/cm	APHA, 2510 B	194	-
Temperature	°C	APHA, 2550 B	32.2	N <sup>2/</sup>
Total Suspended Solids (TSS)	mg/l	APHA, 2540 D	7.5	-
Total Dissolved Solids (TDS)	mg/l	APHA, 2540 C	87	-
Salinity	ppt	APHA, 2520 B	0.09	-
Dissolved Oxygen (DO)	mg/l	APHA, 4500-O C	8.2	≥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*	0.0010	-
Fecal Coliform Bacteria	MPN/100 ml	APHA, 9221 B	130	≤4,000

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

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

**Sources:** <sup>1/</sup> 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  
<sup>2/</sup> N' = Naturally but changing by no more than 3 °C

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 Technical Manager

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**Report No. : 2024-500001363-4 / 003-1 (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 :** Surface Water Quality **SAMPLING DATE :** April 24, 2024  
**SAMPLING BY :** Weerapong Pengtrakul **SAMPLING TIME :** 15:43 hr.  
**SAMPLING LOCATION :** KS Production Phase : SW1, คลองชลประทานบริเวณด้านเหนือพื้นที่โครงการ  
 (UTM47P 0597731E, 1553892N)

Parameter	Unit	Analytical Method	Result	Standard
Arsenic (As)	mg/l	APHA, 3125 B	0.004	≤0.01
Barium (Ba)	mg/l	APHA, 3125 B	0.033	-
Cadmium (Cd)	mg/l	APHA, 3125 B	<0.0001	≤0.005 <sup>2/</sup> / 0.05 <sup>3/</sup>
Total Chromium (Total Cr)	mg/l	APHA, 3125 B	<0.010	-
Copper (Cu)	mg/l	APHA, 3125 B	0.0020	≤0.1
Iron (Fe)	mg/l	APHA, 3125 B	0.389	-
Mercury (Hg)	mg/l	APHA, 3112 B	<0.0005	≤0.002
Manganese (Mn)	mg/l	APHA, 3125 B	0.049	≤1.0
Nickel (Ni)	mg/l	APHA, 3125 B	0.0003	≤0.1
Lead (Pb)	mg/l	APHA, 3125 B	0.0009	≤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 24<sup>th</sup> edition., 2023.

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

**Source :** <sup>1/</sup> 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:

- <sup>1/</sup> Consumption, but passing through an ordinary treatment process before use      <sup>2/</sup> Agriculture  
<sup>2/</sup> In case of hardness (CaCO<sub>3</sub>) of water not more than 100 mg/l  
<sup>3/</sup> In case of hardness (CaCO<sub>3</sub>) of water more than 100 mg/l

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(Thepsan Ponnirana)  
 Technical Manager

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**Report No. : 2024-500001363-4 / 003-2 (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 :** Surface Water Quality **SAMPLING DATE :** April 24, 2024  
**SAMPLING BY :** Weerapong Pengtrakul **SAMPLING TIME :** 16:08 hr.  
**SAMPLING LOCATION :** KS Production Phase : SW2, คลองชลประทานบริเวณด้านท้ายพื้นที่โครงการ  
 (UTM47P 0599657E, 1552355N)

Parameter	Unit	Analytical Method	Result	Standard
pH	-	APHA, 4500-H <sup>+</sup> B	8.1	5.0-9.0
Conductivity	µs/cm	APHA, 2510 B	193	-
Temperature	°C	APHA, 2550 B	31.5	N <sup>2/</sup>
Total Suspended Solids (TSS)	mg/l	APHA, 2540 D	8.6	-
Total Dissolved Solids (TDS)	mg/l	APHA, 2540 C	105	-
Salinity	ppt	APHA, 2520 B	0.09	-
Dissolved Oxygen (DO)	mg/l	APHA, 4500-O C	8.2	≥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*	0.0011	-
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 24<sup>th</sup> edition., 2023.

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

**Sources:** <sup>1/</sup> 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:

- <sup>1)</sup> Consumption, but passing through an ordinary treatment process before use <sup>2)</sup> Agriculture  
<sup>2/</sup> N = Naturally but changing by no more than 3 °C

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SGS (THAILAND) LIMITED



(Thepsan Yommana)  
 Technical Manager

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**Report No. : 2024-500001363-4 / 003-2 (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 :** Surface Water Quality **SAMPLING DATE :** April 24, 2024  
**SAMPLING BY :** Weerapong Pengtrakul **SAMPLING TIME :** 16:08 hr.  
**SAMPLING LOCATION :** KS Production Phase : SW2, คลองชลประทานบริเวณด้านท้ายพื้นที่โครงการ  
 (UTM47P 0599657E, 1552355N)

Parameter	Unit	Analytical Method	Result	Standard
Arsenic (As)	mg/l	APHA, 3125 B	0.004	≤0.01
Barium (Ba)	mg/l	APHA, 3125 B	0.031	-
Cadmium (Cd)	mg/l	APHA, 3125 B	<0.0001	≤0.005 <sup>2/</sup> / 0.05 <sup>3/</sup>
Total Chromium (Total Cr)	mg/l	APHA, 3125 B	<0.010	-
Copper (Cu)	mg/l	APHA, 3125 B	0.0020	≤0.1
Iron (Fe)	mg/l	APHA, 3125 B	0.475	-
Mercury (Hg)	mg/l	APHA, 3112 B	<0.0005	≤0.002
Manganese (Mn)	mg/l	APHA, 3125 B	0.055	≤1.0
Nickel (Ni)	mg/l	APHA, 3125 B	0.0029	≤0.1
Lead (Pb)	mg/l	APHA, 3125 B	0.0010	≤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 24<sup>th</sup> edition., 2023.

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

**Source :** <sup>1/</sup> 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  
<sup>2/</sup> In case of hardness (CaCO<sub>3</sub>) of water not more than 100 mg/l  
<sup>3/</sup> In case of hardness (CaCO<sub>3</sub>) of water more than 100 mg/l

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(Thesaporn Ponnana)  
 Technical Manager

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**Report No. : 2024-500001363-15 / 003-1 (Page 1 of 2)** Issued date : September 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 :** Surface Water Quality **SAMPLING DATE :** August 20, 2024  
**SAMPLING BY :** Oran Boonphan **SAMPLING TIME :** 10:51 hr.  
**SAMPLING LOCATION :** KS Production Phase : SW1, คลองชลประทานบริเวณด้านเหนือพื้นที่โครงการ  
 (UTM47P 0597731E, 1553892N)

Parameter	Unit	Analytical Method	Result	Standard
pH	-	APHA, 4500-H <sup>+</sup> B	7.8	5.0-9.0
Conductivity	µs/cm	APHA, 2510 B	171	-
Temperature	°C	APHA, 2550 B	30.4	N <sup>2/</sup>
Total Suspended Solids (TSS)	mg/l	APHA, 2540 D	3.7	-
Total Dissolved Solids (TDS)	mg/l	APHA, 2540 C	121	-
Salinity	ppt	APHA, 2520 B	0.08	-
Dissolved Oxygen (DO)	mg/l	APHA, 4500-O C	6.4	≥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*	0.0002	-
Fecal Coliform Bacteria	MPN/100 ml	APHA, 9221 B	130	≤4,000

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

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

**Sources:** <sup>1/</sup> 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

<sup>2/</sup> N<sup>1</sup> = Naturally but changing by no more than 3 °C



(Thepsan Yommana)  
Technical Manager

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**Report No. : 2024-500001363-15 / 003-1 (Page 2 of 2)** Issued date : September 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 :** Surface Water Quality **SAMPLING DATE :** August 20, 2024  
**SAMPLING BY :** Oran Boonphan **SAMPLING TIME :** 10:51 hr.  
**SAMPLING LOCATION :** KS Production Phase : SW1, คลองชลประทานบริเวณด้านเหนือพื้นที่โครงการ  
 (UTM47P 0597731E, 1553892N)

Parameter	Unit	Analytical Method	Result	Standard
Arsenic (As)	mg/l	APHA, 3120 B	<0.01	≤0.01
Barium (Ba)	mg/l	APHA, 3120 B	0.04	-
Cadmium (Cd)	mg/l	APHA, 3120 B	<0.002	≤0.005 <sup>2/</sup> / 0.05 <sup>3/</sup>
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	0.59	-
Mercury (Hg)	mg/l	APHA, 3112 B	<0.0005	≤0.002
Manganese (Mn)	mg/l	APHA, 3120 B	0.05	≤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 24<sup>th</sup> edition., 2023.  
 \* Based on Method of Seawater analysis Third Completely Revised and Extended Edition, 1999, Chapter 21

**Source :** <sup>1/</sup> 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  
<sup>2/</sup> In case of hardness (CaCO<sub>3</sub>) of water not more than 100 mg/l  
<sup>3/</sup> In case of hardness (CaCO<sub>3</sub>) of water more than 100 mg/l

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 Technical Manager

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**Report No. : 2024-500001363-15 / 003-1 (Page 1 of 2)** Issued date : September 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 :** Surface Water Quality **SAMPLING DATE :** August 20, 2024  
**SAMPLING BY :** Oran Boonphan **SAMPLING TIME :** 10:30 hr.  
**SAMPLING LOCATION :** KS Production Phase : SW2, คลองชลประทานบริเวณด้านท้ายพื้นที่โครงการ  
 (UTM47P 0599657E, 1552355N)

Parameter	Unit	Analytical Method	Result	Standard
pH	-	APHA, 4500-H* B	8.0	5.0-9.0
Conductivity	µs/cm	APHA, 2510 B	173	-
Temperature	°C	APHA, 2550 B	30.2	N <sup>2/</sup>
Total Suspended Solids (TSS)	mg/l	APHA, 2540 D	10	-
Total Dissolved Solids (TDS)	mg/l	APHA, 2540 C	113	-
Salinity	ppt	APHA, 2520 B	0.08	-
Dissolved Oxygen (DO)	mg/l	APHA, 4500-O C	6.4	≥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*	0.0002	-
Fecal Coliform Bacteria	MPN/100 ml	APHA, 9221 B	70	≤4,000

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

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

**Sources:** <sup>1/</sup> 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

<sup>2/</sup> N<sup>1</sup> = Naturally but changing by no more than 3 °C



(Thepsan Yommana)  
Technical Manager

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**Report No. : 2024-500001363-15 / 003-1 (Page 2 of 2)** Issued date : September 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 :** Surface Water Quality **SAMPLING DATE :** August 20, 2024  
**SAMPLING BY :** Oran Boonphan **SAMPLING TIME :** 10:30 hr.  
**SAMPLING LOCATION :** KS Production Phase : SW2, คลองชลประทานบริเวณด้านท้ายพื้นที่โครงการ  
 (UTM47P 0599657E, 1552355N)

Parameter	Unit	Analytical Method	Result	Standard
Arsenic (As)	mg/l	APHA, 3120 B	<0.01	≤0.01
Barium (Ba)	mg/l	APHA, 3120 B	0.04	-
Cadmium (Cd)	mg/l	APHA, 3120 B	<0.002	≤0.005 <sup>2/</sup> / 0.05 <sup>3/</sup>
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	0.63	-
Mercury (Hg)	mg/l	APHA, 3112 B	<0.0005	≤0.002
Manganese (Mn)	mg/l	APHA, 3120 B	0.05	≤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 24<sup>th</sup> edition., 2023.

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

**Source :** <sup>1/</sup> 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

<sup>2/</sup> In case of hardness (CaCO<sub>3</sub>) of water not more than 100 mg/l

<sup>3/</sup> In case of hardness (CaCO<sub>3</sub>) of water more than 100 mg/l

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 Technical Manager

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## ภาคผนวก ก4

ผลการตรวจวิเคราะห์คุณภาพน้ำใต้ดิน

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**Report No. : 2024-500001363-4 / 004-1 (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 :** Groundwater Quality **SAMPLING DATE :** April 24, 2024  
**SAMPLING BY :** Weerapong Pengtrakul **SAMPLING TIME :** 14:10 hr.  
**SAMPLING LOCATION :** KS Production Phase : ปอสังเกตรณที่ติดตั้งในฐานหลุมผลิต  
 (UTM47P 0598764E, 1554411N)

Parameter	Unit	Method	Result	Standard <sup>1/</sup>		Standard <sup>2/</sup>
				Optimal Value	Max. Allowable	
Temperature	°C	APHA, 2550 B	33.4	-	-	-
pH	-	APHA, 4500-H+ B	7.9	7.0-8.5	6.5-9.2	-
Conductivity	µs/cm	APHA, 2510 B	569	-	-	-
Salinity	ppt	APHA, 2520 B	0.27	-	-	-
Total Dissolved Solids (TDS)	mg/l	APHA, 2540 C	343	≥600	1,200	-
Total Petroleum Hydrocarbon (TPH)	mg/l	Based on Method of Seawater analysis*	0.0041	-	-	-
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 24<sup>th</sup> edition., 2023.

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

**Sources :** <sup>1/</sup> 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).

<sup>2/</sup> 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. : 2024-500001363-4 / 004-1 (Page 2 of 2)** Issued date : May 23, 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 :** April 24, 2024  
**SAMPLING BY :** Weerapong Pengtrakul  
**SAMPLING TIME :** 14:10 hr.  
**SAMPLING LOCATION :** KS Production Phase : บ่อสังเกตการณ์ที่ติดตั้งในฐานหลุมผลิต  
 (UTM47P 0598764E, 1554411N)

Parameter	Unit	Method	Result	Standard <sup>1/</sup>		Standard <sup>2/</sup>
				Optimal Value	Max. Allowable	
Arsenic (As)	mg/l	APHA, 3125 B	0.034	None	0.05	≥0.01
Barium (Ba)	mg/l	APHA, 3125 B	0.342	-	-	-
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	0.0112	≥1.0	1.5	≥1.0
Iron (Fe)	mg/l	APHA, 3125 B	17.970	≥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	1.362	≥0.3	0.5	≥0.5
Nickel (Ni)	mg/l	APHA, 3125 B	0.0089	-	-	≥0.02
Lead (Pb)	mg/l	APHA, 3125 B	0.0345	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	0.135	≥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 24<sup>th</sup> edition., 2023.

**Sources :** <sup>1/</sup> 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).

<sup>2/</sup> 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. : 2024-500001363-4 / 004-2 (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 :** Groundwater Quality **SAMPLING DATE :** April 24, 2024  
**SAMPLING BY :** Weerapong Pengtrakul **SAMPLING TIME :** 15:05 hr.  
**SAMPLING LOCATION :** KS Production Phase : GW1, บ่อน้ำบาดาลบริเวณชุมชนวัดไผ่  
 ต. พึ่งสุพรรณ อ. กำแพงแสน จ. นครปฐม (UTM47P 0600027E, 1555974N)

Parameter	Unit	Method	Result	Standard <sup>1/</sup>		Standard <sup>2/</sup>
				Optimal Value	Max. Allowable	
Temperature	°C	APHA, 2550 B	32.8	-	-	-
pH	-	APHA, 4500-H+ B	7.9	7.0-8.5	6.5-9.2	-
Conductivity	µs/cm	APHA, 2510 B	1,262	-	-	-
Salinity	ppt	APHA, 2520 B	0.62	-	-	-
Total Dissolved Solids (TDS)	mg/l	APHA, 2540 C	708	≥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 24<sup>th</sup> edition., 2023.

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

**Sources :** <sup>1/</sup> 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).

<sup>2/</sup> 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. : 2024-500001363-4 / 004-2 (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 :** Groundwater Quality **SAMPLING DATE :** April 24, 2024  
**SAMPLING BY :** Weerapong Pengtrakul **SAMPLING TIME :** 15:05 hr.  
**SAMPLING LOCATION :** KS Production Phase : GW1, บ่อน้ำบาดาลบริเวณชุมชนวัดไผ่  
 ต. พึ่งตุ๊ก อ. กำแพงแสน จ. นครปฐม (UTM47P 0600027E, 1555974N)

Parameter	Unit	Method	Result	Standard <sup>1/</sup>		Standard <sup>2/</sup>
				Optimal Value	Max. Allowable	
Arsenic (As)	mg/l	APHA, 3125 B	<0.001	None	0.05	≥0.01
Barium (Ba)	mg/l	APHA, 3125 B	0.137	-	-	-
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	0.039	≥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	0.026	≥0.3	0.5	≥0.5
Nickel (Ni)	mg/l	APHA, 3125 B	0.0009	-	-	≥0.02
Lead (Pb)	mg/l	APHA, 3125 B	0.0020	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	0.068	≥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 24<sup>th</sup> edition., 2023.

**Sources :** <sup>1/</sup> 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).

<sup>2/</sup> 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. : 2024-500001363-4 / 004-3 (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 :** Groundwater Quality **SAMPLING DATE :** April 24, 2024  
**SAMPLING BY :** Weerapong Pengtrakul **SAMPLING TIME :** 15:30 hr.  
**SAMPLING LOCATION :** KS Production Phase : GW2, บ่อน้ำบาดาลบริเวณชุมชนหนองกร่าง  
 ต. พึ่งลูกนก อ. กำแพงแสน จ. นครปฐม (UTM47P 0597201E, 1553746N)

Parameter	Unit	Method	Result	Standard <sup>1/</sup>		Standard <sup>2/</sup>
				Optimal Value	Max. Allowable	
Temperature	°C	APHA, 2550 B	31.5	-	-	-
pH	-	APHA, 4500-H+ B	7.8	7.0-8.5	6.5-9.2	-
Conductivity	µs/cm	APHA, 2510 B	1,227	-	-	-
Salinity	ppt	APHA, 2520 B	0.61	-	-	-
Total Dissolved Solids (TDS)	mg/l	APHA, 2540 C	696	≥600	1,200	-
Total Petroleum Hydrocarbon (TPH)	mg/l	Based on Method of Seawater analysis*	0.0006	-	-	-
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 24<sup>th</sup> edition., 2023.

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

**Sources :** <sup>1/</sup> 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).

<sup>2/</sup> 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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 Tel. 089-968-0061 E-Mail: SutthilukP@pttep.com

## Analysis Report

**SAMPLE DESIGNATED AS :** Groundwater Quality  
**SAMPLING DATE :** April 24, 2024  
**SAMPLING BY :** Weerapong Pengtrakul  
**SAMPLING TIME :** 15:30 hr.  
**SAMPLING LOCATION :** KS Production Phase : GW2, บ่อน้ำบาดาลบริเวณชุมชนหนองกร่าง  
 ต. พังโคน อ. กำแพงแสน จ. นครปฐม (UTM47P 0597201E, 1553746N)

Parameter	Unit	Method	Result	Standard <sup>1/</sup>		Standard <sup>2/</sup>
				Optimal Value	Max. Allowable	
Arsenic (As)	mg/l	APHA, 3125 B	<0.001	None	0.05	≥0.01
Barium (Ba)	mg/l	APHA, 3125 B	0.060	-	-	-
Cadmium (Cd)	mg/l	APHA, 3125 B	<0.001	None	0.01	≥0.003
Total Chromium (Total Cr)	mg/l	APHA, 3125 B	<0.010	-	-	-
Copper (Cu)	mg/l	APHA, 3125 B	0.0021	≥1.0	1.5	≥1.0
Iron (Fe)	mg/l	APHA, 3125 B	0.052	≥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	0.047	≥0.3	0.5	≥0.5
Nickel (Ni)	mg/l	APHA, 3125 B	<0.0001	-	-	≥0.02
Lead (Pb)	mg/l	APHA, 3125 B	0.0018	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	0.154	≥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 24<sup>th</sup> edition., 2023.

**Sources :** <sup>1/</sup> 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).

<sup>2/</sup> 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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IE 010191

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**Report No. : 2024-500001363-15 / 003-1 (Page 1 of 2)** Issued date : September 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 :** August 21, 2024  
**SAMPLING BY :** Oran Boonphan **SAMPLING TIME :** 11:00 hr.  
**SAMPLING LOCATION :** KS Production Phase : บ่อสังเกตการณ์ที่ติดตั้งในฐานหลุมผลิต  
 (UTM47P 0598764E, 1554411N)

Parameter	Unit	Method	Result	Standard <sup>1/</sup>		Standard <sup>2/</sup>
				Optimal Value	Max. Allowable	
Temperature	°C	APHA, 2550 B	31.0	-	-	-
pH	-	APHA, 4500-H+ B	7.5	7.0-8.5	6.5-9.2	-
Conductivity	µs/cm	APHA, 2510 B	568	-	-	-
Salinity	ppt	APHA, 2520 B	0.27	-	-	-
Total Dissolved Solids (TDS)	mg/l	APHA, 2540 C	370	≧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 24<sup>th</sup> edition., 2023.

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

**Sources :** <sup>1/</sup> 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).

<sup>2/</sup> 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. : 2024-500001363-15 / 003-1 (Page 2 of 2) Issued date : September 5, 2024

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

## Analysis Report

SAMPLE DESIGNATED AS : Groundwater Quality  
SAMPLING BY : Oran Boonphan  
SAMPLING LOCATION : KS Production Phase : บ่อสังเกตการณ์ที่ติดตั้งในฐานหลุมผลิต  
(UTM47P 0598764E, 1554411N)  
SAMPLING DATE : August 21, 2024  
SAMPLING TIME : 11:00 hr.

Parameter	Unit	Method	Result	Standard <sup>1/</sup>		Standard <sup>2/</sup>
				Optimal Value	Max. Allowable	
Arsenic (As)	mg/l	APHA, 3120 B	0.013	None	0.05	≥0.01
Barium (Ba)	mg/l	APHA, 3120 B	0.235	-	-	-
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	0.0046	≥1.0	1.5	≥1.0
Iron (Fe)	mg/l	APHA, 3120 B	1.501	≥0.5	1.0	-
Mercury (Hg)	mg/l	APHA, 3112 B	<0.0005	None	0.001	≥0.001
Manganese (Mn)	mg/l	APHA, 3120 B	0.776	≥0.3	0.5	≥0.5
Nickel (Ni)	mg/l	APHA, 3120 B	0.0047	-	-	≥0.02
Lead (Pb)	mg/l	APHA, 3120 B	0.0046	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	0.018	≥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 24<sup>th</sup> edition., 2023.

Sources : <sup>1/</sup> 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).

<sup>2/</sup> 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. : 2024-500001363-15 / 003-1 (Page 1 of 2)** Issued date : September 5, 2024

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

## Analysis Report

**SAMPLE DESIGNATED AS :** Groundwater Quality **SAMPLING DATE :** August 21, 2024  
**SAMPLING BY :** Oran Boonphan **SAMPLING TIME :** 10:24 hr.  
**SAMPLING LOCATION :** KS Production Phase : GW1, บ่อน้ำบาดาลบริเวณชุมชนวัดไผ่  
 ต. พังงูถนน อ. กำแพงแสน จ. นครปฐม (UTM47P 0600027E, 1555974N)

Parameter	Unit	Method	Result	Standard <sup>1/</sup>		Standard <sup>2/</sup>
				Optimal Value	Max. Allowable	
Temperature	°C	APHA, 2550 B	29.2	-	-	-
pH	-	APHA, 4500-H+ B	7.9	7.0-8.5	6.5-9.2	-
Conductivity	µs/cm	APHA, 2510 B	1,212	-	-	-
Salinity	ppt	APHA, 2520 B	0.60	-	-	-
Total Dissolved Solids (TDS)	mg/l	APHA, 2540 C	716	≥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

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

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

**Sources :** <sup>1/</sup> 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).

<sup>2/</sup> 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. : 2024-500001363-15 / 003-1 (Page 2 of 2)** Issued date : September 5, 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 21, 2024  
**SAMPLING BY :** Oran Boonphan **SAMPLING TIME :** 10:24 hr.  
**SAMPLING LOCATION :** KS Production Phase : GW1, บ่อน้ำบาดาลบริเวณชุมชนวัดไผ่  
 ต. พึ่งตุ๊ก อ. กำแพงแสน จ. นครปฐม (UTM47P 0600027E, 1555974N)

Parameter	Unit	Method	Result	Standard <sup>1/</sup>		Standard <sup>2/</sup>
				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	0.156	-	-	-
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	0.0018	≥1.0	1.5	≥1.0
Iron (Fe)	mg/l	APHA, 3120 B	0.035	≥0.5	1.0	-
Mercury (Hg)	mg/l	APHA, 3112 B	<0.0005	None	0.001	≥0.001
Manganese (Mn)	mg/l	APHA, 3120 B	0.003	≥0.3	0.5	≥0.5
Nickel (Ni)	mg/l	APHA, 3120 B	<0.001	-	-	≥0.02
Lead (Pb)	mg/l	APHA, 3120 B	0.0012	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	0.045	≥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 24<sup>th</sup> edition., 2023.

**Sources :** <sup>1/</sup> 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).

<sup>2/</sup> 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. : 2024-500001363-15 / 003-1 (Page 1 of 2)** Issued date : September 5, 2024

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

## Analysis Report

**SAMPLE DESIGNATED AS :** Groundwater Quality **SAMPLING DATE :** August 21, 2024  
**SAMPLING BY :** Oran Boonphan **SAMPLING TIME :** 11:47 hr.  
**SAMPLING LOCATION :** KS Production Phase : GW2, บ่อน้ำบาดาลบริเวณชุมชนหนองกร่าง  
 ต. พังโคน อ. กำแพงแสน จ. นครปฐม (UTM47P 0597201E, 1553746N)

Parameter	Unit	Method	Result	Standard <sup>1/</sup>		Standard <sup>2/</sup>
				Optimal Value	Max. Allowable	
Temperature	°C	APHA, 2550 B	30.7	-	-	-
pH	-	APHA, 4500-H+ B	7.5	7.0-8.5	6.5-9.2	-
Conductivity	µs/cm	APHA, 2510 B	1,418	-	-	-
Salinity	ppt	APHA, 2520 B	0.71	-	-	-
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*	0.001	-	-	-
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

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

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

**Sources :** <sup>1/</sup> 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).

<sup>2/</sup> 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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IE 009186

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## Analysis Report

**SAMPLE DESIGNATED AS :** Groundwater Quality **SAMPLING DATE :** August 21, 2024  
**SAMPLING BY :** Oran Boonphan **SAMPLING TIME :** 11:47 hr.  
**SAMPLING LOCATION :** KS Production Phase : GW2, บ่อน้ำบาดาลบริเวณชุมชนหนองกร่าง  
 ต. ห้วยตุ้ม อ. กำแพงแสน จ. นครปฐม (UTM47P 0597201E, 1553746N)

Parameter	Unit	Method	Result	Standard <sup>1/</sup>		Standard <sup>2/</sup>
				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	0.089	-	-	-
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	<0.001	≥1.0	1.5	≥1.0
Iron (Fe)	mg/l	APHA, 3120 B	0.055	≥0.5	1.0	-
Mercury (Hg)	mg/l	APHA, 3112 B	<0.0005	None	0.001	≥0.001
Manganese (Mn)	mg/l	APHA, 3120 B	0.117	≥0.3	0.5	≥0.5
Nickel (Ni)	mg/l	APHA, 3120 B	<0.001	-	-	≥0.02
Lead (Pb)	mg/l	APHA, 3120 B	0.0012	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	0.066	≥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 24<sup>th</sup> edition., 2023.

**Sources :** <sup>1/</sup> 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).  
<sup>2/</sup> 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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