

ภาคผนวก ก

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เอกสารประกอบการปฏิบัติตาม  
มาตรการติดตามตรวจสอบผลกระทบสิ่งแวดล้อม

## ภาคผนวก ค.1

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ผลการตรวจสอบความถูกต้องของระบบตรวจวัดคุณภาพอากาศ  
จากปล่องระบายอากาศแบบต่อเนื่อง (Auditing-RATA)

# Relative Accuracy Determination for CEMS, Star Petroleum Refining Public Co., Ltd. : RFCCU

DATE May 19, 2025

Run No.	Time		O <sub>2</sub>			NO <sub>x</sub>			SO <sub>2</sub>			CO			Fuel Gas (kg/h)
	Start	End	%			ppm@7% O <sub>2</sub>			ppm@7% O <sub>2</sub>			ppm@7% O <sub>2</sub>			
			RM	CEMS	Diff(d)	RM	CEMS	Diff(d)	RM	CEMS	Diff(d)	RM	CEMS	Diff(d)	
1	12:30 PM	12:50 PM	3.65	3.82	-0.17	109.52	115.03	-5.51	296.35	302.71	-6.36	275.22	280.95	-5.73	498.72
2	12:51 PM	1:11 PM	3.64	3.87	-0.23	113.21	116.12	-2.92	289.93	295.90	-5.97	276.00	286.27	-10.27	584.42
3	1:12 PM	1:32 PM	3.67	3.88	-0.21	114.93	115.90	-0.98	294.49	300.62	-6.13	276.73	283.10	-6.37	792.08
4	1:33 PM	1:53 PM	3.47	3.71	-0.24	114.01	115.77	-1.76	276.70	283.57	-6.87	277.04	291.50	-14.46	842.74
5	1:54 PM	2:14 PM	3.44	3.70	-0.26	113.51	114.80	-1.29	280.52	290.16	-9.65	274.32	287.49	-13.17	920.67
6	2:15 PM	2:35 PM	3.63	3.84	-0.21	113.16	113.16	-0.01	295.22	304.34	-9.13	271.70	273.98	-2.29	932.96
7	2:36 PM	2:56 PM	3.50	3.72	-0.22	114.90	114.31	0.59	286.41	299.17	-12.75	274.48	284.09	-9.62	976.63
8	2:57 PM	3:17 PM	3.39	3.63	-0.24	115.15	113.12	2.02	279.99	293.99	-14.00	275.67	286.23	-10.56	989.59
9	3:18 PM	3:38 PM	3.42	3.68	-0.26	114.91	112.08	2.83	275.53	287.38	-11.85	276.83	292.63	-15.80	986.04
10	3:39 PM	3:59 PM	3.51	3.72	-0.21	113.94	110.26	3.68	281.04	292.21	-11.17	275.16	285.37	-10.21	984.23
11	4:00 PM	4:20 PM	3.69	3.92	-0.23	113.23	110.43	2.80	291.35	301.91	-10.56	273.36	279.60	-6.24	962.12
12	4:21 PM	4:41 PM	3.66	3.90	-0.24	114.20	111.56	2.64	289.76	306.61	-16.85	272.66	276.98	-4.32	946.57
Average			3.56	3.78	-0.23	113.72	113.55	0.17	286.44	296.55	-10.11	274.93	284.02	-9.09	868.06
Confidence Coefficient			-			1.7658			2.1888			2.6508			
Relative Accuracy			0.23			0.78			1.76			2.12			
Performance Specification : RA			1%			10%**			10%**			5%***			

\* Instrumental RM and CEMS data are on a constant basis, that is, dry and actual oxygen.

\*\* 10% of Emission Standard value (250 ppmvd@7%O<sub>2</sub> for NO<sub>x</sub>, 700 ppmvd@7%O<sub>2</sub> for SO<sub>2</sub>)

\*\*\* 5% of Emission Standard value (554 ppmvd@7%O<sub>2</sub> for CO)

# Relative Accuracy Determination for CEMS, Star Petroleum Refining Public Co., Ltd. : CDU

DATE May 22, 2025

Run No.	Time		O <sub>2</sub>			NOx			Fuel Gas (Nm3/h)
	Start	End	%			ppm@7% O <sub>2</sub>			
			Instrumental RM	CEMS	Diff(d <sub>i</sub> )	Instrumental RM	CEMS	Diff(d <sub>i</sub> )	
1	12:40 PM	1:00 PM	5.04	5.97	-0.93	13.89	12.02	1.87	11066.52
2	1:01 PM	1:21 PM	5.11	5.98	-0.87	14.15	12.21	1.93	11128.58
3	1:22 PM	1:42 PM	4.94	5.77	-0.83	14.00	12.11	1.89	11153.90
4	1:43 PM	2:03 PM	4.83	5.72	-0.89	13.66	11.95	1.71	11134.63
5	2:04 PM	2:24 PM	4.93	5.86	-0.93	13.84	12.13	1.70	11162.93
6	2:25 PM	2:45 PM	5.03	5.92	-0.89	14.16	12.39	1.78	11169.52
7	2:46 PM	3:06 PM	4.99	5.87	-0.88	14.11	12.37	1.74	11166.31
8	3:07 PM	3:27 PM	4.95	5.82	-0.87	13.87	12.11	1.75	11150.76
9	3:28 PM	3:48 PM	4.96	5.86	-0.90	14.06	12.30	1.76	11084.00
10	3:49 PM	4:09 PM	4.96	5.83	-0.87	13.94	12.08	1.86	11052.61
11	4:10 PM	4:30 PM	4.96	5.80	-0.84	13.94	12.11	1.83	11021.81
12	4:31 PM	4:51 PM	4.94	5.84	-0.90	13.98	12.35	1.63	10976.88
Average			4.97	5.85	-0.88	13.97	12.18	1.79	11,105.70
Confidence Coefficient			-			0.0570			
Relative Accuracy			0.88			13.20			
Performance Specification : RA			1%			20%**			

\* Instrumental RM and CEMS data are on a constant basis, that is, dry and actual oxygen.

\*\* 20 % of RM value for NO<sub>x</sub>

# Relative Accuracy Determination for CEMS, Star Petroleum Refining Public Co., Ltd. : SRU

DATE May 21, 2025

Run No.	Time		O <sub>2</sub>			SO <sub>2</sub>			Natural Gas (Nm3/h)
	Start	End	%			ppm@7% O <sub>2</sub>			
			Instrumental RM	CEMS	Diff(d <sub>i</sub> )	Instrumental RM	CEMS	Diff(d <sub>i</sub> )	
1	3:00 PM	3:20 PM	6.14	5.54	0.60	209.18	167.69	41.49	441.93
2	3:21 PM	3:41 PM	6.15	5.64	0.51	214.80	168.77	46.04	452.09
3	3:42 PM	4:02 PM	6.16	5.39	0.77	213.66	165.03	48.62	445.83
4	4:03 PM	4:23 PM	6.12	5.41	0.71	210.47	164.37	46.10	438.56
5	4:24 PM	4:44 PM	6.10	5.48	0.62	213.11	165.96	47.15	449.65
6	4:45 PM	5:05 PM	6.11	5.52	0.59	215.53	167.30	48.23	446.85
7	5:06 PM	5:26 PM	6.11	5.51	0.60	213.73	168.40	45.34	449.32
8	5:27 PM	5:47 PM	6.06	5.50	0.56	210.84	168.66	42.18	446.56
9	5:48 PM	6:08 PM	6.05	5.51	0.54	212.56	169.19	43.37	440.53
10	6:09 PM	6:29 PM	6.04	5.52	0.52	211.39	167.82	43.57	446.85
11	6:30 PM	6:50 PM	6.05	5.54	0.51	210.50	166.85	43.65	441.70
12	6:51 PM	7:11 PM	6.11	5.49	0.62	211.69	165.74	45.94	445.09
Average			6.10	5.50	0.60	212.29	167.15	45.14	445.41
Confidence Coefficient			-			1.4594			
Relative Accuracy			0.60			9.32			
Performance Specification : RA			1%*			10%**			

\* Instrumental RM and CEMS data are on a consistent basis, that is, dry and actual oxygen.

\*\* 10% of Emission Standard value (500 ppmvd@7%O<sub>2</sub> for SO<sub>2</sub>)

# Relative Accuracy Determination for CEMS, Star Petroleum Refining Public Co., Ltd. : Boiler 1

DATE May 21, 2025

Run No.	Time		O <sub>2</sub>			NO <sub>x</sub>			FUEL GAS (Nm3/h)
	Start	End	%			ppm@7% O <sub>2</sub>			
			Instrumental RM	CEMS	Diff(d <sub>i</sub> )	Instrumental RM	CEMS	Diff(d <sub>i</sub> )	
1	12:30 PM	12:50 PM	4.82	4.74	0.08	79.16	84.35	-5.20	3015.45
2	12:51 PM	1:11 PM	4.77	4.74	0.03	78.11	84.36	-6.25	2976.08
3	1:12 PM	1:32 PM	4.73	4.64	0.09	77.90	85.01	-7.11	2966.56
4	1:33 PM	1:53 PM	4.67	4.64	0.03	77.08	85.90	-8.82	3002.68
5	1:54 PM	2:14 PM	4.76	4.74	0.02	79.46	85.27	-5.81	2927.72
6	2:15 PM	2:35 PM	4.78	4.76	0.02	80.46	87.29	-6.83	2968.45
7	2:36 PM	2:56 PM	4.72	4.69	0.03	80.16	87.13	-6.97	3004.05
8	2:57 PM	3:17 PM	4.66	4.66	0.00	80.33	87.52	-7.19	3012.15
9	3:18 PM	3:38 PM	4.76	4.82	-0.06	78.45	88.33	-9.88	3060.58
10	3:39 PM	3:59 PM	4.69	4.63	0.06	78.51	89.20	-10.69	3078.90
11	4:00 PM	4:20 PM	4.65	4.69	-0.04	78.19	87.52	-9.33	3023.50
12	4:21 PM	4:41 PM	4.70	4.65	0.05	79.43	85.03	-5.60	3022.45
Average			4.73	4.70	0.03	78.94	86.41	-7.47	3,004.88
Confidence Coefficient			-			1.1362			
Relative Accuracy			0.03			10.91			
Performance Specification : RA			1%			20%**			

\* Instrumental RM and CEMS data are on a consistent basis, that is, dry and actual oxygen.

\*\* 20 % of RM value for NO<sub>x</sub>

Relative Accuracy Determination for CEMS, Star Petroleum Refining Public Co., Ltd. : HRSG 1

DATE May 20, 2025

Run No.	Time		O <sub>2</sub>			NO <sub>x</sub>			Load
	Start	End	%			ppm@7% O <sub>2</sub>			
			Instrumental RM	CEMS	Diff(d <sub>i</sub> )	Instrumental RM	CEMS	Diff(d <sub>i</sub> )	
1	9:30 AM	9:50 AM	14.13	14.58	-0.45	83.95	97.72	-13.76	3724.96
2	9:51 AM	10:11 AM	14.22	14.59	-0.37	95.82	97.01	-1.19	3699.37
3	10:12 AM	10:32 AM	14.23	14.59	-0.36	96.63	100.21	-3.57	3698.52
4	10:33 AM	10:53 AM	14.22	14.62	-0.40	99.09	102.13	-3.04	3694.03
5	11:15 AM	11:35 AM	14.23	14.63	-0.40	104.82	108.50	-3.67	3650.83
6	11:36 AM	11:56 AM	14.23	14.65	-0.42	102.24	109.55	-7.32	3665.48
7	11:57 AM	12:17 PM	14.23	14.64	-0.41	100.78	106.63	-5.85	3645.12
8	12:18 PM	12:38 PM	14.25	14.63	-0.38	101.10	105.90	-4.80	3660.71
9	1:00 PM	1:20 PM	14.25	14.63	-0.38	101.67	107.74	-6.07	3676.26
10	1:21 PM	1:41 PM	14.27	14.69	-0.42	101.45	107.48	-6.03	3523.92
11	1:42 PM	2:02 PM	14.56	15.25	-0.69	105.52	111.42	-5.90	2566.97
12	2:03 PM	2:23 PM	15.29	15.69	-0.40	112.49	117.66	-5.17	1994.90
Average			14.34	14.77	-0.42	100.46	106.00	-5.53	3,433.42
Confidence Coefficient			-			1.9607			
Relative Accuracy			0.42			7.46			
Performance Specification : RA			1%			20%**			

\* Instrumental RM and CEMS data are on a consistent basis, that is, dry and actual oxygen.

\*\*20% of RM Value of NO<sub>x</sub>