

ภาคผนวก ค

---

ใบรับรองผลการวิเคราะห์



## Analysis / Test Report

**Client :** Global Power Synergy Public Company Limited  
92/9, Rayong Highway Road 3191, Map Ta Phut, Mueang, Rayong Thailand 21150

**P/O :**

**Project Name :** Monitoring

**Project Location :** CUP 1

**Lot ID: 2212624**

Date Received : Apr 05, 2022

Date Reported : Apr 11, 2022

Report Number: 2285403-1

Page 1 of 1

<b>Sample Description</b>	Air Quality						
<b>Location</b>	วัดหนองพิน* (GFS 47P 0729819, 1403299)						
<b>Parameter</b>	Nitrogen dioxide (ppm)						
<b>Measurement Date</b>	Mar 28, 2022 - Apr 04, 2022						
<b>Measurement by</b>	Satcha Phetsawaeng						
	2212624-1	2212624-2	2212624-3	2212624-4	2212624-5	2212624-6	2212624-7
Time	Mar 28, 2022	Mar 29, 2022	Mar 30, 2022	Mar 31, 2022	Apr 01, 2022	Apr 02, 2022	Apr 03, 2022
09:00 AM - 10:00 AM	0.004	0.002	0.002	0.003	0.002	0.002	0.002
10:00 AM - 11:00 AM	0.003	0.002	0.001	0.002	0.002	0.002	0.002
11:00 AM - 12:00 PM	0.001	0.002	<0.001	0.002	0.003	0.006	0.003
12:00 PM - 01:00 PM	0.002	0.001	<0.001	0.002	0.003	0.007	0.005
01:00 PM - 02:00 PM	0.002	0.003	0.001	0.002	0.004	0.006	0.005
02:00 PM - 03:00 PM	0.020	0.006	0.003	0.004	0.006	0.007	0.005
03:00 PM - 04:00 PM	0.004	0.008	0.005	0.003	0.008	0.006	0.005
04:00 PM - 05:00 PM	0.006	0.006	0.003	0.006	0.020	0.007	0.005
05:00 PM - 06:00 PM	0.006	0.007	0.006	0.002	0.014	0.006	0.006
06:00 PM - 07:00 PM	0.010	0.010	0.008	0.012	0.010	0.014	0.010
07:00 PM - 08:00 PM	0.010	0.010	0.009	0.012	0.008	0.009	0.013
08:00 PM - 09:00 PM	0.011	0.007	0.007	0.012	0.011	0.006	0.012
09:00 PM - 10:00 PM	0.012	0.008	0.010	0.011	0.008	0.007	0.008
10:00 PM - 11:00 PM	0.009	0.004	0.005	0.011	0.006	0.004	0.012
11:00 PM - 12:00 AM	0.010	0.004	0.007	0.008	0.009	0.005	0.013
12:00 AM - 01:00 AM	0.008	0.003	0.009	0.007	0.012	0.004	0.011
01:00 AM - 02:00 AM	0.008	0.003	0.008	0.006	0.010	0.004	0.010
02:00 AM - 03:00 AM	0.010	0.004	0.006	0.009	0.008	0.005	0.010
03:00 AM - 04:00 AM	0.012	0.006	0.006	0.010	0.008	0.006	0.009
04:00 AM - 05:00 AM	0.012	0.007	0.006	0.008	0.008	0.007	0.011
05:00 AM - 06:00 AM	0.010	0.009	0.008	0.009	0.007	0.010	0.011
06:00 AM - 07:00 AM	0.007	0.006	0.007	0.007	0.008	0.009	0.011
07:00 AM - 08:00 AM	0.004	0.003	0.007	0.004	0.004	0.007	0.006
08:00 AM - 09:00 AM	0.002	0.002	0.005	0.002	0.003	0.004	0.004
Average	0.008	0.005	0.005	0.006	0.007	0.006	0.008
1hr - Maximum	0.020	0.010	0.010	0.012	0.020	0.014	0.013
Standard 1hr - Average	0.170	0.170	0.170	0.170	0.170	0.170	0.170

Standard : Notification of the National Environment Board No. 33, 2009 (B.E. 2552).

Reference Method : US EPA Method Part 50 App. F (Chemiluminescence)

The above results are valid only for the analyzed/tested sample(s) as indicated in this report. No part of this report or certificate may be reproduced in any form without written consent from the Laboratory. ALS Laboratory Group (Thailand) strongly recommends that this report is not reproduced except in full.

Approved by

Sararat Mongkonjirawut  
Scientist (4)

ADDRESS 104 Phatthanakan 40, Phatthanakan 3d., Khwaeng Phatthanakan, Khet Suan Luang, Bangkok 10250 Thailand | PHONE +66 0 2760 3000 | FAX +66 0 2760 3197  
ALS LABORATORY GROUP (THAILAND) CO., LTD. An ALS Limited Company

Life Sciences

www.alsglobal.com

RIGHT SOLUTIONS RIGHT PARTNER

4403-32/ EMAIL

S:\Reports\Air SOxNOx.rpt ( 3:54PM)



## Analysis / Test Report

**Client :** Global Power Synergy Public Company Limited  
92/9, Rayong Highway Road 3191, Map Ta Phut, Mueang, Rayong Thailand 21150

**P/O :**

**Project Name :** Monitoring

**Project Location :** CUP 1

**Lot ID: 2212624**

Date Received : Apr 05, 2022

Date Reported : Apr 11, 2022

Report Number: 2285404-1

Page 1 of 1

<b>Sample Description</b>	Air Quality						
<b>Location</b>	วัดหนองพิน* (GFS 47P 0730826, 1407301)						
<b>Parameter</b>	Nitrogen dioxide (ppm)						
<b>Measurement Date</b>	Mar 28, 2022 - Apr 04, 2022						
<b>Measurement by</b>	Satcha Phetsawaeng						
	2212624-8	2212624-9	2212624-10	2212624-11	2212624-12	2212624-13	2212624-14
Time	Mar 28, 2022	Mar 29, 2022	Mar 30, 2022	Mar 31, 2022	Apr 01, 2022	Apr 02, 2022	Apr 03, 2022
10:00 AM - 11:00 AM	0.056	0.004	0.005	0.004	0.005	C.002	0.003
11:00 AM - 12:00 PM	0.035	0.008	0.004	0.004	0.004	C.003	0.003
12:00 PM - 01:00 PM	0.017	0.007	0.002	0.005	0.003	C.003	0.003
01:00 PM - 02:00 PM	0.014	0.003	0.002	0.004	0.002	C.002	0.003
02:00 PM - 03:00 PM	0.006	0.004	0.004	0.004	0.003	C.003	0.003
03:00 PM - 04:00 PM	0.005	0.007	0.003	0.004	0.003	C.003	0.003
04:00 PM - 05:00 PM	0.007	0.011	0.003	0.010	0.003	C.004	0.004
05:00 PM - 06:00 PM	0.004	0.012	0.003	0.006	0.003	C.004	0.004
06:00 PM - 07:00 PM	0.004	0.014	0.010	0.010	0.004	C.004	0.005
07:00 PM - 08:00 PM	0.009	0.010	0.013	0.006	0.007	C.004	0.006
08:00 PM - 09:00 PM	0.007	0.003	0.012	0.010	0.003	C.004	0.005
09:00 PM - 10:00 PM	0.013	0.004	0.012	0.013	0.003	C.003	0.005
10:00 PM - 11:00 PM	0.005	0.004	0.011	0.010	0.002	C.003	0.005
11:00 PM - 12:00 AM	0.002	0.006	0.003	0.007	0.002	C.003	0.005
12:00 AM - 01:00 AM	0.006	0.005	0.007	0.004	0.002	C.003	0.004
01:00 AM - 02:00 AM	0.008	0.005	0.005	0.008	0.002	C.003	0.004
02:00 AM - 03:00 AM	0.011	0.004	0.007	0.006	0.002	C.002	0.004
03:00 AM - 04:00 AM	0.004	0.005	0.005	0.006	0.002	C.002	0.011
04:00 AM - 05:00 AM	0.002	0.007	0.005	0.008	0.003	C.002	0.008
05:00 AM - 06:00 AM	0.003	0.006	0.005	0.008	0.002	C.003	0.007
06:00 AM - 07:00 AM	0.006	0.006	0.003	0.010	0.004	C.004	0.009
07:00 AM - 08:00 AM	0.007	0.005	0.003	0.011	0.004	C.005	0.011
08:00 AM - 09:00 AM	0.006	0.005	0.003	0.011	0.003	C.005	0.008
09:00 AM - 10:00 AM	0.006	0.005	0.004	0.006	0.003	C.004	0.006
Average	0.010	0.006	0.007	0.007	0.003	0.003	0.005
1hr - Maximum	0.056	0.014	0.013	0.013	0.007	0.005	0.011
Standard 1hr - Average	0.170	0.170	0.170	0.170	0.170	0.170	0.170

Standard : Notification of the National Environment Board No. 33, 2009 (B.E. 2552).

Reference Method : US EPA Method Part 50 App. F (Chemiluminescence)

The above results are valid only for the analyzed/tested sample(s) as indicated in this report. No part of this report or certificate may be reproduced in any form without written consent from the Laboratory. ALS Laboratory Group (Thailand) strongly recommends that this report is not reproduced except in full.

Approved by

Sararat Mongkonjirawut  
Scientist (4)

ADDRESS 104 Phatthanakan 40, Phatthanakan Rd., Khwaeng Phatthanakan, Khet Suan Luang, Bangkok 10250 Thailand | PHONE +66 0 2760 3000 | FAX +66 0 2760 3197  
ALS LABORATORY GROUP (THAILAND) CO., LTD. An ALS Limited Company

Life Sciences

www.alsglobal.com

RIGHT SOLUTIONS RIGHT PARTNER

6403-32/ EMAIL

S:\Reports\Air SOxNOx.rpt ( 3:51PM)



## Analysis / Test Report



TESTING  
No.0042

**Lot ID: 2212627**

Date Received : Apr 05, 2022

Date Reported : Apr 11, 2022

Report Number: 2216910-1

**Client :** Global Power Synergy Public Company Limited

92/9, Rayong Highway Road 3191, Map Ta Phut, Mueang, Rayong Thailand 21150

**P/O :**

**Project Name :** Monitoring

**Project Location :** CUP 1

Page 1 of 1

**Sample Description** Air Quality  
**Location** วัดหนองแฟบ (GPS 47P 0729819, 1403259)  
**Date Analysis Commenced** Apr 06, 2022  
**Condition of Sample** Drawn into one glass filter paper (8x10 inch) placed in plastic bag

Sample Number	Sampled Date	Total Suspended Particulate (mg/m3)	Barometric Pressure (mm Hg)	Atmospheric Temperature (°C)
2212627-1	Mar 28 - Mar 29, 2022	0.066	758	32
2212627-2	Mar 29 - Mar 30, 2022	0.072	758	32
2212627-3	Mar 30 - Mar 31, 2022	0.063	758	32
2212627-4	Mar 31 - Apr 01, 2022	0.080	758	33
2212627-5	Apr 01 - Apr 02, 2022	0.055	758	33
2212627-6	Apr 02 - Apr 03, 2022	0.021	758	32
2212627-7	Apr 03 - Apr 04, 2022	0.038	758	32
<b>Guideline</b>		0.33	-	-

### Reference Method

Total Suspended Particulate : US EPA 40 CFR Part 50 Appendix B

**Guideline :** Notification of the National Environmental Board. No.24, 2004 (B.E.2547) dated September 22, 2004

**Sampled By :** Satcha Phetsawaeng

Approved by

*Thanita K.*

Thanita Kulsuriwong  
Scientist (4)

The above results are valid only for the analyzed/tested sample(s) as indicated in this report. No part of this report or certificate may be reproduced in any form without written consent from the Laboratory. ALS Laboratory Group (Thailand) strongly recommends that this report is not reproduced except in full.

ADDRESS 616/10 Moo 5 T. Maenam Khu A. Pluakdaeng Rayong 21140 Thailand | PHONE +66 0 3304 8555 | FAX +66 0 3304 8556  
ALS LABORATORY GROUP (THAILAND) CO., LTD. An ALS Limited Company

Life Sciences

[www.alsglobal.com](http://www.alsglobal.com)

RIGHT SOLUTIONS RIGHT PARTNER



## Analysis / Test Report



TESTING  
No.0042

**Lot ID: 2212627**

Date Received : Apr 05, 2022

Date Reported : Apr 11, 2022

Report Number: 2216910-2

**Client :** Global Power Synergy Public Company Limited

92/9, Rayong Highway Road 3191, Map Ta Phut, Mueang, Rayong Thailand 21150

**P/O :**

**Project Name :** Monitoring

**Project Location :** CUP 1

Page 1 of 1

**Sample Description** Air Quality  
**Location** วัดนาบขลุ่ย (GPS 47P 0730826, 1407301)  
**Date Analysis Commenced** Apr 06, 2022  
**Condition of Sample** Drawn into one glass filter paper (8x10 inch) placed in plastic bag

Sample Number	Sampled Date	Total Suspended Particulate (mg/m3)	Barometric Pressure (mm Hg)	Atmospheric Temperature (°C)
2212627-8	Mar 28 - Mar 29, 2022	0.031	758	32
2212627-9	Mar 29 - Mar 30, 2022	0.042	758	32
2212627-10	Mar 30 - Mar 31, 2022	0.044	758	32
2212627-11	Mar 31 - Apr 01, 2022	0.055	758	33
2212627-12	Apr 01 - Apr 02, 2022	0.031	758	33
2212627-13	Apr 02 - Apr 03, 2022	0.020	758	32
2212627-14	Apr 03 - Apr 04, 2022	0.028	758	32
<b>Guideline</b>		0.33	-	-

### Reference Method

Total Suspended Particulate : US EPA 40 CFR Part 50 Appendix B

**Guideline :** Notification of the National Environmental Board. No.24, 2004 (B.E.2547) dated September 22, 2004

**Sampled By :** Satcha Phetsawaeng

Approved by

*Thanita K.*

Thanita Kulsuriwong  
Scientist (4)

The above results are valid only for the analyzed/tested sample(s) as indicated in this report. No part of this report or certificate may be reproduced in any form without written consent from the Laboratory. ALS Laboratory Group (Thailand) strongly recommends that this report is not reproduced except in full.

ADDRESS 616/10 Moo 5 T. Maenam Khu A. Pluakdaeng Rayong 21140 Thailand | PHONE +66 0 3304 8555 | FAX +66 0 3304 8556  
ALS LABORATORY GROUP (THAILAND) CO., LTD. An ALS Limited Company

Life Sciences

[www.alsglobal.com](http://www.alsglobal.com)

RIGHT SOLUTIONS RIGHT PARTNER





## Analysis / Test Report

**Client** : Global Power Synergy Public Company Limited  
92/9, Rayong Highway Road 3191, Map Ta Phut, Mueang, Rayong Thailand 21150  
**P/O** :  
**Project Name** : Monitoring  
**Project Location** : CUP 1

**Lot ID** : 2212626  
Date Received : Apr 05, 2022  
Date Reported : Apr 07, 2022  
Report Number : 2216908-1

Page 1 of 2

**Sample Number** : 2212626-1 to 7  
**Parameter** : Wind Speed / Wind Direction  
**Location** : รัศมีแสงเพน\* (GFS 47P 0729819, 1403299)  
**Sampling Date** : Mar 28 - Apr 04, 2022  
**Sampling by** : Satcha Phetsawaeng

Time	Mar 28 - Mar 29, 2022		Mar 29 - Mar 30, 2022		Mar 30 - Mar 31, 2022		Mar 31 - Apr 01, 2022		Apr 01 - Apr 02, 2022		Apr 02 - Apr 03, 2022		Apr 03 - Apr 04, 2022	
	WS (m/s)	WD (deg)	WS (m/s)	WD (deg)	WS (m/s)	WD (deg)	WS (m/s)	WD (deg)	WS (m/s)	WD (deg)	WS (m/s)	WD (deg)	WS (m/s)	WD (deg)
09:00 AM - 10:00 AM	1.5	227.0	SW	1.2	109.0	ESE	1.3	287.0	WNW	0.3	316.0	NW	0.3	50.0
10:00 AM - 11:00 AM	1.0	144.0	SE	1.1	245.0	WSW	1.0	228.0	SW	0.9	243.0	WSW	0.3	75.0
11:00 AM - 12:00 PM	0.7	199.0	SSW	1.4	217.0	SW	1.6	4.0	N	2.5	316.0	NW	0.2	-
12:00 PM - 01:00 PM	0.6	241.0	WSW	1.5	228.0	SW	0.2	-	-	0.1	-	-	0.5	260.0
01:00 PM - 02:00 PM	1.6	246.0	WSW	0.6	85.0	E	0.5	227.0	SW	0.6	351.0	N	1.6	87.0
02:00 PM - 03:00 PM	2.4	266.0	W	1.4	93.0	E	0.4	267.0	W	1.2	140.0	SE	0.7	225.0
03:00 PM - 04:00 PM	0.3	260.0	W	1.4	173.0	S	0.8	320.0	NW	0.3	37.0	NE	1.0	133.0
04:00 PM - 05:00 PM	1.2	295.0	WNW	1.6	211.0	SSW	0.5	313.0	NW	0.4	356.0	N	1.2	96.0
05:00 PM - 06:00 PM	1.3	225.0	SW	0.8	261.0	W	1.4	312.0	NW	1.3	195.0	SSW	1.2	111.0
06:00 PM - 07:00 PM	0.2	-	-	1.5	206.0	SSW	1.5	238.0	WSW	1.4	164.0	SSE	1.4	37.0
07:00 PM - 08:00 PM	0.6	165.0	SSE	0.4	279.0	W	1.4	239.0	WSW	1.5	312.0	NW	2.7	121.0
08:00 PM - 09:00 PM	2.7	149.0	SSE	1.4	241.0	WSW	1.2	240.0	WSW	1.6	47.0	NE	0.9	53.0
09:00 PM - 10:00 PM	0.5	148.0	SSE	0.7	196.0	SSW	0.5	289.0	WNW	1.4	34.0	NE	0.5	76.0
10:00 PM - 11:00 PM	0.6	265.0	W	0.8	181.0	S	1.5	289.0	WNW	0.5	33.0	NNE	1.6	13.0
11:00 PM - 12:00 AM	1.0	281.0	W	1.1	259.0	W	1.6	288.0	WNW	1.6	32.0	NNE	0.2	-
12:00 AM - 01:00 AM	1.6	246.0	WSW	1.4	281.0	W	1.4	288.0	WNW	2.1	33.0	NNE	1.3	187.0
01:00 AM - 02:00 AM	0.8	171.0	S	1.5	209.0	SSW	1.3	288.0	WNW	1.5	34.0	NE	0.5	46.0
02:00 AM - 03:00 AM	1.4	90.0	E	1.4	116.0	ESE	1.4	288.0	WNW	1.6	34.0	NE	0.3	341.0
03:00 AM - 04:00 AM	1.5	89.0	E	1.6	211.0	SSW	1.2	289.0	WNW	1.4	51.0	NE	1.6	93.0
04:00 AM - 05:00 AM	0.8	243.0	WSW	1.5	329.0	NNW	1.6	287.0	WNW	1.5	54.0	NE	0.6	35.0
05:00 AM - 06:00 AM	1.6	196.0	SSW	1.4	305.0	NW	0.5	288.0	WNW	0.6	53.0	NE	1.9	136.0
06:00 AM - 07:00 AM	1.4	183.0	S	1.5	352.0	N	0.4	323.0	NW	0.4	300.0	WNW	1.0	323.0
07:00 AM - 08:00 AM	2.7	243.0	WSW	0.4	276.0	W	0.7	207.0	SSW	1.3	300.0	WNW	2.8	62.0
08:00 AM - 09:00 AM	0.9	181.0	S	0.4	231.0	SW	0.3	177.0	S	0.5	122.0	ESE	2.3	86.0

Reference Method : Cup Anemometer & Anodized Aluminium Vane Method

The above results are valid only for the analyzed/tested sample(s) as indicated in this report. No part of this report or certificate may be reproduced in any form without written consent from the Laboratory. ALS Laboratory Group (Thailand) strongly recommends that this report is not reproduced except in full.

Approved by

Sarayuth Jitranont  
Assistant General Manager

ADDRESS 104 Phatthanakan 40, Phatthanakan Rd., Khwaeng Phatthanakan, Khet Suan Luang, Bangkok 10250 Thailand | PHONE +66 0 2760 3000 | FAX +66 0 2760 3197  
ALS LABORATORY GROUP (THAILAND) CO., LTD. An ALS Limited Company

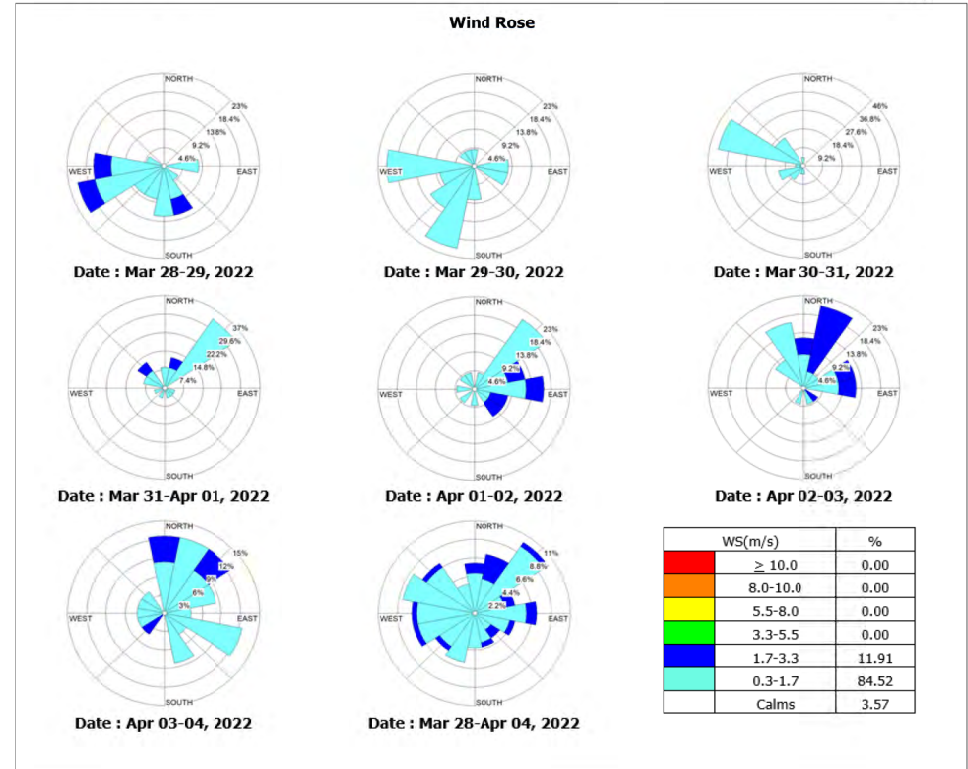


## Analysis / Test Report

**Client** : Global Power Synergy Public Company Limited  
92/9, Rayong Highway Road 3191, Map Ta Phut, Mueang, Rayong Thailand 21150  
**P/O** :  
**Project Name** : Monitoring  
**Project Location** : CUP 1

**Lot ID** : 2212626  
Date Received : Apr 05, 2022  
Date Reported : Apr 07, 2022  
Report Number : 2216908-1

Page 2 of 2



The above results are valid only for the analyzed/tested sample(s) as indicated in this report. No part of this report or certificate may be reproduced in any form without written consent from the Laboratory. ALS Laboratory Group (Thailand) strongly recommends that this report is not reproduced except in full.

Approved by

Sarayuth Jitranont  
Assistant General Manager

ADDRESS 104 Phatthanakan 40, Phatthanakan Rd., Khwaeng Phatthanakan, Khet Suan Luang, Bangkok 10250 Thailand | PHONE +66 0 2760 3000 | FAX +66 0 2760 3197  
ALS LABORATORY GROUP (THAILAND) CO., LTD. An ALS Limited Company





## Analysis / Test Report

**Client :** Global Power Synergy Public Company Limited  
92/9, Rayong Highway Road 3191, Map Ta Phut, Mueang, Rayong Thailand 21150

**P/O :**  
**Project Name :** Monitoring  
**Project Location :** CUP 1

**Lot ID: 2212162**  
**Date Received :** Mar 29, 2022  
**Date Reported :** Apr 05, 2022  
**Report Number :** 2215815-1

Page 1 of 1

<b>Sample Number</b>	2212162-1
<b>Sample Description</b>	Emission from Stationary Source
<b>Location</b>	HRS #1
<b>Measurement Date</b>	Mar 29, 2022

		<b>Stack Description</b>			
Ambient Temperature	31 °C	Diameter	3.30 m	Oxygen	14.78 %
Ambient Pressure	757 mmHg	Shape	Circle	Carbon dioxide	3.42 %
Type of Process	Combustion	Stack Temperature	152 °C	Gas Velocity	20.19 m/s
Type of Fuel	Natural Gas	Moisture	8.14 %	Flow Rate	398241 Nm3/hr

Run No.	Sampling Time	Oxygen (%)	Carbon Dioxide (%)	Oxides of Nitrogen (ppm)	
				at Actual O <sub>2</sub>	at 7% O <sub>2</sub>
1	10:10 AM - 10:30 AM	14.77	3.42	8.33	18.89
2	10:31 AM - 10:51 AM	14.77	3.43	8.16	18.50
3	10:52 AM - 11:12 AM	14.80	3.42	8.30	18.91
Average (ppm)		14.78	3.42	8.26	18.77
Guideline <sup>(1)</sup> (ppm)				-	35
Guideline <sup>(2)</sup> (ppm)				-	120
Guideline <sup>(3)</sup> (ppm)				-	120
Result (mg/m <sup>3</sup> )				15.55	35.31
Emission Rate at Actual O <sub>2</sub> (g/s)				1.7199	
Guideline <sup>(1)</sup> (g/s)				3.55	
Method				US EPA Method 7E	

**Sampled By :** Sathaporn Thakarn  
**Guideline :**  
<sup>(1)</sup> Environmental Impact Assessment Report of Global Power Synergy Public Company Limited (CUP 1)  
<sup>(2)</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>(3)</sup> Notification of the Ministry of Natural Resources and Environment, 2010 (B.E. 2553) on Emission Standard from New Power Plants.

**Technical Management**

*Wichan Choonharat*

Wichan Choonharat  
Manager  
หมายเลขที่ 2-204-6113

**Approved by**

*Sarayuth Jitranont*

Sarayuth Jitranont  
Assistant General Manager  
หมายเลขที่ 2-204-4702

The above results are valid only for the analyzed/tested sample(s) as indicated in this report. No part of this report or certificate may be reproduced in any form without written consent from the Laboratory. ALS Laboratory Group (Thailand) strongly recommends that this report is not reproduced except in full.

ADDRESS 104 Phatthanakan Rd., Phatthanakan Rd., Khwaeng Phatthanakan, Khet Suan Luang, Bangkok 10256, THAILAND | PHONE +66 0 2760 3080 | FAX +66 0 2760 3197  
ALS LABORATORY GROUP (THAILAND) CO., LTD. An ALS Limited Company



## Analysis / Test Report

**Client :** Global Power Synergy Public Company Limited  
92/9, Rayong Highway Road 3191, Map Ta Phut, Mueang, Rayong Thailand 21150

**P/O :**  
**Project Name :** Monitoring  
**Project Location :** CUP 1

**Lot ID: 2212166**  
**Date Received :** Mar 29, 2022  
**Date Reported :** Apr 05, 2022  
**Report Number :** 2215832-1

Page 1 of 2

<b>Sample Number</b>	2212166-1
<b>Sampled Date</b>	Mar 29, 2022
<b>Sample Description</b>	Emission from Stationary Source
<b>Location</b>	HRS #1 (GPS 47P 0730860, 1405083)
<b>Date Analysis Commenced</b>	Mar 30, 2022
<b>Condition of Sample</b>	Extracted into one filter paper placed in plastic petri dish and one plastic bottle

		<b>Stack Description</b>			
Ambient Pressure	757 mmHg	Diameter	3.30 m	Oxygen	14.8 %
Ambient Temperature	31.0 °C	Shape	Circle	Carbon Dioxide	3.4 %
Type of Process	Combustion	Stack Temperature	152 °C	Gas Velocity	20.2 m/s
Type of Fuel	Natural Gas	Moisture	8.07 %	Flow Rate (Actual O <sub>2</sub> )	398003 Nm3/hr

Analyte	Sampled Time	Unit	LOD	LOQ (LOR)	Result at 7 % O <sub>2</sub>	Result at 14.8 % O <sub>2</sub>	Guideline (1)	Guideline (2)	Method	Testing Location
<b>Air Testing</b>										
Total Suspended Particulate	10:10 AM - 10:58 AM	mg/m <sup>3</sup>	-	0.5	<0.5	<0.5	60	3.20	US EPA, Method 5	Rayong

### 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).  
: Notification of the Ministry of Natural Resources and Environment, 2010 (B.E. 2553) on Emission Standard from New Power Plants.

Guideline (2) : Environmental Impact Assessment Report of Global Power Synergy Public Company Limited. (CUP 1)

**Technical Management**

*Thanita K.*

Thanita Kulsriwong  
Scientist (4)  
หมายเลขที่ 2-323-9447

**Approved by**

*Dej Changchon*

Dej Changchon  
Senior Manager  
หมายเลขที่ 2-323-9442

The above results are valid only for the analyzed/tested sample(s) as indicated in this report. No part of this report or certificate may be reproduced in any form without written consent from the Laboratory. ALS Laboratory Group (Thailand) strongly recommends that this report is not reproduced except in full.

ADDRESS 616/10 Moo 5 T. Maenam Khu A. Phrakdaeng Rayong 21140 Thailand | PHONE +66 0 3304 8555 | FAX +66 0 3304 8556  
ALS LABORATORY GROUP (THAILAND) CO., LTD. An ALS Limited Company



## Analysis / Test Report

**Client :** Global Power Synergy Public Company Limited  
92/9, Rayong Highway Road 3191, Map Ta Phut, Mueang, Rayong Thailand 21150  
**P/O :**  
**Project Name :** Monitoring  
**Project Location :** CUP 1



**TESTING**  
No.0042

**Lot ID: 2212166**  
Date Received : Mar 29, 2022  
Date Reported : Apr 05, 2022  
Report Number: 2215832-1

Page 2 of 2

**Sample Number** : 2212166-1  
**Sampled Date** : Mar 29, 2022  
**Sample Description** : Emission from Stationary Source  
**Location** : HRSG #1 (GPS 47P 0730860, 1405083)  
**Date Analysis Commenced** : Mar 30, 2022  
**Condition of Sample** : Extracted into one filter paper placed in plastic petri dish and one plastic bottle.

### Stack Description

Ambient Pressure	757	mmHg	Diameter	3.30	m	Oxygen	14.8	%
Ambient Temperature	31.0	°C	Shape	Circle		Carbon Dioxide	3.4	%
Type of Process	Combustion		Stack Temperature	152	°C	Gas Velocity	20.2	m/s
Type of Fuel	Natural Gas		Moisture	8.07	%	Flow Rate (Actual O2)	398003	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 - 10:58 AM	g/s	-	-	<0.055	-	0.40	Calculated	Rayong

### 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).  
: Notification of the Ministry of Natural Resources and Environment, 2010 (B.E. 2553) on Emission Standard from New Power Plants.

Guideline (2) : Environmental Impact Assessment Report of Global Power Synergy Public Company Limited. (CUP 1)

**Sampled By :** Tinnakorn Kulchart

### Remark :

- LOD : Limit of Detection
- "c" : Lower than LOQ (Limit of Quantitation) / LOR (Limit of Reporting)
- Analyte(s) marked \* is/are not included in scope of Accreditation ISO/IEC 17025.

**Technical Management**

*Tharitak.*

Thanita Kulsurivong  
Scientist (4)  
โทรศัพท์ 0-323-9-9447

**Approved by**

*Dej*

Dej Changchon  
Senior Manager  
โทรศัพท์ 0-323-9-9442

The above results are valid only for the analyzed/tested sample(s) as indicated in this report. No part of this report or certificate may be reproduced in any form without written consent from the Laboratory. ALS Laboratory Group (Thailand) strongly recommends that this report is not reproduced except in full.

ADDRESS 616/10 Moo 5 T. Maenam Khu A. Phrakdaeng Rayong 21140 Thailand | PHONE +66 0 3304 8555 | FAX +66 0 3304 8556  
ALS LABORATORY GROUP (THAILAND) CO., LTD. An ALS Limited Company

LIFE SCIENCES

www.alsglobal.com

RIGHT SOLUTIONS RIGHT PARTNER

6403-32/ EMAIL

S:\Reports\_Air Stack\_O2\_2GL.rpt ( 2:56PM)



## Analysis / Test Report

**Client :** Global Power Synergy Public Company Limited  
92/9, Rayong Highway Road 3191, Map Ta Phut, Mueang, Rayong Thailand 21150  
**P/O :**  
**Project Name :** Monitoring  
**Project Location :** CUP 1

**Lot ID: 2212163**  
Date Received : Mar 31, 2022  
Date Reported : Apr 05, 2022  
Report Number : 2215819-1

Page 1 of 1

**Sample Number** : 2212163-1  
**Sample Description** : Emission from Stationary Source  
**Location** : HRSG #2  
**Measurement Date** : Mar 30, 2022

### Stack Description

Ambient Temperature	31	°C	Diameter	3.30	m	Oxygen	14.12	%
Ambient Pressure	757	mmHg	Shape	Circle		Carbon dioxide	3.84	%
Type of Process	Combustion		Stack Temperature	151	°C	Gas Velocity	19.72	m/s
Type of Fuel	Natural Gas		Moisture	7.27	%	Flow Rate	393474	Nm3/hr

Run No.	Sampling Time	Oxygen (%)	Carbon Dioxide (%)	Oxides of Nitrogen (ppm)	
				at Actual O <sub>2</sub>	At 7% O <sub>2</sub>
1	10:00 AM - 10:20 AM	14.24	3.78	10.96	22.89
2	10:21 AM - 10:41 AM	14.04	3.88	11.25	22.78
3	10:42 AM - 11:02 AM	14.09	3.85	11.27	23.00
Average (ppm)		14.12	3.84	11.16	22.89
Guideline <sup>1/</sup> (ppm)				-	35
Guideline <sup>2/</sup> (ppm)				-	120
Guideline <sup>3/</sup> (ppm)				-	120
Result (mg/m <sup>3</sup> )				21.00	43.07
Emission Rate at Actual O <sub>2</sub> (g/s)				2.2952	
Guideline <sup>1/</sup> (g/s)				3.55	
Method				US EPA Method 7E	

**Sampled By :** Sathaporn Thakarn

**Guideline :** <sup>1/</sup> Environmental Impact Assessment Report of Global Power Synergy Public Company Limited (CUP 1)

<sup>2/</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>3/</sup> Notification of the Ministry of Natural Resources and Environment, 2010 (B.E. 2553) on Emission Standard from New Power Plants.

**Technical Management**

*Wichan Choorharat*

Wichan Choorharat  
Manager  
โทรศัพท์ 0-204-6-6113

**Approved by**

*Sarayuth Jitranont*

Sarayuth Jitranont  
Assistant General Manager  
โทรศัพท์ 0-204-6-4702

The above results are valid only for the analyzed/tested sample(s) as indicated in this report. No part of this report or certificate may be reproduced in any form without written consent from the Laboratory. ALS Laboratory Group (Thailand) strongly recommends that this report is not reproduced except in full.

ADDRESS 104 Phatthanakan 40, Phatthanakan Rd., Khwaeng Phatthanakan, Khet Suan Luang, Bangkok 10250, THAILAND | PHONE +66 0 2760 3000 | FAX +66 0 2760 3197  
ALS LABORATORY GROUP (THAILAND) CO., LTD. An ALS Limited Company

LIFE SCIENCES

www.alsglobal.com

RIGHT SOLUTIONS RIGHT PARTNER





## Analysis / Test Report



TESTING  
No.0042

Client : Global Power Synergy Public Company Limited  
92/9, Rayong Highway Road 3191, Map Ta Phut, Mueang, Rayong Thailand 21150

P/O :

Project Name : Monitoring

Project Location : CUP 1

Lot ID: 2212169

Date Received : Mar 31, 2022

Date Reported : Apr 05, 2022

Report Number: 2215836-1

Page 1 of 2

Sample Number : 2212169-1  
Sampled Date : Mar 30, 2022  
Sample Description : Emission from Stationary Source  
Location : HRSG #2  
Date Analysis Commenced : Apr 04, 2022  
Condition of Sample : Extracted into one filter paper placed in plastic petri dish and one plastic bottle.

### Stack Description

Ambient Pressure	757	mmHg	Diameter	3.30	m	Oxygen	14.1	%
Ambient Temperature	31.0	°C	Shape	Circle		Carbon Dioxide	3.8	%
Type of Process	Combustion		Stack Temperature	151	°C	Gas Velocity	19.7	m/s
Type of Fuel	Natural Gas		Moisture	7.33	%	Flow Rate (Actual O2)	392265	Nm3/hr

Analyte	Sampled Time	Unit	LOD	LOQ (LOR)	Result at 7 %O <sub>2</sub>	Result at 14.1 %O <sub>2</sub>	Guideline (1)	Guideline (2)	Method	Testing Location
<b>Air Testing</b>										
Total Suspended Particulate	10:00 AM - 10:48 AM	mg/m3	-	0.5	<0.5	<0.5	60	3.20	US EPA, Method 5	Rayong

### 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).  
: Notification of the Ministry of Natural Resources and Environment, 2010 (B.E. 2553) on Emission Standard from New Power Plants.

Guideline (2) : Environmental Impact Assessment Report of Global Power Synergy Public Company Limited. (CUP 1)

Technical Management

*Thanita K.*

Thanita Kulsuriwong  
Scientist (4)  
ทะเบียนเลขที่ 2-323-2-9447

Approved by

*D. Chongchon*

Dej Changchon  
Senior Manager  
ทะเบียนเลขที่ 2-323-2-9442

The above results are valid only for the analyzed/tested sample(s) as indicated in this report. No part of this report or certificate may be reproduced in any form without written consent from the Laboratory. ALS Laboratory Group (Thailand) strongly recommends that this report is not reproduced except in full.

ADDRESS 616/10 Moo 5 T. Maenam Khu A. Phrakdaeng Rayong 21140 Thailand | PHONE +66 0 3304 8555 | FAX +66 0 3304 8556  
ALS LABORATORY GROUP (THAILAND) CO., LTD. An ALS Limited Company

LIFE Sciences

www.alsglobal.com

RIGHT SOLUTIONS RIGHT PARTNER

6403-32/ EMAIL

S:\Reports\_Air Stack\_O2\_2GL.rpt ( 3:09PM)



## Analysis / Test Report



TESTING  
No.0042

Client : Global Power Synergy Public Company Limited  
92/9, Rayong Highway Road 3191, Map Ta Phut, Mueang, Rayong Thailand 21150

P/O :

Project Name : Monitoring

Project Location : CUP 1

Lot ID: 2212169

Date Received : Mar 31, 2022

Date Reported : Apr 05, 2022

Report Number: 2215836-1

Page 2 of 2

Sample Number : 2212169-1  
Sampled Date : Mar 30, 2022  
Sample Description : Emission from Stationary Source  
Location : HRSG #2  
Date Analysis Commenced : Apr 04, 2022  
Condition of Sample : Extracted into one filter paper placed in plastic petri dish and one plastic bottle.

### Stack Description

Ambient Pressure	757	mmHg	Diameter	3.30	m	Oxygen	14.1	%
Ambient Temperature	31.0	°C	Shape	Circle		Carbon Dioxide	3.8	%
Type of Process	Combustion		Stack Temperature	151	°C	Gas Velocity	19.7	m/s
Type of Fuel	Natural Gas		Moisture	7.33	%	Flow Rate (Actual O2)	392265	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 - 10:48 AM	g/s	-	-	<0.054	-	0.40	Calculated	Rayong

### 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).  
: Notification of the Ministry of Natural Resources and Environment, 2010 (B.E. 2553) on Emission Standard from New Power Plants.

Guideline (2) : Environmental Impact Assessment Report of Global Power Synergy Public Company Limited. (CUP 1)

Sampled By : Sathaporn Thakaw

Remark :

- LOD : Limit of Detection
- "<" : Lower than LOQ (Limit of Quantitation) / LOR (Limit of Reporting)
- Analyte(s) marked \* is/are not included in scope of Accreditation ISO/IEC 17025.

Technical Management

*Thanita K.*

Thanita Kulsuriwong  
Scientist (4)  
ทะเบียนเลขที่ 2-323-2-9447

Approved by

*D. Chongchon*

Dej Changchon  
Senior Manager  
ทะเบียนเลขที่ 2-323-2-9442

The above results are valid only for the analyzed/tested sample(s) as indicated in this report. No part of this report or certificate may be reproduced in any form without written consent from the Laboratory. ALS Laboratory Group (Thailand) strongly recommends that this report is not reproduced except in full.

ADDRESS 616/10 Moo 5 T. Maenam Khu A. Phrakdaeng Rayong 21140 Thailand | PHONE +66 0 3304 8555 | FAX +66 0 3304 8556  
ALS LABORATORY GROUP (THAILAND) CO., LTD. An ALS Limited Company

LIFE Sciences

www.alsglobal.com

RIGHT SOLUTIONS RIGHT PARTNER

6403-32/ EMAIL

S:\Reports\_Air Stack\_O2\_2GL.rpt ( 3:09PM)





## Analysis / Test Report

**Client :** Global Power Synergy Public Company Limited  
92/9, Rayong Highway Road 3191, Map Ta Phut, Mueang, Rayong Thailand 21150

**P/O :**  
**Project Name :** Monitoring  
**Project Location :** CUP 1

**Lot ID: 2212186**  
**Date Received :** Mar 31, 2022  
**Date Reported :** Apr 05, 2022  
**Report Number :** 2215872-1

Page 1 of 1

<b>Sample Number</b>	2212186-1
<b>Sample Description</b>	Emission from Stationary Source
<b>Location</b>	HRS #3
<b>Measurement Date</b>	Mar 30, 2022

		Stack Description			
Ambient Temperature	31 °C	Diameter	3.30 m	Oxygen	14.24 %
Ambient Pressure	757 mmHg	Shape	Circle	Carbon dioxide	3.69 %
Type of Process	Combustion	Stack Temperature	116 °C	Gas Velocity	18.17 m/s
Type of Fuel	Natural Gas	Moisture	7.34 %	Flow Rate	395771 Nm3/hr

Run No.	Sampling Time	Oxygen (%)	Carbon Dioxide (%)	Oxides of Nitrogen (ppm)	
				at Actual O <sub>2</sub>	At 7% O <sub>2</sub>
1	01:20 PM - 01:40 PM	14.25	3.67	14.98	31.30
2	01:41 PM - 02:01 PM	14.23	3.69	15.52	34.45
3	02:02 PM - 02:22 PM	14.23	3.71	15.63	32.55
Average (ppm)		14.24	3.69	15.71	32.76
Guideline <sup>(1)</sup> (ppm)				-	48
Guideline <sup>(2)</sup> (ppm)				-	120
Guideline <sup>(3)</sup> (ppm)				-	120
Result (mg/m <sup>3</sup> )				29.56	61.64
Emission Rate at Actual O <sub>2</sub> (g/s)				3.2495	
Guideline <sup>(1)</sup> (g/s)				5.07	
Method				US EPA Method 7E	

**Sampled By :** Sathaporn Thakarn  
**Guideline :**  
<sup>(1)</sup> Environmental Impact Assessment Report of Global Power Synergy Public Company Limited (CUP 1)  
<sup>(2)</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>(3)</sup> Notification of the Ministry of Natural Resources and Environment, 2010 (B.E. 2553) on Emission Standard from New Power Plants.

**Technical Management**

*Wichan Choonharat*

Wichan Choonharat  
Manager  
หมายเลข 2-204-6113

**Approved by**

*Sarayuth Jitranont*

Sarayuth Jitranont  
Assistant General Manager  
หมายเลข 2-204-4702

The above results are valid only for the analyzed/tested sample(s) as indicated in this report. No part of this report or certificate may be reproduced in any form without written consent from the Laboratory. ALS Laboratory Group (Thailand) strongly recommends that this report is not reproduced except in full.

ADDRESS 104 Phatthanakan Rd., Phatthanakan Rd., Khwaeng Phatthanakan, Khet Suan Luang, Bangkok 10256, THAILAND | PHONE +66 0 2760 3080 | FAX +66 0 2760 3197  
ALS LABORATORY GROUP (THAILAND) CO., LTD. An ALS Limited Company

Life Sciences

www.alsglobal.com

RIGHT SOLUTIONS RIGHT PARTNER



## Analysis / Test Report

**Client :** Global Power Synergy Public Company Limited  
92/9, Rayong Highway Road 3191, Map Ta Phut, Mueang, Rayong Thailand 21150

**P/O :**  
**Project Name :** Monitoring  
**Project Location :** CUP 1

**Lot ID: 2212197**  
**Date Received :** Mar 31, 2022  
**Date Reported :** Apr 08, 2022  
**Report Number :** 2215888-1

Page 1 of 2

<b>Sample Number</b>	2212197-1
<b>Sampled Date</b>	Mar 30, 2022
<b>Sample Description</b>	Emission from Stationary Source
<b>Location</b>	HRS #3
<b>Date Analysis Commenced</b>	Apr 04, 2022
<b>Condition of Sample</b>	Extracted into one filter paper placed in plastic petri dish, one plastic bottle and one amber plastic bottle, refrigerated

		Stack Description			
Ambient Pressure	757 mmHg	Diameter	3.30 m	Oxygen	14.2 %
Ambient Temperature	31.0 °C	Shape	Circle	Carbon Dioxide	3.7 %
Type of Process	Combustion	Stack Temperature	116 °C	Gas Velocity	18.1 m/s
Type of Fuel	Natural Gas	Moisture	7.25 %	Flow Rate (Actual O <sub>2</sub> )	395617 Nm3/hr

Analyte	Sampled Time	Unit	LOD	LOQ (LOR)	Result at 7 % O <sub>2</sub>	Result at 14.2 % O <sub>2</sub>	Guideline (1)	Guideline (2)	Method	Testing Location
<b>Air Testing</b>										
Total Suspended Particulate	01:20 PM - 02:08 PM	mg/m <sup>3</sup>	-	0.5	<0.5	<0.5	60	3.00	US EPA, Method 5	Rayong

### 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).  
: Notification of the Ministry of Natural Resources and Environment, 2010 (B.E. 2553) on Emission Standard from New Power Plants.

Guideline (2) : Environmental Impact Assessment Report of Global Power Synergy Public Company Limited. (CUP 1)

**Technical Management**

*Thanita K.*

Thanita Kulsuriwong  
Scientist (4)  
หมายเลข 2-323-9447

**Approved by**

*Dej Changchon*

Dej Changchon  
Senior Manager  
หมายเลข 2-323-9442

The above results are valid only for the analyzed/tested sample(s) as indicated in this report. No part of this report or certificate may be reproduced in any form without written consent from the Laboratory. ALS Laboratory Group (Thailand) strongly recommends that this report is not reproduced except in full.

ADDRESS 616/10 Moo 5 T. Maenam Khu A. Phrakdaeng Rayong 21140 Thailand | PHONE +66 0 3304 8555 | FAX +66 0 3304 8556  
ALS LABORATORY GROUP (THAILAND) CO., LTD. An ALS Limited Company

Life Sciences

www.alsglobal.com

RIGHT SOLUTIONS RIGHT PARTNER

6403-32/ EMAIL

S:\Reports\Air Stack\_O2\_2GL.rpt (12:55PM)



## Analysis / Test Report

**Client :** Global Power Synergy Public Company Limited  
92/9, Rayong Highway Road 3191, Map Ta Phut, Mueang, Rayong Thailand 21150  
**P/O :**  
**Project Name :** Monitoring  
**Project Location :** CUP 1



**TESTING**  
**No.0042**

**Lot ID: 2212197**  
Date Received : Mar 31, 2022  
Date Reported : Apr 08, 2022  
Report Number: 2215888-1

Page 2 of 2

**Sample Number** : 2212197-1  
**Sampled Date** : Mar 30, 2022  
**Sample Description** : Emission from Stationary Source  
**Location** : HRSG #3  
**Date Analysis Commenced** : Apr 04, 2022  
**Condition of Sample** : Extracted into one filter paper placed in plastic petri dish, one plastic bottle and one amber plastic bottle, refrigerated

### Stack Description

Ambient Pressure	757	mmHg	Diameter	3.30	m	Oxygen	14.2	%
Ambient Temperature	31.0	°C	Shape	Circle		Carbon Dioxide	3.7	%
Type of Process	Combustion		Stack Temperature	116	°C	Gas Velocity	18.1	m/s
Type of Fuel	Natural Gas		Moisture	7.25	%	Flow Rate (Actual O2)	395617	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 *	01:20 PM - 02:08 PM	g/s	-	-	<0.055	-	0.40	Calculated	Rayong

### 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).  
: Notification of the Ministry of Natural Resources and Environment, 2010 (B.E. 2553) on Emission Standard from New Power Plants.

Guideline (2) : Environmental Impact Assessment Report of Global Power Synergy Public Company Limited. (CUP 1)

**Sampled By :** Sathaporn Thakarn, Navaphut Sriviriya

### Remark :

- LOD : Limit of Detection
- "c" : Lower than LOQ (Limit of Quantitation) / LOR (Limit of Reporting)
- Analyte(s) marked \* is/are not included in scope of Accreditation ISO/IEC 17025.

**Technical Management**

*Tharitak.*

Tharita Kulsurivong  
Scientist (4)  
เบอร์โทรศัพท์ ๖-323-๖-9447

**Approved by**

*Dej*

Dej Changchon  
Senior Manager  
เบอร์โทรศัพท์ ๖-323-๖-9442

The above results are valid only for the analyzed/tested sample(s) as indicated in this report. No part of this report or certificate may be reproduced in any form without written consent from the Laboratory. ALS Laboratory Group (Thailand) strongly recommends that this report is not reproduced except in full.

ADDRESS 616/10 Moo 5 T. Maenam Khu A. Phrakdaeng Rayong 21140 Thailand | PHONE +66 0 3304 8555 | FAX +66 0 3304 8555  
ALS LABORATORY GROUP (THAILAND) CO., LTD. An ALS Limited Company

LIFE SCIENCES

www.alsglobal.com

RIGHT SOLUTIONS RIGHT PARTNER

6403-32/ EMAIL

S:\Reports\Ar Stack\_Q2\_2GL.rpt (12:59PM)



## Analysis / Test Report

**Client :** Global Power Synergy Public Company Limited  
92/9, Rayong Highway Road 3191, Map Ta Phut, Mueang, Rayong Thailand 21150  
**P/O :**  
**Project Name :** Monitoring  
**Project Location :** CUP 1

**Lot ID: 2212189**  
Date Received : Mar 31, 2022  
Date Reported : Apr 05, 2022  
Report Number : 2215874-1

Page 1 of 1

**Sample Number** : 2212189-1  
**Sample Description** : Emission from Stationary Source  
**Location** : HRSG #4  
**Measurement Date** : Mar 31, 2022

### Stack Description

Ambient Temperature	31	°C	Diameter	3.30	m	Oxygen	14.23	%
Ambient Pressure	757	mmHg	Shape	Circle		Carbon dioxide	3.70	%
Type of Process	Combustion		Stack Temperature	114	°C	Gas Velocity	19.77	m/s
Type of Fuel	Natural Gas		Moisture	6.96	%	Flow Rate	434041	Nm3/hr

Run No.	Sampling Time	Oxygen (%)	Carbon Dioxide (%)	Oxides of Nitrogen (ppm)	
				at Actual O <sub>2</sub>	At 7% O <sub>2</sub>
1	12:00 PM - 12:20 PM	14.22	3.70	8.78	18.27
2	12:21 PM - 12:41 PM	14.25	3.70	8.51	17.78
3	12:42 PM - 01:02 PM	14.24	3.71	8.51	17.75
Average (ppm)		14.23	3.70	8.60	17.93
Guideline <sup>1/</sup> (ppm)				-	32
Guideline <sup>2/</sup> (ppm)				-	120
Guideline <sup>3/</sup> (ppm)				-	120
Result (mg/m <sup>3</sup> )				16.18	33.74
Emission Rate at Actual O <sub>2</sub> (g/s)				1.9507	
Guideline <sup>1/</sup> (g/s)				2.84	
Method				US EPA Method 7E	

**Sampled By :** Sathaporn Thakarn

**Guideline :** <sup>1/</sup> Environmental Impact Assessment Report of Global Power Synergy Public Company Limited (CUP 1)

<sup>2/</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>3/</sup> Notification of the Ministry of Natural Resources and Environment, 2010 (B.E. 2553) on Emission Standard from New Power Plants.

**Technical Management**

*Wichan*

Wichan Choorarat  
Manager  
เบอร์โทรศัพท์ ๖-204-๖-6113

**Approved by**

*Sarayuth*

Sarayuth Jitranont  
Assistant General Manager  
เบอร์โทรศัพท์ ๖-204-๖-4702

The above results are valid only for the analyzed/tested sample(s) as indicated in this report. No part of this report or certificate may be reproduced in any form without written consent from the Laboratory. ALS Laboratory Group (Thailand) strongly recommends that this report is not reproduced except in full.

ADDRESS 104 Phatthanakan Rd., Phatthanakan Rd., Khwaeng Phatthanakan, Khet Suan Luang, Bangkok 10250, THAILAND | PHONE +66 0 2760 3000 | FAX +66 0 2760 3197  
ALS LABORATORY GROUP (THAILAND) CO., LTD. An ALS Limited Company

LIFE SCIENCES

www.alsglobal.com

RIGHT SOLUTIONS RIGHT PARTNER





## Analysis / Test Report

**Client :** Global Power Synergy Public Company Limited  
92/9, Rayong Highway Road 3191, Map Ta Phut, Mueang, Rayong Thailand 21150

**P/O :**

**Project Name :** Monitoring

**Project Location :** CUP 1



**TESTING**  
No.0042

**Lot ID: 2212200**

Date Received : Mar 31, 2022

Date Reported : Apr 08, 2022

Report Number: 2215890-1

Page 1 of 2

**Sample Number** : 2212200-1  
**Sampled Date** : Mar 31, 2022  
**Sample Description** : Emission from Stationary Source  
**Location** : HRSG #4  
**Date Analysis Commenced** : Apr 04, 2022  
**Condition of Sample** : Extracted into one filter paper placed in plastic petri dish, one plastic bottle and one amber plastic bottle, refrigerated

### Stack Description

Ambient Pressure	757	mmHg	Diameter	3.30	m	Oxygen	14.2	%
Ambient Temperature	31.0	°C	Shape	Circle		Carbon Dioxide	3.7	%
Type of Process	Combustion		Stack Temperature	114	°C	Gas Velocity	19.8	m/s
Type of Fuel	Natural Gas		Moisture	6.94	%	Flow Rate (Actual O2)	433588	Nm3/hr

Analyte	Sampled Time	Unit	LOD	LOQ (LOR)	Result at 7 % O <sub>2</sub>	Result at 14.2 % O <sub>2</sub>	Guideline (1)	Guideline (2)	Method	Testing Location
<b>Air Testing</b>										
Total Suspended Particulate	12:00 PM - 12:46 PM	mg/m3	-	0.5	<0.5	<0.5	60	3.60	US EPA, Method 5	Rayong

### 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).  
: Notification of the Ministry of Natural Resources and Environment, 2010 (B.E. 2553) on Emission Standard from New Power Plants.

Guideline (2) : Environmental Impact Assessment Report of Global Power Synergy Public Company Limited. (CUP 1)

Technical Management

*Thanita K.*

Thanita Kulsuriwong  
Scientist (4)  
ทะเบียนเลขที่ 2-323-2-9447

Approved by

*D. Chongchon*

Dej Changchon  
Senior Manager  
ทะเบียนเลขที่ 2-323-2-9442

The above results are valid only for the analyzed/tested sample(s) as indicated in this report. No part of this report or certificate may be reproduced in any form without written consent from the Laboratory. ALS Laboratory Group (Thailand) strongly recommends that this report is not reproduced except in full.

ADDRESS 616/10 Moo 5 T. Maenam Khu A. Phrakdaeng Rayong 21140 Thailand | PHONE +66 0 3304 8555 | FAX +66 0 3304 8556  
ALS LABORATORY GROUP (THAILAND) CO., LTD. An ALS Limited Company

LIFE Sciences

www.alsglobal.com

RIGHT SOLUTIONS RIGHT PARTNER

6403-32/ EMAIL

S:\Reports\Air Stack\_O2\_2GL.rpt (12:59PM)



## Analysis / Test Report

**Client :** Global Power Synergy Public Company Limited  
92/9, Rayong Highway Road 3191, Map Ta Phut, Mueang, Rayong Thailand 21150

**P/O :**

**Project Name :** Monitoring

**Project Location :** CUP 1



**TESTING**  
No.0042

**Lot ID: 2212200**

Date Received : Mar 31, 2022

Date Reported : Apr 08, 2022

Report Number: 2215890-1

Page 2 of 2

**Sample Number** : 2212200-1  
**Sampled Date** : Mar 31, 2022  
**Sample Description** : Emission from Stationary Source  
**Location** : HRSG #4  
**Date Analysis Commenced** : Apr 04, 2022  
**Condition of Sample** : Extracted into one filter paper placed in plastic petri dish, one plastic bottle and one amber plastic bottle, refrigerated

### Stack Description

Ambient Pressure	757	mmHg	Diameter	3.30	m	Oxygen	14.2	%
Ambient Temperature	31.0	°C	Shape	Circle		Carbon Dioxide	3.7	%
Type of Process	Combustion		Stack Temperature	114	°C	Gas Velocity	19.8	m/s
Type of Fuel	Natural Gas		Moisture	6.94	%	Flow Rate (Actual O2)	433588	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 *	12:00 PM - 12:46 PM	g/s	-	-	<0.060	-	0.40	Calculated	Rayong

### 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).  
: Notification of the Ministry of Natural Resources and Environment, 2010 (B.E. 2553) on Emission Standard from New Power Plants.

Guideline (2) : Environmental Impact Assessment Report of Global Power Synergy Public Company Limited. (CUP 1)

**Sampled By :** Siriwit Ruangsom , Navaphut Sriviriya

Remark :

- LOD : Limit of Detection
- "<" : Lower than LOQ (Limit of Quantitation) / LOR (Limit of Reporting)
- Analyte(s) marked \* is/are not included in scope of Accreditation ISO/IEC 17025.

Technical Management

*Thanita K.*

Thanita Kulsuriwong  
Scientist (4)  
ทะเบียนเลขที่ 2-323-2-9447

Approved by

*D. Chongchon*

Dej Changchon  
Senior Manager  
ทะเบียนเลขที่ 2-323-2-9442

The above results are valid only for the analyzed/tested sample(s) as indicated in this report. No part of this report or certificate may be reproduced in any form without written consent from the Laboratory. ALS Laboratory Group (Thailand) strongly recommends that this report is not reproduced except in full.

ADDRESS 616/10 Moo 5 T. Maenam Khu A. Phrakdaeng Rayong 21140 Thailand | PHONE +66 0 3304 8555 | FAX +66 0 3304 8556  
ALS LABORATORY GROUP (THAILAND) CO., LTD. An ALS Limited Company

LIFE Sciences

www.alsglobal.com

RIGHT SOLUTIONS RIGHT PARTNER

6403-32/ EMAIL

S:\Reports\Air Stack\_O2\_2GL.rpt (12:59PM)





## Analysis / Test Report

**Client :** Global Power Synergy Public Company Limited  
92/9, Rayong Highway Road 3191, Map Ta Phut, Mueang, Rayong Thailand 21150

**P/O :**  
**Project Name :** Monitoring  
**Project Location :** CUP 1

**Lot ID: 2212190**  
**Date Received :** Mar 31, 2022  
**Date Reported :** Apr 05, 2022  
**Report Number :** 2215876-1

Page 1 of 1

<b>Sample Number</b>	2212190-1
<b>Sample Description</b>	Emission from Stationary Source
<b>Location</b>	HRS #5
<b>Measurement Date</b>	Mar 31, 2022

Stack Description					
Ambient Temperature	31 °C	Diameter	3.30 m	Oxygen	14.16 %
Ambient Pressure	757 mmHg	Shape	Circle	Carbon dioxide	3.87 %
Type of Process	Combustion	Stack Temperature	167 °C	Gas Velocity	23.06 m/s
Type of Fuel	Natural Gas	Moisture	6.40 %	Flow Rate	447836 Nm <sup>3</sup> /hr

Run No.	Sampling Time	Oxygen (%)	Carbon Dioxide (%)	Oxides of Nitrogen (ppm)	
				at Actual O <sub>2</sub>	At 7% O <sub>2</sub>
1	11:00 AM - 11:20 AM	14.17	3.85	8.68	17.93
2	11:21 AM - 11:41 AM	14.18	3.88	8.75	18.10
3	11:42 AM - 12:02 PM	14.15	3.87	8.82	18.14
Average (ppm)		14.16	3.87	8.75	18.06
Guideline <sup>(1)</sup> (ppm)				-	20
Guideline <sup>(2)</sup> (ppm)				-	120
Guideline <sup>(3)</sup> (ppm)				-	120
Result (mg/m <sup>3</sup> )				16.46	33.97
Emission Rate at Actual O <sub>2</sub> (g/s)				2.0479	
Guideline <sup>(1)</sup> (g/s)				2.82	
Method				US EPA Method 7E	

**Sampled By :** Sathaporn Thakarn  
**Guideline :**  
<sup>(1)</sup> Environmental Impact Assessment Report of Global Power Synergy Public Company Limited (CUP 1)  
<sup>(2)</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>(3)</sup> Notification of the Ministry of Natural Resources and Environment, 2010 (B.E. 2553) on Emission Standard from New Power Plants.

**Technical Management**

*Wichan Choonharat*

Wichan Choonharat  
Manager  
โทรศัพท์ 2-204-6113

**Approved by**

*Sarayuth Jitranont*

Sarayuth Jitranont  
Assistant General Manager  
โทรศัพท์ 2-204-4702

The above results are valid only for the analyzed/tested sample(s) as indicated in this report. No part of this report or certificate may be reproduced in any form without written consent from the Laboratory. ALS Laboratory Group (Thailand) strongly recommends that this report is not reproduced except in full.

ADDRESS 104 Phatthanakan 40, Phatthanakan Rd., Khwaeng Phatthanakan, Khet Suan Luang, Bangkok 10256, THAILAND | PHONE +66 0 2760 3090 | FAX +66 0 2760 3197  
ALS LABORATORY GROUP (THAILAND) CO., LTD. An ALS Limited Company



## Analysis / Test Report

**Client :** Global Power Synergy Public Company Limited  
92/9, Rayong Highway Road 3191, Map Ta Phut, Mueang, Rayong Thailand 21150

**P/O :**  
**Project Name :** Monitoring  
**Project Location :** CUP 1

**Lot ID: 2212201**  
**Date Received :** Mar 31, 2022  
**Date Reported :** Apr 06, 2022  
**Report Number :** 2215892-1

Page 1 of 2

<b>Sample Number</b>	2212201-1
<b>Sampled Date</b>	Mar 31, 2022
<b>Sample Description</b>	Emission from Stationary Source
<b>Location</b>	HRS #5
<b>Date Analysis Commenced</b>	Apr 04, 2022
<b>Condition of Sample</b>	Extracted into one filter paper placed in plastic petri dish, one plastic bottle and one amber plastic bottle, refrigerated

Stack Description					
Ambient Pressure	757 mmHg	Diameter	3.30 m	Oxygen	14.2 %
Ambient Temperature	31.0 °C	Shape	Circle	Carbon Dioxide	3.9 %
Type of Process	Combustion	Stack Temperature	167 °C	Gas Velocity	23.0 m/s
Type of Fuel	Natural Gas	Moisture	6.34 %	Flow Rate (Actual O <sub>2</sub> )	447542 Nm <sup>3</sup> /hr

Analyte	Sampled Time	Unit	LOD	LOQ (LOR)	Result at 7 % O <sub>2</sub>	Result at 14.2 % O <sub>2</sub>	Guideline (1)	Guideline (2)	Method	Testing Location
<b>Air Testing</b>										
Total Suspended Particulate	11:00 AM - 11:48 AM	mg/m <sup>3</sup>	-	0.5	<0.5	<0.5	60	2.30	US EPA, Method 5	Rayong

### 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).  
: Notification of the Ministry of Natural Resources and Environment, 2010 (B.E. 2553) on Emission Standard from New Power Plants.

Guideline (2) : Environmental Impact Assessment Report of Global Power Synergy Public Company Limited. (CUP 1)

**Technical Management**

*Thanita K.*

Thanita Kulsuriwong  
Scientist (4)  
โทรศัพท์ 2-323-9447

**Approved by**

*Dej Changchon*

Dej Changchon  
Senior Manager  
โทรศัพท์ 2-323-9442

The above results are valid only for the analyzed/tested sample(s) as indicated in this report. No part of this report or certificate may be reproduced in any form without written consent from the Laboratory. ALS Laboratory Group (Thailand) strongly recommends that this report is not reproduced except in full.

ADDRESS 616/10 Moo 5 T. Maenam Khu A. Phukdaeng Rayong 21140 Thailand | PHONE +66 0 3304 8555 | FAX +66 0 3304 8556  
ALS LABORATORY GROUP (THAILAND) CO., LTD. An ALS Limited Company



## Analysis / Test Report

**Client :** Global Power Synergy Public Company Limited  
92/9, Rayong Highway Road 3191, Map Ta Phut, Mueang, Rayong Thailand 21150  
**P/O :**  
**Project Name :** Monitoring  
**Project Location :** CUP 1



**TESTING**  
**No.0042**

**Lot ID: 2212201**  
**Date Received :** Mar 31, 2022  
**Date Reported :** Apr 08, 2022  
**Report Number:** 2215892-1

Page 2 of 2

**Sample Number** : 2212201-1  
**Sampled Date** : Mar 31, 2022  
**Sample Description** : Emission from Stationary Source  
**Location** : HRSG #5  
**Date Analysis Commenced** : Apr 04, 2022  
**Condition of Sample** : Extracted into one filter paper placed in plastic petri dish, one plastic bottle and one amber plastic bottle, refrigerated

### Stack Description

Ambient Pressure	757	mmHg	Diameter	3.30	m	Oxygen	14.2	%
Ambient Temperature	31.0	°C	Shape	Circle		Carbon Dioxide	3.9	%
Type of Process	Combustion		Stack Temperature	167	°C	Gas Velocity	23.0	m/s
Type of Fuel	Natural Gas		Moisture	6.34	%	Flow Rate (Actual O2)	447542	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 *	11:00 AM - 11:48 AM	g/s	-	-	<0.062	-	0.40	Calculated	Rayong

### 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).  
: Notification of the Ministry of Natural Resources and Environment, 2010 (B.E. 2553) on Emission Standard from New Power Plants.

Guideline (2) : Environmental Impact Assessment Report of Global Power Synergy Public Company Limited. (CUP 1)

**Sampled By :** Siriwit Ruangsom , Navaphut Sriviriya

### Remark :

- LOD : Limit of Detection
- "c" : Lower than LOQ (Limit of Quantitation) / LOR (Limit of Reporting)
- Analyte(s) marked \* is/are not included in scope of Accreditation ISO/IEC 17025.

**Technical Management**

*Tharitak.*

Thanita Kulsuriwong  
Scientist (4)  
เบอร์โทรศัพท์ ๖-323-๖-9447

**Approved by**

*Dej*

Dej Changchon  
Senior Manager  
เบอร์โทรศัพท์ ๖-323-๖-9442

The above results are valid only for the analyzed/tested sample(s) as indicated in this report. No part of this report or certificate may be reproduced in any form without written consent from the Laboratory. ALS Laboratory Group (Thailand) strongly recommends that this report is not reproduced except in full.

ADDRESS 616/10 Moo 5 T. Maenam Khu A. Phrakdaeng Rayong 21140 Thailand | PHONE +66 0 3304 8555 | FAX +66 0 3304 8556  
ALS LABORATORY GROUP (THAILAND) CO., LTD. An ALS Limited Company

LIFE SCIENCES

www.alsglobal.com

RIGHT SOLUTIONS RIGHT PARTNER

6403-32/ EMAIL

S:\Reports\_Air Stack\_O2\_2GL.rpt ( 1:03PM)



## Analysis / Test Report

**Client :** Global Power Synergy Public Company Limited  
92/9, Rayong Highway Road 3191, Map Ta Phut, Mueang, Rayong Thailand 21150  
**P/O :**  
**Project Name :** Monitoring  
**Project Location :** CUP 1

**Lot ID: 2212191**  
**Date Received :** Apr 01, 2022  
**Date Reported :** Apr 06, 2022  
**Report Number :** 2215877-1

Page 1 of 1

**Sample Number** : 2212191-1  
**Sample Description** : Emission from Stationary Source  
**Location** : HRSG #6  
**Measurement Date** : Apr 01, 2022

### Stack Description

Ambient Temperature	31	°C	Diameter	3.30	m	Oxygen	13.58	%
Ambient Pressure	757	mmHg	Shape	Circle		Carbon dioxide	4.61	%
Type of Process	Combustion		Stack Temperature	158	°C	Gas Velocity	19.20	m/s
Type of Fuel	Natural Gas		Moisture	7.54	%	Flow Rate	376098	Nm3/hr

Run No.	Sampling Time	Oxygen (%)	Carbon Dioxide (%)	Oxides of Nitrogen (ppm)	
				at Actual O <sub>2</sub>	At 7% O <sub>2</sub>
1	10:00 AM - 10:20 AM	13.58	4.60	7.05	13.38
2	10:21 AM - 10:41 AM	13.59	4.60	7.45	14.15
3	10:42 AM - 11:02 AM	13.58	4.61	6.63	12.58
Average (ppm)		13.58	4.61	7.04	13.37
Guideline <sup>1/</sup> (ppm)				-	20
Guideline <sup>2/</sup> (ppm)				-	120
Guideline <sup>3/</sup> (ppm)				-	120
Result (mg/m <sup>3</sup> )				13.25	25.15
Emission Rate at Actual O <sub>2</sub> (g/s)				1.3838	
Guideline <sup>1/</sup> (g/s)				2.82	
Method				US EPA Method 7E	

**Sampled By :** Navaphut Sriviriya

**Guideline :** <sup>1/</sup> Environmental Impact Assessment Report of Global Power Synergy Public Company Limited (CUP 1)

<sup>2/</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>3/</sup> Notification of the Ministry of Natural Resources and Environment, 2010 (B.E. 2553) on Emission Standard from New Power Plants.

**Technical Management**

*Wichan*

Wichan Choorarat  
Manager  
เบอร์โทรศัพท์ ๖-204-๖-6113

**Approved by**

*Sarayuth*

Sarayuth Jitranont  
Assistant General Manager  
เบอร์โทรศัพท์ ๖-204-๖-4702

The above results are valid only for the analyzed/tested sample(s) as indicated in this report. No part of this report or certificate may be reproduced in any form without written consent from the Laboratory. ALS Laboratory Group (Thailand) strongly recommends that this report is not reproduced except in full.

ADDRESS 104 Phatthanakan 40, Phatthanakan Rd., Khwaeng Phatthanakan, Khet Suan Luang, Bangkok 10250, THAILAND | PHONE +66 0 2760 3000 | FAX +66 0 2760 3197  
ALS LABORATORY GROUP (THAILAND) CO., LTD. An ALS Limited Company

LIFE SCIENCES

www.alsglobal.com

RIGHT SOLUTIONS RIGHT PARTNER





## Analysis / Test Report



TESTING  
No.0042

Client : Global Power Synergy Public Company Limited  
92/9, Rayong Highway Road 3191, Map Ta Phut, Mueang, Rayong Thailand 21150

P/O :  
Project Name : Monitoring  
Project Location : CUP 1

Lot ID: 2212202  
Date Received : Apr 01, 2022  
Date Reported : Apr 08, 2022  
Report Number: 2215895-1

Page 1 of 2

Sample Number : 2212202-1  
Sampled Date : Apr 01, 2022  
Sample Description : Emission from Stationary Source  
Location : HRSG #6  
Date Analysis Commenced : Apr 02, 2022  
Condition of Sample : Extracted into one filter paper placed in plastic petri dish, one plastic bottle and one amber plastic bottle, refrigerated

### Stack Description

Ambient Pressure	757	mmHg	Diameter	3.30	m	Oxygen	13.6	%
Ambient Temperature	31.0	°C	Shape	Circle		Carbon Dioxide	4.6	%
Type of Process	Combustion		Stack Temperature	158	°C	Gas Velocity	19.2	m/s
Type of Fuel	Natural Gas		Moisture	7.50	%	Flow Rate (Actual O2)	375807	Nm3/hr

Analyte	Sampled Time	Unit	LOD	LOQ (LOR)	Result at 7 %O <sub>2</sub>	Result at 13.6 % O <sub>2</sub>	Guideline (1)	Guideline (2)	Method	Testing Location
<b>Air Testing</b>										
Total Suspended Particulate	10:00 AM - 10:48 AM	mg/m3	-	0.5	<0.5	<0.5	60	2.30	US EPA, Method 5	Rayong

### 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).  
: Notification of the Ministry of Natural Resources and Environment, 2010 (B.E. 2553) on Emission Standard from New Power Plants.

Guideline (2) : Environmental Impact Assessment Report of Global Power Synergy Public Company Limited. (CUP 1)

Technical Management

*Thanita K.*

Thanita Kulsuriwong  
Scientist (4)  
ทะเบียนเลขที่ 2-323-2-9447

Approved by

*D. Chongchon*

Dej Changchon  
Senior Manager  
ทะเบียนเลขที่ 2-323-2-9442

The above results are valid only for the analyzed/tested sample(s) as indicated in this report. No part of this report or certificate may be reproduced in any form without written consent from the Laboratory. ALS Laboratory Group (Thailand) strongly recommends that this report is not reproduced except in full.

ADDRESS 616/10 Moo 5 T. Maenam Khu A. Phrakdaeng Rayong 21140 Thailand | PHONE +66 0 3304 8555 | FAX +66 0 3304 8556  
ALS LABORATORY GROUP (THAILAND) CO., LTD. An ALS Limited Company

LIFE SCIENCES

www.alsglobal.com

RIGHT SOLUTIONS RIGHT PARTNER

6403-32/ EMAIL

S:\Reports\_Air Stack\_O2\_2GL.rpt ( 1:09PM)



## Analysis / Test Report



TESTING  
No.0042

Client : Global Power Synergy Public Company Limited  
92/9, Rayong Highway Road 3191, Map Ta Phut, Mueang, Rayong Thailand 21150

P/O :  
Project Name : Monitoring  
Project Location : CUP 1

Lot ID: 2212202  
Date Received : Apr 01, 2022  
Date Reported : Apr 08, 2022  
Report Number: 2215895-1

Page 2 of 2

Sample Number : 2212202-1  
Sampled Date : Apr 01, 2022  
Sample Description : Emission from Stationary Source  
Location : HRSG #6  
Date Analysis Commenced : Apr 02, 2022  
Condition of Sample : Extracted into one filter paper placed in plastic petri dish, one plastic bottle and one amber plastic bottle, refrigerated

### Stack Description

Ambient Pressure	757	mmHg	Diameter	3.30	m	Oxygen	13.6	%
Ambient Temperature	31.0	°C	Shape	Circle		Carbon Dioxide	4.6	%
Type of Process	Combustion		Stack Temperature	158	°C	Gas Velocity	19.2	m/s
Type of Fuel	Natural Gas		Moisture	7.50	%	Flow Rate (Actual O2)	375807	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 - 10:48 AM	g/s	-	-	<0.052	-	0.40	Calculated	Rayong

### 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).  
: Notification of the Ministry of Natural Resources and Environment, 2010 (B.E. 2553) on Emission Standard from New Power Plants.

Guideline (2) : Environmental Impact Assessment Report of Global Power Synergy Public Company Limited. (CUP 1)

Sampled By : Sathaporn Thakaw, Navaphut Sriviriya

### Remark :

- LOD : Limit of Detection
- "<" : Lower than LOQ (Limit of Quantitation) / LOR (Limit of Reporting)
- Analyte(s) marked \* is/are not included in scope of Accreditation ISO/IEC 17025.

Technical Management

*Thanita K.*

Thanita Kulsuriwong  
Scientist (4)  
ทะเบียนเลขที่ 2-323-2-9447

Approved by

*D. Chongchon*

Dej Changchon  
Senior Manager  
ทะเบียนเลขที่ 2-323-2-9442

The above results are valid only for the analyzed/tested sample(s) as indicated in this report. No part of this report or certificate may be reproduced in any form without written consent from the Laboratory. ALS Laboratory Group (Thailand) strongly recommends that this report is not reproduced except in full.

ADDRESS 616/10 Moo 5 T. Maenam Khu A. Phrakdaeng Rayong 21140 Thailand | PHONE +66 0 3304 8555 | FAX +66 0 3304 8556  
ALS LABORATORY GROUP (THAILAND) CO., LTD. An ALS Limited Company

LIFE SCIENCES

www.alsglobal.com

RIGHT SOLUTIONS RIGHT PARTNER

6403-32/ EMAIL

S:\Reports\_Air Stack\_O2\_2GL.rpt ( 1:09PM)





## Analysis / Test Report

**Client :** Global Power Synergy Public Company Limited  
92/9, Rayong Highway Road 3191, Map Ta Phut, Mueang, Rayong Thailand 21150

**P/O :**  
**Project Name :** Monitoring  
**Project Location :** CUP 1

**Lot ID: 2212164**  
**Date Received :** Apr 01, 2022  
**Date Reported :** Apr 06, 2022  
**Report Number :** 2215821-1

Page 1 of 1

<b>Sample Number</b>	2212164-1
<b>Sample Description</b>	Emission from Stationary Source
<b>Location</b>	Auxiliary Boiler
<b>Measurement Date</b>	Apr 01, 2022

		<b>Stack Description</b>			
Ambient Temperature	31 °C	Diameter	1.80 m	Oxygen	13.59 %
Ambient Pressure	757 mmHg	Shape	Circle	Carbon dioxide	4.17 %
Type of Process	Combustion	Stack Temperature	173 °C	Gas Velocity	6.02 m/s
Type of Fuel	Natural Gas	Moisture	8.75 %	Flow Rate	33470 Nm3/hr

Run No.	Sampling Time	Oxygen (%)	Carbon Dioxide (%)	Oxides of Nitrogen (ppm)	
				at Actual O <sub>2</sub>	At 7% O <sub>2</sub>
1	11:10 AM - 11:30 AM	13.58	4.17	22.24	42.21
2	11:31 AM - 11:51 AM	13.59	4.17	22.24	42.30
3	11:52 AM - 12:12 PM	13.60	4.16	22.49	42.81
Average (ppm)		13.59	4.17	22.32	42.44
Guideline <sup>(1)</sup> (ppm)				-	53
Guideline <sup>(2)</sup> (ppm)				-	120
Guideline <sup>(3)</sup> (ppm)				-	120
Result (mg/m <sup>3</sup> )				42.00	79.85
Emission Rate at Actual O <sub>2</sub> (g/s)				0.3905	
Guideline <sup>(1)</sup> (g/s)				2.10	
Method				US EPA Method 7E	

**Sampled By :** Sathaporn Thakarn

**Guideline :** <sup>(1)</sup> Environmental Impact Assessment Report of Global Power Synergy Public Company Limited (CUP 1)

<sup>(2)</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>(3)</sup> Notification of the Ministry of Natural Resources and Environment, 2010 (B.E. 2553) on Emission Standard from New Power Plants.

**Technical Management**

*Wichan Choonharat*

Wichan Choonharat  
Manager  
หมายเลข 2-204-6113

**Approved by**

*Sarayuth Jitranont*

Sarayuth Jitranont  
Assistant General Manager  
หมายเลข 2-204-4702

The above results are valid only for the analyzed/tested sample(s) as indicated in this report. No part of this report or certificate may be reproduced in any form without written consent from the Laboratory. ALS Laboratory Group (Thailand) strongly recommends that this report is not reproduced except in full.

ADDRESS 104 Phatthanakan Rd., Phatthanakan Rd., Khwaeng Phatthanakan, Khet Suan Luang, Bangkok 10256, THAILAND | PHONE +66 0 2760 3090 | FAX +66 0 2760 3197  
ALS LABORATORY GROUP (THAILAND) CO., LTD. An ALS Limited Company



## Analysis / Test Report

**Client :** Global Power Synergy Public Company Limited  
92/9, Rayong Highway Road 3191, Map Ta Phut, Mueang, Rayong Thailand 21150

**P/O :**  
**Project Name :** Monitoring  
**Project Location :** CUP 1

**Lot ID: 2212170**  
**Date Received :** Apr 01, 2022  
**Date Reported :** Apr 05, 2022  
**Report Number :** 2215853-1

Page 1 of 2

<b>Sample Number</b>	2212170-1
<b>Sampled Date</b>	Apr 01, 2022
<b>Sample Description</b>	Emission from Stationary Source
<b>Location</b>	Auxiliary Boiler
<b>Date Analysis Commenced</b>	Apr 04, 2022
<b>Condition of Sample</b>	Extracted into one filter paper placed in plastic petri dish and one plastic bottle

		<b>Stack Description</b>			
Ambient Pressure	757 mmHg	Diameter	1.80 m	Oxygen	13.6 %
Ambient Temperature	31.0 °C	Shape	Circle	Carbon Dioxide	4.2 %
Type of Process	Combustion	Stack Temperature	173 °C	Gas Velocity	6.0 m/s
Type of Fuel	Natural Gas	Moisture	8.73 %	Flow Rate (Actual O <sub>2</sub> )	33437 Nm3/hr

Analyte	Sampled Time	Unit	LOD	LOQ (LOR)	Result at 7 % O <sub>2</sub>	Result at 13.6 % O <sub>2</sub>	Guideline (1)	Guideline (2)	Method	Testing Location
<b>Air Testing</b>										
Total Suspended Particulate	11:10 AM - 11:58 AM	mg/m <sup>3</sup>	-	0.5	<0.5	<0.5	60	1.20	US EPA, Method 5	Rayong

### 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).  
: Notification of the Ministry of Natural Resources and Environment, 2010 (B.E. 2553) on Emission Standard from New Power Plants.

Guideline (2) : Environmental Impact Assessment Report of Global Power Synergy Public Company Limited. (CUP 1)

**Technical Management**

*Thanita K.*

Thanita Kulsuriwong  
Scientist (4)  
หมายเลข 2-323-9447

**Approved by**

*Dej Changchon*

Dej Changchon  
Senior Manager  
หมายเลข 2-323-9442

The above results are valid only for the analyzed/tested sample(s) as indicated in this report. No part of this report or certificate may be reproduced in any form without written consent from the Laboratory. ALS Laboratory Group (Thailand) strongly recommends that this report is not reproduced except in full.

ADDRESS 616/10 Moo 5 T. Maenam Khu A. Phukdaeng Rayong 21140 Thailand | PHONE +66 0 3304 8555 | FAX +66 0 3304 8556  
ALS LABORATORY GROUP (THAILAND) CO., LTD. An ALS Limited Company



## Analysis / Test Report

TESTING  
No.0042

Client : Global Power Synergy Public Company Limited  
92/9, Rayong Highway Road 3191, Map Ta Phut, Mueang, Rayong Thailand 21150

P/O :

Project Name : Monitoring

Project Location : CUP 1

Lot ID: 2212170

Date Received : Apr 01, 2022

Date Reported : Apr 05, 2022

Report Number: 2215853-1

Page 2 of 2

Sample Number : 2212170-1  
Sampled Date : Apr 01, 2022  
Sample Description : Emission from Stationary Source  
Location : Auxiliary Boiler  
Date Analysis Commenced : Apr 04, 2022  
Condition of Sample : Extracted into one filter paper placed in plastic petri dish and one plastic bottle.

### Stack Description

Ambient Pressure	757	mmHg	Diameter	1.80	m	Oxygen	13.6	%
Ambient Temperature	31.0	°C	Shape	Circle		Carbon Dioxide	4.2	%
Type of Process	Combustion		Stack Temperature	173	°C	Gas Velocity	6.0	m/s
Type of Fuel	Natural Gas		Moisture	8.73	%	Flow Rate (Actual O2)	33437	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 *	11:10 AM - 11:58 AM	g/s	-	-	<0.005	-	0.019	Calculated	Rayong

### 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).  
: Notification of the Ministry of Natural Resources and Environment, 2010 (B.E. 2553) on Emission Standard from New Power Plants.

Guideline (2) : Environmental Impact Assessment Report of Global Power Synergy Public Company Limited. (CUP 1)

Sampled By : Sathaporn Thakarw , Navaphut Sriviriya

### Remark :

- LOD : Limit of Detection
- "c" : Lower than LOQ (Limit of Quantitation) / LOR (Limit of Reporting)
- Analyte(s) marked \* is/are not included in scope of Accreditation ISO/IEC 17025.

Technical Management

*Tharita K.*

Thanita Kulsuriwong  
Scientist (4)  
ทะเบียนเลขที่ 3-323-3-9447

Approved by

*D. Chongchon*

Dej Chongchon  
Senior Manager  
ทะเบียนเลขที่ 3-323-3-9442

The above results are valid only for the analyzed/tested sample(s) as indicated in this report. No part of this report or certificate may be reproduced in any form without written consent from the Laboratory. ALS Laboratory Group (Thailand) strongly recommends that this report is not reproduced except in full.

ADDRESS 616/10 Moo 5 T. Maenam Khu A. Phrakdaeng Rayong 21140 Thailand | PHONE +66 0 3304 8555 | FAX +66 0 3304 8556  
ALS LABORATORY GROUP (THAILAND) CO., LTD. An ALS Limited Company

LIFE SCIENCES

www.alsglobal.com

RIGHT SOLUTIONS RIGHT PARTNER



## Analysis / Test Report

**Client :** Global Power Synergy Public Company Limited  
92/9, Rayong Highway Road 3191, Map Ta Phut, Mueang, Rayong Thailand 21150

**P/O :**

**Project Name :** Monitoring

**Project Location :** CUP 1

**Lot ID: 2212308**

Date Received : Mar 23, 2022

Date Reported : Apr 05, 2022

Report Number : 2216005-1

Page 1 of 10

**Sample Number** 2212308-1  
**Sampled Date** Mar 23, 2022  
**Sample Description** Air Quality  
**Location** มหานคร HRSG #3  
**Date Analysis Commenced** Mar 24, 2022  
**Condition of Sample** Drawn into one amber plastic bottle, refrigerated  
**Barometric Pressure** 758 mmHg  
**Atmospheric Temperature** 30.0 °C

Analyte	Sampled Date/time	Unit	LOD	LOQ (LOR)	Result	Guideline Limit	Method	Guideline	Testing Location
<b>Air Testing</b>									
Ammonia	01:30 PM - 03:30 PM	ppm	0.10	0.10	<0.10	50	Based on Method of Air Sampling and Analysis, 401	MOL	Rayong

### Guideline :

MOL : Announcement of the Department of Labour Protection and Welfare on Threshold Limit Values of Hazardous Chemical Substances Dated August 3, B.E. 2560 (2017)

**Sampled By :** Norranon Tathongkham

### Remark :

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

Approved by

*Saranya C.*

Saranya Chalermtamrong  
Scientist (4)

The above results are valid only for the analyzed/tested sample(s) as indicated in this report. No part of this report or certificate may be reproduced in any form without written consent from the Laboratory. ALS Laboratory Group (Thailand) strongly recommends that this report is not reproduced except in full.

ADDRESS 104 Phatthanakan 40, Phatthanakan Rd., Khwaeng Phatthanakan, Khet Suan Luang, Bangkok 10250 Thailand | PHONE +66 0 2760 3000 | FAX +66 0 2760 3197  
ALS LABORATORY GROUP (THAILAND) CO., LTD. An ALS Limited Company

Life Sciences

[www.alsglobal.com](http://www.alsglobal.com)

RIGHT SOLUTIONS RIGHT PARTNER

6403-32/ EMAIL



## Analysis / Test Report

**Client :** Global Power Synergy Public Company Limited  
92/9, Rayong Highway Road 3191, Map Ta Phut, Mueang, Rayong Thailand 21150

**P/O :**

**Project Name :** Monitoring

**Project Location :** CUP 1

**Lot ID: 2212308**

Date Received : Mar 23, 2022

Date Reported : Apr 05, 2022

Report Number : 2216005-1

Page 2 of 10

**Sample Number** 2212308-2  
**Sampled Date** Mar 23, 2022  
**Sample Description** Air Quality  
**Location** มหานคร HRSG #4  
**Date Analysis Commenced** Mar 24, 2022  
**Condition of Sample** Drawn into one amber plastic bottle, refrigerated  
**Barometric Pressure** 758 mmHg  
**Atmospheric Temperature** 30.0 °C

Analyte	Sampled Date/time	Unit	LOD	LOQ (LOR)	Result	Guideline Limit	Method	Guideline	Testing Location
<b>Air Testing</b>									
Ammonia	01:30 PM - 03:30 PM	ppm	0.10	0.10	<0.10	50	Based on Method of Air Sampling and Analysis, 401	MOL	Rayong

### Guideline :

MOL : Announcement of the Department of Labour Protection and Welfare on Threshold Limit Values of Hazardous Chemical Substances Dated August 3, B.E. 2560 (2017)

**Sampled By :** Norranon Tathongkham

### Remark :

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

Approved by

*Saranya C.*

Saranya Chalermtamrong  
Scientist (4)

The above results are valid only for the analyzed/tested sample(s) as indicated in this report. No part of this report or certificate may be reproduced in any form without written consent from the Laboratory. ALS Laboratory Group (Thailand) strongly recommends that this report is not reproduced except in full.

ADDRESS 104 Phatthanakan 40, Phatthanakan Rd., Khwaeng Phatthanakan, Khet Suan Luang, Bangkok 10250 Thailand | PHONE +66 0 2760 3000 | FAX +66 0 2760 3197  
ALS LABORATORY GROUP (THAILAND) CO., LTD. An ALS Limited Company

Life Sciences

[www.alsglobal.com](http://www.alsglobal.com)

RIGHT SOLUTIONS RIGHT PARTNER

6403-32/ EMAIL





## Analysis / Test Report

**Client :** Global Power Synergy Public Company Limited  
92/9, Rayong Highway Road 3191, Map Ta Phut, Mueang, Rayong Thailand 21150

**P/O :**

**Project Name :** Monitoring

**Project Location :** CUP 1

**Lot ID: 2212308**

Date Received : Mar 23, 2022

Date Reported : Apr 05, 2022

Report Number : 2216005-1

Page 3 of 10

**Sample Number** 2212308-3  
**Sampled Date** Mar 23, 2022  
**Sample Description** Air Quality  
**Location** หนองหว้า HRSG #5  
**Date Analysis Commenced** Mar 24, 2022  
**Condition of Sample** Drawn into one amber plastic bottle, refrigerated  
**Barometric Pressure** 758 mmHg  
**Atmospheric Temperature** 30.0 °C

Analyte	Sampled Date/time	Unit	LOD	LOQ (LOR)	Result	Guideline Limit	Method	Guideline	Testing Location
<b>Air Testing</b>									
Ammonia	01:30 PM - 03:30 PM	ppm	0.10	0.10	<0.10	50	Based on Method of Air Sampling and Analysis, 401	MOL	Rayong

### Guideline :

MOL : Announcement of the Department of Labour Protection and Welfare on Threshold Limit Values of Hazardous Chemical Substances Dated August 3, B.E. 2560 (2017)

**Sampled By :** Norranon Tathongkham

### Remark :

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

Approved by

*Saranya C.*

Saranya Chalermtamrong  
Scientist (4)

The above results are valid only for the analyzed/tested sample(s) as indicated in this report. No part of this report or certificate may be reproduced in any form without written consent from the Laboratory. ALS Laboratory Group (Thailand) strongly recommends that this report is not reproduced except in full.

ADDRESS 104 Phatthanakan 40, Phatthanakan Rd., Khwaeng Phatthanakan, Khet Suan Luang, Bangkok 10250 Thailand | PHONE +66 0 2760 3000 | FAX +66 0 2760 3197  
ALS LABORATORY GROUP (THAILAND) CO., LTD. An ALS Limited Company

Life Sciences

[www.alsglobal.com](http://www.alsglobal.com)

RIGHT SOLUTIONS RIGHT PARTNER

6403-32/ EMAIL



## Analysis / Test Report

**Client :** Global Power Synergy Public Company Limited  
92/9, Rayong Highway Road 3191, Map Ta Phut, Mueang, Rayong Thailand 21150

**P/O :**

**Project Name :** Monitoring

**Project Location :** CUP 1

**Lot ID: 2212308**

Date Received : Mar 23, 2022

Date Reported : Apr 05, 2022

Report Number : 2216005-1

Page 4 of 10

**Sample Number** 2212308-4  
**Sampled Date** Mar 23, 2022  
**Sample Description** Air Quality  
**Location** หนองหว้า HRSG #6  
**Date Analysis Commenced** Mar 24, 2022  
**Condition of Sample** Drawn into one amber plastic bottle, refrigerated  
**Barometric Pressure** 758 mmHg  
**Atmospheric Temperature** 30.0 °C

Analyte	Sampled Date/time	Unit	LOD	LCQ (LCR)	Result	Guideline Limit	Method	Guideline	Testing Location
<b>Air Testing</b>									
Ammonia	01:30 PM - 03:30 PM	ppm	0.10	0.10	<0.10	50	Based on Method of Air Sampling and Analysis, 401	MOL	Rayong

### Guideline :

MOL : Announcement of the Department of Labour Protection and Welfare on Threshold Limit Values of Hazardous Chemical Substances Dated August 3, B.E. 2560 (2017)

**Sampled By :** Norranon Tathongkham

### Remark :

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

Approved by

*Saranya C.*

Saranya Chalermtamrong  
Scientist (4)

The above results are valid only for the analyzed/tested sample(s) as indicated in this report. No part of this report or certificate may be reproduced in any form without written consent from the Laboratory. ALS Laboratory Group (Thailand) strongly recommends that this report is not reproduced except in full.

ADDRESS 104 Phatthanakan 40, Phatthanakan Rd., Khwaeng Phatthanakan, Khet Suan Luang, Bangkok 10250 Thailand | PHONE +66 0 2760 3000 | FAX +66 0 2760 3197  
ALS LABORATORY GROUP (THAILAND) CO., LTD. An ALS Limited Company

Life Sciences

[www.alsglobal.com](http://www.alsglobal.com)

RIGHT SOLUTIONS RIGHT PARTNER

6403-32/ EMAIL



## Analysis / Test Report

**Client :** Global Power Synergy Public Company Limited  
92/9, Rayong Highway Road 3191, Map Ta Phut, Mueang, Rayong Thailand 21150

**P/O :**

**Project Name :** Monitoring

**Project Location :** CUP 1

**Lot ID: 2212308**

Date Received : Mar 23, 2022

Date Reported : Apr 05, 2022

Report Number : 2216005-1

Page 5 of 10

**Sample Number** 2212308-5  
**Sampled Date** Mar 23, 2022  
**Sample Description** Air Quality  
**Location** NH4OH Tank  
**Date Analysis Commenced** Mar 24, 2022  
**Condition of Sample** Drawn into one amber plastic bottle, refrigerated  
**Barometric Pressure** 758 mmHg  
**Atmospheric Temperature** 30.0 °C

Analyte	Sampled Date/time	Unit	LOD	LOQ (LOR)	Result	Guideline Limit	Method	Guideline	Testing Location
<b>Air Testing</b>									
Ammonia	01:30 PM - 03:30 PM	ppm	0.10	0.10	<0.10	50	Based on Method of Air Sampling and Analysis, 401	MOL	Rayong

### Guideline :

MOL : Announcement of the Department of Labour Protection and Welfare on Threshold Limit Values of Hazardous Chemical Substances Dated August 3, B.E. 2560 (2017)

**Sampled By :** Norranon Tathongkham

### Remark :

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

Approved by

*Saranya C.*

Saranya Chalermtamrong  
Scientist (4)

The above results are valid only for the analyzed/tested sample(s) as indicated in this report. No part of this report or certificate may be reproduced in any form without written consent from the Laboratory. ALS Laboratory Group (Thailand) strongly recommends that this report is not reproduced except in full.

ADDRESS 104 Phatthanakan 40, Phatthanakan Rd., Khwaeng Phatthanakan, Khet Suan Luang, Bangkok 10250 Thailand | PHONE +66 0 2760 3000 | FAX +66 0 2760 3197  
ALS LABORATORY GROUP (THAILAND) CO., LTD. An ALS Limited Company

Life Sciences

[www.alsglobal.com](http://www.alsglobal.com)

RIGHT SOLUTIONS RIGHT PARTNER

6403-32/ EMAIL



## Analysis / Test Report

**Client :** Global Power Synergy Public Company Limited  
92/9, Rayong Highway Road 3191, Map Ta Phut, Mueang, Rayong Thailand 21150

**P/O :**

**Project Name :** Monitoring

**Project Location :** CUP 1

**Lot ID: 2212308**

Date Received : Mar 23, 2022

Date Reported : Apr 05, 2022

Report Number : 2216005-1

Page 6 of 10

**Sample Number** 2212308-6  
**Sampled Date** Mar 23, 2022  
**Sample Description** Air Quality  
**Location** Cooling Tower #1  
**Date Analysis Commenced** Mar 28, 2022  
**Condition of Sample** Drawn into one amber plastic bottle, refrigerated  
**Barometric Pressure** 756 mmHg  
**Atmospheric Temperature** 30.0 °C

Analyte	Sampled Date/time	Unit	LOD	LOQ (LOR)	Result	Guideline Limit	Method	Guideline	Testing Location
<b>Air Testing</b>									
Chlorine as NaOCl	01:30 PM - 03:30 PM	ppm	-	0.10	<0.10	1(C)	Based on OSHA, ID 101	MOL	Bangkok

### Guideline :

MOL : Announcement of the Department of Labour Protection and Welfare on Threshold Limit Values of Hazardous Chemical Substances Dated August 3, B.E. 2560 (2017)

**Sampled By :** Norranon Tathongkham

### Remark :

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

Approved by

*Saranya C.*

Saranya Chalermtamrong  
Scientist (4)

The above results are valid only for the analyzed/tested sample(s) as indicated in this report. No part of this report or certificate may be reproduced in any form without written consent from the Laboratory. ALS Laboratory Group (Thailand) strongly recommends that this report is not reproduced except in full.

ADDRESS 104 Phatthanakan 40, Phatthanakan Rd., Khwaeng Phatthanakan, Khet Suan Luang, Bangkok 10250 Thailand | PHONE +66 0 2760 3000 | FAX +66 0 2760 3197  
ALS LABORATORY GROUP (THAILAND) CO., LTD. An ALS Limited Company

Life Sciences

[www.alsglobal.com](http://www.alsglobal.com)

RIGHT SOLUTIONS RIGHT PARTNER

6403-32/ EMAIL





## Analysis / Test Report

**Client :** Global Power Synergy Public Company Limited  
92/9, Rayong Highway Road 3191, Map Ta Phut, Mueang, Rayong Thailand 21150

**P/O :**

**Project Name :** Monitoring

**Project Location :** CUP 1

**Lot ID: 2212308**

Date Received : Mar 23, 2022

Date Reported : Apr 05, 2022

Report Number : 2216005-1

Page 7 of 10

**Sample Number** 2212308-7  
**Sampled Date** Mar 23, 2022  
**Sample Description** Air Quality  
**Location** Cooling Tower #2  
**Date Analysis Commenced** Mar 28, 2022  
**Condition of Sample** Drawn into one amber plastic bottle, refrigerated  
**Barometric Pressure** 756 mmHg  
**Atmospheric Temperature** 30.0 °C

Analyte	Sampled Date/time	Unit	LOD	LOQ (LOR)	Result	Guideline Limit	Method	Guideline	Testing Location
<b>Air Testing</b>									
Chlorine as NaOCl	01:30 PM - 03:30 PM	ppm	-	0.10	<0.10	1(C)	Based on OSHA, ID 101	MOL	Bangkok

### Guideline :

MOL : Announcement of the Department of Labour Protection and Welfare on Threshold Limit Values of Hazardous Chemical Substances Dated August 3, B.E. 2560 (2017)

**Sampled By :** Norranon Tathongkham

### Remark :

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

Approved by

*Saranya C.*

Saranya Chalermtamrong  
Scientist (4)

The above results are valid only for the analyzed/tested sample(s) as indicated in this report. No part of this report or certificate may be reproduced in any form without written consent from the Laboratory. ALS Laboratory Group (Thailand) strongly recommends that this report is not reproduced except in full.

ADDRESS 104 Phatthanakan 40, Phatthanakan Rd., Khwaeng Phatthanakan, Khet Suan Luang, Bangkok 10250 Thailand | PHONE +66 0 2760 3000 | FAX +66 0 2760 3197  
ALS LABORATORY GROUP (THAILAND) CO., LTD. An ALS Limited Company

Life Sciences

[www.alsglobal.com](http://www.alsglobal.com)

RIGHT SOLUTIONS RIGHT PARTNER

6403-32/ EMAIL



## Analysis / Test Report

**Client :** Global Power Synergy Public Company Limited  
92/9, Rayong Highway Road 3191, Map Ta Phut, Mueang, Rayong Thailand 21150

**P/O :**

**Project Name :** Monitoring

**Project Location :** CUP 1

**Lot ID: 2212308**

Date Received : Mar 23, 2022

Date Reported : Apr 05, 2022

Report Number : 2216005-1

Page 8 of 10

**Sample Number** 2212308-8  
**Sampled Date** Mar 23, 2022  
**Sample Description** Air Quality  
**Location** Cooling Tower #3  
**Date Analysis Commenced** Mar 28, 2022  
**Condition of Sample** Drawn into one amber plastic bottle, refrigerated  
**Barometric Pressure** 756 mmHg  
**Atmospheric Temperature** 30.0 °C

Analyte	Sampled Date/time	Unit	LOD	LOQ (LOR)	Result	Guideline Limit	Method	Guideline	Testing Location
<b>Air Testing</b>									
Chlorine as NaOCl	01:30 PM - 03:30 PM	ppm	-	0.10	<0.10	1(C)	Based on OSHA, ID 101	MOL	Bangkok

### Guideline :

MOL : Announcement of the Department of Labour Protection and Welfare on Threshold Limit Values of Hazardous Chemical Substances Dated August 3, B.E. 2560 (2017)

**Sampled By :** Norranon Tathongkham

### Remark :

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

Approved by

*Saranya C.*

Saranya Chalermtamrong  
Scientist (4)

The above results are valid only for the analyzed/tested sample(s) as indicated in this report. No part of this report or certificate may be reproduced in any form without written consent from the Laboratory. ALS Laboratory Group (Thailand) strongly recommends that this report is not reproduced except in full.

ADDRESS 104 Phatthanakan 40, Phatthanakan Rd., Khwaeng Phatthanakan, Khet Suan Luang, Bangkok 10250 Thailand | PHONE +66 0 2760 3000 | FAX +66 0 2760 3197  
ALS LABORATORY GROUP (THAILAND) CO., LTD. An ALS Limited Company

Life Sciences

[www.alsglobal.com](http://www.alsglobal.com)

RIGHT SOLUTIONS RIGHT PARTNER

6403-32/ EMAIL



## Analysis / Test Report

Client : Global Power Synergy Public Company Limited  
92/9, Rayong Highway Road 3191, Map Ta Phut, Mueang, Rayong Thailand 21150

P/O :

Project Name : Monitoring

Project Location : CUP 1

Lot ID: 2212308

Date Received : Mar 23, 2022

Date Reported : Apr 05, 2022

Report Number : 2216005-1

Page 9 of 10

Sample Number	2212308-9
Sampled Date	Mar 23, 2022
Sample Description	Air Quality
Location	Demin Plant #1
Date Analysis Commenced	Mar 24, 2022
Condition of Sample	Drawn into one filter paper placed in plastic cassette and one sorbent tube, refrigerated
Barometric Pressure	758 mmHg
Atmospheric Temperature	30.0 °C

Analyte	Sampled Date/time	Unit	LOD	LOQ (LOR)	Result	Guideline Limit	Method	Guideline	Testing Location
<b>Air Testing</b>									
Hydrogen chloride	01:30 PM - 03:30 PM	ppm	-	0.05	<0.05	5(C)	Based on OSHA, ID-174-SG	MOL	Bangkok
Sodium hydroxide as NaOH	01:30 PM - 03:30 PM	mg/m3	-	0.05	<0.05	2	NIOSH (1994), 7401	MOL	Rayong

### Guideline :

MOL : Announcement of the Department of Labour Protection and Welfare on Threshold Limit Values of Hazardous Chemical Substances Dated August 3, B.E. 2560 (2017)

Sampled By : Norranon Tathongkham

### Remark :

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

Approved by

*Saranya C.*

Saranya Chalermtamrong  
Scientist (4)

The above results are valid only for the analyzed/tested sample(s) as indicated in this report. No part of this report or certificate may be reproduced in any form without written consent from the Laboratory. ALS Laboratory Group (Thailand) strongly recommends that this report is not reproduced except in full.

ADDRESS 104 Phatthanakan 40, Phatthanakan Rd., Khwaeng Phatthanakan, Khet Suan Luang, Bangkok 10250 Thailand | PHONE +66 0 2760 3000 | FAX +66 0 2760 3197  
ALS LABORATORY GROUP (THAILAND) CO., LTD. An ALS Limited Company

Life Sciences

www.alsglobal.com

RIGHT SOLUTIONS RIGHT PARTNER

6403-32/ EMAIL



## Analysis / Test Report

Client : Global Power Synergy Public Company Limited  
92/9, Rayong Highway Road 3191, Map Ta Phut, Mueang, Rayong Thailand 21150

P/O :

Project Name : Monitoring

Project Location : CUP 1

Lot ID: 2212308

Date Received : Mar 23, 2022

Date Reported : Apr 05, 2022

Report Number : 2216005-1

Page 10 of 10

Sample Number	2212308-10
Sampled Date	Mar 23, 2022
Sample Description	Air Quality
Location	Demin Plant #2
Date Analysis Commenced	Mar 24, 2022
Condition of Sample	Drawn into one filter paper placed in plastic cassette and one sorbent tube, refrigerated
Barometric Pressure	758 mmHg
Atmospheric Temperature	30.0 °C

Analyte	Sampled Date/time	Unit	LOD	LOQ (LOR)	Result	Guideline Limit	Method	Guideline	Testing Location
<b>Air Testing</b>									
Hydrogen chloride	01:30 PM - 03:30 PM	ppm	-	0.05	<0.05	5(C)	Based on OSHA, ID-174-SG	MOL	Bangkok
Sodium hydroxide as NaOH	01:30 PM - 03:30 PM	mg/m3	-	0.05	<0.05	2	NIOSH (1994), 7401	MOL	Rayong

### Guideline :

MOL : Announcement of the Department of Labour Protection and Welfare on Threshold Limit Values of Hazardous Chemical Substances Dated August 3, B.E. 2560 (2017)

Sampled By : Norranon Tathongkham

### Remark :

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

Approved by

*Saranya C.*

Saranya Chalermtamrong  
Scientist (4)

The above results are valid only for the analyzed/tested sample(s) as indicated in this report. No part of this report or certificate may be reproduced in any form without written consent from the Laboratory. ALS Laboratory Group (Thailand) strongly recommends that this report is not reproduced except in full.

ADDRESS 104 Phatthanakan 40, Phatthanakan Rd., Khwaeng Phatthanakan, Khet Suan Luang, Bangkok 10250 Thailand | PHONE +66 0 2760 3000 | FAX +66 0 2760 3197  
ALS LABORATORY GROUP (THAILAND) CO., LTD. An ALS Limited Company

Life Sciences

www.alsglobal.com

RIGHT SOLUTIONS RIGHT PARTNER

6403-32/ EMAIL





## Analysis / Test Report

**Client :** Global Power Synergy Public Company Limited  
92/9, Rayong Highway Road 3191, Map Ta Phut, Mueang, Rayong Thailand 21150

**P/O :**

**Project Name :** Monitoring

**Project Location :** CUP 1



TESTING  
No.0042

**Lot ID: 2212322**

Date Received : Apr 05, 2022

Date Reported : Apr 07, 2022

Report Number: 2280385-1

Page 1 of 1

**Sample Number** 2212322-1  
**Parameter** Noise (Leq 24 hrs.)  
**Location** ริมรั้วด้านทางเข้าโรงงาน (GPS 47P 0730813, 1405150)  
**Measurement Date** Mar 28 - Mar 29, 2022  
**Measurement by** Satcha Phetsawaeng  
**Sound Level meter** Serial No. 1222724

Time	Leq (dB(A))	Lmax (dB(A))	L90 (dB(A))
12:00 PM - 01:00 PM	66.6	93.8	60.1
01:00 PM - 02:00 PM	67.2	83.9	60.3
02:00 PM - 03:00 PM	66.5	89.0	60.5
03:00 PM - 04:00 PM	66.5	84.2	60.3
04:00 PM - 05:00 PM	65.9	84.8	60.5
05:00 PM - 06:00 PM	67.3	83.7	61.5
06:00 PM - 07:00 PM	66.6	89.6	60.4
07:00 PM - 08:00 PM	68.9	94.6	60.4
08:00 PM - 09:00 PM	65.7	83.2	60.3
09:00 PM - 10:00 PM	62.7	73.8	59.7
10:00 PM - 11:00 PM	62.7	77.8	59.6
11:00 PM - 12:00 AM	62.6	83.8	59.5
12:00 AM - 01:00 AM	62.2	95.4	59.8
01:00 AM - 02:00 AM	61.7	73.6	59.9
02:00 AM - 03:00 AM	62.4	80.8	60.1
03:00 AM - 04:00 AM	63.6	90.0	60.2
04:00 AM - 05:00 AM	67.3	82.0	62.1
05:00 AM - 06:00 AM	64.8	81.1	60.6
06:00 AM - 07:00 AM	67.1	85.2	60.4
07:00 AM - 08:00 AM	71.9	94.5	61.0
08:00 AM - 09:00 AM	70.3	82.6	61.3
09:00 AM - 10:00 AM	68.3	84.8	61.4
10:00 AM - 11:00 AM	67.3	85.7	60.9
11:00 AM - 12:00 PM	67.2	95.5	60.3

Leq Average 24 hrs. (dB(A)) 66.8

Lmax (dB(A)) 95.5

L90 (dB(A)) 60.3

Ldn (dB(A)) 71.4

Standard (dB(A)) 70

Reference Method : ISO1996-1 and 1996-2

Standard : 1. ประกาศคณะกรรมการสิ่งแวดล้อมแห่งชาติ ฉบับที่ 15 (พ.ศ. 2540) เรื่องกำหนดมาตรฐานระดับเสียงโดยทั่วไป  
2. ประกาศกระทรวงอุตสาหกรรม เรื่องกำหนดค่าระดับเสียงการรบกวน และระดับเสียงที่เกิดจากการประกอบกิจการโรงงาน พ.ศ. 2548

Technical Management

*Thanita K.*

Thanita Kulsuriwong  
Scientist (4)

Approved by

*Supot S.*

Supot Salamteh  
Section Head

The above results are valid only for the analyzed/tested sample(s) as indicated in this report. No part of this report or certificate may be reproduced in any form without written consent from the Laboratory, ALS Laboratory Group (Thailand) strongly recommends that this report is not reproduced except in full.

ADDRESS 616/10 Moo 5 T. Maenam Khu A. Pluakdaeng Rayong 21140 Thailand | PHONE +66 0 3304 8555 | FAX +66 0 3304 8556  
ALS LABORATORY GROUP (THAILAND) CO., LTD. An ALS Limited Company

Life Sciences

www.alsglobal.com

RIGHT SOLUTIONS RIGHT PARTNER

6403-32/ EMAIL

S:\Reports\_Air Noise.rpt (11:47AM)



## Analysis / Test Report

**Client :** Global Power Synergy Public Company Limited  
92/9, Rayong Highway Road 3191, Map Ta Phut, Mueang, Rayong Thailand 21150

**P/O :**

**Project Name :** Monitoring

**Project Location :** CUP 1



TESTING  
No.0042

**Lot ID: 2212322**

Date Received : Apr 05, 2022

Date Reported : Apr 07, 2022

Report Number: 2280386-1

Page 1 of 1

**Sample Number** 2212322-2  
**Parameter** Noise (Leq 24 hrs.)  
**Location** ริมรั้วด้านทางเข้าโรงงาน (GPS 47P 0730813, 1405150)  
**Measurement Date** Mar 29 - Mar 30, 2022  
**Measurement by** Satcha Phetsawaeng  
**Sound Level meter** Serial No. 1222724

Time	Leq (dB(A))	Lmax (dB(A))	L90 (dB(A))
12:00 PM - 01:00 PM	66.2	92.6	59.9
01:00 PM - 02:00 PM	67.2	89.4	60.5
02:00 PM - 03:00 PM	67.9	88.4	60.3
03:00 PM - 04:00 PM	67.3	84.9	60.1
04:00 PM - 05:00 PM	67.0	83.4	60.3
05:00 PM - 06:00 PM	67.2	86.5	60.8
06:00 PM - 07:00 PM	68.1	94.9	61.0
07:00 PM - 08:00 PM	68.0	93.1	61.0
08:00 PM - 09:00 PM	66.2	87.3	60.7
09:00 PM - 10:00 PM	65.0	83.1	60.4
10:00 PM - 11:00 PM	65.0	92.8	60.2
11:00 PM - 12:00 AM	64.1	79.5	60.2
12:00 AM - 01:00 AM	63.5	79.7	60.1
01:00 AM - 02:00 AM	64.0	81.2	60.0
02:00 AM - 03:00 AM	63.5	80.3	60.2
03:00 AM - 04:00 AM	64.5	88.4	60.0
04:00 AM - 05:00 AM	63.5	82.5	59.8
05:00 AM - 06:00 AM	64.5	81.3	59.8
06:00 AM - 07:00 AM	68.4	90.8	60.5
07:00 AM - 08:00 AM	72.2	95.8	62.1
08:00 AM - 09:00 AM	69.9	95.3	61.8
09:00 AM - 10:00 AM	69.0	86.9	61.4
10:00 AM - 11:00 AM	68.2	84.0	61.6
11:00 AM - 12:00 PM	68.2	90.7	61.3

Leq Average 24 hrs. (dB(A)) 67.2

Lmax (dB(A)) 95.8

L90 (dB(A)) 60.3

Ldn (dB(A)) 71.9

Standard (dB(A)) 70

Reference Method : ISO1996-1 and 1996-2

Standard : 1. ประกาศคณะกรรมการสิ่งแวดล้อมแห่งชาติ ฉบับที่ 15 (พ.ศ. 2540) เรื่องกำหนดมาตรฐานระดับเสียงโดยทั่วไป  
2. ประกาศกระทรวงอุตสาหกรรม เรื่องกำหนดค่าระดับเสียงการรบกวน และระดับเสียงที่เกิดจากการประกอบกิจการโรงงาน พ.ศ. 2548

Technical Management

*Thanita K.*

Thanita Kulsuriwong  
Scientist (4)

Approved by

*Supot S.*

Supot Salamteh  
Section Head

The above results are valid only for the analyzed/tested sample(s) as indicated in this report. No part of this report or certificate may be reproduced in any form without written consent from the Laboratory, ALS Laboratory Group (Thailand) strongly recommends that this report is not reproduced except in full.

ADDRESS 616/10 Moo 5 T. Maenam Khu A. Pluakdaeng Rayong 21140 Thailand | PHONE +66 0 3304 8555 | FAX +66 0 3304 8556  
ALS LABORATORY GROUP (THAILAND) CO., LTD. An ALS Limited Company

Life Sciences

www.alsglobal.com

RIGHT SOLUTIONS RIGHT PARTNER

6403-32/ EMAIL

S:\Reports\_Air Noise.rpt (11:47AM)



## Analysis / Test Report

**Client :** Global Power Synergy Public Company Limited  
92/9, Rayong Highway Road 3191, Map Ta Phut, Mueang, Rayong Thailand 21150

**P/O :**

**Project Name :** Monitoring

**Project Location :** CUP 1



TESTING  
No.0042

**Lot ID: 2212322**

Date Received : Apr 05, 2022

Date Reported : Apr 07, 2022

Report Number: 2280387-1

Page 1 of 1

**Sample Number** 2212322-3  
**Parameter** Noise (Leq 24 hrs.)  
**Location** ริมรั้วด้านทางเข้าโรงงาน (GPS 47P 0730813, 1405150)  
**Measurement Date** Mar 30 - Mar 31, 2022  
**Measurement by** Satcha Phetsawaeng  
**Sound Level meter** Serial No. 1222724

Time	Leq (dB(A))	Lmax (dB(A))	L90 (dB(A))
12:00 PM - 01:00 PM	66.9	84.0	60.7
01:00 PM - 02:00 PM	69.0	85.2	61.9
02:00 PM - 03:00 PM	69.3	94.8	61.8
03:00 PM - 04:00 PM	68.0	84.6	60.8
04:00 PM - 05:00 PM	67.2	85.4	60.5
05:00 PM - 06:00 PM	66.8	89.5	60.4
06:00 PM - 07:00 PM	67.8	93.6	60.7
07:00 PM - 08:00 PM	67.8	90.9	60.3
08:00 PM - 09:00 PM	66.5	84.6	60.3
09:00 PM - 10:00 PM	65.2	83.2	60.2
10:00 PM - 11:00 PM	65.7	83.5	60.3
11:00 PM - 12:00 AM	65.2	85.5	60.3
12:00 AM - 01:00 AM	64.5	85.4	60.7
01:00 AM - 02:00 AM	64.6	85.1	60.1
02:00 AM - 03:00 AM	63.8	81.1	60.1
03:00 AM - 04:00 AM	64.7	82.1	60.4
04:00 AM - 05:00 AM	64.6	81.6	60.5
05:00 AM - 06:00 AM	64.9	84.0	60.5
06:00 AM - 07:00 AM	67.8	83.4	60.7
07:00 AM - 08:00 AM	71.8	97.8	60.9
08:00 AM - 09:00 AM	69.3	91.3	60.7
09:00 AM - 10:00 AM	67.5	93.5	60.0
10:00 AM - 11:00 AM	67.3	83.9	59.9
11:00 AM - 12:00 PM	67.5	85.7	60.4

Leq Average 24 hrs. (dB(A)) 67.3  
Lmax (dB(A)) 97.8  
L90 (dB(A)) 60.4  
Ldn (dB(A)) 72.2  
Standard (dB(A)) 70 115

Reference Method : ISO1996-1 and 1996-2

Standard : 1. ประกาศคณะกรรมการสิ่งแวดล้อมแห่งชาติ ฉบับที่ 15 (พ.ศ. 2540) เรื่องกำหนดมาตรฐานระดับเสียงโดยทั่วไป  
2. ประกาศกระทรวงอุตสาหกรรม เรื่องกำหนดค่าระดับเสียงการรบกวน และระดับเสียงที่เกิดจากการประกอบกิจการโรงงาน พ.ศ. 2548

Technical Management

*Thanita K.*

Thanita Kulsuriwong  
Scientist (4)

Approved by

*Supot S.*

Supot Salamteh  
Section Head

The above results are valid only for the analyzed/tested sample(s) as indicated in this report. No part of this report or certificate may be reproduced in any form without written consent from the Laboratory, ALS Laboratory Group (Thailand) strongly recommends that this report is not reproduced except in full.

ADDRESS 616/10 Moo 5 T. Maenam Khu A. Pluakdaeng Rayong 21140 Thailand | PHONE +66 0 3304 8555 | FAX +66 0 3304 8556  
ALS LABORATORY GROUP (THAILAND) CO., LTD. An ALS Limited Company

Life Sciences

www.alsglobal.com

RIGHT SOLUTIONS RIGHT PARTNER

6403-32/ EMAIL

S:\Reports\_Air Noise.rpt (11:47AM)



## Analysis / Test Report

**Client :** Global Power Synergy Public Company Limited  
92/9, Rayong Highway Road 3191, Map Ta Phut, Mueang, Rayong Thailand 21150

**P/O :**

**Project Name :** Monitoring

**Project Location :** CUP 1



TESTING  
No.0042

**Lot ID: 2212322**

Date Received : Apr 05, 2022

Date Reported : Apr 07, 2022

Report Number: 2280388-1

Page 1 of 1

**Sample Number** 2212322-4  
**Parameter** Noise (Leq 24 hrs.)  
**Location** ริมรั้วด้านทางเข้าโรงงาน (GPS 47P 0730813, 1405150)  
**Measurement Date** Mar 31 - Apr 01, 2022  
**Measurement by** Satcha Phetsawaeng  
**Sound Level meter** Serial No. 1222724

Time	Leq (dB(A))	Lmax (dB(A))	L90 (dB(A))
12:00 PM - 01:00 PM	67.7	88.2	61.1
01:00 PM - 02:00 PM	67.5	86.7	60.7
02:00 PM - 03:00 PM	67.8	83.2	60.5
03:00 PM - 04:00 PM	67.7	85.4	60.7
04:00 PM - 05:00 PM	67.3	82.2	60.6
05:00 PM - 06:00 PM	68.0	87.0	62.3
06:00 PM - 07:00 PM	67.9	85.4	61.3
07:00 PM - 08:00 PM	67.7	93.7	61.4
08:00 PM - 09:00 PM	66.5	82.5	61.4
09:00 PM - 10:00 PM	63.8	80.2	60.6
10:00 PM - 11:00 PM	63.9	82.6	61.1
11:00 PM - 12:00 AM	63.5	89.9	60.7
12:00 AM - 01:00 AM	62.7	83.0	60.5
01:00 AM - 02:00 AM	62.4	78.9	60.6
02:00 AM - 03:00 AM	63.4	85.1	61.0
03:00 AM - 04:00 AM	63.3	83.8	60.5
04:00 AM - 05:00 AM	62.4	81.1	60.1
05:00 AM - 06:00 AM	64.3	80.5	60.4
06:00 AM - 07:00 AM	67.5	87.9	60.7
07:00 AM - 08:00 AM	72.1	98.8	60.8
08:00 AM - 09:00 AM	69.8	90.9	60.8
09:00 AM - 10:00 AM	68.3	95.5	60.0
10:00 AM - 11:00 AM	66.2	86.9	59.9
11:00 AM - 12:00 PM	66.3	90.0	59.7

Leq Average 24 hrs. (dB(A)) 66.9  
Lmax (dB(A)) 98.8  
L90 (dB(A)) 60.7  
Ldn (dB(A)) 71.3  
Standard (dB(A)) 70 115

Reference Method : ISO1996-1 and 1996-2

Standard : 1. ประกาศคณะกรรมการสิ่งแวดล้อมแห่งชาติ ฉบับที่ 15 (พ.ศ. 2540) เรื่องกำหนดมาตรฐานระดับเสียงโดยทั่วไป  
2. ประกาศกระทรวงอุตสาหกรรม เรื่องกำหนดค่าระดับเสียงการรบกวน และระดับเสียงที่เกิดจากการประกอบกิจการโรงงาน พ.ศ. 2548

Technical Management

*Thanita K.*

Thanita Kulsuriwong  
Scientist (4)

Approved by

*Supot S.*

Supot Salamteh  
Section Head

The above results are valid only for the analyzed/tested sample(s) as indicated in this report. No part of this report or certificate may be reproduced in any form without written consent from the Laboratory, ALS Laboratory Group (Thailand) strongly recommends that this report is not reproduced except in full.

ADDRESS 616/10 Moo 5 T. Maenam Khu A. Pluakdaeng Rayong 21140 Thailand | PHONE +66 0 3304 8555 | FAX +66 0 3304 8556  
ALS LABORATORY GROUP (THAILAND) CO., LTD. An ALS Limited Company

Life Sciences

www.alsglobal.com

RIGHT SOLUTIONS RIGHT PARTNER

6403-32/ EMAIL

S:\Reports\_Air Noise.rpt (11:47AM)





## Analysis / Test Report

**Client :** Global Power Synergy Public Company Limited  
92/9, Rayong Highway Road 3191, Map Ta Phut, Mueang, Rayong Thailand 21150

**P/O :**

**Project Name :** Monitoring

**Project Location :** CUP 1



TESTING  
No.0042

**Lot ID: 2212322**

Date Received : Apr 05, 2022

Date Reported : Apr 07, 2022

Report Number: 2280389-1

Page 1 of 1

**Sample Number** 2212322-5  
**Parameter** Noise (Leq 24 hrs.)  
**Location** ริมรั้วด้านทางเข้าโรงงาน (GPS 47P 0730813, 1405150)  
**Measurement Date** Apr 01 - Apr 02, 2022  
**Measurement by** Satcha Phetsawaeng  
**Sound Level meter** Serial No. 1222724

Time	Leq (dB(A))	Lmax (dB(A))	L90 (dB(A))
12:00 PM - 01:00 PM	66.1	85.0	59.1
01:00 PM - 02:00 PM	65.8	93.1	59.2
02:00 PM - 03:00 PM	66.6	82.3	59.7
03:00 PM - 04:00 PM	66.6	85.5	59.3
04:00 PM - 05:00 PM	67.8	100.2	59.6
05:00 PM - 06:00 PM	66.3	88.1	59.9
06:00 PM - 07:00 PM	66.7	88.4	59.5
07:00 PM - 08:00 PM	68.9	93.0	59.9
08:00 PM - 09:00 PM	64.9	84.0	60.0
09:00 PM - 10:00 PM	63.8	82.7	59.7
10:00 PM - 11:00 PM	64.7	83.8	60.7
11:00 PM - 12:00 AM	64.8	82.9	62.7
12:00 AM - 01:00 AM	61.7	82.4	59.4
01:00 AM - 02:00 AM	62.3	83.5	59.3
02:00 AM - 03:00 AM	62.0	79.4	59.3
03:00 AM - 04:00 AM	61.7	73.3	59.6
04:00 AM - 05:00 AM	63.4	84.1	59.8
05:00 AM - 06:00 AM	64.4	93.2	60.0
06:00 AM - 07:00 AM	66.5	89.1	60.4
07:00 AM - 08:00 AM	70.2	88.4	60.6
08:00 AM - 09:00 AM	68.3	93.7	60.2
09:00 AM - 10:00 AM	66.0	85.0	59.8
10:00 AM - 11:00 AM	65.1	91.6	60.0
11:00 AM - 12:00 PM	67.0	91.8	59.8

Leq Average 24 hrs. (dB(A)) 66.1

Lmax (dB(A)) 100.2

L90 (dB(A)) 59.8

Ldn (dB(A)) 70.9

Standard (dB(A)) 70

Reference Method : ISO1996-1 and 1996-2

Standard : 1. ประกาศคณะกรรมการสิ่งแวดล้อมแห่งชาติ ฉบับที่ 15 (พ.ศ. 2540) เรื่องกำหนดมาตรฐานระดับเสียงโดยทั่วไป  
2. ประกาศกระทรวงอุตสาหกรรม เรื่องกำหนดค่าระดับเสียงการรบกวน และระดับเสียงที่เกิดจากการประกอบกิจการโรงงาน พ.ศ. 2548

Technical Management

*Thanita K.*

Thanita Kulsuriwong  
Scientist (4)

Approved by

*Supot S.*

Supot Salamteh  
Section Head

The above results are valid only for the analyzed/tested sample(s) as indicated in this report. No part of this report or certificate may be reproduced in any form without written consent from the Laboratory, ALS Laboratory Group (Thailand) strongly recommends that this report is not reproduced except in full.

ADDRESS 616/10 Moo 5 T. Maenam Khu A. Pluakdaeng Rayong 21140 Thailand | PHONE +66 0 3304 8555 | FAX +66 0 3304 8556  
ALS LABORATORY GROUP (THAILAND) CO., LTD. An ALS Limited Company

Life Sciences

www.alsglobal.com

RIGHT SOLUTIONS RIGHT PARTNER

6403-32/ EMAIL

S:\Reports\_Air Noise.rpt (11:47AM)



## Analysis / Test Report

**Client :** Global Power Synergy Public Company Limited  
92/9, Rayong Highway Road 3191, Map Ta Phut, Mueang, Rayong Thailand 21150

**P/O :**

**Project Name :** Monitoring

**Project Location :** CUP 1



TESTING  
No.0042

**Lot ID: 2212322**

Date Received : Apr 05, 2022

Date Reported : Apr 07, 2022

Report Number: 2280390-1

Page 1 of 1

**Sample Number** 2212322-6  
**Parameter** Noise (Leq 24 hrs.)  
**Location** ริมรั้วด้านทางเข้าโรงงาน (GPS 47P 0730813, 1405150)  
**Measurement Date** Apr 02 - Apr 03, 2022  
**Measurement by** Satcha Phetsawaeng  
**Sound Level meter** Serial No. 1222724

Time	Leq (dB(A))	Lmax (dB(A))	L90 (dB(A))
12:00 PM - 01:00 PM	65.1	81.3	59.5
01:00 PM - 02:00 PM	65.7	87.9	59.9
02:00 PM - 03:00 PM	66.1	86.9	59.7
03:00 PM - 04:00 PM	66.9	88.0	60.5
04:00 PM - 05:00 PM	67.2	87.1	62.1
05:00 PM - 06:00 PM	66.3	86.7	60.3
06:00 PM - 07:00 PM	66.2	87.4	60.1
07:00 PM - 08:00 PM	67.2	85.9	60.1
08:00 PM - 09:00 PM	65.5	89.5	59.8
09:00 PM - 10:00 PM	64.1	87.0	59.4
10:00 PM - 11:00 PM	64.2	84.5	59.6
11:00 PM - 12:00 AM	64.9	87.3	59.5
12:00 AM - 01:00 AM	63.2	84.5	59.7
01:00 AM - 02:00 AM	63.7	83.5	59.5
02:00 AM - 03:00 AM	63.7	85.5	59.5
03:00 AM - 04:00 AM	63.5	85.3	59.5
04:00 AM - 05:00 AM	63.1	84.7	60.0
05:00 AM - 06:00 AM	64.1	86.8	60.0
06:00 AM - 07:00 AM	67.7	96.0	60.6
07:00 AM - 08:00 AM	69.2	94.5	60.9
08:00 AM - 09:00 AM	68.5	89.0	60.7
09:00 AM - 10:00 AM	65.9	86.3	60.2
10:00 AM - 11:00 AM	65.8	85.1	59.4
11:00 AM - 12:00 PM	64.9	86.4	59.0

Leq Average 24 hrs. (dB(A)) 65.9

Lmax (dB(A)) 96.0

L90 (dB(A)) 59.8

Ldn (dB(A)) 71.3

Standard (dB(A)) 70

Reference Method : ISO1996-1 and 1996-2

Standard : 1. ประกาศคณะกรรมการสิ่งแวดล้อมแห่งชาติ ฉบับที่ 15 (พ.ศ. 2540) เรื่องกำหนดมาตรฐานระดับเสียงโดยทั่วไป  
2. ประกาศกระทรวงอุตสาหกรรม เรื่องกำหนดค่าระดับเสียงการรบกวน และระดับเสียงที่เกิดจากการประกอบกิจการโรงงาน พ.ศ. 2548

Technical Management

*Thanita K.*

Thanita Kulsuriwong  
Scientist (4)

Approved by

*Supot S.*

Supot Salamteh  
Section Head

The above results are valid only for the analyzed/tested sample(s) as indicated in this report. No part of this report or certificate may be reproduced in any form without written consent from the Laboratory, ALS Laboratory Group (Thailand) strongly recommends that this report is not reproduced except in full.

ADDRESS 616/10 Moo 5 T. Maenam Khu A. Pluakdaeng Rayong 21140 Thailand | PHONE +66 0 3304 8555 | FAX +66 0 3304 8556  
ALS LABORATORY GROUP (THAILAND) CO., LTD. An ALS Limited Company

Life Sciences

www.alsglobal.com

RIGHT SOLUTIONS RIGHT PARTNER

6403-32/ EMAIL

S:\Reports\_Air Noise.rpt (11:48AM)



## Analysis / Test Report



TESTING  
No.0042

**Client :** Global Power Synergy Public Company Limited  
92/9, Rayong Highway Road 3191, Map Ta Phut, Mueang, Rayong Thailand 21150

**Lot ID: 2212322**

Date Received : Apr 05, 2022

Date Reported : Apr 07, 2022

Report Number: 2280391-1

**P/O :**

**Project Name :** Monitoring

**Project Location :** CUP 1

Page 1 of 1

**Sample Number** 2212322-7  
**Parameter** Noise (Leq 24 hrs.)  
**Location** ชุมวัดด้านทางฟ้าโรงงาน (GPS 47F 0730813, 1405150)  
**Measurement Date** Apr 03 - Apr 04, 2022  
**Measurement by** Satcha Phetsawaeng  
**Sound Level meter** Serial No. 1222724

Time	Leq (dB(A))	Lmax (dB(A))	L90 (dB(A))
12:00 PM - 01:00 PM	65.1	84.3	58.8
01:00 PM - 02:00 PM	65.5	83.9	58.8
02:00 PM - 03:00 PM	66.4	85.0	59.0
03:00 PM - 04:00 PM	65.2	84.3	58.8
04:00 PM - 05:00 PM	65.5	84.1	58.8
05:00 PM - 06:00 PM	64.6	84.9	58.6
06:00 PM - 07:00 PM	65.6	84.8	59.0
07:00 PM - 08:00 PM	69.0	99.8	59.2
08:00 PM - 09:00 PM	64.6	84.3	59.3
09:00 PM - 10:00 PM	62.3	77.6	59.3
10:00 PM - 11:00 PM	62.4	82.7	59.2
11:00 PM - 12:00 AM	62.6	85.0	59.0
12:00 AM - 01:00 AM	61.1	81.3	58.9
01:00 AM - 02:00 AM	61.2	77.0	58.8
02:00 AM - 03:00 AM	61.3	77.8	59.0
03:00 AM - 04:00 AM	61.6	79.1	58.9
04:00 AM - 05:00 AM	62.7	83.8	58.8
05:00 AM - 06:00 AM	63.6	82.1	59.0
06:00 AM - 07:00 AM	67.5	85.6	59.6
07:00 AM - 08:00 AM	70.6	93.1	59.9
08:00 AM - 09:00 AM	68.8	87.4	60.0
09:00 AM - 10:00 AM	66.7	85.0	59.4
10:00 AM - 11:00 AM	64.4	81.8	59.5
11:00 AM - 12:00 PM	62.7	77.9	59.7

Leq Average 24 hrs. (dB(A)) 65.4  
Lmax (dB(A)) 99.8  
L90 (dB(A)) 59.0  
Ldn (dB(A)) 70.2  
Standard (dB(A)) 70 115

Reference Method : ISO1996-1 and 1996-2

Standard : 1. ประกาศคณะกรรมการสิ่งแวดล้อมแห่งชาติ ฉบับที่ 15 (พ.ศ. 2540) เรื่องกำหนดมาตรฐานระดับเสียงโดยทั่วไป  
2. ประกาศกระทรวงอุตสาหกรรม เรื่องกำหนดค่าระดับเสียงการรบกวน และระดับเสียงที่เกิดจากการประกอบกิจการโรงงาน พ.ศ. 2548

Technical Management

*Thanita K.*

Thanita Kulsuriwong  
Scientist (4)

Approved by

*Supot S.*

Supot Salamteh  
Section Head

The above results are valid only for the analyzed/tested sample(s) as indicated in this report. No part of this report or certificate may be reproduced in any form without written consent from the Laboratory. ALS Laboratory Group (Thailand) strongly recommends that this report is not reproduced except in full.

ADDRESS 616/10 Moo 5 T. Muenam Khu A. Pluakdaeng Rayong 21140 Thailand | PHONE +66 0 3304 8555 | FAX +66 0 3304 8556  
ALS LABORATORY GROUP (THAILAND) CO., LTD. An ALS Limited Company

Life Sciences

www.alsglobal.com

RIGHT SOLUTIONS RIGHT PARTNER





## Analysis / Test Report

Client : Global Power Synergy Public Company Limited  
92/9, Rayong Highway Road 3191, Map Ta Phut, Mueang, Rayong Thailand 21150  
P/O :  
Project Name : Monitoring  
Project Location : CUP 1

Lot ID: 2212352  
Date Received : Mar 23, 2022  
Date Reported : Mar 28, 2022  
Report Number: 2270962-1

Page 1 of 1

Sample Number	2212352-1		
Parameter	Noise (Leq 8 hrs.)		
Location	ในพื้นที่โรงงาน		
Measurement Date	Mar 21, 2022		
Measurement by	Natthapon Jengwareewong		
Time	Leq (dB(A))	Lmax (dB(A))	L90 (dB(A))
08:19 AM - 09:19 AM	81.7	92.9	77.8
09:19 AM - 10:19 AM	82.0	93.2	78.1
10:19 AM - 11:19 AM	78.1	84.0	76.2
11:19 AM - 12:19 PM	77.4	87.7	76.2
12:19 PM - 01:19 PM	77.2	82.9	76.1
01:19 PM - 02:19 PM	76.9	82.3	76.0
02:19 PM - 03:19 PM	77.6	91.3	76.3
03:19 PM - 04:19 PM	82.3	86.1	81.3
Leq Average 8 hrs. (dB(A))	79.7		
Lmax (dB(A))		93.2	
Standard (dB(A))	90	140	
Reference Method : ISO1996-1 and 1996-2			
Standard : มาตรฐานการวัดและประเมินผลเสียง อาศัยการหาค่าเฉลี่ยแบบเลขคณิต			
ตามวิธีมาตรฐานการประเมินผลเสียงตามข้อกำหนดของกรมส่งเสริมการค้าระหว่างประเทศ			



## Analysis / Test Report

Client : Global Power Synergy Public Company Limited  
92/9, Rayong Highway Road 3191, Map Ta Phut, Mueang, Rayong Thailand 21150  
P/O :  
Project Name : Monitoring  
Project Location : CUP 1

Lot ID: 2212352  
Date Received : Mar 23, 2022  
Date Reported : Mar 28, 2022  
Report Number: 2270963-1

Page 1 of 1

Sample Number	2212352-2		
Parameter	Noise (Leq 8 hrs.)		
Location	บนถนน		
Measurement Date	Mar 21, 2022		
Measurement by	Natthapon Jengwareewong		
Time	Leq (dB(A))	Lmax (dB(A))	L90 (dB(A))
08:24 PM - 09:24 PM	70.6	75.3	70.3
09:24 PM - 10:24 PM	70.6	74.1	70.3
10:24 PM - 11:24 PM	70.5	75.0	70.2
11:24 PM - 12:24 AM	70.5	73.3	70.3
12:24 AM - 01:24 AM	70.4	72.8	70.2
01:24 AM - 02:24 AM	70.5	72.6	70.3
02:24 AM - 03:24 AM	70.6	78.4	70.4
03:24 AM - 04:24 AM	70.5	72.8	70.3
Leq Average 8 hrs. (dB(A))	70.5		
Lmax (dB(A))		70.4	
Standard (dB(A))	90	140	
Reference Method : ISO1996-1 and 1996-2			
Standard : มาตรฐานการวัดและประเมินผลเสียง อาศัยการหาค่าเฉลี่ยแบบเลขคณิต			
ตามวิธีมาตรฐานการประเมินผลเสียงตามข้อกำหนดของกรมส่งเสริมการค้าระหว่างประเทศ			

Technical Management

Thanitak.  
Thanita Kulsiwong  
Scientist (4)

Approved by

Supot S.  
Supot Salameth  
Section Head

The above results are valid only for the analyzed/tested sample(s) as indicated in this report. No part of this report or certificate may be reproduced in any form without written consent from the Laboratory. ALS Laboratory Group (Thailand) strongly recommends that this report is not reproduced except in full.

ADDRESS 616/10 Moo 5 T. Maenam Khu A. Phraekong Rayong 21140 Thailand | PHONE +66 0 3304 8555 | FAX +66 0 3304 8556  
ALS LABORATORY GROUP (THAILAND) CO., LTD. An ALS Limited Company

LIFE Sciences

www.alsglobal.com

RIGHT SOLUTIONS RIGHT PARTNER

S:\Reports\_Air Noise rpt ( 3-41PM)

Technical Management

Thanitak.  
Thanita Kulsiwong  
Scientist (4)

Approved by

Supot S.  
Supot Salameth  
Section Head

The above results are valid only for the analyzed/tested sample(s) as indicated in this report. No part of this report or certificate may be reproduced in any form without written consent from the Laboratory. ALS Laboratory Group (Thailand) strongly recommends that this report is not reproduced except in full.

ADDRESS 616/10 Moo 5 T. Maenam Khu A. Phraekong Rayong 21140 Thailand | PHONE +66 0 3304 8555 | FAX +66 0 3304 8556  
ALS LABORATORY GROUP (THAILAND) CO., LTD. An ALS Limited Company

LIFE Sciences

www.alsglobal.com

RIGHT SOLUTIONS RIGHT PARTNER

S:\Reports\_Air Noise rpt ( 3-41PM)



## Analysis / Test Report

Client : Global Power Synergy Public Company Limited  
92/9, Rayong Highway Road 3191, Map Ta Phut, Mueang, Rayong Thailand 21150  
P/O :  
Project Name : Monitoring  
Project Location : CUP 1

Lot ID: 2212352  
Date Received : Mar 23, 2022  
Date Reported : Mar 28, 2022  
Report Number: 2270964-1

Page 1 of 1

Sample Number	2212352-3		
Parameter	Noise (Leq 8 hrs.)		
Location	ในพื้นที่โรงงาน		
Measurement Date	Mar 21, 2022		
Measurement by	Natthapon Jengwareewong		
Time	Leq (dB(A))	Lmax (dB(A))	L90 (dB(A))
08:18 AM - 09:18 AM	76.4	79.7	75.7
09:18 AM - 10:18 AM	76.2	79.0	75.6
10:18 AM - 11:18 AM	76.7	82.0	76.2
11:18 AM - 12:18 PM	76.7	81.7	76.2
12:18 PM - 01:18 PM	77.0	80.0	76.3
01:18 PM - 02:18 PM	77.7	80.0	76.9
02:18 PM - 03:18 PM	77.7	81.7	76.9
03:18 PM - 04:18 PM	77.7	80.8	76.9
Leq Average 8 hrs. (dB(A))	77.1		
Lmax (dB(A))		82.0	
Standard (dB(A))	90	140	
Reference Method : ISO1996-1 and 1996-2			
Standard : มาตรฐานการวัดและประเมินผลเสียง อาศัยการหาค่าเฉลี่ยแบบเลขคณิต			
ตามวิธีมาตรฐานการประเมินผลเสียงตามข้อกำหนดของกรมส่งเสริมการค้าระหว่างประเทศ			



## Analysis / Test Report

Client : Global Power Synergy Public Company Limited  
92/9, Rayong Highway Road 3191, Map Ta Phut, Mueang, Rayong Thailand 21150  
P/O :  
Project Name : Monitoring  
Project Location : CUP 1

Lot ID: 2212352  
Date Received : Mar 23, 2022  
Date Reported : Mar 28, 2022  
Report Number: 2270965-1

Page 1 of 1

Sample Number	2212352-4		
Parameter	Noise (Leq 8 hrs.)		
Location	ในพื้นที่โรงงาน		
Measurement Date	Mar 21, 2022		
Measurement by	Natthapon Jengwareewong		
Time	Leq (dB(A))	Lmax (dB(A))	L90 (dB(A))
08:24 PM - 09:24 PM	79.3	82.8	79.1
09:24 PM - 10:24 PM	79.4	83.8	79.2
10:24 PM - 11:24 PM	79.3	81.2	79.1
11:24 PM - 12:24 AM	79.4	83.6	79.1
12:24 AM - 01:24 AM	79.6	81.2	79.4
01:24 AM - 02:24 AM	79.0	82.2	79.5
02:24 AM - 03:24 AM	79.8	82.7	79.5
03:24 AM - 04:24 AM	79.9	81.2	79.6
Leq Average 8 hrs. (dB(A))	79.6		
Lmax (dB(A))		83.8	
Standard (dB(A))	90	140	
Reference Method : ISO1996-1 and 1996-2			
Standard : มาตรฐานการวัดและประเมินผลเสียง อาศัยการหาค่าเฉลี่ยแบบเลขคณิต			
ตามวิธีมาตรฐานการประเมินผลเสียงตามข้อกำหนดของกรมส่งเสริมการค้าระหว่างประเทศ			

Technical Management

Thanitak.  
Thanita Kulsiwong  
Scientist (4)

Approved by

Supot S.  
Supot Salameth  
Section Head

The above results are valid only for the analyzed/tested sample(s) as indicated in this report. No part of this report or certificate may be reproduced in any form without written consent from the Laboratory. ALS Laboratory Group (Thailand) strongly recommends that this report is not reproduced except in full.

ADDRESS 616/10 Moo 5 T. Maenam Khu A. Phraekong Rayong 21140 Thailand | PHONE +66 0 3304 8555 | FAX +66 0 3304 8556  
ALS LABORATORY GROUP (THAILAND) CO., LTD. An ALS Limited Company

LIFE Sciences

www.alsglobal.com

RIGHT SOLUTIONS RIGHT PARTNER

S:\Reports\_Air Noise rpt ( 3-41PM)

Technical Management

Thanitak.  
Thanita Kulsiwong  
Scientist (4)

Approved by

Supot S.  
Supot Salameth  
Section Head

The above results are valid only for the analyzed/tested sample(s) as indicated in this report. No part of this report or certificate may be reproduced in any form without written consent from the Laboratory. ALS Laboratory Group (Thailand) strongly recommends that this report is not reproduced except in full.

ADDRESS 616/10 Moo 5 T. Maenam Khu A. Phraekong Rayong 21140 Thailand | PHONE +66 0 3304 8555 | FAX +66 0 3304 8556  
ALS LABORATORY GROUP (THAILAND) CO., LTD. An ALS Limited Company

LIFE Sciences

www.alsglobal.com

RIGHT SOLUTIONS RIGHT PARTNER

S:\Reports\_Air Noise rpt ( 3-41PM)



## Analysis / Test Report

Client : Global Power Synergy Public Company Limited  
92/9, Rayong Highway Road 3191, Map Ta Phut, Mueang, Rayong Thailand 21150  
P/O :  
Project Name : Monitoring  
Project Location : CUP 1

Lot ID: 2212352  
Date Received : Mar 23, 2022  
Date Reported : Mar 28, 2022  
Report Number: 2270966-1

Page 1 of 1

Sample Number	2212352-5		
Parameter	Noise (Leq 8 hrs.)		
Location	ในพื้นที่วัดไฟฟ้าบริเวณ #3		
Measurement Date	Mar 21, 2022		
Measurement by	Nathapon Jengwareewong		
Time	Leq (dB(A))	Lmax (dB(A))	L90 (dB(A))
08:17 AM - 09:17 AM	81.2	81.3	80.5
09:17 AM - 10:17 AM	80.8	82.0	80.5
10:17 AM - 11:17 AM	80.3	81.8	79.8
11:17 AM - 12:17 PM	79.9	82.6	79.8
12:17 PM - 01:17 PM	80.1	83.0	79.8
01:17 PM - 02:17 PM	80.3	82.2	80.1
02:17 PM - 03:17 PM	80.3	81.6	80.1
03:17 PM - 04:17 PM	80.4	81.8	80.2
Leq Average 8 hrs. (dB(A))	80.4		
Lmax (dB(A))		83.0	
Standard (dB(A))	90	140	
Reference Method : ISO1996-1 and 1996-2			
Standard : มาตรฐานการวัดและประเมินผลเสียง อาศัยการเทียบมาตรฐานของเสียง			
ตามรูปแบบการวัดที่ระบุไว้ในคู่มือการวัดและประเมินผลเสียงของกรมส่งเสริมการค้าระหว่างประเทศ			



## Analysis / Test Report

Client : Global Power Synergy Public Company Limited  
92/9, Rayong Highway Road 3191, Map Ta Phut, Mueang, Rayong Thailand 21150  
P/O :  
Project Name : Monitoring  
Project Location : CUP 1

Lot ID: 2212352  
Date Received : Mar 23, 2022  
Date Reported : Mar 28, 2022  
Report Number: 2270967-1

Page 1 of 1

Sample Number	2212352-6		
Parameter	Noise (Leq 8 hrs.)		
Location	ในพื้นที่วัดไฟฟ้าบริเวณ #4		
Measurement Date	Mar 21, 2022		
Measurement by	Nathapon Jengwareewong		
Time	Leq (dB(A))	Lmax (dB(A))	L90 (dB(A))
08:27 PM - 09:27 PM	80.7	81.9	80.5
09:27 PM - 10:27 PM	80.6	82.5	80.4
10:27 PM - 11:27 PM	80.6	81.3	80.4
11:27 PM - 12:27 AM	80.6	82.0	80.4
12:27 AM - 01:27 AM	80.5	81.3	80.4
01:27 AM - 02:27 AM	80.7	81.5	80.5
02:27 AM - 03:27 AM	80.7	82.3	80.5
03:27 AM - 04:27 AM	80.7	81.3	80.6
Leq Average 8 hrs. (dB(A))	80.6		
Lmax (dB(A))		82.5	
Standard (dB(A))	90	140	
Reference Method : ISO1996-1 and 1996-2			
Standard : มาตรฐานการวัดและประเมินผลเสียง อาศัยการเทียบมาตรฐานของเสียง			
ตามรูปแบบการวัดที่ระบุไว้ในคู่มือการวัดและประเมินผลเสียงของกรมส่งเสริมการค้าระหว่างประเทศ			

Technical Management

Thanitak.  
Thanita Kulsiwong  
Scientist (4)

Approved by

Supot S.  
Supot Salameth  
Section Head

The above results are valid only for the analyzed/tested sample(s) as indicated in this report. No part of this report or certificate may be reproduced in any form without written consent from the Laboratory. ALS Laboratory Group (Thailand) strongly recommends that this report is not reproduced except in full.

ADDRESS 616/10 Moo 5 T. Maenam Khu A. Phrakdaeng Rayong 21140 Thailand | PHONE +66 0 3304 8555 | FAX +66 0 3304 8556  
ALS LABORATORY GROUP (THAILAND) CO., LTD. An ALS Limited Company

LIFE Sciences

www.alsglobal.com

RIGHT SOLUTIONS RIGHT PARTNER

S:\Reports\_Air Noise rpt (3-42PM)

Technical Management

Thanitak.  
Thanita Kulsiwong  
Scientist (4)

Approved by

Supot S.  
Supot Salameth  
Section Head

The above results are valid only for the analyzed/tested sample(s) as indicated in this report. No part of this report or certificate may be reproduced in any form without written consent from the Laboratory. ALS Laboratory Group (Thailand) strongly recommends that this report is not reproduced except in full.

ADDRESS 616/10 Moo 5 T. Maenam Khu A. Phrakdaeng Rayong 21140 Thailand | PHONE +66 0 3304 8555 | FAX +66 0 3304 8556  
ALS LABORATORY GROUP (THAILAND) CO., LTD. An ALS Limited Company

LIFE Sciences

www.alsglobal.com

RIGHT SOLUTIONS RIGHT PARTNER

S:\Reports\_Air Noise rpt (3-42PM)



## Analysis / Test Report

Client : Global Power Synergy Public Company Limited  
92/9, Rayong Highway Road 3191, Map Ta Phut, Mueang, Rayong Thailand 21150  
P/O :  
Project Name : Monitoring  
Project Location : CUP 1

Lot ID: 2212352  
Date Received : Mar 23, 2022  
Date Reported : Mar 28, 2022  
Report Number: 2270966-1

Page 1 of 1

Sample Number	2212352-7		
Parameter	Noise (Leq 8 hrs.)		
Location	ในพื้นที่วัดไฟฟ้าบริเวณ #5		
Measurement Date	Mar 21, 2022		
Measurement by	Nathapon Jengwareewong		
Time	Leq (dB(A))	Lmax (dB(A))	L90 (dB(A))
08:10 AM - 09:10 AM	81.1	83.1	80.4
09:10 AM - 10:10 AM	80.2	81.0	80.0
10:10 AM - 11:10 AM	80.3	81.1	80.0
11:10 AM - 12:10 PM	80.5	81.4	80.2
12:10 PM - 01:10 PM	80.3	81.3	80.1
01:10 PM - 02:10 PM	80.1	81.0	79.7
02:10 PM - 03:10 PM	80.0	80.8	79.9
03:10 PM - 04:10 PM	80.0	80.7	79.9
Leq Average 8 hrs. (dB(A))	80.3		
Lmax (dB(A))		83.1	
Standard (dB(A))	90	140	
Reference Method : ISO1996-1 and 1996-2			
Standard : มาตรฐานการวัดและประเมินผลเสียง อาศัยการเทียบมาตรฐานของเสียง			
ตามรูปแบบการวัดที่ระบุไว้ในคู่มือการวัดและประเมินผลเสียงของกรมส่งเสริมการค้าระหว่างประเทศ			



## Analysis / Test Report

Client : Global Power Synergy Public Company Limited  
92/9, Rayong Highway Road 3191, Map Ta Phut, Mueang, Rayong Thailand 21150  
P/O :  
Project Name : Monitoring  
Project Location : CUP 1

Lot ID: 2212352  
Date Received : Mar 23, 2022  
Date Reported : Mar 28, 2022  
Report Number: 2270966-1

Page 1 of 1

Sample Number	2212352-8		
Parameter	Noise (Leq 8 hrs.)		
Location	ในพื้นที่วัดไฟฟ้าบริเวณ #6		
Measurement Date	Mar 21, 2022		
Measurement by	Nathapon Jengwareewong		
Time	Leq (dB(A))	Lmax (dB(A))	L90 (dB(A))
08:23 PM - 09:23 PM	78.5	81.4	78.3
09:23 PM - 10:23 PM	78.4	85.2	78.2
10:23 PM - 11:23 PM	78.4	81.7	78.2
11:23 PM - 12:23 AM	78.4	80.7	78.2
12:23 AM - 01:23 AM	78.4	80.7	78.2
01:23 AM - 02:23 AM	78.4	81.7	78.2
02:23 AM - 03:23 AM	78.4	83.3	78.2
03:23 AM - 04:23 AM	78.4	81.3	78.2
Leq Average 8 hrs. (dB(A))	78.4		
Lmax (dB(A))		85.2	
Standard (dB(A))	90	140	
Reference Method : ISO1996-1 and 1996-2			
Standard : มาตรฐานการวัดและประเมินผลเสียง อาศัยการเทียบมาตรฐานของเสียง			
ตามรูปแบบการวัดที่ระบุไว้ในคู่มือการวัดและประเมินผลเสียงของกรมส่งเสริมการค้าระหว่างประเทศ			

Technical Management

Thanitak.  
Thanita Kulsiwong  
Scientist (4)

Approved by

Supot S.  
Supot Salameth  
Section Head

The above results are valid only for the analyzed/tested sample(s) as indicated in this report. No part of this report or certificate may be reproduced in any form without written consent from the Laboratory. ALS Laboratory Group (Thailand) strongly recommends that this report is not reproduced except in full.

ADDRESS 616/10 Moo 5 T. Maenam Khu A. Phrakdaeng Rayong 21140 Thailand | PHONE +66 0 3304 8555 | FAX +66 0 3304 8556  
ALS LABORATORY GROUP (THAILAND) CO., LTD. An ALS Limited Company

LIFE Sciences

www.alsglobal.com

RIGHT SOLUTIONS RIGHT PARTNER

S:\Reports\_Air Noise rpt (3-42PM)

Technical Management

Thanitak.  
Thanita Kulsiwong  
Scientist (4)

Approved by

Supot S.  
Supot Salameth  
Section Head

The above results are valid only for the analyzed/tested sample(s) as indicated in this report. No part of this report or certificate may be reproduced in any form without written consent from the Laboratory. ALS Laboratory Group (Thailand) strongly recommends that this report is not reproduced except in full.

ADDRESS 616/10 Moo 5 T. Maenam Khu A. Phrakdaeng Rayong 21140 Thailand | PHONE +66 0 3304 8555 | FAX +66 0 3304 8556  
ALS LABORATORY GROUP (THAILAND) CO., LTD. An ALS Limited Company

LIFE Sciences

www.alsglobal.com

RIGHT SOLUTIONS RIGHT PARTNER

S:\Reports\_Air Noise rpt (3-42PM)





## Analysis / Test Report

Client : Global Power Synergy Public Company Limited  
92/9, Rayong Highway Road 3191, Map Ta Phut, Mueang, Rayong Thailand 21150  
P/O :  
Project Name : Monitoring  
Project Location : CUP 1

Lot ID: 2212352  
Date Received : Mar 23, 2022  
Date Reported : Mar 28, 2022  
Report Number: 2270970-1

Page 1 of 1

Sample Number : 2212352-9  
Parameter : Noise (Leq 8 hrs.)  
Location : บ้านนาเกลือวัดบ้านนาเกลือ HRSG #1  
Measurement Date : Mar 21, 2022  
Measurement by : Natthapon Jitwareeewong

Time	Leq (dB(A))	Lmax (dB(A))	L90 (dB(A))
08:16 AM - 09:16 AM	78.5	81.6	78.1
09:16 AM - 10:16 AM	78.5	82.4	78.1
10:16 AM - 11:16 AM	79.1	82.1	78.5
11:16 AM - 12:16 PM	79.1	81.2	78.6
12:16 PM - 01:16 PM	78.7	81.2	78.2
01:16 PM - 02:16 PM	78.8	83.1	78.3
02:16 PM - 03:16 PM	78.9	88.2	78.3
03:16 PM - 04:16 PM	78.8	80.8	78.4
Leq Average 8 hrs. (dB(A))	78.6		
Lmax (dB(A))		90.2	
Standard (dB(A))	90	140	
Reference Method : ISO1996-1 and 1996-2			
Standard : มาตรฐานการควบคุมมลพิษทางเสียง อากาศที่ควบคุมและควบคุมเสียง ตามกฎกระทรวงกำหนดการควบคุมการปล่อยเสียงจากแหล่งกำเนิดเสียงในโรงงานอุตสาหกรรม พ.ศ. ๒๕๖๓			



## Analysis / Test Report

Client : Global Power Synergy Public Company Limited  
92/9, Rayong Highway Road 3191, Map Ta Phut, Mueang, Rayong Thailand 21150  
P/O :  
Project Name : Monitoring  
Project Location : CUP 1

Lot ID: 2212352  
Date Received : Mar 23, 2022  
Date Reported : Mar 28, 2022  
Report Number: 2270971-1

Page 1 of 1

Sample Number : 2212352-10  
Parameter : Noise (Leq 8 hrs.)  
Location : บ้านนาเกลือวัดบ้านนาเกลือ HRSG #2  
Measurement Date : Mar 21, 2022  
Measurement by : Natthapon Jitwareeewong

Time	Leq (dB(A))	Lmax (dB(A))	L90 (dB(A))
08:26 PM - 09:26 PM	79.9	80.7	79.6
09:26 PM - 10:26 PM	79.9	80.6	79.7
10:26 PM - 11:26 PM	79.8	80.5	79.6
11:26 PM - 12:26 AM	79.9	80.7	79.7
12:26 AM - 01:26 AM	80.0	80.7	79.8
01:26 AM - 02:26 AM	79.9	81.2	79.8
02:26 AM - 03:26 AM	79.9	80.7	79.8
03:26 AM - 04:26 AM	80.0	80.9	79.8
Leq Average 8 hrs. (dB(A))	79.9		
Lmax (dB(A))		91.2	
Standard (dB(A))	90	140	
Reference Method : ISO1996-1 and 1996-2			
Standard : มาตรฐานการควบคุมมลพิษทางเสียง อากาศที่ควบคุมและควบคุมเสียง ตามกฎกระทรวงกำหนดการควบคุมการปล่อยเสียงจากแหล่งกำเนิดเสียงในโรงงานอุตสาหกรรม พ.ศ. ๒๕๖๓			

Technical Management

Thanitak.  
Thanita Kulsiwong  
Scientist (4)

Approved by

Supot S.  
Supot Salameth  
Section Head

The above results are valid only for the analyzed/tested sample(s) as indicated in this report. No part of this report or certificate may be reproduced in any form without written consent from the Laboratory. ALS Laboratory Group (Thailand) strongly recommends that this report is not reproduced except in full.

ADDRESS 616/10 Moo 5 T. Maenam Khu A. Phakdaeng Rayong 21140 Thailand | PHONE +66 0 3304 8555 | FAX +66 0 3304 8556  
ALS LABORATORY GROUP (THAILAND) CO., LTD. An ALS Limited Company

LIFE Sciences

www.alsglobal.com

RIGHT SOLUTIONS RIGHT PARTNER

S:\Reports\_Air Noise rpt ( 3 43PM)

Technical Management

Thanitak.  
Thanita Kulsiwong  
Scientist (4)

Approved by

Supot S.  
Supot Salameth  
Section Head

The above results are valid only for the analyzed/tested sample(s) as indicated in this report. No part of this report or certificate may be reproduced in any form without written consent from the Laboratory. ALS Laboratory Group (Thailand) strongly recommends that this report is not reproduced except in full.

ADDRESS 616/10 Moo 5 T. Maenam Khu A. Phakdaeng Rayong 21140 Thailand | PHONE +66 0 3304 8555 | FAX +66 0 3304 8556  
ALS LABORATORY GROUP (THAILAND) CO., LTD. An ALS Limited Company

LIFE Sciences

www.alsglobal.com

RIGHT SOLUTIONS RIGHT PARTNER

S:\Reports\_Air Noise rpt ( 3 43PM)



## Analysis / Test Report

Client : Global Power Synergy Public Company Limited  
92/9, Rayong Highway Road 3191, Map Ta Phut, Mueang, Rayong Thailand 21150  
P/O :  
Project Name : Monitoring  
Project Location : CUP 1

Lot ID: 2212352  
Date Received : Mar 23, 2022  
Date Reported : Mar 28, 2022  
Report Number: 2270972-1

Page 1 of 1

Sample Number : 2212352-11  
Parameter : Noise (Leq 8 hrs.)  
Location : บ้านนาเกลือวัดบ้านนาเกลือ HRSG #3  
Measurement Date : Mar 21, 2022  
Measurement by : Natthapon Jitwareeewong

Time	Leq (dB(A))	Lmax (dB(A))	L90 (dB(A))
08:19 AM - 09:19 AM	80.4	81.5	80.2
09:19 AM - 10:19 AM	80.2	80.8	80.0
10:19 AM - 11:19 AM	80.5	83.3	80.2
11:19 AM - 12:19 PM	80.7	81.4	80.5
12:19 PM - 01:19 PM	80.5	81.3	80.2
01:19 PM - 02:19 PM	80.0	81.0	80.1
02:19 PM - 03:19 PM	80.4	81.5	80.2
03:19 PM - 04:19 PM	80.4	81.3	80.2
Leq Average 8 hrs. (dB(A))	80.4		
Lmax (dB(A))		83.3	
Standard (dB(A))	90	140	
Reference Method : ISO1996-1 and 1996-2			
Standard : มาตรฐานการควบคุมมลพิษทางเสียง อากาศที่ควบคุมและควบคุมเสียง ตามกฎกระทรวงกำหนดการควบคุมการปล่อยเสียงจากแหล่งกำเนิดเสียงในโรงงานอุตสาหกรรม พ.ศ. ๒๕๖๓			



## Analysis / Test Report

Client : Global Power Synergy Public Company Limited  
92/9, Rayong Highway Road 3191, Map Ta Phut, Mueang, Rayong Thailand 21150  
P/O :  
Project Name : Monitoring  
Project Location : CUP 1

Lot ID: 2212352  
Date Received : Mar 23, 2022  
Date Reported : Mar 28, 2022  
Report Number: 2270973-1

Page 1 of 1

Sample Number : 2212352-12  
Parameter : Noise (Leq 8 hrs.)  
Location : บ้านนาเกลือวัดบ้านนาเกลือ HRSG #4  
Measurement Date : Mar 21, 2022  
Measurement by : Natthapon Jitwareeewong

Time	Leq (dB(A))	Lmax (dB(A))	L90 (dB(A))
08:31 PM - 09:31 PM	79.1	80.0	78.9
09:31 PM - 10:31 PM	79.1	80.0	79.0
10:31 PM - 11:31 PM	79.2	80.3	79.0
11:31 PM - 12:31 AM	79.1	80.2	78.8
12:31 AM - 01:31 AM	79.0	80.2	78.8
01:31 AM - 02:31 AM	79.0	79.0	78.9
02:31 AM - 03:31 AM	79.0	79.9	78.9
03:31 AM - 04:31 AM	79.1	79.8	78.9
Leq Average 8 hrs. (dB(A))	79.1		
Lmax (dB(A))		80.3	
Standard (dB(A))	90	140	
Reference Method : ISO1996-1 and 1996-2			
Standard : มาตรฐานการควบคุมมลพิษทางเสียง อากาศที่ควบคุมและควบคุมเสียง ตามกฎกระทรวงกำหนดการควบคุมการปล่อยเสียงจากแหล่งกำเนิดเสียงในโรงงานอุตสาหกรรม พ.ศ. ๒๕๖๓			

Technical Management

Thanitak.  
Thanita Kulsiwong  
Scientist (4)

Approved by

Supot S.  
Supot Salameth  
Section Head

The above results are valid only for the analyzed/tested sample(s) as indicated in this report. No part of this report or certificate may be reproduced in any form without written consent from the Laboratory. ALS Laboratory Group (Thailand) strongly recommends that this report is not reproduced except in full.

ADDRESS 616/10 Moo 5 T. Maenam Khu A. Phakdaeng Rayong 21140 Thailand | PHONE +66 0 3304 8555 | FAX +66 0 3304 8556  
ALS LABORATORY GROUP (THAILAND) CO., LTD. An ALS Limited Company

LIFE Sciences

www.alsglobal.com

RIGHT SOLUTIONS RIGHT PARTNER

S:\Reports\_Air Noise rpt ( 3 43PM)

Technical Management

Thanitak.  
Thanita Kulsiwong  
Scientist (4)

Approved by

Supot S.  
Supot Salameth  
Section Head

The above results are valid only for the analyzed/tested sample(s) as indicated in this report. No part of this report or certificate may be reproduced in any form without written consent from the Laboratory. ALS Laboratory Group (Thailand) strongly recommends that this report is not reproduced except in full.

ADDRESS 616/10 Moo 5 T. Maenam Khu A. Phakdaeng Rayong 21140 Thailand | PHONE +66 0 3304 8555 | FAX +66 0 3304 8556  
ALS LABORATORY GROUP (THAILAND) CO., LTD. An ALS Limited Company

LIFE Sciences

www.alsglobal.com

RIGHT SOLUTIONS RIGHT PARTNER

S:\Reports\_Air Noise rpt ( 3 43PM)



## Analysis / Test Report

Client : Global Power Synergy Public Company Limited  
92/9, Rayong Highway Road 3191, Map Ta Phut, Mueang, Rayong Thailand 21150  
P/O :  
Project Name : Monitoring  
Project Location : CUP 1

Lot ID: 2212352  
Date Received : Mar 23, 2022  
Date Reported : Mar 28, 2022  
Report Number: 2270974-1

Page 1 of 1

Sample Number	2212352-13		
Parameter	Noise (Leq 8 hrs.)		
Location	ท่าอากาศยานนานาชาติภูเก็ต H95G ๔5		
Measurement Date	Mar 21, 2022		
Measurement by	Nathapon Jengwareepong		
Time	Leq (dB(A))	Lmax (dB(A))	L90 (dB(A))
08:21 AM - 09:21 AM	79.2	79.8	79.0
09:21 AM - 10:21 AM	78.9	80.2	78.7
10:21 AM - 11:21 AM	78.5	81.1	78.2
11:21 AM - 12:21 PM	78.4	80.5	78.3
12:21 PM - 01:21 PM	78.4	79.0	78.2
01:21 PM - 02:21 PM	78.7	79.4	78.5
02:21 PM - 03:21 PM	78.9	79.5	78.7
03:21 PM - 04:21 PM	78.9	79.5	78.7
Leq Average 8 hrs. (dB(A))	78.7		
Lmax (dB(A))		81.1	
Standard (dB(A))	90	140	
Reference Method : ISO1996-1 and 1996-2			
Standard : มาตรฐานการวัดและประเมินผลเสียง อากาศที่หน่วยงานราชการและอปท.			
ตามกฎกระทรวงกำหนดการวางผังและมาตรฐานการควบคุมเสียง อ.ร.บ.๒๕๖๓			



## Analysis / Test Report

Client : Global Power Synergy Public Company Limited  
92/9, Rayong Highway Road 3191, Map Ta Phut, Mueang, Rayong Thailand 21150  
P/O :  
Project Name : Monitoring  
Project Location : CUP 1

Lot ID: 2212352  
Date Received : Mar 23, 2022  
Date Reported : Mar 28, 2022  
Report Number: 2270975-1

Page 1 of 1

Sample Number	2212352-14		
Parameter	Noise (Leq 8 hrs.)		
Location	ท่าอากาศยานนานาชาติภูเก็ต H95G ๔6		
Measurement Date	Mar 21, 2022		
Measurement by	Nathapon Jengwareepong		
Time	Leq (dB(A))	Lmax (dB(A))	L90 (dB(A))
08:19 PM - 09:19 PM	77.8	78.4	77.6
09:19 PM - 10:19 PM	77.7	78.7	77.5
10:19 PM - 11:19 PM	77.6	78.2	77.5
11:19 PM - 12:19 AM	77.6	78.1	77.5
12:19 AM - 01:19 AM	77.7	78.3	77.6
01:19 AM - 02:19 AM	77.6	78.1	77.5
02:19 AM - 03:19 AM	77.7	78.2	77.6
03:19 AM - 04:19 AM	77.7	78.3	77.6
Leq Average 8 hrs. (dB(A))	77.7		
Lmax (dB(A))		79.7	
Standard (dB(A))	90	140	
Reference Method : ISO1996-1 and 1996-2			
Standard : มาตรฐานการวัดและประเมินผลเสียง อากาศที่หน่วยงานราชการและอปท.			
ตามกฎกระทรวงกำหนดการวางผังและมาตรฐานการควบคุมเสียง อ.ร.บ.๒๕๖๓			

Technical Management

Thanitak.  
Thanita Kulsuriwong  
Scientist (4)

Approved by

Supot S.  
Supot Salameth  
Section Head

The above results are valid only for the analyzed/tested sample(s) as indicated in this report. No part of this report or certificate may be reproduced in any form without written consent from the Laboratory. ALS Laboratory Group (Thailand) strongly recommends that this report is not reproduced except in full.

ADDRESS 616/10 Moo 5 T. Maenam Khu A. Phrakdaeng Rayong 21140 Thailand | PHONE +66 0 3304 8555 | FAX +66 0 3304 8556  
ALS LABORATORY GROUP (THAILAND) CO., LTD. An ALS Limited Company

LIFE Sciences

www.alsglobal.com

RIGHT SOLUTIONS RIGHT PARTNER

S:\Reports\_Air Noise rpt (3-43PM)

Technical Management

Thanitak.  
Thanita Kulsuriwong  
Scientist (4)

Approved by

Supot S.  
Supot Salameth  
Section Head

The above results are valid only for the analyzed/tested sample(s) as indicated in this report. No part of this report or certificate may be reproduced in any form without written consent from the Laboratory. ALS Laboratory Group (Thailand) strongly recommends that this report is not reproduced except in full.

ADDRESS 616/10 Moo 5 T. Maenam Khu A. Phrakdaeng Rayong 21140 Thailand | PHONE +66 0 3304 8555 | FAX +66 0 3304 8556  
ALS LABORATORY GROUP (THAILAND) CO., LTD. An ALS Limited Company

LIFE Sciences

www.alsglobal.com

RIGHT SOLUTIONS RIGHT PARTNER

S:\Reports\_Air Noise rpt (3-43PM)



## Analysis / Test Report

Client : Global Power Synergy Public Company Limited  
92/9, Rayong Highway Road 3191, Map Ta Phut, Mueang, Rayong Thailand 21150  
P/O :  
Project Name : Monitoring  
Project Location : CUP 1

Lot ID: 2212352  
Date Received : Mar 23, 2022  
Date Reported : Mar 28, 2022  
Report Number: 2270976-1

Page 1 of 1

Sample Number	2212352-15		
Parameter	Noise (Leq 8 hrs.)		
Location	ท่าอากาศยานนานาชาติภูเก็ต		
Measurement Date	Mar 21, 2022		
Measurement by	Nathapon Jengwareepong		
Time	Leq (dB(A))	Lmax (dB(A))	L90 (dB(A))
08:16 AM - 09:16 AM	77.7	91.1	76.7
09:16 AM - 10:16 AM	78.5	91.8	77.4
10:16 AM - 11:16 AM	78.3	88.8	77.8
11:16 AM - 12:16 PM	77.7	78.8	77.5
12:16 PM - 01:16 PM	78.2	87.8	77.5
01:16 PM - 02:16 PM	76.4	87.7	77.6
02:16 PM - 03:16 PM	78.0	81.7	77.6
03:16 PM - 04:16 PM	77.9	83.2	77.5
Leq Average 8 hrs. (dB(A))	78.1		
Lmax (dB(A))		91.8	
Standard (dB(A))	90	140	
Reference Method : ISO1996-1 and 1996-2			
Standard : มาตรฐานการวัดและประเมินผลเสียง อากาศที่หน่วยงานราชการและอปท.			
ตามกฎกระทรวงกำหนดการวางผังและมาตรฐานการควบคุมเสียง อ.ร.บ.๒๕๖๓			



## Analysis / Test Report

Client : Global Power Synergy Public Company Limited  
92/9, Rayong Highway Road 3191, Map Ta Phut, Mueang, Rayong Thailand 21150  
P/O :  
Project Name : Monitoring  
Project Location : CUP 1

Lot ID: 2269955  
Date Received : Jun 21, 2022  
Date Reported : Jun 24, 2022  
Report Number: 2355055-1

Page 1 of 1

Sample Number	2269955-1		
Parameter	Noise (Leq 8 hrs.)		
Location	ท่าอากาศยานภูเก็ต		
Measurement Date	Jun 20, 2022		
Measurement by	Tarin Octinda		
Time	Leq (dB(A))	Lmax (dB(A))	L90 (dB(A))
07:26 AM - 08:26 AM	79.8	87.3	77.1
08:26 AM - 09:26 AM	77.9	83.5	76.7
09:26 AM - 10:26 AM	77.5	82.8	76.6
10:26 AM - 11:26 AM	77.6	86.8	76.6
11:26 AM - 12:26 PM	78.6	84.2	77.0
12:26 PM - 01:26 PM	80.2	89.3	77.4
01:26 PM - 02:26 PM	78.6	83.5	77.4
02:26 PM - 03:26 PM	78.6	88.1	77.4
Leq Average 8 hrs. (dB(A))	78.7		
Lmax (dB(A))		89.3	
Standard (dB(A))	90	140	
Reference Method : ISO1996-1 and 1996-2			
Standard : มาตรฐานการวัดและประเมินผลเสียง อากาศที่หน่วยงานราชการและอปท.			
ตามกฎกระทรวงกำหนดการวางผังและมาตรฐานการควบคุมเสียง อ.ร.บ.๒๕๖๓			

Technical Management

Thanitak.  
Thanita Kulsuriwong  
Scientist (4)

Approved by

Supot S.  
Supot Salameth  
Section Head

The above results are valid only for the analyzed/tested sample(s) as indicated in this report. No part of this report or certificate may be reproduced in any form without written consent from the Laboratory. ALS Laboratory Group (Thailand) strongly recommends that this report is not reproduced except in full.

ADDRESS 616/10 Moo 5 T. Maenam Khu A. Phrakdaeng Rayong 21140 Thailand | PHONE +66 0 3304 8555 | FAX +66 0 3304 8556  
ALS LABORATORY GROUP (THAILAND) CO., LTD. An ALS Limited Company

LIFE Sciences

www.alsglobal.com

RIGHT SOLUTIONS RIGHT PARTNER

S:\Reports\_Air Noise rpt (3-43PM)

Technical Management

Thanitak.  
Thanita Kulsuriwong  
Scientist (4)

Approved by

Supot S.  
Supot Salameth  
Section Head

The above results are valid only for the analyzed/tested sample(s) as indicated in this report. No part of this report or certificate may be reproduced in any form without written consent from the Laboratory. ALS Laboratory Group (Thailand) strongly recommends that this report is not reproduced except in full.

ADDRESS 616/10 Moo 5 T. Maenam Khu A. Phrakdaeng Rayong 21140 Thailand | PHONE +66 0 3304 8555 | FAX +66 0 3304 8556  
ALS LABORATORY GROUP (THAILAND) CO., LTD. An ALS Limited Company

LIFE Sciences

www.alsglobal.com

RIGHT SOLUTIONS RIGHT PARTNER

S:\Reports\_Air Noise rpt (12:14PM)





## Analysis / Test Report

Client : Global Power Synergy Public Company Limited  
92/9, Rayong Highway Road 3191, Map Ta Phut, Mueang, Rayong Thailand 21150  
P/O :  
Project Name : Monitoring  
Project Location : CUP 1

Lot ID: 2269955  
Date Received : Jun 21, 2022  
Date Reported : Jun 24, 2022  
Report Number: 2355056-1

Page 1 of 1

Sample Number	2269955-2			
Parameter	Noise (Leq 8 hrs.)			
Location	เขื่อนฝายหิน			
Measurement Date	Jun 20, 2022			
Measurement by	Tarin Octjinda			
	Time	Leq (dB(A))	Lmax (dB(A))	L90 (dB(A))
	07:24 AM - 08:24 AM	75.7	91.7	65.4
	08:24 AM - 09:24 AM	75.1	87.0	68.9
	09:24 AM - 10:24 AM	69.1	75.0	68.7
	10:24 AM - 11:24 AM	69.2	82.6	68.7
	11:24 AM - 12:24 PM	74.1	93.7	69.7
	12:24 PM - 01:24 PM	71.7	95.2	69.5
	01:24 PM - 02:24 PM	70.3	76.2	69.8
	02:24 PM - 03:24 PM	70.3	78.5	69.8
	Leq Average 8 hrs. (dB(A))	72.7	95.2	
	Lmax (dB(A))			
	Standard (dB(A))	90	140	
	Reference Method	: ISO1996-1 and 1996-2		
	Standard	: มาตรฐานการวัดและประเมินผลเสียง การวัดค่าเสียงตามมาตรฐานของกรมอนามัยของประเทศไทย		
		: มาตรฐานการวัดและประเมินผลเสียง การวัดค่าเสียงตามมาตรฐานของกรมอนามัยของประเทศไทย		



## Analysis / Test Report

Client : Global Power Synergy Public Company Limited  
92/9, Rayong Highway Road 3191, Map Ta Phut, Mueang, Rayong Thailand 21150  
P/O :  
Project Name : Monitoring  
Project Location : CUP 1

Lot ID: 2269955  
Date Received : Jun 21, 2022  
Date Reported : Jun 24, 2022  
Report Number: 2355057-1

Page 1 of 1

Sample Number	2269955-3		
Parameter	Noise (Leq 8 hrs.)		
Location	เขื่อนหินลาดทับหินรูฟอง #1		
Measurement Date	Jun 20, 2022		
Measurement by	Tarin Octjinda		
Time	Leq (dB(A))	Lmax (dB(A))	L90 (dB(A))
07:27 AM - 08:27 AM	74.9	88.3	74.4
08:27 AM - 09:27 AM	75.0	83.2	74.5
09:27 AM - 10:27 AM	75.4	98.9	73.2
10:27 AM - 11:27 AM	75.9	95.4	73.7
11:27 AM - 12:27 PM	74.8	86.7	68.6
12:27 PM - 01:27 PM	74.4	87.8	73.9
01:27 PM - 02:27 PM	74.7	88.1	74.2
02:27 PM - 03:27 PM	75.9	84.1	75.4
Leq Average 8 hrs. (dB(A))	75.2		
Lmax (dB(A))		99.4	
Standard (dB(A))	90	140	
Reference Method	: ISO1996-1 and 1996-2		
Standard	: ประกาศกระทรวงสาธารณสุข เรื่อง มาตรการควบคุมความดังของเสียง ในทางประกอบขึ้นในการรายงานเกี่ยวกับสถานการณ์เสียงในทางฯ ณ ๓ มย๖๓		

Technical Management

Thanitak.  
Thanita Kulsuriwong  
Scientist (4)

Approved by

Suppt S.  
Supot Salameth  
Section Head

The above results are valid only for the analyzed/tested sample(s) as indicated in this report. No part of this report or certificate may be reproduced in any form without written consent from the Laboratory. ALS Laboratory Group (Thailand) strongly recommends that this report is not reproduced except in full.

ADDRESS 616/10 Moo 5 T. Maenam Khu A. Phakdaeng Rayong 21140 Thailand | PHONE +66 0 3304 8555 | FAX +66 0 3304 8556  
ALS LABORATORY GROUP (THAILAND) CO., LTD. An ALS Limited Company

LIFE Sciences

www.alsglobal.com

RIGHT SOLUTIONS RIGHT PARTNER

S:\Reports\_Air Noise rpt (12:14PM)

Technical Management

Thanitak.  
Thanita Kulsuriwong  
Scientist (4)

Approved by

Suppt S.  
Supot Salameth  
Section Head

The above results are valid only for the analyzed/tested sample(s) as indicated in this report. No part of this report or certificate may be reproduced in any form without written consent from the Laboratory. ALS Laboratory Group (Thailand) strongly recommends that this report is not reproduced except in full.

ADDRESS 616/10 Moo 5 T. Maenam Khu A. Phakdaeng Rayong 21140 Thailand | PHONE +66 0 3304 8555 | FAX +66 0 3304 8556  
ALS LABORATORY GROUP (THAILAND) CO., LTD. An ALS Limited Company

LIFE Sciences

www.alsglobal.com

RIGHT SOLUTIONS RIGHT PARTNER

S:\Reports\_Air Noise rpt (12:14PM)



## Analysis / Test Report

Client : Global Power Synergy Public Company Limited  
92/9, Rayong Highway Road 3191, Map Ta Phut, Mueang, Rayong Thailand 21150  
P/O :  
Project Name : Monitoring  
Project Location : CUP 1

Lot ID: 2269955  
Date Received : Jun 21, 2022  
Date Reported : Jun 24, 2022  
Report Number: 2355058-1

Page 1 of 1

Sample Number	2269955-4		
Parameter	Noise (Leq 8 hrs.)		
Location	เขื่อนหินลาดทับหินรูฟอง #2		
Measurement Date	Jun 20, 2022		
Measurement by	Tarin Octjinda		
Time	Leq (dB(A))	Lmax (dB(A))	L90 (dB(A))
08:17 AM - 09:17 AM	79.2	83.4	78.8
09:17 AM - 10:17 AM	79.2	82.5	78.9
10:17 AM - 11:17 AM	79.2	86.1	78.9
11:17 AM - 12:17 PM	79.4	81.9	79.1
12:17 PM - 01:17 PM	79.3	83.7	79.0
01:17 PM - 02:17 PM	77.0	82.0	77.0
02:17 PM - 03:17 PM	79.3	83.6	79.0
03:17 PM - 04:17 PM	79.3	81.5	79.0
Leq Average 8 hrs. (dB(A))	79.3		
Lmax (dB(A))		86.1	
Standard (dB(A))	90	140	
Reference Method	: ISO1996-1 and 1996-2		
Standard	: มาตรฐานการวัดและประเมินผลเสียง การวัดค่าเสียงตามมาตรฐานของกรมอนามัยของประเทศไทย		



## Analysis / Test Report

Client : Global Power Synergy Public Company Limited  
92/9, Rayong Highway Road 3191, Map Ta Phut, Mueang, Rayong Thailand 21150  
P/O :  
Project Name : Monitoring  
Project Location : CUP 1

Lot ID: 2277748  
Date Received : Jun 29, 2022  
Date Reported : Jul 02, 2022  
Report Number: 2364425-1

Page 1 of 1

Sample Number	2277748-1		
Parameter	Noise (Leq 8 hrs.)		
Location	เขื่อนหินลาดทับหินรูฟอง #3		
Measurement Date	Jun 28, 2022		
Measurement by	Sakorn Jaraskay		
Time	Leq (dB(A))	Lmax (dB(A))	L90 (dB(A))
07:00 AM - 08:00 AM	83.1	84.9	82.7
08:00 AM - 09:00 AM	82.9	85.5	82.4
09:00 AM - 10:00 AM	82.5	84.1	82.3
10:00 AM - 11:00 AM	82.7	84.5	82.4
11:00 AM - 12:00 PM	82.6	84.0	82.4
12:00 PM - 01:00 PM	82.6	84.0	82.4
01:00 PM - 02:00 PM	82.5	83.5	82.3
02:00 PM - 03:00 PM	82.6	83.6	82.4
Leq Average 8 hrs. (dB(A))	82.7		
Lmax (dB(A))		85.5	
Standard (dB(A))	90	140	
Reference Method	: ISO1996-1 and 1996-2		
Standard	: มาตรฐานการวัดและประเมินผลเสียง การวัดค่าเสียงตามมาตรฐานของกรมอนามัยของประเทศไทย		

Technical Management

Thanitak.  
Thanita Kulsuriwong  
Scientist (4)

Approved by

Suppt S.  
Supot Salameth  
Section Head

The above results are valid only for the analyzed/tested sample(s) as indicated in this report. No part of this report or certificate may be reproduced in any form without written consent from the Laboratory. ALS Laboratory Group (Thailand) strongly recommends that this report is not reproduced except in full.

ADDRESS 616/10 Moo 5 T. Maenam Khu A. Phakdaeng Rayong 21140 Thailand | PHONE +66 0 3304 8555 | FAX +66 0 3304 8556  
ALS LABORATORY GROUP (THAILAND) CO., LTD. An ALS Limited Company

LIFE Sciences

www.alsglobal.com

RIGHT SOLUTIONS RIGHT PARTNER

S:\Reports\_Air Noise rpt (12:15PM)

Technical Management

Thanitak.  
Thanita Kulsuriwong  
Scientist (4)

Approved by

Suppt S.  
Supot Salameth  
Section Head

The above results are valid only for the analyzed/tested sample(s) as indicated in this report. No part of this report or certificate may be reproduced in any form without written consent from the Laboratory. ALS Laboratory Group (Thailand) strongly recommends that this report is not reproduced except in full.

ADDRESS 616/10 Moo 5 T. Maenam Khu A. Phakdaeng Rayong 21140 Thailand | PHONE +66 0 3304 8555 | FAX +66 0 3304 8556  
ALS LABORATORY GROUP (THAILAND) CO., LTD. An ALS Limited Company

LIFE Sciences

www.alsglobal.com

RIGHT SOLUTIONS RIGHT PARTNER

S:\Reports\_Air Noise rpt (12:15PM)



## Analysis / Test Report

Client : Global Power Synergy Public Company Limited  
92/9, Rayong Highway Road 3191, Map Ta Phut, Mueang, Rayong Thailand 21150  
P/O :  
Project Name : Monitoring  
Project Location : CUP 1

Lot ID: 2269955  
Date Received : Jun 21, 2022  
Date Reported : Jun 24, 2022  
Report Number: 2355061-1

Page 1 of 1

Sample Number : 2269955-6  
Parameter : Noise (Leq 8 hrs.)  
Location : บริเวณด้านข้างอาคารโรงงาน #4  
Measurement Date : Jun 20, 2022  
Measurement by : Tarin Octjinda

Time	Leq (dB(A))	Lmax (dB(A))	L90 (dB(A))
07:47 PM - 08:47 PM	83.8	87.7	83.0
08:47 PM - 09:47 PM	83.9	87.8	83.1
09:47 PM - 10:47 PM	83.9	88.6	83.2
10:47 PM - 11:47 PM	84.0	88.0	83.3
11:47 PM - 12:47 AM	84.1	88.7	83.4
12:47 AM - 01:47 AM	84.2	88.2	83.4
01:47 AM - 02:47 AM	83.7	112.6	82.6
02:47 AM - 03:47 AM	83.5	87.7	82.7
Leq Average 8 hrs. (dB(A))	83.9		
Lmax (dB(A))		112.9	
Standard (dB(A))	90	140	
Reference Method : ISO1996-1 and 1996-2			
Standard : มาตรฐานการควบคุมเสียงรบกวน โรงงานอุตสาหกรรมตามมาตรฐานของ			
กรมโรงงานอุตสาหกรรม และ มาตรฐานการควบคุมเสียงรบกวนของชุมชน			



## Analysis / Test Report

Client : Global Power Synergy Public Company Limited  
92/9, Rayong Highway Road 3191, Map Ta Phut, Mueang, Rayong Thailand 21150  
P/O :  
Project Name : Monitoring  
Project Location : CUP 1

Lot ID: 2269955  
Date Received : Jun 21, 2022  
Date Reported : Jun 24, 2022  
Report Number: 2355061-1

Page 1 of 1

Sample Number : 2269955-7  
Parameter : Noise (Leq 8 hrs.)  
Location : บริเวณด้านข้างอาคารโรงงาน #5  
Measurement Date : Jun 20, 2022  
Measurement by : Tarin Octjinda

Time	Leq (dB(A))	Lmax (dB(A))	L90 (dB(A))
07:32 AM - 08:32 AM	82.6	86.5	81.8
08:32 AM - 09:32 AM	83.0	87.0	81.7
09:32 AM - 10:32 AM	82.9	86.9	82.2
10:32 AM - 11:32 AM	82.2	87.0	81.1
11:32 AM - 12:32 PM	82.8	86.9	82.0
12:32 PM - 01:32 PM	82.5	87.2	81.2
01:32 PM - 02:32 PM	82.4	86.3	81.6
02:32 PM - 03:32 PM	82.5	87.2	81.8
Leq Average 8 hrs. (dB(A))	82.6		
Lmax (dB(A))		87.2	
Standard (dB(A))	90	140	
Reference Method : ISO1996-1 and 1996-2			
Standard : มาตรฐานการควบคุมเสียงรบกวน โรงงานอุตสาหกรรมตามมาตรฐานของ			
กรมโรงงานอุตสาหกรรม และ มาตรฐานการควบคุมเสียงรบกวนของชุมชน			

Technical Management

Thanitak.  
Thanita Kulsuriwong  
Scientist (4)

Approved by

Supot S.  
Supot Salameth  
Section Head

The above results are valid only for the analyzed/tested sample(s) as indicated in this report. No part of this report or certificate may be reproduced in any form without written consent from the Laboratory. ALS Laboratory Group (Thailand) strongly recommends that this report is not reproduced except in full.

ADDRESS 616/10 Moo 5 T. Maenam Khu A. Phakdaeng Rayong 21140 Thailand | PHONE +66 0 3304 8555 | FAX +66 0 3304 8556  
ALS LABORATORY GROUP (THAILAND) CO., LTD. An ALS Limited Company

LIFE Sciences

www.alsglobal.com

RIGHT SOLUTIONS. RIGHT PARTNER.

S:\Reports\_Air Noise rpt (12-15PM)

Technical Management

Thanitak.  
Thanita Kulsuriwong  
Scientist (4)

Approved by

Supot S.  
Supot Salameth  
Section Head

The above results are valid only for the analyzed/tested sample(s) as indicated in this report. No part of this report or certificate may be reproduced in any form without written consent from the Laboratory. ALS Laboratory Group (Thailand) strongly recommends that this report is not reproduced except in full.

ADDRESS 616/10 Moo 5 T. Maenam Khu A. Phakdaeng Rayong 21140 Thailand | PHONE +66 0 3304 8555 | FAX +66 0 3304 8556  
ALS LABORATORY GROUP (THAILAND) CO., LTD. An ALS Limited Company

LIFE Sciences

www.alsglobal.com

RIGHT SOLUTIONS. RIGHT PARTNER.

S:\Reports\_Air Noise rpt (12-15PM)



## Analysis / Test Report

Client : Global Power Synergy Public Company Limited  
92/9, Rayong Highway Road 3191, Map Ta Phut, Mueang, Rayong Thailand 21150  
P/O :  
Project Name : Monitoring  
Project Location : CUP 1

Lot ID: 2269955  
Date Received : Jun 21, 2022  
Date Reported : Jun 24, 2022  
Report Number: 2355062-1

Page 1 of 1

Sample Number : 2269955-8  
Parameter : Noise (Leq 8 hrs.)  
Location : บริเวณด้านข้างอาคารโรงงาน #6  
Measurement Date : Jun 20, 2022  
Measurement by : Tarin Octjinda

Time	Leq (dB(A))	Lmax (dB(A))	L90 (dB(A))
07:55 PM - 08:55 PM	72.7	102.5	71.2
08:55 PM - 09:55 PM	71.6	78.2	71.3
09:55 PM - 10:55 PM	71.6	79.0	71.4
10:55 PM - 11:55 PM	71.5	74.2	71.3
11:55 PM - 12:55 AM	71.4	74.6	71.2
12:55 AM - 01:55 AM	71.5	73.0	71.3
01:55 AM - 02:55 AM	71.4	72.6	71.2
02:55 AM - 03:55 AM	71.5	72.7	71.2
Leq Average 8 hrs. (dB(A))	71.7		
Lmax (dB(A))		102.5	
Standard (dB(A))	90	140	
Reference Method : ISO1996-1 and 1996-2			
Standard : มาตรฐานการควบคุมเสียงรบกวน โรงงานอุตสาหกรรมตามมาตรฐานของ			
กรมโรงงานอุตสาหกรรม และ มาตรฐานการควบคุมเสียงรบกวนของชุมชน			



## Analysis / Test Report

Client : Global Power Synergy Public Company Limited  
92/9, Rayong Highway Road 3191, Map Ta Phut, Mueang, Rayong Thailand 21150  
P/O :  
Project Name : Monitoring  
Project Location : CUP 1

Lot ID: 2269955  
Date Received : Jun 21, 2022  
Date Reported : Jun 24, 2022  
Report Number: 2355063-1

Page 1 of 1

Sample Number : 2269955-9  
Parameter : Noise (Leq 8 hrs.)  
Location : บริเวณด้านข้างอาคารโรงงาน HRSG #1  
Measurement Date : Jun 20, 2022  
Measurement by : Tarin Octjinda

Time	Leq (dB(A))	Lmax (dB(A))	L90 (dB(A))
07:26 AM - 08:26 AM	79.8	82.6	79.1
08:26 AM - 09:26 AM	79.4	83.2	78.8
09:26 AM - 10:26 AM	79.3	81.7	78.7
10:26 AM - 11:26 AM	79.8	83.8	78.9
11:26 AM - 12:26 PM	80.1	82.6	79.3
12:26 PM - 01:26 PM	80.3	82.7	77.5
01:26 PM - 02:26 PM	80.1	82.9	79.3
02:26 PM - 03:26 PM	80.1	82.5	79.4
Leq Average 8 hrs. (dB(A))	79.9		
Lmax (dB(A))		83.8	
Standard (dB(A))	90	140	
Reference Method : ISO1996-1 and 1996-2			
Standard : มาตรฐานการควบคุมเสียงรบกวน โรงงานอุตสาหกรรมตามมาตรฐานของ			
กรมโรงงานอุตสาหกรรม และ มาตรฐานการควบคุมเสียงรบกวนของชุมชน			

Technical Management

Thanitak.  
Thanita Kulsuriwong  
Scientist (4)

Approved by

Supot S.  
Supot Salameth  
Section Head

The above results are valid only for the analyzed/tested sample(s) as indicated in this report. No part of this report or certificate may be reproduced in any form without written consent from the Laboratory. ALS Laboratory Group (Thailand) strongly recommends that this report is not reproduced except in full.

ADDRESS 616/10 Moo 5 T. Maenam Khu A. Phakdaeng Rayong 21140 Thailand | PHONE +66 0 3304 8555 | FAX +66 0 3304 8556  
ALS LABORATORY GROUP (THAILAND) CO., LTD. An ALS Limited Company

LIFE Sciences

www.alsglobal.com

RIGHT SOLUTIONS. RIGHT PARTNER.

S:\Reports\_Air Noise rpt (12-15PM)

Technical Management

Thanitak.  
Thanita Kulsuriwong  
Scientist (4)

Approved by

Supot S.  
Supot Salameth  
Section Head

The above results are valid only for the analyzed/tested sample(s) as indicated in this report. No part of this report or certificate may be reproduced in any form without written consent from the Laboratory. ALS Laboratory Group (Thailand) strongly recommends that this report is not reproduced except in full.

ADDRESS 616/10 Moo 5 T. Maenam Khu A. Phakdaeng Rayong 21140 Thailand | PHONE +66 0 3304 8555 | FAX +66 0 3304 8556  
ALS LABORATORY GROUP (THAILAND) CO., LTD. An ALS Limited Company

LIFE Sciences

www.alsglobal.com

RIGHT SOLUTIONS. RIGHT PARTNER.

S:\Reports\_Air Noise rpt (12-15PM)





## Analysis / Test Report

Client : Global Power Synergy Public Company Limited  
92/9, Rayong Highway Road 3191, Map Ta Phut, Mueang, Rayong Thailand 21150

Lot ID: 2269955  
Date Received : Jun 21, 2022  
Date Reported : Jun 24, 2022  
Report Number: 2355064-1

P/O :  
Project Name : Monitoring  
Project Location : CUP 1

Page 1 of 1

Sample Number : 2269955-10  
Parameter : Noise (Leq 8 hrs.)  
Location : บ้านพักในโรงงาน HRSG #2  
Measurement Date : Jun 20, 2022  
Measurement by : Tarin Octjinda

Time	Leq (dB(A))	Lmax (dB(A))	L90 (dB(A))
07:36 AM - 08:36 AM	78.4	80.8	78.0
08:36 AM - 09:36 AM	78.5	82.8	78.3
09:36 AM - 10:36 AM	78.6	79.3	78.3
10:36 AM - 11:36 AM	78.7	81.8	78.4
11:36 AM - 12:36 PM	78.9	80.1	78.7
12:36 PM - 01:36 PM	78.8	80.3	78.6
01:36 PM - 02:36 PM	78.9	80.1	78.7
02:36 PM - 03:36 PM	79.0	80.7	78.7
Leq Average 8 hrs. (dB(A))	78.7		
Lmax (dB(A))		80.0	
Standard (dB(A))	90	140	
Reference Method : ISO1996-1 and 1996-2			
Standard : ใช้นิยามการวัดและเครื่องมือวัดตามที่กำหนดไว้ในมาตรฐาน ISO 1996-1 และ 1996-2 การปรับเทียบเครื่องมือวัดและเครื่องมือวัดตามที่กำหนดไว้ในมาตรฐาน ISO 17025			



## Analysis / Test Report

Client : Global Power Synergy Public Company Limited  
92/9, Rayong Highway Road 3191, Map Ta Phut, Mueang, Rayong Thailand 21150

Lot ID: 2277748  
Date Received : Jun 29, 2022  
Date Reported : Jul 02, 2022  
Report Number: 2364426-1

P/O :  
Project Name : Monitoring  
Project Location : CUP 1

Page 1 of 1

Sample Number : 2277748-2  
Parameter : Noise (Leq 8 hrs.)  
Location : บ้านพักในโรงงาน HRSG #3  
Measurement Date : Jun 28, 2022  
Measurement by : Sakonarin Sarakay

Time	Leq (dB(A))	Lmax (dB(A))	L90 (dB(A))
07:00 AM - 08:00 AM	82.2	84.7	82.7
08:00 AM - 09:00 AM	83.4	84.7	82.8
09:00 AM - 10:00 AM	83.0	84.3	82.4
10:00 AM - 11:00 AM	83.4	85.8	83.1
11:00 AM - 12:00 PM	83.4	81.8	82.9
12:00 PM - 01:00 PM	83.5	85.1	83.2
01:00 PM - 02:00 PM	83.3	84.6	82.8
02:00 PM - 03:00 PM	83.1	85.0	82.8
Leq Average 8 hrs. (dB(A))	83.3		
Lmax (dB(A))		85.0	
Standard (dB(A))	90	140	
Reference Method : ISO1996-1 and 1996-2			
Standard : ใช้นิยามการวัดและเครื่องมือวัดตามที่กำหนดไว้ในมาตรฐาน ISO 1996-1 และ 1996-2 การปรับเทียบเครื่องมือวัดและเครื่องมือวัดตามที่กำหนดไว้ในมาตรฐาน ISO 17025			

Technical Management

Thanitak.  
Thanita Kulsiwong  
Scientist (4)

Approved by

Supot S.  
Supot Salameth  
Section Head

The above results are valid only for the analyzed/tested sample(s) as indicated in this report. No part of this report or certificate may be reproduced in any form without written consent from the Laboratory. ALS Laboratory Group (Thailand) strongly recommends that this report is not reproduced except in full.

ADDRESS 616/10 Moo 5 T. Maenam Khu A. Phraekdaeng Rayong 21140 Thailand | PHONE +66 0 3304 8555 | FAX +66 0 3304 8556  
ALS LABORATORY GROUP (THAILAND) CO., LTD. An ALS Limited Company

LIFE Sciences

www.alsglobal.com

RIGHT SOLUTIONS. RIGHT PARTNER.

S:\Reports\_Air Noise rpt (12:18PM)

Technical Management

Thanitak.  
Thanita Kulsiwong  
Scientist (4)

Approved by

Supot S.  
Supot Salameth  
Section Head

The above results are valid only for the analyzed/tested sample(s) as indicated in this report. No part of this report or certificate may be reproduced in any form without written consent from the Laboratory. ALS Laboratory Group (Thailand) strongly recommends that this report is not reproduced except in full.

ADDRESS 616/10 Moo 5 T. Maenam Khu A. Phraekdaeng Rayong 21140 Thailand | PHONE +66 0 3304 8555 | FAX +66 0 3304 8556  
ALS LABORATORY GROUP (THAILAND) CO., LTD. An ALS Limited Company

LIFE Sciences

www.alsglobal.com

RIGHT SOLUTIONS. RIGHT PARTNER.

S:\Reports\_Air Noise rpt (2:57PM)



## Analysis / Test Report

Client : Global Power Synergy Public Company Limited  
92/9, Rayong Highway Road 3191, Map Ta Phut, Mueang, Rayong Thailand 21150

Lot ID: 2269955  
Date Received : Jun 21, 2022  
Date Reported : Jun 24, 2022  
Report Number: 2355066-1

P/O :  
Project Name : Monitoring  
Project Location : CUP 1

Page 1 of 1

Sample Number : 2269955-12  
Parameter : Noise (Leq 8 hrs.)  
Location : บ้านพักในโรงงาน HRSG #4  
Measurement Date : Jun 20, 2022  
Measurement by : Tarin Octjinda

Time	Leq (dB(A))	Lmax (dB(A))	L90 (dB(A))
07:49 PM - 08:49 PM	79.6	80.4	79.4
08:49 PM - 09:49 PM	79.8	80.9	79.5
09:49 PM - 10:49 PM	79.7	81.5	79.4
10:49 PM - 11:49 PM	80.3	81.5	79.8
11:49 PM - 12:49 AM	80.4	81.7	80.1
12:49 AM - 01:49 AM	80.1	81.2	79.7
01:49 AM - 02:49 AM	80.3	81.5	79.9
02:49 AM - 03:49 AM	79.8	81.2	79.5
Leq Average 8 hrs. (dB(A))	80.0		
Lmax (dB(A))		81.7	
Standard (dB(A))	90	140	
Reference Method : ISO1996-1 and 1996-2			
Standard : ใช้นิยามการวัดและเครื่องมือวัดตามที่กำหนดไว้ในมาตรฐาน ISO 1996-1 และ 1996-2 การปรับเทียบเครื่องมือวัดและเครื่องมือวัดตามที่กำหนดไว้ในมาตรฐาน ISO 17025			



## Analysis / Test Report

Client : Global Power Synergy Public Company Limited  
92/9, Rayong Highway Road 3191, Map Ta Phut, Mueang, Rayong Thailand 21150

Lot ID: 2269955  
Date Received : Jun 21, 2022  
Date Reported : Jun 24, 2022  
Report Number: 2355067-1

P/O :  
Project Name : Monitoring  
Project Location : CUP 1

Page 1 of 1

Sample Number : 2269955-13  
Parameter : Noise (Leq 8 hrs.)  
Location : บ้านพักในโรงงาน HRSG #5  
Measurement Date : Jun 20, 2022  
Measurement by : Tarin Octjinda

Time	Leq (dB(A))	Lmax (dB(A))	L90 (dB(A))
07:42 AM - 08:42 AM	78.0	78.8	77.9
08:42 AM - 09:42 AM	78.0	78.8	77.9
09:42 AM - 10:42 AM	78.0	78.8	77.9
10:42 AM - 11:42 AM	78.0	79.1	77.9
11:42 AM - 12:42 PM	78.1	78.9	78.0
12:42 PM - 01:42 PM	78.1	79.4	78.0
01:42 PM - 02:42 PM	78.1	78.8	77.9
02:42 PM - 03:42 PM	78.1	79.1	77.9
Leq Average 8 hrs. (dB(A))	78.1		
Lmax (dB(A))		79.4	
Standard (dB(A))	90	140	
Reference Method : ISO1996-1 and 1996-2			
Standard : ใช้นิยามการวัดและเครื่องมือวัดตามที่กำหนดไว้ในมาตรฐาน ISO 1996-1 และ 1996-2 การปรับเทียบเครื่องมือวัดและเครื่องมือวัดตามที่กำหนดไว้ในมาตรฐาน ISO 17025			

Technical Management

Thanitak.  
Thanita Kulsiwong  
Scientist (4)

Approved by

Supot S.  
Supot Salameth  
Section Head

The above results are valid only for the analyzed/tested sample(s) as indicated in this report. No part of this report or certificate may be reproduced in any form without written consent from the Laboratory. ALS Laboratory Group (Thailand) strongly recommends that this report is not reproduced except in full.

ADDRESS 616/10 Moo 5 T. Maenam Khu A. Phraekdaeng Rayong 21140 Thailand | PHONE +66 0 3304 8555 | FAX +66 0 3304 8556  
ALS LABORATORY GROUP (THAILAND) CO., LTD. An ALS Limited Company

LIFE Sciences

www.alsglobal.com

RIGHT SOLUTIONS. RIGHT PARTNER.

S:\Reports\_Air Noise rpt (12:18PM)

Technical Management

Thanitak.  
Thanita Kulsiwong  
Scientist (4)

Approved by

Supot S.  
Supot Salameth  
Section Head

The above results are valid only for the analyzed/tested sample(s) as indicated in this report. No part of this report or certificate may be reproduced in any form without written consent from the Laboratory. ALS Laboratory Group (Thailand) strongly recommends that this report is not reproduced except in full.

ADDRESS 616/10 Moo 5 T. Maenam Khu A. Phraekdaeng Rayong 21140 Thailand | PHONE +66 0 3304 8555 | FAX +66 0 3304 8556  
ALS LABORATORY GROUP (THAILAND) CO., LTD. An ALS Limited Company

LIFE Sciences

www.alsglobal.com

RIGHT SOLUTIONS. RIGHT PARTNER.

S:\Reports\_Air Noise rpt (12:18PM)



## Analysis / Test Report

Client : Global Power Synergy Public Company Limited  
92/9, Rayong Highway Road 3191, Map Ta Phut, Mueang, Rayong Thailand 21150  
P/O :  
Project Name : Monitoring  
Project Location : CUP 1

Lot ID: 2269955  
Date Received : Jun 21, 2022  
Date Reported : Jun 24, 2022  
Report Number: 2355069-1

Page 1 of 1

Sample Number	2269955-14		
Parameter	Noise (Leq 8 hrs.)		
Location	อาคารสำนักงาน HQS ๔6		
Measurement Date	Jun 20, 2022		
Measurement by	Tarin Octjinda		
Time	Leq (dB(A))	Lmax (dB(A))	L90 (dB(A))
07:46 PM - 08:46 PM	79.0	83.0	78.8
08:46 PM - 09:46 PM	79.1	79.9	78.9
09:46 PM - 10:46 PM	79.2	80.2	79.0
10:46 PM - 11:46 PM	79.1	80.0	78.9
11:46 PM - 12:46 AM	79.0	79.8	78.8
12:46 AM - 01:46 AM	79.1	80.0	78.9
01:46 AM - 02:46 AM	78.9	79.8	78.7
02:46 AM - 03:46 AM	79.1	80.1	78.9
Leq Average 8 hrs. (dB(A))	79.1		
Lmax (dB(A))		83.0	
Standard (dB(A))	90		140
Reference Method : ISO1996-1 and 1996-2			
Standard : มาตรฐานการวัดและประเมินผลเสียง อาศัยการวัดและประเมินผลเสียง			
ตามคู่มือการวัดและประเมินผลเสียงของกรมส่งเสริมการค้าระหว่างประเทศ			



## Analysis / Test Report

Client : Global Power Synergy Public Company Limited  
92/9, Rayong Highway Road 3191, Map Ta Phut, Mueang, Rayong Thailand 21150  
P/O :  
Project Name : Monitoring  
Project Location : CUP 1

Lot ID: 2269955  
Date Received : Jun 21, 2022  
Date Reported : Jun 24, 2022  
Report Number: 2355069-1

Page 1 of 1

Sample Number	2269955-15		
Parameter	Noise (Leq 8 hrs.)		
Location	อาคารสำนักงาน HQS ๔6		
Measurement Date	Jun 20, 2022		
Measurement by	Tarin Octjinda		
Time	Leq (dB(A))	Lmax (dB(A))	L90 (dB(A))
07:47 PM - 08:47 PM	81.1	84.4	80.0
08:47 PM - 09:47 PM	81.0	84.4	79.9
09:47 PM - 10:47 PM	81.2	84.4	80.1
10:47 PM - 11:47 PM	81.1	84.4	80.1
11:47 PM - 12:47 AM	81.1	84.2	80.1
12:47 AM - 01:47 AM	81.1	84.2	80.1
01:47 AM - 02:47 AM	80.6	83.6	79.6
02:47 AM - 03:47 AM	80.6	83.0	79.7
Leq Average 8 hrs. (dB(A))	81.0		
Lmax (dB(A))		84.4	
Standard (dB(A))	90		140
Reference Method : ISO1996-1 and 1996-2			
Standard : มาตรฐานการวัดและประเมินผลเสียง อาศัยการวัดและประเมินผลเสียง			
ตามคู่มือการวัดและประเมินผลเสียงของกรมส่งเสริมการค้าระหว่างประเทศ			

Technical Management

Thanitak.  
Thanita Kulsiwong  
Scientist (4)

Approved by

Supt S  
Supot Salamteh  
Section Head

The above results are valid only for the analyzed/tested sample(s) as indicated in this report. No part of this report or certificate may be reproduced in any form without written consent from the Laboratory. ALS Laboratory Group (Thailand) strongly recommends that this report is not reproduced except in full.

ADDRESS 616/10 Moo 5 T. Maenam Khw. A. Phraekdaeng Rayong 21140 Thailand | PHONE +66 0 3304 8555 | FAX +66 0 3304 8556  
ALS LABORATORY GROUP (THAILAND) CO., LTD. An ALS Limited Company

Life Sciences

www.alsglobal.com

RIGHT SOLUTIONS RIGHT PARTNER

6403-32 EMAIL

S:\Reports\_Air Noise.rpt (12:18PM)

Technical Management

Thanitak.  
Thanita Kulsiwong  
Scientist (4)

Approved by

Supt S  
Supot Salamteh  
Section Head

The above results are valid only for the analyzed/tested sample(s) as indicated in this report. No part of this report or certificate may be reproduced in any form without written consent from the Laboratory. ALS Laboratory Group (Thailand) strongly recommends that this report is not reproduced except in full.

ADDRESS 616/10 Moo 5 T. Maenam Khw. A. Phraekdaeng Rayong 21140 Thailand | PHONE +66 0 3304 8555 | FAX +66 0 3304 8556  
ALS LABORATORY GROUP (THAILAND) CO., LTD. An ALS Limited Company

Life Sciences

www.alsglobal.com

RIGHT SOLUTIONS RIGHT PARTNER

6403-32 EMAIL

S:\Reports\_Air Noise.rpt (12:18PM)



## Analysis / Test Report

**Client :** Global Power Synergy Public Company Limited  
92/9, Rayong Highway Road 3191, Map Ta Phut, Mueang, Rayong Thailand  
21150

**P/O :**

**Project Name :** Monitoring

**Project Location :** CUP 1

**Lot ID: 2212604**

Date Received : Mar 25, 2022

Date Reported : Mar 29, 2022

Report Number: 2216855-1

Page 1 of 11

**Sample Number** 2212604-1  
**Parameter** Heat Stress (Sampling Time : 09.45 AM - 11.45 AM)  
**Measurement Date** Mar 24, 2022  
**Measurement by** Natthapon Jiengwareewong  
**Location** ปฏิบัติงาน 1 พื้นที่ (ชื่อ-นามสกุล ผู้ปฏิบัติงาน : - แผนก : -)

Location	Duration (min)	WBGT (°C)	NWB (°C)	GT (°C)	DE (°C)
เครื่องกำเนิดไฟฟ้ากังหันก๊าซ #1	120	28.4	27.0	31.7	31.2
Average (WBGT)		28.4			
Guideline WBGT (°C)		34.0			

**Reference Method :** Wet Bulb Globe Temperature

### Guideline:

1. Notification of Department Labour Protection and Welfare on the Criteria and Procedures for Measurement and Analysis of Working Conditions in relation to Heat, Light or Noise Levels, including Duration and Types of Business that must perform (B.E. 2561)
2. Ministerial Regulation on Prescribing of Standard for Administration and Management of Occupational Safety, Health and Environment in relation to Heat, Light and Noise, B.E.2559

Technical Management

Supot Salamteh  
Section Head

Approved by

Wichan Chonharat  
Assistant Manager

The above results are valid only for the analyzed/tested sample(s) as indicated in this report. No part of this report or certificate may be reproduced in any form without written consent from the Laboratory. ALS Laboratory Group (Thailand) strongly recommends that this report is not reproduced except in full.

ADDRESS 104 Phatthanakan 40, Phatthanakan Rd., Khwaeng Phatthanakan, Khet Suan Luang, Bangkok 10250 Thailand | PHONE +66 0 2760 3000 | FAX +66 0 2760 3197  
ALS LABORATORY GROUP (THAILAND) CO., LTD. An ALS Limited Company

Life Sciences

www.alsglobal.com

RIGHT SOLUTIONS RIGHT PARTNER

6403-32 / EMAIL

S:\Reports\Air Heat.rpt ( 5:33PM)



## Analysis / Test Report

**Client :** Global Power Synergy Public Company Limited  
92/9, Rayong Highway Road 3191, Map Ta Phut, Mueang, Rayong Thailand  
21150

**P/O :**

**Project Name :** Monitoring

**Project Location :** CUP 1

**Lot ID: 2212604**

Date Received : Mar 25, 2022

Date Reported : Mar 29, 2022

Report Number: 2216855-1

Page 2 of 13

**Sample Number** 2212604-2  
**Parameter** Heat Stress (Sampling Time : 09.45 AM - 11.45 AM)  
**Measurement Date** Mar 24, 2022  
**Measurement by** Natthapon Jiengwareewong  
**Location** ปฏิบัติงาน 1 พื้นที่ (ชื่อ-นามสกุล ผู้ปฏิบัติงาน : - แผนก : -)

Location	Duration (min)	WBGT (°C)	NWB (°C)	GT (°C)	DB (°C)
เครื่องกำเนิดไฟฟ้ากังหันก๊าซ #2	120	28.5	27.1	31.9	31.5
Average (WBGT)		28.5			
Guideline WBGT (°C)		34.0			

**Reference Method :** Wet Bulb Globe Temperature

### Guideline:

1. Notification of Department Labour Protection and Welfare on the Criteria and Procedures for Measurement and Analysis of Working Conditions in relation to Heat, Light or Noise Levels, including Duration and Types of Business that must perform (B.E. 2561)
2. Ministerial Regulation on Prescribing of Standard for Administration and Management of Occupational Safety, Health and Environment in relation to Heat, Light and Noise, B.E.2559

Technical Management

Supot Salamteh  
Section Head

Approved by

Wichan Chonharat  
Assistant Manager

The above results are valid only for the analyzed/tested sample(s) as indicated in this report. No part of this report or certificate may be reproduced in any form without written consent from the Laboratory. ALS Laboratory Group (Thailand) strongly recommends that this report is not reproduced except in full.

ADDRESS 104 Phatthanakan 40, Phatthanakan Rd., Khwaeng Phatthanakan, Khet Suan Luang, Bangkok 10250 Thailand | PHONE +66 0 2760 3000 | FAX +66 0 2760 3197  
ALS LABORATORY GROUP (THAILAND) CO., LTD. An ALS Limited Company

Life Sciences

www.alsglobal.com

RIGHT SOLUTIONS RIGHT PARTNER

6403-32 / EMAIL

S:\Reports\Air Heat.rpt ( 5:33PM)





## Analysis / Test Report

**Client :** Global Power Synergy Public Company Limited  
92/9, Rayong Highway Road 3191, Map Ta Phut, Mueang, Rayong Thailand  
21150

**P/O :**

**Project Name :** Monitoring

**Project Location :** CUP 1

**Lot ID: 2212604**

Date Received : Mar 25, 2022

Date Reported : Mar 29, 2022

Report Number: 2216855-1

Page 3 of 11

**Sample Number** 2212604-3  
**Parameter** Heat Stress (Sampling Time : 09.45 AM - 11.45 AM)  
**Measurement Date** Mar 24, 2022  
**Measurement by** Natthapon Jiengwareewong  
**Location** ปฏิบัติงาน 1 พื้นที่ (ชื่อ-นามสกุล ผู้ปฏิบัติงาน : - แผนก : -)

Location	Duration (min)	WBGT (°C)	NWB (°C)	GT (°C)	DE (°C)
เครื่องกำเนิดไฟฟ้ากังหันก๊าซ #3	120	28.5	26.8	32.3	31.8
Average (WBGT)		28.5			
Guideline WBGT (°C)		34.0			

**Reference Method :** Wet Bulb Globe Temperature

### Guideline:

1. Notification of Department Labour Protection and Welfare on the Criteria and Procedures for Measurement and Analysis of Working Conditions in relation to Heat, Light or Noise Levels, including Duration and Types of Business that must perform (B.E. 2561)
2. Ministerial Regulation on Prescribing of Standard for Administration and Management of Occupational Safety, Health and Environment in relation to Heat, Light and Noise, B.E.2559

Technical Management

Supot Salamteh  
Section Head

Approved by

Wichan Chonharat  
Assistant Manager

The above results are valid only for the analyzed/tested sample(s) as indicated in this report. No part of this report or certificate may be reproduced in any form without written consent from the Laboratory. ALS Laboratory Group (Thailand) strongly recommends that this report is not reproduced except in full.

ADDRESS 104 Phatthanakan 40, Phatthanakan Rd., Khwaeng Phatthanakan, Khet Suan Luang, Bangkok 10250 Thailand | PHONE +66 0 2760 3000 | FAX +66 0 2760 3197  
ALS LABORATORY GROUP (THAILAND) CO., LTD. An ALS Limited Company

Life Sciences

www.alsglobal.com

RIGHT SOLUTIONS RIGHT PARTNER

6403-32 / EMAIL

S:\Reports\Air Heat.rpt ( 5:33PM)



## Analysis / Test Report

**Client :** Global Power Synergy Public Company Limited  
92/9, Rayong Highway Road 3191, Map Ta Phut, Mueang, Rayong Thailand  
21150

**P/O :**

**Project Name :** Monitoring

**Project Location :** CUP 1

**Lot ID: 2212604**

Date Received : Mar 25, 2022

Date Reported : Mar 29, 2022

Report Number: 2216855-1

Page 4 of 13

**Sample Number** 2212604-4  
**Parameter** Heat Stress (Sampling Time : 09.45 AM - 11.45 AM)  
**Measurement Date** Mar 24, 2022  
**Measurement by** Natthapon Jiengwareewong  
**Location** ปฏิบัติงาน 1 พื้นที่ (ชื่อ-นามสกุล ผู้ปฏิบัติงาน : - แผนก : -)

Location	Duration (min)	WBGT (°C)	NWB (°C)	GT (°C)	DB (°C)
เครื่องกำเนิดไฟฟ้ากังหันก๊าซ #4	120	27.9	26.5	31.2	30.8
Average (WBGT)		27.9			
Guideline WBGT (°C)		34.0			

**Reference Method :** Wet Bulb Globe Temperature

### Guideline:

1. Notification of Department Labour Protection and Welfare on the Criteria and Procedures for Measurement and Analysis of Working Conditions in relation to Heat, Light or Noise Levels, including Duration and Types of Business that must perform (B.E. 2561)
2. Ministerial Regulation on Prescribing of Standard for Administration and Management of Occupational Safety, Health and Environment in relation to Heat, Light and Noise, B.E.2559

Technical Management

Supot Salamteh  
Section Head

Approved by

Wichan Chonharat  
Assistant Manager

The above results are valid only for the analyzed/tested sample(s) as indicated in this report. No part of this report or certificate may be reproduced in any form without written consent from the Laboratory. ALS Laboratory Group (Thailand) strongly recommends that this report is not reproduced except in full.

ADDRESS 104 Phatthanakan 40, Phatthanakan Rd., Khwaeng Phatthanakan, Khet Suan Luang, Bangkok 10250 Thailand | PHONE +66 0 2760 3000 | FAX +66 0 2760 3197  
ALS LABORATORY GROUP (THAILAND) CO., LTD. An ALS Limited Company

Life Sciences

www.alsglobal.com

RIGHT SOLUTIONS RIGHT PARTNER

6403-32 / EMAIL

S:\Reports\Air Heat.rpt ( 5:33PM)



## Analysis / Test Report

**Client :** Global Power Synergy Public Company Limited  
92/9, Rayong Highway Road 3191, Map Ta Phut, Mueang, Rayong Thailand  
21150

**P/O :**

**Project Name :** Monitoring

**Project Location :** CUP 1

**Lot ID: 2212604**

Date Received : Mar 25, 2022

Date Reported : Mar 29, 2022

Report Number: 2216855-1

Page 5 of 11

**Sample Number** 2212604-5  
**Parameter** Heat Stress (Sampling Time : 09.45 AM - 11.45 AM)  
**Measurement Date** Mar 24, 2022  
**Measurement by** Natthapon Jiengwareewong  
**Location** ปฏิบัติงาน 1 พื้นที่ (ชื่อ-นามสกุล ผู้ปฏิบัติงาน : - แผนก : -)

Location	Duration (min)	WBGT (°C)	NWB (°C)	GT (°C)	DE (°C)
เครื่องกำเนิดไฟฟ้ากังหันก๊าซ #5	120	28.3	26.7	32.1	31.7
Average (WBGT)		28.3			
Guideline WBGT (°C)		34.0			

**Reference Method :** Wet Bulb Globe Temperature

### Guideline:

1. Notification of Department Labour Protection and Welfare on the Criteria and Procedures for Measurement and Analysis of Working Conditions in relation to Heat, Light or Noise Levels, including Duration and Types of Business that must perform (B.E. 2561)
2. Ministerial Regulation on Prescribing of Standard for Administration and Management of Occupational Safety, Health and Environment in relation to Heat, Light and Noise, B.E.2559

Technical Management

*Supot S.*

Supot Salamteh  
Section Head

Approved by

*Wichan Chonharat*

Wichan Chonharat  
Assistant Manager

The above results are valid only for the analyzed/tested sample(s) as indicated in this report. No part of this report or certificate may be reproduced in any form without written consent from the Laboratory. ALS Laboratory Group (Thailand) strongly recommends that this report is not reproduced except in full.

ADDRESS 104 Phatthanakan 40, Phatthanakan Rd., Khwaeng Phatthanakan, Khet Suan Luang, Bangkok 10250 Thailand | PHONE +66 0 2760 3000 | FAX +66 0 2760 3197  
ALS LABORATORY GROUP (THAILAND) CO., LTD. An ALS Limited Company

Life Sciences

www.alsglobal.com

RIGHT SOLUTIONS RIGHT PARTNER

6403-32 / EMAIL

S:\Reports\Air Heat.rpt ( 5:33PM)



## Analysis / Test Report

**Client :** Global Power Synergy Public Company Limited  
92/9, Rayong Highway Road 3191, Map Ta Phut, Mueang, Rayong Thailand  
21150

**P/O :**

**Project Name :** Monitoring

**Project Location :** CUP 1

**Lot ID: 2212604**

Date Received : Mar 25, 2022

Date Reported : Mar 29, 2022

Report Number: 2216855-1

Page 6 of 13

**Sample Number** 2212604-6  
**Parameter** Heat Stress (Sampling Time : 09.45 AM - 11.45 AM)  
**Measurement Date** Mar 24, 2022  
**Measurement by** Natthapon Jiengwareewong  
**Location** ปฏิบัติงาน 1 พื้นที่ (ชื่อ-นามสกุล ผู้ปฏิบัติงาน : - แผนก : -)

Location	Duration (min)	WBGT (°C)	NWB (°C)	GT (°C)	DB (°C)
เครื่องกำเนิดไฟฟ้ากังหันก๊าซ #6	120	28.3	26.9	31.7	31.2
Average (WBGT)		28.3			
Guideline WBGT (°C)		34.0			

**Reference Method :** Wet Bulb Globe Temperature

### Guideline:

1. Notification of Department Labour Protection and Welfare on the Criteria and Procedures for Measurement and Analysis of Working Conditions in relation to Heat, Light or Noise Levels, including Duration and Types of Business that must perform (B.E. 2561)
2. Ministerial Regulation on Prescribing of Standard for Administration and Management of Occupational Safety, Health and Environment in relation to Heat, Light and Noise, B.E.2559

Technical Management

*Supot S.*

Supot Salamteh  
Section Head

Approved by

*Wichan Chonharat*

Wichan Chonharat  
Assistant Manager

The above results are valid only for the analyzed/tested sample(s) as indicated in this report. No part of this report or certificate may be reproduced in any form without written consent from the Laboratory. ALS Laboratory Group (Thailand) strongly recommends that this report is not reproduced except in full.

ADDRESS 104 Phatthanakan 40, Phatthanakan Rd., Khwaeng Phatthanakan, Khet Suan Luang, Bangkok 10250 Thailand | PHONE +66 0 2760 3000 | FAX +66 0 2760 3197  
ALS LABORATORY GROUP (THAILAND) CO., LTD. An ALS Limited Company

Life Sciences

www.alsglobal.com

RIGHT SOLUTIONS RIGHT PARTNER

6403-32 / EMAIL

S:\Reports\Air Heat.rpt ( 5:33PM)



## Analysis / Test Report

**Client :** Global Power Synergy Public Company Limited  
92/9, Rayong Highway Road 3191, Map Ta Phut, Mueang, Rayong Thailand  
21150

**P/O :**  
**Project Name :** Monitoring  
**Project Location :** CUP 1

**Lot ID: 2212604**

Date Received : Mar 25, 2022  
Date Reported : Mar 29, 2022  
Report Number: 2216855-1

Page 7 of 11

**Sample Number** 2212604-7  
**Parameter** Heat Stress (Sampling Time : 09.45 AM - 11.45 AM)  
**Measurement Date** Mar 24, 2022  
**Measurement by** Natthapon Jiengwareewong  
**Location** ปฏิบัติงาน 1 พื้นที่ (ชื่อ-นามสกุล ผู้ปฏิบัติงาน : - แผนก : -)

Location	Duration (min)	WBGT (°C)	NWB (°C)	GT (°C)	DE (°C)
หน่วยผลิตไอน้ำหลัก HRSG #1	120	30.5	27.9	36.8	36.3
Average (WBGT)		30.5			
Guideline WBGT (°C)		34.0			

**Reference Method :** Wet Bulb Globe Temperature

### Guideline:

1. Notification of Department Labour Protection and Welfare on the Criteria and Procedures for Measurement and Analysis of Working Conditions in relation to Heat, Light or Noise Levels, including Duration and Types of Business that must perform (B.E. 2561)
2. Ministerial Regulation on Prescribing of Standard for Administration and Management of Occupational Safety, Health and Environment in relation to Heat, Light and Noise, B.E.2559

Technical Management

*Supot S.*

Supot Salamteh  
Section Head

Approved by

*Wichan Ch.*

Wichan Choonharat  
Assistant Manager

The above results are valid only for the analyzed/tested sample(s) as indicated in this report. No part of this report or certificate may be reproduced in any form without written consent from the Laboratory. ALS Laboratory Group (Thailand) strongly recommends that this report is not reproduced except in full.

ADDRESS 104 Phatthanakan 40, Phatthanakan Rd., Khwaeng Phatthanakan, Khet Suan Luang, Bangkok 10250 Thailand | PHONE +66 0 2760 3000 | FAX +66 0 2760 3197  
ALS LABORATORY GROUP (THAILAND) CO., LTD. An ALS Limited Company

Life Sciences

www.alsglobal.com

RIGHT SOLUTIONS RIGHT PARTNER



## Analysis / Test Report

**Client :** Global Power Synergy Public Company Limited  
92/9, Rayong Highway Road 3191, Map Ta Phut, Mueang, Rayong Thailand  
21150

**P/O :**  
**Project Name :** Monitoring  
**Project Location :** CUP 1

**Lot ID: 2212604**

Date Received : Mar 25, 2022  
Date Reported : Mar 29, 2022  
Report Number: 2216855-1

Page 8 of 13

**Sample Number** 2212604-8  
**Parameter** Heat Stress (Sampling Time : 09.45 AM - 11.45 AM)  
**Measurement Date** Mar 24, 2022  
**Measurement by** Natthapon Jiengwareewong  
**Location** ปฏิบัติงาน 1 พื้นที่ (ชื่อ-นามสกุล ผู้ปฏิบัติงาน : - แผนก : -)

Location	Duration (min)	WBGT (°C)	NWB (°C)	GT (°C)	DB (°C)
หน่วยผลิตไอน้ำหลัก HRSG #2	120	29.6	27.1	35.7	35.1
Average (WBGT)		29.6			
Guideline WBGT (°C)		34.0			

**Reference Method :** Wet Bulb Globe Temperature

### Guideline:

1. Notification of Department Labour Protection and Welfare on the Criteria and Procedures for Measurement and Analysis of Working Conditions in relation to Heat, Light or Noise Levels, including Duration and Types of Business that must perform (B.E. 2561)
2. Ministerial Regulation on Prescribing of Standard for Administration and Management of Occupational Safety, Health and Environment in relation to Heat, Light and Noise, B.E.2559

Technical Management

*Supot S.*

Supot Salamteh  
Section Head

Approved by

*Wichan Ch.*

Wichan Choonharat  
Assistant Manager

The above results are valid only for the analyzed/tested sample(s) as indicated in this report. No part of this report or certificate may be reproduced in any form without written consent from the Laboratory. ALS Laboratory Group (Thailand) strongly recommends that this report is not reproduced except in full.

ADDRESS 104 Phatthanakan 40, Phatthanakan Rd., Khwaeng Phatthanakan, Khet Suan Luang, Bangkok 10250 Thailand | PHONE +66 0 2760 3000 | FAX +66 0 2760 3197  
ALS LABORATORY GROUP (THAILAND) CO., LTD. An ALS Limited Company

Life Sciences

www.alsglobal.com

RIGHT SOLUTIONS RIGHT PARTNER





## Analysis / Test Report

**Client :** Global Power Synergy Public Company Limited  
92/9, Rayong Highway Road 3191, Map Ta Phut, Mueang, Rayong Thailand  
21150

**P/O :**

**Project Name :** Monitoring

**Project Location :** CUP 1

**Lot ID: 2212604**

Date Received : Mar 25, 2022

Date Reported : Mar 29, 2022

Report Number: 2216855-1

Page 9 of 11

**Sample Number** 2212604-9  
**Parameter** Heat Stress (Sampling Time : 09.45 AM - 11.45 AM)  
**Measurement Date** Mar 24, 2022  
**Measurement by** Natthapon Jiengwareewong  
**Location** ปฏิบัติงาน 1 พื้นที่ (ชื่อ-นามสกุล ผู้ปฏิบัติงาน : - แผนก : -)

Location	Duration (min)	WBGT (°C)	NWB (°C)	GT (°C)	DE (°C)
หน่วยผลิตไอน้ำหลัก HRSG #3	120	29.2	27.0	34.6	34.0
Average (WBGT)		29.2			
Guideline WBGT (°C)		34.0			

**Reference Method :** Wet Bulb Globe Temperature

### Guideline:

1. Notification of Department Labour Protection and Welfare on the Criteria and Procedures for Measurement and Analysis of Working Conditions in relation to Heat, Light or Noise Levels, including Duration and Types of Business that must perform (B.E. 2561)
2. Ministerial Regulation on Prescribing of Standard for Administration and Management of Occupational Safety, Health and Environment in relation to Heat, Light and Noise, B.E.2559

Technical Management

Supot Salamteh  
Section Head

Approved by

Wichan Choonharat  
Assistant Manager

The above results are valid only for the analyzed/tested sample(s) as indicated in this report. No part of this report or certificate may be reproduced in any form without written consent from the Laboratory. ALS Laboratory Group (Thailand) strongly recommends that this report is not reproduced except in full.

ADDRESS 104 Phatthanakan 40, Phatthanakan Rd., Khwaeng Phatthanakan, Khet Suan Luang, Bangkok 10250 Thailand | PHONE +66 0 2760 3000 | FAX +66 0 2760 3197  
ALS LABORATORY GROUP (THAILAND) CO., LTD. An ALS Limited Company

Life Sciences

www.alsglobal.com

RIGHT SOLUTIONS RIGHT PARTNER

6403-32 / EMAIL

S:\Reports\Air Heat.rpt ( 5:33PM)



## Analysis / Test Report

**Client :** Global Power Synergy Public Company Limited  
92/9, Rayong Highway Road 3191, Map Ta Phut, Mueang, Rayong Thailand  
21150

**P/O :**

**Project Name :** Monitoring

**Project Location :** CUP 1

**Lot ID: 2212604**

Date Received : Mar 25, 2022

Date Reported : Mar 29, 2022

Report Number: 2216855-1

Page 10 of 13

**Sample Number** 2212604-10  
**Parameter** Heat Stress (Sampling Time : 09.45 AM - 11.45 AM)  
**Measurement Date** Mar 24, 2022  
**Measurement by** Natthapon Jiengwareewong  
**Location** ปฏิบัติงาน 1 พื้นที่ (ชื่อ-นามสกุล ผู้ปฏิบัติงาน : - แผนก : -)

Location	Duration (min)	WBGT (°C)	NWB (°C)	GT (°C)	DB (°C)
หน่วยผลิตไอน้ำหลัก HRSG #4	120	29.8	27.4	35.4	35.1
Average (WBGT)		29.8			
Guideline WBGT (°C)		34.0			

**Reference Method :** Wet Bulb Globe Temperature

### Guideline:

1. Notification of Department Labour Protection and Welfare on the Criteria and Procedures for Measurement and Analysis of Working Conditions in relation to Heat, Light or Noise Levels, including Duration and Types of Business that must perform (B.E. 2561)
2. Ministerial Regulation on Prescribing of Standard for Administration and Management of Occupational Safety, Health and Environment in relation to Heat, Light and Noise, B.E.2559

Technical Management

Supot Salamteh  
Section Head

Approved by

Wichan Choonharat  
Assistant Manager

The above results are valid only for the analyzed/tested sample(s) as indicated in this report. No part of this report or certificate may be reproduced in any form without written consent from the Laboratory. ALS Laboratory Group (Thailand) strongly recommends that this report is not reproduced except in full.

ADDRESS 104 Phatthanakan 40, Phatthanakan Rd., Khwaeng Phatthanakan, Khet Suan Luang, Bangkok 10250 Thailand | PHONE +66 0 2760 3000 | FAX +66 0 2760 3197  
ALS LABORATORY GROUP (THAILAND) CO., LTD. An ALS Limited Company

Life Sciences

www.alsglobal.com

RIGHT SOLUTIONS RIGHT PARTNER

6403-32 / EMAIL

S:\Reports\Air Heat.rpt ( 5:33PM)



## Analysis / Test Report

**Client :** Global Power Synergy Public Company Limited  
92/9, Rayong Highway Road 3191, Map Ta Phut, Mueang, Rayong Thailand  
21150

**P/O :**

**Project Name :** Monitoring

**Project Location :** CUP 1

**Lot ID: 2212604**

Date Received : Mar 25, 2022

Date Reported : Mar 29, 2022

Report Number: 2216855-1

Page 11 of 11

**Sample Number** 2212604-11  
**Parameter** Heat Stress (Sampling Time : 09.45 AM - 11.45 AM)  
**Measurement Date** Mar 24, 2022  
**Measurement by** Natthapon Jiengwareewong  
**Location** ปฏิบัติงาน 1 พื้นที่ (ชื่อ-นามสกุล ผู้ปฏิบัติงาน : - แผนก : -)

Location	Duration (min)	WBGT (°C)	NWB (°C)	GT (°C)	DE (°C)
หน่วยผลิตไอน้ำหลัก HRSG #5	120	29.3	27.1	34.7	34.3
Average (WBGT)		29.3			
Guideline WBGT (°C)		34.0			

**Reference Method :** Wet Bulb Globe Temperature

### Guideline:

1. Notification of Department Labour Protection and Welfare on the Criteria and Procedures for Measurement and Analysis of Working Conditions in relation to Heat, Light or Noise Levels, including Duration and Types of Business that must perform (B.E. 2561)
2. Ministerial Regulation on Prescribing of Standard for Administration and Management of Occupational Safety, Health and Environment in relation to Heat, Light and Noise, B.E.2559

Technical Management

*Supot S.*

Supot Salamteh  
Section Head

Approved by

*Wichan Ch.*

Wichan Choonharat  
Assistant Manager

The above results are valid only for the analyzed/tested sample(s) as indicated in this report. No part of this report or certificate may be reproduced in any form without written consent from the Laboratory. ALS Laboratory Group (Thailand) strongly recommends that this report is not reproduced except in full.

ADDRESS 104 Phatthanakan 40, Phatthanakan Rd., Khwaeng Phatthanakan, Khet Suan Luang, Bangkok 10250 Thailand | PHONE +66 0 2760 3000 | FAX +66 0 2760 3197  
ALS LABORATORY GROUP (THAILAND) CO., LTD. An ALS Limited Company

Life Sciences

www.alsglobal.com

RIGHT SOLUTIONS RIGHT PARTNER

6403-32 / EMAIL

S:\Reports\Air Heat.rpt ( 5:33PM)



## Analysis / Test Report

**Client :** Global Power Synergy Public Company Limited  
92/9, Rayong Highway Road 3191, Map Ta Phut, Mueang, Rayong Thailand  
21150

**P/O :**

**Project Name :** Monitoring

**Project Location :** CUP 1

**Lot ID: 2212604**

Date Received : Mar 25, 2022

Date Reported : Mar 29, 2022

Report Number: 2216855-1

Page 12 of 13

**Sample Number** 2212604-12  
**Parameter** Heat Stress (Sampling Time : 09.45 AM - 11.45 AM)  
**Measurement Date** Mar 24, 2022  
**Measurement by** Natthapon Jiengwareewong  
**Location** ปฏิบัติงาน 1 พื้นที่ (ชื่อ-นามสกุล ผู้ปฏิบัติงาน : - แผนก : -)

Location	Duration (min)	WBGT (°C)	NWB (°C)	GT (°C)	DB (°C)
หน่วยผลิตไอน้ำหลัก HRSG #6	120	29.1	27.2	33.8	33.1
Average (WBGT)		29.1			
Guideline WBGT (°C)		34.0			

**Reference Method :** Wet Bulb Globe Temperature

### Guideline:

1. Notification of Department Labour Protection and Welfare on the Criteria and Procedures for Measurement and Analysis of Working Conditions in relation to Heat, Light or Noise Levels, including Duration and Types of Business that must perform (B.E. 2561)
2. Ministerial Regulation on Prescribing of Standard for Administration and Management of Occupational Safety, Health and Environment in relation to Heat, Light and Noise, B.E.2559

Technical Management

*Supot S.*

Supot Salamteh  
Section Head

Approved by

*Wichan Ch.*

Wichan Choonharat  
Assistant Manager

The above results are valid only for the analyzed/tested sample(s) as indicated in this report. No part of this report or certificate may be reproduced in any form without written consent from the Laboratory. ALS Laboratory Group (Thailand) strongly recommends that this report is not reproduced except in full.

ADDRESS 104 Phatthanakan 40, Phatthanakan Rd., Khwaeng Phatthanakan, Khet Suan Luang, Bangkok 10250 Thailand | PHONE +66 0 2760 3000 | FAX +66 0 2760 3197  
ALS LABORATORY GROUP (THAILAND) CO., LTD. An ALS Limited Company

Life Sciences

www.alsglobal.com

RIGHT SOLUTIONS RIGHT PARTNER

6403-32 / EMAIL

S:\Reports\Air Heat.rpt ( 5:33PM)



## Analysis / Test Report

**Client :** Global Power Synergy Public Company Limited  
92/9, Rayong Highway Road 3191, Map Ta Phut, Mueang, Rayong Thailand  
21150

**P/O :**

**Project Name :** Monitoring

**Project Location :** CUP 1

**Lot ID: 2212604**

Date Received : Mar 25, 2022

Date Reported : Mar 29, 2022

Report Number: 2216855-1

Page 13 of 11

**Sample Number** 2212604-13  
**Parameter** Heat Stress (Sampling Time : 09.45 AM - 11.45 AM)  
**Measurement Date** Mar 24, 2022  
**Measurement by** Natthapon Jiengwareewong  
**Location** ปฏิบัติงาน 1 พื้นที่ (ชื่อ-นามสกุล ผู้ปฏิบัติงาน : - แผนก : -)

Location	Duration (min)	WBGT (°C)	NWB (°C)	GT (°C)	DE (°C)
หน่วยผลิตไอน้ำสำรอง	120	29.3	27.3	34.1	33.6
Average (WBGT)		29.3			
Guideline WBGT (°C)		34.0			

**Reference Method :** Wet Bulb Globe Temperature

### Guideline:

1. Notification of Department Labour Protection and Welfare on the Criteria and Procedures for Measurement and Analysis of Working Conditions in relation to Heat, Light or Noise Levels, including Duration and Types of Business that must perform (B.E. 2561)
2. Ministerial Regulation on Prescribing of Standard for Administration and Management of Occupational Safety, Health and Environment in relation to Heat, Light and Noise, B.E.2559

Technical Management

  
Supot Salamteh  
Section Head

Approved by

  
Wichan Choonharat  
Assistant Manager

The above results are valid only for the analyzed/tested sample(s) as indicated in this report. No part of this report or certificate may be reproduced in any form without written consent from the Laboratory. ALS Laboratory Group (Thailand) strongly recommends that this report is not reproduced except in full.

ADDRESS 104 Phatthanakan Rd., Khwaeng Phatthanakan, Khet Suan Luang, Bangkok 10250 Thailand | PHONE +66 0 2760 3000 | FAX +66 0 2760 3197  
ALS LABORATORY GROUP (THAILAND) CO., LTD. An ALS Limited Company

Life Sciences

[www.alsglobal.com](http://www.alsglobal.com)

RIGHT SOLUTIONS RIGHT PARTNER





## Analysis / Test Report

**Client :** Global Power Synergy Public Company Limited  
92/9, Rayong Highway Road 3191, Map Ta Phut, Mueang, Rayong Thailand 21150

**P/O :**

**Project Name :** Monitoring

**Project Location :** CUP 1

**TESTING**

**No.0042**

**Lot ID: 21153220**

Date Received : Jan 11, 2022

Date Reported : Jan 18, 2022

Report Number : 2193250-1

Page 1 of 1

<b>Sample Number</b>	21153220-1
<b>Sampled Date</b>	Jan 11, 2022 11:00 AM
<b>Sample Description</b>	Wastewater
<b>Location</b>	บ่อดักน้ำทิ้งของโครงการ
<b>Date Analysis Commenced</b>	Jan 11, 2022
<b>Condition of Sample</b>	Contained in one amber glass bottle and two plastic bottles, sample containers comply to pretreatment - preservation standards (APHA, USEPA)

Analyte	Unit	LOD	LOQ (LOR)	Result	Guideline / Specification	Method	Testing Location
<b>Water Testing</b>							
BOD (5 days at 20 Degree C)	mg/L	-	2	<2	≤500	APHA (2017), 5210 B	Rayong
Oil & Grease	mg/L	-	3	<3	≤10	Based on APHA (2017), 5520 B	Rayong
pH at 25 degree C		-	-	8.0	5.5-9.0	Based on APHA (2017), 4500-H (B)	Rayong
Temperature *	Degree C	-	-	29.9	≤45	Based on APHA (2017), 2550 B	Rayong
Total Dissolved Solids Dried at 180 degree C	mg/L	-	5	324	≤3000	APHA (2017), 2540 C	Rayong

**Guideline :** Notification of the Industrial Estate Authority of Thailand No.76, B.E. 2560 : Criteria of wastewater characteristic from factory discharge to central wastewater Treatment Plant

**Sampled By :** Pathompong Kornawat

Remark :

- LOD : Limit of Detection
- "<" : Lower than LOQ (Limit of Quantitation) / LOR (Limit of Reporting)
- Analyte(s) marked \* is/are not included in scope of Accreditation ISO/IEC 17025.

Technical Management

*N. Banchongkit*

Narumon Banchongkit

Supervisor

ทะเบียนเลขที่ ว-323-จ-9445

Approved by

*D. Changchon*

Dej Changchon

Senior Manager

ทะเบียนเลขที่ ว-323-ค-9442

The above results are valid only for the analyzed/tested sample(s) as indicated in this report. No part of this report or certificate may be reproduced in any form without written consent from the Laboratory. ALS Laboratory Group (Thailand) strongly recommends that this report is not reproduced except in full.

ADDRESS 616/10 Moo 5 T. Maenam Khu A. Pluakdaeng Rayong 21140 Thailand | PHONE +66 0 3304 8555 | FAX +66 0 3304 8556  
ALS LABORATORY GROUP (THAILAND) CO., LTD. An ALS Limited Company

Life Sciences

[www.alsglobal.com](http://www.alsglobal.com)

RIGHT SOLUTIONS RIGHT PARTNER



## Analysis / Test Report

TESTING

No.0042

**Client :** Global Power Synergy Public Company Limited

92/9, Rayong Highway Road 3191, Map Ta Phut, Mueang, Rayong Thailand 21150

**P/O :**

**Project Name :** Monitoring

**Project Location :** CUP 1

**Lot ID: 221233**

Date Received : Feb 08, 2022

Date Reported : Feb 14, 2022

Report Number : 2226818-1

Page 1 of 1

<b>Sample Number</b>	221233-1
<b>Sampled Date</b>	Feb 08, 2022 11:00 AM
<b>Sample Description</b>	Wastewater
<b>Location</b>	บ่อดรงวัดคุณภาพน้ำทิ้งของโครงการ
<b>Date Analysis Commenced</b>	Feb 08, 2022
<b>Condition of Sample</b>	Contained in one amber glass bottle and two plastic bottles, sample containers comply to pretreatment - preservation standards (APHA, USEPA)

Analyte	Unit	LOD	LOQ (LOR)	Result	Guideline / Specification	Method	Testing Location
<b>Water Testing</b>							
BOD (5 days at 20 Degree C)	mg/L	-	2	<2	≤500	APHA (2017), 5210 B	Rayong
Oil & Grease	mg/L	-	3	<3	≤10	Based on APHA (2017), 5520 B	Rayong
pH at 25 degree C		-	-	7.9	5.5-9.0	Based on APHA (2017), 4500-H (B)	Rayong
Temperature *	Degree C	-	-	31.0	≤45	Based on APHA (2017), 2550 B	Rayong
Total Dissolved Solids Dried at 180 degree C	mg/L	-	5	160	≤3000	APHA (2017), 2540 C	Rayong
Total Suspended Solids Dried at 103-105 degree C	mg/L	-	5	16	≤200	APHA (2017), 2540 D	Rayong

**Guideline :** Notification of the Industrial Estate Authority of Thailand No.76, B.E. 2560 : Criteria of wastewater characteristic from factory discharge to central wastewater Treatment Plant

**Sampled By :** Chainusorn Lertnathakunchai

Remark :

- LOD : Limit of Detection
- "<" : Lower than LOQ (Limit of Quantitation) / LOR (Limit of Reporting)
- Analyte(s) marked \* is/are not included in scope of Accreditation ISO/IEC 17025.

Technical Management

*N. Banthit*

Narumon Banchongkit

Supervisor

ทะเบียนเลขที่ ว-323-จ-9445

Approved by

*D. Changchon*

Dej Changchon

Senior Manager

ทะเบียนเลขที่ ว-323-ค-9442

The above results are valid only for the analyzed/tested sample(s) as indicated in this report. No part of this report or certificate may be reproduced in any form without written consent from the Laboratory. ALS Laboratory Group (Thailand) strongly recommends that this report is not reproduced except in full.

ADDRESS 616/10 Moo 5 T. Maenam Khu A. Pluakdaeng Rayong 21140 Thailand | PHONE +66 0 3304 8555 | FAX +66 0 3304 8556  
ALS LABORATORY GROUP (THAILAND) CO., LTD. An ALS Limited Company

Life Sciences

[www.alsglobal.com](http://www.alsglobal.com)

RIGHT SOLUTIONS RIGHT PARTNER



## Analysis / Test Report

**Client :** Global Power Synergy Public Company Limited  
92/9, Rayong Highway Road 3191, Map Ta Phut, Mueang, Rayong Thailand 21150

**P/O :**

**Project Name :** Monitoring

**Project Location :** CUP 1

**TESTING**

**No.0042**

**Lot ID: 2214768**

Date Received : Mar 08, 2022

Date Reported : Mar 14, 2022

Report Number : 2226826-1

Page 1 of 1

<b>Sample Number</b>	2214768-1
<b>Sampled Date</b>	Mar 08, 2022 10:50 AM
<b>Sample Description</b>	Wastewater
<b>Location</b>	บ่อดักน้ำทิ้งของโครงการ
<b>Date Analysis Commenced</b>	Mar 08, 2022
<b>Condition of Sample</b>	Contained in one amber glass bottle and two plastic bottles, sample containers comply to pretreatment - preservation standards (APHA, USEPA)

Analyte	Unit	LOD	LOQ (LOR)	Result	Guideline / Specification	Method	Testing Location
<b>Water Testing</b>							
BOD (5 days at 20 Degree C)	mg/L	-	2	<2	≤500	APHA (2017), 5210 B	Rayong
Oil & Grease	mg/L	-	3	<3	≤10	Based on APHA (2017), 5520 B	Rayong
pH at 25 degree C		-	-	7.6	5.5-9.0	Based on APHA (2017), 4500-H (B)	Rayong
Temperature *	Degree C	-	-	30.1	≤45	Based on APHA (2017), 2550 B	Rayong
Total Dissolved Solids Dried at 180 degree C	mg/L	-	5	244	≤3000	APHA (2017), 2540 C	Rayong
Total Suspended Solids Dried at 103-105 degree C	mg/L	-	5	11	≤200	APHA (2017), 2540 D	Rayong

**Guideline :** Notification of the Industrial Estate Authority of Thailand No.76, B.E. 2560 : Criteria of wastewater characteristic from factory discharge to central wastewater Treatment Plant

**Sampled By :** Chainusorn Lertnathakunchai

Remark :

- LOD : Limit of Detection
- "<" : Lower than LOQ (Limit of Quantitation) / LOR (Limit of Reporting)
- Analyte(s) marked \* is/are not included in scope of Accreditation ISO/IEC 17025.

Technical Management

*N. Banthongkit*

Narumon Banchongkit

Supervisor

ทะเบียนเลขที่ ว-323-จ-9445

Approved by

*D. Changchon*

Dej Changchon

Senior Manager

ทะเบียนเลขที่ ว-323-ค-9442

The above results are valid only for the analyzed/tested sample(s) as indicated in this report. No part of this report or certificate may be reproduced in any form without written consent from the Laboratory. ALS Laboratory Group (Thailand) strongly recommends that this report is not reproduced except in full.

ADDRESS 616/10 Moo 5 T. Maenam Khu A. Pluakdaeng Rayong 21140 Thailand | PHONE +66 0 3304 8555 | FAX +66 0 3304 8556  
ALS LABORATORY GROUP (THAILAND) CO., LTD. An ALS Limited Company

Life Sciences

[www.alsglobal.com](http://www.alsglobal.com)

RIGHT SOLUTIONS RIGHT PARTNER





## Analysis / Test Report

**Client :** Global Power Synergy Public Company Limited  
92/9, Rayong Highway Road 3191, Map Ta Phut, Mueang, Rayong Thailand 21150

**P/O :**

**Project Name :** Monitoring

**Project Location :** CUP 1

**TESTING**

**No.0042**

**Lot ID: 222915**

Date Received : Apr 12, 2022

Date Reported : Apr 21, 2022

Report Number : 2237883-1

Page 1 of 1

<b>Sample Number</b>	222915-1
<b>Sampled Date</b>	Apr 12, 2022 11:00 AM
<b>Sample Description</b>	Wastewater
<b>Location</b>	บ่อดรงวัดคุณภาพน้ำทิ้งของโครงการ
<b>Date Analysis Commenced</b>	Apr 12, 2022
<b>Condition of Sample</b>	Contained in one amber glass bottle and two plastic bottles, sample containers comply to pretreatment - preservation standards (APHA, USEPA)

Analyte	Unit	LOD	LOQ (LOR)	Result	Guideline / Specification	Method	Testing Location
<b>Water Testing</b>							
BOD (5 days at 20 Degree C)	mg/L	-	2	<2	≤500	APHA (2017), 5210 B	Rayong
Oil & Grease	mg/L	-	3	<3	≤10	Based on APHA (2017), 5520 B	Rayong
pH at 25 degree C		-	-	7.3	5.5-9.0	Based on APHA (2017), 4500-H (B)	Rayong
Temperature *	Degree C	-	-	31.7	≤45	Based on APHA (2017), 2550 B	Rayong
Total Dissolved Solids Dried at 180 degree C	mg/L	-	5	264	≤3000	APHA (2017), 2540 C	Rayong
Total Suspended Solids Dried at 103-105 degree C	mg/L	-	5	31	≤200	APHA (2017), 2540 D	Rayong

**Guideline :** Notification of the Industrial Estate Authority of Thailand No.76, B.E. 2560 : Criteria of wastewater characteristic from factory discharge to central wastewater Treatment Plant

**Sampled By :** Pathompong Kornasawat

Remark :

- LOD : Limit of Detection
- "<" : Lower than LOQ (Limit of Quantitation) / LOR (Limit of Reporting)
- Analyte(s) marked \* is/are not included in scope of Accreditation ISO/IEC 17025.

**Technical Management**

*N. Banongkit*

Narumon Banchongkit

Supervisor

ทะเบียนเลขที่ ว-323-จ-9445

**Approved by**

*D. Changchon*

Dej Changchon

Senior Manager

ทะเบียนเลขที่ ว-323-ค-9442

The above results are valid only for the analyzed/tested sample(s) as indicated in this report. No part of this report or certificate may be reproduced in any form without written consent from the Laboratory. ALS Laboratory Group (Thailand) strongly recommends that this report is not reproduced except in full.

ADDRESS 616/10 Moo 5 T. Maenam Khu A. Pluakdaeng Rayong 21140 Thailand | PHONE +66 0 3304 8555 | FAX +66 0 3304 8556  
ALS LABORATORY GROUP (THAILAND) CO., LTD. An ALS Limited Company

Life Sciences

[www.alsglobal.com](http://www.alsglobal.com)

RIGHT SOLUTIONS RIGHT PARTNER



## Analysis / Test Report

**Client :** Global Power Synergy Public Company Limited  
92/9, Rayong Highway Road 3191, Map Ta Phut, Mueang, Rayong Thailand 21150

**P/O :**

**Project Name :** Monitoring

**Project Location :** CUP 1

**TESTING**

**No.0042**

**Lot ID: 2232671**

Date Received : May 10, 2022

Date Reported : May 17, 2022

Report Number : 2258053-1

Page 1 of 1

<b>Sample Number</b>	2232671-1
<b>Sampled Date</b>	May 10, 2022 10:45 AM
<b>Sample Description</b>	Wastewater
<b>Location</b>	บ่อดรงวัดคุณภาพน้ำทิ้งของโครงการ
<b>Date Analysis Commenced</b>	May 10, 2022
<b>Condition of Sample</b>	Contained in one amber glass bottle and two plastic bottles. Sample containers comply to pretreatment - preservation standards (APHA / USEPA)

Analyte	Unit	LOD	LOQ (LOR)	Result	Guideline / Specification	Method	Testing Location
<b>Water Testing</b>							
BOD (5 days at 20 Degree C)	mg/L	-	2	<2	≤500	APHA (2017), 5210 B	Rayong
Oil & Grease	mg/L	-	3	<3	≤10	Based on APHA (2017), 5520 B	Rayong
pH at 25 degree C		-	-	7.9	5.5-9.0	Based on APHA (2017), 4500-H (B)	Rayong
Temperature *	Degree C	-	-	33.6	≤45	Based on APHA (2017), 2550 B	Rayong
Total Dissolved Solids Dried at 180 degree C	mg/L	-	5	400	≤3000	APHA (2017), 2540 C	Rayong
Total Suspended Solids Dried at 103-105 degree C	mg/L	-	5	11	≤200	APHA (2017), 2540 D	Rayong

**Guideline :** Notification of the Industrial Estate Authority of Thailand No.76, B.E. 2560 : Criteria of wastewater characteristic from factory discharge to central wastewater Treatment Plant

**Sampled By :** Chainusorn Lertnathakunchai

Remark :

- LOD : Limit of Detection
- "<" : Lower than LOQ (Limit of Quantitation) / LOR (Limit of Reporting)
- Analyte(s) marked \* is/are not included in scope of Accreditation ISO/IEC 17025.

Technical Management

*N. Banongkit*

Narumon Banchongkit

Supervisor

ทะเบียนเลขที่ ว-323-จ-9445

Approved by

*D. Changchon*

Dej Changchon

Senior Manager

ทะเบียนเลขที่ ว-323-ค-9442

The above results are valid only for the analyzed/tested sample(s) as indicated in this report. No part of this report or certificate may be reproduced in any form without written consent from the Laboratory. ALS Laboratory Group (Thailand) strongly recommends that this report is not reproduced except in full.

ADDRESS 616/10 Moo 5 T. Maenam Khu A. Pluakdaeng Rayong 21140 Thailand | PHONE +66 0 3304 8555 | FAX +66 0 3304 8556  
ALS LABORATORY GROUP (THAILAND) CO., LTD. An ALS Limited Company

Life Sciences

[www.alsglobal.com](http://www.alsglobal.com)

RIGHT SOLUTIONS RIGHT PARTNER



## Analysis / Test Report

**Client :** Global Power Synergy Public Company Limited  
92/9, Rayong Highway Road 3191, Map Ta Phut, Mueang, Rayong Thailand 21150

**P/O :**

**Project Name :** Monitoring

**Project Location :** CUP 1

**TESTING**

**No.0042**

**Lot ID: 2263632**

Date Received : Jun 14, 2022

Date Reported : Jun 21, 2022

Report Number : 2351266-1

Page 1 of 1

<b>Sample Number</b>	2263632-1
<b>Sampled Date</b>	Jun 14, 2022 10:20 AM
<b>Sample Description</b>	Wastewater
<b>Location</b>	บ่อตรวจวัดคุณภาพน้ำทิ้งของโครงการ
<b>Date Analysis Commenced</b>	Jun 14, 2022
<b>Condition of Sample</b>	Contained in one amber glass bottle and two plastic bottles. Sample containers comply to pretreatment - preservation standards (APHA / USEPA)

Analyte	Unit	LOD	LOQ (LOR)	Result	Guideline / Specification	Method	Testing Location
<b>Water Testing</b>							
BOD (5 days at 20 Degree C)	mg/L	-	2	<2	≤500	APHA (2017), 5210 B	Rayong
Oil & Grease	mg/L	-	3	<3	≤10	Based on APHA (2017), 5520 B	Rayong
pH at 25 degree C		-	-	7.9	5.5-9.0	Based on APHA (2017), 4500-H (B)	Rayong
Temperature *	Degree C	-	-	33.1	≤45	Based on APHA (2017), 2550 B	Rayong
Total Dissolved Solids Dried at 180 degree C	mg/L	-	5	186	≤3000	APHA (2017), 2540 C	Rayong
Total Suspended Solids Dried at 103-105 degree C	mg/L	-	5	9	≤200	APHA (2017), 2540 D	Rayong

**Guideline :** Notification of the Industrial Estate Authority of Thailand No.76, B.E. 2560 : Criteria of wastewater characteristic from factory discharge to central wastewater Treatment Plant

**Sampled By :** Chainusorn Lertnathakunchai

Remark :

- LOD : Limit of Detection
- "<" : Lower than LOQ (Limit of Quantitation) / LOR (Limit of Reporting)
- Analyte(s) marked \* is/are not included in scope of Accreditation ISO/IEC 17025.
- The laboratory has been accepted as an accredited laboratory complying with the ISO/IEC 17025.

**Technical Management**

*N. Banongkit*

Narumon Banchongkit

Supervisor

ทะเบียนเลขที่ ว-323-จ-9445

**Approved by**

*D. Changchon*

Dej Changchon

Senior Manager

ทะเบียนเลขที่ ว-323-ค-9442

The above results are valid only for the analyzed/tested sample(s) as indicated in this report. No part of this report or certificate may be reproduced in any form without written consent from the Laboratory. ALS Laboratory Group (Thailand) strongly recommends that this report is not reproduced except in full.

ADDRESS 616/10 Moo 5 T. Maenam Khu A. Pluakdaeng Rayong 21140 Thailand | PHONE +66 0 3304 8555 | FAX +66 0 3304 8556  
ALS LABORATORY GROUP (THAILAND) CO., LTD. An ALS Limited Company

Life Sciences

[www.alsglobal.com](http://www.alsglobal.com)

RIGHT SOLUTIONS RIGHT PARTNER



ภาคผนวก ง

---

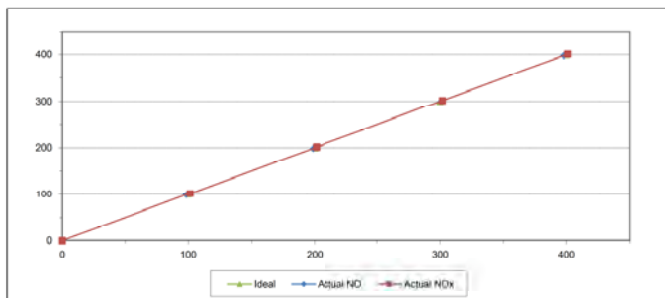
ใบรับรองการสอบเทียบเครื่องมือ



## MULTIPOINT CALIBRATION REPORT

Calibration Date	4-Jan-22	Equipment Name	NOx Analyzer
Manufacturer	HORIBA	Model	APNA-370
Serial No.	ALP0V0WY	Equipment ID	RYG_FS0455
Calibrator Manufacturer	Teledyne API	Model	700
Serial No.	947		
Std. Gas Concentration (PPM)	51.33	Cylinder No.	LL36633
Cylinder Pressure (psi)	1200	Certified By	Airgas Inc.
Certified Date	18-Mar-14	Expired Date	18-Mar-22

Point	CALIBRATION RESULTS						
	Ideal	Actual NO	Error NO	%Error NO	Actual NOx	Error NOx	%Error NOx
ZERO	0.00	0.10	0.10	0.10	0.10	0.10	0.10
1	100.00	98.60	-1.40	-1.40	101.60	1.60	1.60
2	200.00	198.70	-1.30	-0.65	201.40	1.40	0.70
3	300.00	301.00	1.00	0.33	301.80	1.80	0.60
4	400.00	398.20	-1.80	-0.45	401.20	1.20	0.30
AVERAGE (%)				-0.41			0.65



Calibrated By

(Mr. Jirawut Sakam)  
Field Environmental Scientist (3)

Approved By

(Mr. Sarayuth Jitranont)  
Assistant General Manager

ALS Laboratory Group

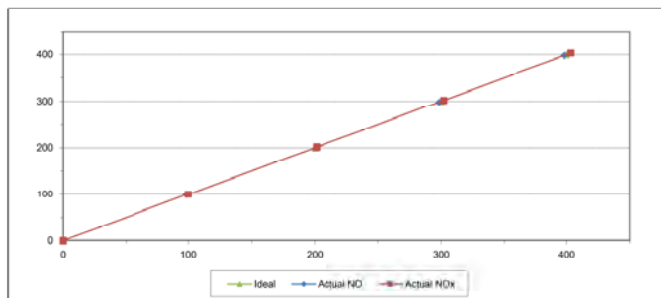
FORM NO.: F 06-056 REVISION NO.: - ISSUE DATE: 02/04/12



## MULTIPOINT CALIBRATION REPORT

Calibration Date	4-Jan-22	Equipment Name	NOx Analyzer
Manufacturer	HORIBA	Model	APNA-370
Serial No.	T95HWM41	Equipment ID	RYG_FS0461
Calibrator Manufacturer	Teledyne API	Model	700
Serial No.	947		
Std. Gas Concentration (PPM)	51.33	Cylinder No.	LL36633
Cylinder Pressure (psi)	1200	Certified By	Airgas Inc.
Certified Date	18-Mar-14	Expired Date	18-Mar-22

Point	CALIBRATION RESULTS						
	Ideal	Actual NO	Error NO	%Error NO	Actual NOx	Error NOx	%Error NOx
ZERO	0.00	0.10	0.10	0.10	0.10	0.10	0.10
1	100.00	98.70	-1.30	-1.30	100.10	0.10	0.10
2	200.00	201.00	1.00	0.50	201.40	1.40	0.70
3	300.00	298.30	-1.70	-0.57	302.10	2.10	0.70
4	400.00	398.40	-1.60	-0.40	403.50	3.50	0.88
AVERAGE (%)				-0.33			0.50



Calibrated By

(Mr. Jirawut Sakam)  
Field Environmental Scientist (3)

Approved By

(Mr. Sarayuth Jitranont)  
Assistant General Manager

ALS Laboratory Group

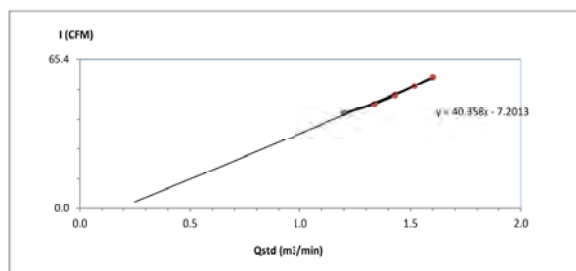
FORM NO.: F 06-056 REVISION NO.: - ISSUE DATE: 02/04/12



## High Volume Air Sampler Calibration Worksheet

Project Site:	Global Power Synergy Public Company Limited	Barometric Pressure (mm Hg):	758
Calibrate Location:	วัดหนองปรือ	Temperature (°C):	32
Calibrate Date:	28-Mar-22	High Volume ID:	RYG_FS0393
Calibration Sheet No.:	C-280322-RYG_FS0393	High Volume Model:	TE-5170D
Calibrator ID:	RYG_FS0205	High Volume S/N:	5082
Calibrator Model:	TE-5028A	Calibrator Slope:	1.53816
Calibrator S/N:	1166	Calibrator Intercept:	-0.0468

Test No.	Delta H <sub>2</sub> O (Inch)	Q <sub>std</sub> (m <sup>3</sup> /min)	I: Chart (CFM)	Linear Regression
1	3.2	1.2000	42	Slope: 40.3580 Intercept: -7.2013 Correlation Coefficient: 0.9944
2	4.0	1.3371	46	
3	4.6	1.4304	50	
4	5.2	1.5179	54	
5	5.8	1.6005	58	



Calibrated by

Satcha P.

(Mr. Satcha Phetsawaeng)  
Field Scientist (2)

Approved by:

(Mr. Noppong Juntarupun)

Enviro Field Coordinator Scientist (3)

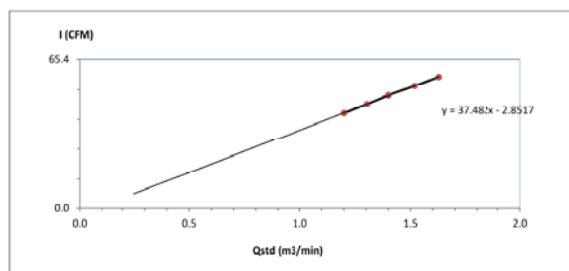
FORM NO.: F 06-073 REVISION NO.: - ISSUE DATE: 14/03/16



## High Volume Air Sampler Calibration Worksheet

Project Site:	Global Power Synergy Public Company Limited	Barometric Pressure (mm Hg):	758
Calibrate Location:	วัดหนองปรือ	Temperature (°C):	32
Calibrate Date:	28-Mar-22	High Volume ID:	RYG_FS0179
Calibration Sheet No.:	C-280322-RYG_FS0179	High Volume Model:	TE-5170D
Calibrator ID:	RYG_FS0205	High Volume S/N:	4805
Calibrator Model:	TE-5028A	Calibrator Slope:	1.53816
Calibrator S/N:	1166	Calibrator Intercept:	-0.0468

Test No.	Delta H <sub>2</sub> O (Inch)	Q <sub>std</sub> (m <sup>3</sup> /min)	I: Chart (CFM)	Linear Regression
1	3.2	1.2000	42	Slope: 37.4823 Intercept: -2.8517 Correlation Coefficient: 0.9994
2	3.8	1.3044	46	
3	4.4	1.4000	50	
4	5.2	1.5179	54	
5	6.0	1.6270	58	



Calibrated by

Satcha P.

(Mr. Satcha Phetsawaeng)  
Field Scientist (2)

Approved by:

(Mr. Noppong Juntarupun)

Enviro Field Coordinator Scientist (3)

FORM NO.: F 06-073 REVISION NO.: - ISSUE DATE: 14/03/16

## Certificate of Calibration

Represent to Certificate of Calibration ,PTC/07/22102

Certificate No.: PTC/07/22102 Page: 1 of 2  
Equipment: Digital Balance Condition: Normal  
Manufacturer: Sartorius Serial No: ZS405664  
Model: LA1305-F ID No: RYG\_EN0001  
Type of Balance: Single interval



Customer: ALS Laboratory Group (Thailand) Co., Ltd.  
616/10 Moo 5 T.Maenamkoo, A.Pluakdaeng,  
Rayong 21140, Thailand

REVIEW BY: *Thantak*  
APPROVED BY: *P. J.*  
NEXT CAL. DATE: 23/03/23

Environment Condition: Temperature 23.9 °C ± 0.3 °C  
Humidity 58.1 %RH ± 4.4 %RH  
Air density 1.17 kg/m<sup>3</sup>

Calibration Place: ALS Laboratory Group (Thailand) Co., Ltd.  
616/10 Moo 5 T.Maenamkoo, A.Pluakdaeng,  
Rayong 21140, Thailand

The Method used: In house method, PTC-WI-07, Use unit Euramet ig. 18

Traceability: This certificate is traceable to the SI Units through Thai Calibration Service Co., Ltd.  
NSC-ONSC Accreditation No.: Calibration 0189

Date Received: March 23, 2022

Calibration Date: March 23, 2022

Issued Date: March 25, 2022

Calibration By: Mr. Rungroje Metakul



Reviewed by:  
(Mr. Kriangsak Kalasri)

Approved By: *[Signature]*  
(Mr. Keattisak Kerdtio)  
Laboratory Manager

This certificate is issued the units of measurement according to the International System of Units (SI). It provides traceability of measurement to international or national standard or other recognised national standard laboratories.

The measurement uncertainty stated is the expanded uncertainty which is obtained from the standard uncertainty multiplied by the coverage factor (k=2) to provide a level of confidence of approximately 95%. It is determined in accordance with the Guide to Expression of Uncertainty in Measurement (GUM). The effect that the results relate only to the items calibrated.

This calibration certificate shall not be reproduced except in full only, without written approval from penta calibration co., Ltd.

PTC-WI-07-02: 2 Feb 2020

Represent to Certificate of Calibration ,PTC/07/22102

Certificate No.: PTC/07/22102

Page: 2 of 2

## Measurement Results:

Without Adjustment:

Function Calibration: Non Adjustment

Eccentric Error: Weight to be 1/3, 1/2 or of Maximum capacity



Eccentricity test 50 (g)				
Position (g)				
1	2	3	4	5
0.0000	0.0000	-0.0001	0.0000	0.0001
Maximum deviation:				0.0001

Repeatability Test: Weight to be 1/2 ≤ L<sub>1</sub> ≤ Maximum capacity

Determination of the standard deviation of weighing balance., Readability 0.0001 (g)

Nominal test value (g)	Standard Deviation
100	0.00009

Error of indication: from nominal value., Readability 0.0001 (g)

Nominal Value (g)	Conventional Mass (g)	Indication (g)	Correction of Balance (g)	Uncertainty (g)	k
0	0.00000	0.0000	0.0000	0.00026	2.87
0.01	0.01000	0.0100	0.0000	0.00026	2.65
0.05	0.05000	0.0500	0.0000	0.00026	2.65
0.1	0.10000	0.1000	0.0000	0.00026	2.65
0.5	0.50000	0.4999	0.0001	0.00026	2.65
1	1.00000	0.9999	0.0001	0.00026	2.65
2	2.00000	1.9999	0.0001	0.00026	2.65
5	5.00001	5.0000	0.0000	0.00026	2.65
10	10.00000	10.0001	-0.0001	0.00026	2.65
20	20.00003	20.0001	-0.0001	0.00026	2.52
100	100.00004	100.0001	-0.0001	0.00027	2.18

Note: Weight of adjust - (g)

The End of Certificate

PTC-WI-07-02: 2 Feb 2020

63/14-15,67/35-36, Soi Petchkasem7,7/1, Petchkasem Rd,  
Walthapra, Bangkokyai,Bangkok 10600 Thailand.  
Tel: (66) 02-8680812#13 Fax: (66) 02-8680860 www.jiranatee.com

## CERTIFICATE OF CALIBRATION

Certificate No: WS-01062021  
Page 1 of 2 pages

Measurement Item: Cup anemometer with data logger.

Manufacturer: Data logger: Novolyrix,  
Cup anemometer: Novolyrix.

Model/Type: Data logger: WS-25DL,  
Cup anemometer: WS-02P.

Serial Number: Data logger: A4481,  
Cup anemometer: -

ID No: Data logger: BKK\_PSO141,  
Cup anemometer: -

Customer: ALS laboratory group (Thailand) co., Ltd.  
104 Phatthanasani 40, Phatthanasani Rd, Khwaeng Suan Luang, Rhet Suan Luang, Bangkok 10250  
Thailand.

Test Conditions: Wind tunnel cross test section area 900 cm<sup>2</sup>  
Anemometer frontal area 100 cm<sup>2</sup>  
Diameter of mounting pipe 300 mm  
Blockage ratio of test object 0.111 [-]

Test Conditions: Air temperature 23.7 ±0.8 °C  
Air pressure 1010.3 ±0.4 hPa  
Relative air humidity 53.7 ±3.5 %RH

Calibration Procedure: Calibration was carried out base on:  
IEC 61400-12-1 Ed.1: 2005-Power Performance Measurements of Electricity Producing Wind  
Turbines  
MBSASNET Anemometer Calibration Procedure - Version 2: 2009.

Traceability: This calibration documents the traceable to national standard, which realize the unit of  
measurements according to the international system of units (SI) through National Institute of  
Metrology Thailand (NIMT).

Measurement Date: Jun 07, 2021.

Issued Date: Jun 07, 2021.

Calibrated by:  
☒ Mr. Soravit Thachad  
☐ Miss Orathai Wisthailay



Approved Signatory: *[Signature]*  
Mr. Patsiya Booncharoen  
Technical Support  
and Calibration Manager

THIS CERTIFICATE MAY NOT BE REPRODUCED EXCEPT IN FULL UNLESS PERMISSION FOR REPRODUCTION HAS BEEN  
OBTAINED IN WRITING FROM THE LABORATORY.

63/14-15,67/35-36, Soi Petchkasem7,7/1, Petchkasem Rd,  
Walthapra, Bangkokyai,Bangkok 10600 Thailand.  
Tel: (66) 02-8680812#13 Fax: (66) 02-8680860 www.jiranatee.com

Continuation of Certificate of Calibration Number

Certificate No: WS-01062021  
Page 2 of 2 Pages

Result of calibration: ☒ Without adjustment ☐ With adjustment

Calibration in the range of 1 - 16 m/s at a calibration interval of 1 m/s.

The results of calibration and associated measurement uncertainties are reported in the table below.

V <sub>an</sub> Reading m/s	V <sub>std</sub> Reading m/s	Error m/s	Uncertainty (m/s)
2.066	2.0	-0.1	2.6
4.124	4.0	-0.1	1.2
5.99	6.0	0.0	1.01
8.00	8.0	0.0	0.74
9.99	10.1	0.1	0.60
11.06	12.2	0.2	0.67
14.02	14.4	0.4	0.45
16.03	16.6	0.6	0.36
18.01	18.3	0.3	2.8
12.99	13.3	0.3	0.41
10.99	11.2	0.2	0.53
9.01	9.3	0.3	1.2
7.05	7.0	0.0	0.77
5.121	5.0	-0.1	0.88
3.048	3.0	0.0	1.8
1.088	1.0	-0.1	5.3

UNDO: List Under Calibration

The reported expanded uncertainty is based on standard uncertainty multiplied by a coverage factor k=2 providing a level of  
confidence of approximately 95%.

### Appendix 1: Instrumentations

NO	Sensor	Manufacturer	Model/Type	Calibration Date	Certificate Report Number	Range
1	Plot data	TESTO INC.	05352148	July 16, 2020	MW-0035-20	5 - 30 m/s
2	Precision Differential Pressure Meter	Zorgas	DP42100	July 16, 2020	MW-0035-20	0 - 20 m/s
3	Air velocity transducer (hot wire)	TSP INC.	B455-12	July 20, 2020	MW-0035AA-20	0 - 5 m/s
4	Temperature	Zorgas	DS9-3P	March 30, 2021	CL-027-64	-30 - 70 °C
5	Relative humidity	Zorgas	DS9-3P	March 30, 2021	RI-03032021	0 - 100 %RH
6	Atmospheric pressure	Zorgas	DS9-3P	March 30, 2021	SP-01032021	500 - 1100 hPa
7	Wind tunnel	CSCCM	MP3300	-	-	0 - 50 Hz

\*\*\*End of certificate of calibration\*\*\*





## CERTIFICATE OF CALIBRATION

Certificate No: WD-01052021  
Page 1 of 2 pages

Measurement Item : Wind direction sensor with data logger.

Manufacturer : Data logger Novolynx.  
: Wind direction sensor Novolynx.

Model/Type : Data logger WS-25DL.  
: Wind direction sensor WS-02P.

Serial Number : Data logger A4481.  
: Wind direction sensor -

ID No : Data logger BKR\_FS0141.  
: Dup anemometer -

Customer : ALS laboratory group (Thailand) Co., Ltd.  
104 Phathanakan 40, Phathanakan Rd, Khwaeng Suan Luang, Rhet Suan Luang, Bangkok 10250 Thailand.

Environmental Condition:  
The measurement was carried out in an ambient temperature of (23±3)°C, and relative humidity of (40±10)%.

Measurement Method:  
The wind direction sensor calibration according to comparison method with reference angle measurement electronic theodolite and line laser is used for axis control. The measurement were taken at 45° intervals in clockwise and counterclockwise directions.

Note: The UUC was warmed up for 1 hour prior to the calibration being performed

Traceability:  
The measurement results are traceable to the international system of units (SI) through Certificate No: CC563-07-0045.  
Certificate No: KWS63/0044.

Measurement Date : Jun 07, 2021.  
Issued Date : Jun 07, 2021.

Performed by  
☒ Mr. Sorawit Thachalad  
☐ Miss Orathai Wisetwitaya



Approved Signatory:  
Mr. Parinya Booncharoen,  
Technical Support  
and Calibration Manager

THIS CERTIFICATE REPORT MAY NOT BE REPRODUCED, EXCEPT IN FULL, WITHOUT PERMISSION FOR REPRODUCTION HAS BEEN OBTAINED IN WRITING FROM THE LABORATORY.

Continuation of Certificate of Calibration Number

Certificate No: WD-01052021  
Pages 2 of 2 pages

Result of calibration: ☐ Without adjustment ☒ With adjustment.  
Calibration in the range of 0 - 360° at a calibration interval of 45°.  
The results of calibration and associated measurement uncertainties are reported in table below.

NO	Turning Direction	Nominal Angle (°)	Standard Reading (°)	UUC* Reading (°)	Error (°)	Uncertainty ±(°)
1	Clockwise	0/360	0	0	0	3.0
2		45	45	42	-3	3.0
3		90	90	90	0	3.0
4		135	135	136	1	3.0
5		180	180	182	2	3.0
6		225	225	227	2	3.0
7		270	270	273	3	3.0
8		315	315	314	-1	3.0
9	Counter Clockwise	0/360	0	0	0	3.0
10		45	46	42	-3	3.0
11		90	90	90	0	3.0
12		135	135	136	1	3.0
13		180	180	182	2	3.0
14		225	225	227	2	3.0
15		270	270	273	3	3.0
16		315	315	314	-1	3.0

UUC\*: Unit Under Calibration The reported expanded uncertainty is based on standard uncertainty multiplied by a coverage factor k=2 providing a level of confidence of approximately 95%

\*\*\*End of Certificate of Calibration\*\*\*



### CONSOLE CONTROL UNIT CALIBRATION TEST REPORT

Barometric Pressure (mm.Hg) : 760  
Relative Humidity (%) : 58.3  
Temperature (°C) : 26.0

Reference Dry Gas Meter Data

Serial No. : 1607009  
Model No. : DM-SK25M-Q38  
Correction Factor (Y) : 1.060  
Next Calibration Date : 8 Apr 22

Console Control Meter Data

Calibration No. : C-120122-RYG\_FS0315  
Dry Gas Meter No. : RYG\_FS0315  
Console Serial No. : 1706091  
Console Model No. : XC-572-V

ΔH (mm H <sub>2</sub> O)	Θ Minutes	Reference Dry Gas Meter Calibration						Console Control Dry Gas Meter						Dry Gas Meter Correction Factor (%)	Office Calibration Factor ΔAvg
		Vr (liters)			Tr (°C)			Vr (liters)			Tr (°C)				
		Final	Initial	Total	Final	Initial	Total	Final	Initial	Total	Final	Initial	Total		
15	12.30	150.00	0.00	150.00	27.0	1274534.0	1274590.0	144.00	27.0	27.0	1.3464	45.6499			
25	9.45	150.00	0.00	150.00	30.0	1274669.0	1274545.0	144.00	28.0	28.0	1.3395	45.6555			
50	6.73	150.00	0.00	150.00	30.0	1274843.0	1274700.0	143.00	28.0	28.0	1.3432	46.4041			
60	5.22	150.00	0.00	150.00	30.0	1275003.0	1274860.0	143.00	30.0	30.0	1.3471	44.4983			
120	4.27	150.00	0.00	150.00	30.0	1275163.0	1275020.0	143.00	30.0	30.0	1.3431	44.6230			
													Avg.	45.3437	

Y : Ratio of reading of reference to dry gas meter : tolerance for individual values ± 0.02 from average

ΔAvg : Office pressure differential that equates to 21.24 mm of air @ 25°C and 760mm of mercury, mmH<sub>2</sub>O : tolerance for individual values ± 5.08 from average

Procedure: 40 CFR 63 APP A METH SEC 5.3 & 7

Calibrated by:

(Mr. Warawut Putpa)  
Field Scientist(3)

Approved by:

(Mr. Wichan Choonharat)  
Manager



### DIGITAL TEMPERATURE CALIBRATION DATA SHEET

Calibration Date :	12-Jan-22	Ambient Temperature (°C) :	24
Calibration sheet No. :	C-120122-RYG_FS0316	Relative Humidity (%) :	58.4
Digital Temperature ID :	RYG_FS0316	Reference Temperature ID :	BKK_FS0609
Console Serial No. :	1706091	Serial No. :	768004
Console Model :	XC-572-V	Model :	*LUKE 714
		Next Calibrate :	13 Jan 22

Location	Reference Temperature °C	Digital Temperature °C	Error °C	Remark
Stack	0	0	0	
	25	27	2	
	50	53	3	
	100	104	4	
	150	154	4	
	200	202	2	
	250	253	3	
	300	304	4	
Probe	400	406	6	
	1000	1003	3	
	1200	1202	2	
	100	104	4	
	125	129	4	
	150	154	4	
	100	104	4	
	125	129	4	
Ovens	150	154	4	
	100	104	4	
	125	129	4	
	150	154	4	
	100	104	4	
	125	129	4	
	150	154	4	
	100	104	4	
Filter	125	129	4	
	150	154	4	
	100	104	4	
	125	129	4	
	150	154	4	
	100	104	4	
	125	129	4	
	150	154	4	
Exit	0	0	0	
	10	11	1	
	20	22	2	
	0	0	0	
	25	27	2	
	50	52	2	
	0	0	0	
	25	27	2	
AUX	0	0	0	
	25	27	2	
	50	53	3	
	0	0	0	
	25	27	2	
	50	53	3	
	0	0	0	
	25	27	2	

Calibrated by:

(Mr. Warawut Putpa)  
Field Scientist (3)

Approved by:

(Mr. Wichan Choonharat)  
Manager



# PROBE NOZZLE DIAMETER CALIBRATION DATA SHEET

Calibration Date : 12 Jan 22 Nozzle Set ID : RYG\_FS0319  
Calibration Sheet No. : C-120122-RYG\_FS0319 Vernier Caliper ID : BKK\_FS0626

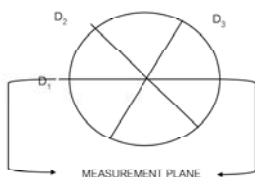
Nozzle ID #	Nozzle Diameter (mm.)			Hi - Lo $\Delta D$	$(D_1 + D_2 + D_3) / 3$ $D_{avg}$
	$D_1$	$D_2$	$D_3$		
1	0.300	0.300	0.300	0.000	0.300
2	0.470	0.465	0.465	0.005	0.467
3	0.600	0.600	0.600	0.000	0.600
4	0.770	0.760	0.755	0.015	0.762
5	0.920	0.930	0.930	0.010	0.927
6	1.080	1.080	1.085	0.005	1.082
7	1.240	1.220	1.235	0.020	1.232
8	1.550	1.570	1.540	0.030	1.553

Where :

$D_1, D_2, D_3$  = There different nozzle diameters at 60 degrees to each other, each measured the nearest 0.025 mm.

$\Delta D$  = Maximum distance between any two diameters, must be  $\leq 0.100$  mm.

$D_{avg}$  =  $(D_1 + D_2 + D_3) / 3$



Calibrated by

*(Signature)*  
( Mr.Warawut Pubpa )  
Field Scientist (3)

Approved by

*(Signature)*  
( Mr.Wichan Choonharat )  
Manager

Form No. QR 281-025 (13-01-03)



## Pitot Tube Calibration Data

Pitot Tube Identification Number : RYG\_FS0320 Calibration Date : 12 Jan 22  
Lab test duct Number : 258-1-13-01 Standard Pitot ID : BKK\_FS0441  
Calibration Sheet No. : C-120122-RYG\_FS0320 Cp Standard : 0.99

Type S Pitot Tube Coefficient Data					
	Type s pitot tube Leg A,B	Standard pitot tube ( $\Delta P$ , mm.H <sub>2</sub> O)	Type s pitot tube ( $\Delta P$ , mm.H <sub>2</sub> O)	Cp (s) Leg A	Cp (s) Leg B
Test 1	A	12.00	16.60	0.842	-
	B	12.00	16.60	-	0.842
Test 2	A	12.00	16.60	0.842	-
	B	12.00	16.60	-	0.842
Test 3	A	12.00	16.60	0.842	-
	B	12.00	16.60	-	0.842
$\bar{C}_p$				0.842	0.842

$$C_p(S) = C_p \cdot \sqrt{\frac{\Delta P(sab)}{\Delta P(s)}}$$

$$[C_p(A) - C_p(B)] \text{ must BE } \leq 0.01$$

$$\text{Average deviation(A or B)} = \frac{\sum [C_p(s) - C_p(A \text{ or } B)]}{3} \text{ must BE } \leq 0.01$$

Calibrated by

*(Signature)*  
( Mr.Warawut Pubpa )  
Field Scientist (3)

Approved by

*(Signature)*  
( Mr.Wichan Choonharat )  
Manager

Form 281-046 (04-03-02)



## Pitot Tube Calibration Data

Pitot Tube Identification Number : RYG\_FS0321 Calibration Date : 12 Jan 22  
Lab test duct Number : 258-1-13-01 Standard Pitot ID : BKK\_FS0441  
Calibration Sheet No. : C-120122-RYG\_FS0321 Cp Standard : 0.99

Type S Pitot Tube Coefficient Data					
	Type s pitot tube Leg A,B	Standard pitot tube ( $\Delta P$ , mm.H <sub>2</sub> O)	Type s pitot tube ( $\Delta P$ , mm.H <sub>2</sub> O)	Cp (s) Leg A	Cp (s) Leg B
Test 1	A	12.00	16.60	0.842	-
	B	12.00	16.60	-	0.842
Test 2	A	12.00	16.60	0.842	-
	B	12.00	16.60	-	0.842
Test 3	A	12.00	16.60	0.842	-
	B	12.00	16.60	-	0.842
$\bar{C}_p$				0.842	0.842

$$C_p(S) = C_p \cdot \sqrt{\frac{\Delta P(sab)}{\Delta P(s)}}$$

$$[C_p(A) - C_p(B)] \text{ must BE } \leq 0.01$$

$$\text{Average deviation(A or B)} = \frac{\sum [C_p(s) - C_p(A \text{ or } B)]}{3} \text{ must BE } \leq 0.01$$

Calibrated by

*(Signature)*  
( Mr.Warawut Pubpa )  
Field Scientist (3)

Approved by

*(Signature)*  
( Mr.Wichan Choonharat )  
Manager

Form 281-046 (04-03-02)



## CONSOLE CONTROL UNIT CALIBRATION TEST REPORT

Calibration of Date : 12 Jan 22 Barometric Pressure (mm.Hg) : 760  
Next Cal. Date : 12 Jul 22 Relative Humidity (%) : 58.6  
Temperature (°C) : 25.6

### Reference Dry Gas Meter Data

Serial No. : 1607009  
Model No. : SK25XSR-QC6  
Correction Factor (Yr) : 1.0000  
New Calibration Date : 8 Apr 22

### Console Control Meter Data

Calibration No. : C-120122-BKK\_FS0511  
Dry Gas Meter No. : BKK\_FS0518  
Console Serial No. : 1504025  
Console Model No. : XC-572-V

Console Control : Dry Gas Meter										Office Calibration Factor	
ΔH (mm.H <sub>2</sub> O)	θ (Minutes)	Reference Dry Gas Meter Calibration			Tr (°C)			Ti (°C)			Avg.
		Final	Initial	Total	Final	Initial	Total	Final	Initial	Total	
15	12.75	150.00	0.00	49103.0	29.0	29.0	153.00	29.0	29.0	153.00	0.9794
25	9.55	150.00	0.00	49053.0	30.0	30.0	153.00	29.0	29.0	153.00	0.9806
50	6.75	150.00	0.00	49053.0	30.0	30.0	153.00	29.0	29.0	153.00	0.9783
80	5.22	150.00	0.00	49773.0	30.0	30.0	153.00	30.0	30.0	153.00	0.9717
120	4.25	150.00	0.00	49783.0	30.0	30.0	153.00	30.0	30.0	153.00	0.9730
										Avg.	0.9792

Y Ratio of reading of reference dry gas meter / Meter for individual value  $\pm 0.02$  from average.

ΔAvg - Office pressure differential that equates to 21.24 in. of w.c @ 25 °C and 760 mm of mercury - must 60% tolerance for individual values  $\pm 5.06$  from average.

Procedure: 49 CFR 60 APP A, METH. SEC 5.3.8.7

Calibrated by : *(Signature)*  
( Mr.Saksit Phaisanphat )  
Field Scientist (4)

Approved by

*(Signature)*  
( Mr.Wichan Choonharat )  
Manager

Form No. QR 281-046 (04-03-02)



# DIGITAL TEMPERATURE CALIBRATION DATA SHEET

Calibration Date :	12 Jan 22	Ambient Temperature (°C) :	25
Calibration sheet No. :	C-120122-BKK_FS0519	Relative Humidity (%) :	58
Digital Temperature ID	BKK_FS0519	Reference Temperature ID	BKK_FS0009
Console Serial No. :	1504025	Serial No. :	7688004
Console Model :	XC-572-V	Model :	F.UKE 714
		Next Calibrate :	13 Jan 22

Location	Reference Temperature °C	Digital Temperature °C	Error °C	Remark
Stack	0	0	0	
	25	25	0	
	50	50	0	
	100	101	1	
	150	153	3	
	200	202	2	
	250	252	2	
	300	302	2	
	500	503	3	
	1000	1004	4	
Probe	1200	1205	5	
	100	101	1	
	125	127	2	
	150	153	3	
Oven	100	101	1	
	125	127	2	
	150	153	3	
Filter	100	101	1	
	125	127	2	
	150	153	3	
Exit	0	0	0	
	10	9	-1	
	20	19	-1	
Meter	0	0	0	
	25	24	-1	
	50	50	0	
AUX	0	0	0	
	25	25	0	
	50	50	0	

Calibrated by Saksit Phaisanphiset Approved by Wichan Choonharat  
 (Mr.Saksit Phaisanphiset) (Mr.Wichan Choonharat)  
 Field Scientist (4) Manager

Form 281-048 (02-03-02)



# Pitot Tube Calibration Data

Pitot Tube Identification Number : BKK\_FS0522 Calibration Date : 12 Jan 22  
 Lab test duct Number : 258-1-13-01 Standard Pitot ID : BKK\_FS0441  
 Calibration Sheet No. : C-120122-BKK\_FS0522 Cp Standard : 0.99

Type S Pitot Tube Coefficient Data					
	Type s pitot tube Leg A,B	Standard pitot tube (ΔP, mm.H <sub>2</sub> O)	Type s pitot tube (ΔP, mm.H <sub>2</sub> O)	Cp (s) Leg A	Cp (s) Leg B
Test 1	A	12.00	16.60	0.842	-
	B	12.00	16.60	-	0.842
Test 2	A	12.00	16.60	0.842	-
	B	12.00	16.60	-	0.842
Test 3	A	12.00	16.60	0.842	-
	B	12.00	16.60	-	0.842
			$\bar{C}_p$	0.842	0.842

$$Cp(S) = Cp_{std} \sqrt{\frac{\Delta P_{std}}{\Delta P(s)}}$$

$$[Cp_{(A)} - Cp_{(B)}] \text{ must BE } \leq 0.01$$

$$\text{Average deviation(A or B)} = \frac{\sum [Cp(s) - Cp(A \text{ or } B)]}{3} \text{ must BE } \leq 0.01$$

Calibrated by Saksit Phaisanphiset Approved by Wichan Choonharat  
 (Mr.Saksit Phaisanphiset) (Mr.Wichan Choonharat)  
 Field Scientist (4) Manager

Form 281-048 (04-03-02)



# Pitot Tube Calibration Data

Pitot Tube Identification Number : BKK\_FS0523 Calibration Date : 12 Jan 22  
 Lab test duct Number : 258-1-13-01 Standard Pitot ID : BKK\_FS0441  
 Calibration Sheet No. : C-120122-BKK\_FS0523 Cp Standard : 0.99

Type S Pitot Tube Coefficient Data					
	Type s pitot tube Leg A,B	Standard pitot tube (ΔP, mm.H <sub>2</sub> O)	Type s pitot tube (ΔP, mm.H <sub>2</sub> O)	Cp (s) Leg A	Cp (s) Leg B
Test 1	A	12.00	16.60	0.842	-
	B	12.00	16.60	-	0.842
Test 2	A	12.00	16.60	0.842	-
	B	12.00	16.60	-	0.842
Test 3	A	12.00	16.60	0.842	-
	B	12.00	16.60	-	0.842
			$\bar{C}_p$	0.842	0.842

$$Cp(S) = Cp_{std} \sqrt{\frac{\Delta P_{std}}{\Delta P(s)}}$$

$$[Cp_{(A)} - Cp_{(B)}] \text{ must BE } \leq 0.01$$

$$\text{Average deviation(A or B)} = \frac{\sum [Cp(s) - Cp(A \text{ or } B)]}{3} \text{ must BE } \leq 0.01$$

Calibrated by Saksit Phaisanphiset Approved by Wichan Choonharat  
 (Mr.Saksit Phaisanphiset) (Mr.Wichan Choonharat)  
 Field Scientist (4) Manager

Form 281-048 (04-03-02)



# PROBE NOZZLE DIAMETER

## CAI IRRATION DATA SHEET

Calibration Date 12 Jan 22 Nozzle Set ID. : BKK\_FS0524  
 Calibration Sheet No. : C-120122-BKK\_FS0524 Vernier Caliper ID. : BKK\_FS0626

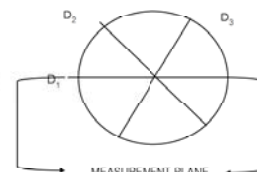
Nozzle ID #	Nozzle Diameter (cm.)			Hi - Lo ΔD	(D <sub>1</sub> + D <sub>2</sub> + D <sub>3</sub> ) / 3 D <sub>avg</sub>
	D <sub>1</sub>	D <sub>2</sub>	D <sub>3</sub>		
1	0.318	0.318	0.318	0.000	0.318
2	0.475	0.475	0.475	0.000	0.475
3	0.635	0.635	0.635	0.000	0.635
4	0.792	0.792	0.792	0.000	0.792
5	0.952	0.952	0.952	0.000	0.952
6	1.110	1.110	1.110	0.000	1.110
7	1.270	1.270	1.270	0.000	1.270

Where :

D<sub>1</sub>, D<sub>2</sub>, D<sub>3</sub> = Three different nozzle diameters at 60 degrees to each other, each measured the nearest 0.025 mm.

ΔD = Maximum distance between any two diameters, must be ≤ 0.100 mm.

D<sub>avg</sub> = (D<sub>1</sub> + D<sub>2</sub> + D<sub>3</sub>) / 3



Calibrated by Saksit Phaisanphiset Approved by Wichan Choonharat  
 (Mr.Saksit Phaisanphiset) (Mr.Wichan Choonharat)  
 Field Scientist (4) Manager

Form No. QI 281-025 (13-01-03)



## Certificate of Calibration

Represent to Certificate of Calibration : PTC/07/22099

Certificate No.: PTC/07/22099 Page: 1 of 2

Equipment: Digital Balance Condition: Normal

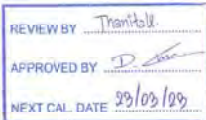
Manufacturer: Sartorius Serial No: 31709552

Model: MSU224S-100-DU ID No: RYG\_EN0003

Type of Balance: Single interval



Customer: ALS Laboratory Group (Thailand) Co., Ltd.  
616/10 Moo 5 T.Maenankoo, A.Pluakdaeng,  
Rayong 21140, Thailand



Environment Condition: Temperature 23.9 °C ± 0.3 °C  
Humidity 58.1 %RH ± 4.4 %RH  
Air density 1.17 kg/m<sup>3</sup>

Calibration Place: ALS Laboratory Group (Thailand) Co., Ltd.  
616/10 Moo 5 T.Maenankoo, A.Pluakdaeng,  
Rayong 21140, Thailand

The Method used: In house method, PTC WI 07, base on Euramet cg. 18

Traceability: This certificate is traceable to the SI Units through Thai Calibration Service Co., Ltd.  
NSC-ONSC Accreditation No.: Calibration 0189

Date Received: March 23, 2022

Calibration Date: March 23, 2022

Issued Date: March 25, 2022

Calibration By: Mr. Rungroje Metakul



Reviewed by  
(Mr. Kriangsak Kalasri)

Approved By  
(Mr. Keattisak Kerdtio)  
Laboratory Manager

This certificate is issued the units of measurement according to the International System of Units (SI). It provides traceability of measurement to international or national standard or other recognised national standard laboratories.

The measurement uncertainty stated is the expanded uncertainty which is obtained from the standard uncertainty multiplied by the coverage factor (k=2) to provide a level of confidence of approximately 95%. It is determined in accordance with the Guide to Expression of Uncertainty in Measurement (GUM). The effect that the results relate only to the items calibrated.

This calibration certificate shall not be reproduced except in full only, without written approval from penta calibration co., ltd

PTC-IMC-07-02: 2 Feb 2020

Represent to Certificate of Calibration : PTC/07/22099

Certificate No.: PTC/07/22099

Page: 2 of 2

## Measurement Results:

Without Adjustment :

Function Calibration: Non Adjustment

Eccentric Error: Weight to be 1/3, 1/2 or of Maximum capacity



Eccentricity test 100 (g)					
Position (g)					
1	2	3	4	5	
0.0000	0.0000	-0.0001	-0.0001	0.0001	
Maximum deviation:					0.0001

Repeatability Test : Weight to be 1/2 ≤ L<sub>i</sub> ≤ Maximum capacity

Determination of the standard deviation of weighing balance, Readability 0.0001 (g)

Nominal test value (g)	Standard Deviation
200	0.00007

Error of indication : from nominal value, Readability 0.0001 (g)

Nominal Value (g)	Conventional Mass (g)	Indication (g)	Correction of Balance (g)	Uncertainty (g)	k
0	0.00000	0.0000	0.0000	0.00020	2.65
0.01	0.01000	0.0099	0.0001	0.00020	2.43
0.1	0.10000	0.1000	0.0000	0.00020	2.43
0.5	0.50000	0.5000	0.0000	0.00020	2.43
1	1.00000	1.0000	0.0000	0.00020	2.43
5	5.00001	5.0000	0.0000	0.00020	2.43
10	10.00000	10.0000	0.0000	0.00020	2.43
20	20.00003	20.0000	0.0000	0.00020	2.43
50	50.00004	50.0000	0.0000	0.00021	2.32
100	100.00004	99.9999	0.0001	0.00022	2.17
200	200.00011	200.0000	0.0001	0.00027	2.05

Note: Weight of adjust (g)

The End of Certificate

PTC-IMC-07-02: 2 Feb 2020



Lot No. 2212162-1

## ANALYZER CALIBRATION DATA

Client : Global Power Synergy PCL. Location : HRSG #1

Date : 29 Mar 22 Test Operator : Sathaporn.T

O<sub>2</sub> ANALYZER Model : TELEDYNE API 200EH Serial No. : 549

	Cylinder Value (%)	Initial Analyzers Calibration Response (%)	Final Analyzers Calibration Response (%)	Difference (Percent of Span)
Zero Gas	0.00	0.00	0.10	0.40
Low-Level Gas	7.93	8.00	8.10	0.40
Span Gas	16.00	16.00	16.10	0.40

NO<sub>x</sub> ANALYZER Model : TELEDYNE API 200EH Serial No. : 549

	Cylinder Value (ppm)	Initial Analyzers Calibration Response (ppm)	Final Analyzers Calibration Response (ppm)	Difference (Percent of Span)
Zero Gas	0.00	0.00	0.30	0.30
Low-Level Gas	50.41	50.39	51.50	0.04
Span Gas	80.27	80.27	80.20	0.07

SO<sub>2</sub> ANALYZER Model : TELEDYNE API 100EH Serial No. : 282

	Cylinder Value (ppm)	Initial Analyzers Calibration Response (ppm)	Final Analyzers Calibration Response (ppm)	Difference (Percent of Span)
Zero Gas	0.00	0.00	0.20	0.20
Low-Level Gas	51.61	51.56	51.50	0.06
Span Gas	79.00	79.00	78.44	0.56

CO ANALYZER Model : TELEDYNE API 300EM Serial No. : 300

	Cylinder Value (ppm)	Initial Analyzers Calibration Response (ppm)	Final Analyzers Calibration Response (ppm)	Difference (Percent of Span)
Zero Gas	0.00	0.00	0.20	0.20
Low-Level Gas	50.31	50.28	50.20	0.08
Span Gas	80.53	80.53	80.50	0.03

Calibrated by

Sathaporn Th.

(Mr. Sathaporn Thakarn)

Environmental Field Scientist (3)

FORM NO.: F-06-062 REVISION NO.: 2 ISSUE DATE: 3/06/19

ALS Laboratory Group



Lot No. 2212162-1

## SYSTEM CALIBRATION BIAS AND DRIFT DATA

Client : Global Power Synergy PCL. Location : HRSG #1

Date : 29 Mar 22 Test Operator : Sathaporn.T

O<sub>2</sub> ANALYZER Cylinder Conc. (ppm) : 16.00 Span (%) : 25

	O <sub>2</sub> Analyzer Calibration Response	Initial Values System Calibration Response	System Cal Bias (% of Span)	Final Values System Calibration Response	System Cal Bias (% of Span)	Drift (% of Span)
Zero Gas	0.00	0.10	0.40	0.10	0.40	0.00
Upscale Gas	16.00	16.00	0.00	16.10	0.40	0.40

NO<sub>x</sub> ANALYZER Cylinder Conc. (ppm) : 80.27 Span (ppm) : 100

	NO <sub>x</sub> Analyzer Calibration Response	Initial Values System Calibration Response	System Cal Bias (% of Span)	Final Values System Calibration Response	System Cal Bias (% of Span)	Drift (% of Span)
Zero Gas	0.00	0.30	0.30	0.30	0.30	0.00
Upscale Gas	80.27	80.20	0.07	80.20	0.07	0.00

SO<sub>2</sub> ANALYZER Cylinder Conc. (ppm) : 79.00 Span (ppm) : 100

	SO <sub>2</sub> Analyzer Calibration Response	Initial Values System Calibration Response	System Cal Bias (% of Span)	Final Values System Calibration Response	System Cal Bias (% of Span)	Drift (% of Span)
Zero Gas	0.00	0.10	0.10	0.20	0.20	0.10
Upscale Gas	79.00	78.50	0.50	78.44	0.56	0.06

CO ANALYZER Cylinder Conc. (ppm) : 80.53 Span (ppm) : 100

	CO Analyzer Calibration Response	Initial Values System Calibration Response	System Cal Bias (% of Span)	Final Values System Calibration Response	System Cal Bias (% of Span)	Drift (% of Span)
Zero Gas	0.00	0.10	0.10	0.20	0.20	0.10
Upscale Gas	80.53	80.53	0.00	80.50	0.03	0.03

Calibrated by

Sathaporn Th.

(Mr. Sathaporn Thakarn)

Environmental Field Scientist (3)

FORM NO.: F-06-062 REVISION NO.: 2 ISSUE DATE: 3/06/19

ALS Laboratory Group



## EMISSION TEST RESULT

Client	Global Power Synergy PCL.	Run #	1
Date	29 Mar 22	Location	HRSG #1
Start Time	10:10	Test Operator	Sathapron.T
SO <sub>2</sub> Analyzer Model	TELEDYNE API 100EH	Finish Time	10:30
NO <sub>x</sub> /O <sub>2</sub> Analyzer Model	TELEDYNE API 200EH	Serial No.	282
CO/CO <sub>2</sub> Analyzer Model	TELEDYNE API 300EM	Serial No.	549
		Serial No.	300

Time (min)	O <sub>2</sub> (%)	CO <sub>2</sub> (%)	NO <sub>x</sub> (ppm)	SO <sub>2</sub> (ppm)	CO (ppm)	Remark
10:10	14.77	3.36	8.73	-	3.70	
10:11	14.74	3.44	8.25	-	3.80	
10:12	14.77	3.42	8.15	-	4.16	
10:13	14.76	3.42	8.17	-	3.97	
10:14	14.77	3.42	8.22	-	3.88	
10:15	14.75	3.44	8.33	-	3.51	
10:16	14.75	3.40	8.41	-	3.41	
10:17	14.77	3.41	8.39	-	3.60	
10:18	14.76	3.39	8.42	-	3.51	
10:19	14.78	3.45	8.37	-	3.60	
10:20	14.78	3.40	8.38	-	3.70	
10:21	14.77	3.44	8.36	-	3.50	
10:22	14.78	3.41	8.41	-	3.41	
10:23	14.78	3.38	8.45	-	3.51	
10:24	14.79	3.38	8.37	-	3.32	
10:25	14.79	3.43	8.31	-	3.69	
10:26	14.77	3.47	8.35	-	3.87	
10:27	14.77	3.45	8.39	-	3.60	
10:28	14.77	3.45	8.36	-	3.78	
10:29	14.77	3.44	8.36	-	3.78	
10:30	14.78	3.42	8.35	-	3.41	
Average	14.77	3.42	8.33	-	3.65	

Sathapron Th.

(Mr. Sathapron Thakarn)

Environmental Field Scientist (3)

FORM NO. : F 06-02 REVISION NO. : 2 ISSUE DATE: 3/06/19

ALS Laboratory Group



## EMISSION TEST RESULT

Client	Global Power Synergy PCL.	Run #	2
Date	29 Mar 22	Location	HRSG #1
Start Time	10:31	Test Operator	Sathapron.T
SO <sub>2</sub> Analyzer Model	TELEDYNE API 100EH	Finish Time	10:51
NO <sub>x</sub> /O <sub>2</sub> Analyzer Model	TELEDYNE API 200EH	Serial No.	282
CO/CO <sub>2</sub> Analyzer Model	TELEDYNE API 300EM	Serial No.	549
		Serial No.	300

Time (min)	O <sub>2</sub> (%)	CO <sub>2</sub> (%)	NO <sub>x</sub> (ppm)	SO <sub>2</sub> (ppm)	CO (ppm)	Remark
10:31	14.77	3.40	8.29	-	4.35	
10:32	14.76	3.42	8.14	-	4.44	
10:33	14.76	3.42	8.01	-	4.53	
10:34	14.77	3.44	8.06	-	4.44	
10:35	14.77	3.46	8.14	-	3.97	
10:36	14.77	3.44	8.34	-	3.41	
10:37	14.76	3.43	8.42	-	3.97	
10:38	14.77	3.44	8.33	-	4.06	
10:39	14.77	3.44	8.18	-	4.06	
10:40	14.77	3.44	8.16	-	4.16	
10:41	14.76	3.42	8.04	-	4.25	
10:42	14.77	3.36	7.89	-	4.63	
10:43	14.76	3.44	7.84	-	4.44	
10:44	14.76	3.41	7.87	-	4.44	
10:45	14.77	3.46	7.91	-	3.97	
10:46	14.78	3.42	8.03	-	4.07	
10:47	14.77	3.47	8.19	-	3.97	
10:48	14.77	3.42	8.36	-	3.51	
10:49	14.78	3.46	8.40	-	3.88	
10:50	14.80	3.43	8.39	-	3.78	
10:51	14.78	3.37	8.30	-	3.79	
Average	14.77	3.43	8.16	-	4.10	

Sathapron Th.

(Mr. Sathapron Thakarn)

Environmental Field Scientist (3)

FORM NO. : F 06-02 REVISION NO. : 2 ISSUE DATE: 3/06/19

ALS Laboratory Group



## EMISSION TEST RESULT

Client	Global Power Synergy PCL.	Run #	3
Date	29 Mar 22	Location	HRSG #1
Start Time	10:53	Test Operator	Sathapron.T
SO <sub>2</sub> Analyzer Model	TELEDYNE API 100EH	Finish Time	11:12
NO <sub>x</sub> /O <sub>2</sub> Analyzer Model	TELEDYNE API 200EH	Serial No.	282
CO/CO <sub>2</sub> Analyzer Model	TELEDYNE API 300EM	Serial No.	549
		Serial No.	300

Time (min)	O <sub>2</sub> (%)	CO <sub>2</sub> (%)	NO <sub>x</sub> (ppm)	SO <sub>2</sub> (ppm)	CO (ppm)	Remark
10:52	14.79	3.40	8.32	-	3.60	
10:53	14.78	3.37	8.46	-	3.88	
10:54	14.82	3.38	8.35	-	3.70	
10:55	14.78	3.40	8.25	-	3.88	
10:56	14.79	3.40	8.40	-	3.32	
10:57	14.80	3.42	8.33	-	4.35	
10:58	14.77	3.44	8.25	-	3.78	
10:59	14.77	3.43	8.25	-	3.50	
11:00	14.78	3.42	8.28	-	4.25	
11:01	14.78	3.45	8.26	-	4.06	
11:02	14.79	3.45	8.28	-	3.78	
11:03	14.80	3.43	8.24	-	3.97	
11:04	14.79	3.45	8.22	-	3.78	
11:05	14.81	3.41	8.20	-	4.07	
11:06	14.81	3.43	8.28	-	3.50	
11:07	14.81	3.41	8.38	-	3.79	
11:08	14.80	3.42	8.40	-	3.51	
11:09	14.82	3.40	8.45	-	3.60	
11:10	14.81	3.42	8.41	-	3.88	
11:11	14.81	3.40	8.26	-	4.35	
11:12	14.80	3.43	8.15	-	4.25	
Average	14.80	3.42	8.30	-	3.85	

Sathapron Th.

(Mr. Sathapron Thakarn)

Environmental Field Scientist (3)

FORM NO. : F 06-02 REVISION NO. : 2 ISSUE DATE: 3/06/19

ALS Laboratory Group



## ANALYZER CALIBRATION DATA

Lot No. 2212163-1

Client	Global Power Synergy PCL.	Location	HRSG#2
Date	30 Mar 22	Test Operator	Sathapron.T
O <sub>2</sub> ANALYZER Model	TELEDYNE API 200EH	Serial No.	549
Span (%)	25		

	Cylinder Value (%)	Initial Analyzers Calibration Response (%)	Final Analyzers Calibration Response (%)	Difference (Percent of Span)
Zero Gas	0.00	0.00	0.04	0.16
Low-Level Gas	7.93	7.91	7.94	0.12
Span Gas	16.00	16.00	16.05	0.20

NO <sub>x</sub> ANALYZER Model	TELEDYNE API 200EH	Serial No.	549
Span (ppm)	100		

	Cylinder Value (ppm)	Initial Analyzers Calibration Response (ppm)	Final Analyzers Calibration Response (ppm)	Difference (Percent of Span)
Zero Gas	0.00	0.00	0.00	0.00
Low-Level Gas	50.41	50.36	50.30	0.06
Span Gas	80.27	80.27	80.19	0.12

SO <sub>2</sub> ANALYZER Model	TELEDYNE API 100EH	Serial No.	282
Span (ppm)	100		

	Cylinder Value (ppm)	Initial Analyzers Calibration Response (ppm)	Final Analyzers Calibration Response (ppm)	Difference (Percent of Span)
Zero Gas	0.00	0.00	0.00	0.00
Low-Level Gas	51.61	51.52	51.50	0.02
Span Gas	79.00	79.00	78.55	0.45

CO ANALYZER Model	TELEDYNE API 300EM	Serial No.	300
Span (ppm)	100		

	Cylinder Value (ppm)	Initial Analyzers Calibration Response (ppm)	Final Analyzers Calibration Response (ppm)	Difference (Percent of Span)
Zero Gas	0.00	0.00	0.11	0.11
Low-Level Gas	50.31	50.30	50.25	0.05
Span Gas	80.53	80.53	80.45	0.08

Calibrated by

Sathapron Th.

(Mr. Sathapron Thakarn)

Environmental Field Scientist (3)

FORM NO. : F 06-02 REVISION NO. : 2 ISSUE DATE: 3/06/19

ALS Laboratory Group



Lot No. 2212163-1

## SYSTEM CALIBRATION BIAS AND DRIFT DATA

Client : Global Power Synergy PCL. Location : HRS#2  
Date : 30 Mar 22 Test Operator : Sathapron.TO<sub>2</sub> ANALYZER : 16.00 Span (%) : 25  
Cylinder Conc. (ppm)

	O <sub>2</sub> Analyzer Calibration Response	Initial Values		Final Values		Drift (% of Span)
		System Calibration Response	System Cal Bias (% of Span)	System Calibration Response	System Cal Bias (% of Span)	
Zero Gas	0.00	0.04	0.16	0.04	0.16	0.00
Upscale Gas	16.00	16.05	0.20	16.05	0.20	0.00

NO<sub>x</sub> ANALYZER : 80.27 Span (ppm) : 100  
Cylinder Conc. (ppm)

	NO <sub>x</sub> Analyzer Calibration Response	Initial Values		Final Values		Drift (% of Span)
		System Calibration Response	System Cal Bias (% of Span)	System Calibration Response	System Cal Bias (% of Span)	
Zero Gas	0.00	0.00	0.00	0.00	0.00	0.00
Upscale Gas	80.27	80.20	0.07	80.15	0.12	0.05

SO<sub>2</sub> ANALYZER : 79.00 Span (ppm) : 100  
Cylinder Conc. (ppm)

	SO <sub>2</sub> Analyzer Calibration Response	Initial Values		Final Values		Drift (% of Span)
		System Calibration Response	System Cal Bias (% of Span)	System Calibration Response	System Cal Bias (% of Span)	
Zero Gas	0.00	0.00	0.00	0.00	0.00	0.00
Upscale Gas	79.00	78.90	0.10	78.55	0.45	0.35

CO ANALYZER : 80.53 Span (ppm) : 100  
Cylinder Conc. (ppm)

	CO Analyzer Calibration Response	Initial Values		Final Values		Drift (% of Span)
		System Calibration Response	System Cal Bias (% of Span)	System Calibration Response	System Cal Bias (% of Span)	
Zero Gas	0.00	0.10	0.10	0.11	0.11	0.01
Upscale Gas	80.53	80.50	0.03	80.45	0.08	0.05

Calibrated by

Sathapron Th.

( Mr. Sathapron Thakaw )

Environmental Field Scientist (3)

FORM NO. : F 06-02 REVISION NO. : 2 ISSUE DATE: 3/06/19

ALS Laboratory Group



## EMISSION TEST RESULT

Client : Global Power Synergy PCL. Run # : 1  
Date : 30 Mar 22 Location : HRS#2  
Start Time : 10:00 Test Operator : Sathapron.T  
SO<sub>2</sub> Analyzer Model : TELEDYNE API 100EH Finish Time : 10:20  
NO<sub>x</sub>/O<sub>2</sub> Analyzer Model : TELEDYNE API 200EH Serial No. : 282  
CO/CO<sub>2</sub> Analyzer Model : TELEDYNE API 300EM Serial No. : 549  
Serial No. : 300

Time (min)	O <sub>2</sub> (%)	CO <sub>2</sub> (%)	NO <sub>x</sub> (ppm)	SO <sub>2</sub> (ppm)	CO (ppm)	Remark
10:01	13.97	3.93	11.80	-	4.71	
10:01	13.96	3.89	11.79	-	4.72	
10:02	14.03	3.91	11.73	-	4.71	
10:03	14.06	3.86	11.67	-	5.09	
10:04	14.08	3.84	11.51	-	5.00	
10:05	14.12	3.84	11.31	-	5.28	
10:06	14.26	3.85	11.25	-	5.10	
10:07	14.26	3.77	11.12	-	5.28	
10:08	14.33	3.70	10.93	-	5.38	
10:09	14.37	3.71	10.89	-	5.29	
10:10	14.30	3.68	10.69	-	5.48	
10:11	14.38	3.69	10.60	-	5.29	
10:12	14.38	3.68	10.58	-	5.39	
10:13	14.40	3.70	10.53	-	5.38	
10:14	14.37	3.72	10.47	-	5.38	
10:15	14.35	3.72	10.49	-	5.38	
10:16	14.33	3.75	10.46	-	5.38	
10:17	14.30	3.71	10.51	-	5.29	
10:18	14.26	3.76	10.56	-	5.56	
10:19	14.25	3.80	10.67	-	5.19	
10:20	14.23	3.78	10.77	-	5.37	
Average	14.24	3.78	10.96	-	5.23	

Sathapron Th.

( Mr. Sathapron Thakaw )

Environmental Field Scientist (3)

FORM NO. : F 06-02 REVISION NO. : 2 ISSUE DATE: 3/06/19

ALS Laboratory Group



## EMISSION TEST RESULT

Client : Global Power Synergy PCL. Run # : 2  
Date : 30 Mar 22 Location : HRS#2  
Start Time : 10:21 Test Operator : Sathapron.T  
SO<sub>2</sub> Analyzer Model : TELEDYNE API 100EH Finish Time : 10:41  
NO<sub>x</sub>/O<sub>2</sub> Analyzer Model : TELEDYNE API 200EH Serial No. : 282  
CO/CO<sub>2</sub> Analyzer Model : TELEDYNE API 300EM Serial No. : 549  
Serial No. : 300

Time (min)	O <sub>2</sub> (%)	CO <sub>2</sub> (%)	NO <sub>x</sub> (ppm)	SO <sub>2</sub> (ppm)	CO (ppm)	Remark
10:21	14.21	3.62	10.87	-	5.86	
10:22	14.21	2.75	10.85	-	5.47	
10:23	14.16	3.61	10.86	-	5.56	
10:24	14.10	3.63	10.90	-	5.65	
10:25	14.06	3.64	11.07	-	5.28	
10:26	14.02	3.88	11.27	-	5.09	
10:27	14.01	3.91	11.33	-	5.10	
10:28	14.00	3.92	11.34	-	5.27	
10:29	14.03	3.87	11.31	-	5.18	
10:30	14.06	3.86	11.20	-	5.19	
10:31	14.06	3.82	11.17	-	5.37	
10:32	14.07	3.79	11.14	-	5.37	
10:33	14.06	3.87	11.11	-	5.27	
10:34	14.07	3.86	11.10	-	5.55	
10:35	14.02	3.93	11.21	-	5.36	
10:36	13.98	3.93	11.37	-	5.08	
10:37	13.94	3.92	11.49	-	4.99	
10:38	13.91	3.97	11.66	-	4.80	
10:39	13.93	3.94	11.68	-	4.90	
10:40	13.95	3.95	11.62	-	4.80	
10:41	13.98	3.88	11.53	-	5.08	
Average	14.04	3.88	11.25	-	5.24	

Sathapron Th.

( Mr. Sathapron Thakaw )

Environmental Field Scientist (3)

FORM NO. : F 06-02 REVISION NO. : 2 ISSUE DATE: 3/06/19

ALS Laboratory Group



## EMISSION TEST RESULT

Client : Global Power Synergy PCL. Run # : 3  
Date : 30 Mar 22 Location : HRS#2  
Start Time : 10:42 Test Operator : Sathapron.T  
SO<sub>2</sub> Analyzer Model : TELEDYNE API 100EH Finish Time : 11:02  
NO<sub>x</sub>/O<sub>2</sub> Analyzer Model : TELEDYNE API 200EH Serial No. : 282  
CO/CO<sub>2</sub> Analyzer Model : TELEDYNE API 300EM Serial No. : 549  
Serial No. : 300

Time (min)	O <sub>2</sub> (%)	CO <sub>2</sub> (%)	NO <sub>x</sub> (ppm)	SO <sub>2</sub> (ppm)	CO (ppm)	Remark
10:42	13.98	3.88	11.33	-	5.27	
10:43	14.01	3.91	11.18	-	5.64	
10:44	14.05	3.88	11.09	-	5.46	
10:45	14.07	3.89	11.03	-	5.27	
10:46	14.10	3.83	11.01	-	5.28	
10:47	14.11	3.81	11.09	-	5.19	
10:48	14.16	3.83	11.10	-	5.37	
10:49	14.20	3.77	11.01	-	5.47	
10:50	14.25	3.76	10.92	-	5.56	
10:51	14.27	3.72	10.94	-	5.48	
10:52	14.27	3.73	10.88	-	5.38	
10:53	14.29	3.71	10.90	-	5.38	
10:54	14.25	3.78	10.96	-	5.47	
10:55	14.18	3.76	11.05	-	5.38	
10:56	14.12	3.86	11.25	-	5.37	
10:57	14.03	3.86	11.37	-	5.18	
10:58	13.96	3.92	11.54	-	4.90	
10:59	13.89	3.97	11.60	-	4.43	
11:00	13.88	3.95	12.03	-	4.34	
11:01	13.87	4.01	12.16	-	4.24	
11:02	13.91	3.95	12.15	-	4.34	
Average	14.09	3.85	11.27	-	5.16	

Sathapron Th.

( Mr. Sathapron Thakaw )

Environmental Field Scientist (3)

FORM NO. : F 06-02 REVISION NO. : 2 ISSUE DATE: 3/06/19

ALS Laboratory Group





Lot No. 2212164-1

## ANALYZER CALIBRATION DATA

Client : Global Power Synergy PCL. Location : Auxiliary Boiler  
Date : 01 Apr 22 Test Operator : Sathapron.TO<sub>2</sub> ANALYZER  
Model : TELEDYNE API 200EH Serial No. : 549  
Span (%) : 25

	Cylinder Value (%)	Initial Analyzer Calibration Response (%)	Final Analyzers Calibration Response (%)	Difference (Percent of Span)
Zero Gas	0.00	0.00	0.05	0.20
Low-Level Gas	7.93	7.90	7.90	0.00
Span Gas	16.00	16.00	15.91	0.36

NO<sub>x</sub> ANALYZER  
Model : TELEDYNE API 200EH Serial No. : 549  
Span (ppm) : 100

	Cylinder Value (ppm)	Initial Analyzer Calibration Response (ppm)	Final Analyzers Calibration Response (ppm)	Difference (Percent of Span)
Zero Gas	0.00	0.00	0.02	0.02
Low-Level Gas	50.41	50.40	50.40	0.00
Span Gas	80.27	80.27	80.21	0.06

SO<sub>2</sub> ANALYZER  
Model : TELEDYNE API 100EH Serial No. : 282  
Span (ppm) : 100

	Cylinder Value (ppm)	Initial Analyzer Calibration Response (ppm)	Final Analyzers Calibration Response (ppm)	Difference (Percent of Span)
Zero Gas	0.00	0.00	0.01	0.01
Low-Level Gas	51.61	51.60	51.60	0.00
Span Gas	79.00	79.00	78.96	0.04

CO ANALYZER  
Model : TELEDYNE API 300EM Serial No. : 300  
Span (ppm) : 100

	Cylinder Value (ppm)	Initial Analyzer Calibration Response (ppm)	Final Analyzers Calibration Response (ppm)	Difference (Percent of Span)
Zero Gas	0.00	0.00	0.03	0.03
Low-Level Gas	50.31	50.30	50.28	0.02
Span Gas	80.53	80.53	80.50	0.03

Calibrated by

Sathapron Th.

( Mr. Sathapron Thakraw )

Environmental Field Scientist (3)

FORM NO.: F 06-062 REVISION NO.: 2 ISSUE DATE: 3/06/19

ALS Laboratory Group



Lot No. 2212164-1

## SYSTEM CALIBRATION BIAS AND DRIFT DATA

Client : Global Power Synergy PCL. Location : Auxiliary Boiler  
Date : 01 Apr 22 Test Operator : Sathapron.TO<sub>2</sub> ANALYZER  
Cylinder Conc. (%) : 16.00 Span (%) : 25

	O <sub>2</sub> Analyzer Calibration Response	Initial Values		Final Values		Drift (% of Span)
		System Calibration Response	System Cal Bias (% of Span)	System Calibration Response	System Cal Bias (% of Span)	
Zero Gas	0.00	0.04	0.16	0.04	0.16	0.00
Upscale Gas	16.00	15.95	0.20	15.91	0.36	0.16

NO<sub>x</sub> ANALYZER  
Cylinder Conc. (ppm) : 80.27 Span (ppm) : 100

	NO <sub>x</sub> Analyzer Calibration Response	Initial Values		Final Values		Drift (% of Span)
		System Calibration Response	System Cal Bias (% of Span)	System Calibration Response	System Cal Bias (% of Span)	
Zero Gas	0.00	0.02	0.02	0.02	0.02	0.00
Upscale Gas	80.27	80.25	0.02	80.21	0.06	0.04

SO<sub>2</sub> ANALYZER  
Cylinder Conc. (ppm) : 79.00 Span (ppm) : 100

	SO <sub>2</sub> Analyzer Calibration Response	Initial Values		Final Values		Drift (% of Span)
		System Calibration Response	System Cal Bias (% of Span)	System Calibration Response	System Cal Bias (% of Span)	
Zero Gas	0.00	0.01	0.01	0.01	0.01	0.00
Upscale Gas	79.00	78.99	0.01	78.96	0.04	0.03

CO ANALYZER  
Cylinder Conc. (ppm) : 80.53 Span (ppm) : 100

	CO Analyzer Calibration Response	Initial Values		Final Values		Drift (% of Span)
		System Calibration Response	System Cal Bias (% of Span)	System Calibration Response	System Cal Bias (% of Span)	
Zero Gas	0.00	0.02	0.02	0.03	0.03	0.01
Upscale Gas	80.53	80.52	0.01	80.50	0.03	0.02

Calibrated by

Sathapron Th.

( Mr. Sathapron Thakraw )

Environmental Field Scientist (3)

FORM NO.: F 06-062 REVISION NO.: 2 ISSUE DATE: 3/06/19

ALS Laboratory Group



## EMISSION TEST RESULT

Client : Global Power Synergy PCL. Run # : 1  
Date : 01 Apr 22 Location : Auxiliary Boiler  
Start Time : 11:10 Test Operator : Sathapron.T  
Finish Time : 11:30  
SO<sub>2</sub> Analyzer Model : TELEDYNE API 100EH Serial No. : 282  
NO<sub>x</sub>/O<sub>2</sub> Analyzer Model : TELEDYNE API 200EH Serial No. : 549  
CO/CO<sub>2</sub> Analyzer Model : TELEDYNE API 300EM Serial No. : 300

Time (min)	O <sub>2</sub> (%)	CO <sub>2</sub> (%)	NO <sub>x</sub> (ppm)	SO <sub>2</sub> (ppm)	CO (ppm)	Remark
11:10	13.59	4.15	22.34	-	843.70	
11:11	13.58	4.16	22.35	-	843.25	
11:12	13.59	4.20	22.36	-	852.17	
11:13	13.60	4.16	22.30	-	859.89	
11:14	13.57	4.18	22.47	-	842.47	
11:15	13.58	4.17	22.48	-	845.84	
11:16	13.60	4.13	22.30	-	847.50	
11:17	13.60	4.11	22.33	-	843.60	
11:18	13.58	4.16	22.32	-	838.97	
11:19	13.56	4.20	22.25	-	840.64	
11:20	13.58	4.19	22.16	-	842.26	
11:21	13.59	4.18	22.13	-	848.17	
11:22	13.58	4.20	22.23	-	847.99	
11:23	13.58	4.12	22.10	-	851.19	
11:24	13.58	4.19	22.02	-	847.39	
11:25	13.56	4.17	22.02	-	835.35	
11:26	13.55	4.17	22.13	-	834.15	
11:27	13.58	4.22	22.18	-	832.84	
11:28	13.54	4.17	22.23	-	826.82	
11:29	13.56	4.16	22.24	-	841.73	
11:30	13.56	4.18	22.12	-	847.90	
Average	13.58	4.17	22.24	-	843.88	

Sathapron Th.

( Mr. Sathapron Thakraw )

Environmental Field Scientist (3)

FORM NO.: F 06-062 REVISION NO.: 2 ISSUE DATE: 3/06/19

ALS Laboratory Group



## EMISSION TEST RESULT

Client : Global Power Synergy PCL. Run # : 2  
Date : 01 Apr 22 Location : Auxiliary Boiler  
Start Time : 11:31 Test Operator : Sathapron.T  
Finish Time : 11:51  
SO<sub>2</sub> Analyzer Model : TELEDYNE API 100EH Serial No. : 282  
NO<sub>x</sub>/O<sub>2</sub> Analyzer Model : TELEDYNE API 200EH Serial No. : 549  
CO/CO<sub>2</sub> Analyzer Model : TELEDYNE API 300EM Serial No. : 300

Time (min)	O <sub>2</sub> (%)	CO <sub>2</sub> (%)	NO <sub>x</sub> (ppm)	SO <sub>2</sub> (ppm)	CO (ppm)	Remark
11:31	13.60	4.14	22.00	-	851.19	
11:32	13.60	4.25	21.87	-	844.93	
11:33	13.57	4.15	22.17	-	846.98	
11:34	13.56	4.16	22.30	-	837.23	
11:35	13.58	4.18	22.17	-	843.30	
11:36	13.59	4.13	22.34	-	844.82	
11:37	13.59	4.15	22.16	-	832.25	
11:38	13.60	4.15	22.08	-	849.59	
11:39	13.59	4.18	22.10	-	840.84	
11:40	13.59	4.20	22.21	-	832.65	
11:41	13.61	4.18	22.25	-	836.22	
11:42	13.61	4.19	22.32	-	838.22	
11:43	13.60	4.23	22.34	-	839.26	
11:44	13.61	4.20	22.27	-	842.84	
11:45	13.58	4.16	22.32	-	834.10	
11:46	13.60	4.12	22.34	-	838.41	
11:47	13.59	4.13	22.31	-	836.89	
11:48	13.58	4.16	22.35	-	831.67	
11:49	13.59	4.19	22.39	-	827.92	
11:50	13.59	4.21	22.33	-	832.06	
11:51	13.61	4.13	22.30	-	842.81	
Average	13.59	4.17	22.24	-	838.66	

Sathapron Th.

( Mr. Sathapron Thakraw )

Environmental Field Scientist (3)

FORM NO.: F 06-062 REVISION NO.: 2 ISSUE DATE: 3/06/19

ALS Laboratory Group



## EMISSION TEST RESULT

Run # 3  
Location Auxiliary Boiler  
Test Operator Sathapron.T  
Finish Time 12:12  
Serial No. 282  
Serial No. 549  
Serial No. 300

Client Global Power Synergy PCL.  
Date 01 Apr 22  
Start Time 11:52  
SO<sub>2</sub> Analyzer Model TELEDYNE API 100EH  
NO<sub>x</sub>/O<sub>2</sub> Analyzer Model TELEDYNE API 200EH  
CO/CO<sub>2</sub> Analyzer Model TELEDYNE API 300EM

Time (min)	O <sub>2</sub> (%)	CO <sub>2</sub> (%)	NO <sub>x</sub> (ppm)	SO <sub>2</sub> (ppm)	CO (ppm)	Remark
11:52	13.63	4.12	22.40	-	648.52	
11:53	13.62	4.17	22.39	-	645.82	
11:54	13.62	4.13	22.46	-	638.18	
11:55	13.60	4.21	22.46	-	610.84	
11:56	13.59	4.14	22.48	-	615.98	
11:57	13.57	4.21	22.46	-	611.64	
11:58	13.57	4.16	22.52	-	612.41	
11:59	13.58	4.17	22.47	-	616.24	
12:00	13.57	4.16	22.37	-	612.25	
12:01	13.58	4.19	22.38	-	635.44	
12:02	13.60	4.18	22.45	-	639.13	
12:03	13.60	4.17	22.46	-	636.73	
12:04	13.60	4.20	22.51	-	637.70	
12:05	13.57	4.26	22.57	-	631.31	
12:06	13.59	4.14	22.45	-	641.17	
12:07	13.59	4.14	22.43	-	632.81	
12:08	13.59	4.20	22.54	-	624.40	
12:09	13.62	4.12	22.69	-	651.10	
12:10	13.65	4.07	22.59	-	657.87	
12:11	13.63	4.35	22.96	-	642.97	
12:12	13.60	4.35	22.61	-	637.18	
Average	13.60	4.16	22.49	-	632.09	

Sathapron Th.

( Mr. Sathapron Thakane )

Environmental Field Scientist (3)

FORM NO. : F 06-02 REVISION NO. : 2 ISSUE DATE: 3/06/19

ALS Laboratory Group



Lot No. 2212186-1

## ANALYZER CALIBRATION DATA

Client Global Power Synergy PCL. Location HRSG#3  
Date 30 Mar 22 Test Operator Sathapron.T  
O<sub>2</sub> ANALYZER Model HORIBA PG-350 Serial No. VKNVUGU9  
Span (%) 25

	Cylinder Value (%)	Initial Analyzers Calibration Response (%)	Final Analyzers Calibration Response (%)	Difference (Percent of Span)
Zero Gas	0.00	0.00	0.04	0.16
Low-Level Gas	7.93	7.95	7.95	0.00
Span Gas	16.00	16.00	16.01	0.04

NO<sub>x</sub> ANALYZER Model HORIBA PG-350 Serial No. VKNVUGU9  
Span (ppm) 100

	Cylinder Value (ppm)	Initial Analyzers Calibration Response (ppm)	Final Analyzers Calibration Response (ppm)	Difference (Percent of Span)
Zero Gas	0.00	0.00	0.02	0.02
Low-Level Gas	50.41	50.40	50.38	0.02
Span Gas	80.27	80.27	80.24	0.03

SO<sub>2</sub> ANALYZER Model HORIBA PG-350 Serial No. VKNVUGU9  
Span (ppm) 100

	Cylinder Value (ppm)	Initial Analyzers Calibration Response (ppm)	Final Analyzers Calibration Response (ppm)	Difference (Percent of Span)
Zero Gas	0.00	0.00	0.00	0.00
Low-Level Gas	51.61	51.60	51.55	0.05
Span Gas	79.00	79.00	78.96	0.04

CO ANALYZER Model HORIBA PG-350 Serial No. VKNVUGU9  
Span (ppm) 100

	Cylinder Value (ppm)	Initial Analyzers Calibration Response (ppm)	Final Analyzers Calibration Response (ppm)	Difference (Percent of Span)
Zero Gas	0.00	0.00	0.03	0.03
Low-Level Gas	50.31	50.30	50.28	0.02
Span Gas	80.53	80.53	80.50	0.03

Calibrated by

Sathapron Th.

( Mr. Sathapron Thakane )

Environmental Field Scientist (3)

FORM NO. : F 06-02 REVISION NO. : 2 ISSUE DATE: 3/06/19

ALS Laboratory Group



Lot No. 2212186-1

## SYSTEM CALIBRATION BIAS AND DRIFT DATA

Client Global Power Synergy PCL. Location HRSG#3  
Date 30 Mar 22 Test Operator Sathapron.T

O<sub>2</sub> ANALYZER Cylinder Conc. (%) : 16.00 Span (%) : 25

	O <sub>2</sub> Analyzer Calibration Response	Initial Values System Calibration Response	System Cal Bias (% of Span)	Final Values System Calibration Response	System Cal Bias (% of Span)	Drift (% of Span)
Zero Gas	0.00	0.02	0.08	0.04	0.16	0.08
Upscale Gas	16.00	16.01	0.04	16.01	0.04	0.00

NO<sub>x</sub> ANALYZER Cylinder Conc. (ppm) : 80.27 Span (ppm) : 100

	NO <sub>x</sub> Analyzer Calibration Response	Initial Values System Calibration Response	System Cal Bias (% of Span)	Final Values System Calibration Response	System Cal Bias (% of Span)	Drift (% of Span)
Zero Gas	0.00	0.01	0.01	0.02	0.02	0.01
Upscale Gas	80.27	80.26	0.01	80.24	0.03	0.02

SO<sub>2</sub> ANALYZER Cylinder Conc. (ppm) : 79.00 Span (ppm) : 100

	SO <sub>2</sub> Analyzer Calibration Response	Initial Values System Calibration Response	System Cal Bias (% of Span)	Final Values System Calibration Response	System Cal Bias (% of Span)	Drift (% of Span)
Zero Gas	0.00	0.00	0.00	0.00	0.00	0.00
Upscale Gas	79.00	79.00	0.00	79.96	0.04	0.04

CO ANALYZER Cylinder Conc. (ppm) : 80.53 Span (ppm) : 100

	CO Analyzer Calibration Response	Initial Values System Calibration Response	System Cal Bias (% of Span)	Final Values System Calibration Response	System Cal Bias (% of Span)	Drift (% of Span)
Zero Gas	0.00	0.01	0.01	0.03	0.03	0.02
Upscale Gas	80.53	80.52	0.01	80.50	0.03	0.02

Calibrated by

Sathapron Th.

( Mr. Sathapron Thakane )

Environmental Field Scientist (3)

FORM NO. : F 06-02 REVISION NO. : 2 ISSUE DATE: 3/06/19

ALS Laboratory Group



## EMISSION TEST RESULT

Client Global Power Synergy PCL. Run # 1  
Date 30 Mar 22 Location HRSG#3  
Start Time 13:20 Test Operator Sathapron.T  
Finish Time 13:40  
SO<sub>2</sub> Analyzer Model HORIBA PG-350 Serial No. VKNVUGU9  
NO<sub>x</sub>/O<sub>2</sub> Analyzer Model HORIBA PG-350 Serial No. VKNVUGU9  
CO/CO<sub>2</sub> Analyzer Model HORIBA PG-350 Serial No. VKNVUGU9

Time (min)	O <sub>2</sub> (%)	CO <sub>2</sub> (%)	NO <sub>x</sub> (ppm)	SO <sub>2</sub> (ppm)	CO (ppm)	Remark
13:20	14.28	3.69	13.83	-	3.70	
13:21	14.29	3.69	13.65	-	3.70	
13:22	14.30	3.66	13.74	-	3.70	
13:23	14.33	3.69	13.84	-	2.80	
13:24	14.35	3.69	13.95	-	2.70	
13:25	14.38	3.68	13.99	-	2.70	
13:26	14.39	3.68	14.30	-	2.55	
13:27	14.32	3.68	14.54	-	2.44	
13:28	14.43	3.68	14.54	-	2.70	
13:29	14.07	3.68	14.90	-	2.55	
13:30	14.09	3.67	15.22	-	2.55	
13:31	14.10	3.67	15.32	-	2.55	
13:32	14.13	3.68	15.16	-	2.55	
13:33	14.15	3.67	15.27	-	2.55	
13:34	14.15	3.66	15.31	-	2.65	
13:35	14.18	3.67	15.61	-	2.65	
13:36	14.20	3.66	15.72	-	2.65	
13:37	14.21	3.66	16.26	-	2.50	
13:38	14.24	3.66	16.28	-	2.65	
13:39	14.25	3.66	16.40	-	2.39	
13:40	14.20	3.68	16.43	-	2.65	
Average	14.25	3.67	14.98	-	2.61	

Sathapron Th.

( Mr. Sathapron Thakane )

Environmental Field Scientist (3)

FORM NO. : F 06-02 REVISION NO. : 2 ISSUE DATE: 3/06/19

ALS Laboratory Group



## EMISSION TEST RESULT

Client	Global Power Synergy PCL.	Run #	2
Date	30 Mar 22	Location	HRSG#3
Start Time	13:41	Test Operator	Sathaporn.T
SO <sub>2</sub> Analyzer Model	HORIBA PG-350	Finish Time	14:01
NO <sub>x</sub> /O <sub>2</sub> Analyzer Model	HORIBA PG-350	Serial No.	VKNVUGU9
CO/CO <sub>2</sub> Analyzer Model	HORIBA PG-350	Serial No.	VKNVUGU9

Time (min)	O <sub>2</sub> (%)	CO <sub>2</sub> (%)	NO <sub>x</sub> (ppm)	SO <sub>2</sub> (ppm)	CO (ppm)	Remark
13:41	14.27	3.66	16.55	-	2.39	
13:42	14.26	3.67	17.03	-	2.39	
13:43	14.29	3.66	17.25	-	2.39	
13:44	14.31	3.66	16.99	-	2.50	
13:45	14.31	3.67	16.96	-	2.50	
13:46	14.32	3.68	16.99	-	2.50	
13:47	14.32	3.68	16.99	-	2.50	
13:48	14.33	3.68	16.99	-	2.50	
13:49	14.35	3.68	16.76	-	2.61	
13:50	14.37	3.68	16.85	-	2.50	
13:51	14.38	3.68	16.47	-	2.50	
13:52	14.36	3.69	16.24	-	2.50	
13:53	14.39	3.70	15.97	-	2.76	
13:54	14.01	3.69	16.09	-	2.24	
13:55	14.05	3.70	16.18	-	2.50	
13:56	14.06	3.70	16.24	-	2.61	
13:57	14.07	3.71	16.19	-	2.61	
13:58	14.09	3.70	16.06	-	2.51	
13:59	14.10	3.71	15.91	-	2.61	
14:00	14.12	3.71	15.99	-	2.61	
14:01	14.14	3.70	16.12	-	2.62	
Average	14.23	3.66	16.52	-	2.52	

Sathaporn Th.

(Mr. Sathaporn Thakran)

Environmental Field Scientist (3)

FORM NO. : F 06-062 REVISION NO. : 2 ISSUE DATE: 3/06/19

ALS Laboratory Group



## EMISSION TEST RESULT

Client	Global Power Synergy PCL.	Run #	3
Date	30 Mar 22	Location	HRSG#3
Start Time	14:02	Test Operator	Sathaporn.T
SO <sub>2</sub> Analyzer Model	HORIBA PG-350	Finish Time	14:22
NO <sub>x</sub> /O <sub>2</sub> Analyzer Model	HORIBA PG-350	Serial No.	VKNVUGU9
CO/CO <sub>2</sub> Analyzer Model	HORIBA PG-350	Serial No.	VKNVUGU9

Time (min)	O <sub>2</sub> (%)	CO <sub>2</sub> (%)	NO <sub>x</sub> (ppm)	SO <sub>2</sub> (ppm)	CO (ppm)	Remark
14:02	14.15	3.71	16.20	-	2.62	
14:03	14.15	3.70	16.02	-	2.62	
14:04	14.19	3.70	16.02	-	2.36	
14:05	14.20	3.70	15.80	-	2.36	
14:06	14.22	3.70	15.69	-	2.46	
14:07	14.24	3.69	16.13	-	2.36	
14:08	14.23	3.71	15.96	-	2.36	
14:09	14.23	3.70	15.77	-	2.36	
14:10	14.25	3.70	15.74	-	2.36	
14:11	14.26	3.71	15.84	-	2.47	
14:12	14.27	3.72	15.54	-	2.47	
14:13	14.29	3.72	15.68	-	2.47	
14:14	14.30	3.72	15.56	-	2.36	
14:15	14.32	3.71	15.47	-	2.47	
14:16	14.32	3.71	15.29	-	2.36	
14:17	14.35	3.72	15.13	-	2.36	
14:18	14.30	3.72	15.22	-	2.47	
14:19	14.36	3.72	15.36	-	2.47	
14:20	14.00	3.72	15.30	-	2.58	
14:21	14.02	3.72	15.27	-	2.36	
14:22	14.03	3.72	15.18	-	2.52	
Average	14.23	3.71	15.63	-	2.44	

Sathaporn Th.

(Mr. Sathaporn Thakran)

Environmental Field Scientist (3)

FORM NO. : F 06-062 REVISION NO. : 2 ISSUE DATE: 3/06/19

ALS Laboratory Group



## ANALYZER CALIBRATION DATA

Client	Global Power Synergy PCL.	Location	HRSG#4
Date	31 Mar 22	Test Operator	Sathaporn.T

O <sub>2</sub> ANALYZER			
Model	HORIBA PG-350	Serial No.	VKNVUGU9
Span (%)	25		

	Cylinder Value (%)	Initial Analyzers Calibration Response (%)	Final Analyzers Calibration Response (%)	Difference (Percent of Span)
Zero Gas	0.00	0.00	0.03	0.12
Low-Level Gas	7.93	7.95	7.98	0.12
Span Gas	16.00	16.00	16.03	0.12

NO <sub>x</sub> ANALYZER			
Model	HORIBA PG-350	Serial No.	VKNVUGU9
Span (ppm)	100		

	Cylinder Value (ppm)	Initial Analyzers Calibration Response (ppm)	Final Analyzers Calibration Response (ppm)	Difference (Percent of Span)
Zero Gas	0.09	0.00	0.02	0.02
Low-Level Gas	50.41	50.40	50.40	0.00
Span Gas	80.27	80.27	80.20	0.07

SO <sub>2</sub> ANALYZER			
Model	HORIBA PG-350	Serial No.	VKNVUGU9
Span (ppm)	100		

	Cylinder Value (ppm)	Initial Analyzers Calibration Response (ppm)	Final Analyzers Calibration Response (ppm)	Difference (Percent of Span)
Zero Gas	0.00	0.00	0.30	0.30
Low-Level Gas	51.61	51.58	51.55	0.03
Span Gas	79.00	79.00	78.98	0.02

CO ANALYZER			
Model	HORIBA PG-350	Serial No.	VKNVUGU9
Span (ppm)	100		

	Cylinder Value (ppm)	Initial Analyzers Calibration Response (ppm)	Final Analyzers Calibration Response (ppm)	Difference (Percent of Span)
Zero Gas	0.00	0.00	0.01	0.01
Low-Level Gas	50.31	50.30	50.28	0.02
Span Gas	80.53	80.53	80.50	0.03

Calibrated by

Sathaporn Th.

(Mr. Sathaporn Thakran)

Environmental Field Scientist (3)

FORM NO. : F 06-062 REVISION NO. : 2 ISSUE DATE: 3/06/19

ALS Laboratory Group



## SYSTEM CALIBRATION BIAS AND DRIFT DATA

Client	Global Power Synergy PCL.	Location	HRSG#4
Date	31 Mar 22	Test Operator	Sathaporn.T

O <sub>2</sub> ANALYZER			
Cylinder Conc. (%)	16.00	Span (%)	25

	O <sub>2</sub> Analyzer Calibration Response	Initial Values	System Calibration Response	System Cal Bias (% of Span)	Final Values	System Calibration Response	System Cal Bias (% of Span)	Drift (% of Span)
Zero Gas	0.00	0.01	0.04	0.03	0.03	0.12	0.08	0.08
Upscale Gas	16.00	16.01	0.04	16.03	0.12	0.08	0.08	0.08

NO <sub>x</sub> ANALYZER			
Cylinder Conc. (ppm)	80.27	Span (ppm)	100

	NO <sub>x</sub> Analyzer Calibration Response	Initial Values	System Calibration Response	System Cal Bias (% of Span)	Final Values	System Calibration Response	System Cal Bias (% of Span)	Drift (% of Span)
Zero Gas	0.00	0.02	0.02	0.02	0.02	0.02	0.00	0.00
Upscale Gas	80.27	80.25	0.02	80.20	0.07	0.05	0.05	0.05

SO <sub>2</sub> ANALYZER			
Cylinder Conc. (ppm)	79.00	Span (ppm)	100

	SO <sub>2</sub> Analyzer Calibration Response	Initial Values	System Calibration Response	System Cal Bias (% of Span)	Final Values	System Calibration Response	System Cal Bias (% of Span)	Drift (% of Span)
Zero Gas	0.00	0.50	0.50	0.30	0.30	0.30	0.30	0.30
Upscale Gas	79.00	78.99	0.01	78.98	0.02	0.01	0.01	0.01

CO ANALYZER			
Cylinder Conc. (ppm)	80.53	Span (ppm)	100

	CO Analyzer Calibration Response	Initial Values	System Calibration Response	System Cal Bias (% of Span)	Final Values	System Calibration Response	System Cal Bias (% of Span)	Drift (% of Span)
Zero Gas	0.00	0.01	0.01	0.01	0.01	0.01	0.00	0.00
Upscale Gas	80.53	80.51	0.02	80.50	0.03	0.01	0.01	0.01

Calibrated by

Sathaporn Th.

(Mr. Sathaporn Thakran)

Environmental Field Scientist (3)

FORM NO. : F 06-062 REVISION NO. : 2 ISSUE DATE: 3/06/19

ALS Laboratory Group





## EMISSION TEST RESULT

Client	Global Power Synergy PCL.	Run #	1
Date	31 Mar 22	Location	HRSG#4
Start Time	12:00	Test Operator	Sathaporn.T
SO <sub>2</sub> Analyzer Model	HORIBA PG-350	Finish Time	12:20
NO <sub>x</sub> /O <sub>2</sub> Analyzer Model	HORIBA PG-350	Serial No.	VKNVUGU9
CO/CO <sub>2</sub> Analyzer Model	HORIBA PG-350	Serial No.	VKNVUGU9

Time (min)	O <sub>2</sub> (%)	CO <sub>2</sub> (%)	NO <sub>x</sub> (ppm)	SO <sub>2</sub> (ppm)	CO (ppm)	Remark
12:01	14.25	3.70	8.78	-	2.59	
12:01	14.26	3.69	10.21	-	2.31	
12:02	14.31	3.70	8.80	-	2.31	
12:03	14.30	3.69	7.21	-	2.15	
12:04	14.33	3.69	7.48	-	2.04	
12:05	14.34	3.70	8.89	-	2.41	
12:06	14.36	3.70	10.26	-	2.52	
12:07	14.39	3.70	9.48	-	2.30	
12:08	14.41	3.70	7.92	-	2.30	
12:09	14.44	3.70	7.57	-	2.14	
12:10	14.47	3.70	8.26	-	2.14	
12:11	14.08	3.71	9.46	-	2.14	
12:12	14.09	3.70	10.63	-	2.14	
12:13	14.15	3.69	8.62	-	2.14	
12:14	14.15	3.69	7.16	-	1.87	
12:15	14.16	3.69	7.29	-	2.03	
12:16	14.10	3.69	8.19	-	2.14	
12:17	14.21	3.69	9.20	-	2.40	
12:18	14.22	3.71	10.12	-	2.29	
12:19	14.25	3.69	9.64	-	2.13	
12:20	14.26	3.70	8.54	-	2.40	
Average	14.22	3.70	8.78	-	2.24	

Sathaporn Th.

(Mr. Sathaporn Thakarn)

Environmental Field Scientist (3)

FORM NO. : F 06-02 REVISION NO. : 2 ISSUE DATE: 3/06/19

ALS Laboratory Group



## EMISSION TEST RESULT

Client	Global Power Synergy PCL.	Run #	2
Date	31 Mar 22	Location	HRSG#4
Start Time	12:21	Test Operator	Sathaporn.T
SO <sub>2</sub> Analyzer Model	HORIBA PG-350	Finish Time	12:41
NO <sub>x</sub> /O <sub>2</sub> Analyzer Model	HORIBA PG-350	Serial No.	VKNVUGU9
CO/CO <sub>2</sub> Analyzer Model	HORIBA PG-350	Serial No.	VKNVUGU9

Time (min)	O <sub>2</sub> (%)	CO <sub>2</sub> (%)	NO <sub>x</sub> (ppm)	SO <sub>2</sub> (ppm)	CO (ppm)	Remark
12:21	14.28	3.70	8.34	-	2.29	
12:22	14.31	3.69	9.71	-	2.40	
12:23	14.31	3.71	11.13	-	2.44	
12:24	14.33	3.71	9.71	-	2.55	
12:25	14.35	3.70	7.57	-	2.39	
12:26	14.36	3.71	6.82	-	2.55	
12:27	14.38	3.71	7.62	-	2.20	
12:28	14.39	3.70	8.91	-	2.44	
12:29	14.41	3.71	10.92	-	2.44	
12:30	14.43	3.70	10.16	-	2.55	
12:31	14.05	3.70	7.85	-	2.44	
12:32	14.07	3.70	6.31	-	2.48	
12:33	14.09	3.70	6.50	-	2.44	
12:34	14.11	3.70	7.59	-	2.43	
12:35	14.13	3.70	9.25	-	2.59	
12:36	14.14	3.71	9.58	-	2.48	
12:37	14.17	3.71	5.38	-	2.59	
12:38	14.20	3.70	6.96	-	2.59	
12:39	14.19	3.71	7.25	-	2.70	
12:40	14.23	3.70	8.17	-	2.59	
12:41	14.21	3.71	9.68	-	2.59	
Average	14.25	3.70	8.51	-	2.49	

Sathaporn Th.

(Mr. Sathaporn Thakarn)

Environmental Field Scientist (3)

FORM NO. : F 06-02 REVISION NO. : 2 ISSUE DATE: 3/06/19

ALS Laboratory Group



## EMISSION TEST RESULT

Client	Global Power Synergy PCL.	Run #	3
Date	31 Mar 22	Location	HRSG#4
Start Time	12:42	Test Operator	Sathaporn.T
SO <sub>2</sub> Analyzer Model	HORIBA PG-350	Finish Time	13:02
NO <sub>x</sub> /O <sub>2</sub> Analyzer Model	HORIBA PG-350	Serial No.	VKNVUGU9
CO/CO <sub>2</sub> Analyzer Model	HORIBA PG-350	Serial No.	VKNVUGU9

Time (min)	O <sub>2</sub> (%)	CO <sub>2</sub> (%)	NO <sub>x</sub> (ppm)	SO <sub>2</sub> (ppm)	CO (ppm)	Remark
12:42	14.26	3.72	10.62	-	2.06	
12:43	14.28	3.70	8.66	-	2.58	
12:44	14.27	3.71	7.20	-	2.32	
12:45	14.27	3.71	7.43	-	2.69	
12:46	14.31	3.71	8.45	-	2.69	
12:47	14.34	3.71	9.54	-	2.54	
12:48	14.34	3.71	9.33	-	2.53	
12:49	14.38	3.70	8.47	-	2.53	
12:50	14.39	3.70	8.56	-	2.91	
12:51	14.40	3.71	10.02	-	2.53	
12:52	14.41	3.71	11.79	-	2.53	
12:53	14.05	3.71	10.04	-	2.38	
12:54	14.06	3.70	7.35	-	2.64	
12:55	14.06	3.72	6.04	-	2.69	
12:56	14.10	3.70	8.18	-	2.79	
12:57	14.12	3.71	8.88	-	2.22	
12:58	14.16	3.69	6.04	-	2.40	
12:59	14.16	3.70	6.76	-	2.45	
13:00	14.19	3.71	8.88	-	2.37	
13:01	14.21	3.70	8.09	-	2.48	
13:02	14.22	3.70	8.25	-	2.48	
Average	14.24	3.71	8.51	-	2.52	

Sathaporn Th.

(Mr. Sathaporn Thakarn)

Environmental Field Scientist (3)

FORM NO. : F 06-02 REVISION NO. : 2 ISSUE DATE: 3/06/19

ALS Laboratory Group



## ANALYZER CALIBRATION DATA

Lot No. 2212190-1

Client	Global Power Synergy PCL.	Location	HRSG#5
Date	31 Mar 22	Test Operator	Sathaporn.T
O <sub>2</sub> ANALYZER Model	TELEDYNE API 200EH	Serial No.	549
Span (%)	25		

	Cylinder Value (%)	Initial Analyzers Calibration Response (%)	Final Analyzers Calibration Response (%)	Difference (Percent of Span)
Zero Gas	0.00	0.00	0.01	0.04
Low-Level Gas	7.93	7.94	7.94	0.00
Span Gas	16.00	16.00	16.01	0.04

NO <sub>x</sub> ANALYZER Model	TELEDYNE API 200EH	Serial No.	549
Span (ppm)	100		

	Cylinder Value (ppm)	Initial Analyzers Calibration Response (ppm)	Final Analyzers Calibration Response (ppm)	Difference (Percent of Span)
Zero Gas	0.00	0.00	0.01	0.01
Low-Level Gas	50.41	50.40	50.41	0.01
Span Gas	80.27	80.27	80.26	0.01

SO <sub>2</sub> ANALYZER Model	TELEDYNE API 100EH	Serial No.	282
Span (ppm)	100		

	Cylinder Value (ppm)	Initial Analyzers Calibration Response (ppm)	Final Analyzers Calibration Response (ppm)	Difference (Percent of Span)
Zero Gas	0.00	0.00	0.00	0.00
Low-Level Gas	51.61	51.60	51.68	0.02
Span Gas	79.00	79.00	79.00	0.00

CO ANALYZER Model	TELEDYNE API 300EM	Serial No.	300
Span (ppm)	100		

	Cylinder Value (ppm)	Initial Analyzers Calibration Response (ppm)	Final Analyzers Calibration Response (ppm)	Difference (Percent of Span)
Zero Gas	0.00	0.00	0.01	0.01
Low-Level Gas	50.31	50.30	50.30	0.00
Span Gas	80.53	80.53	80.52	0.01

Calibrated by

Sathaporn Th.

(Mr. Sathaporn Thakarn)

Environmental Field Scientist (3)

FORM NO. : F 06-02 REVISION NO. : 2 ISSUE DATE: 3/06/19

ALS Laboratory Group



Lot No. 2212190-1

## SYSTEM CALIBRATION BIAS AND DRIFT DATA

Client : Global Power Synergy PCL. Location : HRS#5  
Date : 31 Mar 22 Test Operator : Sathapron.TO<sub>2</sub> ANALYZER : 16.00 Span (%) : 25  
Cylinder Conc. (ppm)

	O <sub>2</sub> Analyzer Calibration Response	Initial Values		Final Values		Drift (% of Span)
		System Calibration Response	System Cal Bias (% of Span)	System Calibration Response	System Cal Bias (% of Span)	
Zero Gas	0.00	0.01	0.04	0.01	0.04	0.00
Upscale Gas	16.00	16.01	0.04	16.01	0.04	0.00

NO<sub>x</sub> ANALYZER : 80.27 Span (ppm) : 100  
Cylinder Conc. (ppm)

	NO <sub>x</sub> Analyzer Calibration Response	Initial Values		Final Values		Drift (% of Span)
		System Calibration Response	System Cal Bias (% of Span)	System Calibration Response	System Cal Bias (% of Span)	
Zero Gas	0.00	0.01	0.01	0.01	0.01	0.00
Upscale Gas	80.27	80.27	0.00	80.26	0.01	0.01

SO<sub>2</sub> ANALYZER : 79.00 Span (ppm) : 100  
Cylinder Conc. (ppm)

	SO <sub>2</sub> Analyzer Calibration Response	Initial Values		Final Values		Drift (% of Span)
		System Calibration Response	System Cal Bias (% of Span)	System Calibration Response	System Cal Bias (% of Span)	
Zero Gas	0.00	0.00	0.00	0.00	0.00	0.00
Upscale Gas	79.00	78.98	0.02	79.97	0.03	0.01

CO ANALYZER : 80.53 Span (ppm) : 100  
Cylinder Conc. (ppm)

	CO Analyzer Calibration Response	Initial Values		Final Values		Drift (% of Span)
		System Calibration Response	System Cal Bias (% of Span)	System Calibration Response	System Cal Bias (% of Span)	
Zero Gas	0.00	0.02	0.02	0.01	0.01	0.01
Upscale Gas	80.53	80.52	0.01	80.52	0.01	0.00

Calibrated by

Sathapron Th.

( Mr. Sathapron Thakaw )

Environmental Field Scientist (3)

FORM NO. : F 06-02 REVISION NO. : 2 ISSUE DATE: 3/06/19

ALS Laboratory Group



## EMISSION TEST RESULT

Client : Global Power Synergy PCL. Run # : 1  
Date : 31 Mar 22 Location : HRS#5  
Start Time : 11:00 Test Operator : Sathapron.T  
SO<sub>2</sub> Analyzer Model : TELEDYNE API 100EH Finish Time : 11:20  
NO<sub>x</sub>/O<sub>2</sub> Analyzer Model : TELEDYNE API 200EH Serial No. : 282  
CO/CO<sub>2</sub> Analyzer Model : TELEDYNE API 300EM Serial No. : 549  
Serial No. : 300

Time (min)	O <sub>2</sub> (%)	CO <sub>2</sub> (%)	NO <sub>x</sub> (ppm)	SO <sub>2</sub> (ppm)	CO (ppm)	Remark
11:00	14.03	3.65	8.63	-	13.92	
11:01	14.11	3.66	8.63	-	13.96	
11:02	14.14	3.79	8.66	-	13.76	
11:03	14.14	3.97	8.66	-	13.76	
11:04	14.15	3.88	8.64	-	13.48	
11:05	14.14	3.87	8.65	-	13.67	
11:06	14.14	3.75	8.61	-	13.51	
11:07	14.14	3.84	8.62	-	13.58	
11:08	14.16	3.88	8.64	-	13.76	
11:09	14.18	3.82	8.69	-	13.86	
11:10	14.17	3.94	8.72	-	13.83	
11:11	14.18	3.98	8.70	-	14.03	
11:12	14.18	3.96	8.68	-	13.85	
11:13	14.21	3.85	8.69	-	13.95	
11:14	14.19	3.89	8.72	-	13.84	
11:15	14.21	3.85	8.72	-	13.99	
11:16	14.19	3.88	8.73	-	13.48	
11:17	14.22	3.88	8.74	-	13.39	
11:18	14.20	3.87	8.74	-	13.30	
11:19	14.21	3.83	8.74	-	13.49	
11:20	14.21	3.91	8.76	-	13.19	
Average	14.17	3.85	8.68	-	13.67	

Sathapron Th.

( Mr. Sathapron Thakaw )

Environmental Field Scientist (3)

FORM NO. : F 06-02 REVISION NO. : 2 ISSUE DATE: 3/06/19

ALS Laboratory Group



## EMISSION TEST RESULT

Client : Global Power Synergy PCL. Run # : 2  
Date : 31 Mar 22 Location : HRS#5  
Start Time : 11:21 Test Operator : Sathapron.T  
SO<sub>2</sub> Analyzer Model : TELEDYNE API 100EH Finish Time : 11:41  
NO<sub>x</sub>/O<sub>2</sub> Analyzer Model : TELEDYNE API 200EH Serial No. : 282  
CO/CO<sub>2</sub> Analyzer Model : TELEDYNE API 300EM Serial No. : 549  
Serial No. : 300

Time (min)	O <sub>2</sub> (%)	CO <sub>2</sub> (%)	NO <sub>x</sub> (ppm)	SO <sub>2</sub> (ppm)	CO (ppm)	Remark
11:21	14.20	3.88	8.76	-	13.21	
11:22	14.19	3.91	8.74	-	12.16	
11:23	14.20	3.90	8.72	-	13.20	
11:24	14.20	3.84	8.75	-	13.21	
11:25	14.20	3.87	8.76	-	13.20	
11:26	14.16	3.83	8.77	-	13.12	
11:27	14.16	3.87	8.73	-	13.11	
11:28	14.18	3.82	8.74	-	13.12	
11:29	14.16	3.86	8.71	-	13.11	
11:30	14.19	3.86	8.71	-	13.11	
11:31	14.18	3.82	8.70	-	12.94	
11:32	14.17	3.86	8.74	-	12.93	
11:33	14.18	3.84	8.77	-	13.03	
11:34	14.21	3.67	8.78	-	13.20	
11:35	14.20	3.93	8.77	-	13.46	
11:36	14.20	3.88	8.74	-	13.39	
11:37	14.17	3.91	8.76	-	13.47	
11:38	14.16	3.84	8.78	-	13.12	
11:39	14.15	3.86	8.80	-	13.11	
11:40	14.15	3.90	8.77	-	13.20	
11:41	14.15	3.85	8.76	-	13.01	
Average	14.16	3.88	8.75	-	13.16	

Sathapron Th.

( Mr. Sathapron Thakaw )

Environmental Field Scientist (3)

FORM NO. : F 06-02 REVISION NO. : 2 ISSUE DATE: 3/06/19

ALS Laboratory Group



## EMISSION TEST RESULT

Client : Global Power Synergy PCL. Run # : 3  
Date : 31 Mar 22 Location : HRS#5  
Start Time : 11:42 Test Operator : Sathapron.T  
SO<sub>2</sub> Analyzer Model : TELEDYNE API 100EH Finish Time : 12:02  
NO<sub>x</sub>/O<sub>2</sub> Analyzer Model : TELEDYNE API 200EH Serial No. : 282  
CO/CO<sub>2</sub> Analyzer Model : TELEDYNE API 300EM Serial No. : 549  
Serial No. : 300

Time (min)	O <sub>2</sub> (%)	CO <sub>2</sub> (%)	NO <sub>x</sub> (ppm)	SO <sub>2</sub> (ppm)	CO (ppm)	Remark
11:42	14.16	3.86	8.80	-	13.11	
11:43	14.16	3.91	8.81	-	13.01	
11:44	14.16	3.90	8.79	-	13.01	
11:45	14.16	3.88	8.77	-	13.11	
11:46	14.15	3.87	8.79	-	13.02	
11:47	14.15	3.86	8.78	-	13.02	
11:48	14.15	3.88	8.82	-	12.92	
11:49	14.14	3.87	8.85	-	12.93	
11:50	14.16	3.92	8.88	-	12.73	
11:51	14.14	3.88	8.86	-	12.83	
11:52	14.14	3.90	8.79	-	12.73	
11:53	14.14	3.91	8.80	-	12.92	
11:54	14.14	3.83	8.83	-	12.75	
11:55	14.14	3.86	8.86	-	12.84	
11:56	14.14	3.89	8.83	-	12.83	
11:57	14.12	3.85	8.80	-	12.75	
11:58	14.14	3.87	8.79	-	12.83	
11:59	14.14	3.84	8.80	-	12.93	
12:00	14.13	3.86	8.79	-	12.74	
12:01	14.14	3.77	8.84	-	13.51	
12:02	14.14	3.76	8.86	-	13.97	
Average	14.15	3.87	8.82	-	12.98	

Sathapron Th.

( Mr. Sathapron Thakaw )

Environmental Field Scientist (3)

FORM NO. : F 06-02 REVISION NO. : 2 ISSUE DATE: 3/06/19

ALS Laboratory Group



Lot No. 2212191-1

## ANALYZER CALIBRATION DATA

Client : Global Power Synergy PCL. Location : HRS# 6  
Date : 01 Apr 22 Test Operator : Navaphut S.O<sub>2</sub> ANALYZER  
Model : TELEDYNE API 200EH Serial No. : 774  
Span (%) : 25

	Cylinder Value (%)	Initial Analyzer Calibration Response (%)	Final Analyzer Calibration Response (%)	Difference (Percent of Span)
Zero Gas	0.00	0.00	0.10	0.40
Low-Level Gas	8.05	8.00	8.00	0.00
Span Gas	16.06	16.10	16.00	0.40

NO<sub>x</sub> ANALYZER  
Model : TELEDYNE API 200EH Serial No. : 774  
Span (ppm) : 200

	Cylinder Value (ppm)	Initial Analyzer Calibration Response (ppm)	Final Analyzer Calibration Response (ppm)	Difference (Percent of Span)
Zero Gas	0.00	0.00	0.20	0.10
Low-Level Gas	50.32	50.30	50.00	0.15
Span Gas	158.20	158.20	157.80	0.20

SO<sub>2</sub> ANALYZER  
Model : TELEDYNE API 100EH Serial No. : 410  
Span (ppm) : 200

	Cylinder Value (ppm)	Initial Analyzer Calibration Response (ppm)	Final Analyzer Calibration Response (ppm)	Difference (Percent of Span)
Zero Gas	0.00	0.00	0.00	0.00
Low-Level Gas	50.27	50.00	50.00	0.00
Span Gas	161.60	161.50	161.30	0.10

CO ANALYZER  
Model : TELEDYNE API 300EM Serial No. : 425  
Span (ppm) : 200

	Cylinder Value (ppm)	Initial Analyzer Calibration Response (ppm)	Final Analyzer Calibration Response (ppm)	Difference (Percent of Span)
Zero Gas	0.00	0.00	0.20	0.10
Low-Level Gas	49.99	50.00	50.00	0.00
Span Gas	157.50	157.50	157.20	0.15

Calibrated by

( Mr. Navaphut Srivriya )

Environmental Field Scientist (2)

FORM NO.: F 06-02 REVISION NO.: 2 ISSUE DATE: 3/06/19

ALS Laboratory Group



Lot No. 2212191-1

## SYSTEM CALIBRATION BIAS AND DRIFT DATA

Client : Global Power Synergy PCL. Location : HRS# 6  
Date : 01 Apr 22 Test Operator : Navaphut S.O<sub>2</sub> ANALYZER  
Cylinder Conc. (%) : 16.06 Span (%) : 25

	O <sub>2</sub> Analyzer Calibration Response	Initial Values		Final Values		Drift (% of Span)
		System Calibration Response	System Cal Bias (% of Span)	System Calibration Response	System Cal Bias (% of Span)	
Zero Gas	8.00	0.00	0.00	0.10	0.40	0.40
Upscale Gas	16.10	16.00	0.40	16.00	0.40	0.00

NO<sub>x</sub> ANALYZER  
Cylinder Conc. (ppm) : 158.20 Span (ppm) : 200

	NO <sub>x</sub> Analyzer Calibration Response	Initial Values		Final Values		Drift (% of Span)
		System Calibration Response	System Cal Bias (% of Span)	System Calibration Response	System Cal Bias (% of Span)	
Zero Gas	8.00	0.30	0.15	0.20	0.10	0.05
Upscale Gas	158.20	157.80	0.20	157.80	0.20	0.00

SO<sub>2</sub> ANALYZER  
Cylinder Conc. (ppm) : 161.60 Span (ppm) : 200

	SO <sub>2</sub> Analyzer Calibration Response	Initial Values		Final Values		Drift (% of Span)
		System Calibration Response	System Cal Bias (% of Span)	System Calibration Response	System Cal Bias (% of Span)	
Zero Gas	8.00	0.00	0.00	0.00	0.00	0.00
Upscale Gas	161.50	161.30	0.10	161.30	0.10	0.00

CO ANALYZER  
Cylinder Conc. (ppm) : 157.50 Span (ppm) : 200

	CO Analyzer Calibration Response	Initial Values		Final Values		Drift (% of Span)
		System Calibration Response	System Cal Bias (% of Span)	System Calibration Response	System Cal Bias (% of Span)	
Zero Gas	8.00	0.20	0.10	0.20	0.10	0.00
Upscale Gas	157.50	157.30	0.10	157.20	0.15	0.05

Calibrated by

( Mr. Navaphut Srivriya )

Environmental Field Scientist (2)

FORM NO.: F 06-02 REVISION NO.: 2 ISSUE DATE: 3/06/19

ALS Laboratory Group



## EMISSION TEST RESULT

Client : Global Power Synergy PCL. Run # : 1  
Date : 01 Apr 22 Location : HRS# 6  
Start Time : 10:00 Test Operator : Navaphut S.  
SO<sub>2</sub> Analyzer Model : TELEDYNE API 100EH Serial No. : 410  
NO<sub>x</sub>/O<sub>2</sub> Analyzer Model : TELEDYNE API 200EH Serial No. : 774  
CO/CO<sub>2</sub> Analyzer Model : TELEDYNE API 300EM Serial No. : 425

Time (min)	O <sub>2</sub> (%)	CO <sub>2</sub> (%)	NO <sub>x</sub> (ppm)	SO <sub>2</sub> (ppm)	CO (ppm)	Remarks
10:00	13.61	4.52	5.00	-	22.13	
10:01	13.60	4.62	6.62	-	22.03	
10:02	13.58	4.60	6.81	-	22.64	
10:03	13.57	4.64	6.85	-	22.71	
10:04	13.58	4.61	6.91	-	22.72	
10:05	13.58	4.58	6.96	-	22.64	
10:06	13.59	4.64	6.93	-	22.43	
10:07	13.58	4.63	6.85	-	22.53	
10:08	13.58	4.61	6.82	-	22.63	
10:09	13.58	4.63	6.87	-	22.71	
10:10	13.58	4.61	7.01	-	22.81	
10:11	13.57	4.62	7.03	-	22.81	
10:12	13.58	4.62	6.97	-	22.72	
10:13	13.58	4.62	6.92	-	22.72	
10:14	13.57	4.65	6.97	-	22.89	
10:15	13.56	4.59	7.17	-	22.82	
10:16	13.57	4.59	7.42	-	22.64	
10:17	13.55	4.57	7.64	-	22.65	
10:18	13.58	4.61	7.72	-	22.63	
10:19	13.57	4.58	7.75	-	22.83	
10:20	13.58	4.58	7.75	-	22.64	
Average	13.58	4.60	7.05	-	22.66	

( Mr. Navaphut Srivriya )

Environmental Field Scientist (2)

FORM NO.: F 06-02 REVISION NO.: 2 ISSUE DATE: 3/06/19

ALS Laboratory Group



## EMISSION TEST RESULT

Client : Global Power Synergy PCL. Run # : 2  
Date : 01 Apr 22 Location : HRS# 6  
Start Time : 10:21 Test Operator : Navaphut S.  
SO<sub>2</sub> Analyzer Model : TELEDYNE API 100EH Serial No. : 410  
NO<sub>x</sub>/O<sub>2</sub> Analyzer Model : TELEDYNE API 200EH Serial No. : 774  
CO/CO<sub>2</sub> Analyzer Model : TELEDYNE API 300EM Serial No. : 425

Time (min)	O <sub>2</sub> (%)	CO <sub>2</sub> (%)	NO <sub>x</sub> (ppm)	SO <sub>2</sub> (ppm)	CO (ppm)	Remarks
10:21	13.57	4.61	7.70	-	22.72	
10:22	13.58	4.63	7.69	-	22.62	
10:23	13.59	4.61	7.56	-	22.54	
10:24	13.60	4.58	7.53	-	22.46	
10:25	13.59	4.59	7.55	-	22.55	
10:26	13.59	4.62	7.54	-	22.38	
10:27	13.60	4.61	7.53	-	22.45	
10:28	13.60	4.61	7.54	-	22.54	
10:29	13.59	4.58	7.55	-	22.48	
10:30	13.58	4.60	7.49	-	22.64	
10:31	13.59	4.63	7.42	-	22.71	
10:32	13.58	4.60	7.39	-	22.55	
10:33	13.56	4.60	7.38	-	22.45	
10:34	13.58	4.62	7.38	-	22.54	
10:35	13.58	4.63	7.38	-	22.44	
10:36	13.58	4.60	7.39	-	22.45	
10:37	13.58	4.60	7.38	-	22.45	
10:38	13.58	4.61	7.33	-	22.45	
10:39	13.59	4.62	7.27	-	22.44	
10:40	13.61	4.57	7.25	-	22.19	
10:41	13.60	4.58	7.22	-	22.09	
Average	13.59	4.60	7.45	-	22.48	

( Mr. Navaphut Srivriya )

Environmental Field Scientist (2)

FORM NO.: F 06-02 REVISION NO.: 2 ISSUE DATE: 3/06/19

ALS Laboratory Group





## EMISSION TEST RESULT

Client	Global Power Synergy PCL.	Run #	3
Date	01 Apr 22	Location	HRSG #6
Start Time	10:42	Test Operator	Navaphut S.
SO <sub>2</sub> Analyzer Model	TELEDYNE API 100EH	Finish Time	11:02
NO <sub>x</sub> Analyzer Model	TELEDYNE API 200EH	Serial No.	410
CO/CO <sub>2</sub> Analyzer Model	TELEDYNE API 300EM	Serial No.	774
		Serial No.	425

Time (min)	O <sub>2</sub> (%)	CO <sub>2</sub> (%)	NO <sub>x</sub> (ppm)	SO <sub>2</sub> (ppm)	CO (ppm)	Remark
10:42	13.60	4.65	7.23	-	21.88	
10:43	13.61	4.58	7.25	-	21.82	
10:44	13.61	4.57	7.27	-	21.32	
10:45	13.61	4.56	7.32	-	22.01	
10:46	13.59	4.62	7.21	-	21.89	
10:47	13.61	4.57	6.28	-	22.16	
10:48	13.60	4.59	6.48	-	22.09	
10:49	13.56	4.59	6.61	-	22.00	
10:50	13.61	4.64	6.48	-	22.43	
10:51	13.57	4.60	6.55	-	22.38	
10:52	13.56	4.63	6.57	-	21.88	
10:53	13.56	4.65	6.50	-	21.97	
10:54	13.56	4.59	6.46	-	22.09	
10:55	13.55	4.67	6.43	-	22.06	
10:56	13.56	4.59	6.40	-	22.00	
10:57	13.54	4.62	6.37	-	22.08	
10:58	13.55	4.65	6.35	-	22.10	
10:59	13.54	4.64	6.37	-	22.06	
11:00	13.55	4.67	6.36	-	21.96	
11:01	13.55	4.63	6.35	-	22.00	
11:02	13.56	4.60	6.38	-	22.00	
Average	13.58	4.61	6.63	-	22.05	

Navaphut S.

(Mr. Navaphut Sirivongse)

Environmental Field Scientist (2)

FORM NO. P-0002 REVISION NO. 2 ISSUE DATE: 2019/11

ALS Laboratory Group

CERTIFICATE OF ANALYSIS  
Grade of Product: EPA Protocol

Part Number:	E04N199E15A0440	Reference Number:	160-401907847-1
Cylinder Number:	EB0137377	Cylinder Volume:	144.4 Cubic Feet
Laboratory:	121 - Plumsteadville - PA	Cylinder Pressure:	2015 PSIG
PGVP Number:	A12020	Valve Outlet:	660
Gas Code:	CO,NO,NOK,SO2,BALN	Certification Date:	Oct 06, 2020
		Expiration Date:	Oct 06, 2025

Certification performed in accordance with EPA Traceability Protocol for Analytical and Calibration of Gas Analyzer Calibration Standards (May 2012) amendment EPA 8200-12/031, using the assay procedures listed. Analytical methodology does not require correction for analytical interference. This cylinder has a full analytical uncertainty as stated below with a confidence level of 95%. There are no significant impurities which affect the use of this calibration mixture. All concentrations are on a gas volume basis unless otherwise noted.

Do Not Use This Cylinder below 100 psig, i.e. 6.7 barg (approximate)

Component	Requested Concentration	Actual Concentration	Protocol Method	Total Relative Uncertainty	Assay Dates
NO <sub>x</sub>	NO: 0.0 PPM	0.0 PPM	G1	±1.4% NIST Traceable	09/29/2020, 02/09/2021
CARBON MONOXIDE	NO: 0.0 PPM	0.0 PPM	G1	±1.0% NIST Traceable	09/29/2020
NITRIC OXIDE	NO: 0.0 PPM	0.0 PPM	G1	±1.4% NIST Traceable	09/29/2020, 10/05/2020
SULFUR DIOXIDE	NO: 0.0 PPM	0.0 PPM	G1	±1.0% NIST Traceable	09/29/2020, 10/05/2020
NITROGEN	Balance	Balance	G1	±1.0% NIST Traceable	09/29/2020, 10/05/2020

Type	Lot ID	Cylinder No	Concentration	Uncertainty	Expiration Date
NTRM	11010139	KAL034536	97.31 PPM CARBON MONOXIDE/NITROGEN	±1.4%	Oct 06, 2022
PRMA	12369	DA05025	4.91 PPM NITROGEN DIOXIDE	2.0%	Feb 20, 2022
NTRM	17060226	EB00710109	100.3 PPM NITRIC OXIDE/NITROGEN	±1.1%	Jul 23, 2023
GMS	12405989	GC323707	4.028 PPM NITROGEN DIOXIDE/NITROGEN	2.1%	Aug 15, 2021
NTRM	07060227	EB00711116	100.6 PPM NITROGEN	±1.0%	Jul 23, 2023
NTRM	10010236	KAL044419	97.69 PPM SULFUR DIOXIDE/NITROGEN	±1.8%	Dec 23, 2021
NTRM	11010140	KAL004802	99.0 PPM SULFUR DIOXIDE/NITROGEN	±1.0%	Jul 23, 2023

Instrument/Make/Model	Analytical Principle	Last Multipoint Calibration
Nicell 1550 FTIR AUP2010245 CO	FTIR	Sep 21, 2020
Nicell 1550 FTIR AUP2010245 NO	FTIR	Sep 14, 2020
Nicell 1550 FTIR AUP2010245 NO2	FTIR	Sep 22, 2020
Nicell 1550 FTIR AUP2010245 SO2	FTIR	Sep 16, 2020

Triad Data Available Upon Request.

NOTES: -Gases Vented: 27.8 Nm<sup>3</sup> Net VWeight: 4.8 kg

Approved for Release

Page 1 of 160-401907847-1

CERTIFICATE OF ANALYSIS  
Grade of Product: EPA Protocol

Part Number:	E04N199E15A0440	Reference Number:	62-401123195-1
Cylinder Number:	ND35052	Cylinder Volume:	247.2 CF
Laboratory:	124 - Riverside (ISAF) - NJ	Cylinder Pressure:	2215 PSIG
PGVP Number:	B52018	Valve Outlet:	660
Gas Code:	CO,NO,NOK,SO2,BALN	Certification Date:	Feb 26, 2025

Certification performed in accordance with EPA Traceability Protocol for Analytical and Calibration of Gas Analyzer Calibration Standards (May 2012) amendment EPA 8200-12/031, using the assay procedures listed. Analytical methodology does not require correction for analytical interference. This cylinder has a full analytical uncertainty as stated below with a confidence level of 95%. There are no significant impurities which affect the use of this calibration mixture. All concentrations are on a gas volume basis unless otherwise noted.

Do Not Use This Cylinder below 100 psig, i.e. 6.7 barg (approximate)

Component	Requested Concentration	Actual Concentration	Protocol Method	Total Relative Uncertainty	Assay Dates
IRON	50.00 PPM	50.41 PPM	G1	±1.0% NIST Traceable	02/02/2012, 02/05/2015
CARBON MONOXIDE	50.00 PPM	50.31 PPM	G1	±1.0% NIST Traceable	02/02/2012
NITRIC OXIDE	50.00 PPM	50.34 PPM	G1	±1.0% NIST Traceable	02/02/2012, 02/05/2015
SULFUR DIOXIDE	50.00 PPM	51.61 PPM	G1	±1.0% NIST Traceable	02/02/2012, 02/05/2015
NITROGEN	Balance	Balance	G1	±1.0% NIST Traceable	02/02/2012, 02/05/2015

Type	Lot ID	Cylinder No	Concentration	Uncertainty	Expiration Date
NTRM	14020731	CC434283	49.81 PPM CARBON MONOXIDE/NITROGEN	±1.0%	Feb 22, 2022
PRMA	12367	AP01168837	4.83 PPM NITROGEN DIOXIDE	±1.0%	Jun 02, 2017
NTRM	1030307	CC432504	50.42 PPM NITRIC OXIDE/NITROGEN	±1.0%	Jul 27, 2023
GMS	021421454	CC633986	4.912 PPM NITROGEN DIOXIDE/NITROGEN	±1.0%	Mar 18, 2019
NTRM	10011628	CC432216	49.82 PPM SULFUR DIOXIDE/NITROGEN	±1.0%	Jun 07, 2022

Instrument/Make/Model	Analytical Principle	Last Multipoint Calibration
Nicell 1550 FTIR AUP2010245 CO	FTIR	Jan 08, 2014
Nicell 1550 FTIR AUP2010245 NO	FTIR	Feb 15, 2015
Nicell 1550 FTIR AUP2010245 NO2	FTIR	Jan 16, 2014
Nicell 1550 FTIR AUP2010245 SO2	FTIR	Feb 05, 2015

Triad Data Available Upon Request

NOTES: This calibration std. has been certified in accordance with the May 2012 EPA Traceability Protocol. Document EPA-8200-12/031. All testing processes and measurements conform to the requirements of ISO/IEC 17025 and Airgas ISO 9001:2000 and relate only to items identified on this certificate. This document is certified by NIST Traceability with total uncertainty as detailed under Analytical Uncertainty. This document shall not be reproduced in full without written approval of the issuer.





Approved for Release

Page 1 of 62-401123195-1



## CERTIFICATE OF ANALYSIS

Customer Name: ALS Laboratory Group (Thailand)		Production Order Number: 90132928	
		Material Number: 478100-J-44	
		Certification Date: 20-Jan-2016	
		Expiry Date: 20-Jan-2024	
Cylinder Description: Std 47.1		The measurement of this reference material is traceable to the reference standard which is traceable to the National Standard of the USA. The assay of this standard has been performed in accordance with EPA Traceability Protocol EPA-8200-12/031 for the Assay and Certification of Gas Analyzer Calibration Standards using procedure 52. The results are expressed on a molar basis, unless otherwise specified. The reported uncertainty is based on a standard uncertainty multiplied by coverage factor k=2, providing a level of confidence of approximately 95%.	
Certificate Number: 467615		Analyst:	 THIRATH LOYRAT
Cylinder Number: 550738			
Nominal Cylinder Content: 6.520 M <sup>3</sup>		Approver:	 SUKANYA KAMUTHARAT
Nominal Pressure: 145.0 Bar			
Valve Outlet: CGA 590 BRASS		To Re-Order Please Quote: 478100-J-44	

Comments: It is recommended that this product be not used below 5% of actual contents or should not be used when its gas pressure is below 150psig. Other impurities that detect by analytical condition of this mixture shall be report if it is more than 10% of minimum minor component. Keep and use in well-ventilated and secure area.

Page 1 of 2

Linde (Thailand) Public Company Limited

15/100 Moo 1, Bangna-Phra Pradaeng Road, Bangna, Bangkok 10700, Thailand

Tel: (66) 2318-1100 Fax: (66) 2318-4333

Branches: 105 Moo 5, Bangna-Phra Pradaeng Road, Bangna, Bangkok 10700, Thailand

Branches: 105 Moo 5, Bangna-Phra Pradaeng Road, Bangna, Bangkok 10700, Thailand

Linde (Thailand) Public Company Limited

15/100 Moo 1, Bangna-Phra Pradaeng Road, Bangna, Bangkok 10700, Thailand

Tel: (66) 2318-1100 Fax: (66) 2318-4333

Branches: 105 Moo 5, Bangna-Phra Pradaeng Road, Bangna, Bangkok 10700, Thailand

Branches: 105 Moo 5, Bangna-Phra Pradaeng Road, Bangna, Bangkok 10700, Thailand

## CERTIFICATE OF ANALYSIS

## Analytical Result

Component	Request Concentration	Certified Concentration	Certified Uncertainty	Method	Assay Date
Oxygen in Nitrogen	8.00 %	7.93 %	±0.1% relative	(2) I-PB-354	20-Jan-2015

## Reference Standard used in Assay

Reference Standard	Cylinder No.	Concentration	Expired Date
Oxygen in Nitrogen	24362SSG	16.08 ± 0.13 %	19-Aug-2017

## Analytical Instruments used in Assay

Instrument/Make/Model	Analytical Principle	Last Multipoint Calibration
Servomex 4100 O2 Analyzer	Paramagnetic	23-Dec-2015

Method of Analysis  
 1. Gas Chromatography  
 2. Paramagnetic Oxygen Analyser  
 3. Electrochemical Oxygen Analyser  
 4. Electrochemical Moisture Analyser  
 5. Total Hydrocarbon Analyser  
 6. Other specified

Cylinder Number: 550730  
 Production Order Number: 90132928

Certification Date: 20-Jan-2016  
 Expiration Date: 20-Jan-2024

Page 2 of 2

บริษัท ลินด์ (ประเทศไทย) จำกัด (มหาชน)  
 Linde (Thailand) Public Company Limited

15<sup>th</sup> Floor, Bangna Tower A, 2/3 Moo 14, Bangna Trad Rd. 6.5 Road, Bangkok  
 Bangkok, Samprakan 10540, Tel (66) 2338-6100 Fax (66) 2338-6333

Wellknow Plant : 105 Moo 5, Bangpakong, A. Bangpakong, Chachoengsao 24180  
 Thailand, Tel (66) 38-570-479-93 Fax (66) 38-570-323

## CERTIFICATE OF ANALYSIS

Customer Detail:  
 ALS Laboratory Group (Thailand)

Production Order Number: 90137389  
 Material Number: 557200-J-44  
 Certification Date: 24-Sep-2016  
 Expiry Date: 24-Sep-2024

Cylinder Description:  
 STEEL 47 L

The measurement of this reference material is traceable to SI through the reference standard which is traceable to SI via National Standards of Japan. The Assay of this Standard has been performed in accordance with the EPA Traceability Protocol EPA-800/842/531 for the Assay and Certification of Gaseous Calibration Standards using procedure for the results are reported as a multiple factor, unless otherwise specified. The reported uncertainty is based on a standard uncertainty multiplied by coverage factor k=2, providing a level of confidence of approximately 95%.

Certificate Number:  
 285716

Analyst:

Cylinder Number:  
 363075

THIRAT LOYRAT

Nominal Cylinder Content  
 6.560 M<sup>3</sup>

Approve:

Nominal Pressure:  
 145.0 Bar

SUKANYA KAMUTHARAT

Valve Outlet:

To Re-Order Please Quote:  
 557200-J-44

CGA 590 BRASS

Comment:

- It is recommended that this product be not used below 5% of actual contents or should not be used when the gas pressure is below 150psig.
- Order impurities that detect by analytical condition of this mixture shall be report if it is more than 10% of minimum minor component.
- Keep and use in well-ventilated and secure area.

Page 1 of 2

บริษัท ลินด์ (ประเทศไทย) จำกัด (มหาชน)  
 Linde (Thailand) Public Company Limited

15<sup>th</sup> Floor, Bangna Tower A, 2/3 Moo 14, Bangna Trad Rd. 6.5 Road, Bangkok  
 Bangkok, Samprakan 10540, Tel (66) 2338-6100 Fax (66) 2338-6333

Wellknow Plant : 105 Moo 5, Bangpakong, A. Bangpakong, Chachoengsao 24180  
 Thailand, Tel (66) 38-570-479-93 Fax (66) 38-570-323

## CERTIFICATE OF ANALYSIS

## Analytical Result

Component	Request Concentration	Certified Concentration	Certified Uncertainty	Method	Assay Date
Oxygen in Nitrogen	16.0 %	16.0 %	±0.1% relative	(2) I-PB-354	24-Sep-2016

## Reference Standard used in Assay

Reference Standard	Cylinder No.	Concentration	Expired Date
Oxygen in Nitrogen	24362SSG	16.08 ± 0.13 %	19-Aug-2017

## Analytical Instruments used in Assay

Instrument/Make/Model	Analytical Principle	Last Multipoint Calibration
Servomex 4100 O2 Analyzer	Paramagnetic	24-Sep-2016

Method of Analysis  
 1. Gas Chromatography  
 2. Paramagnetic Oxygen Analyser  
 3. Electrochemical Oxygen Analyser  
 4. Electrochemical Moisture Analyser  
 5. Total Hydrocarbon Analyser  
 6. Other specified

Cylinder Number: 363075  
 Production Order Number: 90137389

Certification Date: 24-Sep-2016  
 Expiration Date: 24-Sep-2024

Page 2 of 2

บริษัท ลินด์ (ประเทศไทย) จำกัด (มหาชน)  
 Linde (Thailand) Public Company Limited

15<sup>th</sup> Floor, Bangna Tower A, 2/3 Moo 14, Bangna Trad Rd. 6.5 Road, Bangkok  
 Bangkok, Samprakan 10540, Tel (66) 2338-6100 Fax (66) 2338-6333

Wellknow Plant : 105 Moo 5, Bangpakong, A. Bangpakong, Chachoengsao 24180  
 Thailand, Tel (66) 38-570-479-93 Fax (66) 38-570-323



## ROTA METER CALIBRATION RESULT JANUARY 2022

Rotameter IC.	Calibration Date	Regression Result	Coefficient (R <sup>2</sup> )
BKK_FS0571	05 Jan 22	Y = 0.9899x + 0.9112	0.9999
BKK_FS0576	05 Jan 22	Y = 1.007x - 0.0299	1.0000
BKK_FS0583	05 Jan 22	Y = 1.0513x + 1.869	0.9967
BKK_FS0584	05 Jan 22	Y = 1.0048x - 1.069	1.0000
BKK_FS0585	05 Jan 22	Y = 1.0076x - 1.1036	0.9999
BKK_FS0586	05 Jan 22	Y = 0.9933x + 3.2655	1.0000
BKK_FS0587	05 Jan 22	Y = 1.0401x - 17.457	0.9996
BKK_FS0588	05 Jan 22	Y = 1.0154x + 4.8357	0.9999
BKK_FS0589	05 Jan 22	Y = 0.9918x + 4.8069	0.9999
BKK_FS0590	05 Jan 22	Y = 0.9861x + 10.07	0.9995
BKK_FS0591	05 Jan 22	Y = 1.0117x - 92.415	0.9995
BKK_FS0592	05 Jan 22	Y = 1.0031x - 69.305	0.9996
BKK_FS0593	05 Jan 22	Y = 1.0131x - 98.198	0.9996
BKK_FS0594	05 Jan 22	Y = 1.0075x - 7.0829	0.9999
BKK_FS0595	05 Jan 22	Y = 1.0249x - 98.162	0.9999
BKK_FS0596	05 Jan 22	Y = 0.9843x - 26.806	0.9991
BKK_FS0597	05 Jan 22	Y = 1.0203x - 122.14	0.9999
BKK_FS1004	04 Jan 22	Y = 0.9651x + 19.648	0.9989
BKK_FS1005	04 Jan 22	Y = 1.0096x + 4.6643	0.9997
BKK_FS1006	04 Jan 22	Y = 1.2188x - 7.1214	0.9904
BKK_FS1007	05 Jan 22	Y = 1.0563x - 1.0912	1.0000
BKK_FS1008	05 Jan 22	Y = 0.9689x + 1.9061	1.0000
BKK_FS1009	05 Jan 22	Y = 1.0132x + 1.1633	0.9960
BKK_FS1010	05 Jan 22	Y = 1.0033x - 0.5756	0.9999
BKK_FS1014	05 Jan 22	Y = 1.0021x + 0.3148	0.9998
BKK_FS1015	05 Jan 22	Y = 0.9994x + 1.786	1.0000
BKK_FS1016	05 Jan 22	Y = 1.0105x - 80.256	0.9998
BKK_FS1017	05 Jan 22	Y = 0.9995x + 0.649	1.0000
BKK_FS1018	05 Jan 22	Y = 1.0011x + 1.1786	1.0000
BKK_FS1019	05 Jan 22	Y = 1.0023x - 68.424	0.9996
BKK_FS1020	05 Jan 22	Y = 0.9887x + 2.8844	0.9999
BKK_FS1021	05 Jan 22	Y = 0.9659x + 1.4905	-0.9978
BKK_FS1022	05 Jan 22	Y = 1.022x - 17.957	0.9997
BKK_FS1023	05 Jan 22	Y = 1.0094x + 0.0717	0.9999
BKK_FS1024	05 Jan 22	Y = 1.0042x + 0.4086	0.9997
BKK_FS1025	05 Jan 22	Y = 1.0132x - 88.507	0.9996
BKK_FS1026	05 Jan 22	Y = 0.9902x + 0.9554	1.0000
BKK_FS1027	05 Jan 22	Y = 1.0086x - 2.279	1.0000
BKK_FS1028	05 Jan 22	Y = 1.0105x - 81.055	0.9997

Page 1 of 2

ALS Laboratory Group





# ROTA METER CALIBRATION RESULT JANUARY 2022

Rotameter ID.	Calibration Date	Regression Result	Coefficient (R <sup>2</sup> )
BKK_FS1029	05 Jan 22	Y = 0.9935x + 0.8234	1.0000
BKK_FS1030	05 Jan 22	Y = 1.0039x + 0.515	0.9999
BKK_FS1031	05 Jan 22	Y = 1.009x - 79.295	0.9998
BKK_FS1039	04 Jan 22	Y = 0.9916x + 6.1524	0.9998
BKK_FS1040	04 Jan 22	Y = 1.0133x - 10.177	0.9985
BKK_FS1041	04 Jan 22	Y = 1.0805x - 1.7381	0.9998
BKK_FS1042	04 Jan 22	Y = 1.0061x + 1.3405	0.9994
BKK_FS1043	04 Jan 22	Y = 1.0112x - 10.393	0.9999
BKK_FS1044	04 Jan 22	Y = 1.0495x - 1.0136	0.9996
BKK_FS1161	05 Jan 22	Y = 0.9812x + 15571	1.0000
BKK_FS1162	05 Jan 22	Y = 0.9932x + 5.0014	0.9997
BKK_FS1163	05 Jan 22	Y = 1.0082x - 82.062	0.9998
BKK_FS1164	05 Jan 22	Y = 0.9914x + 0.8427	0.9997
BKK_FS1165	05 Jan 22	Y = 0.9893x + 6.5919	0.9998
BKK_FS1166	05 Jan 22	Y = 1.0031x - 77.881	0.9998
RYG_FS0197	04 Jan 22	Y = 1.0068x + 1.7152	0.9998
RYG_FS0198	04 Jan 22	Y = 0.9986x + 18.196	0.9995
RYG_FS0199	04 Jan 22	Y = 1.1202x - 3.5782	0.9999

Review By : Wichan Choonharat  
(Mr. Wichan Choonharat)  
Enviro Field Services Manager

Approved By : Mr. Sarayuth Jitranont  
(Mr. Sarayuth Jitranont)  
Assistant General Manager



## Certificate of Calibration

Equipment: SPECTROPHOTOMETER  
Model: DR6000  
Serial No. (or ID.): 1627845 (RYG\_EN0037)  
Manufacturer: HACH  
Condition: In Condition

Certificate No.: C06210159  
Issued Date: 01 April 2021  
Job No.: KSPR2104738  
Page: 1 of 3

Customer: ALS Laboratory Group (Thailand) Co., Ltd. (Rayong Branch)  
816/10 Moo 5 T.Maenam Khu,  
A.Pluakdaeng, Rayong 21140, Thailand.

REVIEW BY MBamit  
APPROVED BY D. Dumrong Boonsopon  
NEXT CAL DATE 01/10/22

Environment Condition: Temperature 25.1 °C ± 0.4 °C  
Humidity 48.5 %RH ± 3.7 %RH

Calibration Place: ALS Laboratory Group (Thailand) Co., Ltd. (Rayong Branch) (Wet Chemistry Lab)  
816/10 Moo 5 T.Maenam Khu,  
A.Pluakdaeng, Rayong 21140, Thailand.

Calibration By: Mr. Chaituphon Falthong

Calibration Date: 01 April 2021

The Method used: In house method, SPCC-WI-24, base on ASTM E 275-08 and ASTM E 387-04

Traceability: This certificate is traceable to the CRM maintained by National Institute of Standards and Technology (NIST) through Sinter Scientific Limited.

The standard for Wavelength Certificate No. 87146 and 87152  
The standard for Photometric Certificate No. 87220 and 87139  
The standard for Stray light Certificate No. 87163 and 87161  
The standard for Spectral resolution Certificate No. 87173

Mr. Chaituphon Falthong  
Person in charge

SPC RT Co., Ltd.  
SPC RT Co., Ltd.

Mr. Dumrong Boonsopon  
Authorized signatory

This certificate is issued in the units of measurement according to the International System of Units (SI). It provides traceability of measurement to international or national standard or other recognized national standard laboratories.  
The measurement uncertainty stated is the expanded uncertainty which is obtained from the standard uncertainty multiplied by the coverage factor (k=2) to provide a level of confidence of approximately 95%. It is determined in accordance with the Guide to Expression of Uncertainty in Measurement (GUM).  
These results may be affected by deviations from specified conditions. The results relate only to the items tested, calibrated or sampled. The report shall not be reproduced except in full without approval of SPC RT Co., Ltd.

SPC RT CO., LTD.  
1194 Soi Wachirapongsemit 57, Sukhumvit 10/1 Road, Bangkok, Phrahanon, Bangkok 10600 Thailand

Certificate No.: C06210159 Page 2 of 3

### Calibration Results: Without Adjustment

Wavelength Accuracy (nm), The spectral bandwidth of Std at 2 nm and UUC at 2 nm

Standard Wavelength	Unit Under Calibration	Correction	Uncertainty
410.61	418.4	0.21	0.13
536.66	536.7	-0.04	0.13
637.98	638.3	-0.32	0.14
748.48	748.7	-0.22	0.14
807.03	807.4	-0.37	0.14

Photometric Accuracy (Absorbance)

Wavelength	Standard absorbance	Unit Under Calibration	Correction	Uncertainty
420 nm	0.0080	0.000	0.0000	0.0018
	0.5890	0.590	-0.0010	0.0045
	0.7616	0.762	-0.0004	0.0045
	1.0283	1.027	-0.0007	0.0045
440 nm	0.0000	0.000	0.0000	0.0045
	0.5787	0.579	-0.0003	0.0045
	0.7442	0.744	0.0002	0.0045
	1.0039	1.004	-0.0001	0.0045
465 nm	0.0000	0.000	0.0000	0.0045
	0.5292	0.530	-0.0008	0.0045
	0.6865	0.687	-0.0005	0.0045
	0.9534	0.954	-0.0006	0.0045
546.1 nm	0.0000	0.000	0.0000	0.0045
	0.5486	0.548	0.0008	0.0045
	0.6957	0.695	0.0007	0.0045
	0.9991	0.998	0.0011	0.0045
590 nm	0.0000	0.000	0.0000	0.0045
	0.5851	0.584	0.0011	0.0045
	0.7238	0.723	0.0008	0.0045
	1.0957	1.094	0.0017	0.0045
635 nm	0.0000	0.000	0.0000	0.0045
	0.5692	0.568	0.0012	0.0045
	0.6914	0.691	0.0004	0.0045
	1.0881	1.087	0.0011	0.0045

Certificate No.: C06210159 Page 3 of 3

### Calibration Results: Without Adjustment

Photometric Accuracy (Absorbance)

Wavelength	Standard absorbance	Unit Under Calibration	Correction	Uncertainty
235 nm	0.0000	0.000	0.0000	0.0080
	0.7307	0.730	0.0007	0.0080
257 nm	0.0000	0.000	0.0000	0.0080
	0.8516	0.850	0.0016	0.0080
313 nm	0.0000	0.000	0.0000	0.0080
	0.2836	0.285	-0.0014	0.0080
350 nm	0.0000	0.000	0.0000	0.0080
	0.6319	0.629	0.0029	0.0080

#### Stray light \*

Standard: cut-off	UUC: Wavelength (nm)	UUC: Transmission (%)	Absorbance (A)
260.57 +/- 0.11 nm	260.6	1.5	1.824
392.03 +/- 0.11 nm	392.0	1.5	1.824

The stray light transmission reference is less than 1.0 T(%) and absorbance is greater than 2.0 (A)

#### Spectral Resolution \*

Nominal Concentration 0.02 % v/v	Peak	Trough	Ratio	SBW
Standard Wavelength (nm)	268.72	266.76	1.39	2.00
UUC: Wavelength (nm)	268.2	266.1		
Std Absorbance (A)	0.4616	0.2797		
Absorbance (A)	0.416	0.300		

\* Calibration Marked \* Not TISI Accredited \* in this Certificate have been included for completeness.

The End of Certificate



