

ภาคผนวก จ

ผลการตรวจวัดคุณภาพอากาศที่ระบายออกจากปล่องโรงไฟฟ้า

ผลการตรวจวัดคุณภาพอากาศที่ระบายออกจากปล่องโรงไฟฟ้า  
แบบต่อเนื่อง (CEMS)

ตารางที่ จ-1 สรุปผลการตรวจวัดคุณภาพอากาศที่ระบายออกจากปล่องโรงไฟฟ้าแบบต่อเนื่อง (CEMS)

โรงไฟฟ้าพระนครเหนือ ชุดที่ 1 ระหว่างเดือนกรกฎาคม-ธันวาคม 2565

โรงไฟฟ้าชุดที่ 1	ดัชนีที่ตรวจวัด	กรกฎาคม	สิงหาคม	กันยายน	ตุลาคม	พฤศจิกายน	ธันวาคม	ค่ามาตรฐาน	ค่าควบคุม
เครื่องที่ 1	Flow (KNm <sup>3</sup> /hr)								
	ค่าต่ำสุด	1,340.91	1,218.16	1,380.40	1,301.70	1,438.16	1,284.44	-	-
	ค่าสูงสุด	1,466.89	1,463.63	1,449.65	1,479.00	1,479.47	1,468.38	-	-
	ค่าเฉลี่ย	1,426.29	1,413.13	1,414.55	1,422.02	1,459.40	1,420.41	-	-
	NOx (ppm)								
	ค่าต่ำสุด	40.60	40.70	46.50	41.70	40.70	44.00	120	96
	ค่าสูงสุด	44.02	43.68	49.20	46.10	46.10	49.30	120	96
	ค่าเฉลี่ย	42.35	41.96	47.87	43.86	43.22	45.73	120	96
	SO <sub>2</sub> (ppm)								
	ค่าต่ำสุด	0.48	0.80	2.20	0.00	0.00	0.00	20	10
	ค่าสูงสุด	1.84	1.50	2.50	2.00	2.30	2.40	20	10
	ค่าเฉลี่ย	1.63	1.27	2.33	1.25	1.12	1.99	20	10
	O <sub>2</sub> (%)								
	ค่าต่ำสุด	13.21	13.26	13.20	13.00	12.90	13.20	-	-
	ค่าสูงสุด	13.74	13.76	13.80	13.70	13.30	13.80	-	-
	ค่าเฉลี่ย	13.46	13.49	13.50	13.48	13.06	13.53	-	-
เครื่องที่ 2	Flow (KNm <sup>3</sup> /hr)								
	ค่าต่ำสุด	1,319.73	1,193.40	1,341.85	1,008.84	1,408.56	1,256.69	-	-
	ค่าสูงสุด	1,462.59	1,447.57	1,422.23	1,449.80	1,442.84	1,439.16	-	-
	ค่าเฉลี่ย	1,410.88	1,395.34	1,383.49	1,352.02	1,429.64	1,391.59	-	-
	NOx (ppm)								
	ค่าต่ำสุด	39.22	41.00	47.10	39.10	38.80	39.80	120	96
	ค่าสูงสุด	46.47	48.04	49.10	48.80	43.50	47.40	120	96
	ค่าเฉลี่ย	43.42	44.14	48.17	44.24	40.67	42.86	120	96
	SO <sub>2</sub> (ppm)								
	ค่าต่ำสุด	0.51	0.38	0.40	1.00	0.20	0.00	20	10
	ค่าสูงสุด	0.95	0.70	0.40	1.20	1.10	0.40	20	10
	ค่าเฉลี่ย	0.69	0.52	0.40	1.16	0.88	0.28	20	10
	O <sub>2</sub> (%)								
	ค่าต่ำสุด	13.22	13.24	13.30	12.90	12.80	13.00	-	-
	ค่าสูงสุด	13.70	13.73	13.70	13.70	13.30	13.80	-	-
	ค่าเฉลี่ย	13.48	13.48	13.50	13.46	12.97	13.40	-	-

หมายเหตุ : - หมายถึง ไม่มีการกำหนดค่ามาตรฐานหรือค่าควบคุม

ตารางที่ จ-2 สรุปผลการตรวจวัดคุณภาพอากาศที่ระบายออกจากปล่องโรงไฟฟ้าแบบต่อเนื่อง (CEMS)

โรงไฟฟ้าพระนครเหนือ ชุดที่ 2 ระหว่างเดือนกรกฎาคม-ธันวาคม 2565

โรงไฟฟ้าชุดที่ 2	ดัชนีที่ตรวจวัด	กรกฎาคม	สิงหาคม	กันยายน	ตุลาคม	พฤศจิกายน	ธันวาคม	ค่ามาตรฐาน	ค่าควบคุม
เครื่องที่ 1	Flow (KNm <sup>3</sup> /hr)								
	ค่าต่ำสุด	1,429.69	1,434.74	1,424.78	1,313.34	1,405.46	1,347.07	-	-
	ค่าสูงสุด	1,886.75	1,871.04	1,807.48	1,876.77	1,815.45	1,820.81	-	-
	ค่าเฉลี่ย	1,621.66	1,630.95	1,587.98	1,475.70	1,602.37	1,559.86	-	-
	NOx (ppm)								
	ค่าต่ำสุด	5.08	8.25	8.54	3.15	7.85	9.20	120	70
	ค่าสูงสุด	11.12	13.14	11.82	12.97	10.92	13.40	120	70
	ค่าเฉลี่ย	8.25	10.62	10.21	8.37	9.92	10.95	120	70
	SO <sub>2</sub> (ppm)								
	ค่าต่ำสุด	1.22	0.00	1.24	0.48	0.56	0.00	20	10
	ค่าสูงสุด	4.92	2.78	3.05	3.43	4.24	1.00	20	10
	ค่าเฉลี่ย	2.86	1.16	2.13	2.02	2.61	0.32	20	10
	O <sub>2</sub> (%)								
	ค่าต่ำสุด	12.85	12.65	12.91	13.02	12.89	12.90	-	-
	ค่าสูงสุด	13.18	13.14	13.29	13.28	13.14	13.40	-	-
	ค่าเฉลี่ย	13.01	12.92	13.10	13.14	13.01	13.06	-	-
เครื่องที่ 2	Flow (KNm <sup>3</sup> /hr)								
	ค่าต่ำสุด	896.64	879.54	1093.32	877.84	792.40	SD	-	-
	ค่าสูงสุด	1,988.34	1,994.86	1806.93	1,703.19	1,507.56	SD	-	-
	ค่าเฉลี่ย	1,420.05	1,268.51	1468.36	1,148.53	1,161.19	SD	-	-
	NOx (ppm)								
	ค่าต่ำสุด	5.01	3.73	3.41	3.62	4.48	SD	120	70
	ค่าสูงสุด	7.64	7.98	6.93	7.39	8.63	SD	120	70
	ค่าเฉลี่ย	6.40	7.00	4.48	5.00	5.73	SD	120	70
	SO <sub>2</sub> (ppm)	0.19							
	ค่าต่ำสุด	3.41	1.54	1.51	1.99	2.29	SD	20	10
	ค่าสูงสุด	2.20	3.01	2.68	2.74	4.11	SD	20	10
	ค่าเฉลี่ย		2.42	1.95	2.43	3.08	SD	20	10
	O <sub>2</sub> (%)								
	ค่าต่ำสุด	12.89	12.82	12.94	12.67	12.95	SD	-	-
	ค่าสูงสุด	13.90	13.97	14.34	13.07	13.13	SD	-	-
	ค่าเฉลี่ย	13.46	13.26	13.50	12.95	13.05	SD	-	-

หมายเหตุ : - หมายถึง ไม่มีการกำหนดค่ามาตรฐานหรือค่าควบคุม

SD หมายถึง โรงไฟฟ้าหยุดการเดินเครื่อง

ผลการตรวจสอบความถูกต้องของการทำงานของระบบ CEMS

Relative Accuracy Determination for CEMS: North Bangkok Combined Cycle Power Plant Unit 11

<b>Plant:</b>	North Bangkok Combined Cycle Power Plant
<b>Source Identification:</b>	NB-C11
<b>Date:</b>	5 July 2022
<b>Comparison:</b>	Dry Basis Reference Versus Dry Basis Source, 0 °C, 760 mm.Hg

RATA Run No.	Time		Load (MW)	RM flow (10 <sup>3</sup> x Nm <sup>3</sup> /hr)	CEM flow (10 <sup>3</sup> x Nm <sup>3</sup> /hr)	Difference (10 <sup>3</sup> x Nm <sup>3</sup> /hr)
	Start	End				
1	9.00	9.15	226	1,495.61	1,334.60	161.01
2	9.16	9.30	226	1,495.65	1,334.66	160.99
3	9.31	9.45	226	1,490.93	1,332.85	158.08
4	9.46	10.00	226	1,490.97	1,338.21	152.76
5	10.01	10.15	226	1,487.55	1,336.45	151.10
6	10.16	10.30	226	1,487.47	1,337.48	149.99
7	10.31	10.45	226	1,483.01	1,334.61	148.40
8	10.46	11.00	226	1,484.52	1,336.45	148.07
9	11.01	11.15	226	1,492.69	1,336.97	155.72
10	11.16	11.30	226	1,492.61	1,338.86	153.75
11	11.31	11.45	226	1,486.54	1,332.18	154.36
12	11.46	12.00	226	1,486.61	1,324.71	161.90
Average			226	1,489.51	1,334.84	154.68
			Confidence Coefficient:			3.62
			Relative Accuracy (%):			10.63
			Performance Specification (%RA):			20% <sup>*/</sup>

<sup>\*/</sup> 20% of RM value

Audited by : Athichai Srimala

Technician

Approved by : Buntoon Intim

Scientist : ๖-065-๓-6223

Relative Accuracy Determination for CEMS: North Bangkok Combined Cycle Power Plant Unit 11

Plant:	North Bangkok Combined Cycle Power Plant
Source Identification:	NB-C11
Date:	5 July 2022

RATA Run No.	Time		Load (MW)	SO <sub>2</sub> <sup>1/</sup>			NO <sub>x</sub> <sup>1/</sup>			O <sub>2</sub> <sup>2/</sup>		
	Start	End		Instrumental RM	CEMS	Difference	Instrumental RM	CEMS	Difference	Instrumental RM	CEMS	Difference
1	6:01	6:30	212	0.8	1.0	-0.2	47.1	41.4	5.7	13.2	13.2	0.0
2	6:31	7:00	212	0.8	0.9	-0.1	47.2	41.5	5.7	13.2	13.2	0.0
3	7:01	7:30	220	0.8	0.9	-0.1	47.4	41.9	5.5	13.2	13.2	0.0
4	7:31	8:00	220	0.7	0.9	-0.2	47.4	42.1	5.3	13.1	13.2	-0.1
5	8:01	8:30	226	0.7	0.8	-0.1	47.2	42.0	5.2	13.1	13.1	0.0
6	8:31	9:00	226	0.7	0.7	0.0	47.3	42.3	5.0	13.1	13.2	-0.1
7	9:01	9:30	226	0.8	0.8	0.0	47.4	42.4	5.0	13.1	13.2	-0.1
8	9:31	10:00	226	0.8	0.8	0.0	47.5	42.7	4.8	13.1	13.2	-0.1
9	10:01	10:30	226	0.7	0.9	-0.2	47.4	42.8	4.6	13.1	13.2	-0.1
10	10:31	11:00	226	0.8	0.7	0.1	47.5	42.8	4.7	13.1	13.2	-0.1
11	11:01	11:30	226	0.8	0.7	0.1	47.5	42.9	4.6	13.1	13.2	-0.1
12	11:31	12:00	226	0.8	0.7	0.1	47.4	43.0	4.4	13.1	13.2	-0.1
Average:			223	0.8	0.8	0.0	47.4	42.3	5.1	13.1	13.2	-0.1
Confidence Coefficient:				0.1			0.3			-		
Relative Accuracy (%):				0.6			4.4			0.1		
Performance Specification (%RA):				≤ 10% <sup>3/</sup>			≤ 10% <sup>3/</sup>			≤ 1% <sup>4/</sup>		

- <sup>1/</sup> comparison on a consistant basis (dry and 7% oxygen)
- <sup>2/</sup> comparison on a consistant basis (dry and actual oxygen)
- <sup>3/</sup> 10% of emission standard (SO<sub>2</sub> = 20 ppmvd@7% O<sub>2</sub>, NO<sub>x</sub> = 120 ppmvd@7%O<sub>2</sub>)
- <sup>4/</sup> 1% of Oxygen (RM value)
- <sup>5/</sup> 20% of RM value

Audited by : Athichai Srimala  
Technician

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Scientist : ๖-065-๓-6223

Relative Accuracy Determination for CEMS: North Bangkok Combined Cycle Power Plant Unit 12

<b>Plant:</b>	North Bangkok Combined Cycle Power Plant
<b>Source Identification:</b>	NB-C12
<b>Date:</b>	7 July 2022
<b>Comparison:</b>	Dry Basis Reference Versus Dry Basis Source, 0 °C, 760 mm.Hg

RATA Run No.	Time		Load (MW)	RM flow (10 <sup>3</sup> x Nm <sup>3</sup> /hr)	CEM flow (10 <sup>3</sup> x Nm <sup>3</sup> /hr)	Difference (10 <sup>3</sup> x Nm <sup>3</sup> /hr)
	Start	End				
1	9.00	9.15	214	1,546.06	1,292.55	253.51
2	9.16	9.30	214	1,551.76	1,295.84	255.92
3	9.31	9.45	214	1,536.67	1,282.10	254.57
4	9.46	10.00	214	1,532.90	1,294.57	238.33
5	10.01	10.15	214	1,533.40	1,279.10	254.30
6	10.16	10.30	214	1,529.21	1,303.58	225.63
7	10.31	10.45	214	1,565.96	1,301.42	264.54
8	10.46	11.00	214	1,559.01	1,335.54	223.47
9	11.01	11.15	214	1,563.11	1,331.76	231.35
10	11.16	11.30	214	1,560.37	1,332.17	228.20
11	11.31	11.45	214	1,559.14	1,333.41	225.73
12	11.46	12.00	214	1,555.74	1,332.91	222.83
Average			214	1,549.44	1,309.58	239.87
			Confidence Coefficient:			11.39
			Relative Accuracy (%):			16.22
			Performance Specification (%RA):			20% <sup>*/</sup>

<sup>\*/</sup> 20% of RM value

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Relative Accuracy Determination for CEMS: North Bangkok Combined Cycle Power Plant Unit 12

Plant:	North Bangkok Combined Cycle Power Plant
Source Identification:	NB-C12
Date:	7 July 2022

RATA Run No.	Time		Load (MW)	SO <sub>2</sub> <sup>1/</sup>			NO <sub>x</sub> <sup>1/</sup>			O <sub>2</sub> <sup>2/</sup>		
	Start	End		Instrumental RM	CEMS	Difference	Instrumental RM	CEMS	Difference	Instrumental RM	CEMS	Difference
1	6:01	6:30	211	0.9	0.6	0.3	46.5	40.3	6.2	13.2	13.2	0.0
2	6:31	7:00	211	0.9	0.5	0.4	46.6	40.6	6.0	13.2	13.2	0.0
3	7:01	7:30	214	0.9	0.6	0.3	46.7	40.2	6.5	13.2	13.2	0.0
4	7:31	8:00	214	0.9	0.6	0.3	46.4	40.6	5.8	13.2	13.2	0.0
5	8:01	8:30	214	0.9	0.6	0.3	46.3	40.6	5.7	13.1	13.2	-0.1
6	8:31	9:00	214	0.9	0.6	0.3	46.3	40.8	5.5	13.2	13.3	-0.1
7	9:01	9:30	214	0.9	0.6	0.3	46.4	40.7	5.7	13.1	13.2	-0.1
8	9:31	10:00	214	0.9	0.5	0.4	46.4	40.7	5.7	13.2	13.3	-0.1
9	10:01	10:30	214	0.9	0.5	0.4	46.6	41.1	5.5	13.2	13.3	-0.1
10	10:31	11:00	214	0.9	0.6	0.3	46.4	41.5	4.9	13.1	13.2	-0.1
11	11:01	11:30	214	1.0	0.7	0.3	45.6	41.7	3.9	13.1	13.2	-0.1
12	11:31	12:00	214	1.0	0.7	0.3	45.7	41.1	4.6	13.1	13.2	-0.1
Average:			214	0.9	0.6	0.3	46.3	40.8	5.5	13.2	13.2	0.0
Confidence Coefficient:				0.0			0.5			-		
Relative Accuracy (%):				1.5			5.0			0.0		
Performance Specification (%RA):				≤ 10% <sup>3/</sup>			≤ 10% <sup>3/</sup>			≤ 1% <sup>4/</sup>		

- <sup>1/</sup> comparison on a consistant basis (dry and 7% oxygen)
- <sup>2/</sup> comparison on a consistant basis (dry and actual oxygen)
- <sup>3/</sup> 10% of emission standard (SO<sub>2</sub> = 20 ppmvd@7% O<sub>2</sub>, NO<sub>x</sub> = 120 ppmvd@7%O<sub>2</sub>)
- <sup>4/</sup> 1% of Oxygen (RM value)
- <sup>5/</sup> 20% of RM value

Audited by : Athichai Srimala  
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Relative Accuracy Determination for CEMS : North Bangkok Combined Cycle Power Plant Unit 21

<b>Plant:</b>	North Bangkok Combined Cycle Power Plant
<b>Source Identification:</b>	NB-C21
<b>Date:</b>	12 July 2022
<b>Comparison:</b>	Dry Basis Reference Versus Dry Basis Source, 25 °C, 760 mm.Hg

RATA Run No.	Time		Load (MW)	RM flow (10 <sup>3</sup> x Nm <sup>3</sup> /hr)	CEM flow (10 <sup>3</sup> x Nm <sup>3</sup> /hr)	Difference (10 <sup>3</sup> x Nm <sup>3</sup> /hr)
	Start	End				
1	9.00	9.15	419	1,811.83	1,730.26	81.57
2	9.16	9.30	419	1,814.77	1,736.42	78.35
3	9.31	9.45	419	1,805.93	1,732.45	73.48
4	9.46	10.00	419	1,803.65	1,727.96	75.69
5	10.01	10.15	419	1,805.24	1,732.33	72.91
6	10.16	10.30	419	1,818.41	1,734.20	84.21
7	10.31	10.45	419	1,827.52	1,730.85	96.67
8	10.46	11.00	419	1,823.95	1,731.46	92.49
9	11.01	11.15	419	1,820.29	1,732.09	88.20
10	11.16	11.30	419	1,817.11	1,734.48	82.63
11	11.31	11.45	419	1,819.46	1,730.77	88.69
12	11.46	12.00	419	1,813.62	1,734.21	79.41
Average			419	1,815.15	1,732.29	82.86
			Confidence Coefficient:			5.51
			Relative Accuracy (%):			4.87
			Performance Specification (%RA):			20% <sup>*/</sup>

<sup>\*/</sup> 20% of RM value

Audited by : Athichai Srimala  
Technician

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Scientist : ๓-065-๙-6223

Relative Accuracy Determination for CEMS: Norht Bangkok Power Plant #Combined Cycle Plant Unit 21

Plant:	Norht Bangkok Power Plant
Source Identification:	NB-C21
Date:	12 July 2022

RATA Run No.	Time		Load (MW)	SO <sub>2</sub> <sup>1/</sup>			NO <sub>x</sub> <sup>1/</sup>			CO <sup>1/</sup>			O <sub>2</sub> <sup>2/</sup>		
	Start	End		Instrumental RM	CEMS	Difference	Instrumental RM	CEMS	Difference	Instrumental RM	CEMS	Difference	Instrumental RM	CEMS	Difference
				(ppmvd@7% O <sub>2</sub> )			(ppmvd@7% O <sub>2</sub> )			(ppmvd@7% O <sub>2</sub> )			(% dry)		
1	8:01	8:30	419	0.4	0.0	0.4	6.0	6.2	-0.2	0.7	0.3	0.4	12.6	12.5	0.1
2	8:31	9:00	419	0.5	0.0	0.5	5.9	6.3	-0.4	0.8	0.3	0.5	12.6	12.6	0.0
3	9:01	9:30	419	0.6	0.0	0.6	5.9	5.9	0.0	0.8	0.2	0.6	12.6	12.5	0.1
4	9:31	10:00	419	0.6	0.0	0.6	5.9	5.9	0.0	0.8	0.2	0.6	12.6	12.5	0.1
5	10:01	10:30	419	0.6	0.0	0.6	5.8	5.8	0.0	0.8	0.3	0.5	12.6	12.5	0.1
6	10:31	11:00	419	0.6	0.0	0.6	5.8	6.0	-0.2	0.8	0.3	0.5	12.6	12.5	0.1
7	11:01	11:30	419	0.5	0.0	0.5	5.9	6.2	-0.3	0.9	0.3	0.6	12.6	12.7	-0.1
8	11:31	12:00	419	0.5	0.0	0.5	5.9	6.1	-0.2	0.9	0.3	0.6	12.6	12.5	0.1
9	12:01	12:30	419	0.6	0.0	0.6	5.9	5.8	0.1	0.9	0.2	0.7	12.6	12.5	0.1
10	12:31	13:00	419	0.6	0.0	0.6	5.8	5.9	-0.1	0.9	0.3	0.6	12.6	12.5	0.1
11	13:01	13:30	419	0.6	0.0	0.6	5.8	5.9	-0.1	0.9	0.3	0.6	12.6	12.5	0.1
12	13:31	14:00	419	0.6	0.0	0.6	5.8	5.6	0.2	0.9	0.2	0.7	12.6	12.6	0.0
Average:			419	0.6	0.0	0.6	5.9	6.0	-0.1	0.8	0.3	0.5	12.6	12.5	0.1
Confidence Coefficient:				0.0			0.1			0.1			-		
Relative Accuracy (%):				3.0			0.2			0.1			0.1		
Performance Specification (%RA):				≤ 10% <sup>3/</sup>			≤ 10% <sup>3/</sup>			≤ 5% <sup>4/</sup>			≤ 1% <sup>5/</sup>		

1/ comparison on a consistant basis (dry and 7% oxygen)  
2/ comparison on a consistant basis (dry and actual oxygen)  
3/ 10% of emission standard (SO<sub>2</sub> = 20 ppmvd@7% O<sub>2</sub>, NO<sub>x</sub> = 120 ppmvd@7%O<sub>2</sub>)  
4/ 5% of emission standard (CO = 690 ppmvd@7%O<sub>2</sub>)  
5/ 1% of Oxygen (RM value)

Audited by : Athichai Srimala  
Technician

Approved by : Buntoon Intim  
Scientist : ๖-065-๓-6223

Relative Accuracy Determination for CEMS : North Bangkok Combined Cycle Power Plant Unit 22

<b>Plant:</b>	North Bangkok Combined Cycle Power Plant
<b>Source Identification:</b>	NB-C22
<b>Date:</b>	21 July 2022
<b>Comparison:</b>	Dry Basis Reference Versus Dry Basis Source, 25 °C, 760 mm.Hg

RATA Run No.	Time		Load (MW)	RM flow (10 <sup>3</sup> x Nm <sup>3</sup> /hr)	CEM flow (10 <sup>3</sup> x Nm <sup>3</sup> /hr)	Difference (10 <sup>3</sup> x Nm <sup>3</sup> /hr)
	Start	End				
1	9.00	9.15	414	1,790.15	1,812.29	-22.14
2	9.16	9.30	414	1,806.52	1,812.41	-5.89
3	9.31	9.45	414	1,806.81	1,808.77	-1.96
4	9.46	10.00	414	1,812.39	1,806.02	6.37
5	10.01	10.15	414	1,797.17	1,807.69	-10.52
6	10.16	10.30	414	1,788.47	1,802.36	-13.89
7	10.31	10.45	414	1,797.12	1,799.45	-2.33
8	10.46	11.00	414	1,789.60	1,800.25	-10.65
9	11.01	11.15	414	1,780.70	1,794.22	-13.52
10	11.16	11.30	414	1,788.05	1,806.93	-18.88
11	11.31	11.45	414	1,778.28	1,799.73	-21.45
12	11.46	12.00	414	1,775.82	1,798.25	-22.43
Average			414	1,792.59	1,804.03	-11.44
			Confidence Coefficient:			6.72
			Relative Accuracy (%):			1.01
			Performance Specification (%RA):			20% <sup>*/</sup>

<sup>\*/</sup> 20% of RM value

Audited by : Athichai Srimala  
Technician

Approved by : Buntoon Intim  
Scientist : ๓-065-๙-6223

Relative Accuracy Determination for CEMS: Norht Bangkok Power Plant #Combined Cycle Plant Unit 22

Plant:	Norht Bangkok Power Plant
Source Identification:	NB-C22
Date:	21 July 2022

RATA Run No.	Time		Load (MW)	SO <sub>2</sub> <sup>1/</sup>			NO <sub>x</sub> <sup>1/</sup>			CO <sup>1/</sup>			O <sub>2</sub> <sup>2/</sup>		
	Start	End		Instrumental RM	CEMS	Difference	Instrumental RM	CEMS	Difference	Instrumental RM	CEMS	Difference	Instrumental RM	CEMS	Difference
				(ppmvd@7% O <sub>2</sub> )			(ppmvd@7% O <sub>2</sub> )			(ppmvd@7% O <sub>2</sub> )			(% dry)		
1	8:01	8:30	414	0.5	1.8	-1.3	6.7	6.8	-0.1	1.0	0.3	0.7	12.5	12.3	0.2
2	8:31	9:00	414	0.5	1.8	-1.3	7.4	7.7	-0.3	0.9	0.2	0.7	12.5	12.3	0.2
3	9:01	9:30	414	0.5	1.7	-1.2	7.4	7.2	0.2	0.9	0.1	0.8	12.5	12.3	0.2
4	9:31	10:00	414	0.5	1.8	-1.3	7.4	7.2	0.2	0.8	0.1	0.7	12.5	12.4	0.1
5	10:01	10:30	414	0.5	1.8	-1.3	7.4	7.0	0.4	0.8	0.1	0.7	12.5	12.4	0.1
6	10:31	11:00	414	0.5	1.9	-1.4	7.4	7.3	0.1	0.8	0.1	0.7	12.5	12.4	0.1
7	11:01	11:30	414	0.5	1.8	-1.3	7.4	7.1	0.3	0.8	0.1	0.7	12.5	12.5	0.0
8	11:31	12:00	414	0.5	1.7	-1.2	7.5	7.3	0.2	0.8	0.1	0.7	12.5	12.5	0.0
9	12:01	12:30	414	0.5	1.7	-1.2	7.5	7.2	0.3	0.8	0.1	0.7	12.5	12.5	0.0
10	12:31	13:00	414	0.5	1.6	-1.1	7.5	7.2	0.3	0.8	0.1	0.7	12.5	12.5	0.0
11	13:01	13:30	414	0.5	1.7	-1.2	7.4	7.0	0.4	0.8	0.0	0.8	12.5	12.4	0.1
12	13:31	14:00	414	0.5	1.7	-1.2	7.4	7.5	-0.1	0.8	0.0	0.8	12.5	12.4	0.1
Average:			414	0.5	1.8	-1.3	7.4	7.2	0.2	0.8	0.1	0.7	12.5	12.4	0.1
Confidence Coefficient:				0.1			0.1			0.0			-		
Relative Accuracy (%):				6.5			0.2			0.1			0.1		
Performance Specification (%RA):				≤ 10% <sup>3/</sup>			≤ 10% <sup>3/</sup>			≤ 5% <sup>4/</sup>			≤ 1% <sup>5/</sup>		

1/ comparison on a consistant basis (dry and 7% oxygen)  
2/ comparison on a consistant basis (dry and actual oxygen)  
3/ 10% of emission standard (SO<sub>2</sub> = 20 ppmvd@7% O<sub>2</sub>, NO<sub>x</sub> = 120 ppmvd@7%O<sub>2</sub>)  
4/ 5% of emission standard (CO = 690 ppmvd@7%O<sub>2</sub>)  
5/ 1% of Oxygen (RM value)

Audited by : Athichai Srimala  
Technician

Approved by : Buntoon Intim  
Scientist : ๖-065-๓-6223

ผลการตรวจวัดคุณภาพอากาศจากปล่องแบบครั้งคราว (Stack Sampling)





## Analysis / Test Report

**Client :** Electricity Generating Authority of Thailand  
53, Charan Sanit Wong, Bangkruai, Nonthaburi Thailand 11130  
**P/O :** 4120069765  
**Project Name :**  
**Project Location :**

**Lot ID: 2279327**  
Date Received :Jul 11, 2022  
Date Reported :Jul 22, 2022  
Report Number :2357590-1

Page 1 of 1

**Sample Number** 2279327-1  
**Sample Description** Emission from Stationary Source  
**Location** โรงไฟฟ้าพระนครเหนือ ชุดที่ 1 หน่วยผลิตที่ 1 (NB-C11) Sample 1  
**Sampled Date** Jul 07, 2022

Stack Description									
Ambient Temperature	32	°C	Diameter	5.77	m	Oxygen	13.25	%	
Ambient Pressure	753	mmHg	Shape	Circle		Carbon dioxide	4.66	%	
Type of Process	Combustion		Stack Temperature	117.0	°C	Gas Velocity	24.80	m/s	
Type of Fuel	Natural Gas		Moisture	9.42	%	Flow Rate	1596.21	kNm <sup>3</sup> /hr	

Run No.	Sampling Time	Oxygen (%)	Carbon Dioxide (%)	Carbon Monoxide (ppm)		Oxides of Nitrogen (ppm)		Sulfur Dioxide (ppm)	
				at Actual O <sub>2</sub>	at 7% O <sub>2</sub>	at Actual O <sub>2</sub>	at 7% O <sub>2</sub>	at Actual O <sub>2</sub>	at 7% O <sub>2</sub>
1	10:10 AM - 10:44 AM	13.30	4.62	0.04	0.07	25.27	46.24	0.26	0.47
2	10:45 AM - 11:19 AM	13.24	4.66	0.04	0.08	25.21	45.74	0.26	0.47
3	11:20 AM - 11:54 AM	13.23	4.68	0.05	0.09	25.07	45.42	0.31	0.56
4	11:55 AM - 12:29 PM	13.23	4.68	0.06	0.11	25.05	45.39	0.28	0.52
Average		13.25	4.66	0.05	0.09	25.15	45.70	0.28	0.51
Guideline <sup>1/</sup> (ppm)				-	690	-	120	-	20
Guideline <sup>2/</sup> (ppm)				-	-	-	96	-	10
Result (mg/m <sup>3</sup> )				0.05	0.10	47.32	85.98	0.73	1.33
Emission Rate at Actual O <sub>2</sub> (g/s)				0.02		20.98		0.32	
Method				US EPA Method 10		US EPA Method 7E		US EPA Method 6C	

**Sampled By :** Anuvat Mounpair

**Guideline :** <sup>1/</sup>Notification of the Ministry of Industry on determining pollutant contents in air emitted from electric power generation, transmission and distribution plant, 2004 (B.E. 2547), dated September, 2004 (B.E. 2547).

<sup>2/</sup> Environmental Impact Assessment Report of North Bangkok Power Plant Block 2 , February ,2013 (B.E.2556)

**Technical Management**

*Wichan Choonharat*

Wichan Choonharat  
Manager

ทะเบียนเลขที่ ว-204-ค-6113

**Approved by**

*Sarayuth Jitranont*

Sarayuth Jitranont  
Assistant General Manager  
ทะเบียนเลขที่ ว-204-ค-4702

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**Client :** Electricity Generating Authority of Thailand  
53, Charan Sanit Wong, Bangkruai, Nonthaburi Thailand 11130  
**P/O :** 4120069765  
**Project Name :**  
**Project Location :**

**Lot ID: 2279327**  
Date Received :Jul 11, 2022  
Date Reported :Jul 22, 2022  
Report Number :2357590-2

Page 1 of 1

**Sample Number** 2279327-1  
**Sample Description** Emission from Stationary Source  
**Location** โรงไฟฟ้าพระนครเหนือ ชุดที่ 1 หน่วยผลิตที่ 1 (NB-C11) Sample 2  
**Sampled Date** Jul 07, 2022

Stack Description								
Ambient Temperature	32	°C	Diameter	5.77	m	Oxygen	13.22	%
Ambient Pressure	753	mmHg	Shape	Circle		Carbon dioxide	4.67	%
Type of Process	Combustion		Stack Temperature	114.0	°C	Gas Velocity	24.40	m/s
Type of Fuel	Natural Gas		Moisture	9.62	%	Flow Rate	1577.90	kNm <sup>3</sup> /hr

Run No.	Sampling Time	Oxygen (%)	Carbon Dioxide (%)	Carbon Monoxide (ppm)		Oxides of Nitrogen (ppm)		Sulfur Dioxide (ppm)	
				at Actual O <sub>2</sub>	at 7% O <sub>2</sub>	at Actual O <sub>2</sub>	at 7% O <sub>2</sub>	at Actual O <sub>2</sub>	at 7% O <sub>2</sub>
1	12:35 PM - 01:09 PM	13.22	4.68	0.09	0.16	24.91	45.09	0.31	0.56
2	01:10 PM - 01:44 PM	13.22	4.67	0.09	0.16	24.89	45.02	0.32	0.58
3	01:45 PM - 02:19 PM	13.22	4.67	0.16	0.29	24.85	44.99	0.34	0.61
4	02:20 PM - 02:54 PM	13.23	4.66	0.13	0.23	24.88	45.10	0.30	0.54
Average		13.22	4.67	0.12	0.21	24.88	45.05	0.32	0.57
Guideline <sup>1/</sup> (ppm)				-	690	-	120	-	20
Guideline <sup>2/</sup> (ppm)				-	-	-	96	-	10
Result (mg/m <sup>3</sup> )				0.13	0.24	46.82	84.76	0.83	1.50
Emission Rate at Actual O <sub>2</sub> (g/s)				0.06		20.52		0.36	
Method				US EPA Method 10		US EPA Method 7E		US EPA Method 6C	

**Sampled By :** Anuvat Mounpair

**Guideline :** <sup>1/</sup>Notification of the Ministry of Industry on determining pollutant contents in air emitted from electric power generation, transmission and distribution plant, 2004 (B.E. 2547), dated September, 2004 (B.E. 2547).

<sup>2/</sup> Environmental Impact Assessment Report of North Bangkok Power Plant Block 2 , February ,2013 (B.E.2556)

**Technical Management**

Wichan Choonharat  
Manager

ทะเบียนเลขที่ ว-204-ค-6113

**Approved by**

Sarayuth Jitranont  
Assistant General Manager  
ทะเบียนเลขที่ ว-204-ค-4702

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53, Charan Sanit Wong, Bangkruai, Nonthaburi Thailand 11130  
**P/O :** 4120069765  
**Project Name :**  
**Project Location :**

**Lot ID: 2279328**  
Date Received : Jul 11, 2022  
Date Reported : Jul 22, 2022  
Report Number : 2357592-1

Page 1 of 1

**Sample Number** 2279328-1  
**Sample Description** Emission from Stationary Source  
**Location** โรงไฟฟ้าพระนครเหนือ ชุดที่ 1 หน่วยผลิตที่ 2 (NB-C12) Sample 1  
**Sampled Date** Jul 05, 2022

Stack Description									
Ambient Temperature	34	°C	Diameter	5.77	m	Oxygen	13.21	%	
Ambient Pressure	753	mmHg	Shape	Circle		Carbon dioxide	4.59	%	
Type of Process	Combustion		Stack Temperature	111.0	°C	Gas Velocity	25.80	m/s	
Type of Fuel	Natural Gas		Moisture	10.59	%	Flow Rate	1669.58	kNm3/hr	

Run No.	Sampling Time	Oxygen (%)	Carbon Dioxide (%)	Carbon Monoxide (ppm)		Oxides of Nitrogen (ppm)		Sulfur Dioxide (ppm)	
				at Actual O <sub>2</sub>	at 7% O <sub>2</sub>	at Actual O <sub>2</sub>	at 7% O <sub>2</sub>	at Actual O <sub>2</sub>	at 7% O <sub>2</sub>
1	10:10 AM - 10:44 AM	13.20	4.59	0.65	1.18	24.90	44.96	0.18	0.32
2	10:45 AM - 11:19 AM	13.21	4.59	0.60	1.09	24.84	44.90	0.13	0.24
3	11:20 AM - 11:54 AM	13.21	4.59	0.61	1.11	24.80	44.83	0.13	0.24
4	11:55 AM - 12:29 PM	13.20	4.59	0.72	1.30	24.72	44.64	0.12	0.22
Average		13.21	4.59	0.65	1.17	24.81	44.83	0.14	0.25
Guideline <sup>1/</sup> (ppm)				-	690	-	120	-	20
Guideline <sup>2/</sup> (ppm)				-	-	-	96	-	10
Result (mg/m <sup>3</sup> )				0.74	1.34	46.69	84.35	0.37	0.66
Emission Rate at Actual O <sub>2</sub> (g/s)				0.34		21.65		0.17	
Method				US EPA Method 10		US EPA Method 7E		US EPA Method 6C	

**Sampled By :** Anuvat Mounpair

**Guideline :** <sup>1/</sup>Notification of the Ministry of Industry on determining pollutant contents in air emitted from electric power generation, transmission and distribution plant, 2004 (B.E. 2547), dated September, 2004 (B.E. 2547).

<sup>2/</sup> Environmental Impact Assessment Report of North Bangkok Power Plant Block 2 , February ,2013 (B.E.2556)

**Technical Management**

Wichan Choonharat  
Manager

ทะเบียนเลขที่ ว-204-ค-6113

**Approved by**

Sarayuth Jittrantont  
Assistant General Manager  
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53, Charan Sanit Wong, Bangkruai, Nonthaburi Thailand 11130  
**P/O :** 4120069765  
**Project Name :**  
**Project Location :**

**Lot ID: 2279328**  
Date Received :Jul 11, 2022  
Date Reported :Jul 22, 2022  
Report Number :2357592-2

Page 1 of 1

**Sample Number** 2279328-1  
**Sample Description** Emission from Stationary Source  
**Location** โรงไฟฟ้าพระนครเหนือ ชุดที่ 1 หน่วยผลิตที่ 2 (NB-C12) Sample 2  
**Sampled Date** Jul 05, 2022

Stack Description								
Ambient Temperature	34	°C	Diameter	5.77	m	Oxygen	13.23	%
Ambient Pressure	753	mmHg	Shape	Circle		Carbon dioxide	4.58	%
Type of Process	Combustion		Stack Temperature	109.0	°C	Gas Velocity	26.10	m/s
Type of Fuel	Natural Gas		Moisture	10.01	%	Flow Rate	1706.01	kNm <sup>3</sup> /hr

Run No.	Sampling Time	Oxygen (%)	Carbon Dioxide (%)	Carbon Monoxide (ppm)		Oxides of Nitrogen (ppm)		Sulfur Dioxide (ppm)	
				at Actual O <sub>2</sub>	at 7% O <sub>2</sub>	at Actual O <sub>2</sub>	at 7% O <sub>2</sub>	at Actual O <sub>2</sub>	at 7% O <sub>2</sub>
1	12:40 PM - 01:14 PM	13.21	4.59	0.71	1.29	24.79	44.81	0.13	0.23
2	01:15 PM - 01:49 PM	13.23	4.58	0.43	0.78	24.72	44.77	0.11	0.20
3	01:50 PM - 02:24 PM	13.24	4.57	0.44	0.80	24.70	44.81	0.10	0.18
4	02:25 PM - 02:59 PM	13.24	4.57	0.43	0.78	24.60	44.65	0.13	0.23
Average		13.23	4.58	0.50	0.91	24.70	44.76	0.12	0.21
Guideline <sup>1/</sup> (ppm)				-	690	-	120	-	20
Guideline <sup>2/</sup> (ppm)				-	-	-	96	-	10
Result (mg/m <sup>3</sup> )				0.58	1.04	46.48	84.21	0.30	0.55
Emission Rate at Actual O <sub>2</sub> (g/s)				0.27		22.02		0.14	
Method				US EPA Method 10		US EPA Method 7E		US EPA Method 6C	

**Sampled By :** Anuvat Mounpair

**Guideline :** <sup>1/</sup>Notification of the Ministry of Industry on determining pollutant contents in air emitted from electric power generation, transmission and distribution plant, 2004 (B.E. 2547), dated September, 2004 (B.E. 2547).

<sup>2/</sup> Environmental Impact Assessment Report of North Bangkok Power Plant Block 2 , February ,2013 (B.E.2556)

**Technical Management**

*Wichan Choonharat*

Wichan Choonharat  
Manager

ทะเบียนเลขที่ ว-204-ค-6113

**Approved by**

*Sarayuth Jitranont*

Sarayuth Jitranont  
Assistant General Manager  
ทะเบียนเลขที่ ว-204-ค-4702

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## Analysis / Test Report

**Client :** Electricity Generating Authority of Thailand  
53, Charan Sanit Wong, Bangkruai, Nonthaburi Thailand 11130  
**P/O :** 4120069765  
**Project Name :**  
**Project Location :**

**Lot ID: 2279329**  
Date Received : Jul 11, 2022  
Date Reported : Aug 05, 2022  
Report Number : 2357594-1 Rev. No.1

Page 1 of 1

**Sample Number** 2279329-1  
**Sample Description** Emission from Stationary Source  
**Location** โรงไฟฟ้าพระนครเหนือ ชุดที่ 2 หน่วยผลิตที่ 1 (NB-C21) Sample 1  
**Sampled Date** Jul 08, 2022

Stack Description									
Ambient Temperature	34	°C	Diameter	7.00	m	Oxygen	12.63	%	
Ambient Pressure	753	mmHg	Shape	Circle		Carbon dioxide	5.05	%	
Type of Process	Combustion		Stack Temperature	93.5	°C	Gas Velocity	17.00	m/s	
Type of Fuel	Natural Gas		Moisture	10.39	%	Flow Rate	1697.26	kNm3/hr	

Run No.	Sampling Time	Oxygen (%)	Carbon Dioxide (%)	Carbon Monoxide (ppm)		Oxides of Nitrogen (ppm)		Sulfur Dioxide (ppm)	
				at Actual O <sub>2</sub>	at 7% O <sub>2</sub>	at Actual O <sub>2</sub>	at 7% O <sub>2</sub>	at Actual O <sub>2</sub>	at 7% O <sub>2</sub>
1	10:00 AM - 10:34 AM	12.63	5.04	0.69	1.15	4.45	7.48	0.12	0.19
2	10:35 AM - 11:09 AM	12.63	5.04	0.64	1.07	4.44	7.47	0.11	0.18
3	11:10 AM - 11:44 AM	12.63	5.06	0.72	1.20	4.46	7.49	0.07	0.12
4	11:45 AM - 12:19 PM	12.62	5.06	0.65	1.09	4.41	7.41	0.04	0.07
Average		12.63	5.05	0.67	1.13	4.44	7.46	0.08	0.14
Guideline <sup>1/</sup> (ppm)				-	690	-	120	-	20
Guideline <sup>2/</sup> (ppm)				-	-	-	70	-	10
Result (mg/m <sup>3</sup> )				0.77	1.29	8.36	14.04	0.22	0.37
Emission Rate at Actual O <sub>2</sub> (g/s)				0.36		3.94		0.10	
Method				US EPA Method 10		US EPA Method 7E		US EPA Method 6C	

**Sampled By :** Anuvat Mounpair

**Guideline :** <sup>1/</sup>Notification of the Ministry of Industry on determining pollutant contents in air emitted from electric power generation, transmission and distribution plant, 2004 (B.E. 2547), dated September, 2004 (B.E. 2547).

<sup>2/</sup> Environmental Impact Assessment Report of North Bangkok Power Plant Block 2 , February ,2013 (B.E.2556)

**Note :** This Analysis test report is reissued to supersede report No.2357594-1, Date Reported : Jul 22, 2022 due to revise sample information.

**Technical Management**

Wichan Choonharat  
Manager

ทะเบียนเลขที่ ว-204-ค-6113

**Approved by**

Sarayuth Jittrantont  
Assistant General Manager  
ทะเบียนเลขที่ ว-204-ค-4702

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## Analysis / Test Report

**Client :** Electricity Generating Authority of Thailand  
53, Charan Sanit Wong, Bangkruai, Nonthaburi Thailand 11130  
**P/O :** 4120069765  
**Project Name :**  
**Project Location :**

**Lot ID: 2279329**  
Date Received : Jul 11, 2022  
Date Reported : Aug 05, 2022  
Report Number : 2357594-2 Rev. No.1

Page 1 of 1

**Sample Number** 2279329-1  
**Sample Description** Emission from Stationary Source  
**Location** โรงไฟฟ้าพระนครเหนือ ชุดที่ 2 หน่วยผลิตที่ 1 (NB-C21) Sample 2  
**Sampled Date** Jul 08, 2022

Stack Description									
Ambient Temperature	34	°C	Diameter	7.00	m	Oxygen	12.64	%	
Ambient Pressure	753	mmHg	Shape	Circle		Carbon dioxide	5.05	%	
Type of Process	Combustion		Stack Temperature	93.2	°C	Gas Velocity	17.60	m/s	
Type of Fuel	Natural Gas		Moisture	10.25	%	Flow Rate	1764.61	kNm3/hr	

Run No.	Sampling Time	Oxygen (%)	Carbon Dioxide (%)	Carbon Monoxide (ppm)		Oxides of Nitrogen (ppm)		Sulfur Dioxide (ppm)	
				at Actual O <sub>2</sub>	at 7% O <sub>2</sub>	at Actual O <sub>2</sub>	at 7% O <sub>2</sub>	at Actual O <sub>2</sub>	at 7% O <sub>2</sub>
1	12:30 PM - 01:04 PM	12.65	5.04	0.71	1.20	4.42	7.45	0.06	0.10
2	01:05 PM - 01:39 PM	12.64	5.05	0.66	1.10	4.41	7.43	0.05	0.08
3	01:40 PM - 02:14 PM	12.64	5.05	0.64	1.08	4.42	7.44	0.07	0.13
4	02:15 PM - 02:49 PM	12.64	5.04	0.61	1.03	4.42	7.44	0.08	0.14
Average		12.64	5.05	0.65	1.10	4.42	7.44	0.07	0.11
Guideline <sup>1/</sup> (ppm)				-	690	-	120	-	20
Guideline <sup>2/</sup> (ppm)				-	-	-	70	-	10
Result (mg/m <sup>3</sup> )				0.75	1.26	8.32	14.00	0.17	0.29
Emission Rate at Actual O <sub>2</sub> (g/s)				0.37		4.08		0.08	
Method				US EPA Method 10		US EPA Method 7E		US EPA Method 6C	

**Sampled By :** Anuvat Mounpair

**Guideline :** <sup>1/</sup>Notification of the Ministry of Industry on determining pollutant contents in air emitted from electric power generation, transmission and distribution plant, 2004 (B.E. 2547), dated September, 2004 (B.E. 2547).

<sup>2/</sup> Environmental Impact Assessment Report of North Bangkok Power Plant Block 2 , February ,2013 (B.E.2556)

**Note :** This Analysis test report is reissued to supersede report No.2357594-2, Date Reported : Jul 22, 2022 due to revise sample information.

**Technical Management**

Wichan Choonharat  
Manager

ทะเบียนเลขที่ ว-204-ค-6113

**Approved by**

Sarayuth Jittrantont  
Assistant General Manager  
ทะเบียนเลขที่ ว-204-ค-4702

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**Client :** Electricity Generating Authority of Thailand  
53, Charan Sanit Wong, Bangkruai, Nonthaburi Thailand 11130  
**P/O :** 4120069765  
**Project Name :**  
**Project Location :**

**Lot ID: 2279330**  
Date Received : Jul 11, 2022  
Date Reported : Aug 05, 2022  
Report Number : 2357596-1 Rev. No.1

Page 1 of 1

**Sample Number** 2279330-1  
**Sample Description** Emission from Stationary Source  
**Location** โรงไฟฟ้าพระนครเหนือ ชุดที่ 2 หน่วยผลิตที่ 2 (NB-C22) Sample 1  
**Sampled Date** Jul 06, 2022

Stack Description									
Ambient Temperature	33	°C	Diameter	7.00	m	Oxygen	12.65	%	
Ambient Pressure	753	mmHg	Shape	Circle		Carbon dioxide	5.17	%	
Type of Process	Combustion		Stack Temperature	94.0	°C	Gas Velocity	17.30	m/s	
Type of Fuel	Natural Gas		Moisture	10.13	%	Flow Rate	1732.90	kNm <sup>3</sup> /hr	

Run No.	Sampling Time	Oxygen (%)	Carbon Dioxide (%)	Carbon Monoxide (ppm)		Oxides of Nitrogen (ppm)		Sulfur Dioxide (ppm)	
				at Actual O <sub>2</sub>	at 7% O <sub>2</sub>	at Actual O <sub>2</sub>	at 7% O <sub>2</sub>	at Actual O <sub>2</sub>	at 7% O <sub>2</sub>
1	10:10 AM - 10:44 AM	12.66	5.16	0.83	1.40	3.89	6.56	0.05	0.09
2	10:45 AM - 11:19 AM	12.61	5.20	0.63	1.05	4.40	7.37	0.01	0.02
3	11:20 AM - 11:54 AM	12.62	5.18	0.65	1.08	4.37	7.34	0.01	0.02
4	11:55 AM - 12:29 PM	12.69	5.13	0.92	1.56	3.77	6.38	0.01	0.02
Average		12.65	5.17	0.76	1.27	4.11	6.91	0.02	0.04
Guideline <sup>1/</sup> (ppm)				-	690	-	120	-	20
Guideline <sup>2/</sup> (ppm)				-	-	-	70	-	10
Result (mg/m <sup>3</sup> )				0.87	1.46	7.73	13.01	0.06	0.10
Emission Rate at Actual O <sub>2</sub> (g/s)				0.42		3.72		0.03	
Method				US EPA Method 10		US EPA Method 7E		US EPA Method 6C	

**Sampled By :** Anuvat Mounpair

**Guideline :** <sup>1/</sup>Notification of the Ministry of Industry on determining pollutant contents in air emitted from electric power generation, transmission and distribution plant, 2004 (B.E. 2547), dated September, 2004 (B.E. 2547).

<sup>2/</sup> Environmental Impact Assessment Report of North Bangkok Power Plant Block 2 , February ,2013 (B.E.2556)

**Note :** This Analysis test report is reissued to supersede report No.2357596-1, Date Reported : Jul 22, 2022 due to revise sample information.

**Technical Management**

*Wichan Choonharat*

Wichan Choonharat  
Manager

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**Approved by**

*Sarayuth Jittrantont*

Sarayuth Jittrantont  
Assistant General Manager  
ทะเบียนเลขที่ ว-204-ค-4702

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## Analysis / Test Report

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**P/O :** 4120069765  
**Project Name :**  
**Project Location :**

**Lot ID: 2279330**  
Date Received : Jul 11, 2022  
Date Reported : Aug 05, 2022  
Report Number : 2357596-2 Rev. No.1

Page 1 of 1

**Sample Number** 2279330-1  
**Sample Description** Emission from Stationary Source  
**Location** โรงไฟฟ้าพระนครเหนือ ชุดที่ 2 หน่วยผลิตที่ 2 (NB-C22) Sample 2  
**Sampled Date** Jul 06, 2022

Stack Description									
Ambient Temperature	33	°C	Diameter	7.00	m	Oxygen	12.73	%	
Ambient Pressure	753	mmHg	Shape	Circle		Carbon dioxide	5.02	%	
Type of Process	Combustion		Stack Temperature	93.5	°C	Gas Velocity	18.50	m/s	
Type of Fuel	Natural Gas		Moisture	10.21	%	Flow Rate	1856.12	kNm <sup>3</sup> /hr	

Run No.	Sampling Time	Oxygen (%)	Carbon Dioxide (%)	Carbon Monoxide (ppm)		Oxides of Nitrogen (ppm)		Sulfur Dioxide (ppm)	
				at Actual O <sub>2</sub>	at 7% O <sub>2</sub>	at Actual O <sub>2</sub>	at 7% O <sub>2</sub>	at Actual O <sub>2</sub>	at 7% O <sub>2</sub>
1	12:45 PM - 01:19 PM	12.73	5.03	0.73	1.25	4.25	7.23	0.01	0.02
2	01:20 PM - 01:54 PM	12.73	5.02	0.72	1.23	4.23	7.21	0.03	0.06
3	01:55 PM - 02:29 PM	12.73	5.01	0.73	1.25	4.24	7.22	0.08	0.14
4	02:30 PM - 03:04 PM	12.73	5.01	0.71	1.21	4.27	7.27	0.16	0.28
Average		12.73	5.02	0.73	1.23	4.25	7.23	0.07	0.12
Guideline <sup>1/</sup> (ppm)				-	690	-	120	-	20
Guideline <sup>2/</sup> (ppm)				-	-	-	70	-	10
Result (mg/m <sup>3</sup> )				0.83	1.41	8.00	13.61	0.19	0.32
Emission Rate at Actual O <sub>2</sub> (g/s)				0.43		4.12		0.10	
Method				US EPA Method 10		US EPA Method 7E		US EPA Method 6C	

**Sampled By :** Anuvat Mounpair

**Guideline :** <sup>1/</sup>Notification of the Ministry of Industry on determining pollutant contents in air emitted from electric power generation, transmission and distribution plant, 2004 (B.E. 2547), dated September, 2004 (B.E. 2547).

<sup>2/</sup> Environmental Impact Assessment Report of North Bangkok Power Plant Block 2 , February ,2013 (B.E.2556)

**Note :** This Analysis test report is reissued to supersede report No.2357594-2, Date Reported : Jul 22, 2022 due to revise sample information.

**Technical Management**

Wichan Choonharat  
Manager

ทะเบียนเลขที่ ว-204-ค-6113

**Approved by**

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Assistant General Manager  
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## Analysis / Test Report

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**P/O :** 4120069765  
**Project Name :**  
**Project Location :**

**Lot ID: 2279331**

Date Received : Jul 11, 2022

Date Reported : Jul 22, 2022

Report Number: 2383509-1

Page 1 of 2

**Sample Number** 2279331-3  
**Sampled Date** Jul 07, 2022  
**Sample Description** Emission from Stationary Source  
**Location** โรงไฟฟ้าพระนครเหนือ ชุดที่ 1 หน่วยผลิตที่ 1 (NB-C11) Sample A  
**Date Analysis Commenced** Jul 14, 2022  
**Condition of Sample** Extracted into one filter paper placed in plastic petri dish

### Stack Description

Ambient Pressure	753	mmHg	Diameter	5.77	m	Oxygen	13.2	%
Ambient Temperature	32.0	°C	Shape	Circle		Carbon Dioxide	4.7	%
Type of Process	Combustion		Stack Temperature	117	°C	Gas Velocity	24.8	m/s
Type of Fuel	Natural Gas		Moisture	9.42	%	Flow Rate (Actual O2)	1596205	Nm3/hr

Analyte	Sampled Time	Unit	LOD	LOQ (LOR)	Result at 7 %O <sub>2</sub>	Guideline (1)	Guideline (2)	Method	Testing Location
<b>Air Testing</b>									
Total Suspended Particulate	10:10 AM - 12:20 PM	mg/m3	-	-	0.98	60	54	US EPA, Method 5I	Bangkok

**Guideline :** Guideline (1) Notification of the Ministry of Industry on determining pollutant contents in air emitted from electric power generation, transmission and distribution plant, 2004 (B.E. 2547), dated September, 2004 (B.E. 2547).  
Guideline (2) Environmental Impact Assessment Report of North Bangkok Power Plant Block 1, February, 2013 (B.E.2556)

Technical Management

*Saranya C.*

Saranya Chalerthamrong  
Scientist (4)  
ทะเบียนเลขที่ ว-204-จ-4717

Approved by

*Kanok Korn Anek*

Kanokkorn Anek  
Senior Manager  
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## Analysis / Test Report

**Client :** Electricity Generating Authority of Thailand  
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**P/O :** 4120069765  
**Project Name :**  
**Project Location :**

**Lot ID: 2279331**  
Date Received : Jul 11, 2022  
Date Reported : Jul 22, 2022  
Report Number: 2383509-1

Page 2 of 2

**Sample Number** 2279331-3  
**Sampled Date** Jul 07, 2022  
**Sample Description** Emission from Stationary Source  
**Location** โรงไฟฟ้าพระนครเหนือ ชุดที่ 1 หน่วยผลิตที่ 1 (NB-C11) Sample A  
**Date Analysis Commenced** Jul 14, 2022  
**Condition of Sample** Extracted into one filter paper placed in plastic petri dish

### Stack Description

Ambient Pressure	753	mmHg	Diameter	5.77	m	Oxygen	13.2	%
Ambient Temperature	32.0	°C	Shape	Circle		Carbon Dioxide	4.7	%
Type of Process	Combustion		Stack Temperature	117	°C	Gas Velocity	24.8	m/s
Type of Fuel	Natural Gas		Moisture	9.42	%	Flow Rate (Actual O2)	1596205	Nm3/hr

Analyte	Sampled Time	Unit	LOD	LOQ (LOR)	Result Emission Rate	Guideline (1)	Guideline (2)	Method	Testing Location
<b>Air Testing</b>									
Total Suspended Particulate	10:10 AM - 12:20 PM	g/s	-	-	0.24	-	-	Calculated	Bangkok

**Guideline :** Guideline (1) Notification of the Ministry of Industry on determining pollutant contents in air emitted from electric power generation, transmission and distribution plant, 2004 (B.E. 2547), dated September, 2004 (B.E. 2547).  
Guideline (2) Environmental Impact Assessment Report of North Bangkok Power Plant Block 1, February, 2013 (B.E.2556)

**Sampled By :** Kritsana Saiwan

Remark :

- LOD : Limit of Detection
- "<" : Lower than LOQ (Limit of Quantitation) / LOR (Limit of Reporting)

**Technical Management**

*Saranya C.*  
Saranya Chalermthamrong  
Scientist (4)  
ทะเบียนเลขที่ ว-204-จ-4717

**Approved by**

*Kanokkorn Anek*  
Kanokkorn Anek  
Senior Manager  
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## Analysis / Test Report

**Client :** Electricity Generating Authority of Thailand  
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**P/O :** 4120069765  
**Project Name :**  
**Project Location :**

**Lot ID: 2279331**

Date Received : Jul 11, 2022

Date Reported : Jul 22, 2022

Report Number: 2383510-1

Page 1 of 2

**Sample Number** 2279331-4  
**Sampled Date** Jul 07, 2022  
**Sample Description** Emission from Stationary Source  
**Location** โรงไฟฟ้าพระนครเหนือ ชุดที่ 1 หน่วยผลิตที่ 1 (NB-C11) Sample B  
**Date Analysis Commenced** Jul 14, 2022  
**Condition of Sample** Extracted into one filter paper placed in plastic petri dish

### Stack Description

Ambient Pressure	753	mmHg	Diameter	5.77	m	Oxygen	13.2	%
Ambient Temperature	32.0	°C	Shape	Circle		Carbon Dioxide	4.7	%
Type of Process	Combustion		Stack Temperature	117	°C	Gas Velocity	24.8	m/s
Type of Fuel	Natural Gas		Moisture	9.77	%	Flow Rate (Actual O2)	1591065	Nm3/hr

Analyte	Sampled Time	Unit	LOD	LOQ (LOR)	Result at 7 %O <sub>2</sub>	Guideline (1)	Guideline (2)	Method	Testing Location
<b>Air Testing</b>									
Total Suspended Particulate	10:10 AM - 12:20 PM	mg/m3	-	-	0.97	60	54	US EPA, Method 5I	Bangkok

**Guideline :** Guideline (1) Notification of the Ministry of Industry on determining pollutant contents in air emitted from electric power generation, transmission and distribution plant, 2004 (B.E. 2547), dated September, 2004 (B.E. 2547).  
Guideline (2) Environmental Impact Assessment Report of North Bangkok Power Plant Block 1, February, 2013 (B.E.2556)

Technical Management

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Approved by

*Kanok Korn Anek*

Kanok Korn Anek  
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**Client :** Electricity Generating Authority of Thailand  
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**P/O :** 4120069765  
**Project Name :**  
**Project Location :**

**Lot ID: 2279331**

Date Received : Jul 11, 2022

Date Reported : Jul 22, 2022

Report Number: 2383510-1

Page 2 of 2

**Sample Number** 2279331-4  
**Sampled Date** Jul 07, 2022  
**Sample Description** Emission from Stationary Source  
**Location** โรงไฟฟ้าพระนครเหนือ ชุดที่ 1 หน่วยผลิตที่ 1 (NB-C11) Sample B  
**Date Analysis Commenced** Jul 14, 2022  
**Condition of Sample** Extracted into one filter paper placed in plastic petri dish

### Stack Description

Ambient Pressure	753	mmHg	Diameter	5.77	m	Oxygen	13.2	%
Ambient Temperature	32.0	°C	Shape	Circle		Carbon Dioxide	4.7	%
Type of Process	Combustion		Stack Temperature	117	°C	Gas Velocity	24.8	m/s
Type of Fuel	Natural Gas		Moisture	9.77	%	Flow Rate (Actual O2)	1591065	Nm3/hr

Analyte	Sampled Time	Unit	LOD	LOQ (LOR)	Result Emission Rate	Guideline (1)	Guideline (2)	Method	Testing Location
<b>Air Testing</b>									
Total Suspended Particulate	10:10 AM - 12:20 PM	g/s	-	-	0.24	-	-	Calculated	Bangkok

**Guideline :** Guideline (1) Notification of the Ministry of Industry on determining pollutant contents in air emitted from electric power generation, transmission and distribution plant, 2004 (B.E. 2547), dated September, 2004 (B.E. 2547).  
Guideline (2) Environmental Impact Assessment Report of North Bangkok Power Plant Block 1, February, 2013 (B.E.2556)

**Sampled By :** Kritsana Saiwan

Remark :

- LOD : Limit of Detection
- "<" : Lower than LOQ (Limit of Quantitation) / LOR (Limit of Reporting)

**Technical Management**

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**Approved by**

*Kanok Korn Anek*  
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Senior Manager  
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## Analysis / Test Report

**Client :** Electricity Generating Authority of Thailand  
53, Charan Sanit Wong, Bangkrui, Nonthaburi Thailand 11130  
**P/O :** 4120069765  
**Project Name :**  
**Project Location :**

**Lot ID: 2279336**

Date Received : Jul 11, 2022

Date Reported : Jul 22, 2022

Report Number: 2383516-1

Page 1 of 2

**Sample Number** 2279336-3  
**Sampled Date** Jul 05, 2022  
**Sample Description** Emission from Stationary Source  
**Location** โรงไฟฟ้าพระนครเหนือ ชุดที่ 1 หน่วยผลิตที่ 2 (NB-C12) Sample A  
**Date Analysis Commenced** Jul 14, 2022  
**Condition of Sample** Extracted into one filter paper placed in plastic petri dish

### Stack Description

Ambient Pressure	753	mmHg	Diameter	5.77	m	Oxygen	13.1	%
Ambient Temperature	34.0	°C	Shape	Circle		Carbon Dioxide	4.6	%
Type of Process	Combustion		Stack Temperature	111	°C	Gas Velocity	25.8	m/s
Type of Fuel	Natural Gas		Moisture	10.59	%	Flow Rate (Actual O2)	1669580	Nm3/hr

Analyte	Sampled Time	Unit	LOD	LOQ (LOR)	Result at 7 %O <sub>2</sub>	Guideline (1)	Guideline (2)	Method	Testing Location
<b>Air Testing</b>									
Total Suspended Particulate	10:10 AM - 12:20 PM	mg/m3	-	-	0.68	60	54	US EPA, Method 51	Bangkok

**Guideline :** Guideline (1) Notification of the Ministry of Industry on determining pollutant contents in air emitted from electric power generation, transmission and distribution plant, 2004 (B.E. 2547), dated September, 2004 (B.E. 2547).  
Guideline (2) Environmental Impact Assessment Report of North Bangkok Power Plant Block 1, February, 2013 (B.E.2556)

Technical Management

*Saranya C.*

Saranya Chalermtamrong  
Scientist (4)  
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Approved by

*Kanokkorn Anek*

Kanokkorn Anek  
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## Analysis / Test Report

**Client :** Electricity Generating Authority of Thailand  
53, Charan Sanit Wong, Bangkrui, Nonthaburi Thailand 11130  
**P/O :** 4120069765  
**Project Name :**  
**Project Location :**

**Lot ID: 2279336**

Date Received : Jul 11, 2022  
Date Reported : Jul 22, 2022  
Report Number: 2383516-1

Page 2 of 2

**Sample Number** 2279336-3  
**Sampled Date** Jul 05, 2022  
**Sample Description** Emission from Stationary Source  
**Location** โรงไฟฟ้าพระนครเหนือ ชุดที่ 1 หน่วยผลิตที่ 2 (NB-C12) Sample A  
**Date Analysis Commenced** Jul 14, 2022  
**Condition of Sample** Extracted into one filter paper placed in plastic petri dish

### Stack Description

Ambient Pressure	753	mmHg	Diameter	5.77	m	Oxygen	13.1	%
Ambient Temperature	34.0	°C	Shape	Circle		Carbon Dioxide	4.6	%
Type of Process	Combustion		Stack Temperature	111	°C	Gas Velocity	25.8	m/s
Type of Fuel	Natural Gas		Moisture	10.59	%	Flow Rate (Actual O2)	1669580	Nm3/hr

Analyte	Sampled Time	Unit	LOD	LOQ (LOR)	Result Emission Rate	Guideline (1)	Guideline (2)	Method	Testing Location
<b>Air Testing</b>									
Total Suspended Particulate	10:10 AM - 12:20 PM	g/s	-	-	0.18	-	-	Calculated	Bangkok

**Guideline :** Guideline (1) Notification of the Ministry of Industry on determining pollutant contents in air emitted from electric power generation, transmission and distribution plant, 2004 (B.E. 2547), dated September, 2004 (B.E. 2547).  
Guideline (2) Environmental Impact Assessment Report of North Bangkok Power Plant Block 1, February, 2013 (B.E.2556)

**Sampled By :** Kritsana Saiwan

Remark :

- LOD : Limit of Detection
- "<" : Lower than LOQ (Limit of Quantitation) / LOR (Limit of Reporting)

Technical Management

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## Analysis / Test Report

**Client :** Electricity Generating Authority of Thailand  
53, Charan Sanit Wong, Bangkrui, Nonthaburi Thailand 11130  
**P/O :** 4120069765  
**Project Name :**  
**Project Location :**

**Lot ID: 2279336**

Date Received : Jul 11, 2022  
Date Reported : Jul 22, 2022  
Report Number: 2383517-1

Page 1 of 2

**Sample Number** 2279336-4  
**Sampled Date** Jul 05, 2022  
**Sample Description** Emission from Stationary Source  
**Location** โรงไฟฟ้าพระนครเหนือ ชุดที่ 1 หน่วยผลิตที่ 2 (NB-C12) Sample B  
**Date Analysis Commenced** Jul 14, 2022  
**Condition of Sample** Extracted into one filter paper placed in plastic petri dish

### Stack Description

Ambient Pressure	753	mmHg	Diameter	5.77	m	Oxygen	13.1	%
Ambient Temperature	34.0	°C	Shape	Circle		Carbon Dioxide	4.6	%
Type of Process	Combustion		Stack Temperature	111	°C	Gas Velocity	25.8	m/s
Type of Fuel	Natural Gas		Moisture	10.64	%	Flow Rate (Actual O2)	1668833	Nm3/hr

Analyte	Sampled Time	Unit	LOD	LOQ (LOR)	Result at 7 %O <sub>2</sub>	Guideline (1)	Guideline (2)	Method	Testing Location
<b>Air Testing</b>									
Total Suspended Particulate	10:10 AM - 12:20 PM	mg/m3	-	-	0.74	60	54	US EPA, Method 5I	Bangkok

**Guideline :** Guideline (1) Notification of the Ministry of Industry on determining pollutant contents in air emitted from electric power generation, transmission and distribution plant, 2004 (B.E. 2547), dated September, 2004 (B.E. 2547).  
Guideline (2) Environmental Impact Assessment Report of North Bangkok Power Plant Block 1, February, 2013 (B.E.2556)

Technical Management

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## Analysis / Test Report

**Client :** Electricity Generating Authority of Thailand  
53, Charan Sanit Wong, Bangkrui, Nonthaburi Thailand 11130  
**P/O :** 4120069765  
**Project Name :**  
**Project Location :**

**Lot ID: 2279336**  
Date Received : Jul 11, 2022  
Date Reported : Jul 22, 2022  
Report Number: 2383517-1

Page 2 of 2

**Sample Number** 2279336-4  
**Sampled Date** Jul 05, 2022  
**Sample Description** Emission from Stationary Source  
**Location** โรงไฟฟ้าพระนครเหนือ ชุดที่ 1 หน่วยผลิตที่ 2 (NB-C12) Sample B  
**Date Analysis Commenced** Jul 14, 2022  
**Condition of Sample** Extracted into one filter paper placed in plastic petri dish

### Stack Description

Ambient Pressure	753	mmHg	Diameter	5.77	m	Oxygen	13.1	%
Ambient Temperature	34.0	°C	Shape	Circle		Carbon Dioxide	4.6	%
Type of Process	Combustion		Stack Temperature	111	°C	Gas Velocity	25.8	m/s
Type of Fuel	Natural Gas		Moisture	10.64	%	Flow Rate (Actual O2)	1668833	Nm3/hr

Analyte	Sampled Time	Unit	LOD	LOQ (LOR)	Result Emission Rate	Guideline (1)	Guideline (2)	Method	Testing Location
<b>Air Testing</b>									
Total Suspended Particulate	10:10 AM - 12:20 PM	g/s	-	-	0.19	-	-	Calculated	Bangkok

**Guideline :** Guideline (1) Notification of the Ministry of Industry on determining pollutant contents in air emitted from electric power generation, transmission and distribution plant, 2004 (B.E. 2547), dated September, 2004 (B.E. 2547).  
Guideline (2) Environmental Impact Assessment Report of North Bangkok Power Plant Block 1, February, 2013 (B.E.2556)

**Sampled By :** Kritsana Saiwan

Remark :

- LOD : Limit of Detection
- "<" : Lower than LOQ (Limit of Quantitation) / LOR (Limit of Reporting)

Technical Management

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Approved by

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## Analysis / Test Report

**Client :** Electricity Generating Authority of Thailand  
53, Charan Sanit Wong, Bangkruai, Nonthaburi Thailand 11130  
**P/O :** 4120069765  
**Project Name :**  
**Project Location :**

**Lot ID: 2279339**

Date Received : Jul 11, 2022  
Date Reported : Aug 05, 2022  
Report Number: 2384530-1 Rev. No.1

Page 1 of 2

**Sample Number** 2279339-3  
**Sampled Date** Jul 08, 2022  
**Sample Description** Emission from Stationary Source  
**Location** โรงไฟฟ้าพระนครเหนือ ชุดที่ 2 หน่วยผลิตที่ 1 (NB-C21) Sample A  
**Date Analysis Commenced** Jul 14, 2022  
**Condition of Sample** Extracted into one filter paper placed in plastic petri dish

### Stack Description

Ambient Pressure	753	mmHg	Diameter	7.0	m	Oxygen	12.5	%
Ambient Temperature	34.0	°C	Shape	Circle		Carbon Dioxide	5.0	%
Type of Process	Combustion		Stack Temperature	93.5	°C	Gas Velocity	17.0	m/s
Type of Fuel	Natural Gas		Moisture	10.39	%	Flow Rate (Actual O2)	1697255	Nm3/hr

Analyte	Sampled Time	Unit	LOD	LOQ (LOR)	Result at 7 %O <sub>2</sub>	Guideline (1)	Guideline (2)	Method	Testing Location
<b>Air Testing</b>									
Total Suspended Particulate	10:00 AM - 12:15 PM	mg/m3	-	-	0.58	60	20	US EPA, Method 5I	Bangkok

**Guideline :** Guideline (1) Notification of the Ministry of Industry on determining pollutant contents in air emitted from electric power generation, transmission and distribution plant, 2004 (B.E. 2547), dated September, 2004 (B.E. 2547).  
Guideline (2) Environmental Impact Assessment Report of North Bangkok Power Plant Block 2 , February ,2013 (B.E.2556)

Technical Management

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## Analysis / Test Report

**Client :** Electricity Generating Authority of Thailand  
53, Charan Sanit Wong, Bangkruai, Nonthaburi Thailand 11130  
**P/O :** 4120069765  
**Project Name :**  
**Project Location :**

**Lot ID: 2279339**

Date Received : Jul 11, 2022  
Date Reported : Aug 05, 2022  
Report Number: 2384530-1 Rev. No.1

Page 2 of 2

**Sample Number** 2279339-3  
**Sampled Date** Jul 08, 2022  
**Sample Description** Emission from Stationary Source  
**Location** โรงไฟฟ้าพระนครเหนือ ชุดที่ 2 หน่วยผลิตที่ 1 (NB-C21) Sample A  
**Date Analysis Commenced** Jul 14, 2022  
**Condition of Sample** Extracted into one filter paper placed in plastic petri dish

### Stack Description

Ambient Pressure	753	mmHg	Diameter	7.0	m	Oxygen	12.5	%
Ambient Temperature	34.0	°C	Shape	Circle		Carbon Dioxide	5.0	%
Type of Process	Combustion		Stack Temperature	93.5	°C	Gas Velocity	17.0	m/s
Type of Fuel	Natural Gas		Moisture	10.39	%	Flow Rate (Actual O2)	1697255	Nm3/hr

Analyte	Sampled Time	Unit	LOD	LOQ (LOR)	Result Emission Rate	Guideline (1)	Guideline (2)	Method	Testing Location
<b>Air Testing</b>									
Total Suspended Particulate	10:00 AM - 12:15 PM	g/s	-	-	0.16	-	-	Calculated	Bangkok

**Guideline :** Guideline (1) Notification of the Ministry of Industry on determining pollutant contents in air emitted from electric power generation, transmission and distribution plant, 2004 (B.E. 2547), dated September, 2004 (B.E. 2547).  
Guideline (2) Environmental Impact Assessment Report of North Bangkok Power Plant Block 2 , February ,2013 (B.E.2556)

### Note:

This Analysis test report is reissued to supersede report No. 2384530-1 Reported : Jul 25,2022 due to revise sample information

**Sampled By :** Kritsana Saiwan

### Remark :

- LOD : Limit of Detection
- "<" : Lower than LOQ (Limit of Quantitation) / LOR (Limit of Reporting)

**Technical Management**

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Scientist (4)  
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**Approved by**

*Kanok Korn Anek*

Kanok Korn Anek  
Senior Manager  
ทะเบียนเลขที่ ว-204-ค-6111

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## Analysis / Test Report

**Client :** Electricity Generating Authority of Thailand  
53, Charan Sanit Wong, Bangkruai, Nonthaburi Thailand 11130

**P/O :** 4120069765

**Project Name :**

**Project Location :**

**Lot ID: 2279339**

Date Received : Jul 11, 2022

Date Reported : Aug 05, 2022

Report Number: 2384531-1 Rev. No.1

Page 1 of 2

**Sample Number** 2279339-4  
**Sampled Date** Jul 08, 2022  
**Sample Description** Emission from Stationary Source  
**Location** โรงไฟฟ้าพระนครเหนือ ชุดที่ 2 หน่วยผลิตที่ 1 (NB-C21) Sample B  
**Date Analysis Commenced** Jul 14, 2022  
**Condition of Sample** Extracted into one filter paper placed in plastic petri dish

### Stack Description

Ambient Pressure	753	mmHg	Diameter	7.0	m	Oxygen	12.5	%
Ambient Temperature	34.0	°C	Shape	Circle		Carbon Dioxide	5.0	%
Type of Process	Combustion		Stack Temperature	93.5	°C	Gas Velocity	17.0	m/s
Type of Fuel	Natural Gas		Moisture	10.37	%	Flow Rate (Actual O2)	1697560	Nm3/hr

Analyte	Sampled Time	Unit	LOD	LOQ (LOR)	Result at 7 %O <sub>2</sub>	Guideline (1)	Guideline (2)	Method	Testing Location
<b>Air Testing</b>									
Total Suspended Particulate	10:00 AM - 12:15 PM	mg/m3	-	-	0.57	60	20	US EPA, Method 5I	Bangkok

**Guideline :** Guideline (1) Notification of the Ministry of Industry on determining pollutant contents in air emitted from electric power generation, transmission and distribution plant, 2004 (B.E. 2547), dated September, 2004 (B.E. 2547).  
Guideline (2) Environmental Impact Assessment Report of North Bangkok Power Plant Block 2 , February ,2013 (B.E.2556)

**Technical Management**

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**Approved by**

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## Analysis / Test Report

**Client :** Electricity Generating Authority of Thailand  
53, Charan Sanit Wong, Bangkrui, Nonthaburi Thailand 11130

**P/O :** 4120069765

**Project Name :**

**Project Location :**

**Lot ID: 2279339**

Date Received : Jul 11, 2022

Date Reported : Aug 05, 2022

Report Number: 2384531-1 Rev. No.1

Page 2 of 2

**Sample Number** 2279339-4  
**Sampled Date** Jul 08, 2022  
**Sample Description** Emission from Stationary Source  
**Location** โรงไฟฟ้าพระนครเหนือ ชุดที่ 2 หน่วยผลิตที่ 1 (NB-C21) Sample B  
**Date Analysis Commenced** Jul 14, 2022  
**Condition of Sample** Extracted into one filter paper placed in plastic petri dish

### Stack Description

Ambient Pressure	753	mmHg	Diameter	7.0	m	Oxygen	12.5	%
Ambient Temperature	34.0	°C	Shape	Circle		Carbon Dioxide	5.0	%
Type of Process	Combustion		Stack Temperature	93.5	°C	Gas Velocity	17.0	m/s
Type of Fuel	Natural Gas		Moisture	10.37	%	Flow Rate (Actual O2)	1697560	Nm3/hr

Analyte	Sampled Time	Unit	LOD	LOQ (LOR)	Result Emission Rate	Guideline (1)	Guideline (2)	Method	Testing Location
<b>Air Testing</b>									
Total Suspended Particulate	10:00 AM - 12:15 PM	g/s	-	-	0.16	-	-	Calculated	Bangkok

**Guideline :** Guideline (1) Notification of the Ministry of Industry on determining pollutant contents in air emitted from electric power generation, transmission and distribution plant, 2004 (B.E. 2547), dated September, 2004 (B.E. 2547).  
Guideline (2) Environmental Impact Assessment Report of North Bangkok Power Plant Block 2 , February ,2013 (B.E.2556)

### Note:

This Analysis test report is reissued to supersede report No. 2384531-1 Reported : Jul 25,2022 due to revise sample information

**Sampled By :** Kritsana Saiwan

### Remark :

- LOD : Limit of Detection
- "<" : Lower than LOQ (Limit of Quantitation) / LOR (Limit of Reporting)

**Technical Management**

*Saranya C.*  
Saranya Chalermtamrong  
Scientist (4)  
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**Approved by**

*Kanokkorn Anek*  
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ทะเบียนเลขที่ ว-204-ค-6111

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## Analysis / Test Report

**Client :** Electricity Generating Authority of Thailand  
53, Charan Sanit Wong, Bangkrui, Nonthaburi Thailand 11130

**P/O :** 4120069765

**Project Name :**

**Project Location :**

**Lot ID: 2279340**

Date Received : Jul 11, 2022

Date Reported : Aug 05, 2022

Report Number: 2384534-1 Rev. No.1

Page 1 of 2

**Sample Number** 2279340-3  
**Sampled Date** Jul 06, 2022  
**Sample Description** Emission from Stationary Source  
**Location** โรงไฟฟ้าพระนครเหนือ ชุดที่ 2 หน่วยผลิตที่ 2 (NB-C22) Sample A  
**Date Analysis Commenced** Jul 14, 2022  
**Condition of Sample** Extracted into one filter paper placed in plastic petri dish

### Stack Description

Ambient Pressure	753	mmHg	Diameter	7.0	m	Oxygen	12.5	%
Ambient Temperature	33.0	°C	Shape	Circle		Carbon Dioxide	5.2	%
Type of Process	Combustion		Stack Temperature	94.0	°C	Gas Velocity	17.3	m/s
Type of Fuel	Natural Gas		Moisture	10.13	%	Flow Rate (Actual O2)	1732902	Nm3/hr

Analyte	Sampled Time	Unit	LOD	LOQ (LOR)	Result at 7 %O <sub>2</sub>	Guideline (1)	Guideline (2)	Method	Testing Location
<b>Air Testing</b>									
Total Suspended Particulate	10:10 AM - 12:28 PM	mg/m3	-	-	0.51	60	20	US EPA, Method 5I	Bangkok

**Guideline :** Guideline (1) Notification of the Ministry of Industry on determining pollutant contents in air emitted from electric power generation, transmission and distribution plant, 2004 (B.E. 2547), dated September, 2004 (B.E. 2547).  
Guideline (2) Environmental Impact Assessment Report of North Bangkok Power Plant Block 2 , February ,2013 (B.E.2556)

**Technical Management**

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**Approved by**

*Kanok Korn Anek*

Kanokkorn Anek  
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## Analysis / Test Report

**Client :** Electricity Generating Authority of Thailand  
53, Charan Sanit Wong, Bangkrui, Nonthaburi Thailand 11130  
**P/O :** 4120069765  
**Project Name :**  
**Project Location :**

**Lot ID: 2279340**

Date Received : Jul 11, 2022  
Date Reported : Aug 05, 2022  
Report Number: 2384534-1 Rev. No.1

Page 2 of 2

**Sample Number** 2279340-3  
**Sampled Date** Jul 06, 2022  
**Sample Description** Emission from Stationary Source  
**Location** โรงไฟฟ้าพระนครเหนือ ชุดที่ 2 หน่วยผลิตที่ 2 (NB-C22) Sample A  
**Date Analysis Commenced** Jul 14, 2022  
**Condition of Sample** Extracted into one filter paper placed in plastic petri dish

### Stack Description

Ambient Pressure	753	mmHg	Diameter	7.0	m	Oxygen	12.5	%
Ambient Temperature	33.0	°C	Shape	Circle		Carbon Dioxide	5.2	%
Type of Process	Combustion		Stack Temperature	94.0	°C	Gas Velocity	17.3	m/s
Type of Fuel	Natural Gas		Moisture	10.13	%	Flow Rate (Actual O2)	1732902	Nm3/hr

Analyte	Sampled Time	Unit	LOD	LOQ (LOR)	Result Emission Rate	Guideline (1)	Guideline (2)	Method	Testing Location
<b>Air Testing</b>									
Total Suspended Particulate	10:10 AM - 12:28 PM	g/s	-	-	0.24	-	-	Calculated	Bangkok

**Guideline :** Guideline (1) Notification of the Ministry of Industry on determining pollutant contents in air emitted from electric power generation, transmission and distribution plant, 2004 (B.E. 2547), dated September, 2004 (B.E. 2547).  
Guideline (2) Environmental Impact Assessment Report of North Bangkok Power Plant Block 2 , February ,2013 (B.E.2556)

### Note:

This Analysis test report is reissued to supersede report No. 2384534-1 Reported : Jul 25,2022 due to revise sample information

**Sampled By :** Kritsana Saiwan

### Remark :

- LOD : Limit of Detection
- "<" : Lower than LOQ (Limit of Quantitation) / LOR (Limit of Reporting)

**Technical Management**

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## Analysis / Test Report

**Client :** Electricity Generating Authority of Thailand  
53, Charan Sanit Wong, Bangkruai, Nonthaburi Thailand 11130  
**P/O :** 4120069765  
**Project Name :**  
**Project Location :**

**Lot ID: 2279340**

Date Received : Jul 11, 2022  
Date Reported : Aug 05, 2022  
Report Number: 2384535-1 Rev. No.1

Page 1 of 2

**Sample Number** 2279340-4  
**Sampled Date** Jul 06, 2022  
**Sample Description** Emission from Stationary Source  
**Location** โรงไฟฟ้าพระนครเหนือ ชุดที่ 2 หน่วยผลิตที่ 2 (NB-C22) Sample B  
**Date Analysis Commenced** Jul 14, 2022  
**Condition of Sample** Extracted into one filter paper placed in plastic petri dish

### Stack Description

Ambient Pressure	753	mmHg	Diameter	7.0	m	Oxygen	12.5	%
Ambient Temperature	33.0	°C	Shape	Circle		Carbon Dioxide	5.2	%
Type of Process	Combustion		Stack Temperature	94.0	°C	Gas Velocity	17.3	m/s
Type of Fuel	Natural Gas		Moisture	10.54	%	Flow Rate (Actual O2)	1726493	Nm3/hr

Analyte	Sampled Time	Unit	LOD	LOQ (LOR)	Result at 7 %O <sub>2</sub>	Guideline (1)	Guideline (2)	Method	Testing Location
<b>Air Testing</b>									
Total Suspended Particulate	10:10 AM - 12:28 PM	mg/m3	-	-	0.66	60	20	US EPA, Method 5I	Bangkok

**Guideline :** Guideline (1) Notification of the Ministry of Industry on determining pollutant contents in air emitted from electric power generation, transmission and distribution plant, 2004 (B.E. 2547), dated September, 2004 (B.E. 2547).  
Guideline (2) Environmental Impact Assessment Report of North Bangkok Power Plant Block 2 , February ,2013 (B.E.2556)

Technical Management

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## Analysis / Test Report

**Client :** Electricity Generating Authority of Thailand  
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**P/O :** 4120069765  
**Project Name :**  
**Project Location :**

**Lot ID: 2279340**

Date Received : Jul 11, 2022  
Date Reported : Aug 05, 2022  
Report Number: 2384535-1 Rev. No.1

Page 2 of 2

**Sample Number** 2279340-4  
**Sampled Date** Jul 06, 2022  
**Sample Description** Emission from Stationary Source  
**Location** โรงไฟฟ้าพระนครเหนือ ชุดที่ 2 หน่วยผลิตที่ 2 (NB-C22) Sample B  
**Date Analysis Commenced** Jul 14, 2022  
**Condition of Sample** Extracted into one filter paper placed in plastic petri dish

### Stack Description

Ambient Pressure	753	mmHg	Diameter	7.0	m	Oxygen	12.5	%
Ambient Temperature	33.0	°C	Shape	Circle		Carbon Dioxide	5.2	%
Type of Process	Combustion		Stack Temperature	94.0	°C	Gas Velocity	17.3	m/s
Type of Fuel	Natural Gas		Moisture	10.54	%	Flow Rate (Actual O2)	1726493	Nm3/hr

Analyte	Sampled Time	Unit	LOD	LOQ (LOR)	Result Emission Rate	Guideline (1)	Guideline (2)	Method	Testing Location
<b>Air Testing</b>									
Total Suspended Particulate	10:10 AM - 12:28 PM	g/s	-	-	0.19	-	-	Calculated	Bangkok

**Guideline :** Guideline (1) Notification of the Ministry of Industry on determining pollutant contents in air emitted from electric power generation, transmission and distribution plant, 2004 (B.E. 2547), dated September, 2004 (B.E. 2547).  
Guideline (2) Environmental Impact Assessment Report of North Bangkok Power Plant Block 2 , February ,2013 (B.E.2556)

### Note:

This Analysis test report is reissued to supersede report No. 2384535-1 Reported : Jul 25,2022 due to revise sample information

**Sampled By :** Kritsana Saiwan

### Remark :

- LOD : Limit of Detection
- "<" : Lower than LOQ (Limit of Quantitation) / LOR (Limit of Reporting)

**Technical Management**

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